

This decision has been corrected under section 133A of the RMA on 31 March 2021 to fix the omission of Dianne Civil not being noted as a submitter in her own right on page two and correction of misspelling of Ms Civil's name on pages 132, 133 and 201 of the Decision.



Recommendation and decision following the hearing of a notice of requirement and an application for resource consents under the Resource Management Act 1991

Ara Tūhono - Warkworth to Wellsford

24 March 2021

Details of Proposal

- A. A notice of requirement to construct, operate and maintain a new state highway and associated activities between Warkworth and Te Hana;
- B. Resource consent applications for earthworks, water diversions, streamworks, and discharges of stormwater and dust (to air) associated with the construction and operation of a new state highway between Warkworth and Te Hana.

Notice of Requirement Reference:	Ara Tūhono - Warkworth to Wellsford
RC Application Numbers:	BUN60354951 (LUC60354952, LUS60354955, WAT60354953, WAT60355184, WAT 60356979, DIS60354954, LUC60355185, DIS60355186)
Site Address:	Multiple sites between Warkworth and north of Te Hana
Requiring Authority & Applicant:	Waka Kotahi - The New Zealand Transport Agency
Hearing Panel:	Kitt Littlejohn (Chairperson) Kim Hardy Juliane Chetham Nigel Mark-Brown
Appearances:	<p>Luke Hinchey and Charlotte Aspin for Waka Kotahi – The New Zealand Transport Agency</p> <p>Julian Dawson for Amanda and Naim Oguz and Toni and Edwin Dando</p> <p>Wendy Court</p> <p>Richard Gardner for Federated Farmers of New Zealand Inc</p> <p>Gena Moses-Te Kani for Hokai Nuku</p> <p>Lionel Foster for Vision Wellsford and Independent Northland Business and Residents Association</p> <p>Dean and Pauline Yarndley</p> <p>Malcolm Lea for the Rae Family Trust</p> <p>Craig Clarke for Sunnyheights Nurseries Ltd</p> <p>Roger Williams for the Warkworth Area Liaison Group</p> <p>Lindsay Wilson for Watercare Services Limited</p> <p>John Bain for the Northland Regional Transport Committee</p>

Multiple sites between Warkworth and north of Te Hana

BUN60354951 (LUC60354952, LUS60354955, WAT60354953, WAT60355184, WAT 60356979, DIS60354954, LUC60355185, DIS60355186)

	<p>Bronwyn Carruthers for David Mason and Dianne McCallum</p> <p>Bronwyn Carruthers for Dianne Civil</p> <p>Dianne Civil for herself, her whanau and Double Truffle Orchard</p> <p>Dr Denise Civil for herself and Puriri Springs Trust and Southway Farms Ltd</p> <p>Blair Masefield, Nicola Holmes, Wayne Siu and Peter Vari for Auckland Council</p> <p>Paulette Kenihan assisting as Senior Hearings Specialist</p>
Hearing Commenced:	Tuesday 6 October at 9.30am
Hearing adjourned	Tuesday 20 October 2020
Commissioners' site visit	Wednesday 14 October 2020
Hearing Closed:	Tuesday 3 November 2020

RECOMMENDATION AND DECISION

The Commissioners:

- A. Recommend that the notice of requirement as modified by the requiring authority at the hearing **BE CONFIRMED** subject to conditions; and
- B. **GRANT** the resource consents subject to conditions.

REASONS

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1. SUMMARY OF RECOMMENDATION AND DECISION

- [1] Waka Kotahi – The New Zealand Transport Agency has sought a designation and various resource consents for the construction, operation and maintenance of a new state highway and associated activities between Warkworth and north of Te Hana. The new highway is Stage 2 of the Pūhoi to Wellsford/Ara Tūhono ‘Road of National Significance’. The proposed designation would apply to approximately 1,348 hectares of land, within which the new 26km long, four lane state highway would be constructed.
- [2] The new road would have a number of transport and related economic benefits for the Auckland and Northland regions, and would also provide a modern, safe and reliable road connection between those regions, replacing the existing State Highway 1 as the primary connection.
- [3] Construction of the road will involve significant earthworks, construction related traffic, noise, vibration, vegetation clearance, wetland destruction and stream diversions. Erosion and sediment run-off also has the potential to impact estuarine environments in the Mahurangi and Kaipara Harbours if not controlled. New structures required for the road will be large and impact on the existing character of the rural and forestry areas in which they will be located. Once operational, noise from vehicles using the road will impact on the amenity values presently experienced, and stormwater from new impervious surfaces will require ongoing management.
- [4] A detailed and considered conditioning framework for both the designation and the resource consents has been put forward by Waka Kotahi, based on its technical advice and experience in undertaking construction projects of this scale. Recognising the natural environmental impacts of its proposal, Waka Kotahi has also proposed a comprehensive and integrated ecological effects mitigation and offsetting programme. And acknowledging that the amenity of existing landowners adjacent to the road will alter once it is operational, it has proposed visual mitigation options and minimum noise performance standards to be achieved by the final design and location of the route.
- [5] We have considered the applications, the submissions, evidence, representations and expert advice provided to us as part of the hearing process within the frameworks of ss.171 and 104 of the Resource Management Act 1991. We are satisfied that, subject to some amendments to the proposed conditions, the effects on the environment of the construction and operation of the new road can be managed to an acceptable and reasonable level, that is also consistent with what is envisaged by the relevant policy statements and plan provisions that are engaged. At a broader level, the project as a whole will achieve a number of important Auckland regional policy statement objectives related to infrastructure and community development.
- [6] For these reasons we have decided to recommend to Waka Kotahi that it confirm its notice of requirement on the basis of the conditions we have determined ought

to apply. We have also decided to grant the resource consents, again, on the basis of revised conditions.

- [7] We acknowledge the issues raised by the landowners who will be most impacted by the road, including those not within the designated area. After objectively considering all of the evidence though, we are satisfied that the effects on their amenity will not be so unreasonable as to warrant refusal of the project. However, in considering the evidence we have paid careful attention to their comments about conditions and endeavoured to incorporate improvements to them in order to ensure proper engagement and opportunity for input on aspects of the project with acknowledged effects on them.

2. INTRODUCTION

- [8] This recommendation and decision is made on behalf of the Auckland Council (“**Council**”) by Independent Hearing Commissioners.¹ It contains the findings of deliberations following the hearing of:
- (a) a notice of requirement given to the Council by Waka Kotahi – The New Zealand Transport Agency (**WK**) under s.168 of the Resource Management Act 1991² (**NoR**) for a designation for a public work, being the construction, operation and maintenance of a new state highway and associated activities between Warkworth and north of Te Hana (**Designation**) to be included in the Auckland Unitary Plan (**AUP**); and
 - (b) an application made by WK under s.88 (**RCA**) for a resource consent to undertake various activities regulated by ss 9(2), 13, 14 and 15 necessary to build and operate the new state highway (**RC**).
- [9] The NoR and RCA both relate to Stage 2 of the Pūhoi to Wellsford/Ara Tūhono ‘Road of National Significance’³, which extends from the north of Warkworth to the north of Te Hana (**Project**). Together they are intended to provide all necessary approvals under the Resource Management Act 1991 for the Project. The proposed Designation would apply to approximately 1,348 hectares of land considered by WK to be necessary for the Project, including for all temporary works associated with its construction. The finished 26km long, four lane state highway will occupy a smaller area of land within the footprint of the Designation footprint. The RCA is for the works required to build the Project (other than those works covered by the Designation).
- [10] The NoR and RCA were publicly notified on 18 May 2020. In total, 36 submissions were received on the NoR and 53 were received on the RCA.

¹ Kitt Littlejohn, Kim Hardy, Juliane Chetham and Nigel Mark-Brown appointed and acting pursuant to delegated authority under ss 34 and 34A of the Resource Management Act 1991.

² Unless otherwise specified, references to sections and sub-sections are references to sections and sub-sections in the Resource Management Act 1991.

³ Roads of National Significance (RoNS) was the name given by the 5th National Government to a programme to speed up road construction in New Zealand between 2009 and 2017. RoNS were formally announced on 20 March 2009 by Transport Minister Stephen Joyce

[11] The Commissioners were delegated the task of determining the NoR and RCA for the Project in early July 2020 and directions for the pre-exchange of reports and evidence were issued on 20 July 2020.

2.1 MATERIALS EXCHANGED PRE-HEARING

[12] Prior to the hearing the following materials were provided to the Commissioners and reviewed:

- (a) A copy of WK's applications for the NoR and RCA, including its supporting assessment of environmental effects, prepared in accordance with Schedule 4;
- (b) Further information provided by WK in response to requests from Council officers under ss.92 and 169;
- (c) A copy of all submissions made on the NoR and RCA;
- (d) A report under s.42A by Wayne Siu, a planner employed by the Council in relation to the NoR and submissions received on it;
- (e) A report under s.42A by Nicola Holmes, Principal Specialist - Planning employed by the Council in relation to the RCA and submissions received on it;
- (f) Technical specialist reviews prepared by other Council officers and independent consultants (included with the s.42A reports), from:
 - Mr Stephen Brown, landscape and visual effects.
 - Ms Siiri Wilkening, construction and operational noise.
 - Mr Gary Black, construction and operational traffic.
 - Ms Rebecca Ramsay, historic heritage (archaeology).
 - Ms Elise Caddigan, historic heritage (built).
 - Mr Andrew Rossaak, terrestrial ecology.
 - Mr Paul Crimmins, air discharges and contamination.
 - Dr Kala Sivaguru, coastal ecology.
 - Mr Matthew Byrne, earthworks, streamworks and sediment management.
 - Mr Mark Lowe, freshwater ecology.
 - Ms Abhilasha Sharma, stormwater and ITA discharges.

- Mr Trent Sunich, Healthy Waters.
 - Ms Sian France, hydrogeology.
- (g) Briefs of evidence in support of the Project applications and in response to matters raised in the s.42A reports and submissions from WK⁴ by:
- Mr Paul Glucina, System Design Portfolio Manager for WK.
 - Ms Kelli Sullivan, Project communications and engagement.
 - Mr Mark Edmonds, route and alternatives assessment.
 - Mr Ian Clark, construction and operational traffic effects.
 - Mr Graeme Ridley, construction water management (including erosion and sediment control).
 - Dr Tim Fisher, operational water management.
 - Dr Jacqueline Bell, marine ecology effects.
 - Dr Ian Boothroyd, terrestrial ecology effects.
 - Dr Leigh Bull, avifaunal effects.
 - Dr Rod Clough, heritage effects.
 - Mr Chris Bentley, landscape and visual effects.
 - Dr Stephen Chiles, construction and operational noise.
 - Mr Tim Baker, hydrogeology.
 - Mr Bruce Clarke, construction and operational air discharges.
 - Ms Karyn Sinclair, planning.
- (h) Briefs of expert evidence from submitters by:⁵
- Mr Nevil Hegley, acoustic effects (for Oguz and Dando).
 - Mr Jon Styles, acoustic effects (for Mason/McCallum).
 - Ms Karen Pegrume, planning ((for Mason/McCallum).

⁴ The evidence comprised non-expert corporate evidence, and expert technical and evaluative evidence from a range of qualified and experienced persons.

⁵ A number of submitters also helpfully provided the briefs of non-expert evidence they intended to call in advance of the hearing.

- Mr Bob Cathcart, soils assessment (for Dianne and Dr Denise Civil).
- Ms Angela Parsonage, Surfacing and Pavement Technical Manager (for Auckland Transport (AT)).⁶
- Ms Katherine Dorofaeff, planning (for AT).
- Mr Martin Neale, freshwater ecology (for The Director-General of Conservation).⁷
- Mr Lindsay Wilson, planning (for Watercare Services Limited).
- Ms Kate Searle, planning (for Transpower NZ Limited).

2.2 HEARING PROCEDURE

- [13] The hearing of the NoR and RCA commenced at 9.30am on 6 October 2020. We express our gratitude to representatives of Ngāti Manuhiri, Ngāti Rango, Ngāti Mauku and Ngāti Kauae for their powhiri on the opening day of the hearing which was very helpful in providing context to the cultural relationships associated with the project areas and setting the tone for the remainder of hearing.
- [14] One procedural matter was addressed at the outset, namely the acceptance of a late submission received on the NoR application from First Gas Limited. Pursuant to s.37 we resolved to receive this submission on the grounds that the delay in filing was minimal, that it raised similar matters to other submissions and because WK did not object to it being received late.
- [15] The application materials and s.42A reports were taken “as read” at the hearing and not formally presented by their authors.
- [16] WK then presented its case for the Project and the various resource management approvals being sought. Counsel presented detailed legal submissions and then called their witnesses in support. Briefs of pre-exchanged evidence were taken “as read” at the hearing, but witnesses were given the opportunity to summarise and/or highlight aspects of their written briefs. Several of WK’s witnesses also presented rebuttal statements of evidence responding to the expert evidence that had been provided by submitters.
- [17] During the presentation of the case for WK we sought supplementary legal submissions from counsel in relation to several legal issues arising from the Project applications.
- [18] Submitters then presented their cases either in support or opposition to the Project applications.

⁶ This brief of evidence was withdrawn by AT on 13 October 2020 together with aspects of Ms Dorofaeff’s evidence relating to road surfacing issues.

⁷ This evidence was subsequently withdrawn and the Director-General did not appear at the hearing.

- [19] A site inspection of the Project route, as well as several construction sites associated with the Pūhoi to Wellsford Stage 1 works, was undertaken by the Commissioners on 14 October 2020. The site visit was self-guided and utilised a GIS based mapping application (ArcGIS Explorer), which located the proposed Project works in relation to existing land features and the viewer using the GPS system.
- [20] At the conclusion of hearing from WK and submitters, Mr Blair Masefield, Council appointed project manager of the Project applications (standing in for Ms Holmes), Mr Siu and several of the reporting specialists for the Council summarised their assessments and provided responses or further comments on matters that had arisen during the hearing relevant to their areas of expertise.
- [21] Counsel for WK then presented reply submissions. These were made orally at the end of the hearing, and then supplemented with a full written reply, including detailed annexures. This material was received by the Commissioners on 26 October 2020.
- [22] The hearing was adjourned on 20 October 2020 and then subsequently closed on 2 November 2020.
- [23] On 14 December 2020, the Commissioners issued a minute seeking further information from WK in relation to issues that had arisen during deliberations. A response was received on 23 December 2020.

2.3 EVIDENCE CONSIDERED

- [24] A summary of the evidence presented, and representations made to us at the hearing, is included in [Appendix 1](#) to this decision. We discuss the evidence on issues that were in contention in greater detail later in this decision.
- [25] We record that we have reviewed and considered in detail all the evidence presented to us, as well as the submissions that were made on the NoR and RCA.

3. APPROACH TO RECOMMENDATION AND DECISION

- [26] The approach to considering and deciding on a resource consent application under Part 6 of the Act is different to considering and making a recommendation on a notice of requirement under Part 8, both in terms of the matters that it is mandatory to consider, and the specific requirements of the formal decision/recommendation.
- [27] With respect to the RCA, which seeks consent for various activities classified under the relevant plan (being the Auckland Unitary Plan (Operative in part) (**AUP**)) as controlled, restricted discretionary and discretionary, ss.104, 104A, 104B, 104C, 105 and 107 are substantively engaged in the decision-making process, while s.113 prescribes the minimum requirements for the decision. When it comes to the NoR, s.171 sets out the substantive matters to consider, but there is no equivalent to s.113 specifying what any recommendation must cover.

[28] A number of the mandatory requirements to be considered in ss.104 and 171 are the same, but some are not relevant, or there are additional matters to be considered, when it comes to notices of requirement. We set out our understanding of the matters in the table below:

Matter to consider	NoR	RCA
Application	s 171(1)	s 104(1)
Submissions received	s 171(1)	s 104(1)
Part 2 ⁸	s 171(1)	s 104(1)
Actual and potential effects on the environment ⁹	s 171(1)	s 104(1)(a)
Proposed offset or compensation measures	s 171(1b)	s 104(1)(ab)
Relevant provisions of NESs	n/a	s 104(1)(b)(i)
Relevant provisions of regulations	n/a	s 104(1)(b)(ii)
Relevant provisions of any NPS	s 171(1)(a)(i)	s 104(1)(b)(iii)
Relevant provisions of the NZCPS	s 171(1)(a)(ii)	s 104(1)(b)(iv)
Relevant provisions of a RPS	s 171(1)(a)(iii)	s 104(1)(b)(v)
Relevant provisions of a plan	s 171(1)(a)(iv)	s 104(1)(b)(vi)
Disregard effects of permitted activities	n/a	s 104(2)
Disregard trade competition and written approvals ¹⁰	s 171(1a)	s 104(3)
Consideration of alternative sites, routes and methods	s 171(1)(b)	n/a
Necessity of work and designation to achieve objectives	s 171(1)(c)	n/a
Any other matter	s 171(1)(d)	s 104(1)(c)

⁸ The applicability of Part 2 to notices of requirement and resource consent applications is different though.

⁹ Note, s 104 uses the phrase "actual and potential" to qualify the effects to be considered, whereas s 171 does not.

¹⁰ No trade competition effects were apparent from the evidence we heard, and no written approvals were submitted with the NoR and RCA, so these matters are not considered further in this decision/recommendation.

Discretion/recommendation to approve/decline	s 171(2)	s 104A, s 104B, s 104C, ss104D
Matters relevant to discharges	n/a	s 105, s 107
Conditioning discretion	s 171(2)(c)	s 108, s 108AA
Decision/recommendation requirements	n/a	s 113

[29] As WK has taken the approach of combining the assessment of the NoR and RCA and presenting them together, no doubt in the interests of efficiency and to avoid confusion, we have decided to adopt that approach as well.

[30] Where matters to be considered are the same for both the NoR and the RCA, we will address them under one section. Where they are different, or additional, we will consider them as separate matters. Principal issues in contention arising in respect of the RCA, and our findings on them, will be identified as we progress through the matters to be considered, thereby satisfying the requirements of s.113.

4. PROJECT DESCRIPTION

4.1 BACKGROUND

[31] The Project is the second stage of the Government's Pūhoi to Wellsford/Ara Tuhono project. Once completed, it will form part of State Highway 1 (SH1) and improve road connection between the Auckland and Northland regions.

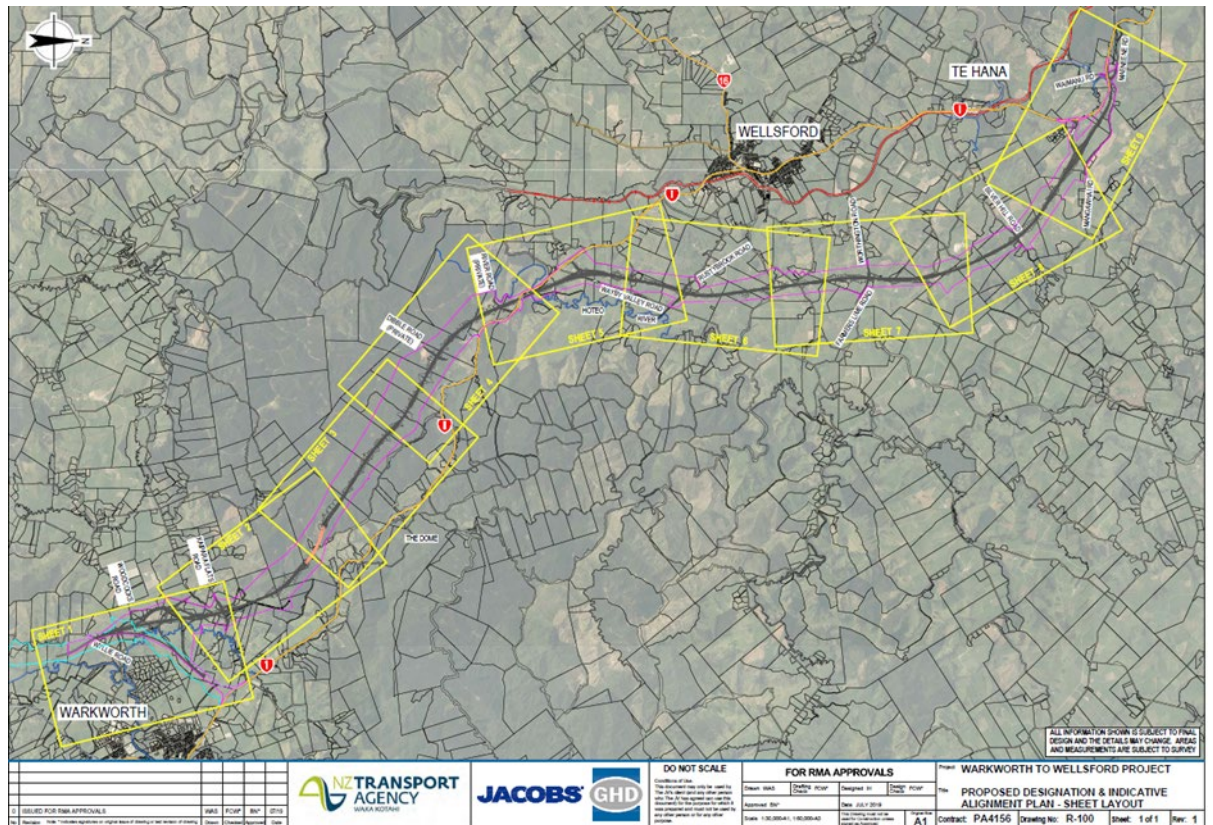
[32] Section 2 of the Project Assessment of Environmental Effects (**AEE**) describes the background and strategic context for the Project. In summary, it is intended to give effect to various broad strategic plans, which include projects and initiatives aimed at stimulating and transforming the Northland economy including the Tai Tokerau Growth Study and Tai Tokerau Northland Economic Action Plan 2016 by:

- (a) improving the economic performance of the Northland region; and
- (b) by providing safety improvements and improving route resiliency between the Auckland and Northland regions.

4.2 PROJECT WORKS

[33] Section 4 of the AEE provides a detailed description of the Project and is summarised briefly as: the construction, operation, and maintenance of a new four lane state highway, approximately 26km long, from Warkworth to north of Te Hana. This new state highway would provide an alternative alignment to the existing SH1.

[34] The general location of the Project is shown in Figure 1 below.



[35] In summary, the key works associated with the Project include:

- (a) A new four lane state highway, approximately 26km in length, offline from the existing SH1;
- (b) Three interchanges as follows:
 - Warkworth Interchange, to tie-in with the Ara Tūhono Pūhoi to Warkworth project (currently in construction) near Wyllie Road, and provide connections to the northern outskirts of Warkworth.
 - Wellsford Interchange, located at Wayby Valley Road to provide access to Wellsford and eastern communities including Tomarata and Mangawhai.
 - Te Hana Interchange, located at Mangawhai Road to provide access to Te Hana, Wellsford and communities including Port Albert, Tomarata and Mangawhai.
- (c) Twin bore tunnels under Kraack Road in the Dome Valley area, each serving one direction, that are approximately 850 metres long and approximately 160 metres below ground level at their deepest point;
- (d) A series of cuts and fills are proposed through the forestry area to the west of the existing SH1 (west of The Dome) as well as in extensive other areas along the remainder of the Project route;

- (e) A viaduct (or twin structures) approximately 485 metres long, to span over the existing SH1 and the Hōteu River;
- (f) A tie in to existing SH1 north of Maeneene Road, including a bridge over Maeneene Stream;
- (g) Changes to local roads, where the proposed work intersects with local roads:
 - Maintaining local road connections through grade separation (where one road is over or under the other). The Indicative Alignment passes over Woodcocks Road, Wayby Valley Road, Whangaripo Valley Road, Mangawhai Road and Maeneene Road. The Indicative Alignment passes under Kaipara Flats Road, Rustybrook Road, Farmers Lime Road and Silver Hill Road;
 - Realignment of sections of Wyllie Road, Carran Road, Kaipara Flats Road, Phillips Road, Wayby Valley Road, Mangawhai Road, Vipond Road, Maeneene Road and Waimanu Road;
 - Closing sections of Phillips Road, Robertson Road, Vipond Road and unformed roads affected by the Project;
- (h) Associated works including bridges, viaducts, embankments, culverts, stormwater management systems, soil disposal sites, signage, lighting as required to meet safety standards, landscaping, realignment of access points to local roads, and maintenance facilities; and
- (i) Construction activities, including construction compounds, borrow sites, lay down areas and establishment of construction access and haul roads.

[36] Section 5 of the AEE provides an outline of an indicative construction methodology for the Project, advising that this will be further refined and developed in compliance with any conditions once the contract(s) are awarded and contractor(s) are in place.

[37] The AEE assumes that construction of the project will start in 2030 and take 7 years to complete.

4.3 PROJECT OBJECTIVES

[38] WK identifies the objectives of the Designation sought by the NoR as being to:

- (a) Increase corridor access, improve route quality and safety, and improve freight movement between Warkworth and the Northland Region;
- (b) Provide resilience in the wider State highway network;
- (c) Improve travel time reliability between Warkworth, Wellsford and the

Northland Region;

- (d) Provide connections to and from Warkworth, Wellsford and Te Hana;
- (e) Provide a connection at Warkworth that optimises the use of infrastructure from, and maintains the level of service provided by, the Pūhoi to Warkworth project; and
- (f) Alleviate congestion at Wellsford by providing an alternative route for north – south through traffic.

4.4 SITE, LOCALITY, CATCHMENT AND ENVIRONMENT DESCRIPTION

- [39] The site and environment affected by the Project is described in detail in section 3 of the AEE. In summary, the Project area extends from Warkworth to the wider Wellsford area, and the northern outskirts of Te Hana. The area comprises mainly rural production (farming), commercial plantation forestry and rural residential uses. Plantation forestry – Matariki Forest – covers approximately 34% of the total Project area (488ha) and is largely made up of pine with smaller areas of hardwoods. These crops are likely to reach maturity around the same time as the Project's indicative pre-construction phase and will be progressively harvested from around 2025-2027.
- [40] Warkworth, Wellsford and Te Hana are main settlement areas near the Project. The current SH1 alignment passes through the centre of all three settlements.
- [41] Warkworth is the largest of these settlements and contains a variety of uses typical of urban areas. The Auckland Plan 2050 identifies Warkworth as a satellite town, acting as a rural node. The Warkworth Structure Plan identifies land uses for the outlying areas of the town zoned Future Urban to accommodate an additional 20,000 residents.
- [42] Wellsford is the second largest settlement and the northern-most in the Auckland region. It has typical urban uses and serves as a service centre for the surrounding rural areas of northern Rodney.
- [43] Te Hana is the smallest settlement with a population of approximately 200 people and contains few services and shops.
- [44] Smaller concentrations of residential uses exist outside of the three main settlements at Phillips Rd and Kaipara Flats Rd, Kraack Rd, Rustybrook Rd, Worthington Rd, Wayby Valley Rd and Charis Lane.
- [45] The project sits within three major catchments: the Mahurangi River catchment; Hōteō River catchment; and the Oruawharo River catchment. The Mahurangi River catchment drains directly into the Mahurangi Harbour while the Hōteō River Catchment and the Oruawharo River catchment drain into the Kaipara Harbour.
- [46] Stock access and modifications in the surrounding drainage systems have

degraded many of the wetlands in the project area. Wetlands with higher ecological values – habitat for birds and regionally significant plant species - exist in the upper Kourawhero Stream valley, and parts of the Hōteu River system.

5. THE NOTICE OF REQUIREMENT AND RESOURCE CONSENT APPLICATION

5.1 INTRODUCTION

- [47] Designations and resource consents are different types of resource management approvals. Designations may only be sought by requiring authorities, by lodging a notice of requirement with the relevant territorial authority; whereas any person can apply to a consent authority for a resource consent.
- [48] When included in a district plan a designation has the effect of exempting the requiring authority undertaking the project or work from having to comply with s.9(3) and seek a resource consent to breach district rules that may apply to the proposed land use activities.
- [49] Designations included in a district plan have two other important features. First, in relation to the land designated, no person (including its owner) may undertake any activity that would prevent or hinder the project or work without first obtaining the approval of the designation's requiring authority. In practice, this has the effect of enabling the requiring authority to protect, as in this case, a route for a proposed project without having to purchase the land in advance. Ownership of land would otherwise be needed to control the use to which it can be put.
- [50] Second, a designation entitles the requiring authority to compulsorily acquire the land designated under Public Works Act 1981 if an agreement to purchase the land is unable to be concluded with the landowner prior to the construction of the project or work. Conversely, provided the conditions in s.185 are met, the owner of the land is entitled to require that the requiring authority purchase the land from them at any time after the designation is included in the plan. This provision is intended to enable a landowner to relieve themselves of the perceived hardship of owning designated land which is likely to be taken in future for the proposed project or work, the use of which may be restricted prior to that time.
- [51] Resource consents provide neither of these benefits for requiring authorities or landowners. However, where a designated project or work involves activities not regulated by district rules, but rather by regional rules (i.e., ss.9(2), 12, 13, 14 and 15), resource consents will need to be sought and obtained under Part 6 of the Act for those activities.

5.2 THE NOTICE OF REQUIREMENT

- [52] Form 18 submitted with the NoR includes a detailed drawing set identifying all land parcels (and part parcels) that would be directly affected by and required for the Project and associated works. The NoR seeks that these parcels of land be

designated by WK¹¹ for the construction, operation and maintenance of a new state highway and associated activities.

- [53] We understand that additional land has been included in the Designation footprint on which it is not intended to construct the new state highway. This land is to provide for construction related activities such as earthworking areas, site access, a site office and laydown areas, as well as areas of land for landscape and ecological mitigation planting, and other biodiversity offsets to address residual adverse effects. The Designation will be 'drawn back' off the areas of land not required long-term for the operation, maintenance or mitigation of the Project, utilising s.182, upon completion of the Project works.¹²
- [54] Once included in the AUP, the designation would authorise WK to undertake all land use activities associated with the construction, operation and maintenance of the new road that would otherwise require consent to infringe a district rule (s.9(3)). Although WK's AEE did not identify the district rules in the AUP that the Designation was intended to override, based on our understanding of the Project works and the regional consents sought by the RCA (see below), we assume that the NoR would generally authorise the following activities:
- (a) Construction of a new state highway on the land and its subsequent use for the operation and maintenance of that state highway;
 - (b) Construction related activities regulated by district rules, namely earthworks and vegetation clearance;
 - (c) Noise generated by construction and operation;
 - (d) Structures/buildings associated with the new highway (bridges, tunnels, retaining walls).
- [55] It is the effects of these activities that are effects associated with the NoR, and the effects in respect of which conditions to be imposed would be imposed on the Designation.

5.3 RESOURCE CONSENT REQUIREMENTS

- [56] The Project requires resource consents under the AUP for the following regional activities:

5.3.1 Land use consent (s9) – LUC60354952 & LUC60355185

E26 Infrastructure (LUC60354952)

- To create stormwater detention/retention ponds and wetlands associated with the project as a controlled activity under rule E26.2.3.1 (A55).

¹¹ WK-NZTA is a requiring authority (AEE, Section 1.2).

¹² Condition D-1.

- The removal and alteration of vegetation that does not comply with standards E26.3.5.1 to E26.3.5.4 as a restricted discretionary activity under rule E26.3.3.1 (A77).¹³
- Earthworks activity greater than 50,000m² where land has a slope less than 10 degrees outside the Sediment Control Protection Area as a restricted discretionary activity under rule E26.5.3.2 (A103).
- Earthworks activity greater than 2,500m² where the land has a slope equal to or greater than 10 degrees as a restricted discretionary activity under rule E26.5.3.2 (A106).
- Earthworks activity greater than 2,500m² within the Sediment Control Protection Area as a restricted discretionary activity under rule E26.5.3.2 (A107).
- Earthworks activity between 10m² - 2500m² and from 5m³ - 2500m³ within an SEA as a restricted discretionary activity under rule E26.6.3.1 (A117).
- Earthworks activity greater than 2500m² or 2500m³ within a SEA as a discretionary activity under rule E26.6.3.1 (A118).

E9 Stormwater quality – High contaminant generating car parks and high use roads (LUC60355185)

- Development of a new or redevelopment of an existing high use road greater than 5000m² as a controlled activity under Rule E9.4.1 (A7).

5.3.2 Streamworks consent (ss 13 & 14) – LUS60354955 & WAT60354953

E3 Lakes, rivers, streams and wetlands

- Diversion of a stream with associated disturbance and sediment discharge outside of any overlays as a discretionary activity under rule E3.4.1 (A19).
- Any activities not complying with the general permitted activity standards in E3.6.1.1 or the specific standards in E3.6.1.10 – E3.6.1.13 (outside overlays) as a discretionary activity under rule E3.4.1 (A26).
- Temporary structures that comply with the standards within E3.6.1.15 within overlays, as a discretionary activity under E3.4.1 (A27).
- Bridges or pipe bridges within overlays that comply with the standards in E3.6.1.16 as a discretionary activity under rule E3.4.1 (A29).

¹³ Although this consent requirement is related to a regional rule effects in relation to terrestrial ecology were generally considered as part of the NoR processing because of the interconnected relationship between vegetation removal under both regional and district rules and the overall terrestrial ecology effects.

- Culverts more than 30m in length when measured parallel to the direction of water flow outside of any overlay as a discretionary activity under rule E3.4.1 (A33).
- Erosion control structures within an overlay that is less than 30m in length when measured parallel to the direction of water flow and complies with the standards in E3.6.1.14 as a discretionary activity under rule E3.4.1 (A34).
- Stormwater outfalls within an overlay that comply with the standards in E3.6.1.14 as a discretionary activity under rule E3.4.1 (A39).
- Activities outside of any overlay not complying with the general permitted activity standards in E3.6.1.1 or the specific activity standards in E3.6.1.14 to E3.6.1.23 as a discretionary activity under rule E3.4.1 (A44).

5.3.3 Water Permit (s14) – WAT60355184 & WAT60356979

E7 Taking, using, damming and diversion of water and drilling (WAT60355184)

- Dewatering and groundwater level control for the long-term operation of the road cuts, not complying with standards E7.6.1.6(2) and (3) as a restricted discretionary activity under rule E7.4.1 (A20).
- Excavations for the road alignment will exceed 1ha in total area and 6m depth below natural ground level and the diversion cannot comply with standard E7.6.1.10(2), requiring consent as a restricted discretionary activity under rule E7.4.1 (A26).

E8 Stormwater – Discharge and diversion (WAT60356979)

- Diversion of stormwater runoff from new impervious surface areas which exceeds 5000m² and which does not comply with standards E8.6.1 and E8.6.4.1 as a discretionary activity under Rule E8.4.1 (A10).

5.3.4 Discharge Permit (s15) – DIS60354954 & DIS603551896

E8 Stormwater – Discharge and diversion (DIS60354954)

- Discharge of stormwater runoff from new impervious surface areas which exceeds 5000m² and which does not comply with standards E8.6.1 and E8.6.4.1 as a discretionary activity under Rule E8.4.1 (A10).

E14 Air Quality (DIS603551896)

- Temporary crushing of aggregates greater than 60 tonnes per hour where the activity complies with permitted standards in E14.6.1.13, as a restricted discretionary activity under rule E14.4.1 (A94).¹⁴

¹⁴ The Council's Air Quality specialist, Mr Paul Crimmins, has referred to rule E14.4.1 (A83) within his technical memo as a reason for consent as, based on his experience, earthworks of the scale proposed are unlikely to

Multiple sites between Warkworth and north of Te Hana 20
 BUN60354951 (LUC60354952, LUS60354955, WAT60354953, WAT60355184, WAT 60356979,
 DIS60354954, LUC60355185, DIS60355186)

[57] As no party contended that we should consider each of the separate consent requirements on an 'un-bundled' basis, we have proceeded to assess the RCA, overall, as being for a discretionary activity.

5.4 TIMING OF RESOURCE CONSENTS FOR DESIGNATION WORKS

[58] There is no legal requirement that the regional consents that might be needed for the construction, operation and maintenance of a project or work proposed to be authorised by designation must be sought at the same time as the requiring authority issues its notice of requirement. In practice, doing so enables a more detailed and integrated assessment of the overall effects on the environment of the project or work and enables a more refined level of design to be achieved.

However, the efficacy of such an approach can be called into question where the time lag between the AEE and consent approval and the implementation of the consent is lengthy. In such situations, the effectiveness of the consent conditions to deal with the delay in commencement will be a key issue for the applicant and consent authority to consider.

[59] In her planning evidence,¹⁵ Ms Pegrume, a witness called on behalf of submitters David Mason and Dianne McCallum, criticises the "consenting strategy" employed by WK, specifically in relation to the activities sought for authorisation by the RCA, and expresses disbelief as to how regional resource consents for earthworks and vegetation removal can be sought when the precise location of the activity is not yet known and its effects therefore unable to be assessed. The approach of seeking a general authorisation for such activities and proposing that effects be managed by conditions and various plans yet to be prepared is not "legitimate" in her view. The implication of Ms Pegrume's thesis is that consent can only be sought where the activity is precisely defined, and the conditions can be exactly crafted in response.

[60] In our experience the generality of resource consent applications that seek to authorise activities on a per site basis for a specific development proposal are invariably detailed (for those reasons). But the circumstances of this case are different and have resulted in a different approach. We accept that at some point an application for consent could be so poorly defined that it would not meet the requirements of s.88 and the rigours of Schedule 4. However, as we are now determining the RCA, we can assume that the consent authority accepted it for processing and in doing so was satisfied that it was legitimately made and included the necessary information.

[61] We understand as well that a feature of the applications was that their effects were assessed on the assumption that the road could be built anywhere within the Designation boundary. Recommendations for mitigation, using "outcome-based" conditions and management plans, were also proposed that would ensure effects

comply with the permitted standards in E14.6.1.1. WK confirmed, however, that it did not seek consent under this rule as it considered that it could undertake the earthworks in accordance with the permitted standards in E14.6.1.1.

¹⁵ Evidence of K Pegrume, 28 September 2020, paragraphs 2.1 to 2.12.

management to the appropriate level, regardless of the final alignment. We see nothing inherently wrong with such an approach; indeed, it has been approved already in the context of P2Wk. Whether it is acceptable in this case though will turn on whether we are satisfied that the conditioning framework is sufficiently robust and adaptable to ensure the effects are able to be managed regardless of where the final alignment is located. Ultimately, that is a risk WK takes with its approach. We return to that issue in due course. For now, we record that we do not accept Ms Pegrume's arguments as to the "legitimacy" of WK's consenting strategy.

5.5 PROJECT CONDITIONS

- [62] A detailed set of proposed draft designation conditions were included as part of the NoR (Form 18) and proposed draft conditions to apply to the resource consents being sought were included with the RCA forms (Form 9). The conditions on which a project proponent advances its resource management application(s) are important as they are to be treated as part of the application for assessment purposes. As we would expect, in this case Council's specialist reviewers used WK's proposed draft conditions as the basis for their assessments and recommendations. For these reasons it is appropriate that we set out at a general level the structure and key features of the condition sets put forward by WK for the Designation and RC respectively.
- [63] As is common with complex proposals such as this one, WK's proposed sets of conditions evolved throughout the hearing by way of amendments/clarifications that it advanced. These were made either to adopt changes proposed by Council officers, or to address matters raised in submitters' presentations at the hearing, or to address issues raised by the Commissioners with the conditions. In this process of review and revision not all changes sought by Council officers, or issues raised, were accepted by WK in its final sets of conditions dated 26 October 2020.
- [64] In most cases, WK put forward reasons for its preferred conditions, leaving it to us to resolve final matters. Generally, we discuss and endeavour to determine such final condition-wording issues as we progress through our consideration of the evidence and the competing positions of the parties.¹⁶ We bring together a final summary of our findings in relation to conditions later in this decision. For present purposes though, we propose to briefly outline the structure and main features of the condition sets proposed by WK (as represented by its final sets of conditions).

5.5.1 Structure of Designation conditions

- [65] WK's proposed Designation conditions are structured into three sections:¹⁷ General; Construction Conditions; and Maintenance and Operational Conditions. The General section includes conditions relating to 'roll-back' of the Designation,

¹⁶ In this decision, when referring to a condition proposed to be included on the Designation, we use the prefix "D-"; for conditions to be imposed on the Resource Consent, we use the prefix "RC-".

¹⁷ A definitions section is included at the outset.

lapse, advice as to which conditions relate only to construction, and conditions setting up the Management Plan and Outline Plan process.

[66] The Construction Conditions include conditions relating to the following construction-specific matters:

- Stakeholder and Communications.
- Mana Whenua.
- Network Utilities.
- Construction Noise and Vibration.
- Construction Traffic.
- Urban Design and Landscape.
- Historic Heritage and Archaeology.
- Air Quality.

[67] The Maintenance and Operational Conditions include the following condition matters:

- Operational Noise.
- Landscape.
- Lighting.

[68] Six maps entitled “Mitigation Sites” are proposed for inclusion with the Designation conditions. These are referred to in condition D-44e and show the locations where landscape mitigation and screen planting has to be incorporated into the Urban and Landscape Design Framework (**ULDF**) plan to mitigate the landscape and visual effects of the proposed new road.

5.5.2 Structure of RC conditions

[69] WK’s proposed RC conditions are structured into a number of sections, broadly relating to the different activities covered by the RCA.¹⁸ These are:

- General (consent lapse and expiry; review; management plan).
- Mana Whenua.
- Construction Environmental Management Plan.

¹⁸ A definitions section is included at the outset.

- Erosion and Sediment Control.
- Works in Watercourse and Wetlands and Ecology.
- Freshwater Ecology.
- Stormwater Discharge.
- Air Quality – Rock Crusher.
- Groundwater.
- Maintenance and Operational Conditions.

[70] Twenty-one maps are proposed for inclusion with the RC conditions. These are entitled “Mitigation Sites”, “Representative Watercourses”, “Fauna Habitat and Flyway Mitigation”, “Bridge Structures in Watercourses”, “Ecological Sites”, and “Escarpment Feature” and are referred to for various purposes throughout the RC conditions.

[71] There are three general features common to both the Designation and RC conditions that were the subject of considerable discussion throughout the hearing.

5.5.3 No ‘condition 1’

[72] WK has not proposed that either the Designation or RC be subject to a condition requiring the proposed works to be undertaken “in general accordance with”¹⁹ specific plans and details provided with the applications. This is because it has prepared the Project applications based on what it calls an “Indicative Alignment”; that is, a possible route and design for the new road, but not a detailed or final design. In not proposing a condition binding it to build in accordance with certain plans, WK seeks to preserve itself flexibility to adopt the results of future design processes with its chosen contractors, which processes may lead to a different alignment and design of the road. In providing for the new road to be constructed anywhere within the Designation boundary, it therefore avoids the need to confirm its final design now and to have to potentially vary the Designation in the future.

[73] While this approach for designations was traditionally commonplace – with the site or route designated, but the details of the work to be supplied later by the outline plan of works (**OPW**) process – it has become less so nowadays. This is likely due to the more detailed environmental effects assessment requirements that requiring authorities must now undertake, which lead to quite specific conditions being imposed on designations in advance of the OPW process. However, such an approach is less common for resource consents, which normally start from a definition of the proposed activity and where it is proposed to take place, with an expected degree of specificity.

¹⁹ Or sometimes, more strictly, “in accordance with”.

[74] To answer the complaint that its approach in this case creates too much uncertainty about effects outcomes and the ability to manage them to an acceptable level, WK says that it has “tested” its Indicative Alignment (and the proposed conditioning responses) throughout the Designation corridor and is satisfied that all of the Project’s effects can be managed to an acceptable level regardless of the road’s final location and design within the notified corridor. It says that its conditions are tailored to achieve an effects-based response to the final design.

[75] It is worth noting that WK’s approach is not wholly *carte blanche*. Within the Designation footprint it has identified various natural resources that any future road design would have to avoid, either completely, or as much as possible. These constraints are found in various conditions as follows:

- RC-54 - bridge structures to be used and no piers within the beds of specified watercourses.
- RC-56 – construct the crossing of the Kourawhero Stream so as to minimise effects on the Kourawhero wetland complex as far as practicable (see RC-54C(c) as well), including a bridge with no piers over the Kourawhero Stream.
- RC-54C(a) - limit intrusion into Ecological Sites (defined by reference to the Maps), where practicable to do so.
- RC-54C(d) – avoid the escarpment feature in the Dome Valley Forest section and undertake no above ground works within this feature (RC-54IA).
- RC-54C(e) – avoid the Significant Ecological Area at the Hoteo River crossing, and the Kourawhero Wetland complex where practicable, and minimise if not).

[76] These conditions have the function of providing some physical constraints on where the final road must be located within the Designation corridor, and the structures that will need to be employed to build it.

5.5.4 Effects management via management plans to be developed

[77] Another component of WK’s conditioning approach for the Project was the use of management plans to manage the effects of the activities authorised by the Designation and the RC. The plans would have to be prepared prior to the commencement of works. The “decision pathway” for the Designation and RC management plans is different, as is illustrated by a comparison of proposed conditions D-4 to D-6 with conditions RC-3 to RC-7A. Plans to be prepared under the Designation would either be provided to the Manager for information, to the Road Controlling Authority for approval, or to the territorial authority as part of the OPW to be submitted under s.176A. By contrast, plans to be provided by RC

conditions would either be provided to the Manager for information, or for certification that the plan submitted complies with the requirements of the conditions.²⁰

[78] WK submitted that management plans are a key tool used widely in designations and resource consents for large infrastructure projects. It reminded us that management plan conditions are by their nature designed to be adaptive “process” conditions, whereby the management plan guides implementation of measures to achieve the specific condition outcomes,²¹ provided they have clear identified outcomes.²² To that end, WK prepared a table setting out the key management plans required by its proposed conditions, with notes identifying their objectives and the key effect-related standards to be met. The table (attached as Appendix 2) also shows how the respective plans would be prepared in accordance with best practice at the time of construction, which will be some years off.

5.5.5 15-year lapse date

[79] WK seeks a 15-year lapse period to give effect to both the Designation and the RC. The statutory ‘default’ lapse date for both approvals would otherwise be 5 years under ss.184 and 125 respectively. Longer lapse dates have been sought because WK does not anticipate being able to commence and complete the Project within the statutory 5-year period. We were told that Government funding might not be in place to complete detailed design and commence construction before 2030, and that once underway, construction could take 7 years to complete.²³

[80] The lengthy lapse dates were criticised by submitters as creating a significant ‘blight’ on properties both directly and indirectly affected by the designation. Similarly, with respect to the RCA, they were criticised as leading to a situation where works could be approved subject to conditions today, that would not be undertaken for almost a decade, during which time the environment could change significantly, thus rendering the conditions inappropriate or no longer ‘fit for purpose’. These are both valid concerns. However, the alternative of only proceeding with the NoR and RCA when funding is in place and construction able to commence also has its downsides. Waiting until then would potentially frustrate the ability for the Project to achieve its objectives, because land uses along the proposed route could change and potentially more incompatible activities would need to be avoided.

[81] As route protection is a key objective for WK, it argued that putting this in place now via the proposed designation would give the community certainty about the road corridor, and enable it to ensure that incompatible land uses did not establish prior to commencing construction.

²⁰ In practice, this procedure curtails the consent authority’s discretion on the review of a management plan submitted to it to either confirming the plan complies with the conditions, or not. In the latter case, the plan may be rejected with a direction that it be amended to comply.

²¹ Citing *Mount Field Ltd v Queenstown Lakes District Council* [2012] NZEnvC 262, at [77].

²² *Re Canterbury Cricket Association Inc* [2013] NZEnvC 184, at [125].

²³ Evidence P Glucina, 15 September 2020, at [46].

[82] We return to our findings on this aspect of the Project conditions later in this decision.

5.6 CONDITIONS OFFERING OFFSETS

[83] WK has also offered a number of conditions which would bind it to undertake certain works to offset the adverse ecological effects of the Project on the environment that it was otherwise unable to avoid, remedy or mitigate “at source”. Unfortunately, like Council’s reporting terrestrial and freshwater ecologists,²⁴ we found it difficult to distinguish these “offset” works from other mitigation proposals, mostly because WK and its witnesses tended to describe the majority of works as “offset mitigation”, confusing two distinct concepts. References were also made to a “mitigation package”.

[84] We acknowledge that it can be difficult to know the precise point at which mitigation ends and offset/compensation begins, given the interconnected nature of ecological systems generally. However, under the RMA, “mitigation” is doing something that alleviates, abates or moderates the severity of an effect at its point of impact. Whereas a positive benefit offered (including in relation to the values affected adversely by an activity) is not “mitigation”, and is best described as offsetting, or compensation.²⁵

[85] Knowing the difference between mitigation and offsets is important because when considering the RCA we must have regard to “*any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity*” (s.104(1)(ab)). Furthermore, when considering the effects on the environment of allowing the NoR, s.171(1B) clarifies that those effects “*may include any positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from the activity enabled by the designation, as long as those effects result from measures proposed or agreed to by the requiring authority*”.

[86] WK’s AEE does not explicitly identify any proposed offsetting or compensation measures to be considered for the purposes of ss.104(1)(ab) or 171(1B). Although, several proposals are set out within the AEE, which appear aimed at offsetting or compensating for the loss of wetlands, stream margins and indigenous vegetation that would be damaged or destroyed by the Project works, these are all generally referred to as ‘mitigation’.

[87] The s.42A reports, however, do note the distinction between mitigation and offsets/compensation. In respect of the RCA, the s.42A report notes WK’s proposals to undertake approximately 11.25 hectares of wetland enhancement and 71 km of stream riparian enhancement as measures proposed to offset residual adverse effects.²⁶ In the s.42A report for the NoR, WK’s proposal to “offset” for the

²⁴ A Rossaak, NoR s.42A report, p619; M Lowe, RCA s.42A report, p139.

²⁵ *RFBPS v Buller District Council (No 2)* [2013] NZRMA 293

²⁶ RCA s 42A report, p31.

loss of terrestrial ecology, by undertaking additional planting at proposed ratios of 6:1 and 3:1, is also noted.

- [88] Ms Sinclair’s evidence makes no mention of ss.104(1)(ab) or 171(1B). However, in discussing the ecological effects of the Project works several references are made to the “offset planting proposals” (described by Dr Boothroyd) which are intended to address residual adverse ecological effects. In this regard, Dr Boothroyd’s evidence is that all his recommendations for additional planting, including riparian stream planting, are to be treated as offsets for the residual adverse ecological effects of the Project.
- [89] In its closing submissions, WK also referred to all sediment reduction activities that it might undertake in the future as “offset” for potential acute sediment discharges into the Mahurangi and Kaipara harbours during construction.²⁷
- [90] Despite these comments in evidence and submissions by WK, we were still left at the end of the hearing not fully understanding under which categories (i.e., mitigation, offset or compensation), the planting and other biodiversity related actions were to be considered. It is not our role to determine such matters. In our view, if WK wishes to assert that offset and compensation actions can be treated as yielding positive effects in the context of its projects, it needs to pay better attention to the nature of these concepts and how they are addressed in relevant planning documents. In the AUP, the hierarchy of actions to address adverse impacts on biodiversity is clearly stated: mitigate first, then offset and then consider compensation. This construct does not envisage a “mitigation package” approach.²⁸
- [91] In the result, we find that we had insufficient guidance from WK as to the actions that we could consider for the purposes of ss.104(1)(ab) and 171(1B). A “mitigation package” approach does not enable the type of analysis anticipated by these statutory provisions. We can therefore give no weight to the positive effects of biodiversity improvement activities proposed by WK.
- [92] We note that submitters did not criticise WK for proposing offsetting per se, although Ms Pegrume expressed concerns that too much weight had been placed on this technique rather than avoidance in situ. Council officers also had issues with the quantum of offset proposed, or, with the methodology WK proposed to quantify the offset at the time it was completed. We return to these issues in the context of our consideration of the ecological effects of the Project.

²⁷ WK Reply Submissions, 23 October 2020, at [148].

²⁸ We observe that in the context of the East West Link proposal a similar approach was taken by WK, albeit called a “mitigation bucket”. The approach was generally accepted in a descriptive sense by the Board of Inquiry, but we note that its report and recommendation preceded the 2017 amendments to the RMA which included ss.104(1)(ab) and 171(1B). The absence of these statutory provisions presumably obviated the need for a more detailed understanding of the different mitigation/offset/compensation actions to be provided.

5.7 PROPOSED AMENDMENTS TO NOR BOUNDARIES

- [93] In its closing submissions, WK proposed two slight amendments to the designation boundary originally notified,²⁹ both intended to reduce a potential effect of the Project. The first, in relation to the property owned by Mr and Mrs Drower, involved amending the boundary to exclude a pond used as an alternative farm water supply. The second included an area of land already owned by the Crown within the designation footprint to enable screen planting to be undertaken to mitigate the potential visual impact of the new state highway on the amenity of the property at 39 Phillips Road, owned by Mr and Mrs Dando.
- [94] WK presented detailed legal submissions on its ability to amend the designation footprint and our jurisdiction to approve it.³⁰ Although these were primarily aimed at persuading us that we had no jurisdiction to extend the designation footprint, they were still helpful to address the minor amendments proposed by WK described above.
- [95] In the result, we have no doubt that the proposal to reduce the designation footprint is within scope; and, on the assumption that the Crown agrees to the extension over its land of the designation at Phillips Road, we see no jurisdictional issue with it being put forward by WK at this stage.

6. SUBMISSIONS RECEIVED AND ISSUES IN CONTENTION

- [96] A number of submissions were received on the NoR and RCA. The submissions either supported, opposed or were neutral about the Project. Supportive submitters pointed to the benefits of the Project as reason for their support. Opposing submitters were concerned with a number of aspects of the Project, including its environmental effects during construction and operation, its impact on land use, and its proposals for conditions and lapsing dates. Neutral submitters generally sought provision for certain outcomes in conditions in the event the NoR and RCA were approved.
- [97] We have reviewed all of the submissions in detail and confirm that the summary of them included in the s.42A reports is accurate.³¹ We adopt it for the purposes of this decision.
- [98] Not all submitters appeared at the hearing in support of their submissions. Some tabled further material for us to consider, while others, having pre-exchanged written evidence, chose not to attend. We have summarised the presentations made to us as well as the materials tabled or pre-exchanged by submitters in Appendix 1.

²⁹ The changes were depicted on plans attached as Annexures E and F.

³⁰ WK Reply Submissions, 23 October 2020, at [183] – [194].

³¹ Refer summary of issues raised in submissions (NoR s.42A Report, Section 4.2; RCA s.42A Report, Sections 11 and 14).

[99] Presentations made at a hearing held under the RMA are no indicator of the comparative importance of the issues raised by those submitters, as opposed to those who are content to let their written submission and tabled material ‘speak’ for them. However, in our experience they do provide a general guide as to the issues of greatest contention about a proposal. In this regard, we can make the following generalisations about the Project:

- (a) There was general acceptance that the overall transportation related objectives of the Project were appropriate and would bring a range of local, regional and national benefits;
- (b) The component of the Project with the greatest actual and potential adverse effects on people and communities was the Warkworth interchange, both in terms of its location and layout, and its effects (construction and operation) on the amenity enjoyed by residential landowners in the Kaipara Flats Road area;
- (c) WK’s approach to conditions, the key aspects of which are summarised above, was a significant focus of submitters in opposition, as were the impacts and uncertainty caused by the proposed 15-year lapse dates for the NoR and RCA;
- (d) The conditions proposed to manage adverse effects on the natural environment and ensure they were appropriate to avoid, remedy or mitigate those effects at the time of Project commencement in the future, was a matter in contention.

7. RELEVANT STATUTORY PROVISIONS

[100] The statutory framework for consideration of the RCA is in Part 6 of the RMA. The statutory framework for considering the NoR is in Part 8.

[101] The table included at paragraph [28] above sets out the statutory provisions relevant to our consideration of the NoR and RCA. We set out some general comments about some of these provisions below, as well as our understanding of the relevance of s.16, a provision referred to throughout the hearing.

7.1 PART 2

[102] The consideration of applications under s.104(1) is “subject to Part 2”, the meaning of which is well settled.³² The extent to which express recourse to Part 2 may be required when considering an application for resource consent will depend on whether the relevant plan(s) have been prepared having regard to Part 2 and include a coherent set of policies designed to achieve clear environmental outcomes. If not, or if in doubt, it will be appropriate and necessary to refer to Part 2.

³² *R J Davidson Family Trust v Marlborough DC* (2018) 20 ELRNZ 367 at [73] – [76].

- [103] In the case of the RCA, no party submitted that we ought to expressly resort to Part 2 on the grounds that the relevant planning framework was incoherent. All accepted the currency and comprehensive nature of the AUP as the primary planning document to be considered.
- [104] We agree and find that it is not necessary to resort directly to Part 2 to determine the RCA. In this regard, we follow the approach of the Environment Court in its decision granting consents for the works required for the AC36 regatta, where it too saw no basis to resort to Part 2.³³
- [105] Reference to Part 2 in considering the NoR, however, is not subject to the same approach as has arisen from caselaw in respect of s.104. In the context of considering designations, Part 2 has an overriding effect over the assessment of effects and the matters listed in s.171(1)(a) to (d).³⁴ In considering the NoR and making a recommendation on it, this directive requires us to be satisfied that it achieves the sustainable management purpose of the RMA and that the matters in ss.6, 7 and 8 have been given the appropriate consideration and recognition. We will return to Part 2 in relation to the NoR later in this recommendation.

7.2 APPROACH TO S 104 AND S 171 MATTERS

- [106] Section 104(1) requires the consent authority, when considering a resource consent application and any submissions received, subject to Part 2, to “have regard to” the various matter listed in subsections (a) to (c). The approach to be taken to these matters is well established: the directive “*must have regard to*” does not mean “*must give effect to*”. Rather it simply requires decision-makers to give genuine attention and thought to the matters set out.³⁵
- [107] The relative weight to be given to the matters listed in s.104(1)(a)-(c) is for the decision maker, on the evidence. Flexibility is important when approaching this task, in the sense that the relative importance that various considerations have, and the manner in which they interrelate, will vary according to context.³⁶ But this does not mean that the wording of policy provisions can be ignored or ‘read down’ to suit an outcome. In *RJ Davidson Family Trust v Marlborough District Council*³⁷ the Court of Appeal explained how a plan is brought to bear on a consent application under s 104(1) as follows:³⁸

“A relevant plan provision is not properly had regard to (the statutory obligation) if it is simply considered for the purpose of putting it on one side. Consent authorities are used to the approach that is required in assessing the merits of an application against the relevant objectives and policies in a plan ... the result of a genuine process that has regard to those policies in

³³ *Re Panuku Development Auckland Ltd* [2018] NZEnvC 179 at [667].

³⁴ *New Zealand Transport Agency v Architectural Centre Inc* [2015] NZHC 1991; *City Rail Link Ltd v Auckland Council* [2017] NZEnvC 204

³⁵ *Foodstuffs (South Island) Ltd v Christchurch CC* (1999) 5 ELRNZ 308; [1999] NZRMA 481 (HC).

³⁶ *Albert Road Investments Ltd v Auckland Council* [2018] NZEnvC 102. See also *The Warehouse Ltd v Dunedin CC* EnvC C101/01; *R v CD* [1976] 1 NZLR 436.

³⁷ [2018] NZCA 316.

³⁸ *Ibid* at [73]-[74].

accordance with s 104(1) should be to implement those policies in evaluating a resource consent application.”

[108] The directive to the territorial authority is worded differently in s.171(1). When considering a requirement and any submissions received it is to “*consider the effects on the environment of allowing the requirement, having particular regard to*” the matters listed in subsections (a) to (d). The differences are twofold. First, effects on the environment of allowing the requirement are not simply a matter to have regard to; they must all be considered. From our experience, this does not lead to any substantive difference in approach to effects assessment in practice. Second, “particular regard” must be given to the matters in s.171(1). “Having particular regard to” conveys a stronger direction³⁹; it requires the matter to be considered separately and specifically from other relevant considerations.

7.3 SECTION 104B AND S171(2)

[109] Our jurisdiction in respect of the RCA is set out in s.104B: after considering the application we may grant or refuse consent. In relation to the NoR, under s.171(2) we may recommend to WK-NZTA that it confirm, modify or withdraw the NoR.

[110] It is trite that we must exercise our discretions for a proper purpose, namely to promote the sustainable management of natural and physical resources.

7.4 SECTION 16

[111] Section 16 is often referred to and relied on where resource consent applications propose activities that potentially involve loud and/or frequent noise disturbance. The section places a duty on every occupier of land to adopt the ‘best practicable option’ (**BPO**) to ensure that the emission of noise from their land does not exceed a reasonable level. It is frequently relied on to support arguments that a consent applicant must ensure that the noise emissions of their proposed activity are reasonable and, concomitantly, that a consent authority cannot approve emissions that are not.

[112] However, s.16 is not a statutory provision that is directly relevant to the consideration of an application under Part 6. This is because it does not engage pre-emptively to require a resource consent applicant to demonstrate that it has adopted the BPO for its proposed noise emissions.⁴⁰ Rather the duty under s.16 applies to occupiers of land as they are, not what they might be.⁴¹

[113] Despite that, the High Court has observed:⁴²

“That is not to say that the existence of the s 16 duty will not guide the

³⁹ *McGuire v Hastings DC* [2002] 2 NZLR 577; (2001) 8 ELRNZ 14; [2001] NZRMA 557 (PC) and *Environmental Defence Soc Inc v New Zealand King Salmon Co Ltd* [2014] NZSC 38, [2014] 1 NZLR 595

⁴⁰ *Empire Entertainment Ltd v Vicki Vuleta Trust and others* [2010], CIV-2010-404-002832, Brewer J, 19 August 2010 (HC), at [42] – [43]

⁴¹ *Ibid*

⁴² *Ibid*.

development of noise emission standards nor that those whose function it is to decide applications for resource consents will not have regard to it.”

[114] We propose not to disregard s.16 entirely, but rather to pay close attention to the relevant noise emission standards and related provisions in the AUP, as this will assist us to understand the AUP’s approach to ensuring the s.16 duty is achieved. We will also consider s.16, albeit at a general level, when it comes to the exercise of our discretion under s.171(2). This is because it would not be an appropriate exercise of our discretion to allow an activity that would result in noise emissions that are unreasonable, as understood in the context of the relevant plan and other relevant matters.

8. EFFECTS ON THE ENVIRONMENT

8.1 INTRODUCTION

[115] The actual and potential effects on the environment of the activities sought to be authorised by the NoR and RCA were categorized and assessed under the following topic headings:

- (a) Positive effects;
- (b) Land contamination;
- (c) Sediment run-off effects during earthworks;
- (d) Effects on groundwater/hydrogeology;
- (e) Effects on marine ecology;
- (f) Effects on avifauna;
- (g) Effects on terrestrial and freshwater ecology;
- (h) Construction traffic effects;
- (i) Construction noise and vibration;
- (j) Air quality effects;
- (k) Effects of operational water management and flooding;
- (l) Effects on historic heritage;
- (m) Landscape and visual effects;
- (n) Operational noise effects;
- (o) Social and other effects;

- (p) Effects on cultural values and mana whenua;
- (q) Effects on infrastructure and network utilities.

[116] To this list we would add 'effects on amenity values'. Even though several of the environmental effect topics noted above are directly relevant to the issue of amenity, effects on amenity values per se was a significant aspect of the Project that was in contention, particularly for those residents in the Kaipara Flats Road area.

[117] We note that not all the environmental effects of the Project were in contention, in the sense that there was competing expert evidence about the approach to their assessment and the conclusions reached. Indeed, for the most part, we were helpfully presented with detailed reporting from WK, via its AEE for the Project, a thorough review of that reporting by Council specialists and then evidence from WK and further comment by Council specialists on residual issues, with little in dispute. We do not propose to set out in depth the evidence we heard in relation to such uncontentious assessment matters. Rather, we will summarise the expert advice given to us and make our findings based on that advice.

[118] Where effects were in contention on the evidence, we have provided a more detailed analysis and set out our findings.

[119] Before delving into this aspect of our consideration of the NoR and RCA, we address s.104(2).

8.2 SECTION 104(2)

[120] Section 104(2) gives consent authority's discretion to disregard adverse environmental effects of a proposed activity if the applicable plan permits an activity with that effect.

[121] Although the AEE included a detailed list of relevant permitted activities under the AUP that would apply to the land within the Project area,⁴³ we understand that this was to ensure that the AEE complied with clause 3(a) of Schedule 4, rather than for the activities to be treated as of relevant permitted baseline for the purposes of s.104(2). The RCA s.42A Report did not identify a permitted baseline, noting that it was not a useful tool when assessing the effects of a complex proposal of this type. Similarly, neither in its evidence or submissions for the hearing did WK seek to assert a relevant baseline of effect and contend that we exercise our discretion under s.104(2) to disregard it. For these reasons, we have not exercised the discretion in s.104(2).

[122] There is no equivalent to s.104(2) when it comes to considering the effects of designations. Despite that, case law has established that it is permissible to apply permitted baseline comparisons when considering the effects of a notice of

⁴³ AEE, Appendix A, p432.

requirement.⁴⁴ Whether such application is mandatory or discretionary following amendments to s.104 made after this principle was established is a matter that is unresolved. Fortunately, we do not need to resolve it as neither the NoR s.42A report nor WK sought to assert a permitted baseline of effects in relation to the NoR works. Accordingly, we have not relied on a permitted baseline when considering the effects on the environment of the NoR.

[123] Although not put forward as specific permitted baseline considerations, the NoR s.42A report identified three permitted activities that it noted as being relevant to consideration of the effects of the NoR.⁴⁵ The activities in question arise from the provisions of the AUP (permitted noise from new roads; demolition of buildings in rural zones) and the National Environmental Standard for Plantation Forestry. We discuss these provisions shortly when considering the standards and plan provisions that are relevant to the RCA and NoR under ss.104(1)(b) and 171(1)(a).

8.3 POSITIVE EFFECTS

8.3.1 Transport Network Improvements

[124] The evidence for WK was that the Project would have a number of transport related positive effects, which in turn would generate positive social and economic effects for people and communities.

[125] With respect to safety, we were told that the existing state highway route between Warkworth and Te Hana has claimed 8 lives in the last 7 years and caused 33 serious injuries. The Dome Valley section of state highway in particular has a high rate of serious and fatal accidents. The proposed new four lane dual carriageway road designed to modern standards would significantly improve safety for all road users.

[126] Mr Clark advised us⁴⁶ that the new road would also:

- (a) reduce (and improve) travel times for general users, freight transporters and holiday travelers;
- (b) reduce congestion, and the effects of random incidents on other road users;
- (c) allow journeys to be planned with greater certainty around travel times;

[127] The Project would also substantially improve resilience, route security and reliability by offering an efficient and safe alternative to the existing state highway.

[128] Council's reporting officers and transport specialist also concurred with the transport network benefits that the project would generate.⁴⁷

⁴⁴ *Beadle v Minister of Corrections* EnvC A074/02

⁴⁵ NoR s42A report, p384

⁴⁶ Evidence I Clark, 15 September 2020, at [77] – [96].

⁴⁷ NoR s42A report, at 384-385, and 545; RCA s42A report, at 17.

[129] We heard no evidence that undermined the evidence for WK and the Council that the project would bring substantial benefits for the transport network.

8.3.2 Economic Benefits

[130] With respect to economic effects, WK advised that the Project will be a significant national investment in the Auckland and Northland regions and will support both economies by strengthening the connection that moves people and freight between them.⁴⁸ In this regard, it was Ms Sinclair's evidence⁴⁹ that positive economic effects would include:

- (a) Improved accessibility between Auckland and Northland with associated economic benefits for both regions;
- (b) Increased economic activity in Auckland and Northland during construction; and
- (c) Improved economic performance resulting from improvements in journey time, resilience and reliability.

[131] In Ms Sinclair's opinion, the Project would promote the Rodney local area and improve the viability of Northland for residents and businesses. Although she observed that the Project would have some trade re-distribution effects for those businesses on the existing SH 1 alignment at Wellsford and Te Hana, which are currently dependent to some degree on the passing motorized trade, overall the economic effects would be significantly positive in the long term.

[132] A number of submitters supported this evidence, noting safety improvements and improved connectivity between Northland and Auckland as major benefits that the Project would generate.

[133] We heard no evidence to the contrary i.e., that the Project would not give rise to the positive social and economic effects described by WK and supported by others. We therefore accept this evidence as unchallenged.

8.4 LAND CONTAMINATION

[134] The Project AEE included a report entitled *WW2W Contaminated Land Assessment*, prepared by GHD and Jacobs which identified some 'moderate risk'⁵⁰ activities within the designation boundaries. The report concluded that the activities were not widespread and unlikely to cause any significant soil contamination.

[135] Despite acknowledging that there is contaminated soil within the designation area, WK has elected not to seek any consents under the National Environmental

⁴⁸ WK Opening Submissions, 2 October 2020, at [3].

⁴⁹ Evidence K Sinclair, 15 September 2020, at [53].

⁵⁰ 'Moderate risk' activities as defined in the *Hazardous Activities and Industries List* (HAIL, Ministry for the Environment, 2011)

Standard: Contaminated Soil or under E30 Contaminated Land of the AUP. It explained that due to the potential time lag between consents being obtained and construction works commencing, and the fact that no detailed design has been confirmed, it preferred that any additional consents that may be required in regard to soil contamination be sought at a later date.

- [136] Council's land contamination specialist, Mr Paul Crimmins, reviewed the report provided by WK and other relevant sections of the AEE (6.2.7, 9.1 and 11.2.6) and indicated that he was satisfied that WK's approach was appropriate. He observed that in the interim period as well, additional activities which have the potential to contaminate land may occur, and the final design layout may avoid any areas identified as 'moderate risk' in any event, thus making any application now potentially redundant.
- [137] We agree with this approach and do not consider land contamination issues to be of such a significant potential concern that consents need to be sought now. We support the advice note approach recommended in the RCA s.42A report in this regard.

8.5 SEDIMENT RUN-OFF EFFECTS DURING EARTHWORKS

8.5.1 Evidence for Waka Kotahi

- [138] Evidence for WK on the management of erosion and sediment control during earthworks was provided by Mr Graeme Ridley. We have summarised Mr Ridley's evidence and his key conclusions in Appendix 1 and refer the reader to it for further information.
- [139] We note that evidence in relation to the potential effects on marine ecology of sediment run-off, and how WK intends to offset such effects if they arise are discussed under the topic heading "Effects on Marine Ecology".
- [140] By way of background, as a significant component of the Project works involves excavation, earthmoving, filling and compacting in catchments that are subject to regular rainfall events, WK undertook a detailed modelling exercise to determine potential sediment yields arising from construction activities in order to design suitable sediment management strategies and measures. This modelling exercise confirmed that the higher risk locations of the Project (in terms of sediment yield) were areas with steeper topography. WK accepts that earthworks in these locations will require careful management to ensure that the construction effects of the Project in terms of sediment yield are no more than minor.
- [141] In that regard, a range of construction water management (**CWM**) measures and methodologies are proposed for the Project. We were told by Mr Ridley that these measures were designed to minimise the extent of soil erosion and capture and retain, to the fullest practical extent, the resultant sediment yield generated from the upstream construction zone. Erosion control measures will be given the highest

priority, according to Mr Ridley, as these prevent sediment generation in the first instance. The CWM principles for the Project include:

- (a) Prevention of sediment generation by the exclusion of clean water runoff from entering the active work areas;
- (b) Capture of any sediment laden runoff generated within the working area through the use of dirty water diversion (DWD) channels and/or bunds which will direct sediment-laden runoff from the site to an appropriate sediment control device; and
- (c) Minimisation of the length of time and the extent of the area of exposed/disturbed soil to reduce the potential to generate erosion.

- [142] WK proposes that best practice CWM (including both structural and non-structural measures and methodologies) would be adopted throughout construction of the Project using the most stringent design requirements from the various erosion and sediment control guidelines currently available. The suite of CWM tools proposed have been developed, we were told, using best practice technical guideline documents and through on-site experience, site condition knowledge and experience from other projects. Notably, these projects include Puhoi to Warkworth (**P2Wk**), with the proposed conditions for this Project reflecting the lessons learnt through the consenting and implementation phase of P2Wk. This adaptive evolution of conditions provided Mr Ridley with an increased confidence that the proposed conditions are best practice.
- [143] The proposed RCA conditions also specify maximum open earthwork areas at any one time for the Hōteu and Oruawhoro catchments in the Project area. The limits confirm the area in hectares within which construction works can occur. Mr Ridley considers these limits will be a key erosion control methodology for the Project: by limiting open erosion prone areas, the associated risks of sediment run-off will be proportionately reduced.
- [144] In addition, the proposed RC conditions require that any areas that are opened, and not subject to earthworks, must be stabilised within a 14-day maximum period. This will further reduce the erosion risk for those areas not subject to earthworks.
- [145] To enable the CWM measures and methodologies to achieve the construction water related environmental outcomes for the Project, the approach will be adapted through a continuous improvement monitoring programme. This programme will be implemented (as required by condition RC-31)) and requires qualitative and quantitative monitoring and analysis throughout the construction period. Adaptive management of the CWM measures and methodologies utilised on site will be ongoing in response to the monitoring results.
- [146] The proposed RC conditions also require WK to prepare and submit an Erosion and Sediment Control Plan (**ESCP**) and Construction Erosion and Sediment Control Plans (**CESCPs**) prior to any earthworks activity taking place. The ESCP

will set up the overall erosion and sediment control framework and design criteria for the Project as a whole, while the CESCPS will outline specific erosion and sediment control measures and the risk management approach that will be implemented for specific areas of work or activities. The requirement to submit a CESCPS for certification by Council prior to construction provides a tool to enable all associated location or activity specific risks to be identified and risk management practices put in place.

- [147] WK's view is that this management plan structure will allow for flexibility and contractor innovation, while ensuring that the outcomes, objectives and design criteria (as specified in the proposed RCA conditions) are achieved.
- [148] Overall, based on the CWM measures and methodologies required under the proposed RC conditions to be implemented for the Project and the modelled sediment yields expected from the Project, Mr Ridley considered that the potential adverse effects arising from construction related water management would be minor.

8.5.2 Submitter issues

- [149] A number of submitters raised concerns related to the management of water discharges and adverse effects during construction. Mr Ridley responded to the issues raised in his evidence. We provide a summary of both below.
- [150] *Christine Beale and Lance Adamson (RC20), Heather Arnold (RC22), Joanne Hawke (RC23)*: These submissions relate to the properties at 259 Worthington Road, 253 Worthington Road and 263 Worthington Road, Wellsford and contain the same information relating to key concerns associated with the potential impacts of the Project on water quality in surrounding stream systems. The submissions request that an Environmental Quality Plan be put in place to ensure that streams are kept clean.
- [151] In his evidence Mr Ridley noted that the proposed RC conditions include a requirement to develop various management plans (including CEMP, ESCP and Chemical Treatment Management Plan (**CTMP**)), with site or activity specific CESCPS also required. These management plans will be put in place prior to construction commencing and are designed for the specific purpose of protecting water quality. As such, he did not consider a further Environmental Quality Plan to be necessary.
- [152] *The Department of Conservation (DoC) (JS7)*: The DoC submission does not raise any specific concerns with respect to WK's proposed CWM measures and the process proposed in relation to these measures. The issue of concern it raises however, relates to the fact that as a result of the monitoring and measurement processes yet to be completed, there will be a significant quantity of new information provided to the Council before construction. DoC considers that timeframes should be imposed for the delivery of that information that provides adequate time for the Council to consider it.

- [153] In response, Mr Ridley noted that the suite of management plans, and in particular the continuous improvement monitoring programme and the CESCPS, are a key tool that will allow for full risk assessment and CWM measures to be adapted and provide for best practice sediment management throughout the Project. The various management plans are detailed in the proposed RCA conditions and all have specific timeframes and a process for submission and certification by Council as confirmed in Table 2 of the proposed conditions. Based on other project experience with similar management plan and CESCPS timeframes, Mr Ridley considered these timeframes were adequate and will provide sufficient time for a full and meaningful review of the information provided by the relevant parties.
- [154] DoC's submission also provided specific comment on various consent conditions relevant to this issue. We have addressed these comments in a later section of this decision, albeit noting that DoC ultimately chose not to present evidence in support of its submission.
- [155] *David Mason and Dianne McCallum (JS1)*: This submission relates to a property at 211 Kaipara Flats Road RD1 Warkworth. The northern and eastern boundaries and much of the southern boundary of Mr Mason and Ms McCallum's property are adjacent to the proposed designation boundary.
- [156] Mr Mason and Ms McCallum accept that the Project AEE discusses a potential construction methodology for the Project, but states in multiple places that it is up to the contractor to determine their own design and methodology. Mr Mason and Ms McCallum note that this has the potential to cause significant adverse effects that are not anticipated during the consent process. Further, Mr Mason and Ms McCallum contend that even if the design and alignment for the Project are fixed, the contractor's ability to select their own construction method could have significant adverse effects whilst still fulfilling the conditions.
- [157] Mr Mason and Ms McCallum support the concept of staging of earthworks, however they consider that this requirement should go further to ensure it includes the ability to undertake earthworks adjacent to residents in as short a timeframe as possible.
- [158] In response, Mr Ridley considered that the staging provisions as currently specified, open area limits imposed, and the 14-day stabilisation period, will all operate together to encourage construction activity to be efficient and will mean that areas of earthworks are not opened and exposed unnecessarily. This will have the effect of also ensuring that all earthworks, irrespective of location, are completed in as short of a timeframe as possible. In his opinion, the proposed conditions were robust and would create effective outcomes. Implementation of the Project will need to comply fully with these conditions and in doing so will provide for effective management throughout the construction phase. In conclusion, Mr Ridley considered that the nature of the concerns raised by Mr Mason and Ms McCallum relating to construction water were adequately addressed within the RCA conditions as proposed.

- [159] *Watercare (JS4)*: Watercare's interest in the Project is to ensure that its Wellsford Water Treatment Plant (**WTP**), its Wellsford Wastewater Treatment Plant (**WWTP**) and its northern water supply sources are protected. Its submission states that its key areas of concern are potential increases in the risk of flooding in the Hōteō River floodplain, effects on water quality entering its northern treatment plants, groundwater quantity, its ability to access its WTP and WWTP and its planned revegetation in the Hōteō River.
- [160] Watercare's submission also requested regular consultation and engagement with Watercare leading up to and during construction of the Project, to be involved with the preparation of management plans and to be notified in the event of any spillage, in particular large sediment loads, discharged to the Hōteō catchment. Watercare sought condition amendments to ensure these outcomes.
- [161] In his statement of evidence presented at the hearing on behalf of Watercare, Mr Wilson advised that as a result of discussions between representatives of Watercare and WK since filing its submission, only one issue remained outstanding between them. This related to access to Watercare's WTP, WWTP and future water treatment plant at 487 Wayby Valley Road. Mr Wilson requested an amendment be made to condition D-34 to read: "*Enable access to Watercare's Wastewater Treatment Plant (Lot3 DP64870), Water Treatment Facility (362 Wayby Valley Road) and planned water treatment facility (487 Wayby Valley Road) at reasonable times.*"
- [162] *Amanda Oguz on behalf of the Friends of Streamlands (NOR5); Amanda Oguz and Naim Oguz (JS10); The Dando Family Trust (JS9)*: These submitters raised site specific concerns in relation to the management of water discharges and adverse effects during construction, in particular effects on natural waterways and wetlands in the area and effects on flora and fauna on their properties.
- [163] Mr Ridley addressed these concerns in his evidence. He confirmed that as part of the detailed design process, specific construction water management methodologies will be confirmed within a range of management plans. These management plans, including the provision of specific CESCPS, will all be subject to Council review, certification and compliance. In his view, this provides a tool to enable all associated risks to be identified and risk management practices put in place.
- [164] In his evidence Mr Ridley also confirmed that flooding during the construction phase may influence the water quality effects of the Project in circumstances where flood waters extend over the construction earthworks. However, these flood events will be able to be predicted using rain forecasting, enabling preventative management techniques such as stabilisation and diversions to be employed in advance in relation to the earthworks area in question, which will reduce the risk and potential impact of these events. Mr Ridley confirmed that all CWM measures are designed to be outside of the 20-year flood plain extent, which is confirmed within the CESCPC documentation.

- [165] Mr Ridley concluded in his evidence that there would be no more than minor construction water effects on the submitters' properties or on the wider receiving environment.
- [166] *Bruce and Joy Drower (RC18)*: This submission included concern about a dam and natural spring in the proposed designation area and the need for it to be protected due to this asset providing year-round water supply for Mr and Ms Drowers' property. In response to this concern, WK has reduced the extent of the designation over the Drower property so it excludes the water supply pond.
- [167] *Dianne Civil (RC31)*: Ms Civil's property is at 111 Kaipara Flats Road, Warkworth. Her submission noted concerns related to effects of the Project on the ecological values of the Mahurangi River (left branch) and the quality of the information and assessment regarding the impacts and effects on the Mahurangi River. Ms Civil's submission related specifically to the location and design of the Warkworth Interchange. The concerns of Ms Civil regarding flooding and water quality are addressed in the section of the decision addressing stormwater.

8.5.3 Council's s.42A review

- [168] A Council specialist, Mr Matthew Byrne, completed a thorough review of the AEE and prepared a Technical Memo dated 17 August 2020 setting out his assessment and conclusions on WK's proposals in relation to sediment control during earthworks.
- [169] Mr Byrne advised us that, in his view, the Project includes industry best practice measures for the management of the potential effects associated with erosion and the generation of sediment from the proposed earthworks operation. However, he recommended a number of changes to the RCA conditions proposed by WK. We note that most of these were incorporated into the set of conditions provided with Ms Sinclair's evidence.
- [170] At the end of the hearing there were three conditioning matters that remained unresolved between Mr Byrne and Mr Ridley. These were identified in the Council response documentation dated 15 October 2020 and related to the proposed open area limits, the practicability of condition RC-34A(b), and RC-25 relating to chemical treatment sheds. Mr Byrne addressed us on his reasoning for the final condition amendments he considered necessary in relation to these issues.

8.5.4 Findings on sediment run-off effects during earthworks

- [171] Our findings in response to the submissions, s.42A report issues and Council's position at the hearing are set out below.

Submitter issues

- [172] We accept the evidence of Mr Ridley that resource consent conditions already include a requirement to develop various management plans (including CEMP, ESCP and Chemical Treatment Management Plan (**CTMP**)) with site or activity

specific CESCPS also required. These management plans will be put in place prior to construction commencing and are designed for the specific purpose of protecting water quality. We also accept that, provided the consent conditions are complied with, there will be no more than minor construction water effects on the submitters' properties or on the wider receiving environment.

- [173] We note and accept that WK's intention is to reduce the extent of the designation over the Drower property, so it excludes the water supply pond. We infer that this will ameliorate Mr and Mrs Drower's concerns regarding the water supply pond.
- [174] We accept the evidence of Mr Ridley that all of DoC's concerns are satisfactorily addressed by the proposed conditions apart from RC-26. Mr Ridley recommended in his evidence an amendment to this condition which outlines that if the design requirements cannot be achieved then the alternative design will need to be approved in the respective CESCPS and will need to include reasons why the criteria cannot be achieved, and an analysis of the alternatives proposed. We agree with this proposal and have included this recommendation in the final version of condition RC-26c.
- [175] We find that all of the matters raised in Watercare's submission are addressed by the proposed conditions except for Mr Wilson's request that an amendment be made to condition D-34 (as noted at [163] above). We consider this amendment to be reasonable and have included it in the final version of D-34.

Council's outstanding issues

- [176] In his technical memorandum, Mr Byrne noted his previous experience on other projects and the difficulty in successfully stabilising open areas as the earthworks season comes to a close at the end of April. He therefore considered that the open area limits as sought by WK and supported by Mr Ridley were only appropriate for the six-month period from October to March. Should WK wish to adjust these limits, Mr Byrne's view was that it ought to apply to Council, via the normal process for amendments through the CESCPS, for an area increase. As such, Mr Byrne maintained his preference that the open area limits were decreased (see below) because based on his experience from P2Wk the contractor generally can stabilise approximately 3 ha per day. This contrasted with verbal advice given to us at the hearing by Mr Ridley that stabilisation of 5 ha per day was achievable.
- [177] Mr Byrne also noted that achieving condition RC-34A(b) was not always possible due to site conditions and health and safety. This condition requires that within 12 hours of a trigger event occurring the consent holder shall instruct a suitably qualified and experienced person to remedy any identified problems and implement any further controls on activities or areas of the site that are likely to continue to contribute to sediment discharge into the receiving environment.
- [178] Mr Byrne's closing comments also identified an issue with the proposal for two chemical treatment sheds in WK condition RC-25(a)(ii), noting a concern that

failure of one of the sheds could reduce the total amount of chemical available, with consequent detrimental effects on water quality.

Open area limits

- [179] In Mr Byrne's technical memo he noted the RCA proposes a maximum open area at any one time comprising the following: Hōteio River catchment - 75ha, Oruawharo catchment - 25 ha and Mahurangi - 43.3 ha. He recommends that open area limits are decreased from the 1st of April to 50 ha in the Hōteio catchment, 15 ha in the Oruawharo catchment and 25 ha in the Mahurangi catchment to allow for approaching winter conditions.
- [180] Mr Ridley's evidence is that winter works approvals from Council always include the requirement to stabilise areas and this will be reflected in a decrease in open areas overall as the winter season approaches. The extent of this decrease will be directly dependent upon site conditions, the nature of works proposed, and, importantly, weather conditions. If these elements are conducive to areas remaining open, then such earthworks can continue with the same efficacy and environmental outcomes as are expected outside of this winter period. We note that condition RC-46 allows for opening of earthworks greater than the specified limits, provided suitable information to justify this is provided to Council.
- [181] In reviewing the evidence and the proposed conditions, we noted that no open area limit is provided for the Mahurangi catchment. This is despite Mr Ridley stating, in reference to the Mahurangi River,⁵¹ that "*open area limits have been assessed within the Project assessment and modelling to restrict overall sediment generation and subsequent discharge into this receiving environment*".
- [182] We therefore find that there should be a maximum open area limit for Project works within the Mahurangi catchment based on the extent of earthworks assumed for the sediment modelling. We have included this as a new condition, RC-45A which will read: "*Unless approved in accordance with condition 46, the maximum open area earthworks area for Project Works within the Mahurangi River catchment is 43.3 ha.*"
- [183] However, we find that the maximum open area limits do not need to be reduced by way of consent conditions for the period from the 1st of April as recommended by Mr Byrne. This is because we understand from the evidence of both Mr Ridley and Mr Byrne that the standard procedure for approval of CESCPS and winter works takes into account relevant aspects of erosion and sediment control to adequately deal with approaching winter conditions.

Condition RC-34A(b)

- [184] In acknowledgement of Mr Byrne's comment that implementing the proposed condition would not always be possible due to site conditions and health and safety

⁵¹ Evidence G Ridley, 15 September 2020, at [100].

we have revised this condition to read: “*Remedy any identified problems and implement any further controls on activities or areas of the site that are likely to continue to contribute to sediment discharge into the receiving environment to the extent practicable*”.

Condition RC-25(a)(ii)

- [185] We had conflicting technical evidence on the best approach to the issue of this condition. Given that consent will not be exercised for a number of years and technology can be expected to improve over that time, we consider the number of flocculation sheds is not a matter that we should prescribe by a condition. We therefore consider that the condition should require robust design, construction and operation of the flocculation system, including provision of sufficient chemical at a minimum in accordance with GD05 and sufficient to meet the overall ESC outcomes of condition RC-21. We have included these requirements in a new replacement condition RC-25(a)(ii).

Overall findings

- [186] From the specialist evidence we heard from Mr Ridley and Mr Byrne, we find that the actual and potential effects of erosion and sediment run-off during Project earthworks can be avoided, remedied or mitigated to a satisfactory level by way of detailed consent conditions.

8.6 EFFECTS ON GROUNDWATER/HYDROGEOLOGY

8.6.1 Evidence for Waka Kotahi

- [187] Evidence for WK on hydrogeology and groundwater effects of the Project was provided by Mr Tim Baker.
- [188] We have summarised Mr Baker’s evidence and his key conclusions in Appendix 1 and refer the reader to it for further information.

8.6.2 Submitter issues

- [189] The submission from the Dando Family Trust raised concerns about the effects of Project construction and associated alteration of the land structure on groundwater (presumably groundwater levels), as their property is reliant on bore water for their potable supply.

8.6.3 Council s.42A review

- [190] In her review report, Council’s specialist, Ms France, indicated general agreement with the assessment and conclusions of Mr Baker in relation to geohydrological/groundwater effects, however she raised some concerns around the magnitude of drawdown predicted by Mr Baker and proposed various conditions to address those concerns.

[191] In his evidence in response, Mr Baker advised that he was supportive of a simplified set of conditions that set bounds for drawdown and settlement effects consistent with a precautionary approach. But he did not agree with all of Ms France's proposals, in particular:

- A requirement for a bore survey (previous condition RC-106), which requires obtaining information on bore construction;
- Bore interference contingency actions (previous condition RC-109).

8.6.4 Findings on groundwater effects

[192] In his evidence Mr Baker confirmed that the Dando Family Trust property is located at 39 Phillips Road, Dome Forest (CH47100) and their bore (BH29265) is approximately 250 m west of the Indicative Alignment. As well, he notes that from CH46400 to CH47300 the Indicative Alignment will be constructed on fill (raised from existing ground level). As the road would be elevated above existing ground level, it could not have any effect on groundwater and as such Mr Baker considers the effects on bore BH29265 to be less than minor.

[193] In relation to drawdown concerns generally, we accept the evidence of Mr Baker that the conditions relevant to groundwater proposed by WK are sufficient to ensure there are no noticeable groundwater related effects on existing groundwater users, existing structures or surface water resources. Accordingly, we do not consider the additional conditions suggested by Ms France to be necessary or reasonable.

[194] Overall, on the basis of the specialist evidence we heard from Mr Baker and Ms France, we find that the potential for construction earthworks to cause ground instability or impact groundwater bores will be avoided, remedied or mitigated by way of detailed consent conditions.

8.7 EFFECTS ON MARINE ECOLOGY

8.7.1 Evidence for Waka Kotahi

[195] Evidence for WK on the marine ecological effects of the Project was provided by Dr Sharon De Luca and Dr Jacqueline Bell. We have summarised their joint evidence and key conclusions in Appendix 1 and refer the reader to it for further information.

8.7.2 Submitter issues

[196] The submission from the Department of Conservation (DoC) supported the overall approach in the Assessment of Marine Ecology Effects and related resource consent conditions to address the impacts of sedimentation.

[197] However, DoC states in its submission that it considers the proposed 5% of baseline sedimentation mitigation threshold for cumulative effects is too high, given

the SEA-M status of both marine receiving environments. DoC requests therefore that there be no net increase in sediment discharge to the receiving environments.

[198] The DoC submission also seeks that some of the proposed amenity and ecological mitigation planting be established before and/or early in the construction phase.

8.7.3 Council's s.42A review

[199] Council's review of the assessments completed by Dr De Luca was included in a Technical Memo prepared by Dr Kala Sivaguru, Senior specialist-Coastal. Dr Sivaguru agrees with assessment completed by Dr De Luca, including the sediment reduction offsetting approaches proposed. However, she retained three main questions relating to the proposed offsetting measures, being:

- (a) A request for more detailed rationale for the use of greater than 5% of the background sediment load as a threshold for offsetting cumulative effects of sedimentation during construction;
- (b) Why sediment reducing activities can take up to 25 years to balance out the discharged sediment above thresholds. She suggested the period be reduced to closer to 5 years unless it is demonstrated that this is impractical; and
- (c) Why the acute and cumulative effects as per the definitions have not been minimised as far as practical.

[200] Subject to addressing the above questions, Dr Sivaguru recommended that consent be granted. She concluded that with best practice erosion and sediment control and the sediment reduction measures proposed any significant adverse effects on marine ecological values from the potential sediment discharge from the Project would be avoided.

8.7.4 Findings on effects on marine ecology

[201] Drs De Luca and Bell responded to the three outstanding questions raised by Dr Sivaguru in their evidence.

[202] With respect to the first question, Dr Bell's response is set out in paragraph 73 in Appendix 1. We are satisfied with the explanation provided and find that 5% of the background sediment load as a threshold for offsetting cumulative effects of sedimentation during construction is reasonable in the circumstances.

[203] On the second question, Dr De Luca explained the reason that sediment reducing activities can take up to 25 years to balance out the sediment discharged above thresholds in her evidence. That evidence was to the effect that:

- Sediment reducing activities such as retiring and planting steep land and riparian planting can take a number of years to mature to their maximum sediment reduction and the benefits will accrue over time.

- Achieving the required outcome in less than 25 years is consistent with avoiding permanent effects, as the EIANZ ecological impact guidelines state that effects that last 25 years or longer can be considered permanent.

[204] Dr De Luca's response to the third question, why the acute and cumulative effects as per the definitions have not been minimised as far as practical was:

- Sediment release is minimised through the implementation of best practice erosion and sediment control measures as set out in the evidence of Mr Ridley.
- Mitigation will be provided for Project sediment discharges (acute and cumulative) that are likely to have a significant adverse effect on marine ecological values.
- The approach to offsetting sediment discharges using the sediment triggers that the Project has developed also has reasonably high conservatism already built in. Therefore, the acute and cumulative event definitions are appropriate and will ensure that any more than moderate adverse effects on marine ecological values are offset.

[205] We accept the responses made by Drs De Luca and Bell to the second and third questions posed by Dr Sivaguru and find accordingly.

[206] We also find that the concerns expressed in the DoC submission have been addressed through the evidence of Drs De Luca and Bell, as follows:

- proposed 5% of baseline sedimentation mitigation threshold for cumulative effects is appropriate.
- there is no justification or need for no net increase in sediment discharge to the receiving environments.
- Adequate mitigation planting can be established to balance out the quantum of Project sediment discharged over the thresholds within a 25 year period.

[207] In conclusion we find that the potential adverse effects of the Project on marine ecology can be satisfactorily mitigated by the proposed erosion and sediment control works and provision for offsetting of sediment discharges above nominated thresholds by measures such as future planting. This approach is provided for in proposed conditions RC-31, RC-32 and RC-37 to RC-42.

8.8 EFFECTS ON AVIFAUNA

8.8.1 Evidence for Waka Kotahi

[208] Evidence for WK on the effects of the Project on avifauna was provided by Dr Leigh Bull. We have summarised Dr Bull's evidence and key conclusions in Appendix 1 and refer the reader to it for further information.

Multiple sites between Warkworth and north of Te Hana

BUN60354951 (LUC60354952, LUS60354955, WAT60354953, WAT60355184, WAT 60356979,
DIS60354954, LUC60355185, DIS60355186)

8.8.2 Council s 42A review

[209] Council's Senior Specialist – Coastal, Ms Sivaguru agreed with Dr Bull's assessment and conclusions. She also noted that no submitters raised any concerns or brought expert evidence with regard to avifaunal values.

8.8.3 Findings on effects on avifauna

[210] We accept the expert evidence presented by Dr Bull and reviewed by Dr Sivaguru that potential adverse effects of the Project on avifauna will be less than minor. We find accordingly.

8.9 EFFECTS ON TERRESTRIAL AND FRESHWATER ECOLOGY

8.9.1 Evidence for Waka Kotahi

[211] Evidence for WK on the effects of the Project on terrestrial and freshwater ecology was provided by Dr Ian Boothroyd. We have summarised Dr Boothroyd's evidence and key conclusions in Appendix 1 and refer the reader to it for further information.

8.9.2 Submitter issues

[212] Dr Boothroyd noted in his evidence that many of the public submissions relating to ecological matters referred to similar issues and concerns. As a consequence, rather than refer to each submission he responded to the main issues in groups. In particular, he focused on the submissions of DoC (submitter No. JS7), Forest & Bird (JS3), and Hōkai Nuku (RC29), who raised several matters of concern in their submissions respectively, with many common to a number of other submissions including:

- Puriri Springs (Denise Civil) (NOR10);
- Southway (Denise Civil) (NOR11);
- Wendy Court (NOR8);
- Pauline Yarnley (RC34);
- Dianne Civil (RC31);
- Friends of the Streamlands (NOR5);
- Naim and Amanda Oguz (JS10);
- Dando Family Trust (JS9);
- Dean William Yarnley (RC35);
- David Mason and Dianne McCallum (JS1);
- Joy and Bruce Drower (RC18);

- WaterCare Services Limited (JS4); and
- Tertia de Vaile Wildy (RC30).

Terminology

[213] Forest and Bird, and Mr Mason and Ms McCallum comment on the use of terminology for mitigation and/or the absence of offsets. The EIANZ effects management hierarchy is made up of a specific terminology, which reflects the avoidance, remediation and mitigation of effects, and the biodiversity offset or compensation for significant residual effects. In the Ecology Assessment all of these terms have collectively been referred to under the umbrella term of a single 'mitigation package'. We have commented on the use of this phrase earlier. Dr Boothroyd acknowledges that this may have caused some unintended confusion. Accordingly, in his evidence Dr Boothroyd refers to the terms as they are intended in the 'effects management hierarchy'. A clear breakdown of the 'effects management hierarchy' is also provided in Table 32 of the Ecology Assessment.

Establishing the existing environment

[214] Several submissions, and particularly DoC and Forest & Bird, challenge the Project team's assessment of the existing environment, particularly as the Project is not scheduled to commence until 2030. Dr Boothroyd agrees that the ability to accurately establish what the ecological values of the environment might be in some years to come is challenging. Dr Boothroyd notes that they have assessed the current ecological values associated with the route of the proposed designation boundary and assessed the effects of the Indicative Alignment on these ecological values. He has applied the effects management hierarchy to these impacts. The assumption that the Rayonier Matariki Forests plantation is fully harvested within the proposed designation boundary at the commencement of construction is an important component of the Ecology Assessment as it is the realistic future environment.

[215] Dr Boothroyd does not agree with the DOC submission that the current assessment of ecological effects is speculative. He comments that the assessment is based on their data and observations, existing records from the area, and previous studies.

[216] Dr Boothroyd acknowledges that the time lag between the assessment and the commencement of construction is long and has its own challenges for the ecological assessment. Consequently, he has recommended further surveys and studies are undertaken closer to the time of commencement of construction in order to confirm the ecological values in relation to the detailed design for the Project and, if necessary, adapt plans to ensure that the identified ecological outcomes are achieved. The confirmation of some of these values may require longer lead times to collect sufficient data to inform the effects management actions (e.g., Long-tailed bats, a highly mobile fauna that moves across the landscape). These recommendations are reflected in proposed conditions RC-54O to RC-54V for indigenous fauna.

- [217] Dr Boothroyd also notes that while the majority of ecological features and ecosystems were visited as part of his assessment, the sites that could not be accessed were still the subject of a comprehensive desktop assessment so their values could be determined. These locations were mostly but not exclusively in the Hōteu North section.
- [218] In Dr Boothroyd's opinion, given the time lag before the commencement of construction, it is important to have detailed management plans that set out what is expected for the ecological assessments at the time, the processes for management, and the anticipated ecological outcomes. It is his opinion that the proposed Ecological Management Plan (**EMP**) conditions achieve that.
- [219] An important component of the Ecology Assessment was to confirm whether there was sufficient spatial capacity within the proposed designation boundary for the implementation of the necessary mitigation and offsets for the predicted effects on ecological values, based on the location and effects of the Indicative Alignment. In Dr Boothroyd's opinion, there is sufficient space within the proposed designation boundary for the terrestrial and wetland vegetation, and stream habitat offset required.
- [220] Dr Boothroyd acknowledges that there may be a requirement for locations for recipient translocated fauna to occur outside of the proposed designation boundary if large populations of a threatened species are confirmed to be present when the Project is constructed. Such measures would be subject to a Wildlife Act permitting processes.
- [221] In Dr Boothroyd's opinion, the ecological assessment was sufficient to establish the existing ecological values and forms an appropriate baseline for assessing the effects of the Project on these ecological values for the purpose of this Application, and for informing relevant consent conditions.

Wetland at 83 Carran Road

- [222] In their submission, Mr Mason and Ms McCallum comment on a 'missing wetland' on the property at 83 Carran Road. In his evidence Dr Boothroyd advised that the ecological values will be confirmed nearer the time of the construction to ensure that ecological outcomes, including as to wetlands, can be achieved. He adds that given the extent of the ecological assessment, any omissions from the assessment are not likely to detract from the overall conclusions and that the application of the effects management hierarchy in accordance with the conditions will ensure that the effects on all features are appropriately managed.

Mahurangi River

- [223] In her submission, Ms Civil refers to limiting damage to the riparian margins of the Mahurangi River. Mr Mason and Ms McCallum, Southway, Puriri Springs, Ms Court and Tertia de Vaile Wildy also refer to effects of the Project on the Mahurangi River.

[224] Dr Boothroyd notes that during the design of the Indicative Alignment, intrusion into the riparian margins of the Mahurangi River has been avoided. Off and on ramps are elevated above the riparian vegetation to minimise loss to this vegetation. WK has proposed to secure these design features in any final road design (conditions RC-54 and RC-54C).

Approach to monitoring

[225] In their submission, Forest & Bird raise concerns as to the adequacy of the proposed ecological monitoring to ensure that the benefits of the offset and compensation package will be achieved and sustained.

[226] Dr Boothroyd responds that monitoring is recommended as part of the content of appropriate management plans, notably the EMP and the Stream Ecological Effects Management Plan (**SEEMP**). The EMP will be subject to input by specific stakeholders (condition RC-54E), that will ensure that recommendations for monitoring are appropriate.

Loss of stream habitat

[227] DOC and Forest & Bird have commented on the loss of stream habitat as a result of the Project. The Friends of Streamlands submission also raises concerns about the effects of the Project on the natural waterways and flora and fauna in the vicinity.

[228] Many streams will be affected by the construction of the Project (for example by stream diversions and culverting). Dr Boothroyd advises that WK will offset this loss in accordance with proposed conditions RC-76 and RC-77.

[229] The DoC submission raises a concern that stream diversions within the designation will not have the equivalent ecological value as the natural waterways. In Dr Boothroyd's opinion, diverted streams are not 'lost' or 'reclaimed' but 'moved'. By definition, they need to be treated differently from a reclamation. Stream diversions have been in practice for many decades.

[230] Dr Boothroyd comments that managing the aquatic ecological values in stream diversions are a key aspect of the approach to developing stream diversions. Effects of the Project by stream diversions and mitigation for stream works or loss of stream ecological value is to be guided by Council's Streamworks Ecological Valuations (**SEV**). To implement the mitigation, WK has proposed a condition of consent (condition RC-77) that requires a SEEMP to be prepared, which will set out how ecological values in diverted streams will be achieved and the design and location of the mitigation to be implemented.

[231] Dr Boothroyd notes that the diversions proposed in the steeper environments (typically the Dome Valley Forest section) are unlikely to achieve the ecological function required, and these diversions are not included in the freshwater offset proposal. It is understood that the loss of habitat in these steeper streams is included in the total Project freshwater offset requirements.

[232] Dr Boothroyd does not agree with the DOC submission that normal practice would be to assess all affected streams in the Project area. He has purposefully clustered streams (and other ecological features) into sections that have similar character, land use and topography. Dr Boothroyd's view is that good survey design relies on samples of the environment to inform an interpretation, rather than attempt to sample or record everything everywhere. Accordingly, representative streams were selected throughout the proposed designation boundary to inform the offset requirements for the residual loss of habitat. He considers this approach to be adequate to achieve the necessary offsetting.

[233] A selection of representative watercourses will be re-surveyed closer to the time of the construction (see condition Maps 7 to 12 and proposed conditions RC-72 and RC-73).

[234] Dr Boothroyd also notes that all affected streams will be subject to a fish salvage and relocation as a condition of consent (RC-79 and RC-80). In addition, all affected streams in the Dome Valley Forest section will be subject to a Hochstetter's Frog survey and a frog management protocol where frogs are present.

Threatened migratory fish and fish passage

[235] In their submission, Forest & Bird comment on the loss of habitat for threatened migratory fish, and the matter of fish passage.

[236] Dr Boothroyd's response is that the provisions for the offset for the loss of streams follows best practice and Council guidance, and will provide for the life cycles of migratory fish.

Covenants to protect new ecological plantings

[237] DOC has raised the matter of the long-term protection of the areas being planted or enhanced using an appropriate legal mechanism. In paragraph 151 of his evidence Dr Boothroyd states that condition RC-54M should also require that all mitigation and biodiversity offset planting and/or recipient translocation areas be protected by an appropriate legal mechanism. Fencing to a stock exclusion standard should also be provided where stock is present.

Relocation of fauna

[238] In their submissions, Forest & Bird and DOC have raised the matter of the salvage and relocation of indigenous fauna. This matter has been discussed above.

[239] Forest & Bird comment on the management of Hochstetter's frogs. We note that conditions RC-54U and RC-54V require that:

- surveys for Hochstetter's frogs are undertaken in all affected waterways of the Dome Valley Forest section; and

- appropriate management protocols (best practice) to capture and relocate frogs to a suitable site are confirmed with Council.

[240] Dr Boothroyd notes that all salvage and relocation of threatened indigenous fauna will require Wildlife Permits under the Wildlife Act 1953. These permits will also contain conditions that must be implemented. It follows in his view that it will be helpful if any management plan or protocols follow the guidance and conditions of the respective Wildlife permit.

Avifauna

[241] In their submission Mr Mason and Ms McCallum make reference to the bird count undertaken for the AEE and say that the number recorded is vastly short of their own experience. Dr Boothroyd responds by saying that he would expect this to be the case as their survey was a sample of what they would expect to find, and he acknowledges that the landowners' experience would be more comprehensive.

[242] Dr Boothroyd also notes that a full list of records obtained from the Ornithological Society of New Zealand (Appendix C of the Ecology Assessment), includes a comprehensive list of all species recorded in the environs and this informed their Ecology Assessment.

[243] We note that conditions RC-54Q and RC-54R require:

- further surveys to confirm the populations of avifauna closer to the commencement of construction of the Project; and
- management protocols to be used where threatened species and habitats are found.

Dust

[244] Mr Mason and Ms McCallum refer to the potential impacts of dust. The likely impacts of dust on vegetation and fauna were assessed in the Ecology Assessment (Table 10 of the assessment) and Dr Boothroyd's evidence is that the effects will be minor.

Forestry harvesting

[245] In their submissions, DOC and Forest & Bird have raised the cyclical nature of the production pine forest within the Dome Valley Forest section, specifically the Rayonier Matariki Forests (**RMF**) plantation forest, and the timing of the scheduled commencement of construction of the Project (at the time when the forest has just been harvested). They are concerned the higher ecological values associated with the mature pine forest which occur with the cyclical replanting of the forest will be lost due to the permanent new state highway.

[246] Dr Boothroyd comments that forest harvest and its effects will occur regardless of the Project. He notes that as the plantation forest harvesting occurs in a cyclical manner the ecological values will also rise and fall with the same cycle.

- [247] For the Ecology Assessment, Dr Boothroyd gave the existing mature unharvested pine forest high fauna and freshwater ecological value status, but after harvesting, he has given the forest lower terrestrial and freshwater value rankings. However, he has retained a high ecological value for indigenous fauna post-harvest.
- [248] Dr Boothroyd notes that he has recommended that a fauna habitat and flyway mitigation area (**FHFM Area**)⁵² be set aside in the vicinity of the southern tunnel portal (Conditions Map 2). He has recommended this provision in terms of effects management as additional to any offset area (hence it is not included in any offset quantum). This area is set aside as a means of recognising the ecological values that can occur as part of the cyclical nature of the production forest, by retaining some permanent pine forest area.
- [249] In Dr Boothroyd's opinion, sufficient provision is given to these ecological values in the effect's management outcome (i.e., remedy, mitigate and offset), plus the additional provision of fragmentation planting and the FHFM Area (all with pest management), to provide a more stable and consistent habitat for high value fauna.

Biosecurity risks

- [250] In their submission, DOC make specific reference to kauri dieback and other biosecurity risks. DOC is supportive of the proposed conditions for managing the risk of kauri dieback and other biosecurity risks. Dr Boothroyd notes that reference to additional biosecurity risks and inclusion of additional relevant species and reference to relevant guidance documents are included in the conditions RC-54A and RC-54B.

Adverse effects on specific ecology on submitters' property

- [251] Several submitters have raised concerns about adverse effects on ecology specific to their own properties. These include the submissions of Mr Oguz and Ms Oguz, Dando Family Trust, Mr Mason and Ms McCallum and Ms Drower and Mr Drower.
- [252] In our view, many of these concerns relate to matters other than ecology. Nevertheless, the submissions raise the potential for adverse effects on the ecology of their properties and the local environs.
- [253] In his evidence Dr Boothroyd acknowledges the concerns raised by the respective property owners and emphasises that proposed condition RC-54D requires that these ecological features are re-surveyed closer to the commencement of the project, especially to inform the offset requirements.

Ecological feature WN T Mahu 02

- [254] Mr Mason and Ms McCallum raise an issue with the ecology assessment applied to the kauri podocarp broadleaved forest, especially in relation to the western

⁵² See RC Map 13

portion of the ecological feature WN_T_Mahu_02. This feature is partly covenanted.

- [255] Dr Boothroyd acknowledges the ecological values of this feature and emphasises that condition RC-54D requires that these features are re-surveyed closer to the commencement of the Project, especially to inform the offset requirements.

Adequacy of proposed conditions and ecological management plans

- [256] Several submitters have commented on the adequacy of the proposed consent conditions and ecological management plans (Hōkai Nuku, DOC, Forest & Bird).
- [257] In response, Dr Boothroyd notes that because there is a substantial time lag between the Ecology Assessment and the scheduled start date of construction, fresh surveys are required to be undertaken closer to the Project start date. These surveys will be integrated into the management plans and thus provide greater certainty as to how the ecological findings, including the mitigation and biodiversity offsets, will be managed.
- [258] Dr Boothroyd adds that the approach detailed in the consent conditions will enable the quantum of effects management and offset to be directly proportionate to the detailed design, ensuring the 'no-net loss' and 'like for like' principles are met as far as practicable.
- [259] Accordingly, the management plans will detail how, what and where the elements of management will be carried out to meet the ecological outcomes of the Project, through avoiding ecological sites where practicable, provision of the FHFM Area, restoration planting, habitat rehabilitation and fauna relocation protocols and sites. Condition RC-54 requires topic sections covering these matters.
- [260] Dr Boothroyd's experience is that well-written and articulated management plans, which are anticipated by WK's proposed conditions, are a very successful means of providing certainty to the outcomes desired.
- [261] He notes that condition RC-54E provides for consultation with relevant authorities, including DOC, in the preparation of the EMP. In Dr Boothroyd's opinion this approach will result in a well-informed and robust plan. He considers further peer review and certification is not required if this consultation takes place and is well recorded.

Watercare submission

- [262] In their submission, Watercare raise the matter of revegetation and riparian planting in relation to their resource consent for discharge from the WWTP. We note this matter has been resolved as part of subsequent discussions between WK and Watercare, as advised in the evidence of Mr Wilson.

Hōkai Nuku submission

- [263] Hōkai Nuku provide a suite of recommendations for indigenous ecosystems.⁵³ For the most part, we observe that the ecological recommendations align with the content and intent of the ecological assessment and consent conditions.
- [264] Hōkai Nuku have further recommended that streamworks are restricted during December to March in the Kourawhero Stream in order to protect breeding koura females. Dr Boothroyd agrees with this recommendation and notes there is a proposed consent condition which requires bridging of the Kourawhero stream in any event, so this work is unlikely to impact on that season.

8.9.3 Council's s.42A review - Terrestrial Ecology

- [265] Despite Dr Boothroyd's response to his Technical Memo dated 25 August 2020, Mr Rossaak continued to have concerns with specific aspects of WK's conditioning proposals.⁵⁴

Management of residual adverse effects

- [266] Mr Rossaak is concerned with the management of residual adverse effects on terrestrial ecology proposed by WK. His proposed resolution is to include conditions of consent (which were proposed as part of the s.42A reporting), that require a more transparent ecological accounting system for the assessment of terrestrial ecological values prior to construction.

Management Plans

- [267] Mr Rossaak is not satisfied with the management plan approach proposed. Condition RC-54J requires assessment of the ecological value impacted by the Project and condition RC-54K requires the effects to be mitigated (offset) on a like for like basis. In Mr Rossaak's view, in order to show that the offset has been achieved, there needs to be some form of ecological accounting to demonstrate that there has been no net loss.
- [268] WK proposes using an area approach to offsets, which does not accommodate habitat rehabilitation (condition RC-54K), as this rehabilitation will be from a baseline that is not likely to be bare earth. Without ecological accounting, Mr Rossaak considers it difficult to assess the difference between the baseline of the offset site and the new required rehabilitation condition. Without this, it is difficult to determine if the rehabilitation has been achieved to address the identified residual adverse effect.
- [269] Despite the above, the use of management plans to confirm ecology of all sites, including fully assessing sites that have not been accessed, is supported by Mr Rossaak. However, these management plans will need to confirm the ecological

⁵³ paras 37-40, page 30 of the Hōkai Nuku submission

⁵⁴ Refer closing comments, A Rossaak, 13 October 2020

values and address the ecological outcomes required in a transparent and accountable manner.

[270] Conditions relating to strengthening the management plans and providing an enabling framework and guidance for compliance monitoring have been proposed (bullet points below), but not accepted by WK. The ability to monitor against specific ecological targets and standards is important to demonstrate compliance and provides Council standards to certify against (similar to those in condition RC-54M for planting) according to Mr Rossaak.

- Setting performance measures and standards to achieve the outcomes.
- Provision of contingency measures to address possible shortfalls in expected ecological performance of offsets.
- Provide transparent and quantified offset accounting methods, ensuring that:
 - The potential value of the impacted ecology (fauna and flora) is accounted for;
 - The relative ecological gain at the proposed offset site is accounted for;
 - An appropriate suite of ecological attributes are included in the offset accounting method; and
 - Time lag is accounted for.
- The transparent accounting system will also demonstrate like for like is achieved.
- Provide a standard system to assess the baseline of the offset sites.
- Provide for the adoption of best practice ecological accounting at the time of development.

[271] Mr Rossaak considers that it is likely that adoption of best practice effects management, including ecological accounting at the time of Project implementation, such as that published as industry accepted guidance, to assess site values, effects and the quantum of offsets, would achieve these outcomes.

Tunnel and Flyway

[272] Mr Rossaak supports the FHFMA Area concept and considers this is an important proposal to manage adverse effects, being identified as a primary site for the translocation of fauna and providing connectivity across a linear piece of infrastructure (condition RC-54F). However, he observes that whilst the proposed highway bridges are specifically required by the conditions (conditions RC-54 and RC-56), there is no similar condition requiring the tunnel (or flyway). The application material mentions the possible removal of the tunnel and flyway, but

provides no alternatives, only that alternatives will be found. Similarly, Dr Boothroyd's evidence is ambiguous on this point.

- [273] As such, Mr Rossaak considers it necessary that the avoidance of adverse effects on ecological value through the construction of bridges and tunnels should be maintained in the final design, including, but not limited to the proposed extents of the twin bore tunnel and associated flyway. In his view, should the tunnel be removed from final designs, there is likely to be a considerable impact to very high ecologically valued sites DFV_T_Koura_02 and DVF_T_Koura_01, and the ability to offset these effects within the designation has not been demonstrated.
- [274] The FHFMA Area proposed by WK is largely located to the south of the tunnel. The realisation of the full benefit of this is limited due to there being no restoration planting in the open paddock areas to the east of the proposed tunnel, resulting in lost opportunity to achieve improved connectivity with the SEA and DOC reserve to the east. For this reason, Mr Rossaak recommends the inclusion of the tunnel length and location in the conditions as well as the area east of the tunnel being identified as a proposed offset or landscape planting area.

Hochstetters Frog

- [275] In Mr Rossaak's opinion the success of any frog translocation remains in doubt, with translocations of other New Zealand frog species known to have failed. There is currently no known evidence that translocation of Hochstetters frogs has ever been successfully achieved. In that regard, he notes that no suitable habitat has been assessed to receive any Hochstetters frog translocations, and it is considered unlikely that such habitat will be found in the proposed designation with the current indicative alignment. Indeed, considering all fauna, including frogs, no sites have been assessed as suitable receiving sites for translocation.
- [276] It is likely that any sites suitable for fauna translocation are already existing (providing a mature habitat), but located outside the designation area. These sites may not have adequate pest control measures implemented or landowner approval to implement the necessary actions.
- [277] As such, Mr Rossaak recommends that translocation and receiving habitat concerns are addressed or effects on Hochstetters frog are avoided during final design, because there is no contingency provided should it become evident that the frogs cannot be translocated, or receiving sites are not available. He considers that this should be addressed now.

Effects on Indigenous Vegetation

- [278] Dr Boothroyd's evidence identifies⁵⁵ nine sites with High to Very High ecological values that will be impacted by the indicative alignment, however, only 5 of these are able to be located on the RC Maps 18 to 20.

⁵⁵ Evidence I Boothroyd, 15 September 2020, at [77].

Site	Values	Area impacted	Comment
WN_T_Koura_01a	Kahikatea, pukatea forest	0.267	Unsurveyed wetland, indicated on conditions maps
WN_W_Koura_05	Raupo reedland	0.119	Wetland, indicated on conditions maps
DVF_T_Koura_01	Kauri, podocarp, broadleaved forest	0.029	Marked in ecological assessment as exotic forest. Not indicated in conditions maps. Location is uncertain.
DVF_T_Hoteo_01	Exotic forest?	0.769	Not found and not indicated on conditions maps
DVF_T_Koura_02	Kauri, podocarp, broadleaved and Broleade species scrub/forest	0.7	Over tunnel area, indicated in conditions maps.
HN_T_Hoteo_02	Taraire, tawa, podocarp forest	0.4	SEA area and bridge 11. Indicated in conditions maps.
HN_T_Hoteo_03a	Kahikatea, pukatea forest	0.579	Not indicated on conditions maps. Close to Wayby Valley road intersection
HN_T_Hoteo_08	Kahikatea forest	0.27	Not indicated on conditions maps. North of HN_W_Hoteo_02
HN_W_Hoteo_01	Flaxland wetland	0.258	Bridge 11 landing area. Indicated in conditions maps

[279] Mr Rossaak considers that the maps should be updated with these sites and that they be specifically listed in the conditions with their values.

Offsets

[280] WK has advised that its sensitivity analysis for terrestrial ecology was undertaken on the total level of potential effects, which indicated that a movement in the lateral or vertical alignment of the road would have overall similar ecological effects. However, Mr Rossaak notes that no sensitivity analysis has been undertaken on the ability to offset all ecological effects within the proposed Designation area, particularly in a 'worst case scenario', or should unexpected impacts arise, such as increased vegetation clearing. In his view, this is important to consider, particularly should the tunnel not be implemented or should the plantation forest not be felled at the time of construction.

[281] Mr Rossaak notes that the offset sites identified are generally appropriate locations, however, offset site 'A' will provide limited habitat, being almost entirely surrounded by roading. Furthermore, it is felt that the flyway opportunity could be improved with additional planting located to the east of the proposed tunnel alignment.

8.9.4 Council's s.42A review – Freshwater Ecology

[282] Despite Dr Boothroyd's detailed response to his Technical Memo dated 18 August 2020, Mr Lowe also continued to have concerns with specific aspects of WK's conditioning proposals.⁵⁶

Approach to Management of Residual Adverse Effects on Wetlands

- [283] One of the key areas of differing opinion between Mr Lowe and Dr Boothroyd was the manner in which the offset quantum to address residual adverse effects from wetlands loss is to be calculated. Dr Boothroyd proposes to use fixed area ratios (6:1 for High and Very High value wetlands; and 3:1 for Very Low to Moderate value wetlands), relying on his experience and previous projects. Mr Lowe considers that this is not supported by a transparent accounting process that demonstrates a no net loss outcome.
- [284] In contrast, Mr Lowe proposes the use of a transparent offset accounting system which can be used to demonstrate the quantum of offset required to achieve a no net loss of ecological value outcome. He considers this best practice and a requirement to achieve one of the fundamental principles of offsetting (demonstrating a no net loss, or net gain, outcome). Mr Lowe suggests that such an offset accounting system exists in the form of the Biodiversity Offset Accounting Model, among others.
- [285] Dr Boothroyd suggests that ratios were accepted in the Manawatu Gorge application.⁵⁷ In response, Mr Lowe states that for that application, the ratios that eventuated into the conditions of consent were supported and calculated through the use of the Biodiversity Offset Accounting Model.
- [286] Mr Lowe also finds WK's approach to offsetting residual effects on streams and wetlands to be inconsistent. A transparent offset accounting system has been proposed by WK to address the residual adverse effects on streams (in the form of the SEV tool). This has been used in the Project application to indicate the level of stream offset potentially required, with conditions of consent requiring calculations to be updated following detailed design closer to the time of construction. However, for wetland offsets, WK is proposing the locked-in ratios.
- [287] Mr Lowe proposes a transparent offset accounting system approach also be used for managing the residual adverse effects on wetlands. He comments that it is unclear why WK is proposing two different approaches to freshwater effects management, other than it considers that using an offset accounting approach for wetlands would undermine an integrated ecological approach to Project mitigation.
- [288] But Mr Lowe notes that following a transparent offset accounting process (rather than predetermined ratios), does not prevent the integrated enhancement outcome sought by WK because:

⁵⁶ Closing comments, M Lowe, 15 October 2020.

⁵⁷ Evidence I Boothroyd, 15 September 2020, at [160].

- (a) Council is not recommending any amendments to the ecological outcomes proposed though condition RC-54C and supports these outcomes;
- (b) Offset accounting does not force actions to be taken in any particular location. Thus, it does not impact the ability to have an integrated outcome; and
- (c) Offset accounting does not limit the quantum of offset (i.e., the consent holder could implement more than demonstrated to achieve no-net-loss, and in doing so achieve the desired net gain outcome).

[289] Mr Lowe's position is that the lack of a transparent accounting process to quantify the wetland offset requirement ultimately means that the Project has not demonstrated a no net loss of ecological value outcome. In addition, the proposed use of fixed and predetermined ratios does not:

- (a) transparently demonstrate how time lag has been accounted for (noting, as proposed, the offsets would not take place until up to 2 years following completion of the project (RC-54N); and, potentially 9 years from the time of impact when considering the anticipated construction duration); or
- (b) consider relative differences in the ecological gains at the offset sites (e.g., a site that is currently heavily degraded and one that is moderately degraded offer different levels of potential ecological gain through enhancement that should be factored into any ratio).

Soil Disposal Sites

[290] In Mr Lowe's view there is some disparity between the activity being applied for and the ecological effects assessment when it comes to the proposed soil disposal sites.

[291] The AEE outlines that consent is sought for diversion of rivers and streams to a new course including diversions associated with soil disposal sites (Table 6 -3). However, Dr Boothroyd's evidence notes an assessment of the effects on freshwater ecological values at potential soil disposal sites was specifically excluded from the ecology assessment.⁵⁸ According to Mr Lowe, the diversion of watercourses for soil disposal has the potential to cause adverse effects, particularly when vertically lifted, including:

- Loss of overall stream length.
- Loss of baseflows and reduction in spatial and temporal habitat availability.

[292] The quantum of these potential adverse effects associated with soil disposal sites has not been assessed in the application material, nor have they been factored into the anticipated offset requirements, noting that other diversions assessed as part

⁵⁸ Evidence I Boothroyd, 15 September 2020, at [113].

of the alignment that result in reduced stream length and adverse effects have resulted in proposed offsets.

[293] Mr Lowe agrees with Ms Sinclair⁵⁹ that the proposed conditions enable any adverse effects resulting from stream diversions associated with soil disposal to be appropriately addressed. However, he still maintains that the effects are not assessed as part of the RCA (and not included in the anticipated level of stream effects or offset quantum).

[294] Furthermore, the quantum of additional offset required to address adverse effects resulting from stream diversions associated with soil disposal is not known in Mr Lowe's view. The loss of stream length available for offset enhancement as a result of soil disposal activities is also not known (as these locations are indicative). This, coupled with the assumption that the RMF forest will be harvested at the time of construction, making streams within this section available for offset actions, leads to a level of uncertainty regarding the ability to offset residual adverse effects on streams within the Designation. For further discussion on this issue he refers to paragraphs 30 – 38 of his Technical Assessment.

Conditions

[295] WK has rejected the proposed conditions that set out a framework for an offset accounting method to be implemented following detailed design, to calculate the wetland offset quantum. Mr Lowe disagrees with this rejection for the reasons described above.

[296] WK has also rejected the proposed condition for an Annual Mitigation and Offset Plan. This condition was proposed as a measure to limit the time lag between adverse effects and offset enhancement actions being undertaken. Mr Lowe disagrees with this rejection, as without such a measure (and without a requirement for a transparent offset accounting method to address adverse effects on wetlands), it is not clear how the impacts of time lag have been accounted for. He notes that:

- The time it takes to generate biodiversity gains is an ecological impact in itself. The longer it takes to achieve an equivalent replacement, the greater the gains generated by the offset need to be to compensate for the time-lag.
- The 1.5x multiplier in the SEV is typically applied to offsets actions that occur within 1 year of the adverse effect.

[297] Condition RC-54N sets out the proposed timing of implementing the EMP. However, the EMP does not appear to encompass the stream offset requirements that are to be set out in the SEEMP as required by condition RC-77. There does not appear to be any condition setting the time frame for implementing the offset actions required by condition RC-77.

⁵⁹ Evidence K Sinclair, 15 September 2020, at [44]-[46].

[298] The application material proposes that residual adverse effects on wetlands are offset at 6:1 for High and Very High value wetlands; and 3:1 for Very Low to Moderate value wetlands. However, as drafted, condition RC-54K is read to require all wetlands to be offset at a ratio of 6:1.

8.9.5 Findings on submitter issues

[299] With respect to the matters raised in the various submissions, we find that these concerns have been adequately addressed by WK and the evidence of Dr Boothroyd as set out above. There are two matters raised by submitters which require further discussion, and we address these below.

Covenants to protect ecological mitigation

[300] DOC has raised the matter of protection of the areas being planted or enhanced using an appropriate legal mechanism. In his evidence Dr Boothroyd stated that condition RC-54M should also require that all mitigation and biodiversity offset planting and/or recipient translocation areas be protected by an appropriate legal mechanism. Despite this, WK still appears to resist such protection, as it has not adopted the condition amendments proposed by Council to achieve it.⁶⁰ WK's reply submissions do not discuss this issue. We will return to it in section 13.6 of this decision.

Response to Hōkai Nuku submission

[301] Hōkai Nuku have recommended that streamworks are restricted during December to March in the Kourawhero Stream in order to protect breeding koura females. Dr Boothroyd agrees with this recommendation and notes there is a proposed consent condition which requires bridging of the Kourawhero Stream, so it is unlikely to impact on that season.

[302] We note that condition RC-56 requires WK to design and construct bridges, structures culverts and embankments to cross the Kourawhero Stream to minimise change to the Kourawhero Wetland complex. This is to include a bridge over the Kourawhero Stream with no piers in the bed in the section of the stream identified on RC Map 17 as "Section of Kourawhero Stream to be bridged".

[303] We note that RC Map 17 indicates that parts of the Kourawhero Stream will be impacted by the Project. We therefore consider that the intent of Hōkai Nuku's recommendation - that streamworks are restricted during December to March – should be implemented via an additional condition.

[304] Our finding therefore is to include a new condition RC-56c to specifically address this matter. This will read: "*all Project works involving impacts on the Kourawhero Stream shall be designed and implemented to avoid any adverse effects on breeding koura females in the stream.*"

⁶⁰ Compare WK's reply version of RC-54N and Council's amendments to RC-54N.

8.9.6 Findings on s.42A review of terrestrial ecology issues

Approach to Biodiversity Offsetting

- [305] We agree with Mr Rossaak that WK's approach to the management of the Project's effects on terrestrial ecology has a number of issues that need to be carefully considered. The biggest problem faced by WK in this regard is that it will not know the extent of its adverse effects on ecological resources until it completes detailed design, and this could be over a decade away. Because it does not know this, it is not able to say with any certainty that its residual adverse ecological effects will be offset or compensated in a 'like for like' manner, with no net loss of biodiversity.
- [306] While we accept that the proposals around fresh pre-start ecological assessments at the time of detailed design, and details of where offsetting etc will take place and what it will look like (via the EMP process) go some way to addressing the inherent uncertainties with this aspect of the Project, our biggest concern relates to the proposed fixed offset ratios. We understand that such ratios have been used in other projects, and accept that their 'fixed' nature gives them a semblance of transparency and certainty. But in the end, we remained concerned as to their rationale and appropriateness in this case, especially considering the time lag between approval and potential implementation.
- [307] For this reason we agree with Mr Rossaak (and Mr Lowe) that WK's conditions need to be revised in order to ensure that the affected ecological values are appropriately confirmed and the ecological outcomes required are addressed in a transparent and accountable manner. We have accordingly augmented the proposed conditions to incorporate, where appropriate, additional conditions recommended in the s.42A report. These include augmentation of conditions RC-54D and RC-54F, modification of condition RC-54K, new condition RC-54L, and augmentation of condition RC-54N.
- [308] We have considered WK's criticisms of the 'biodiversity offset model' proposed by Mr Rossaak and Mr Lowe. The complaint⁶¹ that it is not yet at a sufficient level of certainty to be considered best, or even preferred practice for projects of this scale, or that it carries with it a degree of subjectivity, are both criticisms that could also be levelled at Dr Boothroyd's approach of simply relying on past practice and a preference to fix biodiversity ratios now. That approach might be reasonable in some cases - for example, a discrete site with known biodiversity value loss and specific offsetting proposed that can be evaluated to demonstrate 'no net loss' and 'like for like' offsetting. However, we do not consider the Project, advanced as it has been as an unresolved alignment with a lengthy timeframe for implementation, is a project where the biodiversity ratio approach is appropriate.
- [309] Nor do we accept the legal submission that the proposed condition revisions put forward by Council's reviewers fail "to meet basic legal requirements for conditions".⁶² Such conditions are clearly contemplated by s.108(3). Furthermore,

⁶¹ WK Reply Submissions, 23 October 2020, at [140].

⁶² *Ibid.*

there is no legal impediment to an objective in a management plan condition being set by qualitative criteria in appropriate circumstances and not solely by quantitative criteria,⁶³ and this is the way in which we see the condition proposals put forward by both Mr Rossaak and Mr Lowe. We have however incorporated some changes into their recommendations to ensure the objectives can be certified by appropriately qualified certifiers, to ensure they meet the requirements set down by case law.⁶⁴

- [310] For these reasons, with respect to ecological effects management, and biodiversity offsetting, we prefer the conditioning approach recommended by Mr Rossaak and Mr Lowe.

Tunnel and flyway

- [311] In its closing submissions, WK confirms that it is not its intention to cut through or damage the important ecological area above the tunnel. Protection of this area is therefore clarified by condition RC-54IA with reference to RC Map 21 (the “escarpment area”). We find this addresses Mr Rossaak’s concerns in this regard.
- [312] We accept the evidence of Dr Boothroyd that the FHFMA Area shown on RC Map 1 will offset the loss of dispersal routes for highly mobile species.

Hochstetters Frog

- [313] We consider that all practical options for capture and relocation of Hochstetters frogs, should they be found, are provided for in condition RC-54U, and that no further amendments are needed to this condition.

Effects on Indigenous Vegetation

- [314] In his memo, Mr Rossack noted that only five of the nine sites with High to Very High ecological values that will be impacted by the indicative alignment could be located on RC Maps 18 to 20.
- [315] In our Minute dated 14 December 2020 we sought further information from WK about this matter and were advised that three of the four ecological sites had been omitted in error from the condition Maps and Table 1. Amended documents were supplied and these have now been incorporated into the final condition sets.
- [316] We were told that the final feature, DVF_T_Koura_01, in fact identifies the entire RMF commercial forest area extending within and outside the proposed Designation boundary.⁶⁵ We agree with WK that it is not practicable for this feature to be avoided and it should not therefore be included on the Condition Maps or in Table 1.

⁶³ *Northcote Point Heritage Preservation Soc Inc v Auckland Council* [2016] NZEnvC 248 citing *Environmental Defence Society Inc v NZ King Salmon Co Ltd* [2013] NZRMA 371, at [114]–[128]

⁶⁴ See fn 63.

⁶⁵ Memo for WK dated 23 December, para 8.3

Area for Offsets

- [317] With respect to Mr Rossaak's concerns with the ability to offset all ecological effects within the proposed designation, particularly in a 'worst case scenario' or should unexpected impacts arise, such as increased vegetation clearing, we observe that there is a large amount of land within the designation footprint that has not been shown in the condition Maps as being required for ecology vegetation mitigation. We are satisfied that this land area appears to provide WK with a suitable area to undertake all required vegetation mitigation and offsetting. If it does not, WK acknowledges that it will be required to secure additional areas outside the designation for this work. We note that we have also made it clear by an amendment to condition D-1 that no areas of the designation are to be 'pulled back' until the complete mitigation and offset package of works are shown to be feasible within the designation footprint.
- [318] We find that the above matter and the other concerns of Mr Rossaak regarding offsets will be satisfactorily addressed through the preparation and implementation of the EMP, as provided for in the conditions.

8.9.7 Findings on s.42A review of freshwater ecology issues

- [319] As noted above, we agree with Mr Lowe's evidence that it is necessary to use a transparent offset accounting system to demonstrate the quantum of offset required to achieve a 'no net loss' of ecological values outcome and that such an approach, rather than predetermined ratios as proposed by WK, does not prevent the integrated enhancement outcome sought by the WK. In our view, such an approach better achieves that outcome.
- [320] As such, we accept Mr Lowe's evidence that WK's proposed use of fixed and predetermined ratios does not:
- (a) transparently demonstrate how time lag has been accounted for; or
 - (b) consider relative differences in the ecological gains at the offset sites.
- [321] On Mr Lowe's advice, we have therefore amended the proposed conditions to incorporate, where appropriate, the additional conditions recommended in the s42A Report. These include: a new condition RC-78A (for recording wetlands affected by the Project); a new condition RC-78B (for replacement works for loss of wetland ecological value and the requirement to prepare a Wetland Ecological Effects Management Plan); a new condition RC-78C (for mitigation and offset implementation); a new condition RC-78D (protection of watercourse and wetland offset sites); and new condition RC-78E (for maintenance of wetland offset sites).

Soil Disposal Sites

- [322] With respect to the issues raised by Mr Lowe about soil disposal sites, we note that as detailed design of the Project is yet to be carried out the extent of any soil

disposal sites impacting on streams is not known. However, Ms Sinclair⁶⁶ advises that there is enough land within the proposed designation for soil disposal without relying on infilling of stream beds.

[323] Ms Sinclair also advises that if soil disposal activities in streams are required it is appropriate for the construction contractor to be responsible for both justifying such consents and identifying appropriate mitigation. We also note that Dr Boothroyd confirmed⁶⁷ that WK has not applied for consent to reclaim streams for any soil disposal sites, however, diversions for streams in soil disposal areas were anticipated.

[324] We record Mr Lowe's concern though that diversion of watercourses for soil disposal has the potential to cause adverse effects due to loss of overall stream length and loss of baseflows and reduction in habitat availability. He also noted there is a level of uncertainty regarding the ability to offset residual adverse effects on streams within the designation due to:

- (a) the quantum of additional offset required to address adverse effects resulting from stream diversions associated with soil disposal not being known;
- (b) loss of stream length available for offset enhancement as a result of soil disposal activities not being known; and
- (c) uncertainty as to whether streams within the Dome Valley forest section will be available for offset actions.

[325] WK's proposed RC conditions include Advice Note 3 as follows: "*The scope of these consents does not include reclamation of any watercourse for soil disposal where such reclamation is not associated with Project structures (for example embankments, earth bunds, bridges and other structures). However, a Watercourse can be diverted for the purpose of enabling soil disposal.*"

[326] We concur with Mr Lowe's concerns regarding the ability to offset residual effects on streams affected by soil disposal, as the extent of these may not be known when the detailed assessment of required offsets for stream works covered by this consent are carried out. We accordingly consider that diversion of watercourses for the purpose of enabling soil disposal should not be authorised under this consent. Advice Note 3 has therefore been changed and an additional Advice note 4 added to reflect this.

8.9.8 Overall findings on ecological effects

[327] With the amendments we propose to the conditions of the RC and Designation, we are satisfied that the ecological effects of the Project works will be avoided, remedied and mitigated to the extent practicable. We also find that the detailed

⁶⁶ Evidence K Sinclair, 15 Septemebr 2020, at [230].

⁶⁷ Evidence I Boothroyd, 15 September 2020, at [284].

conditions will adequately offset for the residual adverse ecological effects that are otherwise unable to be avoided, remedied or mitigated following final detailed design.

8.10 CONSTRUCTION TRAFFIC EFFECTS

8.10.1 Evidence for Waka Kotahi

[328] Evidence for WK on the effects of construction traffic associated with the Project works was by Ian Clark. We have summarised Mr Clark's evidence and key conclusions in Appendix 1 and refer the reader to it for further information.

[329] With respect to temporary traffic management (**TTM**) during construction, Mr Clark's evidence is that the primary standard to be adhered to in planning, coordinating and implementing TTM for this Project is the Code of Practice for Temporary Traffic Management (**CoPTTM**). TTM is defined in CoPTTM as "the process of managing road users through or past a closure in a safe manner with minimal delay and inconvenience". In this context, "closure" refers to any part of the road from which traffic is excluded for road works, including a lane or the shoulder. TTM includes measures such as temporary diversions, contraflow lanes, traffic signals and full road closures.

[330] Mr Clark advises that it is common practice for large transport projects to be constructed in accordance with a Construction Traffic Management Plan (**CTMP**), which sets out how the project as a whole will be delivered and which processes and standards need to be followed. This has been the process approved for the SH 20 Waterview Tunnel, the SH 1 / SH 18 Northern Corridor Improvements project, the SH 1 Pūhoi to Warkworth project and several others.

[331] While the approach of constructing projects in accordance with a CTMP is commonplace, the details will differ according to Mr Clark. For example, in some cases there can be a reasonable amount of specificity, where the project is to be constructed soon after the approvals are achieved, whereas in the Case of the Project construction is not expected to take place for some time. To be too specific at this stage would therefore be unwise in Mr Clark's view as the key topics for each CTMP will differ for each project, according to the local environment and the key issues to be addressed. Nevertheless, there are core principles and expected outcomes which are identified in all CTMPs.

[332] At a more local level, Site Specific Traffic Management Plans (**SSTMP**) are required for each location where the Project construction impacts existing traffic. These plans have to comply with CoPTTM to minimise the disruption caused by construction traffic to the extent practicable. Mr Clark's advice is that the process of SSTMPs is also becoming common practice, being required for projects such as the SH 20 Waterview Tunnel and the SH 1 Northern Corridor Improvements projects.

[333] During construction of the Project, TTM will be required at locations where construction activities may impede the flow of existing traffic. Existing traffic may be affected where there are interchanges and tie-ins, realignments, locations where the Project will pass over or under existing roads, and site access points where construction traffic enters and exits the construction sites. In that regard, the Project will connect to the existing network at the following locations:

- Warkworth Interchange/Southern tie-in;
- Wellsford Interchange; and
- Te Hana Interchange and Northern tie-in.

[334] At these locations, Mr Clark accepts that construction works will need to be carefully managed using TTM measures such as temporary roads, contra-flow, barriers, and temporary signals. SSTMPs will also be required for these locations to ensure that TTM is carried out in accordance with CoPTTM and that traffic impacts are minimised as far as practicable. These works will have to be carried out in accordance with the conditions relating to the CTMP, namely conditions D-34 to D-42.

[335] The construction of the road is likely to result in the modification of up to thirteen local roads and one crossing of the existing SH 1. Of the local roads that intersect with the Project, four are proposed to be realigned to avoid crossing the State Highway (Carran Road, Phillips Road, Wyllie Road, and Vipond Road), while nine are proposed to pass over or under the Project. Some of the latter will require realignment as well. To enable continued local access along these roads to be maintained during the construction of the Project, realignment of local roads will need to be undertaken prior to the severance of the original connections. For each of these locations, conditions D-38 and D-39 require that a SSTMP be prepared, in accordance with the standards in the CoPTTM. In Mr Clark's view, this approach will enable the local impacts on traffic to be specifically assessed and mitigated to minimise the traffic impacts as much as practicable.

[336] As condition D-39 specifically requires compliance with the standard procedures set out in CoPTTM (with a procedure set out where exceptions are required), Mr Clark is confident that site access points can be implemented with no more than a minor impact on existing traffic. In addition, there are three proposed conditions, each required to address a point of detail:

- (a) Condition D-31 will prohibit Kraack Road between State Highway 1 and Saunders Road from being used as a heavy haulage route;
- (b) Condition D-32 will enable pedestrian access to/from the Te Araroa Walkway to be maintained; and

- (c) Condition D-33 requires that any damage to roads caused by Heavy Vehicles entering or exiting a construction site access point is rectified in a timely manner.

[337] Overall, with conditions D-31 to D-42 in place, Mr Clark considers that the effects of TTM throughout Project construction can be appropriately managed.

[338] Although various submitters raised concerns about the potential adverse effects of construction traffic, both generally and in relation to specific locations, Mr Clark remains of the view that the requirement to prepare and implement a CTMP and SSTMPs will enable all construction related traffic effects of the Project (including access to properties) to be effectively managed. With these requirements in place, in his opinion the construction effects of the Project will be minor.

8.10.2 Submitter issues

[339] A number of submitters raised concerns with construction traffic management in their submissions and their presentations at the hearing, although no submitter called expert evidence on such matters. A brief summary of the issues raised is set out below.

[340] *Dando Family Trust (JS9)*: This submitter notes that Phillips Road would be highly likely to accommodate significant construction traffic and expresses concern about the impact of construction traffic on the access to their property located on Phillips Road.

[341] *Naim Erdem and Amanda Oguz (JS10)*: These submitters express concerns about construction traffic and request conditions to allow for safe access for heavy vehicles on the proposed haulage routes and to implement safety measures on Kaipara Flats Road (where their property is located). The submitters are of the view that Carran Road should not be used as a haulage route as it is too narrow, steep and does not provide for adequate visibility. They request staged construction on Carran Road and Kaipara Flats Road to ensure there will be one unobstructed access point maintained at all times.

[342] *Watercare Services Limited (JS4)*: The submission by Watercare raises concerns about traffic effects during construction, including the ability of Watercare to access the WTP on Wayby Valley Road or to the WWTP located adjacent to the existing SH 1. Watercare seeks consent conditions for consultation in traffic management plans prior to construction.

[343] *National Road Carriers (NOR15)*: National Road Carriers request communication, in the form of early warning of forthcoming road closures.

[344] *Katrina Todd (JS11)*: This submission raises concerns about traffic effects of haulage trucks using Kaipara Flats Road east of Phillips Road for construction access and seeks that the traffic and activities associated with Kaipara Flats Road bridge construction be minimised where possible. The submission also seeks to ensure that the proposed layout of the new routes located near the submitter's

property at Kaipara Flats Road not be amended in any way that will have an adverse effect on the property.

- [345] *NZ Walking Access Commission Ara Hikoī Aotearoa (RC21)*: The submission by NZ Walking Access Commission notes the proposed closing of Unformed Legal Roads and expresses specific concerns about public access connectivity (from Te Araroa Trail to Dome Valley Forest and between Wayby, Wellsford and the designation area to the east of the town, and beyond). The Commission requests walkway, cycleway and parking to be incorporated into design to enhance connectivity. It further requests conditions for consultation throughout the Project to ensure the adverse effects of losing public access arising from closing the unformed roads will be mitigated.
- [346] *Sunnyheight Nurseries (NOR12)*: This submission seeks a condition requiring that the alternative Vipond Road access from Mangawhai Road be sealed over the full extent of the road to include formation to the submitter's property and neighbouring properties and to meet the sealed rural road standard.
- [347] *Christine Beale and Lance Adamson (RC20), Heather Jean Arnold (RC22) and Joanne Hawke (RC23)*: These submitters live at neighbouring properties on Worthington Road, and have made a joint submission in triplicate. The submission raises concerns about the potential use of Worthington Road (where their properties are located) and Farmers Lime Road as an accessway for construction. They wish to be kept informed of construction that affects their area and request access to be maintained for vehicles, pedestrians, cyclists and horse riders along Worthington Road and Farmers Lime Road during construction.
- [348] *David Mason and Dianne McCallum (JS1)*: This submission considers that the adverse effects of construction traffic are not adequately assessed or mitigated. The submitter's concerns are mainly around the use of local roads for heavy construction vehicle movements and the adequacy of temporary traffic management measures to address potential safety issues. They seek multiple modifications to the currently proposed conditions and insertions of new conditions to further mitigate potential adverse effects on safety. This includes not to use particular roads as haul roads, to undertake safety audits before any CTMP and SSTMPs are prepared and to consult with the local community for the proposed SSTMPs. These matters were further elaborated on in evidence presented by Mr Mason and Ms Pegrume at the hearing.

8.10.3 Council s.42A review

- [349] Mr Gary Black, Principal Transportation Engineer, engaged by the Council to review the transportation aspects of the proposal, prepared a detailed review and commentary on Mr Clark's Construction Traffic Report. For the most part Mr Black agreed with the assessment undertaken and acknowledged that the proposed

approach to construction traffic management is consistent with current practices for large roading projects and is supported from a traffic perspective.⁶⁸

[350] However, after reviewing the submissions Mr Black recommended a series of additional conditions to specifically acknowledge various matters raised, namely:⁶⁹

- (a) The use of Carran Road;
- (b) Issues around the one lane bridge on Kaipara Flats Road/Woodcock Road;
- (c) Issues around the intersection of Kaipara Flats Road/Carran Road;
- (d) Issues around the bend on Kaipara Flats Road;
- (e) Issues around the temporary closure of Woodcocks Road and the need to realign Kaipara Flats Road;
- (f) Issues relating to the capacity, visibility and safety of the intersection of SH 1/Kaipara Flats Road;
- (g) Issues relating to the capacity of local roads; and
- (h) Issues relating to pedestrians and cyclists.

[351] Mr Black also recommends conditions on the potential routing of construction traffic via Woodcocks Road instead of through the Hill Street intersection, on right turn restrictions to/from specific Site Access Points, and that use of the southern haul route by heavy construction trucks should be prohibited between 4:00 pm to 6:00 pm on weekdays.

[352] Mr Black's recommended changes to conditions outlined above were adopted by the Council's reporting planner, Mr Siu, who also recommended the following:⁷⁰

- (a) A new condition D-6(a), requiring an annual review of the CTMP (and other management plans); and
- (b) An addition to condition D-35, with clause (c) now to refer to "*Safety and operational assessment of site access points for Heavy Vehicles*".

8.10.4 Findings on construction traffic effects

[353] We accept that local residents' concerns over the effects of Project arising from construction traffic in the area are well founded. In the context of a Project of this scale in this location, disruption to road users and access to private property is inevitable and not easily capable of complete avoidance. However, we are

⁶⁸ NoR s.42A report, at p546.

⁶⁹ Ibid, pp563-757.

⁷⁰ Note, Mr Siu's proposed D-6(a) was suggested to improve management plan processes and provide certainty/feedback, rather than to address construction traffic issues per se (see NoR s.42A report, p368; RC s.42A report, p44).

satisfied that by following best practice in accordance with the CoPTTM construction traffic effects will be significantly mitigated by the management regime proposed by WK's conditions, namely the overall CTMP and SSMPs. We note that safety is a core objective of both these plans, and both require access to properties to be maintained.

- [354] The conditions proposed will also ensure that intersections and accesses will be considered on a case-by-case basis when preparing the SSTMPs, with temporary measures to be put in place to mitigate impacts. When haulage routes are finalised, considerations can also be given to the residents and requirements incorporated into the SSTMPs to allow safe access and road use.
- [355] Mr Clark has confirmed that before any SSTMPs are put in place, the suitability of the roading network will be assessed and that the construction of the new motorway may include the additional construction of diversion roads or upgrades to existing roads for haulage, so that the existing network can continue to function safely and cater for all road users. Furthermore, a road will not be included as a haulage route if it is found that it cannot be used safely and site walkovers and safety inspections will check that appropriate infrastructure is in place. Condition D-35(d) specifies that any TTM measures are to be subject to auditing and monitoring and if any measures are found to be unsatisfactory, these issues will need to be rectified.
- [356] We find that property access issues can be satisfactorily accommodated through the CTMP and note that condition D-34(c) includes the requirement to "minimise interruption to property access", and condition D-35(c)(ii) states that the CTMP should include methods to maintain vehicle access to property and/or private roads, where practicable, or to provide alternative access arrangements when it will not be. We also note that condition D-34(e) now refers to the provision of emergency access to "lifeline activities", thus addressing Watercare's access concerns. Condition D-35 also requires WK to engage and communicate with stakeholders to foster a collaborative work environment, to keep them informed of impacts and allow them sufficient time to raise concerns.
- [357] Mr Black, does not accept the request by Ms Dodd that new routes near her property not be amended "in any way", but notes that WK will need to consult with stakeholders, and any changes will need to be within the bounds of the proposed designation and the proposed conditions. We are satisfied that this approach is appropriate. Furthermore, consultation protocols are set out in conditions D-8 to D-10 and walking and cycling are specifically referred to within condition D-34, thus addressing the concerns of the Commission that consideration be given to access and connectivity for those modes.
- [358] We are satisfied on the basis of Mr Clark's evidence that if roads are to be used as long-term detours or diversions during construction, they will need to be able to accommodate the expected traffic flows and safe road standards will need to be maintained, as specified in the conditions. This may include sealing some roads. These requirements will be established as part of the additional investigation and

assessment work undertaken as part of the CTMP preparation process as required under condition D-36.

- [359] Mr Clark does not agree with the specific matters identified in Mr Black's review being specifically referred to in the conditions. He considers that the requirement in proposed condition D-38 for a SSTMP to be prepared where any Project related construction activity varies the normal traffic conditions of any public road will ensure that specific localised access and traffic route issues are addressed at the appropriate time. He therefore considers the additional detail to be unnecessary. We agree and see no need for any more specificity in relation to these matters. We find that the SSTMP process will address these issues.
- [360] Mr Black also recommends conditions on the potential routing of construction traffic via Woodcocks Road instead of through the Hill Street intersection,⁷¹ on right turn restrictions to/from specific Site Access Points, and that use of the southern haul route by heavy construction trucks should be prohibited between 4:00 pm to 6:00 pm on weekdays. Mr Clark considers that it is premature to dictate the specific construction routes etc for the Project. He stresses that protecting public safety is the first requirement of the CTMP and accordingly, at the time it is being finalised, WK will be required to fully consider the options available, and to identify the safest solution that is practical. The CTMP will need to be approved by AT and any TTM will need to be carried out in accordance with CoPTTM, with appropriate auditing, monitoring and reporting also required (by condition D-35(d)). We accept Mr Clark's evidence on these matters and find that his approach to the conditions is to be preferred.
- [361] Finally, with respect to the additional matters proposed by Mr Siu, we note that condition D-35(d) already requires the CTMP to be audited and monitored in accordance with CoPTTM, that condition D-34(a) already requires public safety to be protected as the first principle for the CTMP, and that all TTM is to be consistent with CoPTTM which places high emphasis on safety. Also, condition D-35(c)(i) already addresses safety requirements for site accesses, including for all construction vehicles. Accordingly, we see no need for the additional conditioning matters proposed.
- [362] Overall, we are satisfied from the evidence that the proposed conditions of the NoR aimed at managing Project related construction traffic will address the concerns raised by submitters and Mr Black. In our finding, the conditions will ensure that construction traffic related effects will be minimised as far as practicable and to an acceptable level, given the nature and scale of the Project works.

8.11 CONSTRUCTION NOISE AND VIBRATION

8.11.1 Evidence for Waka Kotahi

⁷¹ Ibid, p549

- [363] Evidence for WK on the construction noise and vibration effects of the Project was provided by Dr Chiles. We have summarised Dr Chiles evidence and key conclusions in Appendix 1 and refer the reader to it for further information.
- [364] Dr Chiles advised that the assessment of construction noise and vibration was completed applying relevant New Zealand standards and other guidance. The assessment was overlaid by a broad consideration of potential effects with reference to the predicted changes in noise levels.
- [365] With respect to construction noise, NZS 6803:1999 Acoustics – Construction Noise (**NZS 6803**) provides guideline noise limits, with the AUP specifically adopting it as the required guideline for the management of construction noise, albeit with some deviations that Mr Chiles did not consider to be consistent with large infrastructure projects. For the Project the NZS 6803 criteria were applied for construction noise.
- [366] In relation to construction vibration, we understand that there is no New Zealand Standard, but that the AUP and the *State highway construction and maintenance noise and vibration guide* prepared by WK both include criteria drawn from appropriate international standards. For the Project, the vibration criteria from the WK guide were used as they provide a more refined process than the AUP criteria, accounting for substantial variabilities in vibration sensitivities of people and structures.
- [367] Dr Chiles confirmed that the assessment of effects of construction noise and vibration was undertaken with the following methodology:
- (a) Noise and vibration criteria were determined to manage noise and vibration to appropriate levels comparing relevant reference documents as set out above;
 - (b) Drawing on literature and experience, typical noise and vibration levels were identified for a range of equipment, likely to be used to construct the Project;
 - (c) For indicative construction activities, typical setback distances from the activity to PPFs were determined. These were the setback distances that would be needed to meet the noise and vibration criteria set out in NZS 6803, if no specific mitigation were put in place; and
 - (d) Discrete areas were examined where enhanced mitigation may be required to achieve construction noise and vibration criteria at some PPFs, and potential mitigation methods and their practicability were considered in these areas.
- [368] In his evidence, Dr Chiles advised that as is typical for assessments of large infrastructure projects, the calculations undertaken were indicative. Thus, it would be necessary for the construction contractor to verify noise and vibration levels for construction activities with on-site measurements at the time of construction, once the detailed design and construction sequencing were known.

- [369] Dr Chiles accepted that the large scale of the Project would inevitably involve noisy construction activity. However, in his view, well established and robust processes for managing construction noise and vibration were commonplace in the construction industry. As such, the assessment of construction noise and vibration effects from the Project focused on identifying areas where enhanced mitigation, over and above standard practice, would be necessary to maintain acceptable effects. This assessment involved consideration of indicative construction activity, typical distances at which NZS 6803 criteria would be achieved, and controls that might be required to ensure that NZS 6803 criteria would be achieved at 16 Protected Premises and Facilities (**PPFs**) identified as being within 50 metres of the proposed designation boundary. This distance was chosen because the assessment undertaken had established that beyond 50 metres compliance with criteria would generally be achieved with standard practices.
- [370] Due to the relatively sparse nature of PPFs around most of the proposed designation boundary, the assessment found that construction noise and vibration generated by daytime construction activities could generally be managed in a way that would meet the relevant criteria using standard site practices. For night-time construction activities, however, compliance with the relevant noise and vibration criteria generally could not be practicably achieved for works near PPFs. If night works were required, therefore, such as for tie-ins, traffic management or continuous concrete pours, construction activity would need to be significantly limited or specific mitigation methods adopted to manage effects.
- [371] Dr Chiles confirmed that construction noise and vibration would be heard and felt respectively at many locations in the vicinity of the Project and often would be significantly above existing ambient levels and cause some disturbance and change to rural amenity during the relevant construction periods.
- [372] However, based on his assessment and experience with other projects of a similar nature, it was Dr Chiles' opinion that noise and vibration levels can be managed to generally maintain compliance with relevant criteria using standard good practice mitigation measures and without the need for additional management. He considered that the criteria adopted, such as from NZS 6803, should provide appropriate protection for neighbouring activities including PPFs, and subject to the recommendations for conditions in his evidence, should be acceptable for most people who should be able to continue normal activities with minor adjustments (such as closing windows at times or altering the timing of certain activities so they do not coincide with specific construction works).

8.11.2 Submitter issues

- [373] A number of submitters identified construction noise and vibration effects as a significant issue for them. The specific issues raised in submissions were summarised and commented on in detail in Dr Chiles evidence,⁷² and in Council's

⁷² Evidence S Chiles, 15 September 2020, at [78]-[150].

specialist acoustic review completed by Ms Siiri Wilkening.⁷³ We agree with the summaries provided and do not intend to repeat them here.

- [374] Two submitters called expert witnesses to give acoustic evidence in support of their submissions. Nevil Hegley provided evidence for Amanda & Erdem Oguz and Toni & Edwin Dando, and Jon Styles provided evidence for David Mason & Dianne McCallum.

Evidence of Mr Hegley

- [375] Mr Hegley is an experienced acoustic consultant with 40 years' experience. He holds a Master of Science degree and is a Member of the Institution of Professional Engineers New Zealand (now Engineering New Zealand), the Institution of Civil Engineers London and the Acoustical Society of America. Mr Hegley has considerable experience with the assessment and measurement of both construction noise and traffic noise, such as is being proposed for the Project and indicated that he was familiar with the site and surrounding environment.
- [376] Mr Hegley's evidence was primarily related to the construction works and the noise effects this construction work may have for neighbours due to the absence in his view of any specific details, uncertainty with the proposed conditions and a lack of proper assessment. His evidence addressed specific examples that he considered needed to be clarified so any noise effects associated with the proposed works are controlled to within a reasonable level via NZS 6803 and the RMA. In this latter regard, he referred us to ss.16 and 17 as imposing specific standard to be met by WK in its construction activities.
- [377] While Mr Hegley did not reject Dr Chiles proposal for a Construction Noise and Vibration Management Plan (**CNVMP**), he considered that as it was currently written it effectively removed the need to comply with any levels. In his view, this was due "to the way such conditions have been implemented in the past with only the consent holder having any input."⁷⁴ He considered that if the requirements of NZS 6803 were going to be adopted then clause 7.4 of the standard which states:

Other than for emergency works, every effort shall be made by the contractor to comply with the applicable noise limits. Where the best practicable options for noise avoidance or mitigation have been applied to construction activities and the activity does not comply with the relevant noise limits, the contractor may need to apply to the local authority for a resource consent, or variation of resource consent. A resource consent may also be required if it is predicted that noise from a proposed construction activity will not comply with the relevant noise limits.

- [378] Mr Hegley also expressed concern that it was not possible to quantify the construction noise effects because a final layout of the road, the location of the works, and the equipment to be used were unknown. Considering this, Mr Hegley

⁷³ NoR s.42A report, p531-533.

⁷⁴ Evidence N Hegley, 29 September 2020, at [20].

proposed that conditions D-28, D-29 and D-30 need to provide certainty of limits. This should include the ability of the people that may be exposed to any increased noise or vibration beyond certain limits to have an input into any proposal to increase the noise levels, which should be advanced by WK on a case-by-case basis by specific resource consent.

- [379] Mr Hegley also considered that the proposed noise from construction depots should comply with the underlying noise standards for the zone, rather than NZS 6803.

Mr Styles evidence

- [380] Mr Styles is an acoustic consultant and director and principal of Styles Group Acoustics and Vibration Consultants. He holds a Bachelor of Applied Science majoring in Environmental Health and is in his second term as the President of the Acoustical Society of New Zealand. Mr Styles has worked on a large number of projects around New Zealand involving road traffic noise and the application of New Zealand Standards NZS6806:2010 Acoustics – Road Traffic Noise – New and Altered Roads (**NZS 6806**) and NZS 6803 along with numerous standards for the measurement and assessment of vibration from traffic flows and construction.
- [381] With respect to construction noise and vibration, Mr Styles considered that Dr Chiles had placed too heavy a reliance on compliance with NZS 6803 in determining that the noise levels will be reasonable. In his opinion, there appeared to be very little effort to reduce the noise levels to below the noise limits set out in NZS 6803 and the proposed conditions. In this regard, Mr Styles was of the view that the guidance in NZS 6803 was not designed to manage the effects of a project of this size and duration and it would therefore be appropriate to apply a more holistic assessment of the Best Practicable Option for the minimisation of construction noise and vibration effects.
- [382] Like Mr Hegley, Mr Styles considered that it was not possible to undertake any meaningful assessment of the construction effects on his client's property at 211 Kaipara Flats Road, because the duration of works in the vicinity is not explained, and the typical and maximum noise and vibration levels are not identified in Dr Chiles assessment. In his view, the only realistic conclusion was that the noise and vibration effects on this property would be significant.
- [383] Mr Styles acknowledged that accuracy on such construction details was not likely to be available at this point in the process, but in his experience, it was not difficult to prepare reasonably reliable estimates on things such as plant and equipment, durations and approximate levels of construction noise and vibration for the works that will be undertaken in the vicinity. As such he recommended that before any meaningful assessment of construction noise and vibration effects can be made, WK should be required to provide a reasonable and clear assessment of the likely duration, scale and level of construction noise and vibration effects on 211 Kaipara Flats Road. Mr Styles also endorsed the condition amendments suggested by Ms

Pegrume on the basis that they would assist in understanding the likely permitted construction and noise vibration effects.

8.11.3 Council's s.42A review

[384] Ms Wilkening prepared a Technical Memo reviewing the Construction and Operational Noise Assessments undertaken for the Project dated 7 August 2020. Helpfully, a number of meetings and discussions took place between her and Dr Chiles prior to the preparation of this report which assisted to clarify matters.

[385] From our review of Ms Wilkening's Technical Memo, we have not identified any significant differences between her opinions and those of Dr Chiles with respect to construction noise and vibration. While there are a variety of nuances between how they approached and express some matters, in terms of the fundamental nature of anticipated effects and appropriate mitigation they appear to be in agreement.

[386] Despite that, Ms Wilkening recommended a number of amendments to the proposed NoR conditions relating to construction noise, in particular conditions D-49B(xi), D-26, D-27, D-28, D-29 and D-30.⁷⁵ These condition amendments were addressed by Dr Chiles in his evidence, with some being accepted and others being rejected, with reasons provided.

8.11.4 Findings on construction noise and vibration effects

[387] In his rebuttal evidence dated 2 October 2020, Dr Chiles summarised the issues raised by Mr Hegley, Mr Mason and Ms Pegrume and Mr Styles in their evidence as follows:

(a) Mr Hegley:

- The appropriateness of the CNVMP to manage construction noise, and the suggestion that the CNVMP will remove the need to comply with any noise levels;
- The adequacy of the proposed conditions in relation to construction noise;
- The assertion that a full assessment of the construction noise effects of the Project has not be undertaken; and
- The assertion that the proposed conditions in relation to operational noise give the operator total flexibility to bypass the noise levels predicted.

(b) Mr Mason & Ms Pegrume:

⁷⁵ NoR s.42A report, pp535-540.

- The adequacy of the proposed construction noise and vibration conditions to minimise effects on 211 Kaipara Flats Road; and
- The suggestion that Waka Kotahi should be required to provide further mitigation for operational noise effects.

(c) Mr Styles:

- The adequacy of the Construction Noise and Vibration Assessment;
- The certainty provided by proposed designation conditions; and
- The suitability of NZS 6803 in relation to the Project

[388] Dr Chiles comprehensively responded to each of these criticisms and the additional conditioning requests and amendments proposed. For the most part, he did not accept the criticisms of Mr Hegley or Mr Styles. In summary, he was satisfied that:

- (a) The inclusion of the noise conditions on the designation was appropriate and this explicitly envisaged submission of the CNVMP with the Outline Plan of Works for consideration the Council at the relevant time;
- (b) The designation conditions were consistent with ss.16 and 17;⁷⁶
- (c) Using the chosen alignment during construction as a haulage was possible, but shouldn't be required. Noise from construction traffic on public roads will be appropriately managed in accordance with condition D-35(c)(ix);
- (d) Compliance by construction yards with the general AUP limits applying to the underlying zone is not supported, as the noise criteria in NZS 6803 will be adequate. The recommendation of a minimum 200m set back of long-term construction yards (i.e., in excess of 12 months) from PPFs will provide reasonable acoustic protection for them, in combination with the requirements of the CNVMP;
- (e) The issues identified in the Environment Court's decision in *Panuku* are not directly relevant to the Project;
- (f) Notwithstanding the acknowledged increase in noise for some currently quiet locations, the resulting levels should still be reasonable based on compliance with guideline criteria;
- (g) Even though construction noise will impact on the use and enjoyment of 211 Kaipara Flats Road, the proposed conditions should manage these to an acceptable degree;

⁷⁶ Although note our discussion earlier as to the relevance of s 16 in particular in this process.

- (h) Conditions D-25 to D-30(a) are appropriate to manage construction noise and vibration effects and address all of the various matters raised by Mr Mason. Specifically, it is noted that the CNVMP could provide for no noisy activity to take place on the special Sunday Christmas gathering referenced by Mr Mason, and that this technique is better placed to provide for such flexibility;
- (i) The Construction Noise and Vibration Assessment included descriptions of expected construction activities in Section 3.3.1 and sets out typical equipment in Table 6. Tables 7 and 8 also provided indicative noise and vibration levels for individual items of construction equipment, and from consideration of this data, Sections 3.3.2 and 3.3.3 set out estimated distances from construction activity at which noise and vibration criteria should be achieved. This provided adequate information to consider construction noise and vibration effects.

[389] Finally, in response to Mr Styles evidence that NZS 6803 is not suitable for a project of this size and duration, Dr Chiles advised that he was not aware of any comparable project of this size and duration that has not used NZS 6803 in relation to construction noise, including all major road projects that he was familiar with. Mr Styles reference to the need for a more holistic assessment of the BPO is achieved in Dr Chiles opinion through the CNVMP as required by condition D-28.

[390] In her closing comments to the hearing, Ms Wilkening, confirmed the appropriateness of using NZS 6803 as the basis for assessing and managing construction noise. She noted that every construction project that she was aware of over the past 23 years practicing in acoustics in New Zealand, has been assessed based on the criteria set out in NZS 6803 (both the provisional 1984 and full 1999 standard). As such she disagreed with Mr Hegley that NZS 6803 limits are only appropriate for projects with durations up to 12 months. If that was the intended application, then in her view the standard would state such restriction (e.g., long-term construction would extend from 20 weeks to 52 weeks). She also observed that no large building, let along any infrastructure such as a road, could be constructed in a 12 month period.

[391] Ms Wilkening also pointed out that the AUP requires that noise from any construction work must be measured and assessed in accordance with NZS 6803 (E25.6.1(3)), and the limits in Tables E25.6.27.1 and E25.6.27.2 are those of NZS 6803 for typical duration projects (15 days to 20 weeks).

[392] With respect to the issue of providing certainty of construction noise effects at this stage of the Project, a complaint by both Mr Hegley and Mr Styles, Ms Wilkening considered applying the Northern Corridor Improvement (**NCI**) conditions to be unreasonable in the context of this Project. The WW2W project seeks a 15 year lapse period whereas the NCI project was being tendered in parallel to the Board of Inquiry process. This meant that during the extensive conferencing done for the NCI project, significant additional and detailed information was being made

available by a constructor, on which discussions were based. This information is not available for this Project.

[393] In her view, any construction noise predictions provided at this stage would give an unrealistic impression of certainty that would have little bearing on the actual works in 10 to 15 years. From her experience, she did not recommend requiring overly detailed construction noise predictions at a route protection stage of a project, but rather preferred to focus on conditions that set out a management framework. This included the CNVMP, and also the Schedules associated with site specific CNMPs which she recommended be separately certified by Council for oversight purposes.

[394] Finally, Ms Wilkening noted that the construction effects on any building, existing and future, will need to be addressed at the time of construction. Therefore, effects on any new buildings being constructed next to the designation will also need to be managed at the time, through the CNVMP and Schedules.

[395] With respect to conditions, Ms Wilkening considered that the conditions proposed by Dr Chiles and WK were too flexible, but the conditions recommended by Mr Styles and Mr Hegley were too inflexible. As such, and despite Dr Chiles detailed responses to her conditioning proposals, Ms Wilkening maintained her condition recommendations per the NoR s42A report, considering that they found a balance in relation to this aspect of the Project. She specifically reiterated the following:

- Condition D-28: Recommended wording for an objective (purpose) for the CNVMP, and that it should be prepared by a suitably qualified and experience person.
- Condition D-29: Site specific management plans have been shortened to Schedules. However, the intention and outcome are still the same. Recommended wording on the content of the Schedules as this is not contained in any referenced document. She also recommended that the Schedules be certified by Council, to provide oversight for times when the noise and vibration limits may be exceeded.
- Condition D-30: Recommended provisions for building condition surveys where the Category B limit of condition D-27 is predicted to be exceeded.

[396] In relation to the evidence we heard about construction noise and vibration effects, we observe that all the acoustic experts (and counsel for those parties who were represented) agreed that the evaluation of whether a particular noise proposal is reasonable (or 'not unreasonable' to use the language of the AUP), will involve a consideration of factors that go beyond mere acoustical analysis. This approach is consistent with caselaw which confirms that it is an assessment of fact and degree,⁷⁷ which allows consideration of factors such as the frequency, intensity, duration, offensiveness/character and location of the noise.⁷⁸

⁷⁷ See *Ngataranga Bay 2000 Inc v Attorney General*, A16/94, at [14].

⁷⁸ *Nelson City Council v Harvey* (2011) NZEnvC 48 at 70; *Brooks v Western Bay of Plenty DC* [2011] NZEnvC 216.

- [397] The Environment Court has also taken into account specific sub-factors where appropriate such as the zoning of the land, its characteristics, background noise sources and levels,⁷⁹ the legitimate amenity expectations of those living in close proximity,⁸⁰ the permitted noise standards in the relevant plan,⁸¹ relevant NZS standards as best practice when dealing with technical matters⁸² and the proposed conditions of consent.⁸³ Noise that disturbs sleep particularly during normal sleeping hours will generally be considered unreasonable, unless the recipients are hypersensitive.⁸⁴
- [398] There is no doubt that the construction of the Project will give rise to a range of noise and vibration impacts and that these would be most significant for those near the designation works. The incorporation of NZS 6803 into the AUP as applicable for construction activity generally, and the approach taken by WK (and endorsed by Ms Wilkening) to the acoustic assessment and the proposed mechanisms for the management of effects, leads us to find that the construction noise associated with the Project can be managed to an acceptable and reasonable level. We stress that this will require active, robust and engaged management on behalf of WK, its consultants and contractors, particularly when it comes to PPFs within 50m of the footprint.
- [399] To ensure this careful degree of management occurs, we agree with Ms Wilkening's recommendations to 'tighten' up WK's conditioning proposals to avoid and mitigate as far as practicable the potential for flexibility to lead to unreasonable adverse effects. We have incorporated these matters into the proposed conditions.
- [400] Overall, we find that undertaken in accordance with the proposed conditions, the construction related noise and vibration effects can be managed to a reasonable level.

8.12 AIR QUALITY EFFECTS

8.12.1 Evidence for Waka Kotahi

- [401] Evidence for WK on the air quality effects of the Project was provided by Bruce Clarke. We have summarised Mr Clarke's evidence and key conclusions in Appendix 1 and refer the reader to it for further information.
- [402] Mr Clarke's air quality assessment was based on the criteria in a number of relevant documents, namely the NES:AQ, New Zealand Ambient Air Quality Guidelines (**NZAAQG**), and the AUP. For construction effects relating to dust, the relevant assessment criterion is that "*there shall be no noxious, dangerous, objectionable or offensive dust to the extent that it causes an adverse effect at or beyond the proposed designation boundary*". Mr Clarke acknowledged that this

⁷⁹ *Forrest Hill Childcare Centre Limited v North Shore CC* EnvC A090/98.

⁸⁰ *Speedy v Rodney District Council* Decision No. A134/93

⁸¹ *Yaldhurst Quarries Joint Action Group v Christchurch CC* [2017] NZEnvC 165, at 209.

⁸² *Re Meridian Energy Limited* [2013] NZEnvC 39, at 197.

⁸³ *Re Meridian Energy Limited* [2013] NZEnvC 39, at 247-248.

⁸⁴ *Thompson v Davidson* EnvC C130/97, at 13.

assessment criterion is necessarily subjective but is in line with the MfE Dust Guide 2016 and relevant provisions of the AUP(OP).

- [403] For operational effects, the assessment considered criteria from a range of sources, including:
- (a) Ambient air quality standards and guidelines material; and
 - (b) Significance criteria taken from the Waka Kotahi Guide to Assessing Air Quality Impacts from State Highway Projects (2015). The criteria relate to the contribution of trigger contaminants (PM₁₀, PM_{2.5} and NO₂) from the road in order to evaluate the level of risk from the predicted incremental change in contaminant levels for land transport projects, above existing background concentrations.
- [404] In summary, Mr Clarke considered the environmental effects of the construction phase of the Project on air quality to be acceptable as long as mitigation and monitoring in accordance with good industry practice is implemented and there is a robust quality assurance process to confirm that the mitigation is being diligently applied by the roading constructor. The method proposed for this was the preparation of a Construction Air Quality Management Plan (**CAQMP**).
- [405] The criteria adopted by Mr Clarke to evaluate operational phase air quality effects, and relevant to a Tier 2 assessment, were:
- (a) NO₂ guideline of 40 µg/m³ as an annual average (WHO) and significance criteria of 4 µg/m³ as an annual average;
 - (b) PM₁₀ standard of 50 µg/m³ as a 24 hour average (NES:AQ) and significance criteria of 5 µg/m³ as a 24 hour average; and
 - (c) PM_{2.5} guideline of 25 µg/m³ as a 24 hour average (ARAQT) and significance criteria of 2.5 µg/m³ as a 24 hour average.
- [406] The results of the operational air quality effects assessment demonstrated that the Project will maintain air quality at acceptable levels throughout the largely rural environment of the Project area. There is a low level of increase in contaminant concentrations, which are below the WK significance criteria for the Project contribution (the predicted ground level concentrations from the road source), and well below the significance criteria for cumulative contribution (road source contribution plus background ambient air concentration) when compared with the selected NESAQ and NZAAQG for NO₂, PM₁₀ and PM_{2.5} criteria.
- [407] The effects of the tunnels on surrounding air quality were also found to be acceptable with concentrations of contaminants reducing to low levels within a short distance of the portals.
- [408] Overall, it was Mr Clarke's conclusion that there will be a benefit from improved air quality due to reduced traffic and congestion on the existing SH 1, in particular

through the townships of Wellsford and Te Hana, where community exposure to vehicle emissions will lower as a result of the Project.

[409] Mr Clarke set out a range of construction conditions relating to air quality management, which were included within WK's NoR condition set.

8.12.2 Submitter issues

[410] A number of submitters raised concerns relating to health effects, settling rates of dust particles, dust nuisance effects, adequacy of methods to mitigate air quality effects, movement of vehicles on dusty roads, and dust associated with earthworks. In particular, the submitters' concerns were with:

- (a) Dust effects on houses that collect roof water for domestic use;
- (b) Adequacy of the assessment of air quality effects in relation to construction activities; and
- (c) Adequacy of mitigation/controls to minimise dust effects on properties within 50 m of the designation boundary.

8.12.3 Council's s.42A review

[411] An Air Quality Assessment specialist report was prepared by Paul Crimmins, Senior Specialist - Contamination, Air & Noise at Council. In the main, Mr Crimmins agreed with Mr Clarke's Air Quality Assessment and agreed with the level of effects predicted for dust from construction and exhaust emissions from the operation of the Project. In particular he supported the provision of a CAQMP, but recommended it incorporate provision for an annual review.

[412] Mr Crimmins considered that under Rule E14.4.1(A83) the discharge of contaminants to air from the construction of the Project will not meet the general permitted activity standards (Rule E14.6.1.1) without management procedures in place and as such resource consent for this activity is required. In addition, he recommended a variety of changes to the proposed consent conditions (RC-101, RC-102 and RC-103).

8.12.4 Findings on air quality effects

[413] In his closing comments at the conclusion of the hearing, Mr Crimmins noted Mr Clarke's evidence and accepted that an air discharge consent was not required, except in relation to operation of the rock crushing equipment, which was acknowledged by Mr Clarke and Ms Sinclair. On the basis that the permitted activity standards in E14.6.1.1 were included in NoR conditions relating to other construction activities, he accepted that dust effects could be adequately managed to a permitted compliance level. We agree with this assessment.

[414] In terms of the other conditioning proposals suggested by Mr Crimmins, these were addressed in detail in the evidence of Mr Clarke, with a few amendments adopted,

but others rejected.⁸⁵ For the most part, Mr Crimmins accepted the response provided such that in his closing comments he identified only a handful of residual conditioning matters, namely:

- (a) Replacement of “mineral extraction” with “earthworks” in condition D-87(c)(iv);
- (b) Agreement with proposed RC conditions relating to the provision of a Rock Crusher Management Plan (**RCMP**), but recommending that an annual review mechanism for the RCMP be included useful to ensure it remains effective and relevant over the duration of works;
- (c) Agreement with the air quality conditions for the designation, as discussed in the evidence of Mr Clarke and provided in the evidence of Ms Sinclair, subject to the deletion of “mineral extraction and” in condition RC-102(d); and
- (d) The inclusion in condition RC-101 (now 101A) of a second clause requiring that dust is minimised as far as practicable by adhering to the CAQMP. As per the evidence of Mr Clarke, Mr Crimmins considered this clause would better sit as a separate condition to the ‘limit’ of condition RC-101A and as such he recommended that it be included as condition RC-102A, to detail that the RCMP is to be adhered to (not only prepared) and that dust from the rock crusher shall be minimised. His suggested wording was.

The Consent Holder shall ensure that the rock crushing activity is undertaken in accordance with the RCMP and minimises dust generation as far as practicable.

[415] We agree with Mr Crimmins suggestions and consider it helpful to incorporate these clarifications into the proposed conditions.

[416] Overall, we are also satisfied that the conditioning matters proposed by Mr Clarke and WK (as amended by Mr Crimmins) are appropriate to avoid, remedy and mitigate the potential effects of dust etc during the construction phase of the Project and will address the concerns raised by submitters with this aspect of the Project.

[417] Based on Mr Clarke’s evidence, we also find that the operational air quality effects of the Project will be minor and acceptable.

8.13 OPERATIONAL WATER MANAGEMENT AND FLOODING EFFECTS

8.13.1 Evidence for Waka Kotahi

⁸⁵ Evidence B Clarke, 15 September 2020, at [106]-[102].

- [418] Evidence for WK on the operational water management system was provided by Dr Tim Fisher. We have summarised Dr Fisher’s evidence and his key conclusions in Appendix 1 and refer the reader to it for further information.
- [419] By way of background, the operational water system for the Project integrates the stormwater collection networks, treatment systems, culverts, and watercourse diversions, to enable potential adverse effects relating to stormwater discharges from the operational phase of the Project to be minimised. The operational phase of the Project starts when construction is complete and the road is open to public traffic.
- [420] Dr Fisher’s evidence was that the Indicative Alignment has taken into consideration existing floodplains and has been developed with full consideration of stormwater management throughout the life of the Project. The indicative operational water management system provided the basis for the assessment of effects of stormwater discharges and diversions for the Project and for the development of appropriate consent conditions to enable the operational water effects of the Project to be managed and mitigated.
- [421] The key features of the indicative operational water management system are:
- Stormwater reticulation systems that collect the stormwater from the road and adjacent areas and convey these to the stormwater treatment devices.
 - Constructed stormwater wetlands as the primary treatment device for stormwater from the road and adjacent areas. The Indicative Alignment includes 34 stormwater treatment wetlands for the Project’s impervious surfaces totalling approximately 198 ha.
 - Cut-off drains to separate “clean” water from the Project to discharge to existing streams and watercourses.
 - Sediment traps in drains at the base of rock cut faces for pre- treatment prior to the constructed stormwater wetlands.
 - Conveyance of water runoff from local roads will be via vegetated or rock lined swales.
 - Stream diversions are required where it is necessary to realign a natural stream channel, including to connect an existing stream to a new culvert.
 - 85 culverts have been designed for the Indicative Alignment, which includes stream crossings under the road and land drains.
 - Five bridges and viaducts are associated with river crossings (Mahurangi, Hōteō and Maeneene), and across the Kourawhero wetlands.
 - Tunnel deluge and washdown capture systems.

- Pipe or channel outlets will be provided to the nearest available watercourse.
- Wetland and culvert outlets will incorporate energy dissipation structures and/or erosion protection measures to minimise stream bed scour and bank erosion in the receiving waterway.

[422] In his summary evidence, Dr Fisher advised that he incorporated his learnings from the Northern Gateway Toll Road (**NGTR**) and Pūhoi to Warkworth (**P2Wk**) projects into the design and assessment process for the Project. These considerations included the Best Practicable Option (**BPO**) for stormwater treatment, the feasibility of locating constructed wetlands in similarly hilly terrain and the benefits of including sediment traps to pre-treat sediment from rock cuts prior to discharge to the wetlands. The stormwater management approaches are similar to those that were used on other projects such as NGTR, P2Wk and Waterview Connection (SH 16/20) and a range of other highway projects in New Zealand.

[423] The Project's stormwater related effects on the environment have been assessed against criteria developed from the RMA and AUP, identified by Dr Fisher broadly as:

- Stormwater quality, including human impacts;
- Stormwater quantity; and
- Flooding.

[424] The existing SH 1 does not incorporate formal stormwater treatment. Therefore, with traffic moving to a new State Highway with stormwater treatment, the Project presents an improvement over the existing situation with respect to stormwater quality in Dr Fisher's opinion.

[425] The water quality and human impact effects will be mitigated by vegetated stormwater treatment systems that include swales and constructed wetlands throughout the Project, and sediment traps at the base of rock cuts. Overall, with the proposed management approaches and mitigations in place, Dr Fisher advised that the Project's potential effects on water quality, including human health impacts, would be no more than minor.

[426] The indicative operational water management system will also avoid most hydrological effects according to Dr Fisher. The Indicative Alignment results in increases in imperviousness and changes in flow due to diversions and routing. Increased stormwater flow (water quantity) will be mitigated through extended detention in the stormwater treatment wetlands and through design criteria for stream diversions. Dr Fisher recommends that diversions of larger streams are avoided where practicable. If diversions are unable to be avoided, then he recommends that an assessment be undertaken, and mitigation provided as appropriate. Predicted changes associated with diversions on hydrology are

localised. Beyond the localised sub-catchment scale, the predicted changes are negligible. As such, Dr Fisher considers the Project's potential effects on hydrology and streams to be no more than minor.

- [427] The indicative operational water management system has also been designed to avoid and reduce the effects on natural wetlands. However, the hydrological effect on natural wetlands from the indicative operational water management system has been assessed as moderate and will be sensitive to the final design. Dr Fisher therefore recommends further design refinement, during detailed design, to minimise and mitigate these effects. This requirement is made clear through conditions RC-55 and RC-56.
- [428] The flooding assessment undertaken for the Indicative Alignment was based upon changes to flooding associated with earthworks and structures within the floodplain. The focus of the assessment was on areas of higher risk in the Mahurangi, Kourawhero and Hōteu floodplains. Overall, Dr Fisher considers the changes to flooding from the Project to be mostly negligible. Where the changes are not negligible, he considers that the increase in flooding can be mitigated by standard engineering methods during the detailed design phase and controlled by the proposed resource consent conditions. Condition RC-100 ensures that there are no increases in flood depth outside of the proposed designation boundary that would result in adverse effects. This takes into account existing flooding in the vicinity of Kaipara Flats Road from the Kourawhero Stream
- [429] Dr Fisher considers that the indicative operational water management system has applied the BPO and an integrated stormwater management response to comply with the RMA and the AUP.
- [430] The final alignment for the Project will be refined and confirmed at the detailed design stage through conditions and outline plans of works. For that reason, the stormwater assessment prepared by Dr Fisher has addressed the potential effects arising from the road and covers the Designation area. The indicative stormwater system demonstrates the design philosophy and important aspects of the indicative stormwater system have been included in the proposed resource consent conditions so that they will also apply to the final detailed design.
- [431] The water management and mitigation approaches have also been written into the proposed resource consent conditions, to ensure that the effects of the Project align with the outcomes as they have been assessed. Overall, Dr Fisher considers that the residual effects from the indicative operational water management system proposed for the Project are minor or less with the application of the proposed resource consent conditions.

8.13.2 Submitter issues

- [432] Submitters raised a number of issues the Project's proposals relating to operational water management as follows:

- Concerns relating to the design of the operational water management system were raised by Waste Management NZ Ltd (**WMNZ**) (NOR16), Mr David Mason and Ms Dianne McCallum (JS1), Ms Pauline Yarndley (RC34), and Mr Dean Yarndley (RC35);
- Effects on water quality were raised by Hōkai Nuku (RC29), Mr Dean Yarndley (RC35), Ms Pauline Yarndley (RC34), Watercare (JS4), Ms Christine Beale and Mr Lance Adamson (RC20), Friends of the Streamlands (NOR5), Forest and Bird (JS3), Department of Conservation (DoC) (JS7), Ms Angela and Mr Geoffrey Still (JS8), Ms Denise Civil (NOR10 and NOR11), Ms Heather Arnold (RC22), Ms Joanne Hawke (RC23), and the Donnellan Family (JS12);
- Effects on water quantity, including hydrology and stream works, were raised by Hōkai Nuku (RC29), DoC (JS7), Forest and Bird (JS3), Watercare (JS4), Tertia de Vaile Wildy (RC30), Friends of the Streamlands (NOR5), Mr David Mason and Ms Dianne McCallum (JS1), Forest and Bird (JS3), Dando Family Trust (JS9), Ms Denise Civil (NOR10 and NOR11), Mr Bruce and Ms Joy Drower (RC18) and Ms Dianne Civil (RC31); and
- Flooding effects were raised by Dando Family Trust (JS9), Mr Dean Yarndley (RC35), Ms Pauline Yarndley (RC34), Ms Dianne Civil (RC31), Mr David Mason and Ms Dianne McCallum (JS1), Watercare (JS4), and Hōkai Nuku (RC29).

[433] The matters of concern in Watercare's submission have all been addressed by way of the final consent conditions, including Mr Wilson's request in his evidence presented at the hearing that an amendment be made to condition D-24 (which we have accepted).

[434] We now summarise the balance of the submission issues and WK's responses to them.

Operational water management system - general

[435] Submissions from Mr Mason and Ms McCallum, Ms Yarndley and Mr Yarndley query the design of a culvert (MCG0 CH820) underneath Kaipara Flats Road in the vicinity of numbers 211 and 215. Their concern is that the culvert has been sized too large and will result in adverse effects on flooding in the Kourawhero Stream and that the roadside diversion channel will be too deep resulting in a hazard to road users and an impact on pond water levels.

[436] Dr Fisher noted these concerns in his evidence, noting that the proposed culvert is larger than existing infrastructure along Kaipara Flats Road. He undertook a site inspection on 9 September 2020 to meet with the submitters and to review the location of the culvert. Based on the site inspection he agrees with the submitters and does not think that the culvert at this location is warranted. Dr Fisher noted that the inclusion of the culvert, its potential sizing and location in this area, will be

rechecked at the detailed design stage. The design must comply with resource consent conditions and the Auckland Transport Design Manual and will be approved by Auckland Transport as part of their Engineering Plan Approval process.

Effects on water quality

[437] Forest and Bird, Watercare, DoC, Mr and Ms Still, the Friends of Streamlands, Ms Denise Civil, Ms Beale and Mr Adamson, Ms Arnold, Ms Hawke, Hōkai Nuku, and Mr and Ms Yarndley all raise matters of concern regarding water quality. Several submitters have queried the water quality effects of the Project on natural waterways, flora and fauna. The submissions from Ms Denise Civil and the Donnellan Family express concern that the Project does not adequately address the effects of stormwater management. The Friends of Streamlands submission expresses concern that the effects of stormwater management have not be adequately mitigated or remedied, while Ms and Mr Still express concern over the Project having significant effects on the Mahurangi River environment.

[438] Dr Fisher responded to each of these concerns as follows:

- The existing SH 1 does not incorporate formal stormwater treatment. Therefore, with traffic moving to a new State Highway with stormwater treatment, the Project presents an improvement over the existing case.
- Constructed wetlands are his preferred stormwater treatment device for the Project and he considers these to be the BPO for the Project. These devices will remove contaminants of concern such as suspended sediment, copper, zinc, nutrients, oil, grease, bacteria, gross litter and floatables including oil and volatile hydrocarbons. The devices will be designed in accordance with GD01 and WK standards. The inclusion of stormwater treatment wetlands will minimise water quality impacts in the receiving environment.
- The potential effects of the Project on contaminant loads have been modelled against the existing land use. The models indicate that the operational road causes minor increases in contaminants in smaller catchments. However, this reduces to no change or slight improvement over the existing case within the larger catchments of the Mahurangi River, the Hōteō River, and the estuarine Oruawharo River.

[439] Ms Beale and Mr Adamson, Ms Arnold, and Ms Hawke request that an Environmental Quality Plan ensures streams are kept in a clean condition as they flow to the Hōteō River, where water is collected for Wellsford residents. Dr Fisher responded to this as follows:

- The potential effects of the Project on contaminant loads within the Hōteō River have been modelled as very small, with a minor or negligible increase

in contaminants. This is not expected to affect the ability of the treated water to meet NZ drinking water standard values.

- Conditions RC-97 to RC-98 require the development and implementation of a Stormwater Operation and Maintenance Plan (**SOMP**). The SOMP will be developed prior to the operation of the Project and he considers that this plan will ensure that the devices are maintained to achieve their design function, and that there will be no effect on the Hōteu River or drinking water as a result of the Project.

[440] Ms and Mr Yarndley express concern over stormwater discharges to the Kourawhero tributary between Dome Tunnel and Kaipara Flats Road and suggest routing the stormwater discharge to the Mahurangi River catchment. Ms and Mr Yarndley also recommend removing Bridge 22 over the Kourawhero wetlands to reroute waters to the Mahurangi River. Dr Fisher considered these points and provided the following response:

- Although the Project may result in a small increase in contaminants to the Kourawhero Stream, the modelled increases are local to the tributary. The impacts of the stormwater discharge decrease downstream, with no difference or a minor improvement observed in the Hōteu River against the existing case.
- Rerouting the stormwater discharge from the road within the Kourawhero catchment to the Mahurangi River would result in adverse water quality and quantity impacts on both streams. The removal of normal stormwater flows from the Kourawhero stream would reduce flows and have a negative effect on the ecosystem health of the Kourawhero stream. The diversion of high stormwater flows (from extreme rainfall) to the Mahurangi River (which already has flooding issues) would make this worse.
- Bridge 22 has been included to reduce the effect of the Project on the sensitive wetlands within the catchment. Removing Bridge 22 may result in adverse impacts to the wetlands within the Kourawhero Stream.
- In Dr Fisher's opinion, the submitters' suggestions would result in worse effects to the Kourawhero Stream and the Mahurangi River catchment in terms of the natural wetlands, stream flows and flooding.

[441] Mr Mason and Ms McCallum request clarification and new conditions covering the stormwater discharges. Dr Fisher provided the following response:

- Mr Mason and Ms McCallum request clarification that condition RC-81b relates to operational stormwater and this confirmation was provided.
- Mr Mason and Ms McCallum request a condition that requires all diverted water (including clean and dirty) to have outfalls to an existing natural stream. Dr Fisher confirms that all stormwater outfalls will discharge to

streams, however this does not need a condition as there is no other place for the outfalls to go. He also noted that Condition 82 requires all stormwater outfalls to have erosion control measures.

[442] DoC expressed concern over sedimentation of the Kaipara and Mahurangi harbours from the operation of the Project. Hōkai Nuku has expressed concern that the operational contaminants from the Project are not adequately mitigated before entering the Te Hana Awa estuary and that cumulative adverse impacts from the highway operation will affect the Hōteio River catchment's ability to sustain the conditions which support taonga species within it. Dr Fisher's response to contaminants generated by the proposed road was:

- The potential effects of the operational road on contaminant loads, including suspended sediment, metals (zinc and copper) and petroleum hydrocarbons, have been modelled against the existing land use. The models indicate that the effect of the operational road is a negligible change or slight improvement over the existing case within the receiving estuaries, including the Kaipara Harbour and Mahurangi estuary.
- The models indicate that for the Te Hana creek, the post- development (with Project) contaminant loads are essentially unchanged and below the ANZECC 95% percentile concentrations for all contaminants.
- His opinion is that the stormwater runoff from the Project is adequately mitigated by the operational water management system.

Effects on water quantity, including effects on streams and wetlands

[443] Forest and Bird, Watercare, DoC, the Friends of Streamlands, Ms Denise Civil, Mr and Ms Drower, Hōkai Nuku, and Ms Dianne Civil raise concerns regarding water quantity, including effects to streams and wetlands. Several submitters also questioned the water effects of the Project on natural waterways and wetlands, as well as its effects on riparian margins and vegetation, with particular focus on the Mahurangi River, and request that riparian margins are protected.

[444] In response, Dr Fisher notes that the indicative alignment and design for bridges and viaducts located across the Mahurangi (Left Branch), Waiteraire and Hōteio Rivers, and Maeneene Stream, has piers outside the bed, which has been carried into condition RC-54. Therefore, Dr Fisher considers that riparian margins will be adequately protected.

[445] Mr Mason and Ms McCallum request that proposed resource consent Condition 54 be updated from no works within "the Mahurangi River (Left Branch)" to include no works within the watercourse of the Mahurangi River. Dr Fisher notes that the proposed designation crosses only the left branch of the Mahurangi River, so this change is not necessary.

[446] Forest and Bird queried the impact of stream diversions on threatened fish species, and the submission from DoC raised a concern that the stream diversions within the designation would not have equivalent ecological value to the natural waterways. Dr Fisher's responded as follows:

- Condition RC-58 requires WK to design and construct all stream diversions to have natural stream forms and riparian planting where the diverted streams are permanent and supporting fish habitats. This is ensured by requiring that the stream diversions be designed by "Suitably Qualified and Experienced Persons". These persons are expected to be engineers, landscape designers and ecologists, to ensure a good integrated design.
- The objective of the stream diversion design is to recreate streams and habitats that replicate, as much as is practically possible, the natural state and habitats of the streams that existed prior to the Project becoming operational. Stream diversion details have been adopted from the P2Wk project.

[447] The submissions from the Friends of the Streamlands and Forest and Bird queried the Project's effects on waterways, with concerns around the assessments conducted not being adequate and relying too heavily on management plans. This relates to the use of an Ecological Management Plan which is addressed in the ecology section of this decision.

[448] Hōkai Nuku has concerns with the sizing and design of culverts for fish passage and would also like best practice for fish passage to be used. Forest and Bird requests that fish passage is provided for in all culverts. Dr Fisher's response to these points was as follows:

- The indicative operational water design includes culverts that have been sized on a hydraulic basis to Auckland Council's Stormwater Code of Practice and NZTA P46 Stormwater Specification April 2016.
- The proposed approach for fish passage is to provide it for culverts for all permanent streams with upstream habitats, and for intermittent streams where there is the potential for fish habitat upstream. Fish passage is addressed in the ecology section of this decision.
- Conditions RC-61 and RC-62 require that fish passage be provided in accordance with best practice in all temporary and permanent culverts and Stormwater Management Wetlands unless deemed unnecessary or impracticable by a Suitably Qualified and Experienced Person, which must be certified by the Auckland Council Manager.
- Culvert designs will be updated to the most up to date code of practice at the time of detailed design and construction, which is appropriate given the envisaged 2030 construction start.

- Dr Fisher’s opinion is that the submitters’ requests have been addressed through the resource consent conditions.

[449] Forest & Bird, DoC, Hōkai Nuku, the Friends of the Streamlands, Tertia de Vaile Wildy, Mr Mason and Ms McCallum have concerns regarding the identification, avoidance, and effects to wetlands, especially the Kourawhero wetlands. Dr Fisher’s response to these concerns was:

- Mr Mason and Ms McCallum’s submission includes details of a wetland that they considered was missed in the Ecology report, and therefore has not been assessed as part of the Water Assessment Report. This is addressed in the ecology section of this decision.
- The indicative operational water design has been designed to avoid and reduce the effects on natural wetlands. However, the hydrological effect on natural wetlands from the indicative operational water management system has been assessed as low to moderate and will be sensitive to the final design. conditions RC-54C, RC-54D, RC-54J and RC-54K aim to design and manage construction of the Project to achieve “Ecological Outcomes”, which requires the effects on wetlands to be minimised during design.
- Dr Fisher considers that conditions RC-55, RC-56 and RC-81(b)(vi) mitigate the physical and hydrological impacts on the Kourawhero Wetland complex by requiring the collection of good baseline data to inform design, as well as design direction.

[450] The submission from Mr and Ms Drower raised concerns about the potential impact of the designation on the water pond located on their property. This matter has been addressed by a modification to the designation by WK.

Flooding effects

[451] Submissions from Mr Mason and Ms McCallum, the Dando Family Trust, Ms Dianne Civil and Mr and Ms Yarnley raise matters of concern regarding flooding effects of the Project.

[452] In his evidence, Dr Fisher advised that changes in flood characteristics due to the Project have been mitigated through the Project design as much as practicably possible to avoid or mitigate changes that may make the current flood issues in the catchment worse. In this regard, Dr Fisher emphasised conditions RC-100, RC-100A and RC-101. Condition RC-100 requires that the design of the Project does not result in an increase in flooding for events up to and including the 100-year ARI event in either of the following situations:

- (a) an increase in flooding levels greater than 100 mm vertically outside the designation; or
- (b) an increase in flooding above floor level to any habitable building outside the designation.

[453] Condition 100A requires that the design of the Project in the Kourawhero catchment not result in any more than a negligible increase in downstream peak flood levels and/or flood flow up to and including the 100-year ARI event, while condition RC-101 requires that WK demonstrate that any headwater ponding upstream of any Project culvert in the 100-year ARI event is contained within either the Land within the designation at the time of the construction, or an existing flood plain. Dr Fisher's view is that together, these conditions protect existing properties from any flooding effects being made worse than they currently are.

[454] The Dando Family Trust, Ms Dianne Civil, and Ms and Mr Yarndley have queried the flood effects of the Project to specific properties around Kaipara Flats Road and the surrounding area. These properties are 39 Phillips Road, 111 Kaipara Flats Road, 109 Kaipara Flats Road, and 214 Kaipara Flats Road. Dr Fisher responded as follows:

- Maps were provided showing the pre- development and post-development floodplains at these properties, as well as changes to flood levels.
- The Dando Family Trust is concerned about flooding at their property at 39 Phillips Road, Warkworth specifically, and concerns over increases in flooding along Phillips Road generally. Dr Fisher advised that the flood modelling of the Indicative Alignment does not show flooding at this property in either the pre- development or post-development scenario. 39 Phillips Road is outside the designation boundary, and thus covered in condition RC-100 mentioned above. The realignment of Phillips Road and the culvert under it allows the flooding on Phillips Road to be reduced as was demonstrated in the flood maps attached to Dr Fisher's evidence. Dr Fisher advised that the design of the Phillips Road realignment would comply with the Auckland Council Stormwater Code Practice and Auckland Transport Design Manual, to be designed for the 100-year ARI event with 500 mm freeboard, to ensure that any flooding did not result in risks to road users.
- Mr and Ms Yarndley query the effects of the Project on existing flooding issues at 214 Kaipara Flats Road, and downstream along the Kourawhero stream. Dr Fisher advised that his site meeting with Mr and Mrs Yarndley identified the flood hazard they face from flood flows overtopping their driveway that has a 900 mm diameter culvert and a ford for overtopping flows. Currently, flood flows in the Kourawhero Stream overtop their driveway and restrict their access to/from their property. Even a minor change in flood levels (e.g., 100 mm) will impact their access and increase the hazard. The same impact is faced by the properties sequentially further down Kaipara Flats Road. Furthermore, there is existing significant flooding all the way down Kaipara Flats Road. Dr Fisher therefore recommended additional resource consent condition (condition RC-100A) that is location specific and more restrictive than general condition RC-100a that would require negligible change in flooding at this location in order to not worsen this hazard.

- Ms Dianne Civil queries the effects of the Project on flooding effects on 111 Kaipara Flats Road, Lot 4 DP469718 and 109 Kaipara Flats Road. These properties are either adjacent or within to the floodplain of the Mahurangi Stream (Left Branch). Flood modelling indicates that the water levels within these properties will not increase due to the Project. All of these properties and lots are also outside of the designation boundary, and in Dr Fisher's view, adequately covered in condition RC-100 mentioned above.

8.13.3 Council's s.42A review

- [455] The reviews completed by Council specialists in relation to operational water from the Project were supportive of Dr Fisher's proposed operational stormwater management system and considered the indicative stormwater management design was the BPO for managing stormwater quality. The Council's reviewers concurred with Dr Fisher's assessment that the level of stormwater related effects during the operational phase will be appropriate and will not adversely affect water quality and quantity to any extent considered greater than minor. It is also agreed that any exacerbation of flood hazard as a result of the Project will be minor.
- [456] One issue raised in the s.42A report was a concern about increases to flooding at dwellings within the proposed designation which may remain and then be sold following construction of the Project. However, WK advised that impacted dwellings within the designation will be bought by the Crown, so there will not be effects on them and flood controls through resource consent conditions are not required inside the designation.
- [457] Council specialists also requested that the conditions include a requirement for attenuation and peak flow controls for 2 and 10 year ARI storm events within the stormwater treatment wetlands. Dr Fisher did not agree that this was necessary as attenuation may not be required in all stormwater wetlands. Hydraulic and hydrological modelling will occur at the detailed design stage, which will establish if and where flood attenuation is required to achieve the resource consent condition outcomes in relation to flooding. He therefore considered that the proposed resource consent conditions were sufficient to ensure no effects to flows off site, and as such the provision for attenuation of the 2 and 10 year ARI flows in all stormwater treatment wetlands was not required.
- [458] In their closing comments dated 15 October a few remaining issues were identified.

Flood management (Healthy Waters (Trent Sunich))

- [459] Mr Sunich was comfortable with the proposed conditions in relation to flooding and provided a suggested minor change to condition RC-100. This change was adopted by WK in its reply conditions, along with a minor change to condition RC-100A.

Stormwater – Ms Abby Sharma.

- [460] Ms Sharma considered that the requirement in condition RC-80c(iv) was only relevant to wetlands and not all stormwater management and controls, and in her view it was therefore appropriate that it be added to condition RC-86. It appears though that the condition numbers referred to have been superseded by revisions to the conditions by WK and that Ms Sharma was referring to the requirement in condition RC-81b(iv) and that this should be added to condition RC-85.
- [461] Condition RC-83 (previously condition RC-82) – including a requirement to incorporate rock check dams for slopes >5%. Ms Sharma wants to include this as she sees it as a design enhancement. Dr Fisher sees it as a methodology to reduce erosion and considers it is not necessary to be included in the RC conditions as condition RC-83 includes the requirement to prevent erosion in the 100-year ARI rainfall event.
- [462] Condition RC-84A of the s.42A report proposed this condition to be a mechanism for Council to certify any future change to the stormwater solutions due to technical advances. Ms Sharma recommends that this condition is retained as part of the suite of stormwater conditions. Dr Fisher does not consider this necessary for several reasons, including that stormwater management devices are to be designed in accordance with GD01 and the definition of GD01 allows for future updates.

8.13.4 Findings on operational water effects

Operational water management system - general

- [463] With respect to the submissions from Mr Mason and Ms McCallum, Ms Yarndley and Mr Yarndley, we note the evidence of Dr Fisher that the inclusion of the new culvert under Kaipara Flats Road near no.'s 211 and 215 and its sizing will be rechecked at the detailed design stage. The design must comply with resource consent conditions and the Auckland Transport Design Manual and will be approved by AT as part of their Engineering Plan Approval process. We are satisfied that this process will ensure that this issue will be adequately addressed.
- [464] We note that submitters' concerns include the amount of stormwater that might pass through such a culvert in the future. This matter is addressed in our discussion on flooding below.

Effects on water quality

- [465] We accept Dr Fisher's expert evidence in response to the questions and concerns of submitters. We find that stormwater runoff effects from the Project will be adequately mitigated by the operational water management system proposed.
- [466] We note that proposed condition RC-81a states: "*All stormwater from the Project is captured, treated and discharged through off line Stormwater Management wetlands to the extent practicable*". We note the concern in paragraph 9 of the DOC submission about use of the term "to the extent practicable" and in Attachment 1 for condition RC-80 requiring clarification of when it would not be

practicable to capture, treat and discharge stormwater through constructed wetlands. We share this concern. We take from Dr Fisher's evidence, in particular para 54.3, that the wetlands will treat all runoff from the new State Highway. We accordingly have changed condition RC-81a to better reflect this, albeit restricting the treatment requirement to the impervious roadway part of the Project. Condition RC-81a now reads: "*All stormwater from the impervious roadway of the Project is captured, treated and discharged through off line Stormwater Management wetlands*".

[467] We consider the balance of the proposed conditions relating to stormwater quality are sufficient to provide adequate mitigation of stormwater quality effects from the operation of the Project.

[468] In response to Ms Sharma's suggestion about condition RC-80c(iv) (sic RC-81b(iv)), we concur. Condition RC-81b(iv) is deleted, and this requirement is retained as condition RC-85(c).

[469] In response to condition RC-83 (previously condition RC-82) (including a requirement to incorporate rock check dams for slope >5%, and Ms Sharma's request to include this condition as she sees it as a design enhancement), we prefer the evidence of Dr Fisher who sees it as a methodology to reduce erosion and considers it not necessary to be included in the condition, as condition RC-83 includes the requirement to prevent erosion in the 100 year ARI rainfall event in any event.

[470] In response to Ms Sharma's request to include condition RC-84A of the s.42A report for a mechanism for Council to certify any future change to the stormwater solutions due to technical advances, we concur with the evidence of Dr Fisher and do not consider this necessary, as stormwater management devices are to be designed in accordance with GD01 and the definition of GD01 allows for future updates.

Effects on water quantity, including effects to streams and wetlands

[471] We find that all submitter concerns in relation to this matter have been satisfactorily addressed by Dr Fisher in his evidence, noting that effects on streams and wetlands are also addressed in the ecology part of this decision.

[472] We summarise the major issues of concern and note the relevant condition numbers as follows:

- Avoiding disturbance to the Mahurangi River bed: *condition RC-54*
- Design to retain natural features for watercourse diversions: *condition RC-58*
- Provision of fish passage for culverts: *conditions RC-61 and RC-62*

- Ecological outcomes for streams and wetlands: *conditions RC-54C, RC-54D, RC-54J, and RC-54K*

Flooding

- [473] For the effects of flooding from the Project on properties within the Kourawhero catchment, including the Yarndley, Dando, and Mason & McCallum properties we find these to be satisfactorily addressed based on the evidence of Dr Fisher and the proposed conditions. In particular, condition RC-100A requires that the design of the Project in the Kourawhero catchment does not result in any more than a negligible increase in downstream peak flood levels and /or flood flow up to and including the 100-year event.
- [474] With respect to the access related concerns raised by Ms Dianne Civil about flooding at 109 and 111 Kaipara Flats Road (i.e., only access is by a bridge crossing the Mahurangi River and even an increase in flood level as small as 50 mm will cause major issues), we note that Dr Fisher has confirmed that the flood modelling shows that water levels within the 111 Kaipara Flats Road property will not increase due to the project. However, we find that due to the susceptibility of this property to flooding, a specific condition is appropriate to require the Project to avoid any increase in flooding of the Mahurangi River at 111 Kaipara Flats Road. This will be a new condition RC-100B.
- [475] Mr Sunich was comfortable with the proposed flood related conditions and suggested a minor change to condition RC-100 and to condition RC-100A, which have been adopted in the final conditions.

Overall findings on operational stormwater management and flooding

- [476] We find that if the Project is designed and constructed in accordance with the conditions proposed (as amended by us), the effects of its stormwater run-off management and discharge, and its impacts on flooding, will be adequately mitigated and avoided.

8.14 EFFECTS ON HISTORIC HERITAGE

8.14.1 Evidence for Waka Kotahi

- [477] Evidence for WK on the effects of the Project on historic heritage was provided by Dr Rod Clough. We have summarised Dr Cough's evidence and key conclusions in Appendix 1 and refer the reader to it for further information.

8.14.2 Submitter issues

- [478] In its submission, Heritage NZ was generally supportive of the Project. However, it sought minor amendments to the proposed designation conditions to provide clarity between archaeological matters pursuant to the HNZPTA and historic heritage matters that are addressed under the RMA. These matters were largely accepted

by Dr Clough and incorporated as appropriate in the proposed designation conditions.

8.14.3 Council's s.42A review

- [479] The main unresolved difference in technical opinion between Dr Clough and Ms Ramsay and Ms Caddigan (Council's reviewing specialists) relates to condition D-79C(c) - the level of significance (under HNZPT Guideline AGS 1A) to be attributed to Phillips Cottage for recording in event of demolition.
- [480] Dr Clough considers the appropriate level of recording should be Level II and Ms Ramsay and Caddigan maintain this should be Level I.
- [481] In his closing comments Mr Siu suggested the condition should be reworded so that the appropriate level under HNZPT Guideline AGS 1A should be determined subject to a final assessment.

8.14.4 Findings on effects on historic heritage

- [482] We accept Mr Siu's proposal and consider this to be an appropriate approach to resolving this technical matter. We have amended Condition 79C(c) accordingly.
- [483] We note that Dr Clough supported Ms Ramsay and Ms Caddigan's comments in regard to condition D-78(b) (i.e., the removal of the wording "as far as practicable,"), although this did not appear in WK's reply version of the conditions. As such, we have made this amendment.
- [484] In respect of these matters, we find that the Historic Heritage Management Plan approach proposed, with the amendments outlined above, will ensure that these aspects of the proposal would have only minor adverse effects on archaeology and built heritage and as such would be generally consistent with the AUP and statutory provisions that are engaged for consideration.⁸⁶
- [485] We find that the Project's effects on historic heritage will be adequately avoided, remedied or mitigated.

8.15 LANDSCAPE AND VISUAL EFFECTS

8.15.1 Evidence for Waka Kotahi

- [486] Evidence for WK on the landscape and visual effects of the Project was provided by Chris Bentley. We have summarised Mr Bentley's evidence and key conclusions in Appendix 1 and refer the reader to it for further information.
- [487] By way of summary, Mr Bentley's evidence was that the landscape effects of the Project relate to the effects of change and development on landscape and the effects on landscape as a resource and landscape character. Further, the visual

⁸⁶ E.g. RPS B5.2 AUP(OP), s.6(f)

effects relate to the effects of change and development on the views available to people and their visual amenity. He advised us that the landscape and visual effects are influenced by the sensitivity of the landscape or viewing audience and the level of change that would occur as a result of the Project.

- [488] Mr Bentley also considered that many of the visual effects can be remedied or mitigated over time, in particular with the retention of existing patches of indigenous vegetation and shelter belts, and establishment of the proposed revegetation, earth bunds and screen planting.

8.15.2 Submitter issues

- [489] A number of submitters who reside in the vicinity of the Project and who would view the new state highway and its larger structures raised concerns with its landscape and visual effects on them. The degree of concern varied depending on the location and alignment of the proposed corridor in relation to their property, the mitigation proposed and general proximity to the corridor. The alleged 'flexibility' sought by WK, evident in its proposed conditions and management plans, together with the 15-year lapse date, were of particular concern.
- [490] Submitters also advised us that there had been limited and, in some cases, no meaningful, consultation with them on the location of the proposed corridor or the Indicative Alignment. They considered that they had not been involved in any optioneering process and of their concerns with the flexibility requested, they said it contributed to their uncertainty around the final road alignment, how it will impact them and how its visual effects will be mitigated.
- [491] In relation to this last complaint, we were advised that Mr Bentley reviewed all relevant submissions and met with submitters on their properties prior to the hearing. A result of this was to include some additional property specific visual mitigation plans (attached to his evidence in Appendix A) that he considered would mitigate the visual effects regardless of changes to the indicative alignment. He recommended additional mitigation planting and changes to the consent conditions, which were included in the conditions attached to Ms Sinclair's evidence. He also provided us with an assessment of the issues raised by submitters and the discussions and meetings he had with them on their individual properties. He took us through the discussions on the issues raised and his consideration of further mitigation opportunities.
- [492] In relation to the Mason and McCullum property he concluded that the proposed designation conditions enable the mitigation to be adjusted to respond to design changes. In particular, condition D-45(c) requires the ULDF to identify highly sensitive locations including residential properties requiring specific design treatment and condition D-49(b)(xiv) which identifies specific properties that require the ULDFs to design new planting or other measures to visually screen the permanent project works from dwellings with direct line of sight.

- [493] In his rebuttal evidence dated 2 October 2020 Mr Bentley sought to specifically address the concerns raised by Mr Mason and Ms Pegrume in their statements of evidence, including their requested changes to the landscape and visual effects mitigation related conditions. Mr Bentley took us through each of the proposed changes to the conditions and concluded that in his opinion the changes and new conditions were unnecessary.
- [494] Mr Bentley also visited Mr and Ms Oguz and discussed their concerns about the visual effects on their property should the indicative alignment change. These residents are particularly concerned about the impact on a future house site on the property. Mr Bentley explained that their land is located approximately 600m from the indicative alignment and is elevated above Kaipara Flats Road and Phillips Road. The Landscape and Visual Mitigation Plan shows a 75m wide strip of planting, including a shelterbelt/screen planting close to the highway in this location. Mr Bentley considered this sufficient to mitigate the visual effects of the project on their future house site.
- [495] To address the concerns of Mr and Mrs Dando, Mr Bentley proposed extending the screen planting to the north on the Landscape and Visual Mitigation Plans to further reduce visibility of the Project from this property. He also discussed with Mr and Mrs Dando planting a 15m wide fast growing shelter belt (eucalyptus species with a native understory) at their boundary but located on WK's designated land. He considered that these measures would adequately reduce the visual amenity effects of the Project on this property.
- [496] Mr and Mrs Dando also raised concerns with the potential for the Phillips Road area to be used as a construction yard, as their property is within 200m of the designation boundary. Mr Bentley's opinion was that Phillips Road is not likely to be an appropriate location for a construction yard.
- [497] In relation to Ms Dianne Civil's property at 111 Kaipara Flats Road, the Double Truffle Orchard at 109 Kaipara Flats Road and the general area, Mr Bentley took us through the extent of mitigation planting proposed in this area including retention of the Mahurangi River SEA and the existing shelter belts. In addition, a depth of 150m to 200m of native revegetation planting is proposed between the Indicative Alignment and the proposed eastern designation boundary. Mr Bentley's findings in relation to the landscape and visual mitigation rely on this proposed planting to address the effect on this property.
- [498] Ms Sinclair also addressed the landscape and visual effects of the Project and resident concerns that they had not been adequately addressed or mitigated. She advised us that the proposed mitigation would be delivered through the Urban and Landscape Design Management Plans (**ULDMPs**) which will have regard to the Urban and Landscape Design Framework (**ULDF**) (Planning Version) that was submitted as part of the application material. The process, content and engagement required to develop ULDMPs is set out in condition D-48. Ms Sinclair's opinion was that the visual effects of the Project have been assessed and

the proposed conditions of designation are sufficient to mitigate its adverse visual effects.

8.15.3 Council's s.42A review

[499] Mr Stephen Brown reviewed the Landscape and Visual Effects Assessment undertaken by Mr Bentley and considered the concerns raised by local residents. In relation to Mr Bentley's assessment, he concluded that the level of assessment was appropriate given the corridor nature of the study, as too was the level of detail provided in that part of the report, and its conclusions. He noted:⁸⁷

As a whole, BML's assessment of effects is both detailed and logical insofar as it goes – progressing from the general study area to the individual landscape character units, then the specifics of more 'critical', or sensitive, locations. In particular, it appears to address changes to the landscape character of the corridor's surrounds thoroughly and appropriately.

[500] However, Mr Brown also stated:⁸⁸

On the other hand, the degree to which the proposed corridor would affect nearby residential properties remains largely unresolved. For example, the viewpoint 5 (Phillips Road and Kaipara Flats Road) contains a number of rural residential properties that overlook the valley and proposed corridor route traversing Kaipara Flats Road. Yet it is not mentioned in the Landscape Effects Analysis for Character Area A: Warkworth North (section 4.1.1) or the Viewpoint Analysis of Table 10. As a result, the degree to which the proposed highway would affect local residential properties and the amenity currently enjoyed by their occupants is unclear. Perhaps reflecting the assessment's strong focus on landscape values and change, the mitigation measures currently proposed are also rather brief in relation to 'visual effects'.

[501] Mr Brown's assessment articulated the same concerns expressed by submitters during the hearing around uncertainty and the degree to which residents near the corridor would be affected by visual exposure to the new motorway, noise generated by its use and construction activities:⁸⁹

Although amenity effects, in relation to local residents, are mentioned in the descriptive analysis of some landscape units and viewpoints, this coverage is variable. This creates uncertainty about the degree to which such effects have been evaluated. Yet, they remain important in relation to finalizing the highway's alignment and assisting with the identification of amelioration and mitigation measures. In turn, this leaves residents living near the corridor uncertain about the proposed motorway on a number of fronts:

⁸⁷ NoR s.42A report, p495.

⁸⁸ Ibid.

⁸⁹ Ibid, p496.

- *The exact alignment and proximity of the complete motorway to their properties and dwellings;*
- *Its relative elevation and related impacts on local landforms;*
- *Its impact on existing stands of bush and other vegetation (some of which has both ecological value and significance from a rural amenity standpoint);*
- *The likely placement, type and scale of mitigation measures, including bunding, walling and planting; and*
- *The location of construction compounds.*

[502] Mr Brown comprehensively considered all of the submitters concerns in his review of the proposed corridor and the assessments undertaken by Mr Bentley and his firm, Boffa Miskell Limited (**BML**), including the BML response to the Council's s.92 request. He concluded that all of the matters identified in the submissions were largely addressed in the updated BML assessment of effects apart from:

- (a) The generic issues of 'why should a motorway be located in the affected landscapes?', which he considered too broad for BMLs assessment or his review to address; and
- (b) The matter of condition D-49b(xv) and a proposed condition D-49b(xvi) – both of which should be addressed by iwi and WK's cultural advisors even though they pertain to landscape outcomes.

[503] Mr Brown considered that in relation to submissions addressing specific parts of the corridor and surrounding landscape, both BML and he agreed that the Project would be likely to have an adverse effect on nearby residents, mostly living on rural blocks and that such effects remain unclear. In his review, he agreed with BML that most of these effects could be addressed via refinement of the motorway design and related mitigation measures, but in advance of the preparation of detailed documentation around landscape and visual effects mitigation measures, this left local residents living near the corridor in a state of understandable uncertainty and anxiety over the ultimate effects of the Project.

[504] Although Mr Brown did not identify any reasons to withhold approvals for the Project, he remained concerned with the uncertainty that was created by the 'corridor approach' adopted for the Project near the affected residential properties, in particular the short to medium term effects of the Project while landscape planting and related mitigation matured or became effective. Despite that, he was content that mitigation measures should be able to address most effects in the longer term provided changes were made to key consent conditions.

8.15.4 Findings on landscape and visual effects

[505] We accept Mr Brown's assessment of the landscape and visual effects and his conclusion that whilst the broader landscape effects have been addressed and will be managed through consent conditions, the potential impacts on nearby rural residential properties have not been fully addressed because the final alignment of the highway (and its specific visual effects) is not yet known. We find that these

potential impacts will require careful management through the Designation conditions and the proposed management plans. Appreciating the visual amenity currently enjoyed at their properties, we consider that further refinement of the Designation conditions and the proposed management plans will be necessary to achieve this.

- [506] We find that those residents whose properties are located outside, but either adjoining or within close proximity of the designation footprint, are in the situation of being impacted by the effects of the proposed corridor. But because they are outside the NoR footprint, they have had limited (if any) engagement with WK through the indicative design process. These residents told us that in most cases the first contact or communication they had with WK was when Mr Bentley and others from the project team visited them to discuss their submissions prior to the hearing.
- [507] We find that the uncertainty around the final road alignment within the proposed corridor contributes to resident's concerns that the effects will be unknown for some time and are subject to change. We note that the mitigation planting proposed has been determined based on the currently proposed Indicative Alignment and find that an appropriate level of consultation and engagement with impacted residents is a necessary part of any further changes to the alignment. In this regard, we accept the conclusion and recommendations of Mr Brown that amendments are required to the key conditions to ensure that residential and rural amenity values are maintained.
- [508] We find that the properties particularly impacted by this uncertainty include the Mason and McCallum property at 211 Kaipara Flats Road, the Dando property at 39 Phillips Road, Ms Dianne Civil's property at 109 and 111 Kaipara Flats Road, and Ms Denise Civil's properties known as Southway and Puriri Springs. Whilst the Oguz property is less directly impacted due to land contour and separation distance we find that they are all impacted to such a degree that warrants their participation in any further changes to the alignment through the detailed design process.
- [509] In this regard, although Mr Bentley considered that these concerns would all be addressed through the ULDF and the ULDFMP processes, we find that some modifications to the conditions and management plan requirements is necessary to provide greater certainty to residents and ensure that an appropriate level of consultation is undertaken to determine appropriate visual mitigation solutions.
- [510] We have therefore reviewed and amended the proposed conditions to address these concerns by removing reference to the terms 'where practicable' and inserting additional criteria requiring consultation and development of appropriate mitigation plans through the ULDF process to ensure specific residential and rural amenity values are maintained.

[511] Overall, with these changes to the conditions, we find that the landscape and visual effects of the changes arising from creation of the new road will be adequately addressed.

8.16 OPERATIONAL NOISE EFFECTS

8.16.1 Evidence for Waka Kotahi

[512] Evidence for WK on the operational noise effects of the Project was provided by Dr Chiles. We have summarised Dr Chiles evidence and key conclusions in Appendix 1 and refer the reader to it for further information.

[513] Dr Chiles approach to assessing the likely operational noise of the completed road involved establishing suitable criteria for noise assessment and management, and then developing a detailed model to ascertain whether the criteria could be achieved at PPFs, and if not, what measures might need to be employed to ensure that it did.

[514] For operational road noise NZS 6806:2010 Acoustics – Road-traffic noise - New and altered roads (**NZS 6806**) was considered to be directly applicable to the Project. Dr Chiles noted as well that the use of NZS 6806 is specified in the WK Guide to assessing road-traffic noise using NZS 6806 for state highway asset improvement projects. It is also the requisite standard in the Auckland region for all new and altered roads to comply (AUP Standard E25.6.33).

[515] Dr Chiles advised us that NZS 6806 sets noise criteria for Categories A (preferred), B and C (least preferred), and requires noise mitigation options to be evaluated with reference to these categories. This evaluation includes consideration of existing noise levels, and predicted noise levels in various future design years. This evaluation process is then used to determine recommendations for what should comprise the Best Practicable Option for mitigating operational noise effects on PPFs.

[516] The criteria in NZS 6806 apply at PPFs. In the case of the Project these are all dwellings and have been classified as such on the basis that they are located within 200m of the proposed designation boundary. Depending on the final location of the road alignment within that boundary therefore, some of the dwellings will likely be in excess of 200m from the road; but none will ever be closer.

[517] In his evidence Dr Chiles explained⁹⁰ the methodology for assessing the predicted operational noise of the completed road, noting as well that some aspects of the original modelling work had been subsequently corrected. The result of these corrections was to “improve” the future predicted noise impacts on two properties, and to include a recently constructed house in the model. Neither amendment altered Dr Chiles’ overall conclusions as to the efficacy of the modelling work completed.

⁹⁰ Evidence S Chiles, 15 September 2020, at [35]-[37].

- [518] In summarising his assessment of the operational noise and vibration effects of the Project, Dr Chiles explained that he focussed primarily on PPFs within 200 m of the proposed designation boundary. To enable a comparison, he also considered the Project effects on those properties with and without the influence of the existing SH 1 in terms of the Project with selected mitigation. Generally, it was Dr Chiles view that operation of the Project would have a minor positive noise effect for houses by the existing SH 1, as future predicted increases in traffic would not eventuate. While he noted that this is unlikely to be experienced by people as a noticeable change in noise, it still beneficially avoided future increases in noise exposure. If the Project is built with his recommended mitigation, the modelling showed that the future predicted noise levels at PPFs would generally comply with NZS 6806 Category A. While various PPFs are predicted to have increases of more than 10 dB,⁹¹ at most PPFs the predicted future noise level complies with the 'new' road criterion of 57 dB $L_{Aeq(24h)}$.
- [519] In relation to the predicted changes in noise levels to be experienced by some PPFs as a result of the road, Dr Chiles advised that even with best practicable mitigation options implemented for the Project ensuring that reasonable noise levels are achieved in accordance with NZS 6806, the increases over 10 dB would be a major change in noise levels experienced at some houses. The effect of this change will be subjective, varying between individuals. In his opinion, for some people, it is likely to be a significant adverse noise effect. Even with additional mitigation over and above that which he has recommended though (which he did not consider practicable or required), this effect would remain. For example, Dr Chiles confirmed that in some locations noise barriers could provide additional mitigation, but in most instances the benefit would only be slight.

8.16.2 Submitter issues

- [520] A number of submitters identified operational road noise and vibration as a significant issue for them. The specific issues raised in submissions were summarised and commented on in detail in Dr Chiles evidence,⁹² and in Council's specialist acoustic review completed by Ms Siiri Wilkening.⁹³ We agree with the summaries provided and do not intend to repeat them here.
- [521] Two submitters called expert witnesses to give acoustic evidence in support of their submissions. Nevil Hegley provided evidence for Amanda & Erdem Oguz and Toni & Edwin Dando, and Jon Styles provided evidence for David Mason & Dianne McCallum.

Evidence of Mr Hegley

- [522] Mr Hegley's evidence in relation to operational noise effects was relatively brief, with his concerns based around the flexibility reserved to WK in its proposed

⁹¹ 131 Kaipara Flats Road, 177 Rustybrook Road, 351 Wayby Valley Road, 64 Whangaripo Valley Road, 47 Borrows Road, 263 Worthington Road, 250, 263, 273, 332, 344 Silver Hill Road

⁹² Evidence S Chiles, 15 September 2020, at [78]-[150].

⁹³ NoR s.42A report, p533 et seq.

conditions to determine the appropriate noise control treatments to be incorporated in the finished road design.⁹⁴ Notably, Mr Hegley did not take issue with the use of NZS 6806 for the proposed new road. Nor did he debate the outputs from the modelling work completed by Dr Chiles and reviewed by Council technicians.

Mr Styles evidence

- [523] Mr Styles helpfully summarised his evidence in relation to operational noise effects as follows:
- (a) The assessment of operational noise effects is flawed, in that the conclusions are underpinned by the guidance of NZS 6806, which does not reflect the requirements of s.16 of the Act;
 - (b) The operational noise effects on 211 Kaipara Flats Road will be significant. The Project will result in a significant change in effect, where most natural sounds that were previously dominant, will become inaudible and overtaken by traffic noise;
 - (c) The traffic noise predictions set out in the s.92 Response appear to be incorrect by a significant margin, with the noise model predicting a level of 41dB $L_{Aeq(24hr)}$ whereas the current measured ambient level is only 24dB $L_{Aeq(24hr)}$. This error has the effect of significantly understating the effects of the project;
 - (d) The conditions controlling operational noise represent a significant step backwards in the quality of conditions for a project of this nature. He considers that a complete overhaul of the conditions is necessary to ensure that the clarity, certainty and enforceability required for a project of this nature is achieved.

8.16.3 Council's s 42A review

[524] We have referred earlier to Ms Wilkening's Technical Memo reviewing the Noise Assessments undertaken for the Project dated 7 August 2020. From our review of this memo, we have not identified any significant differences between her opinions and those of Dr Chiles with respect to operational noise. In particular, Ms Wilkening accepts the efficacy and appropriateness of using NZS 6806 and that the (corrected) modelling is generally accurate and enables a good understanding of the likely noise impacts of the finished road. While there were a variety of nuances between how they approached and expressed some matters, and a few matters of detail unresolved, Ms Wilkening accepted the assessment completed by Dr Chiles.

[525] However, as with her assessment of construction noise effects, Ms Wilkening recommended a number of amendments to the proposed NoR conditions relating to operational noise, in particular conditions D-89, D-89A, D-90, D-92, D-99 and D-

⁹⁴ Evidence N Hegley, 29 September 2020, at [34].

100.⁹⁵ These condition amendments were addressed by Dr Chiles in his evidence, with some being accepted and others being rejected, with reasons provided.

8.16.4 Findings on operational noise effects

[526] In his rebuttal evidence Dr Chiles summarised the issues raised by Mr Hegley, Mr Mason and Ms Pegrime and Mr Styles in their evidence as follows:

(a) Mr Hegley:

- The adequacy of the operational noise assessment;
- Concerns about ambient noise monitoring;
- The reasonableness of the change in noise levels predicted;
- Adequacy of the consent conditions to provide a robust control to maintain operational noise effects within the assessed envelope (i.e., too flexible);

(b) Mr Mason & Ms Pegrime:

- The adequacy of the mitigation proposed for operational noise effects; and

(c) Mr Styles:

- Concerns about ambient noise monitoring;
- Adequacy of operational noise/mitigation conditions.

[527] Dr Chiles comprehensively responded to each of these criticisms and the additional conditioning requests and amendments proposed. For the most part, he did not accept the criticisms of Mr Hegley or Mr Styles. In summary, he was satisfied with the adequacy of the operational noise assessment completed and his approach to ambient noise. Despite the large changes in noise levels from those experienced today by some receivers (211 Kaipara Flats Road being one of them) when compared to the scenario of the new road operating in the future, he remained of the view that, overall, the noise levels would be reasonable by reference to NZS 6806.

[528] Finally, in his rebuttal evidence Dr Chiles noted the concern about the flexibility of the operational noise criteria raised by Mr Hegley, which was also commented on by Ms Wilkening in her Technical Memo and by Mr Styles in his evidence (section 5). In Dr Chiles opinion, all of the concerns appeared to be based on an assumed different application of the 'as far as practicable' qualifier in proposed designation Condition 89, not in the manner that he had been describing it above, but in a manner that significantly altered the assessed noise effects. While he assured us

⁹⁵ NoR s.42A report, pp540-543.

that this was not the intent of the 'as far as practicable' qualifier, he had reflected on it and suggested a possible revision to the condition which in his view would continue to provide for the original purpose of the qualifier, while also addressing the concern raised. This would be to prescribe a process in the designation conditions for verifying that any changes in the noise Categories do not have material noise effects.

- [529] Alternatively, Dr Chiles suggested that the 'as far as practicable' qualifier could be removed from condition D-89, accepting this might result in additional unwarranted process in future, such as an alteration to the designation.
- [530] On balance, Dr Chiles recommended the second of the two amendments.
- [531] In her closing comments to the hearing, Ms Wilkening, confirmed the appropriateness of using NZS 6806 as the basis for assessing and managing operational traffic noise from this new road, with the change in noise level being a key methodology within that standard to determine the appropriate mitigation response. Ms Wilkening confirmed that NZS 6806 had been relied on in numerous consents and designations, without alteration, since 2010 (e.g., Southern Corridor, Puhoi to Warkworth, East West Link, Lincoln Road, AMETI, SH2/29 Tauranga, SH1 MacKays to Peka Peka, SH1 Peka Peka to Otaki, Matakana Link Road amongst others). She noted that conditions for other projects have utilised NZS 6806 with minor adjustments (e.g., Waterview, Transmission Gully), but that these projects still largely confirmed the appropriateness of the standard.
- [532] Ms Wilkening told us that the standard was produced by a standard committee, which included representatives of various bodies (Waka Kotahi, Acoustical Society, Ministry of Transport, Ministry of Health, Local Government NZ and others). It did not evolve from the old Transit New Zealand Guidelines for the Management of State Highway Improvements, but rather was a different, separate and independent document. The only similarity is the descriptor ($L_{Aeq(24h)}$), but criteria, assessment methodology and focus on BPO are very different.
- [533] Ms Wilkening disagreed with Mr Styles comments about NZS6806, specifically that the Standard provides too much and unnecessary flexibility. She pointed out that in 2016 Mr Styles recommended a condition for the Lincoln Road Corridor project, on which he was the acoustic consultant, that required no *"upwards change to the specified "Noise Criteria Category"*, and that this was no different to what Dr Chiles had recommended in this case, namely that, that the noise criteria category shall not change during detailed design.
- [534] For this Project, Ms Wilkening emphasised that the designation is sought for route protection and that the environment is likely to greatly change from now to 15 years in the future. She observed that large areas around Warkworth are already zoned Future Urban, indicating an imminent change to the overall environment. Therefore, she said that we cannot assume that the currently low noise environment will remain like it is at present for the next 15 years.

[535] Finally, Ms Wilkening reminded us that compliance with NZS 6806 is required in the AUP (E25.6.33).

[536] With respect to conditions, Ms Wilkening considered that the conditions proposed by Dr Chiles and WK were too flexible, but the conditions recommended by Mr Styles and Mr Hegley were too inflexible. As such, and despite Dr Chiles detailed responses to her conditioning proposals, Ms Wilkening maintained her condition recommendations per the NoR s.42A report, considering that they found a balance in relation to this aspect of the Project. She specifically reiterated the following:

- Condition D-89A: This was now considered to be obsolete, given that WK has agreed to remove “as far as practicable” from condition D-89.
- Condition D-89B: There are many dwellings that are inside the very wide designation (especially around the Warkworth Interchange). These dwellings may not be removed during or following construction and would then be affected by traffic noise. Therefore, she maintained that prior to construction those dwellings inside the designation footprint are identified that will be retained as dwellings. These must be assessed as PPFs and BPO mitigation determined. She noted that Dr Chiles and she agreed on this point, but that the recommended condition D-89A(c) had nevertheless been deleted from Ms Sinclair’s set of conditions.
- Condition D-92: She recommended an amendment to the WK condition that provides for Building Modification for Category B PPFs where the noise level increases by 3 dB or more. The difference in opinion related to the basis on which the 3 dB change is determined. Dr Chiles based this 3 dB change on the do-nothing level only. However, in accordance with NZS 6806, PPFs that are assessed against the New road criteria do not have a do-nothing level but move from existing to do-minimum. Ms Wilkening therefore applied a different test to these Category B PPFs, to be in line with NZS 6806.
- Condition D99: Recommended wording that requires consultation with affected property owners of potential additional PPFs as per condition 89A(c) as these have not had the benefit of engagement.

[537] With respect to condition D-92, Ms Wilkening notes that Dr Chiles disagrees with her recommendation, as the noise level should increase over time. While she had not changed her opinion on the matter, she considered that prior to construction, noise surveys could confirm the ambient noise level (i.e., the do-nothing noise level), and these could be used to determine if the 3 dB increase would occur or not. These surveys could be used to verify the computer model of the existing situation at that time.

[538] In relation to the evidence about operational noise effects, we repeat our earlier observation that there was general agreement that the evaluation of whether a particular noise proposal is reasonable (or ‘not unreasonable’ to use the language

of the AUP), will involve a consideration of factors that go beyond mere acoustical analysis. This approach is consistent with caselaw which confirms that it is an assessment of fact and degree,⁹⁶ which allows consideration of factors such as the frequency, intensity, duration, offensiveness/character and location of the noise.⁹⁷

- [539] The Environment Court has also taken into account specific sub-factors where appropriate such as the zoning of the land, its characteristics, background noise sources and levels,⁹⁸ the legitimate amenity expectations of those living in close proximity,⁹⁹ the permitted noise standards in the relevant plan,¹⁰⁰ relevant NZS standards as best practice when dealing with technical matters¹⁰¹ and the proposed conditions of consent.¹⁰² Noise that disturbs sleep particularly during normal sleeping hours will generally be considered unreasonable, unless the recipients are hypersensitive.¹⁰³
- [540] There is no doubt that the Project will change the acoustic environment from that which is experienced today. On a strict arithmetic representation, the predicted extent of the decibel increase for the most affected receivers will be significant – up to and over 10dB in some cases, even once all best practicable mitigation options have been employed. There was no dispute on the evidence about this. Despite this, we have reached the view on the evidence that both the degree of change and the total future noise emissions are reasonable in the circumstances. This is for a range of reasons.
- [541] First, the degree of the change to the noise environment will not be experienced over-night and it is unlikely to be as significant as predicted by today’s modelling. In her closing comments Ms Wilkening clarified that although the acoustic environment change from today until a finished road was in existence was significant, it needed to be viewed over a much broader time scale, thereby accommodating other factors operating in the environment over the same period. Ms Wilkening advised, for example, that the background noise environment currently experienced around the proposed Warkworth Interchange in particular, was highly likely to change over the next decade before construction of the Project was scheduled to commence. We infer therefore that when the road is completed, the environment will generally be noisier, and the perceived change will be less.
- [542] Furthermore, Ms Wilkening clarified that the design year for noise predictions was some 10-20 years after opening, based on a high traffic growth scenario. What that meant in practice was that the change in the acoustic environment upon the opening of the road sometime in the late-2030’s would be noticeable, but not as noticeable as if it opened today. Beyond that, the road would become noisier

⁹⁶ See *Ngataranga Bay 2000 Inc v Attorney General*, A16/94, at [14].

⁹⁷ *Nelson City Council v Harvey* (2011) NZEnvC 48 at 70; *Brooks v Western Bay of Plenty DC* [2011] NZEnvC 216.

⁹⁸ *Forrest Hill Childcare Centre Limited v North Shore CC* EnvC A090/98.

⁹⁹ *Speedy v Rodney District Council* Decision No. A134/93

¹⁰⁰ *Yaldhurst Quarries Joint Action Group v Christchurch CC* [2017] NZEnvC 165, at 209.

¹⁰¹ *Re Meridian Energy Limited* [2013] NZEnvC 39, at 197.

¹⁰² *Re Meridian Energy Limited* [2013] NZEnvC 39, at 247-248.

¹⁰³ *Thompson v Davidson* EnvC C130/97, at 13.

overtime based on traffic volumes, but overall, the changes would be less noticeable, progressing through to a 'peak' road usage predicted in the late 2040s.

- [543] Second, although unwanted noise is invariably intrusive and annoying, the characteristics of road noise are generally less intrusive. As Dr Chiles explained, noise from a highway is generated by the friction caused between the road surface and the tyres of fast-moving vehicles, which can be reduced considerably by the use of Open Grade Porous Asphalt, as was proposed here. The resulting sound is a broadband sound experienced across a range of frequencies. The most intrusive components were things such as rumble strips and bridge joints.
- [544] Third, for all the reasons identified by Dr Chiles and Ms Wilkening, we find that reference to NZS 6806 is appropriate to assist us in determining the reasonableness of the noise that would be generated. As such, we are satisfied that the use of the standards for the assessment of noise, the establishment of appropriate criteria and its embodiment into the proposed conditions goes a considerable way to establishing the reasonableness of the noise effects that will eventually be experienced.
- [545] For these reasons, we are satisfied that the eventual operational noise effects of the Project will be reasonable for the purposes of s.16. This is not to say that the noise emissions will be unnoticeable or acceptable to all receivers. But hearing nothing, or only acceptable sounds, are not threshold criteria we are required to apply. In the result, we are satisfied that the noise effects will be appropriate in the circumstances and mitigated to a reasonable level.
- [546] To ensure this outcome, however, we agree with Ms Wilkening's recommendations to 'tighten' up WK's conditioning proposals to avoid and mitigate as far as practicable the potential for flexibility to lead to unreasonable adverse effects. We have incorporated these matters into the proposed conditions.
- [547] Overall, we find that undertaken in accordance with the proposed conditions, the operational noise effects of the Project will be reasonable.

8.17 EFFECTS ON AMENITY VALUES

8.17.1 Introduction

- [548] It is not disputed that the construction and operation of the Project will affect the amenity values presently experienced by those living close to and travelling through the Project area (at least, in the case of the latter, during construction).
- [549] Construction activities will generate large (and small) vehicle activity, noise, dust, vibration, visually prominent earthworks areas, areas of vegetation clearance and works in streams etc. Motorists and property owners will also be inconvenienced in their use of public roads, including for the purpose of gaining access to their properties.

[550] The effects of these activities will subside as the Project nears completion and eventually cease, but the physical structures and carriageways of the road will remain, visible and thereafter permanently present in the landscape. Vehicle noise of varying degrees, and increasing over time as the road becomes busier, will become a common feature of the locality experienced the closer one approaches to the road.

[551] We remind ourselves that amenity values comprise “those natural or physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes”.¹⁰⁴ In *Schofield v Auckland Council*¹⁰⁵ the Court said:

The topic of amenity can be emotionally charged, People tend to feel very strongly about the amenity they perceive they enjoy. Whilst s 7(c) of the RMA requires us to have particular regard to the maintenance and enhancement of amenity values, assessing amenity values can be difficult. The Plan itself provides some guidance, but at its most fundamental level the assessment of amenity value is a partly subjective one, which in our view must be able to be objectively scrutinised. In other words, the starting point for a discussion about amenity values will be articulated by those who enjoy them. This will often include people describing what an area means to them by expressing the activities they undertake there, and the emotions they experience undertaking that activity. Often these factors form part of the attachment people feel to an area or a place, but it can be difficult for people to separate the expression of emotional attachment associated from the activity enjoyed in the space, from the space itself. Accordingly, whilst the assessment of amenity values must, in our view, start with an understanding of the subjective, it must be able to be tested objectively.

[552] While it is commonplace to approach the assessment of amenity by looking at the natural and physical qualities that are enjoyed as separate components (i.e., outlook, privacy, noise, shading), when it comes to the objective assessment prescribed by law, the question is whether, overall, amenity values are maintained and effects on them avoided, remedied or mitigated. Moreover, as the Environment Court has also accepted, a change to amenity does not mean that there is necessarily an adverse effect on amenity values, but rather, it is the effect of the change that must be evaluated.¹⁰⁶

8.17.2 WK’s position

[553] WK submits that all large infrastructure will alter the amenity of an environment.¹⁰⁷ Change in the environment is also a constant, it says, particularly in areas like Warkworth and Wellsford, which are near the urban boundary of the country’s largest city. Many resulting changes are unavoidable, especially when constructing

¹⁰⁴ s2

¹⁰⁵ [2012] NZEnvC 68 at [51]

¹⁰⁶ *Yaldhurst Quarries Joint Action Inc v Christchurch City Council* [2017] NZEnvC 165 at [116].

¹⁰⁷ WK Opening Submissions, 2 October 2020, at [38].

new infrastructure in rural or semirural areas, where the existing amenity of the environment does not include such large-scale infrastructure. Even so, while changes to noise levels and visual outlooks cannot be avoided for large infrastructure projects, WK submits that the environmental effects of these changes can be, and will be, appropriately mitigated.

- [554] In that regard, WK emphasises that it intends to mitigate the potential amenity related effects of the Project by adherence to the requirements of industry best practice and New Zealand standards, and the development and implementation of outcomes-focused management plans. Following our assessment of the evidence, we accept that such actions have been adopted in relation to construction traffic management and property access maintenance, construction and operational noise effects, dust emissions, and the visual effects of the completed Project.
- [555] Despite these assurances, as foreshadowed in many of the submissions that were lodged on the Project, we heard from numerous submitters who live in the vicinity of the Project about their concerns with the effects of the Project on their current amenity and lifestyle. We refer here in particular to Amanda and Erdem Oguz (215 Kaipara Flats Road), Edwin and Toni Dando (39 Phillips Road), David Mason and Dianne McCallum (211 Kaipara Flats Road), Dean and Pauline Yarndley (214 Kaipara Flats Road), Dianne Civil (111 Kaipara Flats Road), and Dr Denise Civil (141 Carran Road, 109 Kaipara Flats Road). This collection of rural residential landowners is all affected to differing degrees by the Warkworth Interchange, and they all expressed their concerns about the effects of the Project on them in an honest and heartfelt manner.
- [556] In response, WK referred us to the AUP, submitting that it assists in guiding our assessment of the nature of the effects of the Project on amenity values, and what is anticipated at this location. In summary, it was that the AUP does not prioritise the maintenance of amenity values at all costs, especially in the rural parts of Auckland and even more so where the activity proposed is infrastructure. We infer that this is because the benefits of infrastructure are regional, whereas amenity values can be quite localised, and to require the latter to be maintained at the cost of the former, would disadvantage scores of other people and their communities.
- [557] WK acknowledges the concerns though and the impact that the Project will have on the “lifestyle living” amenity currently enjoyed by residents, characterised by outdoor living in a spacious and relatively quiet rural setting. It reiterates that it has devoted considerable time to addressing the concerns as they relate both to the construction effects of the Project, and the ongoing operation of the motorway. It says that it has, through design and the proposed conditions, adopted measures to avoid, remedy or mitigate effects on amenity, and that these measures are based on objective best practice standards and guidelines intended to ensure that people are not exposed to changes in amenity that affect them unreasonably, but recognising that roads will always generate change.
- [558] Finally on this matter, WK reiterates its intention to continue engaging with affected people during construction and operation of the Project, via its proposals to

undertake ongoing stakeholder engagement to seek input on and provide information about the Project. It says that in its experience, such engagement is a critical component of managing and reducing the effects of construction activities.¹⁰⁸

8.17.3 Findings

- [559] Construction and operation of the Project will impact adversely on the amenity values presently enjoyed by landowners who reside in the vicinity of the Project works and who remain in residence adjacent to the new motorway. This is despite the fact that WK has done, we find, the best it can to avoid, remedy and mitigate the suite of effects that an activity of this scale in such a location will generate on existing amenity.
- [560] In the end, whether or not allowing the Project to proceed notwithstanding these adverse effects is a question of judgment, to be considered in light of the various matters we are obliged to have regard to under ss.171 and 104. It is trite that the RMA is not a 'no-effect' planning regime. For this Project, in the Auckland region, the AUP embraces that construct and puts in place a regime that recognises the importance of infrastructure for the regional community, the corollary being that an outcome of maintaining localised amenity values at all costs has diminished weight.
- [561] These observations will provide no comfort to those whose amenity is most threatened by the Project and likely to be changed, eventually, for all time. We have paid careful attention to the personal stories, anecdotes, wisdom and legal and planning arguments advanced by the submitters and their witnesses in relation to this key aspect of their challenge to the Project. In the end though, when considered as a whole within the legal and evaluative assessment framework that we are required to apply, the factors favouring approval of the Project are considerable and, in our finding, outweigh the aspiration for absolute maintenance of the amenity values presently enjoyed by these submitters.
- [562] We therefore find that the impacts of the Project on the amenity values of submitters will be managed and maintained to a reasonable level, in the circumstances.
- [563] Despite this finding we have taken on board a number of the criticisms leveled by submitters at WK's condition proposals that relate to the effects of the construction and operation of the Project on amenity values and amended the conditions in response. We describe these amendments in more detail later in this decision.

8.18 SOCIAL AND OTHER EFFECTS

8.18.1 Introduction

¹⁰⁸ Ibid 69,70

- [564] We have earlier discussed the actual and potential positive social effects that the Project is predicted to give rise to, generally arising from the provision of a safer, more reliable transport network.
- [565] In her evidence, Ms Sinclair advised that there will also be adverse social effects during the construction period, especially residents located in close proximity. These included general disruption and inconvenience to businesses and dwellings, reduced amenity, and anxiety and worry caused by uncertainty navigating the RMA process, and loss of existing and social and family networks.¹⁰⁹
- [566] Ms Sinclair noted that in her experience, the most significant adverse social effects are those that are happening now, i.e., during the planning (pre-construction) phase, and these impacts will continue until properties are purchased and more certainty is provided about construction timing. She considered that ongoing communication with directly affected people and businesses would be helpful in enabling them to plan well-ahead for relocation. Ms Sinclair confirmed that WK will maintain its existing project website, with contact details for those seeking updates, until the Project reaches the implementation phase. Once people gain certainty about the Project, it was her view that people and businesses directly affected will have less concern, stress, anxiety and worry.
- [567] Ms Sinclair also considered that the temporary social effects associated with disturbance from construction would be addressed through the implementation of the suite of management plans including the CNVMP, the CAQP and the Stakeholder and Communications Management Plan. These plans would identify sensitive receivers, means of communication, and appropriate responses to issues that arise during construction. There is also a complaints management and recording process provided in the conditions to consider and address complaints. These proposed mitigation measures were secured by conditions D-4, D-7, D-8, and D-11.
- [568] Overall, as a result, it was Ms Sinclair's opinion that any residual adverse social effects would be moderate and arise from anxiety and worry generally. Mr Siu agreed with this conclusion.¹¹⁰
- [569] A number of other "effects" are also regularly identified as arising from designations. These include the fact that a designation affects land and the rights of its owner to utilise it fully; that the existence of a designation on land may impact on its saleability on the open market for a value acceptable to the owner; and that a designation brings with it a right for the requiring authority to compulsorily take land. For those landowners located adjacent to a designation, some but not all of the same factors apply.

8.18.2 Issues raised in submissions

¹⁰⁹ Evidence K Sinclair, 15 September 2020, at [76].

¹¹⁰ NoR s.42A report, p411.

[570] With respect to the management of social effects as proposed by WK, most submitters were critical. Relying on their experience with the P2Wk project, submitters were less than satisfied that WK had appropriately ensured that its chosen contractor alliance held true to the intentions and objectives of the Stakeholder and Communication Plan, which was also a feature of that project.

[571] In terms of the “other” types of effect, faced with their land not being designated, but adversely impacted by the Project works, three submitters requested us to modify the designated land area sought by WK to include their properties within it. In doing so, we understood that they believed that this would provide them with a mechanism, via s.185, to compel WK to purchase their properties, fearing that they would not be able to sell them once the Designation was in place.

8.18.3 Findings

[572] We accept Ms Sinclair’s evidence about social effects generally when it comes to large projects such as this, namely that it is the fact of not-knowing what is going to happen and when, that is a major source of individual anxiety. Similarly, feelings of powerless to influence project works that are perceived to relate to or have impacts on landowners or their properties, also contributes to negative perceptions of what is taking place and stress levels.

[573] It is clear to us from the evidence that WK understands such issues, even though it may not have engaged particularly well, or as actively as some submitters would have liked, in relation to the Project. Despite that, its proposals for stakeholder engagement and communications are a direct response and an admirable attempt to mitigate these sorts of social effects. We have reviewed these proposals carefully and listened to the evidence of submitters, particularly those who have had direct experience of the implementation of similar conditions on the P2WK stage 1 works.¹¹¹ Taking this helpful evidence on board, we have proposed a number of changes to the conditions around general engagement and communication, and provided for more direct input by landowners in relation to Site Specific Traffic Management, Operational Noise and Vibration, and screen planting design. We summarise these changes in more detail later in this decision.

[574] As noted above, three submitters in the Kaipara Flats Road area (39 Phillips Road, 211 and 215 Kaipara Flats Road) requested us to modify the proposed Designation footprint to incorporate their properties within it. In their view the noise, vibration and related effects of the construction and operation of the Project on their residential rural amenity were so significant, that acquisition of their properties by WK was the only way for the effects on them to be mitigated. In seeking that their land be designated as well for the Project, we understood these submitters to be seeking an ability to have access to the remedy in s.185, whereby they could apply for an order requiring WK to acquire their properties for fair value in the event they were unable to sell them once the Designation was in place.

¹¹¹ For example Wendy Court and Dr Denise Civil.

- [575] In response, WK argues that we do not have the power to modify the Designation to include these properties within it. Detailed legal submissions were presented by WK on this point. We note that these submissions were also relied on by WK to support its own proposal to modify the notified designation boundary in two respects (which we have accepted above).
- [576] We have struggled to distinguish the features of that proposal by WK to request our modification of the NoR, and the features of the requests made by these landowners. In our view, the critical question in any such modification relates to prejudice to a party who may be the subject of a notice of requirement consequent upon a recommendation, when it was not so subject to that notice of requirement upon its notification. After considering the case law in some detail, we do not accept WK's submission that it would be unlawful for us to utilise s.171(2) to modify the NoR to include these parcels of land in the Designation. The explicit request (and thus consent to) the alteration of the NoR footprint to include these parcels of land answers the principle concern that might otherwise arise in such circumstances.
- [577] However, although we do not agree with WK as to our power to modify the NoR in these circumstances, we have nonetheless reached the view that it would not be an appropriate exercise of our discretion to do so in the present case. This is for two interrelated reasons.
- [578] First, we have undertaken a detailed analysis of the effects evidence as it relates to these three properties. We have accepted that the noise and vibration and other amenity related impacts on these properties during construction and, over the longer-term operation of the road, will be disruptive and potentially significant, by contrast to the current amenity of the local environment. Despite that though, we have come to the view that those effects are able to be appropriately managed and mitigated and, with respect to noise and vibration in particular, that the effects will not be unreasonable in the s.16 sense. Accordingly, it would be contradictory of those findings for us to find that this is an appropriate occasion to modify the NoR to incorporate additional land within it.
- [579] Second, in order to modify the NoR to include additional land within it we would need to be satisfied that the land is reasonably necessary to achieve the objectives of the Project. We have carefully reviewed the objectives of the Project and although we note, as Mr Dawson observed, that there is no specific objective that the Project be implemented in such a way as to avoid, remedy or mitigate adverse effects on the environment, we consider that this is implicit and arises from the broader statutory duties at play. Put another way, appropriate effects management does not need to be expressed as an objective of a project or work before it is relevant: it is a fundamental evaluation of a notice of requirement regardless.
- [580] Returning to this second issue, we conclude that if this was a case where the effects on these particular properties were unable to be acceptably managed to an appropriate level then they would have been notified as part of the NoR from the outset. We have been satisfied on the evidence presented to us that this is not

such a case. That is, we are comfortable that with appropriate management of effects the impacts on these properties will conform with the overall statutory objectives and obligations that arise. Thus, including these properties within the Designation would not meet the requirements of s.171(1)(c).

[581] However, we acknowledge that as a consequence of detailed design, or as a consequence of actually undertaking the work, it may become apparent that the actual effects on these properties are not as described and analysed in the evidence before us. In that situation, it would then be open to WK to modify the designation to include these properties within it. To be clear, we are not saying that these properties will suffer adverse effects that are unacceptable; merely that if in due course and following more detailed design and analysis it is established that they will do so, then there is the option of inclusion within the Designation and acquisition by WK. That will be an issue for WK, and its advisors to determine at the appropriate time.

8.19 EFFECTS ON CULTURAL VALUES AND MANA WHENUA

[582] Ms Gena Moses-Te Kani is the Pou Tātaki or Lead Technical Advisor for Hōkai Nuku. Hōkai Nuku is the alliance of mana whenua formed in 2010 to engage on the Ara Tūhono Pūhoi to Warkworth and Warkworth to Wellsford Roding Projects. Hōkai Nuku represents Ngāti Manuhiri, Ngāti Rango, Ngāti Mauku and Ngāti Kauae of Te Uri o Hau, and Ngāti Whatua Iwi.

[583] Ms Moses -Te Kani explained that Hōkai Nuku have long supported the construction of a safe road connecting Auckland with Northland. She described how the Hōkai Nuku had been involved early in the process in optioneering for the designation and the design of the landscape mitigation package. Outstanding issues raised in their submission were able to be resolved as a result of their Treaty of Waitangi based Partnership with WK and now all conditions have been agreed. Agreed amendments included:

[584] The amendment of the definition of Mana Whenua in the NoR and RCA conditions to:

‘Māori who can demonstrate customary rights through occupation to resources within the Project designation, and who have responsibilities as kaitiaki over their tribal lands, waterways and other taonga’.

[585] While WK have engaged widely with Tāmaki iwi including Ngāti Paoa, Ngāti Maru and Te Kawerau a Maki who expressed an interest in the Project area and surrounds, Ms Te Kani sought amendments to the definition to provide specific recognition of the hapū represented by Hōkai Nuku as mana whenua directly affected by the project. She described how a further condition requiring WK to appoint an Iwi Advisor, nominated by Hōkai Nuku to undertake the roles and responsibilities set out in the conditions will enable them to be resourced appropriately to engage over the lifetime of the project.

[586] Responding to questions from the panel regarding her experiences in implementing mana whenua conditions in the Pūhoi to Warkworth Project, Ms Te

Kani described what can occur with the shift in relationship and focus to the project contractor during construction, rather than the Crown partner WK. While this could on occasion present challenges, she remained confident that the relationship between Hōkai Nuku and WK and the outcomes provided for by agreed conditions could overcome and resolve any issues in the main.

- [587] The other key condition sought by Hōkai Nuku was the preparation of a Cultural Indicators Report to assist with the protection and management of Ngā Taonga Tuku Iho (treasures handed down by tūpuna) during Construction Works. The Cultural Indicators Report then links to inform the development of the wider landscape mitigation package through the various plans such as the Ecology Management Plan, the Heritage and Archaeological Management Plan (**HAMP**) and ULDF which are to be prepared in engagement with Hōkai Nuku.
- [588] As such, Ms Te Kani confirmed that Hōkai Nuku are now fully supportive of the NoR and RCA conditions proposed by WK for the Project.
- [589] We have had regard to the material presented by Ms Te Kani and WK in our consideration and determination of the Project applications and consider that subject to the conditions now agreed between WK and Hōkai Nuku any potentially adverse cultural effects will be less than minor and able to be appropriately managed in a manner consistent with the relevant AUP and statutory provisions.¹¹²

8.20 EFFECTS ON OTHER UTILITIES (POWER, WATER, GAS)

8.20.1 Introduction

- [590] The land within or adjoining the NoR is subject to a number of existing designations by WK and other requiring authorities as follows:

Requiring Authority	Designations
New Zealand Transport Agency	6769 (Ara Tūhono - Pūhoi to Wellsford Road of National Significance: Pūhoi to Warkworth Section), 6763 (SH1), 6765 (State Highway 1/Wayby Valley Road/Wayby Station Road intersection)
Chorus New Zealand Ltd	2604 (Kraack Hill Telecommunications site)
Spark NZ Trading Ltd	7515 (Kraack Hill Telecommunications site)
Refining NZ	6500 (Petroleum Pipeline: Rural Section)
First Gas Ltd	9101 (Taupaki to Topuni Gas Pipeline)

¹¹² E.g. RPS B6.3 AUP(OP), S6(e, 7(a) and 8 RMA

[591] In addition, Watercare operates various potable water supply and wastewater treatment plants within the general Project area, access to which may be constricted during construction. As well, sediment discharges and other activities associated with the Project works may have impacts on the operation of Watercare's infrastructure.

8.20.2 Section 177

[592] Section 177 regulates the rights of requiring authorities who have designations in district plans relating to the same land, effectively giving prior rights to the earlier in time where activities might end up in conflict. In practice, this results in significant co-operation between requiring authorities to enable both of their projects to be achieved.

[593] We have no doubt that this mechanism is sufficient for managing the prior designation holders' rights within the proposed designation corridor for the Project.

8.20.3 Conditions

[594] A number of conditions are proposed by WK to address engagement and co-ordination with utility operators generally, including Watercare. We have reviewed the final sets of conditions to ensure that all reasonable conditioning matters agreed have been incorporated.

8.20.4 Findings

[595] On the basis of s.177 and the conditions proposed, we are satisfied that effects on utility services and other infrastructure assets within the designation area will be avoided, remedied and mitigated to an appropriate level.

9. RELEVANT STANDARDS, POLICY STATEMENTS AND PLANS

[596] A number of environmental standards, policy statements and plans are engaged for consideration when assessing and determining the NoR and RCA. By reference to the AEE and the s.42A reports, we find that, together, ss.104(1)(b) and 171(1)(a) require us to have regard to relevant provisions of the following documents:

- National Environmental Standards for Air Quality, Assessing and Managing Contaminants in Soil to Protect Human Health, Sources of Human Drinking Water, Electricity Transmission Activities and Plantation Forestry,¹¹³
- National Policy Statements on Freshwater Management (**NPS:FM**), Urban Development (**NPS:UD**) and Electricity Transmission (**NPS:ET**);

¹¹³ For the reasons set out at p32 of the RCA s 42A Report, we do not consider that the NES for Contaminated Soils or Freshwater are relevant to our consideration of the Project.

- The New Zealand Coastal Policy Statement 2010 (**NZCPS**);
- The Hauraki Gulf Marine Park Act 2000 (**HGMPA**)
- The Auckland Regional Policy Statement 2016 (Chapter B of the AUP) (**RPS**), in particular:
 - B2 Urban growth and form.
 - B3 Infrastructure, transport and energy.
 - B4 Natural heritage.
 - B5 Historic heritage and special character.
 - B6 Mana Whenua.
 - B7 Natural resources.
 - B8 Coastal environment.
 - B9 Rural environment.
 - B10 Environmental risk.
- The AUP, in particular:
 - C1 General rules.¹¹⁴
 - D1 High-use Aquifer Management Areas Overlay.
 - D9 Significant Ecological Areas Overlay.
 - D10 Outstanding Natural Features and Outstanding Natural landscapes Overlay.
 - E1 Water quality and integrated management.
 - E3 Lakes, rivers, streams and wetlands.
 - E11 Land disturbance – Regional.
 - E14 Air quality.
 - E15 Vegetation management and biodiversity.
 - E25 Noise and vibration.
 - E26 Infrastructure.

¹¹⁴ In particular, C1.8(1), C1.8(2) and C1.8(3).

- E25 Noise and vibration.

[597] We record that we have reviewed all of these standards, policy and plan provisions in our consideration of the NoR and RCA.

9.1 PLANNING EVIDENCE FOR WAKA KOTAHI

[598] In relation to these various statutory documents the evidence for WK (Ms Karen Sinclair) was that subject to certain statutory provisions that had taken effect since the AEE was completed, the statutory planning analysis in the AEE was comprehensive and covered all relevant issues.¹¹⁵ In particular:

- (a) The Project is consistent with the NZCPS and HGMPA because it adopts best practice to manage its potential sedimentation effects and offers offsetting within the proposed designation boundary for acute/'non-baseline' discharge events aimed at an overall reduction in sediment entering the affected harbours in the long term;¹¹⁶
- (b) As "specified infrastructure" the Project has a functional need to be located as proposed and has managed its effects in accordance with the NPS:FM to the extent possible. Although freshwater and wetland systems will be impacted by the Project, it has avoided any scheduled wetlands and any significant impacts on other wetlands and will offset its residual adverse effects on a like for like basis to achieve no net loss. Accordingly, the Project is consistent with the relevant objectives and policies of the NPS:FM;¹¹⁷
- (c) The Project has minimised its impact on electricity transmission assets and ongoing engagement with Transpower NZ Limited will ensure that the outcomes sought by the NPS:ET will be achieved;¹¹⁸
- (d) The Project will result in better transport connections for the Auckland-wide community and provide infrastructure to support urban development, thus achieving the high-level objectives of the NPS:UD.¹¹⁹

[599] Ms Sinclair considered the key AUP provisions on a topic-by-topic basis in her evidence and advised as follows:

- (a) The Project is consistent with the provisions recognising the importance of infrastructure and effective, efficient and safe transportation networks;¹²⁰
- (b) The proposals to shift traffic onto a new state highway with modern, integrated stormwater treatment, undertake riparian planting, retire land

¹¹⁵ Evidence of K Sinclair, 15 September 2020, at [49].

¹¹⁶ Ibid, at [96].

¹¹⁷ Ibid, at [99],[100] and [105].

¹¹⁸ Ibid, at [112].

¹¹⁹ Ibid, at [115].

¹²⁰ Ibid, at [117].

from forestry and farming activities, and implement best practice sediment control measures during construction, will ensure consistency with the provisions relating to water quality;¹²¹

- (c) With respect to lakes, rivers, streams and wetlands, and the criteria in RPS policy B7.3.2(4), the Project has avoided permanent loss and significant modification as far as practicable, and is proposing mitigation and offsetting to minimise the resulting impacts;¹²²
- (d) Sediment losses from earthworks will be minimised as far as practicable, significant adverse effects avoided and other potential effects managed and mitigated through best practice measures, thus ensuring consistency with the relevant AUP provisions;¹²³
- (e) The Project is consistent with provisions relating to terrestrial indigenous biodiversity and vegetation removal because it avoids to the extent practicable areas of mapped Significant Ecological Area and proposes comprehensive mitigation and offsetting in relation to vegetation losses, devised in accordance with the hierarchical approach envisaged in the AUP;¹²⁴
- (f) The Project is generally consistent with the relevant AUP provisions relating to Mana Whenua values.¹²⁵

9.2 PLANNING REVIEWS IN S 42A REPORTS

[600] Mr Siu, Council's reporting officer on the NoR, also considered the documents (as relevant to the NoR) and the expert advice from other specialists engaged by the Council to review the AEE for the Project. In summary, his evidence was that:

- (a) The Project is consistent with the NESs for Soil and Air Quality;¹²⁶
- (b) Employment of best practice erosion and sediment control measures will ensure that the relevant policy requirements of the NZCPS and HGMPA will be achieved;¹²⁷
- (c) Provided the quantum of offset is appropriate, then the proposal will not be contrary to the outcomes sought in the NPS:FM;¹²⁸

¹²¹ Ibid, at [119], [120].

¹²² Ibid, at [123].

¹²³ Ibid, at [129].

¹²⁴ Ibid, at [132], [137].

¹²⁵ Ibid, at [140].

¹²⁶ NoR s.42A report, at [416].

¹²⁷ Ibid, at [417].

¹²⁸ Ibid.

- (d) Potential adverse effects on the electricity transmission network can be reasonably managed to ensure its operation and maintenance, and thus the Project is generally consistent with the NPS:ET;¹²⁹
- (e) The Project is consistent with the relevant provisions of the RPS, AUP SEA and ONF/ONL Overlays, and Auckland-wide chapters, other than E15 Vegetation management and biodiversity, in relation to which proposed amendments to the conditions are considered necessary to ensure adverse effects on ecosystems and indigenous biodiversity values are appropriately mitigated.¹³⁰

[601] In relation to the RCA, Council's reporting officer Ms Holmes, also relying on the advice of other specialists engaged by the Council, was of the view that:

- (a) The construction works will comply with the NES for Air Quality;¹³¹
- (b) Sediment control measures will ensure that drinking water sources will not be degraded and thus the requirements of the NES for Human Drinking Water Sources met;¹³²
- (c) The Project was not avoiding adverse effects on wetlands and streams, but it was proposing offsetting, and provided the quantum of that offsetting was appropriate, the Project would not be contrary to the NPS:FM;¹³³
- (d) The marine ecosystem protection objectives of the NZCPS and HGMPA will be achieved through the use of best practice erosion and sediment control measures;¹³⁴
- (e) In relation to the RPS, that:¹³⁵
 - (i) B3 Infrastructure, transport and energy – the Project is consistent with these provisions;
 - (ii) B7.3 Freshwater systems – the Project works will not avoid all freshwater features and includes stream diversion works and wetland reclamation, but due to the nature of the Project and the commensurate offsetting to be undertaken as part of it, the Project is overall consistent with these provisions;
 - (iii) B7.4 Coastal water, freshwater – sediment management during construction and long term operation, to maintain storm water run-off quality will ensure these provisions are met;

¹²⁹ Ibid, at [418].

¹³⁰ Ibid, at [419] – [432].

¹³¹ RCA s.42A report, at [31].

¹³² Ibid at [32].

¹³³ Ibid, at [33].

¹³⁴ Ibid, at [34].

¹³⁵ Ibid, at [34] – [36].

- (iv) B7.5 Air – discharges into air arising from the project will not give rise to significant adverse effects and these provisions will be achieved;
 - (v) B10 Environmental risk – provided detailed flood modelling is completed during detailed design of the Project works and appropriate flood mitigation measures utilized, the proposal will be consistent with these regional provisions.
- (f) In relation to the relevant Auckland-wide objectives and policies,¹³⁶ that:
- (a) The minimal drawdown effects arising from dewatering during construction will ensure consistency with D1 High-use Aquifer Management Areas Overlay;
 - (ii) The water quality objectives in E1 Water quality and integrated management will be met and water quality in receiving environments not unacceptably degraded;
 - (iii) On balance, the Project will not be contrary to the objectives and policies of E3 Lakes, rivers, streams and wetlands, because even though it will have residual adverse effects on such features, they will be the result of a significant infrastructure development and offset;
 - (iv) The proposed conditions will ensure consistency with the provisions of E11 Land disturbance – Regional, and the objectives of E14 Air Quality will be met;
 - (v) The Project is consistent with E26 Infrastructure;
 - (vi) Subject to flood modelling to be undertaken as part of detailed design, the Project will achieve the objectives and policies of E36 natural hazards and Flooding.

9.3 SUBMITTER PLANNING EVIDENCE

[602] Planning evidence from submitters comprised four statements of evidence by Ms Karen Pegrume (for Mr Mason and Ms McCallum), Ms Katherine Dorofaeff (for Auckland Transport), Ms Kate Searle (for Transpower NZ Ltd), and Mr Lindsay Wilson (for Watercare). Of these planners, only Ms Pegrume considered that there were other AUP provisions engaged by the Project that were not identified in the AEE or s.42A reports. Apart from this, which we address below, we find that there is no dispute on the evidence as to the relevant documents to be considered for the purposes of s.104(1)(b) and s.171(1)(a).

¹³⁶ Ibid, at [36] – [38].

- [603] In relation to the content of these statutory documents and how the Project relates to them, the planning evidence for AT, Transpower and Watercare was consistently to the effect that ensuring that the relevant infrastructure assets their clients managed would not be adversely affected by the Project, and the relevant national and regional policy frameworks supporting those assets thereby achieved, was a case of appropriate conditions being imposed on the Designation and RC. We address the proposed conditions, which were largely agreed between these submitters and WK later in this decision.
- [604] Ms Pegrume's planning evidence raised a number of statutory planning issues, and we have dealt with several of them previously in this decision. We now address the remaining two raised in her evidence.
- [605] The first focussed primarily what Ms Pegrume referred to as WK's "consenting strategy" and the issues considered to arise from that strategy, which involved eschewing a conventional 'condition 1' approach and making provision for significant detail about the Project to be developed in the future via management plans. Ms Pegrume did not consider, by way of example, that the RPS provisions at B3.3. Transport, which seek to ensure transport avoids, remedies or mitigates adverse effects on the quality of the environment and amenity values (B3.3.1(1)(d)) and that transport infrastructure is designed, located and managed to integrate with adjacent land uses taking into account their current amenity (B3.3.2(4)(a)), could be achieved by such a flexible approach to effects management as was being proposed.
- [606] We accept the rationale for this concern and agree that a consenting strategy that leaves too much detail to be developed in the future (after approval has been given) in relation to such an important objective is generally unsuitable. However, it was not Ms Pegrume's opinion that the NoR and RCA could not be approved for want of any satisfactory conditioning approach to ensure the management of effects on the environment is acceptable, but rather that the approach promoted by WK was presently not satisfactory. A number of suggestions were made as to how the conditions should be amended to address the concerns identified. We return to this issue, and these suggestions, later in the context of our evaluation of the various conditioning issues raised on the evidence.
- [607] The second issue raised by Ms Pegrume was her advice to us that the Project's proposal to take rock from locations within the designation route, crush it and use it as material for the construction of the Project (referred to as 'borrow areas'), was a mineral extraction activity and we should have regard to the 500m set-back buffer prescribed for such activities in the rural zones in the AUP when considering this aspect of the NoR.¹³⁷ We do not agree with Ms Pegrume's analysis that the activity proposed by WK fits comfortably into the definition of Mineral Extraction Activity, as it is not proposed to establish and operate a quarry. Rather, the extraction of rock is an incidental and temporary component of the overall earthworks required to construct the Project. However, we have kept this

¹³⁷ Evidence of K R Pegrume, 28 September 2020, at [5.7].

provision, and what it otherwise would require for a proposed new quarry proposal in mind when considering the reasonableness of the Project's predicted construction noise and vibration effects.

9.4 SUMMARY OF STATUTORY PLANNING ANALYSIS AND FINDINGS

[608] We are grateful for the thorough evidence we were presented with about the relevant statutory planning provisions engaged for consideration on the NoR and RCA. At a 'project-scale' we are satisfied that the Project is consistent with or achieves the relevant policy directions evident from the statutory planning documents and that at a more localised scale, subject to appropriate conditioning, it will not be contrary to any of the outcomes sought. The conditioning to which we refer concerns the extent of effects management and mitigation proposed by WK to avoid adverse effects on important natural resources and amenity values that will be affected by the Project, and the quantum and nature of offsetting proposed to address the residual adverse effects. Our analysis of the planning evidence presented to us indicates that this is one of the few areas in contention.

[609] It was accepted by all the planners who presented evidence on this aspect of the Project, that the approach to effects management, mitigation and off-setting is a key aspect of the Project, which effects how it 'performs' in relation to the statutory provisions. We address this contentious issue later in this decision when considering the conditions.

10. ALTERNATIVE SITES, ROUTES AND METHODS

[610] As WK does not have an interest in all of the land sufficient for undertaking the work, we are required to have regard to "*whether adequate consideration has been given to alternative sites, routes or methods for undertaking the work*" when considering the NoR.

[611] A number of submitters challenged the adequacy of WK's alternative assessment, particularly as it related to the proposed Warkworth Interchange.¹³⁸ WK presented evidence by Mr Edmonds about the alternatives assessment it undertook for the Project. It was Mr Edmonds opinion that it was comprehensive and thorough. The NoR reporting officer, Mr Siu, agreed with this proposition indicating that "... *The number of options investigated were extensive [and] and subject to robust scrutiny*" and that the assessment of alternatives undertaken was extensive.¹³⁹

[612] It is useful to set out some background with respect to this consideration. WK submitted that alternative corridors, alternative alignments within shortlisted corridors, and a number of different means of upgrading the existing State Highway 1 have all been considered since the Project's inception. The alternatives assessment had the same origin and general approach as the Puhoi to Warkworth project. The assessment in that case was endorsed by the Board of Inquiry and its 2014 decision on that stage of the Project, describing the alternatives assessment

¹³⁸ Dr Denise Civil, Ms Wendy Court, Ms Dianne Civil, Mr Mason and Ms McCullum.

¹³⁹ NoR s.42A report at [436].

undertaken by WK as “broad, robust, and adequate”, and concluding that the requirements of s.171(1)(b) had been met, and indeed exceeded.¹⁴⁰

[613] In the case of the current NoR a number of further steps to the alternatives assessment for the Project were added, we were told, to enhance the rigour and transparency of the process and to address particular challenges along the route. These further steps were described by Mr Edmonds in his evidence.

[614] Our enquiry into alternatives must focus on whether WK has acted arbitrarily or given only cursory consideration to alternatives.¹⁴¹ The relevant principles are derived from case law that commenced well before the RMA. In short, those principles do not require that WK demonstrate to us that it has considered all possible alternatives, or that it has selected the best of all of the available alternatives. It is well-settled that such considerations would be straying into matters of policy which fall outside our jurisdiction in considering the NoR.¹⁴²

[615] Accordingly, it is not for us to substitute our own choice for that of WK in this case. It is also not our function to force upon WK a design which it does not want.¹⁴³ In terms of what is “adequate”, as stated by the Environment Court in *Te Runanga o Ātiawa ki Whakarongotai Incorporated v Kapiti District Council*: “The word ‘adequate’ is a perfectly simple word and we have no doubt has been deliberately used in this context. It does not mean ‘meticulous’. It does not mean ‘exhaustive’. It means ‘sufficient’ or ‘satisfactory’”.

[616] The challenges to WK’s assessment of alternatives by submitters related to two main topics:

- (a) Suggestions that WK adopted the wrong alternative and that there were better alternatives for the design and location of the Warkworth Interchange;¹⁴⁴
- (b) An assertion that there is a gap in the assessment of alternatives due to WK not undertaking property-level land use class surveys for different routes.¹⁴⁵

¹⁴⁰ *Final report and decision of the Board of Inquiry into the Ara Tūhono – Puhoi to Wellsford road of national significance: Puhoi to Warkworth section*, at [386].

¹⁴¹ *Waimarie District Council v Christchurch City Council* PTC30/82, 13 July 1982.

¹⁴² *Beda Family Trust v Transit NZ ENVCA139/2004* at 57; *Waimarie District Council v Christchurch City Council* at 24-25.

¹⁴³ *Auckland Volcanic Cones Society Inc v Transit New Zealand Limited* [2003] NZRMA54 at 125.

¹⁴⁴ Oral presentations of Mr Roger Williams and Dr Denise Civil.

¹⁴⁵ Evidence of Dr Denise Civil, and legal submissions of Bronwyn Carruthers and supporting map from Mr Robert Cathcart on behalf of Dianne Civil.

[617] The evidence for WK by Mr Edmonds was clear that: “*the indicative alignment as presented in the application represents a tested, robust and appropriate response to achieve WK’s objectives for the Project*”.¹⁴⁶

[618] In relation to concerns about the adequacy of alternatives assessment in respect of the Warkworth Interchange, Mr Edmonds’ further evidence to us was:

- (a) A southern interchange for Warkworth is not required to achieve the Project objectives, and hence does not form part of the Project scope. Despite that, a southern interchange is currently being considered by WK and AT’s supporting growth alliance.¹⁴⁷
- (b) Mr Williams proposed very high-level alternatives to the Warkworth Interchange but, in Mr Edmonds opinion, those options would not achieve WK’s specific Warkworth Interchange criteria to the same degree as the interchange design included with the NoR application.¹⁴⁸ Mr Williams himself acknowledged that the alternative designs he had prepared would not fit within the current designation boundary and he also accepted that the proposed Warkworth Interchange design would work. And despite starting out by saying the design would not achieve the objective of a connection with Warkworth, he acknowledged that his concerns were more associated with it being located in the wrong part of Warkworth.
- (c) Dr Civil asserted that a system interchange was not necessary and that an earlier option (Option D) that was discounted through WK’s more refined alternatives assessment process should be preferred. The Option D interchange, which did not operate as a system interchange, would have proportionately reduced the impact of the Project on Dr Civil’s land. However, as Mr Edmonds confirmed, the option preferred by Dr Civil was discounted for a variety of reasons.

[619] We are satisfied that the alternatives assessment undertaken by WK was adequate. We agree that a smaller area of land could have been identified for the Warkworth Interchange, thus minimising the extent of land take required. However, it is not up to us to revisit the Project objectives (see below), nor to direct that an alternative considered and discounted by the requiring authority be preferred over an alignment for this aspect of the Project that meets all of the Project objectives, including those specified for the operation of this particular interchange.

[620] We turn briefly to consider the criticism that the alternatives assessment did not factor in discrete site or ‘property-level’ issues, nor consider a proposed NPS in relation to highly productive land.

¹⁴⁶ Evidence of M Edmonds, 15 September 2020, at [147].

¹⁴⁷ Ibid at [24].

¹⁴⁸ Ibid at [111].

- [621] We find that the proposed NPS referred to by counsel for Ms Civil is not a matter for our consideration. We have sufficient matters to concern ourselves with when considering the NoR and do not think it assists to refer to matters that we are not obliged to, particularly those that are still in a state of formation.
- [622] In reply, counsel for WK submitted that site specific uses were considered at all stages of the alternatives assessment process within a broader mix of constraints, including topography, geology, land use, water bodies, reserve land, significant ecological and outstanding natural landscape areas.¹⁴⁹ WK also gathered information from public engagement, which was considered in the latter stages of the alternatives assessment work.¹⁵⁰ This public engagement revealed a range of land use concerns, including the impacts on properties and residents in the Kaipara Flat and Phillips Road area, as well as loss of good farmland.¹⁵¹ That feedback led to further alternatives assessments, including in relation to the Warkworth Interchange, and WK made a number of amendments to the Project as a result.
- [623] Consequently, we accept WK's submission that various land uses including productive land and soil were brought to bear in a thorough and considered manner together with many other factors as part of the alternatives assessment for the Project.
- [624] Having considered the assessment undertaken by WK, the evidence and submissions of parties who challenged the outcome, and WK's response to those challenges, we are satisfied that this aspect of s.171(1) has been met and that WK has undertaken an adequate assessment of alternative routes, sites and methods for its proposed work.

11. NECESSITY OF PROJECT OR WORK TO ACHIEVE OBJECTIVES

- [625] Section 171(1)(c) requires that particular regard is had to "*whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought*".
- [626] The objectives of WK in respect of the Project were set out in the AEE as follows:
- To increase corridor access, improve route quality and safety and improve freight movement between Warkworth and the Auckland region.
 - Provide resilience in the wider state highway network.
 - Improve travel time reliability between Warkworth, Wellsford and the Northland region.

¹⁴⁹ Ibid from [55].

¹⁵⁰ Evidence M Edmonds, 15 September 2020, at [76].

¹⁵¹ Evidence K Sullivan, 15 September 2020, at [29]-[31].

- Provide connections to and from work with, Wellsford and Te Hana.
- Provide a connection at Warkworth that optimises the use of infrastructure from, and maintains the level of service provided by, the Puhoi to Warkworth Project.
- Alleviate congestion at Wellsford by providing an alternative route for north-south through traffic.

[627] When considering the “*work and designation*” as identified in s.171, we understand that the work in question comprises the proposed finished State Highway together with all of its structures and related facilities (e.g., stormwater management provisions). However, the designation itself relates to the entire area of land (some 1,348 hectares) identified within the plans include with the NoR application.

[628] It is clear that the designation is substantially larger than what will eventually be the completed State Highway footprint. The NoR application identifies the reason for this, namely that the areas of land proposed to be included in the designation but not otherwise directly required for the State Highway, are either needed on a temporary basis to facilitate construction activities and/or are sought on a longer-term basis to make provision for mitigation and offset proposals forming part of the overall package to deal with the environmental effects of the Project.

[629] Even though WK proposes a designation footprint that is somewhat larger than the area ultimately required for the Project, it advises that upon completion of the Project it will “roll back” the area of designated land, pursuant to s.182, to ensure that only the area required for the long-term maintenance, operation and Project offsetting/environmental effect management is the subject of the designation.

[630] We are satisfied that such an approach is reasonable, appropriate and lawful. To the extent that the adverse effects of constructing and operating the Project are able to be either mitigated at source or offset by way of other works within the Designation footprint, it effectively makes those proposals for mitigation and offsetting etc a part of the Project itself. That is, it is not necessary for WK to separately justify that those aspects of the Project are necessary.¹⁵²

[631] Counsel for WK submitted that a designation was preferable to land use consents as a means of authorising the construction, operation and maintenance of the Project and assists in achieving the Project objectives for a number of reasons.

[632] First, a designation operates to prevent others from doing anything in relation to the land that is subject to the designation that would prevent or hinder the Project. The benefit of this tool is particularly relevant in the context of a fast growing Warkworth area, where there is significant development pressure.

¹⁵² Final Report and Decision of the Board of Inquiry into the East West Link Proposal, Volume 1, December 2017, at [955]-[977].

- [633] Second, although WK will take steps to acquire land when needed within the designation, utilising the Public Works Act 1981, pending those steps, land owners will have access to rights under the RMA that acknowledge the impact of the designation on the use of their land (s.185). Similarly, the effect of the designation, by reference to the Public Works Act 1981, is to ensure, in accordance with that Act, that land taken and/or injuriously affected by the Project will be appropriately and fairly compensated.
- [634] Third, the designation, if confirmed, will be shown in the AUP and therefore alert those intending to buy or develop land within the designation of the Project's existence. This approach provides planning certainty, which allows landowners and residents to make informed decisions about their future plans.
- [635] Finally, as the funding, procurement and detailed design stage of the Project has not yet commenced, the designation proposed will provide the flexibility considered necessary to prepare that detail through the outline plan of works processes.
- [636] We are satisfied that the Project is appropriate for authorisation by way of designation and that for the area proposed, the designation technique is reasonably necessary to achieve the objectives of WK in respect of the Project.
- [637] One specific aspect of the proposed designation that drew some considerable criticism was the extent of the designation footprint in relation to the proposed Warkworth Interchange. One submitter considered that the interchange was located on the wrong side of Warkworth and that it would not consequently provide the best transport solution for the area. Other submitters directly impacted by the area of land sought for designation for the Warkworth Interchange were all concerned that an inappropriate level of analysis had been undertaken and that the proposed footprint at this location was "land hungry" and unnecessary to achieve WK's objectives. Suggestions were made that alternative alignments that had previously formed part of the options analysis for the layout of the Warkworth Interchange were more appropriate because they took up less land while still achieving the WK's objectives.
- [638] The primary Project objective in respect of the Warkworth connection (referred to above) was supplemented with some detail and the AEE and the evidence of Mr Edmonds, which discussed the refinement of the Warkworth Interchange. Following a detailed multi-criteria assessment process that considered 13 Interchange options, which were subsequently updated with both environmental and social criteria, the evaluation pointed to a specific option. At that stage, a refined set of criteria were put forward for the Interchange as follows:
- Maintain the free flow level of service that the travelling public (including the Warkworth community) would be accustomed to from the new Puhoi to Warkworth infrastructure.
 - Optimise to the extent practicable, use of the infrastructure built for the Puhoi to Warkworth Project.

- Not rely on local road connections, given uncertainty at that time as to the future local road network.

[639] We consider these more specific criteria to refine the Interchange specific objective identified for the Project generally.

[640] Consequent upon these more refined objectives, the proposed Interchange configuration identified as Option C, was resolved - albeit with a slight modification referred to as the 'no loop' variation, that occurred after a road safety audit.¹⁵³ It is this Interchange layout that has been incorporated into and now forms part of the designation's indicative footprint.

[641] As identified by WK in reply, the territorial authority considering a notice of requirement for a designation, has no lawful ability to question the merits of a requiring authority's objectives.¹⁵⁴ Accordingly, it is not a relevant matter for us to consider whether the objectives of the requiring authority are appropriate or not. That said, on the face of the evidence from Mr Edmonds, we accept that the Warkworth Interchange and the land within the designation boundary required for it are reasonably necessary for the Project to achieve its objectives.

[642] We appreciate that a consequence of this finding is that the NoR and this location, assuming it is otherwise appropriate and meets the relevant evaluations, is acceptable. It follows that those parties whose land is affected by the designation would have rights under the Public Works Act 1981 and will be duly compensated in accordance with that regime for the taking of their land.

12. OTHER RELEVANT MATTERS

[643] Section 104(1)(c) enables us to have regard to "*any other matter [we] consider relevant and reasonably necessary to determine*" the RCA. Section 171(1)(d) requires us to have particular regard to any other matter we consider reasonably necessary in order to make a recommendation on the NoR. We adopt the approach that any "matters" to be considered must be related to the issues contemplated by the purpose of the RMA, which touch and concern the RCA, the NoR and the submissions to be considered.

[644] In section 11 of the Project AEE (Table 11-1) set out several non-RMA statutory documents as relevant for consideration on both the RCA and NoR. Ms Holmes and Mr Siu reviewed these documents and agreed that they were relevant. The documents and their claimed relevance were summarised in the NoR s.42A Report as follows:

<i>Matter</i>	<i>Discussion</i>
<i>Economic development policies</i>	

¹⁵³ Refer AEE, pages 147, 148.

¹⁵⁴ *Gavin H Wallace Limited v Auckland Council* [2012] NZEnvC 120 at [184].

Matter	Discussion
<i>Tai Tokerau Northland Economic Action Plan 2016</i>	<i>The NEAP identifies Connecting Northland including the route protection and completion of the P2Wk and this Project including improvements between Whangārei and Wellsford as enablers to support key economic growth opportunities.</i>
Transport Planning	
<i>Government Policy Statement on Land Transport 2018/19-2027/28 National Land Transport Programme 2018-2021</i>	<i>The four strategic priorities of the GPS 2018 are safety, access, environment and value for money. The NLTP, developed under the GPS 2018, focuses on “creating a safe, resilient, well-connected and multimodal transport system that enables new housing opportunities, liveable cities and sustainable economic development in regional New Zealand.”¹⁵⁵ As discussed in section 2.3.1 of the AEE the Project aligns with both the GPS and NLTP. Notably the project will contribute to the safety and resilience of the southern part of the Auckland to Whangārei corridor.</i>
<i>Connecting Northland 2017, The Transport Agency</i>	<i>Connecting Northland is an integrated transport approach which recognises the importance of improving transport access within a multi-modal environment. The vision for the Auckland to Whangārei corridor is a safe corridor which provides reliable journey times to support the economic growth of the region and access to key markets. The Project is identified as one of four major infrastructure schemes to progress to construction in the next 30 years in Connecting Northland.</i>
<i>National Freight Demand Study 2014, Ministry of Transport</i>	<i>The NFDS forecasts that by 2042, freight volumes between Northland and Auckland could increase by 68% from 2.8 to 4.71 million tonnes. It also predicts that freight movements originating or terminating in Northland could increase by 38% from 30.2 to 41.6 million tonnes. The NFDS concludes that truck movements are likely to grow significantly in the future. The Project will improve road freight performance between the Auckland and Northland Regions.</i>
<i>Upper North Island Freight Strategy 2013, Upper North Island Strategic Alliance</i>	<i>More than fifty five percent of New Zealand’s freight travels through the Northland, Auckland, Waikato and Bay of Plenty regions, and collectively these regions generate over fifty percent of New Zealand’s gross domestic product. This is predicted to increase in the future. The strategy promotes a strategic and integrated approach towards land use and transport planning and identifies constraints on the Upper North Island’s strategic rail and road networks. The problems for the existing SH1 corridor are consistent with a number of the critical freight issues that the Upper North Island Freight Strategy seeks to address. The Project will improve road freight performance between the Auckland and Northland Regions.</i>

¹⁵⁵ National Land Transport Plan 2018, page 7

Matter	Discussion
<i>Auckland Regional Land Transport Strategy 2010, Auckland Regional Council</i>	<i>A key emphasis in the ARLTS is reducing congestion for freight vehicles. The Project will improve journey times and journey time reliability for freight.</i>
<i>Auckland Regional Land Transport Plan 2018-2028, Auckland Transport, Auckland Council, The Transport Agency and KiwiRail</i>	<i>The ARLTP outlines how transport priorities will be delivered over a ten year period and implements the NLTP. The ARLTP identifies the Project as an improvement project with inter-regional significance.</i>
<i>Auckland Integrated Transport Programme 2013, Auckland Transport</i>	<i>The Auckland Integrated Transport Programme was created in response to the Auckland Plan and sets out the 30 year investment programme to meet the transport priorities that are contained within the Auckland Plan. The Project is identified as a transport project where investment is to be directed.</i>
<i>Iwi management plans</i>	
<i>Kawerau a Maki Trust Resource Management Statement 1994</i>	<p><i>This Statement outlines the concerns and goals the Kawerau a Maki Trust have with regard to the sustainable management of the taonga within the tribal area of Te Kawerau. The Statement sets out the objective and policies with respect to their responsibilities as Kaitiaki and matters of resource management significance.</i></p> <p><i>Consultation with Te Kawerau a Maki has not identified any specific sites. However, consideration has been given to the identification and recognition of mana whenua values, enabling the management of effects on cultural values associated with water, CMA, landscape and flora and fauna.</i></p>
<i>Interim Ngati Paoa Regional Policy Statement 2013</i>	<i>This Statement was developed for Auckland Council to take into account when preparing the AUP(OP). It identifies sites and areas of importance to Ngati Paoa, including within the Mahurangi catchment. There are no AUP(OP) scheduled sites or places of significance to Mana whenua within the Project area.</i>
<i>Ngati Paoa Resource Management Plan 1996</i>	<p><i>This Resource Management Plan focuses on the four most important resource management issues for Ngati Paoa. These are the issues of consultation, issues surrounding the recognition and protection of waahi tapu sites, the need for redress of breaches of the Treaty of Waitangi and the issue of economic development.</i></p> <p><i>Ngati Paoa has requested they be kept up-to-date throughout development of the Project and this will continue. There are no known waahi tapu sites located within the Project area.</i></p>
<i>Environmental strategies</i>	
<i>Mahurangi Action Plan 2010</i>	<i>The Mahurangi Action Plan is an Auckland Council strategic plan for the Mahurangi Catchment (2010-2030). It</i>

Matter	Discussion
	<p>has a vision of maintaining a healthy Mahurangi River and Harbour. The MAP identifies key values and issues including:</p> <ul style="list-style-type: none"> • Sedimentation of the Harbour environment; • Maintaining a Commercial Asset; and • Natural Heritage, Biodiversity and Ecological Values. <p>The plan contains objectives and priority actions for 2010-2016, as well as medium to long term actions that are relevant to the project timescale. The Project has been designed to be consistent with the objectives of the plan.</p>
<i>Kaipara Harbour Integrated Strategic Plan of Action 2011</i>	<p>This strategic plan for the Kaipara Harbour (2011-2021) was developed by the Integrated Kaipara Harbour Management Group (IKHMG). The plan is the first stage of managing Kaipara ecosystems, harbour and catchment in a way that will achieve integrated management, with the aim to achieving a healthy and productive Kaipara Harbour. The KHIPA identifies key issues within the harbour:</p> <p>Declining native biodiversity;</p> <p>Declining fish and shellfish stocks; and</p> <p>Increased sedimentation and poor water quality.</p> <p>The KHIPA contains long-term objectives and goals. The Project has been designed to be consistent with the objectives of the plan.</p>
<i>The New Zealand Biodiversity Strategy 2000-2020</i>	<p>This Strategy establishes a strategic framework for action, to conserve and sustainably use and manage New Zealand's biodiversity. The main objectives are to promote community and individual action, protect Mana Whenua interests, halt the decline of New Zealand's indigenous species and maintain the genetic resources of introduced species which contribute to the wellbeing of New Zealanders. The Project responds to this strategic framework by recognising effects on indigenous biodiversity and mitigating for any loss.</p>
<i>Proposed National Policy Statement on Indigenous Biodiversity 2011</i>	<p>The proposed National Policy Statement on Indigenous Biodiversity was issued in 2011 for consultation, though has not been finalised. This NPS is relevant to the Project given its works impact on indigenous biological diversity (which includes naturally uncommon ecosystems, indigenous vegetation or habitats associated with wetlands).</p> <p>The Project generally affects only pockets of indigenous vegetation and habitats. These effects have been identified and assessed in the Ecology Assessment. The mitigation proposed in section 10 of this AEE is informed by the findings in that assessment and will ensure that the Project will maintain biodiversity through mitigation and management plans where there may be an adverse effect.</p>

Matter	Discussion
<i>Auckland Indigenous Biodiversity Strategy 2012</i>	<p><i>The Auckland Indigenous Biodiversity Strategy seeks to protect, maintain and restore the indigenous biodiversity within Auckland. This involves conserving as many species as possible with particular attention being given to those species which are threatened, implementing iwi values, educating Auckland's communities and fostering guardianship and the collaboration of governmental organisations.</i></p> <p><i>Biodiversity has been a key consideration of the Project in particular with efforts to avoid, remedy or mitigate the potential adverse construction effects and to achieve post construction benefits.</i></p>
Local Government Act policies	
<i>Auckland Plan 2050 (June 2018)</i>	<p><i>The Auckland Plan 2050 sets the long-term strategic direction for Auckland over the next 30 years. The Plan identifies "the development of quality transport links within Warkworth, as well as between Warkworth, Northland and the rest of Auckland to be critical to supporting the town's future growth"¹⁵⁶.</i></p> <p><i>The Project supports this aspiration.</i></p>
<i>Rodney Local Board Plan 2017</i>	<p><i>One of the outcomes of the Rodney Board Plan is to get around easily and safely. The Plan outlines that transport infrastructure needs to keep pace with the needs of the community. The Local Board seeks to advocate to the Transport Agency for higher prioritisation of Rodney transport projects, such as this one.</i></p>
Other guidance	
<i>NZ Urban Design Protocol 2005</i>	<p><i>The Transport Agency is a signatory to the NZ Urban Design protocol. The Urban Design Protocol identifies seven essential design qualities that together create quality urban design:</i></p> <p><i>Context: seeing buildings, places and spaces as part of whole towns and cities</i></p> <p><i>Character: reflecting and enhancing the distinctive character, heritage and identity of our urban environment</i></p> <p><i>Choice: ensuring diversity and choice for people</i></p> <p><i>Connections: enhancing how different networks link together for people</i></p> <p><i>Creativity: encouraging innovative and imaginative solutions</i></p> <p><i>Custodianship: ensuring design is environmentally sustainable, safe and healthy</i></p> <p><i>Collaboration: communicating and sharing knowledge across sectors, professions and with communities.</i></p> <p><i>A Planning Version ULDF has been prepared for the Project which has had close regard to the above.</i></p>

¹⁵⁶ <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/development-strategy/future-auckland/Pages/what-warkworth-look-like-future.aspx>

[645] No other party contended that these documents were not relevant to the Project. We accept the relevance of them for the reasons identified in the table above, although it probably goes too far to say that reference to them is “reasonably necessary” to enable us to determine the RCA and the NoR. Despite that, they provide helpful additional context and information on broader transport policy, environmental, cultural, local government and design matters within which the Project has been and will be developed.

[646] Finally, although identified as a potential s.104(1)(c) matter in the RCA s 42A Report, we note that submissions received on an application must be considered pursuant to the general direction in s.104(1) and so there is no need to utilise s.104(1)(c) to make them relevant.

13. CONDITIONS

13.1 SECTION 108 AND S 171(2)(C)

[647] Conditions may be imposed on the RCA under s.108, provided they comply with s.108AA. This latter section prevents a consent authority imposing a condition unless the applicant for the consent agrees to it, or the condition is “directly connected” to an adverse effect of the activity on the environment and/or an applicable district or regional rule or a national environmental standard. Conditions may also be imposed if they relate to administrative matters that are essential for the efficient implementation of the resource consent.

[648] The principles with respect to the validity of resource management conditions under s.108 are described as being generally applicable to the scope of permissible conditions that may be recommended by a territorial authority under s.171(2) when considering a notice of requirement.¹⁵⁷ The well-known *Newbury* principles have also found to be relevant to the discretion in the determination of a notice of requirement.¹⁵⁸

13.2 SUMMARY OF CONDITION ISSUES

[649] As discussed at the outset of this decision, conditions comprised a significant component of the RCA and NoR and were subject to considerable discussion by WK’s experts, Council’s specialist reviewers, and submitters and their witnesses throughout the hearing. We have had to consider and determine the following condition related issues:

- (a) ‘Big-picture’ concerns - these relate to WK’s conditioning approach generally (the absence of a conventional ‘condition 1’, a reliance on management plans for effects management, and WK’s proposed 15-year lapse date);

¹⁵⁷ Brookers Resource Management A171.07(2)

¹⁵⁸ *Handley v South Taranaki District Council* [2018] NZEnvC 97

- (b) Specific condition wording disagreements (between experts), or requested (by submitters);
- (c) Our own review of the condition sets and changes considered necessary to accord with our findings on the evidence; and
- (d) Mapping amendments.

[650] We address these each in turn.

13.3 NO 'CONDITION 1'

[651] As noted earlier, WK has not proposed that either the Designation or RC be subject to a traditional "Condition 1" requiring the proposed works to be undertaken "in general accordance with" the specific plans or details provided with the applications. Rather, its approach is to secure the protection of a corridor for the Project to be developed within by way of the Designation. The Designation would also bring with it the s.9(3) right to construct the road within this corridor, with final design (and location details) being provided by way of outline plan under s.176A. At the same time, WK has also sought to obtain the necessary regional resource consents to enable it to construct and operate the Project, with the actual works required being determined in due course based on final design.

[652] The approach taken by WK to the conditions for the Project, including assessing its effects based on an "Indicative Alignment" and "no Condition 1" aligns, we were told, with the approach it took for the P2Wk project, which was approved by a Board of Inquiry. In that decision, the Board accepted both the legitimacy and rationale for this approach. While the Board's decision on this issue is no doubt a precedent in favour of the approach proposed for this Project, we find that it is still open to us to depart from it if the circumstances warrant. In this regard, although we understood Council officers to not be averse to replicating the same approach, there was a concern to ensure that various key features of the Indicative Alignment for the highway were specifically secured in their location, given the prospect (in their view), of adverse effects arising with significant departures from it.

[653] This concern was also echoed by submitters who wanted certainty about where the new road would be located within the designation corridor, due to the perceived differences in effect that might arise for them depending on the final location, as well as certain features of its design "locked in" to ensure changes did not occur during detailed design. To demonstrate this concern, we were presented with an example of a crossing of the left branch of the Mahurangi Stream that was required for the P2Wk project, which was depicted during the consenting phase as an elegant bridge structure, but which was eventually constructed as a series of less than aesthetically pleasing, side by side culverts.¹⁵⁹

¹⁵⁹ Refer Evidence Dr D Civil, 30 September 2020, Appendices 14 and 15.

- [654] There are two reasons why, despite the concerns expressed by Council officers and submitters, we are satisfied that we can uphold WK's approach in relation to this aspect of the project conditions.
- [655] First, as we noted at the outset, although perceived to be a design approach without constraint, close attention to the proposed Project conditions shows that it is not a carte blanche entitlement. We refer here to the RC conditions noted at paragraph [75]. We are content that with some minor wording changes to strengthen the constraints proposed in condition RC-54C, that this collection of conditions will provide some meaningful certainty of route location (vertical and horizontal), and structural design (i.e., use of bridges) for interested parties, particularly for that portion of the route extending from the Warkworth interchange to the north of the proposed Kraack Hill tunnels. To clarify that the works authorised by the Designation are intended to be given effect to in accordance with the RC, we have also included a new Condition D-1 to that effect, to ensure that they are implemented in an integrated fashion as obviously intended by WK.
- [656] Second, we accept WK's evidence to the effect that it has tested the implications for receivers beyond the proposed Designation footprint of changes to the Indicative Alignment and established that the effects can still be managed to an acceptable level even if the alignment is varied slightly within that corridor. Here too we observe that WK has placed an 'effects-based' constraint on the ability to move the location of the road in such a way as to significantly change the predicted future operational noise on identified receivers. We refer here to Conditions D-89 and D-92. Such constraints will also operate to reduce the extent to which the final location of the route can be shifted in locations where it passes closest to sensitive receivers.
- [657] In summary, we find that that the conditioning approach proposed by WK is appropriate and that there is no need to provide more stringent "in accordance with" conditions. There are sufficient constraints within the conditions to secure certainty around key aspects of the design and location (and hence potential effects) of the Project. We also accept WK's submission that such an approach would create inflexibility for final design of the route, and with it reduce the ability for route optimisation and cost efficiency gains.

13.4 USE OF MANAGEMENT PLANS

- [658] As noted earlier, WK submitted that management plans are a key tool used widely in designations and resource consents for large infrastructure projects and reminded us as to the legal requirements for them to be considered appropriate conditioning responses.
- [659] WK's approach was criticised by submitters, who argued that it did not enable certainty now as to whether the adverse effects of the Project would be appropriately avoided, remedied or mitigated: achieving that outcome was, they asserted, inappropriately left for another day.

[660] In response, WK noted that the Project has been assessed using an Indicative Alignment, which may alter within the designation footprint during detailed design, and will not be constructed for several years, the implication being that both the environment and effects management techniques may change before the Project is built either requiring or enabling different solutions to manage effects. It says its intention is that its proposed management plans confirm the proposed mitigation to achieve the environmental outcomes for the Project once the final alignment and design is determined; and as the conditions are outcomes based, this approach will not compromise, or alter, overall effects on the environment.

[661] We accept WK's approach. Based on our review of Appendix 2, we are satisfied that WK's management plans are properly constituted and appropriate for approval as conditions of consent. We also find that the information gathering, analysis and outcomes focused content of the plans is robustly conceived and answers the complaint that they will be ineffective in addressing the effects they are designed to manage. The s.176A outline plan process (for the Designation), and the 'prepare, have certified, and implement' requirement (for the RC) will also ensure sufficient oversight by the Council over the final content of these plans.

13.5 15 YEAR LAPSE DATE

[662] As noted, WK's 15-year lapse dates were criticised by submitters as creating a significant 'blight' on properties both directly and indirectly affected by the Designation. Similarly, with respect to the RCA, they were criticised as leading to a situation where works could be approved subject to conditions today that would not be undertaken for almost a decade, during which time the environment could change significantly, thus rendering the conditions inappropriate or no longer 'fit for purpose'.

[663] The RMA does not specify the matters to consider in determining a period longer than the default 5-year lapse period set out in ss.125 and 184. The territorial authority is therefore provided with a wide discretion.¹⁶⁰ In exercising that discretion, the Environment Court in *Beda Family Trust v Transit New Zealand* noted the need to balance route protection against the "*prejudicial effects to directly affected property owners required to endure the blighting effects of the project.*" The Court stated that the discretion under s.184(1) has to be exercised in a principled, fair manner, considering all the circumstances of a case. The Court explicitly considered route protection, stating that there may be circumstances where a longer period than the statutory 5 years is required to secure the route for a major roading project.

[664] The Environment Court in *Beda* considered the following factors as relevant in favour of a longer lapse period:

- (a) The desirability of the lapse period reflecting the realistic timeframe within which the project is likely to be constructed;

¹⁶⁰ *Beda Family Trust v Transit New Zealand* EnvC A139/2004, 10 November 2004, at [112]

- (b) That the designation will safeguard the chosen alignment from inappropriate development in the period before the project becomes fundable;
- (c) That the designation will provide certainty for affected landowners and the local community as to the requiring authorities' future intentions over the longer term; and
- (d) That the designation will provide certainty for the requiring authority that it will be able to fully implement the project when it becomes fundable.

[665] Factors in favour of a shorter lapse argued in *Beda* were:

- (a) A designation restricts what affected landowners can do with their land; and
- (b) The ability for affected landowners to require the requiring authority to acquire their land under s.185 sets a high threshold, so is not always an adequate remedy.

[666] In considering WK's request for longer lapse dates for the Project, we start from an acceptance of the validity of the reason for the request. That is, WK is not in a position to proceed to detailed design or construction of the Project for some time. To that extent, approving the Project, but imposing a 5-year lapse date, would therefore require WK at 5 yearly intervals to demonstrate the degree of progress or effort it has made in the preceding 5 years to being able to give effect to the Designation. To impose a 5-year lapse date at this point, knowing that likelihood, would therefore not be a reasonable use of an administrative discretion.

[667] Turning to the potential countervailing factors against a longer lapse date, we observe that the case law on the 'blighting effect' of a designation is focused on the effects of the designation on "directly affected landowners", namely those within the designation. The *Beda* case refers to potential blight as the constraints on using that land due to the restrictions in s.176(1)(b) and the potential inability to sell the land. However, *Beda* does not apply these factors to neighbours to the designation. In this regard, we accept WK's submission that a designation does not prevent neighbours from using their land in the same way as directly affected landowners.

[668] In terms of directly affected landowners, provided a land use does not prevent or hinder the Project, we agree with WK that landowners will not be unreasonably restricted in how they can use their land prior to the Designation being given effect to. We find that WK has addressed the potential implications of those restrictions with these landowners in an appropriate manner and that the nature of land uses along the proposed route that will be overlaid by the Designation are not likely to be severely restricted in advance of the Project.

[669] As regards the potential inability to sell land, this issue is covered by s.185, which landowners directly affected by a designation can avail themselves of.

[670] With respect to claims as to ‘planning blight’ affecting neighbouring properties, WK submitted that the evidence did not support this issue being given substantial weight. That is, there was no evidence presented to us to suggest that neighbouring landowners have been unable to develop or sell their properties because of the NoR, or that there has been or will be any change in property values as a result of the Designation if confirmed. WK pointed out that in some instances, neighbouring landowners have chosen not to proceed with development plans for their properties, but that this was their personal choice, not a restriction imposed by the NoR.

[671] The Environment Court has observed that a decrease in property values or inability to sell property often anticipated by landowners near a designation may not be borne out in reality. As noted in *Tram Lease v Auckland Transport*:¹⁶¹

People concerned about property values diminishing are inclined to approach the matter from a “rather subjective viewpoint”; people become used to certain environments, considering that property values will drop after physical changes, but a purchaser who has not seen what was there before might not be greatly influenced by such changes.

[672] Referring to this observation WK submitted that, based on its experience, the confirmation of a designation can actually facilitate development and sale of neighbouring land, because a designation provides landowners, the community and the local authority with certainty that a road will be built. This in turn allows landowners to plan accordingly at an individual level and provides a council with comfort that infrastructure will be put in place. This also enables the council to plan for and facilitate growth and development at a community level. This can, in some cases, lead to rezoning or release of land for more intensive use, resulting in an increase in property value for landowners in the surrounding area.

[673] We have considered the arguments from both sides in relation to the proposed 15-year lapse dates. In doing so, we note that the Council supports the lapse dates proposed. Because of this, and because of the other factors emphasised by WK, we find in favour of the lapse dates proposed. We consider it preferable for the prospect of the Project occurring, and the timeframe within which it will realistically occur, to be clearly signalled in the relevant planning documents. The adverse effect of that lapse date on individual property owners is outweighed by the generally beneficial planning certainty effects that arise by having the Designation included in the relevant plan at an early date.

13.6 OTHER SPECIFIC CONDITION AMENDMENTS

[674] We have indicated in specific effects-related areas above where we have either accepted WK’s condition proposals, or preferred amendments to them proposed by others. We have also indicated where, based on our assessment of the evidence

¹⁶¹ *Tram Lease Ltd V Auckland Transport* [2015] NZEnvC 137 at [57], quoting *Foot v Wellington City Council* (Decision number W73/98, Environment Court, Wellington).

and findings, we have considered it necessary, appropriate and reasonable to modify the proposed conditions. By way of summary, using WK's final reply conditions as its offered conditioning sets, we have made the amendments detailed below.

13.6.1 Designation conditions

- [675] Amendments to the construction noise and vibration criteria, CNVMP contents and CNVMP Schedules to incorporate changes recommended by Ms Wilkening (refer discussion around construction noise effects management from paragraph [395] above).
- [676] Amendments to D-78 and D-79C to incorporate final suggestions around historic heritage effects management.
- [677] Amendment to D-87 for clarification (refer discussion around air quality effects).
- [678] Amendments to the operational noise conditions to incorporate changes recommended by Ms Wilkening (refer discussion from paragraph [536] above).

13.6.2 RC conditions

- [679] Amendments to RC-25, RC-26 and RC-34A to address issues raised by Mr Byrne with respect to chemical flocculation, diversion channel sizing and trigger event responses (refer discussion from paragraph [171] above).
- [680] Amendment to RC-44 (and deletion of RC-45) to provide for and clarify Maximum Open Earthworks Area and role of requests under RC-46 (refer discussion from paragraph [179] above).
- [681] Amendments to RC-54D(a), RC-54F, RC-54G, RC-54H, RC-54K, RC-54M and RC-54N, and a new RC-54L to better ensure that ecological values are properly confirmed and that ecological outcomes are required in a transparent and accountable manner (refer discussion at paragraphs [270] and [305] above).
- [682] New RC-56A to make it clear that any works in the Kourawhero Stream shall be designed and implemented to avoid any adverse effects on breeding koura.
- [683] New RC-68A to ensure follow-up and further remedial work in the event that initial attempts to rehabilitate Erosion Prone Streams are unsuccessful.
- [684] New RC-78A to RC-78C incorporating Mr Lowe's recommended conditions, but modified to ensure clarity of objective and process, to require a transparent offset accounting system (rather than predetermined ratios as proposed by WK), to demonstrate the quantum of offset required to achieve a 'no net loss' of ecological values outcome (refer discussion above at paragraph [319]).
- [685] Amendment to RC-81 to address the issue of detention capacity of the stormwater management devices (refer discussion from paragraph [466] above).

- [686] New RC-100B to ensure flood impacts are avoided in respect of the property at 111 Kaipara Flats Road (refer discussion from paragraph [473] above).
- [687] Amendment to RC-102 and new RC-103A to incorporate suggestions from Mr Crimmins agreed by WK (refer discussion from paragraph [413] above).
- [688] In addition to these matters, we consider it necessary to specifically address some specific submitter proposals for conditions by DoC and Watercare.

13.6.3 Department of Conservation condition requests not accepted by WK

- [689] **Condition RC-21:** DoC seeks that objective standards be included in the “ESC Outcomes” but does not specify what those should be. Mr Ridley in his evidence notes that there is no specific water quality (sediment) standard detailed within these objectives. This is because these objectives must be met when developing the various plans that address ESC measures and are not of themselves intended to be measurable concepts.
- [690] However, the conditions contain objective performance standards and specific design requirements later in the condition set. For example, RC-22 requires ESC plans and devices to achieve the requirements of GD05, as well as the other specified standards in RC-26. RC-31 requires setting out the methodology for calculation of Acute Event Sediment and Cumulative Sediment. This is a key component of ensuring marine ecology effects are appropriately offset. The use of best practice CWM measures as required through the conditions also provides a bottom line and always ensures effective management of construction water. Accordingly, we see no need for the amendment proposed to this condition by DoC.
- [691] **Condition RC-24(f):** DoC suggests that the reference to rainfall events in the Hōteio Inlet and Mahurangi Harbour should refer to rainfall events in the catchments, rather than the receiving marine water body. We agree. This matter has been addressed by revised proposed conditions which include reference to catchment rainfall in RC-32(j).
- [692] **Condition RC-26(c):** This requires clean and dirty water diversion be installed to a 100-year event design unless it is not practicable to do so. DoC seeks clarification on the circumstances that may be considered “not practicable”. In his evidence Mr Ridley advised that there are circumstances where slope or soil types make this provision very difficult to achieve. To establish a 100-year event design diversion on steep slopes can be a health and safety issue and can also create more earthworks and potential sediment generation than the benefits gained from the installation itself. Any variation from the 100-year event design provision will need to be documented in the CЕСP process and be certified accordingly. This will include consideration of a reduction of risk through CWM best practice.
- [693] We accept Mr Ridley’s advice therefore that RC-26 is appropriate and will mean that effects are appropriately managed, noting his recommended amendment to

the condition which clarifies that if the design requirements cannot be achieved then the alternative design will need to be approved in the respective CESC and will need to include reasons why the criteria cannot be achieved, and an analysis of the alternatives proposed.

[694] **Conditions RC-50 and RC-51:** These conditions require stabilisation of areas if works have not occurred for a period of 14 days unless otherwise approved by Council. DoC support the requirement to stabilise within 14 days, but the ability to alter this timing via Council approval through certification within a CESC is not supported.

[695] Mr Ridley considers it impractical to require a full consent variation process to be undertaken for any amendment to this 14-day period. He considers the 14-day stabilisation requirement to be a critical erosion control feature, but in his opinion there also needs to be an ability to alter this if circumstances arise. As an example, this could include a circumstance where an area of works is required for soil moisture drying which requires a period of more than 14 days. Mr Ridley confirms that any change to this 14-day period needs to be documented within a CESC and this includes a formal certification process that must be followed. To address this aspect further Mr Ridley recommended amendments to RC-51 which confirms the criteria that will be considered to increase this 14-day period. We note that RC-51 includes such criteria. We accept them as appropriate.

13.6.4 Watercare

[696] We have amended D-24 to address Mr Wilson's request for access to be enabled to Watercare's facilities at all reasonable times.

13.7 AMENDMENTS TO CONDITIONS ARISING FROM OUR FINDINGS

[697] We have also made a number of other amendments to WK's final conditions. We have foreshadowed these amendments throughout this decision but summarise them here, with specific reasons for them where not identified earlier.

13.7.1 Designation conditions

[698] *Definitions:* New defined terms for "Designated Land", "Mitigation Sites" and "Resource Consent", and amendment to reference the retitled "Stakeholder Engagement and Communications Management Plan".

[699] *Interpretation note:* To clarify relevance of NoR and RCA application materials to the conditions.

[700] *Condition D-1:* To clarify the relationship between the Designation and the Resource Consent (as defined terms).

[701] *Condition (now) D-1A:* To clarify that the Designation shall not be 'rolled-back' until all long-term mitigation and offsetting works have been completed.

- [702] *Condition D-9*: Clarifications only.
- [703] *Condition D-10A*: To ensure that WK maintains an up to date and easily accessible information source about the Project prior to the specific preparation of the SECMP. This is intended to mitigate the potential anxiety caused by not knowing what is happening and when.
- [704] *Condition D-14*: Clarification only.
- [705] *Condition D-19A*: Clarification only.
- [706] *Condition D-38*: Clarifications only.
- [707] *Condition D-40*: These amendments are to provide for appropriate engagement with potentially affected parties over site specific traffic management measures. A 20 working day period for comments to be provided is included, together with specification as to how WK must address such comments. These mechanisms are intended to ensure that WK receives, considers and incorporates feedback (where practicable), but is not otherwise frustrated in its ability to finalise any SSTMP.
- [708] *Condition D-42*: This mirrors the same amendment we have made to D-40 to ensure appropriate engagement with AT about the EWCTMP.
- [709] *Condition D-44*: Cross reference to new defined terms “resource Consent” for clarification.
- [710] *Condition D-45*: Deletion of “residential” to ensure the condition covers all properties in highly sensitive locations regardless of land use.
- [711] *Condition D-49*: Amendment to include 111 Kaipara Flats Road into the requirements of D-49bxiv, and to clarify that the visual screening works must comprise new planting or other measures but only where those measures are practicable. Where they are not, planting must still be provided.
- [712] *Conditions D-49A to 49D*: A new condition D-49A has been included to provide for appropriate engagement with the specified property owners over visual screening of the permanent Project works. A 10-working day period for comments to be provided is included, together with specification as to how WK must address such comments. These mechanisms are intended to ensure that WK receives, considers and incorporates feedback (where practicable), but is not otherwise frustrated in its ability to finalise any ULDMP. The amendments to (now) D-49B, D-49C and D-49D are for clarification purposes only.
- [713] *Condition D-101*: This condition has been amended to clarify that the initial 5 year period of landscape planting maintenance is to ensure its successful establishment, but that thereafter all landscape planting still has to be maintained for the purpose for which it was installed.

- [714] *Condition D-101A*: This new condition is intended to make it clear that all of the works undertaken as part of the conditions of the Resource Consent (as detailed in sub-paragraphs (a) to (d)), is work on which the ability to implement the Designation and thereafter maintain the Project relies in perpetuity. This condition creates a clear link between the Designation and the ecological mitigation and offsetting works that have been offered or imposed.
- [715] *Condition D-101B*: This condition requires WK to provide a suitable legal protection mechanism for any of the land used for ecological mitigation and offsetting in the event it is intended to remove the Designation from those areas of transfer ownership from the Crown. While these areas are designated and Crown owned, the obligation for them to be maintained and protected arises from the conditions of the Designation, but in the event they are no longer designated it is important, given new condition D-101A, that they are still protected and maintained, despite not being designated etc.

13.7.2 RC conditions

- [716] *Definitions*: New acronyms “AMOP”, “FHFMA” and “WEEMP” have been included to reflect inclusion of these new plans by other conditions of consent. A definition of “Designated Land” has also been included.
- [717] *Former condition RC-5*: We have removed this condition which provides for deemed certification of management plans if the certifying authority does not do so within a specified timeframe because we are concerned that it could lead to a situation where important management plans are prepared and then implemented by WK without appropriate certification of them by the authority responsible for compliance (i.e., the Council). This function (and the certifying role it envisages) are significant and we can see no justification for it being taken away by a condition of a resource consent. In that regard, we have doubts that it is a lawful condition by reference to the established tests for condition validity. Table 2 has been amended as well, to remove the proposed fourth column.
- [718] We acknowledge that WK wishes to avoid delays in the certification of its plans and its ability to progress works. To minimise the potential for that we consider eminently sensible the suggestions by Mr Siu and Mr Masefield in their closing comments that WK may wish to provide a programme for the submission of its management plans at an early stage. Where those plans are complex, providing preliminary drafts at an early stage would also likely assist in avoiding delays in the certification process.
- [719] *Condition RC-54C*: To clarify and provide more certainty as to the outcomes to be achieved by this condition, given its important role in providing constraints on the location and design of the Project.
- [720] *Condition RC-63*: We have removed the “deemed certified” aspect of this condition, for the same reasons as we have removed former condition RC-5.

- [721] *Condition RC-92:* We have deleted this condition, specifying deemed certification of the stormwater management devices for want of response, for the same reasons as we have removed the former condition RC-5.
- [722] *Former condition RC-105:* We have deleted this condition but included it in a revised format into the Designation conditions (refer paragraph [715] above).
- [723] *Advice notes:* We have clarified the advice notes to reflect our understanding of the scope of the RCA.

13.8 MAPPING AMENDMENTS

- [724] WK has provided us maps showing the two areas where it would support a modification being made to the extent of its proposed designation. We have included these with the recommended designation maps on the understanding that WK will update the maps when it issues its decision on our final recommendation.
- [725] Following the clarification provided in WK's memorandum dated 23 December 2020, we have also updated the condition Maps 1 to 21 that accompany the final conditions.

14. MATTERS RELEVANT TO DISCHARGES

- [726] Activities that form part of the RCA involve discharges to air during construction, and the discharge of storm water into water and onto land. Accordingly, we must be satisfied that the thresholds to the grant of such permits in ss.105 and 107 have been met. Section 105 obliges us to consider the nature of the discharge, the sensitivity of the receiving environment to adverse effects, the reasons for the discharge and any possible alternative methods of discharge including discharge into any other receiving environment. In addition, s.107 prevents the grant of a discharge permit where, after reasonable mixing, any discharge of contaminants is likely, directly or indirectly, to give rise to certain adverse effects in the receiving waters.
- [727] The enquiries required by both provisions were considered in the technical evidence for WK by Mr Ridley, Dr Fisher, Dr De Luca/Dr Bell and Mr Clarke, and the Council by Dr Sivaguru, Mr Byrne, Ms Sharma and Mr Sunich. For WK, Ms Sinclair summarised her understanding of the evidence to the effect that the RCA appropriately addressed and met the requirements of both sections.
- [728] The RCA s.42A Report also concluded, with respect to s.105 that:

The proposal is considered to satisfy the matters set out in s105 because the discharges do not give rise to any significant air quality effects and the reasons for discharges of contaminants into air are appropriate in the circumstances and I have concluded the discharge of sediment from the project is a permitted activity.

- [729] With respect to s.107, Ms Holmes considered:

Multiple sites between Warkworth and north of Te Hana
BUN60354951 (LUC60354952, LUS60354955, WAT60354953, WAT60355184, WAT 60356979, DIS60354954, LUC60355185, DIS60355186)

The proposal satisfies the provisions of s107 because the stormwater discharges do not give rise to water quality issues in the receiving environments.

[730] We heard no evidence or legal arguments to the effect that these provisions could not be met by the Project works, if undertaken in accordance with appropriate conditions.

[731] We find on the basis of the technical evidence that both ss.105 and 107 will be achieved by the Project, both during construction activities and in its future operation.

15. PART 2 ASSESSMENT

[732] Earlier in this decision we noted that for the purposes of considering the RCA we did not consider it necessary to defer specifically to Part 2 to assist our evaluation of the Project RCA under the AUP. Despite that, for the reasons we note below with respect to the NoR, we are satisfied that a “Part 2 check” would lead us to the same conclusion we have reached following our assessment of the RCA under s.104. That is, we are satisfied that granting the RCA subject to conditions will promote the sustainable management purpose of the RMA and have appropriate regard to the other matters in Part 2 that are engaged by the Project.

[733] With respect to the NoR, it is settled that a “Part 2 check” is mandatory, given the phrasing of s.171. In that regard, we note that Mr Siu undertook a detailed Part 2 analysis in the s.42A report, as did Ms Sinclair in her evidence.¹⁶²

[734] We have considered both experts’ evidence in relation to Part 2 and find that we agree with it. The Project will achieve the sustainable management purpose of the RMA because:

- It will enable people and communities to provide for their social, economic and cultural wellbeing and for their health and safety through the provision of infrastructure that will connect people and goods with communities, improve safety, and provide better and more reliable travel times.
- It will provide transport infrastructure that will meet the reasonably foreseeable transport needs of future generations.
- It will avoid, remedy, or mitigate any adverse effects on the environment during construction and operation, through specific mitigation measures which are to be included in the conditions for the Designation.

[735] In relation to this last point, Ms Sinclair also highlights the transport benefits for people and communities and further notes that the potential for significant adverse effects arising from the Project has been minimised through a comprehensive route

¹⁶² Evidence S Sinclair, 15 September 2020, at [170] et seq

selection process, refinement of an indicative alignment, and design requirements as set out in the proposed conditions. We agree with this evidence.

[736] With respect to s.6, we are also satisfied that the relevant matters, which we consider to be ss.6(b), 6(c), 6(e) and 6(f), have also been recognised and provided for. For s.6(c) in particular, we find that the project generally avoids areas of significant indigenous vegetation and significant habitats of indigenous fauna and that potential adverse effects on indigenous fauna and vegetation will be minimised during construction and operation through comprehensive mitigation and offsetting proposals which have been incorporated into the conditions for the Designation and associated resource consents. Similarly, with respect to s.6(e), the project provides opportunity for mana whenua to maintain their relationship with their culture and traditions and ancestral lands, and other taonga, through measures which are also provided for within the Designation conditions.

[737] A number of s.7 matters are also raised for consideration and, in our view, the project gives appropriate regard to them. We agree with Mr Siu that in applying mitigation measures which are included to ensure amenity effects are appropriately managed to an acceptable level for nearby residents, the project has addressed the objective of s.7(c). The measures referred to include avoiding remedying or mitigating construction and operational noise and vibration, dust, visual amenity effects and by improving amenity values at Warkworth, Wellsford and Te Hana by providing for a new “offline” State Highway.

[738] In applying mitigation measures which are included in the conditions to the designation, we are also satisfied that careful consideration was given as to how best to mitigate potential adverse effects on the intrinsic values of ecosystems (s.7(d)) and the maintenance of the quality of the environment (s.7(f)).

[739] Overall, we find that the Project achieves the purpose of the RMA and appropriately accommodates relevant ss.6, 7 and 8 matters.

16. EXERCISE OF DISCRETION

[740] We have considered the NoR, RCA, and the submissions made on them by reference to and in accordance with the statutory requirements of ss.171 and 104 respectively. Our findings, in summary, are:

Effects on the environment

- (a) The Project will give rise to transport network improvements, positive economic and social effects, and positive ecological effects through offsetting proposals;
- (b) The actual and potential effects of erosion and sediment run-off during Project earthworks can be avoided, remedied or mitigated to a satisfactory level by way of detailed consent conditions;

- (c) The potential for construction earthworks to cause ground instability or impact groundwater bores will be avoided, remedied or mitigated by way of detailed consent conditions;
- (d) The potential adverse effects of the Project on marine ecology can be satisfactorily mitigated by the proposed erosion and sediment control works and provision for offsetting of sediment discharges above nominated thresholds by measures such as future planting (as provided for in conditions RC-31, RC-32 and RC-37 to RC-42);
- (e) The Project's potential adverse effects on avifauna will be less than minor;
- (f) With amendments to the conditions of the RC and Designation, the ecological effects of the Project works will be avoided, remedied and mitigated to the extent practicable;
- (g) The proposed conditions will ensure that construction traffic related effects will be minimised as far as practicable and to an acceptable level;
- (h) Undertaken in accordance with the proposed conditions, the construction related noise and vibration effects can be managed to a reasonable level;
- (i) Construction and operational air quality effects arising from the Project will be minor and acceptable;
- (j) If designed and constructed in accordance with the conditions proposed (as amended by us), the effects of the Project's stormwater run-off management and discharges, and its impacts on flooding, will be adequately mitigated and avoided;
- (k) The Project's effects on historic heritage will be adequately avoided, remedied or mitigated;
- (l) With changes to the conditions, the landscape and visual effects of the changes arising from the Project will be adequately addressed;
- (m) If undertaken in accordance with the proposed conditions, the operational noise effects of the Project will be reasonable;
- (n) The impacts of the Project on the amenity values will be managed and maintained to a reasonable level;
- (o) The social effects of the Project will be minor, if managed in accordance with the conditions;
- (p) The cultural effects of the project and effects on mana whenua in particular will be appropriately managed;

- (q) Effects on utility services and other infrastructure assets within the designation area will be avoided, remedied and mitigated to an appropriate level;

Relevant standards, policy statements and plans

- (r) The Project is consistent with and achieves all relevant standards, policy statement requirements and plan objectives and policies;

Alternative sites, routes and methods

- (s) WK has undertaken an adequate assessment of alternative routes, sites and methods for the Project;

Necessity to achieve objectives

- (t) The Project is appropriate for authorisation by way of designation and that for the area proposed, the designation technique is reasonably necessary to achieve the objectives of WK in respect of the Project;

Part 2

- (u) The Project achieves the purpose of the RMA and appropriately accommodates relevant ss.6, 7 and 8 matters.

[741] Our discretion in relation to the NoR and RCA must be exercised so as to achieve the statutory purpose of the RMA. Based on our findings above, we are satisfied that granting consent to the RC on the conditions we propose, and recommending that WK approve the NoR (with modifications) also on the conditions we propose, will promote the sustainable management of natural and physical resources.

[742] The Project authorised by the Designation and the RC would allow the use of natural and physical resources in a way that would enable people and communities to provide for their social, economic, and cultural well-being while sustaining the potential for those resources to meet the reasonably foreseeable needs of future generations, safeguard natural resources and avoid, remedy or mitigate adverse effects on the environment to an acceptable level.

[743] In considering this discretion, we also record that on the conditions proposed, emissions of noise from construction and operational activities associated with the Project would not exceed a reasonable level, such that the duty in s.16 will be fulfilled.

17. RECOMMENDATION AND DECISION

[744] Based on our findings above, and the reasons supporting our discretion to do so:

- (a) under s.171(2) we have determined to exercise our discretion to recommend to WK that it confirm the NoR for the Designation in respect of the land and on the conditions included in **Schedule A**; and
- (b) under s.104B we have decided to exercise our discretion in favour of the RCA and grant the RC for the activities and on the conditions included in **Schedule B**.



K R M Littlejohn (for and on behalf of the Commissioners)

Chairperson

Dated 24 March 2021

Appendix 1 – Evidence summary

Appendix 2 – Summary of Management Plans

Schedule A – Designated Land and Designation Conditions

Schedule B – Resource Consents and Conditions

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A. EVIDENCE FROM WAKA KOTAHI

Paul Glucina

1. In his current role, Mr Glucina is responsible for the development of integrated transport solutions from the early business case phase, through to the route protection statutory approvals phase. In his evidence he addressed:
 - (a) WK's statutory role and strategic objectives;
 - (b) The regional context;
 - (c) The development of the Project and the need for the Project;
 - (d) WK's objectives for the Project and Project scope;
 - (e) The benefits the Project will bring to the people and the communities of Warkworth, Wellsford, Te Hana and Northland more generally;
 - (f) Engagement with WK's partners and institutional and corporate stakeholders; and
 - (g) Submissions lodged in relation to the Project.

Kelli Sullivan

2. Ms Sullivan's role with WK includes:
 - (a) Developing, managing and implementing the communications and engagement strategy for the Project;
 - (b) Representing Waka Kotahi in discussions with key stakeholders and partners about the Project; and
 - (c) Representing Waka Kotahi in discussions with directly affected landowners and the wider communities of Warkworth, Wellsford and Te Hana about the Project.
3. In her evidence, Ms Sullivan outlined the three main phases of the Project consultation and engagement process, namely:
 - Phase 1: Indicative Route.
 - Phase 2: Indicative Alignment within the proposed designation boundary.
 - Phase 3: Post-lodgement.
4. Ms Sullivan noted that consultation and engagement had been an integral part of the development of the Project and that Waka Kotahi had undertaken meaningful consultation with stakeholders, affected landowners, Treaty partners and the wider

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communities of Warkworth, Wellsford and Te Hana. In her view, feedback from interested and/or affected parties had played a role in influencing the proposed designation boundary as well as design elements of the Indicative Alignment. It was her view that consultation had assisted in the development of the Project to date.

Mark Edmonds

5. Mr Edmonds has been involved in the Ara Tūhono – Pūhoi to Wellsford project in various roles since 2010. He noted that this project has been developed in two stages: the first being the Pūhoi to Warkworth, and the second stage Warkworth to Wellsford (the Project). Mr Edmonds was very familiar with the area that the Project covers, having been involved in its development since the inception of the Scheme Assessment phase in March 2010 and the development of the Scheme Assessment Scoping report. During this period he was intricately involved in the assessment of alternatives for the Project.
6. Mr Edmonds covered the following matters in his evidence:
 - (a) The development of the Project, and the assessment of alternatives for the Project as the second stage of the wider Ara Tūhono - Pūhoi to Wellsford project;
 - (b) Response to those submissions relevant to the above and to his areas of knowledge and expertise; and
 - (c) Comments on the section 42A officer's report.
7. Mr Edmonds' evidence explained the work and processes adopted to assess both the strategic need for the Project and subsequently the assessment of alternative options for the route. He advised that:
 - (a) the assessment of the Project commenced in 2006 and since that time the Project had evolved from the early consideration of the strategic needs of the transport network between Auckland and Northland through to more focussed assessments of alternative routes and sites to address those needs;
 - (b) Work on alternatives assessment for the Project had spanned some 10 years. In that time, extensive information gathering, analysis and review has been undertaken in several stages. Each subsequent stage had further refined the work of the previous stage.
 - (c) The assessment of an appropriate range of alternatives followed a robust and transparent multi-criteria analysis (*MCA*) process. This assessment reflected both investment considerations (relevant to the Land Transport Management Act 2003 (*LTMA*)), environmental effects, effects on private property, and Part 2 Resource Management Act 1991 (*RMA*) considerations.
8. As a result, Mr Edmonds considered that the Indicative Alignment for the Project was the result of a robust process and appropriate to address the Project objectives.

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9. The initial phase of the assessment process for the Project was the Strategic Assessment phase, which Mr Edmonds considered adopted a comprehensive approach and considered other transport modes as well as road transport. It also included a review of the ability of State Highway 1 (*SH 1*) and State Highway 16 (*SH 16*) to fulfil the forecast transport demand to a 2050 time horizon.
10. The second phase was the Scheme Assessment Phase (undertaken between 2010 and 2016) which took the findings of the Strategic Assessment and developed a range of route options that would address the Project objectives. A three-stage process was adopted to develop, refine and assess the options, using a MCA process. These stages involved initial scoping work, consideration of a long-list, and consideration of a short-list of options.
11. Following recommendations of the Auckland to Whangarei Programme Business Case report, the northern extent of the Project, Mr Edmonds told us, was extended to a point north of Te Hana. This led to the development and assessment of a total of eight options in the northern portion of the Project's length.
12. The four short-list options for the southern portion, and the eight short-list options for the northern portion of the Project were then the subject of further assessment and analysis, culminating in the identification of the Indicative Route for the Project in 2016, which went out to public engagement in early 2017.
13. In the third (final) stage of the alternatives assessment process, the Indicative Route was refined and adjusted in light of and in response to feedback from the Phase 1 public engagement process, further design work undertaken, and additional information and advice provided by technical specialists. Additionally, aspects and elements of the Project with their own specific issues were the subject of focussed site-specific assessments in order to fully understand specific challenges and derive an optimum solution from a range of options. The outcomes of these focussed assessments were then integrated into the Project wide solution. This work culminated in the identification of the Indicative Alignment for the Project.
14. Overall, Mr Edmonds considered that the assessment of alternatives process had been extensive and multi-faceted. The selected options were checked and revalidated at each stage of the process and demonstrated to appropriately respond to the relevant project objectives at each stage of the Project's evolution.
15. As a consequence of the comprehensive assessment of alternatives, together with his knowledge and experience on previous roading infrastructure projects, Mr Edmonds had confidence that the Indicative Alignment was a tested, robust and appropriate response to Waka Kotahi's objectives for the Project.
16. Mr Edmonds noted that various submissions suggested additional alternatives that had not been considered. He responded to these suggested alternatives in his evidence and outlined the concerns he had with them. In conclusion, Mr Edmonds confirmed that his assessment and conclusions remain unchanged.

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Ian Clark

17. Mr Clark is a Director of Flow Transportation Specialists Limited, which was established in February 2005. Prior to October 2005 he was the Manager of the Transportation Planning Section at the Auckland office of Opus International Consultants Ltd. Mr Clark is also a member of the Chartered Institute of Logistics and Transport, the Chartered Institution of Highways and Transportation, the Australian Institute of Traffic Planning and Management, Engineering New Zealand (formerly the Institute of Professional Engineers of New Zealand), and was formerly a board member of the Trips Database Bureau and Chairman of the New Zealand (Transport) Modelling User Group.
18. Mr Clark has been responsible for carrying out or reviewing a wide range of transport projects and developments for transport agencies, councils and developers and has significant experience in developing, using and reviewing traffic and transport models. He is currently the reviewer of regional, sub regional or citywide models in Wellington, Tauranga/Western Bay of Plenty, Queenstown and Dunedin. Mr Clark has extensive experience in using the SATURN traffic modelling software, which has been used for the assessment of the Project.
19. Mr Clark was familiar with the transport network and traffic conditions within the area of the Project and had visited the site on numerous occasions, and observed traffic conditions at different times of the day and week. His evidence, presented for WK, considered what he described as the short term, minor, adverse traffic effects during the construction of the Project, and the longer term, positive traffic and transport effects, once the Project is operational.
20. With respect to construction effects, Mr Clark's evidence identified the nature and scale of construction related activity that could be expected as a result of the Project, along with estimates of the likely levels of Project-related construction traffic. He identified where these activities would potentially impact on the transport network based on a possible construction methodology, and outlined how the adverse effects could be managed and mitigated.
21. A number of potential impacts along SH 1 and on the local road network as a result of Project-related Temporary Traffic Management (*TTM*) measures, which will require detailed mitigation strategies at the construction planning stage, were also identified by Mr Clark. He advised that the effects and mitigation strategies he identified had been used to inform the traffic management methodologies to be employed for facilitating the successful construction of the Project.
22. Overall, Mr Clark considered that the effects of TTM measures and Project-related construction traffic could be effectively managed to meet safety requirements and minimise disruption through the implementation of a Construction Traffic Management Plan (*CTMP*) and Site Specific Traffic Management Plans (*SSTMPs*). His assessment therefore concluded that with the recommended measures in place, which are addressed via the proposed designation conditions, the effects of TTM and Project-related construction traffic on the existing network would be minimised as far as

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practicable. In his view, careful planning and communications with stakeholders (including but not limited to Road Controlling Authorities, the Pūhoi to Warkworth Private Public Partnership, network utility providers, emergency services, and the public) would be key to successfully delivering the Project with minimal impacts on road users.

23. In relation to the future operational effects of the Project, Mr Clark considered the role of the existing SH 1 corridor from Warkworth to Te Hana, and how the existing situation (without the Project) is likely to evolve over time, focussing on a 'Future Reference Case' of 2046. Based on this, he forecast that once operational the Project would have significant positive transport related effects, as follows:
- (a) The Project will increase corridor capacity between Warkworth and north of Te Hana, providing an alternative route to the existing SH 1. This will reduce congestion through Wellsford and Te Hana on a regular basis and will reduce the effects of planned events (such as road maintenance) and unplanned incidents (such as crashes).
 - (b) As a result of the increased capacity, the Project will improve travel time reliability for travel between Warkworth and north of Te Hana. The improved travel time reliability will enable individuals and businesses to plan their travel with a much greater degree of certainty and provide a much more resilient network that will be able to cater for some disruption without significant increases in travel time.
 - (c) The provision of a high quality four lane alignment will mean that the effects of incidents on travel between Warkworth and north of Te Hana (due to fatal or serious injury crashes and natural events such as slips and flooding) will be significantly reduced. The Project will also provide an alternative route to the existing SH 1 route, improving the resilience of the state highway network.
 - (d) The majority of vehicles travelling between Warkworth and north of Te Hana are predicted to transfer from the existing SH 1 route to the new, faster route provided by the Project. The new route will have an improved crash performance, with a significant reduction in fatal and serious injury crashes, when compared with the existing SH 1 route. In addition, the reduced traffic volume on the existing SH 1 will reduce crashes on that road.
 - (e) All of the benefits detailed above for general traffic in terms of reduced travel times, improved route quality and safety, resilience, and travel time reliability will also be experienced by Heavy Commercial Vehicles (*HCVs*). Freight vehicles in particular will benefit from the higher speed horizontal curves and reduced grades along the Project route, as this will allow them to maintain more consistent speeds.
 - (f) The sensitivity tests carried out as part of the Operational Transport Assessment show that the benefits of the Project are dependent upon the amount of traffic

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growth that occurs in the Project area, with higher growth resulting in more travel time savings and other benefits.

24. As a result of the above, it was Mr Clark's opinion that the Project will meet the objectives identified by WK and significantly improve the safety, reliability, and resilience of the route as compared to the current SH 1 route.

Graeme Ridley

25. Mr Ridley is a Director of Ridley Dunphy Environmental Limited (*RDE*), an environmental consultancy that specialises in environmental management of development sites and, in particular, construction water management including erosion and sediment control.

26. A particular focus of his career has been in the field of erosion and sediment control and he has over 30 years' experience in this area. Mr Ridley has a broad range of experience in erosion and sediment control, including detailed involvement for councils and the development community. He is responsible for the design and monitoring of flocculation chemical treatment systems for earthworks on a number of development sites throughout New Zealand

27. In his evidence for WK, Mr Dunphy highlighted various points in relation to the construction water management (*CWM*) proposed for the Project, including erosion and sediment control methods, that he considered to be key. These were as follows:

- (a) The statutory framework and policy guidance from the Council and Waka Kotahi require that the Project constructors be aware of, and implement, appropriate erosion and sediment controls (including the maintenance of these devices).

- (b) As explained by Dr Sharon De Luca, sediment modelling has been undertaken which determines a predicted sediment yield as a result of Project construction following the implementation of the erosion and sediment control measures proposed for the Project.

- (c) This modelling exercise had confirmed that the higher risk locations of the Project (in terms of sediment yield) are areas with steeper topography. Specific "higher risk" locations were identified through the modelling including:

- The Kourawhero Stream due to the steep slopes and the natural wetlands within the catchments;
- The Waiteraire Stream due to the steep slopes and the large area of proposed earthworks;
- The unnamed tributaries (H1 and H2) to the north of the Hōteo River viaduct, due to the risk of flooding from the Hōteo River; and
- Te Hana Creek particularly during a large rain event due to the amount of earthworks occurring over the catchment area.

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- (d) These locations would require careful management to ensure that the construction effects of the Project in terms of sediment yield were no more than minor.
- (e) A range of construction water management measures and methodologies were proposed for the Project through the proposed resource consent conditions. Best practice would be adopted throughout construction of the Project using the most stringent design requirements from the various erosion and sediment control guidelines currently available. The suite of CWM tools proposed for the Project had been developed through on-site experience, site condition knowledge and experience from other projects. These other projects were wide and varied and included P2Wk, with the recommended conditions for this Project reflecting the lessons learnt through the consenting and implementation phase of P2Wk. This had provided Mr Ridley with an increased confidence that the recommended conditions were best practice for this Project.
- (f) The proposed resource consent conditions specify maximum open areas at any one time for the various catchments in the Project area. The limits confirm the area in hectares within which construction works can occur. Mr Ridley considered that this would be a key erosion control methodology for the Project, by limiting open erosion prone areas and thereby reducing associated risk.
- (g) In addition, the proposed resource consent conditions required that any areas that were opened, and not subject to earthworks, must be stabilised within a 14-day maximum period. This would have the effect of risk reduction for those areas not subject to earthworks.
- (h) To enable the methodologies and CWM measures to achieve the construction water related environmental outcomes for the Project, a continuous improvement monitoring programme would be implemented (as required by the proposed resource consent conditions). This monitoring programme required qualitative and quantitative monitoring and analysis throughout the construction period and adaptive management of the CWM measures and methodologies utilised on site in response to the monitoring results.
- (i) The proposed resource consent conditions included the requirement to measure specific sediment yields resulting from the earthworks activity. The sediment yields measured would then be used as part of the adaptive management of erosion and sediment controls and also to determine where there is “Acute Event Sediment” and/or “Cumulative Sediment” that exceeds thresholds which have the potential to result in significant effects in the marine receiving environment (as determined by Dr De Luca’s Assessment and explained in her evidence).
- (j) Where the sediment yields measured show that the thresholds had been exceeded, the proposed resource consent conditions required a sediment reduction activity package to be developed and implemented to offset the resulting sediment loads. This process is outlined within Dr De Luca’s evidence and was considered by Mr Ridley to be an innovative and effective methodology

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to address sediment effects. Mr Ridley was not aware of this methodology been utilised on any other large project.

- (k) The proposed resource consent conditions also required WK to prepare and submit an Erosion and Sediment Control Plan (*ESCP*) and Construction Erosion and Sediment Control Plans (*CESCPs*) at a later date, prior to any earthworks activity taking place. These plans would outline specific erosion and sediment control measures and the risk management approach. This process would allow for flexibility and contractor innovation while ensuring that the objectives and design criteria as specified in the proposed resource consent conditions were also achieved.
- 28. Overall, based on the construction methodologies, CWM measures and sediment yields proposed for the Project and required under the proposed resource consent conditions, Mr Dunphy assessed the effects of the overall construction related water management as minor.
- 29. Mr Dunphy had also reviewed the submissions lodged on the Project relevant to his area of expertise. While some amendments to the wording of the proposed resource consent conditions have been made on his recommendation in response to points raised in submissions (and also further consideration of the conditions through his evidence preparation), nothing raised in those submissions caused Mr Dunphy to depart from the conclusions reached in his assessment.

Dr Tim Fisher

- 30. Dr Fisher holds the degrees of Bachelor of Civil Engineer (1st Class Honours) and Master of Civil Engineering (Distinction) from the University of Canterbury conferred in 1994 and 1995, and a PhD in Civil Engineering from the University of British Columbia, Canada conferred in 2002, specialising in environmental hydraulics. He has a Diploma in Managerial Excellence in Engineering Construction and is a Fellow of Engineering New Zealand and a Chartered Professional Engineer. Dr Fisher has 25 years of experience in engineering research and consulting as a water engineer, with expertise in stormwater and river engineering. Recent similar projects that he has been involved with include the Northern Gateway Toll Road (*NGTR*) and Pūhoi to Warkworth sections of the northern state highway system. As a result, Dr Fisher considers that he understands the design and construction of stormwater systems in similar environments to the Project, and can therefore apply many of his past learnings to this Project.
- 31. At WK's request, Dr Fisher has developed an indicative operational water management system for the Project. The system integrates the stormwater collection networks, treatment systems, culverts, and watercourse diversions, to enable potential adverse effects relating to stormwater discharges from the operational phase of the Project to be minimised. The operational phase of the Project starts when construction is complete, and the road is open to public traffic, i.e. it is after the construction phase.

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32. The Indicative Alignment has taken into consideration existing floodplains, and has been developed with full consideration of stormwater management throughout the life of the Project. The indicative operational water management system developed by Dr Fisher provided the basis for his assessment of effects and for the development of appropriate consent conditions to enable the operational water effects of the Project to be managed and mitigated.
33. The key features of the indicative operational water management system were:
- Cut-off drains to separate “clean” water from the Project.
 - The stormwater reticulation systems collect the stormwater from the road and adjacent areas and convey these to the stormwater treatment devices.
 - Sediment traps in drains at the base of rock cut faces for pre-treatment.
 - Constructed stormwater wetlands as the primary stormwater treatment device for stormwater from the road and adjacent areas. The Indicative Alignment includes 34 stormwater treatment wetlands for the Project’s impervious surfaces totalling approximately 198 ha.
 - Conveyance of water runoff from local roads will be via vegetated or rock lined swales.
 - Tunnel deluge and washdown capture systems.
 - Stream diversions are required where it is necessary to realign a natural stream channel including to connect an existing stream to a new culvert.
 - Wetland and culvert outlets will incorporate energy dissipation structures and/or erosion protection measures to minimise stream bed scour and bank erosion in the receiving waterway.
 - 85 culverts have been designed for the Indicative Alignment, which includes stream crossings under the road and land drains.
 - Five bridges and viaducts are associated with river crossings.
34. Dr Fisher has assessed the indicative operational water management system through a robust evaluation of the Project proposals in line with WK’s and Auckland Council’s requirements. He considered that the indicative operational water management system had applied the Best Practicable Option (*BPO*) and an integrated stormwater management response to comply with the RMA and AUP.
35. Dr Fisher assessed the Project’s effects on the environment against criteria developed from the RMA and AUP, which he broadly described as:
- (a) Stormwater quality including human impacts;
 - (b) Stormwater quantity; and

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(c) Flooding.

36. The water quality and human impact effects would be mitigated by vegetated stormwater treatment systems that include swales and constructed wetlands throughout the Project, and sediment traps at the base of rock cuts. Overall, with the proposed management approaches and mitigations in place, Dr Fisher considered that the Project's potential effects on water quality, including human health impacts, would be no more than minor.
37. The indicative operational water management system would avoid most hydrological effects in Dr Fisher's opinion. The Indicative Alignment results in small increases in imperviousness and changes in flow due to diversions and routing. Increased stormwater flow (water quantity) would be mitigated through extended detention and attenuation in the stormwater treatment wetlands and through design criteria for stream diversions. Dr Fisher recommended that diversions of larger streams be avoided where practicable, but that if diversions are unable to be avoided, then he recommended that an assessment be undertaken, and mitigation provided as appropriate. In his view, the predicted changes associated with diversions on hydrology would be localised and beyond the localised sub-catchment scale, the predicted changes would be negligible. Dr Fisher considered that overall, the Project's potential effects on hydrology and streams would be no more than minor.
38. Dr Fisher also advised that the indicative operational water management system had been designed to avoid and reduce the effects on natural wetlands. However, the hydrological effect on natural wetlands from the indicative operational water management system has been assessed as moderate, and will be sensitive to the final design. Therefore, he recommended further design refinement, during detailed design, to minimise and mitigate these effects. This requirement was made clear in his opinion through resource consent Condition 55.
39. In his evidence, Dr Fisher advised that the flooding assessment undertaken for the Indicative Alignment was based upon an assessment of changes to flooding associated with earthworks and structures within the floodplain. The focus of the assessment was on areas of higher risk in the Mahurangi, Kourawhero and Hōteō floodplains. Overall, he considered the changes to flooding from the Project to be mostly negligible. Where the changes are not negligible, the increase in flooding could be mitigated in his view by standard engineering methods during the design phase and controlled by the recommended resource consent conditions.
40. Dr Fisher had recommended that water management and mitigation approaches be written into consent conditions, to ensure that the effects of the Project align with the outcomes as they have been assessed. Overall, he considered that the residual effects from the indicative operational water management system proposed for the Project would be generally minor or less.
41. Dr Fisher supported WK's proposed consent conditions (as attached to Ms Sinclair's evidence) covering stormwater discharges, works in watercourses, including culverts, bridges and fish passage, and flooding.

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42. Dr Fisher noted that he had reviewed all relevant submissions and considered the issues raised in Auckland Council's s42A Reports and that his assessment and conclusions in relation to operational water management remained unchanged.

Dr Jacqueline Bell and Dr Sharon De Luca

43. The primary statement of evidence for WK in relation to marine ecological effects was prepared by Dr De Luca, but presented by Dr Bell due to Dr De Luca being unable to attend the hearing. Both were involved in the preparation of the Marine Ecology and Coastal Avifauna Report prepared for WK for inclusion in the project AEE. Our summary below addresses firstly the evidence prepared by Dr De Luca (which was adopted by Dr Bell) and then secondly some comments from Dr Bell on issues raised by Council officers.
44. Dr De Luca holds the qualifications of Bachelor of Science (Zoology) and Doctor of Philosophy (Environmental and Marine Science) both from the University of Auckland. She is a Partner and Senior Ecologist with Boffa Miskell Limited specialising in marine ecology, working primarily in the Auckland, Wellington and Bay of Plenty regions.
45. Dr De Luca is also a registered member of The Royal Society of New Zealand, New Zealand Coastal Society and the Environment Institute of Australia and New Zealand and has practised as a marine scientist for more than 19 years. She is a Certified Environmental Practitioner with the Environment Institute of Australia and New Zealand (Ecology Specialist) and bound by the Institute's code of ethics.
46. Dr De Luca has considerable relevant experience in marine ecological effects assessment and has been involved in a variety of projects including the East West Link (2017), RV Rena (2017), North Shore Busway (2007), Long Bay Structure Plan Change (2007-2008), Waterview Connection (2009-2011), Transmission Gully (2009-ongoing), and MacKays to Peka Peka (2012-2013).
47. Dr De Luca confirmed that she had not identified any direct effects of the Project on marine ecological values, given that it would not be located in the coastal marine area. Rather, the potential effects of the Project on marine ecological values that she had identified were indirect. These potential effects would arise from:
- (a) the discharge of suspended sediment from treated runoff during open earthworks as part of the construction works and its entry into marine receiving waters;
 - (b) the deposition of that suspended sediment in the marine environment during acute events and cumulatively; and
 - (c) the discharge of treated stormwater during the operational phase and its entry into marine receiving waters.
48. The Marine Ecology Assessment that Dr De Luca and Dr Bell prepared was based on existing data, the harbour modelling carried out in the Mahurangi Harbour for the Pūhoi to Warkworth Project (*P2Wk*), field surveys in the Kaipara Harbour specific for this

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Project, Kaipara Harbour modelling specifically carried out for discharges from this Project and contaminant load modelling for operational phase stormwater discharges.

49. The existing ecological values for both harbours were assessed as moderate in the upper reaches and high in the middle to lower reaches. The upper reaches of both harbours (while classified by the Auckland Unitary Plan (*AUP*) as Significant Ecological Areas (*SEA*)), are low energy/depositional areas, with muddy sediments, sediment contaminants levels generally below effects thresholds and a dominance of tolerant benthic organisms.
50. **Suspended Sediment Effects:** Dr De Luca's evidence was that total suspended sediment (*TSS*) at certain concentrations and for sustained periods can cause effects by clogging gill and filter feeding structures and reducing visibility of prey. The effect of sustained elevated *TSS* included reduced ability of organisms to feed, resulting in decreased fitness of some organisms as many would cease feeding and wait out the adverse environmental conditions.
51. The concentration of *TSS* and the area and depth of deposited sediment from the Project under a 10-year and 50-year rainfall event (under various wind conditions) had been modelled and mapped. For the Mahurangi Harbour catchment, the modelling and data that was collected for the P2Wk assessments, using a 5-year construction programme scenario, was used. For the Kaipara Harbour catchment, a new model was developed using a 7-year construction programme scenario (assumed to be 1 year enabling works and 6 years bulk earthworks).
52. The Project assessments showed that the likelihood of a 10-year average return interval (*ARI* – i.e. return period) event occurring during bulk earthworks is estimated to be 45%. For a 50-year *ARI*, the probability of that event occurring is 11%.
53. The modelling predicted a reduction in the *TSS* concentration in marine receiving water to concentrations significantly below thresholds that will impact the most sensitive taxa within approximately three days in all modelled rainfall event scenarios in both the Mahurangi and Kaipara Harbours. An exception to this was observed, we were told, in a small area on the Kakaraia Flats (within the Kaipara Harbour), where suspended sediment concentration was modelled to exceed 80 g/m³ for more than 72 hours under a 50-year *ARI* event.
54. Overall, however, Dr De Luca concluded that the level of effect of suspended sediments from construction of the Project on benthic invertebrates, and marine/estuarine habitat values would be low to very low and temporary.
55. **Deposited sediment effects – acute events:** Dr De Luca advised that sediment deposition above certain thresholds and for sustained periods can cause adverse effects on marine ecology because the sediment smothers these environments causing mortality. The biological thresholds over which adverse effects can occur for muddy benthic habitats is 5-10 mm for sensitive taxa and >10 mm for potential community level effects.

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56. The sediment model predicted that three days following a 10-year ARI rainfall event, the deposition of sediment in the Mahurangi Harbour is likely to result in relatively small increases at or above biological thresholds. Dr De Luca considered the load of sediment likely to be discharged in the 10-year ARI event in the Mahurangi Harbour would have a low level of effect based on the area of benthic habitat receiving deeper than 3 mm of sediment which can smother benthic invertebrates.
57. In the 50-year ARI rainfall event in the Mahurangi Harbour, adverse effects on marine ecological values of a moderate level of effect may occur in the modelled 5-year construction scenario. Consequently, in Dr De Luca's view this "moderate effect" required some form of offset or mitigation.
58. As rainfall events between a 10-year and 50-year ARI had not been modelled in the Mahurangi catchment, the threshold rainfall event size where a moderate level of adverse effects may begin to occur could be less than the 50-year event. Therefore, Dr De Luca have adopted an event size approximately midway between the 10-year and 50-year events in the Mahurangi catchment as the trigger for requiring mitigation for effects on marine ecological values.
59. In the Kaipara Harbour, adjacent to the Hōteō River mouth, the modelling indicated that a 10-year ARI event during construction of the Project would be likely to result in significant additional areas of sedimentation above the biological thresholds in combination with certain wind scenarios. The area affected was small relative to the area of sedimentation that would occur without the Project (the 'baseline' sediment), but overall, Dr De Luca assessed the 10-year ARI event as potentially having a moderate magnitude of effect and moderate level of effect (given the moderate ecological values present). She advised us that the effects are at the lower end of the moderate scale in the 10-year ARI in the Hōteō Inlet due to the temporary nature of the effect and the large area of mudflat habitat in the Inlet. But, nonetheless, that "moderate level of effect" also required addressing.
60. In the 50-year ARI event in the Hōteō River catchment, the area of marine environment receiving 5-10 mm and >10 mm increases by 13-27 ha over the baseline deposition area. Dr De Luca considered the 50-year ARI rainfall event in the Hōteō Inlet could have a moderate magnitude of effect and moderate level of effect on marine ecological values. However, she concluded that the 10-year event in the Hōteō River catchment should be the lower threshold for effects that require mitigating.
61. **Cumulative sedimentation effects over construction period:** In order to assess the cumulative effects of the Project on sedimentation within the harbours over the entire construction period, construction sediment loads were estimated within both harbours based on the wettest seven consecutive years' rainfall record taken from the last 40 years (i.e. to represent a worst case scenario based on the actual recorded recent rainfall records). This amount of rainfall was a conservative scenario in Dr De Luca's opinion as there is a low probability of repeating the seven wettest years during the seven years of construction.

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62. Within the Mahurangi Harbour, based on modelling carried out for P2Wk under a 5-year construction period, the sediment load discharged was predicted to increase by 793 t (0.9% increase above baseline). Within the Kaipara Harbour, based on modelling carried out for the current Project, over the 7-year construction period, sediment load delivered to the Hōteio Inlet was predicted to increase by 1,916 t (1% increase above baseline). Sediment load delivered to the Oruawharo Inlet was predicted to increase by 139 t (0.2% increase above baseline).
63. The discharge of sediment over the Project construction period would contribute to the accumulation of sediment in the upper reaches of both harbours. This sediment thus adds in a very small way to the reduction in lifespan (geologic timescale) of the upper harbour areas through sedimentation and infilling. The cumulative percentage sediment modelled in each waterway during construction (all less than 1% of the baseline) were, in Dr De Luca's view, unlikely to have a greater than negligible to low level of effect on marine ecological values.
64. Dr De Luca went on to estimate that the threshold for when the Project's cumulative effects could become ecologically significant as around 5% greater than the baseline. This estimate was based on her understanding of the receiving environment and the effect that quantum of sediment could be predicted to have in that environment. She accepted that it was very difficult to determine exactly what quantum of sediment could cause adverse cumulative effects on marine organisms/habitats as a result of the entire construction period. However, in her opinion 5% of the baseline sediment was quite a large amount and, if sediment from Project construction reached that quantum, it could result in adverse cumulative effects on the harbours.
65. **Contaminant Load:** Dr De Luca confirmed Dr Fisher's evidence that the stormwater runoff during the operational phase of the Project will be treated prior to discharge. The contaminant load model (*CLM*) indicated that there were no significant increases in stormwater contaminants within operational phase discharges to the Mahurangi and Kaipara Harbours. Therefore, she considered potential adverse effects on marine ecological values to be negligible.
66. **Monitoring and mitigation:** The primary mitigations for managing sediment generation for the Project were set out in the Construction Water Assessment and related conditions. Dr De Luca noted that these measures prioritise managing and minimising sediment loss from the Project through devices and practices on the construction site. However, despite employing best practice erosion and sediment control measures, she accepted that some sediment may escape and be deposited in the marine receiving environment in particular conditions. As noted earlier in her evidence, this sediment deposition has the potential to create effects on marine ecology, particularly during and after certain acute rainfall events, which needs to be addressed.
67. Dr De Luca told us that for some other projects (including P2Wk), sediment deposition effects were managed by monitoring the marine receiving environment after acute rainfall events. This monitoring determined if effects had occurred which could be

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attributable to the relevant project's sediment. Mitigation could then be proportionately designed based on the monitored effect.

68. However, in Dr DeLuca's view, this Project presents challenges in terms of applying typical post-acute rainfall events event monitoring to assess effects on marine ecological values. This was due to the characteristics of the marine receiving environments being low energy, depositional, muddy habitats with high baseline sediment loads. These characteristics made it very difficult to distinguish freshly deposited fine grain terrigenous sediment from the existing muddy sediment that has built up over time, as well as distinguishing between sediment derived from the Project and other runoff in the wider contributing catchments. For large rainfall events, during construction, runoff from the Project will mix with sediment generated through natural erosion from land and stream banks, potentially from other open earthworks sites, vegetation removal areas, grazing of steep land and forestry felling. Therefore, it would be ineffective, and potentially misleading in her view to attempt to separate the effects of Project related sediment discharge in the harbour receiving environments.
69. To address this practicality, Dr De Luca recommended to WK that it adopt her proposal, which is a conservative approach to monitoring and mitigation, whereby actual sediment discharged from the Project during construction is measured at source with representative erosion and sediment control devices. The sediment load measurements would then inform whether mitigation (to reduce sediment loads) is required. The measurements could be applied to both cumulative sedimentation effects and sediment load from larger acute rainfall events (being the interpolated sediment load for >30-year ARI in the Mahurangi Harbour and modelled sediment load for >10-year ARI in the Hōteao catchment).
70. At the end of earthworks, the monitoring could then be used to determine if the total cumulative load of Project sediment discharged to the harbours exceeded 5% of the modelled baseline in each harbour/inlet. It would also be used to establish whether the acute event sediment loads were triggered (greater than a 10-year ARI load in the Hōteao catchment or greater than the sediment load from a 30-year ARI event in the Mahurangi catchment). Dr De Luca confirmed that WK had accepted her recommendations. She advised that Section 5.4.1 of the Marine Ecology and Coastal Avifauna Report sets out these cumulative and acute triggers which in turn were represented in the proposed resource consent conditions attached to Ms Karyn Sinclair's evidence (Condition 32).
71. Dr De Luca noted that should a quantum of sediment be discharged that exceeds the thresholds then the next step would be for WK develop a range of sediment reduction measures, either during or at the completion of, construction of the Project. The effect of the measures could be modelled and programmed to balance out the required sediment loads within a 25-year period. The sediment reduction measures could include retiring steep land, retiring production forestry areas, or planting riparian margins. After the 25-year period, the intent is that measured Project sediment above the thresholds would be fully offset. If the sediment reduction measures remain in place after that time, they will have an enduring ecological benefit in the longer term. This approach is provided for in proposed Conditions 31, 32 and 37-42.

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72. Dr Bell holds the degrees of a Bachelor of Marine Science and a Doctor of Philosophy (Marine Ecology). She has practiced as a marine scientist for more than 12 years and is a member of the New Zealand Coastal Society and the New Zealand Marine Sciences Society. Dr Bell is a Certified Environmental Practitioner with the Environment Institute of Australia and New Zealand and bound by the Institute's code of ethics.
73. Dr Bell noted that both Dr Sivaguru (Council's reporting technical specialist) and DOC had queried the rationale for the use of the >5% threshold as a trigger for the construction sediment discharge offsetting proposed by Dr De Luca. She identified the reasons behind the rationale for this threshold as follows:
- (a) the likelihood of Project sediment reaching the 5% of baseline sedimentation mitigation threshold is low;
 - (b) although the threshold of a 5% change in sediment due to the Project is technically arbitrary, it is nonetheless considered appropriate on the basis that a >5% change could result in at least localised significant effects and that a total sediment discharge >5% of the baseline discharge could cause adverse effects on marine ecological values and shorten the lifespan of the harbour;
 - (c) a lower threshold or no net increase in sediment discharge requirement would be inappropriate as Dr De Luca's assessment of a 1% increase is that it would cause a negligible effect on cumulative sedimentation of the harbours.
74. On this last reason, Dr Bell accepted that it is difficult to determine at what percentage increase (above 1% of background) more than negligible adverse effects could occur on marine ecology values. Clearly, no net increase in sediment and no adverse effects on marine ecological values would be the ultimate outcome, but in her view the test ought to be whether or not the resultant effects would have moderate or higher levels of adverse effect on marine ecological values that require mitigation. She told us that effect levels less than "moderate" do not normally require mitigation under the EIANZ ecological impact guidelines. In her and Dr De Luca's opinions, a percentage increase above baseline of approximately >5% could result in adverse effects that are more than "moderate" and therefore require mitigation.

Dr Ian Boothroyd

75. Dr Boothroyd holds the qualifications of BSc (Hons) Zoology (University of Manchester, UK), MSc Applied Hydrobiology (University of Wales, UK), and DPhil Freshwater Ecology (University of Waikato, NZ). He has over 30 years' experience of assessing ecological and resource management matters in New Zealand and overseas with areas of expertise in ecology, the assessment of impacts of developments on aquatic and terrestrial resources, assessments of the value of and significance of freshwater and terrestrial environments, and the restoration and mitigation of any environmental effects.
76. Dr Boothroyd's evidence summarised the ecological environment of the Project, explained the basis of the ecological values relied on for the assessment and outlined

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the assessment of the effects of the Project on terrestrial and freshwater ecological values. It also identified the mitigation and offsetting measures proposed by Dr Boothroyd.

77. **Ecological values in the existing environment:** The terrestrial and freshwater ecological values vary from Low to Very High throughout the proposed designation boundary. High indigenous fauna values are present within the Dome Valley Forest section as it contains populations of several threatened and at-risk species.
78. The ecological values of the streams vary from Low to High, with a range of habitats and indigenous fauna (koura and fish species) present.
79. The Kourawhero wetlands have ecological value through the presence of specific vegetation, potential habitat for avifauna, and their proximity together as a wetland mosaic.
80. **Ecological values used in assessment:** The plantation forest within the Dome Valley Forest section is nearing maturity, and Rayonier Matariki Forests (*RM Forests*), the owner of the Forest, has a plan that anticipates felling and harvesting of the forest prior to the commencement of the construction of the Project. The Ecology Assessment was carried out assuming a fully harvested forest to reflect the environment at construction commencement. The ecological values of this section would therefore be substantially different to those recorded today.
81. **Effects on ecological values:** According to Dr Boothroyd, the Project would have the following effects on ecological values:
 - (a) The Indicative Alignment directly affects (through cuts, embankments and stream diversions) three of the five wetlands within the upper Kourawhero Stream catchment (that collectively make up the 'wetland mosaic') in an area north of Kaipara Flats Road and before the indicative tunnel location. The wetlands have ecological value through the presence of specific vegetation, potential habitat for avifauna, and their proximity together as a wetland mosaic.
 - (b) The Indicative Alignment affects two High value wetland features in an area close to the Hōteu River and near Wayby Valley Road.
 - (c) The Indicative Alignment will impact 14 hectares of native vegetation, out of approximately 130 hectares, across the proposed designation boundary. Of this:
 - 3.4 hectares of High or Very High value vegetation (excluding wetlands) is directly impacted by clearance;
 - 7 hectares of Moderate value vegetation is impacted; and
 - 0.64 hectares of High or Very High value wetlands is directly impacted.

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- (d) The potential effects on indigenous fauna are mostly contained within the Dome Valley Forest section, which contains populations of several threatened and at-risk species.
 - (e) As noted above, though, the ecological values of the Dome Valley Forest section will be different to those recorded today as a result of forest harvesting.
 - (f) Approximately 27 km of length of intermittent and permanent streams will be directly affected by the Indicative Alignment within the proposed designation boundary (out of a total of approximately 146 km of stream length, within the proposed designation boundary). The ecological values of the streams vary from Low to High, with a range of habitats and indigenous fauna (koura and fish species) present. About 18 km of stream diversion channels are also planned which, when designed and implemented, will retain and in part replace the stream losses, especially in lowland areas.
82. **Management of Effects:** Dr Boothroyd advised that the Project team established a set of 'mitigation principles' to inform the management of effects of the Project. To reflect these principles, Dr Boothroyd developed a landscape-scale mitigation solution to recognise the effects of a project that is itself at a landscape scale (i.e., linear infrastructure some 26 km in length, along a route that traverses predominantly production forest or pastoral land use, crossing multiple ecosystem types of varying ecological values and function, with a varying range of effects). This landscape-scale mitigation solution formed part of an 'integrated mitigation package' for the Project, particularly integrating landscape planting and stormwater management.
83. Dr Boothroyd advised that he used the 'effects management hierarchy' as the framework for his assessment, which is based on ecological best practice and the direction of the AUP, and the National Policy Statement for Freshwater Management. The effects management hierarchy contains a set of steps that aim to first avoid, then remedy, and then mitigate impacts of development on biodiversity. Biodiversity offsets and/or compensation can be used where significant residual effects remain.
84. Based on the effects management hierarchy Dr Boothroyd proposed several measures to avoid, remedy and mitigate adverse effects of the Project on ecological values. Where residual adverse effects remained, he recommended biodiversity offsets. He clarified that the overall package of effects management is referred to as a 'mitigation package' in the Application documents, even though it includes substantial offset measures. In that regard, Dr Boothroyd noted that the AUP, including Appendix 8 (Biodiversity offsetting), refers to the use of a biodiversity offset for significant residual effects. However, for the proposed effects management for the Project, Dr Boothroyd did not distinguish significant residual effects from non-significant residual effects.
85. Key examples of the application of the effects management hierarchy approach utilised by Dr Boothroyd include:

Avoid – High-level: A high-level consideration of a variety of different routes for the Pūhoi to Wellsford project (*P2W*) was carried out in 2009, and reported in the Pūhoi to

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Wellsford Scoping Report⁴. The investigations in 2009 led to a long-list of alignment options. A short-list was then selected for further investigation, development and evaluation. Additional options were identified in 2016. Several routes were discounted through this high-level exercise to avoid significant ecological areas, particularly the Dome Forest Ecological Area (also an Outstanding Natural Landscape) east of the current SH 1, and also coastal areas west of Te Hana.

Avoid – Fine tuning: Once a preferred route was selected, WK undertook further assessment of finer detail ecological effects (amongst other expert discipline requirements) to determine the proposed designation boundary and alignment design restrictions through Multiple Criteria Analysis, and through providing input into the design of structures. Specific outcomes from that process included:

- (a) avoiding much of the Mahurangi River (Left Branch) through the location of the proposed designation boundary. Where the river is within the proposed designation boundary, avoiding riparian margins of the Significant Ecological Area (SEA) WN_T_Mahu_01 (SEA_T_2287) by moving the alignment westwards and prohibiting piers in the river bed;
- (b) avoiding the interior of an SEA (HN_W_Hoteo_02 (SEA_T_685) through moving the designation westwards, narrowing the designation in this location, and requiring a bridge crossing and avoiding piers in the river bed and riparian zones;
- (c) avoiding impacts on the Waitaraire Stream and Maeneene Stream, by also requiring bridge crossings and avoiding piers in these stream beds;
- (d) avoiding significant effects on fauna and avifauna from harm or mortality through adopting best practice capture and relocation protocols;
- (e) avoiding potentially significant effects on the Kourawhero Stream and related wetland complex through requiring a bridge structure, minimising hydrological changes, and imposing other design requirements in this area;
- (f) avoiding impacts on fish migration through fish passage design requirements on temporary and permanent culverts;
- (g) avoiding the potential spread of biological threats, such as kauri dieback disease, through management protocols; and
- (h) requiring an ‘avoid where practicable’ approach to various ecological sites we identified as having high ecological values.

Remedy: A habitat and flyway mitigation area was identified to remedy the loss of dispersal routes for highly mobile species, and remedy the loss of bat habitat. Planting of indigenous vegetation would be used to remedy and improve a loss of ecological connectivity between the Mahurangi and Hōteu River catchments.

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Mitigate: Imposing, via conditions, seasonal constraints to vegetation clearance for protection of indigenous fauna and requiring the salvage and relocation of indigenous fauna.

86. Dr Boothroyd considered that the proposed conditions provided for all these outcomes.
87. Despite this, Dr Boothroyd advised that there would still be residual adverse effects from the loss of indigenous vegetation, loss of habitat for fauna and loss of stream ecological values. These residual effects were those that could not be avoided, remedied or mitigated due to the nature and scale of the Project. Dr Boothroyd noted that not all the residual effects would qualify as significant residual effects.

Loss of indigenous vegetation

88. For the residual effects from the loss of indigenous vegetation, Dr Boothroyd proposed a biodiversity offset. An important feature of the proposed biodiversity offset was to establish large areas of revegetation that provided a strong landscape framework and habitat creation around key areas that contain existing High value features or provide connections between features. These areas are:

- Mahurangi River (Left Branch) floodplains (Condition Maps 7 and 8);
- Upper Kourawhero Stream and Wetlands (Condition Maps 7 and 8);
- Hōteō River floodplains (Condition Maps 9 and 10); and
- Te Hana lowlands (Conditions Maps 11 and 12).

89. Dr Boothroyd's proposed biodiversity offset was prepared at the following ratios (of loss to gain):

- 6:1 for High and Very High value indigenous vegetation and wetlands;6 and
- 3:1 for Very Low to Moderate value indigenous vegetation and wetlands.

90. Dr Boothroyd applied the ratios as a 'biodiversity transaction' ratio (often referred to as an 'environmental compensation ratio' or ECR) as the means of accounting for loss and to provide for the biodiversity offset. He considered the use of ratios to be an acceptable means of transacting the loss to gain in applying a biodiversity offset. The use of ratios allows an unambiguous outcome that can be directly compared to the status quo, and is clear and transparent with respect to the assumptions and rationale used.

Loss of habitat

91. To address the loss of habitat for threatened indigenous species Dr Boothroyd proposed:

- Avoidance, salvage and relocation of frogs, land snails and lizards if present;

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- Salvage and relocation of indigenous fish species;
- Avoidance of vegetation clearance during breeding and roosting seasons; and
- The development of comprehensive management plans for the management of species to mitigate effects.

Loss of stream ecological value and function

92. Approximately 27 km of length of intermittent and permanent streams would be directly affected by the Indicative Alignment within the proposed designation boundary (out of a total of approximately 146 km of stream length within the proposed designation boundary). Using standard Stream Ecological Valuation protocols, Dr Boothroyd estimated that this amounts to some 70 km of stream length to offset with riparian planting and stock fencing. This offset would be designed and achieved through the Streamworks Ecological Compensation Plan, in proposed resource consent Condition 77.

Net gain in ecological values

93. In addition to the components of effects management outlined above, he has also proposed some additional features that provide a net gain to ecological values:
- Retention and rehabilitation of a flyway and roost and breeding area for highly mobile fauna for bats and birds; and
 - Provision of ‘fragmentation’ planting that connects ecological features, and provides an ecological corridor between the Mahurangi River and the Hōteu River catchments.
94. **Conclusion on effects and proposed effects management:** In summary, Dr Boothroyd considered that the proposed effects management approach for the Project followed best practice in terms of the effects management hierarchy. The proposed effects management and related proposed conditions would ensure, in his opinion, there is no net loss, and in some cases an overall net gain, in ecological values. This would be achieved by:
- (a) Avoiding significant ecological features and significant ecological effects;
 - (b) Salvaging and relocating indigenous fauna and providing enhanced habitat and wider ecological connectivity;
 - (c) Offsetting the loss of residual effects through planting and stream and habitat restoration at appropriate ratios that reflect the value of the relevant ecology; and
 - (d) Provision of a habitat and flyway, and the provision of ‘fragmentation’ planting to create an ecological corridor between catchments.

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95. Dr Boothroyd clarified that none of the components of the environmental outcomes are considered compensation for loss of ecological values.
96. **Key responses to submitter concerns:** Dr Boothroyd noted that a number of submitters were concerned that the Project's ecological effects were being left to be managed at a later date through a series of management plans and that this resulted in uncertainty of outcome and a lack of specificity.
97. Dr Boothroyd does not share those concerns. The assessment undertaken was based on several years of work from a team of specialists using good practice field and desktop study methods. It was a robust assessment, sufficient to inform a decision on granting resource consents, and he was confident that it did not contain material gaps. He emphasised that the investigating team did not visit every ecological feature or site, as access was unavailable to several sites. However, a robust alternative approach in those circumstances was used to gather information about these sites.
98. Furthermore, the Project conditions proposed by WK adopted standard management plan techniques for a project of this scale where the detailed design and project implementation is still a number of years away. In his view, the conditions specifically provide for the management of the effects of the Project. Importantly, surveys closer to the commencement of construction would be used to confirm ecological values and ensure the management of effects from the Project met the identified outcomes. Dr Boothroyd noted that the quantum of mitigation may change from the current assessment based on the final design and the timing of the road's construction.
99. Despite that though, Dr Boothroyd maintained that the quantum would be directly proportionate to the actual effects of the Project, because the conditions are based on outcomes rather than 'locking in' an accounting process at this time. He considered that such an approach would be far less desirable as it might not be proportionate to the effects and therefore not achieve a desired outcome.
100. In Dr Boothroyd's opinion, he had adequately addressed the concerns raised in submissions in his and by reference to the original Ecology Assessment and revised conditions. He did not propose any new effects management or offsets in response to the matters raised. He also noted that he had supported aspects of the Council's s42A report recommendations in terms of adding further detail to the ecology management conditions, where he considered that these would improve the outcomes intended.
101. In his evidence Dr Boothroyd also responded to the sections of the Council's section 42A Report relevant to his areas of ecological expertise and in particular the specialist technical memos of Mr Mark Lowe and Mr Andrew Rossaak. Dr Boothroyd's response included modifications to the proposed conditions intended to alleviate many of the concerns raised by Mr Lowe and Mr Rossaak.

Bruce Clarke

102. Mr Clarke is employed by Jacobs as a Senior Principal Environmental Consultant. He holds a Bachelor of Science Degree, majoring in biochemistry from Victoria University, Wellington (1981), a Diploma for Public Health Inspectors from the Royal Society of

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Health (1984), and a Diploma in Safety Management (with Distinction) from Massey University (1984). He is a registered Environmental Auditor with the Institute of Environmental Management and Assessment (UK).

103. Mr Clarke has over 30 years' experience in the assessment of environmental effects from industrial and trade premises, power developments, roading developments, and waste and wastewater treatment plants with special reference to air quality. He has been involved with air pollution and air quality, and general environmental quality, since 1984 as a Health Protection Officer for the New Zealand Department of Health assessing Part B licences under the Clean Air Act 1972 and in nuisance investigations including odour under the Health Act 1956.
104. Mr Clarke's evidence considered the short term air quality effects during the construction of the Project, and the longer term air quality effects, once the Project is operational.
105. **Construction effects:** Mr Clarke's assessment of potential air quality effects arising from the construction phase of the Project, in particular dust, was undertaken with reference to the Ministry for the Environment Good Practice Guide for Assessing and Managing Dust, 2016. The assessment was based on his professional experience of the potential for adverse effects from dust, with good practice dust mitigation measures in place, and active management during the construction phase.
106. Mr Clarke's assessment determined that the construction phase of the Project has the potential to generate dust, particularly from earthworks, cut and fill operations, blasting activities, soil disposal sites, borrow sites, rock crushing utilising a mobile crushing plant, trackout along potential access roads, and from construction vehicles travelling along unsealed access roads. The assessment of the potential effects of construction activities on air quality was prepared on the assumption that any construction activity, or associated area, could be located anywhere within the proposed designation boundary, with the exception of the mobile crushing plant which was assessed as being located only within the cut areas.
107. The potential for dust effects during the construction phase presents risks without mitigation in Mr Clarke's opinion. Therefore, industry good practice mitigation and controls for dust must be incorporated in the Project design through the proposed Project conditions. These mitigation measures are designed to prevent the discharge of dust at source and include limiting the areas of earthworks exposed at any one time, the use of watercarts and sprays to keep exposed areas damp, installation of wind fencing of suitable length and height, particularly adjacent to sensitive areas, and limiting vehicle speeds to a maximum of 20 kph on site.
108. Mr Clarke considered that good practice measures for dust control via a Construction Air Quality Management Plan would be sufficient to avoid significant adverse effects for the majority of the time and the majority of the route. There were many variables, however, in particular wind direction and strength, sunshine or rainfall, and the management methods that might be applied. As a result, Mr Clarke acknowledged that in some occasions it may be difficult to totally avoid adverse effects for short periods of

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time, but in his opinion this was acceptable if they do not occur on a frequent basis or for long durations. However, Mr Clarke confirmed that the aim still is to avoid, remedy and mitigate adverse effects at all times within the proposed designation boundary.

109. **Operational Effects:** The operational phase assessment of air quality effects was undertaken with reference to the WK Guide to Assessing Air Quality Impacts from State Highway Projects (2015) and the MfE Good Practice Guide on Assessing Discharges to Air from Land Transport (2008). A screening dispersion modelling tool, developed by WK, was used to predict the effects of vehicle emissions operating on the Indicative Alignment on local air quality. The results of the modelling were compared to the New Zealand Ambient Air Quality Standards and to the WK air quality significance criteria.
110. The assessment undertaken by Mr Clarke demonstrated that the Project would maintain air quality at acceptable levels throughout the largely rural environment of the Project area. The effect of the Project's operation on air quality was therefore assessed as less than minor. Predicted concentrations were below the WK significance criteria for the Project contribution, and well below the relevant air quality guidelines and standards when considered cumulatively with the background air quality.
111. Road traffic emissions from the Project tunnels were also assessed as having a low risk of affecting local air quality.
112. In summary, Mr Clarke considered that the effects of the operational phase of the Project on air quality would be less than minor with some positive effects along the existing State Highway 1. The Project operation would achieve compliance with relevant air quality guidelines and standards, in particular the Auckland Ambient Air Quality Targets and the National Environmental Standards for Air Quality. Considering the reduction of road transport emissions along the existing SH 1 near a higher density of Highly Sensitive Receptors (i.e., townships of Wellsford and Te Hana), Mr Clarke considered the Project to have a positive effect on overall air quality.
113. In his evidence, Mr Clarke also responded to and addressed concerns raised in submissions pertaining to air quality effects of the construction and operation of the Project on nearby residents. He also provided responses to the changes to the proposed conditions as recommended by Council's reviewing air quality expert.

Tim Baker

114. Mr Baker is an Associate Hydrogeologist and Team Leader for Water Resources at Jacobs New Zealand Limited. He holds a Master of Science Degree with Honours in Physical Geography from Victoria University of Wellington and is a member of the New Zealand Hydrological Society. Mr Baker has 17 years' experience in groundwater resource management.
115. Mr Baker's evidence provided an overview of the hydrogeological setting along the length of the proposed designation boundary and demonstrated how the contrasting geologies of the Project area control the underlying groundwater resource.

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116. Ultimately, these groundwater regimes were dependent on whether the underlying geology was a lower permeability rock, or a more permeable alluvial material. Where the underlying geology has lower permeability, groundwater exists predominantly in fractures in the rock and is limited in volume. Where the underlying geology is more permeable, groundwater fills the pore spaces around gravel and rocks and the unit yields more water.
117. This contrast is a key consideration in terms of concerns as to effects on existing groundwater users. In his assessment Mr Baker concluded that the areas where groundwater bores were recorded by Auckland Council were distinctly different from the areas where cuts and tunnelling (i.e., activities potentially affecting groundwater) were required for the Project. This meant that effects on groundwater users from the Project would be largely avoided.
118. Mr Baker confirmed the following key conclusions made in the assessment of hydrogeological effects:
- (a) Groundwater drawdown during the construction phase from the proposed tunnel would reduce with distance from the tunnel alignment to result in only 0.5 m drawdown at 500 m out from the indicative tunnel alignment; with the majority of drawdown occurring within the first 250 m;
 - (b) Drawdown from the proposed cuts would be confined to a narrow 230 m corridor parallel to the Indicative Alignment. If the alignment and associated cuts were shifted within the proposed designation boundary following detailed design, that 230 m corridor would be similar, but would not impact existing groundwater users given their locations.
119. Mr Baker's review of the Regional borehole database records from Auckland Council showed a total of 119 boreholes drilled within 2 km of the centreline of the Indicative Alignment. Of these bores, only nine were located within the proposed designation boundary, and none were located within the calculated drawdown profiles for either the indicative cuts or the tunnels.
120. Of the nine bores located within the proposed designation boundary, only one would be affected by the Indicative Alignment. This is Bore 386, which is currently located under a proposed fill area. However, it was Mr Baker's understanding that this land (and the bore), would ultimately be purchased by the Crown and the bore subsequently retired.
121. Mr Baker identified no streams in the vicinity of the proposed cuts. Only one potential stream (gully) was identified within 200 m of the tunnel component of the Indicative Alignment. A worst-case maximum flow reduction of 0.15 L/s was calculated for surface water in this gully feature. However, this gully was more likely to be a wet area (i.e. wet season groundwater seeps), rather than a permanent stream in Mr Baker's view. As such, he considered the potential reduction in baseflow as a result of the Project, from a flow volume perspective, to be less than minor.

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122. Mr Baker confirmed that a groundwater drawdown of greater than 1 m was used as an indicator for potential settlement effects resulting from the Project. There was no existing infrastructure identified outside of the proposed designation boundary with predicted drawdowns of greater than 1 m beneath it. Therefore, no effects of ground settlement outside of the designation were anticipated.

Dr Leigh Bull

123. Dr Bull is an Associate Partner and Senior Ecologist with Boffa Miskell Limited and has worked as a professional ecologist for 17 years. Her area of specialisation is ornithology, particularly oceanic and coastal avifauna. Dr Bull holds the qualifications of Bachelor of Science (Zoology), Masters of Science with Honours (Ecology) and PhD (Ecology) from Victoria University of Wellington. The research topics for both her MSc and PhD theses investigated seabird species (little blue penguin and shearwaters respectively).

124. Dr Bull has significant experience conducting ecological surveys and monitoring of a variety of fauna in New Zealand (mainland, offshore and sub-Antarctic islands), New Caledonia, Tonga and France. She has conducted numerous surveys for seabirds, coastal and wading birds.

125. In her evidence Dr Bull advised that both the Mahurangi and Kaipara Harbours provide important habitat for international migratory shorebird species, New Zealand endemic wading birds and several species of cryptic wetland birds. The large majority of the species associated with the coastal environments of these Harbours are classified by the Department of Conservation¹ as *Threatened* or *At Risk*, and as such are considered to have very high coastal avifauna values.

126. Dr Bull confirmed that the Project would not result in any direct loss of coastal bird habitat (including breeding), mortalities of nesting birds (including eggs and chicks) or disturbance. As such, the only potential adverse effects on coastal avifauna from the Project relate to indirect effects on:

(a) Foraging ability (through increased suspended sediment in the water which reduces water clarity); and

(b) Food supply (through increased sedimentation on the intertidal mudflats).

127. Any potential effects on coastal avifauna were dependent in Dr Bull's view on the level and duration of potential effects on marine ecological values. As such, the results of the Marine Ecological Assessment were used to inform the Coastal Avifauna Assessment.

128. Dr Bull considered the overall level of effect from both suspended sediment and the predicted additional deposition of Project related sediment was likely to have a low effect on the coastal avifauna assemblages associated with the Mahurangi and Kaipara Harbours, due to:

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- (a) The low to very low level of effect predicted for the Marine Ecology Assessment (during construction);
- (b) The relatively low level of predicted additional deposition of Project related sediment (above the baseline);
- (c) The short-term nature of the elevated Total Suspended Solids (TSS) levels in water; and
- (d) The mobile nature of many shorebird and some cryptic wetland species who rely on an extensive network of wetland and estuarine habitats to forage.

Dr Rodney Clough

129. Dr Clough is the Director of Clough & Associates Limited, Heritage Consultants. He holds a Doctorate in Archaeology from the University of London and a Master of Arts in Anthropology from the University of Auckland and is a member of the New Zealand Archaeological Association, and served on its Council for several years, including as President (2009-2011). Dr Clough is also a member of Heritage New Zealand Pouhere Taonga and the International Committee on Monuments and Sites.
130. Dr Clough has over 40 years of experience in the field of archaeology including research, survey, investigation, analysis and report preparation, covering a variety of time periods and geographic locations. Over the last 25 years he has largely focussed on New Zealand archaeology.
131. Dr Clough's evidence provided a brief overview of the historic heritage environment of the proposed designation and summarised the heritage values and potential effects of the Project. The evidence also noted the limited number of submissions relating to historic heritage, but referred and responded to the Heritage NZ submission, and reviewed the Council's section 42A report on the NoR, including the technical memos from Council's Built Heritage and Archaeology specialists.
132. Across the entirety of the designation, there are only seven historic heritage sites located within the Indicative Alignment and potentially directly affected by the Project. These seven sites have no more than moderate historic heritage significance in Dr Clough's opinion. In addition, there are three other sites within the proposed designation boundary that are potentially indirectly affected or which might be directly affected as a result of changes to the Indicative Alignment.
133. Dr Clough advised that there is general consensus among the Council and Heritage NZ specialists that the overall effects of the Project on historic heritage are no more than minor and can be appropriately managed and mitigated through the proposed archaeological designation conditions and Heritage NZ Archaeological Authority Process.

Chris Bentley

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134. Mr Bentley is a landscape architect and Partner at Boffa Miskell Limited. He holds a postgraduate diploma in landscape architecture from Lincoln University and a New Zealand Certificate in Drafting (survey) from the Auckland University of Technology. Mr Bentley has 36 years' experience as a landscape architect and is a registered landscape architect with the New Zealand Institute of Landscape Architects. Mr Bentley is on the Auckland Urban Design Panel, the Auckland Housing Programme Panel and is a member of the Urban Design Forum.
135. Mr Bentley's experience spans several aspects of landscape architecture from design to landscape planning and urban design. He has been involved in the design, landscape and visual assessments and preparation of Urban and Landscape Design Frameworks (*ULDFs*) for numerous projects. He undertook the landscape and visual assessment and prepared the ULDF for the Northern Corridor Improvements project, the Cultural and Environmental Design Framework for the Manawatū Gorge (Te Ahu a Turanga) project and the draft ULDF for AMETI, the Eastern Busway project Stages 2 and 3. Prior to these projects he undertook landscape and visual assessments and prepared ULDFs for the Manukau Harbour Crossing, Victoria Park Tunnel and the Newmarket Viaduct replacement and he also managed the landscape and environmental aspects of the Northern Toll Road during the design and construction phases of that project.
136. For the purposes of his Landscape and Visual Effects Assessment for the Project and his evidence, Mr Bentley considered the Project as passing through five discrete landscape character areas as follows:
- (a) Warkworth North;
 - (b) Dome Valley;
 - (c) Upper Hōteō River;
 - (d) Wellsford East; and
 - (e) Te Hana North.
137. Mr Bentley defined the character areas taking into account geology, topography, hydrology, land cover (vegetation), combined with human uses, future development, scheduled features, sensory and perceptual aspects, historical and cultural associations, and landscape values.
138. In Mr Bentley's opinion, the Project will alter the composition of the landform and vegetation cover within the Project area. But, in his view, to the extent practicable, significant adverse landscape and visual effects have been avoided through the route selection and design of the Project adopted by WK. The route selection involved a multidisciplinary and integrated assessment when considering project impacts and constraints, of which Mr Bentley was a part.
139. Mr Bentley confirmed that the route selection process resulted in the Project avoiding any Outstanding Natural Landscapes or Outstanding Natural Features or other

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protected landscape features. Urban areas had also been largely avoided. Therefore, the potential for various elements of the Project to have significant adverse landscape and visual effects had been substantially reduced. The indicative design further reduced potential effects by adding tunnels through Kraack Hill to eliminate extensive cut and fill batters, and by introducing a viaduct to reduce the effects on Significant Ecological Areas at the Hōteo River crossing.

140. Mr Bentley noted that in some areas complete avoidance of landscape effects had not been practicable, given the length of the Project and its nature and scale compared to existing elements of the environment. Therefore, there would be adverse landscape effects. The significance of these landscape effects would range from 'low adverse' to 'very high adverse' effects during and immediately following the construction works. However, Mr Bentley considered that many of those effects could be remedied or mitigated to between 'low adverse' and 'high adverse' effects.
141. Mr Bentley's assessment identified the visual catchment and viewing audiences relevant to the Project by reviewing aerial photography combined with visits to the Project area and a computer-based zone of theoretical visibility analysis. This analysis informed his selection of 22 viewpoint locations in publicly accessible areas, which he visited and photographed.
142. Mr Bentley assessed the potential visual effects of the Project during construction, upon completion before mitigation, and upon completion after mitigation. As with landscape effects, there were limits to being able to fully avoid and then mitigate visual effects as the road design was generally a function of existing typography and other constraints (e.g., urban environments, waterways and other special features). For example, the Project needed to tie into the existing State Highway 1 (*SH 1*) through various interchanges to service existing communities. Although generally sparsely populated, the chosen route for the Project also had pockets of existing development. These factors meant there would be an unavoidable interaction of the proposed road with viewing audiences along the route. Accordingly, the visual effects ranged from 'low' to 'very high' adverse effects during and immediately following the construction works in Mr Bentley's view. These effects could be mitigated though through a range of measures to become low adverse and moderate adverse over time.
143. The Proposed landscape mitigation for the Project was part of an integrated mitigation framework. This framework was developed with expert inputs from ecology, heritage, mana whenua and hydrology, as well as construction and design advice on the practicalities of constructing and operating the road. The intent of this integrated approach was to ensure that Project mitigation was designed by particular individual specialists developed in a collaborative and coordinated way, such that the environmental outcomes sought for each part would be cohesive and of enduring additional benefit.
144. By way of example, in his specialist area Mr Bentley assisted in preparing a landscape and ecology mitigation strategy for the Project, working alongside Dr Boothroyd. The strategy was designed to maximise the collective landscape and ecological outcomes by focussing the main areas of mitigation on high value ecological areas including the

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Mahurangi River (left branch), Kourawhero Stream and the Hōteu Flood Plain. A set of Landscape and Ecological Mitigation plans was included in the AEE drawing set, Ecological Mitigation Series. These plans included the retention of existing indigenous vegetation and shelterbelts in addition to extensive areas of native landscape and ecological mitigation planting.

145. Mr Bentley also developed the ULDF Planning Version, which identified high level landscape and urban design objectives, principles and opportunities for the Project. The ULDF Planning Version was based on WK's Environmental and Social Responsibility Policy, and its commitments as a signatory to the NZ Urban Design Protocol. The design framework was established using urban design and landscape principles from WK's documents such as "Bridging the Gap" and "NZTA Landscape Guidelines". The documents were specific to large and or complex projects.
146. The ULDF for the Project also looked at local design opportunities. For example, the ULDF included design principles developed with mana whenua and environmental and engineering design specialists as part of the Project team. The ULDF developed a Project vision and strategies that guides the development of the detailed design. For example, the integrated landscape, ecology and hydrological response to restoration planting and focussing on revegetating areas with highest ecological values. The ULDF also included specific suggestions in relation to the most sensitive locations. For example, the Hōteu River crossing, where design guidance in the ULDF included the form of the bridge and location of piers in order to minimise impacts on the river and SEAs.
147. Mr Bentley's expectation was that the ULDF would guide the development of the Urban Design and Landscape Management Plans intended to detailed design specific to each sector of the Project. This approach had been proven to be successful on both urban and rural highways including: the Rangiriri By Pass, Victoria Park Tunnel and Waterview Projects and most recently on the Northern Corridor Improvements project where the Tirohanga Whanui bridge was designed with mana whenua input and is already contributing to place making in Albany, in Mr Bentley's opinion.
148. The ULDF, UDLMPs and Sector Plans together with the Landscape and Ecological Mitigation plans and the proposed designation conditions would enable the landscape and visual effects of the Project to be appropriately mitigated in Mr Bentley's view.
149. In summary, Mr Bentley considered that the proposed designation had avoided landscape and visual effects to the extent practicable. Where avoidance was not practicable, Mr Bentley had recommended mitigation based on his assessment as outlined in his Landscape and Visual Effects Assessment report. The ULDF also contained design principles that support the mitigation measures he had recommended. The conditions proposed by WK would ensure those mitigation measures and the design principles (including the ULDF are) followed in his view and the conditions would ensure the landscape and visual effects of the Project were mitigated as far as practicable.

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150. Mr Bentley noted that a number of submissions received in relation to the Project raised landscape and visual related matters. One was from Hōkai Nuku on cultural effects, requesting ongoing involvement in the development of the ULDF and management plans. Mr Bentley supported that involvement. There were also general landscape related submissions, but Mr Bentley considered the concerns they raised were adequately addressed through the mitigation proposed as set out in the ULDF Planning Version, the Landscape and Visual Mitigation plans and the proposed designation conditions.
151. Finally, there were submissions from specific property owners relating to landscape and visual impact matters. Mr Bentley considered each submission in detail in his evidence and recommended additional mitigation measures where appropriate to address their concerns. These additional measures were addressed in new conditions attached to the evidence of Ms Karyn Sinclair.

Dr Stephen Chiles

152. Dr Chiles is an acoustics engineer practicing via a company called Chiles Limited. He has a Doctor of Philosophy in Acoustics from the University of Bath, and a Bachelor of Engineering in Electroacoustics from the University of Salford, UK. Dr Chiles has been employed in acoustics (noise and vibration) since 1996, and has previously held positions as a research officer at the University of Bath, a principal environmental specialist for WK, and as a consultant for the international firms Arup, WSP, and URS, and for the specialist firms Marshall Day Acoustics and Fleming & Barron.
153. Dr Chiles has been responsible for acoustics assessments and design for different stages of numerous road projects, including Ōtaki to North of Levin, Te Ahu a Turanga - Manawatū Tararua Highway, Transmission Gully, Peka Peka to North Ōtaki, Pukeahu - National War Memorial Park, Mt Victoria Tunnel, Tauranga Eastern Link, Cambridge and Tamahere Sections of the Waikato Expressway and Christchurch Southern Motorway Stage 2.
154. In relation to the Project Dr Chiles' evidence confirmed that the Project passes through some areas that are currently relatively quiet and intersects with other areas already affected by noise from existing roads. In relation to these areas, he assessed operational and construction noise and vibration from the Project using conventional approaches as applied for numerous similar recent projects. He also applied New Zealand Standards where relevant, and made reference to the AUP, other guidance, and international standards.
155. **Operational noise and vibration:** For operational road-traffic Dr Chiles considered noise effects with reference to noise modelling of existing and future scenarios with and without the Project. He compared predicted noise levels at nearby houses to guideline criteria and also considered the change in noise levels caused by the Project.
156. Dr Chiles then assessed noise mitigation based on a multi-criteria evaluation of options. On this basis he recommended a low noise road surface in all areas near

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houses. There were also three houses that he recommended be investigated for building modification to ensure reasonable noise levels were achieved inside.

157. Dr Chiles pointed out that since the NoR was lodged, corrections had been made to the noise model. These corrections resulted in small changes to predicted noise levels that do not materially alter his findings with respect to noise effects or mitigation.
158. Dr Chiles concluded that with the proposed mitigation, predicted operational noise levels would generally comply with guideline criteria at all locations. In his opinion this indicated the resulting noise levels were reasonable. However, even with mitigation there would be a substantial increase in noise at some locations that are currently quiet. This would be a significant change in the environment for people experiencing the situation before and after the Project.
159. The proposed designation conditions included performance standards for operational noise and required formal documentation of noise mitigation in accordance with a standard specification. Dr Chiles considered this to be a robust control to maintain the noise effects he considered to be reasonable based on his assessment.
160. **Construction noise and vibration:** For construction noise and vibration, Dr Chiles considered indicative construction activities and typical distances at which they can comply with guideline criteria. From this he found that in most areas standard practice should result in compliance with criteria. Dr Chiles identified a number of areas where enhanced mitigation might be required, such as where works may be close to houses or where night works are essential. He proposed a management framework for the control of construction noise and vibration effects.
161. In all cases Dr Chiles found with the proposed controls for construction noise and vibration effects should be acceptable. While there would be some temporary disturbance during construction, most people should be able to continue with normal activities with minor adjustments. In his opinion the proposed designation conditions set out robust controls for construction noise and vibration that were generally appropriate to control the effects.
162. Dr Chiles confirmed that he had read the submissions raising matters relating to noise and vibration and commented on and clarified various issues raised by those submitters. The majority of these submissions were from residents living near the proposed designation. In his opinion the noise and vibration matters raised by submitters were appropriately addressed by the proposed designation conditions and he maintained the findings in his assessment.
163. Dr Chiles had also read the comments by Siiri Wilkening, who reviewed the Operational and Construction Noise and Vibration Assessments for the Council. Dr Chiles agreed with Ms Wilkening on fundamental issues including noise and vibration effects, and appropriate mitigation, and provided additional information in response to questions raised by Ms Wilkening. Ms Wilkening recommended some amendments to the proposed designation conditions which Dr Chiles generally agreed with, but

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considered that some of the amendments were unnecessary to achieve the outcomes intended.

Karyn Sinclair

164. Ms Sinclair is the lead author of the AEE that accompanied the RCA and NoR for the Project. She holds a Bachelor of Social Science from Waikato University and a Bachelor of Town Planning from the University of Auckland and is a full member of the New Zealand Planning Institute (and current chair of the Board).
165. Ms Sinclair has over 30 years' experience as a planner, which has included working as a planner for local government as a consents processing officer on both subdivision and land use proposals, and as an external consultant. As a consultant planner, she has represented a range of clients including applicants seeking resource consents and submitters. Ms Sinclair is currently the Planning/Environmental Lead for the Jacobs/GHD P2Wk – Technical Advisory Service Joint Venture, a role she has held since the Public Private Partnership contract was signed.
166. Ms Sinclair's evidence addressed the following matters:
- (a) Overview of the Project, the NoR and the RCA including the existing environment;
 - (b) Summarise the actual and potential environmental effects of the Project;
 - (c) Discuss the district and regional planning provisions that apply to the Project;
 - (d) Explain the alternatives assessment process undertaken for the Project;
 - (e) Discuss the matters raised in submissions;
 - (f) Respond to the Council Officer's section 42A reports;
 - (g) Consider the Project against the requirements of the RMA; and
 - (h) Discuss the proposed designation and resource consent conditions.
167. The overall purpose of Ms Sinclair's evidence was to give her assessment of the NoR and RCA to enable the Project to proceed against the relevant planning instruments and relevant sections of the RMA.
168. Ms Sinclair's evidence discussed the process that was undertaken to identify potential alternative routes, and methods to achieve the objectives of the Project. It was her opinion that the Project represented an appropriate outcome of that analysis and that the options analysis exceeded the requirements of s 171(1)(b) of the RMA. She addressed minor amendments to the designation during the period leading up to public notification of the Project to address issues that arose during site visits or public consultation.

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169. Ms Sinclair also considered that the designation was reasonably necessary to achieve the objectives of Waka Kotahi in relation to the Project.
170. Relying on the assessments by technical experts, Ms Sinclair was of the view that the assessment of the potential effects of the Project, both during construction and operation, was sufficient to meet the requirements of the RMA. The assessment of effects was robust and addressed effects that might result from within the designation boundary rather than limited to a specific alignment. In her opinion this meant that the potential effects have been robustly assessed and the conditions of resource consent and/or designation proposed by Waka Kotahi enabled the effects to be adequately mitigated.
171. Ms Sinclair accepted that there would be effects on some residents, including noise, visual and amenity effects that would endure into the operational phase of the Project. It was her opinion though that the impact of these effects would lessen over time. Visual effects would lessen as proposed planting establishes, and noise would be mitigated by use of a noise reducing surface in certain areas. The positive effects of the Project, including (but not limited to) travel time reliability, travel time savings, and a safer travel environment would outweigh the longer-term adverse effects, which were in her opinion of moderate to minor significance overtime.
172. Ms Sinclair assessed the Project against the relevant provisions of the policy documents, plans, national policy statements and environmental standards. This included two recently introduced National Policy Statements and one National Environmental Standard. She concluded that the Project aligned with these documents, especially at the strategic level. With mitigation as provided via the conditions proposed by Waka Kotahi, Ms Sinclair concluded that the Project was consistent with the more specific objectives and policies.
173. Ms Sinclair confirmed that the mitigation identified in the conditions of consent and designation proposed by WK had evolved since the Project was publicly notified. Her evidence addressed the most recent version of proposed conditions some of which have been derived subsequent to public notification of the Project. She noted that the proposed conditions were intended to identify the standard to be achieved, irrespective of the outcome of detailed design.

B. SUBMITTER EVIDENCE IN SUPPORT

Vision Wellsford

174. Vision Wellsford represented by Mr Lionel Foster, Mr Steve Wallace, Mr Russell Don, Mr Lionel Don, Mr Lloyd Stewart, Mr Brenton Walton and Mr Daryl Walton, are a group of business owners and residents of Wellsford. Vision Wellsford advised that they support the NoR and RCA as they will improve prosperity and wellbeing in Wellsford and the wider Auckland and Northland regions.
175. They summarised benefits of the project as reductions in travel times, improved safety, route resilience and greater accessibility to Northland. Vision Wellsford considered less congestion and better connectivity for freight will enhance business activity in

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Wellsford and support existing and predicted growth in housing demand in the area. They also saw the proposed ULDF principles for Connectivity, Wayfinding, Highway Stopping Places and Interchanges as a means to encourage and create increased interest and investment in Wellsford and Te Hana.

Independent Northland Business and Residents

176. Mr Lionel Foster spoke on behalf of Mr Anthony Brodie and Mr Des Mclean for Independent Northland Business and Residents. In a similar vein to the evidence of Vision Wellsford, their submission highlighted the benefits of the project bringing greater accessibility to the Northland region through enhanced and streamlined travel options. They considered that improved proximity to Auckland (labour markets), reduced congestion and greater connectivity between Auckland, Marsden Point, Whangarei and the Far North will bring prosperity to business and development in Northland by enhancing manufacturing and tourism opportunities and freight movement. Their evidence also emphasised road safety issues associated with the current route, particularly through the Dome Valley section.

Northland Regional Transport Committee

177. Councillor John Bain is the Chair of the Northland Regional Transport Committee. On behalf of the Committee he explained that it was supportive of the Warkworth to Wellsford Project primarily in the interests of reducing fatal and serious accidents on this section of the Highway. Mr Bain provided examples of regular disruption issues in the freight of fresh produce from Northland to Auckland markets and for distribution overseas due to the lack of resilience currently in the road network. In his opinion, the provision of a more resilient and reliable connection between Auckland and Northland will greatly assist in growing the regional economy, opening trade, tourism and transport links with more certainty of growth for both regions than other modes of transport.

Federated Farmers of New Zealand (Auckland Province) Incorporated

178. Mr Richard Gardner is the In-House Lawyer for Federated Farmers. Federated Farmers is a primary sector organisation that represents the majority of the country's farming businesses. He was generally in support of the resource consent applications and the NoR on the proviso that the land owners whose land is subject to the designation are appropriately compensated for any of their land that is acquired for or affected by the Proposal. Mr Gardner emphasized this applied not only to the taking of land for the designation but to any disruptions the works and activities associated with the Proposal could have on the activities farmers undertake on their land, in other words reverse sensitivity issues. It was his evidence that the adequate "buffers" are required in the final carriageway design, to take into account activities on land adjacent to the designation that could be sensitive to motorway noise, and conversely sources of smoke and dust from farming activities that could impact the use of the highway.
179. He referred to caselaw where Federated Farmers have previously raised the matter of compensation, opining that reliance on the Public Works Act was not enough and that

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these matters could be considered under Section 5 of the RMA in the context of decision making.

180. In respect of the proposed lapse period, Federated Farmers preferred a shorter 10-year period due to the potential for disruption to farming activities and a lack of certainty for landowners. Mr Gardner stressed that land acquisition should occur as early as possible rather than “when needed” as proposed by WK.

Hōkai Nuku

181. Ms Gena Moses-Te Kani is the Pou Tātaki or Lead Technical Advisor for Hōkai Nuku. Hōkai Nuku is the alliance of mana whenua formed in 2010 to engage on the Ara Tūhono Pūhoi to Warkworth and Warkworth to Wellsford Roding Projects. Hōkai Nuku represents Ngāti Manuhiri, Ngāti Rango, Ngāti Mauku and Ngāti Kauae of Te Uri o Hau, and Ngāti Whatua Iwi.
182. Ms Moses-Te Kani explained that Hōkai Nuku have long supported the construction of a safe road connecting Auckland with Northland. She described how Hōkai Nuku had been involved early in the process in optioneering for the designation and the design of the landscape mitigation package.

C. SUBMITTERS WHO SUPPORTED IN PRINCIPLE BUT OPPOSED ASPECTS OF THE PROPOSED ALIGNMENT AND REQUESTED SPECIFIC CHANGES:

183. We heard evidence from **Mr Craig Clarke** the Director of **Sunnyheight Nurseries Ltd**, the owner of a 281ha farm property at 109 Vipond Road (which currently has access to SH1). Mr Clarke advised us that he was supportive in principle and was satisfied with the s42A report and the maintenance and operation noise conditions 89 to 90. Mr Clarke sought that the alternative Vipond Road access formation to his property and his neighbouring properties accessed from Vipond Road to be formed to full sealed rural road standard to limit and prevent noise and dust effects. Mr Clarke reviewed the NOR documentation and advised us that the statements related to Vipond Rod in those documents gave him no confidence that Vipond Road would be sealed over the full extent of the new formation. As such Mr Clarke requested a condition to that effect.
184. **Mr Lindsay David Wilson** presented evidence on behalf of **Watercare Services Limited**. Watercare’s primary interest was in ensuring that its existing Wellsford Water Treatment Plant (WTP), its existing Wellsford Wastewater Treatment Plant (WWTP) and planned new Wellsford WTP are protected. Watercare and Waka Kotahi had met to review the submission and proposed conditions, prior to the hearing. As a result of these discussions and Waka Kotahi’s proposed amendments to the conditions outlined in its evidence, Mr Wilson advised us that only one issued remained. This issue relates to access to Watercare’s WTP, WWTP and Future Water Treatment Plant at 487 Wayby Valley Road during the construction phase. At paragraph 4.3 of his evidence Mr Wilson requested a further amendment to condition 34 to ensure the condition made explicit reference to the *‘planned water treatment facility (487 Wayby Valley Road)’*.

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D. SUBMITTER EVIDENCE IN OPPOSITION

185. **Mr Julian Dawson** presented legal submissions on behalf of Amanda and Erdem Oguz and Toni and Edwin Dando and who reside at 215 Kaipara Flats Road and 39 Phillips Road and respectively. He pointed out that his clients' properties are located 30 m and 99m from the proposed Project designation boundary and that his clients' rural lifestyle would be significantly changed by it.
186. Mr Dawson emphasised that the particular effects of concern to his clients were construction noise from equipment, as well as construction traffic, vibration, operational noise, dust, air pollution and light spill. He submitted that the noise effects would be significant, but that for the Dando's in particular, they would likely be unbearable.
187. Mr Dawson was critical of WK's approach to effects management and its response generally to residents in his clients' positions. He submitted that the significant difference between the existing noise environment and the predicted future environment with the road operating (which he called the 'delta') was fundamentally relevant to an assessment of the reasonableness of the overall noise effects, and that compliance with the relevant NZ Standards did not make that change acceptable.
188. Mr Dawson submitted that the conditioning approach promoted by WK for its construction noise management provided no certainty that construction noise and vibration effects would be avoided, remedied or mitigated as the conditions were too vague and flexible. Similar criticisms were levelled at the other management plan proposals, with Mr Dawson calling the proposed approach fundamentally deficient. He submitted that the flexibility sought by WK needed to be balanced against "the certainty that neighbours, the community and the environment are entitled to".
189. In Mr Dawson's view, the only way for WK to avoid causing his clients significant and detrimental effects was for these properties to be purchased and he indicated their willingness to consider that outcome.
190. **Mr and Mrs Dando** presented further evidence to us at the hearing. They outlined their recent family history and how they came to live at 39 Phillips Road. They stressed that they were not 'anti-progress' or opposed to the motorway, but considered that as they would be the last house left on Phillips Road, they were having to pay a grossly unfair price. They told us that the impact of the Project on them to date had been immense and they were deeply concerned at that their ability to cope for the rest of the process.
191. Specific concerns highlighted by Mr and Mrs Dando included noise and vibration, and its impact on them in particular, construction haulage, property access during construction, working hours, visual effects during construction, operational noise, dust, and flooding concerns. For some of these issues, mitigation suggestions were helpfully offered, but overall, Mr and Mrs Dando remained opposed and due to the significant uncertainty that the Project represented for their future, they requested that it be refused, or that WK be required to purchase their property.

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192. **Mrs Oguz** presented a statement of evidence on behalf of herself and her husband Erdem and their daughter. She also outlined their recent family history and how they came to live at 215 Kaipara Flats Road. Her family's concerns echoed those of the Dandos and others. She highlighted the uncertainty about the Project (its timing, effects management, compliance), and how its advent had thrown them into disarray and unable to make crucial decisions about their future. Amenity impacts, potentially spanning 20 years, were also identified along with the personal impacts on them. Mrs Oguz concluded by reminding us that the effects on her family would be severe and that WK's approach of leaving them to solve another day was not good enough. She confirmed a desire for WK to buy their property but suggested a variety of measures to be imposed on WK in the event they remained.
193. **Mr Nevil Hegley** is an experienced acoustic consultant with 40 years' experience. He holds a Master of Science degree and is a Member of the Institution of Professional Engineers New Zealand, the Institution of Civil Engineers London and the Acoustical Society of America. Mr Hegley has considerable experience with the assessment and measurement of both construction noise and traffic noise, such as is being proposed for the Project and indicated that he was familiar with the site and surrounding environment.
194. Mr Hegley's evidence was primarily related to the construction works and the noise effects this construction work may have for neighbours due to the absence in his view of any specific details, uncertainty with the proposed conditions and a lack of proper assessment. His evidence addressed specific examples that he considered needed to be clarified so any noise effects associated with the proposed works are controlled to within a reasonable level via NZS 6803 and the RMA. In this latter regard, he referred us to ss 16 and 17 as imposing specific standard to be met by WK in its construction activities.
195. While Mr Hegley did not reject Dr Chiles proposal for a Construction Noise and Vibration Management Plan, he considered that as it was currently written it effectively removed the need to comply with any levels. Mr Hegley also expressed concern that it was not possible to quantify the construction noise effects because a final layout of the road, the location of the works, and the equipment to be used were unknown.
196. Mr Hegley also considered that the proposed noise from construction depots should comply with the underlying noise standards for the zone, rather than NZS 6803.
197. In relation to operational noise effects Mr Hegley's concerns were based around the flexibility reserved to WK in its proposed conditions to determine the appropriate noise control treatments to be incorporated in the finished road design. He did not take issue with the use of NZS 6806 for the proposed new road though.
198. **Ms Wendy Court** presented evidence on her experience as an impacted resident during the first stage of the Puhoi to Warkworth works. Ms Court told us that her property was the most impacted property during Stage 1 of the Puhoi to Warkworth construction works. She summarised her key concerns as including:

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- Lack of condition 1.
 - Inadequate noise mitigation – this arose because robust noise conditions never eventuated.
 - Inadequate Social Impact Mitigation – the community was grossly impacted by the lack of certainty, there was a culture of apology afterwards, inadequate contractor relationships and respect for the local community.
 - Inadequate visual impact mitigation.
199. She told us that based on her experiences with Stage 1: *‘the attitudes of contractors and Waka Kotahi can be quite different when it comes to conditions’*.
200. Ms Court requested that the approval is delayed until there is more certainty around dust, visual impact and other effects and that there is provision for stakeholder input to the ULDF.
201. **Deane and Pauline Yarnley** live at 214 Kaipara Flats Road and purchased their lifestyle block about 15 years ago. They are concerned with the potential flood risk, the impact on the bore located on their property, the need for visual screening, noise during construction and operation, and protection of existing streambanks. They explained to us that they had had discussions with WK around the issues of concern to them but were disappointed that their requested changes to the conditions and additional actions had not been taken up. They set out clearly a number of requests in their concluding evidence statement.
202. **Malcolm John Lea** provided evidence on behalf of the Rae Family Trust. Mr Lea has lived at Shepherd Road for 10 years and the Rae Family Trust has been there for over 17 years. Mr Lea and his partner set up an animal sanctuary eight years ago. Mr Lea’s concern is the visibility and visual impact of the proposed road from the property at Shepherd Road. He considered that the road will be quite visible without planting and that operational noise from the road at night will be quite apparent. He was concerned with potential delays and uncertainty around the project timetable. To address this, he recommended the establishment of a liaison group of affected landowners who have made submissions to receive updates on a regular basis.
203. **Ms Bronwyn Carruthers** presented legal submissions on behalf of David Mason and Dianne McCallum. Ms Carruthers addressed Mr Mason and Ms McCallum’s concerns around the construction and operation effects, the lack of certainty around the level of effects to be experienced at 211 Kaipara Flats Road and the lack of engagement with them as affected landowners and immediately adjoining neighbours: *‘They are concerned about their ability to enjoy their property in their retirement years’*.
204. Ms Caruthers submitted that the evaluation of the noise effects of the Project was inadequate. She recommended that the noise conditions approved by the Board of Inquiry for the Northern Corridor improvements could easily be adopted, providing the clarity and certainty required by all stakeholders.

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205. Ms Carruthers also questioned the scope of the regional consents and cautioned us to ensure we did not intentionally or unintentionally approve an activity requiring consents under a regional rule through the NoR. She advised us that ‘Unless and until an application is made under regional rule H19(A60) the ‘borrow pits’ cannot be approved. The reasonableness and fairness of the 15 year lapse period was also identified as a concern.
206. **David Mason and Dianne McCallum** of 211 Kaipara Flats Road are concerned with the proximity of the Project to their property and with there being no certainty on effects and timing of those effects. Mr Mason and Ms McCallum consider that they are significantly impacted by the proposed NoR alignment, but their property has been left outside the designation boundary. They were very clear that they do not object to the road and the need for it, but are concerned with and strongly object to it’s very significant adverse effects on them, even after mitigations.
207. Mr Mason took us through his evidence and highlighted concerns around the direct impact of the construction works (noise, vibration, dust and landscape), as well as the operational noise impacts. He was concerned that all of these effects would be exacerbated should the alignment move towards their boundary and worse still should it move upwards. The lack of certainty around project timing, the actual alignment, the degree of adverse construction effects and the ongoing operational noise are all of concern to Mr Mason and Ms McCallum.
208. Mr Mason described the consultation that has been undertaken and advised us that while they have attempted to engage with WK over a now 45 month-old public consultation process, that has been largely without success. He said that his detailed submission was provided as he still had many unresolved issues. He felt that while public open days had been held for the wider community there was insufficient engagement with them as a directly impacted neighbour. There was a lack of information and they were often told in response to their questions ‘that person couldn’t make it today’ or ‘we haven’t done that work yet’. Whilst there were two submitter meetings prior to the hearing he said that: *‘We had the sense NZTA were using it to explain to us how their approach would work for us – not an attempt to resolve our concerns. They did not address our key questions’*. They are concerned that with reliance on communications as a key part of any mitigation strategies they will be let down again.
209. Mr Mason set out his concerns with the proposed management plans including that: they need objectives, they are too generic, they include too many qualification clauses such as ‘best practicable options’ and ‘where practicable’. Overall, he considered that the management plans do not reduce uncertainty, and in some cases they exacerbate it. He said that they need to:
- Have clear objectives;
 - Remove uncertainty – not be generic;
 - Remove scope for opting out of criteria;

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- Bring Forward knowledge from this hearing; and
 - Ensure meaningful consultation.
210. Mr Mason then set out his key concerns around effects related to construction noise and vibration, operation noise, dust, construction traffic, ecology, landscape, Kaipara Flats Road realignment, Weed and Pest Control, Complaints.
211. Mr Mason concluded that the project has already had and will continue to have serious adverse effects on him and Dianne. Even after mitigation they consider the effects to be unreasonable. They also feel trapped by the proximity of their property to the alignment: *'Although we could sell our property and move on, the plan for a long term construction site next door followed by a motorway in perpetuity has severely impacted our property's market value. And that loss of value would necessarily be reflected in our future standard of living. To allow the project to proceed, the only fair approach is for our land to be included. This is not a request that we make lightly. It is quite distressing realizing that this is our best outcome.'*
212. **Mr Jon Styles** provided expert acoustic evidence on behalf of Mr Mason and Ms McCallum. He considered that the operational noise effects on 211 Kaipara Flats Road would be significant: *'The project will result in a significant change in effect, where most natural sounds that were previously dominant, will become inaudible and overtaken by traffic noise'*. He considered the traffic noise predictions set out in the s92 response were incorrect by a significant margin, with the noise model predicting a level of 41dBLAEQ(24hr), whereas the current measured ambient level is only 24dBLAEQ(24hr). Mr Styles considered this error significantly to understate the effects of the project. He advised us that the conditions controlling operational noise represent a significant step backwards in the quality of conditions for a project of this nature. He considered a complete overhaul of the conditions to be necessary to ensure the certainty and enforceability required for a project of this nature is achieved. He recommended that the conditions are updated to reflect those attached to the evidence of Ms Pegrume.
213. **Ms Karen Pegrume** provided expert planning evidence on behalf of Mr Mason and Ms McCallum. She specifically addressed the use of management plans and said that: *'they're not a tool to figure things out as you go along. If the effects are not clearly identifiable then a management plan should not be relied upon to identify the effects at a later day. It is not possible to avoid remedy or mitigate if you cannot identify effects as part of the assessment process being applied for now'*.
214. Ms Pegrume raised concerns around the flexibility enabled at the detailed design stage through the reliance on management plans. She raised concerns with the compliance process if the management plans retained criteria such as 'where practicable'. This approach resulted in a sustained lack of certainty for Mr Mason and Ms McCallum around the effects on them and how they would be mitigated. She raised concerns around the ecological impacts, the proximity and effects of the 'borrow pit' to the Mason and McCallum property, and the robustness of the dust management conditions. She requested that very careful consideration is given to the consent

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conditions, the consents that have actually been applied for and whether the conditions together with the Outline Plan process would provide sufficient confidence that the effects would be avoided, remedied or mitigated.

215. **Ms Bronwyn Carruthers** presented legal submissions on behalf of **Ms Dianne Civil**. Of particular concern to Ms Civil was that the Warkworth Interchange layout selected by WK destroyed her Truffiere, which was overlooked in all NZTA Assessments, ignored the existence of highly productive soils, a scarce natural resource, which has also been overlooked by NZTA, required multiple crossings of the left branch of the Mahurangi River, which was omitted from all consultation documents and remains missing in the AEE, and unnecessarily required the removal of mature totara.
216. Ms Carruthers submitted that given these matters the alternatives assessment for the interchange cannot withstand scrutiny. She advised us that it was within our powers to request that WK undertake a further alternatives assessment for the interchange, taking all relevant matters into account before releasing any recommendation on the NoR. If WK refused to do so, Ms Carruthers advice was that the NoR should be declined.
217. Ms Carruthers also told us that Ms Civil was concerned with: the adequacy of the assessment undertaken by Waka Kotahi, particularly in relation to the baseline flood levels and avifauna surveys; the effects of change – visually, aurally, ecologically; and the inadequacy of the conditions to manage the effects. She indicated that Ms Civil was not trying to stop the Project, but it was imperative that the conditions are a robust enough to ensure the adverse effects of change are avoided, remedied or mitigated.
218. **Ms Dianne Civil** of 111 Kaipara Flats Road represented herself, her whanau and business partner. Ms Civil and her business partner have a Truffiere on their land that is *'currently under threat from the motorway and in particular the interchange'*. The Truffiere is 15 years old and comprises 51 Hazelnut trees and 21 Oak trees in a fan shaped orchard design. Ms Civil's primary concern was with the location of the proposed motorway and lack of consultation with them as directly impacted property owners. She advised us that whilst the orchard is clearly visible on aerial photos they were not consulted about the location or design of the interchange which is now planned to pass directly on top of the orchard. She considered there was *'no meaningful consultation or engagement about how the design would impact our orchard prior to finalizing it. Also I had to chase them up to get any response after they had already designed a motorway that would destroy our business.'*
219. Additional concerns include the destruction of valuable soils, the visual and noise impacts, the direct impacts on the Truffiere, cultural effects, flooding impacts, quality of information on the ecological effects, the lack of provision for pedestrian and cycling facilities including along the Mahurangi River, and inadequate consideration of alternatives. Ms Civil referred to Options D and E as having a reduced impact on the left branch of the Mahurangi River and Valuable soils. She considered that *'further work needs to be done to complete the investigations required and then confirm a more appropriate location and design which minimizes the impact on our valuable*

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river, trees and soils'. Ms Civil set out a number of decisions and amendments that she requested be made.

220. **Mr Robert William Cathcart**, a Land and Environmental Consultant associated with AgFirst Northland, provided us with a statement of evidence on the soil types at the Civil property. The subject land includes that on the floodplain and terraces of the left bank, the eastern bank, of the Mahurangi Left Branch and adjoining low hill country. He described the soil classes as including Class 2w1, 3w1, 4w1 and 6w1. He provided us with a map and land resource inventory and capability for each identified area on the map.
221. **Dr Denise Lyn Civil** prepared a comprehensive statement of evidence on behalf of her family representing two separate interests associated with the parcels of land known as 'the farm' over which WK propose to construct the Warkworth to Wellsford Motorway. The blocks of land known as 'the farm' include Southway (Southway House Block, Taj Block, Martin Block) and Puriri Springs. Southway and Puriri Springs are farmed as one unit under the management of Puriri Springs. Dr Civil is a Registered Architect with the professional qualifications of a B.Arch(Hons) and a Ph.D. in Architecture (Urban Design) and is a fellow of the New Zealand Institute of Architects. Dr Civil represented her family and was not giving expert evidence.
222. Dr Civil provided us with a comprehensive background on all of the properties that make up the land parcels known as 'the farm' including the property management and farming structure. Her primary objection was to the proposed designation boundaries, summed up in her statement as follows:
- 'We believe that it is unreasonable and unnecessary for NZTA to designate and acquire the proposed 24.35ha of land belonging to the Puriri Springs Trust. We do not want our land to be taken for this project. We believe that the indicative alignment that has a gross interchange serving Warkworth over our property is not justified and is unlikely to be constructed in the manner proposed.'*
223. Dr Civil also explained her objection to the nature of the application and said that NZTA had not provided sufficient documentation to assess the application. She said that the project would have significant impact on their farming operations and property amenity as well also on the environment in their wider neighbourhood. Dr Civil advised us that the family was impacted by the Puhoi to Warkworth project and that they had first-hand experience in the effects of the proposed alignment and the construction activities. Their farming operations have suffered as a result of the works and the ongoing breaches for the duration of the construction activities.
224. The absence of communication from the NX2 and NZTA has been of concern and she considered that they have been poor communicators during the construction works. As an example they have never been advised as an impacted landowner of any activities that would affect access at least 5 days beforehand. The existing construction activities have limited access to the severed parts of their land which in turn has impacted their farming activities. Their inability to cross the designation has been a significant constraint on their farming activities.

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225. **Mr Williams** representing the Warkworth Area Liaison Group and Resident and Ratepayers group provided a powerpoint submission setting out general support for the proposal but raising concerns around costs and indefinite delays. The submission focused on location of the connections to Warkworth from the motorway, the traffic modelling, the economic justification and the reasons for tolling the route. He said the crux of his concerns was that the interchange was on the wrong side of Warkworth and that vehicles would need to go north before they could go south. He said it was an unnecessarily huge interchange on the wrong side of town.

E. TABLED SUBMITTER EVIDENCE

Katrina Todd

226. A legal submission from **Minter Ellison Rudd Watts** was received on behalf of **Katrina Todd**. Katrina Todd owns the property at 84 Kaipara Flats Road. Ms Todd opposed the NoR and RCA. The reasons for this opposition focused on three particular matters: the certainty of the route alignment, landscape and visual effects as a result of the alignment and construction traffic.

227. Ms Todd's key concern is to ensure the conditions in the NoR provide the level of certainty that the project will not be amended in any way that will have an adverse effect on her property greater than the alignment provided in the application. Ms Todd is particularly interested in ensuring that the indicative route between Phillips Road and the Bridge near Kraack Road (located to the west of her property) follow and be contained in the lowest point of the gully at an RL no greater than that proposed and that any alignment shift to the east is minimal. Additional conditions are required to provide greater certainty and safeguards for neighbours. An appropriate balance between necessary flexibility for WK at the detailed design phase, and sufficient certainty for affected residents at this stage of the process must be achieved.

Spark New Zealand

228. Mr **Graeme McCarrison** tabled evidence on behalf of **Spark New Zealand** (Spark). He advised us that Spark participated in stakeholder engagement with WK in regard to the conditions addressing network utility infrastructure prior to lodgement and notification of the NoR and RCA for the Project. In particular, Spark requested a condition that requires engagement with network utility operators over opportunities to integrate new infrastructure into the project design. Spark lodged a submission on the NoR seeking an additional condition addressing this issue.

229. An agreement was reached between Spark and WK on the condition proposed by Waka Kotahi and attached to the evidence of Karyn Sinclair.

Transpower Limited

230. **Kate Searle**, Senior Planner at Tonkin & Taylor Ltd tabled a written statement on behalf of **Transpower**. In its original submission Transpower expressed that the original set of conditions volunteered by WK-NZTA in the application did not adequately provide for the protection of its assets. Since notification of the application

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Transpower and WK-NZTA had worked together on a revised set of conditions to address Transpower's concerns. She advised us that the amendments to the s 42A conditions as provided in Appendix A of the evidence of Karyn Sinclair do reflect those agreed with Transpower. Transpower supports these conditions, particularly conditions 24-25G.

231. Ms Searle concluded that subject to agreed conditions 24-25G being retained by WK-NZTA, and the re-insertion of the definition of HEN-MPE-A, Transpower considers that any effects associated with the project on the National Grid can be adequately addressed and can be appropriately avoided, remedied or mitigated.

Auckland Transport

232. **Ms Katherine Dorofaeff**, a Principal Planner in the Land Use Policy and Planning North / West team of Auckland Transport, provided evidence¹ on and outlined requested changes to conditions 45 and 49 to address concerns about safe integration between the project and local roads.

F. COUNCIL REPORTING OFFICERS/SPECIALISTS' EVIDENCE

233. A s42A report on the RCA was prepared by Nicola Holmes, Principal Specialist-Planning, circulated prior to the hearing and taken as read. We found this report to be comprehensive and addressed the resource consent issues on which we need to make a decision. Ms Holmes' report recommended that the various consents be granted subject to draft conditions which she attached to her report.

234. The reasons for Ms Holmes' recommendation were:

- (a) In accordance with an assessment under ss104(1)(a) and (ab) the actual and potential effects from the proposal are found to be acceptable for the following reasons.
- Appropriate erosion and sediment control methods will be utilised during the earthworks periods to manage sediment discharge
 - The stormwater management system is of an appropriate design that will maintain water quality and ensure waterways are not subjected to high contaminant levels
 - The construction works and ongoing operation of the road will not generate air quality effects that affect health or wellbeing of surrounding residents
 - Flooding outside of the designation area will not be exacerbated

¹ Aspects of Ms Dorofaeff's evidence relating to road damage were withdrawn prior to the hearing (refer email dated 13/10/20)

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- The groundwater drawdowns are not significant and will not result in settlement issues or affect existing water takes
 - Provided that commensurate offsetting is undertaken, the works within the waterways will not result in ecological effects considered to be greater than minor.
- (b) In accordance with an assessment under s 104(1)(b) the proposal is broadly consistent with the relevant statutory documents, including the AUP, the NZCPS, the HGMPA, the NES:AQ and the NES:FW;
- (c) In accordance with an assessment under s 104(1)(c), relevant iwi management plans and relevant biodiversity documents have been considered;
- (d) In regard to Part 2, the application meets the relevant provisions as it enables people and their communities to provide for their wellbeing through improved roading infrastructure in a manner which can manage the adverse effects on the natural and physical resources to an acceptable degree;
- (e) Overall, the proposal is generally consistent with the relevant objectives and policies of the AUP and will provide for improved transport links between Auckland and northland without generating an unacceptable level of adverse effects on the environment.
235. A hearing report on the NoR was prepared by Wayne Siu, Planner circulated prior to the hearing and taken as read. We found this report to be comprehensive and addressed the issues on which we needed to make a recommendation to the requiring authority. Mr Siu's report recommended that the NoR be confirmed, subject to a set of amended and additional conditions and modifications attached to his report.
236. The reasons for Mr Siu's recommendation were:
- (a) The NoR is consistent with Part 2 in that it enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety;
 - (b) In terms of section 171(1)(a), the NoR is consistent with and gives effect to the relevant national environmental standards, national policy statements and the AUP;
 - (c) In terms of section 171(1)(b), adequate consideration has been given to alternative sites, routes or methods for undertaking the work;
 - (d) In terms of section 171(1)(c), the NoR is reasonably necessary to achieve the requiring authority's objectives; and
 - (e) Restrictions, by way of conditions attached to the NoR have been recommended to avoid, remedy or mitigate adverse environmental effects associated with the works.

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237. A Council response at the conclusion of the hearing of evidence from WK and submitters was prepared by Mr Wayne Sui and Mr Blair Masefield (in Ms Holmes' absence), reporting planners for the NoR and RCA whose s 42A reports were tabled at the hearing on 15 October 2020.
238. The response document comprised four parts being:
- (a) Shared planning opinions of Mr Siu and Mr Masefield on common issues or condition matters across both the NoR and RCA;
 - (b) Planning opinions of Mr Siu on NoR specific matters;
 - (c) Planning opinions of Mr Masefield on RCA specific matters; and
 - (d) A series of attachments containing additional comments from Council specialists that refined their positions, following the presentation of evidence and submissions.
239. Of the additional comments provided by these specialists the authors of four of them (Mr Black (traffic effects), Ms Wilkening (acoustics), Mr Byrne (sediment/earthworks) and Mr Lowe (ecology)) were present at the final presentation, spoke to their comments and answered questions from the Commissioners. We have discussed their final positions in more detail in the decision.

APPENDIX 2 – WAKA KOTAHI'S MANAGEMENT PLAN SUMMARY

Management plan	Outcome to be achieved	Key criteria or documents	Future best practice	Improvements to P2Wk conditions
Designation				
Stakeholder and Communications	D8: "...how the Requiring Authority will communicate with the public and stakeholders for the duration of Project Works"	See condition D9.	N/a. Waka Kotahi has standard operating procedures and good practice guidelines that it follows (oral evidence of K Sullivan)	<p>Provide notice of advance works programme to residents and businesses in proximity to the Project Works (D9(e))</p> <p>All management plans to be provided publicly available online (D9(f))</p> <p>Maintain a Project website with current information about the Project including contact details for seeking further information about progress for the Project (D10A)</p>
Electricity Infrastructure Construction	D25F "...to ensure Project Works are carried out safely and to manage any potential adverse effects of the works on Transpower's assets, including confirming that all works will comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001) or any subsequent revision of that code"	<p>See D25G.</p> <p>New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001), or any subsequent revision of that code.</p>	<p>Prepared by a Suitably Qualified and Experienced Person (D25F)</p> <p>Reference to any subsequent revision of the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001)</p>	New. Agreed between Waka Kotahi and Transpower.

Construction Noise and Vibration	D28 "to identify how [noise and vibration criteria] conditions 26 and 27 will be met prior to the start of Project Works commencing ...and shall identify the Best Practicable Option for management and mitigation of all construction noise and vibration"	D28 "...include the information required by NZS 6803, Annex E2 and shall also include methods to minimise significant intermittent noise and vibration event effects on farm animals"	Prepared by a Suitably Qualified and Experienced Person (D28). Best Practicable Option is determined at the time, and incorporates the "current state of technical knowledge and the likelihood that the option can be successfully applied". References to NZS 6803 include any subsequent version incorporating future improvements to the industry standard.	D29 - Schedules setting out BPO for criteria exceedances to be provided to the Manager for information and more process requirements. D30 - 'stop works' and monitoring requirements for particular vibration exceedances. D30A - Site office or construction yards not allowed to be established and used for longer than 12 months, within 200 metres of any PPFs.
Construction Traffic	D34: The Requiring Authority shall manage construction traffic and parking to: a. ...Protect public safety including the safe passage of pedestrians, equestrians and cyclists; b. Minimise delays to road users, particularly during peak traffic periods; c. Minimise interruption to property access;	NZ Transport Agency Code of Practice for Temporary Traffic Management, or any subsequent version (D35A)	The CTMP is informed by the traffic immediately in place prior to the construction of the Project (D36). Prepared by a Suitably Qualified and Experienced Person (D35A). References to CoPTTM includes any subsequent version incorporating future improvements to the document (D35A).	Equestrians included in D34(a) Enable 24 hour emergency access for lifeline utilities (D34(e))

	<p>d. Inform the public about any potential impacts on the road network; and</p> <p>e. Enable 24 hour emergency access to lifeline utilities.</p>			
Site Specific Traffic	D38 "...to identify specific construction methods to comply with the CTMP and to address the particular circumstances, local traffic and community travel demands within the area covered by the SSTMP"	See D39.	<p>Prepared by a Suitably Qualified and Experienced Person (D38)</p> <p>References to CoPTTM includes any subsequent version incorporating future improvements to the document (D38).</p> <p>The SSTMP is prepared at the time and therefore responds to future demands.</p>	
Urban Landscape Design Framework	<p>D43, to:</p> <p>a. Set the framework for integration of the permanent Project Works into the surrounding landscape and topography, and built environment, having regard to the local landscape and character</p>	<p>See D44, includes:</p> <ul style="list-style-type: none"> - Planning Version ULDF (2019) (submitted with the Notice of Requirement); - NZ Transport Agency Bridging the Gap NZTA Urban Design Guidelines (2013), or any subsequent version; - NZ Transport Agency Landscape Guidelines (final draft dated 2014), or any subsequent version, and the - NZ Transport Agency P39 Standard Specification for Highway Landscape 	<p>The ULDF is prepared by a Suitably Qualified and Experienced Person (D44). Documents that could be updated prior to the preparation of the ULDF have been defined to include any subsequent version of those documents.</p>	<p>"Planning ULDF" proposed with the application to inform the final ULDF</p> <p>Specific landscape screening for landowner visual effects addressed in detailed condition maps.</p> <p>Specific consultation requirements with named landowners removed.</p>

	<p>and contexts along the Project route;</p> <p>b. inform development of the Urban and Landscape Design Management Plan(s) (ULDMP(s)); and</p> <p>c. support the achievement of the Ecological Outcomes in condition 54C of the resource consents, by combining landscape planting, restoration planting and habitat rehabilitation where practicable</p>	<p>Treatments (2013), or any subsequent version;</p> <ul style="list-style-type: none"> - the ULDF for Ara Tūhono Puhoi to Warkworth section of SH1; - Landscape mitigation planting and screen planting shown on Maps 7 – 12 - Te Aranga Principles, Auckland Design Manual (2013), or any subsequent version; - Cultural Engagement Plan; and - the Ecological Outcomes in condition 54C of the resource consent conditions. 		
Urban Landscape and Design	<p>See D48. "... to identify, how for the relevant sector:</p> <p>a. the Key Design Principles and Sector Outcomes identified in the ULDF will be met by the permanent Project Works;</p> <p>b. the landscape and visual requirements (conditions 49 to 50) have been incorporated; and</p> <p>c. landscape planting is to be integrated with restoration</p>	<p>See D49 and D50.</p> <p>NZ Transport Agency P39 Standard Specification for Highway Landscape Treatments (2013), or any subsequent version (D50)</p>	<p>Prepared by a Suitably Qualified and Experienced Person (D48)</p> <p>The referenced standard allows any subsequent version to be used in the development of the ULDMP.</p>	<p>Recognising the consultation undertaken to date, the ULDMPs are to be provided to the landowners of properties listed in D49(b)(xiv), with comment as to how the landscape mitigation and visual screen planting has been incorporated through detailed design.</p> <p>Improved integration with ecological mitigation.</p>

	planting and habitat rehabilitation or other planting required for the Project.”			
Historic Heritage	D78:“... to identify indirect and direct adverse effects on historic heritage sites and appropriate methods to avoid, remedy and mitigate them.”	See D79A and D81.	D79A specifies that the HHMP shall be prepared with up to date information, the Cultural Indicators report and additional areas of survey and investigation. Prepared by a Suitably Qualified and Experienced Person (D81).	Generally similar, with cultural matters being addressed more specifically elsewhere by agreement with Hokai Nuku.
Construction Air Quality	D86 “There shall be no noxious, dangerous, objectionable or offensive dust, fumes or odour to the extent that it causes an adverse effect at or beyond the proposed designation boundary.”	See D87. Good Practice Guide for Assessing and Managing Dust, Ministry for Environment, 2016, or any subsequent version and the NZ Transport Agency Guide to assessing air quality impacts from state highway projects (version 2.3, October 2019), or any subsequent version.	Prepared by a Suitably Qualified and Experienced Person (D87) References to the relevant standards includes any subsequent version incorporating future improvements to the document (D88).	Similar to the management plan in RC conditions for P2Wk with: <ul style="list-style-type: none"> • A new and stronger outcome, based on Mr Clarke’s view of best practice (D86). • Further detail and improvements to dust incident responses.
Noise Mitigation	Not specified as standard Waka Kotahi process.	NZ Transport Agency P40 Noise Specification 2014, or any subsequent version	Prepared by a Suitably Qualified and Experienced Person (D89) References to the relevant standards includes any subsequent version incorporating	New to ensure post operation check on success of mitigation and noise levels and to address specific noise issues.

			future improvements to the document (D88).	
Resource consent				
Construction Environmental	See RC16 "...to set out management procedures and methods to be implemented to ensure ongoing compliance with these conditions and to address complaints and incidents in a timely manner during Construction Works"	See RC17, including NZ Transport Agency Guideline for Preparing Environmental and Social Management Plans (April 2014), or any subsequent version	Prepared prior to the commencement of Construction Works (RC16). References to the Guidelines includes any subsequent version incorporating the future improvement of that document (RC17).	Generally the same as P2Wk.
Erosion and Sediment Control Plan	See RC21: Prioritise minimisation of sediment generation by: i. minimising the volume and area of the proposed earthworks required for the Project through earthworks design appropriate to slope and expected soil types and geology; ii. maximising the effectiveness of ESC measures associated with earthworks by minimising potential for sediment	See RC22. RC23 and RC24. GD05 (RC 22)	Prepared prior to the Construction Works (RC23). Prepared by a Suitably Qualified and Experienced Person (RC24) Definition of GD05 includes any subsequent version of the document, incorporating future improvements to the document (Definitions)	Generally similar to P2Wk with further improvements set out in G Ridley evidence.

	<p>generation and sediment yield; and</p> <p>iii. Minimisation of discharges of all construction water related contaminants.</p> <p>Monitor sediment yields and assess and remedy effects on freshwater and marine environments at the prescribed thresholds in Conditions 34 to 42.</p>			
Construction Erosion and Sediment Control	See RC27: " to set out how the requirements of the certified ESCP and the ESC standards in Condition 26 will be met for that Stage or activity"	RC28	<p>Prepared for each stage of the Project (RC27)</p> <p>Prepared by a Suitably Qualified and Experienced Person (RC28)</p>	Generally similar to P2Wk with further improvements set out in G Ridley evidence
Adaptive Management Programme	<p>See RC31. To:</p> <p>a) ensure the ESC Outcomes are met;</p> <p>b) set out the methodology for calculating and recording sediment released in relation to the Acute Event</p>	See RC32.	<p>Prior to Construction Works (RC31)</p> <p>Prepared by a Suitably Qualified and Experienced Person (RC 32)</p>	<p>Generally similar to P2Wk with further improvements set out in EIC Mr G Ridley.</p> <p>Also incorporates the proposed sedimentation mitigation offsetting developed by Dr De Luca, Dr Bell and Mr Ridley.</p>

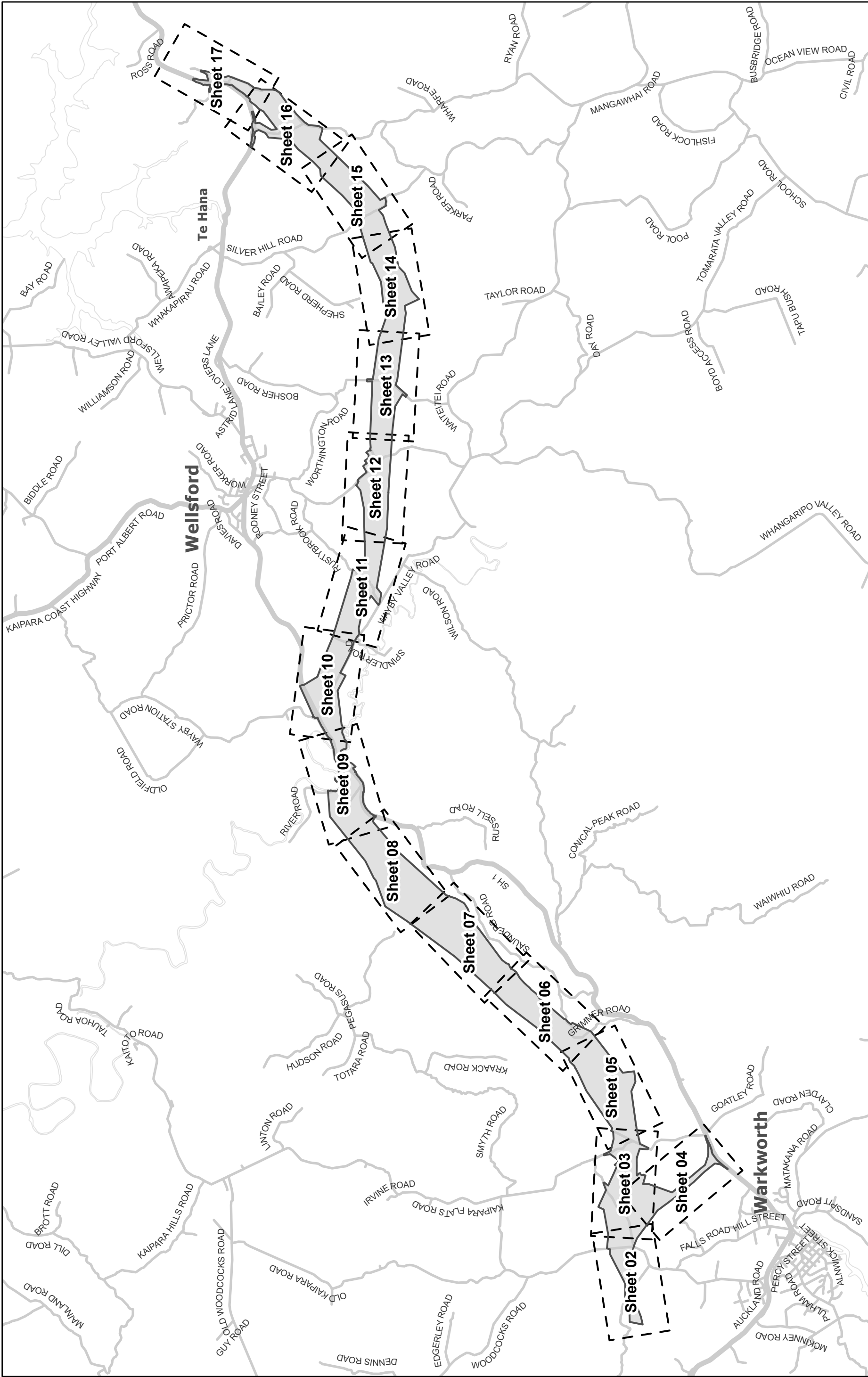
	<p>and Cumulative Thresholds; and</p> <p>c) ensure continuous improvement as to the effectiveness of the erosion and sediment controls employed on site.</p>			
Biosecurity Plan	<p>See RC54A, to " set out the procedures to be used to prevent the introduction and/or spread of kauri dieback disease, and other biosecurity hazards such as Myrtle rust, Argentine ants and plague skink"</p>	<p>See RC54B.</p> <p>"Hygiene Procedures for Kauri Dieback", "Land disturbance activities (including earthworks) around kauri", " Vehicle and Heavy Machinery Hygiene", "Landfill Disposal of Contaminated Material" and "Procedures for Tree Removal and Pruning" and any other relevant guidelines published by the Ministry for Primary Industries Kauri Dieback Management Programme, or any subsequent revision which can be found at www.kauridieback.co.nz</p> <p>Contain best practice biosecurity protocols to respond to any other identified biosecurity risk where required to do so by legislation</p>	<p>Prepared prior to the Project Works commencing (RC54A).</p> <p>Prepared by a Suitably Qualified and Experienced Person (RC54B).</p> <p>The Biosecurity Plan must be prepared with respect to subsequent revisions of the listed documents, and best practice biosecurity protocols to respond to any other identified biosecurity risk to incorporate future documents (RC54B).</p>	<p>Similar outcomes to P2Wk but broadened to accommodate other biosecurity risks.</p> <p>Details on Kauri dieback management removed due to more knowledge and guidance on best practice since P2Wk. (This condition is agreed by Auckland Council and Department of Conservation).</p>

Ecology	See RC54C for Ecological Outcomes.	See RC54D.	Prepared by a Suitably Qualified and Experienced Person (RC54D, RC54G, RC54J, RC54M). Best practice referred to as appropriate.	Emphasis on achieving integrated mitigation strategy and securing particular ecological outcomes relevant to this project
Stream Ecological Effects	See RC77	See RC76 and RC77. Stream Ecological Valuation: application to intermittent streams (Auckland Council Technical Report 2016/023), or any subsequent version; and Stream Ecological Valuation SEV): a method for assessing the ecological functions of Auckland streams (Auckland Council Technical report 2011/009), or any subsequent version.	Prepared in accordance with SEV documents which include any subsequent version of the documents incorporating future changes to those documents (RC76). Provided prior to the start of any Construction Works (RC78) Prepared by a Suitably Qualified and Experienced Person (RC77)	Updated approach to reflect SEV method now recorded in AUP.
Native Freshwater Fish Capture and Relocation	See RC79 "...to detail how native fish will be salvaged prior to works commencing"	See RC79.	Prepared by a Suitably Qualified and Experienced Person (RC79) Prior to any Wetland or Watercourse activity commencing (RC79)	New - requested by Auckland Council.
Stormwater Operation and Maintenance Plan	See RC96 "... to ensure the Project stormwater management devices are maintained to achieve their design function"	See RC98	Prior to operation of the state highway (RC97) Prepared by a Suitably Qualified and Experienced Person (RC98)	New - requested by Auckland Council.

Rock Crusher	See 101A: There shall be no noxious, dangerous, objectionable or offensive dust, fumes or odour to the extent that it causes an adverse effect at or beyond the proposed designation boundary.	See RC102. Good Practice Guide for Assessing and Managing Dust, Ministry for Environment, 2016 NZ Transport Agency Guide to assessing air quality impacts from state highway projects (version 2.3, October 2019)	Prepared by a Suitably Qualified and Experienced Person (RC102) References to the relevant standards includes any subsequent version incorporating future improvements to the document (RC103)	A new and stronger outcome, based on Mr Clarke's view of best practice
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SCHEDULE A

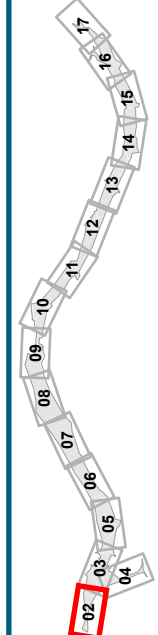
DESIGNATION REFERENCE:	Ara Tūhono - Warkworth To Wellsford
DESIGNATION NUMBER:	[TBA]
REQUIRING AUTHORITY:	Waka Kotahi - The New Zealand Transport Agency
LOCATION:	Multiple sites between Warkworth and north of Te Hana (refer <u>attached</u> Designated Land Maps)
PURPOSE:	Construction, operation and maintenance of a new state highway and associated activities between Warkworth and north of Te Hana on the Designated Land
CONDITIONS:	See <u>attached</u> Conditions of Designation



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	<p>Drawn: JLV</p> <p>Approved: BN</p> <p>Scale: NTS</p>	<p>Drafting: KS</p> <p>Approved: BN</p> <p>Scale: NTS</p>	<p>Designed: -</p> <p>Checked: -</p> <p>Date: MARCH 2020</p> <p>This Drawing must not be used for Construction unless signed as Approved</p>
<p>Warkworth to Wellsford</p> <p>WAKA KOTAHI NZ TRANSPORT AGENCY</p>			<p>Sheet: 01 of 17</p> <p>Rev: 0</p>



-  DESIGNATION BOUNDARY
-  CADASTRAL BOUNDARIES
-  PROPERTY IDENTIFICATION NUMBER
-  LAND TO BE DESIGNATED



WAKA KOTAHI
 NZ TRANSPORT
 AGENCY

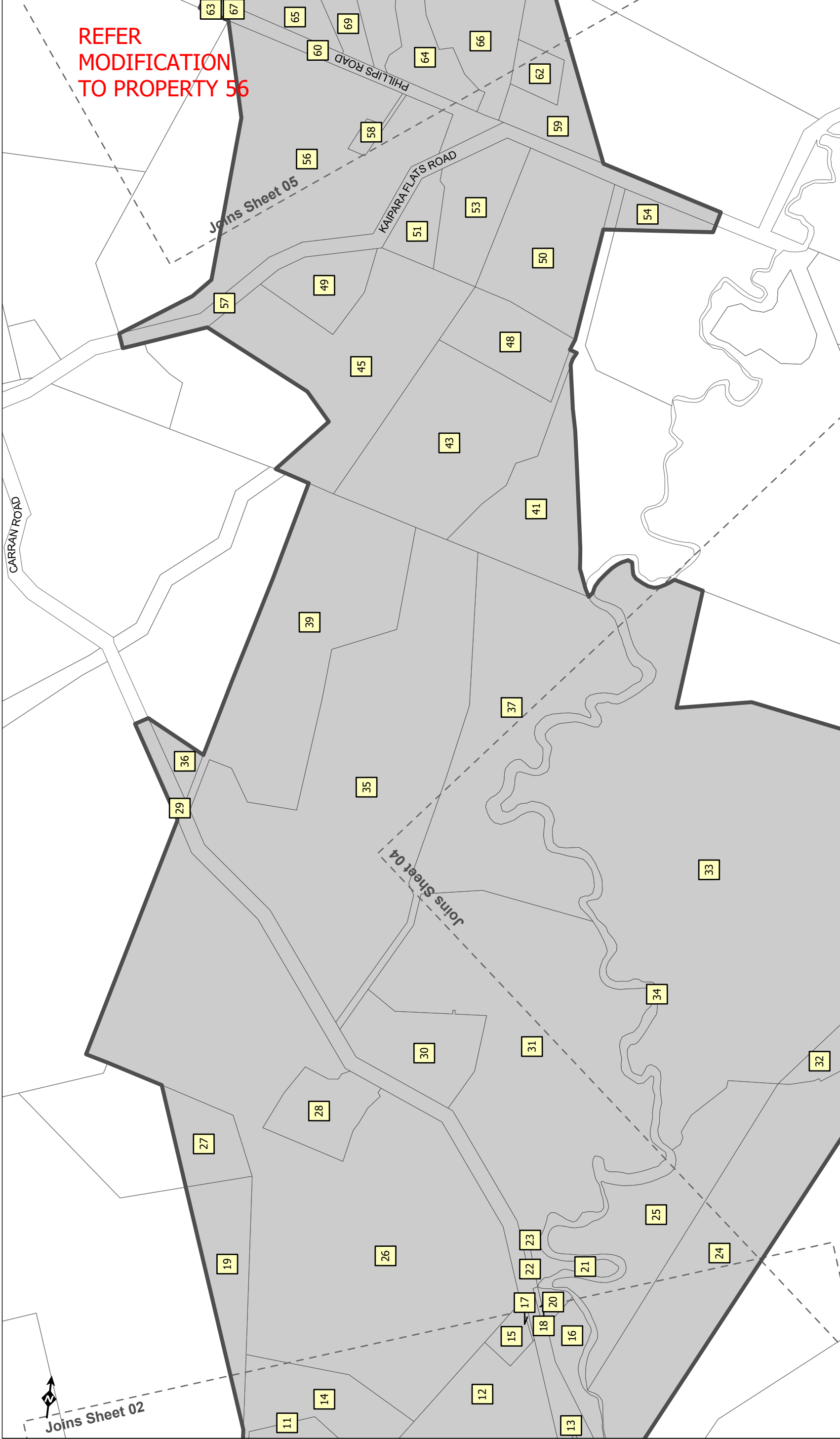
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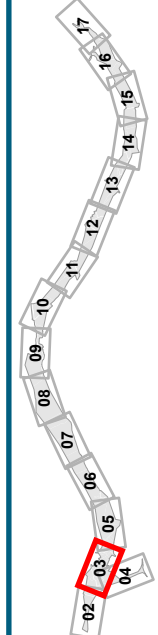
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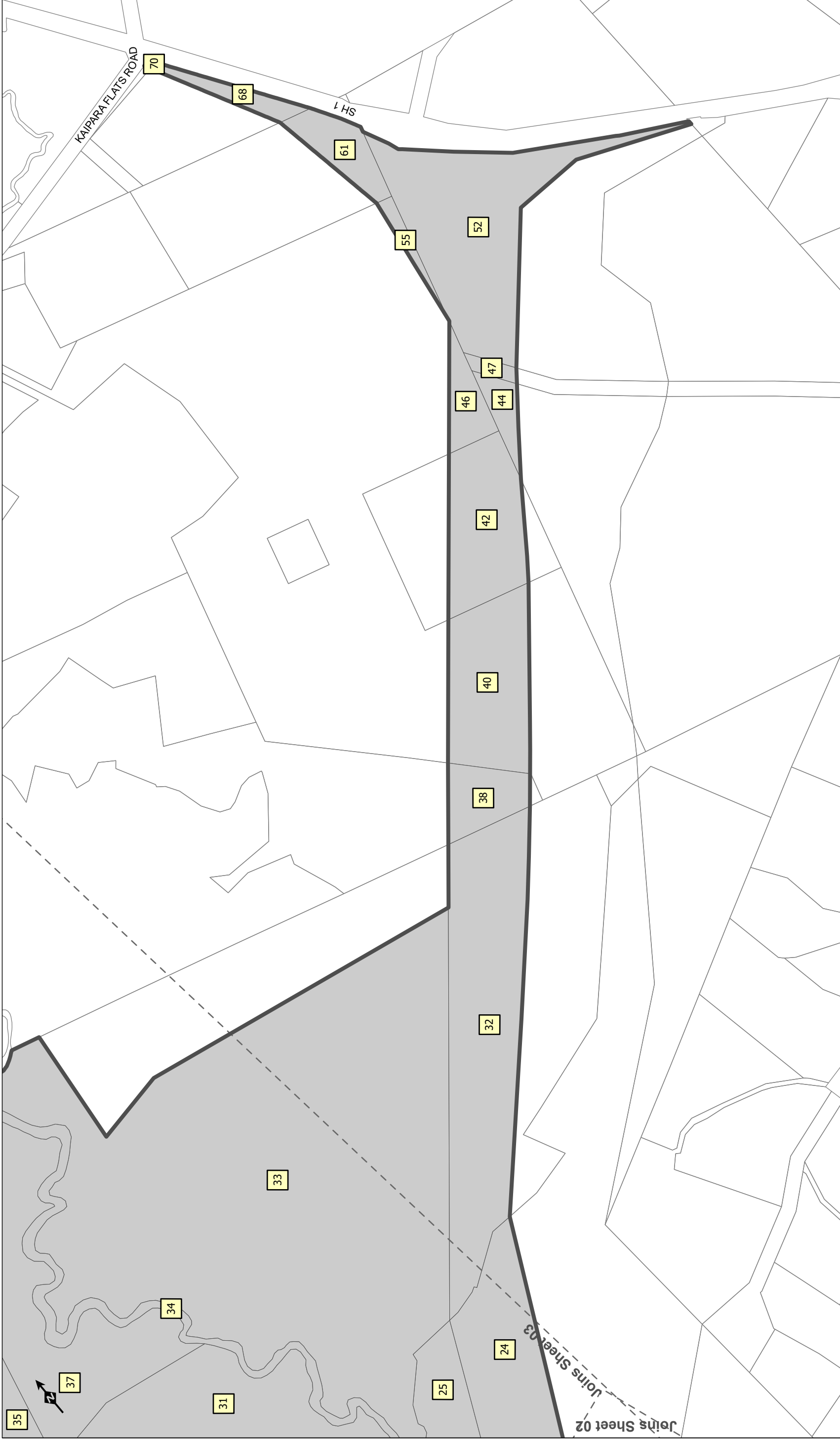
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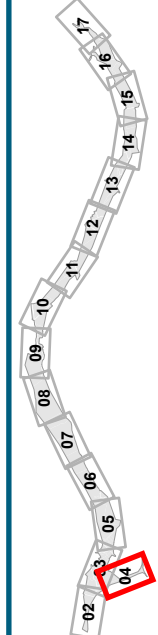
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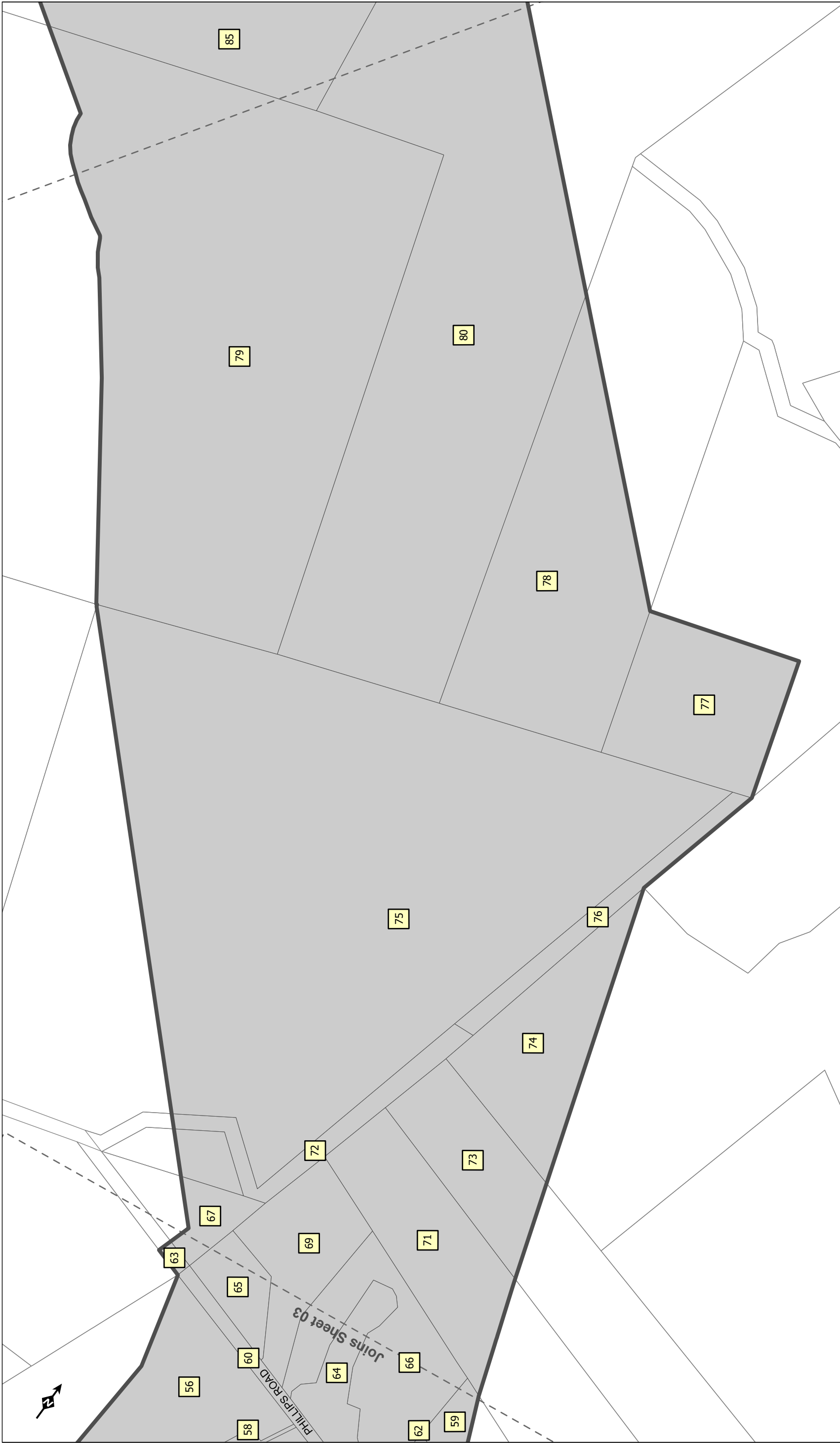
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Contract: PA4156

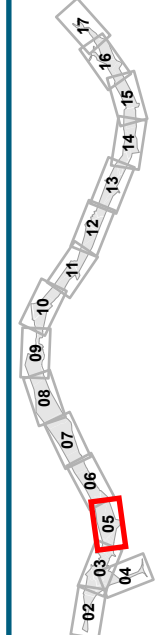
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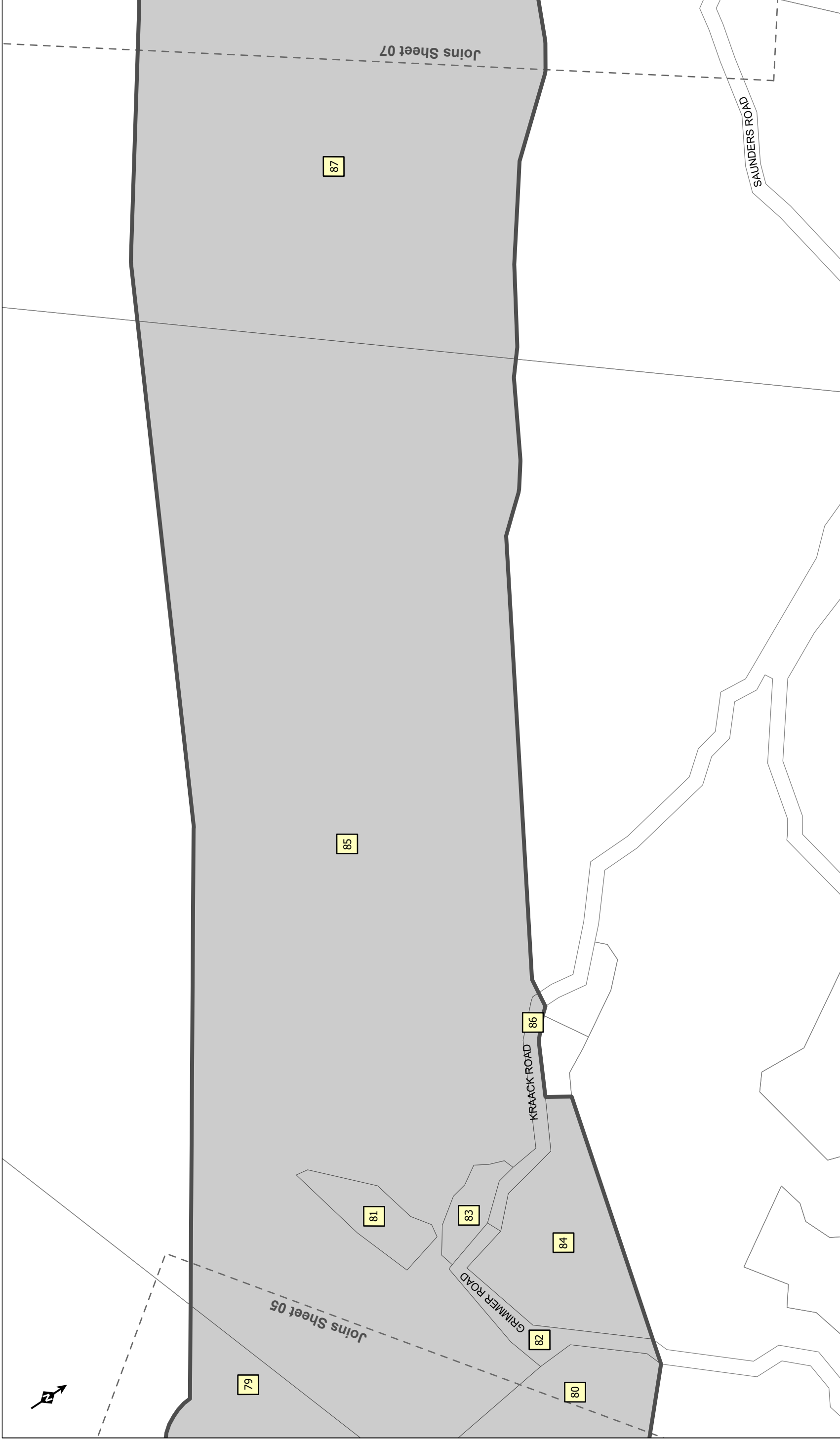






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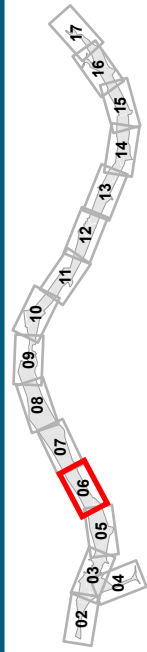
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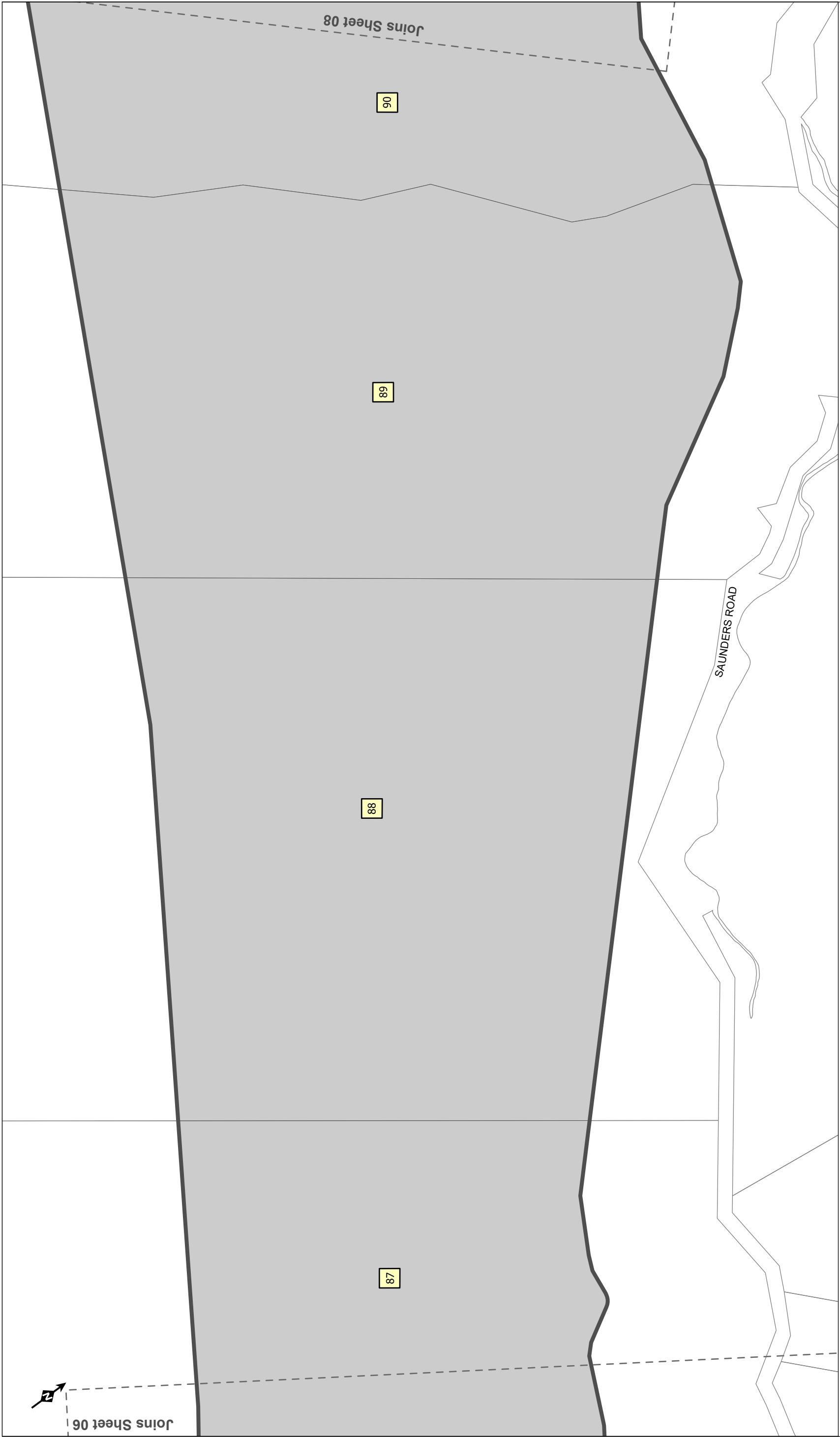


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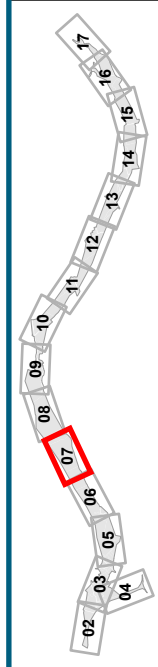
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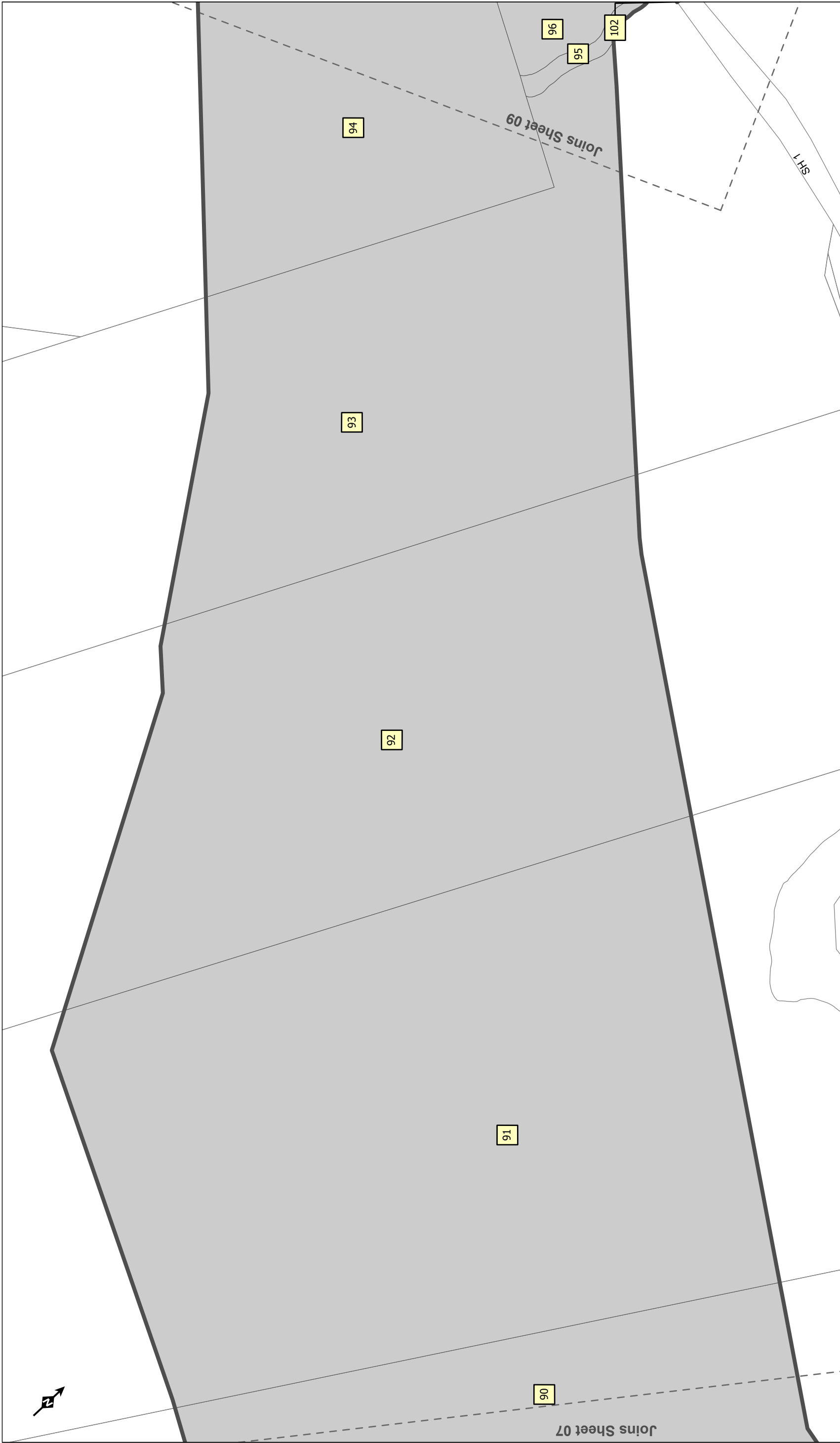
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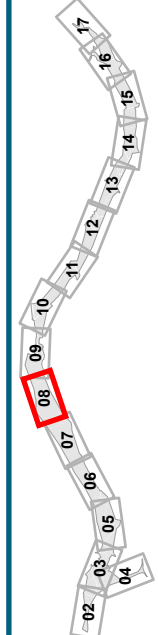
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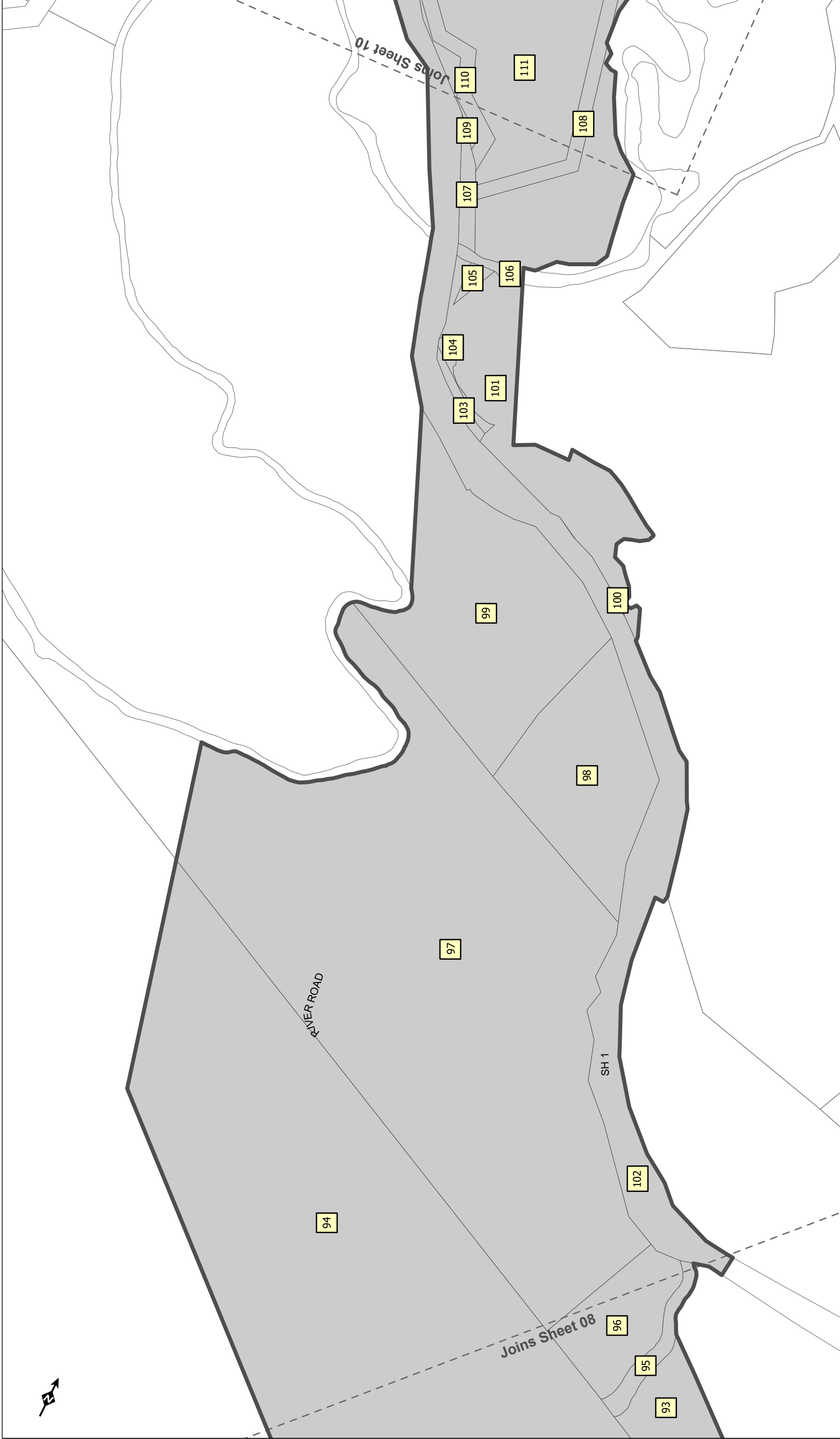
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
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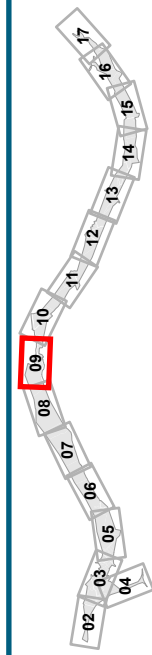
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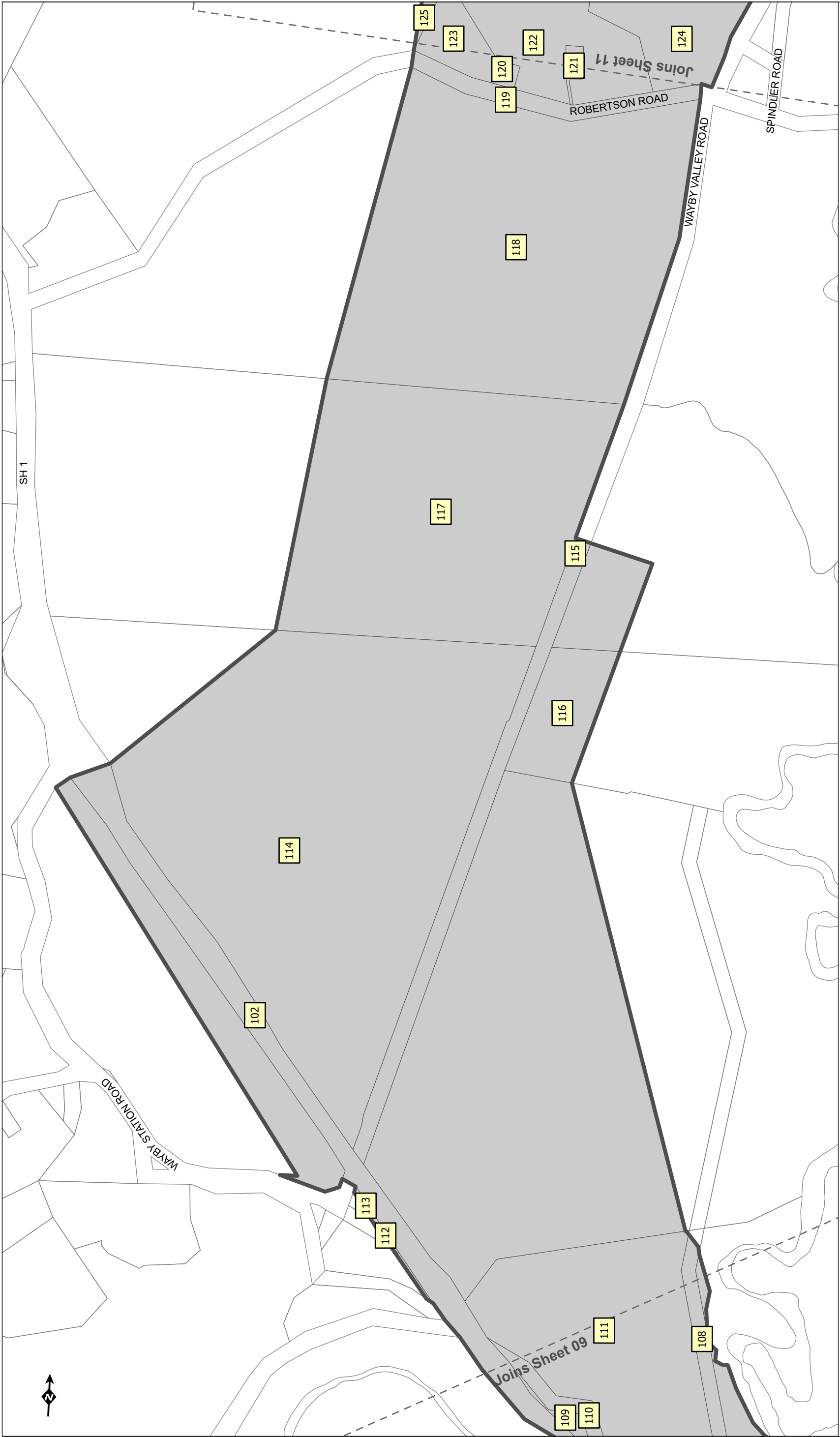






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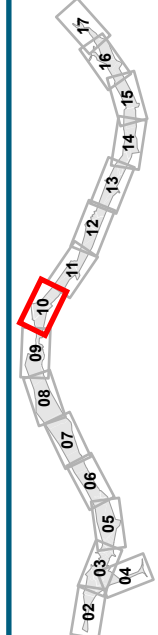
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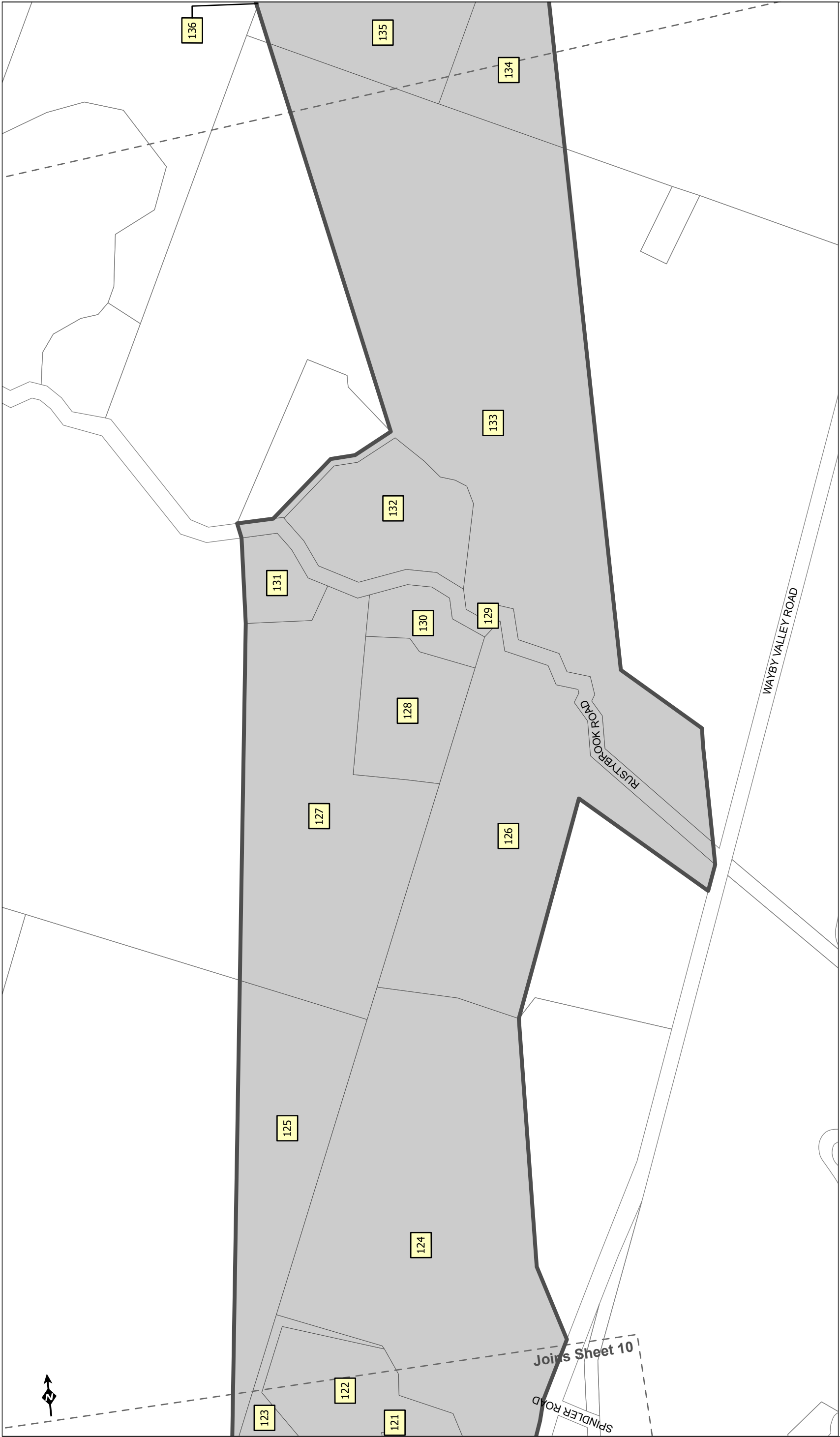
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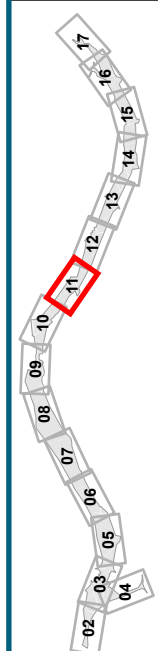
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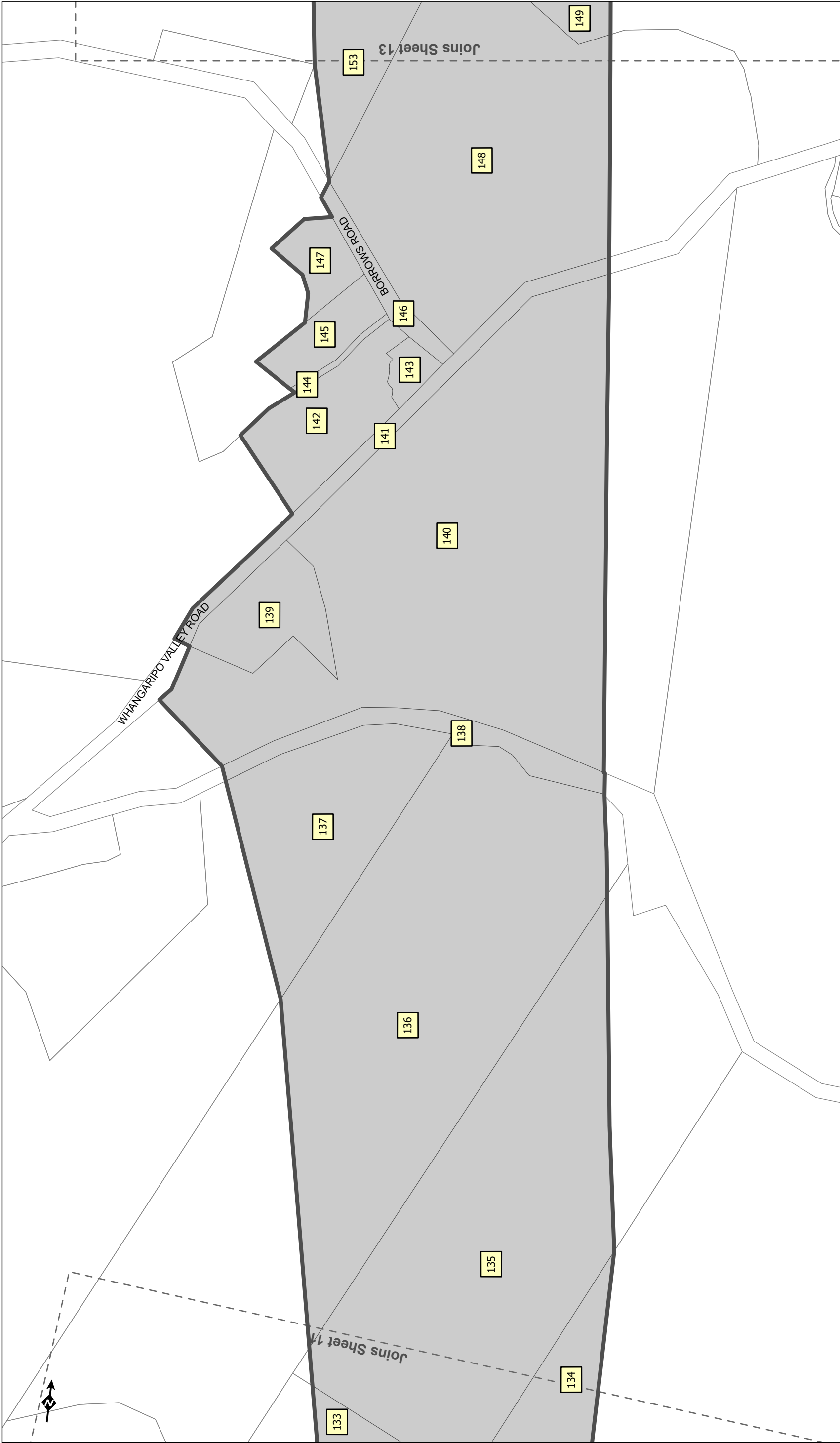






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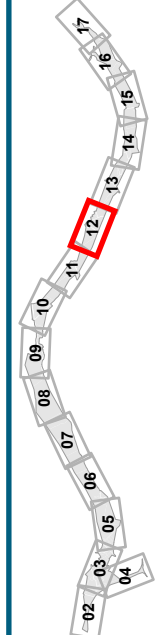
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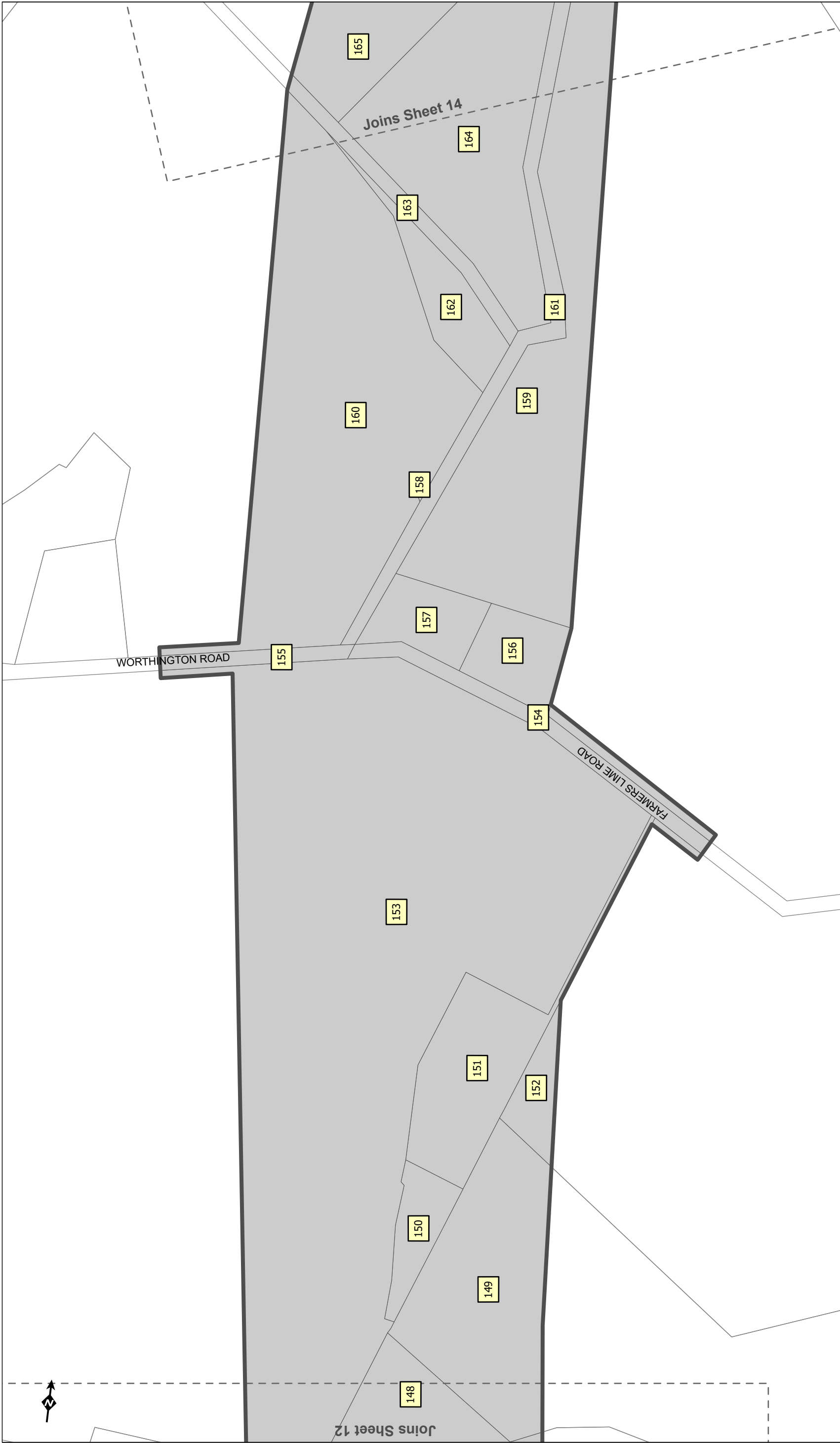
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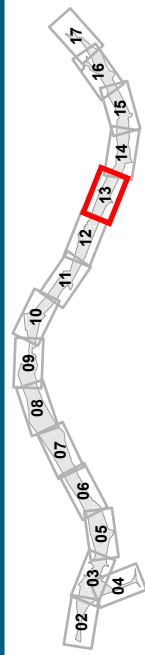
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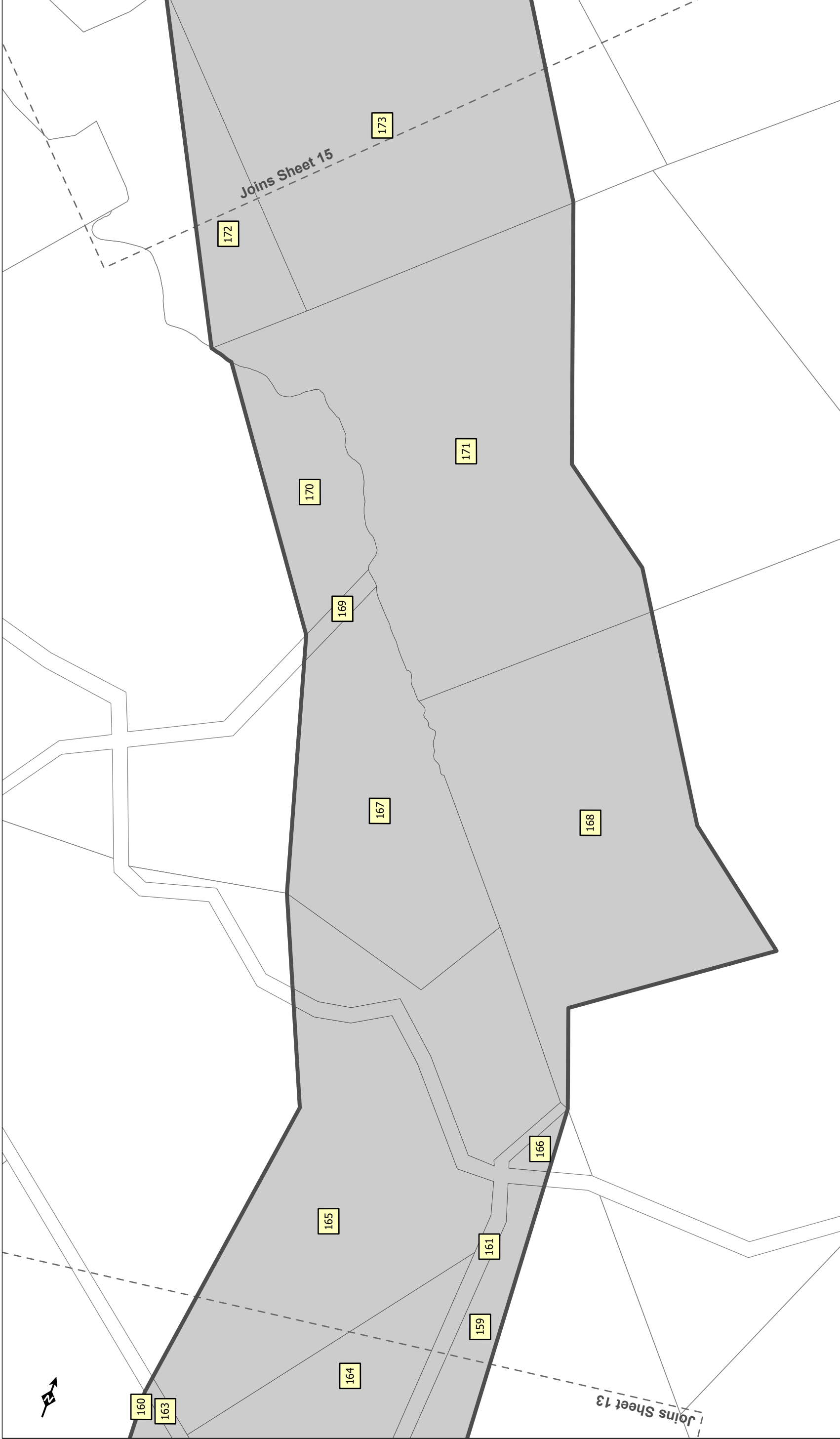
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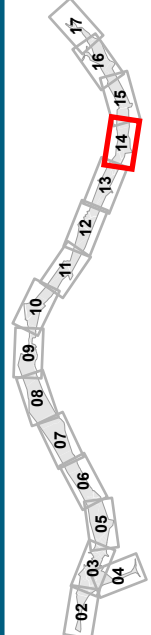
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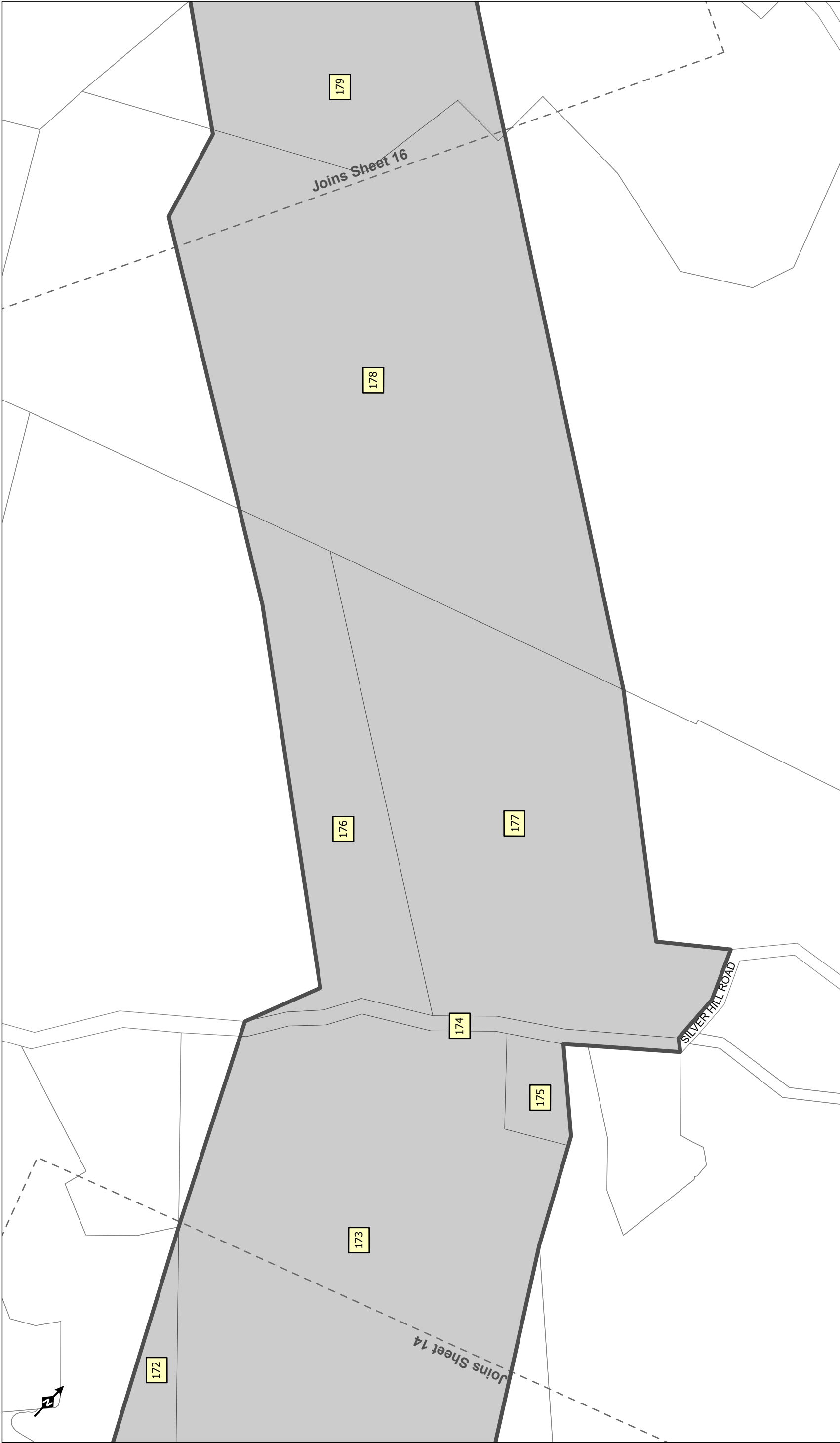






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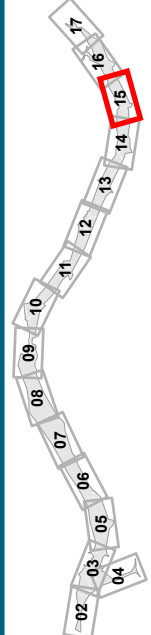
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-  PROPERTY IDENTIFICATION NUMBER



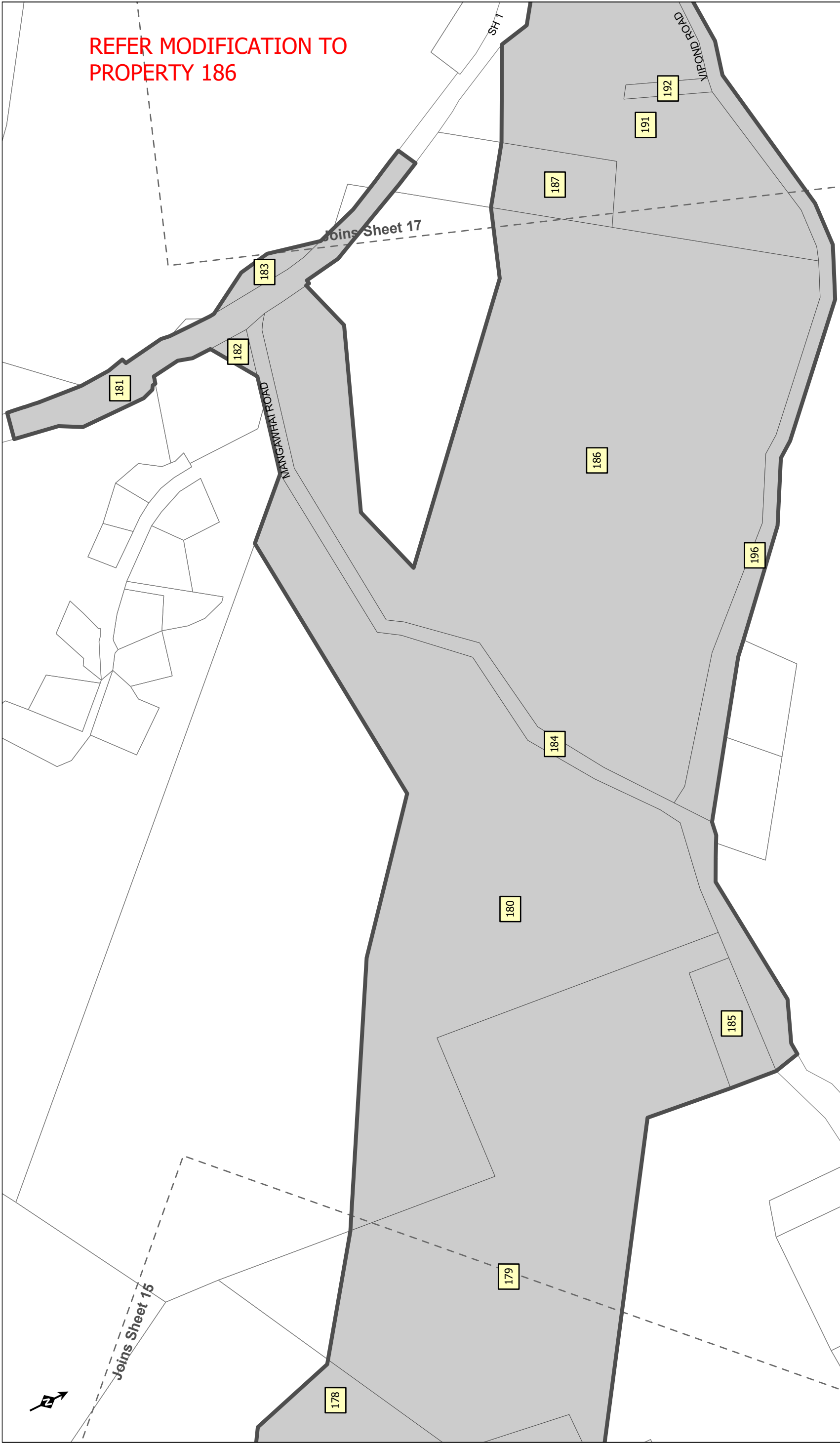
Warkworth to Wellsford





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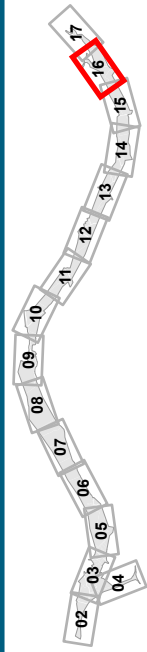
FOR RMA APPROVALS			
Drawn	JLW	Drafting	KS
Approved	BN	Check	KS
Date	MARCH 2020	Designed	-
		Design	Check
Scale	NTS	This Drawing must not be used for Construction unless signed as Approved	
		Original Size	
		A3	

PROJECT:	WARKWORTH TO WELLSFORD PROJECT
TITLE:	PROPOSED DESIGNATION
Contract:	PA4156
Drawing No:	Sheet: 15 of 17
Rev:	0

REFER MODIFICATION TO
PROPERTY 186



-  DESIGNATION BOUNDARY
-  CADASTRAL BOUNDARIES
-  LAND TO BE DESIGNATED
-  PROPERTY IDENTIFICATION NUMBER







Warkworth to Wellsford

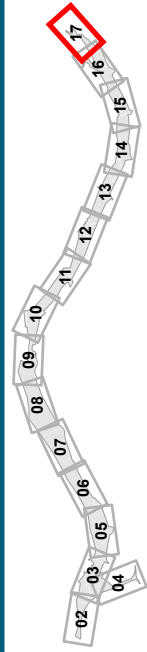
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Approved	BN	Design	-
Scale	NTS	Date	MARCH 2020
		Original Size	A3

PROJECT:	WARKWORTH TO WELLSFORD PROJECT
TITLE:	PROPOSED DESIGNATION
Contract:	PA4156
Drawing No:	Sheet: 16 of 17
Rev:	0



-  DESIGNATION BOUNDARY
-  LAND TO BE DESIGNATED
-  CADASTRAL BOUNDARIES
-  PROPERTY IDENTIFICATION NUMBER



Warkworth to Wellsford

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FOR RMA APPROVALS			
Drawn	JLW	Drafting	KS
Approved	BN	Check	KS
Date	MARCH 2020	Design	-
		Check	-
Scale	NTS	This Drawing must not be used for Construction unless signed as Approved	
		Original Size A3	

PROJECT: **WARKWORTH TO WELLSFORD PROJECT**
 TITLE: **PROPOSED DESIGNATION**
 Contract: **PA4156**
 Drawing No: **17 of 17**
 Rev: **0**



Lot 2 DP 321559

Allot 59A PSH OF Kourawhero

Allot 59 PSH OF Kourawhero

Lot 2 DP 168605

Pt Allot 27 PSH OF Kourawhero

Lot 2 DP 439658

Pt Allot 27 PSH OF Kourawhero

Lot 1 DP 152292

Lot 1 DP 103533

PHILLIPS ROAD

Lot 1 DP 50365

Pt Allot 92 PSH OF Mahurangi

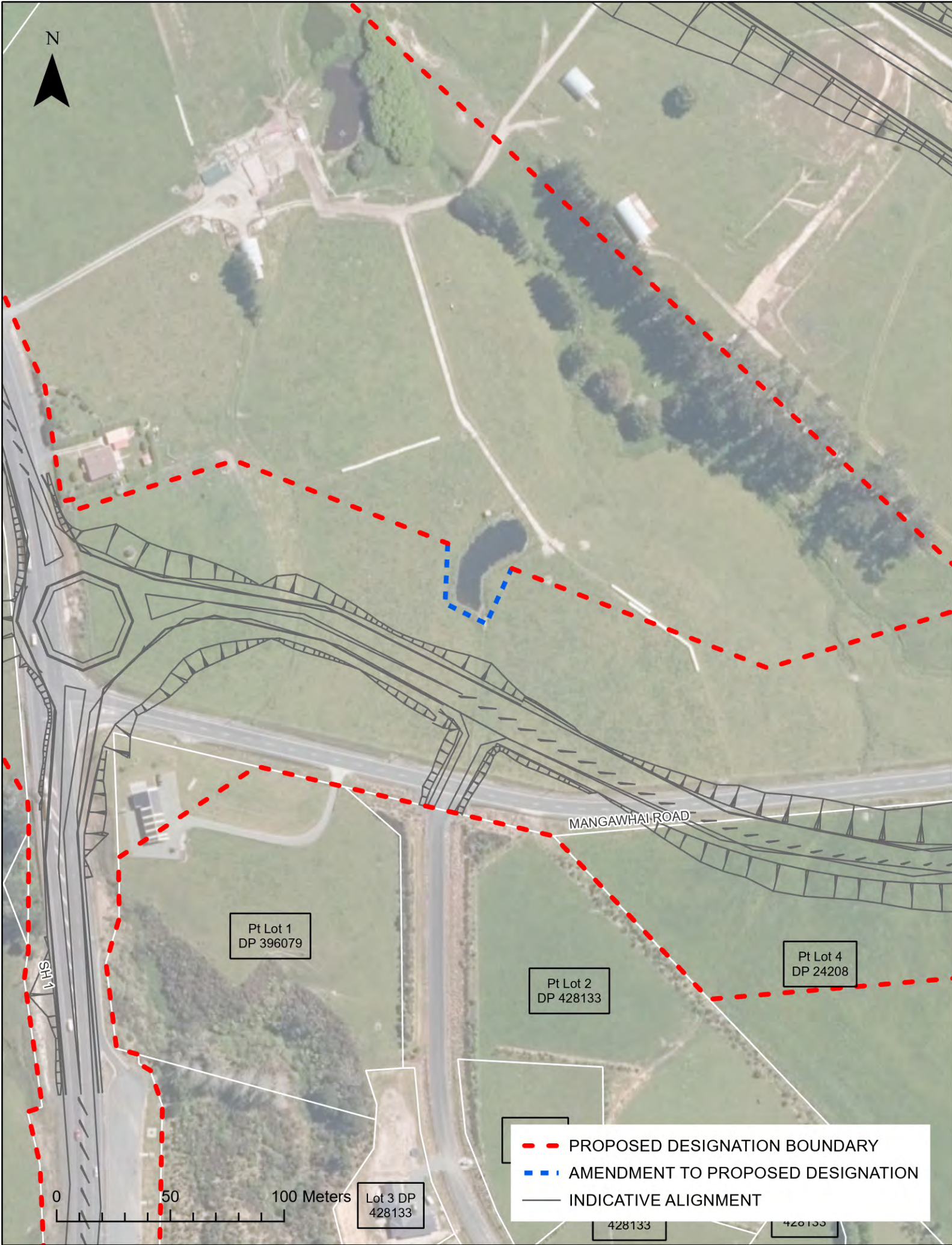
Lot 2 DP 395817




KAIPARA FLATS ROAD

Alteration to proposed designation (Sep 2020)
Proposed designation boundary (March 2020)

0 50 100 Meters

N



-  PROPOSED DESIGNATION BOUNDARY
-  AMENDMENT TO PROPOSED DESIGNATION
-  INDICATIVE ALIGNMENT

0 50 100 Meters

Pt Lot 1
DP 396079

Pt Lot 2
DP 428133

Pt Lot 4
DP 24208

Lot 3 DP
428133

MANGAWHAI ROAD

SH 1

CONDITIONS OF DESIGNATION

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MAPS

Maps 1 – 6 Mitigation sites

DEFINITIONS

The table below defines the acronyms and terms used in the conditions. Defined terms are capitalised throughout the conditions.

Acronym / Term	Definition / Meaning
Auckland Transport	The Chief Executive of Auckland Transport or authorised delegate
AUP(OP)	Auckland Unitary Plan Operative in Part
Best Practicable Option or BPO	Best Practicable Option as defined in section 2 of the Resource Management Act 1991.
Building-Modification Mitigation	As defined in New Zealand Standard NZS 6806:2010: Acoustics – Road-traffic noise – New and altered roads
CAQMP	Construction Air Quality Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CIR	Cultural Indicators Report
Construction Works	Activities undertaken to construct the Project excluding Enabling Works

Acronym / Term	Definition / Meaning
COPTTM	NZ Transport Agency Code of Practice for Temporary Traffic Management, or any subsequent version
CTMP	Construction Traffic Management Plan
Day(s)	Has the same meaning as “working day” under section 2 of the RMA
Designated Land	The land subject to the Designation
Designation	The designation included in the AUP(OP)
EICMP	Electricity Infrastructure Construction Management Plan
Enabling Works	Preliminary construction activities as follows: <ul style="list-style-type: none"> • geotechnical investigations (including trial embankments) • formation of access for geotechnical investigations • establishment of site yards, site offices, site entrances and site access points and fencing • constructing and sealing site access roads • demolition or removal of buildings and structures • relocation of services • establishment of mitigation measures (such as erosion and sediment control measures, temporary noise walls, earth bunds and screen planting)
EWCTMP	Enabling Works Construction Traffic Management Plan
Habitable Space	As defined in New Zealand Standard NZS 6806:2010: Acoustics – Road-traffic noise – New and altered roads
HHMP	Historic Heritage Management Plan
Heavy Vehicle	A motor vehicle having a gross laden weight exceeding 3500 kg
HEN-MPE-A	Transpower’s Henderson to Maungatapere A (HEN-MPE-A) 110kV high voltage transmission line assets, which include: <ul style="list-style-type: none"> • the existing HEN-MPE-A transmission line Spans 199-204 and support structures/Towers 200-203; and • any proposed new or relocated high voltage transmission line assets (spans and/or support structures) required as a result of the Project Works.
Highly Sensitive Receiver (HSR)	Residential dwellings within: <ul style="list-style-type: none"> • 200m of the Designation boundary; • 50m of sealed access roads used for Project Works up to 500 m outside of the Designation boundary; and • 100m of unsealed access roads used for Project Works outside of the Designation boundary.
HNZPT	Heritage New Zealand Pouhere Taonga

Acronym / Term	Definition / Meaning
HNZPTA	Heritage New Zealand Pouhere Taonga Act 2014
Hōkai Nuku	The iwi collective being comprised of the representatives for Ngāti Manuhiri, Ngāti Mauku/Ngāti Kauae of Te Uri o Hau, Ngāti Rango of Ngāti Whātua o Kaipara and Ngāti Whātua.
Iwi Advisor	The advisor (or other nominated kaitiaki) appointed by Hōkai Nuku in accordance with Condition 19D.
Manager	The Team Manager – Compliance Monitoring, of Auckland Council, or authorised delegate
Mana Whenua	Māori who can demonstrate customary rights through occupation to resources within the Project area, and who have responsibilities as kaitiaki over their tribal lands, waterways and other taonga
Mitigation Sites	The mitigation planting sites identified on Maps 1 to 6 included with the Designation
Network Utility Operation(s)/Operator(s)	As defined in section 166 of the RMA, for the avoidance of doubt this includes the North Albertland Community Water Supply Association
NMP	Noise Mitigation Plan
Noise Criteria Categories	The groups of preference for sound levels established in accordance with New Zealand Standard NZS 6806:2010: <i>Acoustics – Road-traffic noise – New and altered roads</i> when determining the BPO for noise mitigation (Categories A, B and C)
NZS 6803	New Zealand Standard 6803:1999: <i>Acoustics – Construction Noise</i> , or any subsequent version
NZS 6806	New Zealand Standard NZS 6806:2010: <i>Acoustics – Road-traffic noise – New and altered roads</i> , or any subsequent version
PPF	Protected Premises and Facilities as defined in New Zealand Standard NZS 6806:2010: <i>Acoustics – Road-traffic noise – New and altered roads</i>
Project	The construction, maintenance and operation of the Ara Tūhono Warkworth to Wellsford Project, which extends from Warkworth to north of Te Hana
Project Liaison Person	The person or persons appointed for the duration of the construction phase of the Project to be the main and readily accessible point of contact for persons affected by the construction work
Project Works	All activities undertaken to construct the Project (Construction Works and Enabling Works) and including ecological and

Acronym / Term	Definition / Meaning
	landscape mitigation activities, but excluding operation of the highway
Resource Consent	BUN60354951 (comprising LUC60354952, LUS60354955, WAT60354953, WAT60355184, WAT 60356979, DIS60354954, LUC60355185, DIS60355186) granted to the Requiring Authority by Auckland Council
RMA	Resource Management Act 1991
SECMP	Stakeholder Engagement and Communications Management Plan
SH1	State Highway 1
SSTMP	Site Specific Traffic Management Plan
Stage(s)	A specific works area or new land disturbing activity associated with construction of the Project as nominated by the Requiring Authority
Structural Mitigation	As defined in New Zealand Standard NZS 6806:2010: <i>Acoustics – Road-traffic noise – New and altered roads</i>
Suitably Qualified and Experienced Person	A person (or persons) who can provide sufficient evidence to demonstrate their suitability and competence
Threatened Species	Species listed as per the Department of Conservation's <i>New Zealand Threat Classification System (NZTCS)</i>
TTM	Temporary Traffic Management
ULDF	Urban and Landscape Design Framework
ULDMP	Urban and Landscape Design Management Plan

INTERPRETATION NOTES

In the event that interpretation of these Designation conditions is necessary during construction or operation of the Project, recourse shall be had to the Notice of Requirement and Consent Applications (dated 20 March 2020) and supporting documents, Section 92 Responses and Evidence presented at the Hearing.

The scope of this Designation does not cover plantation forest activities defined by the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 and related activities in the commercial plantation forest (Mahurangi Forest) located west of SH1. Separate statutory authorisations may be required for those activities.

GENERAL

1. All Project Works and operation of the State highway shall be undertaken in accordance with the Resource Consents, in addition to the Conditions of this Designation.
- 1A. As soon as practicable following completion of construction of the Project, but not prior to, the Requiring Authority shall give notice to Auckland Council in accordance with section 182 of the RMA for removal of those parts of the Designation that are not required for the long-term operation and maintenance of the State Highway or for the long-term mitigation or offsetting of its effects on the environment.

Lapse

2. The Designation shall lapse if not given effect to within 15 years from the date on which it is included in the District Plan under section 175 of the RMA.

Construction conditions

3. Conditions 4 to 88E relate to construction of the Project and only apply to construction activities. Once construction of the Project is complete these conditions will no longer apply and can be removed, except for conditions that specify an obligation which continues after construction.

Management and outline plan process

4. The Requiring Authority shall prepare, submit to Auckland Council, and implement the Designation management plans in accordance with Table 1 and the specific management plan conditions.
5. The Requiring Authority may prepare management plans in parts or in Stages to address specific activities or to reflect the staged implementation of the Project Works.
6. The Requiring Authority shall not commence Project Works within the area to which a management plan applies until the Outline Plan of Works has been considered in accordance with s176A of the RMA or the required management plan(s) has been certified or otherwise provided to the Council for information.

Table 1: Management Plan Table

Management Plan	Decision Pathway	When to submit	Response time from Manager	Duration for implementation
Stakeholder Engagement and Communications	To Manager for information	At least 6 months prior to the start of the Requiring Authority's nominated date for detailed	N/A	Duration of Project Works

Management Plan	Decision Pathway	When to submit	Response time from Manager	Duration for implementation
		design		
Construction Noise and Vibration	Outline Plan of Works	Prior to start of Project Works	Within statutory timeframes	Duration of Project Works
Noise Mitigation	Outline Plan of Works	Prior to the Project becoming operational	N/A	Throughout the operation of the State Highway
Construction Traffic	Outline Plan of Works	Prior to start of Construction Works	Within statutory timeframes	Duration of Construction Works
Enabling Works Traffic	To Road Controlling Authority for approval via COPTTM process	Prior to start of relevant Enabling Works	N/A	Duration of Enabling Works
Site Specific Traffic	To Road Controlling Authority for approval via COPTTM process	Prior to using the relevant public road	N/A	Duration of use of public road for construction activities.
Enabling Works Traffic	To Manager for Information (approval via COPTTM process)	Prior to start of relevant Enabling Works	N/A	Duration of Enabling Works
Urban and Landscape Design Framework	Outline Plan of Works	Prior to start of Project Works	Within statutory timeframes	Duration of Project Works
Urban and Landscape Design Management Plan/s	Outline Plan of Works	Prior to start of Construction Works in relevant sector	Within statutory timeframes	Duration of Project Works
Historic Heritage	Outline Plan of Works	Prior to start of Project Works	Within statutory timeframes	Duration of Project Works
Construction Air Quality	Outline Plan of Works	Prior to start of Construction Works	Within statutory timeframes	Duration of Construction Works
Cultural Engagement	To the Manager for information	Prior to the start of Project Works	N/A	Throughout the Project Works

Management Plan	Decision Pathway	When to submit	Response time from Manager	Duration for implementation
Electricity Infrastructure Construction	To the Manager for information	Prior to the start of Project Works	N/A	Throughout the Project Works

CONSTRUCTION CONDITIONS

Stakeholder Engagement and Communications

Project Liaison Person

7. The Requiring Authority shall appoint a Project Liaison Person for the duration of Project Works to be the main and readily accessible point of contact for persons interested in, or affected by, Project Works. The Project Liaison Person's contact details shall be readily available via the internet (e.g., via the Project website) and the Project Liaison Person shall be contactable at all times during Project Works.

Stakeholder Engagement and Communications Management Plan

8. The Requiring Authority shall prepare a Stakeholder Engagement and Communications Management Plan (SECMP) at least 6 months prior to the start of the Requiring Authority's nominated date for detailed design. The purpose of the SECMP is to set out how the Requiring Authority will communicate with the public and stakeholders for the duration of Project Works.
9. The SECMP shall set out the framework for how the Requiring Authority will:
 - a. Engage with stakeholders such as directly affected landowners and immediately adjoining landowners, educational facilities, iwi and hapū groups, community groups, local businesses and representative groups, residents' organisations, other interested groups and individuals, Auckland Council, Auckland Transport and adjacent local authorities, the Rodney Local Board, and Network Utility Operators about the Project Works;
 - b. Inform the communities of Warkworth, Wellsford and Te Hana of construction progress, including proposed hours of work;
 - c. Engage with the communities to foster good relationships and to provide opportunities for learning about the Project;
 - d. Provide information on key Project milestones;
 - e. Provide advance notice of the upcoming works programme, including intended hours of works and activities, to residents and businesses in proximity to the Project Works; and
 - f. Make each management plan listed in Table 1 publicly available online once it is finalised (and if it is amended or updated), and for the duration of the Project Works.
10. The Requiring Authority shall prepare the SECMP in consultation with:
 - a. Auckland Council, with respect to coordination of communications with the public and stakeholders; and

- b. Auckland Transport, with respect to communications relating to Project Works or activities that interface with the local road network,

and shall engage with Mana Whenua, with respect to provisions that relate specifically to communications with iwi and hapū groups.

- 10A. At all times prior to and during Project Works, the Requiring Authority shall maintain a Project website with current information about the Project, including details of its current state of progress towards commencement, likely commencement timeframe and anticipated milestones in that regard. The website shall also include details (email and/or phone number) for any person seeking further information about the Project to contact.

Complaints Management Process

- 11. The Requiring Authority shall keep and maintain a complaints record (*Complaints Record*), to record any complaints received in relation to Project Works for the duration of the Project Works.
- 12. The Complaints Record shall include:
 - a. The name and address (if known) of the complainant;
 - b. Details of the complaint;
 - c. The date and time of the complaint, and the location, date and time of the alleged event giving rise to the complaint;
 - d. The weather conditions at the time of the complaint (as far as reasonably practicable), including wind direction and approximate wind speed if the complaint relates to air quality or noise and where weather conditions are relevant to the nature of the complaint;
 - e. Any other activities in the area, unrelated to the Project that may have contributed to the complaint, such as construction undertaken by other parties, fires, traffic accidents or unusually dusty conditions generally;
 - f. Measures taken to respond to the complaint or confirmation of no action if deemed appropriate; and
 - g. The response provided to the complainant.
- 13. The Requiring Authority will acknowledge receipt of a complaint related to Project Works within 24 hours and shall respond in full to such complaint as soon as practicable and no later than 10 Days after the complaint was received, except where urgency is indicated, in which case the Requiring Authority shall use its best endeavours to respond within 2 hours.
- 14. The Requiring Authority shall provide a copy of the Complaints Record to the Manager on a monthly basis, unless otherwise agreed with the Manager.

Mana Whenua

Cultural Indicators Report

- 15. At least 12 months prior to the Requiring Authority's nominated start date for detailed design of the Project, the Requiring Authority shall invite Mana Whenua to prepare a Cultural Indicators Report for the Project, or to nominate a person or organisation to

prepare a Cultural Indicators Report on their behalf. To assist with preparation of any Cultural Indicators Report, the Requiring Authority shall provide access to Crown owned land within the Project Area for Mana Whenua to undertake surveys. The purpose of any Cultural Indicators Report is to assist with the protection and management of Ngā Taonga Tuku Iho (treasures handed down by our ancestors) during Construction Works.

16. Any Cultural Indicators Report should be completed and provided to the Requiring Authority at least 6 months prior to the Requiring Authority's nominated start date for detailed design of the Project and should:
 - a. Describe Mana Whenua's customary rights through occupation to resources within the Designation.
 - b. Identify and map cultural sites, landscapes and values that have the potential to be affected by Project Works;
 - c. Set out Mana Whenua's desired outcomes and recommended methods for management of potential effects on cultural values;
 - d. Identify cultural indicators of cultural stream health as relevant to the Project Works;
 - e. Set out recommended methods to measure the effects on identified cultural indicators during Project Works;
 - f. Identify opportunities for restoration and enhancement of Mauri and mahinga kai within the Designation; and
 - g. Identify cultural criteria that should be acknowledged in the development of the SECMP, the ULDF, the ULDFPs, the HHMP.

Conditions 17 and 18 are intentionally left blank

Cultural Artworks Plan

19. At least 18 months prior to start of Construction Works, the Requiring Authority shall invite Mana Whenua to prepare a cultural artworks plan to identify possible artworks or features to reflect sites and values of significance to Mana Whenua. Condition 19 will cease to apply if Mana Whenua have been invited to prepare a cultural artwork plan and have not provided it within six months prior to start of Construction Works.

Cultural Engagement Plan

- 19A. At least 1 month prior to the Requiring Authority's nominated start date for detailed design of the Project, if it has received any Cultural Indicators Report in accordance with Conditions 15-16, the Requiring Authority shall prepare a Cultural Engagement Plan. The purpose of the Cultural Engagement Plan is to identify:
 - a. The measures and methods to implement the recommendations within the Cultural Indicators Report(s) where the Requiring Authority considers it is practicable to do so.
 - b. Written reasons where the Requiring Authority considers any recommendations in the Cultural Indicators Report(s) cannot be practicably implemented, for example due to the operational, technical, financial, health and safety or engineering needs of the Project.
 - c. The roles and responsibilities of Mana Whenua during the Project Works

- d. The roles and responsibilities of the Iwi Advisor, which shall include but not be limited to:
 - i. Engaging with the Requiring Authority on the preparation of the SCMP, the ULDF, the ULDMPs, the HHMP;
 - ii. Onsite monitoring of Project Works involving top soil removal up to 1.5m below ground level (as defined in the AUP(OP));
- e. Requirements for formal dedication or cultural interpretation prior to the start of Construction Works in areas identified as having significance to Mana Whenua.
- f. A written record of the engagement undertaken in accordance with Condition 19B.

19B. In preparing the Cultural Engagement Plan the Requiring Authority shall engage with Mana Whenua who have prepared a Cultural Indicators Report over a period of not less than 3 months prior to the Requiring Authority's nominated start date for detailed design of the Project to better understand any Cultural Indicators Report and to discuss the recommendations in it.

19C. The Requiring Authority shall implement the Cultural Engagement Plan throughout the Project Works.

Iwi Advisor

19D. At least 12 months prior to commencement of Construction Works, the Requiring Authority shall invite Hōkai Nuku to appoint an Iwi Advisor or other nominated kaitiaki (Iwi Advisor) to undertake the roles and responsibilities set out, or to be set out in the Cultural Engagement Plan.

19E. Conditions 19A-19C will cease to apply if Mana Whenua have been invited to prepare a Cultural Indicators Report in accordance with Condition 15 and have not provided that report within six months of the Requiring Authority's nominated start date for detailed design of the Project.

Conditions 20 – 23 are intentionally left blank

Network Utilities

24. The Requiring Authority shall ensure that Project Works do not adversely impact on the ongoing safe and efficient operation of Network Utility Operations. The scope, timing and methodology for utility protection and / or relocation works shall be developed in consultation with the relevant Network Utility Operator to ensure ongoing safe and efficient operation for the required works.

24A. The Requiring Authority shall consult with Network Utility Operators during the detailed design phase to identify opportunities to enable, or not preclude, the development of new network utility facilities including access to power and ducting within the Project, where practicable to do so. The consultation undertaken, opportunities considered, and whether or not they have been incorporated into the detailed design, shall be summarised in the Outline Plan or Plans prepared for the Project.

- 25A. The Project must be designed and undertaken to comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001).
- 25B. The Requiring Authority shall design and undertake earthworks to ensure that the vertical clearance provided between the HEN-MPE-A transmission line conductors and the finished road level shall be a minimum of 10 metres for State Highway 1 (including approach roundabouts and on/off ramps), and 8 metres for Vipond Road.
- 25C. The Requiring Authority shall ensure that all trees and vegetation planted for the Project Works comply with the Electricity (Hazards from Trees) Regulations 2003; and cannot fall within 4m of any transmission line conductors.
- 25D. The Requiring Authority shall ensure that any new landscaping planted for the Project Works within 12m of the centre line of the HEN-MPE-A transmission line conductors is limited to species that will grow to a maximum of 2m in height at full maturity.

Transpower – Construction

- 25E. Construction or Enabling Works north of Wellsford must not commence within fifty (50) metres of the centreline of the HEN-MPE-A assets until the Electricity Infrastructure Construction Management Plan (EICMP) required by Condition 25F has been completed and either:
- a. the construction and operation of the Project has been designed to comply with Conditions 24 and 25A to 25D; or
 - b. the HEN-MPE-A assets have been relocated or altered to ensure compliance with Conditions 24 and 25A to 25D and enable the construction and operation of the Project.
- 25F. The Requiring Authority shall prepare an Electricity Infrastructure Construction Management Plan (EICMP) prior to start of Project Works within fifty (50) metres of the centreline of the HEN-MPE-A assets. The EICMP shall be prepared by a Suitably Qualified and Experienced Person in consultation with Transpower NZ Ltd. The purpose of the EICMP is to ensure Project Works are carried out safely and to manage any potential adverse effects of the works on Transpower's assets, including confirming that all works will comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001) or any subsequent revision of that code.
- 25G. The EICMP shall:
- a. Include a record of consultation undertaken with Transpower New Zealand;
 - b. Provide procedures, methods and measures to be implemented during Project Works to:
 - i) Manage effects of dust and other material potentially resulting from Project Works and able to cause damage, beyond normal wear and tear, to the HEN-MPE-A assets;

- ii) Ensure that no activity is undertaken during construction that would result in ground vibrations, ground instability and/or ground settlement likely to cause damage to HEN-MPE-A assets;
 - iii) Meet applicable standards and Codes of Practice applying to the construction of Project Works that interface with the HEN-MPE-A assets;
 - iv) Ensure that, during construction and operation, changes to the drainage patterns and runoff characteristics do not result in adverse effects from stormwater on the foundations of any HEN-MPE-A support structures; and
 - v) Mitigate Earth Potential Rise, where use of conductive material for road infrastructure (e.g., metallic barriers, lighting) is within 25m of the outer foundations of any HEN-MPE-A support structures;
- c. Confirm that all Project Works will comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001). For certainty, this shall include specific measures and methods relating to:
- i. Excavation or disturbance of the land around any transmission support structures (Section 2);
 - ii. Building to conductor clearances (Section 3);
 - iii. Depositing of material under or near overhead conductors (Section 4.3);
 - iv. Mobile plant to conductor clearances and warning notices for mobile plant (Section 5); and
 - v. People to conductor clearances (Section 9).

Advice Note: Along with the RMA processes, there are other additional processes and approvals applying to any work or activity that affect network utilities. The Requiring Authority may require additional approvals from Network Utility Operators prior to any works commencing in proximity to network utilities.

Construction Noise and Vibration

Noise Criteria

26. Unless provided for in Conditions 28 and 29, construction noise from Project Works shall comply with the following criteria in accordance with NZS 6803:

a. Residential receivers:

	Time	dB LAeq(15min)	dB LAmax
Weekdays	0630-0730	55	75
	0730-1800	70	85
	1800-2000	65	80
	2000-0630	45	75
Saturdays	0630-0730	45	75
	0730-1800	70	85
	1800-2000	45	75

	2000-0630	45	75
Sundays and Public Holidays	0630-0730	45	75
	0730-1800	55	85
	1800-2000	45	75
	2000-0630	45	75

b. Industrial and commercial receivers:

Time	dB LAeq(15min)
0730-1800	70
1800-0730	75

26A. Air blast noise shall comply with a limit of 120 dB L_{Zpeak} at 1 metre from the most exposed façade of any occupied buildings.

Measurement and assessment of air blast noise shall be undertaken in accordance with AS 2187-2:2006 Explosives – Storage and use - Part 2: Use of explosives, (as it relates to air blast).

Vibration Criteria

27. Unless otherwise provided for in Conditions 28, 29 or 30, vibration from Project Works shall comply with the following criteria:

Receiver	Location	Detail	Category A	Category B
Occupied PPFs*	Inside the building	Night-time 2000h - 0630h	0.3mm/s PPV	1mm/s PPV
		Daytime 0630h - 2000h	1mm/s PPV	5mm/s PPV
		Blasting – vibration	5mm/s PPV	10mm/s PPV
Other occupied buildings	Inside the building	Daytime 0630h - 2000h	2mm/s PPV	5mm/s PPV
All other buildings	Building Foundation	Vibration - transient [including blasting]	5mm/s PPV	BS 5228-2 Table B.2
		Vibration - continuous		BS 5228-2 50% of Table B.2 values

Notes:

Measurements of construction vibration shall be undertaken in accordance with ISO 4866:2010 Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures.

* For vibration, Protected Premises and Facilities (PPFs) are dwellings, educational facilities, boarding houses, homes for the elderly and retirement villages, marae, hospitals that contain in-house patient facilities and buildings used as temporary accommodation (eg motels and hotels).

- 27A. Vibration arising from construction activities which may affect underground pipe work shall be measured in accordance with DIN4150-3:2016 Structural vibration – Part 3: Effects of vibration on structures, and shall comply with the following vibration limits:

Pipe material	PPV (measured on the pipe)
Steel (including welded pipes)	100 mm/s
Clay, concrete, reinforced concrete, pre-stressed concrete, metal (with or without flange)	80 mm/s
Masonry, plastic	50 mm/s

Construction Noise and Vibration Management Plan

28. The Requiring Authority shall prepare a Construction Noise and Vibration Management Plan (CNVMP), prior to start of Project Works, to provide a framework for the development, identification, and implementation of the Best Practicable Option for the management and mitigation of all construction noise and vibration effects. The CNVMP shall set out how compliance with the construction noise and vibration criteria in Conditions 26 to 27A will be achieved, to the extent practicable. The CNVMP shall be prepared in accordance with NZS 6803, Annex E2, and the NZ Transport Agency’s State highway construction and maintenance noise and vibration guide (version 1.1, 2019), and shall address the process required to review and update the CNVMP. The CNVMP shall also include methods to minimise significant intermittent noise and vibration event effects on farm animals by:

- notifying farm operators in advance of a blasting programme or other significant noise and vibration event in the vicinity of farm animals; and
- minimising the use of horns and sirens in the vicinity of farm animals.

The term ‘noise’ in NZS 6803, Annex 2 shall be interpreted as ‘noise and vibration’.

The CNVMP shall be prepared by a Suitably Qualified and Experienced Person and implemented for the duration of the Project Works.

29. If prior to or during Project Works noise or vibration levels from Project Works are predicted or measured to exceed the noise criteria in Condition 26 or the Category A vibration criteria in Condition 27, then the relevant works shall not commence or proceed until a Suitably Qualified and Experienced Person has been engaged to identify, in consultation with the owners and occupiers of sites subject to the exceedance, Best Practicable Option measures to manage the effects of the specific

construction activity. The measures shall be added as a Schedule to the CNVMP and implemented by the Requiring Authority for the duration of the relevant works.

The Schedule shall as a minimum set out:

- a. Construction activity location, start and finish dates;
- b. The predicted noise and/or vibration level for all receivers where the levels are predicted or measured to exceed the applicable criteria of Conditions 26 and/or 27;
- c. The mitigation options that have been selected, and the options that have been discounted as being impracticable and the reasons why;
- d. The proposed noise and/or vibration monitoring regime;
- e. The communication and engagement requirements for affected landowners and occupiers;
- f. Documentation of the consultation undertaken with owners and occupiers of sites subject to the Schedule, and how consultation has and has not been taken into account.

Where practicable, the Schedules shall be provided to the Manager for certification at least five Days before the specific construction activity is undertaken.

30. If prior to or during Project Works vibration levels from Project Works are predicted or measured to exceed the Category B criteria in Condition 27, then the relevant works shall not commence or proceed until a Suitably Qualified and Experienced Person has undertaken a building condition survey (provided the owner and/or occupier has agreed to such survey), and identified specific Best Practicable Option measures to manage the effects of vibration.

The measures shall be added as a Schedule to the CNVMP and implemented by the Requiring Authority for the duration of the relevant works. The Schedule shall, as a minimum, contain the information set out in Condition 29 and the findings of the building pre-condition survey.

Where practicable, the Schedules shall be provided to the Manager for certification at least five Days before the specific construction activity is undertaken.

Vibration monitoring shall be undertaken and continue throughout the works covered by the Schedule. Following completion of the activity, a building condition survey shall be undertaken to determine if any damage has occurred as a result of construction vibration, and any such damage shall be repaired by the Requiring Authority.

- 30A. The Requiring Authority shall not locate any site office or construction yards that are to be established and used for longer than 12 months, within 200 metres of any PPFs.

Construction Traffic

General construction traffic management

31. Kraack Road shall not be used as a haulage route for Heavy Vehicles between State Highway 1 and Saunders Road.

32. Construction Works shall be managed to enable pedestrian access along Te Araroa Walkway where feasible and practicable to do so and where the health and safety of users can be maintained.
33. Any damage to a local road at a construction site access point, which is verified by a Suitably Qualified and Experienced Person as being directly attributable to Heavy Vehicles entering or exiting the construction site at that location, shall be repaired within two weeks or within an alternative timeframe to be agreed with Auckland Transport. All repairs shall be undertaken in accordance with the Auckland Transport's Transport Design Manual, or any subsequent version.

Construction Traffic Management Plan

34. The Requiring Authority shall manage construction traffic and construction parking to:
 - a. Protect public safety including the safe passage of pedestrians, equestrians and cyclists;
 - b. Minimise delays to road users, particularly during peak traffic periods;
 - c. Minimise interruption to property access;
 - d. Inform the public about any potential impacts on the road network;
 - e. Enable 24 hour emergency access to lifeline utilities; and
 - f. Enable access to Watercare's Wastewater Treatment Plant (Lot3 DP64870), Water Treatment Facility (362 Wayby Valley Road) and planned water treatment facility (487 Wayby Valley Road) at reasonable times.
35. The Requiring Authority shall prepare a Construction Traffic Management Plan (CTMP) prior to the start of Construction Works for the Project to identify how Condition 34 will be met. The CTMP shall be prepared by a Suitably Qualified and Experienced Person and shall include the following:
 - a. Methods that will be undertaken to communicate traffic management measures to affected road users (residents/public/stakeholders/emergency services);
 - b. Identification of traffic management activities and sequencing proposed for the Project, including a staff travel plan, site access routes and site access points for Heavy Vehicles;
 - c. Methods for managing traffic effects, including through Temporary Traffic Management activities (TTM); including:
 - i. Methods to provide for safe and efficient access of construction vehicles to and from construction sites, including consideration of capacity for queuing vehicles, restrictions on turning movements and sight distances;
 - ii. Methods to maintain vehicle access to property and/or private roads where practicable, or to provide alternative access arrangements when it will not be;
 - iii. Methods to minimise the effects of TTM activities on traffic;
 - iv. Methods to maintain local access during Project Works, where practicable, in particular during the realignment of or connection to local roads;
 - v. Methods to maintain access, turnaround locations and set down areas for bus routes (including school buses) where practicable;

- vi. Methods for temporary road closures, with road closures to be carried out at times of lowest traffic, at night if practicable;
 - vii. Methods to identify how impacts on the road network from construction related light vehicle movements will be managed during peak traffic periods; and
 - viii. Methods to identify how impacts from construction related Heavy Vehicle movements on traffic flow and level of service of the road network will be managed;
 - ix. Methods to manage noise from Heavy Vehicles including effective noise suppression devices for engine brakes and planning routes, speeds and times; and
- d. Auditing, monitoring and reporting requirements relating to TTM activities in accordance with the requirements of NZ Transport Agency Code of Practice for Temporary Traffic Management (COPTTM).
36. The Suitably Qualified and Experienced Person shall prepare the CTMP based on traffic volumes and movements and the transport network that is in place immediately prior to the start of Construction Works and shall take into account any other transport works that are planned to occur during the Construction Works.
37. In preparing the CTMP, the Requiring Authority shall consult with Auckland Transport, and the owner of the commercial plantation forest (Mahurangi Forest) located west of SH1 with respect to access and traffic management activities which directly interface with forestry operations.

Site Specific Traffic Management Plans

38. The Requiring Authority shall prepare a Site Specific Traffic Management Plan (SSTMP) or Plans where any Project Works construction activity varies the normal traffic conditions of any public road. The SSTMP shall be prepared prior to using that road and prior to start of the relevant Project Works construction activity. The purpose of the SSTMP(s) is to identify specific construction methods to comply with the CTMP and to address the particular circumstances, local traffic and community travel demands within the area covered by the SSTMP.
39. The SSTMP(s) shall be prepared by a Suitably Qualified and Experienced Person and shall comply with the version of COPTTM which applies at the time the relevant SSTMP is prepared. Where it is not possible to adhere to this Code, the Requiring Authority shall apply COPTTM's prescribed Engineering Exception Decision (EED) process.
40. In preparing the SSTMP, the Requiring Authority shall consult:
- a. with Auckland Transport where the Project Works construction activity interfaces with the local road network; and
 - b. with any landowners whose property access will be affected by the Project Works construction activity covered by the SSTMP.

If the Requiring Authority has not received any comment from Auckland Transport or affected landowners within 20 Days of providing the SSTMP to them, then it may proceed to lodge the SSTMP in accordance with Table 1.. Where comments are

provided within 20 Days, they shall be incorporated into the SSTMP, unless it is not practicable to do so, in which case an explanation as to why shall be included in the SSTMP.

Enabling Works Construction Traffic Management Plan

41. Where Enabling Works are to be undertaken, the Requiring Authority shall prepare an activity specific Enabling Works Construction Traffic Management Plan (EWCTMP) prior to the start of the relevant Enabling Works. The EWCTMP shall be prepared by a Suitably Qualified and Experienced Person and shall provide a similar scope of information as for a CTMP but shall be commensurate with the scale and effects of the proposed Enabling Works.
42. In preparing the EWCTMP, the Requiring Authority shall consult with Auckland Transport where the Project construction activity interfaces with the local road network. If the Requiring Authority has not received any comment from Auckland Transport within 20 Days of providing the EWCTMP to them, it may proceed to lodge the EWCTMP in accordance with Table 1. Where comments are provided within 20 Days, they shall be incorporated into the EWCTMP, unless it is not practicable to do so, in which case an explanation as to why shall be included in the EWCTMP.

Urban and Landscape Design

Urban and Landscape Design Framework

43. The Requiring Authority shall prepare an Urban and Landscape Design Framework (ULDF) prior to the start of Construction Works. The purpose of the ULDF is to:
 - a. Set the framework for integration of the permanent Project Works into the surrounding landscape and topography, and built environment, having regard to the local landscape and character and contexts along the Project route;
 - b. inform development of the Urban and Landscape Design Management Plan(s) (ULDMP(s)); and
 - c. support the achievement of the Ecological Outcomes in Condition 54C of the resource consents, by combining landscape planting, restoration planting and habitat rehabilitation where practicable.
44. The ULDF shall be prepared by a Suitably Qualified and Experienced Person having regard to the:
 - a. Planning Version ULDF (2019) (submitted with the Notice of Requirement);
 - b. NZ Transport Agency Bridging the Gap NZTA Urban Design Guidelines (2013), or any subsequent version;
 - c. NZ Transport Agency Landscape Guidelines (final draft dated 2014), or any subsequent version, and the NZ Transport Agency P39 Standard Specification for Highway Landscape Treatments (2013), or any subsequent version;
 - d. the ULDF for Ara Tūhono Puhoi to Warkworth section of SH1;
 - e. Landscape mitigation planting and screen planting shown on Maps 1 – 6 ;
 - f. Te Aranga Principles, Auckland Design Manual (2013), or any subsequent version;
 - g. Cultural Engagement Plan; and
 - h. the Ecological Outcomes required by Condition 54C of the Resource Consent.

45. The ULDF shall:
- a. Confirm the overall key design principles and sector outcomes for the Project, as set out in the descriptions of those principles and outcomes in the Planning Version of the ULDF (2019);
 - b. Identify individual urban and landscape design sectors within the Project area;
 - c. Identify highly sensitive locations, which may include properties in close proximity to the Designation, requiring particular urban and landscape design treatment; and
 - d. Identify opportunities to integrate landscape planting under a ULDMP with restoration planting and habitat rehabilitation or other planting required for the Project.
46. The Requiring Authority shall prepare the ULDF in engagement with Mana Whenua and in consultation with:
- a. Auckland Council;
 - b. Rodney Local Board;
 - c. Auckland Transport for areas within and adjoining local roads; and
 - d. HNZPT for areas next to identified heritage sites.
47. The ULDF shall include a summary of the consultation undertaken and shall document how input from the parties listed in Condition 46 has or has not been incorporated in the ULDF or supporting information. If the Requiring Authority has not received any comment from such parties within 20 Days of providing the ULDF to them, the Requiring Authority may consider the relevant party has no comment.

Urban and Landscape Design Management Plan(s)

48. The Requiring Authority shall prepare an Urban and Landscape Design Management Plan (ULDMP) for each individual urban and landscape design sector within the Project area, in engagement with Mana Whenua, prior to the start of Construction Works within each sector. The purpose of the ULDMP(s) is to identify, how for the relevant sector:
- a. the key design principles and sector outcomes identified in the ULDF will be met by the permanent Project Works;
 - b. the landscape and visual requirements (Conditions 49 to 50) have been incorporated; and
 - c. landscape planting is to be integrated with restoration planting and habitat rehabilitation or other planting required for the Project.
49. The ULDMP(s) shall be prepared by a Suitably Qualified and Experienced Person and shall include the following details for the sector to which the plan applies:
- a. A plan describing and illustrating the overall landscape and urban design concept and rationale.
 - b. Detailed design drawings of the landscape and urban design features, including the following:
 - i. Road design including elements such as earthworks contouring including cut and fill batters to integrate with adjacent landform, benching (to be

- avoided if practicable), treatment of rock cuts, and spoil disposal sites; median width and treatment; borrow pits/areas; roadside width and treatment.
- ii. Appropriate surface treatment of cut slopes such as grassing, revegetation or leaving an exposed rock face.
 - iii. Roadside elements including elements such as lighting, sign gantries and signage, guard rails, fences, central and median barriers etc.
 - iv. Urban design and landscape treatment of:
 - a. all major structures, including viaducts, bridges and associated infrastructure, retaining walls, ancillary buildings;
 - b. any Structural Mitigation required by Condition 90;
 - c. roadside furniture, such as lighting, sign gantries and signage, guard rails, fences and median barriers; and
 - d. hardscape material, (e.g. rock rip rap, sealed shoulders, kerbs, roundabouts) and interchanges.
 - v. Land use re-instatement.
 - vi. Landscape treatment/rehabilitation of construction yards and haul roads following completion of construction.
 - vii. The integration of landscape planting with restoration planting and habitat rehabilitation or other planting required for the Project (including by resource consent conditions) where applicable, as further specified by Condition 50.
 - viii. Landscape design input to the form of stormwater ponds and swales to assist with landscape integration.
 - ix. Pedestrian and cycle facilities including paths along local roads where these facilities are directly affected by Project Works.
 - x. Features (such as interpretive signage) for identifying and interpreting cultural heritage, built heritage, archaeology, geological heritage and ecology.
 - xi. Noise barriers, and structures, walking and cycling facilities (including bridges, underpasses and associated retaining walls) which are identified in the ULDF as being in highly sensitive locations.
 - xii. The design of the tunnel portals, which shall be integrated with the adjacent landform through the use of sloping portal structures and revegetation works. Any ancillary structures associated with the tunnels shall be located and designed so they are recessive in form and colour.
 - xiii. Context-sensitive landscape design and planting at Interchanges to create a local gateway, wayfinding and promote a sense of place that reflects the destination accessed via the interchange.
 - xiv. New planting, or other measures where they are practicable, to provide visual screening of the permanent Project Works from dwellings with direct line of sight to the Project, in particular from the following properties:
 - (i) 111 Kaipara Flats Road
 - (ii) 211 Kaipara Flats Road
 - (iii) 214 Kaipara Flats Road
 - (iv) 215 Kaipara Flats Road
 - (v) 542 SH1
 - (vi) 250 Silver Hill Road

- (vii) 263 Silver Hill Road
 - (viii) 199 Shepherd Road
 - xv. Design and landscape features to acknowledge cultural values relating to landscape design identified through the Cultural Engagement Plan.
 - xvi. Design and landscape features to acknowledge the recommendations of the Cultural Artworks Plan (if prepared), where feasible and practicable to do so.
 - c. Environmental design measures to support crime prevention (CPTED or superseding industry standard) principles.
- 49A. Prior to the completion of the relevant ULDMP, the Requiring Authority shall provide drafts of the detailed design drawings required by Condition 49(b)(xiv) to the owners and occupiers of the dwellings identified in that condition and invite their feedback on the new planting or other screening measures proposed for their property. The Requiring Authority shall endeavour to incorporate any feedback received within 10 days of the drafts being provided into the final ULDMP. If no feedback is received within that period, the Requiring Authority may assume that no feedback is to be provided. The final ULDMP shall be submitted with a report describing how any feedback has been incorporated, or, if not incorporated, why not.
- 49B. Within 10 days of the relevant ULDMP being confirmed, the Requiring Authority shall provide a copy of any final ULDMP that addresses visual screening for the properties listed in Condition 49(b)(xiv) to the current landowner(s) of those properties including information as to how the landscape mitigation and screen planting in Maps 1 -6 and their feedback has been given regard to and (if relevant) why visual screening was not practicable.
- 49C. In addition to the requirements of Condition 49(b)(xiv), prior to the commencement of Construction Works the Requiring Authority shall provide and plant a 15m wide planting area along the western boundary of the blue hatched area shown on the map at Attachment A for the purpose of providing visual screening of the permanent Project Works for the property at 39 Phillips Road (Lot 1 DP 103533). The Requiring Authority shall not undertake any Project Works (except for the planting and related activities) within the blue hatched area shown on the map at Attachment A.
- 49D. The Requiring Authority shall procure from the Crown the entering into of appropriate covenants and/or encumbrances (or similar legal mechanisms) to ensure that the planting required by Condition 49C is protected on an ongoing basis prior to any transfer of ownership/tenure from the Crown.
50. The ULDMP(s) shall include the following planting and vegetation management details:
- a) Planting design details, including:
 - i. Identification of vegetation to be retained.
 - ii. Proposed planting suitable to site conditions including plant species (including consideration of native bird food sources), mixes (canopy succession species), spacing/densities and sizes (at the time of planting), and layout and planting methods including trials. All proposed

- planting shall be native species, except for visual screen planting which may include exotic species. A minimum 1% of planting shall be of Threatened Species.
- iii. Details of the sourcing of native plants including genetic sourcing of native plants from the Rodney Ecological District.
 - iv. Retention of existing shelter belts and indigenous trees within the Designation, where practicable, to screen direct line of sight of the permanent Project Works from adjacent properties.
- b) A planting programme including the staging of planting in relation to the construction programme which shall, as far as practicable, include provision for planting within each planting season following completion of works in each Stage of the Project.
 - c) Detailed specifications relating to the following:
 - i. Weed control and clearance;
 - ii. Pest animal management;
 - iii. Ground preparation (top soiling and decompaction);
 - iv. Mulching; and
 - v. Plant sourcing and planting, including hydroseeding and grassing.
 - d) The relevant requirements of the NZ Transport Agency P39 Standard Specification for Highway Landscape Treatments (2013), or any subsequent version, and performance standards including a five-year maintenance plan/schedule that requires any unsuccessful planting to be replaced within that five-year period unless canopy closure is achieved as determined by a Suitably Qualified and Experienced Person.

Landscape and visual requirements – construction activities

- 51. Construction yards shall be located at least 200 m from any dwelling which has a view of the construction yard.
- 52. Temporary haul roads and access roads shall be rehabilitated as soon as reasonably practicable following completion of construction.

Compliance with the Electricity (Hazards from Trees) Regulations 2003

- 53. Areas of landscape planting (trees and vegetation) shall be designed to enable compliance with the Electricity (Hazards from Trees) Regulations 2003. Any new landscaping within 12m of the centre line of the HEN-MPE-A transmission line conductors shall be limited to species that grow to a maximum of 2m in height at full maturity.

Conditions 54-77 are intentionally left blank

Historic Heritage and Archaeology

- 78. The Requiring Authority shall design and implement the Project Works to achieve the following Heritage Outcomes:
 - a. Avoid adverse effects on historic heritage sites and places as far as practicable;
 - b. Where avoidance of adverse effects is not practicable, minimise adverse effects on historic heritage sites and places;

- c. Where avoidance of adverse effects is not practicable, investigate and record all historic heritage sites and places (pre and post 1900) within the Designation; and
- d. Positive historic heritage outcomes

Historic Heritage Management Plan

79. The Requiring Authority shall prepare a Historic Heritage Management Plan (HHMP) prior to the start of Project Works, in engagement with Mana Whenua and in consultation with HNZPT and Auckland Council. The purpose of the HHMP is to identify indirect and direct adverse effects on historic heritage sites and appropriate methods to avoid, remedy and mitigate them. The HHMP shall set out the methods to achieve the Heritage Outcomes. The HHMP shall be provided to the Manager (in consultation with the Manager: Heritage Unit) for certification.
- 79A. The HHMP shall be prepared with up to date information. This additional information shall be provided to council prior to the lodgement of the HHMP to streamline the certification process. This includes:
- a. Any archaeological assessments, heritage impact assessments, granted authorities, final archaeological reports and updated site record forms (CHI and NZAA ArchSite) prepared/submitted since time of the granting of any designation;
 - b. Cultural Indicators Report; and
 - c. Additional areas of survey and investigation undertaken as part of the Project.
- 79B. Further assessment of built heritage shall include (but not be limited to):
- a. 156 Kaipara Flats Road, Dome Valley
 - b. 35 Borrowes Road, Waiteitei
 - c. 30 Robertson Road, Wayby Valley
 - d. 159 Whangaripo Valley Road, Wellsford
 - e. 199 Rustybrook Road, Wayby Valley
 - f. 200 Rustybrook Road, Wayby Valley
- 79C. If Phillips Cottage (156 Kaipara Flats Road, Dome Valley) cannot be avoided at the detailed design stage, then:
- a. in the first instance the cottage structure must be relocated within its local area of significance.
 - b. if this can be demonstrated not to be practicable then the structure must be relocated within the wider area of significance, including offering the place to the Warkworth Museum.
 - c. if all relocation options can be shown to have been exhausted, only then should the building be demolished and recorded to the most appropriate level per HNZPT guideline AGS 1A: Investigation and Recording of Buildings and Standing Structures (November 2018) or any subsequent version.

- d. Auckland Council shall be advised in writing at least 10 Days prior to the cottage's relocation or demolition, with accompanying records demonstrating compliance with (a)-(c) above and Condition 81(h).
80. The HHMP shall be consistent with the conditions of any Archaeological Authority granted by HNZPT for the Project.
81. The HHMP shall be prepared by a Suitably Qualified and Experienced Person and shall identify and include:
- a. Any adverse direct and indirect effects on historic heritage sites and measures to appropriately avoid, remedy or mitigate
 - b. Methods and areas for the identification and assessment of potential historic heritage sites and values within the Designation to inform detailed design;
 - c. Known historic heritage sites and places and areas of historic heritage potential within the Designation;
 - d. Any pre-1900 archaeological sites or areas of archaeological potential for which an Archaeological Authority under the HNZPTA will be sought or has been granted;
 - e. Any historic heritage sites within the Designation to be avoided, relocated, documented and recorded;
 - f. Roles, responsibilities and contact details of Project personnel, Mana Whenua representatives, and relevant agencies involved with historic heritage and archaeological matters including surveys, documentation and recording, monitoring of Project Works, Accidental Discovery Protocols, and monitoring of conditions;
 - g. Specific areas to be investigated, monitored and recorded to the extent these are directly affected by Project Works;
 - h. The proposed methodology for investigating and recording post-1900 heritage sites (including buildings) that need to be demolished or relocated, including details of their condition, measures to mitigate any adverse effects and timeframe for implementing the preferred methodology, in accordance with the HNZPT guideline AGS 1A: Investigation and Recording of Buildings and Standing Structures (November 2018), or any subsequent version and the International Council on Monuments and Sites (ICOMOS) New Zealand Charter 2010 or any subsequent versions;
 - i. Proposed methodology for documentation of historic heritage exposed during construction and the recording of these sites in the Auckland Council Cultural Heritage Inventory (www.chi.net/Home.aspx).
 - j. Methods to acknowledge cultural values identified through the Cultural Engagement Plan where archaeological sites also involve Ngā Taonga Tuku Iho (treasures handed down by our ancestors) and where feasible and practicable to do so;
 - k. Methods for protecting or minimising adverse effects on historic heritage and archaeological sites within the Designation during Project Works as far as practicable in line with the ICOMOS NZ Charter and including construction methods that minimise vibration (for example fencing around historic heritage and archaeological sites to protect them from damage during construction);

- l. Training requirements for contractors and subcontractors on historic heritage sites within the Designation, legal requirements relating to accidental discoveries, and implementing the Accidental Discovery Protocol. The training shall be undertaken under the guidance of a Suitably Qualified and Experienced Person and Mana Whenua representatives (to the extent the training relates to cultural values identified under the Cultural Engagement Plan and shall include a pre-construction briefing to contractors;
- m. How Conditions 81(a)-(j) address the following sites:
 - i. Woodthorpe House (CHI 22114, R09/2064);
 - ii. Dome Valley teacher's residence (CHI 22119, R09/2226);
 - iii. Dome Valley school site (CHI 22118, R09/2225);
 - iv. Phillips' Cottage (CHI 19027, R09/2063);
 - v. Whitson's House and Stockyard (CHI 22117, R09/2224); and
 - vi. World War II military camps (various) in the Warkworth area.
- n. Construction and post-construction reporting requirements; and
- o. Measures to mitigate adverse effects on historic heritage that achieve positive heritage outcomes. Measures may include, but not be limited to: increased public awareness and amenity of historic heritage sites and places, interpretation, repatriation and donation of historic heritage material to suitable repositories and publication of heritage stories.

Accidental discovery during construction

- 82. Prior to the start of Project Works, the Requiring Authority shall prepare an accidental discovery protocol for any accidental historic heritage discoveries which occur during Project Works.
- 83. The accidental discovery protocol shall be consistent with the NZ Transport Agency Minimum Standard P45 Accidental Archaeological Discovery Specification, or any subsequent version and the Auckland Unitary Plan Accidental Discovery Rule (E11 Land disturbance Regional – E11.6.1).
- 84. The accidental discovery protocol shall be prepared in engagement with Mana Whenua and consultation with Auckland Council and HNZPT and modified as necessary to reflect the site-specific Project detail. The Requiring Authority shall undertake engagement and consultation for a period of not less than 30 Days.
- 85. The Accidental Discovery Protocol shall be implemented throughout the Project Works.
- 85A. Electronic copies of all historic heritage reports relating to historic heritage investigations (evaluation, excavation and monitoring etc.), including interim reports, shall be submitted to the Manager (in consultation with Manager: Heritage Unit) within 12 months of being produced.
- 85B. The Suitably Qualified and Experienced Person shall record and log any heritage discovery and on-going compliance with the conditions of this Designation. This log shall be provided to the Manager (in consultation with Manager: Heritage Unit) quarterly.

- 85C. In the event that any unrecorded historic heritage sites are exposed as a result of the work, these shall be recorded and documented by a Suitably Qualified and Experienced Person for inclusion within the Auckland Council Cultural Heritage Inventory (CHI). The information and documentation shall be forwarded to the Team Manager: Heritage Unit (heritageconsents@aucklandcouncil.govt.nz) or other address nominated by the Manager within twelve months of the works being completed on site.

Air quality

86. There shall be no noxious, dangerous, objectionable or offensive dust, fumes or odour to the extent that it causes an adverse effect at or beyond the Designation boundary.
87. The Requiring Authority shall prepare a Construction Air Quality Management Plan (CAQMP) to outline the measures to be adopted to meet Condition 86. The CAQMP shall be prepared by a Suitably Qualified and Experienced Person and shall include:
- a. A description of the works, and periods of time when emissions of odour, dust or fumes might arise from Construction Works;
 - b. Identification of HSRs that may be adversely affected by emissions of odour, dust or fumes from Construction Works;
 - c. Methods for mitigating dust that may arise from:
 - i. exposed surfaces, vehicle movements and truck loads, potentially including watering for dust suppression, wind fencing, metalling of yards and access roads, minimising open earthwork areas, re-vegetation, controlling vehicle speeds, covering or dampening loads and limiting drop heights, limiting earthworks during high winds.
 - ii. dust trackout from construction site exits onto sealed roads, potentially including the use of vacuum sweeping, water sprays or wheel washes for trucks;
 - iii. construction traffic on unsealed roads, including consideration of sealing the sections of any road that is 50m of a HSR;
 - iv. earthworks and rock crushing, potentially including minimum setbacks from HSRs where necessary, emissions control equipment (e.g. enclosure and/or water sprays at transfer points), and monitoring of weather conditions and visual inspections; and
 - d. Methods for maintaining and operating construction equipment and vehicles to manage visual emissions of smoke from exhaust tailpipes;
 - e. Methods for undertaking and reporting on the results of daily inspections of Construction Works that might give rise to odour, dust or fumes;
 - f. Methods for monitoring and reporting on the state of air quality during Construction Works, including wind speed, wind direction, air temperature and rainfall;
 - fa. Methods for limiting the effects of dust on the Kourawhero Wetland Complex;
 - g. Methods to remediate adverse dust deposits from Construction Works on HSRs, potentially including cleaning exterior surfaces of houses or driveways and/or cleaning of water tanks and replenishment of water supplies;
 - h. Site specific methods for managing potential dust effects on HSRs within 50 metres of dust generating activities;

- i. Procedures for maintaining contact with stakeholders and notifying of proposed construction activities, with reference to the SCMP, including complaints procedures;
 - j. Methods to review and update the CAQMP to add further measures such as ambient air boundary dust measuring and associated trigger levels, where improvements to practices are necessary to achieve Condition 86;
 - k. Construction operator training procedures;
 - l. Consideration of portable Total Suspended Particle measurement devices and associated levels; and
 - m. Contact details of the site supervisor or Project manager and the Project Liaison Person (telephone number and email or other contact address).
88. When preparing the CAQMP the Suitably Qualified and Experienced Person shall have regard to the guidance contained in the Good Practice Guide for Assessing and Managing Dust, Ministry for Environment, 2016, or any subsequent version and the NZ Transport Agency Guide to assessing air quality impacts from state highway projects (version 2.3, October 2019), or any subsequent version.
- 88A. At intervals of no less than three (3) months during the period of Construction Works, the Requiring Authority shall offer by mail or email to the landowners and occupiers (if different) of any occupied dwellings:
- i. Located on the following properties:
 - a) 111 Kaipara Flats Road;
 - b) 211 Kaipara Flats Road
 - c) 214 Kaipara Flats Road;
 - d) 215 Kaipara Flats Road;
 - e) 39 Phillips Road;
 - f) 253 Worthington Road;
 - g) 259 Worthington Road;
 - h) 263 Worthington Road;
 - i) 542 SH1;
 - j) 250 Silver Hill Road;
- or
- ii. Within 200 metres of the Designation boundary on any other property.
- to:
- iii. Fill any potable water tanks on the property, up to a maximum of 30,000 litres per property every three (3) months; and
 - iv. Conduct exterior house and window soft washing, (every three (3) months), with non-toxic washing liquid to remove visible dust arising from the Construction Works.

- 88B. Where a property owner/occupier has accepted the offer of potable water under Condition 88A(iii), the Requiring Authority shall offer to temporarily disconnect from roof collection the relevant potable water tanks on the property (and divert the rainwater flow to a tank overflow system or a suitable alternative drainage path), and internally clean any such tank before delivering the first load of potable water. At the end of Construction Works within 500m of the relevant property, the Requiring Authority shall reconnect the water tank to roof collection.
- 88C. The Requiring Authority shall offer by mail or email to the persons referred to in Condition 88A(i) and (ii) to conduct a soft wash with a non-toxic washing liquid of any surface used to collect potable water on the properties referred to in Condition 88A(i) and (ii), at the conclusion of Construction Works within 500m of the relevant property.
- 88D. If the Requiring Authority has not received a response from a landowner or occupier identified in Condition 88A(i) or (ii) within 20 Days of making an offer under Condition 88A or Condition 88C, that landowner or occupier will be deemed to have rejected the offer. The Requiring Authority shall undertake the activities under Conditions 88A, 88B or 88C within 30 Days of obtaining agreement, subject to access being provided.
- 88E. The Requiring Authority shall keep a record of all offers made under Conditions 88A, 88B or 88C, any response from the property owner/occupier, and a note as to whether the offer was taken up.

MAINTENANCE AND OPERATIONAL CONDITIONS

Operational Noise

Noise Criteria Categories

89. Unless provided for in Condition 89A, the Requiring Authority shall design and construct the Project to ensure that the operational State highway achieves the predicted Noise Criteria Categories identified in Table 2 at each of the identified PPFs adopting the Best Practicable Option. Compliance with the Noise Criteria Categories shall be based on a traffic forecast for a high growth scenario in a design year at least 10 years after the programmed opening of the Project.

Table 2: Identified PPFs

Address	Noise Criteria Category	Predicted noise level (dBL _{Aeq(24h)})	New or Altered Category (as per NZS 6806)
83 Valerie Close	A	57	New
74 Wyllie Road	A	52	New
12 Wyllie Road	A	57	New
2 Wyllie Road	A	57	New
2 - 2 Wyllie Road	A	57	New
371 Woodcocks Road	B	60	New
372 Woodcocks Road	B	62	New

Address	Noise Criteria Category	Predicted noise level (dBL_{Aeq(24h)})	New or Altered Category (as per NZS 6806)
79 J Viv Davie Martin Drive	A	57	New
79 B Viv Davie Martin Drive	A	57	New
79 K Viv Davie Martin Drive	A	57	New
78 B Viv Davie Martin Drive	A	57	New
79 A Viv Davie Martin Drive	A	57	New
78 B Viv Davie Martin Drive	A	57	New
78 A Viv Davie Martin Drive	A	57	New
78 Viv Davie Martin Drive	A	57	New
115 Kaipara Flats Road	A	52	New
115 - 2 Kaipara Flats Road	A	52	New
130 Kaipara Flats Road	A	56	New
131 Kaipara Flats Road	A	55	New
211 Kaipara Flats Road	A	53	New
214 Kaipara Flats Road	A	51	New
215 Kaipara Flats Road	A	56	New
91 SH1, Warkworth	A	57	Altered
27 SH-1, Warkworth	A	61	Altered
63 SH-1, Warkworth	A	57	Altered
42 SH-1, Warkworth	A	41 (69 from SH1)	Altered
39 Phillips Road	A	51	New
105 SH1, Warkworth	A	57	Altered
102 SH-1, Warkworth	A	60	Altered
104 SH1, Warkworth	A	39 (65 from SH1)	Altered
6 Kaipara Flats Road	A	59	Altered
161 Kraack Road	A	49	New
145 Kraack Road	A	39	New
127 Kraack Road	A	48	New
696a SH-1, Dome Forest	A	64	Altered
696b SH-1, Dome Forest	A	64	Altered
1232A SH-1, Wayby Valley	A	54	Altered
25 Wayby Station Road	A	64	Altered
49(a) Wayby Station Road	A	64	Altered
4 Wayby Station Road	A	57	Altered
44 Wayby Station Road	A	58	Altered
177 Rustybrook Road	A	53	New
351 Wayby Valley Road	A	53	New
64 Whangaripo Valley Road	A	51	New
96 Whangaripo Valley Road	A	53	New
40 Borrows Road	A	56	New
47 Borrows Road	A	53	New
213 Whangaripo Valley Road	A	53	New
263 Worthington Road	A	47	New

Address	Noise Criteria Category	Predicted noise level (dBL _{Aeq(24h)})	New or Altered Category (as per NZS 6806)
250 Silver Hill Road	A	50	New
263 Silver Hill Road	A	49	New
273 Silver Hill Road	A	48	New
332 Silver Hill Road	A	53	New
344 Silver Hill Road	A	51	New
469 SH-1, Te Hana	A	52	Altered
490 SH-1, Wellsford	B	65	Altered
10 Charis Lane	A	51	Altered
13 Charis Lane	A	54	Altered
8 Charis Lane	A	54	Altered
7 Charis Lane	A	53	Altered
9 Charis Lane	A	55	Altered
6 Charis Lane	A	52	Altered
542 SH-1, Topuni	A	55	Altered
557 SH-1, Wellsford	A	55	Altered
139 Vipond Road	A	56	Altered
129 Vipond Road	A	51	Altered
575 SH-1, Topuni	B	58	New
28 Waimanu Road	A	54	Altered
641 SH-1, Wellsford	A	59	Altered
705 SH-1, Wellsford	C	70	Altered
704 SH-1, Wellsford	C	68	Altered
17 Maeneene Road	A	61	Altered
45 Maeneene Road	A	59	Altered
33 Maeneene Road	A	58	Altered
18 Maeneene Road	A	56	Altered
35 Vipond Road	B	60	New
17 Vipond Road	A	55	New
259 Worthington Road	A	50	New

89A. Building Modification Mitigation in accordance with Conditions 92 to 98 shall be implemented for those PPFs where compliance with the identified Noise Criteria Category in Table 2 is not practicable following the implementation of the Best Practicable Option Structural Mitigation. The owners of affected PPFs shall be consulted about the change of outcome, and a record of the consultation shall be made available to Council on request.

Implementation of noise mitigation

90. The Requiring Authority shall implement all Structural Mitigation or other noise mitigation identified in the Noise Mitigation Plan (Condition 99) prior to the Project becoming operational, except for the road surfaces identified in Condition 91.
91. The Requiring Authority shall use Porous Asphalt, or another road surface with equivalent or better low-noise generating characteristics, from where the Project

connects with the Ara Tūhono Puhoi to Warkworth section of SH1 to the southern portal of the tunnels, and from Dibble Road (a forestry road) to the northern tie-in with the existing SH1 north of Maeneene Road. Such a surface shall be implemented within 12 months following the Project being officially opened to general public traffic.

Building-Modification Mitigation

92. Prior to the start of Construction Works, a Suitably Qualified and Experienced Person shall identify:
- a. Category B PPFs where the predicted sound level increases by more than 3dB as a result of road-traffic noise from the operational Project (for PPFs assessed against the Altered Road criteria calculated from the NZS 6806 “do-nothing” level, and for PPFs assessed against the New Road criteria calculated from the NZS 6806 “existing” level to the level with all detailed design Structural Mitigation);
 - b. Category C PPFs, following implementation of all detailed design Structural Mitigation; and
 - c. PPFs where Noise Criteria Category of Table 2 cannot practicably be achieved following the implementation of all detailed design Structural Mitigation.

Building Modification

93. The Requiring Authority shall apply the Building Modification Conditions 94 to 98 for any PPF that is predicted under Condition 89 to be:
- a. Category B in the Noise Criteria Categories and the change in noise from the operational road is predicted to be more than 3dB compared to the situation without the Project (calculated from the NZS 6806 “do-nothing” level); or
 - b. Category C in the Noise Criteria Categories.
94. If the owner(s) of the PPF agree to entry within 12 months of the date of the request for entry, the Requiring Authority shall engage a Suitably Qualified and Experienced Person to visit the building and assess the noise reduction performance of the existing building envelope.
95. If the Requiring Authority cannot meet the requirements of Condition 90 because:
- a. The building owner(s) agreed to entry, but entry was not attainable by the Requiring Authority (e.g., entry denied by a tenant); or
 - b. The building owner(s) did not agree to entry within 12 months of the date of the request for entry (including where the owner did not respond within that period); or
 - c. The building owner(s) cannot, after reasonable enquiry, be found prior to completion of construction of the Project.

The Requiring Authority will be deemed to have complied with those conditions and the Requiring Authority shall not be required to implement Building-Modification Mitigation to that building.

96. Within six months of an assessment of a PPF being undertaken in accordance with Condition 92, the Requiring Authority shall give the owner(s) of each PPF written notice advising:
- a. If Building-Modification Mitigation is required to achieve 40 dB LAeq(24h) inside Habitable Spaces when windows are open 100mm for ventilation; and
 - b. The options available for Building-Modification Mitigation, if required; and
 - c. That the owner has three months to decide whether to accept Building-Modification Mitigation and to advise which option for Building-Modification Mitigation the owner(s) prefers (if more than one option is available).
97. The Requiring Authority shall implement the Building-Modification Mitigation agreed in accordance with Condition 96, in a reasonable timeframe agreed with the owner.
98. If the Requiring Authority cannot meet the requirements of Conditions 94 and 95 because:
- a. An alternative agreement for mitigation was reached with the building owner(s);
or
 - b. The building owner(s) did not accept the offer to implement Building-Modification Mitigation within three months of the date of the written notice being sent (including where the owner did not respond within that period); or
 - c. The building owner(s) cannot, after reasonable enquiry, be found prior to completion of construction of the Project;

then the Requiring Authority will be deemed to have complied with those conditions.

Noise Mitigation Plan

99. Prior to the Project becoming operational, the Requiring Authority shall prepare a Noise Mitigation Plan (NMP) in accordance with the NZ Transport Agency P40 Noise Specification 2014 and provide it to the Manager for certification. The NMP shall be prepared by a Suitably Qualified and Experienced Person and shall include methods and design details that encourage road users to accelerate and brake gradually at the roundabout at the existing SH1/Mangawhai Road intersection to minimise noise at the dwelling at 542 SH1.
100. Within 6 months of the low noise road surface being installed under Condition 91, the Requiring Authority shall prepare, a post-construction review report in accordance with the NZ Transport Agency P40 Noise Specification 2014, and provide the post-construction review report to the Manager for information.

Maintenance and protection of landscape, mitigation and offset planting and works

101. The Requiring Authority shall actively maintain all landscape planting (and replace unsuccessful planting) undertaken as part of the Project for a period of 5 years following opening of the Project in accordance with NZTA P39 Standard Specification for Highway Landscape Treatments 2013, or any subsequent version, to ensure its successful establishment. Thereafter, landscape planting shall be maintained to ensure that it achieves the purpose for which it was installed.

101A. For the duration of the Project following its opening, the Requiring Authority shall maintain and protect:

- a. The area identified as the Fauna Habitat and Flyway Mitigation Area under Condition 54F and 54G of the Resource Consent;
- b. The restoration planting and habitat rehabilitation works completed under Condition 54K of the Resource Consent;
- c. The watercourse mitigation works completed under Conditions 76, 77 and 78B of the Resource Consent; and
- d. The wetland mitigation works completed under Conditions 78A and 77B of the Resource Consent.

101B. In the event that the Requiring Authority intends to remove any areas of land or waterways subject to any works covered by Condition 101A from the Designated Land, or transfer ownership or tenure of such land from the Crown, it shall first procure from the Crown and have registered on the CFRs of the land appropriate covenants and/or encumbrances (or similar legal mechanisms) in favour of the Auckland Council requiring the owner of the land for the time being to maintain and protect the areas on an ongoing basis.

Evidence of the registration of such legal protection mechanisms shall be provided to the Auckland Council prior to the transfer of ownership or removal of the area from the Designation.

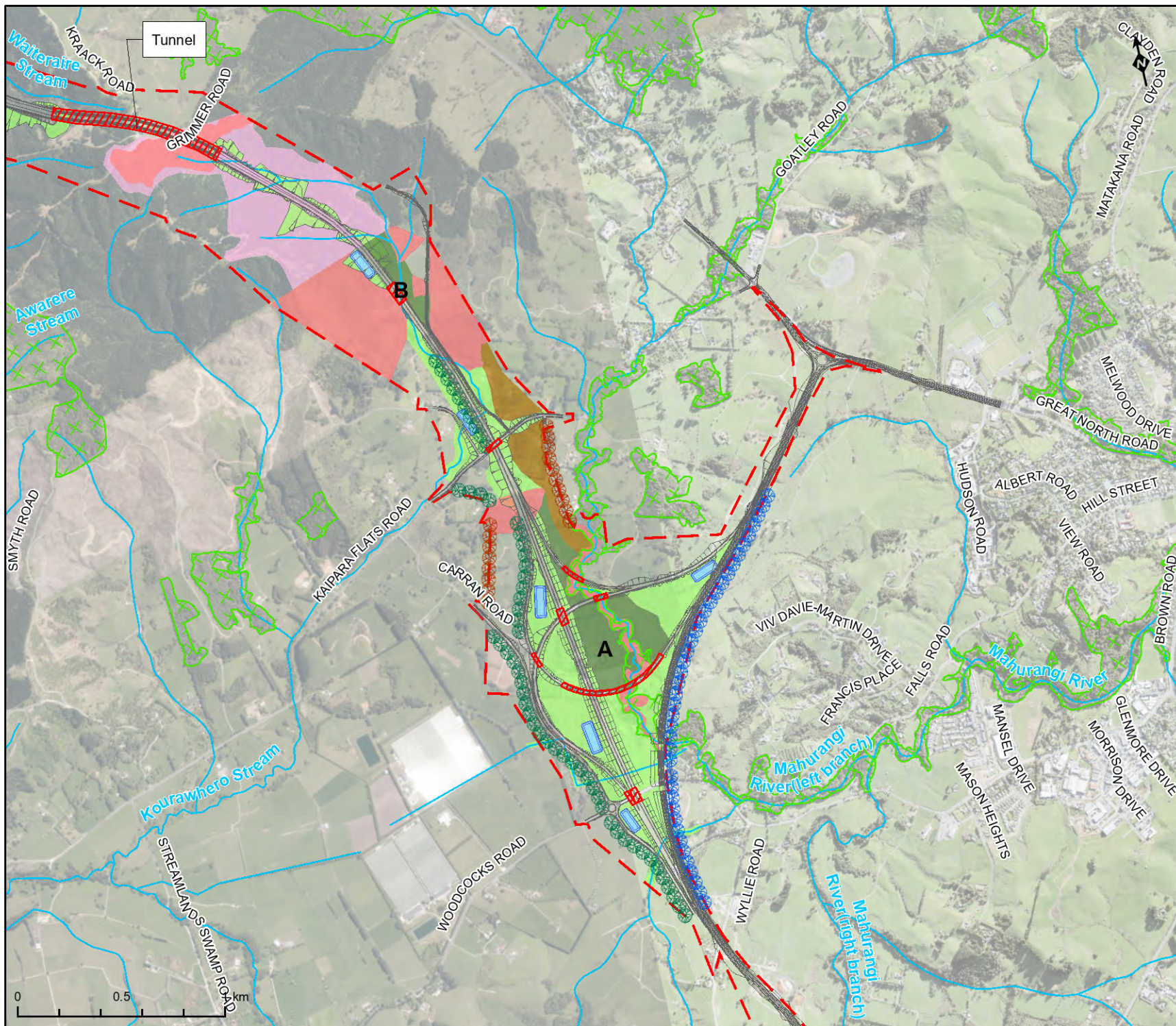
Lighting

102. Lighting of the new State highway will be limited to safety and operational requirements (e.g., interchanges) and shall comply with AS/NZS 1158:2005: “Lighting for roads and public spaces” and any subsequent version.

Attachment A



Conditions maps



- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- ⊗ P2W screen planting
- ⊗ Screen planting
- ⊗ Existing shelter belt
- ▭ Stormwater treatment wetlands - indicative locations
- Watercourse
- ▭ Landscape Mitigation Planting
- ▭ Indigenous vegetation
- ▭ Ecology vegetation mitigation
- ▭ Fauna habitat and flyway mitigation
- ▭ Mitigation for fragmentation
- ▭ Significant ecological area -Terrestrial

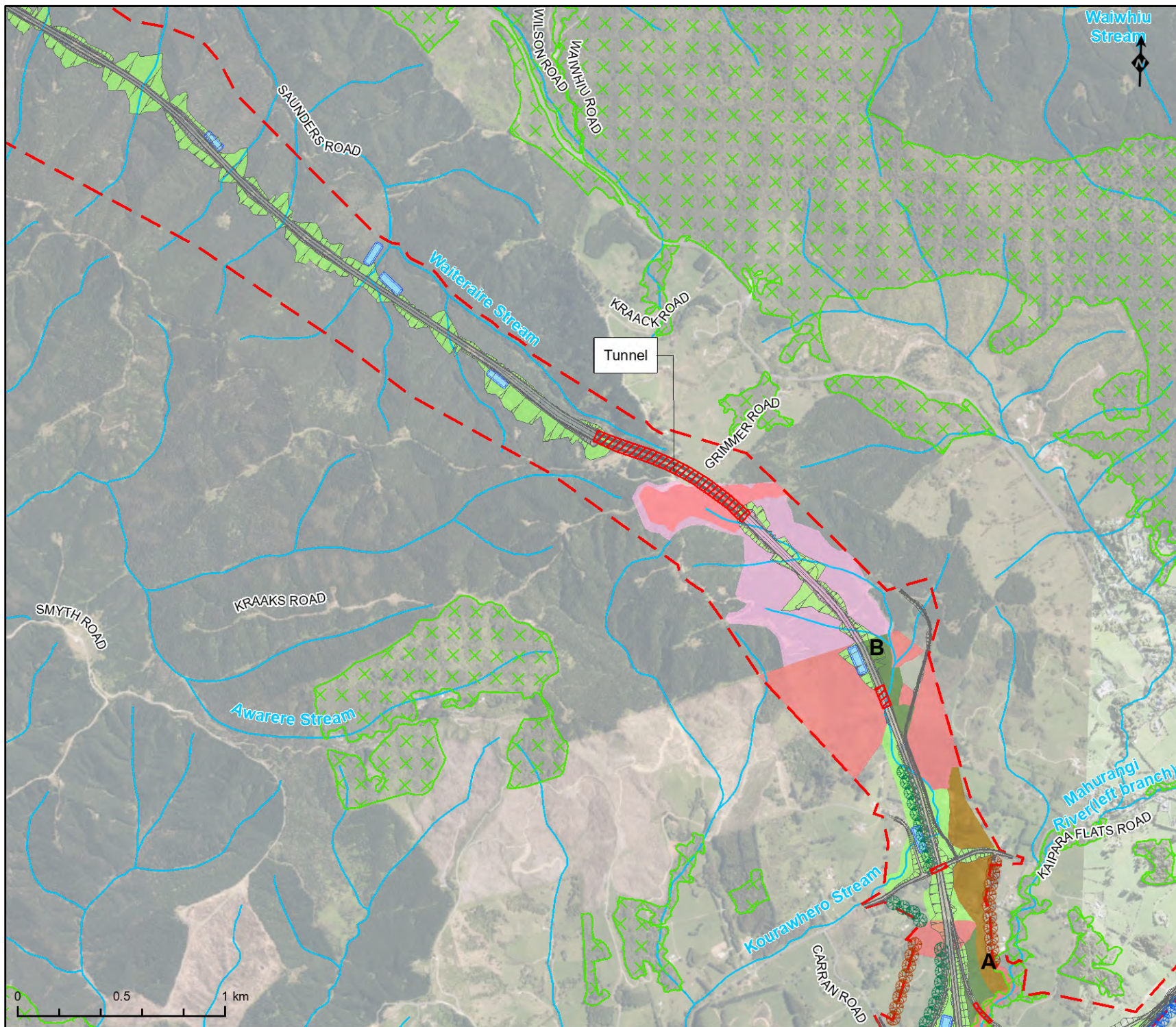
Conditions - Map 1



WARKWORTH TO WELLSFORD

MITIGATION SITES





- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- ⊗ P2W screen planting
- ⊗ Screen planting
- ⊗ Existing shelter belt
- ▭ Stormwater treatment wetlands - indicative locations
- Watercourse
- ▭ Landscape Mitigation Planting
- ▭ Indigenous vegetation
- ▭ Ecology vegetation mitigation
- ▭ Fauna habitat and flyway mitigation
- ▭ Mitigation for fragmentation
- ▭ Significant ecological area -Terrestrial

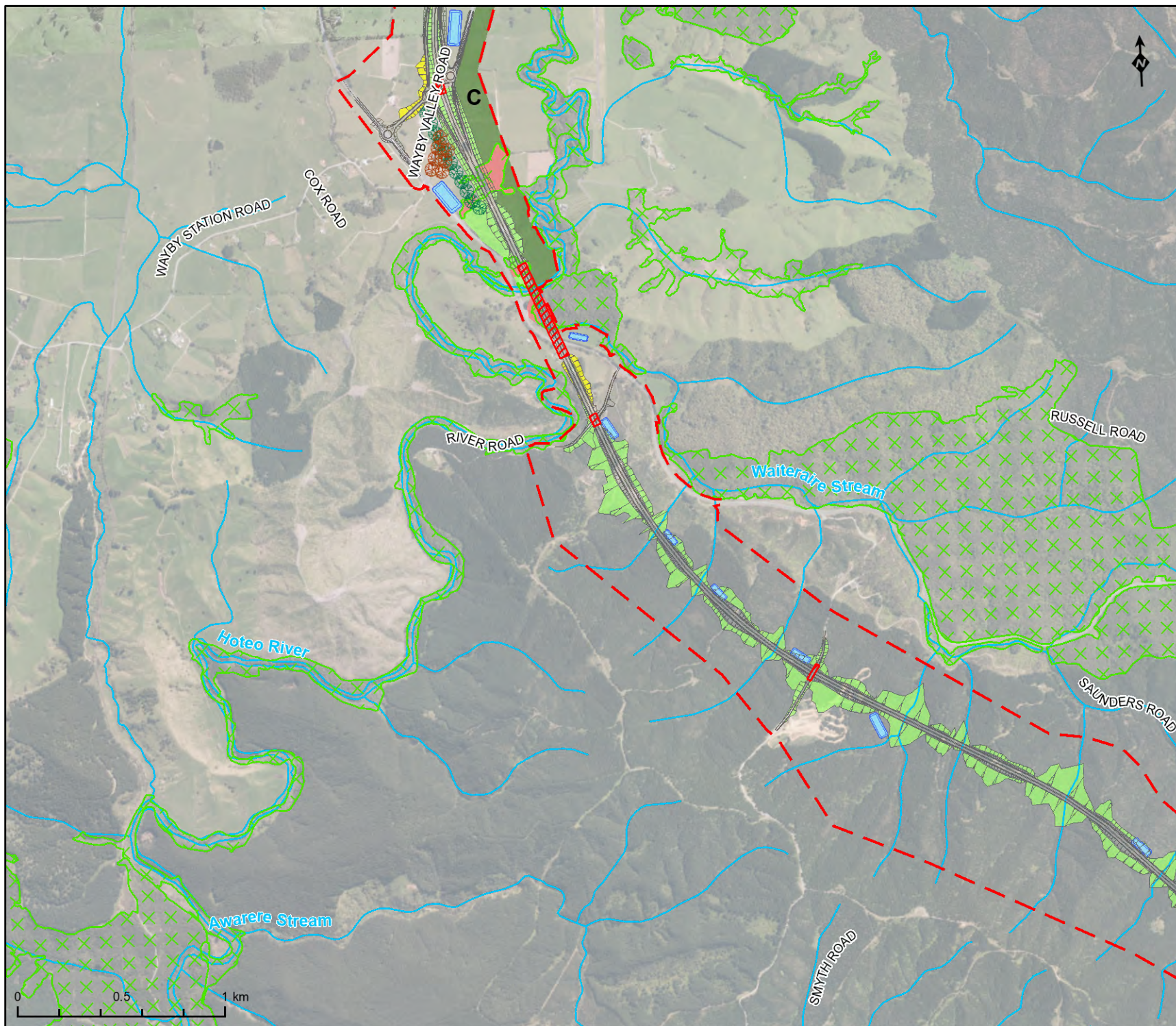
Conditions - Map 2



WARKWORTH TO WELLSFORD

MITIGATION SITES





- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- ⊗ Screen planting
- ⊗ Existing shelter belt
- ▭ Stormwater treatment wetlands - indicative locations
- Watercourse
- ▭ Landscape Mitigation Planting
- ▭ Indigenous vegetation
- ▭ Ecology vegetation mitigation
- ▭ Grass batter slopes
- ⊗ Significant ecological area -Terrestrial

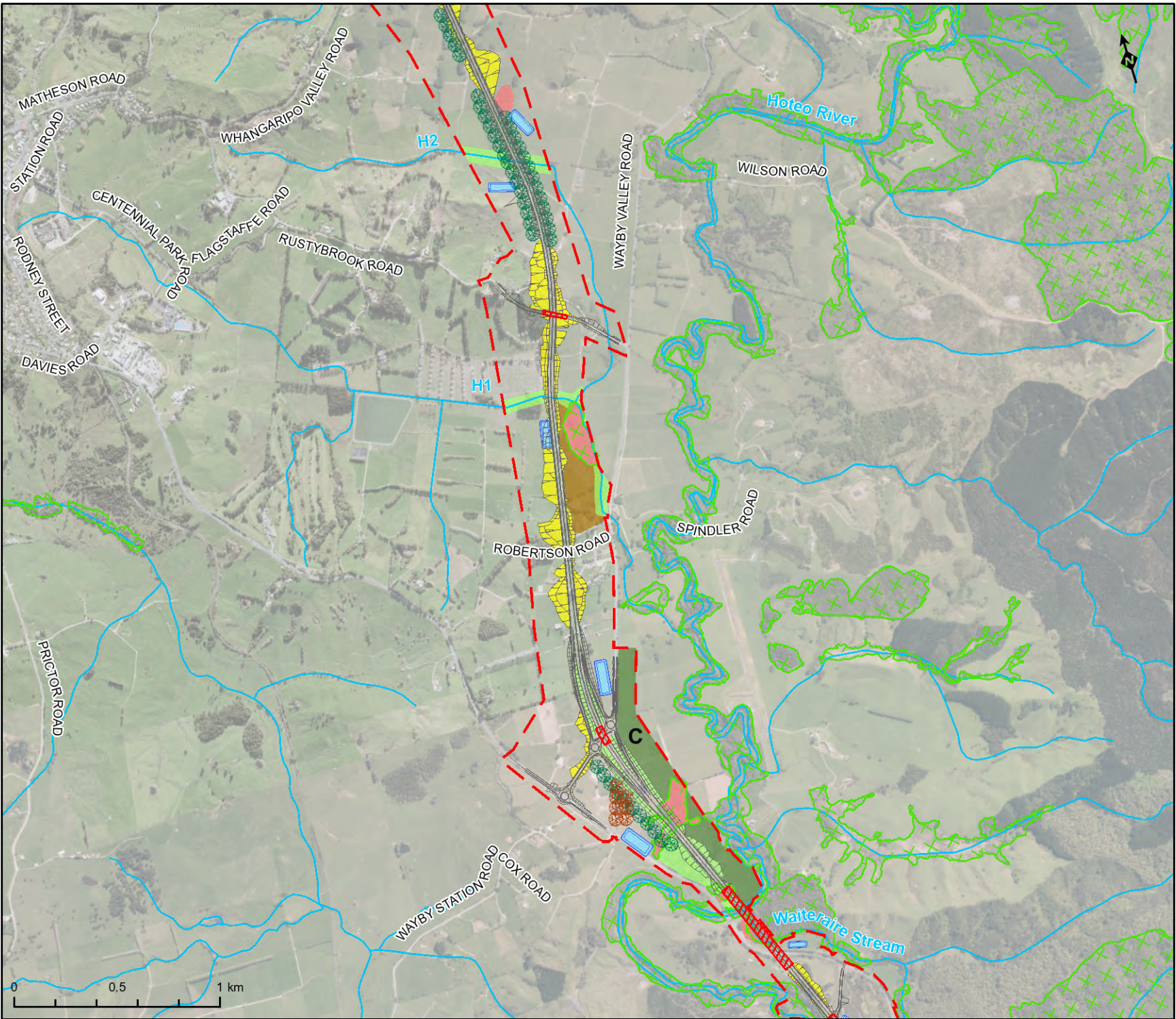
Conditions - Map 3



WARKWORTH TO WELLSFORD

MITIGATION SITES





- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Mitigation for fragmentation
- Grass batter slopes
- Significant ecological area -Terrestrial

Conditions - Map 4



WARKWORTH TO WELLSFORD

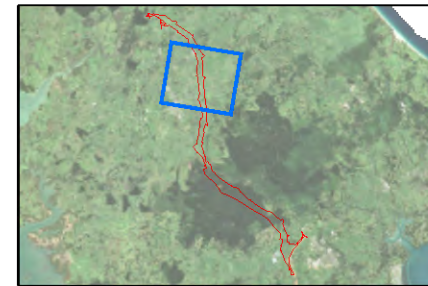
MITIGATION SITES





- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- ⊗ Screen planting
- ⊗ Existing shelter belt
- ▭ Stormwater treatment wetlands - indicative locations
- Watercourse
- ▭ Landscape Mitigation Planting
- ▭ Indigenous vegetation
- ▭ Ecology vegetation mitigation
- ▭ Grass batter slopes
- ⊗ Significant ecological area -Terrestrial

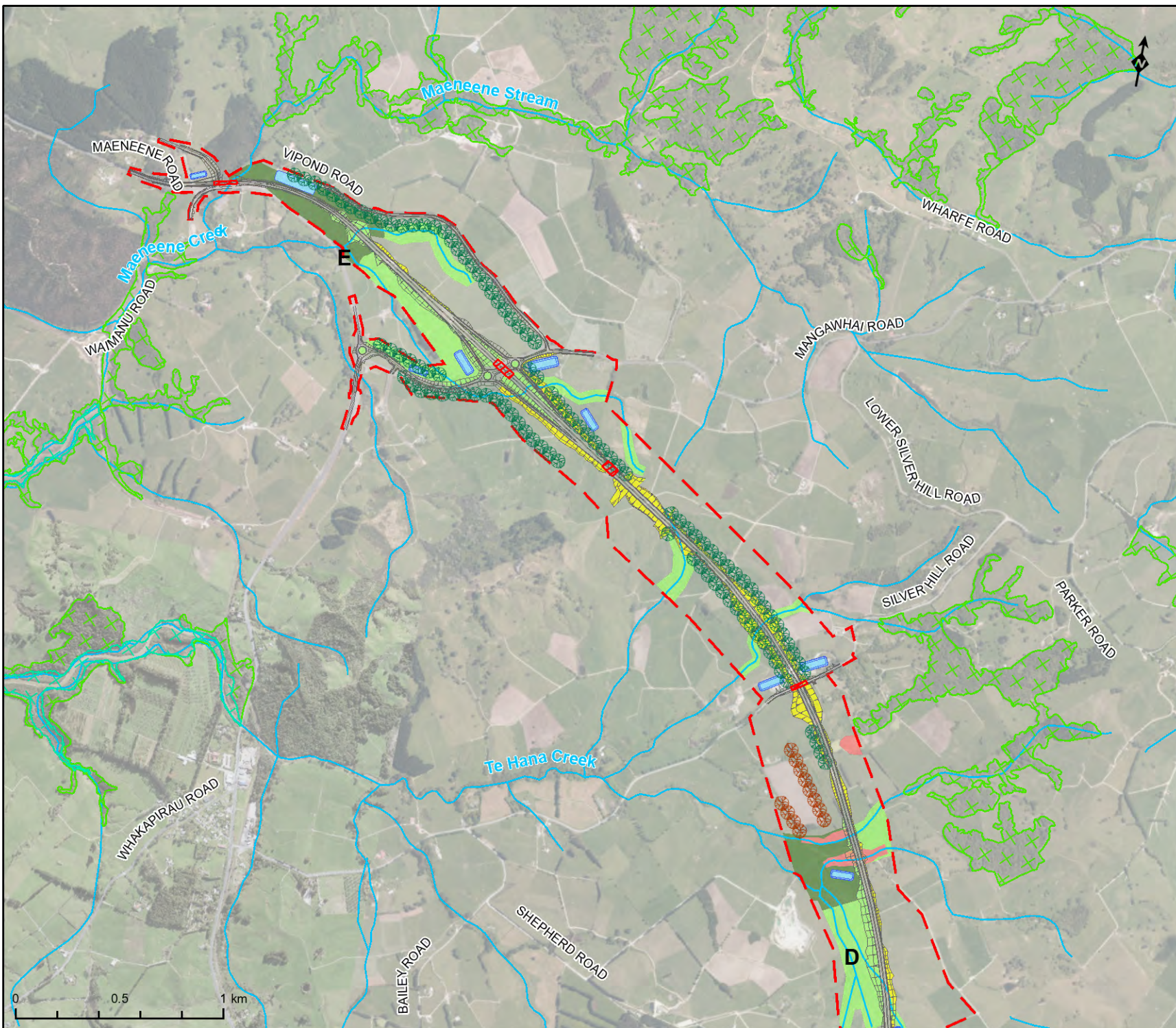
Conditions - Map 5



WARKWORTH TO WELLSFORD

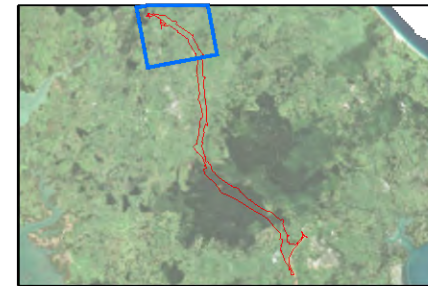
MITIGATION SITES





- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Grass batter slopes
- Significant ecological area -Terrestrial
- Significant ecological area - Marine 2

Conditions - Map 6



WARKWORTH TO WELLSFORD

MITIGATION SITES



SCHEDULE B

RESOURCE CONSENTS GRANTED

The following resource consents are granted to Waka Kotahi – The New Zealand Transport Agency under the Resource Management Act 1991 and Auckland Unitary Plan (Operative in Part) to undertake the construction, operation and maintenance of a state highway and associated activities between Warkworth and north of Te Hana within the Designated Land.

Land use consent (s9)

E26 Infrastructure (LUC60354952)

- To create stormwater detention/retention ponds and wetlands associated with the project as a controlled activity under rule E26.2.3.1 (A55).
- The removal and alteration of vegetation that does not comply with standards E26.3.5.1 to E26.3.5.4 as a restricted discretionary activity under rule E26.3.3.1 (A77).
- Earthworks activity greater than 50,000m² where land has a slope less than 10 degrees outside the Sediment Control Protection Area as a restricted discretionary activity under rule E26.5.3.2 (A103).
- Earthworks activity greater than 2,500m² where the land has a slope equal to or greater than 10 degrees as a restricted discretionary activity under rule E26.5.3.2 (A106).
- Earthworks activity greater than 2,500m² within the Sediment Control Protection Area as a restricted discretionary activity under rule E26.5.3.2 (A107).
- Earthworks activity between 10m² - 2500m² and from 5m³ - 2500m³ within an SEA as a restricted discretionary activity under rule E26.6.3.1 (A117).
- Earthworks activity greater than 2500m² or 2500m³ within a SEA as a discretionary activity under rule E26.6.3.1 (A118).

E9 Stormwater quality – High contaminant generating car parks and high use roads (LUC60355185)

- Development of a new or redevelopment of an existing high use road greater than 5000m² as a controlled activity under Rule E9.4.1 (A7).

Streamworks (ss 13 & 14)

E3 Lakes, rivers, streams and wetlands

- Diversion of a stream with associated disturbance and sediment discharge outside of any overlays as a discretionary activity under rule E3.4.1 (A19).
- Any activities not complying with the general permitted activity standards in E3.6.1.1 or the specific standards in E3.6.1.10 – E3.6.1.13 (outside overlays) as a discretionary activity under rule E3.4.1 (A26).
- Temporary structures that comply with the standards within E3.6.1.15 within overlays, as a discretionary activity under E3.4.1 (A27).

- Bridges or pipe bridges within overlays that comply with the standards in E3.6.1.16 as a discretionary activity under rule E3.4.1 (A29).
- Culverts more than 30m in length when measured parallel to the direction of water flow outside of any overlay as a discretionary activity under rule E3.4.1 (A33).
- Erosion control structures within an overlay that is less than 30m in length when measured parallel to the direction of water flow and complies with the standards in E3.6.1.14 as a discretionary activity under rule E3.4.1 (A34).
- Stormwater outfalls within an overlay that comply with the standards in E3.6.1.14 as a discretionary activity under rule E3.4.1 (A39).
- Activities outside of any overlay not complying with the general permitted activity standards in E3.6.1.1 or the specific activity standards in E3.6.1.14 to E3.6.1.23 as a discretionary activity under rule E3.4.1 (A44).

Water Permits (s14)

E7 Taking, using, damming and diversion of water and drilling (WAT60355184)

- Dewatering and groundwater level control for the long-term operation of the road cuts, not complying with standards E7.6.1.6(2) and (3) as a restricted discretionary activity under rule E7.4.1 (A20).
- Excavations for the road alignment will exceed 1ha in total area and 6m depth below natural ground level and the diversion cannot comply with standard E7.6.1.10(2), requiring consent as a restricted discretionary activity under rule E7.4.1 (A26).

E8 Stormwater – Discharge and diversion (WAT60356979)

- Diversion of stormwater runoff from new impervious surface areas which exceeds 5000m² and which does not comply with standards E8.6.1 and E8.6.4.1 as a discretionary activity under Rule E8.4.1 (A10).

Discharge Permits (s15)

E8 Stormwater – Discharge and diversion (DIS60354954)

- Discharge of stormwater runoff from new impervious surface areas which exceeds 5000m² and which does not comply with standards E8.6.1 and E8.6.4.1 as a discretionary activity under Rule E8.4.1 (A10).

E14 Air Quality (DIS603551896)

- Temporary crushing of aggregates greater than 60 tonnes per hour where the activity complies with permitted standards in E14.6.1.13, as a restricted discretionary activity under rule E14.4.1 (A94).

THE RESOURCE CONSENTS ARE SUBJECT TO THE FOLLOWING CONDITIONS

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DEFINITIONS

The table below defines the acronyms and terms used in the conditions. Defined terms are capitalised throughout the conditions.

Acronym / Term	Definition / Meaning		
Active Roost Site	An area within the home range of a bat population and where there is potential for bats to be roosting in any suitable tree or cluster of trees		
Acute Event Threshold	Catchment	Acute Event (events equal to or greater than)	Acute Event Threshold (tonnes/Acute Event)
	Hōteo Catchment	24 hour 10-year ARI event	512
	Mahurangi Catchment	24 hour 30-year ARI event	600
Acute Event Sediment	Total sediment (tonnes) discharged from Project Works over the total Project construction period (excluding total sediment generated by a greater than or equal to 100-year ARI event)		

Acronym / Term	Definition / Meaning	
	above the Acute Event Threshold(s)	
AMP	Adaptive Monitoring Plan	
AMOP	Annual Monitoring and Offset Plan	
ARI	Average Return Interval	
AUP(OP)	Auckland Unitary Plan Operative in Part	
Avifauna	Indigenous bird species of NZ	
Bed	As defined in the RMA	
CEMP	Construction Environmental Management Plan	
CESCP	Construction Erosion and Sediment Control Plan	
CIR	Cultural Indicators Report	
CMA	Coastal Marine Area	
Construction Works	Activities undertaken to construct the Project excluding Enabling Works	
CTMP	Construction Traffic Management Plan	
Cumulative Sediment	Total sediment (tonnes) discharged from Project Works above the Cumulative Threshold(s) over the total Project construction period minus any Acute Event Sediment	
Cumulative Threshold	Catchment	Cumulative Threshold (tonnes)
	Hōteo Catchment	9000 [x total years of Construction Works]
	Mahurangi Catchment	4300 [x total years of Construction Works]
	Oruawharo Catchment	3300 [x total years of Construction Works]
Day(s)	Has the same meaning as “working day” under section 2 of the RMA	
DEB	Decanting earth bund	
Designated Land	The land subject to the Designation	

Acronym / Term	Definition / Meaning
Designation	The designation for the Project included in the AUP(OP)
EMP	Ecology Management Plan
Ecological Site	The areas described in Appendix A as identified on Maps 18 – 20
Ecological Value	The value of an Ecological Site (i.e. Low-Moderate or High-Very High) identified using the criteria in the EIANZ Guidelines
EIANZ Guidelines	Ecological Impact Assessment Guidelines for New Zealand 2nd Edition, EIANZ, 2018, or any subsequent version.
Enabling Works	Preliminary construction activities as follows: <ul style="list-style-type: none"> • geotechnical investigations (including trial embankments); • formation of access for geotechnical investigations; • establishment of site yards, site offices, site entrances and fencing; • constructing and sealing site access roads; • demolition or removal of buildings and structures; • relocation of services; and • establishment of mitigation measures (such as erosion and sediment control measures, temporary noise walls, earth bunds and screen planting)
Erosion Prone Stream	Streams with soft beds (not rock) that are predicted to be subject to flow changes of >15% to peak 2-year and 10-year ARI flows compared to predevelopment
ESCP	Erosion and Sediment Control Plan
EWCEMP	Enabling Works Construction Environmental Management Plan
EWCESCP	Enabling Works Construction Erosion Sediment Control Plan
EWCTMP	Enabling Works Construction Traffic Management Plan
Fauna	Indigenous fauna of NZ, excluding fauna as defined in Avifauna above
FHFMA	Fauna Habitat and Flyway Mitigation Area
GD01	Auckland Council Guideline Document 2017/001: Stormwater Management Devices in the Auckland Region (December 2017), or any subsequent version

Acronym / Term	Definition / Meaning
GD05	Auckland Council Guideline Document 2016/005: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (June 2016), Incorporating Amendment 1, or any subsequent version
Highly Sensitive Receiver (HSR)	Residential dwellings within: <ul style="list-style-type: none"> • 200m of the Designation boundary; • 50m of sealed access roads used for Project Works up to 500 m outside of the Designation boundary; and • 100m of unsealed access roads used for Project Works outside of the Designation boundary.
Hōkai Nuku	The iwi collective being comprised of the representatives for Ngāti Manuhiri, Ngāti Mauku/Ngāti Kauae of Te Uri o Hau, Ngāti Rango of Ngāti Whātua o Kaipara and Ngāti Whātua.
Incident	A release of contaminants (including sediment) or materials into a waterbody that exceeds typical background levels
Iwi Advisor	The advisor (or other nominated kaitiaki) appointed by Hōkai Nuku in accordance with Condition 9G.
Kourawhero Wetland Complex	The wetland complex associated with the Kourawhero Stream as identified on Map 17
Intermittent Stream	As defined in the AUP(OP)
Manager	The Team Manager – Compliance Monitoring, of Auckland Council, or authorised delegate
Mana Whenua	Māori who can demonstrate customary rights through occupation to resources within the Project area, and who have responsibilities as kaitiaki over their tribal lands, waterways and other taonga
Maximum Open Earthworks Area	Maximum area of earthworks allowed to be open (unstabilised) at any one time
Mitigation Sites	The 'Ecology vegetation mitigation' areas identified on Maps 1 – 6
NFFCRP	Native Freshwater Fish Capture and Relocation Plan
Permanent stream	As defined in the AUP(OP)
Project	The construction, maintenance and operation of the Ara Tūhono Warkworth to Wellsford Project, which extends from Warkworth

Acronym / Term	Definition / Meaning
	to north of Te Hana
Project Liaison Person	The person or persons appointed for the duration of the construction phase of the Project to be the main and readily accessible point of contact for persons affected by the construction work
Project Works	All activities undertaken to construct the Project (both Construction Works and Enabling Works) and including ecological and landscape mitigation activities) but excluding operation of the highway
Representative Watercourses	The watercourses set out in Maps 7-12.
RMA	Resource Management Act 1991
RCMP	Rock Crusher Management Plan
SCMP	Stakeholder and Communications Management Plan
SEEMP	Streamworks Ecological Effects Management Plan
Sediment Reduction Activity	Works or activities that reduce sediment discharging into the CMA. Such works or activities may include any Project Works, land retirement (e.g. retirement of commercial plantation forest and/or pasture), planting or other sediment reduction works or activities.
Sediment Reduction Factors	Tonnes of sediment per hectare discharging into the CMA that will be reduced by a Sediment Reduction Activity.
SH1	State Highway 1
SOMP	Stormwater Operations and Maintenance Plan
SRP	Sediment Retention Pond
SSTMP	Site Specific Traffic Management Plan
Stabilisation	The activity to achieve a Stabilised Area
Stabilised, Stabilised Area	Refers to an area inherently resistant to erosion such as rock or an area that has been stabilised after earthworks and is excluded from the definition of Maximum Open Earthworks Area. Stabilisation methods may include use of mulch and/or other woody organic matter, geotextile, the use of hard fill material and

Acronym / Term	Definition / Meaning
	<p>exposing rock as set out in GD05 or as approved through conditions or certified CESCPS.</p> <p>Where vegetation is used on a surface that is not otherwise resistant to erosion, the surface is considered stabilised once an 80% vegetation cover has been established.</p>
Stage(s)	A specific works area or new land disturbing activity associated with construction of the Project as nominated by the Consent Holder.
Stormwater Management Wetland	A permanent stormwater management device in the form of a constructed wetland designed to manage stormwater runoff volume, flow and/or contaminant loads prior to discharge
Suitably Qualified and Experienced Person or SEQP	A person (or persons) who can provide sufficient evidence to demonstrate their suitability and competence
Trigger Event	<p>An event in which the following occurs:</p> <ul style="list-style-type: none"> • Greater than 25mm of rainfall over any 24-hour period (as measured by the automatic onsite rainfall devices) where Project Works subject to a CESCPS are not Stabilised; or • Greater than 15mm of rainfall within an hour period where Project Works subject to a CESCPS are not Stabilised
TSS	Total Suspended Solids
Watercourse	Permanent and intermittent rivers and streams but not ephemeral streams or Wetlands.
Wetland(s)	Includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions, excluding Stormwater Management Wetlands.
WEEMP	Wetland Ecological Effects Management Plan

GENERAL CONDITIONS

1. These consents authorise the activities described in Table 1 for the purposes of the construction, operation and maintenance of the Project on the Designated Land.

Consent Lapse and Expiry

- 1A. Pursuant to sections 123 and 125(1) of the RMA (and where relevant in accordance with section 116 of the RMA), the lapse and expiry dates for the various resource consents are as set out in Table 1 unless they have been given effect to, surrendered or been cancelled at an earlier date.

Table 1: Resource consent lapse and expiry dates

Ref.	Resource consents	Lapse date	Expiry date
Land disturbance activities			
LUC60354952	Land use (s.9(2)) – earthworks	15 years	Unlimited duration
LUC60354952	Land use (s.9(2)) – vegetation alteration and removal.	15 years	Unlimited duration
LUC60354952	Land use (s.9(2)) – construction of stormwater detention/retention ponds	15 years	Unlimited duration
Works in watercourses and wetlands			
LUS60354955	Land use (s.13) - new structures in, on, under or over the bed of rivers, streams (including intermittent streams) and wetlands.	15 years	35 years from the date of commencement
LUS60354955	Water permit (s.14) - diversion and temporary damming of water	15 years	35 years from the date of commencement
WAT60354953	Water permit (s.14) - diversion of intermittent and permanent watercourses and associated disturbance and sediment discharge throughout the Project area during construction and operation.	15 years	35 years from the date of commencement
Diversion of groundwater			
WAT60355184	Water permit (s.14) - diversion of groundwater and dewatering construction and operation.	15 years	35 years from the date of commencement

Ref.	Resource consents	Lapse date	Expiry date
Diversion and discharge of stormwater			
WAT60356979	Water permit (s.14) - diversion of stormwater associated with new permanent impervious surfaces.	15 years	35 years from the date of commencement
DIS60354954	Discharge permit (s.15) - discharge of stormwater runoff from new permanent impervious surfaces into or onto land or water.	15 years	35 years from the date of commencement
LUC60355185	Land use (s.9(2)) – development of all new impervious surfaces for high use roads within the Project area.	15 years	Unlimited duration
Discharges to air			
DIS60355186	Discharge permit (s.15) – temporary discharges to air during construction	15 years	15 years from the date of commencement

Review

2. These conditions may be reviewed by the Manager under section 128 of the Act, by giving notice pursuant to section 129 of the Act, at any time within six months of the first, second, third, fourth, and fifth anniversaries of the date of commencement of the construction of the Project authorised by this consent:
 - a. To deal with any adverse effect on the environment that may arise from the exercise of the consent and which it is appropriate to deal with at a later stage; or
 - b. To review the adequacy of any monitoring.

Management plans

3. The Consent Holder shall prepare, submit to the Manager, have certified, and implement the resource consent management plans in accordance with Table 2 and the specific resource consent conditions which apply to each management plan.
4. The Consent Holder may prepare management plans in parts or in stages to address specific activities or to reflect the staged implementation of the Project Works.

Condition 5 is intentionally left blank

6. The Consent Holder shall not commence Project Works within the area to which a management plan applies until the required management plan(s) has been certified.

7. The Consent Holder may seek to amend a management plan in accordance with the Decision Pathway prescribed for the plan in Table 2.
- 7A. The Consent Holder shall make each management plan publicly available online once a management plan is finalised and if it is amended or updated, and for the duration of Project Works.

Table 2: Management Plan Table

Management Plan	Decision Pathway	When to submit	Duration for implementation
Construction Environmental	To Manager for Information	At least 20 Days prior to start of Construction Works	Duration of Construction Works
Enabling Works Construction Environmental	To Manager for Information	At least 20 Days prior to start of Enabling Works	Duration of Enabling Works
Erosion and Sediment Control	Certified by Manager	Prior to start of Construction Works	Duration of Construction Works
Chemical Treatment	Certified by Manager	Prior to start of Construction Works	Duration of Construction Works
Construction Erosion and Sediment Control	Certified by Manager	Prior to start of Construction Works for specific area and/or activity	Duration of specific works and/or activity
Enabling Works Construction Erosion and Sediment Control	Certified by Manager	Prior to start of Enabling Works	Duration of Enabling Works
Adaptive Monitoring	Certified by Manager	Prior to start of Construction Works	Duration of Construction Works
Sediment Reduction Factors methodology	Certified by Manager	Prior to start of Construction Works	N/A
Ecological	Certified by	At least 6 months prior to start of	As specified in the EMP

Management Plan	Decision Pathway	When to submit	Duration for implementation
Management Plan	Manager	Project Works	
Biosecurity Plan	Certified by Manager	Prior to start of Project Works	Duration of Project Works
Streamworks Ecological Effects Management Plan	Certified by Manager	Prior to start of Construction Works	N/A
Native Freshwater Fish Capture and Relocation Plan	Certified by Manager	Prior to any Wetland or Watercourse activity commencing	Prior to Construction/ Enabling Works period
Stormwater Operations and Maintenance	Provided to Manager for information	Prior to operation of stormwater treatment devices	Throughout operation of Project
Rock Crusher	Certified by Manager	Prior to start of Construction Works	Duration of Construction Works
Cultural Engagement	To the Manager for information	At least 1 month prior to the start of Project Works	Throughout the Project Works
Wetland Ecological Effects Management Plan	Certified by Manager	Prior to start of Construction Works	Throughout the Project Works and for 3 years following completion of the Project Works
Annual Mitigation and Offset Plan	Certified by Manager	30 June annually	Throughout the Project Works

MANA WHENUA

Cultural Indicators Report

8. At least 12 months prior to the Consent Holder's nominated start date for detailed design of the Project, the Consent Holder shall invite Mana Whenua to prepare a Cultural Indicators Report for the Project, or to nominate a person or organisation to prepare a Cultural Indicators Report on their behalf. To assist with preparation of any Cultural Indicators Report, the Consent Holder shall provide access to Crown owned land within the Project Area for Mana Whenua to undertake surveys. The purpose of any Cultural Indicators Report is to assist with the protection and

management of Ngā Taonga Tuku Iho (treasures handed down by our ancestors) during Construction Works.

9. Any Cultural Indicators Report should be completed and provided to the Consent Holder at least 6 months prior to the Consent Holder's nominated start date for detailed design of the Project and should:
- a. Describe Mana Whenua's customary rights through occupation to resources within the Designation.
 - b. Identify and map cultural sites, landscapes and values that have the potential to be affected by Project Works;
 - c. Set out Mana Whenua's desired outcomes and recommended methods for management of potential effects on cultural values;
 - d. Identify cultural indicators of cultural stream health as relevant to the Project Works;
 - e. Set out recommended methods to measure the effects on identified cultural indicators during Project Works;
 - f. Identify opportunities for restoration and enhancement of Mauri and mahinga kai within the Designation; and
 - g. Identify cultural criteria that should be acknowledged in the development of the CEMP, SEEMP, the EMP, the WEEMP, and the NFFCRP.

Cultural Engagement Plan

- 9A. At least 1 month prior to start of the Consent Holder's nominated start date for detailed design of the Project, the Consent Holder shall complete a Cultural Engagement Plan if it has received any Cultural Indicators Report(s) in accordance with Conditions 8 and 9. The purpose of the Cultural Engagement Plan is to identify:
- a. The measures and methods to implement the recommendations within the Cultural Indicators Report(s) where the Consent Holder considers it is practicable to do so.
 - b. Written reasons where the Consent Holder considers any recommendations in the Cultural Indicators Report(s) cannot be practicably implemented, for example due to the operational, technical, financial, health and safety or engineering needs of the Project.
 - c. The roles and responsibilities of Mana Whenua during the Project Works.
 - d. The roles and responsibilities of the Iwi Advisor, which shall include but not be limited to:
 - i. Engaging with the Consent Holder on the preparation of the CEMP, the SEEMP, the EMP, the NFFCRP, and the WEEMP;
 - ii. Onsite monitoring of Project Works involving top soil removal up to 1.5m below ground level (as defined in the AUP(OP));
 - e. Requirements for formal dedication or cultural interpretation prior to the start of Construction Works in areas identified as having significance to Mana Whenua.
 - f. A written record of the engagement undertaken in accordance with Condition 9B.

- 9B. In preparing the Cultural Engagement Plan the Consent Holder shall engage with Mana Whenua who have prepared a Cultural Indicators Report over a period of not less than 3 months prior to the Consent Holder's nominated start date for detailed design of the Project to better understand any Cultural Indicators Report and to discuss the recommendations in it.
- 9C. The Consent Holder shall implement the Cultural Engagement Plan throughout the Project Works.
- Iwi Advisor***
- 9D. At least 12 months prior to commencement of Construction Works, the Consent Holder shall invite Hōkai Nuku to appoint an Iwi Advisor or other nominated kaitiaki (*Iwi Advisor*) to undertake the roles and responsibilities set out, or to be set out in the Cultural Engagement Plan.
- 9E. Conditions 9A to 9C will cease to apply if Mana Whenua have been invited to prepare a Cultural Indicators Report in accordance with Condition 8 and have not provided that report within six months of the Consent Holder's nominated start date for detailed design of the Project.

Conditions 10-15 are intentionally left blank

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

16. The Consent Holder shall prepare a Construction Environmental Management Plan (*CEMP*) prior to commencement of Construction Works to set out management procedures and methods to be implemented to ensure ongoing compliance with these conditions and to address complaints and Incidents in a timely manner during Construction Works.
17. The CEMP shall be prepared, having regard to the NZ Transport Agency Guideline for Preparing Environmental and Social Management Plans (April 2014), or any subsequent version. The CEMP shall include, but not be limited to:
- a. Roles and responsibilities of construction management staff, including the overall manager responsible for environmental management.
 - b. An outline construction programme, proposed staging, proposed hours of work and methods to inform the Manager of upcoming Construction Works, which shall occur at annual intervals or key construction times throughout the duration of Construction Works.
 - c. Contact details of the site supervisor or Project manager and the Project Liaison Person (telephone number and email or other contact address).
 - d. Methods and systems to inform and train all persons working on the site of potential environmental sensitivities and how to comply with these conditions.
 - e. Measures to be adopted to maintain the land affected by Construction Works in a tidy condition in terms of disposal / storage of rubbish, storage and unloading of construction materials and similar activities.

- f. The location of construction site infrastructure including site offices, site amenities, contractors' yard access, equipment unloading and storage areas, contractor car parking and security.
 - g. Means of providing for the health and safety of the general public.
 - h. Procedures for the refuelling and maintenance of plant and equipment to avoid discharges of fuels or lubricants to Watercourses.
 - i. Measures to address the storage of fuels, lubricants, hazardous and/or dangerous materials, along with contingency procedures to address emergency spill response(s) and clean up.
 - j. Procedures for responding to complaints about Construction Works.
 - k. Procedures for Incident management.
 - l. Methods for updating the CEMP as required.
18. The CEMP shall be prepared in engagement with Mana Whenua and in consultation with the owner of the commercial plantation forest (Mahurangi Forest) located west of SH1, with respect to construction activities which directly interface with forestry operations. If the Consent Holder has not received any comment from the owner of the Mahurangi Forest within 20 Days of providing the CEMP to them, the Consent Holder may consider the relevant party has no comments.

Enabling Works Construction Environmental Management Plan

19. Where Enabling Works are to be undertaken, the Consent Holder shall prepare a site or activity specific Enabling Works Construction Environmental Management Plan (*EWCEMP*) prior to commencing the relevant Enabling Works.
20. The EWCEMP shall be prepared in general accordance with Condition 17, with the scope modified to be commensurate with the scale and effects of the proposed enabling works.

EROSION AND SEDIMENT CONTROL

Erosion and Sediment Control Outcomes

21. The Consent Holder shall design and construct the Project to achieve the following erosion and sediment control (*ESC*) Outcomes (*ESC Outcomes*):
- a. Prioritise minimisation of sediment generation by:
 - i. minimising the volume and area of the proposed earthworks required for the Project through earthworks design appropriate to slope and expected soil types and geology;
 - ii. maximising the effectiveness of ESC measures associated with earthworks by minimising potential for sediment generation and sediment yield; and
 - iii. Minimisation of discharges of all construction water related contaminants.
 - b. Monitor sediment yields and assess and remedy effects on freshwater and marine environments at the prescribed thresholds in Conditions 34 to 42.

22. The Consent Holder shall develop, construct and maintain all ESC plans and devices to achieve the requirements of GD05, except where otherwise certified by the Manager or a specific standard is detailed in a condition of this consent, in which case the specific standard shall apply.

Erosion and Sediment Control Plan

23. The Consent Holder shall prepare an Erosion and Sediment Control Plan (ESCP) for the Construction Works for the entire Project prior to Construction Work identifying the construction water management measures to be used on the Project to meet the ESC Outcomes.
24. The ESCP shall be prepared by a Suitably Qualified and Experienced Person and shall include the following:

General

- a. Methods of achieving the ESC Outcomes;
- b. Identification of a suite of appropriate structural and non-structural erosion and sediment control measures to be installed prior to and during all Construction Works for representative parts of the Project, including earthworks, and works within Watercourses;
- c. Identification of a process and methods to ensure that offsite (clean) water runoff is prevented from entering active work areas, including the use of clean water diversion (CWD) channels and/or bunds to divert runoff;
- d. Identification of a process, methods and measures to ensure that any sediment laden runoff will be captured and directed to an appropriate sediment control device, including the use of dirty water diversion (DWD) channels and/or bunds;
- e. The approach and procedures for ensuring advance warning of a rainfall event;
- f. The procedures for decommissioning the erosion and sediment control measures;
- g. The procedures for determining staging and sequencing of earthworks to minimise the length of time and extent of exposed/disturbed soil and the details of progressive stabilisation of these earthwork areas;
- h. A procedure to establish and define minor changes to erosion and sediment control, which would not require further certification by the Manager prior to implementation; and
- i. Methods for amending and updating the ESCP as required.

Responsibilities

- j. Identification of:
 - i. Appropriately qualified and experienced staff to manage the erosion and sediment control devices, associated maintenance procedures and monitoring requirements;
 - ii. Staff directly responsible for supervising installation, maintenance and decommissioning of erosion and sediment control devices and the associated works;

- iii. A chain of responsibility for both the Project and its Stages, including the overall manager (with authority to stop works), for managing erosion and sediment control on site;
- iv. An erosion and sediment control management team (including representatives from the contractor, Council and the Consent Holder) to meet and review erosion and sediment control practices and procedures as required; and
- v. Training requirements for staff to assist with their understanding of the environmental effects that need to be managed and the requirements of the consent conditions, including specific training at the start of Construction Works in any Stage.

Incident management

- k. Identification of the process to ensure compliance with Condition 48 and 49.

Chemical Treatment Management

25. The Consent Holder shall prepare a Chemical Treatment Management Plan (ChemTMP). The ChemTMP shall be prepared by a Suitably Qualified and Experienced Person and shall include:
- a. Specific design details of the flocculation treatment system which shall include:
 - i. a rainfall or flow activated flocculation system excluding flocculation socks for all sediment retention ponds (SRPs) and decanting earth bunds (DEBs) for areas that have a contributing catchment greater than 500m²;
 - ii. all rainfall activated flocculation systems to incorporate robust design, construction and operation systems including provision of sufficient chemical at a minimum in accordance with GD05 and sufficient to meet the overall ESC Outcomes of Condition 21; and
 - iii. a rainfall activated flocculation system (including flocculation socks) for all other DEBs and any other sediment detention or flow device system as may be employed on site.
 - b. Monitoring, maintenance (including post storm) and a contingency programme (including a record sheet) for the flocculation treatment system;
 - c. Results of any initial treatment trials and details of optimum dosage (including assumptions) specific to a given CЕСSР;
 - d. Consideration of the use of organic flocculants where practicable, provided that the most effective flocculent in terms of sediment removal is selected based on the results of any initial treatment trials;
 - e. A spill contingency plan;
 - f. Details of the person or bodies that will hold responsibility for the operation and maintenance of the chemical treatment system and the organisational structure which will support this system; and
 - g. Details for the checking and calibration of dosing and monitoring equipment.

Erosion and sediment control standards

26. The Consent Holder shall design and construct all erosion and sediment control measures and devices to achieve compliance with Conditions 22 and 24 and shall include the following design requirements:
- a. All Sediment Retention Ponds and decanting earth bunds shall be designed, constructed and maintained at a volume equivalent to or greater than 3% of the catchment area (i.e., 300m³ per 1ha of contributing catchment) unless otherwise varied through an approved CЕСP;
 - b. Silt fence design and super silt fence design shall be in accordance with TP90 and NZ Transport Agency Erosion and Sediment Control Guidelines for State Highway Infrastructure (Sept 2014), or any subsequent version, with a return upslope to provide robustness of the device;
 - c. Clean and dirty water diversion channels, shall be sized to accommodate the flow from a 100 year ARI storm event where practicable, but if this sizing cannot be achieved, an alternative design shall be provided including reasons why the 100 year sizing criterion cannot be achieved and this alternative design will need to be approved through the CЕСP;
 - d. Sufficient and safe access to enable monitoring and maintenance (including forebay clean out) shall be provided at all times to all Sediment Retention Ponds and decanting earth bunds.

Construction Erosion and Sediment Control Plans for Stages

27. The Consent Holder shall prepare CЕСPs for each Stage of the Project, or a specific activity to set out how the requirements of the certified ESCP and the ESC standards in Condition 26 will be met for that Stage or activity.
28. The CЕСPs shall be prepared by a Suitably Qualified and Experienced Person and shall include:
- a. Methods of achieving the ESC Outcomes.
 - b. Identify how the requirements of the certified ESCP and the standards in Condition 26 will be met (where applicable).
 - c. Include a schedule of current and planned open earthworks areas as applicable to that CЕСP catchment location at the time of preparation of that CЕСP.
 - d. Identify alternative Stabilisation measures based on Project specific field trials to demonstrate its effectiveness in Stabilisation. The Project specific trials and results must be submitted to the Manager in that CЕСP.
 - e. Confirm catchment boundaries.
 - f. Confirm the location of the Construction Works, and the boundary and extent of works for that specific CЕСP.
 - g. Provide design criteria, typical and site-specific details of ESC measures, including supporting calculations, contributing catchment area, retention volume of structure, dimensions of structure and design drawings of erosion and sediment controls.
 - h. Provide identification of risk and sensitive area locations and the details of management (including contingency measures) around these aspects.

- i. Confirm chemical treatment design and details consistent with the ChemTMP certified under the ESCP.
- j. Provide a programme for managing ongoing non-Stabilised Areas.
- k. Provide design details for managing the treatment, disposal and/or discharge of contaminants (e.g. concrete wash water).
- l. Provide an estimated sediment yield for the Stage of work.
- m. Provide details of construction methods to be employed, including timing and duration. This shall include:
 - i. Streamworks methodologies;
 - ii. Programme for managing exposed area, including progressive Stabilisation considerations;
 - iii. Identification of areas susceptible to erosion and sediment generation or high-risk areas including specific measures for managing this risk; and
 - iv. Access and maintenance provisions.
- n. Include plans showing contour information at suitable intervals, cut and fill operations, erosion and sediment controls, stream diversions, discharge points to Watercourses.
- o. Provide procedures for decommissioning of ESC measures.
- p. Contact details of the site supervisor or Project manager and the Project Liaison Person (telephone number and email or other contact address).

Advice Note: *In relation to Condition 28(h), risk will be confirmed for each specific CЕСP, however each specific CЕСP will need to include areas of earthworks adjacent to and within stream systems, on slopes greater than 15 degrees, the Kourawhero Stream, the Waiteraire Stream, the unnamed tributaries H1 and H2 of the Hōteо River (as shown on the map in Appendix D), and Te Hana Creek.*

CЕСP As-built certification

29. Prior to Construction Works in the Stage that the CЕСP applies commencing (excluding the construction of the erosion and sediment controls themselves) as-built plans signed by a Suitably Qualified and Experienced Person shall be submitted to the Manager for information and as confirmation that the erosion and sediment control measures for that CЕСP have been constructed in accordance with the certified CЕСP.

Enabling Works

30. The Consent Holder shall prepare specific CЕСPs for the Enabling Works for the Project. The CЕСPs shall be prepared by a Suitably Qualified and Experienced Person and shall address the requirements of a CЕСP under Conditions 27 and 28 but with the scope modified as appropriate to reflect the timing, location and scale of the Enabling Works.

Adaptive Monitoring Programme

31. Prior to Construction Works commencing, the Consent Holder shall prepare an Adaptive Monitoring Plan (AMP) with the purposes of:
 - a. ensuring the ESC Outcomes are met;

- b. setting out the methodology for calculating and recording sediment released in relation to the Acute Event and Cumulative Thresholds; and
 - c. ensuring continuous improvement as to the effectiveness of the erosion and sediment controls employed on site.
32. The AMP shall be prepared by a Suitably Qualified and Experienced Person and shall include methods to meet the purposes in Condition 31 for undertaking:
- a. Ongoing site visual assessments of all erosion and sediment devices;
 - b. Ongoing monitoring of devices and processes, including flocculation;
 - c. Identification of four representative SRPs or selected DEBs as approved by the Manager;
 - d. Automatic onsite rainfall monitoring using at least 2 rain gauges, including automatic notification of a Trigger Event occurring;
 - e. Pre-Trigger Event inspections including outlining maintenance procedures and installing any additional measures required in response to the severity of the forecasted Trigger Event (including Stabilisation);
 - f. Trigger Event sampling, monitoring and response procedures in accordance with Condition 34;
 - g. Outflow monitoring (measured in m³/sec) of the discharges of a representative number (at least four SRPs or DEBs) with:
 - i. two SRPs or DEBs to best represent a high-risk location of the earthworks on the Project (steeper locations or those with a catchment greater than 5ha); and
 - ii. two SRPs to represent the design and construction for general earthwork activities.
 - h. Automatic sediment sampling at the same selected SRPs to measure outflow TSS (or an alternative water quality parameter that can be related to suspended solids concentrations).
 - i. Monitoring of TSS, or alternative water quality parameter that can be correlated to suspended solid concentrations, in the freshwater receiving environment, upstream and downstream of the most upstream and downstream discharges within the area of Project Works in each of the Hōteō, Mahurangi and Oruawharo catchments; and
 - j. An analysis of the monitoring detailed in Conditions 32(g) (flow) and 32(h) (TSS) to allow for calculation of Cumulative Sediment to the Hōteō, Mahurangi and Oruawharo catchments and for calculating Acute Sediment during the following events:
 - i. 24 hour 10-year or greater ARI event in the Hōteō Catchment (with a sediment load of >512 tonnes); and
 - ii. 24 hours 30-year or greater ARI event in the Mahurangi Catchment (with a sediment load of >600 tonnes).
 - k. Processes for collection of samples in the event grab sampling is not achievable due to health and safety risks
33. The Consent Holder shall keep a record of implemented adaptation methods and provide the record to the Manager on request.

Trigger Event Procedures

34. Within 12 hours of a Trigger Event occurring, the Consent Holder shall complete a Trigger Event monitoring programme as detailed within the AMP which includes the collection of grab samples (unless it shall be unsafe or dangerous to do so) to measure TSS, or alternative water quality parameter that can be related to suspended solid concentrations, at discharge points of all SRPs and a selection of DEBs (a minimum of 50% of the operational DEBs) at the time of a discharge, and in the freshwater receiving environment, upstream and downstream of the area of Project Works in each of the Hōteu, Mahurangi and Oruawharo catchments.
- 34A. Within 12 hours of a Trigger Event occurring the Consent Holder shall instruct a Suitably Qualified and Experienced Person to undertake the following additional procedures:
- a. Inspect and record observations of the earthworks site and erosion and sediment control devices to identify any problems or activities likely to have contributed to an increased sediment discharge;
 - b. Remedy any identified problems, and implement any further controls on activities or areas of the site that are likely to contribute to sediment discharge into the receiving environment to the extent practicable; and
 - c. Notify the Manager of the Trigger Event occurring, and any actions undertaken.
35. Within 2 weeks of Trigger Event procedures having been undertaken in accordance with Condition 34, the Consent Holder shall provide the Manager with an adaptive monitoring programme report, summarising the TSS results, or alternative water quality parameter that can be correlated to suspended solid concentrations of the automatic and grab samples collected during the Trigger Event, including any observations made and actions taken to remedy improper ESC device performance.

Condition 36 is intentionally left blank

Sediment reduction activities

37. Where there is Acute Event Sediment and/or Cumulative Sediment (greater than zero) (determined using the data collected from the representative SRPs or DEBs as required by Conditions 37 to 42, the Consent Holder shall:
- a. for Acute Event Sediment, implement Sediment Reduction Activities within the affected catchment to offset the effects of that sediment within 25 years of the date of the Acute Event that caused the Acute Event Sediment; and
 - b. For Cumulative Sediment, implement Sediment Reduction Activities within the affected catchment to offset the effects of that sediment within 25 years of the Project becoming operational.
38. A Suitably Qualified and Experienced Person shall prepare a methodology identifying:
- a. Sediment Reduction Factors for any Sediment Reduction Activities; and

- b. Any measures necessary for the Sediment Reduction Activities to achieve the predicted sediment reduction over a 25-year period.
39. The Sediment Reduction Factors shall be calculated by the Suitably Qualified and Experienced Person using:
- a. The methodology set out in Appendix B; or
 - b. Other best practice methods for assessing sediment generation and identifying Sediment Reduction Factors.
40. The methodology for calculating Sediment Reduction Factors identified through Condition 38 for any Sediment Reduction Activities and related measures to achieve the predicted sediment reduction over a 25-year period, shall be provided to the Manager for certification prior to commencement of Construction Works.
41. The following information shall be provided to the Manager on an annual basis to demonstrate how Condition 37(a) will be met:
- a. A record of the Acute Event Sediment including any exceedance beyond the Acute Event Thresholds for each catchment.
 - b. Documentation outlining the location where Sediment Reduction Activities have been applied and how they will offset the Acute Event Sediment within 25 years of the relevant Acute Event.
42. The following information shall be provided to the Manager within six months of the Project becoming operational to demonstrate how Condition 37(b) will be met:
- a. A record of the Cumulative Sediment, including any exceedance beyond the Cumulative Thresholds for each catchment.
 - b. Documentation outlining the location where Sediment Reduction Activities have been applied and how they will offset the Cumulative Sediment within 25 years of the Project becoming operational.

Advice note: For the avoidance of doubt, in the event that the Cumulative Threshold is less than the Acute Event Sediment for which Sediment Reduction Activities have been provided under Condition 37, no further Sediment Reduction Activities will be required for the Project

Earthworks Season Restrictions

43. The Consent Holder shall not undertake earthworks activities between 1 May and 30 September (winter period) in any one year unless otherwise approved by the Manager.

Maximum Open Earthwork Area limits

44. Unless otherwise approved in writing by the Manager following provision of the information required by Condition 46, the Maximum Open Earthworks Area for Project Works:
- a. within the Hōteio catchment at any one time is 75ha;

- b. within the Oruawharo catchment at any one time is 25ha; and
- c. within the Mahurangi catchment at any one time is 43.3ha.

Condition 45 is intentionally left blank

46. Any request to the Manager for approval to open an earthworks area that is greater than the limits stated in Condition 44 shall include the following information:
- a. The proposed earthworks programme and ESC measures implemented;
 - b. A comparison showing the modelled sediment yields compared to the actual sediment yields generated to date;
 - c. A minimum of 12 months monitoring data to support an increased earthworks area. This must include water quality results from the automated sampling devices that gathered data from a comparable catchment; and
 - d. Identification of areas for continuous improvement opportunities (e.g., modifications to current ESC practice) for future earthworks to support the new open areas

Operational effectiveness and efficiency

47. The Consent Holder shall maintain all ESC measures to ensure they continue to achieve their design function throughout the duration of land disturbance and earthworks activity, and until the relevant site is Stabilised.

Construction Incident Management

48. The Consent Holder shall notify the Manager within one Day or as soon as practicable after identifying that any contaminants (including sediment) or materials that exceed typical background levels have been released in the undertaking of the work and which have entered any water body due to any of the following incidents:
- a. discharges from non-Stabilised Areas that are not treated by erosion and sediment control measures as required under this consent;
 - b. failure of any erosion and sediment control measures;
 - c. discharge of a hazardous substances, including cement, to a water body;
 - d. failure of any temporary stream diversion;
 - e. un-consented removal, loss or damage to vegetation or other habitats;
 - f. any other Incident which either directly or indirectly causes, or is likely to cause, adverse ecological effects in any water body that is not authorised by a resource consent held by the Consent Holder;
 - g. Any other Incident which is likely to adversely affect the quality of the water used for public reticulated water purposes, including notifying Watercare Services Limited within 48 hours of an Incident if the spill is within the Water Intake Catchment shown in Appendix C.

This notification shall be either by telephone or email, or via an alternative method as agreed with the Manager.

49. If any of the incidents identified in Condition 48 occur, the Consent Holder shall:

- a. re-establish control measures where these have failed or have not been implemented in accordance with the relevant management plan as soon as practicable;
- b. liaise with the Manager to establish what remediation or rehabilitation is required and whether such remediation or rehabilitation is practical to implement;
- c. carry out any remedial action as required by and to the satisfaction of the Manager; and
- d. maintain a permanent record of the Incidents at the site, which shall include the date and time of the incident, the nature, manner and cause of the release of the contaminants, weather conditions at the time of the Incident and the steps taken to prevent any further Incidents and to remedy any adverse effects.

This notification (if not in person) shall be either by telephone or email, or via an alternative method as agreed with the Manager.

Stabilisation and decommissioning

50. The Consent Holder shall stabilise sites against erosion as soon as practicable, and in a progressive manner, as earthworks are completed over various areas of Project Works.
51. If an area is not subject to earthworks activity (including cut and fill batters) for a 14-Day period, or time otherwise certified with the Manager within a CЕССР, the area shall be Stabilised. The Manager shall take into account the following when determining a change to this 14-day period:
 - a. The duration of the extension;
 - b. Any interim Stabilisation;
 - c. Risk of the change as identified in the CЕССР;
 - d. Topography;
 - e. Extent of open area;
 - f. Reason for the extension of duration; and
 - g. Environmental effects of extension.

The 14-Day period (or otherwise agreed) will apply to all earthworks and will include parts of larger earthwork footprint locations.

Completion or abandonment of works

52. Upon completion or abandonment of earthworks on the Project site, the Consent Holder shall stabilise all areas of bare earth against erosion to the satisfaction of the Manager.

Condition 53 is intentionally left blank

WORKS IN A WATERCOURSES AND WETLANDS AND ECOLOGY

Crossing watercourses - Location of bridge structures

54. The Consent Holder shall design and construct the Project to include bridge structures with no piers in the Bed of the following Watercourses (as identified on Maps 14 – 16):
- a. Mahurangi River (Left Branch);
 - b. Hōteo River and the riparian margins where practicable;
 - c. Waitaraire Stream; and
 - d. Maeneene Stream.

Biosecurity Plan

- 54A. Prior to Project Works commencing, the Consent Holder shall prepare a Biosecurity Plan in consultation with the Operations Manager and Department of Conservation. The kauri management aspects of the Biosecurity Plan shall apply to all areas in the Designation within 3 times the radius of the canopy drip line of any New Zealand kauri. The purpose of the Biosecurity Plan is to set out the procedures to be used to prevent the introduction and/or spread of kauri dieback disease, and other biosecurity hazards such as Myrtle rust, Argentine ants and plague skink.
- 54B. The Biosecurity Plan shall be prepared by a Suitably Qualified and Experienced Person to meet the purpose in Condition 54A and, as a minimum, shall:
- a. be consistent with “Hygiene Procedures for Kauri Dieback”, “Land disturbance activities (including earthworks) around kauri”, “Vehicle and Heavy Machinery Hygiene”, “Landfill Disposal of Contaminated Material” and “Procedures for Tree Removal and Pruning” and any other relevant guidelines published by the Ministry for Primary Industries Kauri Dieback Management Programme, or any subsequent revision which can be found at www.kauridieback.co.nz or copies can be obtained from Auckland Council;
 - b. contain measures that address the removal of any material (including soil) from within the “kauri contamination zone” and safe disposal thereof;
 - c. contain best practice biosecurity protocols to respond to any other identified biosecurity risk (e.g. Myrtle Rust) where required to do so by legislation; and
 - d. contain methods for updating the Biosecurity Plan in the event of significant changes in scientific knowledge relating to the effective management of kauri dieback or other biosecurity risks that occur after the plan is approved.

Ecological outcomes

Ecological Outcomes

- 54C. In designing and managing the construction and operation of the Project, the Consent Holder shall achieve the following ecological outcomes (*Ecological Outcomes*):

- a. Limit encroachment of Project Works into Ecological Sites where practicable to do so, and otherwise minimise encroachment into and impacts on such areas;
 - b. Protect Fauna and Avifauna from harm or mortality resulting from the Project as far as practicable through adopting best practice capture and relocation protocols;
 - c. Avoid intrusion into the Kourawhero Wetland Complex where practicable and where not practicable minimise any such intrusion;
 - d. Avoid the escarpment feature in the Dome Valley Forest Section identified on Map 21;
 - e. Avoid the Significant Ecological Area at the Hōteo River crossing where practicable and where not practicable minimise any encroachment into this area;
 - f. Restore, maintain or enhance ecology and habitat affected by the Project by designing and implementing restoration planting and habitat rehabilitation to:
 - i. Connect and enhance existing natural ecosystems;
 - ii. Establish ecological connectivity between the Mahurangi River (left branch) catchment and the Upper Kourawhero Stream catchment;
 - iii. Enhance Fauna and Avifauna habitat within the Mitigation Sites, the Fauna Habitat and Flyway Mitigation Area (*FHFMA*) and other planting areas; and
 - iv. Provide restoration of habitats within the Designated Land that are resilient through minimising edge effects and other factors causing degradation, and which are protected and managed in perpetuity to maintain the Ecological Outcomes identified above.
- 54D. At least 6 months prior to start of Project Works, the Consent Holder shall prepare an Ecology Management Plan (*EMP*) to identify how the Ecological Outcomes will be achieved as part of the Project Works. The *EMP* shall be prepared by a Suitably Qualified and Experienced Person and shall be provided to the Manager for certification and shall include the following topic sections:

Ecological Outcomes

- a. Provide detail as to how the design and management of the construction of the Project will achieve the Ecological Outcomes. This shall, as a minimum, include a description of:
 - i. How the Project responds to each element of the Ecological Outcomes;
 - ii. How the Ecological Outcomes are achieved in each subtopic (b), (c), (d) and (e) of the Ecology Management Plan;
 - iii. The performance measures and standards used to inform the design of the Ecological Outcomes;
 - iv. Ecological performance monitoring to evaluate progress in achieving the Ecological Outcomes against the performance measures and standards;
 - v. Measures to address any shortfalls on expected ecological performance;

- vi. Revised areas of impact of ecological areas based on final design alignment;
- vii. Revised ecological values of all Ecological Sites within the Designation; and
- viii. The ecological areas that will be directly affected by the Project Works.

Ecological Sites

- b. Recommended measures to be adopted to limit encroachment of Project Works into Ecological Sites including:
 - i. The steps taken to reduce the footprint of Project Works in such areas and documenting the reasons where it is not practicable to do so; and
 - ii. Measures to fence off or otherwise clearly demarcate such areas during Project Works to protect those sites from accidental damage during Project Works;

Fauna habitat and flyway mitigation area

- c. The confirmed location and measures for the protection and ongoing maintenance and enhancement of the FHFMA required under Conditions 54F to 54I.

Restoration planting and habitat rehabilitation

- d. The locations and measures for the restoration planting and habitat rehabilitation required under Conditions 54J to 54N.

Fauna relocation protocols and sites

- e. The locations and measures for the Fauna and Avifauna relocation required under Conditions 54Q and 54R.

54E. In preparing the EMP and the relevant topic sections the Consent Holder shall engage with Mana Whenua and consult with:

- a. Auckland Council;
- b. Department of Conservation; and
- c. The owner of the commercial plantation forest (Mahurangi Forest) located west of SH1, with respect to ecological management activities which directly interface with forestry operations.

If the Consent Holder has not received any comment from such parties within 20 Days of providing the EMP to them, the Consent Holder may consider that the relevant party has no comment.

Fauna Habitat and Flyway Mitigation Area

54F. At least 6 months prior to the start of Project Works the Consent Holder shall confirm by survey the location and extent of the FHFMA identified on Map 13. The confirmed FHFMA shall be certified by a Suitably Qualified and Experienced Person as suitable to achieve the following Fauna habitat and flyway mitigation area outcomes (*FHFMA Outcomes*):

- a. Provides a suitable location for the relocation of some or all fauna captured and relocated under Conditions 54Q– 54X;

- b. Maintains an east-west link across the Designated Land to allow for the movement of fauna and dispersal of seeds;
 - c. Maintains a flyway for Avifauna and long-tailed bats to move across and along the Designated Land; and
 - d. Contains mature vegetation suitable for long-tailed bat roosts and bat and avifauna breeding sites.
- 54G. If, in the opinion of a Suitably Qualified and Experienced Person, the area identified on Map 13 will not achieve the FHFMA Outcomes an alternative area(s) for mitigation shall be identified by a Suitably Qualified and Experienced Person within the Designated Land that will achieve those outcomes and included within the FHFMA to be confirmed under Condition 54F.
- 54H. The Consent Holder shall fence off (or otherwise clearly demarcate) the FHFMA during Project Works to prevent access and any accidental damage during adjacent construction activities, provided that access for pest animal and pest plant management and restoration planting and habitat rehabilitation works shall be allowed.
- 54I. The Consent Holder shall not undertake any Project Works above ground within the escarpment feature identified on Map 21.
- Terrestrial restoration planting and habitat rehabilitation***
- 54J. Prior to commencing Enabling Works, the Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct surveys of those areas within the Designated Land where Project Works will occur to determine the areas of Ecological Value that will be impacted by the Project. The Consent Holder shall provide a report on the surveys undertaken and the survey results to the Manager.
- 54K. The Consent Holder shall undertake restoration planting and habitat rehabilitation to offset the effects of Project Works on areas of Ecological Value on a like for like basis (in regard to ecosystem type) so as to ensure that, as a minimum, the Project achieves no net loss of ecological values. The quantum of offset restoration planting and habitat rehabilitation and its design and location shall be determined by a Suitably Qualified and Experienced Person using best practice transparent and quantified offset accounting methods that ensure that:
- a. The potential value of the impacted ecology (fauna and flora) is accounted for;
 - b. The relative ecological gain at the proposed offset site is accounted for;
 - c. An appropriate suite of ecological attributes are included in the offset accounting method; and
 - d. Time lag is accounted for.
- 54L. The Consent Holder shall provide the restoration planting and habitat rehabilitation required by Condition 54K at the following locations:
- a. The Mitigation Sites;

- b. The FHFMA, where a Suitably Qualified and Experienced Person determines such works are necessary to achieve the outcomes in condition 54F;
- c. Areas identified as “Mitigation for fragmentation” on Maps 1-6 where practicable, or at similar locations to minimise fragmentation effects of the Project as determined by a Suitably Qualified and Experienced Person.
- d. Any other Fauna or Avifauna relocation sites established under Conditions 54R, 54T and 54V;
- e. Other sites recommended by a Suitably Qualified and Experienced Person where there is insufficient area in areas (a)-(c) for the required restoration planting and habitat rehabilitation; and
- f. Areas identified as opportunities for restoration and enhancement of Mauri and Mahinga kai in Condition 9(f).

Detailed planting plans

54M. The design of the restoration planting and habitat rehabilitation to be undertaken in accordance with Condition 54K shall be undertaken by a Suitably Qualified and Experienced Person, included in the EMP and provide the following information:

- a. The extent and location of the restoration planting and habitat rehabilitation required under Condition 54K;
- b. Details of the ecological offset sites, the existing ecology of these sites and the enhancement values;
- c. Details of how best ecological practice will be implemented;
- d. Details of how the restoration planting and habitat rehabilitation will be integrated where practicable with the wetland restoration planting and habitat rehabilitation required under the other conditions of this consent;
- e. A statement as to how the restoration planting and habitat restoration will achieve the Ecological Outcomes at Condition 54C(f);
- f. Site specific enhancement plans for the proposed offset sites that:
- g. Detail how the anticipated outcomes used in the offset calculations will be achieved;
- h. Detail the planting to be carried out, including a list of species, numbers to be planted, their common and botanical names, method of planting, planting locations, plant grades, planting densities and local sourcing of plants;
- i. Detail the timing of works and techniques of weed and plant management measures for a period of no less than 5 years or until canopy closure is achieved;
- j. Detail the works and techniques for animal pest control for a period of no less than 5 years or until canopy closure is achieved;
- k. Detail the monitoring methods and frequency, including a minimum annual reporting to Council for a period of no less than 5 years or until canopy closure is achieved;
- l. Methods to ensure restoration planting and habitat rehabilitation is resilient and self-sustaining, including but not limited to monitoring, monitoring frequency, expected targets and a response plan should expected targets in the rehabilitation process not be met;
- m. A statement as to how the AUP(OP) Appendix 16: Guideline for native revegetation plantings has been taken into account;

- n. Proposed pest animal and pest plant management of restoration planting and habitat rehabilitation areas, including:
 - i. Timing and implementation;
 - ii. Methods for survey and monitoring to establish presence and abundance of pest animals and pest plants;
 - iii. Pest control methods;
 - iv. Performance monitoring;
 - v. Maintenance periods.
- o. Detail as to how any landscape planting to be established through an “Urban and Landscape Design Management” as defined in the Designation or other Project planting has been integrated;
- p. A statement as to how cultural values relating to restoration planting and habitat restoration identified through the Cultural Engagement Plan, have been acknowledged where feasible and practicable to do so; and
- q. Methods to exclude stock where necessary.

54N. The Consent Holder shall commence restoration planting and habitat rehabilitation for the translocation of species as soon as areas become available for that planting and shall complete all restoration planting and habitat rehabilitation in accordance with the EMP by no later than 2 years from the date of the Project becoming operational or as otherwise specified in these conditions.

Long-tailed bats

54O. The Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct long-tailed bat habitat and presence surveys within the Designated land in the period of 6 months prior to start of works before construction of Project Works in areas where long-tailed bat may be impacted by Project Works.

54P. In the event that the surveys confirm long-tailed bat habitat or presence, the Consent Holder shall:

- a. Instruct a Suitably Qualified and Experienced Person to undertake surveys of the relevant areas prior to Project Works to identify Active Roost Sites that may be affected by Project Works and to recommend vegetation clearance methods that will avoid injury or mortality of bats associated with Project Works around Active Roost Sites;
- b. Instruct a Suitably Qualified and Experienced Person to recommend methods to mitigate Project effects on long-tailed bat habitat through maintaining or enhancing long-tailed bat roost habitat and flyways in the Designation, having regard to Appendix D: Bat management framework for linear transport infrastructure projects of the Transport Agency research report 623 (Smith et al., 2017) and any other best practice guide; and
- c. Provide a report on the surveys undertaken and the results and the Suitably Qualified and Experienced Person’s recommendations in the relevant topic section of the EMP.

Advice Note: long-tailed bats management will be carried out in accordance with a Wildlife Act Authority.

Avifauna

- 54Q. The Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct Avifauna habitat and presence surveys within the Designation 6 months prior to the start of Project Works in areas that may be impacted by Project Works. The Suitably Qualified and Experienced Person shall, in particular, survey Wetland bird species (including banded rail, fernbird, Australasian bittern, marsh crake and spotless crake) in Wetlands WN_W_Koura_02 and WN_W_Koura_05 (refer Map 18) at the beginning of the bird breeding season prior to Project Works commencing in those locations.
- 54R. In the event that the surveys confirm Avifauna habitat or presence, the Consent Holder shall:
- a. Not undertake vegetation clearance of the relevant areas (excluding clearance of pasture) during breeding season, September to December inclusive of any year, unless a Suitably Qualified and Experienced Person confirms there are no nesting Avifauna likely to be impacted by Project Works;
 - b. In relation to Wetland bird species (including banded rail, fernbird, Australasian bittern, marsh crake and spotless crake) in all impacted Wetlands including WN_W_Koura_02 and WN_W_Koura_05 (refer Map 18) instruct a Suitably Qualified and Experienced Person to identify and implement best practice methods to capture and relocate these species prior to commencement of Project Works; and
 - c. provide a report on the surveys undertaken and the results and the Suitably Qualified and Experienced Person's recommendations in the relevant topic section of the EMP.

Land snails, copper skinks, forest geckos

- 54S. The Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct habitat and presence surveys within the Designation 6 months prior to the start of Project Works in areas that may be impacted by Project Works for the following species:
- a. land snail (*Amborhytida spp*, *Paryphanta spp*);
 - b. all native skinks (eg copper skink); and
 - c. all native geckos (eg. forest gecko).
- 54T. In the event that the surveys confirm the presence of any such species, the Consent Holder shall:
- a. instruct a Suitably Qualified and Experienced Person to recommend best practice methods to capture and relocate the species to the FHFMA or other suitable site, provided the site with the required habitat has been subject to predator control measures for at least 6 months prior to the first transfer and will receive ongoing predator control for three years after the last transfer;
 - b. undertake capture and relocation under the supervision of a Suitably Qualified and Experienced Person;

- c. where practicable, relocate land snails along with their leaf-litter habitat;
- d. Not relocate land snails captured within 30 metres of any kauri to a site within 30 metres of another kauri; and
- e. Provide a report on the surveys undertaken and the results and the Suitably Qualified and Experienced Person's recommendations in the relevant topic section of the EMP.

Advice Note: *Land snail, copper skink and forest gecko capture and relocation will be carried out in accordance with a Wildlife Act Authority.*

Hochstetter's frogs

54U. The Consent Holder shall engage a Suitably Qualified and Experienced Person to conduct habitat and presence surveys within the Designation *6 months* prior to the start of Project Works in all waterways and areas where suitable Hochstetter's frog (*Leiopelma aff. Hochstetteri*) habitat exists and may be impacted by Project Works.

54V. In the event that the surveys confirm the presence of Hochstetter's frogs, the Consent Holder shall:

- a. instruct a Suitably Qualified and Experienced Person to recommend best practice methods to capture and relocate frogs to a suitable site, including by:
 - i. applying the Department of Conservation document "Native frog hygiene and handling protocols" (DOCDM-214757) or any subsequent revision to reduce the potential for pathogen transmission and infection;
 - ii. using destructive searches during frog capture; and
 - iii. setting out post-release monitoring protocols to evaluate the success of the relocations and any further steps required to maintain and enhance the relocated populations
- b. consult with the Operations Manager, Department of Conservation regarding the Suitably Qualified and Experienced Person's recommendations for capture and relocation of frogs;
- c. undertake capture and relocation under the supervision of a Suitably Qualified and Experienced Person;
- d. instruct a Suitably Qualified and Experienced Person to recommend methods to maintain or enhance Hochstetter's frog habitats within the Designated Land and any other relocation sites, including but not limited to measures to reduce stream sedimentation and pest animal control; and
- e. Provide a report on the surveys undertaken and the results and the Suitably Qualified and Experienced Person's recommendations in the relevant topic section of the EMP.

Advice Note: *Hochstetter's frog capture and relocation will be carried out in accordance with a Wildlife Act Authority.*

Reporting on salvage and relocation

- 54W. The Consent Holder shall report the results of capture and relocation programmes for Fauna and Avifauna to the Manager following implementation, including:
- a. Location of any species salvaged;
 - b. Species types and numbers salvaged;
 - c. Where salvaged species have been relocated to;
 - d. Timing of salvage and relocations; and
 - e. Pest animal and pest plant management implemented.

At Risk or Threatened flora and fauna discovery protocol

- 54X. In the event that a Suitably Qualified and Experienced Person discovers any At Risk or Threatened flora and fauna (as defined in the current version of the New Zealand Threat Classification System) within the Designation that is not covered by conditions 54K-54V, the Consent Holder shall immediately notify the Operations Manager, Department of Conservation and Mana Whenua. The Consent Holder shall have regard to any advice provided by the Department of Conservation and Mana Whenua in determining the appropriate course of action to be undertaken with respect to the discovered flora or fauna (eg further surveys, avoidance and/or capture and relocation).

Advice Note: *The Consent Holder will comply with all relevant provisions of the Wildlife Act 1953.*

Crossing of the Kourawhero Stream and Kourawhero Wetland Complex

55. A Suitably Qualified and Experienced Person shall monitor over a three year period (or a shorter period as agreed with the Manager), prior to starting Project Works, the Kourawhero Wetland Complex (as identified in Map 17) to confirm pre-construction water table levels, ecological condition and Wetland extent. The monitoring shall include descriptions of:
- a. The methods for monitoring water table levels;
 - b. The number and locations of water level sampling sites;
 - c. The methods for delineating the Wetland extents in accordance with best practice;
 - d. The methods for assessing Wetland condition in accordance with best practice; and
 - e. The timing and frequency of monitoring events.

The results of the monitoring shall be provided to the Manager for information.

56. The Consent Holder shall design and construct bridges, structures, culverts and embankments to cross the Kourawhero Stream to minimise change to the Kourawhero Wetland Complex and to maintain the pre-construction water table level, Wetland extent, and Wetland condition, as far as practicable, which shall include:
- a. A bridge over the Kourawhero Stream with no piers in the Bed in the section of stream identified on Map 17 as “Section of Kourawhero Stream to be

bridged”; and

- b. Minimising intrusion of diversion channels into or through the Kourawhero Wetland Complex.
- 56A. All Project works involving impacts on the Kourawhero Stream shall be designed and implemented to avoid any adverse effects on breeding koura females in the stream.
- 56B. A Suitably Qualified and Experienced Person shall undertake annual monitoring until 3 years following completion of the Project Works. Should the monitoring indicate an unanticipated loss in the Kourawhero Wetland Complex extent or condition the Consent Holder shall provide further mitigation and/or offset works to manage the additional adverse effects by reviewing the Wetland Ecological Effects Management Plan (*WEEMP*) prepared under Condition 78B and providing for additional wetland enhancement to ensure the objectives of the *WEEMP* are achieved for the Kourawhero Wetland Complex.

Watercourse design requirements

57. The Consent Holder shall design and construct all permanent Project Works in or over any Watercourse (for example, all permanent bridges, culverts and stream diversions) to allow for capacity for 100-year ARI flood event with minimal scour and erosion to road structures e.g. culverts, bridges and embankments.
58. The Consent Holder shall design and construct all Watercourse diversions to have natural Watercourse forms and riparian planting where the diverted streams are permanent and supporting fish habitats. The Watercourse diversions shall be designed by a Suitably Qualified and Experienced Person(s). The diversions shall be designed to achieve, as far as practicable, the following outcomes:
- a. At least equivalent ecological function and habitat value to that of the potential values of the Watercourse being diverted, demonstrated using the Stream Ecological Valuation methods (Auckland Council Technical Report 2016/023 and Technical Report 2011/009);
 - b. Being like for like in regard to Watercourse hydrological conditions and substrate; and
 - c. Including riparian vegetation extending 10m on either side of the channel.

Where any diversions are unable to achieve (a)-(c), the residual loss of ecological function and habitat value shall be offset in accordance with Condition 76.

Advice Note: *Condition 58 does not apply to cut off drains and vertically lifted channels.*

59. The Consent Holder shall design and construct permanent culverts to:
- a. Minimise the risks of non-performance of the culvert, such as blockage, taking into account the risk of a vegetation/soil/rock debris flow; and
 - b. Incorporate energy dissipation and erosion control to minimise the occurrence of bed scour and bank erosion in receiving environments.

Temporary culvert design

60. The Consent Holder shall design and construct temporary culverts in any Watercourse (for example, all temporary bridges, culverts and stream diversions) to allow for the 100-year ARI event (by primary structure or overland flow paths) with minimal scour and erosion unless otherwise certified by the Manager.

Culvert design – fish passage and migrating fish

61. The Consent Holder shall provide fish passage in accordance with best practice in all temporary and permanent culverts unless deemed unnecessary or impracticable by a Suitably Qualified and Experienced Person.
62. Where fish passage is deemed unnecessary or impracticable, appropriate data and rationale for the decision shall be provided for certification by the Manager.

Design certification – permanent structures in Watercourses and Wetlands

63. The Consent Holder shall provide drawings of the detailed design of permanent bridges, culverts to be constructed in or over Watercourses and Wetlands, and Watercourse diversions, to the Manager for certification at least 30 Days prior to the start of construction of the relevant structures. The drawings shall be accompanied by a written report prepared by a Suitably Qualified and Experienced Person setting out how the design requirements of Conditions 54 and 56 to 61 have been met and the rationale for any departures from those requirements. The Consent Holder shall construct the Project in accordance with the certified design.

Erosion Prone Streams: Pre-construction monitoring

64. The Consent Holder shall instruct a Suitably Qualified and Experienced Person to undertake pre-construction monitoring to identify all Erosion Prone Streams within the Project area prior to the start of Construction Works.
65. The pre-construction monitoring of Erosion Prone Streams shall include an inspection of all Erosion Prone Streams to record all erosion areas (supported by photographs and/or video footage). The purpose of monitoring Erosion Prone Streams is to identify the pre-construction condition of the Erosion Prone Stream to be used as a baseline against which to measure construction effects and identify any post-construction remedial measures.
66. The Consent Holder shall provide the results of the pre-construction baseline surveys and monitoring to the Manager for information, prior to the start of Construction Works.

Erosion Prone Streams: Post-construction monitoring

67. The Consent Holder shall undertake monitoring of Erosion Prone Streams at six-month intervals for 24 months following completion of Construction Works. The monitoring shall consist of walkovers of Erosion Prone Streams and recording of erosion-prone areas, including photographs.
68. If monitoring identifies new erosion that a Suitably Qualified and Experienced Person deems to be attributable to the Project based on the pre-construction condition of the Erosion Prone Stream, rehabilitation and/or remedial action, such

as stabilisation of the stream bank or Bed, shall be implemented in accordance with the Suitably Qualified and Experienced Person's recommendations.

- 68A. All rehabilitation and/or remedial actions implemented in accordance with Condition 68 shall be monitored at six-month intervals for a further 24 months to determine if the actions have been successful. If not, Condition 68 will apply, as will this condition until the Erosion Prone Stream(s) are successfully rehabilitated to avoid ongoing erosion.

Diverting Watercourses

69. Prior to Project Works within a Watercourse, including the filling of the Bed, the Consent Holder shall put in place a diversion or diversions around the area of Project Works for all flows with a primary capacity up to the 20-year ARI flood event, unless an alternative design is certified by the Manager.
70. During weather events in excess of the 20-year ARI flood event, up to the 100-year ARI flood event (i.e., flows are greater than the capacity of the existing diversion), the Consent Holder shall put in place a Stabilised flow path to minimise the potential for scour or erosion and allow flows to pass safely around or through the area of Project Works with minimum nuisance, damage and sediment generation or discharge.

As-built certification

71. The Consent Holder shall provide as-Built Plans certified by a Chartered Professional Engineer confirming that permanent structures in and over Watercourses have been constructed in accordance with the certified design under Condition 63 to the Manager within 90 Days of completion of the Construction Works.

FRESHWATER ECOLOGY

Freshwater ecology: Pre-construction monitoring

72. The Consent Holder shall survey the Representative Watercourses or other Watercourse determined by Condition 73 for one summer and one winter period prior to Project Works commencing. The survey shall be undertaken and recorded by a Suitably Qualified and Experienced Person in accordance with the requirements of Stream Ecological Valuation: Application to Intermittent Streams (Auckland Council Technical Report 2016/023) or Stream Ecological Valuation (SEV): a method for assessing the ecological functions of Auckland streams (Auckland Council Technical Report 2011/009), depending on the Watercourse classification.
73. In the event that a Suitably Qualified and Experienced Person considers a Representative Watercourse is not representative of general Watercourse characteristics within the Project area, the justification and an alternative Representative Watercourse must be provided to the Manager for certification. The Consent Holder shall survey such other Watercourse recommended by a Suitably Qualified and Experienced Person, and certified by the Manager, using the same process in Condition 77.

74. The Consent Holder shall provide to the Manager the results of the pre-construction freshwater monitoring within 30 Days of the final pre-construction monitoring being undertaken.

Freshwater ecology: Recording of Watercourses affected by the Project

75. The Consent Holder shall instruct a Suitably Qualified and Experienced Person to identify and record all Watercourses that will be affected by Project Works, prior to the start of Project Works, including:
- a. Location;
 - b. Length;
 - c. Width;
 - d. Intermittent or permanent status; and
 - e. Which of the Representative Watercourses surveyed under Conditions 72 and 73 the Watercourse is most similar to.

This information shall be provided to the Manager for certification of the matters at paragraph (e).

Freshwater ecology: Replacement works for loss of Watercourse ecological value and function

76. The Consent Holder shall mitigate and/or offset for loss of Watercourse ecological value and function in accordance with the requirements of the following technical reports prior to completion of Project Works:
- a. Stream Ecological Valuation: application to intermittent streams (Auckland Council Technical Report 2016/023) or any subsequent version; and
 - b. Stream Ecological Valuation (SEV): a method for assessing the ecological functions of Auckland streams (Auckland Council Technical Report 2011/009) or any subsequent version.

Stream Ecological Effects Management Plan

77. The quantum of Watercourse mitigation and/or offset and its design and location shall be set out in a Stream Ecological Effects Management Plan. The SEEMP shall be prepared by a Suitably Experienced and Qualified Person and shall:
- a. Confirm the Watercourses that will be directly affected by the Project;
 - b. Outline the method to extrapolate the SEV calculations for the Representative Watercourses to apply to all Watercourses affected by Project Works;
 - c. Calculate the quantum and location of mitigation and/or offset provided in accordance with SEV requirements as set out in Condition 76; and
 - d. Demonstrate that the proposed mitigation and/or offset is like for like in regard to Watercourse hydrology and substrate;
 - e. Integrate the mitigation and/or offset planting with the restoration planting and habitat rehabilitation required in the Ecology Management Plan where practicable; and
 - f. Provide site specific enhancement plans for the proposed mitigation and/or

offset sites that:

- i. Detail how the anticipated outcomes used in the SEV calculations will be achieved;
- ii. Assess the risk of stream bank erosion and the likely successful establishment of proposed riparian planting;
- iii. Detail the planting to be carried out, including a list of species, numbers to be planted, their common and botanical names, method of planting, planting locations and densities;
- iv. Detail the timing of works and techniques of weed and plant management measures for a period of no less than 5 years or until canopy closure of planted areas is achieved;
- v. Detail the monitoring methods and frequency, including annual reporting to the Manager for a period of no less than 5 years or until canopy closure of planted areas is achieved; and
- vi. Have had regard to the AUP(OP) Appendix 16: Guideline for native revegetation plantings.

Freshwater ecology: Recording of Wetlands affected by the Project

78. The Consent Holder shall engage a Suitably Qualified and Experienced Person to identify and record all Wetlands that will be affected by Project Works, prior to the start of Project Works, including:

- a. Location of Wetlands affected by Project Works;
- b. Total area of Wetlands impacted by the Project Works, delineated using best practice;
- c. Wetlands type; and
- d. Ecological value.

Freshwater ecology: replacement works for loss of Wetland ecological value and function

- 78A. The Consent Holder shall undertake Wetland rehabilitation and/or enhancement works to offset the effects of the Project Works on the ecological value and function of Wetlands impacted by the Project Works so as to ensure that, as a minimum, the Project achieves no net loss of Wetland ecological value and function. The quantum of Wetland offset rehabilitation and enhancement works and their design and location shall be determined by a Suitably Qualified and Experienced Person and included in a Wetland Ecological Effects Management Plan (*WEEMP*). The *WEEMP* must:

- a. Confirm all the Wetlands that will be directly affected by the Project Works;
- b. Demonstrate that the quantum and location of offset to be provided has been calculated using best practice transparent and quantified offset accounting methods to achieve a no net loss of ecological value outcome and that:
 - i. The potential value of the impacted wetland is accounted for;
 - ii. The relative ecological gain at the proposed offset site is accounted for;
 - iii. An appropriate suite of ecological attributes are included in the offset accounting methods; and

- iv. Time lag is accounted for.
- c. Demonstrate that the proposed offset is like for like in regard to wetland type and hydrology;
- d. Demonstrate how the offset planting will be integrated where practicable with the restoration planting and habitat rehabilitation required in the EMP; and
- e. Provide site specific enhancement plans for the proposed offset sites that:
 - i. Detail how the anticipated outcomes used in the offset calculations will be achieved.
 - ii. Detail the planting to be carried out, including a list of species, numbers to be planted, their common and botanical names, method of planting, planting locations and densities;
 - iii. Detail the timing of works and techniques of weed and plant management measures for a period of no less than 5 years or until canopy closure is achieved;
 - iv. Detail the works and techniques for animal pest control for a period of no less than 5 years or until canopy closure is achieved;
 - v. Detail the monitoring methods and frequency, including at a minimum annual reporting to Council for a period of no less than 5 years or until canopy closure is achieved; and
 - vi. Is in accordance with AUP:OP Appendix 16: Guideline for native revegetation plantings.

Freshwater ecology: Mitigation and offset implementation

- 78B. All freshwater ecology mitigation and/or offset enhancement works are to be carried out in accordance with the certified SEEMP and WEEMP required by Conditions 77 and 78A.

Prior to 30 June each year following the start of Project Works the Consent Holder shall submit to Council for certification an Annual Mitigation and Offset Plan (AMOP). The AMOP must:

- a. Detail the extent of Watercourses and Wetlands that have been directly affected by the Project Works over the previous 12 months; and
- b. In general accordance with the certified SEEMP and WEEMP required by Conditions 77 and 78B, detail the quantum of mitigation and offset works required to address the effects detailed in the AMOP.

The Consent Holder shall undertake the works outlined in each AMOP within two (2) years of the AMOP being certified by Council.

Written confirmation shall be provided to Council within 30 days of the works outlined in each AMOP being completed confirming that all works have been completed in accordance SEEMP and WEEMP required by Conditions 77 and 78A.

Freshwater ecology: Maintenance of Watercourse and Wetland offset sites

- 78C. Offset rehabilitation and enhancement works outlined in the certified SEEMP and WEEMP required by Conditions 77 and 78A shall be maintained in accordance

with the SEEMP and WEEMP for a period of no less than 5 years or until canopy closure has been achieved, whichever is longer.

Prior to the completion of the maintenance period the Consent Holder shall seek certification from the Council that:

- a. Canopy closure has been achieved;
- b. No more than 10% loss in plant numbers has occurred;
- c. Weed control has been carried out to a level where no mature fruiting or flowering weed species are present within the planting areas and no weed species that will impact on the growth rates of the planted trees and/or the potential for native regeneration are present within the planting area; and
- d. All works have been undertaken in accordance with the certified SEEMP and WEEMP required by Conditions 77 and 78B.

Native fish capture and release

79. Prior to any Wetland or Watercourse activity commencing, the Consent Holder shall submit a Native Freshwater Fish Capture and Relocation Plan, prepared by a Suitably Qualified and Experienced Person. This plan must detail how native fish will be salvaged prior to works commencing and must include but not be limited to:
- a. Methodologies and timing to capture fish, and kakahi and koura, within the impacted Watercourse and Wetland habitats, or justification there is no habitat for native fish present at the time of earthworks;
 - b. Fishing effort;
 - c. Details of the relocation site;
 - d. Fish exclusion fencing to prevent fish movement to the Watercourse reach where works will occur;
 - e. Placement of appropriate fish screens on the inlets of any pumps used;
 - f. Methods to manage streamworks during September to November inclusive of any year, to minimise impacts on fish during the fish spawning season;
 - g. Storage and transport measures including prevention of predation and death during capture; and
 - h. Euthanasia methods for diseased or pest species.
80. The Consent Holder shall engage a Suitably Qualified and Experienced Person to confirm and implement the NFFCRP required by condition 79 and provide a report on the surveys undertaken and the results to the Manager.

STORMWATER DISCHARGE

81. The Consent Holder shall ensure that:
- a. All stormwater from the impervious roadway of the Project is captured, treated and discharged through offline Stormwater Management Wetlands; and
 - b. All stormwater management devices and controls are designed to:
 - i. Include adaptation for 100-years of climate change (from the date that the Project becomes operational);
 - ii. Provide treatment in accordance with GD01;

- iii. Remove gross litter and floatables such as oil and volatile hydrocarbons;
 - iv. Provide for the conveyance of 100 year ARI event, including provision for overland flow up to and including this event; and
 - v. Minimise changes to the water flow into the Kourawhero Wetland Complex and to maintain the pre-construction water table level to the extent practicable if located upstream of the Kourawhero Wetland Complex.
82. The Consent Holder shall ensure that stormwater outfalls are designed to include erosion control to minimise the occurrence of bed scour and bank erosion at the point of discharge in accordance with TR2013/018 and GD01.
83. The Consent Holder shall ensure that cut off drains are designed to:
- a. Incorporate grassed or rock lining to prevent erosion;
 - b. To prevent erosion in the 100 year- ARI rainfall event;
 - c. Provide for the 100-year ARI rainfall event for the upstream catchment and discharge to existing streams or new culverts or where not reasonably practicable discharge to the road edge conveyance system; and
 - d. Minimise bed scour and bank erosion at the point of discharge.
84. The Consent Holder shall ensure that sediment traps (or similar alternative devices) are designed to minimise sediment eroded off rock cuts entered stormwater systems.
85. The Consent Holder shall design Stormwater Management Wetlands that will be:
- a. Located offline from existing Watercourses;
 - b. Located outside of the 100-year ARI floodplain if practicable;
 - c. Capable of providing detention for the 95th percentile 24-hour rainfall event in accordance with GD01;
 - d. Shown to include:
 - i. Forebays and submerged or baffled low flow outlets so that floatables and litter can be trapped at the main outlet;
 - ii. Planting in emergent, littoral, riparian zones except in some areas of deep zone that are to remain plant free; and
 - iii. Valves on low-level Wetland outlets to enable valves to be closed in the event of a spill to contain spilt material in Wetland. The treatment systems shall incorporate a minimum 20 cubic metre volume that can be isolated in the event of a spillage on the road.
86. The Consent Holder shall use pre-treatment measures where higher sediment loads are anticipated, such as sediment traps for sediment eroded off rock cuts.
87. The Consent Holder shall ensure that the Project stormwater system is designed so that water can be collected from tunnels following tunnel washdown, accidental spill, or firefighting activities, and disposed of to a facility consented to receive contaminated water.

88. The Consent Holder shall ensure that stormwater management devices associated with local roads altered by the Project convey water runoff via vegetated and/or rock lined swales adjacent to the road prior to discharge to existing streams.
89. The Consent Holder shall maintain stormwater treatment devices to ensure that the criteria in Conditions 81 to 88 of this Consent are achieved.

Planting of stormwater management devices

90. The Consent Holder shall prepare planting plan(s) for all planted stormwater management devices (including treatment/conveyance swales). The planting plans shall be prepared by a Suitably Qualified and Experienced Person and shall include:
- a. Location, planting methodology and maintenance details;
 - b. Details of plant species, plant numbers, density and distribution; and
 - c. Details of proposed pest plant management.
 - d. Details of steps taken to integrate planting with other planting required for the Project where practicable.

Design certification – stormwater management devices

91. The Consent Holder shall submit the final detailed design of the stormwater management devices (ie excluding conveyance measures) to the Manager for certification at least 20 Days prior to the start of construction of the proposed stormwater management devices. The final detailed design shall include:
- a. drawings;
 - b. specification design report(s); and
 - c. calculations and planting plans for the stormwater management devices.

Condition 92 is intentionally left blank

93. The Consent Holder shall carry out all permanent stormwater measures in general accordance with designs certified in Condition 91.
94. Stormwater management devices shall be fully operational prior to the discharge of water from any impervious area identified to discharge to each device.

As Built Plans – Stormwater management devices

95. The Consent Holder shall submit As-Built Plans for stormwater management devices to the Manager at least 20 Days prior to use of the relevant device for its intended operational purpose.
96. The As-Built Plans shall be certified by a Suitably Qualified and Experienced Person and shall include:
- a. The surveyed locations and elevations of all stormwater devices which shall be measured to the nearest 0.02 metre with co-ordinates expressed in terms of the New Zealand Transverse Mercator Projection and DOSLI datum;

- b. Stormwater management device details including locations, dimensions, volumes, flood levels, sections, treatment efficiencies, inlet, discharge rates and outlet structures;
- c. Photographs at all stormwater systems outfall locations; and
- d. Documentation of any differences between the certified design plans under Condition 91 and the As-Built Plans submitted under Condition 95.

Stormwater Operation and Maintenance Plan

97. The Consent Holder shall prepare a Stormwater Operation and Maintenance Plan (SOMP) prior to operation of the state highway to ensure the Project stormwater management devices are maintained to achieve their design function.
98. The SOMP shall be prepared by a Suitably Qualified and Experienced Person and shall:
- a. Identify a procedure for monitoring and maintaining the Project stormwater management devices; and
 - b. Include the following:
 - i. Location map and access arrangements;
 - ii. Inspection and maintenance requirements and frequency;
 - iii. Routine and emergency contacts; and
 - iv. As-built drawings and stormwater system information; and
 - v. Spill incident management during operation of the road
99. In preparing the SOMP the Consent Holder shall consult with the owner of the commercial plantation forest (Mahurangi Forest) located west of SH1 with respect to permanent stormwater management activities which directly interface with forestry operations. If the Consent Holder has not received any comment from the owner of the Mahurangi Forest within 20 Days of providing the SOMP to them, the Consent Holder may consider the relevant party has no comments.
- 99A The Consent Holder shall notify Watercare of any large discharge of contaminants that occurs upstream of and could impact on Watercare's extraction and water treatment plant located at NZTM 174870 5970390 as soon as it becomes aware of the incident if the spill is within the Water Intake Catchment shown in Appendix C.

Flooding

100. The Consent Holder shall ensure that the design of the Project does not result in an increase in flooding for events up to and including the 100 year ARI event in either of the following situations:
- a. An increase in flooding levels greater than 100mm vertically outside the Designation
 - b. An increase in flooding above floor level to any habitable building outside the Designation.

Compliance with this Condition shall be demonstrated by a hydraulic and hydrological model with the level of detail and reporting to be confirmed by a Suitably Qualified and Experienced Person for certification by the Manager. The

peak flood levels and flood flows for pre-development and post-development of the Project shall be compared upstream and downstream at the Designation boundary.

- 100A. The Consent Holder shall ensure that the design of the Project in the Kourawhero catchment does not result in any more than a negligible increase in downstream peak flood levels and/or flood flow up to and including the 100 year ARI event. To determine whether the increase is negligible, the peak flood levels and flood flows for pre-development and post-development of the Project shall be compared at the western Designation boundary, upstream of 214 Kaipara Flats Road. Compliance with this Condition shall be demonstrated by the hydrological and hydraulic model to be confirmed by a Suitably Qualified and Experienced Person for certification by the Manager.
- 100B. The Consent Holder shall ensure that the design and construction of the Project avoids any increase in flooding of the Mahurangi River at 111 Kaipara Flats Road up to and including the 100 year ARI event due to the Project.
101. The Consent Holder shall demonstrate that any headwater ponding upstream of any Project culvert in the 100 year ARI event is contained within either:
- a. Land within the Designation at the time of construction; or
 - b. An existing floodplain.

AIR QUALITY – ROCK CRUSHER

- 101A. There shall be no noxious, dangerous, objectionable or offensive dust, fumes or odour to the extent that it causes an adverse effect at or beyond the proposed designation boundary.
102. The Consent Holder shall prepare a Rock Crusher Management Plan (RCMP) to outline the measures to be adopted to meet condition 101A. The RCMP shall be prepared by a Suitably Qualified and Experienced Person and shall include as a minimum:
- a. A description of the works, and periods of time when emissions of odour, dust or fumes might arise from the rock crusher;
 - b. Identification of the location(s) of any mobile rock crusher for the duration of construction
 - c. Identification of HSRs that may be adversely affected by emissions of odour, dust or fumes from the rock crusher(s);
 - d. Methods for mitigating dust that may arise from rock crushing, potentially including minimum setbacks from HSRs where necessary, emissions control equipment (e.g. enclosure and/or water sprays at transfer points), and monitoring of weather conditions and visual inspections;
 - e. Methods for undertaking and reporting on the results of daily inspections of rock crushing activities that might give rise to odour, dust or fumes;

- f. Methods for monitoring and reporting on the state of air quality during crushing activities, including wind speed, wind direction, air temperature and rainfall;
 - g. Construction operator training procedures;
 - h. Consideration of portable Total Suspended Particle measurement devices and associated levels; and
 - i. Contact details of the site supervisor or Project manager and the Project Liaison Person (telephone number and email or other contact address).
103. When preparing the RCMP the Suitably Qualified and Experienced Person shall have regard to the guidance contained in the Good Practice Guide for Assessing and Managing Dust, Ministry for Environment, 2016, or any subsequent version, and the NZ Transport Agency Guide to assessing air quality impacts from state highway projects (version 2.3, October 2019), or any subsequent version, as relevant to rock crushing activities.
- 103A. The Consent Holder shall ensure that the rock crushing activity is undertaken in accordance with the RCMP and minimises dust generation as far as practicable.

GROUNDWATER

104. The Consent Holder shall not undertake Project Work excavations of more than 10m depth within 300m of any of the following lawfully established activities existing as at the date of this resource consent:

- a. groundwater extractions;
- b. buildings;
- c. infrastructure

unless it can be demonstrated by a Hydrogeological model to the satisfaction of the Manager that such excavations will not create material drawdown effects or settlement effects (greater than 1m of drawdown) causing damage to buildings or infrastructure.

Damage Avoidance

- 104A. All excavation, dewatering systems and works associated with the taking and diversion of groundwater shall be designed, constructed and maintained so as to avoid damage to buildings, structures and services, or impacts on lawful groundwater or surface water takes, outside that considered as part of the application process unless otherwise agreed in writing with the asset owner.

Settlement Contingency Actions

- 104B. If the Consent Holder becomes aware of any damage to buildings, structures or services potentially caused wholly, or in part, by the exercise of this consent, the Consent Holder must:
- a. Notify the Manager and the asset owner within two Days of the Consent Holder becoming aware of the damage;
 - b. Provide a report prepared by a Suitably Qualified and Experienced Person

(engaged by the Consent Holder at their cost) that describes the damage; identifies the cause of the damage; identifies methods to remedy and/or mitigate the damage that has been caused; identifies the potential for further damage to occur, and describes actions that will be taken to avoid further damage; and

- c. Provide a copy of the report prepared under (b) above, to the Manager and the asset owner within 10 Days of notification under (a) above.

Advice Note: *It is anticipated the Consent Holder will seek the permission of the damaged / affected asset owner to access the property and asset to enable the inspection/investigation. It is understood that if access is denied the report will be of limited extent.*

ADVICE NOTES

The scope of these consents does not include:

- Land use activities requiring resource consents under the Resource Management (National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 or contaminant discharges under Chapter E30 of the Auckland Unitary Plan (Operative in Part).
- Plantation forest activities defined by the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 and related activities in the commercial plantation forest (Mahurangi Forest) located west of SH1.
- Reclamation or diversion of any Watercourse for soil disposal where such reclamation or diversion is not associated with Project structures (for example, embankments, earth bunds, bridges and other structures).

APPENDIX A



Schedule of ecological sites

Table 1. Ecological areas included on Conditions Maps 18-20. Ecological values: VH = Very High; H =High; M = Moderate.

Ecological site	Attributes	Ecological value	Impacted by proposed Indicative Alignment (Y/N)
WN_T_Mahu_01	SEA_T_2287 Kauri, podocarp, broadleaved forest	M	N
WN_T_Koura_01a	Kahikatea, pukatea forest	H	Y
WN_W_Koura_01	Exotic wetland	M	Y
WN_W_Koura_02	Raupo reedland	VH	N
WN_W_Koura_03	Exotic wetland	M	Y
WN_W_Koura_04	Exotic wetland	M	N
WN_W_Koura_05	Raupo reedland	H	Y
WN_T_Koura_02	Kanuka forest	M	Y
DVF_W_Koura_01	Exotic wetland	M	N
DVF_T_Koura_02	Kauri, podocarp, broadleaved species scrub/forest	VH	Y
DVF_T_Hoteo_01	Kauri, podocarp, broadleaved forest	VH	Y
HN_T_Hoteo_02	SEA_T_683 Taraire, tawa, podocarp forest	VH	Y
HN_W_Hoteo_01	SEA_T_6854 Flaxland	H	Y
HN_W_Hoteo_02	SEA_T_685 Kahikatea forest	H	N
HN_T_Hoteo_03a	SEA_T_685 Kahikatea, pukatea forest	H	Y
HN_T_Hoteo_08	Kahikatea forest	H	Y

APPENDIX B

Methodology for calculation of sediment reduction factors and the effectiveness of sediment reduction activities

Subject	Marine Mitigation Calculation Process	Project Name	Warkworth to Wellsford
Attention	Justine Bennett	Project No.	12088000
From	Kate Gray, Lydie Debit		
Date	May 2018		

1. Introduction

This note outlines a process to calculate the necessity and size of additional mitigation areas of land to be retired and planted to offset the quantum of sediment discharged during the project.

The quantum of sediment discharged from the Project during construction should be offset in one generation, which is nominally 25 years following the end of the Project, through land retirement and planting strategies. The types of land retirement and planting available for sediment mitigation are:

- Planting and stabilisation of riparian margins of streams;
- Retirement of pasture areas and planting with shrubs and trees;
- of plantation forest areas, which may remain as exotic forest or be replanted as native forest Retirement, and cease being harvested.

The Project already includes Landscape and Ecology (L&E) mitigation planting, which has the additional benefit of erosion reduction. If the L&E mitigation planting does not offset the full quantum of sediment discharged during construction, then additional sediment mitigation planting will be required.



2. Sediment Reduction Factors

The sediment offset of the indicative L&E planting has been estimated through modelling. This has enabled quantification of the average annual offset of different retirement and planting types within the Project Designation. These sediment reduction factors have been calculated for mitigation planting in different areas and are set out in Table 1.

Table 1 Estimated sediment reduction factors (average offset) associated with retirement and planting mitigation options over 25 years

Mitigation type	Options	Sediment reduction over 25 years
Planting and stabilisation of riparian margins of streams	Stream REC class 2-3	0.35 Tonnes/acre
	Stream REC 4+	*Not previously assessed
Retirement of pasture areas and planting with shrubs/trees	Flat slopes	1.11 Tonnes/hectare
	Flat to moderate slopes	1.85 Tonnes/hectare
	Moderate slopes	2.91 Tonnes/hectare
	Steep slopes	*Not previously assessed
Retirement of plantation forest	Retire after harvest in 2020	1.82 Tonnes/hectare
	Retire before harvest in 2020	3.64 Tonnes/hectare

Note: *the current proposed mitigation planting does not include these categories, should future planting be proposed for these typologies an appropriate Sediment Reduction factor will need to be derived.

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Water & Wastewater Consultancy Process

It should be noted that the modelled indicative L&E mitigation planting, which is based on the indicative alignment and associated level of design, is subject to change as the Project progresses. Only areas within the proposed designation were modelled, therefore retirement and planting of steep areas of pasture and planting of higher order streams has not been modelled to date. The forest reduction factors are based on literature not modelling, so there is potential that retiring steeper areas of forestry could increase the sediment offset. Additionally, the modelling focussed on those catchments discharging to the Kaipara Harbour where the greatest sediment yields were predicted, and the Mahurangi was not modelled.

Therefore, these sediment reduction factors will need to be confirmed following detailed design as the quantum and location of the proposed landscape and ecological mitigation may change through that process.

3. Outline of Sediment Quantum Calculation Process

The steps and inputs to calculate the areas and types of planting and retirement necessary to mitigate the quantum of sediment discharged during construction are as follows:

1. Identify the quantum of sediment to be mitigated from the construction site in tonnes (to be provided by on site monitoring). This will include the sediment generated through large storm events and cumulative total of small rain fall events;
2. Calculate the quantum of sediment to be offset through the final Ecology and Landscape mitigation planting in a nominal 25-year timespan, as estimated with a modelling exercise;
3. Minus the L&E mitigation quantum (step 2) from the total sediment offset quantum (step 1), to calculate the net quantum of sediment to be offset through additional mitigation (e.g. land retirement and planting);
4. Based on the sediment reduction factor, calculate the area/length required of additional sediment mitigation planting.

Figure 1 below represents the process schematically

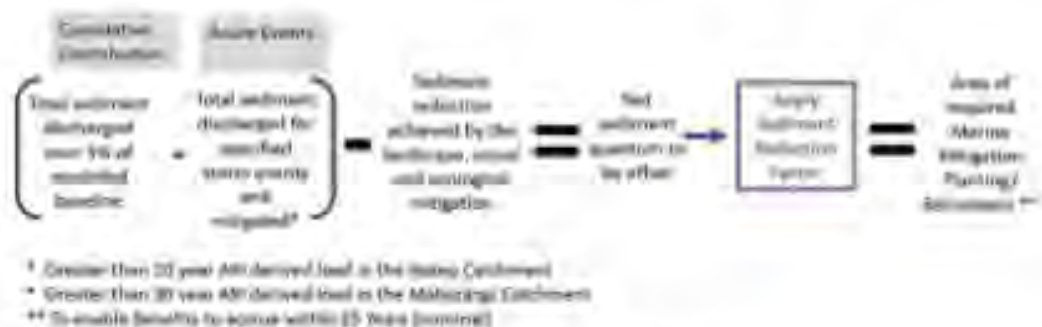
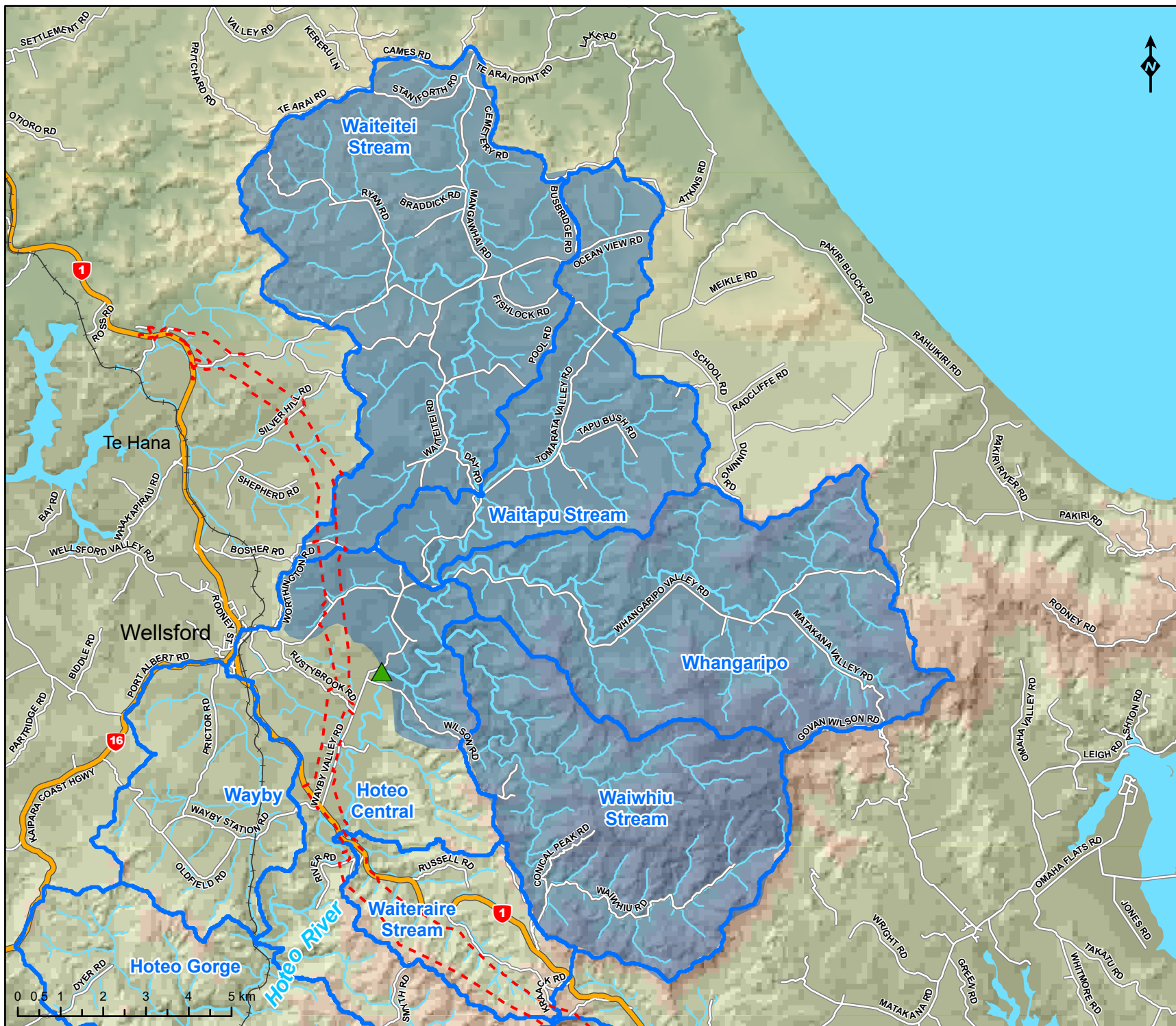






Figure 1 Process to estimate area required for additional marine mitigation planting



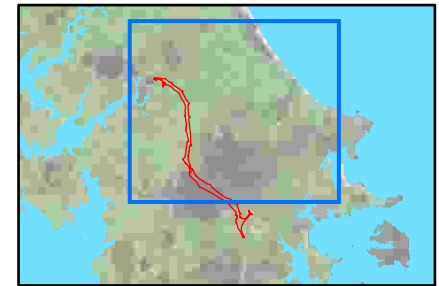
APPENDIX C

Watercare Intake Catchment



-  Watercare Wellsford Water Treatment Plant (Intake)
-  Water intake catchment
-  Hotoe River Subcatchments
-  Proposed Designation

Appendix A



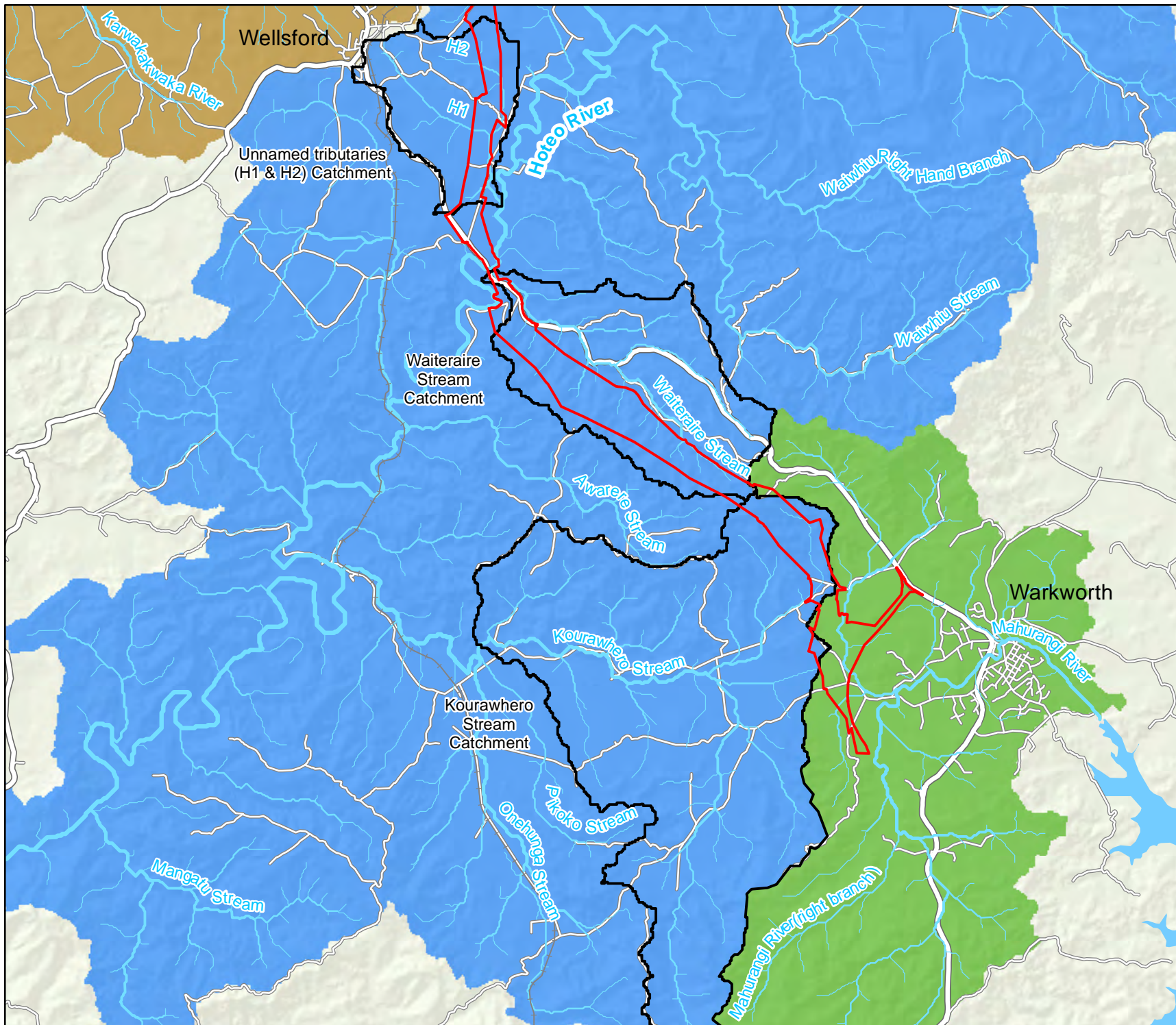
WARKWORTH TO WELLSFORD






WATERCARE INTAKE CATCHMENT

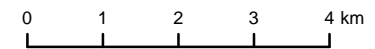


APPENDIX D

Unnamed Tributaries H1 and H2 of the Hōteu River



-  Proposed designation boundary
-  Minor Catchments
- Major Catchment**
-  Hotoe River
-  Mahurangi River
-  Oruawharo River



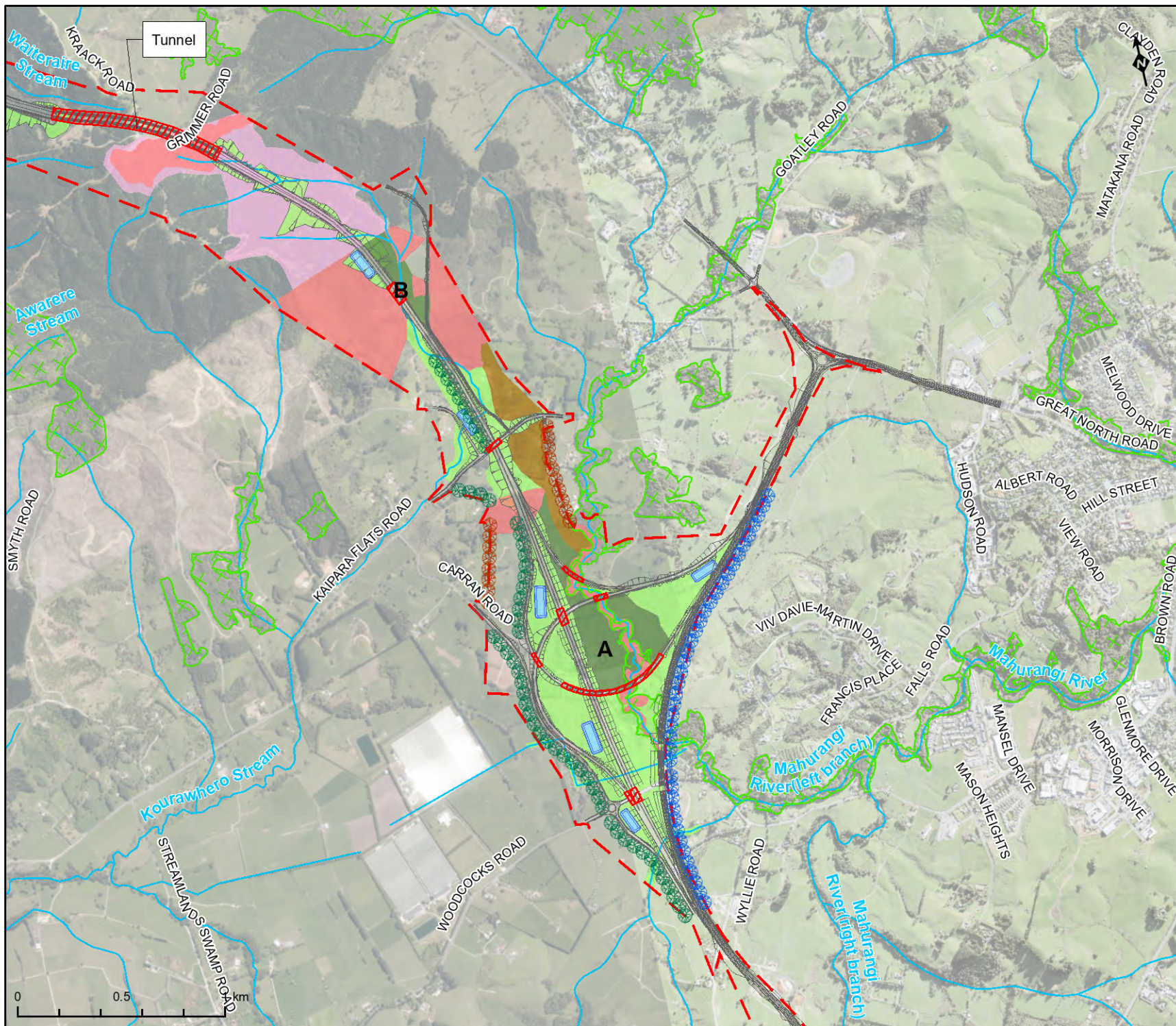
WARKWORTH TO WELLSFORD

HOTE0 TRIBUTARIES



CONDITIONS MAPS

Maps 1 – 6	Mitigation Sites
Maps 7 – 12	Representative Watercourses
Map 13	Fauna Habitat and Flyway Mitigation Area
Map 14 – 16	Bridge Structures in Watercourses
Map 17	Crossing of the Kourawhero Stream and associated wetland complex Ecological Site
Maps 18 – 20	Ecological Sites
Map 21	Escarpment Feature



- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- ⊗ P2W screen planting
- ⊙ Screen planting
- ⊘ Existing shelter belt
- ▭ Stormwater treatment wetlands - indicative locations
- Watercourse
- ▭ Landscape Mitigation Planting
- ▭ Indigenous vegetation
- ▭ Ecology vegetation mitigation
- ▭ Fauna habitat and flyway mitigation
- ▭ Mitigation for fragmentation
- ⊗ Significant ecological area -Terrestrial

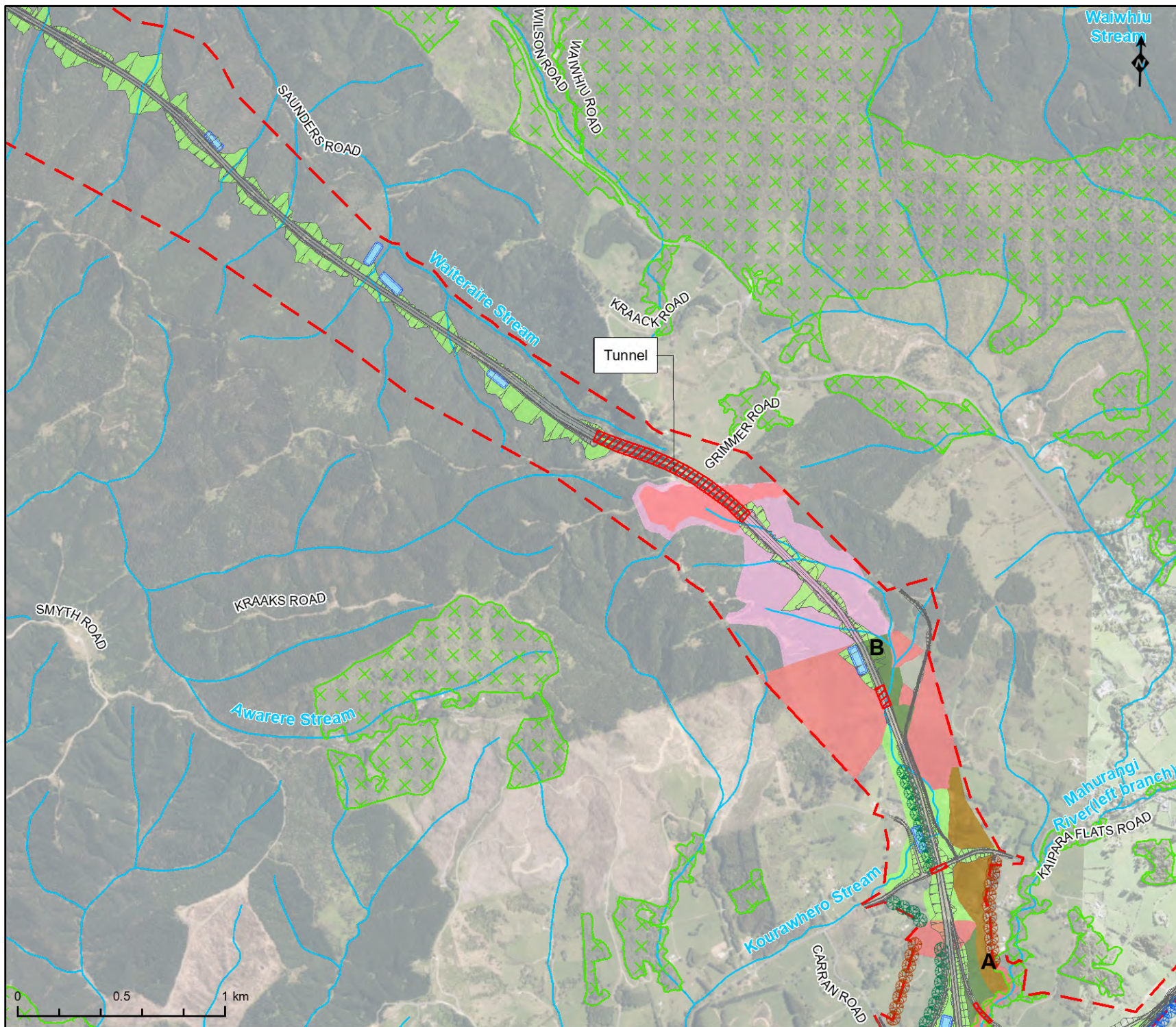
Conditions - Map 1



WARKWORTH TO WELLSFORD

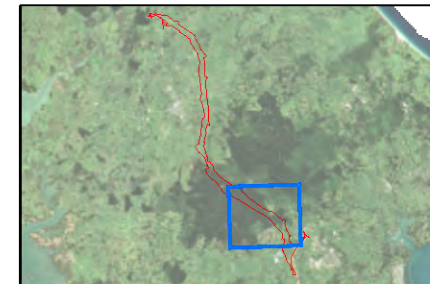
MITIGATION SITES





- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- P2W screen planting
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Fauna habitat and flyway mitigation
- Mitigation for fragmentation
- Significant ecological area -Terrestrial

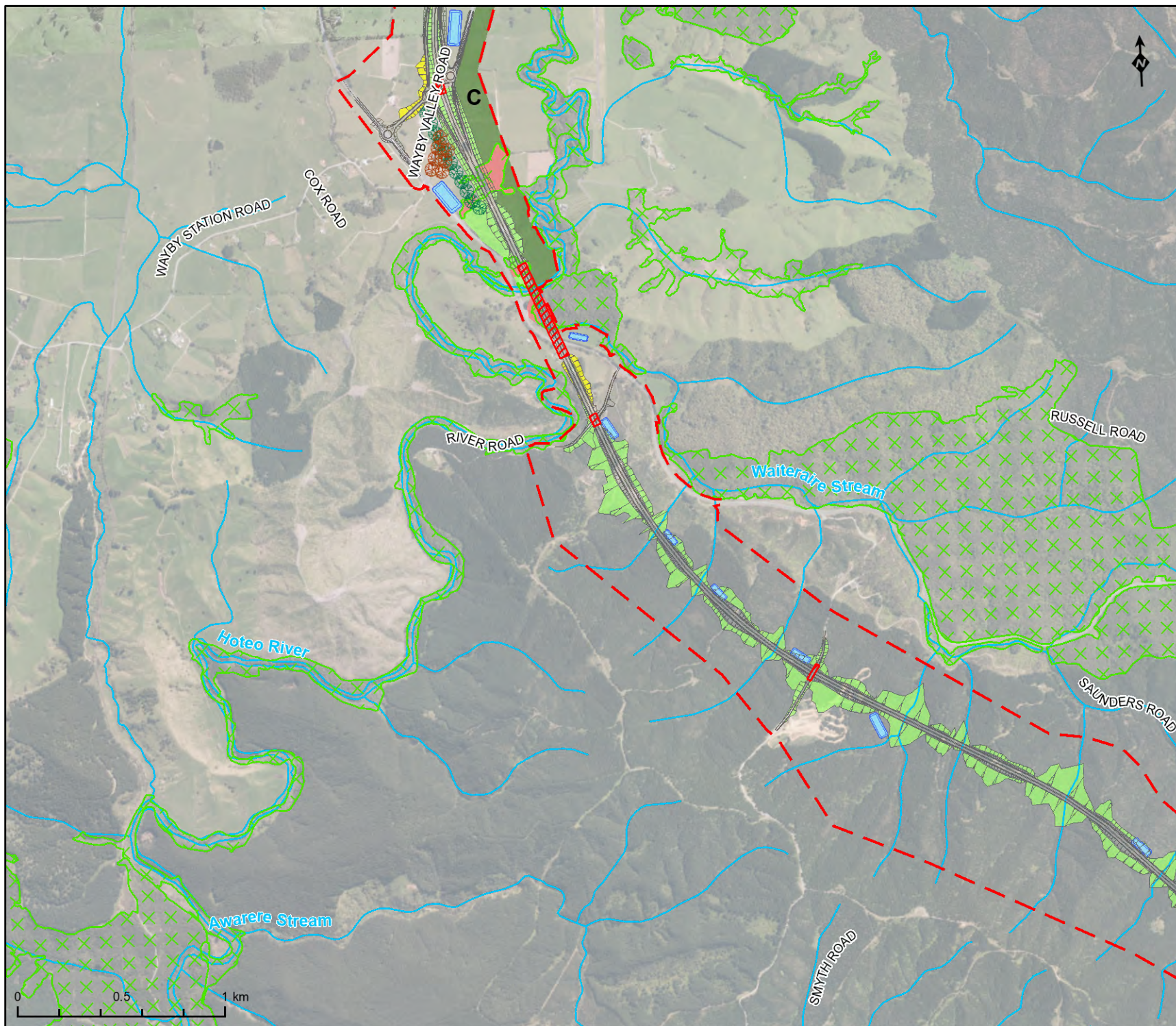
Conditions - Map 2



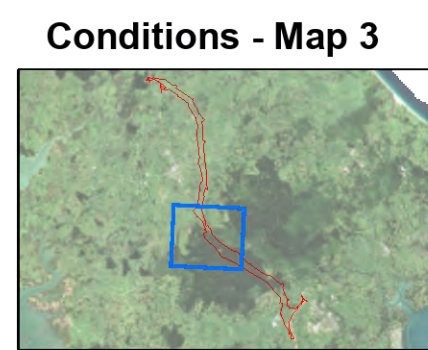
WARKWORTH TO WELLSFORD

MITIGATION SITES





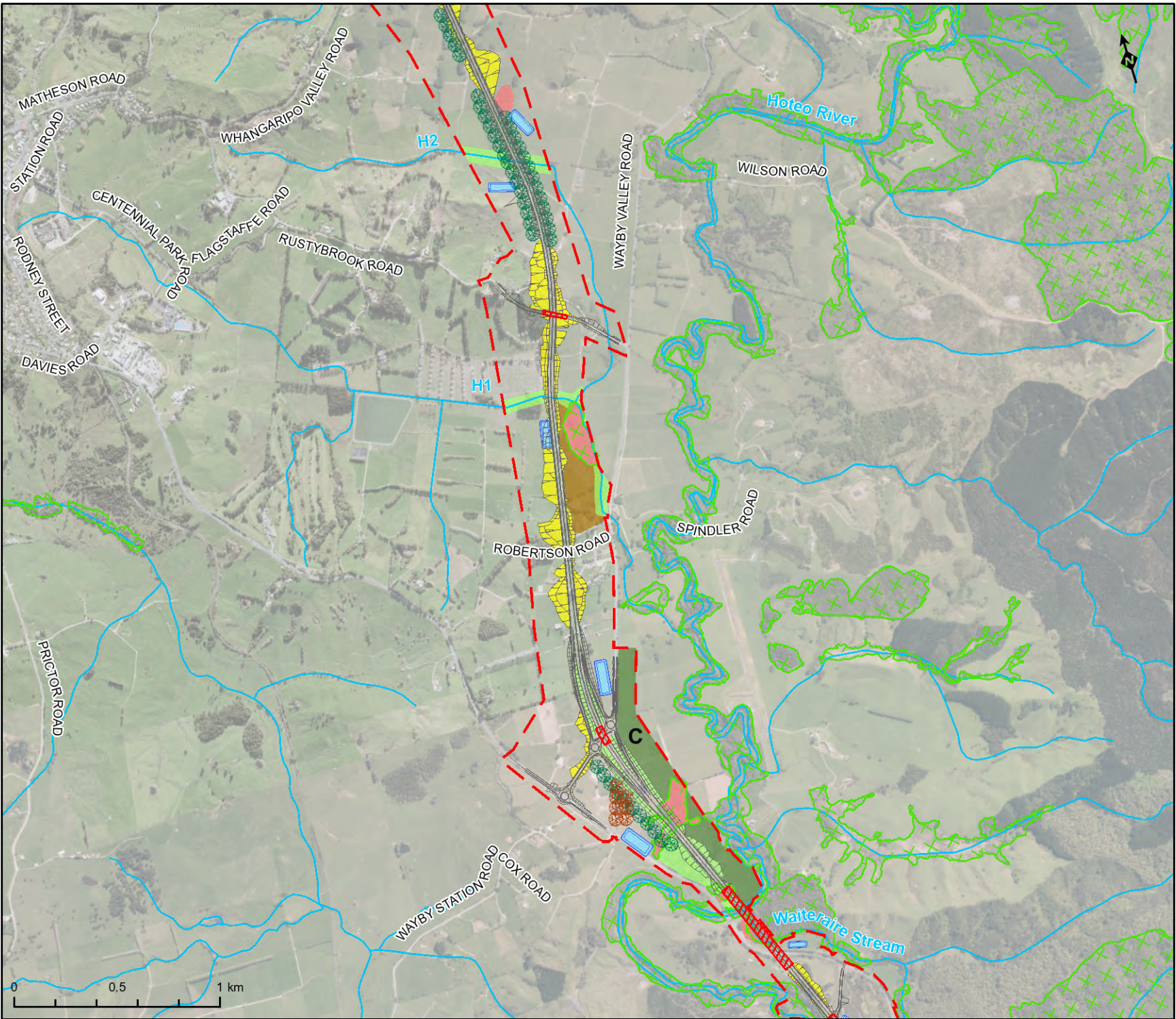
- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- ⊗ Screen planting
- ⊗ Existing shelter belt
- ▭ Stormwater treatment wetlands - indicative locations
- Watercourse
- ▭ Landscape Mitigation Planting
- ▭ Indigenous vegetation
- ▭ Ecology vegetation mitigation
- ▭ Grass batter slopes
- ⊗ Significant ecological area -Terrestrial



WARKWORTH TO WELLSFORD

MITIGATION SITES





- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Mitigation for fragmentation
- Grass batter slopes
- Significant ecological area -Terrestrial

Conditions - Map 4



WARKWORTH TO WELLSFORD

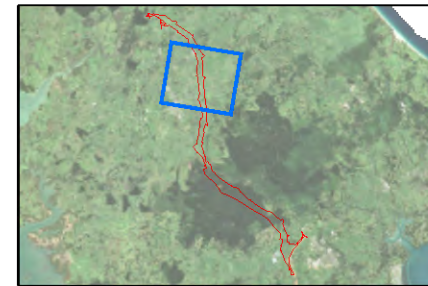
MITIGATION SITES





- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- ⊗ Screen planting
- ⊗ Existing shelter belt
- ▭ Stormwater treatment wetlands - indicative locations
- Watercourse
- ▭ Landscape Mitigation Planting
- ▭ Indigenous vegetation
- ▭ Ecology vegetation mitigation
- ▭ Grass batter slopes
- ⊗ Significant ecological area -Terrestrial

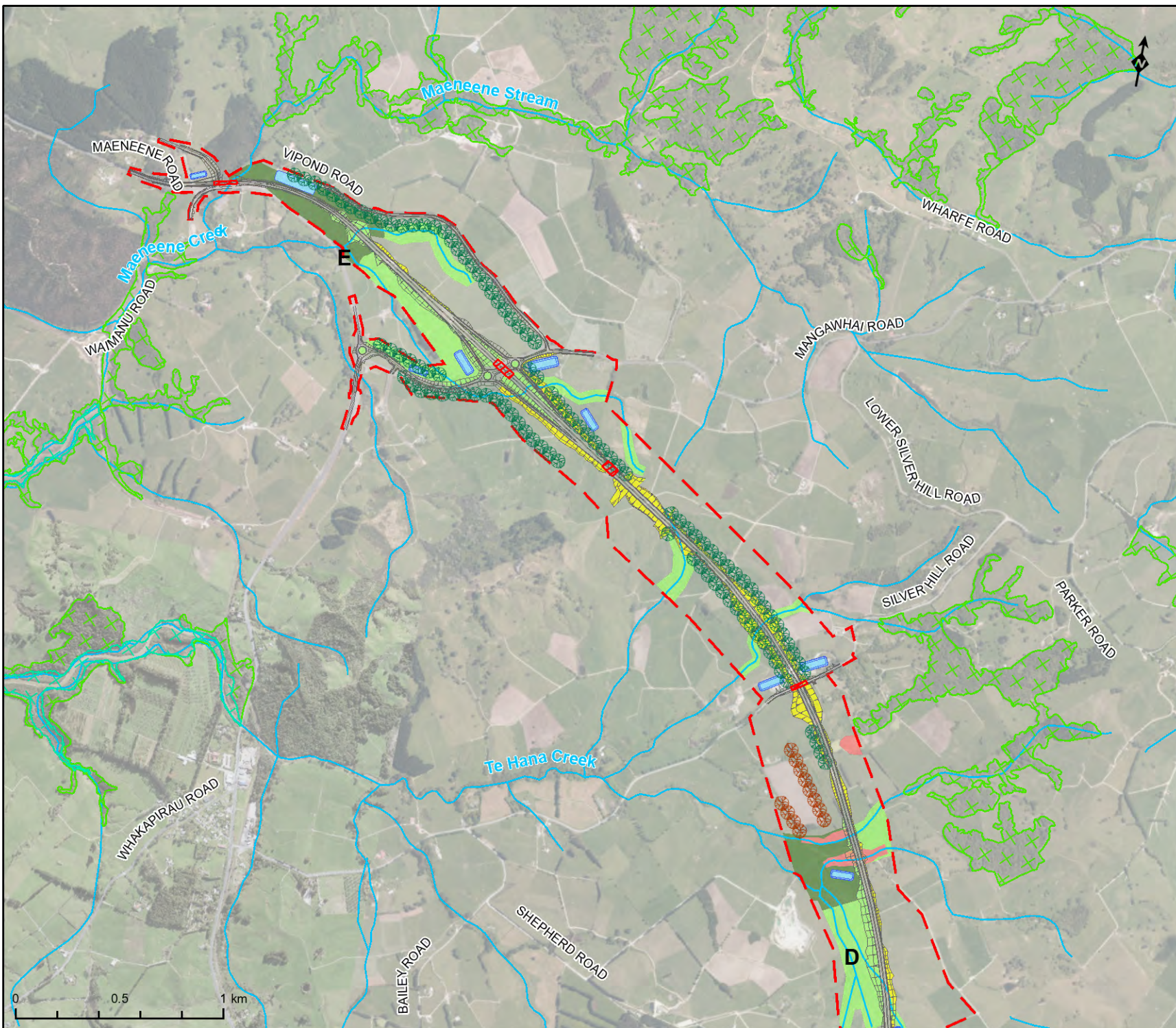
Conditions - Map 5



WARKWORTH TO WELLSFORD

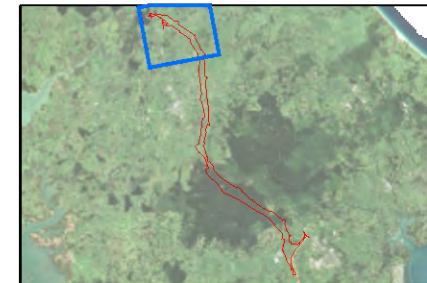
MITIGATION SITES





- Indicative Alignment
- Designation boundary
- Indicative bridge / tunnel
- Screen planting
- Existing shelter belt
- Stormwater treatment wetlands - indicative locations
- Watercourse
- Landscape Mitigation Planting
- Indigenous vegetation
- Ecology vegetation mitigation
- Grass batter slopes
- Significant ecological area -Terrestrial
- Significant ecological area - Marine 2

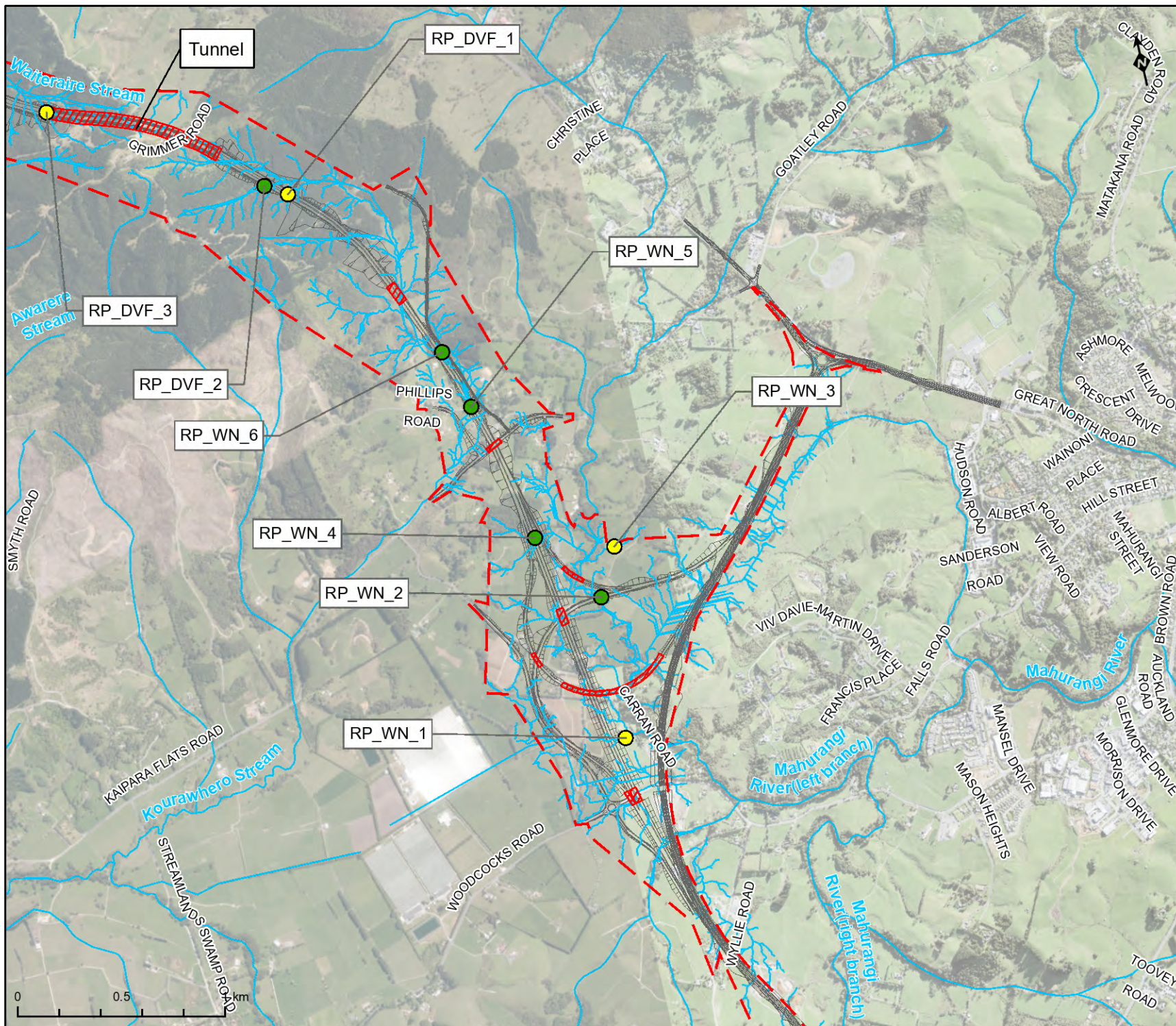
Conditions - Map 6



WARKWORTH TO WELLSFORD

MITIGATION SITES





- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- Watercourse
- Representative watercourses**
- Intermittent
- Permanent

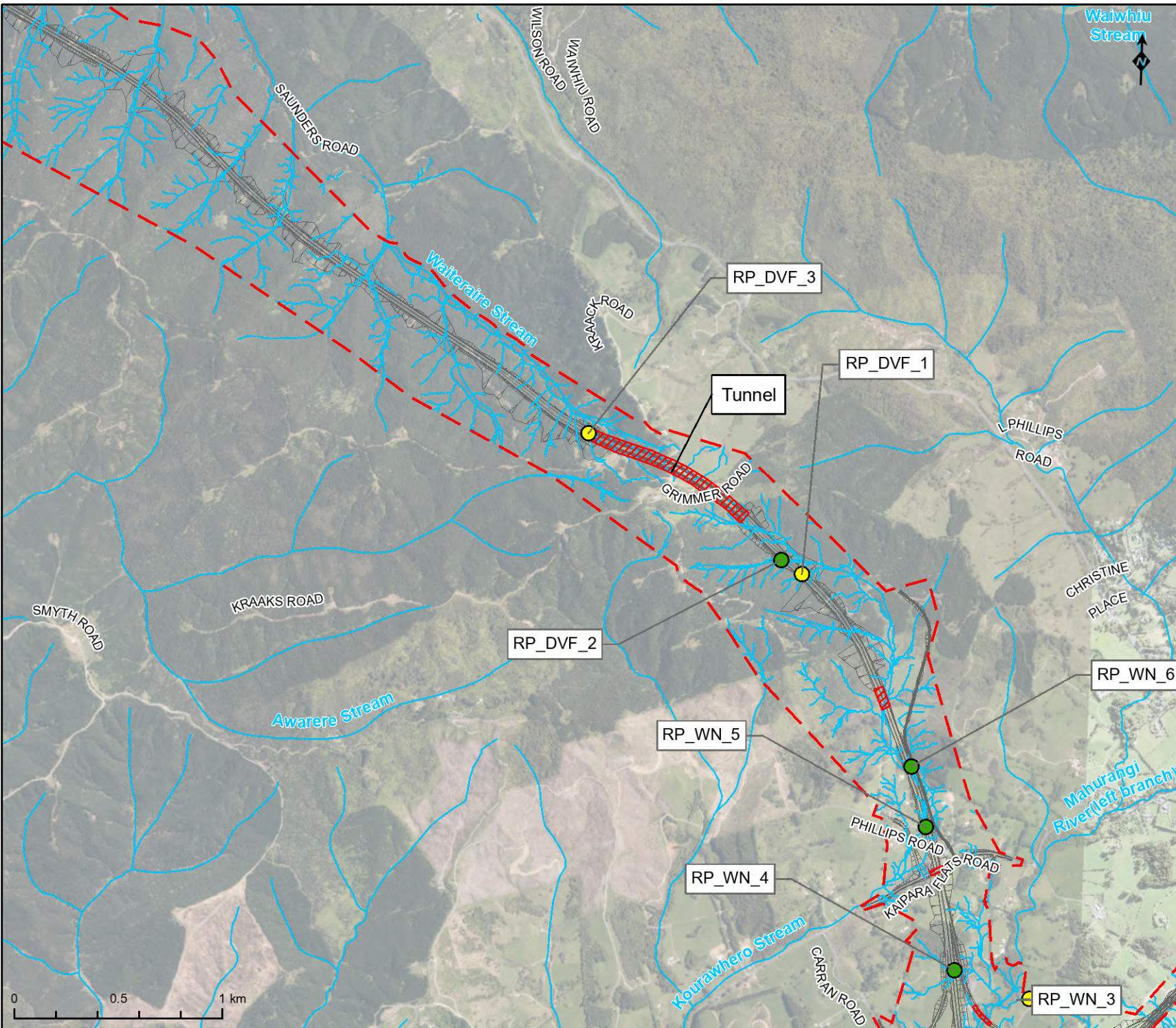
Conditions - Map 7



WARKWORTH TO WELLSFORD

REPRESENTATIVE WATERCOURSES





- Indicative Alignment
 - ▭ Designation boundary
 - ▨ Indicative bridge / tunnel
 - Watercourse
- Representative watercourses**
- Intermittent
 - Permanent

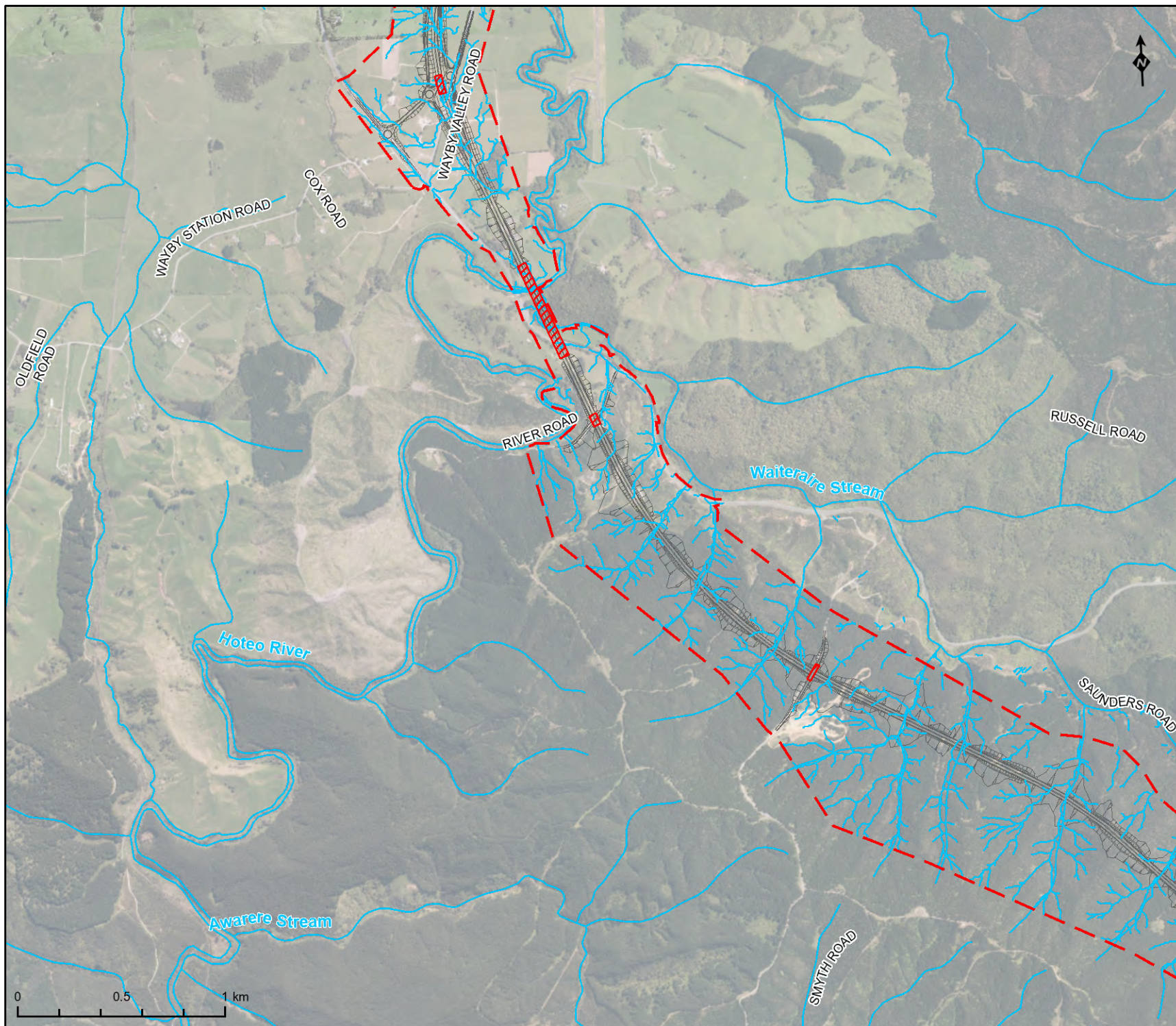
Conditions - Map 8



WARKWORTH TO WELLSFORD

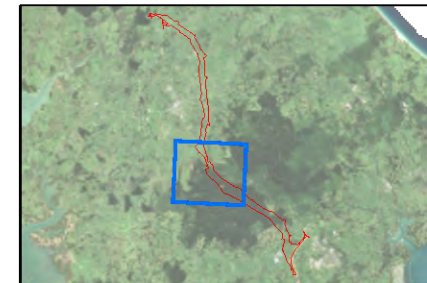
REPRESENTATIVE WATERCOURSES





- Indicative Alignment
 - ▭ Designation boundary
 - ▨ Indicative bridge / tunnel
 - Watercourse
- Representative watercourses**
- Intermittent
 - Permanent

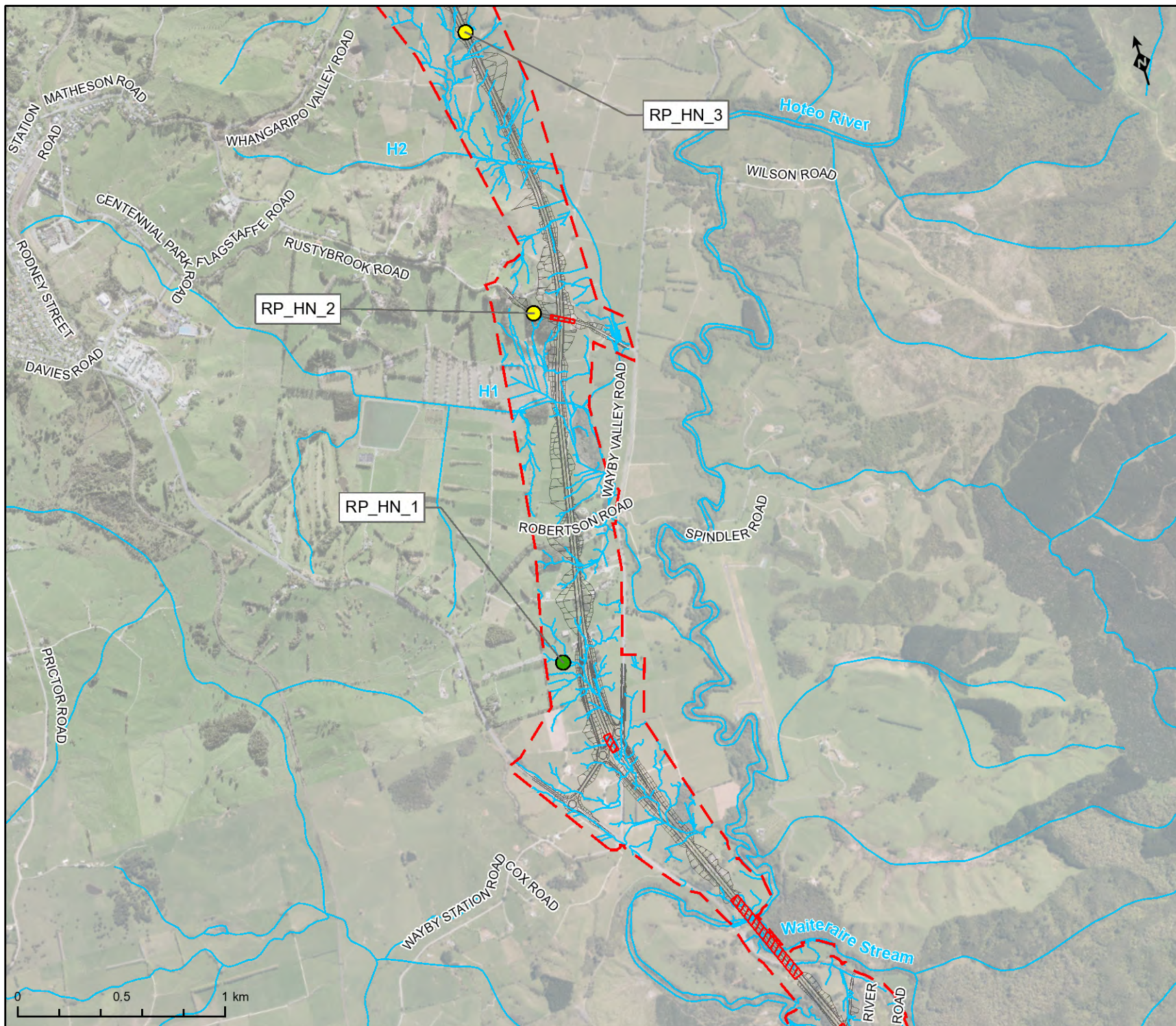
Conditions - Map 9



WARKWORTH TO WELLSFORD

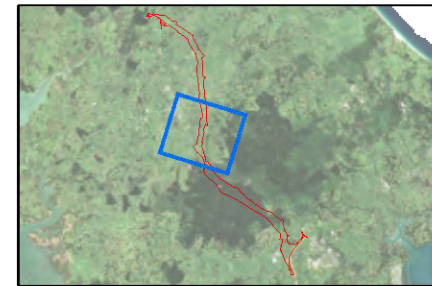
REPRESENTATIVE WATERCOURSES





- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- Watercourse
- Representative watercourses**
- Intermittent
- Permanent

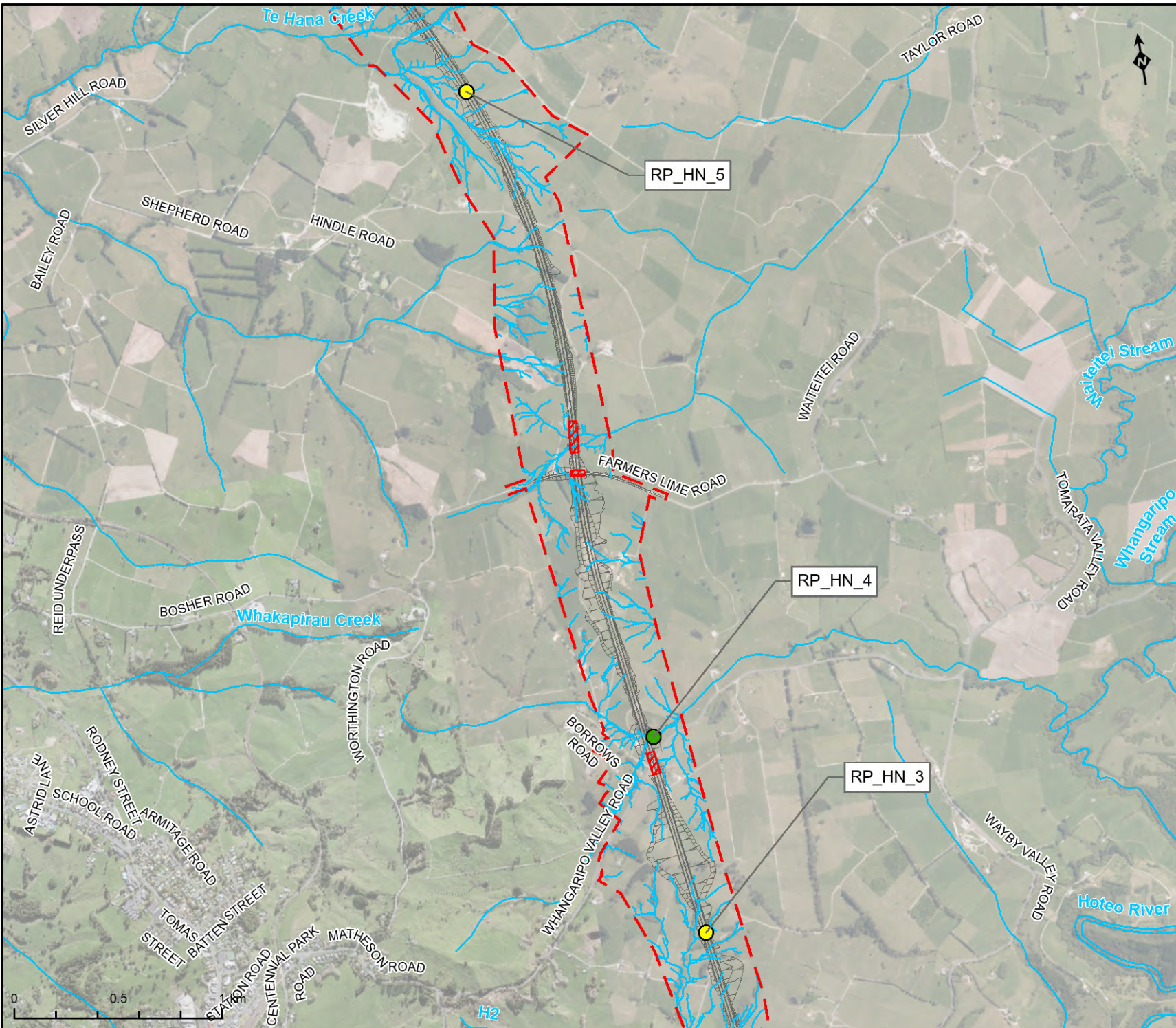
Conditions - Map 10



WARKWORTH TO WELLSFORD

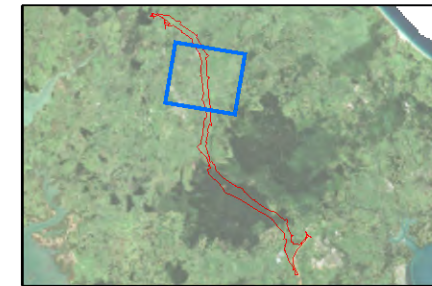
REPRESENTATIVE WATERCOURSES





- Indicative Alignment
 - ▭ Designation boundary
 - ▨ Indicative bridge / tunnel
 - Watercourse
- Representative watercourses**
- Intermittent
 - Permanent

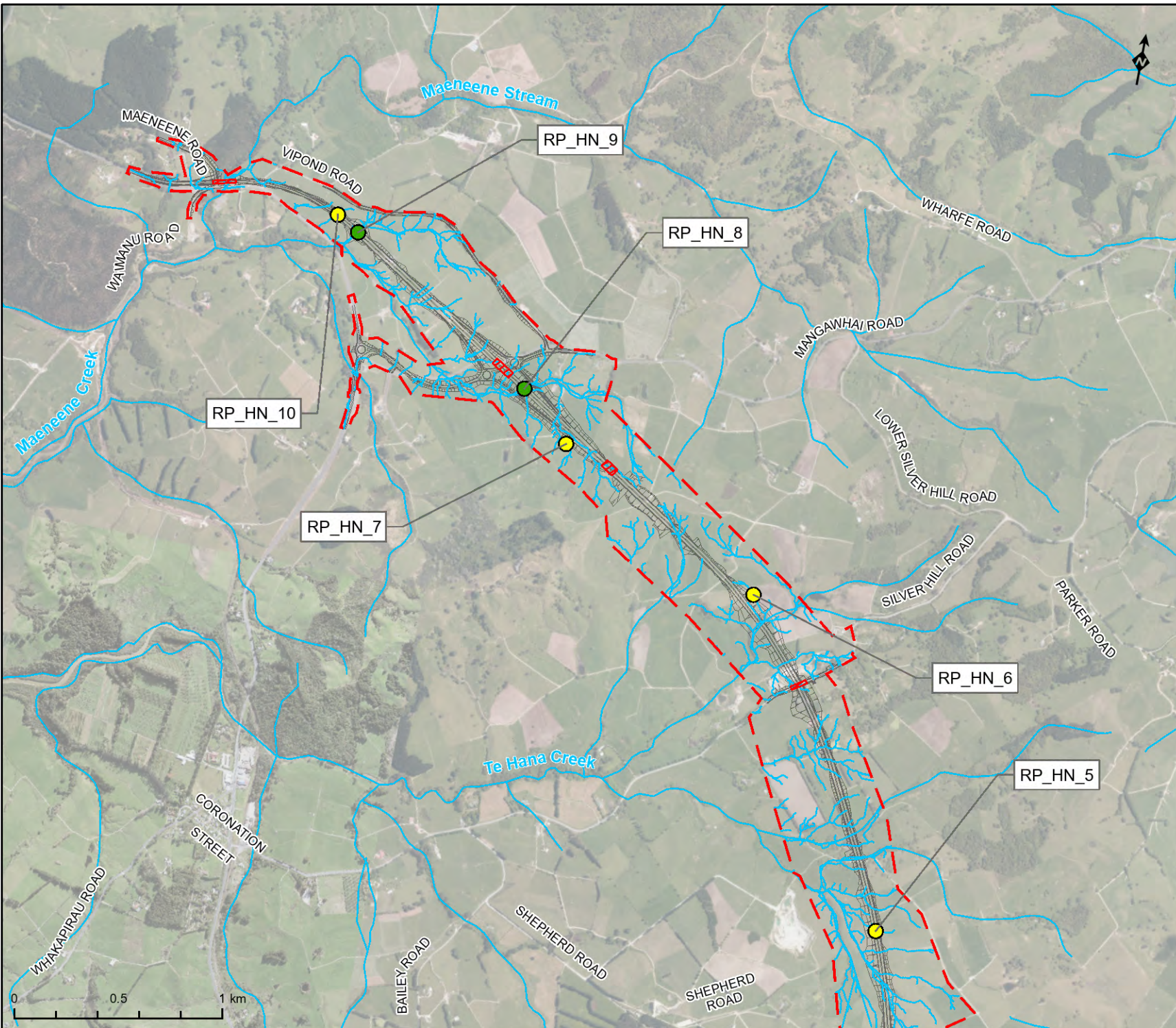
Conditions - Map 11



WARKWORTH TO WELLSFORD

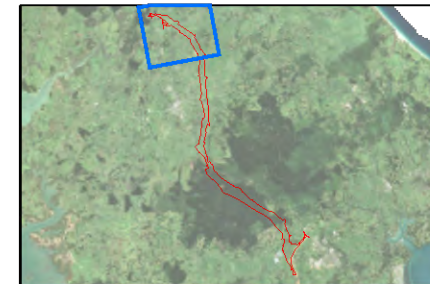
REPRESENTATIVE WATERCOURSES





- Indicative Alignment
- ▭ Designation boundary
- ▨ Indicative bridge / tunnel
- Watercourse
- Representative watercourses**
- Intermittent
- Permanent

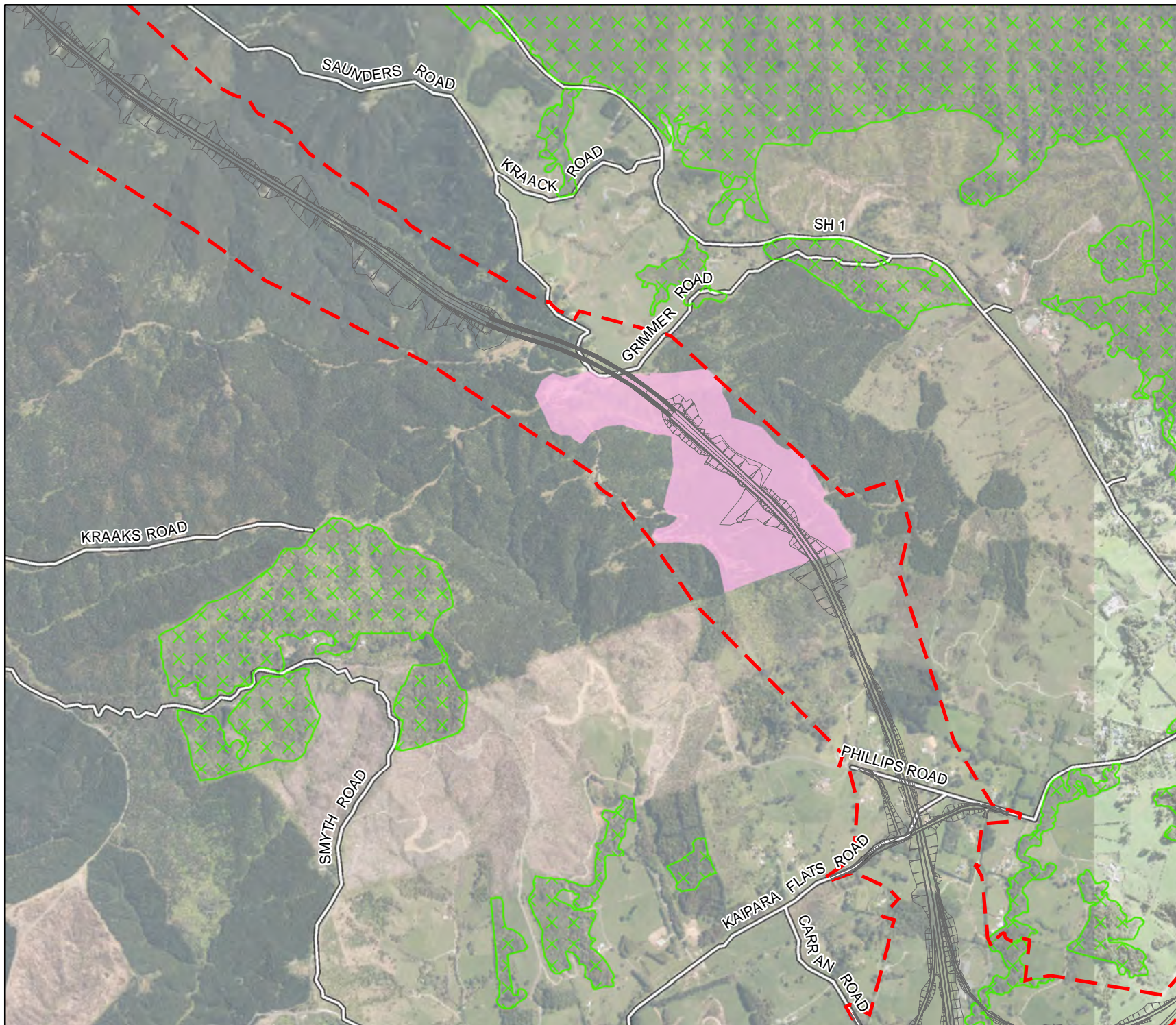
Conditions - Map 12



WARKWORTH TO WELLSFORD

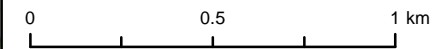
REPRESENTATIVE WATERCOURSES





- Indicative Alignment
- [- - -] Designation boundary
- █ Fauna habitat and flyway mitigation
- ▨ Significant ecological area - Terrestrial

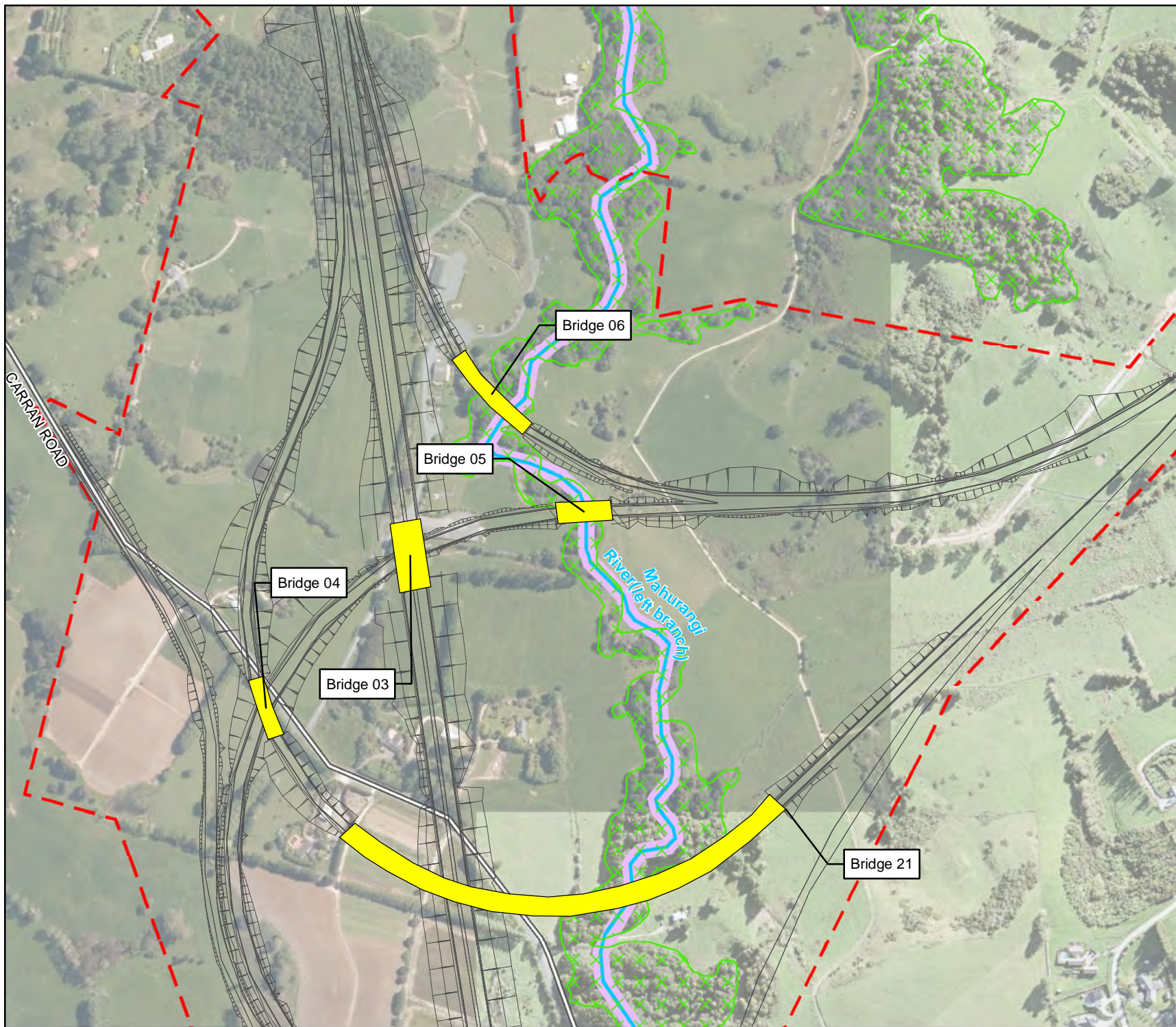
Conditions - Map 13









WARKWORTH TO WELLSFORD

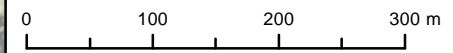
FAUNA HABITAT AND FLYWAY MITIGATION





-  Designation boundary
-  Indicative Alignment
-  Indicative bridge
-  Mahurangi River (Left branch)
-  Watercourse
-  Significant ecological area -Terrestrial

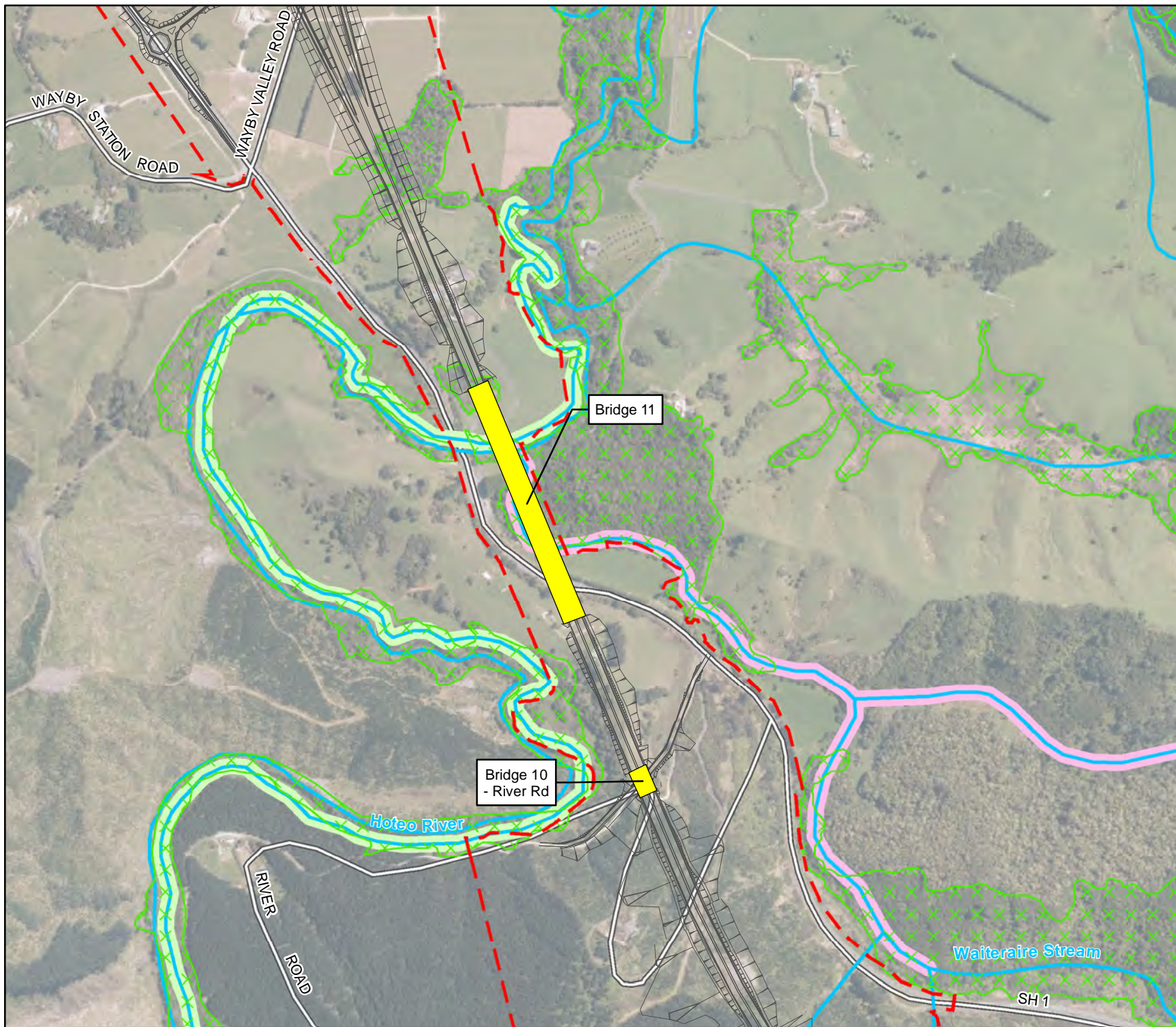
Conditions - Map 14



WARKWORTH TO WELLSFORD

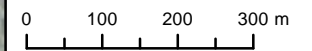
BRIDGE STRUCTURES IN WATERCOURSES





- Designation boundary
- Indicative Alignment
- Indicative bridge
- Hotoo River
- Waiatare Stream
- Watercourse
- Significant ecological area
-Terrestrial

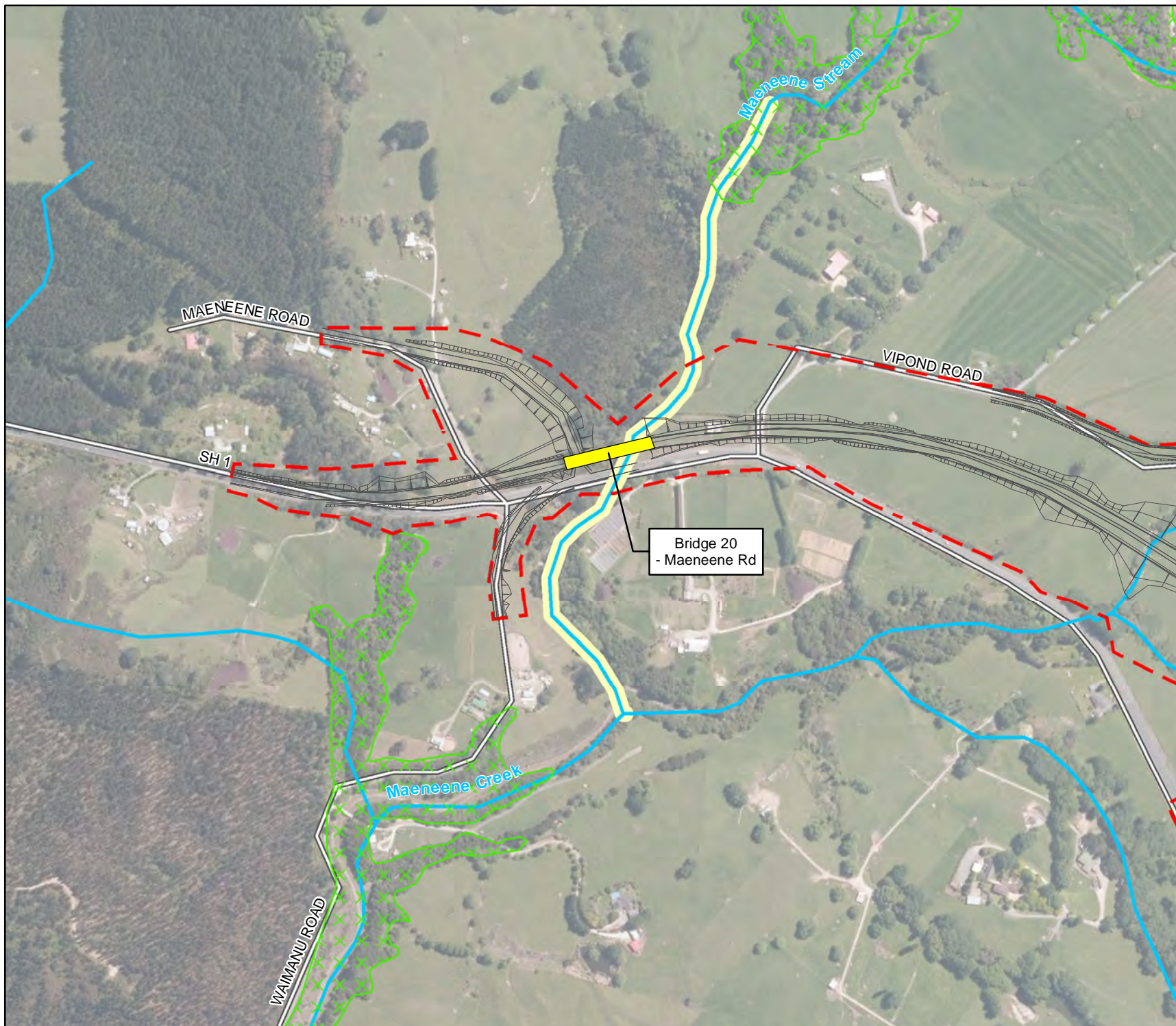
Conditions - Map 15









WARKWORTH TO WELLSFORD

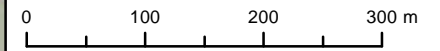
BRIDGE STRUCTURES IN WATERCOURSES





-  Designation boundary
-  Indicative Alignment
-  Indicative bridge
-  Maeneene Stream
-  Watercourse
-  Significant ecological area
- Terrestrial

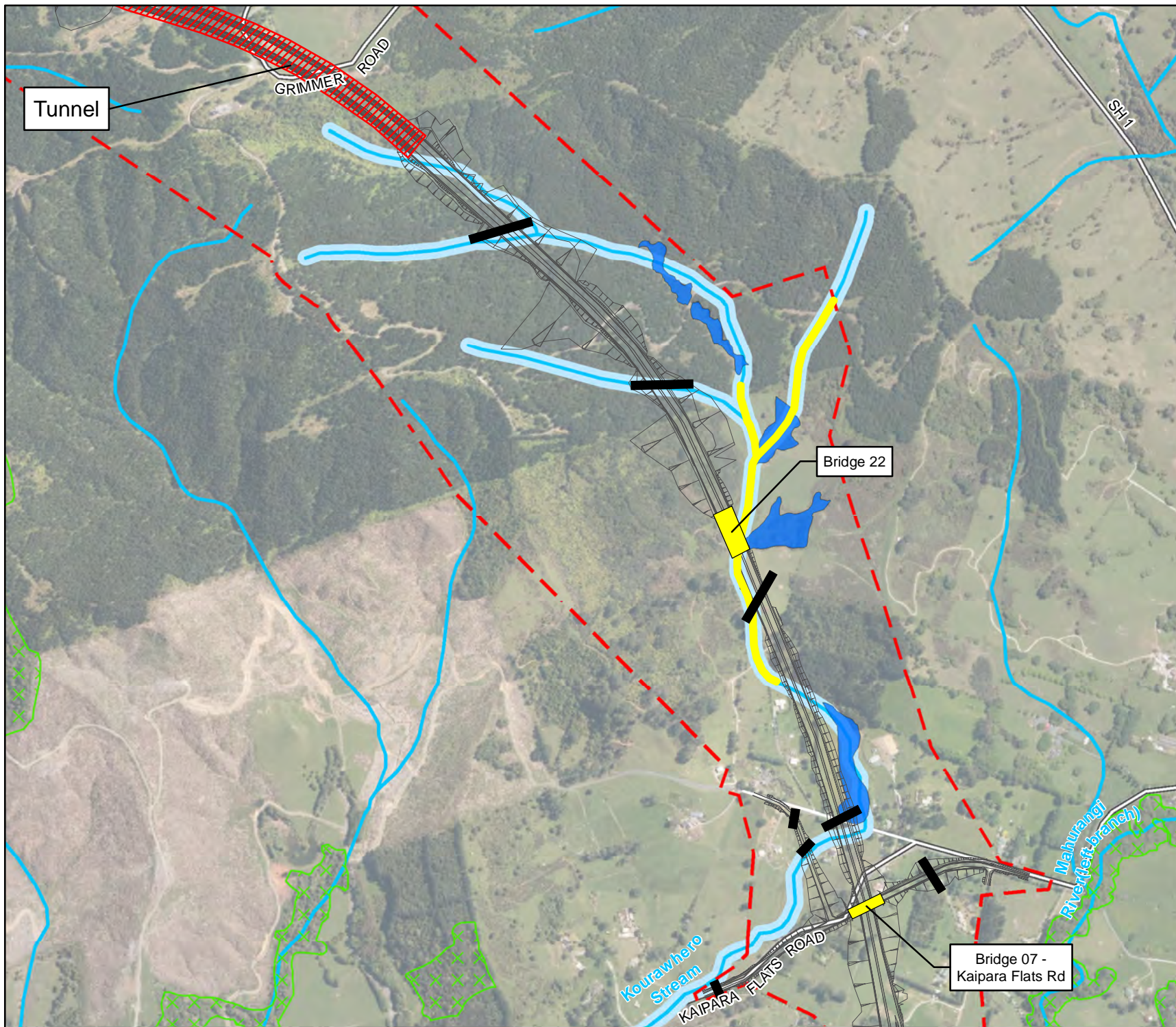
Conditions - Map 16



WARKWORTH TO WELLSFORD

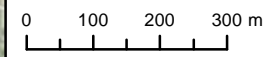
BRIDGE STRUCTURES IN WATERCOURSES





- - - Designation boundary
- Indicative Alignment
- Indicative bridge
- Kourawhero Stream
- Kourowhero Stream Section to be bridged
- Culvert
- Wetland complex
- Watercourse
- Significant ecological area -Terrestrial

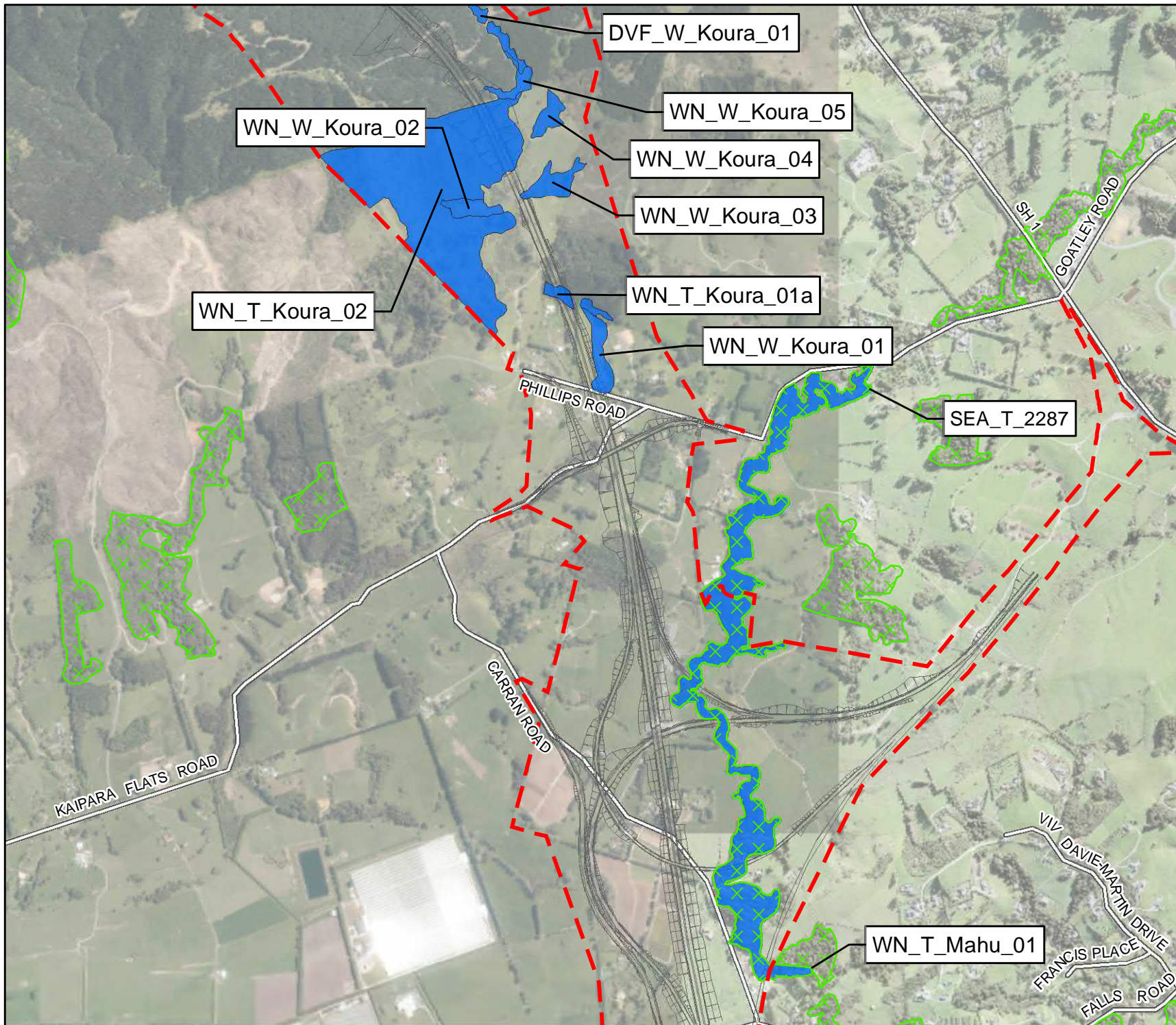
Conditions - Map 17



WARKWORTH TO WELLSFORD

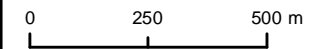
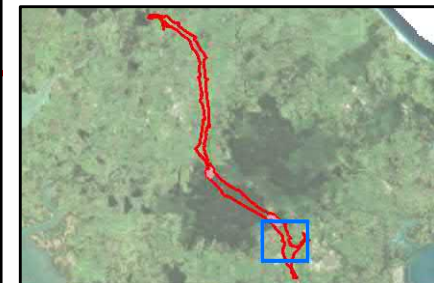
ECOLOGICAL SITES





- Indicative Alignment
- Ecological sites
- ⋮ Designation boundary
- ⊗ Significant ecological area - Terrestrial

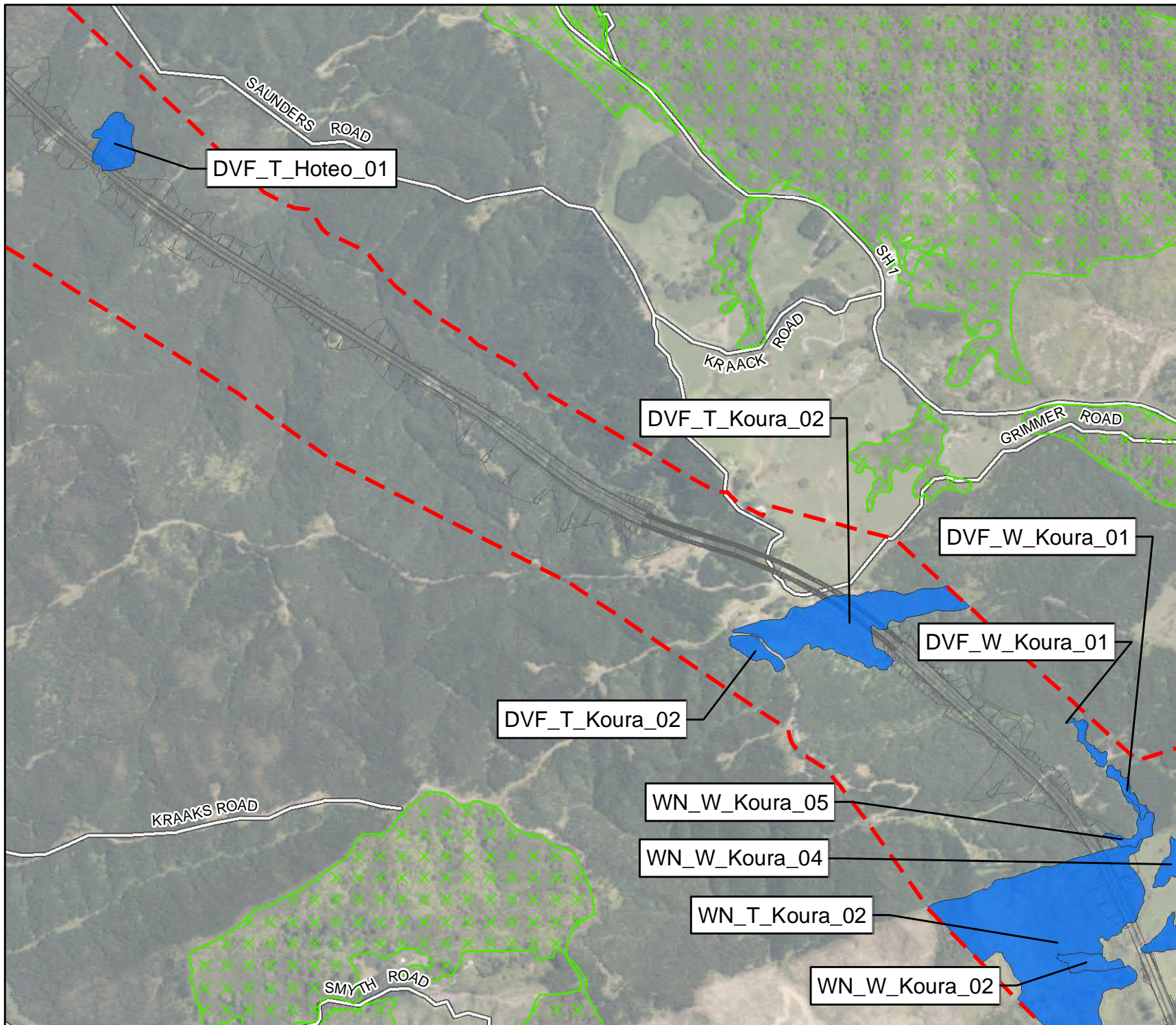
Conditions - Map 18



WARKWORTH TO WELLSFORD

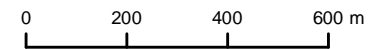
ECOLOGICAL SITES





- Indicative Alignment
- Ecological sites
- Designation boundary
- Significant ecological area - Terrestrial

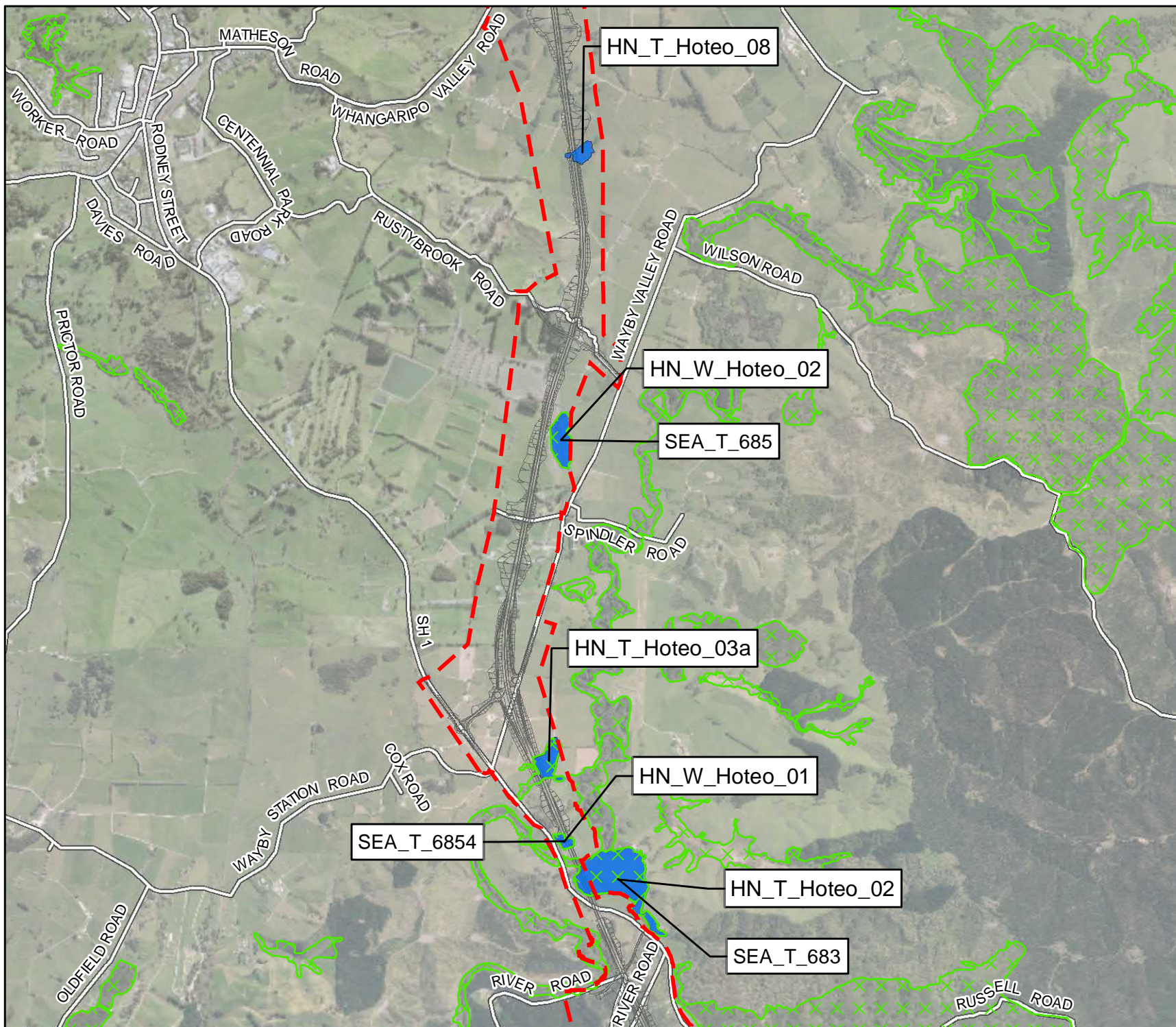
Conditions - Map 19



WARKWORTH TO WELLSFORD

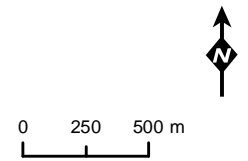
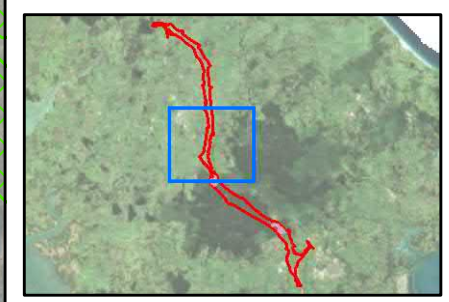
ECOLOGICAL SITES





- Indicative Alignment
- Ecological sites
- ▭ Designation boundary
- ⊗ Significant ecological area - Terrestrial

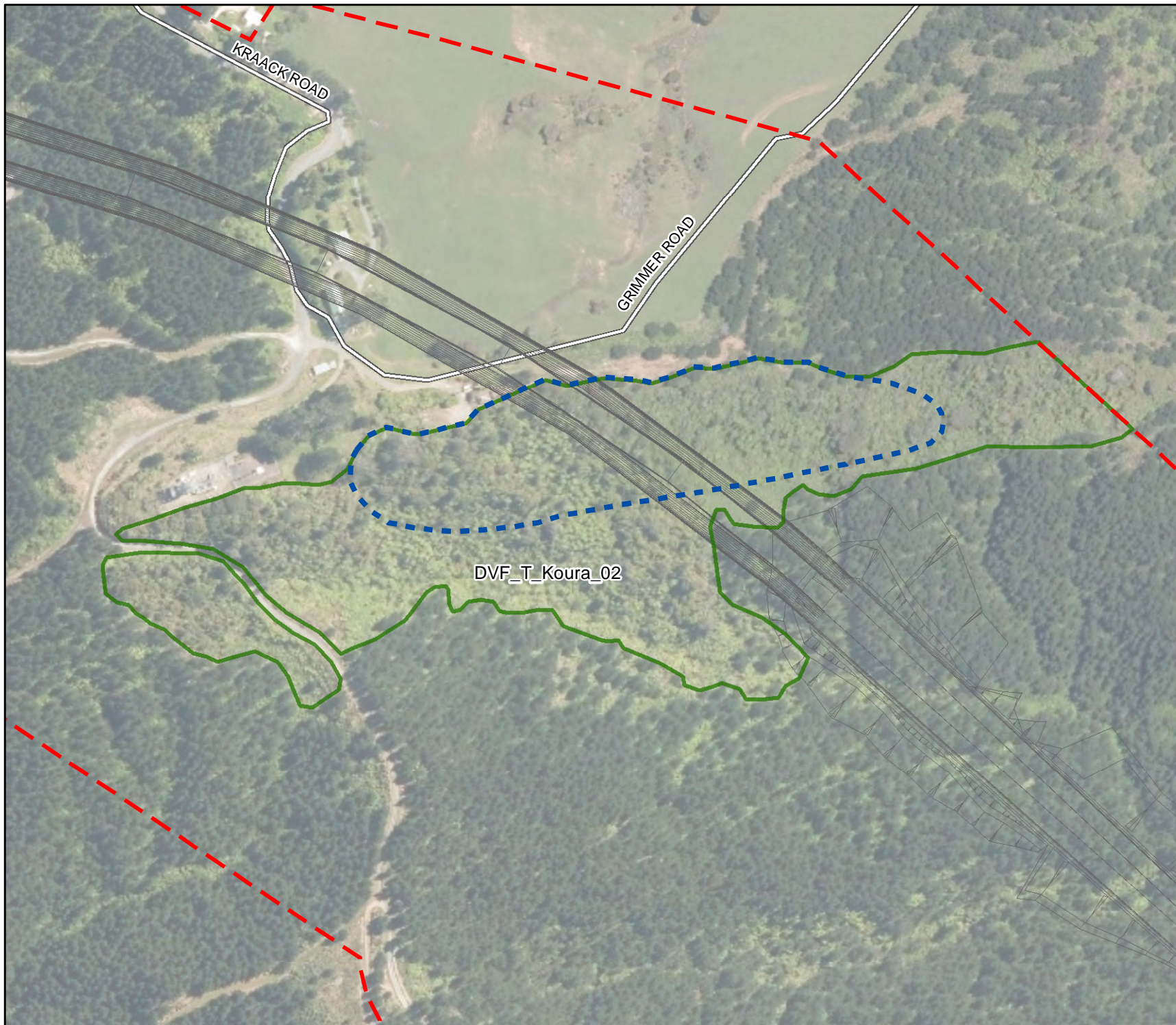
Conditions - Map 20



WARKWORTH TO WELLSFORD

ECOLOGICAL SITES





- Indicative Alignment
- - - Designation boundary
- ▭ Ecological site
- - - Escarpment

Conditions - Map 21



WARKWORTH TO WELLSFORD

ESCARPMENT FEATURE

