BOARD OF INQUIRY
Ara Tūhono – Pūhoi to Wellsford Road of National Significance:
Pūhoi to Warkworth Section

Please note: this decision copy has been track-changed with the application for NOTICE OF REQUIREMENT FOR ALTERATION TO DESIGNATION 6769 sought 9 January 2017

Final Report and Decision

of the Board of Inquiry into the

Ara Tūhono - Pūhoi to Wellsford Road of National Significance: Pūhoi to Warkworth Section

Volume 3 of 4: Conditions

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Road of National Significance: Pūhoi to Warkworth Section

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DESIGNATION CONDITIONS

Designations for the construction, operation and maintenance of a State highway, being the Ara Tūhono - Pūhoi to Wellsford Road of National Significance: Pūhoi to Warkworth Section.

Definitions	
Auckland Transport	The Chief Executive of Auckland Transport
Canopy Species	Kauri, tanekaha, puriri, totara, kahikatea, rimu, rewarewa and taraire trees
CHAMP	Cultural, Heritage and Archaeological Management Plan
CNVMP	Construction Noise and Vibration Management Plan
Construction Works	Activities undertaken to construct the Project, excluding Enabling Works
COPTTM	NZ Transport Agency Code of Practice for Temporary Traffic Management
CTMP	Construction Traffic Management Plan
dBA	A unit of sound level which has its frequency characteristics modified by a filter (C-weighted) so as to account for the non-linear frequency response of the human ear at high noise levels (typically greater than 100 decibels).
dbh	Diameter at breast height, being diameter measured at 1.4 m above ground level
Enabling Works	Preliminary activities, including such things as geotechnical investigations (including access for such investigations), sealing roads, and establishment of mitigation measures (such as earth bunds and planting)
Heavy Vehicle	A motor vehicle having a gross laden weight exceeding 3500 kg
Heritage New Zealand	Heritage New Zealand Pouhere Taonga
Iwi Advisor	The advisor (or other nominated kaitiaki) appointed by Hōkai Nuku in accordance with Condition D7
KDBP	Kauri Dieback Biosecurity Plan
KQA	Kauri Quarantine Area
Manager	Manager Major Infrastructure Projects, Auckland Council (or the manager responsible for administering designations with the Project Area), or, in the appropriate context of a condition the

	Team Leader.
NZS6803:1999	New Zealand Standard 6803:1999 "*Acoustics – Construction Noise*"
PPF	Protected Premises and Facilities, as defined in New Zealand Standard 6806:2010 "*Acoustics – Road-traffic noise – New and altered roads*"
Project	The construction, maintenance and operation of the Ara Tūhono Pūhoi to Wellsford Road of National Significance: Pūhoi to Warkworth section
SCP	Stakeholder and Communications Plan
SSTMP	Site Specific Traffic Management Plan
Team Leader	Auckland Council Team Leader Compliance and Monitoring – Northern Resource Consenting and Compliance (Orewa) or the person subsequently exercising those functions and powers
ULDF	Urban Landscape Design Framework
ULDSP	Urban Landscape Design Sector Plan

General

D1 From the time of opening, the Project shall provide grade-separated southbound vehicle access onto and northbound egress off the Project road between Pūhoi Road and the Johnstone's Hill tunnels. The design of the Project shall not preclude future access to the north of Pūhoi in the vicinity of Pūhoi Road.

D2A A viaduct shall be constructed using a construction method and location that minimises the effects on kauri in the area shown on Appendix A.

D2B The viaduct over the Pūhoi River shall be constructed so that the viaduct is no further west than the line marked A to B as shown on Appendix D.

D3 As soon as practicable following completion of construction of the Project, 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, maintenance and mitigation of effects of the State highway.

D4 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.

D5 Conditions D6 to D70 relate to construction of the Project and only apply to construction activities. Once construction of the Project is complete these conditions, unless otherwise specified in a condition, will no longer apply and can be removed.

D5A On completion of the Project, the pre-cast yard and associated activity areas shall be returned to its former land use (See condition D70).

Network Utilities

D5B The Requiring Authority shall ensure that construction work does not adversely impact on the safe and efficient operation of network utilities. The scope and timing of necessary utility relocation and protection works shall be developed and agreed between NZTA and network utility providers to mitigate any safety hazards and provide cost efficiency for the required works.

Stakeholder and Communication Plan

D6 Prior to the commencement of Construction Works, the Requiring Authority shall prepare a Stakeholder and Communications Plan (SCP) that sets out the procedures detailing how the public and stakeholders (including but not limited to the owners of properties adjoining or close to the Designation) will be communicated with throughout the construction period.

The purpose of the SCP is to provide the framework for:

(a) Informing the community of construction progress, including proposed hours of operation outside normal working hours and Project contact details;

(b) Engaging with the community in order to foster good relationships and to provide opportunities for learning about the Project;

(c) Providing early information on key Project milestones;

(d) Identifying stakeholders such as educational facilities (including Mahurangi College), iwi and hapu groups, community groups, business groups, residents organisations, Auckland Council, Watercare Services Limited, and local board; and

(e) Establishing Community Liaison Groups.

D6A The Requiring Authority shall provide a draft SCP to the Manager and the Iwi Advisor for comment at least 30 working days prior to the commencement of Construction Works. The Requiring Authority shall consider any comments received from the Manager and Iwi Advisor when finalising the SCP.

D6B The Requiring Authority shall implement the SCP for the duration of the Construction Works.

D6CA At all times during construction work, the Requiring Authority shall maintain a permanent register of any complaints received alleging adverse effects from, or related to, the exercise of this designation. The register shall include:

(a) the name and address or phone number of the complainant (if supplied);

(b) identification of the nature of the complaint;

(c) location, date and time of the complaint and of the alleged event;

(d) weather conditions at the time of the complaint (as far as practicable), including wind direction;

(e) the outcome of the Requiring Authority's investigation into the complaint;

(f) measures taken to respond to the complaint; and

(g) any other activities in the area, unrelated to the Project that may have contributed to the complaint.

D6CB The Requiring Authority shall respond to any complaint within 48 hours of the complaint, except where urgency is indicated, in which case the Requiring Authority shall use its best endeavours to respond within 2 hours;

D6CC The Requiring Authority shall also maintain a record of its responses and any remedial actions undertaken, such record to also contain the responses and actions taken under Conditions RC10CA – RC10D;

D6CD This record (to be included in the register) shall be maintained on site and shall be made available to the Team Leader, upon request. The Requiring Authority shall provide the Team Leader with a copy of the complaints register every month.

D6D The obligations in Condition D6CA to D6CD shall continue for 6 months following the Project officially opening to general public traffic. Any complaints received after this period shall be managed by the Requiring Authority in accordance with its standard complaints procedures.

Iwi Advisor

D7 At least 12 months prior to commencement of Construction Works, the Requiring Authority shall request that Hōkai Nuku (being comprised of the

representatives for Ngāti Whatua, Ngāti Whatua o Kaipara, Te Uri o Hau, and Ngāti Manuhiri) appoint an Iwi Advisor or other nominated kaitiaki (together the Iwi Advisor) to undertake the roles and responsibilities as set out in these conditions.

D8 Where no Iwi Advisor is appointed by Hōkai Nuku within 6 months prior to Construction Works commencing or where at any time the appointed Iwi Advisor is unavailable or unwilling to undertake their roles and responsibilities set out in these conditions, the Requiring Authority shall seek the advice of Hōkai Nuku prior to commencing an activity where the Iwi Advisor's input would otherwise be required and shall have regard to any advice provided by Hōkai Nuku.

D9 The Requiring Authority shall invite the Iwi Advisor to provide cultural indicators covering traditional association, mahinga kai and cultural stream health measures. The Requiring Authority shall have regard to any cultural indicators provided in the preparation of any management plan required under these conditions.

Construction Noise and Vibration

Noise Criteria

D10 Construction noise shall as far as practicable comply with the following criteria in accordance with NZS6803:1999:

(a) Residential receivers:

	Time	**dB $L_{Aeq(T)}$**	**dB L_{Amax}**
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 $L_{Aeq(T)}$**
0730-1800	70
1800-0730	75

Notes:

"(T)" is a representative assessment duration between 10 and 60 minutes.

Measurement and assessment of construction and air blast noise shall be undertaken in accordance with NZS6803:1999.

Where the criteria set out above cannot be practicably met, the process in Condition D13 shall be adopted.

D11 Air blast noise shall comply with a peak sound level of 120dBA at 1 metre from the most exposed façade of any occupied building.

Vibration Criteria

D12 Construction vibration shall as far as practicable 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 German Standard DIN 4150-3:1999 "Structural Vibration Part 3: Effects of vibration 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).*

Where the criteria set out above cannot be practicably met, the process in Condition D13 shall be adopted.

Construction Noise and Vibration Management Plan

D13 The Requiring Authority shall prepare a Construction Noise and Vibration Management Plan (CNVMP) to identify how Conditions D10 to D12 will be met. The CNVMP shall identify the best practicable option for management and mitigation of all construction noise and vibration, including where full compliance with the criteria in Conditions D10 to D12 cannot be achieved. The CNVMP shall, at a minimum, include the information required by NZS 6803:1999, Annex E2. The term 'noise' in that document shall be interpreted as 'noise and vibration'. The CNVMP shall be submitted to the Team Leader for certification prior to commencement of the works (being both Construction and Enabling Works).

D13A The Requiring Authority shall implement the CNVMP for the duration of the Construction Works.

D14 If measured or predicted vibration levels exceed the Category A criteria in Condition D12 above, then a suitably qualified expert shall be engaged to assess and manage construction vibration to comply with the Category A criteria as far as practicable.

D15 If measured or predicted vibration levels exceed the Category B criteria in Condition D12 above, then monitoring of vibration levels at those buildings shall be undertaken by a suitably qualified expert to identify, assess and manage any vibration effects on those buildings.

D16 Blasting shall only occur between 9.00am – 5.00pm Monday to Saturday. Pre-warning sirens shall be used prior to any blast.

D16a The operation of the pre-cast yard at Woodcocks Road shall be limited to the following hours:

	Time
Weekdays	0730-1800*
Saturdays	0800-1600
Sundays and Public Holidays	No Work

* The Requiring Authority may move bridge beams, heavy machinery, and other items moveable only at night in and out of the pre-cast yard outside these weekday times.

Construction Traffic

General construction traffic conditions

D16A During construction of the Project, the Requiring Authority shall ensure that Project-related Heavy Vehicles do not use:

(a) Falls Road;

(b) Perry Road;

(c) The driveway on Lot 2 DP 171314 (CT NA104C/827) east of the designation boundary; and

(d) The section of Woodcocks Road from State Highway 1 to Morrison Drive (adjacent to Mahurangi College), between the hours of 8:00 am to 9:00 am and 3:00 pm to 4:00 pm on school days.

D17 The Requiring Authority shall manage construction traffic and construction parking to:

(a) Protect public safety including the safe passage of pedestrians and cyclists;

(b) Minimise delays to road users;

(c) Minimise interruption to property access; and

(d) Inform the public about any potential impacts on the road network.

Construction Traffic Management Plan

D18 The Requiring Authority shall prepare a Construction Traffic Management Plan (CTMP) for the Project to identify how Conditions D16A and D17 will be met. The CTMP shall include the following:

(a) Details of traffic management activities and sequencing proposed for the Project;

(b) Methods for managing construction related traffic movements;

(c) A process for preparing Site Specific Traffic Management Plans; and

(d) Provisions to ensure that local traffic will not be held up by construction activities for an unreasonable period of time (such time period to be specified).

(e) Provisions for emergency services to have access along all local roads 24 hours per day, unless construction requires the temporary closure of a road, in which case, as part of the relevant SSTMP, an emergency action plan shall be developed and agreed with emergency services prior to any temporary closure so that an agreed access via an alternative route is available for the duration of that closure.

D19 At least 60 working days prior to commencement of Construction Works the Requiring Authority shall provide the CTMP to Auckland Transport for comment. The Requiring Authority shall consider any comments received from Auckland Transport when finalising the CTMP. If the Requiring Authority has not received

any comment from Auckland Transport within 20 working days of providing the CTMP, the Requiring Authority may consider that Auckland Transport has no comments.

D19A The Requiring Authority shall submit the CTMP to the Manager for comment. The Requiring Authority shall consider any comments received from Auckland Council when finalising the CTMP. If the Requiring Authority has not received comments from Auckland Council within 20 working days of providing the CTMP, the Requiring Authority may consider that Auckland Council has no comments.

D19B The Requiring Authority shall implement the CTMP for the duration of the Construction Works.

Site Specific Traffic Management Plans

D20 In compliance with the CTMP, the Requiring Authority shall prepare a Site Specific Traffic Management Plan (SSTMP) or Plans where any Project construction activity varies the normal traffic conditions of any public road. The purpose of the SSTMP(s) is to identify specific construction methods to address the particular circumstances, local traffic and community travel demands within the area covered by the SSTMP.

D21 *[This condition is intentionally left blank]*

D22 The SSTMP(s) shall comply with the version of the NZ Transport Agency Code of Practice for Temporary Traffic Management (COPTTM) which applies at the time the relevant SSTMP is prepared. Where it is not possible to adhere to this Code, the COPTTM's prescribed Engineering Exception Decision (EED) process shall be followed.

D23 A SSTMP shall be prepared in accordance with Conditions D20 to D22 for:

(a) Moirs Hill Road between the western extent of the Project and State Highway 1. This SSTMP shall:

i. provide for pedestrian, cyclist and equestrian safety;

ii. establish a liaison group with local residents;

iii. be developed in consultation with the owner(s) of 70 Moirs Hill Road and in particular to ensure that accesses are formed to each of the three gates to allow a vehicle to pull off the road to be clear of the traffic lanes; and;

iv. detail temporary speed limits (no greater than 50 km/hr) for construction traffic during construction of the Project.

(b) The vicinity of the intersection of the property access on Lot 1 DP 321568 and SH1, if the property access on Lot 1 DP 321568 is to be used for construction vehicles. This SSTMP shall:

i. include specific assessment of property access for 1488 State Highway 1;

ii. be developed in consultation with the owner(s) and occupiers(s) of 1488 SH 1;

iii. provide for turning bays, acceleration and deceleration facilities in and out of the property access on Lot 1 DP 321568;

iv. require the Requiring Authority to erect signs at either end of the construction access road on Lot 1 DP 321568, advising that no engine braking shall occur along that access; and

v. Require that heavy construction vehicles use the construction access road only between the hours of 0730 to 1800 Monday to Saturday excluding Sundays and public holidays except for any heavy vehicle movements or deliveries which cannot be practicably made during these hours.

(c) The Hill Street intersection (being the intersections of State Highway 1, Hill Street, Elizabeth Street, Matakana Road, Sandspit Road and Millstream Place). This SSTMP shall include specific times for the prohibition of heavy construction traffic using the Hill Street intersection, based on the following periods:

i. Weekday morning peaks;

ii. Weekday afternoon peaks;

iii. Late Friday afternoons and evenings;

iv. Saturday mornings;

v. Sunday afternoons; and

vi. Public Holiday Monday afternoons.

(d) Carran Road and Kaipara Flats Road from Woodcocks Road to SH1, unless construction traffic is specifically prohibited from using this route.

(e) The proposed pre-cast concrete yard at Woodcocks Road for inbound and outbound traffic so that large vehicles with trailers (except for vehicles carrying large loads that require specific traffic management measures to ensure safe movements) can access the site without their swept paths encroaching into traffic lanes or running over verges, together with additional safety requirements should the access become obscured by fog.

D23A At least 5 days prior to the applicable construction traffic commencing, the Requiring Authority shall provide the SSTMP to the relevant Road Controlling Authority for approval.

D23B The Requiring Authority shall implement each SSTMP for the duration of the Construction Works to which the particular SSTMP applies.

Other

D23C The Requiring Authority shall ensure vehicle access from the existing State Highway 1 is appropriate for the operation of a farm is retained to Lots 1 and 2 DP50685 and Lot 1 DP 74814, at all times during Construction Works unless otherwise agreed with the owner.

D24 The Requiring Authority shall ensure that adequate provision is made on State Highway 1 at the junctions with Pūhoi Road and also with Moirs Hill Road for set down areas to enable bus passengers to board and alight safely.

D25 *[This condition is intentionally left blank]*

Urban and Landscape Design

Urban and Landscape Design Framework

D26 The Requiring Authority shall design and construct the Project to appropriately integrate the permanent works into the surrounding landscape and topography, having regard to the local landscape character and contexts along the highway route.

D27 The Requiring Authority shall prepare an Urban and Landscape Design Framework (ULDF) to identify how Condition D26 will be met. The purpose of the ULDF shall be to ensure the integration of urban and landscape design with the overall design of the Project. The ULDF shall be consistent with:

(a) The urban design and landscape themes of the Northern Gateway Toll Road;

(b) Bridging the Gap: NZTA Urban Design Guidelines 2013;

(c) NZTA P39 Standard Specification for Highway Landscape Treatments 2013 (or any subsequent updates); and

(d) Mitigation required by other conditions of the Project designation and resource consents.

D28 The ULDF shall ensure the cultural footprint of mana whenua is acknowledged including the connections between Te Koroto and Nga Pā o Te Hēmara Tauhia are maintained at all times where practicable (to be identified in liaison with the Iwi Advisor).

D29 The ULDF shall be prepared by a suitably qualified urban designer and landscape architect in consultation with the wider Project design team, and in collaboration with the Iwi Advisor.

D30 The Requiring Authority shall provide the draft ULDF to the following stakeholders at least 30 working days prior to submitting it to the Manager under Condition D32, by mailing to:

(a) all owners and occupiers (if different) of:

i. properties of Slowater Lane, Pūhoi;

ii. properties of Pūhoi Close;

iii. 60 Pūhoi Road, Pūhoi;

iv. 46 Saleyards Road, Pūhoi;

v. 815 SH 1, Pūhoi;

vi. 1711 SH 1, Warkworth;

vii. 62A Viv Davie-Martin Drive, Warkworth;

viii. 62B Viv Davie-Martin Drive, Warkworth;

ix. 77B Viv Davie-Martin Drive, Warkworth;

x. 78 Viv Davie-Martin Drive, Warkworth;

xi. 78B Viv Davie-Martin Drive, Warkworth;

xii. 75 Wyllie Road, Warkworth;

xiii. 221 Wyllie Road, Warkworth;

xiv. 63 Perry Road, Warkworth;

xv. 112 Perry Road, Warkworth;

xvi. 122 Perry Road, Warkworth;

xvii. 124 Perry Road, Warkworth;

xviii. 40 Valerie Close, Warkworth;

xix. 83 Valerie Close, Warkworth;

xx. 123 Valerie Close, Warkworth;

xxi. 141 Carran Road, Warkworth;

xxii. 346 Woodcocks Road, Warkworth;

xxiii. 372 Woodcocks Road, Warkworth;

xxiv. 438 Woodcocks Road, Warkworth;

xxv. 111 Kaipara Flats Road, Warkworth;

xxvi. Lot 3 DP 418913;

xxvii. Asia Pacific International Group (NZ) Limited at its registered office; and

xxviii. Any other occupied dwellings within 500m of the designation boundary.

(b) Manager Built Environment Auckland Council;

(c) Pūhoi Landcare Group Incorporated;

(d) Mahurangi Action Incorporated;

(e) Slowater Lane and Pūhoi Close Residents Association; and

(f) Pūhoi Close Residents - households from number 12, 16, and 24 Pūhoi Close.

D31 If the Requiring Authority has not received any comments from the stakeholders noted in Condition D30 within 20 working days of providing them the ULDF under Condition D30, the Requiring Authority may consider that the stakeholder concerned has no comments.

D32 The Requiring Authority shall submit the ULDF to both the Manager and the stakeholders set out in D30(a) – (f) in hard copy paper form for certification at least 40 working days prior to the commencement of Construction Works. The certification will confirm that the ULDF is consistent with Condition D27. The Requiring Authority shall include any comments from the stakeholders noted in Condition D30 in its submission of the ULDF to the Manager, along with an explanation of where and why any comments have not been incorporated into the ULDF. If the Requiring Authority has not received any response (short of approval) from the Manager within 40 working days of submitting the ULDF, the Requiring Authority will be deemed to have certification and can commence preparation of the Urban and Landscape Design Section Plans.

Urban and Landscape Design Sector Plans

D33 Following certification of the ULDF, the Requiring Authority shall prepare an Urban and Landscape Design Sector Plan (ULDSP) for each sector of the Project in compliance with the ULDF.

D34 The purpose of the ULDSPs is to implement the ULDF through integrating the Project's permanent works, including areas of earthworks, structures, and mitigation works for landscaping, visual screening for residential properties, heritage, noise attenuation (if any) and ecology, into the surrounding landscape and topography, having regard to the local landscape character and contexts along the highway route.

D35 *[Moved – now Condition D38C]*

D36 ~~Each ULDSP shall include:~~

Each ULDSP may be staged in accordance with Conditions D38, D38AA and D38C for the construction and permanent phases of the Project and shall include (where relevant):

(a) Detailed design drawings and information for the urban design and landscaping elements, including:

i. Form, articulation and finish of all bridge elements;

ii. Pedestrian and cycle facilities on local roads;

iii. Highway furniture, including road safety barriers, signage gantries, light standards;

iv. Retaining walls and noise walls (if any);

v. Treatment of cut and fill batters, including benching;

vi. Stormwater measures, including wetlands.

(b) Context sensitive design features to mark the entrances to Pūhoi and Warkworth. Feature elements shall be determined in conjunction with the Iwi Advisor, and in consultation with Auckland Council and Auckland

Transport and shall reflect the history and character of the adjacent settlements (Pūhoi and Warkworth);

(c) Landscape design details within the designation, including:

i. Landscaping treatments (landform and planting), including rehabilitation of all areas used for temporary work and construction yards;

ii. Pest removal, weed control and identification of vegetation to be retained;

iii. Proposed planting including – plant species (including consideration of native food-bearing species), mixes (canopy and succession species), spacing/densities (which may incorporate any planting required under Conditions D59 and D60), and sizes (at the time of planting);

iv. Integration of riparian planting required pursuant to the resource consents for the Project;

v. Provision or enhancement of wildlife corridors where practicable;

vi. Planting programme – the staging of planting in relation to the construction programme and the maintenance regime; and

vii. Detailed specifications in accordance with NZTA P39 Standard Specification for Landscape Treatments.

D36A When preparing each ULDSP, the Requiring Authority shall consider the suitability of sourcing planting raised via the open-ground forestry method, including availability and cost-effectiveness.

D37 Each ULDSP shall (where relevant):

(a) Where bridges will be viewed from afar or below (eg from Pūhoi River and from Woodcocks Road), pay particular attention to the visual amenity of the structure as well as the design of the underside of the structure, including having regard to the utility requirements and ongoing maintenance.

(aa) Optimise views (subject to the obligation to mitigate noise) from bridges by appropriate barrier design;

(b) Employ techniques to ensure the cut rock face resembles natural fractures where appropriate;

(c) Design any terracing and benching to break up their faces to reduce visual dominance where appropriate, including being irregular and responding to the natural bedding layers of the base material;

(d) Minimise the visual impact of:

i. roadside drainage channels through design, location and planting;

ii. cuttings and fill embankments through appropriate grading to integrate with the surrounding landscape (where practical) and landscaping, avoiding “engineered” looking landforms and retention and incorporation of naturally occurring landforms and features within the area of earthworks (eg rock outcrops, watercourses, ridges); and

iii. spoil disposal areas through appropriate contouring to appear as natural as possible in keeping with the surrounding landscape characteristics.

(e) address the compatibility of finished land cover with the surrounding land cover;

(f) Give consideration to planting replacement vegetation (as required by Condition D59) in the general location from where it was removed.

D38 A specific construction phase ULDSP shall be prepared for each of the following areas:

(a) the area on the eastern side of the Pūhoi River on (CT NA37A/148), with a focus on establishing visual screening of ~~any~~ the ~~Project and~~ construction yard for nearby residents as soon as practicable. This ULDSP shall be developed in consultation with a suitably qualified stormwater engineer to ensure appropriate consideration is given to the identified floodplain.

~~(b) the designation north of Woodcocks Road, with a focus on establishing a visual screen of the Project (including the intersection of the Project with the existing State Highway 1) for nearby residents in Viv Davie-Martin Drive.~~

(c) any construction yard within 200m of a residential dwelling, with a focus on establishing appropriate visual screening.

~~(d) For the land situated between the Project and the right branch of the Mahurangi River, extending from the pre-cast yard 12 at Wyllie Road to construction yard 11. The ULDSP shall ensure the proposed access track becomes inaccessible to motor vehicles and motorcycles and shall include:~~

~~i. The removal of surfacing from any access track and its rehabilitation as far as practicable;~~

~~ii. Dense planting which may include replacement planting required under condition D59.~~

~~(e) For the viaducts spanning the Okahu Inlet together with both approach embankments.~~

D38A Each ULDSP shall be prepared by a suitably qualified urban designer and landscape architect in collaboration with the Iwi Advisor and a suitably qualified ecologist.

D38AA A specific permanent phase ULDSP shall be prepared for each of the following areas:

(a) the area on the eastern side of the Puhoi River on (CT NA37A/148), with a focus on establishing visual screening of the Project and construction yard for nearby residents as soon as practicable. This ULDSP shall be developed in consultation with a suitably qualified stormwater engineer to ensure appropriate consideration is given to the identified floodplain.

(b) the designation north of Woodcocks Road, with a focus on establishing a visual screen of the Project (including the intersection of the Project with the existing State Highway 1) for nearby residents in Viv Davie-Martin

Drive.

~~(c) any construction yard within 200m of a residential dwelling, with a focus on establishing appropriate visual screening~~

(d) For the land situated between the Project and the right branch of the Mahurangi River, extending from the ~~pre-cast yard at 12 Wyllie Road to construction yard 11~~ Kauri Eco-Viaduct to Wyllie Road. The ULDSP shall ensure the proposed access track becomes inaccessible to motor vehicles and motorcycles and shall include:
   i. The removal of surfacing from any access track and its rehabilitation as far as practicable;
   ii. Dense planting which may include replacement planting required under condition D59.

(e) For the viaducts spanning the Okahu Inlet together with both approach embankments.

Advice Note:
As outlined in Section 06 of the Ara Tuhono: Puhoi to Warkworth Section Urban and Landscape Design Framework, the specific permanent phase ULDSPs required by designation Condition D38AA may be integrated with the ULDSP prepared for each sector of the Project (designation Condition D33), so long as they specifically address the requirements of designation Condition D38AA

D38B The Requiring Authority shall provide a draft of each ULDSP for comment to the stakeholders noted in Condition D30(b)-(d), and the stakeholders noted in Condition D30(a) with views from a dwelling onto the Project sector to which that ULDSP applies, at least 30 working days prior to submitting it to the Manager under Condition D38C. If the Requiring Authority has not received any comments from the stakeholders under this condition within 20 working days of providing them with the ULDSP, the Requiring Authority may consider that the stakeholder concerned has no comments.

D38C The Requiring Authority shall submit to the Manager for certification ~~each ULDSP at least 30 working days prior to Construction Works commencing in that sector.~~
   (a) Each specific construction phase ULDSP at least 20 ~~30~~ working days prior to the commencement of Construction Works commencing in that sector to which the particular ULDSP applies.
   (b) Each specific permanent phase ULDSP required in accordance with Condition D38AA, within 12 months of Construction Works commencing in that sector, or prior to the construction of permanent structures or earthworks for permanent cut and fill batters in that sector.
   (c) The ULDSP for each sector of the Project required in accordance with Condition D33, within 12 months of Construction Works commencing in that sector, or prior to construction of permanent structures or earthworks for permanent cut and fill batters in that sector.

At the same time that each ULDSP is submitted to the Manager, a copy of the submitted ULDSP will be provided to the stakeholders whose comments were sought pursuant to Condition D38B.

The certification will confirm that each specific construction phase ULDSP is consistent with the requirements of Section 5.10 of the ULDF and Condition D38(a) and (c) and each permanent phase ULDSP is consistent with the ULDF

and Conditions D36 and D37. The Requiring Authority shall note any comments received from the stakeholders who provided comments in accordance with Condition D38B in its submission of each ULDSP to the Manager, along with an explanation of where and why any comments have not been incorporated into that ULDSP.

If the Requiring Authority has not received a response (short of approval) from the Manager within 20 working days of submitting a specific construction phase ULDSP required under Condition D38 and 30 working days of submitting a permanent phase ULDSP required under Condition D33 or 0D38AA, the Requiring Authority will be deemed to have certification and can commence works.

D39 *[This condition is intentionally left blank]*

D40 *[This condition is intentionally left blank]*

D41 The Requiring Authority shall implement the ULDSPs.

Miscellaneous landscape conditions

D42 Prior to commencement of Construction Works on the construction access road located at Lot 1 DP 321568 (CT 398348), the Requiring Authority shall construct a 2.5 m high solid timber fence (or similar) for screening purposes on the shared boundary between Lot 2 DP 151082 (CT NA90A/427) and Lot 1 DP 321568 (CT 398348).

D42A The existing macrocarpa located on the banks of the Pūhoi River on the western boundary at 517 State Highway 1 within the designation shall be retained for the duration of their natural life or until their state of health or safety considerations necessitate their removal either as a group or individually.

D42B When finalising the detailed design for the Moirs Hill Road widening and realignment, the Requiring Authority shall minimise removal of the boundary trees on and adjacent to Lot 1 DP 118653 (CT NA68/91) where practicable.

D42C Lighting of any yard, compounds or office complex located within the designation shall be designed to avoid light spill beyond the designation. Glare from any lighting shall be kept below the recommendations given in AS 4282 – 1997 “Control of the Obtrusive Effects of Outdoor Lighting” Tables 2.1 and 2.2.

Ecology

Bird breeding season

D42D The clearance of vegetation (excluding pasture) shall be conducted outside of the bird breeding season (September to December inclusive).

Bats

D43 The Requiring Authority shall engage a suitably qualified expert to conduct bat habitat identification and surveys within the designation between New Zealand Transverse Mercator coordinates (1747939, 5960828) and (1746707, 5965552) in the summer months immediately before construction in that area of the Project.

D44 Upon identification of any roosting sites, the Requiring Authority shall ensure clearance of these sites shall only occur from 14 February to 1 May.

D45 On the night prior to clearance of any potential roosting sites, a suitably qualified ecologist shall survey the relevant area for any active roosting sites. The Requiring Authority shall leave standing any tree identified as an active roosting site, until the roosting site is confirmed to be vacant by the suitably qualified expert.

D46 The Requiring Authority shall, where practicable, enhance bat habitat by retaining large edge pine trees and enhance roosting and foraging opportunities in the long-term, including the provision of artificial bat habitat (ie bat roost boxes) in vegetation to be retained or under viaducts or bridges, as recommended by a suitably qualified ecologist.

Land snails, copper skinks, forest geckos and Hochstetter's frogs

D47 Prior to the commencement of Construction Works, a suitably qualified ecologist shall check likely areas of:

(a) land snail (*Amborhytida dunniae*);

(b) copper skink;

(c) forest gecko; and

(d) Hochstetter's frog (*Leiopelma aff. hochstetteri*) habitat

within the designation affected by the proposed works for the presence of these species.

D47A Any land snails (*Amborhytida dunniae*), copper skinks, forest geckos, or Hochstetter's frogs (*Leiopelma aff. hochstetteri*) found during the checks required by Condition D47 shall be captured and relocated to a site:

(a) that has been subject to predator control measures for at least six (6) months prior to the first transfer and will receive ongoing predator control for three years after the last transfer;

(b) deemed appropriate by a suitably qualified ecologist (ie in fauna relocation); and

(c) approved by the Manager.

D47AA Any land snail, copper skink, forest gecko, or Hochstetter's frog capture and relocation shall be planned and supervised by a suitably qualified ecologist (ie in fauna relocation).

D47B Where practicable, land snails (*Amborhytida dunniae*) shall be relocated along with their leaf-litter habitat. Land snails captured within 30 metres of any kauri shall not be relocated to a site within 30 metres of any kauri.

Advice Note: land snail, copper skink, forest gecko, and Hochstetter's frog capture and relocation will be carried out in accordance with a Wildlife Act Authority.

D48 *[This condition is intentionally left blank]*

D49 Immediately prior to construction, a suitably qualified ecologist shall check likely areas of fernbird habitat within the designation, in the vicinity of Okahu Inlet, for the presence of fernbird and shall also check likely habitat areas of other At

Risk or Threatened birds (as defined in the current version of the New Zealand Threat Classification System) within proposed Construction Works areas for the presence of those bird species.

D49A Unless deemed unnecessary by a suitably qualified ecologist, any fernbird found during the pre-construction check required by Condition D49 shall be captured and transferred to a site:

(a) that has been subject to predator control measures for at least six (6) months prior to the first transfer and will receive ongoing predator control for three years after the last transfer;

(b) deemed appropriate by a suitably qualified ecologist (ie in fauna relocation); and

(c) approved by the Manager.

D49B Any fernbird capture and relocation shall be planned and supervised by a suitably qualified ecologist (ie in fauna relocation).

Advice Note: fernbird capture and relocation will be carried out in accordance with a Wildlife Act Authority.

D50 *[This condition is intentionally left blank]*

At Risk or Threatened flora and fauna discovery protocol

D50A In the event that a suitably qualified ecologist 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 specifically covered by Conditions D47 to D49B above, the Requiring Authority shall immediately notify the Local Area Manager, Department of Conservation. The Requiring Authority shall have regard to any advice provided by the Department of Conservation in determining the appropriate course of action to be undertaken with respect to the discovered flora or fauna (eg further surveys and/or capture and relocation).

Advice Note: The Requiring Authority will comply with all relevant provision of the Wildlife Act 1953

D51 *[This condition is intentionally left blank]*

Vegetation

D52 Where vegetation is removed within the designation on Lot 5 DP 113847 (CT NA64C/291), the Requiring Authority shall, where practicable, retain the understory of the forest under the viaduct, and plant species that are tolerant to the applicable light conditions on the exposed edge of the remaining vegetation.

D52A Immediately following the removal of the vegetation necessary for construction of the Project on Lot 5 DP 113847 (CT NA64C/291), the Requiring Authority shall erect a fence (7 wire post and batten) along the exposed edge of the native forest on that Lot.

D53 Prior to any Construction Works commencing, the Requiring Authority shall:

(a) erect a fence around the kauri forest stand within the designation to the west of the existing State Highway 1 on Sec 65 Blk III Waiwera SD (CT NA3D/989) and Pt Sec 3 Blk III Waiwera SC (CT NA797/46) (as

identified in the plan attached at Appendix B), to prevent access by the contractor.

(b) erect fences to protect all totara trees carrying green mistletoe (*Ileostylus micranthus*) within the designation in the vicinity of land to the west of the intersection of SH 1 and Mahurangi East Road.

(c) erect a fence around the vegetation on the eastern boundary of the designation within Lot 7 DP 113847 (CT NA64C/293) and Lot 8 DP 113848 (CT NA64C/294) (as identified in the plan attached at Appendix C) to prevent access to areas of native vegetation within these Lots during construction.

(d) erect a fence along the western boundary of Okahu Creek Scenic Reserve (Section 64 BlkIII Waiwera SD) to prevent access to areas of native vegetation within this Reserve during construction.

(e) cordon off with flagging tape the base of the slope below any native orchid plants of the genus *Danhatchia*, as identified by a suitably qualified botanist, within the designation on Lot 1 DP 321568 (CT 398348) to avoid removal or damage to any native orchid. The flagging tape shall be removed on completion of Construction Works.

D54 *[This condition is intentionally left blank]*

D55 Prior to construction the Requiring Authority shall implement a high level of dust control (eg wind fences) to protect all totara trees in Condition D53(b) that carry green mistletoe. The Requiring Authority shall engage a suitably qualified botanist to monitor the efficacy of the dust suppression measures. Additional dust minimisation measures shall be implemented by the Requiring Authority where the suitably qualified botanist finds that dust is settling on the mistletoe. Fencing, wind protection and any additional dust minimisation measures shall be removed on completion of Construction Works.

D56 *[This condition is intentionally left blank]*

D57 *[This condition is intentionally left blank]*

D58 The Requiring Authority shall engage a suitably qualified botanist to identify and remove the colonies of short hair plume grass located within the designation in the vicinity of the Pūhoi Road/State Highway 1 intersection prior to construction activities in that area and shall conserve the grass in a nursery to be used as planting stock where practical in the landscaping phase of the Project.

D59 The Requiring Authority shall provide replacement planting for kauri, tanekaha, puriri, totara, kahikatea, rimu, rewarewa and/or taraire trees (Canopy Species) that will be removed within the designation as a result of the Project. The purpose of the replacement planting is to replace the trunk cross sectional area of each Canopy Species greater than 15 cm dbh that are lost due to the Project with an equivalent trunk cross sectional area of those species after 20 years of growth. For this purpose, the following process shall be undertaken by a suitably qualified ecologist:

Steps	Action	Formula to be applied
1.	Measure and record by species the dbh of the Canopy Species greater than 15 cm dbh that will be lost within the designation as a result of the Project.	None
2.	Calculate the basal area (x) lost for each tree.	$= x$ Where r = for each tree
3.	Group the results into species.	None
4.	Calculate the total basal area (tx) lost for each species.	tx = ∑x for each species
5.	Specify the size of the trees to be used for replacement planting.	None
6.	Calculate the expected basal area (y) of one replacement tree for each species after 20 years' growth based on the average growth rate of trees of that species in the area. If unavailable, growth rate data can be used from other similar areas.	= y Where r = for the tree in 20 years
7.	Calculate the number (n) of replacement trees to be planted to replace the total basal area lost for each species.	n =
8.	Identify the process to be adopted to ensure the replacement planting will be adequately established, including: 1. The location, mix of species, planting densities, size at planting and layout to ensure the new vegetation reflects the forest removed. 2. Appropriate successional planting to support and enhance establishment.	None

D60 The Requiring Authority shall undertake restoration planting of wetland vegetation. The planting shall be implemented on a 1:1 area ratio basis, to be based upon the area of wetland habitat (including artificial wetland habitat) lost due to construction of the Project, as calculated by a suitably qualified ecologist. The wetland restoration design shall:

(a) Identify the location and areas of planting within existing wetland areas within the designation adjacent to existing wetlands, where practicable and taking into account technical and safety considerations; and

(b) Identify the mix of eco-sourced species, planting densities, size at planting and layout to ensure the wetland vegetation reflects typical wetlands in the local area.

(c) Provide measures to ensure stock is excluded from the wetland(s).

D61 *[This condition is intentionally left blank]*

D62 No Project works are permitted on the area of land marked on Appendix D or Appendix E.

Kauri Dieback Biosecurity Plan

D63 At least 40 working days prior to any construction commencing within 30 metres of any kauri, the Requiring Authority shall prepare, in consultation with the Local Area Manager, Department of Conservation, and submit a Kauri Dieback Biosecurity Plan (KDBP) to Auckland Council Group Manager Biosecurity for approval. The KDBP shall apply to all areas in the designation within 30 metres of any kauri. The purpose of the KDBP is to set out the procedures to be used to prevent the introduction and/or spread of kauri dieback disease.

D63A The KDBP shall meet the purpose in Condition D63 and, as a minimum, shall consider the following:

Features that apply prior to construction commencing within 30 metres of any kauri

(aa) Training requirements for contractors and subcontractors on the KDBP procedures and obligations;

(a) Methods for testing and monitoring of all kauri in the designation for the presence of kauri dieback disease;

(b) A process for identifying and mapping:

i. All kauri within the designation that are not affected by kauri dieback disease ("Unaffected Kauri");

ii. All kauri within the designation that are affected by kauri dieback disease ("Affected Kauri");

iii. All kauri within the designation that are intended for removal as a result of the Project, and their status as Affected or Unaffected Kauri; and

iv. Soil type profiling for kauri within the designation, that will define the operational soil moisture conditions in accordance with (h) below to minimise the risk of spread of Kauri dieback.

(c) Methods for the establishing and demarcating on the ground Kauri Quarantine Area(s) (KQA(s)).

(d) Methods for holding, cleaning and treating the collected soil from personnel and equipment in KQAs and releasing personnel and equipment from KQAs.

Features that apply during the period of construction within 30 metres of any kauri

(e) Removal of kauri trees shall be minimised as far as practicable;

(f) Soil disturbance within 30 metres of any kauri tree shall be minimised;

(g) Methods for ensuring soil is removed from all footwear, tools, clothing and equipment when:

i. entering or exiting a KQA; or

ii. moving from one KQA to another; or

iii. entering a stream system in a KQA;

Except that this requirement does not apply to vehicle or personnel movements passing through a KQA that are separated from the bare or vegetated earth by height, or a compacted soil-free surface.

(h) All soil-disturbing works in KQAs are to be conducted in soil conditions as determined in the KDBP;

(i) Soil from earthworks within 30 metres of an Affected Kauri must not be transported outside the KQA in which that kauri is sited;

(j) All kauri tree material and other vegetation, including weeds and native vegetation, trimmed or cleared within 30 metres of an Affected Kauri must not be transported outside of the KQA in which that kauri is sited;

(k) Machinery and vehicles exposed to soil in a KQA shall remain in that KQA for the duration of works needing those materials or vehicles in that KQA;

(l) Raw materials (such as soil, substrate or gravel) shall not be sourced from any KQA containing an Affected Kauri;

(m) Methods for vegetation control within 30 metres of any kauri that do not disturb the soil (eg mowing, slashing or herbicide application should be used in preference to grubbing);

(n) Drainage and stormwater run-off from the Project must be diverted away from kauri trees;

(o) Methods for sourcing disease-free kauri (eg from an Auckland Council Biosecurity approved supplier, if one exists) for any mitigation planting required under Condition D59;

(oa) Methods for isolating kauri planted in accordance with Condition D59 from any surrounding natural stands of kauri;

(p) Procedures for site inspection, monitoring and supervision by Auckland Council biosecurity officers; and

(q) The express circumstances (if any) where an exemption to any of the above requirements applies.

KDBP review

(r) Methods for updating the KDBP in the event of significant changes in scientific knowledge relating to the effective management of Kauri dieback that occur after the KDBP is approved.

D63B No construction may commence within 30 metres of any kauri until the Auckland Council Group Manager Biosecurity has approved the KDBP. If the Requiring Authority has not received any response from Auckland Council within 30 working days of submitting the KDBP, the KDBP will be deemed to have been approved.

D63C Any alternations to the KDBP shall require the approval of the Auckland Council Group Manager Biosecurity.

D63D The Requiring Authority shall implement and comply with the approved KDBP.

Cultural, Heritage and Archaeology

D64 In managing the construction of the Project and its effects on archaeology, cultural and heritage, the Requiring Authority shall, together with the Heritage New Zealand Pouhere Taonga Act 2014 processes, achieve the following outcomes:

(a) Protection and minimisation of effects on cultural, heritage and archaeological sites, where practicable;

(b) Recording of all pre-1900 cultural, heritage and archaeological sites within the designation boundary including the Te Pā o Te Hēmara Tauhia (R10/921), the rediscovered pā R10/1369 and the wider settlement area in compliance with an authority under the Heritage New Zealand Pouhere Taonga Act 2014 where required;

(c) Recording of any post-1900 cultural and historic heritage sites within the designation boundary; and

(d) Recording of the US Military camp sites (Wyllie Road Camps E (CHI 17006) and F and G (CHI 17007) and any remains exposed during construction.

Cultural, Heritage and Archaeological Management Plan

D65 Prior to construction, the Requiring Authority shall prepare and implement a Cultural, Heritage and Archaeological Management Plan (CHAMP). The purpose of the CHAMP is to identify procedures and practices to be adopted by the Requiring Authority to advance the outcomes noted in Condition D64, and protect, as far as reasonably practical, sites of cultural, heritage and/or archaeological value. The CHAMP will be prepared for the management of cultural, heritage and archaeological sites in conjunction with any conditions required in compliance with any archaeological authority issued by Heritage New Zealand. The CHAMP shall be implemented throughout the construction of the Project.

D66 The CHAMP shall be prepared by a suitably qualified archaeologist (Project Archaeologist) and the Iwi Advisor in conjunction with a conservation architect as required, and in consultation with Heritage New Zealand, and shall identify:

(a) That archaeological requirements of the Project will be undertaken in compliance with conditions of an archaeological authority issued by Heritage New Zealand under the Heritage New Zealand Pouhere Taonga Act 2014 and any conditions for post-1900 sites in the designation conditions for the Project;

(b) Known cultural, heritage and archaeological sites within the designation boundary including the Te Pā o Te Hēmara Tauhia (R10/921), the rediscovered pā R10/1369 and the wider settlement area;

(c) Any pre-1900 archaeological sites in accordance with authorities under the Heritage New Zealand Pouhere Taonga Act 2014;

(d) Roles and responsibilities of personnel involved with cultural, heritage, archaeological and ecological matters including surveys, and monitoring of conditions;

(e) Methods for avoiding and/or minimising effects on cultural, heritage and archaeological sites during construction where practicable (for example the fencing off of archaeological sites to protect them from damage during construction);

(f) Training requirements for contractors and subcontractors on cultural, heritage and archaeological areas/features within the designation boundary and accidental discovery protocols. The training shall be undertaken under the guidance of the Project Archaeologist and the Iwi Advisor;

(g) Access arrangements to Te Pā o Te Hēmara Tauhia;

(h) A process, involving a built heritage specialist, outlining a methodology for assessing the historic heritage, condition and means to mitigate any adverse effect on Schollum House, Titford House and Titford Cottage and timeframe for implementing the preferred methodology, in accordance with Heritage New Zealand guidelines for assessing and recording built heritage; and

(i) A process for assessing and recording the military camps being Wyllie Road Camps E (CHI 17006) and F and G (CHI 17007).

Accidental Discovery Protocol

D67 The Requiring Authority shall rely on Z22, the NZTA Accidental Discovery Protocol and implement that protocol throughout the Construction Works. Z22, the NZTA Accidental Discovery Protocol, shall be reviewed by the Iwi Advisor and modified to best present the site specific Project detail and to be consistent with any archaeological authority issued by Heritage New Zealand under the Historic Places Act 1993 applying to the Project.

Advice Note: The Ministry for Culture and Heritage must also be advised of any artefact finds within 28 days of the discovery in accordance with the Protected Objects Act 1975. The final repatriation of artefacts is a matter for the Ministry of Culture and Heritage in consultation with iwi. Should archaeological features or deposits, human remains or taonga be exposed during construction, work must cease in the vicinity and contact made with AC, Heritage NZ, Project Archaeologist, iwi advisor and the NZ Police (if koiwi are discovered) to enable appropriate action to be taken before construction recommences in that area.

Monitoring of earthworks

D68 In addition to any earthwork areas identified in the CHAMP for monitoring:

(a) The Requiring Authority shall invite the Iwi Advisor (or Kaitiaki in the event the Iwi Advisor has not been appointed or is not available) to be on site to monitor earthworks within 50 metres of Te Pā o Te Hēmara Tauhia (R10/921), the rediscovered pā R10/1369 and Midden sites R10/1106 and R10/1107; and

(b) During construction, the Requiring Authority shall ensure the Project Archaeologist is on-site to monitor earthworks in the vicinity of the US military camps so that any pre-1900 archaeological remains or remains relating to US military camps (Wyllie Road Camps E (CHI 17006), and F and G (CHI 17007)) that are exposed can be recorded.

D69 *[This condition is intentionally left blank]*

Rehabilitation of Construction Yards

D70 At the completion of construction, all construction yard buildings, structures and surfacing shall be removed and the grounds rehabilitated to the general condition of their pre-Project state.

Upgrade to Kaipara Flats Road Intersection

D70A Prior to Kaipara Flats Road being used by any Heavy Vehicle for construction and prior to the Project opening to traffic, the intersection of Kaipara Flats Road and State Highway 1 shall be upgraded to ensure that turning movements at the intersection can be made safely. To assess safety, the improvements shall undergo a detailed design road safety audit prior to construction of the intersection in accordance with the procedure set out in the New Zealand Transport Agency (NZTA) Guideline "Road Safety Audit Procedures for Projects" (May 2013 or as superseded by another NZTA publication). The audit shall give particular consideration to the safe operation of the intersection 10 years after opening of the Project.

Moirs Hill Walkway

D70AA Prior to the Project opening to traffic, the Requiring Authority shall prepare a plan identifying a walking track connection between the two ends of the section of the Moirs Hill Walkway that will be severed by the Project. The walking track connection shall be:

(a) of a similar gradient and track surface to the existing upper section of the Moirs Hill Walkway (being the area of the walkaway within and to the west of the designation boundary);

(b) designed in consultation with the Local Area Manager Department of Conservation; and

(c) at least to the standard of the construction guidelines for "tramping tracks" contained in the Department of Conservation's Track Construction and Maintenance Guidelines (VC 1672).

D70AB The Requiring Authority must, prior to the Project opening to traffic, construct a walking track connection in accordance with condition D70AA, unless the Requiring Authority provides the Manager with copies of correspondence from the Local Area Manager, Department of Conservation confirming that reinstating the walkway is not necessary. In that situation, the Requiring Authority has no obligation to construct any walking track connection.

Maintenance and Operation Conditions

Operational Noise

D71A The Project shall be designed and constructed to ensure that the operational noise levels from the Project at PPFs residential receivers within 200 metres of the proposed alignment as identified in Appendix A of the Marshall Day report (Appendix A, "Individual receiver noise level predictions", Operational Noise Assessment Report, August 2013), attached as Appendix F to these conditions, meet, as a minimum, the specified "Noise Criteria Category" in Appendix F "Proposed Mitigation Option" noise levels predicted by the acoustic modelling undertaken by Marshall Day Acoustics.

D71 The Requiring Authority shall use Open Graded Porous Asphalt, or another road surface with equivalent or better low-noise generating characteristics, on the carriageways of the Project, as shown in Appendices G and H. Such a surface shall be implemented within 12 months following the Project being officially opened to general public traffic.

(a) Southern end (latitude from New Zealand Transverse Mercator point (1749438, 5957982) southwards to the Johnstone's Hill tunnel portal); and

(b) Northern end from a point 200 metres south of the eco-viaduct northwards to 50 metres south of the intersection of the Project with the existing State Highway 1).

Advice Note
Also refer to Resource Consent Condition RC77.

Condition D71(b) now requires OGPA to be extended further south than shown in Appendix H. It is impractical to include an amended map in the Board's final report. Nonetheless NZTA is directed to prepare such an amended map (Appendix H) which shows the small extension to OGPA and make such map available to the Manager.

D71B The Requiring Authority shall within 12 months of the Project being officially opened to general public traffic carry out acoustic surveys at no less than 5 appropriate locations (as determined by a qualified acoustic expert) to confirm that operational noise levels from the Project meet the categories set out in Appendix F. If the results of the surveys reveal noise levels from the Project are such that a listed PPF is in a noise criteria category greater than set out in Appendix F (e.g. from category A to category B), the Requiring Authority shall carry out mitigation to attenuate the noise generated by the motorway to within the category levels specified in Appendix F. Such mitigation may include the erection of noise barriers with associated landscape mitigation considered as part of the ULDF and relevant ULDSPs.

D72 Should the alignment change through detailed design so that PPFs not already included in Appendix F then fall within 200 metres of the alignment, the Requiring Authority shall update Appendix F to include those PPFs and they shall be assessed and mitigated accordingly.

D73 The Requiring Authority shall manage and maintain any noise mitigation measures within the designation boundaries to ensure that those mitigation works retain their noise reduction performance.

D74 *[This condition is intentionally left blank.]*

Lighting

D75 Lighting of the new State highway will be limited to safety and operational requirements (eg interchanges) and shall comply with AS/NZS 1158:2005: "Lighting for roads and public spaces".

Landscape

D76 The Requiring Authority shall maintain (and replace unsuccessful planting) all landscape 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 amendment.

Ecology

D76A The Requiring Authority shall use its best endeavours to procure from the Crown the entering into of appropriate covenants and/or encumbrances (or similar legal mechanisms) to ensure that the area of ecological mitigation in Conditions D59 and D60 is protected on an ongoing basis, regardless of any future ownership/tenure changes.

Pā Management Plan

D77 A Pā Management Plan for Te Pā o Te Hēmara Tauhia (R10/921) and the rediscovered pā R10/1369 sites shall be prepared and implemented. The purpose of the Pā Management Plan is to provide a framework for the ongoing management of sites of cultural significance in conjunction with Hōkai Nuku.

D78 The Pā Management Plan shall be prepared by the Project Archaeologist and the Iwi Advisor, in consultation with Heritage New Zealand to provide recommendations on the following:

(a) Options for public access (by walkways and waterways);

(b) Installation of information signage relating to the Māori and early European history and heritage sites in the area;

(c) Planting, landscaping and vegetation management;

(d) Options for limited remedial work to the defensive ditch (subject to Heritage New Zealand approval); and

(e) Options for protecting the pā sites in perpetuity.

Access

D79 Vehicle access from the existing SH1 appropriate for the operation of a farm shall be retained to Lot 1 and 2 DP50685 and Lot 1 DP 74814, at all times unless otherwise agreed with the owner.

D80 Vehicle access under the Carran Road Flood Relief Bridge appropriate for the operation of a farm shall be retained for the benefit of the Civil Family Farm interests comprised in Part Allotments 55 and 95, Parish of Mahurangi, Lot 3 DP418913 and Lot 2 DP343011.

D81 In the event of Lot 1 DP587 not being acquired by the Requiring Authority, vehicle access and services including stock water appropriate for the operation of a farm shall be provided underneath the Project.

Appendix A


WALLIER ROAD
PERRY ROAD
0 50 100 Metres
Designation Boundary
A viaduct shall be constructed to minimise the effects on kauri in the area shown
DESIGNATION CONDITIONS
Appendix A

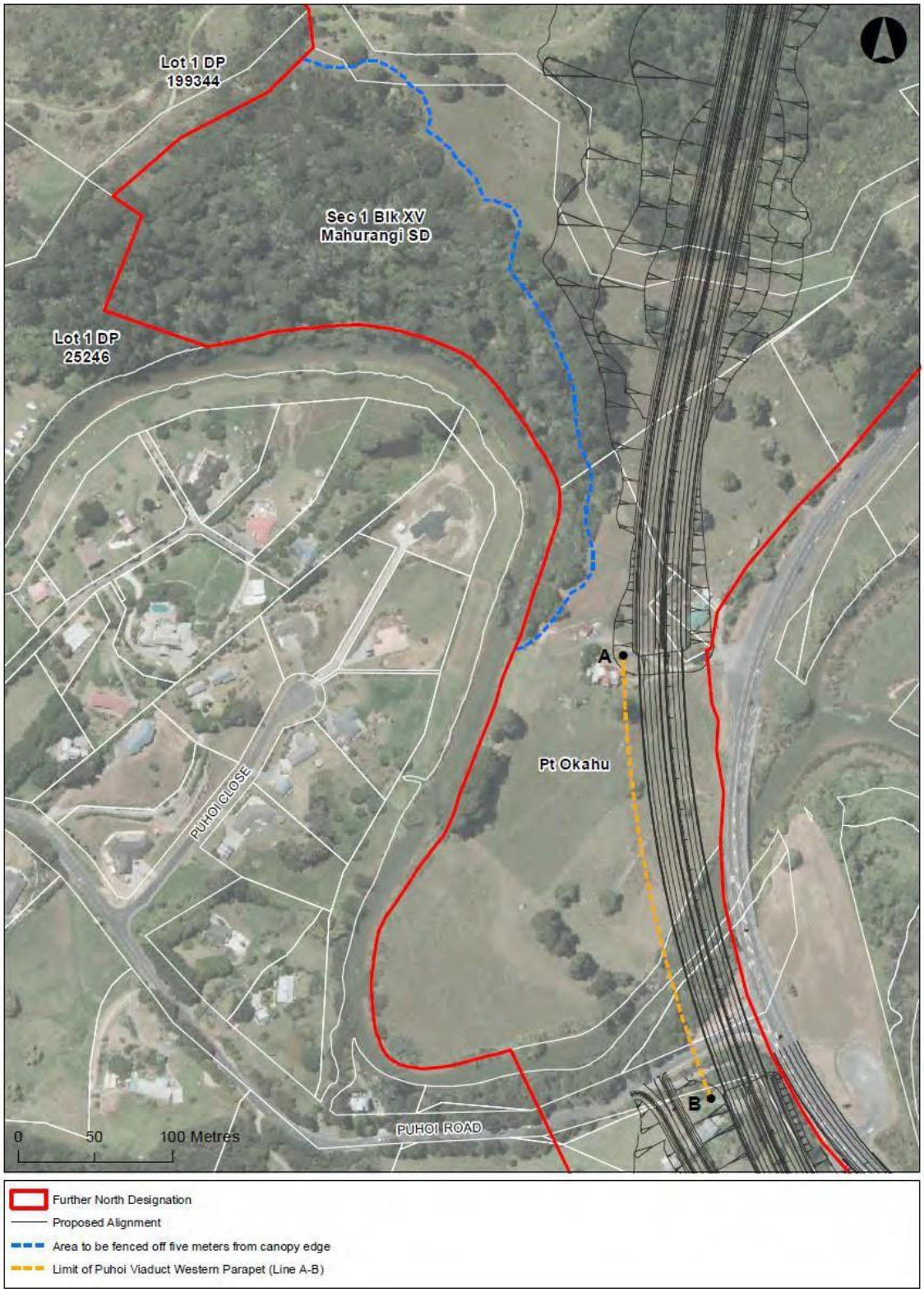
Appendix B


Lot 3 DP
102736
Lot 2 DP
102736
Crown
Land
Pt Allot
429 PSH OF
Waiwera
Pt Sec 3
Blk III
Waiwera SD
Sec 65
Blk III
Waiwera SD
0
50
100 Metres
Further North Designation
Proposed Alignment
Area to be fenced off five meters from canopy edge

Appendix C


Lot 7 DP
113847
Lot 8 DP
113848
Lot 1 DP
321568
0
50
100 Metres
Further North Designation
Proposed Alignment
Area to be fenced off five meters from canopy edge

Appendix D


Lot 1 DP
199344
Sec 1 Blk XV
Mahurangi SD
Lot 1 DP
25246
A
Pt Okahu
PUHOI CLOSE
B
PUHOI ROAD
0
50
100 Metres
Further North Designation
Proposed Alignment
Area to be fenced off five meters from canopy edge
Limit of Puhoi Viaduct Western Parapet (Line A-B)

Appendix E


Lot 8 DP 205719
Lot 1 DP 67330
Lot 6 DP 205719
PUHOI CLOSE
Lot 5 DP 205719
Lot 4 DP 205719
Lot 7 DP 93337
Pt Okahu
Lot 1 DP 114587
Lot 2 DP 114587
Pt Okahu
Lot 6 DP 78952
PUHOI ROAD
Pt Sec 17 Blk III Waiwera SD
Lot 3 DP 163915
Pt Sec 12 Blk III Waiwera SD
0
50
100 Metres
Further North Designation
No Project works are permitted on the area of land marked

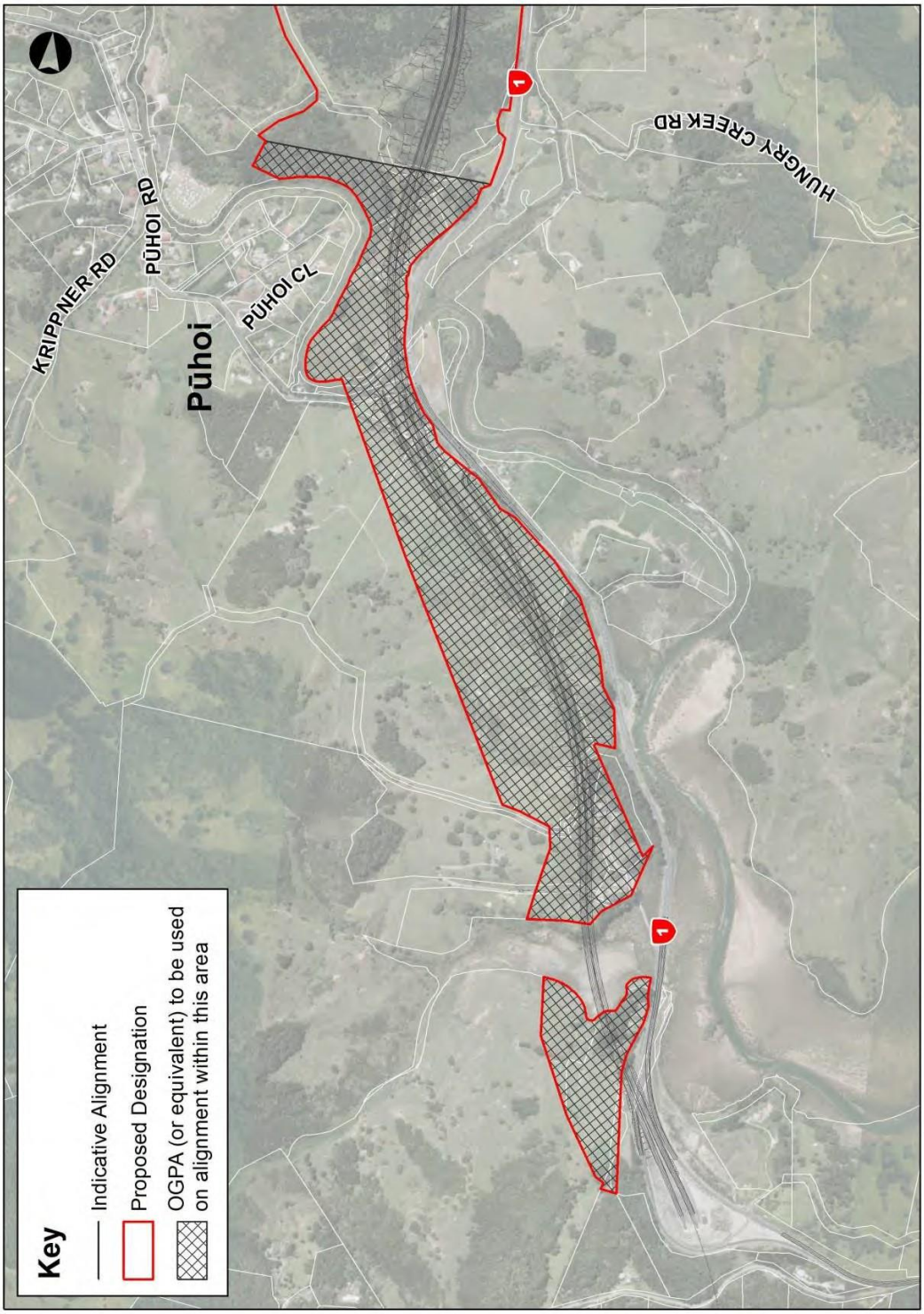
Appendix F

Table 1: Noise Criteria Category of PFFs

Street address (Assessed against indicative alignment)	Noise Criteria Category Project Traffic Noise
24 Billing Rd	A
26 Billing Rd	A
72 Fowler Access Rd	A
5 Hungry Creek Rd	A
6 Hungry Creek Rd	A
12 Pūhoi Cl	A
16 Pūhoi Cl	A
20 Pūhoi Cl	A
28 Pūhoi Rd	A
430 SH1	A
466 SH1	A
600 SH1	A
616 SH1	A
642 SH1	A
654 SH1	A
682 SH1	B
101 Moirs Hill Rd	A
141 Carran Rd	A
6 Kaipara Flats Rd	A
027 SH1	A
042 SH1	C
063 SH1	A
102 SH1	A
104 SH1	B
105 SH1	A
371 Woodcocks Rd	A
372 Woodcocks Rd	A
074 Wyllie Rd	A
075 Wyllie Rd	B
075A Wyllie Rd	B
* The noise criteria categories are determined by noise from traffic on the Project road only. Where other noise sources affect the received noise level, these should be excluded from the measurement.	

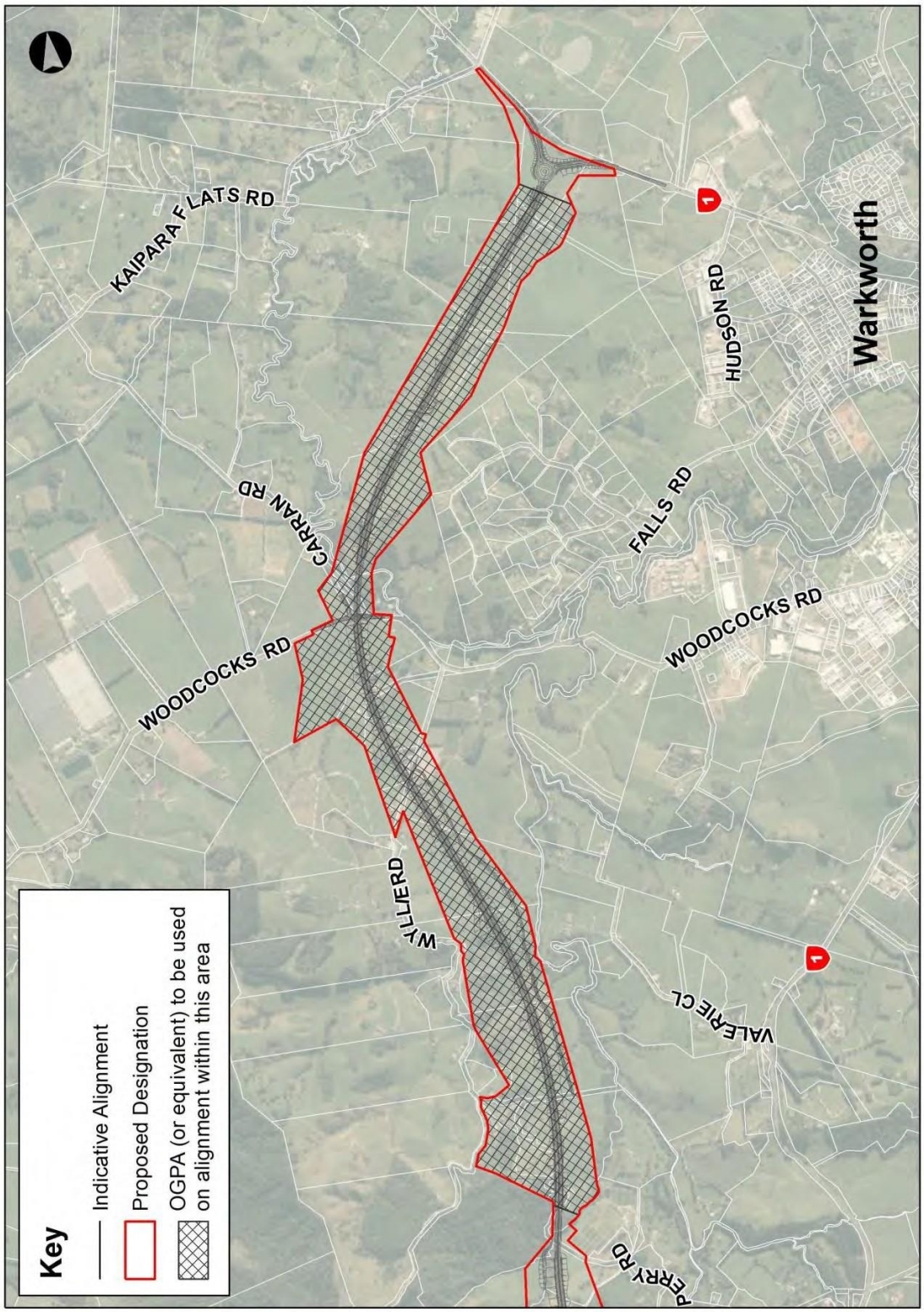
Appendix G

Map showing extent of Open Graded Porous Asphalt proposed in condition D71(a)



Appendix H

Map showing extent of Open Graded Porous Asphalt proposed in condition D71(b) – to be updated in accordance with Condition D71(b)



Resource Consent Conditions

The resource consents granted authorise the Consent Holder to undertake the construction, operation and maintenance of the Ara Tūhono - Pūhoi to Wellsford Road of National Significance: Pūhoi to Warkworth Section.

In particular the resource consents granted authorise the following activities:

(i) Land disturbing activities under section 9 of the Resource Management Act 1991 (RMA) including earthworks, roading, tracking, trenching, spoil disposal and vegetation clearance (33/003)

(ii) The construction and use of a structure being a viaduct in the coastal marine area and its occupation of the seabed at Okahu Inlet under section 12 of the RMA (33/009, 33/010, 33/011) and ancillary construction activities (33/012)

(iii) Works in watercourses, including structures, diversions, stormwater outlets, erosion protection, restoration and enhancement in the Mahurangi and Pūhoi Rivers and their associated tributaries under sections 13 and 14 of the RMA (33/005 and 33/008)

(iv) The diversion of groundwater under section 14 of the RMA (33/006)

(v) The discharge of treated stormwater under section 15 of the RMA from the highway (33/004 and 33/007) and upgrades of local or construction roads (33/014 and 33/015)

(vi) The discharge of stormwater from the upgrade of culverts under section 15 of the RMA within the existing state highway at or within the vicinity of New Zealand Transverse Mercator (NZTM) points 1749546 5958723, 1748922 5959542, and 1748650 5959876 (33/013)

(vii) The discharge of contaminants to water during construction from an industrial or trade premise being a pre-cast concrete yard located at Lot 1 DP 329024 (CT 118446) under section 15 of the RMA (33/016)

(viii) The discharge of contaminants to air during construction from a mobile rock crusher under section 15 of the RMA (33/017)

These activities shall occur between the Johnstone's Hill Tunnels in the south and Kaipara Flats Road in the north, on land designated by the New Zealand Transport Agency under section 171 of the RMA for the construction, operation and maintenance of a State highway, and in the Coastal Marine Area at Okahu Inlet.

The final locations of each structure provided for in (ii), (iii), (v) and (vi) shall be provided to the Auckland Council through plans and certificates submitted in accordance with the conditions that follow.

Definitions	
Act	Resource Management Act 1991 and subsequent amendments
AMP	Adaptive Monitoring Plan
ARI	Average return interval
CEMP	Construction Environmental Management Plan
CESCP	Construction Erosion and Sediment Control Plan
Coastal Marine Area (CMA)	Means the means the foreshore, seabed, and coastal water, and the air space above the water— (a) of which the seaward boundary is the outer limits of the territorial sea: (b) of which the landward boundary is the line of mean high water springs, except that where that line crosses a river, the landward boundary at that point shall be whichever is the lesser of— (i) 1 kilometre upstream from the mouth of the river; or (ii) the point upstream that is calculated by multiplying the width of the river mouth by 5
Construction Works	Activities undertaken to construct the Project, excluding Enabling Works
Council	Auckland Council
CWAR	Construction Water Assessment Report (Further North Alliance August 2013)
DEB	Decanting earth bund
DOC	Department of Conservation
Enabling Works	Preliminary activities, including such things as geotechnical investigations (including access for such investigations), sealing roads, and establishment of mitigation measures (such as earth bunds and 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
Flat Country	That part of the Project to the north of the Perry Road Viaduct
Hill Country	That part of the Project to the south of the Perry Road Viaduct
HMW-PAHs	High Molecular Weight Polynuclear Aromatic Hydrocarbons

Intermittent Stream	The streams recorded in Appendix A as intermittent and any stream or part of a stream that is not a Permanent Stream
MMP	Marine Monitoring Plan
NZTM	New Zealand Transverse Mercator Point
Permanent Stream	Downstream of the uppermost reach of a river or stream that meets either of the following criteria (a) Has continual flow; or (b) Has natural pools having a depth at their deepest point of not less than 150 millimetres and a total pool surface area that is 10m² or more per 100 metres of river or stream bed length. The boundary between Permanent and Intermittent river or stream reaches is the uppermost qualifying pool in the uppermost qualifying reach
Project	The construction, maintenance and operation of the Ara Tūhono Pūhoi to Wellsford Road of National Significance: Pūhoi to Warkworth section
Project Area	The footprint of Designation 404C State Highway 1 – Pūhoi to Warkworth (Auckland District Plan – Operative Rodney Section 2011) and Designation [to be confirmed] State Highway 1 – Pūhoi to Warkworth (Auckland Unitary Plan)
Pūhoi Estuary	This includes the Okahu Inlet
RCMP	Rock Crusher Management Plan
SRP	Sediment Retention Pond
Stabilisation	The activity to achieve a Stabilised Area
Stabilised Area	An area inherently resistant to erosion such as rock, or rendered resistant by the application of aggregate, geotextile, vegetation or mulch. Where vegetation is to be used on a surface that is not otherwise resistant to erosion, the surface is considered stabilised once an 80% vegetation cover has been established.
Stage	Any specific works area or new land disturbing activity associated with construction of the Project as nominated by the Consent Holder
Team Leader	Auckland Council Team Leader Compliance and Monitoring – Northern Resource Consenting and Compliance (Orewa) or the person subsequently exercising those functions and powers
TOC	Total Organic Carbon
TSS	Total Suspended Solids

TP10	Auckland Council Technical Publication 10 - Stormwater management devices: Design guidelines manual 2003
TP90	Auckland Council Technical Publication 90 - Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 1999 (updated 2007)
ULDF	The Urban Landscape and Design Framework completed under condition D26 of the designation conditions
Watercare	Watercare Services Limited

General

Consent Lapse and Expiry

RC1 Pursuant to section 125(1) of the Act, the Consents 33/003 – 33/017 shall lapse 15 years from the date of their commencement unless they have been given effect, surrendered or been cancelled at an earlier date.

RC2 Pursuant to section 123(c) of the Act, the Consents 33/004 – 33/011 and 33/013 – 33/015 shall expire 35 years from the date of their commencement.

RC3 Pursuant to section 123(c) of the Act, the Consents 33/003, 33/012, 33/016 and 33/017 shall expire 15 years from the date of their commencement.

Review

Condition RC4 applies to Consents 33/003 – 33/017

RC4 These Conditions may be reviewed by the Team Leader 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, fifth anniversaries of the date of commencement of the construction of the Project authorised by this consent in order, and thereafter 5 yearly:

(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.

Iwi Advisor

Conditions RC5-9 apply to Consents 33/003 – 33/017

RC5 At least 12 months prior to commencement of Construction Works, the Consent Holder shall request that Hōkai Nuku (being comprised of the representatives for Ngāti Whatua, Ngāti Whatua o Kaipara, Te Uri o Hau, and Ngāti Manuhiri) appoint an iwi advisor or other nominated kaitiaki (together the Iwi Advisor) to undertake the roles and responsibilities set out in these conditions.

RC6 Where no Iwi Advisor is appointed by Hōkai Nuku within 6 months prior to commencement of Construction Works or where at any time the appointed Iwi Advisor is unavailable or unwilling to undertake their roles and responsibilities set out in these conditions, the Consent Holder shall seek the advice of Hōkai

Nuku prior to commencing an activity where the Iwi Advisor's input would otherwise be required and shall have regard to any advice provided by Hōkai Nuku.

RC7 The Consent Holder shall invite the Iwi Advisor to provide cultural indicators covering traditional association, mahinga kai and cultural stream health measures. The Consent Holder shall have regard to any cultural indicators provided in preparation of any management plan required under these conditions.

RC8 In the event that spoil from the Project is disposed of outside of the Project Area, the Iwi Advisor will be informed of the disposal site.

RC9 To the extent practicable, if any spoil is generated in the Project Area south of Pūhoi Road, the Consent Holder shall retain that spoil within the Project Area south of Pūhoi Road.

Construction Environmental Management Plan

Condition RC10 applies to Consents 33/003 – 33/017

RC10 The Consent Holder shall prepare a Construction Environmental Management Plan (CEMP) to assist with Project management during Construction Works. The CEMP shall include:

(a) The roles and responsibilities of construction management staff, including the overall manager responsible for the erosion and sediment control;

(aa) The name of the Consent Holder's representative on the Project.

(b) A description of the training and education programme that will be implemented to ensure compliance with conditions;

(c) Procedures for hazard, including fire hazard, identification and control;

(d) The details of at least two emergency contact people and responses who shall be contactable 24 hours 7 days a week during construction who shall have authority to initiate immediate response actions;

(e) The contact details of any authorised construction staff living on site during the Project construction;

(ee) The details of emergency contacts for Watercare to facilitate notification under Condition RC19(f);

(f) Methods for responding to queries and complaints, including compliance with Condition RC10B; and

(g) Methods for amending and updating the CEMP as required.

RC10AA The Consent Holder shall provide the Team Leader with a schedule of construction activities for the Project at annual intervals or at least at the commencement of each earthworks season throughout the duration of Construction Works for the Project.

RC10AThe Consent Holder shall implement the CEMP for the duration of Construction Works and shall provide a copy of the CEMP to the Team Leader for their information at least 20 working days prior to Construction Works commencing.

Incident Management

RC10B The Consent Holder shall prepare an Incident Management Plan that shall include:

(a) Identification of the process to ensure compliance with Condition RC32.

(b) Identification of the process to notify Watercare if any of the incidents in Condition RC32 occur upstream of the water take at NZTM 1748780 mE 5970390 mN (Auckland Council Permit No. 35555).

Complaints Register

RC10CA At all times during construction work, the Consent Holder shall maintain a register of any complaints received alleging adverse effects from, or related to, the exercise of these consents. The record shall include:

(a) the name and address or phone number of the complainant (if supplied);

(b) identification of the nature of the complaint;

(c) location, date and time of the complaint and of the alleged event;

(d) weather conditions at the time of the complaint (as far as practicable), including wind direction;

(e) the outcome of the Consent Holder's investigation into the complaint;

(f) measures taken to respond to the complaint; and

(g) any other activities in the area, unrelated to the Project that may have contributed to the complaint.

RC10CB The Consent Holder shall respond to any complaint within 48 hours of the complaint, except where urgency is indicated, in which case the Consent Holder shall use its best endeavours to respond within 2 hours;

RC10CC The Consent Holder shall also maintain a record of its responses and any remedial actions undertaken, such record to also contain the responses and actions taken under Conditions D6CA – D6D;

RC10CD This record (to be included in the register) shall be maintained on site and shall be made available to the Team Leader and Auckland Council, upon request. The Consent Holder shall provide the Team Leader and Auckland Council with a copy of the complaints register every month.

RC10D The complaints process under condition RC10CA to RC10CD shall continue until six months after the commissioning of the Project to traffic. Any complaints received after this period shall be managed by the Consent Holder in accordance with its standard complaints procedures.

Monitoring

Conditions RC11-16 apply to Consents 33/004, 33/005, 33/006, 33/007, 33/008, 33/009, 33/012, 33/013, 33/014, 33/015

Freshwater

Pre-construction Freshwater Monitoring

RC11 Prior to the commencement of Construction Works, the Consent Holder shall undertake pre-construction freshwater monitoring, in accordance with Conditions RC12-14, of freshwater environments that are representative of the Project Area.

RC12 At least 20 working days prior to any pre-construction freshwater monitoring commencing, the Consent Holder shall submit a programme in hard copy paper form for such monitoring to the Team Leader for approval. The programme shall include the methodology for undertaking the pre-construction monitoring, including the requirements set out in Conditions RC13 to RC15. If the Consent Holder has not received a response (short of approval) from the Team Leader within 20 working days of submitting the programme, the Consent Holder will be deemed to have approval and can commence pre-construction monitoring.

RC13 The monitoring shall be undertaken to:

(a) Confirm pre-construction environmental conditions, represented by:

i. sediment quality (concentrations of copper, lead, zinc, TOC and HMW-PAHs in both total sediment and the <63µm fraction, plus grain size analysis of the total sediment sample), and sediment depth;

ii. actual and potential inanga (*Galaxias maculatus*) spawning habitat, including native and introduced riparian vegetation (for example introduced and native grasses, sedges and shrubs) within the mean high water spring limit of the Mahurangi and Pūhoi catchments that could be affected by discharge of sediment as a result of the construction of the Project; and

Advice Note: The purpose of this pre-construction assessment is to identify sites with potential for inanga (Galaxias maculatus) spawning habitat. The Department of Conservation may advise the Consent Holder of sites which it considers to be actual or potential habitat for inanga (Galaxias maculatus) spawning and which the Consent Holder will consider as part of its assessment. Information regarding potential inanga spawning habitat can be found in Richardson, J. and Taylor, M.J. (2004). A guide to restoring inanga habitat. *NIWA Science and Technology Series No. 50. 31 p. It is recommended that the Consent Holder consult with Council freshwater biodiversity staff in identifying inanga spawning habitat sites for monitoring.*

iii. water quality, limited to TSS, pH, turbidity, nitrogen and phosphorous.

(b) Identify the pre-construction condition of Erosion Prone Streams against which to measure construction effects and possible mitigation measures.

RC14 Pre-construction monitoring shall be undertaken by a suitably qualified and experienced freshwater ecologist:

(a) At two (2) representative freshwater sites across each of the Hill Country and the Flat Country. One (1) of the Flat Country sites shall be upstream of the water take at NZTM 1748780 mE 5970390 mN (Auckland Council Permit No. 35555): and

(b) For one summer and one winter period prior to commencement of Construction Works.

RC15 The pre-construction monitoring programme shall include a single walkover of all Erosion Prone Streams, and recording of erosion areas, including photographs.

RC16 The Consent Holder shall provide to the Team Leader the results of the pre-construction freshwater monitoring within 60 working days of the final pre-construction monitoring being undertaken.

Post-construction Freshwater Monitoring

RC16AThe Consent Holder shall undertake monitoring at six (6) month intervals for two (2) years following completion of Construction Works in Erosion Prone Streams. Monitoring shall consist of stream walkovers of Erosion Prone Streams and recording of erosion-prone areas, including photographs. If monitoring identifies new erosion that is attributable to the Project by a suitably qualified engineer (using the pre-construction data obtained pursuant to Condition RC15), the Consent Holder shall implement remedial action in the form of stream stabilisation measures.

RC16BThe Consent Holder shall undertake monitoring of 10 per cent of all Project culverts including the five longest culverts and the five steepest culverts to determine the effectiveness of fish passage provisions (as determined by a suitably qualified ecologist). If the five steepest culverts and the five longest culverts represent more than 10 per cent of all Project culverts no further culverts require monitoring. This monitoring shall be undertaken once monthly during the months of September, October, November and December for a period of no less than three years and the results reported annually to the Team Leader. The effectiveness of fish passage will be determined by a suitably qualified ecologist who shall undertake assessments of the fish populations upstream and downstream of the culverts as follows:

(a) Monitoring of fish populations will be undertaken at one site upstream of the culvert location and at an equivalent control site downstream;

(b) Sampling methods will be carried out in accordance with Joy et al. 2013, New Zealand Freshwater Fish Sampling Protocols - Part 1 Wadeable Rivers & Streams (or other method if agreed with Council), and will be selected to capture a full size range of fish present;

(c) Sampling will be undertaken on at least two occasions between the period 1 September to 31 December prior to construction, in order to take into account temporal variations in the baseline measurements of fish community structure; and

(d) Metrics to be calculated as part of this sampling will include the diversity of the fish community and the size structure of an indicator species (to be selected based on its prevalence at each site and relative climbing ability).

RC16C If the results of the monitoring in Condition RC16B show that the fish passage provisions are ineffective then remedial work shall be undertaken.

Marine

Mahurangi Harbour and Pūhoi Estuary

RC16DA The Consent Holder shall submit a Marine Monitoring Plan (MMP) to the Team Leader for approval at least 20 working days prior to the commencement of the monitoring addressed by the plan. The MMP shall be prepared by a suitably qualified and experienced marine ecologist, with advice from an ornithologist, and in consultation with DOC. The MMP shall address the requirements of conditions RC16D and RC16E.

RC16DB The monitoring addressed by the MMP shall be undertaken once in February and once in August in the 12 months prior to the commencement of the Project (excluding enabling works), and then in August of every year that earthworks associated with the Project are undertaken.

RC16D Unless alternative locations are agreed through consultation with DOC, the monitoring shall be undertaken at:

(a) At five (5) sites (50m x 30m) potentially affected by the Project in the Mahurangi Harbour as identified by the following New Zealand Transverse Mercator (NZTM) points:

i. 1751491, 5967795

ii. 1752368, 5967387

iii. 1751894, 5697012

iv. 1752976, 5966990

v. 1753545, 5966764

and at one control site that will not be affected by the Project.

Each NZTM point shall be located in the centre of the survey

(b) At five (5) sites (50 m x30m) potentially affected by the Project in the Pūhoi Estuary as identified by the following NZTM points ;

i. 1752312, 5956271

ii. 1752552, 5955824

iii. 1752848, 5955750

iv. 1753037, 5955923

v. 1753314, 5956321

Each NZTA point shall be located in the centre of the survey.

(c) At each of the survey sites identified in (a) and (b) above, at least ten (10) sediment cores (13cm diameter and 15 cm deep) shall be collected, sieved through a 0.5mm mesh and the invertebrate taxa extracted, identified and counted and two composite surface sediment (top 2cm) samples shall be collected and analysed for grain size and contaminants including copper, lead, zinc, HMW-PAHs and TOC in the total sediment and <63µm sediment fraction.

RC16E The Consent Holder shall provide to the Team Leader the results of the annual marine monitoring within 60 working days of the monitoring being undertaken.

RC16F Both prior to construction, and at least one summer and one winter post-construction, the Consent Holder shall undertake a survey of benthic invertebrate assemblages and sediment quality at one (1) site in the Okahu Inlet where the access track was located. This monitoring shall be undertaken by a suitably qualified and experienced marine ecologist with advice from an ornithologist. The purpose of the monitoring is to confirm that natural rehabilitation processes occur after the removal of the access track. If natural rehabilitation processes do not occur within the post-construction monitoring period, the Consent Holder shall develop and implement remedial action with the approval of the Team Leader.

Earthworks

Conditions RC17-40 apply to Consents 33/003, 33/005, 33/006, 33/008, 33/009, 33/013, 33/014, 33/015, 33/016

RC17 The Consent Holder shall implement all Construction Works in accordance with the best methods available at the time of construction to:

(a) Minimise the volume and area of the proposed earthworks required for the Project through the design of batter slopes appropriate to expected soil types and geology;

(b) Maximise the effectiveness of erosion and sediment control measures associated with earthworks by minimising potential for sediment generation and sediment yield; and

(c) Minimise effects on freshwater and marine water environments within or beyond the Project boundary, with particular regard to reducing the likelihood that the Project will generate sediment at the trigger level specified in Condition RC36(d).

Erosion and Sediment Control Plan

RC18 *[Moved – now Condition RC20A]*

RC18A *[Moved – now Condition RC20B]*

RC18B The Consent Holder shall prepare an Erosion and Sediment Control Plan (ESCP) for the Construction Works for the entire Project to identify how Condition RC17 will be met. The Consent Holder shall engage with the Iwi Advisor while preparing the ESCP.

Advice Note: The Consent Holder may wish to consider the CWAR in preparing the ESCP.

RC19 The ESCP shall include the following:

General

(a) 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, coastal works and works within watercourses;

(b) The approach and procedures for ensuring advance warning of a rainfall event;

(c) The procedures for decommissioning the erosion and sediment control measures;

(ca) The procedures for determining staging and sequencing of earthworks;

(cb) A procedure to establish and define minor changes to erosion and sediment control, which would not require further certification by the Team Leader prior to implementation; and

(cc) Methods for amending and updating the ESCP as required.

Responsibilities

(d) 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.

Incident Management

(e) Identification of the process to ensure compliance with Condition RC32.

(f) Identification of the process to notify Watercare if any of the incidents in Condition RC32 occur upstream of the water take at NZTM 1748780 mE 5970390 mN (Auckland Council Permit No. 35555).

Chemical Treatment Management

(g) A Chemical Treatment Management Plan (ChemTMP) which shall include as a minimum:

i. Specific design details of the chemical treatment system based on a rainfall activated and manual batch dosing methodology for the site's sediment retention ponds (SRPs), decanting earth bunds (DEBs) and container impoundment systems and any other sediment detention or flow device system as may be employed on site;

ii. Monitoring, maintenance (including post storm) and contingency programme (including a record sheet);

iii. Details of optimum dosage (including assumptions);

iv. Results of initial chemical treatment trial;

v. A spill contingency plan;

vi. 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

vii. Details of the process to notify Watercare if any flocculant spillage occurs upstream of the water take at NZTM 1748780 mE 5970390 mN (Auckland Council Permit No. 35555).

Approval of ESCP

RC20 *[This condition is intentionally left blank]*

RC20AAt least 20 working days prior to commencement of Construction Works, the Consent Holder shall submit a hard paper copy of the ESCP to the Team Leader for approval. If the Consent Holder has not received any response (short of approval) from the Team Leader within 20 working days of submitting the ESCP, the ESCP will be deemed approved.

RC20B A copy of the approved ESCP shall be forwarded to Watercare for their information.

RC20C The Consent Holder shall implement the approved ESCP for the duration of the Construction Works.

RC21 *[This condition is intentionally left blank]*

RC22 *[This condition is intentionally left blank]*

RC23 *[This condition is intentionally left blank]*

RC24 *[This condition is intentionally left blank]*

Erosion and Sediment Control Standards

Maximum Open Earthwork Area limits

RC25 Unless otherwise varied in accordance with the Adaptive Monitoring Programme (set out in Conditions RC33 to RC37), the maximum open area of earthworks limitations shall apply as follows:

(a) Pūhoi Catchment (ie south of Moirs Hill Road) – 41ha at any one time; and

(b) Mahurangi Catchment (ie north of Moirs Hill Road) – 41ha of Hill Country and 21.5 ha of Flat Country (or equivalent ratios) at any one time.

Equivalent Ratios:

A one ha increase in open area of earthworks in the Flat country (above the 21.5 ha limit discussed above) will require a corresponding 0.467 ha reduction in open areas of earthworks in the Hill Country.

The reverse situation is equally applicable, in that a 1 ha increase in open area of earthworks within the Hill Country, (above the 41 ha limit discussed above) will require a corresponding 2.14 ha reduction of open area of earthworks in the Flat country, subject to a maximum open area of earthworks within the Hill Country of 51.05 ha which will result in no earthworks activity being permitted to take place within the Flat country during the same time period.

Calculation of Open Area:

The calculation of open area shall include all temporarily stabilised areas but exclude all permanently stabilised areas.

Earthworks Season Restriction

RC26 For earthworks activity taking place within the indurated rock of the Pakiri Formation geology, no seasonal limitation shall apply, but a revised CESCP providing for winter work in Pakiri formation shall be submitted to the Team Leader by 15 April of the year in which the winter works are proposed.

RC26AFor all other areas, earthworks activities shall not occur between 30 April and 1 October (winter period) in any one year unless otherwise approved by the Team Leader. Approval of earthworks occurring within the winter period will be based on:

(a) Previous compliance;

(b) The AMP procedures and outcomes as specified in Conditions RC35 to RC37;

(c) The nature of the specific works proposed to be undertaken in the winter period;

(d) The location of the specific works; and

(e) Ability to comply with Condition RC28.

RC26B In accordance with Condition RC27(i), all areas not subject to earthwork activities during any given winter period shall be stabilised by 30 April of that year.

Erosion and Sediment Control Device requirements

RC27 Unless otherwise agreed with the Team Leader, the Consent Holder shall design, construct and maintain all erosion and sediment control devices to achieve compliance with TP90 and also with the following design requirements (some of which do not form part of TP 90):

(aa) All erosion and sediment control devices shall be located outside the 20 year ARI flood level, unless no other viable location exists.

(ab) Clean and dirty water diversion channels, shall be sized to accommodate the flow from a 100 year ARI storm event where practicable, and at a minimum, the flow from a 20 year ARI storm event and an additional 300mm freeboard.

(ac) All temporary stream crossings and temporary culverts shall be sized to accommodate the flow from a 20 year ARI storm event and include a stabilised overland flow path for runnoff exceeding the flow expected in a 20 year ARI storm event.

(ad) At all practical times, streamworks activities and associated works shall be undertaken with stream diversions in place to accommodate up to the 20 year ARI rain event. All stream flows above the 20 year ARI rain event shall be diverted, via systems (such as overland flow paths) capable of conveying the 100 year ARI rain event flow around the works area.

(a) Pumping of all sediment laden runoff and groundwater during Construction Works shall be to SRPs, DEBs, grass buffer zones or temporary sediment retention devices such as container impoundment systems;

(b) All DEBs and SRPs that serve a catchment area greater than 500m^2 shall be treated via a rainfall activated chemical treatment system. SRPs shall each have two flocculation sheds (or equivalents) installed;

(c) All DEB volumes are to be designed based on 2% of the contributing catchment area and all DEBs shall be fitted with floating decants that are designed to discharge at a rate of 3 litres/sec/ha;

(d) All construction yard areas shall achieve the detention requirements as detailed within the draft NZ Transport Agency's Erosion and Sediment Control Standard for State Highway Infrastructure (August 2010);

(e) For the pre-cast yard facility, pH levels for all discharges shall be within the range of 6.5 to 8.5;

(f) All SRP volumes are to be designed based on 3% of the contributing catchment area and will contain reverse slopes in the base of ponds, baffles and decant pulley systems and a forebay with a volume of 10% of the pond volume;

(g) All dirty water diversion channels shall be designed and constructed with sediment sumps at locations specified in the Construction Erosion and Sediment Control Plans (CESCPs) with a minimum volume of 2m^3 per sump; and

(h) The erosion and sediment control for the site shall include the installation of a last line of defence as described in the CWAR, which shall include protection of the freshwater receiving environments with additional bunding, silt fence, super silt fence or alternative as defined in the CESCP for that particular stage.

(i) Earthworks shall be subject to Stabilisation in a progressive manner as earthworks are completed. If an area is not subject to earthworks activity for a 14 day period it shall be stabilised. This shall include completed sections of vertical cut faces and fill batters.

Construction Erosion and Sediment Control Plans

RC28 The Consent Holder shall prepare specific CESCPs for each Stage of the Project and streamworks in accordance with the ESCP, which shall demonstrate how the objectives of Condition RC17 will be met, and compliance with the criteria in Conditions RC25 to RC27. The Consent Holder shall engage with the Iwi Advisor while preparing the CESCPs.

RC28AThe CESCPs shall:

(a) Identify how the standards in Conditions RC25 to RC27 will be met (where applicable); and

(b) Include, but not be limited to:

i. Streamwork construction methodologies and stream assessments, fish species assessment, fish migration assessment and any required fish relocation provisions;

ii. Details of the presence and management of any unexpected geological conditions such as high or low pH soil conditions;

iii. Identification of areas susceptible to erosion and sediment generation and implementation of erosion and sediment control measures appropriate to each situation with particular emphasis on high-risk areas (including those identified and determined through sediment yield calculations). This risk identification process shall also include identification of:

I the water take downstream at NZTM 1748780 mE 5970390 mN (Auckland Council Permit No. 35555); and

II the stream and SH1 culvert located approximately 340m north of the driveway access to 1488 State Highway 1.

iv. A schedule of current and planned open earthworks areas as applicable to that CESCP at the time of preparation of the CESCP;

v. Estimated sediment yield for the Stage of work, as extrapolated from the yield predicted in the CWAR for the relevant focus area;

vi. Detailed design specifications for all erosion and sediment control measures including supporting calculations where appropriate, contributing catchment area, retention volume of structure(dead storage and live storage measured to the top of the primary spillway); shape of structure (dimensions of structure); safety and access, position of inlets and outlets; stabilisation of the structure, and maintenance provisions;

vii. Identification of erosion and sediment control contingency measures to be employed;

viii. Identification of the location of all discharge points to watercourses; and

ix. A site plan showing contours at suitable intervals, cut and fill operations, the specific location of all sediment and erosion control measures and catchment boundaries for the erosion and sediment controls.

x. Chemical treatment design and details specific to the stage, consistent with the ChemTMP.

RC29 At least 10 working days prior to the commencement of work in each Stage of the Project, the Consent Holder shall submit a hard paper copy CESCP for that Stage of the Project to the Team Leader for certification that the CESCP has been prepared in accordance with the ESCP and meets the requirements of Condition RC28A. Work shall not commence in any Stage of the Project until the Consent Holder has received the Team Leader's written certification of the CESCP for that Stage. If the Consent Holder has not received a response (short of certification) from the Team Leader within 10 working days of submitting a CESCP, the Consent Holder will be deemed to have certification and can commence earthworks.

Other

RC29AA If Lot 1 DP 321568 is to be used for construction vehicle access, a CESCP shall demonstrate that any works to form such access avoid the discharge of sediment-laden runoff to the south onto Pt Lot 2 DP 151082 as far as practicable. A copy of the certified CESCP shall be provided to the owners of Pt Lot 2 DP 151082 for their information.

RC29AA copy of certified CESCPs for works in the catchment upstream of the water take at NZTM 1748780 mE 5970390 mN (Auckland Council Permit No. 35555) shall be forwarded to Watercare for their information.

RC30AThe Consent Holder shall implement the CESCP for each Stage of works for the duration of the applicable Construction Works within that Stage.

RC30 *[This Condition is intentionally left blank]*

Pre-cast Yard

RC30AA A CESCP shall be prepared that is specific to the construction and operation of the pre-cast yard. That CESCP shall include the relevant matters of Conditions RC25 to RC27 and the following:

(a) methods for monitoring the pH of yard runoff;

(b) provisions for detention of all runoff during yard operation and measures to ensure runoff remains with a pH range of 6.5 to 8.5 (Condition RC27(e));

(c) the location and method of storage of any environmentally hazardous substances, in accordance with relevant regulations;

(d) measures to avoid the discharge of dust beyond the pre-cast yard site boundary; and

(e) an emergency spill response plan specific to that site.

RC30AB The construction and operation of the pre-cast yard shall comply with the CESCP prepared for that site.

Advice Note: Condition RC30AA applies solely to consent no 33/016.

CESCP As-built Certification

RC31 Prior to Construction Works in the Stage that the CESCP applies (excluding the construction of the erosion and sediment controls themselves) as-built plans signed by an appropriately qualified and experienced erosion and sediment control practitioner shall be submitted to the Team Leader for information as confirmation that the erosion and sediment control measures for that CESCP have been constructed in accordance with the relevant CESCP. Bulk earthworks within the stage shall not commence until the as-built plan confirming compliance with the CESCP has been submitted to the Team Leader.

Incident Management

RC32A The Consent Holder shall notify the Team Leader and Auckland Council within 1 working day after identifying that any contaminants (including sediment) or

materials have been released in the undertaking of the Work and 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; and/or

(b) failure of any erosion and sediment control measures; and/or;

(c) discharge of a hazardous substances, including cement, to a water body; and/or

(d) failure of any temporary stream diversion; and/or

(e) un-consented removal, loss or damage to vegetation or other habitats; and/or

(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.

This notification shall be either by telephone or email, or via an alternative method as agreed with the Team Leader.

RC32 If any of the incidents identified in condition RC32A 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 Team Leader 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 Team Leader; and

(d) maintain a permanent record of the incident 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 Team Leader.

RC32B The consent holder shall notify Watercare if any incident listed in Condition RC32 occurs upstream of the water take at NZTM1748780 mE 5970390 mN (Auckland Council Permit No. 35555).

Adaptive Monitoring Programme

RC33 The Consent Holder shall prepare an Adaptive Monitoring Plan (AMP) to ensure the objectives in Condition RC17 are met and to ensure continuous improvement as to the effectiveness of the erosion and sediment controls employed on site.

RC34 *[Moved – now Condition RC35A]*

RC35 The AMP shall:

(a) Identify how the requirements of conditions RC17 and RC36 will be provided for;

(b) Include procedures for undertaking:

i Ongoing site visual assessments of all erosion and sediment devices;

ii Ongoing device monitoring including flocculation;

iii Automatic onsite rainfall monitoring using at least 2 rain gauges, including email and text notifications of rainfall triggers as specified in Condition RC36(b);

iv A manual grab sample during the storm to measure TSS of all discharge points of sediment retention devices, at the time of a discharge and as a result of the trigger events identified in Condition RC36(b) below;

v Ongoing inflow and outflow monitoring (measured in m^3/sec) of the discharges into and out of four SRPs (two (2) in the Pūhoi catchment and two (2) in the Mahurangi catchment), with at least one pond in each catchment treating steeper earthworks areas; and

vi Automatic sediment sampling at the same four selected SRPs (2 in the Pūhoi catchment and 2 in the Mahurangi catchment) to measure inflow and outflow TSS.

vii monitoring to detect sediment deposition in the coastal marine area to give effect to Condition RC36(d).

RC35A At least 20 working days prior to the commencement of Construction Works, the Consent Holder shall submit a hard paper copy of the AMP to the Team Leader for certification that the AMP has been prepared in accordance with Condition RC35. If the Consent Holder has not received any response from the Team Leader (short of certification) within 20 working days of submitting the AMP, the Consent Holder will be deemed to have certification and can implement the AMP.

RC35BThe Consent Holder shall implement and comply with the AMP for the duration of the Construction Works.

RC36 The Consent Holder shall also comply with the following, in accordance with the AMP:

(a) If rain is forecast for the Project Area, the Consent Holder shall undertake pre-rain inspections and any maintenance and install any additional measures appropriate to the severity of the forecast event (including Stabilisation) that are required to ensure erosion and sediment controls operate to meet or exceed the performance predicted in the CWAR (including predicted sediment control efficiencies and estimated sediment yield for each Stage of work). Within 7 days, the Consent Holder shall notify the Team Leader of the inspection outcomes and the measures implemented.

(b) The Consent Holder shall carry out (unless it will be unsafe or dangerous) a manual grab sample to measure TSS to all discharge points of sediment retention devices during the storm and at the time of a discharge if any of the following trigger events occur during construction:

i. Greater than 25mm of rainfall over any 24 hour period (as measured by the automatic onsite rainfall devices) where a construction area subject to a CESCP is not Stabilised; or

ii. Greater than 15mm of rainfall within an hour period where a construction area subject to a CESCP is not Stabilised; or

iii. Spillage/accidents that cause a discharge of sediment or contaminants to the aquatic environment; or

iv. Obvious degradation of the receiving environment immediately downstream of the sediment retention ponds, such as accumulation of sediment, conspicuous oil/grease, scums/foams, floatable matter, fish kills, discolouration of water or significantly increased growth of nuisance algae.

(c) Within 12 hours of any of the trigger events in Condition RC36(b) occurring, the Consent Holder shall investigate the erosion and sediment control measures to determine whether there has been a discharge from the devices. If there has been a discharge the Consent Holder shall:

i. Inspect the earthworks site and erosion and sediment control devices to identify any problems or activities likely to have contributed to an increased sediment discharge; and

ii. Take a manual grab sample of each discharge from a sediment control device to determine TSS concentrations;

iii Record observations and take a manual grab sample in the freshwater receiving environment, upstream and downstream of the most upstream and downstream discharges respectively;

iv. Remedy any identified problems, and implement any further controls on activities or areas of the site that are likely to contribute to sediment discharge as specified in Condition RC36(f); and

v Notify the Team Leader of the trigger event occurring and any actions undertaken.

(d) If freshly deposited earthworks-derived sediment that is attributable to the Project is detected within the coastal marine area, the Consent Holder shall measure the sediment deposition depth and take GPS measures of the sediment location where possible. If the earthworks-derived sediment has been deposited to a depth of ≥ 3mm over a continuous area of 1000m² (or greater) or over a discontinuous area of 1000m² within an area of 3000m², the Consent Holder shall repeat the measuring of the depth and extent of sediment, (second triggered sediment depth and area inspection), three days after the first triggered inspection. The Team Leader shall be notified of the coastal marine survey outcomes.

(e) If, after the second triggered sediment depth and area inspection, the deposition depth and extent exceeds the measurements noted in Condition RC36(d), the Consent Holder shall engage a suitably qualified and experienced marine ecologist to undertake an ecological survey of the affected area within 48 hours of the second triggered sediment depth and area inspection. The ecological survey shall be repeated two times, once 7 days and once 21 days after the first survey. Each ecological survey shall include benthic invertebrate community composition and sediment quality surveys. The scope of the survey shall be appropriate to the scale of the sedimentation event, as determined by the marine ecologist. Statistical analysis of differences in benthic invertebrate community composition shall be undertaken using a PERMANOVA type multivariate technique. An appropriately qualified and experienced ornithologist shall review the results of the benthic invertebrate community composition data and provide a summary of potential effects on wading birds which will be included in the marine ecology report which will be provided to the Consent Holder and the Team Leader.

(ea) In the event that significant adverse effects on ecological values are identified in RC36(e), the Consent Holder shall develop and implement appropriate remedial measures commensurate to the scale of effects, with the agreement of the Team Leader. If remedial measures or offset mitigation are required due to adverse effects being detected in the marine environment, the measures should have direct benefit to that marine environment as determined by a suitably qualified ecologist in consultation with the Team Leader.

(f) Following an event as specified in Condition RC36(b) and as detailed in Condition RC36(c), the Consent Holder shall as soon as practicable, but within 12 hours of the event notification, investigate erosion and sediment control measures to determine whether there has been a discharge from the devices. Following this initial investigation the Consent Holder shall check and take all necessary steps in relation to all erosion and sediment control measures, which may include, but not be limited to, decreases of the open area limits in Condition RC25, alterations to erosion and sediment control measures and methodologies, refinement of chemical treatment systems, progressive stabilisation in sub catchments, increased maintenance of controls, amendments to methodologies and sequencing of works and refinement of controls as necessary. The Team Leader will be notified regarding the steps taken within 7 days of the event notification.

(g) The Consent holder shall, as instructed by the Team Leader, stabilise open earthwork areas if the Team Leader considers that the measures reported in Condition RC36(f) are not adequate to minimise the risk of further adverse sediment discharges from that Stage of works.

RC36A In the event of a 50 year ARI event occurring during both the Construction Works and the inanga (*Galaxias maculatus*) spawning season, the Consent Holder shall engage a suitably qualified ecologist to undertake a visual assessment of the habitat identified in accordance with Condition RC13(a)(ii) within 5 days of the 50 year ARI event to assess effects on inanga (including consideration of the area of potential spawning habitat affected and effects on deposited eggs and/or developing embryos).

RC36B In the event that Project sediment is identified under Condition RC36A to have been deposited on or amongst the habitat areas identified in Condition RC13(a)(ii), the Consent Holder shall develop and implement an appropriate programme of mitigation commensurate to the scale of effects caused by Project sediment (if any), and that has direct benefit to inanga (*Galaxias maculatus*).

RC36C The programme of mitigation identified in Condition RC36B shall be developed by a suitably qualified ecologist and shall be submitted to the Team Leader for certification that the mitigation is appropriate.

Advice note: As part of developing its programme of mitigation, the Consent Holder may wish to consult with the Department of Conservation who has expertise relating to inanga habitat restoration.

RC37 The Consent Holder shall ensure that:

(a) All monitoring required under the AMP is undertaken by a suitably qualified and experienced erosion and sediment control practitioner, except as required to be undertaken by suitably qualified and experienced ecologists;

(b) The results of all monitoring carried out pursuant to the AMP are submitted to the Team Leader within 10 working days of a triggered event in Condition RC36(b) and also at quarterly intervals for all monitoring for the Council's information. As a minimum the quarterly report shall include:

(i) all monitoring data required in accordance with the conditions of this consent;

(ii) analysis of trends in SRP performance in the monitoring data by comparison to previous periods and between the ponds themselves; and to estimated sediment yield for each Stage of work, as extrapolated from the yield predicted in the CWAR for the relevant focus area.

(iia) analysis in the context of the marine monitoring required by Condition RC16DB;

(iib) analysis in the context of the freshwater monitoring required by Condition RC11;

(iii) any reasons for non-compliance or difficulties in achieving compliance with the conditions of these resource consents;

(iv) any works that have been undertaken to improve the environmental performance of the site or that are proposed to be undertaken in the up-coming year;

(v) recommendations on alterations to the monitoring required; and

(vi) any other issues considered important by the Consent Holder.

(c) Records are to be kept to demonstrate where monitoring is not possible due to dry conditions; and

(d) Where the analysis of the monitoring results set out in the reporting requirements in Condition RC37(b) confirm that structural and non-structural erosion and sediment control measures are performing below the level of performance predicted in the CWAR (including predicted sediment control efficiencies and estimated sediment yield for each Stage of work), Condition RC36(f) shall be instigated immediately and in consultation with the Team Leader.

RC38 [*This condition is intentionally left blank*]

Enabling Works

RC39 The Consent Holder shall prepare specific CESCPs for the Enabling Works for the Project, which shall specify the erosion and sediment control methods to achieve the objectives included in Condition RC17. The Consent Holder shall engage with the Iwi Advisor while preparing the CESCPs for the Enabling Works.

RC40 At least 10 working days prior to the commencement of Enabling Works, the Consent Holder shall submit a hard paper copy of the CESCP for those Enabling Works to the Team Leader for certification. Enabling Works shall not commence in until the Consent Holder has received the Team Leader's written certification for the CESCP for the Enabling Works. The certification will confirm any such CESCP meets the requirements of Condition RC28A. If the Consent Holder has not received a response (short of certification) from the Team Leader within 10 working days of submitting a CESCP, the Consent Holder will be deemed to have certification and can commence Enabling Works.

Amendments

RC40A The Consent Holder may seek to amend the ESCP, any CESCP or the AMP in accordance with the process proscribed for their initial approval/certification in the above conditions.

Dust management

Conditions RC40B-47 apply to Consents 33/003, 33/005, 33/008, 33/014

RC40BThe Consent Holder shall avoid, as far as practicable, dust and fumes arising from construction activities beyond the boundary of the designation.

RC41 The Consent Holder shall prepare a Construction Dust Management Plan (CDMP) to meet Conditions RC40B, and RC41A to 46. The CDMP shall outline the measures to be adopted to avoid, as far as practicable, dust and fumes arising from construction activities beyond the boundary of the Project Area including:

(a) visual monitoring;

(b) watering for dust suppression,

(c) wind fencing,

(d) metalling of paving yards and access roads,

(e) minimising open earthwork areas,

(f) revegetation as soon as practical and controlling vehicle speeds.

The CDMP shall also incorporate procedures for daily visual monitoring, weather observations and recording of construction activities.

RC41A The Consent Holder shall implement the CDMP for the duration of Construction Works and shall provide a copy to the Team Leader for their information at least 20 working days prior to commencement of Construction Works.

RC41B Site specific CDMPs shall be prepared by the consent holder to address potential dust effects on 466 SH1 and 682 SH1. The Consent Holder shall seek comments from the owners and/or occupiers of 466 SH1 and 682 SH1 during the development of the relevant site specific CDMP. Condition RC41A shall apply to these site specific CDMPs.

RC42 The Consent Holder shall seal sections of any unsealed access or road intended to be used by construction vehicles where the access or road passes within 50 metres of a residential dwelling, for a length of at least 100m either side of the dwelling. In particular the construction road on Lot 1 DP 321568 shall be sealed for 100 metres either side of the houses at 1447 SH1.

RC43 Prior to the commencement of Construction Works, the Consent Holder shall seal:

(a) Moirs Hill Road between SH1 and western edge of the designation; and

(b) Wyllie Road between Woodcocks Road and western edge of the designation.

(c) The construction yard number 2 and office yard number 2 at Pūhoi; and

(d) The pre-cast yard (Number 15) at Woodcocks Rd.

RC44 Prior to construction the Consent Holder shall implement a high level of dust control (e.g. wind fences) to protect all totara trees referenced in Designation Condition D53(b) that carry green mistletoe. The Consent Holder shall engage a suitably qualified botanist to monitor the efficacy of the dust suppression measures. Additional dust minimisation measures shall be implemented by the Requiring Authority where the suitably qualified botanist finds that dust is settling on the mistletoe. Fencing, wind protection and any additional dust minimisation measures can be removed on completion of Construction Works.

Advice Note: Condition RC44 is a repetition of Designation Condition D55. It is included as a resource consent condition to avoid ambiguity.

RC45 At intervals of no less than four (4) months during the period of Construction Works, the Consent Holder shall offer by mail to the landowners and occupiers (if different) of any occupied dwellings:

(a) within 200 metres of the designation boundary; and (if different)

(b) located on the following properties:

i. 77B Viv Davie-Martin Drive;

ii. 62B Viv Davie-Martin Drive;

iii. 62A Viv Davie-Martin Drive;

iv. 346 Woodcocks Road;

v. 434 Woodcocks Road;

vi. 438 Woodcocks Road;

vii. 83 Valerie Close;

viii. 123 Valerie Close;

ix. 63 Perry Road;

x. 815 SH1;

xi. 1447 SH1;

xii. 18 Slowater Lane;

xiii. 37 Pūhoi Road;

xiv. 5 Hungry Creek Road;

xv. 24 Billing Road; and

xvi. 26 Billing Road.

to:

(1) Fill any potable water tanks on the property, up to a maximum of 30,000 litres per property every four (4) months;

(2) Conduct exterior house and window washing, involving a full water blast with non-toxic washing liquid to remove visible dust arising from Construction Works.

RC45AA The Consent Holder, when complying with an accepted offer in Condition RC45, must ensure, if water from tanks is being removed or discharged, that erosion and other damage to a property is avoided and that any discharge or redirection of water does not infringe any regulations or other rules, and that the tort of nuisance is not committed.

RC45A The Consent Holder shall offer by mail to the persons referred to in Conditions RC45(a) and RC45(b) to conduct a full water blast with a non-toxic washing liquid of any surface used to collect potable water on the properties referred to in Conditions RC45(a) and RC45(b), at the conclusion of Construction Works in the vicinity of the relevant property.

RC46 If the Consent Holder has not received a response from a landowner or occupier identified in Condition RC45 or RC45A within 20 working days of mailing an offer under Condition RC45 or RC45A, that landowner or occupier will be deemed to have rejected the offer. The consent holder shall undertake the activities under Condition RC45 and RC45A within 30 days of obtaining agreement, assuming access is provided.

RC47 *[This condition is intentionally left blank]*

Works in a Watercourse

Conditions RC48-60 apply to Consents 33/005 and 33/008

Pre-construction

RC48 Prior to the commencement of works within the relevant watercourse, the Consent Holder shall engage a suitably qualified freshwater ecologist to:

(a) undertake a survey of every watercourse that is not identified in Appendix A that may be affected by Construction Works, to identify whether the watercourse is either Permanent or Intermittent; and

(b) identify the typology (as defined in Appendix B) of watercourses noted in Appendix A and (a) above as permanent.

Construction

RC49AA All works in a watercourse shall be carried out in accordance with a CESCP certified in Condition RC29.

RC49A Streamworks shall be carried out only during periods when all flows, up to the 24 hour 20 year return period storm event, can be diverted around the area of works. During periods of flow greater than the capacity of the diversion, up to the 100 year flood event, a stabilised flowpath shall be provided to ensure no scour or erosion occurs and so that flows can pass safely around or through the area of works with minimum nuisance, damage and sediment generation or discharge. Works within any given stream should not commence within the peak fish migration period of 1 September to 30 November and for that stream shall, as far as practicable, avoid that period in subsequent years.

Advice note: Streamworks shall only be commenced when the weather forecast is favourable.

Requirements for Streamworks

RC49 Works in any watercourse (for example, all viaducts, bridges, culverts and permanent stream diversions) shall:

(a) Allow for the 100 year ARI event; and

(b) Minimise stream loss.

The Consent Holder shall engage with the Iwi Advisor while undertaking the design of any works in a watercourse.

RC50 Culvert design shall:

(a) be designed to minimise flooding effects;

(b) address the risks of non-performance, such as blockage, taking into account the risk of a soil/rock debris flow;

(c) incorporate fish passage elements to enable all aquatic species that are or expected to be (by a suitably qualified ecologist) present to migrate into and through each culvert for 300 days of the year on a long term average basis (ie considering the velocities and flow depths associated with the 10th percentile to 90th percentile flow range within the specific

culvert and the locomotive limitations of the target species). Fish passage elements shall be informed by Auckland Council and NZ Transport Agency's "Fish passage guidance for state highways" (August 2013) guidelines and shall be provided, designed and constructed to be robust enough to withstand the impact of debris passing through the culvert and still operate as intended; and

(d) incorporate energy dissipation and erosion control to minimise the occurrence of bed scour and bank erosion in receiving environments.

RC51 Fish passage shall be provided on all culverts unless deemed unnecessary by a suitably qualified ecologist, who has assessed the fish passage requirements in accordance with NZ Transport Agency's "Fish passage guidance for state highways" (August 2013). Where fish passage is deemed unnecessary, appropriate data and rationale for this decision shall be provided with the design drawings to the Team Leader for approval (refer Condition RC53).

RC52 The Consent Holder shall design and construct all stream diversions in general accordance with the requirements in Appendix B for flow, channel stability, instream habitat and riparian planting and to replace any loss of habitat functionality by assessing the habitat functionality of the area of stream to be diverted pre-construction (in accordance with the process in condition 58(a)-(f)) and monitoring the diversions post instalment in accordance with the process in condition 58(n)-(q) where references to "culverts" in condition RC58 mean "diversions", "Mitigation Sites" mean the "diverted section of stream" and the "Mitigation Works Plan" is the plan prepared in general accordance with the requirements in Appendix B.

RC52AAny permanent stream diversion of tributaries M18/19, located west and southwest of the Kauri Eco Viaduct shall be via an open channel constructed in accordance with Condition RC52.

RC53 At least 30 working days prior to commencement of the relevant works within a watercourse, the Consent Holder shall submit hard paper copies of the design drawings and a maintenance plan for permanent culverts (including fish passage), bridges and stream diversions to the Team Leader for certification that those details meet Conditions RC48 to RC52. If the Consent Holder has not received a response (short of certification) from the Team Leader within 30 working days of submitting the design drawings, the Consent Holder will be deemed to have certification and can commence the works within a watercourse.

RC54 *[Moved – now Condition RC16B]*

RC55 *[Moved – now Condition RC16C]*

RC56 *[Moved – now Condition RC16D]*

Ecology

RC57 Prior to the commencement of works in sections of streams that support a population of fish, the Consent Holder shall ensure that any fish present in that section of stream are recovered and transferred to another section of that stream. The stream section where the fish are transferred to shall be isolated from the section of the stream where the works are being undertaken to prevent fish re-entering. This transfer process shall be detailed within the CESCP for that specific Stage of works.

RC58 The Consent Holder shall replace and monitor any loss of habitat functionality within any permanent stream that is to be culverted. The use of SEV scores in this condition will be consistent with the use of SEV scores in mitigation calculations as outlined in Technical Report 2011/009 Stream Ecological Valuation: a method for assessing the ecological functions of Auckland Streams (Stream SEV method) or other method if agreed with Council. The SEV scores will not include the biological functions (IFI and FFI) when used for calculating mitigation requirements. The replacement and monitoring shall be determined by a suitably qualified ecologist as follows:

Calculating lost habitat functionality

(a) Assess the current habitat functionality (SEV) of the stream which is to be culverted (Culvert Site Current SEV).

(b) Assess the assumed SEV of the culvert site following culverting (Culvert Site Future SEV).

(c) Subtract the Culvert Site Future SEV from the Culvert Site Current SEV to get "Culvert Site SEV Loss".

(d) Calculate the area of stream bed (ie length x wetted width) to be culverted (Culvert Site Area).

(e) Multiply Culvert Site SEV Loss by Culvert Site Area to get "Culvert Site SEV Units".

(f) Provide the SEV assessments and the above calculations to the Team Leader for certification.

Replacement of lost habitat functionality

(g) Identify a stream or streams within the designation as Mitigation Sites taking into consideration:

i. The potential to link other mitigation works required for the Project under the ULDF where such linkages would have broader ecological benefits (including culverts under existing SH1); and

ii. Mitigation Sites in environments similar to those of the Culvert Sites (for example, hill country or flat country), to the extent practicable.

(h) Assess the current SEV of the Mitigation Sites.

(i) Prepare a Mitigation Works Plan (eg riparian planting, stream habitat creation, fencing and stream protection) for the Mitigation Sites, the purpose of which is to enhance the Mitigation Sites' condition to achieve full replacement of the Culvert Site SEV Units within five years of the Mitigation Works taking place.

(j) Assess the predicted SEV gain from the Mitigation Works Plan (Predicted Gain).

(k) Divide the Culvert Site SEV Units by the Predicted Gain to get the total area of stream to be enhanced (ie wetted length and width). The length or area to be enhanced shall be no less than the culverted length or area.

(l) Implement the Mitigation Works Plan prior to the opening of the Project.

(m) Provide a copy of the Mitigation Works Plan to the Team Leader for approval.

Monitoring of Mitigation Sites and Mitigation Works Plan

(n) Monitor the SEV of the Mitigation Sites at no less than three (3), five (5) and seven (7) years after opening of the Project (or until the monitoring shows the Mitigation Sites have achieved replacement of the Culvert Site SEV Units, whichever time period is the lesser) to establish whether the Culvert Site SEV Units have been replaced at the Mitigation Sites. Monitoring shall be undertaken at times that avoid transient conditions, such as flood events.

(na) Provide the SEV assessments and associated calculations used for monitoring to the Team Leader for certification.

(o) Where that monitoring concludes that the Mitigation Sites and the Mitigation Works Plan have not replaced the Culvert Site SEV Units prepare a further Mitigation Works Plan, subject to approval by the Team Leader. The further Mitigation Works Plan may include, without limitation, repair or improvement of existing mitigation works or additional mitigation works.

(p) Implement any additional mitigation within 6 months of the approval by the Team Leader or during the next planting season (whichever is appropriate to the measures adopted).

(q) Undertake further monitoring after seven (7) years at two yearly intervals if the Mitigation Sites have not achieved replacement of the Culvert Site SEV Units, and repeat the steps required by paragraphs (n) through (q) as necessary.

RC59 *[This condition is intentionally left blank]*

RC60 All works in a watercourse shall be carried out in accordance with designs certified in Condition RC53.

Stormwater Discharge

Conditions RC61-68A apply to Consents 33/004, 33/006, 33/007, 33/013, 33/014 and 33/015

RC61 The Consent Holder shall ensure that all stormwater from the motorway (impervious surfaces and rock cuts) is captured, treated and discharged through wetlands (to the extent practicable) and as approved by the Team Leader in Condition RC65 below, to:

(a) Remove at least 75% of Total Suspended Solids (TSS) loads on an average annual basis by design in accordance with TP10 guidelines or variations agreed with Council (for example vegetated roadside drains for local roads);

(b) Provide extended detention in accordance with TP10 of rainfall for all discharges to stream environments. Discharges without extended detention, such as to flow channels or culverts or to tidally influenced areas, are subject to approval by the Team Leader as required by condition RC65 below;

(c) Provide for the 100 year ARI event, including provision for overland flow up to this event; and

(d) Include erosion control for stormwater outfalls to minimise the occurrence of bed scour and bank erosion in receiving environments.

RC61A The Consent Holder shall engage with the Iwi Advisor when designing permanent stormwater measures.

RC62 The Consent Holder shall design permanent wetlands to include:

(a) Forebays and submerged or baffled low flow outlets so that floatables and litter can be trapped at the main outlet;

(b) Planting in deep emergent, littoral, riparian zones and that dense, healthy planting is maintained in operation with vegetation providing some shading; and

(c) Provision for climbing fish access to wetlands where appropriate, to be determined by an appropriately qualified and experienced freshwater ecologist.

RC63 The Consent Holder shall use pre-treatment measures where higher sediment loads are anticipated, such as sediment traps for sediment eroded off rock cuts.

RC64 The Consent Holder shall maintain stormwater treatment devices to ensure that the criteria in Conditions RC61 and RC62 of this Consent are achieved.

RC65 The Consent Holder will submit in hard paper copy the final design of the permanent stormwater measures (ie excluding conveyance measures) to the Team Leader for approval. The final design, which may be provided in parts, shall be submitted to the Team Leader at least 30 working days prior to the commencement of construction of permanent stormwater measures in the applicable area. If the Consent Holder has not received a response (short of approval) from the Team Leader within 30 working days of submitting the final

design, the Consent Holder will be deemed to have approval and can commence construction.

RC66 All permanent stormwater measures shall be carried out in accordance with designs approved in Condition RC61.

RC67 The Consent Holder shall document the operation and maintenance requirements of the stormwater treatment devices including sediment traps within three months of the completion of the Construction Works. These shall be submitted to the Team Leader for certification.

Flooding

RC67AThe Consent Holder shall ensure that the design of the Project in the Mahurangi catchment does not result in any more than a negligible increase in downstream peak flood levels and/or flood flow up to the 100 year ARI event. Compliance with this Condition shall be demonstrated by a hydraulic and hydrological model with the level of detail and reporting to be agreed with the Team Leader. The peak flood levels and flood flows for pre-development and post-development of the Project shall be compared by the hydraulic and hydrological model at the location of the Mahurangi River flow gauge located behind Mahurangi College.

RC68 The Consent Holder shall ensure that north of Wyllie Road to the SH1 intersection with Kaipara Flats Road the design of the Project will not result in:

(a) Flooding of habitable floor levels where predevelopment modelling indicates pre-Project there is no such flooding in the 2, 5, 10, 20, 50 and 100 year ARI events;

(b) Any increase in flood levels on Lot 2 DP 405448 (CT 419127) from those experienced on that lot preconstruction of the Project; and

(c) Any increase in flood levels of more than 100mm where neither (a) nor (b) above apply.

Compliance with this Condition shall be demonstrated by a hydrological and hydraulic model with the level of detail and reporting to be agreed with the Team Leader.

RC68AThe 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 Project Area at the time of construction; and/or

(b) An existing floodplain.

Groundwater Monitoring

RC68B Prior to construction of the access road on Lot 1 DP 321568 the Consent Holder shall write to the owners of 1488 SH 1 seeking access to 1488 SH1 to install and monitor a piezometer in the vicinity of the wetland. If permission is granted by the owners of 1488 SH1, the Consent Holder shall install a piezometer in the vicinity of the wetland and shall monitor the groundwater level regularly (at least every two months) for the duration of construction of the access road on Lot 1 DP 321568.

RC68C In the event of the groundwater level significantly reducing, the Consent Holder shall engage with the land owner and Auckland Council to assess cooperatively the attributable (to construction of the access road) causes and effects of such reduction and NZTA is to put in place appropriate construction-related mitigation.

RC68D The Consent Holder shall be deemed to have complied with RC68B where the owners of 1488 SH1 did not approve access to 1488 SH1 to install and monitor a piezometer in the vicinity of the wetland.

Coastal Works

Conditions RC69-80 apply to Consents 33/009, 33/010, 33/011, 33/012

RC69 At least 20 working days prior to the commencement of works in the coastal marine area, the Consent Holder shall provide the plans (including dimensioned cross sections, elevations and site plans) of the permanent and temporary structures within the coastal marine area during the construction and operation of the Project to the Team Leader for certification that the plans are in accordance with Conditions RC69A and RC69AA.

RC69AThe Consent Holder shall design the Okahu Viaduct in accordance with the ULDF and shall be subject to an Urban and Landscape Design Sector Plan as identified in Condition D33 of the Designation Conditions.

RC69AA The structure/s over the Okahu Inlet and within the CMA shall:

(a) have no more than a total of 4 piers within the CMA, with an area of permanent occupation at benthic sediment level, no greater than 70m^2;

(b) have any pier caps located at least 500mm below benthic sediment level;

(c) have a total width no greater than 35m within the area outlined in Appendix C and defined by NZTM locations:

A : 1749957, 5956248

B : 1750079, 5956297

C : 1750133, 5956089

D : 1749997, 5956090

(d) have a bridge deck surface that is no higher than RL (Reduced Level) 35m and no lower than RL 15m.

RC70 Construction Works in the coastal marine area shall be undertaken in accordance with a CESCP. Such CESCP shall be prepared in accordance with Conditions RC28 to RC29.

RC71 The Consent Holder shall maintain the construction site in good order and where appropriate remedy any damage and disturbance of the foreshore and seabed caused by plant and equipment during construction.

RC72 The Consent Holder shall ensure all equipment, erosion and sediment control measures and construction materials are removed from the coastal marine area within 40 days following completion of Construction Works.

RC73 Prior to commencement of Construction Works within the Okahu Inlet, adult mud snails (*Amphibola crenata*) present on the mudflat within the construction footprint shall be collected by hand, and relocated to a similar area of mudflat at least 20 metres from the outer limits of the construction area. The time between collection of snails and relocation should not exceed two hours, in order to minimise stress on the snails. Collection and relocation of snails shall be carried out by a suitably qualified marine ecologist. The Consent Holder shall engage with the Iwi Advisor to ensure the Iwi Advisor (or representative of

Hōkai Nuku) is invited to be present during the collection and relocation of the snails.

RC74 The area of mangrove and saltmarsh removal within Okahu Inlet shall be minimised as far as practicable and the total area of disturbance shall be no greater than 2500m^2 within the CMA.

RC75 Mangrove and saltmarsh removal shall be undertaken by hand between 1 March and 31 July in order to avoid the wading bird primary breeding season.

RC76 Where mangrove or saltmarsh removal is required, the vegetation shall be removed from the estuary and disposed of at an approved facility in order to avoid potential adverse effects from decaying vegetation on mudflat habitat.

RC77 Conditions D71A to D73 shall apply to the construction and operation of the Okaku Viaduct with references to "Requiring Authority" to be read as "Consent Holder" and, with reference to "carriageways", to include all carriageways on the Okahu Viaduct.

RC78 *[This condition is intentionally left blank]*

RC79 *[This condition is intentionally left blank]*

RC80 *[Moved – now Condition RC16A]*

Air Discharge – Rock Crusher

Conditions RC81-86 apply to Consent 33/017

RC81 *[Moved – now Condition RC85]*

RC82 The Consent Holder shall ensure that beyond the boundary of the Project Area there shall be no discharges, including hazardous air pollutants, dust or visible emissions, caused by the operation of the mobile rock crusher that, in the opinion of the Team Leader, are noxious, dangerous, offensive or objectionable or does or could cause adverse effects on human health, the environment or property.

RC83 The Consent Holder shall prepare a Rock Crusher Management Plan (RCMP) to identify how Condition RC82 will be met. The RCMP shall:

(a) Identify the location(s) of any mobile rock crusher for the duration of construction,

(b) Identify potentially sensitive receivers,

(c) Identify methods to manage dust suppression including any emissions control equipment (eg enclosure and/or water sprays at transfer points) and any recording of weather conditions.

RC84 *[This condition is intentionally left blank]*

RC85 At least 20 working days prior to the commencement of any rock crushing, the Consent Holder shall submit the RCMP in hard paper copy to the Team Leader for approval. If the Consent Holder has not received a response (short of approval) from the Team Leader within 20 working days of submitting the RCMP, the Consent Holder will be deemed to have approval.

RC86 The Consent Holder shall implement the RCMP for the duration of any rock crushing works.

Appendix A

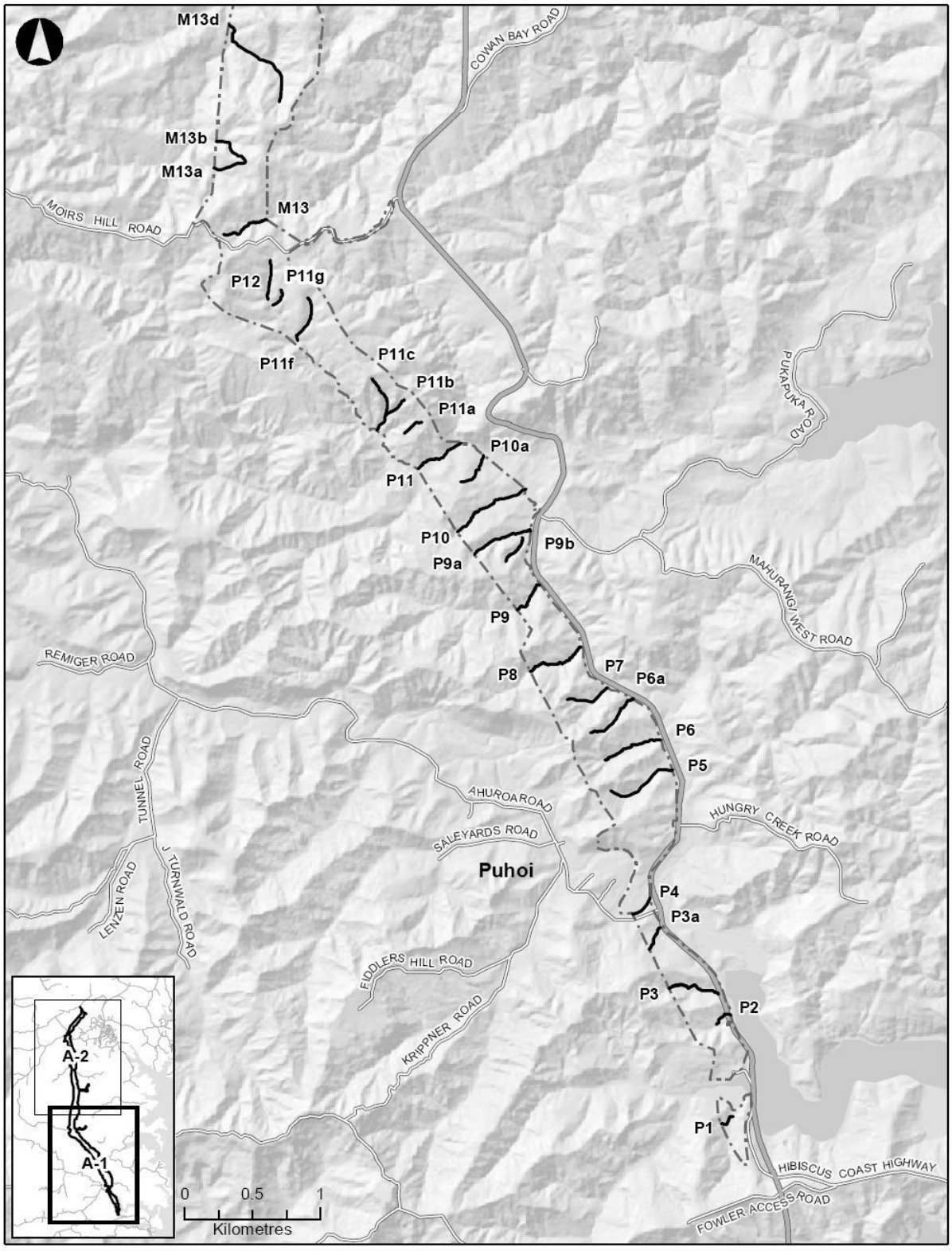
The approximate locations of the watercourses within the proposed designation are shown in Figures A-1 and A-2.

Permanent Streams
The watercourses classified as permanent streams are as follows:

P1, P4, P6a, P7, P9, P10, P11, P11b, P11c, M13d, M15, M16, M18, M19, M21b, M22, M23 (two crossings), M24, M23a, M23b, M23c.

Intermittent Streams
The watercourses classified as intermittent streams are as follows:

P2, P3, P3a, P5, P6, P9a, P9b, P10a, P11a, P11f, P11g, P12, M13, M13b, M21a, M21c, M21d, PA200A, PA500A.

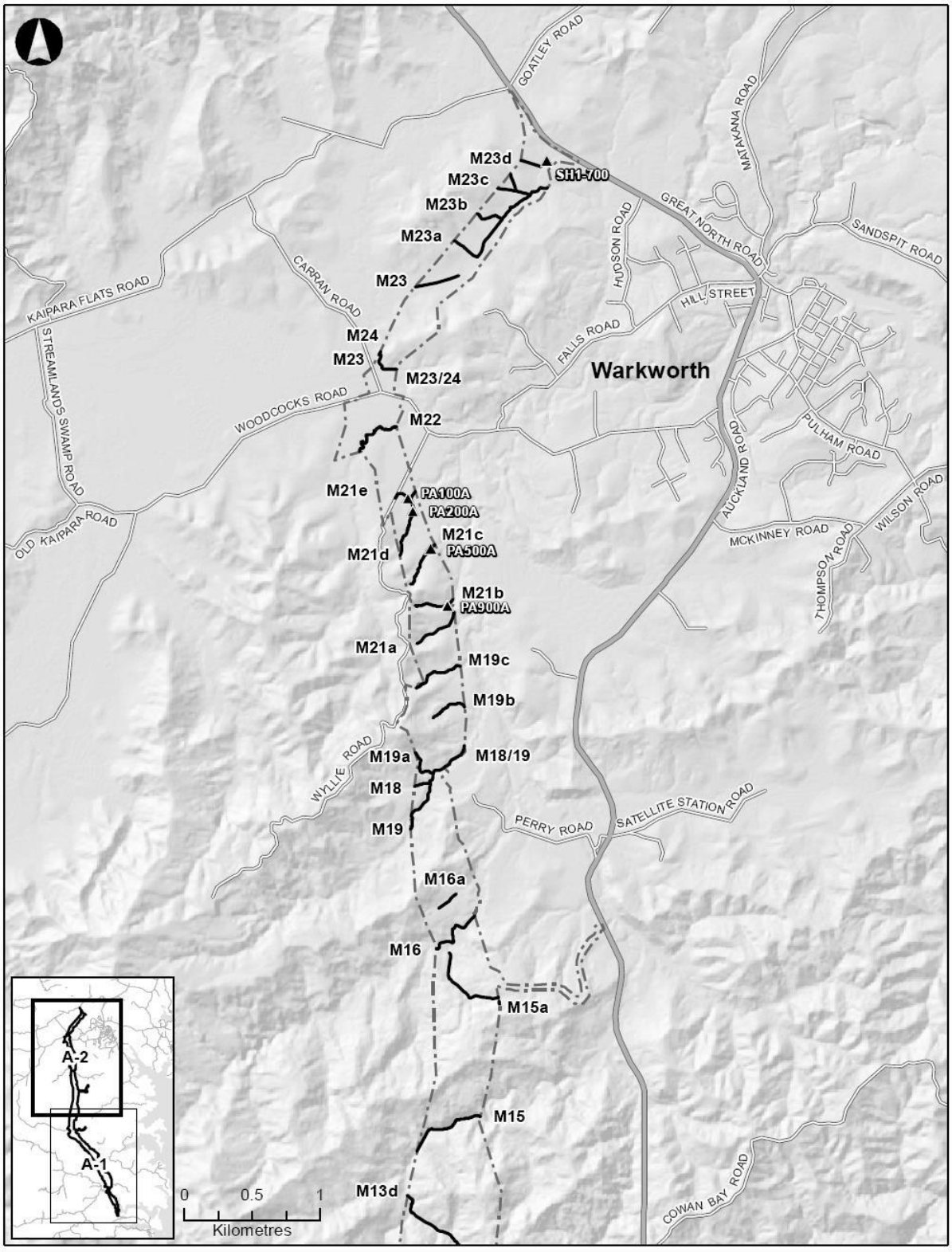


WATERCOURSES

LAND ACCESS CULVERT

PROPOSED DESIGNATION

FIGURE A-1 WATERCOURSES



WATERCOURSES

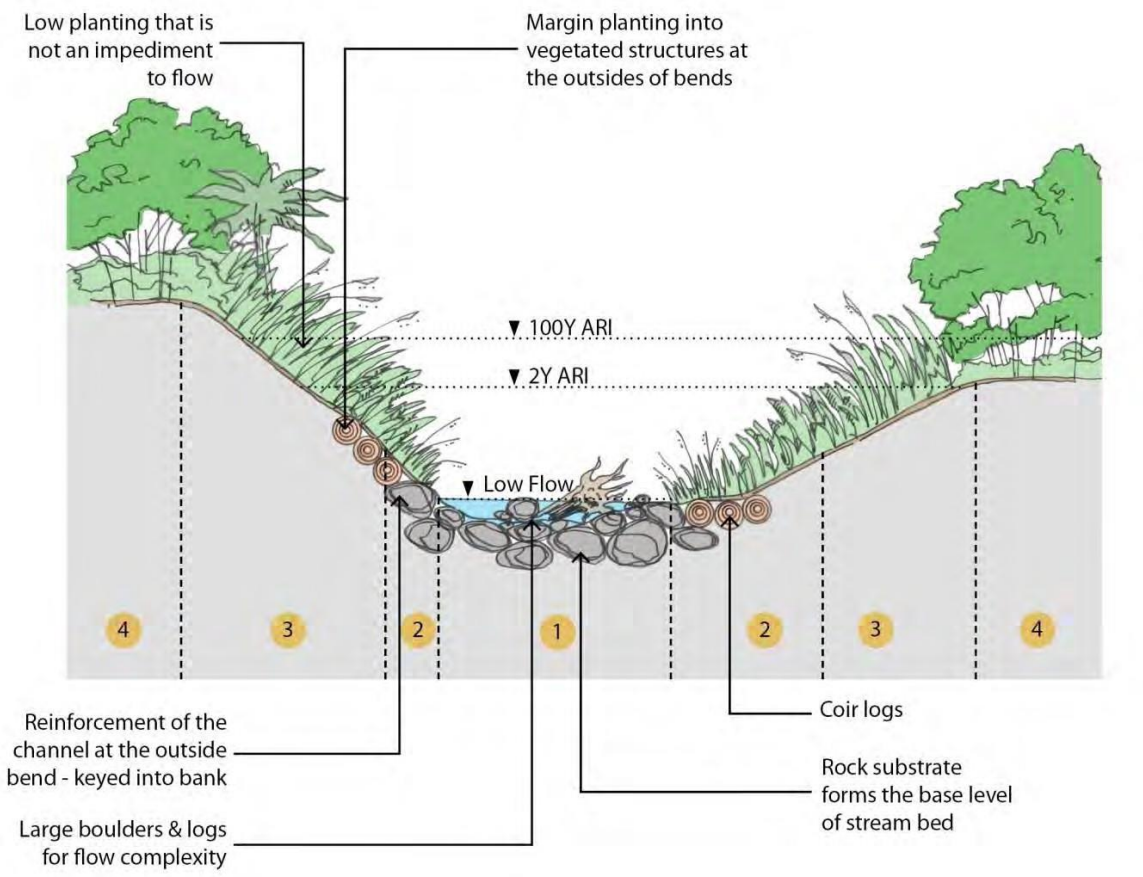
LAND ACCESS CULVERT

PROPOSED DESIGNATION

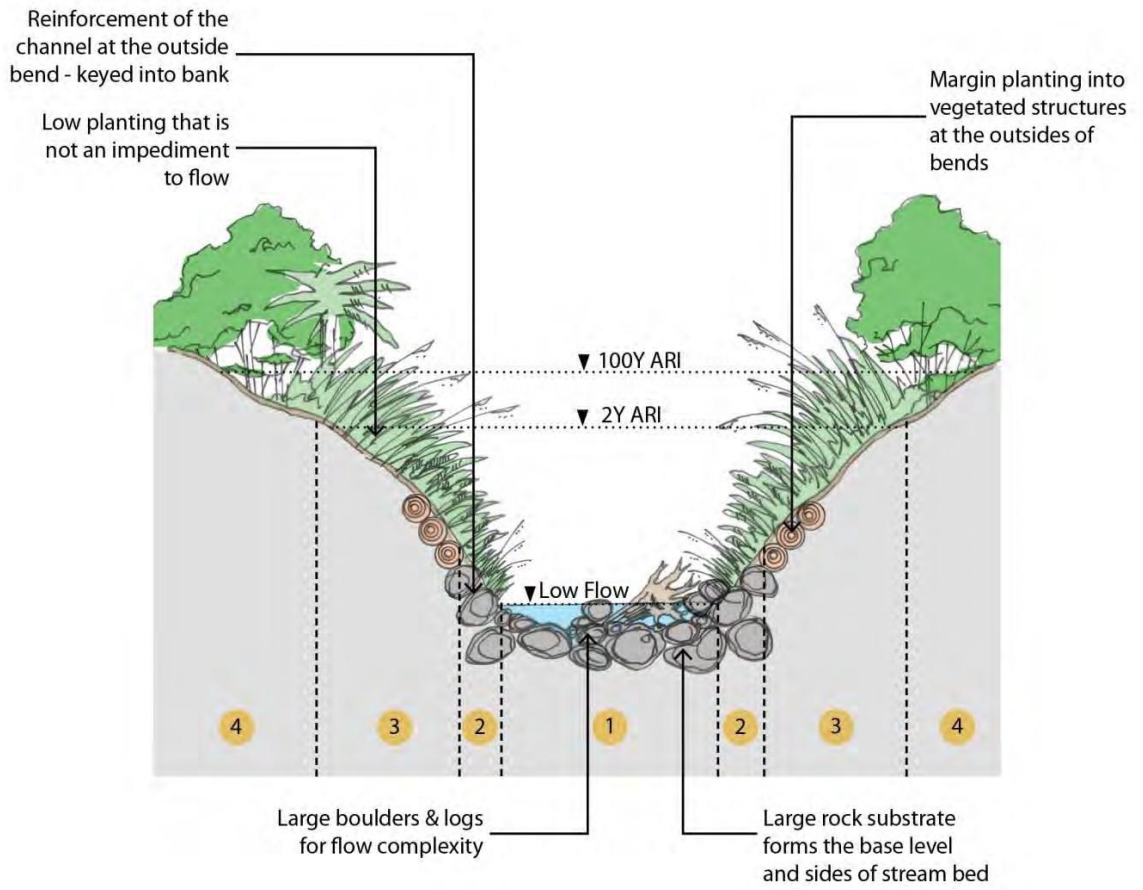
FIGURE A-2 WATERCOURSES

Appendix B

Stream diversion Type 1 – Lowland stream cross section



Stream diversion Type 2 – Steep stream cross section



Stream diversion Type 3 – Flow channel cross section

Rock-Lined Flow Channel for High Flow and/or Steep Gradients

Grass-Lined Flow Channel for Low Flow and/or Flat Gradients

	STREAM DIVERSION TYPE		
Requirement	**1** **Lowland Stream**	**2** **Steep Stream**	**3** **Flow Channel**
Flow	• Flood conveyance of 100 year ARI rainfall event with stop bank if required; • Low flow channel; • Main channel for the 2 year ARI rainfall event; • Flood berm for larger events; and • Maintain velocity to mitigate ponding and stagnant water.	• Flood conveyance of 100 year ARI rainfall event; • Low flow channel; • Main channel for the 2 year ARI rainfall event; and • Flood berm for larger events.	Flood conveyance of 100 year ARI rainfall event.
Channel Stability	Stable for 2-year ARI floods.	Stable for 2-year ARI floods.	Stable for 100-year ARI floods, lined as appropriate to achieve stability (e.g. grass or rock lined).
In-stream Habitat	• Low continuous gradient; • Meanders; • Complexity (variety of logs and rocks that change flow patterns and provide resting places); and • Continuous low flow channel.	• Steep gradients; • Pools and cascade sequences; • Complexity (variety of logs and rocks that change flow patterns and provide resting places); and • Continuous wetted surface for climbing species.	No requirement for in-stream habitat.

	STREAM DIVERSION TYPE		
Requirement	**1** **Lowland Stream**	**2** **Steep Stream**	**3** **Flow Channel**
Riparian	• Replicate the existing environment as much as possible; • Riparian zone to be 10-20m on either side of the stream edge. Riparian zone to be a heterogeneous planting regime, which reflects what is existing. Planting to be species found in the Rodney Ecological District. Planting to replicate lowland and steep streams with riparian planting to include zones for 1 stream, 2 stream edge, 3 littoral and 4 forest in accordance with the drawings above; • Recovery of plants and re-planting is encouraged; • Provide a bat-friendly corridor by inclusion of puriri and taraire trees; and • Establish a closed canopy cover early.		No requirement for riparian planting.

Appendix C


A
B
C
D
BILLING ROAD
HIBISCUS COAST HIGHWAY
0
50
100 Metres
Designation Boundary
Area within which the Okahu structure/s can be constructed
OKAHU INLET CONSTRUCTION AREA
Appendix C