

Ecology Response to Section 92 Questions for a Proposed Subdivision 2127 Kaipara Coast Highway, Makarau

Contract Report No. 5807b

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Ecology Response to Section 92 Questions for a Proposed Subdivision 2127 Kaipara Coast Highway, Makarau

Contract Report No. 5807b

March 2024

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11/03/2024
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Wildland Consultants Ltd

Cite this report as follows:

Wildland Consultants (2024). *Ecology response to Section 92 questions for a proposed subdivision at 24 and 42 Derbyshire Lane, Hingaia*. Wildlands Consultants Contract Report No. 7038. Prepared for Karaka Bayview LP. 24pp.

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Introduction

ABIB (Oamaru) Ltd, on behalf of its client, has applied for resource consent for a residential subdivision at 2127 Kaipara Coast Highway. The site is located 10 kilometres north of Kaukapakapa and covers c.134 hectares. Vegetation largely comprises rolling pasture on gentler slopes, with gullies characterised by indigenous forest and shrubland. Most of the woody vegetation is located at the southern end of the property and is contiguous with forest vegetation on the adjacent Pareparea Burial Reserve and Makarau Bridge Reserve. This vegetation has been classified as a Significant Ecological Area (SEA_T_6713). The property is zoned Rural Coastal Zone (Kaipara South Head and Harbour Coastal Area) under the Auckland Unitary Plan (AUP).

As part of the consenting process, Auckland Council issued a Request for Further Information (RFI) to the client under Section 92 of the Resource Management Act. This included questions relating to ecology, and the client has engaged Wildland Consultants Ltd (Wildlands) to provide additional information in response to the RFI.

Project Scope

This report addresses specific questions in the RFI that relate to the ecology, or where an ecological perspective on an issue may be helpful. The questions addressed have been identified in consultation with the client and the wider project team.

Methods

Most of the information provided in this report is from knowledge and information gathered during previous visits and site surveys. However, an additional site visit was carried out on 11 December 2023 to review the vegetation type boundaries in the vicinity of Wetland 11. To avoid issues relating to GPS accuracy, this remapping was carried out by hand using aerial imagery and on the ground landmarks.

Planning Questions

Question 12 – Highly productive land

Question

As noted in previous correspondence and the AEE, the western extent of the site is indicated as containing Highly Productive Land, which means the National Policy Statement on Highly Productive Land is relevant. While an assessment in the AEE is noted, please provide a detailed analysis in the context of the NPS- HPL, having regard to the language used in this document (such as “avoid”) and the limited exclusions present.

Response

Most of the area identified as “highly productive” is in the low-lying flats along the western edge of the property. These low-lying flats once formed part of an extensive wetland habitat that has been drained to create grazing land. However, the water table in this area is still very high and the vegetation in some parts is dominated by hydrophytic plants species (rushes), indicating that large parts of this area meet the definition of a ‘natural inland wetland’. Grazing in this area is therefore not appropriate under the Resource Management (Stock Exclusion) Regulations 2020, which state “*All stock on low slope land must be excluded from any natural wetland that is 0.05 hectares or more*”.



Grazing in the low-lying flats on the western edge of the property is proposed to be discontinued, including in the neighbouring Makarau Stewardship Area. Although this area is classified as “Arable, moderate limitation” under the NZLRI Land use Capability classification system, continuing to graze this area would not provide good ecological outcomes. Allowing this area to revert to wetland would significantly increase the extent of wetland habitats in the local area, provide improved habitat values for ‘Threatened’ and ‘At Risk’ wetland birds such as Australasian bittern (*Botaurus poiciloptilus*) and spotless crane (*Porzana tabuensis tabuensis*), and provide improved natural water treatment for water discharging to the Kaipara Harbour.

Question 17 – Stream width and esplanade reserves

Question

Please confirm the width of streams and watercourses on the site, as determined by a surveyor, and confirm if esplanade reserves are required to vest. The reference to the Ecological Impact Assessment is noted, but this report does not appear to assess these features in the context of potential esplanade reserves, or utilise surveying practises to confirm width.

Response

None of the streams within the site are wider than three metres. All are very narrow (30 to 60 centimetres wide) and can generally be crossed in a single stride. A selection of photographs showing representative examples of stream widths at the site is provided in Appendix 1. While surveying practices were not used to determine the stream widths, it is hoped that the photographic evidence provided is sufficient in this case.

A wider stream channel that exceeds three metres width in some places is located to the west of the site. However, this stream is already separated from the subject site by the Makarau Stewardship Area. This stream is c.26 metres from the property boundary at its closest point. As such, an Esplanade Reserve is not required in this case.

Question 23 – Pedestrians/cyclists stream crossings

Question

The Design Guidelines (section 6.6) refers to stream crossing associated with the pedestrian/cycle way. Please confirm the works proposed, and provide assessment demonstrating that this is a permitted activity.

Response

All stream crossings for pedestrians and cyclists will use existing crossings that have been established for the purposes of the existing farming activities. No additional crossings are proposed.

Question 26 – Works in stream margins and wetland buffers

Questions

Section 8.6 of the Ecological Impact Assessment refers to earthworks and vegetation removal close to stream and/ or wetlands. Please confirm which plans show these works, or provide a plan showing this.

Response

Proposed works (earthworks and vegetation removal) within a 10 and 20 metre setback of natural wetland areas are shown in drawing number C901 prepared by Crang Civil (page 58 of the Engineering drawing set issued for the informal S92).



Proposed works within a 20-metre setback from permanent and intermittent streams are shown in drawing number C903 prepared by Crang Civil (page 60 of the Engineering drawing set issued for the informal S92).

Question 27 – Mitigation planting

Question

Section 8.6 of the Ecological Impact Assessment refers to mitigation planting. Please provide a planting and maintenance plan in this regard.

Response

A planting and maintenance plan has been prepared by Kaipara Coast Landscape Architecture, with input from Wildland Consultants for the preparation of the planting schedules. This is included within the document titled “Management & maintenance Programme & Plant Species Schedules”, dated 8 July 2023.

Question 28 – Restoration and planting

Question

Section 8.14 of the Ecological Impact Assessment refers to restoration and revegetation. Please:

- Provide planting and maintenance plans for this planting; and
- Provide an assessment of the restoration and planting proposed, and how this compares to the outcomes sought by the AUP(OP), including Standard E39.6.4.5.

Response

As identified in Question 27, a planting and maintenance plan has been prepared by Kaipara Coast Landscape Architecture, with input from Wildland Consultants for the preparation of the planting schedules.

The subdivision is acknowledged to be a non-complying activity and is not being applied for on the basis of the “*in-situ subdivision creating additional sites through establishing indigenous revegetation planting*” rules. As such, the proposed planting does not comply with some of the standards outlined in E39.6.4.5. (Table 1). However, the proposal is considered to meet the overall objectives of the AUP(OP), as summarised below in Table 2. When considered in combination with the protection and management of existing SEA and SEA quality vegetation, the proposal will result in ecological benefits.

The proposal also meets the objectives of the National Policy Statement for Indigenous Biodiversity (NPS-IB) as it will result in no overall loss in indigenous biodiversity.

Table 1 – Assessment of the proposal against the standards outlined in E39.6.4.5.

Standard	Status
1(a): Revegetation planting not located on elite soil or prime soil	Not Met: Wetland restoration is proposed on low-lying flats. See response to Question 12 for further discussion
1(b): Revegetation planting located Outstanding Natural Character (ONC), High Natural Character (HNC) or Outstanding Natural Landscape (ONL) overlays	Not Met: Planting is proposed within HNC Area 26 and ONL Area 11.



Standard	Status
1(c): Revegetation contiguous with existing indigenous vegetation or wetland identified in the Significant Ecological Area Overlay or meeting the Significant Ecological Area factors identified in Policy B7.2.2(1); and	Not met: While planting areas are generally contiguous with SEA or SEA quality vegetation, some areas have been selected to provide other ecological benefits (such as stream and wetland buffering).
1(d): Revegetation planting meets the criteria as set out in Appendix 15 Subdivision information and process and Appendix 16 Guideline for native revegetation plantings.	Partially met: While some of the specific items in Appendices 15 and 16 may not be specifically stated in the management plan, the intent is that the requirements that relate to the implementation and monitoring of the works will be complied with.
2: Maximum number of new sites created as per Table E39.6.4.5.1	Not Met: Proposal exceeds the maximum lot yield allowed for in Table E39.6.4.5.1.
3: Any new in-situ site must have a minimum site size of one hectare and a maximum site size of two hectares.	Not Met: Lot sizes are smaller than one hectare.
4: Any established revegetation planting proposed must be legally protected.	Met
5(a): Legal protection must protect all the existing indigenous vegetation on the site at the time of application as well as the additional area subject to any revegetation.	Met
5(b): Legal protection must meet the requirements as set out in Appendix 15 Subdivision information and process.	Met
6(a): All applications must include a plan that specifies the protection measures proposed to ensure the indigenous vegetation and buffer area remain protected in perpetuity. Refer to the legal protection mechanism to protect indigenous vegetation, wetland or revegetation planting as set out in Appendix 15 Subdivision information and process for further information;	Partially Met: While it may not be explicitly stated in the management plan, the intent is for all protections to comply with the legal protection mechanisms outlined in Appendix 15.
6(b): All applications must include a planting plan for revegetation planting which outlines the revegetation planting proposed to be carried out within or adjacent to the indigenous vegetation proposed to be protected in accordance with Appendix 15 Subdivision information and process and Appendix 16 Guideline for native revegetation plantings	Partially Met: While some of the specific items in Appendices 15 and 16 may not be specifically stated in the management plan, the intent is that the requirements that relate to the implementation and monitoring of the works will be complied with.
6(c): The plans required in E39.6.4.5(6)(a) and (b) must be prepared by a suitably qualified and experienced person.	Met
7(a): All applications must include the establishment of secure stock exclusion	Met
7(b): All applications must include the maintenance of plantings that must occur until the plantings have reached a sufficient maturity to be self-sustaining, and have reached 80 per cent canopy closure. The survival rate must ensure a minimum 90 per cent of the original density and species;	Met: While the management plan currently states that “the plantings will be intensively maintained until at least 75% canopy closure is achieved”, this can be updated to 80%.



Standard	Status
7(c): All applications must include the ongoing replacement of plants that do not survive	Met
7(d): All applications must ensure that all invasive plant pests are eradicated from the planting site both at the time of planting and on an on-going basis to ensure adequate growth	Met
7(e): All applications must ensure animal and plant pest control occurs	Met
8: The subdivision resource consent must be made subject to a condition that requires the subdivision plan creating the sites to be deposited after, and not before, the protective covenant has been registered against the title of the site containing the covenanted indigenous vegetation to be protected.	Met

Table 2 – Summary of how ecological objectives for rural subdivision (E39) are met.

E39 Objectives relevant to ecology	How this objective is met
Land is subdivided in a manner that provides for the long-term needs of the community and minimises adverse effects of future development on the environment.	Proposal minimises adverse effect of future development by protecting streams, wetlands, and forest habitats in perpetuity.
Subdivision maintains or enhances the natural features and landscapes that contribute to the character and amenity values of the areas.	Natural features including streams, wetlands, and forest habitats are maintained and enhanced. These areas will feature walking and cycling tracks to enhance amenity values.
Rural lifestyle subdivision is primarily limited to the Rural – Countryside Living Zone, and to sites created by protecting, restoring or creating significant areas of indigenous vegetation or wetlands.	Although the proposal is not based on A16 or A18, the proposal includes protecting, restoring, and creating indigenous habitats and provides net ecological benefits to the site.
Subdivision maintains or enhances the natural features and landscapes that contribute to the character and amenity values of rural areas.	Natural features at the site are maintained and enhanced.
Rural subdivision avoids or minimises adverse effects in areas identified in the Outstanding Natural Features (ONF), Outstanding Natural Character (ONC), High Natural Character (HNC), Outstanding Natural Landscape (ONL) and Significant Ecological Areas (SEA) Overlays.	All areas of SEA or SEA quality habitat will be protected and enhanced. Development is also concentrated away from areas classified as HNC or ONL.
Subdivision maintains the function of flood plains and overland flow paths to safely convey flood waters while taking into account the likely long-term effects of climate change.	Floodplains, wetlands, and streams will be protected and enhanced. Retiring low-lying flats will also enhance resilience to climate change and sea level rise.



Question 29 – Walking and cycle paths

Question

The proposed walking and cycling paths appear to move within some of the proposed covenants. Are these paths to be excluded from the covenant areas? This is not indicated on the scheme plan. How will edge effects in this regard be managed, including potential weed incursion?

Response

Some of the restoration areas will contain narrow (single track) walking and cycling paths c.0.8 metres wide. These will be narrow enough to ensure that canopy closure can be achieved/maintained over the tracks. As such, these tracks will not result in habitat fragmentation or edge effects. Pest plants will be managed within all covenant areas in perpetuity, so any potential pest plant incursions that may occur as a result of the tracks (e.g. through seeds being carried in on shoes) will be addressed through regular maintenance.

Ecology Questions

Question 45 – Orchards

Question

The application proposes orchards adjacent to natural areas proposed for protection. Please advise the reason for these locations and provide assessment on the potential ecological effects of this co-locations.

Response

Planting of fruit trees and edibles will be limited to species that are not listed in the Auckland Regional Pest Management Plan (ARPMP) or National Pest Plant Accord (NPPA), and do not pose a threat to adjacent forest areas. Edible pest plant species such as loquat (*Eriobotrya japonica*) and blackberry (*Rubus fruticosus*) will be prohibited both within residential lots and in communal orchard areas. As such, there will be no adverse effect of the orchards on the adjacent natural areas.

Question 46 – Fencing

Question

The AEE refers to stock- proof fencing on the parent site boundaries. How is it proposed to prevent stock from within the site, such as that on the proposed sites or on the balance farm lot, entering the covenant areas?

Response

Issues relating to fencing are addressed in the Farm Management Plan prepared by Kaipara Coast Landscape Architecture.

Questions 47 to 49 – SEA and SEA quality vegetation

Questions

A plan is requested as per E39.6.1.6 clearly identifying SEA areas and other areas of indigenous vegetation, wetlands, and watercourses on site.



Please provide an assessment of areas of vegetation proposed for protection that are already identified as SEA or areas meeting the factors for Significant Ecological Areas in Policy B7.2.2(1) and confirm the areas (m²) each of the areas within the site cover.

Please quantify how many lots would have had the potential to have been developed under the rural subdivision Rules E39.4.2(A16), (A17C) and or (A18) as per Table E39.6.4.4.1 and Table E39.6.4.5.1 through bush, wetland and revegetation protection at the site. It is acknowledged that this is not the basis the application is being applied under but does set the baseline for the provisions for subdivision that may be possible under the unitary plan rules. Limited in-situ subdivision is provided for under the Unitary Plan in rural zones.

Response

The maps provided in the original Ecological Impact Assessment (EclA) have been updated to include the SEA overlay and any areas that are of 'SEA Quality' (Appendix 2). As outlined in the EclA, this includes all areas of forest, treeland, and scrub at the site as they are likely to provide habitat for indigenous fauna species that have been classified as 'Threatened' or 'At Risk' (Factor 2b: Threat status and rarity). These fauna habitat values are discussed in more detail in Section 6 of the EclA. These vegetation types also form part of a network of sites that cumulatively provide important habitat for indigenous fauna (Factor 4c: Stepping-stones, migration pathways and buffers).

All natural inland wetland areas that are dominated by indigenous plant species also meet the criteria to be classified as SEA (Factor 2d: Threat status and rarity) and have therefore been mapped accordingly (Appendix 2).

All areas of SEA and SEA quality vegetation are proposed to be protected.

The subdivision is acknowledged to be a non-complying activity and is not being applied for on the basis of the *"in-situ subdivision creating additional sites through protection of indigenous vegetation or wetland identified in the Significant Ecological Areas Overlay... or... not identified in the Significant Ecological Areas Overlay but meeting the Significant Ecological Areas factors"* rules. As such, an assessment against Table E39.6.4.4.1 and E39.6.4.5.1 is not considered necessary.

Further comment regarding the applicability of these standards to the proposal will be provided by the planning team. However, as discussed above, the proposal is considered to meet the overall objectives of the AUP(OP) and NPS-IB. When considered in combination with the proposed revegetation activities, the proposal will result in ecological benefits.

Question 50 – Boundary of wetland 11

Question

While most of the vegetation appears to be correctly mapped there are some areas that a greater area is covered as mapping is shown at a coarse scale. One location noted is on the southern edge and northeastern end of wetland 11 (areas 15 and 16 in the ecological assessment) where wetland rushes are located beyond the mapped area. Correct vegetation extent is especially important in the case of wetlands where wastewater dispersal fields are proposed in proximity to these to ensure required offset is provided. Please provide updated plans and information.

Response

Wetland 11 was revisited on 11 December 2023 to reassess the boundary. A revised boundary map has been provided (Appendix 3). While some areas of scattered rushes fall outside of the new mapped boundary, these are much sparser than within the wetland area. As such, the pasture grasses and herbs continue to be dominant in the areas that have been excluded.



Ground conditions were also considered during the assessment, with the soil within the wetland area being damp to saturated, while outside of the new boundary it was dry.

There are differences between the new boundary and that shown in the original report. However, these are minor and they extend in both directions (i.e., in some areas the new line goes out, and in others it goes in from the original boundary). The largest change is the reclassification of a small area of kānuka as a dryland habitat.

Question 51 – Stream margins and wetland buffers

Question

While the encroachment area as a whole of the site has been indicated the earthworks area within 20m of wetlands and streams have not been quantified. The table in section 8.6 of the ecological report indicates earthworks within 10m of wetland but not within 20m. It also does not indicate earthworks within 20m of stream. Confirmation is required not just of encroachment areas but vegetation clearance and earthworks areas within these. Please provide this information and provide the relevant assessments.

Response

An assessment of the extent of encroachment within 20 metres of wetlands and streams is provided in Section 8.6 of the EclA. This encroachment area is considered to represent both the extent of earthworks and vegetation removal within these zones. No vegetation removal is proposed outside of the earthworks area.

Section 8.6 of the EclA breaks down the area of encroachment within 20 metres of wetlands into two zones (0 to 10 metres, and 10 to 20 metres), as this affects the activity status of the activity. Earthworks within 10 metres of wetland is a non-complying activity under the National Environmental Standards for Freshwater (NES-F), while vegetation removal within 20 metres of a wetland is a restricted discretionary activity under the Auckland Unitary Plan (AUP).

The table from Section 8.6 of the EclA has been repeated below (Table 3), with an additional row providing the combined total of the two wetland buffer zones.

Table 3 –Summary of encroachment into stream margins and wetland buffers.

Zone	Area of Encroachment	Total Area within Zone	% Encroachment	Activity Status
0-20 metre stream margin	1,810	87,787	2.06%	Vegetation removal Restricted Discretionary (AUP)
0-10 metre wetland buffer	1,629	70,573	2.31%	Vegetation removal and earthworks Non-Complying (NES-F)
10-20 metre wetland buffer	5,278	81,070	6.51%	Vegetation removal Restricted Discretionary (AUP)
0-20 metre wetland buffer	6,907	151,643	4.55%	Combined Total



Question 52 – Wetland setbacks

Question

Wetlands protected under rural subdivision rules of the AUP(OP) require a 20m setback as outlined by Note 3 for Table E39.6.4.4.1(3). As such it is expected that this setback is provided as far as possible for the development areas for both building footprints and wastewater dispersal fields, and roads. Please either amend the proposal or provide further justification and assessment of what's proposed.

Comment: Significant earthworks are required around wetland 13 and the number and location of lots and driveway location should be reconsidered in this area. Providing a greater setback means that some of the other lots may also need their location adjusted or the total number of lots reduced to better take into account the site constraints

Response

It is acknowledged that the proposal does not comply with the standards for rural subdivision for wetland protection, and that the proposal is therefore a non-complying activity. However, I note that the 20-metre setback expected to meet these standards does not require the setback area to be planted. Reduced setbacks are frequently allowed for under the rural subdivision rules if the buffer is to be planted, as it is in this case. A full assessment of the ecological effects of the proposed encroachment of the development into the 20-metre-wide wetland buffer is provided in the EclA and the extent of encroachment is discussed in Question 51 above.

Affected vegetation in the wetland buffer areas comprises exotic grassland of negligible ecological value. The magnitude of the effect of the loss of this vegetation is low, and the potential effect on the streams and wetlands themselves is also likely to be low provided best practice sediment and erosion controls are in place.

It appears that reference to Wetland 13 in the comment associated with this question may be an error. Wetland 13 is located away from the proposed lots near the entrance to the site, and no earthworks is proposed within the associated 20 metre buffer.

Question 53 – Culvert 5

Question

Culvert 5 is proposed to be length of 12 metres. This is a wide length for one lot and much wider than the current crossing area. The width should be reduced particularly given the wetland located flush with the upstream end of the culvert which would likely be impacted by culvert of this length.

Please either amend the proposal or provide further justification and assessment of what's proposed.

Response

The reviewer refers to the length and width of the culvert interchangeably, which is a little confusing. However, it is assumed that this question relates to the length of the culvert.

Questions relating to the need for this length of culvert will need to be addressed by the engineering team. However, the engineering team have indicated that the culvert will be designed to ensure water levels within the wetland are maintained. I therefore see no reason why the length of the culvert would affect the ecological values of the wetland on the upstream side.



Question 54 – Deer control

Question

Deer are known to be present in the area. Deer should also be added to pest control proposed at the site; please update.

Response

Deer control will be added to the pest animal control plan for the site.

Question 55 – Existing driveway

Question

Please advise if the existing driveway and associated culvert to the farm dwelling will be disestablished.

Response

The entrance will be fenced to prevent it being used for access on and off Kaipara Coast Highway. However, the physical driveway and culvert will remain.

Streamworks questions

Question 64 – Stream ‘reclamation’

Question

Section 8.2 of the EclA refers to the reclamation of permanent and intermittent streams; yet reclamation has not been identified as a reason for consent or assessed in the AEE. Please clarify the nature of this activity.

Response

The use of the term ‘reclamation’ was incorrect in this case and should be ignored. This section should read as follows:

“Under the Freshwater Fisheries Regulations 1983 it is an offence to intentionally kill or destroy indigenous fish, unless they are taken for the purpose of scientific research or for human consumption. As such, regardless of the level of the effect associated with potential harm to indigenous fish described above, a Fish Management Plan (FMP) will be prepared, approved by Auckland Council, and implemented before any stream works take place. The FMP will detail methods for capturing indigenous fish species and identify a suitable release site beyond the extent of works. It will also detail methods of capture and euthanasia for pest fish species (if present) to ensure that they are not inadvertently introduced to neighbouring watercourses or catchments”.



Appendix 1

Representative stream width photographs



Plate 1 – Representative photograph of a stream within the site. Stream width is less than three metres. 12 August 2021.



Plate 2 – Representative photograph of a stream within the site. Stream width is less than three metres. 12 August 2021.



Plate 3 — Representative photograph of a steam within the site. Stream width is less than three metres. 12 August 2021.



Plate 4 — Representative photograph of a steam within the site. Stream width is less than three metres. 12 August 2021.



Plate 5 — Representative photograph of a stream within the site. Stream width is less than three metres. 12 August 2021.



Plate 6 — Representative photograph of a stream within the site. Stream width is less than three metres. 12 August 2021.



Appendix 2

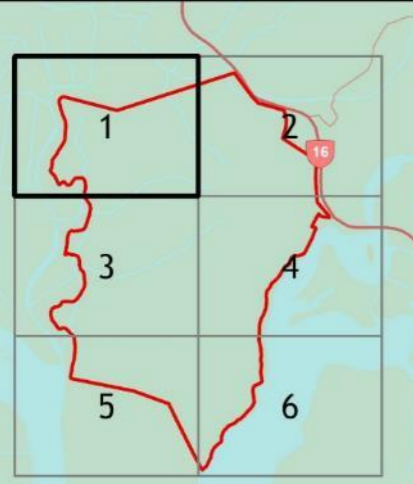
SEA and SEA quality vegetation map



- Legend**
- Earthworks areas and lots
 - Ephemeral stream
 - - - Intermittent stream
 - Permanent stream
 - Culvert (Cu1-5)
 - SEA in the Auckland Unitary Plan
 - SEA quality vegetation
 - VegetationHabitatType**
 - 1e. Kānuka forest (e)
 - 1f. Kānuka forest (f)
 - 2b. Kahikatea forest (b)
 - 2c. Kahikatea forest (c)
 - 4. Kahikatea treeland over exotic grasses
 - 5. Totara-kānuka-kahikatea treeland
 - 8. Gorse shrubland
 - 9. Kikuyu grassland
 - 12. Wī rushland
 - 20. Soft rush-wī-Mercer grass-rushland
 - 21. Soft rush-kikuyu rushland
 - 22. Mercer grass-soft rush grassland



Map 1 of 6



Data Acknowledgment
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 Roads/Lots updated 6 Dec 2021

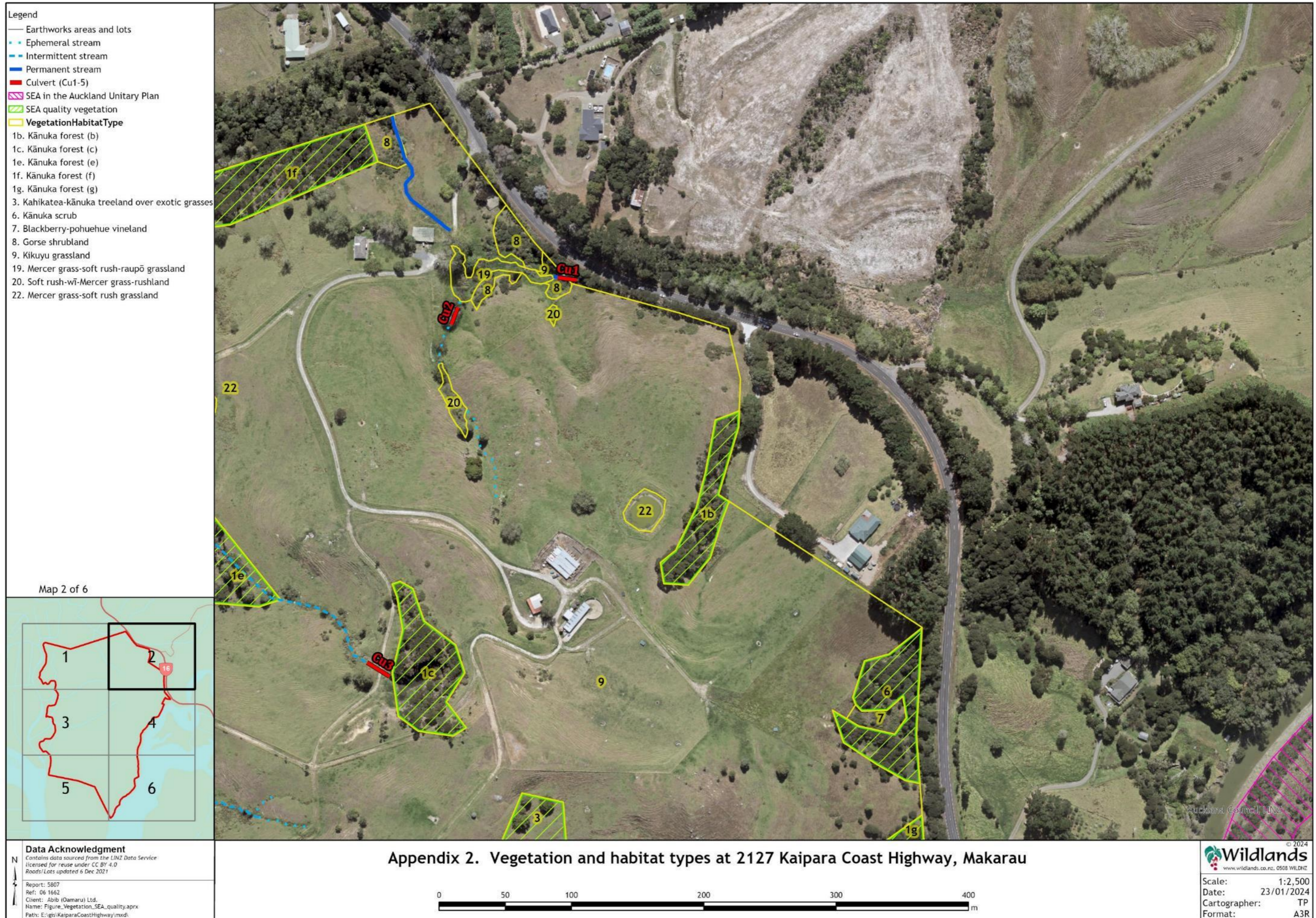
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Appendix 2. Vegetation and habitat types at 2127 Kaipara Coast Highway, Makarau



Wildlands
 www.wildlands.co.nz, 0508 WILDRLZ

Scale: 1:2,500
 Date: 23/01/2024
 Cartographer: TP
 Format: A3R

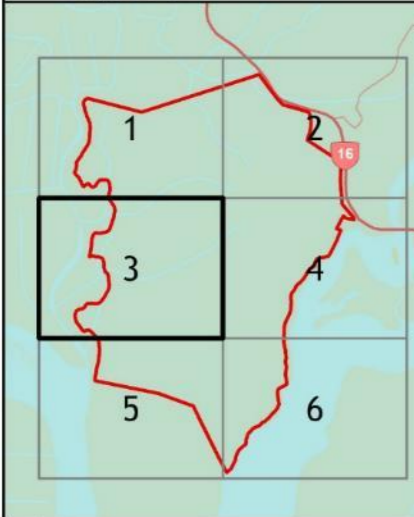




- Legend**
- Earthworks areas and lots
 - Ephemeral stream
 - Intermittent stream
 - Permanent stream
 - Culvert (Cu1-5)
 - SEA in the Auckland Unitary Plan
 - SEA quality vegetation
 - VegetationHabitatType
 - 1b. Kānuka forest (b)
 - 1d. Kānuka forest (d)
 - 1e. Kānuka forest (e)
 - 1f. Kānuka forest (f)
 - 1h. Kānuka forest (h)
 - 2a. Kahikatea forest (a)
 - 2b. Kahikatea forest (b)
 - 5. Totara-kānuka-kahikatea treeland
 - 8. Gorse shrubland
 - 9. Kikuyu grassland
 - 10. Raupō reedland
 - 11. Machaerina articulata sedgeland
 - 12. Wī rushland
 - 13. Wī-kikuyu rushland
 - 14. Kahikatea treeland over wī
 - 15. Kahikatea-kānuka treeland on wetland margin
 - 16. Mānuka scrub
 - 17. Mercer grass-giant umbrella sedge grassland
 - 18. Wī-spike sedge-Machaerina rubiginosa rushland
 - 20. Soft rush-wī-Mercer grass-rushland
 - 21. Soft rush-kikuyu rushland
 - 22. Mercer grass-soft rush grassland



Map 3 of 6



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Report: 5807
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 Path: E:\gis\KaiparaCoastHighway\mxd

Appendix 2. Vegetation and habitat types at 2127 Kaipara Coast Highway, Makarau

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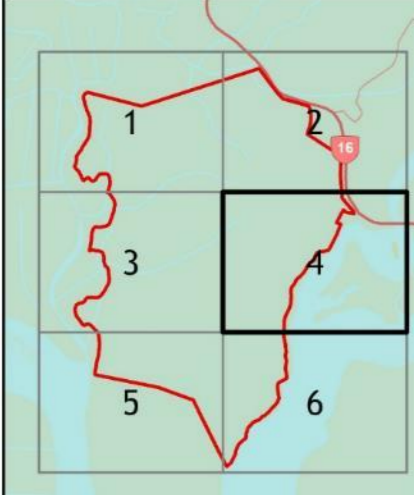
Scale: 1:2,500
 Date: 23/01/2024
 Cartographer: TP
 Format: A3R



- Legend**
- Earthworks areas and lots
 - Ephemeral stream
 - ▬ Intermittent stream
 - ▬ Permanent stream
 - ▬ Culvert (Cu1-5)
 - ▬ SEA in the Auckland Unitary Plan
 - ▬ SEA quality vegetation
 - ▬ **VegetationHabitatType**
 - 1d. Kānuka forest (d)
 - 1g. Kānuka forest (g)
 - 3. Kahikatea-kānuka treeland over exotic grasses
 - 9. Kikuyu grassland
 - 15. Kahikatea-kānuka treeland on wetland margin
 - 20. Soft rush-wī-Mercer grass-rushland



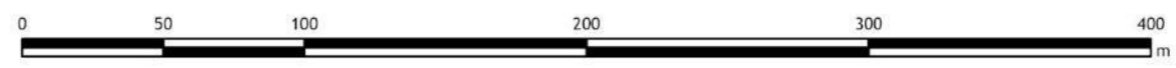
Map 4 of 6



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 Roads/Lots updated 6 Dec 2021

Report: 5807
 Ref: 06 1662
 Client: Abib (Oamaru) Ltd.
 Name: Figure_Vegetation_SEA_quality.aprx
 Path: E:\gis\KaiparaCoastHighway\mxd

Appendix 2. Vegetation and habitat types at 2127 Kaipara Coast Highway, Makarau



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Scale: 1:2,500
 Date: 23/01/2024
 Cartographer: TP
 Format: A3R



Appendix 2. Vegetation and habitat types at 2127 Kaipara Coast Highway, Makarau

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Report: 5807
 Ref: 06 1662
 Client: Abib (Oamaru) Ltd.
 Name: Figure_Vegetation_SEA_quality.aprx
 Path: E:\gis\KaiparaCoastHighway\mxd



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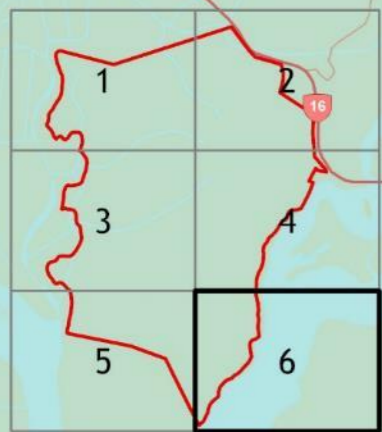
Scale: 1:2,500
 Date: 23/01/2024
 Cartographer: TP
 Format: A3R



- Legend**
- Earthworks areas and lots
 - Ephemeral stream
 - Intermittent stream
 - Permanent stream
 - Culvert (Cu1-5)
 - SEA in the Auckland Unitary Plan
 - SEA quality vegetation
 - **VegetationHabitatType**
 - 1a. Kānuka forest (a)
 - 3. Kahikatea-kānuka treeland over exotic grasses
 - 9. Kikuyu grassland



Map 6 of 6



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Report: 5807
 Ref: 06 1662
 Client: Abib (Oamaru) Ltd.
 Name: Figure_Vegetation_SEA_quality.aprx
 Path: E:\gis\KaiparaCoastHighway\mxd

Appendix 2. Vegetation and habitat types at 2127 Kaipara Coast Highway, Makarau



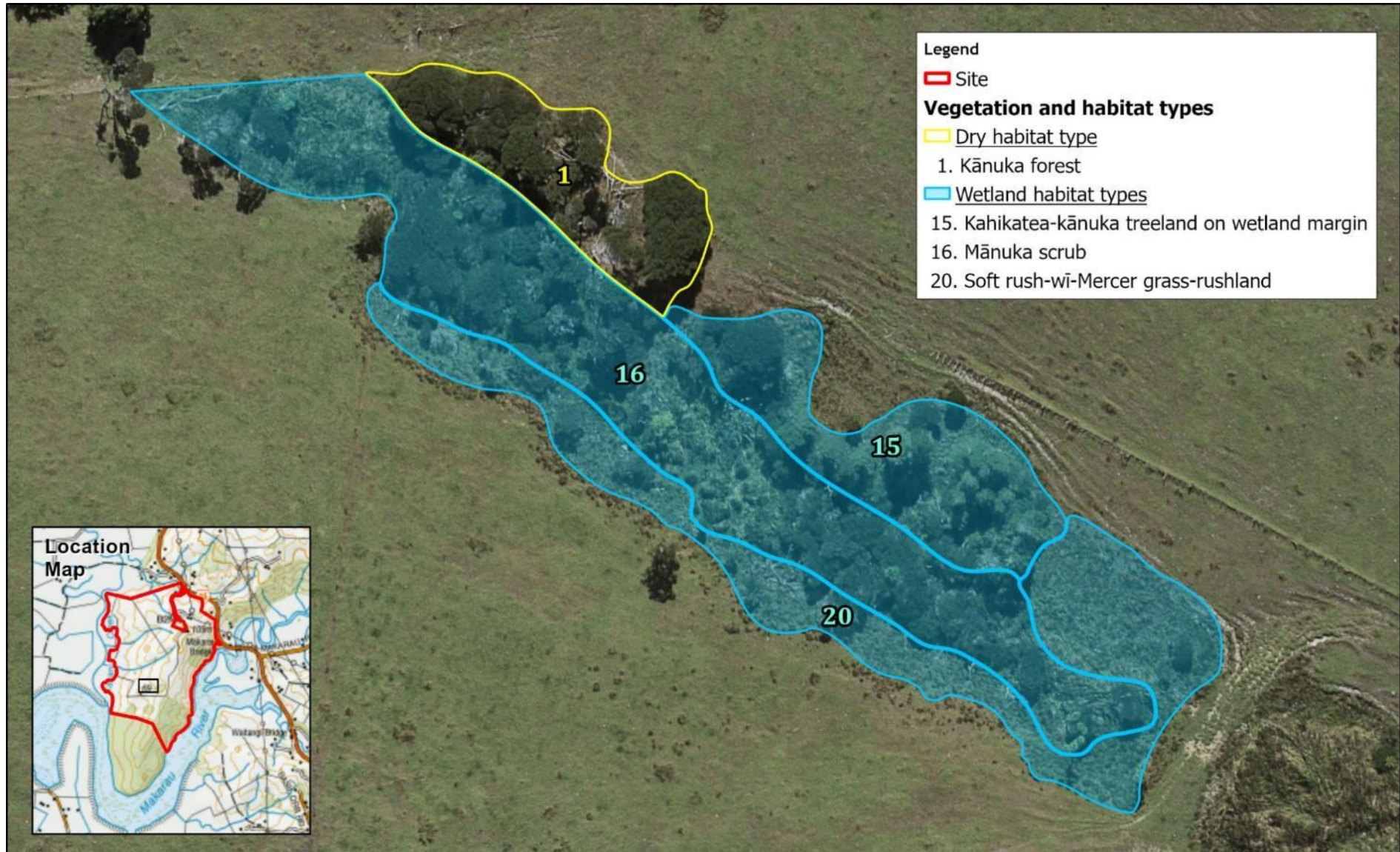
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Scale: 1:2,500
 Date: 23/01/2024
 Cartographer: TP
 Format: A3R



Appendix 3

Revised map of Wetland 11



Legend

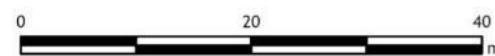
- ▭ Site
- Vegetation and habitat types**
- Dry habitat type
 - 1. Kānuka forest
- Wetland habitat types
 - 15. Kahikatea-kānuka treeland on wetland margin
 - 16. Mānuka scrub
 - 20. Soft rush-wī-Mercer grass-rushland



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Report: 5807
 Ref: 11188
 Client: Abib (Camaru) Ltd.
 Name: Figure_Wetland_11.aprx
 Path: E:\gis\KaiparaCoastHighway\mxd\

Appendix 3. Re-assessment of wetland 11, 2127 Kaipara Coast Highway



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Scale: 1:600
 Date: 23/01/2024
 Cartographer: FM
 Format: A4R

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