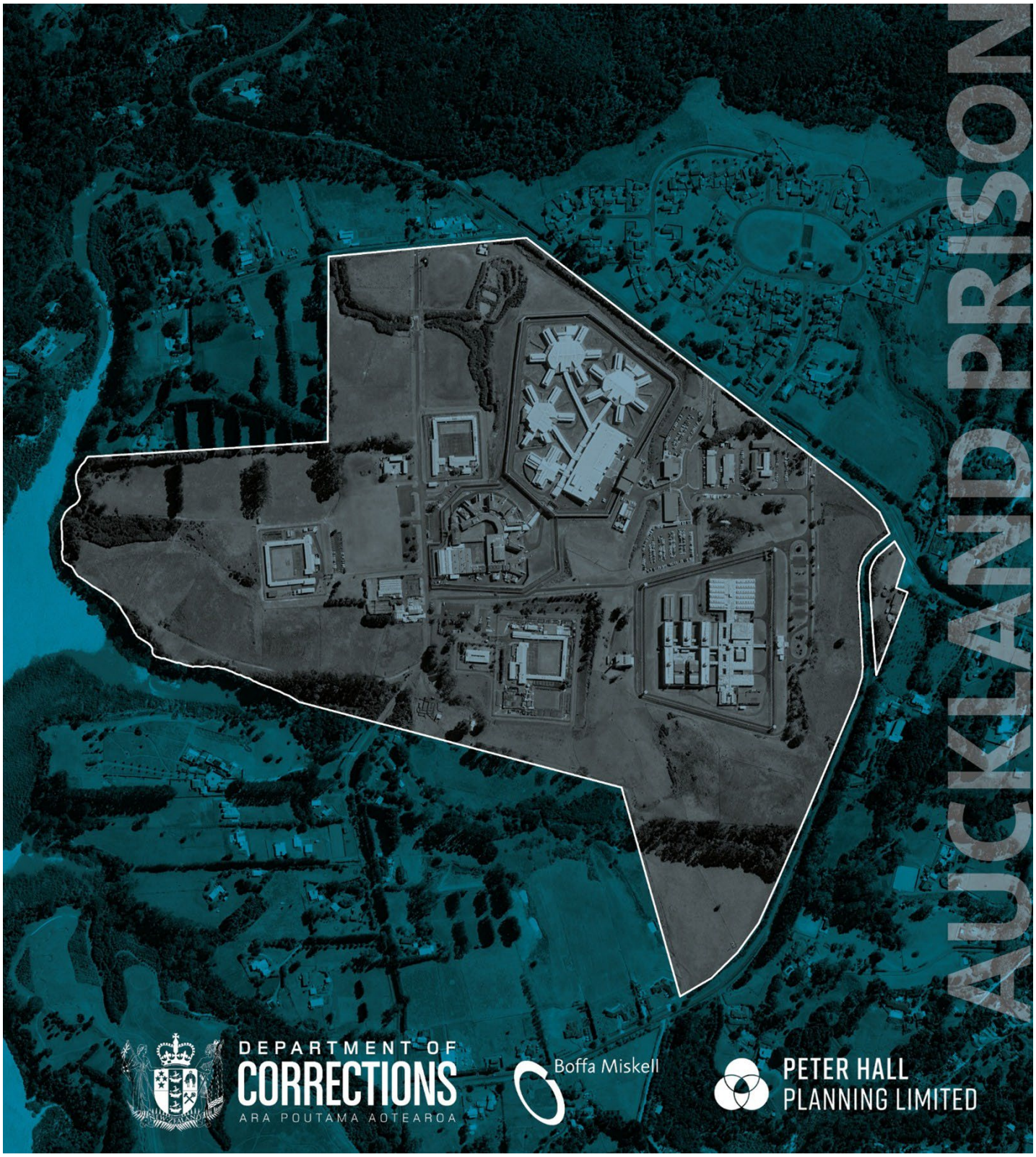
Auckland Prison Capacity Increase

Volume 3 – Appendix 3B
Ecological Assessment



Boffa Miskell

Auckland Prison Capacity Increase

Assessment of Ecological Effects: Reclamation of Watercourses and Riparian Vegetation Clearance

Prepared for The Department of Corrections – Ara Poutama Aotearoa

26 March 2026

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Release and Reliance

This report has been prepared by Boffa Miskell Limited on the instructions of our Client, in accordance with the agreed scope of work. As it is intended to support an application under the Fast-track Approvals Act 2024, it may be relied upon by the Expert Panel and relevant administering agencies for the purposes of assessing the application.

While Boffa Miskell Limited has exercised due care in preparing this report, it does not accept liability for any use of the report beyond its intended purpose. Where information has been supplied by the Client or obtained from external sources, it has been assumed to be accurate unless otherwise stated.

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Executive Summary

Department of Corrections (Corrections) is seeking an alteration to its designation at Auckland Prison to increase the capacity of prisoners under the Fast Track Approvals Act 2024 (FTAA). To provide for that capacity, two watercourses on the Auckland Prison site need to be reclaimed and piped. Corrections is also seeking resource consent applications and a request for an outline plan waiver under the FTAA for the piping of these two watercourses and associated works. The watercourses are referred to in this report as Watercourse 1 and 2. This report assesses the associated ecology effects and freshwater fisheries activity of the proposed watercourse works. This report has been prepared to accompany the resource consent applications and request for an outline plan waiver. Where stated, this assessment relies on the proposed designation conditions and/or the proposed resource consent conditions.

This report provides an assessment of the ecological values of the watercourses that will be reclaimed and piped as part of the expansion of the Auckland Prison site, and associated clearance of riparian vegetation, an assessment of ecological effects and recommended effects management to support resource consent applications for the proposal. The watercourses are within the current extent of the designated site, with the objective of the project being to allow the maximum prisoner capacity to be increased within this site.

The reclamation of Watercourse 1 and Watercourse 2 will lead to the loss of 238 m of permanent (124 m) and intermittent (114 m) watercourse of low and very low ecological value respectively. In both cases, the watercourses flow from a piped network within the prison grounds. Fish passage will not be provided for as the existing pipe network is steep and velocities already exceed swimming ability of native fish, and no suitable habitat for fish exists upstream of the pipe network.

The proposal will result in removal of approximately 0.3945 ha of recently planted native riparian vegetation adjoining Watercourse 1 and approximately 0.2179 ha of sparce exotic vegetation adjoining Watercourse 2.

The FTAA application includes the application for watercourse works because the extension of the pipe network for Area A will be necessary to enable sufficient developable area for prisoner accommodation and associated facilities.

The effects management hierarchy has been applied to the proposal in this assessment as summarised below:

- **Avoidance:** Areas on the site have been identified where future development will occur as part of the designation alteration (Areas A and B). These areas avoid several wetlands

and watercourses on the site, but the Capacity Increase project is unable to avoid the removal of Watercourses 1 and 2 because there is a functional need, and no practicable alternatives to loss of these watercourses as explained in **Volume 3** to the Substantive Application.

- **Minimise:** The loss of watercourse length for both watercourses has been kept to the minimum length required to pipe the watercourses, including for Watercourse 1, to just beyond the edge of Area A (the maximum possible extent of the future secure perimeter location) enabled by the proposed alteration to the designation. To minimise disturbance of the watercourse works, Corrections is proposing to undertake works in accordance with the Site-Wide Ecological Management Plan which includes:
    - Timing of vegetation clearance to minimise disturbance during bird breeding season (primarily August – March), or if works are required to occur during bird breeding season, undertaking nest checks prior to clearance.
    - Tree felling protocols for the removal of potential roost trees for long-tailed bats.
    - Erosion and sediment controls during construction to minimise the potential for sediment laden water to enter the watercourses.
- **Remedy:** Where effects cannot be minimised, they will be remedied as follows:
    - Salvage and relocation of fish from watercourse 1 prior to construction to extend the pipe network and salvage and relocation of eels (and other native fish) from the stormwater pond upstream of the Watercourse 1 reclamation (Pond 2) in accordance with the fish salvage and relocation plan.
    - Checks for lizards with salvage and relocation to a designated area (with associated pest control) in accordance with the Lizard Management Plan.
- **Offset:** Aquatic offset of some 218.3m of stream length at Watercourse 6 in the form of riparian planting (1.05 ha of watercourse offset planting as shown on the LMEEP) is proposed to offset the loss of Watercourses 1 and 2.
- **Compensation:** additional compensation involves:
    - culvert improvement and upgrade works at Watercourse 6 to provide additional stream values and expanding the extent of the watercourse available for mobile aquatic biota (1,380 m of permanent stream and 1,959 m of intermittent stream);
    - planting of a minimum of 0.1459 ha of natural inland wetland (0.28 hectares of wetland compensation planting shown on the LMEEP);

- restoration of 480 m of intermittent stream channel (Watercourse 3, upper Watercourse 1) (1.6 ha of watercourse compensation planting as shown on the LMEEP); and
- Comprehensive weed and pest management programme for the newly planted areas at Auckland Prison.

In summary, the objective and policy requirements of the NPS-FM and Unitary Plan are met, as the works will maintain, and will achieve no net loss of ecological values. The effects management hierarchy has been applied which has resulted in compensation, only after the preceding steps in the hierarchy have been applied. Overall, subject to the proposed effects management, we conclude that the ecological effects associated with the loss of watercourses and riparian vegetation will be less than minor.

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Glossary of Abbreviations

Term	Meaning
CBD	Central Business District
EcMP	Ecological Management Plan
ED	Ecological District
FFR	Freshwater Fisheries Regulations 1983
FMU	Freshwater Management Unit
LEEMP	Landscape Mitigation and Ecological Mitigation and Enhancement Plan
LEIIEP	Landscape and Ecology Implementation Plan
NESF	Resource Management (National Environmental Standards for Freshwater) Regulations 2020
NOF	National Objectives Framework
NOR	Notice of Requirement
NPS-FM	National Policy Statement for Freshwater Management
NPS-IB	National Policy Statement for Indigenous Biodiversity
OLFP	Overland Flow Paths
OPW	Outline Plans of Works
RMA	Resource Management Act 1991
SEA	Significant Ecological Area

Glossary of Defined Terms

Term	Meaning
The Site / Amended Designation 3900 Area	Excludes Prison Village but includes the Auckland Prison and the hall at 505 Pāremoremo Road. Also referred to as “The Site” within this Report.
Area A	The area of the Auckland Prison Site identified as Area A on Figure A Designation Areas Plan, comprising some 44.93 hectares, in which Corrections proposes to construct all new secure prison facilities.
Area B	The area of the Auckland Prison Site identified as Area B on Figure A Designation Areas Plan comprising some 3.30 hectares, in which Corrections proposes the development of carparking, a prisoner control point, visitor centre, and associated non-secure facilities.
Area C	The area of the Auckland Prison Site identified as Area C on Figure A Designation Areas Plan comprising some 31.81 hectares in which Corrections proposes to use for balance land (including Landscape revegetation and tree planting, farming, surveillance equipment and lighting, Vehicle accessways, Infrastructure and services (including water, wastewater and stormwater facilities), Cultural buildings, Offender employment activity; and Energy generation and storage facilities).
Area D	The area of the Auckland Prison Site legally described as Section 1 Survey Office Plan 66966 and identified as Area D on Figure A Designation Areas Plan comprising some 0.64 hectares, in which Corrections proposes to continue using for staff training facilities, community facilities, infrastructure and services, carparking and lighting.
Designation	Defined in section 166 of the RMA, as “a provision made in a district plan to give effect to a requirement made by a requiring authority under section 168 or section 168A or clause 4 of Schedule 1 of the RMA.”
Ecological District	An ecological district is a local part of New Zealand where the geology, topography, climate, plants and animals interrelate to produce a characteristic landscape and range of ecosystems.
EcMP	Ecological Management Plan
Ecological Feature	A location in the landscape identified as a functioning habitat, species and ecosystems and confirmed using established protocols and criteria.
Ephemeral watercourse	a watercourse that only carries water during and shortly after rainfall events. It is characterised by a bed that is above the water table at all times and only contains water when it's actively raining or immediately after.

Term	Meaning
FTAA	Fast-track Approvals Act 2024
Functional Need	The need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment.
Intermittent Stream	Defined in section J1 the Unitary Plan, as stream reaches that cease to flow for periods of the year because the bed is periodically above the water table. This category is defined by those stream reaches that do not meet the definition of permanent river or stream and meet at least three of the following criteria: (a) it has natural pools; (b) it has a well-defined channel, such that the bed and banks can be distinguished; (c) it contains surface water more than 48 hours after a rain event which results in stream flow; (d) rooted terrestrial vegetation is not established across the entire cross-sectional width of the channel; (e) organic debris resulting from flood can be seen on the floodplain; or (f) there is evidence of substrate sorting process, including scour and deposition.
Permanent Stream	Permanent river or stream. Defined in section J1 of the Unitary Plan, as the continually flowing reaches of any river or stream.
Secure perimeter	A physical barrier or barriers with the purpose of containing prisoners within secure facilities.
Sediment Control	Capturing sediment that has been eroded and entrained in overland flow before it enters the receiving environment.
Significant Ecological Area	Terrestrial area identified as significant indigenous vegetation or significant habitats of indigenous fauna located either on land or in freshwater environments (Unitary Plan D.9 Significant Ecological Areas Overlay).
Unitary Plan	Auckland Unitary Plan (Operative in Part) 2016
Watercourse	A natural or artificial channel through which water flows.
Watercourse 1	A Permanent stream flowing from a piped network in the central northern part of the Auckland Prison Site
Watercourse 2	Intermittent stream with a modified natural channel flowing from a piped network in the central western part of the Auckland Prison Site.

1.0 Introduction

1.1 Background

1. Department of Corrections (Corrections) is seeking an alteration to its designation at Auckland Prison in Pāremoremo, Auckland to increase the capacity of prisoners under the Fast-track Approvals Act 2024 (FTAA) from the current designation limit of 681 prisoners to 1,220 prisoners. In order to provide for that capacity, two watercourses on the Auckland Prison site need to be reclaimed and piped. Corrections is also seeking resource consent applications and a request for an outline plan waiver under the FTAA for the piping of these two watercourses and associated works. The watercourses are referred to in this report as Watercourse 1 and 2. This report assesses the associated ecology effects and freshwater fisheries activity of the proposed watercourse works. This report has been prepared to accompany the resource consent applications and request for an outline plan waiver. Where stated, this assessment relies on the proposed designation conditions and/or the proposed resource consent conditions.

2. Detailed site layout and facility designs will be submitted as part of future Outline Plans of Works (OPW). Over time, except for the current maximum-security facility (which will remain), the new facilities are expected to replace some or all of the existing facilities at the site.

1.2 Purpose of the Report

3. This report, which is one of a series of technical assessment reports, provides an assessment of the ecological values of the watercourses and riparian vegetation proposed to be removed, any anticipated ecological impacts from the proposed reclamation and piping, and associated riparian vegetation clearance and any mitigation, remedy, offset or compensation required, in accordance with the effects management hierarchy.

4. This ecological assessment is to support resource consent applications for piping and reclamation of Watercourses 1 and 2 and associated clearance of surrounding riparian vegetation) and also a standard freshwater fisheries activity, being applied for under the FTAA.

1.3 Qualifications and Relevant Experience

5. This report has been prepared by Dr Ian Boothroyd, a certified (CEnvP) and experienced ecologist who is a Senior Principal ecologist and partner of Boffa Miskell: and Katrina McDermott a certified (CEnvP) Principal ecologist at Boffa Miskell.

6. **Appendix 1** includes a statement of their qualifications and experience, along with confirmation that this report has been prepared in accordance with the Environment Court's Code of Conduct for Expert Witnesses.

1.4 Approach

7. This application is to support resource consent applications for piping and reclamation of Watercourse 1 and 2 at Auckland Prison and associated riparian vegetation clearance. In both cases, the watercourses will be piped and reclaimed by way of an extension of the existing piped network.

8. The reclamation of Watercourse 1 and Watercourse 2 will lead to the permanent loss of 238 m of permanent and intermittent watercourse (124 m of permanent watercourse and 114 m of intermittent watercourse respectively). The proposal will result in removal of approximately 0.3945 ha of riparian vegetation adjoining Watercourse 1 and approximately 0.2179 ha of vegetation adjoining Watercourse 2.

9. Corrections is proposing to apply for the watercourse works consents as part of the FTAA application. The extension of the piped network will be necessary to enable sufficient developable area for prisoner accommodation and associated facilities.

10. Watercourses 1 and 2 are identified on Figure 1. Detailed surveys have been undertaken of these watercourses and potential mitigation sites.

2.0 Location and Ecological Context

2.1 Location

11. Auckland Prison is located at 530 Pāremoremo Road, Pāremoremo, on Auckland's North Shore. The Site is 80-hectares and is located approximately 26 km northwest of Auckland CBD and 8 km to the southwest of Albany

12. The northern boundary of the site is defined by Pāremoremo Road and Iona Avenue, with the existing main access via a secure control point within the Site adjacent to Pāremoremo Road. The southwestern boundary follows Pāremoremo Creek, a tidal inlet of the Upper Waitematā Harbour. The northwestern boundary adjoins rural-residential properties along Iona Avenue. The southeastern boundary runs along Merewhira Road, a no-exit route connecting Pāremoremo Road and Sanders Road, where several large lifestyle properties are located. The southern boundary borders rural-residential properties along Merewhira and Sanders Roads, with informal site access from Sanders Road.

13. Pāremoremo Scenic Reserve is located approximately 300m north of the prison, spans 107 hectares and is one of the largest continuous tracts of native forest on the North Shore. The reserve's steep, south-facing slopes are cloaked in mature conifer-broadleaf forest. The reserve is a popular recreation area with a number of walking tracks.

14. Pāremoremo Creek originates within the scenic reserve, flowing through a narrow floodplain before becoming a tidal estuary west of the site. The estuary features mangroves, wetlands, and native vegetation and holds high ecological value. It is identified as a Significant Ecological Area (SEA-M2-57b) and a Natural Stream Management Area under the Auckland Unitary Plan, recognising its natural character and ecological function (Figure 1).

2.2 Site Description

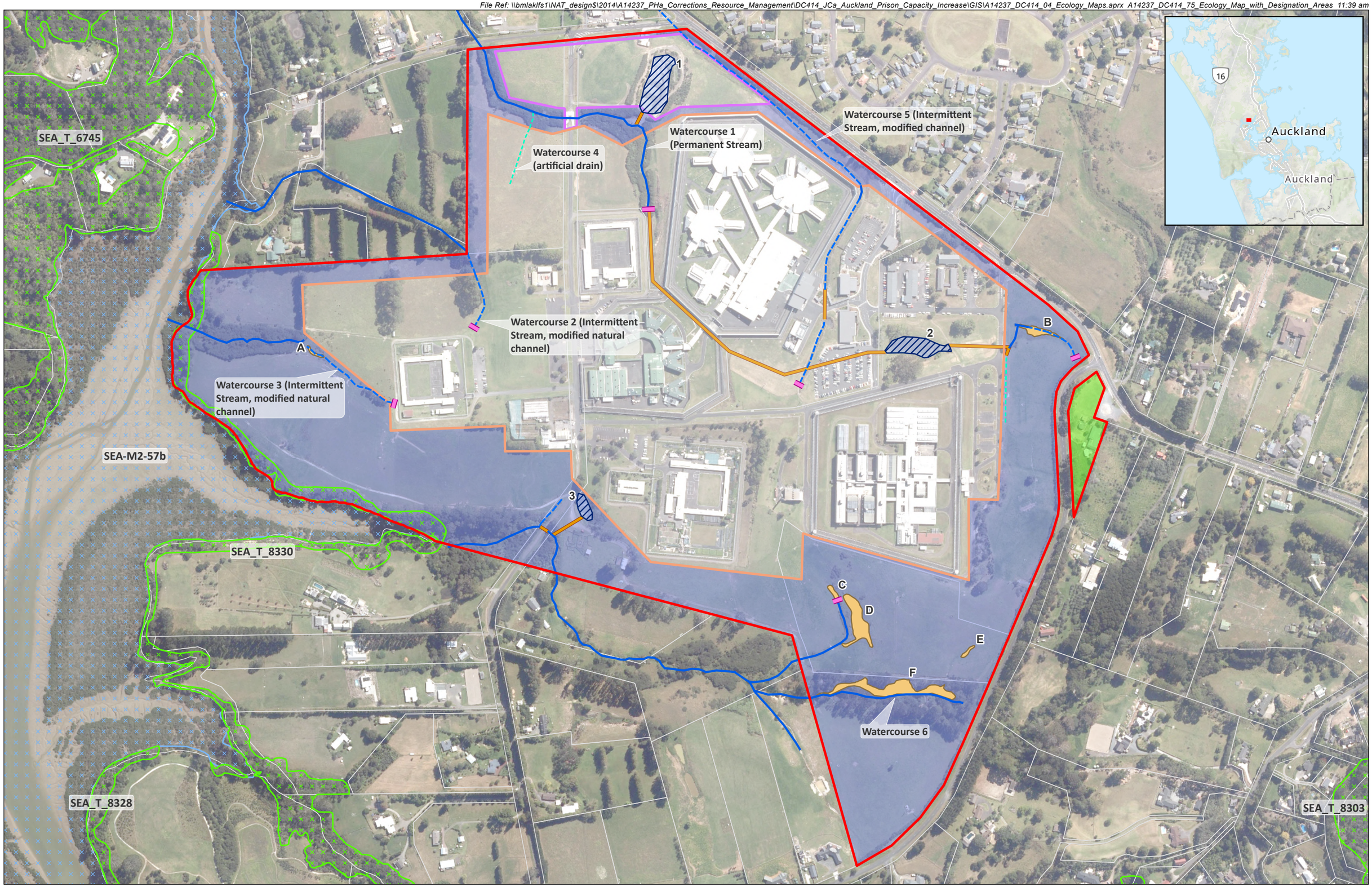
15. The topography of the site is generally undulating, with the highest points located in the northeastern corner near Merewhira Road, reaching 30–55 metres above sea level (masl), and along the southern boundary near Sanders Road, where elevations are up to 30 masl. The land gradually slopes down towards the southwest, forming a gully system that drains into Pāremoremo Creek. The central part of the site consists of flatter terrain, mostly around 20-25 masl. An artificial bund is located near the northern Sanders Road access from Iona Avenue, constructed alongside the maximum-security facility and stormwater pond.

16. Vegetation across the site is a predominantly mown lawns and pasture with a mix of native and exotic species. The riparian and estuarine margins feature mangroves and recently established native plantings, while the central areas are predominately mown grass and open lawn, especially around buildings and recreation fields. Native planting was introduced along the edges of Pāremoremo Road and Merewhira Road during the development of the maximum-security facility, though some gaps have developed in this buffer. Large exotic trees, such as oak, eucalyptus, pine, and macrocarpa, are found around prison facilities and along Site boundaries, particularly on the western and southern edges. Riparian margin vegetation is present on watercourses across the site with some native revegetation. However, most consist of mature exotic trees or exotic weed species. Shelterbelt plantings also exist along the boundary often within adjoining rural-residential properties along Iona Avenue.

2.3 Ecological Context

17. The site is located within the Tamaki Ecological District (ED) which is described (DOC) as being original forest characteristic northern North Island lowland type with abundant taraire and puriri. Some kauri remnants (with hard beech) occur on the North Shore. The district includes major wetland habitats of the Tamaki Estuary and Waitemata Harbour and with large areas of tidal flats. Mangroves line parts of Waitemata Harbour and Tamaki River.

18. All the watercourses on-site flow out into the Pāremoremo Creek, a Significant Ecological Area – Marine (SEA-M2-57b). This area is known as one of the best examples of muddy, mangrove-lined inlets of the Waitemata Harbour. There are extensive beds of shellfish and abundant bird and fish life. The ramifying arms of the system provide important pathways for migration of native freshwater fish. The mangroves and saline vegetation are an important habitat for threatened secretive coastal fringe birds, particularly where it abuts terrestrial vegetation, which provides roosts and potential nest sites for birds.



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Data Sources: NIWA (Aerials 2024), Auckland Council (Contours), LINZ (Cadastre, Roads), BML

Projection: NZGD 2000 New Zealand Transverse Mercator

LEGEND

- Amended Designation 3900 Boundary
- Area A
- Area B
- Area C
- Area D
- Natural Inland Wetland
- Watercourses
  - Permanent
  - Intermittent
  - Ephemeral
  - Artificial drain
- Constructed Stormwater Pond
- Existing Pipe Outlet
- Existing Stormwater Pipe
- Significant Ecological Areas
  - Terrestrial
  - Marine 2

AUCKLAND PRISON CAPACITY INCREASE

Ecology Map with Designation Areas

Date: 09 March 2026 | Revision: A

Plan prepared by Boffa Miskell Limited

Drawn: SGa | Checked: AFI

Figure 1

3.0 Proposal

3.1 Background

19. Corrections propose to alter the designation at Auckland Prison, Pāremoremo, to enable prisoner capacity to be increased from the current designation maximum of 681 to 1,220 prisoners. This increase is to meet projected prison population growth in the region.

20. The proposed development is likely to be built in stages, with new facilities ultimately replacing some or all of the existing facilities. The existing maximum-security facility will remain.

3.2 Proposed Designation Areas

21. Four proposed designation areas have been identified (Figure 1):

- Area A covers 44.93 hectares and is located centrally within the site, set back 30 metres from the western boundary and about 200 metres from the coastal edge. The area avoids elevated terrain to the south and east and already contains several existing buildings. On balance most of the land within Area A is already used for existing prison facilities with hard surfaces associated with buildings such as yards, access roads and carparking. The open space is currently open sports fields, gardens, a constructed pond and mown grass/lawn areas.
- Area B is 3.30 hectares in size and is located in the northern part of the site, adjacent to Iona Avenue. It includes open grassed land on either side of the northern Sanders Road access, situated north of the existing stream and stormwater pond. A prominent feature of this area is a large manmade mound, constructed as part of the stormwater system for the New East Division maximum-security facility. There are no trees or other vegetation within this area.
- Area C, the balance land beyond Areas A and B, 31.81 hectares in size, mostly open grassland and pasture with some existing vegetation, buildings, stormwater facilities, watercourses and natural inland wetlands.
- Area D is an area of land to the east of the main prison site, is 0.64 hectares in size which is utilised for staff training facilities, community facilities, infrastructure/services, carparking and lighting.

22. Not all land within Areas A and B will be developed for buildings, with the proposed conditions for the alteration to the designation including maximum building coverage limits.

23. The watercourses (or parts thereof) related to this assessment are located within Area A and Area C.

3.3 Proposed Piping and Reclamation of watercourses and associated vegetation clearance

24. Corrections is proposing to apply for the watercourse works consents as part of the FTAA application because the extension of the pipe network will be necessary to enable sufficient developable area for prisoner accommodation and associated facilities. Other resource consents for enabling works (e.g. earthworks for specific build platforms and stormwater management and discharge for future facilities) will be sought at a later date once design details are known.

25. We note that the only habitat upstream of the proposed piping of Watercourse 1 is a stormwater pond which is connected to the open channel downstream by a 900mm diameter culvert which is approximately 500m long. The average gradient of the culvert is approximately 2.6%. Watercourse 2 has no upstream habitat, and flows are derived entirely from the collection off impervious surfaces and thus is entirely sourced from stormwater.

26. The proposed works will involve the following activities:

- Removal of approximately 0.3945 ha of riparian vegetation surrounding Watercourse 1 and approximately 0.2179 ha of vegetation surrounding Watercourse 2.
- Extending the existing pipe networks (including relocating the existing discharge points) for Watercourse 1 (a permanent stream) and Watercourse 2 (an ephemeral stream) to beyond the edge of Area A, involving:
    - 124 metres of piping and reclamation for Watercourse 1 plus an additional 8m length of riprap outlet;
    - 114 metres of piping and reclamation for Watercourse 2, plus an additional 4m length of riprap outlet.
- Earthworks over an indicative area of approximately 0.2 ha and volume of approximately 2,500m^3 for Watercourse 1, and an indicative area of 0.25 ha and volume of approximately 2,179m^3 for Watercourse 2 to fill over the extended pipework (refer **Appendix 3A**).

27. The construction methodology for the watercourse piping and reclamation is expected to involve the following key steps:

- Erosion and sediment controls established.
- Removal of vegetation surrounding watercourses.
- Temporary stream diversion and dewatering (as necessary).
- Process for the excavation of unsuitable material and the bedding zone for the proposed pipe (includes removal of any remaining vegetation surrounding the watercourses).
- Process for the installation and compaction of imported material to strengthen subgrade, provide bedding, lay pipe and backfill the barrel of the pipe.
- Install pipe extension (expected to be a 1500mm diameter pipe for Watercourse 1 and a 750mm diameter pipe for Watercourse 2).

- Create new outfall structures and energy dissipation features (such as a riprap apron).
- Backfill material over the pipe to a level generally consistent with the adjacent existing ground levels and associated reinstatement (hydroseeding).

28. It is conservatively estimated[1] that construction will occur over approximately a 2-3 month period with earthworks occurring over approximately a 1-2 month period, most likely during the summer when flows are typically low. During the earthworks period, it is expected that an average of approximately 10-15 truck movements per day (excluding Sundays and public holidays) will be required to cart fill material to site and remove any unsuitable material from site.

4.0 Statutory Considerations

4.1 Overview

29. This section provides the policy framework for the matters related to watercourses relevant to this ecological assessment.

30. This section refers to the:

- National Policy Statement for Freshwater Management (NPS-FM)
- National Environmental Standards for Freshwater (NES-F)
- National Policy Statement for Indigenous Biodiversity (NPS-IB)
- Auckland Unitary Plan (Operative in Part)

31. Relevant matters are summarised below and provided in more detail. This section is not a statutory assessment; rather it sets out the relevant policy outcomes sought in relation to freshwater and indigenous biodiversity which have formed the framework of this assessment.

4.2 National Policy Statement for Freshwater Management

32. The National Policy Statement for Freshwater Management 2020 (NPS-FM) sets out the objectives and policies for freshwater management under the RMA. It came into effect on 3 September 2020 (as Amended December 2025).

33. The NPS-FM applies to all freshwater (including groundwater) and, to the extent they are affected by freshwater, to receiving environments.

34. The NPS-FM directs regional councils to undertake a variety of policy inclusions or modifications to policy, as well as to undertake specific tasks. The NPS-FM also directs Council to be satisfied that the 'Effects Management Hierarchy' is applied to

[1]The estimated construction period is indicative and is a conservative assumption based on a number of assumptions, including a 20 tonne truck, importing / exporting all cut/fill material, and based on limited design information.

the existing and potential values where appropriate and is provided for in the policy and regulations.

35. The following policies are relevant to the proposed watercourse works activities:

> *Policy 1: Freshwater is managed in a way that gives effect to Te Mana o te Wai.*
>
> *Policy 2: Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for.*
>
> *Policy 3: Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.*
>
> *Policy 5: Freshwater is managed (including through a National Objectives Framework) to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.*
>
> *Policy 6: There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.*
>
> *Policy 7: The loss of river extent and values is avoided to the extent practicable.*
>
> *Policy 8: The significant values of outstanding water bodies are protected.*
>
> *Policy 9: The habitats of indigenous freshwater species are protected.*
>
> *Policy 12: The national target (as set out in **Appendix 3**) for water quality improvement is achieved.*
>
> *Policy 13: The condition of water bodies and freshwater ecosystems is systematically monitored over time, and action is taken where freshwater is degraded, and to reverse deteriorating trends.*

36. Policy 7 is relevant to this assessment of effects, as well as clause 3.24 which requires that:

> *Every regional council must include the following policy (or words to the same effect) in its regional plan:*
>
> *The loss of river extent and values is avoided, unless the council is satisfied that:*
>
> *(a) there is a functional need for the activity in that location; and*
> *(b) the effects of the activity are managed by applying the effects management hierarchy.*

4.3 National Objectives Framework

37. Subpart 2 of the NPS-FM requires certain attributes to be managed within a compulsory National Objectives Framework (NOF). The NOF requires that water quality is maintained or improved to establish water quality attribute bands for a variety of parameters. The NPS-FM requires that Councils apply compulsory values to

freshwater management units in their respective regions as part of the NOF (Subpart 2, 3.9(1)). Those compulsory values relevant to freshwater ecology are:

38. **Ecosystem health** refers to the extent to which a Freshwater Management Unit (FMU) or part of an FMU supports an ecosystem appropriate to the type of water body (for example, river, lake, wetland, or aquifer).

39. There are five biophysical components that contribute to freshwater ecosystem health, and it is necessary that all of them are managed. They are:

- Water quality – the physical and chemical measures of the water, such as temperature, dissolved oxygen, pH, suspended sediment, nutrients and toxicants
- Water quantity – the extent and variability in the level or flow of water
- Habitat – the physical form, structure, and extent of the water body, its bed, banks and margins; its riparian vegetation; and its connections to the floodplain and to groundwater
- Aquatic life – the abundance and diversity of biota including microbes, invertebrates, plants, fish and birds
- Ecological processes – the interactions among biota and their physical and chemical environment such as primary production, decomposition, nutrient cycling and trophic connectivity.

40. In a healthy freshwater ecosystem, all five biophysical components are suitable to sustain the indigenous aquatic life expected in the absence of human disturbance or alteration (before providing for other values).

41. **Threatened species** refers to the extent to which an FMU or part of an FMU that supports a population of threatened species has the critical habitats and conditions necessary to support the presence, abundance, survival, and recovery of the threatened species. All the components of ecosystem health must be managed, as well as (if appropriate) specialised habitat or conditions needed for only part of the life cycle of the threatened species.

4.4 National Policy Statement for Indigenous Biodiversity

4.4.1 Objectives

42. The key objectives and policies of the National Policy Statement for Indigenous Biodiversity (NPS-IB) (amended December 2025) (NPS-IB) seek to *maintain indigenous biodiversity across Aotearoa New Zealand so that there is at least no overall loss in indigenous biodiversity*.

43. The objective of the NPS-IB provides local authorities with direction on how they should manage indigenous biodiversity under the Resource Management Act 1991 ('RMA'), including introducing a variety of policies or modifications to policies, as well as setting out specific tasks to be undertaken.

44. The NPS-IB provides local authorities with updated direction on how they should manage indigenous biodiversity under the RMA, including introducing a variety of policies or modifications to policies, as well as setting out specific tasks to be

undertaken. The NPS-IB also directs that local authorities must engage with tangata whenua, people and communities (including landowners) to ensure that the decision-making principles inform, and are given effect to, when implementing NPS-IB in their regions and districts.

45. The NPS-IB sets out 17 policies (s.2.2) to achieve the NPS-IB objective. While all of the policies are relevant to the proposal, we draw particular attention to the following:

> ***Policy 3:*** *A precautionary approach is adopted when considering adverse effects on indigenous biodiversity.*
>
> ***Policy 8:*** *The importance of maintaining indigenous biodiversity outside SNAs is recognised and provided for.*
>
> ***Policy 13:*** *Restoration of indigenous biodiversity is promoted and provided for.*
>
> ***Policy 15:*** *Areas outside SNAs that support specified highly mobile fauna are identified and managed to maintain their populations across their natural range, and information and awareness of highly mobile fauna is improved.*

4.4.2 Maintaining indigenous biodiversity

46. The NPS-IB directs maintaining biodiversity as (s1.7):

> (1) Maintaining indigenous biodiversity requires:
>
> *(a)* the maintenance and at least no overall reduction of all the following:
>
> (i) the size of populations of indigenous species:
>
> (ii) indigenous species occupancy across their natural range:
>
> (iii) the properties and function of ecosystems and habitats used or occupied by indigenous biodiversity:
>
> (iv) the full range and extent of ecosystems and habitats used or occupied by indigenous biodiversity:
>
> (v) connectivity between, and buffering around, ecosystems used or occupied by indigenous biodiversity:
>
> (vi) the resilience and adaptability of ecosystems; and
>
> *(b)* where necessary, the restoration and enhancement of ecosystems and habitats.

47. We note that the NPS-IB excludes land covered by water, water bodies and freshwater ecosystems (as those terms are used in the National Policy Statement for Freshwater Management 2020) and the coastal marine area.

4.5 Auckland Unitary Plan

4.5.1 The identification and delineation of watercourses

48. The Unitary Plan Chapter J1 (Definitions) specifies the criteria for the classification of watercourses as either permanent, intermittent or ephemeral. These definitions are listed below. The definition of the watercourse has implications under the relevant objectives and policies in the Unitary Plan and affects the activity status of any proposed works within watercourses under the regional rules of the Unitary Plan. These criteria have been applied in our assessment of watercourses described below.

River or Stream

49. A continually or intermittently flowing body of fresh water, excluding ephemeral streams, and includes a stream or modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal except where it is a modified element of a natural drainage system).

Permanent River or Stream

50. The continually flowing reaches of any river or stream.

Intermittent Stream

51. Stream reaches that cease to flow for periods of the year because the bed is periodically above the water table. This category is defined by those stream reaches that do not meet the definition of permanent river or stream and meet at least three of the following criteria:

- it has natural pools;
- it has a well-defined channel, such that the bed and banks can be distinguished;
- it contains surface water more than 48 hours after a rain event which results in stream flow;
- rooted terrestrial vegetation is not established across the entire cross-sectional width of the channel;
- organic debris resulting from flood can be seen on the floodplain; or
- there is evidence of substrate sorting process, including scour and deposition

Ephemeral Stream

52. Stream reaches with a bed above the water table at all times, with water only flowing during and shortly after rain events. This category is defined as those stream reaches that do not meet the definition of permanent river or stream or intermittent stream.

Overland Flow Path

53. Low point in terrain, excluding a permanent watercourse or intermittent river or stream, where surface runoff will flow, with an upstream contributing catchment exceeding 4,000 m²[2].

5.0 Ecological Values of Watercourses (including associated riparian vegetation)

5.1 Methods

5.1.1 Approach

54. A site visit had previously been undertaken by Boffa Miskell where all watercourses within the site were classified.

55. Formal instream assessments were then carried out on watercourses proposed to be reclaimed and watercourses where potential mitigation or compensation could be undertaken. Methods of the instream assessment are detailed below.

5.1.2 Stream Ecological Valuation

56. The SEV is recommended by Auckland Council for providing an ecological valuation of streams and is increasingly being used outside of Auckland. The SEV uses a set of fourteen qualitative and quantitative variables to assess the integrity of stream ecological functions (Table 1). Field work consists of a comprehensive assessment of the in-stream and riparian environment. This includes a fish survey, aquatic macroinvertebrate sampling and cross-sections of the stream to measure width, depth and substrate, as well as using qualitative parameters for reach-scale attributes.

[2] Definition is proposed to be amended by PC120 to the Unitary Plan to "a low point in terrain (excluding permanent streams) where surface runoff will flow during rainfall events".

Table 1: Summary of the 14 ecological functions used to calculate the SEV score.

Hydraulic functions:	**Biogeochemical functions:**
Processes associated with water storage, movement and transport. • Natural flow regime • Floodplain effectiveness • Connectivity for species migrations • Natural connectivity to groundwater	Relates to the processing of minerals, particulates and water chemistry. • Water temperature control • Dissolved oxygen levels maintained • Organic matter input • In-stream particle retention • Decontamination of pollutants
Habitat provision:	**Biotic functions:**
The types, amount and quality of habitats that the stream reach provides for flora and fauna. • Fish spawning habitat • Habitat for aquatic fauna	The occurrences of diverse populations of native plants and animals that would normally be associated with the stream reach. • Fish fauna intact • Invertebrate fauna intact • Riparian vegetation intact

57. This data is analysed using a series of formulae to produce an SEV score of between 0-1, where a 0 is a stream with no ecological value and 1 is a pristine stream with maximum ecological value. Interpretation of SEV scores is given in Table 2 below.

Table 2: Interpretation of SEV scores.

Score	**Category**
0 - 0.40	Poor
0.41 – 0.60	Moderate
0.61 – 0.80	Good
0.81+	Excellent

5.1.3 Ecological Compensation Ratio

58. To calculate the amount of enhancement required to mitigate the impacts of streamworks an environmental compensation ratio (ECR) was calculated.

59. The environmental compensation ratio utilises the SEV score to calculate a ratio for the minimum area to be restored as mitigation for unavoidable stream loss. The ECR has the underlying principle of 'not net loss' and is based upon 'no net loss of area-weight stream function'. A minimum ratio of compensation of 1:1 is required.

60. The formula for calculating the ECR is as below:

- ECR = [(SEVi-P – SEVi-I)/(SEVm-P – SEVm-C)] x 1.5
- SEVi-C & SEVi-P are the current and potential SEV values respectively for the site to be impacted.
- SEVm-C & SEVm-P are the current and potential SEV values respectively for the site where environmental compensation is to be applied.
- SEVi-I is the predicted SEV value of the stream to be impacted, after impact.
- 1.5 is a multiplier.

61. The ECR calculation requires the prediction of a 'potential' and 'impact' SEV scores. The potential scores for impact sites assume that best practise enhancement works have been undertaken. The prediction of the impact scores assumes that the proposed streamworks have been undertaken. The generally accepted SEV score for culverts is 0.2. The predicted potential and impact scores do not include biotic functions (invertebrate fauna intact and fish fauna intact) as they are too difficult to predict.

62. The ECR considers that environmental compensation ratios greater than 1 are valid because of:

- The ecological risk factors associated with the cumulative loss of streams and the steady change in areal distribution of high-quality stream reaches;
- The long time-lag before full benefits of environment compensation (i.e. from riparian planting) accrue to the mitigated sites; and
- The overall difference between the expected and actual success of stream restoration methods.

5.1.4 Environmental DNA

63. Environmental DNA (eDNA) is genetic material that is shed by organisms as they move around the environment. In the case of this project, it is picked up by water (i.e. they either live in the water, or runoff from rainfall on land) and is collected in the sampled water at the survey site. The eDNA is then sequenced by Wilderlab, identifying an array of species. eDNA can confirm a species is present with the environment, however it cannot prove that an animal is not present, nor can it be used as a proxy for abundance. In the case of eDNA collection within watercourses, the genetic material may be from anywhere within the catchment *upstream* of the point of collection.

64. Two eDNA samples were collected, each with six replicates. These were collected from Watercourse 1, *below* the SEV reach and at the anticipated downstream extent of stream reclamation. An eDNA sample was also taken from Watercourse 6, on the upstream side of Sanders Road. Environmental DNA was not obtained from Watercourse 2 as there is no upstream habitat for biota.

5.1.5 Biological Indices

Macroinvertebrate Community Index

65. The Macroinvertebrate Community Index (MCI) score is a biotic index that can be used as an indicator of stream water quality. It relies on the fact that biological communities are a product of their environment – with different organisms having different habitat preferences and pollution tolerances (Stark & Maxed 2007). The MCI involves assigning tolerance values to all taxa based on their tolerance to pollution. Taxa that are characteristic of pristine conditions score higher than taxa that are predominantly found in polluted conditions, where 0.1 is the lowest and 10 is the highest. The final MCI scores are calculated using presence-absence data, with the scores range from 0 to 200 (Table 3), with streams with no taxa present scoring 0 and streams in exceptionally pristine conditions scoring 200 (Stark 1993) (Refer to Table 3).

66. For all streams surveyed the MCI-sb scores were utilised owing to the predominantly sandy/silty stream beds present across all sites.

Table 3: Interpretation of MCI scores. From Stark and Maxted 2007.

Quality Class	Descriptions	MCI or MCI-sb Score	QMCI or QMCI-sb Score
Excellent	Clean Water	> 119	>5.99
Good	Doubtful quality or possible mild pollution	100 – 119	5.00-5.90
Fair	Probable moderate pollution	80-99	4.00-4.99
Poor	Probable severe pollution	<80	4.00

Other Indices

67. EPT taxa refers to the number of taxa present from within three generally pollution-sensitive orders of insects; Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies). The caddisfly species *Oxyethira* and *Paroxyethira* were excluded from EPT calculations as they are considered to be generally pollution tolerant.

68. Fish Index of Biotic Integrity, or Fish IBI, is calculated for use within the SEV calculator. The Fish IBI is a measure of how intact the native fish community is within a reach. Utilising a number of metrics including altitude and distance inland, and a large background of data from sites across Waikato, a number of between zero and sixty is calculated (WRC 2007; Table 2). Interpretation of QIBI is provided in Table 4.

Table 4: Attributes and suggested integrity classes for the Waikato QIBI.

Total QIBI Score	Integrity Class	Attributes
47 - 60	Excellent	Comparable to the best situations without human disturbance; all regionally expected species for the stream position are present. Site is above the 75th percentile of
36 - 46	Good	Site is above the 50th percentile of Waikato sites but species richness and habitat or migratory access reduced. Shows some signs of stress.
27 - 35	Moderate	Site is above 25th percentile. Species richness is reduced. Habitat and or access is impaired.
6 - 26	Poor	Site is impacted or migratory access almost non-existent.
0	No Fish	Site is grossly impacted or access non-existent.

5.2 Current Ecological Value

5.2.1 Overview

69. Three watercourses were assessed using the SEV method for their current ecological value. A further two watercourses were visually assessed. eDNA was collected from two watercourses. The results of the assessments are detailed below.

5.2.2 Watercourse 1

70. Watercourse 1 is a permanent watercourse located to the north of the site (Figure 2). The SEV was undertaken just below the culvert outlet, with the entire upper catchment being piped. The stream channel is well defined, with incision evident along the entire reach. The channel had an average depth of 0.05 m and a maximum depth of 0.4 m. A large pool was present upstream of the survey reach, at the base of the outlet, where the maximum depth was >1m. The channel had an average width of 1.1 m[3], with a maximum with of 2.6 m which was recorded at the top of the upstream extent of the reach at the base of the large pool. The upper reaches of the channel had been lined with large cobbles (which originate at the outlet of the piped network), with the remainder a mixture of cobbles, gravels and silt/sands.

71. Macrophyte growth was generally low within the channel with, curly pondweed (*Potamogeton crispus*), watercress (*Nastrurtium officinale*), starwort (*Callitriche stagnalis*) and water celery (*Helosciadium nodiflorum*) observed. Some green filamentous algae were recorded.

[3] The average width excludes the width measurement taken at the bottom of the pool formed at the base of the outlet as the outlet skewed the mean to be unrepresentative of the survey reach.

72. Riparian vegetation on both banks is comprised of native tree plantings (understood to be planted after 2017), with manuka (*Leptospermum hoipolloi f. hoipolloi*) accounting for some 70%. The riparian planting is well established, with some individuals 7 m in height, however planting is set back from the stream and consequently there is no overhanging vegetation. Channel shade was very low across the reach. The immediate riparian margin is predominantly bare banks and species such as pasture grass, dock (*Rumex sp.*) and buttercup (*Ranunculus repens)*.

73. The dense planting of the vegetation provides little understorey and limited habitat for terrestrial fauna such as lizards. The vegetation provides some potential for bird nesting, although pest management is limited.

Looking Downstream Looking Upstream

Figure 2: Watercourse 1 SEV and Impact Reach. Photo taken in May 2024, by Boffa Miskell, as part of stormwater monitoring at Auckland Prison.

74. Watercourse 1 returned a moderate SEV score of 0.461, indicative of moderate ecological function (Table 2). Scores were particularly low for floodplain effectiveness, channel shade and fish, macroinvertebrate and riparian communities.

75. eDNA was collected from within Watercourse 1, below the SEV reach. The only fish species detected through the eDNA was the native shortfin eel (Anguilla australis).

76. The macroinvertebrate community had three dominant species: the caddisfly *Oxyethira*, the sandfly *Austrosimulium* and the chironomid midge *Orthocladiinae*. *Oxyethria*, unlike other EPT species is very tolerant to pollution and are often abundant in streams with abundant streambed algae. Similarly, both *Austrosimulium* and *Orthocladiinae* are pollution tolerant, with *Austrosimulium* often abundant in both pristine and poor-quality streams, while *Orthocladiinae* often abundant in unshaded, nutrient-enriched streams with high algal growth. The MCI-sb was 81.0 which is indicate of fair quality, with probably moderate pollution, the QMCI-sb was 3.06 and

indicative of poor quality and probable severe pollution. No sensitive EPT taxa[4] were recorded.

77. Watercourse 1 has an overall low ecological value.

5.2.3 Watercourse 2

78. Watercourse 2 is an intermittent watercourse located to the north-west of the Site (Figure 3). The SEV was undertaken some 10m below the culvert outlet, with almost the entire upper catchment being piped. The stream channel is well defined, with some incision from high flows evident along the upstream portion of the reach, with the lower portion becoming much wider, shallower and with lower banks. The channel had an average width of 0.97m and a maximum of 1.5 which was present in the lower reaches. Channel depth averaged 0.7m, with a maximum depth of 0.14m. The channel substrate was almost entirely silt/sand with the occasional piece of wood.

79. Macrophyte species were abundant with water pepper (*Persicaria hydropiper*) dominating the channel, with smaller patched of soft rush (*Juncus effusus*) and starwort (*Callitriche stagnalis*) recorded. Iron floc bacteria were abundant along the stream reach. The riparian margin was predominantly short grasses, with channel shading very low along the reach. Some tall exotic trees (*Pinus radiata* and *Eucalyptus* sp.) were present on the true left bank. Channel shade was generally very low.

Looking Downstream Looking Upstream

Figure 3: Watercourse 2 SEV and Impact Reach. Photo taken in May 2024, by Boffa Miskell, as part of stormwater monitoring at Auckland Prison.

[4] The hydroptilidae taxa *Oxyethira* and *Paraoxythira* have been excluded

80. Watercourse 2 returned an SEV score of 0.382, which is considered indicative of poor ecological function. Scores were particularly low for riparian vegetation and shade, fish and macroinvertebrate communities, water quality of the upper catchment and galaxiid spawning habitat.

81. Fish communities in Watercourse 2 were previously surveyed by Boffa Miskell in May 2024. These fish surveys recorded 15 shortfin eels within the reaches, ranging in size from 550 mm to 80 mm. Fish surveys were not undertaken in 2025.

82. The macroinvertebrate community was dominated by the crustacean ostracoda, or seed shrimp. This taxon is generally found in slow flowing or stagnant waters, and they can tolerate poor water quality conditions. No sensitive EPT taxa[5] were recoded. The MCI-sb score was 75.67 and the QMCI-sb was 2.88, both of which are indicative of poor-quality habitat and probable severe pollution.

83. An extent of shelterbelt trees occurs along the fringes of Watercourse 2, meeting the requirement, although not functioning, as riparian vegetation. These tall and mature pine trees are potential habitat for bats and nesting opportunities for birds. No further ground vegetation was present.

84. Watercourse 2 has an overall very low ecological value.

5.2.4 Watercourse 3

85. Watercourse 3 is located to the east of the Site, predominantly outside of the proposed expansion area. A brief visual assessment was undertaken on Watercourse 3. This is an intermittent watercourse that originates within actively grazed pasture with an estimated average stream width of 0.35 m. The channel is highly damaged through pugging by stock. At the time of the survey the upper reaches were dry, with pooling then flowing water observed with movement downstream.

86. The lower reaches of the channel contain wetland habitat with abundant *Juncus sp.* observed, however no formal wetland delineation was undertaken. A spring, or seepage, is located on the true right bank, with abundant mercer grass *(Paspalum distichum*) observed and water flowing down the stream bank into Watercourse 3. A small area of ponded water is present at the downstream extent where it meets the fenceline, likely a result of stock damage.

87. Overall, we estimate the ecological values of Watercourse 3 as very low.

5.2.5 Watercourse 6

88. Watercourse 6 is located to the south-west of the site, outside of Area A and within Area C (Figure 4). This is a permanent channel that originates from a large stormwater outfall under Merewhira Road. At the downstream property boundary, a large, damaged and perched culvert is present that is creating a significant fish passage barrier, presenting almost a complete barrier to even climbing species. The SEV was taken approximately halfway between the upstream and downstream culverts.

89. Watercourse 6 is a permanent watercourse with the survey reach having an average width of 1.91 and a maximum width of 2.5 m. The channel is a mixture of silt/sand in slower areas and bedrock in swifter areas, with occasional woody debris present. The

[5] The hydroptilidae taxa *Oxyethira* and *Paraoxythira* have been excluded

average depth was 0.39 m, with a maximum depth of 0.76 m. The channel was highly incised with banks over 2 m high in some places. No macrophyte species were recorded. Shade was very low across the survey reach.

90. The riparian margin contained some very large *Pinus radiata* trees, however these trees provided very little shade and overall little benefit to the stream. The understory was heavily grazed with some woolly nightshade (*Solanum mauritianum*) and gorse (*Ulex europaeus*), with rare mamaku ferns (*Sphaeropteris medullaris*) along the stream edge. The riparian zone was predominantly sparse pasture grass and bare banks. Large swathes of riparian wetlands[6] were present on the true right bank, with pooled and flowing water, and *Juncus spp.* and mercer grass observed. The riparian margin provided very little shade, leaf litter or filtering functions to the stream channel.

91. eDNA was collected within the lower parts of the reach, some 600 m below the survey reach and below the significant fish passage barrier. Fish species detected were redfin bully (*Gobimorphus huttoni*), banded kokopu (*Galaxias fasciatus*), shortfin eel, longfin eel (*Anguilla dieffenbachia*) and the pest fish species gambusia (*Gambusia affinis*). Longfin eel are classified as At Risk – declining. All these species are diadromous, with the perched culvert presenting a significant barrier to the upper reaches of Watercourse 6, with both redfin bully and banded kokopu unable to navigate it. Shortfin and longfin eel may be able to navigate the culvert in times of higher flower when a wetted margin may form around the culvert, particularly juveniles (i.e. elvers).

92. The macroinvertebrate community had three more abundant species: the stonefly *Acroperla*, orthoclad chironomid midges, and the amphipod *Paracalliope*. *Acroperla* feed on a range of organic matter within streams of moderate to good water quality. They are considered an EPT taxa, however they are not thought to be among the most ‘sensitive’ (Landcare Research, 2025). *Paracalliope* are thought to be New Zealand’s most common freshwater amphipod taxon, which feed on deposited organic matter and biofilms. They are often abundant in lowland, slow flowing weedy streams and tolerate a wide range of water qualities. Watercourse 6 had an SEV score of 0.486, providing moderate ecological function. Two EPT taxa were recorded, with a %EPT of 18.2%. The MCI-sb and QMCI-sb scores were 82.38, and 4.32 respectively, with both indicative of fair quality habitat and probably moderate pollution

93. Overall, we estimate the ecological values of Watercourse 6 as low – moderate ecological value.

[6] No formal wetland delineation was undertaken.

Looking Downstream

Looking Upstream

Figure 4: Watercourse 6. Photo taken in March 2026, by Boffa Miskell.

6.0 Assessment of Effects

6.1 Functional Need

94. There is a functional need for reclamation of watercourses 1 and 2 as explained in the "functional need" section of Volume 3 of the FTAA Application.

6.2 Loss of Watercourses

95. As set out above, the proposed works will result in the permanent loss of 124 m of a permanent watercourse and 114 m of an intermittent watercourse.

6.3 Injury or Mortality of Native Fish

96. The reclamation of Watercourse 1 and Watercourse 2, without mitigation, could result in injury or mortality of native fish species. Injury or mortality may occur during dewatering, or through physical stream works.

97. To minimise the risk and remedy for the potential harm to native fish the process for native fish capture and relocation is provided in the Ecological Management Plan. These measures will be implemented prior to any watercourse works. This plan includes:

- Methodologies to capture fish
- Details of the relocation site
- Storage and transportation methods
- Details of suitably qualified ecologist to implement the Plan

6.4 Sediment Laden Water

98. The proposed reclamation and associated watercourse works, and the wider site earthworks may result in sediment laden water entering watercourses. To minimise this risk, the works will occur in accordance with the Sediment and Erosion Control Plan consistent with Auckland Council GD05 has been prepared by Aurecon and will be implemented for the duration of the earthworks. The proposed erosion and sediment controls include:

    - Clean water diversion channels are to be installed around proposed stockpile areas and a super silt fence is to be installed around the low side of the stockpile areas.
    - Any pumped discharges from excavations are to be discharge to either a Silt Sock Turkey's Nest or a dewatering settlement tank.
    - The proposed flow diversion channel is proposed to discharge to rock riprap apron, which will dissipate energy and minimise scour or erosion effects.
    - Stabilisation of exposed areas at completion of earthworks by either mulching or hydroseeding.

99. These measures will significantly reduce the risk that the earthworks will result in the release of sediment laden water into the adjacent watercourses.

6.5 Fish Passage

100. The stormwater management approach is likely to continue the system of stormwater ponds and connecting pipes utilising the existing utilities, with potential additional infrastructure as required. The reclamation and piping of both Watercourse 1 and 2 will be an extension of the stormwater system.

101. As part of the reclamation and piping of Watercourse 1, we note the constraints of providing for fish passage. A stormwater pond is located upstream of Watercourse 1 which is connected to the Watercourse 1 open channel with a 900 mm diameter culvert which is approximately 500 m long. The average gradient of the culvert is approximately 2.6%.

102. Aurecon (2025) have considered the NIWA Fish Passage Guidelines (2025) in their assessment, and note that the predicted average velocities at the downstream end of the culvert for the low flow (2.0 to 3.2 m/s) and high flow (2.1 to 3.4 m/s) are much greater than the swimming speed of the longfin eel elver set out below:

    - Mean Maximum Sustained Swimming Speed: 0.22 m/s
    - Mean Critical Swimming Speed: 0.32 m/s

103. The existing network connection upstream of the proposed pipe currently prevents fish passage. The smaller diameter 900 mm diameter existing pipe connecting the existing Pond 2 through to the proposed works on Watercourse 1 is steep (with elevated velocities) and when considered with likely control structures at the pond, prevents effective fish passage. In addition, there is a distinct lack of suitable habitat upstream, with only a stormwater pond (stormwater pond 2 identified in Figure 1) available.

104. Fish passage guidance (NIWA 2025) and section 3.26 of the NPS-FM recognise that sometimes it will be best to not provide passage for fish, e.g., when impeding fish passage will help to protect fish species, and could include circumstances where there is no upstream link to natural waterway. The proposal does not include fish passage for Watercourse 1 or 2 for the reasons stated below.

For Watercourse 1:

- The existing outlet structure and pipe network impedes fish passage.
- The gradient means that the predicted velocity of stormwater water travelling through pipework ranges from 2.0 to 3.4 m/s is beyond most preferred velocities for upstream swimming and climbing fish (NIWA 2025).
- Providing fish passage would be complex and costly, with several design challenges. For example, the existing 900 m pipe upstream of Watercourse 1 is steep (with elevated velocities) and when considered with likely control structures at the pond, prevents effective fish passage. Retrofitting the existing 900 mm length pipe would be difficult and costly, for little ecological benefit as there is no substantive habitat upstream for fish to thrive.
- The only upstream fish habitat is a stormwater pond after 500 m of pipe network, which provides very little suitable fish habitat. Providing fish passage to this stormwater pond runs the risk of fish becoming trapped in the stormwater system (pond 2) therefore providing fish passage would not provide any ecological benefit or be protective of the fish population.

For Watercourse 2:

- There is no upstream fish habitat as it is all a built environment and all water in Watercourse 2 is collected in and discharged from pipes. Therefore, providing fish passage would not provide any ecological benefit, and providing fish passage would allow fish to become trapped in the stormwater system.

105. Accordingly, we recommend that the provision for fish passage upstream in Watercourse 1 is unnecessary because the velocities of the piped network exceed the ability of fish to swim against them, and there is no suitable habitat available for fish to thrive. The provision of fish passage for the piping of Watercourse 2 is also considered unnecessary as there is no upstream environment or habitat for fish to reach as it is all a built environment.

106. In providing for FTAA Schedule 9, Clause 3(d) (how the passage of fish will be provided for or impeded), we consider that there are no advantages to providing fish passage on Watercourse 1 and 2 as there is effectively no fish habitat up catchment. The presence of fish passage may in fact be detrimental to fish populations as fish may get trapped or entrained in the pipe system. Accordingly, we recommend that the provision of fish passage on Watercourse 1 and 2 be impeded (but not permanently blocked).

107. We recommend that fish passage is improved on Watercourse 6 as part of the compensation for the reclamation of Watercourse 1 and 2 (see below).

108. Furthermore, for the benefit and enhancement of the shortfin eel populations, we recommend a remedy for the loss of fish passage through the salvage and relocation of eels (and other native fish) from the stormwater pond upstream of the Watercourse 1 reclamation (Pond 2). This will enable a potentially landlocked population of native fish to be liberated downstream (or into Watercourse 6), and the potential for them to breed and provide growth and resilience of the fish population.

109. In relation to existing culverts at Watercourse 6 being perched, we note that Section 42(1) of the Freshwater Fisheries Regulations 1983 (FFR) provides that: Notwithstanding regulation 41(2)(d), no person shall construct any culvert or ford in any natural river, stream, or water in such a way that the passage of fish would be impeded, without the written approval of the Director-General incorporating such conditions as the Director-General thinks appropriate.

110. Our investigations show that the track and culvert associated with compensation proposal (the western culvert proposed to be upgraded and improved at Watercourse 6) was in place prior to 1983 and thus the FFR does not apply to the existing structures.

6.6 Terrestrial Fauna

6.6.1 Lizards

111. The extent of riparian habitat associated with the piping for Watercourse 1 is limited and largely absent from the riparian margin of Watercourse 2. As the riparian area of Watercourse 1 retains habitats with the potential for the presence of lizards, there is the potential for the loss and /or disturbance to lizard habitat that may leave lizards susceptible to injury and mortality.

6.6.2 Avifauna

112. The proposed activities will result in the removal of some 0.39 ha of potential bird nesting habitat alongside Watercourse 1 and 0.098 ha alongside Watercourse 2. The area within these prison facilities is highly managed and disturbed, and given the extent of available habitat in the surrounding landscape (outside of Areas A and B), the loss of riparian vegetation will not have impact on avifauna populations.

6.6.3 Bats

113. As the current records suggest an unlikely presence of bats in the nearby landscape, and the level of disturbance from the current prison operations, the likelihood of bats being present or occurring within the riparian areas of Watercourses 1 and 2 is very low. For the most part the existing riparian vegetation of Watercourse 1 is generally not suitable for foraging or roosting as the vegetation is not suitably mature for that purpose.

114. The riparian trees of Watercourse 2 are the most likely potential habitat for bats and their movements. Accordingly, the inclusion of tree felling protocols in the EcMP for

potential bat movements and casual roosting at these riparian trees prior to any removal will minimise any impacts on bats.

7.0 Effects Management

7.1 Effects Management Hierarchy

115. For this assessment, we have applied the effects management hierarchy as the sequential process to consider and manage adverse ecological effects. This hierarchy is as follows (as outlined in the NPS-FM):

(a) adverse effects are avoided where practicable; then

(b) where adverse effects cannot be avoided, they are minimised where practicable; then

(c) where adverse effects cannot be minimised, they are remedied where practicable; then

(d) where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided where possible; then

(e) if aquatic offsetting of more than minor residual adverse effects is not possible, aquatic compensation is provided; then

(f) if aquatic compensation is not appropriate, the activity itself is avoided.

116. The functional need for the works means that the loss of watercourses cannot be avoided (as explained in the Volume 3 of the Substantive Application).

7.2 Terrestrial Fauna

7.2.1 Lizards

117. As detailed above, as the riparian area of Watercourse 1 retains habitats with the potential for the presence of lizards, there is the potential for the loss and /or disturbance to lizard habitat that may leave lizards susceptible to injury and mortality.

118. The proposed condition of the designation requires the preparation and submission for certification of an Ecological Management Plan (EcMP) prior to construction works for land outside of the existing prison facilities. The EcMP includes management protocols for lizards including recommendations for best practice methods to capture and relocate indigenous lizard species to a suitable relocation site.

119. The proposed capture and relocation of lizards is a remedy for the potential disturbance to lizard habitat that may leave lizards susceptible to injury and mortality.

7.2.2 Avifauna

120. As set out above, the mature trees that comprise the riparian vegetation of Watercourse 2 retain the greater potential for nesting birds during the breeding season. Accordingly, the EcMP provides for tree felling protocols that follow standard procedures for the removal of trees prior to the bird breeding season and/or the identification and management of trees where native birds are observed to be nesting. Thus, impacts on avifauna is minimised.

7.2.3 Bats

121. As the current records suggest an unlikely presence of bats in the nearby landscape, and the level of disturbance from the current prison operations, the likelihood of bats being present or occurring within the riparian areas of Watercourses 1 and 2 is very low.

122. The riparian trees of Watercourse 2 are the most likely potential habitat for bats and their movements. Accordingly, the inclusion of tree felling protocols in the EcMP for potential bat movements and casual roosting at these riparian trees prior to any removal will minimise any impacts on bats.

7.3 Terrestrial Vegetation

123. The proposed reclamation of Watercourse 1 will result in the loss of some 0.39 ha of riparian vegetation on Watercourse 1, and some 0.096 ha from Watercourse 2. There is a demonstrated functional need for the reclamation of the watercourses, and thus the loss of the riparian vegetation is unavoidable (as explained in Volume 3 of the Substantive Application).

124. Offset for the loss of riparian vegetation is built into the SEV assessment and calculations as set out above. Accordingly, the offset for the loss of Watercourse 1 and 2 provides for the offset and replanting of riparian vegetation and quantified through the application of the ECR.

7.4 Aquatic Offset for Loss of Watercourse and Riparian Vegetation

125. An acceptable practice method for quantifying the amount of offsetting required for unavoidable stream loss is the use of Stream Ecological Valuation (SEV) surveys and the Environmental Compensation Ratio (ECR).

126. The ECR utilises the SEV score to calculate a ratio of mitigation required to stream lost. SEV surveys were conducted at the two reclamation sites Watercourse 1 and Watercourse 2, and the proposed aquatic offset at Watercourse 6.

127. The loss of watercourse and associated mitigation calculations are outlined below in Table 5. Further information and data for ECR calculations is available in **Appendix 3**.

128. The stream reaches available for offset occur in Watercourse 6, located within the Auckland Prison designation (Area C). The mitigation planting will be in the form of

accepted practice native riparian planting with a 20 m buffer on either side (40 m in total).

129. Watercourse 6 does have some mature poorly maintained pine trees that are nearing the end of their life. As described in section 5.2.5 above, these trees provide very little shade, and the riparian zone was predominantly sparse pasture grass and bare banks. The understory is heavily grazed, and the riparian margin provided very little shade, leaf litter or filtering functions to the stream channel.

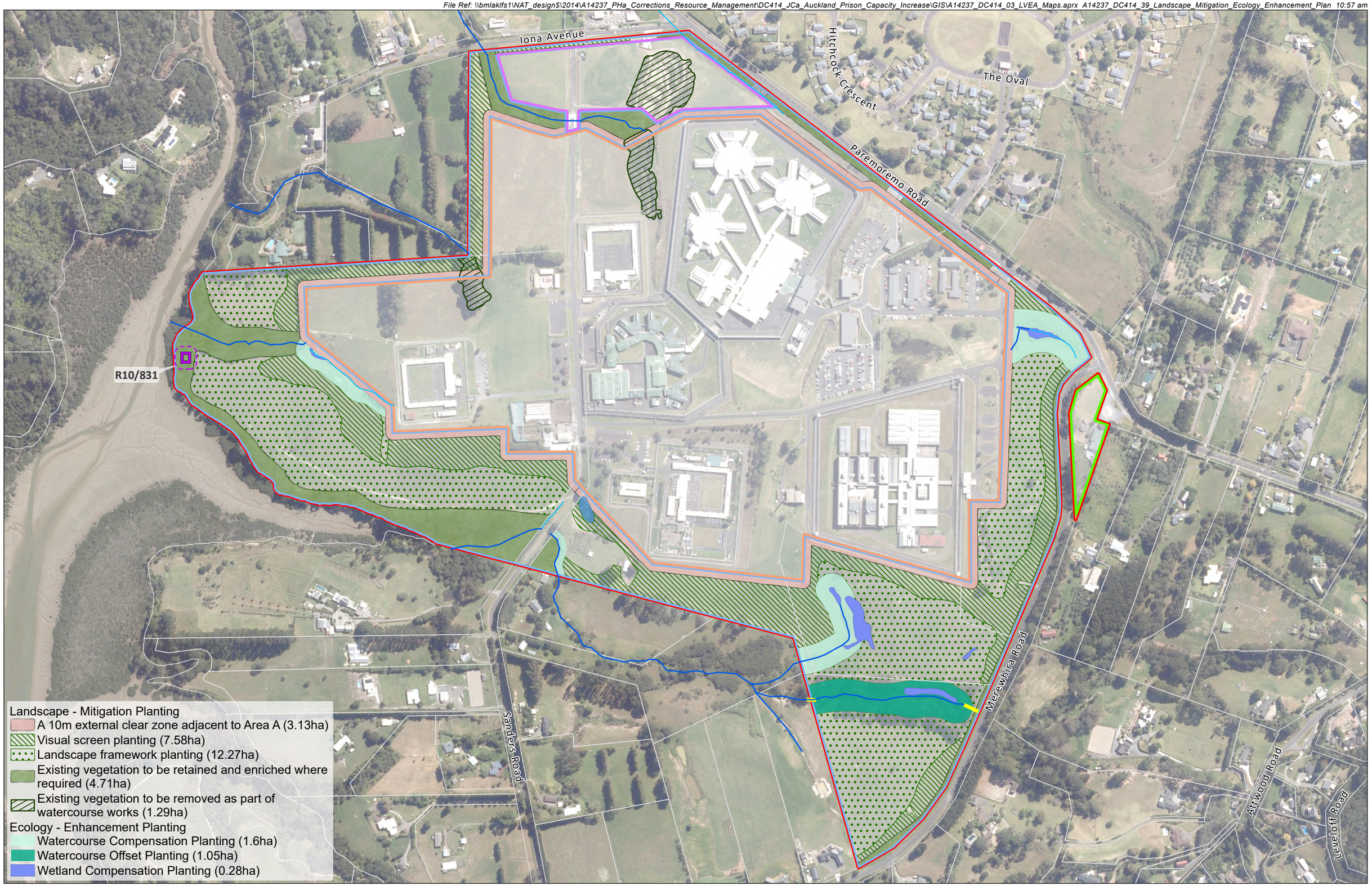
130. The proposed riparian planting of Watercourse 6 will provide significant benefits with overhanging vegetation and increased shading for the stream.

131. Over time, the mature pines will fall naturally or be removed as they reach their end of life, and as the area beyond the riparian plantings will contain further ecological planting with stock excluded, fencing of the riparian planting is not required.

132. The impacts of the reclamation of Watercourse 1 and Watercourse 2 cannot be wholly offset through restoration planting of Watercourse 6. The available stream area for restoration will only mitigate for 61.9% of the impacts on Watercourse 1 and none of the impacts on Watercourse 2.

Table 5: Stream Ecological Compensation Ratios (ECRs) calculations for impacted watercourses at Auckland Prison, September 2025.

Impact Site	**Watercourse 1**	**Watercourse 2**
Mitigation Site	Watercourse 6	
ECR	4.82	4.97
Length Impacted Stream	124 m	114 m
Width Impacted Stream ($\bar{x}$)	1.127 m	0.97 m
Area of stream compensation required	673 m^2	552 m^2
Length offset stream	218.3 m	
Width offset stream	1.91 m	
Proportion of impact reach mitigated	61.9%	0.0%
Comments	The restoration of Watercourse 6 will account of 61.9% of the required offset for impacts on Watercourse 1.	All available length of Watercourse 6 available for offsetting has been utilised for Watercourse 1.
Additional offset areas	Watercourse 3 Watercourse 4	



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0 100 200 m

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Data Sources: NIWA (Aerials 2024), Auckland Council (Contours), LINZ (Cadastre, Roads), NZAA Sites, BML

Projection: NZGD 2000 New Zealand Transverse Mercator

LEGEND

- Amended Designation 3900 Boundary
- Proposed improvements to existing culverts
- Archaeological Feature
- Archaeological Feature (10m buffer)
- Area A
- Area B
- Area C
- Area D
- Land Parcels

AUCKLAND PRISON CAPACITY INCREASE

Landscape Mitigation and Ecology Enhancement Plan (LMEEP)

Date: 11 March 2026 | Revision: D

Plan prepared by Boffa Miskell Limited

Drawn: SGa | Checked: JGo

Figure 5

7.5 Alternative Offsets

133. Approaches have been made by Corrections to other landowners downstream of the proposed offset length of Watercourse 6 (Refer Figure 5). Enhancing the watercourse through this mid-reach as the stream approaches the Upper Waitemata Harbour estuarine environment would provide an environmental improvement. However, whilst some interest from landowners was apparent, there was no appetite to accept the necessary legal protection for the riparian planting (and continuing maintenance). Without legal protection and ongoing maintenance, the planting efforts can be reversed or degraded as there is no certainty the planting will be protected and maintained (weed control and pest monitoring) over time to provide ecological values. Monitoring and enforcing ecological commitments on private land can also be difficult to enforce and achieve compliance. As such, this alternative option was dismissed as too uncertain and not an acceptable viable aquatic offset. Managing widespread planting across multiple landowners including ongoing protection and maintenance would be complex and require ongoing access to private land. Planting on Corrections owned land provides certainty that the planting will be implemented and consistently maintained (with appropriate weed control and pest management in accordance with best-practice) and will achieve the ecological outcomes sought.

134. Accordingly, having explored both on-site and off-site opportunities, the principles for aquatic offset are only partly satisfied, and the effects management requires consideration of aquatic compensation which is summarised in **Appendix 4**.

7.6 Aquatic Compensation

135. As the ability to meet an aquatic offset is only partially achieved, effects management requires consideration of aquatic compensation. Here, options for compensation are proposed, to develop an overall effects management package in keeping with the principles of aquatic compensation. The proposed approach to compensation is tested against the principles of aquatic compensation and presented in **Appendix 4**. These methods for compensation are:

- Improvement and upgrade of Culverts: The large culvert at the downstream extent of the proposed offset reach of Watercourse 6 is severely damaged and creating a significant native fish passage barrier for movement upstream into the proposed restoration reach of Watercourse 6 (Figure 6). This culvert will be replaced, reinstating native fish passage upstream.

  A second impassable culvert (eastern end of Watercourse 6) is situated at Merewhira Road (Figure 6). This culvert also prevents fish passage and is a significant restriction for fish access to the full extent of the catchment upstream. We recommend that the outlet of this culvert is improved with rocks stacked at the outlet to form a shallow sloping structure and/or spat ropes.

  The option for improvement and upgrade to the culvert and improving fish passage at the outfall is highly beneficial as Watercourse 6 contains populations of several native fish species including the At-Risk longfin eel that currently have no real access to the upper catchment; thus, increasing the ecological values of the watercourse. Furthermore, improving the culverts increases the extent of watercourse function for fish and potentially other mobile fauna such as the migratory freshwater shrimp (*Paratya curvirostris*).

The full extent of watercourse opened for access amounts to some 1,380 m of permanent stream and 1,959 m of intermittent stream that is currently denied due to perched and failing culverts. A proposed resource consent condition LUC16 is recommended (refer Volume 6, **Appendix 6B** to the Application) to achieve these outcomes in accordance with the New Zealand Fish Passage Guidelines (NIWA 2025).

Upstream (eastern end) perched culvert

Downstream perched culvert

Figure 6: Culverts located along Watercourse 6 which pose significant fish passage barriers

- Wetland Planting: Six areas of native inland wetland were identified within the site, four of which are located within riparian margins and will be incorporated into riparian restoration. Two wetlands, Wetland D and E, located outside of the watercourse compensation/ offset planting areas, will be restored with native wetland plant species. This equates to a total restoration of 0.28 ha of wetland.
- Stream Planting: A number of smaller permanent and intermittent watercourses are located within the site. Time restrictions meant that SEV assessments were unable to undertaken on all and consequently they are not included in the ECR calculations. However, they are proposed to be restored as compensation. The watercourses are further described below.

136. Watercourse 3 is a small intermittent watercourse located to the east of the Auckland Prison designation. The watercourse is 150 m in length, with a natural inland wetland of 0.01 ha located in its lower reaches. This watercourse will be restored within riparian and wetland vegetation to an approximate 10 m riparian margin. The riparian margin restoration is subject to width restrictions owing to the proximity to the Area A boundary and required 10 m setback / clear zone.

137. Watercourse 6 is one of the more substantial permanent watercourses on-site, and the location of the mitigation restoration. The lower reaches of watercourse 5, upstream of Sanders Road there is a small area where supplementary planting will be provided on the TLB. This area is currently slipping and covered in weed species such as gorse and blackberry.

138. A small permanent tributary to the north, on Watercourse 6 will be restored with a 20 m riparian margin on either side. A natural inland wetland located within the low-lying riparian margins of this watercourse and will be included.

139. Watercourse 1 upper reaches are located above the piped network and pond 2. This watercourse contains both permanent and intermittent reaches and a small riparian wetland. This watercourse will be enhanced with a 20 m riparian margin.

7.7 Freshwater Fisheries Regulations

140. Section 42(1) of the Freshwater Fisheries Regulations 1983 requires that, notwithstanding regulation 41(2)(d), no person shall construct any culvert or ford in any natural river, stream, or water in such a way that the passage of fish would be impeded, without the written approval of the Director-General incorporating such conditions as the Director-General thinks appropriate. This ecological assessment is provided in support of an application for a freshwater fisheries activity under the FTAA because the proposed pipe extensions will impede fish passage (which is consistent with the design of existing outfalls which are perched).

7.8 Additionality Test

141. With reference to Section 4.6 (Freshwater Fisheries Regulations), we understand that biodiversity compensation must secure additional conservation outcomes that would not have happened otherwise known as the “additionally test”. The core question to meet the “additionally test” is would the ecological gain (in this case, providing fish passage at existing culverts that are perched and currently impede fish passage at Watercourse 6) have occurred without the proposed compensation package for the proposed watercourse works at Auckland Prison. If the answer is no, then the proposal passes the “additionality” test.

142. The proposed culvert improvements at watercourse 6 do meet the additionally test because:

- The existing culverts are perched, and we understand they were installed prior to 1983 when the Freshwater Fisheries Regulations 1983 took effect. Despite Regulation 42(2) of the Freshwater Fisheries Regulations 1983 requiring occupiers of land to **maintain** culverts or fords in such a way to allow the free passage of fish, and despite reference in the Fish Passage guidelines, our understanding is that those regulations do not require culverts that were installed prior to 1983 that were previously constructed in a position that does not allow the free passage of fish, to be upgraded or improved to require that free passage of fish.
- The culvert in this case was, prior to 1983 constructed and located (perched) in such a way that it does not allow the free passage of fish. Accordingly, there is no obligation under Regulation 42(2) of the Freshwater Fisheries Regulations

1983 to maintain free passage as there is nothing to "maintain" in that respect. This lack of fish passage through the existing culvert is not due to a lack of maintenance of the culvert.

- The culvert upgrade and improvements proposed involve a replacement culvert that is positioned lower in the stream (to the west), and new structures at the outlet to the east (under Merewhira Road) to provide fish passage. This is not action that Corrections is required to take under Regulation 42(2) of the Freshwater Fisheries Regulations. This proposal is an improvement in the existing situation as fish passage will now be provided where it was not previously present.
- These improvements would not otherwise be done because although Regulation 42(2) relates to "**maintenance**" (our emphasis added) of culverts to provide for fish passage, it does not impose a requirement to upgrade existing culverts (that existed at 1983) that do not already provide fish passage to provide fish passage.
- The proposed upgrade and improvements to the culvert and improving fish passage at the outfall is highly beneficial as Watercourse 6 contains populations of several native fish species including the At-Risk longfin eel that currently have no real access to the upper catchment. Expanding the extent of the watercourse available for mobile aquatic biota (1,380 m of permanent stream and 1,959 m of intermittent stream) increases the ecological values of the watercourse.
- The compensation package is supported by council ecologists. In our experience culvert upgrades or improvements are highly acceptable as a compensation mechanism to many Councils as consenting authorities.

7.9 Offset and Compensation Planting

143. Appropriate compensation for the loss of Watercourse 1 and Watercourse 2 on the site is planned for the site, with components designed to offset and compensate for the loss of permanent and intermittent stream length and to enhance the ecological values of the site. The offset and compensation planting, in accordance with the above recommendations, is as follows:

    The offset and compensation planting plan is integrated with the proposed Landscape Mitigation and Ecological Mitigation and Enhancement Plan (LMEEP). These planting proposals to offset and compensation for the loss of watercourse and riparian vegetation translate to the following areas shown on the LMEEP (Figure 7):

    - Watercourse compensation planting (1.6 ha).
    - Watercourse offset planting (1.05 ha).
    - Wetland compensation planting (0.28 ha).

144. The LMEEP also identifies the proposed improvements to culverts at Watercourse 6 to provide fish passage. The LMEEP is provided with the resource consent application report and for the proposed designation alteration to increase capacity at Auckland Prison. Details of the development of the LMEEP as they relate to landscape, natural character and visual effects are included in the Assessment of Landscape, Natural Character and Visual Effects (Boffa Miskell 2025).

145. Proposed compensation and offset planting is proposed to be undertaken at least during the planting season prior to the loss of watercourses.

7.10 Ecological Management Plan

146. Ecological Management Plans for the site have been developed to include the following measures:

(a) Management protocols for lizards including best practice methods to capture and relocate indigenous lizard species to a suitable relocation site. The relocation site will have required habitat subject to predator control measures for at least 6 months prior to the first transfer and will receive continuing predator control for three years after the final transfer.
(b) Management protocols for the avoidance of bird nesting season, or the methods to confirm there are no nesting threatened indigenous birds nesting within the tree lines.
(c) Management and tree felling protocols for the detection and avoidance of bat usage at the time of tree felling.
(d) Methods for the salvage and relocation of native fish from the length of intermittent or permanent watercourses reclaimed as part of the proposal.

7.11 Summary Effects Management for Freshwater Ecology

147. Satisfying the effects management hierarchy and in keeping with the principles of aquatic offset and aquatic compensation means that the relevant policies of the NPS-FM are met. Most critically, Policy 7 (The loss of river extent and values is avoided to the extent practicable) is met. The response to the principles of aquatic offset and aquatic compensation is provided in **Appendix 4** (Refer Table 6).

7.12 Summary of effects management for Terrestrial ecology

148. Satisfying the effects management hierarchy and in keeping with the principles of biodiversity offset and compensations means that the relevant policies of the NPS-IB are met (Table 7). We emphasise that the loss of riparian vegetation is accounted for in the effects management for the loss of Watercourses 1 and 2 and is explained in section 8.2 but is listed here to provide a response to vegetation loss; it is not being double counted. The response to the principles of aquatic offset and aquatic compensation is provided in **Appendix 4**.

Table 6: Effects management for effects of watercourse works for the Auckland Prison Capacity Increase proposal on freshwater ecology.

Effects Management				
Ecological values	**Watercourse 1**	**Watercourse 2**	**Native Fish**	**Sediment-laden water**
Avoid	Loss of Watercourse 1 is unavoidable.	Loss of Watercourse 2 is unavoidable.	Harm to native fish is avoided through remedy.	Incursion of sediment-laden water cannot be fully avoided.
Minimise	Loss is minimised to the extent reclamation is proposed only to the extent of just beyond Area A (the maximum extent of the future secure perimeter)	Loss is minimised to the extent reclamation is proposed only to the extent of just beyond Area A (the maximum extent of the future secure perimeter)	Harm to native fish is minimised through remedy.	Incursion of sediment-laden water is minimised through erosion and sediment controls.
Remedy	No remedy (diversion) is available for the loss of Watercourse 1.	No remedy (diversion) is available for the loss of Watercourse 2.	Native fish are salvaged from Watercourse 1 (including from the upstream stormwater pond) and relocated downstream (or to Watercourse 6).	No further effects management is required.
Offset	Aquatic offset for some 62% (417 m^2) of loss of ecological values of Watercourse 1 is provided through riparian planting at Watercourse 6. Partial residual loss of watercourse remains.	Aquatic offset for loss of ecological values of Watercourse 2 is not achieved. Residual loss of watercourse remains.	No residual effect and no aquatic offset is required.	No residual effect and no aquatic offset is required.
Compensation	Aquatic compensation is satisfied through: Improvement and upgrade to two significant culverts on Watercourse 6, providing for passage/migration for climbing native fish, including At-Risk species (ecological values).		N/A	N/A

Effects Management				
Ecological values	**Watercourse 1**	**Watercourse 2**	**Native Fish**	**Sediment-laden water**
	Improvement and upgrade to two significant culverts on Watercourse 6, improving access to an extent of watercourse of some 1,380 m of permanent stream and 1,959 m of intermittent stream that is currently denied. Enhancements to 0.28 ha of wetland habitat.			
Outcome	Effects management hierarchy is satisfied.			

Table 7: Effects management for effects of watercourse works for the Auckland Prison Capacity Increase proposal on terrestrial ecology.

Ecological values	**Riparian vegetation**	**Lizards**	**Avifauna**	**Bats**
	Low	**Very Low**	**Very Low**	**Very Low**
Avoid	Loss of riparian vegetation and habitat at Watercourse 1 and 2 is unavoidable. Harm to fauna is avoided through remedy as set out below.			
Minimise	Loss of riparian vegetation habitat at Watercourse 1 and 2 cannot be minimised.	Loss of riparian vegetation habitat at Watercourse 1 and 2 cannot be minimised. Harm to native lizards is minimised through remedy as set out below.	Harm to native avifauna is minimised through the application of protocols to avoid nesting season and/or checking and waiting for nesting birds to fledge. Relevant protocols are set out in an EcMP.	Harm to native bat populations is minimised through the application of tree felling protocols to avoid vegetation removal if bats are active amongst them. Relevant protocols are set out in an EcMP.
Remedy	Loss of riparian vegetation habitat at Watercourse 1 and 2 cannot be remedied.	Remedy for potential harm and loss to Lizards is provided through survey and if required a salvage and relocation of fauna to a reserved location as set out in a Lizard Management Plan.	No further effects management is required.	No further effects management is required.
Offset	Offset with some 2.6567 ha of riparian planting on Watercourses 3 and 6, and the upper reaches of Watercourse 1.	N/A	N/A	N/A
Compensation	N/A	N/A	N/A	N/A
Outcome	NPS-IB is satisfied	NPS-IB is satisfied	NPS-IB is satisfied	NPS-IB is satisfied

8.0 Assessment against statutory context

8.1 Assessment against the NPS-IB

149. As outlined above the purpose of the NPS-IB requires the maintenance of indigenous biodiversity with no overall loss. By following the management recommendations outlined above, the provisions for the maintenance of indigenous biodiversity as set out in the NPS-IB are met (Table 8).

Table 8: Proposed effects management and the maintenance of indigenous biodiversity (IB) following application of effects management.

Indigenous biodiversity maintenance	**Vegetation**	**Herpetology - populations**	**Avifauna populations**	**Bat populations**
Ecological feature	**Riparian vegetation**	**Low value habitat for lizards.**	**Low value habitat for avifauna.**	**Low value habitat for bats**
Ecological values	**Very low.**	**Very low.**	**Very low.**	**Very low.**
Population size	Increase in IB after planting and restoration measures implemented.	Minimal effect on district lizard population. Salvage and relocation methods implemented only if required. Population size improved if occurs.	No reduction after seasonal avoidance and/or bird nest check protocols applied (effects management). No fatalities to breeding population of indigenous birds.	No reduction after seasonal avoidance and/or implementation of tree felling protocols. No fatalities to breeding population of bats.
Occupancy	Occupancy of native plants will not be impacted.	Occupancy of native lizard populations will not be impacted after planting and restoration measures implemented.	Occupancy of native avifauna populations will not be impacted after planting and restoration measures implemented.	Occupancy of bat population will not be impacted after planting and restoration measures implemented.
Ecosystem function	Improved ecosystem functioning after planting and restoration measures implemented as well as pest and weed management.	Enhanced lizard habitat and populations after planting and restoration measures, and implementation of pest management measures. The function of habitats for native lizards is expected to improve.	No reduction in function of avifauna habitats. After planting and restoration measures, and implementation of pest management measures, function of habitats for native avifauna is expected to improve.	No reduction in bat populations.
Range and extent	Increase in range and extent of native terrestrial vegetation.	No reduction. Range and extent of native lizard movement maintained and enhanced.	No reduction. Range and extent of native avifauna movement maintained and enhanced.	No reduction.

Indigenous biodiversity maintenance	Vegetation	Herpetology - populations	Avifauna populations	Bat populations
Ecological feature	**Riparian vegetation**	**Low value habitat for lizards.**	**Low value habitat for avifauna.**	**Low value habitat for bats**
Ecological values	**Very low.**	**Very low.**	**Very low.**	**Very low.**
Connectivity	Increase in vegetation connectivity once planting area established.	Increase in extent and habitat connectivity once planting area established.	Increase in extent and habitat connectivity once planting area established.	Increase in extent and habitat connectivity once planting area established.
Resilience and adaptability	Increase in resilience and adaptability after planting and restoration measures implemented. Resilience improved through implementation of pest and weed management.	Increase in resilience and adaptability after planting and restoration measures implemented. Resilience improved through implementation of pest management.	Increase in resilience and adaptability after planting and restoration measures implemented. Resilience improved through implementation of pest management.	Increase in resilience and adaptability after planting and restoration measures implemented. Resilience improved through implementation of pest management.
Summary	IB is maintained and enhanced.	IB is maintained and enhanced.	IB is maintained and enhanced.	IB is maintained and not reduced.

8.2 Assessment against the NPS-FM

150. By following the management recommendations set out above, the provisions of the NPS-FM are met (Table 9).

Table 9: Proposed effects management and the NPS-FM following the application of effects management.

Indigenous biodiversity maintenance	**Wetlands**	**Watercourses**
Ecological feature	**No natural inland wetlands occur within Area A. All natural inland wetlands are of low ecological value.**	**Permanent (fed by stormwater pond) and intermittent (fed by piped stormwater outlets) occur within Area A.**
Ecological values	**Very low.**	**Very low.**
Loss of extent of watercourse	N/A	Any loss of watercourse offset and compensated for through implementation of stream enhancement as documented in LMEEP. Effects management hierarchy is satisfied.
Loss of wetland	Loss of natural inland wetlands is avoided.	N/A
Fish passage	N/A	Fish passage is maintained for watercourses retained. No new culvert road crossings.
NOF water quality	N/A	The compulsory values of the NOF are met through enhancements to offset watercourse. No change to stormwater quality.
Summary	NPS-FM requirements are met.	NPS-FM requirements are met.

9.0 Conclusions and Recommendations

151. Corrections is seeking to alter the existing designation and seek other approvals to enable increased capacity at Auckland Prison under the FTAA. To assess the potential impacts of piping freshwater streams, Stream Ecological Valuation surveys were undertaken at three sites, eDNA was collected at two sites and visual assessments were made of additional freshwater features.

152. The reclamation of Watercourse 1 and Watercourse 2 will lead to the permanent loss of 238 m of permanent and intermittent watercourse and associated riparian vegetation. Aquatic offset of some 218.3 m of Watercourse 6 will be provided for. Full effects management is achieved through the additional compensation of culvert improvement and upgrade works to provide additional stream values and expanding the extent of the watercourse available for mobile aquatic biota (1,380 m of permanent stream and 1,959 m of intermittent stream), planting of at least 0.1459 ha of natural inland wetland and the riparian planting of 1.6 ha of additional intermittent stream channel. Thus, effects management is satisfied within the land ownership of Corrections (i.e., no off site mitigation) with a no net loss of ecological value or extent of freshwater habitats resulting from the watercourse works.

153. Fish passage for the proposed stream piping is not recommended as the predicted velocities within the stormwater systems greatly exceed the sustained swimming abilities of native fish recorded within the watercourse; and habitat upstream of the stormwater pipe is limited. However, salvage of fish prior to the watercourse works, and from the upstream stormwater pond will be undertaken and they will be liberated downstream.

154. The following recommendations are made for ecological management to ensure that the potential effects of the proposed development on ecological values are adequately managed:

- Works to occur in accordance with the proposed Sediment and Erosion Control Plan that employs acceptable practice methods and based on Auckland Council GD05.
- Culvert improvement and upgrade works (at downstream reaches of Watercourse 6) should be informed by the New Zealand Fish Passage Guidelines (NIWA 2025) to ensure fish passage.
- Implementation of the proposed Offset and Compensation Planting, in accordance with the Landscape Mitigation and Ecology Enhancement Plan (LMEEP), prepared by Boffa Miskell, dated 17 October 2025, Rev C, which includes:
    - Watercourse compensation planting (1.6 ha)
    - Watercourse offset planting (1.05 ha)
    - Wetland compensation planting (0.28 ha)
- Implementation of the measures set out in the Ecological Management Plan including:
    - Native fish capture and relocation prior to reclamation.
    - Management protocols for lizards including best practice methods to capture and relocate indigenous lizard species to a suitable relocation site, provided the site with the required habitat has been subject to predator control measures for at least 6 months prior to the first transfer and will receive ongoing predator control for three years after the last transfer.
    - Management protocols for the avoidance of bird nesting season, or the methods to confirm there are no nesting threatened indigenous birds nesting within the tree lines.

- Management and tree felling protocols for the detection and avoidance of bat usage at the time of tree felling.

155. Following the implementation of the effects management hierarchy, and satisfying the principles of aquatic offset and compensation, we conclude that the effects of the proposed piping of streams and removal of riparian vegetation are less than minor and will achieve no net loss of ecological values.

10.0 References

Aurecon 2025. Auckland Prison Capacity Increase – Extension of Pipes at Watercourses – Engineering Design Report. Prepared by Aurecon for Department of Corrections, November 2025.

NIWA 2025. New Zealand Fish Passage Guidelines. Version 2.03. Prepared by NIWA for the Ministry of the Environment, July 2025.

Appendix 1: Expert Statements

Dr Ian Boothroyd: Statement of Qualifications & Experience

I am a Senior Principal Ecologist at Boffa Miskell Limited. Boffa Miskell is a multi-disciplinary environmental consultancy specialising in planning, urban design, landscape design, ecology, biosecurity and engagement. I have been employed at Boffa Miskell since June 2014.

I hold the qualifications of BSc (Hons) Manchester University 1977), MSc Applied Hydrobiology (University of Wales, 1980) and DPhil (Waikato University, 1988). I am an appointed Fellow of both the Royal Society of Biology (FRSB) and the Environment Institute of Australia and New Zealand (FEIANZ), a life member of the New Zealand Freshwater Sciences Society, and a member of the Resource Management Law Association. I am a Certified Environmental Practitioner (CEnvP, Ecology).

I have 40 years of professional experience in the field of resource management, including roles as Manager Environmental Monitoring and Compliance (Hawke's Bay Regional Council), Research Director (NIWA), Senior Lecturer (University of Auckland, and as a consultant environmental practitioner for 25 years. I am also an experienced independent environmental commissioner and appointed as a Freshwater Commissioner by the New Zealand government. My experience includes environmental assessment and management and decision-making in the New Zealand environment, and I am familiar with environmental protocols, criteria and performance standards. I have led multidisciplinary teams for large and often complex projects.

My experience extends to large land management and subdivision projects, designations, renewable energy, roading, mining, quarrying, water treatment, biodiversity management and offsets, multi-criteria assessments through to investigations and assessments, consent conditions, fast track applications and presentation of expert evidence at hearings, Environment Court and Boards of Inquiry.

I confirm that, in my capacity as reviewer of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

Ian Boothroyd, September 2025

Katrina McDermott: Statement of Qualifications & Experience

I am Principal Ecologist at Boffa Miskell Limited. Boffa Miskell is a multi-disciplinary environmental consultancy specialising in planning, urban design, landscape design, ecology, biosecurity and engagement. I have been employed at Boffa Miskell since November 2016.

I hold the qualifications of BSc (Hons) (University of Auckland 2009) and a MSc (Hons) (University of Auckland 2010). I am a certified Environmental Practitioner (CEnvP), and a member of the New Zealand Freshwater Sciences Society and the Coastal Science Society.

I have 15 years of professional experience as a consultant environmental practitioner. My experience includes environmental impact assessments across subdivision, mining, roading, quarrying and forestry, through to catchment-wide monitoring and feature mapping. I have completed the Auckland Council Stream Ecological Valuation (SEV) training course and have extensive experience undertaking SEV surveys and the implementation of the Environmental Compensation Ratio used for mitigating stream loss.

I can confirm that, in my capacity as author of this report, I have abided by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

Katrina McDermott, October 2025.

Appendix 2: Macroinvertebrate Data

Macroinvertebrate community assemblage in Watercourse 1, 2, and 6.

Taxa	Watercourse 1	Watercourse 2	Watercourse 6
Stonefly Acroperla	-	-	13
Caddisfly Oxyethira	32	-	-
Caddisfly Polyplectropus	8	-	1
Damselfly Xanthocnemis	-	-	6
Bug Microvelia	-	-	1
Beetle Antiporus	-	5	1
Beetle Dytiscidae	-	1	1
True Fly Austrosimulium	30	-	1
True Fly Chironomidae	2	-	-
True Fly Chironomus	-	1	-
True Fly Corynoneura	-	-	1
True Fly Culex	-	-	1
True Fly Hexatomini	-	2	1
True Fly Orthocladiinae	25	-	12
True Fly Paradixa	-	-	1
True Fly Paralimnophila	3	-	-
True Fly Polypedilum	2	-	8
True Fly Psychodidae	-	-	2
True Fly Sciomyzidae	1	-	-
True Fly Tanypodinae	1	-	-
True Fly Tanytarsini	3	-	1
True Fly Zelandotipula	-	3	1

Taxa	Watercourse 1	Watercourse 2	Watercourse 6
Collembola	5	4	2
Crustacea Cladocera	4	-	-
Crustacea Isopoda	-	1	-
Crustacea Ostracoda	16	120	-
Crustacea Paracalliope	-	-	10
Crustacea Talitridae	1	-	-
MITES (Acari)	8	26	-
SPIDERS Dolomedes	1	1	-
Mollusc Ferrissia	-	-	1
Mollusc Potamopyrgus	4	-	2
Mollusc Sphaeriidae	-	-	1
OLIGOCHAETES	20	37	8
PLATYHELMINTHES (Flatworms)	-	1	1
Number of Taxa	18	12	23
EPT Value	0	0	2
% EPT	0	0	18.18
% EPT Taxa	0	0	8.70
SBMCI Value	81.00	75.67	82.38
QMCI-sb Value	3.06	2.88	4.32

Appendix 3: SEV Results and ECR Assumptions

Stream Ecologival Valuation assessment attribute vales at Watercourse 1, 2, and 6.

Function	**SEV W.C.1**	**SEV W.C.2**	**SEV W.C.5**
Natural Flow Regime (NFR)	0.42	0.59	0.60
Floodplain Effectiveness (FLE)	0.10	0.19	0.05
Connectivity for natural species migrations (CSM)	1.00	1.00	1.00
Natural connectivity to groundwater (CGW)	0.80	0.95	0.73
Hydraulic Functions	**0.58**	**0.68**	**0.59**
Water temperature control (WTC)	0.20	0.18	0.20
Dissolved oxygen levels (DOM)	0.68	0.45	0.50
Organic matter input (OMI)	0.50	0.20	0.30
Instream particle retention (IPR)	0.54	0.20	0.80
Decontamination of pollutants (DOP)	0.58	0.60	0.32
Biogeochemical Functions	**0.50**	**0.33**	**0.43**
Fish Spawning Habitat (FSH)	0.50	0.40	0.40
Habitat for aquatic fauna (HAF)	0.36	0.28	0.48
Habitat Provisions Functions	**0.43**	**0.34**	**0.44**
Fish Fauna Intact (FFI)	0.23	0.00	0.77
Invertebrate Fauna Intact (IFI)	0.31	0.13	0.42
Riparian Vegetation Intact (RVI)	0.23	0.18	0.22
Biodiversity Provision Functions	**0.26**	**0.10**	**0.22**
SEV Score	**0.461**	**0.382**	**0.486**

	Watercourse 1	Watercourse 2	Watercourse 6
	Impact Site - Potential Value	**Impact Site - Potential Value**	**Mitigation Site - Potential value**
Vchann	Slight increase to flood flows	Reduction in macrophytes	No change
Vlining	No change	No change	Reduction in silt/sand
Vpipe	No change	No change	No change
Vbank	No change	No change	No change
Vrough	Regenerating to 20m either side, with mature natives remaining	Regenerating to 20m either side, with mature exotic remaing	Regenerating to 20m either side
Vbarr	No change	No change	No change
Vchanshape	Autopopulated	Autopopulated	Autopopulated
Vshade	Increase in shade to mod-high	Increase in shade to mod-high	Increase in shade to mod-high
Vdod	No change	Assume optimal	No change
Vveloc	No change	Slight increase with reduction in macrophytes	No change
Vdepth	No change	No change	No change
Vripar	Increase to 20m	Increase to 20m	Increase to 20m
Vdecid	No change	No change	No change
Vmacro	No change	Assume reduction in macrophytes	No change
Vretain	Autopopulated	Autopopulated	Autopopulated
Vsurf	No change	Reduction in macrophytes.	Increase leaf litter and woody debris.
Vripfilt	Increase	Increase	Increase
Vgalspwn	No change	No change	No change
Vgalqual	No change	Increase to low quality	No change
Vgobspawn	Autopopulated	Autopopulated	Autopopulated
Vphyshab	Increase in channel shade and riparian integrity	Increase in channel shade and riparian integrity	Increase in channel shade and riparian integrity

	Watercourse 1	Watercourse 2	Watercourse 6
	Impact Site - Potential Value	**Impact Site - Potential Value**	**Mitigation Site - Potential value**
Vwaterqual	No Change	No Change	No Change
Vimperv	No change	No change	No change
Vfish	No change – excluded from model	No change – excluded from model	No change – excluded from model
Vmci	No change – excluded from model	No change – excluded from model	No change – excluded from model
Vept	No change – excluded from model	No change – excluded from model	No change – excluded from model
Vinvert	No change – excluded from model	No change – excluded from model	No change – excluded from model
Vripcond	Autopopulated	Autopopulated	Autopopulated

SEV scores for stream reaches

This worksheet calculates the final scores for each function, the sum of all scores (ranging between 0 and 14), and the overall mean SEV score (ranging between 0 and 1), for each site. The final scores are located at the bottom of the table. Reference site values derived from other studies are also presented.

Instructions: Enter the site number or name into the tan cells. **No other data entry is required on this worksheet.**

HAVE YOU ENTERED DATA IN ALL WORKSHEETS?

Date	9-Sept-25				Test sites					
					Site name/number					
Function category	Report section*	Function	Worksheet #	Variable (code)	W.C.1	W.C.2	W.C.6	W.C.1_POT	W.C.2_POT	W.C.6_POT
				Vchann	0.47	0.40	0.50	0.48	0.28	0.50
				Vlining	0.86	0.98	0.80	0.86	0.98	0.90
				Vpipe	0.70	1.00	1.00	0.70	1.00	1.00
Hydraulic	4.1	NFR		=	**0.42**	**0.59**	**0.60**	**0.42**	**0.51**	**0.63**
				Vbank	0.28	0.64	0.20	0.28	0.64	0.20
				Vrough	0.36	0.30	0.23	0.70	0.78	0.80
Hydraulic	4.2	FLE		=	**0.10**	**0.19**	**0.05**	**0.20**	**0.50**	**0.16**
				Vbarr	1.00	1.00	1.00	1.00	1.00	1.00
Hydraulic	4.3	CSM		=	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
				Vchanshape	0.69	0.90	0.60	0.66	0.42	0.60
				Vlining	0.86	0.98	0.80	0.86	0.98	0.90
Hydraulic	4.4	CGW		=	**0.80**	**0.95**	**0.73**	**0.79**	**0.79**	**0.80**
				Hydraulic function mean score	**0.58**	**0.68**	**0.59**	**0.60**	**0.70**	**0.65**
				Vshade	0.20	0.18	0.20	0.60	0.70	0.74
biogeochemical	4.5	WTC		=	**0.20**	**0.18**	**0.20**	**0.60**	**0.70**	**0.74**
				Vdod	0.68	0.45	0.50	0.68	0.68	0.50
biogeochemical	4.6	DOM		=	**0.68**	**0.45**	**0.50**	**0.68**	**0.68**	**0.50**
				Vripar	0.50	0.20	0.30	1.00	1.00	1.00
				Vdecid	1.00	1.00	1.00	1.00	1.00	1.00
biogeochemical	4.7	OMI		=	**0.50**	**0.20**	**0.30**	**1.00**	**1.00**	**1.00**
				Vmacro	0.99	0.49	1.00	0.99	0.91	1.00
				Vretain	0.54	0.20	0.80	0.60	0.36	0.80
biogeochemical	4.8	IPR		=	**0.54**	**0.20**	**0.80**	**0.60**	**0.36**	**0.80**
				Vsurf	0.91	1.00	0.51	0.91	0.75	0.63
				Vripfilt	0.26	0.20	0.14	0.40	0.52	0.80
biogeochemical	4.9	DOP		=	**0.58**	**0.60**	**0.32**	**0.65**	**0.64**	**0.71**
				Biogeochemical function mean score	**0.50**	**0.33**	**0.43**	**0.71**	**0.67**	**0.75**
				Vgalspwn	0.33	0.00	0.00	0.33	0.33	0.00
				Vgalqual	0.00	0.00	0.00	0.00	0.25	0.00
				Vgobspwn	1.00	0.80	0.80	1.00	0.80	0.80
habitat provision	4.10	FSH		=	**0.50**	**0.40**	**0.40**	**0.50**	**0.44**	**0.40**
				Vphyshab	0.52	0.47	0.53	0.62	0.64	0.75
				Vwatqual	0.10	0.06	0.18	0.24	0.27	0.31
				Vimperv	0.30	0.10	0.70	0.30	0.10	0.70
habitat provision	4.11	HAF		=	**0.36**	**0.28**	**0.48**	**0.45**	**0.41**	**0.63**
				Habitat provision function mean score	**0.43**	**0.34**	**0.44**	**0.47**	**0.43**	**0.51**
				Vfish	0.23	0.00	0.77	0.00	0.00	0.00
Biodiversity	4.12	FFI		=	**0.23**	**0.00**	**0.77**	**0.00**	**0.00**	**0.00**
				Vmci	0.46	0.40	0.47	#DIV/0!	#DIV/0!	#DIV/0!
				Vept	0.00	0.00	0.33	#VALUE!	#VALUE!	#VALUE!
				Vinvert	0.47	0.00	0.47	1.00	1.00	1.00
Biodiversity	4.13	IFI		=	**0.31**	**0.13**	**0.42**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
				Vripcond	0.38	0.22	0.22	0.65	0.62	0.60
				Vripconn	0.60	0.80	1.00	0.60	0.80	1.00
Biodiversity	4.14	RVI		=	**0.23**	**0.18**	**0.22**	**0.39**	**0.50**	**0.60**
				Biodiversity function mean score	**0.26**	**0.10**	**0.47**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
Overall mean SEV score (maximum value 1)					**0.461**	**0.382**	**0.486**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

	WC1	WC2	WC6
1	1.4	0.6	2.1
2	1.3	1.5	2.3
3	1	1.5	1.8
4	1.3	1.2	1.7
5	1.25	1.2	1.8
6	0.6	0.9	2.5
7	1.5	0.7	1.3
8	1.4	0.8	2.2
9	0.4	0.9	1.5
10	2.6	0.44	1.9
	1.127778	**0.974**	**1.91**

ECR = [(SEVi-P – SEVi-I)/(SEVm-P – SEVm-C)] x 1.5

WATERCOURSE 1 Reclamation			***WATERCOURSE 2 Reclamation***	
Site		**Watercourse 6**		**Watercourse 6**
Impact Site				
Width (m)	1.127778		0.974	
Length (m)	124		114	
Streambed area impact (m2)	139.8444		111.036	
SEV Current (minus Fauna)	0.49		0.44	
SEVi-P	0.61		0.63	
SEVi-I	0		0	
SEVm-C		0.47		0.47
SEVm-P		0.66		0.66
ECR		**4.82**		**4.97**
Length available (m)		218.3		0
Width at mitigation site (m)		1.91		1.91
Mitigation area avaliable (m2)		416.953		0
Mitigation area required (m2)		673.4614035		552.258
Mitigation length required (m)		352.5975935		289.1403141
Percent of impact length mitigated		**61.91193702**		**0**
		61.9		***0.0***

Appendix 4: Principles of Aquatic Offset and Aquatic Compensation

Application of Offsetting Principles

The NPS-FM sets out principles that apply to the appropriateness of offsetting for the loss of values and extent of natural inland wetlands and streams.

Application of NPS-FM (Appendix 6) Offset Principles to Streamworks for the Auckland Prison Capacity Increase Proposal

Aquatic Offsetting Principles	Project Evaluation	Principle Outcome
1. **Adherence to effects management hierarchy:** An aquatic offset is a commitment to redress more than minor residual adverse effects, and should be contemplated only after steps to avoid, minimise, and remedy adverse effects are demonstrated to have been sequentially exhausted.	Project site selection examined all practicable options for operation in the wider district and the effects management hierarchy has been fully applied.	Principle satisfied
2. **When aquatic offsetting is not appropriate:** Aquatic offsets are not appropriate in situations where, in terms of conservation outcomes, the extent or values cannot be offset to achieve no net loss, and preferably a net gain, in the extent and values.#	Loss of extent of watercourse cannot be fully offset to achieve no net loss because quantum for no net loss cannot be achieved.	Principle not achieved.
3. **No net loss and preferably a net gain:** This is demonstrated by a like-for-like quantitative loss/gain calculation, and is achieved when the extent or values gained at the offset site (measured by type, amount and condition) are equivalent to or exceed those being lost at the impact site.	A like-for-like quantitative loss/gain calculation, that demonstrates extent or values gained at the offset site (measured by type, amount and condition) are equivalent to or exceed those being lost at the impact site is not demonstrated in full.	Principle achieved in part.
4. **Additionality:** An aquatic offset achieves gains in extent or values above and beyond gains that would have occurred in the absence of the offset.	No restoration & enhancement is otherwise provided for outside of this project.	Principle satisfied.
5. **Leakage:** Aquatic offset design and implementation avoids displacing harm to other locations (including	No displacement of adverse effects anticipated.	Principle satisfied.

Aquatic Offsetting Principles	Project Evaluation	Principle Outcome
harm to existing biodiversity at the offset site).		
6. **Long-term outcomes:** An aquatic offset is managed to secure outcomes of the activity that last at least as long as the impacts, and preferably in perpetuity.	Restoration & enhancement areas permanently protected	Principle satisfied.
7. **Landscape context:** An aquatic offset action is undertaken where this will result in the best ecological outcome, preferably close to the impact site or within the same ecological district.	Offset site as close as practicable to impact site and within same catchment.	Principle satisfied.
8. **Time lags:** The delay between loss of extent or values at the impact site and the gain or maturity of extent or values at the offset site is minimised so that the calculated gains are ideally achieve within the consent period.	Gains anticipated within a short timeframe (five years or less) for streams.	Principle satisfied.
9. **Science and mātauranga Māori:** The design and implementation of an aquatic offset is a documented process informed by science where available, and mātauranga Māori at place.	Restoration principles and practices are well established	Principle satisfied.
10. **Tangata whenua or stakeholder participation:** Opportunity for the effective and early participation of tangata whenua or stakeholders is demonstrated when planning aquatic offsets, including their evaluation, selection, design, implementation, and monitoring.	Tangata whenua feedback addressed in the Assessment of Effects report.	Principle satisfied.
11. **Transparency:** The design and implementation of an aquatic offset, and communication of its results to the public, is undertaken in a transparent and timely manner.	Reporting of assessment methods and outcomes provides transparency	Principle satisfied.

Examples of an offset not being appropriate would include where: (a) residual adverse effects cannot be offset because of the irreplaceability or vulnerability of the extent or values affected; (b) effects on the extent or values are uncertain, unknown, or little understood, but potential effects are significantly adverse; (c) there are no technically feasible options by which to secure proposed no net loss and preferably a net gain outcome within an acceptable timeframe.

Application of Compensation Principles

The NPS-FM sets out principles that apply to the appropriateness of compensation for the loss of values and extent of natural inland wetlands and streams.

Application of NPS-FM (Appendix 7) Compensation Principles to Streamworks for the Auckland Prison Capacity Increase Proposal.

Aquatic Offsetting Principles	Project Evaluation	Principle Outcome
1. **Adherence to effects management hierarchy:** Aquatic compensation is a commitment to redress more than minor residual adverse effects, and should be contemplated only after steps to avoid, minimise, remedy, and offset adverse effects are demonstrated to have been sequentially exhausted.	Loss of extent of watercourse cannot be fully offset to achieve no net loss because quantum for no net loss cannot be achieved and aquatic compensation is applicable.	Principle satisfied
2. **When aquatic compensation is not appropriate:** Aquatic compensation is not appropriate where, in terms of conservation outcomes, the extent or values are not able to be compensated for.	Loss of extent of watercourse can be fully compensated and in terms of conservation outcomes, the extent or values are able to be compensated and enhanced.	Principle satisfied.
3. **Scale of aquatic compensation:** The extent or values to be lost through the activity to which the aquatic compensation applies are addressed by positive effects that outweigh the adverse effects.	The extent or values to be lost through the activity to which the aquatic compensation applies are addressed by positive effects that outweigh the adverse effects.	Principle satisfied.
4. **Additionality:** Aquatic compensation achieves gains in extent or values above and beyond gains that would have occurred in the absence of the compensation.	No restoration & enhancement is otherwise provided for outside of this project.	Principle satisfied.
5. **Leakage:** Aquatic compensation design and implementation avoids displacing harm to other locations (including harm to existing biodiversity at the compensation site).	No displacement of adverse effects or harm to existing biodiversity at the compensation is anticipated.	Principle satisfied.
6. **Long-term outcomes:** Aquatic compensation is managed to secure outcomes of the activity that last as least as long as the impacts, and preferably in perpetuity.	Restoration & enhancement areas permanently enhanced and protected	Principle satisfied.

Aquatic Offsetting Principles	Project Evaluation	Principle Outcome
7. **Landscape context:** An aquatic compensation action is undertaken where this will result in the best ecological outcome, preferably close to the impact site or within the same ecological district.	Compensation site is as close as practicable to impact site and within same catchment.	Principle satisfied.
8. **Time lags:** The delay between loss of extent or values at the impact site and the gain or maturity of extent or values at the compensation site is minimised so that the calculated gains are achieved within the consent period.	Gains anticipated within a short timeframe (10 years) for streams.	Principle satisfied.
9. **Trading up:** When trading up forms part of aquatic compensation, the proposal demonstrates that the aquatic extent or values gained are demonstrably of greater or higher value than those lost.	Trading up not applied.	Principle satisfied.
10. **Financial contribution:** A financial contribution is only considered if it directly funds an intended aquatic gain or benefit that complies with the rest of these principles.	Financial contribution not required.	Principle satisfied.
11. **Science and mātauranga Māori:** The design and implementation of aquatic compensation is a documented process informed by science where available, and mātauranga Māori at place.	The design and implementation of aquatic compensation is a documented process informed by science with Tangata whenua feedback addressed in the Assessment of Effects report.	Principle satisfied.
12. **Tangata whenua or stakeholder participation:** Opportunity for the effective and early participation of tangata whenua or stakeholders is demonstrated when planning aquatic compensation, including its evaluation, selection, design, implementation, and monitoring.	Tangata whenua feedback addressed in the Assessment of Effects report.	Principle satisfied.
13. **Transparency:** The design and implementation of aquatic compensation, and communication of its results to the public, is undertaken in a transparent and timely manner.	Reporting of assessment methods and outcomes provides transparency	Principle satisfied.

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Boffa Miskell is a leading New Zealand environmental consultancy with nine offices throughout Aotearoa. We work with a wide range of local, international private and public sector clients in the areas of planning, urban design, landscape architecture, landscape planning, ecology, biosecurity, Te Hīhiri (cultural advisory), engagement, transport advisory, climate change, graphics, and mapping. Over the past five decades we have built a reputation for creativity, professionalism, innovation, and excellence by understanding each project's interconnections with the wider environmental, social, cultural, and economic context.

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