TO:	Greg Dewe	Date:	28 October 2025
	Fulton Hogan Land Development	Document No:	10015-044-1
FROM:	Mark Delaney, Lead Ecologist		

MILLDALE NORTH - FAST TRACK REFERRAL APPLICATION – PRELIMINARY ECOLOGY ASSESSMENT

Introduction

Fulton Hogan Land Development (FHLD) intends to lodge an application for the proposed Milldale North development to be considered as a referred project under the Fast-track Approvals Act (FTAA). The proposed urban development spans multiple properties to the north of the existing Milldale development, collectively referred to as the 'site'. If accepted as a referred project, FHLD would seek approvals through a substantive application under the FTAA.

This memorandum provides a high-level ecological assessment of the proposal, including an evaluation of the project's potential ecological contributions and their regional significance.

Methodology

The evaluation of the site's existing ecological values was informed by a high-level desktop assessment and several site visits to the surrounding area over the past two years by an experienced ecologist.

Terrestrial features were assessed based on their botanical and habitat values. Habitat values were qualitatively assessed with consideration given to the potential presence of indigenous lizards, birds, and bats. Relevant wildlife databases were reviewed for local species records, such as those maintained by the Department of Conservation (including Bioweb), eBird, and iNaturalist. Other ecological impact assessments previously undertaken for the broader Milldale area were also reviewed and referenced where relevant.

Streams were identified using modelled overland flow path catchment sizes available through Auckland Council's Geomaps and confirmed through on-site assessments as per the watercourse definitions in the Auckland Unitary Plan Operative in Part (AUP-OP) 2016. Indicative wetland areas were identified using established wetland delineation protocols (MfE 2021; MfE 2022; Clarkson 2013; Fraser et al. 2018) and classified in accordance with the National Policy Statement for Freshwater Management 2020 (NPS-FM) definitions as applicable.

The key ecological features identified through this assessment are summarised in Attachment A. These features are indicative and may be further refined as part of the substantive application should the project be successfully referred.

Existing Environment

The site is located within the Rodney Ecological District of the Auckland region. Historically (pre-human), much of the area would have been covered by kauri, podocarp, broadleaved forest (WF11), with kahikatea–pukatea forest (WF8) likely present in the low-lying northern part of the Milldale North area. These ecosystems would have supported a wide range of native invertebrates, amphibians, reptiles, birds, and bats (Singers et al. 2017a).

However, a review of historical aerial imagery indicates that the site and much of the surrounding landscape was cleared for agricultural use more than 50 years ago (Attachment B).

Today, the site primarily comprises farmland and rural residential lifestyle blocks. Development associated with FHLD's wider Milldale project is already underway, with numerous residential lots established to the south of Milldale North.

Within the site boundaries, recognised ecosystem types are limited. These include several open water bodies (OW) identified in Auckland Council's Geomaps as farm ponds, narrow strips of 'unclassified' (UC) and 'exotic scrub' (ES) vegetation along the Ōrewa River, and a patch of kauri, podocarp, broadleaved forest (WF11) located in the northernmost part of the land north of the Ōrewa River. This WF11 vegetation has been identified as a Significant Ecological Area (SEA_T_2223) under the AUP-OP.

Terrestrial ecology

Vegetation across the site is generally limited, with only small areas of native vegetation present outside of the SEA.

The SEA has been identified as meeting the criteria for 'Representativeness' and 'Stepping-Stones, Migration Pathways and Buffers' in accordance with Schedule 3 of the AUP-OP. The vegetation type within the SEA is classified as WF11, which has a Regional IUCN threat status of 'Endangered'. Dominant canopy species within this forest area include kahikatea (*Dacrycarpus dacrydioides*), tōtara (*Podocarpus totara*), kauri (*Agathis australis* – At Risk, declining), and kānuka (*Kunzea robusta*). Occasional mature pines (*Pinus* spp.) were also present. Common understorey and edge species included *Coprosma* spp., cabbage tree (*Cordyline australis*), and māpou (*Myrsine australis*), with pest plant species such as privet (*Ligustrum* spp.) and hawthorn (*Crataegus monogyna*) often dominating the margins.

The SEA vegetation is considered to be of high ecological value due to:

- The presence of threatened native flora
- Its representation of the endangered WF11 ecosystem type
- Its functional role within the riparian margin
- Its contribution as an ecological corridor
- The provision of suitable habitat for indigenous birds and reptiles

Vegetation outside the SEA comprises scattered patches of mixed exotic–native scrub along the Ōrewa River and Waterloo Creek, exotic shelterbelts, small plantations, and managed pasture. The ecological value of this vegetation is considered low to moderate, depending on factors such as patch size, level of native species diversity, and landscape connectivity. While this vegetation generally offers poor-quality habitat for fauna, including lizards, bats, and birds, small populations of native lizards and bats may still be present.

Freshwater ecology

Streams

Four permanent streams were identified within the site and all are located within the Ōrewa River catchment. Permanent streams were classified based on the clear presence of permanent flowing water, stream width and catchment sizes. The four permanent watercourses were:

- Ōrewa River
- Ōrewa River tributary
- Waterloo Creek

- Waterloo Creek tributary

All permanent streams within the Ōrewa River catchment are expected to be highly degraded due to the modified agricultural land use, with generally low-quality riparian vegetation present, limiting organic matter inputs, filtration, and shading functions. All of the permanent streams are soft-bottomed, and contain high sediment input due to the predominant agricultural land use within the wider catchments. Barriers to fish passage are likely present in some areas and preventing upstream migration of indigenous fish species. However, with the location of the site being near the coast and containing some areas with long grasses, sedges and thick vegetation on the banks, the permanent streams may provide spawning habitat for īnanga (*Galaxias maculatus* – At Risk, declining).

Based on the significance of the large catchments and likely presence of 'At Risk' species, each permanent stream was conservatively assessed as being of moderate ecological value. There is a significant opportunity to improve the values of each stream through ecological enhancement planting, with Ōrewa River having particularly high restoration potential if revegetation of the riparian yard was to occur.

A network of natural intermittent streams and overland flow paths are also present on site. Over time, some of these channels have been deliberately deepened and straightened to better drain the site for agricultural uses. Additional artificial drainage channels, not associated with any historical natural stream, are also present within the site. These freshwater features, though connected to additional habitat (i.e., the Orewa River), are expected to have been impacted by years of farming practise (e.g., alteration, runoff, stock damage) and suffered from lack of riparian vegetation (i.e., no filtration, bank stabilisation or shading function is currently offered by the site's pastural riparian vegetation). For this reason, the streams and modified overland flow paths on site were assessed to hold low ecological value, and the fauna community that resides in these streams and modified overland flow paths is expected to be limited to common, pollution-tolerant species (e.g., short fin eel, *Anguilla australis*). The confirmation of such features and the further confirmation of their extent and value can be confirmed as part of the substantive application if the project is successfully referred.

Wetlands

Over the past two years, multiple site visits and surveys of the surrounding area have confirmed the widespread presence of creeping bent (*Agrostis stolonifera*), often scattered across the landscape and, in some areas, covering entire hillsides. Although introduced to New Zealand in the late 1800s for livestock grazing, this exotic grass species is not included on the Ministry for the Environment's National List of Exotic Pasture Species (Cosgrove et al., 2022). Instead, it is classified as a facultative wetland species (FACW) under the wetland delineation protocols (MfE 2022). As a result, areas dominated by creeping bent, such as those found on this site, can be technically classified as natural inland wetlands, even when no other wetland indicators (e.g., hydric soils[1] or wetland hydrology) are present.

These creeping bent-dominated areas, which occur within deliberately managed pasture, are considered to have little to no ecological value. This is due to the absence of native species diversity, vegetation

[1] Soils tests have shown that the profile is highly leached, with low nutrients and poor structure – likely due to stock damage (Scott Fraser, pers. comm. 2 November 2024). Hydrology assessments of the area indicate that the hydrology of the areas is unable to support a naturally function wetland of such large and intermittent presence as those areas that contain creeping bent (Jon Willaimson, WWLA, pers comm 2023).

structure, and aquatic habitat. Given their low ecological value and patchy, dispersed distribution, these areas have not been mapped as key ecological features in Attachment A.

A desktop review and initial site walkovers identified several natural inland wetlands, which were later verified through field assessment. All confirmed wetlands met the NPS-FM definition, supported by clear hydrological indicators and the dominance of wetland vegetation. Wetland boundaries were delineated based on vegetation change and topography.

Floodplain areas along the Ōrewa River and Waterloo Creek were conservatively mapped as wetlands due to the presence of wetland vegetation. While the Ōrewa River margins are dominated by exotic species, they contribute to hydrological function and may support īnanga spawning. The margins of Waterloo Creek were of higher ecological quality, with native wetland vegetation. These floodplain wetlands were assessed as having moderate ecological value.

A number of induced wetlands were also identified, resulting from stock pugging and grazing, which led to saturated soils and the establishment of wetland plant species. Although these areas met the NPS-FM definition of natural inland wetlands, they were small, exotic-dominated, and lacked structural and habitat diversity. Accordingly, they were assessed as having low ecological value.

Seepage wetlands were also present on site, typically dominated by exotic or common native wetland species and impacted by historic stock damage. These wetlands were likewise assessed as low ecological value.

The identification, classification, and full delineation of all wetland features, including their extent and ecological value, can be confirmed, in accordance with current best practice methods, as part of the substantive application if the project is successfully referred.

Assessment of Effects

Proposal

FHLD proposes to develop approximately 1,500 residential lots within the site, with construction of dwellings to be undertaken by build partners already involved in the Milldale project. Once complete, the wider Milldale development will comprise over 5,000 homes, along with schools, a retirement village, a town centre, neighbourhood shops, and various other community amenities. A master plan illustrating the overall development and the portion relevant to this application is provided in Attachment C.

FHLD intends, as far as practicable, to avoid the reclamation or removal of key ecological features identified within the site (refer to Attachment A). Where avoidance is not possible, restoration and enhancement measures, such as riparian planting along stream margins, will be implemented. If any adverse effects on streams or wetlands cannot be avoided, the effects management hierarchy will be applied to ensure that the proposal complies with the National Environmental Standards for Freshwater (NES-F) and that effects on the health and functioning of freshwater ecosystems remain appropriate.

Areas dominated by creeping bent (as previously described) are proposed to be removed. The hydrological functions of these areas can be effectively mitigated through appropriate stormwater management controls, and their removal is expected to result in negligible ecological effects.

The proposal also provides opportunities for further ecological enhancement, including targeted native planting to improve vegetation connectivity, species diversity, and buffering capacity across the site.

A key feature of the master plan includes the regeneration and revegetation of the Ōrewa River corridor and approximately 118 hectares of farmland currently used for grazing and zoned Rural Production. This area will also accommodate recreational walking and cycling trails, enhancing amenity values for future residents and visitors to Milldale North. As part of this initiative, the proposal includes the establishment of a 'sanctuary zone', created through the construction of a predator-proof fence to further protect and enhance indigenous biodiversity values.

Portions of this Rural Production land have already been allocated as ecological offsetting under previous stages of the Milldale project, and a small section is currently designated for a temporary wastewater treatment plant. Once this facility is decommissioned, the area will be removed and revegetated. The proposed regeneration and revegetation within the Rural Production zone will therefore be additional to any land already allocated or required to offset ecological effects associated with the Milldale North development.

Across the wider Milldale project, riparian planting has already been established along sections of Waterloo Creek and its tributaries, which were historically degraded and highly modified through agricultural activities. These works have significantly improved freshwater ecological values and terrestrial connectivity within the catchment. The Integration with the Wider Milldale Project ensures that these positive ecological outcomes continue through the Milldale North project, contributing to greater ecological resilience, landscape connectivity, and long-term environmental enhancement across the development area.

Effects on terrestrial values

Outside the SEA, terrestrial ecological values within the site were generally low and limited to scattered patches of mixed exotic–native scrub along the Ōrewa River and Waterloo Creek, exotic shelterbelts, small plantations, and managed pasture. These areas provided only limited, low-quality habitat for native fauna. The removal of this vegetation to accommodate future development is considered commensurate for the project and is not expected to result in any significant loss of terrestrial ecological function or habitat. Any potential direct effects on indigenous fauna can be appropriately managed through the implementation of fauna management plans.

Importantly, the proposal includes extensive planting along freshwater margins and within the Rural Production zoned land, which will significantly improve habitat quality, native vegetation diversity, ecological connectivity, and the buffering capacity of terrestrial vegetation on the site. Planned riparian and wetland buffer planting will further enhance terrestrial habitat values and ecological linkages.

Given Auckland's history of biodiversity loss and ecosystem fragmentation, this proposal provides a valuable opportunity to achieve a net gain in biodiversity within the area.

Effects on freshwater values

The site's existing freshwater values are associated with a network of streams, wetlands and modified overland flow paths. At future application stages, the extent and quality of these features will be further defined. However, based on preliminary assessment, these features are considered to be degraded and adversely affected by the current land use. The proposal will seek in the first instance to avoid the reclamation or modification of these features, however, reclamation may be required if avoidance cannot be achieved. The effects of any adverse effects will be managed at future application stages, ensuring that the effects management hierarchy is appropriately applied.

Through proposed riparian margin planting, the proposal is expected to promote an improvement in water quality (i.e., via increased filtration function of riparian vegetation), shading, bank stability and in-stream fauna habitat, while providing buffer and connectivity function. As some of the existing stream habitats are in poor condition, these restorative actions represent an opportunity to increase the site's overall freshwater values.

Indirect adverse effects, such as sedimentation or pollution from stormwater or wastewater discharges, can be adequately mitigated through appropriate controls and following best practice guidelines, to ensure adverse effects on ecological values are no more than minor. Where adverse effects cannot be avoided, these will be managed appropriately through the effects management hierarchy.

Regional Significance

Ecosystems across New Zealand are undergoing rapid transformation due to human activities and environmental change, threatening biodiversity and the ecosystem services it provides (Singers et al., 2017b). The Auckland region supports diverse ecosystems but faces major pressures from habitat loss, fragmentation, invasive species, disease, and climate change (Auckland Regional Council, 2010). Since pre-human times, many Auckland ecosystem types have declined to less than 10 % of their original extent. Only about 30 % of indigenous vegetation now remains, with just 16 % of the WF11 (kauri–podocarp–broadleaved forest) ecosystem still present regionally (Griffiths et al., 2021). Over 200 native terrestrial and freshwater species are classified as threatened or at risk (Auckland Council, 2020).

Within the Milldale North site, the WF11 ecosystem was historically present but is now largely removed or degraded. Around 17 ha of native-dominant vegetation remain, mainly in the northernmost part of the land north of the Ōrewa River. This area, identified as WF11 and subject to a SEA overlay, is fragmented and affected by pest-plant invasion, with limited habitat connectivity. The site is zoned Future Urban Zone and Rural Production Zone under the AUP–OP, and as such, it was not anticipated that this land would be subject to such extensive or regionally significant ecological restoration efforts.

The Milldale North development will deliver an integrated restoration programme, including approximately 100 ha of indigenous revegetation contiguous with existing WF11 vegetation, restoration of the 17-ha WF11 remnant, and the creation of a 'sanctuary zone' through the construction of a predator-proof fence. Additional stream and riparian restoration within the Future Urban-zoned land will enhance ecological connectivity and resilience.

The predator-proof fence and revegetation planting will be a defining feature, excluding invasive mammals such as rats, possums, stoats, and feral cats. This will create a protected refuge for native fauna, enabling the recovery of ground-nesting birds, lizards, invertebrates, and seedlings typically suppressed by predation and browsing. It will also promote self-sustaining ecological processes, such as natural regeneration and seed dispersal, and function as a biodiversity stronghold supporting wider recolonisation across the landscape.

Collectively, these measures will transform the site from a fragmented landscape into a functioning, connected indigenous ecosystem, enhancing ecological linkages with the Nukumea Reserve and surrounding natural areas. The Integration with the Wider Milldale Project will extend ecological networks across the catchment, contributing to regional-scale ecosystem recovery. Given the severe historic loss of native vegetation and WF11 ecosystems in Auckland, the Milldale North project represents a regionally significant ecological gain, making a meaningful contribution to reversing biodiversity decline and strengthening long-term ecological resilience.

Relevant legislation

The proposal is considered to align with the policies and objective of key pieces of environmental legislation, such as the NPS-FM and the National Policy Statement for Indigenous Biodiversity (NPS-IB).

The main objective of the NPS-FM is to ensure the health and well-being of water bodies and freshwater ecosystems are prioritised. To prioritise the health and well-being of freshwater ecosystems on site, FHLD has engaged Viridis to conservatively identify and qualitatively assess these features, so that reclamation or disturbances are avoided as far as practicable. Potential significant adverse effects for future development will be able to be appropriately avoided, minimised, remedied, offset or compensated under the effects management hierarchy. Furthermore, the proposal will result in the establishment of planted riparian margins, which will improve the overall quality of freshwater environments on site and within the downstream receiving environment.

The main objective of the NPS-IB is to ensure, at a minimum, that no overall loss in New Zealand's biodiversity occurs by protecting and restoring indigenous biodiversity values. The proposal is considered to be consistent with the objectives of the NPS-IB, as no overall loss in indigenous terrestrial biodiversity is anticipated as a result of the urbanisation of the site. Rather, the proposal provides the opportunity to significantly improve the site's terrestrial biodiversity through extensive planting along freshwater margins and within the Rural Production zoned land, together with the establishment of a sanctuary zone enclosed by a predator-proof fence. These combined measures will substantially improve habitat diversity, native species abundance, and the overall ecological quality of the site's terrestrial environment.

Conclusion

The potential ecological effects of FHLD's proposed Milldale North development have been assessed at a high level. The site contains a range of ecological features, including areas of high ecological value within the SEA, as well as generally low-value vegetation such as scattered patches of mixed exotic–native scrub along the Ōrewa River and Waterloo Creek, exotic shelterbelts, small plantations, and managed pasture. The site also includes a network of moderate- to low-value streams, wetlands, and modified overland flow paths.

The proposal will, in the first instance, seek to avoid reclamation or modification of these freshwater and terrestrial features. Where avoidance is not possible, limited reclamation or removal may be required, with the effects management hierarchy applied to ensure that any adverse effects are appropriately mitigated.

It is acknowledged that the identification and assessment of ecological features are indicative at this stage, and their extent and quality will be further refined as part of the substantive application if the project is successfully referred. Notwithstanding this, the proposal presents substantial opportunities for ecological restoration and enhancement, consistent with the restoration strategy outlined earlier in this memorandum.

In particular, the implementation of large-scale indigenous revegetation, restoration of the WF11 forest remnant, and the establishment of a predator-proof fenced sanctuary zone will transform the site from a fragmented and partially degraded landscape into a connected, functioning indigenous ecosystem. These measures will enhance habitat diversity, strengthen ecological linkages to the Nukumea Reserve, and contribute meaningfully to the Integration with the Wider Milldale Project and the ecological recovery of the Milldale catchment.

With these proposed enhancement measures in place, the Milldale North development is expected to deliver regionally significant ecological benefits, making a measurable contribution to the protection, restoration, and long-term resilience of Auckland's indigenous biodiversity.

References

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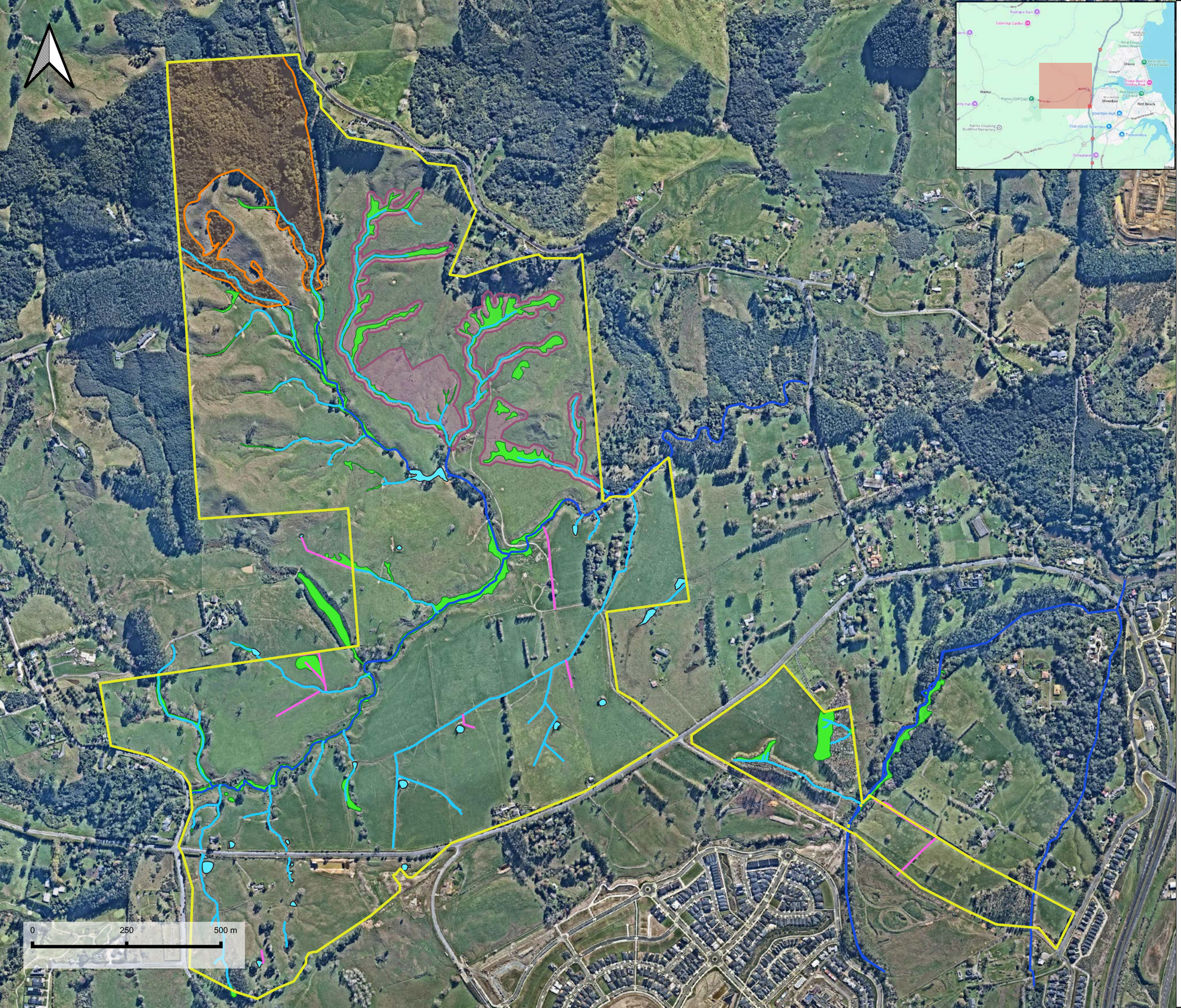
Attachments

Attachment A – Map of key ecological features

Attachment B – Historic aerials

Attachment C – Milldale North illustrative master plan



VIRIDIS
Environmental Consultants

Key Ecological Features

Milldale North

FHLD

Legend

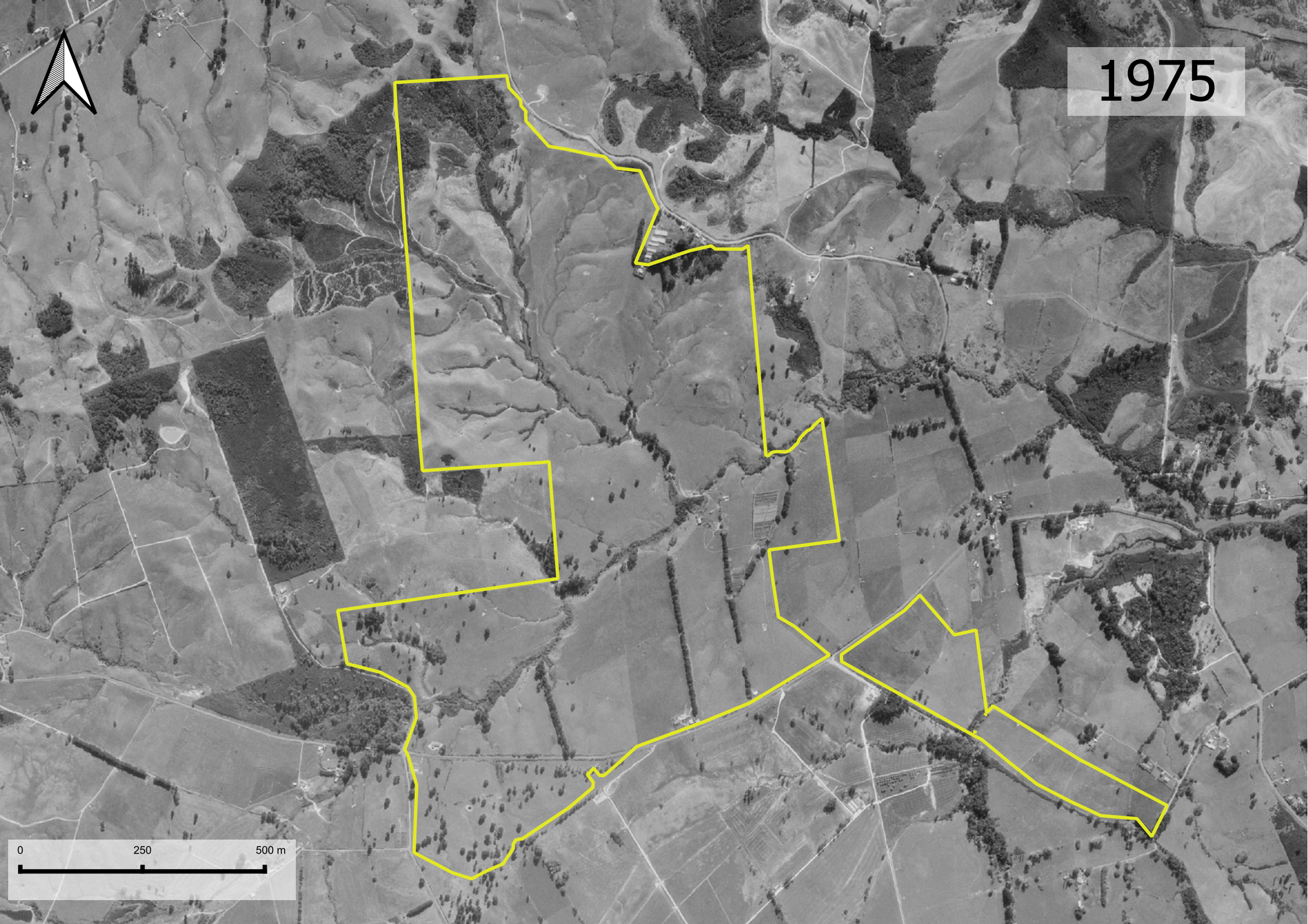
- Site
- SEA
- Previously consented offset areas
- Intermittent stream
- Permanent stream
- Artificial Drainage Channel
- Wetland
- Pond
- Native dominant vegetation (WF11)

SOURCES
Nearmap 2025

DISCLAIMER:
This map/plan is not an engineering draft.
This map/plan is illustrative only and all information should be independently verified on site before taking any action.

SCALE
1:9,000 **@ A3**

PROJECT NO.	10015
DRAWN BY:	MD
DATE:	28 October 2025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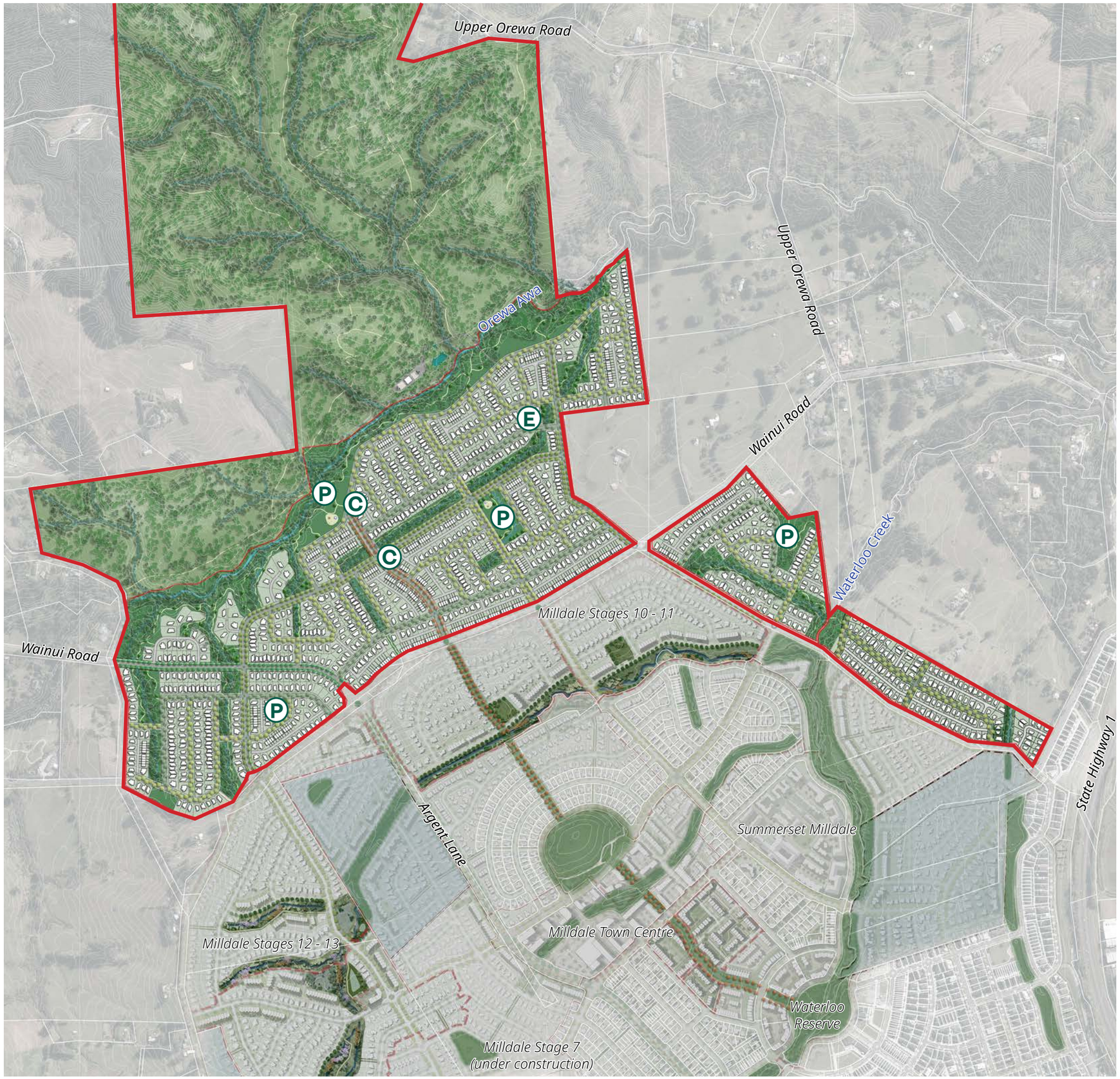

B&A
Urban & Environmental

Milldale North Illustrative Masterplan

The Illustrative Masterplan demonstrates the proposed pattern of development for Milldale North and builds of the established movement network and block structure of Milldale to ensure an integrated development. The Masterplan includes provisions for up to 1,730 dwellings across a range of site sizes and typologies. Provision has been made for extensive riparian / wetland enhancement, neighbourhood parks, and commercial uses, including a childcare centre to support a Well-functioning Urban Environment. All urban development proposed is on land currently identified as FUZ.

A key feature of the Masterplan also includes extensive regeneration and revegetation of the Orewa Awa as well as approximately 131ha of farmland currently in use for grazing (and zoned Rural Production). This also includes the provision of recreatioanl walking and cycle trails through this area to support ehanced amenity of future residents and visitors to Milldale North.

Legend

- Proposed FTA Boundary
- Future revegetation / ecological enhancement
- Indicative water course alignments
- Indicative open space / SW management areas / pedestrian connections
- Indicative commonly owned access lots
- Potential future road connections
- Ⓟ Indicative Park Location
- Ⓒ Indicative Commercial Nodes
- Ⓔ Indicative ECE Location

Indicative Yields

Below 300sqm - 550

300 - 400sqm - 600

400 - 500sqm - 200

Over 500sqm - 150

Total Yield - 1500 lots

Terraced Housing Superlots - 69

Figure 4: Wider Masterplan Area.
Scale: 1:10,000 at A3.