TO:	Auckland Council	Date:	5 August 2025
COPY TO:	Euan Williams, Woods	Document No:	10015-045-1
	Rachel Morgan, Barkers		
FROM:	Mark Delaney, Lead Ecologist		

MILLDALE STAGES 10-13 FAST TRACK – REQUEST FOR FURTHER INFORMATION – ECOLOGY RESPONSE

Overview

Fulton Hogan Land Development (FHLD) have applied for a resource consent to the Environmental Protection Authority (EPA) under the Fast-Track Approvals Act 2024 (FTAA). The subject site located within the Milldale development and is referred to as the Milldale Stages 10 – 13 subdivision and Wastewater Treatment Plant (WWTP). Consents were also sought for the development of Stage 4C but as bulk earthworks have already been completed in this area we were not required to consider the same.

Viridis Limited (Viridis) were engaged by FHLD to prepare Ecological Impact Assessments (EcIAs) for the Stages 10-13 and the WWTP (Viridis 2025a & 2025b). Several site visits (24 November 2024 and 2 July 2025), workshops (21 November 2024 and 27 May 2025), and meetings (12 May and 27 June 2025) have included Auckland Council's freshwater ecology specialist.

Section 53(2) of the FTAA enables the Expert Consenting Panel to invite written comments on the application from specified persons and groups. This memorandum has been prepared in response to the technical specialist memorandums issued by Auckland Council, Auckland Transport and the Department of Conservation (DoC) as part of their assessment of the Milldale Fast-track Application. It specifically addresses the ecological matters raised and provides clarification, additional assessment, and updates where required.

This memo provides response to the following:

- Memorandum of Planning Matters for Auckland Council (29 July 2025)
- Annexure 14: Freshwater Ecology & Terrestrial Ecology (29 July 2025)
- Auckland Transport Submission (29 July 2025)
- DoC Submission (29 July 2025)

Matters raised by Auckland Council, Auckland Transport or DoC are in green italics, with Viridis' responses following each in normal font.

Responses to Ecology Matters

Auckland Council Terrestrial Ecology

I, Rue Stratham, consider that the applicant has, generally, identified the potential and actual adverse effects on fauna. They have not provided a management plan but have proposed a condition of consent. I requested additional information, by way of a more prescriptive management plan, but the applicant declined that request.

However the condition is not prescriptive and subjective. As such it is likely unenforceable. However, with appropriate conditions the effects on terrestrial ecological values should be managed effectively. I recommend amendments and additional conditions in Section 8.0 this memo.

Draft prescriptive Fauna Management Plans (FMPs) were appended to the EcIA report for both the Stages 10-13 and WWTP applications, providing clear and accurate prescriptions for the expected fauna management requirements.

There are currently no details available regarding the exact timing of the construction or habitat clearance works, thus these FMPs are in draft format at this stage. However, the bird, lizard and bat habitat within the site has been described in the EcIA reports, and the draft FMPs contain information such as the recommended season for the proposed management activities, specific methodologies, habitat enhancement and mitigation as required, and reporting of results. Currently, it is difficult to provide more detail around specific locations of fauna management and proposed staging/scheduling etc at this stage as detailed construction timeframes are not yet available.

In relation to the terrestrial fauna management consent conditions recommended by Auckland Council, while we appreciate the concerns raised, we consider the draft FMP to be sufficiently prescriptive and aligned with the consent conditions proposed by the applicant. However, we accept the inclusion of a certification process by Auckland Council via consent condition to ensure that the final FMP is generally consistent with the draft version.

Auckland Council Freshwater Ecology

I, Antoinette Bootsma highlight two significant matters: which preclude my support for this application

- *The wetland delineation is based on two disjunct sets of data that cannot be correlated and therefore does not follow the requirements for wetland delineations as specified in the MfE Wetland Delineation Protocols, and*
- *The assessment presenting the proposed offset of a new wetland to account for the permanent loss of wetlands resulting from this application, does not provide supporting hydrological data from which to confirm that a new wetland will be able to be achieved in perpetuity as required in Principle 6 of Appendix 6 of the NPS-FM.*

Integrated wetland plans were provided to Ms. Bootsma, the Auckland Council freshwater ecology technical specialist, on 6 June 2025. These plans have been attached this memorandum for reference. While the plan was considered sufficient, further clarification was requested during a meeting on the 27 June 2025 regarding the absence of vegetation assessments in some areas where soils and hydrology had been assessed (i.e., the perceived lack of correlation between two disjunct sets of data).

As described in Section 5.3.2 of the EcIA (Viridis 2025a), large areas of managed pasture across the site were dominated by FACW species, particularly creeping bent (*Agrostis stolonifera*) and toad rush *(Juncus bufonius*). Creeping bent, introduced to New Zealand in the late 1800s for grazing, is now widespread in pasture systems across the Auckland region. Although no longer commercially cultivated, it persists in low-quality soils and continues to provide stock feed.

While creeping bent is classified as a FACW species, its presence in pasture is not a reliable indicator of wetland conditions. It commonly coexists with upland pasture species such as kikuyu (*Cenchrus clandestinus* - FACU), and in the context of historical pasture or poor soils, its dominance does not reflect true wetland ecological conditions.

Parts of the site, including Stages 10 and 11, had recently been used for kumara (*Ipomoea batatas*) and turnip (*Brassica rapa*) cultivation. After harvest in 2024, these areas were reseeded with ryegrass (*Lolium perenne*) and white clover (*Trifolium repens*) (FACU species), and quickly and temporarily colonised by toad rush (FACW), a fast-spreading exotic species common in disturbed soils. As with creeping bent, areas dominated by toad rush were not considered indicative of functioning wetlands.

These areas lacked obvious wetland hydrology, and the soils, often compacted or modified, were difficult to classify as hydric (see "Difficult Soils" in Section 5.3.2 of the EcIA (Viridis 2025a)). Such areas of creeping bent or toad rush dominance were patchy and formed a mosaic across the site, thus were near impossible to map/delineate. Due to the dominance of misleading vegetation and their patchy distribution, it was considered prudent to request that the applicant's hydrology specialist, Williamson Water & Land Advisory (WWLA), to undertake representative soil and hydrology assessments across the site.

No distinct, small-scale locations were identified for targeted hydrology and soil assessments due to the patchy and transitional nature of the creeping bent or toad rush dominant vegetation. Instead, a broader approach was taken where WWLA carried out soil and hydrology testing across representative parts of the site to gain an understanding of the general hydrology and soils in these areas. This explains the presence of sampling points where no specific vegetation assessments were undertaken. It should be noted that WWLA also completed assessments in areas where Viridis identified wetlands to help confirm boundaries.

Outside of these areas, as well as putative wetlands and identified natural inland wetlands, all other areas were clearly dominated by upland species (e.g., >70% kikuyu) and did not warrant more detailed vegetation assessments.

The areas of creeping bent or toad rush-dominant vegetation lacked structural diversity, native flora, and any aquatic habitat. Ecologically, they held negligible value as wetlands. Based on historical ecosystem mapping, these areas were likely once podocarp–broadleaved forest, not wetlands. Given their limited hydrology (as confirmed by WWLA), native wetland species are unlikely to establish or persist in these areas without significant artificial intervention.

Notwithstanding the above, the proposal includes the creation of 500 m² of additional new wetland habitat beyond what is required for offsetting the loss of confirmed natural inland wetlands. This additional wetland area serves as a conservative buffer to account for any unforeseen or incidental adverse effects on wetlands.

Therefore, even if some of the creeping bent or toad rush-dominated areas were technically classified as wetlands, their negligible ecological value would be effectively offset by the creation of the excess higher-value, functional wetland habitat.

We understand that WWLA will also be providing a response to these matters. However, regardless of WWLA's response, a draft Offset Wetland Monitoring Plan (OWMP) was appended to the Stages 10-13 EcIA (Viridis 2025a). To address Council's concerns, we recommend the following additions and refinements for inclusion in the OWMP. Subject to these changes being incorporated, we consider that the monitoring requirements set out in the OWMP, along with its adaptive management approach, are sufficient to detect and respond to any uncertainties regarding the ability of the modified hydrology to support wetland habitat. This will ensure that a new wetland will be able to be achieved in perpetuity as

required in Principle 6 of Appendix 6 of the NPS-FM. The recommended additions and refinements are as follows:

Monitoring timeframe:

- Annual monitoring should be carried out for a minimum of five years following the completion of wetland planting.
    - Monitoring should occur during the same month each year to ensure consistency (beginning one year following initial planting efforts).
    - Reporting should be completed at the end of Years 2 and 5.

Vegetation plot layout:

- Monitoring plots should be arranged in an approximate grid pattern, spaced every 30-40 m, to establish around 15-25 plots across the wetland. This layout will help capture the range of site conditions and provide an accurate representation of the entire wetland area and habitat types.

Hydrophytic vegetation monitoring:

- The use of prevalence indices, in accordance with Clarkson (2014), is recommended to assess the successful establishment of wetland (hydrophytic) vegetation. A prevalence index of 2.9 or less should be the target outcome for each plot, with an average of 2.6 across all wetland plots.

Monitoring of replacement planting:

- Where replacement planting occurs during the five-year monitoring period, that specific area should continue to be monitored until it has been subject to five consecutive years of monitoring to confirm long-term establishment.
- If wetland vegetation continues to fail, an adaptive management approach should be adopted with recommendations to be provided by a suitably qualified ecologist. This may include expanding the wetland area into adjacent zones with more suitable conditions to replace the failed portion.

With respect to the wetland and stream consent conditions recommended by Auckland Council, we support the inclusion of a certification process by Council for both the Native Fish Capture and Relocation Plan and the Stream and Wetland Management Plan, as well as the additional proposed amendments.

We trust the responses above address your concerns, and we are happy to provide further clarification if needed.

Additional Reasons for Consent Not included in AEE

- *Consent as a Discretionary activity is required under rule E3.4.1(A33) for culverts or fords more than 30m in length when measured parallel to the direction of water flow. Specifically:*
    - *Permitted Activity Standard E3.6.1.14(1)(a) requires that the total length of any extended structure must not exceed 30m measured parallel to the direction of water flow. This includes the length of any existing structure and the proposed extension but excludes erosion or scour management works. In the case of 8 proposed culverts, the length of wing walls are calculated as being part of the erosion and scour protection and not part of the culvert structure, resulting in the 30m length being exceeded.*

- *Permitted Activity Standard E3.6.1.14(1)(c) requires that a new structure must not be erected or placed in individual lengths of 30m or less where this would progressively encase or otherwise modify the bed of a river or stream. When applying this standard on a site basis, progressive encasement is relevant and must be considered in the assessment of stream extent and value.*

While we do not agree with Auckland Council's interpretation that wingwalls should be included in the total culvert length (given that the stream channel adjacent to the wingwalls is not enclosed and that wingwalls are not an integral part of a culvert), a conservative assessment has been undertaken that includes wingwalls as part of the culvert length and considers their contribution to progressive stream encasement.

A total of 16 existing culverts are proposed to be removed across the site. Eleven new culverts are proposed, resulting in a net reduction of five culverts. However, the total length of existing culverts to be removed is 89.5 m, while the total length of new culverts is 312 m (excluding wingwalls), resulting in a net increase of 222.5 m of culvert length within the site.

Of the 11 proposed new culverts, eight are located within stream reaches that are proposed to be diverted. As a conservative measure, the length of new culverts was not included in the total length of diverted streams when calculating offset requirements (Viridis 2025a). Instead, any loss of stream length due to diversions has already been accounted for in the offsetting calculations.

Therefore, the length of culverts located within newly diverted stream reaches should be considered encasement of newly constructed channel length not associated with diversion length, and not classified as progressive encasement of existing stream. The total length of new culverts within diverted stream reaches is 214.1 m, meaning that only 97.9 m of new culverts are located on existing stream length (312 m minus 214.1 m).

When offset against the 89.5 m of existing culverts to be removed, the net increase in culvert length affecting existing streams is only 8.4 m.

Given that the total stream length within the site post-development will be approximately 3,000 m, the net increase of 8.4 m in culvert length represents just 0.3% of the total stream length. If the removal of 89.5 m of existing culverts is not considered, the 97.9 m of new culverts over existing stream length would represent approximately 3.3% of the total.

If wingwalls are included in the assessment, and taking the average of the proposed wingwall length of 1.5 m per end (i.e., three metres per culvert), the 11 new culverts would add a further 33 m of encasement. Combined with the 8.4 m of additional culvert length, the total progressive encasement would be 41.4 m, or 1.4% of the total stream length within the site. If the removal of existing culverts is not considered, then the total new culverts including wingwalls would be 139.3 which would represent approximately 4.6% of the total.

To mitigate potential adverse effects, the proposed culverts will be designed to be:

- Less than 30 m in length (excluding wingwalls);
- Countersunk 25% into the streambed to maintain natural substrate;
- At least 1.3 times the streambed width to support stream function; and
- Fitted with flexible baffles to facilitate fish passage and preserve habitat connectivity.

It is important to note that wingwalls do not encase the stream in the same way as culverts and are therefore considered to have a lesser ecological impact.

The replacement of poorly designed farm culverts with modern, fish-friendly designs is expected to enhance aquatic connectivity across the site. Furthermore, comprehensive riparian revegetation planting is proposed along all stream reaches, which will:

- Improve water quality
- Stabilise stream banks
- Provide shading to regulate water temperature
- Enhance native habitat
- Increase biodiversity
- Improve resilience to floods and droughts

In summary, the residual adverse effects associated with progressive stream encasement are considered low and do not require additional offsetting, due to:

- The minor extent of encasement relative to the total stream network;
- The removal of existing culverts;
- The ecological design of new culverts; and
- The extensive riparian restoration proposed

Auckland Transport

The Applicant has proposed fish baffles but also has the culverts 25% below upstream/downstream bed levels, meaning the baffles may become fully covered by bed substrate, negating any benefits they provide to fish passage. Specifically, it should be demonstrated that:

- *The culvert must provide for the same passage of fish upstream and downstream as would exist without the culvert, except as required to carry out the works to place, alter, extend, or reconstruct the culvert.*

The purpose of fish baffles is to mimic natural flow conditions and promote fish passage where a natural streambed is absent. However, establishing a natural bed within a culvert is generally preferred over the use of baffles alone, as reflected in the National Environmental Standards for Freshwater (2020) permitted activity standards which require culverts to be embedded, sized at 1.3 times the stream width and designed to maintain appropriate flow velocities. This preference is also reflected in the New Zealand Fish Passage Guidelines (Franklin et al, 2024).

In this case, baffles were proposed as an additional measure to support the early development of a natural bed within the embedded culverts or to provide additional measures to promote fish passage above the development of a natural streambed. If the baffles do become fully covered by bed substrate over time, this would indicate successful naturalisation of the culvert bed, which is a desirable outcome. Rather than negating the function of the baffles, this would signal that the preferred condition that natural bed material providing suitable flow diversity and substrate for fish passage has been achieved.

In response to the requirement that the culvert must provide for the same passage of fish upstream and downstream as would exist without the culvert, we note that the proposed culverts are located within intermittent streams. Instream habitat within these streams is limited, generally characterised by slow-flowing or stagnant water, which is not expected to support high-quality aquatic habitat. While it is possible that these areas may intermittently support the pollution-tolerant shortfin eel (*Anguilla australis*), the combination of poor water and habitat quality, along with the intermittent nature of flow, means that other native fish species are unlikely to be present.

Each culvert has been purposefully designed to be less than 30 metres in length, embedded 25% into the streambed, and sized to be at least 1.3 times the width of the stream channel. These design features are intended to maintain the natural bed substrate and stream alignment. Additionally, flexible baffles will be installed within the culverts to further facilitate the movement of aquatic species.

Based on our professional experience, we consider that these design measures are consistent with best practice and will be effective in maintaining fish passage to the extent required under the relevant regulations.

DoC

The Applicant has not applied for a wildlife approval under the Act.

The comment regarding the absence of a Wildlife Act approval relates to the potential need for authorisation to capture, handle, and relocate lizards during site development. As outlined in the EcIA (Viridis 2025a), the copper skink (*Oligosoma aeneum* – At Risk, Declining) is the most likely lizard species to occur on site. However, based on current and past ecological assessments, copper skinks are expected to be present only in low numbers and confined to isolated patches of suitable habitat, such as areas with thick rank grass, logs, rocks, or vegetation debris. The remainder of the site is subject to frequent disturbance from ongoing farm activities, further limiting the suitability of the area for lizards.

This assessment is supported by previous investigations in the surrounding area. Notably, a 2015 survey by Opus used artificial cover objects (ACOs) in grassland, building debris, and shrubland habitats, recording only small numbers of copper skinks. Follow-up manual searches conducted in 2018 by RMA Ecology yielded no additional detections.

Given the expected low numbers of lizards and the limited extent of vegetation clearance associated with the proposal, the likelihood of encountering significant lizard habitat is low. For this reason, we consider that use of an existing region-wide Wildlife Act Authority (WAA) permit would be sufficient, and that a project-specific WAA permit is not required in this instance.

Region-wide WAA permits:

- Typically allow for the relocation of up to 20 individual lizards per salvage site;
- These permits are commonly relied upon for developments of this nature, and ecologists operating under them have established processes to address higher lizard counts, including applying for a separate permit or seeking authorisation directly from DoC if required; and
- Typically provide for the handling of ‘At Risk’ species, such as copper skink, but not for ‘Threatened’ species.

No ‘Threatened’ lizard species are anticipated within the project site. However, if any are encountered during works, the necessary Wildlife Act approvals will be sought from DoC before any further handling or relocation occurs.

Attachments

Wetland assessment maps

References

Clarkson BR 2014. A vegetation tool for wetland delineation in New Zealand. Landcare Research Contract Report LC1793 for Meridian Energy Limited.

Franklin PA, Gee E, Baker CF, & Bowie S 2024. New Zealand Fish Passage Guidelines (second edition): Recommended standards for the design and restoration of instream infrastructure to provide for fish passage. NIWA report for the Department of Conservation. Earth Sciences New Zealand (formerly NIWA), Hamilton, New Zealand.

Viridis 2025a. Ecological Impact Assessment Milldale - Stages 10-13. A report prepared for Fulton Hogan Land Development Limited by Viridis Limited. Dated 26 February 2025.

Viridis 2025b. Ecological Impact Assessment Milldale Wastewater Treatment Plant. A report prepared for Fulton Hogan Land Development Limited by Viridis Limited. Dated 26 February 2025.

VIRIDIS
Environmental Consultants

Wetland Assessments

Milldale Fast-Track Satges 10-13

FHLD

Legend

- Stages 10-13 boundaries
- Hydrophytic vegetation (Viridis)

Soil & Hydroloy Assessments (WWLA)

- Both
- Soil
- Hydrology
- Neither

SOURCES

State map source and aerial date

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.

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MAP NO.	10015.A.1
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VIRIDIS
Environmental Consultants

Wetland Assessments

Milldale Fast-Track Satges 10-13

FHLD

Legend

- Stages 10-13 boundaries
- Hydrophytic vegetation (Viridis)

Soil & Hydroloy Assessments (WWLA)

- Both
- Soil
- Hydrology
- Neither

SOURCES

State map source and aerial date

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VIRIDIS
Environmental Consultants

Wetland Assessments

Milldale Fast-Track Satges 10-13

FHLD

Legend

- Stages 10-13 boundaries
- Hydrophytic vegetation (Viridis)

Soil & Hydroloy Assessments (WWLA)

- Both
- Hydrology
- Neither

SOURCES

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VIRIDIS
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Wetland Assessments

Milldale Fast-Track Satges 10-13

FHLD

Legend

- Stages 10-13 boundaries
- Hydrophytic vegetation (Viridis)

Soil & Hydroloy Assessments (WWLA)

- Both
- Soil
- Hydrology
- Neither

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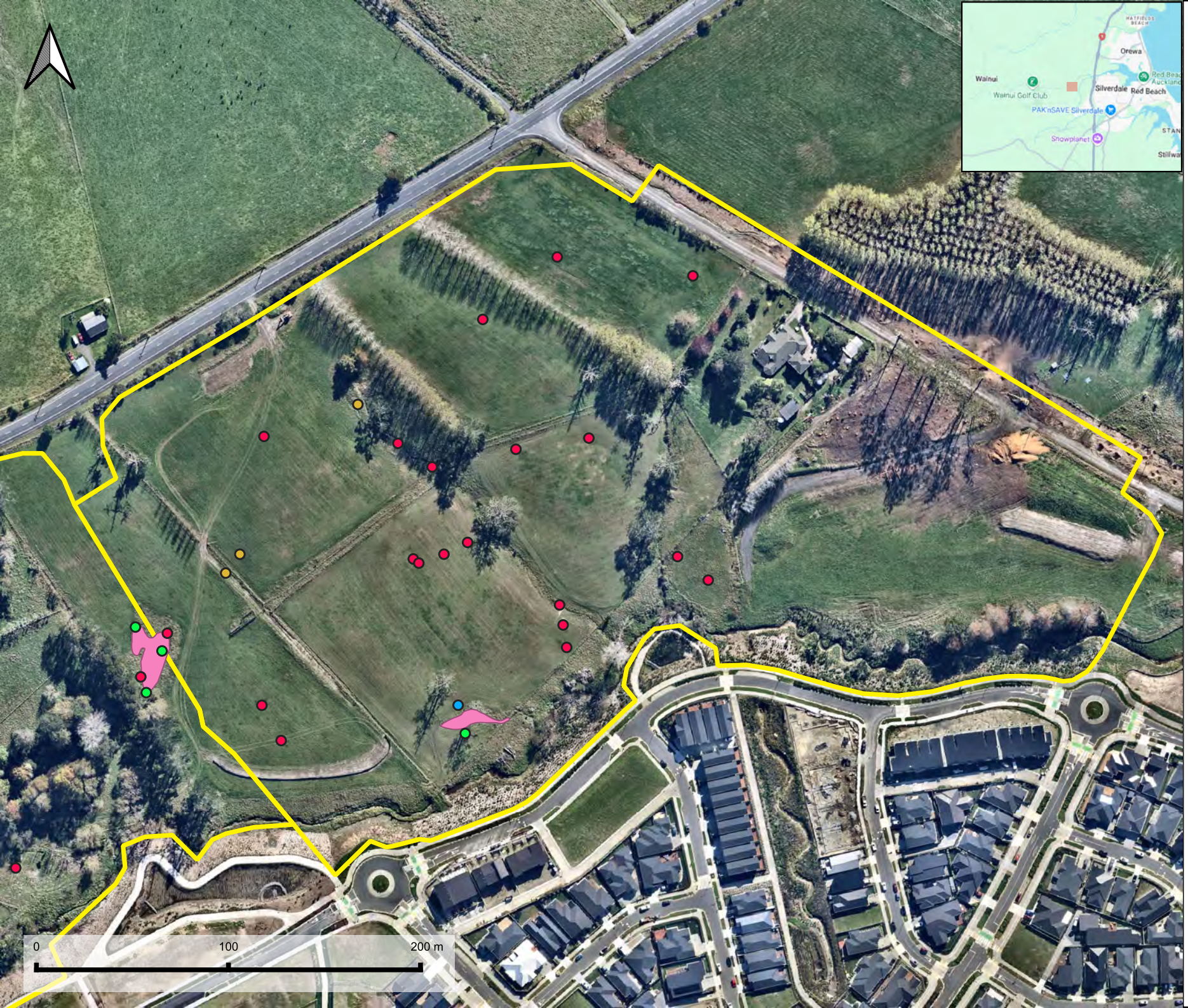

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