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To:	**CIVIX**	**Date:**	8 December 2022
Attention:	Alvin Jung	**Ref:**	66209
Subject:	**Verran Road and West Glade Crescent – Fast Track Ecology**		

Sweet NZ Partnership Limited, ("the applicant") proposes to lodge an application for a referred project under the Covid-19 Recovery (Fast-track Consenting) Act 2020 (the "Act") to utilise the fast-track consenting process. This application relates to a residential development located at 19a, 21, 23, 25 Verran Road and 19 West Glade Crescent, Birkenhead, Auckland, collectively referred to as "the Site". This memorandum provides a high-level assessment of ecological aspects of the proposal.

Methodology

A site assessment was undertaken by an experienced ecologist on the 23rd November, 2022. Botanic and terrestrial fauna values within the site were qualitatively assessed. Fauna habitats assessed considered indigenous lizards, birds and bats.

Overland flow paths were classified under the Auckland Unitary Plan – Operative in Part (AUP OP) to determine, in accordance with the definitions in this plan, the artificial, ephemeral, intermittent or permanent status of these watercourses. Assessments were undertaken, in accordance with the Ministry of the Environments (MfE) Wetland Delineation Protocols (2020), to determine whether or not any natural wetlands were present within the site as per the definitions and criteria laid out in the National Policy Statement for Freshwater Management 2020 (NPS-FM). Any potential aquatic habitat was then qualitatively assessed. Identified ecological features within the Site are presented in Appendix 1 and Appendix 2, proposed masterplan in Appendix 3, historic aerial images in Appendix 4-Appendix 6 and photos of these features in Appendix 7.

Existing Environment

Background and Ecosystem Classification

The Site is located within the Tamaki Ecological District of the Auckland Region. Historically (pre-human) the Site would have comprised of the forest ecosystem 'Kauri, podocarp, broadleaved forest' (WF11) and would have supported a diverse range of invertebrates, amphibians, reptiles, birds and bats (Singers *et al.*, 2017). WF11 ecosystems have a regional International Union for Conservation of Nature (IUCN) threat status of "Endangered". Earliest historical aerials available indicate the Site and the surrounding landscape has been partially devoid of vegetation for at least 80 years, with remnant bush present on the southern area of the site.

Currently, the Site is surrounded by residential housing and development with three residential dwellings existing within the site. The Site predominantly consists of a mixture of pest plant infestations, indigenous bush and amenity planting/shelter belts. The southern area of the Site supports the recognised ecosystem type, 'Kauri, podocarp, broadleaved forest' (WF11), and a small 'Taraire, tawa, podocarp, forest' (WF9) corridor, as classified under the AUP OP: Biodiversity current extent. The southern area of the Site is subject to a Significant Ecological Area (SEA_T_8162) overlay valued for 'Representativeness' and 'Diversity' attributes.

Terrestrial

The Site predominantly consists of four distinct vegetation types, managed grasses, pest plant infestations, mixed exotic and native, and indigenous bush. Within the centre and southern area of the site, severe pest plant infestation is present with dense sections of blackberry (*Rubus fruitcosus*), ginger (*Hedychium gardnerianum*), tradescantia (*Tradescantia fluminensis*) and pampas (*Cortaderia selloana*) present, which are overgrown by Japanese honeysuckle (*Lonicera japonica*). This pest infestation, particularly ginger and tradescantia, infringes upon the indigenous bush, indicating it is susceptible to edge effects. Within the indigenous bush, there was a diverse range of native vegetation including but not limited to kānuka (*Kunzea robusta*), mānuka (*Leptospermum scorparium*), tawa (*Ceilschmiedia tawa*), mamaku (*Cyathea medullaris*), whekī (*Dicksonia squarrosa*), kanono (*Coprosma autumnalis*) and tātarāmoa (*Rubus cissoides*), with the indigenous epiphyte kōwharawhara (*Astelia solandri*) present.

Formal avifauna and herpetofauna surveys were not undertaken during the site visit, however opportunistic observations were undertaken. Avifauna seen or heard within the Site included fantail (*Rhipidura fuliginosa*), tūī (*Prosthemadera novaeseelandiae*) and kererū (*Hemiphaga novaeseelandiae*). While not directly observed, indigenous herpetofauna such as the forest gecko (*Mokopiririakau granulatus*) and ornate skink (*Oligosoma ornatum*) are likely to be present within the Site, most probably within the SEA vegetation, due to the vegetation age, complexity and connectivity to the wider environment.

The botanic value of the entirety of the Site was low – moderate, with the northern area of the Site predominantly of low value due to the dominance of mown grasses, exotic trees and severe pest infestation. The southern area of the Site was considered to be of moderate value as is consisted of diverse, indigenous forest, however edge-effects are apparent. The indigenous vegetation provides high-quality fauna habitat as the vegetation is highly complex with emergent, canopy, sub-canopy and groundcover layers present throughout.

Freshwater

Two streams, one artificial channel and one constructed wetland was identified within the Site. An intermittent stream flows through the centre of the Site in a north to south direction and flows into a permanent stream which flows in a west to east direction and drains into a north-western arm of the Waitemata Harbour.

A constructed wetland is present within the centre of the Site, with raupō (*Typha orientalis*), and standing water present throughout. The wetland was clearly constructed as it was located within a uniform depression with a raised bund around the edges and a scruffy dome on the upper area. No channels were observed flowing into, or draining away from the wetland, indicating it is an offline pond. Construction phases of the wetland, are observable on aerial images, with pre-construction (i.e. lack of wetland; 2006), construction (2008) and post construction and operation (2010) clearly visible (Appendix 4 - Appendix 6). The wetland is indicated to be a stormwater pond/wetland on Auckland Council Geomaps: Stormwater assets. The wetland was constructed as a stormwater treatment device, meeting the definition of a constructed wetland, and therefore exempt from the NES-F.

The artificial channel was present on the upstream reach of the intermittent stream, and was determined to be artificial due to its uniform channel shape and its absence from historical aerials. The channel is absent from aerial images prior to 2008 and appears to have been constructed during the same time period as the constructed wetland. The transition from artificial to natural stream channel was obvious, with the channel forming into a natural flow path, consisting of a wide, shallow meander.

The intermittent stream was approximately 0.3 m wide with shallow flowing water, with an average water depth of 0.06 m and flowed for approximately 75 m before forming a confluence with the permanent stream. The upper reach of the intermittent stream was predominantly soft bottomed, with hard substrates more common downstream, however the reach was subject to high loading of fine sediments. Hydrological heterogeneity was considered to be low and restricted to runs and pools. Stream banks were variable with near-flat sloping and highly incised and undercut banks present. Approximately 20 m prior to the confluence with the permanent stream, stream channel and bank collapse was present forming a barrier to fish passage. The permanent stream consisted of a wide and deep flow path dominated by hard substrates with a large waterfall forming at a confluence with another permanent stream. The streams contained similar characteristics in regards to riparian vegetation, which was dominated by indigenous forest, however ground cover throughout the intermittent stream was largely dominated by tradescantia and ginger. The riparian vegetation provided a very high degree of shade, filtration and organic matter inputs. Aquatic habitat quality and abundance was highest within the permanent stream with available habitat consisting of riffles, deep pools, undercut banks and leaf litter/woody debris.

The intermittent stream was considered to be of low ecological value due to the low abundance of aquatic habitat, downstream barrier to fish passage, and pest plant groundcover. The permanent stream was considered to be of high ecological value, as it would provide a permanent source of high-quality aquatic habitat and hydrological heterogeneity. The artificial channel and constructed wetland were considered to be of negligible ecological value due to their highly modified nature, and very low aquatic habitat and hydrologic diversity.

All other overland flow paths predicted to flow through the site were considered to be ephemeral or absent. No additional wetlands, or areas indicative of a natural wetland (i.e. hydric vegetation, pooling water) were observed within the site.

Assessment of Effects

Direct effects of the proposed development will include vegetation removal and reclamation of the artificial channel and constructed wetland. Botanic values of the site were considered to be low-moderate, with the northern section of the site providing very low value as habitat to indigenous fauna, and the southern section providing moderate-quality habitat for indigenous fauna. The loss of vegetation from the northern section is expected to have a very-low level of effect on ecological values, while vegetation removal from the southern section is expected to have a moderate effect on ecological values due to the loss of moderate quality habitat for indigenous terrestrial fauna. With mitigation controls in place (i.e. lizard management plan, bird nest survey, replacement planting), the

loss of vegetation from the southern section is expected to have a low level of effect on the terrestrial ecological values.

Minor encroachment into the SEA is proposed, for the construction of a recreational bushwalk track. It is recommended the bush track located on the inside edge of the SEA is shifted to the outer edge of the SEA to reduce the amount of SEA vegetation removal. Furthermore, the construction of the track within the SEA should follow the Department of Conservation walking track standards and removal of mature, indigenous tree is avoided. Vegetation removal should be limited to common, immature trees and replacement planting undertaken where appropriate. Additionally, it is recommended that streams should be bridged rather than culverted where the proposed track crosses a watercourse.

The project has avoided stream reclamation, with the intermittent and permanent stream to be retained. The constructed wetland and artificial reach are proposed to be removed, which is a permitted activity under the AUP OP. If reclamation of natural streams is required, a functional need will need to be proven and adverse effects appropriately mitigated and offset under the NPS-FM and RMA. The freshwater ecological value of the artificial channel and constructed wetland was considered to be of negligible ecological value due to the low abundance and diversity of aquatic habitat. The reclamation of the artificial channel and constructed wetland is expected to have a low-level effect on ecological values.

All other aquatic habitats and ecosystems within the site is proposed to be retained. Minor building infringements and vegetation removal within the 10 m riparian yard of the streams may occur to facilitate the construction of community and recreational facilities. However, in regards to the intermittent stream, the vegetation removal is predominantly within an area of severe pest plant infestation, which can be mitigated through additional planting and pest plant removal. No direct adverse effects (e.g. removal or reclamation) on those natural ecosystems will occur, which cannot be mitigated or remedied.

The proposed development has the opportunity to increase the ecological value of streams and SEA habitats through appropriate pest plant and animal control, restoration planting and buffer planting around the freshwater habitats, SEA and the development footprint.

Summary

Within the site, two streams, one constructed wetland, and one artificial channel has been identified with moderate value indigenous vegetation supporting a SEA. No other wetlands per the NPS-FM or streams per the AUP OP were present throughout the site. The development has appropriately taken the objectives of the NPS-FM into account during the design stage, as the proposed development has avoided the reclamation of natural freshwater features, and has minimised the area of vegetation clearance within the SEA.

The proposed development has the opportunity to increase the ecological value of streams and SEA habitats through appropriate pest plant and animal control, restoration planting and buffer planting

A more comprehensive ecological assessment will be provided to support the development application, at the expert consenting panel stage, which will further assess the potential direct and indirect effects and detail the appropriate mitigation actions and ecological enhancement within the site.

Regards,

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APPENDICES

Appendix 1. Identified terrestrial ecological features within the Site.

SOURCES: Aerial Photography: Nearmaps

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.

Legend

- Indigenous vegetation
- Mixed exotic & indigenous vegetation
- Pest plant infestation
- Significant Ecological Area
- Total site boundary

Map Title

Verran Road Fast Track
Identified terrestrial ecological features

Date	Drawn by
07/12/2022	Initial version by L.D

NOTES
Aerial Images from Nearmaps (2022).
Vegetation mapping undertaken from aerial images

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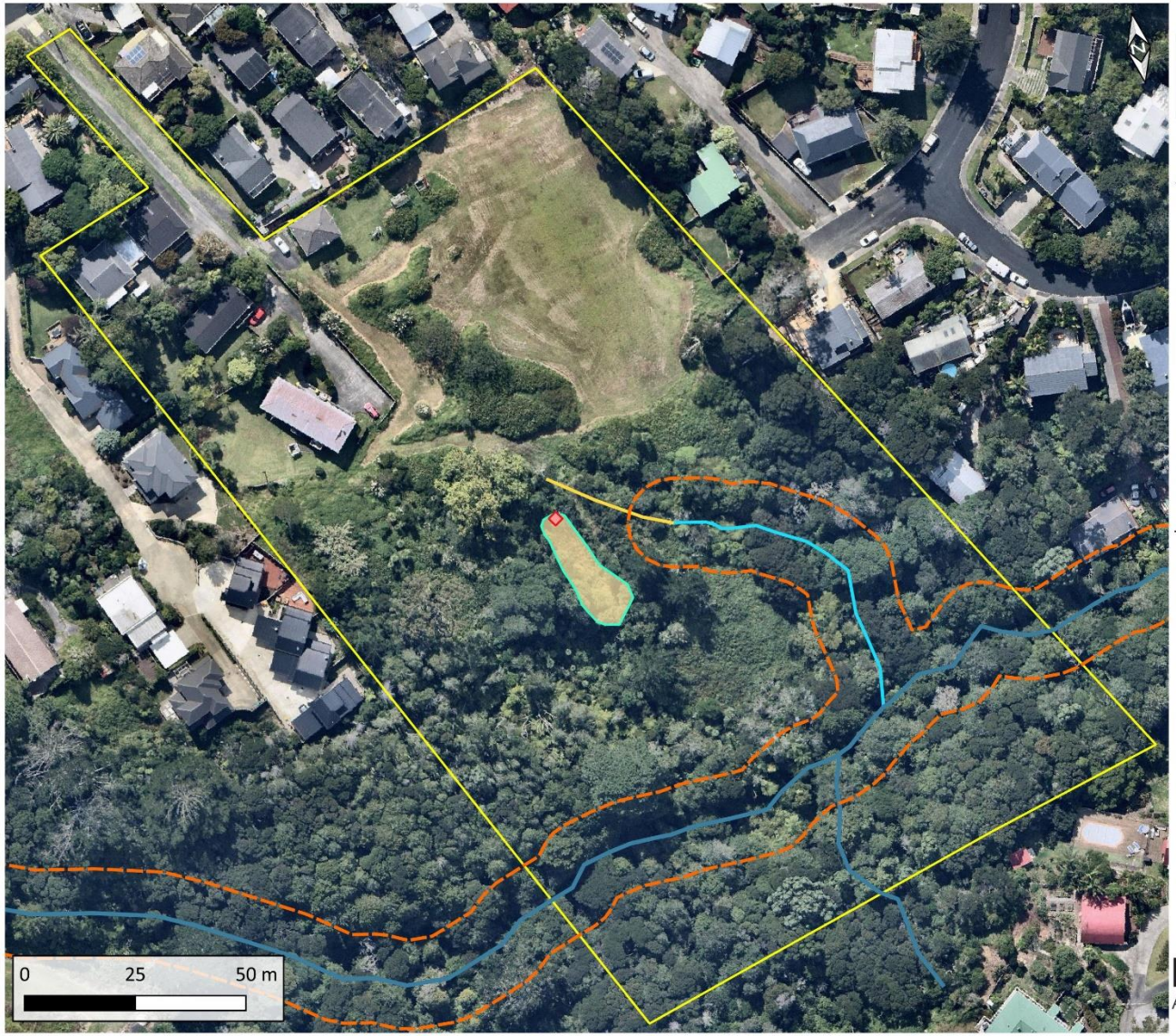
Appendix 2. Identified freshwater ecological features within the Site.



SOURCES: Aerial Photography: Nearmaps

DISCLAIMER:
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Legend

- Scruffy dome
- Constructed wetland
- 10 m riparian yard
- Artifical channel
- Intermittent stream
- Permanent stream
- Total site boundary

Map Title

Verran Road Fast Track
Identified freshwater ecological features

Date	Drawn by
07/12/2022	Initial version by L.D

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Appendix 3. Proposed masterplan. Prepared by BDG Architects

Appendix 4. Aerial image from 2006 showing the lack of wetland

Appendix 5. Historic aerial image from 2008 showing the construction phase of the constructed wetland and artificial channel.

Appendix 6. Historic aerial image from 2010 showing the operational phase of the constructed wetland and artificial channel.

Appendix 7. Photos of ecological features

Photo 1. View of the site looking north-west.

Photo 2. View of the site from the site looking south towards the SEA.

Photo 3 & Photo 4. Areas of severe pest plant infestation within the central area of the site.

Photo 5 & Photo 6. View looking south to the SEA showing large section of pest plant infestation in foreground.

Photo 7 & Photo 8. Pest plant infestation within the SEA indicating it is susceptible to edge effects.

Photo 9. Mature indigenous vegetation within the SEA

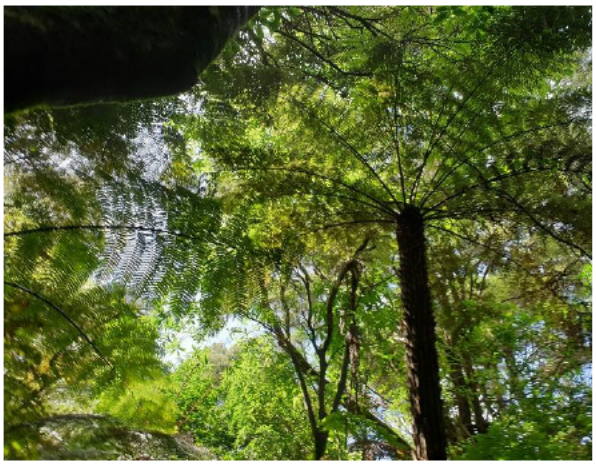

Photo 10. Canopy closure within the SEA.

Photo 11. Constructed wetland dominated by raupō

Photo 12. Scruffy dome installed within the constructed wetland.

Photo 13. Intermittent stream.

Photo 14. Permanent stream.