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1092 COATESVILLE RIVERHEAD HIGHWAY – ECOLOGY ASSESSMENT

Introduction

Matvin Group are proposing to develop a retirement village at 1092 Coatesville Riverhead Highway, Riverhead (Site). This memorandum provides a high-level assessment of ecological effects for the aforementioned development.

Methodology

An initial site visit was undertaken by an experienced ecologist on 13 August, 2021. Botanic and terrestrial fauna values within the Site were qualitatively assessed. Fauna habitats assessed considered indigenous lizards, birds, and bats.

Overland flow paths / watercourses were classified under the Auckland Unitary Plan - Operative in Part (AUP-OP) to determine, in accordance with the definitions in this plan, the ephemeral, intermittent or permanent status of these watercourses.

Assessments were undertaken 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 I and photos of these features are provided in Appendix II.

Existing Environment

Background and Ecosystem Classification

The Site is within the Tāmaki Ecological District of the Auckland Region. Historically (pre-human), the area would have comprised the forest ecosystem type of pūriri forest (WF7-1) and would have supported a diverse range of invertebrates, amphibians, reptiles, birds and bats (Singers et al., 2017).

Earliest historical aerials available, indicate that the Site and much of the surrounding landscape has been devoid of native vegetation and managed as agricultural land for at least the last 80 years (Appendix III).

Currently, the Site consists of strawberry horticulture, one dwelling and associated outbuildings and a mix of exotic and native vegetation. The Site does not support a recognised current terrestrial ecosystem type, as classified under the AUP OP: Biodiversity current extent and is not subject to any Significant Ecological Area (SEA) overlay.

The Site is surrounded by a mixture of residential development and agricultural/horticultural land. The surrounding agricultural land is zoned Future Urban.

Terrestrial Ecology

The site predominately consists of strawberry cultivation with associated exotic shelterbelts. In addition, there was an area of overgrown kiwifruit orchard, an area of what appeared to be cultivated bamboo, and two areas of scrub/mixed vegetation (Appendix I). The mixed vegetated area in the south western corner of the site consisted of tall mature Australian blackwood (*Acacia melanoxylon*) with a mixed understory of privet, cabbage tree, arum lily, wild ginger and woolly nightshade. A similar vegetation mix was present in the vegetated area at the northern end of the site. However, in this northern area, it appeared the majority of the blackwoods had been felled. This northern area also contained a small number of māpou (*Myrsine australis*) and *Coprosma robusta*. The shelterbelts were almost exclusively exotic, however there were points where relatively young isolated native plants such as silver ferns (*Cyathea dealbata*) were present at the base of the shelter belt.

The botanical value of the vegetation within the site was very-low, being heavily dominated by exotics, including the understory within the vegetated areas in the north and south west. There were very few large native trees, and overall, the site provided low-quality fauna habitat due to the lack of complexity, high edge effects and low terrestrial connectivity.

Freshwater Ecology

Auckland Council GeoMaps lists a number of overland flow paths within the site, predominantly draining very small areas. None of the indicated natural flow paths could be found on site, however the tracks around the edges of each paddock were very wet and could provide the flow path for runoff. Two artificially constructed channels were present along the northern boundary and along the northern half of the western boundary, both these channels appear to drain to the west rather than the north as indicated by Auckland Council Geomaps. Both channels had no flow (despite sustained moderate rainfall in the preceding days and weeks), but contained areas of standing water of variable depth, as well as extensive dry reaches. The areas of standing water were not considered natural pools, as these have been artificially cut below the wet season ground water level.

The channels were located directly underneath the shelterbelts and therefore did not contain any vegetation within their channels. Both channels contained high amounts of dry leaf litter, exhibited no evidence of substrate sorting, no evidence of scouring/undercutting and no evidence of organic debris within the floodplain, despite the abundance of organic material within the channels.

The 1950 historical aerial (Appendix III) shows a form of channel located in the northwest corner of the Site. However, this channel is located at the very top of the catchment and was likely an ephemeral watercourse that would have flowed to the northeast. This channel to the northeast has been reclaimed and is now non-existent. As such, the channels within the Site contain no natural portions from their confluence to their headwaters.

The channels within the Sites were classified as 'artificial watercourse' as per the AUP-OP definitions, due to:

- The defined channels were artificially created through deepening and straightening.
- No stream flow, despite the sustained rain in the preceding weeks and days.
- No evidence of natural pools – areas of evident standing water were artificially created by the channel being cut below the wet season groundwater level.
- No evidence of substrate sorting processes.
- No evidence of organic debris on the floodplain, despite the abundance of organic material within the channels.
- No natural portions from their confluence to their headwaters - The northeast watercourse has been reclaimed and is now non-existent and the Site now drains artificially to the west.

Wetlands

There were no natural inland wetlands within the site and it was considered highly unlikely any wetlands had been present on the site for at least the last 70 years. Aerial images show the site has either been under pastoral or horticultural activity since the 1950's and no evidence of wetlands can be detected.

Directly to the east of the vegetated area in the south west of the Site was an area where soil had been stockpiled and this had resulted in an area with poor drainage and the establishment of *Juncus effuses*, and *Ranunculus repens*. No native species were identified and most species present in this area are considered weeds. As this area contained hydrophytic vegetation, it was assessed under the Wetland Delineation Protocols¹ to determine whether the area should be classified as an induced 'natural wetland' under the NPS-FM. The vegetation within the representative plot failed the Rapid Test, Dominance Test and Prevalence Index (Table 1). As such the vegetation was assessed as not 'wetland

¹ Ministry for the Environment, 2020m Wetland Delineation Protocols, Ministry for the Environment, Wellington.

vegetation' and the area was assessed as not a 'natural wetland' under the NPS-FM. In this instance, it was considered that the area was clearly not a 'natural wetland' and no further investigations (i.e. hydric soil testing) was required. It is considered that once the stockpile is removed, the wet conditions would not remain and hydrophytic vegetation would not be able to persist.

No other wetland features or potential natural wetlands were identified within the Site.

Table 1: Wetland delineation vegetation plot results within the site

Species	Common name	Classification	Cover (%)	Dominant
<i>Lolium perenne</i>	Ryegrass	FACU	20	Yes
<i>Ranunculus repens</i>	Buttercup	FAC	15	Yes
<i>Juncus effusus</i>	Soft rush	FACW	15	Yes
<i>Rumex obtusifolius</i>	Broad-leaved dock	FAC	10	Yes
<i>Plantago lanceolata</i>	Narrow leaved plantain	FACU	10	Yes
<i>Crepis capillaris</i>	Hawksbeard	FACU	10	Yes
<i>Solanum nigrum</i>	Black nightshade	FACU	5	No
<i>Daucus carota</i>	Wild carrot	FACU	5	No
<i>Solanum mauritianum</i>	Woolly nightshade	FACU	5	No
<i>Ligustrum sp.</i>	Privet	FACU	5	No
Percent of dominant species that are OBL, FACW or FAC				50%
Prevalence Index				3.45

Assessment of Ecological Effects

Direct effects will be limited to vegetation removal. Botanical values with the site were considered very low, and the vegetation does not provide any significant value as habitat to indigenous fauna. The loss of vegetation within the site is expected to have a low level/less than minor effect on ecological values.

Indirect adverse effects, such as sedimentation and stormwater contaminants, are proposed to be adequately mitigated through appropriate controls and following best practice guidelines, to ensure adverse effects on ecological values are no more than minor.

There are no wetlands within the Site that meet the definition of a natural wetland under the NPS-FM and no natural streams. It is expected that the damp area, which was determined not to be a wetland, will permanently dry out once the stockpile of soil is removed. No adverse ecological effects are anticipated as result of this removal.

The proposed development of the Site is consistent with the outcomes expected of the NES-F the NPS-FM and the AUP-OP.

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 indirect adverse effects and detail any proposed ecological enhancement actions.

Regards,



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Appendix I: Identified Ecological Features



Appendix II: Photos of Identified Ecological Features



Photos 1 & 2: Bamboo stand in the south east corner of the Site.



Photos 3 & 4: Mixed vegetation dominated by Australian blackwood in the south west of the Site.



Photos 5 & 6: Damp area (prevalence index determined not a wetland), with part of the stockpiled soil on left of the photos.



Photos 7 & 8: The majority of the Site is occupied by strawberry fields.



Photos 9 & 10: Unmaintained kiwifruit orchard.



Photos 11 & 12: The ephemeral channel on the western boundary.



Photos 13 & 14: Artificial watercourse on the northern boundaries.



Photos 15 & 16: Mixed vegetation in the north of the Site.

Appendix III: 1950 Aerial Image



*Base image sourced from Retrolense. Yellow polygon represents the approximate Site boundary.