Hareb Investments Ltd.

Proposed Rezoning of 2 Johnston Street, Waitara, Ecological Impact Assessment

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CONTENTS

1 Introduction

The 11.34 ha site at 2 Johnston Street, Waitara is proposed to be rezoned, and ultimately subdivided into 110-120 residential lots. This site is currently used as cropping land, and has formerly been used for market gardening. There is a small stream in the gully running through the site. This is an unnamed tributary of the Waitara River which runs through the property in a north-north-easterly direction towards Mayne Street Park, where it enters a culvert and flows under the township of Waitara, and drains to the Waitara River near the coast.

A road network is proposed to service all of the properties (Blue Marble 2018a). It is proposed that roads cross the gully in the same sites as the existing crossings, however these will be rebuilt and it is likely that new culverts will be required. Landscape planting of the gully is also proposed (Blue Marble 2018b).

A requests for further information was received from the NPDC on 19 December 2018. This report version includes the additional information requested.

2 Scope of this report

This report assesses the ecological values of the land at 2 Johnston Street Waitara, and any potential ecological impacts from the proposed development.

3 Site visit & Methodology

Cees Bevers, Senior Ecologist, from Landpro Ltd. visited the site on the 12th November 2018 during fine weather. A night time spotlight fish survey was completed on the 19th of November 2018 after dark (approximately 9:00pm), also during fine weather.

In terms of methodology for the day time site visit, a site walkover was undertaken, identifying key species of plants present and noting any fauna (birds and mammals). Photos were taken, a sample of which are included in this report.

The spotlight fish survey involved visiting the site in darkness, carefully walking the stream banks and shining a LED spotlight into the water to 'spot' any fish or other aquatic fauna present. All tributaries on the property were investigated.

A desktop assessment was also undertaken to review any records of rare and endangered species that may be in the area.

4 Site Description

The land is located approximately 1.8km from the coast on the outskirts of Waitara. Currently the land is used for cropping, and there are several shelterbelts on the property. There is a gully approximately 430m long running through most of the property in a north-north-easterly direction. Within the gully a stream is fed by a spring at the southern end of the property, where it forms a small pond. This stream is an unnamed tributary of the Waitara River, part of the Waitara River catchment. Further downstream there is a large man-made pond under the pine shelterbelt. At the northern end of the property the stream forms a small wetland. Site photos are provided below in Figures 1 to 7.

5 Description of proposed activities

It is proposed to develop the property for residential use. This will involve subdivision of the land, and associated installation of services and roadways. The Structure Plan for the land provides for the area in and around the waterway as Open Space Environment Area, which will be cleared of weed species, and planted out in native species. A walkway will be installed within this open space area to provide recreational opportunities.

Figure 1: The small spring-fed pond at the top of the unnamed tributary at the southern end of the property.

Figure 2: Cleared section of unnamed tributary at the southern end of the property.

Figure 3: Pine shelterbelt and riparian vegetation alongside the unnamed tributary.

Figure 4: The man made pond within the unnamed tributary, with pine shelterbelt and rank grass riparian vegetation.

Figure 5: Tree ferns, and scrubby vegetation riparian vegetation under shelterbelt alongside the unnamed tributary.

Figure 6: The small wetland at the northern end of the property, looking south. Note cultivated land in background where a young maize crop is sprouting

Figure 7: The small wetland at southern end of property dominated by the native sedge pūkio.

6 Ecological Values

Vegetation, birds, freshwater fish, and mammals are covered in this section.

6.1 Vegetation

The majority of the site is cultivated, with a maize (*Zea mays*) crop growing. In the gully adjacent to the stream there is a mixture of planted exotics, weed species and colonising native plants.

Weed species found here include; arum lilly (*Arum italicum*), wilding cherry (*Prunus sp.*), woolly nightshade (*Solanum mauritianum*), hemlock (Conium maculatum), Scotch thistle (*Cirsium vulgare*), crack willow (*Salix fragilis*), wandering jew (*Tradescantia fluminensis*), gorse (*Ulex europaeus*), and fennell (*Foeniculum vulgare*). Several grass species are also present and form tall dense rank stands, and likely include Yorkshire fog (*Holcus lanatus*) and Perennial ryegrass (*Lolium perenne*).

Planted exotic species include: eucalyptus sp., pine (*Pinus radiata*), Lawsons cypress (*Chamaecyparis lawsoniana*), She-oak (*Casuarina cunninghamiana*), and Japanese cedar (*Cryptomeria japonica*), generally within the shelterbelts on the property.

Native species are found in and around the waterway and include; mamaku tree fern (*Cyathea medullaris*), kawakawa (*Macropiper excelsum*), pohutukawa (*Metrosideros excelsa*), mahoe (*Melicytus ramiflorus*), cabbage tree (*Cordyline australis*), karo (*Pittosporum crassifolium*), karaka (*Corynocarpus laevigatus*), karamu (*Coprosma robusta*), kohuhu (*Pittosporum tenuifolium*), kiokio fern (*Blechnum novae zelandiae*), soft fern (*Christella dentata*), and gully fern (*Pneumatopteris pennigera*). The common native sedge pūkio (*Carex secta*) is abundant

in the small wetland area at the northern end of the property. Another *Carex* species is also present, but could not be identified, as it was not flowering. None of the native plants found are listed as threatened in the New Zealand Threat Classification System (de Lange 2009).

6.2 Birds

Native birds observed during the site visit include pukeko (*Porphyrio porphyrio melanotus*) and tui (*Prosthemadera novaeseelandiae*). Both of these species are listed as "not threatened" in the New Zealand Threat Classification System administered by the Department of Conservation (Miskelly *et. al.* 2008).

Exotic birds seen include; skylark (*Alauda arvensis*), sparrow (*Passer domesticus*), starling (*Sturnus vulgaris*), and mallard duck (*Anas platyrhynchos*).

6.3 Mammals

Rabbits (*Oryctolagus cuniculus*) were seen on both site visits.

6.4 Freshwater fish & macroinvertebrates

A spotlight survey of the entire gully was carried out. No fish were observed.

6.5 Water quality

Observed water quality was relatively low. The small spring-fed pond at the top of the gully is exposed to full sun, and as a result contains a lot of filamentous algae and is relatively turbid, and resulting low visibility through the water column. The stream flowing from here is quite silty. The large man-made pond under the pine shelterbelt also looks to have high turbidity, and a high abundance of algae. At the most northern point of the property, where the stream forms a small wetland water clarity improves, although the stream is very shallow and silty.

No quantitative water quality work was carried out.

6.6 Summary of Site Ecological Values

In summary, the current ecological values associated with the site are considered to be low. There is potential for improvement, particularly around the unnamed tributary onsite. No rare or endangered species have been observed during the ecological site visits.

6.7 Wider Ecological Context

A detailed study of the flora and fauna present in the wider area has not been undertaken, however a general assessment of the wider ecological context is provided in this section. The wider ecological area comprises similar farmland to the site as it currently stands, and the Waitara Residential Area. Flora and fauna present on the adjoining rural land is therefore similar – predominantly pasture species, cropping, and farm shelterbelts and common adaptable introduced and native fauna in addition to livestock. In the residential area, landscaping and gardens of residential dwellings and lawn areas provide a different habitat, and pet and human activity is greater. There are no significant ecological areas or habitats identified in the immediate vicinity (TRC Local Maps – see Figure 9).

Downstream the unnamed tributary enters adjoining farmland for approximately 200m before entering Mayne St Park (zoned Open Space B). This park contains indigenous flora, and the stream enters a small pond here.

There are anecdotal reports of mosquito fish being present in this pond (Otaraua Hapu, December 2018). After this pond the stream is open for a short stretch before entering a culvert that runs for about 1300m beneath the industrial/residential zone through to the Waitara River Scenic Reserve, which is identified as a Regionally Significant Wetland. This wetland is half Palustrine and half Estuarine. (source:TRC Local Maps 2019). There is a further wetland on the eastern side of the river at this point also (see figure 9 below).

Figure 8. Site (yellow outline) in relation to waterways. (Source TRC GIS LocalMaps, October 2018)

Any improvement to water quality in the waterway will therefore benefit the palustrine/estuarine wetland downstream. Given the length of the culvert, it is unknown what fish barrier this culvert represents.

There are a number of other wetlands (which are all identified by the TRC as Key Native Ecosystems (KNE's)) in the Waitara Area, as shown below in Figure 9. None are close to the site. As identified above, the Waitara Scenic Reserve and Waitara East wetlands are approximately 1500 downstream of the site. The other wetlands/KNE's in the area are not within the same catchment of the unnamed tributary.

Figure 9. Site in relation to surrounding Key Native Ecosystems (Also Significant Wetlands) (Blue Areas) (Source TRC GIS LocalMaps, January 2019)

7 Assessment and mitigation of potential adverse ecological effects

Ecologically, the proposal will involve:

- A change in the nature of the land use from Pastoral Cropping/Grazing to Residential Use;
- Clearance of vegetation within the site (e.g. shelter-belts) and adjacent to the unnamed tributary;
- Construction works, including earthworks; and
- Establishment of culverts in the tributary.

7.1 Effects – change in land use

A change to the surrounding land use will affect the type and nature of discharge to the waterway on the site. The most likely contaminant at present is sediment (as associated contaminants such as Phosphorus) and pathogens from stock effluent. An unfenced riparian buffer is provided at present, (see Figure 2), with riparian vegetation comprising largely of rank pasture grasses. This will be providing some mitigation of silt laden overland flow from the cultivated paddocks that currently surround the waterway.

The introduction of more people into the area will see an increase in anthropogenic pressure on the ecosystem, including increased numbers of pets. Pets (cats and dogs) may predate on native fauna, and adversely impact upon their abundance. The change in land use (from open paddock to residential lots) will bring alternative vegetation, noise, traffic and increased human activity. This can affect some species, while others adapt to it.

The establishment of indigenous vegetation in the Open Space B area adjacent to the tributary will be positive (more diverse vegetation will provide more diverse habitat and accordingly more diverse opportunities for species) compared to the cropping monoculture presently in place.

7.2 Mitigation – change in land use

In terms of long term sediment loads (and associated contaminants such as Phosphorus and pathogens), once developed, there will be less sediment laden runoff expected to run to the waterway, as there will be less disturbed area when the site is developed for housing, associated curtilage and roading. Once the area surrounding the waterway is planted in native species, this will also form an effective riparian buffer for overland flows, an improvement on what is there now.

Taking into account the reduction in long term sediment loads (i.e. cultivated paddocks versus housing), the long term effects will be beneficial to the stream, improving water and substrate quality, and the overall habitat for flora and fauna.

In sensitive ecological environments, controls on pets and landscaping species can be implemented to mitigate potential adverse effects. In this case, there are no sensitive environments and low ecological values associated with the area. There will already be a large number of pets in the vicinity, given the site is on the residential boundary with the Waitara. For this reason, it is not considered necessary to place controls on the numbers or types of pets that are allowed within any future subdivision.

Similarly, this is not a sensitive ecological environment and accordingly the effects of noise, traffic, increased human activities and changes in the vegetation are unlikely to be significant. The vegetation change needs to be weighed up against the increased the diversity in the area in the form of I the creation of the Open Space B area which will be planted in indigenous species and will enhance and protect the waterway.

7.3 Effects – vegetation clearance

Clearance of weed species and pines around the waterway has commenced. Until such time as these areas are replanted, the waterway will be quite open and exposed to full sunlight. The clearance activities are a necessary part of enhancing the ecological values of the waterway and the area surrounding it.

7.4 Mitigation – vegetation clearance

The vegetation involved is not significant, and very little of it is indigenous. Natives will be planted and in time these will shade the stream and stabilise the banks. This will improve the habitat of the waterway for in-stream flora and fauna, help keep the water cool and, overall, will enhance ecological opportunities and values. The area will also be permanently provided for as Open Space, which will ensure that the benefits of the works will be felt for generations to come.

Overall the effects of the proposed activity will be beneficial to the waterway.

7.5 Effects – culverts

In due course, new culverts will be installed at the existing culvert sites to form the internal roadways within the development, and there will be sediment discharge associated with the construction of these culverts. These will require consent from the Taranaki Regional Council which will be sought at the time they are constructed and a full ecological assessment can be undertaken when construction details are confirmed.

7.6 Mitigation – culverts

In general, there will be opportunities in this waterway to install the culverts during periods when there is little (or potentially no) flow in the stream, and these opportunities should be taken to minimise sedimentation effects. Standard sediment control techniques (silt fences, timing of works, minimising disturbance) will further serve to mitigate potential adverse effects. In general, given the current low ecological value of the waterway and the availability of mitigation options, the potential adverse effects of sediment discharge during construction of culverts in or around the waterway are unlikely to be significant.

7.7 Taranaki Regional Policy Statement – Section 9, Indigenous Biodiversity

The relevant policies relating to biodiversity are discussed below as follows:

BIO POLICY 1

"The maintenance, enhancement and restoration of indigenous biodiversity will be promoted throughout the Taranaki region and at different scales within the region and will include ecological landscapes, ecosystems, and ecological processes, habitats, communities, species and populations".

The development will result in an improvement in biodiversity along the banks of the tributary that runs through the site, with the removal of pest plants and pines, and the establishment of indigenous landscape plantings. Stock will be excluded from the waterway. This may result in improvements to water quality, which will benefit Key Native Ecosystems identified downstream in the Waitara River, and may provide more diverse habitat for a wider range of indigenous fauna.

BIO POLICY 2

"Adverse effects on indigenous biodiversity in the Taranaki region arising from the use and development of natural and physical resources will be avoided, remedied or mitigated as far as is practicable."

No adverse effects on ecology or biodiversity have been identified in this report. With the removal of pests, and indigenous planting on the waterway that are proposed and removal of stock that have access to the stream, effects of the change in land use are likely to be positive.

BIO POLICY 3

"Priority will be given to the protection, enhancement or restoration of terrestrial, freshwater and marine ecosystems, habitats and areas that have significant indigenous biodiversity values."

Significant ecological or indigenous biodiversity values have not been identified in the immediate area, nor nearby.

BIO POLICY 4

"When identifying ecosystems, habitats and areas with significant indigenous biodiversity values, matters to be considered will include:

(a) the presence of rare or distinctive indigenous flora and fauna species; or

(b) the representativeness of an area; or

(c) the ecological context of an area.

Once identified as significant, consideration should be given to the sustainability of the area to continue to be significant in future when deciding on what action (if any) should reasonably and practicably be taken to protect the values of the area."

Significant ecological or indigenous biodiversity values have not been identified on this site.

BIO POLICY 5

"The maintenance, enhancement or restoration of indigenous biodiversity will be promoted in ecosystems, habitats and areas not covered by Policies 3 and 4 above, but still important for the continuing functioning of ecological processes, including those aspects important for the maintenance, enhancement or restoration of:

(a) connections within, or corridors between, habitats of indigenous flora and fauna;

(b) ecosystems, habitats and areas that provide buffering of habitats of indigenous flora and fauna;

(c) botanical, wildlife, fishery and amenity values;

(d) biological and genetic diversity;

(e) water quality, water levels and flows; and

(f) soils, substrate, minerals, nutrients or other physical factors or processes necessary for the survival of any indigenous flora or fauna species or community. "

The planting proposed adjacent to the waterway and the protection of this area as Open Space B will give effect to BIO Policy 5. The stormwater retention pond that is now proposed will also provide wetland/pond habitat.

BIO POLICY 6

"The Taranaki Regional Council will work with landowners, resource managers and resource users and will co-ordinate and liaise with other agencies and community groups to promote the maintenance and enhancement of indigenous biodiversity in an integrated and cost-effective way."

The planting proposed will be undertaken at the cost of the applicant. TRC resources and guides are available to be utilised where appropriate.

BIO POLICY 7

"In the maintenance and enhancement of indigenous biodiversity in Taranaki consideration will be given to the social and economic benefits of appropriate use and development of resources."

The proposed development is considered an appropriate use and development of land resources, and has positive effects on indigenous biodiversity while enabling the land to be developed. It is therefore consistent with this policy.

POLICY 8
"When re-establishment or restoration of indigenous vegetation and habitat is carried out, preference should be given to the use of local genetic stock."

It is recommended that preference be given to local genetic stock, if available, when selecting plants for the Open Space B area.

8 Conclusions

1. The site is dominated by exotic plant species.
2. The site is ecologically a disturbed site, due to it being cropping farmland.
3. Few bird species were encountered, with only two native species seen.
4. No fish were detected during the spotlight fish survey of the entire stream within the property.
5. No threatened species were found on site.
6. Water quality at the site is currently relatively low.
7. The site currently has low ecological value.
8. The proposed landscape plantings using native species will be beneficial to water quality within the stream, and provide better cover for wildlife.

9 Recommendations

1. That the use of the native wetland plant raupō (*Typha orientalis*) is considered as part of the native planting in the man-made pond. Raupō forms dense beds that provide good habitat for wetland birds that may start to use the stream. It also uses nutrients in the water and sediment.
2. That large culvert pipes that can be partially buried into the stream bed to allow good passage of any native fish that may be present, but were not detected, such as detailed in the New Zealand Fish Passage Guidelines (NIWA 2018).
3. Preference be given to local genetic stock, if available, when selecting plants for the Open Space B area.

10 Acknowledgements

Matt Hareb. Kathryn Hooper, Landpro Ltd.

11 References

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