Part VII: Adverse effects

Description of the anticipated and known adverse effects of the project on the environment, including greenhouse gas emissions:

In considering whether a project will help to achieve the purpose of the Act, the Minister may have regard to, under Section 19(e) of the Act, whether there is potential for the project to have significant adverse environmental effects. Please provide details on both the nature and scale of the anticipated and known adverse effects, noting that Section 20(2)(b) of the Act specifies that the application need only provide a general level of detail.

It is considered that the Project will have the positive effects detailed later in this application, and the Project will not have any long term, significant adverse effects on the environment. Further detail on actual and potential adverse effects is set out below:

Earthworks and Construction Effects

The project will involve approximately 45,300m^3 of cut and fill earthworks across the 8Ha project area to prepare the site for development and installation of underground services, roading, stormwater treatment devices and reserves. The raised topography in the south east corner of the site is proposed to be cut down by approximately 4m to allow for a suitable roading and building platform grade. Final earthworks design will form an even and gradual slope towards the existing streams.

Earthworks for the project will be carried out in accordance with best practice appropriate erosion and sediment control measures (based on BOPRC guidelines for sediment and erosion control) to ensure that the potential for sediment to discharge into receiving waters is avoided and minimised. This is detailed in **Attachment 8.** Proposed measures to ensure that the receiving downstream environment is protected, include:

- Construction of clean water diversion lines to divert and collect upstream catchment runoff away from the site of earthworks;
- Installation of silt fences around stream banks;
- Construction of decanting earth bunds and sediment ponds, and associated runoff/diversion bunds to allow for settlement of particulate matter and decanting of clean water prior to discharging to the Waiteti Stream. PAC flocculating chemicals are proposed to be used to assist with settling particles;
- Minimising open areas of earthworks areas, and stabilizing of areas as they are complete.

Earthworks is be programmed to be carried out during the earthworks season to further reduce potential sediment discharge to receiving waters. This will ensure sediment is not discharged into the stormwater network or wider receiving environment and that any earthworks effects are able to be managed on-site without giving rise to inappropriate effects on the environment.

Construction traffic effects will be temporary and will be managed in accordance with a Construction Traffic Management Plan ("CTMP"). The CTMP will outline measures such as anticipated number of truck movements per day and truck routes (among other measures) to ensure that the potential construction traffic effects of the project are appropriately managed.

Construction noise and vibration will be managed in accordance with a Construction Noise and Vibration Management Plan ("CNVMP"). The CNVMP will outline measures, such as restrictions on days and hours on noisy works, consultation with neighbours and use of quieter machinery (among others) to ensure that potential construction noise effects of the project are appropriately managed.

While the scale of the works will be large in the context of the established residential and rural areas, it is noted that they will be temporary in duration and not out of character within a rural lifestyle site. Overall, it is considered that the actual and potential adverse environmental effects arising from earthworks can be appropriately managed.

Noise and Vibration Effects:

SLR Consulting NZ Limited (SLR) have provided a summary of noise and vibration advice included as **Attachment 9.** This considers both the construction noise and vibration as well as reverse sensitivity.

With respect to construction noise and vibration, SLR consider that construction noise will generally comply with the Rotorua District Plan standards, however short-term exceedances may occur during certain construction phases, particularly for work in close proximity of neighbouring receivers. Both construction noise and vibrations will be appropriately managed by a Construction Noise and Vibration Management Plan (CNVMP) which will identify Best Practicable Option (BPO) mitigation and management measures to reduce effects to reasonable levels.

With regards to operational noise, the noise levels will be in keeping with those generated by the established residential neighbourhood.

With regards to reverse sensitivity, SLR consider that noise from traffic on the State Highway and the operation of the adjacent industrial site is able to be quantified through measurement, then investigation on how this relates to the proposed development would occur through detailed noise modelling. Mitigation measures are anticipated to be confirmed once the potential noise effects are quantified, and are likely to take the form of a combination of acoustic treatment for the proposed residential building envelopes, and boundary screening where appropriate.

Overall, it is considered that the actual and potential adverse environmental effects arising from noise, vibration and reverse sensitivity can be appropriately managed.

Effects on cultural values

The site is located within an area with a long and rich history for local Maori, with numerous iwi and hapu groups having whakapapa intrinsically linked to the surrounding whenua. Watchman Residential Ltd are proactively engaging with Iwi authorities whose area of interest includes the area in which the project will occur as set out in Part V of this application. The project would not occur on land returned under a Treaty Settlement and it is anticipated that engagement and consultation with all Iwi authorities who register their interest in this project will continue throughout the life of the project.

Contamination effects

Geohazard Environmental have provided a summary with respect to ground contamination, included as **Attachment 10**. Site investigations have previously been undertaken on the Site which conclude that it is more than likely that HAIL A.8, HAIL I and HAIL G.5 have occurred on the site. Detailed testing within the site has identified concentrations of contaminants that are present, as being above the adopted residential guideline values and not meeting the relevant acceptance criteria for the protection of human health and the environment. The DSI recommends that remediation is carried out prior to bulk earthworks commencing, and identifies two methods that can be undertaken to successfully remediate the site.

Further soil testing of the site will be undertaken to confirm the extent of soil contamination. Notwithstanding, if required, the site will be remediated in accordance with a Site Remediation Plan ("SRP"), and the earthworks undertaken in accordance with a Contaminated Site Management Plan ("CSMP") to ensure adverse effects on human health are avoided or mitigated. As earthworks will be carried

out in accordance with the SRP or CSMP, it is considered that the site will either be safely remediated or earthworks undertaken in a manner which protects human health and the environment from contaminants in soil.

Overall, the scale and nature of environmental effects associated with contaminated land are limited, and it is considered that the potential adverse effects associated with land contamination can be appropriately managed and will not create significant adverse effects on the environment or human health.

Infrastructure and Servicing Effects

The Engineering Infrastructure Report prepared by McKenzie and Co Engineers (refer **Attachment 8**) details the project's servicing strategy and confirming that the project can be sufficiently serviced in respect to stormwater, water supply, and wastewater. With regard to stormwater, water sensitive design approach will be adopted throughout the site to improve water quality runoff from the development. It is proposed to provide several new wetland ponds to manage the runoff helping to maintain and enhance the quality of the watercourse downstream. A Stormwater Management Plan ("SMP"), will also be submitted with the application. The SMP will outline the proposed stormwater management approach for the project to ensure adverse effects stormwater quality and quantity are effectively mitigated, and demonstrate that the proposed approach is the Best Practicable Option ("BPO").

With regard to wastewater, a new wastewater gravity network is proposed to be constructed and connected to the existing 150mm uPVC line running along Ngongotahā Road via an existing manhole. Rotorua District Council have confirmed that the existing wastewater supply network has sufficient capacity to service the Project.

With regards to water, a new watermain to service all proposed lots within the site with domestic and firefighting supply is proposed to connect to the existing 300mm uPVC watermain running along Ngongotahā Road. Rotorua District Council have confirmed that the existing water supply network has sufficient capacity to service the Project.

Overall, there is a high degree of confidence that the project will be adequately serviced without creating significant adverse effects on the environment.

Effects Generated by Natural Hazards and Flooding

McKenzie and Co have provided a summary with respect to Flooding, included as **Attachment 8.** The assessment details that flood Modelling to determine an indicative useable development footprint and flood levels has been undertaken, and that a peer review of the flood modelling will be provided as part of the application. This is anticipated to confirm that there are no adverse effects to the upstream and downstream neighbours when carrying out earthworks in the floodplain. To further compensate any displacement of flood waters additional earthworks will be carried out to lower the ground level within the revised floodplain extents to provide additional volume.

It is considered that the flood modelling demonstrates that the proposal has been designed to ensure the safety of people visiting the site from adverse flood hazards, and that the development will not result in increases to flood depth, velocity or frequency on upstream or downstream properties.

The site is not subject to any other known natural hazard or geotechnical instability. Notwithstanding this, a preliminary geotechnical assessment by CMW Geosciences s included in **Attachment 11** which concludes that:

> *"Subject to further geotechnical investigation, analyses and design, the proposed residential development of 31 Ngongotaha Road, Rotorua is considered geotechnically suitable, subject to the identified geohazards being mitigated by adopting appropriate ground improvement works and / or foundation solutions".*

Given the relatively flat topography of the site, no large areas of cut and fill will be required and are proposed to be undertaken in general accordance with NZS 4431 and the requirements of the Rotorua Lakes Council, Regional Technical Infrastructure Standards (RITS). Building platforms for development will be flat in nature to reduce the risk from instability and erosion.

It is intended that a further detailed geotechnical investigation will be undertaken at a future time that will specifically address natural hazards, geotechnical stability, including subsurface conditions and recommendations for building foundation design in the context of the final schematic design of structures. Given the lack of identified hazards and geotechnical constraints for the site, the site is considered generally suitable for the proposed development from a geotechnical perspective.

Based on the above, it is considered any effects generated by natural hazards and flooding are able to be sufficiently mitigated.

Streetscape Character, Amenity and Visual Effects

It is acknowledged that the proposal has the potential to result in a change to the residential character and amenity values of the existing neighbourhood. A level of change from 'Rural' to 'Residential lifestyle' character and amenity values is anticipated by the Rotorua District Plan through the application of the Rural 2 Lifestyle zoning across the site.

The site is located adjacent to the existing urban environment and the viewing catchment of the site is relatively limited to the extent that the character of the wider rural environment will not be adversely affected by this proposal.

The proposal will establish a relatively directed street and block layout, which includes specific identification of open space areas.

The proposal has benefited from significant urban design input, seeking to ensure that the housing, streets, and open space layout provides a quality urban design response. Buildings have been designed to engage with the street, minimise vehicle crossings, and ensure privacy for residents. Substantial landscape treatment and planting is to be provided, as illustrated in the attached landscape plans.

The proposal includes a number of key design elements to manage potential effects pertaining to the existing residential character and amenity of neighbouring sites.

These key design elements have been assessed within an urban design summary assessment which has been provided by Ian Munro as **Attachment 12**. Mr Munro concludes overall that:

> *"Based on the design workshops and process undertaken to date, and adherence to the key outcomes identified in the Rotorua District Plan (for residential developments), the Government's MDRS as set out in the Resource Management Enabling Housing Act 2021, and the NZ Urban Design Protocol, the concept can be considered to have been rigorously tested by the consultant team and reflects best-practice.*

The key urban design characteristics of the Project that have been identified by Mr Munro are summarized as follows:

- The design positively responds to site constraints and is premised on public streets that will be constructed to Councils infrastructure standards;
- A consistent and quite successful reflection of the urban design structuring principle of 'fronts and backs';
- A variety of housing typologies and dwelling sizes including detached dwellings, duplex dwellings and terraced housing that are distributed to balance solar access, passive surveillance of streets, and vehicle access (rear lanes);

- Inclusion of rear service lane JOALS where terraced housing is proposed to help give streets a higher visual quality, and promote safer and more pleasant pedestrian routes and choices;
- Inclusion of a 3m shared path from Ngongotaha Road to an internal north-south road to provide additional recreational amenity that connects with the stream and associated stormwater devices;
- Integration of stormwater devices with the streams riparian margin to achieve naturalistic appearance;
- Provision of a buffer and landscaping screen to adjoining sites to visually mitigate the presence of the development;
- Maintenance of street amenity through rear service lane;
- Variation in the appearance of buildings to avoid adverse visual effects from excessive repetition;
- Adequate floor areas and associated outdoor space which are suitable to mitigate effects resulting from solar access, outlook and privacy; and
- Provision of dedicated resident car parking areas that can be landscaped to positively contribute to the developments visual quality.

The Rural Lifestyle zoning under the Rotorua District Plan anticipates and provides for residential development that manages the visual impact of new buildings on the landscape, achieves appropriate separation between dwellings, and provides for landscaping to maintain 'rural' character values. A Landscape Effects Evaluation **(Attachment 13)** has been undertaken to assess the potential effects of the development on the streetscape character and landscape amenity values of the surrounding area. The assessment considers potential visual effects generated by the proposal and concludes the following:

> *"The proposal will see the partial conversion of semi-working farm into a landscape with identifiable urban characteristics.*
> *The landscape response to the site will see an increase in native tree coverage over the site with native planting adjacent to the existing mid-site stream strengthening a key landscape feature of the site.*
> *Consideration is also given to the interface with Ngongotahā road (and the existing properties that sit directly opposite the site) by providing sufficient setbacks of built form elements to allow for high level hedging and trees to provide absorption of future built form into the landscape.*
> *When viewed in the context of the surrounding landscape, the proposed development can be seen as a visual continuation of the irregular rural-urban edge that can be seen as a key constituent local landscape character element and thus, from a landscape effects perspective, the proposed development can be seen as appropriate within the contemporary receiving environment."*

Whilst the proposal for a comprehensively planned residential development on the site that will result in a significant visual change from the current environment, the development responds well to its primary frontage of Ngongotahā Road and will significantly enhance the streetscape character in this location. A range of other design measures have been incorporated, including significant landscaping and careful design and layout of built form to manage the visual impact of buildings within the landscape. This will ensure that the proposal as a whole appropriately addresses its surrounding environment whilst delivering a mix of functional residential buildings that are not contrary to the planned residential use of the Rural lifestyle zoning of the land.

Further, the Project will be consistent with the future built form that is anticipated by the Rotorua Lakes District Councils strategic plan for growth, which identifies the site as a growth area in the Rotorua Spatial Plan 2018.

Overall, it is considered that site can be developed at the proposed intensity without creating significant adverse environmental effects on existing streetscape, character, amenity and visual landscape values.

<u>Transport Effects:</u>

The potential transportation effects include trip generation and effects on the existing road network and the design of new roads and connectivity within the project site. A preliminary analysis of transport effects is included in the memo prepared by Commute Transportation Consultants (Commute) included at **Attachment**

14. Commute considers that acknowledging the recent upgrades, the level of traffic generated by the Project will be able to be accommodated within the existing road network without creating adverse traffic congestion or safety effects, nor any noticeable any pedestrian effects. In particular, the modelling analysis of the proposed intersection onto Ngongotahā Road confirms that this connection will operate acceptably in the future with the additional traffic from the proposed development.

Commute has completed an assessment against Austroads requirements for turning treatments, and recommends that the proposed intersection be designed similarly to the existing intersections to the north and south, whereby No Stopping At All Times (NSAAT) markings are provided on either side of Ngongotahā Road at the intersection.

Commute has identified a number of transportation upgrades based on the estimated trip generation of the project, including reducing the posted speed along the site frontage to 50km/hr, constructing a new footpath along the site frontage to connect with the existing footpath network, and constructing a new bus stop outside the subject site. It is considered that the project can be safely accommodated within the existing road network subject to these measures being implemented.

Commute concludes that from a traffic engineering and transportation efficiency perspective, there are no traffic or transport planning reasons the preclude the subject Sites from being considered for the fast-track consenting process.

Overall, it is considered that the project will not create significant adverse effects on the safe and efficient operation of the existing transport network, and that appropriate provision has been made for vehicular, pedestrian, and cycling access within the project site.

Socio-Economic Effects

It is not anticipated that the Project will give rise to any socio-economic adverse effects, rather it will have a range of positive effects for Ngongotahā and the surrounding area. The Project will be a positive contributor in terms of public benefit both during the building phase and once operational. On completion the development will provide patronage to the retail, educational, residential and commercial activities within Ngongotahā and the wider Rotorua District. The development will provide job generation and economic stimulus for the area as further detailed in Part III of this application and the economic assessment contained in **Attachment 6.**

Ecology

The ecology assessment by Puhoi Stour (**Attachment 15**) identifies the extent of terrestrial and aquatic ecological features across the site and provides an overview of these values. These features are summarized and assessed as follows:

1. *The Waiteti Stream, and associated riparian vegetation, that forms the northern and western boundaries of the property.*
    a. *The Waiteti Stream catchment is recorded as a 'regionally significant habitat and fishery value' for trout by the BOPRC;*
    b. *At the time of my site visit, the banks of this stream were showing signs of severe erosion.*
2. *A stream that bisects the property, which enters from the southern boundary under the disused railway line. This stream has been fenced and has early stage restoration planting in the riparian areas.*
3. *Several artificial farm drains (in various states of maintenance)*
4. *Mature woody vegetation (native and exotic) that is not high ecological value in its own right, but may support populations of lizards, birds or bats.*

In summary, the preliminary assessment of botanic and terrestrial fauna ecology values have not identified any issues associated with the Project that cannot be managed through a future consenting process. The assessment confirms that the site does not contain any natural wetlands as defined under the RMA and Freshwater NPS, and that the freshwater streams on the property are likely to be the most significant of the

ecological features that can be incorporated into the design of the development and stormwater effects appropriately managed. With regard to terrestrial ecology, the project site is held in pasture and is currently grazed. There are no significant ecological areas or notable trees within the site that would create additional resource consent considerations.

It is noted that the proposal does not seek to modify the existing streams. The proposal will provide an opportunity to undertake weed management and riparian planting along the stream corridor.

Overall, it is considered that site can be developed at the proposed intensity without creating significant adverse environmental effects on existing ecological values.

Greenhouse Gas Emissions

The proposed development will see the development of a greenfield site on the periphery of an established settlement, within relatively close proximity to Rotorua CBD. This will take advantage of existing connections to local infrastructure (roads and servicing), as well as existing public transport networks. Emissions would be reduced through reducing the distance travelled by vehicles as well reducing the number of vehicles travelling due to the provision of public and active transport networks.

Further, the Household Units within the development will be designed to obtain a minimum of a Homestar 6 rating. Homestar is an independent national rating tool that certifies the health, efficiency and sustainability of New Zealand homes. Achieving a minimum of a Homestar 6 rating will ensure that the dwellings are warmer, healthier and more environmentally sustainable than a dwelling built only to the New Zealand Building Code. In order to achieve this rating, a variety of sustainable building elements will be considered throughout the detailed design process.

Overall, these combined factors will alone and in combination represent strong steps toward reducing greenhouse gas emissions.

Conclusion

The actual and potential adverse effects of the Project are of a nature and scale that are able to be appropriately managed through design and on-going management. This will ensure any adverse effects are appropriately avoided and mitigated, as well as remedied (where required). Overall, it is anticipated the Project will not result in any significant adverse environmental effects.