Future Development Strategy

Organisations

WRITTEN FEEDBACK
Volume 14

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Future Development Plan 2023 #8620

Note: this version of the feedback form has been created for the purpose of publishing submissions. As such, contact and demographic information has been removed and handwritten submissions have been transcribed.

Your feedback

Focusing growth

Denser, more compact cities result in improvements to the environment, the economy, and people's wellbeing.

Auckland's urban area is made up of neighbourhoods, town centres and business areas that are interconnected and that support where most Aucklanders live, work and spend their leisure time.

We propose that most housing and business growth will be focused within existing urban areas and that this growth be more intensive. This means less growth in greenfield areas at Auckland's edges. What greenfield growth there is will be phased over 30 years and longer.

1. What do you think of our approach to focus most of Auckland's growth in existing urban areas?

Tell us why

Accessible local centres

When people have easy access to workplaces, services, facilities and shops, communities become more resilient and connected. It also helps to reduce travel time, emissions and lower household transport costs.

We propose focusing housing and business development near local centres where most people's daily needs are easy to access by walking, cycling and public transport.

2. What do you think of our approach to focus development near local centres?

Tell us why

Avoiding hazards

As our climate changes, the frequency and severity of hazards such as flooding, sea-level rise and coastal erosion will worsen. Where and how we plan for growth, and how we adapt to these hazards is increasingly important.

We propose that known areas constrained by significant natural hazard risk should be looked at to see if further development is appropriate.

Where development is already enabled in potentially vulnerable locations, we will further investigate appropriate actions.

3. **What do you think of our approach to avoid further growth in areas which are exposed to significant risk of environmental hazards?**

Tell us why

Resilient infrastructure

Infrastructure across Auckland needs to cope with ongoing change, such as the impacts of climate change and evolving technology.

Nature-based infrastructure, such as rain gardens, swales, and detention basins, is better able to respond to ongoing change. This can help protect communities from hazards, as well as protect and restore the natural environment.

We propose prioritising investment in infrastructure that is decentralised, nature-based, regenerative and mauri-enhancing.

4. **What do you think of our approach to prioritising nature-based infrastructure that responds to the impacts of climate change?**

Tell us why

Other feedback

5. Do you have any other feedback on our approach to how and where Auckland should grow and change?

Please refer to the attachment

#8620

CIVILPLAN CONSULTANTS

Submission on the Draft Future Development Strategy 2023

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This is a submission on Draft Future Development Strategy 2023 ("the proposal" or "draft FDS").

1. The Submitter

Hugh Green Limited ('HGL') is a long-established management company of the Hugh Green Group, which holds a substantial portfolio of land for farming and development purposes, as well as a number of commercial and industrial property assets within the Auckland and Waikato Regions. Combined, the companies which fall under the Hugh Green Group umbrella conduct a range of businesses on their landholdings, including developing residential property for sale, developing and managing commercial / industrial buildings for lease plus farming operations on rural zoned properties. The portfolio includes sizeable landholdings strategically located to meet the needs of Auckland's population growth.

HGL is actively working on enabling growth around Auckland, through residential subdivision within various landholdings such as those in Hingaia, Redhills, and Flat Bush, as well as having interest in other locations within Auckland, such as at Weiti.

HGL has a number of concerns generally with the methodology applied and conclusions reached in the FDS which are addressed in Section 2 of this submission. In addition, HGL has specific concerns with the implications of the FDS as currently drafted on its zoned greenfield landholdings in Hingaia, Redhills and Flat Bush, as well as in relation to its large landholding in Weiti which is currently (in part) zoned Future Urban Zone, which are addressed in Section 3 of this submission.

2. General Submissions

HGL has a number of general concerns with the draft FDS. This includes:

a) The flawed method by which the draft FDS determines that sufficient development capacity will be enabled and the lack of detail provided as to how this will occur, including whether the requirements under the NPS-UD have been appropriately considered.

b) The overemphasis of 'plan-enabled' development capacity and its interchangeable use with development capacity in general, with limited or no consideration given as to whether that development capacity will also be infrastructure-ready, commercially feasible and reasonably expected to be realised.

c) The apparent lack of consideration given to ensuring that sufficient development capacity is provided in future urban areas to meet demand for housing in new urban areas.

d) The antagonistic view of the FDS towards private plan changes, despite these being solely responsible for delivering that part of the Future Urban Land Supply Strategy that has been implemented.

e) The recommendation for removal or further investigation of various future urban areas without providing sufficient evidence to demonstrate that these areas are not required to provide for sufficient development capacity and disregarding the evidence-based decisions from the Proposed Auckland Unitary Plan process regarding the suitability of the existing Future Urban Zones for future growth.

f) The bias in favour of infrastructure projects that are already funded, with no analysis provided to demonstrate that those infrastructure projects are more efficient at enabling sufficient development capacity than other infrastructure projects that have not been considered.

g) The inappropriate reliance on infrastructure funding decisions, often made by parties external to Auckland Council, to determine urban form outcomes, rather than infrastructure delivery being informed by urban form decisions.

h) The overemphasis on 'uncertainty' and the subsequent unwillingness to extrapolate known, existing data to predict future outcomes (that can then be reviewed as actual outcomes can be measured).

Further detail regarding these matters is outlined in the following sections.

2.1 Sufficient Development Capacity Assessment

The report attached as Attachment 1 has undertaken a review of whether the draft FDS has sufficiently met the requirements in clause 3.2 of the National Policy Statement for Urban Development 2020 ('NPS-UD') that require Auckland Council to demonstrate that at least sufficient development capacity for housing can be provided in the Auckland Region to meet expected demand. This report identifies a number of shortcomings that does not provide HGL with confidence that Auckland Council has accurately addressed all of the relevant requirements under the NPS-UD.

For that reason, all conclusions and recommendations of the draft FDS that are reliant on Auckland Council's finding that there is sufficient development capacity within the existing urban area to meet short, medium and long term expected housing demand should be disregarded and not relied upon.

2.2 Sufficient Development Capacity in Demand in Future Urban Areas

Clause 3.2(1)(a) of the NPS-UD requires local authorities to provide at least sufficient development capacity to meet demand for housing in existing and new urban areas.

The draft FDS states that in recent years over 80% of growth has occurred within existing urban areas. Figures from Auckland Council's monthly housing updates specify that around 15% of growth is occurring within future urban areas (within the existing Rural Urban Boundary) and around 5% of growth is occurring within rural zones.

Based on these trends, HGL would expect that the draft FDS would provide capacity for housing supply equivalent to at least 15% of demand within future urban areas, and that this capacity be commercially feasible and reasonably expected to be realised.

The FDS has not identified to what extent sufficient development capacity is being provided for within future urban areas in comparison to existing urban areas. While Appendix 4 to the draft FDS indicates that 12% of net development capacity is within greenfield areas, this is only 'plan-enabled' capacity and not development capacity that passes all of the tests specified under the NPS-UD (refer to the report attached as Attachment 1 for more details of these).

The FDS should specify how the identified future urban areas provide development capacity that is infrastructure-ready, commercially feasible and reasonably expected to be realised for approximately 5,000 dwellings in the short term, 12,000 dwellings in the medium term and 30,000 dwellings in the long term (being 15% of the estimated dwelling demand). While these figures may appear to be low and easily achievable, a detailed assessment is expected to find that:

a) In relation to short term capacity, there are few live zoned greenfield development sites that have all development infrastructure already in place that is sufficient to enable development of all of the otherwise available development capacity.

b) In relation to medium term capacity, all development infrastructure for live zoned greenfield development sites is often not funded within the next ten years under a Long Term Plan.

c) The extent to which development capacity is reasonably expected to be realised within the next 30 years will be significantly dependant on the size, shape and ownership of land within the future urban area. For example, large areas of land owned by a proven greenfield developer are significantly more likely to realise available development capacity than smaller or irregularly shaped countryside living lots under disparate ownership.

d) The rate at which development capacity is reasonably expected to be realised in future urban areas will be over a long period of time, reflecting the staged nature of greenfield development. Therefore, the short term 'reasonably expected to be realised' development capacity of a live-zoned and infrastructure-ready greenfield area will be much less than the total plan-enabled, infrastructure-ready development capacity available.

This would then demonstrate how the anticipated demand for housing within greenfield areas can realistically be provided for through future urban areas.

To clarify, HGL does not seek any relief related to existing urban areas or the delivery of infrastructure to service feasible and reasonably expected to be realised plan-enabled capacity within existing urban areas. That approach will provide for intensification within existing urban areas to the extent that can be supported by market forces.

However, there would still be demand for housing typologies predominantly provided within new urban areas that would not be met by the development capacity provided within existing urban areas. To meet the requirements under clause 3.2 of the NPS-UD, the draft FDS needs to ensure that a wide range of development capacity is provided within the Auckland Region to meet the wide range of demands for housing, including for housing within new urban areas.

2.3 Role of Private Plan Changes

The draft FDS is critical regarding the role of private plan changes since the AUP was made operative with respect to enabling development within future urban areas. In particular, it states "*Rather than the sequenced approach provided for through the FULSS, live zoning has come through private plan changes ahead of time*."

HGL disagrees with the inference in this statement that private plan changes have caused the sequencing provided through the Future Urban Land Supply Strategy 2017 ('FULSS') to not be achieved.

The FULSS set out that between 2018 and 2022, several future urban areas – including Warkworth North, Whenuapai and Drury West – with a cumulative area of 2,060 ha would become development ready. Auckland Council failed to implement that plan. During this timeframe, only a single public plan change was notified – Plan Change 5, covering 360 ha of land at Whenuapai – but that was ultimately withdrawn. At the same time, a series of private plan change requests achieved live zoning of 347 ha (19% of the total cumulative area) prior to 2022. There remains a cumulative area of 1,509 ha of Future Urban Zoned land that has not been live zoned within the timeframe specified in the FULSS.

The FULSS then set out that between 2023 and 2027, additional future urban areas at Pukekohe and Takanini with a cumulative area of 1,144 ha would become development ready. A single private plan change request covering an area of 30 ha has been made operative in this area this year, within the FULSS timeframe.

It is accepted that a number of plan changes have been made for future urban areas set out in the FULSS as being development ready between 2028 and 2032, most notably several plan changes in Drury. A cumulative area of 347 ha has been live zoned approximately 5 years prior to the timeframe anticipated under the FULSS. However, it is important to note that:

a) Three of the six plan changes (PC52, PC 58 and PC72) were for discrete areas (all less than 10 ha and a very small proportion of the relevant future urban area) that directly adjoined the existing urban area, without the need for any significant infrastructure upgrades.

b) The area of 'out-of-sequence' live zoning (347 ha) is significantly smaller than the area of future urban zoning that Council failed to live zone within the FULSS 2018 to 2022 timeframe (1,509 ha).

c) In the case of the Drury plan changes, the live zoned area (339 ha) is still less than the Future Urban Zones in nearby Drury West Stage 1 and Paerata that were meant to have been live zoned between 2018 and 2022 (420 ha).

d) The bulk infrastructure necessary to enable development within all of the live zoned Drury future urban areas is not currently in place and will constrain the extent of development that can occur prior to 2028. However, it is considered highly unlikely that this infrastructure would have been in place between 2028 to 2032, as anticipated by the FULSS, without the private plan requests having been made.

Therefore, HGL seeks that the draft FDS be amended to reflect the role that private plan changes have had to play to implement the FULSS, noting Auckland Council has not made operative any public plan changes for any of the land planned to be development ready prior to 2022, thus private plan change requests are the only reason that there has been any implementation of the FULSS.

2.4 Implications For Future Urban Zoned Land

The draft FDS states the following in relation to future urban areas:

- "[the FDS] does not focus on identifying significant additional plan enabled development capacity" (page 30).
- "there will be less reliance on expansion into future urban areas and what growth there is will be phased over a longer timeframe" (pages 16 and 32)
- "future urban areas will provide for limited urban expansion" (page 39).

The draft FDS subsequently makes the recommendation that a significant proportion of future urban zones under the AUP should be removed, with these areas either specifically referred to or identified for 'future investigation'. This is seemingly on the basis that their removal would not affect the ability for Council to provide for sufficient development capacity.

As outlined above, HGL considers that Auckland Council has not provided a sufficient evidence base to determine that there is sufficient development capacity in the short term, medium term and long term – including in relation to demand for housing in new urban areas – without the need for growth within all previously-identified future urban areas.

Therefore, HGL seeks that the draft FDS does not recommend removal of any future urban zones, nor that any future urban zones be subject to further investigation as to whether the future urban zone should be removed. Instead, such areas should be retained as future urban zones given that, as was determined through the Proposed Auckland Unitary Plan process, they are suitable for future urban development when necessary to provide for sufficient development capacity – which, given the points raised above, may be much sooner than Auckland Council is estimating.

HGL also strongly opposes the approach of the draft FDS to specify that some future urban areas will be "subject to further investigation", rather than undertaking that investigation prior to development of the FDS. This leads to significant uncertainty for affected landowners. This is specifically relevant to HGL's landholding at Weiti, which is addressed in more detail in section 3.1 of this submission.

2.5 Offsetting Principle

Page 23 of the draft FDS sets out the following principle:

> *"The approach will be that, where plan-enabled capacity is reduced or constrained, over time forgone capacity will be offset by creating additional capacity in good locations elsewhere, so that overall capacity is broadly maintained."*

The general sentiment of this principle is supported, although HGL is concerned regarding how it is currently presented in the draft FDS. In particular:

a) It is unclear how this principle correlates with the position elsewhere in the draft FDS to remove or investigate removal of land currently zoned Future Urban under the AUP. Using the estimations under the FULSS, the removal of these future urban areas would reduce plan-enabled development capacity by approximately 50,000 dwellings (although this is likely greater in light of the MDRS). It is unclear where this development capacity is being offset to accord with this principle..

b) Providing for plan-enabled capacity in one area to offset reductions and constraints in another area does not directly ensure that sufficient development capacity remains provided for. As outlined in the report attached as Attachment 1, whether development capacity is plan-enabled is only one of many tests that must be passed in order for that development capacity to be sufficient. Plan-enabled development capacity that is also infrastructure ready and commercially feasible is not equivalent to plan-enabled development capacity that is not infrastructure ready or commercially feasible. Therefore, any offsetting of development capacity should give regard to these matters as well.

c) With reference to clause 3.2(1)(b) of the NPS-UD, any offsetting should have regard to whether equivalent building typologies are being provided for. For example, development capacity that met demand for detached dwellings should not be offset by development capacity that relies on intensification that delivers attached typologies/apartments.

d) The principle takes a vague approach as to when forgone capacity will be offset, stating this would occur "over time". It is considered necessary for offsetting to occur concurrently to reductions or constraints to capacity, as part of the same decisions. For example:

- A plan change that makes development capacity no longer plan-enabled should include, as part of the same request, an equivalent increase in plan-enabled development capacity that is also infrastructure-ready and commercially feasible in a similar location.
- A Long Term Plan that delays delivery of infrastructure intended to serve development capacity should also bring forward funding for infrastructure that would enable equivalent development capacity elsewhere.

On this basis, HGL seeks that the draft FDS amend its offsetting principle as follows:

> *The approach will be that, where ~~plan-enabled~~ development capacity is reduced or constrained in a manner that results in it no longer being plan-enabled, infrastructure-ready or commercially feasible, ~~over time~~ the forgone capacity will be concurrently offset by creating ~~additional~~ at least equivalent capacity (including in terms of number, typology and general location) that is plan-enabled, infrastructure-ready or commercially feasible ~~in good locations~~ elsewhere, so that overall capacity is ~~broadly~~ maintained.*

2.6 Infrastructure Integration

The draft FDS states (on page 29) that "*It is important however that as much sufficient feasible development capacity as possible, where it is likely to be taken up, is infrastructure-ready*". Principle 3 (on pages 19 and 20) then outlines that Council will make efficient and equitable infrastructure investments.

Appendix 3 of the draft FDS is titled 'Infrastructure to support development capacity'. This includes a table that is specified to "*show the likely bulk/significant development infrastructure and additional infrastructure required to support or service the development capacity*". The following paragraph then states that "*The projects identified have been either committed and funded or signalled*", with a subsequent note that the tables "*are not exhaustive*". This indicates that there has been inadequate consideration given to the specific infrastructure projects that need to be delivered to enable sufficient development capacity, including whether any additional infrastructure projects are required to be funded.

When read as a whole, the draft FDS appears to take the approach that, as there is (allegedly) abundant development capacity across the Auckland region, uptake of this development will align with committed infrastructure projects, resulting in sufficient development capacity being easily achieved. This effectively results in decisions that have been made by infrastructure providers separate to Auckland Council (Auckland Transport and Watercare, for example) directing decisions on urban form. This is a far-from-ideal method of strategically planning for growth.

Instead, the draft FDS should identify the preferred locations for urban growth, identify what development infrastructure is necessary to make that development capacity infrastructure-ready and then use that analysis to determine funding priorities for development infrastructure. This may include bringing forward the timeframe for a project, identifying the need for funding for an additional project or delaying funding of a project that has limited benefits of enabling sufficient development capacity. This approach is consistent with clause 3.17 of the NPS-UD where local authorities are 'strongly encouraged' to use the FDS to inform long-term plans, infrastructure strategies and regional land transport plans. Decisions on urban form should not be beholden to decisions made by infrastructure providers.

Decisions on the extent of Future Urban Zones made during the Proposed Auckland Unitary Plan process is a good example of where decisions on urban growth and urban form were made in a holistic manner, rather than being dictated by infrastructure funding decisions. It is therefore disappointing to see that the draft FDS intends to relitigate the suitability of those areas for urban growth, partly on the basis of there being no commitment to delivering development infrastructure to those areas.

To address this matter, HGL seeks that the draft FDS specifically identify the extent to which the 'committed' infrastructure projects support development capacity, by identifying the areas benefitted and the increase in sufficient development capacity that is directly enabled by the infrastructure (i.e. the extent of plan-enabled, feasible and reasonably expected to be realised development capacity that is only made infrastructure-ready as a result of the investment). These results should then be used as a method to prioritise development infrastructure, to then inform funding decisions.

2.7 Infrastructure Funding

The FDS appears to be taking the stance that the budget envelope for infrastructure is fixed and that, once committed projects are accounted for, there is minimal funding available to provide for any additional development infrastructure.

While setting a limited budget for development infrastructure may be politically advantageous, the NPS-UD requires an FDS to identify what development infrastructure is required to provide for sufficient development capacity and then the decision on how that is to be funded is to be determined. A FDS is not expected to only identify development infrastructure that fits within existing budgets.

Once a FDS has identified what development infrastructure is necessary to provide for sufficient development capacity, the long-term plan should then determine how that infrastructure will be funded. Auckland Council has multiple mechanisms available to it, including targeted rates, special levies (under the Infrastructure Funding and Financing Act 2020), development contributions and general taxation.

2.8 The Impact of Uncertainty

As it reads, the draft FDS has been prepared under a cloud of 'uncertainty'. The second paragraph of the executive summary and most paragraphs in section 1.1 refer to it being 'a time of uncertainty', setting this scene early in the document.

This theme of uncertainty and constant change is carried through the document, including the following statements:

- "There are ongoing changes to the workforce, economy, interest rates, inflation, and project viability. There is also ongoing behaviour change such as increases in working from home and online retail and a greater awareness of the environmental impacts our lifestyles have." (page 12)
- "There is significant uncertainty in forecasting the location and timing of required infrastructure to support growth that will occur over the next thirty years." (page 13)
- "The future is uncertain. There will be many changes in the global and local political, environmental, social, economic and cultural landscapes that will influence how we grow and will impact on the success of Tāmaki Makaurau." (page 25)
- "The feasibility of plan enabled development also changes over time, as preferences change, new amenities are created, and accessibility though transport investment improves." (pages 29 to 30)

- "Most growth is expected in sectors that prefer to locate in commercial areas. However, the exact nature of economic changes and related business land needs are uncertain." (page 46)

- "There is particular uncertainty around the timing and delivery of medium and long-term projects due to the constrained financial environment and current planning underway." (Appendix page 10)

It is accepted that change is inevitable and that this change is often uncertain. However, on review of the provisions of the NPS-UD that the draft FDS is prepared under, it is considered that a FDS need not concern itself with predicting the future but rather focus on the facts of what is currently known and reasonably expected. This could be extrapolated across the next 30 years, including to determine the expected demand for housing and business development capacity.

Instead, the FDS does not provide a clear calculation of sufficient development capacity, simply referring to "much of" the available development capacity being commercially feasible and stating that infrastructure-readiness will simply occur 'as is necessary'.

It is accepted that the FDS will not be perfect and will need to be amended to address on-going uncertainty – but this is what the review requirements under clause 3.16 of the NPS-UD are designed to address.

3. Site-Specific Submissions

HGL's landholdings at Weiti, Hingaia, Redhills and Flat Bush are directly impacted by the draft FDS. HGL raises the following issues with the draft FDS in relation to these areas:

- Weiti, currently within the Future Urban Zone, should be assessed a separate future urban area to the remainder of the Dairy Flat future urban area. When considered independently, this area should still be identified in the draft FDS as providing for medium- or long-term development capacity, with there being insufficient justification to conclude otherwise on the basis of the reasons specified on Appendix Page 32.

- At Hingaia, Redhills and Flat Bush, the development capacity that is reasonably expected to be realised on live zoned greenfield land in the short and/or medium term exceeds the capacity that is infrastructure-ready. In all instances, a single intersection upgrade will 'unlock' the ability for that development capacity to be realised. None of these intersection upgrades are specifically identified in the draft FDS despite their direct impact on ensuring sufficient development capacity is provided.

- While Redhills is directly adjacent to Westgate, only a small part of it is within the boundaries of the Westgate urban node. Despite the draft FDS identifying the Westgate urban node as an investment priority, funding for infrastructure necessary to realise development capacity in Redhills is not identified as necessary.

These matters are covered in further detail below.

3.1 Weiti

The land referred to in this submission as "the Weiti sites" is the land outlined in Figure 1, below. Under the AUP, the Rural Urban Boundary currently splits the Weiti sites between the Future Urban Zone and the Rural – Countryside Living zone.

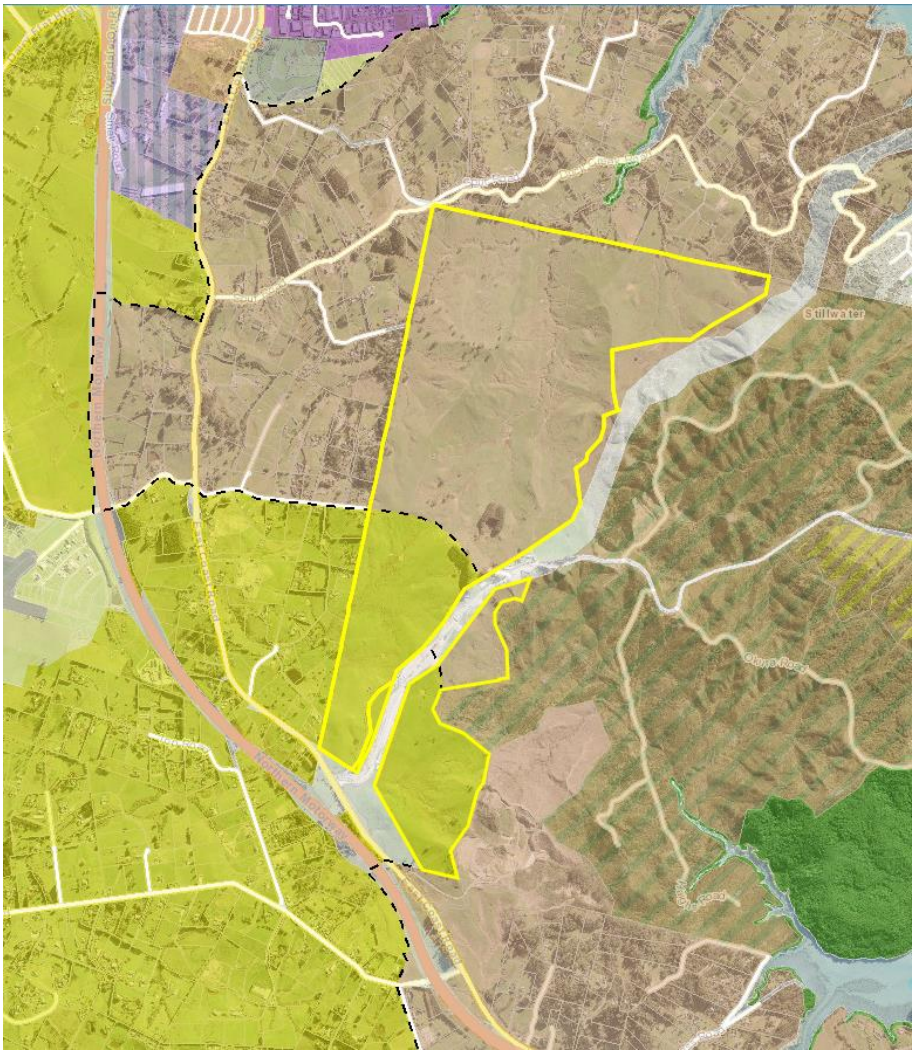


Figure 1: Location and Extent of the Weiti Sites

The part of the Weiti sites that are within the Future Urban Zone were identified in the Future Urban Land Supply ('FULSS') as part of "Silverdale Dairy Flat (remainder) / Wainui East / Upper Orewa (remainder)" area, to be development ready between 2033 and 2037.

Under the draft FDS, the part of the Weiti sites that are within the Future Urban Zone have been identified as part of the "Dairy Flat" area, which is recommended for further investigation and not planned to support development before 2050+.

The "Dairy Flat" area is of a significant size, estimated to be in the order of 2,000 ha. This spatial area is comparable to the extent of urban zones in a large town or small city, such as Gisborne or Timaru, and is larger than the urban area of Warkworth and Pukekohe. This is by far the largest future urban area considered under the draft FDS, and across this area there are constraints affecting some parts of this area that do not affect the Weiti sites.

Therefore, HGL considers that the Weiti FUZ area (approximately 250 ha area, as shown Figure 2, below) should be identified and subsequently considered by the draft FDS as a separate area from the remainder of Dairy Flat area, to provide the flexibility for any future use of this land to be considered on its own merits.

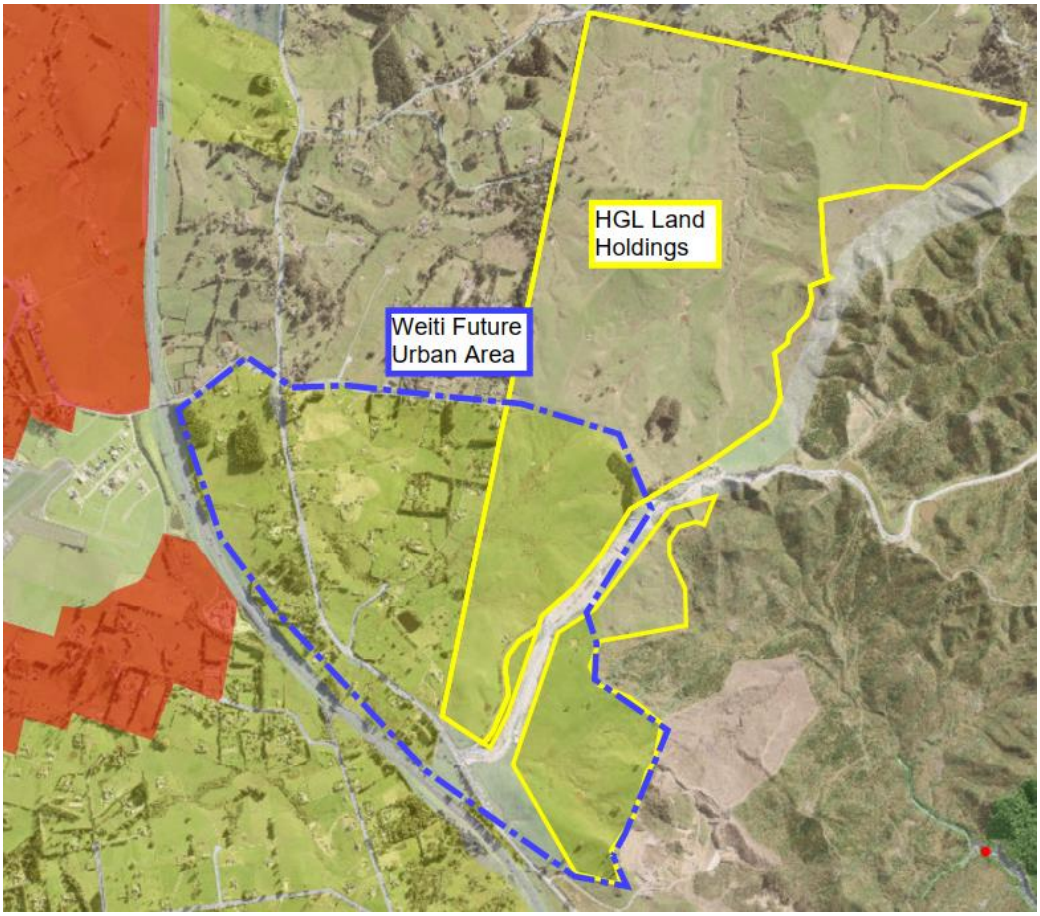


Figure 2: Location and Extent of the Weiti FUZ Area

Appendix Page 32 of the draft FDS specifies the reasons that the Dairy Flat area is recommended for further investigation. These reasons relate to infrastructure, urban form, CO_2 emission reductions and natural hazards.

For the Weiti FUZ land, the majority of these matters were already considered during the determination on the Proposed Auckland Unitary Plan. The notified plan applied the Rural – Countryside Living zone to this land, but submissions by HGL and other parties sought that the land be subject to the Future Urban Zone instead. The recommendation of the Independent Hearings Panel, which was adopted as a decision by Auckland Council, was to incorporate this land within the Rural Urban Boundary and apply the Future Urban zone on the basis that this met the relevant criteria in the regional policy statement and was consistent with its best practice approaches. HGL considers that there is insufficient rationale for Auckland Council to suggest that this earlier determination should potentially be reversed.

HGL considers that the Weiti FUZ land should be identified in the draft FDS as providing for medium- or long-term development capacity, consistent with the AUP decisions, and with specific reference to the matters identified on Appendix Page 32, and notes that:

- The completion of Penlink in the short term will provide for the majority of the Weiti FUZ land's future transport infrastructure needs, including for rapid transit.
- The wastewater upgrades to the Army Bay Wastewater Treatment Plant will be required to service planned medium term development capacity in Silverdale West, regardless of development of the Weiti FUZ land.
- Urban form to the extent referenced by the draft FDS is a matter more appropriately determined through structure planning, at which time the distribution of land uses within the future urban area can be determined. At a high level, the Weiti FUZ land is which could provide for a local centre in the future (providing access to community and commercial facilities), would be in close proximity to existing and proposed industrial land (providing access to jobs) and would be served by rapid transit (providing access to the rest of the city).
- The proximity to rapid transit, jobs, education and other services mentioned above would not result in significantly high vehicle kilometres travelled or CO_2 emissions.
- Flooding risks are limited only to stream corridors and other areas where urban development would inherently avoid (as per existing Auckland-wide provisions of the AUP), with no widespread flood plains.
- Slope instability risks have previously been assessed through the PAUP hearings process, with expert evidence demonstrating that the majority of the Weiti sites within the FUZ having low instability constraints.

The detailed reasoning for the above points is as follows:

- <u>Transport infrastructure</u>:

  The draft FDS identifies that rapid transit, frequent transit routes, key arterials and provision of active modes are required to support development in the Dairy Flat area and achieve strategic outcomes.

  Given its significant area (approximately 2,000 ha), it is understood that the wider Dairy Flat area would require large-scale investment in transport infrastructure. However, the infrastructure requirements of the Weiti FUZ area are significantly reduced in comparison.

  The Weiti sites are bisected by the Penlink corridor, which is currently under construction. This corridor provides for an arterial road with access to the Northern Motorway and is expected to be utilised by a rapid transit bus service (Northern Express 2 between Whangaparaoa to the City Centre, as specified in the current Regional Public Transport Plan and its draft replacement). Therefore, urban development of the Weiti FUZ land can leverage off this existing investment.

In terms of transit, the Weiti FUZ area would not be reliant upon the extension of the Northern Busway (which was to run through the FUZ zone to the west of the Northern Motorway and therefore not directly serve Weiti) and can instead utilise bus services along Penlink. The funding and construction of bus stops (either as a bus station or stops on the Penlink road) can be determined through structure planning and/or when a plan change process is undertaken.

In terms of active modes, a shared path is being constructed alongside Penlink, providing a cycle connection to Whangaparaoa. Connections to this shared path to create a wider network can be provided for as part of the rollout of urban development in the Weiti FUZ area.

In terms of arterial roads, development of the Weiti site is expected to predominantly rely on Penlink. Development of the remainder of Weiti FUZ land would likely require upgrades to East Coast Road (for around 2 km) and potentially the Wilks Road interchange. That interchange is identified as necessary for the Silverdale West business future urban area and already identified by the FDS to be delivered in Decade Two (2033+). Therefore, the arterial road network to support development of the Weiti FUZ land is for the most part already planned for.

Therefore, HGL considers that there should be no significant transport infrastructure constraints to the future development of the Weiti FUZ land.

- Wastewater infrastructure:

  The draft FDS specifies that a Wastewater Treatment Plant upgrade is required to support development in the Dairy Flat area. It is accepted and understood that, unless an alternative wastewater solution can be found, upgrades to the Army Bay Wastewater Treatment Plant will be required. Upgrades to this plant are already identified as necessary to facilitate urban development in Silverdale West, currently anticipated to occur in Decades Two and Three (2033+). HGL considers that upgrades to this plant should provide capacity for the full potential development scenario in its catchment (including the Weiti FUZ land) to avoid ongoing and incremental upgrades in the future.

- Urban form and business land retention:

  The draft FDS specifies that further consideration is needed to understand the relationship of Dairy Flat to the Silverdale West Industrial Area and the impact any changes might have on planned infrastructure such as rapid transit and potential new local centres.

  This appears to be a matter more appropriate for a structure planning exercise, rather than a matter that should be considered by the draft FDS or when determining to zone land Future Urban (or not). In any case:

  - The retention of residential development in close vicinity to the Silverdale West business area is considered to have positive effects on providing a workforce catchment, resulting in accessibility efficiencies.

- A local centre within the Weiti FUZ land would be desirable, more so if the remainder of the Dairy Flat future urban zone was removed.

- Rapid transit serving the Weiti FUZ land would be provided for within the Penlink corridor, unaffected by current plans for a rapid transit corridor to the west of the Northern Motorway.

Refer also to the access consideration plan provided as Attachment 2.

- Emissions/VKT reduction:

The draft FDS considers that there is the potential for the Dairy Flat area to result in higher vehicle kilometres travelled and CO_2 emissions than other future urban areas due to its relative distance from high quality public transport, a wide range of jobs, education and other services.

As mentioned above, the Dairy Flat area is a size comparable to a large town or small city. Development of this scale should be anticipated to provide for a wide range of jobs, education and other services in of itself without the need to only consider the proximity to services that currently exist.

When assessing only the Weiti FUZ area, on the assumption that no other parts of the Dairy Flat area identified for further investigation are developed:

- At an area of approximately 2,800 ha, the development would be of a scale that would enable the majority of residents' commercial and community needs to be provided for within a new local centre. The provision of such a local centre would be determined through a structure planning exercise.

- The Weiti FUZ area can be well served by rapid transit through the establishment of bus stops or a bus station adjacent to Penlink, which would provide frequent bus services to Whangaparaoa, Albany, the North Shore in general and Auckland City Centre. This would provide quick and convenient access to a wider range of jobs, education and other services not provided for within the anticipated local centre. Therefore, the urban growth in this area can utilise existing public transport services in order to minimise VKT and CO_2 emissions.

- In addition, the Weiti FUZ area is in close proximity to the Silverdale West future business land, which the FDS intends to be delivered within the next 30 years. The Weiti FUZ area would be the closest residential area to this future business land, providing a catchment of workers in a convenient location that minimises vehicle trip lengths between home and work.

Refer also to the access consideration plan provided as Attachment 2.

Therefore, HGL considers that the development of the Weiti FUZ area would not result in higher VKT or CO_2 emissions than other future urban areas.

- Natural hazards:

  The draft FDS identifies that approximately 16% of the FUA is exposed to the 1% AEP floodplain. This proportion is not considered to be significant and is likely similar to the extent to which some existing urban areas are exposed to the 1% AEP floodplain. Within the Weiti FUZ area, the land identified on Auckland Council's Geomaps as a being subject to the 1% flood plain is predominantly the land along stream corridors and gullies or adjacent to the Northern motorway, with no widespread flood plains.

  On this basis, a large proportion of the Weiti FUZ area would be able to provide for urban development with limited to no risks from flooding. Those areas where flood risks currently exist generally coincide with those locations which urban development would inherently avoid (such as within stream corridors). There is also the opportunity for the urban development of land to include the rationalisation of floodplain extents in order to reduce flooding risks.

  The draft FDS also identifies that "*a moderate proportion of the FUA contain some risks of settlement, and high risk of slope instability*". While HGL accepts that the topography of the Weiti FUZ area is steeper than some other existing or future urban areas (but equivalent in steepness to others), risks of settlement and slope instability were previously assessed during hearings on the Proposed Auckland Unitary Plan. Evidence presented to the Independent Hearings Panel (who recommended to zone this land Future Urban rather than Countryside Living) demonstrated that the majority of this land was not subject to high stability constraints. This includes the report titled "Geotechnical Constraints Assessment – Weiti Station, Stillwater" prepared by Riley Consultants, dated 16 November 2015 (which is attached as Attachment 3). The conclusions reached in 2015 in relation to site stability and other geotechnical matters are considered to remain relevant and should not need to be relitigated.

Overall, HGL considers there to be few, if any, grounds for Council to identify the Weiti FUZ land as an area where further investigation is required to confirm its suitability for future urban development, and conversely, there are many compelling reasons to maintain a Future Urban zoning for this land and bring forward the timing for live zoning and development of this land (to 2025+).

Furthermore, the Weiti sites are some of the largest land holdings in the Auckland Region that are at least partly subject to the Future Urban zone (over 100 ha – 64 ha to the west of Penlink and 42 ha to the east of Penlink is zoned FUZ). Landholdings of this scale provide much greater opportunities to master plan a neighbourhood with significant efficiencies, without the need to resolve disagreement between multiple land owners. Hugh Green Limited also has a proven track record of rollout of master planned large scale greenfield development, including Donegal Glen at Flat Bush, Park Green at Hingaia and (more recently) Redhills Green in Redhills.

Therefore, Auckland Council can have significantly greater confidence that urban development of the Weiti sites is reasonably expected to be realised, as long as it remains identified in the draft FDS as a future urban area. The same cannot necessarily be said for other land within future urban areas identified in the draft FDS due to their size, existing use or fragmented ownership.

3.2 Hingaia

The land referred to in this submission as "Park Green" includes 60 ha greenfield land shown in Figure 3, below, alongside the adjacent recently-subdivided land south of Park Estate Road. The land is within the Residential – Mixed Housing Urban zone. Under the draft FDS, Park Green forms part of the Hingaia Live Zoned future urban area.

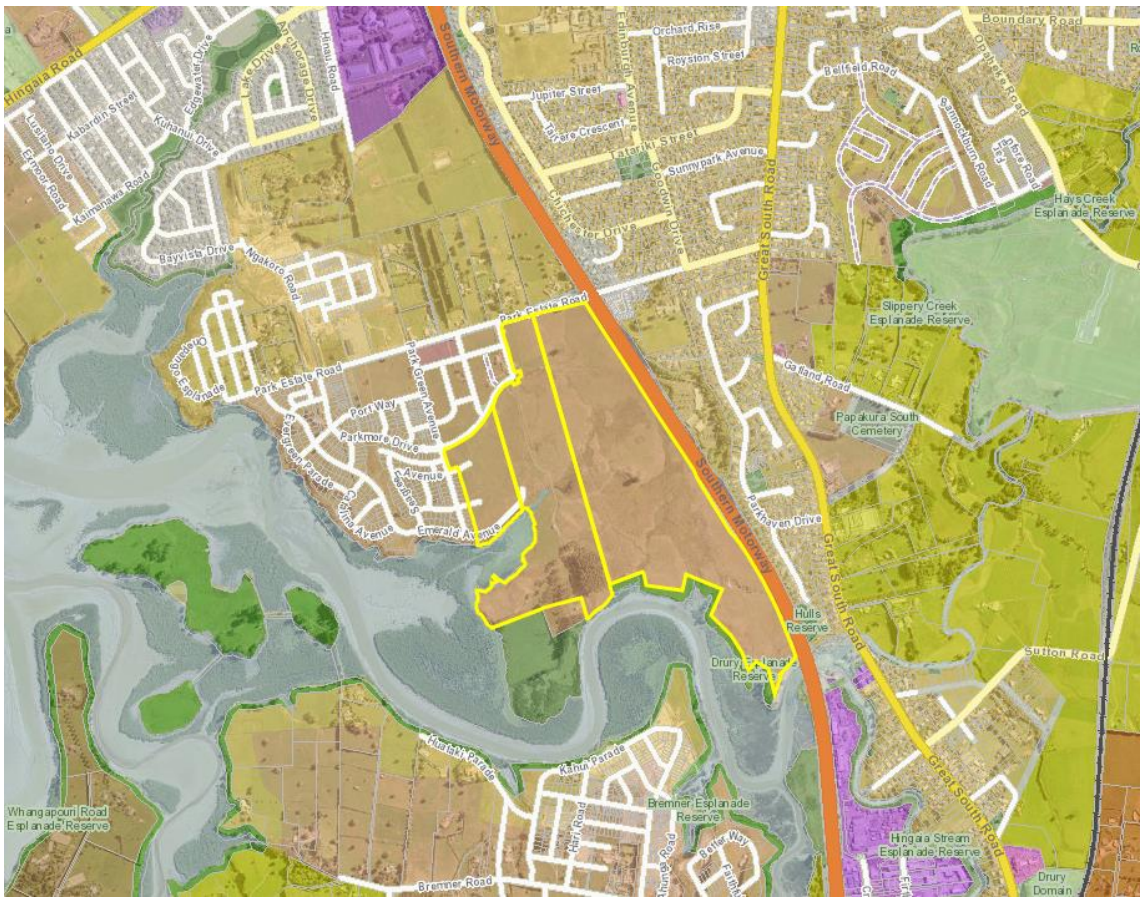


Figure 3: Location and Extent of Undeveloped Land at Park Green

The draft FDS does not provide any details regarding the quantity of development capacity that is being provided for within the Hingaia Live Zoned future urban area, although Appendix 6 identifies two infrastructure projects that support this development (Hingaia Watermain Enhancement – Southern Auckland and Southern Auckland Wastewater Service Scheme), both of which are identified in Appendix 3 as Decade One (2023+) projects.

If applying the process identified in the report attached as Attachment 1 to the Park Green area, the following findings can be made:

- The 'plan-enabled' capacity is theoretically unlimited due to the site's zoning enabling any number of dwellings as a restricted discretionary activity.

- The 'infrastructure-ready' capacity in relation to transport is limited to a gross capacity of 1,000 prior the signalisation of the intersection of Park Estate Road with Great South Road – this upgrade having been identified by the traffic impact assessment that was relied on to approve live zoning of the site. This infrastructure project is not identified in the draft FDS, nor is it funded in the Long Term Plan (although it was included in the 2018 LTP). Therefore, net development capacity will be limited to approximately 660 dwellings (being 1,000 minus existing development), while noting that the 1,000 gross dwellings would include greenfield land on the northern side of Park Green as well.

- The capacity of all other development infrastructure (including wastewater and water supply) is estimated to provide for 'infrastructure-ready' capacity of at least 2,000 dwellings, based on evidence presented during Plan Change 67.

- The 'feasible' capacity would be no more than a gross of 6,875 dwellings, based on the maximisation of the permitted building envelope within 55 ha of developable land (excluding roads, open space and designated land – this area was determined through evidence for Plan Change 67).

- The 'reasonably expected to be realised' capacity can be extrapolated from recent data. In the past two years, 336 new residential sites have been created south of Park Estate Road. If this pattern was to continue (and given the land is being developed by proven developers, this is reasonably expected), 504 dwellings could be provided in the short term, 1,680 dwellings in the medium term and 5,040 dwellings in the long term. However, when giving regard to the extent to which 'feasible' capacity is being taken up – at Park Green, approximately 33 dwellings per net hectare is being delivered, rather than the theoretically feasible 125 dwellings per net hectare, meaning that for every 1 dwelling being delivered, capacity decreases by nearly four dwellings. Calculations reveal that the reasonably expected number of dwellings would be gross of 1,833 (net of 1,497), which at current rates would be delivered by 2032 (i.e. within the short or medium term). Subsequently:

    - The short-term 'reasonably expected to be realised' capacity is estimated to be approximately 500 dwellings;

    - The medium-term 'reasonably expected to be realised' capacity is estimated to be approximately 1,500 dwellings, given that the land will be fully developed by that time; and

    - The long-term 'reasonably expected to be realised' capacity would also be approximately 1,500 dwellings.

Table 1, below, summarises these findings and demonstrates the impact on net development capacity as a result of the timing of signalisation of the intersection of Park Estate Road with Great South Road. This shows that the applicable net development capacity of Park Green (for the medium and long term) is currently only 664 dwellings, but that this would increase to 1,497 dwellings as a direct result of funding for the signalisation being provided for in the 2024 Long Term Plan. It is noted that the signalisation would also unlock development capacity on the northern side of Park Estate Road.

Table 1: Net Development Capacity Assessment for Park Green

	Short-term	Medium-term	Long-term
Current (No Intersection Signalisation Funding)			
Plan-enabled	Unlimited	Unlimited	Unlimited
Infrastructure-ready	664	664	664
Feasible	6,539	6,539	6,539
Reasonably Expected to be Realised	504	1,497	1,497
Overall	**504**	**664**	**664**
Potential (With Intersection Signalisation Funding)			
Plan-enabled	Unlimited	Unlimited	Unlimited
Infrastructure-ready	>2,000	>2,000	>2,000
Feasible	6,539	6,539	6,539
Reasonably Expected to be Realised	504	1,497	1,497
Overall	**504**	**1,497**	**1,497**

This also demonstrates that the actual development capacity of Park Green is likely to be much lower than what has been assumed by Auckland Council in the draft FDS. Based on figures prepared and shared by Auckland Council in 2021 (prior to PC67), capacity of 5,287 was being assumed south of Park Estate Road. If that same figure is being relied on by the draft FDS, development capacity is being overstated by a factor of over 800%. As the FDS has not taken a similar level of analysis for various development areas, similar overestimations are likely to have made across the Auckland region as a whole.

Therefore, HGL considers it necessary for the draft FDS to directly identify that additional infrastructure investment is necessary within live zoned future urban areas – including Park Green – in order to 'unlock' development capacity that is otherwise plan-enabled, commercially feasible and reasonably expected to be realised.

Specifically, the draft FDS should identify the signalisation of the intersection of Park Estate Road with Great South Road as an infrastructure project that can efficiently directly increase development capacity in the medium-term, with a conclusion that funding for this project should be identified in the 2024 Long Term Plan.

3.3 Redhills

The Redhills area is approximately 600 ha of land within the Redhills Precinct under the AUP that is subject to a mixture of live residential zones. It is identified in the draft FDS as the Red Hills Live Zoned future urban area.

The draft FDS accurately identifies that there are a number of infrastructure projects that would need to be delivered in order to enable full build out of this area that are either scheduled for Decade One (2023+), Decade Two (2033+) or are unscheduled. However, it does not provide any details regarding the development capacity that is being provided for within the Red Hills Live Zoned future urban area and to what extent this is affected by the delivery of infrastructure identified in the draft FDS (including when it is not).

Redhills is also directly adjacent to and partly within the Westgate urban node. The draft FDS identifies that the urban nodes are locations:

- That "*will generate an increasing number of employment opportunities, bringing housing and jobs together*" (page 32);
- Where growth and infrastructure investment will be prioritised (page 19); and
- Where "*greater intensification and diversification*" will be achieved and housing capacity increased in nearby areas.

Page 51 of the draft FDS identifies Westgate as a "*short to medium term priority*", where the focus is "*to advance funding and delivery of transport infrastructure for the wider North-west future urban area*".

Despite part of Redhills being located within the Westgate urban node, the infrastructure required to ensure that development capacity within this node is infrastructure-ready is not all prioritised as intended by the draft FDS. HGL considers this to be a significant flaw of the strategy and would expect, given the importance of the Westgate urban node, that the draft FDS identifies a greater number of development infrastructure projects being necessary within the next three to ten years (and to be provided for in the 2024 Long Term Plan).

HGL also considers that the boundaries of the Westgate urban node should be extended further to cover all of the land between Fred Taylor Drive and the Ngongetepara Stream, and potentially all of the Redhills Precinct. Currently the node only covers that part of Redhills within the Terrace Housing and Apartment Building zone along Fred Taylor Drive. As shown in Figure 4, below, there are a large number of areas, including part of Redhills, that are within 500 m of existing or future (based on the Whenuapai structure plan) business zones within the zone extent that is not included as part of the node extent, while there are also a number of areas almost double that distance that are included (for example. Elizabeth Drive in West Harbour). In comparison, the Ngongetepara Stream is within 1 km of Business zones on Fred Taylor Drive and within 1,200 m of Metropolitan Centre zone at Westgate.

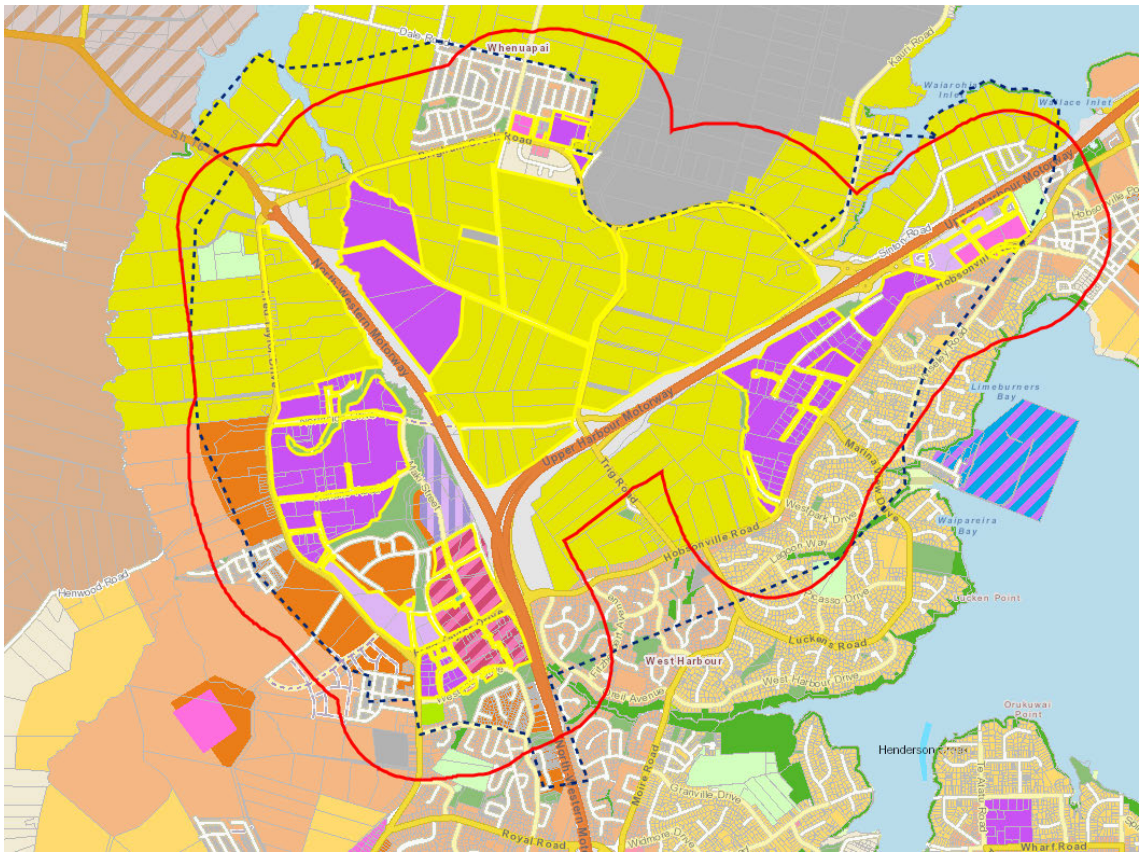


Figure 4: The Boundary of the Westgate Urban Node (Dotted Blue Line), the Existing and Assumed Future Business Zones (Outlined in Yellow) and a 500 m Buffer Around These Zones (Solid Red Line), with Redhills Located in the Bottom Left Corner

When applying the process identified in the report attached as Attachment 1 to determine development capacity in accordance with the NPS-UD requirements, the overall development capacity of Redhills would be approximately 100 dwellings. This is because the AUP precinct provisions include infrastructure triggers and specify that any dwellings are a non-complying activity if they precede specified infrastructure projects that have not been completed. Infrastructure triggers apply at 1, 1,800, 3,600 and 5,400 (although Auckland Transport has identified a number of recommended amendments to these triggers – refer below and Attachment 4). To date approximately 1,700 dwellings have been authorised within the precinct, and the infrastructure works identified as required to exceed 1,800 dwellings have not been completed and are not currently funded.

The Red Hills Live Zoned future urban area includes land owned by a number of proven greenfield developers, some of which have already commenced development projects. Within Redhills, HGL owns approximately 250 ha of land and has aspirations to provide for (on average) 150 dwellings per year. Across all developments, it is considered that 500 dwellings per year should be reasonably expected to be realised, should infrastructure to support that development be provided.

On this basis, the 1,800 dwelling trigger will be met within the short term (likely within the next year) and the 3,600 dwelling trigger will likely be met early within the medium term (in around 4 years). Based on the latest position from Auckland Transport as per the memo attached as Attachment 4, the following projects would need to either be in place or be funded in order for the reasonably expected short and medium term development capacity in Redhills to be infrastructure-ready:

- Two through southbound lanes at Don Buck Road / Westgate Drive intersection, reducing to one lane south of the intersection (although this intersection has been recently upgraded, only one through southbound lane has been provided).
- Upgrade to Fred Taylor Drive / Don Buck Road intersection to signalised layout with full pedestrian/cycle crossing facilities, including widening of Don Buck Road to provide:
    - 2 southbound lanes from Fred Taylor Drive to Westgate Drive if there are two turning lanes into Don Buck Road at the Fred Taylor Drive intersection; and
    - 3 northbound lanes approaching Fred Taylor Drive (signalised) intersection.

Although "Don Buck Road and Fred Taylor Drive Upgrade" is identified on Appendix Page 26 (Appendix 6) of the draft FDS, it is not a listed as infrastructure to support development capacity in Attachment 4. There is also no funding allocated for the intersection upgrade in the current LTP.

In addition, the Redhills Arterials project, which run through the precinct (as per the Precinct Plan), are required to ensure on-going infrastructure ready development capacity in the precinct. In particular, Dunlop Road and the upgrade of its intersection with Fred Taylor Drive is required to serve some of the initial stages of HGL's development.

Therefore, HGL considers it necessary for the draft FDS to directly identify that additional infrastructure investment is necessary within live zoned future urban areas – including Redhills – in order to 'unlock' development capacity that is otherwise plan-enabled, commercially feasible and reasonably expected to be realised.

Specifically, the draft FDS should identify the upgrade/construction of Dunlop Road and signalisation of its intersection with Fred Taylor Drive, as well as the signalisation of the intersection of Fred Taylor Drive and Don Buck Road (and associated widening of Don Buck Road) as infrastructure projects that can efficiently directly increase development capacity in the medium-term, with a conclusion that funding for these projects should be identified in the 2024 Long Term Plan.

3.4 Southern Flat Bush

Flat Bush is not identified in the draft FDS as a future urban area, however there are large blocks of greenfield development land remaining, particularly in the south-eastern corner of this neighbourhood.

There is very limited infrastructure-ready development capacity within the Southern Flat Bush area (in this case, the area of Flat Bush Sub-precinct C under the AUP) due to roading upgrades to Murphys Road and associated intersection signalisations being required. The intersection of Murphys Road and Murphys Park Drive is known to be beyond its capacity and so development capacity within this area is currently limited to only that development for which resource consent has previously been obtained. This prevents realisation of plan-enabled development capacity across more than 30 ha of live zoned land. Development of the remaining greenfield land adjacent to Thomas Road is also dependant on an upgrade to the intersection of Thomas Road with Murphys Road and the road's approaches.

The roading upgrades to Murphys Road form part of the Mill Road project, which Attachment 4 of the draft FDS identifies as a Decade Two or Three project (2033+). These are not currently funded in a Long Term Plan. If the Murphys Road upgrades were to be constructed, then (similar to Park Green), there would be a direct significant increase in plan-enabled, infrastructure-ready, commercially feasible and reasonably expected to be realised development capacity (thousands of dwellings), making that an efficient infrastructure investment in ensuring sufficient development capacity.

Therefore, HGL considers it necessary for the draft FDS to directly identify that additional infrastructure investment is necessary within live zoned future urban areas – including Southern Flat Bush – in order to 'unlock' development capacity that is otherwise plan-enabled, commercially feasible and reasonably expected to be realised.

Specifically, the draft FDS should identify the upgrades to Murphys Road through Southern Flat Bush as an infrastructure project that can efficiently directly increases development capacity in the medium-term, with a conclusion that funding for this project should be identified in the 2024 Long Term Plan – with this likely to be identified separately to the remainder of the Mill Road project.

4. Relief Sought

As outlined in the sections above, HGL requests the following relief:

- That Auckland Council releases an updated FDS or Housing and Business Development Capacity Assessment that includes significantly greater detail as to how sufficient development capacity for housing can be provided, including an assessment of how the development capacity is reasonably expected to be realised and how the proposed removal or significantly delay to the roll out of future urban areas does not prevent sufficient development capacity from being achieved in the short term, medium term and long term.
- That Auckland Council undertakes a full assessment of all infrastructure needs for various development areas – both brownfield and greenfield – to meet demand for housing that is otherwise reasonably expected to be realised. Where the lack of infrastructure is the only obstacle to realising development capacity in that area, the FDS should require the provision of that infrastructure to be prioritised.
- That the FDS does not recommend removal of any future urban areas, or investigations into doing so.
- That the FDS does not ignore the evidence-based decision making through the Proposed Auckland Unitary Plan process that determined existing Future Urban Zoned areas were appropriate for urban growth.
- That the FDS be amended to reflect the necessary role that private plan change requests have played in the implementation of the FULSS to date due to Council failing to implement the FULSS through public plan changes.

- That the offsetting principle in the draft FDS be amended as follows to require offsetting of development capacity as part of plan changes and Long Term Plans that directly impact achievement of sufficient development capacity:

  > *The approach will be that, where ~~plan-enabled~~ development capacity is reduced or constrained in a manner that results in it no longer being plan-enabled, infrastructure-ready or commercially feasible, ~~over time~~ the forgone capacity will be concurrently offset by creating ~~additional~~ at least equivalent capacity (including in terms of number, typology and general location) that is plan-enabled, infrastructure-ready or commercially feasible ~~in good locations~~ elsewhere, so that overall capacity is ~~broadly~~ maintained.*

- That the FDS specifically identifies the extent to which 'committed' infrastructure projects support development capacity to inform prioritisation of these projects (including in relation other infrastructure projects not identified in the draft FDS). This will ensure that existing and planned infrastructure decisions do not determine the form and timing of urban growth in Auckland.

- That the identification of infrastructure projects that are necessary to enable sufficient development capacity in the FDS is not influenced by existing budgets, noting that there are a variety of alternative funding opportunities that are being underutilised by Council, including targeted rates and special levies under Infrastructure Funding and Financing Act 2020.

- That the FDS be prepared on the basis of extrapolating known, existing data rather than avoiding providing detail on the basis of expected uncertainty. The mandated review process allows for necessary amendments to be made where actual outcomes do not match those anticipated by the FDS.

- That the Weiti FUZ area:

  - be identified in the FDS as a separate future urban area than the remainder of the Dairy Flat area;

  - has the "subject to further investigation" notation removed; and

  - be identified as a medium term future urban area (i.e. 2025+, rather than 2050+), leveraging off the completion of Penlink in 2026.

- That the boundaries of the Westgate Urban Node be extended into the Redhills Precinct to at least include that land between Fred Taylor Drive and the Ngongetepara Stream, and subsequently prioritise the provision of development infrastructure to enable growth in this area.

- That the draft FDS recognise and prioritise investment in infrastructure that is necessary to enable roll out of development in live zoned greenfield areas that is otherwise plan-enabled, commercially feasible and reasonably expected to be realised. This includes:

- That the signalisation of the intersection of Park Estate Road with Great South Road be identified as an infrastructure project necessary to enable realisation of medium term development capacity of at least 1,000 dwellings at Hingaia (that is otherwise expected to be realised), and that funding for this be a priority in the 2024 Long Term Plan.

- That the signalisation of the intersection of Dunlop Road with Fred Taylor Drive (and associated widening of Fred Taylor Drive and Dunlop Road), and the signalisation of the intersection of Fred Taylor Drive and Don Buck Road (and associated widening of Don Buck Road) be identified as an infrastructure project necessary to enable realisation of medium term development capacity of at least 3,500 dwellings at Redhills (that is otherwise expected to be realised), and that funding for this be a priority in the 2024 Long Term Plan.

- That upgrades to Murphys Road and adjacent roads, particularly the signalisation of the intersection with Murphys Park Drive and Bushfield Drive, be identified as an infrastructure project necessary to enable realisation of medium term development capacity of at least 1,500 dwellings at Flat Bush (that is otherwise expected to be realised), and that funding for this be a priority in the 2024 Long Term Plan.

Signature: .....

[redacted] – Associate, CivilPlan Consultants Ltd
on behalf of Hugh Green Limited

Date: 31 July 2023

Attachment 1: Sufficient Development Capacity Assessment Report

Attachment 2: Weiti Future Urban Area – Access Consideration Plan

Attachment 3: Geotechnical Constraints Assessment – Weiti Station, Stillwater

Attachment 4: Auckland Transport Redhills Transport Triggers Memo

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ATTACHMENT 1

Sufficient Development Capacity Assessment Report

#8620

CIVILPLAN CONSULTANTS

SUFFICIENT DEVELOPMENT CAPACITY IN AUCKLAND

Project Name:	Auckland FDS 2023 Submissions
Client:	Various Clients
CP Project No:	2418
CP Document No:	PR01v1
Date of Issue:	20 July 2023
Originator:	[redacted] – Senior Planner
Reviewer:	[redacted] – CivilPlan Associate

1. Introduction

This report provides a review of whether the Draft Future Development Strategy 2023 ('draft FDS') released by Auckland Council on 6 June 2023 has sufficiently met the requirements under the National Policy Statement for Urban Development 2020 ('NPS-UD') related to demonstrating that at least sufficient development capacity for housing can be provided in the Auckland Region.

2. Requirements for Providing Sufficient Development Capacity

Clause 3.13 of the NPS-UD specifies the purpose and content of an FDS. This includes:

- Under clause 3.13(1)(a)(ii), that an FDS must set out how a local authority intends to provide at least sufficient development capacity, as required by clauses 3.2 and 3.3, over the next 30 years to meet expected demand.
- Under clause 3.13(2)(a), that every FDS must spatially identify the broad locations in which development capacity will be provided over the long term, in both existing and future urban areas, to meet the requirements of clauses 3.2 and 3.3.

These provisions clearly identify a link between the contents of an FDS and the requirements under clauses 3.2 and 3.3 of the NPS-UD. Those clauses relate to providing sufficient development capacity for housing and business land, respectively. The following assessment relates only to development capacity for housing, although there will be some correlation with the development capacity for business land requirements of the NPS-UD.

Clause 3.2 of the NPS-UD identifies a number of requirements to be met in order to demonstrate that sufficient development capacity for housing is being provided. This includes:

- That the following types of demand be considered:
  - Demand both within existing urban areas and for new urban areas (clause 3.2(1)(a)); and
  - Demand for both standalone dwellings and attached dwellings (clause 3.2(1)(b)).
- That sufficiency be demonstrated for the short term, medium term and long term (clause 3.2(1)(c)).
- The following tests to determine the development capacity of land:
  - That the capacity is plan-enabled (clause 3.2(2)(a)); and
  - That the capacity is infrastructure-ready (clause 3.2(2)(b)); and
  - That the capacity is feasible (part of clause 3.2(2)(c)); and
  - That the capacity is reasonably expected to be realised (part of clause 3.2(2)(c)).
- That a competitiveness margin be applied above expected demand (clause 3.2(2)(d).

The below assessment will be limited as to whether the capacity indicated by the draft FDS meets each of the tests listed under clause 3.2(2) of the NPS-UD in relation to each of the terms specified in clause 3.2(1)(c) of the NPS-UD.

While the draft FDS addresses a few of these matters, the level of detail in analysis provided, including with the supporting analysis reports and referenced documents, is considered to be lacking (as covered in the subsequent sections). In addition, the draft FDS is seemingly silent on a number of these matters.

3. Plan-enabled Capacity

Clause 3.4(1) of the NPS-UD identifies how development capacity for housing is plan-enabled in relation to the short term, medium term and long term. The term 'zoned' (used in that clause) is then defined in clause 3.4(2). For the short and medium term, this consists of permitted, controlled or restricted discretionary activities within an operative and proposed plan, respectively.

The majority of urban zones under the AUP provide no limit on the number of dwellings that can be provided as a permitted, controlled or restricted discretionary activity. In such zones, establishing any number of dwellings is a restricted discretionary activity and infringement to building standards (which would otherwise control density) is a restricted discretionary activity. Therefore, the plan-enabled development capacity for housing in the short term (and subsequently in the medium and long terms as well) is theoretically unlimited. It is however noted that in some locations, such as the Single House zone, plan-enabled development capacity remains limited by plan provisions.

In comparison, the draft FDS states that the estimated total plan-enabled dwelling capacity in Auckland is 2,345,500. A detailed methodology as to how this figure has been determined is not provided in the draft FDS or other material referenced by the draft FDS (including the PC78 section 32 reports). The draft FDS does not identify whether this figure relates to the short term, medium term or long term.

Therefore, the approach taken by the draft FDS to determine plan-enabled development capacity for housing is not considered to be consistent with the requirements of the NPS-UD.

4. Infrastructure-Ready Capacity

Clause 3.4(3) of the NPS-UD identifies how development capacity for housing is infrastructure-ready in relation to the short term, medium term and long term. The term 'development capacity' is defined in clause 1.4(1). In summary:

- Short term infrastructure-ready capacity is where there is adequate existing network infrastructure for water supply, wastewater disposal and stormwater management and sufficient existing land transport infrastructure to support the development of the land, without any further infrastructure works or upgrades being necessary.
- Medium term infrastructure-ready capacity also includes where the above-mentioned infrastructure necessary to enable development is funded in a long term plan.
- Long term infrastructure-ready capacity also includes where the above-mentioned infrastructure necessary to enable development is identified in an Infrastructure Strategy.

Given the definition of 'development capacity' under the NPS-UD, this single test of 'infrastructure-ready' actually consists of four separate assessments, each related to the four types of infrastructure (water supply, wastewater disposal, stormwater management and land transport).

The draft FDS uses the term 'infrastructure-ready' a total of two times, both within the same paragraph on page 29. These mentions specify that not all plan-enabled and feasible capacity needs to be infrastructure-ready, but that as much capacity as possible should be. While both of these are accurate statements, no further information is provided as to the estimated development capacity that is and will be infrastructure-ready, and the locations of these. Appendix 3 of the FDS lists various infrastructure projects planned within the next three decades, but it does not directly link any of these projects to quantified increases in development capacity as a result of their delivery.

Therefore, the approach taken by the draft FDS to determine infrastructure-ready development capacity for housing is not considered to be consistent with the requirements of the NPS-UD.

In order to determine infrastructure-ready development capacity, it would have been expected that the FDS identify the capacity of infrastructure networks (wastewater, water supply, stormwater and roading) on a catchment basis, in order to identify what additional capacity is available without any upgrades and as a result of planned upgrades.

The Housing Development Capacity Assessment ('HCA') prepared by Auckland Council in 2021 included an assessment of the water supply and wastewater networks across Auckland and identified that that, of the net-plan enabled capacity identified in that document, only 57% was serviced in the short term, 77% in the medium term and 99% in the long term. However, more specific data, including the geographical distribution of this, was not provided. That HDCA also stated that it did not consider land transport capacity at all. This is despite the capacity of the roading network and the availability (and reliability) of public transport and active transport infrastructure in Auckland often struggling to cater for existing development, let alone additional development capacity.

Taking the above into account, significantly more information and assessment should have been undertaken by Auckland Council in order to determine in infrastructure-ready development capacity for housing in the short term, medium and long term. This should have necessitated assessments of the capacity of each of the four infrastructure types and then overlap those layers to carry forward the lowest development capacity. This exercise would also be crucial to identify any significant 'gaps' in infrastructure servicing that could be resolved through reallocating funding in the Long Term Plan (i.e. allowing for an increase in medium term development capacity).

5. Feasible Capacity

'Feasible' is defined in clause 1.4(1) of the NPS-UD to mean commercially viable to a developer based on the current relationship between costs and revenue, with reasonable adjustments enabled for the long term. Clause 3.26 specifies that any reasonable method can be used to determine this, but that the method, inputs and assumptions used must be outlined and justified.

The draft FDS states, on page 29, "*much of this* [plan] *enabled capacity is or will be commercially feasible*", without providing any further quantification. However, the overall evidence report for the draft FDS specifies that these conclusions result from the 2021 Housing Capacity Assessment ('HCA') that was prepared in accordance with the requirements in Subpart 5 of the NPS-UD. That HCA identified the method, inputs and assumptions used, being a feasibility model.

The HCA identified that, on an Auckland-wide basis, 840,000 dwellings would be commercially feasible in the short term. This is only 36% of the 2,345,500 dwellings that the draft FDS specifies "*much of*" would be commercially feasible. There is also no clarity as to which geographic areas this feasible development capacity occurs within.

Therefore, the draft FDS is considered to not comply with the requirements of the NPS-UD on the basis that it:

- Does not directly quantify the extent to which development capacity is commercially feasible;
- Does not sufficiently justify its conclusion that "*much of*" the stated 2,345,500 dwelling plan enabled capacity is commercially feasible; and
- Does not specify in what areas of the region commercially feasible development capacity would be provided.

6. Capacity That is Reasonably Expected to be Realised

On review of the draft FDS, Auckland Council appears to have ignored the relevance of whether development capacity is "*reasonably expected to be realised*". That term does not appear in any part of the draft FDS, with the closest references being the sentence "*Ongoing take-up of these opportunities is reasonable expected wherever they are provided*" on page 30, without any justification.

It is assumed that Auckland Council has treated commercially feasible development capacity to be the same as development capacity that is reasonably expected to be realised. However, despite being part of the same clauses (e.g. clause 3.2(2)(c) and clause 3.22), these are presented by the NPS-UD as separate and very different tests. In this regard, it is noted that each of the example methods in clause 3.26(2) outline a two-step process as demonstrated below:

- Clause 3.26(2)(a): The method asks for the following to be estimated separately:
    - "*the number of feasible dwellings (using a feasibility model)*"; and
    - "*the number of dwellings that can reasonably be expected to be realised (using building consents data on the number of sites and extent of allowed capacity that has been previously developed)*".
- Clause 3.26(2)(b): The method specified the following steps:
    - "*estimate the number of feasible dwellings or sites*"; and then
    - "*assess the proportion of these that can reasonably be expected to be developed*"
- Clause 3.26(2)(c): The method refers to integrating information from past trends and future landowner/developer intensions into a feasibility model, inferring that the feasibility model would first be created first.

The feasibility model included in the HDCA prepared by Auckland Council in 2021 does not appear to have integrated information about past development trends and future landowner and developer intentions into the feasibility model.

Therefore, a second step needs to be taken in the draft FDS to estimate the extent to which development capacity is reasonably expected to be realised. This is considered to be a key aspect of determining whether sufficient development capacity is provided.

Without specifically considering the extent to which development capacity is reasonably expected to be realised, the draft FDS appears to be inferring that it is reasonably expected that almost or over two million additional dwellings would be constructed in Auckland within the next 30 years, requiring redevelopment of almost all sites and near-maximisation of development potential (relying predominantly on apartment typologies). This is considered to be highly fanciful.

Auckland Council could have undertaken a review of resource consent and building consent data in relation to each existing the AUP zones to demonstrate the extent of uptake of intensification and urban expansion across existing zones and in different localities, including the rate of uptake (to allow alignment with the short term, medium term and long term timeframes) and the extent to which the actual number of dwellings delivered compared to the maximum feasible development capacity. This would be consistent with the example methods in clause 3.26(2).

In addition, regard would need to be given to the extent to which:

- Existing developed properties are unlikely to be redeveloped due to owners' preferences or non-RMA legal restrictions, such as private covenants on property titles.
- The extent to which developers choose to provide a lower number of dwellings than the maximum capacity available – such as constructing two storey terraced houses are constructed in the THAB zone.
- The extent to which developable land is owned by known developers who have a proven record of realising development capacity when this is achievable.

On this last point, Auckland Council could have directly consulted with owners and developers of large-scale brownfield sites and live zoned greenfield sites to understand their development aspirations and timeframes, to have a solid estimate of what development capacity is reasonably expected to be realised in those areas across the short term, medium term and long term. Development of larger greenfield sites often occurs many years and potentially decades after the land is first live zoned and so it should not be assumed that all available development capacity will be realised in the short term.

It is recognised that the overall evidence report for the draft FDS identifies that a survey was sent to "*property developers on the council's database*". CivilPlan has asked a number of its property developer clients whether they received such a survey, including developers with significant land holdings in live zoned greenfield areas, and found none that were aware of such a survey being conducted by Council. In this regard, it is considered that Council has not satisfactorily undertaken consultation with the development sector prior to preparation of the FDS, as is required by clause 3.15(1)(f) of the NPS-UD.

The final FDS should therefore be updated to ensure that thorough consideration has been given as to whether development capacity is reasonably expected to be realised, including consideration of:

- The likely uptake of development capacity where this is plan-enabled, feasible and infrastructure-ready by giving regard to historic trends, including within the short term, medium term and long term – both in terms of whether any development of a site is likely to occur and the extent to which development maximises (or otherwise) available capacity.
- The planned rollout of development for large-scale brownfield and greenfield properties by established property developers.

6.1 Case Study – Pakuranga THAB

To illustrate a more appropriate approach to determining what would be "*reasonably expected to be realised*", development patterns in an area zoned Terrace Housing and Apartment Buildings near Pakuranga Town Centre have been considered further. This area has been chosen as it is known to exhibit a relatively high uptake of development opportunities in recent years, due to opportunities under the AUP and its close proximity to a variety of community, commercial and transport facilities. The sites included in this area are shown in Figure 1, below.

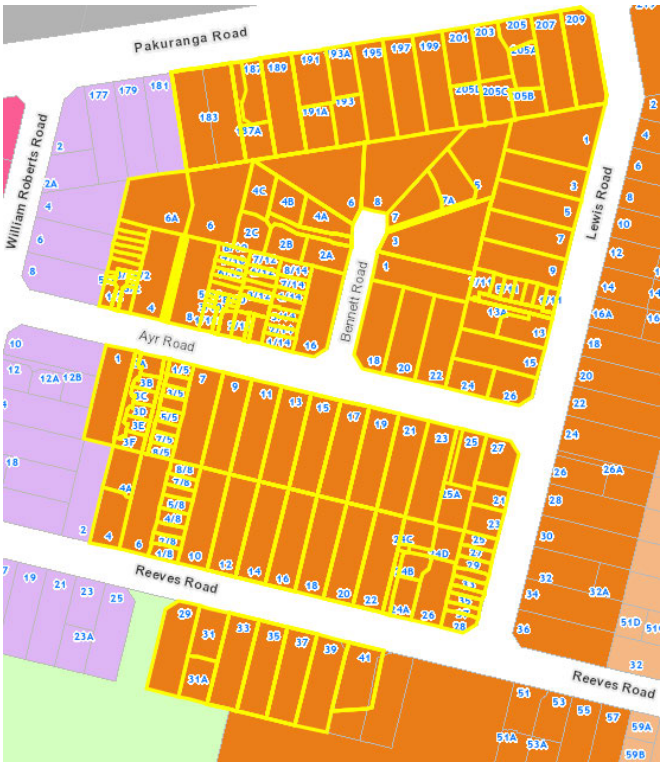


Figure 1: Pakuranga THAB Case Study Area

While this case study assessment relates only to a small area, it is expected that Auckland Council would have sufficient information in their database in order to undertake a similar assessment at scale, including considering different attributes such as across different zones and within brownfield and greenfield settings.

All sites within this case study area have been listed in Table 2, attached, and have been categorised as follows:

- Sites containing dwellings built prior to 2000 (using the Record of Title date as a proxy).
- Sites containing dwellings built between 2000 and 2020. It is assumed that none of these sites would be redeveloped in the next thirty years based on the assumptions of a 50-year timeframe for buildings (meaning it is unlikely that they would be demolished) and a general inability to provide for infill development (due to the historic building and lot patterns).
- Sites containing dwellings built between June 2020 and June 2023. In this case, there are a total of nine developments, each of which related to a single site and dwelling.

The maximum number of dwellings for each of these sites has been calculated using the following assumptions:

- A floor area per storey of 50% of the net site area.
- A building height of four storeys.
- A floor area per dwelling of 120 m^2.
- All results for each site rounded down.

It is considered that these assumptions are roughly similar to those used by Council to determine 'plan-enabled capacity'. For sites with Record of Titles between 2020 and 2023, maximum capacity has been determined in relation to the sites as they were in June 2020 sites (the sum of the resultant allotments and any access lot).

Using this method, it has determined that the above sites (as of 1 June 2020) had a theoretical maximum capacity of 1,158 dwellings. It has then also determined that at that date there were a total of 118 dwellings on those sites, resulting in a net capacity of 1,040.

However, the 30 sites which contain dwellings built between 2000 and 2020 contributed a gross capacity of 190 dwellings and a net capacity of 160 dwellings. Due to the age of the existing dwellings on these sites, it is considered to be unlikely that any of this capacity would be realised within the next 30 years. Reasonably available development capacity then drops to 880 dwellings.

Similarly, regard needs to be given to the extent to which development does not maximise available capacity. To determine this, Table 1, below, details the number of actual dwellings provided in comparison to the maximum capacity (as per the assumptions above) for each of the developments that have been completed between June 2020 and June 2023. This indicates that only 49.17% of net development capacity (59 of 120 dwellings) was realised, with the rest unrealised.

Table 1: Actual Development Compared to Maximum Capacity

Development	Number of Dwellings	Maximum Capacity	Unrealised Capacity
28 Reeves Road and 25-37 Lewis Road	8	15	7
3A to 3F Ayr Road	6	15	9
1-7/11 Lewis Road	7	13	6
1/8 to 8/8 Reeves Road	8	15	7
1-7/12 Ayr Road	7	14	7
1-8/10 Ayr Road	8	14	6
1-8/2 Ayr Road	8	14	6
1-8/5 Ayr Road	8	15	7
1-8/14 Ayr Road	8	14	6
Total	68	129	61

The assessment of those nine developments between June 2020 and 2023 has also indicated that within a three-year period (equivalent to the short term), only 6.7% of the reasonably available capacity has been realised (59 of 880).

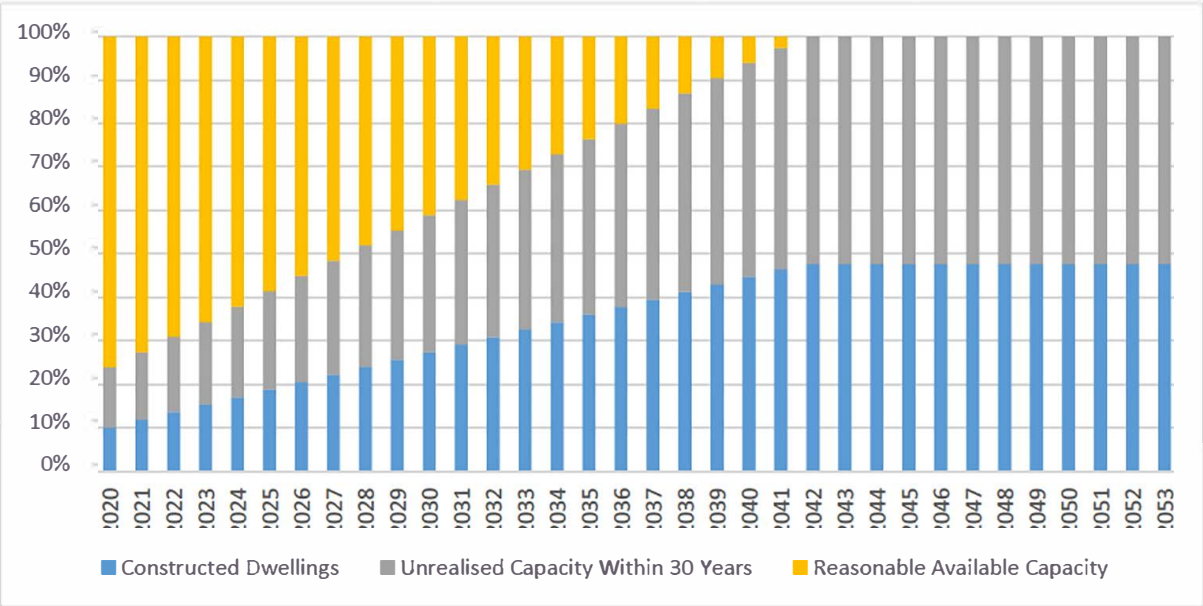
Assuming that a constant uptake of development capacity occurs in the future, a net increase of 20 dwellings per year within this case study area can be confirmed. However, a net increase in the number of dwellings would coincide with an increase in capacity that would be unrealised within the next 30 years, at the ratio of 59:61, matching the findings above. This would mean that for every net increase of 20 dwellings, there would be an increase in unrealised capacity of either 20 or 21 dwellings.

Table 3, attached, has extrapolated this data and shows that:

- Approximately half (52%) of gross development capacity would be unrealised within the next 30 years due to recent and future development not maximising the development capacity of each site.
- Reasonably available capacity would reduce rapidly in the short term and medium term – halving by 2031, before being exhausted by 2041, leaving no reasonably available capacity for a period of at least 12 years.

This is illustrated on Chart 1, below.

Chart 1: Reasonably Realised Dwellings Within the Pakuranga THAB Case Study Area



This all indicates that the draft FDS's position that "*much of*" the plan-enabled capacity will be realised within the next 30 years is likely to be inaccurate. This is likely to be less than half, with most of the stated capacity being 'locked up' due to existing recent development patterns or development capacity not being maximised when redevelopment occurs.

Auckland Council should be required to review this matter and undertake its own analysis of recent development up-take in order to estimate the development capacity that is reasonably expected to be realised.

7. Conclusion

Determining that sufficient development capacity has been provided in accordance with clause 3.2 of the NPS-UD should have required Auckland Council to identify restrictions under each of the following layers (distributed pro-rata when determined on a catchment basis) and then identify the maximum development capacity enabled for each site or neighbourhood that is unrestricted by each layer. This would need to be undertaken three times, in accordance with the short term, medium term and long term.

- For 'plan-enabled' capacity, any restrictions related to zoning –noting that most zones provide for unlimited dwellings as a restricted discretionary activity.
- For 'infrastructure-ready' capacity:
  - Any restrictions to providing for water supply – such as the maximum capacity of bulk pipelines.
  - Any restrictions to providing for wastewater disposal in each catchment – such as the maximum capacity of a pump station.
  - Any restrictions to providing for stormwater disposal in each catchment – although given this relates to impervious areas rather than the number of dwellings, it is expected that this would not be a critical constraint.
  - Any restrictions related to the capacity of the transport network, such as identifying capacity issues with key intersections if additional dwellings are enabled in certain areas.
- For 'feasible' capacity, the results from Council's feasibility model (for each area).
- For 'reasonably expected to be realised' capacity, the number of dwellings indicated to be delivered by developers of large brownfield and greenfield sites within the relevant timeframes or an assumed realisation based on historic trends (similar to the Pakuranga THAB area case study above).

While Auckland Council appears to have considered most these matters to various degrees (but not to the extent anticipated), the draft FDS and its supporting material does not provide any confidence to the submitter that all of the above considerations have been appropriately made as required by the NPS-UD.

By failing to do so, the conclusions reached in the draft FDS regarding (and resulting from) the availability of sufficient development capacity are considered to be insufficiently justified and should not be relied upon.

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Table 2:
Sites within the Pakuranga THAB Case Study Area

Dwelling Count 2020	Dwelling Count 2023	Site Address	Title Identifier	Title Type	Title Age	Site Area	Maximum Capacity*
Pre-2000 Titles							
1	1	1 Ayr Road Pakuranga Auckland 2010	NA1176/44	Freehold	Pre-2000	916 m²	15 dwellings
2	2	4 Ayr Road Pakuranga Auckland 2010	NA2D/1057	Freehold	Pre-2000	883 m²	14 dwellings
3	3	6 Ayr Road Pakuranga Auckland 2010	NA19C/1021	Freehold	Pre-2000	1,378 m²	22 dwellings
4	4	6A Ayr Road Pakuranga Auckland 2010	NA19C/1022	Freehold	Pre-2000	1,184 m²	19 dwellings
5	5	7 Ayr Road Pakuranga Auckland 2010	NA1171/96	Freehold	Pre-2000	913 m²	15 dwellings
6	6	8 Ayr Road Pakuranga Auckland 2010	NA1324/53	Freehold	Pre-2000	883 m²	14 dwellings
		9 Ayr Road Pakuranga 2010				913 m²	15 dwellings
7	7	1/9 Ayr Road Pakuranga Auckland 2010	NA75D/292	Cross-lease	Pre-2000		
8	8	2/9 Ayr Road Pakuranga Auckland 2010	NA79D/44	Cross-lease	Pre-2000		
9	9	11 Ayr Road Pakuranga Auckland 2010	NA1171/94	Freehold	Pre-2000	916 m²	15 dwellings
		13 Ayr Road Pakuranga 2010				916 m²	15 dwellings
10	10	1/13 Ayr Road Pakuranga Auckland 2010	NA70C/707	Cross-lease	Pre-2000		
11	11	2/13 Ayr Road Pakuranga Auckland 2010	NA72B/591	Cross-lease	Pre-2000		
		15 Ayr Road Pakuranga 2010				918 m²	15 dwellings
12	12	1/15 Ayr Road Pakuranga Auckland 2010	NA86C/662	Cross-lease	Pre-2000		
13	13	2/15 Ayr Road Pakuranga Auckland 2010	NA89B/984	Cross-lease	Pre-2000		
		17 Ayr Road Pakuranga 2010				918 m²	15 dwellings
14	14	1/17 Ayr Road Pakuranga Auckland 2010	NA57C/851	Cross-lease	Pre-2000		
15	15	17B Ayr Road Pakuranga Auckland 2010	NA57C/852	Cross-lease	Pre-2000		
16	16	16 Ayr Road Pakuranga Auckland 2010	NA1191/61	Freehold	Pre-2000	883 m²	14 dwellings
17	17	18 Ayr Road Pakuranga Auckland 2010	NA1333/96	Freehold	Pre-2000	883 m²	14 dwellings
		19 Ayr Road Pakuranga 2010				921 m²	15 dwellings
18	18	1/19 Ayr Road Pakuranga Auckland 2010	NA70C/307	Cross-lease	Pre-2000		
19	19	2/19 Ayr Road Pakuranga Auckland 2010	NA88A/793	Cross-lease	Pre-2000		
20	20	20 Ayr Road Pakuranga Auckland 2010	NA1198/57	Freehold	Pre-2000	883 m²	14 dwellings
21	21	21 Ayr Road Pakuranga Auckland 2010	NA26A/1320	Freehold	Pre-2000	923 m²	15 dwellings
22	22	22 Ayr Road Pakuranga Auckland 2010	NA1171/93	Freehold	Pre-2000	893 m²	14 dwellings
23	23	23 Ayr Road Pakuranga Auckland 2010	NA1832/4	Freehold	Pre-2000	923 m²	15 dwellings
24	24	1 Bennett Road Pakuranga Auckland 2010	NA1331/67	Freehold	Pre-2000	878 m²	14 dwellings
		3 Bennett Road Pakuranga 2010				1,492 m²	24 dwellings
25	25	3 Bennett Road Pakuranga Auckland 2010	NA70C/564	Cross-lease	Pre-2000		
26	26	3A Bennett Road Pakuranga Auckland 2010	NA74B/189	Cross-lease	Pre-2000		
27	27	5 Bennett Road Pakuranga Auckland 2010	NA14B/416	Freehold	Pre-2000	1,012 m²	16 dwellings
		6 Bennett Road Pakuranga 2010				1,439 m²	23 dwellings
28	28	1/6 Bennett Road Pakuranga Auckland 2010	NA63A/117	Cross-lease	Pre-2000		
29	29	2/6 Bennett Road Pakuranga Auckland 2010	NA63A/118	Cross-lease	Pre-2000		
30	30	8 Bennett Road Pakuranga Auckland 2010	NA1186/36	Freehold	Pre-2000	1,472 m²	24 dwellings
31	31	1 Lewis Road Pakuranga Heights Auckland 2010	NA1170/15	Freehold	Pre-2000	1,340 m²	22 dwellings
32	32	3 Lewis Road Pakuranga Heights Auckland 2010	NA26A/196	Freehold	Pre-2000	827 m²	13 dwellings
33	33	5 Lewis Road Pakuranga Heights Auckland 2010	NA1176/48	Freehold	Pre-2000	827 m²	13 dwellings
34	34	9 Lewis Road Pakuranga Heights Auckland 2010	NA1315/72	Freehold	Pre-2000	827 m²	13 dwellings
35	35	7 Lewis Road Pakuranga Heights Auckland 2010	NA1186/38	Freehold	Pre-2000	827 m²	13 dwellings
36	36	15 Lewis Road Pakuranga Heights Auckland 2010	NA1317/68	Freehold	Pre-2000	827 m²	13 dwellings
		183 Pakuranga Road Pakuranga 2010				1,846 m²	30 dwellings
37	37	1/183 Pakuranga Road Pakuranga Auckland 2010	NA63D/964	Cross-lease	Pre-2000		
38	38	3/183 Pakuranga Road Pakuranga Auckland 2010	NA122A/389	Cross-lease	Pre-2000		
39	39	4/183 Pakuranga Road Pakuranga Auckland 2010	NA122A/390	Cross-lease	Pre-2000		
40	40	185 Pakuranga Road Pakuranga Auckland 2010	32786	Cross-lease	Pre-2000**		
41	41	187 Pakuranga Road Pakuranga Auckland 2010	NA128B/922	Freehold	Pre-2000	429 m²	7 dwellings
42	42	187A Pakuranga Road Pakuranga Auckland 2010	NA128B/923	Freehold	Pre-2000	330 m²	5 dwellings
		189 Pakuranga Road Pakuranga 2010				961 m²	16 dwellings
43	43	1/189 Pakuranga Road Pakuranga Auckland 2010	NA25A/40	Cross-lease	Pre-2000		
44	44	2/189 Pakuranga Road Pakuranga Auckland 2010	NA25A/41	Cross-lease	Pre-2000		
45	45	3/189 Pakuranga Road Pakuranga Auckland 2010	NA56A/611	Cross-lease	Pre-2000		
46	46	195 Pakuranga Road Pakuranga Auckland 2010	NA1093/264	Freehold	Pre-2000	923 m²	15 dwellings
47	47	197 Pakuranga Road Pakuranga Auckland 2010	NA1083/84	Freehold	Pre-2000	923 m²	15 dwellings
48	48	199 Pakuranga Road Pakuranga Auckland 2010	NA1087/49	Freehold	Pre-2000	923 m²	15 dwellings
49	49	207 Pakuranga Road Pakuranga Auckland 2010	NA1138/122	Freehold	Pre-2000	923 m²	15 dwellings
		209 Pakuranga Road Pakuranga 2010				954 m²	15 dwellings
50	50	1/209 Pakuranga Road Pakuranga Auckland 2010	NA79D/932	Cross-lease	Pre-2000		
51	51	2/209 Pakuranga Road Pakuranga Auckland 2010	NA81C/821	Cross-lease	Pre-2000		

Dwelling Count 2020	2023	Site Address	Title Identifier	Type	Age	Site Area	Maximum Capacity*
52	52	6 Reeves Road Pakuranga Heights Auckland 2010	NA28A/1036	Freehold	Pre-2000	928 m²	15 dwellings
53	53	10 Reeves Road Pakuranga Heights Auckland 2010	NA1325/47	Freehold	Pre-2000	928 m²	15 dwellings
		12 Reeves Road Pakuranga Heights 2010				928 m²	15 dwellings
54	54	1/12 Reeves Road Pakuranga Heights Auckland 2010	NA61B/118	Cross-lease	Pre-2000		
55	55	2/12 Reeves Road Pakuranga Heights Auckland 2010	NA61B/119	Cross-lease	Pre-2000		
		14 Reeves Road Pakuranga Heights 2010				928 m²	15 dwellings
56	56	1/14 Reeves Road Pakuranga Heights Auckland 2010	NA76A/160	Cross-lease	Pre-2000		
57	57	14A Reeves Road Pakuranga Heights Auckland 2010	NA86A/108	Cross-lease	Pre-2000		
		16 Reeves Road Pakuranga Heights 2010				928 m²	15 dwellings
58	58	1/16 Reeves Road Pakuranga Heights Auckland 2010	NA64C/573	Cross-lease	Pre-2000		
59	59	2/16 Reeves Road Pakuranga Heights Auckland 2010	NA64C/574	Cross-lease	Pre-2000		
60	60	18 Reeves Road Pakuranga Heights Auckland 2010	NA1570/33	Freehold	Pre-2000	928 m²	15 dwellings
		20 Reeves Road Pakuranga Heights 2010				928 m²	15 dwellings
61	61	1/20 Reeves Road Pakuranga Heights Auckland 2010	NA84C/738	Cross-lease	Pre-2000		
62	62	2/20 Reeves Road Pakuranga Heights Auckland 2010	NA87C/864	Cross-lease	Pre-2000		
		22 Reeves Road Pakuranga Heights 2010				928 m²	15 dwellings
63	63	1/22 Reeves Road Pakuranga Heights Auckland 2010	NA57D/205	Cross-lease	Pre-2000		
64	64	2/22 Reeves Road Pakuranga Heights Auckland 2010	NA61B/1138	Cross-lease	Pre-2000		
65	65	24A Reeves Road Pakuranga Heights Auckland 2010	NA129C/912	Freehold	Pre-2000	293 m²	4 dwellings
66	66	24B Reeves Road Pakuranga Heights Auckland 2010	NA129C/913	Freehold	Pre-2000	210 m²	3 dwellings
67	67	24C Reeves Road Pakuranga Heights Auckland 2010	NA133A/899	Freehold	Pre-2000	275 m²	4 dwellings
68	68	24D Reeves Road Pakuranga Heights Auckland 2010	NA133A/900	Freehold	Pre-2000	324 m²	5 dwellings
69	69	26 Reeves Road Pakuranga Heights Auckland 2010	NA120C/63	Freehold	Pre-2000	594 m²	9 dwellings
70	70	29 Reeves Road Pakuranga Heights Auckland 2010	NA13C/872	Freehold	Pre-2000	931 m²	15 dwellings
71	71	31 Reeves Road PAKURANGA HEIGHTS 2010	896095	Freehold	Pre-2000**	466 m²	7 dwellings
72	72	31A Reeves Road PAKURANGA HEIGHTS 2010	896096	Freehold	Pre-2000**	404 m²	6 dwellings
		33 Reeves Road Pakuranga Heights 2010				870 m²	14 dwellings
71	71	1/33 Reeves Road Pakuranga Heights Auckland 2010	NA79B/948	Cross-lease	Pre-2000		
72	72	2/33 Reeves Road Pakuranga Heights Auckland 2010	NA79B/949	Cross-lease	Pre-2000		
		35 Reeves Road Pakuranga Heights 2010				870 m²	14 dwellings
73	73	1/35 Reeves Road Pakuranga Heights Auckland 2010	NA62D/451	Cross-lease	Pre-2000		
74	74	2/35 Reeves Road Pakuranga Heights Auckland 2010	NA62D/452	Cross-lease	Pre-2000		
		37 Reeves Road Pakuranga Heights 2010				870 m²	14 dwellings
75	75	1/37 Reeves Road Pakuranga Heights Auckland 2010	NA90B/269	Cross-lease	Pre-2000		
76	76	2/37 Reeves Road Pakuranga Heights Auckland 2010	NA90B/270	Cross-lease	Pre-2000		
77	77	39 Reeves Road Pakuranga Heights Auckland 2010	NA12B/1366	Freehold	Pre-2000	949 m²	15 dwellings
		41 Reeves Road Pakuranga Heights 2010				789 m²	13 dwellings
78	78	1/41 Reeves Road Pakuranga Heights Auckland 2010	NA56D/329	Cross-lease	Pre-2000		
79	79	41B Reeves Road Pakuranga Heights Auckland 2010	NA56D/330	Cross-lease	Pre-2000		
						Total Dwellings on Pre-2000 Titles:	79
						Total Max Capacity of Pre-2000 Titles:	839
						Total Net Capacity of 2000-2020 Titles:	760
		2000-2020 Titles					
80	80	25 Ayr Road Pakuranga Auckland 2010	57086	Freehold	18/12/2002	431 m²	7 dwellings
81	81	25A Ayr Road Pakuranga Auckland 2010	57087	Freehold	18/12/2002	400 m²	6 dwellings
82	82	201 Pakuranga Road Pakuranga Auckland 2010	401752	Freehold	27/03/2008	523 m²	8 dwellings
83	83	191 Pakuranga Road Pakuranga Auckland 2010	425498	Freehold	14/07/2009	596 m²	9 dwellings
84	84	193A Pakuranga Road Pakuranga Auckland 2010	425499	Freehold	14/07/2009	428 m²	7 dwellings
85	85	193 Pakuranga Road Pakuranga Auckland 2010	425565	Freehold	14/07/2009	469 m²	7 dwellings
86	86	191A Pakuranga Road Pakuranga Auckland 2010	425566	Freehold	14/07/2009	439 m²	7 dwellings
87	87	203 Pakuranga Road Pakuranga Auckland 2010	489993	Freehold	17/09/2009	538 m²	8 dwellings
88	88	205A Pakuranga Road Pakuranga Auckland 2010	500390	Freehold	14/10/2009	373 m²	6 dwellings
89	89	4 Reeves Road Pakuranga Heights Auckland 2010	490431	Freehold	27/10/2010	520 m²	8 dwellings
90	90	4A Reeves Road Pakuranga Heights Auckland 2010	490432	Freehold	27/10/2010	408 m²	6 dwellings
91	91	205 Pakuranga Road Pakuranga Auckland 2010	534906	Freehold	6/10/2010	275 m²	4 dwellings
92	92	205B Pakuranga Road Pakuranga Auckland 2010	576040	Freehold	17/05/2012	292 m²	4 dwellings
93	93	205C Pakuranga Road Pakuranga Auckland 2010	576041	Freehold	17/05/2012	417 m²	6 dwellings
94	94	205D Pakuranga Road Pakuranga Auckland 2010	576042	Freehold	17/05/2012	389 m²	6 dwellings
95	95	24 Ayr Road Pakuranga Auckland 2010	583142	Freehold	17/09/2012	416 m²	6 dwellings
96	96	26 Ayr Road Pakuranga Auckland 1706	583143	Freehold	17/09/2012	401 m²	6 dwellings
97	97	13 Lewis Road Pakuranga Heights Auckland 2010	614175	Freehold	9/04/2014	421 m²	7 dwellings
98	98	13A Lewis Road Pakuranga Heights Auckland 2010	614176	Freehold	9/04/2014	405 m²	6 dwellings
99	99	27 Ayr Road Pakuranga Auckland 2010	654744	Freehold	4/02/2016	519 m²	8 dwellings
100	100	21 Lewis Road Pakuranga Heights Auckland 2010	654743	Freehold	4/02/2016	238 m²	3 dwellings
101	101	23 Lewis Road Pakuranga Heights Auckland 2010	654742	Freehold	4/02/2016	303 m²	5 dwellings

Dwelling Count 2020	2023	Site Address	Title Identifier	Type	Age	Site Area	Maximum Capacity*
102	102	7 Bennett Road Pakuranga Auckland 2010	728814	Freehold	18/05/2016	507 m²	8 dwellings
103	103	7A Bennett Road Pakuranga Auckland 2010	728815	Freehold	18/05/2016	496 m²	8 dwellings
104	104	4A Bennett Road PAKURANGA 2010	810292	Freehold	16/05/2018	374 m²	6 dwellings
105	105	4B Bennett Road PAKURANGA 2010	810293	Freehold	16/05/2018	367 m²	6 dwellings
106	106	4C Bennett Road PAKURANGA 2010	810294	Freehold	16/05/2018	401 m²	6 dwellings
107	107	2A Bennett Road PAKURANGA 2010	810297	Freehold	16/05/2018	389 m²	6 dwellings
108	108	2B Bennett Road PAKURANGA 2010	810296	Freehold	16/05/2018	352 m²	5 dwellings
109	109	2C Bennett Road PAKURANGA 2010	810295	Freehold	16/05/2018	354 m²	5 dwellings
					Total Dwellings on 2000-2020 Titles:		30
					Total Max Capacity of 2000-2020 Titles:		190
					Total Net Capacity of 2000-2020 Titles:		160
		2020-2023 Development Sites					
110		28 Reeves Road and 25-37 Lewis Road				959 m²	15 dwellings
	110	28 Reeves Road PAKURANGA HEIGHTS 2010	933948	Freehold	30/07/2020		
	111	37 Lewis Road PAKURANGA HEIGHTS 2010	933949	Freehold	30/07/2020		
	112	35 Lewis Road PAKURANGA HEIGHTS 2010	933950	Freehold	30/07/2020		
	113	33 Lewis Road PAKURANGA HEIGHTS 2010	933951	Freehold	30/07/2020		
	114	31 Lewis Road PAKURANGA HEIGHTS 2010	933952	Freehold	30/07/2020		
	115	29 Lewis Road PAKURANGA HEIGHTS 2010	933953	Freehold	30/07/2020		
	116	27 Lewis Road PAKURANGA HEIGHTS 2010	933954	Freehold	30/07/2020		
	117	25 Lewis Road PAKURANGA HEIGHTS 2010	933955	Freehold	30/07/2020		
111		3A to 3F Ayr Road				911 m²	15 dwellings
	118	3A Ayr Road PAKURANGA 2010	962329	Freehold	27/04/2021		
	119	3B Ayr Road PAKURANGA 2010	962330	Freehold	27/04/2021		
	120	3C Ayr Road PAKURANGA 2010	962331	Freehold	27/04/2021		
	121	3D Ayr Road PAKURANGA 2010	962332	Freehold	27/04/2021		
	122	3E Ayr Road PAKURANGA 2010	962333	Freehold	27/04/2021		
	123	3F Ayr Road PAKURANGA 2010	962334	Freehold	27/04/2021		
112		1/11 to 7/11 Lewis Road				822 m²	13 dwellings
	124	1/11 Lewis Road PAKURANGA HEIGHTS 2010	986211	Freehold	9/06/2021		
	125	2/11 Lewis Road PAKURANGA HEIGHTS 2010	986212	Freehold	9/06/2021		
	126	3/11 Lewis Road PAKURANGA HEIGHTS 2010	986213	Freehold	9/06/2021		
	127	4/11 Lewis Road PAKURANGA HEIGHTS 2010	986214	Freehold	9/06/2021		
	128	5/11 Lewis Road PAKURANGA HEIGHTS 2010	986215	Freehold	9/06/2021		
	129	6/11 Lewis Road PAKURANGA HEIGHTS 2010	986216	Freehold	9/06/2021		
	130	7/11 Lewis Road PAKURANGA HEIGHTS 2010	986217	Freehold	9/06/2021		
113		1/8 to 8/8 Reeves Road				924 m²	15 dwellings
	131	1/8 Reeves Road PAKURANGA HEIGHTS 2010	960582	Freehold	20/06/2021		
	132	2/8 Reeves Road PAKURANGA HEIGHTS 2010	960583	Freehold	20/06/2021		
	133	3/8 Reeves Road PAKURANGA HEIGHTS 2010	960584	Freehold	20/06/2021		
	134	4/8 Reeves Road PAKURANGA HEIGHTS 2010	960585	Freehold	20/06/2021		
	135	5/8 Reeves Road PAKURANGA HEIGHTS 2010	960586	Freehold	20/06/2021		
	136	6/8 Reeves Road PAKURANGA HEIGHTS 2010	960587	Freehold	20/06/2021		
	137	7/8 Reeves Road PAKURANGA HEIGHTS 2010	960588	Freehold	20/06/2021		
	138	8/8 Reeves Road PAKURANGA HEIGHTS 2010	960589	Freehold	20/06/2021		
114		1/12 to 7/12 Ayr Road				881 m²	14 dwellings
	139	1/12 Ayr Road PAKURANGA 2010	964087	Freehold	18/07/2021		
	140	2/12 Ayr Road PAKURANGA 2010	964088	Freehold	18/07/2021		
	141	3/12 Ayr Road PAKURANGA 2010	964089	Freehold	18/07/2021		
	142	4/12 Ayr Road PAKURANGA 2010	964090	Freehold	18/07/2021		
	143	5/12 Ayr Road PAKURANGA 2010	964091	Freehold	18/07/2021		
	144	6/12 Ayr Road PAKURANGA 2010	964092	Freehold	18/07/2021		
	145	7/12 Ayr Road PAKURANGA 2010	964093	Freehold	18/07/2021		
115		1/10 to 8/10 Ayr Road				882 m²	14 dwellings
	146	1/10 Ayr Road PAKURANGA 2010	1001496	Freehold	14/10/2021		
	147	2/10 Ayr Road PAKURANGA 2010	1001497	Freehold	14/10/2021		
	148	3/10 Ayr Road PAKURANGA 2010	1001498	Freehold	14/10/2021		
	149	4/10 Ayr Road PAKURANGA 2010	1001499	Freehold	14/10/2021		
	150	5/10 Ayr Road PAKURANGA 2010	1001500	Freehold	14/10/2021		
	151	6/10 Ayr Road PAKURANGA 2010	1001501	Freehold	14/10/2021		
	152	7/10 Ayr Road PAKURANGA 2010	1001502	Freehold	14/10/2021		
	153	8/10 Ayr Road PAKURANGA 2010	1001503	Freehold	14/10/2021		

Dwelling Count 2020	Dwelling Count 2023	Site Address	Title Identifier	Title Type	Title Age	Site Area	Maximum Capacity*
116		1/2 to 8/2 Ayr Road				880 m²	14 dwellings
	154	1/2 Ayr Road PAKURANGA 2010	1028539	Freehold	11/05/2022		
	155	2/2 Ayr Road PAKURANGA 2010	1028540	Freehold	11/05/2022		
	156	3/2 Ayr Road PAKURANGA 2010	1028541	Freehold	11/05/2022		
	157	4/2 Ayr Road PAKURANGA 2010	1028542	Freehold	11/05/2022		
	158	5/2 Ayr Road PAKURANGA 2010	1028543	Freehold	11/05/2022		
	159	6/2 Ayr Road PAKURANGA 2010	1028544	Freehold	11/05/2022		
	160	7/2 Ayr Road PAKURANGA 2010	1028545	Freehold	11/05/2022		
	161	8/2 Ayr Road PAKURANGA 2010	1028546	Freehold	11/05/2022		
117		1/5 to 8/5 Ayr Road				910 m²	15 dwellings
	162	1/5 Ayr Road PAKURANGA 2010	1065638	Freehold	10/03/2023		
	163	2/5 Ayr Road PAKURANGA 2010	1065639	Freehold	10/03/2023		
	164	3/5 Ayr Road PAKURANGA 2010	1065640	Freehold	10/03/2023		
	165	4/5 Ayr Road PAKURANGA 2010	1065641	Freehold	10/03/2023		
	166	5/5 Ayr Road PAKURANGA 2010	1065642	Freehold	10/03/2023		
	167	6/5 Ayr Road PAKURANGA 2010	1065643	Freehold	10/03/2023		
	168	7/5 Ayr Road PAKURANGA 2010	1065644	Freehold	10/03/2023		
	169	8/5 Ayr Road PAKURANGA 2010	1065645	Freehold	10/03/2023		
118		1/14 to 8/14 Ayr Road				881 m²	14 dwellings
	170	8/14 Ayr Road PAKURANGA 2010	1011015	Freehold	10/05/2023		
	171	7/14 Ayr Road PAKURANGA 2010	1011016	Freehold	10/05/2023		
	172	6/14 Ayr Road PAKURANGA 2010	1011017	Freehold	10/05/2023		
	173	5/14 Ayr Road PAKURANGA 2010	1011018	Freehold	10/05/2023		
	174	4/14 Ayr Road PAKURANGA 2010	1011019	Freehold	10/05/2023		
	175	3/14 Ayr Road PAKURANGA 2010	1011020	Freehold	10/05/2023		
	176	2/14 Ayr Road PAKURANGA 2010	1011021	Freehold	10/05/2023		
	177	1/14 Ayr Road PAKURANGA 2010	1011022	Freehold	10/05/2023		
						Total Max Capacity of 2020-2023 Development Sites:	129
						Total Net Capacity of 2020-2023 Development Sites:	120
						Realised Gross Capacity of 2020-2023 Development Sites:	68
						Realised Net Capacity of 2020-2023 Development Sites:	59
						Unrealised Capacity of 2020-2023 Development Sites:	61
						All Sites	
						Total Max Capacity of all Sites:	1158

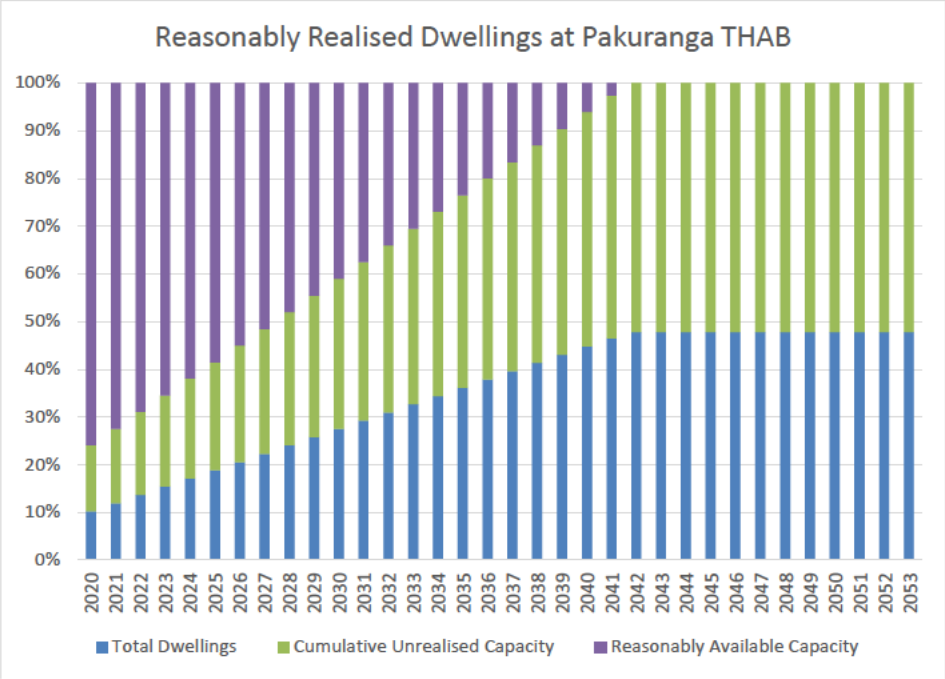
* Maximum Capacity Calculation: Site area times 50% building coverage times 4 storeys, all divided by 120 m² area per dwelling, rounded down to nearest whole number

$$\frac{S \times 50\% \times 4}{120}$$

** While these sites have Records of Titles that were issued after 2000, these Titles created sites around existing dwellings constructed prior to 2000

Table 3:
Extrapolation of Capacity Over Time within the Pakuranga THAB Case Study Area

Year	Additional Dwellings (Net)	Additional Unrealised Capacity	Total Dwellings	Cumulative Unrealised Capacity	Reasonably Available Capacity
2020			118 *(10%)*	160 *(14%)*	880 *(76%)*
2021	20	20	138 *(12%)*	180 *(16%)*	840 *(73%)*
2022	20	21	158 *(14%)*	201 *(17%)*	799 *(69%)*
2023	**20**	**20**	**178 *(15%)***	**221 *(19%)***	**759 *(66%)***
2024	20	21	198 *(17%)*	242 *(21%)*	718 *(62%)*
2025	20	20	218 *(19%)*	262 *(23%)*	678 *(59%)*
2026	**20**	**21**	**238 *(21%)***	**283 *(24%)***	**637 *(55%)***
2027	20	20	258 *(22%)*	303 *(26%)*	597 *(52%)*
2028	20	21	278 *(24%)*	324 *(28%)*	556 *(48%)*
2029	20	20	298 *(26%)*	344 *(30%)*	516 *(45%)*
2030	20	21	318 *(27%)*	365 *(32%)*	475 *(41%)*
2031	20	20	338 *(29%)*	385 *(33%)*	435 *(38%)*
2032	20	21	358 *(31%)*	406 *(35%)*	394 *(34%)*
2033	**20**	**20**	**378 *(33%)***	**426 *(37%)***	**354 *(31%)***
2034	20	21	398 *(34%)*	447 *(39%)*	313 *(27%)*
2035	20	20	418 *(36%)*	467 *(40%)*	273 *(24%)*
2036	20	21	438 *(38%)*	488 *(42%)*	232 *(20%)*
2037	20	20	458 *(40%)*	508 *(44%)*	192 *(17%)*
2038	20	21	478 *(41%)*	529 *(46%)*	151 *(13%)*
2039	20	20	498 *(43%)*	549 *(47%)*	111 *(10%)*
2040	20	21	518 *(45%)*	570 *(49%)*	70 *(6%)*
2041	20	20	538 *(46%)*	590 *(51%)*	30 *(3%)*
2042	15	15	553 *(48%)*	605 *(52%)*	0 *(0%)*
2043	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2044	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2045	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2046	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2047	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2048	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2049	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2050	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2051	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2052	0	0	553 *(48%)*	605 *(52%)*	0 *(0%)*
2053	**0**	**0**	**553 *(48%)***	**605 *(52%)***	**0 *(0%)***



ATTACHMENT 2

Weiti Future Urban Area – Access Consideration Plan

ATTACHMENT 3

Geotechnical Constraints Assessment – Weiti Station, Stillwater

#8620

RILEY CONSULTANTS

GEOTECHNICAL CONSTRAINTS ASSESSMENT WEITI STATION, STILLWATER

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GEOTECHNICAL CONSTRAINTS ASSESSMENT
WEITI STATION, STILLWATER

Report prepared for: Hugh Green Group Ltd

Report prepared by: Simon Orgias, Engineering Geologist



.....

Report reviewed by: Nigel Fitch, Technical Director - Geotechnical, CPEng



.....

Report approved for issue by: Brett Black, Director, CPEng



.....

Report reference: 02162/2-A

Date: 16 November 2015

Copies to: High Green Group Ltd 1 copy

Riley Consultants Ltd 1 copy

Issue:	Details:	Date:
0.1	Draft Geotechnical Constraints Report	22 September 2015
1.0	Geotechnical Constraints Report	16 November 2015

Contents

1.0 Introduction 1
2.0 Site Description 1
2.1 South-East Basin 1
2.2 Okura Basin 1
2.3 South-West Basin 2
2.4 North-West Basin 2
2.5 North Valley 2
2.6 North-East Basin 2
3.0 Methodology 2
4.0 Review of Existing Reports 3
5.0 Geology 3
5.1 Recent Alluvium and Colluvium (Holocene) 3
5.2 Tauranga Group Alluvium (Pleistocene) 4
5.3 Waitemata Group (Miocene) 4
5.4 Northland Allochthon (Eocene) 4
6.0 Subsurface Conditions 4
6.1 Penlink Alignment 5
6.2 South-East Basin 5
6.3 Okura Basin 5
6.4 South-West Basin 5
6.5 North-West Basin 5
6.6 North Valley 6
6.7 North-East Basin 6
7.0 Geomorphology 6
7.1 South-East Basin 7
7.2 Okura Basin 7
7.3 South-West Basin 7
7.4 North Valley 7
7.5 North-West Basin 8
7.6 North-East Basin 8
8.0 Geotechnical Constraints Classification 8
8.1 Low Geotechnical Constraints (Class 1) 8
8.2 Moderate Geotechnical Constraints (Class 2) 9
8.3 High Geotechnical Constraints (Class 3) 9
9.0 Area Specific Geotechnical Constraints 9
9.1 South-East Basin 9
9.2 Okura Basin 9
9.3 South-West Basin 10
9.4 North-West Basin 10
9.5 North Valley 10
9.6 North-East Basin 10
9.7 Main Access Roads 10
10.0 Summary and Conclusion 11

Appendices

Appendix A: RILEY Dwgs: 02162/2-FIG 1 to -FIG 4

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GEOTECHNICAL CONSTRAINTS ASSESSMENT
WEITI STATION, STILLWATER

1.0 Introduction

As requested, Riley Consultants Ltd (RILEY) has prepared the following report and appended zoning map outlining geotechnical constraints associated with the residential development of Weiti Station for Hugh Green Group Ltd. This geotechnical constraints assessment is intended for planning purposes, and to assist with submissions to the Proposed Auckland Unitary Plan (PAUP), to modify the existing Rural Urban Boundary (RUB) to include the above site and re-zone the land as Future Urban.

2.0 Site Description

The site is currently a large block of farm land used for pastoral farming. A dwelling is located near the main entrance to East Coast Road. A second dwelling utilised by the farm manager, and associated utility buildings, are clustered in a group to the north of the existing main formed access road approximately 1.3km in from East Coast Road. For the purposes of this report the site has been divided into six areas, as outlined in the following sub-sections, and shown on RILEY Dwgs: 02162/2-FIG 1 to -FIG 4.

An arterial road of up to four lanes width (two lanes in each direction) is proposed to join State Highway 1, to the south of the property, to the Whangaparaoa Peninsula to the north-east. This proposed 7km long road, is known as the Penlink and will include a bridge crossing over the Weiti River. Within the property, the alignment of the Penlink roughly follows the existing main access road, with the road reserve separating the South-Eastern Basin and Okura Basin from the remainder of the site to the north. Based on a review of the Beca Group Limited (Beca) Dwg: GIS-421 4919 02-1, Rev B, dated 16 November 2014, two interchanges are currently proposed, one approximately at the boundary of the South-East Basin and North Valley, and the second to the east of the station manager's dwelling.

2.1 South-East Basin

From the northern side of East Coast Road, the basin is characterised by low angle rolling slopes that are typically 8°, with steeper 15° slopes to the east. The low-lying central area is relatively flat to gently sloping. The basin drains to the west into Dairy Stream, a tributary of the Rangitopuni River.

2.2 Okura Basin

This small east basin lies to the east of the existing main access road. This basin has a large slump running up to the edge of the road and, with hummocky areas, exhibits some instability. The basin drains to the east into the Okura River.

2.3 South-West Basin

The South-West Basin, on the western side of the existing access road, is characterised by broad valleys, of generally gentle 8° slopes steepening to between 12° and 18° near the crest of the east facing slopes at the northern boundary of the basin.

2.4 North-West Basin

The north-west portion of the property slopes down to one of the two main tributaries of Duck Creek located on the property. At the southern portion of the valley system the slopes are generally moderate 12° to 15°, with broad gently sloping 6° to 9° areas between valleys. Further north the land steepens to 12° to 14°, with reed and surface ponding indicative of high groundwater levels. There is evidence of active slope instability in areas of steeper slopes especially adjacent to the tributary and in areas of inferred high groundwater.

2.5 North Valley

This is the main valley on the site, which runs from the existing station manager's dwelling to the north, draining into the other main tributaries to Duck Creek. The southern slopes at the head of the valley are typically steep 18° to 21° slopes. The gentle to moderate 2° to 8° sloping basin is flanked by two generally moderately steep 10° to 16° sloping ridges along the west and east margins.

2.6 North-East Basin

This area drains out toward Duck Creek forming a separate small catchment crossing the northern boundary. The basin is open and of relatively gentle gradient. Slopes are typically 8° with steeper slopes of 12° in the south-west portion of the basin. A localised steep 24° slope is located near a pond in the west.

3.0 Methodology

In undertaking this assessment, the following methodology has been adopted in the classifying zones of relative geotechnical constraints on residential development.

- Review of existing reports for Weiti Station and the proposed Penlink.
- Review of historical aerial photographs to assess the general extent of areas that exhibit obvious topographic evidence of slope instability.
- Review of published geologic information.
- Geotechnical site walkover assessment.
- Preparation of geomorphological map based on aerial photographs and site observations including identified areas of potential slope instability.
- Preparation of geological map based on published geology, existing subsurface information and surface exposures.
- Preparation of a plan showing slope gradients based on existing contour information.
- Preparation of a plan showing assessed relative geotechnical constraints on residential development, illustrating areas that are subject to hazards and likely to require greater inputs to develop.

4.0 Review of Existing Reports

We have reviewed the following previous reports by RILEY and others:

- Penlink Geotechnical Assessment Report, Beca, dated 4 July 2014.
- Weiti Station, Stillwater Geotechnical Report, RILEY Ref: 02162-F; dated 10 September 2003.
- Weiti Rezoning Walkover, RILEY Ref: 96264-B; dated 16 August 1996.
- Geological and Nuclear Sciences, Geology of the Auckland Area, Map 3, 1:250,000, dated 2001.

The assessment has included the review of previous RILEY and Beca subsurface information.

5.0 Geology

The indicative surface geology of the Weiti Station based on the published geological map, available subsurface data, and walkover inspection is outlined on the attached RILEY Dwg: 02162/2-FIG 1. Detailed descriptions, including some of the relevant geotechnical properties typically associated with these materials are provided in the following sub-sections.

The published geological map indicates the following:

- Tauranga Group Alluvium - in low-lying areas.
- Waitemata Group - in the vicinity of the station manager's dwelling and south of the South-East Basin.
- Northland Allochthon - underlying the majority of the site, especially along the west. This includes areas of Hukarenui Mudstone and Mahurangi Limestone in the North-East Basin.

In addition, localised areas of recent alluvium is anticipated in the low-lying areas, with colluvium identified by field mapping and encountered in previous subsurface investigations.

5.1 Recent Alluvium and Colluvium (Holocene)

Recent alluvium and colluvium deposited less than 10,000 years ago, generally comprises poorly consolidated soft to firm silts and clays, with potentially compressible organic horizons. Alluvium is redeposited by creeks and streams and typically found in low-lying gully areas that border the tributaries that dissect the site. Colluvium consists of slip debris material redeposited by gravity, and can be large scale slope movement or localised mass wasting (e.g. hillwash, small scale soil slumps and flows etc.)

Areas underlain by recent alluvium and colluvium are anticipated to have a high risk of settlement. Construction of most new buildings within areas underlain by Holocene alluvium, depending on the depth of material, will likely require removal of these soils or reworking of clean material as engineered fill, during subdivision earthworks. Alternatively, the dwelling could potentially be supported on piled foundations extending through the alluvium to suitable bearing stratum or specifically designed stiffened raft foundations utilised to mitigate settlement effects subject to a detailed geotechnical assessment.

5.2 Tauranga Group Alluvium (Pleistocene)

Areas of low-relief within the basins in the site are predominantly underlain by alluvial soils of the Tauranga Group. The Pleistocene alluvium generally comprises silts and sands, with the potential for localised peat lenses. These materials have generally been subject to pre-consolidation and are more suitable for residential development than more recent materials, however are potentially highly variable due to the way they were deposited. Soils underlain by Pleistocene Age alluvial deposits are typically suitable for construction of one to two-level lightweight residential dwellings, but may potentially contain localised areas of unsuitable material.

5.3 Waitemata Group (Miocene)

This typically consists of very weak to weak interbedded layers of sandstone and mudstone of the East Coast Bays Formation (ECBF). These materials weather to form residual soils consisting of firm to very stiff sands silts and clays. The presence of this material is limited on-site, and based on sub-surface investigation work undertaken by Beca for the Penlink, the Waitemata Group material encountered near the farm manager's dwelling may potentially be a large allochthonous block that was incorporated within the Northland Allochthon material during a slumping event.

5.4 Northland Allochthon (Eocene)

The majority of the site is underlain by materials of the Northland Allochthon including Mahurangi Limestone and Hukarenui Mudstone. The Northland Allochthon marine sediments (highly disrupted/sheared siltstone, mudstone, and limestone) are believed to have slid from the Pacific Plate across the Northland Peninsula towards the Waitemata Basin. This action created structural disruption of the underlying and adjacent Waitemata Group sediments.

A strong lineal feature is visible on aerial photographs. This lineament begins near East Coast Road west of the South-West Basin, and extends in a north-easterly direction through the South-West, North Valley, and North-East Basins. This feature is probably related to local faulting, and may affect drainage, groundwater levels, and slope stability along its length.

Due to the sheared nature of the Northland Allochthon material, slopes of steeper than 8°are seen to be potentially prone to slope instability, especially where high groundwater levels are present.

Due to the high shrink/swell potential often associated with Northland Allochthon materials care needs to be taken when earth working sites establishing services and designing foundations.

6.0 Subsurface Conditions

The location of previous geotechnical subsurface investigation machine boreholes, test pits, and hand augers is shown on the appended RILEY Dwg: 02162/2-FIG 1. Relevant points from a review of this information is summarised below.

6.1 Penlink Alignment

- Beca factual borehole information indicates that the depth to mudstone of the Northland Allochthon along the alignment of the proposed Penlink is typically shallow, between 2m to 8m depth. The exception is Beca machine borehole BH104 drilled in the south-eastern portion of the North Basin, to the north-west of the existing station manager's dwelling, downslope of the access road. This encountered inferred disturbed colluvium to a depth of 5.1m, underlain by variable strength very loose to dense residually to completely weathered Northland Allochthon material to a depth of 20.7m.

6.2 South-East Basin

- A machine borehole drilled (MH24) within the South-East Basin indicated colluvium extending to greater than 4.3m depth. Corrected measured in-situ shear strengths were stiff to very stiff, and ranged from between 56kPa and 65kPa for the upper 2m of material and between 72kPa to 104kPa from 2m to 4.2m depth.
- Hand auger boreholes drilled on the steeper southern slopes indicated a central ridge of Waitemata Group ECBF (HA15) material flanked by Northland Allochthon material (HA16) and colluvium (HA17).

6.3 Okura Basin

- The Beca test pit (TP108), excavated near the crest of the slope below the current accessway, encountered hard residually weathered soils, and extremely weak siltstone of the Northland Allochthon.

6.4 South-West Basin

- The South-West Basin is underlain by materials of the Northland Allochthon with localised areas overlain by alluvial and colluvial deposits.
- Hand auger borehole HA22, drilled in the south-eastern corner of the basin, encountered 3.1m depth of colluvium overlying residually weathered undifferentiated mudstone. The constancy of the colluvium being stiff to very stiff , with corrected in-situ shear strength of greater than 85kPa.
- Machine borehole MH20, in the central portion of the site, encountered 3.9m depth of stiff to very stiff alluvial soils, with measured in-situ corrected shear strength of greater than 57kPa.

6.5 North-West Basin

- The southern portion of the North-West Basin is underlain by undifferentiated Northland Allochthon mudstone with a residual soils extending to between 1.1m and 2.9m depth. The consistency of the residual soils appears generally stiff to very stiff. A low corrected in-situ shear strength of 29kPa was measured at 0.5m depth in MH14 near the northern boundary of the site.
- Machine borehole MH23 drilled in the northern portion of the site, on the north facing slopes encountered colluvium to 3.1m depth. The consistency of the colluvium was stiff to very stiff, with corrected measured in-situ soil strength ranging from 85kPa to 125kPa. Underlying the colluvium was residually weathered undifferentiated Northland Allochthon mudstone.

- Machine borehole MH10 drilled in the lower-lying area to the north of these slopes was underlain by 3.5m of stiff to very stiff alluvium, overlying undifferentiated mudstone of the Northland Allochthon.
- Hand auger borehole HA11 drilled in the north-western corner of the site, on the steeper south facing slopes on the northern side of Duck Creek, encountered 2.1m of stiff to very stiff colluvium overlying undifferentiated mudstone of the northland Allochthon. Hand auger borehole HA12, to the east of this borehole on the same slope, encountered 1m of very stiff to hard residual soil overlying Otamatea Claystone of the Northland Allochthon.

6.6 North Valley

- The southern portion of the steeper slopes below the existing accessway and near the existing farm house and ancillary buildings is underlain by colluvium, which overlies Undifferentiated Mudstone of the Northland Allochthon (HA5) and ECBF residual soils (HA6).
- Machine borehole MH4 drilled on the steeper slopes in the south-western portion of the valley encountered 2.1m depth of firm colluvium overlying Undifferentiated Mudstone. Corrected measure in-situ shear strengths for the colluvium ranging from 36kPa to 47kPa.
- Hand auger boreholes HA7 and HA7a were drilled on the west facing slopes of the valley within a defined slip encountered between 0.6m and 4.8m of very stiff colluvium and alluvium near the head and toe of this feature, respectively. Corrected measure in-situ shear strengths for the colluvium ranging from 112kPa to 168kPa.
- Hand auger boreholes HA1, HA2, and HA3 drilled on the east facing slopes, encountered 1m and 1.8m depth of stiff to very stiff colluvium.
- The underlying weathered Undifferentiated Mudstone is typically very stiff to hard.
- Similarly the steeper slopes of the south-western portion of the North Valley are underlain by colluvium overlying Northland Allochthon Undifferentiated Mudstone.

6.7 North-East Basin

- RILEY hand auger boreholes HA8 and HA8a, on the east facing side of the basin, encountered up to 2.5m of stiff alluvium overlying very stiff to hard Northland Allochthon, Hukarenui Mudstone. The corrected measured in-situ shear strength of the alluvial material ranged from 76kPa to greater than 175kPa.
- RILEY hand auger borehole HA9 on the gentle to moderate west facing side of the valley encountered very stiff to hard residually weathered Mahurangi Limestone to a depth of 1.8m.

7.0 Geomorphology

A site walkover was carried out by a Senior Geotechnical Engineer and Engineering Geologist on Monday 14 September 2015. The site geomorphology is depicted on RILEY Dwg: 02162/2-FIG 2 and outlined below. An assessment of the correlation between areas of existing slope instability and existing slope gradients was made to aid in estimating the slope instability potential of areas. The relative gradients of existing slopes are categorised and shown on RILEY Dwg: 02162/2-FIG 4

7.1 South-East Basin

This basin has broad slopes, with the lower-lying area appearing wet, with reeds indicating a high groundwater table. There is noted potential slope instability on the slopes of the two gullies to the east, with broken and hummocky ground.

7.2 Okura Basin

The topography of this basin is dominated by a large slump feature, with a number of broken benches indicating past instability.

7.3 South-West Basin

This basin has three broad valleys, with terracettes on steeper slopes typically small and appear to have been exacerbated by the passage of livestock rather than shallow slumping. Terracettes become more defined on steeper 12° to 18° slopes. The ridges appeared generally stable with no obvious recent large scale instability. There is a noted shallow soil movement on steeper slopes in the southern and northern portions of the basin. An older slump feature was noted in the north-eastern corner of the basin. Hand auger boreholes in the north-east indicate between 3.1m and 3.9m of colluvium has accumulated within the gullies and near the toe of these slopes. The lower-lying areas and the invert of gully appearing wet, with reeds indicating a potentially high groundwater table.

7.4 North Valley

The head of the North Valley is steep with large arcuate features and hummocky ground indicative of deep-seated slope movement. This is supported by the presence of deeply weathered, variable strength materials encountered in Beca Machine Borehole BH104 (Refer Section 6.1). The southern side of the basin is flanked by a ridge running east-west. Steep 18° to 21° slopes below the crest to the ridge flatten out to 7° near the base of the slope.

The North Valley drains to the north-east and is bound by moderate to steep sided ridges. The western ridge is typically 13º at the lower section and steepens to 25° below the crest of the ridge. Long-term creep is noted of the steeper slopes. Collapsed tomos or cavities within the soil formed by piping erosion are noted in localised slope toe areas. The eastern ridge is typically moderately to steep 8° to 14°. Localised steep slopes of up to 17° were measured beneath the crest of the ridge associated with areas of previous slope instability. Areas of potential deeper seated instability were noted in two of the north-west facing gullies with broken hummocky ground on the sides of the slopes.

In the narrow portion of the gully floor to the east, there is evidence of shallow slumping and tomos forming adjacent to streams on the moderate 8° side slopes.

7.5 North-West Basin

This basin is incised by one of the tributaries of Duck Creek. The southern area has typical gradients of 8°.

On the moderate 12° north facing slopes, an active shallow translational failure approximately 17m to 21m wide and 95m long was noted. The primary trigger appearing to be elevated groundwater levels, with springs noted within the central and lower portion of the slip. Reeds and areas of saturated ground were noted to the west and east of the slip indicating potentially high groundwater tables or localised perched groundwater. To the north of the main tributary of Duck Creek there is long-term creep noted on the steeper 10° slopes near the north-western corner of the site. Tomos are noted near the toe of the slopes towards the west adjacent to tributary streams.

7.6 North-East Basin

This basin is open and of relatively gentle slopes, steepening to the east. The lower-lying areas are generally covered in reeds indicating a high groundwater table. The steeper slopes to the east within the property generally did not show any obvious signs of deep-seated instability. The exception was within the narrow west facing gully located within the north-east corner of the property, which has a greater potential for instability.

8.0 Geotechnical Constraints Classification

The different areas of the property have been classified as having either a low, moderate, or high level of geotechnical constraints on residential development, as outlined in the following sub-sections.

The defined areas of slope constraints are shown on RILEY Dwg: 02162/2-FIG 3

The majority of the land with low to moderate geotechnical constraints is likely to be suitable for future urban development, assuming appropriate engineering control and design is undertaken. However, some areas are likely to be more easily developed than other areas. Some areas may be more difficult to develop due to multiple constraints, and may need a larger scale more intensive approach to develop economically. Alternatively, these areas may be developed as low intensity high value properties.

8.1 Low Geotechnical Constraints (Class 1)

Areas of low geotechnical constraints on development are likely to require minimal geotechnical input, and remedial works with respect to stability, building foundation, and future development requirements. These are areas typically with slopes of less than 12° in well drained areas of the site and less than 8° where potential higher groundwater levels have been identified. Although due to the variability of alluvial and colluvial soils in low-lying areas there is a potential for lower strength or potentially compressible soils to be present. Dependent on specific proposals, earthworks required could be minimal along with remedial or stability improvement measures. Areas of flat to gently rolling land may only require minor slope regrading and drainage works to form the desired finished landform. These works are unlikely to require significant engineering design and or construction control to address the potential for slope instability.

8.2 Moderate Geotechnical Constraints (Class 2)

These are typically areas with increased constraints on development including moderate potential instability, higher potential groundwater, or greater potential variability of soil founding conditions. Land classified as having moderate slope instability potential is typically identified as areas underlain by Undifferentiated Northland Allochthon on moderately sloping ground with slope ranging from 8° to 18°, and showing no signs of significant active instability.

8.3 High Geotechnical Constraints (Class 3)

Areas identified as having high geotechnical constraints are areas that have been identified as having a high potential for instability. These are typically slopes within the property underlain by Undifferentiated Northland Allochthon and colluvium material on slopes of steeper than 18°, slopes of 8° to 18° with likely high groundwater levels, or slopes showing signs of current active instability. Instability observed on the property includes, slide slump, gully erosion, and tomo features.

These areas do not necessarily have to be precluded from future development, although they may require more extensive remedial works. This may include installation of drainage to maintain acceptable groundwater levels and earthworks/re-profiling to achieve stable slope angles and a suitable for residential development.

Land which falls within the high geotechnical constraints category is most effectively and economically made available for development by using a bulk earthworks approach to provide stable landforms over wide areas. Alternatively, the site may be suited to a small number of dwellings subject to site specific remedial measures, such as subsurface counterfort drainage and palisade walls.

General assessed constraints on development for areas are outlined below.

9.0 Area Specific Geotechnical Constraints

9.1 South-East Basin

The central area is seen as having low geotechnical constraints. Drainage is likely to be required in lower-lying areas and further subsurface investigation will be required to confirm the consistency of the alluvial materials at subdivision consent stage. Care will need to be taken to ensure drainage of these areas does not cause tunnel gully erosion and takes into consideration potential for long-term settlement effects of dewatering. The steeper slopes to the east are seen to have moderate to high geotechnical constraints, due to the assessed high slope instability potential.

9.2 Okura Basin

This area is assessed to have high geotechnical constraints on development due to the steep slopes, evidence of large scale slope instability, and position of the Penlink on access.

9.3 South-West Basin

Some drainage may be required in areas of localised high groundwater of the lower-lying areas are to be developed. There is considered to be minor risk of localised compressible material. Care will need to be taken to ensure drainage of these areas does not cause tunnel gully erosion and takes into consideration potential for long-term settlement effects of dewatering. Localised areas of firm alluvial soils may be present and further investigation would be required at subdivision approval stage. Some gully muck-out may be required depending on the layout of the proposed future development. The observed potential instability on steeper 15° slopes in the north and south portions of the site is seen to pose a moderate constraint to development.

9.4 North-West Basin

The southern portion of the basin is seen to have generally low geotechnical constraints on development. There are some localised constraints adjacent to the minor watercourses that dissect the site, draining to the west. Some tunnel gully erosion is evident within invert of these gullies that would need to be addressed. Northwards there are greater constraints on development as the slopes steepen with evidence of high groundwater and active instability. There are less constraints on the lower-lying areas to the north, provided a suitable setback is kept from the incised banks of streams.

9.5 North Valley

The steeper slopes and noted shallow and deep-seated instability in the southern portion and valley sides are seen to pose a high geotechnical constraint on future development.

The lower-lying area to the north is seen as providing an area of moderate constraints. Careful treatment of potential tunnel gully erosion and shallow slumping adjacent to streams will need to be assessed in detail. Tomos and slumping observed in the narrow portion of the valley to the north are seen to pose a high geotechnical constraint on future residential development.

9.6 North-East Basin

The lower-lying areas are seen to have low geotechnical constraints on development, although drainage is likely to be required to maintain groundwater levels. The steeper slopes to the west and east have moderate constraints due to a higher potential for slope instability.

9.7 Main Access Roads

Access to the areas of development is envisaged to be from the two interchanges leading from the proposed Penlink. It is recommended that access to the North-Western and North-Eastern sites follows the western ridge of the main gully. Access within the basins appear to be feasible provided roads follow the crest of main ridges or flatter lower-lying areas and maintain a suitable setback from the banks of tributary streams.

10.0 Summary and Conclusion

Key items discussed in this geotechnical assessment are as follows:

- The property typically consists of moderate to steep larger ridges, and smaller more subdued broad rolling ridges. The majority of the site is underlain by Northland Allochthon deposits, overlain by alluvium and colluvium in lower-lying areas. The broader basins have inferred high groundwater levels, based on the widespread presence of reeds, and areas of localised ponding.
- From on-site mapping there is evidence of past and current instability on the steeper slopes of the site, notably where there is inferred high groundwater. On lower-lying areas localised shallow slumping and tomos were noted near the more deeply incised streams in parts of the site.
- Based on the above assessment the site has been classified into three zones of either low, moderate, or high levels of geotechnical constraints for residential development. The basis of the constraints are outlined in Section 8.0, above.
- The areas are shown on attached RILEY Dwg: 02162/2-FIG 3
- The majority of land with low to moderate geotechnical constraints is likely to be suitable for future urban development, assuming appropriate engineering control and design is undertaken. However, some areas are likely to be more easily developed than others. Some areas may be more difficult to develop due to multiple constraints, and may need a larger scale more intensive approach to develop economically. Alternatively these areas may be developed as low intensity high value properties.

Limitation

This report has been prepared solely for the benefit of Hugh Green Group Ltd as our client with respect to the brief. The reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such parties' sole risk.

Recommendations and opinions in this report are based on data from limited test positions. The nature and continuity of subsoil conditions away from the test positions are inferred, and it must be appreciated that actual conditions could vary considerably from the assumed model.

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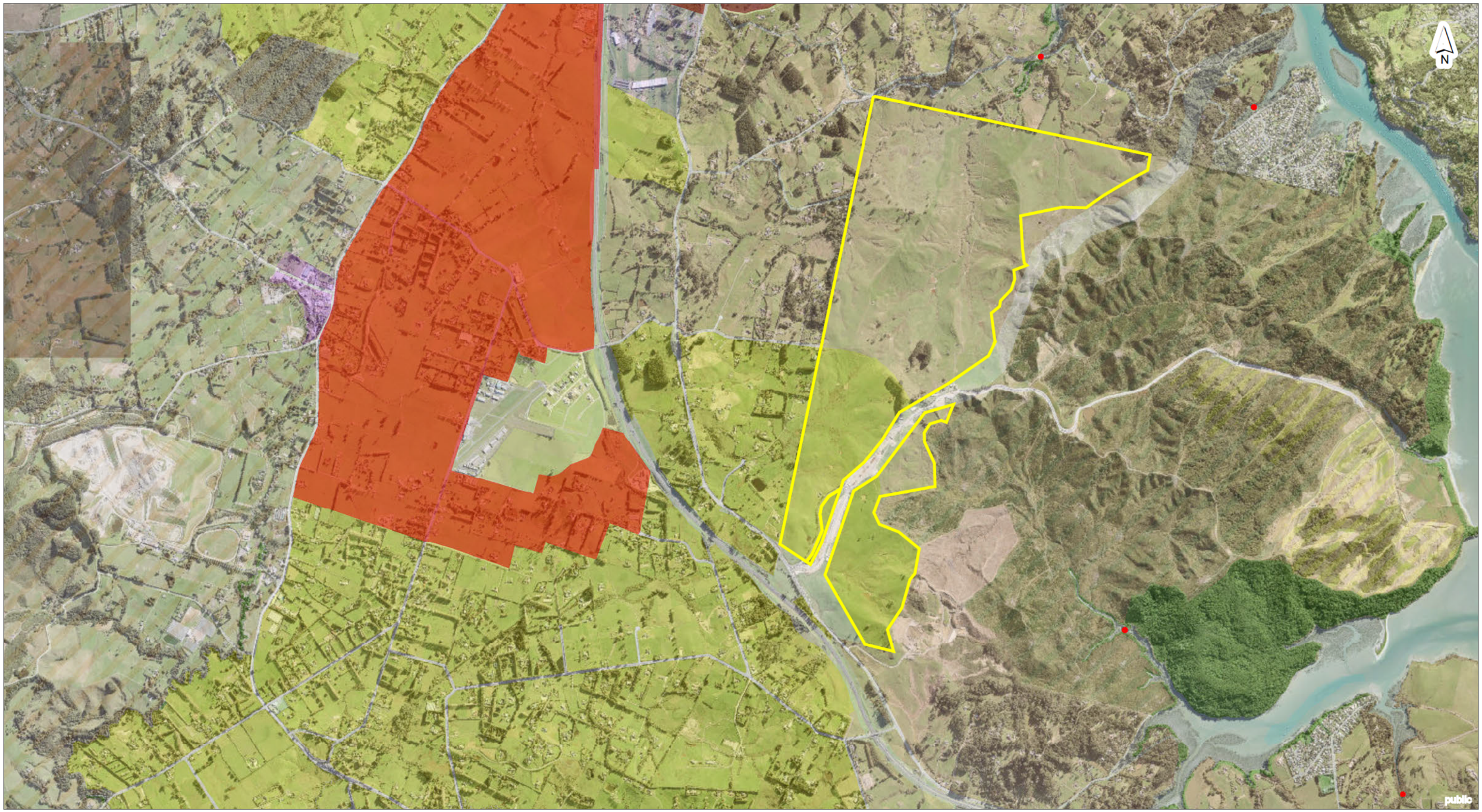
APPENDIX A

RILEY Dwgs:
02162/2-FIG 1
to -FIG 4

Auckland Council

#8620

Map



DISCLAIMER:
This map/plan is illustrative only and all information should be independently verified on site before taking any action. Copyright Auckland Council. Land Parcel Boundary information from LINZ (Crown Copyright Reserved). Whilst due care has been taken, Auckland Council gives no warranty as to the accuracy and plan completeness of any information on this map/plan and accepts no liability for any error, omission or use of the information.
Height datum: Auckland 1946.

Weiti Future Urban Area

0 275 550 825
Meters

Scale @ A3
= 1:25,000

Date Printed:
28/07/2023

Auckland Council
Te Kaunihera o Tāmaki Makaurau

#8620

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EXISTING DWELLING

SOUTH WEST BASIN

NORTH WEST BASIN

SOUTH EAST BASIN

OKURA BASIN

NORTH VALLEY

NORTH EAST BASIN

EXISTING STATION MANAGEMENT DWELLING

MH 1, MH2 1, MH 18, MH 19, MH 14, MH 13, MH 10, MH23, MH20, MH22, MH24

HA 1, HA 11, HA 12, HA 16, HA 15, HA 17, HA6, HA5, HA3, HA2, HA7A, HA7, HA8, HA8A, HA9, HA 13

TP 101, TP 102, TP 103, TP 104, TP 105, TP 106, TP 107, TP 108, TP 109, TP 111, TP 110, TP 112, TP 113, TP 114, TP 115, TP 116, TP 117, TP 118, TP 119, TP 120, TP 122, TP 123, TP 12, TP 124, TP 125

BH 101, BH 102, BH 103, BH 104, BH 106, BH 105, BH 108, BH 107, BH 109, BH 110

LEGEND

- PROPERTY BOUNDARY
- MH 1 — RILEY MACHINE HOLE LOCATION
- HA8 — RILEY HAND AUGER BORE HOLE LOCATION
- BH 106 — BECA BORE HOLE LOCATION
- HA 13 — BECA MACHINE HOLE LOCATION
- TP 111 — BECA TEST PIT LOCATION
- ALLUVIUM
- WAITEMATA GROUP FORMATION
- MAHURANGI LIMESTONE
- HUKARENUI MUDSTONE

SCALE 1: 10000

0 100 200 300 400 600 (m)

NOTE: PLAN BASED ON INFOMRATION FROM AUCKLAND COUNCIL GIS AND BECA DRAWINGS.

REV	DESCRIPTION	BY	DATE
0	FIRST ISSUE		

DESIGN SRO | CHECKED SRO
DRAWN PO | CHECKED MP
DATE DRAWN SEPTEMBER 2015

APPROVED FOR ISSUE: NIGEL FITCH
DATE: 16/11/15

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TITLE

HUGH GREEN GROUP

WEITI STATION, STILLWATER

GEOLOGY AND EXISTING HAND AUGER LOCATION PLAN

CADFILE 02162_2-FIG 1
SCALES (A3) 1:10000
DRAWING No. 02162/2-FIG 1
REV. 0
ACENZ

#8620

#8620

EXISTING DWELLING

SOUTH WEST BASIN

SOUTH EAST BASIN

OKURA BASIN

NORTH WEST BASIN

NORTH VALLEY

DUCK CREEK

EXISTING STATION MANAGEMENT DWELLING

PROPOSED PENLINK

NORTH EAST BASIN

16°
12°
9°
6–8°
9°
18°
21°
14°
26°
5°
24°

NOTE: PLAN BASED ON INFOMRATION FROM AUCKLAND COUNCIL GIS.

LEGEND

- WETLAND & REEDS
- DOWNHILL CREEP
- 10° EXISTING GROUND SLOPE
- MOUND
- HUMMOCKY GROUND
- WATER COURSE
- RIDGE LINE
- SCARP
- TOMO FEATURE
- LINEATION FEATURE
- BENCHES

SCALE 1: 10000

0 100 200 300 400 600 (m)

REV	DESCRIPTION	BY	DATE
0	FIRST ISSUE		

DESIGN SRO | CHECKED SRO
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HUGH GREEN GROUP LTD

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GEOMORPHOLOGICAL SITE PLAN

CADFILE 02162_2–FIG 2
SCALES (A3) 1:10000
ACENZ
DRAWING No. 02162/2-FIG 2
REV. 0

#8620

#8620

EXISTING DWELLING

SOUTH WEST BASIN

NORTH WEST BASIN

SOUTH EAST BASIN

OKURA BASIN

NORTH VALLEY

EXISTING STATION MANAGEMENT DWELLING

NORTH EAST BASIN

NOTE: PLAN BASED ON INFOMRATION FROM AUCKLAND COUNCIL GIS.

ASSESSED GEOTECHNICAL CONSTRAINTS ON RESIDENTIAL DEVELOPMENT

LEGEND

- ZONE 1 – LOW STABILITY CONSTRAINTS
- ZONE 2 – MODERATE STABILITY CONSTRAINTS
- ZONE 3 – HIGH STABILITY CONSTRAINTS

SCALE 1: 10000

0 100 200 300 400 600 (m)

REV	DESCRIPTION	BY	DATE
0	FIRST ISSUE		

DESIGN: SRO | CHECKED: SRO
DRAWN: PO | CHECKED: MP
DATE DRAWN: SEPTEMBER 2015

APPROVED FOR ISSUE:
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TITLE

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WEITI STATION, STILLWATER

GEOTECHNICAL CONSTRAINTS ON RESIDENTIAL DEVELOPMENT PLAN

CADFILE: 02162_2-FIG 3
SCALES (A3): 1:10000
DRAWING No.: 02162/2-FIG 3
REV.: 0

#8620

#8620

EXISTING DWELLING

SOUTH WEST BASIN

NORTH WEST BASIN

SOUTH EAST BASIN

OKURA BASIN

NORTH VALLEY

EXISTING STATION MANAGEMENT DWELLING

NORTH EAST BASIN

50

30

20

CATEGORIES OF SLOPE

LEGEND	
<5°	
5° to 8°	GENTLE TO MODERATE
8° to 12°	
12° to 18°	MODERATE TO STEEP
18° to 27°	
> 27°	VERY STEEP

SCALE 1: 10000

0 100 200 300 400 600 (m)

SCALE 1: 10000

0 100 200 300 400 600 (m)

REV	DESCRIPTION	BY	DATE
0	FIRST ISSUE		

DESIGN SRO | CHECKED SRO

DRAWN MP | CHECKED MP

DATE DRAWN SEPTEMBER 2015

APPROVED FOR ISSUE: NIGEL FITCH

DATE: 16/11/15

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EXISTING SLOPE GRADIENTS

CADFILE 02162_2-FIG 4

SCALES (A3) 1:10000

ACENZ

DRAWING No. 02162/2-FIG 4

REV. 0

ATTACHMENT 4

Auckland Transport Redhills Transport Triggers Memo

Memorandum

Auckland Transport
An Auckland Council Organisation

To: [redacted]
From: [redacted]
Date: 4 November 2019
Subject: Review of the Redhills Transport Triggers

Flow Transportation Specialists have reviewed the Redhills transport triggers and key intersections in I610.6.1 of the Redhills Precinct. The full report is attached.

The report assessed the upgrades required at the following key intersections and made comments on revised triggers:

- Don Buck/Westgate Drive (1 dwelling)
- Don Buck/ Fred Taylor Drive (3,600 dwellings)
- Don Buck/ Triangle Road (1 dwelling)

This memo and the attached report will not change the triggers in the Redhills Precinct. It has identified some errors and the modelling has indicated potential changes in the triggers based on the latest information.

AT will work with Council and applicants as part of the normal consenting process in line with the updated triggers report and the trigger table in this memo.

The outcomes of the report are explained in more detail below. The review indicates that the in I610.6.1 and I610.6.2 could be amended as follows:

Table I610.6.1.1 Threshold for Development - Transport

Dwelling threshold	Infrastructure work required to exceed the dwelling threshold
~~1~~	~~Provision of signals at Don Buck Road/Westgate Drive intersection~~ *Moved to Table I610.6.2.1 Trigger for Development – Transport below.*
	~~Upgrade to Don Buck Road/Triangle Road intersection~~ *Moved to be reviewed at 3,600 dwellings below.*
1,800	Widening of Don Buck Road ~~between Fred Taylor Drive and~~ Westgate Drive: - 2 ~~exit~~ through southbound lanes ~~from Fred Taylor/~~ at Don Buck/Westgate Drive intersection ~~in southbound direction~~ reducing to one lane, south of the intersection; and - 2 ~~exit~~ through northbound lanes ~~from Fred Taylor/~~ at Don Buck/ Westgate Drive intersection ~~in northbound direction reducing to one~~ ,extending through to the existing two lane section on approach to Fred Taylor Drive

Memorandum

	~~Urbanisation of Fred Taylor Drive between Northside Drive and Don Buck Road (50 km/hr speed limit, with pedestrian and cycle facilities along and across road)~~ *Moved to Table I610.6.2.1 Trigger for Development – Transport below.*
	~~Link from Redhills Centre to Redhills Road~~ *Moved to Table I610.6.2.1 Trigger for Development – Transport below.*
3,600	Upgrade to Fred Taylor Drive/Don Buck Road intersection to signalised layout (with full pedestrian/cycle crossing facilities)
	Widening of Don Buck Road ~~between Fred Taylor Drive and Westgate Drive~~: - 2 southbound lanes from Fred Taylor Drive to Westgate Drive ~~and~~, if there are two turning lanes into Don Buck Road at the Fred Taylor Drive intersection - ~~2~~ 3 northbound lanes ~~between Westgate Drive and~~ approaching Fred Taylor Drive (signalised) ~~increasing to 3 approach lanes at the~~ intersection ~~in northbound direction~~
	Review the needed upgrade to Don Buck Road/Triangle Road intersection, based on operational, safety and accessibility
5,400	North-western busway and bus station at Massey North
	Widening of full length of Fred Taylor Drive from Brigham Creek Road to Don Buck Road to two lanes in each direction with widening at intersections
	Widening of Don Buck Road from Royal Road to Redhills Road to two lanes in each direction
	Northside Drive East overbridge

Table I610.6.2.1 Trigger for Development – Transport

Trigger	Infrastructure Upgrade
In advance of development adjacent to Don Buck Road/Westgate Drive intersection and when a fourth arm to Westgate Drive is provided	Signalise Don Buck Road/Westgate Drive/Westgate Drive extenstion intersection
In advance of development adjacent to the link from Redhills Centre to Redhills Road	Provide the link from Redhills Centre to Redhills Road as per the precinct
As development proceeds adjoining Fred Taylor Drive between Northside Drive and Don Buck Road (upgrade frontage)	Urbanisation of Fred Taylor Drive between Northside Drive and Don Buck Road (50 km/hr speed limit, with pedestrian and cycle facilities along and across road)

Memorandum

In advance of development accessing the Northside Drive intersection	Fourth arm at Fred Taylor Drive/Northside Drive signalised intersection
When fourth arm to Dunlop Road is provided	Signalise Fred Taylor Drive/Dunlop Road intersection
In advance of development accessing Baker Lane	Upgrade to Fred Taylor Drive/Baker Lane intersection
In advance of development in the area adjacent to Henwood Road extension / Fred Taylor Drive intersection	Upgrade Fred Taylor Drive/Kakano Road/Henwood Road signalised intersection to incorporate fourth arm into signals

A summary of the assessment in the triggers report for each intersection is as follows:

Don Buck/Westgate Drive Intersection

- The current trigger for this upgrade is 1 dwelling. Currently it is a three-legged roundabout. Development adjacent to this intersection and the extension of Westgate Drive would result in a four-legged intersection.
- One and two-lane roundabout options were looked at. One-lane was preferred. In saying this, a roundabout has limitations for pedestrian and cycle connectivity and in dealing with the offset of the Westgate Drive Extension.
- A signalised intersection would reduce these issues. The report considers that a one lane signalised intersection would work as an interim measure to 2026, but a larger two lane signalised will be required at a later stage.
- The trigger has therefore been amended from 1 dwelling to a requirement that a signalised intersection will be required when development adjacent to Westgate Drive/Don Buck Road is carried out. This would necessitate the Westgate Drive extension for access in line with the precinct plan.

Errors in the 1,800 dwelling triggers

- The current 1,800 dwelling trigger which requires two lanes on Don Buck Road on the exit from the Fred Taylor Drive roundabout is an error, as it should instead refer to the Don Buck Road/Westgate Drive intersection, where two exit lanes are recommended. This would be required at 1,800 dwellings which is approximately 2026. A cost share for the final design of Don Buck Road/Westgate Drive two-lane signalised intersection and associated widening with AT may be an option.

Don Buck/ Triangle Road Intersection

- The current trigger for this upgrade is 1 dwelling. This was informed by previous work to support the precinct which considered the northbound capacity would be reached by 2020 and two through lanes would be required. This intersection is a three-leg roundabout. No additional accesses are proposed.
- This intersection in its current form is still predicted to operate satisfactorily in 2026 and at 3,200 dwellings. In fact, the traffic flows are likely to decrease between now

and 2026, likely due to the completion of widening works along SH16 between Lincoln and Westgate. This may not have been anticipated by the previous work to support the precinct.

- The provision of two through lanes, with traffic then merging immediately north of the roundabout, would appear to increase vehicle conflicts, indicating that the upgrade may result in safety implications. On this basis the trigger has been amended to 3,600 dwellings where the operation and safety of the intersection should be reviewed.

Don Buck/ Fred Taylor Drive/ Te Oranui Way Intersection

- The current trigger for this upgrade is 3,600 dwellings.
- The intersection is a four-leg roundabout. This was proposed to be amended to five to accommodate an east west arterial. The Bunnings appeal resulted in this shifting north meaning it will remain four-legs.
- For vehicles the roundabout is predicted to have spare capacity at 3,200 dwellings and will be over capacity by 6,500 dwellings.
- In saying this, the roundabout does not currently provide well for pedestrian and cyclists and the layout is skewed in a way which may result in vehicle conflicts. A signalised intersection would address these issues.
- On this basis pedestrian/cycle improvements should be implemented as early as possible and a signalised intersection should still be required at 3,600 dwellings. There is no change proposed for this trigger.

Some other changes have been suggested to the triggers for consistency that were not included in the triggers report. These include:

- **The link from Redhills Road to the Redhills Centre** is required when 1,800 dwellings are constructed. This link may be needed sooner or later than 1,800 dwellings depending on how they are distributed across the precinct. This upgrade would be required when development adjacent to the link is carried out. This would mean each developer would construct this link as per the layout shown in the precinct plan. This trigger has been moved to *Table I610.6.2.1 Trigger for Development – Transport*.
- **Urbanisation of Fred Taylor Drive between Northside Drive and Don Buck Road.** As each developer develops the frontage of their site it should be upgraded to an urban standard to achieve this as opposed to being tied to a trigger of 1,800 dwellings. Auckland Transport will provide a cross section of this portion of Fred Taylor Drive so it can be added as a consent condition to resource consents.

Attachment A: Flow Report: Redhills Precinct Review of Transport Infrastructure Triggers dated October 2019.

Attachment B: Clean copy of triggers table.

Memorandum

Attachment B: Clean copy of triggers table

Table I610.6.1.1 Threshold for Development - Transport

Dwelling threshold	Infrastructure work required to exceed the dwelling threshold
1,800	Widening of Don Buck Road: - 2 through southbound lanes at Don Buck/Westgate Drive intersection reducing to one lane, south of the intersection; and - 2 through northbound lanes at Don Buck/ Westgate Drive intersection extending through to the existing two lane section on approach to Fred Taylor Drive
3,600	Upgrade to Fred Taylor Drive/Don Buck Road intersection to signalised layout (with full pedestrian/cycle crossing facilities)
	Widening of Don Buck Road: - 2 southbound lanes from Fred Taylor Drive to Westgate Drive, if there are two turning lanes into Don Buck Road at the Fred Taylor Drive intersection - 3 northbound lanes approaching Fred Taylor Drive (signalised)
	Review the needed upgrade to Don Buck Road/Triangle Road intersection, based on operational, safety and accessibility
5,400	North-western busway and bus station at Massey North
	Widening of full length of Fred Taylor Drive from Brigham Creek Road to Don Buck Road to two lanes in each direction with widening at intersections
	Widening of Don Buck Road from Royal Road to Redhills Road to two lanes in each direction
	Northside Drive East overbridge

Table I610.6.2.1 Trigger for Development – Transport

Trigger	**Infrastructure Upgrade**
In advance of development adjacent to Don Buck Road/Westgate Drive intersection and when a fourth arm to Westgate Drive is provided	Signalise Don Buck Road/Westgate Drive/Westgate Drive extenstion intersection
In advance of development adjacent to the link from Redhills Centre to Redhills Road	Provide the link from Redhills Centre to Redhills Road as per the precinct
As development proceeds adjoining Fred Taylor Drive between Northside Drive and Don Buck Road (upgrade frontage)	Urbanisation of Fred Taylor Drive between Northside Drive and Don Buck Road (50 km/hr speed limit, with pedestrian and cycle facilities along and across road)
In advance of development accessing the Northside Drive intersection	Fourth arm at Fred Taylor Drive/Northside Drive signalised intersection
When fourth arm to Dunlop Road is provided	Signalise Fred Taylor Drive/Dunlop Road intersection
In advance of development accessing Baker Lane	Upgrade to Fred Taylor Drive/Baker Lane intersection
In advance of development in the area adjacent to Henwood Road extension / Fred Taylor Drive intersection	Upgrade Fred Taylor Drive/Kakano Road/Henwood Road signalised intersection to incorporate fourth arm into signals