Discussion Document: Stormwater.

The Management of Significant Risks from Natural Hazards and Te Ture Whaimana – Additional Qualifying Matters for Variation 3 to the Proposed District Plan

1. Executive Summary

This infrastructure assessment has been carried out to support the hearings process for Variation 3 to the PDP, an Intensification Planning Instrument in accordance with the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act. The infrastructure assessment has identified flood hazards in suburban areas that have not previously been mapped, and some deficiencies with the drafting of an existing rule intended to manage stormwater at the time of development. Due to the stage of the Variation 3 planning process, limited amendments can be made to the planning provisions. However, with the application of Qualifying Matters (QM) related to significant natural hazard risks (s6 (h) of the Resource Management Act 1991 (RMA) and a QM under s77 (G) of the RMA) and Te Ture Whaimana, a QM (under s77G of the RMA) the stormwater and flooding effects can be avoided and mitigated to an extent. A future variation may be required to address all of the effects associated with stormwater.

The application of the QM over the areas identified as being subject to flood hazard risk within the area known as the Urban Fringe (shown in a maps in Appendix 2 to this report) in Variation 3 to apply development controls equivalent to those in the General Residential zone. This will better manage some flooding effects by reducing the number of households within the flood hazard area and contribute to mitigating flood hazard effects by requiring resource consent for denser development forms that could constrain the development site and reduce the amount of space available for the management of water.

There are a number of recommendations in the stormwater technical report that recommends amendments to rules which cannot be changed as a part of the Variation 3 process. Of particular importance is a stormwater rule (WWS-R1) that is required to be implemented successfully to support good stormwater outcomes including safe and effective conveyance, water quality and flooding outcomes. This could be addressed via the PDP appeals process.

1.1. Flood Risk in the towns affected by Variation 3

There are known flood hazard risks within the towns of Tuakau, Huntly, Ngaaruawahia and Pookeno. The Variation 3 process will now apply the MDRS to what was known as the Urban Fringe in the notified Variation. Some of these areas are subject to flood hazards identified on the planning maps (Flood Plain Management Area and Flood Ponding Areas, High Risk Flood Area and the Defended Area), and some of these areas are subject to flood hazards that have recently been identified in new rapid flood hazard models prepared by Te Miro Water and attached to this document.

The extent and impact of flooding can be difficult to predict. Not only is the intensity and frequency of storm events changing due to effects associated with climate change, the location and timing of privately led development is also difficult to predict. WDC must take a precautionary approach to protect current

and future residents from the effects of flooding. Urban stormwater runoff in all storm events should be managed to protect water quality in any catchment, but even more so in catchments that drain to the Waikato River due to its special status and the obligation to improve existing water quality in the river under Te Ture Whaimana.

The modelled flood plains shown in the Te Miro Water Technical Review indicate the likely extent of flood water in a 1%AEP (1:100 year ARI) flood event in a maximum probable development scenario. Because development is largely privately led, there is no way of knowing when the maximum probable development scenario will be realised. However, with an enabling rule framework, it should be planned for, and the adverse effects should be avoided, remedied, or mitigated. In particular, new development and intensification should be enabled outside of the modelled flood plain, and development within the modelled flood plain should be managed to mitigate flooding effects.

1.2. Intensification and stormwater and flooding effects

Intensification (such as that enabled by Variation 3) has the potential to increase the adverse effects associated with stormwater and flooding. This is because:

- Increased structures (such as buildings) in suburban areas subject to densification reduce the opportunity for:
    - water to disperse and be treated (remove contaminants) due to the reduced areas of natural ground (vegetated areas on non-compacted soil) that would provide for infiltration of water to the ground.
    - for water to pond safely in large storm events.
      Instead of flowing around buildings and structures, water may flow through them, inundating houses.

- More constrained sites with less space on the site that is not occupied by structures have less space to deal with water.
    - Reduced space to install stormwater treatment devices such as filter strips, rain gardens and rainwater re-use tanks.
    - Reduced space for overland flow paths to operate safely in storm events.
    - Reduced space for water to pond safely in storm events.
    - An increased likelihood that water will be displaced and diverted onto other properties,
    - An increased likelihood that overland flow paths will be blocked with structures causing unanticipated flooding.

- Intensification in flood risk areas would introduce more households into the flood risk area, which would mean more people would be living in a hazard area; increasing the likelihood that harm will occur, both in terms of health and safety risk, and damage to property.

- Intensification also increases the opportunity for contaminants to be generated from waste disposal areas, vehicle movements, accidental spills and contaminants accumulating on hard surfaces and washing off into the natural environment, including the Waikato River. Some of these contaminants are:
    - Gross pollutants like plastics
    - Heavy metals such as zinc from brake linings and roof material
    - Fine sediment
    - Petrochemicals

    - Pesticides and herbicides

- Increased flows in catchments with more impervious surfaces (made up of hard surfaces such as driveways, and buildings) may compromise the ability of designed overland flow paths in transport networks, public open spaces and within private lots to operate safely.

- Increased impervious surfaces in a river (or stream or coastal) catchment:
    - increases the quantity and velocity of flows because less water soaks into the ground, and because water flows more rapidly over hard surfaces:
        - Decreases base flows;
        - Increases peak storm flows. These flows will need to make their way through the catchments to the Waikato and Waipa Rivers. Adequate space in the flood plain is required to enable these flows to be conveyed safely.
    - Connect impervious surfaces with water bodies directly via piped networks, creating greater opportunity for contaminants to enter water bodies; and less opportunity for those contaminants to bind to soil and to be taken up by plants, reducing their harm.
- Good management of riparian areas, including those associated with permanent and intermittent streams and overland flow paths can improve water quality by capturing and filtering contaminants and reducing erosion, but can also protect houses from flood risk and instability. This is because streams change course over time, and buildings and structures that are too close to stream banks can become undermined. Similarly, the flood plain can change in depth and location. Good Low Impact Design includes measures to leave room for water to flow during large and small storm events, and vegetating areas that are subject to water flows.

The proposed approach in this report seeks to address these outcomes to the extent possible within the scope of the Variation 3 planning process. Future plan changes may be needed to implement a more comprehensive approach.

2. Purpose

The purpose of this document is to outline Waikato District Council's (WDC) response to natural hazards and flooding and Te Ture Whaimana for the Proposed District Plan Variation 3 process as it relates to stormwater. The circulation of draft provisions to address these stormwater matters was directed by the Independent Hearings Panel (IHP). This response forms part of a further investigation into infrastructure matters pursuant to s32AA of the Resource Management Act 1991.

The purpose of this document is to support discussions with interested and affected parties in relation to the infrastructure outcomes and giving effect to Te Ture Whaimana, and to respond to issues associated with natural hazards and flooding. This report is supported by a technical assessment by Te Miro Water entitled Waikato District Council Variation 3 Technical Review: Stormwater; Tuakau, Pookeno, Huntly and Ngaaruawahia dated May 2023; appended to this report as Appendix 1 and shall be referred to as the Te Miro Water Technical Review in this report.

WDC seeks further input into the management of infrastructure in areas that implement the Medium Density Residential Standards (MDRS) as part of the expert conferencing and hearing process for Variation 3. WDC has identified a preferred option which entails the application of qualifying matters to areas that are affected by flooding (as it applies to the areas that were previously within the Urban Fringe). We note that amendments to a stormwater rule (WWS-R1) may be required via the concurrent Proposed District Plan appeals process, but this is out of scope for the Variation 3 process.

It is important to note that there are two relevant Environment Court appeals against the WDC's decision on the PDP[1] in relation to flood hazards and stormwater matters including rule WWS-R1. The outcome of these appeals may affect the ultimate rule drafting. It is possible therefore for the 'baseline position' of the PDP to be changed. The appeals process will continue in parallel with the Variation 3 process, with the best endeavours made by WDC to align outcomes.

3. Background

In response to the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021, WDC notified Variation 3 to the PDP to incorporate the MDRS and give effect to Policy 3 of the National Policy Statement – Urban Development 2020 (NPS-UD).

Variation 3 was notified on 19 September 2022 and included an Urban Fringe qualifying matter which limited the geographic application of the MDRS to within the walkable catchments of Pookeno, Tuakau, Huntly and Ngaaruawaahia. The application of the Urban Fringe meant that most residential areas would remain at a lower density, making it easier to manage stormwater; in particular, cumulative effects from incremental filling in the flood plain which are hard to predict.

Submissions were received both in support of, and against, the Urban Fringe qualifying matter. In addition, some submitters also questioned its legality as a qualifying matter under the Resource Management Act 1991 (RMA).

[1] ENV-2022-AKL-000078 Noakes and Fruhling Trust and Waikato District Council and ENV-2022-AKL-000072 Waikato Regional Council v Waikato District Council.

On 3 March 2023, the IHP directed any submitters with an interest in the Urban Fringe qualifying matter to provide evidence and legal submissions to support their position for the IHP's consideration. On 14 March 2023 the IHP issued interim guidance and concluded that the Urban Fringe is not a qualifying matter under section 77I(j) as it does not appear to satisfy the requirements of section 77L of the RMA.

The removal of the Urban Fringe qualifying matter will extend the application of the MDRS to all land remaining zoned General Residential within Pookeno, Tuakau, Huntly and Ngaaruawaahia.

Under ss 77G(6) the Council can make the MDRS requirements in the IPI less enabling of development than provided for in Schedule 3A or by Policy 3 of the NPS-UD if authorised to do so by Section 77I of the RMA. Section 77I provides for the introduction of qualifying matters when applying MDRS and Policy 3, but only to the extent necessary, to give effect to a number of matters.

The qualifying matters set out in Section 77I most relevant to this report are those that are required to give effect to Te Ture Whaimana o Te Awa o Waikato – the Vision and Strategy of the Waikato River (ss77I (b)) which includes the communities of Pookeno, Tuakau, Huntly and Ngaaruawaahia; and s6(h) of the RMA the management of significant risk from natural hazards (s77I (a)). Management of stormwater and flooding may also give rise to a qualifying matter under ss77I(b) to give effect to the National Policy Statement for Freshwater Management.

This document has been prepared to support a review of stormwater issues to determine if additional qualifying matters are required to manage stormwater issues associated with Variation 3. This document contains the following information:

- Statutory and policy context including:
    - Te Ture Whaimana
    - National Policy Statement of Freshwater Management
    - Waikato Regional Policy Statement
    - Waikato Regional Stormwater Management Guidelines
- Water quality in the Waikato River
- Existing stormwater infrastructure in the Waikato District
- Approach to stormwater management and flooding in the Proposed District Plan
- Stormwater planning for Variation 3
- Scope for further amendments to Variation 3
- Proposed approach

4. Statutory and Policy Context

Before considering stormwater and related flood hazards, this section will set out the statutory and policy context for the PDP and Variation 3. Variation 3 is required to give effect to some of these higher order policy documents.

4.1. The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010

The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 (the River Settlement Act) has an overarching purpose of restoring and protecting the health and wellbeing of the Waikato River for future generations. The purpose of the Act (Section 4) includes recognising the Vision and Strategy for the Waikato River, *Te Ture Whaimana o Te Awa o Waikato.* Three waters infrastructure in the Waikato District has a direct effect on water quality outcomes, as water used in the four towns is sourced and/or returned to the Waikato River.

The scope of the vision and strategy (Section 9) is to recognise the Waikato River and its contribution to New Zealand's cultural, social, environmental, and economic wellbeing as being of national importance, and notes that it applies to the Waikato River and activities within its catchment affecting the Waikato River. A large part of Waikato District is located in the catchment affecting the Waikato River. The four towns affected by Variation 3 are located on the banks of the Waikato River, or its tributaries.

Schedule 2 of the Act sets out the vision and strategy for the Waikato River. The vision *is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come*.

Te Ture Whaimana o Te Awa o Waikato, the Vision and Strategy has considerable weight. As set out in section 11 of the Act it forms a part of the Regional Policy Statement (RPS) and the RPS must not be inconsistent with it. Under Section 12 of the Act the vision and strategy prevails over inconsistent provisions in a national policy statement such as the National Policy Statement for Urban Development and other national planning standards.

In addition, Te Ture Whaimana is a listed qualifying matter in s77G of the RMA.

The area that the Vision and Strategy applies to is the Waikato River from Huka Falls to Te Puuaha o Waikato and the Waipaa River from its source to its connection with the Waikato River. The Vision and Strategy also applies to the activities in the catchments affecting the Waikato River. Pookeno, Tuakau, Huntly and Ngaaruawaahia are within this catchment as shown in Figure 1 below.

The Waikato Regional Council[2] explains the relationship of Maaori with the Waikato River as follows "The tribes of the Waikato River are river people - generations of Waikato Māori have lived close to the river and it is deeply important to them. The Waikato River is a tupuna (ancestor), a taonga (treasure), and the mauri (life force) of Tainui Waka and Ngāti Tūwharetoa."

Julian Williams of Ngaati Makirangi descent, a hapuu of Waikato iwi has provided evidence on the spiritual significance of the Waikato River in his evidence to the Panel for Proposed Plan Change 12 to the Operative Hamilton City District Plan and this evidence has been adopted by WDC:

> *The River represents the mana (spiritual authority and power) and the mauri (life force) of the Waikato people. The relationship with the River lies at the heart of our spiritual and physical well-being and identity and the water is its life blood.*

[2] Sourced from Waikato Te Awa (Waikato River) - a taonga | Waikato Regional Council

For Waikato-Tainui the River represents much more than a body of water, it is a living ancestor to our people and fundamental to our beliefs. The Waikato River is a living ancestor. It is part of us. Our River symbolises a tupuna, it is the name from which our tribe derives its identity and the issues that affect our River ultimately affects the tribe and its people.

Mr Williams explains that the greatest impact of the Raupatu (confiscation) of Maori land in the 1860s was the removal of the Waikato-Tainui people's capacity to protect the Waikato River in the decades of rapid change that followed. He notes that giving effect to Te Ture Whaimana is critical to delivering on these settlement obligations.

Figure 1 The Area that the Waikato River Vision and Strategy applies to[3]

4.2. National Policy Statement on Freshwater Management

The National Policy Statement for Freshwater Management 2020 (NPSFM) has a fundamental concept Te Mana o te Wai.

(1) Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

(2) Te Mana o te Wai is relevant to all freshwater management and not just to the specific aspects of freshwater management referred to in this National Policy Statement.

The NPSFM 2020 is aligned with the approach in the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 in that it places the health and wellbeing of water bodies and freshwater

[3] Sourced from the Waikato River Authority website Catchment - Waikato River Authority

ecosystems ahead of the needs of people. The Te Miro Water Technical Review has assessed the six principles of the NPSFM in more detail in Section 3 of its report.

4.3. Waikato Regional Policy Statement

The Waikato Regional Policy Statement contains objectives and policies related to flood management that the Waikato District Council must give effect to. LF-O1 (8) under Mauri and values of fresh water bodies seeks to recognise the interrelationship between land use, water quality and water quantity. LF-P3 (4) seeks to avoid inappropriate development in flood plains. LF-M18 (6) seeks to manage the natural functioning of freshwater bodies by controlling the damming and diversion of flood waters. HAZ-O1 seeks to manage the effects of natural hazards on people, property and the environment by increasing community resilience to hazard risks and reducing the risks from hazards to acceptable or tolerable levels. HAZ-P1 natural hazard risk management approach seeks to ensure that natural hazard risks are managed using an integrated and holistic approach that:

1. *ensures the risk from natural hazards does not exceed an acceptable level;*
2. *protects health and safety;*
3. *avoids the creation of new intolerable risk;*
4. *reduces intolerable risk to tolerable or acceptable levels;*
5. *enhances community resilience;*
6. *is aligned with civil defence approaches;*
7. *Prefers the use of natural features over manmade structures as defences against natural hazards;*
8. *recognises natural systems and takes a 'whole of system' approach; and*
9. *seeks to use the best available information/best practice.*

HAZ-P2 Manage activities to reduce the risks from natural hazards seeks that subdivision, use and development are managed to reduce the risks from natural hazards to an acceptable or tolerable level including by:

1. *ensuring risk is assessed for proposed activities on land subject to natural hazards;*
2. *Reducing the risks are associated with existing use and development where the risks are intolerable;*
3. *avoiding intolerable risk in any new use or development in areas subject to natural hazards;*
4. *minimising any increase in vulnerability due to residual risk;*
5. *avoiding the need or demand for new structural protection works; and*
6. *discouraging hard protection structures and promoting the use of alternatives to them,*
7. *including natural defences in the coastal environment.*

The overarching method to manage risks (HAZ-M1) seeks that district plans shall incorporate a risk-based approach into the management of subdivision, use and development in relation to natural hazards:

1. *new development is managed so that natural hazard risks do not exceed acceptable levels;*
2. *intolerable risk is reduced to tolerable or acceptable levels*
3. *The creation of new intolerable risk is avoided;*
4. *Any intolerable risk as a result of existing use and development is as low as reasonably achievable; and*
5. *Where intolerable risk remains, the risks will be managed until an acceptable level is achieved.*

HAZ-M6 to HAZ-M12 set out methods to achieve the above:

MAZ-M6 Control of subdivision within areas of intolerable risk

District plans shall control subdivision to avoid creating demand for new structures within identified high risk flood zones and identified primary hazard zones, and areas at high risk of coastal hazard.

HAZ-M7 – Identification of areas of coastal hazard risk and high risk flood zones

District plans shall identify the location of areas:

1. potentially affected by coastal hazards, prioritising the identification of those areas at high risk; and

2. affected by high risk flood hazard.

HAZ-M8 – Control of structures within primary hazard zones

Regional plans shall control any use or development of structures within identified primary hazard zones to reduce the risk from natural hazards to an acceptable level over time.

HAZ-M9 – Floodplain management

Regional plans shall:

1. control activities that divert or discharge flood water, including the importation of cleanfill into floodplains, in order to avoid or mitigate adverse effects of flooding and erosion; and

2. ensure that an integrated catchment approach to flood management is adopted.

HAZ-M10 – Control of use and development (high risk flood zones and areas of high coastal hazard risk)

Regional and district plans shall ensure that use and development within high risk flood zones and areas of high coastal hazard risk is appropriate, including by avoiding the placement of structures or development where these would be vulnerable to a natural hazard event or would place a community at intolerable risk. These include:

1. habitable structures;

2. significant community infrastructure such as hospitals and emergency services; and

3. lifeline utilities.

HAZ-M11 – Control of development within a floodplain or coastal hazard area

Regional and district plans shall ensure that

1. Subdivision, use and development can only occur in a floodplain with an annual exceedance probability of 1% (where the floodplain does not match the definition of being a High Risk Flood Zone) or in an identified potential coastal hazard area (not being a High Risk Coastal Hazard area) where:

    a. appropriate assessment of the risks has been undertaken and these risks will not exceed acceptable levels;

    b. appropriate assessment of the likely effects has been undertaken, including the effects of any new structure or fill on the diversion of overland flows or any consequential increased runoff volumes;

    c. the creation of a new, or exacerbation of an existing hazard, including those off site, and any adverse effects are avoided, remedied or mitigated;

    d. any adverse effects of a 1% annual exceedance probability flood event on habitable buildings are avoided or mitigated;

e. has been designed and located to minimise the level of coastal hazard risk over its intended lifetime; and

f. any hazardous substance stored as part of the development, or during the construction, or found on or near to the site, will not create a hazard; or

2. it is essential infrastructure, and:

a. it cannot be located elsewhere; or

b. it will not increase the risk of or from natural hazard.

HAZ-M12 – Control of subdivision, use and development (residual risk zones)

District plans shall identify residual risk zones and shall control subdivision, use and development within these zones so that residual risk is minimised. In doing so, particular regard shall be had to:

1. the level of service provided by the structural defences;

2. the physical, environmental and financial sustainability of the structural defences over a period of at least 100 years;

3. the impact caused by an overwhelming or a structural failure of protection works; and

4. a reduction in the ability of a community to respond to and recover from a natural hazard event.

4.4. The Waikato Regional Stormwater Management Guidelines

The Stormwater Management Guidelines[4] set out principles for stormwater management. Broadly, these encompass:

- Catchment based planning.
- Coordination with land use planning.
- The importance of primary systems, which are for public convenience, and secondary systems which operate when the primary system is overwhelmed.
- The provision of adequate space for stormwater. The volume of water present at any given point in time cannot be compressed or diminished.
- Planning and design of stormwater systems should not be based on the premise that problems can be transferred from one location to another, i.e. downstream.
- A stormwater management system should address multi objectives and values.
- Design of stormwater management systems should consider the values of the existing site features and protect and enhance natural features.
- In conjunction with new development and re-development, efforts should be made to minimise increases in, and reduce where possible, stormwater runoff volumes, flow rates, and contaminant loads to the maximum extent practicable including retaining perviousness, slowing the rate of runoff and using a treatment train approach – a series of water quality measures.
- Give full consideration to downstream effects.
- Maintenance requirements and capabilities.
- Floodplains should be preserved to manage flood hazards, preserve habitat and open space, create a more liveable urban environment and protect public health, safety and welfare.

[4] Waikato stormwater management guideline, Waikato Regional Council Technucal Report 2020/07, May 2020

Floodplain encroachment must not be allowed unless competent engineering and planning have proven that flow capacity is maintained, risks of flooding are defined and risks to life and property are strictly minimised.

Section 7.3.3 of the guidelines provide guidance on water quality treatment criteria including the water quality volume. This will give a designer clear guidance on the design criteria for a stormwater treatment device. Section 7.4.1 provides guidance on peak flow control, 7.4.2 on stream erosion control; and 7.4.3 water quality treatment. Section 8.5 provides more specific design guidance for devices and what they can be used for.

5. Water Quality in the Waikato River

Water Quality in the Waikato River is degraded as noted in the Waikato Sub-Regional Three Waters Strategic Business Case[5]:

> *There is extensive and clear evidence in western science and mātauranga Māori that the river is degraded along much of its length. This is well documented in material prepared to support Treaty of Waitangi claims and settlements (including the Waikato River Independent Scoping Study 2010), technical publications (including the significant body of work completed to support the Healthy Rivers/Wai Ora: Proposed Waikato Regional Plan Change 1 process) and numerous books written on the subject.*
>
> *Central and local government regulations around improving the quality of fresh water have been introduced in response to changing community environmental expectations and Te Ture Whaimana. Some of these, such as the NPS-FM and proposed plan change 1, specify short and long term targets for the water quality of the Waikato River. Current river water quality conditions generally fall short of these targets.*

Many of the water quality issues in the river are associated with urban stormwater[6]. Each town has its own stormwater discharge consent issued by the Waikato Regional Council which encompass[7]:

- Stormwater treatment
- Maintaining overland flow paths
- Reducing flood risks
- Reporting
- Maintenance
- Community consultation and education

The Te Miro Technical Report discusses the current stormwater consents and makes recommendations for Council to consider regarding compliance with the standards within those consents.

5.1. Catchment Management Plans

There are a number of catchment management plans that have been prepared by WDC to support

[5] Waikato Sub-Regional Three Waters Strategic Business Case, A compelling case for change, Future Proof Partners, December 2019.

[6] Ibid

[7] Sourced from Section 4 of the Te Miro Water Technical Review

stormwater network discharge consents[8]. Of relevance to this assessment are the Ngaaruawaahia & Surrounds[9], Pookeno[10] and Tuakau[11] Catchment Management Plans, and the Huntly Flood Management Plan[12]. These do not form a part of the PDP but form a part of the stormwater network management approach by WDC.

5.1.1. Ngaaruawaahia & Surrounds

The Ngaaruawaahia & Surrounds CMP notes that "The streams and tributaries within all towns are potentially subject to flood ponding which extends well beyond the nominal stream channels and impacts the broader floodplains of many of these streams. Potential flood hazards associated with ponding areas and overland flow paths exist in urbanised parts of all of the towns within the Structure Plan Area" and "The status of the freshwater streams is generally considered degraded but there is potential for stream value enhancement throughout the Structure Plan Area".

The CMP acknowledges the negative impacts that urbanisation has had on stream environments including the effects of urbanisation set out above but does not contain a comprehensive stream quality assessment. Section 4.1 advises that "Flood risk to growth areas may be addressed in many areas by the inclusion of open space zones around streams, tributaries and drains" and "the key ecological mitigation for freshwater streams is the inclusion of riparian buffers (open space zones around streams and tributaries). Ideally riparian margins should be planted (to improve riparian habitat and provide shading) with maintained open space areas being set back from the streams."

The expectation is that new development (greenfield) will obtain a stormwater discharge consent from Waikato Regional Council and later transfer this to WDC.

5.1.2. Pookeno

The Pookeno CMP identifies the need for flood mitigation in the Helenslee catchment to prevent a significant increase in peak flood flows, moderate to severe pollution in the Tanitewhiora and Helenslee streams and the need for treatment of stormwater runoff from development areas to protect the ecology of the Waikato River.

The CMP recommends a number of stormwater attenuation ponds, protection of streams and planting of the riparian margins, some system upgrades, some areas of fringe flood plain filling and treatment of runoff from infill development on a site-by-site basis.

The CMP recommends 10m riparian margins in accordance with ARCs Technical Publication 148 "Riparian Zone Management". I note that the 10m width is premised on efficient weed management, and unrelated to flood plain management, but still very beneficial.

5.1.3. Tuakau

The Tuakau CMP identifies that the health of streams in the catchment are considered to be generally

[8] Ngaruawahia Consent No. 105645, Huntly 105644, Tuakau 105051, Pokeno 108592.

[9] Catchment Management Plan Ngaruawahia & Surrounds Structure Plan Area prepared by Tonkin & Taylor for Waikato District Council, March 2015

[10] Pokeno Stormwater Catchment Management Plan, Franklin District Council, September 2010

[11] Tuakau Stormwater Management Plan prepared for Waikato District Council by Beca Limited, August 2019.

[12] Huntly Flood Management Plan, Waikato Regional Council Technical Publication No. 1992/15, August 1992.

degraded but there is significant potential for stream value enhancement. Hazard mapping at the time this report was prepared was limited, as was water quality and stream state information, but it notes that stream water quality is poor and needs to be improved, and that the streams are sensitive to erosion and scour. There are some flood prone areas, including areas of high hazard, associated with watercourses and overland flow paths.

The report recommends the use of Low Impact Design for new development that is compliant with the Waikato Regional Stormwater Guidelines. The report also recommends that development maintain, protect and enhance existing watercourses.

5.1.4. Huntly

This report identifies that Huntly is prone to flooding from the Waikato River, localised flooding and rises in lake levels during rainfall events. This work supported the preparation of flood hazard maps, proposed physical works and set minimum floor levels and restricted development in high-risk areas. The plan sought to retain restrictions on infilling in areas prone to ponding to ensure the levels aren't raised by future development.

6. Stormwater Infrastructure in the Waikato District

Watercare is contracted to be responsible for the efficient management of Council's three waters infrastructure. This work includes network development and maintenance of network components such as pipes, valves, hydrants, pumps and treatment plant equipment.

Watercare is responsible for the management of stormwater systems to provide protection from flooding and for collection and drainage of stormwater. This work is managed via the Asset Management Plan[13] (AMP). The following information is sourced from the AMP.

The AMP is linked to other planning processes such as the Long Term Plan (LTP), structure planning and growth planning and the District Plan. The LTP is prepared on a three yearly cycle and outlines the levels of service and planned works to improve or maintain its services to the community. It is updated annually and undergoes a public consultation process. Structure planning is carried out to support growth and includes a preferred spatial layout (location of different land uses) and the associated location, size, and type of communal infrastructure.

Ngaaruawaahia, Huntly, Pookeno and Tuakau all have reticulated stormwater networks. Some of this network dates from the 1920s, but much was installed in the 1950s and 1960s. As was the focus at the time, the network was intended to pipe open drains and to mitigate flooding. Now, Low Impact Design (LID) is a significant additional driver for stormwater management. The benefit of capital works designed on the principles of LID can be seen in Raglan.

WDC owns and operates a number of stormwater detention ponds (which have treatment benefits) and other treatment devices such as stormwater treatment wetlands.

The AMP notes that additional flood hazard modelling is required for new development and to better understand the performance of council assets.

6.1. Huntly

[13] Three Waters 2021 – 2031 Asset Management Plan, Waikato District Council

The AMP further notes that overland flow path and reticulation modelling would be beneficial for Huntly, to ascertain their levels of service. Detailed water quality information is not available, but there is on-site treatment at some industrial sites. A waterway investigation and remediation plan is recommended to address urban stream issues. Huntly has a flat grade to the Waikato River which compromises the operation of the stormwater network, requiring the use of flood gates.

6.2. Ngaaruawaahia

Ngaaruawaahia is at the confluence of the Waikato and Waipa Rivers but is largely elevated out of the river flood plain. Ngaaruawaahia has had recent upgrades to alleviate flooding in River Road between 2013 and 2018. A 2014 flood model identified floodwater ponding constraints.

Water quality grab sampling showed typical results for untreated urban stormwater runoff. There is planned work to assess waterways and identify necessary work to remediate them.

6.3. Tuakau

Riverine flood mapping was undertaken for Tuakau in 2019. Water quality grab sampling showed typical results for untreated urban stormwater runoff.

6.4. Pokeno

Pokeno has a mix of old assets in the older part of the township, and new assets in the more recently developed suburbs including a number of stormwater ponds which provide both water quality and quantity benefits. Riverine flood modelling was undertaken in 2019 to inform the PDP.

6.5. Asset planning and growth planning

Growth planning has been undertaken in accordance with the Waikato District Council Growth and Economic Development Strategy (Waikato 2070) adopted in May 2020 and the Future Proof Growth Strategy and Implementation Plan updated May 2017 and again in 2022. In order to manage rapidly changing growth predictions in wake of the Covid-19 pandemic growth planning via the AMP has been moved to an annual rather than a three yearly cycle. A part of the growth planning is an internal Climate Response and Resilience Policy and a Climate Action Project.

The PDP Natural Hazard Provisions for land use, subdivision and land development were drafted to protect land that is potentially at risk in the future. Council has committed to continuing to advise landowners of potentially floodprone areas when new flood mapping is developed. Ensuring all flood mapping is made publicly available online and is referenced in the LIMs. Proactively addressing areas of high flood risk through capital works. In addition, programmes are underway to achieve better stormwater outcomes:

- Catch-pit inserts initiative. These capture gross pollutants and coarse sediment and have been installed in the central business district of a number of towns including Ngaaruawaahia, Tuakau and Huntly.
- Stream and water quality improvements in publicly owned land.

6.6. Unanticipated Growth

Unlike wastewater and water supply pipes, stormwater pipes can be oversized in preparation for maximum probable development in the remainder of the catchment. It is good practice to size flood mitigation devices, such as detention ponds, and overland flow paths and flood plains for maximum probable development. Largely, this is a function of the area of land to be developed and the impervious surfaces that will be developed within it. Undersized devices and a lack of space for water can hinder growth in the upper catchment, require expensive and high-risk mitigation such as dams, or put properties lower in the catchment at risk.

For these reasons, unanticipated growth is only an issue if additional areas are earmarked for growth in the upper catchment, after the lower catchment has been developed. In the case of the PDP, there is a reasonably consistent application of a 70% impervious surface control which assists with predicting the effects of future flooding. The exception is industrial and commercial areas; however, these are typically located on lower lying land because it is flatter and more suited to large format development forms.

Te Miro Water[14] has updated the flood modelling for the four towns affected by Variation 3. The change in zoning from General Residential to MRZ2 entails the same maximum impervious surface so alterations in flooding effects are a primarily a consequence of changes in built form. The Te Miro Water Technical Review has identified that around 40 to 50% of the existing sites are covered in impervious surface. Where there is one house per site the maximum impervious surface is not typically reached.

6.7. Pipe Capacity

The Te Miro Report Technical Review has inferred stormwater pipe capacity using the date of installation and the design standards at the time of the installation date[15]. This method is consistent with the methods used in the Asset Management Plan to understand where the stormwater network does not have capacity to convey the water directed to it. The results are indicative and are reproduced below:

Town	Total number of assets installed prior to 2008 (Undersized)	Total number of assets installed post to 2008 (Sized for the 10 year ARI + CC)	Total number of SW network assets	Percentage of undersized assets
Pookeno	1656	273	1929	85%
Tuakau	1802	604	2406	75%
Huntly	1785	464	2249	79%
Ngaaruawaahia	1247	450	1697	73%

Appendix B of the Te Miro Water Technical Review shows the network on indicative maps.

[14] Waikato District Council Variation 3 Technical Review, Stormwater, Tuakau, Pookeno, Huntly and Ngaaruawahia by Te Miro Water May 2023.

[15] Ibid: 41, Table 9 Stormwater Pipe Network Capacity Summary (based on asset installation date)

7. Current approach to managing flood hazards and stormwater in the PDP and Operative District Plan

7.1. Proposed District Plan approach

The PDP includes flood hazard overlays on the Planning Maps identifying:

- Flood plain management areas;
- Flood ponding areas
- High risk flood areas
- Defended areas

These maps were developed from modelling of riverine flooding, that modelling was undertaken specifically for the PDP review. These flood management maps do not identify properties that would be subject to potential stormwater flooding (although there may be some overlap with riverine flooding).

The rules that apply within a mapped flood hazard areas are linked to assessing and managing hydrology at the time of development in the form of earthworks controls that affect overland flow paths. Infilling in the flood plain is a permitted activity to raise house foundations above the predicted 1%AEP flood plain.

Regardless of the mapped overlay, proposals to carry out earthworks within 1.5m of an overland flow path and/or earthworks that divert or change the nature of natural water flows, water bodies or established drainage paths must obtain a resource consent and avoid, remedy or mitigate effects associated with flood risk, including natural water flows and established drainage paths (EW-R13). The Waikato Regional Plan also manages earthworks within 10m of a watercourse which may incorporate some or all of the flood plain depending on the water body.

The rule framework can be successfully applied if the applicant and the consent authority are aware of the flood risks present on the site. The rules are discussed in detail below and are assessed in the Te Miro Report Technical Review.

A river is defined in the PDP as having the same meaning as in section of the RMA, being a continually or intermittently flowing body of fresh water, and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal). This definition includes intermittent and permanent streams.

7.1.1. Natural Hazard rules relating to flood risks

The rules apply to the mapped flood areas in the PDP.

In the Flood plain management area and Flood ponding area across all zones NH-R1 permits the construction of a new building, reconstruction of or additions to an existing building as a permitted activity provided the floor level is 0.5m above the 1%AEP; NH-R2 allows additions of no more than 15m^2 to an existing building,~~-~~; and NH-R3 a garage of 40m^2 and NH-R4 construction of an accessory building with no floor as permitted activities.
NH-R8 permits filling in the Flood plain management area and Flood ponding area across all zones to achieve compliance with NH-R1. Note that EW-R13 (discussed below) will still need to be complied with. NH-R9 also applies which sets earthworks limits for earthworks other than those for building platforms of no more than 10m^3 of filling or 20m^3 of cut and fill to be a permitted activity.

The High-Risk flood zone NH-R18 allows an addition of no more than 15m^2 to an existing lawfully established building as a Restricted Discretionary activity. NH-R19 allows an additional lot as a Discretionary activity where the lot or the building platform is outside the High-Risk flood area. New

buildings and subdivision not provided for above are non-complying under rule NH-R20 and NH-R21 respectively.

Within the Defended Area across all zones subdivision to create one more allotment is a Restricted Discretionary activity under NH-R24 and a new building and earthworks within 50m of the toe of a council stop-bank is Discretionary under NH-R25 and NH-R26 respectively.

7.1.2. Earthworks rules

EW-R13 requires that earthworks be located more than 1.5m horizontally from any waterway, open drain or overland flow path to be a permitted activity.

An overland flow path is defined in the PDP as *a route taken by stormwater runoff not captured in a reticulated or natural stormwater system. It includes a primary or secondary stormwater flow path.*

The Waikato District Council Stormwater Bylaw 2021 defines overland flow paths as *A low point in the terrain, excluding a permanent watercourse, where surface runoff will flow over the ground surface. A subset of an overland flow path is called a "secondary flow path". These routes carry water which cannot flow through the primary stormwater system (usually piped) because the water flow has exceeded the capacity of that network.*

Te Miro Water has clarified that[16] the 1% flood levels shown on the flood hazard maps in the Te Miro Water Technical Assessment (unless contained within the streams) would be considered overland flow paths for both these definitions. Te Miro Water also notes that the 1.5m distance is insufficient to manage erosion effects. This rule can't be amended in this planning process as it is out of scope of Variation 3 but could be addressed in a future planning process.

7.1.3. Water, Wastewater and Stormwater rules

WWS-R1 applies to new development and subdivision and sets permitted activity standards for stormwater systems that relate to:

- conveyance within pipes and overland, setting a level of service of the 10%AEP for the former and the 1%AEP for the latter;
- sufficient capacity for the receiving network taking into account maximum probable development;
- retention for re-use,
- soakage,
- treatment,
- detention,
- water quality,
- downstream erosion and scour; and
- cumulative volume and instability.

The rule requires that climate change be factored into the design of stormwater systems

There is an error in (1) (a) (vii) which refers to minimum rather than maximum pipe capacity.

[16] E-mail from Andrew Boldero at Te Miro Water dated 25 May 2023 entitled "Definition of overland flow path".

(1) (a) (v) requires that: *Stormwater management measures, including low impact design measures, must be implemented **as appropriate** in accordance with the following drainage hierarchy…* (emphasis by WDC).
The use of the words as appropriate in a permitted activity standard is problematic. The rule references the Waikato Regional Infrastructure Technical Specifications (RITS) and the Waikato Stormwater Management Guideline and Waikato Stormwater Run-off Modelling Guideline via an advice note which provide more definitive guidance. Nevertheless, the preparation of a Stormwater Management Plan with several site-specific design elements will be difficult to assess and approve in a permitted activity framework as the Stormwater Management Plan may not be satisfactory and it must be prepared by a suitably qualified professional.

WWS-R1 would be more successfully applied if it were a Restricted Discretionary Activity because it would enable the detailed technical review that the rule requires and enable council to decline the application if the stormwater management approach is insufficient and will not uphold Te Ture Whaimana.

7.1.4. Stream Erosion and Riparian Management

The Waikato Regional Council manages work within 10m of a watercourse which is referred to as a high-risk erosion area (Chapter 5 of the Waikato Regional Plan 2007). The flood plain may extend wider than 10m, as indicated by Figure 5-1 in the Regional Plan.

The PDP has setbacks from watercourses varying between 23m to 28m (GRZ-S22 and MRZ2-S13). These are reduced in the notified Variation 3 to 21.5m to 25.5m. In areas where there are flood risks, a wider setback is appropriate to protect people, property and the environment from the projected adverse effects of climate change by providing sufficient setbacks from water bodies when assessing new development.

The setbacks are intended to protect the natural character of streams and their margins from inappropriate subdivision, use and development including freshwater physical processes, the movement of water and sediment, biological processes and patterns; and water flows and water quality (NATC-O1, NATC-P1, NH-P29). Stream setbacks also discourage stream channel modification and changes to hydrology, habitat modification and loss.

7.1.5. Medium Density and General Residential zone rules

Stormwater impacts are also managed through the zoning chapters of the PDP when land is developed. Development standards specific to the zones influence how water can be managed on the site.

Section 9 of the Te Miro Water report provides examples to demonstrate how development controls can support or hinder stormwater outcomes. In general, where larger flows are expected, more room is required on a site to manage water. The Te Miro Water Technical Review sets out the general sizing requirements for detention, treatment, soakage disposal, and overland flow path management. The key building standards are identified below with a comparison between the PDP zones Medium Density and General Residential zones.

Residential units per site: GRZ-S2 allows one unit per site as a permitted activity, and one additional minor unit of 70m^2 or less on a site of 600m^2 or more. MRZ-S1 allows up to three residential units per site as a permitted activity.

Building Coverage: Rule GRZ-S10 sets a maximum building coverage of 40% in the General Residential zone as a permitted activity. The corresponding rule in the Medium Density Residential zone is MRZ-S6 which sets a maximum of 45%.
Impervious Surface: GRZ-S13 allows 70% impervious coverage as a permitted activity, which is matched in the MRZ zone under rule MRZ-S7.

Building Setbacks: GRZ-S17 allows setbacks of 3m from the road boundary and 1.5 m on other boundaries as a permitted activity. MRZ-S10 allows setbacks of 3m from the road (front) boundary and 1m from other boundaries.

Waterway Setbacks: GRZ-S22 allows setbacks of 23m from the bank of any river other than the Waikato or Waipa Rivers, which have a setback of 28m. The corresponding rule in MRZ2 (Variation 3) has a setback of 21.5m from any river and 25.5m from the Waikato and Waipā Rivers.

7.1.6. Subdivision rules

SUB-R31 applies to the MRZ zone and requires a vacant lot to be a minimum of 200m^2 to be a Restricted Discretionary Activity. SUB-R30 provides for subdivision in accordance with an approved land use as a Controlled Activity, there is no minimum site size requirement where an approved land use has been obtained.

In the General Residential zone, SUB-R11 requires a minimum net site area of 450m^2 to be a Restricted Discretionary activity.

7.2. Operative District Plan of relevance

While not currently provided for in the PDP, there is an additional rule that is still operative and relevant to managing stormwater flooding risk.
The Operative Waikato District Plan requires the construction or alteration of a building on land shown on the Planning Maps as a Flood Risk Area or other land that is subject to flood hazards (Rule 21.54 Building in a flood risk area in the Living Zone) has habitable floor levels 0.3m above the 1% AEP to be a permitted activity.

7.3. Summary of PDP approach

The key points to note from the existing PDP framework are:

- Flood hazard maps are included in the PDP for riverine flooding but not stormwater flooding;
- A number of rules, including development in high risk areas and the minimum freeboard requirement are limited to the mapped extent of the riverine flooding, and do not apply to other flood hazard areas;
- Earthworks require a resource consent when within 1.5m of a waterway, open drain or overland flow path, whether these are mapped or not;
- Development standards vary between the General Residential and Medium Density zone; and
- All subdivision (other than subdivision in accordance with a land use consent in the Medium Density zone) is a restricted discretionary activity providing an opportunity for WDC to assess infrastructure requirements and mitigation of natural hazards, and consent can be declined.

While there is an ODP rule that requires a minimum floorboard level in any Flood Risk Area or other land that is subject to flood hazards this rule will only apply until the PDP rules are either deemed operative or made operative. There are two appeals that remain unresolved at the time of writing this report, meaning the ODP rule is still relevant.

8. Stormwater Planning for Variation 3

Variation 3, as notified, provided for greater opportunity for residential development near the town centres of Pookeno, Tuakau, Huntly and Ngaaruawaahia, by limiting the application of the MDRS through the Urban Fringe qualifying matters. One of the supporting reasons, was to enable the efficient use of land and infrastructure. Now that the MDRS is to be applied far more broadly, the Variation has the potential to create greater adverse water quality effects on the Waikato River, exacerbate flood risks, and expose more people and properties to flood hazards.

Due to the currency of the infrastructure planning assessments such as The Waikato District Council Growth & Economic Development Strategy (Waikato 2070), infrastructure assessments used for the development of the PDP were relied upon when preparing Variation 3. The infrastructure review instigated following notification of Variation 3 offers the opportunity to revisit that approach to determine if amended planning controls to manage effects from intensification on the Waikato River are required.

The Residential Capacity Modelling[17] which supported the s32 report for Variation 3 notes that the MDRS would enable a range of medium to higher density dwelling typologies, and that the typology would, in part, be dictated by the market for new dwellings. The modelling to support the report shows that Variation 3, as notified, provided an estimated plan enabled capacity for an additional 122,300 dwellings with just over half of those (53%; 64,400 dwellings) being within the existing urban area. It also notes that demand would not change, and additional development overall would remain within expected growth scenarios. The plan enabled capacity is far from the real-world demand for new development.

The updated growth modelling was not available at the time this document was drafted, however the expansion of the MDRS to the Urban Fringe will mean that much more development capacity will be enabled. This development could occur anywhere within residential areas because the location of the development will be driven by the aspirations of homeowners as well as market forces.

8.1. Approach to flood hazards and stormwater management in Variation 3

Aside from limiting the MDRS to the walkable catchment of the town centres, Variation 3 includes the following rules and standards that relate to flood hazards and stormwater management in the Medium Residential Density Zone 2 (MRZ2).

SUB-R152 provides for subdivision in accordance with an approved land use as a Controlled Activity and SUB-R154 provides for a subdivision around constructed or approved residential units that is concurrent with a land use application as a Controlled activity. Under this rule, the minimum net site area of 200m^2 does not apply where the development fully complies with the standards (development controls S2 – S9, the MDRS standards) in the MRZ2 zone. Land use rules such as WWS-R1 will apply.

Qualifying matters are proposed to ensure that the rules that manage development in the mapped flood

[17] Residential Capacity Modelling, Medium Density Residential Standards: Waikato District prepared for Waikato District Council July 2022 by m.e Consulting.

hazard areas continue to apply (Flood plain management areas, Flood ponding areas, High risk flood areas, and Defended areas). The areas of the MRZ2 that are included in these flood map overlays will still need to comply with those rules.

Waterway setbacks are also imposed through a qualifying matter (to give effect to Te Ture Whaimana and section 6 matters of national importance). The setbacks are 21.5m from any river and 25.5m from the Waikato and Waipā Rivers.

The MDRS standards that can have an impact on stormwater managements are adopted in the MRZ2 allowing 3 units per site, a maximum buildings coverage of 50%, and building setbacks of 1.5m for the front yard and 1m from all other boundaries.

The PDP impervious surface standard of 70% is maintained.

8.2. Submissions

Submissions were received on Variation 3 that relate to stormwater management, including water quality and flooding. Those of particular importance are:

Submission 114 Waikato-Tainui

Waikato-Tainui advise that *"Housing intensification, inappropriate subdivisions, use or development of resources has the potential to adversely affect the Waikato River and therefore, fails to give effect to Te Ture Whaimana. Section 77I of the Housing Supply Amendment Act (HSAA) outlines that a specified territorial authority may make Medium Density Residential Standards (and the relevant building height or density requirements under Policy 3 of the NPS-UD) less enabling of development in relation to an area with a relevant zone to the extent necessary to accommodate a matter required to give effect to Te Ture Whaimana o Te Awa o Waikato."*

Submission 083 Ngāti Naho Trust

Ngāti Naho seek that *"the proposed v3 to the PDP does not compromise or put at risk the cultural landscape of the North Waikato region known by Mana Whenua like Ngāti Naho as ''Manawa-ā-whenua'' ('heart of the land') which refers to the existence of a massive water table and aquifers that connects all our waterways in towns like (but not limited to) Tuakau, Pōkeno, Mangatangi, Maramarua, Mercer, Meremere, Te Kauwhata, Ohinewai, Tahuna and Huntly"*.

They also seek that the negative impact of the current lack of three waters infrastructure is mitigated, as well as the impact on freshwater. And to mitigate the negative impact and adverse effects on natural resources in particular freshwater, in particular, in Huntly and Ngāruawāhia that are built on the banks of the Waikato River and Pookeno that has a number of wetlands, springs and streams flowing through its township and into the Mangatawhiri wetlands and stream and eventually direct into the Waikato River. They wish to provide a 1.2km buffer zone between medium to high density housing and these waterbodies.

They seek that Maaori values in relation to Te Mana o te Wai and the objectives of the NPS-FM 2020 are protected by infusing it in the PDP namely:

a) Mana whakahaere: the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater

b) Kaitiakitanga: the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations

c) Manaakitanga: the process by which tangata whenua show respect, generosity, and care for freshwater and for others

d) Governance: the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future

e) Stewardship: the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations

f) Care and respect: the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

Ngāti Naho support Low Impact Design and want WDC to implement green infrastructure and low impact designs and housing typologies on all Variation 3 builds. They seek that the Variation "*does not prejudice or jeopardize the vision and strategy for the Waikato river as outlined by Te Ture Whaimana and indeed the hapū aspirations of Ngāti Naho regarding their waterways in particular the Waikato river, the Whangamarino and Mangatawhiri wetlands, Lake Waikare, Lake Whangape, Lake Rotongaro and the various puna wai throughout our traditional boundary and area of interest for Ngāti Naho"*

Ngāti Naho note that the lower Waikato River catchment floods at least once or twice a year and the increase in population growth will place a greater demand and stress on existing three waters infrastructure.

Submission 042 Waikato Regional Council (WRC)

Ask WDC to *"clarify whether the need for additional provisions to restore and protect the health and wellbeing of the Waikato River has been investigated given the additional intensification enabled by the variation. Amend objectives, policies, and rules to better give effect to Te Ture Whaimana, if required."*

WRC also note that "*subdivision and development should not occur in locations where the risk of climate change cannot be mitigated, or the resulting land use activity cannot adapt or be resilient to the effects of climate change. This is consistent with the definition of well-functioning urban environment under the NPS-UD."*

Specific changes to rules are sought as follows:

- SUB-R153 The requirement under (1)(ii) that proposed vacant lots must be able to connect to public-reticulated water supply and wastewater is identified in the Section 32 Report as a provision which gives effect to the qualifying matter of Te Ture Whaimana. We query whether further amendments to SUB-R153, including matters of discretion, are needed to give effect to Te Ture Whaimana in relation to managing stormwater effects associated with intensification.

  Consider adding a new matter of discretion relating to stormwater management.

- MRZ2-S10 We support the retention of the maximum impervious surface standard to reduce adverse effects of additional stormwater run-off associated with intensification. We suggest adding a new matter of discretion to ensure that effects on the health and wellbeing of waterways are appropriately mitigated if the maximum impervious surface area is exceeded, such as through use of low impact design technologies for stormwater management.

- Retain MRZ2-S10(1). Add new matter of discretion to MRZ2- S10(2) relating to effects on waterways and/or the use of low-impact design technologies.

- Retain MRZ2-S10(1). Add new matter of discretion to MRZ2- S10(2) relating to effects on waterways and/or the use of low-impact design technologies.

- MRZ2- S13(1)(a)(iv) The Section 32 Report (Volume 1) states that the amended building setbacks from waterbodies "are based on the approach of 25m + the normal setback for a building for the Waikato and Waipa Rivers, and 20m + the normal zone setback for other rivers." Using this approach, the minimum building setback from the margins of the Waikato and Waipa Rivers should be 26.5m, however this rule specifies a setback of 25.5m.

  Amend (iv) to 26.5m from the margin of the Waikato River and the Waipa River.

The Waikato Regional Council is an appellant on the PDP, with an appeal point asking for the natural hazard rules to apply to all known hazard areas rather than just those that are mapped.

Submission 044 Anna Noakes and MSBCA Fruhling Trustee's Company Limited (as trustees of the Fruhling Trust)
Anna Noakes seeks that *"the stormwater provisions of the PDP be amended to address the adverse stormwater effects of more intense development in terms of altered natural flow paths, and altered the hydrological conditions, including the volume, frequency and duration of discharges, the extent of inundation on downstream properties."* She notes that the PDP should *"take a consistent approach to stormwater management across the entire plan and that the stormwater management provisions in all chapters should be amended accordingly."*

Anna Noakes is also an appellant on the PDP which relates to a number of rules discussed in this report. Relief is sought in the form of amended stormwater management provisions to address the stormwater concerns raised in the appeal and consequential amendments to give effect to the relief sought. Rule amendments intended to manage the downstream effects of stormwater runoff are proposed to the infrastructure, water, wastewater and stormwater, subdivision and natural hazard rules.

8.3. Additional work undertaken since submissions

Having acknowledged that the Urban Fringe qualifying matter could not be maintained, WDC has focused on understanding what the implications of applying the MDRS to the remaining General Residential zoned areas of the towns might be, and whether any additional qualifying matters are required under s77I.

One area of particular concern was the potential for further intensification of housing within areas that are within unmapped flood plains and may be subject to stormwater flooding. As these properties are not mapped in the PDP, the natural hazard rules do not apply.

Te Miro Water was engaged to undertake the stormwater modelling and to review the PDP rules and provide recommendations.

There are a number of recommendations from Te Miro that are not within the lawful scope of changes that can be made to Variation 3. These recommendations will separately be considered by WDC including whether any additional planning processes are required.

The recommendation to identify "*areas required for enhancement of fresh water waterways and tributaries to inform planning decisions and zoning (and any new district plans)*" has already been

identified in the Asset Management Plan and the relevant Catchment Management Plans and is within the planned WDC work programme.

Other recommendations from Te Miro relate to the scale and intensity, and appropriateness of development within the newly identified flood plains. It is noted, that as a result of the mapping work undertaken that there are large areas of the General Residential zone that are not within flood plains and where no additional controls are proposed.

9. Scope for Amendments to Variation 3

Variation 3 to the PDP was notified in September 2022 and submissions closed in October 2022 and further submissions closed in December 2022. A joint hearing on strategic matters that related to Variation 3 and the PDP was held in February 2023. The substantive hearing is scheduled to commence next month in July 2023.

9.1. Legal framework

Amendments made to the Variation must be 'on' the Variation. While the Independent Panel does have the ability to make recommendations outside the scope of the submissions (the relevant submissions are discussed in Section 8.2 of this report) the Panel's recommendations must also be 'on' the Variation (referred to as the *Clearwater* tests). We also understand that as a result of a recent Environment Court decision the Variation cannot introduce controls that are more onerous than what is already provided for in the PDP (*Waikanae* test). As noted, there are still appeals to the underlying PDP provisions that are still to be resolved, and an ODP rule that is still applicable. The scope to make changes to Variation 3 will be discussed in legal submissions at the hearing.

The Decisions on the PDP included a Medium Density Residential zone which afforded development rights similar to those in the MDRS within the town centre areas (approximately a walkable catchment) of the four town centres of Huntly, Ngaaruawaahia, Tuakau and Pookeno. This Medium Density Residential zone was introduced in the Decision Version of the PDP at the request of a submission from Kāinga Ora.

The remainder of the residential zones in the four townships remained General Residential. Even though the subsequent Te Miro Technical Report has identified some planning issues that need to be addressed, the development rights of these zones cannot be retracted through the Variation 3 planning process. However, this does not remove the opportunity to address issues in the future using a separate planning process if necessary.

Other rules in the PDP also cannot be made more restrictive using Variation 3. For example, rules that manage earthworks and natural hazards in a permitted activity framework cannot be given a more stringent activity status.

9.2. New flood hazard modelling

The new flood hazard modelling has identified areas of flooding higher in the catchments associated with tributaries to the Waikato and Waipa Rivers which are not mapped in the PDP as the riverine flood hazard areas are.

There are several rules that will apply to these newly identified areas that are unmapped in the PDP. Firstly, the ODP rule discussed above still applies and requires the construction or alteration of a building

on land that is subject to flood hazards to have habitable floor levels 0.3m above the 1% AEP in order to be a permitted activity. The PDP contains controls on earthworks in and near overland flow paths (which should be able to accommodate a 1%AEP (WWS-R1 and AINF-P28)), therefore applying controls to areas that would be subject to inundation in a large storm event via the Earthworks, Infrastructure and Water, Wastewater and Stormwater chapters. The subdivision rules also contain standards and assessment matters related to the management of flood hazard risks and natural hazards. Overall, the PDP has a rule framework that requires a resource consent for earthworks, structures, and subdivision in areas subject to inundation in large storm events.

The flood hazard modelling in the Te Miro Water Technical Assessment will enable better assessment of development proposals by council staff to ensure compliance with the existing rules. The inclusion of the flood hazards in the PDP via a stormwater/flood constraints overlay via the Variation 3 process will also alert developers and landowners to the risk.

9.2.1. Scope for changes relating to flooding that is not high risk

Where sites are subject to a degree of flooding, and that flooding is not high risk, there is opportunity to manage adverse effects within the area identified as the "Urban Fringe" within Variation 3; being the area zoned General Residential that will now be zoned in accordance with the MDRS, the MRZ2 zone. Qualifying Matters can be applied to lessen the development intensity in this area where it is affected by flooding and prevent cumulative flooding effects associated with intensive development. While the same opportunity does not exist for the MRZ zone in the notified version of Variation 3 (other than retaining the slightly lower notified building coverage control of 45% rather than the MDRS 50% building coverage control) these areas are less likely to create cumulative flood effects, being closer to the rivers where flood water will discharge and recede. The Natural Hazard rules of the PDP still apply, which map known riverine flooding. In combination with the Earthworks, Infrastructure and Water, Wastewater and Stormwater rules, flood hazards should be assessed and managed for development proposals.

Overall, with regard to flood hazards, the application of Qualifying Matters (QM) to the areas subject to flood hazards identified in the Te Miro Water Technical Review can make a meaningful difference to managing these hazards. There is an overlap between the proposed management of low-medium risk flood hazard areas, a QM reducing density in these areas related to natural hazard risk, and the management of stormwater for water quality and hydrology reasons. The latter will contribute to Te Ture Whaimana, also a relevant QM.

9.2.2. Scope for changes relating to flooding that is high risk

Where the flood hazard is a high-risk flood plain, development is not appropriate, and development will need to be curtailed in these areas. The existing high-risk natural hazard area has stringent controls. This is required in order to give effect to the Regional Policy Statement (HAZ-M10) which requires the avoidance of the placement of habitable structures (among other things) in the high-risk flood area.

The High-risk flood area is defined in the PDP and means an area identified on the planning maps as a High Risk Flood Area, being an area, which is subject to river or surface flooding during an event with an annual exceedance probability of no more than 1%, and during such an event: (a) The depth of flood waters exceeds one metre; or (b) The speed of flood waters exceeds two metres per second; or (c) The flood depth multiplied by the flood speed exceeds one. Figure 8 in Table 6 of the Te Miro Water Technical Review has identified that water at this depth and velocity represents an extreme risk. Building in flood plains of this nature should be avoided. This is consistent with the RPS and the PDP and should be a Non-Complying activity.

The Waikanae test means that a non-complying activity cannot be applied to the level of development currently allowed under the PDP in the General Residential zone (being 1 residential unit and an additional minor unit on a site of 600m^2 or more, or one unit on a 450m^2 site). The non-complying

activity is proposed for two (or more for larger sites) residential units in the High-risk flood area[18].

9.2.3. Scope for other changes

The PDP has existing set-back requirements from rivers and streams which were marginally reduced in Variation 3. A QM cannot be applied in relation to set-backs as that QM would not be related to development intensity. However, the set-back in the General Residential zone can be retained in the Urban Fringe area. Wider set-backs support water quantity and quality outcomes, and Te Ture Whaimana.

There is no restriction on the vacant lot site size in the MDRS. This is carried through to the PDP where a combined subdivision or land use consent is applied for, or where the MDRS are complied with. In the PDP and through Variation 3 there is a restriction on the size of vacant lots. A QM would need to apply to retract on the ability to subdivide around residential units that comply with the MDRS.

10. Proposed approach to stormwater management in Variation 3

10.1. Flooding

The Stormwater Constraints Overlay will apply to the area within the Urban Fringe area to known mapped flood plains associated with the Defended Area and the Flood plain management area and flood ponding area and to new modelled flood plain hazards.

The expansion of the extent of the application of the MDRS into the Urban Fringe (as set out in the notified version of Variation 3) can be carried out in a way that avoids, remedies, or mitigates flooding effects and meets the Waikanae and Clearwater tests (Refer to Section 9) by doing five things:

1. Apply a Stormwater Constraints Overlay that aligns with the extent of the new modelled flood plains to make plan users and administrators aware of the flood hazard risk. This Overlay will show the high-risk flood areas and the medium to low-risk flood areas.
2. Apply the stormwater constraints overlay to areas that are both within the Defended Area and the flood plain management area and flood ponding areas and within the Urban Fringe, or, add an additional rule to prevent intensification in this area as set out in 3. Below.
3. Apply a qualifying matter (s6 the management of significant risks from Natural Hazards) to avoid introducing more households into known flood risk areas and to enable a built form that can successfully mitigate flood hazard risk by allowing space for flood water to be managed safely such as formalising overland flow paths and creating areas for compensatory flood storage.
    a. Apply a non-complying activity status for two or more dwellings within a site in the high-risk flood area.
    b. Retain the site sizes and site intensity controls for the General Residential zone within the medium to low-risk flood hazard areas.
        i. One residential unit per 450m^2; or
        ii. One residential unit and one minor dwelling per 600m^2. The gross floor area of the minor unit shall not exceed 70m^2.

[18] Further work is being carried out to determine which flood plain areas are high-risk in terms of the definition of the RPS.

4. Apply a qualifying matter (s6 the management of significant risks from Natural Hazards) to reduce the extent of built form on sites within the low to medium risk flood plain to better enable flood risk mitigation such as formalising overland flow paths and creating areas for compensatory flood storage with the following:
    a. Amend the building coverage control within the MRZ2 zone within the new modelled flood hazard area to reduce the amount of water that would be displaced in a flood event.
        i. 40% within MRZ2 (formerly the urban fringe)
    b. Retain the yard controls for the General Residential Zone to allow more room for water to be conveyed around buildings and to pond safely; and to avoid flood plains adjacent to streams which may erode and change course over time.
        i. 3m from the road boundary
        ii. 1.5m from every boundary other than a road boundary; and
        iii. 1.5m from every vehicle access to another site.
        iv. 23m from the margin of any lake, wetland and the bank of any river other than the Waikato and Waipa rivers; and
        v. 28m from the margin of the Waikato and Waipa Rivers.
5. Retain the minimum site size that applies to the General Residential zone (450m^2) in the Urban Fringe area to better manage stormwater on development sites and enable compliance with WWS-R1. This would negate the presumption that stormwater can be effectively managed on very constrained sites, for example, three houses on a 200m^2 lot thereby reducing the risk that new development will generate stormwater contaminants and flood risk by requiring developers to obtain a resource consent for denser development forms. This would entail an assessment of the proposed stormwater management measures via a resource consent process, which would be required to give effect to Te Ture Whaimana.
6. Add new matters of discretion to assess flood hazards, stormwater management and Low Impact Design for subdivisions and residential development that requires a resource consent and to link the matters of discretion to Part 2, Chapter 20 of the PDP Te Ture Whaimana.

10.2. Water Quality and Conveyance

Amendments to rule WWS-R1 should be considered alongside the new QMs which would respond to Te Ture Whaimana, support the management of natural hazard (flood) risk, correct errors in the rule and respond to the Noakes submissions and appeals on the PDP set out in Section 8.2 of this report. Table 6 WWS-R1 review in the Te Miro Technical Review recommends alterations to the rule. These recommendations note that parts of the rule are satisfactory, and parts are problematic.

11. Conclusion

Ideally, no new development would occur in the 1% AEP flood plain. However, where the flood plain is determined to be medium to low risk, there may be ways to remedy and mitigate flooding effects when developing a site affected by flooding. Amendments can be made to Variation 3 that will make a meaningful difference in terms of managing flood risk by applying Qualifying Matters to reduce site

intensity, building coverage, set-backs and site size within the modelled medium-low risk flood hazard areas, and to curtail development in the high-risk flood areas.

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Appendix 1 Stormwater Technical Assessment.

Appendix 2 Extent of former Urban Fringe

Concept Paper: Water and wastewater capacity assessments at Waikato District Council for developments enabled by the Medium Density Residential Standards

Introduction

The Medium Density Residential Standards (MDRS) enables development at densities different to what the Waikato District Council (council) water and wastewater network were designed to cater for. The council will need to undertake capacity assessments differently to determine whether or not infrastructure upgrades are required to enable the development.

This concept paper speaks briefly on the background and issues before overviewing the current process and proposing an amended process (at the conceptual level). Significant work would be required by council and Watercare to establish the amended process.

This paper focuses on 2-3 dwellings on a lot enabled by the MDRS because larger developments (more than 3 dwellings) will require a more fulsome effects assessment through the resource consent process.

The MDRS will enable residential intensification on existing residential lots. The water and wastewater infrastructure in the urban areas of the Waikato District have not been designed for the density enabled by the MDRS. Existing processes are designed to target the intensification enabled by legacy district plans as well as greenfield development. There is a gap in the existing processes with regard to water and wastewater network capacity when assessing development proposals that seek to intensify residential land uses in existing urban areas under a MDRS regime.

The uptake of the MDRS is not expected to be significant due to the enabled land supply far exceeding dwelling demand. As it is enabled anywhere, but will not happen everywhere (demand does not exist), it is proposed that a case-by-case assessment process will suffice. If uptake is much more significant than expected, items like GIS tools and education will be much more important and the process may need to be amended further.

Background

The water and wastewater networks in council's main urban areas are designed to cater for development resulting from council's legacy planning frameworks which enabled lot sizes of between 450-600m^2 and one dwelling per lot. The planning frameworks also enabled the development of a minor dwelling on some sites (generally sites greater than 600m^2) although the uptake has not been significant.

Subdivision consent applications are currently subject to a water and wastewater network capacity assessment. These assessments are undertaken by council's Land Development Engineers and are complemented with input from Watercare Waikato (council's three waters asset management contractor) for significant developments, including those where the density sought is higher than anticipated (eg 300m^2 lots). Where network capacity is not available, the customer is required to construct and vest, or fund, new infrastructure or infrastructure upgrades to enable the development.

The delivery of the new infrastructure or infrastructure upgrades required for a development is managed through the subdivision consent process. Council has not seen brownfield redevelopment

of significant scale and therefore most privately-led infrastructure delivery is completed in greenfield areas and is delivered at the sole cost of the customer.

The majority of 'trunk' infrastructure (large scale) is delivered by council and funded via a mix of rates and development contributions. Trunk infrastructure is designed to cater for planned growth at anticipated densities. Water and wastewater treatment plants are designed for projected population growth and are seldom a constraint for 1-3 new dwellings per lot. The growth component of council's treatment plant upgrades is recovered via development contributions. All new development creating additional demand on the council's water and wastewater infrastructure are liable to pay development contributions and these can be charged at the time of resource consent, building consent or service connection[1].

The general presumption to date in the Waikato district has been that when a new lot is created, local water and wastewater network capacity to enable the development of *one dwelling per lot* was assessed at the time of subdivision. This means that when the time comes for a building consent application, it can safely be assumed (by the customer and by council) that capacity is available for one dwelling per lot. With a small number of exceptions, this means building consents for one dwelling on a lot do not require a detailed assessment of council's water and wastewater network capacity. As the number of minor secondary dwellings is not high (and they are generally for 1-2 people and are on larger sites) any associated network capacity impacts are deemed low and, as such, are also not subject to a detailed capacity assessment at the time of building consent.

Should council staff assess a development proposal and determine that water and/or wastewater network capacity is problematic (for example where there is a restricted network[2]), council has the ability to refuse a connection under the relevant bylaws for water and wastewater. This is not frequently used at present. A refused connection would mean a customer would need to identify and show in their building consent application an alternative means of compliance with the relevant aspects of the building code. In practical terms, the capacity assessment outcomes are currently managed by the staff member undertaking the building consent assessment (the two assessments are coordinated internally). In an urban area, on a small site, it would be difficult to identify alternatives, especially for wastewater disposal, because adequate space is needed on site to allow for a wastewater disposal field.

The current process:

1. Customer applies for a subdivision consent and an assessment of water and wastewater network capacity is completed (based on an assumed 1 dwelling per lot) by a council Land Development Engineer. If specialist input is required due to the complexity or scale of the development, the application is referred to Watercare.
2. If network capacity is adequate, and all other components satisfactory, subdivision is granted.
3. The customer builds the subdivision, including the required infrastructure upgrades. The customer installs one water and one wastewater connection per lot.
4. The subdivision is completed and building consent applications can be received for building on a new lot.

[1] The Waikato District development contribution policy and its implementation adequately enables the collection of development contributions under an MDRS framework eg at the time of building consent.
[2] Waikato District currently has a small number of restricted schemes such as the wastewater infrastructure in Te Kowhai and Matangi. There are no restricted networks currently identified in the urban areas where the MDRS apply.

5. If a customer is seeking application to build one new dwelling per lot, and possibly also a minor secondary dwelling, they do not require a capacity assessment at the building consent stage (unless it is a restricted network).
6. If a customer is seeking application to build more than one dwelling and one minor secondary dwelling[3] per lot, they require a resource consent where a capacity assessment can be undertaken, and upgrades can be triggered, or resource consent can be refused.

Proposed amendments to process (conceptual only, subject to council approval processes including financial, political and legal review and approval);

Steps 1 to 6 remain as above, with step 7 being replaced by:

7. If a customer is seeking application to build more than one dwelling and one minor secondary dwelling[3] per lot they would follow this process:

A. The customer seeks information on network constraints from council via its website or from customer support services.
B. The customer applies for new (additional) water and wastewater connection/s from Watercare *prior to* applying for building consent.
C. Connections application/s will be received and assessed by Watercare. If there is no available capacity, the connection application will be refused by Watercare. If capacity is available, a connections approval will be issued.
D. Council requires a connections approval from Watercare to be included with the building consent application. If none is provided, council will request further information regarding connection details. Noting that the customer should have explored network capacity prior to pursuing a building consent.
E. If no capacity is available, and the connection application/s refused, the customer could;
    a. Investigate and show alternative compliance with the building code (which may be very difficult to do on a small site),
    b. Work with Watercare to understand local network upgrades and associated cost, and decide whether it is feasible to progress the development,
    c. Withdraw their building consent application, or
    d. Take no further action. The building consent application would get refused by council after 30 working days from the last request for further information.

The above amended process will enable council to manage intensification effectively in its recently-established medium density residential zone (MRZ). It is suggested that the capacity assessment process for both the MRZ and the MDRS areas should be consistent.

It is anticipated that the above process amendments would take at least six months to fully establish. If there were additional modelling and GIS tools needed to proactively identify network constraints, those could take longer to develop but would not hold up process implementation.

Information would be published via existing council communication avenues and via the building consent application process. The information would alert customers to the presence of infrastructure constraint issues as a consequence of the MDRS and would include potential costs and risks associated with new, more intensive development and the need for network connection

[3] Noting that some customers start the process here. For example, they own a lot which has one dwelling and they want to build a second dwelling on it.

permissions prior to advancing other development assessments. This is to avoid unnecessary expenditure by the customer on development proposals that are not feasible due to infrastructure constraints or the customer's funding capacity.

The matters council and Watercare will need to consider when amending its processes include:

Guidance

- Public education, including websites updates and guidance.
- The ability to proactively identify and communicate to the public any areas with limited capacity.
- Guidance on what information an applicant is expected to provide to support a connection application, including investigation of available infrastructure.
- Guidance to applicants regarding configuration of servicing including where a wastewater main line traverses a property and multiple dwellings are proposed on the one lot, and assessment of suitability/condition of existing connection if use is proposed for additional dwellings.
- Guidance for customers and staff on what to do if there is no capacity.

Process

- Whether existing application forms and processes are efficient and scalable.
- Consideration of how any public infrastructure and private connections are captured outside of a subdivision; as-builts/valuation.
- Consideration of items such as build-overs, building encroachments, asset relocations in this process.
- Establishment of the method and form of final signoff to support building code compliance certificate.
- How the process complements or requires changes to other existing processes, such as capacity assessments for subdivision consents.

Policy framework

- Whether amendments are required to waters and wastewater bylaws to enable effective and efficient implementation, including consideration of lapse periods on approvals to enable reallocation.
- Whether amendments are required to the service level agreement between council and Watercare.

Resource/funding

- Capacity and capability of staff resourcing to undertake an increased number of 2-3 dwelling capacity assessments, with resourcing to meet customer timeframes within the service level agreement between council and Watercare.
- Review of existing application fee structure to ensure it accommodates and funds the process amendments. There may be budget implications associated with additional assessments, however these costs should be recoverable from applicants if the fees and charges regime is amended.
- Consider if and how council might identify, fund and undertake upgrades to relieve capacity constraints.

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