WOODS

INFRASTRUCTURE REPORT

PROJECT	Middle Road – Fast-track Referral Application
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Statement of Qualifications & Experience

The following is a statement of the qualifications and experience of the experts involved in preparing this Report.

Todd Fraser – Principal Engineer; Wood & Partners Consultants Limited

I am a Principal Engineer and Senior Project Manager at Wood and Partners, where I have been employed since 2006 with 29 years' experience. I hold a Bachelor of Engineering (Technology) from the University of Southern Queensland / Open Polytechnic of New Zealand, along with a New Zealand Certificate of Engineering (Civil) from Unitec. I am a Chartered Professional Engineer, a Chartered Member of Engineering New Zealand, an International Professional Engineer (IntPE), an APEC Engineer, and a Registered Professional Engineer of Queensland.

I have developed a reputation as a senior civil engineering and land development specialist, leading complex, multi-stakeholder infrastructure and urban redevelopment programmes across New Zealand and Australia.

I have extensive experience in infrastructure master planning, major transport upgrades, housing regeneration, and long-term development strategy. My work typically involves managing multidisciplinary teams, assessing infrastructure constraints and delivering end-to-end project outcomes from concept through to construction. I have acted as Engineer to the Contract on numerous projects and have led major design programmes. My strengths include stakeholder engagement, risk and financial management, and providing clear, commercially focused direction on technically challenging, multi-year development programmes.

I confirm that, in my capacity a reviewer of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

David Allen - Senior Associate Engineer; Wood & Partners Consultants Limited

I am a Senior Engineering Associate within the Wood & Partners Consultants Ltd (Woods) Land Development & Infrastructure team. Woods is a multi-disciplinary consultancy specialising in planning, urban design, civil engineering, water infrastructure and surveying. I have been employed at Woods since 2020.

I hold the qualifications of NZ Certificate in Land Surveying (NZCLS), Bachelor of Surveying (Distinction) from the Otago University, and a Graduate Diploma in Business (Engineering Management) from Auckland University. I am formerly a Licensed Cadastral Surveyor (LCS), with the Survey Board of NZ, and currently a member of Survey & Spatial NZ Institute (SSNZ).

I have 40 years of professional experience within the surveying, civil engineering and land development disciplines, including the design and project management of urban and rural land development projects (both greenfield and brownfield), from inception to completion. This experience includes involvement in urban design and planning processes, civil engineering and infrastructure design, neighbourhood infrastructure planning, geotechnical considerations, land transfer surveying, and civil engineering construction management, including acting as Engineer to the Contract under NZS3910 during the construction phase.

I confirm that, in my capacity as author of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

Brian Flood – Principal & Executive Director, Wood & Partners Consultants Limited

I am a General Manager Major Projects Infrastructure, Principal Engineer and Director at Wood & Partners Consultants Ltd (Woods). Woods is a multi-disciplinary consultancy specialising in planning, urban design, civil engineering, water infrastructure and surveying. I have been employed at Wood & Partners Consultants Ltd since 2003.

I hold the qualifications of Bachelor of Engineering from the University of Ulster, Ireland, which I completed in 1989. I am a Chartered Professional Engineer and a Fellow of the Institute of Professional Engineers New Zealand.

I have 35 years of professional experience in the Land Development and Infrastructure fields. My experience includes design, and coordination of Land Development and Infrastructure projects, typically acting as Engineer to the Contract under NZS3910 during the construction phase. I have been involved in a large range of projects from green field to brown field developments (both commercial and residential) small and large but primarily focused on residential subdivisions similar to this Application.

I confirm that, in my capacity as reviewer of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

Executive Summary

Our civil infrastructure assessment concludes that the proposed Middle Road development, based on the Urban Acumen draft concept masterplan submitted with the application, can be appropriately serviced and constructed for all necessary civil infrastructure elements and is considered technically feasible.

Introduction

CDL Land New Zealand Ltd (CDL) engaged Wood & Partners Consultants Ltd (Woods) to prepare an infrastructure report and proof of concept civil drawings to support a Fast Track Referral Application for the proposed Middle Road, Havelock North project.

The site is located on the south-western edge of Havelock North, approximately 900 m from the town centre. The surrounding area is largely residential in character. The James Wattie Retirement Village is located immediately to the west, while the Iona subdivision is located to the east and is currently being developed. Rural lifestyle properties are located to the south and south-west.

The proposal provides for residential subdivision of the 30.6ha site to enable approximately 300–350 residential lots. The land is generally flat and slopes gently toward the Herehere Stream located along the northern boundary.

A neighbouring landholding known as the McKenna Block is located immediately east of the site and does not form part of the application area. However, due to its proximity and relationship to the Middle Road landholdings, the infrastructure assessment has also considered how this land could integrate with the proposed infrastructure network should it be developed in the future.

This report assesses the feasibility of servicing the development with civil infrastructure including earthworks, transport, stormwater, wastewater, water supply and utilities. The assessment has been informed by specialist investigations and engagement with Hastings District Council (HDC) and Hawke's Bay Regional Council (HBRC).

The infrastructure assessment has informed the development layout and confirmed that the site can be appropriately serviced, while also responding to key physical and infrastructure constraints. In particular, the design of the development has been strongly influenced by stormwater management requirements due to the flat topography of the site and the need to address existing flooding conditions. These constraints have shaped the earthworks strategy, road layout and finished site levels to ensure effective drainage, flood mitigation and constructible infrastructure across the site. Key infrastructure matters identified and addressed through the assessment include:

- Stormwater management requirements, including flood mitigation and on-site storage
- The location of the Herehere Stream and its integration into the development
- Availability of potable water supply capacity within the preferred supply zone
- Wastewater servicing, including downstream network capacity and pump station upgrades
- Transport and roading integration with the surrounding network
- Geotechnical conditions, including ground improvement and earthworks requirements.

The infrastructure investigations confirm that the site can be appropriately serviced and developed for residential purposes. Key findings are summarised below.

- **Earthworks and geotechnical:** The site's flat topography requires bulk earthworks to establish finished site levels, building platforms and infrastructure corridors. Preliminary geotechnical investigations confirm that ground conditions are typical of the local alluvial environment and can

be appropriately managed through earthworks, ground improvement and engineered foundation solutions where required. This includes managing any contaminated material encountered.

- **Management plans:** Management Plans for construction, erosion and sediment control, construction noise and vibration, and dust control will be prepared to mitigate temporary effects during construction.
- **Stormwater:** The development layout and infrastructure design respond to existing flooding constraints across the site. Flood modelling has informed the design of a stormwater management system comprising pipe networks, swales and detention basins that provide both flood storage and water quality treatment. The proposed system manages stormwater runoff, protects downstream environments and ensures future residential lots remain free from flood effects. A new privately held discharge consent will be sought with HBRC for this development.
- **Transport and roading**: The site is well-connected to the surrounding network via Middle Road and Te Aute Road, both classified as primary collector routes. The development will include an internal road network of collector and local roads, including a primary east–west spine road linking the two frontage roads. Road frontage upgrades, new intersections and improved walking and cycling connections will integrate the development with the surrounding transport network.
- **Wastewater:** Existing public wastewater infrastructure within Middle Road provides a suitable connection point for the development. Wastewater will be collected through new internal gravity networks and likely to convey up to two new pump stations to the existing Breadalbane pump station on Middle Road. An upgrade to the Council pump station will be required as part of the development to accommodate additional flows.
- **Water supply:** Potable water supply will be provided from the Waiaroha supply zone via the existing 250 mm watermain in Te Aute Road. Pressure testing and Council modelling confirm that the network has sufficient capacity to supply domestic demand and firefighting flows for the proposed development.
- **Utilities:** Power and telecommunications services are available from existing networks within Middle Road and Te Aute Road. Utility providers have confirmed that the development can be serviced through standard network extensions.
- **Development staging:** The development can be delivered in logical stages aligned with infrastructure provision. Concept staging confirms that infrastructure networks and site access can be progressively extended as development occurs, with a projected development programme duration of 10 years.
- **Future integration:** The adjoining McKenna Block has been considered at a high level to ensure the infrastructure layout can accommodate potential future development of that landholding if it is urbanised.

The civil infrastructure assessment confirms that the proposed Middle Road development is technically feasible and suitable for the proposed residential development to occur.

1.0 Introduction

This Infrastructure Report has been prepared by Wood & Partners Consultants Ltd (Woods) on behalf of CDL Land New Zealand Limited (CDL/the Applicant) in support of a Referral Application for the Middle Road Project under the Fast-track Approvals Act 2024 (FTAA). The project is for the residential development of approximately 300 – 350 lots at 92, 108, 148 Middle Road and 139 Te Aute Road in Havelock North and is referred to as the 'Middle Road' project.

The purpose of this report is to outline the engineering aspects of the development, and the proposed infrastructure strategy for how the site can be serviced, and how any effects relating to site development including earthworks, and three waters are anticipated to be avoided and/or mitigated. Indicative Civil Drawings prepared to support the Referral Application are attached as **Attachment 1** to this report.

1.1 Site Description

The application site is located at 92, 108, 148 Middle Road and 139 Te Aute Road in Havelock North (**site**). The site is held in five separate titles and consists of a combined area of approximately 30.6ha. The site is relatively flat and currently used for rural residential and grazing purposes with three existing dwellings. **Figure 1** shows the location of the site within the context of Havelock North.

Figure 1: Middle Road Site Location

The site sits on the southwest edge of Havelock North about 900 m from the town centre, in an area surrounded mainly by suburban housing, with a retirement village to the northwest and larger rural properties to the southwest. Immediately east of the site is the 3.1 ha McKenna Block on Middle Road, a separate rural residential property beside the Herehere Stream; it is not part of the application but is considered at a high level because of its proximity.

Public infrastructure for wastewater, water supply and utilities is already present in Middle Road, Te Aute Road and Upham Street, with the Breadalbane wastewater pump station located on Middle Road

opposite Breadalbane Road. Both Middle Road and Te Aute Road are sealed but still have grassed berms along the site frontage due to the rural character of the area.

Stormwater drains to natural waterways, with the Herehere Stream being the main receiving environment along the northern boundary. The land is flat, retains its original pastoral form, and sits lower than both Middle Road and Te Aute Road, which makes it vulnerable to stormwater flooding.

1.2 Project Description

The Middle Road project proposes a residential subdivision of around 300–350 lots, using a mix of lot sizes to support both standard housing and medium-density development. An indicative concept plan has been prepared by Urban Acumen to inform the referral application at **Figure 2** (below).

The neighbourhood will be supported by coordinated three-waters and transport infrastructure, along with a connected open-space network that links key streets, reserves and natural features. This integrated approach is intended to create a functional and well serviced residential area.

Figure 2 - Urban Acumen Development Concept Plan

A separate 3.1 ha landholding at 80 and 84 Middle Road, known as the McKenna Block, sits immediately east of the site beside the Herehere Stream. This landholding is in separate ownership and does not form part of the application site at the time of lodgement. However, given the McKenna Block's

proximity and relationship to the Middle Road site, the landholding has been considered at a high level within this assessment.

A full description of the Middle Road Project is provided in the Planning Overview Report submitted with the referral application. The proposal and the infrastructure considerations in this report are based on an indicative concept design prepared for referral purposes, with detailed design to follow at the substantive application stage if the project proceeds.

The Middle Road project will be designed to comply with the relevant engineering design standards and codes. These will be the Hastings District Council (HDC) Engineering Code of Practice (ECoP), together with the Land Development Subdivision Infrastructure Standard NZS 4404:2010. The latter provides criteria for design and construction of land development and subdivision infrastructure, encouraging sustainable development and modern design.

2.0 Land Modification

2.1 Bulk Earthworks

The Middle Road development will require large-scale earthworks across the full 30.6 ha site to shape the land, form building platforms, construct roads and accessways, and create stormwater infrastructure. After topsoil and unsuitable material are removed, the flat existing contour (around 0.1–1% gradient) will be raised, particularly along the Middle Road and Te Aute Road boundaries, so that roads and drainage can function properly and existing flooding issues can be reduced.

To achieve this, the site will be generally regraded into a shallow east–west V-shaped profile between Te Aute Road and Middle Road, as shown in the earthworks cross-sections. This reshaping will require removing several artificial drains that currently cross the site, including the HBRC managed Bake and Pomeroy drains. The southern part of the site will be graded gently down from Middle Road, including modifications to the Gilpin Drain, to ensure stormwater can flow to the existing outlet.

The bulk earthworks also provide an opportunity to address both geotechnical and soil contamination issues identified in previous investigations. For the latter, this includes managing existing contaminated soil stockpiles at 148 Middle Road. Geotechnical concerns will be addressed by improving ground conditions and reducing liquefaction risks. Some lots may need engineered foundations, but shallow foundations are expected to be suitable for most dwellings.

Further groundwater investigations will occur at the substantive application stage. These findings may refine earthworks levels around the proposed dry basins to ensure they do not interfere with the groundwater table. Any effects on surrounding properties because of the proposed development earthworks will be minimal. Existing ground levels at the site boundaries will be preserved, and proposed earthworks will not divert additional stormwater flows into adjacent properties. Construction control measures will be implemented to manage erosion and sediment runoff, dust, and noise and vibration effects.

2.1.1 Estimated Earthworks Volumes

A preliminary earthworks assessment has been undertaken to support the conceptual masterplan and demonstrate the feasibility of the proposed development. Two scenarios have been assessed; being the primary scenario based on the CDL landholding, and an extension scenario that incorporates the adjoining McKenna Block located at the north-eastern corner of the site, reflecting the potential development and infrastructure synergies between the two landholdings.

2.1.1.1 CDL Masterplan Layout (approx. 300 to 350 lots total yield)

A preliminary earthworks assessment was completed for the proposed development site, accounting for any site earthworks within the CDL landholdings boundary, and accounting for the stormwater basin areas as shown on the Urban Acumen masterplan layout (Ver.6).

Earthworks volumes to meet finished surface levels and to create necessary infrastructure, will be approximately 190,000m3, comprising both cut and fill operations. To achieve an earthworks balance for this development scenario, to create the roading network, and meet the required finished surface levels, approximately 30,000m3 of soil material will be imported from off-site sources. Volumes indicated are solid measure in place, no bulking factors have been applied, and topsoil stripping has not been included.

2.1.1.2 Masterplan Extension Layout (including McKenna Block extension)

An earthworks assessment was also completed for the proposed development incorporating the McKenna Block extension landholdings given its proximity situated adjacent to the northeastern corner of the site.

The total bulk earthworks volume for this scenario including the McKenna Block will be approximately 195,000m3, comprising both cut and fill operations. To achieve an earthworks balance, to create the roading network, and meet the required finished surface levels, approximately 30,000m3 of soil material will be imported from off-site sources. Estimated volumes indicated are solid measure in place, no bulking factors have been applied, and topsoil stripping has not been included.

The earthworks programme to establish suitable finished site levels and provide stable building platforms and infrastructure corridors, is expected to occur over approximately one to two years, depending on staging and construction sequencing.

2.1.2 Sediment & Erosion Control Measures

Sediment and erosion protection measures, to mitigate potential effects of earthworks on the surrounding environment, will be implemented in line with industry best practise and Council requirements. Such measures will be in accordance with the HBRC adopted Part 2 of NZS 4404: 2010.

These will be monitored during the entire earthworks phase. If earthworks are undertaken during dry periods, there may be the potential for dust generation and erosion by wind from un-stabilised site areas. Appropriate site management measures would be implemented (via suitable construction management plans) to control or minimise wind erosion and the spread of airborne dust.

These measures are designed to afford protection of downstream receiving environments from silt inundation and fully contain and manage all effects within the development site. All erosion and sediment control measures would be constructed prior to any bulk earthworks' operations.

2.2 Geotechnical Considerations

A Geotechnical Assessment Report prepared by CMW Geosciences indicates that the site has stayed largely unchanged in its pastoral state for decades, aside from some minor topsoil stripping and re-grading at 148 Middle Road. Underlying soils are typical Holocene alluvium (soft, saturated silts, sands and gravels) with poor bearing strength and a moderate susceptibility to liquefaction.

- Groundwater was encountered at shallow depths (about 1–3 m below ground level), with perched water also present above clay layers. These groundwater conditions are influenced by the nearby Karamū and Herehere Streams and will need further investigation at the substantive application stage
- Liquefaction and settlement risks are present across the site, with an added risk of lateral spread near the Herehere Stream due to its free-face bank. No active faults cross the site, and the nearest fault (Te Mata Fault Zone) is more than 2 km away, so fault rupture risk is low. Ground improvement and engineered earthworks will be required to address liquefaction, lateral spread and weak soils
- Bulk earthworks will reshape the site using cut-to-fill and imported structural fill to achieve suitable levels for development, manage flooding, and improve foundation conditions. Perched groundwater may influence earthworks operations. A setback of around 20 m from the Herehere Stream may be needed to manage lateral spread and bank stability, with final setbacks and foundation requirements confirmed through detailed geotechnical design

- Geotechnical input will also be required for the construction of stormwater basins, which are likely to intersect groundwater and may need lined systems to separate groundwater from stored stormwater.

Overall, preliminary investigations indicate the site is suitable for development, provided further detailed testing and engineering design are completed at the substantive application stage.

2.3 Contamination Considerations

A Contamination Assessment Report prepared by AgFirst Consultants HB Ltd accompanies the Referral Application. It should be read alongside the following comments.

Previous ground investigations undertaken across the site as part of earlier development planning identified discrete areas adversely affected by historic land use activities. These areas contain elevated concentrations of heavy metals - including arsenic, cadmium, and zinc - exceeding the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS) for residential land use. Such exceedances are typically associated with former orchard, horticultural, or pastoral activities and represent a potential risk to human health and the environment.

The affected areas are limited in extent. Identified risks can be effectively remediated and managed using established and proven methods (as part of a suitable Land Remediation plan) to ensure that contamination does not pose a risk to future site users.

Remediation measures may include:

- Removal and disposal of contaminated soil off site, including managing existing stockpiles at 148 Middle Road
- Excavation and encapsulation of affected soils within non-sensitive land use areas
- In-situ mixing or stabilisation of soils in accordance with HBRC guidelines.

The AgFirst assessment confirms that there is limited evidence of contamination arising from past or present activities that would classify portions of the site as contaminated land under the NES-CS.

Accordingly, contamination does not present a constraint to development. Standard good practice procedures will be implemented during earthworks to appropriately manage any contaminated material encountered, ensuring compliance with relevant environmental and health and safety requirements and enabling any potential effects to be appropriately remedied and managed.

2.4 Archaeological Considerations

An Archaeological Assessment Report prepared by CFG Heritage accompanies the Referral Application. It should be read alongside the following comments. The assessment confirms that there are no recorded archaeological sites within the project area. However, as with all earthworks of this scale, there remains a low potential for subsurface archaeological material to be encountered during construction.

It is recommended that appropriate management measures are implemented through the construction phase to address any unexpected archaeological discoveries. These measures should be outlined in the Construction Management Plan and include clear procedures for site induction, identification training, and immediate notification to Heritage New Zealand Pouhere Taonga in the event that archaeological material is uncovered.

This approach will ensure that potential archaeological effects are appropriately managed and that all works remain consistent with the requirements of the Heritage New Zealand Pouhere Taonga Act 2014.

3.0 Development Staging

Based on the indicative proposal, the development project is expected to provide approximately seven years of active works across 7 stages, occurring across an overall development timeframe of approximately 10 years (refer Drawing P25-496-00-0110 Proposed Development Staging Plan at **Attachment 1**). The concept staging assessment is primarily based on the specific infrastructure requirements, and how these will be delivered across the development.

- Stages 1 to 4 will incorporate the northern, larger portion of the site, including stormwater basin areas, and the full extent of the main development spine road. This is required due to wastewater and water supply services originating on opposite sides of the development
- Stages 5 to 7 fully incorporate the southern (smaller) portion of the site.

The initial bulk earthworks phase will extend over approximately one to two years, to enable ground remediation, construction of finished site levels, stormwater basin areas, finished site contours, and infrastructure. There will be some overlap with the Stage 1 development works, once bulk earthworks are sufficiently advanced.

4.0 Transport and Roading Infrastructure

A Transport Assessment prepared by FLOW Transportation Specialists Ltd (titled *L1A251212 Middle Road Fast Track Referral Transport Memo*) accompanies the Referral Application and should be read in conjunction with the following transport commentary.

4.1 Surrounding Road Network

The site is well-connected to local and strategic transport networks with Middle Road forming the eastern boundary and Te Aute Road the western boundary. Both operate as primary collector roads, with Middle Road becoming an arterial route closer to the Havelock North town centre.

Council is currently upgrading the section of Middle Road between Breadalbane Road and Gilpin Road to an urban standard, including kerb and channel, footpaths, berms, and a shared path supporting the Iona development. The western berm along the site frontage will require similar upgrades as part of this project.

Te Aute Road has been upgraded on its western side as part of the James Wattie Retirement Village, while the eastern side, directly adjacent to the site remains in a rural form. The FLOW Transport Memo confirms the surrounding network can accommodate expected traffic and that the proposal aligns with relevant transport strategies, supporting a well-functioning urban environment close to the Havelock North town centre, schools, shops and cycling connections.

4.2 Proposed Road Network

Roading design will follow the HDC Engineering Code of Practice and NZS 4404:2010, including required berm upgrades along both road frontages. New intersections will connect the development to Middle Road and Te Aute Road—likely four on Middle Road and one on Te Aute Road—using standard non-signalised layouts.

The internal network will include a mix of collector and local roads. The main east–west spine road and the primary north–south connector (Type A roads) will have wider corridors to accommodate stormwater swales, with an approximate width of 20 m. Other local roads will range from 13.3 m to 18 m and include shared paths, swales, and utility corridors. All layouts remain indicative and will be refined at the substantive application stage.

4.3 Pedestrian and Cycling Network

Existing walking and cycling facilities along the site frontage are limited, although shared paths exist on the opposite sides of both roads and connect northwards to the town centre. Walking tracks also follow the Herehere Stream. The development will include an internal network of pedestrian and cycle-friendly routes that link to open spaces, local streets, and the wider network, supporting HDC's goal of becoming a national model community for active transport.

4.4 Public Transport

Existing bus services (Route 21) operate along the northern sections of Middle Road and Te Aute Road. Following discussions with HBRC, a bi-directional bus route is proposed along the main east–west spine road to improve public transport access and relieve pressure on Upham Road.

4.5 Conclusion

The transport assessment shows the surrounding network can support the development and that a safe, well-connected movement system can be achieved. With upgraded road frontages, new intersections, internal collector and local roads, improved walking and cycling links, and provision for a future bus route, the Middle Road project can integrate effectively with the wider network and function as a well-connected neighbourhood.

5.0 Stormwater Management

A Stormwater Report prepared by Woods accompanies the Referral Application and should be read together with the following high-level summary.

5.1 Existing Conditions and Strategic Context

The site currently experiences flooding due to its low-lying topography and reliance on open drains. The site stormwater is currently conveyed via the HBRC managed Bake, Pomeroy and Gilpin drains. These drains direct runoff north to the Herehere Stream and west toward the Karamū Stream. The surrounding Havelock North area is known to experience stormwater capacity constraints during significant rainfall events, with parts of the network operating below the intended level of service and overland flow paths occurring during high intensity storms.

The Middle Road site generally drains across two existing catchments. The larger northern portion of the site drains to the Herehere Stream via the Bake and Pomeroy drains, while the southern portion drains west via the Gilpin Drain toward Te Aute Road and ultimately to the Karamū Stream. These existing drainage patterns and flood management constraints have informed the development layout, earthworks strategy and stormwater management approach.

HDC currently hold a global discharge consent for the urban stormwater network. The Middle Road development is not covered by this discharge consent, and a new privately held discharge consent will be sought with HBRC.

5.2 Proposed Stormwater Network

The development will introduce a fully urbanised stormwater system combining pipes, swales, and the dry detention basins. The two catchment details are: - (refer Drawing P25-496-00-3000 Proposed Stormwater Plan at **Attachment 1**).

- **Catchment A (20.3 ha)** will discharge to Basin Area #1, which includes three dry basins before outflow to the Herehere Stream
- **Catchment B (8.7 ha)** will discharge to Basin Area #2 in the southwest, which includes two dry basins, connecting to the Gilpin Drain and then to the Karamū Stream.

New pipes within road corridors will convey flows from lots and roads to the basins. Overland flowpaths will be shaped through streets and green corridors to safely manage exceedance events. Existing artificial drains (Bake, Pomeroy, and part of Gilpin) will be removed or modified, with their functions replaced by the new reticulated system.

5.3 Proposed Stream Works

To facilitate the development, works are proposed within the Herehere Stream and Gilpin Drain corridors to support the stormwater management system and the wider open space and access network associated with the development.

Such works will include:

- New outlet structures, including erosion control measures
- Bank stabilisation and erosion protection, including appropriate planting
- For the Gilpin drain, some modified channel works to convey flows from the Iona Pond to the proposed outlet

- For the Herehere Stream, proposed works in support of the new footbridge adjacent to the existing Te Aute Road bridge structure.

5.4 Water Sensitive Urban Design

A WSUD approach will guide the stormwater design, incorporating detention basins, vegetated swales, low-impact design features, and debris capture devices. These measures will manage water resources, improve water quality before discharge, reduce flood risk, and integrate stormwater features into open space and landscape areas.

5.5 Conclusion

The stormwater strategy aligns with the Hastings District Plan and HDC Engineering Code of Practice by managing runoff quantity and quality, reducing downstream effects, and applying sustainable design principles.

Modelling confirms that the proposed detention-based system and overland flow-path design can mitigate existing flooding issues and support the development layout. Further detailed design will occur at the substantive application stage, including full consideration of the five issues identified by Council, being:

- stormwater performance
- maintenance access
- public safety
- location of infrastructure; and
- durability and flooding of paths and park infrastructure.

6.0 Wastewater Servicing

A Wastewater Report prepared by Woods attached as **Attachment 2** to this report should be read together with this summary.

6.1 Existing Network

Existing wastewater services run along three sides of the site, including gravity mains in Middle Road, Te Aute Road, and along the northern boundary. These flows currently discharge to either the Anderson Park pump station to the north or the Breadalbane pump station to the east. The Te Aute Road line shown in Council records is a private pressure line serving the Village Baptist Church. The existing rising main from this Breadalbane pump station (in Middle Road), extends to the north.

6.2 Development Flows

Based on an assumed yield of 370 lots, expected flows are:

- **Average Dry Weather Flow (ADWF)**: 3.7 Litres/second (L/s)
- **Peak Dry Weather Flow (PDWF)**: 9.4 L/s
- **Peak Wet Weather Flow (PWWF)**: 18.7 L/s

These flow values follow the HDC Engineering Code of Practice and NZS 4404:2010.

6.3 Proposed Wastewater Solution

Council has confirmed that the Anderson Park pump station is at capacity and that the Breadalbane pump station's current capacity is already allocated. However, the downstream rising main and gravity network north of the site have sufficient capacity to receive flows from the Middle Road development once the Breadalbane pump station is upgraded. At this stage, specific details of the upgrade extent are unknown, but likely it will involve pump replacement. Other potential upgrades (power supply, cabling, wet well, telemetry) will be confirmed as part of the substantive phase, detailed design.

The development conceptual wastewater design will use a predominantly gravity-based system draining to two low points within the site, utilising two new pump stations and associated rising mains to convey flows to the Breadalbane pump station on Middle Road. The substantive phase detailed design provides an opportunity, in consultation with HDC, to further optimise this solution to one single pump station, assuming depth and ground water table issues can be satisfactorily addressed.

6.4 Conclusion

Wastewater servicing for the Middle Road development is feasible. The surrounding public network can accommodate the development's flows once the Breadalbane pump station is upgraded. The new internal gravity network, supported by two on-site pump stations, will integrate with the existing system, with final design refined during detailed engineering.

7.0 Water Supply

A Water Supply Report prepared by Woods attached as **Attachment 3** to this report and should be read together with this summary.

7.1 Existing Supply Context

HDC's Regional Growth Strategy identifies the need to ensure reliable groundwater sourced drinking water for the wider Hastings area as population grows. Demand is expected to increase significantly over the next 30 years, but Council has confirmed there are no major constraints preventing new residential development within existing serviced areas.

7.2 Water Source and Network Capacity

Havelock North and the wider Hastings area are supplied entirely from groundwater bores. The Middle Road development will be serviced from the **Waiaroha Zone**, located immediately north of the site. Council modelling and hydrant testing (February 2026) confirm this zone has sufficient capacity to meet domestic and fire flow requirements for the development while maintaining FW3 protection for nearby properties, including the James Wattie retirement village on Te Aute Road. To service the site, the existing 250 mm watermain in Te Aute Road will be extended southwards to the development frontage.

7.3 Water Demand

Based on a maximum of 370 dwellings, estimated demand is:

- **Average day demand (ADD):** 6 L/s (≈518 m^3/day)
- **Peak hour demand (PHD):** 18 L/s
- **Fire-flow demand (FFD):** 25 L/s (FW2 residential)

7.4 Development Water Supply Layout

The internal network will connect from Te Aute Road through the development and link to the Middle Road network. Because the Waiaroha Zone and the Havelock North Booster Zone operate at different pressures, the connection will be isolated using shut-off valves but will still provide resilience if one zone experiences a supply issue.

Indicative pipe sizes include:

- **250 mm** extension along Te Aute Road
- **150 mm** ring-main within primary roads
- **100 mm** mains on local streets
- **50 mm** rider mains in smaller roads and accessways

Final sizing and layout will be confirmed with HDC during detailed design.

7.5 Conclusion

The assessment confirms that potable water supply for the Middle Road development is technically feasible. The Waiaroha Zone has sufficient capacity, and the development will extend the public network along Te Aute Road and through the site, with an isolated connection to the Middle Road pressure zone. Detailed design will refine the layout and confirm final pipe sizes and operational arrangements.

8.0 Utilities Services

The proposed development can be supported by both power and telecommunications utility services range of utilities and services.

Utility services for within this development will all be underground and will be located within road reserves, in accordance with the HDC ECoP. Each lot will have service laterals installed and JOALS will have service laterals to each rear lot installed as part of the development works.

Coordination with utility providers Unison and Tuatahi will continue through progressive stages of the design.

8.1 Power – Unison

Unison have confirmed that the Middle Road development can be serviced for power from either / both Te Aute Road and / or Middle Road.

Once the development design progresses, Unison will need to check this arrangement does not impact other backup or reliability arrangements on their existing network. Should an impact be identified, the existing network may require one or more upgrades.

Internal switching gear and transformer(s) required to service the development will be incorporated into future development designs.

8.2 Telecommunications – Tuatahi

Tuatahi have confirmed that the Middle Road development can be serviced for telecommunications fibre feeders from either / both Te Aute Road and / or Middle Road.

Tuatahi have indicated that their network will need minimal upgrades in the form of higher capacity feeder cables through existing ducts to provide full service for the development.

8.3 Gas

No gas services are proposed for this development.

9.0 Construction Management

During construction, a suite of management plans will be required to ensure environmental effects, safety, and construction impacts are properly controlled. These plans provide the framework for maintaining environmental performance and construction quality throughout the works.

A high-level Construction Management Plan (CMP) will be prepared at the substantive application stage to set out the overall approach to managing construction activities, including responsibilities, communication processes, and key environmental and safety measures.

As the project moves into detailed design and physical works, contractors will prepare site-specific Construction Environmental Management Plans (CEMPs) for each major stage of earthworks and subdivision construction. These will translate the CMP into practical onsite measures, covering erosion and sediment control, dust and noise management, spill response, site access, staging, and works near the Herehere Stream.

Preparing these plans before construction begins will ensure that potential adverse effects are avoided or minimised. Implementation and monitoring will be carried out jointly by the contractor, Council engineers, and the project team to ensure compliance throughout the construction period.

10.0 Conclusion & Recommendations

Woods and the project specialists have completed a civil engineering assessment for the proposed Middle Road development to support the Fast-Track Referral Application.

10.1 Conclusion

The technical work completed to date shows the site can be serviced and developed without major physical or infrastructure constraints.

The proposed earthworks, servicing strategy, and stormwater management approach are feasible, align with best practice, and can be delivered in stages alongside infrastructure provision. The development will make efficient use of existing networks while contributing to local upgrades that support wider growth.

Overall, the site is suitable for residential development from an engineering and servicing perspective.

10.2 Recommendations

The following matters should be addressed through detailed engineering design at the substantive application and subsequent engineering approval stages:

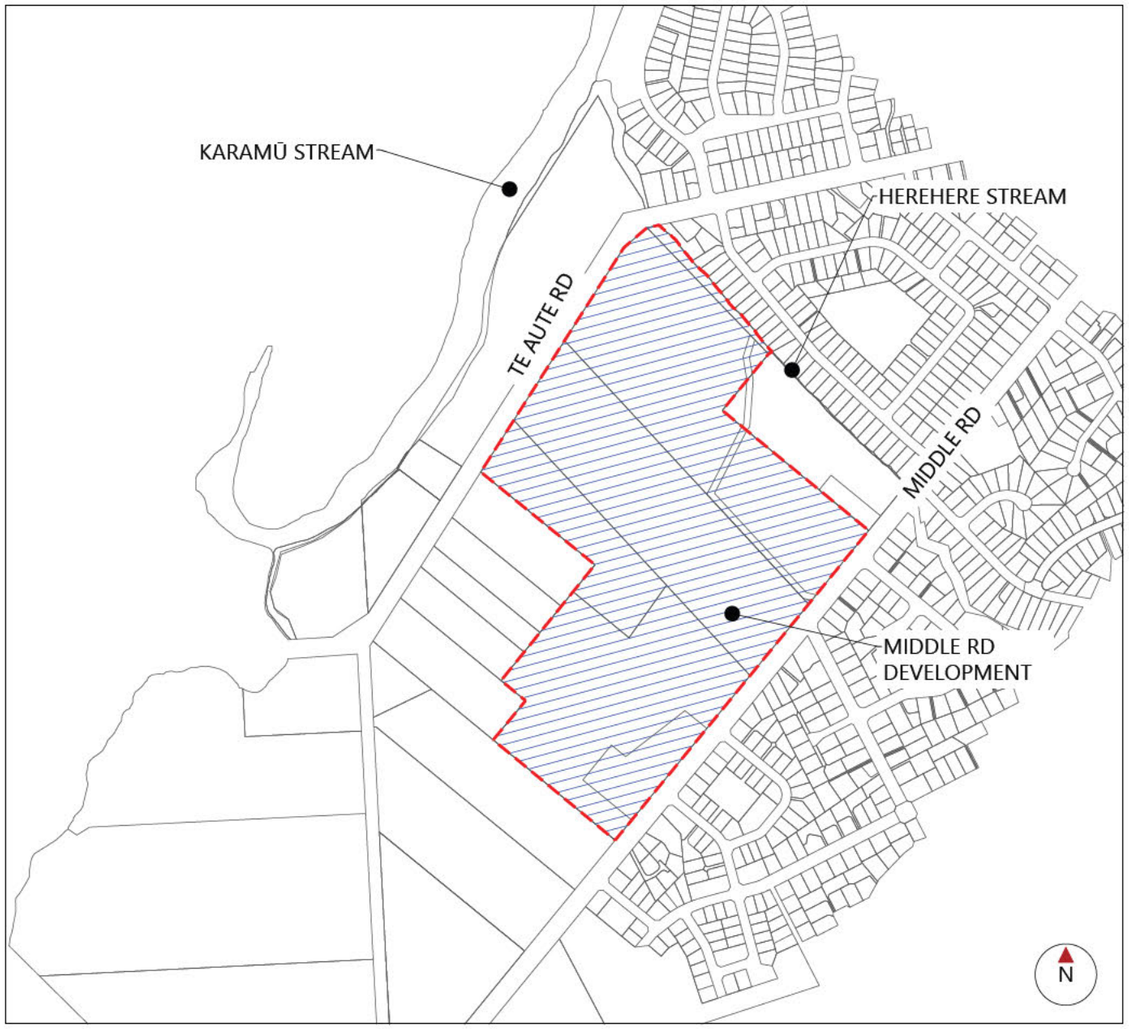
- Preparation of a detailed earthworks design and staging plan to confirm final site levels, building platforms, basin areas, and road gradients while maintaining effective drainage across the site
- Implementation of ground improvement measures to address liquefaction susceptibility and weak near-surface soils identified in the geotechnical investigations
- Further groundwater investigations to refine earthworks design and ensure proposed stormwater detention basins do not adversely interact with the groundwater table
- Development of the detailed stormwater management system, including pipe networks, swales, detention basins and overland flow paths to convey stormwater and manage flood risk, meeting Council design standards
- Collaborating with Council on the Herehere Stream interface design. This will include Workshop(s) to determine detailed design solutions for proposed Herehere Stream enhancement works, including stream bank stabilisation, riparian planting, erosion protection and integration with the stormwater outlet design
- Confirm the intended stormwater basin's function and design outcomes with Council, including whether the basins are to provide recreational open space functions and refine the basin design accordingly
- Finalise the detailed infrastructure design for the development in accordance with the HDC Engineering Code of Practice and further stakeholder engagement.
- Prepare a Construction Management Plan and associated management plans for construction noise, erosion and sediment control, dust control, spill management.

Based on the information and findings contained within this Civil Engineering Infrastructure assessment report, and the recommendations to be taken forward to the substantive application stage, we recommend that the project be approved under the FT Referral process.

Attachment 1 – Civil Drawings

MIDDLE RD FAST TRACK
REFERRAL DRAWING SET

DRAWING INDEX



DRAWING NO.	LATEST REVISON	DRAWING TITLE
		DRAWING INDEX AND LOCALITY PLAN
P25-496-00-0110-GE	1	SITE STAGING PLAN
P25-496-00-1000-EW	1	EXISTING CONTOUR PLAN
P25-496-00-1100-EW	1	PROPOSED FINAL CONTOUR PLAN
P25-496-00-1200-EW	1	DEPTH CONTOUR (CUT/FILL) PLAN
P25-496-00-2100-RD	1	PROPOSED ROAD TYPOLOGY PLAN
P25-496-00-3000-DR	1	PROPOSED OVERALL STORMWATER PLAN
P25-496-00-4000-DR	1	INDICATIVE WASTEWATER NETWORK PLAN
P25-496-00-6000-WR	1	POTABLE WATER SUPPLY PLAN

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Plot Date: 8:22:40 am,27 March 2026, NEDV

REVISION DETAILS		INT	DATE	SURVEYED	
1	ISSUED FOR FT REFERRAL	GP	09/04/2026	DESIGNED	GP
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CDL LAND
NEW ZEALAND LIMITED

MIDDLE RD DEVELOPMENT

FAST TRACK REFERRAL APPLICATION

PROPOSED DEVELOPMENT STAGING PLAN

N

STATUS	ISSUED FOR FT REFERRAL	REV
SCALE	1:4000 @ A3	1
COUNCIL	HDC	
DWG NO	P25-496-00-0110-DR	

File: C:\12DS\DAT\WP-AKL-APP-02\P25-496 - MIDDLE RD FAST TRACK_22600\00 DRAWINGS\01 ENG\P25-496-00-0100 SITE STAGING PLAN.DWG

DRAFT

NOTES

1. THE CONTOUR INTERVALS ARE MAJOR 1.0m AND MINOR 0.25m.
2. VERTICAL DATUM IS IN TERMS OF NZVD2016.
3. CONTOURS WILL BE MERGED TO EXISTING BOUNDARY LEVELS ON ALL PROPERTIES THAT ARE TO REMAIN

LEGEND

SITE BOUNDARY

EXISTING CONTOURS (MAJOR) — 23.0 —

EXISTING CONTOURS (MINOR)

Plot Date: 2:54:01 pm,1 April 2026, GUYP

REVISION DETAILS		INT	DATE	SURVEYED	
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				APPROVED	DA

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CDL LAND NEW ZEALAND LIMITED

MIDDLE RD DEVELOPMENT

FAST TRACK REFERRAL APPLICATION

EXISTING CONTOUR PLAN

N

STATUS	ISSUED FOR FT REFERRAL	REV
SCALE	1:4000 @ A3	1
COUNCIL	HDC	
DWG NO	P25-496-00-1000-DR	

File: C:\12DSDATA\WP-AKL-APP-02\P25-496 - MIDDLE RD FAST TRACK_22600\02 DRAWINGS\01 ENG\P25-496-00-0100 EXISTING CONTOUR PLAN.DWG

DRAFT

NOTES

1. THE CONTOUR INTERVALS ARE MAJOR 1.0m AND MINOR 0.25m.
2. VERTICAL DATUM IS IN TERMS OF NZVD2016.
3. CONTOURS WILL BE MERGED TO EXISTING BOUNDARY LEVELS ON ALL PROPERTIES THAT ARE TO REMAIN

LEGEND

- SITE BOUNDARY
- MCKENNA BLOCK BOUNDARY
- PROPOSED CONTOURS (FINISHED LEVEL) — 23.0
- EXISTING CONTOURS (ADJACENT PROPERTIES) — 23.0
- PROPOSED MAIN DEVELOPMENT ROADS

Plot Date: 2:49:03 pm,1 April 2026, GUYP

File: C:\12DS\DAT\AWP-AKL-APP-02\P25-496 - MIDDLE RD FAST TRACK_22600\02 DRAWINGS\01 ENG\P25-496-00-1000 PROPOSED CONTOUR PLAN.DWG

REVISION DETAILS		INT	DATE
1	ISSUED FOR FT REFERRAL	GP	09/04/2026

SURVEYED	
DESIGNED	GP
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MIDDLE RD DEVELOPMENT

FAST TRACK REFERRAL APPLICATION

PROPOSED FINAL CONTOUR PLAN

N

		REV
STATUS	ISSUED FOR FT REFERRAL	
SCALE	1:4000 @ A3	1
COUNCIL	HDC	
DWG NO	P25-496-00-1100-DR	

DRAFT

NOTES

1. VERTICAL DATUM IS IN TERMS OF NZVD2016.
2. CONTOURS WILL BE MERGED TO EXISTING BOUNDARY LEVELS ON ALL PROPERTIES THAT ARE TO REMAIN

LEGEND

SITE BOUNDARY

MCKENNA BLOCK BOUNDARY

REGION TO REMAIN AT EXISTING LEVELS

DEPTH RANGE INTERVALS

COLOUR	RANGE
	3-4m CUT
	2-3m CUT
	1-2m CUT
	<1m CUT
	<1m FILL
	1-2m FILL
	2-3m FILL
	3-4m FILL

Plot Date: 2:50:38 pm,1 April 2026, GUYP

REVISION DETAILS		INT	DATE	SURVEYED	
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MIDDLE RD DEVELOPMENT

FAST TRACK REFERRAL APPLICATION

PROPOSED DEPTH CONTOUR (CUT/FILL) PLAN

STATUS	ISSUED FOR FT REFERRAL
SCALE	1:4000 @ A3
COUNCIL	HDC
DWG NO	P25-496-00-1200-DR
REV	1

File: C:\12DS\DAT\AWP-AKL-APP-02\P25-496 - MIDDLE RD FAST TRACK_22600\02 DRAWINGS\01 ENG\P25-496-00-1200 DEPTH (CUT & FILL) CONTOURS PLAN.DWG

DRAFT

REVISION DETAILS		INT	DATE	SURVEYED	
1	ISSUED FOR FT REFERRAL	GP	09/04/2026	DESIGNED	GP
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NEW ZEALAND LIMITED

MIDDLE RD DEVELOPMENT

FAST TRACK REFERRAL APPLICATION

PROPOSED ROAD TYPOLOGY PLAN

N

STATUS	ISSUED FOR FT REFERRAL
SCALE	1:4000 @ A3
COUNCIL	HDC
DWG NO	P25-496-00-2100-DR
REV	1

Plot Date: 8:18:36 am,31 March 2026, GUYP

File: C:\12DS\DAT\WP-AKL-APP-02\P25-496 - MIDDLE RD FAST TRACK_22600\02 DRAWINGS\01 ENG\P25-496-00-2100 PROPOSED ROADING TYPOLOGY PLAN.DWG

DRAFT

WOODS
EST.1970

PROPOSED STORMWATER OUTLETS DISCHARGING TO RECEIVING STREAM

TE AUTE RD BRIDGE

HEREHERE STREAM

KARAMŪ STREAM

UPHAM ST

MCKENNA BLOCK EXTENSION AREA

TE AUTE RD

CATCHMENT A
(ZONE 1)
20.25ha

MIDDLE RD CULVERT

PALMERSTON RD

GRANT ST

MIDDLE RD

BREADALBANE RD

EXISTING GILPIN DRAIN

CATCHMENT B
(ZONE 2)
8.66ha

PROPOSED STORMWATER OUTLETS DISCHARGING TO EXISTING RECEIVING DRAINAGE CHANNEL

STORMWATER TREATMENT BASIN FOR IONA DEVELOPMENT

SELBY LN

NOTES

1. STORMWATER CATCHMENTS TO BE CONFIRMED PENDING STORMWATER MODELLING

LEGEND

- SITE BOUNDARY
- MCKENNA BLOCK BOUNDARY
- CATCHMENT BOUNDARY
- PROPOSED DRAINAGE PATH
- EXISTING COUNCIL WATERCOURSE
- PROPOSED STORMWATER OUTLET

Plot Date: 9:36:11 am,31 March 2026, GUYP

REVISION DETAILS		INT	DATE	SURVEYED	
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CDL LAND
NEW ZEALAND LIMITED

MIDDLE RD FAST TRACK

FAST TRACK REFERRAL APPLICATION

PROPOSED OVERALL STORMWATER PLAN

N

STATUS	ISSUED FOR FT REFERRAL
SCALE	1:4000 @ A3
COUNCIL	HDC
DWG NO	P25-496-00-3000-DR

REV 1

File:C:\12DS\DATA\WP-AKL-APP-02\P25-496 - MIDDLE RD FAST TRACK_22600\02 DRAWINGS\01 ENG\P25-496-00-3000 PROPOSED STORMWATER PLAN.DWG

DRAFT

WOODS
EST.1970

EXISTING RYMAN HEALTHCARE RETIREMENT VILLAGE

TE AUTE RD

TE AUTE RD

UPHAM ST

MIDDLE RD

MIDDLE RD

WASTEWATER PUMPSTATION 1

WASTEWATER CATCHMENT 1

MCKENNA BLOCK EXTENSION AREA

WASTEWATER CATCHMENT 2

WASTEWATER PUMPSTATION 2

LEGEND

- SITE BOUNDARY
- MCKENNA BLOCK BOUNDARY
- CATCHMENT BOUNDARY
- WASTEWATER CATCHMENT 1
- WASTEWATER CATCHMENT 2
- INDICATIVE WASTEWATER DRAINAGE
- PROPOSED WASTEWATER RISING MAIN
- EXISTING WASTEWATER RISING MAIN
- INDICATIVE WASTEWATER PUMPSTATION LOCATION
- EXISTING WASTEWATER PUMPSTATION

MIDDLE ROAD WASTEWATER BREADALBANE PUMP STATION

Plot Date: 8:26:10 am,27 March 2026, NEDV

File: C:\12DS\DAT\AWP-AKL-APP-02\P25-496 - MIDDLE RD FAST TRACK_22600\02 DRAWINGS\01 ENG\P25-496-00-4000 PROPOSED WASTEWATER PLAN.DWG

REVISION DETAILS		INT	DATE
1	ISSUED FOR FT REFERRAL	GP	09/04/2026

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NEW ZEALAND LIMITED

MIDDLE RD FAST TRACK

FAST TRACK REFERRAL APPLICATION

INDICATIVE WASTEWATER NETWORK PLAN

N

STATUS	ISSUED FOR FT REFERRAL
SCALE	1:4000 @ A3
COUNCIL	HDC
DWG NO	P25-496-00-4000-DR

REV 1

DRAFT

NOTES:

1. ALL WATER WORK, DESIGN, AND MATERIALS TO COMPLY WITH THE LATEST HASTINGS DISTRICT COUNCIL STANDARDS & ENGINEERING CODE OF PRACTICE.
2. PROPOSED WATER SUPPLY LAYOUT FOR THE MIDDLE RD DEVELOPMENT IS INDICATIVE ONLY.
3. DEVELOPMENT TO UTILISE WAIAROHA SUPPLY ZONE FOR WATER SUPPLY

LEGEND:

- SITE BOUNDARY
- MCKENNA BLOCK BOUNDARY
- PROPOSED PRINCIPAL WATERMAIN
- EXISTING POTABLE WATERMAIN
- PROPOSED WATERMAIN CONNECTION
- PROPOSED FUTURE WATERMAIN CONNECTION

REVISION DETAILS		INT	DATE	SURVEYED	
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MIDDLE RD FAST TRACK

FAST TRACK REFERRAL APPLICATION

POTABLE WATER SUPPLY PLAN

N

STATUS	ISSUED FOR FT REFERRAL	REV
SCALE	1:4000 @ A3	1
COUNCIL	HDC	
DWG NO	P25-496-00-6000-DR	

Attachment 2 – Wastewater Report

WOODS

WASTEWATER REPORT

PROJECT	Middle Road – Fast-track Referral Application
W-REF	P25-496
FOR	CDL Land New Zealand Limited
DATE	2/04/2026
STATUS	FINAL

Document Control

Project Number	P25-496
Project Name	Middle Road – Fast-track Referral Application
Client	CDL Land New Zealand Limited
Date	2/04/2026
Version	V1
Issue Status	FINAL
Originator	Cristian Jara – Water Engineer
Reviewer	David Allen – Senior Associate Engineer
Approval - Authoriser	Brian Flood – General Manager Major Projects Infrastructure, Principal Engineer and Director
Consultant details	Wood & Partners Consultants Limited (Woods) PO Box 6752 Victoria St West, Auckland 1142 woods.co.nz
Copyright and Limitations	

Table of Contents

List of Appendices

Statement of Qualifications & Experience

The following is a statement of the qualifications and experience of the experts involved in preparing this Report.

Originator: Cristian Jara -Water Engineer

I am Water Engineer at Wood & Partners Consultants Limited (Woods). Woods is a multi-disciplinary consultancy specialising in planning, urban design, engineering, water infrastructure, and surveying. I have been employed at Woods since November 2020.
I hold the degree of Professional Civil Engineer from the Pontifical Catholic University of Chile with a Diploma in Hydraulic Engineering, which I obtained in 2013. I am member of Engineering New Zealand (MEngNZ) and Water New Zealand.
I have over 10 years of professional experience in wastewater and water supply modelling, and pipeline design. I have been the engineer responsible of creating, updating and reviewing water supply and wastewater models for infrastructure projects in the public and private sector. Recent projects include infrastructure development in multiple neighbourhoods for Kāinga Ora (Glen Innes, Te Ararata and Middlemore Crescent amongst others) and creating and reviewing water supply models and reports to support resource consent applications for multiple stages of the Milldale development in Auckland.
I confirm that, in my capacity as originator of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

Reviewer: David Allen - Senior Associate Engineer

I am a Senior Engineering Associate within the Wood & Partners Consultants Ltd (Woods) Land Development & Infrastructure team. Woods is a multi-disciplinary consultancy specialising in planning, urban design, civil engineering, water infrastructure and surveying. I have been employed at Woods since 2020.
I hold the qualifications of NZ Certificate in Land Surveying (NZCLS), Bachelor of Surveying (Distinction) from the Otago University, and a Graduate Diploma in Business (Engineering Management) from Auckland University. I am formerly a Licensed Cadastral Surveyor (LCS), with the Survey Board of NZ, and currently a member of Survey & Spatial NZ Institute (SSNZ).
I have 40 years of professional experience within the surveying, civil engineering and land development disciplines, including the design and project management of urban and rural land development projects (both greenfield and brownfield), from inception to completion. This experience includes involvement in urban design and planning processes, civil engineering and infrastructure design, neighbourhood infrastructure planning, geotechnical considerations, land transfer surveying, and civil engineering construction management, including acting as Engineer to the Contract under NZS3910 during the construction phase.
I confirm that, in my capacity as reviewer of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

Authoriser: Brian Flood - Principal & Executive Director

I am a General Manager Major Projects Infrastructure, Principal Engineer and Director at Wood & Partners Consultants Ltd (Woods). Woods is a multi-disciplinary consultancy specialising in planning, urban design, civil engineering, water infrastructure and surveying. I have been employed at Wood & Partners Consultants Ltd since 2003.

I hold the qualifications of Bachelor of Engineering from the University of Ulster, Ireland, which I completed in 1989. I am a Chartered Professional Engineer and a Fellow of the Institute of Professional Engineers New Zealand.

I have 35 years of professional experience in the Land Development and Infrastructure fields. My experience includes design, and coordination of Land Development and Infrastructure projects, typically acting as Engineer to the Contract under NZS3910 during the construction phase. I have been involved in a large range of projects from green field to brown field developments (both commercial and residential) small and large but primarily focused on residential subdivisions similar to this Application.
I confirm that, in my capacity as reviewer of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

1.0 Introduction

This Wastewater Report has been prepared by Woods & Partners Consultants Ltd (Woods) on behalf of CDL Land New Zealand Limited (**CDL/the Applicant**) in support of a Referral Application for the Middle Road Project under the Fast-track Approvals Act 2024 (**FTAA**). The project is for the future residential development of approximately 300 – 350 lots at 92, 108, 148 Middle Road and 139 Te Aute Road in Havelock North.

The purpose of this report is to outline the wastewater servicing strategy of the development and confirm that the site can be appropriately serviced for residential use. The assessment is based on an indicative concept plan, noting that detailed design will be undertaken as part of a future substantive application should the project be accepted for referral to the Fast-track process.

1.1 Site Description

A full description of the site and surrounds is provided in the Planning Overview Report submitted as part of the Referral Application.

In summary, the Middle Road site is located at 92, 108, 148 Middle Road and 139 Te Aute Road in Havelock North (**site**). The site is held in eight separate titles and consists of a combined area of approximately 33.5 hectares. The site is relatively flat and currently used for rural residential purposes with five existing dwellings. The site is not currently being serviced by the council wastewater network, with no public connections to the existing properties within the site. Figure 1 shows the location of the site within the context of Havelock North.

Figure 1 – Middle Road Site Location Plan

1.2 Project Description

The Middle Road project will provide for the residential subdivision of the site to enable the development of approximately 300 - 350 lots. The intended subdivision layout will provide for a range of lot sizes to enable conventional residential development along with medium density development opportunities. A full description of the Middle Road Project is provided in the Planning Overview Report submitted as part of the Referral Application.

The wastewater strategy for the Middle Road development is addressed in this Report. By way of summary, wastewater for the proposed future residential development of the site will involve internal emergency storage and pump stations, directing flows to the existing wastewater pumpstation on Middle Road, adjacent to the site. An assessment of the existing pumpstation will define the extent of upgrades required to receive the future development flows.

2.0 Background

This report describes the wastewater drainage strategy for the proposed development at Middle Road (the development), in support of the fast-track referral application.

The development will consist of approximately 300 - 350 lots, as shown in the indicative concept plan prepared to in support of the potential development of the site (Figure 2).

The wastewater assessment will demonstrate the serviceability of the development, considering the capacity of the surrounding public network, the anticipated flows of the development and the proposed infrastructure.

Figure 2 – Middle Road development – concept masterplan V6

3.0 Surrounding public network

The public wastewater network in the vicinity of the development is shown in Figure 3.

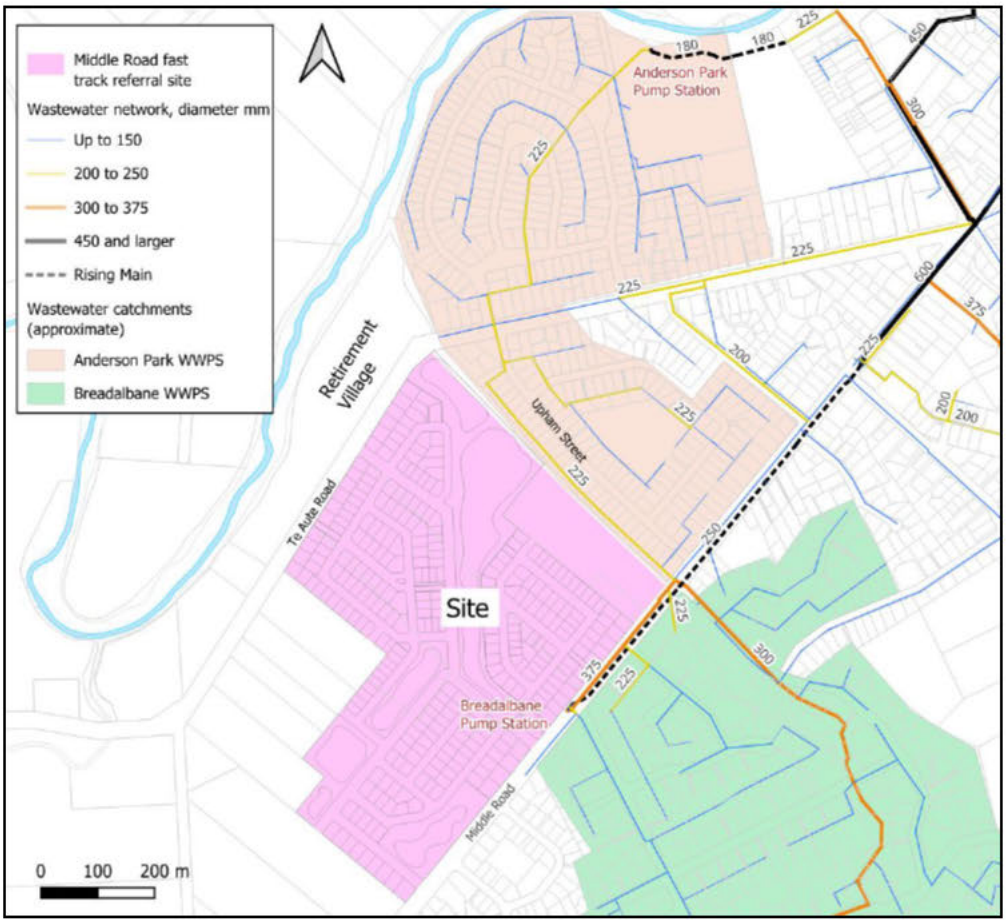

Figure 3 – Surrounding public wastewater network

Hastings District Council (HDC) GIS records show the existing wastewater infrastructure located directly adjacent to the site. The adjacent network connectivity delineates two main wastewater catchments as shown in Figure 3, described as the Anderson Park Wastewater Pump Station (WWPS) catchment, coloured beige, and the Breadalbane WWPS catchment, coloured green.

Primary gravity mains located within Middle Road, on the southeastern side of the CDL site, convey wastewater flows from the Breadalbane catchment to the south into the Breadalbane pump station. Flows from the pump station are directed via a rising main into a trunk sewer located on the eastern side of Middle Road.

Gravity mains adjacent to the northern boundaries of the site (Te Aute Road and Upham Street) convey flows further north to the Anderson Park pump station, which ultimately discharges to the large 600mm diameter trunk sewer located within the northern part of Middle Road.

This trunk main continues to the East Clive treatment plant, located to the northeast of Hastings and Havelock North, near the coast.

The HDC Regional Growth Strategy Infrastructure Constraints Report (April 2023) indicates that due to the rate of residential development within the wider Hastings area over the last

20+ years, the wastewater demand is now well above historic values. Further intensification will necessitate a review of Level of Service (LoS) to ensure it reflects expected growth demand and to identify and plan for necessary upgrades.

Conversations with HDC, included in Appendix A, indicate the following:

- Anderson Park catchment and pump station are heavily constrained and cannot receive additional flows
- Breadalbane pump station residual capacity (from investigations in 2025) has been entirely allocated to CDL's Iona development (currently at varying stages of implementation) located southwest on the opposite side of Middle Road
- Breadalbane rising main has capacity for additional flows beyond the already allocated for the Iona development
- The main receiving trunk sewer also has capacity for additional flows
- Further investigation to the Breadalbane pump station is required to assess extent of upgrades required, including power supply, emergency storage and pump start frequency amongst other requirements.

On this basis it is concluded that it is feasible to service the proposed Middle Road development from a wastewater drainage perspective, subject to upgrades to the Breadalbane Pump station capacity.

4.0 Proposed network and servicing approach

This section outlines the proposed wastewater network to service the development. Based on the indicative concept plan, a new network is likely to comprise a mixture of new pump stations, gravity pipes and rising mains, with the latter discharging into the existing HDC Breadalbane pump station.

4.1 Development flows

The proposed development flows are summarised in Table 1. They are based on the factors detailed in the table, using the Council Engineering Code of Practice and NZS 4404:2010) as shown. The network will be sized to service these flows.

Table 1 – Development wastewater flows

Parameter	Unit	Value	Notes
Number of properties	Lots	**350**	
Average Dry Weather Flow (ADWF)	l/s	3.5	250 (l/p/d) * 3.5 (p/lot) * 350(lot) / 86,400 (HDC Code of Practice and NZS 4404:2010)
Peak Dry Weather Flow (PDWF)	l/s	8.9	ADWF * 2.5 (NZS 4404:2010)
Peak Wet Weather Flow (PWWF)	l/s	17.7	PDWF * 2 (NZS 4404:2010)

4.2 Planned network and servicing approach

The indicative wastewater network for the proposed Middle Road development is shown in Figure 4 below. The following approach has been adopted to establish the initial layout:

- Development site to be split into two wastewater catchments (due to site's flat topography)
- Two new local pump stations constructed at the low point of each catchment
- Gravity pipes to provide connectivity from the properties towards the new pump stations
- Rising main from each pump station heading towards Middle Road and discharging into the existing Breadalbane pump station
- Breadalbane pump station (public asset) could require upgrades to one or more of the following items (non-exhaustive list). Confirmation of these upgrades would be part of a detailed assessments during the design stage:
  - Pump replacement
  - Power supply upgrade (dependent on pump replacement)
  - Wet-well upgrade for inlet pipes from proposed site rising mains
  - Telemetry (connected to development's new pump stations).
- Breadalbane pump station would not require upgrades to its emergency storage capacity. The operational approach is to provide storage at the new pump stations, which would be controlled by the wastewater levels and operational status of the Breadalbane pump station (i.e. new pump stations store wastewater locally and hold off pumping if Breadalbane is out of service or wastewater levels are too high)
- Funding and commissioning for the Breadalbane upgrade will be confirmed at the substantive application stage.

The layout and pipe sizes, currently based on indicative concept plans, follow best practice and will be refined at the next design stages and confirmed with Hastings District Council 3 Waters Team. Future design changes to the site layout in Figure 4 will not impact the wastewater serviceability of the proposed development.

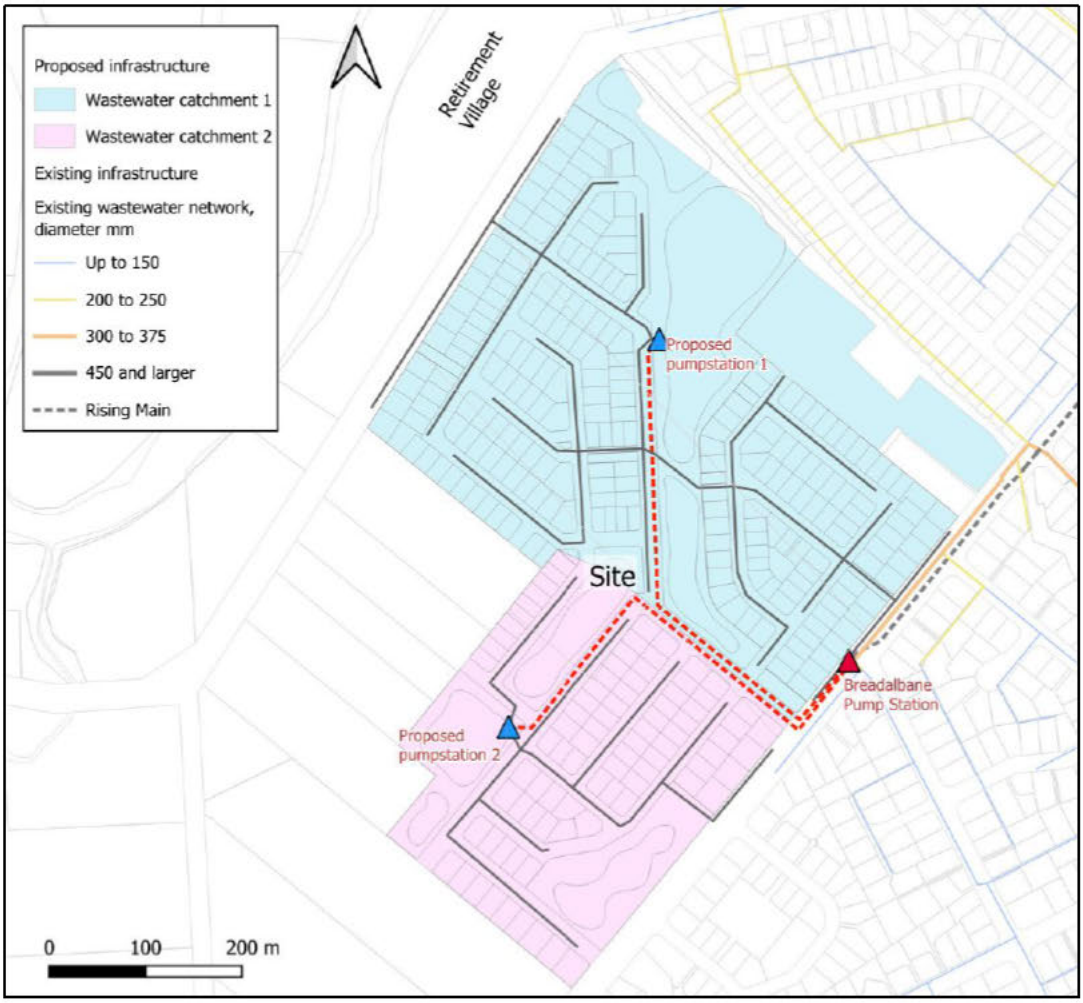

Figure 4 – Proposed development site wastewater servicing solution

5.0 Conclusions

From the assessment of the proposed wastewater network, the following conclusions are made:

- The proposed development consists of 300 - 350 lots, which would result in an average dry weather flow of 3.5 Litres/second (L/s) and a peak wet weather flow of 17.7 L/s
- The development sits on the boundary of two wastewater catchments, one discharges into the Anderson Park pump station and the other discharges into the Breadalbane pump station (located on Middle Road, adjacent to the development)
- HDC development engineers have indicated that the Anderson Park catchment is fully constrained and cannot accept more flows, while the Breadalbane pump station's current residual capacity is already allocated to the neighbouring Iona development
- While the **Breadalbane pump station** does not have sufficient capacity to accommodate the proposed development flows, HDC has confirmed that the rising main and downstream infrastructure have adequate capacity to service the development
- An upgrade to the Breadalbane pump station would be required (likely involving new pumps, power upgrade, wet well upgrade), with an assessment required during the design stage to confirm the level of upgrading necessary.
- The development site will be split into two catchments due to the flat topography, each with a new pump station located at the low point and with their rising mains discharging into the Breadalbane pump station
- The site's proposed gravity pipe layout and sizing are based on indicative plans and will be confirmed at subsequent stages of the design
- Emergency wastewater storage for the new development would be provided within the new pump stations and controlled based on the operational status and water levels of the receiving Breadalbane pump station.

This assessment has demonstrated that it is technically feasible to provide suitable wastewater servicing for the proposed Middle Road development, with the public network having capacity for the proposed development flows, subject to upgrades to the Breadalbane pump station. Final network design will be refined as part of subsequent substantive phase detailed design.

Appendix 1: Council Service Capabilities

Telephone note describing public network connection preferences

From: Kelly Nikora s 9(2)(a)
Sent: Friday, 5 December 2025 4:24 pm
To: Marcel Bear s 9(2)(a)
Cc: Dave Allen s 9(2)(a)
Subject: RE: Middle Road development fast track referral water and wastewater servicing

Hi Marcel,

It represents or conversation well.

My only comment would be with regards to the upsizing of the PS as I'm not sure if that is feasible and what would be required to ensure there is sufficient capacity from the power supply through to the pumps, emergency storage etc, and that will need to be investigated further.

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Hi Kelly
Good chatting this afternoon.
Confirming my understanding of our conversation, please let me know if any of the below needs amending.
Thanks
Marcel

Development size, **400 lots** upper limit. Likely to reduce to around 350 lots.

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- Supply from the Waiaroha Zone. Single pumping. Extend 250mm main along Te Aute Road to site.
- Subject to maintaining FW3 fireflow for retirement village – will be checked by hydrant testing/modelling in the new year.
- Site isolated from the Havelock North Boosted Zone in Middle Rd. (have connection for resilience, normally closed valves)

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- Direct development flows to the Breadlebane pumpstation on Middle Road
- Breadlebane Pumpstation capacity allocated to other developments
- Rising main has capacity
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Marcel Bear
Principal Engineer - 3 Waters
BE(Civil)Hons CPEng
s 9(2)(a)
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woods.co.nz

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Please see some initial comments below in red.

It needs to be noted that this development has not been on the radar and accounted for in wastewater and water modelling and infrastructure servicing so we don't have a lot of information.

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Hi Andre,
We have revised some of the queries sent previously (attached email dated 12/11/25) after feedback from the kick off meeting with HDC last week.

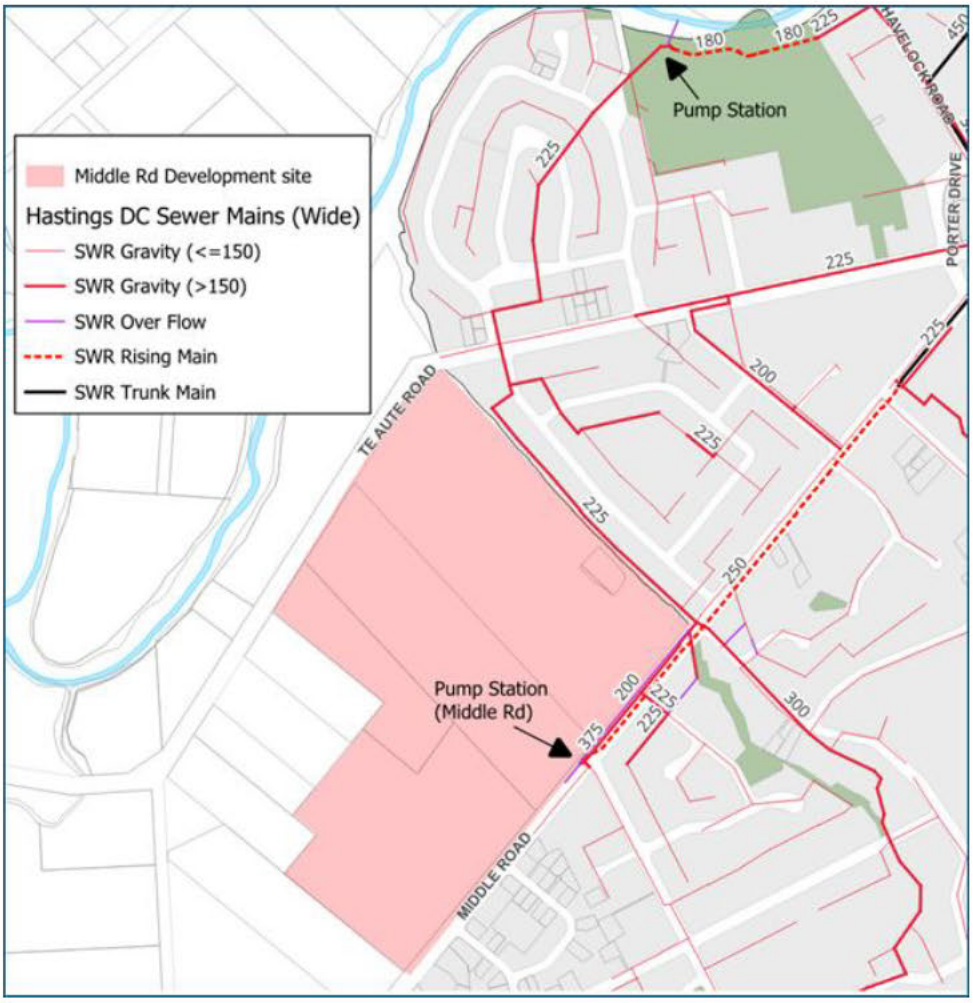
We calculated the water supply demands and wastewater flows based on HDC's Code of Practice and NZS4404:2010 as shown below.

	Parameter	Unit	Value	Notes
	Number of properties	lots	400	
Water supply	Average day demand (ADD)	l/s	6.5	400l (l/p/d)*3.5 (p/lot)*400 (lot) / 86,400 (HDC Engineering Code of Practice)
	Peak day demand (PDD)	l/s	9.7	peak day factor = 1.5 (NZS 4404:2010)
	Peak hour demand (PHD)	l/s	19.4	peak hour factor = 2 (NZS 4404:2010)
Wastewater	Average Dry Weather Flow (ADWF)	l/s	4.1	250 (l/p/d)*3.5 (p/lot)*400 (lot) / 86,400 (NZS 4404:2010)
	Peak Dry Weather Flow (PDWF)	l/s	10.1	ADWF * 2.5 (NZS 4404:2010)
	Peak Wet Weather Flow (PWWF)	l/s	20.3	PDWF * 2 (NZS 4404:2010)

Wastewater
At the meeting it was noted:

- Constrained capacity along Te Aute Rd
- Anderson Park PS at capacity (receives flows from Te Aute Rd)

Our query is if the wastewater pump station on Middle Rd (and downstream network) has capacity for the proposed site flows?***[KN]*** This pump station is Breadalbane. We have done investigations (2019 and 2025 to date to determine residual capacity of that PS to inform servicing for the current Iona development that is being delivered by CDL on the opposite side of Middle Road. Latest investigations have demonstrated that there is enough capacity to service the existing catchment plus the current CDL development only, and for that reason our starting position is that the remaining available capacity in its entirety is allocated for the current Iona development that is at varying stage consent. We have not considered this proposal in any modelling to date and a check of the PS along with the rising main and receiving downstream gravity network would need to be investigated to assess the impact of this development on our network and what the mitigation measures might be along with the cost. The Anderson Park catchment is heavily constrained and will not be an option.



Similar to the water supply questions below: Are there additional pipes along Te Aute Road and Middle Road not shown in the image below?

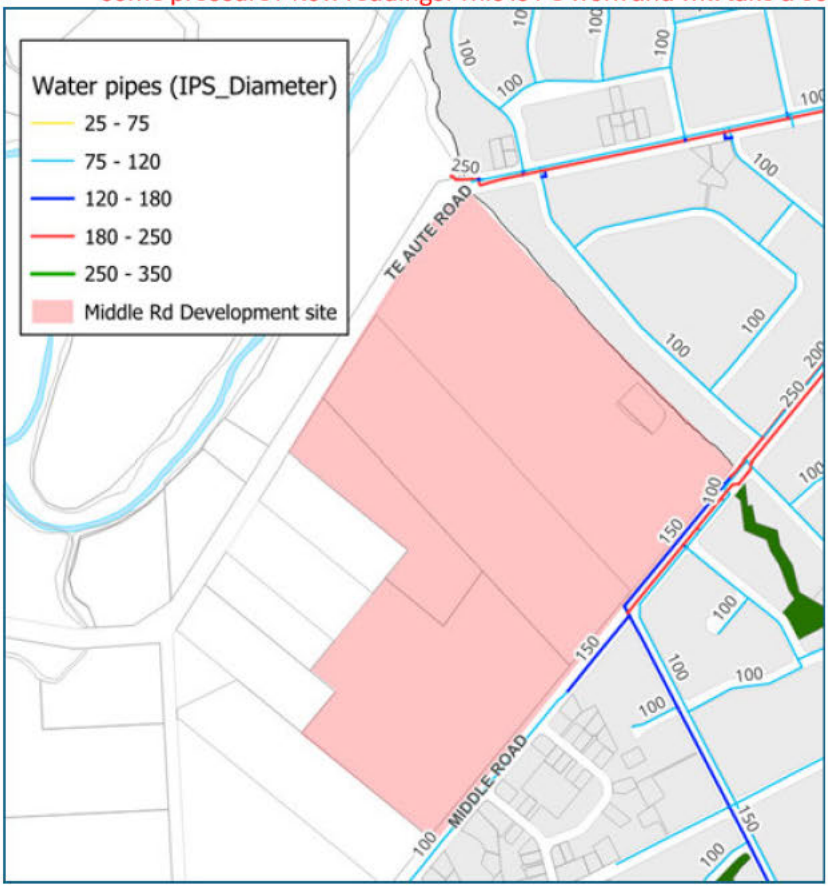
Water Supply

It was mentioned at the meeting that we can't impact the firefighting supply capacity for the retirement village north of Te Aute Rd.

Our queries are:

1. Is there a water pipe continuing west along Te Aute Road? And if so, what size (figure below shows pipes from the HDC GIS Open Maps)***[KN]*** No there is not. The watermain was extended to service the retirement village only.
2. On the southern end of Middle Road seen in the image below, is the end of that 150mm pipe accurate (then continuing as a 100mm pipe) or has the 150mm pipe been extended south to the Iona Development?***[KN]*** As far as I'm aware the water main is 100mm.
3. Is there currently capacity and sufficient pressure in the existing network for this development's demand, 400 lots?***[KN]*** This would require modelling to answer it correctly. The Te Aute side is serviced by the Waiaroha Supply Zone and the watermain servicing the retirement village is sized to ensure FW3 firefighting capacity and any extra load on this network will require modelling to ensure FW3 capacity is maintained. The Middle Road side is serviced by the Havelock North Booster Zone and it is inefficient to double pump water supply for this development from this supply zone as water is first pumped from Waiaroha to a booster, and then up into the hills into our reservoirs.

Based on good design practices, we would expect the future development site network should provide looped connectivity between Te Aute Road and Middle Road. Please confirm these pipes are in the same water supply zone, therefore looping to connect these pipes would be acceptable.
[KN] These are not in the same servicing zones as per 3.
What is the pressure/hydraulic grade available from the existing pipes to supply the development demands listed?***[KN]*** I have put in a work order for our maintenance contractor to go out and take some pressure / flow readings. This is P3 work and will take a couple weeks to get done.



Many thanks, - we look forward to hearing back from you
Dave

Dave Allen
Senior Associate Engineer
BSurv, Grad Dip Bus (Eng, Mgt)
s 9(2)(a)
s 9(2)(a)
woods.co.nz

Attachment 3 – Water Supply Report

WOODS

WATER SUPPLY REPORT

PROJECT	Middle Road – Fast-track Referral Application
W-REF	P25-496
FOR	CDL Land New Zealand Limited
DATE	2/04/2026
STATUS	FINAL

Document Control

Project Number	P25-496
Project Name	Middle Road – Fast-track Referral Application
Client	CDL Land New Zealand Limited
Date	2/04/2026
Version	V1
Issue Status	FINAL
Originator	Marcel Bear – Principal Engineer
Reviewer	David Allen – Senior Associate Engineer
Approval	Brian Flood – Principal, Executive Director, General Manager Major Projects Infrastructure
Consultant details	Wood & Partners Consultants Limited (Woods) PO Box 6752 Victoria St West, Auckland 1142 woods.co.nz
Copyright and Limitations	

Table of Contents

List of Appendices

Statement of Qualifications & Experience

The following is a statement of the qualifications and experience of the experts involved in preparing this Report.

Originator: Marcel Bear - Principal Water Supply Engineer

I am a Principal Engineer at Wood & Partners Consultants Limited (Woods). Woods is a multi-disciplinary consultancy specialising in planning, urban design, engineering, water infrastructure, and surveying. I have been employed by Woods since April 2017.

I hold the qualification of Bachelor of Engineering (Honours) in Civil Engineering from the University of Auckland, which I completed in 1990. I am a Chartered Engineer with Engineering New Zealand.

I have 30 years of professional experience in water supply design and planning. My experience includes water supply design, hydraulic modelling and infrastructure master planning, for greenfield and brownfield developments such as; the Unitec site- Auckland, Northcote, Wesley and Waikowhai neighbourhoods and the Sleepyhead Development in Ohinewai.

I confirm that, in my capacity as originator of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

Reviewer: David Allen - Senior Associate Engineer

I am a Senior Engineering Associate engineer within the Wood & Partners Consultants Ltd (Woods) Land Development & Infrastructure team. Woods is a multi-disciplinary consultancy specialising in planning, urban design, civil engineering, water infrastructure and surveying. I have been employed at Woods since 2020.

I hold the qualifications of NZ Certificate in Land Surveying (NZCLS), Bachelor of Surveying (Distinction) from the Otago University, and a Graduate Diploma in Business (Engineering Management) from Auckland University. I am formerly a Licensed Cadastral Surveyor (LCS), with the Survey Board of NZ, and currently a member of Survey & Spatial NZ Institute (SSNZ).

I have 40 years of professional experience within the surveying, civil engineering and land development disciplines, including the design and project management of urban and rural land development projects (both greenfield and brownfield), from inception to completion. This experience includes involvement in urban design and planning processes, civil engineering and infrastructure design, neighbourhood infrastructure planning, geotechnical considerations, land transfer surveying, and civil engineering construction management, including acting as Engineer to the Contract under NZS3910 during the construction phase.

I confirm that, in my capacity as reviewer of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

Authoriser: Brian Flood - Principal & Executive Director

I am a General Manager Major Projects Infrastructure, Principal Engineer and Director at Wood & Partners Consultants Ltd (Woods). Woods is a multi-disciplinary consultancy specialising in planning, urban design, civil engineering, water infrastructure and surveying. I have been employed at Wood & Partners Consultants Ltd since 2003.

I hold the qualifications of Bachelor of Engineering from the University of Ulster, Ireland, which I completed in 1989. I am a Chartered Professional Engineer and a Fellow of the Institute of Professional Engineers New Zealand.

I have 35 years of professional experience in the Land Development and Infrastructure fields. My experience includes design, and coordination of Land Development and Infrastructure projects, typically acting as Engineer to the Contract under NZS3910 during the construction phase. I have been involved in a large range of projects from green field to brown field developments (both commercial and residential) small and large, but primarily focused on residential subdivisions similar to this application.

I confirm that, in my capacity as reviewer of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

1.0 Introduction

This Water Supply Report has been prepared by Woods on behalf of CDL Land New Zealand Limited (**CDL/the Applicant**) in support of a Referral Application for the Middle Road Project under the Fast-track Approvals Act 2024 (**FTAA**). The project is for the future residential development of approximately 300 to 350 lots at 92, 108, 148 Middle Road and 139 Te Aute Road in Havelock North.

The purpose of this report is to outline the proposed water supply strategy of the development and confirm that the site can be appropriately serviced for residential use. The assessment is based on an indicative concept plan, noting that detailed design will be undertaken as part of a future substantive application should the project be accepted for referral to the Fast-track process.

1.1 Site Description

A full description of the site and surrounds is provided in the Planning Overview Report submitted as part of the Referral Application.

In summary, the Middle Road site is located at 92, 108, 148 Middle Road and 139 Te Aute Road in Havelock North (**site**). The site is held in five separate titles and consists of a combined area of approximately 30.6 hectares. The site includes the McKenna Block, a parcel of land not included in the application, but which may be developed in the future. The calculations and reticulation design allows to service the McKenna Block, to future proof the infrastructure.

The site is relatively flat and currently used for rural residential purposes with five existing dwellings. Figure 1 shows the location of the site within the context of Havelock North. Currently the site is not serviced for water supply, however there are pipes adjacent to the edge of the site on Te Aute Road that service the surrounding developments. These pipes will be extended to provide a supply. Section 3.0 details the surrounding reticulation.

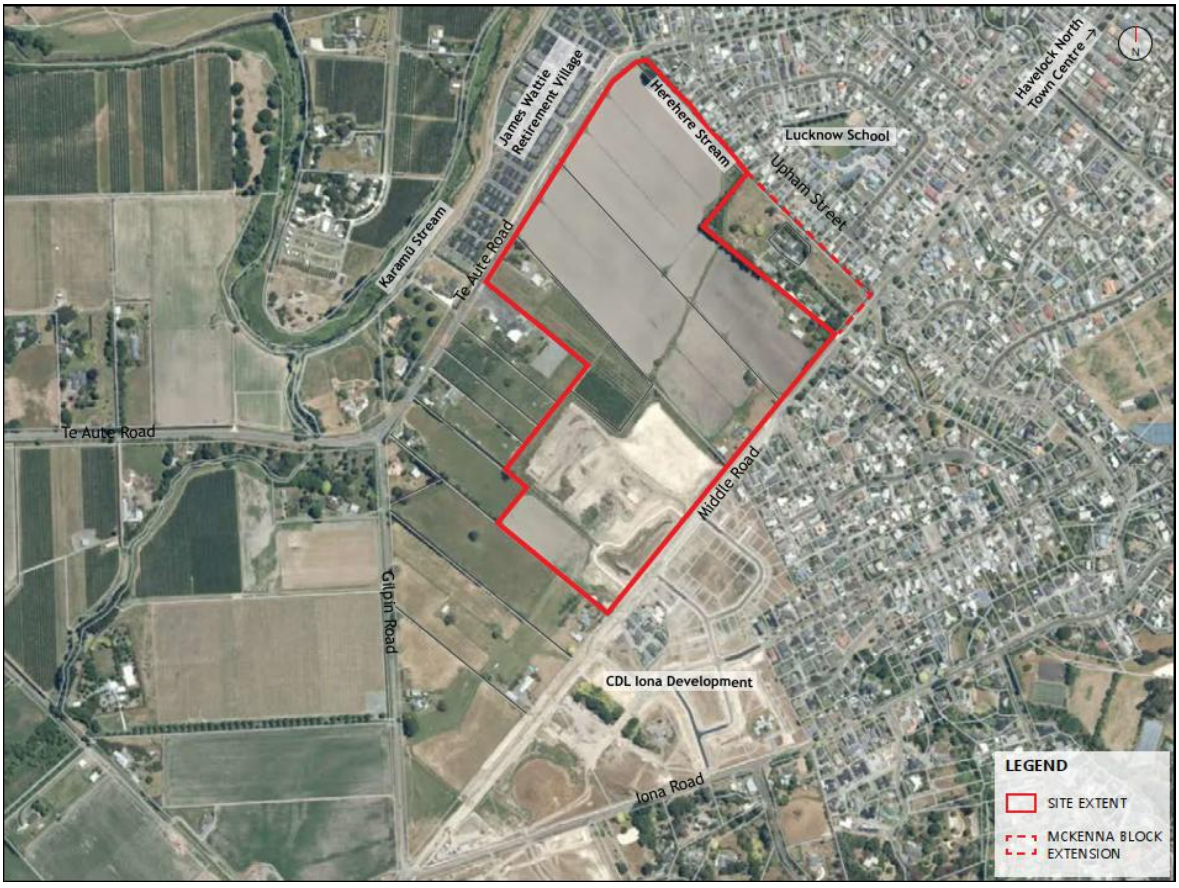


Figure 1 - Proposed Middle Road Development, Site Plan

1.2 Project Description

The Middle Road project will provide for the residential subdivision of the site to enable the development of approximately 300 – 350 lots. The intended subdivision layout will provide for a range of lot sizes to enable conventional residential development along with medium density development opportunities. A full description of the Middle Road Project is provided in the Planning Overview Report submitted as part of the Referral Application.

Enabling water supply for the Middle Road development is addressed in this Report. Water supply will be provided via a proposed extension of the existing 250mm watermain in Te Aute Road. The proposed extension will supply into a network of pipes that will service the development, with a looped layout that gives resilience to the supply and ensures water circulation to maintain water quality. The pipes will be sized to deliver peak domestic demands and residential fireflow.

2.0 Background

This report describes the water supply for the proposed development at Middle Road (the development), in support of the fast-track referral application.

The development will consist of approximately 300 - 350 lots, as shown in the indicative concept plan prepared to in support of the potential development of the site (Figure 2). The McKenna Block is included, shown greyed out in the northeast corner of the site. The HDC Regional Growth Strategy Infrastructure Constraints Report v1.1 (April 2023) highlights that the strategy for drinking water supply for the wider Hastings area, including Havelock North, needs to ensure access to sufficient quantities to meet current and future demands (predicted domestic, commercial and industrial needs) whilst ensuring water is efficiently used.

The water supply assessment will demonstrate the serviceability of the proposed development, considering the capacity of the surrounding public network, the anticipated demands of the development and an indicative proposed pipe layout infrastructure within the development.

Figure 2 - Middle Road development – concept masterplan (V6)

3.0 Surrounding public network

3.1 Existing supply

The existing public water supply infrastructure network in the vicinity of the development is shown in Figure 3, extracted from the Hastings District Council (HDC) GIS records.

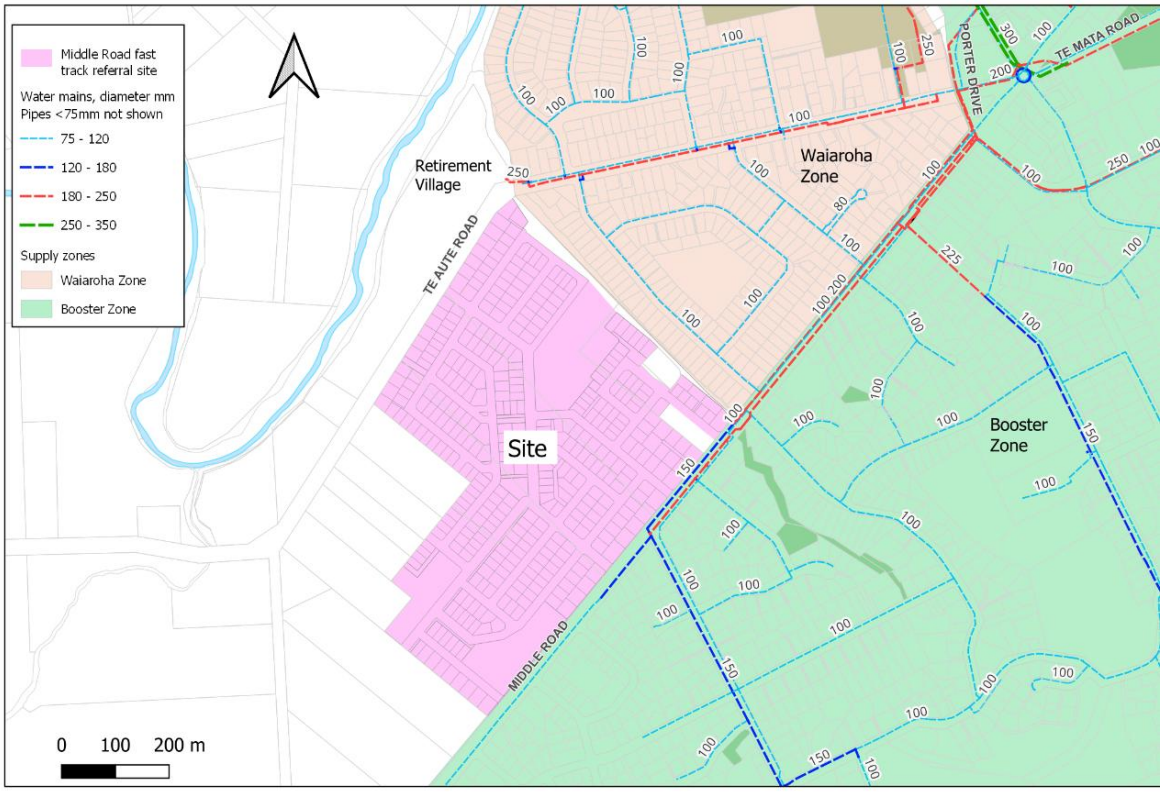


Figure 3 - Surrounding public water supply network

There are separate 250mm diameter pipelines to the north and southeast of the site, along Te Aute Road and Middle Road respectively. These pipes are in separate supply zones, with the northern pipe in the Waiaroha Zone (coloured beige) and the Middle Road pipe in the Havelock North Booster zone (coloured green). HDC preference is to supply the proposed Middle Road development from the Waiaroha zone, due to availability and efficiency of supply (refer telephone note from HDC contained in Appendix A). This agrees with the HDC Regional Growth Infrastructure Constraints Report v 1.1 (April 2023).

The proposed connection point to the existing HDC supply network is located adjacent to the northwestern corner of the development, on Te Aute Road, directly adjacent to the northern end of the James Wattie Retirement Village.

3.2 Hydrant testing results

A hydrant test was carried out on 4 February 2026 on the 250mm main along Te Aute Road, at the retirement village connection point. The testing location and results are detailed in Appendix 2. During the test, the system response to the hydrant flow was allowed to stabilise before taking readings. This allowed the variable speed pumps supplying the zone to speed up and supply the hydrant flow. This active response of the network to demands is shown by the relatively flat (horizontal) flow/pressure curve in Figure 4, which is an accurate representation of the flow available to the site.

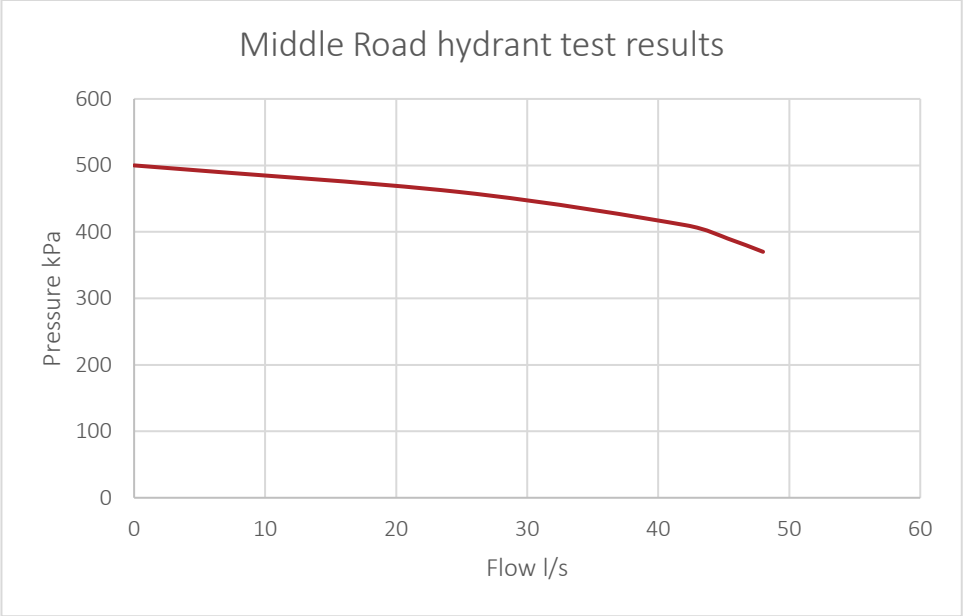


Figure 4 Hydrant test results

4.0 Proposed network

4.1 Network design

This section details the proposed network to supply the Middle Road development. The network has been sized using HDC standards for pipe diameter, layout and headloss. The design shown would adequately service up to 350 lots proposed by the future development to HDC standards. The design will be refined as part of the future development consent and engineering approval design processes.

4.2 Development demands

The proposed development demands are summarised in Table 1. They are based on the factors detailed in the table, using HDC standards as shown. The network will be sized to supply these demands.

Table 1 – Middle Road Development demands

Parameter	Unit	Value	Source	Notes
Number of properties	lots	350	Middle Rd Draft Development Concept V6	
Occupancy	Equivalent Person (EP) per lot	3.5	HDC code of practice. Schedule E. Clause 5.3.5.1 a)	HDC code, wastewater section
Minimum Water demand (average daily)	l/person/day	400	HDC code of practice. Schedule F. Clause 6.3.5.6 a)	HDC code supersedes NZS 4404
Peak day flow factor	Unitless	1.5	NZS 4404:2010. Clause 6.3.5.3	Based on populations >10,000 (15,000 estimated Havelock North population)
Peak hour flow factor	Unitless	2	NZS 4404:2010. Clause 6.3.5.3	
Fire flow	l/s	25	NZS 4404:2010. Clause 6.3.5.3 SNZ PAS 4509:2008. Tables 1 and 2	Non-sprinkled residential structures. Fire water classification: FW2
Average day demand (ADD)	l/s	5.7		400(l/p/d)*3.5 (p/lot)*385 (lot) / 86,400
Peak day demand (PDD)	l/s	8.5		ADD * 1.5
Peak hour demand (PHD)	l/s	17.0		PDD * 2
Demand – Fire flow	l/s	36.3		2/3*PHD + 25 l/s

4.3 Planned water supply network

Based on the masterplan layout (Figure 2), the planned water supply network is shown in Figure 5. The following approach has been adopted to establish the initial layout:

- Design allowance for up to 350 residential lots
- Supply from the northern Waiaroha Zone to avoid double pumping associated with the southern Havelock North Booster Zone
- Extend the existing 250mm main along Te Aute Road to the site
- Pipe sizes within the development will be:
    - 150mm principal ring-main, located within the main development roads
    - 100mm mains along remaining development roads and 50mm rider mains located on smaller (minor) roads and private accessways.
- The proposed network will be supplied by from the Waiaroha Zone in Te Aute Road and will connect to, but be isolated from the Havelock North Booster Zone in Middle Road. The isolated connection will be achieved with closed valves along Middle Road that can be opened for maintenance or in an emergency.

The layout and pipe sizes follow best practice and will be confirmed in collaboration with the Council 3-Waters Team at subsequent stages of the design.

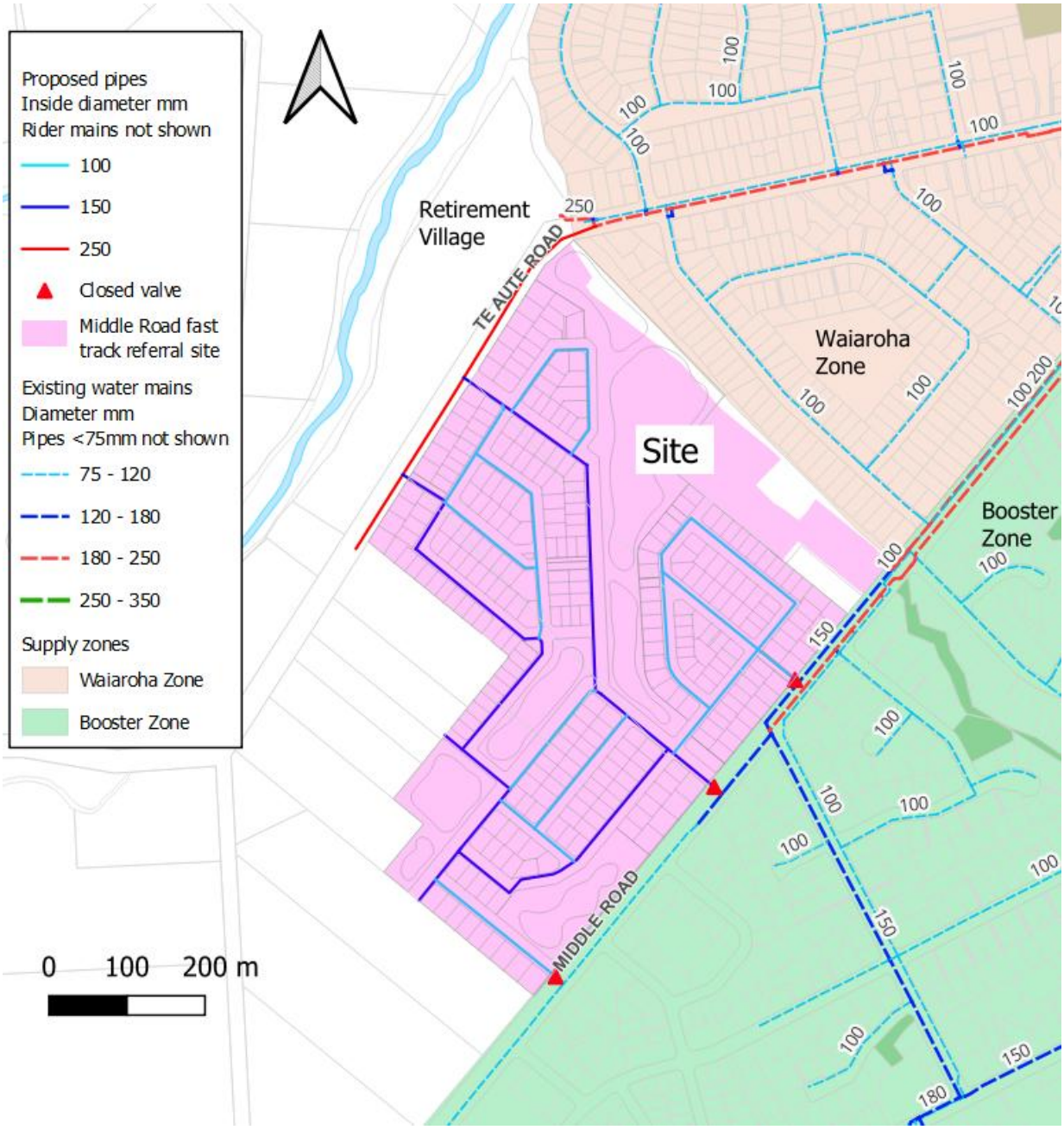


Figure 5 - Proposed water supply network

4.4 Network performance

From the hydrant testing results shown in Figure 4:

- Minimum pressure at peak flow (17 l/s) = 470 kPa, well above the HRC standard of 300 kPa
- Pressure at fireflow (36.3 l/s) = 420 kPa, well above the HRC standard of 100 kPa.

The headloss in the 150 mm ring-main carrying half the peak hour flow (17/2 = 8.5 l/s) is **1.7 m/km**, well within the Council Code of Practice (CoP) maximum of **5 m/km**. Flow is half because the ring-main will be fed from both ends via two connections to Te Aute Road.

Based on the above calculations, the sizing of the proposed network is considered adequate.

5.0 Conclusions

From the assessment of the proposed water network, the following conclusions are made:

- The proposed development consists of approximately 300 - 350 lots, which would result in a domestic peak hour demand of up to 17 L/s and a residential fireflow demand of 25 L/s, in accordance with the HDC standards
- The development sits on the boundary of two water supply zones: the Waiaroha Zone and the Havelock North Booster Zone. HDC preference is to supply from the Waiaroha Zone due to availability and efficiency of supply. A connection to the Booster Zone can be provided that is normally isolated (closed), to provide resilience of supply
- The proposed development water supply pipe layout consists of a 150mm ring-main loop supplied at both ends from an extension of the 250 mm main along Te Aute Road. The site will be serviced by 100mm mains and 50mm rider mains. The layout is indicative and will be confirmed at subsequent stages of the design
- Hydrant testing and calculations confirms the network has capacity to supply the development flowrates to HDC standards.

This assessment has demonstrated that it is technically feasible to provide suitable water supply servicing for the proposed Middle Road development, noting that final network design will be refined as part of subsequent substantive phase detailed design.

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Marcel Bear
Principal Engineer - 3 Waters
BE(Civil)Hons CPEng
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woods.co.nz

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Hi Dave,

Please see some initial comments below in red.

It needs to be noted that this development has not been on the radar and accounted for in wastewater and water modelling and infrastructure servicing so we don't have a lot of information.

Regards,

Kelly Nikora
3 Waters Growth & Development Manager
Te Kaunihera ā-Rohe o Heretaunga | Hastings District Council
Wāea/Phone s 9(2)(a)

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Can I leave this to you?

Or if you have some spare time, bring me up to speed, and I can respond to Woods accordingly.
Regards

Andre Magdich
Development Engineer Consents
Te Kaunihera ā-Rohe o Heretaunga | Hastings District Council
Wāea/Phone +s 9(2)(a)

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We have revised some of the queries sent previously (attached email dated 12/11/25) after feedback from the kick off meeting with HDC last week.

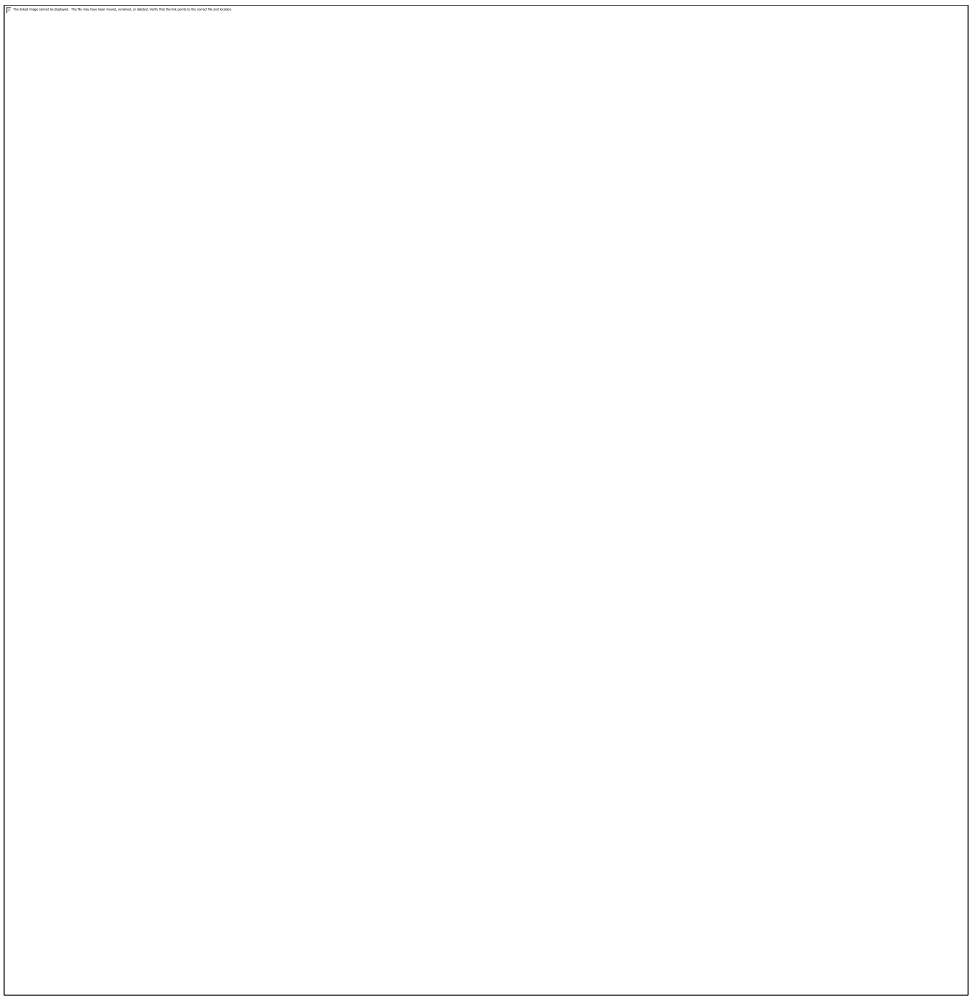
We calculated the water supply demands and wastewater flows based on HDC's Code of Practice and NZS4404:2010 as shown below.

	Parameter	Unit	Value	Notes
	Number of properties	lots	400	
Water supply	Average day demand (ADD)	l/s	6.5	400l (l/p/d)*3.5 (p/lot)*400 (lot) / 86,400 (HDC Engineering Code of Practice)
	Peak day demand (PDD)	l/s	9.7	peak day factor = 1.5 (NZS 4404:2010)
	Peak hour demand (PHD)	l/s	19.4	peak hour factor = 2 (NZS 4404:2010)
Wastewater	Average Dry Weather Flow (ADWF)	l/s	4.1	250 (l/p/d)*3.5 (p/lot)*400 (lot) / 86,400 (NZS 4404:2010)
	Peak Dry Weather Flow (PDWF)	l/s	10.1	ADWF * 2.5 (NZS 4404:2010)
	Peak Wet Weather Flow (PWWF)	l/s	20.3	PDWF * 2 (NZS 4404:2010)

Wastewater
At the meeting it was noted:

- Constrained capacity along Te Aute Rd
- Anderson Park PS at capacity (receives flows from Te Aute Rd)

Our query is if the wastewater pump station on Middle Rd (and downstream network) has capacity for the proposed site flows?***[KN]*** This pump station is Breadalbane. We have done investigations (2019 and 2025 to date to determine residual capacity of that PS to inform servicing for the current Iona development that is being delivered by CDL on the opposite side of Middle Road. Latest investigations have demonstrated that there is enough capacity to service the existing catchment plus the current CDL development only, and for that reason our starting position is that the remaining available capacity in its entirety is allocated for the current Iona development that is at varying stage consent. We have not considered this proposal in any modelling to date and a check of the PS along with the rising main and receiving downstream gravity network would need to be investigated to assess the impact of this development on our network and what the mitigation measures might be along with the cost. The Anderson Park catchment is heavily constrained and will not be an option.



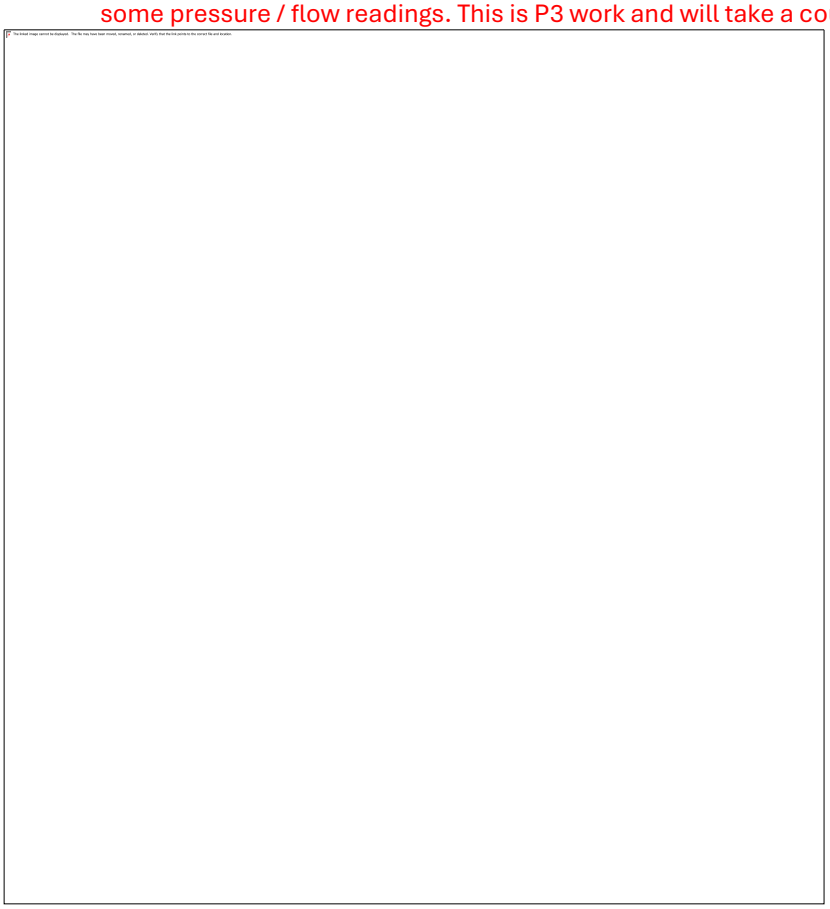
Similar to the water supply questions below: Are there additional pipes along Te Aute Road and Middle Road not shown in the image below?

Water Supply
It was mentioned at the meeting that we can't impact the firefighting supply capacity for the retirement village north of Te Aute Rd.

Our queries are:

1. Is there a water pipe continuing west along Te Aute Road? And if so, what size (figure below shows pipes from the HDC GIS Open Maps)***[KN]*** No there is not. The watermain was extended to service the retirement village only.
2. On the southern end of Middle Road seen in the image below, is the end of that 150mm pipe accurate (then continuing as a 100mm pipe) or has the 150mm pipe been extended south to the Iona Development?***[KN]*** As far as I'm aware the water main is 100mm.
3. Is there currently capacity and sufficient pressure in the existing network for this development's demand, 400 lots?***[KN]*** This would require modelling to answer it correctly. The Te Aute side is serviced by the Waiaroha Supply Zone and the watermain servicing the retirement village is sized to ensure FW3 firefighting capacity and any extra load on this network will require modelling to ensure FW3 capacity is maintained. The Middle Road side is serviced by the Havelock North Booster Zone and it is inefficient to double pump water supply for this development from this supply zone as water is first pumped from Waiaroha to a booster, and then up into the hills into our reservoirs.
   Based on good design practices, we would expect the future development site network should provide looped connectivity between Te Aute Road and Middle Road. Please confirm these pipes are in the same water supply zone, therefore looping to connect these pipes would be acceptable. ***[KN]*** These are not in the same servicing zones as per 3.

What is the pressure/hydraulic grade available from the existing pipes to supply the development demands listed?***[KN]*** I have put in a work order for our maintenance contractor to go out and take some pressure / flow readings. This is P3 work and will take a couple weeks to get done.



Many thanks, - we look forward to hearing back from you
Dave

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Appendix 2: Hydrant test results

Middle Road hydrant test results

Date 4-Feb-26

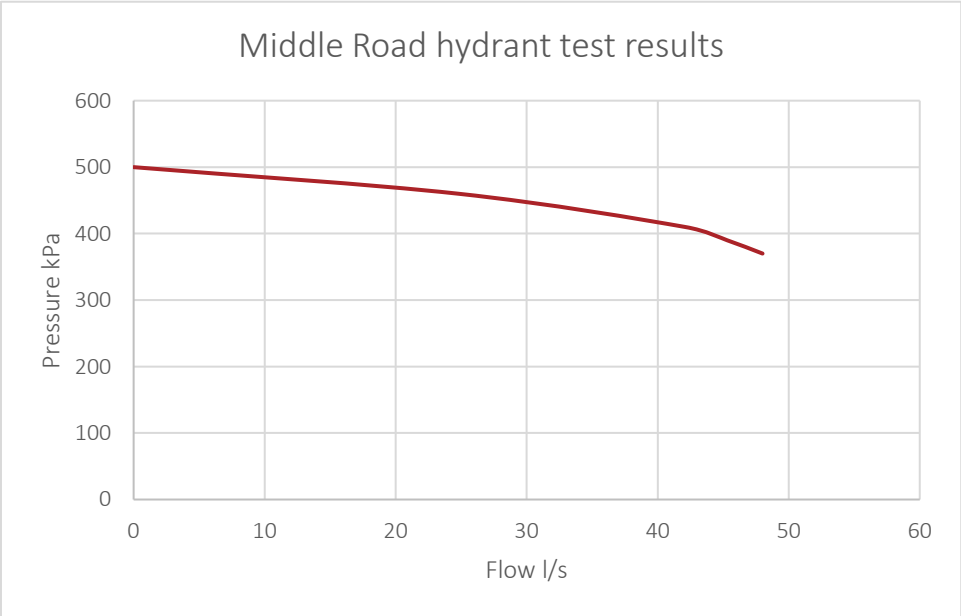
Giddens meter, D5 ring

Time	Pressure	Flow		
		Meter pressure	Flow	
	kPa	kPa	l/s	
8.08 am	500	0	0	Static, start
8.12 am	460	20	24.8	Flowing 1 hydrant
8.13 am	410	60	42.1	Flowing 1 hydrant
8.14 am	390	70	45.3	Flowing 1 hydrant
8.16 am	370	77	48	Flowing 1 hydrant
8.18 am	500	0	0	Static, end of test

Fulton Hogan Crew, Justin

Observing onsite: Brandon Olver

Observing online: Marcel Bear




WATER HYDRANT
Hydrant testing
Flow
Pressure
Water mains, diameter mm
Pipes <75mm not shown
75 - 120
120 - 180
180 - 250
250 - 350
Middle Road fast track referral site
Retirement Village
Pressure
Flow
TE AUTE ROAD
Lipscombe Cres
Upham St
250
125
100
0
50
100 m
Middle Road Fast Track Referral
Hydrant Testing Plan
M Bear
28 January 2026