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Infrastructure Servicing Assessment for NoR

Ministry of Education

43 Trigg Road; 54 and 60 Station Road

Table of Contents

Attachments

Document Control

Client	Ministry of Education
Title	Infrastructure Servicing Assessment for NoR - 43 Trigg Road; 54 and 60 Station Road
Revision	A
Status	Final
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Prepared by	Lupesina Koro
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Released by	Dali Suljic

Revision History

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A	Final	18.12.2025	Lupesina Koro	Dali Suljic	Dali Suljic

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1 Introduction

Tektus was engaged by the Ministry of Education (MoE) to develop an infrastructure servicing assessment to support the lodgement of a Notice of Requirement (NoR) that would enable the future construction and operation of a secondary school at 43 Trigg Road; 54 and 60 Station Road, Huapai referred to as the 'site' (Figure 1). This serviceability assessment should be read in conjunction with other relevant documentation prepared to support the lodgement of this NoR.

Figure 1: Proposed secondary school site at 43 Trigg Road; 54 and 60 Station Road, Huapai (source: Auckland Council Geomaps, November 2025)

1.1 Background

MoE determined that a new secondary school is required given the population growth expected across the Kumeū-Huapai sub-catchments and the existing demand for secondary school provision with the establishment of residential developments in the area. A desktop review of seven potential school site locations was initially conducted in 2022. In 2025, three sites were added to the review, and a total of ten potential locations were assessed / re-assessed[1]. The site at 54 and 60 Station Road, Huapai was determined as the preferred option for a secondary school site. 43 Trigg Road was later included for a more flexible proposition that would increase benefits for site development.

1.2 Existing Site Appraisal

The secondary school is proposed to be located across three existing parcels: 43 Trigg Road, 54 and 60 Station Road, Huapai. All parcels are located within the Future Urban Zone (FUZ) under the Auckland Unitary Plan[2] (AUP). Across the three parcels, the total site area is approximately 6.9 hectares with a ridgeline in the northern third of the site. North of the ridgeline, approximately 1.9 hectares of the site slopes towards the northern boundary at a grade of approximately 2%. South of the ridgeline, the remainder of the site generally slopes towards the low point in the southwest corner at a grade of approximately 10%. The site is estimated as 90% pasture with a cluster of structures that vary in size and function located across the three parcels.

[1]Incite, 2025. *Kumeū Secondary School Site Selection Revised Stage 2 Options Evaluation.*

[2]Auckland Council, 2016-. *Auckland Unitary Plan Operative in Part 15 November 2016.* Accessed December 2025: Auckland Unitary Plan Operative in part

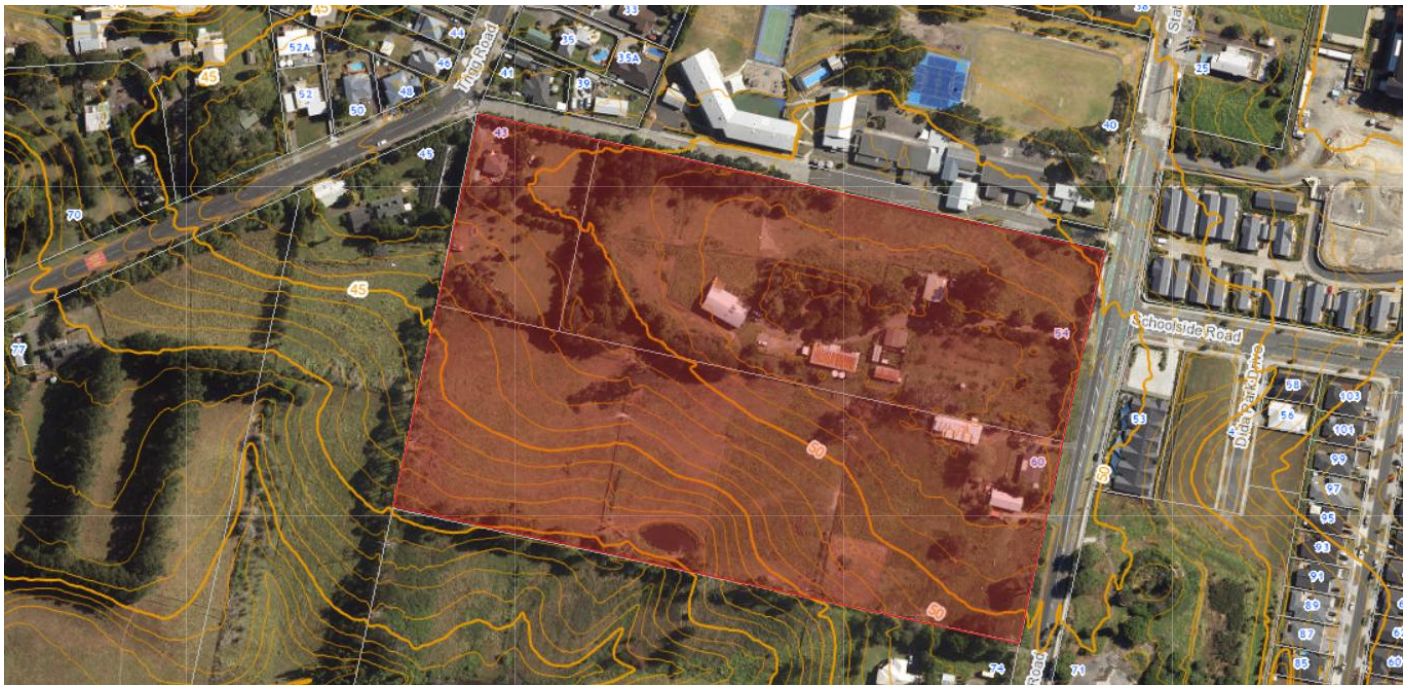

Figure 2: Site location plan (source: Auckland Council Geomaps, November 2025)

1.2.1 Stormwater

The site is located within the Kumeū-Huapai-Riverhead Future Urban Area (FUA). The Auckland Future Development Strategy 2023-2025[3] (FDS) confirms that the northern portion of the FUA is not appropriate for development due to the risks to life and property. There are also no feasible options for mitigation that would alleviate significant effects downstream should development occur within this region of the FUA. Healthy Waters Flood and Resilience (HWFR) confirmed that all sites considered in the site selection process were outside of this northern portion but were marked as 'red flagged' zones. Red flagged zones require appropriate stormwater management to ensure development of these areas will not exacerbate the flooding risk downstream due to the extensive nature of the upstream catchments.

HWFR indicated that given the greater flooding environment of Kumeū and Huapai, the flood maps for the area are currently being updated with a higher rainfall depth that will likely result in greater depth and flood plain extents. Given the location and topography of the site, the updated floodplain extents are unlikely to affect the site itself. A detailed catchment study and flood model is underway by HWFR with related infrastructure upgrades to be investigated once complete.

Figure 3 shows the site is likely subject to five concentrated overland flow paths, all of which originate within the site itself. Flows separate from the ridgeline towards the existing urban development in the north and the existing rural land south of the ridgeline. Ultimately, all flows converge further west of the site and discharge into the Kumeū River.

Based on Auckland Council GIS, there is no public stormwater connection available to the existing site (Figure 3). On the perimeter, at the northeastern and northwestern corner, a 300Ø mm concrete gravity line runs along Trigg Road and Station Road. These stormwater connections are located upstream of the site.

Auckland Council holds a Regionwide Stormwater Network Discharge Consent (NDC) that authorises stormwater discharges into the public stormwater network across the Auckland Region. However, as the authorisation is limited to

[3]Auckland Council, 2023. *Tāmaki – Whenua Taurikura Auckland Future Development Strategy 2023-2053.* Accessed November, 2025: https://www.aucklandcouncil.govt.nz/content/dam/ac/docs/plans-projects-policies-reports-bylaws/misc/future-development-strategy.pdf

urban zoned areas[4] under the AUP only, the site cannot be authorised under the NDC as it is located within the Future Urban Zone (FUZ). Thus, the development of site will need to be authorised by a new stormwater discharge consent.

The site is bordered by developments to the north and east, which are located within the Stormwater Management Area Flow 1 (SMAF 1) control.

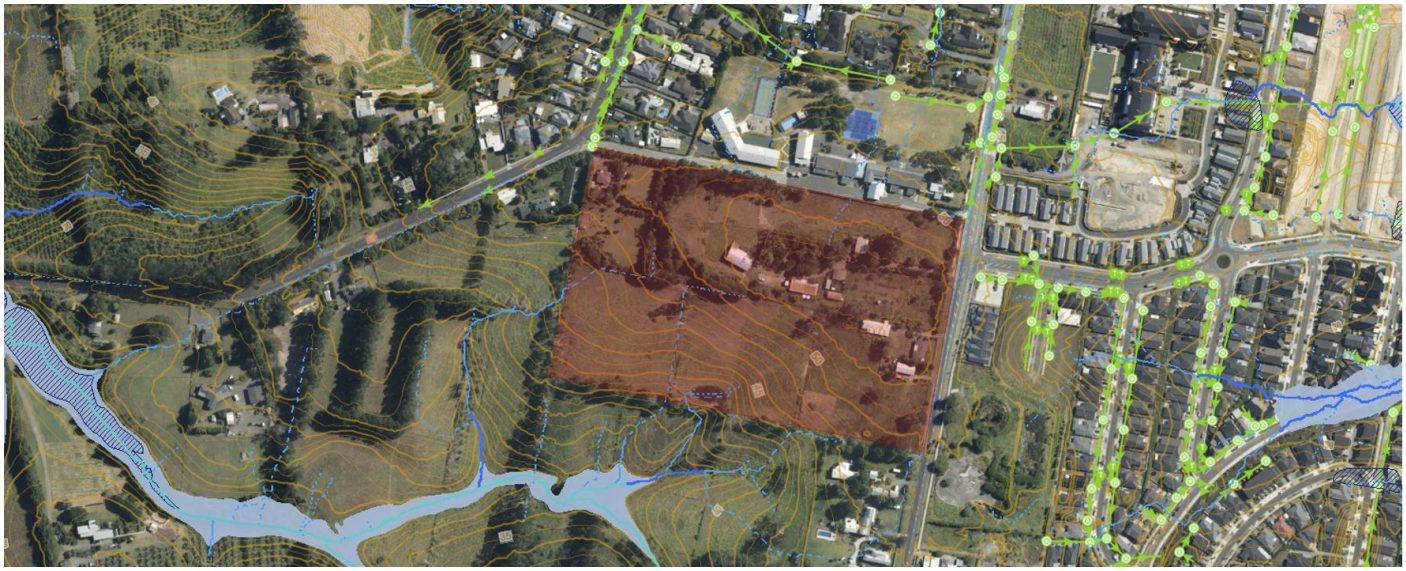

Figure 3: Stormwater features of the site (source: Auckland Council Geomaps, December 2025)

The Ecological Assessment[5] indicates there are no wetlands / natural inland wetlands within the site boundary. There is an artificial pond towards the centre of the site, near the southern boundary but is considered an unlikely habitat for any aquatic species as determined by the Ecological Assessment. A potential intermittent stream is identified west of the pond and traverses the southern site boundary.

The Geotechnical Review[6] concludes that the ground conditions consist of stiff clayey silt / silty clay. Thus, soil infiltration rates are likely to be low.

1.2.2 Wastewater

The public wastewater reticulation in Kumeū is a low-pressure system rather than a more conventional gravity system. There is no existing public wastewater infrastructure within the site, however a 40Ø mm connection in the northeastern corner feeds into a 63Ø mm main that connects to a 110Ø mm main that runs parallel to a 75Ø mm main along the eastern side of Station Road.

As part of the site selection process in 2022, WSL indicated that the existing wastewater network likely has capacity to service the site, however further capacity assessments may be required as the site is located within FUZ[7].

1.2.3 Water Supply

There is no existing public water supply infrastructure within the site, however east of the site, there is a 280Ø mm public water supply line that runs along the eastern side of Station Road. To the north of the site, a 180Ø mm main public water supply runs parallel to the northern boundary within the accessway for Huapai District School. There is a total of five hydrants located on these lines within the general proximity of the site.

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[4]Auckland Council, 2020. *Schedule 4: Connection requirements Regionwide stormwater network discharge consent.* Accessed December 2025: Healthy_Waters_NDC_Schedule_4-full_version (2).pdf

[5]Morphum, 2025. *Kumeu Secondary NoR – Ecological Opportunities and Constraints.* P05641 Ecological Constraints and Opportunities Memo.pdf

[6]Wentz-Pacific, 2025. *Geotechnical Review Summary for Notice of Requirement Kumeū Secondary School 43 Trigg Road and 54/60 Station Road, Kumeū*. Accessed December, 2025: 1502-01-25_Kumeu School NOR Geotech Assessment.pdf

[7]Tonkin & Taylor Ltd, 2025. *Desktop Assessment for Kumeū Secondary School Site Selection.* Accessed November 2025: Geotechnical Assessment Report

As part of the site selection process in 2022, WSL indicated that the existing water supply network likely has capacity to service the site albeit the site being located within the FUZ[8].

Water pressure testing was undertaken in December 2025 on the existing 280Ø mm. The testing recorded a static pressure of 355kPa and a residual pressure of 280kPa with a total flow of 26.4L/s from two hydrants. Refer to Attachment C for the detailed report.

1.2.4 Utilities

BeforeUDig information (gas, power and telecommunications) was requested in August 2025 for each of the ten options considered in the site selection process (see Section 1.1). The availability of utilities for this site was reported for electricity and fibre services only, indicating 11kV underground lines along Station Road and fibre availability for properties within 200m of the site. VDSL is currently also provided for the site, which is a good alternative to fibre, but has limitations for connection speed[9].

BeforeUDig information received in December 2025 (Attachment A) confirmed the above and also showed gas currently running through the northwest corner of the property, via an existing line in the single accessway of 43 Trigg Road.

1.3 Proposed Future Development

The proposed future development involves establishment of a secondary school accommodating Years 9-13. The MoE has advised that it anticipates an opening roll of 1,500 students, with a projected medium-long term demand of 2,500 student places with estimated population growth and further urbanisation of the area.

The total number of staff is estimated at 251[10] assuming an even distribution of students across the five year groups and no students funded under the Ongoing Resource Scheme. This total includes curriculum, management, senior management and middle management staff. The number of students for the masterplan roll and calculated staff has been used to estimate the wastewater and water supply demands for the school.

2 Stormwater

2.1 Stormwater Management Principles

2.1.1 Water quality

Future development within the site is proposed to follow the principles of an integrated stormwater management approach, as directed by E1 of the AUP, to manage the quality of stormwater runoff from impervious surfaces. The key focus areas for water quality treatment within the site are exposed high contaminant generating carparks (servicing more than 30 vehicles as per AUP) and associated access roads.

2.1.2 Hydrology mitigation

The ultimate receiving environment from the site is a freshwater stream. Considering that the surrounding existing urban areas are located within SMAF 1, it is proposed to implement the same for the site. All future impervious surfaces are proposed to meet the SMAF 1 retention and detention requirements consistent with Table E10.6.3.1.1 of the AUP. It is noted that due to the anticipated soil conditions described in Section 1.2.1, the provision of retention via infiltration to ground is unlikely. However, infiltration tests are recommended to be carried out at the Outline Plan of Works (OPW) stage to confirm the suitability of the site for disposal of retention to ground.

In addition to the provision of SMAF 1, it is proposed to generally maintain the natural catchment boundaries within the site to minimise the potential impact on stream hydrology.

[8]Tonkin & Taylor Ltd, 2025. *Desktop Assessment for Kumeū Secondary School Site Selection.* Accessed November 2025: Geotechnical Assessment Report
[9]Chorus. *Broadband Map NZ*. Accessed December, 2025: Availability - Broadband Map NZ
[10]Ministry of Education. *How we calculate curriculum staffing*. Accessed December, 2025. URL: https://web-assets.education.govt.nz/s3fs-public/2024-08/How%20we%20calculate%20curriculum%20staffing%20-FINAL.pdf?VersionId=LlQCHhUD7QBWc9GHUDV.6dGiZ2OXB7cn.

2.1.3 Peak Flow Attenuation

Given the complexity of the existing flooding within this catchment, a comprehensive study would be required to inform catchment-wide attenuation requirements. Based on the advice from HWFR, the Kumeū-Huapai catchment study and flood model are not yet available (see Section **Error! Reference source not found.**) and it would not be feasible for MoE to commission an assessment of this scale to support this NoR. Given the location of the site and a relatively small scale of future development, including a low proportion of anticipated impervious surfaces, it is proposed to implement attenuation principles that seek to reduce the 1% AEP storm post-development peak flows from impervious surfaces to 80% of the pre-development (pervious surfaces) rates.

The 80% attenuation approach will ensure that the future development of the site will not increase flooding downstream considering potential catchment-wide impacts. This approach is largely based on national and international studies that informed stormwater management principles for several local authorities across New Zealand. TP10[11] suggested that limiting the peak discharge of the 100-year (1% AEP) storm to not exceed 80% of the pre-development 100-year storm will reduce the risk of flood levels increasing downstream and is an acceptable alternative to a catchment wide study. This was supported by a study of the Flat Bush catchment conducted by Manukau City Council determining that post-development flows attenuated to 80% of the pre-development 100-year ARI peak flows is appropriate to mitigate potential downstream flood effects in the absence of a catchment study. A similar approach is detailed in the Waikato stormwater management guideline[12] which also includes details of a study undertaken in a New Jersey catchment. This study concluded that by implementing the 80% attenuation approach the post-development runoff rates are less than the pre-developed runoff rates for the entire storm as highlighted in Figure 4.

[11]Auckland Regional Council, 2003. *Stormwater management devices: Design guidelines manual.* Accessed December 2025. URL: TP010 Stormwater management devices design guideline manual 2003

[12]Waikato Regional Council, 2020. Waikato stormwater management guideline. Accessed December, 2024. URL: TR20-07.pdf.

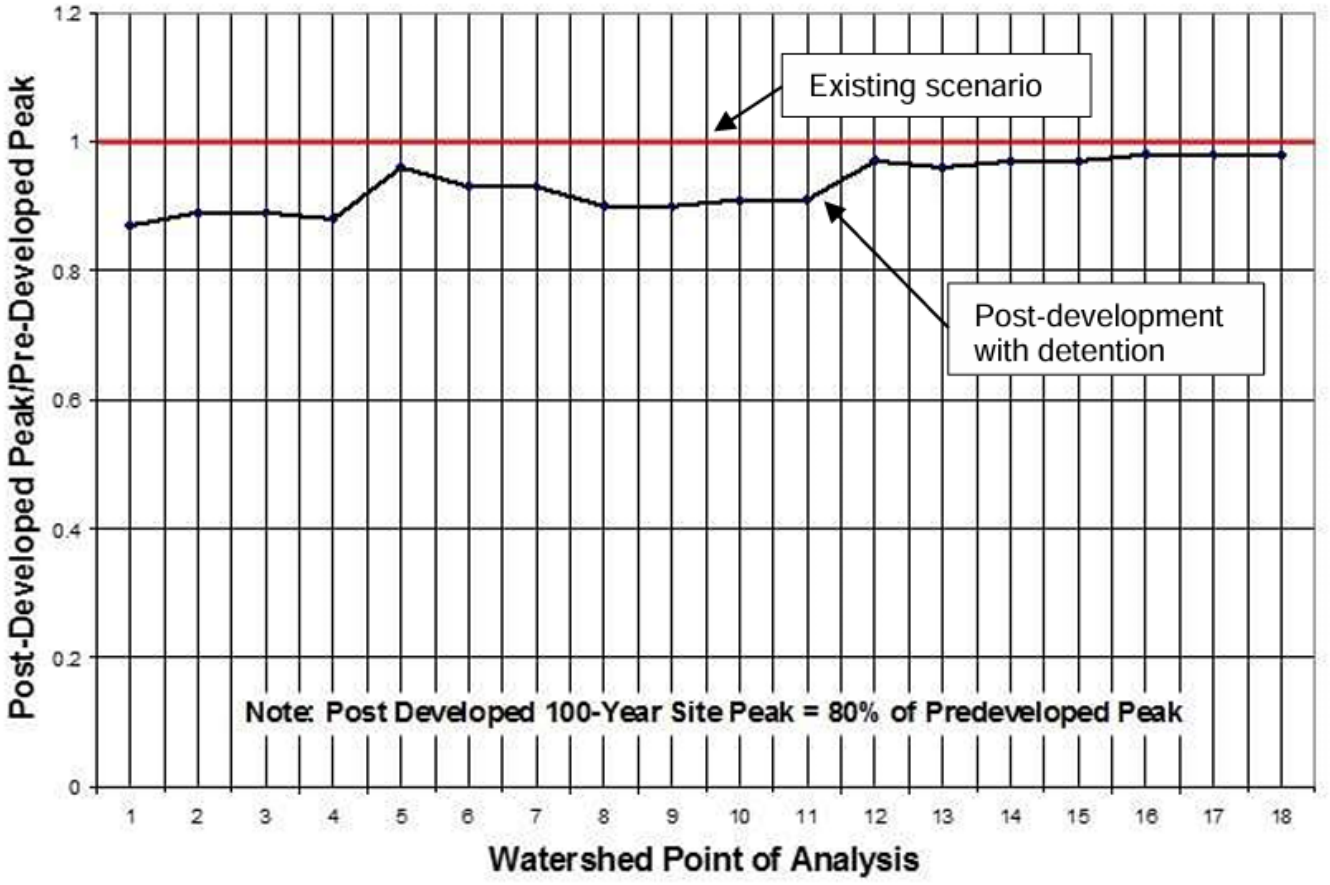


Figure 4: Pre and post-development 100-year ARI peak flow rates in a catchment (source: Waikato stormwater management guideline)

Attenuation of the 10% AEP post-development peak flows from impervious surfaces to pre-development (pervious surfaces) rates is not proposed for the site considering that all future stormwater system within the site will be designed to convey the 10% AEP flows in accordance with the current engineering standards. However, where connection is made to the existing public stormwater network, attenuation of the 10% AEP may be required subject to a detailed capacity assessment of the existing network at the OPW stage.

2.2 Stormwater Management Criteria

Table 1 summarises the relevant stormwater design criteria that align with the stormwater management principles set in Section 2.1 above and outlines options for stormwater management devices to deliver these outcomes.

Table 1: Proposed stormwater design criteria

Outcome	Surface	Criteria	Stormwater Management System
Water Quality	Roof	Use low contaminant generating roofing materials	
	High-contaminant generating carparks	Water quality treatment with a device or system designed in accordance with GD01, or alternative proprietary device or system achieving an equivalent level of treatment	Bioretention device, swale, wetland, proprietary device
	Other hardstands	No further requirements to Hydrology Mitigation (SMAF 1)	
Hydrology Mitigation	All impervious areas	Provide retention (volume reduction) of at least 5mm runoff depth	Rainwater/detention tanks, bioretention device, wetland, structural tree pit, permeable paving
		Provide detention (temporary storage) and a drain down period of 24 hours for the difference between the pre development and post-development runoff volumes from the 95th percentile, 24 hour rainfall event minus the 5 mm retention volume or any greater retention volume that is achieved	
Attenuation	All impervious areas	Attenuation of post-development peak flows to 80% of pre-development levels for the 1% AEP event*	Attenuation tanks, bioretention device, wetland, dry basin**

*Attenuation of post-development peak flows to pre-development levels for the 10% AEP event may be required where connection is made to the existing public stormwater network, subject to a detailed capacity assessment.

**Dry basin includes sports fields, informal recreation areas or carparks where these have been specifically designed to deliver the attenuation function

2.2.1 Implementation

It is not possible to develop a specific stormwater management solution for the site at this point, as there are no specific designs for the school currently available. Overall, and given the size of the site, there are no reasonably foreseen constraints that will preclude the future implementation of the proposed stormwater management criteria. However, a preliminary stormwater management solution has been developed based on the available information, to demonstrate the feasibility of the proposed stormwater management criteria consistent with Table 1 above.

The preliminary solution seeks to generally maintain the existing catchment boundaries, creating a stormwater management solution for the 'northern' and 'southern' catchment of the site as per

Table 2 and Figure 5.

Table 2 – Preliminary Stormwater Management Solution for the site

Catchment	Surface	Water Quality	Hydrology Mitigation	Attenuation
North	Roof	Low contaminant generating building materials	Rainwater tanks (retention is provided via re-use)	Sports Field
	Other hardstands	Structural Tree Pits and Permeable Paving		
South	Roof	Low contaminant generating building materials	Rainwater tanks for retention via re-use and wetland for detention	Wetland
	High-contaminant generating carparks	Wetland		
	Other hardstands	Wetland		

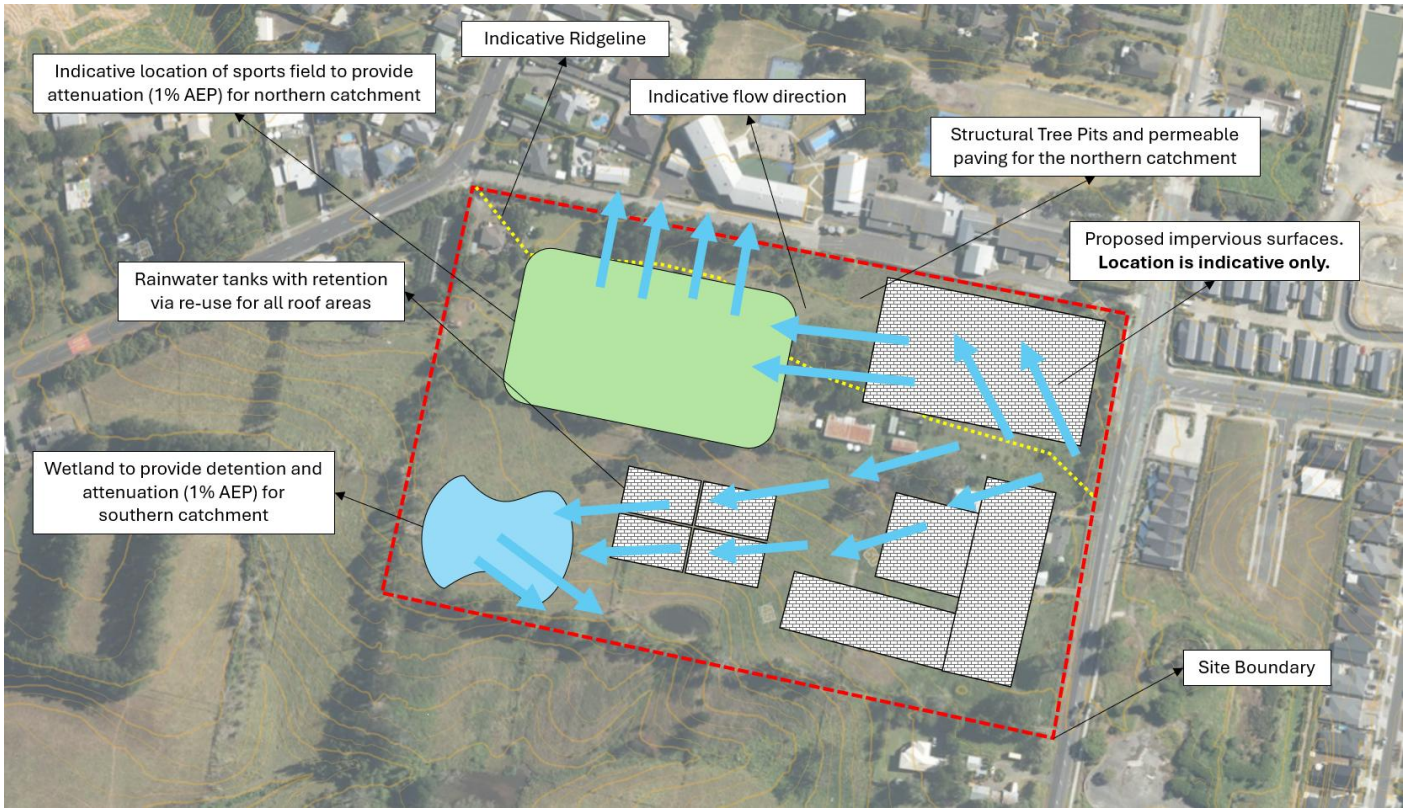


Figure 5: Proposed stormwater management for the secondary school

Overall, it is recommended that stormwater management devices are centralised as much as possible, and green infrastructure is utilised, to minimise the long-term operation and maintenance costs whilst delivering educational opportunities for the school.

The final stormwater management system design, generally consistent with the criteria set in Table 1 above, will be developed at the OPW stage

2.3 Flooding & Overland Flow

The site is not subject to external overland flow paths and there are no existing floodplains or flood prone areas within the site itself. The management of overland flows and flooding will be designed and managed in accordance with the New Zealand Building Code[13] and the Auckland Council's Stormwater Code of Practice[14] to ensure safe conveyance of overland flows and provision of necessary freeboard for the future buildings. This will be detailed at the OPW stage.

3 Wastewater

The site can be serviced via the existing low-pressure sewer system located within Station Road. There is an existing 40Ø mm public connection (2543152) available at the property boundary in the northeastern corner. This connection may need to be upgraded subject to detailed design provided at the OPW stage.

Peak flows for the proposed school have been calculated using a population of 2,500 students and 251 staff applying the design wastewater flow allowances as in Table 5.1.4 of the Watercare Water and Wastewater Code of Practice for Land Development and Subdivision (CoP)[15].

[13]Ministry of Business, Innovation and Employment, 2025. *Building Code compliance.* Accessed December, 2025: Building Code compliance | Building Performance
[14]Auckland Council, 2025. *The Auckland Code of Practice for Land Development and Subdivision Chapter 4: Stormwater.*
[15]Watercare, 2019. *Water and Wastewater Code of Practice for Land Development and Subdivision*. Accessed November, 2025: cop_wastewater_chapter_e3b009a864.pdf.

Table 3: Estimated wastewater supply demand

Personnel	Daily demand (L/person/day)	Average Dry Weather Flow (ADWF) (L/s)	Peak Dry Weather Flow (PDWF) (L/s)	Peak Wet Weather Flow (PWWF) (L/s)
2,500 Students	20	0.58	1.16	3.88
251 Staff	45	0.13	0.26	0.88
Total	-	0.71	1.42	4.76

WSL has only provided an indication that the exiting network will likely have the capacity to service the proposed secondary school, however that this is subject to further wastewater network capacity assessments and confirmation by WSL as the site lies within FUZ (see Section 1.2.2). In consideration of this advice, it is important to note that the standard operating hours for a secondary school are expected to be predominantly outside of the diurnal peaks of the surrounding residential areas. Therefore, it is anticipated that the proposed school will have minimal impact on the operation and capacity of the existing wastewater system in any case. A standard Watercare development information form is included as Attachment A.

4 Water Supply

The site can be serviced via the existing 180Ø or 280Ø mm water supply mains located within Station Road. The final connection point and details will be provided at OPW stage.

Peak flows for the proposed school are calculated in Table 4, applying a similar approach as for wastewater, and demand allowances as per Table 6.1.b of the Watercare Water and Wastewater Code of Practice for Land Development and Subdivision (CoP) with a peaking factor (PF) interpolated as 1.6 for students and a PF of 2 for staff. The daily demand listed in Table 4 is expected to be conservative as the MoE data suggests that schools across the Auckland region exhibit a much lower daily demand.

Table 4: Estimated water supply demand

Personnel	Daily demand (L/person/day)	Average Daily Demand (L/s)	Peak Daily Demand (L/s)	Peak Hourly Demand (L/s), PF = 2.5
2,500 Students	25	0.72	1.16	2.89
251 Staff members	50	0.15	0.29	0.73
Total	-	0.87	1.45	3.62

WSL indicated no concerns with servicing the site for water supply albeit the site being located within FUZ (see Section 1.2.3). In addition, the pressure testing of the 280Ø mm water supply main confirmed that the existing pressures within the system are within the range required by Watercare (250kPa – 800kPa as per CoP Section 6.3.5.10).

Similarly to the considerations for wastewater serviceability, the standard operating hours for a secondary school are expected to be predominantly outside of the diurnal peaks of the surrounding residential areas. On this basis, it is anticipated that the proposed school will have minimal impact on the operation and capacity of the existing water supply system.

4.1 Fire Supply

Water pressure testing of the existing 280Ø mm water supply main confirmed that the existing public water supply system can achieve FW2 classification under Fire Service Standard SNZ PAS 4509 (as per Table 2 of the Standard). On this basis, adequate firefighting supply can be provided for the site to enable future development (as per Table 1 of the Standard). Final design of fire supply systems, demonstrating compliance with the Standard, will be provided at the OPW stage.

5 Utility Services

Section 1.2.4 indicates there are existing gas, power and telecommunications networks available within the area. The final connection location to these services will be identified at the OPW stage, in coordination with the relevant utility network operators.

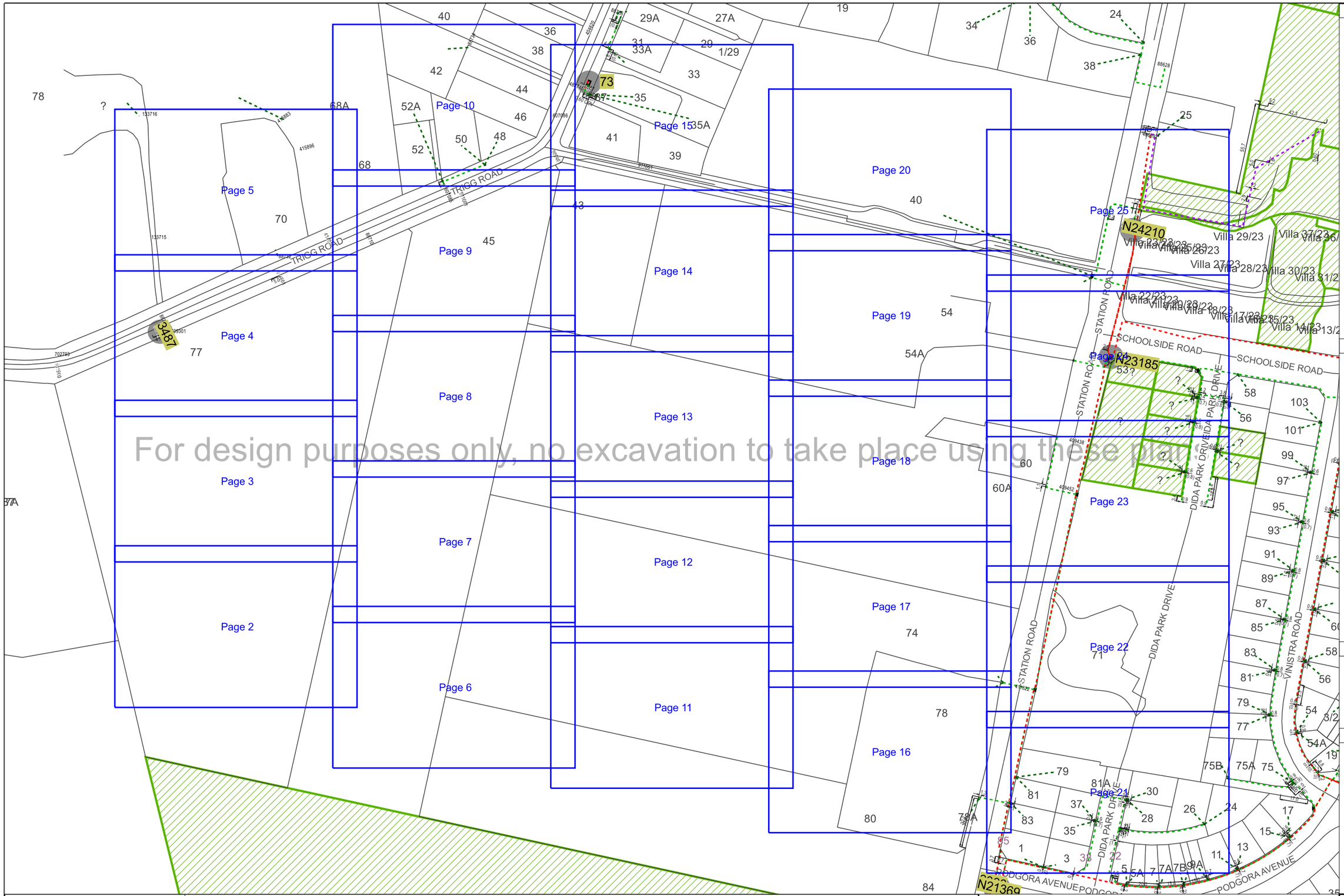
6 Conclusion

This serviceability assessment has been prepared to support the lodgement of the NoR for education purposes and should be read in conjunction with other relevant documentation.

The assessment has demonstrated that the site at 43 Trigg Road; 54 and 60 Station Road can be adequately serviced by civil infrastructure (stormwater, wastewater, water supply and utilities) to enable the future development of a secondary school, in accordance with relevant Council guidelines and standards.

ATTACHMENT A

BeforeUDig Information – December 2025



CABLE COLOUR CODE

CABLES IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
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JOINTS & SEALING ENDS
- 110,000 - 22,000 volt subtransmission
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- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
- PLANNED

22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:

Vector Limited provides a free standover service that requires 2 working days notice. Hand digging is required when excavating within 1 metre of the cable. Replacement trench backfill material must be the same as that removed and it must be replaced to the same level of compaction. Refer to attached covering letter for additional information.

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A3 ELECTRICITY beforeudig PLAN

Date printed: 7. December 2025

No associated viewport

N W E S

Associated Viewport

CABLE COLOUR CODE

CABLES IN USE
- 110,000 - 22,000 volt subtransmission
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Date printed: 7. December 2025

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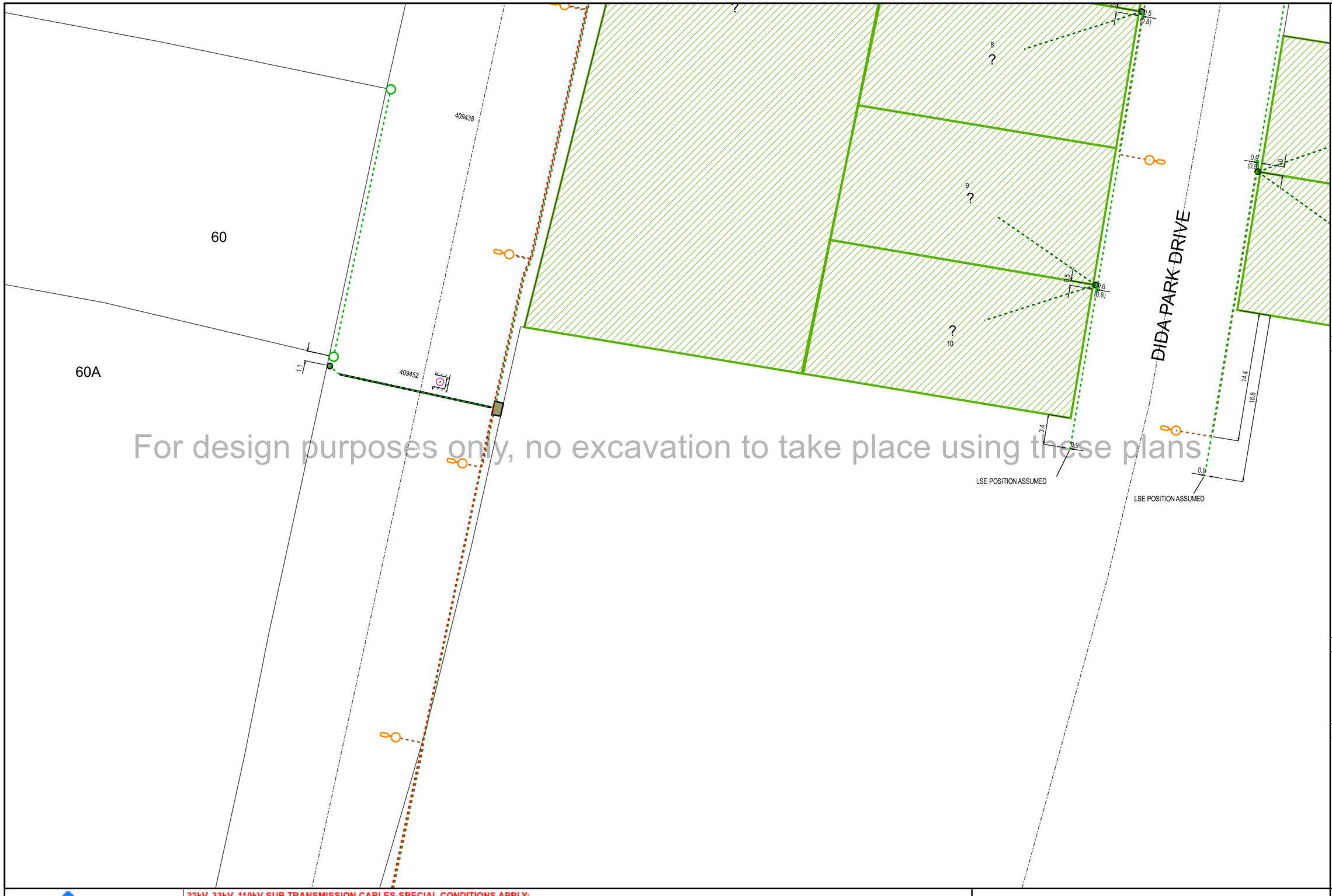

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- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
- PLANNED

22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:

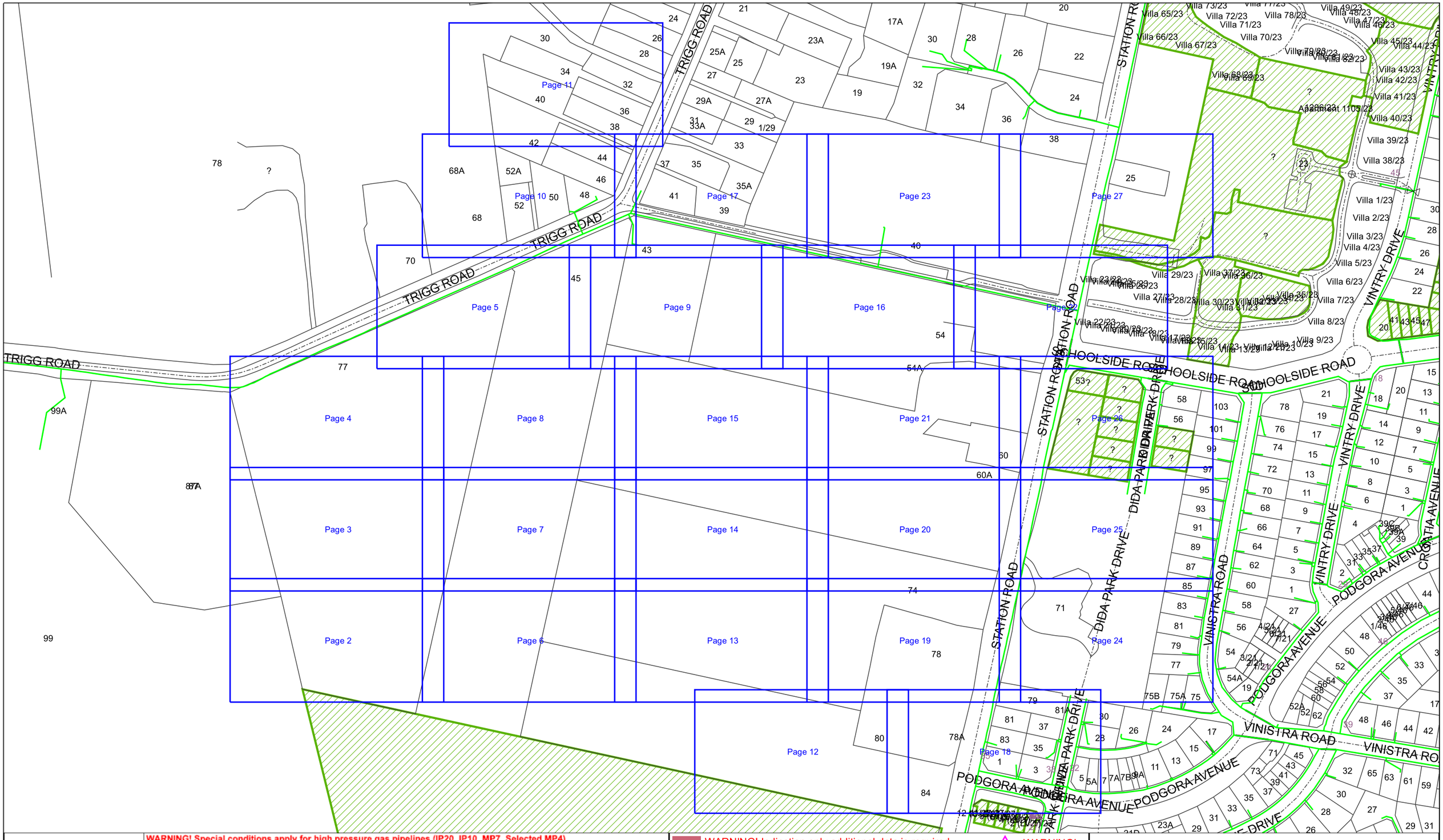
Vector Limited provides a free standover service that requires 2 working days notice. Hand digging is required when excavating within 1 metre of the cable. Replacement trench backfill material must be the same as that removed and it must be replaced to the same level of compaction. Refer to attached covering letter for additional information.

A3 ELECTRICITY beforeudig PLAN

Date printed: 7. December 2025

Scale: 1:400

N W E S



WARNING! Special conditions apply for high pressure gas pipelines (IP20, IP10, MP7, Selected MP4)

A permit/consent is required for any excavation within 2 metres of this pipeline. A MINIMUM of 3 working days notice is required when applying for a permit/consent. Refer to attached covering letter for additional information.

DISCLAIMER: Whilst care has been taken in the preparation of this plan, Vector Limited and its subsidiaries do not accept any liability for its accuracy and completeness and do not make any representation or warranty, express or implied, in relation to the same. These drawings are not to scale and may not show customer connections or obsolete lines. Works may have occurred in the vicinity which may not be represented in this plan at the date of issue. The information contained in this plan is supplied for reference purposes only; actual dimensions and locations on site may differ from those indicated. Without limiting the foregoing, where plans are more than 28 days old they should not be used; a new plan should be requested from Vector.

Vector reminds you of your responsibilities under the Health and Safety at Work Act 2015, whereby you must establish the location of underground services before commencing excavation.

If you hit an electricity cable or overhead line please call us immediately on 0508 VECTOR (0508 832 867). If you hit any gas pipeline call the Fire Service first on 111. If you hit a gas distribution pipe in the Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567. If you hit a communications cable (all areas) call us immediately on 0800 826 436 (select option 1).

WARNING! Indication only additional data is required
Transmission Pipeline (ex - NGC):
Please contact Vector - New Plymouth on 0800 734 567 for On-Site Location and Work Permits. A minimum of 48 hours notice is required.

WARNING! Live service within this property.

PIPE COLOUR BY PRESSURE
- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- 0 kPa

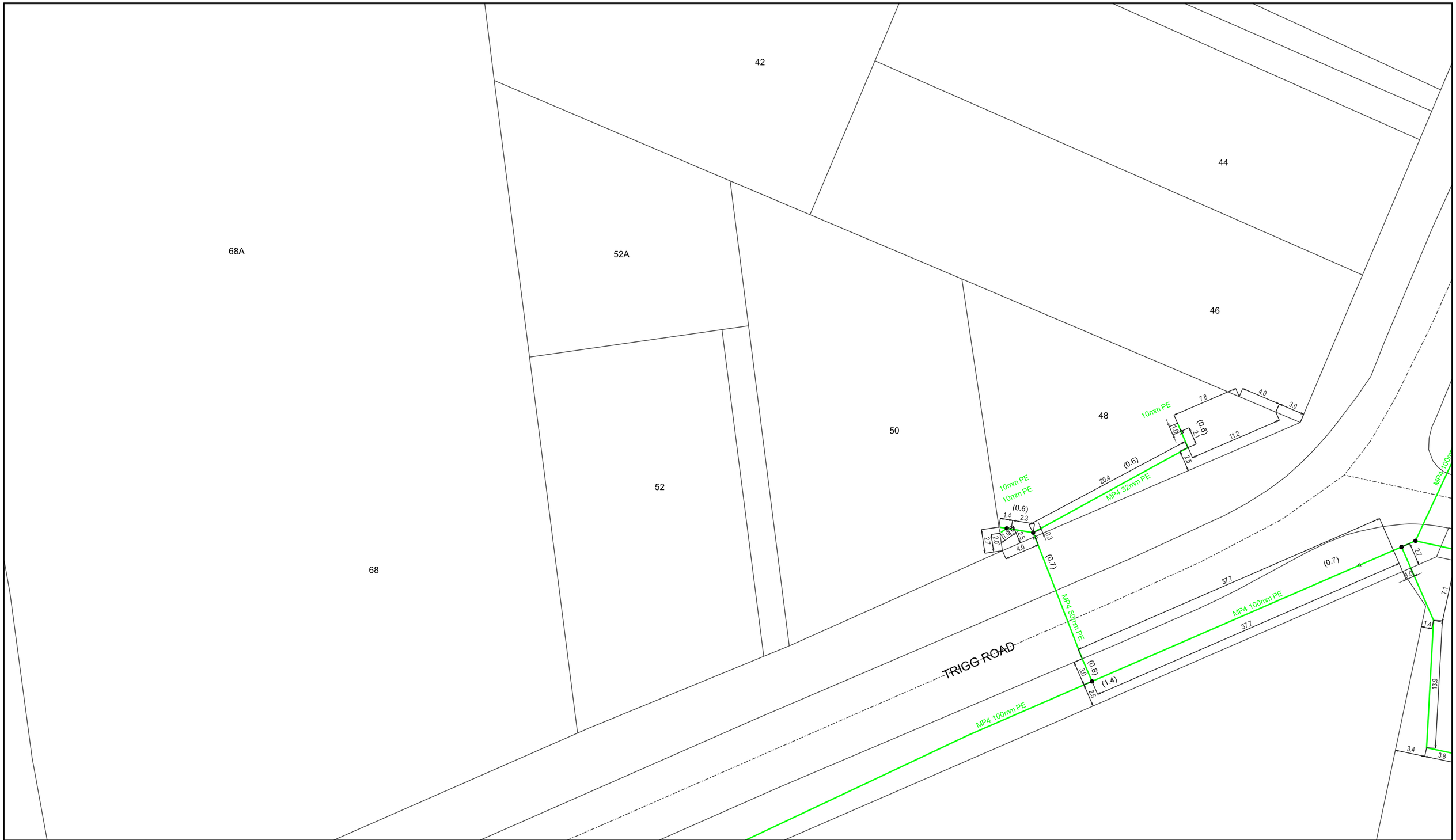
OTHER GAS FEATURES
- Fibre Optic
- Closed Valve
- Gate
- Open Valve
- PRS
- Reducer
- Service Regulator
- Riser

WORK MANAGEMENT
- In Progress
- Planned
- Future Planned

A3 GAS beforeudig PLAN

Date printed: 7. December 2025

No associated viewport



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- Gate
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- Reducer
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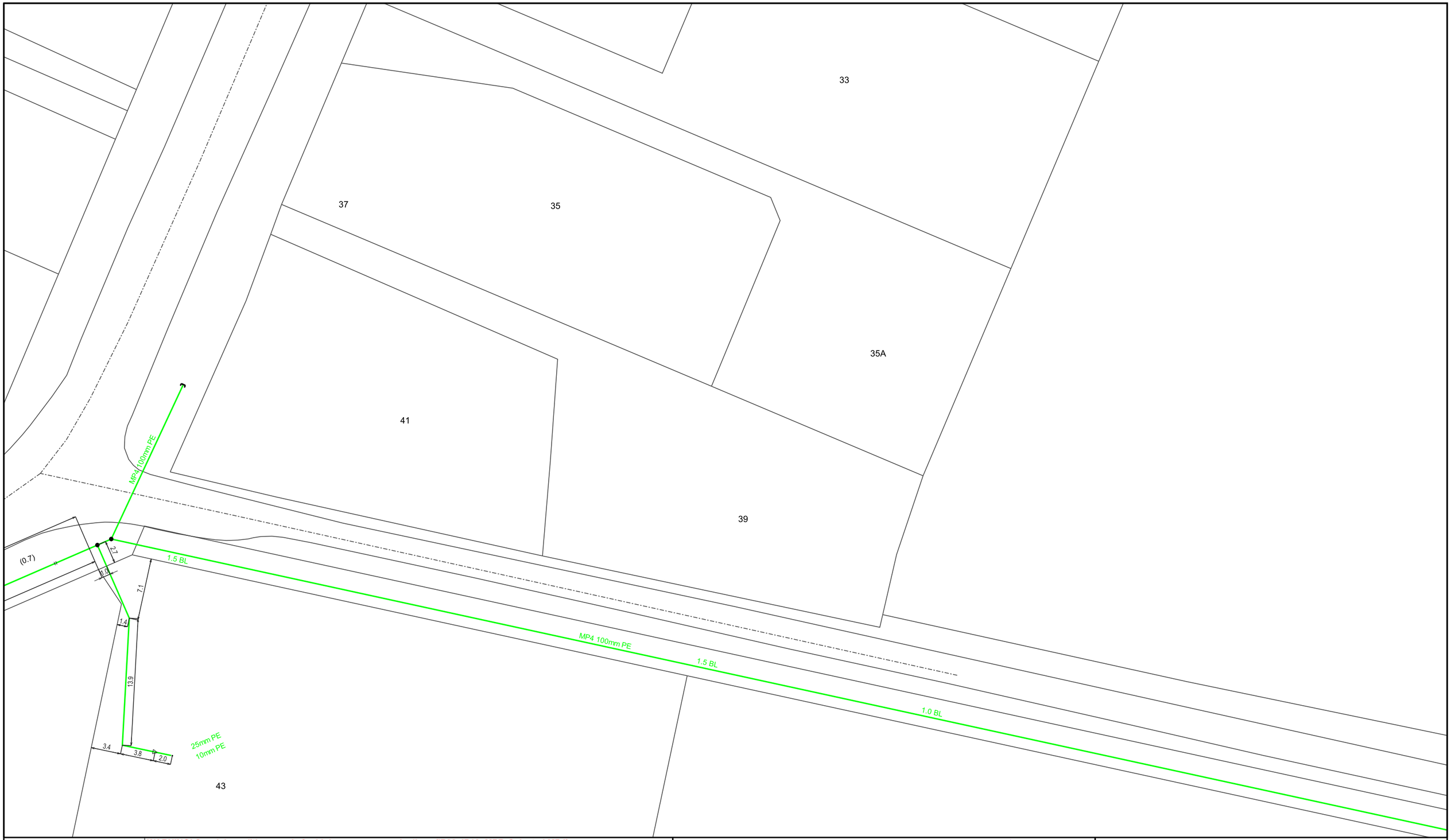
- Riser

WORK MANAGEMENT
- In Progress
- Planned
- Future Planned

A3 GAS beforeudig PLAN

Date printed: 7. December 2025

Scale: 1:400



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- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- 0 kPa

OTHER GAS FEATURES
- Fibre Optic
- Closed Valve
- Gate
- Open Valve
- PRS
- Reducer
- Service Regulator
- Riser

WORK MANAGEMENT
- In Progress
- Planned
- Future Planned

A3 GAS beforeudig PLAN

Date printed: 7. December 2025

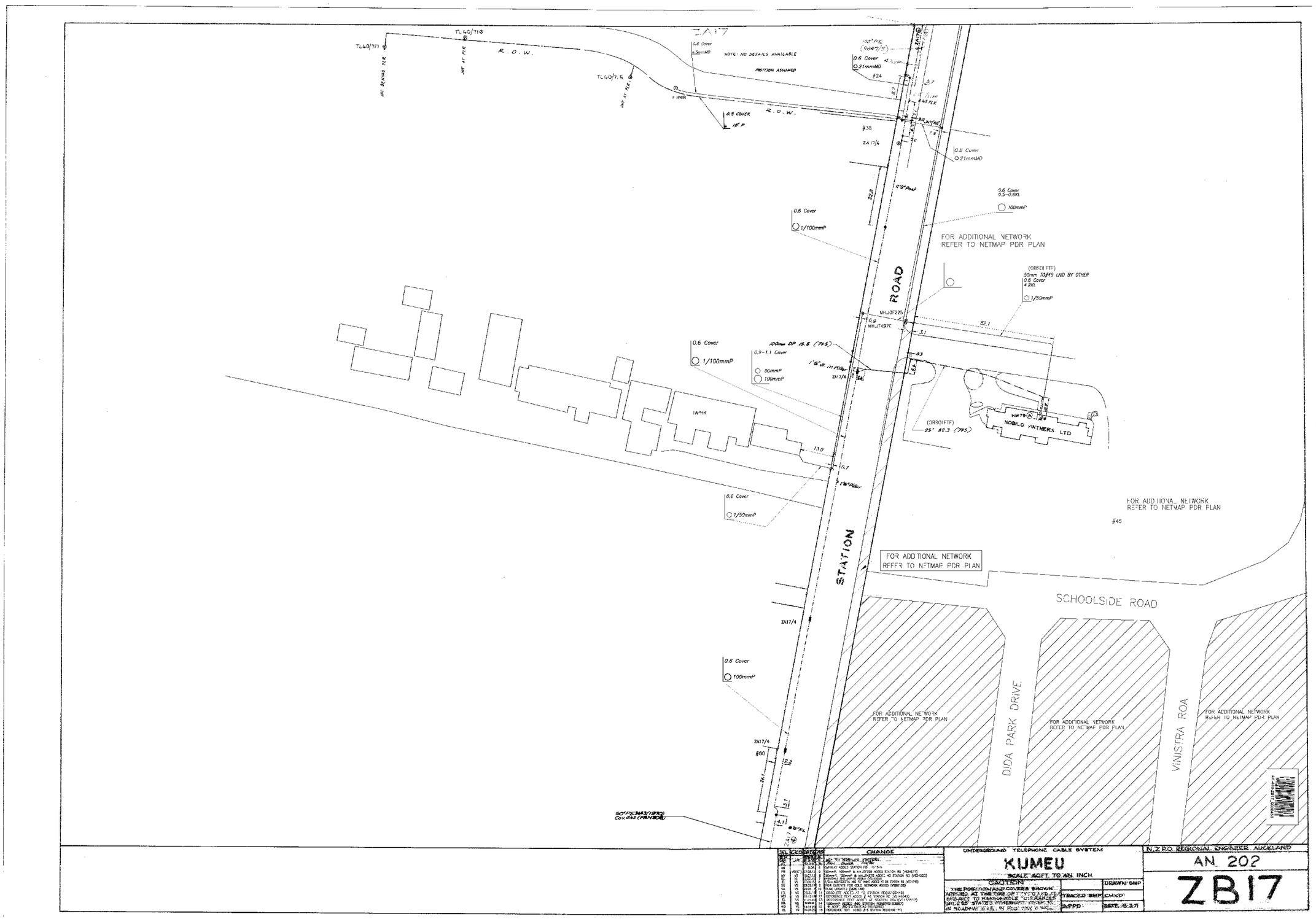
Scale: 1:400

CHORUS

WARNING: Buried services are widespread and it should be assumed that they are present until it is proven otherwise.
Cables should be expected to be found at ANY depth.
In most instances Chorus plans do NOT show house service feeds on private property.
Refer to cover letter provided with your request for additional information - use all plans provided in conjunction with each other
You are responsible for interpreting the information provided and should refer to Worksafe.govt.nz for the 'Guide for safety with underground services'
For assistance contact Chorus Network Protection on 0800 822 003 or if you suspect damage has occurred contact 0800 463 896 Opt 2

N

Plan Name	ZB17
Plan ID	88456
Version	GR
Current at	07/12/2025



ZB.17 W

Re-Order Filemaster "D"
SELF-ADHESIVE PLAN HANGER

ATTACHMENT B

Watercare Development Information

Development information form – Wastewater and Water Supply network planning summary assessment

Information to be completed by Developer/ Engineering Consultant

Development consideration	Description	Comments
Query status		
Query submission date		
Address		
Attach layout plan		
Current land use		
Proposed land use		
Unitary plan zoning		
Total development site area (m^2/ hectares) (i.e. Land area for residential developments)		
Total development floor area (m^2) (i.e. Include all levels of multi-storey apartments and commercial developments)		
Number of proposed residential dwellings (Typically consent or include ultimate if development is to be staged and consented at a future date)		
Note: (1) Watercare's GIS Viewer for Asset Data Query and Land Development/ Subdivision can be used to display aerial photography and land contour information.		

(This section should not be duplicated if both water and wastewater is applied. Refer to Chapter 6 of the CoP.)

Refer to the Auckland Code of Practice for Land Development and Subdivision chapter 5: Wastewater, when completing this form:

Wastewater development assessment			
Design consideration		**Description**	**Comments**
Existing site design flows - pre-development scenario (If site is currently undeveloped, write 0.00 L/s in the design flows for this section)	**Residential Design Flows (L/s)**	Self-Cleansing Design Flow = 0 Peak Design Flow = 0	*Calculations based on Table 5.1.4 of Wastewater CoP for secondary school.*
	Non-Residential Design Flows (L/s)	Self-Cleansing Design Flow = 0 (no existing discharge to public wastewater network) Peak Design Flow = 0	
Proposed development site design flows - post-development scenario	**Residential Design Flows (L/s)**	Self-Cleansing Design Flow = 0 Peak Design Flow =0 And if relevant Ultimate Peak Design Flow =0	
	Non-Residential Design Flows (L/s)	Self-Cleansing Design Flow (students) = 1.16 Peak Design Flow (students) = 3.88 Self-Cleansing Design Flow (staff) = 0.26 Peak Design Flow (staff) = 0.88	
	Non-Residential Discharge profile / trend (i.e. Operations)	Secondary School	
Change in site flows	**Net difference between post-development and pre-development site design flows (L/s)**	Net Change in Self-Cleansing Design Flow (students) = 1.16 L/s Net Change in Peak Design Flow (students) =3.88 L/s Net Change in Self-Cleansing Design Flow (staff) = 0.26 L/s	

Wastewater development assessment			
Design consideration		**Description**	**Comments**
		Net Change in Peak Design Flow (staff) =0.88 L/s	
New assets required for development		The proposed school will be serviced via the existing 40Ø mm pressure pipe (2543152) in the northeastern corner. The details of this connection will be provided at OPW stage.	
Existing network infrastructure capacity assessment *A sewer capacity check is to be carried out if the 'Net Change in Peak Design Flow' calculated above shows a net increase of greater than 1.0 L/sec.* <u>Notes:</u> 1. *At Watercare's discretion, a Sewer Capacity Check may be required even if the net increase in site flow is < 1.0 L/sec.* 2. *The Level 1 Sewer Capacity Check as described in the CoP is to be undertaken in the first instance, unless specifically advised by Watercare. The Level 1 Capacity Check is intended to help identify applications that may require more accurate/detailed design calculations and/or identify whether data held on the existing network is sufficient to enable an accurate assessment of capacity.*		Type of Sewer Capacity Check undertaken: = Level 1	
Further wastewater comments:			

Water supply development assessment		
Design consideration	**Description**	**Comments**
Average and Peak Residential Demand (L/s)	Average Demand Design Flow = 0 Peak Demand Design Flow = 0	
Average and Peak Non-Residential Demand (L/s)	STUDENTS Average Demand Design Flow = 0.72L/s Peak Demand Design Flow =1.16L/s STAFF Average Demand Design Flow = 0.15L/s Peak Demand Design Flow =1.29L/s	*Calculations based on Watercare CoP assuming secondary school and applying Table 6.1.b with the following PF for:* *Peak Daily Demand:* *PF = 1.6 for students* *PF = 2 for staff* *Peak hourly demand:* *PF = 2 for students and staff*
Non-Residential Demand typical daily consumption profile / trend	Unknown	
Fire- fighting classification required by the proposed site	FW2	
Hydrant flow test results	☐ Yes ☒ No	
Sprinkler system in building?	☐ Yes ☐ No	
Further water supply comments:		

Development information form – Wastewater and Water Supply network planning summary assessment

Information to be completed by Developer/ Engineering Consultant

Development consideration	Description	Comments
Query status		
Query submission date		
Address		
Attach layout plan		
Current land use		
Proposed land use		
Unitary plan zoning		
Total development site area (m^2/ hectares) (i.e. Land area for residential developments)		
Total development floor area (m^2) (i.e. Include all levels of multi-storey apartments and commercial developments)		
Number of proposed residential dwellings (Typically consent or include ultimate if development is to be staged and consented at a future date)		
Note: (1) Watercare's GIS Viewer for Asset Data Query and Land Development/ Subdivision can be used to display aerial photography and land contour information.		

(This section should not be duplicated if both water and wastewater is applied. Refer to Chapter 6 of the CoP.)

Refer to the Auckland Code of Practice for Land Development and Subdivision chapter 5: Wastewater, when completing this form:

Wastewater development assessment			
Design consideration		**Description**	**Comments**
Existing site design flows - pre-development scenario (If site is currently undeveloped, write 0.00 L/s in the design flows for this section)	**Residential Design Flows (L/s)**	Self-Cleansing Design Flow = 0 Peak Design Flow = 0	*Calculations based on Table 5.1.4 of Wastewater CoP for secondary school.*
	Non-Residential Design Flows (L/s)	Self-Cleansing Design Flow = 0 (no existing discharge to public wastewater network) Peak Design Flow = 0	
Proposed development site design flows - post-development scenario	**Residential Design Flows (L/s)**	Self-Cleansing Design Flow = 0 Peak Design Flow =0 And if relevant Ultimate Peak Design Flow =0	
	Non-Residential Design Flows (L/s)	Self-Cleansing Design Flow (students) = 1.16 Peak Design Flow (students) = 3.88 Self-Cleansing Design Flow (staff) = 0.26 Peak Design Flow (staff) = 0.88	
	Non-Residential Discharge profile / trend (i.e. Operations)	Secondary School	
Change in site flows	**Net difference between post-development and pre-development site design flows (L/s)**	Net Change in Self-Cleansing Design Flow (students) = 1.16 L/s Net Change in Peak Design Flow (students) =3.88 L/s Net Change in Self-Cleansing Design Flow (staff) = 0.26 L/s	

Wastewater development assessment			
Design consideration		**Description**	**Comments**
		Net Change in Peak Design Flow (staff) =0.88 L/s	
New assets required for development		The proposed school will be serviced via the existing 40Ø mm pressure pipe (2543152) in the northeastern corner. The details of this connection will be provided at OPW stage.	
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Further wastewater comments:			

Water supply development assessment		
Design consideration	**Description**	**Comments**
Average and Peak Residential Demand (L/s)	Average Demand Design Flow = 0 Peak Demand Design Flow = 0	
Average and Peak Non-Residential Demand (L/s)	STUDENTS Average Demand Design Flow = 0.72L/s Peak Demand Design Flow =1.16L/s STAFF Average Demand Design Flow = 0.15L/s Peak Demand Design Flow =1.29L/s	*Calculations based on Watercare CoP assuming secondary school and applying Table 6.1.b with the following PF for:* *Peak Daily Demand:* *PF = 1.6 for students* *PF = 2 for staff* *Peak hourly demand:* *PF = 2 for students and staff*
Non-Residential Demand typical daily consumption profile / trend	Unknown	
Fire- fighting classification required by the proposed site	FW2	
Hydrant flow test results	☐ Yes ☒ No	
Sprinkler system in building?	☐ Yes ☐ No	
Further water supply comments:		

ATTACHMENT C

Water Pressure Test

NOVA FLOWTEC SERVICES LTD
HYDRANT TESTING SPECIALISTS

E: info@novaflowtec.co.nz
T: 09 444 8375
PO Box 241, Albany, Auckland 0752
www.novaflowtec.co.nz

12th December 2025

Tektus Consultants Ltd
10 Madden Street
Auckland Central 1010

RE: Firefighting Water Supply at 43 Trigg Road and 54, 60 Station Road, Huapai

Attention: Lupesina Koro

Dear Lupesina

Nova Flowtec Services were engaged to conduct a FW2 hydrant flow test for the proposed development at the above address.
The testing was conducted on Thursday 11th December 2025 at 1:30pm.
The object of the testing was to prove that there is sufficient water for firefighting purposes.

Requirements:
In order to meet the FW2 minimum requirements of PAS 4509: 2008, 12.5Lps is required within 135m and an additional 12.5Lps is required within 270m of the development.
This being a total of 25Lps at a minimum residual pressure of 100kPa.

Results:
During testing the minimum requirement was unable to be met as insufficient hydrants are located to cover all areas of the site within 135m. This is typical with a greenfield development.
The nearest two hydrants located on Station Road were tested and a flow of 26.4Lps at 280kPa was recorded, proving the minimum FW2 requirement is available at the nearest street hydrants.
Additional hydrants will need to be fitted so as every proposed dwelling has a hydrant within 135m of the front door.
Please find the results table and the hydrant map on the following page.

A flow and pressure curve can be found on Page 3.

Should you have any questions please do not hesitate to contact me.

Kind Regards

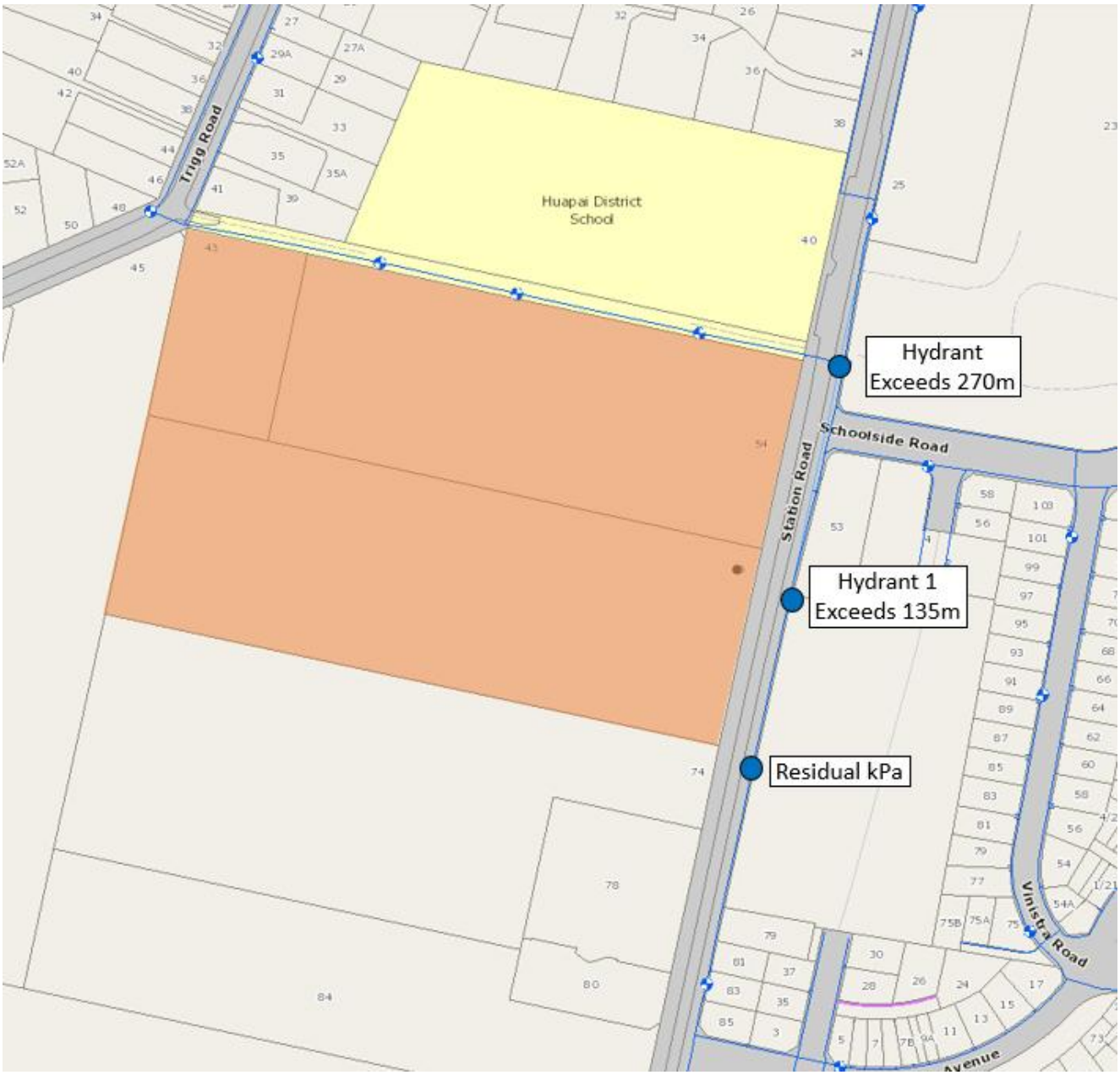
Mkeane

Melanie Keane
Testing Manager

FW2 Water Classification Test

	Hydrant One	Hydrant Two	Total Flow (Lps)	Pressure (kPa)
Static Pressure (kPa)			0	355
Flow (Lps)	13.2		13.2	340
Flow (Lps)	13.2	13.2	26.4	280
Date & Time:	Thursday 11th December2025 at 1.30pm			
Site Address:	43 Trigg Road and 54, 60 Station Road, Huapai			
Full Flow Result:	26.4Lps at 280kPa			

Hydrant Map



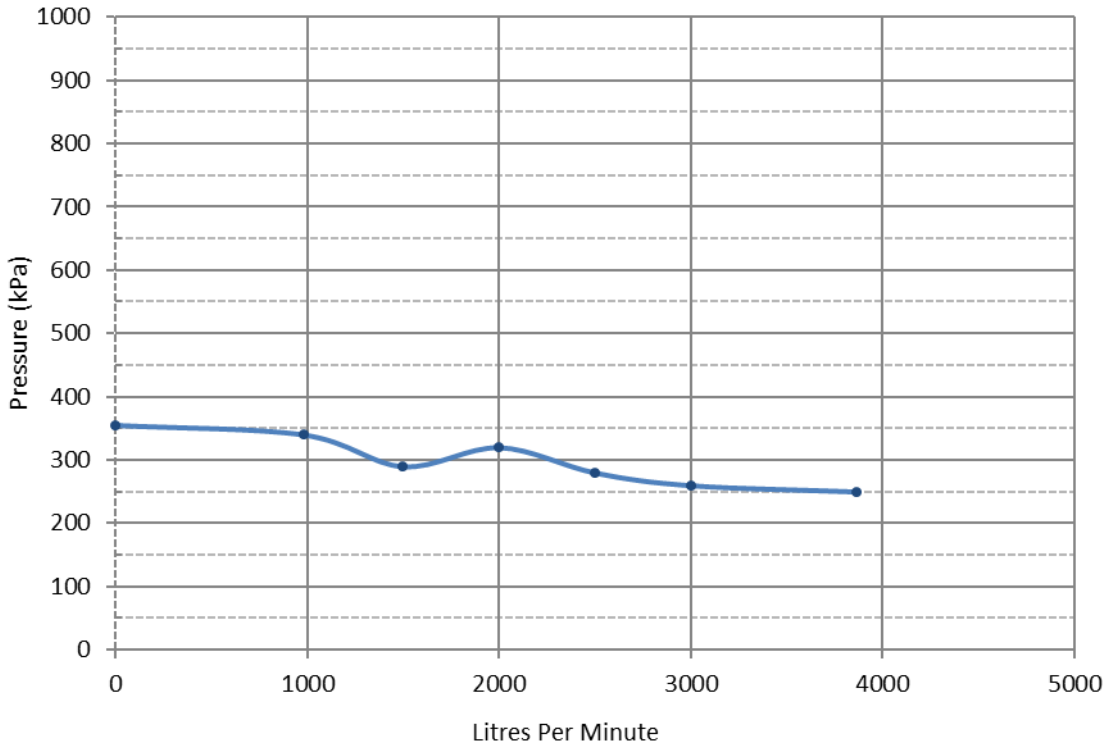
Mains Flow and Pressure Report

Hydrant locations: Station Road, Huapai
Date: 11th December 2025
Time: 1.40pm
Flow: Hydrants 1 and 2
Residual pressure: Residual kPa
Maximum flow result: 3860Lpm at 250kPa
Test Supervisor: Jason Goodwin

Data:

Flow (Lpm)	Pressure (kPa)
0	355
980	340
1500	290
2000	320
2500	280
3000	260
3860	250

Graph:



Notes: The hydrants were flowed to full capacity during testing.
At full flow H1 was 1860Lpm and H2 was 2000Lpm.

Disclaimer: These results indicate the water networks performance on this given date and time.
The networks performance is subject to fluctuations.

Hydrant Map: See page 2

Report End