

BEFORE THE CENTRAL HAWKE'S BAY DISTRICT COUNCIL

IN THE MATTER OF the Resource Management Act 1991

AND An application by Paoanui Point Limited for resource consent to
subdivide land at Pourerere (being Part of Lot 1 DP 27067 and contained
in Record of Title HBW3/400)

STATEMENT OF EVIDENCE OF SON TAT QUE NGUYEN
SENIOR CIVIL AND ENVIRONMENTAL ENGINEER

MAY IT PLEASE THE COUNCIL

1 INTRODUCTION

- 1.1 My name is Son Tat Que NGUYEN. I am an Associate of Fraser Thomas Ltd, a multidisciplinary consulting engineering firm specialising in Civil, Environmental, Public Health, Water Resources, Structural and Geotechnical Engineering, Land Surveying and Town Planning.
- 1.2 I hold a degree of Bachelor of Engineering (Civil) from the University of Auckland. I am a Member of the Institution of Professional Engineers of New Zealand (IPENZ), a New Zealand Chartered Professional Engineer, and a Registered International Professional Engineer. The IPENZ practice area is Civil and Environmental engineering.
- 1.3 I have 14 years of experience in civil and environmental engineering, including roading and earthworks design, flood risk assessment, stormwater conveyance and treatment. I have three years of experience in wastewater treatment and effluent disposal design from household to community-sized systems. I attended the WSP On-site Wastewater Course in September 2020.
- 1.4 My company Fraser Thomas Ltd and I have gained consent for and undertaken detailed design and supervised construction for numerous developments that include intensive stormwater and wastewater management systems such as is proposed for the Pourerere site. Such projects have included Marae and similar developments that employ low-impact stormwater management solutions and on-site wastewater management and have undertaken the consent applications, detailed design and supervised construction for projects that have included land disposal of treated domestic wastewater up to 8 hectares.
- 1.5 Fraser Thomas is a foundation member of the NZ Land Treatment Collective, a specialist research organisation established by the NZ Forest Research Institute (now SCION) and includes New Zealand's leading research authorities active in land treatment. We have been active in that group, presenting several technical papers on effluent treatment and disposal.
- 1.6 I am familiar with many stormwater analytical tools, including the Rational and SCS TR-55 methods, modelling packages such as SSA, HEC-HMS and HEC-RAS and treatment technologies such as ponds, wetlands, and swales. I am familiar with standards, guidelines and code of practices for on-site wastewater management, including NZS 1547 On-site domestic wastewater management, AC Technical Publication No.58 and its successor GD06, as well as the statutory requirements around stormwater and wastewater management of various District, City and Regional Councils within the North Island, particularly Auckland and Hawkes Bay.

- 1.7 I have undertaken work within Hawkes Bay throughout my professional career, including the Pouterere area. Fraser Thomas Ltd has maintained an office in and has practised in Hawkes Bay for over three years.

2 CODE OF CONDUCT AND CONFLICT OF INTEREST DECLARATION

- 2.1 I have read, and agree to comply with, the current Code of Conduct for expert witnesses contained in the Environment Court Practice Note. Except where I state that I am relying on the specified evidence of another person, my evidence in this statement is within my area of expertise. I have not omitted to consider material facts known to me that might detract from or alter the opinions that I express in this statement.
- 2.2 I have no commercial relationship with the applicant, save in my role as an expert in relation to this application.

3 MY EVIDENCE

- 3.1 Paoanui Point Limited has engaged Fraser Thomas Ltd to undertake the engineering design to support the resource consent applications to extend a residential land development at Pouterere ("the site"). I undertook, managed and reviewed all of the engineering work undertaken by Fraser Thomas Ltd on this project, including the associated engineering reports and Assessment of Environmental Effects.
- 3.2 In preparing this evidence, I have reviewed the following documents:
- Section 42A report of Mr Ryan O'Leary, Planning, including the appendices
 - Technical memorandum, Three waters from Mr Wayne Hudson, Senior Principal Civil Engineer (Three Waters), Stantec
 - Cultural Impact Assessment (CIA) by Kairakau Lands Trust (KLT), December 2022
 - Statement of evidence of Dr Andrew Steven Hicks, June 2023
- 3.3 This evidence is given regarding the proposed **earthworks, stormwater and wastewater discharge**. Fraser Thomas Ltd has prepared the following reports and letters:
- Engineering report dated 25 August 2021
 - Section 92 response letter dated 9 August 2022
 - On-site Wastewater Treatment and Disposal Report dated 9 August 2022
- A copy of the reports is available on request.
- 3.4 Following the consent application, Council requested further information under **Section 88 on 31 May 2021**. The Engineering and Stormwater matters (Items 1, 2 and 3) were addressed in the engineering report dated 25 August 2021.

- 3.5 Council requested further information under **Section 92 on 17 March 2022**. The Engineering matters (Items 3 to 9 and 20) were addressed in our letter and the On-site Wastewater Treatment and Disposal Report dated 9 August 2022.
- 3.6 Council requested further information under **Section 92 on 27 March 2023**. Regarding Item 3, we confirm that our engineering evidence is still valid. We have reviewed our flood risk analysis to include the 250-year event as a sensitivity check. The 250-year flows are contained within the existing gullies and watercourse, as shown in the attached drawings 23828-3-301 revision D and 302 revision B. In addition, the LINZ North Island 0.5m Cyclone Gabrielle Satellite Imagery (2023) shows no flood damage at the site during the Cyclone. These confirm our original conclusion that the site is safe from flooding and standard building code freeboard is adequate.

4 COMMENT ON THE COUNCIL OFFICER'S S42 REPORTS

- 4.1 Paragraph 4.72, the report raised concerns about the limited size of the lots to accommodate on-site stormwater dispersal, and it recommended a condition of consent to achieve hydraulic neutrality within each site. This condition is unnecessary as there is a large area available for stormwater disposal on the road frontage of each lot. The wastewater disposal area is located at the rear of the site due to the required setback from the road swales. There is adequate separation between the stormwater and wastewater disposal areas. **Figure 1** below shows a typical lot layout with a road frontage area available for stormwater disposal. In addition, a stormwater connection to the road drain can be provided for each lot if required. It should also be noted that the detention basin was sized to capture runoff from the entire development and reduce the discharge below the pre-development condition, effectively achieving hydraulic neutrality. Therefore, we recommend that this condition be removed.
- 4.2 Paragraph 4.86, the report raised concerns about the adjacent gully to the west and recommended a detailed assessment of the proposed development ground levels for Lots 19 to 22. As explained in 3.6 above, we have reviewed our flood risk analysis to include the 250-year event as a sensitivity check. The 250-year flows are contained within the existing gullies to the west and the watercourse, as shown in drawings 23828-3-301 revision D and 302 revision B. In addition, the LINZ North Island 0.5m Cyclone Gabrielle Satellite Imagery (2023) shows no flood damage at the site during the Cyclone. These confirm our original conclusion that the site is safe from flooding and that the standard building code freeboard is adequate. Therefore, we recommend that this condition be removed.

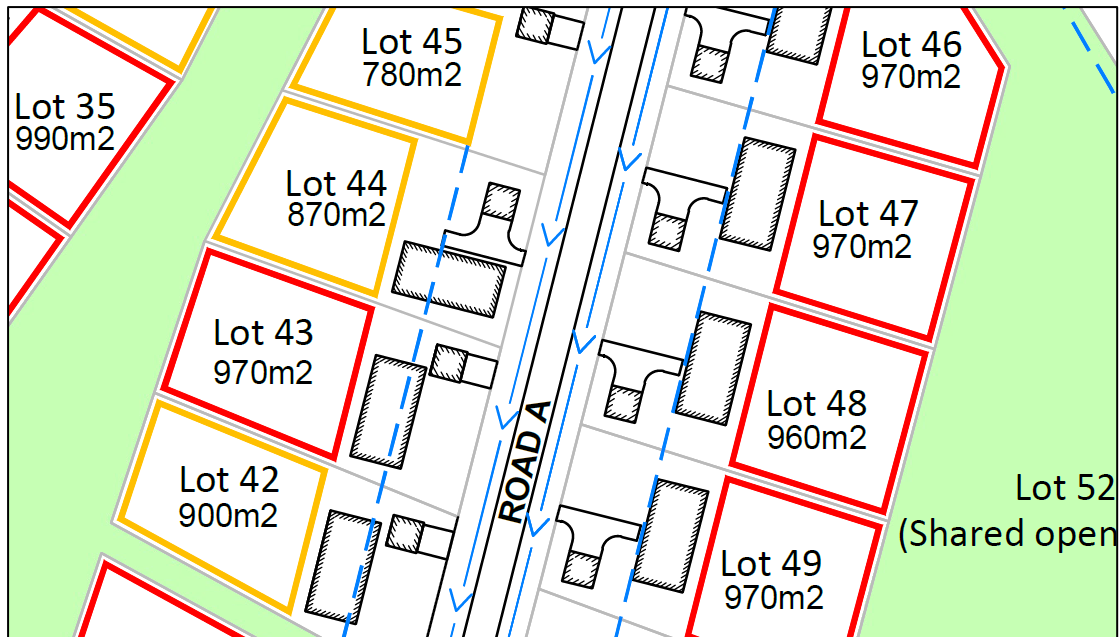


Figure 1: Typical Road Frontage Area Available for Stormwater Disposal

5 COMMENT ON THE SUBMITTER'S CONCERNS

- 5.1 Some submitters have raised concerns regarding the environmental effects of the proposed on-site wastewater systems, including potential long-term or cumulative effects due to a large number of rural lifestyle lots. As explained in the on-site wastewater treatment and disposal report and 4.6 and 7.1, the wastewater assessment is conservative, and the potential effects can be adequately mitigated in accordance with the recommendations in the report. The proposed consent notices will ensure that the registered proprietors are aware of the design, installation, operation and maintenance requirements of these systems. The proposed maintenance contract will ensure the long terms performance of the on-site wastewater systems.
- 5.2 In his evidence, Dr Hicks agreed that the long-term water quality effects from the proposed on-site wastewater and stormwater systems are no worse than the current land use if the systems are correctly designed, installed and maintained.
- 5.3 Dr Hicks recommended riparian planting along the entire stream length adjacent to the boundary of the subdivision area. The planting will provide an additional buffer and help to polish surface water flowing from the subdivision. He concluded that the planting would improve the current water quality.
- 5.4 Regular monitoring of the streams, dams and coastal environment is impractical due to the site's remote location, adjacent farm use, and the soil and surface and groundwater interactions. A proactive and conservative approach is more desirable, focusing on managing

the discharge quality and limiting contaminant application rather than monitoring the potential adverse effects in the future. As such, the above wastewater assessment is conservative and includes the following:

- Include secondary treatment quality.
- Utilise drip-line irrigation for the discharge of the treated effluent
- Utilise a conservative loading rate of 2mm/day for Soil Category 6
- Include 33% reserve effluent disposal area
- Include a comprehensive site layout, allowing for access, parking, buildings and surface water.
- Include a conservative 20m setback from surface water
- Include riparian planting along the stream banks
- Include installation, operation and maintenance and record-keeping in accordance with the manufacturer's specifications.
- Include a maintenance contract with an HBRC-approved wastewater contractor
- Consent notice on the new titles specifying the above requirements

6 COMMENT ON THE RELEVANT CONDITIONS

6.1 Condition 51

Wastewater

The treatment quality and the effluent disposal method are important factors in mitigating the environmental effects. They should be included in the consent notice. While it is important to specify the required standards, the consent notice needs to be flexible to allow for alternatives.

Adequate maintenance is critical to ensure the long terms performance of the on-site wastewater systems. The registered proprietors should be required to have a maintenance contract with an HBRC-approved on-site wastewater contractor.

Therefore, we recommend conditions 51(d) and (e) be modified as follows (the changes are highlighted):

(d) Unless the wastewater system is considered in detail by a chartered professional engineer experienced in on-site wastewater engineering, any domestic wastewater system installed and utilised on this lot must ensure that:

- I. Effluent disposal areas on all lots must be setback a minimum of 20m from any surface water (including watercourses, man-made drains, channels, dams and any stormwater detention basin in Lot 15)
- II. Lots 4, 14, 16, 34, 41, 42, 44 and 45 are limited to a maximum of a 3-bedroom dwelling at all times; and,
- III. Lots 1-3, 5-13, 17, 19-33, 35-40, 43, 46-50 are limited to a maximum of a 4-bedroom dwelling at all times.
- IV. Achieve discharge quality of a secondary treatment system or better (five-day Biochemical Oxygen Demand, BOD₅ equal to or better than 20g/m³ and Suspended Solids/Non-Filterable Residue equal to or better than 30g/m³)
- V. Filtration to 120 or 130micron level is required at the treatment outlet before discharging to the effluent disposal system.
- VI. Utilise approved wastewater-pressured compensated drip-line irrigation for the discharge of treated effluent.

(e) The registered proprietors must install, operate and enter into a maintenance contract with an HBRC-approved on-site wastewater contractor and keep records in accordance with the manufacturer's specifications and for the purpose of compliance with Section 15 of the Resource Management Act 1991."

Stormwater

As explained in 6.1 above, hydraulic neutrality within each lot is not necessary. Therefore, we recommend conditions 51(f) and (g) be removed:

~~(f) Any future development, building(s) and/or impervious surface areas shall not result in an increased flow of stormwater discharging from the boundaries of the site. A hydraulically neutral stormwater design must be completed and provided to Council for approval at the time of building consent identifying a method to attenuate stormwater discharge to a pre-development flow rate (based on a 10% Annual Exceedance Probability).~~

~~(g) The Registered Proprietors must retain land, buildings and the stormwater attenuation system in accordance with the approved details thereafter.~~

(h) All stormwater must discharge into the collective SMP. No direct discharge of any sort into the streams or dams.

(i) On-site stormwater systems shall be maintained on an ongoing basis.

6.2 Condition 56

As explained in 3.6 and 5.2 above, it is our opinion that the site is safe from flooding and that the standard building code freeboard is adequate. Therefore, we recommend this condition be removed.

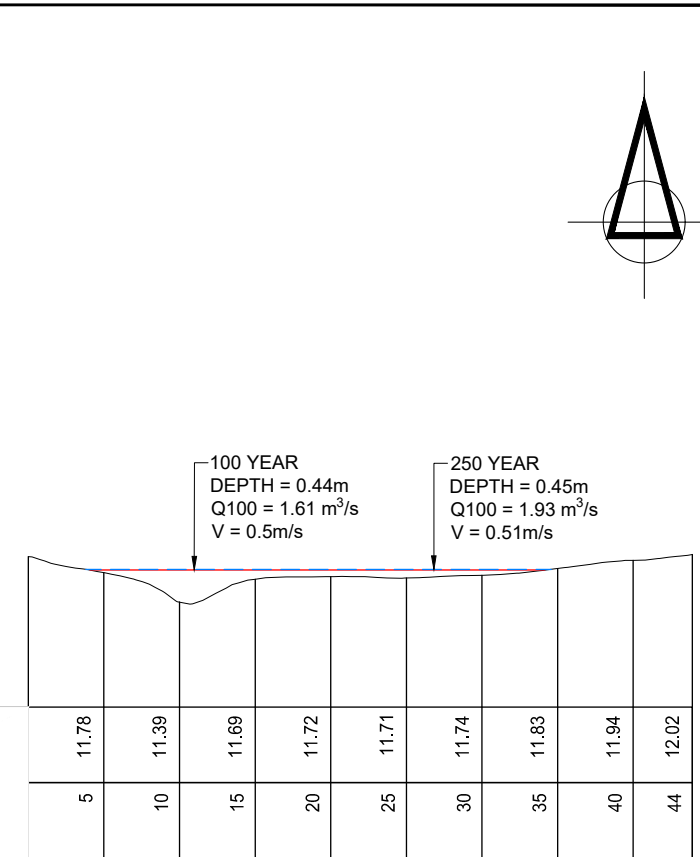
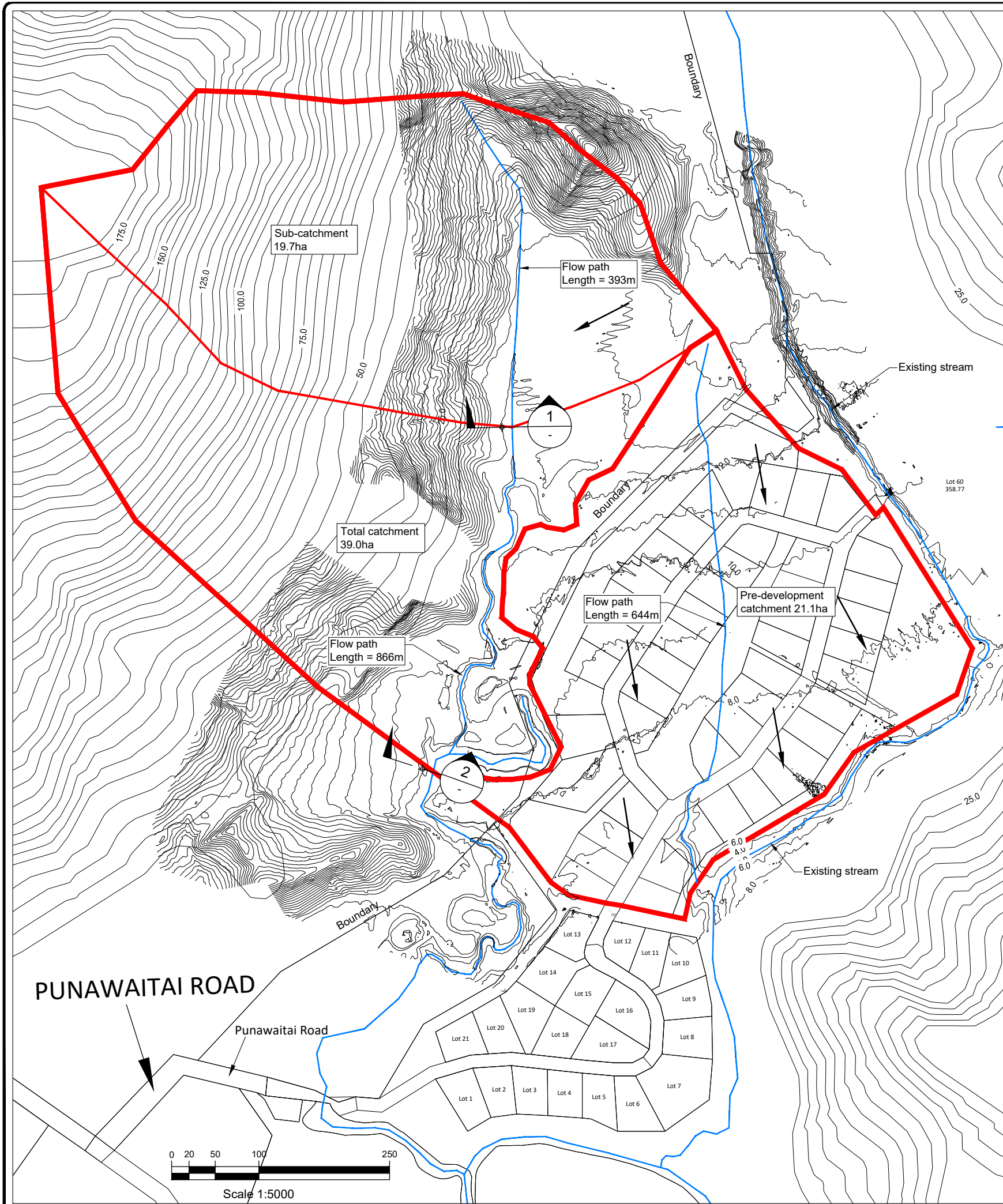
APPENDICES

A – Drawings 23828-3-301 revision D and 302 revision B

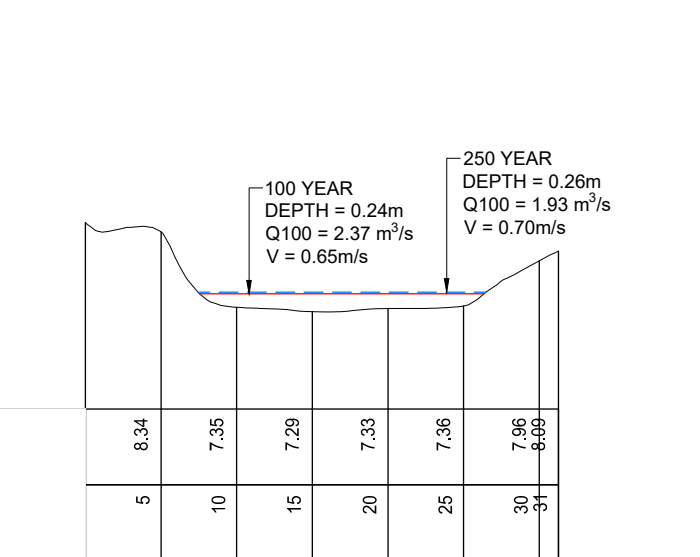
Prepared by

Son Tat Que NGUYEN
Senior Civil Environmental Engineer
28 June 2023

X:\23828 J Bridge 25 Punawaitai Rd, Pourerere\14 Hearing\23828 SN evidence FINAL 230628.docx



CROSS SECTION 1
1:500H, 1:100V



CROSS SECTION 2
1:500H, 1:100V

NOT FOR CONSTRUCTION

SURVEYED	JBSURVEY	11/06/21	APPROVED	DATE
DESIGNED	DK	08/07/21	GDM	15/07/21
DRAWN	DK	08/07/21		
CHECKED	SN	14/07/21		
REVISION	CHANGES		CHECKED	DATE
A	Revised Stage 3 Boundary		DK	25/08/21
B	NORTHWEST GULLY		SN	02/06/22
C	REVISED LAYOUT		SN	08/08/22
D	ADDED 250-YEAR EVENT		SN	19/04/23

- NOTES
- Coordinate is in terms of HB2000
 - Levels are in terms of NZVD2016
 - Control mark: OIS VIII DP 27064 RL6.99m
 - Final positioning of proposed pond and road layout against property boundaries to be confirmed at detailed design

CLIENT


JAMES BRIDGE

PROJECT

25 PUNAWAITAI ROAD,
POURERERE, HAWKES BAY

TITLE

STAGE 3
STORMWATER
PRE-DEVELOPMENT
CATCHMENT PLAN

 **Fraser Thomas**

ENGINEERS • RESOURCE MANAGERS • SURVEYORS

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CHRISTCHURCH 03 358 5936
BLENHEIM 03 428 3293

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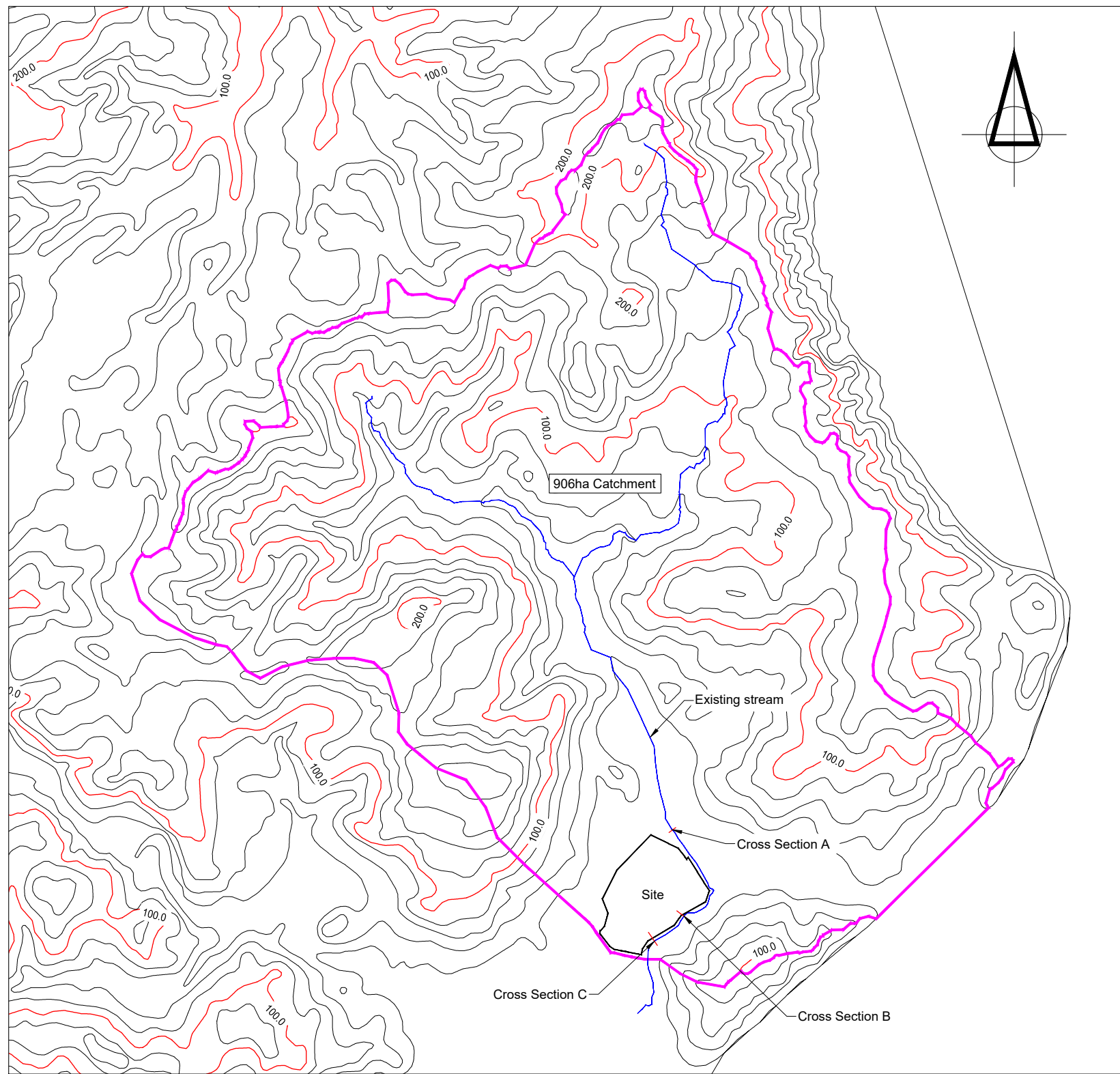
STATUS

RESOURCE CONSENT

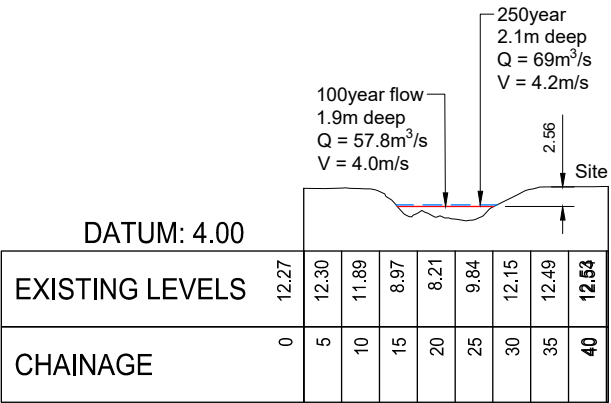
Construction works shall commence only on receipt of and in accordance with the Council or Council organisation stamped approved drawings, unless otherwise indicated.

SCALE AS SHOWN (A3)

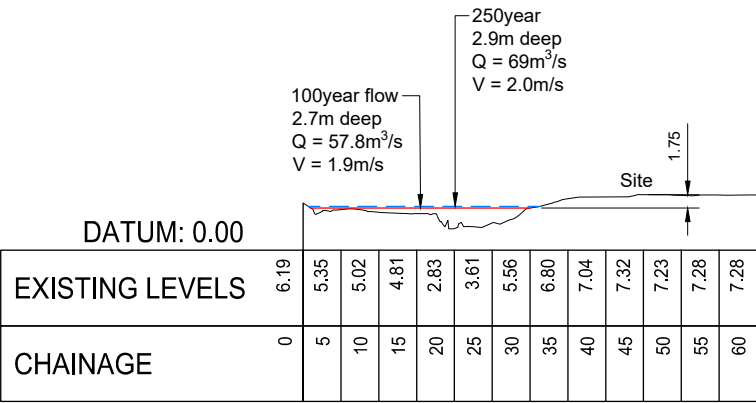
DRAWING No 23828/3/301 REVISION D



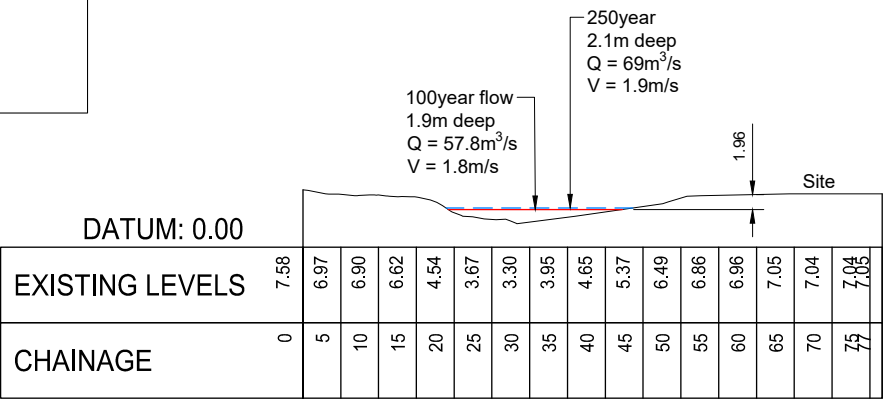
CATCHMENT PLAN
Scale 1:25,000



CROSS SECTION A
Scale 1:1000



CROSS SECTION B
Scale 1:1000



CROSS SECTION C
Scale 1:1000

NOT FOR CONSTRUCTION

SURVEYED	JBSURVEY	11/06/21	APPROVED	DATE
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CLIENT

JAMES BRIDGE

PROJECT

**25 PUNAWAITAI ROAD,
POURERERE, HAWKES BAY**

TITLE

**STAGE 3
EXISTING STREAM
CATCHMENT AND
CROSS-SECTIONS**

 **Fraser
Thomas**

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STATUS

RESOURCE CONSENT

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SCALE **AS SHOWN** (A3)

DRAWING No **23828/3/302** REVISION **B**