



Technical memorandum for an application for subdivision consent under the Resource Management Act 1991 in respect of 25 Punawaitai Road, Pourerere Beach

To: Ryan O'Leary, Planning Manager, The Property Group

From: Wayne Hodson, Senior Principal Civil Engineer (Three Waters), Stantec

1. Application details

Applicant's name: Paonui Point Limited (**Applicant**)

Application number: RM220003

Activity type: 55 lot subdivision (described in more detail below)

Site address: 25 Punawaitai Road, Pourerere Beach, legally described as Lot 1 DP 571994 & Lot 7 DP 571994; Lot 22 DP 571994 & Lot 2 DP 564721 (**Property**)

2. Introduction

Qualifications and relevant experience

- 2.1. My name is Wayne Hodson, and I am a Senior Principal Civil Engineer at Stantec.
- 2.2. I hold a Bachelor of Civil Engineering from the University of Canterbury and am a Chartered Professional Engineer.
- 2.3. I have 27 years' experience in civil engineering with a large proportion of this experience in the three waters engineering area i.e., water, wastewater and stormwater. My experience includes subdivision and land development engineering from concept designs through to construction. I provide internal and external peer reviews for engineering designs for various clients throughout New Zealand.
- 2.4. I was the 3-waters design lead for the recent Iona development in Havelock North. Design progressed through to detailed design for water, wastewater and stormwater bulk services to service the proposed 55ha residential development area. Other projects I have worked on recently include 21ha residential development in Howard Street, Hastings. My role in that project was as lead technical reviewer for design that included pipeline conveyance, and wetland/detention pond for treatment and mitigating additional runoff from the proposed development. I have also recently performed the role of Technical Lead for the construction phase of the development.
- 2.5. I am a member of the following professional bodies:

- a. Engineering New Zealand – Chartered Member; and
- b. Water New Zealand.

3. Overview and scope of technical memorandum

- 3.1. The Applicant has applied for a resource consent to subdivide the Property into:
 - a. 48 allotments suitable for residential development plus balance lot;
 - b. 3 lots for shared open space;
 - c. 1 lot for stormwater detention and treatment; and
 - d. 2 lots for shared access.
- 3.2. My technical memorandum assesses the review of the three waters considerations of the Application to assist the preparation of the Central Hawke's Bay District Council's (**Council**) reporting planner's report under s 42A of the RMA and will cover the following matters:
 - a. Stormwater and Flooding;
 - b. Wastewater; and
 - c. Water supply.
- 3.3. In preparing this technical memorandum, I have reviewed the following documents relevant to the Application:
 - a. The Applicant's resource consent application (**Application**), and in particular:
 - i. Fraser Thomas, Infrastructure Report, Proposed Subdivision at 25 Punawaitai Road, Pourerere, Central Hawke's Bay, 25 August 2021.
 - ii. Fraser Thomas, On-site Wastewater Treatment and Disposal Report, 25 Punawaitai Road, Pourerere (stage 3), 9 August 2022.
 - iii. Fraser Thomas, Letter Son Nguyen, 62 Punawaitai Road, Pourerere – Stage 3 RM220003 – Section 92 Request for Further Information, 9 August 2022, with additional calculations and revised drawings dated 8 August 2023.
 - b. Relevant supporting information with reference to the requirements of Section 14.6 (items 4 Natural Hazards, 5 Water Supply, 6 Stormwater Disposal, 7 Sanitary Sewage Disposal) of the the Central Hawke's Bay District Plan (**Operative Plan**) and Sub-S5, Sub-S6, Sub-S7, SUB-AM4, and SUB-AM5 of the Central Hawke's Bay Proposed District Plan (**Proposed Plan**).

4. Executive summary

- 4.1. The proposed development is a relatively intense development in the rural zone. Shared infrastructure is proposed to address some of the potential effects including

mitigating stormwater runoff effects, potential flooding, and provision of a shared fire-fighting water supply.

- 4.2. However, the major area of concern that remains an ongoing risk in the longer term, relates to the reliance of using on-site individual wastewater systems on smaller sites with soils of a category that significantly limit application rates. Whilst the actual development on individual lots is unknown at the subdivision stage, the smaller lots are expected to have limitations on the scale of house size (number of bedrooms) that can be serviced by on-site wastewater systems. Formal on-going requirements for operation and maintenance of the on-site systems is required to ensure that the cumulative and long-term effects are no more than minor.

5. Overview of the Application

- 5.1. The Application describes the subdivision proposal in detail, however by way of summary, the proposed subdivision is proposed to be completed over three stages (Stages 3A and 3B). An excerpt of the proposed scheme plan is included in **Figure 1** below.



Figure 1: Proposed Scheme Plan

- 5.2. The Application describes the proposed subdivision as follows:
- a. 47 allotments (Lots 1 to 14, 16, 17, 19 to 21 and 23 to 50 having areas between 1790m² and 4700m² suitable for residential development);
 - b. Lot 22 – 1.74 ha, part of which contains a house site and part of which is intended to be divided into paddocks to be available for lease by owners of the 47 other residential lots for the grazing of horses;

- c. Lot 15 – 2711m² (which will contain the stormwater detention and treatment area serving Stage 3);
 - d. Lot 18 –5354m² (shared open space);
 - e. Lot 51 - 1.27 ha (shared open space);
 - f. Lot 52 - 1.6 ha (shared open space);
 - g. Lots 53 and 54 (shared access); and
 - h. Lot 60 – approximately 358 ha (balance area).
- 5.3. It is anticipated that Lots 15 (stormwater detention and treatment); Lots 53 and 54 (shared access); and, Lots 18, 51 and 52 (shared open space) will be held in separate titles, to be owned by an Incorporated Society (to be established). Each owner of the new lots will be required to be a member of the Incorporated Society which will control and manage the communal facilities, including the open space areas and rights of way.
- 5.4. Communal open space areas are also proposed to be developed by the Incorporated Society for recreational activities in future, but these do not form part of this Application.
- 5.5. The Application is for subdivision consent only, and no land use consent has been applied for in relation to development of the proposed lots (e.g. for potential non-compliance of development with the permitted activity rules in the Operative Plan, such as those rules relating to minimum setbacks of residential dwellings from internal boundaries).
- 5.6. I understand that the subdivision proposal requires consent as a discretionary activity pursuant to Rule 9.9.4 of the Operative Plan as it is unable to comply with all relevant subdivision performance standards in standards 9.10(1)(a)-(i) of the Operative Plan.
- 6. Site locality and description of the environment (relevant to flooding, stormwater, wastewater and water supply)**
- 6.1. The site is located east of Punawaitai Road and is bounded by the Makurupata Stream that runs across the northern and eastern boundaries with a wider flatter gully or open drain to the west. The open drain and Makurupata Stream join into the Pourerere Stream to the south of the site that discharges to the sea approximately 1km from the site. The site is flat to gently sloping lightly grassed alluvial plain, surrounded by elevated hills and is located northeast of an earlier development at the location (stages 1 and 2).
- 6.2. Ground conditions are generally alluvial clays and silts with groundwater levels at 1m to 3m below ground level.
- 7. Summary of proposal (relevant to flooding, stormwater, wastewater and water supply)**

Flooding



- 7.1. Flood hazard assessments calculations for the adjacent watercourses indicate that the proposed development area, and area of building platforms, is well above estimated flood levels for the main watercourse, the Makurupata Stream. Whilst the smaller adjacent gully, that is less defined, appears to have less freeboard and therefore the potential to result in overland flow through the site in extreme events. Further assessment is recommended.

Stormwater

- 7.2. Stormwater from the proposed development is to be managed in accordance with the Hawke's Bay Waterway Guidelines, Stormwater Management 2009. This includes provision of a stormwater detention basin to mitigate potential peak runoff to less than pre-development rates, with extended detention to provide stream erosion mitigation. Stormwater treatment for impervious area runoff is provided via grassed swales along the proposed roads.

Wastewater

- 7.3. Wastewater is proposed to be provided through on-site wastewater management systems on each individual lot, designed and installed as part of the building development to meet the requirements of the AS/NZS 1547:2012 and Hawke's Bay Regional Resource Management Plan. Some of the smaller lots will have limitations on the size of dwelling (number of bedrooms) that can be accommodated due to the limited area for wastewater disposal available on-site with the wastewater report noting 8 of the 48 lots having sufficient area only for 3 bedroom house. It is also noted that enduring requirements for operation and maintenance of the on-site wastewater systems will be important to ensure that the cumulative and long-term effects are no more than minor.

Water supply

- 7.4. Water supply is proposed to be provided through independent on-site water supplies, anticipated to be via roof collection to rain tanks, designed and installed as part of the building development on each lot. In addition, a separate, communal fire-fighting water supply system is to be provided, that meets the requirements of SNZ PAS 4509:2008 with on-site storage, pumping and reticulation within the proposed roads or reserve areas. The AEE also notes that easements are proposed within the rights of way to allow for a future communal water supply to supply services to each of the lots if required.

8. Reasons for consent: flooding, stormwater, wastewater and water supply

- 8.1. None of the three reasons for consent relate specifically to flooding, stormwater, wastewater or water supply.

9. Technical assessment of effects

- 9.1. The assessment of effects includes the infrastructure services, natural hazards with respect to flooding and these are summarised in the AEE. No summary or description of environmental effects is noted for stormwater in the AEE. The infrastructure report and supplementary information provided in the s 92 response, cover the potential effects and proposed mitigation measures for stormwater.

- 9.2. The Applicant has generally used appropriate design guidelines and assumptions in the stormwater and wastewater assessments and assessment of effects. I generally agree with the approach and findings except for the following matters:
- a. Potential flooding or overland flow through the site from the gully or open channel to the west has been assessed with estimated water depths for a 100-year ARI event at two cross-sections. This information was provided with the s 92 response. However, it is not clear that these cross-sections are representative or identify the critical location for potential wider overland flow, or what freeboard is available from the calculated water levels to the development levels.
 - b. On-site servicing for stormwater and associated area required for dispersal of stormwater to garden and lawn areas has not been assessed or allowed for in the individual lot assessment. Given the limited size of most of the lots, and the large area needed to be dedicated to on-site wastewater disposal that cannot be used for stormwater dispersal, there may be further limitations on the scale of building development and size housing (number of bedroom house) able to be accommodated on some of the lots.
 - c. No provision for monitoring mechanisms by the Applicant has been included in the Application to ensure contaminants are not discharged into the environment from on-site wastewater disposal systems (Part 14.6, item 7 g) measures are noted in the District Plan). Although it is noted that these matters are normally also dealt with as part of the Regional Resource Management Plan that has specific rules and requirements for the permitted activities under that Plan.
- 9.3. The proposed infrastructure, including stormwater swales, detention basin and dedicated fire-fighting water supply are appropriate to mitigate the potential effects identified. Further consideration is required as part of engineering design and engineering design approvals for the following matters:
- a. Detailed assessment of the proposed development levels for Lots 19 to 22 and potential of overland flow from the adjacent gully catchment to the west, including any adjustment of the development levels to provide adequate freeboard in accordance with NZS 4404:2010
 - b. Detailed engineering designs for the fire-fighting water supply, including storage, pumping and reticulation designs in accordance with SNZ PAS 4509:2008 and NZS4404:2010 shall be prepared and submitted for engineering approval.
 - c. Detailed design of the stormwater swales, detention basin, pipework, and outlets, including erosion protection in accordance with the preliminary design submitted with the consent application, NZS4404:2010 and the Hawke's Bay Waterway Guidelines, Stormwater Management.
- 9.4. In the response to s 92 further information request, the Applicant has proposed consent conditions to cover the requirement for a planting plan and for an operation and maintenance plan (OMP) for the shared infrastructure. The planting plan is important for satisfactory mitigation of effects regarding stormwater quality discharged amongst other matters, whilst the OMP is important to provide for the ongoing management,

operation, and maintenance of the shared infrastructure. Other conditions or mechanisms are recommended for the following:

- a. Consent notices or other enduring mechanism that will continue beyond the subdivision consent for the ongoing operation, monitoring and maintenance of on-site services as well as shared infrastructure.
- b. Items listed above for engineering design approvals.

9.5. Overall, the potential effects of the proposed development are generally capable of being mitigated. proposed to be. However, there are several matters that will require further consideration as part of engineering designs and approvals and there may be greater restriction on the scale of development for some of the smaller lots when on-site individual lot stormwater management aspects are also considered.

10. Statutory considerations

Operative Plan

10.1. Consideration has been given in the technical assessment above to the matters detailed in Part 14.6 Assessment Matters, specifically to:

- a. Items 4 Natural Hazards points e) relating to inundation from any source, i) regards earthworks that may impact the natural pattern of surface drainage , and j) regarding inundation.
- b. Item 5 Water supply with regard to the proposed fire-fighting water supply and associated requirements.
- c. Item 6 Stormwater disposal with regard to the proposed stormwater management approach
- d. Item 7 Sanitary Sewage disposal with regard to the on-site servicing approach proposed.

Proposed Plan

10.2. Consideration has been given in the technical assessment above to the matters in SUB-4/SUB-AM4 for Natural Hazards and SUB-5/SUB-AM5 for water supply, wastewater disposal and stormwater disposal.

Submissions relevant to flooding, stormwater, wastewater and water supply

10.3. Submissions from Garreth Charles Harris and Melaney Lisa Harris as trustees of the Havelock Bluff Trust, Bennett family, and that of the Pourere Community and Character Preservation Society have all raised concerns regarding the environmental effects for the proposed on-site wastewater systems. These submissions raise several concerns around potential cumulative or long-term effects for large number of lots with potential for contaminants to be leached into waterways, with the risk exacerbated by:

- a. Potentially high groundwater tables, especially in winter for the soil types
- b. higher loadings in summer with higher occupancy of dwellings,

- c. effects on groundwater and surface water that is currently used for stock water and also household supply.
- 10.4. The applicant has assessed the site and prepared an on-site wastewater treatment and disposal report considering the site conditions, soils and identified land area requirements for wastewater treatment and disposal fields allowing appropriate buffer areas and reserve areas. Generally, the proportion of the required lot to be set aside for wastewater is in the order of 50% of the total lot area, but that will depend on the actual building development and house size on each lot. It is noted that these assessments have been in accordance with the New Zealand Standard AS/NZS 1547:2012 for on-site wastewater management and the requirements of the Hawke's Bay Regional Resource Management Plan.
 - 10.5. The report also notes that there is an opportunity for a higher level of treatment, including UV treatment, where buffer areas do not meet minimum requirements or there is other site specific concerns.
 - 10.6. It is recommended that the findings and recommendations in in the on-site wastewater treatment and disposal report are included as a requirement for any future development on the lots at the building consent phase, as well as formal arrangements for operation and maintenance. Important aspects to be addressed are:
 - a. Maintenance agreement for each treatment and disposal area to ensure that appropriate and minimum maintenance is carried out in accordance with the on-site system design and manufactures recommendations.
 - b. Overarching operation and maintenance plan is prepared and required to be complied with on an on-going basis for the on-site wastewater systems, including any appropriate monitoring or auditing of system maintenance and performance.
 - c. Individual lot development is limited with regard to size of house (number of bedrooms) to that which can be serviced within the available lot area, including appropriate buffer, reserve areas and also allowance for any separate stormwater management areas.
 - 10.7. Submission from Pourere Community and Character Preservation Society also raises concerns with the stormwater management approach with flooding already experienced with the stream. With reference to my evidence above the applicant has assessed the flood hazard and provided mitigation measures including detention storage to address the potential additional runoff from the development.

11. Recommendation and conditions

Adequacy of information

- 11.1. The above assessment is based on the information submitted as part of the Application. I consider that the information submitted is sufficiently comprehensive to enable the consideration of the above matters on an informed basis. In particular:
 - a. The level of information does provide a reasonable understanding of the nature and scope of the proposed activity as it relates to the Operative Plan and the Proposed Plan.



- b. The extent and scale of any adverse effects on the environment in terms of flooding, stormwater, wastewater, and water supply are able to be assessed.
- c. Further consideration of a number of engineering aspects are required as part of engineering design and engineering design approvals, including the requirement for a detailed operation and maintenance plan (OMP) for the shared infrastructure and mechanisms for requiring the maintenance to be carried out.

Conditions: flooding, stormwater, wastewater and water supply

- 11.2. The Applicant has proposed conditions as part of the engineering design for a planting plan and for the preparation of an OMP for the shared infrastructure that would include the stormwater swales, detention basin and associated pipework and outlets, along with the fire-fighting water supply system.
- 11.3. Further conditions are recommended for engineering design approvals as noted below, along with consent notices or another enduring mechanism that will continue beyond the subdivision consent for the ongoing operation, monitoring and maintenance of on-site services as well as shared infrastructure.

Recommended Amendments to Conditions

- 11.4. Additional conditions for engineering design and engineering design approvals for the following matters:
 - a. Detailed assessment of the proposed development ground levels for lots 19 to 22 and potential of overland flow from the adjacent gully catchment to the west, including any adjustment of the development levels to provide adequate freeboard in accordance with NZS 4404:2010.
 - b. Detailed engineering designs for the fire-fighting water supply, including storage, pumping and reticulation designs in accordance with SNZ PAS 4509:2008 and NZS4404:2010 shall be prepared and submitted for engineering approval.
 - c. Detailed design of the stormwater swales, detention basin, pipework, and outlets, including erosion protection in accordance with the preliminary design submitted with the consent application, NZS4404:2010 and the Hawke's Bay Waterway Guidelines, Stormwater Management.

Conclusion

- 11.5. Whilst the proposed development is a relatively intense development in the rural zone, there is infrastructure proposed to address most of the potential effects. The major area of concern that remains an ongoing risk in the longer term relates to the reliance of using on-site individual wastewater systems on smaller sites with soils of a category that significantly limit application rates. Whilst the actual development on individual lots is unknown at the subdivision stage, the smaller lots are expected to have limitations on the scale of house size (number of bedrooms) that can be serviced. Further, formal arrangements and enduring requirements for ongoing operation and maintenance will be important to ensure that the long-term and cumulative effects of the designed on-site wastewater systems are no more than minor.



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