

BEFORE THE CENTRAL HAWKE'S BAY DISTRICT COUNCIL
INDEPENDENT HEARINGS COMMISSIONER

UNDER The Resource Management Act 1991

AND

IN THE MATTER OF A NOTIFIED RESOURCE CONSENT APPLICATION FOR
SUBDIVISION TO CREATE 11 LOTS (8 RURAL LIFESYLE
LOTS, 2 BALANCE LOTS, AND A LOT TO BE
AMALGAMATED AS A BOUNDARY ADJUSTMENT) AT
MANGAKURI ROAD (RM230016)

BETWEEN **SR & BJ WILLIAMS CHARITABLE TRUST BOARD**
Applicant

AND 24 Submitters

Central Hawke's Bay District Council
Consent Authority

AND

BRIEF OF EVIDENCE BY THOMAS HENRY BUNNY

INTRODUCTION AND QUALIFICATIONS

- 1 My full name is Thomas Henry Bunny and I reside in Te Awanga, Hastings.
- 2 I have a Post-Graduate Diploma in Engineering Geology from Canterbury University. I hold a CPEng and CMEngNZ chartered accreditation with Engineering NZ.
- 3 I am a Member of the New Zealand Geotechnical Society and NZSEE.
- 4 I have 20 years' experience as a practicing engineering geologist with geotechnical engineering.
- 5 I am currently employed as a Principal Engineer at Resource Development Consultants Ltd and have been employed by that company since February 2018. I was employed as a Senior Engineering Geologist and Discipline Lead at MWH NZ Ltd, now known as Stantec between 2008 and 2018. In 2006 & 2007 I worked at TPS Consult, Croydon, UK as onsite design support for Terminal 5 Heathrow Airport. Prior to that I held Graduate roles at Soil Engineering Ltd and KGA Geotechnical, 2003 to 2006.

EXPERT WITNESS CODE OF CONDUCT

- 6 I confirm I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. My evidence has been prepared in compliance with that Code and I agree to follow it when presenting evidence to the Hearing.
- 7 I confirm that my evidence is within my area of expertise except where I state that I am relying upon the specified evidence of another person, and

I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

- 8 I understand and accept that it is my overriding duty to assist the Commissioner in matters that are within my expertise as a planner. I understand that I have an overriding duty to assist impartially on the relevant matters within my area of expertise and that I am not an advocate for the party that has engaged me.

SCOPE OF EVIDENCE

- 9 This evidence relates to resource consent application RM20230016 ("Application") by the SR and BJ Williams Charitable Trust Board ("Applicant") to Central Hawke's Bay District Council ("Council") for subdivision consent to create 11 lots, being 8 lifestyle lots, 2 rural balance lots and a lot to be amalgamated with an adjoining title, from Lot 2 DP 481291 (Record of Title: 674477).
- 10 That Application was received by Council on 24 February 2023. This evidence is provided in support of that Application.
- 11 I was engaged by the SR & BJ Charitable Trust to undertake sufficient site testing and geotechnical assessment to support the 11 Lot subdivision for resource consent.
- 12 The Geotechnical Report Reference is R19385B-05, dated 13 October 2023. This report was externally peer Reviewed by Mr. Rick Wentz from Wentz- Pacific particularly around slope stability requirements.
- 13 The geotechnical report involved site walkovers, geomorphic mapping, review of historical aerial images, site specific testing, sampling for laboratory testing and assessment for slope stability. The assessment made recommendations on proposed building platforms and access to be sited outside areas where land stability has been observed specific recommendations on building setbacks, founding future building son

natural ground, groundwater seepage management by installation of subsoil drains and surface water management by installation of cutoff drains and planting recommendations.

14 My involvement in this work was as the lead geotechnical engineer and I was responsible for the above activities.

15 In preparing this evidence I have reviewed the following documents:

- a) The '*Section 42A Report of Ryan O'Leary - Planning*' ("the s42A Report").
- b) Appendix 1 Draft Consent Conditions of Consent – 4 June 2024.
- c) Appendix 2 Relevant Provisions (Objectives and Policies and Assessment Matters), central Hawkes Bay Operative District Plan.
- d) The 24 submissions received on the application as listed in Appendix 3 of the s42A Report.
- e) The '*Technical memorandum to an application for subdivision consent under the Resource Management Act 1991 in respect of 42 Okura Road, Elsthorpe*', from:
 - o Lee Paterson, Senior Geotechnical Engineer, Stantec

16 The purpose of my evidence is to provide an assessment of the Geotechnical related matters to this resource consent hearing. I do not seek to repeat the assessment provided within the s42A Report for those matters that I am in agreement with, while I identify the matters that I disagree with, including the overall conclusions of that report, and provide reasons for my disagreement.

17 My evidence is structured as follows:

- a) Description of the Subject Site and Application

- b) Summary of the CHBDC Technical Memorandum from Lee Paterson, Senior Geotechnical Engineer, Stantec.
- c) Summary of the S42A Report as it relates to Geotechnical matters by Ryan O’Leary Planning Manager for CHBDC
- d) Specific response to Submission No 3 Karen Stothart for Anitella Trust and Generic response for remaining submissions.
- e) Summary and Conclusion

18 Accordingly, the remainder of my evidence is set out under the topic headings listed above.

DESCRIPTION OF THE SUBJECT SITE

19 The 111.9ha irregular shaped subject site (“the site”) is fully described in section 2 of the Geotechnical Assessment Report, it is also described in the s42A Report. To avoid duplication, I will not repeat those descriptions.

20 In brief, the Application seeks subdivision consent to create eight rural lifestyle lots, two rural balance lots, and a lot to be amalgamated with Lot 1 DP 25627 (38 Okura Road) as a boundary adjustment. No land use consents are being sought and the subdivision application is inclusive of the construction of the vehicle access ways to, and building platforms on, each of the proposed lifestyle lots, and for construction of the stormwater infrastructure to service those vehicle access ways and building platforms, and of the ‘Landscape Enhancement Zone’ plantings.

21 The site was identified at an early stage by RDCL to be a complex geological landscape comprising elevated terrain, with three main gullies trending towards Mangakuri Beach Settlement. Site geology comprised expansive soils overlying Late Cretaceous to Miocene age “Melange” Sandstone and Mudstone.

- 22 A site walkover and subsequent historical aerial imagery review identified some historical land stability issues. In the upper (elevated) part comprising gravitational soil creep within near surface primarily driven by shrink swell of expansive soils and in the lower part historical debris lobes and soil runout from gravitational failures evacuated from slopes above. There is no clear evidence of deep-seated instability encountered in borehole or CPT Testing.
- 23 As part of this initial assessment, we eliminated at least two building platforms from the toe of the slope where landslides were present.
- 24 Site specific testing on proposed building platforms comprised borehole investigation, Cone Penetration Testing (CPT) testing, Test pit investigation, with handheld augers, shear vane testing and Dynamic Cone Penetration (DCP). Laboratory testing consisted of classification testing (Atterberg Testing, standard compaction testing, and Linear Shrinkage).
- 25 Test results indicate Low to extremely plastic clays present onsite that are susceptible to expansive behavior in accordance with NZS3604:2011. This means the site materials re subjective to expansive clays and fall outside the typical requirements for NZS3604:2011. To address the risk of expansive clays, there is provisions in the Consent Conditions that all building platforms will need to be tested for expansive properties at or during the completion of the building platform. Foundations exposed to expansive soils are subject to specific engineering design.

SUMMARY OF THE CHBDC GEOTECHNICAL MEMORANDUM FINDINGS

CHBDC Geotechnical Review from Lee Paterson, Geotechnical Engineer, Stantec

- 26 The CHBDC Geotechnical Review was undertaken by Mr. Lee Paterson, Senior Geotechnical Engineer at Stantec. Lee has a Bachelor of Science (Civil Engineering) with Geology from the University of Geology. He is a

natural hazards advisor for several local authorities around the country including the Dunedin City Council and the Central Hawke's Bay District Council and has been providing natural hazards advice nationally since 2009.

- 27 The Geotechnical Technical Memorandum Executive Summary had no objections to the submission provided the conditions of the consent in Section 9 included some minor amendments as follows:
- *The identification and assessment of risk to each proposed lot is robust and the slope stability assessments in the updated report demonstrates that each slope in the vicinity of the building platforms meets best practice requirements for stability.*
 - *Many submitters note significant stability issues on their own properties. No specific hazard / risk assessment has been undertaken on the adjacent properties within the applicant's assessment. There is always a potential that the existing risk for natural hazards on these properties may not be "low". We cannot verify from the assessment undertaken what risk these properties have from natural hazards.*
 - *I am satisfied that the applicant's agents have confirmed as part of their assessment that the proposed work will not have a detrimental effect on adjacent properties, exacerbating or creating additional risk to adjacent land.*
- 28 The Technical memorandum stated that "*The information submitted is sufficiently comprehensive to enable the consideration of the above matters on an informed basis*".
- 29 The Technical memo also states that "*The applicants proposed Consent Conditions (Section 9 of the RDCL Geotechnical Assessment Report, R 19385B-04, dated 7 August 2023) are generally adequate, however some of them are not specific enough to achieve mitigation intended*". *These should include:*

- *"Plans should show "No Build" Zones to inform setbacks in survey set-out terms, rather than potentially ambiguous relationships to breakover slope angles"; and*
- *"Excavation levels for lowered building platforms should be specifically defined in the conditions".*

30 I agree with the overall comments and recommendations made in the CHBDC Geotechnical Technical Memo. The recommendations made can be included as additional requirements in the Consent Conditions.

SUMMARY OF THE SECTION 42A REPORT BY RYAN O'LEARY

31 Ryan O'Leary Planning manager at The Property Group for the Central Region prepared a Section 42A Report on behalf of Central Hawkes Bay District Council

32 The Geotechnical technical memorandum prepared by Lee Paterson was not available at the time of Ryan O'Leary report and therefore he was not able to comment on it.

33 For Natural Hazards, Section 4.107 Mr. Ryan O'Leary states *"I consider that environmental effects in relation to the geohazards that exist on the site can be appropriately mitigated through the imposition of consent conditions and consent notices offered by the Applicant, to the extent that the potential effects on the environment will be no more than minor. I consider that residual hazard risks are limited to the application site only, and not the broader environment"*.

34 For Section 106 (RMA) the S42A report this report states *"I am satisfied that the potential risks of Natural Hazards can be mitigated through appropriate consent conditions". And "I see no reason to decline the consent application under s 106 RMA, however, appropriate consent conditions are considered necessary should subdivision consent be granted"*.

35 I agree with the assessment in the s42A Report that the potential effects on the environment will be no more than minor, and that residual hazard risks are limited to the application site only and not the broader environment. I also agree that appropriate consent conditions as stated in Section 9 of the RDCL Geotechnical Assessment Report plus those added by the CHBDC Technical Memorandum should be implemented.

SUMMARY OF THE SUBMISSIONS (APPENDIX 3 OF S42A REPORT)

36 A total of 24 submissions were made relative to geotechnical risks.

37 Submission No 3 Karen Stothart for Anitella Trust has submitted concerns about significant land movement in a high-risk area referring to Images A to F of her submission.

38 For Geotechnical Effects The submitter attached Photos (Attachment 2) showing Image C House Cracked 50 Okura Road, Mangakuri Beach and Image E Photos of Major slips on the north End of Williams Road, Mangakuri Beach. In response:

- This site at 50 Okura Road is located on a historical debris lobe and was identified as potentially active during RDCL initial site walkover assessments (See Section 22 above). Subsequently we removed all building platforms from this location and relocated these to more stable sites. No building is planned within this existing landslide area.
- The Large landslip in Image D is located 1.2km north of this subdivision and is therefore not applicable to this site.

39 Under Natural hazards effects (Attachment 2, Images B) under a previous application Stantec advised against the subdivision due to evidence of land movement.

40 This comment was made in 2018 by CHBDC Geotechnical reviewer for a separate geotechnical report which is not part of this consent

submission. This report has been superseded by the RDCL Geotechnical Assessment Report (R19385B-05) and by the recent CHBDC Technical memo.

- 41 Other submissions typically refer to concerns about land stability above existing dwellings and that the effects of erosion from severe weather events or earthquake events will increase land slips and stormwater runoff.
- 42 Our response to these concerns is based on the significant work to address these issues including site walkovers, review of historical aerial imagery and site investigation to identify existing evidence of land stability risks. Through detailed slope stability assessment which included normal and elevated groundwater conditions and seismic (earthquake) conditions, we have resolved stability risks by purposefully locating proposed building platforms on prominent and stable ridges and incorporated recommendations for development in Section 9 of the RDCL Geotechnical Report Consent Conditions.
- 43 A site walkover and Drone Flyover after Cyclone Gabrielle did not identify any significant land instability associated with the currently proposed building platforms or vehicle access. Some evidence of land instability was observed outside the proposed building platform and vehicle access areas, but these should not impact on future development.
- 44 These areas (Balance Lots) are anticipated to be planted which will improve soil root structure interactions and improve land stability.

SUMMARY AND CONCLUSION

- 45 The Application is seeking subdivision consent to create eight rural lifestyle lots, two rural balance lots, and a lot to be amalgamated with Lot 1 DP 25627 (38 Okura Road) as a boundary adjustment. No land use consents are being sought and the subdivision application is inclusive of the construction of the vehicle access ways to, and building platforms on, each of the proposed lifestyle lots, and for construction of the stormwater infrastructure to service those vehicle access ways and building platforms, and of the 'Landscape Enhancement Zone' plantings.
- 46 RDCL provided a Geotechnical Assessment Report assessing the individual building platform and vehicle access for suitability for development. The assessment report included review of historical imagery, geomorphology mapping, site investigation, lab testing and slope stability analyses to determine the suitability of each lot and vehicle access. The development was considered to be suitable for residential development provided the Consent Conditions in that report are included.
- 47 This report was reviewed by Stantec Geotechnical Engineer on behalf of CHBDC and Stantec were satisfied that the proposed development would not have a detrimental effect on the adjacent properties, exacerbating or creating additional risk to land. Two additional conditions were recommended which included:
- "Plans should show "No Build" Zones to inform setbacks in survey set-out terms, rather than potentially ambiguous relationships to breakover slope angles"; and
 - "Excavation levels for lowered building platforms should be specifically defined in the conditions".
- 48 The Geotechnical Assessment Report was reviewed by The Property Group Planning Manager on behalf of CHBDC. The Property Group Planning Manager was satisfied the geohazards that exist on this site can

be mitigated through consent conditions and the residual hazard risks will be no more than minor. In accordance with Section 106 (RMA) he was satisfied the natural hazard risks can be mitigated through appropriate consent conditions.

- 49 A total of 24 submissions were made relative to geotechnical risks. We are satisfied that no building or development will be undertaken on those areas recognized by Submission No 3. And in contrary, further planting on the balance land will improve land stability in the immediate areas. Generally, all other submissions around land stability are addressed in the geotechnical assessment report and detailed work around site walkovers, review of historical aerial imagery, geomorphic mapping to identify high landslide risk zones and site investigation to identify existing evidence of land stability risks. Through detailed slope stability assessment, we resolved stability risks by purposefully locating proposed building platforms on prominent and stable ridges and incorporated recommendations for development in Section 9 of the RDCL Geotechnical Report Consent Conditions.

SUGGESTED CONSENT CONDITIONS

50 For completeness, we recommend the Consent Conditions to include Section 9 of the Geotechnical Assessment Report plus the two additional recommendations by CHBDC Geotechnical memorandum. These should include:

- Lots 3 to 11 building platforms should be lowered (excavated) to form a level building platform and to reduce the risk of further land instability.
- Lot 1 should not be subjected to excavation at the toe of the slope due to risk of land stability.
- Lot 1 may be subjected to fill with geotechnical consideration.
- Where land falls below the building platform:

- Building setback of 5 m is recommended inside the break in slope (slope crest) for all building platforms formed on cut where ground slopes away exceeding 20 degrees; and/or
- Where land rises above the building platform:
 - Building setback of 5m from the toe of slope is recommended where ground rises above the building platform (Lots 1).
- Building Platforms should be formed entirely within Natural ground (Cut). Engineered Fill should be designated for minor structures and landscaping only unless modified and certified acceptable.
 - All materials excavated from this site in preparation for being used as engineered fill should be tested to confirm the presence of expansive clay soils in accordance with NZS3604:2011.
 - Expansive clay soils can only be reused if modified.
 - Plans should show “No Build” Zones to inform setbacks in survey set-out terms, rather than potentially ambiguous relationships to breakover slope angles”; and
 - “Excavation levels for lowered building platforms to be specifically defined.
- All cut slopes should be formed at 1V:1.5H and fills at 1V:2H.
- Subsoil drains should be installed where seepage occurs relative to the building footprint or fill placement and in particular on the eastern side of the building platform and where appropriate for road access where seepage is observed.
- Cut-off drains to be installed above building platforms and road cuts.

- Due to the expansive nature of soils, strict control on planting is required. We recommend all cut and fill slopes and stormwater and effluent discharge areas to be planted with small shrubs and shallow rooting plants.
- Large tree species may not be planted within a horizontal distance equivalent to the mature tree height of any pertinent structure (house, road, stormwater, drainage).
- Stormwater Pond to be assessed and designed by competent engineers considering embankment suitability and slope stability.

51 I am happy to answer any questions at the hearing.



T. H Bunny

11 June 2024