Proposed
District Plan Change 37

HUGH SINCLAIR PARK, WAINUIOMATA
REZONING OF PART OF THE SITE AS GENERAL RESIDENTIAL ACTIVITY AREA WITH PROVISION FOR A RETIREMENT VILLAGE

Publicly Notified:	19 May 2015
Submissions Close:	19 June 2015 at 5.00pm

Part 1: Introduction

1. What is Proposed Plan Change 37

Hutt City Council ("Council") has prepared proposed Plan Change 37. The purpose of proposed Plan Change 37 is to rezone a portion of Hugh Sinclair Park at 39 Fitzherbert Road in Wainuiomata. The site in its entirety is currently zoned General Recreation Activity Area in the City of Lower Hutt District Plan. There are no special notations, overlays or restrictions listed in the District Plan for the site. The current General Recreation Zoning of the site means that any activities which are not generally associated with recreation activities, including retirement villages, are classified as Discretionary Activities unrestricted. The purpose of the proposed plan change is to rezone a portion of this property from its current General Recreation Zoning to General Residential Activity Area - Medium Density, and to facilitate the use of the area subject to the plan change for a retirement village. The remainder of the site is not subject to this proposed plan change and will retain its current zoning, being General Recreation Activity Area.

The General Residential Activity Area of the District Plan (Chapter 4A) does not explicitly provide for retirement villages. However, the District Plan does contain a definition for 'Housing for the Elderly'. The definition of 'Housing for the Elderly' includes retirement villages and any associated ancillary facilities such as medical, recreation and other communal facilities which offer an exclusive service to the residents of the Home for the Elderly. It is proposed to utilise this existing definition and make the following changes to the rules section of Chapter 4A (General Residential Activity Area) to assist with facilitating the development and use of a retirement village on the site subject to the proposed plan change:

- Add a new rule under Chapter 4A2.3 Restricted Discretionary Activities with the following wording:

  4A2.3 (x) Housing for the Elderly within the area identified in Appendix 99.

- Identify the relevant matters that apply to Rule 4A 2.3 (x) in Chapter 4A 2.3.1 Matters in which Council has Restricted its Discretion and Standards and Terms. These matters would be:

  4A2.3.1 (x) Housing for the Elderly within the area identified in Appendix 99:

  (i) Temporary Construction Effects

  Consideration shall be given to the potential construction effects arising from the establishment of a retirement village on the site. This includes the potential construction noise, traffic, dust, sediment runoff and vibration effects.

  (ii) Design Guide:

  Consideration shall be given to the degree to which the proposal adheres to the Design Guide for Medium Density Housing (Appendix 19).

  (iii) Traffic Generation Effects:

  The safe and efficient movement of all vehicle and pedestrian traffic needs to be ensured. It should be demonstrated that traffic generation and vehicles entering and leaving the site will not adversely affect normal traffic flows on the road, or cause a vehicle or pedestrian hazard.

(iv) Parking Effects:

The extent to which the proposal appropriately provides for the vehicle parking needs of the activity, without adversely affecting the vehicle parking requirements of the surrounding area.

(v) Natural Hazards:

The extent to which the proposal addresses the flood risk to the site, including ensuring that the floor level of any habitable space is constructed above the 1:100 year flood level (86.92 above MSL) for Parkway Drain.

(vi) Geotechnical Matters:

The extent to which the proposal addresses any geotechnical limitations on the site.

(vii) Amenity Values:

The extent to which the proposal would adversely affect the amenity values of the surrounding residential area, including:

- *The effect of buildings and structures on neighbouring and surrounding residential sites and, in particular the location, design and appearance of the buildings; and*
- *Whether the proposal would cause significant loss of sunlight, daylight or privacy on adjoining residential properties.*

- Add the following section to Rule 4A 2.3.2

  For Restricted Discretionary Activity (x): All Restricted Discretionary Activities must comply with Permitted Activity Conditions (b) – (n). For Permitted Activity Conditions (b) – (g) any reference to the term "net site area" shall be replaced with the term "site".

It is also proposed to modify District Plan Map E7 to reflect the zone boundaries proposed in this plan change.

No changes are proposed to the objectives and policies of the District Plan to facilitate this proposed plan change.

The concept plan provided for a retirement village on the site as identified in Appendix 4 is only an indicative development plan demonstrating what could be undertaken on the property, if this portion of the site is zoned General Residential Activity Area - Medium Density to facilitate the construction of a retirement village. The indicative development shown on this plan is not being applied for as part of this plan change process. Any development of the site would be subject to more detailed design and would require a resource consent application.

To provide appropriate access to the proposed retirement village from the existing road network Council has agreed, in principle, to grant a right of way for vehicle and pedestrian access from The Strand to the site as shown in the indicative development plan. The exact details of this right of way will need to be confirmed at the time that the resource consent application for the retirement village is considered.

2. Reasons for Proposed Plan Change 37

For a number of years there has been significant demand from within the Wainuiomata community for a retirement village to be constructed within this suburb as there are currently very limited housing options available for the elderly. Council was approached in 2012 with a proposal to construct a retirement village on a portion of Hugh Sinclair Park. Council investigated this option, and considered that there was sufficient reserve land within the local community, and therefore it could support the revocation of reserve status on the portion of Hugh Sinclair Park subject to this proposed plan change. The purpose of the proposed plan change is therefore to rezone a portion of Hugh Sinclair Park to an appropriate zone to facilitate the construction of a retirement village on the site.

3. Structure of this document

This document contains four parts. These are as follows:

Part 1	This Introduction.
Part 2	A copy of the Public Notice for proposed Plan Change 37 as advertised in the Hutt News on Tuesday 19 May 2015.
Part 3	The amendments proposed to Chapter 4A and to Planning Map E7.
Part 4	The Section 32 Evaluation.
Part 5	A copy of the submission form (Form 5).

All five parts of this document are publicly available from Council as detailed in the Public Notice (Part 2 of this document).

4. The Process for Proposed Plan Change 37

The process for proposed Plan Change 37 can be summarised as follows:

9 February 2012	The Wainuiomata Community Board resolved to recommend to Council that it revoke the reserve status of the land at 41 Hinau Grove (Hugh Sinclair Park), and undertake a plan change and make the property available for sale.
December 2012	Council was approached with a proposal to undertake a comprehensive retirement village development on Hugh Sinclair Park.
February/March 2013	The Policy Committee recommended to Council that a proposal to revoke the reserve status of the land be initiated. Council adopted this recommendation at its meeting on 26 March 2013.
April/May 2013	Consultation is undertaken with the public regarding the revocation of the reserve status under the Reserves Act 1977.
August 2013	Submitters are heard by the Policy Committee and it is resolved to revoke the reserve status across 3.9 hectares of the site.
November 2013	The Department of Conservation confirmed its consent to the revocation proposal.
September 2014	Council resolved to sell the land to the Masonic Village Trust, subject to Council undertaking a plan change to the District Plan to rezone the land for residential purposes.
12 May 2015	Proposed Plan Change 37 is adopted by Council for public notification.
19 May 2015	Proposed Plan Change 37 is notified.

Upon notification of the proposed plan change, all interested persons and parties have an opportunity to have further input through the submission process. Council's process for public participation in the consideration of this proposal under the Resource Management Act 1991 ("RMA") is as follows:

- The period in which submissions may be made is 20 working days from the date of the Public Notice;
- After the closing date for submissions, Council must prepare a summary of the submissions and this summary must be publicly notified;
- Certain persons may make a further submission in support of, or in opposition to, the submissions already made no later than 10 working days after the notification of the summary of submissions;
- If a person making a submission or further submission asks to be heard in support of their submission, a hearing must be held;
- Following the hearing Council must give its decision on the proposal in writing (including its reasons for accepting or rejecting submissions); and
- Any person who has made a submission has the right to appeal the Council decision on the proposal to the Environment Court.

Part 2: Public Notice

PUBLIC NOTICE

Public Notification of Proposed District Plan Change 37 to the City of Lower Hutt District Plan

Clause 5 of the First Schedule – Part 1 of the Resource Management Act 1991

Hutt City Council has prepared

Proposed District Plan Change 37
Hugh Sinclair Park, Wainuiomata - Rezoning of Part of the Site as General Residential Activity Area with Provision for a Retirement Village

Proposed Plan Change 37 seeks to rezone part of Hugh Sinclair Park at 39 Fitzherbert Road in Wainuiomata (Part Lot 4 DP 23636) as General Residential Activity Area – Medium Density with site specific provision for a retirement village. The site is currently zoned General Recreation Activity Area. The proposed plan change would enable the subdivision and development of the site for residential activity to the extent provided for by the General Residential Activity Area – Medium Density provisions. In addition it would provide for the development and use of the site for a retirement village as a restricted discretionary activity.

Documentation for Proposed Plan Change 37 can be inspected at:

- All Hutt City Council Libraries; and
- Customer Services Counter, Council Administration Building, 531 High Street, Lower Hutt.

Alternatively, copies of the documentation are available on Council's website:

- http://www.huttcity.govt.nz/district-plan-change-37

Copies can also be requested by contacting Hutt City Council:

- Phone: (04) 570 6666 or
- Email: district.plan@huttcity.govt.nz

Submissions close on FRIDAY 19 JUNE 2015 at 5.00pm

Any person may make a submission on proposed Plan Change 37. You may do so by sending a written submission to Council:

- Post: Environmental Policy Division, Hutt City Council, Private Bag 31912, Lower Hutt 5040;
- Deliver: Council Administration Building, 531 High Street, Lower Hutt;
- Email: district.plan@huttcity.govt.nz

The submission must be written in accordance with RMA Form 5 and must state whether or not you wish to be heard in respect of your submission. Copies of Form 5 are available from all of the above locations and the Council website.

The process for public participation in the consideration of this proposal under the RMA is as follows:

- after the closing date for submissions, Hutt City Council must prepare a summary of the submissions and this summary must be publicly notified; and
- there must be an opportunity to make a further submission in support of, or in opposition to, the submissions already made; and
- if a person making a submission asks to be heard in support of his or her submission, a hearing must be held; and

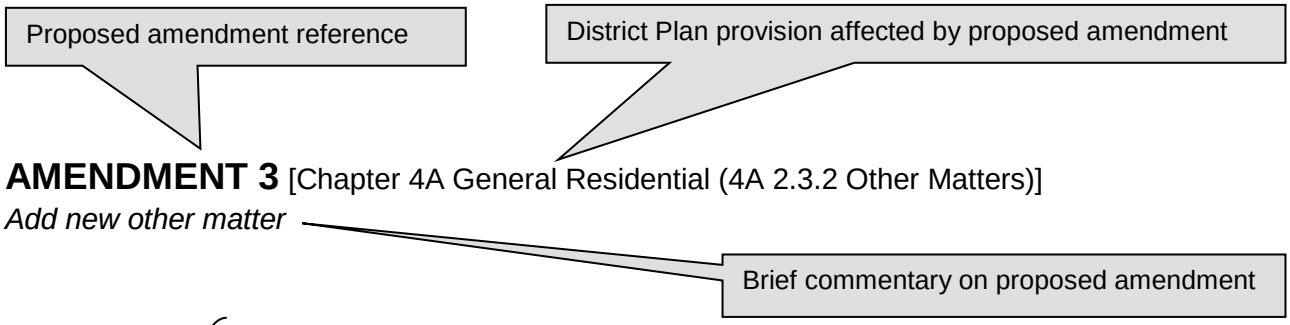
- Hutt City Council must give its decision on the proposal (including its reasons for accepting or rejecting submissions); and
- any person who has made a submission has the right to appeal the decisions on the proposal to the Environment Court.

Tony Stallinger
Chief Executive

19 May 2015

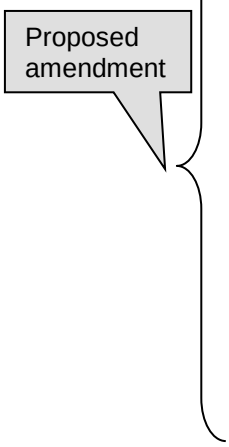
Part 3: Plan Change 37

Proposed Amendments



AMENDMENT 3 [Chapter 4A General Residential (4A 2.3.2 Other Matters)]

Add new other matter



4A 2.3.2 Other Matters

For Restricted Discretionary Activity (a): All Restricted Discretionary Activities must comply with Permitted Activity Conditions (b) - (n).

For Restricted Discretionary Activities (b) - (e) and (i) – (k): All Restricted Discretionary Activities must comply with other relevant Permitted Activity Conditions.

For Restricted Discretionary Activity (x): All Restricted Discretionary Activities must comply with Permitted Activity Conditions (b) – (n). For Permitted Activity Conditions (b) – (g) any reference to the term "net site area" shall be replaced with the term "site".

Any new text that is proposed to be added is underlined, while any text proposed to be deleted has been ~~struck through~~.

Amendments to Chapter 4A – General Residential Activity Area

AMENDMENT 1 [Chapter 4A General Residential (4A 2.3 Restricted Discretionary Activities)]
Add new restricted discretionary activity (x)

4A 2.3 Restricted Discretionary Activities

(a) Residential development of 3 or more dwelling houses on any site, excluding sites located within Petone, Alicetown, Eastern Bays and Moera General Residential Activity Areas and Medium Density Residential Areas as shown in Appendix 17.

(b) The removal of vegetation in excess of 500m^2 or 35% of the site, whichever the lesser, provided that this shall not preclude the removal of any pest plant.

(c) Health care service with a maximum of 4 practitioners.

(d) Accessory buildings on legal road.

(e) Cnr of Eastern Hutt Road and Reynolds Bach Drive, Part Section 742 Hutt District, forestry.

(f) All buildings and structures that are sited wholly or in part on the riverside of the building setback line in Belmont.

(g) All buildings and structures within the 1 in 100-year flood extent that do not comply with the Permitted Activity Conditions for floor levels or total gross floor area.

(h) All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area greater than 20m² or with a setback less than 20m from a flood protection structure.

(i) Childcare facilities for more than 5 children and up to a maximum of 30 children.

(j) Principal tertiary education activities within the Tertiary Education Precinct, including associated buildings and structures, which:

- do not comply with any of the following Permitted Activity conditions: 4A 2.1.1 (b) Minimum Yard Requirements; 4A 2.1.1 (c) Recession Planes; 4A 2.1.1 (d) Maximum Height of Buildings and Structures; 4A 2.1.1 (e) Maximum Site Coverage; and 4A 2.1.1 (z) Tertiary Education Precinct (excluding The Maximum Height of Buildings and Structures 4A 2.1.1 (z) (iii)); and
- do not exceed 12m in height.

(i) Non-notification

In respect of Rule 4A 2.3 (j), public notification of applications for resource consent is precluded and limited notification of applications for resource consent need not be required.

NOTE: Rule 4A 2.3 (j) (i) prevails over Rule 17.2.2.

(k) Ancillary tertiary education activities within the Tertiary Education Precinct, including associated buildings and structures.

(i) Non-notification

In respect of Rule 4A 2.3 (k), public notification of applications for resource consent is precluded and limited notification of applications for resource consent need not be required.

NOTE: Rule 4A 2.3 (k) (i) prevails over Rule 17.2.2.

(x) *Housing for the Elderly within the area identified in Appendix 99.*

AMENDMENT 2 [Chapter 4A General Residential (4A 2.3.1 Matters in which Council has Restricted its Discretion and Standards and Terms)]
Add new restricted discretionary matter (x)

4A 2.3.1 Matters in which Council has Restricted its Discretion and Standards and Terms

(a) Residential development of 3 or more dwelling houses.

(i) Design Guide:

Consideration shall be given to how the proposal addresses the Design Guide for Medium Density Housing (Appendix 19).

(ii) Amenity Values:

Consideration shall be given to adverse effects upon the amenity values both within the site concerned and upon surrounding residential area, including

- The separation distance between buildings, structures and outdoor living areas on site.
- The provision made for outdoor service and living areas for residents, and aural and visual privacy for dwelling units both on the site concerned and on adjacent sites.
- The effect of buildings and structures on the neighbouring and surrounding residential sites and, in particular, the impact of building density (net site area, coverage), location (yards), recession planes, height and length.

(iii) Traffic Effects:

The safe and efficient movement of all traffic needs to be ensured. It should be demonstrated that traffic generation and vehicles entering and leaving the site will not affect adversely normal traffic flows on the road, or cause a traffic hazard. Provision should also be made for pedestrians.

The proposal should comply with the parking and access controls contained in Chapter 14A.

(iv) Landscaping:

The extent to which landscaping is incorporated within the overall proposal, and existing vegetation is retained to mitigate any adverse effects which may arise.

A landscape plan will be required to ensure that any adverse effects of the proposal are kept within the site concerned. This may include landscaping of any on site parking areas. Landscaping may also be

used to soften the impact of any building upon the surrounding area, adjacent sites and buildings, or to screen private living and service courts.

A landscape plan is to show the extent of the vegetation to be retained and the extent of planting to be undertaken.

(b) Residential development of 3 or more dwelling houses on sites located outside the Medium Density Residential area.

(i) In addition to the above, on any site located outside the Medium Density Residential area consideration shall be given to:

(a) Whether public transport facilities and non-residential services such as education facilities, places of assembly, medical and emergency facilities and retail activities which provide for residents daily needs, are accessible within reasonable walking distances.

(b) Whether there is a recorded flood risk associated with the site.

(c) The capacity of the City's infrastructure to service additional development on the site.

(c) The removal of vegetation in excess of 500m^2 or 35% of the site, whichever the lesser, provided that this shall not preclude the removal of any pest plant.

(i) Amenity Values:

The extent to which the proposal will affect adversely the visual amenity values of the site and surrounding area. The visual prominence of the vegetation and any replacement planting to be undertaken will be taken into consideration.

(ii) Site Stability:

The adverse effects upon the stability of the site caused by the removal of trees or vegetation.

(iii) The Intrinsic Values of Ecosystems:

The extent to which the proposal will adversely affect the intrinsic value of ecosystems on the site and surrounding area.

(d) Health care service with a maximum of 4 practitioners.

(i) Amenity Values:

The extent to which the proposal will affect adversely the amenity values of the surrounding residential area.

(ii) Traffic Effects:

The extent to which the proposal will affect adversely the safe and efficient movement of all traffic. It should be demonstrated that traffic generation and vehicles leaving and entering the site will not affect adversely the normal traffic flows on the road, or cause a traffic hazard. Provision should be made for pedestrians.

(iii) Landscaping:

The extent to which landscaping is incorporated within the overall proposal to mitigate adverse effects, which may arise.

A landscape plan will be required to ensure that any adverse effects of the proposal are mitigated. This should include landscaping of any on site parking areas.

(e) Accessory buildings on legal road.

(i) Amenity Values:

The extent to which the proposal affects adversely the amenity values of the surrounding residential properties, including the amount of earthworks required, loss of vegetation, design and appearance of buildings. All such buildings must be painted.

(ii) Traffic Effects:

The extent to which the accessory building will affect adversely the safe and efficient movement of traffic on the road. It should be demonstrated that the accessory building and vehicles using the accessory building shall not create a traffic hazard.

(f) Cnr of Eastern Hutt Road and Reynolds Bach Drive, Part Section 742 Hutt District, forestry.

(i) Amenity Values:

Consideration shall be given to the amenity values of the site and in particular any adverse effects on the amenity values of residents in Stokes Valley and the impact on amenity values when the forestry is harvested. Details of any remedial work may form part of any conditions of consent

(ii) Traffic Effects:

The safe and efficient movement of all traffic needs to be ensured. All harvested logs shall be taken out through to Reynolds Bach Drive. No logs shall be taken out through Stokes Valley or directly on to Eastern Hutt Road.

(g) All buildings and structures that are sited wholly or in part on the riverside of the building setback line in Belmont.

(i) In assessing proposals, Council will be guided by the degree to which buildings and structures further increase:

- The risk to people of exposure to the erosion hazard; and
- Any mitigation measures that are proposed.

(h) All buildings and structures within the 1 in 100-year flood extent that do not comply with the Permitted Activity Conditions for floor levels or total gross floor area.

(i) In assessing proposals, Council will be guided by the degree to which buildings and structures further increase:

- The risk to people of exposure to the flood hazard; and
- The flood hazard effects for land, buildings and structures off-site.

(i) All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area greater than 20m² or with a setback less than 20m from a flood protection structure.

- Proximity of buildings and structures to flood protection structures;
- Adverse effects of the flood hazard on buildings and structures and on flood protection structures; and
- The risk to people of exposure to the flooding and erosion hazard.

(j) Child care facilities for more than 5 children and up to a maximum of 30 children.

The presumption of non-notification in Rule 17.2.2 does not apply to this rule.

(i) Site Layout and Landscaping

Consideration shall be given to whether the site layout and any proposed landscaping ensure adverse effects will be retained within the site, thus avoiding or minimising impacts on the adjacent roadway or adjacent residential sites.

(ii) Traffic Effects

The safe and efficient movement of all vehicle and pedestrian traffic needs to be ensured. It should be demonstrated that traffic generation and vehicles entering and leaving the site will not adversely affect normal traffic flows on the road, or cause a vehicle or pedestrian traffic hazard.

The proposal should comply with the access and manoeuvring controls contained in Chapter 14A.

(iii) Parking Effects

The extent to which the proposal appropriately provides for the carparking needs of the activity, without adversely affecting the carparking requirements of the surrounding area.

The proposal should comply with the parking and loading controls contained in Chapter 14A.

(iv) Noise

The proposal should comply with the maximum noise levels specified in Chapter 14C Noise.

With respect to non-compliances, consideration shall be given to any method or measure proposed to mitigate adverse noise effects of the proposal.

(k) Principal tertiary education activities within the Tertiary Education Precinct, including associated buildings and structures, which:

- do not comply with any of the following Permitted Activity conditions: 4A 2.1.1 (b) Minimum Yard Requirements; 4A 2.1.1 (c) Recession Planes; 4A 2.1.1 (d) Maximum Height of Buildings and Structures; 4A 2.1.1 (e) Maximum Site Coverage; and 4A 2.1.1 (z) Tertiary Education Precinct (excluding The Maximum Height of Buildings and Structures 4A 2.1.1 (z) (iii)); and
- do not exceed 12m in height

(i) Amenity Values

The extent to which the proposal would affect adversely the amenity

values of the surrounding residential area, including:

(1) The effect of buildings and structures on the neighbouring and surrounding residential sites and, in particular the location, design and appearance of the buildings.

(2) Whether the proposal would cause significant loss of sunlight, daylight or privacy of adjoining residential properties.

(ii) Design, External Appearance and Siting

(1) The extent to which building bulk, scale and siting of the proposal is compatible with the scale of buildings in the neighbourhood.

(2) The extent to which building, bulk, scale and siting of the proposal does not dominate the adjacent Petone Recreation Ground.

(iii) Streetscape Effects

The extent to which the proposal would adversely impact on the streetscape of the area.

(iv) Landscaping and Screening

(1) The location, nature and degree of proposed landscaping.

(2) The location, nature and screening of outdoor storage, servicing and parking areas, including their visibility and relationship to adjoining residential sites and visibility from any public space.

(l) All ancillary tertiary education activities within the Tertiary Education Precinct, including associated buildings and structures.

(i) Amenity Values

The extent to which the proposal would affect adversely the amenity values of the surrounding residential area, including:

(1) The effect of buildings and structures on the neighbouring and surrounding residential sites and, in particular the location, design and appearance of the buildings.

(2) Whether the proposal would cause significant loss of sunlight, daylight or privacy of adjoining residential properties.

(ii) Design External Appearance and Siting

(1) The extent to which building bulk, scale and siting of the proposal is compatible with the scale of buildings in the neighbourhood.

(2) The extent to which building, bulk, scale and siting of the proposal does not dominate the adjacent Petone Recreation Ground.

(iii) Streetscape Effects

The extent to which the proposal would adversely impact on the streetscape of the area.

(iv) Landscaping and Screening

(1) The location, nature and degree of proposed landscaping.

(2) The location, nature and screening of outdoor storage, servicing and parking areas, including their visibility and relationship to adjoining residential sites and visibility from any public space.

(v) Traffic Effects

The safe and efficient movement of all vehicle and pedestrian traffic needs to be ensured. It should be demonstrated that traffic generation and vehicles entering and leaving the site will not adversely affect normal traffic flows on the road, or cause a vehicle or pedestrian hazard.

The proposal should comply with the access and manoeuvring controls contained in Chapter 14A.

(vi) Parking Effects

The extent to which the proposal appropriately provides for the carparking needs of the activity, without adversely affecting the carparking requirements of the surrounding area.

The proposal should comply with the parking and loading controls contained in Chapter 14A.

(vii) Noise

The proposal should comply with the maximum noise levels specified in Chapter 14C Noise.

(x) Housing for the Elderly within the area identified in Appendix 99:

(i) Temporary Construction Effects

Consideration shall be given to the potential construction effects arising from the establishment of a retirement village on the site. This includes the potential construction noise, traffic, dust, sediment runoff and vibration effects.

(ii) Design Guide

Consideration shall be given to the degree to which the proposal adheres to the Design Guide for Medium Density Housing (Appendix 19).

(iii) Traffic Generation Effects

The safe and efficient movement of all vehicle and pedestrian traffic needs to be ensured. It should be demonstrated that traffic generation and vehicles entering and leaving the site will not adversely affect normal traffic flows on the road, or cause a vehicle or pedestrian hazard.

(iv) Parking Effects

The extent to which the proposal appropriately provides for the vehicle parking needs of the activity, without adversely affecting the vehicle parking requirements of the surrounding area.

(v) Natural Hazards

The extent to which the proposal addresses the flood risk to the site, including ensuring that the floor level of any habitable space is constructed above the 1:100 year flood level (86.92 above MSL) for Parkway Drain.

(vi) Geotechnical Matters

The extent to which the proposal addresses any geotechnical limitations on the site.

(vii) Amenity Values

The extent to which the proposal would adversely affect the amenity values of the surrounding residential area, including:

- The effect of buildings and structures on neighbouring and surrounding residential sites and, in particular the location, design and appearance of the buildings; and
- Whether the proposal would cause significant loss of sunlight, daylight or privacy on adjoining residential properties.

AMENDMENT 3 [Chapter 4A General Residential (4A 2.3.2 Other Matters)]
Add new other matter

4A 2.3.2 Other Matters

For Restricted Discretionary Activity (a): All Restricted Discretionary Activities must comply with Permitted Activity Conditions (b) - (n).

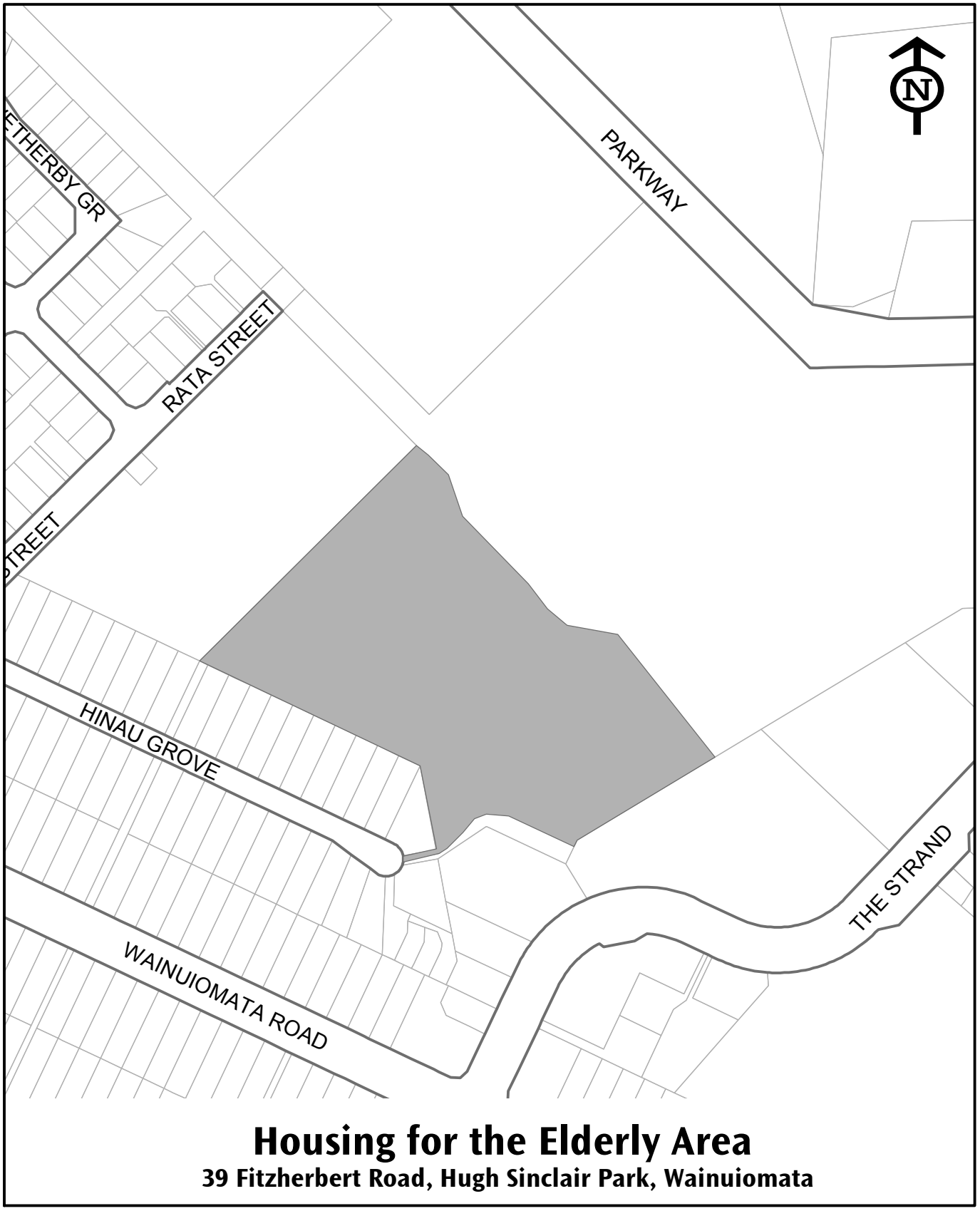
For Restricted Discretionary Activities (b) - (e) and (i) – (k): All Restricted Discretionary Activities must comply with other relevant Permitted Activity Conditions.

For Restricted Discretionary Activity (x): All Restricted Discretionary Activities must comply with Permitted Activity Conditions (b) – (n). For Permitted Activity Conditions (b) – (g) any reference to the term “net site area” shall be replaced with the term “site”.

AMENDMENT 4 [Chapter 4A General Residential (Appendices)]

Add new Appendix General Residential 99

Appendix General Residential 99



Housing for the Elderly Area

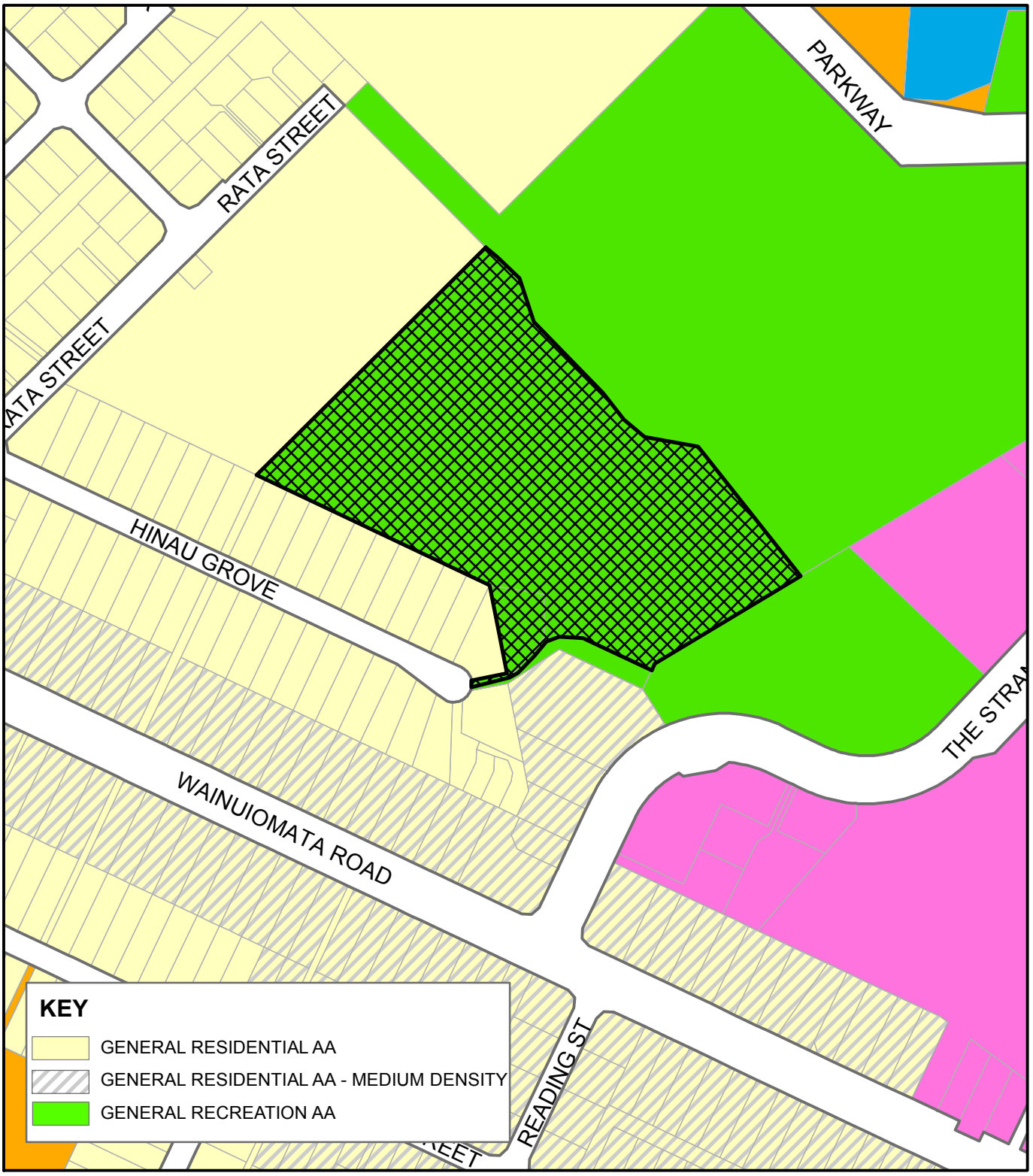
39 Fitzherbert Road, Hugh Sinclair Park, Wainuiomata

Scale 1:3500

Amendments to District Plan Maps

AMENDMENT 5 [District Plan Maps E6 and E7]

Change zoning of the plan change site from General Recreation Activity Area to General Residential Activity Area – Medium Density



Proposed Plan Change 37

39 Fitzherbert Road, Hugh Sinclair Park, Wainuiomata

Land to be zoned General Residential Activity Area - Medium Density

Planning Maps E6 and E7

HUTT CITY TE AWA KAIRANGI **District Plan - City of Lower Hutt**

Scale 1:3500

Part 4: Section 32 Evaluation

SECTION 32 EVALUATION

1. INTRODUCTION

Section 32 of the Resource Management Act 1991 ("RMA") requires an evaluation of the proposed plan change, and the preparation of a report outlining the basis and outcome of the evaluation. Section 32 of the RMA states:

(1) An evaluation report must—

(a) examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and

(b) examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by—

(i) identifying other reasonably practicable options for achieving the objectives; and

(ii) assessing the efficiency and effectiveness of the provisions in achieving the objectives; and

(iii) summarising the reasons for deciding on the provisions; and

(c) contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.

(2) The assessment contained in the report must—

(a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for—

(i) economic growth that are anticipated to be provided or reduced; and

(ii) employment that are anticipated to be provided or reduced; and

(b) if practicable, quantify the benefits and costs referred to in paragraph (a); and

(c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

(3) If the proposal (an amending proposal) will amend a standard, statement regulation, plan, or change that is already proposed or that already exists (an existing proposal), the examination under subsection (1)(b) must relate to—

(a) the provisions and objectives of the amending proposal; and

(b) the objectives of the existing proposal to the extent that those objectives—

(i) are relevant to the objectives of the amending proposal; and

(ii) would remain if the amending proposal were to take effect.

This document is an evaluation report that considers the relevant matters as identified in Section 32 of the RMA.

2. DESCRIPTION OF THE SITE

2.1 Physical Description

The plan change site is situated at 39 Fitzherbert Road and is a flat 15.24 hectare property. This property is essentially divided into two by the Parkway Drain. The area to the south of the drain is used for a variety of informal recreational activities and includes a BMX track, large open/flat areas,

a number of grass mounds and a public walking track. There are several small stands of amenity plantings present on this site.

The northern portion of 39 Fitzherbert Road is used for more formal recreation and contains several playing fields including a softball diamond. The northern portion of the site is principally accessed via Parkway Road.

The area that is proposed to be rezoned is comprised of most the southern portion of 39 Fitzherbert Road but excludes the areas currently used for the BMX track and the playground. The part of the site that is proposed to be rezoned is approximately 3.9 hectares in area.

The site is currently zoned General Recreation Activity Area in the City of Lower Hutt District Plan. There are no special notations or restrictions listed in the District Plan that would affect this proposed plan change.

2.2 Legal Description

The site is legally described as Part Lot 4 DP 23636 held in Computer Freehold Register WN50B/262 and Lot 1 DP 83036 held in Computer Freehold Register WN49C/742 (copies of the Computer Freehold Registers are contained in Appendix 3). On the titles the purpose is described as 'Recreation Reserve' for Part Lot 4 DP 23636 and 'Local Purpose Reserve (Community Use)' for Lot 1 DP 83036. Both Lots are held by Hutt City Council ("Council") under the Reserves Act 1977. Prior to the construction of a retirement village, the Reserves Act status will need to be revoked from the portion of the site subject to the proposed plan change. The reserve revocation process has been started in 2013. There are no other restrictions or interests registered on the title that would affect this proposal.

3. HISTORICAL PLANNING REVIEW OF THE SITE

A review has been undertaken of the previous Hutt County District Schemes, Transitional District Plan, Proposed District Plan and the Operative District Plan. The first record of zoning which can be found for this property is the Hutt County District Scheme – Wainuiomata Section which became operative in 1964. In this scheme, the site was zoned Public Recreation Reserve. Under the first review of the District Scheme, which became operative in 1978, the site was zoned Existing Public Reserve. Under the District Scheme Review 2 which became operative in 1991, the site was zoned Recreation. Under the Proposed District Plan the site was zoned General Recreation Activity Area and has retained this zoning under the Operative District Plan.

4. BACKGROUND

Since 2007, Council has been undertaking a review throughout Lower Hutt, of all the land it holds in fee simple ownership and manages as reserve (including land classified as reserve under the Reserves Act 1977). The objective of the review is to ensure all Council owned land that is managed as reserve is being used for its best purpose. While this project is not explicitly linked to this review process, the review process has resulted in several parcels of land in the Hutt Valley being rezoned for residential purposes.

On 9 February 2012, the Wainuiomata Community Board resolved to recommend to Council that it revoke the reserve status of the land at 41 Hinau Grove (Hugh Sinclair Park), undertake a plan change to rezone the site and make the property available for sale. This decision followed consultation by the Community Board with the local community over the future of the property, following the relocation of the Rangatahi Learning Centre to the Parkway Community House.

In 2011 and 2012 Council was approached in relation to a proposal for the construction of a comprehensive retirement village development in Wainuiomata. The proposed location for the

development was a portion of Hugh Sinclair Park.

The Policy Committee at its meeting on 26 February 2013 recommended to Council that the process to revoke the reserve status of the land be initiated. Council adopted this recommendation at its meeting on 26 March 2013.

Council publicly notified its intention to dispose of the 4 hectares of the site under Section 24 of the Reserves Act 1977 on 17 April 2013. At the close of the submission period on 31 May 2013, Council received 78 submissions of which 71 supported the revocation, 6 opposed and one was neutral. The submissions were heard at the Policy Committee meeting on 1 August 2013. The Committee recommended to Council that approximately 3.9 hectares of the site be subject to a plan change and a subsequent resource consent application, which would enable the land to be used for the singular purpose of a retirement village complex. The Policy Committee also resolved to grant, in principle, a right of way over part of Hugh Sinclair Park adjoining The Strand to provide access to the site; the exact details of this right of way will need to be confirmed at the time that the resource consent application for the retirement village is considered. Council adopted these recommendations at its meeting on 13 August 2013.

On 5 November 2013, the Department of Conservation confirmed its consent to the revocation proposal, noting that the Gazette Notice revoking the reserve status of the land would only be completed once the land had been surveyed. This survey work will not be undertaken until a successful plan change has been accomplished.

At a full Council meeting on 2 September 2014, Council resolved to sell the land to the Masonic Village Trust, subject to Council undertaking a District Plan change to rezone the land to enable the construction of a retirement village.

The purpose of this proposed plan change is to promote and enable the establishment of a retirement village on the site. It is not Council's intent to allow the site to be developed for residential development as currently anticipated by the Permitted Activity Standards of the District Plan. As the site is owned by Council, it retains control over what is established on the site. If a retirement village does not proceed, then the process of undertaking the proposed plan change does not compel Council to develop or sell the site for residential development. Furthermore, there will be protections within the Sale and Purchase agreement to ensure that, once the rezoning is operative and the site is sold, the site is developed for the purposes of a retirement village only.

5. EVALUATION OF OPTIONS

Section 32 (1)(b)(i) of the RMA states:

(1) An evaluation report required under this Act must—

(b) examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by—

(i) identifying other reasonably practicable options for achieving the objectives;

There are several potential zoning options that require evaluation in relation to this proposal. These options are as follows:

- Maintain the current zoning of the site; or
- Rezone the site to the General Residential Activity Area; or
- Rezone the site to the General Residential Activity Area - Medium Density.

These options are evaluated in more detail below.

Option	Evaluation
Option 1: Status Quo <u>NOT RECOMMENDED</u>	<u>Benefits</u> • Avoids the costs associated with the Plan Change process. • The entire site remains zoned General Recreation Activity Area and therefore the type of activities which can be undertaken on the site remain the same as what currently can be undertaken on the site. • The existing open character of the subject site is maintained. • The recreation activities currently undertaken on the site can continue unchanged. <u>Costs</u> • Any potential future development of the site would be assessed against the provisions of the General Recreation Activity Area zoning and would require resource consent as a Discretionary Activity unrestricted. The current provisions of the General Recreation Activity Area zone do not support development generally and more specifically the construction of a retirement village on the site. • There are social costs and lost economic benefits if a retirement village does not proceed on the site.
Option 2: Zone a portion of the site as General Residential Activity Area with the remaining portion of the site zoned General Recreation Activity Area <u>NOT RECOMMENDED</u>	<u>Benefits:</u> • Results in a zoning which is partially consistent with the character of the existing residential environment. • The zoning is more conducive to the establishment of a retirement village on the site than the current zoning. • Allows for development within an existing urban area, thereby containing urban development within the existing urban boundaries. • Additional revenue from an increase in rates. • Results in economic benefits by allowing the development of a retirement village on the site (as quantified in the economic assessment in Appendix 9 to this report). • Results in social benefits from facilitating the construction of a retirement village in Wainuiomata. <u>Costs</u> • The costs associated with the Plan Change process. • Loss of an area of recreational land currently available to the Wainuiomata community. • The General Residential Activity Area Zone would not be

	consistent with how zoning is determined in the Hutt Valley. In particular, the General Residential zoning applies to properties that are not within walking distance of a main shopping centre. • The General Residential Activity Area objectives and policies encourage lower density development which would not result in an efficient use and development of the land resource. • A change in the visual amenity values of the local environment as open space is developed into a residential environment.
Option 3: Zone the portion of the site as General Residential Activity Area - Medium Density with the remaining portion of the site zoned General Recreation Activity Area. **RECOMMENDED**	Benefits: • Results in a zoning which is more consistent with the zoning of neighbouring properties. The proposed zone would also be more consistent with how medium density zoning has been established in other areas of the Hutt Valley as the site is within walking distance to the Wainuiomata Shopping Centre (this is due to the proposed right of way onto The Strand which will provide the main access to the retirement village). • The zoning is more conducive to the establishment of a retirement village on the site. • Allows for development within an existing urban area, thereby containing urban development within the existing urban boundary. • Results in economic benefits by allowing the development of a retirement village on the site (as quantified in the economic assessment in Appendix 9 to this report). • Results in social benefits from facilitating the construction and use of a retirement village in Wainuiomata. • Additional revenue from an increase in rates. Costs: • The costs associated with the Plan Change process. • Loss of an area of recreational land from the Wainuiomata community. • A change in the visual amenity values of the local environment as open space is developed into a residential environment.

It is considered that Option 3, being rezoning a portion of the site to the General Residential Activity Area - Medium Density is the most appropriate zoning option to proceed with as the location of the site, relative proximity to the Wainuiomata Commercial shopping centre, is consistent with how this zone is applied to other areas of the Hutt Valley. Currently the District Plan seeks to provide Medium Density Residential areas along major transport routes and within approximately a 5 minute walking distance from the edge of particular shopping centres (including the Wainuiomata Commercial shopping centre). The site will have access onto the Strand and residents will be within 5 minutes walking distance of the Wainuiomata Commercial shopping centre. On this basis it is considered appropriate that the portion of the site subject to the plan

change is zoned General Residential Activity Area - Medium Density. It is also considered that the objectives and policies that are associated with the General Residential Activity Area - Medium Density are more applicable to higher density development which would result from the establishment of a retirement village on the site.

This proposal also requires an evaluation of potential activity status options for a retirement village on the site. The potential activity status options are as follows:

- Provide for retirement villages as a Permitted Activity; or
- Provide for retirement villages to be considered as a Controlled Activity; or
- Provide for retirement villages to be considered as a Restricted Discretionary Activity; or
- Provide for retirement villages to be considered as a Discretionary Activity; or
- Provide for retirement villages to be considered as a Non-Complying Activity.

The costs and benefits of these options are discussed below.

Option	**Evaluation**
Option 1: Provide for retirement villages as a Permitted Activity NOT RECOMMENDED	<u>Benefits:</u> • Provides certainty that a retirement village can be established on the site as resource consent would not be required. • Development of the retirement village could commence immediately following the completion of the Plan Change Process. • Avoids the cost of, and any uncertainty associated with the resource consent process. • Would only require Building Consent processes to be completed. • Allows for the development potential of the site to be realized very quickly following the finalization of the plan change process. <u>Costs:</u> • This approach could result in a considerably higher density of development on the site as a Permitted Activity than what is currently allowed for in the General Residential Activity Area - Medium Density as there would be no controls on what could be established on the site. • It provides Council with no control regarding the actual and potential environmental effects associated with a retirement village (subject to the proposal complying with the Permitted Activity Conditions). As such, there could be significant effects on neighbouring properties and future occupants as a result of a poorly designed development. • The Council would have no control to ensure that a well-designed development with a high level of a residential amenity for occupants as well as adjoining properties is achieved. • The retirement village would require a greater level of design for

	the plan change process (so that the environmental effects were better understood). • This approach would be inconsistent with the activity status of other medium density developments in the General Residential Activity Area.
Option 2: Provide for retirement villages as a Controlled Activity <u>NOT RECOMMENDED</u>	<u>Benefits:</u> • Provides certainty that a retirement village can be established on the site as Council is required to grant consent subject to conditions. • Development of the retirement village could commence relatively quickly following the completion of the Plan Change Process. • Council could identify relevant matters that they retain their control over to ensure that the actual and potential environmental effects associated with the proposal are addressed. • Allows for the development potential of the site to be realized. <u>Costs:</u> • This approach would be inconsistent with the density of other activities that can be undertaken on a site in the General Residential, Medium Density Activity Area as a Controlled Activity as currently identified in the District Plan. • It provides Council with limited control regarding the actual and potential environmental effects associated with a retirement village. As such, there could be significant effects on neighbouring properties and future occupants as a result of a poorly designed development. • The retirement village would require a greater level of design for the plan change process (so that the environmental effects were better understood).
Option 3: Provide for retirement villages as a Restricted Discretionary Activity **<u>RECOMMENDED</u>**	<u>Benefits:</u> • Encourages the development of a retirement village on the site, which increases the potential for the social and economic benefits to be realized. • The key effects associated with the establishment of a retirement village on the site can be addressed during the resource consent process through having appropriate matters that Council's discretion is restricted to. • Allows for the development potential of the site to be realized. • Future applicants are aware of the key matters that need to be addressed as part of the resource consent process. • Restricted Discretionary Activity status is consistent with the approach that the General Residential Activity Area - Medium

	Density Chapter takes to comparable development. <u>Costs</u> • Costs associated with the resource consent process. • Increased holding costs associated with the resource consent process. • Potential uncertainty associated with the resource consent process. • There is a risk for the applicant that the Council could decline the application if matters over which Council has retained discretion are not sufficiently addressed. • If the matters to which Council has restricted discretion to are not appropriate or too limited, there is the risk that a key environmental effect would not be able to be considered as part of the resource consent process.
Option 4: Provide for retirement villages as a Discretionary Activity <u>NOT RECOMMENDED</u>	<u>Benefits:</u> • Greater possibility of community involvement in the resource consent process and Council has full discretion to ensure that all environmental effects associated with any development are appropriately addressed. • Allows for the development potential of the site to be realized. • The Council retains the ability to decline the consent should it consider that the actual and potential adverse effects have not been addressed to the Councils satisfaction. <u>Costs:</u> • Less certainty that a retirement village can be established on the site as the activity status of any future development would be the same as the existing District Plan rules. • Increased costs associated with the resource consent process as there is a higher risk of the consent being notified. • Increased holding costs associated with the land due to the uncertainty associated with gaining consent for the proposal. • Medium risk that the social and economic benefits associated with the establishment of a retirement village on the site will not be realized. • Potential risk of the resource consent process being appealed to the Environment Court due the possible notification of the consent.
Option 5: Provide for retirement	<u>Benefits:</u> • Greater possibility of community involvement in the resource

villages as a Non-Complying Activity NOT RECOMMENDED	consent process and Council has full discretion to ensure that all environmental effects associated with any development are appropriately addressed. • Allows for the development potential of the site to be realized. <u>Costs:</u> • Less certainty that a retirement village can be established on the site as the rules would be more restrictive than the existing District Plan rules. • Less certainty that a retirement village can be established as the proposal would be subject to the s104D tests of the RMA. • Increased costs associated with the resource consent process as the consent could be notified. • Increased holding costs associated with the land due to the uncertainty associated with gaining consent for the proposal. • High risk that the social and economic benefits associated with the establishment of a retirement village on the site will not be realized. • Potential risk of the resource consent process being appealed to the Environment Court due to the probably associated with the notification of the consent. • Would not support the intent of the proposed plan change to provide for the establishment of a retirement village on the site.

It is considered that Option 3, being retirement villages being provided for as a Restricted Discretionary Activity, is the most appropriate activity status for any future development associated with a retirement village on the site. It is considered that this option strikes a balance between encouraging the construction of a retirement village on the site, while also ensuring that Council retains appropriate control over the design and resulting environmental effects from any future development.

Section 32(2)(b) requires that if practicable the benefits and costs of a proposal are quantified. Given the scale and significance of the proposal it is considered that quantifying costs and benefits to a degree beyond what is provided in the Economic Assessment, which is summarised in Chapter 7.11 of this report and attached in full as Appendix 9, would add significant time and cost to the s32 evaluation process. Therefore the exact quantification of the above evaluation of benefits and costs in this report was not considered beneficial or practicable.

6. PROPOSED DISTRICT PLAN CHANGES

Chapter 3 of the District Plan contains the following definition for Housing for the Elderly:

"Housing for the Elderly: *a building or part of a building used as a home under the Old People's Homes Regulations 1987 or any Regulation in substitution thereof. It includes old people's homes, rest homes, pensioner housing developments, retirement villages and associated ancillary facilities such as medical, recreational and other communal facilities*

which offer an exclusive service to the residents of the Home for the Elderly."

This existing definition of Housing for the Elderly is broad and specifically covers retirement villages and their associated ancillary activities. It is proposed to use this existing definition as opposed to developing a new definition for the purpose of this plan change.

To facilitate the development and use of a retirement village on the site it is proposed to change the rules in Chapter 4A (General Residential Activity Area) of the District Plan as outlined in Part 3 of this document. Under the current District Plan, retirement villages in the General Residential Activity Area commonly require resource consent under the following rules:

- 4A 2.3 (a) Residential development of 3 or more dwelling houses on any site, excluding sites located within Petone, Alicetown, Eastern Bays and Moera General Residential Activity Areas and Medium Density Residential Areas as shown in Appendix 17 (for the portion of the site that provides the dwellings or residential accommodation for the residents of the retirement village);
- 4A 2.4 (d) Places of Assembly (for the portions of the retirement village that provide the cultural, entertainment, and social facilities on the site);
- 4A2.4 (h) Health care services with more than 4 practitioners (for the portions of the site being used to provide health services to the residents of the retirement village. This rule is sometimes interchanged, or replaced by Rule 4A 2.4 (j) due to the overlap in the definitions between Health Care Services and Residential Facility); and
- 4A 2.4 (j): Residential facility accommodating 11 or more persons (for the portions of the retirement village that provides respite care).

As demonstrated above, the current rules of the District Plan require that retirement villages are considered on the basis of their individual components in order to be able to determine their activity status. This is a relatively convoluted approach and means that all retirement villages are Discretionary Activities. Maintaining the current approach to this proposed plan change is not ideal and does not provide any greater level of certainty that a retirement village will be established on the site. It is therefore proposed to change the District Plan so that there is greater certainty for a retirement village to be able to be constructed on the area subject to the proposed plan change.

To ensure that there is greater clarity and certainty associated with use of the area that is proposed to be rezoned, it is proposed that the area subject to the proposed plan change is identified in the appendices to Chapter 4A - General Residential Activity Area as Appendix 99.

It is proposed that a new rule is inserted into Chapter 4A2.3 'Restricted Discretionary Activities'. This rule would be worded as follows:

4A 2.3 (x) Housing for the Elderly within the area identified in Appendix 99.

It is proposed that an amendment is also made to District Plan Chapter 4A 2.3.1 'Matters in which Council has Restricted its Discretion and Standards and Terms' to include new matters that Council has restricted its discretion to when assessing a proposal in relation to the new restricted discretionary activity 4A 2.3 (x). These matters would be worded as follows:

4A 2.3.1 (x) Housing for the Elderly within the area identified in Appendix 99:

(i) Temporary Construction Effects

Consideration shall be given to the potential construction effects arising from the establishment of a retirement village on the site. This includes the potential construction noise, traffic, dust, sediment runoff and vibration effects.

(ii) Design Guide:

Consideration shall be given to the degree to which the proposal adheres to the Design Guide for Medium Density Housing (Appendix 19).

(iii) Traffic Generation Effects:

The safe and efficient movement of all vehicle and pedestrian traffic needs to be ensured. It should be demonstrated that traffic generation and vehicles entering and leaving the site will not adversely affect normal traffic flows on the road, or cause a vehicle or pedestrian hazard.

(iv) Parking Effects:

The extent to which the proposal appropriately provides for the vehicle parking needs of the activity, without adversely affecting the vehicle parking requirements of the surrounding area.

(v) Natural Hazards:

The extent to which the proposal addresses the flood risk to the site, including ensuring that the floor level of any habitable space is constructed above the 1:100 year flood level (86.92 above MSL) for Parkway Drain.

(vi) Geotechnical Matters:

The extent to which the proposal addresses any geotechnical limitations on the site.

(vii) Amenity Values:

The extent to which the proposal would adversely affect the amenity values of the surrounding residential area, including:

- *The effect of buildings and structures on neighbouring and surrounding residential sites and, in particular the location, design and appearance of the buildings; and*
- *Whether the proposal would cause significant loss of sunlight, daylight or privacy on adjoining residential properties.*

The purpose of Council restricting its discretion to each of the above matters is described below:

(i) Temporary Construction Effects

Any retirement village to be developed on the site would involve construction works occurring over a prolonged period of time. Given the sites proximity to residential properties, it is considered appropriate that consideration is given to managing the construction effects associated with the proposal. This includes the potential traffic, noise, dust, vibration and sediment runoff effects. These measures may be addressed by a Construction Management Plan at the time of resource consent application.

(ii) Design Guide

The concept plans for the site are for single storey villas to be constructed on the property. These villas would provide self-contained accommodation to elderly people and therefore would essentially operate similar to a residential dwelling. The District Plan uses the Design Guide for Medium Density Housing to ensure that multi-unit residential development maintains the amenity values of the local environment as well as provide amenity values for future residents. Given the use of the villas as independent housing, it is considered appropriate that the design guide forms the basis to assess any future housing for the elderly development on the site.

(iii) Traffic Generation Effects

The proposal will generate traffic, both during the construction period and when the housing for the elderly facility is operating from the site. Retaining discretion over this matter will ensure that any effects associated with traffic generation are appropriately addressed.

(iv) Parking Effects

The proposal will generate demand for car parking, both during the construction period and when the housing for the elderly facility is operating from the site. Retaining discretion over this matter will ensure that any effects associated with parking demand are appropriately addressed.

(v) Natural Hazards

The site is situated in the 1:100 year flood extent for Parkway Drain (Appendix 6). Retaining discretion over this matter will ensure that the proposed retirement village is appropriately designed to ensure that the flood risks associated with future development are appropriately addressed.

(vi) Geotechnical Matters

The geotechnical assessment for the proposed plan change has identified limitations in terms of the construction style and height of potential buildings that could be established on the site. It is considered appropriate that Council retains discretion regarding the geotechnical constraints of the site to ensure that any development that proceeds appropriately addresses any geotechnical risks.

(vii) Amenity Values

The design guide for multi-unit residential development has a strong focus on considering how multi-unit development appears in the context of the local environment as well as controlling the effects of medium density development within a site. The design guide is however not particularly focussed on consideration of the effects of medium density development on immediate neighbouring properties. By retaining discretion over amenity values as a specific matter, it will ensure that any amenity effects associated with any future development on adjoining residential properties are appropriately addressed.

It is also proposed that an amendment is made to Rule 4A2.3.2 – Other Matters of the District Plan. The purpose of Rule 4A2.3.2 is that it identifies which of the Permitted Activity conditions in Chapter 4A Restricted Discretionary Activities need to comply with. If a Restricted Discretionary Activity does not comply with one or more of the identified conditions as identified under Rule 4A 2.3.2 it becomes a Discretionary Activity. For the purposes of the area subject to the proposed plan change, it is proposed that the following clause is added to Rule 4A 2.3.2:

For Restricted Discretionary Activity (x): All Restricted Discretionary Activities must comply with Permitted Activity Conditions (b) – (n). For Permitted Activity Conditions (b) – (g) any reference to the term "net site area" shall be replaced with the term "site".

The wording of the new proposed Rule 4A2.3.2 is similar to the wording that applies to multi-unit residential developments, in that it does not require the proposal to comply with the minimum net site area requirements for dwellings. Compliance with the outcomes sought under the Design Guide will assist with addressing the effects from any multi-unit residential development on the site.

It is proposed that all development will comply with the Permitted Activity Conditions (b) – (g) when applied to the entire site as opposed to the individual net site area boundaries of any individual residential unit. Permitted Activity Conditions (b) – (g) relate to building bulk and location and includes yard, recession planes, maximum height, site coverage, building length and permeable surface requirements. The majority of these rules are applied to the net site area associated with a

residential dwelling and not external site boundaries. The application of these rules to the net site area results in a large number of technical non-compliances where developments involve multiple dwellings and results in developments being considered as a Discretionary Activity under Rule 2.4A as opposed to a Restricted Discretionary Activity. This is an unintended consequence of the way the rules have previously been drafted and has been identified as an issue (see Discussion Document of Providing for Residential Growth – Epuni, Waterloo and CBD edge). To ensure that any future Housing for Elderly on the area subject to the proposed plan change is not affected by this unintended consequence, it is proposed that for the site subject to this plan change any reference in the Permitted Activity Conditions (b) – (g) to "net site area" be replaced by "site". This provision ensures that the amenity values and residential character of adjoining property owners are maintained, while ensuring that any development on the site is not caught by this unintended consequence from how the District Plan rules are currently drafted.

It is proposed that any future development complies with the Permitted Activity Conditions (h) – (n). These permitted activity conditions outline general provisions that all development in the General Residential, Medium Density Activity Areas need to comply with including lightspill, dust, odour, vibration and compliance with the General Rules (Chapters 14A – 14K). Application of these rules ensures that the amenity values of the neighbouring properties are maintained by the proposal. Non-compliance with any of these rules (including the traffic and noise provisions of the District Plan) would result in the proposal being considered as a Discretionary Activity.

7. ENVIRONMENTAL EFFECTS

This section of the report will consider the environmental effects associated with the proposed plan change. While this assessment concentrates on the environmental effects associated with establishing a retirement village on the site, it is noted that if the retirement village does not proceed, then the site could potentially be developed in accordance with the standards and terms for the General Residential Activity Area – Medium Density. These standards and terms include residential allotments that have a net site area of 300m^2. It is considered that residential development on the site in accordance with the existing standards and terms of the General Residential Activity Area – Medium Density would result in a level of development that is consistent with the character of the local environment. It is also considered that the potential environmental effects resulting from the development of the site in accordance with the existing standards and terms of the General Residential Activity Area – Medium Density would be less than the environmental effects that would result from the establishment of a retirement village on the site. On this basis, it is considered that the existing standards and terms for the General Residential Activity Area – Medium Density are sufficient to maintain the amenity values and character of the local environment and therefore no changes to the existing rules of the District Plan (in regards to standard residential development) are required.

Given the main intent of the proposed plan change is to provide for the establishment of a retirement village on the site, the assessment of the environment effects for this proposal has been undertaken on the basis of a medium density retirement village development (approximately 100 villas and a 50 bed health care facility) being constructed on the site as per the indicative concept plans included in Appendix 4. On the basis of the likely development proposal, the potential environmental effects associated with this proposed plan change that require consideration are identified as follows:

- Temporary Construction Effects;
- Amenity and Character Effects;
- Traffic Effects;
- Noise Effects;

- Lightspill Effects;
- Infrastructure Effects;
- Natural Hazard Effects;
- Geotechnical Matters;
- Recreational Effects;
- Reverse Sensitivity Effects; and
- Economic Effects.

7.1 Temporary Construction Effects

Any retirement village development on the site would involve construction works occurring over a prolonged period of time. During the construction period there is the potential for these to be effects associated with traffic, dust, noise, vibration, dust and sediment runoff. To ensure that these effects are appropriately addressed at the time of resource consent, it is proposed that one of the matters that Council restricts its discretionary to is temporary construction effects. It is considered that this matter will ensure that appropriate controls are put in place during the construction period to ensure that the amenity values of the neighbouring residential properties and recreation areas are maintained.

7.2 Amenity and Character Effects

The proposed plan change is seeking to rezone a 3.9 hectare portion of 39 Fitzherbert Road from General Recreation to the General Residential Activity Area - Medium Density. Typically, the General Residential Activity Area - Medium Density would enable residential development to a minimum allotment size of 300m^2. However, the purpose of this plan change is to facilitate the construction of a retirement village. The indicative concept plans provided in Appendix 4 would result in a density of development that is greater than the 300m^2 net site area requirement of the District Plan.

The current provisions of the General Residential Activity Area - Medium Density zoning provide for development at a density that is greater than 300m^2 per dwelling as a Restricted Discretionary Activity, providing three or more dwellings are constructed on a site. This type of higher density development is subject to a design guide. The design guide has been devised to ensure that the amenity values of the neighbouring properties, the local environment, and the future occupants are maintained.

The indicative concept plans for a retirement village which are attached as Appendix 4 to this report comprise 104 single storey villas and a 52 bed health care facility. The villas are intended to provide semi-independent living for occupants of the retirement village. The scale and use of these villas would be similar to that of a small residential dwelling. In this regard, it is considered appropriate that the current design guide contained in the District Plan applies to any future development of the site. Compliance with the outcomes sought under the design guide would ensure that any development on the site maintains the amenity values and character of the local environment.

Chapter 4A of the District Plan contains standards that set minimum requirements relating to the following:

- Yard Setbacks;
- Recession Planes;
- Height;
- Site Coverage;

- Building Length; and
- Permeable Surfaces.

These standards are designed to ensure that development that is undertaken on properties that are zoned General Residential Activity Area - Medium Density maintain the amenity values of the local environment. Council has recognised that the application of bulk and location standards to the net site area is an unintended consequence as a result of the introduction of the multi-unit residential design guide It is not within the scope of this proposed plan change to amend these Permitted Activity Standards in terms of how they apply to the external boundaries and net site areas. It is, however, proposed that these standards will not apply to the net site area of the individual villas within the retirement village. The rationale for not applying the bulk and location provisions to the net site area requirements for any future retirement village is explored in more detail under Part 5 of this report.

The construction and use of a retirement village on the area subject to the proposed plan change will require resource consent. It is proposed to amend the rules of Chapter 4A of the District Plan to ensure that the construction and operation of a retirement village on the site is a Restricted Discretionary Activity. Among the matters that it are proposed that Council restricts its discretion to are:

- The Design Guide for Medium Density Housing; and
- Amenity Values.

Identifying these matters as part of the rule will ensure that Council retains adequate control through the consent process to ensure that any development undertaken on the site maintains both internal amenity values for future occupants as well as the amenity values of occupants of neighbouring properties.

Overall, it is considered that the amenity and character effects resulting from the proposed plan change on the local environment can be appropriately addressed through a combination of the proposed rules for the site as well as utilising the existing bulk and location provisions for the General Residential Activity Area - Medium Density of the District Plan.

7.3 Traffic Effects

The proposed plan change to facilitate the proposed retirement village will increase the traffic flows in the local environment. The potential traffic effects resulting from the proposed plan change have been considered in the traffic report attached in Appendix 5. The traffic report makes the following findings:

- *The Strand is an Access Road with traffic flows of around 3,840vpd. There are bus stops nearby with services to Lower Hutt, Petone and Wellington. The historic road safety record shows no particular pattern of accidents;*
- *any traffic effects associated with the existing recreational use of the land are accommodated offsite;*
- *the parking demands associated with the development of the site for retirement village purposes are in line with the District Plan provisions and can be accommodated within the site; and*
- *the traffic generation associated with the development of the site for retirement village purposes are in line with the District Plan provisions and can be safely and efficiently accommodated within the local road network. Accordingly the site can be rezoned to General Residential Activity Area and developed for retirement village purposes in line with the new zoning with the development meeting the transportation related objectives, policies and rules of the District Plan.*

To ensure that traffic effects associated with the proposal are appropriately addressed, it is proposed that two of the matters than Council's discretion is restricted to when assessing a future resource consent application for a retirement village on the site are as follows:

Traffic Generation Effects:

The safe and efficient movement of all vehicle and pedestrian traffic needs to be ensured. It should be demonstrated that traffic generation and vehicles entering and leaving the site will not adversely affect normal traffic flows on the road, or cause a vehicle or pedestrian hazard.

Parking Effects:

The extent to which the proposal appropriately provides for the vehicle parking needs of the activity, without adversely affecting the vehicle parking requirements of the surrounding area.

The identification of these matters will allow Council to assess the specific traffic generation and parking effects of the finalised retirement village design during the resource consent phase of the development. If required, Council would be able to either request changes to the application, or place conditions on the consent, to ensure that the traffic effects associated with the finalised retirement village design are appropriately addressed.

It is also proposed that the existing rules in Chapter 14A which relate to traffic will apply to any future retirement village on the site. The standards in Chapter 14A set the parking, access and loading requirements for retirement villages. If the proposal was unable to comply with one or more of these standards, the proposal would be considered as a Discretionary Activity.

It should be noted that the currently the only formed vehicle access to the part of the site to be rezoned is via Hinau Grove. To provide appropriate access to the proposed retirement village from the existing road network Council has agreed, in principle, to grant a right of way for vehicle and pedestrian access from The Strand to the site as shown in the indicative development plan. The exact details of this right of way will need to be confirmed at the time that the resource consent application for the retirement village is considered.

Overall, it is considered that the effects of the proposed plan change on the environment relating to traffic can be appropriately addressed by the District Plan and the site is suitable for rezoning and any resultant retirement village.

7.4 Noise Effects

The District Plan does not contain any noise limits in association with General Recreation Activity Area zoning. Once the portion of the site subject to the proposed plan change has been rezoned, the noise limits for the General Residential Activity Area will apply to the rezoned area. Under the District Plan the noise limits that will be applicable are as follows:

Noise Area 3	*Maximum 50dBA*	*7.00am – 10.00pm*
	Maximum 40dBA	*10.00pm – 7.00am*

These noise limits apply to all non-residential activities (which includes retirement villages) and are measured from the external boundaries of the site. The District Plan considers that these noise levels strike a balance between allowing for non-residential activities to be undertaken in the General Residential Activity Area while also maintaining the amenity values of the surrounding properties.

Noise Area 3 applies to the majority of the residentially zoned areas in the Hutt Valley, including all residentially zoned properties in Wainuiomata. The dBA limits for Noise Area 3 represent some of the most conservative noise levels of the District Plan for the residential zones, and therefore help ensure that the amenity values of the properties that adjoin non-residential developments are maintained. On the basis of the above, it is considered that it is appropriate that the noise limits of Noise Area 3 apply to the area subject to the proposed plan change.

On the basis of the rules of Chapter 14C applying to this proposal, no specific provisions relating to noise have been suggested in relation to the proposal as there is sufficient protection in Chapter 14C to ensure the amenity values of neighbouring properties are maintained with regard to noise.

A positive effect for the neighbouring properties resulting from the proposed plan change is that currently the site is not subject to any standards limiting noise from activities to be undertaken on the site. The proposed plan change will result in the area being rezoned being subject to the noise limits that are applicable for the General Residential Activity Area. While it is recognised that the number of activities that would have generated significant noise on the portion of the site that is proposed to be rezoned would be low, the noise limits associated with the General Residential Activity Area provide greater certainty and protection to the amenity values of the neighbouring residential properties than is the current situation under the District Plan.

When resource consent is sought for the retirement village on the area subject to the proposed plan change, an acoustic report will be required to be submitted to confirm whether the proposal complies with the noise standards of the District Plan. In the event that the proposal does not comply with the noise requirements, the proposal would be considered as a Discretionary Activity, and therefore the relevant noise effects from the proposal could be considered on the neighbouring properties and the wider environment. Any acoustic report would also identify the noise treatment measures needed to be included in the development to address any resulting noise effects.

It is considered that given the above factors, any potential noise effects associated with the proposal are considered to be less than minor.

7.5 Lightspill Effects

The General Recreation Activity Area contains the following rule pertaining to lightspill:

> *7A 2.1.1 (e) Lighting:*
>
> *Any activity which requires outdoor areas to be lit must ensure that direct or indirect illuminance does not exceed 8 lux at the windows of a dwelling on a neighbouring site.*

Under the General Residential Activity Area lightspill is controlled by the following rule:

> *4A 2.1.1 (l) Light Spill and Glare:*
>
> *Artificial light shall not result in added illuminance in excess of 8 lux measured at the window of any dwelling house.*

While the wording of the above rules is different, the net outcome is the same, in that lightspill from activities cannot exceed 8 lux when measured at the window of a dwelling. As such, the proposed rezoning will not result in a change in the level of lightspill that could be expected from the site when measured from any of the neighbouring residential dwellings. Given that Rule 4A 2.1.1 (l) will apply to the area subject to the proposed plan change, any potential lightspill effects resulting from the proposal are considered to be less than minor.

7.6 Infrastructure Effects

A report has been prepared regarding the infrastructure effects associated with the development of a retirement village on the site (Appendix 8). This infrastructure assessment examined the existing water supply, wastewater reticulation, stormwater reticulation, power supply and telecommunication services and comes to the conclusion that a retirement village will be able to be appropriately serviced by the existing infrastructure subject to identified site works.

The report identifies the need for fill to be deposited on the site. In particular, the north eastern portion of the site would need to be filled to between approximately RL87.8 to RL88.8 falling back to existing ground levels along the south western portion of the site. This represents fill up to 1.5 in depth being deposited on the site. This fill depth would ensure that:

- Any buildings constructed on the site are able to be serviced by a gravity connection to the wastewater main; and
- Any buildings constructed in the north western portion of the site are above the 1:100 year flood extent.

It is recognised that these earthworks would trigger the need for resource consent as they would exceed the volume and height requirements Chapter 14I of the District Plan, This resource consent would be a restricted discretionary activity. The matters which could restricts its discretion to when assessing these earthworks are as follows:

- *Amenity Values: The extent to which any earthworks proposal will affect adversely the visual amenity values of the area, and the extent to which the earthworks will result in unnecessary scarring and be visually prominent. The extent to which replanting or rehabilitation works are included as part of the proposal to mitigate adverse effects. Earthworks should not result in the permanent exposure of excavated areas.*
- *Existing Natural Features and Topography: The extent to which the proposed earthworks reflect natural landforms, and be sympathetic to the natural topography.*
- *Historical or Cultural Significance: The extent to which the proposed earthworks will affect adversely land and features which have historical and cultural significance.*
- *Natural Hazards: Consideration should be given to those areas prone to erosion, landslip and flooding. Excavation should not increase the vulnerability of people or their property to such natural hazards. In the Primary and Secondary River Corridors of the Hutt River, consideration should be given to the effects on the flood protection structures.*

It is considered that these existing matters are sufficient to ensure that any environmental effects associated with the deposition of the fill are appropriately addressed at the time of resource consent application.

7.7 Natural Hazard Effects

The north western portion of the site is situated in the 1:100 flood extent for Parkway Drain. The 1:100 year flood level for the portion of the site in the flood extent is 86.92m above MSL. As such, the potential flood effects associated with the proposal need to be considered.

As part of this proposed plan change, it has been recommended that one of the matters that Council must consider in relation to an application for a retirement village on the site is the flood risk from Parkway Drain, including a requirement for the floor level all future habitable buildings to be situated above the 1:100 year flood extent. Retention of discretion over this matter will ensure that Council retains adequate control through the consent process to ensure that any development undertaken on the site appropriately addresses the flood risk associated with the property.

It should be noted that the flood maps used are from 2005. Since these maps have been prepared, there has been an extensive upgrade of Parkway Drain to reduce the potential flood risk to Wainuiomata. As such, the flood levels used for this proposed plan change are conservative. Wellington Water is currently undertaking updated flood modelling for Parkway Drain and updated levels should be available mid 2015.

7.8 Geotechnical Matters

A geotechnical assessment has been undertaken for the site and a report has been prepared (Appendix 7). The findings of the geotechnical assessment are based on 5 test pits and 9 Cone Penetration Tests. The geotechnical report concludes that the site is suitable to be developed as a retirement village with single and two storey buildings comprised of lightweight timber framing and cladding. The geotechnical report however identifies the need for specific site works to be undertaken to facilitate the construction of buildings on the site. Given these findings in the

geotechnical assessment, it is considered appropriate that one of the matters that Council must consider in relation to an application for a retirement village on the site is the geotechnical constraints of the site. Retention of discretion over this matter will ensure that Council retains adequate control through the consent process to ensure that any development undertaken on the site appropriately addresses the geotechnical limitations associated with the property.

7.9 Recreational Effects

The proposal is to rezone a portion of Hugh Sinclair Park to General Residential Activity Area - Medium Density. As mentioned earlier Council has entered a sales and purchase agreement subject to this plan change and once this plan change becomes operative there would be a loss of recreational land available to the public in the immediate environment.

As part of the reserve revocation process, this loss of recreational ground was investigated and considered by Council. In considering the proposal it was recognized that there is approximately 24 hectares of flat reserve land within the immediate vicinity of the Wainuiomata Shopping Centre. This is located at Frederick Wise Park (12 ha), Hugh Sinclair Park (5.5ha), Bryan Heath Park (4.5ha) and the Queen Street Reserve (1.8ha). It was considered that this level of reserve land was very high level of provision when compared to other areas of the City.

It was considered as part of the reserve revocation process that even after rezoning the site subject to this plan change, there would be sufficient reserve land in the local area to accommodate the future recreational needs of the local community.

The proposed plan change would result in an area of 3.9 hectares of reserve land being lost. This represents 16% of the reserve land within the immediate area. However, the reserve land that is to remain, provides for a variety of recreation activities to be undertaken, including both informal and formal recreational activity.

It is considered that given the above factors, the proposed rezoning will not significantly compromise the ability for recreational activities to be undertaken within the local environment. It is also considered that there will be sufficient recreational land remaining within the immediate area which can be used for a variety of recreational activities.

7.10 Reverse Sensitivity Effects

The proposed plan change would enable the establishment of a retirement village on the site. This retirement village would have recreational land located to the north and east. This recreational land accommodates a range of formal and informal recreational activities. As such, it is important to consider the potential reverse sensitivity effects associated with the proposed plan change on the existing recreational activities that are undertaken in the local environment.

As previously identified, there is a range of formal and informal recreation activities undertaken on the site. This means that there are considerable periods of time where there are no or low noise generating recreational activities occurring on the remainder of Hugh Sinclair Park. During these periods, any potential reverse sensitivity effects associated with the proposed plan change are considered to be largely insignificant.

There will also be times when recreational activities undertaken on Hugh Sinclair Park would involve a large number of people. In considering the reverse sensitivity effects during these times of higher recreational use, it is noted that any development undertaken on the site would involve modern construction materials. These modern construction materials include double glazing, which reduces any potential noise effects from external recreational activities on the internal noise environment of any potential future retirement village.

It is also noted that there are other examples in the Hutt Valley of retirement villages that are located close to recreational activities. These two activities are able to coexist, without one activity limiting the ability for the other activity to be undertaken.

Given the above factors, any potential reverse sensitivity effects associated with the proposal are considered to be less than minor.

7.11 Economic Effects

The proposed plan change would allow for the existing recreational land to be developed for use as a retirement village. An economic assessment has been prepared which examines the economic effects associated with the proposed plan change (Appendix 9). The economic assessment considers in detail both the short term economic effects associated with the construction of a retirement village, as well as the on-going economic effects from operation of the retirement village. These effects are summarized in the economic assessment as follows:

> *The development will span a number of years with the capital investment spread out over the first 5 years. During construction, the development will have a total GDP impact of $24.1m. Three quarters of the effect will stay in the Wellington region (78.6% of this impact is expected in the wider region) and around 44 per cent of the effects will be felt locally (Hutt City economy). The GDP impact is expected to start at around of $4.1m of GDP effect associated with the first year's construction rising to $7.5 in year 3. In terms of employment activity (measured using MECs), more than half of the employment effect will be felt in the local economy and 30 per cent in the rest of Wellington region. The employment effects will match construction activity and is projected to peak at 123 jobs (MECs) in the third year of construction (2018).*
>
> *Once construction is complete, the villas will be occupied and operated changing the effects to be more on-going and continuous in nature. The ongoing effects will ramp up as construction scales down.*
>
> *At the local level, the largest share of the ongoing effects will be driven by the health care facility. The facility is expected to deliver 58 per cent of the locally felt GDP effects ($1.8m of $6.8m per year once fully operational). In terms of employment, a similar proportion of will be felt locally (60%; 42 of 72). This is followed by household spending with a total GDP effect over the assessment period of some $9.8m – around a quarter of the local effects.*
>
> *A key observation from this assessment is that the proposed development will have a positive economic effect on the local economy. The bulk of this effect is expected to come from the health care facility after the initial construction effect.*

Given these findings from the economic assessment of the proposal, it is considered that the proposed plan change will give rise to positive economic effects and will provide increased opportunities for employment.

8. POLICY ANALYSIS

8.1 Resource Management Act 1991

Part II of the Resource Management Act (1991) outlines the purposes and principles of the RMA. An assessment of the proposed plan change against Part II of the RMA is as follows:

Section 5

Section 5 seeks to promote the sustainable management of natural and physical resources. Section 5 states:

> *"Sustainable Management means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while –*
>
> *(a) Sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and*

(b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and

(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment."

The proposal would result in the rezoning of a portion of 39 Fitzherbert Road to allow for the construction of Housing for the Elderly (retirement village). There are currently no retirement villages located in Wainuiomata, and there is a strong desire within the local community for a retirement village to be established. The typical property in Wainuiomata is large (around 809m^2) and contains a single residential dwelling. This housing form is difficult to maintain by elderly people and there are limited opportunities for residents wanting to remain in Wainuiomata to downsize as they get older. This proposed plan change will help facilitate the construction of a retirement village in Wainuiomata and provide a variety of housing options for the elderly. This helps maintain the social cohesion of the Wainuiomata community and the social benefits that are associated with this cohesion.

The proposal will help the local community provide for its economic wellbeing. The proposed plan change will assist with facilitating the establishment of a retirement village on the site. A retirement village would result in a concentration of people being located close to the local shops. Residents of the retirement village will be able to easily walk to the shops to purchase goods and therefore support economic activity.

It is considered that rezoning this portion of the site to General Residential Activity Area - Medium Density with the associated proposed rules will result in a development form that maintains the amenity values and residential character of the local environment. The proposed rules strike a balance between encouraging the construction of a retirement village on the site, while ensuring that Council retains sufficient control to ensure that the amenity values of the local environment are maintained.

The site subject to this proposed plan change is situated within an urban environment and can be serviced using existing infrastructure. The site is located close to main transport links and is also located within walking distance of an existing shopping centre. The proposal represents higher density development within an area that can appropriately support this density of development.

Given the above factors, the proposed plan change is considered to be consistent with Section 5 of the RMA.

Section 6 – Matters of National Importance

Section 6 of the RMA sets out the matters of national importance which are required to be taken into account. It is considered that there are no relevant Section 6 matters that require consideration as part of this proposal.

Section 7 – Other Matters

Section 7 of the RMA identifies the other matters that are required to be taken into account when assessing this application. Particular regard must be had to the maintenance and the enhancement of amenity values. Amenity is discussed in more detail under Part 7 of this assessment. For these reasons detailed in Part 7 of this report it is considered that the proposal is consistent with section 7 of the Act.

Section 7b requires consideration of the efficient use and development of natural and physical resources. The proposed plan change is considered to be consistent with Section 7b of the RMA. The proposed plan change is being undertaken to encourage the development of a retirement village within the existing urban environment of Wainuiomata. The site is located close to the main shopping centre and transport routes in Wainuiomata and therefore is an appropriate location for a retirement village. The economic assessment contained in Appendix 9 identifies a number of economic benefits arising from the utilisation of the site for a retirement village.

While the proposed plan change would result in a loss of recreational space, it is considered that there is sufficient recreational land remaining (once the proposed plan change proceeds), to

ensure that the recreational needs of the local community can be met.

Section 8 - Treaty of Waitangi

Section 8 of the RMA requires that applications take into account the principles of the Treaty of Waitangi.

The principles of the Treaty of Waitangi have been taken into account in the analysis of this Plan Change. The site is not situated within or near any sites or areas which are identified in the District Plan as being significant to Maori. Consultation has been carried out with the local iwi authorities as part of the statutory consultation during the formation of the Plan Change and they have not raised any concerns regarding this proposal.

8.2 Wellington Regional Policy Statement

The Regional Policy Statement (RPS) for the Wellington Region sets out the regional perspective for managing the environment, and providing for growth and its effects.

The RPS identifies the significant resource management issues for the region and outlines the policies and methods required to achieve the integrated sustainable management of the region's natural and physical resources.

The objectives and policies of the RPS most relevant to the proposed plan change are considered to be the following:

3.8 Natural Hazards

Objective 19

The risks and consequences to people, communities, their businesses, property and infrastructure from natural hazards and climate change effects are reduced.

Objective 20

Hazard mitigation measures, structural works and other activities do not increase the risk and consequences of natural hazard events.

Objective 21

Communities are more resilient to natural hazards, including the impacts of climate change, and people are better prepared for the consequences of natural hazard events.

Policy 29

Avoiding inappropriate subdivision and development in areas at high risk from natural hazards – district and regional plans.

Policy 51

Minimising the risks and consequences of natural hazards – consideration

Policy 52

Minimising adverse effects of hazard mitigation measures – consideration

A portion of the site is situated in the 1:100 year flood extent for Parkway Drain. To ensure that the potential flooding risks are addressed, a rule has been proposed which requires any future retirement village development on the site to take into account the flood risk for the property. This includes the requirement for all future habitable buildings to have a floor level about the 1:100 flood level. This requirement will ensure that any future retirement village is appropriately designed to take into account the flood risks of the site and ensure that the risk to future occupants are appropriately addressed.

3.9 Regional Form, Design and Function

Objective 22

A compact well designed and sustainable regional form that has an integrated, safe and responsive transport network and:

(d) Development and/or management of the Regional Focus Areas identified in the Wellington Regional Strategy;

(e) Urban development in existing urban areas, or when beyond urban areas, development that reinforces the region's existing urban form;

(k) Efficiently use existing infrastructure (including transport network infrastructure).

Policy 31

Identifying and promoting higher density and mixed use development – district plans.

Policy 33

Supporting a compact, well designed and sustainable regional form – Regional Land Transport Strategy.

Policy 54

Achieving the region's urban design principles – consideration.

Policy 55

Maintaining a compact, well designed and sustainable regional form – consideration.

Policy 58

Co-ordinating land use with development and operation of infrastructure – consideration.

Policy 67

Maintaining and enhancing a compact, well designed and sustainable regional form – non-regulatory.

With regard to the objectives and policies relating to regional form, the portion of the site subject to this proposed plan change is situated within an urban environment and can be serviced using existing infrastructure. The site is located close to main transport links and is also located within walking distance of an existing shopping centre. The proposal represents higher density development within an area that can appropriately support this density of development.

The proposed rules ensure that any future development on the site is well designed. These rules include the requirement for any future development to be constructed in accordance with the multi-unit design guide of the District Plan. These rules will ensure that any future development is respectful of the amenity values and character of the local environment.

Overall it is considered that the proposed plan change is consistent with the objectives and policies of the Wellington Regional Policy Statement.

8.3 The Wellington Regional Strategy

The Wellington Regional Strategy (WRS) is a sustainable growth strategy that has been developed by the nine local authorities within the Greater Wellington Area, in conjunction with Central Government, and the region's business, education, research, and voluntary sector interests.

The aim of the WRS is to build a resilient, diverse economy which is one that retains and creates jobs (especially high value jobs), supports the growth of high value companies and improves the region's position in relation to national GDP and national employment.

The proposed plan change would allow for the development of the site in a manner that would support employment and economic growth. This is due to the proposed plan change being prepared to facilitate the establishment of a retirement village on the site. The construction and operation of a retirement village would provide employment opportunities and therefore support economic growth. It is therefore considered that the proposed plan change is consistent with the outcomes sought within the WRS.

8.4 Consistency with Surrounding District Plans

Section 74(2)(c) of the RMA requires Council to consider the extent to which this proposed plan change needs to be consistent with the plans or proposed plans of adjacent Territorial Authorities. The proposed plan change is for a relatively small piece of land in the centre of Wainuiomata. It is therefore considered that the proposed plan change does not affect any of the proposed plans of adjacent Territorial Authorities.

Local authorities in the region have been consulted as part of the preparation of this proposed plan change but no comments or feedback has been received.

8.5 Hutt City Urban Growth Strategy

In 2014, Council approved the Urban Growth Strategy ("UGS") which sets out the long term approach to managing growth and change for Hutt City. The UGS recognises the need for more retirement villages to provide housing for the aging population. The strategy identifies that there is currently an unmet demand of around 5 - 10 retirement villages and this would increase by another 5 – 10 retirement villages over the next 20 years. In this regard the proposed plan change is consistent with the Urban Growth Strategy and it would encourage the development of a retirement village and allow for some of this unmet demand to be accommodated.

8.6 City of Lower Hutt District Plan

8.6.1 Area Wide Objectives and Policies

Chapter 1 of the City of Lower Hutt District Plan identifies the area wide objectives and policies which the District Plan seeks to achieve. The area wide objectives and policies which are considered to be relevant to the proposal are as follows

1.10.1 Resource Management and the Tangata Whenua of Lower Hutt

<u>Objective</u>

To respond to the principles of the Treaty of Waitangi and other matters of significance to the tangata whenua as specified in the Act.

<u>Policies</u>

(a) To have particular regard to tangata whenua's desire to carry out kaitiakitanga.

(b) To protect waahi tapu and sites of cultural or historical significance to tangata whenua from desecration or disturbance.

(c) To recognise and protect the tangata whenua desire to maintain and enhance their traditional relationship with the environment.

(d) To consult with the tangata whenua when discharging functions and duties under the Act.

The principles of the Treaty of Waitangi have been taken into account in the analysis of this Plan Change. The site is not situated within or near any sites or areas which are identified in the District Plan as being significant to Maori. Consultation has been carried out with the local iwi authorities as part of the statutory consultation during the formation of the Plan Change and they have not raised any concerns regarding this proposal.

1.10.2 Amenity Value

Objective

To identify, maintain and enhance the character and amenity values of the different activity areas.

Policy

To identify within all activity areas the general character and amenity values of that activity area.

The Explanation and Reasons for Objective 1.10.2 recognise that properties within the General Residential Activity Medium Density Area are readily able to be developed for residential development either as a result of their natural topography, or as a result of bulk earthworks undertaken as part of the subdivision which created those properties. The area subject to the proposed plan change is flat with a topography that is similar to the valley floor of Wainuiomata. As such, the topography of the site is considered to be appropriate to enable future development.

1.10.3 Residential Activity

Objective

To accommodate residential growth and development through consolidation of the existing urban area but to allow some peripheral development.

Policy

(a) To provide opportunities for gradual intensification of residential densities by:

(i) Enabling higher densities along major transport routes and near suburban focal points

(ii) Providing for infill development throughout the established residential areas to appropriate minimum standards, and

(iii) Managing the rate at which land at the periphery of the urban area is developed for residential purposes.

The site is located within an established residential area which is serviced by existing infrastructure and social, recreational and cultural facilities (such as the schools, churches and shops situated in the Wainuiomata Shopping Centre). The site is located close to main transport links and the local roading network has been assessed as being able to accommodate the additional traffic flow which is likely to result from future development of the site for a retirement village. Objective 1.10.3 for the Residential Zone and the supporting policies seeks to intensify development within the existing urban boundaries. The proposal allows for this development, in that it would allow for a retirement village to be developed within the urban boundaries of Wainuiomata. Given these factors, it is considered appropriate to rezone the portion of the site subject to the proposed plan change to the General Residential Activity Area - Medium Density, with supporting rules to facilitate the development of a retirement village.

1.10.6 Open Space and Recreation

Objective

To provide and maintain a diverse range of open space and recreation facilities for the enjoyment of residents and visitors which meet the needs of different sectors of the community.

Policies

(a) To ensure the adequate provision of open space for the passive recreational needs of the community.

(b) To ensure adequate provision of larger open space areas for active and passive recreation.

(c) To ensure the protection and enhancement of areas of special recreation amenity.

(d) To ensure the conservation of natural and heritage features and landscapes.

It is recognised that the proposed plan change would result in the loss of an area of recreational land from the local environment. The proposal rezones a portion of the site, and the balance would remain zoned General Recreation Activity Area leaving it available to be used for recreational activities in the future. It is also noted that there are a variety of other recreational opportunities available within the local environment (such Frederick Wise Park, the remaining part of Hugh Sinclair Park, Bryan Heath Park, and the Queen Street Reserve). Given these factors, the proposed plan change is not considered to be detrimental to the provision of open spaces and recreational values within the local environment.

The site is not an outstanding natural landscape, does not contain any identified heritage features and there are no stands of ecologically significant vegetation on the site.

1.10.11 Lessening Natural Hazards

Objective

To avoid or mitigate the vulnerability and risk of people and development to natural hazards.

Policies

(c) To limit the scale and density of development in areas where the risk of flooding is medium to high.

The proposed plan change would allow for an increase in development on a property that is situated in an identified flood zone. To ensure that the potential risks associated with flooding are addressed, a rule has been proposed which requires any future retirement village development on the site to take into account the flood risk for the property. This includes the requirement for all future habitable buildings to have a floor level about the 1:100 flood level. This requirement will ensure that the risk to people and development from flooding is appropriately addressed.

Overall the proposed plan change is considered to be consistent with the above area wide objectives and policies of the District Plan.

It is considered that the proposed plan change will contribute to achieving the area wide objectives and policies of the District Plan. It is considered that rezoning the site to General Residential Activity Area - Medium Density, with the associated supporting rules, will achieve a balance between maintaining the amenity values and character of the local environment while allowing for the development potential of the site to be realised. The proposed plan change would allow for the construction of a retirement village in Wainuiomata, which is a facility that significant portions of the community support and would like to see established. It is considered that maintaining the status quo will not be as effective or efficient in achieving these area wide objectives and policies.

8.6.2 Specific District Plan Objectives and Policies

The proposed plan change is considered to be consistent with the relevant objectives and policies pertaining to the General Residential Activity Area - Medium Density and the General Recreation Activity Area of the City of Lower Hutt District Plan. The objectives and policies of the General Residential Activity Area - Medium Density and the General Recreation Activity Area which are considered to be relevant to this proposal are as follows:

General Residential Activity Area Objectives and Policies

4A 1.1.1 Residential Character and Amenity Value

Objective

To maintain and enhance the amenity values and residential character of the General Residential Activity Area of the City.

Policies

(a) That opportunity be provided for a diversity of residential activities.

(c) To ensure residential amenity values are retained, protected and enhanced through the establishment of a net site area per dwelling house.

(d) That adverse effects arising from noise, dust, glare, light spill and odour be managed.

(e) That vegetation and trees which add to the particular amenity values of the area be retained where practicable.

(f) That the clearance of vegetation be managed to avoid, remedy or mitigate any adverse effects on the intrinsic values of ecosystems.

4A .1.2 Medium Density Residential Development

Objective

To ensure opportunity is made for medium density residential development around some commercial centres, along major transport routes, and where amenity values will not be affected adversely and where there is appropriate servicing of development.

Policies

(a) That opportunity for higher dwelling densities be made along major transport routes, around some commercial centres, in the residential area between Jackson Street and The Esplanade, Petone, where existing dwelling densities are higher, and where amenity values will not be affected adversely and where there is appropriate servicing of development.

(b) To avoid, remedy or mitigate the adverse effects of higher dwelling densities on the surrounding area, caused by height of buildings, intensity, scale and location.

(c) That medium density development be encouraged where it is in general accordance with the direction provided by the Design Guide for Medium Density Housing (Appendix 19) and maintains and enhances on site amenities and consistency with the surrounding residential character and minimises impact on the natural environment.

4A 1.2.1 Building Height, Scale, Intensity and Location

Objective

To avoid, remedy or mitigate adverse effects caused by building height, intensity and location on the amenity values of adjacent residential sites and the residential character of the surrounding residential area.

Policies

(a) To establish a minimum net site area and maximum site coverage requirement to ensure medium density development is achieved.

(c) To ensure all new development is of a height and scale, which is compatible with surrounding residential development.

(d) To ensure a progressive reduction in height of buildings the closer they are located to a site boundary, to maintain adequate daylight and sunlight to adjoining properties.

(e) To manage the siting of all buildings so as to minimise detraction from the character and visual attractiveness of the surrounding residential activity area.

(f) To manage the siting of all buildings so as to minimise detraction from the amenities of adjoining properties.

(g) That where practicable, the siting of accessory buildings be managed to maintain safety and visibility during maneuvers.

General Recreation Activity Area

7A 1.1.1 Adverse Effects of Recreation Activities on Adjoining Residential Activity Area

Objective

To ensure that recreation activities have adverse effects, which are no more than minor on adjoining residential activity areas.

Policies

(a) To ensure that recreation activities are of a scale and character that amenity values of adjoining residential activity areas are not affected adversely.

(b) To ensure that adverse effects, such as noise, glare, light spill and odour, generated by activities in the General Recreation Activity Area, are managed to ensure that residential amenity values are maintained.

It is considered that the provisions of the General Residential Activity Area - Medium Density are appropriate for the site and the intended development of a retirement village. The objectives and policies for the General Residential Activity Area - Medium Density seek to ensure that any development undertaken on the site is consistent with the character of the local environment and maintains the amenity values of the surrounding residential properties. The objectives and policies of the General Residential Activity Area - Medium Density support higher density development subject to developments being consistent with the design guide. It is considered that given the nature of any future retirement village on the site these objectives and policies are appropriate.

No changes are proposed to the objectives and policies of the General Residential Activity Area - Medium Density as part of this Plan Change. It is considered that these objectives and policies provide a suitable framework upon which the environmental effects from any future retirement village can be considered. It is also considered that the proposed rules are appropriately supported by these existing objectives and policies.

8.7 Other Strategies and Plans

Council has a number of strategies and plans that detail the priorities for the City, namely:

- Integrated Vision 2014 (which specifically mentions a retirement village in Wainuiomata);
- Long Term Plan (LTP) 2012;
- Economic Development Strategy 2009 – 2014;
- Environmental Sustainability Strategy 2009;
- Reserves Policy 2004;
- Reserves Key Directions Strategy; and
- Reserve Land Acquisition and Disposal: Policy and Guidelines

The proposed plan change is considered to be consistent with the outcomes sought under the above strategies and plans.

8.8 Consultation

In January 2015, consultation was undertaken with the owners and occupiers of the adjoining properties. These parties were contacted in writing explaining the proposed plan change. A copy of a plan showing the area subject to the proposed plan change was also sent to these parties.

As part of this initial limited consultation process we received feedback from several parties regarding the proposal. This feedback is identified below:

Housing New Zealand:

- Supports the proposal

Royce and Liz Goldsworthy

- Does not support nor oppose the development;
- Would like to see the construction effects associated with any development addressed;
- Would like to maintain the amenity values of their property and therefore limiting the height of any future buildings on the site to one or two storeys;
- Would like to see measures to ensure the noise from the operation of the retirement village is addressed.

Kura Little:

- Concerned about looking onto two or three storey buildings;
- Wants the application to be publicly notified; and
- Would like other areas of Hugh Sinclair Park to be considered.

As part of the development of the proposed rules for the proposed plan change, the concerns from the local residents were taken into account. It is considered that the proposed rules will adequately address the concerns raised.

Consultation has also been undertaken with the following parties:

- Greater Wellington Regional Council;
- Ministry for the Environment;
- South Wairarapa District Council;
- Porirua City Council;
- Upper Hutt City Council;
- Lower Hutt City Council;
- Port Nicholson Trust;
- Ngati Toa; and
- Tenths Trust.

We did not hear from any of the above parties during the pre-notification consultation phase of this project. However, we note that when the proposed plan change is notified these parties will be contacted directly and would have the opportunity to lodge a submission.

9. RISK OF NOT ACTING

Section 32 (2) (c) of the RMA states:

(2) An assessment under subsection (1)(b)(ii) [assessing the efficiency and effectiveness of the provisions in achieving the objectives] must—

(c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions

In considering the proposal against Section 32 (2) of the RMA, it is considered that Council has sufficient information to consider this proposed plan change.

10. SUMMARY

The proposed plan change is seeking to rezone a portion of 39 Fitzherbert Road, Wainuiomata (Hugh Sinclair Park). The purpose of the proposed plan change is to rezone a portion of this property from its current General Recreation Zoning so that it is zoned to General Residential Activity Area - Medium Density, and to facilitate the use of the area subject to the plan change for a retirement village. The remainder of the site is not subject to this proposed plan change and will retain its current zoning, being General Recreation Activity Area.

It is proposed to introduce several new rules to Chapter 4A of the District Plan. These rules are site specific and will ensure that any future retirement village on the site is a Restricted Discretionary Activity. The matters that have been proposed that Council restricts its discretion to, will ensure that the relevant environmental effects associated with the establishment of a retirement village on the site are appropriately addressed.

An analysis has been undertaken of the relevant national, regional and local policy statements, plans and other non-statutory documents. It is considered that the Plan Change is consistent with the national, regional and local policy statements, plans and other non-statutory documents.

The costs and benefits of the Plan Change have been assessed against the purpose of the RMA. The costs and benefits of the options for the site have been evaluated and the recommended option to rezone the site to General Residential Activity Area – Medium Density is considered to be the most appropriate in terms of achieving the purpose of the RMA. Overall, the proposed plan change is considered to be consistent with the purpose and principles of the RMA.

Appendices

Appendix 1: Location Plan

Appendix 2: Operative District Plan Map E7

Appendix 3: Computer Freehold Registers

Appendix 4: Retirement Village Concept Plan

Appendix 5: Traffic Assessment

Appendix 6: Flood Maps for Parkway Drain

Appendix 7: Geotechnical Report

Appendix 8: Infrastructure Assessment

Appendix 9: Economic Assessment

Appendix 1: Location Plan

Cuttriss Consultants Limited
Hutt Valley, Wellington, Kapiti Coast

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JOB
PROPOSED REZONING OF PT LOT 4 DP 23636, HUGH SINCLAIR PARK, WAINUIOMATA

CLIENT
HUTT CITY COUNCIL

SCALE 1:2000 | SIZE A3

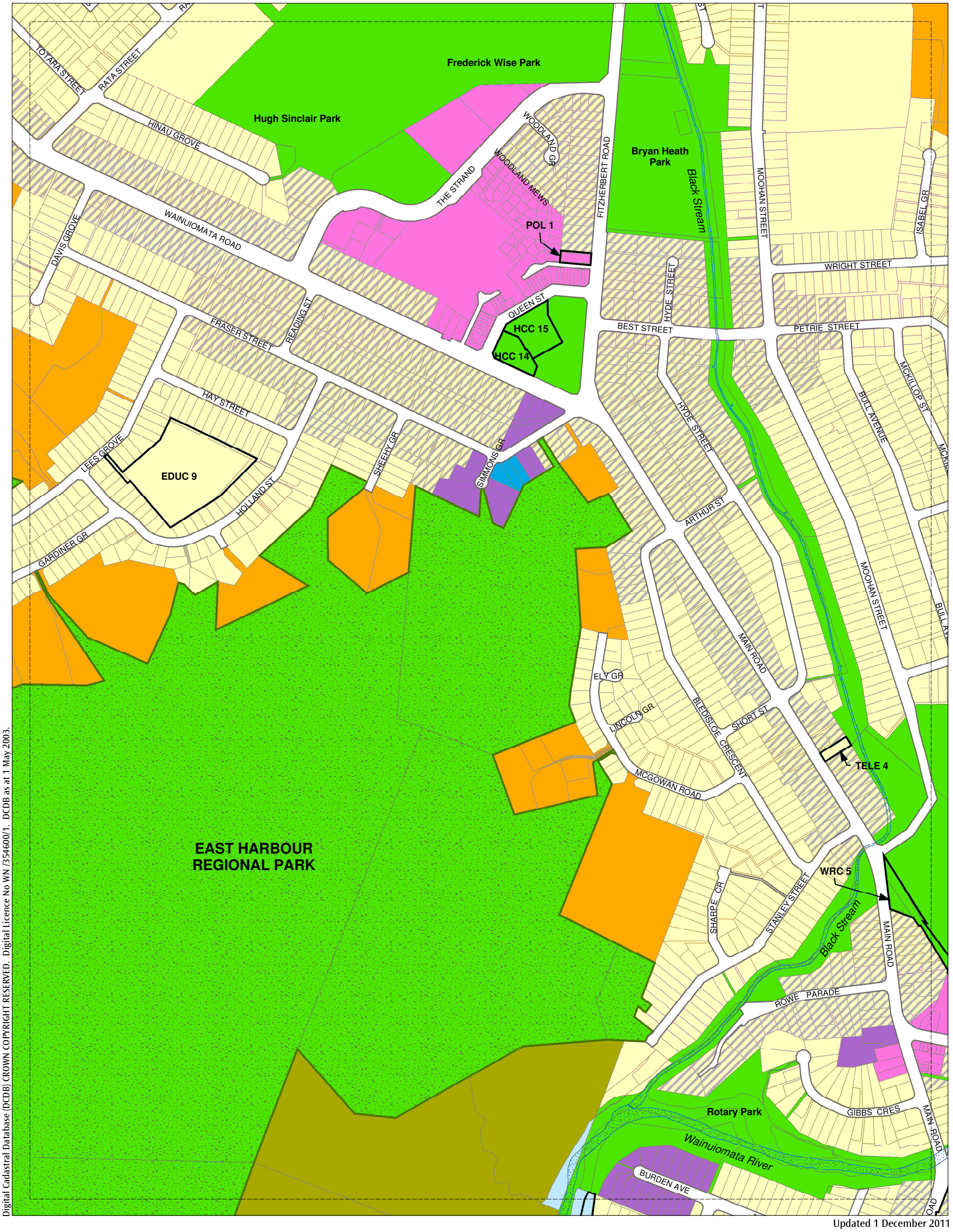
	NAME	DATE
FIELDWORK	–	–
DESIGNED	JB	01/15
DRAWN	KML	01/15
CHECKED	JB	01/15

DRAWING NUMBER 28252SK2

SHEET 1 OF 1 SHEETS

REVISION –

Appendix 2: Operative District Plan Map E7



Updated 1 December 2011

ACTIVITY AREAS

- General Residential
- Special Residential
- Historic Residential
- Hill Residential
- Landscape Protection
- Rural Residential
- General Rural
- Central Commercial
- Petone Commercial
- Suburban Commercial
- Special Commercial
- General Business
- Special Business
- Avalon Business
- Extraction
- General Recreation
- Special Recreation
- River Recreation
- Passive Recreation
- Community Health
- Community Iwi

ANNOTATIONS

- City Boundary
- Designation
- Medium Density Residential
- Wellington Faultline Special Study Area
- Hydraulic Line
- Flood Protection Bank
- Railway Line
- Regional/Forest Park
- Heritage Area
- Primary River Corridor
- Secondary River Corridor
- 1 in 100 Year Flood Extent
- Building Setback Line
- Notable Tree
- Historic Place

N

D6 E6 F6
D7 F7
E8 F8

HUTT CITY

District Plan - City of Lower Hutt

Scale 1:6000

E7

Appendix 3: Computer Freehold Registers

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**WN50B/262**
Land Registration District	**Wellington**
Date Issued	27 June 1997

Prior References
WNB3/504

Estate	Fee Simple
Area	15.2420 hectares more or less
Legal Description	Part Lot 4 Deposited Plan 23636
Purpose	Recreation Reserve

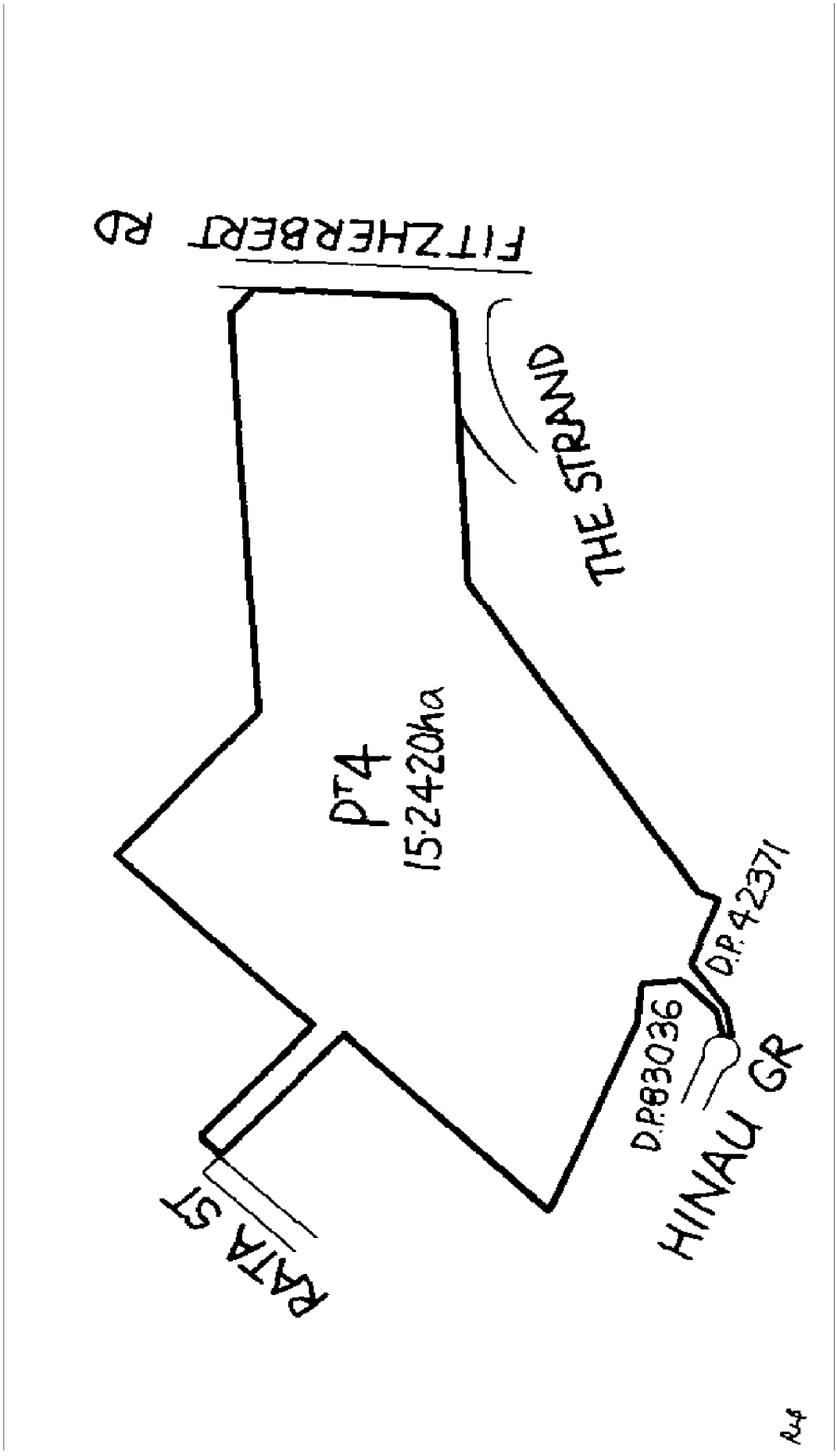
Proprietors
The Hutt City Council

Interests

SUBJECT TO THE RESERVES ACT 1977

637315 Fencing Agreement with Wainuiomata Development Limited - 8.7.1965 at 2.59 pm

Subject to an electricity right (in gross) over part marked C DP 339629 in favour of Vector Wellington Electricity Network Limited created by Transfer 6854378.1 - 8.5.2006 at 9:00 am


FITZHERBERT RD
THE STRAND
PT 4
15·2420ha
D.P. 42371
D.P.83036
HINAU GR
RATA ST

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**WN49C/742**
Land Registration District	**Wellington**
Date Issued	27 June 1997

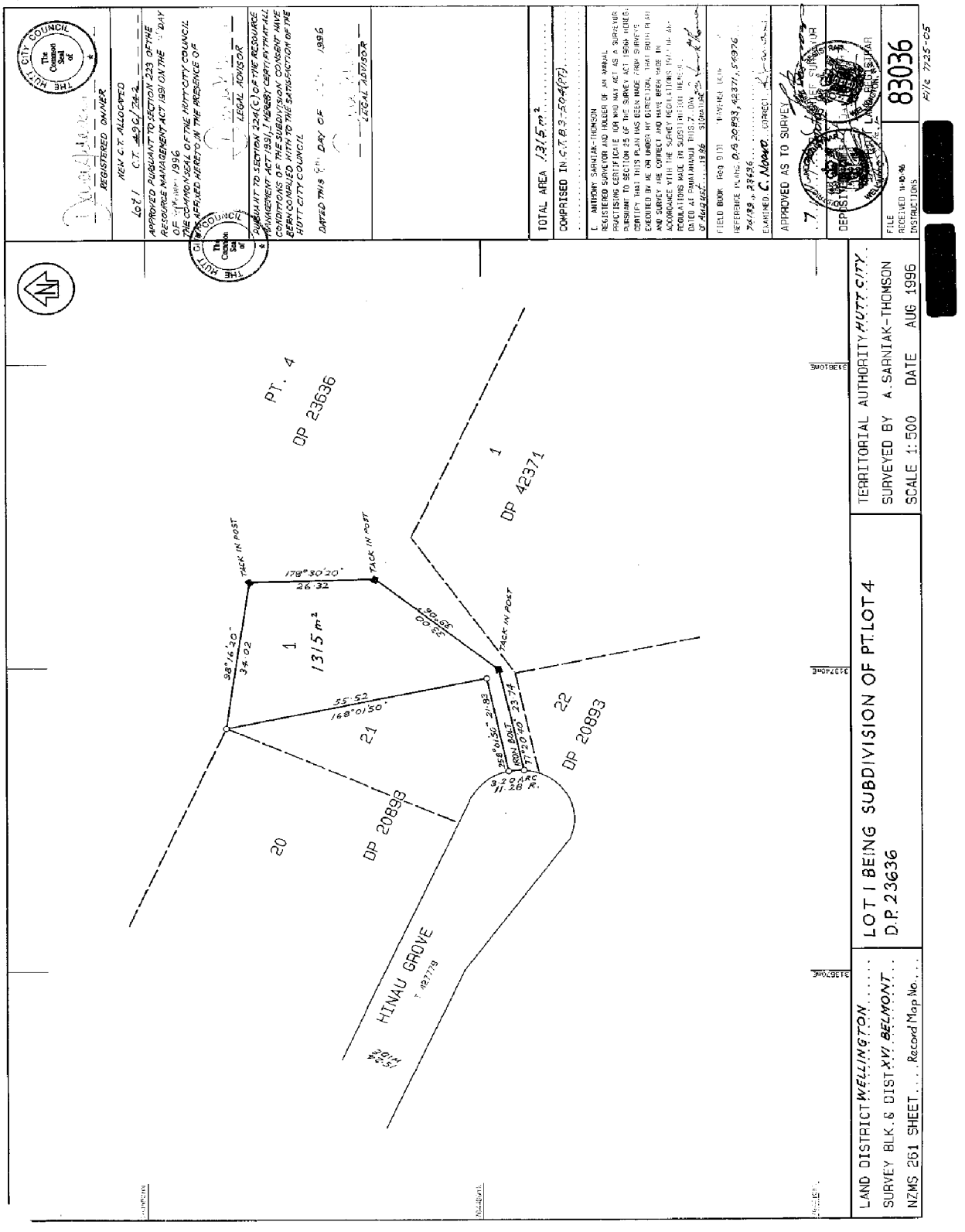
Prior References
WNB3/504

Estate	Fee Simple
Area	1315 square metres more or less
Legal Description	Lot 1 Deposited Plan 83036
Purpose	Local purpose reserve (community use)

Proprietors
The Hutt City Council

Interests
SUBJECT TO THE RESERVES ACT 1977
637315 Fencing Agreement with Wainuiomata Development Limited - 8.7.1965 at 2.59 pm

Identifier **WN49C/742**



Appendix 4: Retirement Village Concept Plan

FREDERICK WISE PARK

Black Creek

·RELOCATE WALKWAY FROM STOPBANK?
proposed bridge

proposed realigned walkway
proposed bridge.

Black Creek

STOP-BANK

Public Walkway

walkways integrated through village landscaping features courtyards; vege gardens fruit trees; composting water features

CATHOLIC SCHOOL

IN

OUT

COMMUNAL FACILITIES

AGED CARE HOSPITAL
2 LEVELS.

OUT

IN

ONE WAY TRAFFIC FLOW

playground/ skatepark

GATES

ENTRY.

THE STRAND

RETAIL

MEDICAL CENTRE

GS TO BDY

HINAU GROVE
pedestrian access.

NOTES
- CONCEPT DESIGN ONLY.
- SUBJECT TO ACCURATE SURVEY TOPOGRAPHICAL PLAN.
- TOWN PLANNING ZONECHANGE

VILLA SCHEDULE
1 X BEDRM · RELOCATED = 28
2 X BEDRM = 76
104

AGED CARE HOSPITAL
46 SUITES
6 WHANAU SUITES

GARAGES/CARPORTS = 91
- VISITOR PARKING.
- IN FRONT OF GARAGES
- STREET SIDE

ROADING - SHARED WITH PEDESTRIANS
- AVERAGE 7.5M WIDE
- FLAT MOUNTABLE KERBS
- SURFACE WATER TO SWALES & DETENTION PONDS FOR REUSE.

0 10 20 30 40 50 M
SCALE 1:1000 @ A3

FEASIBILITY STUDY.

CONCEPTUAL MASTER PLANNING ~ OPTION #2
WAINUIOMATA RETIREMENT VILLAGE - THE MASONIC TRUST

01 FEB 2011

architects pacific environments nz ltd

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pacific environments nz ltd

date :	02/02/2012
project title :	Wainuiomata Retirement Village
project number :	12001
drawing title :	A100 Context Plan
drawn by :	PE/PLH
scale :	NTS@A3

Appendix 5: Traffic Assessment

Harriet Fraser Traffic Engineering & Transportation Planning

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Upper Hutt
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E harriet@harrietfraser.co.nz

26 February 2015

Mr James Beban
Senior Resource Consents Planner
Cuttriss Consultants Ltd
PO Box 30429
Lower Hutt

Copy via email: james@cuttriss.co.nz

Dear James

Proposed Private Plan Change, Hugh Sinclair Park, Wainuiomata
Transportation Assessment

Further to your request, I am pleased to provide below a transportation assessment for the proposed private plan change involving the rezoning of part of Hugh Sinclair Park in Wainuiomata from General Recreation Zone to General Residential Activity Area with provision included for a retirement village to be developed on the site as a restricted discretionary activity. The assessment that follows includes a review of the existing local transportation characteristics, summary of the District Plan transportation requirements with the proposed zoning, and an assessment of the potential traffic effects associated with the development of the site as a retirement village.

In summary the findings of the assessment show that the proposed rezoning would allow for the site to be developed as a retirement village in a manner which is consistent with the District Plan traffic and transportation related objectives and policies.

1. Background

As I understand, the Council have agreed to the sale of part of Hugh Sinclair Park for the purpose of developing a retirement village. The extent of the site is shown in the A100 Context Plan prepared by Architects Pacific Environments. The area of the proposed site is currently used for informal recreational activities and includes large areas of open space, grass mounds, a public walking track and several small stands of amenity plantings.

There is existing pedestrian access to Hugh Sinclair Park from Rata Street, Hinau Grove and The Strand. There are some 15 angled parking spaces along The Strand frontage to the Park. There is no public vehicle access onto the part of the Park which is proposed for rezoning. Council have agreed for a right-of-way to be formed to provide vehicle and pedestrian access to the site from The Strand as shown in the Context Plan prepared by Architects Pacific Environments.

2. Existing Traffic Environment

The site is located on the northern side of The Strand opposite to the Wainuiomata commercial centre. The cross-section of The Strand in this location comprises from north to south:

- a 1.5m wide footpath;
- an eastbound traffic lane measuring 5.2m wide around the bend;
- a westbound traffic lane measuring 5.1m around the bend;
- a 7.6m wide parking bay in front of the pharmacy; and
- a 2.9m wide footpath along the frontage of the pharmacy.

Views looking east and west along this section of The Strand are shown in Photos 1 and 2. As shown there are no stopping markings along both sides of the road. There are also two speed humps and 15 km/h speed advisory signs along this section of The Strand.

The Strand is classified as an Access Road in the City of Lower Hutt District Plan road hierarchy. As such it has the following intended functions:

- provides for slow moving vehicles;
- delivery of goods;
- servicing activities;
- access to carparks; and
- accommodates pedestrian activity.

A 2008 Hutt City Council traffic count for The Strand in the vicinity of Woodland Grove shows average daily traffic volumes of around 3,840 vehicles per day with peak traffic activity as follows:

- flows of 415 to 510 vehicles per hour between 10am and 7pm on Saturdays;
- flows of 400 to 450 vehicles per hour between midday and 5pm on Sundays; and
- no strong weekday morning peak with an afternoon peak of 440 to 572 vehicles per hour between 4pm and 6pm.

Photo 1 – Looking West Along The Strand towards Wainuiomata Road

Photo 2 – Looking East along The Strand

A search of the NZTA crash database for the most recent five years shows that there have been one serious injury, three minor injury and two non-injury reported accidents along the full length of The Strand. These accidents can be summarised as follows:

- a serious injury accident 80m north of Wainuiomata Road involving a southbound motorcycle losing control, the crash factors included alcohol being suspected and potholed surface;
- a minor injury accident 80m north of Wainuiomata Road involving a northbound moped losing control, the crash factors included alcohol being suspected, new driver being inexperienced and headlights inadequate or not used;
- a minor injury accident 100m south of Woodland Grove involving a car turning right being hit by an oncoming car travelling northbound on The Strand, the crash factors included headlights inadequate or not used;
- a minor injury accident at the intersection between The Strand and Woodland Mews involving a pedestrian crossing heedless of traffic and being hit by a northbound car on The Strand;
- a non-injury accident 240m north of Wainuiomata Road involving a westbound vehicle following too closely and colliding with the rear of a left turning vehicle; and
- a non-injury accident 400m north of Wainuiomata Road involving a car turning right onto The Strand failing to give way and being hit by a southbound vehicle.

Given that The Strand provides access to a number of businesses and residential properties along with the crash factors involved in the reported injury accidents, there is nothing unusual in the nature of the reported accidents and no particular pattern of accidents.

There are nearby bus stops at the intersection between The Strand and Wainuiomata Road with commuter bus services to Wellington and Petone along with a regular service to Lower Hutt.

3. District Plan Transportation Requirements

The proposed private plan change involves the rezoning of part of Hugh Sinclair Park in Wainuiomata from General Recreation Zone to General Residential Activity Area with provision included for a retirement village to be developed on the site as a restricted discretionary activity. Objectives, policies and rules included in the District Plan which have an influence on transportation matters within the General Residential Area and as apply to this site include:

4A General Residential Activity Area

Rule 4A 2.1.1 Permitted Activities – Conditions

(n) General Rules*: Compliance with all matters in the General Rules – see Chapter 14.*

Proposed Rule 4A 2.3.1 Matters in which Council has Restricted its Discretion and Standards and Terms

(m) All housing for the elderly within the are identified in Appendix 21

i. *Design Guide*
   Consideration shall be given to how the proposal addresses the Design guide for Medium Density Housing (Appendix 19).
ii. *Traffic Generation Effects*
   The safe and efficient movement of all vehicle and pedestrian traffic needs to be ensured. It should be demonstrated that traffic generation and vehicles entering and leaving the site will not adversely affect normal traffic flows on the road, or cause a vehicle or pedestrian hazard.
iii. *Parking Effects*
   The extent to which the proposal appropriately provides for the carparking needs of the activity, without adversely affecting the carparking requirements of the surrounding area.

Proposed Rule 4A 2.3.2 Other Matters

For Restricted Discretionary Activities (b)-(e) and (i)-(l): *All Restricted Discretionary Activities must comply with other relevant Permitted Activity Conditions.*

14A(i) Road Hierarchy

Objective 14A(i) 1.1.1

To accommodate a roading network that is safe, convenient and efficient; and which avoids or mitigates any adverse effects on the community and the environment.

Policy 14A(i) 1.1.1(a)

That adequate levels of service for access and movement are provided to meet the travel demands of pedestrians, cyclists and motorised traffic during the off-peak period, with maximum safety for all users and local residents at all times.

Policy 14A(i) 1.1.1(b)

That the safety and amenity values of local access areas be protected from the intrusion of through traffic, particularly speeding vehicles, large volumes of traffic, and heavy commercial vehicles, using the Road Hierarchy.

The Rules in Section 14A(i) include provisions for the following:

- classification of new roads;
- geometric and design standards for new roads;
- visibility requirements;
- provision for pedestrians; and
- treatment of berms.

14A(ii) Property Access and Manoeuvring Space

Objective 14A(ii) 1.1.1

To maintain the safety and efficiency of the roading network.

Policy 14A(ii) 1.1.1(a)

That the location and design of access to properties is managed to provide for safe entry and exit movements, particularly in relation to intersections.

Policy 14A(ii) 1.1.1(b)

That adequate provision is made on site for turning movements to allow exit movements in a forward direction for sites ……. accommodating more than four parking spaces.

Policy 14A(ii) 1.1.1(c)

That adequate provision is made on site for turning movements associated with heavy commercial vehicles to ensure that access and exit movements are in a forward direction.

The Rules in Section 14A(ii) include provisions for the following:

- how vehicle accesses shall be located and designed;
- separation of driveways from intersections;
- the number and width of vehicle crossings; and
- on-site vehicle circulation and manoeuvring space.

14A(iii) Car and Cycle Parking

Objective 14A(iii) 1.2.1 On Site Parking Provision For Activities

To provide adequate on site car parking in a safe and visually attractive manner, to maintain the safety and efficiency of the roading system, and the amenity values of the area.

Policy 14A(iii) 1.2.1(a)

That adequate on site parking space is provided for each type of activity in a safe and visually attractive manner.

The Rules in Section 14A(iii) include provisions for the following:

- the number of vehicle and bicycle parking spaces needed;
- the location of the parking spaces; and
- the design of any parking spaces.

Housing for the elderly requires one space per staff member and 0.8 spaces per resident. Hospitals require the greater of 0.7 spaces per bed or 1.5 spaces per staff member.

14A(iv) Loading and Unloading

Objective 14A(iv) 1.1.1 Safe and Adequate Provision for Servicing

To maintain the safety and efficiency of the roading network and the amenity values of the area.

Policy 14A(iv) 1.1.1(a)

That adequate on site loading and unloading provision be made in a safe and attractive manner.

The Rules set out that there is no requirement to provide loading beyond the parking requirements for residential developments having fewer than 20 dwelling units or accommodating fewer than 20 residents. Where there are more than 20 dwelling units or residents, adequate provision is to be made on site for the loading of or unloading of all goods and materials associated with the activity.

4. Traffic Effects – Existing Zoning and Activity

All parking and traffic effects associated with the existing recreational use of the part of the Park proposed for rezoning are accommodated off-site given that there is no vehicle access and no on site parking. The existing traffic effects would amount to vehicles occasionally accessing kerbside parking either on The Strand, Hinau Grove or Rata Street.

5. Traffic Effects – Retirement Village with Proposed Zoning

The concept plan developed by Architects Pacific Environments shows 104 villas and an aged care hospital providing 46 suites and 6 whanau suites. It is anticipated that a facility of this size would have up to around 30 staff on site at any one time. As such the District Plan parking provisions would require 36 on-site parking spaces for the hospital and around 85 to 90 spaces for the villas being on average 0.8 spaces per villa and some allowance for staff parking. Based on the parking demand rate of 0.5 to 0.7 spaces per bed for rest homes included in NZ Transport Agency Research Report 453 the actual parking demand would likely amount to between 26 and 36 spaces compared to the District Plan requirement for 36 associated with the hospital. As such the District Plan parking provisions for housing for the elderly are conservative and a retirement village development on the site that complies with the District Plan parking provisions will contain all its parking demands including staff, resident and visitor within the site.

The NZ Transport Agency Research Report 453 includes a trip generation for rest homes of 0.3 to 0.6 vehicle movements per bed in the peak hours and 4 to 6 trips per bed per day. Accordingly the hospital component of the concept development could be expected to generate peak hour traffic flows of 16 to 32 vehicle movements per hour with some 200 to 300 vehicle movements per day. A recent survey of a retirement village that only comprised villas showed a traffic generation rate of up to 0.3 vehicle movements per villa during the busiest hours. As such the traffic generation associated with the villas included in the concept plan would be 32 vehicle movements per hour. As such the overall traffic generation for the development shown on the concept plan would be some 48 to 64 vehicle movements

per hour or on average one vehicle movement every minute at peak times of activity. This level of additional traffic can be readily accommodated within this part of the local road network.

Similarly to the standard residential scenario, the only off-site traffic effect associated with the development of the site for a retirement village with parking provided in line with the District Plan provisions is the addition of some 48 to 64 vehicle movements per hour onto the local road network at peak times. Given the moderate local traffic flows, satisfactory road safety record and good sight lines along The Strand which are protected by no stopping markings, the small amount of forecast additional traffic can be safely and efficiently accommodated within the local road network. As such the site could be developed as a retirement village and meet the transportation related expectations of the District Plan objectives and policies.

6. Summary and Conclusion

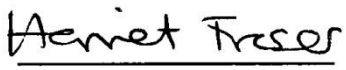
The findings of this transportation assessment can be summarised as follows:

- the site is currently used for informal recreational activities and includes large areas of open space, grass mounds, a public walking track and several small stands of amenity plantings;
- The Strand is an Access Road with traffic flows of around 3,840vpd. There are bus stops nearby with services to Lower Hutt, Petone and Wellington. The historic road safety record shows no particular pattern of accidents;
- any traffic effects associated with the existing recreational use of the land are accommodated off-site;
- the parking demands associated with the development of the site for retirement village purposes are in line with the District Plan provisions and can be accommodated within the site; and
- the traffic generation associated with the development of the site for retirement village purposes are in line with the District Plan provisions and can be safely and efficiently accommodated within the local road network.

Accordingly the site can rezoned to General Residential Activity Area and developed for retirement village purposes in line with the new zoning with the development meeting the transportation related objectives, policies and rules of the District Plan.

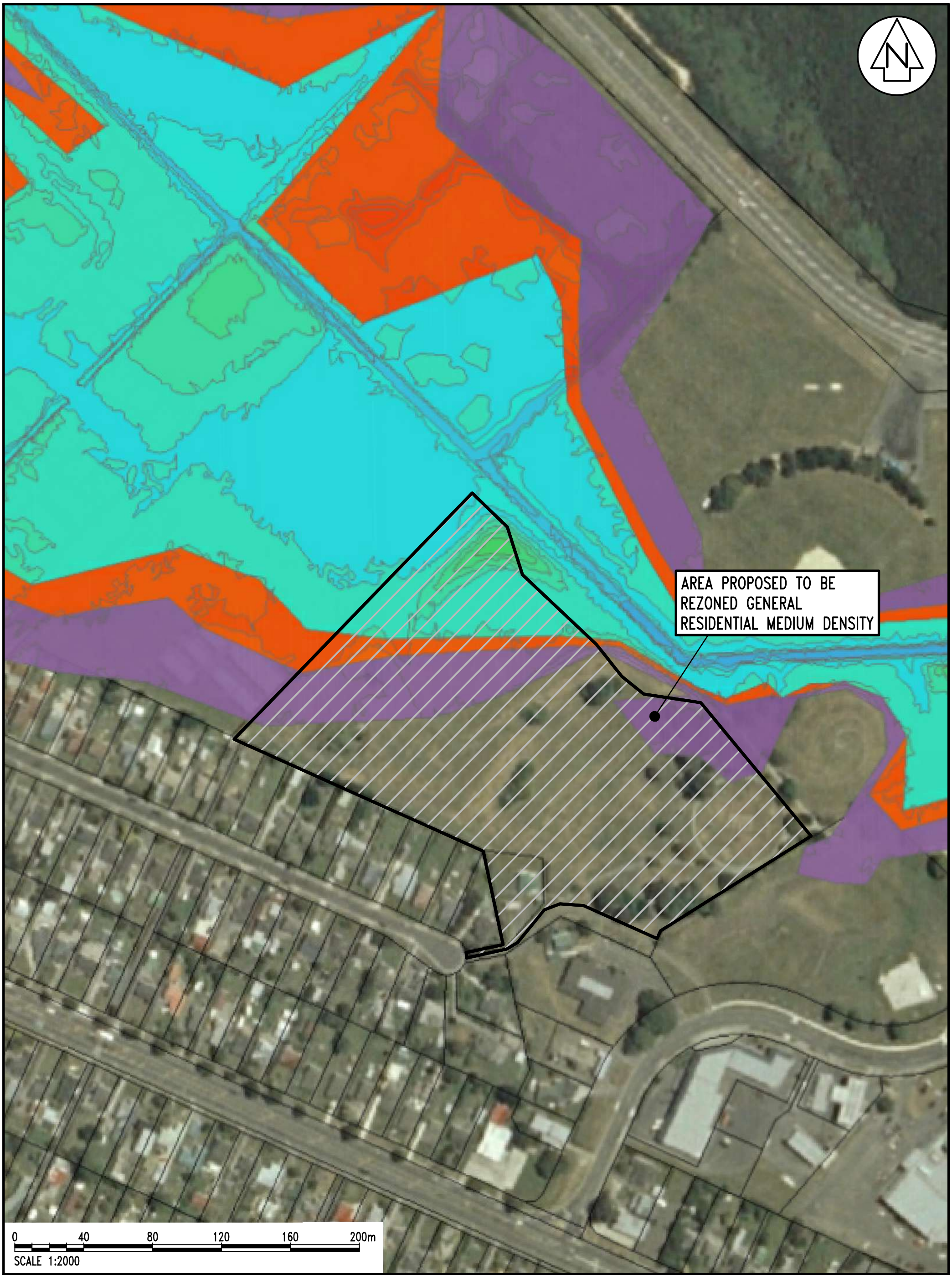
Please do not hesitate to be in touch should you require clarification of any of the above.

Yours faithfully



Harriet Fraser

Appendix 6: Flood Maps for Parkway Drain



Cuttriss Consultants Limited
Hutt Valley, Wellington, Kapiti Coast

Cuttriss
Land Surveyors, Engineers & Resource Managers

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Postal Address - PO Box 386, Paraparaumu 5254
Telephone (04) 904 5420 Fax (04) 904 5423 Email kapiti@cuttriss.co.nz

JOB
FLOOD INUNDATION MAP
PT LOT 4 DP 23636, HUGH SINCLAIR PARK, WAINUIOMATA

CLIENT
HUTT CITY COUNCIL

SCALE 1:2000 | SIZE A3

	NAME	DATE
FIELDWORK	–	–
DESIGNED	JB	01/15
DRAWN	KML	01/15
CHECKED	JB	01/15

DRAWING NUMBER 28252SK4

SHEET 1 OF 2 SHEETS

REVISION –

Cuttriss Consultants Limited
Hutt Valley, Wellington, Kapiti Coast

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Land Surveyors, Engineers & Resource Managers

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CLIENT
HUTT CITY COUNCIL

SCALE 1:2000 | SIZE A3

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FIELDWORK	–	–
DESIGNED	JB	01/15
DRAWN	KML	01/15
CHECKED	JB	01/15

DRAWING NUMBER 28252SK4

SHEET 2 OF 2 SHEETS

REVISION –

Appendix 7: Geotechnical Report

ABUILD
Consulting Engineers Ltd
Structural and Civil Engineers

GEOTECHNICAL INVESTIGATION
SITE SUITABILITY FOR PROPOSED DEVELOPMENT
HUGH SINCLAIR PARK, WAINUIOMATA
LOWER HUTT CITY

For:
Hutt City Council

OUR REF 9965
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REV A

GEOTECHNICAL INVESTIGATION
SITE SUITABILITY FOR PROPOSED DEVELOPMENT
HUGH SINCLAIR PARK, WAINUIOMATA
LOWER HUTT CITY

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1.0 INTRODUCTION

This report presents the results of a geotechnical investigation carried out at Hugh Sinclair Park located off The Strand in Wainuiomata, Lower Hutt City. The purpose of the investigation was to assess the suitability of the site for a proposed retirement village and make recommendations with respect to static and earthquake seismic conditions and implications.

The investigation has been undertaken at the request of Mr James Beban of Cuttriss Consultants Limited on behalf of Hutt City Council. A signed and returned copy of a Shortform Agreement sets out the terms of conditions and the planned scope of work that was described in ABUILD™ Consulting Engineers Limited's proposal letter dated November 27, 2014.

2.0 INVESTIGATION

The investigation was carried out on Friday, January 23 and Wednesday, January 28, 2015 under the direction of a geotechnical engineer from our office and comprised the following scope of work:

- The excavation of five (5) testpits to depths of between 2.9 and 3.3 metres below existing ground levels using a 7 tonne excavator operated by John Everiss Contractors Limited of Wellington.

- The putting down of nine (9) Cone Penetration Tests (CPTs) to depths of between 5.0 and 31.0 metres below existing ground levels using a machine operated by Resource Development Consultants Limited (RDCL) of Havelock North.

The testpits were logged in accordance with NZ Geomechanics Society standards (2005) by an engineering geologist from our office. The undrained shear strength of fine grained soils in testpits was measured using a handheld shear vane and are presented on the testpit logs.

A Site Investigation Location Plan (sheet 9965-S1A) showing test locations is presented in Appendix A of this report together with the testpit and CPT logs.

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Two (2) of the nine (9) CPTs were deep and penetrated groundwater under artesian pressure, which as a consequence, developed an artesian pressure head which was inferred to extend a short distance above ground level. This artesian pressure head was subsequently contained by a specific procedure involving further drilling, installation of casing and subsequent grouting. The methodology of capping the hydrostatic pressure head in the two CPTs is presented in Appendix B.

Printouts for the liquefaction analysis are presented in Appendix C.

To supplement our investigation we have reviewed the 1:50,000 scale geological map of the area (Begg & Mazengarb, 1996) and historical aerial photos available online dated 1969.

3.0 SITE CONDITIONS

The site comprises relatively flat to gently rolling land that forms an approximate 4.2 ha reserve that extends northwest from the existing playground and skate park that front The Strand to St Claudine Thevenet School, and from the rear of residences fronting Hinau Grove to Frederick Wise Park and the Wainuiomata BMX Park that is fronting Parkway to the northeast.

The perimeter of the proposed development area is separated from the school and adjacent park areas by a low timber fence and a concrete walkway runs along the southeast and north perimeter of the reserve. A circular concrete walkway located in the northeast corner of the site was the former site of a playground.

The area is predominantly grassed with pockets of scrub and mature trees.

4.0 GEOLOGICAL AND FAULT SETTING

The site is located about 6.3 kilometres to the southeast of the north-trending Wellington Fault. The Wellington Fault is described as a Class 1 active fault. The activity of this fault has been described in the 'Geology of the Wellington Urban Area' as having an elapsed time since the last earthquake of between 335 and 485 years and a recurrence interval of between 500 - 770 years (as at 2000).

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A recent and ongoing study by GNS entitled "It's Our Fault" has reclassified the activity on the Wellington Fault. The average movement on this fault is 5.8 mm/year, has a recurrence interval of 800 years and an elapsed time since the last movement of the fault of between 170 – 370 years. There is a perceived 11 percent probability of movement on this fault in the next 100 years (Rhoades, et al., 2010).

A series of unnamed northeast-trending splinter faults are mapped crossing the southern portion of the site. These faults are likely associated with formation of the Wellington Fault and are not considered active.

The 1:50,000 scale geological map of the area (Begg and Mazengarb, 1996) indicates the fine-grained subsoils in the area were deposited in a swamp (lagoon) environment. GNS has postulated that the groundwater within the lagoon area was dammed by a relatively large scale slip which occurred many thousands of years ago. This slip drained Wainuiomata and we infer prevented drainage and consolidation of the weak and compressible lagoon sediments.

Previous investigations in the area have indicated that the soils underlying the area comprise low to medium strength, highly compressible silts and clays to the bottom of the lagoon. A previous CPT put down in 2008 approximately 150 metres north of the site identified the bottom of the lagoon at a depth of approximately 29.0 metres. A borehole and CPT investigation in 2005 at Lots 1 - 4 DP31182 The Strand approximately 220 metres to the east of the site identified compressible fine grained sediments extending to approximately 27.0 metres below ground surface.

5.0 SUBSOIL CONDITIONS

5.1 Subsoil Description

The site is covered by a layer of soft silt topsoil to a depth of 300 - 450 mm at the points explored.

The topsoil is generally underlain by layers of grey brown to orange brown silty clay, clays, sandy silts and gravelly sands (Unit 1) that extend to variable depths of between 0.7 and 1.6 metres. These surficial soils are generally competent with undrained shear strengths ranging S_U = 117 to 200+ kPa (very stiff to hard).

Medium dense orange brown sandy gravel encountered from 0.45 to 1.0 metre below ground level in TP1 is inferred as localised filling.

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Thin layers of firm to stiff blue grey clayey silt, clay (Unit 2a) was encountered below with 0.3 - 1.1 metre thick layers of inferred medium dense to dense interbedded sands, gravels, and sandy gravels (Unit 2b) encountered between depths of 1.8 to 2.9 metres below ground levels. Occasionally the overlying blue grey clays and silts contain minor organic fragments, or are absent and the underlying sands and gravels are perched directly below the orange brown near surface soils.

Undrained shear strengths measured at depths of between 0.7 to 2.2 metres ranged from S_U = 45 - 97 kPa (firm to stiff).

Below the blue grey clays and gravels, the testing typically encountered a layer of brown to brownish grey clay (Unit 3) to the depths explored, believed to be the top of the lagoon sediments. Undrained shear strengths measured at depths of between 2.4 to 2.9 metres ranged from S_U = 62 - 117 kPa (stiff to very stiff).

We have interpreted the results of the CPT tests on the basis of internationally published graphs of cone resistance (Q_C) and friction ratios (F_R). Seven (7) of the nine (9) CPTs were taken to depths of between 5.0 to 6.2 metres below ground level whilst CPT8 and CPT9, put down in the main body of the site, extended to depths of between 27.0 and 31.0 metres below ground level.

Based on the interpretation of the CPT results CPT1 to CPT7 encountered mainly silty SAND through to sandy SILT. A layer of soil at CPT1 location, put down in the northern corner of the site, encountered material interpreted as silty clay between 2.0 and 3.0 metres below existing ground level. This material is consistent with that encountered in nearby TP1 that showed that the clay layer extended from 2.1 metres below existing ground level to beyond the depth explored of 3.0 metres below ground level. The undrained shear strength measured using a hand held shear vane in TP1 was S_U = 62 kPa at a depth of 2.4 metres below existing ground level. This clay soil layer in terms of the criteria detailed in New Zealand Geotechnical Society Inc Field Description of Soil and Rock is classified as stiff.

The relatively deep CPT8 and CPT9 encountered sequences interpreted as silt, sandy silt, silty sand to the depths explored. A noticeable difference in the soil strength profile occurred in CPT9 where the inferred silty sand layer had a cone resistance Q_C = 11.0 MPa. This contrasts with similar soils in CPT8 where the cone resistance varied typically between Q_C = 0.9 to 2.3 MPa to a depth of 28 metres below existing ground level. Silty SAND is inferred to exist between 28.0 to 31.0 metres below existing ground level and this material had an average Q_C = 6.0 MPa.

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5.2 Groundwater Conditions

Groundwater in the form of various seeps within Unit 2 was encountered at depths of between 1.2 and 2.9 in the testpits. Previous investigations inferred the water table to be between 3.3 to 3.6 metres below existing ground level with perched water tables in the upper layered soil strata.

The pore water pressure measurements in CPT1 to CPT7 generally showed zero pore pressure (V_2) to a depth of 5.0 metres. Minor variability in changes in pore water pressure indicates a degree of sensitivity with respect to ground water conditions and may reflect perched conditions within the subsurface sediments.

The pore water pressure profile recorded in CPT8 and CPT9 shows some variability with respect to hydrostatic head. A positive pressure head was recorded between 10.0 to 15.0 metres in CPT8 with pore pressure increasing from 0 kPa at 10.0 metres depth to about 130 kPa at 14.0 metres depth. At this level the pore pressure suddenly reduces before increasing to a pore pressure of approximately 200 kPa. The pore water pressure response is considered indicative of artesian conditions. A similar pore water pressure response is also recorded at a depth of 23.0 metres below existing ground level.

CPT9 profile shows a dramatic increase in pore water pressure at a depth of 25.0 metres below existing ground level and is indicative of a significant hydrostatic pressure head, the source of which is likely to be located in elevated hillside topography.

The pore water pressure profile indicates that artesian conditions are localised and do not exist above 23.0 metres depth and in subsoil interpreted as comprising sandy silt.

6.0 ENGINEERING DISCUSSION AND RECOMMENDATIONS

6.1 General

Opinions and recommendations contained herein are based on five (5) testpits and nine (9) CPTs. Inferences about the nature of the subsoil away from the points explored are made but it must be appreciated that actual conditions may vary from the assumed profile.

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The objective of the investigation is to establish the suitability of the site for a proposed retirement complex. We have no knowledge of the layout of the complex or the number of storeys for any structures under consideration. Furthermore, the design floor levels are unknown at this stage. Some earthworks involving cutting and filling is likely to be required.

Based on the investigation we consider that the site is suitable for the development of a retirement village complex subject to specific engineering conditions and constraints. The key geotechnical issues regarding the proposed development are assessment appropriate foundations to support the proposed complex and the likely settlement performance of foundations under both static and earthquake conditions. Earthquake shaking could induce stresses in the subsoil that may potentially lead to liquefaction and/or cyclic strain softening but depending on the strength/density of the material type and the magnitude and duration of ground shaking.

These aspects are discussed in the following sections together with design parameters for the design of flexible pavements likely to be associated with a retirement village complex.

6.2 Proposed Development

Based on our knowledge of other resthome/care facilities, the proposed resthome complex is likely to comprise both single and two storey buildings. Typically the various buildings in a resthome complex may be linked by covered walkways, hardstand areas and a network of roading (flexible pavements) but depending on the size of the facility.

The design elevation and floor slab and roading may be governed by design flood levels in which case some filling may be required in some of the lower lying areas to raise design floor levels etc above design flood levels. Depending on the design elevation a balanced cut to fill operation would be desirable but subject to the suitability (or otherwise) of the near surface soils for reuse as filling. Any filling would surcharge the underlying compressible alluvial sediments and is expected to induce settlement of the in situ soils. At this preliminary stage we recommend that any preferred filling required to raise the site to design levels should be limited to 1.0 metre depth.

The influence of any filling on the subgrade soils should be assessed once the design loads and extent of earthworks have been confirmed.

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6.3 Foundations

We have considered various foundation solutions, the options of which are limited because of the variable strength subsoils at depth. Pile foundations have been considered and discounted because there is no consistent layer across the site at reasonably shallow depth capable of supporting pile foundations.

The objective is to found all/any structural elements at shallow depth and above weaker layers that are potentially subject to settlement under surcharge loading.

The investigation has shown that shallow foundations cannot be constructed directly on the natural variable and compressible soils because of the potential for excessive settlement and differential movement between foundations or over a foundation alignment.

Shallow foundations may be supported on zones of compacted hardfill. The depth of hardfill will depend on the size of the foundation and as a guide the depth of hardfill is typically 1.5B (where B = the width of the foundation). For example for strip foundations supporting a single storey building the zone of compacted hardfill may be between 800 - 1000 mm depth below the underside of any footing. For heavier loads appropriate for say a two storey building, pad foundations are likely to be required. Depending on the magnitude of design loads, zones of subexcavation and hardfill replacement may extend to depths of up to 2.0 metres below ground level for a pad foundation. These aspects must be assessed at design stage.

The proposed retirement village may be supported on shallow foundations formed within granular filling. Depending on foundation elevation it is likely that foundations may traverse granular filling and fine grained soils. For consistency of performance under static ground conditions foundations should be supported completely on granular soils and where a foundation alignment traverses cut ground some local over-excavation may be required and replaced with river run gravel to design foundation level. If the main zone of stress influence is contained essentially within any granular hardfill foundations may be designed for the following bearing capacities:

Condition	Bearing Capacity (kPa)
Ultimate (rupture bearing capacity)	480
Allowable bearing capacity with factored loads and earthquake loads	400
Allowable bearing capacity with factored loads (ultimate limit state)	270
Allowable bearing capacity with unfactored loads (serviceability limit state)	160

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Shallow foundations should be founded as high as possible within the compacted fill and we recommend a confinement of no more than 0.5 metres, depending on loads.

6.4 Subgrade Preparation

The investigation has shown that the near surface soils above the lagoon sediments are typically clay silt material below a 300 – 400 mm of topsoil at the points explored. The clay silt material has measured undrained shear strength ranging S_U = 45 to >200 kPa, ie firm to stiff to very stiff strength consistency. The exception occurred at TP1 location where a shallow depth of clean fill comprising sandy gravel was encountered below the topsoil layer. Following removal of the topsoil layer the fine grained subgrade should have a target undrained shear strength S_U > 120 kPa. Any weak or compressible fine grained soils exposed at subgrade level should be undercut to expose competent fine grained soils. The fine grained soils are likely to be sensitive to remoulding and consequently will lose strength if reworked or softened by wet weather. As a consequence we recommend that the subgrade be inspected and approved by an experienced engineer prior to the placement of any filling.

6.5 Earthworks

The existing fine grained soils may not be entirely suitable for reuse as filling as some delay may be required to achieve an appropriate water content prior to placement of the on-site soils. Notwithstanding the above, some imported filling may be required to achieve design subgrade elevation. Imported fill soils are likely to comprise river run gravel sourced locally.

River run gravel should have a size of less than 100 mm. Care must be exercised to ensure that delivery trucks do not cause channelization that could lead to over compaction and weaving.

A construction methodology should be established on site at the outset of any subgrade preparation and should include the following points:

- All subexcavation should be carried out in stages, preferably in fine weather using a tracked excavator with a smooth edge bucket.
- All machinery must operate outside the area of excavation.
- Exposed subgrade must not remain open for any length of time and must be protected by at least 300 mm thickness of basecourse.

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All earthworks construction should be carried out in accordance with NZS 4431:1989 and the attached specification. The main aspects of the specification cover fill type suitability, compaction methodology and testing.

Testing is likely to comprise the use of a nuclear densometer to measure fill soil density. The relative compaction of any bulk earthworks shall not be less than 95% of the maximum density achieved at optimum water content. Secondary testing shall comprise penetrometer probe testing. A target penetration value of 10 blows/150 mm should be achieved everywhere in the filling. The appropriateness of the probe will depend on the size of the river run gravel and the validity of the results can only be reasonably be assessed on site.

6.6 Settlement Predictions

There are two aspects of static settlement that need to be considered. The first is the likely settlement of foundations formed within any granular filling and secondly the likely settlement of the deeper lagoon sediments under any fill surcharge. Settlement due to seismic effects is discussed in Section 7.

It is expected detailed settlement analysis will be required once a design is confirmed with an acceptance of any likely effects as part of the final design.

The aspects noted above are considered as follows:

6.6.1 Foundation Settlement

Depending on the size of any building within the proposed retirement complex, shallow foundations may comprise both strip and pad foundations.

The zone of stress influence beneath a shallow strip foundation may be contained completely within granular filling in which case settlement is likely to be minimal and elastic in nature occurring essentially upon application of load. A pad foundation having logically larger dimensions will influence a greater depth of subsoil, likely comprising some granular filling and natural soils below. The depth of stress influence will occur substantially within a depth of 1.5B (where B is the width of any pad foundation). Settlements should therefore be assessed when details of the proposed buildings are known. If strip foundations and pad footings are required to support structural elements then it will be necessary to assess likely differential settlement between adjacent foundations. This assessment can be carried out with reference to a foundation layout and design loads when compacted.

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6.6.2 Settlement of Lagoon Sediments under Surcharge Loading

It can be appreciated that the placement of a significant volume of filling over a wide area will influence a significant depth of the weaker lagoon sediments. The lagoon sediments, based on CPT8 and CPT9 are some 28.0 metres deep and most of the settlement will be generated from within those sediments. The magnitude of settlement will be a function of the weight of filling which should be limited in order to limit settlement to within tolerance levels.

The residential development at The Strand in Wainuiomata had filling to a depth of less than 1.0 metre and little to no settlement was recorded. We understand that the elevation of the Parkway was some 2.0 metres above the natural subgrade. This depth of filling imposed a surcharge of some 40 kPa on the underlying lagoon sediments. We understand that this surcharge did not induce significant settlement of the natural deposits, however, this filling would be flexible and a small amount of settlement may not necessarily manifest itself as measurable differential movement over the surface of the roadway.

Ideally any bulk filling required to achieve design levels should be limited to 1.0 metre. In any case settlements must be confirmed when site development is finalised.

The magnitude of settlement will be governed by the coefficient of volume decrease (M_V). This value would be assessed from the results of the CPT tests and the relationship $E_S = 2Q_C$ and where $M_V = 1/E_S$

Where the zone of stress influence extends into the lagoon sediments the rate of consolidation may be assessed from the coefficient of consolidation C_V. The degree of consolidation and the time factor is defined by the relation

$$T_V = \frac{C_V.t}{H^2}$$

where t is the interval of time to achieve a specific degree of consolidation. It is the length of the drainage path which may be assessed from the continuous plot of cone resistance (Q_C) and pore water pressure obtained from the deep CPT tests (ie CPT8 and CPT9).

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6.7 Flexible Pavements

The design of a flexible pavement is governed mainly by the strength of the subgrade soils. The strength of the subgrade may be considered in terms of CBR values.

We are unsure of any pavement design elevation and it is likely that some cutting and possibly minor filling may be required to achieve design levels. The site is blanketed with typically 300 – 400 mm of topsoil at the points explored. The topsoil must be removed to expose competent soil. The testpits revealed essentially variably stiff fine grained soils. Based on the measured undrained shear strength of these near surface soils we recommend that a CBR = 6 may be taken for design purposes. In the event that compacted fill soils are placed in low lying areas to achieve design grade a CBR = 6 is likely to be conservative. All exposed subgrade must be inspected by an experienced engineer and tested as appropriate to confirm design assumptions. Referring to a design chart for premium flexible pavements with thin surfacing in the 'State Highway Pavement Design and Rehabilitation Manual' a CBR = 6 gives a minimum pavement thickness of 220 mm. We recommend a minimum pavement thickness of 250 mm be allowed of which the top 100 mm should be basecourse.

7.0 SITE RESPONSE TO EARTHQUAKE SHAKING

7.1 Peak Ground Acceleration

The extent of liquefaction and/or cyclic strain softening and the associated risk settlement will be governed in part by the peak ground acceleration (intensity of earthquake shaking). With respect to the criteria in AS/NZS 1170.0:2002 a retirement village complex may be classified as an Importance Level 3 category. Therefore the annual probability of exceedance for an ultimate limit state (ULS) design is a 1000 year return period.

We have considered the effects on a retirement village complex from both a ULS case and a serviceability limit state (SLS) case. The peak ground acceleration PGA levels assumed in the assessment are:

Condition	ULS	SLS
PGA	0.36	0.09

The above accelerations have been derived from NZS 1170.5:2004 and using a site subsoil Class D and a hazard factor for Wainuiomata of Z = 0.4.

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7.2 Liquefaction Potential

One of the dominating factors in the assessment of the site suitability for a retirement village is the evaluation of site liquefaction.

Various definitions of liquefaction appear in numerous geotechnical publications both in New Zealand overseas and may be described as:

"The progressive loss of shear strength under repeated loading due to the build-up of pore pressures between soil particles. Repeated or cyclic loading which develops during earthquake activity produces rapidly increasing strains and under continued cyclic loading can lead to the development of large deformation with a soil mass, even at near-level sites".

Widely accepted definitions of earthquake induced liquefaction are those recommended by the American Society of Civil Engineers (ASCE Committee 1978) and described as:

"The act or process of transforming cohesionless soils from a solid state to a liquefied state as a consequence of increased pore pressure and reduced effective stress".

Liquefaction is usually associated with strong earthquake shaking which causes certain soil types to densify, increasing pore water pressure and decreasing shear strength.

This phenomenon has occurred extensively in the 2010 Darfield Earthquake (M7) and the 2011 Christchurch Earthquake (M6.3) where surface manifestation of liquefaction comprised depressions, cracking, vent formation, lateral spreading and flow failures.

Soil types most susceptible to liquefaction are loose uniformly graded sands and to a lesser extent silty sands and sandy silts. The susceptibility of the site subsoils to liquefaction are discussed in the following section.

7.3 Compositional Criteria

Soils most susceptible to liquefaction are loose uniformly graded fine sands and to a lesser extent silty sands and sandy silt below groundwater level. A detailed soil model has been generated from CPT data input into a software programme called CLIQ Version 17.6.34 "CPT Liquefaction Assessment Software". Based on the basic input data comprising a plot of the cone resistance (Q_C) versus depth and a plot of

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skin friction versus depth, the friction ratio (F_S/O_C) versus depth is calculated. A plot of the profile expressed as soil behaviour type (SBT) versus depth is shown on the appropriate plates 1 – 12 presented in Appendix C. A review of these graphs indicates that the soil profile at CPT8 location comprises silty sand/sandy silt to a depth of 5.5 metres. This material overlies a thin horizon of gravelly sand. The subsoil below this layer appears relatively uniform and the software identifies the lower sediments as clayey silt/silty clay to a depth of 15.0 metres.

The subsoil profile at CPT9 location is to a degree similar comprising inferred sequences of clay silt, sandy silt, silty sand and sandy silt to a depth of 15.0 metres.

The lower part of the inferred profile for the SLS and ULS cases is considered to be in a transition zone between liquefiable and non-liquefiable soils and liquefaction potential may be considered with respect to soils that are sand-like (liquefiable) and those that are clay-like (non-liquefiable). The susceptibility of fine grained soils may be considered with respect to soil plasticity where fine grained soils having a plasticity PI > 12 are not considered liquefiable and those soils having a PI < 7 may be liquefiable. The soil's susceptibility to liquefaction is expressed in terms of a soil behaviour type index (I_C). Subsoils having an $I_C > 2.6$ are considered non-liquefiable. The graph of I_C v depth shown on the Liquefaction Analysis Reports presented in Appendix C indicates that the profile of the lower sediments are marginal with the potential for liquefaction slightly higher in CPT9 compared to the profile at CPT8 location.

7.4 Evaluation of Liquefaction Potential

The analysis of liquefaction potential has been considered for both the profiles at CPT8 and CPT9 locations and under both a serviceability limit state (SLS) and an ultimate limit state (ULS) level of ground shaking.

As stated above the likely performance of the subsoils under earthquake shaking is shown on a number of graphs presented on Plates 1 – 12 in Appendix C.

A schedule of these graphs for each of the load cases considered is summarised as follows:

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CPT No.	Load Case	Plate No.	Details of Title Page
8	SLS	1	Liquefaction Analysis Report
		2	Basic Interpretation Plots
		3	Liquefaction Analysis Overall Plot
8	ULS	4	Liquefaction Analysis Report
		5	Basic Interpretation Plots
		6	Liquefaction Analysis Overall Plot
9	SLS	7	Liquefaction Analysis Report
		8	Basic Interpretation Plots
		9	Liquefaction Analysis Overall Plot
9	ULS	10	Liquefaction Analysis Report
		11	Basic Interpretation Plots
		12	Liquefaction Analysis Overall Plot

The analysis indicates that the subsoils are generally non liquefiable under an SLS level of ground shaking, however, with reference to the plot of factor of safety (FOS) v depth of both Liquefaction Analysis Reports some soil horizons between a depth of 3.5 to 6.5 metres below existing ground level have FOS < 1.0 which implies that some localised liquefaction under this level of ground shaking may occur. Furthermore a plot of Cyclic Stress Ration (CSR) v Cone Resistance (Q_C) indicates that most points analysed fall in the non-liquefiable part of the graph. The plot on this graph is not continuous thus indicating that the deeper sediments are not considered liquefiable (ie $I_C > 2.6$).

Under a ULS level of ground shaking some liquefaction may be expected to occur in specific soil horizons. For example at CPT8 location specific zones between 3.5 to 6.5 metres depth have FOS < 1.0. This plot contrasts with the FOS v depth graph at CPT9 location. At this location specific soil horizons extending down to a depth of 15.0 metres may be expected to liquefy under a ULS level of ground shaking with many horizons having FOS significantly less than FOS < 1.0. Again this plot is not continuous implying that there are sequences of non-liquefiable soil between the potentially liquefiable soil horizons.

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The programme also expresses liquefaction in terms of risk. Under an SLS level of ground shaking the risk of liquefaction is low. Under a ULS level of ground shaking there is a medium to high risk of liquefaction at CPT8 location. At CPT9 location the risk of liquefaction is high.

7.5 Settlement under Earthquake Shaking

The software has computed vertical settlement under both SLS and ULS level of ground shaking. These settlements by definition are elastic in nature and are summarised as follows:

CPT No.	Settlement (mm)	
	SLS	ULS
8	<20	~60
9	<10	250

There is a marked difference in elastic settlement between CPT8 and CPT9 profiles under ULS levels of ground shaking and this indicates a potential for significant differential movement between the two locations.

The software has also assessed post-earthquake settlement whilst not specifically defined, the settlement predicted may be a combination of elastic settlement and cyclic strain softening of clay-like soils which are not considered liquefiable. The assessment of post-earthquake settlement indicates that similar settlement to the above may be expected to occur following a ULS level of ground shaking.

Settlements associated with clay-like soils are likely to be time dependent. The predicted settlement may not be completely manifested at ground level because of the likely rafting effects of the non-liquefiable layers.

Due to the depths of the lagoon, settlement mitigation options are unlikely to be economic and some risk of settlement should be accepted under the above design cases. Foundations should be relatively stiff to minimise likely damage, and allowance for relevelling if required is likely to be the most economic approach.

7.6 Lateral Spreading

The site is undulating but essentially flat with no obvious free surfaces nearby that may otherwise be attributable to potential lateral spreading.

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8.0 CONCLUSIONS

The investigation has shown that:

- The site may be developed as a retirement village complex and is suitable for single and two storey buildings that comprise lightweight timber framing and cladding.
- Subsoils comprise typically variable strength fine grained soils with some areas of shallow depth filling. The variability precludes direct support of all load bearing elements and subgrade pretreatment is recommended in order to be able to support the proposed buildings at shallow depth.
- Subgrade pretreatment should comprise subexcavation of near surface soils and placement of a compacted hardfill raft to design foundation level.
- Foundation settlement under static conditions is expected to be relatively small when footings are constructed on compacted backfill, therefore differential settlement will also be small and likely within tolerance levels for the types of buildings envisaged.
- Under SLS level of ground shaking some liquefaction may occur in thin soil horizons below the groundwater level. Deeper sediments are not particularly liquefiable and may undergo limited settlement in a post-earthquake period.
- Under a ULS level of ground shaking analysis indicates that liquefaction will occur at specific depths and confined by zones of non-liquefiable soil.
- Predicted settlements at CPT8 and CPT9 locations indicate that differential settlements may be expected to occur across the site, particularly under a ULS level of ground shaking. Actual settlements realised during a ULS event may be less than those predicted due to the rafting effects of the non-liquefiable layers.
- Building foundations should be stiff to minimise the effects of any differential settlement and allow for possible relevelling following a seismic event.
- The site is gently undulating and there is no significant sloping topography nearby that may otherwise increase the risk of lateral spreading.
- Flexible pavements likely to be associated with the proposed retirement complex are likely to traverse variable soil conditions. Inspection and testing of all roading subgrade must be carried out to ensure the validity of the recommended subgrade stiffness.

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9.0 LIMITATIONS

This report has been prepared solely for you as our client with respect to the brief provided. Data or opinions contained in this report may not be used in other contexts or for any other purpose without our prior review and agreement.

It is in all parties' interests that we be retained to examine the site during foundation preparation and construction work so that exposed subsoil and actual site conditions can be compared with the report assumptions. In all circumstances, however, if variations in the subsoil occur which differ from that described or are assumed to exist, then the matter should be referred back to us.

10.0 REFERENCES

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Yours faithfully
ABUILD™ Consulting Engineers Limited

Richard Skilton
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Engineering Geologist

Royston Davidge
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Chartered Professional Engineer

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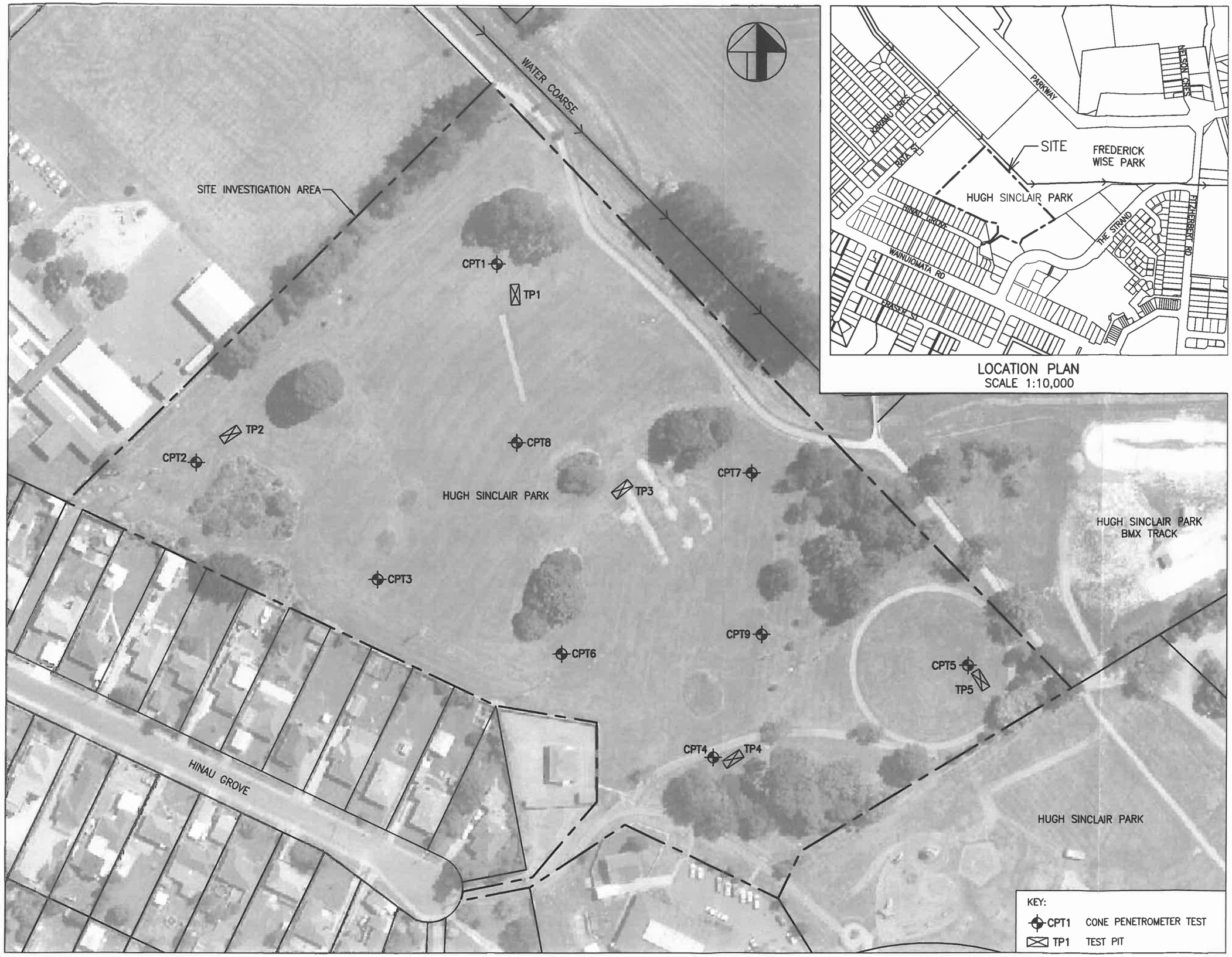
APPENDIX A



SITE INVESTIGATION PLAN
SCALE 1:1,200

LOCATION PLAN
SCALE 1:10,000

NOTES:

1. DIMENSIONS AND LOCATIONS ARE APPROXIMATE ONLY.

2. CADASTRAL AND TOPOGRAPHICAL INFORMATION FROM LINZ DATA.

Rev	Date	By	Reason	Approval

Job	GEOTECHNICAL INVESTIGATION
Job Address	HUGH SINCLAIR PARK WAINUIOMATA
Client	CUTTRISS CONSULTANTS LIMITED
Owner	HUTT CITY COUNCIL

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Drawn	RNS
Checked	
Traced	
Scale	AS SHOWN AT A3
Date	13/02/15

Sheet Title

SITE INVESTIGATION LOCATION PLAN

Job No	Sheet	Rev
9965	S1	A

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INVESTIGATION LOG

Job No.:	9965
No.:	TP1
Sheet:	1 of 1
Date:	23/01/15

Client: Cuttriss Consultants Limited	**Coordinates:** N/A	**Ground Level (m):** 83
Project: Geotechnical Investigation	**Location:** NE Corner	

Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)	Legend	Hand Shear Vane (Uncorrected)	Water
[TOPSOIL] SILT; brown. Very stiff to hard; slightly moist.	0.2	TS	SV: 0.10m,SV1 130/81 kPa SV: 0.20m,SV2 UTP	
[Inferred FILL] Sandy GRAVEL (fine to coarse); orange brown. Inferred dense; dry.	0.4	TS		
[ALLUVIUM] Clayey SILT; orange stained blue grey. Firm at top to hard; moist. Some plasticity.	0.6			
[ALLUVIUM] Silty CLAY; blue grey. Firm to stiff; moist. Plastic.	0.8		SV: 0.80m,SV3 61/37 kPa	
	1.0		SV: 1.00m,SV4 61/37 kPa SV: 1.00m,SV5 45/25 kPa	
	1.2			
	1.4		SV: 1.30m,SV6 88/65 kPa	
	1.6			
	1.8			IN 1.80m
[ALLUVIUM] SAND (medium) with some Gravel; blue grey. Inferred med. dense/dense; wet. Sand, uniformly graded. Gravel, fine to coarse, dark blue Siltstone, friable.	2.0			
[ALLUVIUM] CLAY; brownish grey. Stiff; moist. Plastic.	2.2			
	2.4		SV: 2.40m,SV7 62/32 kPa	
	2.6			
	2.8			
EOH:3.0m	3.0			
	3.2			
	3.4			

Remarks

Backfilled and tamped with bucket upon completion.

Minor seepage (inferred perched) at 1.8m in N & E sides.

Water

- Standing Water Level
- Out flow
- In flow

Investigation Type

- [ ] Hand Auger
- [x] Test Pit

Contractor:	Rig/Plant Used:	Logged By:	Checked By:	Hole Depth:
John Everiss	7T Excavator	AT	RD	3.00 m

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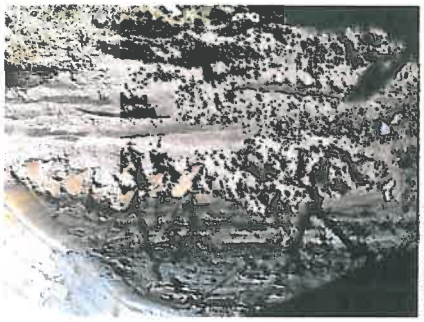
INVESTIGATION LOG

Job No.:	9965
No.:	TP2
Sheet:	1 of 1
Date:	23/01/15

Client: Cuttriss Consultants Limited	**Coordinates:** N/A	**Ground Level (m):** 83
Project: Geotechnical Investigation	**Location:** NW Corner	

Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)	Hand Shear Vane (Uncorrected)	Water
[TOPSOIL] SILT; brown. Very stiff; slightly moist.	0.2	TS, T	
[ALLUVIUM] Silty CLAY; grey brown with some mottled orange brown staining. Hard; slightly moist.	0.4	SV: 0.50m,SV1 200/114 kPa	
	0.6	SV: 0.50m,SV2 UTP	
Becomes very stiff; moist; with minor small wood fragments	0.8		
	1.0	SV: 1.10m,SV3 117/65 kPa	
[ALLUVIUM] Silty SAND (fine)/Sandy SILT with trace woody debris; blue grey. Very stiff; moist.	1.2	SV: 1.11m,SV4 133/81 kPa	IN 1.20m
[ALLUVIUM] Sandy GRAVEL (medium to coarse); blue grey. Inferred medium dense; wet. Gravel, predominantly coarse, sub rounded to angular, dark blue siltstone. Well graded.	1.4		
	1.6		
	1.8		
[ALLUVIUM] CLAY with trace rootlets; blue grey stained to brown. Firm to stiff; moist. Plastic.	2.0		
	2.2	SV: 2.20m,SV5 58/45 kPa	
[ALLUVIUM] GRAVEL (medium to coarse) with some Sand (medium); blue grey. Inferred dense; wet. Derived from dark blue siltstone. Well graded.	2.4		IN 2.40m
	2.6		
EOH:2.9m	2.8		
	3.0		
	3.2		
	3.4		



Remarks

Backfilled and tamped with bucket upon completion.

Minor seepage (inferred perched) at 1.2m & 2.4m.

Water

- Standing Water Level
- Out flow
- In flow

Investigation Type

- [ ] Hand Auger
- [x] Test Pit

Contractor:	Rig/Plant Used:	Logged By:	Checked By:	Hole Depth:
John Everiss	7T Excavator	AT	RD	2.90 m

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INVESTIGATION LOG

Job No.:	9965
No.:	TP3
Sheet:	1 of 1
Date:	23/01/15

Client: Cuttriss Consultants Limited	**Coordinates:** N/A	**Ground Level (m):** 83
Project: Geotechnical Investigation	**Location:** Centre	

Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)	Hand Shear Vane (Uncorrected)
[TOPSOIL] SILT; brown. Very stiff; dry.	0.2	
[ALLUVIUM] Sandy SILT; grey brown with some orange brown staining. Very stiff; moist.	0.4	SV: 0.30m,SV1 UTP
Becomes grey brown/blue grey	0.6	SV: 0.50m,SV2 123/71 kPa SV: 0.51m,SV3 133/78 kPa
[ALLUVIUM] Sandy GRAVEL (medium to coarse); blue grey. Inferred dense; wet. Gravel, angular, dark blue siltstone. Well graded.	0.8 1.0	
[ALLUVIUM] Silty CLAY; blue grey. Soft to firm; moist.	1.2	SV: 1.30m,SV4 52/16 kPa
Stiff to very stiff.	1.4	SV: 1.31m,SV5 42/32 kPa
	1.6	SV: 1.40m,SV6 97/55 kPa
[ALLUVIUM] Sandy GRAVEL (medium to coarse); blue grey. Inferred dense; wet. Gravel, dark blue siltstone, predominantly coarse. Well graded.	1.8	
[ALLUVIUM] Silty CLAY; blue grey. Inferred stiff; moist.	2.0	
[ALLUVIUM] Sandy GRAVEL (medium to coarse); blue grey. Inferred dense; wet. As above.	2.2	
	2.4	
[ALLUVIUM] CLAY; brown. Inferred stiff; moist. Plastic.	2.6	
	2.8	
	3.0	
EOH:3.2m	3.2	
	3.4	

Water: IN 1.30m; IN 2.10m

Remarks

Backfilled and tamped with bucket upon completion.

Trace seepage (perched) at 1.3m.
Minor seepage (inferred perched) at 2.1m.

Water

- Standing Water Level
- Out flow
- In flow

Investigation Type

- [ ] Hand Auger
- [x] Test Pit

Contractor:	Rig/Plant Used:	Logged By:	Checked By:	Hole Depth:
John Everiss	7T Excavator	AT	RD	3.20 m

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INVESTIGATION LOG

Job No.:	9965
No.:	TP4
Sheet:	1 of 1
Date:	23/01/15

Client: Cuttriss Consultants Limited	**Coordinates:**	**Ground Level(m):** 83
Project: Geotechnical Investigation	**Location:** SW Corner	

Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)	Legend	Hand Shear Vane (Uncorrected)	Water
[TOPSOIL] SILT; brown. Very stiff; dry.	0.2	TS T		
[ALLUVIUM] Sandy SILT; grey brown with orange brown staining. Hard; dry. Fill?	0.4		SV: 0.30m,SV1 UTP	
[ALLUVIUM] Gravelly SAND (fine to medium) with minor Silt; orange brown. Inferred dense; slightly moist. Gravel, predominantly medium, subrounded. Fill?	0.6		SV: 0.70m,SV2 UTP	
	0.8			
	1.0			
	1.2			
[ALLUVIUM] SAND (fine); blue grey. Inferred dense; wet. Uniformly graded.	1.4		SV: 1.45m,SV3 94/65 kPa	
[ALLUVIUM] CLAY; brown. Very stiff; moist. Plastic.				
[ALLUVIUM] Sandy GRAVEL (med. to coarse); blue grey. Inferred dense; wet. Sand, medium. Derived from dark blue siltstone.	1.6		SV: 1.50m,SV4 71/45 kPa	IN 1.50m
	1.8			
	2.0			
	2.2			
	2.4			
	2.6			
[ALLUVIUM] SILT; blue grey. Very stiff; moist. Non-plastic.	2.8			
EOH:3.0m	3.0			IN 2.90m
	3.2			
	3.4			

Remarks

Backfilled and tamped with bucket upon completion.

Minor seepage (inferred perched) at 1.5m & 2.9m.

Water

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow

Investigation Type

- ☐ Hand Auger
- ☑ Test Pit

Contractor:	Rig/Plant Used:	Logged By:	Checked By:	Hole Depth:
John Everiss	7T Excavator	AT	RD	3.00 m

Produced with Core-GS

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INVESTIGATION LOG

Job No.:	9965
No.:	TP5
Sheet:	1 of 1
Date:	23/01/15

Client: Cuttriss Consultants Limited	**Coordinates:**	**Ground Level(m):** 83
Project: Geotechnical Investigation	**Location:** SE Corner	

Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)	Hand Shear Vane (Uncorrected)	Water
[TOPSOIL] SILT; brown. Very stiff; dry.	0.2	SV: 0.30m,SV1 UTP	
[ALLUVIUM] Silty CLAY; grey brown with mottled orange brown staining. Very stiff to hard; dry.	0.4	SV: 0.50m,SV2 UTP	
[ALLUVIUM] CLAY; dark brown. Very stiff to hard; slightly moist.	0.6	SV: 0.70m,SV3 120/71 kPa	
Becomes grey with orange brown staining.	0.8	SV: 0.90m,SV4 136/101 kPa	
Becomes orange brown.	1.0		
Grades to stiff to very stiff, moist, brown CLAY	1.2	SV: 1.30m,SV5 130/97 kPa	
	1.4	SV: 1.31m,SV6 133/94 kPa	
	1.6	SV: 1.60m,SV7 71/45 kPa	
[ALLUVIUM] CLAY; blue grey. Stiff to very stiff; moist.	1.8	SV: 1.80m,SV8 81/58 kPa	IN 1.80m
[ALLUVIUM] Sandy GRAVEL (med. to coarse); blue grey. Inferred dense; wet. Sand, medium. Derived from dark blue siltstone. Well graded.	2.0		
With interlayered thin CLAY lenses	2.2		
	2.4		IN 2.30m
[ALLUVIUM] CLAY; blue grey. Stiff to very stiff; moist.	2.6		
	2.8	SV: 2.90m,SV9 88/- kPa	
	3.0	SV: 2.91m,SV10 117/94 kPa	
EOH:3.3m	3.2		
	3.4		

Remarks

Backfilled and tamped with bucket upon completion.

Minor seepage (inferred perched) at 1.8m in gravel & 2.3m on top of clay layer.

Water

- ▼ Standing Water Level
- ◁ Out flow
- ▷ In flow

Investigation Type

- ☐ Hand Auger
- ☑ Test Pit

Contractor:	Rig/Plant Used:	Logged By:	Checked By:	Hole Depth:
John Everiss	7T Excavator	AT	RD	3.30 m

Printed: 26/01/2015 4:15:45 p.

RDCL

CPT LOG

PointID: 1

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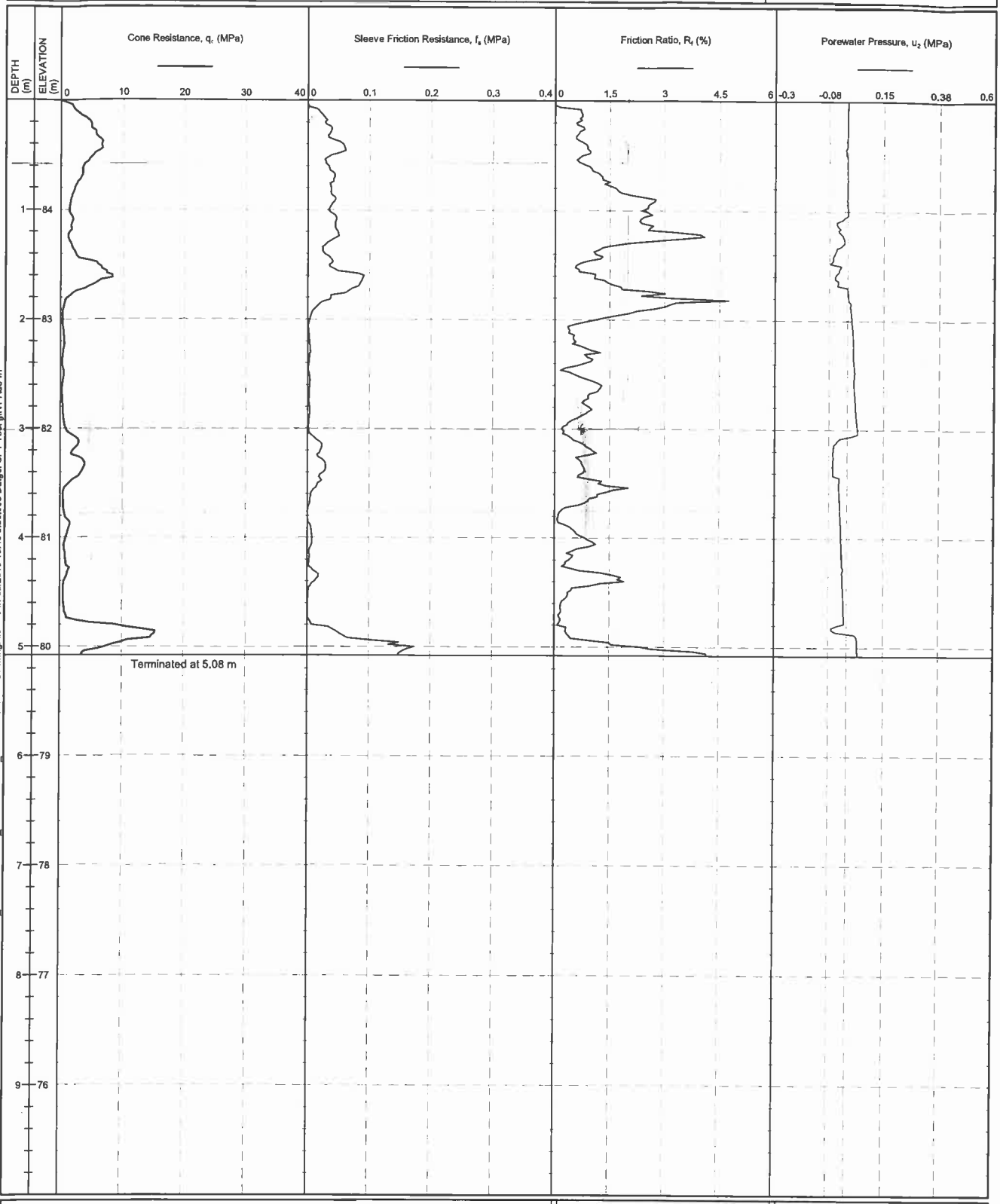
ENGINEER	: SK	EASTING	: 1762569.0 m	STATUS	: 3
PROJECT	: Geotechnical Investigation	NORTHING	: 5430865.0 m	DATE	: 28/01/2015
LOCATION	: Hugh Sinclair Park, Wainuiomata	COORD. SYS.	: NZTM		
PROJECT No.	: 150404010	ELEVATION	: 85.00 m		



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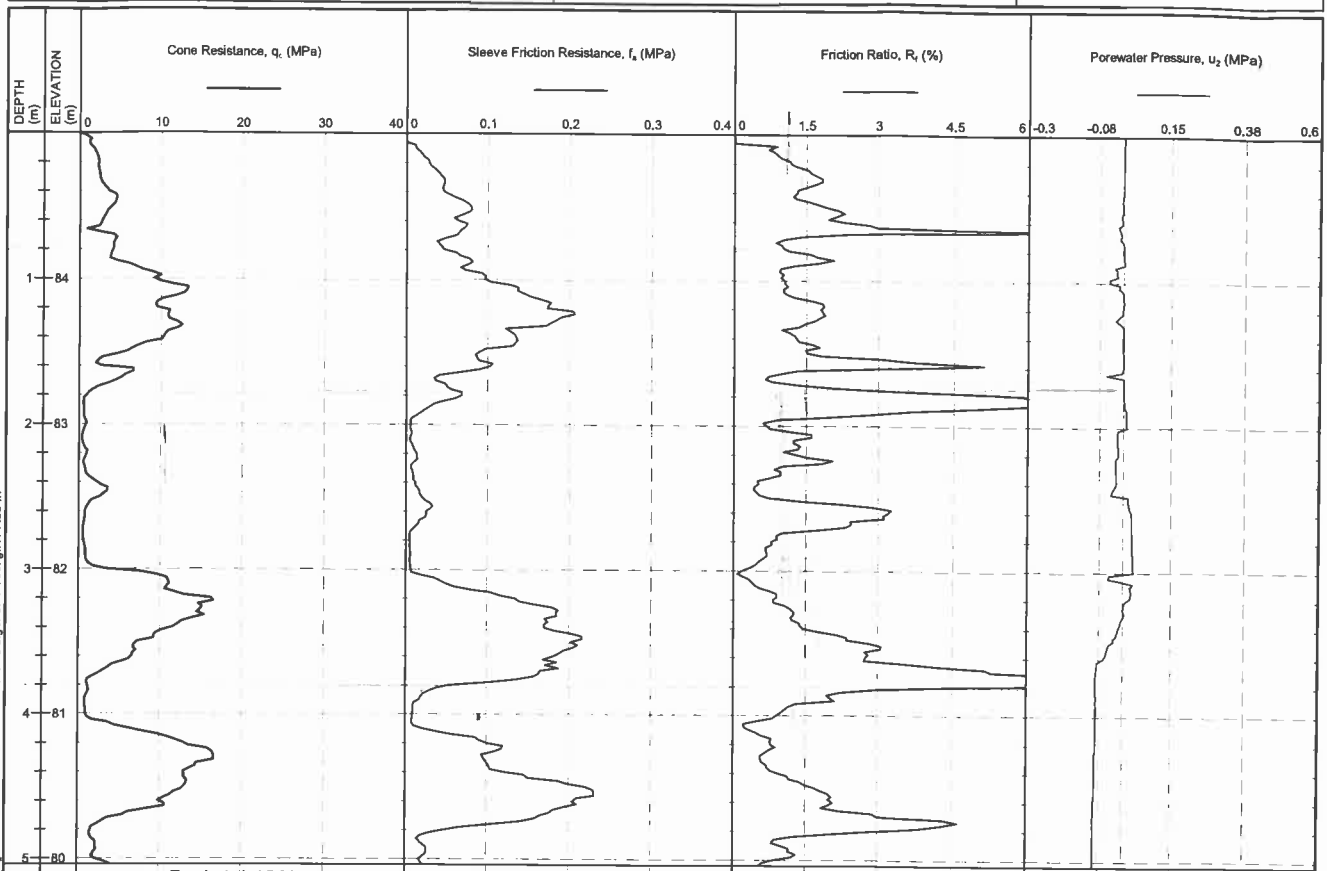
CONE TYPE	: C+F+W2+S	CHECKED DATE	:		
CONE ID	: 4447	APPROVED BY	: RG		
OPERATOR	: SLK	APPROVED DATE	: 30/01/2015		

RDCL

CPT LOG

PointID: 2

CLIENT	: Griffiths Drilling Ltd	AREA	: 150404010	SHEET	: 1 OF 1
ENGINEER	: SK	EASTING	: 1762474.0 m	STATUS	: 3
PROJECT	: Geotechnical Investigation	NORTHING	: 5430794.0 m	DATE	: 28/01/2015
LOCATION	: Hugh Sinclair Park, Wainuiomata	COORD. SYS.	: NZTM		
PROJECT No.	: 150404010	ELEVATION	: 85.00 m		



RIG	: CPT RIG	CHECKED BY	:	Dissipation Test	REMARK
CONE TYPE	: C+F+W2+S	CHECKED DATE	:		
CONE ID	: 4447	APPROVED BY	: RG		
OPERATOR	: SLK	APPROVED DATE	: 30/01/2015		

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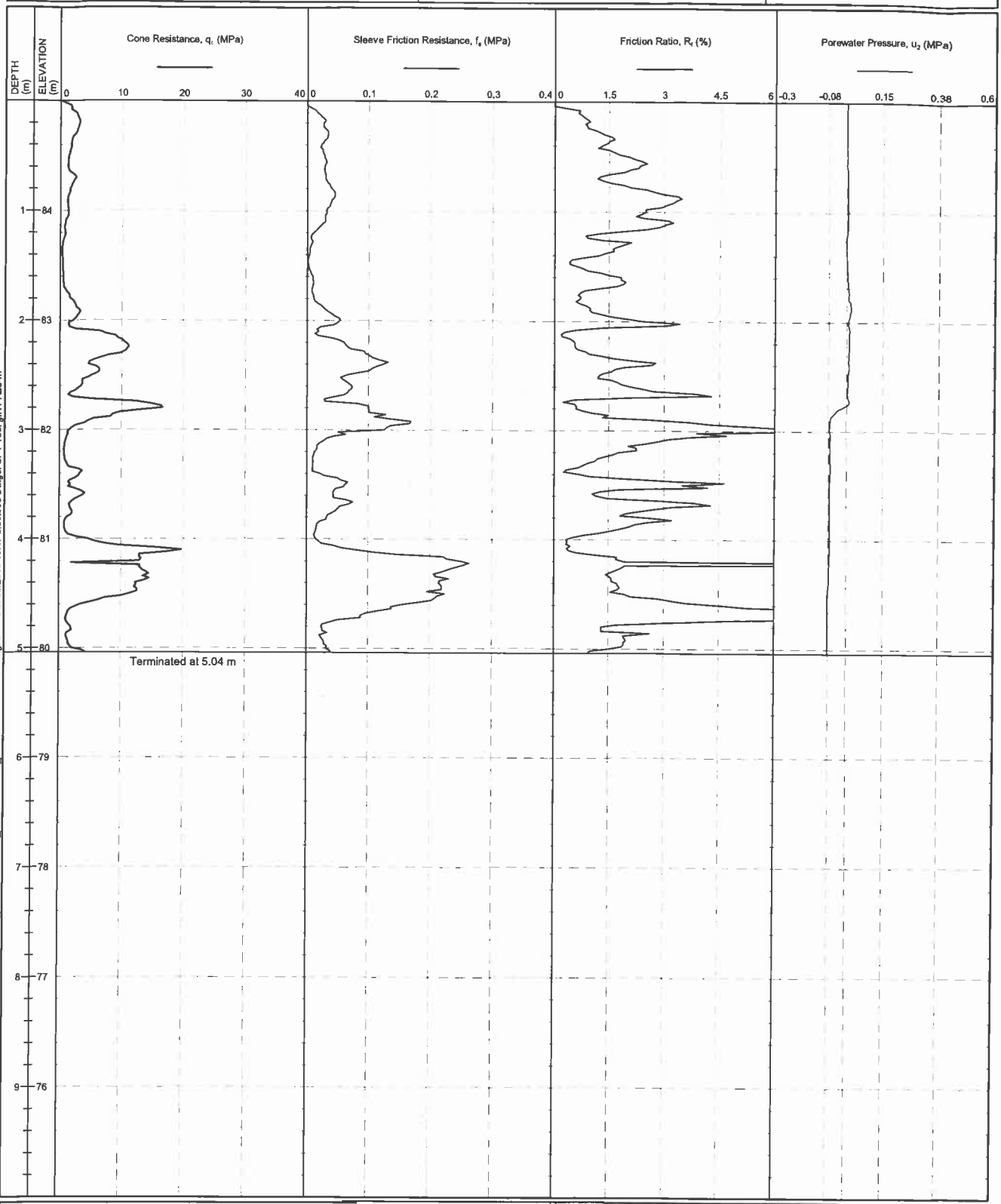
RDCL

CPT LOG

PointID: 3

CLIENT	: Griffiths Drilling Ltd	AREA	: 150404010	SHEET	: 1 OF 1
ENGINEER	: SK	EASTING	: 1762524.0 m	STATUS	: 3
PROJECT	: Geotechnical Investigation	NORTHING	: 5430757.0 m	DATE	: 28/01/2015
LOCATION	: Hugh Sinclair Park, Wainuiomata	COORD. SYS.	: NZTM		
PROJECT No.	: 150404010	ELEVATION	: 85.00 m		



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CONE TYPE	: C+F+W2+S	CHECKED DATE	:		
CONE ID	: 4447	APPROVED BY	: RG		
OPERATOR	: SLK	APPROVED DATE	: 30/01/2015		

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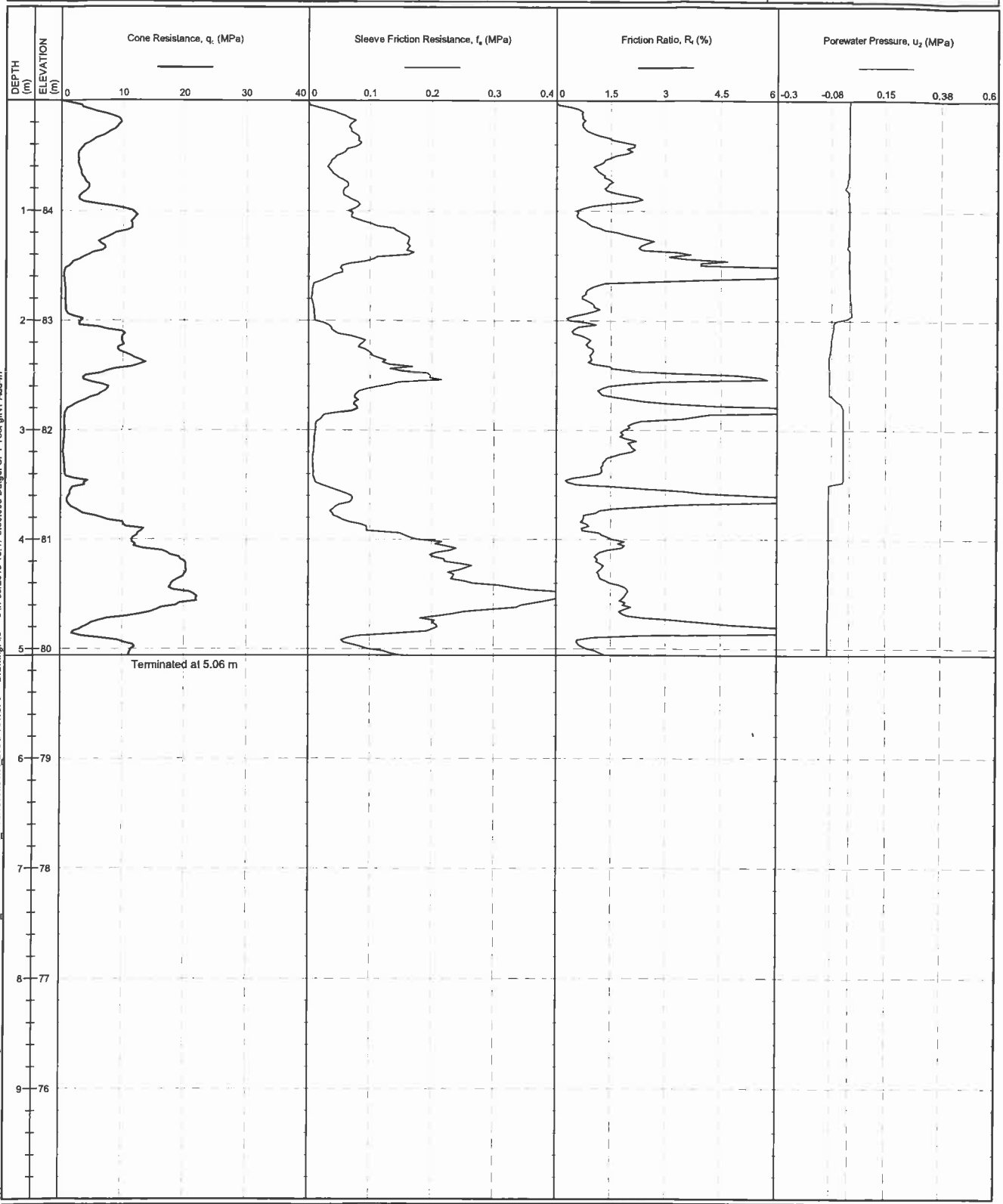
RDCL

CPT LOG

PointID: 4

CLIENT	: Griffiths Drilling Ltd	AREA	: 150404010	SHEET	: 1 OF 1
ENGINEER	: SK	EASTING	: 1762638.0 m	STATUS	: 3
PROJECT	: Geotechnical Investigation	NORTHING	: 5430694.0 m	DATE	: 28/01/2015
LOCATION	: Hugh Sinclair Park, Wainuiomata	COORD. SYS.	: NZTM		
PROJECT No.	: 150404010	ELEVATION	: 85.00 m		



RIG	: CPT RIG	CHECKED BY	:	Dissipation Test	REMARK
CONE TYPE	: C+F+W2+S	CHECKED DATE	:		
CONE ID	: 4447	APPROVED BY	: RG		
OPERATOR	: SLK	APPROVED DATE	: 30/01/2015		

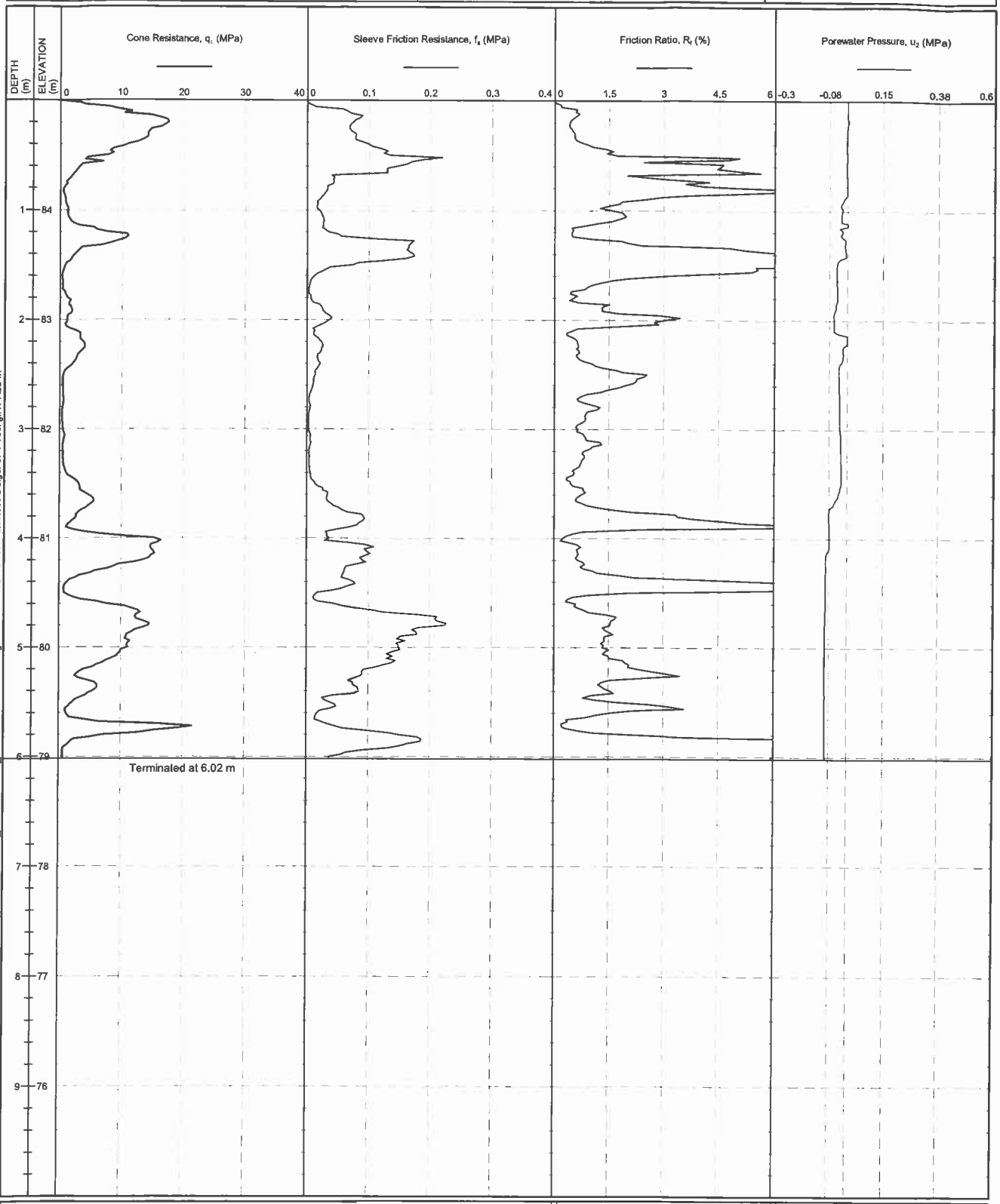
RDCL_GINT_V4-0_CPT_30-09-2014-CURRENT.GLB Log RDCL CPTU A4P 150404010_HUGH SINCLAIR_WAINUIOMATA_DRAFT01.GPJ <<DrawingFile>> 04/Feb/2015 15:47 8.30.003 Daigel CPT Tool gINT Add-In

RDCL

CPT LOG

PointID: **5**

CLIENT	: Griffiths Drilling Ltd	AREA	: 150404010	SHEET	: 1 OF 1
ENGINEER	: SK	EASTING	: 1762728.0 m	STATUS	: 3
PROJECT	: Geotechnical Investigation	NORTHING	: 5430726.0 m	DATE	: 28/01/2015
LOCATION	: Hugh Sinclair Park, Wainuiomata	COORD. SYS.	: NZTM		
PROJECT No.	: 150404010	ELEVATION	: 85.00 m		



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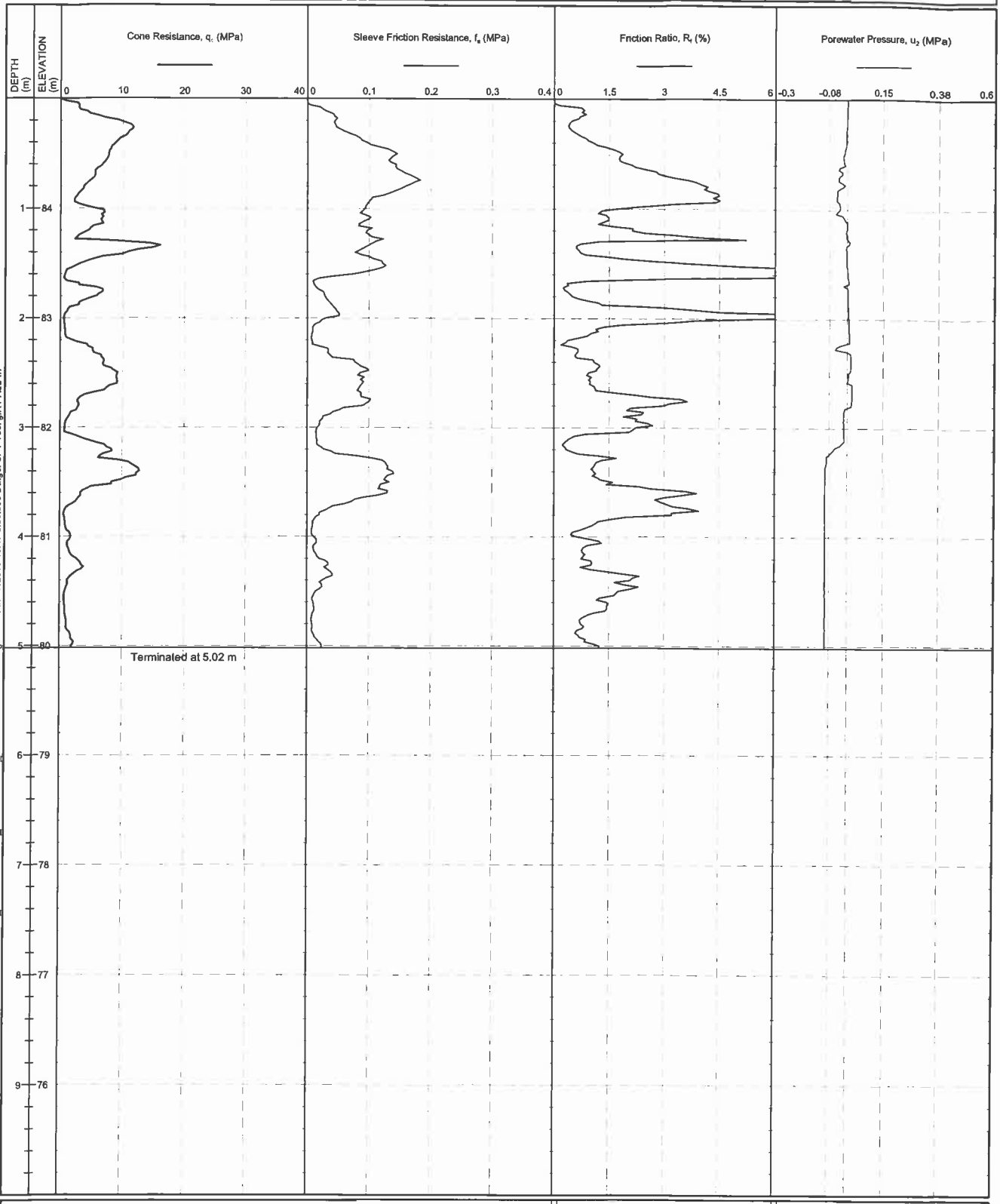
CONE TYPE	: C+F+W2+S	CHECKED DATE	:		
CONE ID	: 4447	APPROVED BY	: RG		
OPERATOR	: SLK	APPROVED DATE	: 30/01/2015		

RDCL

CPT LOG

PointID **6**

CLIENT	: Griffiths Drilling Ltd	AREA	: 150404010	SHEET	: 1 OF 1
ENGINEER	: SK	EASTING	: 1762591.0 m	STATUS	: 3
PROJECT	: Geotechnical Investigation	NORTHING	: 5430731.0 m	DATE	: 28/01/2015
LOCATION	: Hugh Sinclair Park, Wainuiomata	COORD. SYS.	: NZTM		
PROJECT No.	: 150404010	ELEVATION	: 85.00 m		



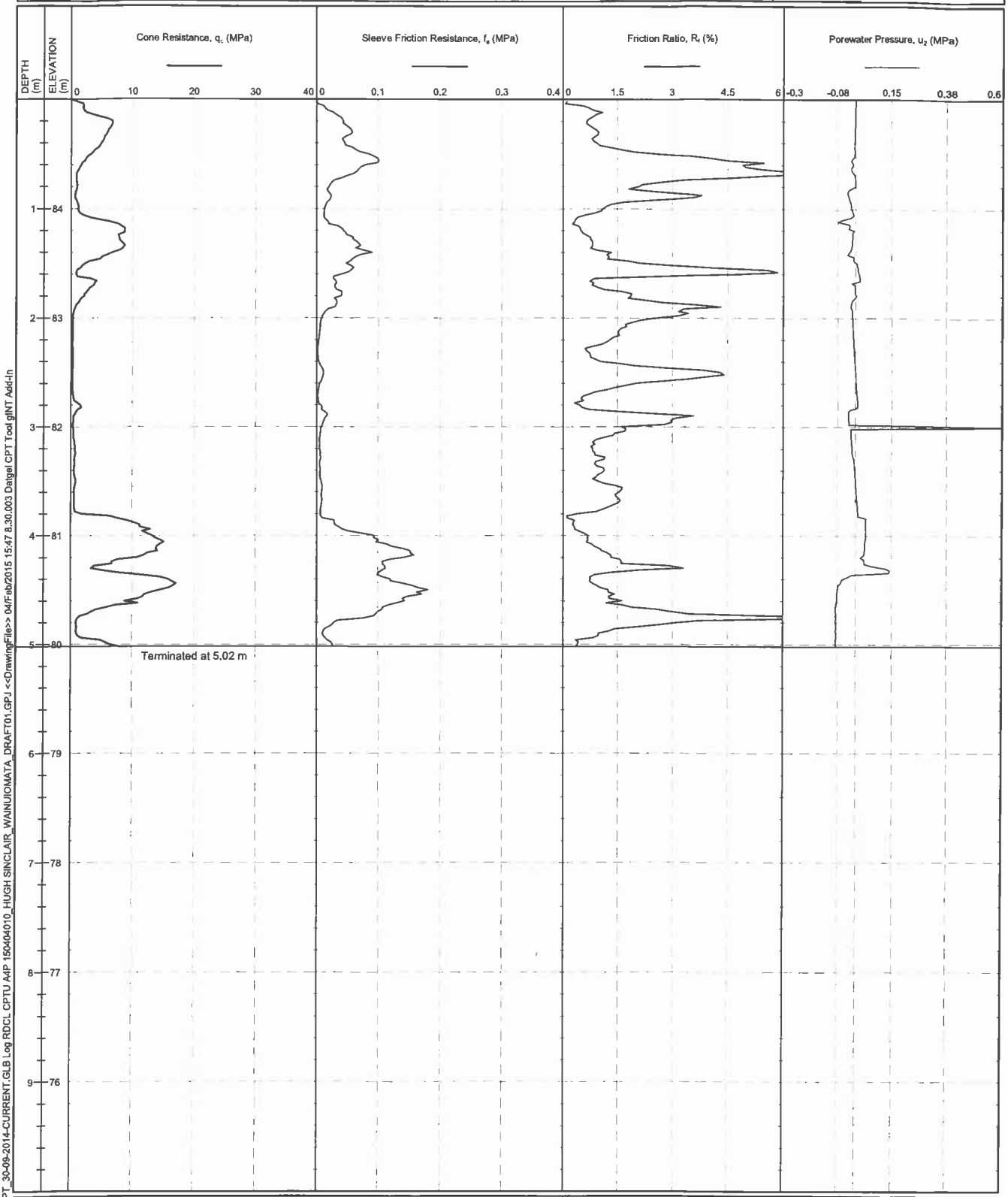
RIG	: CPT RIG	CHECKED BY	:	Dissipation Test	REMARK
CONE TYPE	: C+F+W2+S	CHECKED DATE	:		
CONE ID	: 4447	APPROVED BY	: RG		
OPERATOR	: SLK	APPROVED DATE	: 30/01/2015		

RDCL

CPT LOG

PointID: 7

CLIENT	: Griffiths Drilling Ltd	AREA	: 150404010	SHEET	: 1 OF 1
ENGINEER	: SK	EASTING	: 1762650.0 m	STATUS	: 3
PROJECT	: Geotechnical Investigation	NORTHING	: 5430790.0 m	DATE	: 28/01/2015
LOCATION	: Hugh Sinclair Park, Wainuiomata	COORD. SYS.	: NZTM		
PROJECT No.	: 150404010	ELEVATION	: 85.00 m		



RIG	: CPT RIG	CHECKED BY	:	Dissipation Test	REMARK
CONE TYPE	: C+F+W2+S	CHECKED DATE	:		
CONE ID	: 4447	APPROVED BY	: RG		
OPERATOR	: SLK	APPROVED DATE	: 30/01/2015		

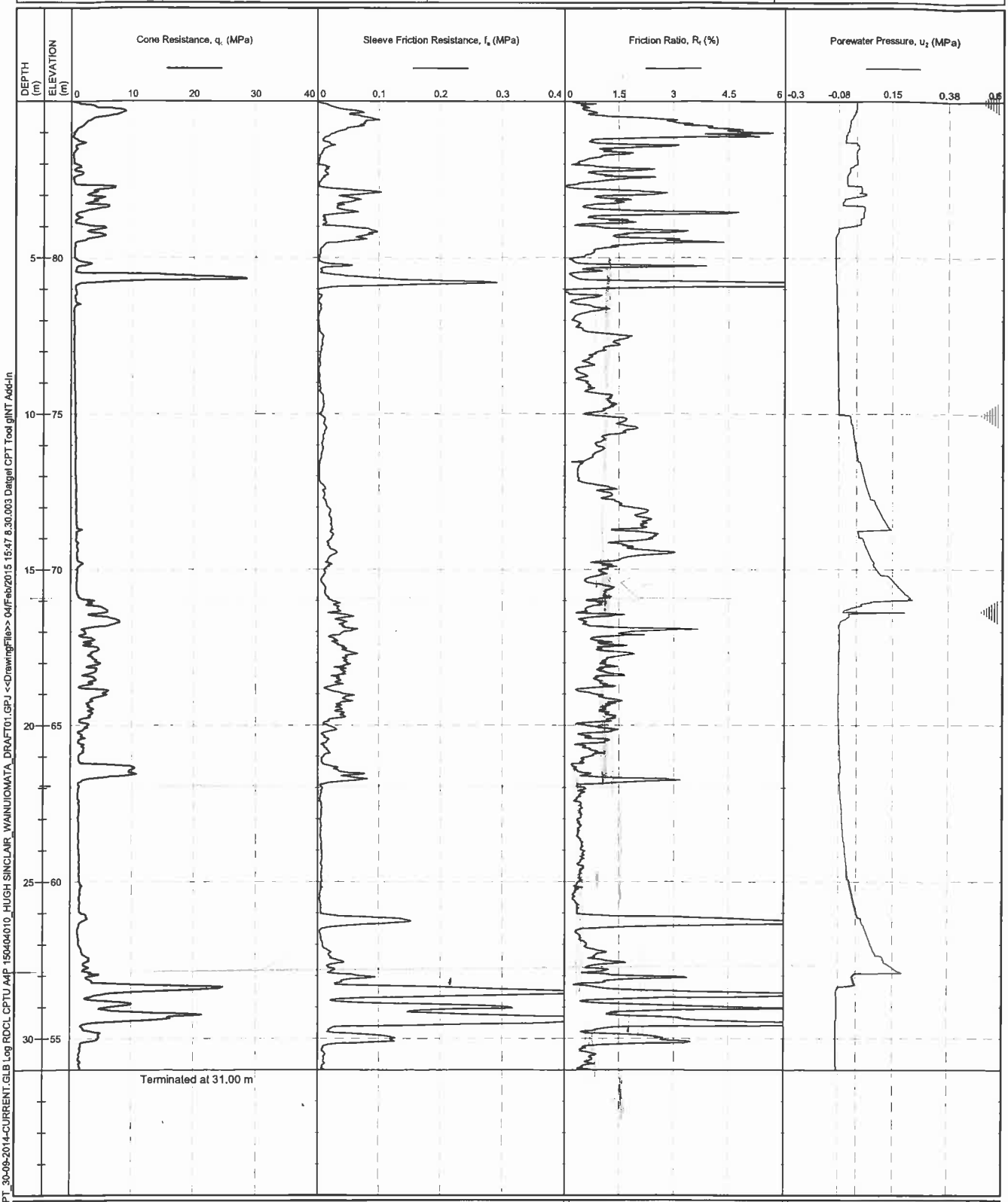
RDCL_GINT_V4-0_CPT_30-09-2014-CURRENT.GLB Log RDCL CPTU A4P 150404010_HUGH SINCLAIR_WAINUIOMATA_DRAFT01.GPJ <<DrawingFile>> 04/Feb/2015 15:47 8.30.003 Datgel CPT Tool gINT Add-In

RDCL

CPT LOG

PointID: 8

CLIENT	: Griffiths Drilling Ltd	AREA	: 150404010	SHEET	: 1 OF 1
ENGINEER	: SK	EASTING	: 1762563.0 m	STATUS	: 3
PROJECT	: Geotechnical Investigation	NORTHING	: 5430810.0 m	DATE	: 28/01/2015
LOCATION	: Hugh Sinclair Park, Wainuiomata	COORD. SYS.	: NZTM		
PROJECT No.	: 150404010	ELEVATION	: 85.00 m		



RIG	: CPT RIG	CHECKED BY	:	Dissipation Test	REMARK
CONE TYPE	: C+F+W2+S	CHECKED DATE	:		water after test completion (artesian – rapidly).
CONE ID	: 4447	APPROVED BY	: RG		
OPERATOR	: SLK	APPROVED DATE	: 30/01/2015		

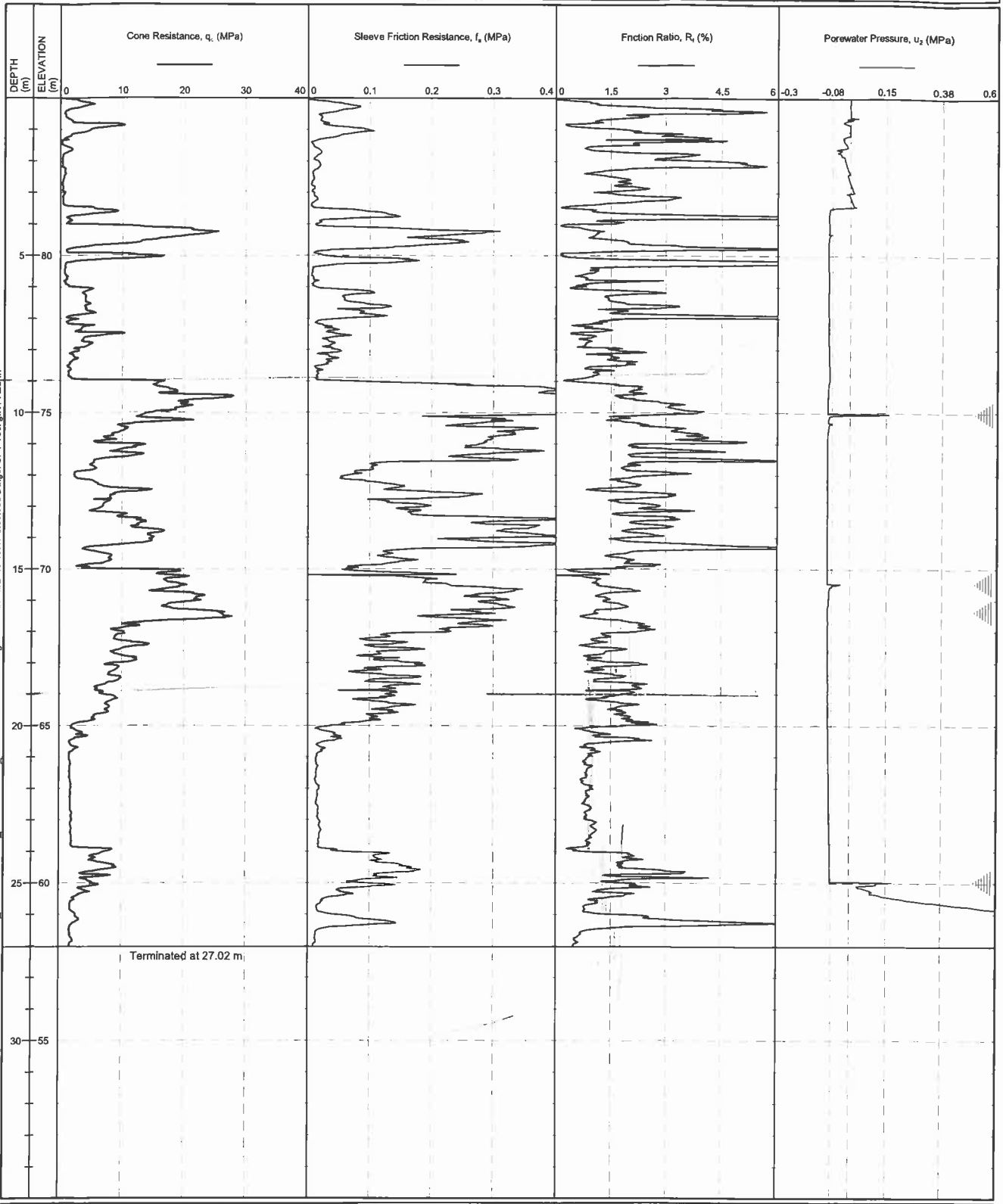
RDCL_GINT_V4-0_CPT_30-09-2014-CURRENT.GLB Log RDCL CPTU A4P 150404010_HUGH SINCLAIR_WAINUIOMATA_DRAFT01.GPJ <<DrawingFile>> 04/Feb/2015 15:47 8.30.003 Datgel CPT Tool gINT Add-In

RDCL

CPT LOG

PointID: **9**

CLIENT	: Griffiths Drilling Ltd	AREA	: 150404010	SHEET	: 1 OF 1
ENGINEER	: SK	EASTING	: 1762664.0 m	STATUS	: 3
PROJECT	: Geotechnical Investigation	NORTHING	: 5430735.0 m	DATE	: 28/01/2015
LOCATION	: Hugh Sinclair Park, Wainuiomata	COORD. SYS.	: NZTM		
PROJECT No.	: 150404010	ELEVATION	: 85.00 m		



RIG	: CPT RIG	CHECKED BY	:	
CONE TYPE	: C+F+W2+S	CHECKED DATE	:	
CONE ID	: 4447	APPROVED BY	: RG	
OPERATOR	: SLK	APPROVED DATE	: 30/01/2015	

Dissipation Test

REMARK
water after test completion (artesian – gushing).

RDCL_GINT_V4-0_CPT_30-09-2014-CURRENT.GLB Log RDCL CPTU A4P 150404010_HUGH SINCLAIR_WAINUIOMATA_DRAFT01.GPJ <<DrawingFile>> 04/Feb/2015 15:47 8.30.003 Daigel CPT Tool gINT AddIn

APPENDIX B

GRIFFITHS DRILLING

Methodology – Dual casing for Artesian Aquifer

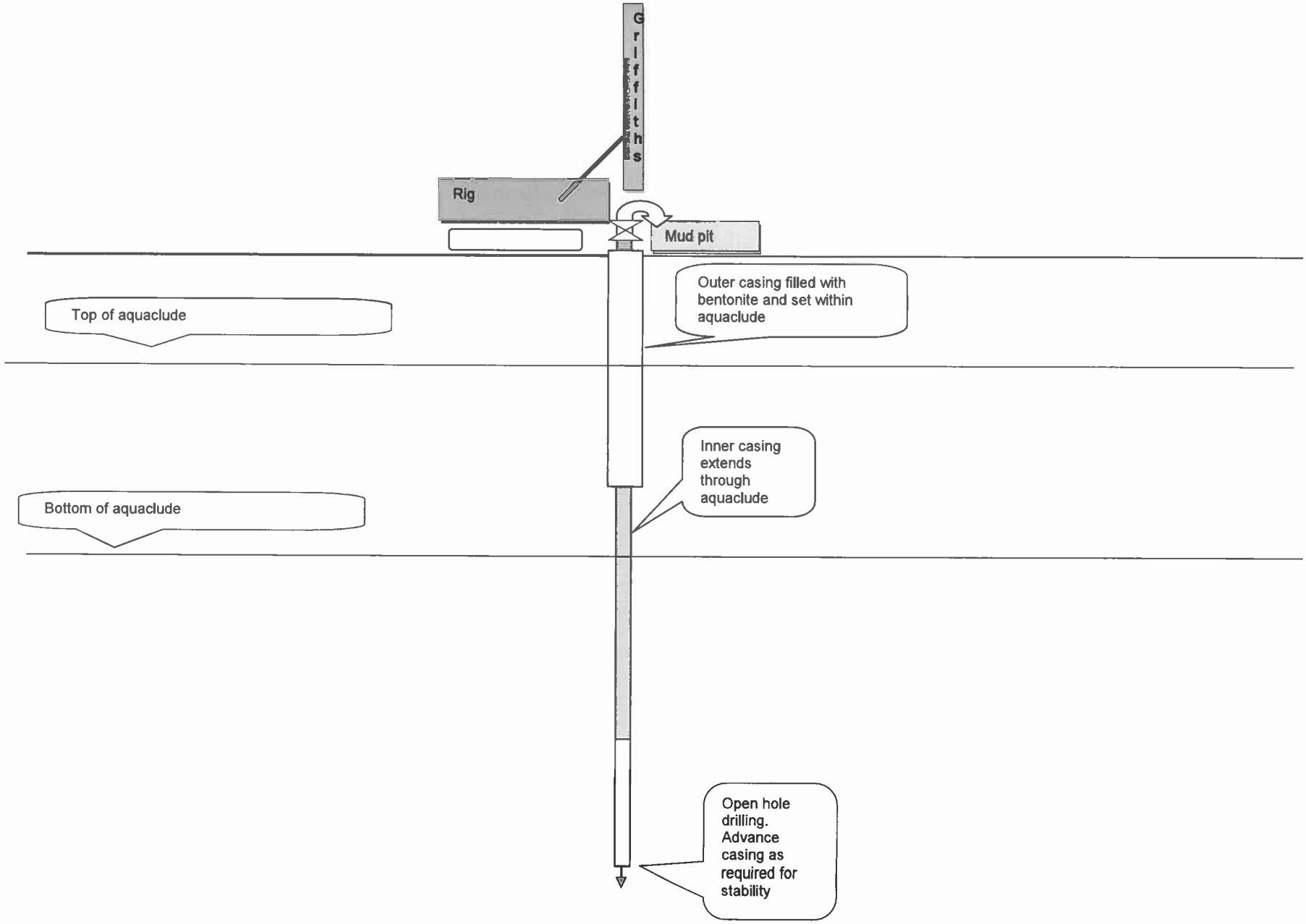
Project / site	**Hugh Sinclair Park Wainuiomata**
Scope	To seal off the artesian flow
Drilling type	• Rotary mud
Equipment required	• Drill rig • Inner drill rod • Outer casing (2x diameter of inner drill rod) • Mud mixing equipment
Materials required	• Bentonite powder • Cement Grout
Personnel required	• Drilling crew (2 people)

Disinfection Methodology	• All drilling tooling (rods, casing, bits, core barrels, mud pit etc) to be cleaned with a hot water pressure washer. • Apply Decon 90 cleaning fluid or, disinfect everything that goes in the ground with a strong (250ppm) chlorine solution. Ensure both the inside and outside of the drill rods and casing are disinfected.
Drilling / casing	• Drilling of bores will be done using a rotary rig which is ideal for the anticipated ground conditions. The casing is advanced regularly by way driving with the drill stem at the surface with additional casing welded on as required or drilling the casing in with added lengths by threading. The casing will be drilled and installed into but not breaching the aquiclude material (approx 10 to 15m). The casing will then add a extension as a riser pipe above ground level so the head of water comes to a Static Water Level. Once this has occurred then the hole is ready to be grouted from the bottom up. • Grout will be mixed and introduced in to the bore hole from the bottom up and once the grout has displaced the static water it is to be left for 78 hours to set. • Once the grout is set the bore riser pipe can be taken off. At this point the artesian water is sealed off from the upper layers.

Decon 90

Decon 90 is a biodegradable concentrate combining anionic and non-anionic surface active agents with stabilising agents, alkalis and non-phosphate detergent builders, to produce a highly effective cleaning compound. Decon 90 is more efficient than chronic acid mixtures and has none of the risks associated with the storage, handling and disposal of virulent acids.including: Abrasives, agar algae,

Typical set up – not to scale



Drilling Muds

To determine the extra weight of drilling mud needed to counteract the pressures of the artesian aquifer during rotary drilling, the estimated artesian head and the depth to the top of the aquifer is needed. The following formula can be used to estimate the additional weight of drilling mud needed to control the flow during the drilling process:

Additional mud weight =
8.34 lbs/USgal x height of water above ground level (ft) + 0.4 lbs/USgal Depth to top of aquifer (ft)
Where:
One USgallon of water weighs 8.34 pounds
0.4 lbs/USgallon is a safety factor

Properly mixed, fresh drilling mud will normally weigh about 9 pounds per US gallon. Drilling mud can be made heavier by adding drilling clay, drilling gel and special solids such as barite. However, some drilling gels are treated with polymers to build viscosity and become difficult to pump before their weight significantly increases. Therefore, some drilling gels have limited ability for control of flows. Mud weights of up to 15 pounds per gallon can be achieved using weighting materials such as powdered barite.

TABLE 1
TOTAL PRESSURE ABOVE TOP OF CONFINED AQUIFER (HYDROSTATIC PRESSURE) FOR FLOWING ARTESIAN WELLS

Depth to Top of Flowing Aquifer (feet)	Artesian Head Above Ground Surface (feet)					
	5	10	15	20	25	30
10	6.5	8.7	10.8	13.0	15.2	17.3
20	10.8	13.0	15.2	17.3	19.5	21.7
30	15.2	17.3	19.5	21.7	23.8	26.0
40	19.5	21.6	23.8	26.0	28.1	30.3
50	23.8	26.0	28.1	30.3	32.5	34.6
75	34.6	36.8	39.0	41.1	43.3	45.5
100	45.5	47.6	50.0	52.0	54.1	56.3
125	56.3	58.4	60.6	62.8	65.0	67.1
150	67.1	69.3	71.4	73.6	75.8	78.0
175	78.0	80.1	82.3	84.4	86.6	88.7
200	88.7	91.0	93.1	95.2	97.4	99.6
225	99.6	101.7	104.0	106.0	108.2	110.4
250	110.4	112.5	115.7	117.0	119.0	121.2

Adapted from the Michigan Department of Environmental Quality, Water Bureau, Lansing, Michigan

Material	Weight	Hydrostatic Pressure
Barite Slurry:	18 - 22 lb/USgal	.96 - 1.1 psi/ft
Neat Cement and Bentonite @ 6 gal water/sack:	15.0 lb/USgal	.78 psi/ft
Bentonite Slurry Grout:	10.4 lb/USgal	.54 psi/ft
Bentonite Slurry Grout:	9.5 lb/USgal	.49 psi/ft

GROUTING MATERIAL SUITABILITY

	Heavy Enough To Overcome Hydrostatic Pressure	Not Heavy Enough To Overcome Hydrostatic Pressure
	Neat Cement @ 15 lb/USgal	All Bentonite Grouts
	Neat Cement @ 15 lb/USgal or Bentonite Grout @ 10.4 lb/USgal	Bentonite Grouts lighter than 10.4 lb/USgal
	All standard grouts have enough weight to overcome hydrostatic pressure of the flow.	

APPENDIX C

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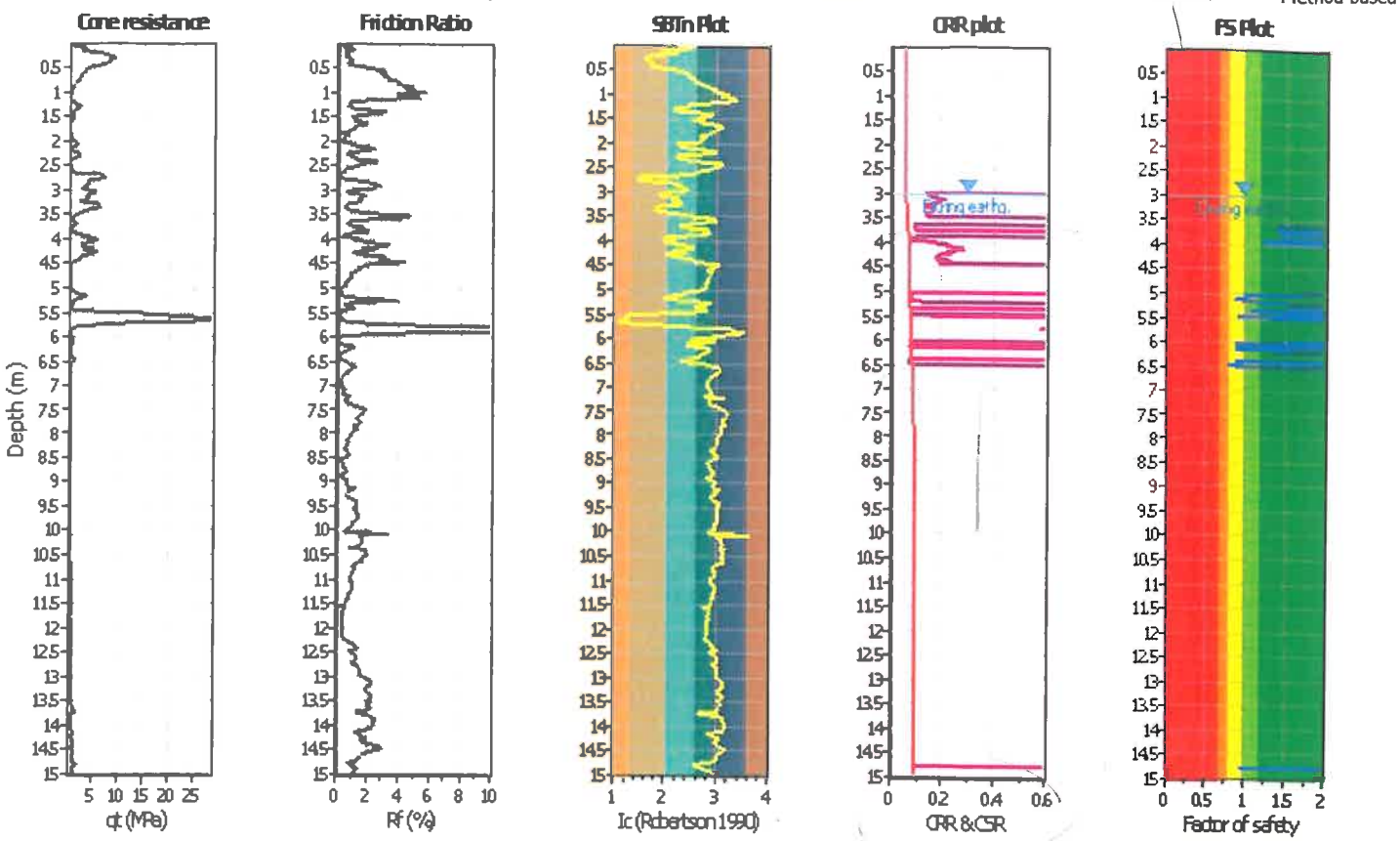
LIQUEFACTION ANALYSIS REPORT

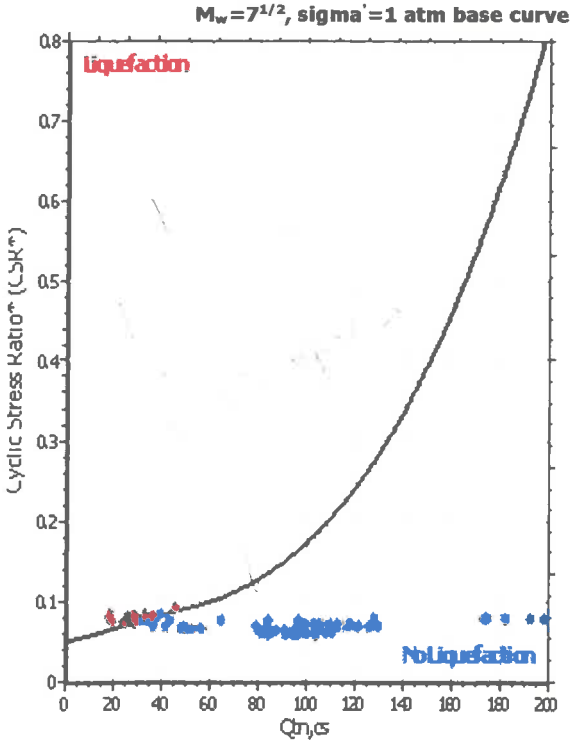
Project title : **Location :**

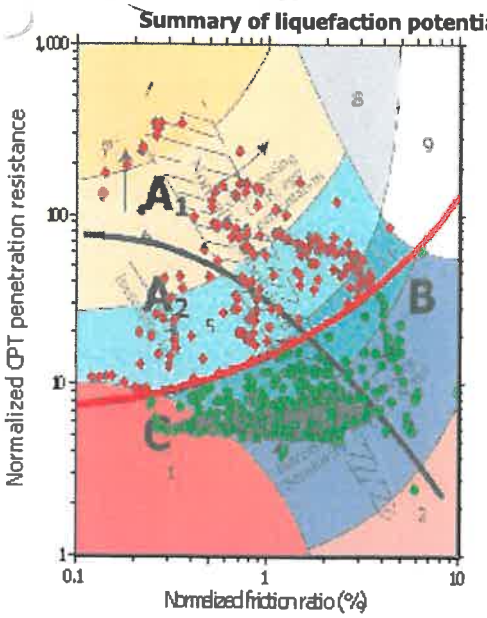
CPT file : CPT8

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	15.00 m
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.09	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

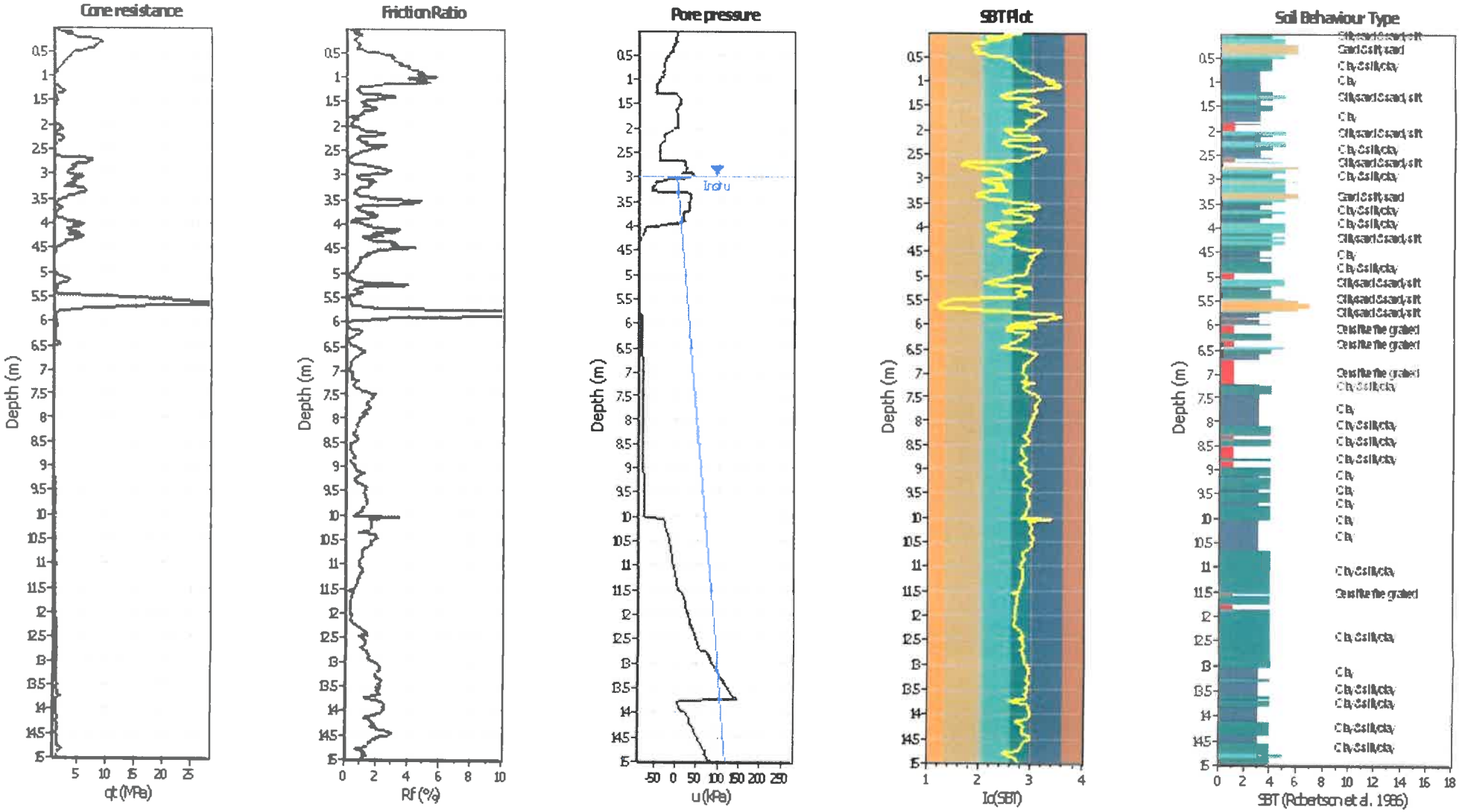






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results Interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.09	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	15.00 m

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

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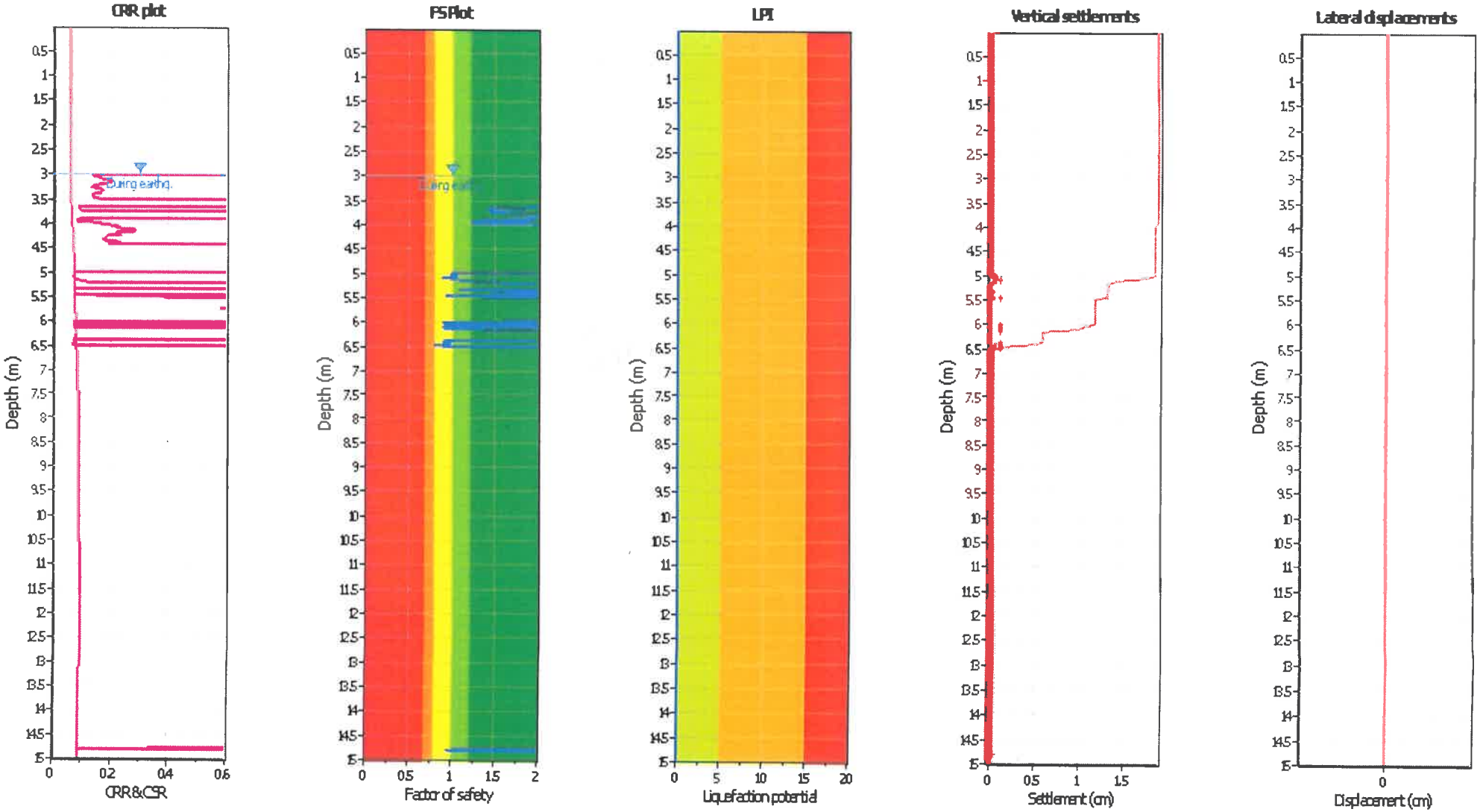
Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.09	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	15.00 m

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

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LIQUEFACTION ANALYSIS REPORT

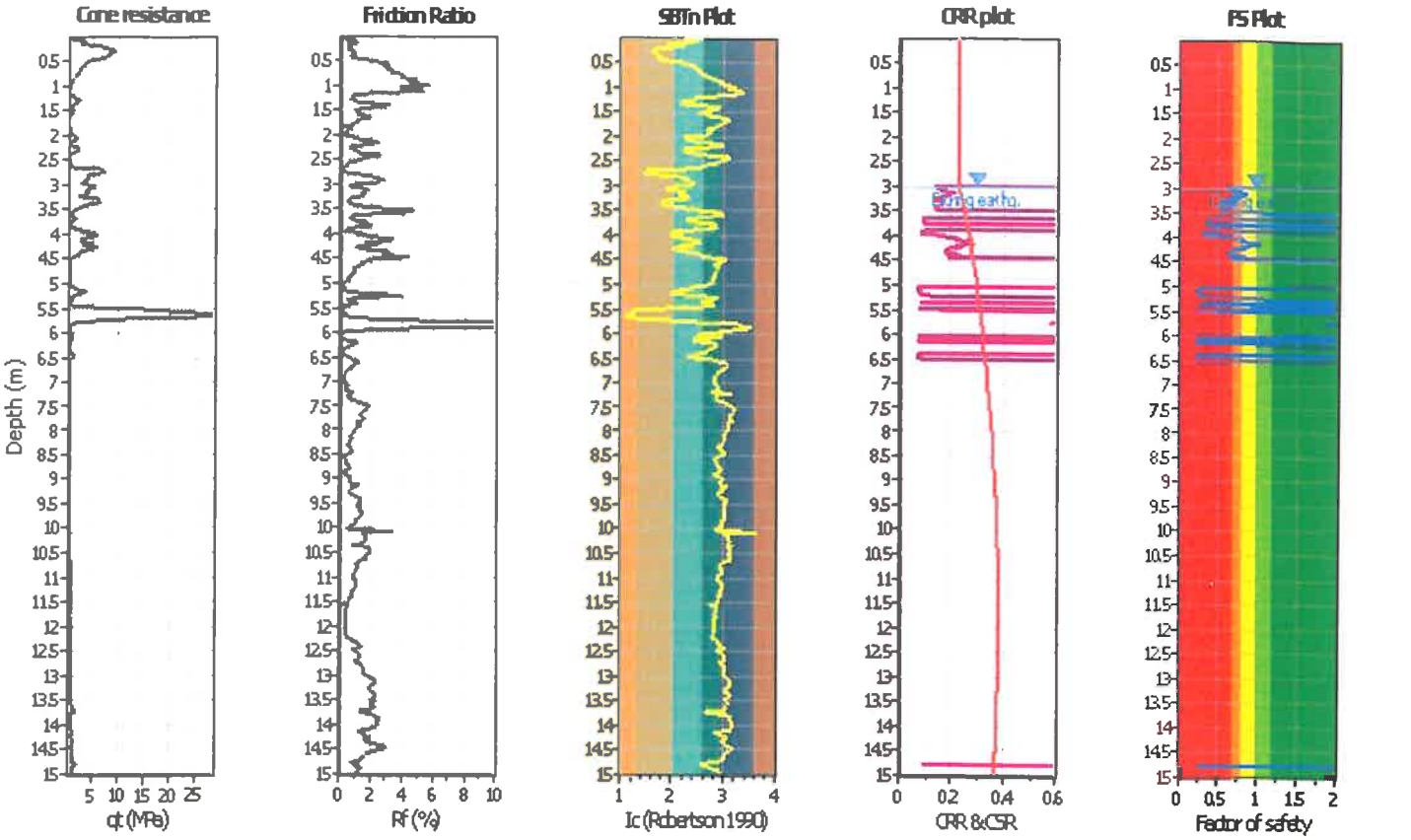
Project title :

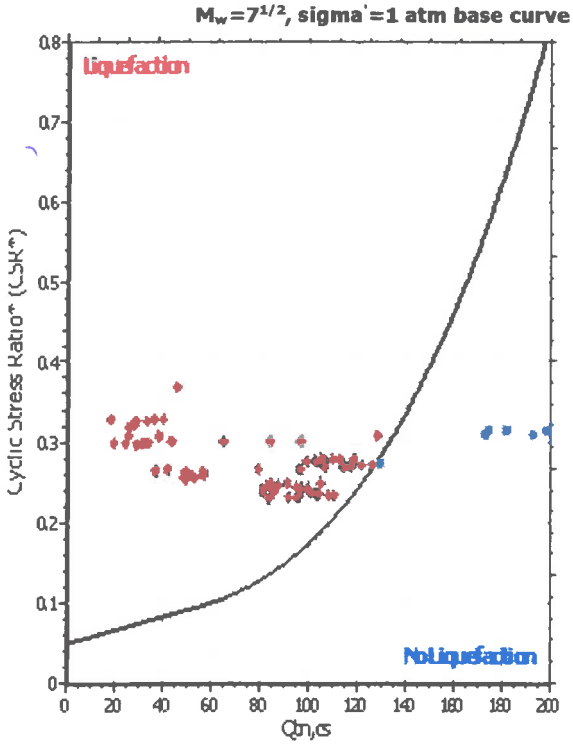
Location :

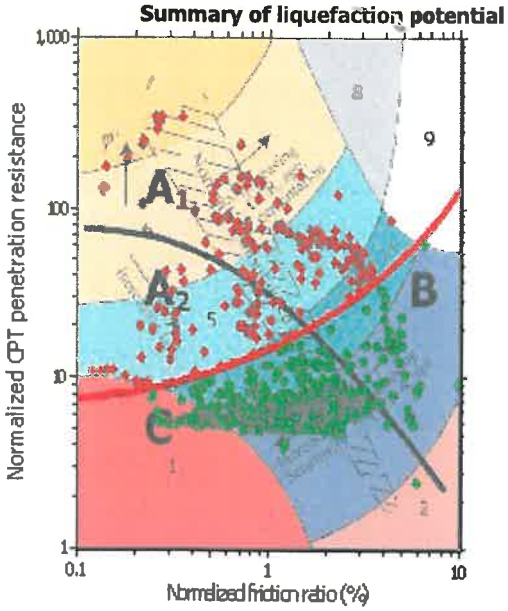
CPT file : CPT8

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	15.00 m
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.36	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

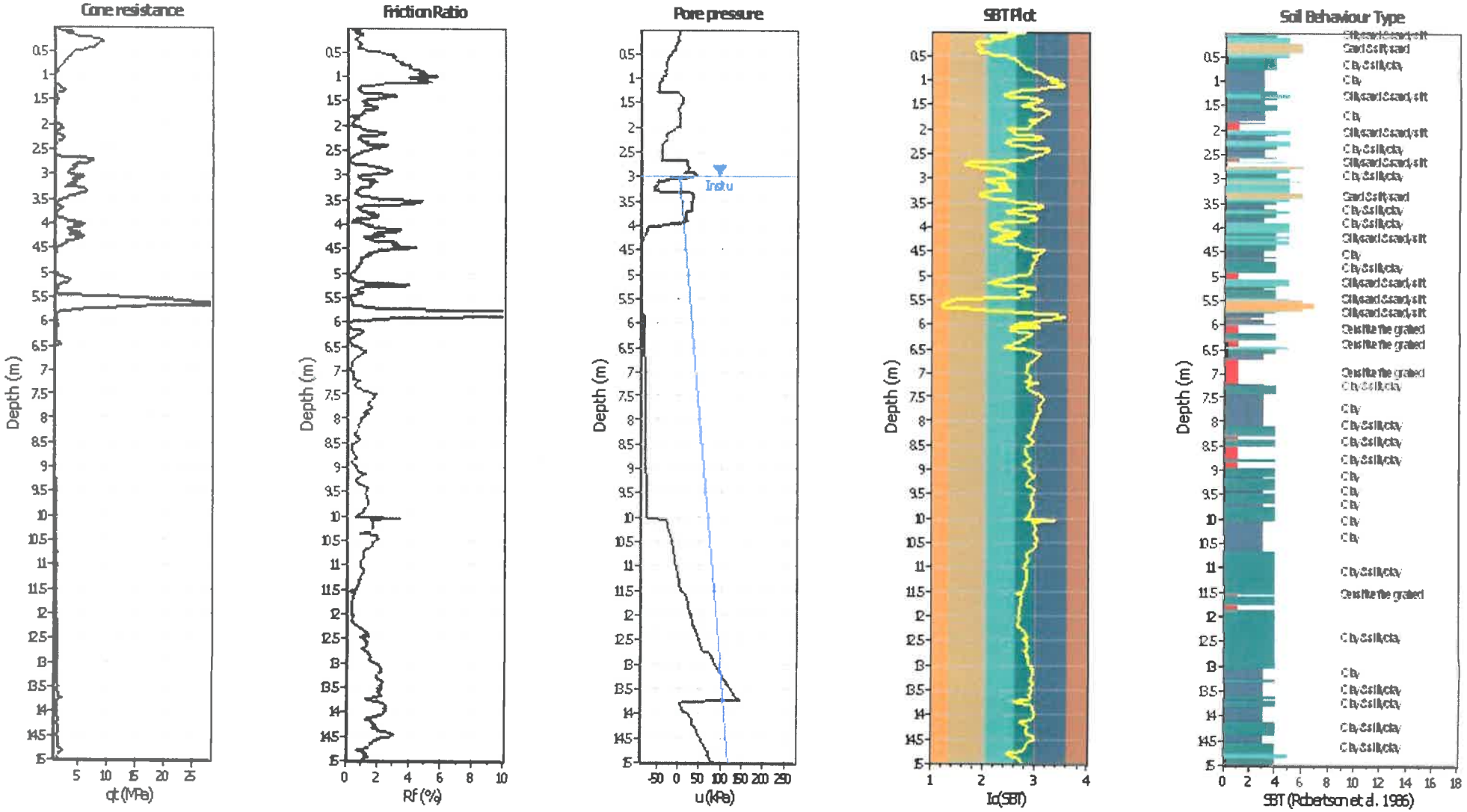






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_o applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.36	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	15.00 m

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

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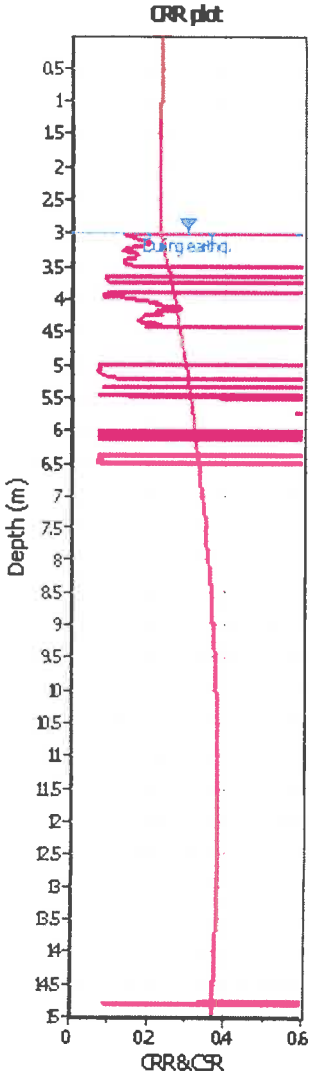
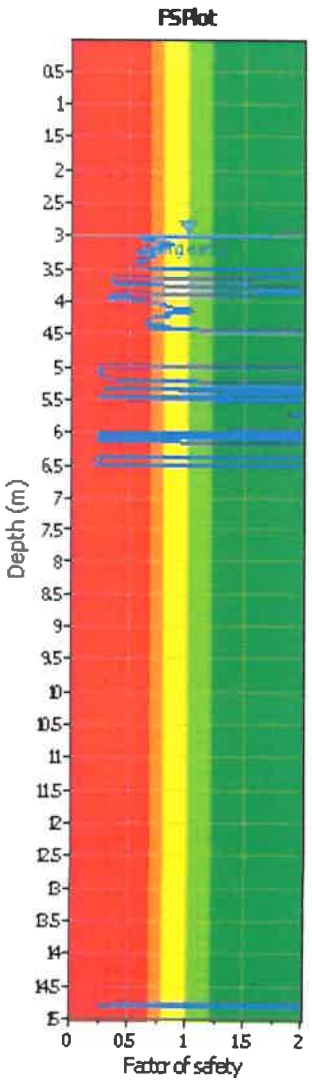
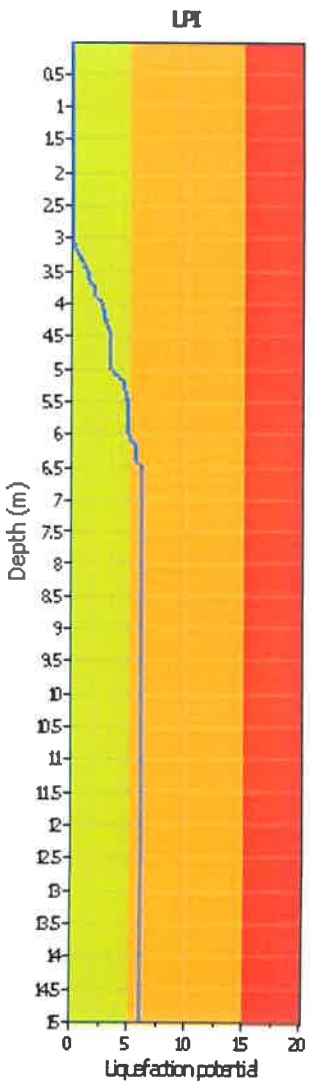
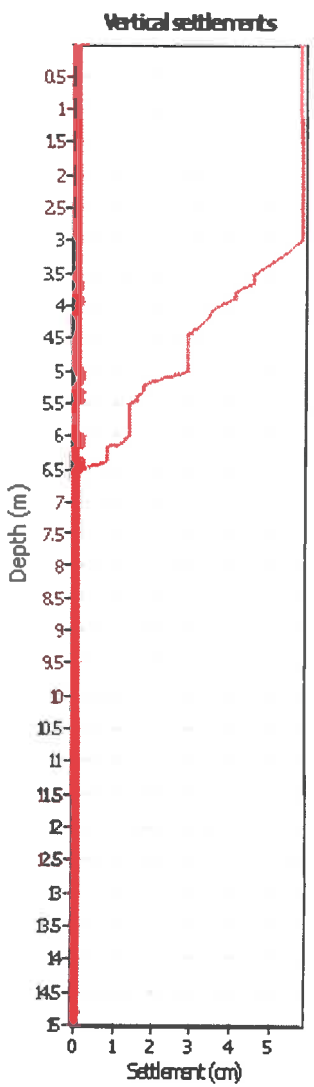
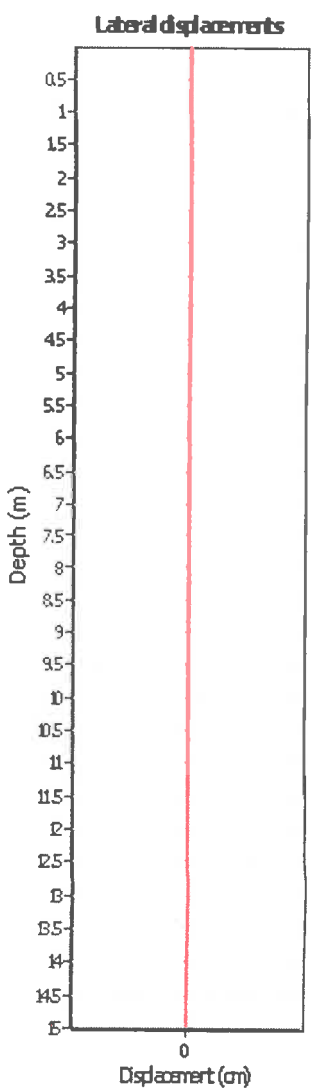
Liquefaction analysis overall plots











Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.36	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	15.00 m

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

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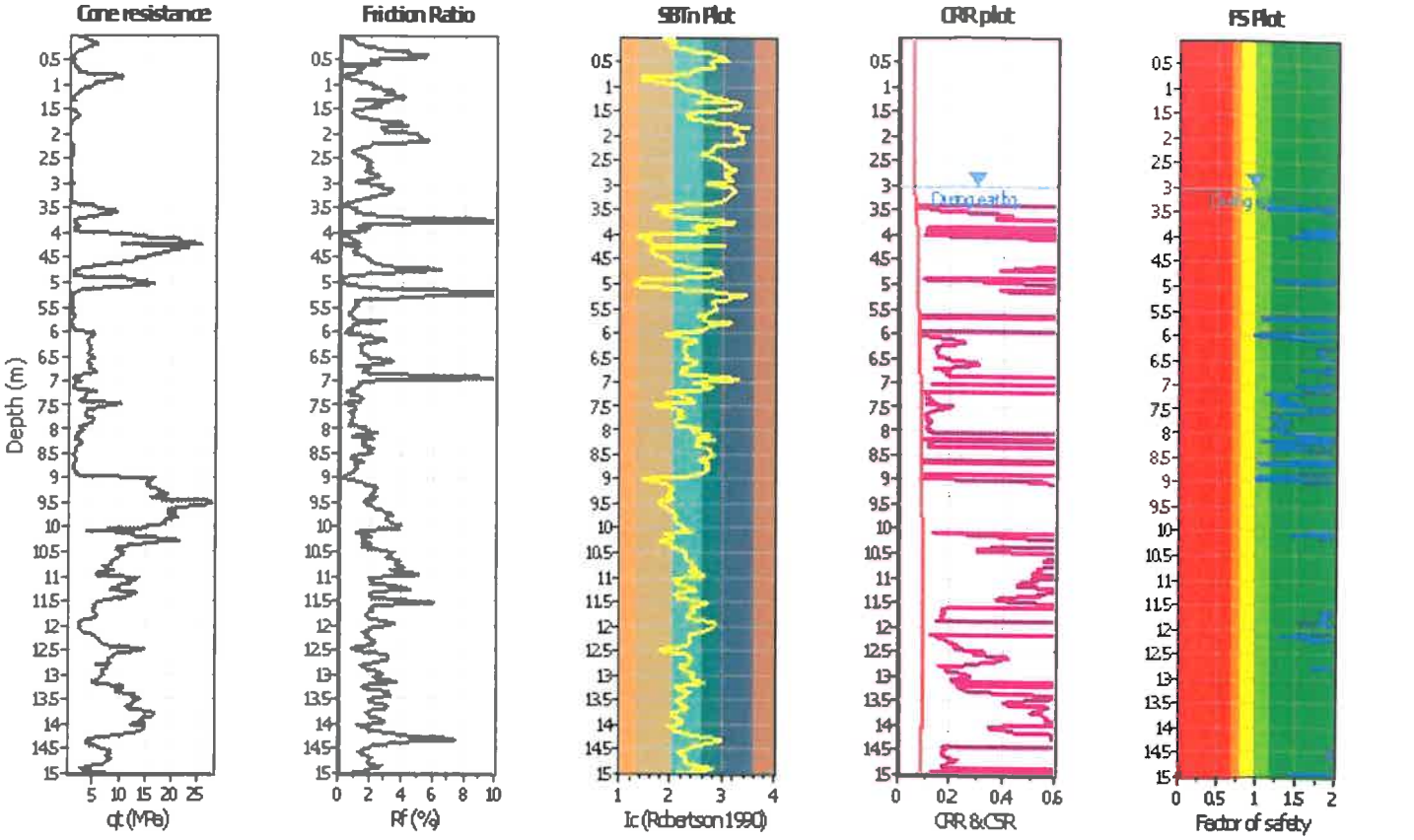
LIQUEFACTION ANALYSIS REPORT

Project title : **Location :**

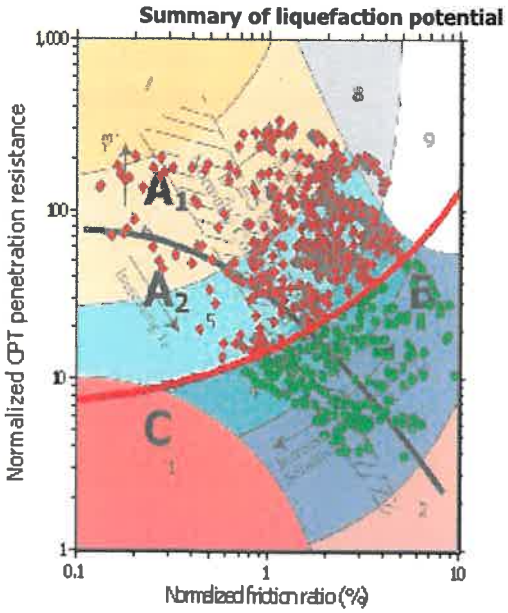
CPT file : CPT9

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.09	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		



$M_w=7^{1/2}$, sigma'=1 atm base curve



Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

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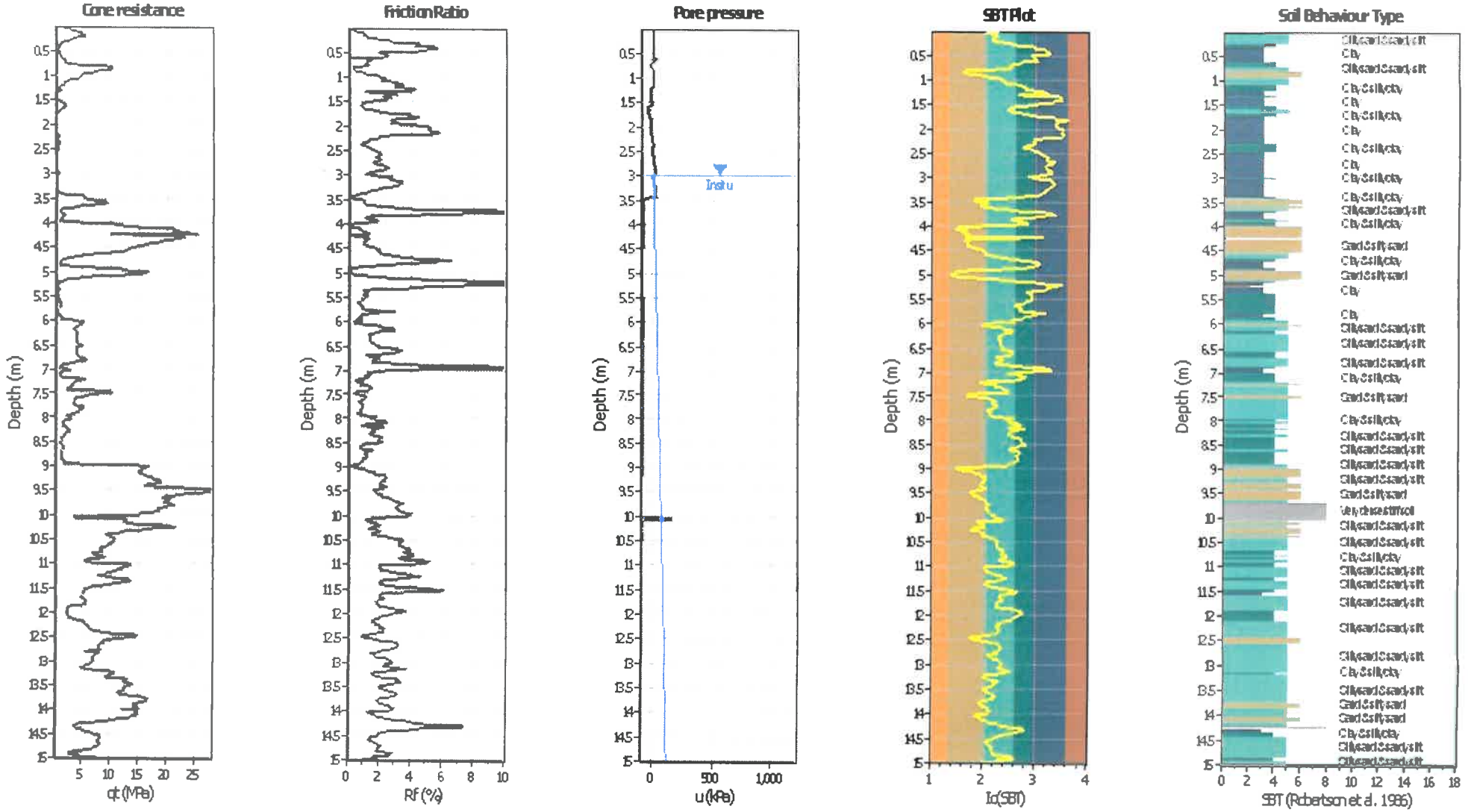
CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	3.00 m	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.09	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

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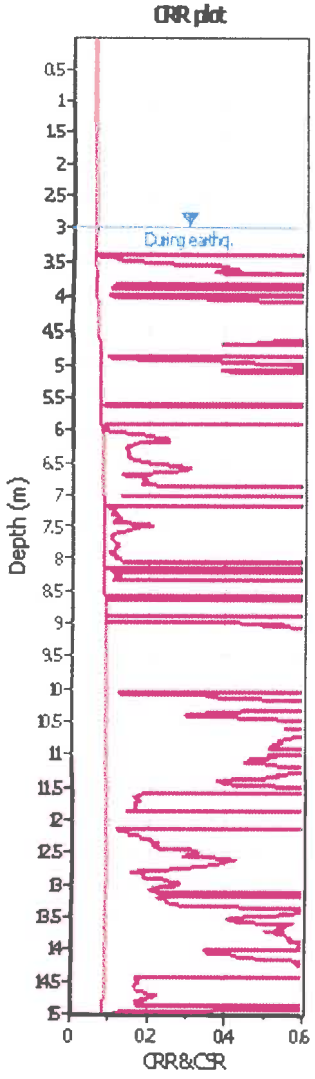
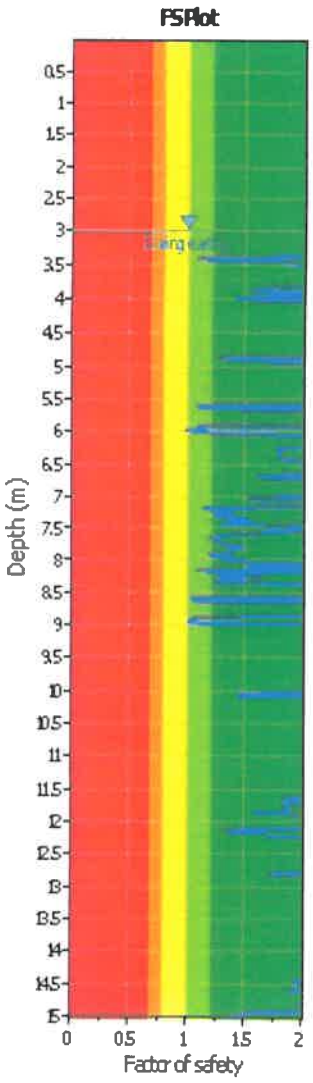
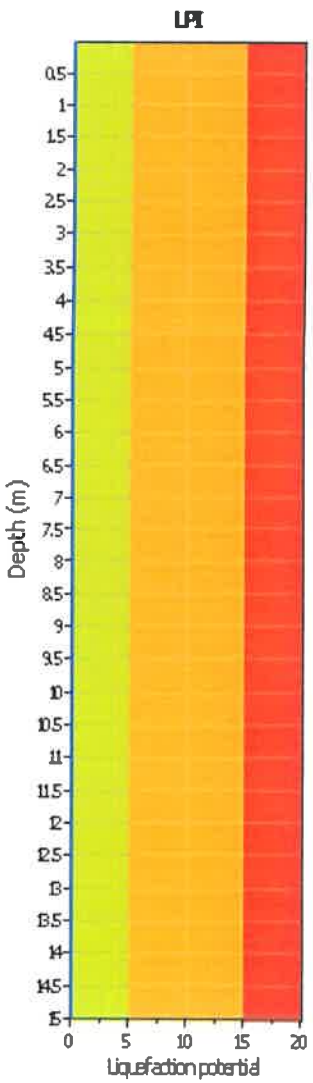
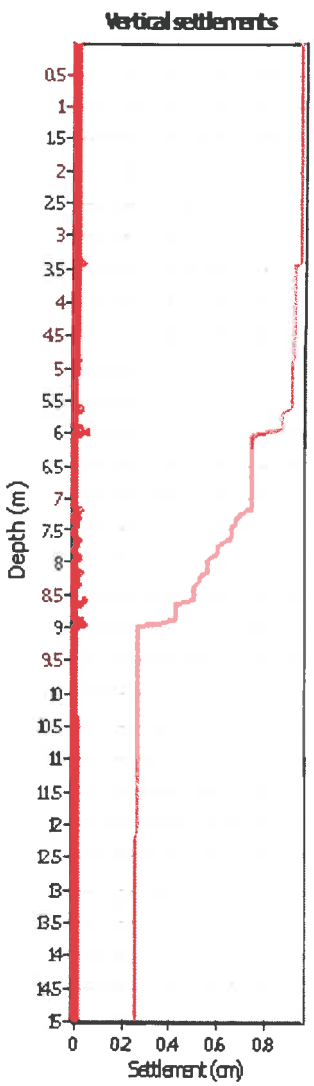
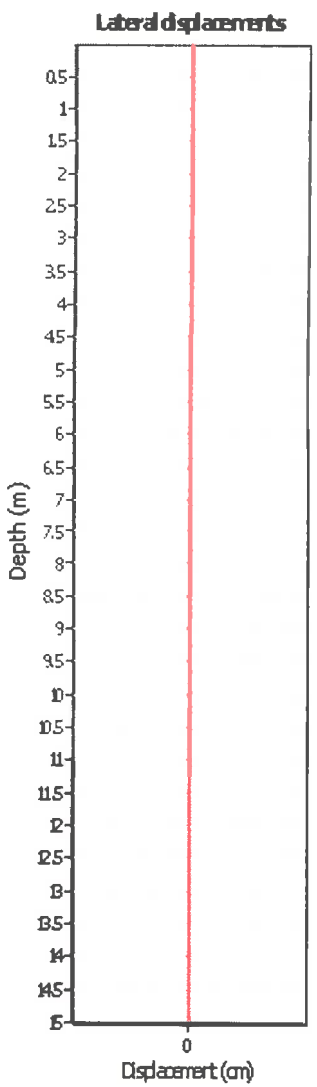
Liquefaction analysis overall plots











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Input parameters and analysis data

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F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

LIQUEFACTION ANALYSIS REPORT

Project title : **Location :**

CPT file : CPT9

Input parameters and analysis data

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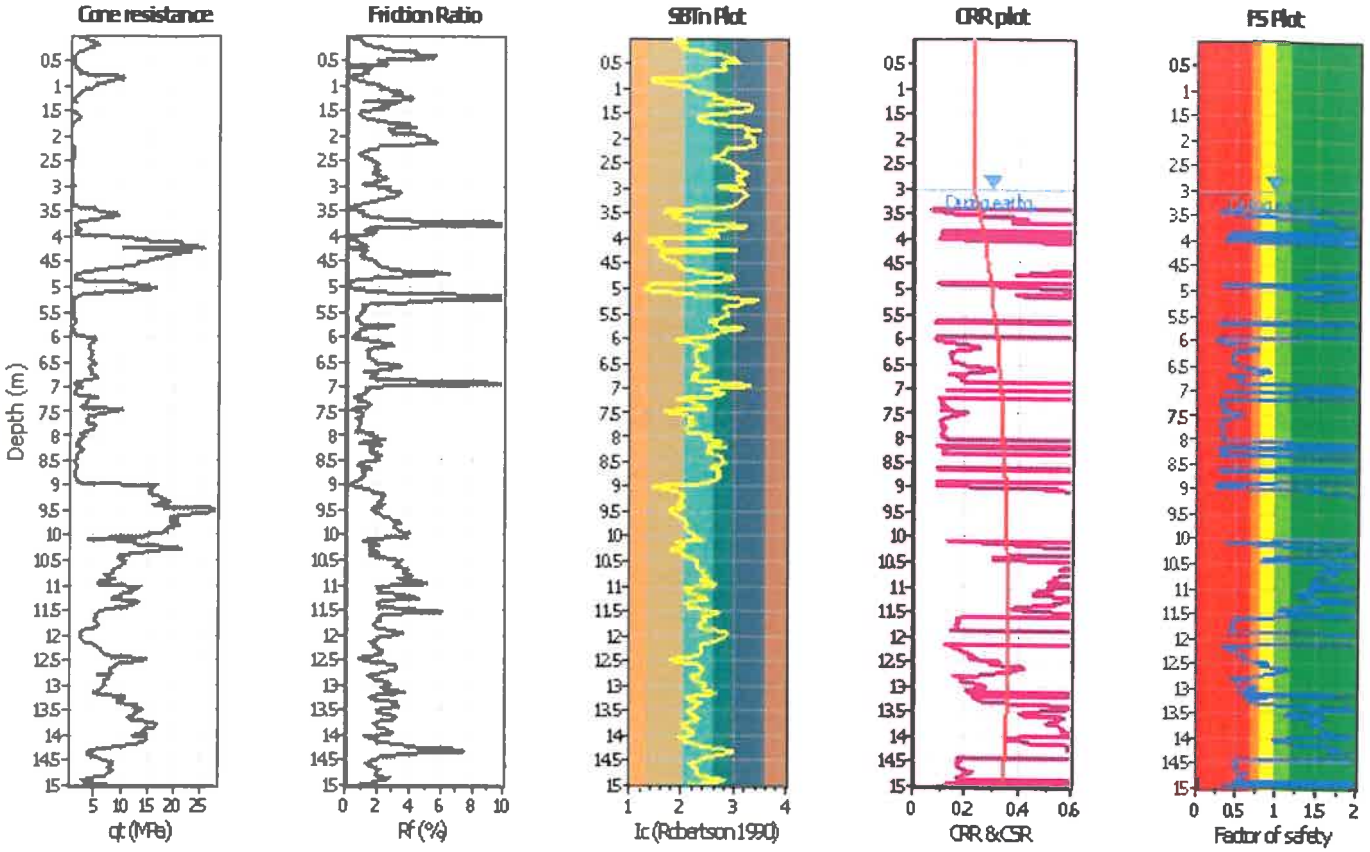

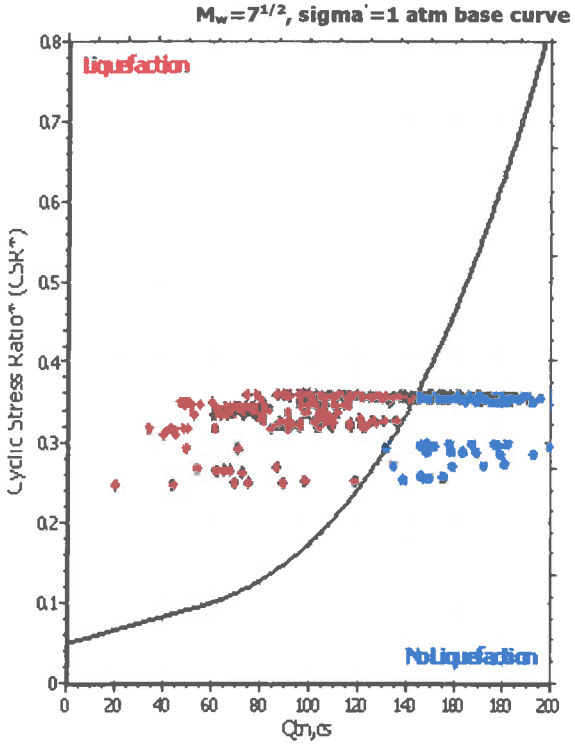

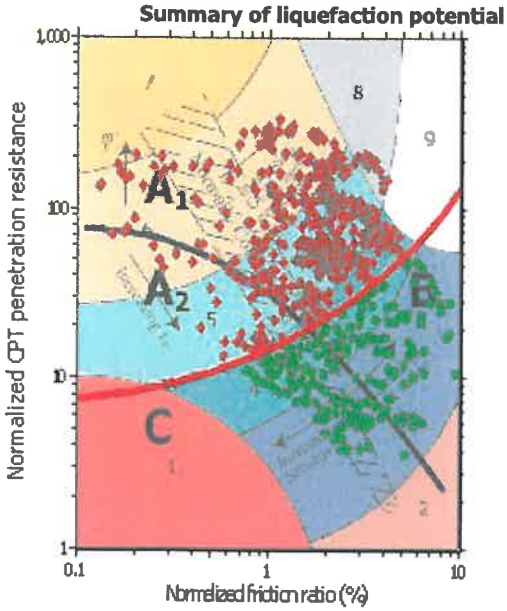

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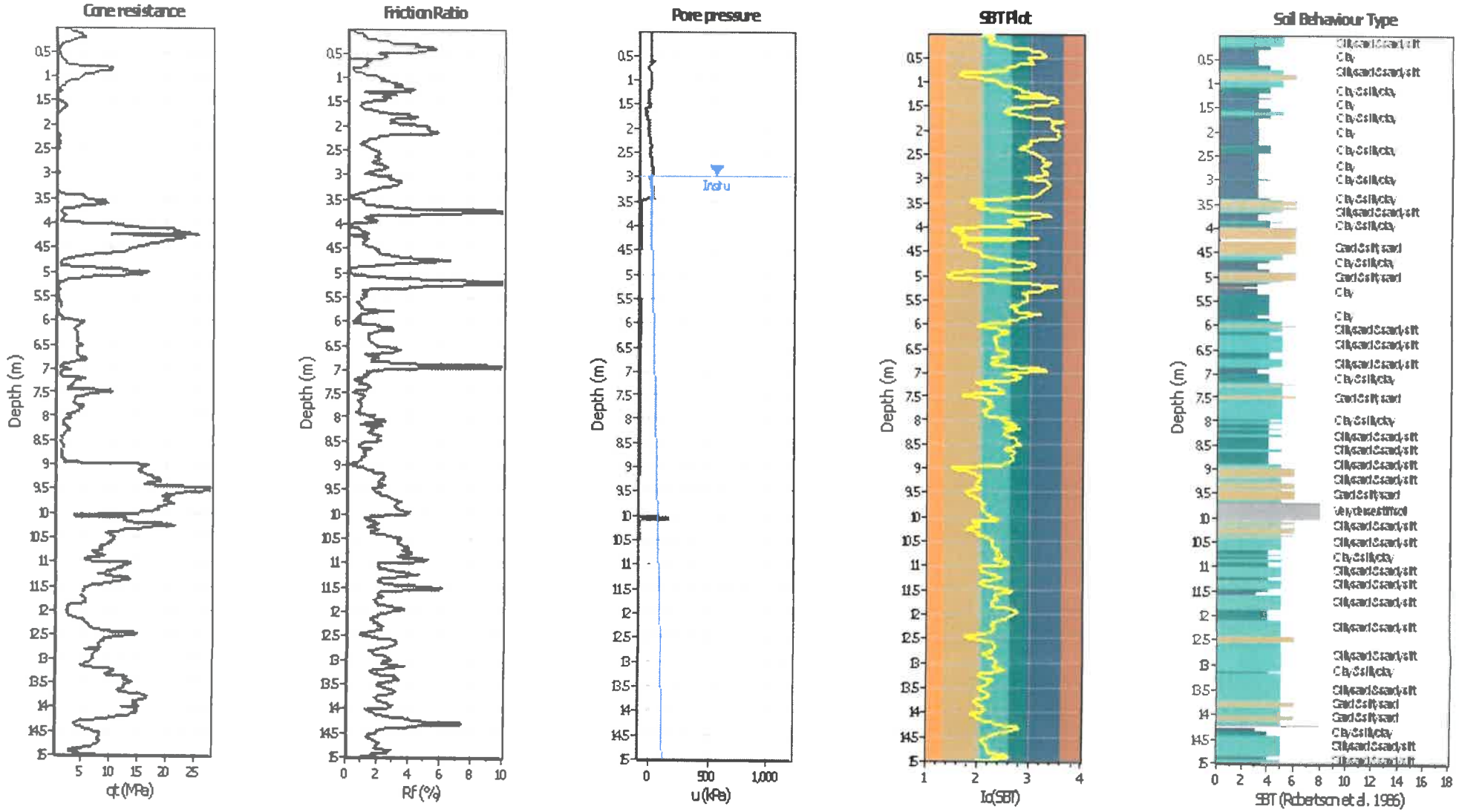
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



Input parameters and analysis data

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Peak ground acceleration:	0.36	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

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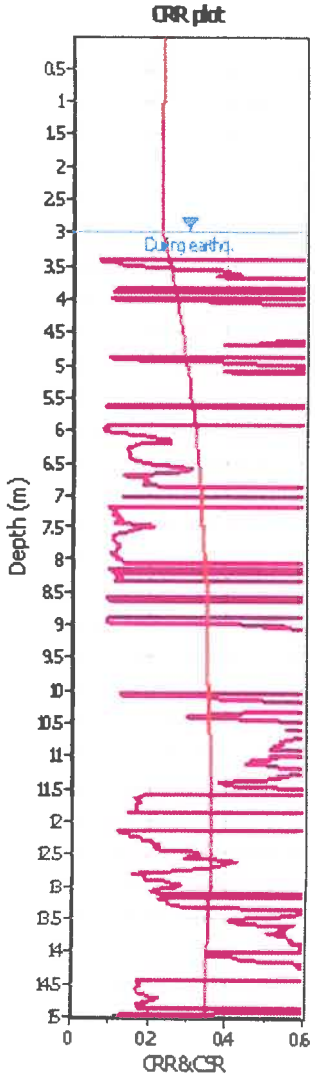
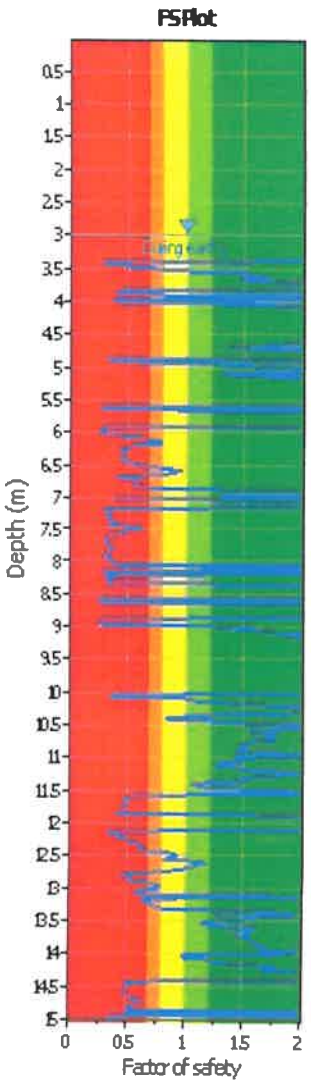
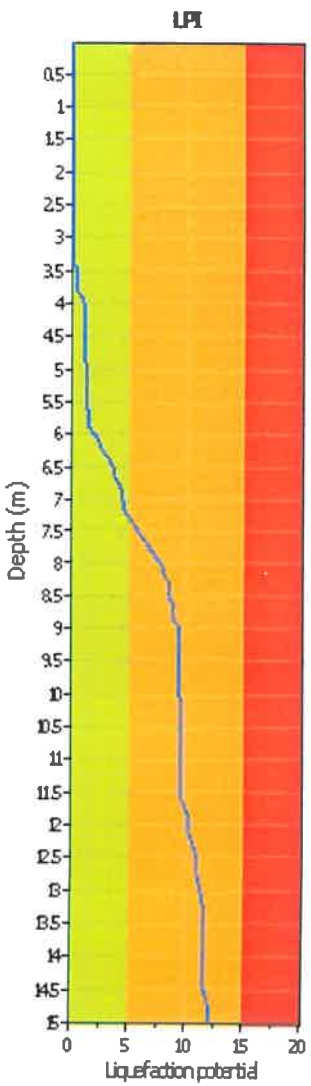
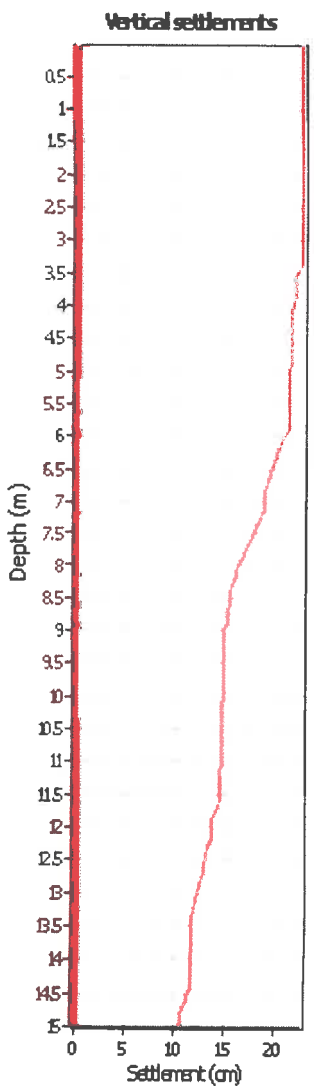
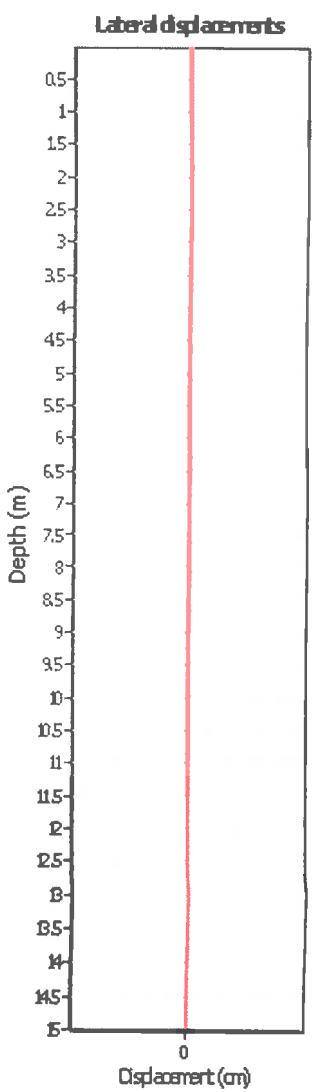
Liquefaction analysis overall plots











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F.S. color scheme

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- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

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Appendix 8: Infrastructure Assessment

SERVICES REPORT – HUGH SINCLAIR PARK

This report considers the servicing issues associated with the proposed rezoning of a portion of Hugh Sinclair Park. In particular, this report will consider the following services:

- Water supply;
- Wastewater reticulation;
- Stormwater reticulation; and
- Power and telecommunications.

As part of this report, any potential site works that may be required to achieve the future servicing of the site, have been identified.

Water Supply

We have liaised with GHD, Council's water supply consultant, in regards to water supply to the proposed development. They have advised that there should not be any issues but the normal design process would need to be followed at the time of development. They advised that the current DMA zone boundaries may need to be changed to allow for the development whilst at the same time maintaining fire flows to the Warehouse sprinkler system. A copy of their email is attached to this report.

Wastewater Reticulation

Wellington Water has advised that connection could be made to the Φ300mm wastewater main that runs along the south west boundary of the site. They would accept more than one connection to this main if it was necessary to reticulate the site. They advised some on site storage may be required for wet weather flows but this would be confirmed after modelling of the system at the detailed design stage of the development. The north east side of the site would need to be filled to between approximately RL87.8 to RL88.8 falling back to existing ground levels along the south west side of the site to allow gravity connections back to the Φ300 main.

An alternative connection point could be the Φ225mm sewer main in Rata Street which could be accessed down the drainage reserve for the Parkway Drain. A copy of their email is attached to this report.

Stormwater Reticulation

Wellington Water has advised that stormwater could be discharged directly to the Parkway Drain and there could be more than one discharge point. On site storage may be required and this would be confirmed after modelling at the detailed design stage.

Power and Telecommunications

Power

There are 11kV overhead power cables running within the site along the north western boundary, and 33kV overhead power cables within the site running along the south west boundary.

Wellington Electricity advised that power to the development can be supplied from the

overhead within the site 11kV overhead cables within the site, or from The Strand.

The overhead 33kV cables can remain within the site but there must be a minimum 4m clearance from the nearest overhead conductor to any dwelling. Wellington Electricity will require a 4m wide easement in gross over the lines and it would be prudent to ensure that there is practical access to the lines for maintenance and repair if necessary. Alternatively, they also advised that the 33kV cables through the site could be relaid underground from Rata Street to the Zone Sub. The existing 33kV underground cable through the neighbouring school will be overlaid to avoid jointing between the existing and new. This relaying would be at the cost of the developer. A copy of their email and plan is attached to this report.

Telecommunications

We have liaised with Chorus and they have confirmed that the site can be serviced with fibre reticulation services which can provide hand band width internet connections.

Conclusion

This report concludes that the area subject to the Proposed Plan Change is able to be serviced, subject to the site works identified above being undertaken.

Jim McMenamin
Civil Engineer (NZCE (Civil)
Cuttriss Consultants

Appendix 9: Economic Assessment

Wainuiomata Masonic Retirement Village

Cuttriss Consultants Ltd.

Document reference:	CUT001.15
Date of this version:	19/02/2015
Contact Person(s):	Lawrence McIlrath
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	Mobile: 021 042 1957
	e-mail: lawrence@me.co.nz

Version	Author	Date	Changes
Draft	Lawrence McIlrath	19/02/2015	

Executive Summary

The Hutt City Council owns Hugh Sinclair Park and has earmarked the sale of a part of this park as a way to facilitate the establishment of a retirement village in Wainuiomata. The issue of a retirement village in Wainuiomata has been a 'major community issue' for some time[1]. The proposed development is in-line with Council's vision for the site.

This report estimates the economic impacts of the development as proposed by The Masonic Villages Trust (MVT) for the Hugh Sinclair Park site. The assessment estimates the potential economic effect of the development and uses Gross Domestic Product (GDP) and employment as core indicators to measure the potential impacts. The assessment considers the direct and flow on effects of the individual components over time, including the construction effects as well as the operational effects. We used a Multi-regional Input-Output model and a Net Present Value analysis to quantify the effects. Our assessment is based on available information and a series of assumptions about the development costs, take-up rates, operation costs and the spatial distribution of spending.

The proposed development will consist of two components – a residential component with 104 villas and a health care facility with 52 beds. The retirement village's economic impacts will manifest in stages, aligning with when expenditure takes place. We have assumed construction will take place over the first four years at a total cost of around $28.8m. This including earthworks, civil work and construction but excluding any ongoing activities such as repair and maintenance or operating the health care facility).

Importantly, the construction effects are 'one-off' and the operational effects are 'ongoing'. This means that the ongoing effects, while smaller in terms of value, generate a larger (overall) effect because they occur over multiple years.

GDP and Employment

The development will span a number of years with the capital investment spread out over the first 5 years. During construction, the development will have a total GDP impact of $26.2m$_{2007}$. Three quarters of the effect will stay in the Wellington region (78.6% of this impact is expected in the wider region) and around 44 per cent of the effects will be felt locally (Hutt City economy). The GDP impact is expected to start at around of $4.9m of GDP effect associated with the first year's construction rising to $9.1m in year 3. In terms of employment activity (measured using MECs[2]), more than half of the employment effect will be felt in the local economy and 30 per cent in the rest of Wellington region. The employment effects will match construction activity and is projected to peak at 144 jobs[3] (MECs) in the third year of construction (2018).

Once construction is complete, the villas will be occupied and operated changing the effects to be more on-going and continuous in nature. The ongoing effects will ramp up as construction scales down.

[1] Hutt City Council Report: HCC2014/4/142 (2)
[2] Modified Employee Counts – Includes working proprietors as well as employees
[3] Importantly, the impacts as shown here is the 'total effect' associated with the activity undertaken in that year. The economic impact illustrates the total value (effect) of each year's economic shock and does not imply that all of that effect will occur in that year.

At the local level, the largest share of the ongoing effects will be driven by the health care facility. The facility is expected to deliver 58 per cent of the locally felt GDP effects ($2.0m of $3.5m per year once fully operational). In terms of employment[4], a similar proportion of will be felt locally (60%; 46 of 79). This is followed by household spending with a total GDP effect over the assessment period of some $11.2m – a quarter of the local effects.

With the proposed development taking place over a number of years, the future value of the GDP effects can be presented in 'present or NPV terms. Using NZTA's default discount rate of 6% puts the present value of the future GDP effects at $30.7m (ranging between $26.6m and $35.8m). This value takes the debt repayments (the principle) into account (which lowers the total effect because the funds flow out of the region and is repaid using operating surplus which is part of GDP). Altering the development timeframe will have an effect on when the effects are felt. Our analysis suggests that delaying the development by 1 year will reduce the present value of the GDP effect by between $3.8m and $4.8m. This is equal to a drop of 13.4% to 14.5%. This can be viewed as the opportunity cost of delaying the development.

A key observation from this assessment is that the proposed development will have a positive economic effect on the local economy. The bulk of this effect is expected to come the health care facility after the initial construction effect.

[4] The employment numbers quoted above represent the employment complement needed to undertake all the work required to deliver the proposed development and generate all inputs through the entire supply chains

Contents

Tables

Figures

Appendices

Key Concepts

Constant Terms:

Inflation decreases the purchasing power of money. Therefore, to be able to compare monetary values across time, these values must be converted to single base year thereby removing the effects of inflation. The resulting value is then expressed in a single base year and is called 'constant terms'. We used 2013 as base year.

Gross Domestic Product (GDP):

GDP is a key measure of the value of economic activity within an economy and captures the net value of labour and capital 'added' to raw materials and intermediate goods during the production process. GDP is the sum of operating surplus, compensation of employees, consumption of fixed capital, taxes on products, other taxes and subsidies. Importantly, GDP excludes the value of (intermediate) goods used in the production process.

Modified Employee Count (MEC):

The MEC is an indicator which captures both employees and working proprietors. M.E calculates MECs based on Statistics New Zealand estimates of employee counts (ECs) and working proprietors (WPs). The Employee Count (EC) is a head count of all salary and wage earners for the reference period. This is mostly employees but can include a small number of working proprietors (who pay themselves a salary or wage). The employee count is mainly sourced from the Inland Revenue Department's Employer Monthly Schedule although there are some enterprises whose employee counts are collected by Statistics New Zealand surveys. A working proprietor is either a sole proprietor or partner who is actively engaged in a business or a shareholder in a limited liability company actively engaged in its management and classified by the respondent as a working proprietor consistently across survey periods.

Abbreviations

Capex	Capital Expenditure
DCF	Discounted Cash Flow
GDP	Gross Domestic Product
NPV	Net Present Value
NZTA	New Zealand Transport Agency
M.E	Market Economics Limited
MEC	Modified Employment Count
MVT	Masonic Villages Trust
Opex	Operating Expenditure
RoR	Rest of Region
RoNZ	Rest of New Zealand
SNZ	Statistics New Zealand

1 Introduction

The Hutt City Council owns Hugh Sinclair Park and has earmarked the sale of a part of this park as a method of facilitating the establishment of a retirement village in Wainuiomata. A retirement village in Wainuiomata has been a 'major community issue' for some time[5]. The proposed development is in-line with Council's vision for the site. This report outlines the potential economic effects of the proposed development on the local, regional and national economies and it is our understanding that parts of this report will be used in the plan change process.

Market Economics Limited (M.E) have been commissioned to assess the likely effects based on available information. As part of our assessment, we considered the one-off effects associated with construction as well as the ongoing effects i.e. once the development has been established and is 'operational'.

1.1 Project Aim and Approach

This report estimates the economic impacts of the development as proposed by The Masonic Villages Trust (MVT) for the Hugh Sinclair Park site. The assessment estimates the potential economic effect of the development and uses Gross Domestic Product (GDP) and employment as core indicators to measure the potential impacts. These indicators are defined as follows:

- **Gross Domestic Product (GDP)**: GDP measures the value of economic activity but excludes the value of goods and services used in the production process. It captures the value of labour and capital applied to raw materials and intermediate goods during the production process within a defined area during a specific timeframe – normally a year. Technically, GDP reflects the total value of wages and salaries, operating surplus, consumption of fixed capital (e.g. depreciation), taxes on production, other taxes and subsidies.
- **Employment:** Employment impacts are measured using 'Modified Employment Counts' (MECs)[6] – and indicator of employment that includes both employees and working proprietors.

The assessment considers the direct and flow on effects of the individual components over time, including:

- The capital expenditure
- The potential interaction between components and the rest of the economy.
- Any facilitated activity and how those activities will create additional demand in the local economy. For example, adding housing to the area will lift demand for Council services that will be paid for by way of council rates.

We developed a custom Multi-regional Input-Output[7] model to quantify these effects. We summarise the flows into a present value (Net Present Values or NPV) using Discounted Cash Flow (DCF) analysis.

[5] Hutt City Council Report: HCC2014/4/142 (2)

[6] The concept of an MEC is described on page vii

The potential economic impacts is focused on the '*additional effects*' meaning that activities or spending that would have occurred irrespective of the development is excluded from the analysis. We do however note that the proposed development is at an early planning stage and as such detailed financial estimates and development costs are not available. This means that we have made some assumptions about the total costs (investment), the delivery timeframes and overall spending. In addition we have made assumptions about the level of additionality – that is the portion of the development that addresses 'new' demand and excludes any activity that would have taken place irrespective of the proposed development.

1.2 Key Assumptions

The proposed development will consist of two parts: a residential component and a medical components. Table 1.1 presents the development's main features including estimated costs and delivery timeframes.

Table 1-1: Main Features

Feature	Residential Component	Health care facility
Units	28 x 1 bedroom Villas	46 beds
	76 x 2 bedroom Villas	6 Whanua units
Parking	91 units	
Internal roads		

Delivery Timeframes				
	2015 & 2016	***2017***	***2018***	***2019***
Villas		50%	25%	25%
Health care facility			75%	25%
Planning & Infrastructure	100%			
Parking	50%	50%		
Earthworks	100%			

Cost	$28.8m

Delivering the development will generate a number of 'further' or 'facilitated' effects. In some cases, it is possible to attribute the economic effects directly to the development i.e. a clear causal link exists. In other cases the effects are facilitated. The facilitated effects relate to the additional spending in the economy that is unlocked by the development. These activities are 'secondary' to the development and therefore the associated impacts are viewed as 'facilitated'. Table 1.2 outlines and describes the

[7] Appendix 1 details Input-Output modelling.

identified facilitated activities. Again, if an activity would have taken place irrespective of the development then it is excluded from the assessment and estimating the net effect (that is the additionality concept) is done by way of assumptions.

Table 1-2: Facilitated activities

Component	Description
Residential activity	A core part of the development is the residential component i.e. the Villas. Building the villas will generate a large effect and will unlock (facilitate) other effects. The resulting household spending is viewed as a facilitated effect. In addition delivering new residential units will expand the value of the property base and translate into additional rates revenue and spending by local government to maintain the new support infrastructure. This is also viewed as a facilitated effect. It is important to consider that retirees have different spending propensities meaning that spending originating from this segment differs from other households. Therefore the derived economic impacts differ. We capture this difference in our assessment.
Health care facility	The development will provide aged health care amenity in Wainuiomata. This will provide a new facility in the town servicing the residents of the village. This means that it will capture residents spending on these type of services. It is understood that some of the costs will be carried by the local District Health Board and will be based on fixed fees and occupancy.

1.3 Data Sources

A range of information sources was used during this assessment including discussion with The Masonic Village Trust. Other information sources used included:

- Conceptual Master Planning Map (Feb 2011),
- Statistics New Zealand (e.g. population projections, census information, Business Demography Survey),
- M.E's Market Meter[8],
- M.E's Multi-regional Input Output Model,
- Rawlinsons New Zealand Construction Handbook,
- Council's LTP and Annual Reports.

We distinguish between capital and operational expenditure. These values are based on costs assumptions that were discussed with TMVT for input prior to estimating the economic effects.

1.4 Caveats and Limitations

Our modelling relies on information regarding the development that was provided to us and we assumed that this information is accurate. We did not undertake a review or audit of the information; however we did verify our assumptions with the MVT so we assumed that they are accurate. It is important to note that the timeframes and budgets can move as more planning work is undertaken and a better indication of the likely cost is developed. We note that any changes in the development

[8] Market Meter is a proprietary tool (owned by M.E) that delivers market insights from spatial data. It gives users the control to define geographic areas of interest to them and provides visual insights into the nature and value of the markets in these locations. Market Meter is used by some of New Zealand's largest retailers to develop insights into the retail spending by market segments and product groups.

concept, development mix (houses, average size and construction costs), infrastructure cost and/or implementation staging will change the economic effects estimated in this study. If during the detailed planning stages the estimated development costs diverges markedly from the initial estimates used in this report, then the economic impact assessment will need to be updated.

Our methodology is based on an MRIO approach. There are a number of limitations associated with Input-output models (see Appendix 1). Of particular relevance to this study is the limitation of MRIO models to deal with interregional capital flows (such as debt financing and principle repayments). Where possible we capture these flows by focusing on their potential effects on the local area.

1.5 Report Structure

The report is structured as follows:

Section 2 outlines the proposed development in terms of the delivery timeframes, estimated expenditure patterns and the spatial distribution of the spending. This information drives the economic impact assessment.

Section 3 presents the economic impact assessment. We distinguish between one-off and ongoing effects and focus in on the local area. The effects are spread over multiple years allowing us to use discounted cash flow analysis to present the effects in NPV terms. This section also estimate the potential opportunity cost of delaying the development.

2 The Development & Assumptions

The retirement village's economic impacts will manifest in stages, aligning with when the expenditure takes place. This section outlines the expenditure patterns focusing on the timeframes. This is done by presenting a breakdown of the capital and operational expenditures. The operational expenditure can be viewed as the development's 'ongoing' effects, reflecting the impacts once it is fully developed and occupied. The capital expenditure is associated with the one-off construction costs and initial investment. The expenditure items are presented in a way that enables a clear distinction between 'construction' and 'ongoing' effects.

2.1 Timeframes

The proposed development will be delivered using a staged approach. The exact scheduling is not known but for this assessment we have assumed that the development takes place over a 5 year timeframe and that the residential units are occupied as they become available. The capital expenditure (construction) precedes the operation expenditures and aligns with the cost estimates outlines in Section 1.2. Table 2.1 illustrates the timeframes over which the development will take place.

Table 2-1: Main Components and Costs

Component	Timeframes					
	2015	2016	2017	2018	2019	$'m
Planning and Preparation work	50%	50%				**0.7**
Earthworks, Civil and Infrastructure		100%				**4.3**
Parking		50%	50%			**0.2**
Roads		100%				**0.2**
Villas			50%	50%		**15.0**
Aged Care/Health Care Facility				75%	25%	**8.5**

The next section outlines the expenditure associated with each component.

2.1.1 Capital Expenditure

The capital expenditures associated with the proposed development are presented below (see Table 2.2) based on our interpretation of the development concept and available information.

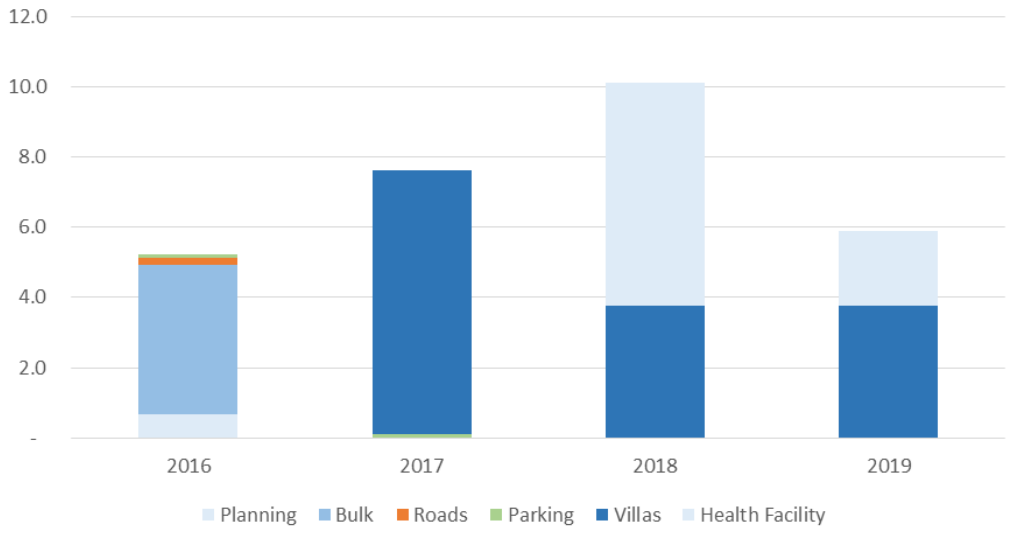
Table 2-2: Capital Expenditure

Component & Breakdown	Assumptions/Information used to estimate costs			Cost Estimate[9] $
Civil, infrastructure and planning				$4.93m
Retirement Village				
104 units	**Mix**		**$/m²**	**$**
	Size (m²)	**%**		
1 Bedrooms	35	25%	2,250	550,000
	45	50%		1,102,500
	44	25%		550,000
2 Bedrooms	75	25%		3,206,250
	90	50%		6,412,500
	110	25%		3,206,250
Health Care Facility				
	46 Beds and 6 Whanua Units		158,500 per bed	$8.48m

The planning, civil and infrastructure work will act as the key, initial investment kick-starting the overall development. The civil work is estimated to require an investment of some $4.93m. This investment will enable the other components to be developed. It is assumed that the initial investment will be financed using a debt facility.

Next the supporting infrastructure will be delivered (parking, roads, etc.). In turn, this will be followed by the villas and the health care facility. The financial flows associated with the construction activity is shown in Figure 2-1.

Figure 2-1: Capital Expenditure – Timeframes ($'m)



[9] As the project delivery will be distributed over time, some of these costs may change (i.e. inflate). Our assessment uses these cost estimates and grow (inflate) them to capture the time value of money.

From the preceding it is clear that the development spending will be undertaken over a four year period, with around 18 per cent of the spending taking place in the first year. In the initial period, the spending is focused on the earthworks, infrastructure delivery and civil works. The investment activity then shifts to constructing the villas with the second year delivering 26 per cent of the total investment with most of the spending relating to this activity. In the next two periods, (2018 and 2019) construction's focus shifts to the health care facility. The construction activity is also expected to peak in the third year with 35 per cent on the construction budget being spending in 2019 before tapering off to last year of construction, 2019. In the last year the remaining quarter of the villas are delivered and health care facility is finished.

It is our understanding that the villas will be released to the market as they become available. This means that he operational spending will follow a similar profile.

2.1.2 Operating Expenditure

Once developed and fully occupied, the *total* development will have a range of economic relationships and transactions that will generate a unique set of economic impacts. The ongoing spending in the local economy has been estimated for each component:

- The villas
- The health care facility.

Table 2.3 summarises operational expenditure for each category.

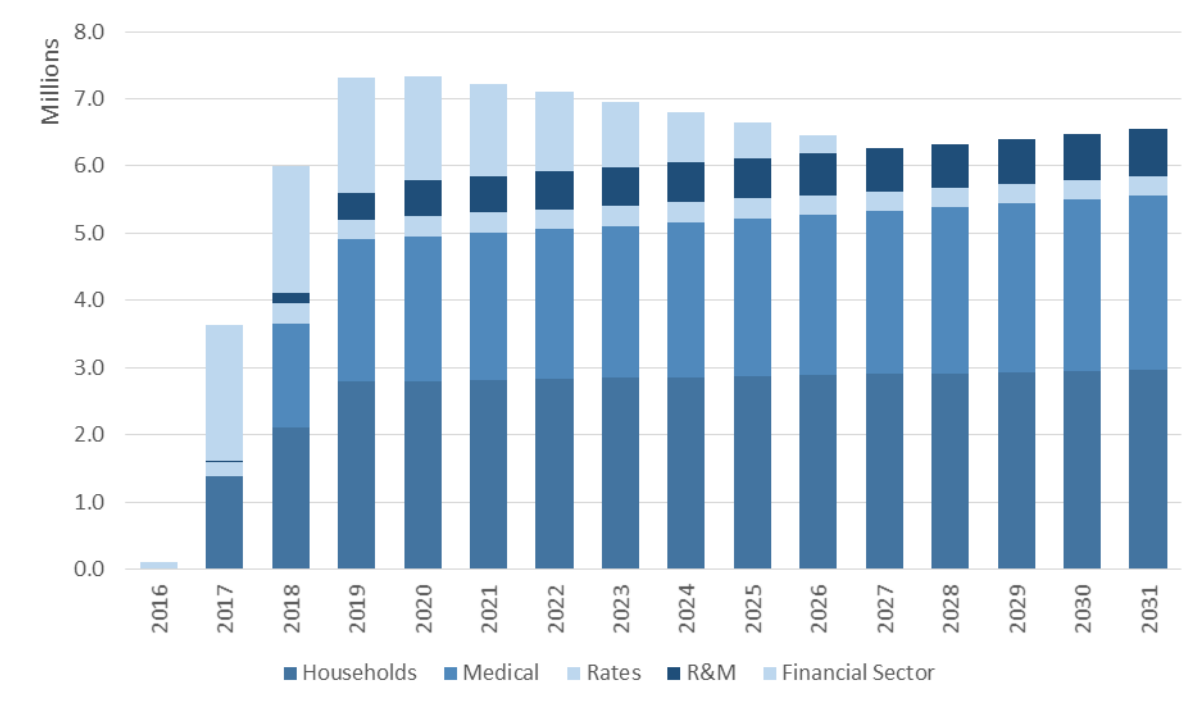
Table 2-3: Summary of Operating Expenditure (Base Assumptions)			
Retirement Village Operations			
	Property management & Fees	Annual Rent	$540,000
	Health Care Facility	Medical Care	$2.1m
	Total (Annual)		**$2.64m**
Household spending (spending per household)			$21,000-$28,000
Rates (Annual Rates)			
	Residential Components	$180,000	
	Retirement Village and Health Care Facility	$109,000	

We used information about retirement village operations (e.g. Ryman Healthcare annual report) as well as information from the Ministry of Health (MOH) as basis for the retirement village and health care facility's annual rent and health care facility costs. Data from SNZ has been used to estimate household spending – that is the households taking up the accommodation opportunity in the retirement village. Another spending item to consider include repair and maintenance (around $600,000/annum). This includes actions such as the gardening services and asset maintenance. The potential rates revenue

(payable to Council) has been estimated for each component using Council's Revenue and Funding Policy[10].

The operational expenditure is will ramp-up as the capacity becomes available. Figure 2-2 shows the profile of the ongoing effect.

Figure 2-2: Ongoing effects



From the preceding, the proposed development will facilitate ongoing spending in the economy taking around 4 years to ramp up. Once fully occupied and operational, the proposed development will result in additional sales in the local economy of around $5.6m. The two largest components (excluding the financial services charges) of this spending relates to the household spending and the activities of the medical/health care facility. In the first 10 years, the development will stimulate demand for financial services (loan funding) and this is also reflected in the figure. The upward slope of the graph (the area from 2019 onwards) reflects the effects of inflation[11].

The potential effect of the financial charges on the overall economic impacts are important. If the development is funded via debt then a portion of the interest component includes the lender's margin and is used to 'pay' of the lender's business activity and associated costs. This means that the financial service sector will experience a 'positive' effect on demand for its services. We have assumed that this is the case for this development.

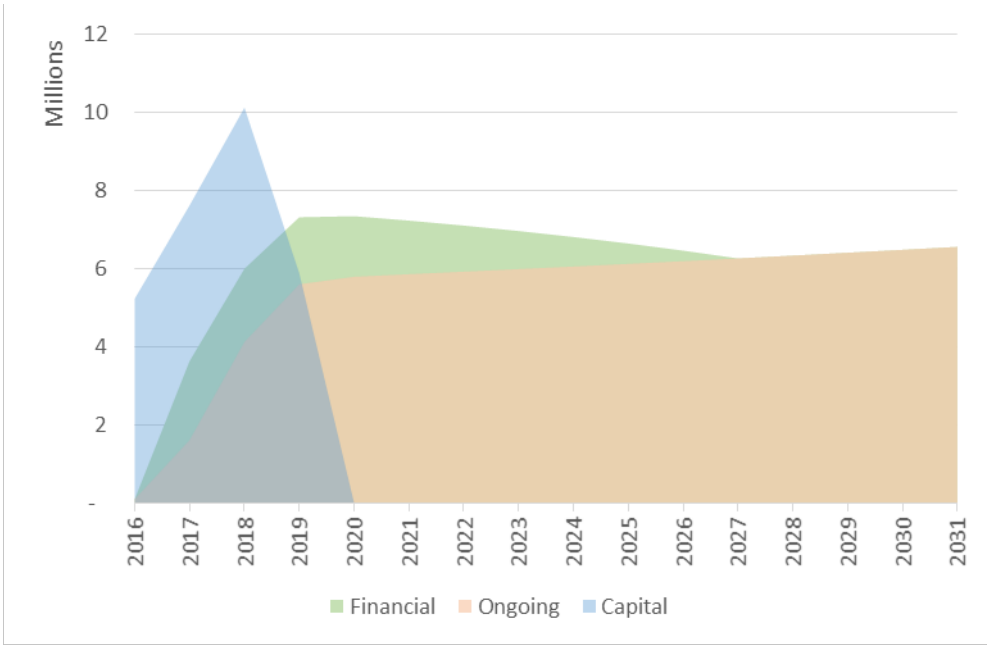
2.1.3 Combined Spending

The capital spending facilitates or creates an ability in the economy to deliver ongoing services. These two streams, while different, both contribute towards the lifting economic activity. As the construction

[10] The rates payable was estimated using estimates of land value and treating the construction cost as 'value of improvements'.
[11] We used a range of inflators, specifically the sectoral Producer's Price Inflators and not Consumer Price Inflation.

activity winds downs, its economic effects will be replaced with more enduring/ongoing effects of the household spending and the health care facility.

Figure 2-3: Spending Effects



From the preceding, it is clear that the peak effect is expected around year 3 (2018) after which the construction activity scales back and the operational or ongoing effects start to replace the effects. An important observation from the preceding is that the longer terms effects, while smaller that the construction effects on an annual basis, account for the bulk of the increase in economic activity. In Net Present Value (NPV @ 6%) terms the different streams have the following values:

- Capital expenditure (construction) $24.8m,
- Ongoing activity $50.0m, and
- Financial sector $9.1m.

From a longer terms perspective, the ongoing effects are the most important component. It is however important to note that not all of the activity outlined above will be 'new' and therefore not all of these transactions will be 'economic impacts'. The economic impacts exclude any activity that would have taken place irrespective of the proposed development. Most of this activity relates to the household spending. The household spending component reflects how households interact with the economy. These interactions include purchases such as groceries, fuel, energy and medical expenses. For this economic impact assessment, only the households that are 'new' to the area are considered to have an economic impact. However this is mostly associated with the household spending component and not the rest of the development as the other components are 'new' to the area.

2.2 Spatial Distribution

Not all the spending (capital and operational) will take place within the immediate vicinity. The location (where) the spending takes place influences the value chains being affected. For example, if a transaction takes place in Wellington City then the supply chains of that city is activated and the effects are felt in the City, then the Wellington Region and finally the rest of NZ. Similarly, if some of the work is undertaken in Christchurch then the money (transaction) and first round benefits flow to the Christchurch first. Given the nature of this development, some inputs will be purchased from the wider economy (rest of the region and nationally). The spatial distribution of the economic impacts is related to where the initial spending occurs as well as the economic linkages between regions. The bulk of capital spending is expected to take place within the Lower Hutt area thereby generating a local impact. Table 2.4 summarises the spatial distribution of spending.

Table 2-4: Spatial Distribution of Capital Spending

	Local	Rest of Region	Rest of NZ
Residential building construction	90%	10%	
Non-residential building construction	80%	20%	
Heavy and civil engineering construction	70%	25%	5%
Scientific, architectural and engineering services	20%	70%	10%

We assume that most of the spending will be directed at local suppliers in the first instance. During the initial stages, specialist input not available locally will be needed. In these situations, these inputs will be sourced from the Wellington Region before sourcing it from the rest of NZ. With reference to residential construction, it is assumed that all inputs (labour and firms) would be sourced locally and that there is sufficient capacity in the local market to provide the construction capability. Changing the spatial distribution of spending will alter the spatial distribution of impacts. In terms of operational spending, the bulk will have a local focus with a small (around 2%) outflow reflecting tourism spend leaving the area.

2.3 Conclusion

The proposed development is sizable and will take place over a number of years. It will add to the town's residential offering – particularly the ageing population components. At this stage, it is not known how the development would interact with the existing market but given the scale it is plausible that the local construction sector would have sufficient capacity to meet the additional demand. Pressures in the construction sector is a country-wide issue and Auckland's housing issues and the Christchurch rebuild are putting pressure on the building sector. In the local context, a development such as this one could play an important role in stimulating economic activity. The next section describes the potential economic impacts of the development distinguishing between construction and on-going effects.

3 Economic Impacts

This section presents economic impact assessment results. It outlines the impacts on the Hutt City, the rest of the Wellington Region (RoR) and the rest of New Zealand (RoNZ) economies. The values are presented in 2007 constant dollar terms ($NZ\$_{2007}$) removing the potential effects of inflation and reflecting the time value of money. The economic impacts are described using Gross Domestic Product (GDP) and employment as core indicators.

The construction and on-going phases are discussed separately to show the one off and ongoing effects. The combined effects are also shown. The section concludes with a summary of the results in NPV terms.

3.1 Construction/One off effects

The development will span a number of years with the capital investment spread out over the first 5 years. It is important to note that the results show the economic effects associated with spending that occurred in that year and not when the impacts are felt. We use a comparative static model showing the size of the impact and not the transition pathway[12] i.e. how long it takes for all effects to flow though the economy. Table 3.1 summarises the economic impacts associated with the investment. The table shows the GDP impact. Appendix 2 presents the employment and income effects associated with the capital expenditure.

Table 3-1 Construction Activity – Impacts

Direct, Indirect and Induced	**GDP ($'m$_{2007}$)**		
	SA	RoR	RoNZ
2016	1.9	1.9	1.1
2017	3.2	2.3	1.4
2018	4.0	3.1	1.9
2019	2.4	1.8	1.1
	Employment (GDP)		
2016	21	22	14
2017	69	32	19
2018	75	43	26
2019	48	25	15
2020	-	-	-
2021	-	-	-
2022	-	-	-

[12] We note that some economic models can provide an indication of the transition pathways but these models are complex, costly to run and tend to operate at a country level.

During the construction phase, the development will have a total GDP impact of $\$26.2m_{2007}$ (over the project life cycle). About 78.6% of this impact is expected to be felt in the wider Wellington region[13] and around 44 per cent of the effects will be felt in the Hutt City economy. The GDP impact is expected to start at around of $4.9m of GDP effect associated with the first year's construction rising to $9.1m in year 3. In terms of employment activity (measured using MECs), more than half of the employment effect will be felt in the local economy and 30 per cent in the rest of Wellington region. The total employment effect is estimated at around 410 (across all years). The employment effects will match construction activity and is projected to peak at 144 jobs (MECs) in the third year of construction (2018). With reference to the employment effects, the employment number presented here reflects the total number of employees that will be needed to put the required work in place. Importantly, this includes not only construction work but also all employees associated with supporting activity and all backward linkages[14].

A by-product of the employment effect is an increase in local spending (by workers and households), supporting other sectors generating further economic impacts. This extra spending drives the induced[15] impacts. The total induced effect is estimated as $2.5m and during the peak construction period, 59 per cent of the induced effects felt locally.

Once construction is complete, the villas will be occupied and operated. Once operational the interaction with the rest of the economy will change to a more on-going, continuous nature. The next section summarises the ongoing effects.

3.2 Ongoing Effects

The ongoing effects reflect the interactions of the residents/households and the medical facility with the rest of the economy once the village is operational and occupied. As parts of the development are completed and 'occupied' the ongoing effects will start and ramp up until the development has been completed and fully occupied[16]. In other words the ongoing effects will ramp up as construction scales down.

The ongoing effects reflect two important adjustments. Firstly the GDP effect is adjusted to reflect the repayment of the debt (principle), and secondly, only the net additional components are include in the analysis. This is an important distinction because we are not seeking to assess the total value of the supply chains but instead we are interested in the net change. This means that our assessment excludes household spending that would have taken place irrespective to the retirement village being established. Therefore, we exclude a portion of household spending from our assessment because some of the local households relocate to the village meaning that their spending is not new to the area.

[13] Including Hutt City Area

[14] Importantly, the impacts as shown here is the 'total effect' associated with the activity undertaken in that year. The economic impact illustrates the total value (effect) of each year's economic shock and does not imply that all of that effect will occur in that year.

[15] As firms respond to the increase in economic activity they employ additional staff disbursing extra salaries and wages to households for their labour. As households spend their earnings and consume goods and services, another round of effects is created (firms employ more resources to cope with the additional demand). The overall effect associated with households spending is referred to as the induced effects.

[16] The assessment does not include future property sales and the effects associated with real estate transactions e.g. real estate agents' commissions etc.

Household spending includes the following categories:

- Antiques & Used Goods
- Café & Restaurants
- Car
- Catering Services
- Clothing
- Clubs (Hospitality)
- Computer & Computer Peripheral
- Department Stores
- Electrical, Electronic & Gas Appliance
- Entertainment Media
- Floor Coverings
- Flower
- Footwear
- Fresh Meat, Fish & Poultry
- Fruit & Vegetables
- Fuel
- Furniture
- Garden Supplies
- Hardware & Building Supplies
- Houseware
- Liquor
- Manchester & Other Textile Goods
- Marine Equipment
- Motor Cycle
- Motor Vehicle Parts
- Newspaper & Book
- Non-Store
- Other Electrical & Electronic Goods
- Other Personal Accessory
- Other Specialised Food
- Other Store-Based n.e.c
- Pharmaceutical, Cosmetic & Toiletry Goods
- Pubs, Taverns & Bars
- Retail Commission-Based Buying & Selling
- Sport & Camping Equipment
- Stationery Goods
- Supermarket & Grocery Stores
- Takeaway Food Services
- Toy & Game
- Trailer & Other Motor Vehicle
- Tyre
- Watch & Jewellery

Table 3.2 summarises the ongoing GDP and employment effects that will be felt in the Hutt City economy. At the local level, the largest share of the effects will be driven by the operations of the health care facility. The facility is expected to deliver 58 per cent of the locally felt GDP effects. In terms of employment, a similar proportion of will be felt locally (60%). This is followed by household spending with a total GDP effect over the assessment period of some $11.2m – a quarter of the local effects.

The ramping up of the ongoing effects is expected to taper off at the maximum level by year 5. However, as the loan is repaid, the economic effects of the interest repayments diminish. Therefore the total economic effects appear to decline from year 5 to 11, before picking up from there onwards (see the right hand scale of Figure 3-1). We have assumed that the debt facility will be secured via a financial institution in the rest of the Wellington region so the economic impacts associated with the financial charges originate in the rest of the region.

Employment will also be affected by the proposed development. Figure 3-2 and Table 3.2 shows how the employment effects will be distributed over time. The profile match the GDP effects with one key noticeable difference. The employment effects (at across NZ) do not reflect the same peak around 2019 as evident with the GDP effects. This difference is attributed to the employment characteristics of the finance industry – the GDP per employee is relatively high. This industry is comparatively capital intensive with high value transactions on a per employee basis.

Table 3-2: Local Level Effects – GDP and Employment

	Rates	Maintenance	Household Spending	Health Care Facility	Financial
GDP Impacts - $'M$_{2007}$					
2016	0.0	-	-	-	-
2017	0.1	0.0	-	-	0.1
2018	0.2	0.1	0.4	1.4	0.1
2019	0.3	0.2	0.7	1.9	0.1
2020	0.3	0.3	0.9	2.0	0.0
2021	0.3	0.3	0.9	2.0	0.0
2022	0.3	0.3	0.9	2.0	0.0
2023	0.3	0.3	0.9	2.1	0.0
2024	0.3	0.3	0.9	2.1	0.0
2025	0.3	0.4	0.9	2.2	0.0
2026	0.3	0.4	0.9	2.2	0.0
2027	0.3	0.4	0.9	2.3	-
2028	0.3	0.4	0.9	2.3	-
2029	0.3	0.4	1.0	2.4	-
2030	0.3	0.4	1.0	2.4	-
SUM	3.8	4.3	11.2	27.2	0.4
Figures are rounded					
Employment (MECs)					
2016	0	-	-	-	-
2017	3	0	-	-	1
2018	6	2	10	33	1
2019	8	4	14	45	1
2020	8	5	19	46	1
2021	8	6	19	47	1
2022	8	6	20	48	0
2023	8	6	20	49	0
2024	8	6	20	50	0
2025	9	6	20	51	0
2026	9	6	20	52	0
2027	9	7	21	53	-
2028	9	7	21	54	-
2029	9	7	21	55	-
2030	10	7	21	57	-

Figure 3-1: Distribution of Local GDP effects over time

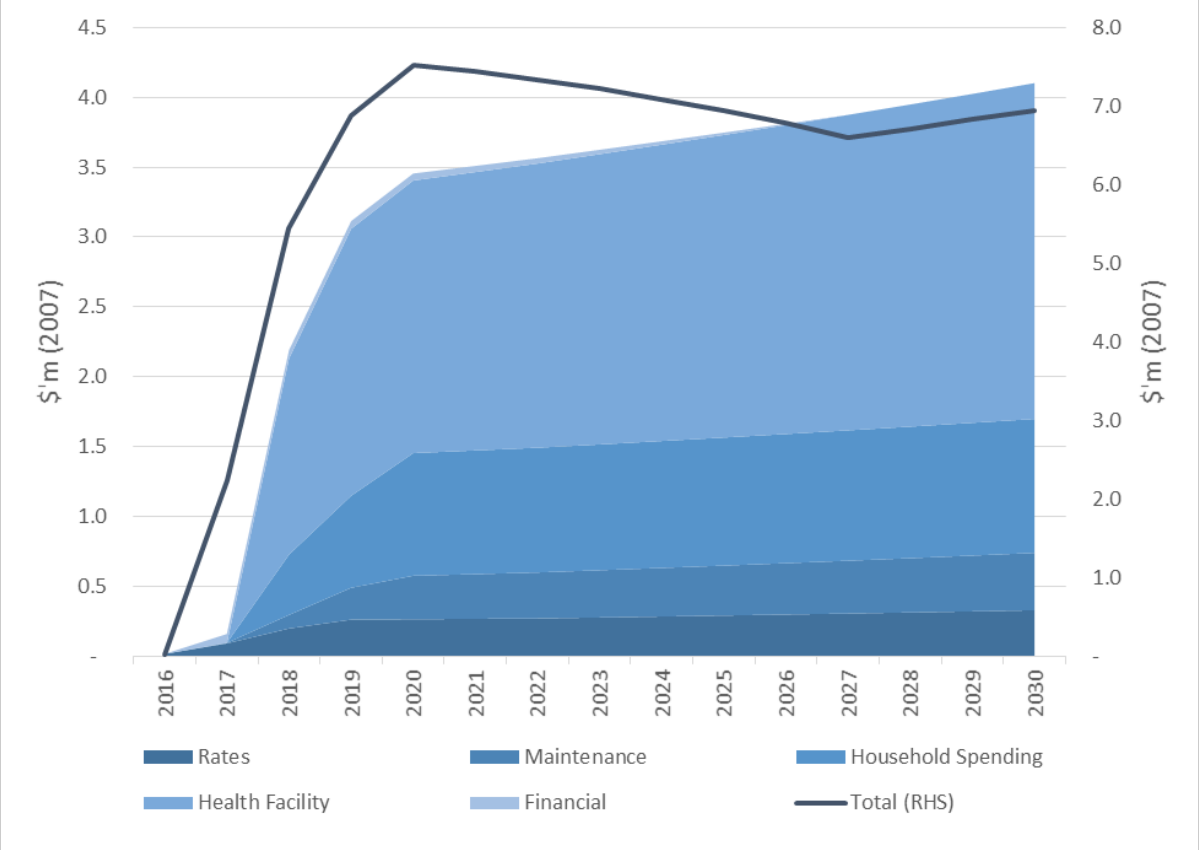
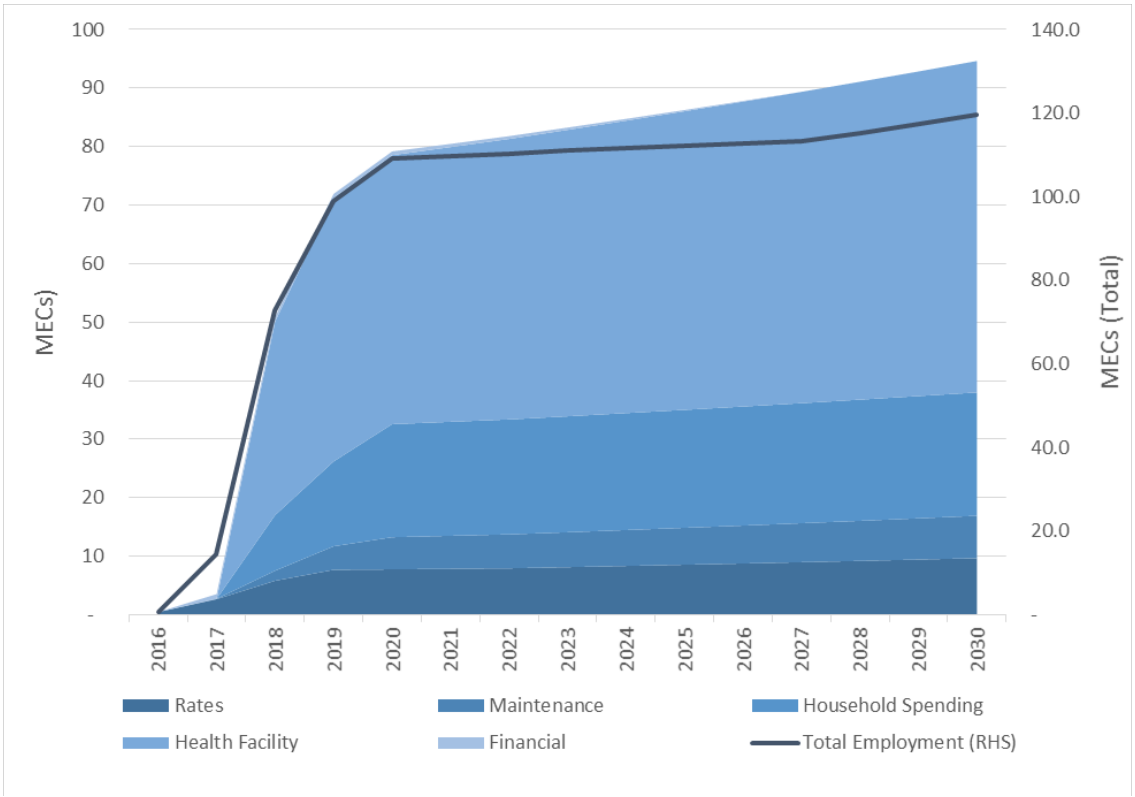


Figure 3-2: Distribution of Local Employment effects over time



As expected the income effects are closely matched to the employee effects. These income effects associated with the ongoing activities are summarised effects are summarised in Appendix 3.

With reference to the employment impacts, it is important to note that the figures presented above do not represent 'new jobs' that will be created. Instead the employment numbers quoted above represent the employment complement needed to undertake all the work required to deliver the proposed development and generate all inputs through the entire supply chains.

3.3 Net Present Values

The development will add to the Wainuiomata's residential offer. Given the scale of the overall investment (especially operational) it will be necessary to align the development spending with market conditions to maximise the economic returns

With the proposed development taking place (as assumed) the present value of the future GDP effects are put at around $30.9m (@6%). This value takes the debt repayments (the principle) into account. Repaying the principle affects GDP because it (the principle) flows out of the study area, lowering gross operating surplus (a component of GDP). Table 3-3 shows the GDP effects in NPV terms at different discount rates. The 6% discount rate is the default rate used by NZTA.

Table 3-3: NPV of GDP effects ($'m)

	4%	***6%***	***8%***
Hutt City Area*	$36.1	$30.9	$26.7
* Including the effects of the financial services sectors but excluding the principle repayments			

The above NPV analysis suggests that the proposed development will have a positive GDP effect on the area and the present value of the future GDP effects is between $26.7m and $36.1m for the Hutt City area. Changing the development timeframe will have an effect on when the spending takes place, when the residential units can be built and when people can occupy the houses and the retirement village. Normally, the sooner a development can become operational the sooner the economic effects will be felt.

Changing the development timeframes i.e. delaying the investment process relative to the compared to base assumptions will defer the GDP effects. The analysis suggests that delaying the development by 1 year will reduce the *total* present value of the GDP effect by between $3.9m and $4.9m. This is equal to a drop of 13.5% to 14.5%. Two reasons drive the decline:

- The time value of money – an effect (cash flow) taking place further in the future has a lower value than one that is expected sooner; this is a feature of the discounting process and reflect uncertainty. This is especially important for the construction effects where

the spending takes place in a comparatively short space of time and therefore these expenditures are valued more.

- By delaying the development, the *ongoing* GDP and employment effects are not realised meaning that an opportunity cost is incurred. The opportunity cost of 1 year delay is put between $3.0 and $4.4m for the local area.

3.4 Concluding Remarks

The proposed retirement village and health care facility will add to the market offer that is available to senior residents. The residential offer will be relatively diverse catering for different market segments within the retirement market with supporting health care facilities. Delivering the retirement village will fit with the long term aim of establishing such a facility in Wainuiomata. The project is in the initial planning phases and detailed design, engineering estimates and cost estimates will be undertaken as the process unfolds. If the cost estimates differ materially from the assumptions used in this assessment then the results presented in this assessment will need to be updated. However, the values (assumptions) informing this assessment are broadly in-line with those applied in similar studies and real life example.

A key observation from this assessment is that the proposed development will have a positive economic effect on the local economy. The bulk of this effect is expected to come the health care facility after the initial construction effect.

A key part of any economic assessment is to avoid including effects that would have arisen irrespective of the proposed development. In the case of this study, only a portion of the household spending is attributed to the development implying that a portion of the residents will be from outside the area – coming into the area to take up the accommodation opportunities.

Around half of the GDP and employment effects will be felt locally. It is estimated that the total GDP effect added to the local economy will be around $3.5m, each year once operational with some annual increases. This additional economic activity will support around 80 local jobs. Included in these figures is the additional demand for Council services that will be funded by an increase in rates. Using Council's information, we estimate the rates that will be raised from the development as around $295,000.

Expressing the potential future economic effects (GDP effects) in present terms shows that development will make a substantial positive contribution to the economy. Depending on the discount rate being applied, the GDP effect is put at between $26.7m and $36.1m. This GDP effect is an increase over the current activity i.e. a growth. This positive effect is after accounting for any loan (principle) repayments (which lowers the total GDP effect).

References

M.E's Multi-Regional Input-Output Model.

McDonald, G., and Patterson, M. (2008). Auckland economy and its interactions with the environment: insights from input-output analysis. Palmerston North: NZCEE Research Monograph Series – no.10

Trade Me – High level overview of Wainuiomata property market

Rawlinsons New Zealand Construction Handbook 28th Edition

Statistics New Zealand

- Business Demography Survey
- Linked Employee Employer Data
- Census
- Population projections

Hutt City Council

- Long Term Plan
- Annual Report
- Revenue and Funding Policy

Appendices

Appendix 1: Input-Output Method

Input-Output models replicate the transactions and purchase patterns within an economy expressing these in tabular format. These tables form the core of IO modelling reflecting the flows of money or goods among various sectors or industrial groups within an economy.

These flows are recorded in a matrix or 'IO table' using arrays summarising the purchases made by each industry (its inputs) and the sales of each industry (its outputs) from and to all other industries. Using the information contained within such a matrix, IO practitioners are able to calculate mathematical relationships for the economy in question. These relationships describe the interactions between industries, specifically, the way in which each industry's production requirements depend on the supply of goods and services from other industries. With this information it is then possible to calculate, given a proposed change (such as a new development) to a selected industry, all of the necessary changes in production that are likely to occur throughout supporting industries within the wider economy.

As with all modelling approaches, IO analysis relies on certain assumptions for its operation. A central assumption in IO modelling is that the input structures of industries (i.e. technical relationships) are fixed. In the real world, however, these technical relationships do change due to new technologies, price shifts and input substitutions, and the introduction of new industries. Therefore, IO analysis is generally regarded as suitable for short-run analysis, where economic systems are unlikely to change greatly from the initial snapshot of data used to generate the base IO tables.

M.E's standard IO structure has 48 sectors – this can be expanded to over 120 sectors (the assessment used in this report is based on the standard 48 sectors).

The latest available supply and use tables for New Zealand were used to generate a national IO table. This table reflects the economic structure and economic interrelationships as at year ending March 2007. Next this table was regionalised, utilising the Generating Regional Input-Output Tables (GRIT) procedure. The regionalised table reflects three regions (the Hutt City area, rest of Wellington and the rest of New Zealand regions) and how the sectors within each region are interconnected with each other and with sectors in the rest of the economy. In other words, these tables explain the supply chain interdependencies between sectors.

Estimating economic impacts

The existing sector interdependencies can be used to estimate the overall effect of any change. In the context of the marina development it is necessary to define the investment in terms of the economic sectors used in the IO model – a total of 48 industries. This data was then integrated into the IO model showing the impact of the development on the local, regional and national economies via its sectoral linkages.

The model has then been applied to consider the direct and flow on (indirect and induced) economic effects. These effects have been analysed in quantitative terms, expressing economic impacts as output, value added (contribution to GDP), and employment.

While money is spent locally by both the developers and on-going operations the effects will also flow to the rest of the Wellington region and the rest of New Zealand. Importantly, the model estimates the net direct output for each industry because of backward linkages in the economy. The change in output levels are translated into value added, employment and income change for each industry.

As mentioned earlier, the IO model is based on the 2007 year. Therefore, the development's spending is deflated to 2007-dollar terms using appropriate Producers Price Index (PPI) deflators.

Input-Output analysis - Limitations

Input-output analysis has strengths and weaknesses. Compared to some other economic models, IO is relatively straightforward and easy to use. It is especially useful for identifying and understanding the nature of relationships within an economy but it provides a snap-shot of the relationships among industries. These relationships are assumed to remain stable/static over time. This assumption implies that the sectors' input structures remain static through time and that the type of technology used during production remains stable. In the real world, however, technical relationships will of course change over time as a result of new technologies, relative price shifts and product substitutions, and the introduction of new industries. It also assumes that there are sufficient resources of labour, land and capital to sustain projected growth or change, and that growth in one industry does not constrain growth in others (for example, through competition for labour or capital, affecting the supply and/or price of these).

For the purposes of this type of economic impact assessment that does not have a time element, it is believed that the level of economic structural detail able to be identified in an IO approach is most appropriate.

Appendix 2: Capital Spending Impacts – Income in Wider Economy

$'000	Study Area (Hutt City)	Rest of Wellington	Ret of New Zealand
2016	1.3	1.3	0.7
2017	2.0	1.5	0.9
2018	2.7	2.1	1.3
2019	1.6	1.2	0.7
2020	-	-	-
2021	-	-	-
2022	-	-	-

Appendix 3: Ongoing effects – Income Generated in Wider Economy

$'000	Rates	Maintenance	Household Spending	Health Care Facility	Financial
2016	12	-	-	-	-
2017	67	2	-	-	41
2018	147	65	293	1,131	38
2019	194	152	447	1,540	35
2020	197	207	596	1,572	32
2021	199	213	601	1,605	28
2022	201	219	606	1,639	24
2023	206	225	611	1,674	20
2024	211	232	617	1,709	16
2025	216	238	622	1,745	11
2026	222	245	628	1,782	6
2027	227	252	633	1,819	-
2028	233	259	639	1,857	-
2029	239	266	645	1,897	-
2030	245	274	651	1,936	-
SUM	2,816	2,850	7,587	21,905	249
Rest of Region	502	999	9,345	4,135	7,229
Rest of NZ	234	659	3,857	1,106	390

Part 5: Submission Form

RMA FORM 5

Submission on publicly notified Proposed District Plan Change

Clause 6 of the First Schedule, Resource Management Act 1991

To: Chief Executive, Hutt City Council

1. **This is a submission from**:

Full name	*Last* *First*	
Company/organisation		
Contact *if different*		
Address	*Number* *Street*	
	Suburb	
	City	*Postcode*
Address for Service *if different*	*Postal Address*	*Courier Address*
Phone	*Day*	*Evening*
Fax		*Mobile*
Email		

2. This is a **submission** on the following proposed change to the City of Lower Hutt District Plan:

Proposed District Plan Change No: ☐

Title of Proposed District Plan Change: ☐

3. The specific provisions of the proposal that my submission relates to are:

Please give details:

(Please use additional pages if you wish)

4. My submission is:

Include whether you support or oppose the specific provisions or wish to have them amended; and reasons for your views:

(Please use additional pages if you wish)

5. I seek the following decision from Hutt City Council:

Give precise details:

(Please use additional pages if you wish)

6. I ☐ **wish** ☐ **do not wish** to be heard in support of my submission.

(please tick one)

7. If others make a similar submission,

I ☐ **will** ☐ **will not** consider presenting a joint case with them at the hearing.

(please tick one)

Signature of submitter:
(or person authorised to sign on behalf of submitter)

Date

Personal information provided by you in your submission will be used to enable Hutt City Council to administer the submission process and will be made public. You have the right under the Privacy Act 1993 to obtain access to and to request correction of any personal information held by the Council concerning you.

Submission number
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