



Tauranga City

LIM

Land Information Memorandum



Land Information Memorandum

This Land Information Memorandum has been prepared for:

Applicant	Patricia Hall
Property Address	24 Bucklands Crescent Papamoa
Legal Description	Lot 214 DP 316351
Application Date	5 August 2026

This Land Information Memorandum has been prepared for the purposes of Part 6 of the Local Government Official Information and Meetings Act 1987. It is based on a search of Council records only. Additional information relevant to the property may be held on Council's property file or within other Council systems; however, is not included in this Land Information Memorandum. There may be other information relating to the land which is unknown to Council. The Council has not undertaken any inspection of the land or any building on it for the purpose of preparing this Land Information Memorandum. The applicant is solely responsible for ensuring that the land is suitable for a particular purpose. This Land Information Memorandum has been prepared for the applicant only. The Council accepts no responsibility or liability for any use of this report by third parties or for any reliance placed on its contents by persons other than the applicant. This Land Information Memorandum is valid only if reproduced in full and applies only as at the date of issue.

It is recommended that the Certificate/Record of Title, which is not held by Council, be searched by the purchaser.

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Services Information

Land information which is likely to be relevant includes information on private and public stormwater, water and sewer details. Please refer to the appropriate authorities for further information about network utility services.

Service Record

Service Print Attached	Yes
Method of Sewer Disposal	To Public Sewer
Existing Method of Stormwater Disposal	Soakholes
Drinking Water Supplied to the Land	Yes
Drinking Water Supplier Is:	
(i) Owner of the Land; or	No Information Available
(ii) Tauranga City Council [Water Supply Authority Unit (WSA)]; or	Yes
(iii) Another Networked Supplier	No Information Available
Any Information Notified under Section 206(1) Water Services Act 2021	No Information Available

Note:

1. Please note that the existence of a watermain along a property frontage does not necessarily mean that a connection is available. This may need to be provided at the applicant's expense.
2. If the land is supplied with drinking water by Tauranga City Council as a Water Supply Authority, any conditions (generally set out in Tauranga City Council's [Supply of Water Bylaw 2019](#)) applicable to that supply are included in this Land Information Memorandum.
3. If the land is supplied with drinking water by a networked supplier other than the WSA, any conditions that are applicable to that supply are included in this Land Information Memorandum.
4. If the land is supplied with drinking water by the owner of the land, any information Council has about the supply is included in this Land Information Memorandum.
5. Any information notified to the territorial authority by a drinking-water supplier under Section 206(1) Water Services Act 2021 is included in this Land Information Memorandum.
6. Water services legislation is transitioning from the Water Services Act 2021 to the local Government (Water Services) Act 2025 and associated amendments. Some information in this Land Information Memorandum may reflect the previous legislative framework and may be subject to change or reinterpretation under the new Act.

Rating and Valuation Details

Tauranga City Council rates are billed twice a year and are due on the last business day of August and February. Unpaid rates for each instalment will incur a 10% penalty.

The valuation details below are based on a revision date of 1 May 2023. This has been used to assess the rates for Council's financial year beginning 1 July 2026.

Further information on property valuations can be found on Council's website at the following link: [Property valuations - Tauranga City Council](#).

Valuation Details

Valuation Reference	06907 484 00
Capital Value	\$1,200,000
Land Value	\$630,000
Improvement Value	\$570,000

Rating Details

Current Annual Rates	\$4,929.90
Balance Owing	\$2,464.95

Water Meter Details

Water Meter On Property	Yes
Meter Type	Individual Meter
Water Rates Owing	\$56.86

A separate account is issued for water metered properties. Residential meters are read every three months. Commercial/Industrial meters vary depending on use.

Note:

Council's Water Supply Bylaw requires a final water meter reading to be undertaken when a property is sold.

Infrastructure Funding and Financing (IFF) Levy Details

The IFF levy (under the Infrastructure Funding and Financing (Western Bay of Plenty Transport System Plan Levy) Order 2022) is payable for a period of 30 years from 1 July 2024 to 30 June 2054. The method for assessing the liability for an IFF levy on the property is set out in the 2022 Order. The annual levy (as calculated under the 2022 Order) is allocated across the levy area with 50% of the overall levy coming from commercial and industrial properties and 50% coming from residential properties and with the IFF levy on the property being based on the capital value of the property. Further information on the levy is available at the following link: [Infrastructure Levy - Tauranga City Council](#).

IFF Levy Details

Current Annual IFF Levy	\$110.82
Balance Owing	\$55.41

Building Information

This information is sourced from Council records and may not reflect the situation on site if work has been undertaken without consent or has been undertaken and was exempt from consent.

This Land Information Memorandum provides a summary of key building-related information and does not include all documents held by Council. It is recommended that the property file is viewed together with this Land Information Memorandum to satisfy any due diligence requirements. The property file may be ordered at the following link: [Order a LIM or Property File](#).

Building Permits and Consents: Information related to Permits (issued prior to 1993) and Consents (issued after 1 January 1993) is listed below. Where the permit issue date is unknown, the application or payment date is recorded instead. Plans and other associated documents, where held by Council, are available on the property file.

Solid Fuel Heaters: It is important that any solid fuel heater has been legally installed, either as part of the original dwelling or by way of a separate permit/consent.

Granny Flats: From 15 January 2026, a small standalone dwelling may be constructed without a building consent, if all exemption conditions are met under Schedule 1A of the Building Act 2004. Further information is available at the following link: [Guidelines on Building a Granny Flat](#).

Permits and Consents

Building Consents

Date Issued	Description of Work	BC Number	CCC Issued
01/04/04	Erect dwelling	14109	Yes

Compliance Schedule N/A

Requisitions None

City Planning

The Operative Tauranga City Plan

The Tauranga City Plan provides the rules for how people can build or develop the land they own in our city. This can be land that is residential, commercial, industrial etc. The City Plan covers all subdivision, land use and development, how and where the city grows, how infrastructure is located and how natural and physical resources are managed. It is the blueprint by which any development in Tauranga is managed. It also includes rules on other things that are covered by the Resource Management Act - including hazards, signage, reserves, noise, heritage, etc.

There are specific rules within the City Plan that cover, amongst other matters, building height, earthworks, tree protection, bulk and scale of buildings, setbacks from coastal and harbour margins, and specific residential, commercial and industrial uses depending on location within the City.

Specific rules for each suburb and property can vary depending on the underlying zone of the area and the location of a specific property within that zone.

The majority of the City Plan became 'operative in part' on 9 August 2013. The remaining parts of the City Plan subsequently became operative on 5 July 2014.

A table showing a complete list of variations and plan changes to the operative City Plan can be found in the [Table of Plan Change Dates](#).

It is advised that prospective purchasers of property review and consider all relevant planning rules for the specific property this Land Information Memorandum applies to prior to purchase.

To view the Operative Tauranga City Plan please [click here](#).

If you have any specific queries on any rules or any existing or proposed use of a property, please contact the Tauranga City Council's Duty Planner (07 577 7000) for further information.

Development Contributions

Council operates a development contributions policy under the Local Government Act 2002, and also has financial contributions provisions in its City Plan. The broad purpose of these policies is to fund infrastructure costs that relate to the city's growth from those parties that undertake subdivision, building or development. These contributions are required on building consents, resource consents, service connection authorisations, certificates of acceptance and PIMs for small standalone dwellings. Contributions may remain payable on any property in circumstances where subdivision, building and development projects have not been completed, and in rare occasions where the Council has agreed to defer payment. In addition, further subdivision, building or development of a property may trigger the requirement to pay further development and/or financial contributions.

Council's development contributions team can advise further on these matters in relation to the application of development and financial contributions to the property in question.

Transportation Strategy & Planning and Reserve Management Plans

As part of Tauranga City Council's Transport strategy and planning activities and Reserves Management Plans, properties neighbouring Council-owned or administered land may be subject to transport network development such as walkways and cycleways or other development, activities or use of the land. The Tauranga Reserves Management Plan is available online at the following link: [Reserve Management Plans](#).

Relevant Planning Information

All Planning information for this property is available online through the [City ePlan](#).

Zone: Operative Tauranga City Plan	Medium Density Residential
Identified Plan Areas	None Known
Utilities/Designations	None
Protected Heritage/Notable or Groups of Trees, or Protected Buildings	None Known
Archaeological or Heritage Sites	None Known

Certificates, Notices, or Orders Affecting the Land

Description	Date Issued
Consent Notice	13/08/03

Resource Consents *(Resource Management Act 1991)*

Description	Date Granted	RC Number
Subdivision Consent	16/06/99	9370
Variation to RC9370	16/08/02	350

Flooding from Intense Rainfall

This property is identified as being within a floodable area in a 1-in-100-year rainfall event, which takes into consideration the effects of sea level rise and climate change based on RCP 8.5 median scenario, as of the year 2130. As such, the property is subject to specific rules in the City Plan that may affect subdivision, development, and land use consenting decisions.

To understand the rules that may apply please consult the relevant City Plan provisions for land use, earthworks and subdivision in Chapter 8D (Flooding from Intense Rainfall), Chapter 4C (Earthworks) and Chapter 12 (Subdivision, Services and Infrastructure).

Please refer to the Natural Hazards section of this Land Information Memorandum for further information.

Land Development

The following information relates to land development and landform characteristics. It is based on information held by council and may include reports, assessments, and other documentation relevant to site development. This information may not reflect the current on-site conditions, or any work undertaken that is not known to council.

The Tauranga City Council does not act as agent for network utility operators.

The landform and geology within Tauranga City have some features which demand particular attention. These features, which may or may not be relevant to the property in question, are outlined in "General Description of Landform within Tauranga District" as attached.

Comments:

Consent Notice

Refer Consent Notice dated 13 August 2003 together with Soakage Report by Harrison Grierson Limited, reference 73.09797.1, dated July 2002.

Documentation Relevant to the Subdivision or Surrounding Area

For information, please see attached the following documentation:

1. Geotechnical Report from Harrison Grierson Limited Reference 73.09798.1 dated 9 June 2003.

Natural Hazards

This information relates to nation-wide, city-wide, or region-wide studies and may not reflect the on-site situation or natural hazard investigations and mitigation done on a site-specific property level. It is recommended that hazards identified in this section of the Land Information Memorandum be considered both individually and in combination, as their cumulative effects may influence the overall level of risk.

Flooding

Flood hazard information referenced here includes modelling produced at a nation-wide scale by Earth Sciences New Zealand (ESNZ). The national tool provides consistent flood hazard data across New Zealand and is zoomable to street level, but not to individual properties. For property-specific flood hazard information that may affect this property please refer to the following section of this Land Information Memorandum titled, "Natural Hazards Relevant to the Subject Property". The modelling produced by ESNZ is available to view at the following link: [Flood Hazard Modelling](#).

Microzoning for Earthquake Hazards

The Council has received reports and results that assessed Tauranga City's liquefaction vulnerability during earthquakes.

Different properties face varying probability levels of liquefaction damage. The maps assess natural ground conditions only and don't consider recent human activities like earthworks, ground improvements, or foundation design that may reduce liquefaction risk. Detailed, site-specific studies by qualified practitioners may take precedence over these city-wide assessments.

Liquefaction information may affect property use and development, including building consent requirements (Building Act 2004, NZ Standard AS/NZ 1170, TCC Infrastructure Development Code Chapter 10.10.6), subdivision consents (Resource Management Act), and infrastructure design.

Further information and reports are available at: [Earthquakes and Liquefaction](#).

Landslide Susceptibility

Council has received an assessment of Tauranga City's susceptibility to landslides. Two maps have been prepared, one showing areas susceptible to land sliding triggered by rainfall, and the other by earthquakes. A report detailing the assessment and maps are available by accessing the following link: [Landslide Susceptibility](#).

Shallow Groundwater

Council has received an assessment of shallow groundwater conditions in Tauranga City. The assessment analysed groundwater monitoring data from 2015-2021 across 97 monitoring sites and developed predictive models for future conditions under sea level rise.

Shallow groundwater occurs close to the surface throughout Tauranga's low-lying areas. Groundwater levels fluctuate with tides, rainfall, and seasonal variations. In some areas, groundwater sits less than 1 meter below ground surface. The assessment forecasts that rising groundwater levels will occur as sea levels rise.

Development Implications: This information may affect property use and development, including building consent requirements (Building Act 2004), subdivision consents (Resource Management Act), and infrastructure design. Site-specific geotechnical investigations may be required to assess local groundwater conditions and mitigation measures.

The full technical report and spatial datasets are available at: [Groundwater](#).

Bay of Plenty Regional Council

Further information regarding natural hazards held by the Bay of Plenty Regional Council that may be relevant to this property can be found at the below links. Further enquiries may also be made by contacting the Bay of Plenty Regional Council on 0800 884 880.

[Bay of Plenty Regional Council – Natural Hazards](#)

[Bay Hazards](#)

[Bay Explorer](#)

Natural Hazards Relevant to the Subject Property

The following information relates to natural hazards identified at a site-specific scale. It is based on information held by Council and may not reflect the current on-site conditions or any hazard investigations or mitigation measures that have occurred since, or that are not known to Council.

Further information about natural hazards held by Tauranga City Council can be found at the following link: [Tauranga City Council – Natural Hazards](#) and may also be identified on Council's mapping website, [Mapi](#).

City Planning Information Related to Natural Hazards

Flooding from Intense Rainfall

This property is identified as being within a floodable area in a 1-in-100-year rainfall event, which takes into consideration the effects of sea level rise and climate change based on RCP 8.5 median scenario, as of the year 2130. Refer attached map which illustrates the effect on this property.

Tauranga City Council regularly updates maps for flooding from intense rainfall, which may change the current modelling for this property. Further information on flood modelling can be found at the following link: [Flood Hazard Modelling and Mapping](#).

Refer also, City Planning section of this Land Information Memorandum for further information about City Plan rules that may apply.

Flooding

Flooding from Intense Rainfall

Refer City Planning Information Related to Natural Hazards section, above.

Depth and Velocity

Tauranga City Council model for Depth & Velocity of flood water. This gives us important information about where flood waters flow during a 1 in 100-year rainfall event. Please see attached map which illustrates the effect on this property.

Tsunami

Tsunami

Council holds information that shows this property is located in a possible tsunami inundation zone.

GNS Science (now known as Earth Science New Zealand) have prepared a report titled Comprehensive Tsunami Inundation Modelling and Evacuation Zone Mapping: Final Report (March 2025). The report was commissioned by the Bay of Plenty Regional Council.

The purpose of the report is to document the methodology, results and limitations of the modelling undertaken by GNS Science to produce comprehensive tsunami inundation mapping for the Bay of Plenty region. The scope of the report is the Bay of Plenty coastline and offshore islands.

The tsunami inundation maps show:

- The area of land that could potentially be flooded by a tsunami caused by a rare offshore earthquake that has a wave height ranging between 8m and 15m along the Bay of Plenty coast.

The likelihood of a tsunami like this occurring in any year is calculated as 0.04% (which is a 1 in 2,500 chance).

The technical report can be accessed from the Bay of Plenty Regional Council website: [Natural hazards](#).

Further information is available on the Tsunami pages of Tauranga City Council's [website](#) and Bay of Plenty Regional Council's [website](#). Information explaining the difference between evacuation zones and inundation zones is also available in the [Frequently Asked Questions](#).

Please see attached tsunami evacuation zone map.

Additional Information

Licences Affecting the Land or Buildings

None

Signed for and on behalf of the Council:

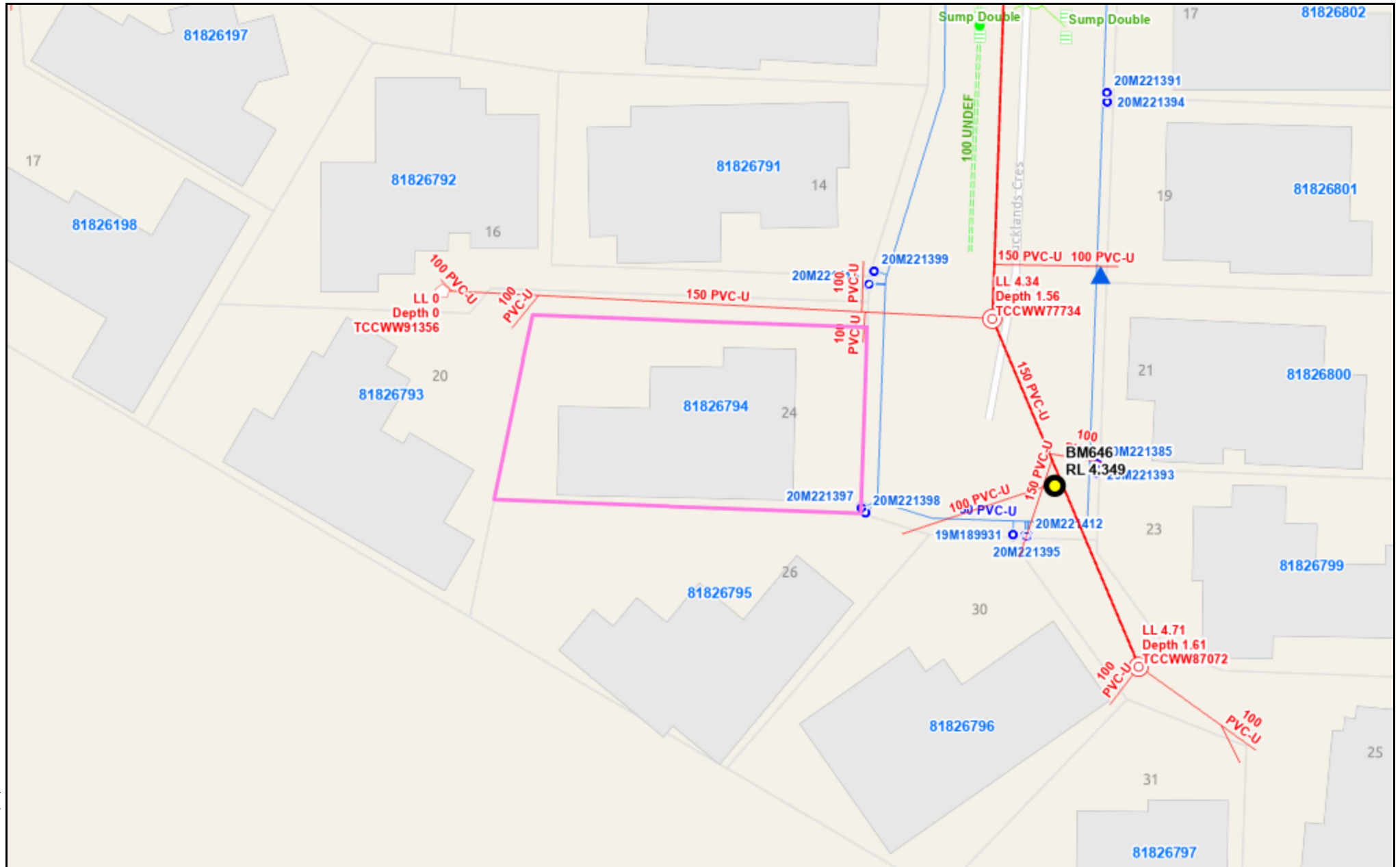


Position held: LIM and Property Files Officer

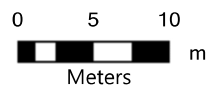
Date: 18 August 2026



Services Plan



Services Plan



Scale 1: 500 @A4



Information shown on this plan is indicative only. The Council accepts no liability for its accuracy and it is your responsibility to ensure that the data contained herein is appropriate and applicable to the end use intended.

Services Key

Water

	Water Service Line
	Water Meter
	Rider Main
	Reticulation Main
	Trunk Water Main
	Asbestos Pipe (Abandoned)
	Asbestos Pipe (Operational)
	Hydrant
	Valve
	Water Reservoir
	Backflow - Double Check
	RPZ
	Valve
	Private Water Bore

Stormwater

	Service Line
	Rising Main
	Gravity Main
	Stormwater Drain
	Subsoil Drain
	Stormwater Overland Flow Path
	Culvert
	Inlet
	Outlet
	Stormwater Manhole
	Stormwater Sump
	Stormwater Rodding Eye
	Large Sump
	Storage Pond

Wastewater

	Service Line
	Rising Main
	Gravity Main
	Asbestos Pipe (Abandoned)
	Asbestos Pipe (Operational)
	Node
	Rodding Eye (Inspection Point)
	Manhole
	Valve
	Chamber
	Pump Station

Other

	Abandoned assets and lines
	Private assets and lines
	Geotech Utility Buffer

More symbols may appear on the Services Plan than are shown here. For a full key please contact the [Tauranga City Council LIM Office](#).

Building Information



Drainage Plan for:

As Built

Drainage Plan

Street No: 24

Street Buddens Creek

Suburb Beach Waters

Owner Miller

Type of Building House

Drainlayer AC Drainage Ltd

Lot 214 D.P. 316351

Date of Inspection 19/04/04

Inspector Mike Monte

Drainage Permit No: 14109.7

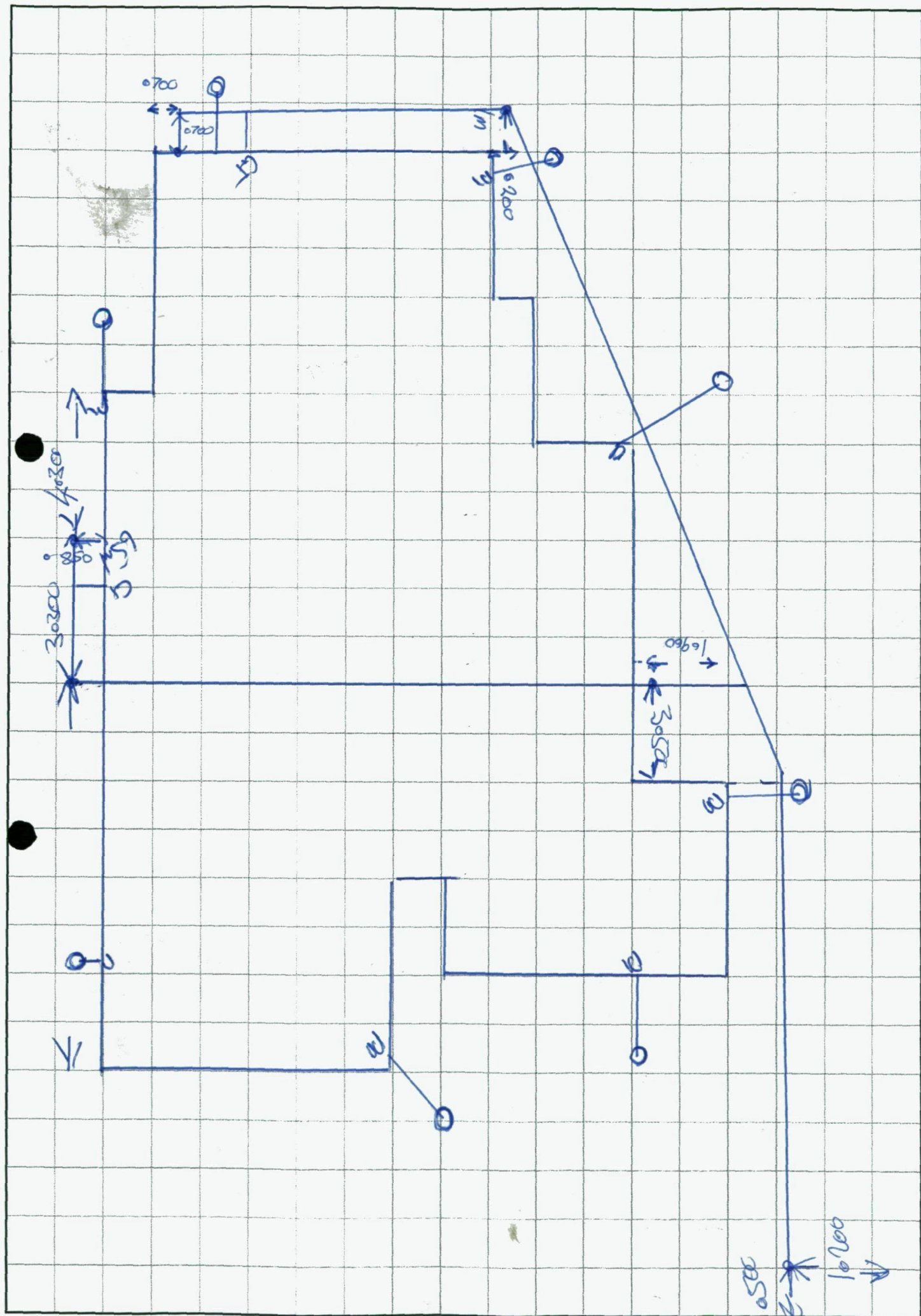
NOTE: Plan to be drawn in black ballpoint on graph opposite

Plan to include:

- 1 The correct position of the drains in relation to the building and boundaries.
- 2 The position of the street frontage.
- 3 Depth of drains at connection point.
- 4 Both foulwater and stormwater drains to be drawn.
- 5 Clearly define all inspection openings, with accurate measurements from two points.
- 6 Clearly define all buildings and boundaries.
- 7 Refer to example drain plan back page.



Tauranga District Council



Planning Information

TAURANGA DISTRICT COUNCIL
CONSENT NOTICE PURSUANT TO SECTION 221
RESOURCE MANAGEMENT ACT 1991

TDC SUB No.: 3631
Stage 5B

IN THE MATTER OF PLAN DP 316351

AND

IN THE MATTER OF Subdivision Consent Pursuant
to Sections 105, 108, 220 &
221 of the Resource
Management Act 1991

Pursuant to Section 252(1)(a) of the Local Government Act 1974, I, *Owen Terence Wynyard*.....Tauranga District Council, hereby certify that, by way of resolution passed under delegated authority on *14th July 1999*....., the following condition was imposed on the subdivision consent for Lot 304 DPS 87669.

That a consent notice be registered on the Certificate of Title for Lots 205 – 216 and 297 - 299 DP 316351 requiring that:

- (1) For these lots domestic stormwater disposal shall be disposed of by way of a soakage system in accordance with the recommendations contained in the report compiled by Harrison Grierson Limited dated July 2002 reference 73.09797.1 and Tauranga District Council's Standard Soakage Guidelines.
- (2) The soakage system may require annual inspection and ongoing maintenance by the property owner at his expense, and as such shall be fitted with access lids to the soakage rings to ensure maintenance can be undertaken. Kerb connections to the street in lieu of the soakage system will not be permitted.

DATED at Tauranga this

15th

day of

August

2003



Authorised Officer



TAURANGA
DISTRICT COUNCIL

In Reply Please Quote: TDC SUB 3631
Your Ref: 73.09224.1

Tauranga
District
Council

Harrison Grierson
PO Box 1199
TAURANGA

Willow Street
Private Bag
Tauranga
New Zealand

Telephone
(07) 577 7000
Facsimile
(07) 577 7193

Attention: J Collie

Dear Sir

RESOURCE MANAGEMENT ACT 1991
NON-NOTIFIED APPLICATION FOR RESOURCE CONSENT
LANDSDALE DEVELOPMENTS LTD, BEACHWATER DEVELOPMENT, PAPAMOA

I wish to advise that the following decision has been made under authority delegated to staff in respect of the above application.

- (A) *That pursuant to Sections 105, 108 and 220 of the Resource Management Act 1991, the Tauranga District Council grants consent to the proposed subdivision of Lot 1 DPS 84304 on shown plan reference Harrison Grierson reference 9274-120.*

Consent is subject to the following conditions:

- (1) *That the proposal proceed in accordance with the application submitted subject to any alterations that may be required to comply with any other conditions this consent may be subject to.*
- (2) *That this consent does not constitute approval of any proposed engineering works or details given in the application and does not preclude the possibility that boundary adjustments may be required at a later date to accommodate roading and service corridor requirements.*
- (3) *That all works, services and roading networks be designed, supervised and constructed in accordance with requirements of the Council's Code of Practice for Development, this Resource Consent and the Engineering Plan approval required by Condition (5) below.*
- (4) *That an engineering inspection fee shall be paid in accordance with the schedule of fees and charges, based on the assessed value of the works, at the time of submission of plans and specifications of the development works for certification.*
- (5) *That, the Consent holder shall submit development (engineering and landscaping plans) plans to Council and obtain Engineering Plan approval prior to any works commencing on site. Development plans shall fully outline all engineering and landscaping works and shall be in accordance with the requirements of Tauranga District Council's Code of Practice for Development. [See Advice Note (3)]. Such engineering plans shall detail all proposed stormwater overland flowpaths including those resulting from overload of the roading primary stormwater system under extreme rainfall Conditions.*

- (6) That the Consent holder shall supply to Council a set of "as-built" plans of all engineering and landscaping works. As-builts shall also show all stormwater overland flow paths including those resulting from overload of the roading stormwater system under extreme rainfall events. All "as built" plans shall display the as-constructed overland flowpath levels. Where the Subdivision is constructed in Stages the Consent holder is required to furnish engineering and landscape "as-built" plans at the completion of each stage prior to the release of the 224 certificate for that stage.
- (7) That pursuant to Section 128 of the Resource Management Act 1991, the Council may review Condition (6) following receipt of the as-built drawings referred to in Condition (6) above. The Council may require a Consent Notice to be registered on the Certificate of Title of any allotments to which the as-constructed plans show an overland flowpath located within a private property, requiring that any application for building consents on the lot be in accordance with the consent notice requirements.

The consent notice to be registered on the certificate of title of any property containing a stormwater overland flowpath will be worded as follows:

"Lot _____ contains an overland flowpath which forms part of the public drainage network. The landowner must ensure that no modifications take place to or within the flowpath that changes the levels of the flowpath, or restricts its flow in anyway and must maintain the flowpath in a good condition. Construction of driveways or footpaths may be permitted within the flowpath upon application to Council's Asset Development Unit".

- (8) That an easement in favour of Council be registered over any stormwater overland flowpath located on private property, including those resulting from overload of the roading primary stormwater system under extreme rainfall Conditions. (See Advice Note 14)
- (9) That all easements required by Council to protect any underground asset to be vested in Council be duly granted or reserved. The easements shall be displayed on the survey plan prior to the release of the 223 certificate and shall have been agreed with Council at the time of the engineering plan approval. [See Advice Notes (12) and (13)].
- (10) The Consent holder shall appoint an appropriately qualified person to design and supervise the works, certify compliance upon completion and ensure that all engineering, services reticulation and earthworks are completed in accordance with all approved documents, engineering plan approvals, sound engineering practice and all aspects of the Code of Practice for Development. [See Advice Note (2)].

- (11) *That the Consent holder provide Council with a copy of the earthworks and/or stormwater discharge consents from Environment Bay of Plenty prior to release of the 224 certificate. [See Advice Note (10)].*
- (12) *That prior to the commencement of earthworks that Category 2 Registered Engineer be engaged by the Consent holder to carry out the functions of Soils Engineer and supervise all facets of the earthworks operations. [See Advice Note (2)].*
- (13) *That the starting up and operation of all construction equipment be restricted to between the hours of 7.00 am and 7.00 pm Monday to Saturday. No construction equipment shall be operated on public holidays or Sundays, without the approval of the Director of City Services.*
- (14) *That all building platforms be constructed to a minimum Building Platform level of RL 5.0m Moturiki Datum. A Registered Surveyor shall certify to Council that the minimum building platform level has been constructed to the correct level prior to the release of the 224 Certificate.*
- (15) *That a Category 2 Registered Engineer provide a soils report, a Statement of Professional Opinion as to the Suitability of the Land for Building Development and a lot summary report as required by and in the format as displayed in Drawings 2 and 2A of Section 2 of the Code of Practice for Development.*
- (16) *That pursuant to Section 128 of the Resource Management Act 1991, the Council may review Condition (15) of consent following receipt of the soils report and statement of professional opinion referred to in Condition (15) above. The Council may require a Consent Notice to be registered on the Certificate of Title of any allotments to which the above Statement of Professional Opinion attaches Conditions, requiring that any application for building consents on the lot be in accordance with the Conditions given in the Statement of Professional Opinion.*
- (17) *That all lots be provided with a separate underground connection to the sewer, water and electricity reticulation system. As a minimum all connections shall be provided to a point adjacent to or within the boundary of each lot. [See Advice Note (12)].*
- (18) *That all lots be provided with a connection to the stormwater reticulation system or, subject to the completion of a detailed supporting soakage report (refer bullet points below) all lots may dispose of their domestic stormwater by way of a suitably designed soakage system:*
 - *establish winter ground levels and provide historical ground water levels;*
 - *checks made to ensure that perched water tables and aquacludes do not exist on site;*

- *storage vs discharge rates;*
 - *additional testing to prove the suitability of the ground to adequately dispose of domestic stormwater over a representative portion of the site;*
 - *provide guidelines on the construction and maintenance of domestic stormwater disposal using a soakage system;*
 - *demonstrate that the soakage system will have no adverse effects on the stability of the site or the surrounding areas;*
 - *that all residential lots may dispose of domestic stormwater by way of a soakage system.*
- (19) *That pursuant to Section 128 of the Resource Management Act 1991, the Council may review Condition (18) of this consent following receipt of the soakage report referred to in Condition (18) above. The Council may require a Consent Notice to be registered on the Certificate of Title of any allotments that is proposed to dispose of its domestic stormwater by way of a soakage system requiring that any aspects of building consent applications relating to domestic stormwater soakage be in accordance with the recommendations contained in the soakage report.*
- (20) *That the Roads to Vest, shown as Lots 306 and 307 (displayed on the scheme plan as Roads 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 14) be vested in Council and be fully constructed, at the consent holder's expense, in accordance with the requirements of the Council's Code of Practice for Development to the satisfaction of the Director of City Services. Construction details to be approved at the submission of engineering plans as required by Condition (5) above.*
- (21) *That the roads displayed as Roads 1 and 2 on the scheme plan are deemed to be "sub collector" roads and as such, shall be constructed to "sub collector" standards in accordance with the Code of Practice for Development and Condition 20 above.*
- (22) *That the following roundabouts (refer to the bullet points below) shall be constructed at the Consent Holder's expense in accordance with the Code of Practice for Development. Details of the roundabouts shall be submitted for engineering plan approval in accordance with Condition 5 above.*
- *Intersection of Lot 307 (displayed as Road 3) with Gravatt Road*
 - *Intersection of Lot 307 (displayed as Road 1) with Royal Palms Boulevard (see Advice Note (17) and (18))*
 - *Intersection Road 1 with Road 3*

- *Intersection of Road 2 with Road 1 and Road 4*
 - *Intersection of Lot 307 (displayed as Road 2) with Pacific Cove Drive*
- (23) *That Lot 306 (2.5m width road widening) be vested in Council and that the intersection of Lot 306 and 307 with Domain Road and that area of Lot 306 fronting Domain Road be constructed and/or widened at the consent holder's expense to the satisfaction of the Director of City Services. (Refer Advice Note (16)).*
- (24) *The consent holder shall provide to Council a bond to ensure that maintenance of landscaping works installed by or on behalf of the consent holder is undertaken for a period of 18 months from the issue of the 224 Certificate or from the date of notification to Council in writing that such landscaping works have been completed whichever is the later date. The value of the bond will be established by Council's Asset Development Officer (Reserves) at time of engineering and landscape plan approval.*
- (25) *That the appropriate easements required for shared accessways be duly reserved or granted.*
- (26) *That all shared accesses and/or pedestrian accessways be fully constructed. That the Local Purpose (Accessway) Reserves as required by condition 29 including lots 304 and 305 shall be fenced and constructed in accordance with Council's Code of Practice for Development, with final design to be approved prior to construction, and then vested in Tauranga District Council. The concrete path shall extend to 150mm either side of the fence to form a mowing strip.*
- (27) *That three alternative street names for each proposed new street be submitted for the approval of Council. The approved street names signs shall be erected by Council at the consent holder's expense and shall be paid for prior to the release of the subdivision 224 certificate.*
- (28) *That Lots 157, 158, 209 and 210 be amalgamated and vested in Tauranga District Council as Recreation Reserve.*
- (29) *That two additional pedestrian accessways be created and vested in Council and be constructed in accordance with the Code of Practice for Development and Condition 26 above.*
- *Pedestrian accessway adjacent to the Lots 169 and ¹⁰⁷~~555~~ to link Road ~~6~~⁴ with Road 2 and Lot 304.*
 - *Pedestrian accessway on the western boundary of Lot 53 for access from Road 8 to Lot 308 (Drainage Reserve)*
- (30) *That prior to any vegetation clearance, earthworks modification, or other activity being undertaken on any part of the Reserves required by Condition (25) above, all works shall be certified on site by Council.*

(31) That subject to certification on site by Council as required in Condition (27) above the recreation reserve area shall:

- have removed all existing weeds, foundations, derelict fences and building and construction remains and materials.
- be generally level and made accessible for tractor mounted mowing equipment and have an established grass cover that has been mown twice previously.
- not be subject to ponding or incorporated into the overland flowpath design, with the exception of the area of reserve adjoining lot 208.
- be clearly pegged along surveyed boundaries.

(32) That the consent holder shall provide Council with a schedule of quantities and itemised value of works for assets to vest in Council. (The standard format to be followed is available from Section 1 of the Code of Practice for Development).

(33) The Consent holder shall install street lighting to all vested roads and arrangements shall be made for the controlling utility authority to make provision for the street lights when installing underground cabling to the subdivision. The position of the street lighting shall be approved and engineering plan approval and shall comply with NZS 6701:1983. The cost of installation of the street lighting shall be borne by the Consent holder.

(34) That lots 308, 309 and Pt Lot 241 be amalgamated to form one drainage reserve and be constructed as required by Parts (a) to (f) of Condition 35 Below. The amalgamated lot shall then be vested in Tauranga District Council as Local Purpose Reserve (Drainage).

(35) That amalgamated Lots 308, 309 and Pt Lot 241 be constructed in accordance with the Code of Practice for Development and to the following general parameters:

- (a) A meandering open drain shall be constructed within the central third of the lots to provide as natural a visual amenity to a natural stream as possible.
- (b) The drain base shall be founded at approximately RL 1.8m Moturiki Datum and have a dry weather top water level of approximately 2.8m Moturiki Datum. The drain sides shall be formed at a 1 to 1 slope to the dry weather top water level and thereafter at 1 in 5 until the bank level reaches RL 3.4m Moturiki Datum. The berms to be constructed from RL 3.4m Moturiki Datum to the adjoining property boundaries shall be formed at a minimum gradient of 2% and a maximum gradient of 20%.
- (c) The width of the drain at its top shall generally be from 4.0 metres to 8.0 metre.

- (d) *The above alignment and profiles of the meandering drain as in (a) above, shall be incorporated within any engineering plans submitted for approval at engineering plan approval stage.*
- (e) *The berm slopes above shall provide for the ability of Council to readily maintain the berms all year round. "Readily maintain" means able to be mown with a regular tractor and gang mower for 90% of the year.*
- (f) *If within four years of the date of this consent Landsdale Developments Limited or Tauranga District Council have not obtained a resource consent from Environment Bay of Plenty to enable a reduction in mitigation measures in accordance with the design in (b) above, then the profile of swales, constructed and to be constructed, shall be adjusted in accordance with Environment Bay of Plenty's stormwater discharge consent for this project at the consent holder's expense.*

The berm level shall be reduced to a anticipated effect is to reduce the berm level of RL 3.4 to RL 3.15 and to change the minimum cross fall gradient of 2% to 1%. (See Reason 4)

- (36) *The Consent Holder shall enter into a written agreement with Council to reconstruct, at its expense, those drainage reserves that have already been vested in Council and constructed in accordance with Condition 36(b) above should the discharge consent from Environment Bay of Plenty as described in Condition 36(f) above require an alternative drainage swale profile to that required by Condition 36(b) above. The agreement shall include financial security to cover the cost of reconstruction works.*
- (37) *That lots 300, 301, 302 and 303 be vested in Tauranga District Council and constructed as Local Purpose Reserve (Drainage) to the satisfaction of the Director of City Services. Construction details for these drainage reserves will be provided to Council at the submission of engineering plan approval.*
- (38) *That the following sanitary sewer analysis be carried out*
 - *Assess the capacity of the existing pump station in Santa Monica Drive*
 - *Assess the capacity of the reticulation mains flowing into the Santa Monica Drive pump station that are proposed to be used in linking the approx 30 "Beach Water" lots into the existing pump station.*

That if the results of the sewer analysis carried out by the consent holder identify a capacity problem in the gravity sewer leading to the Santa Monica Drive pump station, Council will notify the original designers to confirm the conclusions reached by the consent holder and provide original design calculations by Shrimpton and Lipinski. If the original designers confirm the lack of capacity in the existing system, due to:

- the results of the sewer analysis identifying any capacity problem;
- the Beachwaters subdivision never being anticipated by the original calculations for the sewer design involving the pump station;
- the potential for upstream development (particularly the site at 103 Santa Monica Drive) being affected by any identified capacity problem;

then Council will review this condition pursuant to Section 128 of the Resource Management Act 1991 and the consent holder will be charged a proportionate development impact fee based on the effect the Beachwaters Subdivision has on the sewer pump station and the costs associated with any necessary upgrade for the sewer system to comply with the Council's Code of Practice for Development.

- (39) That the Consent Holder shall at his expense, construct the sanitary sewer pump station as shown on the Structure Plans in accordance with the Code of Practice for Development. (See Advice Note 19)
- (40) That the consent holder shall pay to the Council a Subdivision Impact Fee of \$1,150,594.70 plus GST, being the fee payable for the 278 additional Lots created. This fee is for the provision of additional (Reserves and Community Facilities, wastewater, roading, water supply, stormwater) services required as a result of this subdivision and is imposed in accordance with the Operative Transitional Tauranga District Plan Change No.1.

That pursuant to Section 128 of the Act, this condition may be reviewed not less than twelve months from the date of this consent and annually thereafter, if the impact fee or any part of it remains unpaid at that time. The review may impose a revised level of payment taking into account any increase in the cost of providing local services to the subdivision in accordance with the Operative District Plan.

The fee for each additional lot is made up of the following components:

Reserves and Community Facilities	\$1,156.14
Wastewater	\$ 172.47
Roading	\$ 764.26
Water Supply	\$1,352.74
Stormwater	\$ 693.22

- (41) On removal of the first layer of topsoil/grass cover, a qualified archaeologist shall carry out a site inspection for the purposes of assessing the likelihood of the presence of archaeological sites or koiwi in the sub strata.
- (42) In the event of an archaeological find being made, or koiwi unearthed, work is to stop immediately and this office notified. The appropriate statutory authorities shall also be notified. A site meeting with the appropriate persons will be held at which time the action to be taken will be determined.

- (43) *That fencing covenants be registered against the certificate of title for any lot adjoining a reserve and exempting Council from its share of the cost of fencing along the common boundaries.*
- (44) *That all legal documents required to satisfy these conditions shall be prepared by the Council's Solicitor at the consent holder's expense.*

The reasons for this decision are that:

- (1) *The site is zoned Residential A in the Tauranga Proposed District Plan and the proposal is a controlled activity. The subdivision is a non-complying activity in terms of the provisions of the Rural G zone in the Transitional District Plan (Tauranga County Section).*
- (2) *The proposal complies with the provisions and requirements of the Proposed District Plan for subdivision of a Residential A zone. Apart from the operative Subdivision Impact Fees where they are applicable, no weight need be given to the Transitional Plan.*
- (3) *There will be a need for additional service as a result of the increased level of activity created by this subdivision and an impact fee has therefore been imposed in accordance with the Transitional District Plan (Change No.1) provisions. The fee is based on the actual and reasonable cost of providing the necessary additional local services to the subdivision in accordance with Rule 5.3.11.04(ii) of the Transitional District Plan.*
- (4) *It is anticipated that Tauranga District Council hopes to obtain a stormwater Consent from Environment Bay of Plenty for the total catchment known as the Papamoa Main Drain. When this is achieved then the profiles outlined in Condition 36(b) above will not require modification or reconstruction.*

If however Tauranga District Council and/or Landsdale Development are unable to obtain a discharge consent from Environment Bay of Plenty, within the timeframe described in the condition, for the proposed profiles as required in (b) above then the Consent Holder shall, reconstruct the portions of Council drainage reserve already vested and constructed in accordance with Condition 36(b) above, with any proposed profiles required by Environment Bay of Plenty in order to obtain the discharge consent. The reconstruction of the drainage reserves already vested and any reserves proposed to be vested shall be at the Consent Holder's expense.

ADVICE NOTES:

The applicants are advised that:

- (1) *Under Section 357 of the Resource Management Act 1991, you have a right of objection to Council in respect of the above decision. Any such objection shall be made by notice in writing to the Council within 15 working days of receiving this decision.*
- (2) *For the purposes of this consent all design and construction shall be in accordance with the Tauranga District Council's Code of Practice for Development.*
- (3) *Landscaping plans to show landscaping elements and species requiring a minimum of on going maintenance by Council. Landscaping plans to be submitted with the engineering plans to ensure co-ordination between service requirements and landscaping elements.*
- (4) *Where any building or drainage works are required to satisfy Conditions of this consent, all consents required under the Building Act must be obtained prior to the works being carried out.*
- (5) *The area within which this site is located is in close proximity to land where horticultural cropping and the spraying of pesticides may take place. Whilst controversy exists about the health effects of low level pesticide contamination, those people having an acute sensitivity to pesticides may wish to take these effects into account. The encroachment of residential development into an area of existing horticultural activity does not limit the ability of horticulturists to use pesticide, sprays in accordance with lawful obligations and duties.*
- (6) *The consent holder is strongly advised to take note of the Health Act as it relates to the creation of a dust nuisance and plan and manage the construction works accordingly, and also undertake appropriate public relations measures. Breach of the above Act can result in the stoppage of the work until such time as the dust nuisance has been overcome.*
- (7) *On submission of landscape plans to Council the developer shall be advised of recommended maintenance procedures and minimum planting standards required to fulfil end of maintenance period specifications.*
- (8) *The reimbursement of costs associated with the construction of the retention pond will require a submission for consideration through the Annual Plan process. The work must be carried out under competitive pricing procedures (minimum of three tenders).*
- (9) *If the consent holder wishes to destroy, damage or modify any archaeological site identified in this survey, an authority must be obtained from the Historic Places Trust is required in accordance with the Historic Places Act 1993 prior to any work being carried out.*

- (10) *The Consent holder is advised that he must comply with and obtain all earthworks and/or stormwater discharge consents required by Environment Bay of Plenty. Environment Bay of Plenty is the controlling authority for all dust, silt run-off and earthworks issues. The issuing of this consent does not waive the consent holder's requirement to obtain the above consents.*

- (11) *The final location of the service connection is located within the relevant section of the Council's Code of Practice for Development.*

- (12) *Easements may be required in some circumstances on private property to protect publicly vested assets. In general however easements will not be required on drainage network reticulation mains that are able to conform with the requirements of the Local Government Act 1974. Where a drainage pipeline does not strictly conform to the intent of the Act or is at such a depth that a safe set back from the main needs to be registered on the title to protect residential dwellings from damage due to maintenance, repair or replacement of the main then an easement may be required. Publicly vested watermain located on private property will require an easement to be registered on the property's title.*

- (13) *In order to ensure minimal encumbrance to a certificate of title and compliance with Condition (10) and Advice Note (13) above, the consultant shall by best endeavour locate all proposed underground services to be vested in Council in the street scene, side or rear yards of any property that will contain an underground asset to be vested in Council. Where practical, the asset to be vested shall be located at a dimension of not more than 1.5 metres from the lot boundary. This will ensure the best utilisation of space for development purposes and avoid encumbrance on title by way of easement.*

- (14) *Where overland flowpaths are located on a private property and form part of the public drainage system they require protection by way of easement and consent notice. Overland flowpaths, where possible, shall be located so as to cause least disruption or potential risk to the host property.*

- (15) *All roads and intersections should be designed at an early stage, in close consultation with Tauranga District Council Engineering staff.*

- (16) *Should the applicant seek reimbursement for Subdivision Impact Fee funded works and the 2.5 metre road widening land requirement on Domain Road and the Reserve Areas as detailed in the structure plans, application should be made by way of a submission to the annual plan for reimbursement. No guarantees are given as to when funding will be available. Valuation to be determined by Council's Registered Valuers.*

Additionally compensation for Stormwater Drainage Reserves to vest is limited to 4.15 ha of Lot 309.

- (17) *It is recognised that full construction of the roundabout intersection of Road 1, Palm Beach Boulevard and access to Pt Lot 2 DP 34461 may not*

be achievable without involving land owned by a third party (Pt Lot 2 DP 34461), and that if engineering plans demonstrate this then Condition (37) ²² will require amending.

(18) There is a possibility of need for an additional access from Pt Lot 2 DP 34461 to Road 1 over Lot 86. Council requests that the applicant ensures the possibility be considered in their design and not compromise this option. This lot should be made available to the adjoining owner for this purpose in the first instance.

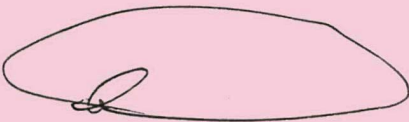
(19) The sanitary sewer pump station in Condition .. above is a SIF funded project. As such the applicant is advised to seek reimbursement for the cost of the project by way of submission to the Annual Plan. No guarantees are given as to when funding will be available. Prior to commencement of work the Consent Holder shall comply with Council's policy on competitive price procedure to ensure reimbursement.

(20) This is a tax invoice GST Reg. No. 51-938-283.

The applicant should note that the above consent lapses on the expiry of seven years after the date of commencement of the consent unless the consent is given effect to.

If you have any questions, please contact Alistair Talbot.

Yours faithfully



Authorised Officer

Date: *16 June 1999*

at:yc

PT LOT 2 DP 34461

LOT 1 DPS 30609

PT LOT 2 DPS 30609

ROYAL PALM ESTATE

Gravatt Road (to be closed)

Commercial Business Zone

Commercial Business Zone

Green Belt

PACIFIC COVE DEVELOPMENT

Domain Road

Public Road Formed and Sealed

BP Service Station

Residential	Area m ²
Lots 1-279	290,653
Roads	
Lot 306	63821
Lot 307	1193
Swale Lot 308	64,924
Access Reserves	48937
Lots 304	102
Lot 305	120
Drainage Reserves	222
Lot 300	2547
Lot 301	1320
Lot 302	1118
Lot 303	2853
Total Area	412,574

SCHEDULE OF EASEMENT IN GROSS		
Shown	Purpose	Serv Ten
H	Drainage	Lot 241



No.	AMENDMENTS	DRAWN	ISSUED TO	COPIES	DATE

SOMAP REFERENCE: 57
 CAD REFERENCE:
 FIELD BOOK:
 LEVEL BOOK:
 SURVEYED: HD
 LEVEL DATUM: Mohurki
 COORDINATE DATUM: Geodetic

HARRISON GRIERSON CONSULTANTS LTD.
 CONSULTING ENGINEERS SURVEYORS PLANNERS

TITLE: Scheme Plan

DESIGNED: HNT
 DRAWN: 11 DEC 1998
 CHECKED:
 APPROVED:

PROJECT: Landsdale Development Ltd
 Beaghwaters
 Papamoa

PROJECT No: 73 09274.1
 DRAWING No: 9274-120
 SHEET OF SHEETS
 ORIGINAL
 SCALE (A1) 1:2000

In Reply Please Quote: SUB 3631
Application Number: 350
Your Ref: 73.09797.1 Rev A

LANDSDALE DEVELOPMENT LIMITED
C/- HARRISON GRIERSON CONSULTANTS
PO BOX 1199
TAURANGA

Attention: J S Collie

RESOURCE MANAGEMENT ACT 1991
APPLICATION FOR CHANGE OR CANCELLATION OF CONDITIONS IMPOSED ON
CONSENT DECISION FOR LANDSDALE DEVELOPMENT LIMITED
SITE ADDRESS: 50 DOMAIN ROAD
LEGAL DESCRIPTION OF SITE: LOT 334 DPS92089

(A) The application is appropriate in accordance with Section 127 of the Resource Management Act 1991 for the following reasons:

- (1) *The resource consent, as a result of changing conditions will not be materially different in nature from that granted consent on 14 July 1999 and modified 11 February 2000 and 19 December 2000. The change of conditions seeks to alter Stage IV to delete a small cul-de-sac onto Oriental parade, realign Road 10, create a new cul-de-sac of Buckland Crescent, and re-arrange the lots to provide 3 additional residential lots.*
- (2) *The proposal to alter the arrangement of lots and roads constitutes a change in circumstances that have caused some of the conditions of the resource consent granted on 14 July 1999 and modified 11 February 2000 and 19 December 2000 to become inappropriate.*

(B) Pursuant to Section 127(3) of the Resource Management Act 1991, this application may be considered without notification for the following reasons:

- (1) *The Council is satisfied the degree of adverse effect of the activity is likely or to be unchanged as a result of the change to Condition (2) and (34) because the subdivision is still a 'green field' subdivision with a number of roads and reserves to vest and a large number of residential lots, and the effects on amenity values and quality of the environment will not be materially different from that authorised on 14 July 1999 and modified 11 February 2000 and 19 December 2000.*
- (2) *The Council is satisfied that no persons will be adversely affected by the proposed changes to the condition/s for the reason that the degree of adverse effects associated with the activity will remain unchanged as stated in (1) above.*

R. H. Gresham
INITIALS

16 August 2002
.....
Date

- (B) Pursuant to Section 127 of the Resource Management Act 1991, the Tauranga District Council grants consent to change conditions of the subdivision consent dated 14 July 1999 and modified 11 February 2000 and 19 December 2000 in relation to the Stage IV Beachwaters Subdivision shown on the plan prepared by Harrison Grierson Ltd reference 09797-PL1000 Rev A dated 6 June 2002.

The conditions of consent are amended as follows:

Condition (2) is amended as follows:

- (2) **The proposed subdivision shall proceed in general accordance with the application submitted on 14 December 1999 (Harrison Grierson Reference 9274-122F) except for Stage IV which shall proceed in accordance with the application submitted on 17 June 2002 (Harrison Grierson Reference 09797-PL100), and otherwise shall be subject to any alterations that may be required to comply with any other conditions this consent may be subject to.**

The reason for this condition:

Condition (2) as modified in the decision dated 11 February 2000 requires updating to reflect the proposal for Stage IV submitted on 17 June 2002. The Council is entitled to rely on the proposal proceeding in the manner described in the application or in any subsequent authorised modification thereto.

A new condition (34A) is imposed as follows:

- (34A) **The consent holder shall pay to the Council a Subdivision Impact Fee of \$12,548.31 plus GST, being the fee payable for the three additional lots created in the variation of the Stage IV subdivision, in accordance with the Operative Financial Contributions Section of the Proposed District Plan. This fee is for the provision of additional Reserves and Community Facilities, wastewater, roading, water supply, stormwater services required as a result of this subdivision.**

The reason for this condition:

There is a need for additional services as a result of the increased level of activity created by this subdivision and the payment of a Subdivision Impact Fee has been assessed and imposed in accordance with the provisions of Chapter 26 of the District Plan.

The payment of the subdivision impact fee will mitigate the effects of the increased level of activity and the need for additional services required as a result of the subdivision.

The consent holder is advised:

Through the Annual Plan process the Council considers the programming of works funded by Subdivision Impact Fees.

The Council's decisions on the programming of works takes into account the following criteria:

The fee for each additional lot is made up of the following components:

- **Reserves and Community Services \$995.35**
- **Wastewater \$687.11**
- **Roading \$730.00**
- **Water Supply \$183.90**
- **Stormwater \$1,586.41**

Total per Lot- \$ 4,182.77 plus GST

- **Environmental Effects**

the nature and extent of adverse environmental effects which will be avoided, remedied or mitigated by the project

- **Sequencing**

The extent to which the proposal will promote the or achieve a logical sequence of development

Pursuant to Section 128 of the Resource Management Act 1991, (the Act) if the subdivision impact fees specified in Condition (34A) have not been paid prior to expiry of a period of 24 months from the date of the issue of this consent, the amount of the fees may be reviewed and thereafter at the expiry of any further 12 month period. This review will begin within 20 working days of the 24 months and any further 12 month periods expiring.

The amount of the fees maybe adjusted in accordance with the fees applying at the time of the review.

For the avoidance of doubt:

- (a) The 12 and 24-month periods commence from the date of issue of the consent, notwithstanding that any objection or appeal may be lodged which delays the commencement of the consent.**
- (b) If the subdivision is to proceed in stages, the amount of the fees may be reviewed at the time of each application for and prior to issue of a certificate pursuant to Section 224 of the Resource Management Act 1991.**

The fees will be reviewed on the basis of the subdivision impact fees current at the time of the review as established by the Annual Plan process.

All other conditions of the consent granted on 14 July 1999 and modified 11 February 2000 and 19 December 2000 shall remain otherwise unchanged.

The reasons for this decision are as follows:

- (1) Pursuant to Section 104 of the Resource Management Act 1991, regard has been had to any actual and potential effects on the environment of the**

- Demand

The extent to which the use of the service will be taken by the development

- Consolidation

The extent to which the project will compliment and support the use of other services provided in the area.

The Council also takes into account the availability of funds and any effect of funding on the rating requirement.

Provision of work funded by Subdivision Impact Fees outside the programme approved by the Council through the Annual Plan may be undertaken by the consent holder. The consent holder must meet all of the costs of the work until the works are programmed in the Annual Plan. The costs of the work must be established by competitive price tender.

Reimbursement of costs, excluding any holding costs, will only be made once the works are programmed in the Annual Plan. This is usually initiated by the consent holder making a submission to the Annual Plan. The priority for funding of any works including reimbursements will be determined through application of set criteria as set above. Therefore the timing of the reimbursement cannot be guaranteed in any given year.

The extent of funding from Subdivision Impact Fees for any project is defined by reference to the Services Structure Plans for Urban Growth Areas and the SIF Project Costings Manual.

change/cancellation and all other Section 104 matters. The findings with regard to these considerations are that the adverse effects can be avoided, remedied or mitigated through imposition of conditions in respect of matters over which the Council has reserved its control in the Tauranga Proposed District Plan.

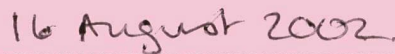
- (2) Pursuant to Part II of the Resource Management Act 1991, regard has been had to the Purposes of the Act as specified in Section 5 of the Act, Matters of National Importance as specified in Section 6 of the Act, and Other Matters as specified in Section 7 of the Act, and the Treaty of Waitangi as specified in Section 8 of the Act. The findings in these regards are that changing conditions of consent to allow the alterations proposed in the application submitted on 17 June 2002 will not result in the subdivision being contrary to Part II of the Act, because the subdivision as a result of the changes will not be materially different from that which was already consented to for the reasons in Part (A) of this decision.

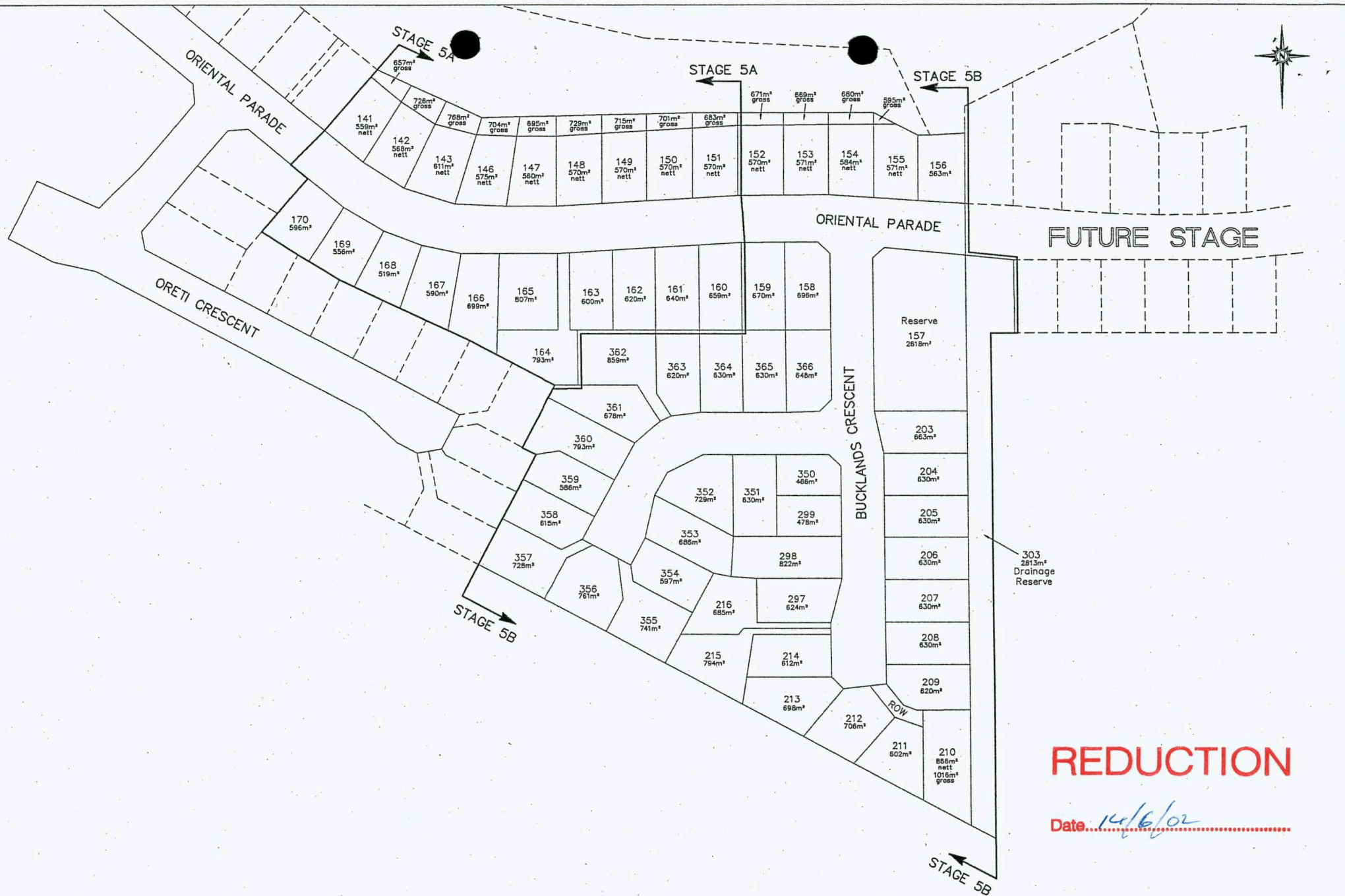
ADVICE NOTES:

- (1) Under Section 357 of the Resource Management Act 1991, you have a right of objection to the Council in respect of the above decision. Any such objection shall be made by notice in writing to the Council within 15 working days of receiving this decision. The objection should describe the subject of and reason for the objection and what would satisfy the objection.
- (2) In accordance with the Council's Schedule of Fees and Charges, if not accompanying this decision, an invoice may be sent at a later date if the actual cost of processing the application the subject of this decision exceeds the application fees deposit paid on lodgement of the application.

If you have any questions, please contact Peter Matich.


Authorised Officer


.....
Date:



REDUCTION

Date...14/6/02

SURVEYED BY:	DRAWN BY:	PKJ
DATE SURVEYED:	DATE PLOTTED:	06/06/02
SDRMAP REF:	CAD REFERENCE:	09797-PL100
DESIGNED:	CAD XREF'S:	
CHECKED:	APPROVED:	
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HARRISON GRIERSON
HC
CONSULTING ENGINEERS SURVEYORS PLANNERS

PROJECT: LANDSALE DEVELOPMENT LTD.
BEACHWATERS SUBDIVISION STAGE 5

TITLE: LOT LAYOUT PLAN
SCHEME N

PROJECT No:	73.09797.1	REV
DRAWING No:	09797-PL100	A
FOR TENDER	BY DATE	ORIGINAL SCALE: 1:750
REVISIONS	BY DATE	REDUCED SCALE:

Land Development

General Description of Landform within Tauranga District

The landform and geology within Tauranga District have some features which demand particular attention.

(a) Minimum Building Platform Levels

Significant areas of Tauranga District are at risk of flooding through sea level rise, tidal surges within the harbour, storm-wave runup on the ocean coastline and the flooding of streams, sewer drains, ponding areas and overland flow paths in extreme climatic conditions. Council has some “broadbrush” information on many possibly flood prone areas. More detailed investigations by appropriately qualified people may be required to be submitted in support of Resource and Building consents. Building Platforms should be constructed with adequate freeboard above flood levels. Council has adopted a minimum floor level policy. This level is available from Council on request from Council's Development Engineer. However due to the dynamic nature of the environment and the ongoing investigative work these levels may be reviewed at any time. For the purposes of this clause, a “building platform” is defined as the area of ground within a line 1.0m outside the perimeter of the building proper.

(b) Low-lying Land

There are many areas of low-lying land (often adjacent to the harbour) which comprise soft or very soft foundation conditions. These conditions are characterised by normally consolidated fine grained alluvial sediments (silts and clays) which have been deposited in marine or estuarine environments. In many areas they have been subject to random and non-engineered fillings. The materials are prone to settlement caused by consolidation under even minor loadings. These areas require particular care and appropriate geotechnical investigation and advice prior to development concepts being prepared. Whilst most of the Mount Maunganui/Papamoa area has an underlying sand formation, pockets of peat and “black sand” occur which exhibit poor foundation support qualities. These should be removed from building platforms and roading subgrades.

(c) Sloping Ground

The foundation conditions of the low-lying areas in the District have been described in (b) above. The near surface geology of the higher ground within the District comprises a series of weathered fine grained rhyothic ashes known locally as the Older Ashes. The Older Ashes consist of the Pahoia Tuffs overlain by the Hamilton Ash (the top of which is known locally as the “chocolate” layer).

Overlying the Older Ashes is a series of coarse friable silts, sands and pumice lapilli which tends to mantle the topography formed within the Older Ashes and are known locally as the Younger Ashes.

On some sloping ground, particularly the present and relic slips adjacent to the harbour, the ashes often have marginal stability and there are numerous examples of past and recent instability. Deep seated failures are generally confined to the steep banks which are or have in their history been subjected to active toe erosion. Development must be set back from the top of such steep banks, with the setback distance being determined by appropriate geotechnical investigations carried out by a Person who has pre-qualified with Council as a Specialist Geotechnical Advisor.

The majority of other failures on modest to steeply sloping ground are shallow failures (involving the top 1m to 3m of soil), but are nonetheless of serious consequence to any building development. Such failures are usually initiated by extreme climatic conditions. Any sloping ground greater than 15-degree gradient should be subject to appropriate geotechnical investigations to determine whether the ground is adequately stable for development.

859 &
710

LANDSDALE DEVELOPMENTS LIMITED

Beachwaters Subdivision

***Stage 5A & B – Oriental Parade, Bucklands
Crescent and Road 1***

Assessment of Soakage Characteristics

H A R R I S O N G R I E R S O N

HG

HARRISON GRIERSON CONSULTANTS LIMITED

Document Control Record

Client Landsdale Developments Limited

Project Beachwaters Subdivision Stage 5A & B

Project No. 73:09797.1

Document Assessment of Soakage Characteristics

ISSUE AND REVISION RECORD

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Sub 3631

Status/Revision No. 1

Set No. 1

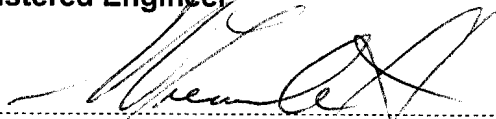
Date of Issue 2/07/2002

Originator

E M Ganley
Engineering Assistant

Checked

M N Tremlett
Registered Engineer

Approved

M N Tremlett
Registered Engineer

Office of Origin

Tauranga

Telephone

07-578 0023

Facsimile

07-577 9557

BEACHWATERS SUBDIVISION STAGE 5A & 5B – Oriental Parade, Bucklands Crescent and Road 1

ASSESSMENT OF SOAKAGE CHARACTERISTICS

1. Introduction

This report investigates the soakage characteristics of the Beachwaters Stage 5 subdivision – Oriental Parade and Bucklands Crescent and Road 1 and addresses the effect that the provision of soakholes will have on the total stormwater runoff from the subdivision

2. Investigation Undertaken

Soakage tests have been undertaken at four locations across the site. The test holes were all 100mm diameter and lined with a slotted PVC pipe to prevent the sides from collapsing. The holes all extended to the watertable depth of between 1.19m and 1.46m below ground level.

The soakage tests were undertaken in accordance with the procedures outlined in the Auckland City Council Stormwater Soakage Design Manual. Past experience with testing soakholes in the Papamoa area has shown the procedures outlined in this publications to give a fair representations of actual soakage rates.

As the soakholes are all located entirely within sand, presoaking of the holes for 24 hours before hand was not practical. Four holes were tested on the 28th June 2002, over the recontoured site. Test holes were located in engineering fill and existing natural sand.

The results of all tests and test locations are appended.

3. Soakage Requirements

To determine the soakhole requirements, a porosity rate has been calculated for each hole, from which the number of soakholes are calculated for various storm durations, taking into account both soakage and storage volumes.

Spreadsheets showing details of the calculations for each of the soakholes are appended to this report. Each spreadsheet calculates the requirements for 180m² of roof or pavement area ($C = 0.9$) for a 10 year return period event. The 10 year event is the New Zealand Building Code requirement for runoff from buildings.

The soakholes are designed to cater for the 20 minute event. Events above this time can be catered by overland flow conditions to the roadway and pipework contained therein.

The following table summarises the results of the calculations.

Soakhole Number	Porosity Rate (l/min/m ²)	Soakage Volume Required for 180m ² roof Catchment (m ³)	Number of Soakholes required
1	2.147	3.90	3.7
2	1.829	3.96	3.8
3	0.947	4.15	4.0
4	1.664	4.00	3.8

The soakage system is not designed to handling the entire runoff for all duration events. However, at this site the lots are all located above road levels and hence overland flow to the roads is possible without flooding house sites. The critical duration events for the design of the piped stormwater reticulation system are short duration events (less than 20 minutes), therefore it is reasonable to design the soakage system to only accommodate the shorter duration events (say less than 20 minutes).

We therefore recommend that soakhole with a minimum volume of 4.16m³ for each 180m² of roof/pavement area to be provided for each lot on this subdivision. This relates to 4 only 910mm diameter soak rings, 1.6 m deep

Soakhole must be constructed from purpose manufactured porous well liners, and should be provided with a removable lid to enable access for maintenance.

4. Effect of Soakhole on Runoff From Subdivision

Previous field tests and subsequent results have been vetted by Dr. S Joynes of Hydraulic Modelling Services. The report relates to stage 1 of this subdivision, and confirms the above requirement for four soakhole per 180m² of roof area. The report also defines the peak flood level in this catchment of RL4.5 and an overall C value of 0.42 for the subdivision. This report is appendage

5. Maintenance

To ensure soakhole work as designed it is imperative that correct maintenance techniques and employed. The following guidelines should be followed:

- Filter screens be placed at all pipe intakes;
- All pipe systems should be completely sealed;
- Access for maintenance be provided to soakpits;
- Soakpits should be annually inspected and if necessary cleaned of any silt or debris which may have built up inside the pit.

Soakhole must be constructed from purpose manufactured porous well liners and should be provided with a removable lid to enable access for maintenance.

"Experience and Expertise Every time"

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• Stormwater Management • Hydrology • Sewer Modelling • Drainage System Design • River Flooding • Coastal Modelling • Pollution Studies
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REFERENCE: 2016 B	DATE: September 29, 1999
FROM: DR STEVE JOYNES	No Pages (including this page) 2
ATTENTION: JOHN COLLIE	Facsimile: 07 577 9557 Company: Harrison Grierson Address: P O Box 1199, TAURANGA
IMPORTANT NOTICE: The information in this document is CONFIDENTIAL and also be LEGALLY PRIVILEGED, intended only for the addressee. If you are not the addressee, you are hereby notified that any use or dissemination of the information and any copying of the document is strictly prohibited. If you are not the addressee, please immediately notify us by telephone and we will arrange for the return of this document to us.	

Dear John,

RE: BEACHWATERS STORMWATER MODELLING

I have,

- reviewed your letter dated 10th September and its methodology and
- re-run the MIKE11 floodplain model to reflect the possible effect of a reduced run-off

Review

I understood your general methodology except your logic for a C value of 0.34 for roofs, which gives an average subcatchment C value of 0.41. I independently used a spreadsheet calculation devised for sizing soakholes and using your coverage figures and soakage rates I calculated that the effective C value using 4 soakholes per house Lot was 0.42. Therefore I believe we are both close enough to get acceptable agreement.

Run-off and MIKE11 Modelling

I then proceeded to use my C factor of 0.42 and calculated new run-off hydrographs for the 2%AEP, 24-hour storm of 238mm. I adjusted subcatchments DD, EE to the

new C value of 0.41 and adjusted GG and II to reflected their coverage within the Beachwaters development. To be conservative I continued to use a C value of 0.55 because most of the area is the swale and as the storm proceeds the C value tends closer to 1.0.

The increase in run-off volumes due to the development is approximately 9,205m³.

I then did the hydraulic analysis and the results show the peak flood level is equal to or less than RL4.5m throughout the Harrison's Cut swale system from Opal Drive to Pacific View Road.

I have checked the flow control at the Gravatt Road culvert since it is outlet controlled. The peak flow is 1.8m³/s and only requires 100mm of pressure head. Therefore I believe this culvert is working in the model as anticipated.

We must remember the analysis has been done with the Opal Drive culvert "blocked off". At present the culvert is open. I believe that our analysis examines the most conservative scenario and from my knowledge of Papamoa Main Drain the underdeveloped southern end of the drain will draw flows further south by volume balancing and consequentially reduces the potential impact at Beachwaters.

Summary

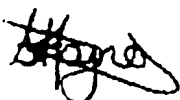
Consideration has been given for the use of soakage in the new Beachwaters development. Using 4 "standard" soakholes per house Lot the increased run-off due to the development will not increase flood levels above RL4.5m.

The combination of engineered swales (as requested by Tauranga District Council) and soakholes will mitigate 100% the effect of the Beachwaters development in terms of stormwater run-off from a 2% storm event and maintain the 2% storm event flood level at or below RL4.5m.

If you have any questions or need any clarification please give me a call.

Best regards

Hydraulic Modelling Services Ltd



Dr Steve Joynes
Principal

Beachwater Estate Storage Volume Calculation

Stage	Lots	Total area	Net Residential Area	Additional Runoff Coefficient C(d)-C(n)	2% AEP Rain depth (mm)	Additional Runoff Volume	Original Storage Volume below RL 4.5	Storage Required
1	50	8.56	4.87	0.32	238	3,709	11,715 ✓ I	15,424
2	31	2.92	2.92	0.32	238	2,224	1,383 } II	3,607
3	29	2.61	2.61	0.32	238	1,988	7 } III	1,995
4	27	2.87	2.16	0.32	238	1,645	2 } IV	1,647
5	29	2.95	2.53	0.32	238	1,927	20 ✓	1,947
6	31	3.02	2.64	0.32	238	2,011	1,316	3,327
7	28	3.73	2.52	0.32	238	1,919	7	1,926
8	29	5.56	2.66	0.32	238	2,026	17,951 + 346 ✓	19,977
9	26	3.25	2.43	0.32	238	1,851	3,922 ✓ VI	5,773
Totals	280	35.47	25.34			19,299	36,323	55,622

C(d) = runoff coefficient for residential development = 0.42

C(n) = runoff coefficient for undeveloped site = 0.1

Natural Storage to RL 4.5m

Green Belt Swale

22386

Main Swale

9906

Residential

36323

Sum of the individual areas

68615

Total natural storage below RL 4.5 from total model

69,445

Additional Residential runoff

19,299

If storage impact to remain the same total storage required

88,744

This total excludes all CB Zone (storage 8,711m³) which is not being impacted on by this development.

When the Commercial Business Zone (CB Zone) is developed that development can either respect the

1 respect the existing storage available within the site

or

2 Approach Landsdale Development and negotiate the modification of part of the Beachwater site for the storage that would be lost from the CB Zone if the entire CB zone site was developed for commercial purposes.

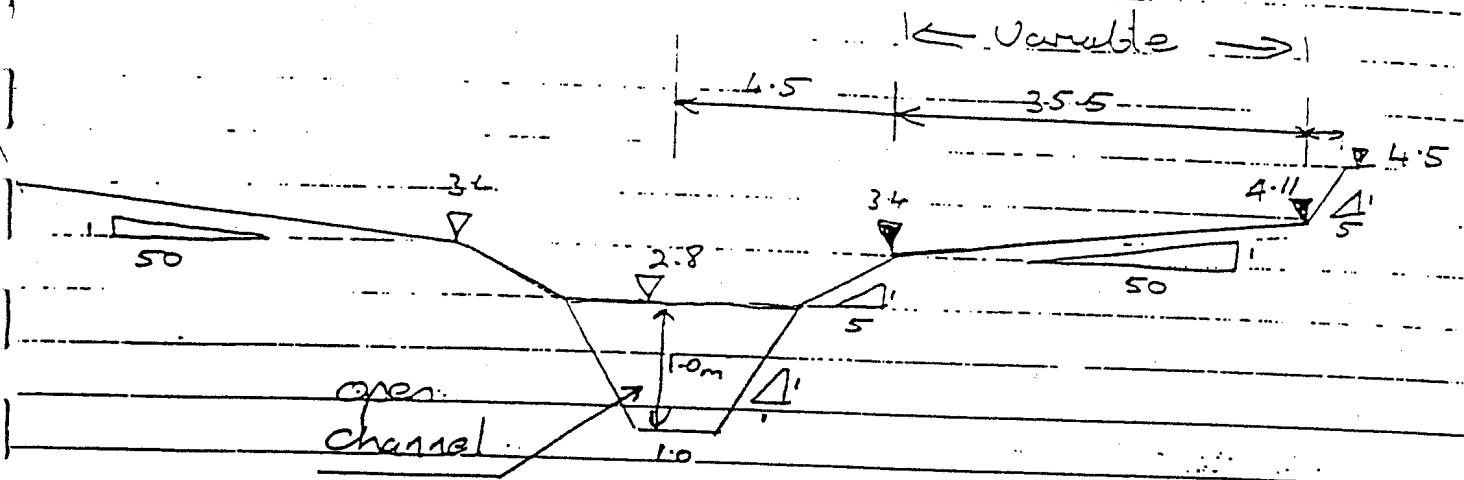
Swale Volumes to 4.5m (TDC Profile Modified)

Swale Part	Volume	Original Natural Volume	Storage Capacity available
Part A	14,667	6309	8358
Part B	20,430	7112	13318
Part C	7,103	992	6111
Part D	11,069	711	10358
Part E	17,625	8998	8627
Part F	17,297	9394	7903
Swale West Drain	2,144	211	1933
Swale Pac Cove Drain	2,612	1115	1497
Off Site Storage Area	5,807	5807	0
TOTAL	98,754	40649	58105
Storage required for stages			55,622
Excess storage			2483

q:\ga\09274\eng\Stage storage volume calcs5.xls

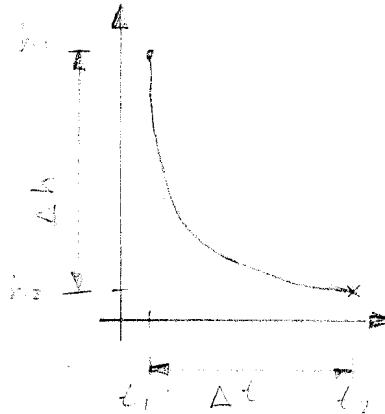
Stage 1 storage requirement	15,424	Stage 7 Storage Requirements	1,926
Swale Part A provides	8,358	Balance of Part D	10,199
Swale Part B provides	13,318	% of D to be completed for stage 6	18.6%
% of B to be completed for stage 1	53.1%	Balance of Part D for Stage 8	8,273
Balance of Part B for Stage 2	6,252		
Stage 2 Storage Requirements	3,607	Stage 8 Storage Requirements	19,977
Balance of Part B	6,252	Balance of Part D	8,273
Storage carried forward to stage 3	2,645	Swale West Drain	1,933
Stage 3 Storage Requirements	1,995	Swale Part E	8,627
Balance of Part B	2,645	Storage Swale Pacific Cove Drain	1,497
Storage carried forward to stage 3	650	% of Pacific Cove drain to be completed for stage 8	76.4%
Stage 4 Storage Requirements	1,647	Balance of Pacific Cove drain for Stage 9	353
Balance of Part B	650		
Swale C storage	6111	Stage 9 Storage requirements	5,773
% of C to be completed for stage 4	16.3%	Balance of Pacific Cove drain for Stage 9	353
Balance of Part C for Stage 5	5,114	Storage Area F	7,903
Stage 5 Storage Requirements	1,947	Total Storage available for Stage 9	8,256
Balance of Part C	5,114		
Storage carried forward to stage 6	3,167	Total Extra Storage	2,483
Stage 6 Storage Requirements	3,327		
Balance of Part C	3,167		
Swale D storage	10358		
% of D to be completed for stage 6	1.5%		
Balance of Part D for Stage 7	10,199		

Proposed Typical Cross Section



Central channel to meander within central third of swale.
 In variable width section of swale
 grade to be maintained at 2% (1:50)

Beachwater Estate								
Run off Coeffecient Calculatlons								
Take 2 lots plus road in between			C Value		C Value		C Value	
Lots average 658sqm								
	Areas							
Average Road area per lot	222							
Road sealed	148	66.80%	0.8	119	0.8	119	0.8	119
Road Grassed	74	33.20%	0.15	11	0.15	11	0.15	11
Access/Residential Lot	2		0.8	1.6	0.8	1.6	0.8	1.6
Lot House & Garage	240		0.9	216	0.25	60	0.4	96
drive way	70		0.8	56	0.8	56	0.8	56
paths	60		0.8	48	0.8	48	0.8	48
grass/garden	288		0.15	43.2	0.15	43.2	0.15	43.2
Lot area + road	882			494		338		374
Overall C value				0.56		0.38		0.42

SOAKAGE RATES FROM SOAKAGE CHARTS100mm ϕ
Soakhole

$$\text{VOLUME} = \frac{\pi (0.1)^2}{4} \times \Delta h \times 1000 \Rightarrow 7.85 \Delta h \text{ L}$$

$$\text{AREA} = \pi (0.1)^2 \times \frac{h_2 + 0.5 \Delta h}{2} \Rightarrow 0.157 \left(h_2 + \frac{\Delta h}{2} \right) \text{ m}^2$$

$$\text{POROSITY} = \frac{\text{Volume}}{\text{Area} \times \Delta t} \quad \text{m/m}^2$$

June 28, 2002 Test Results

Soakhole 1

$h_1 = 1150$

$t_1 = 9.37$

$\Delta h = 880 \text{ mm}$

$h_2 = 270$

$t_2 = 10.06$

$\Delta t = 29 \text{ min}$

Volume = 6.91 L

Area = 0.11 m²

Porosity = 0.006 m/m²

Work Sheet

Soakhole 2

$h_1 = 1260$

$t_1 = 10:50$

$\Delta h = 570 \text{ mm}$

$h_2 = 690$

$t_2 = 11:06$

$\Delta t = 16 \text{ min}$

$\text{Volume} = 4.477 \text{ L}$

$\text{Area} = 0.153 \text{ m}^2$

$\text{Porosity} = 1.829 \text{ L/min/m}^2$

Soakhole 3

$h_1 = 1120$

$t_1 = 11:09$

$\Delta h = 810 \text{ mm}$

$h_2 = 310$

$t_2 = 12:00$

$\Delta t = 51 \text{ min}$

$\text{Volume} = 6.362 \text{ L}$

$\text{Area} = 0.112 \text{ m}^2$

$\text{Porosity} = 0.947 \text{ L/min/m}^2$

Soakhole 4

$h_1 = 1150$

$t_1 = 12:45$

$\Delta h = 530 \text{ mm}$

$h_2 = 620$

$t_2 = 1:03$

$\Delta t = 18 \text{ min}$

$\text{Volume} = 4.162 \text{ L}$

$\text{Area} = 0.139 \text{ m}^2$

$\text{Porosity} = 1.654 \text{ L/min/m}^2$

SOAKAGE ASSESSMENT

Job Description: Beachwaters Stage 3
RESULTS ON STAGE 3 TESTS - SOAKHOLE No 1

Job No. 73:9797

Avrge Area of Lots =

Yard Area = 180 m² (equivalent)

Catchment characteristic (C) = 0.9

Soakage Rate - derived from field test = 2.147 litres/min/m²

Storm Design Return Period - 10 years

Proposed Soakhole Size :- 1600 mm deep x 910 mm dia.

Volume = 1.041 m³

Volume dispersed into ground (m3) =	50% wall area of proposed soakhole plus base area (m ²) 2.937	X	site soakage rate (litres / min / m ²) 2.15	X	Time (mins)
1000					

A	B	C	D	E	F	G	H	I
Storm Duration (time)	Rainfall Depth (mm)	Runoff (m ³)	Per Soakhole			No. of Soakholes Required C/F	Total Soakhole Volume m ³	Recovery Period hours
			Volume to ground soakage (m ³)	Storage Volume in Soakhole (m ³)	Total Collected m ³ D+E			
10mins	18	2.92	0.06	1.041	1.10	2.6	2.75	3.63
20mins	27	4.37	0.13	1.041	1.17	3.7	3.90	5.15
30mins	33	5.35	0.19	1.041	1.23	4.3	4.52	5.98

Recovery Period = 50% Volume of soakage system
(base area + 50% wall area)m² * soakage rate *60/1000

Recovery period must be less than 24 hours

SOAKAGE ASSESSMENT

Job Description: Beachwaters Stage 3
RESULTS ON STAGE 3 TESTS - SOAKHOLE No 2

Job No. 73:9797

Avrge Area of Lots =

Yard Area = 180 m² (equivalent)

Catchment characteristic (C) = 0.9

Soakage Rate - derived from field test = 1.829 litres/min/m²

Storm Design Return Period - 10 years

Proposed Soakhole Size :- 1600 mm deep x 910 mm dia.

Volume = 1.041 m³

Volume dispersed into ground (m3) =	50% wall area of proposed soakhole plus base area (m ²)	X	site soakage rate (litres / min / m ²)	X	Time (mins)
	2.937		1.83		
1000					

A	B	C	D	E	F	G	H	I
Storm Duration (time)	Rainfall Depth (mm)	Runoff (m ³)	Per Soakhole			No. of Soakholes Required C/F	Total Soakhole Volume m ³	Recovery Period hours
			Volume to ground soakage (m ³)	Storage Volume in Soakhole (m ³)	Total Collected m ³ D+E			
10mins	18	2.92	0.05	1.041	1.09	2.7	2.77	4.30
20mins	27	4.37	0.11	1.041	1.15	3.8	3.96	6.15
30mins	33	5.35	0.16	1.041	1.20	4.4	4.63	7.18

Recovery Period = 50% Volume of soakage system
(base area + 50% wall area)m² * soakage rate *60/1000

Recovery period must be less than 24 hours

SOAKAGE ASSESSMENT

Job Description: Beachwaters Stage 3
RESULTS ON STAGE 3 TESTS - SOAKHOLE No 3

Job No. 73:9797

Avrge Area of Lots =

Yard Area = 180 m² (equivalent)

Catchment characteristic (C) = 0.9

Soakage Rate - derived from field test = 0.947 litres/min/m²

Storm Design Return Period - 10 years

Proposed Soakhole Size :- 1600 mm deep x 910 mm dia.

Volume = 1.041 m³

Volume dispersed into ground (m3) = 50% wall area of proposed soakhole plus base area (m²) X site soakage rate (litres / min / m²) X Time (mins)

2.937 0.95

1000

A	B	C	D	E	F	G	H	I
Storm Duration (time)	Rainfall Depth (mm)	Runoff (m ³)	Per Soakhole			No. of Soakholes Required C/F	Total Soakhole Volume m ³	Recovery Period hours
			Volume to ground soakage (m ³)	Storage Volume in Soakhole (m ³)	Total Collected m ³ D+E			
10mins	18	2.92	0.03	1.041	1.07	2.7	2.84	8.51
20mins	27	4.37	0.06	1.041	1.10	4.0	4.15	12.44
30mins	33	5.35	0.08	1.041	1.12	4.8	4.95	14.83

Recovery Period = 50% Volume of soakage system
(base area + 50% wall area)m² * soakage rate *60/1000

Recovery period must be less than 24 hours

SOAKAGE ASSESSMENT

Job Description: Beachwaters Stage 3
RESULTS ON STAGE 3 TESTS - SOAKHOLE No 4

Job No. 73:9797

Avrge Area of Lots =

Yard Area = 180 m² (equivalent)

Catchment characteristic (C) = 0.9

Soakage Rate - derived from field test = 1.664 litres/min/m²

Storm Design Return Period - 10 years

Proposed Soakhole Size :- 1600 mm deep x 910 mm dia.

Volume = 1.041 m³

Volume dispersed into ground (m3) =	50% wall area of proposed soakhole plus base area (m ²) 2.937	X	site soakage rate (litres / min / m ²) 1.66	X	Time (mins)
1000					

A	B	C	D	E	F	G	H	I
Storm Duration (time)	Rainfall Depth (mm)	Runoff (m ³)	Per Soakhole			No. of Soakholes Required C/F	Total Soakhole Volume m ³	Recovery Period hours
			Volume to ground soakage (m ³)	Storage Volume in Soakhole (m ³)	Total Collected m ³ D+E			
10mins	18	2.92	0.05	1.041	1.09	2.7	2.79	4.75
20mins	27	4.37	0.10	1.041	1.14	3.8	4.00	6.82
30mins	33	5.35	0.15	1.041	1.19	4.5	4.69	7.99

Recovery Period = 50% Volume of soakage system
(base area + 50% wall area)m² * soakage rate *60/1000

Recovery period must be less than 24 hours

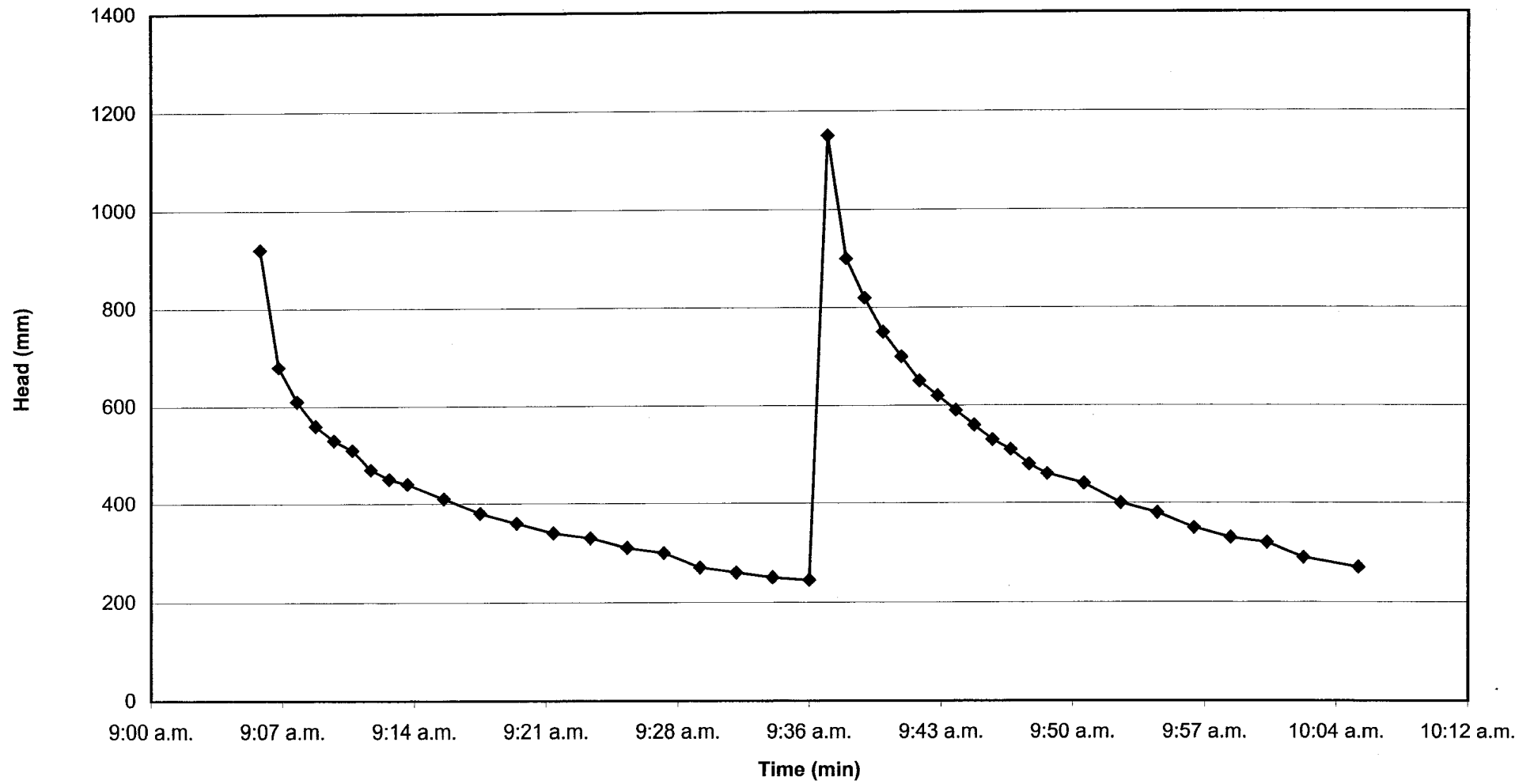
HARRISON GRIERSON CONSULTANTS LTD								HG	File No	73:09797.	
		PERCOLATION TEST RESULT SHEET							Date	1-Jun-02	
Project Name		Landsdale Development Ltd							Initials	EMG	
Test No		1	Depth of hole:		1250	Diameter 100mm					
Actual time		Down to	Diff time	Drop in	Head	Perc rate	graphical information				
(d/m h:mm 2		WL (m	(min)	WL (mm	(mm)	(mm/hr)	head	Y1 (Perc	Y2	Y3	Y4
SOAKHOLE 1											
9:06 a.m.		330	FILL	330	920	920					
9:07 a.m.		570	1.0	240	680	14400	680	14400			
9:08 a.m.		640	1.0	70	610	4200	610	4200			
9:09 a.m.		690	1.0	50	560	3000	560	3000			
9:10 a.m.		720	1.0	30	530	1800	530	1800			
9:11 a.m.		740	1.0	20	510	1200	510	1200			
9:12 a.m.		780	1.0	40	470	2400	470	2400			
9:13 a.m.		800	1.0	20	450	1200	450	1200			
9:14 a.m.		810	1.0	10	440	600	440	600			
9:16 a.m.		840	2.0	30	410	900	410	900			
9:18 a.m.		870	2.0	30	380	900	380	900			
9:20 a.m.		890	2.0	20	360	600	360	600			
9:22 a.m.		910	2.0	20	340	600	340	600			
9:24 a.m.		920	2.0	10	330	300	330	300			
9:26 a.m.		940	2.0	20	310	600	310	600			
9:28 a.m.		950	2.0	10	300	300	300	300			
9:30 a.m.		980	2.0	30	270	900	270	900			
9:32 a.m.		990	2.0	10	260	300	260	300			
9:34 a.m.		1000	2.0	10	250	300	250	300			
9:36 a.m.		1005	2.0	5	245	150	245	150			
9:37 a.m.		100	REFILL	0	1150	1150					
9:38 a.m.		350	1.0	250	900	15000	900	15000			
9:39 a.m.		430	1.0	80	820	4800	820	4800			
9:40 a.m.		500	1.0	70	750	4200	750	4200			
9:41 a.m.		550	1.0	50	700	3000	700	3000			
9:42 a.m.		600	1.0	50	650	3000	650	3000			
9:43 a.m.		630	1.0	30	620	1800	620	1800			
9:44 a.m.		660	1.0	30	590	1800	590	1800			
9:45 a.m.		690	1.0	30	560	1800	560	1800			
9:46 a.m.		720	1.0	30	530	1800	530	1800			
9:47 a.m.		740	1.0	20	510	1200	510	1200			
9:48 a.m.		770	1.0	30	480	1800	480	1800			
9:49 a.m.		790	1.0	20	460	1200	460	1200			
9:51 a.m.		810	2.0	20	440	600	440	600			
9:53 a.m.		850	2.0	40	400	1200	400	1200			
9:55 a.m.		870	2.0	20	380	600	380	600			
9:57 a.m.		900	2.0	30	350	900	350	900			
9:59 a.m.		920	2.0	20	330	600	330	600			
10:01 a.m.		930	2.0	10	320	300	320	300			
10:03 a.m.		960	2.0	30	290	900	290	900			
10:06 a.m.		980	3.0	20	270	400	270	400			

HARRISON GRIERSON CONSULTANTS LTD						HG	File No	73:09797.
PERCOLATION TEST RESULT SHEET							Date	1-Jul-02
Project Name	Landsdale Development Ltd						Initials	EMG
Test No	1	Depth of hole: 1290			Diameter 100mm			
Actual time (d/m h:mm 2	Down to WL (m)	Diff time (min)	Drop in WL (mm)	Head (mm)	Perc rate (mm/hr)	graphical information		
						head	Y1 (Perc	Y2
							Y3	Y4
SOAKHOLE 2								
10:10 a.m.	240	FILL	0	1050		1050		
10:11 a.m.	440	1.0	200	850	12000	850	12000	
10:12 a.m.	500	1.0	60	790	3600	790	3600	
10:13 a.m.	540	1.0	40	750	2400	750	2400	
10:14 a.m.	590	1.0	50	700	3000	700	3000	
10:15 a.m.	600	1.0	10	690	600	690	600	
10:16 a.m.	620	1.0	20	670	1200	670	1200	
10:17 a.m.	650	1.0	30	640	1800	640	1800	
10:18 a.m.	690	2.0	40	600	1200	600	1200	
10:19 a.m.	700	1.0	10	590	600	590	600	
10:20 a.m.	730	1.0	30	560	1800	560	1800	
10:21 a.m.	730	1.0	0	560	0	560	0	
10:22 a.m.	760	1.0	30	530	1800	530	1800	
10:23 a.m.	770	1.0	10	520	600	520	600	
10:24 a.m.	790	1.0	20	500	1200	500	1200	
10:25 a.m.	810	1.0	20	480	1200	480	1200	
10:27 a.m.	830	2.0	20	460	600	460	600	
10:29 a.m.	850	2.0	20	440	600	440	600	
10:31 a.m.	870	4.0	20	420	300	420	300	
10:33 a.m.	890	2.0	20	400	600	400	600	
10:35 a.m.	910	2.0	20	380	600	380	600	
10:37 a.m.	940	2.0	30	350	900	350	900	
10:39 a.m.	960	2.0	20	330	600	330	600	
10:41 a.m.	960	2.0	0	330	0	330	0	
10:43 a.m.	970	2.0	10	320	300	320	300	
10:45 a.m.	1000	2.0	30	290	900	290	900	
10:47 a.m.	1000	2.0	0	290	0	290	0	
10:49 a.m.	1010	2.0	10	280	300	280	300	
10:50 a.m.	30	REFILL	0	1260		1260		
10:51 a.m.	140	1.0	110	1150	6600	1150	6600	
10:52 a.m.	200	1.0	60	1090	3600	1090	3600	
10:53 a.m.	280	1.0	80	1010	4800	1010	4800	
10:54 a.m.	340	1.0	60	950	3600	950	3600	
10:55 a.m.	400	1.0	60	890	3600	890	3600	
10:56 a.m.	400	2.0	0	890	0	890	0	
10:57 a.m.	430	1.0	30	860	1800	860	1800	
10:58 a.m.	440	1.0	10	850	600	850	600	
11:00 a.m.	500	2.0	60	790	1800	790	1800	
11:01 a.m.	530	1.0	30	760	1800	760	1800	
11:03 a.m.	550	2.0	20	740	600	740	600	
11:05 a.m.	590	2.0	40	700	1200	700	1200	
11:06 a.m.	600	1.0	10	690	600	690	600	

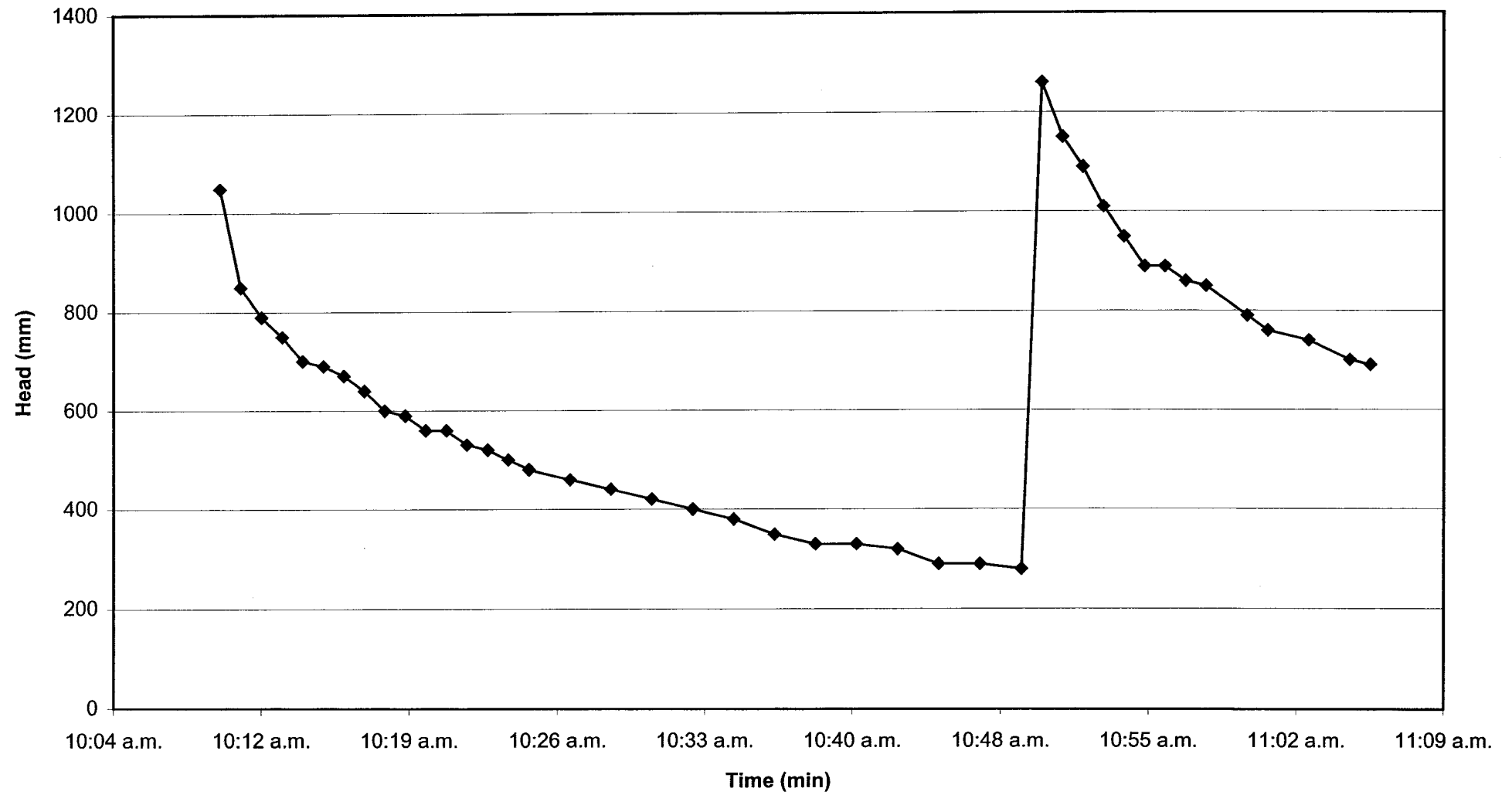
HARRISON GRIERSON CONSULTANTS LTD						HG	File No	73:9797.1
PERCOLATION TEST RESULT SHEET							Date	1-Jul-02
Project Name	Landsdale Development Ltd						Initials	EMG
Test No	1	Depth of hole:		1190	Diameter		100mm	
Actual time	Down to	Diff time	Drop in	Head	Perc rate	graphical information		
(d/m h:mm 2	WL (m)	(min)	WL (mm)	(mm)	(mm/hr)	head	Y1 (Perc	Y2 Y3 Y4
SOAKHOLE 3								
11:09 a.m.	70	FILL		1120		1120		
11:10 a.m.	190	1.0	120	1000	7200	1000	7200	
11:11 a.m.	260	1.0	70	930	4200	930	4200	
11:12 a.m.	310	1.0	50	880	3000	880	3000	
11:13 a.m.	330	1.0	20	860	1200	860	1200	
11:14 a.m.	370	1.0	40	820	2400	820	2400	
11:16 a.m.	410	2.0	40	780	1200	780	1200	
11:17 a.m.	420	1.0	10	770	600	770	600	
11:18 a.m.	450	1.0	30	740	1800	70	1800	
11:19 a.m.	460	1.0	10	730	600	730	600	
11:20 a.m.	490	1.0	30	700	1800	700	1800	
11:22 a.m.	530	2.0	40	660	1200	660	1200	
11:24 a.m.	550	2.0	20	640	600	640	600	
11:26 a.m.	590	2.0	40	600	1200	600	1200	
11:28 a.m.	610	2.0	20	580	600	580	600	
11:30 a.m.	610	2.0	0	580	0	1000	0	
11:32 a.m.	640	2.0	30	550	900	550	900	
11:34 a.m.	660	2.0	20	530	600	530	600	
11:36 a.m.	680	2.0	20	510	600	510	600	
11:38 a.m.	690	2.0	10	500	300	500	300	
11:40 a.m.	710	2.0	20	480	600	480	600	
11:42 a.m.	710	2.0	0	480	0	330	0	
11:44 a.m.	750	2.0	40	440	1200	440	1200	
11:46 a.m.	770	2.0	20	420	600	420	600	
11:48 a.m.	780	2.0	10	410	300	410	300	
11:50 a.m.	800	2.0	20	390	600	390	600	
11:52 a.m.	800	2.0	0	390	0	390	0	
11:55 a.m.	810	3.0	10	380	200	380	200	
11:57 a.m.	810	2.0	0	380	0	380	0	
11:59 a.m.	830	2.0	20	360	600	360	600	
12:01 p.m.	850	2.0	20	340	600	340	600	
12:03 p.m.	860	2.0	10	330	300	330	300	
12:05 p.m.	870	2.0	10	320	300	320	300	
12:07 p.m.	880	2.0	10	310	300	310	300	
12:09 p.m.	880	2.0	0	310	0	310	0	

[illegible]

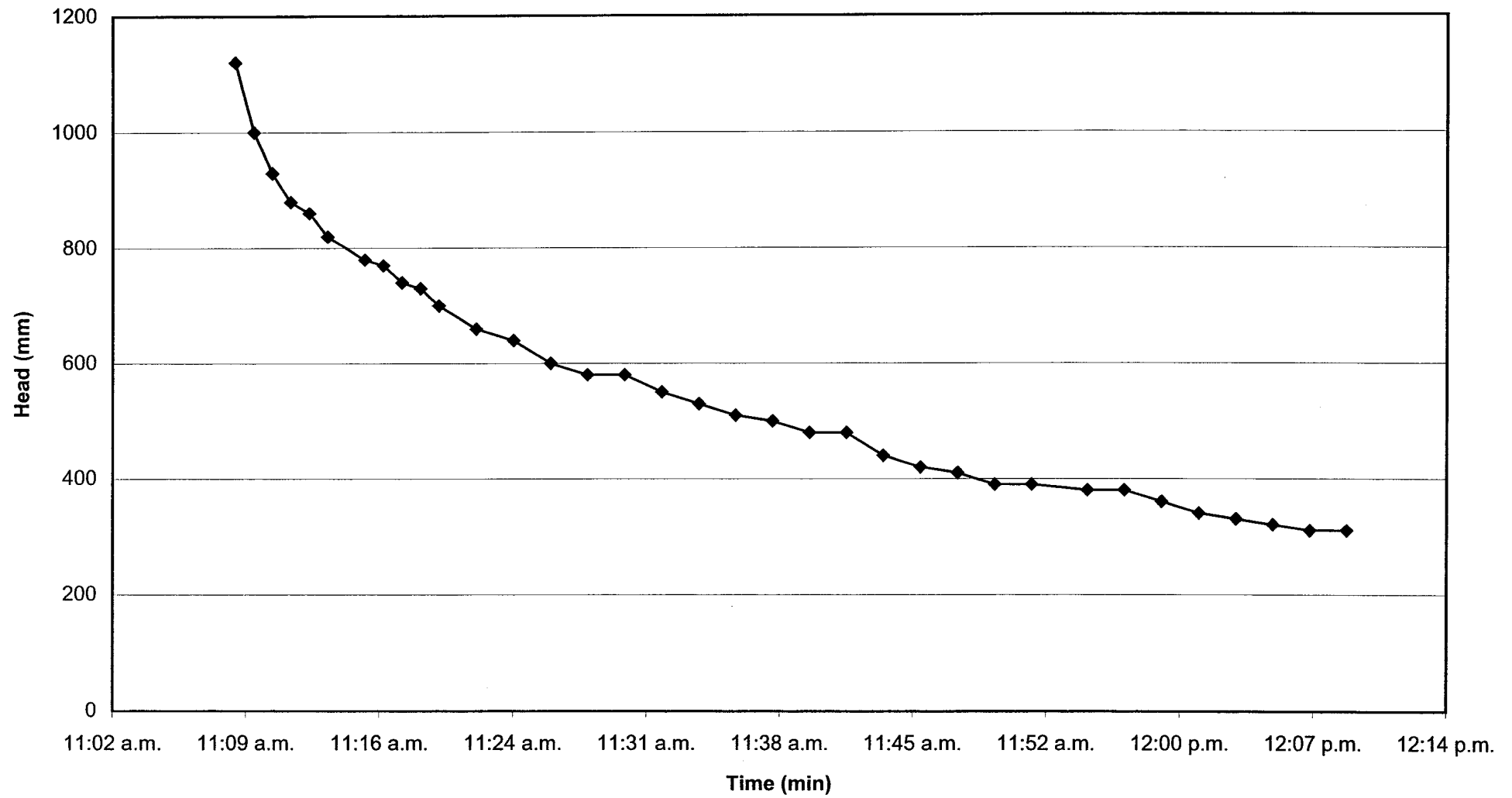
Beachwater Stage 3 - Soakhole 1



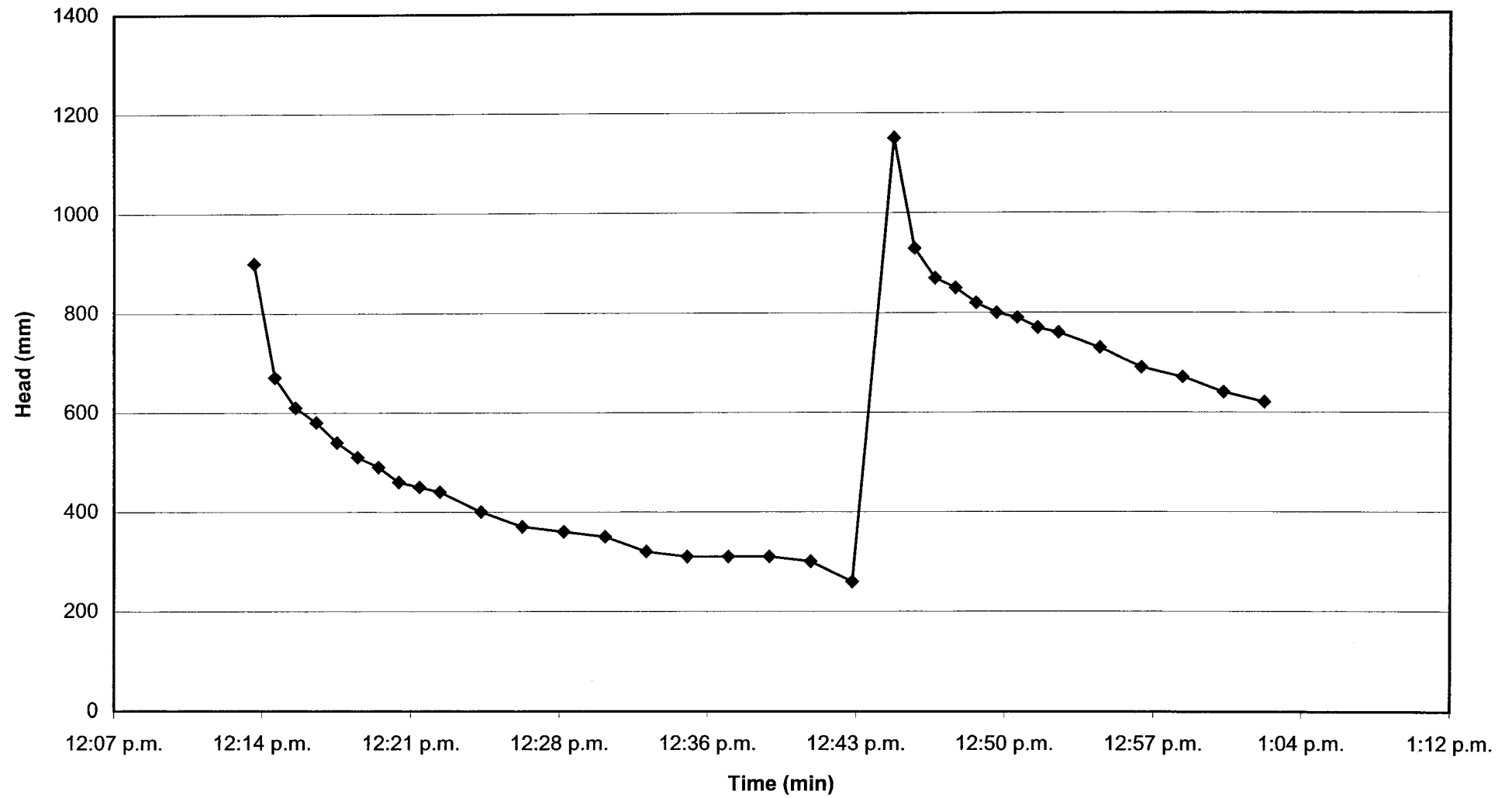
Beachwater Stage 3 - Soakhole 2

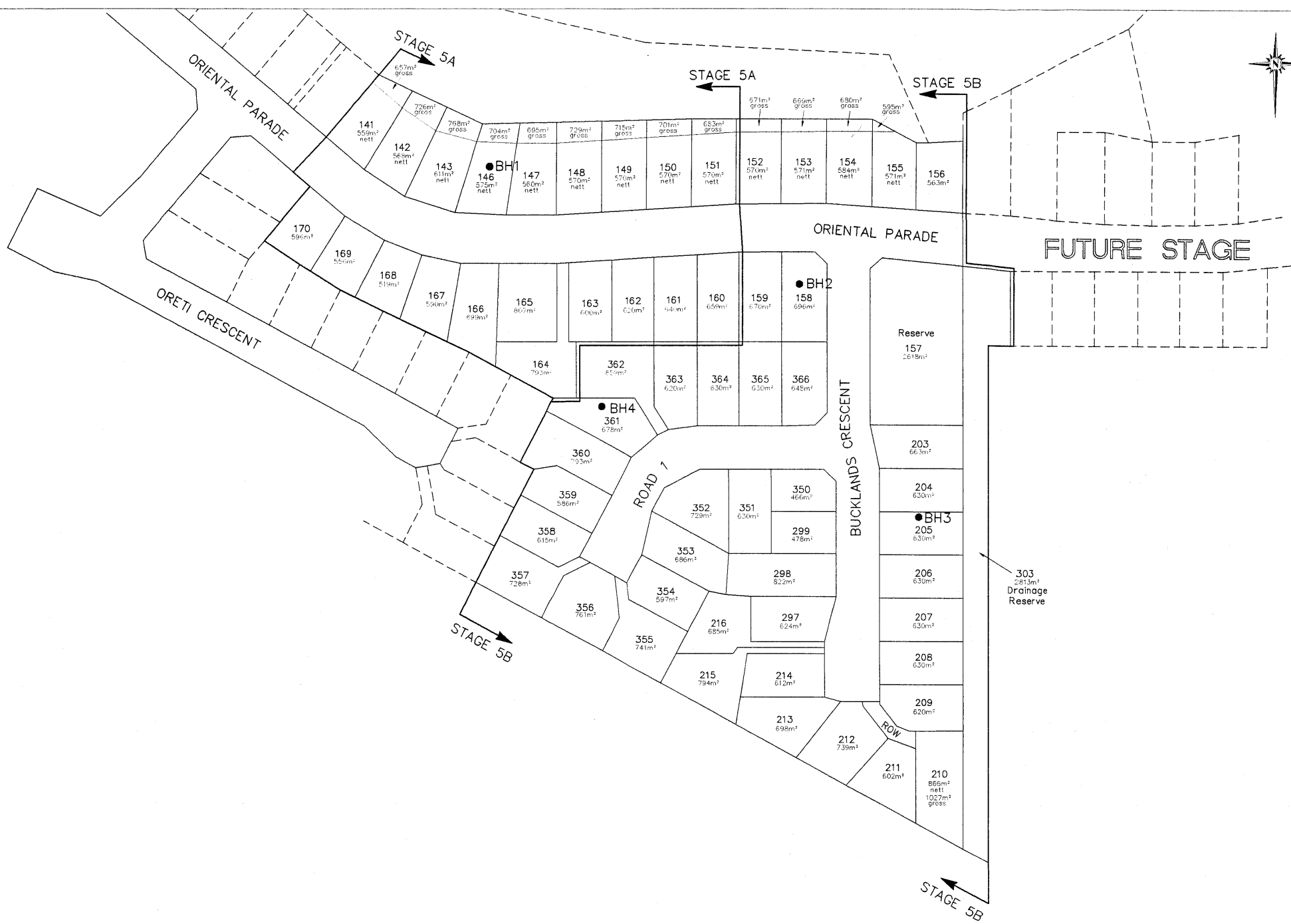


Beachwater Stage 3 - Soakhole 3



Beachwater Stage 3 - Soakhole 4B





SURVEYED BY: _____ DRAWN BY: PNJ
 DATE SURVEYED: _____ DATE PLOTTED: 06/06/02
 SDMAP REF: 023 CAD REFERENCE: 09797-PL100
 DESIGNED: MNT APPROVED: _____
 CHECKED: _____
 THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED, WITHOUT THE WRITTEN PERMISSION OF HARRISON GRIERSON CONSULTANTS LTD

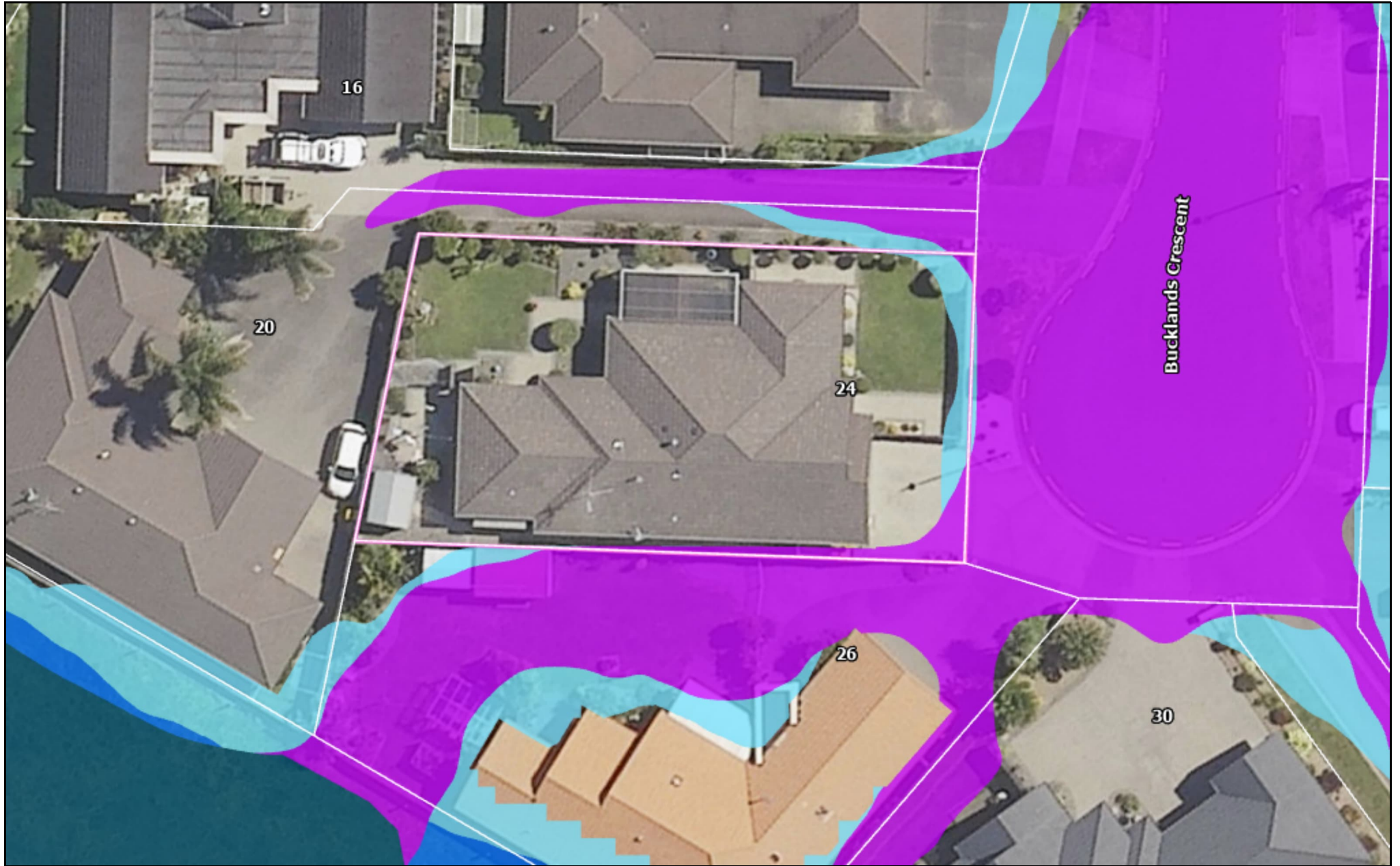
HARRISON GRIERSON
HC
 CONSULTING ENGINEERS SURVEYORS PLANNERS

PROJECT: LANDSDALE DEVELOPMENT LTD
 BEACHWATERS SUBDIVISION STAGE 5
 ROADING & SERVICES CONTRACT

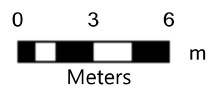
TITLE: LOT LAYOUT PLAN
 SOAKAGE TEST LOCATION

PROJECT No: 73,06797.1
 DRAWING No: 09797-PL100
 REV A
 A FOR TENDER
 MNT 06/06/02 ORIGINAL SCALE: 1:750
 BY DATE REDUCED SCALE: A1

Natural Hazards



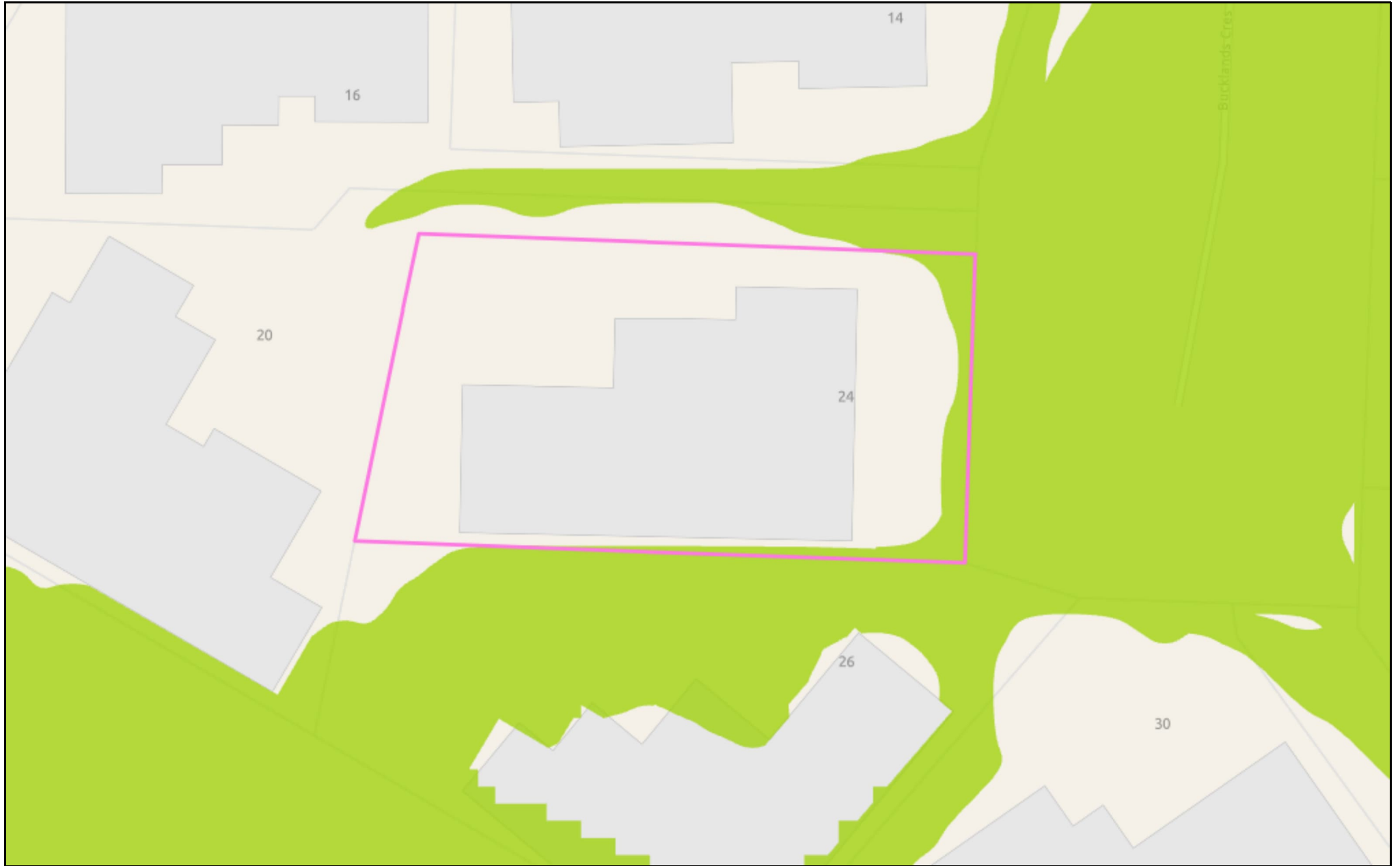
Flooding from Intense Rainfall



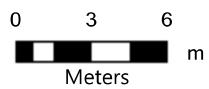
Scale 1: 300 @A4



Information shown on this plan is indicative only. The Council accepts no liability for its accuracy and it is your responsibility to ensure that the data contained herein is appropriate and applicable to the end use intended.



Depth x Velocity 100 Year Event



Scale 1: 300 @A4



Information shown on this plan is indicative only. The Council accepts no liability for its accuracy and it is your responsibility to ensure that the data contained herein is appropriate and applicable to the end use intended.

Natural Hazards Key

Flooding From Intense Rainfall

	Floodplain
	Flood Prone Area (Depth 100-300mm)
	Flood Prone Area (Depth >300mm)
	Minor Overland Flow Path
	Major Overland Flow Path

Depth x Velocity – 100 Year Event

	< 0.4m ² /s
	0.4 - 0.6m ² /s
	0.6 - 0.8m ² /s
	> 0.8m ² /s

TSUNAMI EVACUATION ZONE: Pāpāmoa Beach



Tsunami Evacuation Zone



Waterway

Scale: 1:20,000

WARNING

Tsunami is a safety risk here.

The evacuation zone is coloured **BLUE**. In a **LONG or STRONG** earthquake **GET OUT OF THE BLUE**

- Go inland or to higher ground.
- Walk or bike if you can.
- Stay out of the blue zone. Wait for official updates.

A tsunami might be coming if there...

- is a strong earthquake.
- is a long earthquake, even if it's weak.
- are unexpected sea level changes.
- are loud and unusual noises from the sea.

For more information and updates:

- bopcivildefence.govt.nz
- [bopcivildefence](#)
- [bopcivildefence](#)
- radio



**LONG OR STRONG,
GET GONE**



BAY OF PLENTY
EMERGENCY MANAGEMENT GROUP

