Land Information Memorandum

- **99 Escotts Road, Tuakau**
- LOT 1 DP 169701

Land Information

Memorandum

In reply please quote: LIM0079/19
If calling, please ask for: Susan Marr

LOCAL GOVERNMENT OFFICIAL INFORMATION AND MEETINGS ACT 1987

The information supplied in this Land Information Memorandum is based on existing Waikato District Council records that may not be complete. The property has not been inspected or surveyed by the Council. It is the purchaser's responsibility to check the boundaries of the property.

It is assumed that any purchaser will search the certificate of title that is not held by the Council and will personally inspect the property and its surrounds. This information deals solely with the property named below, and does not disclose any relevant information that may affect adjacent properties.

It is the sole responsibility of any purchaser to ensure that the land is suitable for a particular purpose.

▶ Property Details:

Valuation Reference:	03920/368.00
Legal Description:	LOT 1 DP 169701
Area:	9.8740 hectares more or less
Property Location:	99 Escotts Road TUAKAU
Owners:	Hughes Developments Limited

▶ Property Location:

■ Rates

Information regarding –
44A(2)
(c) information relating to any rates owing in relation to the land

▶ Rates & Rating Valuation:

Information regarding –
44A(2)(c) information relating to any rates owing in relation to the land

Annual rates for 2018/2019	$6,088.66 Balance Owing: $0.00 *(Balance of 1st instalment due 24 September 2018)*
Value of Improvements	$ 365,000.00
Land Value	$ 1,630,000.00
Capital Value	$ 1,995,000.00
Date of Valuation	1 July 2017

Valuation
Properties in the Waikato District are re-valued every three years in accordance with the Rating and Valuations Act 1988.

Rates and 2014 and 2017 valuations can be viewed online using the Rating Information Database (RID) available on the Waikato District Council website at https://www.waikatodistrict.govt.nz/

Current Rates
A copy of the current 2018/2019 rates assessment is attached. The 2018/2019 rates are based on the valuations dated 1 July 2017.

A new part fee and charge will apply for those ratepayers that connect to specific council services after 1 July. These changes will mean that anyone that builds a new dwelling after 1 July will pay for the services their property receives (e.g. waste water, storm water, rubbish) through fees and changes, rather than rates, until rates are struck on their property in the following financial year. You will receive an invoice from Council following granting of your Code Compliance Certificate (CCC). Rates are only struck once a year.

<https://www.waikatodistrict.govt.nz/your-council/fees-and-charges>

If you have any queries with regards to the 2017/18 rates, please contact a member of the rating team on 0800 492 452 or e-mail rates@waidc.govt.nz.

Rates Capital Value
Please note that the rates reflected on this LIM were calculated based on the capital value of the property as at 1 July of the current rating year. Any changes to the capital value of the property that have taken place since 1 July will be reflected in the rating charges for this property in the next rating year. Please contact a member of the rating team on 0800 492 452 if you require further clarification or have any questions.

■ Planning

Information regarding –
44A(2)
(f) information relating to the use to which that land may be put and conditions attached to that use:
(g) information which, in terms of any other Act, has been notified to the territorial authority by any statutory organisation having the power to classify land or buildings for any purpose:
(h) any information which has been notified to the territorial authority by any network utility operator pursuant to the Building Act 1991 or the Building Act 2004

Franklin Section
The Franklin Section of the Waikato District Plan applies to this property and is administered by the Waikato District Council. In terms of this document, this property is within the:

- Rural-Residential Zone
- Management Policy Area - Central Rural
- Proposed Esplanade Reserve Policy Area
- Waikato River Catchment Policy Area

Please refer to the Waikato District Plan: Franklin Section or speak to a duty planner regarding specific requirements for development on properties within these areas.

- *The former Franklin area that has become part of the Waikato district will continue to be bound by the Franklin District Plan rules and is enforced by the Waikato District Council.*

Tuakau Structure Plan
A Structure Plan for Tuakau was approved by the council at its meeting on 11 December 2014. A copy of the approved Tuakau Structure Plan can be found on Council's website under plans, or by using the following hyperlink: *<https://www.waikatodistrict.govt.nz>*

Designations
This property is within close proximity (500m) to land that is designated for a particular purpose:

- *79 - Tuakau Primary School*

For further information please refer to the planning maps attached and the Waikato District Plan, which is available to view on our website: <https://www.waikatodistrict.govt.nz>

Monitoring
This property is subject to a resource consent that requires monitoring by the Waikato District Council. Charges will be made for any monitoring of the consent that takes place. Charges are applied in accordance with Section 36 of the Resource Management Act 1991.

For further information please contact Councils Monitoring Team

Waikato District Council has notified a new Proposed District Plan which applies to the entire Waikato District, including the land which is the subject of this LIM report.

Council's website contains information on the Proposed District Plan relevant to the land which is the subject of this LIM report. You can view this information on Council's website <https://www.waikatodistrict.govt.nz/your-council/plans-policies-and-bylaws/plans/district-plan-review>

This proposed lot is part of an incomplete subdivision. Outstanding fees are applicable to this subdivision prior to issue of 224 certificate.

■ Planning continued

Information regarding – 44A(2)

(f) information relating to the use to which that land may be put and conditions attached to that use:
(g) information which, in terms of any other Act, has been notified to the territorial authority by any statutory organisation having the power to classify land or buildings for any purpose:
(h) any information which has been notified to the territorial authority by any network utility operator pursuant to the Building Act 1991 or the Building Act 2004

For any restrictions of the use of the property please refer to the Certificate of Title.

▶ Resource Consents:

Application No	Description	Decision
	SUBDIVISION CONSENT	**GRANTED**
6/16/851	- *Scheme Plan*	20 September 1994
SUB0311/18	- *To create 93 vacant residential lots in 2 stages*	26 June 2018
	LAND USE CONSENT	**GRANTED**
LUC0489/18	- *Earthworks in the Rural-Residential zone which exceeds the maximum volume area*	25 June 2018
LUC0009/19	- *To enable buildings with site coverage of up to 40% over the 93 lots*	12 July 2018

Requisitions: No known planning requisitions to date.

Planning rules relating to this property are contained in the Waikato District Plan and are not outlined in this LIM report. The Waikato District Plan is available to view on Council's website at www.waikatodc.govt.nz.

■ Building

Information regarding –
44A(2)

(d) information concerning any consent, certificate, notice, order, or requisition affecting the land or any building on the land previously issued by the territorial authority (whether under the Building Act 1991, the Building Act 2004, or any other Act):

(e) information concerning any certificate issued by a building certifier pursuant to the Building Act 1991 or the Building Act 2004:

(ea) information notified to the territorial authority under section 124 of the Weathertight Homes Resolution Services Act 2006:

It is recommended that a potential purchaser engage a building consultant to complete a pre-purchase inspection of buildings. Irrespective of code of compliance, structures are subject to deterioration over time and works may have been undertaken without building consent. If requested and supplied, a copy of this may be filed on council records for future references and Land Information Memoranda.

Architects and designers require wind & earthquake information to establish bracing requirements for building development.

▶ Building Consents/Permits:

Number	Description	Consent/Permit issued date	CCC Issued/ Completed Date
350	Moving & renovating an old building	06 June 1961	*
0067170	Workers staff amenities	14 August 1986	*
FBLD35478	Shed	27 October 2000	15 December 2000
FBLD38226	Milan Tuscany Fire place	08 June 2001	19 June 2001

Requisitions: No known building requisitions to date.

** No completed date recorded on historic County records.*

Prior to the Building Act 1991, whilst the Council issued building permits, there was no provision, nor requirement to issue Code of Compliance Certificates.

Code of Compliance Certificate were required when the Building Act 1991 came into force.

For further information please contact the Building Team on 07 824 8633

■ Water Supply

Information regarding –
44A(2)
(ba) any information that has been notified to the territorial authority by a drinking-water supplier under section 69ZH of the Health Act 1956:
(bb) information on—
(i) whether the land is supplied with drinking water and if so, whether the supplier is the owner of the land or a networked supplier:
(ii) if the land is supplied with drinking water by a networked supplier, any conditions that are applicable to that supply:
(iii) if the land is supplied with water by the owner of the land, any information the territorial authority has about the supply:

Council rate records indicate that the property is connected to the North Waikato urban water supply and charged an annual targeted rate for domestic water supply.

The property is on a metered water supply and being charged on a volume basis for water supply.

Please contact the Customer Delivery Department at the Waikato District Council to arrange a final water meter reading prior to sale settlement.

Development Contributions for proposed lot (no CT issued yet)

This proposed lot is part of an incomplete subdivision. Development contributions are applicable to this subdivision and these are yet to be paid. The Development contributions are due to be paid prior to issue of 224 certificate.

Further information on development contributions can be obtained online at https://www.waikatodistrict.govt.nz/your-council/fees-and-charges/development-contributions

■ Drinking Water (potable water supply)

The property is connected to the North Waikato urban water supply; Councils urban water supply systems are full flow pressure systems.

The construction of a bore for the taking of ground water requires consent from the Waikato Regional Council, for further information contact Waikato Regional Council.

■ Council Utilities

Information regarding –
44A(2)
(b) information on private and public stormwater and sewerage drains as shown in the territorial authority's records:

■ Wastewater

Council rate records indicate that the property is connected to a Council wastewater system and being charged a full targeted rate for domestic wastewater.

■ Stormwater

Stormwater Disposal is served by the Tuakau Urban drainage area, administered by Waikato District Council; please refer to Utilities Map attached. Council rate records indicate that the property is being charged a targeted rate for stormwater disposal.

For any new development, Onsite Stormwater Disposal will be required under the Waikato District Plan & Waikato Regional Plan prior to connection to any public stormwater network or drains.

For further Information please contact a Project Planning & Engineering Officer at the Waikato District Council.

■ Natural Hazards

Information regarding –
44A(2)
(a) information identifying each (if any) special feature or characteristic of the land concerned, including but not limited to potential erosion, avulsion, falling debris, subsidence, slippage, alluvion, or inundation, or likely presence of hazardous contaminants, being a feature or characteristic that—
(i) is known to the territorial authority; but
(ii) is not apparent from the district scheme under the Town and Country Planning Act 1977 or a district plan under the Resource Management Act 1991:

Existing Council records do not contain any information concerning natural hazards affecting the land, it is recommended that a geotechnical engineer is engaged to investigate ground or sub-soil conditions to establish any specific requirements for building development.

Tuakau Structure Plan
Council has commissioned some broadscale technical studies to assist with the proposed Tuakau Structure Plan. These include Geotechnical suitability, stormwater catchment management (including flood risk areas) and ground contamination. These and other draft technical reports are available to view online at:
<http://www.waikatodistrict.govt.nz/Documents/Plans/Structure-plans.aspx>

Under section 71-74 of the Building Act 2004, upon application for a building consent applicants must demonstrate that any proposed building work will be protected from hazards.

■ Health

There are no outstanding Notices or Orders under the Health Act 1956 and related legislation in respect of the property.

LAND USE AND SITE CONTAMINATION

The site has been confirmed as one that appears on the Hazardous Activities List. The Hazardous Activities and Industries List is a compilation of activities and industries that are known to have potential to cause land contamination as a result of the use, storage or disposal of the site.

- **A10: Chemical manufacture, application and bulk storage -** *Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds*

For further information please visit - http://www.mfe.govt.nz/land/hazardous-activities-and-industries-list-hail

This information is based on records held by the Council and/or Waikato Regional Council and reflects the Council's current understanding of the site. The Council does not accept any liability for any inaccuracy of this information or liability for any loss or damage suffered by any person acting or refraining from acting on this information.

■ Refuse

Waikato District Council's goal is to work towards a 'zero waste' target. On 1 July 2016 we introduced a pre-paid service to our refuse and recycling to help Waikato residents reduce the volume of waste they send to landfill. Less waste will save us all more in the long-run.

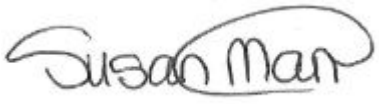
Refuse & Recycling Service Collection day for this property is ***Wednesday***

For further information please see <https://www.waikatodistrict.govt.nz/services-facilities/refuse-and-recycling>

■ Utilities

The Waikato District Council does not hold records concerning utility systems it does not administer. For information concerning state highways (administered by NZ Transport Agency), electricity, telephone or gas, the relevant network operator should be contacted.

Yours faithfully



Susan Marr
Land Information Officer

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

Head Office
15 Galileo Street, Private Bag 544,
Ngaruawahia 3742, New Zealand
Phone: 0800 492 452 or 07 824 8633
Email: rates@waidc.govt.nz
www.waikatodistrict.govt.nz

RATES TAX INVOICE / STATEMENT ASSESSMENT / CREDIT NOTE

GST Reg No. 52-054-982

Issue Date **1 August 2018**
Rating Year **1 July 2018 - 30 June 2019**

[redacted]

Property Number	**304834**
Valuation Reference	**03920/368.00**
Property Location	**99 Escotts Road TUAKAU**
Legal Description	**LOT 1 DP 169701**
Area (Hectares)	**9.8740 ha**
Land Value	**$1,630,000**
Improvement Value	**$365,000**
Capital Value	**$1,995,000**
Rateable Value*	**$1,995,000**
Base Date Valuations	**1 July 2017**

The effective date of the rateable value for rating purposes is from 1 July 2018

Amount due by 24 September 2018 $1,688.95

Instalment due dates	1 24 September 2018	2 23 January 2019	3 23 May 2019

Get this notice by email

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Account Summary	
Rates balance as at 1 July 2018	$0.00
Rates previous instalment(s)	$0.00
Rates penalties	$0.00
Remission of rates and penalties	$340.40CR
Rates adjustments	$0.00
Rates payments received before 23 July 2018	$0.00
This rates instalment	$2,029.35
Payment now due	**$1,688.95**
GST content of this rates instalment	$220.30
Amount required to settle rates in full	$5,067.37

Please note

Any instalment amount not paid by the due date may incur a 10 per cent penalty.

Your General Rate and Uniform Annual General Charge (explained overleaf) for this year are $4,450.49. This is how they are spent each week:


Area offices and other properties **$7.81**


Corporate and council leadership **$10.57**


Grants and donations **$2.37**


Lifestyle **$13.87**


Parks and green spaces **$17.95**


Refuse **$0.64**


Transport **$31.59**


Water management **$0.78**

Payment options

Direct debit | *Credit card (2% surcharge)* | *Online banking* | *Phone banking* | *Eftpos and cheque*

Electronic Payments to Bank of New Zealand
02 0316 0246517 00 with particulars **RTZ304834**

WDC Council offices and libraries no longer accept cash as a form of payment. You can pay over the counter with EFTPOS, cheque, paywave or credit card (with a 2% surcharge) at any WDC Council office, BNZ branch with your invoice or any NZ Post Shop offering 'pay a bill' services.

To update your details email ***rates@waidc.govt.nz***

Property Number **304834**
PAYMENT DUE BY **24 September 2018**

TOTAL AMOUNT DUE	$1,688.95
Amount paid	

A penalty of 10 per cent may be added to any unpaid balance.

Please tick if you require a receipt for your payment. ☐

WDCACRTZ0304834000168895

Rates assessment

Description of Rate	Differential Categories and Factors for Assessment (1)	Rating Basis	Rating Factor	Factor Applicable	Assessed Amount	Remission Amount	Annual Amount
General Rate		$0.002054	rateable value**	1,995,000	$4,098.53	$0.00	$4,098.53
Water Consumption	actual consumption	$1.89	per cubic meter^	0	$0.00	$0.00	$0.00
District Wide Wastewater	connected	$1,021.29	fixed amount per SUIP*	1	$1,021.29	$1,021.29 CR	$0.00
Tuakau Solid Waste Collection	collection service available	$160.00	per Wheelie Bin	1	$160.00	$0.00	$160.00
District Wide Urban Stormwater	availability of service to land	$167.28	fixed amount per rating unit	1	$167.28	$0.00	$167.28
Onewhero-Tuakau Community Board	Onewhero-Tuakau Community Board	$20.02	fixed amount per rating unit	1	$20.02	$0.00	$20.02
District Wide Water Supply - North Waikato	residential and connected	$223.45	fixed amount per SUIP*	1	$223.45	$0.00	$223.45
Uniform Annual General Charge (UAGC)		$351.96	fixed amount per rating unit	1	$351.96	$0.00	$351.96
Tuakau Community Centre	Tuakau Community Centre	$46.13	fixed amount per SUIP*	1	$46.13	$0.00	$46.13
			(All figures include GST total)	**Total**	**$6,088.66**	**$1,021.29 CR**	**$5,067.37**

Notes
1. Differential categories are further defined in the funding impact statement adopted as part of the Long Term Plan.
* SUIP - Separately used or inhabited part of a property or building.
** Rateable Value is based on your Capital Value (which includes land and improvements) less any non-rateable value.
^ Water consumption will be invoiced separately on a periodic basis throughout the rating year. Please refer to the Long Term Plan for further details.

Your rates explained

General Rate and Uniform Annual General Charge (UAGC)

All rateable properties are charged a general rate which is calculated on the rateable value of the property. Most properties are charged a UAGC unless there are special legislative reasons for not doing so.

The General Rate and UAGC pays for:

Area offices and other properties – all properties owned by WDC
Corporate and council leadership – ensuring communities have an opportunity to influence the decision-making process
Grants and donations – For community group initiatives, upon application
Lifestyle – animal control, environmental health, community and safety, libraries and resource management
Parks and green spaces – Parks and reserves
Refuse and recycling – refuse and recycling collection, closed landfill management and waste minimisation initiatives
Transport – roads, footpaths, bridges, traffic lights, street lights, signs, pedestrian crossings, street furniture, road safety, landscaping, weeding, street cleaning
Water management – water supply, wastewater, stormwater

Targeted rates

Capital works contributions – for covering the capital cost and interest charges of works not met by lump sum contributions for the projects
Community board – for the purpose of covering the direct costs of operating all the community boards within the district
Community facility – for the maintenance and operation of the halls and community centres within a defined rating area
Land drainage – for the collection and disposal of stormwater within defined rating areas
Refuse – for the collection, recycling and disposal of household refuse within defined rating areas
Wastewater – for the sewage disposal for properties that are connected or able to be connected to the wastewater network
Water – for the supply of water to properties that receive, or are capable of receiving a water supply
Urban stormwater – for the collection and disposal of stormwater within defined rating areas

What else should I know?

Making it easier

Rates can be paid by weekly, fortnightly, monthly or quarterly direct debit. Please complete online at **www.waikatodistrict.govt.nz/apply** or phone or email Council.

Rates Notices can be delivered by email. If you prefer this method of delivery, email your request to **rates@waidc.govt.nz**

Please note all address changes are required to be in writing. Please advise any changes to your details by emailing **rates@waidc.govt.nz** or write to our Ngaruawahia Office.

Penalties

A 10 per cent penalty will be added to the remainder of the current charge not paid by the due date.

A 10 per cent penalty will be charged on 1 July to rates that remain unpaid from previous years. A further 10 per cent penalty will be added on 1 January to rates from previous years that remain unpaid at that date.

Payments are applied to the oldest debt first.

Rating units in common ownership

Two or more rating units can be treated as one unit for setting a rate if those units are –

a) Owned by the same person or persons; and
b) Used jointly as a single unit; and
C) Contiguous or separated only by a road, railway, drain, water race, river or stream.

Inspection and objection to rating information records

The Rating Information Database (RID) holds all the rates information on your property, including your name and address. The database can be viewed at the Ngaruawahia Office, 15 Galileo Street, Ngaruawahia. Rating information (without owner details) is also available on our website. You can ask the Council to remove your name and address details from the database, or object to any of the information in it.

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA102A/293**
Land Registration District	**North Auckland**
Date Issued	07 August 1995

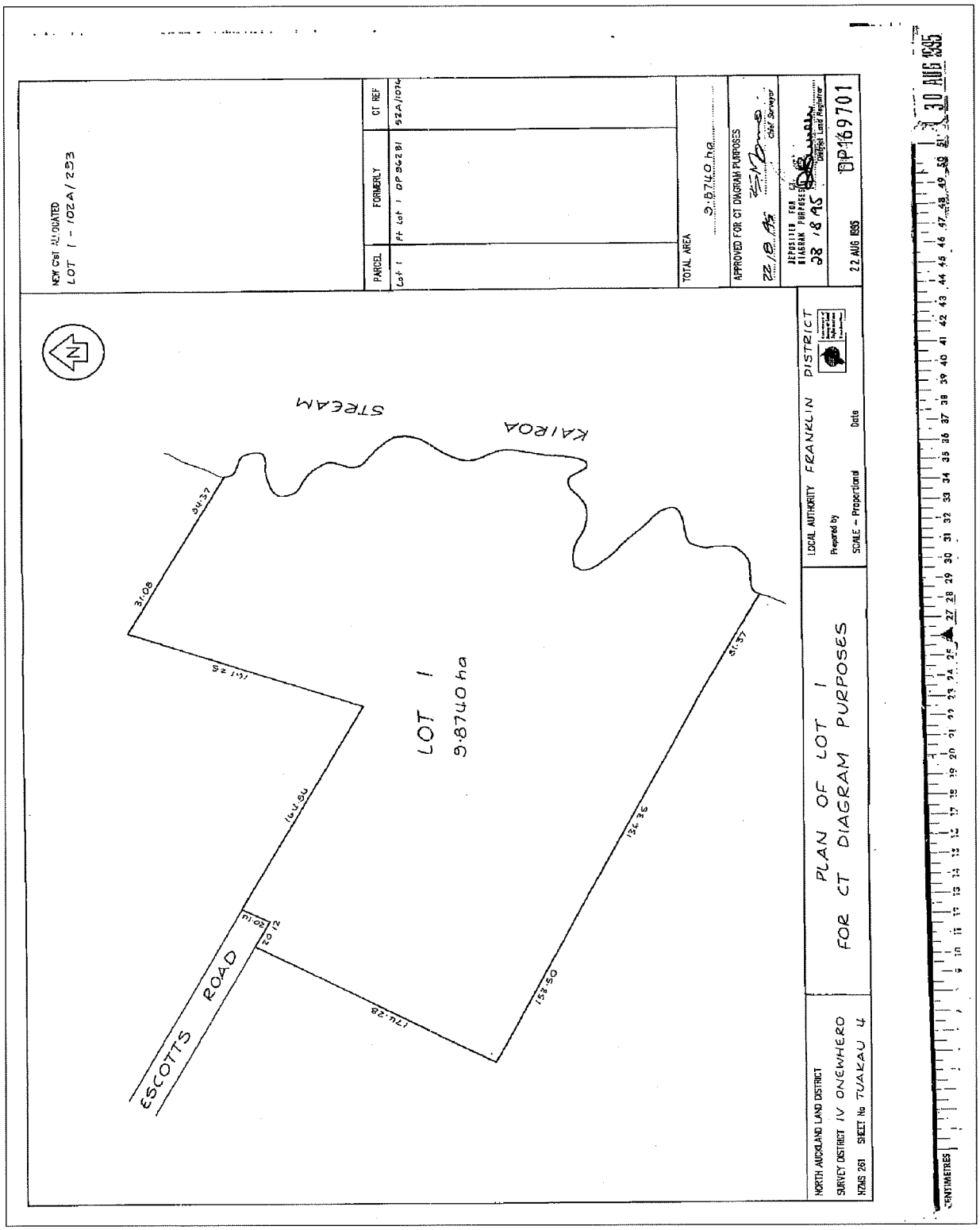
Prior References
NA52A/1076

Estate	Fee Simple
Area	9.8740 hectares more or less
Legal Description	Lot 1 Deposited Plan 169701

Proprietors
Hughes Developments Limited

Interests

Identifier **NA102A/293**



Resource Consent

(Resource Management Act 1991)

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

www.waikatodistrict.govt.nz

DECISION ON APPLICATION: SUB0311/18

Pursuant to Sections 34A(1), Section 104, 104B, 106, 220 and 108 of the Resource Management Act 1991, the Waikato District Council, under delegated authority, grants subdivision for a Discretionary activity:

Activity: To create 93 vacant residential lots in two stages, including three road lots (to vest), three local purpose (accessway) reserves (to vest), three local purpose esplanade reserves (to vest) and two local purpose (drainage) reserve (to vest) on land zoned Rural-Residential.

Applicant: Hughes Developments Limited

Location Address: 99 Escotts Road Tuakau

Legal Description: Lot 1 DP 169701 comprised in Computer Freehold Register SA102A/293

This consent is subject to the conditions detailed in the attached Schedule 1.

The Reasons for this decision are detailed in the attached Schedule 2.

CONSENTS TEAM LEADER

Dated: 26 June 2018

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

Schedule 1

Conditions of Consent

Resource Consent No: SUB0311/18

General Conditions

Land Transfer Plan

1 The subdivision shall proceed in general accordance with the plans and subsequent further information submitted in relation to the application.

The plans included in the CivilPlan plans suite submitted on the 25th of March 2018 are particularly referenced as:

- 2011-01-099 Rev C1 General Layout Plan
- 2011-01-150 Rev C1 Topographical Plan
- 2011-01-160 Rev C3 Clearing Plan
- 2011-01-200 Rev C1 Finished Contours Plan
- 2011-01-220 Rev C1 Isopachs Plan
- 2011-01-221 Rev C1 Geotechnical Drainage Details
- 2011-01-230 Rev C1 Sediment and Erosion Control – Layout Plan
- 2011-01-231 Rev C1 Sediment and Erosion Control – Pond 2 Detail
- 2011-01-235 Rev C1 Sediment and Erosion Control Standard Details – Sheet 1
- 2011-01-236 Rev C1 Sediment and Erosion Control Standard Details – Sheet 2
- 2011-01-237 Rev C1 Sediment and Erosion Control Standard Details – Sheet 3
- 2011-01-240 Rev C1 Earthworks Cross Sections – Sheet 1
- 2011-01-241 Rev C1 Earthworks Cross Sections – Sheet 2
- 2011-01-270 Rev C3 Retaining Wall Plan and Elevation – Sheet 1
- 2011-01-271 Rev C3 Retaining Wall Plan and Elevation – Sheet 2
- 2011-01-300 Rev C1 Road Layout Plan
- 2011-01-305 Rev C1 Vehicle Tracking Plan – Large Rigid Truck
- 2011-01-315 Rev C1 Combined Services Detail Plan – Sheet 1
- 2011-01-316 Rev C1 Combined Services Detail Plan – Sheet 2
- 2011-01-317 Rev C1 Combined Services Detail Plan – Sheet 3
- 2011-01-318 Rev C1 Combined Services Detail Plan – Sheet 4
- 2011-01-319 Rev C1 Combined Services Detail Plan – Sheet 5
- 2011-01-320 Rev C1 Road Longitudinal Sections – Sheet 1
- 2011-01-321 Rev C1 Road Longitudinal Sections – Sheet 2
- 2011-01-322 Rev C1 Road Longitudinal Sections – Sheet 3
- 2011-01-323 Rev C1 Road Longitudinal Sections – Sheet 4
- 2011-01-330 Rev C1 Road Typical Cross Sections – Sheet 1
- 2011-01-331 Rev C1 Road Typical Cross Sections – Sheet 2
- 2011-01-332 Rev C1 Road Typical Cross Sections – Sheet 3
- 2011-01-333 Rev C1 Road Typical Cross Sections – Sheet 4
- 2011-01-334 Rev C1 Road Typical Cross Sections – Sheet 5
- 2011-01-335 Rev C2 Raised Table Details
- 2011-01-350 Rev C1 Access Lot Details
- 2011-01-351 Rev C1 Accessway Detail Through Lot 202
- 2011-01-352 Rev C2 Accessway Detail Through Lot 301
- 2011-01-353 Rev C1 Accessway Detail Through Lot 201

- 2011-01-360 Rev C1 Road Intersection Details – Sheet 1
- 2011-01-361 Rev C1 Road Intersection Details – Sheet 2
- 2011-01-362 Rev C1 Road Intersection Details – Sheet 3
- 2011-01-380 Rev C3 Road Marking Plan Overall Layout Plan
- 2011-01-381 Rev C3 Road Marking Plan – Detail Sheet 1
- 2011-01-382 Rev C3 Road Marking Plan – Detail Sheet 2
- 2011-01-390 Rev C1 Roading Standard Details – Sheet 1
- 2011-01-391 Rev C1 Roading Standard Details – Sheet 2
- 2011-01-400 Rev C3 Drainage Reticulation Plan Overall Layout
- 2011-01-401 Rev C3 Drainage Reticulation Plan Detail – Sheet 1
- 2011-01-402 Rev C2 Drainage Reticulation Plan Detail – Sheet 2
- 2011-01-420 Rev C1 Overland Flowpath Plan – Plan and Sections
- 2011-01-430 Rev C3 Stormwater Longitudinal Sections – Sheet 1
- 2011-01-431 Rev C1 Stormwater Longitudinal Sections – Sheet 2
- 2011-01-432 Rev C1 Stormwater Longitudinal Sections – Sheet 3
- 2011-01-433 Rev C2 Stormwater Longitudinal Sections – Sheet 4
- 2011-01-434 Rev C1 Stormwater Longitudinal Sections – Sheet 5
- 2011-01-435 Rev C1 Stormwater Longitudinal Sections – Sheet 6
- 2011-01-436 Rev C1 Stormwater Longitudinal Sections – Sheet 7
- 2011-01-450 Rev C1 Wastewater Longitudinal Sections – Sheet 1
- 2011-01-451 Rev C2 Wastewater Longitudinal Sections – Sheet 2
- 2011-01-452 Rev C1 Wastewater Longitudinal Sections – Sheet 3
- 2011-01-453 Rev C1 Wastewater Longitudinal Sections – Sheet 4
- 2011-01-454 Rev C1 Wastewater Longitudinal Sections – Sheet 5
- 2011-01-455 Rev C1 Wastewater Longitudinal Sections – Sheet 6
- 2011-01-456 Rev C1 Wastewater Longitudinal Sections – Sheet 7
- 2011-01-457 Rev C1 Wastewater Stream Crossover Longitudinal Section
- 2011-01-461 Rev C3 Wetland 2 Details
- 2011-01-462 Rev C3 Wetland 3 Details
- 2011-01-463 Rev C2 Wetland Outlet Manhole Details
- 2011-01-464 Rev C2 Outlet Details
- 2011-01-465 Rev C3 Road Stormwater Mitigation – Layout Plan
- 2011-01-466 Rev C2 Road Stormwater Mitigation – Attenuation Tank Details
- 2011-01-470 Rev C1 Typical Rain Garden Details – Sheet 1
- 2011-01-480 Rev C1 Stormwater Manhole Details
- 2011-01490 Rev C1 Stormwater Standard Details – Sheet 1
- 2011-01495 Rev C1 Wastewater Standard Details – Sheet 1
- 2011-01-500 Rev C1 Watermain Reticulation Plan
- 2011-01-560 Rev C1 Watermain Reticulation Intersection Details – Sheet 1
- 2011-01-561 Rev C1 Watermain Reticulation Intersection Details – Sheet 2
- 2011-01-562 Rev C1 Watermain Reticulation Intersection Details – Sheet 3
- 2011-01-590 Rev C1 Watermain Standard Details – Sheet 1
- 2011-01-600 Rev C1 Ducting – Road Crossing Plan

The Land Transfer Plan to give effect to this resource consent shall be generally consistent with the approved plans prepared by CivilPlan Consultants Limited (except as amended by the conditions below) as follows:

- 2011-01-100 Rev C1 Proposed Subdivision Plan Stage 1 Overall Layout
- 2011-01-101 Rev C1 Proposed Subdivision Plan Stage 1 Detail Sheet
- 2011-01-102 Rev C1 Proposed Subdivision Plan Stage 2 Overall Layout
- 2011-01-103 Rev C1 Proposed Subdivision Plan Stage 2 Detail Sheet 1
- 2011-01-104 Rev C1 Proposed Subdivision Plan Stage 2 Detail Sheet 2

Copies of the approved plans are attached.

Payment of Fees and Costs

2 Pursuant to Section 36 of the Resource Management Act 1991 the consent holder shall pay the actual and reasonable costs incurred by the Waikato District Council when monitoring the conditions of this consent.

3 Council's processing fees are to be paid in accordance with the Council's schedule of fees and charges prior to the signing of the s224 certificate.

Compliance with Building Controls

4 Prior to s223 and s224 approval all buildings shall comply with the permitted activity rules relating to building coverage, setbacks, and daylight angles relative to the new boundaries.

Accidental Discovery Protocol

5 In the event of any archaeological site or waahi tapu being discovered or disturbed while undertaking works to give effect to the conditions of this consent, the works in the area of the discovery shall cease immediately, and Iwi and the Waikato District Council shall be notified within 48 hours. Works may recommence with the written approval of the Waikato District Council. Such approval shall be given after the Waikato District Council has considered:

(a) Tangata Whenua interests and values;

(b) the consent holder's interests; and

(c) any archaeological or scientific evidence.

Consent Holder's Representative

6 Prior to commencing any engineering design or construction works, the consent holder shall appoint an appropriately qualified and competent Developer's Representative/s acceptable to the Waikato District Council, in accordance with the requirements of the Hamilton City Infrastructure Technical Specifications (ITS).

Notification of beginning works

7 The consent holder shall notify Waikato District Council's Team Leader Monitoring, in writing, of their intention to begin works for each stage, a minimum of 14 days prior to commencing. Notification shall include the following details:

(a) Name's and telephone number/s of the Developers Representative/s appointed as per a condition of this consent.

(b) Site Address to which the consent relates

(c) Activities to which the consent relates

(d) Expected duration of the works

Overland Flow Paths

8 After completion of earthworks for each stage, the consent holder shall provide a plan/plans identifying all the overland flow paths located within private property if any, to the Waikato District Council Development Engineer Team Leader for approval by Waikato District Council. The plan to be submitted shall demonstrate that every allotment has a suitable building platform exclusive of the overland flow paths shown on this plan.

Easements

9 Easements in gross for the right to drain stormwater (overland flowpaths) in favour of the Waikato District Council over all identified overland flow paths located in private properties within the development that have been approved by the Waikato District Council shall be granted and reserved. The easements in gross shall be shown on the survey plan and included in the memorandum of easements. The easements shall be in accordance with Waikato District Council's Easement Policy. Any easements in gross required by the conditions of this consent shall be prepared by Council's Solicitor and shall include Council's and the Consent Holder's agreed conditions for easements in gross.

10 Easements in gross for all proposed and future public wastewater and stormwater reticulation including rising main which are located in private properties within this development, including balance lots, shall be granted and reserved in favour of Waikato District Council. The easements in gross shall be shown on the survey plan and included in the memorandum of easements. The easements shall be in accordance with Waikato District Council's Easement Policy. Any easements in gross required by the conditions of this consent shall be prepared by Council's Solicitor and shall include Council's and the Consent Holder's agreed conditions for easements in gross.

Construction Noise

11 All construction work, including maintenance and demolition work, on any site will need to be designed and conducted to ensure that noise from the site is in accordance with the provisions of NZS6803:1999 Acoustics — Construction Noise. Sound levels shall be measured and assessed in accordance with the provisions of NZS 6803: 1999 Acoustics — Construction Noise, NZS6801 :2008 Acoustics - Measurement of environmental sound and 6802:2008 Environmental.

Prior to the application for s224 approval the Consent Holder shall comply with the following Conditions:

Construction Management Plan

12 Prior to undertaking the consented activities, the consent holder shall prepare a Construction Management Plan to be implemented once approved, to the satisfaction of Waikato District Council. The plan shall be forwarded to Council for approval prior to any site works commencing and shall include but not be limited to the following:

(a) Methodology for all proposed Earthworks

(b) Methodology for installation, maintenance and removal of erosion and sediment controls in accordance with the Waikato District Plan, Hamilton City ITS and the Waikato Regional Council's Erosion and Sediment Control Consents/Guidelines.

(c) Methodology for management of dust to ensure no discharge beyond the site boundaries.

(d) Proposed methodology for managing stormwater within each stage.

Dust

13 The consent holder shall ensure that no dust emissions from the activities authorised by this consent cause an objectionable or offensive effect beyond the boundaries of the site.

Note:
For the purposes of this condition, the Waikato District Council will consider an effect that is objectionable or offensive to have occurred if any appropriately experienced officer of the Waikato District Council determines so after having regard to:

- The frequency, intensity, duration, location and effect of dust emission(s); and/or
- Receipt of complaints from neighbours or the public; and/or

Street Lighting & Infrastructure

14 Street lighting shall be provided in accordance with the Hamilton City Infrastructure Technical Specifications. The consent holder shall provide a plan for the proposed lighting to be approved by Waikato District Council and the Waikato District Council approved street lighting plan shall be implemented. The design shall be prepared by a suitably qualified and competent person, and shall:

(a) Include a design certificate stating that the design complies with the requirements of the Hamilton City Infrastructure Technical Specifications.

(b) Include all reserve pathway lighting in accordance with the Hamilton City Infrastructure Technical Specifications.

The Street Lighting Plan provided to Waikato District Council for Council approval shall take into account landscaping and required under other conditions of this consent.

15 The Consent Holder shall where applicable, erect street name signs. The signs shall be as per diagram D3.7.12 of the ITS with white lettering on a blue background, mounted as per diagram D3.7.4 of the ITS unless an alternative standard is erected to the satisfaction of Council. The condition can be satisfied by undertaking a bond agreement between the Waikato District Council and the Consent Holder.

16 Water reticulation shall be tested to confirm compliance with the New Zealand Fire Service Fighting Water Supplies Code of Practice SNZPAS 4509:2008.

17 Infrastructure works including roading, footpaths, streetlights, sewer, water and stormwater constructed during the subdivision development shall be subject to a Defects Liability period of up to 12 months at the discretion of Council. The defects liability period shall commence from the date of issue of the section 224(c) Certificate.

Advice Note:
To meet the requirements of the above condition, prior to the release of the 224c certificate the Consent Holder can provide a written guarantee to the General Manager Service Delivery that the terms and conditions of the Defects liability are acceptable and that a final inspection is carried out by Waikato District Councils Senior Land Development Engineer within the last month of the defects liability period.

If during the Defects Liability Period, Council considers that any remedial works need to be carried out in respect of the subdivision works, the Consent Holder will be required to undertake these at their own cost, to the satisfaction of Council. Engineering plans for remedial works shall be submitted to and accepted by Council prior to construction.

18 After completion of the earthworks, the Consent Holder shall provide a "Statement of Professional Opinion as to Suitability of Land for Building Development" completed and signed by a **Geo-professional*** (*as defined in NZS4404:2010, Section 2.2.4), and, if appropriate, assisted by a Chartered Professional Engineer, for each individual residential site to certify that the site is suitable for:

a) Erection of residential buildings and;

b) Provide details of areas unsuitable for development i.e. unstable, floodable, in path of overland flows etc.

c) Provide any specific designs/requirements necessary for the construction of residential buildings.

In accordance with section 221 of the Resource Management Act 1991 the following condition/s shall apply on an ongoing basis by the subdividing owner and subsequent owners and shall be registered against the relevant certificates of title

19 Specific designs/requirements necessary for the construction of residential buildings as identified in the Statement of Professional Opinion as to Suitability of Land for Building Development.

20 The current and future owners of Lots 1 to 93 (inclusive) shall be informed that for the purpose of public amenity and increasing informal visual surveillance, any fence located on or within 1.0 metre of the common boundary with a road boundary, public open space and reserves (including the walkway along the Kairoa Stream) shall be limited to a maximum height of 1.20 metres.

Consent notices shall be prepared by Waikato District Council's Solicitor at the Consent Holders cost. Please request your consent notice be prepared prior to requesting 224(c) approval.

STAGE 1 – Residential Lot 1 to 42 and 55 to 66 and Lots 100 and 101– Road to Vest in WDC and Lot 300 – Local Purpose Drainage Reserve to Vest in WDC.

21 The existing dwelling and garage within Lots 29 and 30 shall be removed or relocated to a complying location.

Prior to application for approval of the survey plan (s223), the Consent Holder shall comply with the following conditions:

Engineering Design/Plans

22 The consent holder shall commission engineering designs/plans for the works described below:

(a) Install reticulated wastewater system in general accordance with the plans submitted with the application. Regional Council Consent shall be provided for the proposed Kairoa Stream crossing if required.

(b) Install reticulated stormwater management in general accordance with the plans submitted with the application. Regional Council Consent shall be provided for proposed discharge to the Kairoa Stream.

(c) Install reticulated water in subdivision and connected to the Council watermain on George St in general accordance with the plans submitted with the application.

(d) Undertake earthworks in general accordance with the plans and report provided with the application. Where there is a discrepancy between the plans / reports provided by Lander Geotechnical Consultants Limited dated 28 March 2018 shall prevail. Regional Council Consent shall be provided for the proposed earthworks.

(e) Construct the road to vest Lot 100 and Lot 101, inclusive of, but not limited to, footpaths, parking facilities, lighting and street planting in general accordance with plans provided with application.

(f) Install footpath from the subdivision, along the western side of Escotts Road to connect with the existing footpath on the northern end of Escotts Road.

(g) Install concrete vehicle entrances to Lots 4, 12, 19, 24, 29, 32, 33, 34, 35, 40, 59 and 65.

These designs / plans are to be undertaken by a suitably qualified and competent engineer and are to be submitted to, and gain the approval of, the Waikato District Council.

The plans shall be in general accordance with the information supplied in support of the application and in accordance with the Waikato District Plan Franklin Section and the Hamilton City Infrastructure Technical Specification.

No works shall be undertaken without this written approval first being obtained.

Road to Vest

23 Lot 100 and Lot 101 shall vest in Waikato District Council as road as shown on the approved plans;

- 2011-01-100 Rev C1 Proposed Subdivision Plan Stage 1 Overall Layout
- 2011-01-101 Rev C1 Proposed Subdivision Plan Stage 1 Detail Sheet

Landscaping works - Road Reserve

24 Within the next planting season (May to September) following the completion of construction works on the reserves and roads, the consent holder shall implement the Council approved Landscaping Plan prepared for Lots 100 & 101 (road to vest), to the approval of Waikato District Council Senior Land Development Engineer.

25 All landscaped areas shall be maintained for a period of two years from the issue of the certificate of practical completion. In order to satisfy this condition, a bond agreement between the Waikato District Council and the Consent Holder will be required.

Local Purpose Reserve to vest

26 Lot 300 shall vest in Waikato District Council as Local Purpose (Drainage) Reserve as shown on the approved plans;

- 2011-01-100 Rev C1 Proposed Subdivision Plan Stage 1 Overall Layout
- 2011-01-101 Rev C1 Proposed Subdivision Plan Stage 1 Detail Sheet

Landscaping works - Drainage Reserve

27 Within the next planting season (May to September) following the completion of construction works on the reserves and roads, the consent holder shall implement the Council approved Landscaping Plan prepared for Lot 300 (drainage), to the approval of Waikato District Council Senior Land Development Engineer, including child-proof fencing around any ponds.

28 All landscaped areas shall be maintained for a period of two years from the issue of the certificate of practical completion. In order to satisfy this condition, a bond agreement between the Waikato District Council and the Consent Holder will be required.

Easements

29 Easements for Right of Way, Right to Convey Electricity, Water, Telecommunications and Computer Media shall be shown on the Land Transfer Plan and included in a memorandum of easements.

Prior to the application for s224 approval the Consent Holder shall comply with the following Conditions:

30 Written confirmation shall be provided from network utility operators for telecommunications and energy supply confirming that the connections and reticulations have been placed to the boundaries of Lots 1 to 42 and 55 to 66.

31 Fencing covenants shall be registered on all titles of properties with a common boundary to reserve land (Lots 42, 60 & 61), indemnifying Council against all costs of erection and maintenance of fences on the common boundary.

Contaminated Land Remediation

32 The site shall be remediated in accordance with the approved Remedial Action Plan included within the Focus Environmental Detailed Site Investigation, Remediation Action Plan and Assessment of Environmental Effects for 99 Escotts Road, Tuakau dated October 2014.

33 The consent holder shall submit a site validation report prepared by a suitably qualified and experienced practitioner in accordance with the current edition of the Ministry for the Environment Contaminated Land Management Guidelines No: 1 Reporting on Contaminated sites in New Zealand, to the satisfaction of Waikato District Council's Environmental Health Manager.

34 All material removed from the site in the course of the remedial works shall be disposed of at a suitably licensed and lawfully established facility. Receipts for disposal shall be made available to Waikato District Council upon request.

Construction

35 Constructions of the works in general accordance with the designs/plans approved by Waikato District Council are to be undertaken by the consent holder.

As-Builts

36 The consent holder shall provide to the satisfaction of the Waikato District Council, as-built information for the constructed wastewater, public stormwater, street lighting and water supply connections in accordance with the requirements of the Hamilton City Council Infrastructure Technical Specification.

37 The consent holder shall provide to the satisfaction of Waikato District Council RAMM information for Lot 100 and Lot 101 (Being the proposed road to vest), in the correct format for data input. RAMM data is to be submitted by a suitably qualified RAMM Technician. This information shall be in accordance with the requirements of the Hamilton City Infrastructure Technical Specification.

38 The consent holder shall provide to the satisfaction of Waikato District Council, Engineering as-built drawings of Lot 100 and Lot 101 (being the proposed road to vest). This information shall be in accordance with the requirements of the Hamilton City Infrastructure Technical Specification.

Certification

39 The consent holder shall provide a 'Producer Statement — Construction' for each separate works undertaken as part of the consented subdivision.

Advice Note:

An example of an acceptable format for certification upon completion of works can be found in the Hamilton City Development Manual, Volume 4: Part 9 Appendix

40 Provide a 'Certificate of Completion of Development Works' prepared and signed by the Developers Representative, to confirm that all works have been carried out in accordance with the plans and appropriate standards.

Advice Note:
An example of an acceptable format for a 'Certificate of Completion of Development Works' can be found from the Hamilton City Development Manual, Volume 4: Part 9 Appendix 4(i) or alternative standard approved by the Waikato District Council.

Standard of Local Purpose reserve

41 Lot 300 Local Purpose Reserve to vest, shall be cleared of noxious weeds and of an acceptable standard to Waikato District Council's Reserve staff.

In accordance with section 221 of the Resource Management Act 1991 the following condition/s shall apply on an ongoing basis by the subdividing owner and subsequent owners and shall be registered against the relevant certificates of title

42 Lots 1-42, 55-66 must provide onsite stormwater management which meets the following:

a) Onsite stormwater management which meets the requirements of Table 1:

Table 1:

Lot Numbers	**On Lot Treatment Requirements**	**On Lot Detention Requirements**	
Lots 1-44 Lots 55-66	Rain Garden with plan area of 1.25% of total lot area	$10m^3$ above ground tank or below ground tank with volume of 2.5% of lot area	400mm ponding depth above rain garden

b) All devices must be designed to meet drawings 2011-01-SK18-01 and 02 and the Hamilton City Council Three Waters Management Practice HCC 04: Bioretention systems (Raingardens).

c) Detailed design to show compliance with a) and b) above shall be provided at the time of any building consent application.

d) Any stormwater management device or system must be built in accordance with design specifications by a suitably qualified person and must be fully operational prior to use of the impervious area.

e) 'As built' plans for any stormwater management device or system must be provided to Council within three months of practical completion of the works.

f) Any stormwater management device or system must be operated and maintained in perpetuity accordance with best practice for the device or system.

g) The continued effective operation and maintenance of this system is the responsibility of the property owner

h) Devices are to remain in private ownership by the lot owner

i) For any rain gardens, the following shall apply;

The current and future owners shall, on installation of any approved on-site stormwater treatment system required by this condition, enter into, and maintain in force at all times, a written maintenance and monitoring contract with an experienced drainlayer, for the ongoing maintenance of the installed rain garden(s).

The contract shall specify the frequency of the rain garden inspections and maintenance and shall include an inspection and maintenance schedule.

The maintenance/monitoring report shall include, but not be limited to, the following information:

(a) the date the inspection was undertaken and the name of the service provider, and;

(b) any maintenance undertaken during the visit or still required, and a timetable for the expected completion of this work, and;

(c) a description of the appearance of the rain garden, and;

Current and future owners shall ensure that maintenance/monitoring is undertaken in accordance with this approved contract.

Records of maintenance/monitoring undertaken in accordance with the approved contract shall be held and presented to Waikato District Council General Manager Service Delivery, every five years, if requested.

Consent notices shall be prepared by Waikato District Council's Solicitor at the Consent Holders cost. Please request your consent notice be prepared prior to requesting 224(c) approval.

STAGE 2 – Lots 43-54 & 67-93, Lot 102, Lots 200-202 and Lot 300 and Lots 400-402

Prior to application for approval of the survey plan (s223), the Consent Holder shall comply with the following conditions:

43 The consent holder shall obtain (or apply concurrently for) 224 certification for Stage 1.

Engineering Design/Plans

44 The consent holder shall commission engineering designs/plans for the works described below:

(a) Install reticulated wastewater system in general accordance with the plans submitted with the application.

(b) Install reticulated stormwater management in general accordance with the plans submitted with the application. Regional Council Consent shall be provided for proposed discharge to the Kairoa Stream.

(c) Install reticulated water in subdivision and connected to the Council watermain on George St in general accordance with the plans submitted with the application.
(d) Undertake earthworks in general accordance with the plans and report provided with the application. Where there is a discrepancy between the plans /reports provided by CivilPlan Consultants and Lander Geotechnical Consultants Limited dated 28 March 2018 shall prevail. Regional Council Consent shall be provided for the proposed earthworks.
(e) Construct the road to vest Lot 102, inclusive of, but not limited to, footpaths, parking facilities, reserve entrance, lighting and street planting in general accordance with plans provided with application.
(f) Install concrete vehicle entrances to Lots, 68, 69, 70, 71, 72 and Lot 500
(g) Install footpaths and access to reserves Lots -200, 201 and 202
(h) Install childproof fencing around any stormwater ponds

These designs/plans are to be undertaken by a suitably qualified and competent engineer and are to be submitted to, and gain the approval of, the Waikato District Council.

The plans shall be in general accordance with the information supplied in support of the application and in accordance with the Waikato District Plan Franklin Section and the Hamilton City Infrastructure Technical Specification.

No works shall be undertaken without this written approval first being obtained.

Esplanade Reserve plantings

45 The consent holder shall develop and submit to Council for approvals, a planting plan for the Esplanade Reserves. The plan shall include:

(a) A schedule of species to be planted including botanical name, common name, scheduled size (average plant height or PB size at time of planting), plant spacing, quantity and average mature height and mature spread of each;

(b) Implementation schedule; and

(c) Management and maintenance plan.

46 The consent holder shall provide evidence that the approved esplanade reserve planting plan has been implemented within the first planting season after approval of the esplanade planting plan to the satisfaction of Waikato District Council.

Prior to the application for s224 approval the Consent Holder shall comply with following Conditions:

Road to Vest

47 Lot 102 shall vest in Waikato District Council as road.

Landscaping works - Road Reserve

48 Within the next planting season (May to September) following the completion of construction works on the reserves and roads, the consent holder shall implement the Council approved Landscaping Plan prepared for Lot 102 (road to vest), to the approval of Waikato District Council Senior Land Development Engineer.

49 All landscaped areas shall be maintained for a period of two years from the issue of the certificate of practical completion. In order to satisfy this condition, a bond agreement between the Waikato District Council and the Consent Holder will be required.

Esplanade Reserves to Vest

50 Lots 400-402 shall vest in the Waikato District Council as Local Purpose Reserve (Esplanade). The proposed reserve should average 20m along the full length of the stream. At no point shall the width be smaller than 5m, and it shall have sufficient width, as agreed with Council to enable a walkway I cycleway with a 3m width to be located a safe distance from the Kairoa Stream. The esplanade reserve shall be appropriately demarcated, as agreed with Council to avoid encroachment.

Advice Note: It is acknowledged that the esplanade reserves are to be vested to Council at no cost.

Local Purpose Lots to Vest

51 Lots 200, 201 and 202 shall vest in Waikato District Council as Local Purpose (Accessway) Reserve.

Landscaping works - Accessway Reserves

52 Within the next planting season (May to September) following the completion of construction works on the reserves and roads, the consent holder shall implement the Council approved Landscaping Plan prepared for Lots 200-202 (accessway), to the approval of Waikato District Council Senior Land Development Engineer.

53 All landscaped areas shall be maintained for a period of two years from the issue of the certificate of practical completion. In order to satisfy this condition, a bond agreement between the Waikato District Council and the Consent Holder will be required.

54 Lot 301 shall vest in Waikato District Council as Local Purpose (Drainage) Reserve.

55 Within the next planting season (May to September) following the completion of construction works on the reserves and roads, the consent holder shall implement the Council approved Landscaping Plan for Lot 301 (drainage reserve to vest) respectively, to the approval of Waikato District Council Senior Land Development Engineer.

56 All landscaped areas shall be maintained for a period of two years from the issue of the certificate of practical completion. In order to satisfy this condition, a bond agreement between the Waikato District Council and the Consent Holder will be required.

57 Written confirmation shall be provided from network utility operators for telecommunications and energy supply confirming that the connections and reticulations have been placed to the boundaries of Lots 43-54 & 67-93.

58 Fencing covenants shall be registered on all titles of properties with a common boundary to reserve land (Lots 43, 47, 48, 71, 72, 75, 78, 79, 80 & 82-88), indemnifying Council against all costs of erection and maintenance of fences on the common boundary.

Standard of Esplanade reserves

59 Lots 400, 401 and 402 to be vested shall be cleared of noxious weeds.

Standard of Local Purpose reserves

60 Lots 201, 202, and 301 Local Purpose Reserve to vest, shall be cleared of noxious weeds.

Construction

61 Construction of the works in the designs / plans approved by Waikato District Council are to be undertaken by the consent holder.

As-Builts

62 The consent holder shall provide to the satisfaction of the Waikato District Council, as-built information for the constructed wastewater, public stormwater, street lighting and water supply connections in accordance with the requirements of the Hamilton City Council Infrastructure Technical Specification.

63 The consent holder shall provide to the satisfaction of Waikato District Council RAMM information for Lot 102 (Being the proposed road to vest), in the correct format for data input. RAMM data is to be submitted by a suitably qualified RAMM Technician. This information shall be in accordance with the requirements of the Hamilton City Infrastructure Technical Specification.

64 The consent holder shall provide to the satisfaction of Waikato District Council, Engineering as-built drawings of Lot 102 (being the proposed road to vest). This information shall be in accordance with the requirements of the Hamilton City Infrastructure Technical Specification.

Certification

65 The consent holder shall provide a 'Producer Statement — Construction' for each separate works undertaken as part of the consented subdivision.

Advice Note:
An example of an acceptable format for certification upon completion of works can be found in the Hamilton City Development Manual, Volume 4: Part 9 Appendix 4(ii).

66 Provide a 'Certificate of Completion of Development Works' prepared and signed by the Developers Representative, to confirm that all works have been carried out in accordance with the plans and appropriate standards.

Advice Note:
An example of an acceptable format for a 'Certificate of Completion of Development Works' can be found from the Hamilton City Development Manual, Volume 4: Part 9 Appendix 4(i) or alternative standard approved by the Waikato District Council.

Amalgamation Conditions

67 That Lot 500 hereon (legal access) be held as to four undivided one fourth shares by the owners of Lots 85-88 hereon as tenants in common in the said shares and that individual computer registers be issued in accordance therewith. (see LINZ request 1517984).

68 Easements in gross for public reticulation located within Access Lot 500 in favour of the Waikato District Council shall be granted and reserved. The easement in gross shall be shown on the survey plan and included in the memorandum of easements.

In accordance with section 221 of the Resource Management Act 1991 the following condition/s shall apply on an ongoing basis by the subdividing owner and subsequent owners and shall be registered against the relevant certificates of title

69 The current and future owners of Lots 71-88 (inclusive) be informed that there is a horticultural block (kiwifruit orchard) located to the east of these properties, which is also zoned industrial. As a result of this, the use of machinery, such as orchard mowers, mulching machines, air blast sprayers and helicopters (including at night for frost protection), agricultural spraying and other similar activities may occur.
As a result of this where the land use activities in the surrounding area are carried out in accordance with the relevant plan requirements, the property owner, or their successor in title shall not:

(i) Make nor lodge; nor
(ii) Be party to; nor
(iii) Finance nor contribute to the cost of;

Any application, proceeding or appeal (either pursuant to the Resource Management Act 1991 or otherwise) designed or intended to limit prohibit or restrict the continuation of the operations of any lawfully established activity on surrounding land, including without limitation any action to require the surrounding landowners/occupiers to modify the operations carried out on their land.

70 Lots 43-44, 67-72 must provide onsite stormwater management which meets the following:

a) Onsite stormwater management which meets the requirements of Table 1:

Table 1:

Lot Numbers	**On Lot Treatment Requirements**	**On Lot Detention Requirements**	
Lots 43-44	Rain Garden with plan area of 1.25% of total lot area	10m^3 above ground tank or below ground tank with volume of 2.5% of lot area	400mm ponding depth above rain garden
Lots 67-70	Rain Garden with plan area of 1.25% of total lot area and designed	10m^3 above ground tank or below ground tank with volume of 2.5% of lot area	400mm ponding depth above rain garden
Lots 71-72	Rain Garden with plan area of 8m^2	10m^3 above or 16m^3 below ground tank	400mm ponding depth above rain garden

b) All devices must be designed to meet drawings 2011-01-SK18-01 and 02 and the Hamilton City Council Three Waters Management Practice HCC 04: Bioretention systems (Raingardens).

c) Detailed design to show compliance with a) and b) above shall be provided at the time of any building consent application.

d) Any stormwater management device or system must be built in accordance with design specifications by a suitably qualified person and must be fully operational prior to use of the impervious area.

e) As built' plans for any stormwater management device or system must be provided to Council within three months of practical completion of the works.

f) Any stormwater management device or system must be operated and maintained in perpetuity accordance with best practice for the device or system.

g) The continued effective operation and maintenance of this system is the responsibility of the property owner

h) Devices are to remain in private ownership by the lot owner

i) For any rain gardens, the following shall apply;

The current and future owners shall, on installation of any approved on-site stormwater treatment system required by this condition, enter into, and maintain in force at all times, a written maintenance and monitoring contract with an experienced drainlayer, for the ongoing maintenance of the installed rain garden(s).

The contract shall specify the frequency of the rain garden inspections and maintenance and shall include an inspection and maintenance schedule.

The maintenance/monitoring report shall include, but not be limited to, the following information:

(d) the date the inspection was undertaken and the name of the service provider, and;

(e) any maintenance undertaken during the visit or still required, and a timetable for the expected completion of this work, and;

(f) a description of the appearance of the rain garden, and;

Current and future owners shall ensure that maintenance/monitoring is undertaken in accordance with this approved contract.

Records of maintenance/monitoring undertaken in accordance with the approved contract shall be held and presented to Waikato District Council General Manager Service Delivery, every five years, if requested.

Consent notices shall be prepared by Waikato District Council's Solicitor at the Consent Holders cost. Please request your consent notice be prepared prior to requesting 224(c) approval.

Advice Notes (all stages)

1 This Resource Consent for subdivision lapses five years after the date of this decision unless:

(a) The Consent is given effect to prior to that date. To give effect to this consent, the Survey Plan for this subdivision must have been submitted to Waikato District Council pursuant to section 223 of the Resource Management Act 1991; or

(b) An application is made before the expiry of the above mentioned date for Waikato District Council to grant an extension of time pursuant to section 125 of the Resource Management Act 1991.

2 A Corridor Access Request (CAR), including traffic management plan, for any works to be carried out in the road reserve should be completed by a qualified Site Management Traffic Supervisor (STMS), and provided to the Waikato District Council's Traffic Management Co-ordinator for approval not less than 15 working days prior to any works being undertaken. No works may be undertaken until approval for the CAR is obtained in writing.

3 The Consent Holder should either:

(a) At each stage, provide evidence that a Development Agreement has been entered into with the Waikato District Council, or;

(b) Provide evidence of payment of development contributions, pursuant to Section 106(2) of the Local Government Act 2002, for the following services (GST inclusive) listed in Development Contributions Notice as they are applicable to the number of new residential lots created by each stage.

4 The Consent Holder should ensure that any debris tracking/ spillage onto any public roads as a result of the exercise of this consent should be removed as soon as practical, and within a maximum of 24 hours after the occurrence, or as otherwise directed by the Waikato District Council.

5 The Consent Holder should be aware of the following Iwi (Ngati Tamaoho) recommendations:

- site blessing prior to works commencing
- cultural induction and
- cultural monitoring of all topsoil removal especially within the vicinity of the Kaiora stream
- naming and signage opportunities

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

Schedule 2

Reasons for Decision

Resource Consent No: SUB0311/18

1 The actual and potential effects created by the proposal are minimal because:

- The Waikato District Council Land Development Engineering Department is satisfied that conditions of subdivision consent can ensure no significant adverse effects will accompany the subdivision proposal.
- A number of effects have been disregarded due to the existing environment which contains a subdivision consent. The proposal results in one additional lot, but this is considered to still result in a comparable situation.
- With respect to the change in road layout, Council's Reserves Team have raised no issues with the new location. In addition, Council's Senior Land Development Engineer, Chris Gatehouse and Council's Intermediate Land Development Engineer, James Templeton, have assessed the application and have not raised any traffic issues.
- Council's Senior Land Development Engineer, Chris Gatehouse and Council's Intermediate Land Development Engineer, James Templeton, have assessed the application and have not raised any stormwater issues.
- The potential risk from inundation will remain the same from that which was consented.
- Stormwater will be managed in an appropriate manner on the site, including treatment.

2 The proposal is consistent with the objectives and policies of the operative District Planning documents.

3 The subdivision meets the provisions of section 106 of the RMA because legal and physical access is provided for and the applicant has addressed the risks of natural hazards through design and mitigation measures proposed.

4 The proposal is consistent with the operative Waikato Regional Policy Statement and all other relevant matters.

5 Overall the proposal meets the purpose (section 5) and principles (sections 6-8) of the Resource Management Act 1991.

CIVILPLAN CONSULTANTS

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

DRAWING CONTROL RECORD

PROJECT NAME: 99 Escotts Road, Tuakau

PROJECT NO: 2011

DATE: 31 May 2018

CLIENT NAME: Hughes Developments Limited

ISSUED BY: Ryan Pitkethley

ISSUED TO:	REVISION, DATE AND FORM OF ISSUE:												
Hughes Developments Limited - Kelvin Back	PDF			PDF	PDF			PDF		PDF		PDF	
Waikato District Council - Kelly Catermole, James Templeton, Chris Gatehouse	PDF				PDF				PDF		PDF		
Waikato Regional Council - Brian Richmond (Earthworks and SEC)		PDF				PDF							
Waikato Regional Council - Brian Richmond (SW Discharge)			PDF				PDF				PDF		
Contractors for Tender				PDF				PDF		PDF		PDF	
DL = DOWNLOAD LINK, PDF = PDF FILE, HC = HARD COPY													

		Date of issue	4/04/2018	19/04/2018	19/04/2018	27/04/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018	16/05/2018	16/05/2018	22/05/2018	22/05/2018
		Revision Details	Section 127 and EPA	Consent	Consent	TENDER	Consent	Consent	Consent	TENDER	Consent	TENDER	Consent	TENDER
		Dwg Count	85	16	22	85	20	10	7	17	6	6	6	6
Plan Number	**Plan Title**	**Current Rev**												
100-Subdivision														
2011-01-000	COVER SHEET	-	-	-	-	-	-	-	-	-	-	-		
2011-01-099	GENERAL LAYOUT PLAN	C1	C1	C1	C1	C1								
2011-01-100	PROPOSED SUBDIVISION PLAN-STAGE 1-OVERALL LAYOUT	C1	C1			C1								
2011-01-101	PROPOSED SUBDIVISION PLAN-STAGE 1-DETAIL SHEET	C1	C1			C1								
2011-01-102	PROPOSED SUBDIVISION PLAN-STAGE 2-OVERALL LAYOUT	C1	C1			C1								
2011-01-103	PROPOSED SUBDIVISION PLAN-STAGE 2-DETAIL SHEET 1	C1	C1			C1								
2011-01-104	PROPOSED SUBDIVISION PLAN-STAGE 2-DETAIL SHEET 2	C1	C1			C1								
2011-01-150	TOPOGRAPHICAL PLAN	C1	C1	C1		C1								
2011-01-160	CLEARING PLAN	C3	C1	C1		C2							C3	C3
200-Earthworks														
2011-01-200	FINISHED CONTOURS PLAN	C1	C1	C1		C1								
2011-01-220	ISOPACHS PLAN	C1	C1	C1		C1								
2011-01-221	GEOTECHNICAL DRAINAGE DETAILS	C1	C1	C1		C1								
2011-01-230	SEDIMENT AND EROSION CONTROL - LAYOUT PLAN	C1	C1	C1		C1								
2011-01-231	SEDIMENT AND EROSION CONTROL - POND 2 DETAIL	C1	C1	C1		C1								
2011-01-235	SEDIMENT AND EROSION CONTROL STD DETAILS - SHEET 1	C1	C1	C1		C1								
2011-01-236	SEDIMENT AND EROSION CONTROL STD DETAILS - SHEET 2	C1	C1	C1		C1								
2011-01-237	SEDIMENT AND EROSION CONTROL STD DETAILS - SHEET 2	C1	C1	C1		C1								
2011-01-240	EARTHWORKS CROSS SECTIONS - SHEET 1	C1	C1	C1		C1								
2011-01-241	EARTHWORKS CROSS SECTIONS - SHEET 2	C1	C1	C1		C1								
2011-01-270	RETAINING WALL - PLAN AND ELEVATION - SHEET 1	C3	C1	C1		C1	C2	C2		C2	C3	C3		
2011-01-271	RETAINING WALL - PLAN AND ELEVATION - SHEET 2	C3	C1	C1		C1	C2	C2		C2	C3	C3		
2011-01-272	RETAINING WALL GEOTECHNICAL DETAILS - SHEET 1	C1					C1	C1		C1				
2011-01-273	RETAINING WALL GEOTECHNICAL DETAILS - SHEET 2	C1					C1	C1		C1				
2011-01-274	RETAINING WALL GEOTECHNICAL DETAILS - SHEET 3	C1					C1	C1		C1				
2011-01-275	RETAINING WALL GEOTECHNICAL DETAILS - SHEET 4	C1					C1	C1		C1				
2011-01-276	RETAINING WALL GEOTECHNICAL DETAILS - SHEET 5	C1					C1	C1		C1				
2011-01-277	RETAINING WALL GEOTECHNICAL DETAILS - SHEET 6	C1					C1	C1		C1				
2011-01-278	RETAINING WALL GEOTECHNICAL DETAILS - SHEET 7	C1					C1	C1		C1				
300-Roading														
2011-01-300	ROAD LAYOUT PLAN	C1	C1			C1								
2011-01-305	VEHICLE TRACKING PLAN - LARGE RIGID TRUCK	C1	C1			C1								
2011-01-315	COMBINED SERVICES - DETAIL PLAN - SHEET 1	C1	C1			C1								
2011-01-316	COMBINED SERVICES - DETAIL PLAN - SHEET 2	C1	C1			C1								
2011-01-317	COMBINED SERVICES - DETAIL PLAN - SHEET 3	C1	C1			C1								
2011-01-318	COMBINED SERVICES - DETAIL PLAN - SHEET 4	C1	C1			C1								
2011-01-319	COMBINED SERVICES - DETAIL PLAN - SHEET 5	C1	C1			C1								
2011-01-320	ROAD LONGITUDINAL SECTIONS - SHEET 1	C1	C1			C1								
2011-01-321	ROAD LONGITUDINAL SECTIONS - SHEET 2	C1	C1			C1								
2011-01-322	ROAD LONGITUDINAL SECTIONS - SHEET 3	C1	C1			C1								

CIVILPLAN CONSULTANTS

		Date of issue	4/04/2018	19/04/2018	19/04/2018	27/04/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018	16/05/2018	16/05/2018	22/05/2018	22/05/2018	
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Plan Number	Plan Title	Current Rev													
2011-01-323	ROAD LONGITUDINAL SECTIONS - SHEET 4	C1	C1			C1									
2011-01-330	ROAD TYPICAL CROSS SECTION - SHEET 1	C1	C1			C1									
2011-01-331	ROAD TYPICAL CROSS SECTIONS SHEET 2	C1	C1			C1									
2011-01-332	ROAD TYPICAL CROSS SECTION - SHEET 3	C1	C1			C1									
2011-01-333	ROAD TYPICAL CROSS SECTION - SHEET 4	C1	C1			C1									
2011-01-334	ROAD TYPICAL CROSS SECTION - SHEET 5	C1	C1			C1									
2011-01-335	RAISED TABLE DETAILS	C2	C1			C1	C2			C2					
2011-01-350	JOINT OWNED ACCESS LOT 500 DETAILS	C1	C1			C1									
2011-01-351	ACCESSWAY DETAILS THROUGH LOT 202	C1	C1			C1									
2011-01-352	ACCESSWAY DETAILS THROUGH LOT 301	C2	C1			C2									
2011-01-353	ACCESSWAY DETAILS THROUGH LOT 201	C1	C1			C1									
2011-01-360	ROAD INTERSECTION DETAILS - SHEET 1	C1	C1			C1									
2011-01-361	ROAD INTERSECTION DETAILS - SHEET 2	C1	C1			C1									
2011-01-362	ROAD INTERSECTION DETAILS - SHEET 3	C1	C1			C1									
2011-01-380	ROAD MARKING PLAN - OVERALL LAYOUT PLAN	C3	C1			C2	C2				C3	C3			
2011-01-381	ROAD MARKING PLAN - DETAIL SHEET 1	C3	C1			C2	C2				C3	C3			
2011-01-382	ROAD MARKING PLAN - DETAIL SHEET 2	C3	C1			C2	C2				C3	C3			
2011-01-390	ROADING STANDARD DETAILS - SHEET 1	C1	C1			C1									
2011-01-391	ROADING STANDARD DETAILS - SHEET 2	C1	C1			C1									
400-Drainage															
2011-01-400	DRAINAGE RETICULATION PLAN - OVERALL LAYOUT	C3	C1		C1	C1	C2		C2	C2			C3	C3	
2011-01-401	DRAINAGE RETICULATION PLAN - DETAIL SHEET 1	C3	C1		C1	C1	C2		C2	C2			C3	C3	
2011-01-402	DRAINAGE RETICULATION PLAN - DETAIL SHEET 2	C2	C1		C1	C1	C2		C2	C2					
2011-01-420	OVERLAND FLOWPATH PLAN - PLAN AND SECTIONS	C1	C1		C1	C1									
2011-01-430	STORMWATER LONGITUDINAL SECTIONS - SHEET 1	C3	C1		C1	C2							C3	C3	
2011-01-431	STORMWATER LONGITUDINAL SECTIONS - SHEET 2	C1	C1		C1	C1									
2011-01-432	STORMWATER LONGITUDINAL SECTIONS - SHEET 3	C1	C1		C1	C1									
2011-01-433	STORMWATER LONGITUDINAL SECTIONS - SHEET 4	C2	C1		C1	C2									
2011-01-434	STORMWATER LONGITUDINAL SECTIONS - SHEET 5	C1	C1		C1	C1									
2011-01-435	STORMWATER LONGITUDINAL SECTIONS - SHEET 6	C1	C1		C1	C1									
2011-01-436	STORMWATER LONGITUDINAL SECTIONS - SHEET 7	C1	C1		C1	C1									
2011-01-450	WASTEWATER LONGITUDINAL SECTIONS - SHEET 1	C1	C1			C1									
2011-01-451	WASTEWATER LONGITUDINAL SECTIONS - SHEET 2	C2	C1			C2									
2011-01-452	WASTEWATER LONGITUDINAL SECTIONS - SHEET 3	C1	C1			C1									
2011-01-453	WASTEWATER LONGITUDINAL SECTIONS - SHEET 4	C1	C1			C1									
2011-01-454	WASTEWATER LONGITUDINAL SECTIONS - SHEET 5	C1	C1			C1									
2011-01-455	WASTEWATER LONGITUDINAL SECTIONS - SHEET 6	C1	C1			C1									
2011-01-456	WASTEWATER LONGITUDINAL SECTIONS - SHEET 7	C1	C1			C1									
2011-01-457	WASTEWATER STREAM CROSSOVER LONGITUDINAL SECTION	C1	C1			C1									
2011-01-461	WETLAND 2 DETAILS	C3	C1		C1	C2	C3		C3	C3					
2011-01-462	WETLAND 3 DETAILS	C3	C1		C1	C2	C3		C3	C3					
2011-01-463	WETLAND OUTLET MANHOLE DETAILS	C2	C1		C1	C2									
2011-01-464	OUTLET DETAILS	C2	C1		C1	C1	C2		C2	C2					
2011-01-465	ROAD STORMWATER MITIGATION - LAYOUT PLAN	C3	C1		C1	C1							C2	C3	
2011-01-466	ROAD STORMWATER MITIGATION - ATTENUATION TANK DETAILS	C2	C1		C1	C1							C2	C2	
2011-01-470	TYPICAL RAIN GARDEN DETAILS - SHEET 1	C1	C1		C1	C1									
2011-01-480	STORMWATER MANHOLE DETAILS	C1	C1		C1	C1									
2011-01-490	STORMWATER STANDARD DETAILS - SHEET 1	C1	C1		C1	C1									
2011-01-495	WASTEWATER STANDARD DETAILS - SHEET 1	C1	C1			C1									
500-Services															
2011-01-500	WATERMAIN RETICULATION PLAN	C1	C1			C1									
2011-01-560	WATERMAIN RETICULATION INTERSECTION DETAILS - SHEET 1	C1	C1			C1									
2011-01-561	WATERMAIN RETICULATION INTERSECTION DETAILS - SHEET 2	C1	C1			C1									
2011-01-562	WATERMAIN RETICULATION INTERSECTION DETAILS - SHEET 3	C1	C1			C1									
2011-01-590	WATERMAIN STANDARD DETAILS - SHEET 1	C1	C1			C1									
2011-01-600	DUCTING - ROAD CROSSING PLAN	C1	C1			C1									

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

CIVILPLAN CONSULTANTS

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		Current Rev													

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CIVILPLAN CONSULTANTS

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NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

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HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

PROJECT NUMBER: 2011

CONSENT ISSUE
MAY 2018

DRAWING INDEX

Sheet Number	Sheet Title
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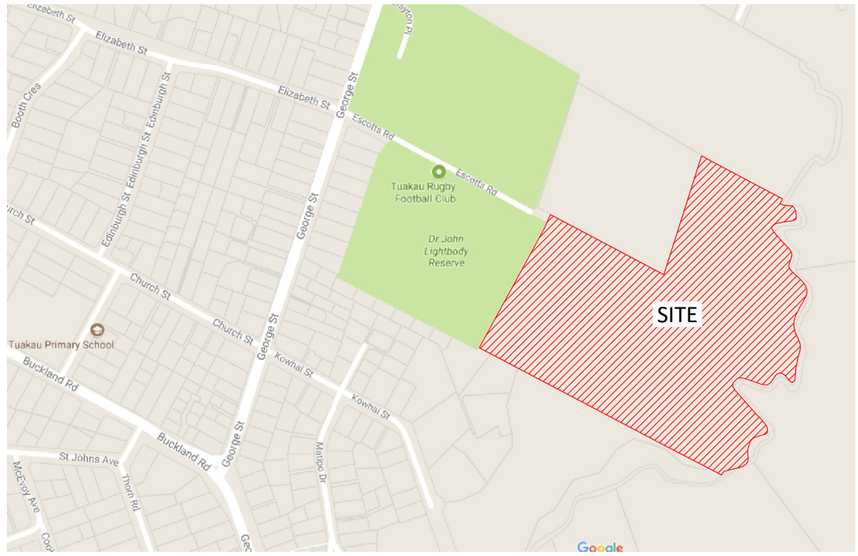


RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

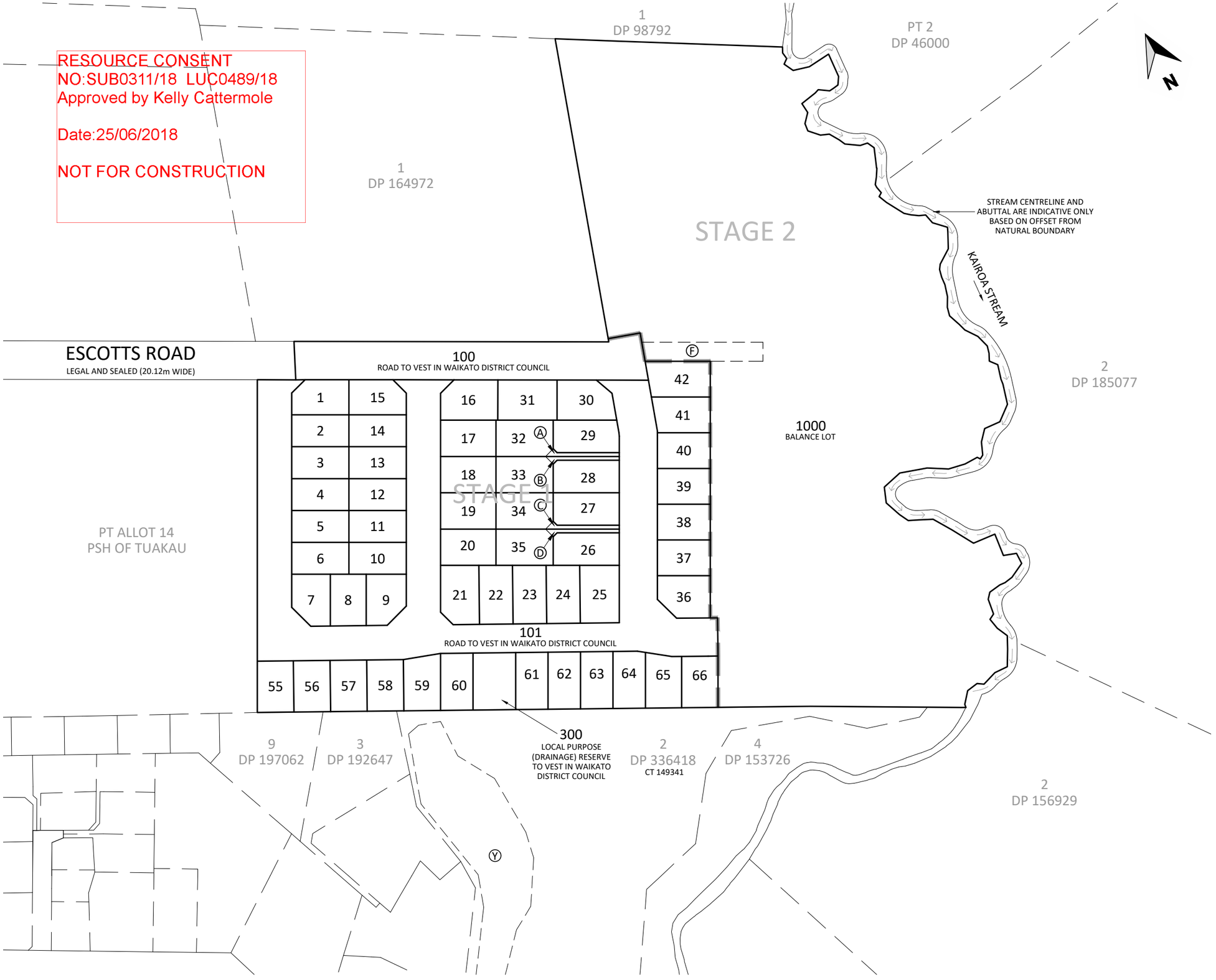
SHEET TITLE:
GENERAL LAYOUT PLAN

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:1000 / 1:2000
SCALE BAR 1:2000@A3 0 20 40 60 80 100m
DRAWING NUMBER: 2011-01-099 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



NOTES

1. AREAS AND DIMENSIONS ARE SUBJECT TO FINAL SURVEY.
2. BOUNDARIES SHOWN ON THIS PLAN ARE FROM LAND INFORMATION NZ DCDB AND HAVE NOT BEEN SURVEYED. A BOUNDARY DEFINITION SURVEY SHOULD BE CARRIED OUT TO ESTABLISH EXACT BOUNDARY POSITIONS ON SITE.
3. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN.
4. THIS PLAN IS ISSUED FOR A SPECIFIC PROJECT AND MAY NOT BE ALTERED OR USED FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF CIVILPLAN CONSULTANTS LIMITED.
5. SEE 2011-01-101 FOR LOT AREAS AND DIMENSIONS.

SCHEDULE OF AREAS

LEGAL DESCRIPTION	CT	AREA
LOT 1 DP 169701	NA102A/293	9.8740ha
	TOTAL	9.8740ha

SCHEDULE OF PROPOSED LOTS

DESCRIPTION	LOTS	NUMBER OF LOTS	AREA
LOTS	1-42, 55-66	54	2.9355ha
ROAD TO VEST	100-101	2	1.5216ha
DRAINAGE RESERVE	300	1	0.0666ha
BALANCE LOT	1000	1	5.1888ha
	TOTAL	58	9.7125ha

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY RIGHT TO CONVEY ELECTRICITY, WATER, TELECOMMUNICATIONS AND COMPUTER MEDIA	Ⓐ	LOT 32 HEREON	LOT 33 HEREON
	Ⓑ	LOT 33 HEREON	LOT 32 HEREON
	Ⓒ	LOT 34 HEREON	LOT 35 HEREON
	Ⓓ	LOT 35 HEREON	LOT 34 HEREON

MEMORANDUM OF EASEMENTS IN GROSS

PURPOSE	SHOWN	SERVIENT TENEMENT	GRANTEE
RIGHT TO CONVEY TELECOMMUNICATIONS AND COMPUTER MEDIA	Ⓐ	LOT 32 HEREON	CHORUS NEW ZEALAND LTD
	Ⓑ	LOT 33 HEREON	
	Ⓒ	LOT 34 HEREON	
	Ⓓ	LOT 35 HEREON	
RIGHT TO CONVEY ELECTRICITY	Ⓕ	LOT 1000 HEREON	COUNTIES POWER
RIGHT TO CONVEY TELECOMMUNICATIONS AND COMPUTER MEDIA	Ⓕ	LOT 1000 HEREON	CHORUS NEW ZEALAND LTD

SCHEDULE OF EXISTING EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
STORMWATER	Ⓨ	LOT 2 DP 336418	EI. 6583916.5

SCHEDULE OF EXISTING EASEMENTS IN GROSS

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT TO STORMWATER (RETENTION AND MAINTENANCE)	Ⓨ	LOT 2 DP 336418	EI. 6583916.6

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: DKP DATE: 09.2017
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CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED SUBDIVISION OF LOT 1 DP 169701 AND EASEMENT OVER LOT 2 DP 336418
STAGE 1-OVERALL LAYOUT

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:1000 / 1:2000
SCALE BAR 1:2000@A3 0 20 40 60 80 100m
DRAWING NUMBER: 2011-01-100 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

N

1
DP 164972

118°12'00" 164.94

159.52
18°03'30" (161.25)

ESCOTTS ROAD
LEGAL AND SEALED (20.12m WIDE)

25°22' 20.14

118°12' 20.12

100
3725m²
ROAD TO VEST IN WAIKATO DISTRICT COUNCIL

1000
51888m²
BALANCE LOT

STAGE 1

STAGE 2

PT ALLOT 14
PSH OF TUAKAU

101
1.1491ha
ROAD TO VEST IN WAIKATO DISTRICT COUNCIL

300
666m²
LOCAL PURPOSE (DRAINAGE) RESERVE TO VEST IN WAIKATO DISTRICT COUNCIL

297°27'00" (153.50)

297°27'40" (136.35)

298°32'00" 78.77

9
DP 197062

3
DP 192647

2
DP 336418
CT 149341

4
DP 153726

Printed by: RYAN@10.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-100.DWG

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: DKP	DATE: 09.2017	
CHECKED: CLH	DATE: 29.03.18	
APPROVED: CLH	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

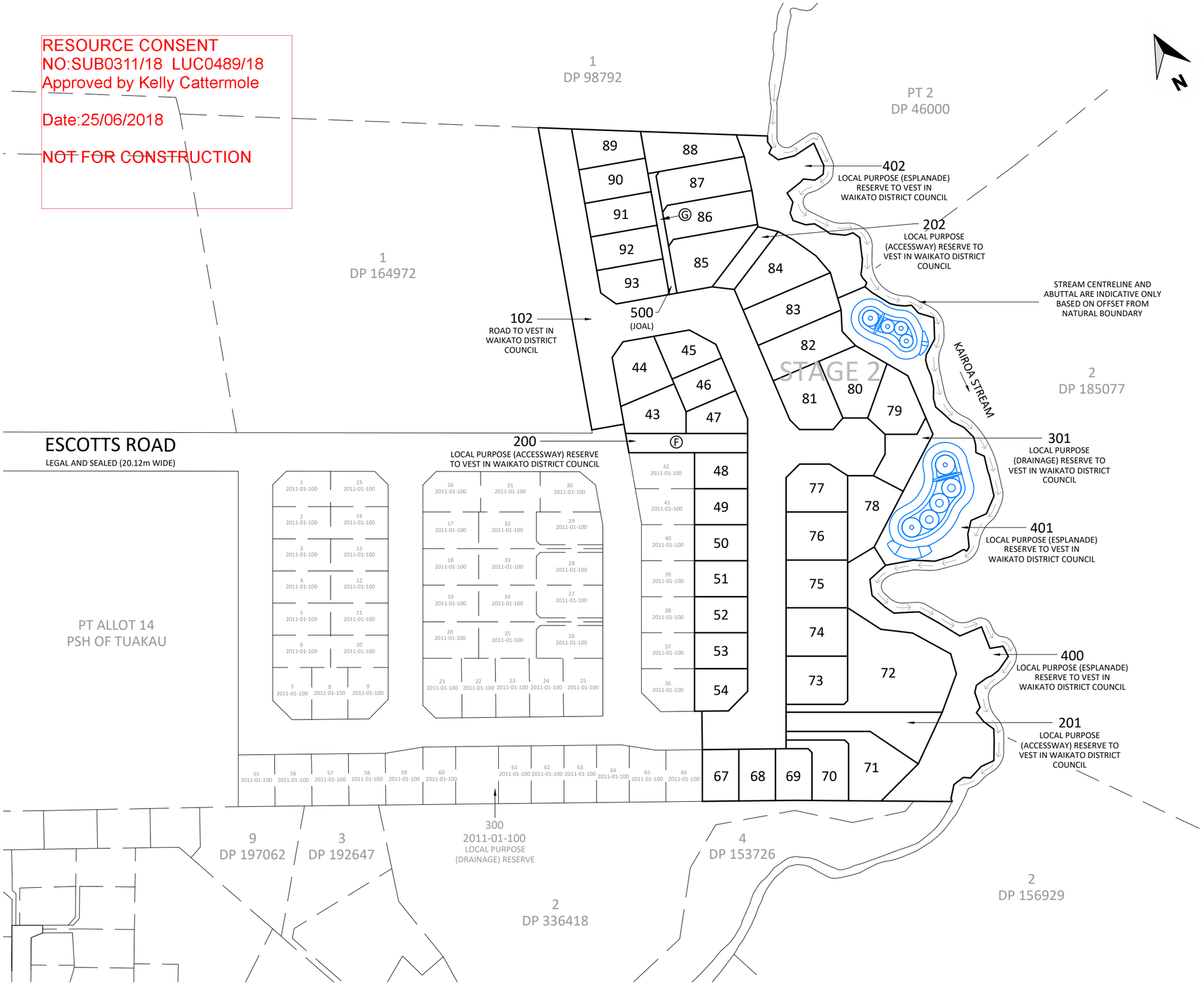
SHEET TITLE:
PROPOSED SUBDIVISION OF LOT 1 DP 169701
AND EASEMENT OVER LOT 2 DP 336418
STAGE 1-DETAIL SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500 / 1:1000
SCALE BAR 1:1000@A3 0 10 20 30 40 50m
DRAWING NUMBER: 2011-01-101 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



NOTES

1. AREAS AND DIMENSIONS ARE SUBJECT TO FINAL SURVEY.
2. BOUNDARIES SHOWN ON THIS PLAN ARE FROM LAND INFORMATION NZ DCDB AND HAVE NOT BEEN SURVEYED. A BOUNDARY DEFINITION SURVEY SHOULD BE CARRIED OUT TO ESTABLISH EXACT BOUNDARY POSITIONS ON SITE.
3. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN.
4. THIS PLAN IS ISSUED FOR A SPECIFIC PROJECT AND MAY NOT BE ALTERED OR USED FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF CIVILPLAN CONSULTANTS LIMITED.
5. SEE 2011-01-102 AND 2011-01-103 FOR LOT AREAS AND DIMENSIONS.

AMALGAMATION CONDITION

THAT LOT 500 HEREON (LEGAL ACCESS) BE HELD AS TO FOUR UNDIVIDED ONE FOURTH SHARES BY THE OWNERS OF LOTS 85-88 HEREON AS TENANTS IN COMMON IN THE SAID SHARES, AND THAT INDIVIDUAL COMPUTER REGISTERS BE ISSUED IN ACCORDANCE THEREWITH.

SCHEDULE OF AREAS		
LEGAL DESCRIPTION	CT	AREA
LOT 1000 2011-01-100	TBA	5.1888ha
	TOTAL	5.1888ha

SCHEDULE OF PROPOSED LOTS			
DESCRIPTION	LOTS	NUMBER OF LOTS	AREA
LOTS	43-54, 67-93	39	2.8889ha
ROAD TO VEST	102	1	1.0393ha
ACCESSWAY RESERVE	200-202	3	0.2077ha
DRAINAGE RESERVE	301	2	0.0565ha
ESPLANADE RESERVE	400-402	3	0.9706ha
ACCESS LOT	500	1	0.0257ha
	TOTAL	48	5.1887ha

MEMORANDUM OF EASEMENTS IN GROSS			
PURPOSE	SHOWN	SERVIENT TENEMENT	GRANTEE
RIGHT TO CONVEY TELECOMMUNICATIONS AND COMPUTER MEDIA	Ⓖ	LOT 500 HEREON	CHORUS NEW ZEALAND LTD

SCHEDULE OF EXISTING EASEMENTS IN GROSS			
PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT TO CONVEY ELECTRICITY	Ⓕ	LOT 200 HEREON	TBA
RIGHT TO CONVEY TELECOMMUNICATIONS AND COMPUTER MEDIA	Ⓕ	LOT 200 HEREON	TBA

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: DKP DATE: 09.2017
CHECKED: CLH DATE: 29.03.18
APPROVED: CLH DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED SUBDIVISION OF
LOT 1000 2011-01-100
STAGE 2-OVERALL LAYOUT

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:1000 / 1:2000
SCALE BAR 1:2000@A3 0 20 40 60 80 100m
DRAWING NUMBER: 2011-01-102 REV: C1

ESCOTTS ROAD
LEGAL AND SEALED (20.12m WIDE)

STAGE 2

STREAM CENTRELINE AND ABUTTAL ARE INDICATIVE ONLY BASED ON OFFSET FROM NATURAL BOUNDARY

KAIROA STREAM

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

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REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: DKP DATE: 09.2017
CHECKED: CLH DATE: 29.03.18
APPROVED: CLH DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED SUBDIVISION OF
LOT 1000 2011-01-100
STAGE 2-DETAIL SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500 / 1:1000
SCALE BAR 1:1000@A3 0 10 20 30 40 50m
DRAWING NUMBER: 2011-01-103 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

1
DP 98792

PT 2
DP 46000

1
DP 164972

2
DP 185077

N

120°17' (31.08)
120°07'00" (88.19)
18°03'30" 159.50

89
624m²
88
843m²
90
619m²
87
854m²
91
620m²
86
857m²
92
620m²
85
930m²
93
636m²
84
983m²
83
962m²
82
897m²
81
819m²
80
851m²
79
717m²
77
744m²
78
848m²
45
536m²
44
764m²
46
518m²
43
649m²
47
525m²
200
626m²
LOCAL PURPOSE (ACCESSWAY) RESERVE TO VEST IN WAIKATO DISTRICT COUNCIL
42
2011-01-100
48
517m²
41
2011-01-100
49
517m²
500
257m²
(JOAL)
202
385m²
LOCAL PURPOSE (ACCESSWAY) RESERVE TO VEST IN WAIKATO DISTRICT COUNCIL
402
1986m²
LOCAL PURPOSE (ESPLANADE) RESERVE TO VEST IN WAIKATO DISTRICT COUNCIL
401
4481m²
LOCAL PURPOSE (ESPLANADE) RESERVE TO VEST IN WAIKATO DISTRICT COUNCIL
102
1.0393ha
ROAD TO VEST IN WAIKATO DISTRICT COUNCIL
301
565m²
LOCAL PURPOSE (DRAINAGE) RESERVE TO VEST IN WAIKATO DISTRICT COUNCIL
KAIROA STREAM
STREAM CENTRELINE AND ABUTTAL ARE INDICATIVE ONLY BASED ON OFFSET FROM NATURAL BOUNDARY
STAGE 2

ESCOTTS ROAD
LEGAL AND SEALED (20.12m WIDE)

16
2011-01-100
31
2011-01-100
30
2011-01-100

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REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: DKP	DATE: 09.2017	
CHECKED: CLH	DATE: 29.03.18	
APPROVED: CLH	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED SUBDIVISION OF
LOT 1000 2011-01-100
STAGE 2-DETAIL SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500 / 1:1000
SCALE BAR 1:1000@A3 0 10 20 30 40 50m
DRAWING NUMBER: 2011-01-104 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

1
DP 98792

1
DP 164972

PT ALLOT 14
PSH OF TUAKAU

LOT 1
DP 169701
9.8740ha

PT 2
DP 46000

2
DP 185077

2
DP 336418

4
DP 153726

2
DP 156929

9
DP 197062

3
DP 192647

ESCOTTS ROAD
LEGAL AND SEALED (20.12m WIDE)

120°17' 31.08
120°07'00" 88.19
18°03'30" 161.25
118°12'00" 164.94
118°12' 20.12
25°22' 20.14
28°06'20" 174.28
297°27'00" 153.50
297°27'40" 136.35
298°32'00" 78.77

SPORTS FIELD LIGHTS
POWER POLE
ROAD CENTRELINE
COMMS PLINTH AND PHONE POLE
O/H COMMS
DN32 WATERMAIN (CR)
WATER METER
POWER POLE
BOTTOM OF BANK
METAL DRIVEWAY
HOUSE
SHED
KAIROA STREAM
FARM TRACK
METAL TRACK
POND
TREE (TRUNK 1.2mØ)
PINE TREE (TRUNK 1.0mØ)
PINE TREE (TRUNK 1.6mØ)

WWMH (CR)
DN450 CONC WW LINE (CR)
WWMH LL 27.74 IL$_{OUT}$ 25.61 IL$_{IN}$ 25.64 IL$_{IN}$ 25.81
DN300 CONC SW LINE (CR)
SWMH (CR)
WWMH (CR)
DN150 PVC WW LINE (CR)
DN450 CONC SW LINE (CR)
DN375 CONC SW LINE (CR)
DN225 CONC SW LINE (CR)
DN450 CONC SW LINE (CR)

N

NOTES:

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM 1946
   ORIGIN OF LEVELS
   RM II DP 56282 (C5FF)
   RL 39.48

   COORDINATES ARE IN TERMS Mt. EDEN CIRCUIT 2000
   ORIGIN OF COORDINATES
   RM II DP 56282 (C5FF)
   757089.231
   415881.197
2. CONTOURS ARE AT 0.50m INTERVALS.
3. THIS PLAN HAS BEEN CARRIED OUT TO TOPOGRAPHICAL STANDARDS. ALL LEVELS SHOWN ARE CORRECT AT TIME OF SURVEY. CRITICAL DIMENSIONS AND LEVELS SHOULD BE VERIFIED.
4. BOUNDARIES SHOWN ON THIS PLAN ARE FROM LAND INFORMATION NZ DCDB AND HAVE NOT BEEN SURVEYED. A BOUNDARY DEFINITION SURVEY SHOULD BE CARRIED OUT TO ESTABLISH EXACT BOUNDARY POSITIONS ON SITE.
5. ALL EASEMENTS, COVENANTS AND OTHER LEGAL INSTRUMENTS ASSOCIATED WITH THIS SITE MAY NOT BE SHOWN ON THIS PLAN. AN INVESTIGATION OF THE MOST CURRENT LEGAL RECORDS SHOULD BE UNDERTAKEN PRIOR TO DESIGN AND CONSTRUCTION COMMENCING.
6. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN.
7. THIS PLAN IS ISSUED FOR A SPECIFIC PROJECT AND MAY NOT BE ALTERED OR USED FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF HARVEY SURVEYING.
8. INVERT LEVELS SHOWN ARE FROM IL$_{OUT}$ IN A CLOCKWISE DIRECTION.
9. MANHOLES ARE NOT CENTERED OVER PIPES. HYDRO LOCATION OF UNDERGROUND PIPES SHOULD BE UNDERTAKEN FOR CRITICAL DESIGN ELEMENTS.
10. EXISTING UTILITY SERVICES HAVE BEEN PLOTTED FROM COUNCIL AND/OR UTILITY PROVIDER RECORDS. CONTRACTOR TO LOCATE/MARK AND CONFIRM ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORK ON SITE AND PROTECTION OF SAME.

SCHEDULE OF AREAS

LEGAL DESCRIPTION	CT	AREA
LOT 1 DP 169701	NA102A/293	9.8740ha
	TOTAL	9.8740ha

LEGEND

(CR)	PLOTTED FROM COUNCIL RECORDS
	FENCE
	TOP OF BANK
	BOTTOM OF BANK
	WATERCOURSE
	EDGE OF SEAL
	EDGE OF METAL
	WASTEWATER LINE
	STORMWATER LINE
100	WATERMAIN
	OVERHEAD POWER
O/H COMMS	OVERHEAD COMMS
	ROAD CENTRELINE
10.0	CONTOUR
	CONCRETE PATHS & DRIVEWAYS
	BUILDING
	SPORTS FIELD LIGHT
	STORMWATER MANHOLE
	WASTEWATER MANHOLE
	INLET/OUTLET STRUCTURE
W	WATER METER
T	COMMS PLINTH
P	POWER PLINTH
	POWER POLE
	TREE

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: DKP DATE: 10.2017
CHECKED: CLH DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
TOPOGRAPHICAL PLAN OF
LOT 1 DP 169701

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:1000 / 1:2000
SCALE BAR 1:2000@A3 0 20 40 60 80 100m
DRAWING NUMBER: 2011-01-150 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

1
DP 98792

PT 2
DP 46000

1
DP 164972

VEGETATION AND STUMPS/ROOT SYSTEMS TO BE REMOVED FOR EARTHWORKS IN PARK

KAIROA STREAM

2
DP 185077

COMMS PLINTH AND PHONE POLE TO BE REMOVED

ESCOTTS ROAD

WATER METER TO BE REMOVED

METAL DRIVEWAY TO BE REMOVED

32

32

DN32 WATERMAIN TO BE ABANDONED

POWER POLE TO BE REMOVED

POWER POLE TO BE REMOVED

POWER POLE TO BE REMOVED

BUILDING TO BE REMOVED

BUILDINGS TO BE REMOVED

PT ALLOT 14
PSH OF TUAKAU

VEGETATION AND STUMPS/ROOT SYSTEMS TO BE REMOVED ALONG THIS BOUNDARY

TREE (TRUNK 1.2mØ)

PINE TREE (TRUNK 1.0mØ)

2
DP 336418

4
DP 153726

2
DP 156929

9
DP 197062

3
DP 192647

NOTES:

1. ALL VEGETATION TO BE REMOVED.
2. CLEARANCE TO INCLUDE ALL STUMP GRINDING AND REMOVAL OF ALL PREVIOUSLY FELLED INTERNAL SHELTER BELT STUMPS AND ROOTS SYSTEMS WITHIN THE SITE AND AROUND THE SITE PERIMETER BOUNDARIES.
3. EXISTING UTILITY SERVICES HAVE BEEN PLOTTED FROM COUNCIL AND/OR UTILITY PROVIDER RECORDS. CONTRACTOR TO LOCATE/MARK AND CONFIRM ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORK ON SITE AND PROTECTION OF SAME.

LEGEND

- (CR) PLOTTED FROM COUNCIL RECORDS
- FENCE
- TOP OF BANK
- BOTTOM OF BANK
- WATERCOURSE
- EDGE OF SEAL
- EDGE OF METAL
- WASTEWATER LINE
- STORMWATER LINE
- 100 WATERMAIN
- OVERHEAD POWER
- O/H COMMS OVERHEAD COMMS
- ROAD CENTRELINE
- 10.0 CONTOUR
- CONCRETE PATHS & DRIVEWAYS
- BUILDING TO REMOVE
- SPORTS FIELD LIGHT
- STORMWATER MANHOLE
- WASTEWATER MANHOLE
- INLET/OUTLET STRUCTURE
- W WATER METER
- T COMMS PLINTH
- P POWER PLINTH
- POWER POLE
- TREE

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	22.05.18
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	DKP	DATE: 10.2017
CHECKED:	CLH	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
CLEARING PLAN

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:1000 / 1:2000

SCALE BAR 1:2000@A3 0 20 40 60 80 100m

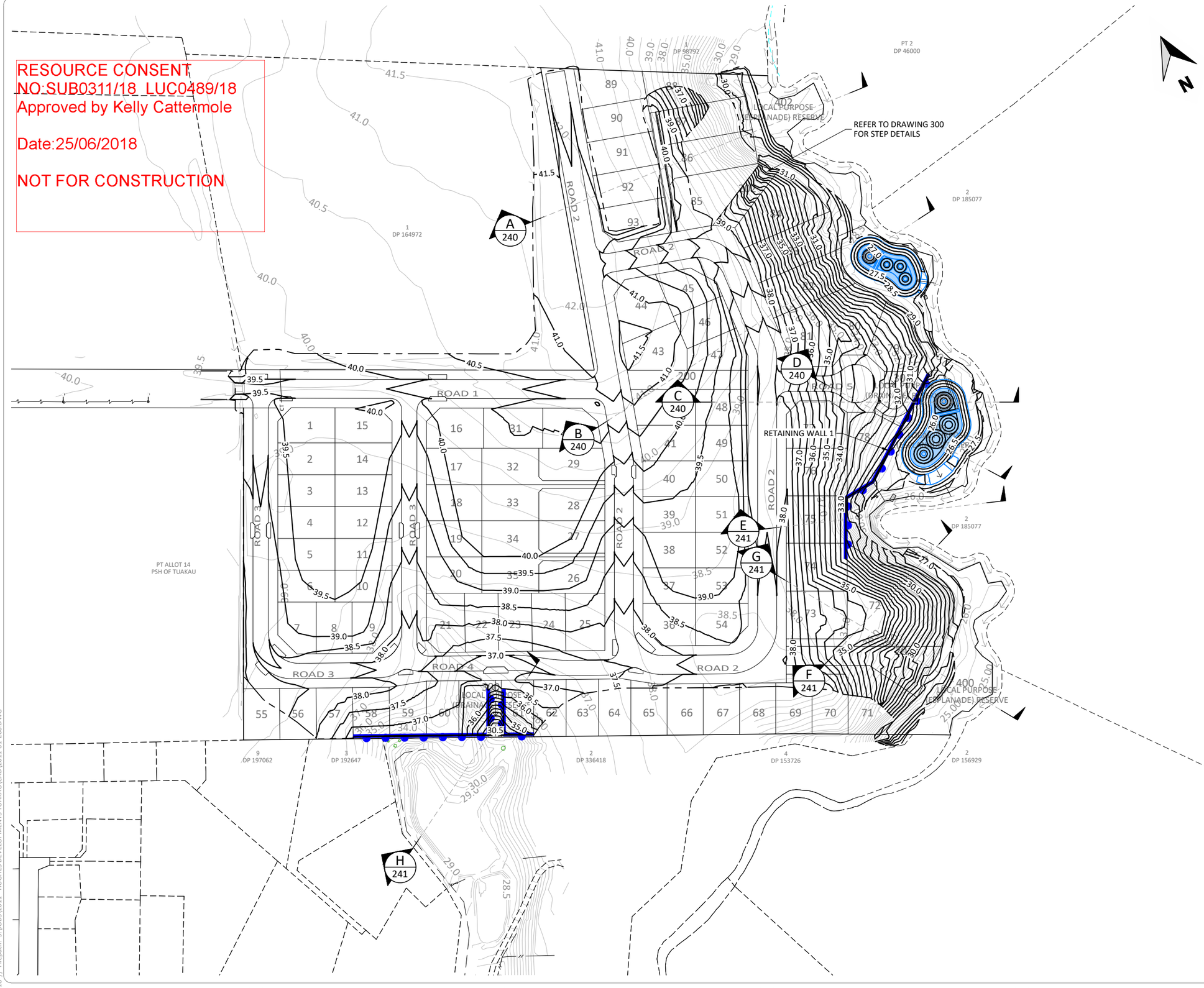
DRAWING NUMBER: 2011-01-160 REV: C3

Printed by: RYAN@22.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-160.DWG

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



NOTES:

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM 1946.

   ORIGIN OF LEVELS

   RM II DP 56282 (C5FF)

   RL 39.48
2. EXISTING CONTOURS ARE SHOWN AT 0.5m INTERVALS.
3. DESIGN CONTOURS ARE SHOWN AT 0.5m INTERVALS.
4. CONTOURS SHOWN ARE FINISHED SURFACE LEVELS.
5. SILT AND STORMWATER CONTROL IS TO BE IMPLEMENTED DAILY AND COMPLY WITH THE GENERAL SPECIFICATION.
6. THE CONTRACTOR MUST BE AWARE OF AND COMPLY WITH COUNCIL REQUIREMENTS FOR EARTHWORKS, AT ALL TIMES.
7. IT IS INTENDED THAT THE CONTRACTOR SHALL GRADE THE EARTHWORKS TO THE FINISHED CONTOURS SHOWN. HOWEVER, THE FINAL MARRYING AND SHAPING OF THE EARTHWORKS AREAS ARE SUBJECT TO THE ENGINEERS APPROVAL.
8. ROAD LONGSECTION SUBGRADE LEVELS, TYPICAL CROSS-SECTION LEVELS AND BOUNDARY LEVELS TAKE PRECEDENCE OVER PLAN CONTOUR LEVELS.

LEGEND

10.0 — PROPOSED MAJOR CONTOUR

EARTHWORK EXTENT

PROPOSED RETAINING WALL

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017	
CHECKED: RJP	DATE: 29.03.18	
APPROVED: RJP	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
FINISHED CONTOURS PLAN

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:1000 / 1:2000

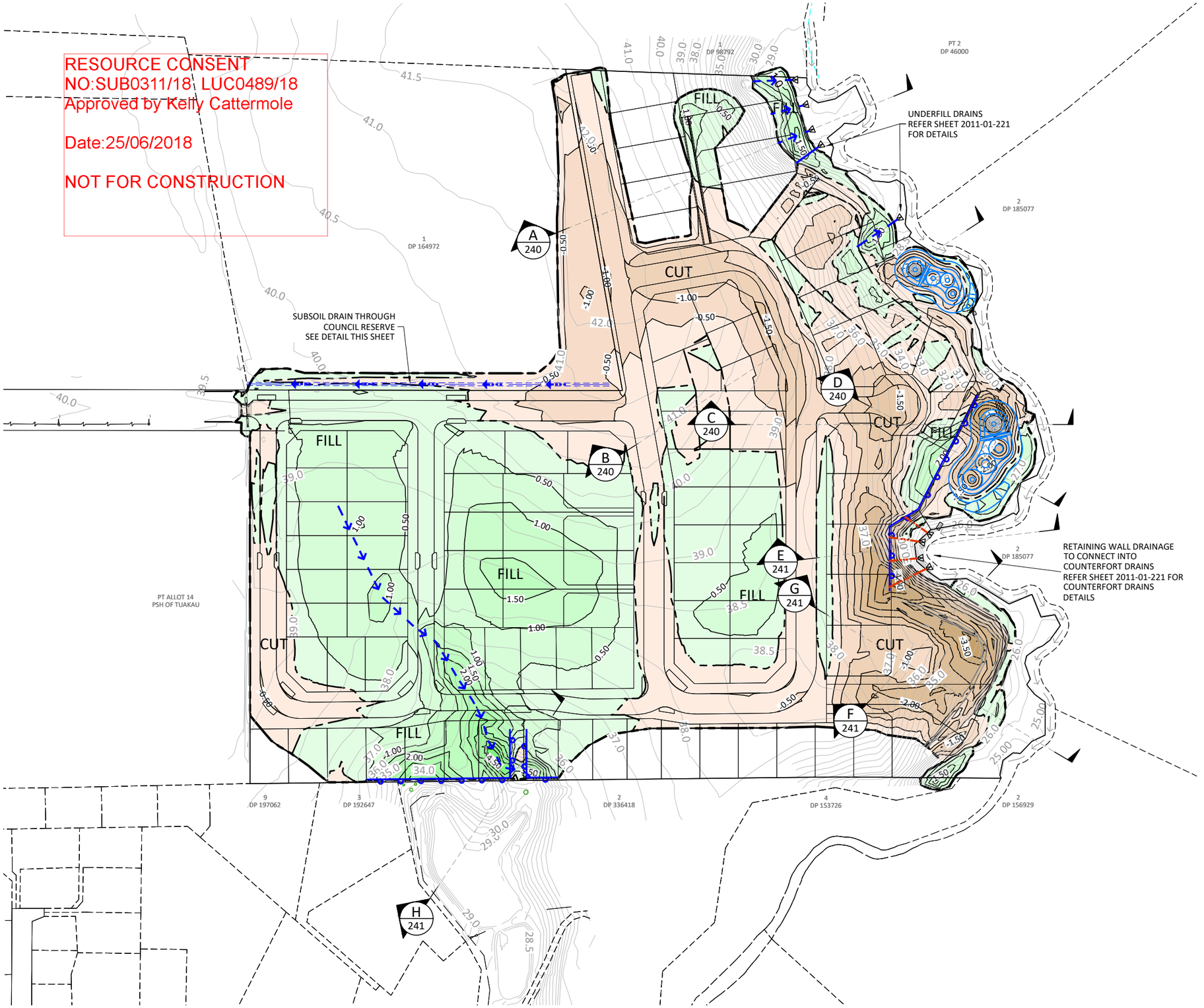
SCALE BAR 1:2000@A3 0 20 40 60 80 100m

DRAWING NUMBER: 2011-01-200 REV: C1

RESOURCE CONSENT
NO:SUB0311/18, LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

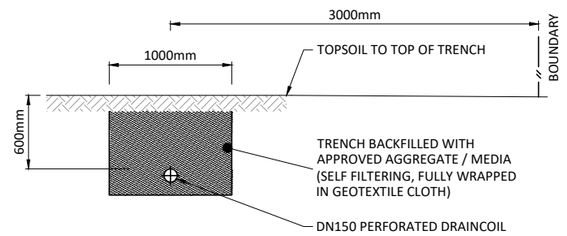


NOTES:

1. PROPOSED ISOPACHS ARE SHOWN AT 0.5m INTERVALS.
2. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS .
3. ALL TOPSOIL TO BE STRIPPED AND STOCKPILED CLEAR OF THE PROPOSED EARTHWORKS IN A LOCATION AGREED WITH THE ENGINEER.
4. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE INSTALLED, AS-BUILT AND INSPECTED BY THE ENGINEER / COUNCIL REPRESENTATIVE PRIOR TO COMMENCING THE EARTHWORKS ON THE SITE.
5. AREA OF EARTHWORKS = 8.90 ha.
6. EARTHWORK VOLUMES ARE FROM EXISTING SURFACE, TOPSOIL STRIPPED 200mm TO FINISHED SUBGRADE SURFACE AND ARE:
   - CUT VOLUME = 30,700 m3 (x0.8 COMPACTION = 24,560 m3 SOLID IN PLACE)
   - FILL VOLUME = 30,000 m3 SOLID IN PLACE
   - (SHORTFALL OF 5,500m3 SOLID IN PLACE)
7. UNDERFILL DRAINAGE TO BE CONFIRMED ON SITE DURING CONSTRUCTION.
8. COUNTERFORT DRAINS ARE 3m DEEP AT 12m SPACINGS AND ARE TO BE CONFIRMED ON SITE DURING CONSTRUCTION.

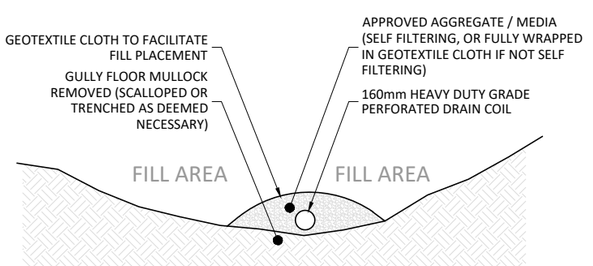
LEGEND

- 10.0 — PROPOSED CUT ISOPACH
- -10.0 — PROPOSED FILL ISOPACH
- EARTHWORKS ZERO CUT/FILL LINE
- EARTHWORK EXTENT
- UNDERFILL DRAIN
- COUNTERFORT DRAIN
- DRAIN OUTLET
- CUT — PROPOSED CUT
- FILL — PROPOSED FILL



TYPICAL DETAIL OF SUBSOIL DRAIN IN COUNCIL RESERVE

SCALE: (A1/A3) 1:25/1:50



TYPICAL UNDERFILL DRAIN DETAIL

SCALE: (A1/A3) 1:25/1:50

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017	
CHECKED: RJP	DATE: 29.03.18	
APPROVED: RJP	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

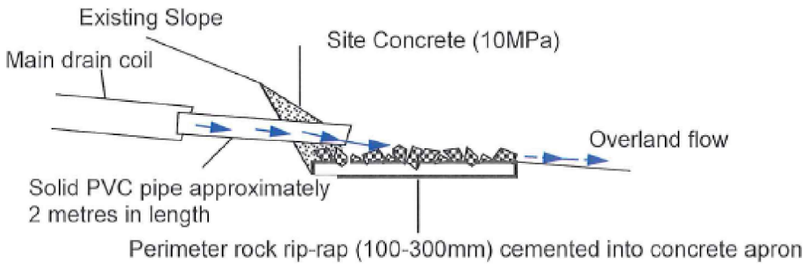
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ISOPACHS PLAN

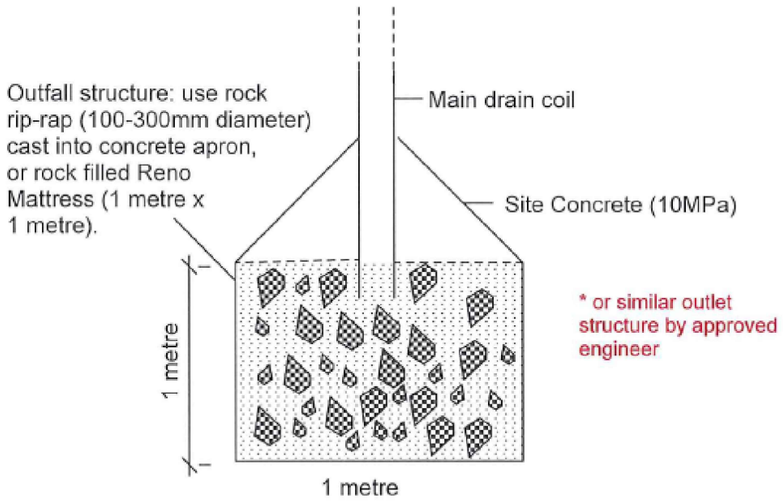
ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:1000 / 1:2000
SCALE BAR 1:2000@A3 0 20 40 60 80 100m
DRAWING NUMBER: 2011-01-220 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole
Date:25/06/2018

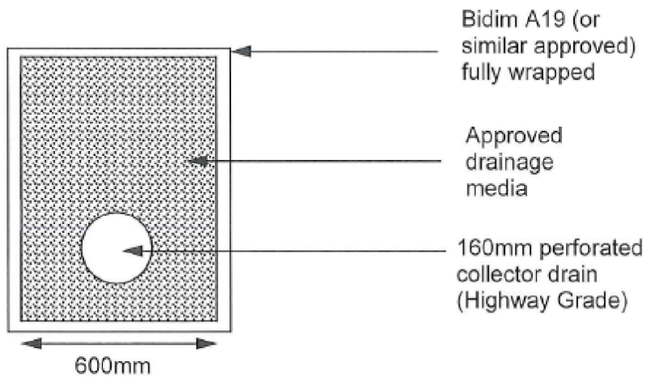
NOT FOR CONSTRUCTION



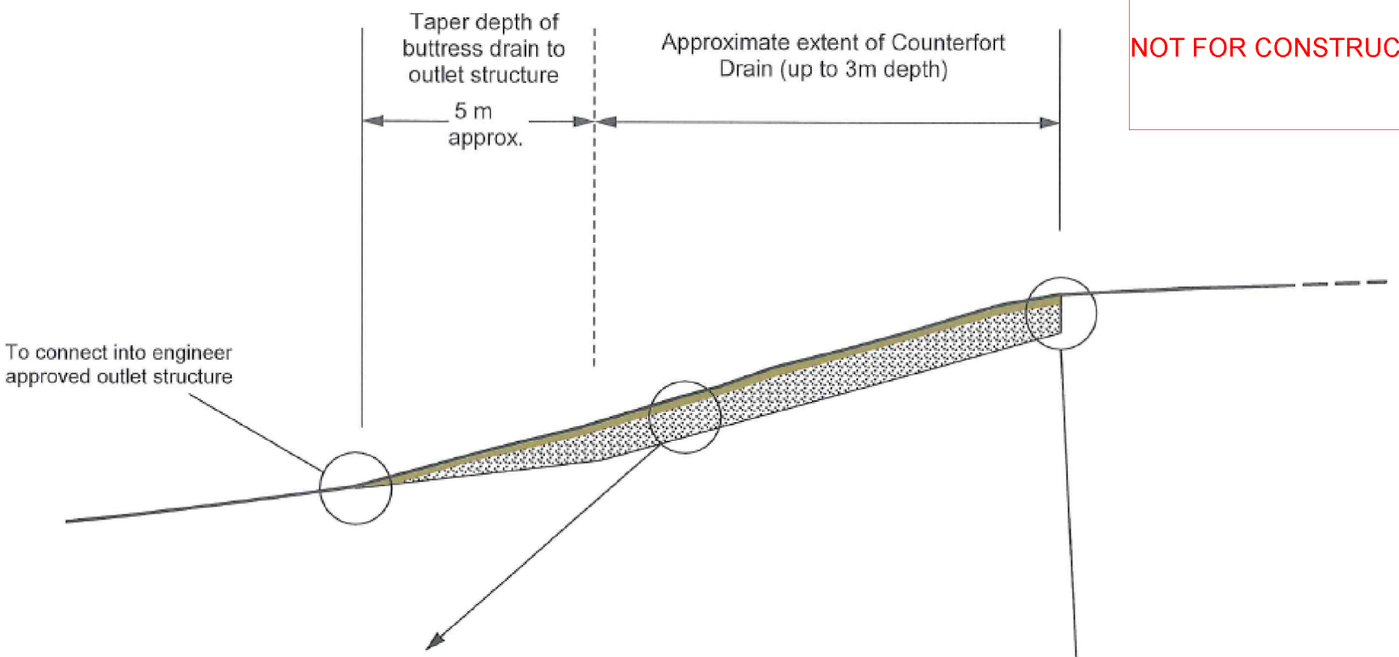
OUTLET STRUCTURE* - PLAN VIEW



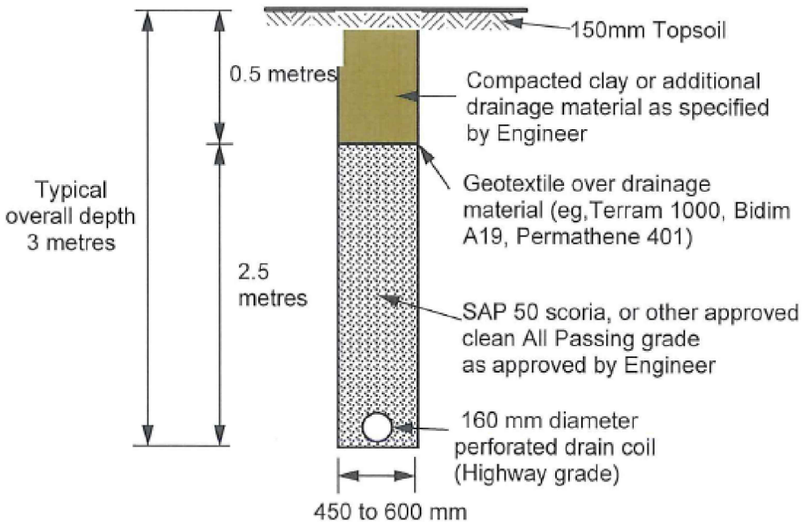
TYPICAL UNDERFILL DRAIN DETAIL - END VIEW

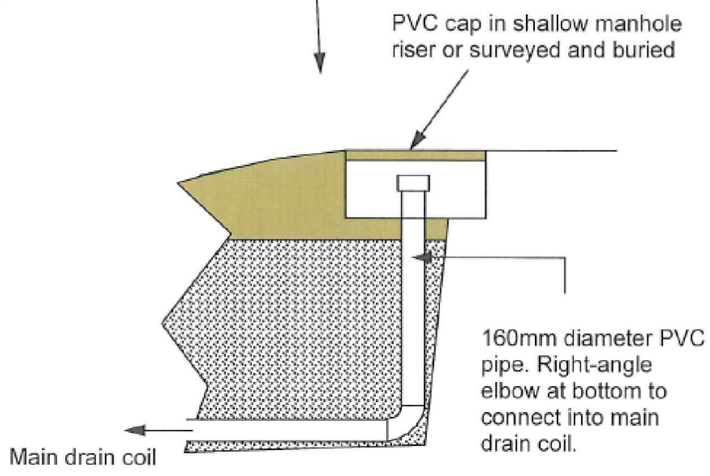


COUNTERFORT DRAINAGE DETAIL - CROSS SECTION VIEW



COUNTERFORT DRAINAGE DETAIL - END VIEW





FLUSHING PORT DETAILS - CROSS SECTION VIEW

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: --- DATE: xx.xxxx
CHECKED: --- DATE: 29.03.18
APPROVED: --- DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

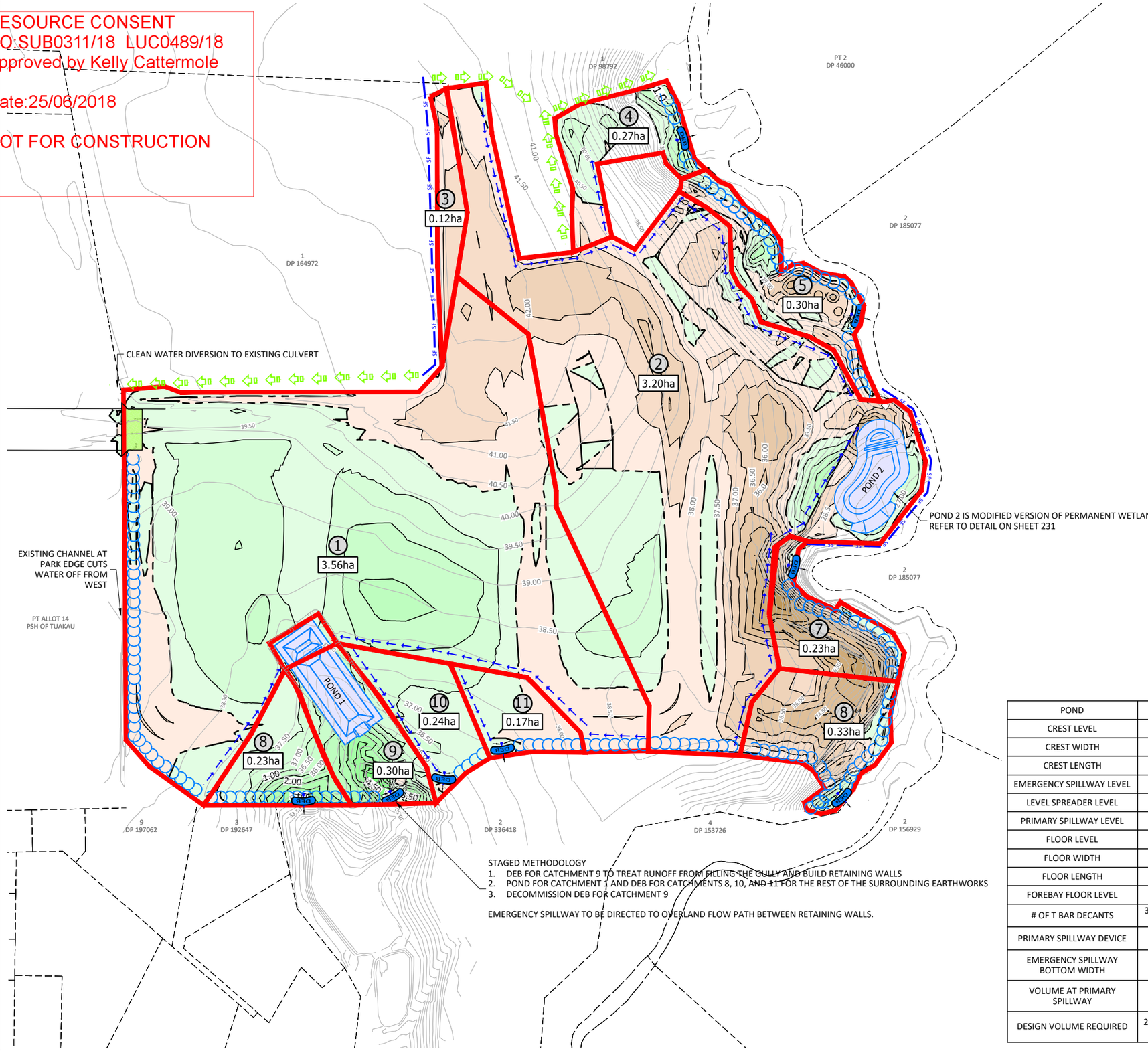
SHEET TITLE:
GEOTECHNICAL DRAINAGE DETAILS

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-221 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



STAGED METHODOLOGY
1. DEB FOR CATCHMENT 9 TO TREAT RUNOFF FROM FILLING THE GULLY AND BUILD RETAINING WALLS
2. POND FOR CATCHMENT 1 AND DEB FOR CATCHMENTS 8, 10, AND 11 FOR THE REST OF THE SURROUNDING EARTHWORKS
3. DECOMMISSION DEB FOR CATCHMENT 9

EMERGENCY SPILLWAY TO BE DIRECTED TO OVERLAND FLOW PATH BETWEEN RETAINING WALLS.

POND	1	2
CREST LEVEL	38.00	27.80
CREST WIDTH	16.4	-
CREST LENGTH	45.0	-
EMERGENCY SPILLWAY LEVEL	37.70	27.50
LEVEL SPREADER LEVEL	37.60	27.40
PRIMARY SPILLWAY LEVEL	37.40	27.20
FLOOR LEVEL	36.00	25.00
FLOOR WIDTH	6.0	-
FLOOR LENGTH	33.2	-
FOREBAY FLOOR LEVEL	36.60	26.40
# OF T BAR DECANTS	3 @ RL36.80, 37.20, 37.60m	3 @ RL25.80, 26.27, 26.73m
PRIMARY SPILLWAY DEVICE	MANHOLE RISER	MANHOLE RISER
EMERGENCY SPILLWAY BOTTOM WIDTH	6.0	8.0
VOLUME AT PRIMARY SPILLWAY	773m³	1112m³
DESIGN VOLUME REQUIRED	2% (<10%, <200m) = 712m³	3% = 960m³

NOTES:

1. EXISTING CONTOURS ARE SHOWN AT 0.5m INTERVALS.
2. TOTAL SITE AREA = 9.03ha.
3. ALL WORKS TO COMPLY WITH COUNCIL ENGINEERING QUALITY STANDARDS AND ALL MATERIALS TO COMPLY WITH COUNCIL REQUIREMENTS.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL PRIOR TO ANY WORKS COMMENCING.
5. SEE SHEET 2011-01-235-237 FOR STANDARD DETAILS
6. A COPY OF THE SEDIMENT CONTROL PLAN SHALL BE AVAILABLE ON THE SITE DURING WORK HOURS AND ALL PERSONNEL INVOLVED IN EARTHWORK ACTIVITIES ON THE SITE (INCLUSIVE OF SUB-CONTRACTORS) SHALL BE FAMILIAR WITH THE PLAN REQUIREMENTS AS THEY RELATE TO EROSION AND SEDIMENT CONTROL.
7. ALL "CLEANWATER" RUNOFF FROM STABILISED SURFACES INCLUDING CATCHMENT AREAS ABOVE THE SITE SHALL BE DIVERTED AWAY FROM EARTHWORK AREA VIA STABILISED SYSTEM, SO AS TO PREVENT SURFACE EROSION. THE UPPER ROCK FACE BUND WORKS AS A NATURAL CLEAN WATER DIVERSION ABOVE THE SITE.
8. CUTOFF DRAINS TO BE INSTALLED AT THE MAXIMUM INTERVAL OF 50m AT THE END OF EACH DAY UNTIL SLOPES ARE STABILISED.
9. FURTHER SEDIMENT CONTROL WORKS MAY BE REQUIRED BY THE ENGINEER AS THE PROJECT ADVANCES. THESE WILL BE INSTALLED AS AND WHERE DIRECTED BY THE ENGINEER. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT THE SITE HAS EFFECTIVE SILT DETENTION FACILITIES OPERATING AT ALL TIMES.
10. EITHER DECANTING EARTH BUND (DEB), POND, OR SILT FENCE TO BE UTILISED AS DIRECTED BY THE ENGINEER IN CONSULTATION WITH WAIKATO REGIONAL COUNCIL.
11. ALL EROSION AND SEDIMENT CONTROL MEASURES TO COMPLY WITH TR0902.
12. SEDIMENT AND EROSION CONTROL MEASURES SHOWN ON THIS DRAWING ARE WORST CASE AND ASSUME A FULLY OPEN SITE WITH UNSTABILISED CLAY. CONTRACTOR METHODOLOGY AND MATERIALS USED WILL HAVE A BEARING ON REQUIRED SEDIMENT AND EROSION CONTROL. FOR EXAMPLE, AS FINAL LAYERS OF FILL START TO SLOPE TOWARDS BOUNDARIES, IF METAL IS USED IN TO COVER THESE AREAS, THE AREA IS DEEMED STABILISED AND REQUIRED SEDIMENT AND EROSION CONTROL MEASURES WILL BE REDUCED UPON APPROVAL BY COUNCIL.
13. DEVICES SHALL NOT BE DE-COMMISIONED WITHOUT THE EXPRESS APPROVAL OF COUNCILS MONITORING OFFICER.

LEGEND

- 10.00 EXISTING CONTOURS
- SF SILT FENCE
- STABILISED CONSTRUCTION ACCESS
- TOPSOIL DIVERSION BUND
- RUNOFF DIVERSION CHANNEL
- DEB DECANTING EARTH BUND
- CLEAN WATER DIVERSION
- CATCHMENT BOUNDARY
- STORMWATER CONVEYANCE CHANNEL
- STOCKPILE STOCKPILE
- PROPOSED CUT
- PROPOSED FILL
- SILT POND

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

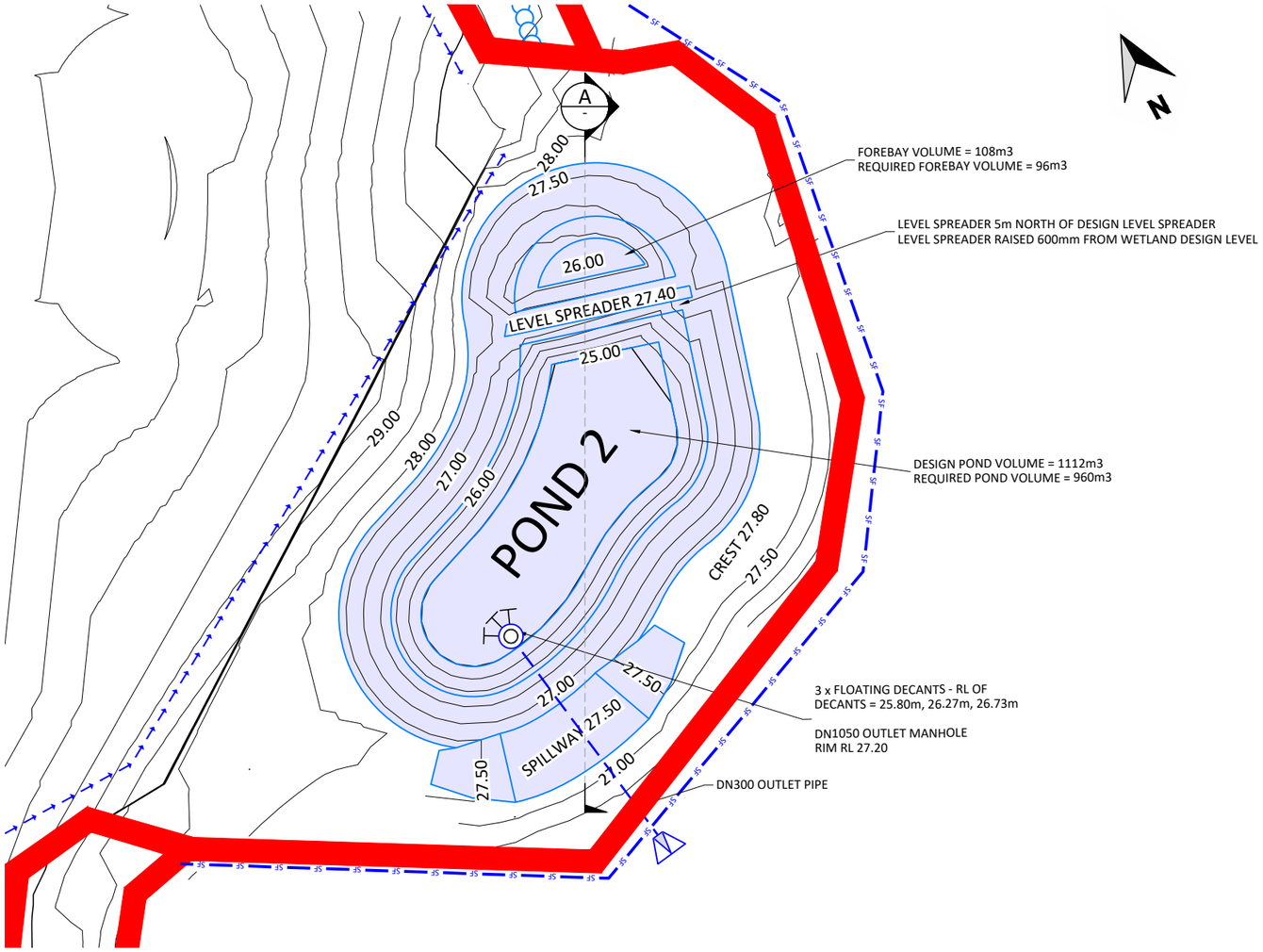
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

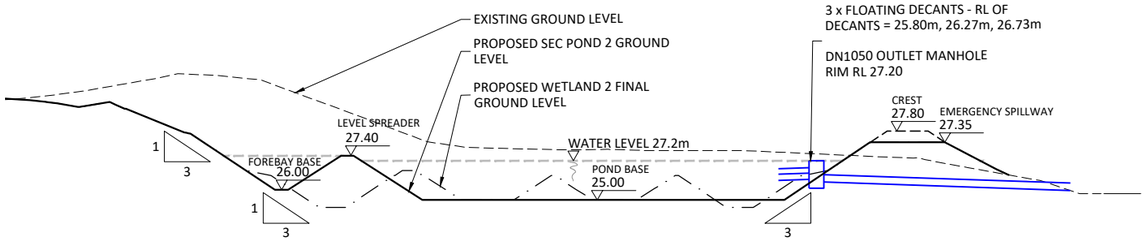
SHEET TITLE:
SEDIMENT AND EROSION CONTROL

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:1000 / 1:2000
SCALE BAR 1:2000@A3 0 20 40 60 80 100m
DRAWING NUMBER: 2011-01-230 REV: C1



PLAN

SCALE: (A1/A3) 1:250/1:500



DATUM RL 20.00

A - CROSS SECTION THROUGH POND 2 / WETLAND 2

SCALE: (A1/A3) 1:250H 1:125V/1:500H 1:250V

NOTES:

1. REFER TO DRAWING 2011-01-230 FOR LEGEND AND NOTES.
2. POND IS TO BE MODIFIED INTO WETLAND 2 ONCE EARTHWORKS COMPLETED AND SITE IS STABILISED. REFER TO DRAWING 2011-01-461 FOR DETAIL DRAWING OF WETLAND 2.

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017	
CHECKED: RJP	DATE: 29.03.18	
APPROVED: RJP	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
SEDIMENT AND EROSION CONTROL
POND 2 DETAIL

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:1000 / 1:2000

SCALE BAR 1:2000@A3 0 20 40 60 80 100m

DRAWING NUMBER: 2011-01-231 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

SILT FENCE:

APPLICATION

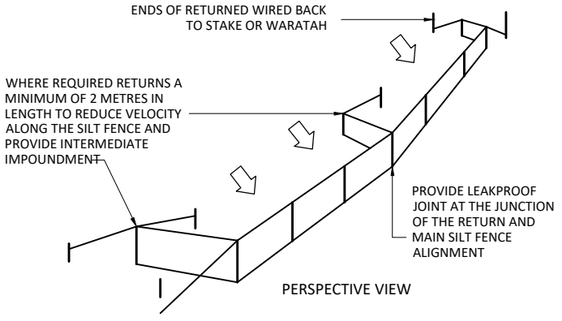
- ON LOW GRADIENT SITES OR FOR CONFINED AREAS WHERE THE CONTRIBUTING CATCHMENT IS SMALL, SUCH AS SHORT STEEP BATTER FILLS AND AROUND WATERCOURSES.
- TO DELINEATE THE LIMIT OF DISTURBANCE ON AN EARTHWORKS SITE SUCH AS RIPARIAN AREAS OR BUSH RESERVES.
- TO STORE RUNOFF BEHIND THE SILT FENCE WITHOUT DAMAGING THE FENCE OR THE SUBMERGED AREA BEHIND THE FENCE.
- DO NOT INSTALL SILT FENCES ACROSS WATERCOURSES OR IN AREAS OF CONCENTRATED FLOWS.

DESIGN

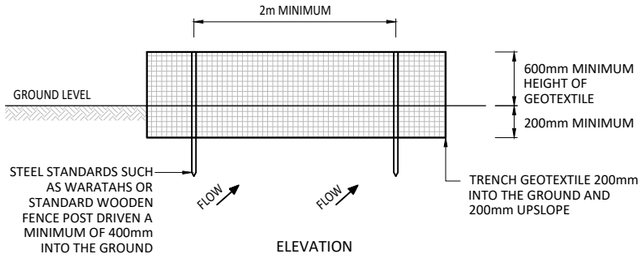
- ENSURE THE SILT FENCE HEIGHT IS A MINIMUM OF 600mm ABOVE GROUND LEVEL.
- PLACE SUPPORTING POSTS/WARATAHS FOR SILT FENCES NO MORE THAN 2m APART UNLESS ADDITIONAL SUPPORT IS PROVIDED BY TENSIONED WIRE (2.5mm HT) ALONG THE TOP OF THE SILT FENCE. WHERE A STRONG WOVEN FABRIC IS USED IN CONJUNCTION WITH A WIRE SUPPORT, THE DISTANCE BETWEEN POSTS CAN BE EXTENDED UP TO 4m. DOUBLE THE SILT FENCE FABRIC OVER AND FASTEN TO THE WIRE AND POSTS WITH WIRE TIES, CLOTH FASTENING CLIPS OR HOG RINGS AT 150mm SPACINGS. ENSURE SUPPORTING POSTS ARE EMBEDDED A MINIMUM OF 400mm INTO THE GROUND.
- ALWAYS INSTALL SILT FENCES ALONG THE CONTOUR. WHERE THIS IS NOT POSSIBLE OR WHERE THERE ARE LONG SECTIONS OF SILT FENCE, INSTALL SHORT SILT FENCE RETURNS PROJECTING UP SLOPE TO MINIMISE CONCENTRATION OF FLOWS. SILT FENCE RETURNS ARE A MINIMUM 2m IN LENGTH, CAN INCORPORATE A TIE BACK AND ARE GENERALLY CONSTRUCTED BY CONTINUING THE SILT FENCE AROUND THE RETURN AND DOUBLING BACK, ELIMINATING JOINS.
- JOIN LENGTHS OF SILT FENCE BY DOUBLING OVER FABRIC ENDS AROUND WOODEN POST OR BATTEN OR BY STAPLING THE FABRIC ENDS TO A BATTEN AND BUTTING THE TWO BATTENS TOGETHER OR BY OVERLAPPING AT LEAST 2m.
- MAXIMUM SLOPE LENGTHS, SPACING OF RETURNS AND ANGLES FOR SILT FENCES ARE SHOWN IN THE TABLE BELOW.
- INSTALL SILT FENCE WINGS AT EITHER END OF THE SILT FENCE PROJECTING UPSLOPE TO A SUFFICIENT HEIGHT TO PREVENT OUTFLANKING.
- WHERE IMPOUNDED FLOW MAY OVERTOP THE SILT FENCE, CROSSING NATURAL DEPRESSIONS OR LOW POINTS, MAKE PROVISION FOR A RIPRAP SPLASH PAD OR OTHER OUTLET PROTECTION DEVICE.

MAINTENANCE

- INSPECT SILT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY NECESSARY REPAIRS WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHES 50% OF THE FABRIC HEIGHT.
- ANY AREAS OF COLLAPSE, DECOMPOSITION OR INEFFECTIVENESS NEED TO BE IMMEDIATELY REPLACED.
- REMOVE SEDIMENT DEPOSITS AS NECESSARY TO CONTINUE TO ALLOW FOR ADEQUATE SEDIMENT STORAGE AND REDUCE PRESSURE ON THE SILT FENCE. ENSURE THAT THE SEDIMENT IS REMOVED TO A SECURE AREA.
- DO NOT REMOVE SILT FENCE MATERIALS AND SEDIMENT DEPOSITION UNTIL THE CATCHMENT AREA HAS BEEN APPROPRIATELY STABILISED. STABILISE THE AREA OF THE REMOVED SILT FENCE.



PERSPECTIVE VIEW

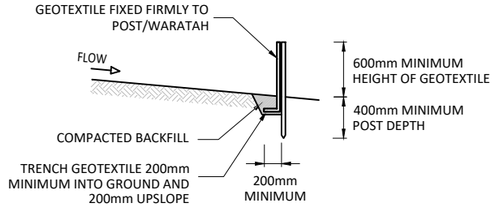


ELEVATION

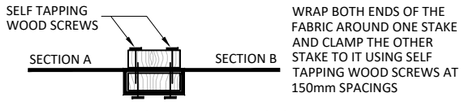
SILT FENCE DESIGN CRITERIA:

SLOPE STEEPNESS %	SLOPE LENGTH (m) (MAXIMUM)	SPACING OF RETURNS (m)
< 2%	N/A	UNLIMITED
2-10%	40	60
10-20%	30	50
20-33%	20	40
33-50%	15	30
>50%	6	20

GRAB TENSILE STRENGTH:	>440N (ASTM D4632)
TENSILE MODULUS:	0.140 pa (MINIMUM)
APPARENT OPENING SIZE:	0.1-0.5mm (ASTM D4751)

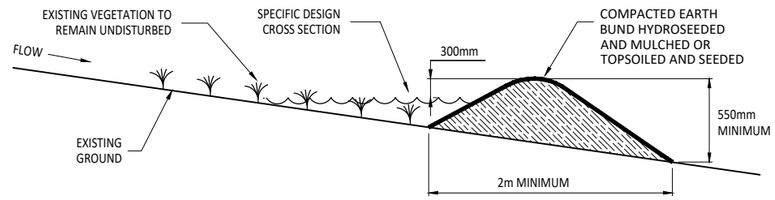


CROSS SECTION

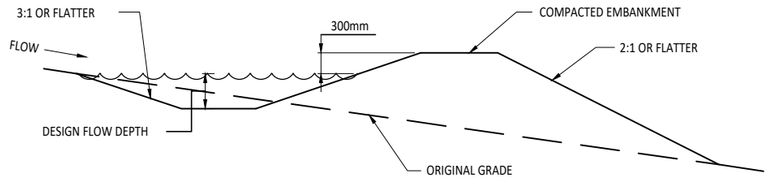


STANDARD FABRIC JOINT

SILT FENCE CONSTRUCTION



CLEANWATER RUNOFF DIVERSION BUND - CROSS SECTION



RUNOFF DIVERSION BUND - CROSS SECTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED EARTHWORKS
SEDIMENT AND EROSION CONTROL
STANDARD DETAIL SHEET 1 OF 3

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-235 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

STABILISED CONSTRUCTION ENTRANCE:

APPLICATION

- USE A STABILISED CONSTRUCTION ENTRANCE AT ALL POINTS OF CONSTRUCTION SITE INGRESS AND EGRESS WITH A CONSTRUCTION PLAN LIMITING TRAFFIC TO THESE ENTRANCES ONLY.

DESIGN

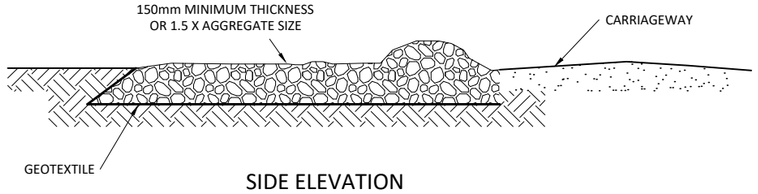
- CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS AND OTHER UNSUITABLE MATERIAL AND PROPERLY GRADE IT.
- LAY WOVEN GEOTEXTILE; PIN DOWN EDGES AND OVERLAP JOINTS.
- PROVIDE DRAINAGE TO CARRY RUNOFF FROM THE STABILISED CONSTRUCTION ENTRANCE TO A SEDIMENT CONTROL MEASURE.
- PLACE AGGREGATE TO THE SPECIFICATIONS BELOW AND SMOOTH IT.

STABILISED CONSTRUCTION ENTRANCE AGGREGATE SPECIFICATIONS:

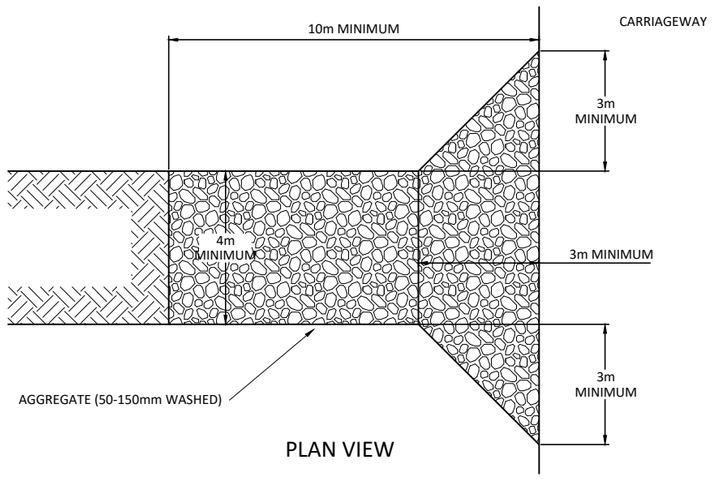
AGGREGATE SIZE	50-150mm WASHED AGGREGATE
THICKNESS	150mm MINIMUM OR 1.5 X AGGREGATE SIZE
LENGTH	10m MINIMUM LENGTH RECOMMENDED
WIDTH	4m MINIMUM WIDTH

MAINTENANCE

- MAINTAIN THE STABILISED CONSTRUCTION ENTRANCE IN A CONDITION TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. AFTER EACH RAINFALL INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT FROM THE STABILISED CONSTRUCTION ENTRANCE AND CLEAN OUT AS NECESSARY.
- WHEN WHEEL WASHING IS ALSO REQUIRED, ENSURE THIS IS DONE ON AN AREA STABILISED WITH AGGREGATE WHICH DRAINS TO AN APPROVED SEDIMENT RETENTION FACILITY.

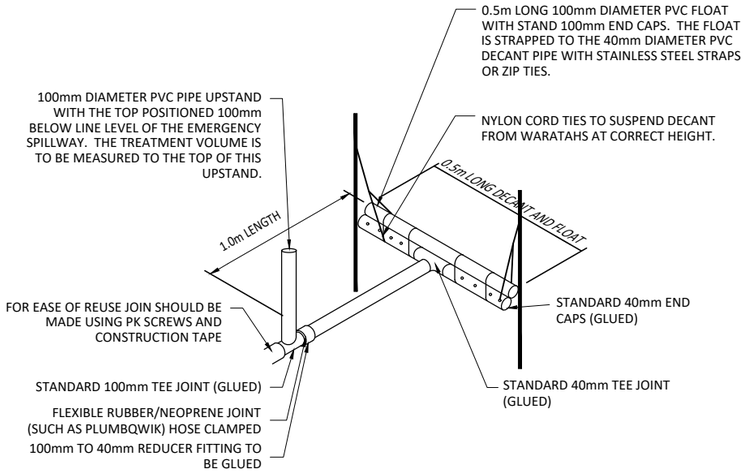


SIDE ELEVATION

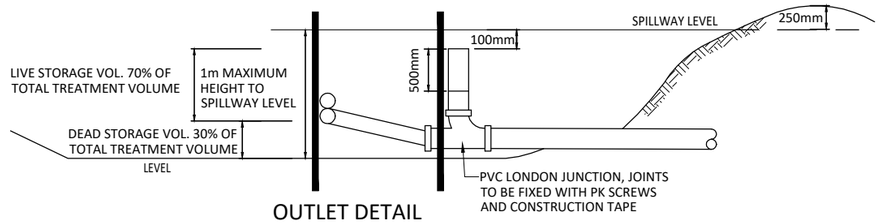


PLAN VIEW

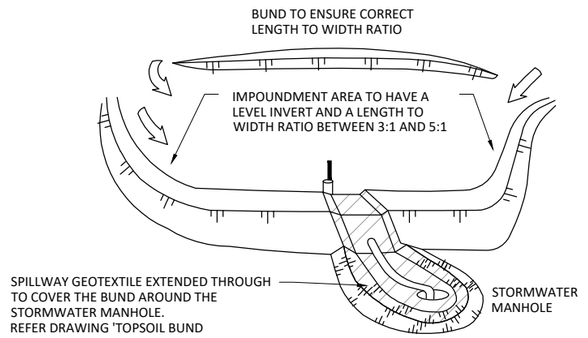
STABILISED CONSTRUCTION ENTRANCE



40mm DECANT WITH UPSTAND DETAIL



OUTLET DETAIL



DECANTING EARTH BUND

DECANTING EARTH BUND SIZING

MAXIMUM CATCHMENT 0.3ha
2% VOLUME (60m3 PER 0.3ha CATCHMENT)

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
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PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

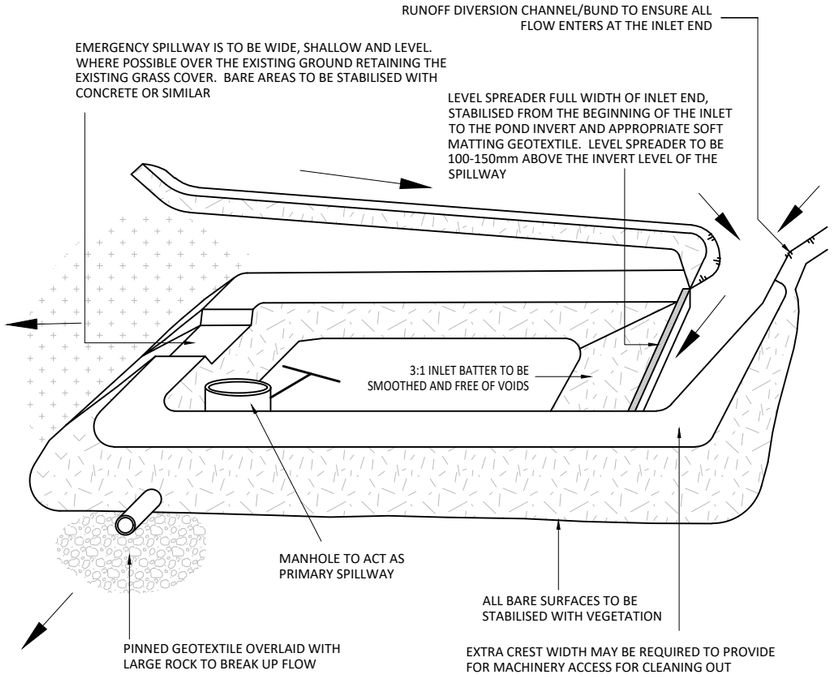
SHEET TITLE:
PROPOSED EARTHWORKS
SEDIMENT AND EROSION CONTROL
STANDARD DETAIL SHEET 2 OF 3

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-236 REV: C1

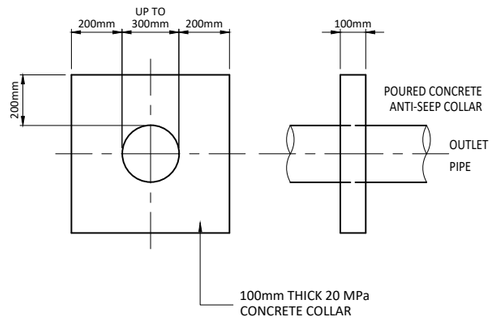
RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

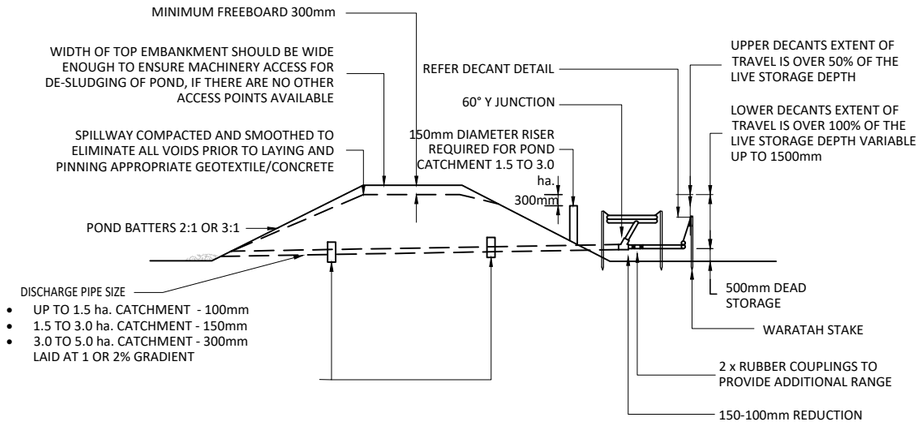
NOT FOR CONSTRUCTION



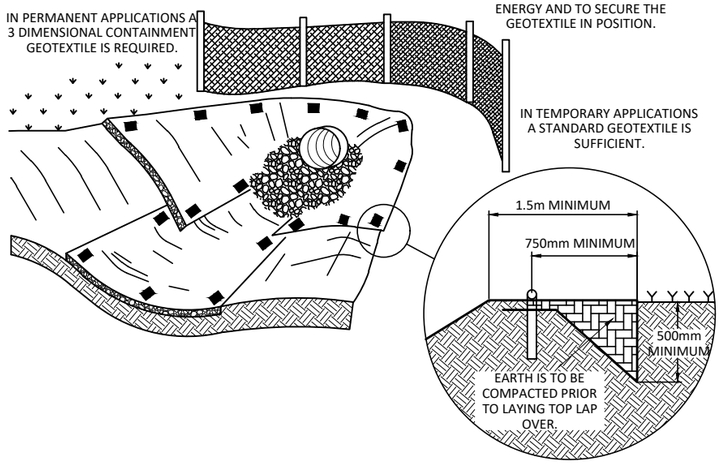
SEDIMENT RETENTION POND



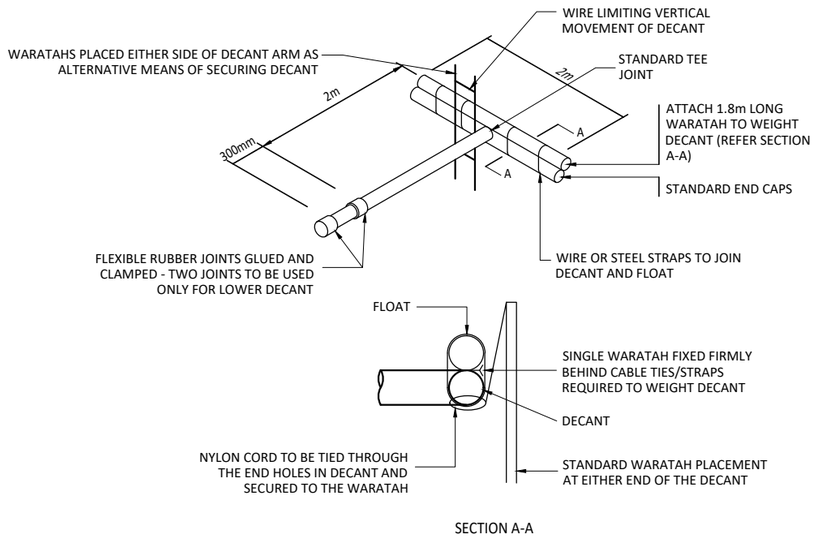
ANTI-SEEP COLLAR



TYPICAL CROSS SECTION
1.5 - 3.0Ha CATCHMENT

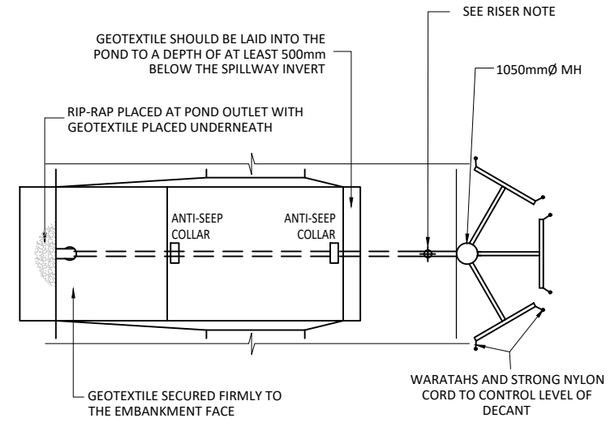


GEOTEXTILE AT CULVERT OUTLET



SECTION A-A

SEDIMENT RETENTION POND - DECANT DETAIL



TYPICAL PLAN
3.0 - 5.0Ha CATCHMENT

SEDIMENT RETENTION POND - EMBANKMENT DETAIL

NUMBER OF DECANTS FOR EACH POND SHALL BE AS FOLLOWS:
- UP TO 1.5ha CATCHMENT - 1 DECANT
- 1.5 - 3.0ha CATCHMENT - 2 DECANTS
- 3.0 - 5.0 ha CATCHMENT - 3 DECANTS - CONNECTED TO DN1050 MH

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017	
CHECKED: RJP	DATE: 29.03.18	
APPROVED: RJP	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED EARTHWORKS
SEDIMENT AND EROSION CONTROL
STANDARD DETAIL SHEET 3 OF 3

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-237 REV: C1

LEGEND

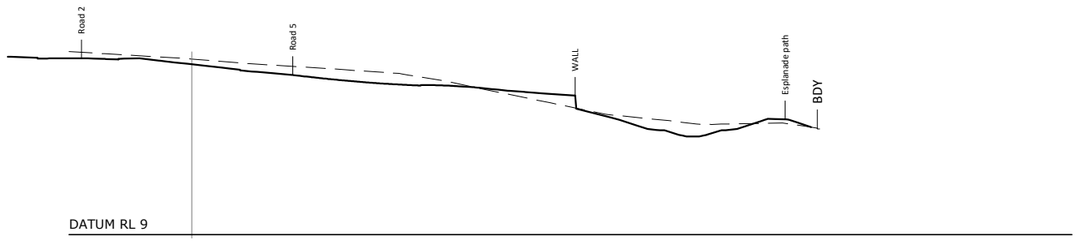
EXISTING GROUND LINE

PROPOSED GROUND LINE

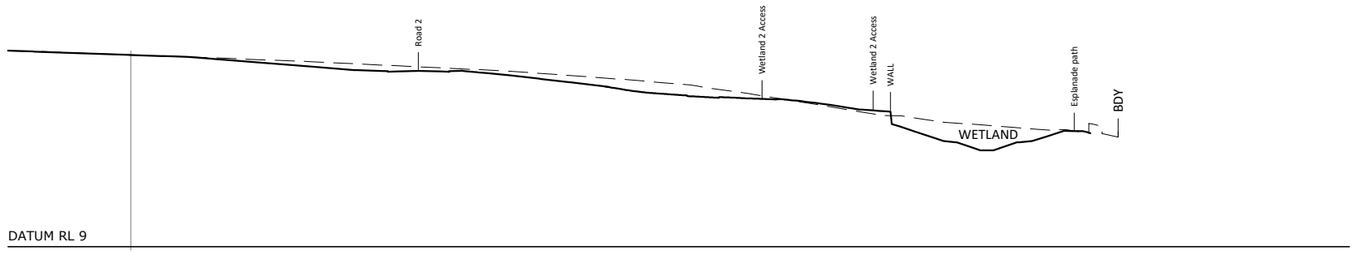
RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



D 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000



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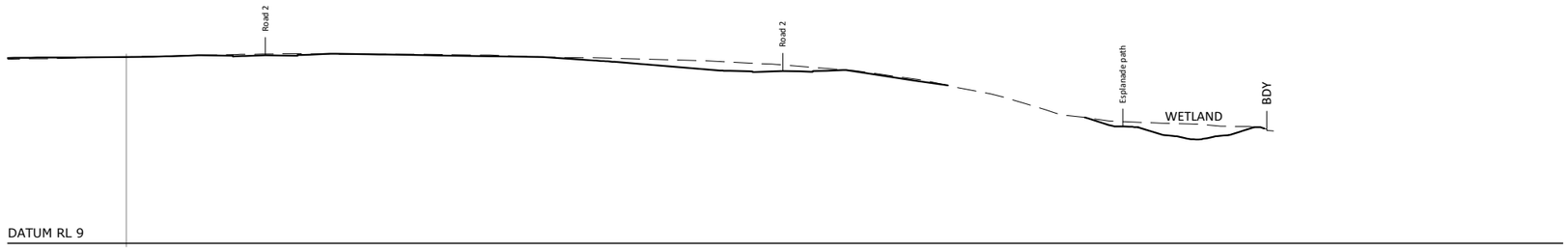
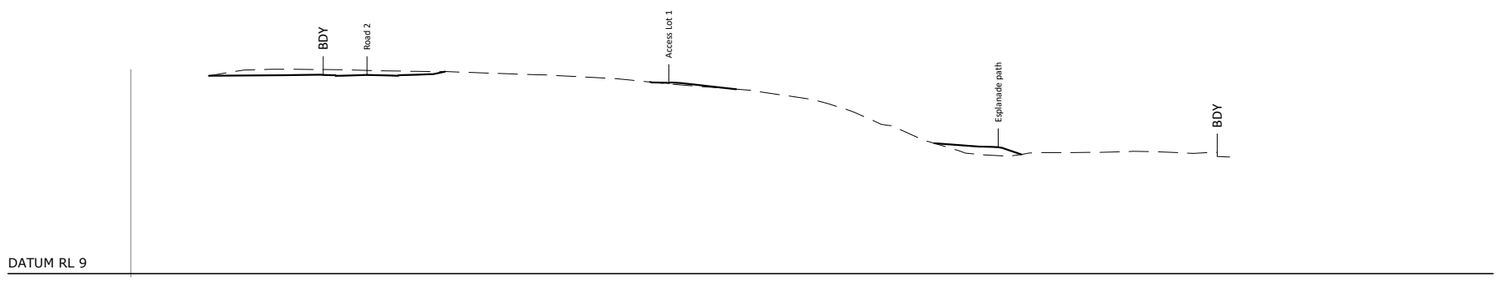
SCALE: (A1/A3) 1:500/1:1000



B 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000



A 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000

Printed by: RYAN@10.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-240.DWG

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: ---	DATE: xx.xxxx	
CHECKED: ---	DATE: 29.03.18	
APPROVED: ---	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
EARTHWORKS CROSS SECTIONS
SHEET 1

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:500 / 1:1000

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

DRAWING NUMBER: 2011-01-240 REV: C1

LEGEND

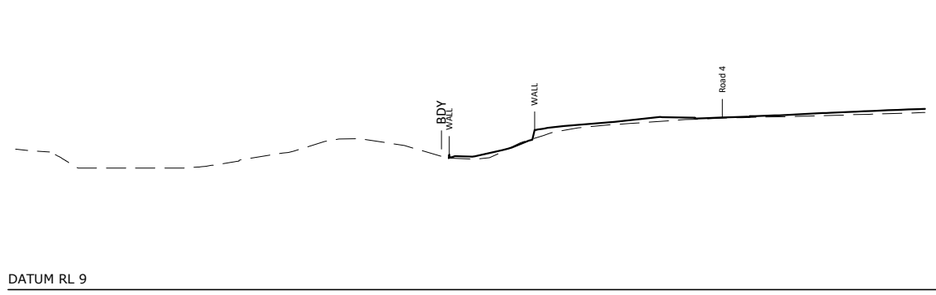
EXISTING GROUND LINE

PROPOSED GROUND LINE

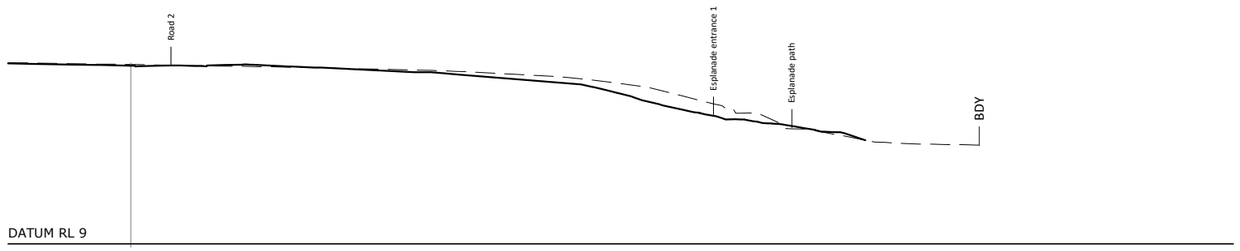
RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

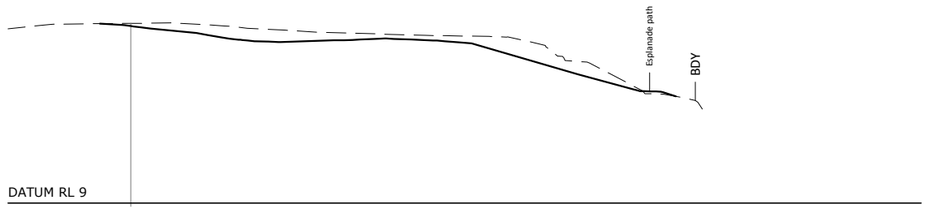
NOT FOR CONSTRUCTION



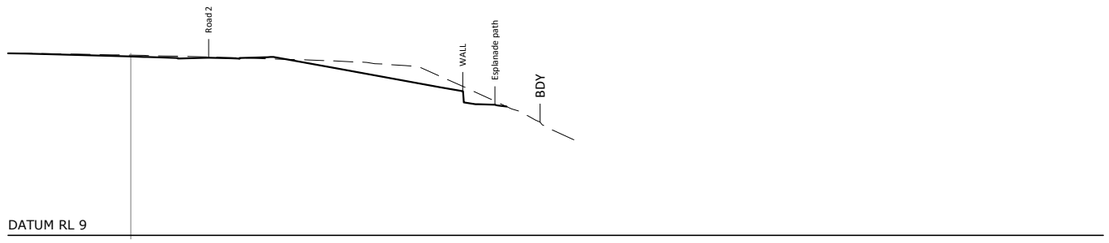
H 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000



G 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000



F 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000



E 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: ---	DATE: XX.XXXX	
CHECKED: ---	DATE: 29.03.18	
APPROVED: ---	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

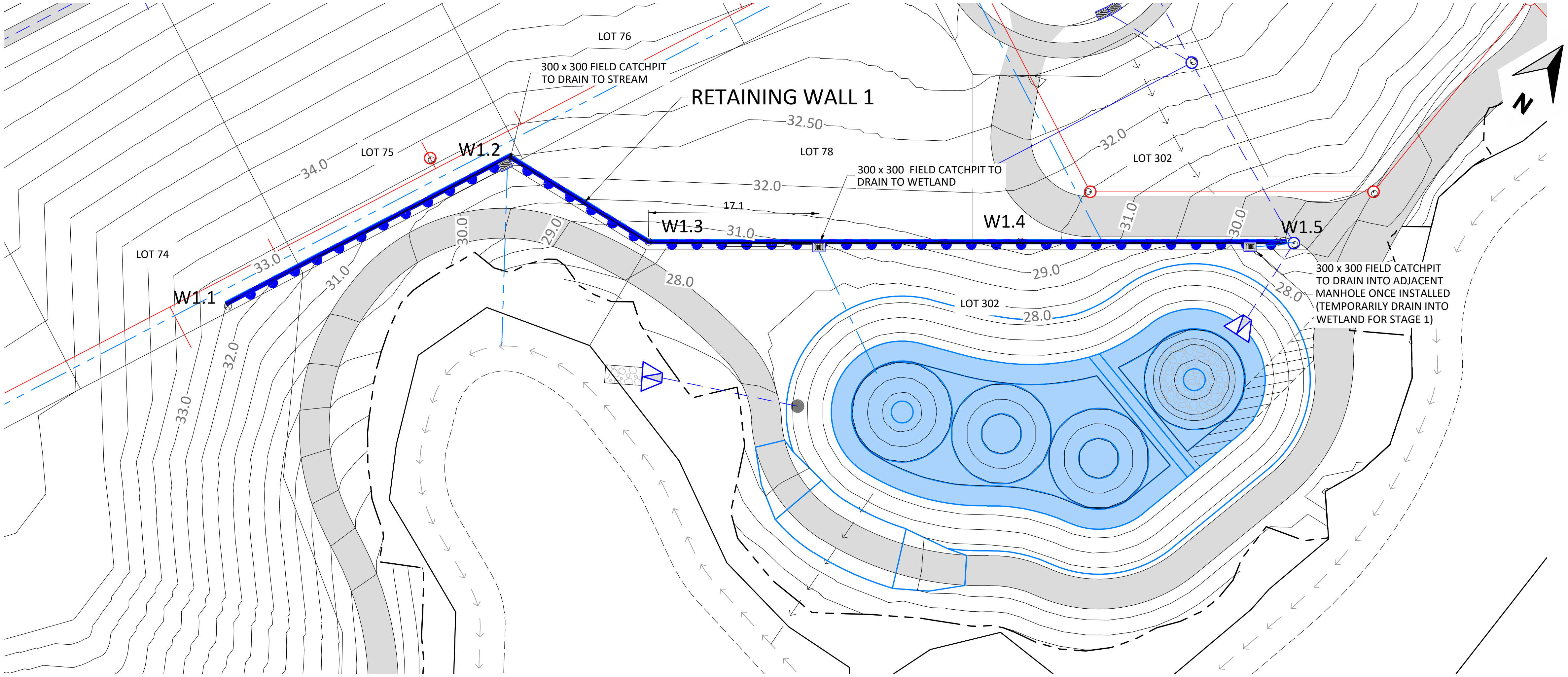
SHEET TITLE:
EARTHWORKS CROSS SECTIONS
SHEET 2

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:500 / 1:1000

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

DRAWING NUMBER: 2011-01-241 REV: C1



RETAINING WALL PLAN

SCALE: (A1/A3) 1:250/1:500

LEGEND

10.0	PROPOSED MAJOR CONTOUR
— — — —	EARTHWORK EXTENT
—o—o—o—	PROPOSED RETAINING WALL

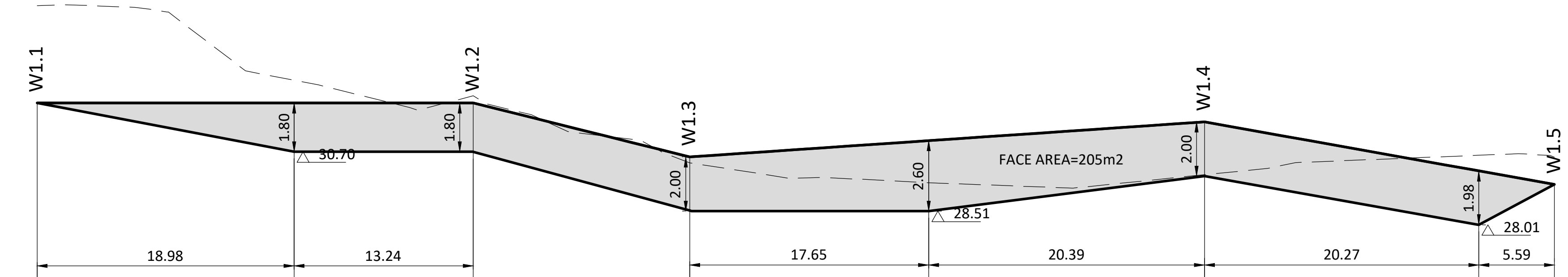
NOTES

1. WALL 1 IS A TIMBER POST RETAINING WALL.
2. TOPS OF WALLS TO BE FENCED OFF TEMPORARILY UNTIL PERMANENT FENCING IS INSTALLED.
3. PERMANENT FENCING TO BE TYPICAL WIRE FENCE DETAIL B TO HCC ITS D3.8.17, ON TOP OF RETAINING WALLS, INCLUDING 300mm WIDE, 100mm THICK 20MPa MOWING STRIP.
4. REFER TO LANDER GEOTECHNICAL WALL DESIGN REPORT J00779 DATED 9 MAY 2018, AND DRAWINGS SHOWN ON 2011-01-272-277 FOR DETAILED WALL DESIGNS.
5. ALL WALLS TO HAVE 300mm WIDE, 100mm THICK 20MPa MOWING STRIP AT THE BASE OF THE RAILS AND POSTS FOR THE ENTIRE LENGTH.

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



Datum RL 25.00

TOP OF WALL 1	32.50	32.50	32.50	30.51	31.11	31.80	30.00	29.50
BOTTOM OF WALL 1	32.50	30.70	30.69	28.54	28.51	29.80	28.01	29.50
CHAINAGE	0.00	18.98	32.22	48.21	65.86	86.25	106.51	112.10

RETAINING WALL 1 LONGITUDINAL SECTION

SCALE: (A1/A3) 1:250H 1:125V / 1:500H 1:250V

BUILDING CONSENT REQUIRED FOR WALLS

Printed by: RYAN@16.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-270.DWG

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	16.05.18
C2	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

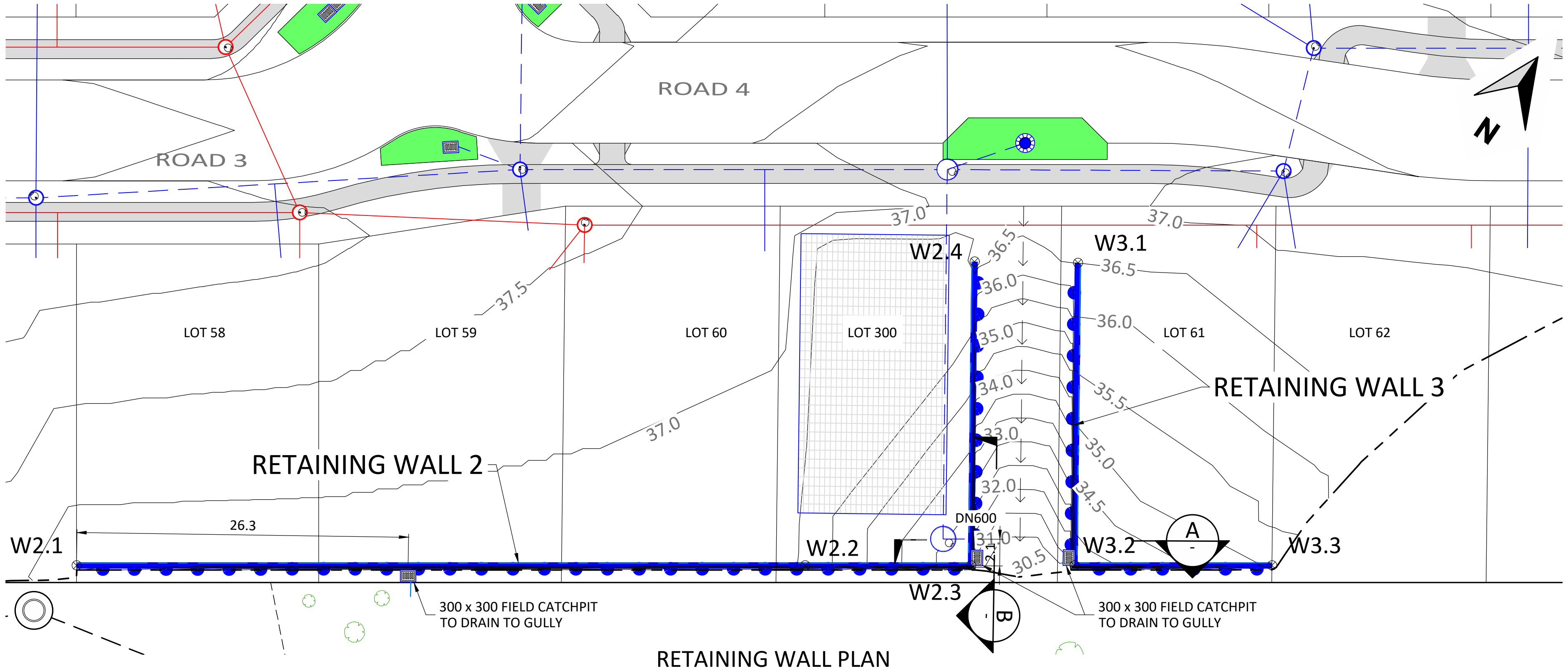
DRAWN: GDS	DATE: 09.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

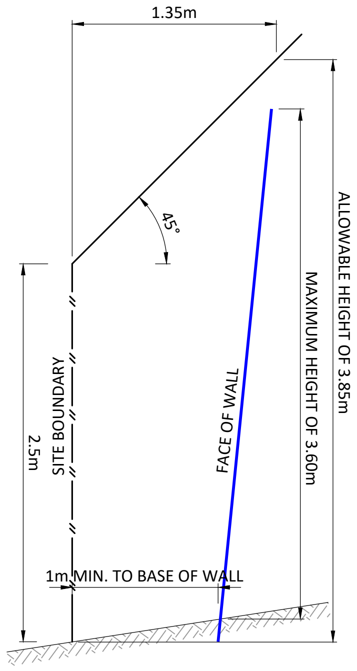
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
RETAINING WALL PLAN AND ELEVATION
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:250 / 1:500
SCALE BAR 1:500@A3 0 5 10 15 20 25m
DRAWING NUMBER: 2011-01-270
REV: C3



RETAINING WALL PLAN
SCALE: (A1/A3) 1:250/1:500



HEIGHT IN RELATION TO BOUNDARY DETAIL
SCALE: NTS

LEGEND

10.0	PROPOSED MAJOR CONTOUR
— — —	EARTHWORK EXTENT
—o—o—o—	PROPOSED RETAINING WALL

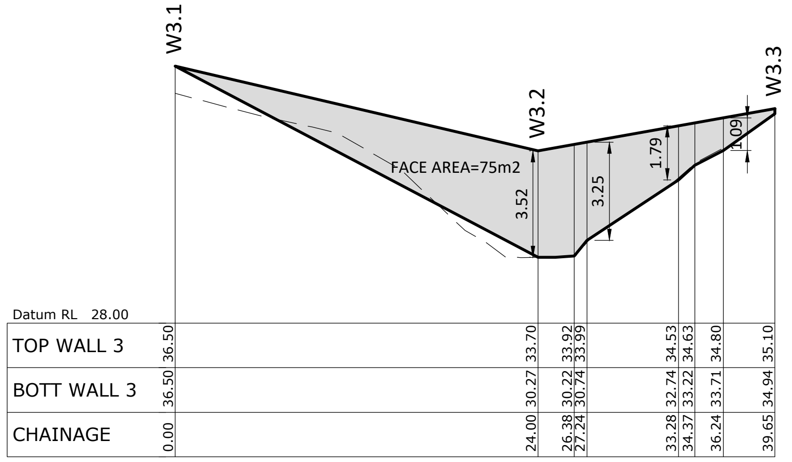
NOTES

1. WALL 2 AND 3 ARE STEEL UB AND TIMBER RAIL RETAINING WALLS.
2. NO PART OF THE WALL IS TO BE WITHIN 1m OF THE BOUNDARY.
3. TOPS OF WALLS TO BE FENCED OFF TEMPORARILY UNTIL PERMANENT FENCING IS INSTALLED.
3. PERMANENT FENCING TO BE TYPICAL WIRE FENCE DETAIL B TO HCC ITS D3.8.17, ON TOP OF RETAINING WALLS, INCLUDING 300mm WIDE, 100mm THICK 20MPa MOWING STRIP.
4. DN600 OUTLET PIPE TO BE LOCATED ONSITE AND POSITIONED TO BE EQUIDISTANT BETWEEN STEEL UB PILE SPANS. REFER TO DETAIL THIS SHEET.
5. REFER TO LANDER GEOTECHNICAL WALL DESIGN REPORT J00779 DATED 9 MAY 2018, AND DRAWINGS SHOWN ON 2011-01-272-277 FOR DETAILED WALL DESIGNS.
6. ALL WALLS TO HAVE 300mm WIDE, 100mm THICK 20MPa MOWING STRIP AT THE BASE OF THE RAILS AND POSTS FOR THE ENTIRE LENGTH.

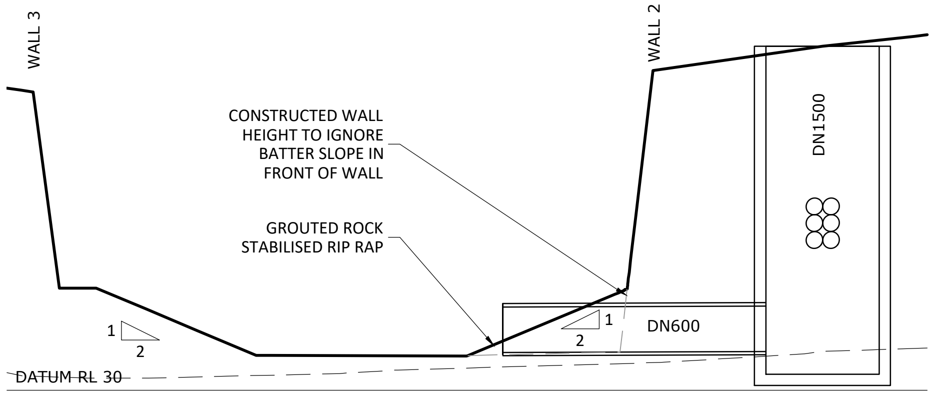
RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

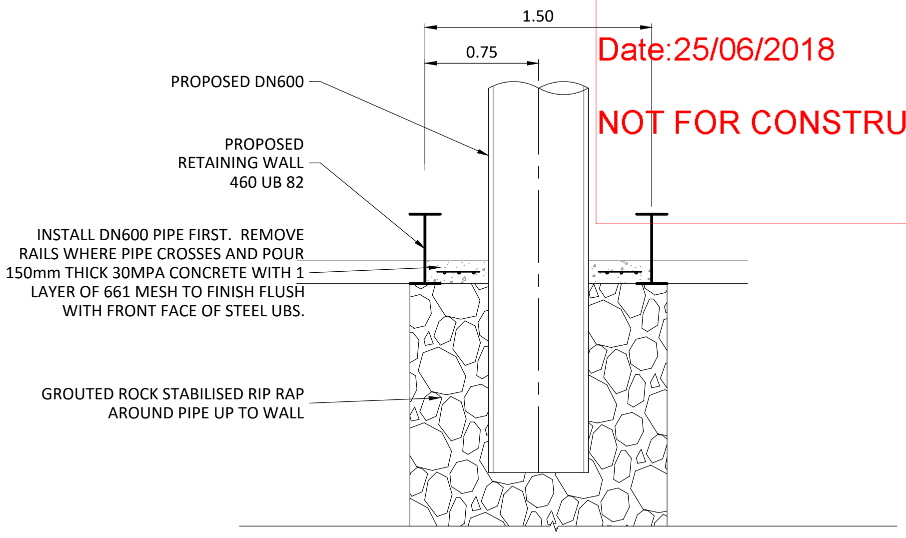
NOT FOR CONSTRUCTION



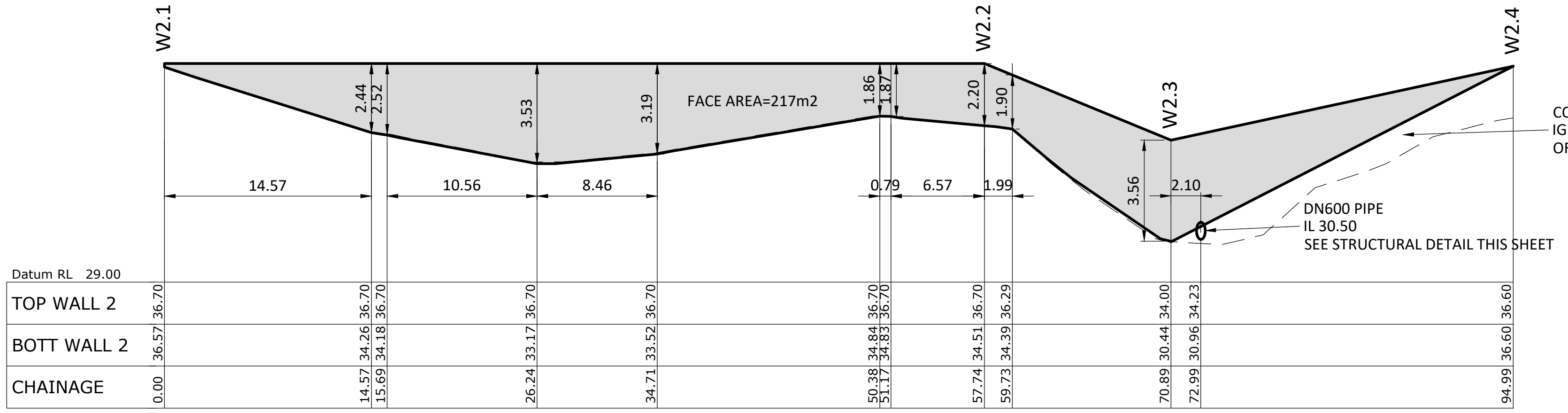
RETAINING WALL 3 LONGITUDINAL SECTION
SCALE: (A1/A3) 1:250H 1:125V / 1:500H 1:250V



A PIPE EXIT WALL CROSS SECTION
SCALE: (A1/A3) 1:50/1:100

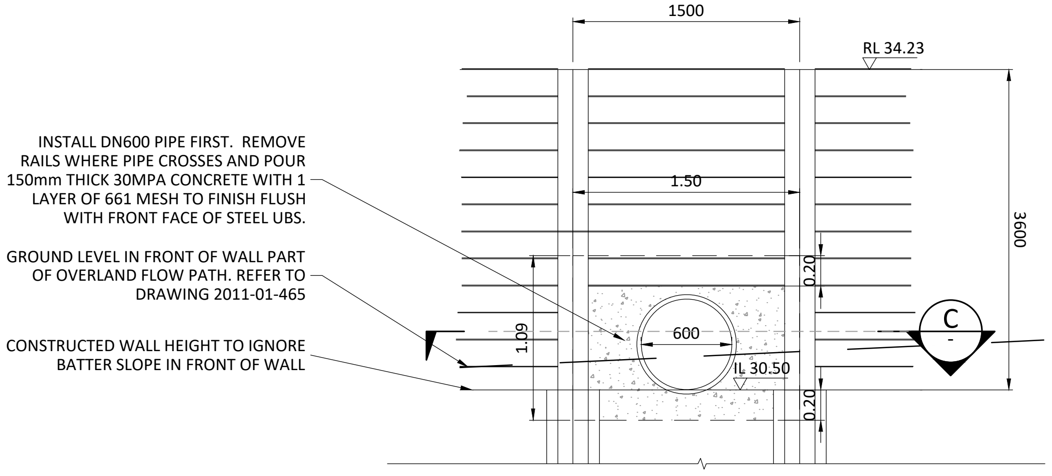


C PIPE EXITING WALL PLAN
SCALE: (A1/A3) 1:25/1:50



RETAINING WALL 2 LONGITUDINAL SECTION
SCALE: (A1/A3) 1:250H 1:125V / 1:500H 1:250V

BUILDING CONSENT REQUIRED FOR WALLS



B PIPE EXITING WALL DETAIL
SCALE: (A1/A3) 1:25/1:50

Printed by: RYAN@16.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-270.DWG

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	16.05.18
C2	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

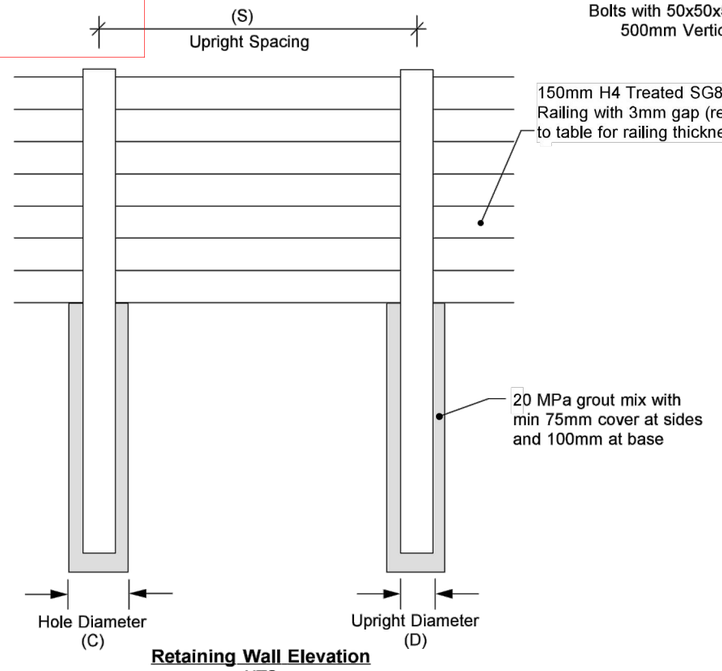
SHEET TITLE:
RETAINING WALL PLAN AND ELEVATION
SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:250 / 1:500
SCALE BAR 1:500@A3 0 5 10 15 20 25m
DRAWING NUMBER: 2011-01-271
REV: C3

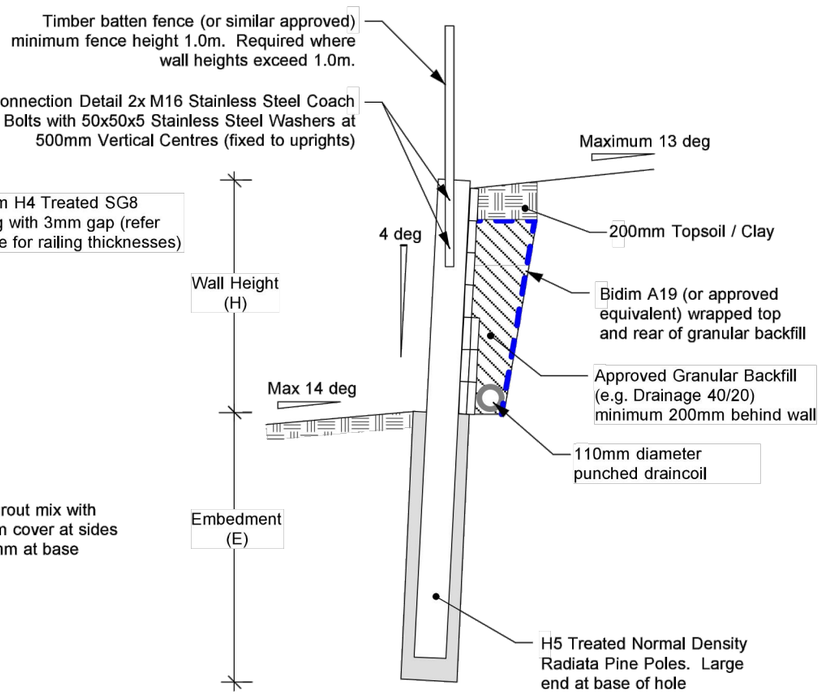
RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



Retaining Wall Elevation
NTS



Retaining Wall Typical Cross Section
NTS

Retaining Wall Schedule

Wall Height (H)	Embedment Depth (E)	Upright Spacing (S)	Upright SED Dia (D)	Hole Diameter (C)	Rail Thickness
2.6m	3.9m	1.2m	425mm	600mm	100mm*
2.4m	3.6m	1.2m	400mm	550mm	100mm*
2.2m	3.2m	1.2m	375mm	550mm	100mm*
2.1m	2.9m	1.2m	350mm	500mm	100mm*
1.9m	2.9m	1.2m	325mm	500mm	100mm*
1.7m	2.5m	1.2m	300mm	450mm	100mm*
1.5m	2.2m	1.2m	275mm	450mm	100mm*
1.4m	2.2m	1.2m	250mm	400mm	100mm*
1.2m	1.8m	1.2m	225mm	400mm	100mm*
1.0m	1.4m	1.2m	200mm	350mm	100mm*
0.8m	1.2m	1.2m	175mm	350mm	50mm
0.6m	1.2m	1.2m	150mm	300mm	50mm

* - 50mm wide railings may be used for top 0.8m of wall

NOTES :

1. The contractor is responsible for locating and confirming all services on site prior to commencement of works on site. Where service trenches conflict, the Design Engineer should be notified immediately. Where services are within 1.5x height of the wall, all backfilling must be Engineer certified clay or compacted hardfill and must be completed prior to wall construction commencing.

2. All timber poles shall be H5 treated radiata pine in accordance with NZS3602 unless otherwise approved. Cutting of timber is to be avoided wherever possible. If cutting is necessary the exposed surface shall be flooded with a copper naphthenate type of wood preservative.

3. Poles must be bored and concreted. Driven piles are expressly excluded unless specifically approved by the Design Engineer.

4. Timber rails shall be fixed to uprights with 150mm long galvanised nails. Rails are to be H4 treated SG8 treated radiata pine made continuous over two or more spans and with staggered joints. A minimum gap of 3mm must be left between rails to permit water pressure relief during heavy rainfall conditions.

5. Where rails are doubled up to create the required thickness, a minimum nail pattern comprising two nails at each upright and at midspan between uprights must be used.

6. The maximum height specified on this drawing shall not be exceeded in any case. Where heights exceed this the matter should be referred back to the design engineer for redesign.

7. Contractor to provide appropriate means of controlling groundwater if it is encountered during construction. All water should be removed from augered holes prior to concrete being poured. Where this cannot be achieved the design engineer should be notified and concrete should be tremie poured.

8. Design Engineer must inspect all pile holes and retained soils to confirm design assumptions (Undrained shear strength > 80kPa) for each pile hole during construction. They should also be given every opportunity to observe timber poles, railings, drainage backfill, and draincoil during construction.

9. The retaining wall has been designed for a 12kPa surcharge. It does not allow for any foundation loading or any heavy construction plant loadings. The Design Engineer should be notified immediately if the retaining wall is subject to any other loadings greater than this.

10. Novaflo drain should be exited through the toe of the wall and outlet to stormwater system or specifically designed outlet structures at locations shown on CivilPlan drawings.

11. If significant overland flow is present above wall surface cut-off drainage must be installed and discharged to the stormwater system or specifically designed outlet structures.

12. Contractor is responsible for ensuring that all necessary precautions are taken to ensure short term stability. If cut batters are utilised the contractor must ensure works are staged appropriately based on available plant and predicted weather conditions. Ideally any cut faces should not be left unsupported for more than a few days or any period of time during rain and should be monitored regularly. If this cannot be achieved, then a temporary batter formed to a stable angle should be left in place, under engineering direction.

13. Timber batten fence (or similar approved barrier) must be installed where wall heights exceed 1.0m. Barrier should be constructed in accordance with Department of Building and Housing F4/AS1 & Guidance on Barrier Design (March 2012) and have a minimum height of 1.0m above the top of wall.

14. If basalt 'floaters' are encountered within pile holes, contractor to make allowance to drill/break through the layers where encountered.

revision	description	drawn	approved	date

drawn	KM
approved	CE
date	3.05.18
scale	NTS
original size	A3

LANDER geotechnical

client: HUGHES DEVELOPMENTS LIMITED

project: 99 ESCOTTS ROAD, TUAKAU

title: RETAINING WALL 1 (CH0-67) - TYPICAL DETAIL

project no: J00779 | figure no: 01

Template revision: Timber Detail (25/06/2016)

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	10.05.18

DRAWN: GDS DATE: 05.2018
CHECKED: RJP DATE: 10.05.18
APPROVED: RJP DATE: 10.05.18

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

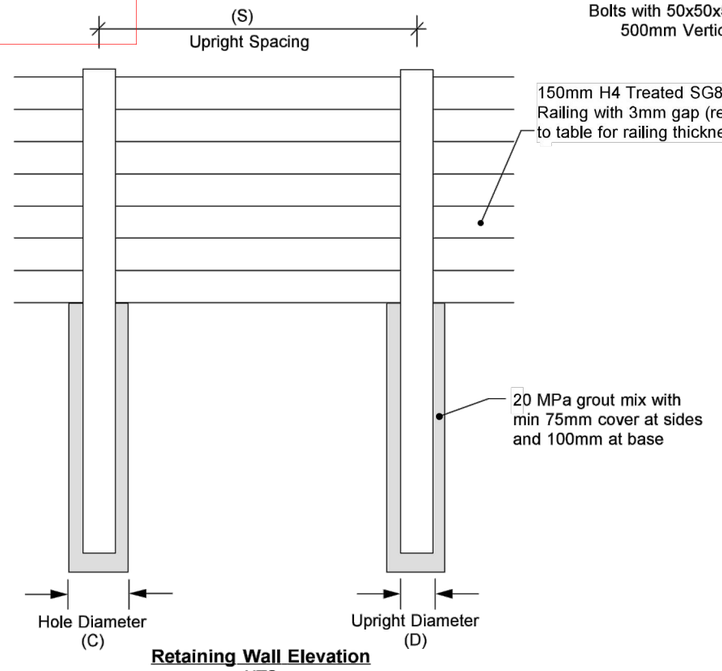
SHEET TITLE:
RETAINING WALL DETAILS
GEOTECHNICAL DESIGN
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-272 REV: C1

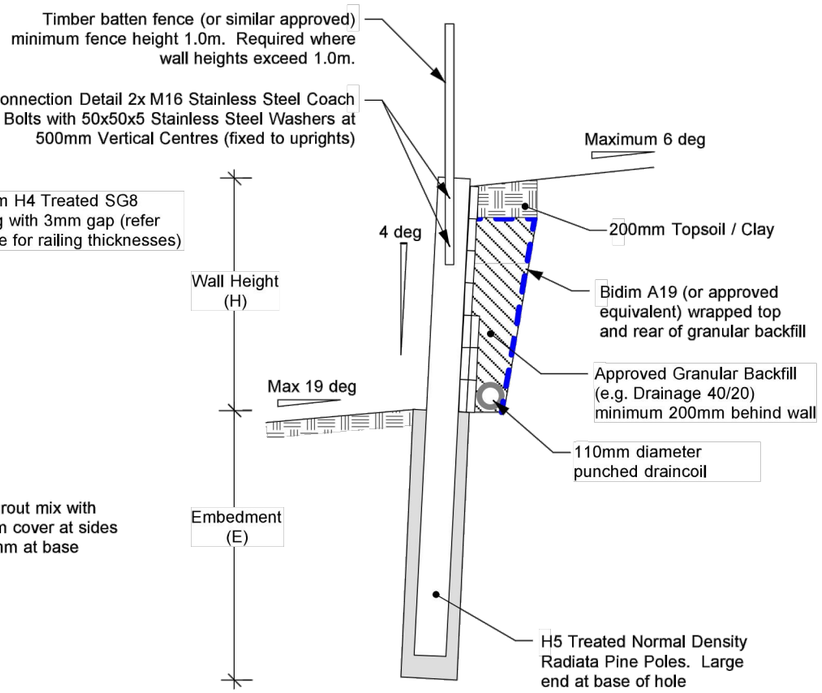
RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



Retaining Wall Elevation
NTS



Retaining Wall Typical Cross Section
NTS

Retaining Wall Schedule

Wall Height (H)	Embedment Depth (E)	Upright Spacing (S)	Upright SED Dia (D)	Hole Diameter (C)	Rail Thickness
2.6m	3.9m	1.2m	425mm	600mm	100mm*
2.4m	3.6m	1.2m	400mm	550mm	100mm*
2.2m	3.2m	1.2m	375mm	550mm	100mm*
2.1m	2.9m	1.2m	350mm	500mm	100mm*
1.9m	2.9m	1.2m	325mm	500mm	100mm*
1.7m	2.5m	1.2m	300mm	450mm	100mm*
1.6m	2.2m	1.2m	275mm	450mm	100mm*
1.4m	2.2m	1.2m	250mm	400mm	100mm*
1.2m	1.8m	1.2m	225mm	400mm	100mm*
1.1m	1.4m	1.2m	200mm	350mm	100mm*
0.9m	1.2m	1.2m	175mm	350mm	50mm
0.7m	1.1m	1.2m	150mm	300mm	50mm

* - 50mm wide railings may be used for top 1.0m of wall

NOTES :

1. The contractor is responsible for locating and confirming all services on site prior to commencement of works on site. Where service trenches conflict, the Design Engineer should be notified immediately. Where services are within 1.5x height of the wall, all backfilling must be Engineer certified clay or compacted hardfill and must be completed prior to wall construction commencing.

2. All timber poles shall be H5 treated radiata pine in accordance with NZS3602 unless otherwise approved. Cutting of timber is to be avoided wherever possible. If cutting is necessary the exposed surface shall be flooded with a copper naphthenate type of wood preservative.

3. Poles must be bored and concreted. Driven piles are expressly excluded unless specifically approved by the Design Engineer.

4. Timber rails shall be fixed to uprights with 150mm long galvanised nails. Rails are to be H4 treated SG8 treated radiata pine made continuous over two or more spans and with staggered joints. A minimum gap of 3mm must be left between rails to permit water pressure relief during heavy rainfall conditions.

5. Where rails are doubled up to create the required thickness, a minimum nail pattern comprising two nails at each upright and at midspan between uprights must be used.

6. The maximum height specified on this drawing shall not be exceeded in any case. Where heights exceed this the matter should be referred back to the design engineer for redesign.

7. Contractor to provide appropriate means of controlling groundwater if it is encountered during construction. All water should be removed from augered holes prior to concrete being poured. Where this cannot be achieved the design engineer should be notified and concrete should be tremie poured.

8. Design Engineer must inspect all pile holes and retained soils to confirm design assumptions (Undrained shear strength > 80kPa) for each pile hole during construction. They should also be given every opportunity to observe timber poles, railings, drainage backfill, and draincoil during construction.

9. The retaining wall has been designed for a 12kPa surcharge. It does not allow for any foundation loading or any heavy construction plant loadings. The Design Engineer should be notified immediately if the retaining wall is subject to any other loadings greater than this.

10. Novaflo drain should be exited through the toe of the wall and outlet to stormwater system or specifically designed outlet structures at locations shown on CivilPlan drawings.

11. If significant overland flow is present above wall surface cut-off drainage must be installed and discharged to the stormwater system or specifically designed outlet structures.

12. Contractor is responsible for ensuring that all necessary precautions are taken to ensure short term stability. If cut batters are utilised the contractor must ensure works are staged appropriately based on available plant and predicted weather conditions. Ideally any cut faces should not be left unsupported for more than a few days or any period of time during rain and should be monitored regularly. If this cannot be achieved, then a temporary batter formed to a stable angle should be left in place, under engineering direction.

13. Timber batten fence (or similar approved barrier) must be installed where wall heights exceed 1.0m. Barrier should be constructed in accordance with Department of Building and Housing F4/AS1 & Guidance on Barrier Design (March 2012) and have a minimum height of 1.0m above the top of wall.

14. If basalt 'floaters' are encountered within pile holes, contractor to make allowance to drill/break through the layers where encountered.

revision	description	drawn	approved	date

drawn	KM
approved	CE
date	3.05.18
scale	NTS
original size	A3

LANDER geotechnical

client: HUGHES DEVELOPMENTS LIMITED

project: 99 ESCOTTS ROAD, TUAKAU

title: RETAINING WALL 1 (CH67-112) - TYPICAL DETAIL

project no: J00779 | figure no: 02

Template revision: Timber Detail (25/06/2016)

Printed by: RYAN@10.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-272.DWG

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	10.05.18

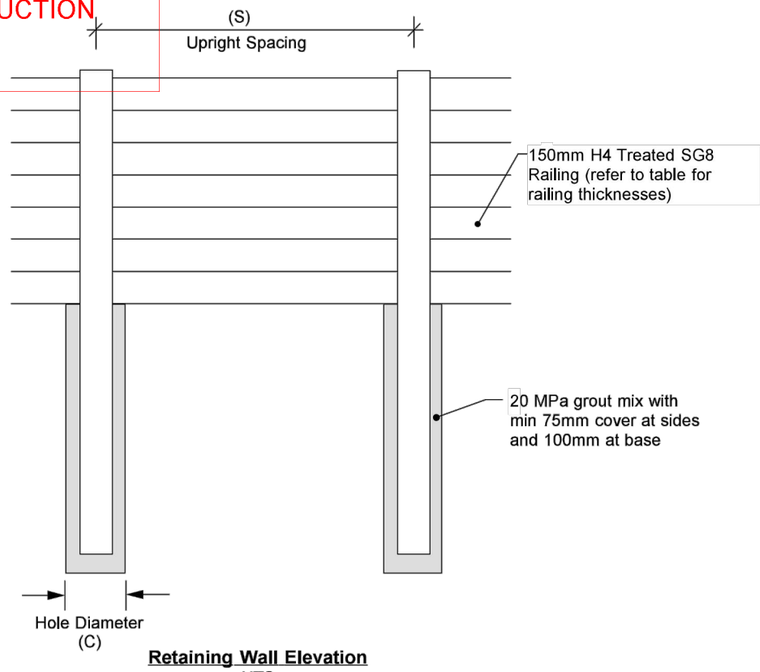
DRAWN: GDS DATE: 05.2018
CHECKED: RJP DATE: 10.05.18
APPROVED: RJP DATE: 10.05.18

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

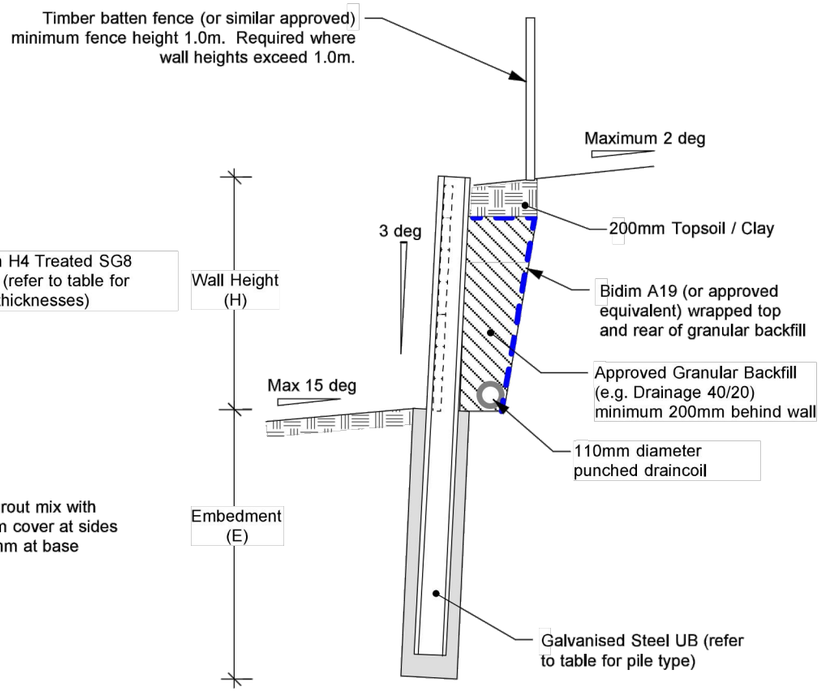
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
RETAINING WALL DETAILS
GEOTECHNICAL DESIGN
SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-273 REV: C1



Retaining Wall Elevation
NTS



Retaining Wall Typical Cross Section
NTS

Retaining Wall Schedule

Wall Height (H)	Embedment Depth (E)	Upright Spacing (S)	Upright Pile Type	Hole Diameter (C)	Rail Thickness*
3.6m	4.3m	1.5m	460UB67	650mm	150mm
3.4m	4.1m	1.5m	410UB60	600mm	150mm
3.2m	3.8m	1.5m	360UB57	550mm	100mm
3.1m	3.5m	1.5m	360UB51	550mm	100mm
2.9m	3.3m	1.5m	310UB46	450mm	100mm
2.7m	3.0m	1.5m	310UB40	450mm	100mm
2.6m	2.8m	1.5m	310UB40	450mm	100mm
2.4m	2.6m	1.5m	250UB37	400mm	100mm
2.2m	2.4m	1.5m	250UB31	400mm	100mm
2.0m	2.2m	1.5m	200UB30	350mm	100mm
1.9m	2.0m	1.5m	200UB25	350mm	100mm
1.7m	1.8m	1.5m	200UB22	350mm	100mm
1.5m	1.7m	1.5m	180UB18	350mm	100mm
1.3m	1.6m	1.5m	150UB18	300mm	100mm
1.2m	1.3m	1.5m	150UB14	300mm	100mm

* - 100mm thick railings may be used for top 3.2m of wall
Alternatively 110mm diameter full round unilogs may be used instead of planks

NOTES :

1. The contractor is responsible for locating and confirming all services on site prior to commencement of works on site. Where service trenches conflict, the Design Engineer should be notified immediately. Where services are within 1.5x height of the wall, all backfilling must be Engineer certified clay or compacted hardfill and must be completed prior to wall construction commencing.

2. All steel UB sections should be Grade 300 and be galvanised in accordance with NZS4680 (with a minimum coating mass of 500g/m2) to a minimum depth of 300mm below final ground level.

3. Poles must be bored and concreted. Driven piles are expressly excluded unless specifically approved by the Design Engineer.

4. Timber rails shall be fixed to uprights with 150mm long galvanised nails. Bitumen barrier tape to be placed between Steel UB and railings at all connections. Rails are to be H4 treated SG8 treated radiata pine. A minimum gap of 3mm must be left between rails to permit water pressure relief during heavy rainfall conditions.

5. Where rails are doubled up to create the required thickness, a minimum nail pattern comprising two nails at each upright and at midspan between uprights must be used.

6. The maximum height specified on this drawing shall not be exceeded in any case. Where heights exceed this the matter should be referred back to the design engineer for redesign.

7. Contractor to provide appropriate means of controlling groundwater if it is encountered during construction. All water should be removed from augered holes prior to concrete being poured. Where this cannot be achieved the design engineer should be notified and concrete should be tremie poured.

8. Design Engineer must inspect all pile holes and retained soils to confirm design assumptions (Undrained shear strength > 80kPa) for each pile hole during construction. They should also be given every opportunity to observe timber poles, railings, drainage backfill, and draincoil during construction.

9. The retaining wall has been designed for a 12kPa surcharge. It does not allow for any foundation loading or any heavy construction plant loadings. The Design Engineer should be notified immediately if the retaining wall is subject to any other loadings greater than this.

10. Novaflo drain should be exited through the toe of the wall and outlet to stormwater system or specifically designed outlet structures at locations shown on CivilPlan drawings.

11. If significant overland flow is present above wall surface cut-off drainage must be installed and discharged to the stormwater system or specifically designed outlet structures.

12. Timber batten fence (or similar approved barrier) must be installed where wall heights exceed 1.0m. Barrier should be constructed in accordance with Department of Building and Housing F4/AS1 & Guidance on Barrier Design (March 2012) and have a minimum height of 1.0m above the top of wall.

13. If basalt 'floaters' are encountered within pile holes, contractor to make allowance to drill/break through the layers where encountered.

revision	description	drawn	approved	date

drawn	KM
approved	CE
date	4.05.18
scale	NTS
original size	A3

LANDER geotechnical

client: HUGHES DEVELOPMENTS LIMITED
project: 99 ESCOTTS ROAD, TUAKAU
title: RETAINING WALL 2 (CH0-50) - TYPICAL DETAIL
project no: J00779 figure no: 03

Template revision: Timber Detail (25/06/2016)

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	10.05.18

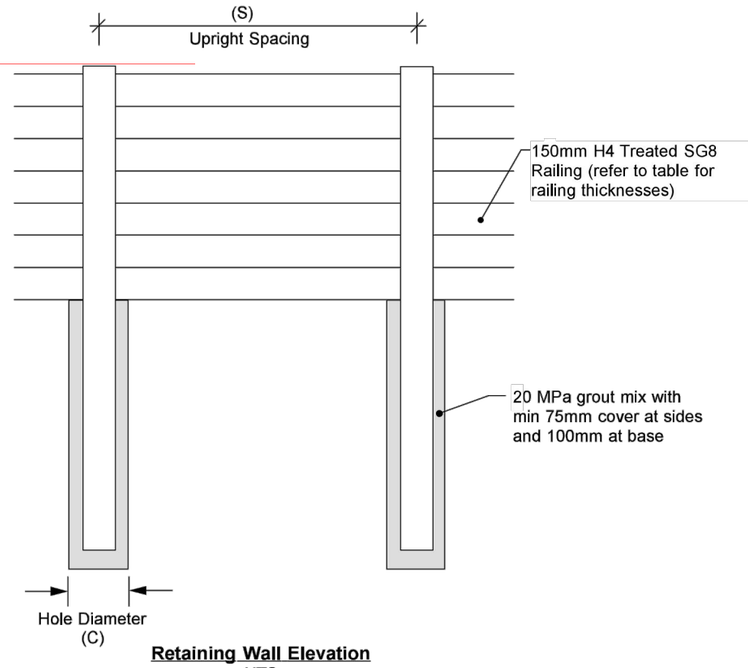
DRAWN: GDS DATE: 05.2018
CHECKED: RJP DATE: 10.05.18
APPROVED: RJP DATE: 10.05.18

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

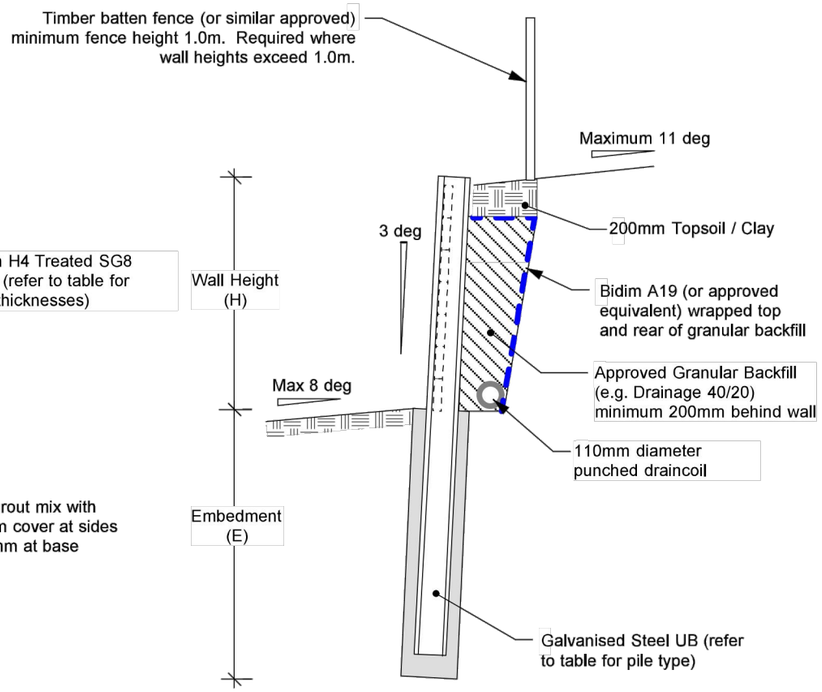
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
RETAINING WALL DETAILS
GEOTECHNICAL DESIGN
SHEET 3

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-274 REV: C1



Retaining Wall Elevation
NTS



Retaining Wall Typical Cross Section
NTS

Retaining Wall Schedule

Wall Height (H)	Embedment Depth (E)	Upright Spacing (S)	Upright Pile Type	Hole Diameter (C)	Rail Thickness*
3.6m	4.1m	1.5m	410UB60	600mm	150mm
3.4m	3.8m	1.5m	410UB54	600mm	150mm
3.2m	3.6m	1.5m	360UB51	550mm	100mm
3.0m	3.3m	1.5m	360UB45	550mm	100mm
2.9m	3.0m	1.5m	310UB40	450mm	100mm
2.7m	2.8m	1.5m	310UB40	450mm	100mm
2.5m	2.6m	1.5m	250UB37	400mm	100mm
2.3m	2.4m	1.5m	250UB31	400mm	100mm
2.1m	2.2m	1.5m	200UB30	350mm	100mm
1.9m	2.0m	1.5m	200UB25	350mm	100mm
1.8m	1.8m	1.5m	200UB22	350mm	100mm
1.6m	1.6m	1.5m	180UB18	350mm	100mm
1.4m	1.5m	1.5m	150UB18	300mm	100mm
1.2m	1.3m	1.5m	150UB14	300mm	100mm
1.0m	1.2m	1.5m	150UB14	300mm	100mm

* - 100mm thick railings may be used for top 3.2m of wall
Alternatively 110mm diameter full round unilogs may be used instead of planks

NOTES :

1. The contractor is responsible for locating and confirming all services on site prior to commencement of works on site. Where service trenches conflict, the Design Engineer should be notified immediately. Where services are within 1.5x height of the wall, all backfilling must be Engineer certified clay or compacted hardfill and must be completed prior to wall construction commencing.

2. All steel UB sections should be Grade 300 and be galvanised in accordance with NZS4680 (with a minimum coating mass of 500g/m2) to a minimum depth of 300mm below final ground level.

3. Poles must be bored and concreted. Driven piles are expressly excluded unless specifically approved by the Design Engineer.

4. Timber rails shall be fixed to uprights with 150mm long galvanised nails. Bitumen barrier tape to be placed between Steel UB and railings at all connections. Rails are to be H4 treated SG8 treated radiata pine. A minimum gap of 3mm must be left between rails to permit water pressure relief during heavy rainfall conditions.

5. Where rails are doubled up to create the required thickness, a minimum nail pattern comprising two nails at each upright and at midspan between uprights must be used.

6. The maximum height specified on this drawing shall not be exceeded in any case. Where heights exceed this the matter should be referred back to the design engineer for redesign.

7. Contractor to provide appropriate means of controlling groundwater if it is encountered during construction. All water should be removed from augered holes prior to concrete being poured. Where this cannot be achieved the design engineer should be notified and concrete should be tremie poured.

8. Design Engineer must inspect all pile holes and retained soils to confirm design assumptions (Undrained shear strength > 80kPa) for each pile hole during construction. They should also be given every opportunity to observe timber poles, railings, drainage backfill, and draincoil during construction.

9. The retaining wall has been designed for a 12kPa surcharge. It does not allow for any foundation loading or any heavy construction plant loadings. The Design Engineer should be notified immediately if the retaining wall is subject to any other loadings greater than this.

10. Novaflo drain should be exited through the toe of the wall and outlet to stormwater system or specifically designed outlet structures at locations shown on CivilPlan drawings.

11. If significant overland flow is present above wall surface cut-off drainage must be installed and discharged to the stormwater system or specifically designed outlet structures.

12. Timber batten fence (or similar approved barrier) must be installed where wall heights exceed 1.0m. Barrier should be constructed in accordance with Department of Building and Housing F4/AS1 & Guidance on Barrier Design (March 2012) and have a minimum height of 1.0m above the top of wall.

13. If basalt 'floaters' are encountered within pile holes, contractor to make allowance to drill/break through the layers where encountered.

revision	description	drawn	approved	date

drawn	KM
approved	CE
date	4.05.18
scale	NTS
original size	A3

LANDER geotechnical

client: HUGHES DEVELOPMENTS LIMITED
project: 99 ESCOTTS ROAD, TUAKAU
title: RETAINING WALL 2 (CH50-71) - TYPICAL DETAIL
project no: J00779 | figure no: 04

Template revision: Timber Detail (25/06/2016)

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	10.05.18

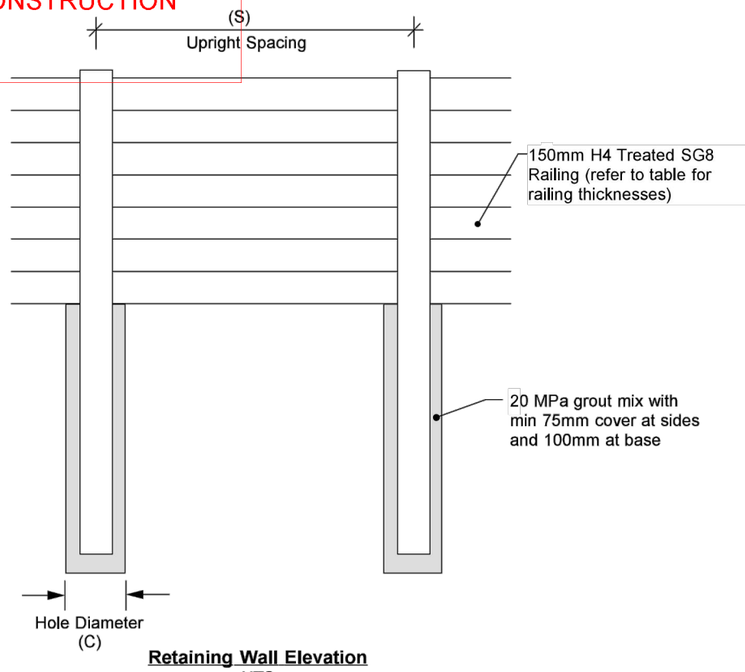
DRAWN: GDS DATE: 05.2018
CHECKED: RJP DATE: 10.05.18
APPROVED: RJP DATE: 10.05.18

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

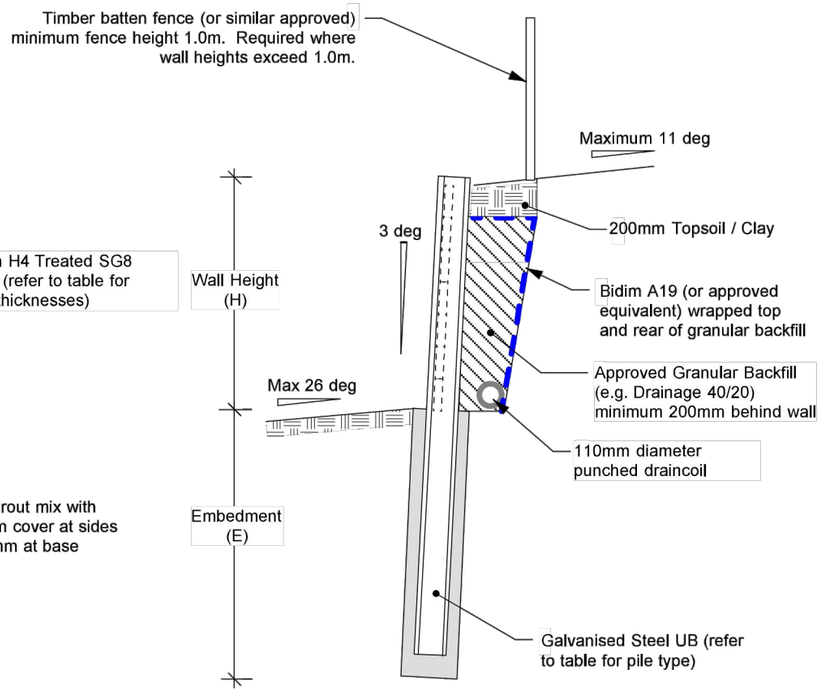
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
RETAINING WALL DETAILS
GEOTECHNICAL DESIGN
SHEET 4

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-275 REV: C1



Retaining Wall Elevation
NTS



Retaining Wall Typical Cross Section
NTS

Retaining Wall Schedule

Wall Height (H)	Embedment Depth (E)	Upright Spacing (S)	Upright Pile Type	Hole Diameter (C)	Rail Thickness*
3.6m	5.6m	1.5m	460UB82	650mm	150mm
3.4m	5.3m	1.5m	460UB75	650mm	150mm
3.3m	5.0m	1.5m	460UB67	650mm	150mm
3.1m	4.7m	1.5m	460UB67	650mm	100mm
3.0m	4.4m	1.5m	410UB54	600mm	100mm
2.8m	4.0m	1.5m	360UB57	550mm	100mm
2.7m	3.8m	1.5m	360UB51	550mm	100mm
2.5m	3.5m	1.5m	360UB45	550mm	100mm
2.4m	3.2m	1.5m	310UB46	450mm	100mm
2.2m	3.0m	1.5m	310UB40	450mm	100mm
2.0m	2.7m	1.5m	310UB32	450mm	100mm
1.9m	2.5m	1.5m	250UB37	400mm	100mm
1.7m	2.2m	1.5m	250UB31	400mm	100mm
1.6m	2.1m	1.5m	200UB22	350mm	100mm
1.4m	1.8m	1.5m	180UB22	350mm	100mm
1.3m	1.7m	1.5m	150UB18	300mm	100mm
1.1m	1.5m	1.5m	150UB14	300mm	100mm

* - 100mm thick railings may be used for top 3.2m of wall
Alternatively 110mm diameter full round unilogs may be used instead of planks

NOTES :

1. The contractor is responsible for locating and confirming all services on site prior to commencement of works on site. Where service trenches conflict, the Design Engineer should be notified immediately. Where services are within 1.5x height of the wall, all backfilling must be Engineer certified clay or compacted hardfill and must be completed prior to wall construction commencing.

2. All steel UB sections should be Grade 300 and be galvanised in accordance with NZS4680 (with a minimum coating mass of 500g/m2) to a minimum depth of 300mm below final ground level.

3. Poles must be bored and concreted. Driven piles are expressly excluded unless specifically approved by the Design Engineer.

4. Timber rails shall be fixed to uprights with 150mm long galvanised nails. Bitumen barrier tape to be placed between Steel UB and railings at all connections. Rails are to be H4 treated SG8 treated radiata pine. A minimum gap of 3mm must be left between rails to permit water pressure relief during heavy rainfall conditions.

5. Where rails are doubled up to create the required thickness, a minimum nail pattern comprising two nails at each upright and at midspan between uprights must be used.

6. The maximum height specified on this drawing shall not be exceeded in any case. Where heights exceed this the matter should be referred back to the design engineer for redesign.

7. Contractor to provide appropriate means of controlling groundwater if it is encountered during construction. All water should be removed from augered holes prior to concrete being poured. Where this cannot be achieved the design engineer should be notified and concrete should be tremie poured.

8. Design Engineer must inspect all pile holes and retained soils to confirm design assumptions (Undrained shear strength > 80kPa) for each pile hole during construction. They should also be given every opportunity to observe timber poles, railings, drainage backfill, and draincoil during construction.

9. The retaining wall has been designed for a 12kPa surcharge. It does not allow for any foundation loading or any heavy construction plant loadings. The Design Engineer should be notified immediately if the retaining wall is subject to any other loadings greater than this.

10. Novaflo drain should be exited through the toe of the wall and outlet to stormwater system or specifically designed outlet structures at locations shown on CivilPlan drawings.

11. If significant overland flow is present above wall surface cut-off drainage must be installed and discharged to the stormwater system or specifically designed outlet structures.

12. Timber batten fence (or similar approved barrier) must be installed where wall heights exceed 1.0m. Barrier should be constructed in accordance with Department of Building and Housing F4/AS1 & Guidance on Barrier Design (March 2012) and have a minimum height of 1.0m above the top of wall.

13. If basalt 'floaters' are encountered within pile holes, contractor to make allowance to drill/break through the layers where encountered.

revision	description	drawn	approved	date

Template revision: Timber Detail (25/06/2016)

drawn	KM
approved	CE
date	4.05.18
scale	NTS
original size	A3

LANDER geotechnical

client: HUGHES DEVELOPMENTS LIMITED
project: 99 ESCOTTS ROAD, TUAKAU
title: RETAINING WALL 2 (CH71-95) - TYPICAL DETAIL
project no: J00779 | figure no: 05

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	10.05.18

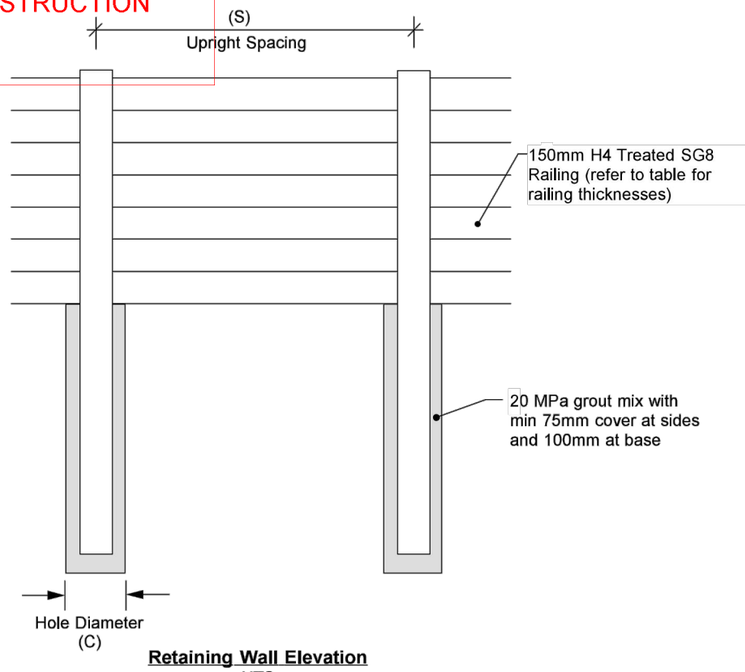
DRAWN: GDS DATE: 05.2018
CHECKED: RJP DATE: 10.05.18
APPROVED: RJP DATE: 10.05.18

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

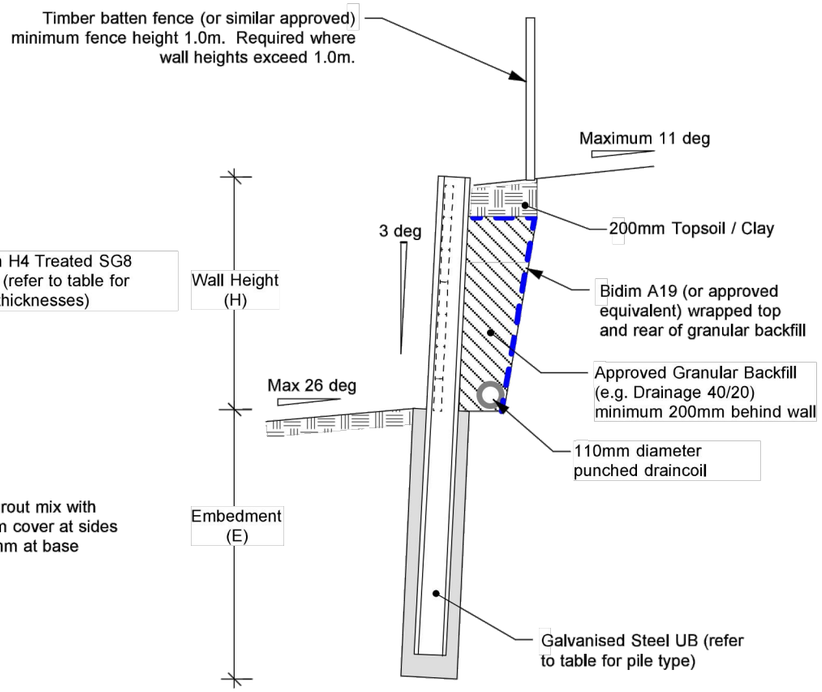
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
RETAINING WALL DETAILS
GEOTECHNICAL DESIGN
SHEET 5

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-276 REV: C1



Retaining Wall Elevation
NTS



Retaining Wall Typical Cross Section
NTS

Retaining Wall Schedule

Wall Height (H)	Embedment Depth (E)	Upright Spacing (S)	Upright Pile Type	Hole Diameter (C)	Rail Thickness*
3.6m	5.6m	1.5m	460UB82	650mm	150mm
3.4m	5.3m	1.5m	460UB75	650mm	150mm
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3.1m	4.7m	1.5m	460UB67	650mm	100mm
3.0m	4.4m	1.5m	410UB54	600mm	100mm
2.8m	4.0m	1.5m	360UB57	550mm	100mm
2.7m	3.8m	1.5m	360UB51	550mm	100mm
2.5m	3.5m	1.5m	360UB45	550mm	100mm
2.4m	3.2m	1.5m	310UB46	450mm	100mm
2.2m	3.0m	1.5m	310UB40	450mm	100mm
2.0m	2.7m	1.5m	310UB32	450mm	100mm
1.9m	2.5m	1.5m	250UB37	400mm	100mm
1.7m	2.2m	1.5m	250UB31	400mm	100mm
1.6m	2.1m	1.5m	200UB22	350mm	100mm
1.4m	1.8m	1.5m	180UB22	350mm	100mm
1.3m	1.7m	1.5m	150UB18	300mm	100mm
1.1m	1.5m	1.5m	150UB14	300mm	100mm

* - 100mm thick railings may be used for top 3.2m of wall
Alternatively 110mm diameter full round unilogs may be used instead of planks

NOTES :

1. The contractor is responsible for locating and confirming all services on site prior to commencement of works on site. Where service trenches conflict, the Design Engineer should be notified immediately. Where services are within 1.5x height of the wall, all backfilling must be Engineer certified clay or compacted hardfill and must be completed prior to wall construction commencing.

2. All steel UB sections should be Grade 300 and be galvanised in accordance with NZS4680 (with a minimum coating mass of 500g/m2) to a minimum depth of 300mm below final ground level.

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12. Timber batten fence (or similar approved barrier) must be installed where wall heights exceed 1.0m. Barrier should be constructed in accordance with Department of Building and Housing F4/AS1 & Guidance on Barrier Design (March 2012) and have a minimum height of 1.0m above the top of wall.

13. If basalt 'floaters' are encountered within pile holes, contractor to make allowance to drill/break through the layers where encountered.

revision	description	drawn	approved	date

Template revision: Timber Detail (25/06/2016)

drawn	KM
approved	CE
date	4.05.18
scale	NTS
original size	A3

LANDER geotechnical

client: HUGHES DEVELOPMENTS LIMITED
project: 99 ESCOTTS ROAD, TUAKAU
title: RETAINING WALL 3 (CH0-24) - TYPICAL DETAIL
project no: J00779 | figure no: 06

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	10.05.18

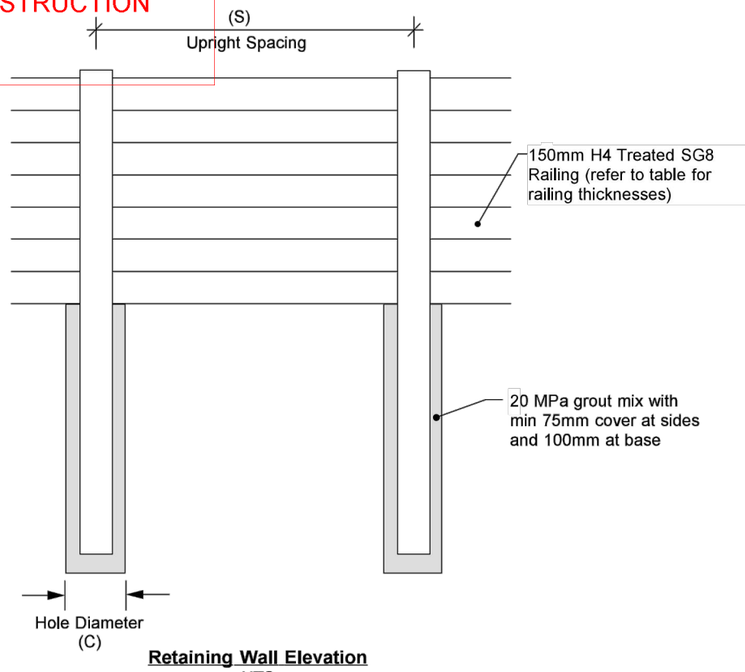
DRAWN: GDS DATE: 05.2018
CHECKED: RJP DATE: 10.05.18
APPROVED: RJP DATE: 10.05.18

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

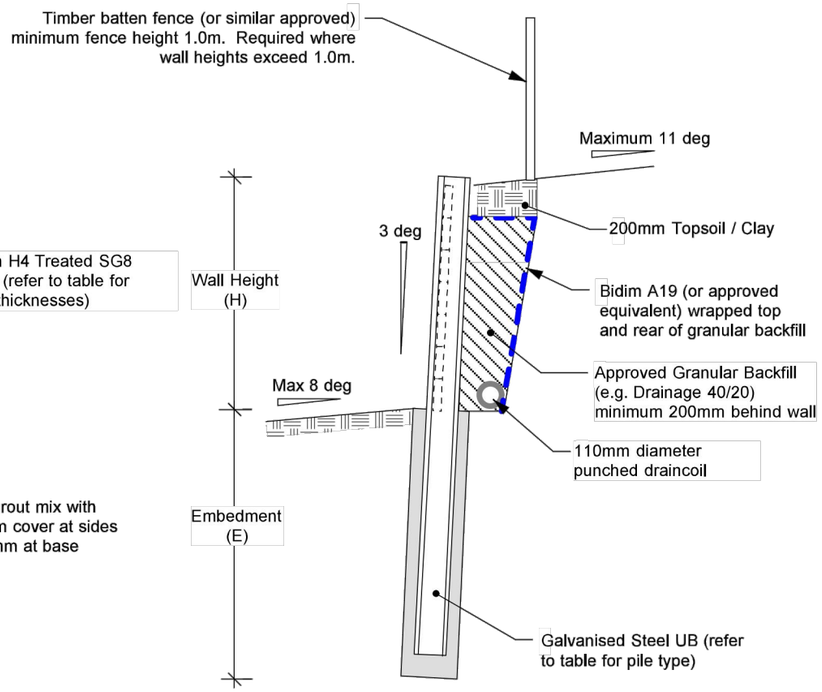
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
RETAINING WALL DETAILS
GEOTECHNICAL DESIGN
SHEET 6

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-277 REV: C1



Retaining Wall Elevation
NTS



Retaining Wall Typical Cross Section
NTS

Retaining Wall Schedule

Wall Height (H)	Embedment Depth (E)	Upright Spacing (S)	Upright Pile Type	Hole Diameter (C)	Rail Thickness*
3.6m	4.1m	1.5m	410UB60	600mm	150mm
3.4m	3.8m	1.5m	410UB54	600mm	150mm
3.2m	3.6m	1.5m	360UB51	550mm	100mm
3.0m	3.3m	1.5m	360UB45	550mm	100mm
2.9m	3.0m	1.5m	310UB40	450mm	100mm
2.7m	2.8m	1.5m	310UB40	450mm	100mm
2.5m	2.6m	1.5m	250UB37	400mm	100mm
2.3m	2.4m	1.5m	250UB31	400mm	100mm
2.1m	2.2m	1.5m	200UB30	350mm	100mm
1.9m	2.0m	1.5m	200UB25	350mm	100mm
1.8m	1.8m	1.5m	200UB22	350mm	100mm
1.6m	1.6m	1.5m	180UB18	350mm	100mm
1.4m	1.5m	1.5m	150UB18	300mm	100mm
1.2m	1.3m	1.5m	150UB14	300mm	100mm
1.0m	1.2m	1.5m	150UB14	300mm	100mm

* - 100mm thick railings may be used for top 3.2m of wall
Alternatively 110mm diameter full round unilogs may be used instead of planks

NOTES :

1. The contractor is responsible for locating and confirming all services on site prior to commencement of works on site. Where service trenches conflict, the Design Engineer should be notified immediately. Where services are within 1.5x height of the wall, all backfilling must be Engineer certified clay or compacted hardfill and must be completed prior to wall construction commencing.

2. All steel UB sections should be Grade 300 and be galvanised in accordance with NZS4680 (with a minimum coating mass of 500g/m2) to a minimum depth of 300mm below final ground level.

3. Poles must be bored and concreted. Driven piles are expressly excluded unless specifically approved by the Design Engineer.

4. Timber rails shall be fixed to uprights with 150mm long galvanised nails. Bitumen barrier tape to be placed between Steel UB and railings at all connections. Rails are to be H4 treated SG8 treated radiata pine. A minimum gap of 3mm must be left between rails to permit water pressure relief during heavy rainfall conditions.

5. Where rails are doubled up to create the required thickness, a minimum nail pattern comprising two nails at each upright and at midspan between uprights must be used.

6. The maximum height specified on this drawing shall not be exceeded in any case. Where heights exceed this the matter should be referred back to the design engineer for redesign.

7. Contractor to provide appropriate means of controlling groundwater if it is encountered during construction. All water should be removed from augered holes prior to concrete being poured. Where this cannot be achieved the design engineer should be notified and concrete should be tremie poured.

8. Design Engineer must inspect all pile holes and retained soils to confirm design assumptions (Undrained shear strength > 80kPa) for each pile hole during construction. They should also be given every opportunity to observe timber poles, railings, drainage backfill, and draincoil during construction.

9. The retaining wall has been designed for a 12kPa surcharge. It does not allow for any foundation loading or any heavy construction plant loadings. The Design Engineer should be notified immediately if the retaining wall is subject to any other loadings greater than this.

10. Novaflo drain should be exited through the toe of the wall and outlet to stormwater system or specifically designed outlet structures at locations shown on CivilPlan drawings.

11. If significant overland flow is present above wall surface cut-off drainage must be installed and discharged to the stormwater system or specifically designed outlet structures.

12. Timber batten fence (or similar approved barrier) must be installed where wall heights exceed 1.0m. Barrier should be constructed in accordance with Department of Building and Housing F4/AS1 & Guidance on Barrier Design (March 2012) and have a minimum height of 1.0m above the top of wall.

13. If basalt 'floaters' are encountered within pile holes, contractor to make allowance to drill/break through the layers where encountered.

revision	description	drawn	approved	date

drawn	KM
approved	CE
date	4.05.18
scale	NTS
original size	A3

LANDER geotechnical

client: HUGHES DEVELOPMENTS LIMITED
project: 99 ESCOTTS ROAD, TUAKAU
title: RETAINING WALL 3 (CH24-40) - TYPICAL DETAIL
project no: J00779 | figure no: 07

Template revision: Timber Detail (25/06/2016)

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	10.05.18

DRAWN: GDS DATE: 05.2018
CHECKED: RJP DATE: 10.05.18
APPROVED: RJP DATE: 10.05.18

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
RETAINING WALL DETAILS
GEOTECHNICAL DESIGN
SHEET 7

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-278 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

NOTES:

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. ALL STREET TREES TO HAVE ROOT BARRIERS INSTALLED TO PROTECT PAVEMENT CONSTRUCTION AND SERVICES IN BERM.
3. STREET TREES TO HAVE ADEQUATE SOIL (MIN. 3.0m3) FOR OPTIMUM GROWTH.

LEGEND

- PROPOSED PRAM CROSSING
- PROPOSED STREET LIGHT
- PROPOSED STREET TREE
- FOOTPATH
- ACCESSWAY CONCRETE 150mm 25MPa CONCRETE ON 75mm GAP20 WITH 665 MESH

VEHICLE CROSSING TO BE HEAVY DUTY COMMERCIAL CROSSING TO WAIKATO COUNCIL I.T.S. STANDARD

REFER SHEET 351 FOR DETAILS ON ACCESSWAY IN LOT 202

REFER SHEET 335 FOR ENTRANCE RAMP DETAIL

REFER SHEET 352 FOR DETAILS ON ACCESSWAY IN LOT 301

FOOTPATH TO EXTEND TO AND MATCH INTO EXISTING RESERVE VEHICLE CROSSING, 200m LENGTH

REFER SHEET 353 FOR DETAILS ON ACCESSWAY IN LOT 201

ROAD WIDENED AROUND BEND

ROAD WIDENED AROUND BEND

STAGE 1

STAGE 2

1 DP 98792

PT 2 DP 46000

2 DP 185077

1 DP 164972

PT ALLOT 14 PSH OF TUAKAU

9 DP 197062

3 DP 192647

2 DP 336418

4 DP 153726

2 DP 156929

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	GDS	DATE: 09.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROAD LAYOUT
OVERALL LAYOUT

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:750 / 1:1500

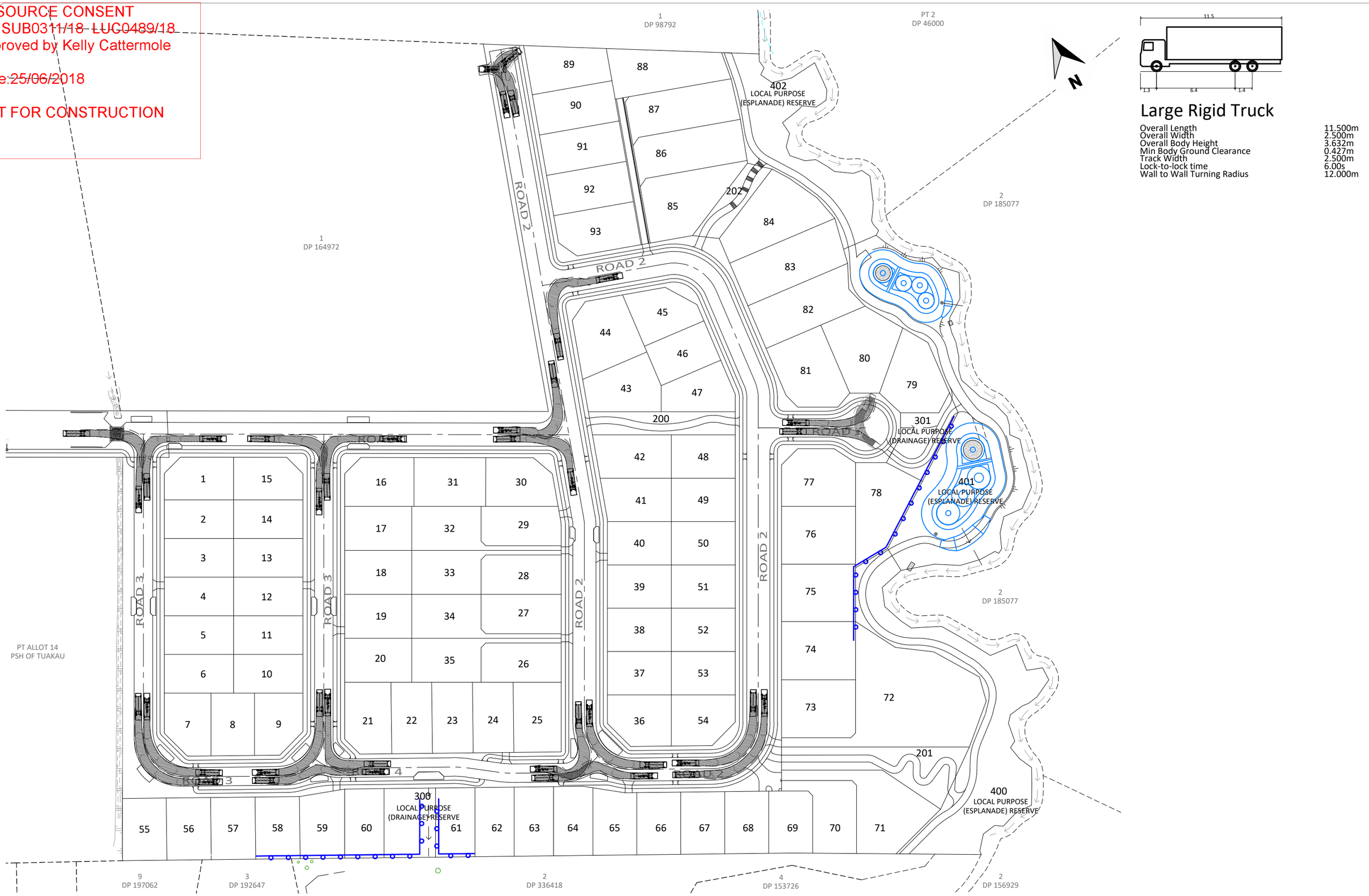
SCALE BAR 1:1500@A3 0 15 30 45 60 75m

DRAWING NUMBER: 2011-01-300 REV: C1

RESOURCE CONSENT
NO:SUB0311/18-LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



Large Rigid Truck

Overall Length	11.500m
Overall Width	2.500m
Overall Body Height	3.632m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	12.000m

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

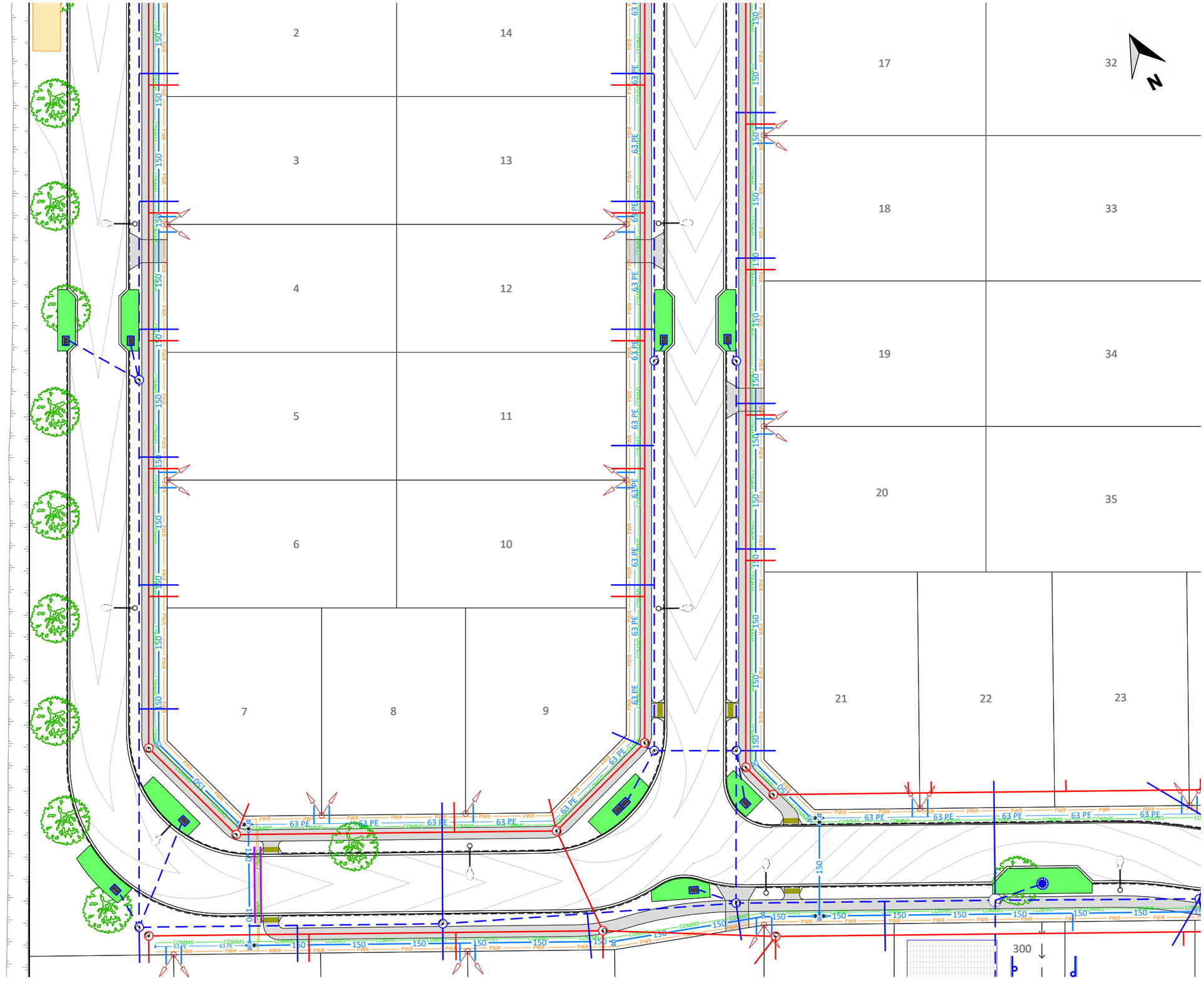
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

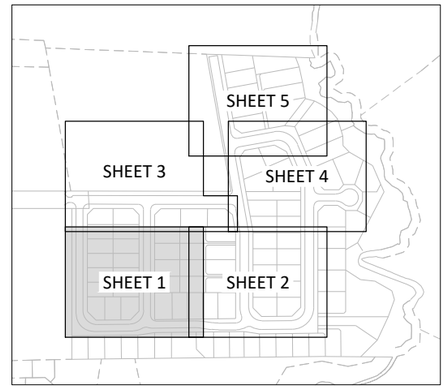
CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED VEHICLE TRACKING CURVES
LARGE RIGID TRUCK

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500 / 1:1000
SCALE BAR 1:1000@A3 0 10 20 30 40 50m
DRAWING NUMBER: 2011-01-305 REV: C1





KEYPLAN

NOTES:

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. ALL STREET TREES TO HAVE ROOT BARRIERS INSTALLED TO PROTECT THE ROAD PAVEMENT AND SERVICES IN THE BERM.

LEGEND

PROPOSED

- 125 PE — PE WATERMAIN
- POWER AND COMMS CONNECTION POINT
- COMMS — COMMS
- PWR — POWER
- MANHOLES
- CATCHPIT
- TREES
- STREETLIGHT
- PROPOSED PRAM CROSSING

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

Printed by: RYAN@10.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-315.DWG

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

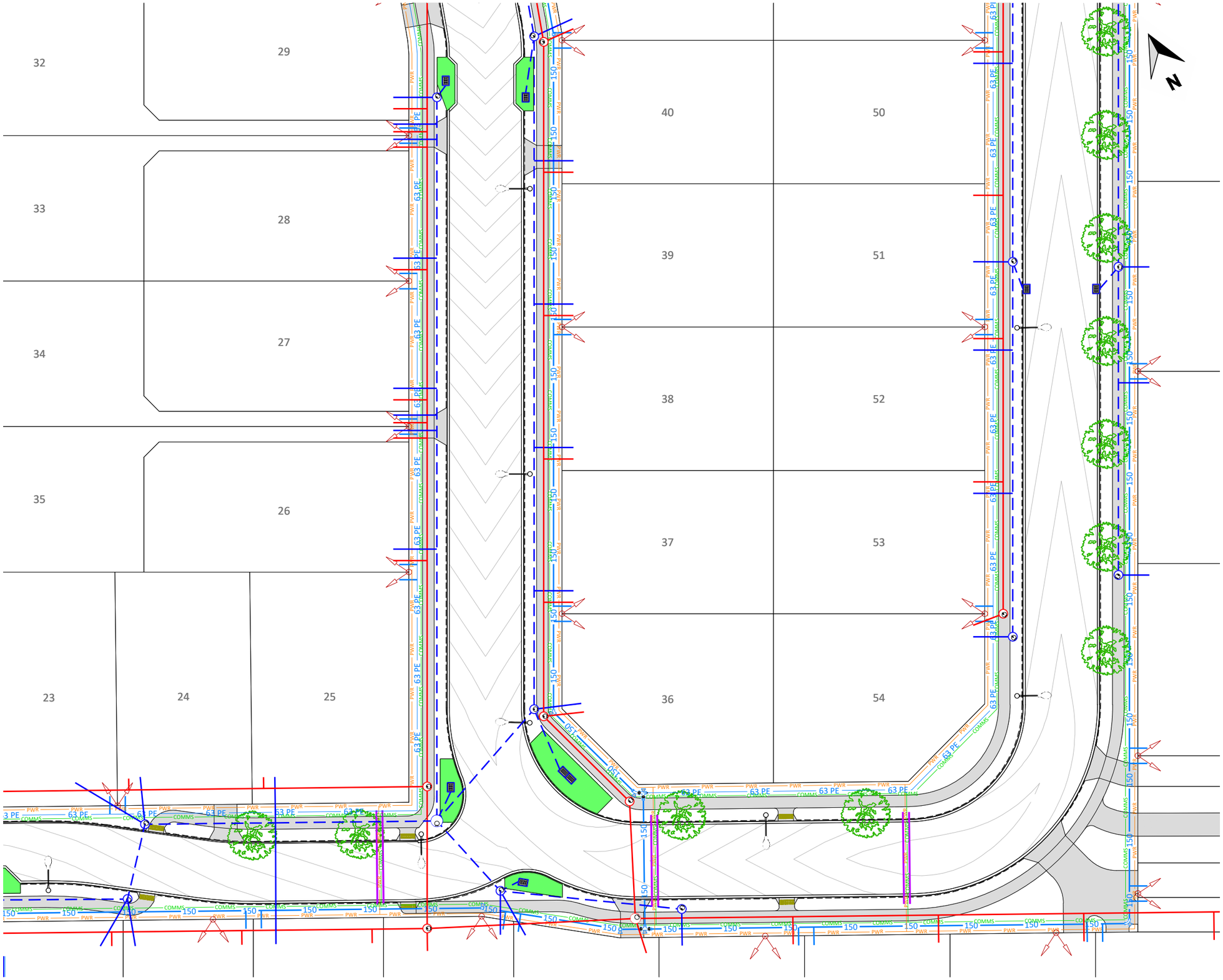
DRAWN:	GDS	DATE: 09.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

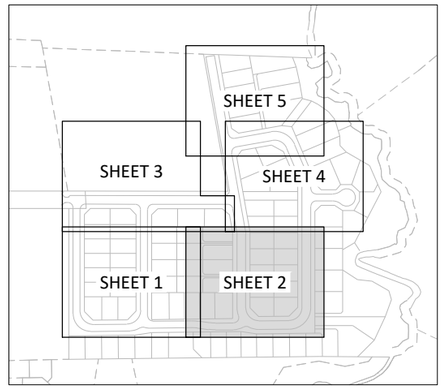
CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
COMBINED SERVICES AND FEATURES PLAN
DETAIL SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:250 / 1:500
SCALE BAR 1:500@A3 0 5 10 15 20 25m
DRAWING NUMBER: 2011-01-315 REV: C1





KEYPLAN

NOTES:

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. ALL STREET TREES TO HAVE ROOT BARRIERS INSTALLED TO PROTECT THE ROAD PAVEMENT AND SERVICES IN THE BERM.

LEGEND

PROPOSED

- 125 PE — PE WATERMAIN
- POWER AND COMMS CONNECTION POINT
- COMMS — COMMS
- PWR — POWER
- MANHOLES
- CATCHPIT
- TREES
- STREETLIGHT
- PROPOSED PRAM CROSSING

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

Printed by: RYAN@10.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-315.DWG

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	GDS	DATE: 09.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
COMBINED SERVICES AND FEATURES PLAN
DETAIL SHEET 2

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:250 / 1:500

SCALE BAR 1:500@A3 0 5 10 15 20 25m

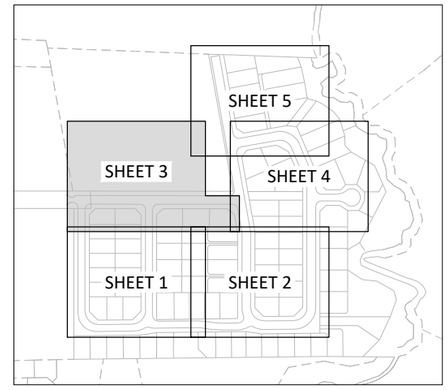
DRAWING NUMBER: 2011-01-316 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

1
DP 164972



KEYPLAN

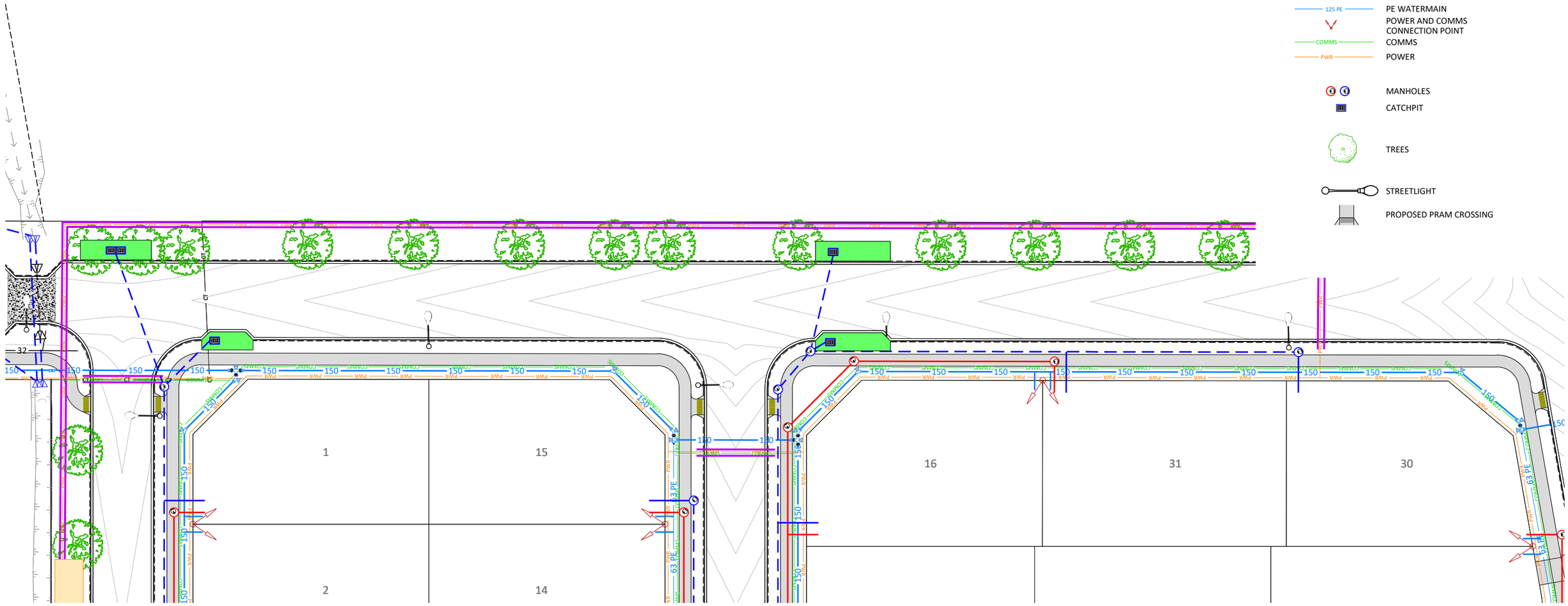
NOTES:

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. ALL STREET TREES TO HAVE ROOT BARRIERS INSTALLED TO PROTECT THE ROAD PAVEMENT AND SERVICES IN THE BERM.

LEGEND

PROPOSED

- 125 PE — PE WATERMAIN
- POWER AND COMMS CONNECTION POINT
- COMMS — COMMS
- PWR — POWER
- MANHOLES
- CATCHPIT
- TREES
- STREETLIGHT
- PROPOSED PRAM CROSSING



REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
COMBINED SERVICES AND FEATURES PLAN
DETAIL SHEET 3

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:250 / 1:500
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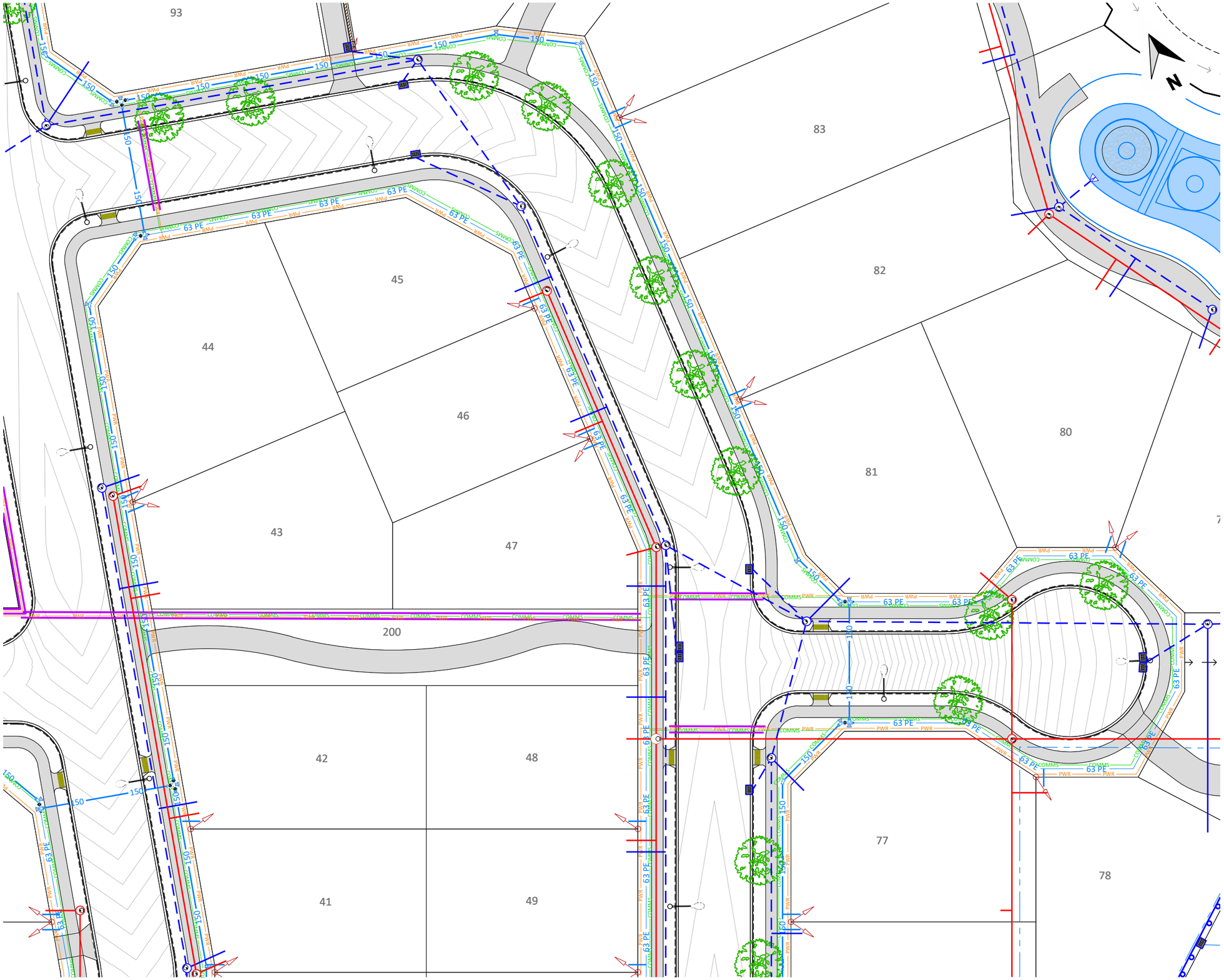
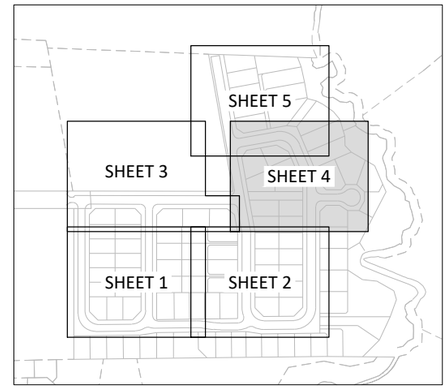
DRAWING NUMBER: 2011-01-317 REV: C1





KEYPLAN

NOTES:

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. ALL STREET TREES TO HAVE ROOT BARRIERS INSTALLED TO PROTECT THE ROAD PAVEMENT AND SERVICES IN THE BERM.

LEGEND

PROPOSED

- 125 PE — PE WATERMAIN
- POWER AND COMMS CONNECTION POINT
- COMMS — COMMS
- PWR — POWER
- MANHOLES
- CATCHPIT
- TREES
- STREETLIGHT
- PROPOSED PRAM CROSSING

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	GDS	DATE: 09.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

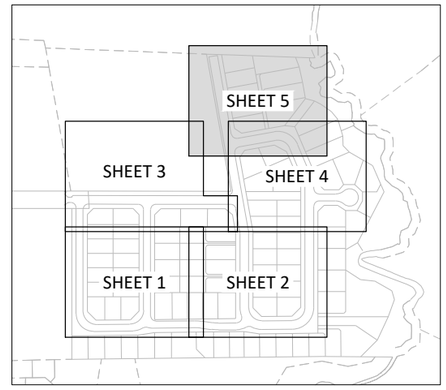
CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
COMBINED SERVICES AND FEATURES PLAN
DETAIL SHEET 4

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:250 / 1:500
SCALE BAR 1:500@A3 0 5 10 15 20 25m
DRAWING NUMBER: 2011-01-318 REV: C1

Printed by: RYAN@10.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-315.DWG



KEYPLAN

NOTES:

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. ALL STREET TREES TO HAVE ROOT BARRIERS INSTALLED TO PROTECT THE ROAD PAVEMENT AND SERVICES IN THE BERM.

LEGEND

PROPOSED

- 125 PE — PE WATERMAIN
- POWER AND COMMS CONNECTION POINT
- COMMS — COMMS
- PWR — POWER
- MANHOLES
- CATCHPIT
- TREES
- STREETLIGHT
- PROPOSED PRAM CROSSING

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017	
CHECKED: RJP	DATE: 29.03.18	
APPROVED: RJP	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
COMBINED SERVICES AND FEATURES PLAN
DETAIL SHEET 5

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:250 / 1:500

SCALE BAR 1:500@A3 0 5 10 15 20 25m

DRAWING NUMBER: 2011-01-319 REV: C1

LEGEND

EXISTING GROUND LINE

PROPSED GROUND LINE

SAG R.L. 39.564m
SAG CH 13.496m
VIP R.L. 39.553
VIP CH 15.469m

10.00m V.C.
K = 9.96

VTP CH 10.469
R.L. 39.568

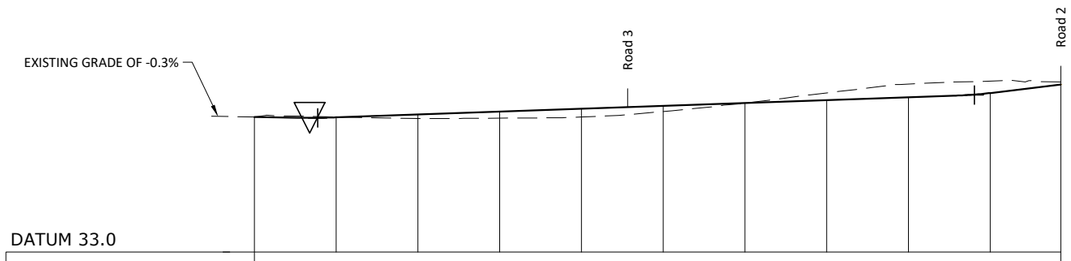
VTP CH 20.469
R.L. 39.588

VIP R.L. 40.678
VIP CH 176.136m

10.00m V.C.
K = 5.71

VTP CH 171.136
R.L. 40.643

VTP CH 181.136
R.L. 40.8



DATUM 33.0											
DESIGN GRADE		-0.30%				0.70%					2.45%
DESIGN FINISHED LEVEL	39.6	39.58	39.72	39.86	40	40.14	40.28	40.42	40.56	40.77	41.2
EXISTING GROUND LEVEL	39.61	39.6	39.53	39.55	39.6	39.87	40.28	40.78	41.21	41.36	41.31
DEPTH OF CUT/FILL	-0.01	-0.02	0.19	0.32	0.41	0.27	0.01	-0.36	-0.65	-0.58	-0.12
CHAINAGE	0	20	40	60	80	100	120	140	160	180	197.296

LONGITUDINAL SECTION ROAD 1

SCALE: (A1/A3) 1:750H 1:150V / 1:1500H 1:300V

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

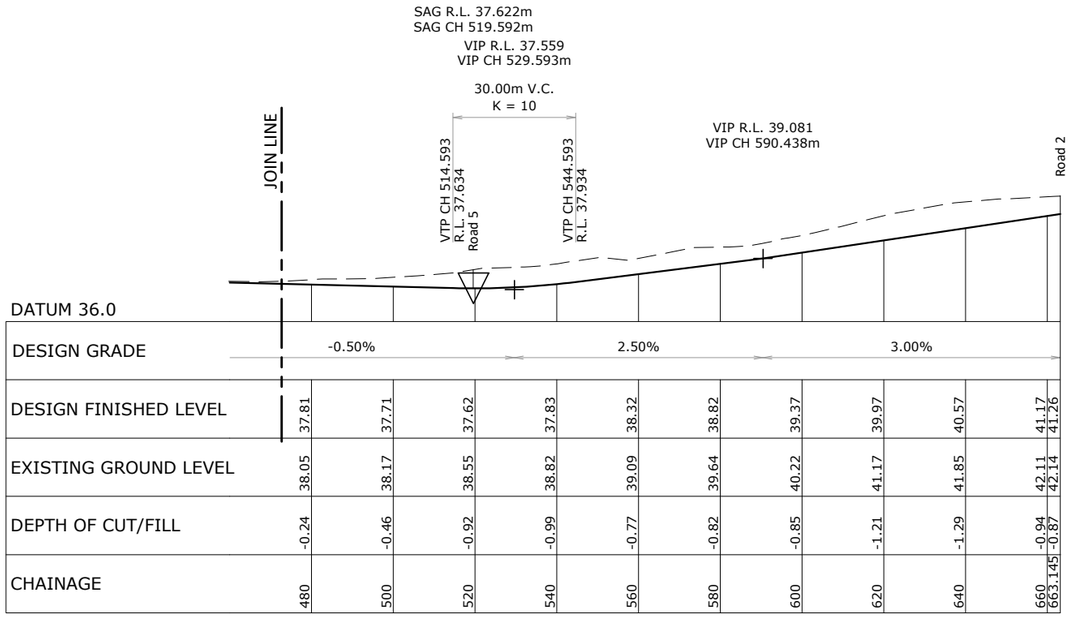
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

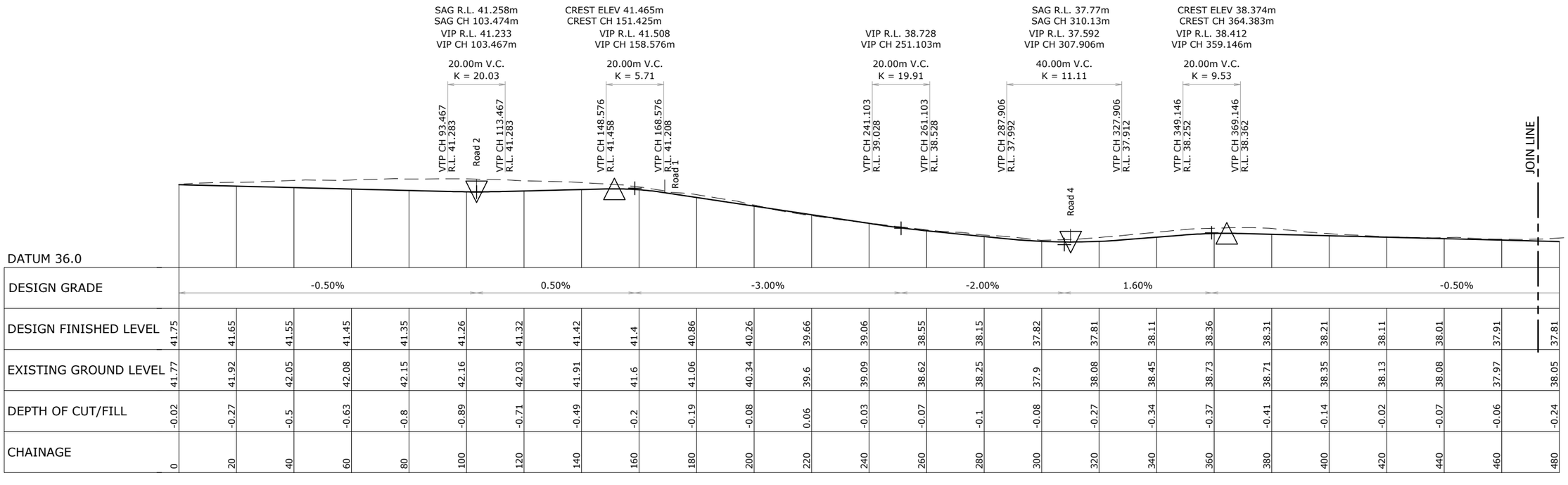
SHEET TITLE:
PROPOSED ROADING
LONGITUDINAL SECTIONS
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:750 / 1:1500
SCALE BAR 1:1500@A3 0 15 30 45 60 75m
DRAWING NUMBER: 2011-01-320 REV: C1



LONGITUDINAL SECTION ROAD 2 - CONTINUED

SCALE: (A1/A3) 1:750H 1:150V / 1:1500H 1:300V



LONGITUDINAL SECTION ROAD 2

SCALE: (A1/A3) 1:750H 1:150V / 1:1500H 1:300V

LEGEND

EXISTING GROUND LINE

PROPOSED GROUND LINE

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROADING
LONGITUDINAL SECTIONS
SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:750 / 1:1500
SCALE BAR 1:1500@A3 0 15 30 45 60 75m
DRAWING NUMBER: 2011-01-321 REV: C1

LEGEND

EXISTING GROUND LINE

PROPSED GROUND LINE

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

VIP R.L. 39.260
VIP CH 10m

10.00m V.C.
K = 4

VTP CH 5
R.L. 39.41

VTP CH 15
R.L. 39.235

VIP R.L. 38.609
VIP CH 140.277m

30.00m V.C.
K = 60

VTP CH 125.277
R.L. 38.684

VTP CH 155.277
R.L. 38.459

SAG R.L. 37.899m
SAG CH 217.218m

VIP R.L. 37.809
VIP CH 220.219m

30.00m V.C.
K = 12

VTP CH 205.219
R.L. 37.959

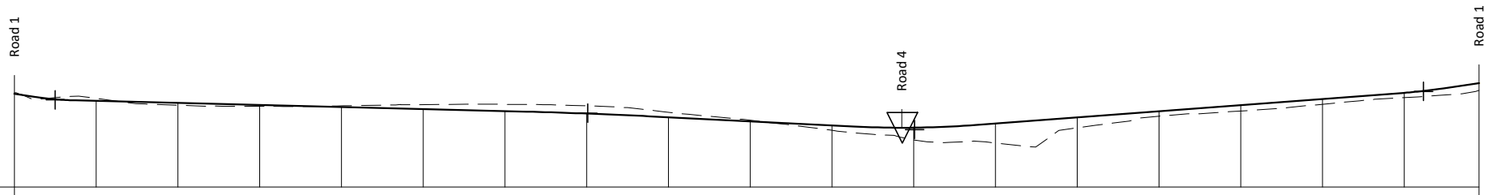
VTP CH 235.219
R.L. 38.034

VIP R.L. 39.677
VIP CH 344.715m

10.00m V.C.
K = 6.67

VTP CH 339.715
R.L. 39.602

VTP CH 349.715
R.L. 39.827



DATUM 35.0

DESIGN GRADE	-3.00%			-0.50%						-1.00%					1.50%					3.00%
DESIGN FINISHED LEVEL	39.56	39.21	39.11	39.01	38.91	38.81	38.71	38.59	38.41	38.21	38.01	37.9	38.11	38.41	38.71	39.01	39.31	39.61	40.08	
EXISTING GROUND LEVEL	39.61	39.33	39	38.95	38.97	39.03	39.04	38.97	38.66	38.27	37.78	37.3	37.15	37.89	38.46	38.72	39.05	39.37	39.72	
DEPTH OF CUT/FILL	-0.05	-0.12	0.11	0.06	-0.06	-0.22	-0.33	-0.38	-0.25	-0.06	0.23	0.6	0.96	0.51	0.25	0.29	0.26	0.23	0.37	
CHAINAGE	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	358.293	

LONGITUDINAL SECTION ROAD 3

SCALE: (A1/A3) 1:750H 1:150V / 1:1500H 1:300V

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	GDS	DATE: 09.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROADING
LONGITUDINAL SECTIONS
SHEET 3

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:750 / 1:1500

SCALE BAR 1:1500@A3 0 15 30 45 60 75m

DRAWING NUMBER: 2011-01-322 REV: C1

LEGEND

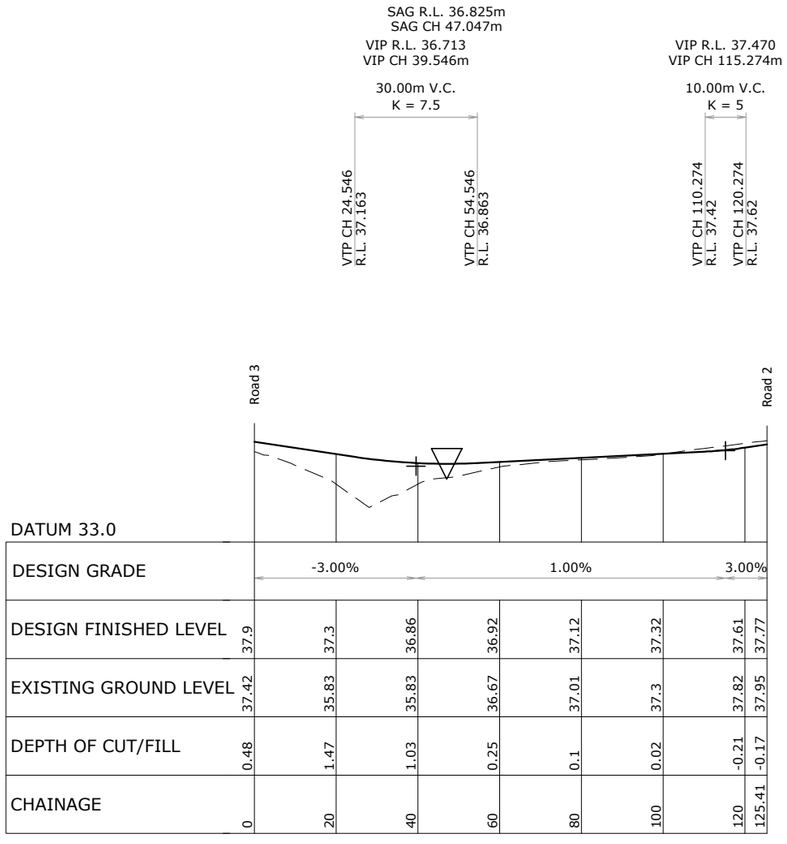
EXISTING GROUND LINE

PROPOSED GROUND LINE

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

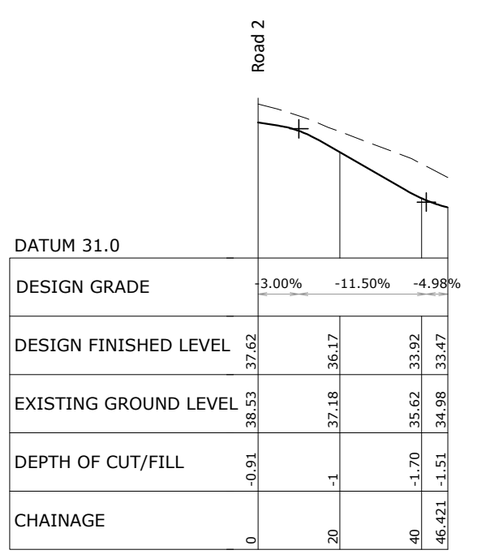
NOT FOR CONSTRUCTION



DESIGN GRADE		-3.00%		1.00%				3.00%	
DESIGN FINISHED LEVEL	37.9	37.3	36.86	36.92	37.12	37.32	37.61	37.77	
EXISTING GROUND LEVEL	37.42	35.83	35.83	36.67	37.01	37.3	37.82	37.95	
DEPTH OF CUT/FILL	0.48	1.47	1.03	0.25	0.1	0.02	-0.21	-0.17	
CHAINAGE	0	20	40	60	80	100	120	125.41	

LONGITUDINAL SECTION ROAD 4

SCALE: (A1/A3) 1:750H 1:150V / 1:1500H 1:300V



DESIGN GRADE		-3.00%	-11.50%	-4.98%	
DESIGN FINISHED LEVEL	37.62	36.17	33.92	33.47	
EXISTING GROUND LEVEL	38.53	37.18	35.62	34.98	
DEPTH OF CUT/FILL	-0.91	-1	-1.70	-1.51	
CHAINAGE	0	20	40	46.421	

LONGITUDINAL SECTION ROAD 5

SCALE: (A1/A3) 1:750H 1:150V / 1:1500H 1:300V

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

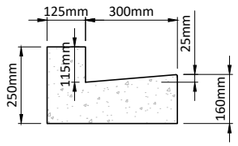
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROADING
LONGITUDINAL SECTIONS
SHEET 4

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:750 / 1:1500
SCALE BAR 1:1500@A3 0 15 30 45 60 75m
DRAWING NUMBER: 2011-01-323 REV: C1

NOTES

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. FOOTPATHS TO BE 100mm MINIMUM CONCRETE (20 MPa) BROOM FINISH ON 75mm GAP20 GRANULAR BEDDING ON A FIRM SUBGRADE (CBR>10) TO COUNCIL DETAIL D3.3.5. BEDDING LAYER DEPTH TO BE INCREASED FOR CBR<3 AT THE ENGINEER'S INSTRUCTION. TRANSVERSE CONTROL JOINTS TO BE INSTALLED AT MAXIMUM 3m SPACINGS.
3. ALL MANHOLES AND SERVICE CHAMBERS/BOXES LOCATED IN CONCRETE FOOTPATHS AND VEHICLE CROSSINGS TO HAVE 8XD12 TRIMMER BARS LAID IN CONCRETE AROUND OPENING TO PREVENT UNCONTROLLED CRACKING.
4. ALL PRAM CROSSINGS SHALL HAVE TACTILE GROUND SURFACE INDICATORS (TGSI) INSTALLED IN ACCORDANCE WITH NZTA RTS 14 AND AS/NZS 1428.4:2009. SEE COUNCIL STANDARD DETAIL D3.6.2 AND D3.6.3 FOR CONSTRUCTION DETAILS.
5. KERBING TO BE STANDARD SLIP FORM VERTICAL KERB AND CHANNEL (REFER DETAIL THIS SHEET) CONCRETE IS STANDARD 20 MPa CONCRETE.
6. DN100 UNDERCHANNEL DRAINCOIL WITH FILTER SOCK TO BE INSTALLED IN ACCORDANCE WITH COUNCIL DETAILS, CONNECTED TO ROAD CATCHPIT SUMPS. TO BE INSTALLED IN 300mm WIDE TRENCH WITH MINIMUM OF 450mm COVER BELOW SUBGRADE LEVEL. BACKFILL WITH CLEAN DRAINAGE METAL. REFER TO STANDARD DRAWING D3.4.1 FOR FURTHER SPECIFICATION.
7. ROAD PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH TABLE 1 FOR ROADS 1 AND 2, AND TABLE 2 FOR ROADS 3, 4, AND 5. CONTRACTOR TO TEST SUBGRADE AT 10m CENTRES ALTERNATING LANES AND REPORT BACK TO ENGINEER PRIOR TO COMMENCING PLACEMENT OF MATERIALS. IF SUBGRADE CBR IS 3% OR LESS, SUBGRADE IMPROVEMENT WILL BE REQUIRED AT THE ENGINEER'S INSTRUCTION.
8. PAVEMENT MATERIALS ARE TO BE TO THE FOLLOWING SPECIFICATION:
   - 8.1. SURFACING: ASPHALTIC CONCRETE ON MEMBRANE TO NZTA M/10 2014.
   - 8.2. BASECOURSE: AP40 TO NZTA M/4 AS PER ITS 2016 SECTION 3.2.12 AND TABLE 6, PAGE 1-21
   - 8.3. SUBBASE: GAP65
9. SERVICES TO BE LAID IN ACCORDANCE WITH EACH UTILITY SERVICE PROVIDER'S LAY SPECIFICATIONS, AND GENERALLY IN THE FOLLOWING LOCATIONS:
   - 9.1. POWER: 0.4m OFF BDY; LV: 600mm COVER, HV: 900mm COVER
   - 9.2. WATER: 1.1m OFF BDY; 600mm COVER (900mm IN CARRIAGEWAYS)
   - 9.3. TELECOM: 1.6m OFF BDY; 600mm COVER (900mm IN CARRIAGEWAYS)
   - 9.4. STREET LIGHTS WHERE NECESSARY: 0.8m OFF KERB FACE

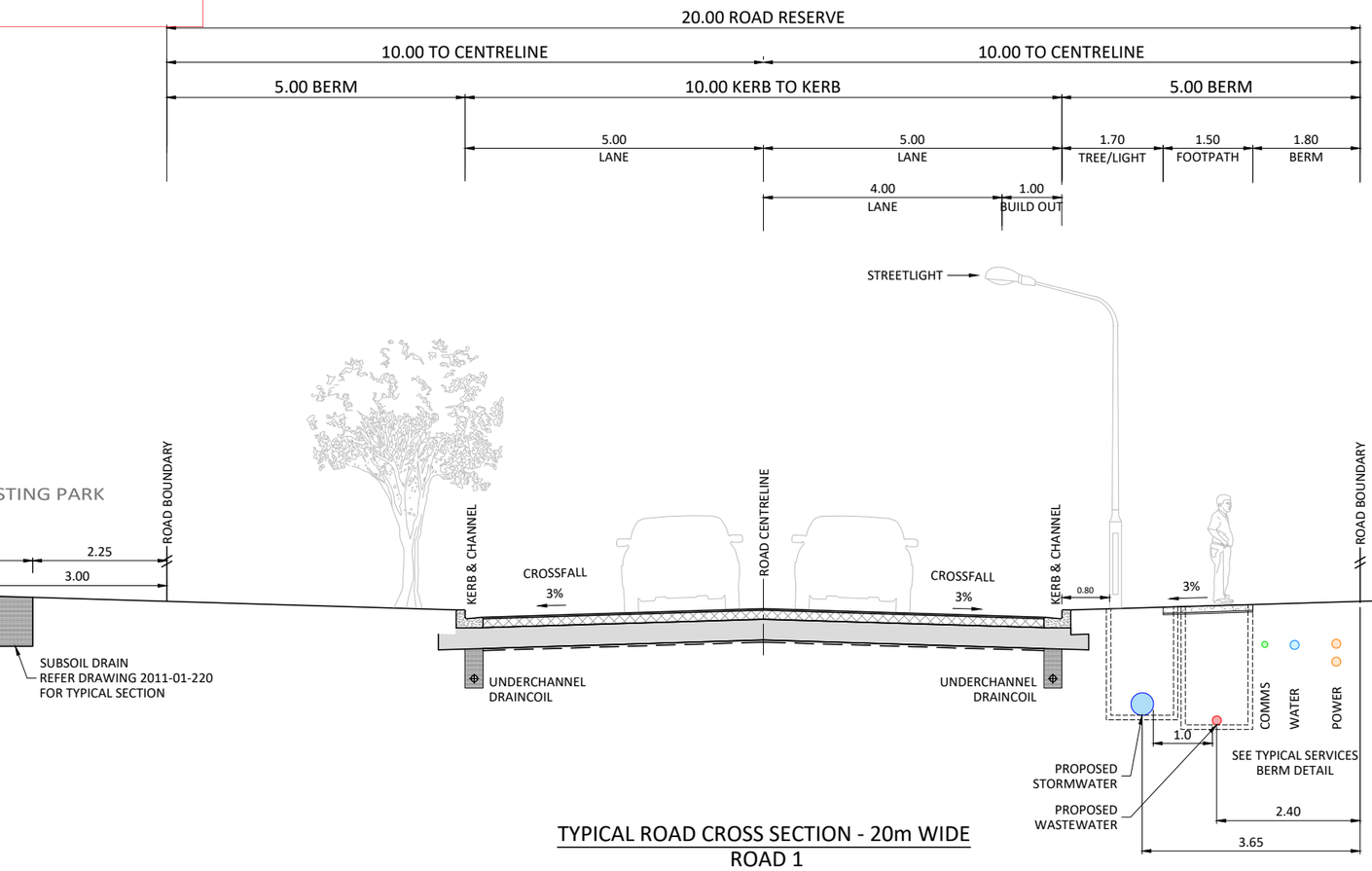


SLIPFORM VERTICAL KERB AND CHANNEL

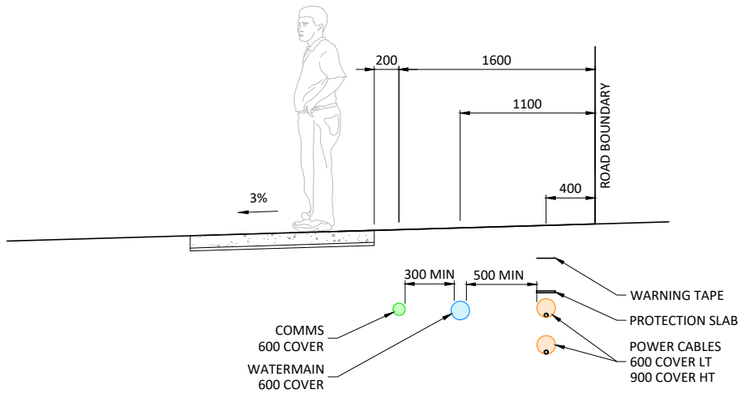
SCALE: (A1/A3) 1:10/1:20

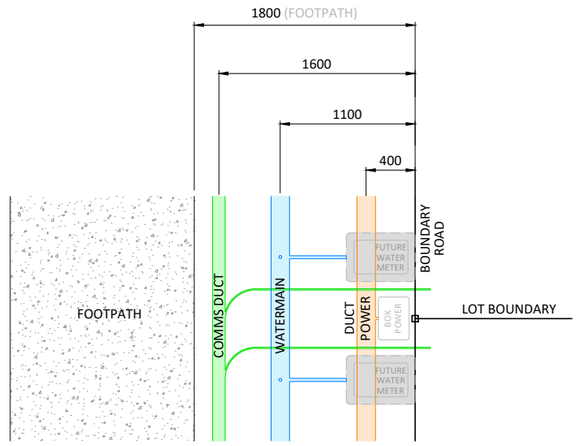
TABLE 1: ROADS 1 AND 2 PAVEMENT CONSTRUCTION			
SUBGRADE STRENGTH	SUBBASE DEPTH (mm)	BASECOURSE DEPTH (mm)	SURFACING DEPTH (mm)
CBR	GAP 65	M/4	NZTA M/10 DG10
6%+	200	150	30
5%	250	150	30
4%	300	150	30
3%	350	150	30
<=3%	REFER TO ENGINEER	REFER TO ENGINEER	30

NOTES:
1. GEOTEXTILE TO BE USED ON SUBGRADE WHERE CBR IS 4% OR LESS.
2. PAVEMENT DESIGN BASED ON ITS COUNCIL STANDARD SECTION 3.2.12.1 USING THE AUSTROADS DESIGN METHOD FOR DESA OF 3.1x10^5.
3. 8.2T DEFLECTION TESTING ON FINAL SURFACE TO ITS COUNCIL STANDARD SECTION 3 TABLE 20, A3, AVERAGE DEFLECTION 1.0mm, 90TH PERCENTILE DEFLECTION 1.2mm, WITH MAXIMUM DEFLECTION OF 1.6mm. NO MORE THAN 10% OF THE RESULTS SHALL EXCEED THE 90TH PERCENTILE AND NO SINGLE RESULT SHALL EXCEED THE MAXIMUM.



TYPICAL ROAD CROSS SECTION - 20m WIDE ROAD 1





TYPICAL SERVICES BERM DETAIL
COLLECTOR ROAD

SCALE 1:25 A1 / 1:50 A3

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROADING
TYPICAL CROSS SECTIONS
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:50 / 1:100
SCALE BAR 1:100@A3 0 1 2 3 4 5m
DRAWING NUMBER: 2011-01-330 REV: C1

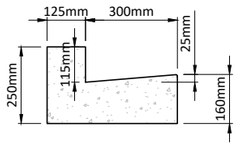
NOTES

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. FOOTPATHS TO BE 100mm MINIMUM CONCRETE (20 MPa) BROOM FINISH ON 75mm GAP20 GRANULAR BEDDING ON A FIRM SUBGRADE (CBR>10) TO COUNCIL DETAIL D3.3.5. BEDDING LAYER DEPTH TO BE INCREASED FOR CBR<3 AT THE ENGINEER'S INSTRUCTION. TRANSVERSE CONTROL JOINTS TO BE INSTALLED AT MAXIMUM 3m SPACINGS.
3. ALL MANHOLES AND SERVICE CHAMBERS/BOXES LOCATED IN CONCRETE FOOTPATHS AND VEHICLE CROSSINGS TO HAVE 8XD12 TRIMMER BARS LAID IN CONCRETE AROUND OPENING TO PREVENT UNCONTROLLED CRACKING.
4. ALL PRAM CROSSINGS SHALL HAVE TACTILE GROUND SURFACE INDICATORS (TGSI) INSTALLED IN ACCORDANCE WITH NZTA RTS 14 AND AS/NZS 1428.4:2009. SEE COUNCIL STANDARD DETAIL D3.6.2 AND D3.6.3 FOR CONSTRUCTION DETAILS.
5. KERBING TO BE STANDARD SLIP FORM VERTICAL KERB AND CHANNEL (REFER DETAIL THIS SHEET) CONCRETE IS STANDARD 20 MPa CONCRETE.
6. DN100 UNDERCHANNEL DRAINCOIL WITH FILTER SOCK TO BE INSTALLED IN ACCORDANCE WITH COUNCIL DETAILS, CONNECTED TO ROAD CATCHPIT SUMPS. TO BE INSTALLED IN 300mm WIDE TRENCH WITH MINIMUM OF 450mm COVER BELOW SUBGRADE LEVEL. BACKFILL WITH CLEAN DRAINAGE METAL. REFER TO STANDARD DRAWING D3.4.1 FOR FURTHER SPECIFICATION.
7. ROAD PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH TABLE 1 FOR ROADS 1 AND 2, AND TABLE 2 FOR ROADS 3, 4, AND 5. CONTRACTOR TO TEST SUBGRADE AT 10m CENTRES ALTERNATING LANES AND REPORT BACK TO ENGINEER PRIOR TO COMMENCING PLACEMENT OF MATERIALS. IF SUBGRADE CBR IS 3% OR LESS, SUBGRADE IMPROVEMENT WILL BE REQUIRED AT THE ENGINEER'S INSTRUCTION.
8. PAVEMENT MATERIALS ARE TO BE TO THE FOLLOWING SPECIFICATION:
   - 8.1. SURFACING: ASPHALTIC CONCRETE ON MEMBRANE TO NZTA M/10 2014.
   - 8.2. BASECOURSE: AP40 TO NZTA M/4 AS PER ITS 2016 SECTION 3.2.12 AND TABLE 6, PAGE 1-21
   - 8.3. SUBBASE: GAP65
9. SERVICES TO BE LAID IN ACCORDANCE WITH EACH UTILITY SERVICE PROVIDER'S LAY SPECIFICATIONS, AND GENERALLY IN THE FOLLOWING LOCATIONS:
   - 9.1. POWER: 0.4m OFF BDY; LV: 600mm COVER, HV: 900mm COVER
   - 9.2. WATER: 1.1m OFF BDY; 600mm COVER (900mm IN CARRIAGEWAYS)
   - 9.3. TELECOM: 1.6m OFF BDY; 600mm COVER (900mm IN CARRIAGEWAYS)
   - 9.4. STREET LIGHTS WHERE NECESSARY: 0.8m OFF KERB FACE

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

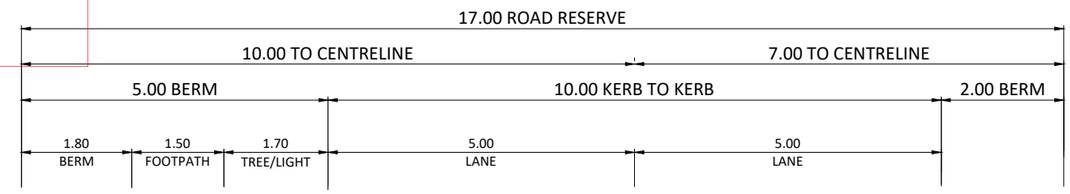


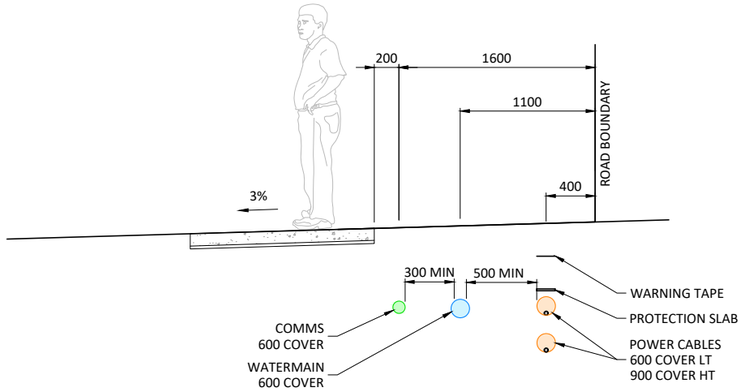
SLIPFORM VERTICAL KERB AND CHANNEL

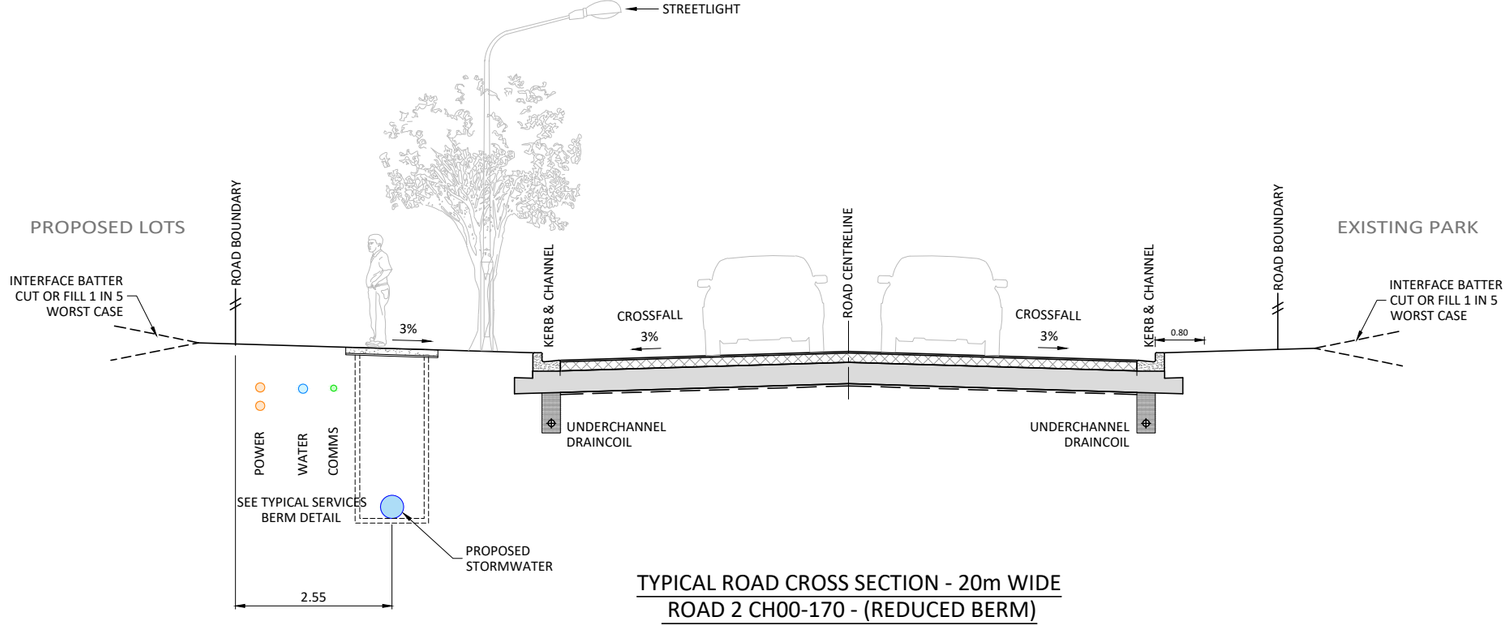
SCALE: (A1/A3) 1:10/1:20

TABLE 1: ROADS 1 AND 2 PAVEMENT CONSTRUCTION			
SUBGRADE STRENGTH	SUBBASE DEPTH (mm)	BASECOURSE DEPTH (mm)	SURFACING DEPTH (mm)
CBR	GAP 65	M/4	NZTA M/10 DG10
6%+	200	150	30
5%	250	150	30
4%	300	150	30
3%	350	150	30
<=3%	REFER TO ENGINEER	REFER TO ENGINEER	30

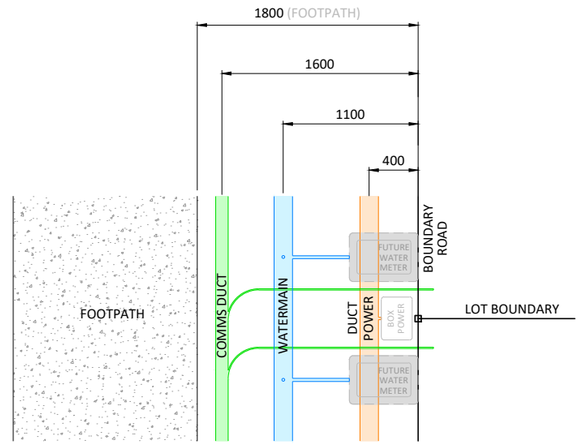
NOTES:
1. GEOTEXTILE TO BE USED ON SUBGRADE WHERE CBR IS 4% OR LESS.
2. PAVEMENT DESIGN BASED ON ITS COUNCIL STANDARD SECTION 3.2.12.1 USING THE AUSTROADS DESIGN METHOD FOR DESA OF 3.1x10^5.
3. 8.2T DEFLECTION TESTING ON FINAL SURFACE TO ITS COUNCIL STANDARD SECTION 3 TABLE 20, A3, AVERAGE DEFLECTION 1.0mm, 90TH PERCENTILE DEFLECTION 1.2mm, WITH MAXIMUM DEFLECTION OF 1.6mm. NO MORE THAN 10% OF THE RESULTS SHALL EXCEED THE 90TH PERCENTILE AND NO SINGLE RESULT SHALL EXCEED THE MAXIMUM.







TYPICAL ROAD CROSS SECTION - 20m WIDE
ROAD 2 CH00-170 - (REDUCED BERM)



TYPICAL SERVICES BERM DETAIL
COLLECTOR ROAD

SCALE 1:25 A1 / 1:50 A3

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

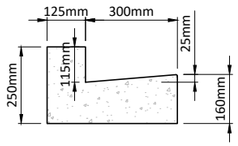
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROADING
TYPICAL CROSS SECTIONS
SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:50 / 1:100
SCALE BAR 1:100@A3 0 1 2 3 4 5m
DRAWING NUMBER: 2011-01-331 REV: C1

NOTES

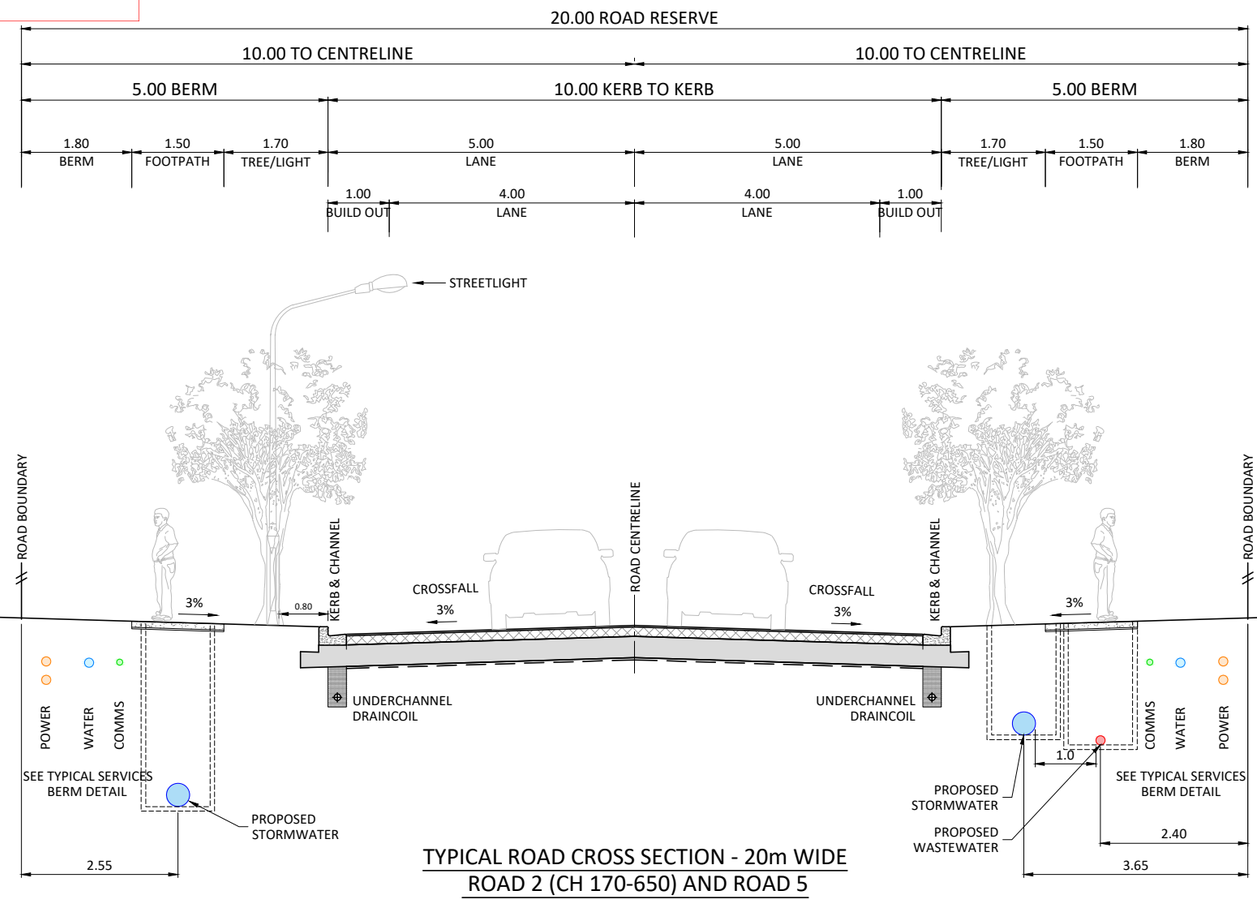
1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. FOOTPATHS TO BE 100mm MINIMUM CONCRETE (20 MPa) BROOM FINISH ON 75mm GAP20 GRANULAR BEDDING ON A FIRM SUBGRADE (CBR>10) TO COUNCIL DETAIL D3.3.5. BEDDING LAYER DEPTH TO BE INCREASED FOR CBR<3 AT THE ENGINEER'S INSTRUCTION. TRANSVERSE CONTROL JOINTS TO BE INSTALLED AT MAXIMUM 3m SPACINGS.
3. ALL MANHOLES AND SERVICE CHAMBERS/BOXES LOCATED IN CONCRETE FOOTPATHS AND VEHICLE CROSSINGS TO HAVE 8XD12 TRIMMER BARS LAID IN CONCRETE AROUND OPENING TO PREVENT UNCONTROLLED CRACKING.
4. ALL PRAM CROSSINGS SHALL HAVE TACTILE GROUND SURFACE INDICATORS (TGSI) INSTALLED IN ACCORDANCE WITH NZTA RTS 14 AND AS/NZS 1428.4:2009. SEE COUNCIL STANDARD DETAIL D3.6.2 AND D3.6.3 FOR CONSTRUCTION DETAILS.
5. KERBING TO BE STANDARD SLIP FORM VERTICAL KERB AND CHANNEL (REFER DETAIL THIS SHEET) CONCRETE IS STANDARD 20 MPa CONCRETE.
6. DN100 UNDERCHANNEL DRAINCOIL WITH FILTER SOCK TO BE INSTALLED IN ACCORDANCE WITH COUNCIL DETAILS, CONNECTED TO ROAD CATCHPIT SUMPS. TO BE INSTALLED IN 300mm WIDE TRENCH WITH MINIMUM OF 450mm COVER BELOW SUBGRADE LEVEL. BACKFILL WITH CLEAN DRAINAGE METAL. REFER TO STANDARD DRAWING D3.4.1 FOR FURTHER SPECIFICATION.
7. ROAD PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH TABLE 1 FOR ROADS 1 AND 2, AND TABLE 2 FOR ROADS 3, 4, AND 5. CONTRACTOR TO TEST SUBGRADE AT 10m CENTRES ALTERNATING LANES AND REPORT BACK TO ENGINEER PRIOR TO COMMENCING PLACEMENT OF MATERIALS. IF SUBGRADE CBR IS 3% OR LESS, SUBGRADE IMPROVEMENT WILL BE REQUIRED AT THE ENGINEER'S INSTRUCTION.
8. PAVEMENT MATERIALS ARE TO BE TO THE FOLLOWING SPECIFICATION:
   - 8.1. SURFACING: ASPHALTIC CONCRETE ON MEMBRANE TO NZTA M/10 2014.
   - 8.2. BASECOURSE: AP40 TO NZTA M/4 AS PER ITS 2016 SECTION 3.2.12 AND TABLE 6, PAGE 1-21
   - 8.3. SUBBASE: GAP65
9. SERVICES TO BE LAID IN ACCORDANCE WITH EACH UTILITY SERVICE PROVIDER'S LAY SPECIFICATIONS, AND GENERALLY IN THE FOLLOWING LOCATIONS:
   - 9.1. POWER: 0.4m OFF BDY; LV: 600mm COVER, HV: 900mm COVER
   - 9.2. WATER: 1.1m OFF BDY; 600mm COVER (900mm IN CARRIAGEWAYS)
   - 9.3. TELECOM: 1.6m OFF BDY; 600mm COVER (900mm IN CARRIAGEWAYS)
   - 9.4. STREET LIGHTS WHERE NECESSARY: 0.8m OFF KERB FACE



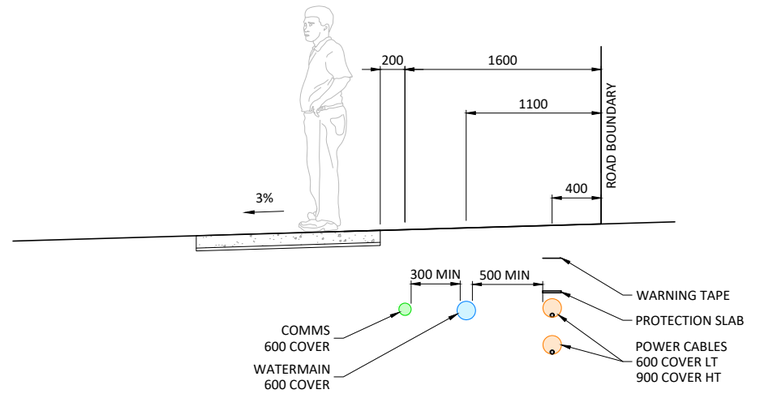
SLIPFORM VERTICAL KERB AND CHANNEL
SCALE: (A1/A3) 1:10/1:20

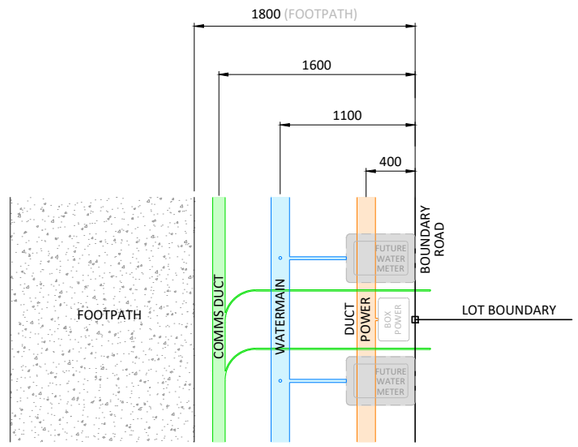
TABLE 1: ROADS 1 AND 2 PAVEMENT CONSTRUCTION			
SUBGRADE STRENGTH	SUBBASE DEPTH (mm)	BASECOURSE DEPTH (mm)	SURFACING DEPTH (mm)
CBR	GAP 65	M/4	NZTA M/10 DG10
6%+	200	150	30
5%	250	150	30
4%	300	150	30
3%	350	150	30
<=3%	REFER TO ENGINEER	REFER TO ENGINEER	30

NOTES:
1. GEOTEXTILE TO BE USED ON SUBGRADE WHERE CBR IS 4% OR LESS.
2. PAVEMENT DESIGN BASED ON ITS COUNCIL STANDARD SECTION 3.2.12.1 USING THE AUSTROADS DESIGN METHOD FOR DESA OF 3.1x10^5.
3. 8.2T DEFLECTION TESTING ON FINAL SURFACE TO ITS COUNCIL STANDARD SECTION 3 TABLE 20, A3, AVERAGE DEFLECTION 1.0mm, 90TH PERCENTILE DEFLECTION 1.2mm, WITH MAXIMUM DEFLECTION OF 1.6mm. NO MORE THAN 10% OF THE RESULTS SHALL EXCEED THE 90TH PERCENTILE AND NO SINGLE RESULT SHALL EXCEED THE MAXIMUM.



TYPICAL ROAD CROSS SECTION - 20m WIDE
ROAD 2 (CH 170-650) AND ROAD 5





TYPICAL SERVICES BERM DETAIL
COLLECTOR ROAD
SCALE 1:25 A1 / 1:50 A3

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROADING
TYPICAL CROSS SECTIONS
SHEET 3

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:50 / 1:100
SCALE BAR 1:100@A3 0 1 2 3 4 5m
DRAWING NUMBER: 2011-01-332 REV: C1

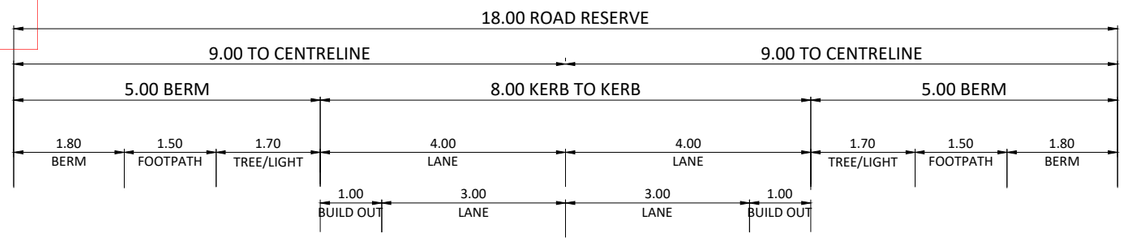
NOTES

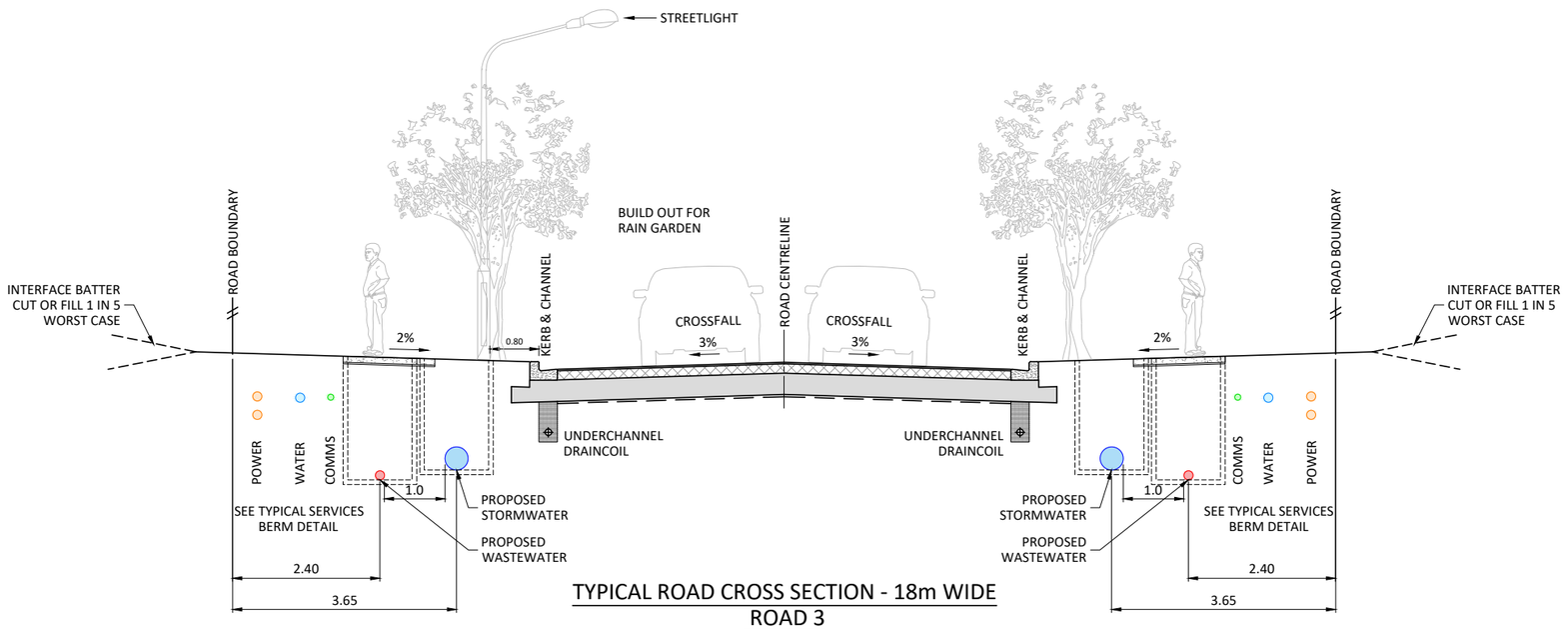
1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. FOOTPATHS TO BE 100mm MINIMUM CONCRETE (20 MPa) BROOM FINISH ON 75mm GAP20 GRANULAR BEDDING ON A FIRM SUBGRADE (CBR>10) TO COUNCIL DETAIL D3.3.5. BEDDING LAYER DEPTH TO BE INCREASED FOR CBR<3 AT THE ENGINEER'S INSTRUCTION. TRANSVERSE CONTROL JOINTS TO BE INSTALLED AT MAXIMUM 3m SPACINGS.
3. ALL MANHOLES AND SERVICE CHAMBERS/BOXES LOCATED IN CONCRETE FOOTPATHS AND VEHICLE CROSSINGS TO HAVE 8XD12 TRIMMER BARS LAID IN CONCRETE AROUND OPENING TO PREVENT UNCONTROLLED CRACKING.
4. ALL PRAM CROSSINGS SHALL HAVE TACTILE GROUND SURFACE INDICATORS (TGSI) INSTALLED IN ACCORDANCE WITH NZTA RTS 14 AND AS/NZS 1428.4:2009. SEE COUNCIL STANDARD DETAIL D3.6.2 AND D3.6.3 FOR CONSTRUCTION DETAILS.
5. KERBING TO BE STANDARD SLIP FORM VERTICAL KERB AND CHANNEL (REFER DETAIL THIS SHEET) CONCRETE IS STANDARD 20 MPa CONCRETE.
6. DN100 UNDERCHANNEL DRAINCOIL WITH FILTER SOCK TO BE INSTALLED IN ACCORDANCE WITH COUNCIL DETAILS, CONNECTED TO ROAD CATCHPIT SUMPS. TO BE INSTALLED IN 300mm WIDE TRENCH WITH MINIMUM OF 450mm COVER BELOW SUBGRADE LEVEL. BACKFILL WITH CLEAN DRAINAGE METAL. REFER TO STANDARD DRAWING D3.4.1 FOR FURTHER SPECIFICATION.
7. ROAD PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH TABLE 1 FOR ROADS 1 AND 2, AND TABLE 2 FOR ROADS 3, 4, AND 5. CONTRACTOR TO TEST SUBGRADE AT 10m CENTRES ALTERNATING LANES AND REPORT BACK TO ENGINEER PRIOR TO COMMENCING PLACEMENT OF MATERIALS. IF SUBGRADE CBR IS 3% OR LESS, SUBGRADE IMPROVEMENT WILL BE REQUIRED AT THE ENGINEER'S INSTRUCTION.
8. PAVEMENT MATERIALS ARE TO BE TO THE FOLLOWING SPECIFICATION:
   - 8.1. SURFACING: ASPHALTIC CONCRETE ON MEMBRANE TO NZTA M/10 2014.
   - 8.2. BASECOURSE: AP40 TO NZTA M/4 AS PER ITS 2016 SECTION 3.2.12 AND TABLE 6, PAGE 1-21
   - 8.3. SUBBASE: GAP65
9. SERVICES TO BE LAID IN ACCORDANCE WITH EACH UTILITY SERVICE PROVIDER'S LAY SPECIFICATIONS, AND GENERALLY IN THE FOLLOWING LOCATIONS:
   - 9.1. POWER: 0.4m OFF BDY; LV: 600mm COVER, HV: 900mm COVER
   - 9.2. WATER: 1.1m OFF BDY; 600mm COVER (900mm IN CARRIAGEWAYS)
   - 9.3. TELECOM: 1.6m OFF BDY; 600mm COVER (900mm IN CARRIAGEWAYS)
   - 9.4. STREET LIGHTS WHERE NECESSARY: 0.8m OFF KERB FACE

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

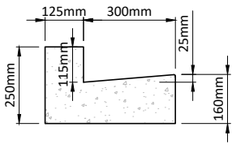
Date:25/06/2018

NOT FOR CONSTRUCTION





TYPICAL ROAD CROSS SECTION - 18m WIDE ROAD 3

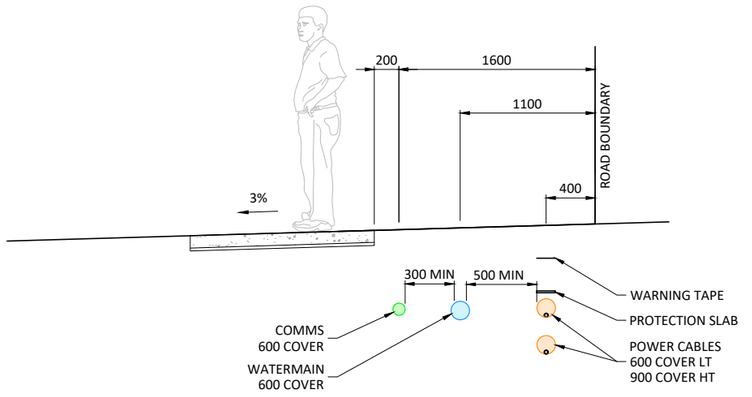


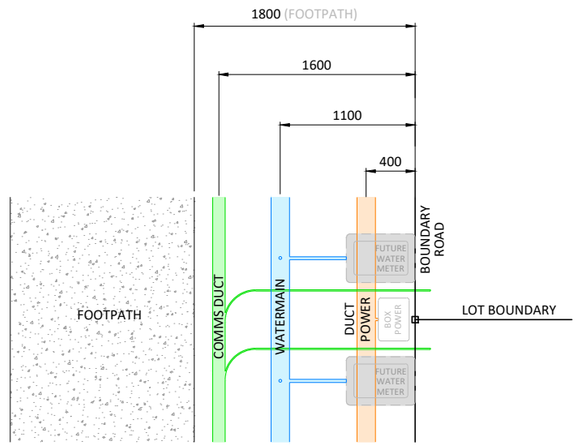
SLIPFORM VERTICAL KERB AND CHANNEL

SCALE: (A1/A3) 1:10/1:20

TABLE 2: ROADS 3, 4, 5 PAVEMENT CONSTRUCTION			
SUBGRADE STRENGTH	SUBBASE DEPTH (mm)	BASECOURSE DEPTH (mm)	SURFACING DEPTH (mm)
CBR	GAP 65	M/4	NZTA M/10 DG10
6%+	200	100	30
5%	250	100	30
4%	300	100	30
3%	350	100	30
<=3%	REFER TO ENGINEER	REFER TO ENGINEER	30

NOTES:
1. GEOTEXTILE TO BE USED ON SUBGRADE WHERE CBR IS 4% OR LESS.
2. PAVEMENT DESIGN BASED ON ITS COUNCIL STANDARD SECTION 3.2.12.1 USING THE AUSTROADS DESIGN METHOD FOR DESA OF 1.3x10^5.
3. 8.2T DEFLECTION TESTING ON FINAL SURFACE TO ITS COUNCIL STANDARD SECTION 3 TABLE 20, A2, AVERAGE DEFLECTION 1.1mm, 90TH PERCENTILE DEFLECTION 1.35mm, WITH MAXIMUM DEFLECTION OF 1.8mm. NO MORE THAN 10% OF THE RESULTS SHALL EXCEED THE 90TH PERCENTILE AND NO SINGLE RESULT SHALL EXCEED THE MAXIMUM.





TYPICAL SERVICES BERM DETAIL
COLLECTOR ROAD

SCALE 1:25 A1 / 1:50 A3

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	GDS	DATE: 09.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROADING
TYPICAL CROSS SECTIONS
SHEET 4

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:50 / 1:100
SCALE BAR 1:100@A3 0 1 2 3 4 5m
DRAWING NUMBER: 2011-01-333 REV: C1

NOTES

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. FOOTPATHS TO BE 100mm MINIMUM CONCRETE (20 MPa) BROOM FINISH ON 75mm GAP20 GRANULAR BEDDING ON A FIRM SUBGRADE (CBR>10) TO COUNCIL DETAIL D3.3.5. BEDDING LAYER DEPTH TO BE INCREASED FOR CBR<3 AT THE ENGINEER'S INSTRUCTION. TRANSVERSE CONTROL JOINTS TO BE INSTALLED AT MAXIMUM 3m SPACINGS.
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5. KERBING TO BE STANDARD SLIP FORM VERTICAL KERB AND CHANNEL (REFER DETAIL THIS SHEET) CONCRETE IS STANDARD 20 MPa CONCRETE.
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9. SERVICES TO BE LAID IN ACCORDANCE WITH EACH UTILITY SERVICE PROVIDER'S LAY SPECIFICATIONS, AND GENERALLY IN THE FOLLOWING LOCATIONS:
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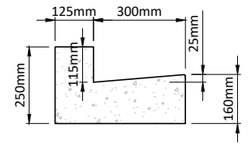
   - 9.3. TELECOM: 1.6m OFF BDY; 600mm COVER (900mm IN CARRIAGEWAYS)
   - 9.4. STREET LIGHTS WHERE NECESSARY: 0.8m OFF KERB FACE



SLIPFORM VERTICAL KERB AND CHANNEL

SCALE: (A1/A3) 1:10/1:20

TABLE 2: ROADS 3, 4, 5 PAVEMENT CONSTRUCTION			
SUBGRADE STRENGTH	SUBBASE DEPTH (mm)	BASECOURSE DEPTH (mm)	SURFACING DEPTH (mm)
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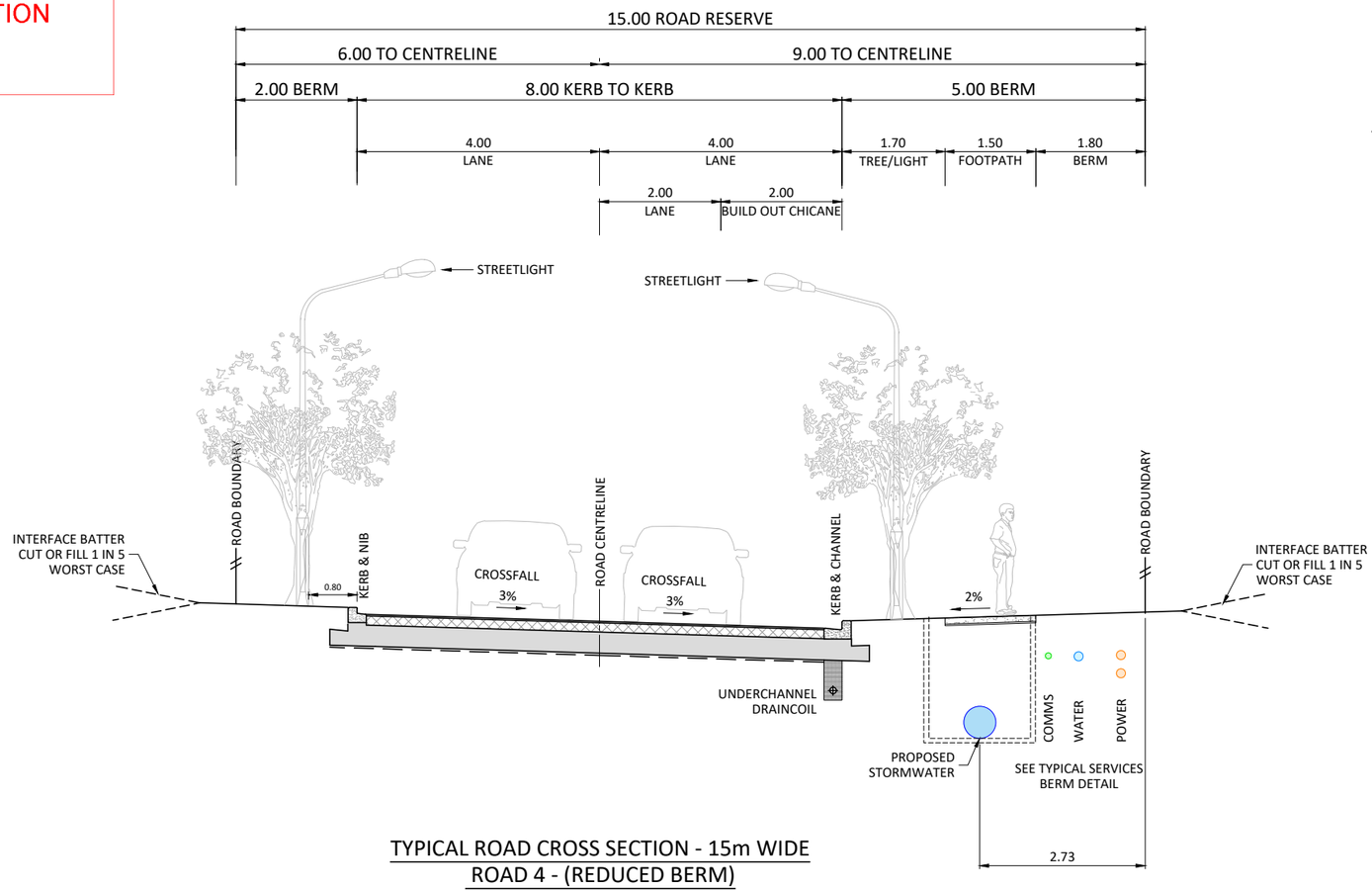
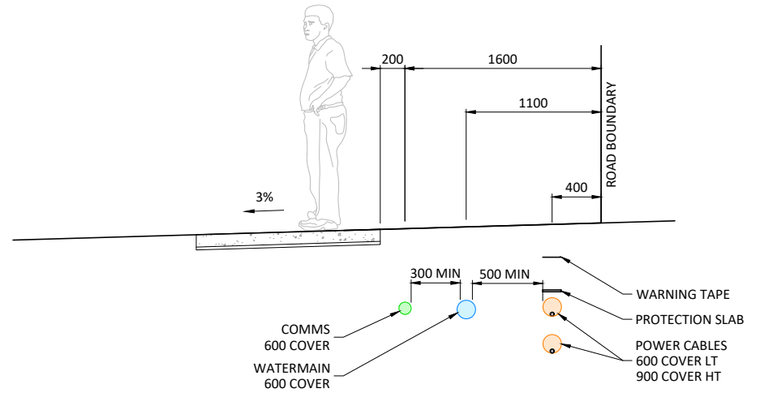
RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

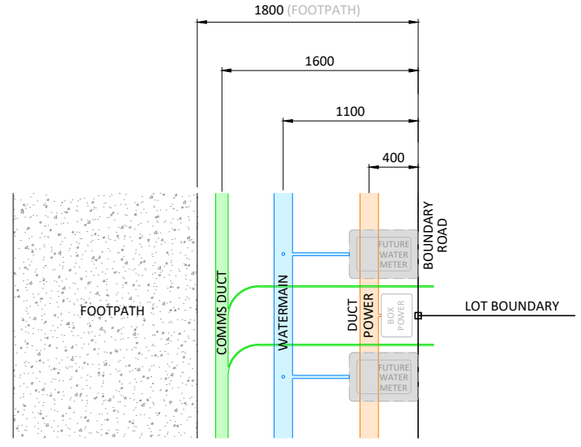
Date:25/06/2018

NOT FOR CONSTRUCTION



TYPICAL ROAD CROSS SECTION - 15m WIDE
ROAD 4 - (REDUCED BERM)





TYPICAL SERVICES BERM DETAIL
COLLECTOR ROAD

SCALE 1:25 A1 / 1:50 A3

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

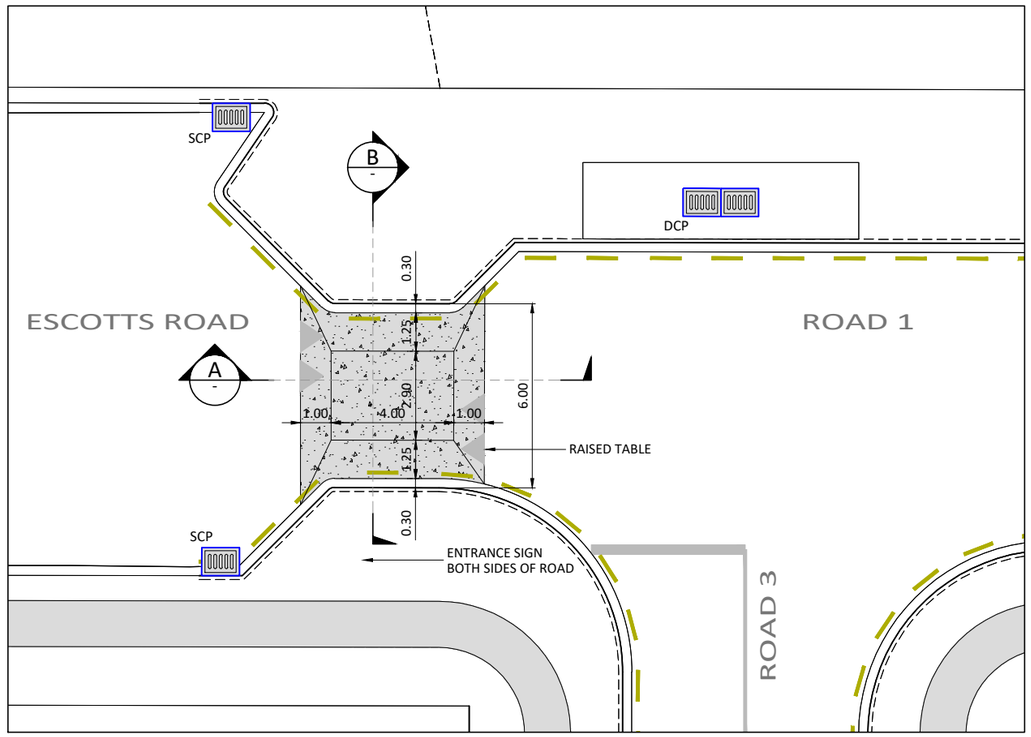
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

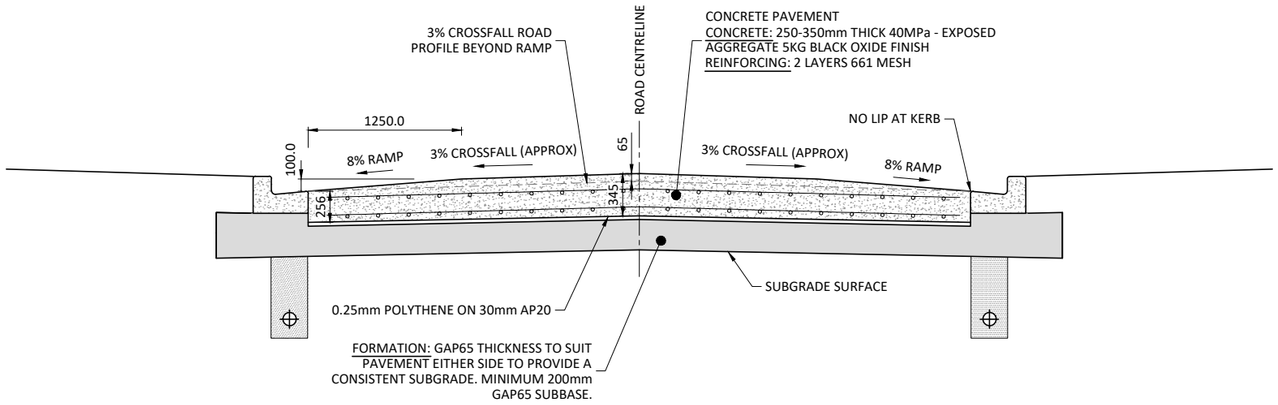
SHEET TITLE:
PROPOSED ROADING
TYPICAL CROSS SECTIONS
SHEET 5

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:50 / 1:100
SCALE BAR 1:100@A3 0 1 2 3 4 5m
DRAWING NUMBER: 2011-01-334 REV: C1



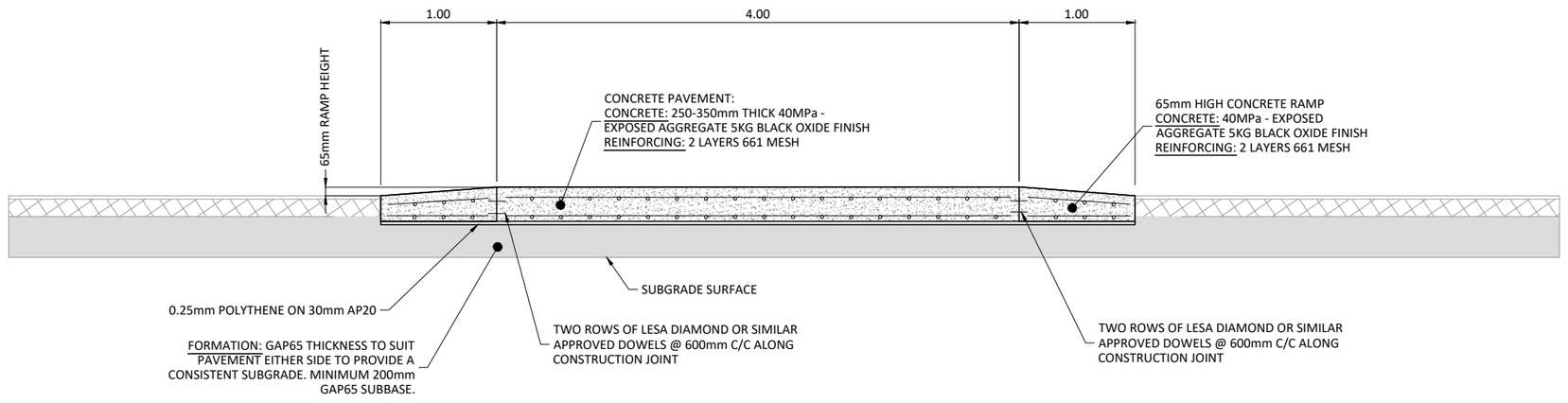
TYPICAL RAISED TABLE PLAN

SCALE: (A1/A3) 1:100/1:200



B - TYPICAL RAISED TABLE CROSS SECTION DETAIL

SCALE: (A1/A3) 1:25/1:50



A - TYPICAL RAISED TABLE LONG SECTION DETAIL

SCALE: (A1/A3) 1:25/1:50

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C2	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

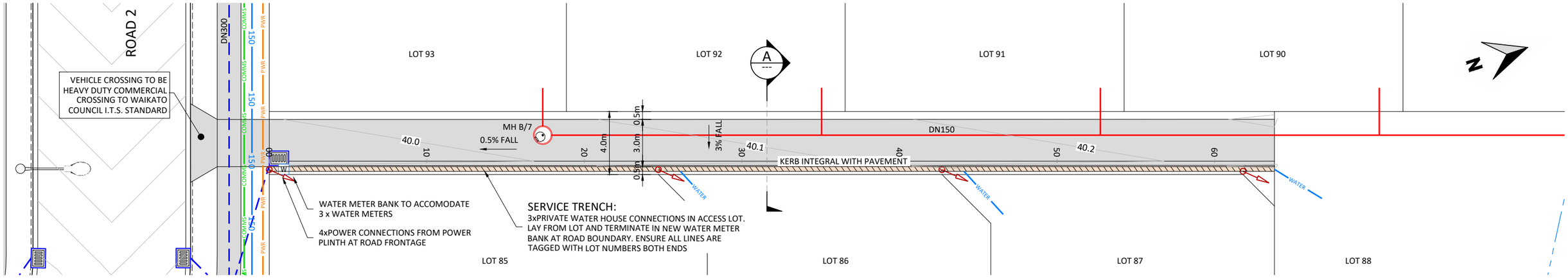
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROADING
RAISED TABLE DETAIL SHEET

ISSUE STATUS: CONSENT
SCALE: (A1/A3) AS SHOWN
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-335 REV: C2



PLAN

SCALE: (A1/A3) 1:125/1:250

LEGEND

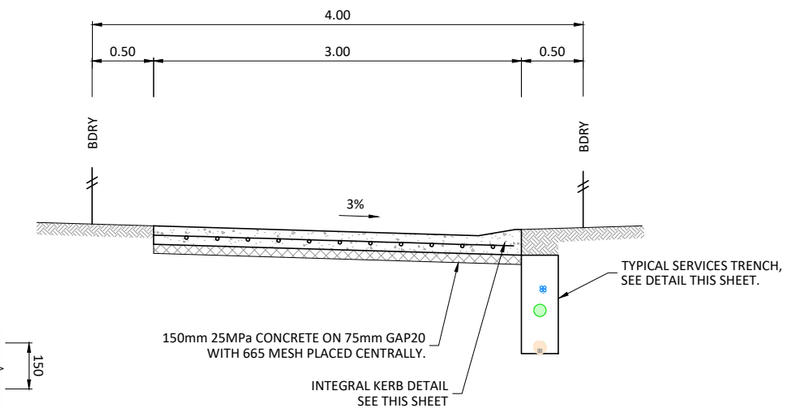
- WATER — HOUSE CONNECTION
- POWER AND COMMS CONNECTION POINT
- COMBINED SERVICE TRENCH

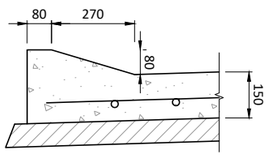
DATUM 38.0

DESIGN GRADE	0.50%							
DESIGN FINISHED LEVEL	39.92	39.97	40.02	40.07	40.12	40.17	40.22	40.24
EXISTING GROUND LEVEL	40.78	40.54	40.4	40.1	39.82	39.67	39.37	39.26
DEPTH OF CUT/FILL	-0.87	-0.57	-0.38	-0.03	0.3	0.5	0.85	0.97
CHAINAGE	0	10	20	30	40	50	60	63.799

LONGITUDINAL SECTION

SCALE: (A1/A3) 1:125H 1:62.5V / 1:250H 1:125V



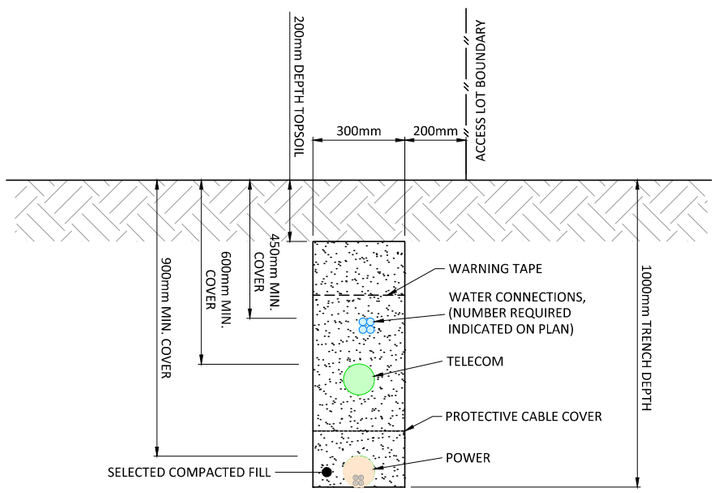


INTEGRAL KERB DETAIL

SCALE: (A1/A3) 1:10/1:20

A TYPICAL CROSS SECTION

SCALE: (A1/A3) 1:25/1:50



PRIVATE WAY - SERVICE TRENCH DETAIL

SCALE: (A1/A3) 1:10/1:20

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

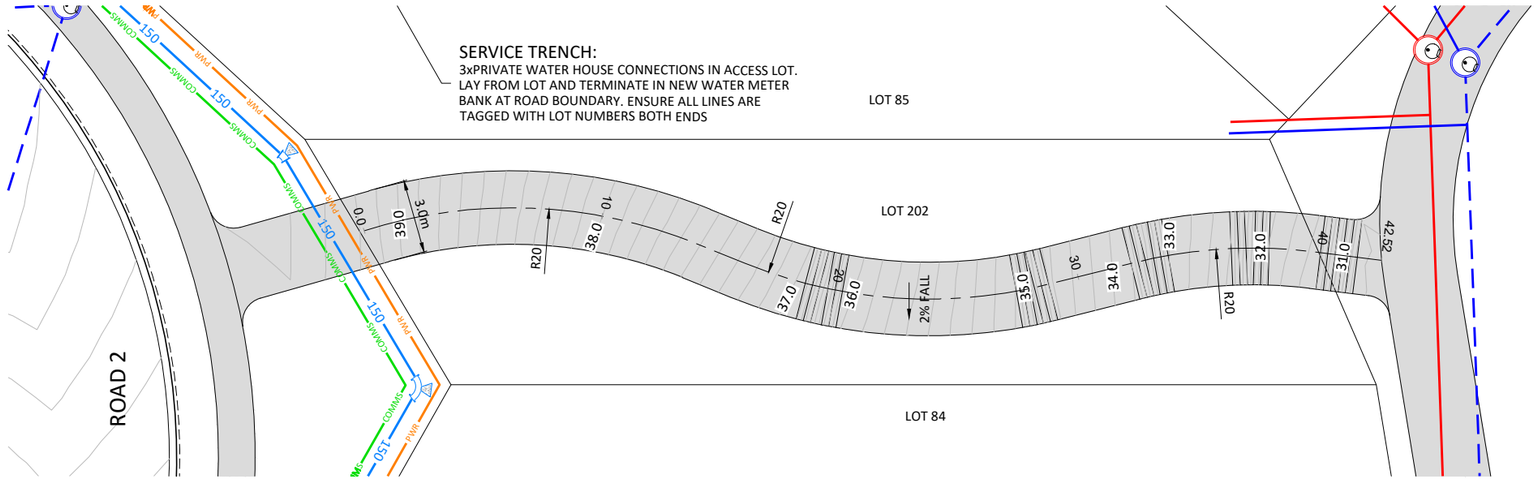
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ACCESS LOT DETAILS

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:125 / 1:250
SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m
DRAWING NUMBER: 2011-01-350 REV: C1



PLAN

SCALE: (A1/A3) 1:125/1:250

N

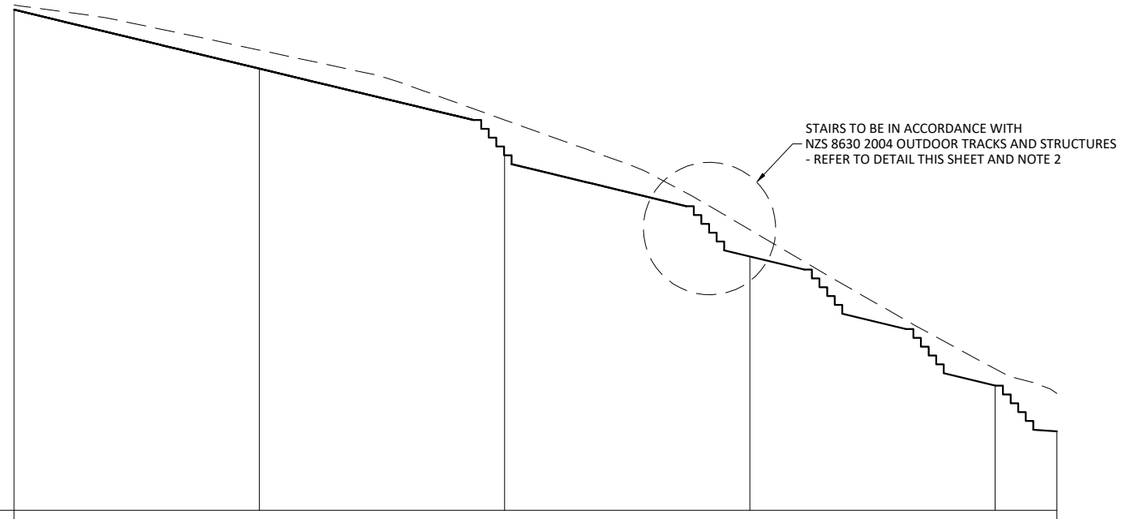
NOTES:

1. REFER TO DRAWING 2011-01-330 NOTE 2 FOR CONCRETE FOOTPATH CONSTRUCTION.
2. STEPS BE CONSTRUCTED AS PER DETAIL THIS SHEET AND IS TO HAVE MAXIMUM RISER HEIGHT OF 180mm AND MINIMUM TREAD LENGTH OF 310mm. THE MAXIMUM VERTICAL RISE BETWEEN LANDINGS FOR ALL STEPS IS NO MORE THAN 2.5m. A LANDING IS DEFINED AS A BREAK OF AT LEAST 1m IN A RUN OF STEPS.

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

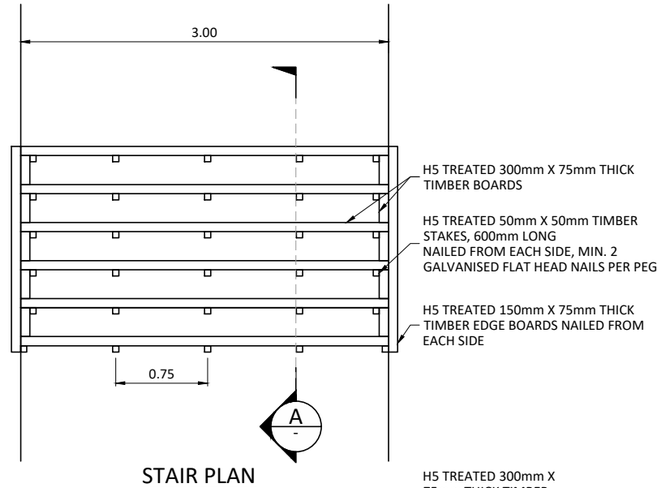
NOT FOR CONSTRUCTION



DATUM 29.0							
DESIGN GRADE		-12.00%		-12.00%	-12.00%	-12.00%	-12.00%	-3.80%
DESIGN FINISHED LEVEL	39.2	38		36.22	34.17	31.54	30.61
EXISTING GROUND LEVEL	39.3	38.38		36.95	34.72	31.88	31.38
DEPTH OF CUT/FILL	-0.1	-0.38		-0.74	-0.54	-0.34	-0.78
CHAINAGE	0	10		20	30	40	42.521

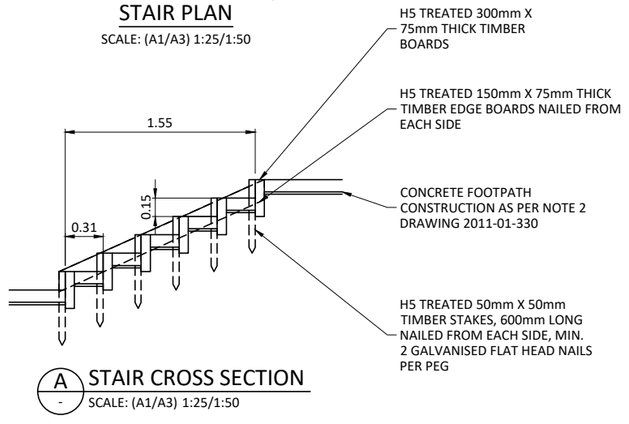
LONGITUDINAL SECTION

SCALE: (A1/A3) 1:125H 1:62.5V / 1:250H 1:125V



STAIR PLAN

SCALE: (A1/A3) 1:25/1:50



A - STAIR CROSS SECTION

SCALE: (A1/A3) 1:25/1:50

Printed by: RYAN@10.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-351.DWG

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	GDS	DATE: 09.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

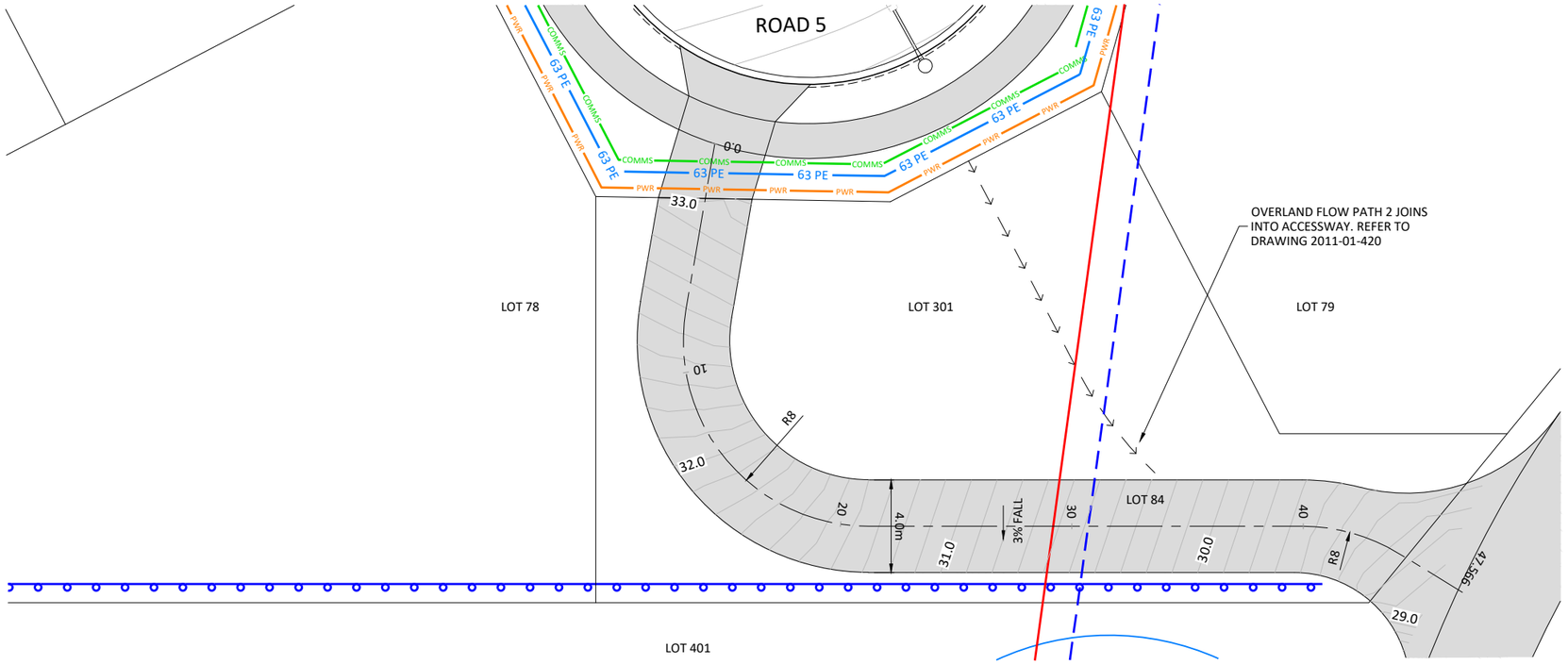
SHEET TITLE:
PROPOSED ACCESS LOT 202 DETAILS

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:125 / 1:250

SCALE BAR 1:250@A3: 0 2.5 5 7.5 10 12.5m

DRAWING NUMBER: 2011-01-351 REV: C1

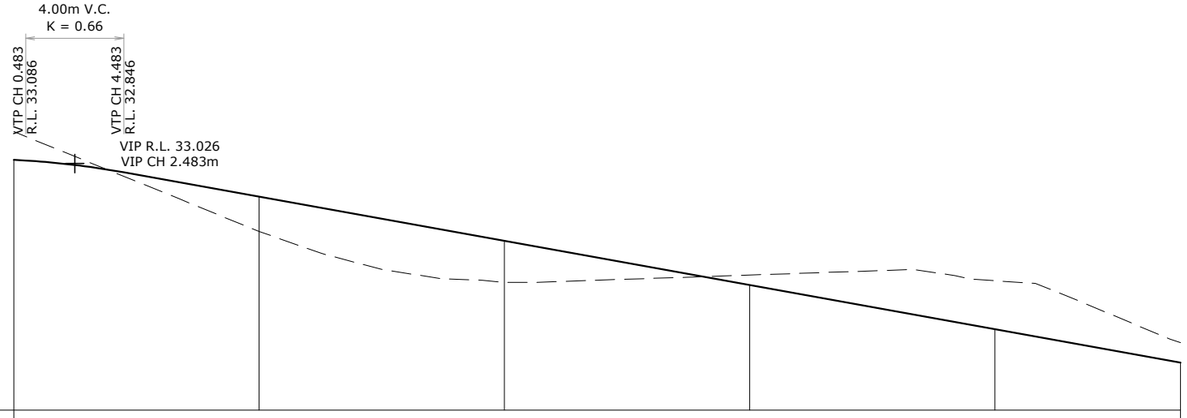


PLAN

SCALE: (A1/A3) 1:125/1:250

NOTES:

1. REFER TO DRAWING 2011-01-330 NOTE 2 FOR CONCRETE FOOTPATH CONSTRUCTION.



DATUM 28.0

DESIGN GRADE		-2.98%		-9.00%		
DESIGN FINISHED LEVEL	33.1	32.35	31.45	30.55	29.65	28.97
EXISTING GROUND LEVEL	33.68	31.64	30.6	30.75	30.64	29.38
DEPTH OF CUT/FILL	-0.58	0.71	0.85	-0.2	-0.99	-0.41
CHAINAGE	0	10	20	30	40	47.566

LONGITUDINAL SECTION

SCALE: (A1/A3) 1:125H 1:62.5V / 1:250H 1:125V

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

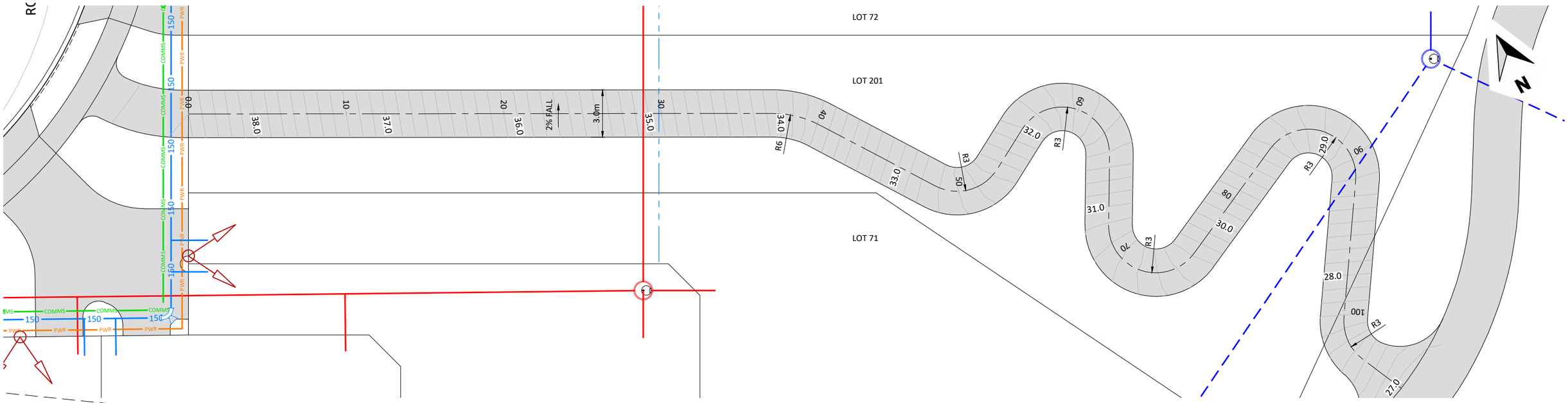
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ACCESS WAY DETAILS
THROUGH LOT 301

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:125 / 1:250
SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m
DRAWING NUMBER: 2011-01-352 REV: C2



PLAN

SCALE: (A1/A3) 1:125/1:250

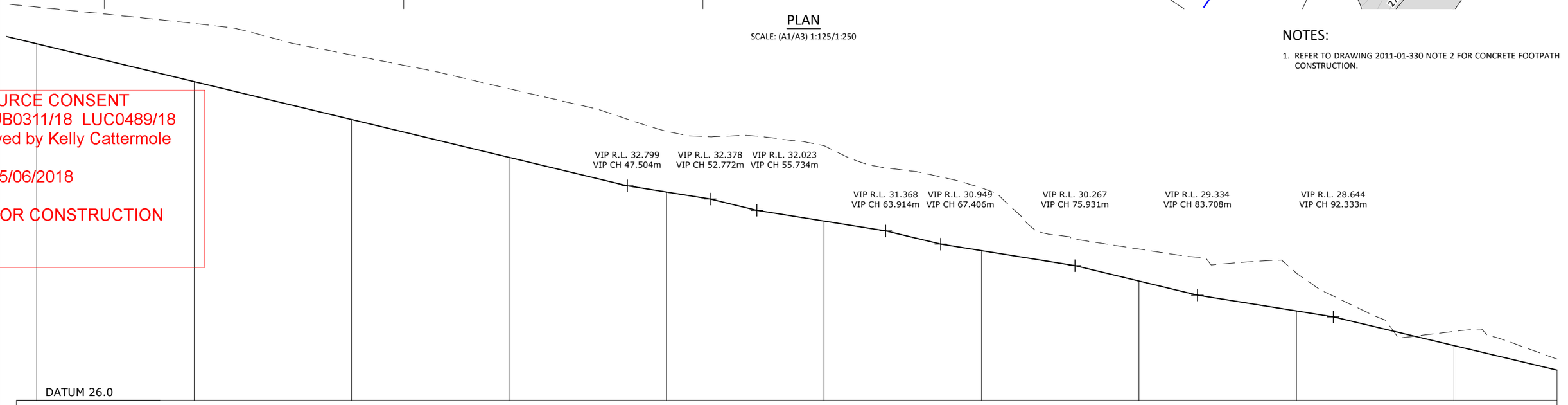
NOTES:

1. REFER TO DRAWING 2011-01-330 NOTE 2 FOR CONCRETE FOOTPATH CONSTRUCTION.

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



DATUM 26.0

DESIGN GRADE		-12.00%		-8.00%	-12.00%	-8.00%	-12.00%	-8.00%	-12.00%	-8.00%	-11.89%
DESIGN FINISHED LEVEL	36.1	34.9	33.7	32.6	31.68	30.74	29.78	28.83	27.73	26.96	
EXISTING GROUND LEVEL	37.94	36.94	35.87	34.52	34.07	32.73	30.79	30.03	28.18	27.31	
DEPTH OF CUT/FILL	-1.84	-2.04	-2.17	-1.92	-2.39	-1.99	-1.01	-1.2	-0.45	-0.35	
CHAINAGE	20	30	40	50	60	70	80	90	100	106.534	

LONGITUDINAL SECTION

SCALE: (A1/A3) 1:125H 1:62.5V / 1:250H 1:125V

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

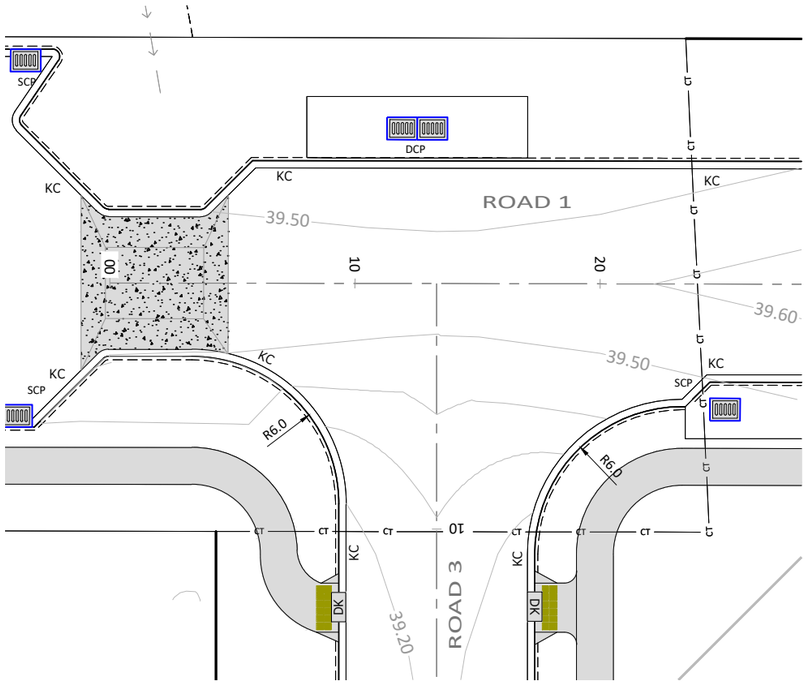
SHEET TITLE:
PROPOSED ACCESS WAY DETAILS
THROUGH LOT 201

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:125 / 1:250

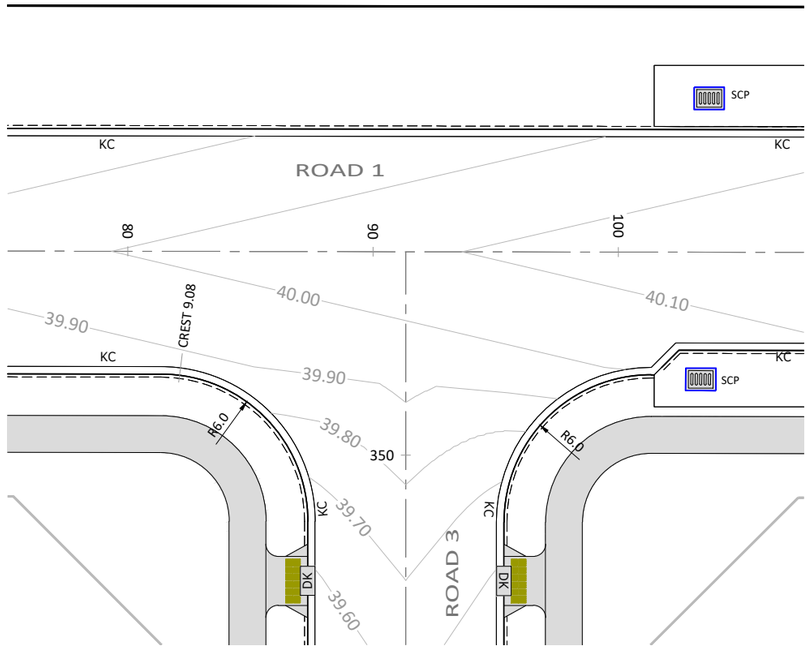
SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m

DRAWING NUMBER: 2011-01-353 REV: C1



INTERSECTION DETAIL 1

SCALE:(A1/A3) 1:125 / 1:250



INTERSECTION DETAIL 2

SCALE:(A1/A3) 1:125 / 1:250

KEYPLAN

LEGEND

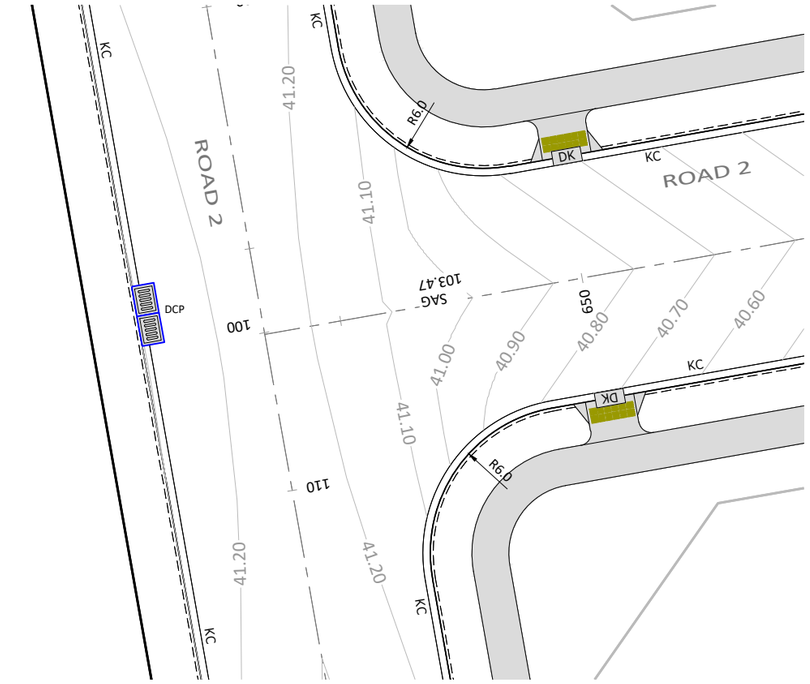
EOS / EOM	EDGE OF SEAL / EDGE OF METAL
KC	KERB AND CHANNEL
KN	KERB AND NIB
DK	DROP KERB FOR CROSSING
SCP	SINGLE CATCHPIT
DCP	DOUBLE CATCHPIT

BLACK OXIDE EXPOSED AGGREGATE RAISED TABLE - REFER PLAN 335 FOR DETAIL

PROPOSED BROOM FINISHED STANDARD FOOTPATH AND PRAM CROSSING

INTERSECTION DETAIL 3

SCALE:(A1/A3) 1:125 / 1:250



INTERSECTION DETAIL 4

SCALE:(A1/A3) 1:125 / 1:250

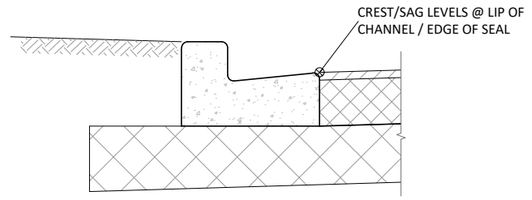
NOTES:

1. REFER PLAN SERIES 2011-01-330 FOR KERB AND CHANNEL DIMENSIONS

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



KERB AND CHANNEL SETOUT POINT

SCALE: (A1/A3) 1:10 /1:20

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

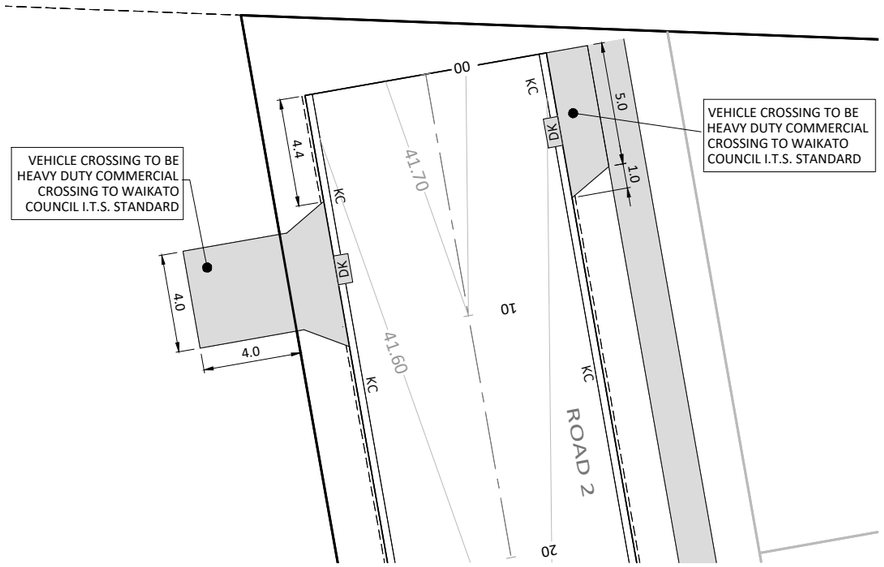
SHEET TITLE:
PROPOSED ROADING
INTERSECTION DETAILS PLAN
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:125 / 1:250
SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m
DRAWING NUMBER: 2011-01-360 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

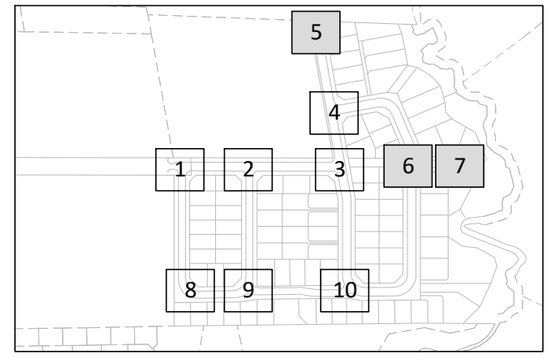
Date:25/06/2018

NOT FOR CONSTRUCTION



INTERSECTION DETAIL 5

SCALE:(A1/A3) 1:125 / 1:250

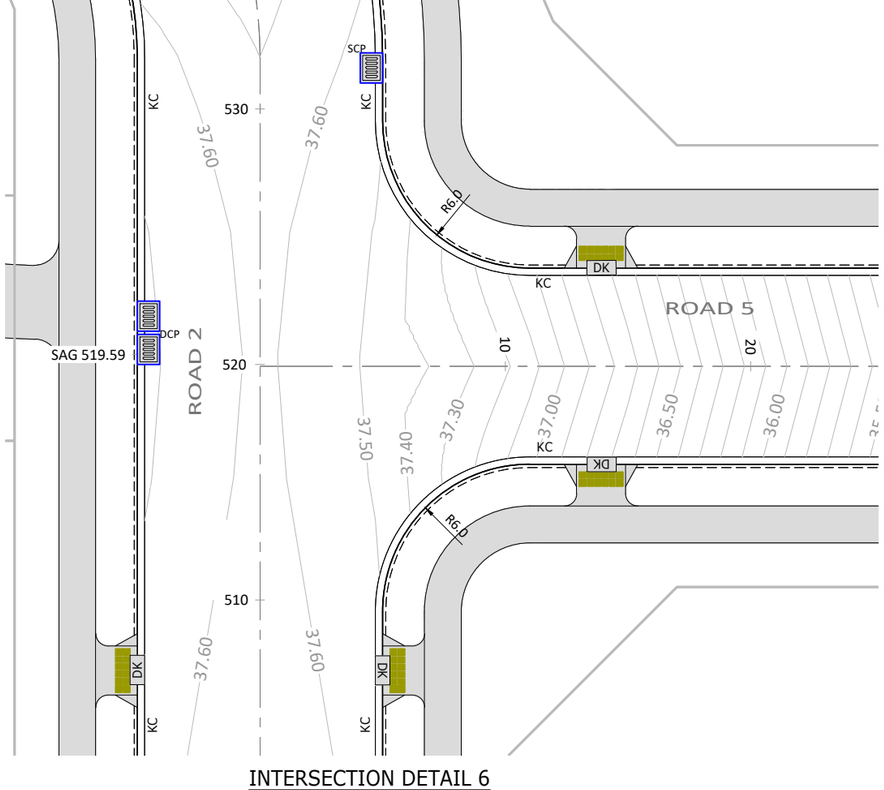


KEYPLAN

LEGEND

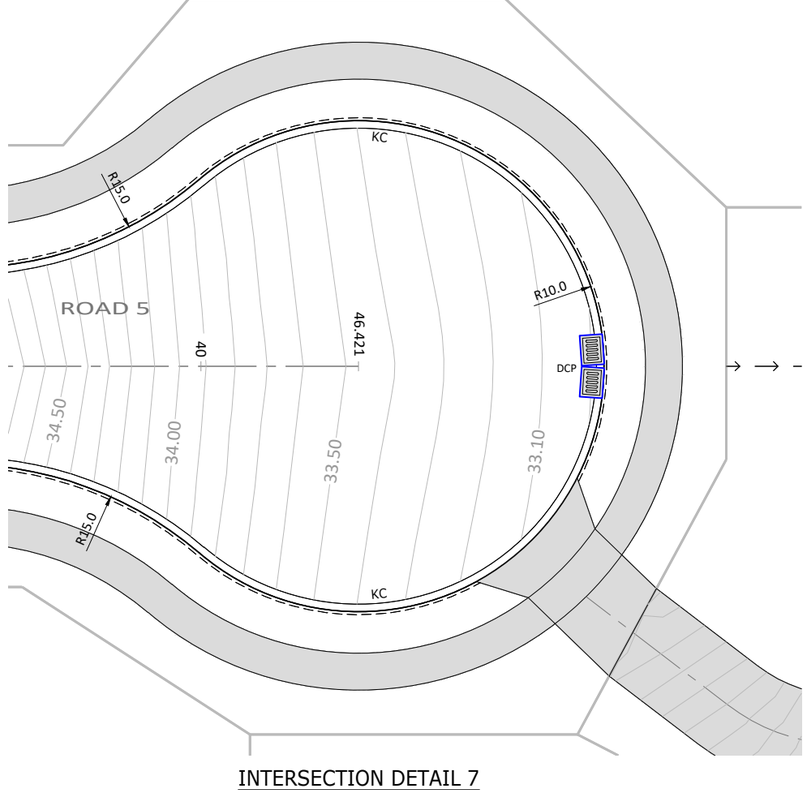
EOS / EOM	EDGE OF SEAL / EDGE OF METAL
KC	KERB AND CHANNEL
KN	KERB AND NIB
DK	DROP KERB FOR CROSSING
SCP	SINGLE CATCHPIT
DCP	DOUBLE CATCHPIT

PROPOSED BROOM FINISHED STANDARD FOOTPATH AND PRAM CROSSING



INTERSECTION DETAIL 6

SCALE:(A1/A3) 1:125 / 1:250

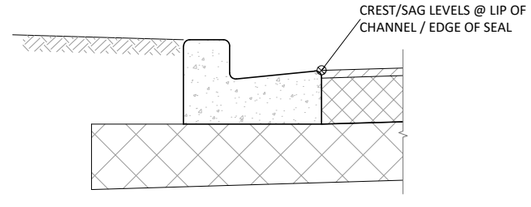


INTERSECTION DETAIL 7

SCALE:(A1/A3) 1:125 / 1:250

NOTES:

1. REFER PLAN SERIES 2011-01-330 FOR KERB AND CHANNEL DIMENSIONS



KERB AND CHANNEL SETOUT POINT

SCALE: (A1/A3) 1:10 /1:20

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

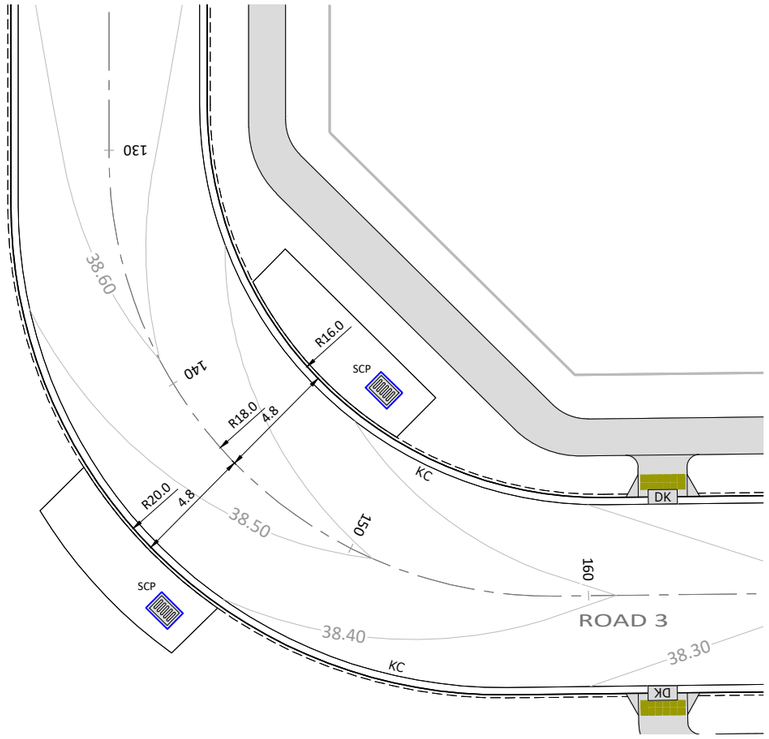
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

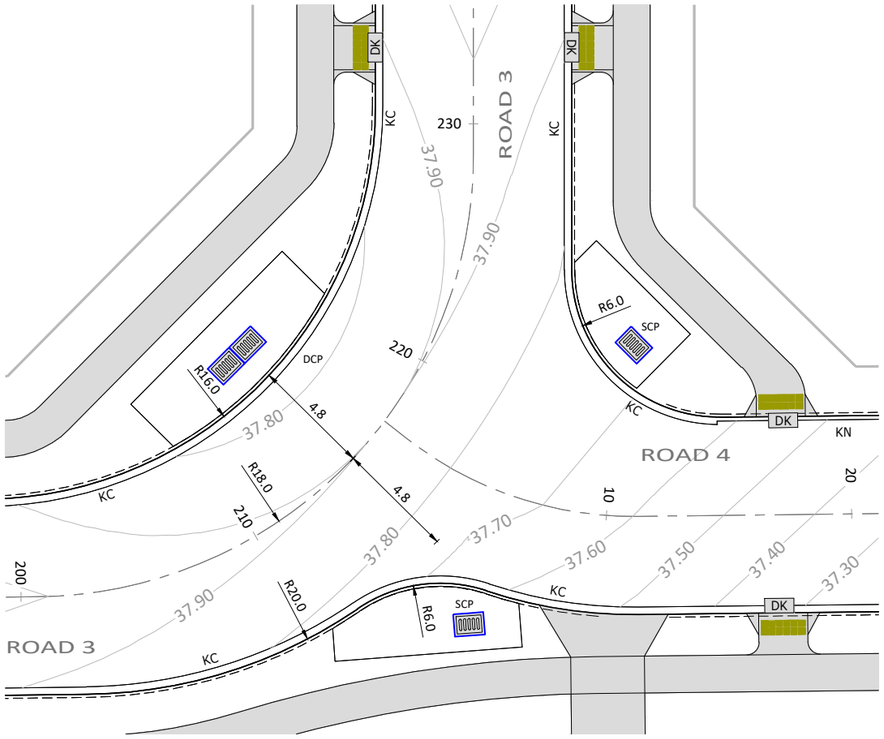
SHEET TITLE:
PROPOSED ROADING
INTERSECTION DETAILS PLAN
SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:125 / 1:250
SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m
DRAWING NUMBER: 2011-01-361 REV: C1



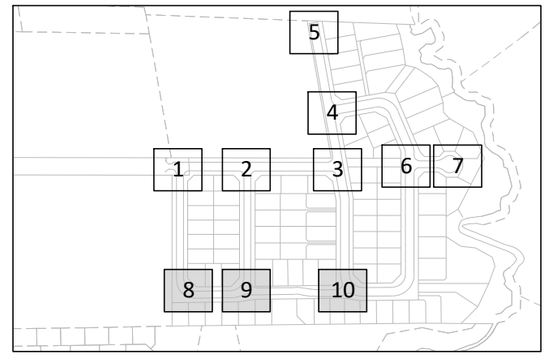
INTERSECTION DETAIL 8

SCALE:(A1/A3) 1:125 / 1:250



INTERSECTION DETAIL 9

SCALE:(A1/A3) 1:125 / 1:250

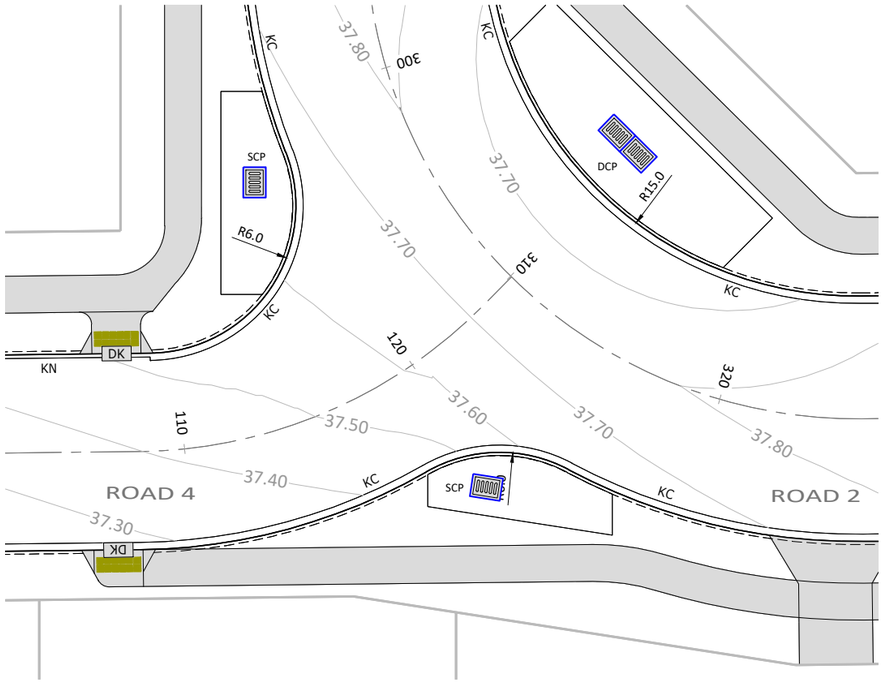


KEYPLAN

LEGEND

EOS / EOM	EDGE OF SEAL / EDGE OF METAL
KC	KERB AND CHANNEL
KN	KERB AND NIB
DK	DROP KERB FOR CROSSING
SCP	SINGLE CATCHPIT
DCP	DOUBLE CATCHPIT

PROPOSED BROOM FINISHED STANDARD FOOTPATH AND PRAM CROSSING



INTERSECTION DETAIL 10

SCALE:(A1/A3) 1:125 / 1:250

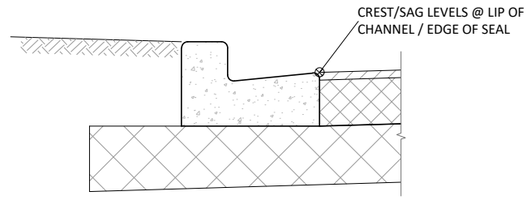
NOTES:

1. REFER PLAN SERIES 2011-01-330 FOR KERB AND CHANNEL DIMENSIONS

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



KERB AND CHANNEL SETOUT POINT

SCALE: (A1/A3) 1:10 /1:20

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

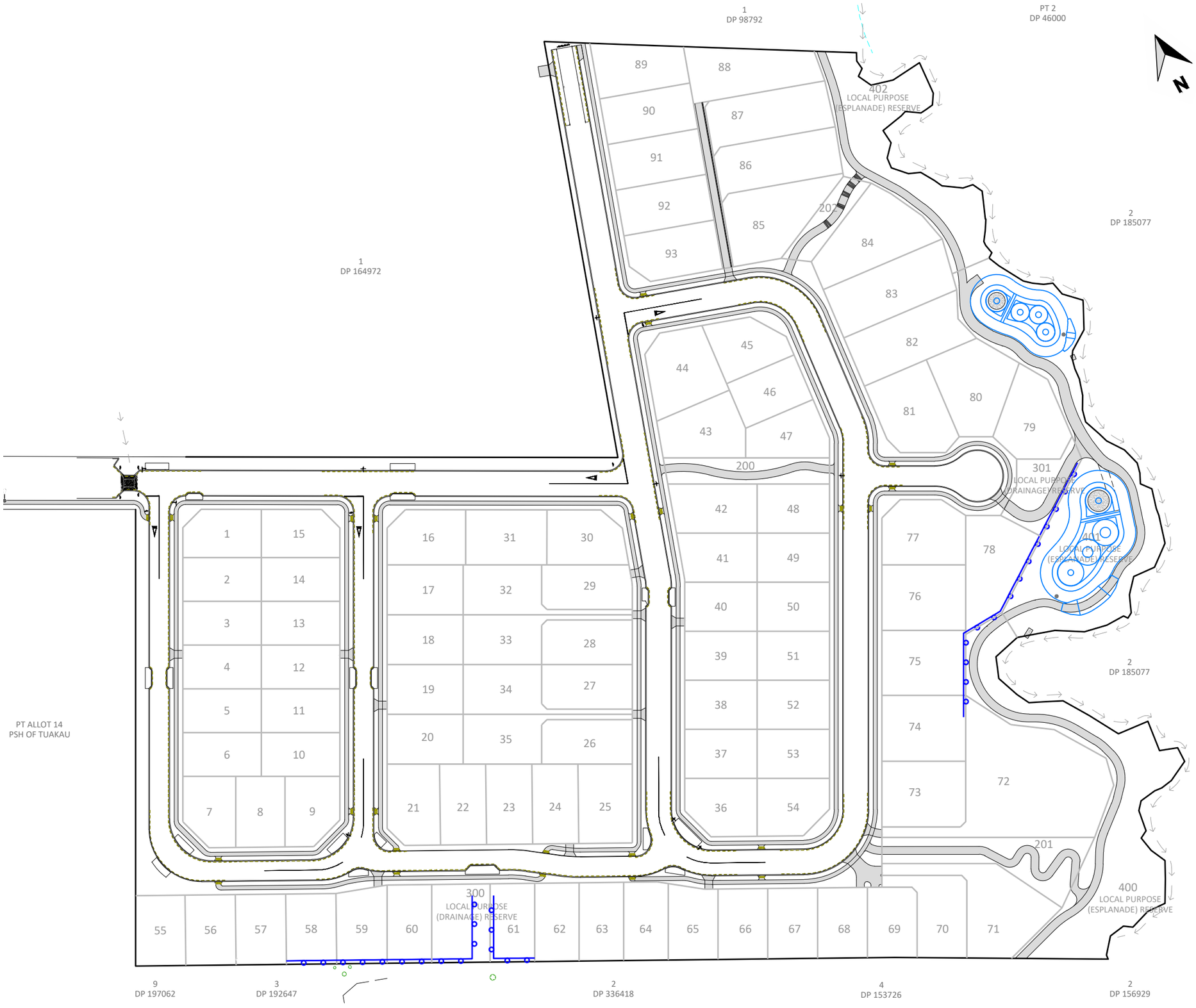
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

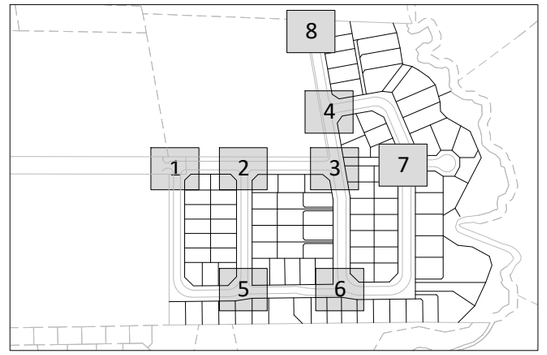
CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED ROADING
INTERSECTION DETAILS PLAN
SHEET 3

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:125 / 1:250
SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m
DRAWING NUMBER: 2011-01-362 REV: C1





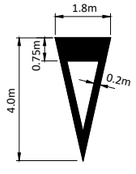
KEYPLAN

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

LEGEND



GIVE WAY
PAVEMENT MARKING
WITHIN 20m OF LINE

RG-6
GIVE WAY
(750mm x 865mm)

PW68 CHEVRON BOARD
(4800mm x 600mm)

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	16.05.18
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	GDS	DATE: 09.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

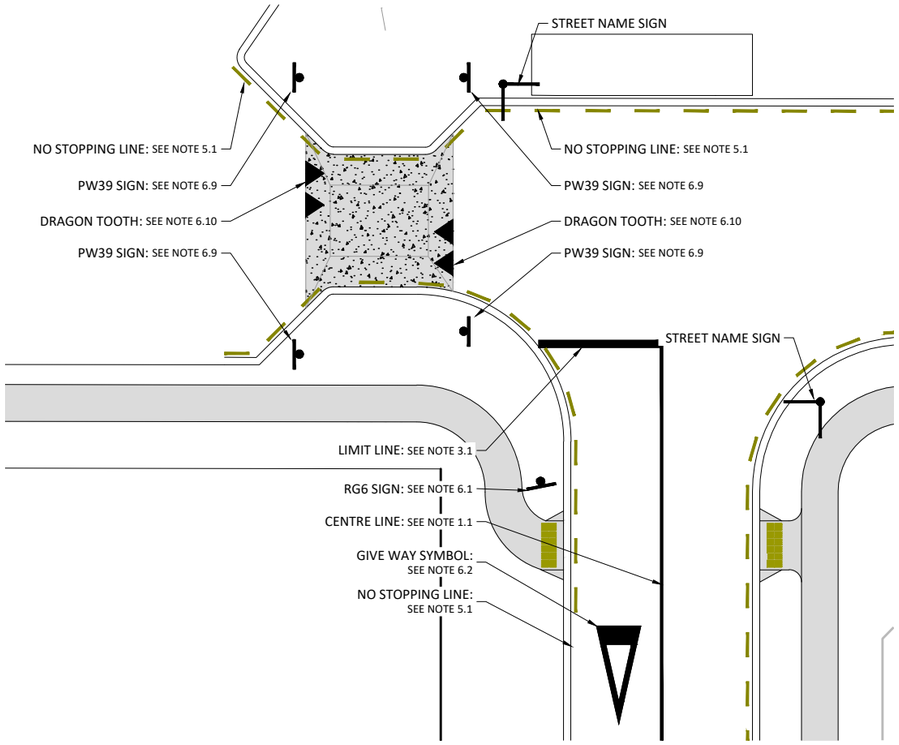
SHEET TITLE:
PROPOSED ROADING
INTERSECTION ROADMARKING PLAN
OVERALL LAYOUT

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:750 / 1:1500

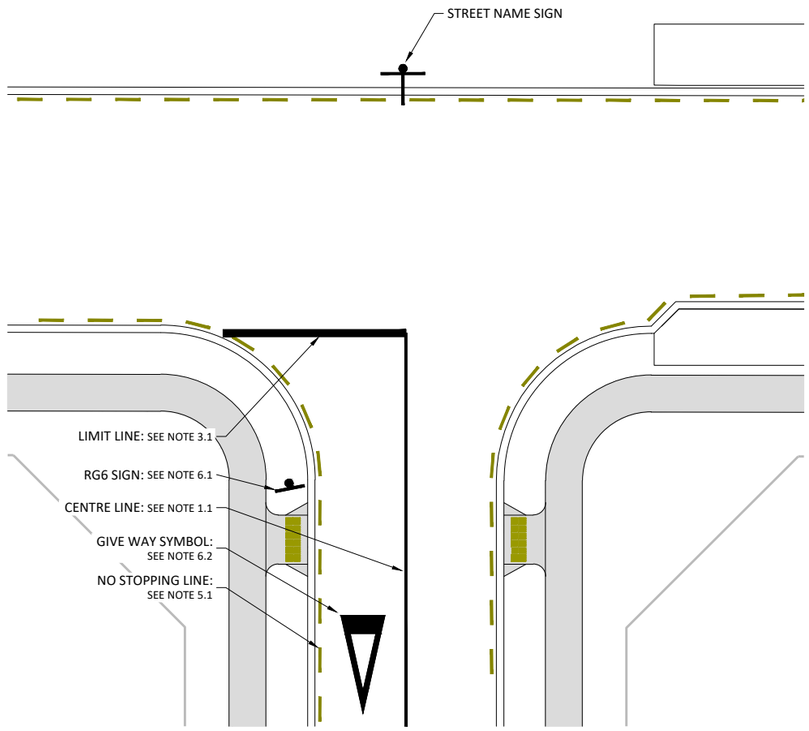
SCALE BAR 1:1500@A3 0 15 30 45 60 75m

DRAWING NUMBER: 2011-01-380 REV: C3



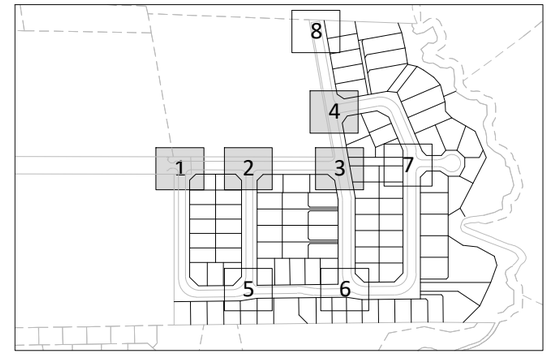
INTERSECTION DETAIL 1

SCALE:(A1/A3) 1:125 / 1:250



INTERSECTION DETAIL 2

SCALE:(A1/A3) 1:125 / 1:250

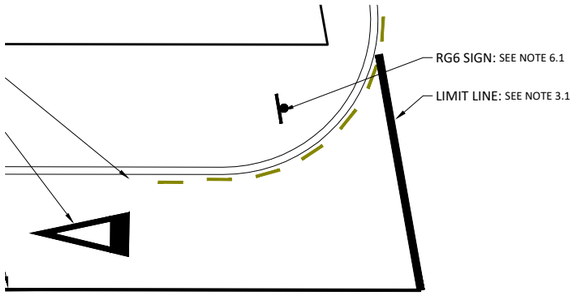


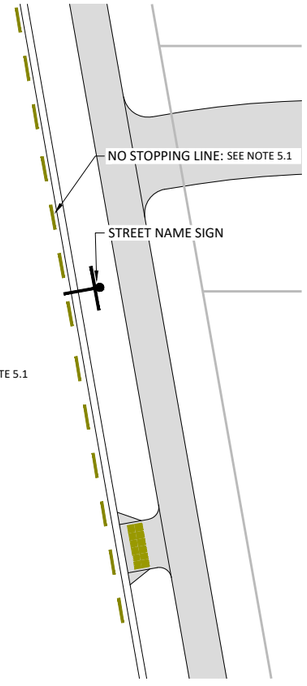
KEYPLAN

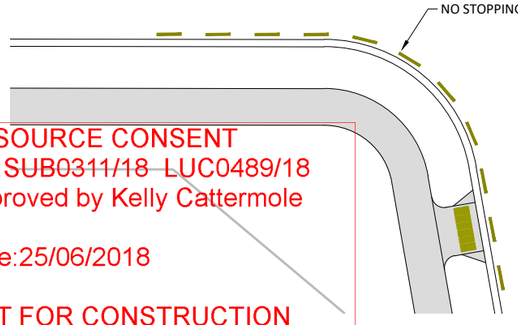
NOTES:

ROAD MARKINGS AND SIGNS TO BE IN STRICT ACCORDANCE WITH BOTH WAIKATO DISTRICT COUNCIL STANDARDS AND M.O.T.S.A.M.

1. CENTRELINE LINE:
   - 1.1. 100mm REFLECTORISED WHITE CONTINUOUS 30m LONG.
   - 1.2. 100mm REFLECTORISED WHITE: 3m STRIPE, 7m GAP.
2. EDGE LINE AND CYCLE LANE:
   - 2.1. 100mm REFLECTORISED WHITE CONTINUOUS.
3. LIMIT LINE & HOLDING LINE:
   - 3.1. 300mm REFLECTORISED WHITE CONTINUOUS LIMIT LINE.
   - 3.2. 200mm REFLECTORISED WHITE CONTINUOUS LIMIT LINE.
   - 3.3. 300mm REFLECTORISED YELLOW CONTINUOUS LIMIT LINE.
4. CONTINUITY LINE:
   - 4.1. 100mm REFLECTORISED WHITE: 1m STRIPE, 3m GAP.
5. NO STOPPING LINE:
   - 5.1. 100mm YELLOW: 1m STRIPE, 1m GAP (2m IF OVER 30m LONG).
6. SIGNS AND SIGN SYMBOLS:
   - 6.1. RG6 GIVE WAY SIGN
   - 6.2. GIVE WAY SYMBOL, 4.0m HEIGHT REFLECTORISED WHITE WITHIN 20m OF LIMIT LINE.
   - 6.3. CYCLE LANE SYMBOL REFLECTORISED WHITE IN 1.4m WIDE BY 5m LONG GREEN PAINTED RECTANGLE (SPACING OF 50m TO 100m).
   - 6.4. GREEN PAINT THROUGH INTERSECTION, 1.4m WIDE.
   - 6.5. PW-68 CHEVRON, ROTATED AT LEAST 10° OFF PERPENDICULAR TO APPROACHING TRAFFIC.
   - 6.6. RG-26 CYCLE LANE SIGN
   - 6.7. RP-5 BUS STOP SIGN
   - 6.8. RG-26C SHARED PEDESTRIAN AND CYCLE PATH.
   - 6.9. PW-39 SPEED HUMP SIGN
   - 6.10. DRAGON TOOTH RAMP MARKING REFLECTORISED WHITE

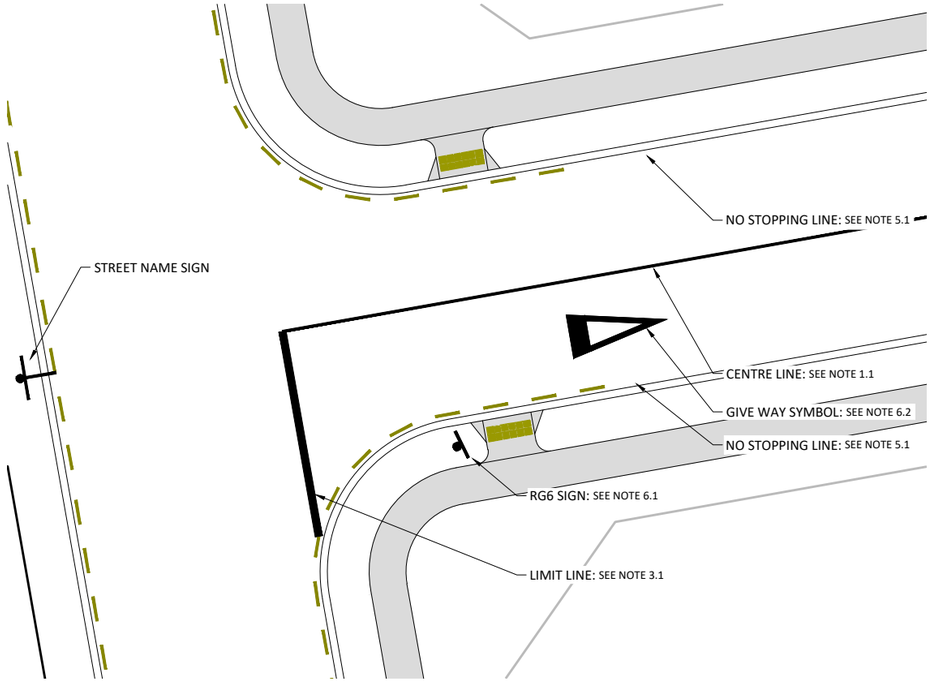






INTERSECTION DETAIL 3

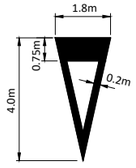
SCALE:(A1/A3) 1:125 / 1:250



INTERSECTION DETAIL 4

SCALE:(A1/A3) 1:125 / 1:250

LEGEND



GIVE WAY
PAVEMENT MARKING
WITHIN 20m OF LINE

RG-6
GIVE WAY
(750mm x 865mm)

PW68 CHEVRON BOARD
(4800mm x 600mm)

RESOURCE CONSENT
NO:SUB0311/18_LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	16.05.18
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	GDS	DATE:	09.2017
CHECKED:	RJP	DATE:	29.03.18
APPROVED:	RJP	DATE:	03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

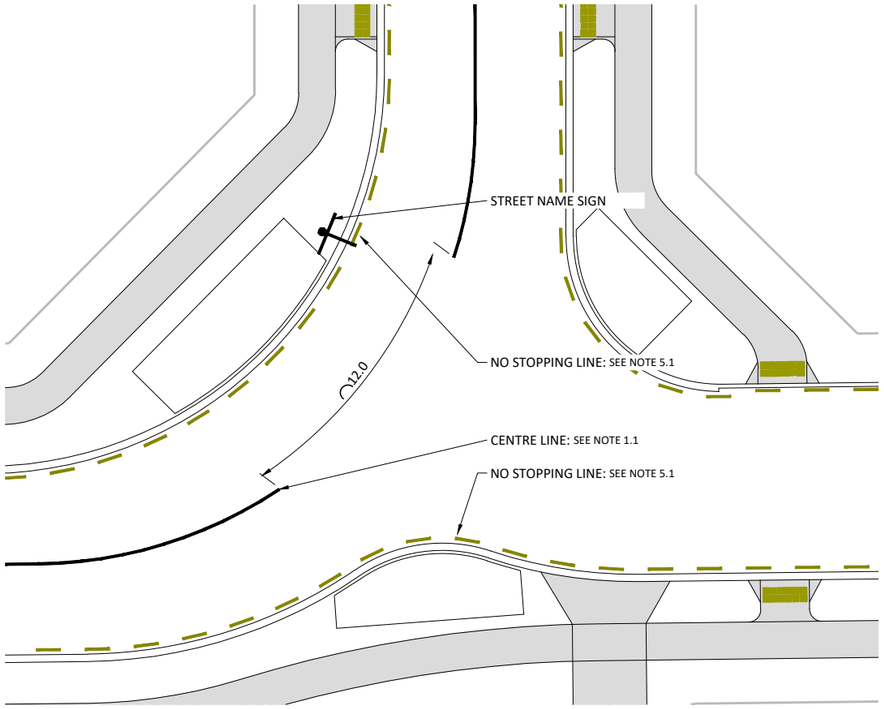
SHEET TITLE:
PROPOSED ROADING
INTERSECTION ROADMARKING PLAN
DETAIL PLAN - SHEET 1

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:125 / 1:250

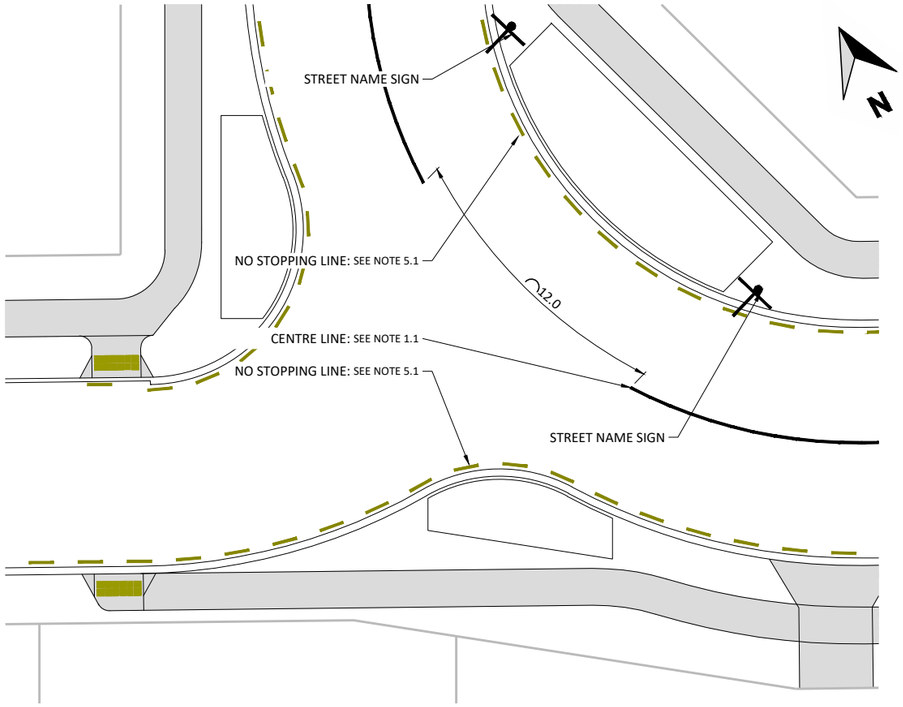
SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m

DRAWING NUMBER: 2011-01-381 REV: C3



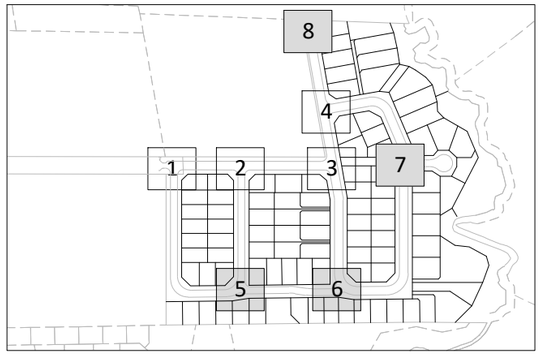
INTERSECTION DETAIL 5

SCALE:(A1/A3) 1:125 / 1:250



INTERSECTION DETAIL 6

SCALE:(A1/A3) 1:125 / 1:250

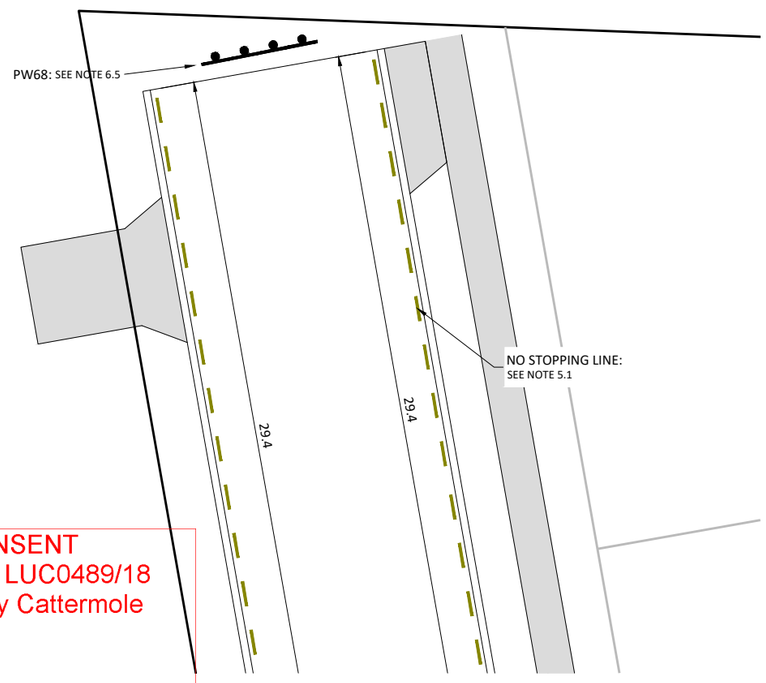


KEYPLAN

NOTES:

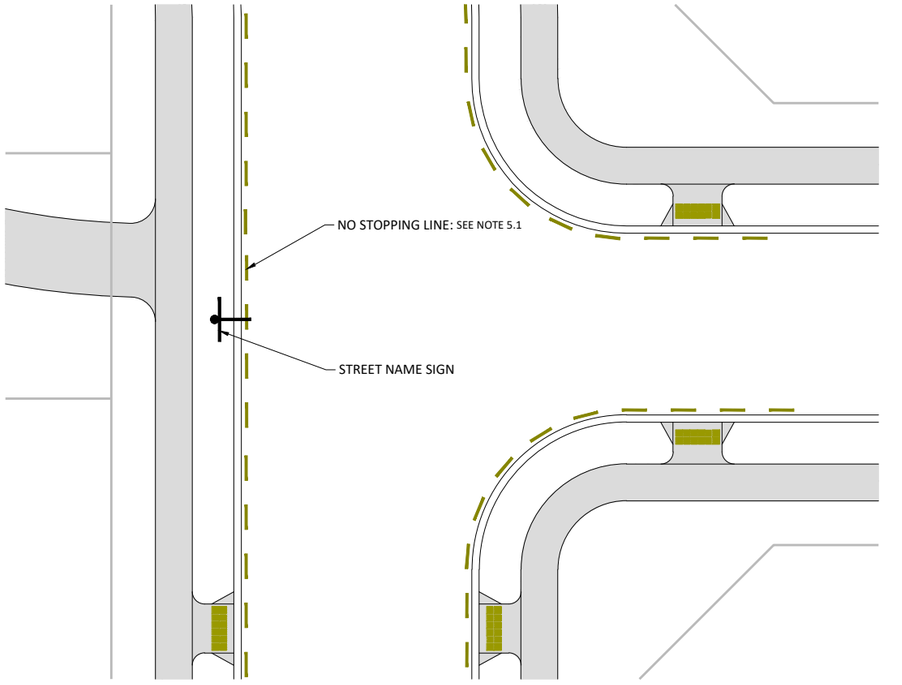
ROAD MARKINGS AND SIGNS TO BE IN STRICT ACCORDANCE WITH BOTH WAIKATO DISTRICT COUNCIL STANDARDS AND M.O.T.S.A.M.

1. CENTRELINE LINE:
   - 1.1. 100mm REFLECTORISED WHITE CONTINUOUS 30m LONG.
   - 1.2. 100mm REFLECTORISED WHITE: 3m STRIPE, 7m GAP.
2. EDGE LINE AND CYCLE LANE:
   - 2.1. 100mm REFLECTORISED WHITE CONTINUOUS.
3. LIMIT LINE & HOLDING LINE:
   - 3.1. 300mm REFLECTORISED WHITE CONTINUOUS LIMIT LINE.
   - 3.2. 200mm REFLECTORISED WHITE CONTINUOUS LIMIT LINE.
   - 3.3. 300mm REFLECTORISED YELLOW CONTINUOUS LIMIT LINE.
4. CONTINUITY LINE:
   - 4.1. 100mm REFLECTORISED WHITE: 1m STRIPE, 3m GAP.
5. NO STOPPING LINE:
   - 5.1. 100mm YELLOW: 1m STRIPE, 1m GAP (2m IF OVER 30m LONG).
6. SIGNS AND SIGN SYMBOLS:
   - 6.1. RG6 GIVE WAY SIGN
   - 6.2. GIVE WAY SYMBOL, 4.0m HEIGHT REFLECTORISED WHITE WITHIN 20m OF LIMIT LINE.
   - 6.3. CYCLE LANE SYMBOL REFLECTORISED WHITE IN 1.4m WIDE BY 5m LONG GREEN PAINTED RECTANGLE (SPACING OF 50m TO 100m).
   - 6.4. GREEN PAINT THROUGH INTERSECTION, 1.4m WIDE.
   - 6.5. PW-68 CHEVRON, ROTATED AT LEAST 10° OFF PERPENDICULAR TO APPROACHING TRAFFIC.
   - 6.6. RG-26 CYCLE LANE SIGN
   - 6.7. RP-5 BUS STOP SIGN
   - 6.8. RG-26C SHARED PEDESTRIAN AND CYCLE PATH.
   - 6.9. PW-39 SPEED HUMP SIGN
   - 6.10. DRAGON TOOTH RAMP MARKING REFLECTORISED WHITE.



INTERSECTION DETAIL 7

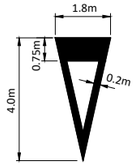
SCALE:(A1/A3) 1:125 / 1:250



INTERSECTION DETAIL 8

SCALE:(A1/A3) 1:125 / 1:250

LEGEND



GIVE WAY
PAVEMENT MARKING
WITHIN 20m OF LINE

RG-6
GIVE WAY
(750mm x 865mm)

PW68 CHEVRON BOARD
(4800mm x 600mm)

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

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DRAWN:	GDS	DATE:	09.2017
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CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

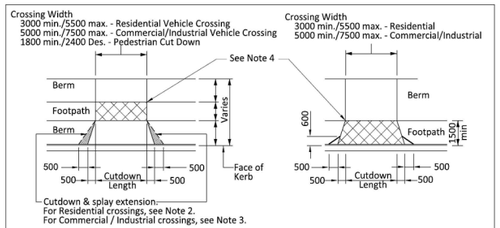
SHEET TITLE:
PROPOSED ROADING
INTERSECTION ROADMARKING PLAN
DETAIL PLAN - SHEET 2

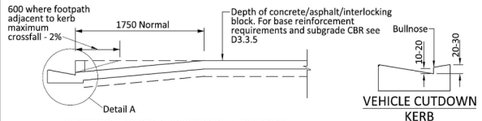
ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:125 / 1:250

SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m

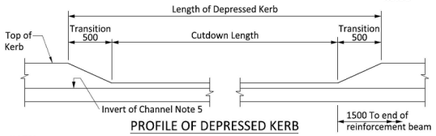
DRAWING NUMBER: 2011-01-382 REV: C3





SECTION THROUGH VEHICLE CROSSING

VEHICLE CUTDOWN KERB DETAIL A
Note 5



PROFILE OF DEPRESSED KERB

NOTES:

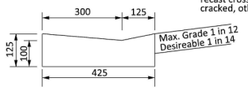
1. When commercial and industrial crossings are constructed, the reinforcement beam is to extend 1500 either side of cutdown.
2. Cutdown and splay extension to be constructed where the carriageway width is less than 9000 and the crossing width is less than 4000.
3. This area is to be formed and surfaced to the Commercial/Industrial standard for all Commercial/Industrial vehicle crossings. This may be extended to where footpath commences.
4. The footpath within the crossing area shall removed and strengthened to match the vehicle crossing construction standard and then be surfaced with the same material as the footpath either side.
5. When crossing is a pedestrian cutdown use pedestrian / cycle cutdown shown in D3.6.4.

Hamilton City Council

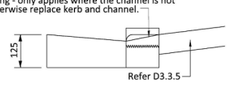
VEHICLE CROSSING AND PEDESTRIAN CUTDOWN SET OUT D3.3.1

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: October 2016

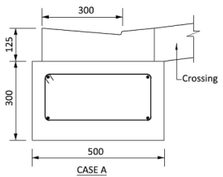
New residential crossing in existing kerb and channel only. Saw cut 40mm deep and remove vertical portion and recast crossing - only applies where the channel is not cracked, otherwise replace kerb and channel.

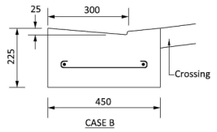


PEDESTRIAN / CYCLE CUTDOWN

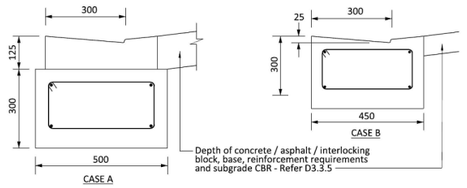


RESIDENTIAL CHANNEL CROSSING (Less than 7 Household Units)





COMMERCIAL CHANNEL CROSSING (Also Residential Privateways 7 or more Household Units)



INDUSTRIAL CHANNEL CROSSING

Case A For Extrusion Machine Channel
Case B For Cast in Situ Channel

Reinforcing - D12 bars with R6 stirrups @ 600 crs
Reinforcement beam to extend 1500 either side of cutdown.
Side & Top Cover 50mm minimum
Bottom Cover 75mm minimum

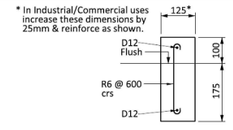
Hamilton City Council

VEHICLE CROSSING PROFILES D3.3.2

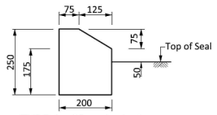
INFRASTRUCTURE TECHNICAL SPECIFICATION Version: October 2016

REFER TO DRAWING SERIES 330 FOR VERTICAL KERB AND CHANNEL DETAILS

* In Industrial/Commercial uses increase these dimensions by 25mm & reinforce as shown.

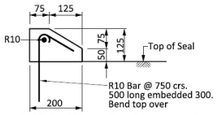


VERTICAL KERB & CHANNEL



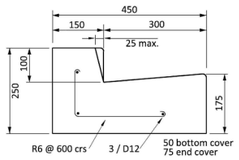
TYPE A - (Cast Insitu)

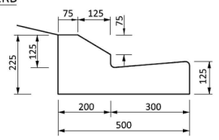
EDGE RESTRAINT - (Parallel to Travel)



TYPE B - (Pinned to Pavement)

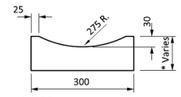
MEDIAN KERB





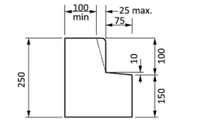
MOUNTABLE KERB & CHANNEL

HEAVY DUTY KERB & CHANNEL
E.G. Tight Radius K & C usage Narrow Carriageway



* 100 Berm
125 Residential Streets
150 Industrial / Commercial Streets

DISH CHANNEL



VERTICAL NIB KERB

NOTE:
1. All concrete shall be 20 MPa in place.
2. Minimum radius for kerbs on Public roads 5.0m.

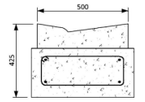
Hamilton City Council

KERB AND CHANNEL PROFILES D3.3.3

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: JULY 2013

	Pedestrian Footpath (Single Residential Dwelling)	Residential Strength Vehicle Crossing (Multi Dwellings 2-6)	Commercial Strength Vehicle Crossing (Multi Dwellings 7+)	Industrial Strength Vehicle Crossings
Asphalt Surfacing	25mm Mix 10 Asphalt 150mm GAP 40 CBR > 10 Pavement Depth = 175mm	25mm Mix 10 Asphalt 175mm GAP 40 CBR > 10 Pavement Depth = 200mm	25mm Mix 10 Asphalt 225mm GAP 40 CBR > 10 Pavement Depth = 250mm	50mm Mix 20 Asphalt 250mm GAP 40 CBR > 10 Pavement Depth = 300mm
Concrete Surfacing	100mm Concrete 75mm sand / GAP 20 CBR > 10 Pavement Depth = 175mm	125mm Concrete 75mm sand / GAP 20 CBR > 10 Pavement Depth = 200mm	150mm Concrete 100mm GAP 20 CBR > 10 Pavement Depth = 250mm	175mm Concrete 125mm GAP 20 CBR > 10 Pavement Depth = 300mm
Interlocking Block Paving	50/60mm Paving Block 80mm GAP40 CBR > 10 25mm Bedding Sand Pavement Depth = 175mm	80mm Paving Block 80mm GAP40 CBR > 10 25mm Bedding Sand Pavement Depth = 195mm	80mm Paving Block 40mm GAP40 CBR > 10 25mm Bedding Sand Pavement Depth = 250mm	80mm Paving Block 195mm GAP40 CBR > 10 25mm Bedding Sand Pavement Depth = 300mm
Depressed Kerb and Channel Crossing	Pedestrian crossing (No Lip) 175 75 mm GAP 20 CBR > 10 Pavement Depth = 200mm	Residential dwelling vehicle crossing (1-6 Dwellings) 175 75 mm GAP 20 CBR > 10 Pavement Depth = 200mm	225 75 mm GAP 20 CBR > 10 Pavement Depth = 300mm	300 75 mm GAP 20 CBR > 10 Pavement Depth = 350mm

NOTES:
1. Concrete - 28 Day in place minimum strength of 20MPa
2. Basecourse depth can be amended by using steel mesh reinforcing in concrete vehicle crossings (specific design required)
3. Depth of sand / GAP material to be increased where the CBR is not achievable

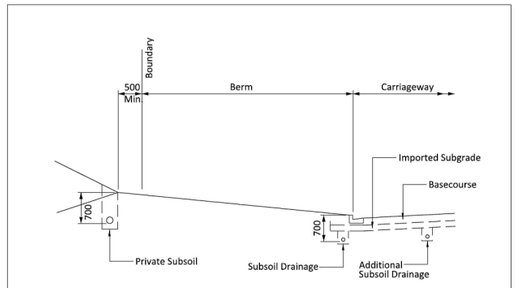


Machine Extruded Crossing
Pavement Depth = 425mm CBR > 10

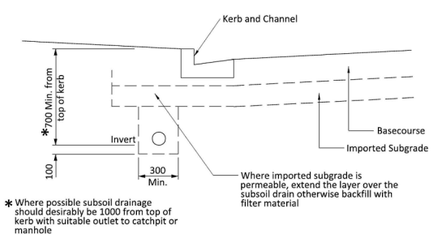
Hamilton City Council

CROSS SECTION DETAILS FOR FOOTPATH, VEHICLE CROSSINGS AND DEPRESSED KERB AND CHANNEL D3.3.5

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: October 2016



TYPES OF SUBGRADE DRAINAGE

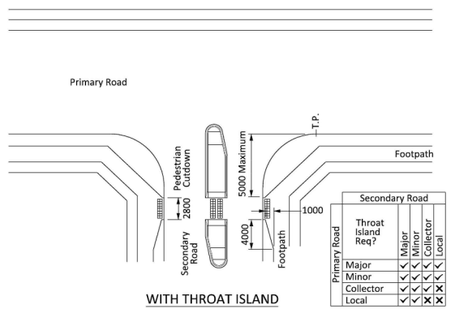


SUBSOIL DRAINAGE

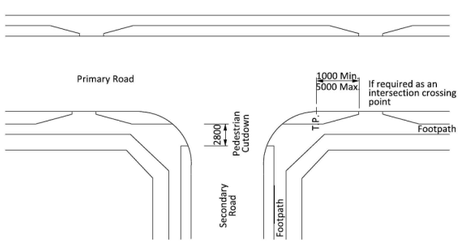
Hamilton City Council

LOCATION OF SUBSOIL DRAINAGE D3.4.1

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: October 2016



WITH THROAT ISLAND



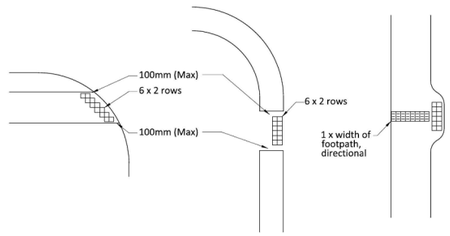
WITHOUT THROAT ISLAND

NOTES:
1. On minor roads ensure that the crossing is located within the Visibility Splay line.
2. Install tactile markers to NZTA RTS14 guidelines for crossings on Collector or Arterial roads and D3.6.3 Tactile Paving for Vision Impaired

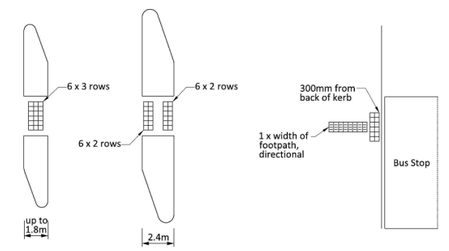
Hamilton City Council

PEDESTRIAN CROSSING POINT LOCATION AT INTERSECTIONS D3.6.2

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: October 2016



PEDESTRIAN CUTDOWNS



ISLANDS BUS STOPS

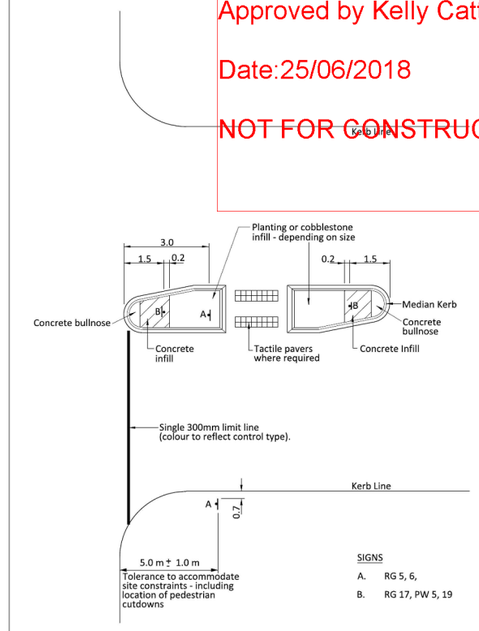
Notes:
Detailed information for disabled and visually impaired users refer to NZTA document RTS 14

Tactile width to suit crossing width with a maximum of 100mm between the tactile's and edge of footpath/ cutdown

Hamilton City Council

TACTILE PAVING FOR VISION IMPARIED D3.6.3

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: October 2016



SIGNS
A. RG 5, 6,
B. RG 17, PW 5, 19

Refer to NZTA - Traffic Control Devices Manual

Hamilton City Council

SIGN LOCATION AND VISIBILITY AT INTERSECTIONS D3.7.1

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: October 2016

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

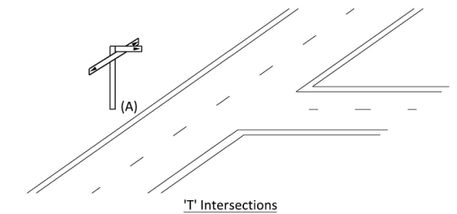
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

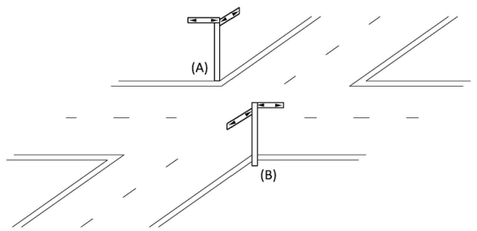
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
ROADING STANDARD DETAILS
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-390 REV: C1



'T' Intersections



Cross Intersections

NOTES:

1. Triangular arrows to be added to Street Name signs as indicated on diagrams (both sides of signs).
2. Signs should always be provided at location (A).
3. Where the name of the cross-street changes, additional name signs should be provided at location (B).

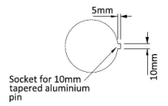
Hamilton City Council

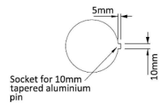
STREET NAME SIGNS
LOCAL / LOCAL INTERSECTIONS

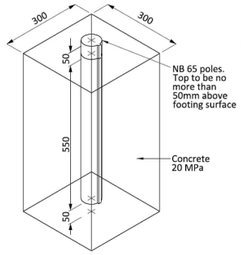
D3.7.4

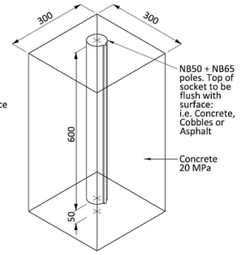
INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: October 2016









This detail only to be used for Real Time Bus signage or at request of Councils Engineer.

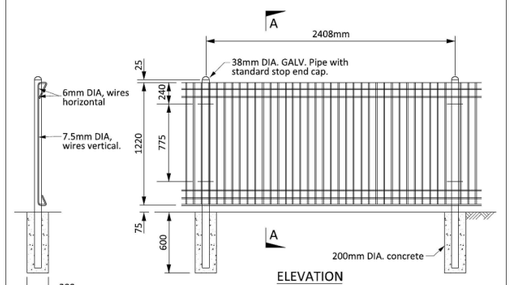
Hamilton City Council

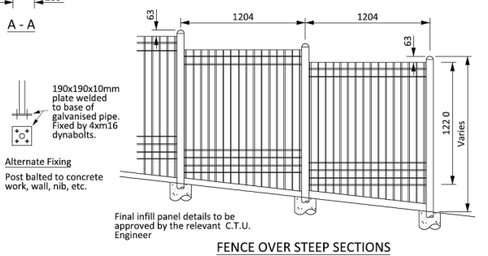
GROUND SOCKETS FOR REMOVABLE POLES

D3.7.9

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: October 2016





FENCE OVER STEEP SECTIONS

Notes

1. Steel to be high tensile with ultimate strength of 600-800/mm.
2. The rods are to be electrically welded to comply with NZS 3422.
3. Tolerances on overall dimensions of the finished panel to be 25mm and bars to be placed within 2nn of their true location.
4. Folded panels to galvanised to specification CES 306:1992
5. Sharp edges of the panel are to be rounded off before galvanising.

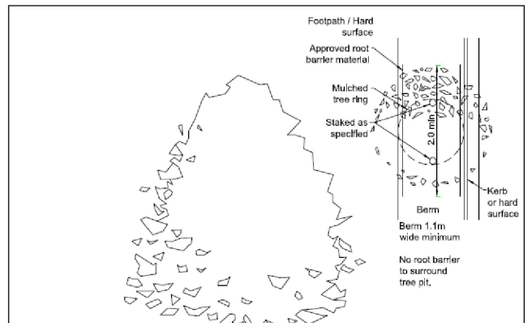
Hamilton City Council

TYPICAL WIRE FENCE
DETAIL B

D3.8.17

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: October 2016



Hamilton City Council

STREET TREE ROOT BARRIER

D7.4

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: AUGUST 2013

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
ROADING STANDARD DETAILS
SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-391 REV: C1

LEGEND

EXISTING

(CR) PLOTTED FROM COUNCIL RECORDS

DN1350 SW STORMWATER LINE AND MANHOLE

WASTEWATER LINE AND MANHOLE

PROPOSED

PERFORATRED DRAIN COIL

STORMWATER LINE AND MANHOLE

WASTEWATER LINE AND MANHOLE

X.Xm STORMWATER CONNECTION

X.Xm WASTEWATER CONNECTION

STORMWATER CATCHPIT

SCRUFFY DOME INLET/OUTLET MANHOLE

STORMWATER INLET

STORMWATER OUTLET

RAIN GARDEN

DETENTION TANK

PERFORATED DRAINCOIL IN WASTEWATER TRENCH CONNECTED INTO MANHOLE 10/5

PROPOSED TWIN DN375 CULVERT. SEE DETAIL ON SHEET 2011-01-403.

1%AEP+CC FLOOD EXTENT

OUTLET 10/1 TO HAVE EROSION PROTECTION RIPRAP 2.0m WIDE, 2.0m LONG, 170mm THICK WITH D_{50}=150mm.

OUTLET 10.1/1 TO HAVE EROSION PROTECTION RIPRAP 2.0m WIDE, 2.0m LONG, 170mm THICK WITH D_{50}=150mm.

REFER NOTE 25

OUTLET 7/1 TO HAVE EROSION PROTECTION RIPRAP 2m WIDE, 6m LONG, 230mm THICK WITH D_{50}=200mm.

PERFORATED DRAIN COIL IN RETAINING WALL AND WW TRENCH TEMPORARILY OUTLETTED DOWN SLOPE INTO STREAM RESERVE AREA. DURING STAGE 2 TO BE CONNECTED INTO STORMWATER MANHOLE 7/2

OUTLET 7.1/1 TO HAVE EROSION PROTECTION RIPRAP 2m WIDE, 6m LONG, 230mm THICK WITH D_{50}=200mm.

PERFORATED DRAINCOIL IN WASTEWATER TRENCH CONNECTED INTO MANHOLE 7/2

WW LINE A TO BE COMPLETED DURING STAGE 1

OUTLET 13/1 TO HAVE EROSION PROTECTION RIPRAP 1.0m WIDE, 2.0m LONG, 170mm THICK WITH D_{50}=150mm.

OUTLET 1/0 TO HAVE EROSION PROTECTION AS PER DRAWING 2011-01-465

STAGE 1

STAGE 2

ROAD 1

ROAD 2

ROAD 3

ROAD 4

ROAD 5

LOCAL PURPOSE (ESPLANADE) RESERVE

LOCAL PURPOSE (DRAINAGE) RESERVE

PT ALLOT 14 PSH OF TUAKAU

DP 98792

DP 46000

DP 185077

DP 164972

DP 197062

DP 192647

DP 153726

DP 156929

DP 18507

NOTES:

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. ALL WORKS ON EXISTING STORMWATER, WASTEWATER LINES AND WATERMAINS TO BE CARRIED OUT BY AN APPROVED LICENSED CONTRACTOR AT THE DEVELOPERS EXPENSE.
3. CONTRACTOR TO LOCATE / MARK AND CONFIRM ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORK ON SITE AND PROTECTION OF SAME.
4. CONTRACTOR TO CHECK ALL PIPE INVERTS AGAINST PIPE CLASHES BEFORE LAYING.
5. ALL WASTEWATER LINES SHALL BE DN150 uPVC DWV SN16 AS/NZ 1260, UNLESS SHOWN OTHERWISE.
6. ALL DN 100 & DN 150 STORMWATER LINES SHALL BE uPVC DWV SN16 AS/NZ 1260, UNLESS SHOWN OTHERWISE.
7. ALL DN225 AND ABOVE STORMWATER LINES SHALL BE CLASS 2 REINFORCED CONCRETE RUBBER RING JOINTED (RCRRJ) UNLESS SHOWN OTHERWISE.
8. ALL PROPOSED CONNECTIONS SHALL BE DN100, UNLESS SHOWN OTHERWISE AND ARE DIMENSIONED FROM THE CENTRE OF THE DOWNSTREAM MANHOLE.
9. ALL PROPOSED CONNECTIONS SHOULD TERMINATE 1m FROM THE FINISH GRADE LEVEL.
10. MAINTAIN 1m DISTANCE BETWEEN CONNECTION AND BOUNDARY.
11. ALL SINGLE CATCHPIT LEADS SHALL BE DN 225 RCRRJ CLASS 4 PIPE, UNLESS SHOWN OTHERWISE.
12. ALL CATCHPITS TO BE CONSTRUCTED WITH A STANDARD 675x450 CAST IRON GRATING & FRAME AS PER ITS STD DETAILS.
13. PIPE LENGTH ON LONGITUDINAL SECTIONS IS LENGTH OF PIPE HORIZONTALLY BETWEEN CENTRE OF MANHOLES.
14. FOR PIPE GRADES BETWEEN 10% - 20%, CEMENT STABILISED BEDDING IS REQUIRED.
15. RETAINING WALL NOVACOIL DRAINAGE TO BE CONNECTED TO 300x300 CATCHPITS WITH SUMP. NOVACOIL UNDER PAVED AREAS TO BE SOLID WALL AND HARDFILL BACK FILLED.
16. ALL MANHOLES SHALL BE DN1050 RC WITH MIN. 600mm OPENING, CAST IRON COVERS. HEAVY DUTY CONCRETE LIDS TO BE USED IN PAVEMENT AREAS, UNLESS SHOWN OTHERWISE.
17. BEDDING TO COMPLY WITH RELEVANT COUNCIL DETAILS.
18. HARDFILL BACKFILL ALL PIPE CROSSINGS BELOW CARRIAGEWAY / TRAFFIC AREAS 1.0m BEYOND LIMIT OF CARRIAGEWAY.
19. HARDFILL BACKFILL 1.0m EITHER SIDE OF PIPE CROSSOVERS.
20. WHERE CLEARANCE BETWEEN PIPELINE CROSSOVERS IS LESS THAN 100mm THE GAP IS TO BE POLYSTYRENE PACKED IN ADDITION TO HARDFILLING OF CROSSOVERS.
21. ADJUSTMENT OF ANY INVERT LEVELS IS AT CONTRACTORS OWN RISK DUE TO TIGHT TOLERANCE AT PIPE CROSSINGS.
22. ANY WORK DEEMED BY THE ENGINEER AS BEING SUBSTANDARD WORK SHALL BE RECTIFIED AT THE CONTRACTORS EXPENSE.
23. REFER TO SHEETS 2011-01-461/462/463 FOR WETLAND DETAILS, AND 2011-01-465/466 FOR TANK 1 DETAILS.
24. LENGTHS OF LOT CONNECTIONS ON PLAN ARE STATED IN HORIZONTAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.
25. WASTEWATER STREAM CROSSING TO BE CONSTRUCTED IN GENERAL ACCORDANCE WITH BIRCH SURVEYORS DRAWINGS 3942 SHEET 42 AND 43, AND IN ACCORDANCE WITH WRC STREAM CROSSING CONSENT No. AUTH137652.01.01. REFER TO CIVILPLAN DRAWING 2011-01-457 FOR LONG SECTION AND MATERIALS.
26. STORMWATER DISCHARGE IS IN ACCORDANCE WITH WRC CONSENT No. AUTH 135580.02.01.
27. ALL MANHOLES AND SERVICE CHAMBERS/BOXES LOCATED IN CONCRETE FOOTPATHS AND VEHICLE CROSSINGS TO HAVE 8xD12 TRIMMER BARS LAID IN CONCRETE AROUND OPENING TO PREVENT UNCONTROLLED CRACKING.

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION
CONSENT

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	22.05.18
C2	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

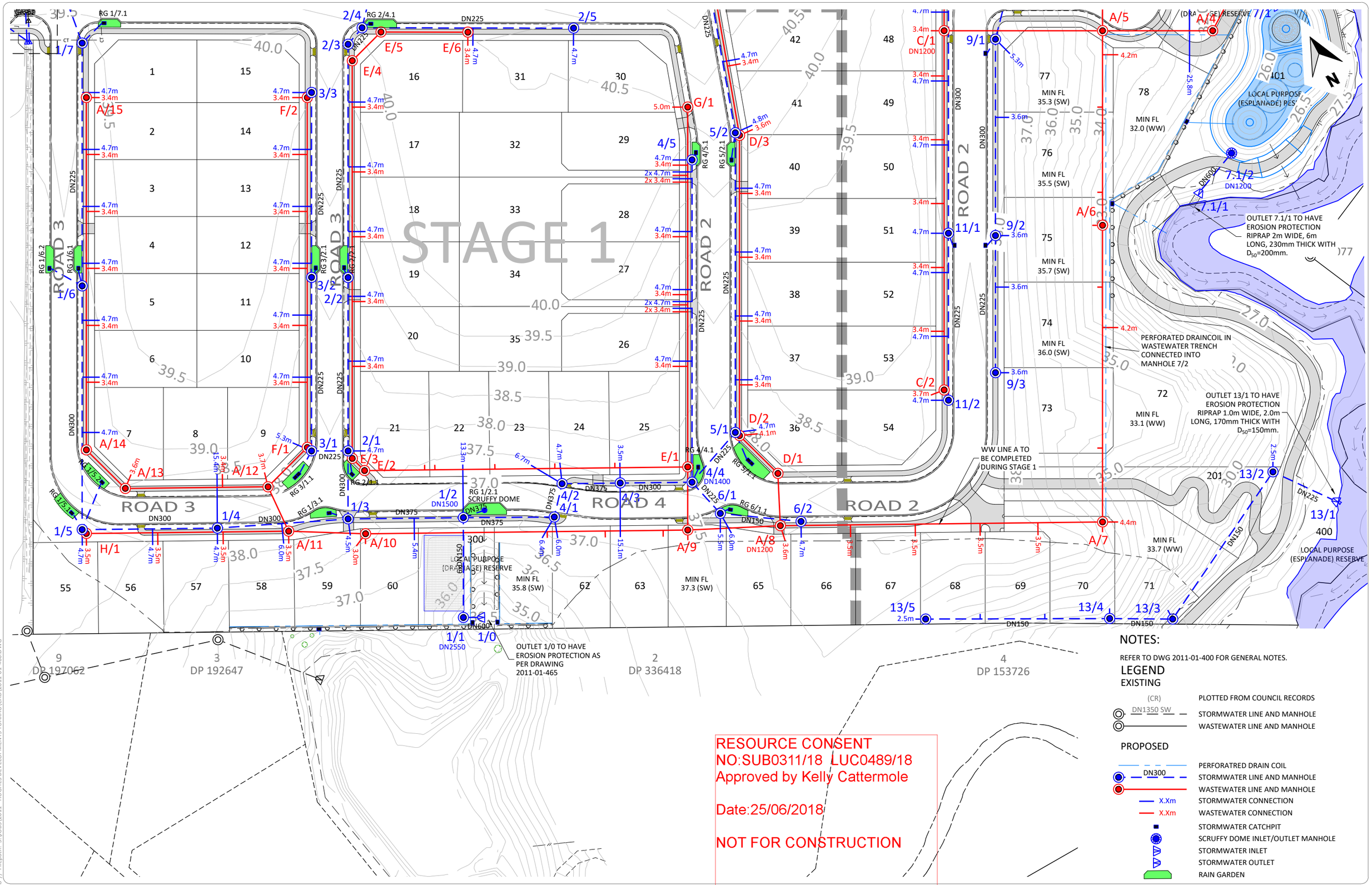
SHEET TITLE:
DRAINAGE RETICULATION PLAN
OVERALL LAYOUT

ISSUE STATUS:

SCALE: (A1/A3) 1:750 / 1:1500

SCALE BAR 1:1500@A3 0 15 30 45 60 75m

DRAWING NUMBER: 2011-01-400 REV: C3



RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

NOTES:

REFER TO DWG 2011-01-400 FOR GENERAL NOTES.

LEGEND

EXISTING

- (CR) — PLOTTED FROM COUNCIL RECORDS
- DN1350 SW — STORMWATER LINE AND MANHOLE
- WASTEWATER LINE AND MANHOLE

PROPOSED

- PERFORATRED DRAIN COIL
- DN300 — STORMWATER LINE AND MANHOLE
- WASTEWATER LINE AND MANHOLE
- X.Xm — STORMWATER CONNECTION
- X.Xm — WASTEWATER CONNECTION
- STORMWATER CATCHPIT
- SCRUFFY DOME INLET/OUTLET MANHOLE
- STORMWATER INLET
- STORMWATER OUTLET
- RAIN GARDEN

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	22.05.18
C2	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

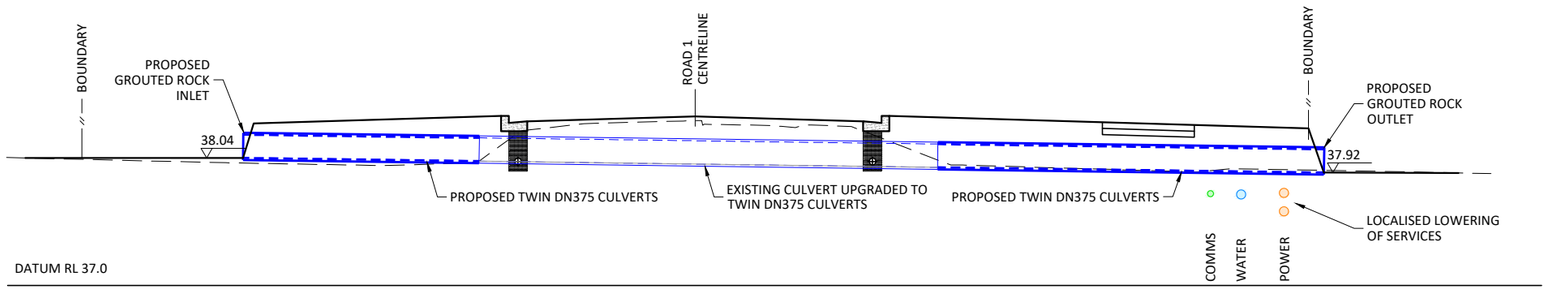
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

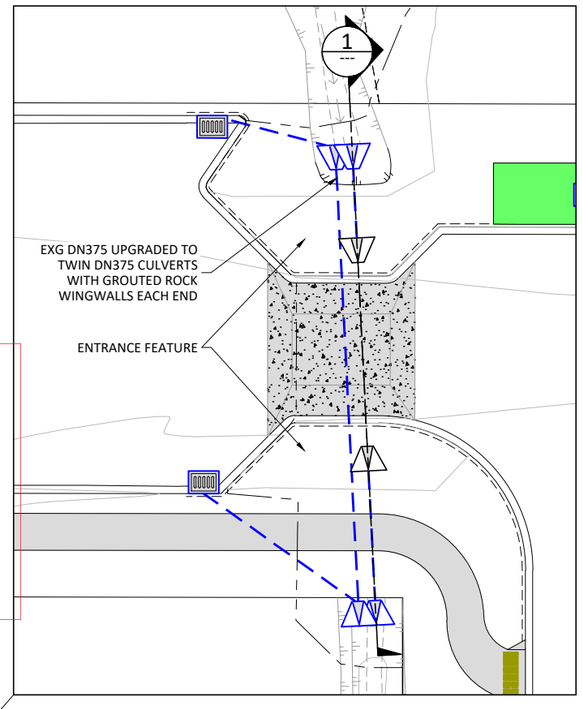
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
DRAINAGE RETICULATION PLAN
DETAIL SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500 / 1:1000
SCALE BAR 1:1000@A3 0 10 20 30 40 50m
DRAWING NUMBER: 2011-01-401 REV: C3



1 - SECTION THROUGH EXISTING CULVERT
SCALE: (A1/A3) 1:50/1:100



PLAN OF EXISTING CULVERT UPGRADE
SCALE: (A1/A3) 1:125/1:250

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

NOTES:

1. REFER TO DWG 2011-01-400 FOR GENERAL NOTES.

LEGEND

EXISTING

- (CR) — PLOTTED FROM COUNCIL RECORDS
- DN1350 SW — STORMWATER LINE AND MANHOLE
- WASTEWATER LINE AND MANHOLE

PROPOSED

- PERFORATRED DRAIN COIL
- DN300 — STORMWATER LINE AND MANHOLE
- WASTEWATER LINE AND MANHOLE
- X.Xm — STORMWATER CONNECTION
- X.Xm — WASTEWATER CONNECTION
- STORMWATER CATCHPIT
- SCRUFFY DOME INLET/OUTLET MANHOLE
- STORMWATER INLET
- STORMWATER OUTLET
- RAIN GARDEN

PERFORATED DRAINCOIL IN WASTEWATER TRENCH CONNECTED INTO MANHOLE 10/5

1 DP 98792

2 DP 185077

1%AEP+CC FLOOD EXTENT

OUTLET 10/1 TO HAVE EROSION PROTECTION RIPRAP 2.0m WIDE, 2.0m LONG, 170mm THICK WITH D_{50}=150mm.

OUTLET 10.1/1 TO HAVE EROSION PROTECTION RIPRAP 2.0m WIDE, 2.0m LONG, 170mm THICK WITH D_{50}=150mm.

REFER NOTE 27 ON 2011-01-400

OUTLET 7/1 TO HAVE EROSION PROTECTION RIPRAP 2m WIDE, 6m LONG, 230mm THICK WITH D_{50}=200mm.

PERFORATED DRAIN COIL IN RETAINING WALL AND WW TRENCH TEMPORARILY OUTLETTED DOWN SLOPE INTO STREAM RESERVE AREA. DURING STAGE 2 TO BE CONNECTED INTO STORMWATER MANHOLE 7/2

MIN FL 35.0 (SW)

LOCAL PURPOSE (ESPLANADE) RESERVE

LOCAL PURPOSE (DRAINAGE) RESERVE

ROAD 1

ROAD 2

ROAD 5

STAGE 2

C2	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18
REV	REVISION DETAILS	BY	DATE

DRAWN: GDS 09.2017
CHECKED: RJP 29.03.18
APPROVED: RJP 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

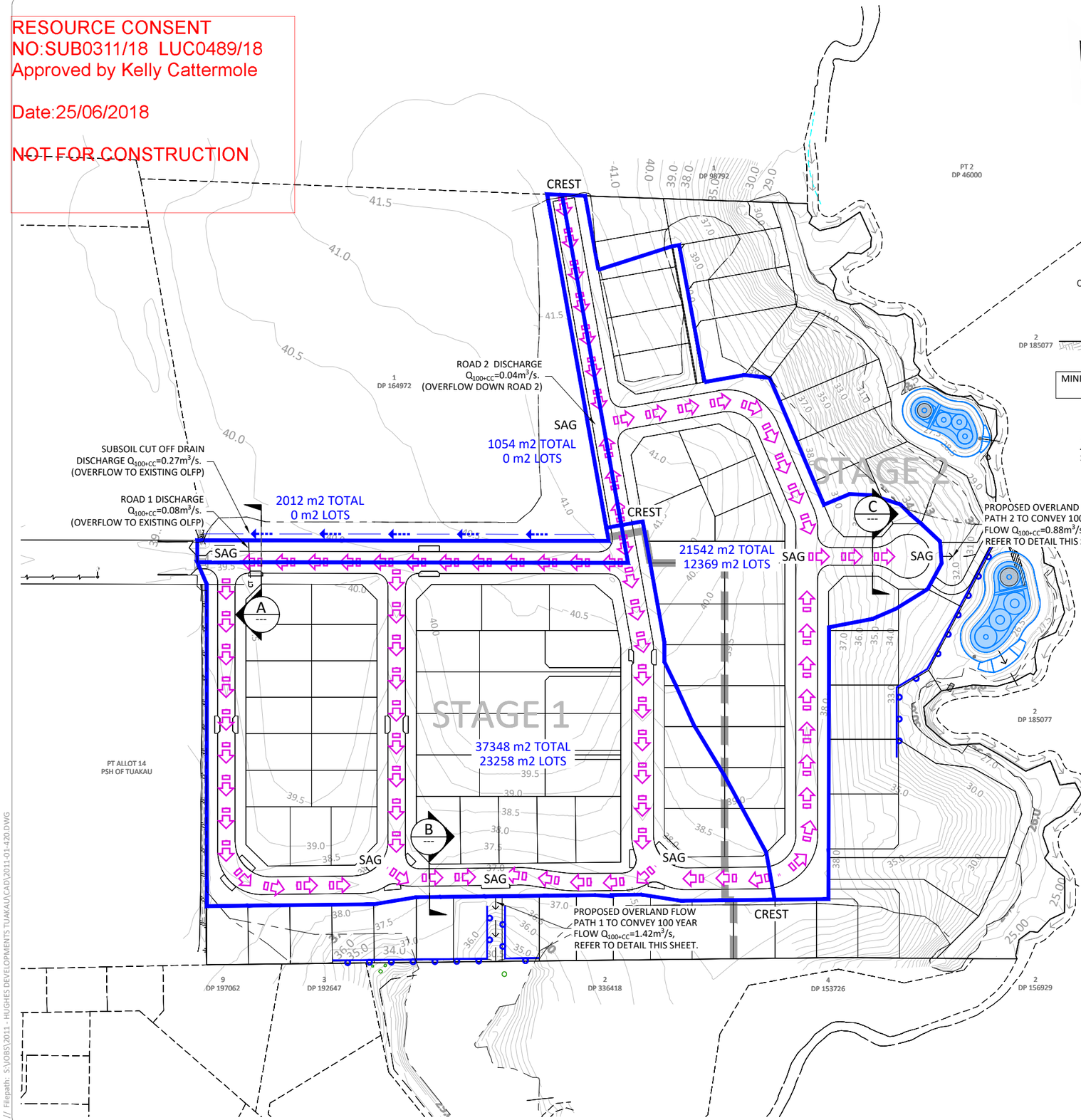
SHEET TITLE:
DRAINAGE RETICULATION PLAN
DETAIL SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500 / 1:1000
SCALE BAR 1:1000@A3 0 10 20 30 40 50m
DRAWING NUMBER: 2011-01-402 REV: C2

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

~~NOT FOR CONSTRUCTION~~



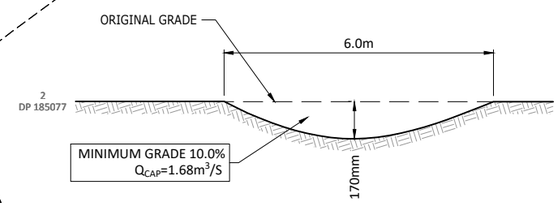
LEGEND

CATCHMENT BOUNDARY

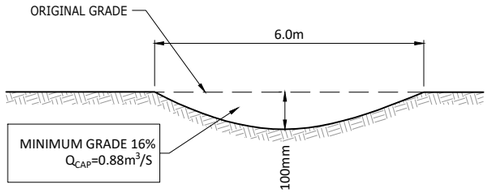
1%AEP+CC OVERLAND FLOWPATH

NOTES:

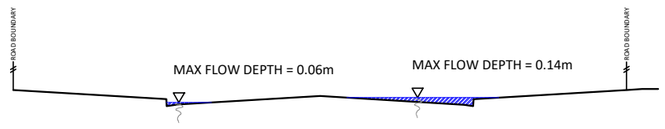
1. REFER TO ENGINEERING CALCULATIONS AND HYDRAULIC MODELLING RESULTS FOR DETAILS OF OVERLAND FLOWPATH WITHIN ROAD RESERVE WIDTH.
2. CONTOURS ARE 0.5m INTERVAL.
3. PONDING / FLOW DEPTH IS NO GREATER THAN 200mm AND ALL FLOW DEPTH IS HELD WITHIN THE ROAD RESERVE.



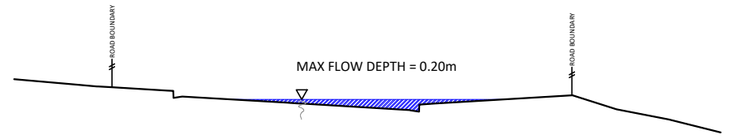
OVERLAND FLOW PATH 1
SCALE: (A1/A3) N.T.S.



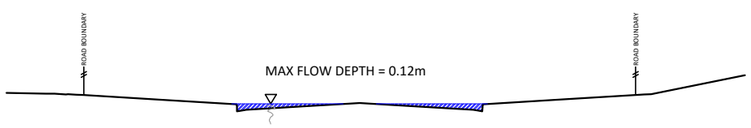
OVERLAND FLOW PATH 2
SCALE: (A1/A3) N.T.S.



A ROAD 1 OVERLAND FLOW
SCALE: (A1/A3) 1:100H 1:50v / 1:200H 1:100V



B ROAD 4 OVERLAND FLOW
SCALE: (A1/A3) 1:100H 1:50v / 1:200H 1:100V



C ROAD 5 OVERLAND FLOW
SCALE: (A1/A3) 1:100H 1:50v / 1:200H 1:100V

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
OVERLAND FLOWPATH PLAN

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:1000 / 1:2000
SCALE BAR 1:2000@A3 0 20 40 60 80 100m
DRAWING NUMBER: 2011-01-420 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

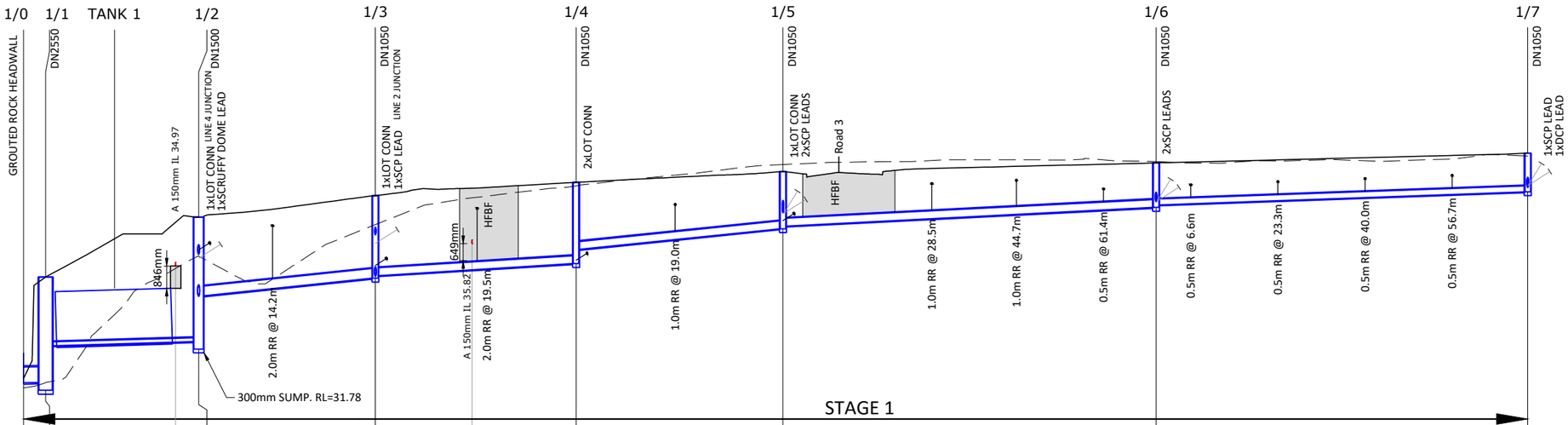
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.
4. CONTRACTOR TO ENSURE THAT ALL STORMWATER LOT CONNECTIONS WILL NOT CLASH WITH THE ADJACENT PROPOSED WASTEWATER LINE. THIS MAY MEAN LAYING CONNECTIONS AT AN ANGLE TO OTHER THAN 45 DEGREES TO AVOID CLASHES.

LEGEND

— — — —	EXISTING GROUND LINE
——	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
↗	PROPOSED LOT CONNECTIONS
↗	PROPOSED CATCHPIT OR RAIN GARDEN CONNECTION
3.12m CASCADE DROP	CASCADE DROP



DATUM 28.0

	1/0		1/1		1/2		1/3		1/4		1/5		1/6		1/7
EXISTING GROUND LEVEL	30.31		30.51		35.36		36.56		38.04		38.86		38.96		39.18
LID LEVEL			34.55		36.84		37.67		38.18		38.59		38.92		39.29
INVERT LEVEL	30.50		30.51 31.91	32	32.08 33.83		34.50 34.60	34.83	35.06 35.61		36.40 36.50		37.21 37.31		37.81
DEPTH TO INVERT			4.04 2.64		4.77 3.02		3.16 3.06		3.11 2.57		2.19 2.09		1.71 1.61		1.48
GRADIENT		0.30%		0.50%		2.00%		1.20%		2.00%		1.00%		0.70%	
PIPE DIAMETER PIPE CLASS		DN600 RCRRJ Class 2		6xDN150 uPVC SN16		DN375 RCRRJ Class 2		DN300 RCRRJ Class 4		DN300 RCRRJ Class 4		DN300 RCRRJ Class 4		DN225 RCRRJ Class 4	
DISTANCE (m)		4.23		30.13 11.71		33.86		18.53 38.44		39.66		71.49		71.20	

LINE 1

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	22.05.18
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
STORMWATER LONGITUDINAL SECTIONS
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-430 REV: C3

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

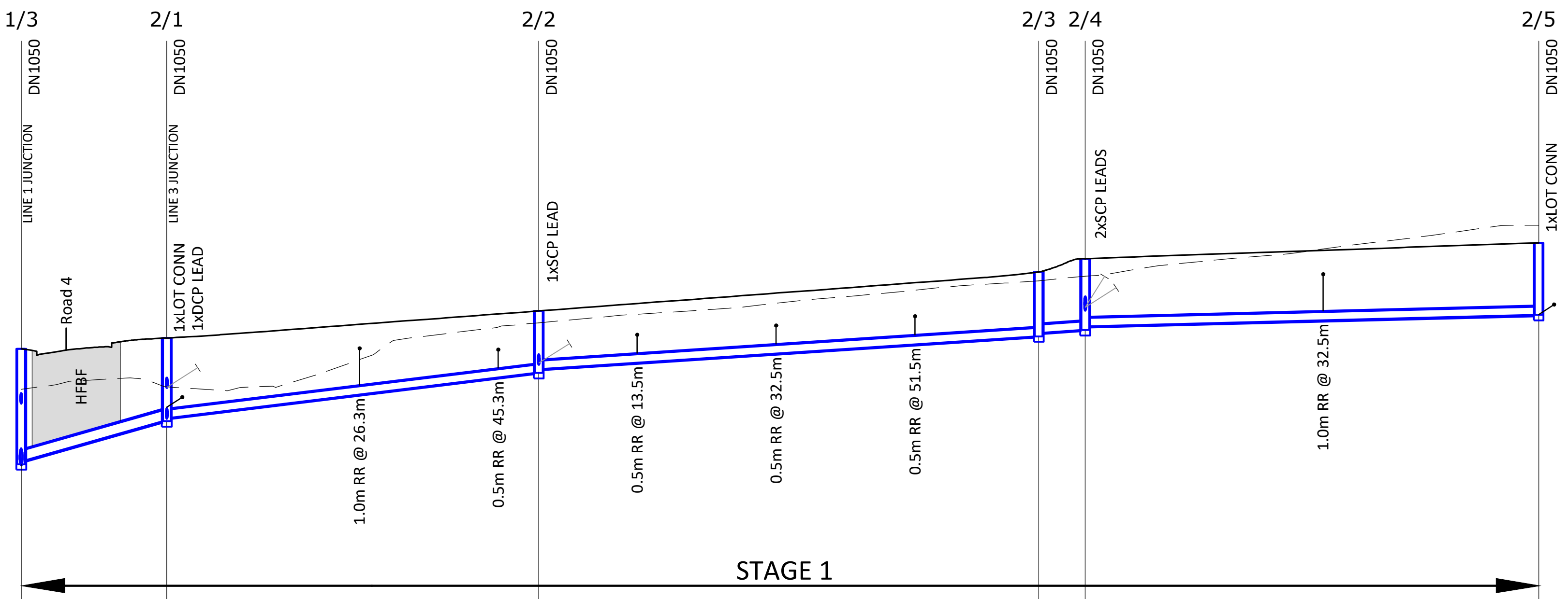
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.
4. CONTRACTOR TO ENSURE THAT ALL STORMWATER LOT CONNECTIONS WILL NOT CLASH WITH THE ADJACENT PROPOSED WASTEWATER LINE. THIS MAY MEAN LAYING CONNECTIONS AT AN ANGLE TO OTHER THAN 45 DEGREES TO AVOID CLASHES.

LEGEND

— — — —	EXISTING GROUND LINE
———	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
↗	PROPOSED LOT CONNECTIONS
↗	PROPOSED CATCHPIT OR RAIN GARDEN CONNECTION
3.12m CASCADE DROP	CASCADE DROP

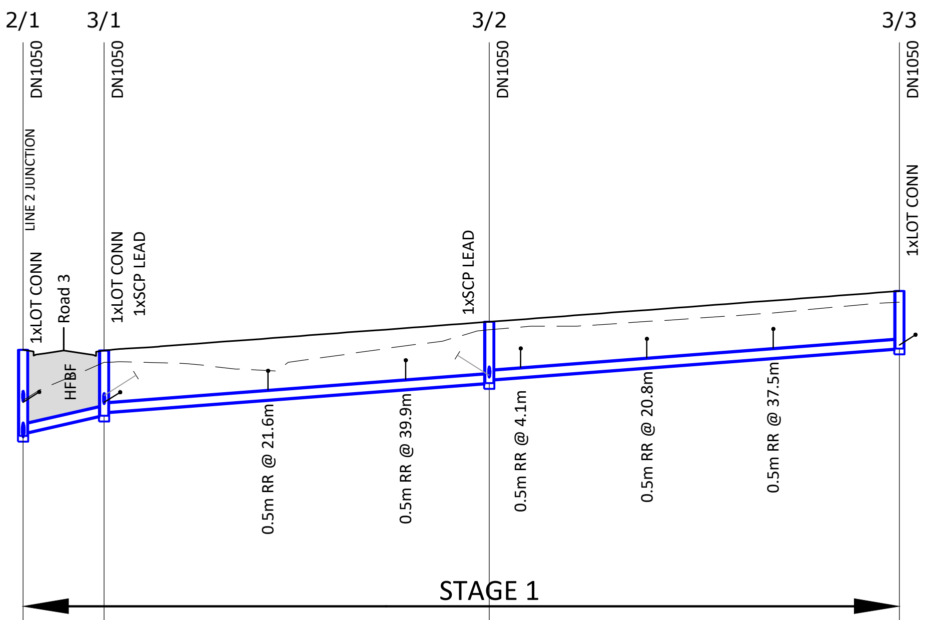


DATUM 30.0

	1/3	2/1	2/2	2/3	2/4	2/5
EXISTING GROUND LEVEL	36.56	36.63	38.38	39.53	39.66	41.06
LID LEVEL	37.67	37.96	38.71	39.77	40.13	40.57
INVERT LEVEL	34.50 34.61	35.68 35.78	37.00 37.12	38.01 38.11	38.19 38.29	38.60
DEPTH TO INVERT	3.16 3.06	2.28 2.18	1.70 1.59	1.76 1.66	1.95 1.85	1.98

	1/3 – 2/1	2/1 – 2/2	2/2 – 2/3	2/3 – 2/4	2/4 – 2/5
GRADIENT	5.40%	2.40%	1.30%	1.20%	0.50%
PIPE DIAMETER PIPE CLASS	DN300 RCRRJ Class 4	DN225 RCRRJ Class 4	DN225 RCRRJ Class 4	DN225 RCRRJ Class 4	DN225 RCRRJ Class 4
DISTANCE (m)	19.93	50.88	68.38	6.37	62.02

LINE 2



30.0

	2/1	3/1	3/2	3/3
EXISTING GROUND LEVEL	36.63	37.63	38.49	39.23
LID LEVEL	37.96	37.95	38.71	39.52
INVERT LEVEL	35.68 35.78	36.22 36.32	37.08 37.18	38.00
DEPTH TO INVERT	2.28 2.18	1.73 1.63	1.62 1.52	1.52

	2/1 – 3/1	3/1 – 3/2	3/2 – 3/3
GRADIENT	4.10%	1.50%	1.50%
PIPE DIAMETER PIPE CLASS	DN225 RCRRJ Class 4	DN225 RCRRJ Class 4	DN225 RCRRJ Class 4
DISTANCE (m)	10.70	50.92	54.23

LINE 3

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REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
STORMWATER LONGITUDINAL SECTIONS
SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR
N.T.S.
DRAWING NUMBER: 2011-01-431
REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

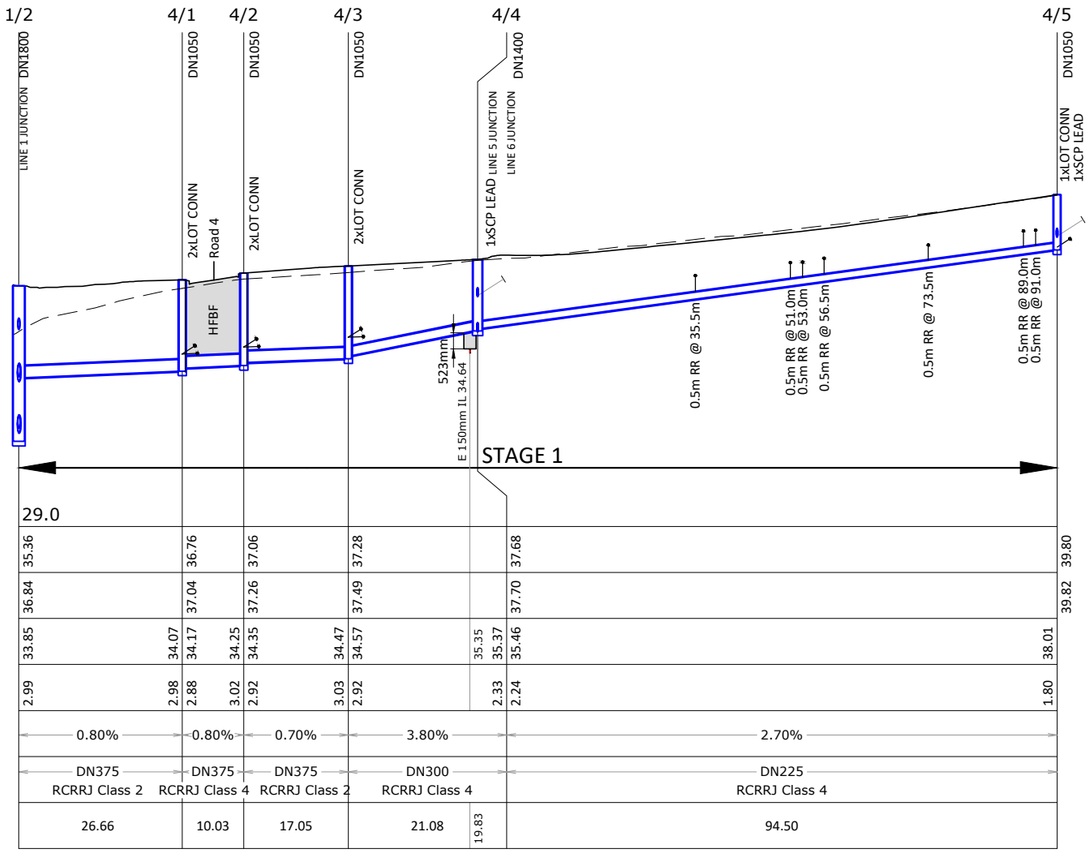
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.
4. CONTRACTOR TO ENSURE THAT ALL STORMWATER LOT CONNECTIONS WILL NOT CLASH WITH THE ADJACENT PROPOSED WASTEWATER LINE. THIS MAY MEAN LAYING CONNECTIONS AT AN ANGLE TO OTHER THAN 45 DEGREES TO AVOID CLASHES.

LEGEND

- EXISTING GROUND LINE
- PROPOSED GROUND LINE
- HFBF — PROPOSED HARDFILL BACKFILL
- PROPOSED LOT CONNECTIONS
- PROPOSED CATCHPIT OR RAIN GARDEN CONNECTION
- 3.12m CASCADE DROP — CASCADE DROP



LINE 4

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017	
CHECKED: RJP	DATE: 29.03.18	
APPROVED: RJP	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
STORMWATER LONGITUDINAL SECTIONS
SHEET 3

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-432 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

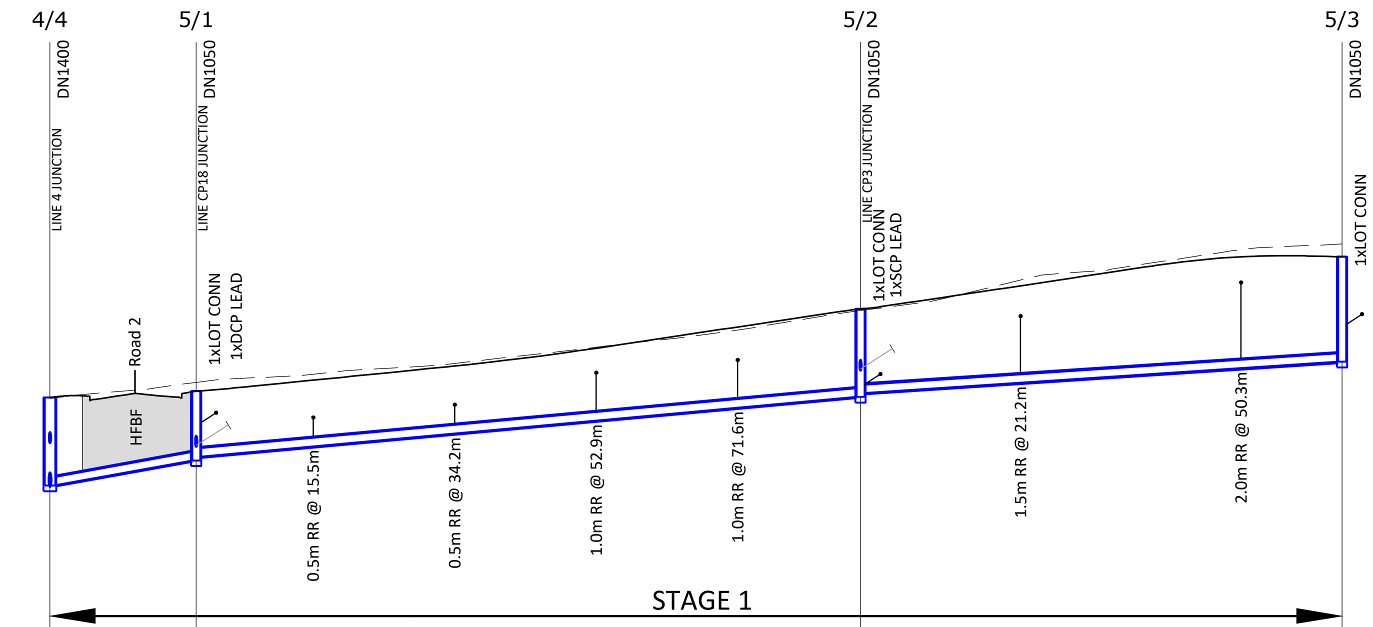
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.
4. CONTRACTOR TO ENSURE THAT ALL STORMWATER LOT CONNECTIONS WILL NOT CLASH WITH THE ADJACENT PROPOSED WASTEWATER LINE. THIS MAY MEAN LAYING CONNECTIONS AT AN ANGLE TO OTHER THAN 45 DEGREES TO AVOID CLASHES.

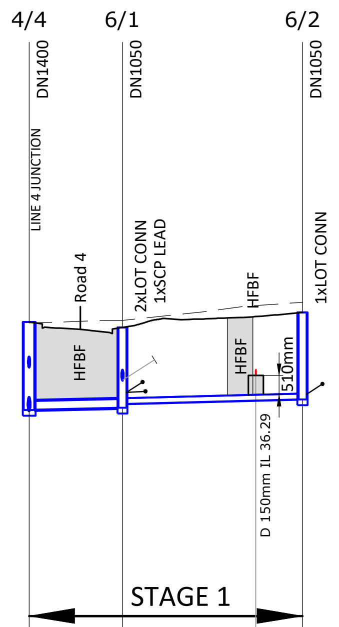
LEGEND

— — — — —	EXISTING GROUND LINE
———	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
↗	PROPOSED LOT CONNECTIONS
⟋	PROPOSED CATCHPIT OR RAIN GARDEN CONNECTION
3.12m CASCADE DROP	CASCADE DROP



DATUM	31.0						
EXISTING GROUND LEVEL	37.68		38.10		40.00		41.76
LID LEVEL	37.70		37.87		40.04		41.42
INVERT LEVEL	35.37 35.38		36.04 36.14		37.72 37.82		38.65
DEPTH TO INVERT	2.33 2.32		1.83 1.73		2.32 2.22		2.78
GRADIENT		3.40%		1.80%		1.30%	
PIPE DIAMETER PIPE CLASS		DN225 RCRRJ Class 4		DN225 RCRRJ Class 4		DN225 RCRRJ Class 4	
DISTANCE (m)		19.34		87.88		63.71	

LINE 5



DATUM	29.0					
EXISTING GROUND LEVEL	37.68		37.74			38.22
LID LEVEL	37.70		37.56			37.95
INVERT LEVEL	35.37 35.38		35.43 35.53		35.62	35.65
DEPTH TO INVERT	2.33 2.32		2.13 2.03			2.30
GRADIENT		0.40%		0.50%		
PIPE DIAMETER PIPE CLASS		DN225 RCRRJ Class 2		DN150 uPVC SN16		
DISTANCE (m)		12.35		23.81	17.64	

LINE 6

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REV	REVISION DETAILS	BY	DATE
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
STORMWATER LONGITUDINAL SECTIONS
SHEET 4

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR
N.T.S.
DRAWING NUMBER: 2011-01-433
REV: C2

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

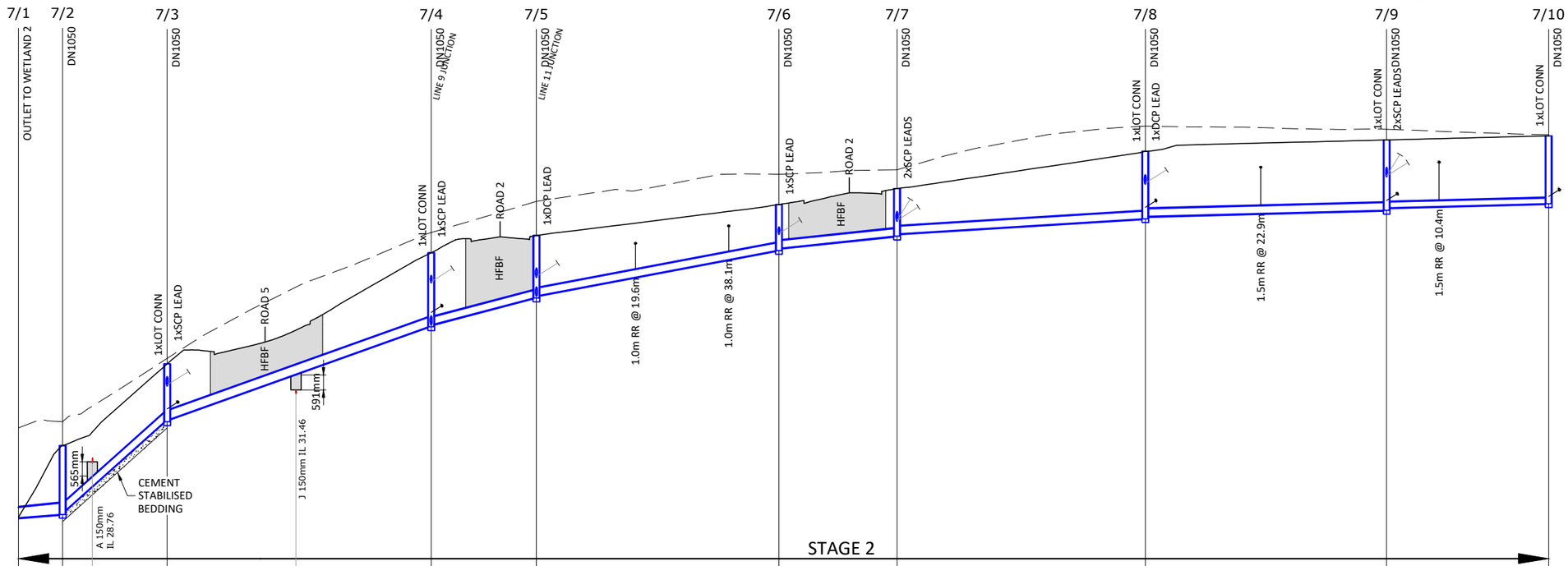
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.
4. CONTRACTOR TO ENSURE THAT ALL STORMWATER LOT CONNECTIONS WILL NOT CLASH WITH THE ADJACENT PROPOSED WASTEWATER LINE. THIS MAY MEAN LAYING CONNECTIONS AT AN ANGLE TO OTHER THAN 45 DEGREES TO AVOID CLASHES.

LEGEND

— — — —	EXISTING GROUND LINE
———	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
•⟋	PROPOSED LOT CONNECTIONS
⟋	PROPOSED CATCHPIT OR RAIN GARDEN CONNECTION
3.12m CASCADE DROP	CASCADE DROP



DATUM 23.0

	7/1	7/2	A	7/3	J	7/4	7/5	7/6	7/7	7/8	7/9	7/10
EXISTING GROUND LEVEL	30.11	30.35		32.86		37.86	39.09	40.17	40.35	42.08	41.95	41.74
LID LEVEL	26.56	29.40	27.78	32.64		37.06	37.74	38.97	39.61	41.08	41.53	41.69
INVERT LEVEL	25.29 26.54	26.67 26.82		30.35 30.45	32.24	34.12 34.22	35.26 35.36	37.14 37.24	37.71 37.81	38.40 38.50	38.74 38.84	39.00
DEPTH TO INVERT	1.28 0.03	2.73 2.58		2.30 2.19		2.94 2.84	2.48 2.38	1.82 1.72	1.89 1.79	2.68 2.58	2.79 2.69	2.69

	7/1–7/2	7/2–7/3	7/3–7/4	7/4–7/5	7/5–7/6	7/6–7/7	7/7–7/8	7/8–7/9	7/9–7/10
GRADIENT & PIPE SIZES	1.50% DN450RCRRJ Class 2	17.00% DN375RCRRJ Class 2	7.00% DN375RCRRJ Class 4	5.00%	3.70%	2.00% DN300RCRRJ Class 4	1.20%	0.50%	0.50% DN225RCRRJ Class 4
DISTANCE (m)	8.77	5.91 20.75	52.39 25.56	20.89	48.13	23.43	49.27	47.90	32.14

LINE 7

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
STORMWATER LONGITUDINAL SECTIONS
SHEET 5

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-434
REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

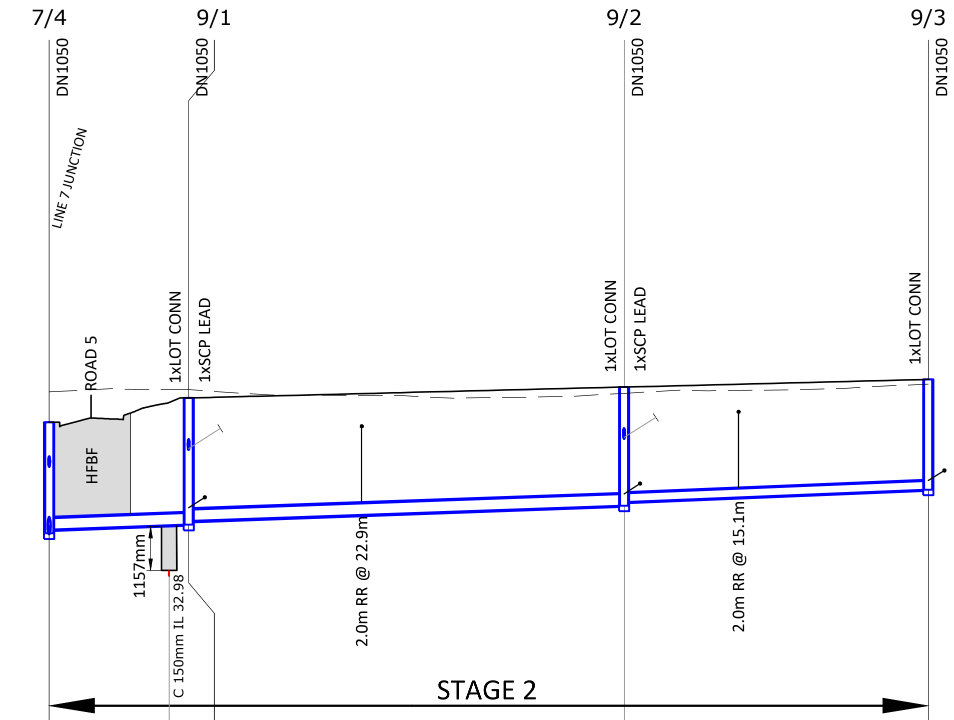
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.
4. CONTRACTOR TO ENSURE THAT ALL STORMWATER LOT CONNECTIONS WILL NOT CLASH WITH THE ADJACENT PROPOSED WASTEWATER LINE. THIS MAY MEAN LAYING CONNECTIONS AT AN ANGLE TO OTHER THAN 45 DEGREES TO AVOID CLASHES.

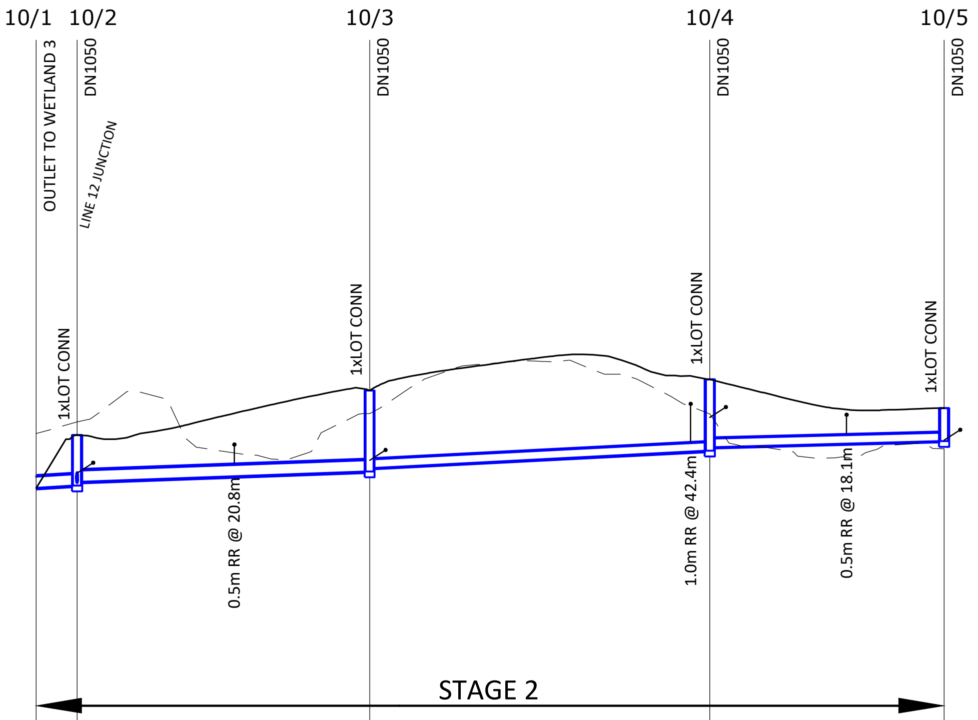
LEGEND

– – – –	EXISTING GROUND LINE
——	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
↗	PROPOSED LOT CONNECTIONS
↗	PROPOSED CATCHPIT OR RAIN GARDEN CONNECTION
3.12m CASCADE DROP	CASCADE DROP



DATUM 28.0	7/4			9/1		9/2		9/3	
EXISTING GROUND LEVEL		37.86			37.91		37.82		38.06
LID LEVEL		37.06			37.69		37.98		38.18
INVERT LEVEL	34.12	34.21	34.33	34.34	34.44	34.85	34.95	35.27	
DEPTH TO INVERT	2.94	2.84		3.35	3.25	3.14	3.04	2.92	
GRADIENT & PIPE SIZES		0.70%			0.70%		0.80%		
		DN300RCRRJ Class 4					DN225RCRRJ Class 4		
DISTANCE (m)		18.44	15.85		57.56		40.22		

LINE 9



DATUM 20.0	10/1		10/2		10/3		10/4		10/5	
EXISTING GROUND LEVEL		28.76		29.06		29.28		29.27		28.35
LID LEVEL		27.31		28.71		29.89		30.18		29.43
INVERT LEVEL	27.32	27.32	27.37	27.47	27.75	27.85	28.30	28.40	28.55	
DEPTH TO INVERT	-0.01	-0.01	1.33	1.23	2.14	2.04	1.89	1.79	0.88	
GRADIENT & PIPE SIZES		1.10%		0.70%		1.00%		0.50%		
		DN300RCRRJ Class 4				DN225RCRRJ Class 4				
DISTANCE (m)		5.39		38.68		44.98		30.98		

LINE 10

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C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18
REV	REVISION DETAILS	BY	DATE

DRAWN: GDS	DATE: 09.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

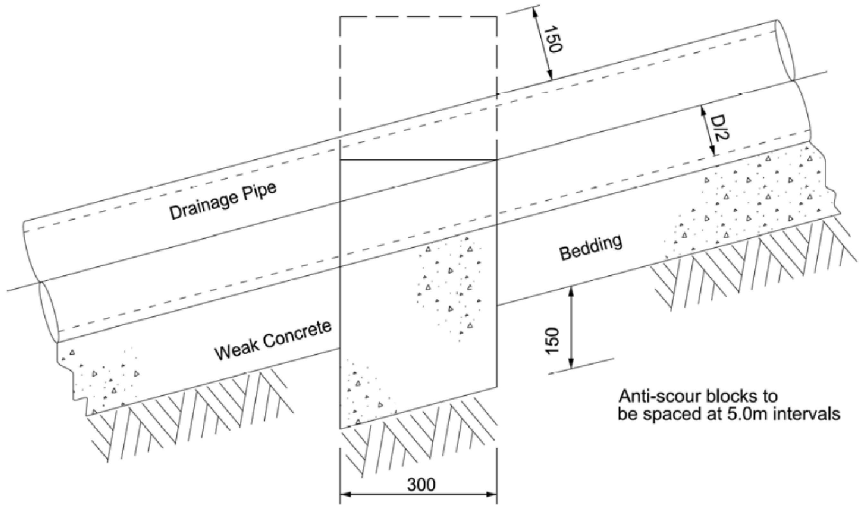
SHEET TITLE:
PROPOSED DRAINAGE
STORMWATER LONGITUDINAL SECTIONS
SHEET 6

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-435
REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



ANCHOR BLOCK DETAILS

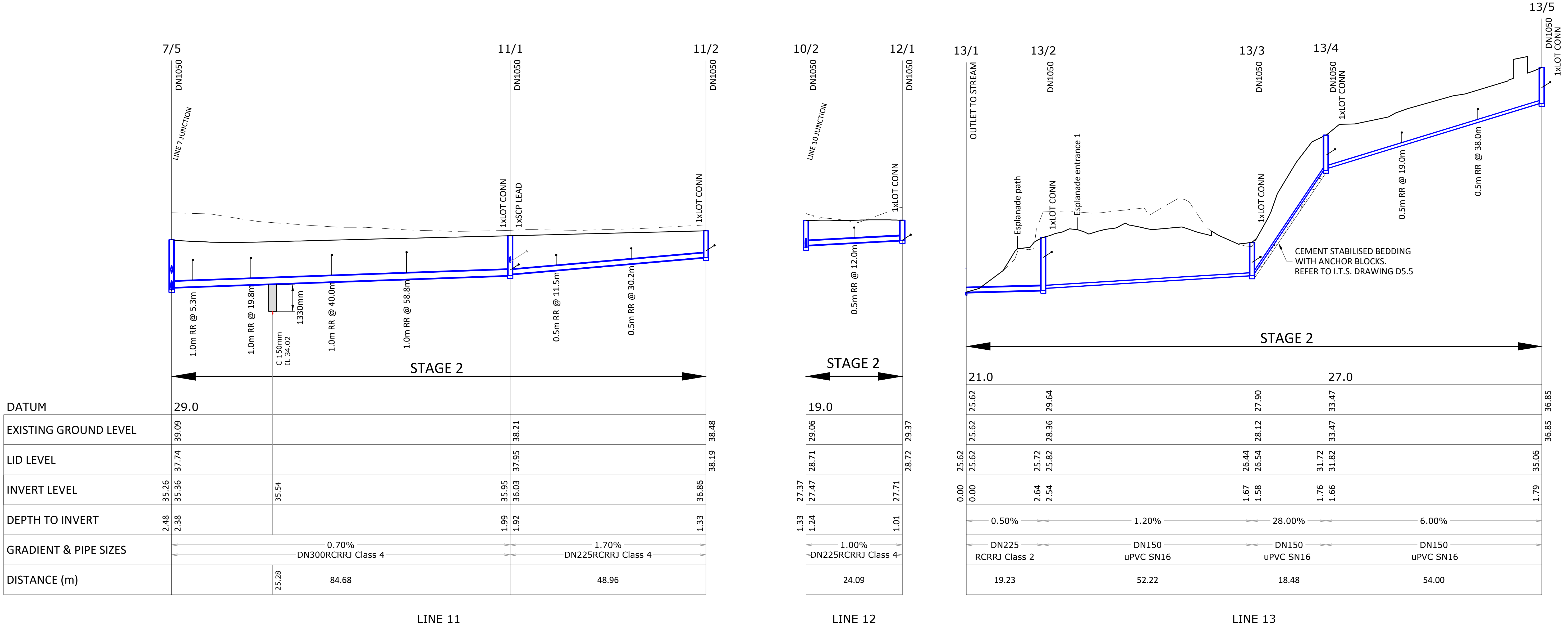
SCALE: (A1/A3) N.T.S.

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.
4. CONTRACTOR TO ENSURE THAT ALL STORMWATER LOT CONNECTIONS WILL NOT CLASH WITH THE ADJACENT PROPOSED WASTEWATER LINE. THIS MAY MEAN LAYING CONNECTIONS AT AN ANGLE TO OTHER THAN 45 DEGREES TO AVOID CLASHES.

LEGEND

— — — —	EXISTING GROUND LINE
———	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
⟋	PROPOSED LOT CONNECTIONS
⟋	PROPOSED CATCHPIT OR RAIN GARDEN CONNECTION
3.12m CASCADE DROP	CASCADE DROP



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REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
STORMWATER LONGITUDINAL SECTIONS
SHEET 7

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-436 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

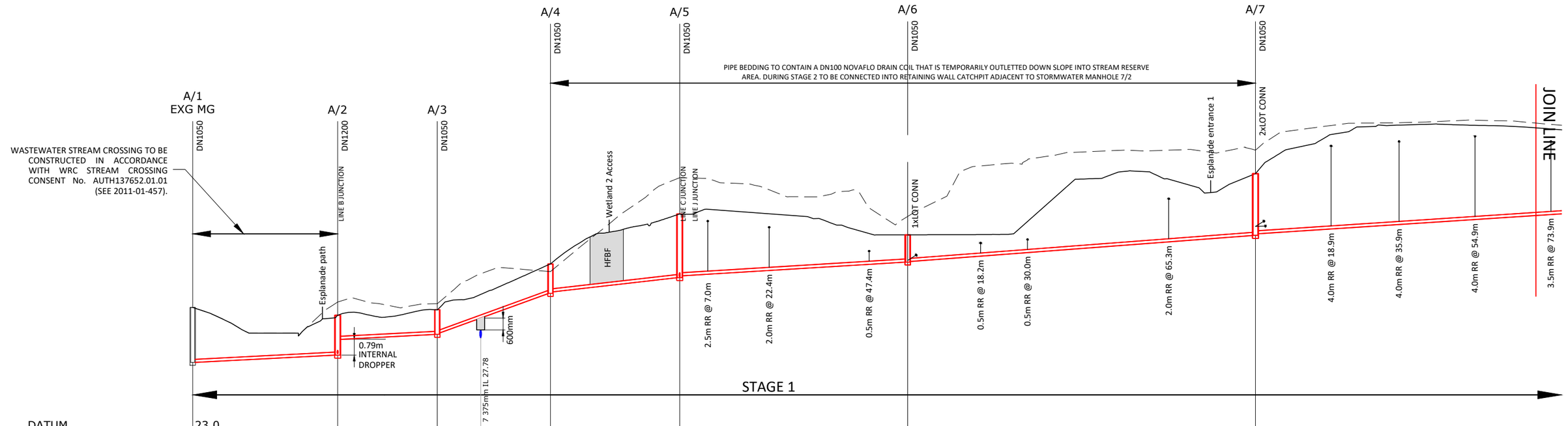
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.

LEGEND

- – – – EXISTING GROUND LINE
- —— PROPOSED GROUND LINE
- HFBF PROPOSED HARDFILL BACKFILL
- PROPOSED LOT CONNECTIONS
- 3.12m INTERNAL DROPPER — INTERNAL DROP CONNECTION



DATUM		23.0																				
EXISTING GROUND LEVEL		29.29			29.56			29.48				31.09			35.78			33.85			37.16	
LID LEVEL		29.29			28.90			29.18				31.47			33.97			32.92			35.99	
INVERT LEVEL	26.54	26.54		26.90	27.69		27.94	28.01	28.76		29.99	30.07		30.78	30.88		31.56	31.59		32.90	32.98	
DEPTH TO INVERT	2.75	2.75		2.00	1.21		1.22	1.15			1.48	1.40		3.19	3.09		1.36	1.33		3.09	3.01	
GRADIENT			1.00%			1.00%				7.00%			2.20%			1.20%			1.50%			1.30%
PIPE DIAMETER PIPE CLASS			MDPE 180 PN12.5			DN150 uPVC SN16				DN150 uPVC SN16			DN150 uPVC SN16			DN150 uPVC SN16			DN150 uPVC SN16			DN150 uPVC SN16
DISTANCE (m)			36.27			24.92			10.88	28.35			32.33			57.07			87.01			94.50

LINE A

Printed by: RYAN@10.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-450.DWG

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: MRR DATE: 11.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
WASTEWATER LONGITUDINAL SECTIONS
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-450
REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

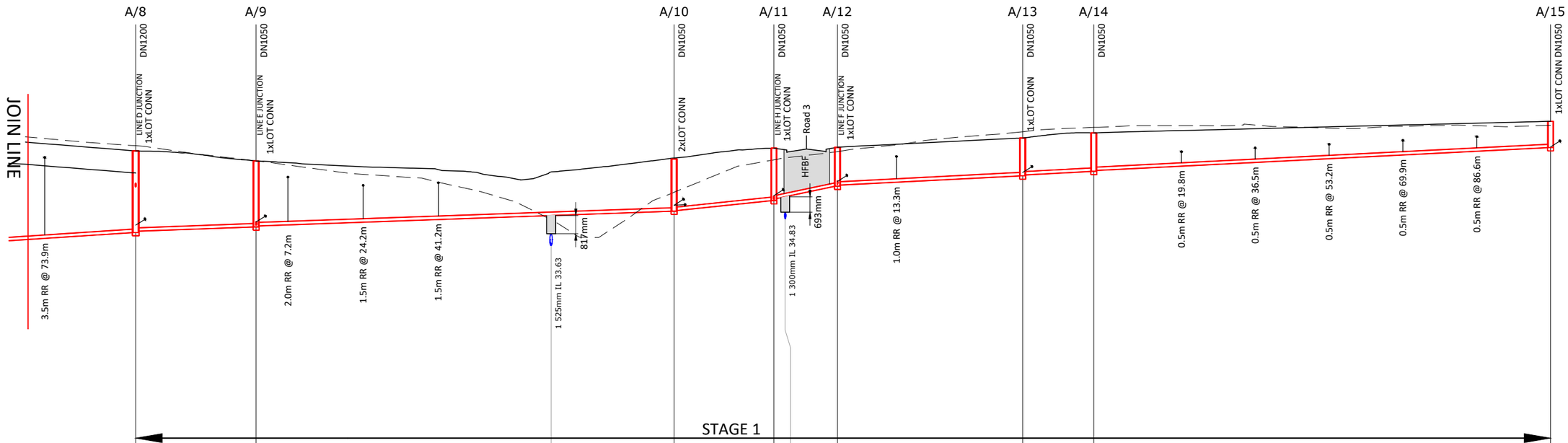
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.

LEGEND

— — — —	EXISTING GROUND LINE
——	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
↗	PROPOSED LOT CONNECTIONS
3.12m INTERNAL DROPPER	INTERNAL DROP CONNECTION



DATUM		23.0															
EXISTING GROUND LEVEL		38.13		37.44			36.03		37.49			37.86		38.76		38.96	39.05
LID LEVEL		37.90		37.44			37.57		38.02			38.06		38.47		38.70	39.23
INVERT LEVEL	34.21	34.27	34.46	34.51	34.98	35.17	35.20	35.65	35.74	35.82	36.30	36.35	36.77	36.81	36.97	37.01	38.04
DEPTH TO INVERT	3.69	3.63	2.98	2.93		2.41	2.42	2.36	2.28		1.76	1.71	1.71	1.67	1.73	1.69	1.19
GRADIENT	1.30%	0.70%		0.70%			2.00%		3.90%			1.00%		1.00%		1.00%	
PIPE DIAMETER PIPE CLASS	DN150 uPVC SN16	DN150 uPVC SN16		DN150 uPVC SN16			DN150 uPVC SN16		DN150 uPVC SN16			DN150 uPVC SN16		DN150 uPVC SN16		DN150 uPVC SN16	
DISTANCE (m)	94.50	27.22		94.52	66.71		22.58		2.54	14.36		41.87		16.08		103.32	

LINE A CONTINUED

REV	REVISION DETAILS	BY	DATE
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: MRR	DATE: 11.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
WASTEWATER LONGITUDINAL SECTIONS
SHEET 2

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-451
REV: C2

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.

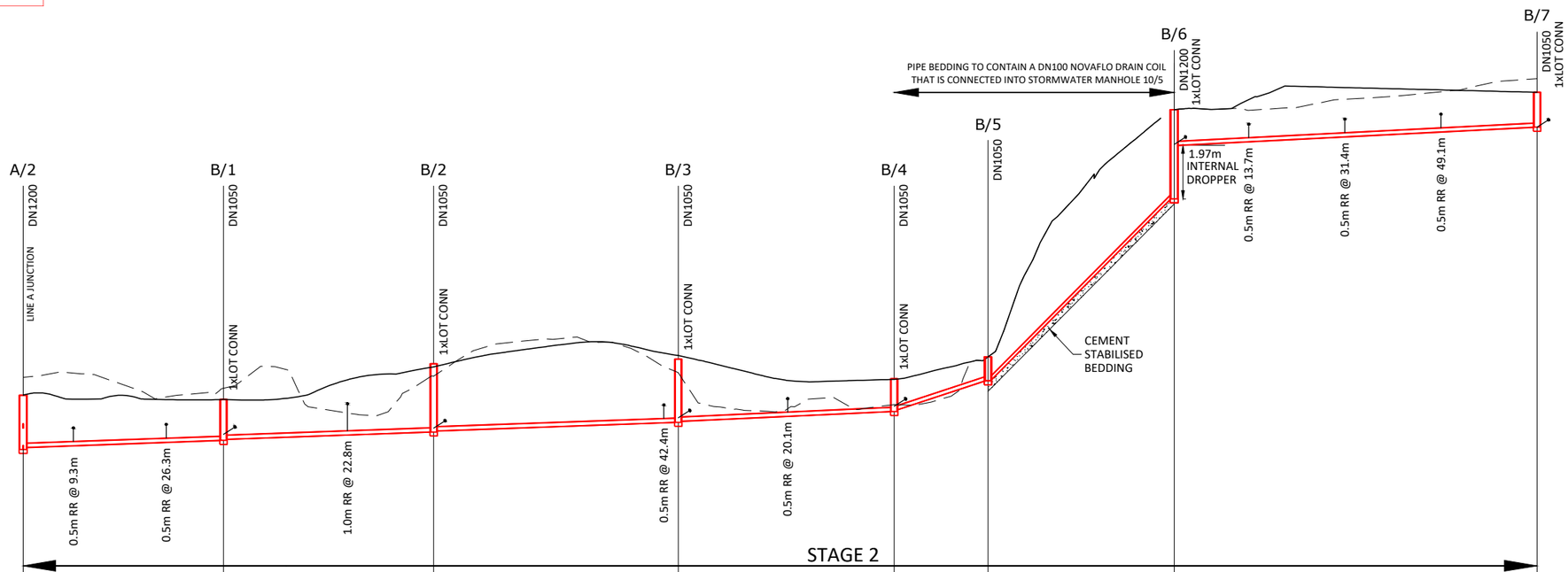
LEGEND

— — — —	EXISTING GROUND LINE
———	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
↗	PROPOSED LOT CONNECTIONS
3.12m INTERNAL DROPPER	INTERNAL DROP CONNECTION

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION



	A/2		B/1		B/2		B/3		B/4		B/5		B/6		B/7
DATUM	21.0														
EXISTING GROUND LEVEL	29.56		29.16		29.60		29.73		28.55		30.31		39.42		40.55
LID LEVEL	28.90		28.74		30.06		30.23		29.50		30.31		39.42		40.05
INVERT LEVEL	26.90 26.98		27.24 27.27		27.55 27.59		27.90 27.94		28.30 28.36		29.43 29.45		36.13 38.10		38.77
DEPTH TO INVERT	2.00 1.92		1.51 1.47		2.40 2.36		2.46 2.42		1.18 1.12		0.88 0.86		3.29 1.32		1.29
GRADIENT		0.70%		0.70%		0.70%		0.90%		6.20%		19.50%		1.00%	
PIPE DIAMETER PIPE CLASS		DN150 uPVC SN16		DN150 uPVC SN16		DN150 uPVC SN16		DN150 uPVC SN16		DN150 uPVC SN16		DN150 uPVC SN16		DN150 uPVC SN16	
DISTANCE (m)		36.89		38.70		45.03		39.74		17.29		34.25		66.82	

LINE B

Printed by: RYAN@10.05.18 // Filepath: S:\JOBS\2011 - HUGHES DEVELOPMENTS TUAKAU\CAD\2011-01-450.DWG

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: MRR	DATE: 11.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
WASTEWATER LONGITUDINAL SECTIONS
SHEET 3

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-452
REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

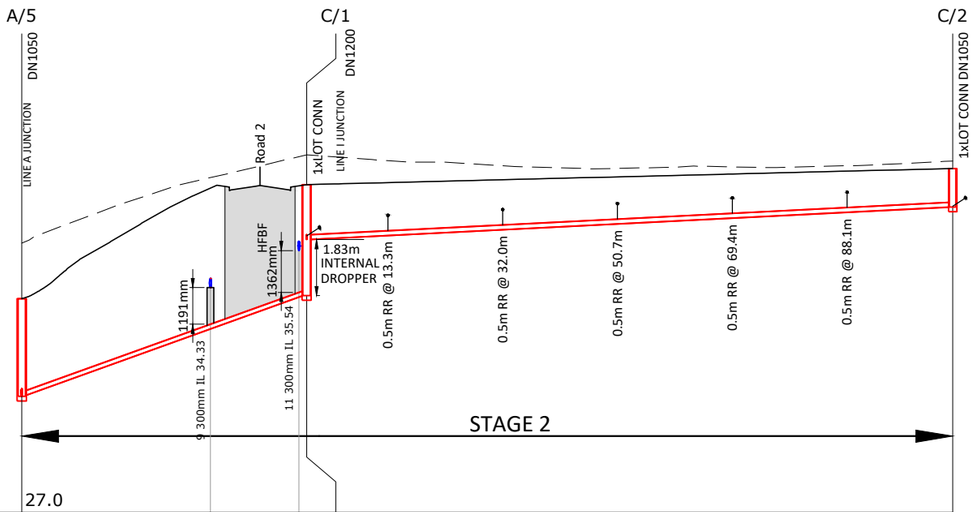
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.

LEGEND

- EXISTING GROUND LINE
- PROPOSED GROUND LINE
- HFBF — PROPOSED HARDFILL BACKFILL
- PROPOSED LOT CONNECTIONS
- 3.12m INTERNAL DROPPER — INTERNAL DROP CONNECTION



DATUM	27.0									
EXISTING GROUND LEVEL	35.78					38.66				38.45
LID LEVEL	33.97					37.69				38.21
INVERT LEVEL	30.78	30.81		32.98	34.02	34.07	35.90		36.95	
DEPTH TO INVERT	3.19	3.16			3.62	1.78			1.26	
GRADIENT	7.00%					1.00%				
PIPE DIAMETER PIPE CLASS	DN150 uPVC SN16					DN150 uPVC SN16				
DISTANCE (m)	46.46		30.77		45.21	105.36				

LINE C

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: MRR DATE: 11.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
WASTEWATER LONGITUDINAL SECTIONS
SHEET 4

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-453 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

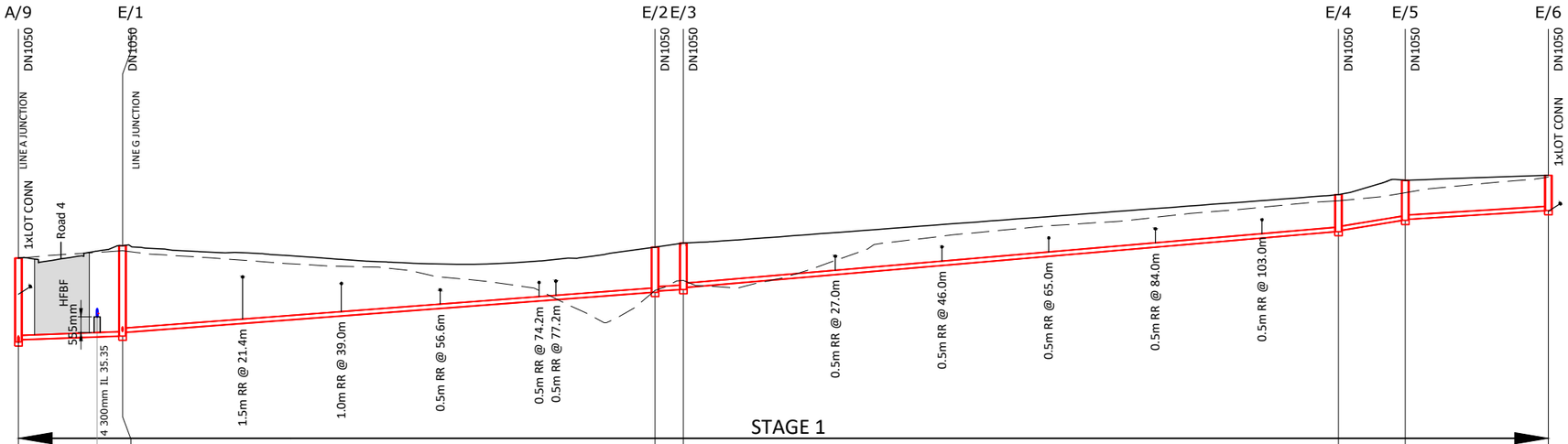
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.

LEGEND

— — — —	EXISTING GROUND LINE
———	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
↗	PROPOSED LOT CONNECTIONS
3.12m INTERNAL DROPPER	INTERNAL DROP CONNECTION



DATUM 30.0

	A/9	4 300mm IL 35.35	E/1	E/2	E/3	E/4	E/5	E/6
EXISTING GROUND LEVEL	37.44		37.70	36.29	36.65	39.48	39.78	40.33
LID LEVEL	37.44		37.89	37.83	37.98	39.70	40.22	40.39
INVERT LEVEL	34.46 34.54	34.64	34.67 34.80	36.23 36.28 36.33	36.40	38.39 38.43	38.79 38.83	39.13
DEPTH TO INVERT	2.98 2.90		3.22 3.08	1.60 1.55 1.65	1.58	1.32 1.27	1.43 1.39	1.26

	A/9 – E/1	E/1 – E/2	E/2 – E/3	E/3 – E/4	E/4 – E/5	E/5 – E/6
GRADIENT	0.70%	1.50%	1.00%	1.70%	3.00%	1.20%
PIPE DIAMETER PIPE CLASS	DN150 uPVC SN16	DN150 uPVC SN16	DN150 uPVC SN16	DN150 uPVC SN16	DN150 uPVC SN16	DN150 uPVC SN16
DISTANCE (m)	18.53 14.03	94.83	5.05	116.65	11.88	25.50

LINE E

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REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	MRR	DATE: 11.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
WASTEWATER LONGITUDINAL SECTIONS
SHEET 5

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-454
REV: C1

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.

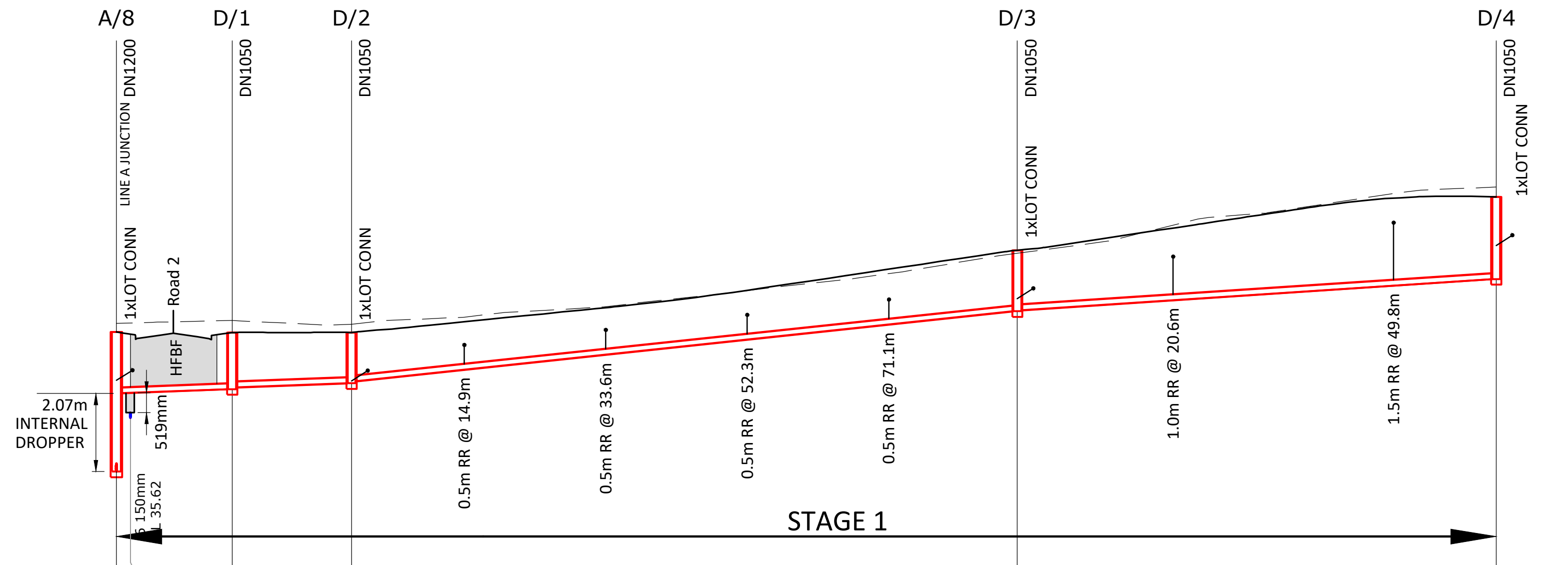
LEGEND

— — — —	EXISTING GROUND LINE
———	PROPOSED GROUND LINE
HFBF	PROPOSED HARDFILL BACKFILL
⟋	PROPOSED LOT CONNECTIONS
3.12m INTERNAL DROPPER	INTERNAL DROP CONNECTION

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

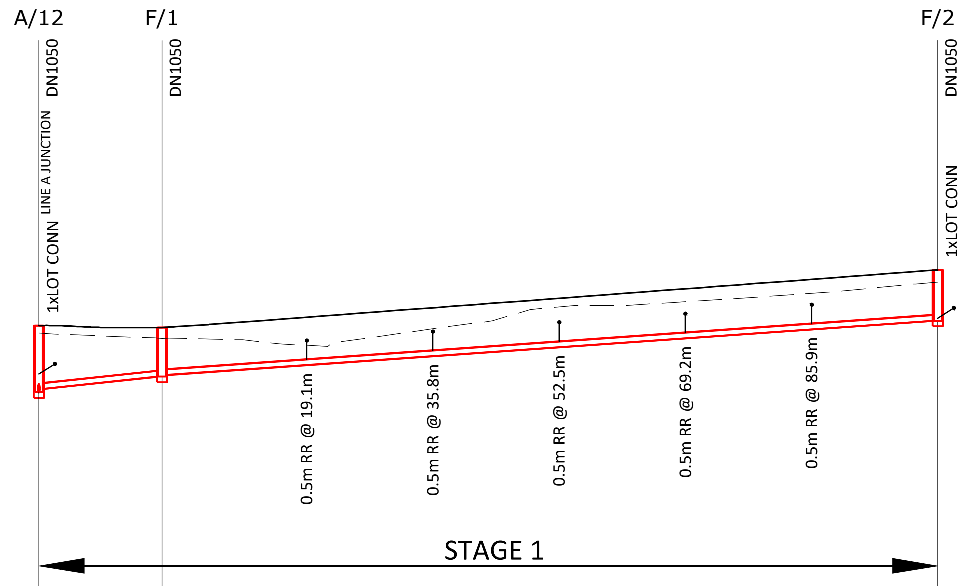
Date:25/06/2018

NOT FOR CONSTRUCTION



DATUM		30.0								
EXISTING GROUND LEVEL		38.13			38.20		38.10		39.98	41.73
LID LEVEL		37.90			37.88		37.89		40.06	41.47
INVERT LEVEL	34.21	36.28	36.29	36.39	36.44	36.55	36.60	38.45	38.48	39.30
DEPTH TO INVERT	3.69	1.62		1.50	1.45	1.34	1.29	1.62	1.59	2.17
GRADIENT		0.70%			0.70%		2.10%		1.30%	
PIPE DIAMETER PIPE CLASS		DN150 uPVC SN16			DN150 uPVC SN16		DN150 uPVC SN16		DN150 uPVC SN16	
DISTANCE (m)			1.83	15.30	15.80		88.07		63.35	

LINE D



DATUM		30.0			
EXISTING GROUND LEVEL		37.86		37.72	39.21
LID LEVEL		38.06		38.01	39.53
INVERT LEVEL	36.30	36.39	36.71	36.75	38.19
DEPTH TO INVERT	1.76	1.67	1.29	1.25	1.35
GRADIENT		2.00%		1.40%	
PIPE DIAMETER PIPE CLASS		DN150 uPVC SN16		DN150 uPVC SN16	
DISTANCE (m)		16.28		102.63	

LINE F

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REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: MRR	DATE: 11.2017
CHECKED: RJP	DATE: 29.03.18
APPROVED: RJP	DATE: 03.2018

CIVILPLAN
CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
WASTEWATER LONGITUDINAL SECTIONS
SHEET 6

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-455 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

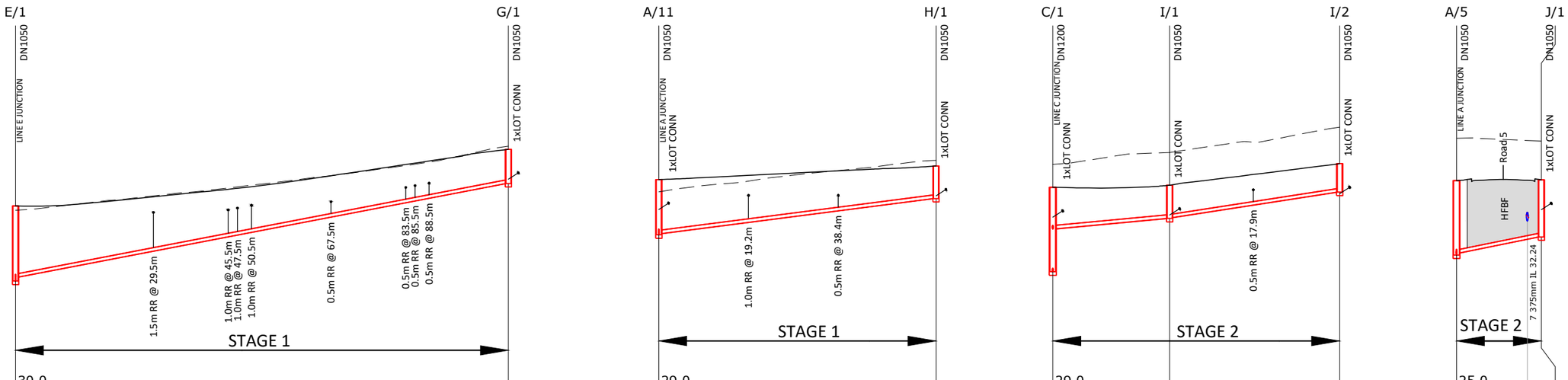
NOT FOR CONSTRUCTION

NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. LOT CONNECTIONS TO TERMINATE 1m FROM PROPOSED GROUND LINE
3. LENGTHS OF RAMP RISERS ARE STATED IN VERTICAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.

LEGEND

- EXISTING GROUND LINE
- PROPOSED GROUND LINE
- HFBF — PROPOSED HARDFILL BACKFILL
- PROPOSED LOT CONNECTIONS
- 3.12m INTERNAL DROPPER — INTERNAL DROP CONNECTION



	E/1	G/1		A/11		H/1		C/1	I/1	I/2		A/5	J/1	
DATUM	30.0					29.0			29.0				25.0	
EXISTING GROUND LEVEL	37.70		40.45			37.49	38.83	38.66	39.17		40.25	35.78		35.66
LID LEVEL	37.89		40.31			38.02	38.60	37.69	37.78		38.69	33.97		34.01
INVERT LEVEL	34.67	34.84			38.85	35.65	35.70	37.20	34.07	35.90	36.35	36.38	37.48	30.78	30.87	31.46	31.56
DEPTH TO INVERT	3.22	3.05			1.46	2.36	2.32	1.40	3.62	1.78	1.42	1.39	1.22	3.19	3.10		2.45
GRADIENT		3.80%					2.53%			1.80%		3.00%			3.80%		
PIPE DIAMETER PIPE CLASS		DN150 uPVC SN16					DN150 uPVC SN16			DN150 uPVC SN16		DN150 uPVC SN16			DN150 uPVC SN16		
DISTANCE (m)		105.52					59.34			25.02		36.39			18.16		15.16
		LINE G					LINE H			LINE I					LINE J		

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: MRR DATE: 11.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED DRAINAGE
WASTEWATER LONGITUDINAL SECTIONS
SHEET 7

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:500H 1:100V / 1:1000H 1:200V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-456 REV: C1

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

LEGEND

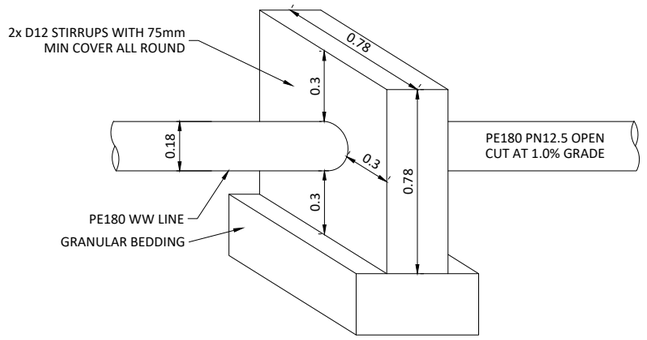
EXISTING GROUND LINE

PROPOSED GROUND LINE

HFBF — PROPOSED HARDFILL BACKFILL

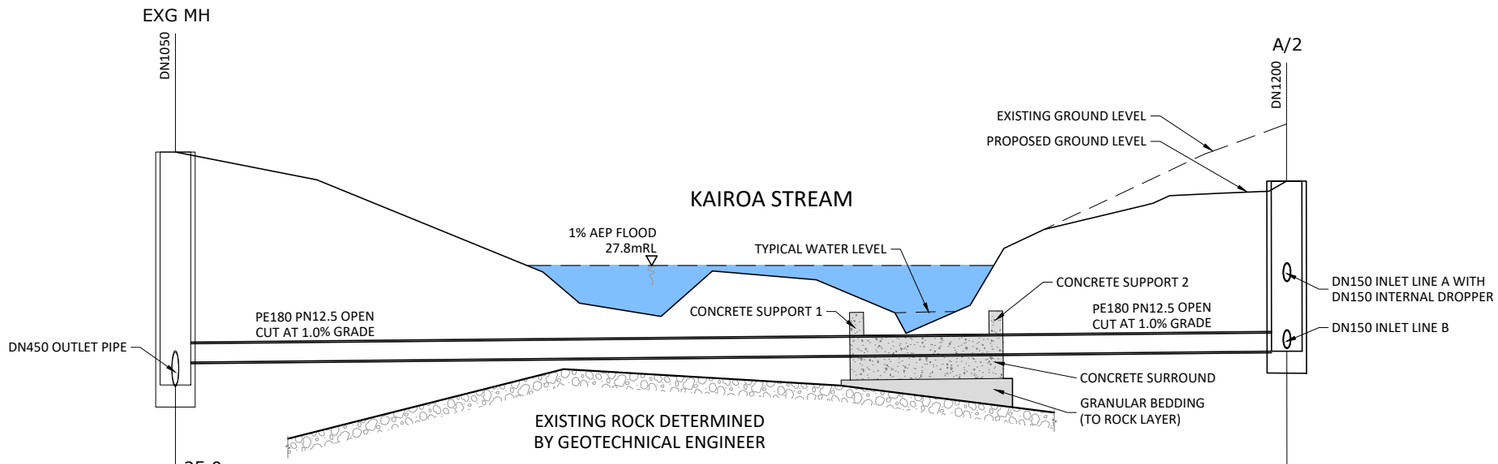
NOTES

1. REFER TO SHEET 2011-01-400 FOR GENERAL NOTES.
2. STREAM FLOOD LEVEL BASED ON BECA MODELLING COMPLETED IN OCTOBER 2017.
3. WASTEWATER STREAM CROSSING TO BE CONSTRUCTED IN ACCORDANCE WITH WRC STREAM CROSSING CONSENT No. AUTH137652.01.01.



CONCRETE SUPPORT DETAIL

SCALE: (A1/A3) NOT TO SCALE



DATUM	25.0			
EXISTING GROUND LEVEL	29.29			29.56
LID LEVEL	29.29			28.90
INVERT LEVEL	26.24	26.54		26.90
DEPTH TO INVERT	3.05	2.75		2.00
GRADIENT & PIPE SIZES		1.00% PE180 PN12.5		
DISTANCE (m)		36.27		

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

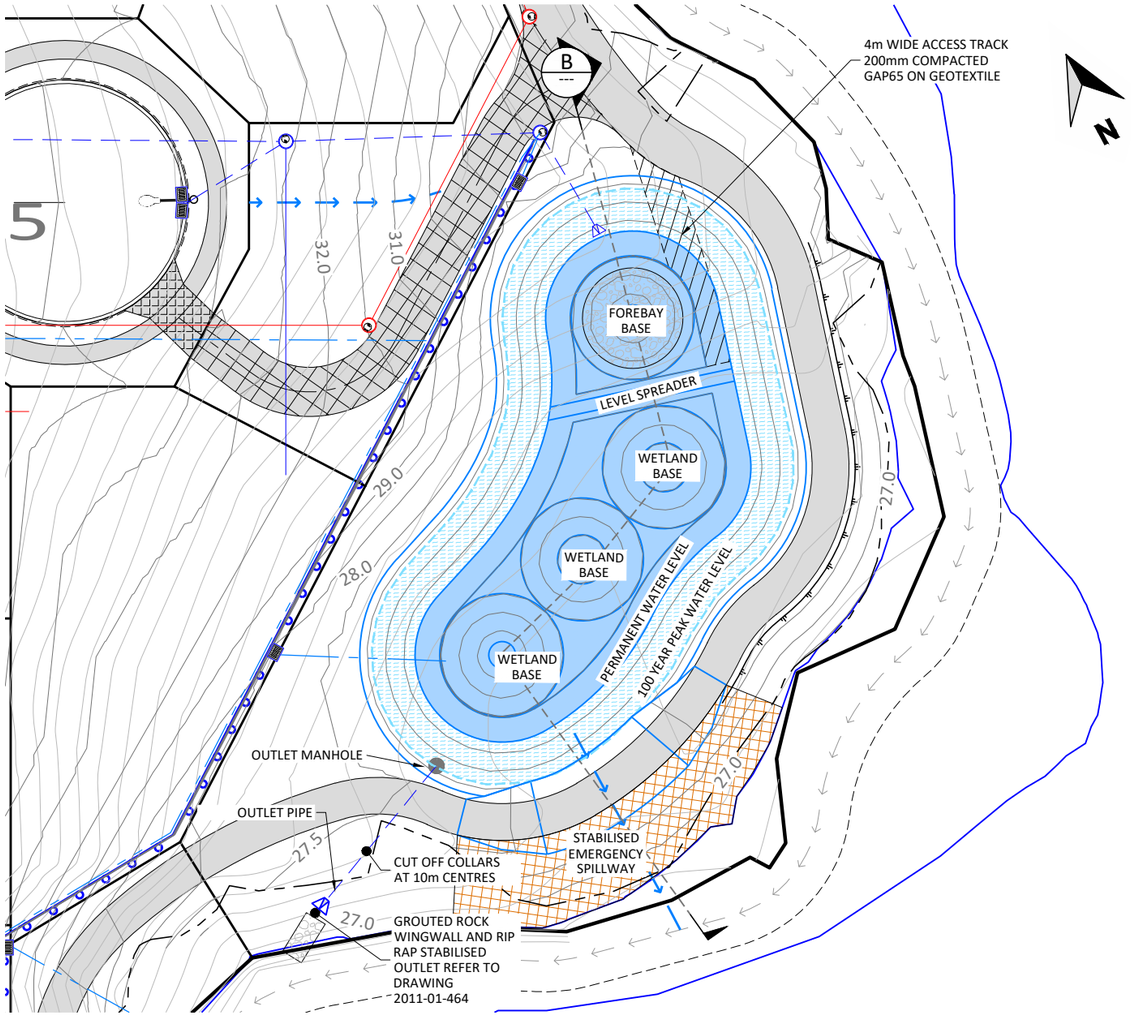
DRAWN: MRR DATE: 12.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

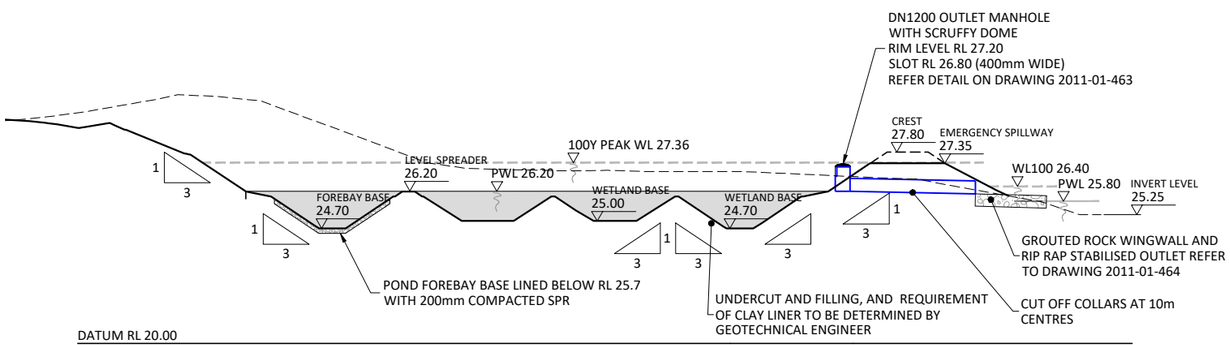
SHEET TITLE:
WASTEWATER STREAM
CROSSING LONGITUDINAL SECTION

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:100H 1:40V / 1:200H 1:80V
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-457 REV: C1



PLAN

SCALE: (A1/A3) 1:250/1:500



B - CROSS SECTION THROUGH WETLAND 2

SCALE: (A1/A3) 1:250H 1:125V/1:500H 1:250V

LEGEND

- GRASS REINFORCED SPILLWAY (CIRTEX PYRAMAT OR SIMILAR APPROVED)
- RIPRAP
- EXTENDED WATER LEVEL

NOTES

1. EXISTING CONTOURS ARE SHOWN AT 0.5m INTERVALS.
2. DESIGN CONTOURS ARE SHOWN AT 0.5m INTERVALS.
3. CONTOURS SHOWN ARE FINISHED SURFACE LEVELS.
4. SILT AND STORMWATER CONTROL IS TO BE IMPLEMENTED DAILY AND COMPLY WITH THE GENERAL SPECIFICATION.
5. THE CONTRACTOR MUST BE AWARE OF AND COMPLY WITH WAIKATO DISTRICT AND REGIONAL COUNCIL REQUIREMENTS FOR EARTHWORKS, AT ALL TIMES.
6. IT IS INTENDED THAT THE CONTRACTOR SHALL GRADE THE EARTHWORKS TO THE FINISHED CONTOURS SHOWN. HOWEVER, THE FINAL MARRYING AND SHAPING OF THE EARTHWORKS AREAS ARE SUBJECT TO THE ENGINEERS APPROVAL.
7. TO PREVENT SEEPAGE, BASIN SUBGRADES TO BE LINED WITH IMPERMEABLE LINER (CLAY OR SIMILAR) UNLESS APPROPRIATE PERMEABILITY RATES CAN BE DEMONSTRATED BY INSITU TESTING, IN CONJUNCTION WITH THE GEOTECHNICAL ENGINEER.

WETLAND 2

Water Quality Volume (m^3)	402
Permanent Water Level Volume (m^3)	268
Extended Detention Volume (EDV) (m^3)	541
Base of Wetland RL (m)	24.7
Permanent Water Level RL / EDV orifice IL (m)	26.2
Attenuation Storm Outlet RL (m)	26.92
Weir Spillway RL (manhole rim) (m)	27.3
Emergency Spillway RL (m)	27.35
Crest of Wetland RL (m)	27.85
EDV Orifice Diameter (mm)	90
Attenuation Storm Outlet Slot Width (mm)	350
Outlet Weir Length (manhole rim) (m)	3.77 (DN1200)
Emergency Spillway Dimensions (m)	9mL x 0.5mH
Outlet Pipe Diameter (mm)	600 @ 0.5%
Riprap dimensions	6mL x 2mW x 0.23mD, 0.2m D50 stone diameter

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

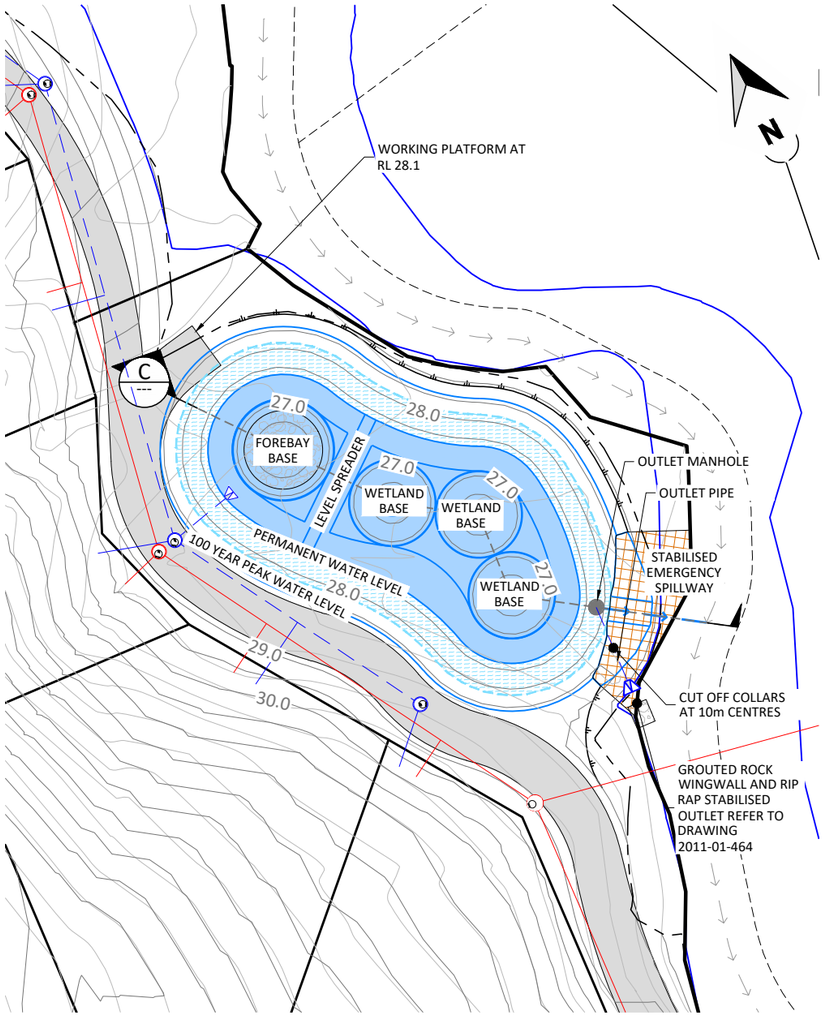
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

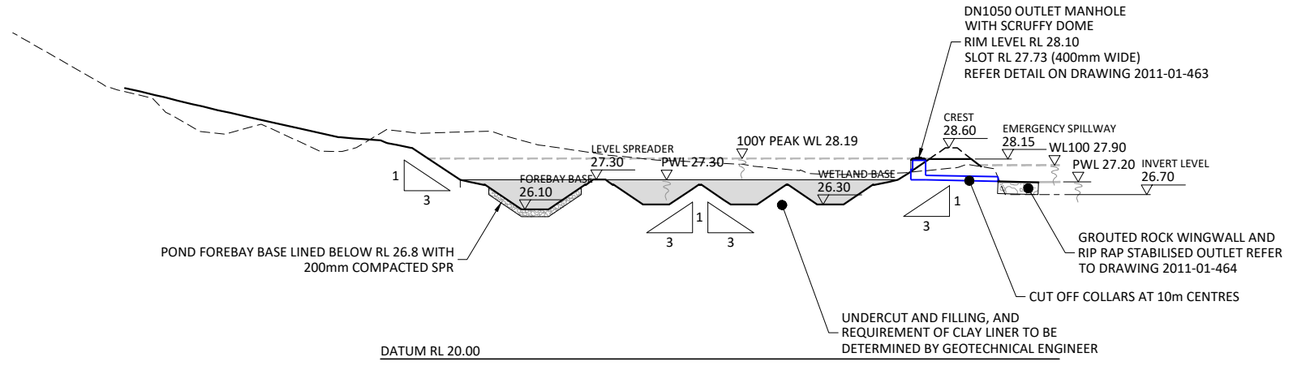
SHEET TITLE:
WETLAND 2
PLAN AND DETAILS

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:250 / 1:500
SCALE BAR 1:500@A3 0 5 10 15 20 25m
DRAWING NUMBER: 2011-01-461 REV: C3



PLAN

SCALE: (A1/A3) 1:250/1:500



C / - CROSS SECTION THROUGH WETLAND 3

SCALE: (A1/A3) 1:250H 1:125V/1:500H 1:250V

LEGEND

- GRASS REINFORCED SPILLWAY (CIRTEX PYRAMAT OR SIMILAR APPROVED)
- RIPRAP
- EXTENDED WATER LEVEL

NOTES

1. EXISTING CONTOURS ARE SHOWN AT 0.5m INTERVALS.
2. DESIGN CONTOURS ARE SHOWN AT 0.5m INTERVALS.
3. CONTOURS SHOWN ARE FINISHED SURFACE LEVELS.
4. SILT AND STORMWATER CONTROL IS TO BE IMPLEMENTED DAILY AND COMPLY WITH THE GENERAL SPECIFICATION.
5. THE CONTRACTOR MUST BE AWARE OF AND COMPLY WITH WAIKATO DISTRICT AND REGIONAL COUNCIL REQUIREMENTS FOR EARTHWORKS, AT ALL TIMES.
6. IT IS INTENDED THAT THE CONTRACTOR SHALL GRADE THE EARTHWORKS TO THE FINISHED CONTOURS SHOWN. HOWEVER, THE FINAL MARRYING AND SHAPING OF THE EARTHWORKS AREAS ARE SUBJECT TO THE ENGINEERS APPROVAL.
7. TO PREVENT SEEPAGE, BASIN SUBGRADES TO BE LINED WITH IMPERMEABLE LINER (CLAY OR SIMILAR) UNLESS APPROPRIATE PERMEABILITY RATES CAN BE DEMONSTRATED BY INSITU TESTING, IN CONJUNCTION WITH THE GEOTECHNICAL ENGINEER.

WETLAND 3

Water Quality Volume (m^3)	154
Permanent Water Level Volume (m^3)	103
Extended Detention Volume (EDV) (m^3)	207
Base of Wetland RL (m)	26.1
Permanent Water Level RL / EDV orifice IL (m)	27.3
Attenuation Storm Outlet RL (m)	27.73
Weir Spillway RL (manhole rim) (m)	28.1
Emergency Spillway RL (m)	28.15
Crest of Wetland RL (m)	28.6
EDV Orifice Diameter (mm)	50
Attenuation Storm Outlet Slot Width (mm)	200
Outlet Weir Length (manhole rim) (m)	3.30 (DN1050)
Emergency Spillway Dimensions (m)	2mL x 0.45mH
Outlet Pipe Diameter (mm)	525 @ 0.5%
Riprap dimensions	2mL x 2mW x 0.17mD, 0.15m D50 stone diameter

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

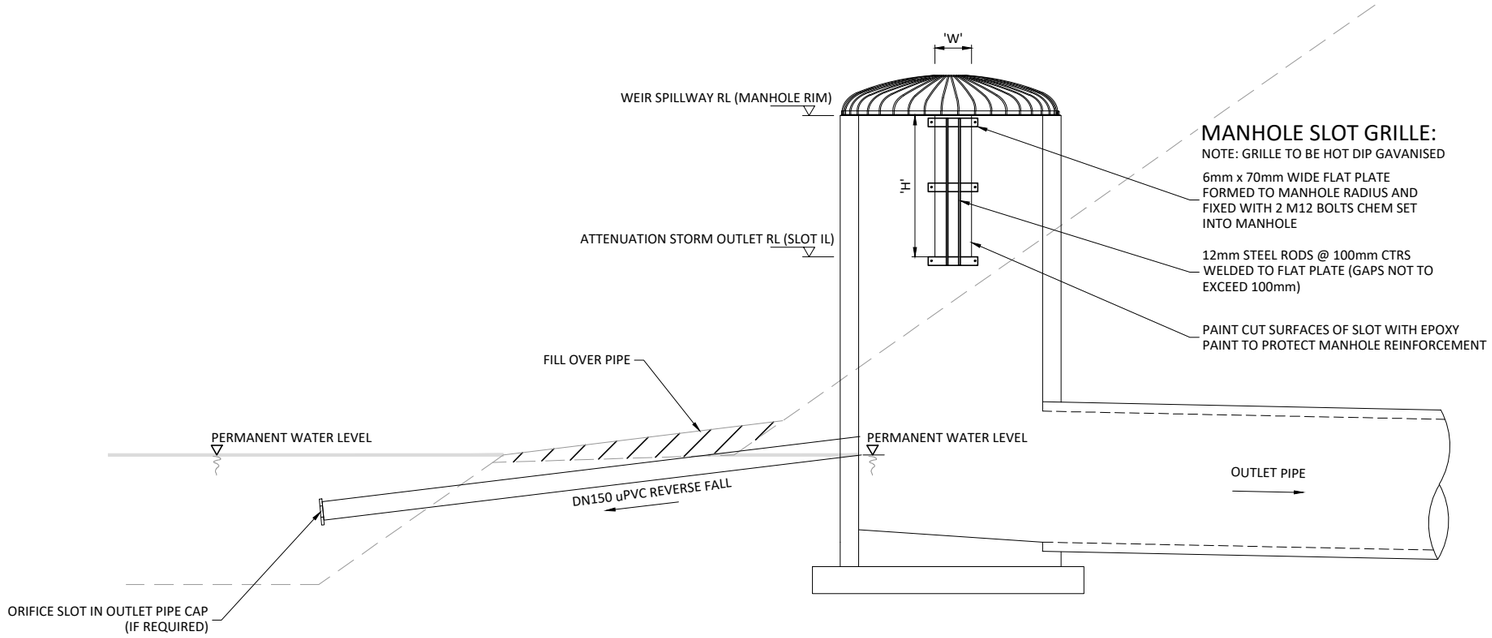
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

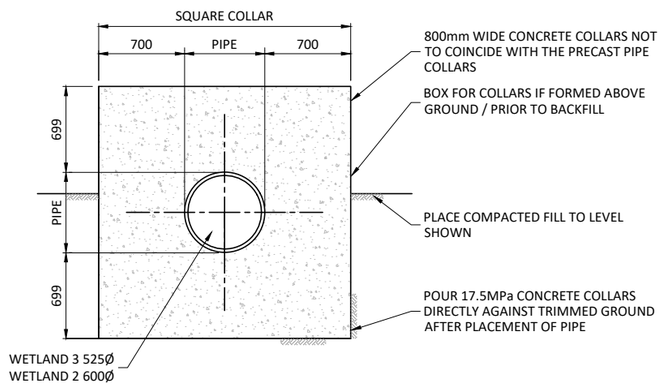
SHEET TITLE:
WETLAND 3
PLAN AND DETAILS

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:250 / 1:500
SCALE BAR 1:500@A3 0 5 10 15 20 25m
DRAWING NUMBER: 2011-01-462 REV: C3



2 - OUTLET MANHOLE DETAILS
SCALE: (A1/A3) 1:25/1:50

MANHOLE SLOT GRILLE		
	WETLAND 2	WETLAND 3
6mm FLAT PLATE	3 @500mm LONG	3 @300mm LONG
12mm STEEL RODS	3 @ 440mm LONG	1 @ 420mm



TYPICAL CUT-OFF COLLAR DETAIL
SCALE: (A1/A3) 1:25 1:50

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C2	ISSUED FOR RESOURCE CONSENT	GDS	27.04.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

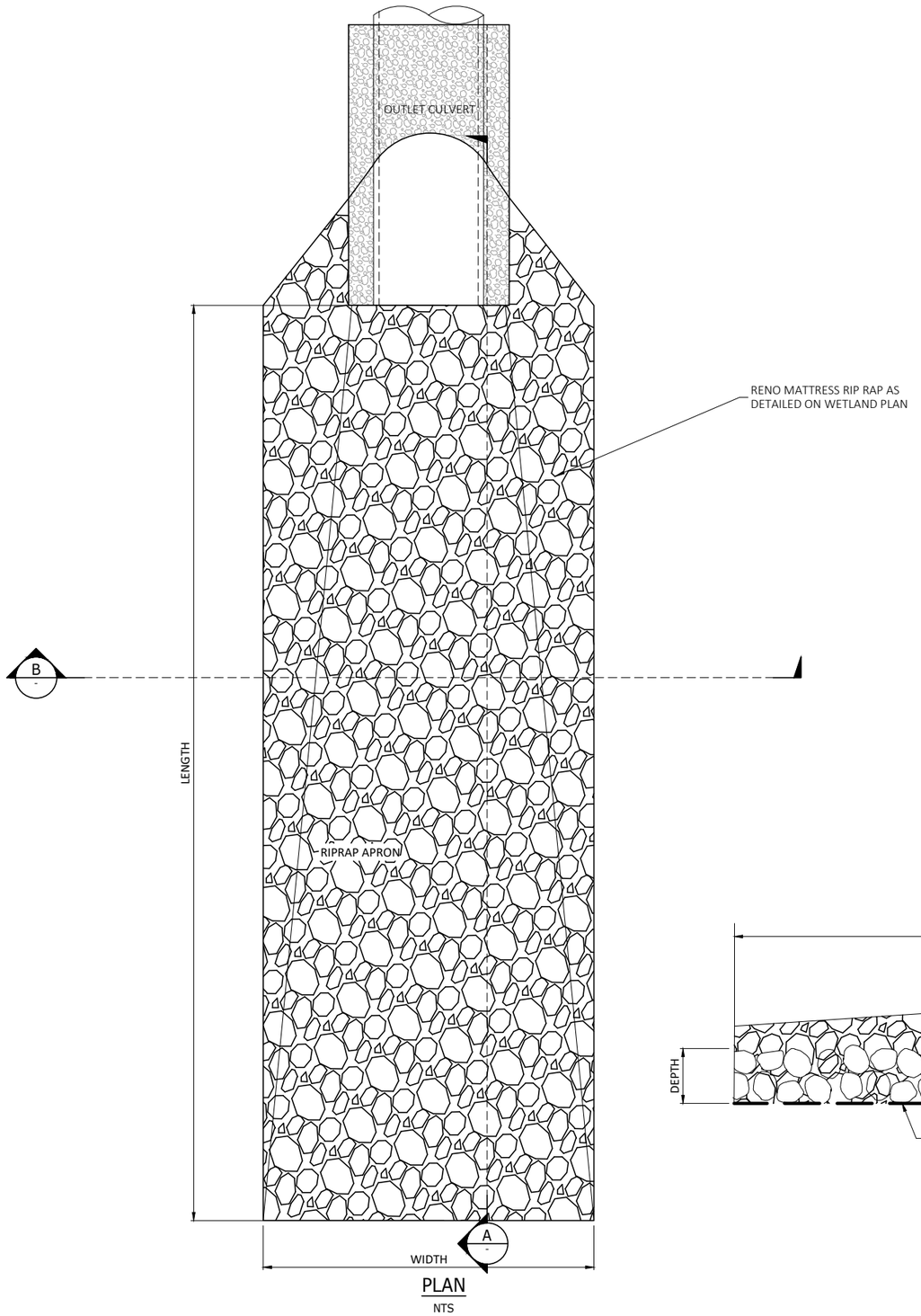
PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
WETLANDS 2 AND 3
PLAN AND DETAILS

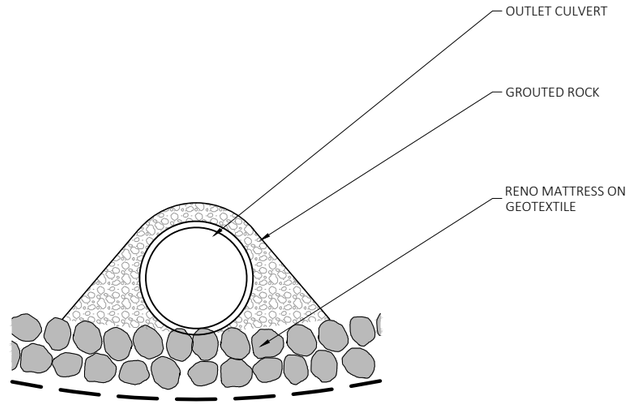
ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:25 / 1:50
SCALE BAR 1:50@A3 0 0.5 1 1.5 2 2.5m
DRAWING NUMBER: 2011-01-463 REV: C2

NOTES:

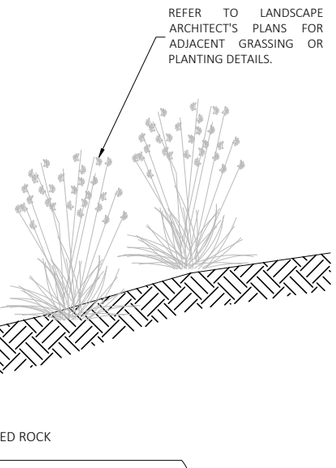
1. PIPE TO HAVE GROUTED ROCK RIP RAP OVER AND AROUND OUTLET PIPE TO BLEND IN TO GROUND SLOPES AND MATCH ROCK IN RENO MATTRESS. VISIBLE GROUT WIDTH NOT TO EXCEED 50mm.
2. REFER TO DRAWINGS 2011-01-400, 401, 402, 461, 462, 465 FOR RIP RAP MATTRESS DIMENSIONS.

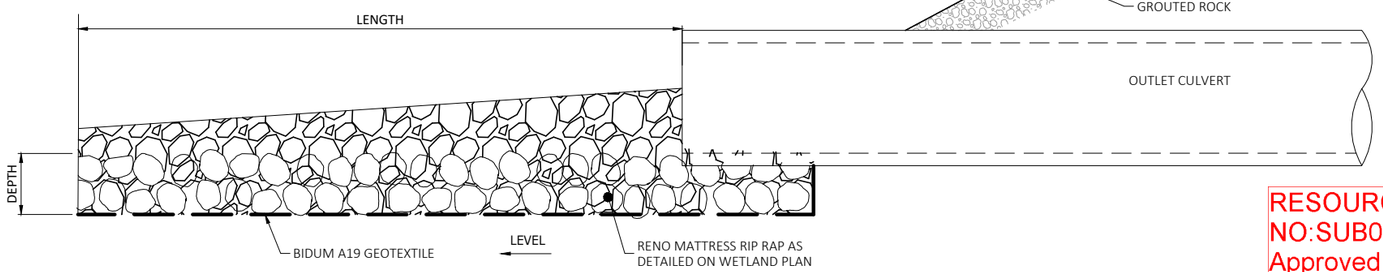


PLAN
NTS



B OUTLET CROSS SECTION
SCALE: (A1/A3) NTS





A OUTLET LONGITUDINAL SECTION
SCALE: (A1/A3) NTS

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C2	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

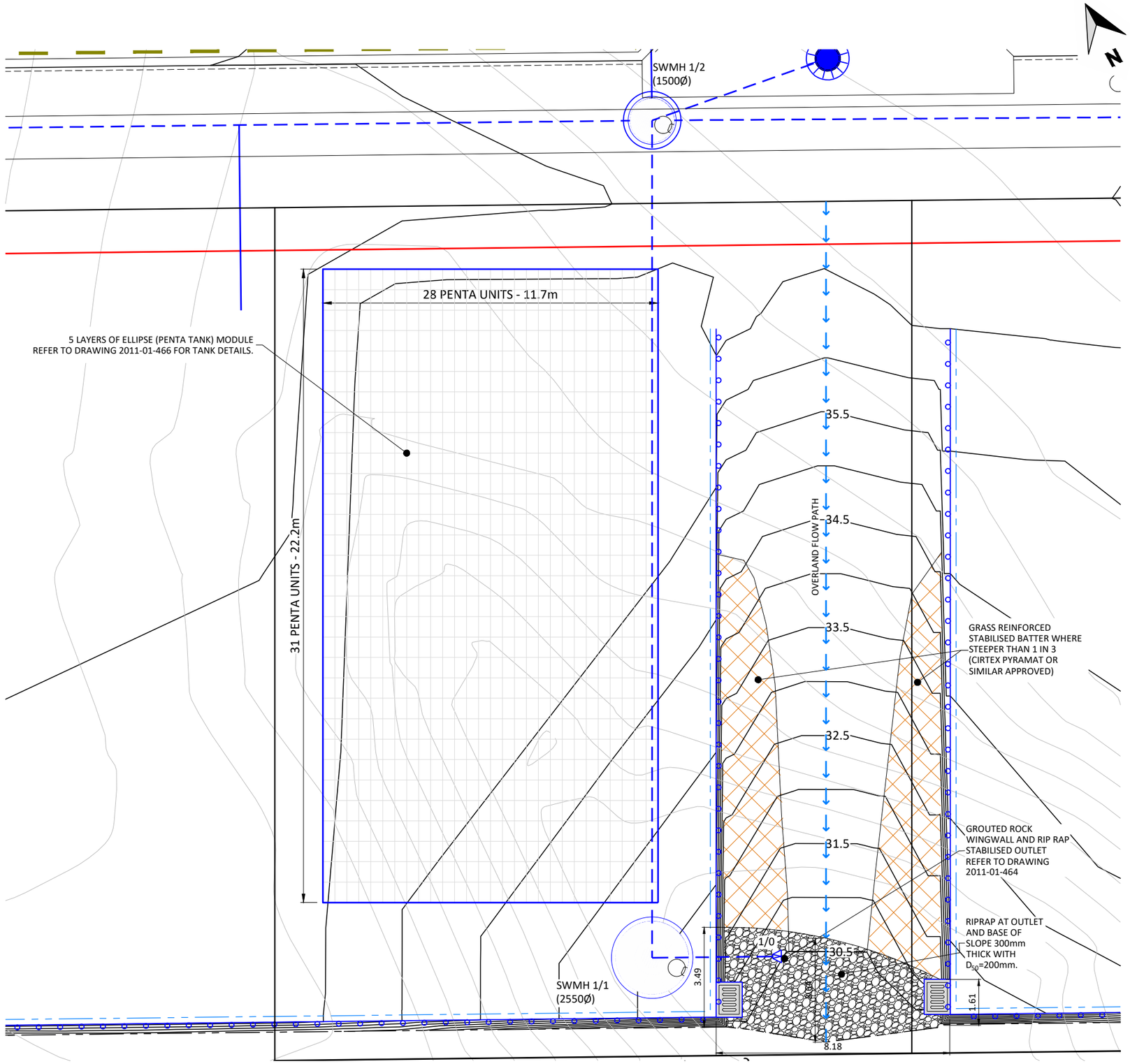
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
OUTLET DETAIL

ISSUE STATUS: CONSENT
SCALE: (A1/A3) N.T.S.
SCALE BAR NOT TO SCALE
DRAWING NUMBER: 2011-01-464 REV: C2



LEGEND

GRASS REINFORCED SPILLWAY (CIRTEX PYRAMAT OR SIMILAR APPROVED)

RIPRAP

TANK 1

Extended Detention Volume (EDV) (m^3)	355
Base of Tank RL (m)	31.92
Attenuation Storm Outlet 1 RL (m)	32.77
Attenuation Storm Outlet 2 RL (m)	33.52
Weir Spillway RL (m)	34.00
EDV Orifice Diameter (mm)	50
Attenuation Storm Outlet 1 Orifice Diameter (mm)	300
Attenuation Storm Outlet 2 Orifice Diameter (mm)	375
Outlet Weir Length (m)	1.50
Outlet Pipe Diameter (mm)	600
Riprap dimensions	AS SHOWN, 0.35mD, 0.2m D50 stone diameter

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C3	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	22.05.18
C2	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	10.05.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: MM DATE: 12.03.18
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
ROAD STORMWATER MITIGATION
LAYOUT PLAN

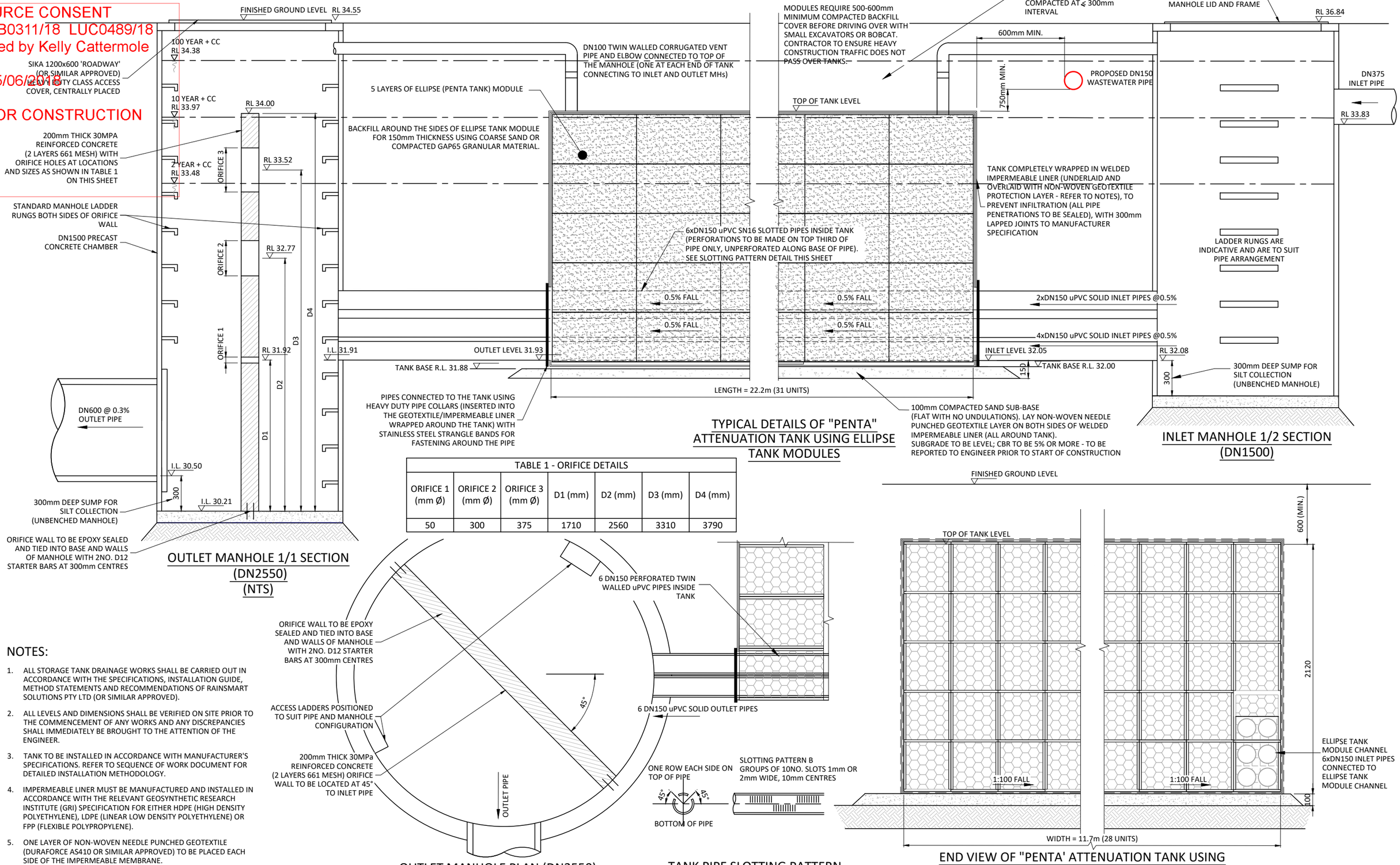
ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:75 / 1:150

SCALE BAR 1:150@A3 0 1.5 3 4.5 6 7.5m

DRAWING NUMBER: 2011-01-465 REV: C3

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole
Date:25/06/2018
NOT FOR CONSTRUCTION



OUTLET MANHOLE 1/1 SECTION (DN2550) (NTS)

INLET MANHOLE 1/2 SECTION (DN1500)

TYPICAL DETAILS OF "PENTA" ATTENUATION TANK USING ELLIPSE TANK MODULES

TABLE 1 - ORIFICE DETAILS						
ORIFICE 1 (mm Ø)	ORIFICE 2 (mm Ø)	ORIFICE 3 (mm Ø)	D1 (mm)	D2 (mm)	D3 (mm)	D4 (mm)
50	300	375	1710	2560	3310	3790

OUTLET MANHOLE PLAN (DN2550)

TANK PIPE SLOTTING PATTERN

END VIEW OF "PENTA' ATTENUATION TANK USING ELLIPSE TANK MODULE UNITS

NOTES:

1. ALL STORAGE TANK DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE SPECIFICATIONS, INSTALLATION GUIDE, METHOD STATEMENTS AND RECOMMENDATIONS OF RAINSMART SOLUTIONS PTY LTD (OR SIMILAR APPROVED).
2. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS AND ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. TANK TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. REFER TO SEQUENCE OF WORK DOCUMENT FOR DETAILED INSTALLATION METHODOLOGY.
4. IMPERMEABLE LINER MUST BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE RELEVANT GEOSYNTHETIC RESEARCH INSTITUTE (GRI) SPECIFICATION FOR EITHER HDPE (HIGH DENSITY POLYETHYLENE), LDPE (LINEAR LOW DENSITY POLYETHYLENE) OR FPP (FLEXIBLE POLYPROPYLENE).
5. ONE LAYER OF NON-WOVEN NEEDLE PUNCHED GEOTEXTILE (DURAFORCE AS410 OR SIMILAR APPROVED) TO BE PLACED EACH SIDE OF THE IMPERMEABLE MEMBRANE.

REV	REVISION DETAILS	BY	DATE
C2	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	RJP	22.05.18
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

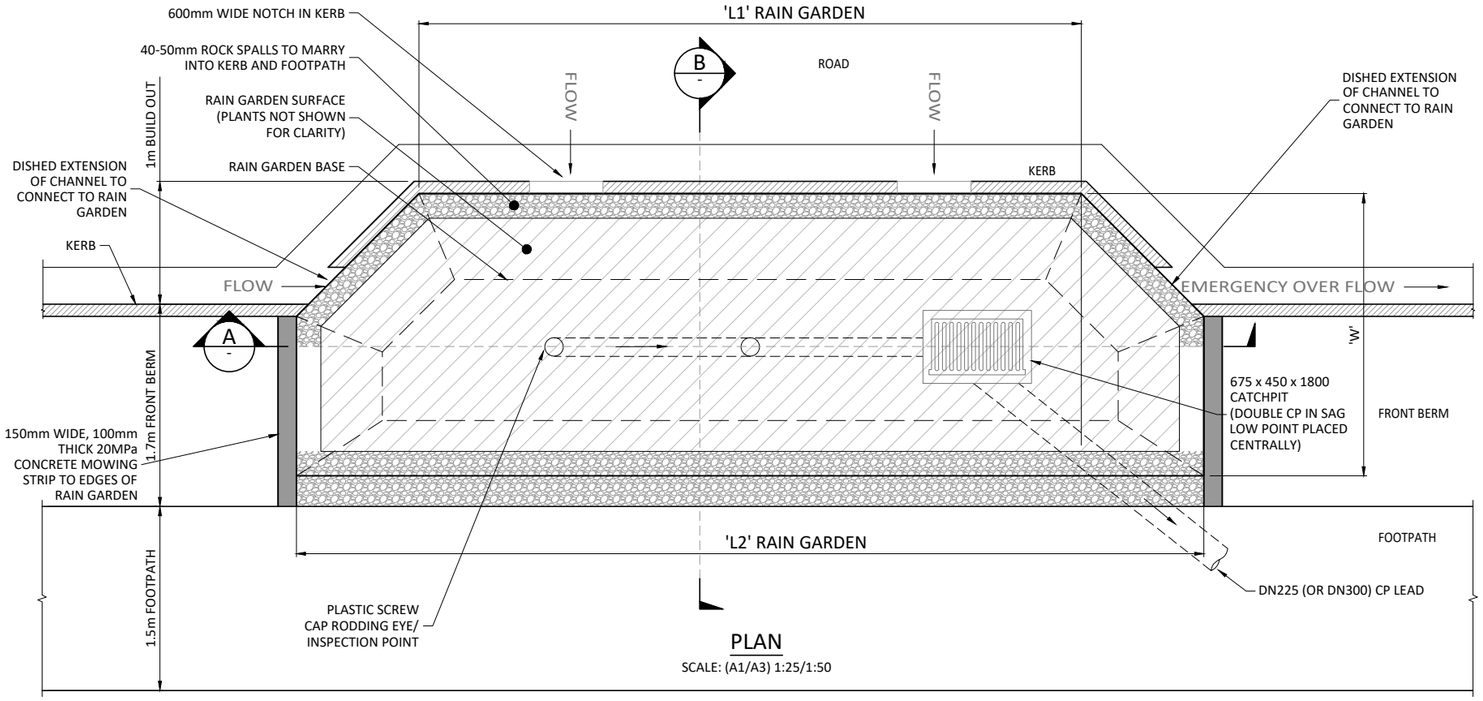
DRAWN: MM DATE: 12.03.18
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
ROAD STORMWATER MITIGATION
ATTENUATION TANK DETAILS

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-466 REV: C2



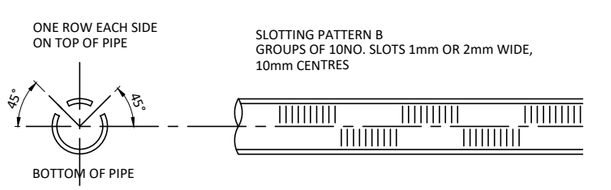
PLAN

SCALE: (A1/A3) 1:25/1:50

RAIN GARDEN SIZING					
RAIN GARDEN	LENGTH 'L1' (m)	LENGTH 'L2' (m)	WIDTH 'W' (m)	MIN MEDIA SURFACE AREA (m2)	DEPTH FROM OUTLET CATCHPIT TO OVERFLOW (m)
1/2.1	9.0	13.0	3.3	27.4	**0.20
1/3.1	*	*	*	13.1	0.05
1/5.1	*	*	*	15.3	0.05
1/5.2	*	*	*	15.3	0.05
1/6.1	6.0	8.0	2.3	12.8	0.05
1/6.2	6.0	8.0	2.3	12.8	0.05
1/7.1	4.5	6.5	2.3	10.1	0.05
1/7.2	9.0	9.0	2.5	17.0	0.05
2/1.1	*	*	*	10.9	0.05
2/2.1	6.0	8.0	2.3	12.8	0.05
2/4.1	7.5	9.5	2.3	15.5	0.05
2/4.2	9.5	9.5	2.5	18.0	0.05
3/1.1	*	*	*	19.6	0.05
3/2.1	6.0	8.0	2.3	12.8	0.05
4/4.1	*	*	*	15.4	0.05
4/5.1	3.0	5.0	2.3	7.4	0.05
5/1.1	*	*	*	38.0	0.05
5/2.1	5.0	7.0	2.3	11.0	0.05
6/1.1	*	*	*	12.1	0.05

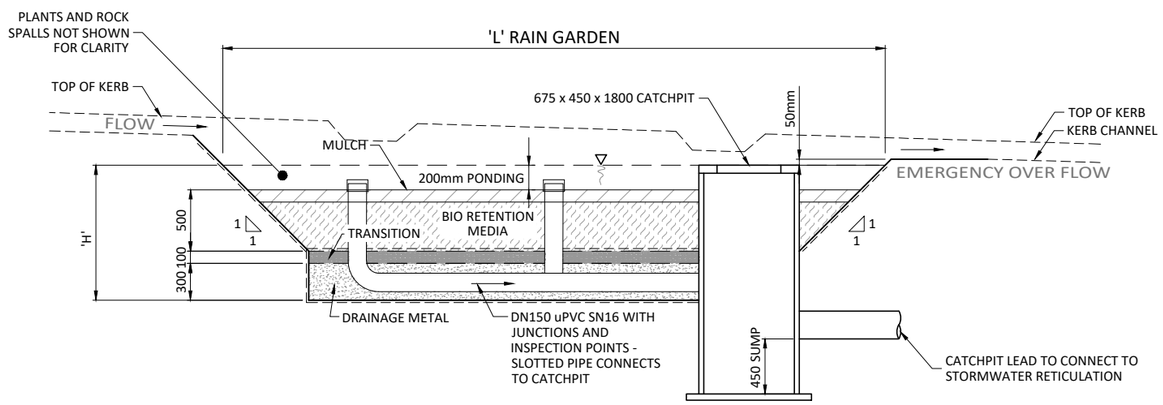
NOTES:

1. CONTRACTOR TO ENSURE MINIMUM MEDIA/MULCH SURFACE AREA IS ACHIEVED. RAIN GARDEN WIDTHS AND LENGTHS MAY BE ADJUSTED IF NECESSARY TO ACHIEVE THIS.
2. * RAIN GARDEN WIDTH, LENGTH AND SHAPE TO BE DETERMINED DURING CONSTRUCTION. MINIMUM MEDIA/MULCH SURFACE AREA MUST BE ACHIEVED. SEE 2011-01-400/401/402 FOR ESTIMATED SHAPE AND SIZE.
3. ** RAIN GARDEN 1/2.1 OUTLET TO BE DN1050 SCRUFFY MANHOLE.
4. THE SURFACE OF THE BIO-RETENTION AREA IS TO BE FINISHED TO PROVIDE A PONDING AREA NOT LESS THAN 200mm IN DEPTH.
5. THE BIO-RETENTION SOIL MIXTURE IS TO BE APPROXIMATELY 600mm DEEP (NOT LESS THAN 500mm) AND IS TO HAVE A LONG TERM HYDRAULIC CONDUCTIVITY (Ks) OF 100mm/hr SUCH AS LIVING EARTH RAIN GARDEN MIX.
6. THE TRANSITION LAYER SHALL COMPRISE 50mm THICK LAYER OF #3 SAND ON 50mm THICK LAYER OF GRADE 6 CHIP. CARE SHALL BE TAKEN TO ENSURE THAT THESE LAYER THICKNESSES ARE ACHIEVED.
7. THE DRAINAGE LAYER SHALL COMPRISE 20-7 CLEAN DRAINAGE AGGREGATE. THIS SHALL FULLY ENCASE THE PERFORATED UNDER-DRAIN.
8. THE BIO-RETENTION PIT MAY NEED TO BE LINED WITH AN IMPERMEABLE MEMBRANE (DEPENDING ON THE SOIL TYPE AT THE SITE). OPTIONS FOR THIS INCLUDE GEOSYNTHETIC CLAY LINER (EG BENTOFIX NSP4000) INSTALLED TO MANUFACTURER'S RECOMMENDATIONS OR HD 300 MICRON POLYETHYLENE. THE FINAL SOLUTION SHALL BE DETERMINED ON SITE BY THE ENGINEER.
9. THE UNDER-DRAIN SHALL CONSIST OF SLOTTED 150mm DIAMETER uPVC PIPE (1.0mm SLOTS) FROM STRATA PLASTICS OR AN APPROVED EQUIVALENT. SLOTS TO BE LOCATED ON TOP HALF OF PIPE ONLY (SOLID BASE). BENDS AND STAND PIPE AND OTHER FITTINGS SHALL BE HD uPVC WITH ALL JOINTS WELL GLUED. SEE DETAIL THIS SHEET.
10. REFER TO LANDSCAPE ARCHITECT'S PLANS FOR PLANTING SPECIES AND LAYOUT



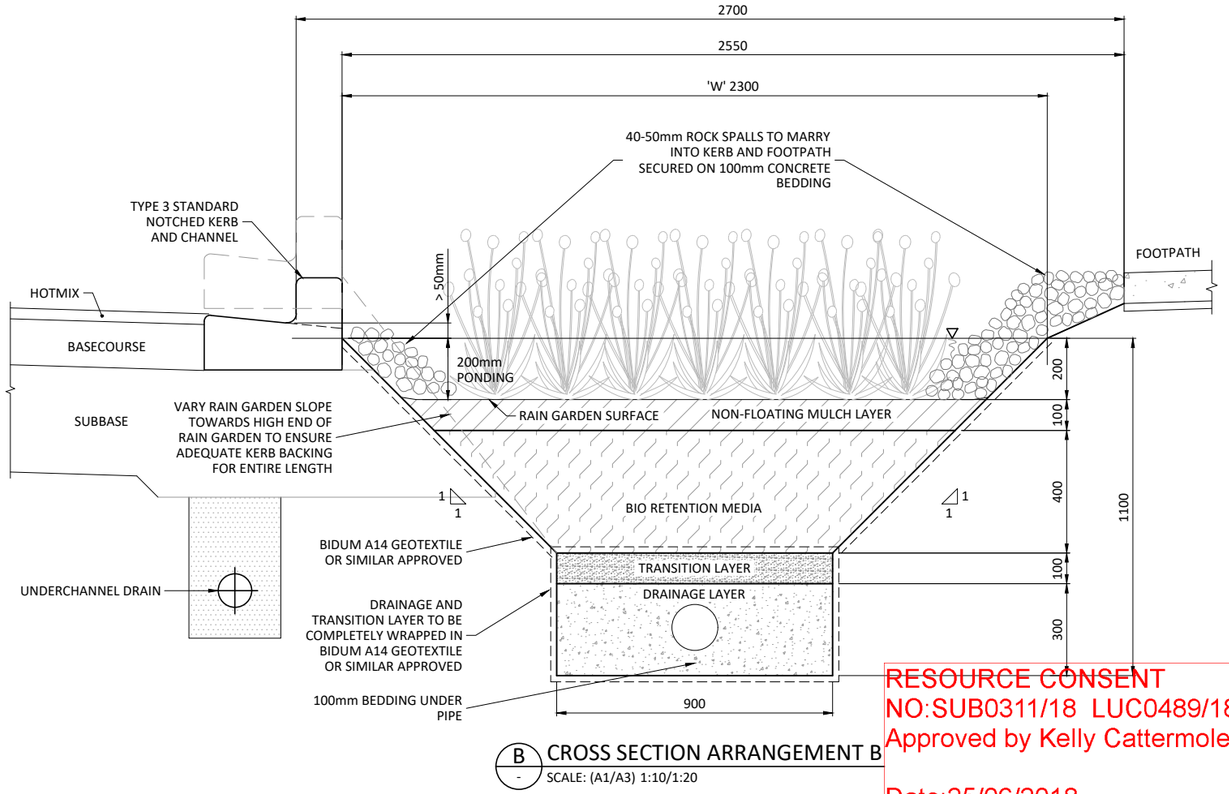
UNDER DRAIN SLOTTING PATTERN

SCALE: (A1/A3) NTS



A CROSS SECTION ARRANGEMENT A

SCALE: (A1/A3) 1:25/1:50



B CROSS SECTION ARRANGEMENT B

SCALE: (A1/A3) 1:10/1:20

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION
CONSENT

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

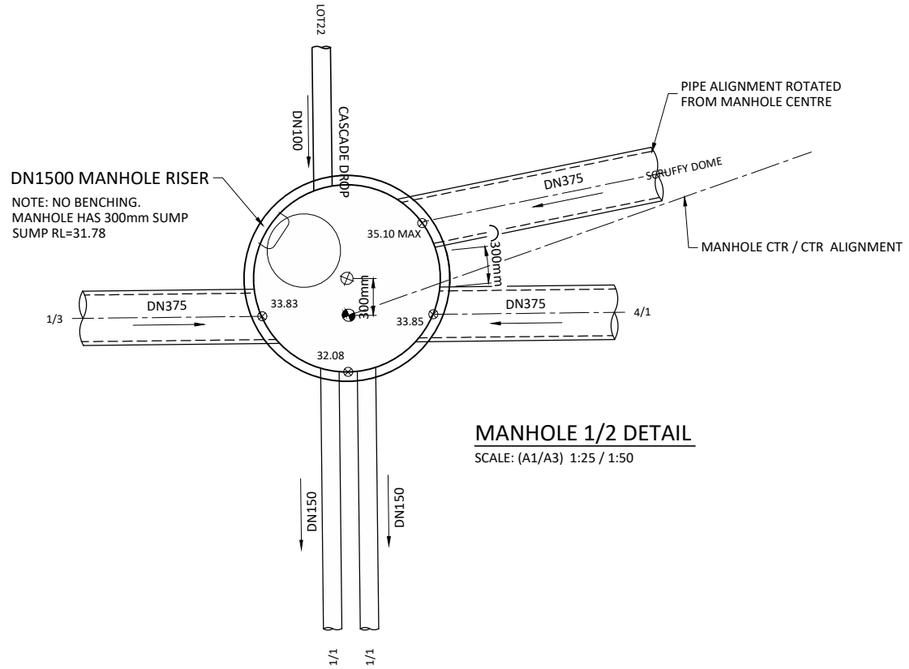
DRAWN: MRR DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
TYPICAL RAIN GARDEN DETAILS WITH SCRUFFY DOME OUTLET

ISSUE STATUS:
SCALE: (A1/A3) AS SHOWN
SCALE BAR NOT TO SCALE
DRAWING NUMBER: 2011-01-470 REV: C1

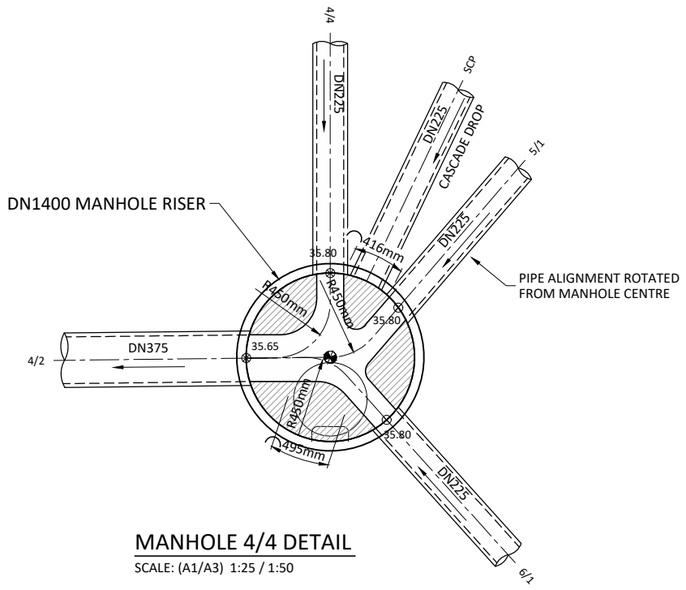


MANHOLE 1/2 DETAIL

SCALE: (A1/A3) 1:25 / 1:50

LEGEND

- CENTRE OF MANHOLE RISER
- PIPE ALIGNMENT POSITION
- XX.XX — PIPE INVERT LEVEL
- 200mm — MANHOLE OFFSET DIMENSION
- 456mm — DIMENSION OF ARC BETWEEN PIPE OPENINGS (MINIMUM 300mm)



MANHOLE 4/4 DETAIL

SCALE: (A1/A3) 1:25 / 1:50

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN:	GDS	DATE: 09.2017
CHECKED:	RJP	DATE: 29.03.18
APPROVED:	RJP	DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED STORMWATER
MANHOLE DETAILS
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:25 / 1:50
SCALE BAR 1:50@A3 0 0.5 1 1.5 2 2.5m
DRAWING NUMBER: 2011-01-480 REV: C1

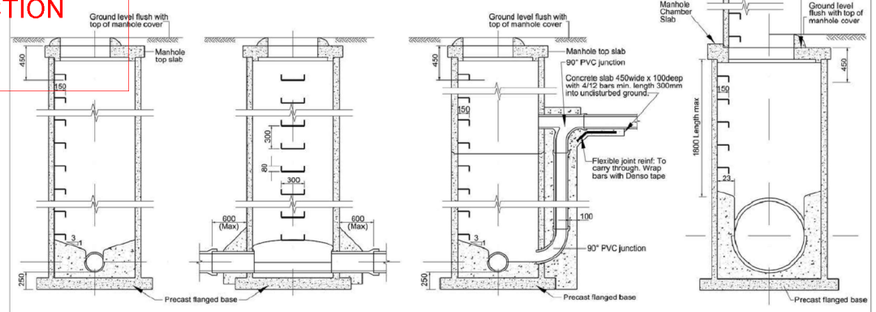
RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

NOTES:
1. Diameters of precast manhole pipes are nominal only.
2. Wastewater manholes to use ceramic for channelling. Stormwater manholes may use concrete.

TYPICAL PLAN CURVE THROUGH MANHOLE



Hamilton City Council

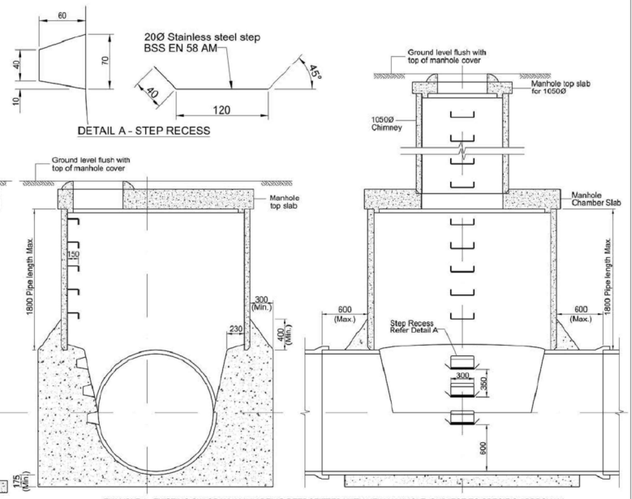
1050Ø - 1350Ø MANHOLES

D5.1

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: JULY 2016

NOTES
1. Maximum depth for frame and cover adjustment rings onto top slab is 300mm.
2. Diameters of precast manhole pipes are nominal only.



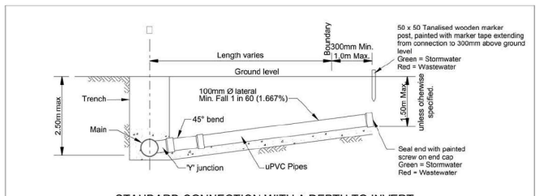
Hamilton City Council

TYPICAL DIMENSIONS FOR MANHOLES GREATER THAN 1350Ø

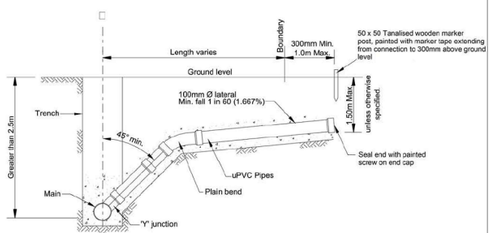
D5.2

INFRASTRUCTURE TECHNICAL SPECIFICATION

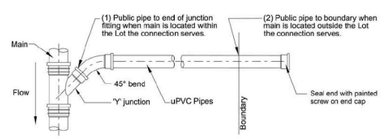
Version: JULY 2016



STANDARD CONNECTION WITH A DEPTH TO INVERT LESS THAN 2.50m - SECTION



RAMP RISER CONNECTION WITH A DEPTH TO INVERT GREATER THAN 2.50M - SECTION



POINT OF DISCHARGE: PUBLIC AND PRIVATE INFRASTRUCTURE

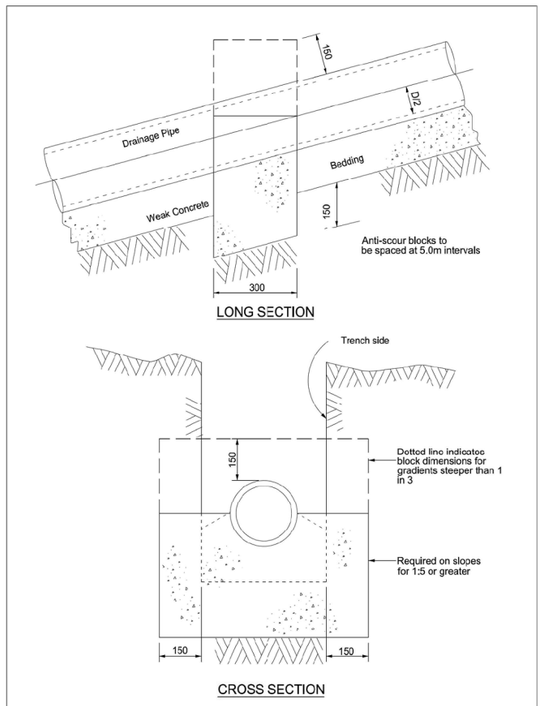
Hamilton City Council

LATERAL CONNECTION

D5.4

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: JULY 2016



LONG SECTION

CROSS SECTION

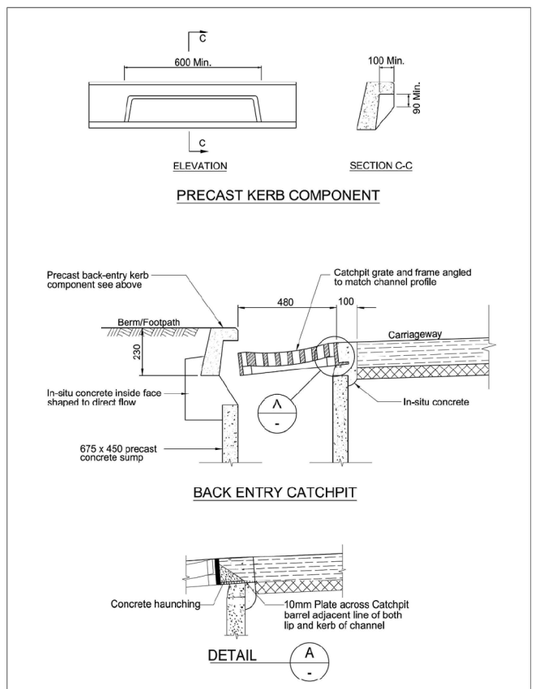
Hamilton City Council

ANTI-SCOUR BLOCKS FOR STEEP LINES

D5.5

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: NOVEMBER 2012



PRECAST KERB COMPONENT

BACK ENTRY CATCHPIT

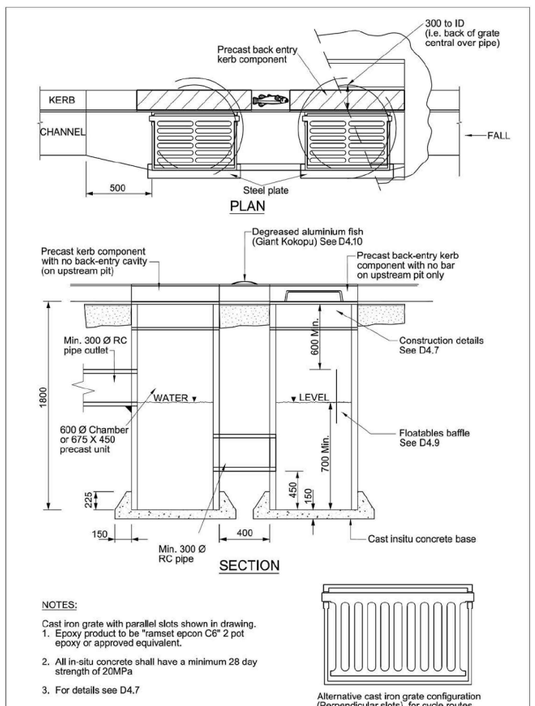
Hamilton City Council

CATCHPIT BACK ENTRY DETAILS

D4.7

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: JULY 2012



Hamilton City Council

DOUBLE SUMP CATCHPIT DESIGN

D4.8

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: JULY 2016

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

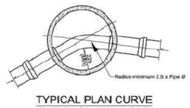
CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

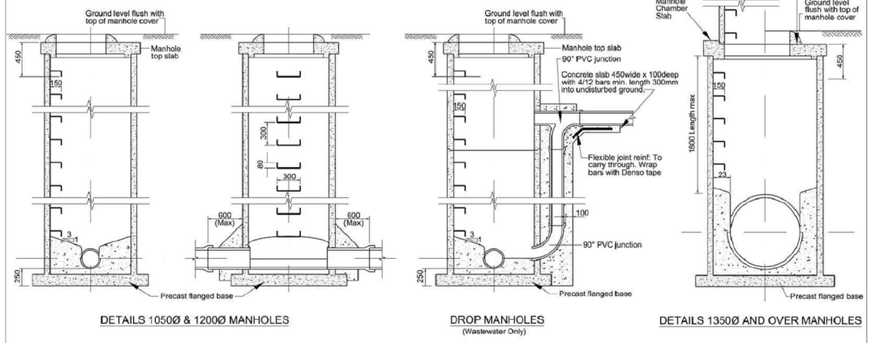
SHEET TITLE:
STORMWATER STANDARD DETAILS
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.
DRAWING NUMBER: 2011-01-490 REV: C1

NOTES:
1. Diameters of precast manhole pipes are nominal only.
2. Wastewater manholes to use ceramic for channelling. Stormwater manholes may use concrete.



TYPICAL PLAN CURVE THROUGH MANHOLE



DETAILS 1050Ø & 1200Ø MANHOLES

DROP MANHOLES (Wastewater Only)

DETAILS 1350Ø AND OVER MANHOLES

Hamilton City Council

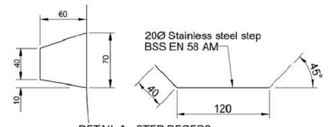
1050Ø - 1350Ø MANHOLES

D5.1

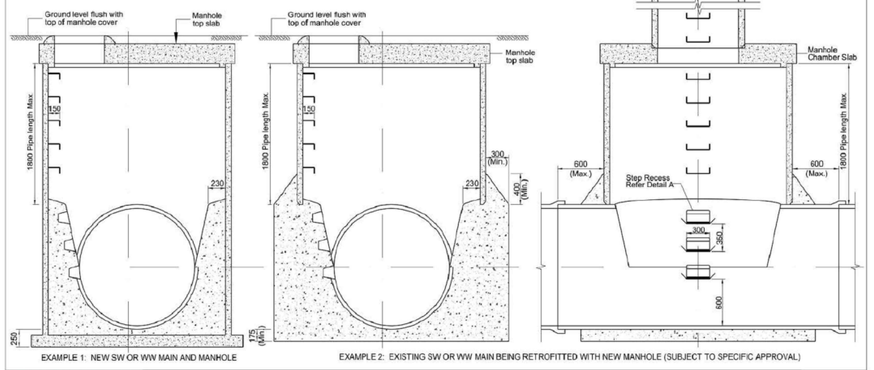
INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: JULY 2016

NOTES
1. Maximum depth for frame and cover adjustment rings onto top slab is 300mm.
2. Diameters of precast manhole pipes are nominal only.



DETAIL A - STEP RECESS



EXAMPLE 1: NEW SW OR WW MAIN AND MANHOLE

EXAMPLE 2: EXISTING SW OR WW MAIN BEING RETROFITTED WITH NEW MANHOLE (SUBJECT TO SPECIFIC APPROVAL)

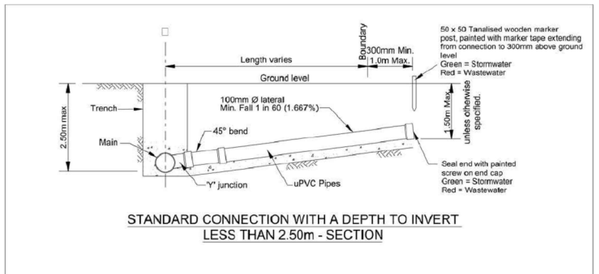
Hamilton City Council

TYPICAL DIMENSIONS FOR MANHOLES GREATER THAN 1350Ø

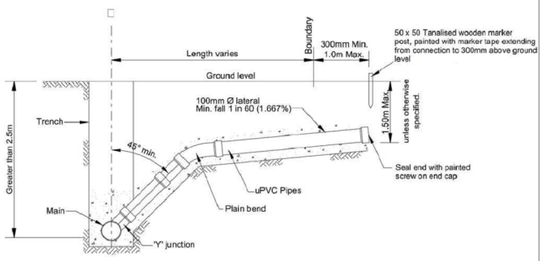
D5.2

INFRASTRUCTURE TECHNICAL SPECIFICATION

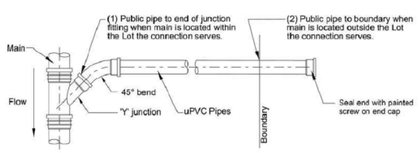
Version: JULY 2016



STANDARD CONNECTION WITH A DEPTH TO INVERT LESS THAN 2.50m - SECTION



RAMP RISER CONNECTION WITH A DEPTH TO INVERT GREATER THAN 2.50M - SECTION



POINT OF DISCHARGE: PUBLIC AND PRIVATE INFRASTRUCTURE

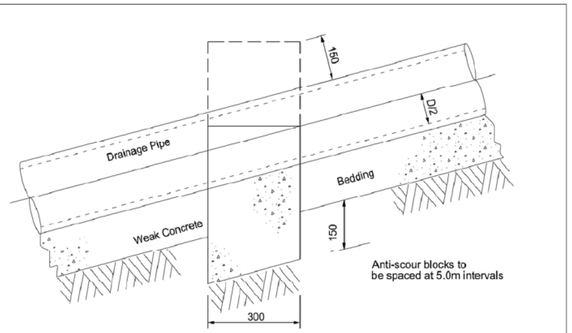
Hamilton City Council

LATERAL CONNECTION

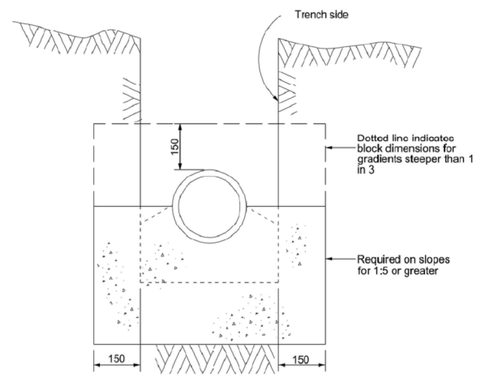
D5.4

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: JULY 2016



LONG SECTION



CROSS SECTION

Hamilton City Council

ANTI-SCOUR BLOCKS FOR STEEP LINES

D5.5

INFRASTRUCTURE TECHNICAL SPECIFICATION

Version: NOVEMBER 2012

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
WASTEWATER STANDARD DETAILS
SHEET 1

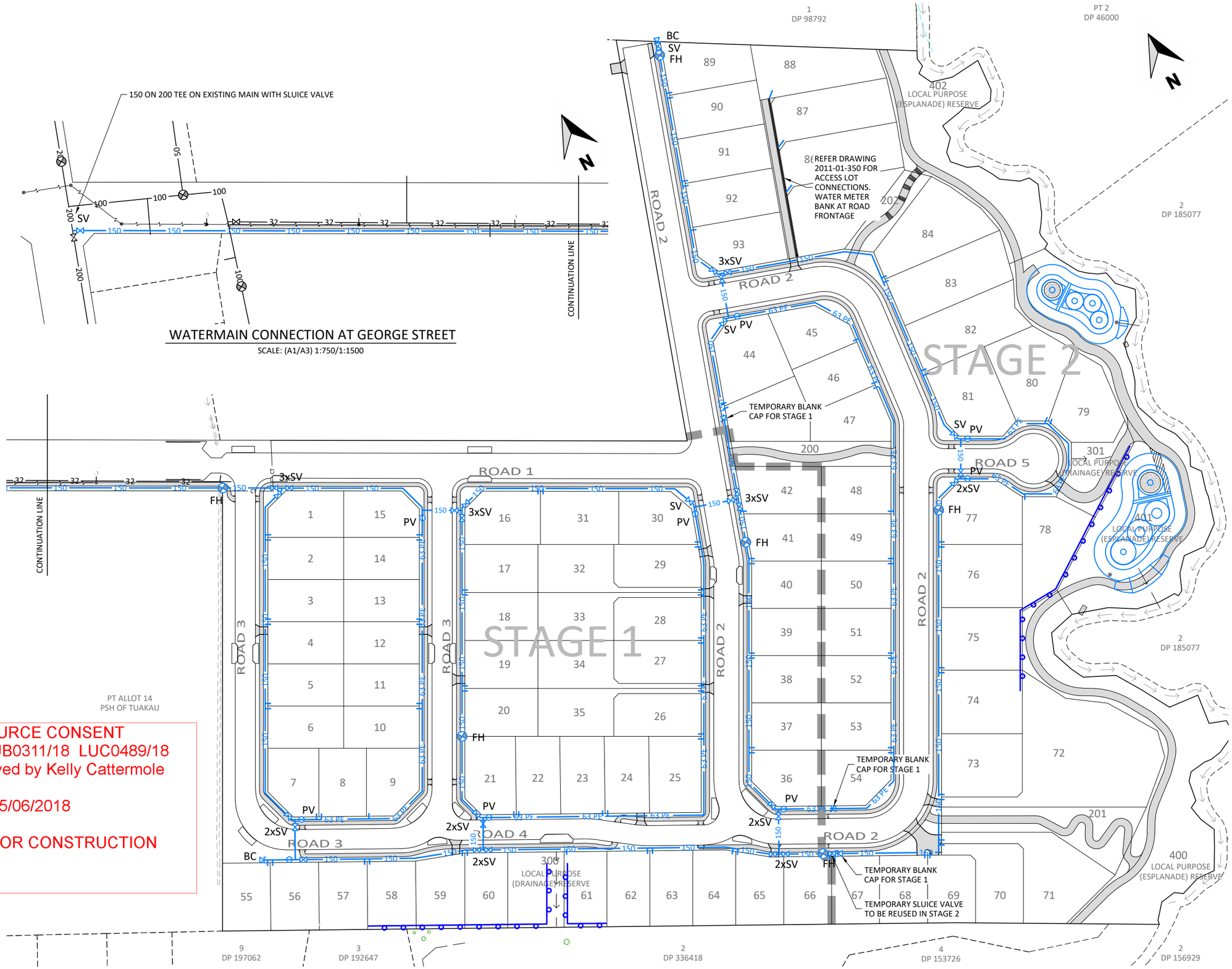
CONSENT

SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N.T.S.

DRAWING NUMBER: 2011-01-495 REV: C1

WATERMAIN CONNECTION AT GEORGE STREET

SCALE: (A1/A3) 1:750/1:1500



RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

NOTES:

1. ALL WATERMAINS TO COMPLY WITH WAIKATO DISTRICT COUNCIL INFRASTRUCTURE TECHNICAL SPECIFICATION AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE.
2. ALL WATERMAINS TO BE LAID AND BACKFILLED IN ACCORDANCE WITH COUNCIL STANDARD SPECIFICATIONS.
3. ALL WATERMAINS TO BE LAID 1.1m FROM AND PARALLEL TO THE BOUNDARY UNLESS SHOWN OTHERWISE WITH 750mm MIN. COVER (900mm UNDER CARRIAGEWAYS).
4. ALL ROAD CROSSINGS TO BE A MINIMUM OF DN150.
5. ALL TRENCHES UNDER CARRIAGEWAY / VEHICLE CROSSINGS TO BE BACKFILLED WITH HARDFILL.
6. ALL WORKS ON EXISTING WATERMAINS ARE TO BE CARRIED OUT BY AN APPROVED CONTRACTOR UNDER APPROVAL FROM WAIKATO DISTRICT COUNCIL AT DEVELOPERS EXPENSE.
7. WHERE WATERMAINS ARE TO BE LAID IN AN ARC, THE PIPES SHALL BE LAID IN A CONSTANT RADIUS IN THE APPROPRIATE POSITION.
8. CONTRACTOR TO SEARCH, LOCATE, PROTECT AND MAINTAIN ALL EXISTING SERVICES, POWER , COMMS ETC.
9. CONTRACTOR IS TO FIX BY SURVEY ALL CHANGES IN DIRECTION AND AS-BUILT DEPTH OF WATERMAIN.
10. WATERMAIN MATERIAL:

PVC	
DN150	PVC PN12.5
PE	
OD63	MDPE PE80B PN12 (SDR11)

11. SEE SHEETS 2011-01-560 TO 562 FOR WATERMAIN FITTINGS AT INTERSECTIONS.
12. SEE SHEET 2011-01-590 TO 591 FOR STANDARD DETAILS.

LEGEND

EXISTING

(CR)	PLOTTED FROM COUNCIL RECORDS
32	OD32 GI RIDERMAIN
50	OD50 GI RIDERMAIN
100	DN100 AC WATERMAIN
200	DN200 WATERMAIN
	FIRE HYDRANT
	SLUICE VALVE
	PEET VALVE
	BLANK CAP

PROPOSED

63 PE	OD63 PE RIDERMAIN
150	DN150 WATERMAIN
FH	FIRE HYDRANT
SV	SLUICE VALVE
PV	PEET VALVE
BC	BLANK CAP (WITH THRUST BLOCK)
W	WATER METER
	WATER CONNECTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

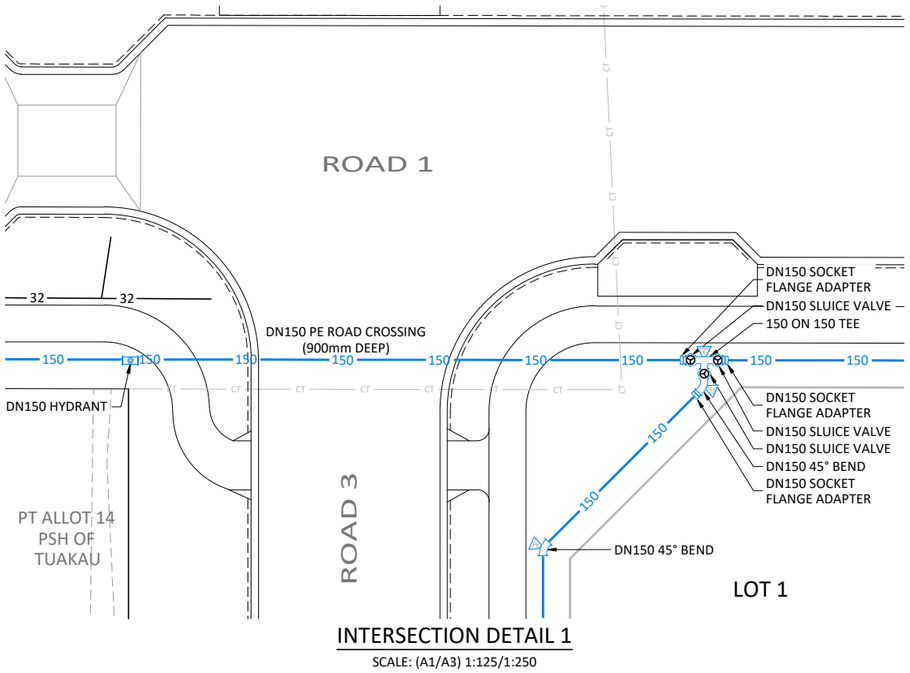
DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

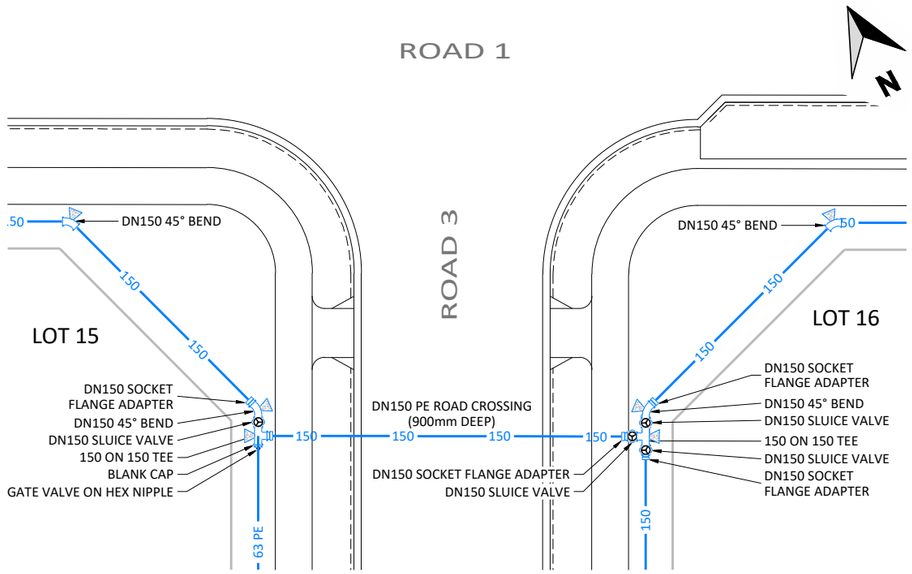
SHEET TITLE:
PROPOSED WATERMAIN PLAN

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:750 / 1:1500
SCALE BAR 1:1500@A3 0 15 30 45 60 75m
DRAWING NUMBER: 2011-01-500 REV: C1



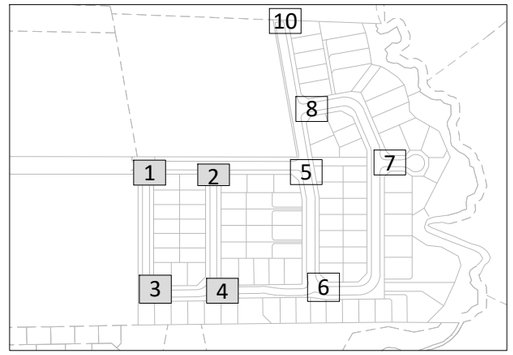
INTERSECTION DETAIL 1

SCALE: (A1/A3) 1:125/1:250



INTERSECTION DETAIL 2

SCALE: (A1/A3) 1:125/1:250



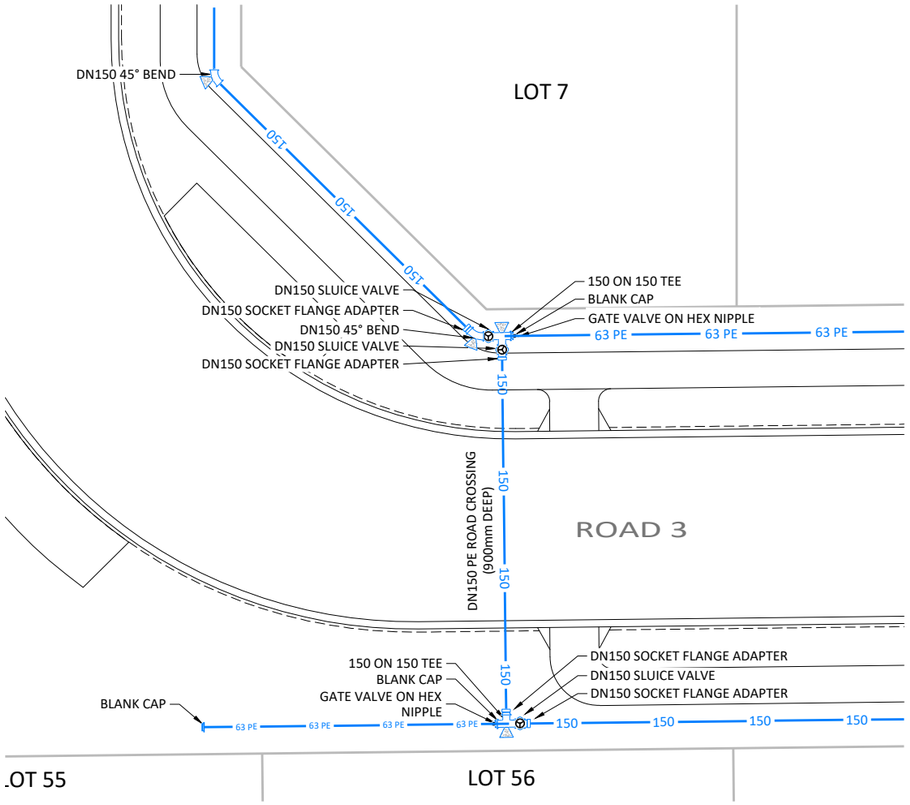
KEYPLAN

NOTES:

1. REFER SHEET 2011-01-500 FOR NOTES.

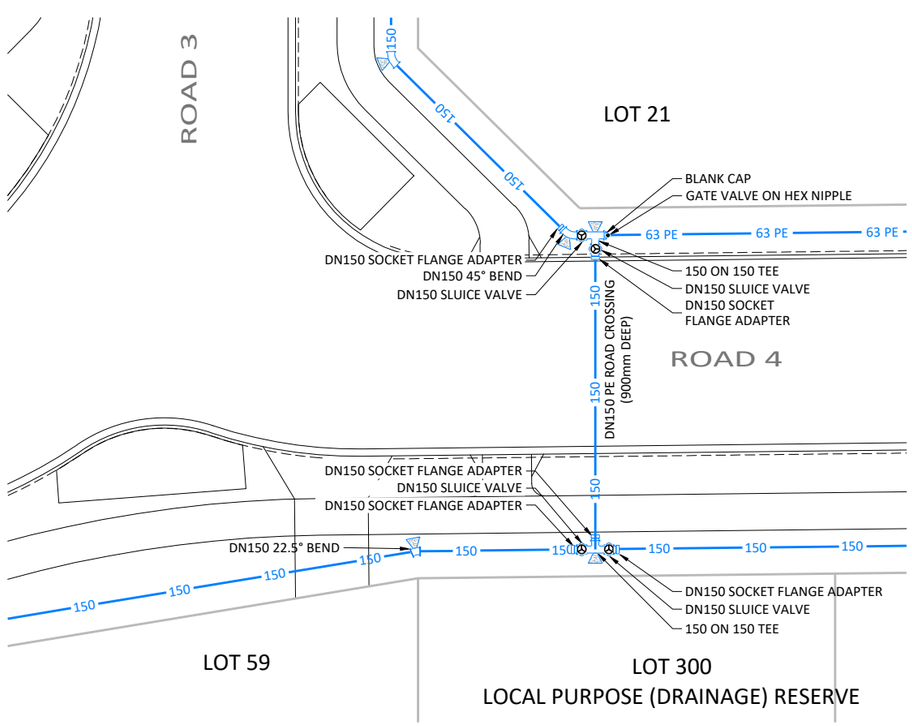
LEGEND

- TEE
- 90° BEND
- 45° BEND
- 22.5° BEND
- 11.25° BEND
- SLUICE OR GATE VALVE
- BLANK CAP
- FIRE HYDRANT
- FLANGE ADAPTER
- ANCHOR BLOCK (ALL BENDS AND TEES)



INTERSECTION DETAIL 3

SCALE: (A1/A3) 1:125/1:250



INTERSECTION DETAIL 4

SCALE: (A1/A3) 1:125/1:250

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

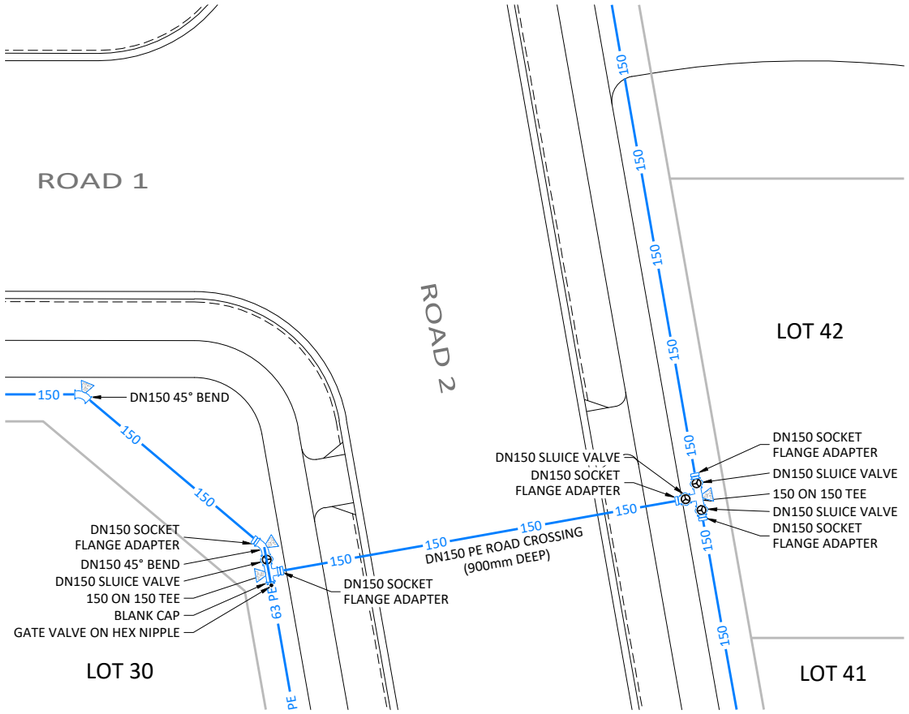
DRAWN: DKP DATE: 10.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

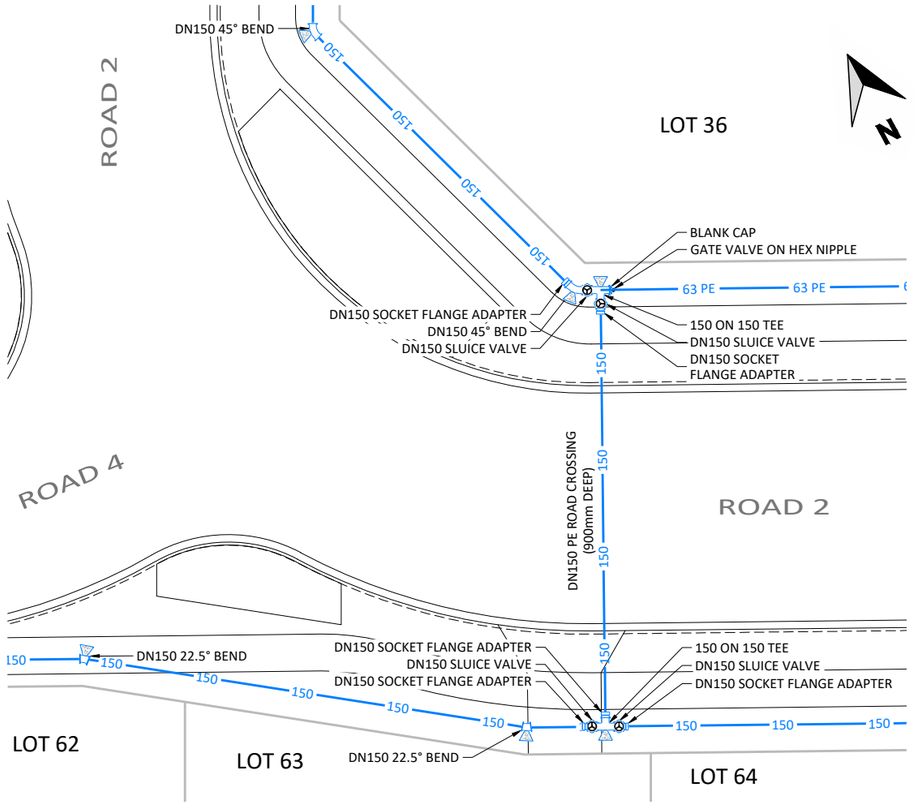
SHEET TITLE:
PROPOSED WATERMAIN
INTERSECTION DETAILS PLAN
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:125 / 1:250
SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m
DRAWING NUMBER: 2011-01-560 REV: C1



INTERSECTION DETAIL 5

SCALE: (A1/A3) 1:125/1:250



INTERSECTION DETAIL 6

SCALE: (A1/A3) 1:125/1:250

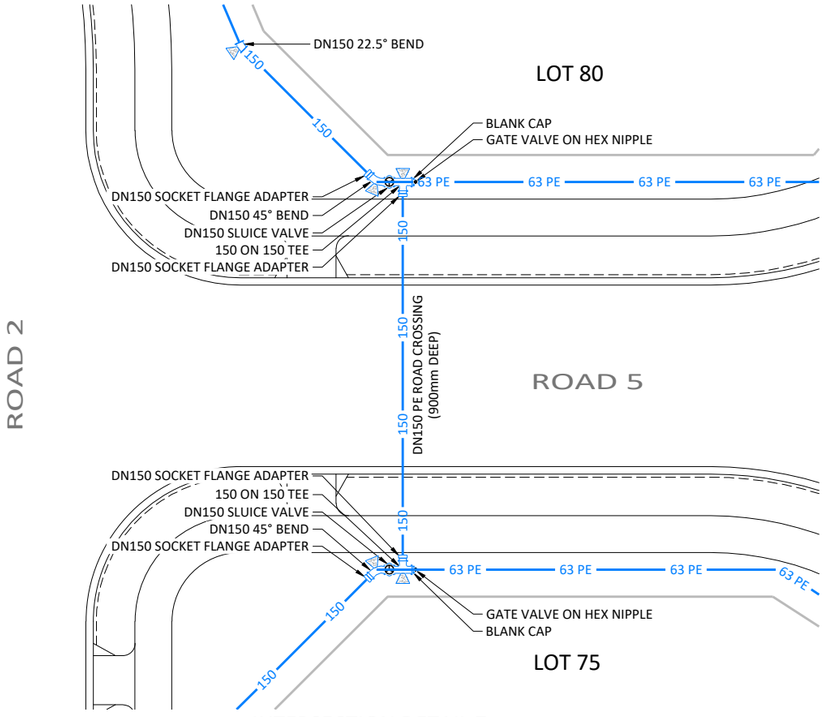
KEYPLAN

NOTES:

1. REFER SHEET 2011-01-500 FOR NOTES.

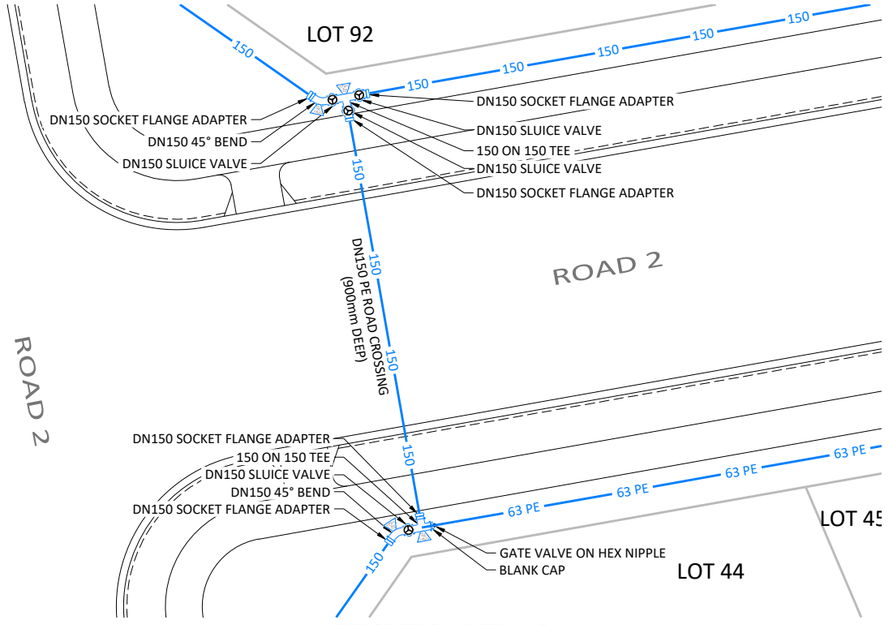
LEGEND

- TEE
- 90° BEND
- 45° BEND
- 22.5° BEND
- 11.25° BEND
- SLUICE OR GATE VALVE
- BLANK CAP
- FIRE HYDRANT
- FLANGE ADAPTER
- ANCHOR BLOCK (ALL BENDS AND TEES)



INTERSECTION DETAIL 7

SCALE: (A1/A3) 1:125/1:250



INTERSECTION DETAIL 8

SCALE: (A1/A3) 1:125/1:250

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: DKP	DATE: 10.2017	
CHECKED: RJP	DATE: 29.03.18	
APPROVED: RJP	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

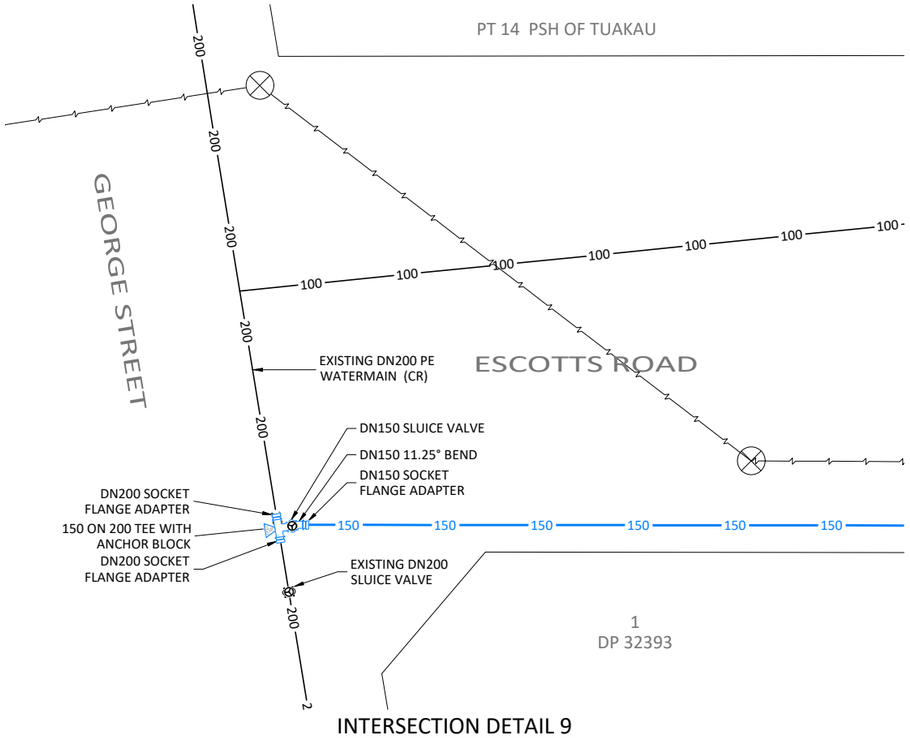
SHEET TITLE:
PROPOSED WATERMAIN
INTERSECTION DETAILS PLAN
SHEET 2

ISSUE STATUS: CONSENT

SCALE: (A1/A3) 1:125 / 1:250

SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m

DRAWING NUMBER: 2011-01-561 REV: C1

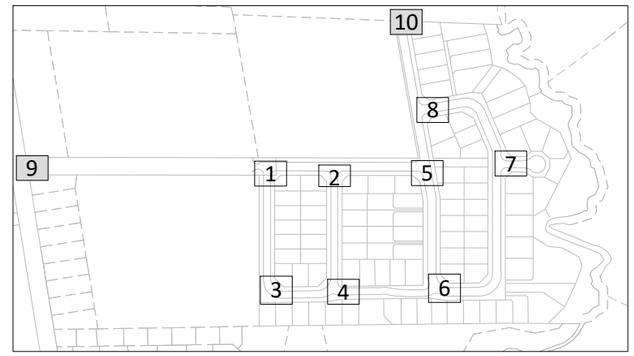


INTERSECTION DETAIL 9

SCALE: (A1/A3) 1:125/1:250

INTERSECTION DETAIL 10

SCALE: (A1/A3) 1:125/1:250



KEYPLAN

NOTES:

1. REFER SHEET 2011-01-500 FOR NOTES.

LEGEND

- TEE
- 90° BEND
- 45° BEND
- 22.5° BEND
- 11.25° BEND
- SLUICE OR GATE VALVE
- BLANK CAP
- FIRE HYDRANT
- FLANGE ADAPTER
- ANCHOR BLOCK (ALL BENDS AND TEES)

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

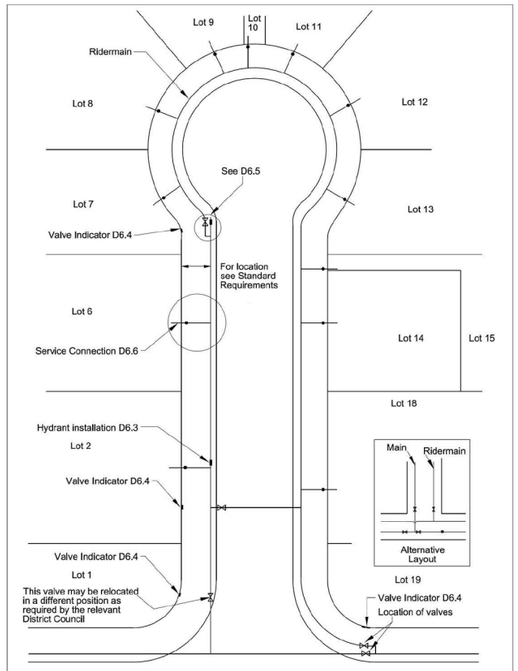
DRAWN: DKP DATE: 10.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
PROPOSED WATERMAIN
INTERSECTION DETAILS PLAN
SHEET 3

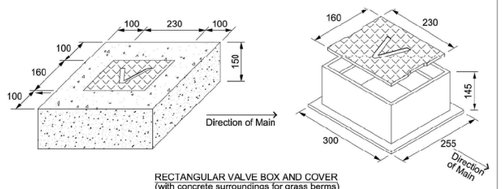
ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:125 / 1:250
SCALE BAR 1:250@A3 0 2.5 5 7.5 10 12.5m
DRAWING NUMBER: 2011-01-562 REV: C1



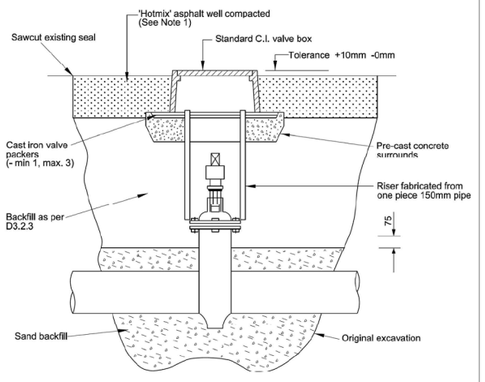
Hamilton City Council

TYPICAL NETWORK LAYOUT D6.1

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: JULY 2016



RECTANGULAR VALVE BOX AND COVER
(with concrete surroundings for grass berms)



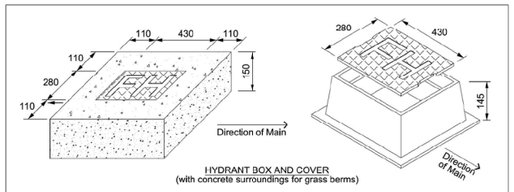
NOTES:

1. In Berm Areas
   a) the TNZ backfill can be replaced with pitsand
   b) the finished surface shall match the surrounding

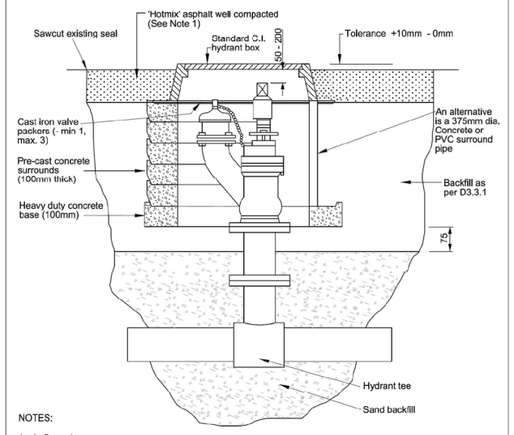
Hamilton City Council

SLUICE VALVE D6.2

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: NOVEMDCR 2012



HYDRANT BOX AND COVER
(with concrete surroundings for grass berms)



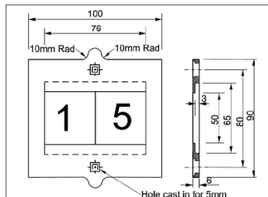
NOTES:

1. In Berm Areas
   a) the TNZ backfill can be replaced with pitsand
   b) the finished surface shall match the surrounding

Hamilton City Council

FIRE HYDRANT D6.3

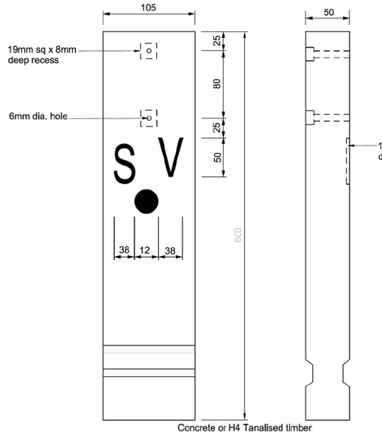
INFRASTRUCTURE TECHNICAL SPECIFICATION Version: NOVEMDCR 2012



VALVE INDICATOR PLATE

NOTES:

1. Number to be shown is distance in decimetres between valve and indicator post.
2. Three 25mm wide numbers to be used for distances over 9.9 metres.
3. Valve plates to be black.
4. Valve plate numerals to be black on white.



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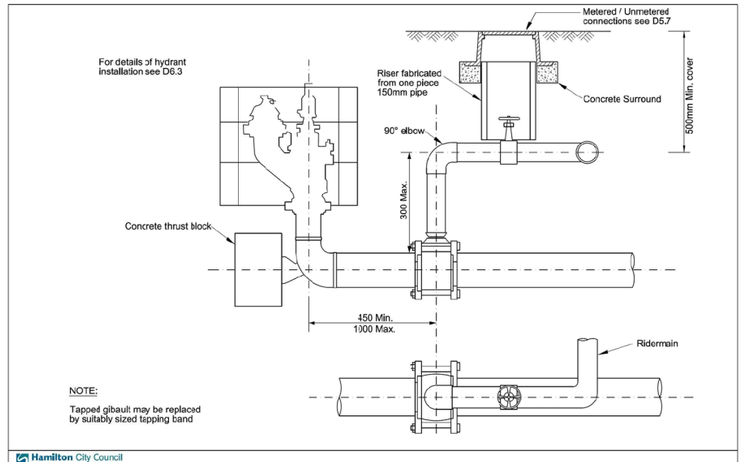
VALVE INDICATOR AND POST DETAILS D6.4

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: NOVEMDCR 2012



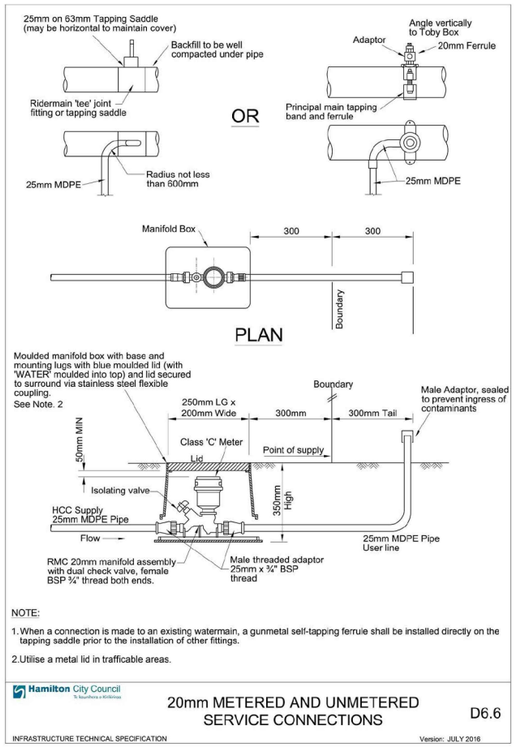
NOTE:

Tapped gibault may be replaced by suitably sized tapping band

Hamilton City Council

RIDERMAIN IN A CUL-DE-SAC D6.5

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: NOVEMBER 2012



NOTE:

1. When a connection is made to an existing watermain, a gunmetal self-tapping ferrule shall be installed directly on the tapping saddle prior to the installation of other fittings.
2. Utilise a metal lid in trafficable areas.

Hamilton City Council

20mm METERED AND UNMETERED SERVICE CONNECTIONS D6.6

INFRASTRUCTURE TECHNICAL SPECIFICATION Version: JULY 2016

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS	DATE: 09.2017	
CHECKED: RJP	DATE: 29.03.18	
APPROVED: RJP	DATE: 03.2018	

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
WATERMAIN STANDARD DETAILS
SHEET 1

ISSUE STATUS: CONSENT
SCALE: (A1/A3) N.T.S.
SCALE BAR NOT TO SCALE
DRAWING NUMBER: 2011-01-590 REV: C1

NOTES:

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL AND UTILITIES ENGINEERING STANDARDS.
2. CHORUS DUCT = GREEN
3. POWER DUCT = RED

LEGEND

UTILITIES PVC DUCT

1 DP 98792

PT 2 DP 46000

1 DP 164972

2 DP 185077

PT ALLOT 14 PSH OF TUAKAU

9 DP 197062

3 DP 192647

2 DP 336418

4 DP 153726

2 DP 156929

ROAD 1

ROAD 2

ROAD 3

ROAD 4

ROAD 5

STAGE 1

STAGE 2

402 LOCAL PURPOSE (ESPLANADE) RESERVE

401 LOCAL PURPOSE (ESPLANADE) RESERVE

400 LOCAL PURPOSE (ESPLANADE) RESERVE

300 LOCAL PURPOSE (DRAINAGE) RESERVE

301 LOCAL PURPOSE (DRAINAGE) RESERVE

1 DN150 (HV POWER) (BY COUNTIES POWER)

2 DN110 (CHORUS) 2 DN110 (COUNTIES POWER)

5 DN110 (COUNTIES POWER)

3 DN110 (COUNTIES POWER)

3 DN150 (HV POWER) (BY COUNTIES POWER)

2 DN150 (HV POWER) (BY COUNTIES POWER)

3 DN110 (CHORUS) 3 DN110 (COUNTIES POWER)

HV CONNECTION TO GRAHAM STREET (BY COUNTIES POWER)

RESOURCE CONSENT
NO:SUB0311/18 LUC0489/18
Approved by Kelly Cattermole

Date:25/06/2018

NOT FOR CONSTRUCTION

REV	REVISION DETAILS	BY	DATE
C1	ISSUED FOR RESOURCE CONSENT AND ENGINEERING APPROVAL	GDS	04.04.18

DRAWN: GDS DATE: 09.2017
CHECKED: RJP DATE: 29.03.18
APPROVED: RJP DATE: 03.2018

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
DUCTING - ROAD CROSSING PLAN

ISSUE STATUS: CONSENT
SCALE: (A1/A3) 1:750 / 1:1500
SCALE BAR 1:1500@A3 0 15 30 45 60 75m
DRAWING NUMBER: 2011-01-600 REV: C1

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

DEVELOPMENT CONTRIBUTIONS NOTICE

Parent Application No: SUB0019/15.01 – Stage 1 & SUB0311/18 (Replacement SUB)

DC Application No: DC0332/18.01 - Stage 1 creates Lots 1-42 & Lots 55-66 (54 Lots), plus Lots 100 & 101 to vest as road and Lot 300 to vest as LPR Drainage. 1 credit applies for DW Community Facilities, DW Roading & Water for the existing CT. There are no credits for Stormwater or Wastewater as these services were not previously available to this property. The original Subdivision was assessed under the 2012 DC Policy

Applicant: Hughes Developments Limited
PO Box 848
Christchurch 8140

Property: 99 Escotts Road TUAKAU

Date of Assessment: 26 June 2018

Development contributions are required to be paid for this development. The development contributions (GST inclusive) set out below were calculated under Waikato District Council's 2012 Development Contribution Policy. This is the policy in place at the time the consent application was lodged.

The total development contributions assessed for this consent is $1,230,566.00.

The table below indicates when the development contributions are due to be paid and what action Council will take if they are not paid.

Application type	**Development contributions are due**	**Council action if development contributions not paid as set out in section 208 of the Local Government Act 2002**
Subdivision consent	Prior to the issue of the section 224(c)	Withhold certificate under section 224(c) of the Resource Management Act 1991
Landuse consent	Prior to the commencement of consent as defined by section 116 of the Resource Management Act 1991	Prevent the commencement of consent under the Resource Management Act 1991
Building consent	Prior to receiving a Code Compliance Certificate	Withhold Code Compliance Certificate under section 95 of the Building Act 2004
Service connection	Prior to service connection	Withhold service connection to the development

Certificate of Acceptance	Prior to receiving a Certificate of Acceptance for building work	Withhold a Certificate of Acceptance for building work under section 99AA of the Building Act 2004

Development Contribution Calculations

Activity	Catchment	Contribution Assessed
Reserves	Not Applicable	$0.00
Facilities	All Other Areas	$162,233.00
Roading	All Other Areas	$28,355.00
Roads & Transport	Not Applicable	$0.00
Stormwater	Tuakau	$108,162.00
Wastewater	Tuakau	$622,296.00
Water	Tuakau	$309,520.00
Total Development Contributions Payable		**$1,230,566.00**

Other Contributions Required:

Activity	Catchment	Contribution Assessed
Total Other Contributions Payable		$ 0.00

Development contributions are required to be paid (GST inclusive) for this development in accordance with Waikato District Council's Development Contributions Policy and the Local Government Act 2002.

The development contributions payable are based on the Development Contributions Policy prevailing at the time the consent application was lodged with Council.

The fees and charges required to be paid will be adjusted annually on the 1 July until they are paid. Annual adjustments are made using the Producers Price Index Outputs for Construction provided by Statistics New Zealand in accordance with the Local Government Act 2002.

To avoid potential annual increases, payment can be made earlier than the due date.

Reconsiderations;

A request for a reconsideration of the development contributions assessed can be made to Council. A reconsideration request will only be considered if there are grounds to believe that:

- The development contribution levies were incorrectly calculated/assessed in accordance with the development contributions policy, or
- The Council has incorrectly applied its development contributions policy, or
- The information used to assess the application, or the way in which the Council has recorded or used it when requiring a development contribution, is incomplete or contained errors.

A reconsideration will only be undertaken on request.

A reconsideration request must be made **within 10 days of receiving this notice**.

Requests must provide the reference number of the relevant consent, be short and concise, but fully outline the reasons why reconsideration is being sought and provide sufficiently reliable data to enable a revised estimate of demand and associated development contribution charges to be made.

Requests can be lodged with the Council in the following ways:

- By email at: DCReviewCommittee@waidc.govt.nz
  With the subject line "request for reconsideration" and the reference number of the relevant consent.
- By writing to Council at the following address:
  Attention: DC Review Committee
  Waikato District Council
  Private Bag 544
  Ngaruawahia 3742

Council's Development Contributions Policy contains information on remissions, reconsiderations, objections, refunds, postponement of payments and other relevant information. To view this policy visit

https://www.waikatodistrict.govt.nz/your-council/fees-and-charges/development-contributions

A link to the Local Government Act 2002 and its various amendments can be found below

http://www.legislation.govt.nz/act/public/2002/0084/latest/DLM170873.html

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

DEVELOPMENT CONTRIBUTIONS NOTICE

Parent Application No: SUB0019/15.01 – Stage 2 & SUB0311/18 (Replacement SUB)

DC Application No: DC0332/18.02 - Stage 2 creates Lots 43-54 and 67-93 (39 Lots) plus Lot 102 to vest as Road, 200-202 to vest as LPR Access way, 301 LPR Drainage, Lots 400-402 LPR Esplanade and Lot 500 JOAL

Applicant: Hughes Developments Limited
PO Box 848
Christchurch 8140

Property: 99 Escotts Road TUAKAU

Date of Assessment: 26 June 2018

Development contributions are required to be paid for this development. The development contributions (GST inclusive) set out below were calculated under Waikato District Council's 2012 Development Contribution Policy. This is the policy in place at the time the consent application was lodged.

The total development contributions assessed for this consent is $788,115.00.

The table below indicates when the development contributions are due to be paid and what action Council will take if they are not paid.

Application type	**Development contributions are due**	**Council action if development contributions not paid as set out in section 208 of the Local Government Act 2002**
Subdivision consent	Prior to the issue of the section 224(c)	Withhold certificate under section 224(c) of the Resource Management Act 1991
Landuse consent	Prior to the commencement of consent as defined by section 116 of the Resource Management Act 1991	Prevent the commencement of consent under the Resource Management Act 1991
Building consent	Prior to receiving a Code Compliance Certificate	Withhold Code Compliance Certificate under section 95 of the Building Act 2004
Service connection	Prior to service connection	Withhold service connection to the development
Certificate of Acceptance	Prior to receiving a Certificate of Acceptance for building work	Withhold a Certificate of Acceptance for building work under section 99AA of the Building Act 2004

Development Contribution Calculations

Activity	Catchment	Contribution Assessed
Reserves	Not Applicable	$0.00
Facilities	All Other Areas	$11,937.00
Roading	All Other Areas	$20,865.00
Roads & Transport	Not Applicable	$0.00
Stormwater	Tuakau	$78,117.00
Wastewater	Tuakau	$449,436.00
Water	Tuakau	$227,760.00
Total Development Contributions Payable		**$788,115.00**

Other Contributions Required:

Activity	Catchment	Contribution Assessed
Total Other Contributions Payable		$ 0.00

Development contributions are required to be paid (GST inclusive) for this development in accordance with Waikato District Council's Development Contributions Policy and the Local Government Act 2002.

The development contributions payable are based on the Development Contributions Policy prevailing at the time the consent application was lodged with Council.

The fees and charges required to be paid will be adjusted annually on the 1 July until they are paid. Annual adjustments are made using the Producers Price Index Outputs for Construction provided by Statistics New Zealand in accordance with the Local Government Act 2002.

To avoid potential annual increases, payment can be made earlier than the due date.

Reconsiderations;

A request for a reconsideration of the development contributions assessed can be made to Council. A reconsideration request will only be considered if there are grounds to believe that:

- The development contribution levies were incorrectly calculated/assessed in accordance with the development contributions policy, or
- The Council has incorrectly applied its development contributions policy, or
- The information used to assess the application, or the way in which the Council has recorded or used it when requiring a development contribution, is incomplete or contained errors.

A reconsideration will only be undertaken on request.

A reconsideration request must be made **within 10 days of receiving this notice**.

Requests must provide the reference number of the relevant consent, be short and concise, but fully outline the reasons why reconsideration is being sought and provide sufficiently reliable data to enable a revised estimate of demand and associated development contribution charges to be made.

Requests can be lodged with the Council in the following ways:

- By email at: DCReviewCommittee@waidc.govt.nz
  With the subject line "request for reconsideration" and the reference number of the relevant consent.
- By writing to Council at the following address:
  Attention: DC Review Committee
  Waikato District Council
  Private Bag 544
  Ngaruawahia 3742

Council's Development Contributions Policy contains information on remissions, reconsiderations, objections, refunds, postponement of payments and other relevant information. To view this policy visit

https://www.waikatodistrict.govt.nz/your-council/fees-and-charges/development-contributions

A link to the Local Government Act 2002 and its various amendments can be found below

http://www.legislation.govt.nz/act/public/2002/0084/latest/DLM170873.html

Resource Consent

(Resource Management Act 1991)

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

www.waikatodistrict.govt.nz

DECISION ON APPLICATION: LUC0489/18

Pursuant to Sections 34A(1), Section 104, 104B and 108 of the Resource Management Act 1991, the Waikato District Council, under delegated authority, grants land use consent for a Discretionary Activity to

Activity:	Earthworks in the Rural-Residential zone which exceed the maximum volume, area, cut/fill heights including exceeding the earthworks within 10m of a stream and for the deposition of cleanfill exceeding the maximum volume.
Applicant:	Hughes Developments Limited
Location Address:	99 Escotts Road Tuakau
Legal Description:	Lot 1 DP 169701 comprised in Computer Freehold Register SA102A/293

This consent is subject to the conditions detailed in the attached Schedule 3.

The reasons for this decision are detailed in the attached Schedule 4.

J. Wyg

CONSENTS TEAM LEADER

Dated: 25 June 2018

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

Schedule 3

Conditions of Consent

Resource Consent No: LUC0489/18

General Conditions

1 The development shall be undertaken in general accordance with the information and plans submitted by the Consent Holder in support of application number LUC0489/18 and officially received by Council on the 4th of April 2018 and additional information received on the 2nd of May 2018 except as amended by the conditions below. Copies of the approved plans are attached. In the case of inconsistency between the application and the conditions of this consent, the conditions of consent shall prevail.

2 Pursuant to Section 36 of the Resource Management Act 1991 the Consent Holder shall pay the actual and reasonable costs incurred by the Waikato District Council when monitoring the conditions of this consent.

3 The maximum amount of earthworks shall be no more than 34,000m^3 and the maximum volume of cleanfill deposition shall be 6,000m^3 over an 8.9 Ha area and maximum cut/fill height of 4.5m. In addition, the maximum earthworks volume within 10m of the stream shall be 950m^3 over a 2,900m^2 area.

4 The Consent Holder shall ensure that all fill imported to the site meets the following definition of cleanfill.

Cleanfill means any material that has no potential or actual ability to adversely affect the environment. This material should be of a natural origin such as clay, rock and soil, and other material, such as clean concrete, brick and demolition products that are free of combustible and organic materials, substantially free of voids, and not subject to biological breakdown.

5 All construction work on the site shall be designed and conducted to ensure that construction noise from the site does not exceed the noise limits in the following table. Sound levels shall be measured and assessed in accordance with the provisions of NZS 6803:1999 Acoustics – Construction Noise.

Time	Weekdays (dBA)		Saturdays (dBA)	
	L_{eq}	L_{max}	L_{eq}	L_{max}
0700 - 0730	55	75	45	75
0730 - 1800	70	85	70	85

6 Hours of operation (including start up of machinery) is restricted to the following:

- Monday to Friday: 7am to 6pm
- Saturday: 7am to 1pm
- and at no time on Sundays or Public Holidays

Prior to Works

7 Prior to importing any cleanfill to the site, the Consent Holder shall submit a Cleanfill Management Plan to the Waikato District Council.

The Cleanfill Management Plan shall be designed to ensure that the management of the cleanfilling activities on site is undertaken in accordance with the conditions of this consent and shall set out the practices and procedures to be adopted in order to minimise the adverse effects arising from the cleanfilling activities.

The Cleanfill Management Plan shall be to the satisfaction of Waikato District Council's Team Leader: Monitoring.

The Cleanfill Management Plan shall be in accordance with 'A Guideline to the Management of Cleanfills (2002)' or any document that supersedes this document prepared by the Ministry for the Environment.

The Cleanfill Management Plan shall include at a minimum, the following:

(i) Details of the operational procedures and monitoring that will be implemented to prevent unauthorised or contaminated material from entering the site. This shall include procedures that:
  (a) Include a list of all material to be accepted in the cleanfill;
  (b) Identify the source location (property address) of cleanfill imported to the site including identification of land uses carried out at the source location; and
  (c) Ensure that fill from source locations associated with land use activities that appear on the Ministry for Environment 'Hazardous Activities and Industries List' is not brought onto the site unless investigated in accordance with the Ministry for Environment 'Contaminated Land Management Guidelines' and shown not to be contaminated.
  (d) Ensure that no material is accepted into the site where drilling fluids have been used during excavation of such material

(ii) Procedures to record the name and address of contractors dumping the fill on the site;

(iii) Detail how rejected material will be stored pending disposal to an authorised landfill, including likely authorised landfill and the period of time the rejected material will be stored pending removal;

(iv) Construction procedures to ensure the long term stability of cleanfill areas;

(v) A testing regime in accordance with the recommendations of Ministry for the Environment's 'A Guide to the Management of Cleanfills, 2002' and with the requirements of the Regional Council consent for the cleanfilling operation

(vi) Cleanfill loads inspection and checklist formats;

(vii) Maintenance, monitoring and inspection procedures;
(viii) Incident section relating to the recording and auctioning of complaints
(ix) Contingency and mitigation measures;

8 Prior to commencing any engineering design or construction works, the Consent Holder shall appoint appropriately qualified and competent **Developer's Representative/s**, acceptable to Waikato District Council, to provide all designs, supervision, certification and final signoff, in accordance with the requirements of the Hamilton Infrastructure Technical Specifications (ITS).

Advice Note:
The ITS can be found under the following link: http://www.hamilton.govt.nz/our-council/council-publications/manuals/Pages/Proposed-Infrastructure-Technical-Specifications.aspx

It is recommended that the Consent Holder and Developer's Representative/s read and understand the ITS prior to commencement of engineering design or physical works.

9 The consent holder shall notify Waikato District Council's Team Leader-Monitoring, in writing, of their intention to begin works prior to commencing works. Such notification shall include the following details:

(a) Name/s and telephone number/s of the accepted **Developer's Representative/s**.

(b) Site address to which the consent relates.

(c) Works intended to be undertaken.

(d) Expected duration of works.

Advice note
To notify Waikato District Council Monitoring Department, email monitoring@waidc.govt.nz with the consent number, address of property and date for when the works will commence.

10 Prior to undertaking any soil disturbing activities, the Consent Holder shall install erosion and sediment control measures in accordance with the Waikato Regional Council's Erosion and Sediment Control Guidelines for Soil Disturbing Activities: January 2009. Once the earthworks are complete, the Consent Holder shall ensure that, as soon as possible, and within a maximum of 1 month, the areas where soil disturbing activities were undertaken are revegetated (or by other approved means) to achieve a minimum 80% coverage.

Erosion and sediment controls shall be maintained and remain in place until (at least) the minimum required cover is achieved, and may only be removed once the Waikato District Council's Team Leader-Monitoring is satisfied that the risk from erosion and instability has been reduced to a less than minor risk and has provided approval in writing.

During Works

11 All earthworks activities carried out on site shall be conducted and managed in accordance with the Dust Management Plan prepared by CivilPlan Consultants Limited unless otherwise required through the conditions of this resource consent or those of any regional council consent for the proposed earthworks.

12 During earthworks, the site shall be managed in such a way that dust emissions do not cause an objectionable effect beyond the boundaries of the site to the satisfaction of Waikato District Council's Team Leader Monitoring.

Advice Note:
For the purposes of this condition, the Waikato District Council Monitoring Department will consider an effect that is objectionable or offensive to have occurred if any appropriately experienced officer of the Waikato District Council determines so after having regard to:

- The frequency, intensity, duration, location and effect of dust emission(s); and/or,
- Receipt of complaints from neighbours or the public; and/or,
- Where relevant written advice from an experienced officer of the Waikato Regional Council or the Waikato District Health Board has been received.

13 If so required by the Waikato District Council, the consent holder shall carry out immediate sealing of any problematic dust generating surfaces within the site using hydro-seed/hydro-mulch (or similar paper maché based product), polymer soil stabilisers or a similar dust control product to provide instant remediation of dust effects to the satisfaction of the Waikato District Council.

14 Management of the earthworks shall be in general accordance with the application document and appendices provided, unless otherwise agreed, in writing with Waikato District Council's Team Leader-Monitoring.

15 The site shall be stabilised against erosion as soon as practicable and in a progressive manner as earthworks are finished over various areas of the site. Appropriate methods of site stabilisation may include re-spreading of topsoil and grassing, hay mulching or placement of aggregate surfaces (roads/building platforms). The consent holder shall monitor and maintain the site until stabilisation is achieved to such an extent that it prevents erosion and prevents sediment from entering any watercourse.

Complaints

16 If any complaints are received by the consent holder regarding the activities authorised by this consent, the consent holder shall notify the Waikato District Council's Team Leader-Monitoring of those complaints as soon as practicable and no longer than one working day. When/if complaints are received; the consent holder shall record the following details in a Complaints Log:

i. Time and type of complaint, including details of the incident, e.g. duration, any effects noted;
ii. Name, address and contact phone number of the complainant (if provided);
iii. Location from which the complaint arose;
iv. The weather conditions and wind direction at the time of any dust or noise complaint;

v. The likely cause of the complaint;
vi. The response made by the consent holder including any corrective action undertaken by the consent holder in response to the complaint; and
vii. Future actions proposed as a result of the complaint.

The register shall be available to the Waikato District Council at all reasonable times. Complaints received by the consent holder that may indicate non-compliance with the conditions of this resource consent shall be forwarded to the Waikato District Council's Team Leader-Monitoring in writing within 24 hours of the complaint being received.

Advisory Notes

1 Lapse Date

This Resource Consent for land use lapses five years after the commencement of the consent, unless:

(a) the Consent is given effect to prior to that date.

or

(b) an application is made to the consent authority to extend the period after which the consent lapses, and the consent authority decides to grant an extension after taking into account

(i) whether substantial progress or effort has been, and continues to be, made towards giving effect to the consent; and

(ii) whether the applicant has obtained approval from persons who may be adversely affected by the granting of an extension; and

(iii) the effect of the extension on the policies and objectives of any plan or proposed plan.

2 Other consents/permits may be required

To avoid doubt; except as otherwise allowed by this resource consent, all land uses must comply all remaining standards and terms of the relevant Waikato District Plan. The proposal must also comply with the Building Act 2004, Hamilton City Council Infrastructure Technical Specifications and Waikato Regional Plans. All necessary consents and permits shall be obtained prior to development.

3 Health and Safety at Work (Asbestos) Regulations 2016

Regulation 21 of the Asbestos Regulations 2016 requires that asbestos must be identified and removed before demolition of a structure or plant.

Regulation 34(1) of the Asbestos Regulations 2016 Notification requires that notification be made to WorkSafe New Zealand at least 5 days before work commences. Under Regulation 34(2), there are circumstances where licensed asbestos removal work can begin immediately.

The form for notification of licensed asbestos removal can be found at: http://forms.worksafe.govt.nz/asbestos-removal-notification.

All material containing asbestos and any affected soil shall be disposed of at a suitably licensed facility.

In addition to contacting Work Safe New Zealand, it is requested that you also contact Council's Monitoring Department at monitoring@waidc.govt.nz with the consent number, address of property and date of when works ceased.

4 Archaeological sites may be **affected** by the proposal

It is possible that archaeological sites may be affected by the proposed work. Evidence of archaeological sites may include burnt and fire cracked stones, charcoal, rubbish heaps including shell, bone and/or glass and crockery, ditches, banks, pits, old building foundations, artefacts of Maori and European origin or human burials.

The applicant is advised to immediately stop work and contact Heritage New Zealand Pouhere Taonga if the presence of an archaeological site is suspected. Work affecting archaeological sites is subject to a consenting process under the Heritage New Zealand Pouhere Taonga Act 2014. If any activity associated with this proposal, such as earthworks, fencing or landscaping, may modify or destroy any archaeological site(s), an authority (consent) from Heritage New Zealand Pouhere Taonga must be obtained for the work to proceed lawfully. The Heritage New Zealand Pouhere Taonga Act 2014 contains penalties for unauthorised site damage.

In addition to contacting Heritage New Zealand Pouhere Taonga, it is requested that you also contact Council's Monitoring Department at monitoring@waidc.govt.nz with the consent number, address of property and date of when works ceased.

5 Enforcement Action

Failure to comply with the conditions of consent may result in Council taking legal action under the provisions of Part 12 of the Resource Management Act (1991).

Debris

6 The consent holder should take all practical measures to ensure that any debris tracking/ spillage onto any public roads as a result of the exercise of this consent shall be removed as soon as practical, and within a maximum of 24 hours after the occurrence, or as otherwise directed by the Waikato District Council's Roading Area Engineer, to the satisfaction of the Waikato District Council's Team Leader-Monitoring.

The consent holder, upon becoming aware of the need to clean up the roadway, shall advise Waikato District Council's Roading Area Engineer of the need for the road to be cleaned up, and what actions are being taken to do so.

The cost of the cleanup of the roadway and associated drainage facilities, together with all temporary traffic control, should be the responsibility of the consent holder.

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

Schedule 4

Reasons for Decision

Resource Consent No: LUC0489/18

1 The actual and potential effects created by the proposal are acceptable because:

- The applicant proposes to undertake the earthworks between the hours of 7am to 6pm Monday to Friday and limited hours during Saturday with no works on Sundays or Public Holidays.
- The future development of the land is anticipated by the District Plan zoning for the area and as such any effects in this regard are considered to be in keeping with those effects anticipated by the District Plan.
- Council's Senior Land Development Engineer, Chris Gatehouse and Council's Intermediate Land Development Engineer, James Templeton, have assessed the application and have raised no issues with the dust controls that have been proposed by the applicant as a part of the DMP.
- Conditions of consent will ensure that earthworks only occur during these times and days and that noise restrictions in terms of NZS 6803:1999 Acoustics – Construction Noise are not exceeded
- The works are for a relatively short duration. Council's Senior Land Development Engineer, Chris Gatehouse & Council's Intermediate Land Development Engineer, James Templeton, has assessed the application and has raised no issues with the traffic movements proposed.

2 The proposal is consistent with the objectives and policies of the District Planning documents.

3 The proposal is consistent with the operative Waikato Regional Policy Statement, and all other relevant matters.

4 Overall the proposal meets the purpose (section 5) and principles (sections 6-8) of the Resource Management Act 1991.

Resource Consent

(Resource Management Act 1991)

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

www.waikatodistrict.govt.nz

DECISION ON APPLICATION: LUC0009/19

Pursuant to Sections 34A(1), Section 104, 104B and 108 of the Resource Management Act 1991, the Waikato District Council, under delegated authority, grants land use consent for a Discretionary activity:

Activity:	To enable buildings with site coverage of up to 40%, over the 93 lots (Lots 1-93) to be created by SUB0311/18.
Applicant:	Hughes Developments Limited
Location Address:	99 Escotts Road, Tuakau
Legal Description:	Lot 1 DP 169701 comprised in Computer Freehold Register SA102A/293 and future lots 1-93 created by SUB0311/18

This consent is subject to the conditions detailed in the attached Schedule 1.

The reasons for this decision are detailed in the attached Schedule 2.

CONSENTS TEAM LEADER

Dated: 12 July 2018

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

Schedule 1

Conditions of Consent

Resource Consent No: LUC0009/19

General Conditions

1 The development shall be undertaken in general accordance with the information and plans submitted by the Consent Holder in support of application number LUC0009/19 and officially received by Council on the 6th of July 2018 except as amended by the conditions below. Copies of the approved plans are attached. In the case of inconsistency between the application and the conditions of this consent, the conditions of consent shall prevail

2 Pursuant to Section 36 of the Resource Management Act 1991 the Consent Holder shall pay the actual and reasonable costs incurred by the Waikato District Council when monitoring the conditions of this consent.

3 The maximum building coverage shall be:

Lot	Building Coverage (%)	Lot	Building Coverage (%)	Lot	Building Coverage (%)	Lot	Building Coverage (%)
1	40%	26	40%	51	40%	76	40%
2	40%	27	40%	52	40%	77	40%
3	40%	28	40%	53	40%	78	40%
4	40%	29	40%	54	40%	79	40%
5	40%	30	40%	55	40%	80	40%
6	40%	31	40%	56	40%	81	40%
7	40%	32	40%	57	40%	82	40%
8	40%	33	40%	58	40%	83	40%
9	40%	34	40%	59	40%	84	40%
10	40%	35	40%	60	40%	85	40%
11	40%	36	40%	61	40%	86	40%
12	40%	37	40%	62	40%	87	40%
13	40%	38	40%	63	40%	88	40%
14	40%	39	40%	64	40%	89	40%
15	40%	40	40%	65	40%	90	40%
16	40%	41	40%	66	40%	91	40%
17	40%	42	40%	67	40%	92	40%
18	40%	43	40%	68	40%	93	40%
19	40%	44	40%	69	40%		
20	40%	45	40%	70	40%		
21	40%	46	40%	71	40%		
22	40%	47	40%	72	40%		
23	40%	48	40%	73	40%		
24	40%	49	40%	74	40%		

Advisory Notes

1 Lapse Date

This Resource Consent for land use lapses five years after the commencement of the consent, unless:

(a) the Consent is given effect to prior to that date.

or

(b) an application is made to the consent authority to extend the period after which the consent lapses, and the consent authority decides to grant an extension after taking into account

(i) whether substantial progress or effort has been, and continues to be, made towards giving effect to the consent; and

(ii) whether the applicant has obtained approval from persons who may be adversely affected by the granting of an extension; and

(iii) the effect of the extension on the policies and objectives of any plan or proposed plan.

2 Other consents/permits may be required

To avoid doubt; except as otherwise allowed by this resource consent, all land uses must comply all remaining standards and terms of the relevant Waikato District Plan. The proposal must also comply with the Building Act 2004, Hamilton City Council Infrastructure Technical Specifications and Waikato Regional Plans. All necessary consents and permits shall be obtained prior to development.

3 Enforcement Action

Failure to comply with the conditions of consent may result in Council taking legal action under the provisions of Part 12 of the Resource Management Act (1991).

Waikato DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

Schedule 2

Reasons for Decision

Resource Consent No: LUC0009/19

1 The actual and potential effects created by the proposal are acceptable because:

- The proximity of the subject site to the Residential Zone.
- It shall provide residential choice and diversity around Tuakau.
- The service connections for each lot have the capacity for a building which takes up 40% of the lot. Stormwater management across the site has been designed for development/building coverage of this scale.
- 40% building coverage allowance for each lot is a more practicable and efficient use of the sites for residential purposes.
- From this residential density of lots it can be reasonably considered that building coverages should match the new residential character of the site. The construction of buildings on the site that will match the residential density allowed by the subdivision consent will cause visual and functionality changes for the locality, but these effects are considered to be in keeping with the new residential character anticipated for the site.

2 The proposal is consistent with the objectives and policies of the operative District Planning documents.

3 The proposal is consistent with the operative Waikato Regional Policy Statement, and all other relevant matters.

4 Overall the proposal meets the purpose (section 5) and principles (sections 6-8) of the Resource Management Act 1991.

TUAKAU TOWN BOARD

Application for Building Permit

TO THE TOWN CLERK, TUAKAU TOWN BOARD

Valuation No. 258
Receipt No. 2521
Permit No. 350
Date Issued 6/6/51

I, the undersigned, hereby give notice that I wish to carry out the following work subject to the provision of the By-Laws of the Tuakau Town Board, the Municipal Corporations Act, 1933, amendments thereof or any other provisions applicable thereto, and request that a permit be issued for the execution of same.

Section on which work is to be placed .....

Number on Valuation Roll 1/130A/258 Street

Owner Alan F. Escott.

Builder — " —

Class of Work with dimensions

Shifting & renovating an old building 20' × 12'.

Materials to be used in:

Walls (if wood state kind) Pine frame, corr. iron.

Roof Corr. iron. Chimneys —

Number of Chimneys —

Distance of Building from:

Street Line — feet.

Section Boundaries — side feet.

side feet.

Other Buildings 40. feet.

date of Completion ~~4-D.~~ June 51

Estimated Cost, £ 30 Fee Payable, £ — : 5 : —.

Plans and Drawings herewith (Outline plan on back hereof). Receipt No. 2521

Applicant wholly responsible for position of structure in regard to street line.

The Fee payable in respect of this Permit must accompany the application, as no consideration will be given to the application until the fee is paid. Scale of fees is as under:—

When the estimated cost does not exceed

If the cost of the work is under £50			5 0
If the cost exceeds £50 but does not exceed	£100		10 0
If the cost exceeds £100 but does not exceed	£200		15 0
If the cost exceeds £200 but does not exceed	£400		1 0 0
If the cost exceeds £400 but does not exceed	£600		1 5 0
If the cost exceeds £600 but does not exceed	£800		1 10 0
If the cost exceeds £800 but does not exceed	£1500		1 15 0
If the cost exceeds £1500 but does not exceed	£1500		2 0 0
If the cost of the work is £2500 or over			3 0 0

If the event of any difference as to the estimated cost of the work the decision of the Inspector shall be final.

Builder A. F. Escott

Address George St Tuakau

Date 14/5/51

APPLICATION APPROVED

By General Meeting of the Town Board, held on 5/6/51

..... Town Clerk.

NOTE—A scale plan in ink showing street line, section boundaries, and building in outline *must* be supplied.

Building will be adjacent to present residence & approx. 6 ~~chains~~ chains from nearest point of road.

Scale: 1-8th inch= 1 foot
2 feet

PROPOSED BUNGALOW

FOR

Mr WALTER GLASGOW

AT

TUAKAU

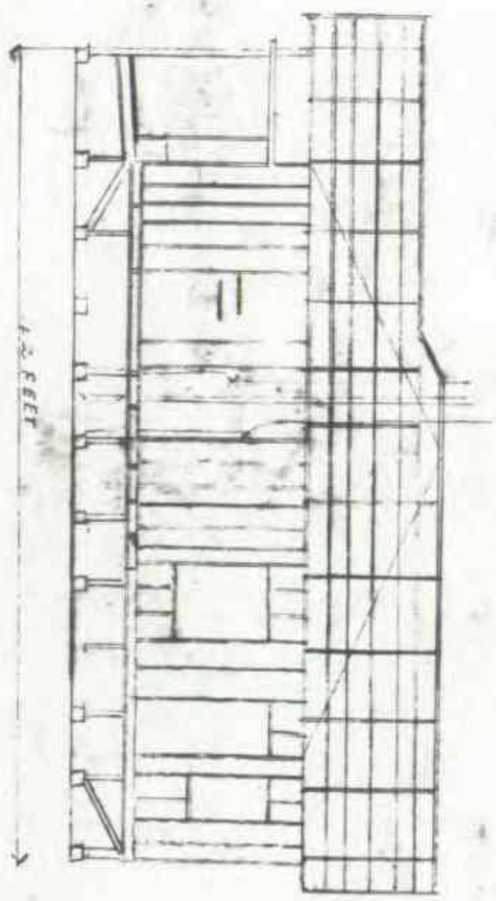
TUAKAU

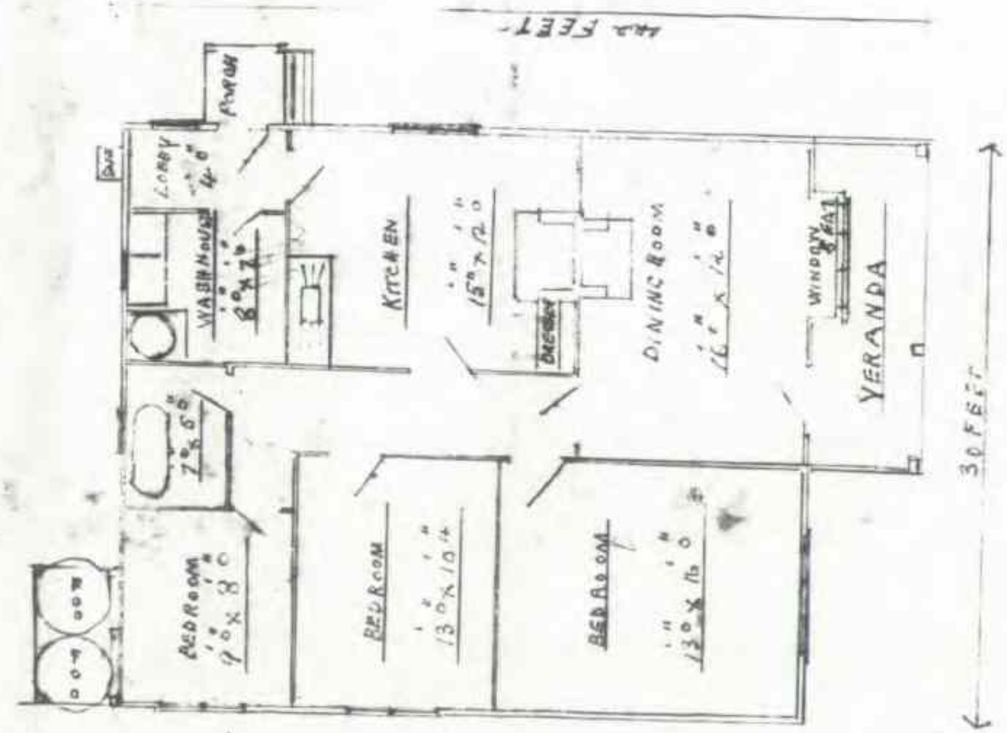
Memo. from

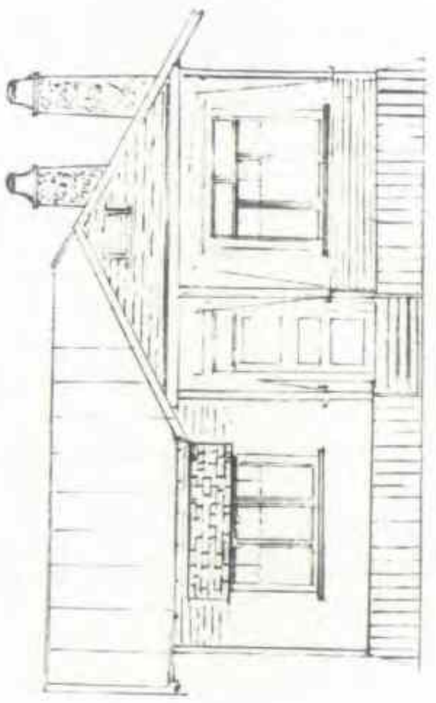
W. Woodbridge & Son

BUILDERS AND CONTRACTORS

DECORATORS IN ALL BRANCHES







FOR OFFICE USE

Application No: 443

Permit No: 006710

Date of Permit: 14/8/86

TUAKAU BOROUGH COUNCIL
APPLICATION FOR BUILDING PERMIT

THE TOWN CLERK,
TUAKAU BOROUGH COUNCIL.

Date: 8/7/86

Dear Sir,

I hereby apply for permission to BUILD WORKERS STAFF AMENITIES
(Nature of Work)

at Escotts Road for J.J.G. BRADLEY / Tuakau Orchard
(House Number & Street) (Owner)

according to locality plan and detailed plans, elevations, cross-sections and specifications of building deposited herewith, in duplicate.

PARTICULARS OF LAND:

Number on Valuation Roll: 368 Lot Number: Lot 1

Section Number: Dp Number: 96281

LENGTH OF BOUNDARIES:

Front: 350.35 E.M. Back: 350.35 E.M.

Sides: 190.25 E.M. Area: 66654.087 m²

PARTICULARS OF BUILDING:

Foundations: 125mm² SQUARE TANA PILES Walls: TIMBER FRAMED/HARDIPLAN

Roof: CORRUGATED STEEL Floor: 20mm H.D. PARTICLE BOARD

Area of Ground Floor: 71.28 m² sq m. Area of Out Buildings: APROX 150m² sq

ESTIMATED VALUE:

Building $ 19,000

Plumbing $ 1,000 x 40%

Drainage $ 1,800 x 60%

FEES:

Building $ 120-00

Plumbing $ 30-00

Drainage $ 33-00

Building Levy $ 22-00

Water Connection $

Footpath Deposit $

Crossing Deposit $

Sewerage Connections $

Stormwater Drainage (Where Applicable) $

TOTAL: $21,800 TOTAL: $207-00.

Arrangements for Stormwater Drainage ...SOAK HOLES:.....

Proposed purposes for which every part of building is to be used or occupied (describing separately each part intended for use or occupation for a separate purpose): FARM WORKERS AMENITIES

Nature of ground on which building is to be placed and of the adjacent strata: 150mm TOP SOIL - CLAY BASE

AP. T.J. Nelson Manage Owner

G.J. OKEEFE Builc

5 SUNNYSIDE RD. Builder's Addre

HAMILTON

FEES PAID	RECEIPT NO.	DATE
Building Permit	7891	14/7/86
Building Levy	"	"
Plumbing & Drainage	"	"
Water Connection	—	
Sewerage Connection	—	
Footpath Damage Deposit	—	
Vehicle Crossing Deposit	—	
Special Duties	—	

PLANS INSPECTED & APPROVED:

BUILDING INSPECTOR: R.G. Mellors ..... ENGINEER: .....

Plans for buildings in the Commercial, Industrial Areas and properties with Town Planning Consent are to be referred to Council for approval.

REFERRED FOR TOWN PLANNING APPROVAL:

TOWN PLANNER: .....COUNCIL: .....

BUILDING PERMIT FEE.

Fees payable on the issue of any Building Permit according to the estimated value of the building work:

ESTIMATED VALUE OF BUILDING WORK			FEE
From $		To $	$
1	—	400	4
401	—	600	6
601	—	800	8
801	—	1,000	10
1,001	—	1,200	12
1,201	—	1,400	14
1,401	—	1,600	16
1,601	—	1,800	18
1,801	—	2,000	20
2,001	—	3,000	25
3,001	—	4,000	30
4,001	—	5,000	35
5,001	—	6,000	40
6,001	—	7,000	45
7,001	—	8,000	50
8,001	—	9,000	55
9,001	—	10,000	60
10,001	—	12,000	70
12,001	—	14,000	80
14,001	—	16,000	90
16,001	—	18,000	100
18,001	—	20,000	110
20,001	—	25,000	125
25,001	—	30,000	140
30,001	—	35,000	155
35,001	—	40,000	170
40,001	—	50,000	185
50,001	—	60,000	200
60,001	—	70,000	215
70,001	—	80,000	230
80,001	—	90,000	245
90,001	—	100,000	260
100,001	—	120,000	275
120,001	—	140,000	290
140,001	—	160,000	305
160,001	—	180,000	320
180,001	—	200,000	335
For each $40,000 in excess of $200,000			15

In any dispute the Engineer shall have the absolute determination of the value of such work.

Fees payable for Special Duties:—

Nature of duty	Fees

PLUMBING & DRAINAGE FEE.

LABOUR ONLY:	$
0-50	5.00
51-100	7.00
101-200	10.00
201-400	15.00
401-600	20.00
601-800	25.00
801-1000	30.00
1001-1200	35.00
1201-1400	39.00
1301-1600	43.00
1601-1800	47.00
1801-2000	51.00

Plus $3.00 for every $200 or part thereof.

When "labour only" figures are not given by the Contractor, these are assessed as 60% of the Drainage and 40% of the Plumbing values.

STORMWATER DRAINAGE FEE

Where disposal is to be made into Council's Stormwater system, an Engineering Inspection Fee to be charged

$5.00

SHEET A

(CIRCLE whichever is applicable)

NAME: ADDRESS:

STOREY: Single or Uppermost
~~Lower of two or middle of three~~
~~Lower of three~~

ROOF TYPE: Light / ~~Heavy~~

ROOF PITCH: 0° – 25° ~~/ 26° – 45°~~

WIND AREA: ~~High~~ / ~~Medium~~ / Low — W $^{9+7}$ = 14 B.U.'s/m

EARTHQUAKE ZONE: ~~A~~ / ~~B~~ / C — E = 2 B.U.'s/m²

ROOF OR BUILDING LENGTH — BL = 9·0 m

ROOF OR BUILDING WIDTH — BW = 7·2 m

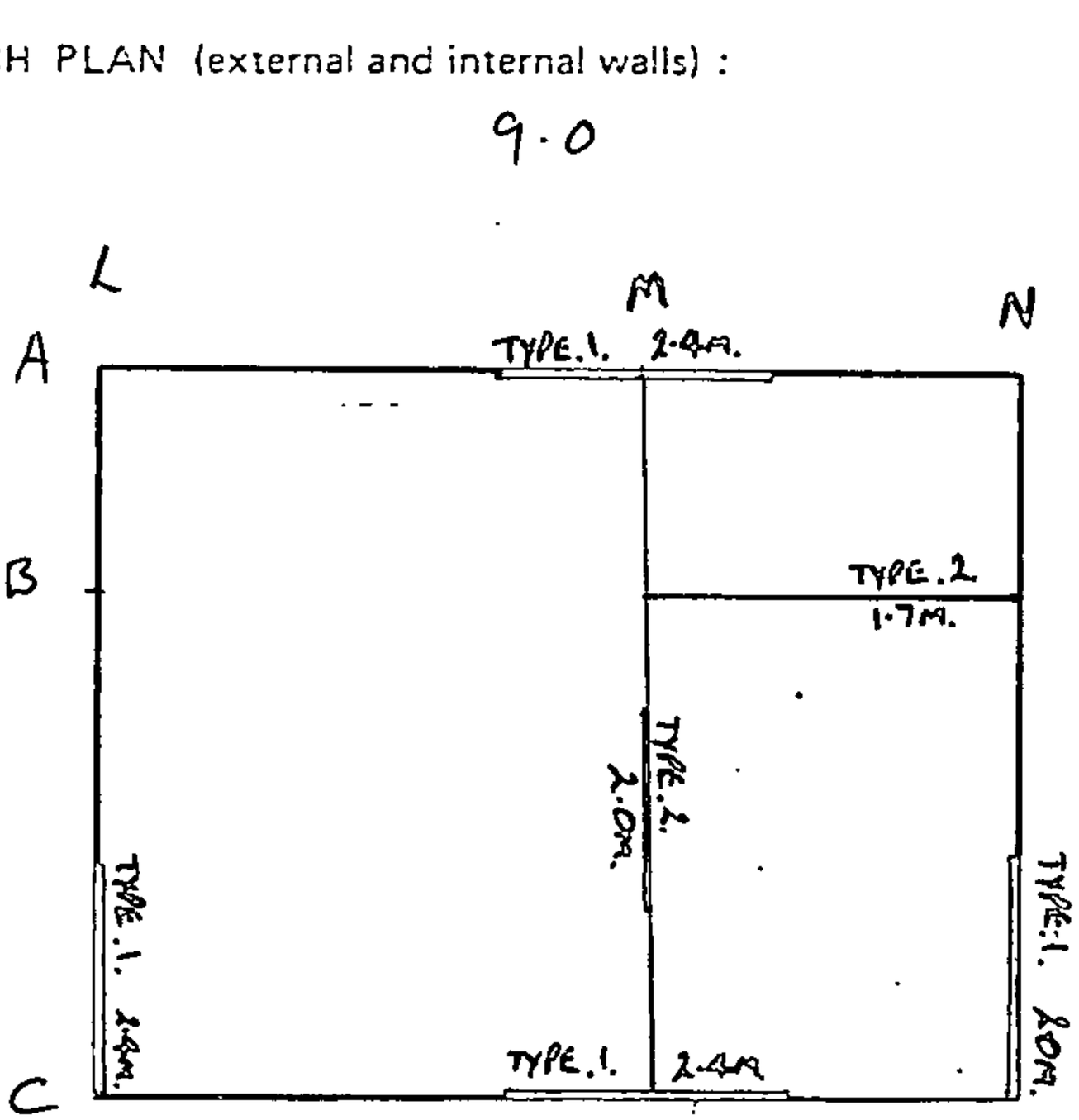
GROSS ROOF OR BUILDING PLAN AREA — GPA = 64·8 m²

EARTHQUAKE: B.U.'s ALONG AND ACROSS — E x GPA = 2 x 64·8 = 129·6

WIND: B.U.'s ALONG — W x BW = 14 x 7·2 = 100·8

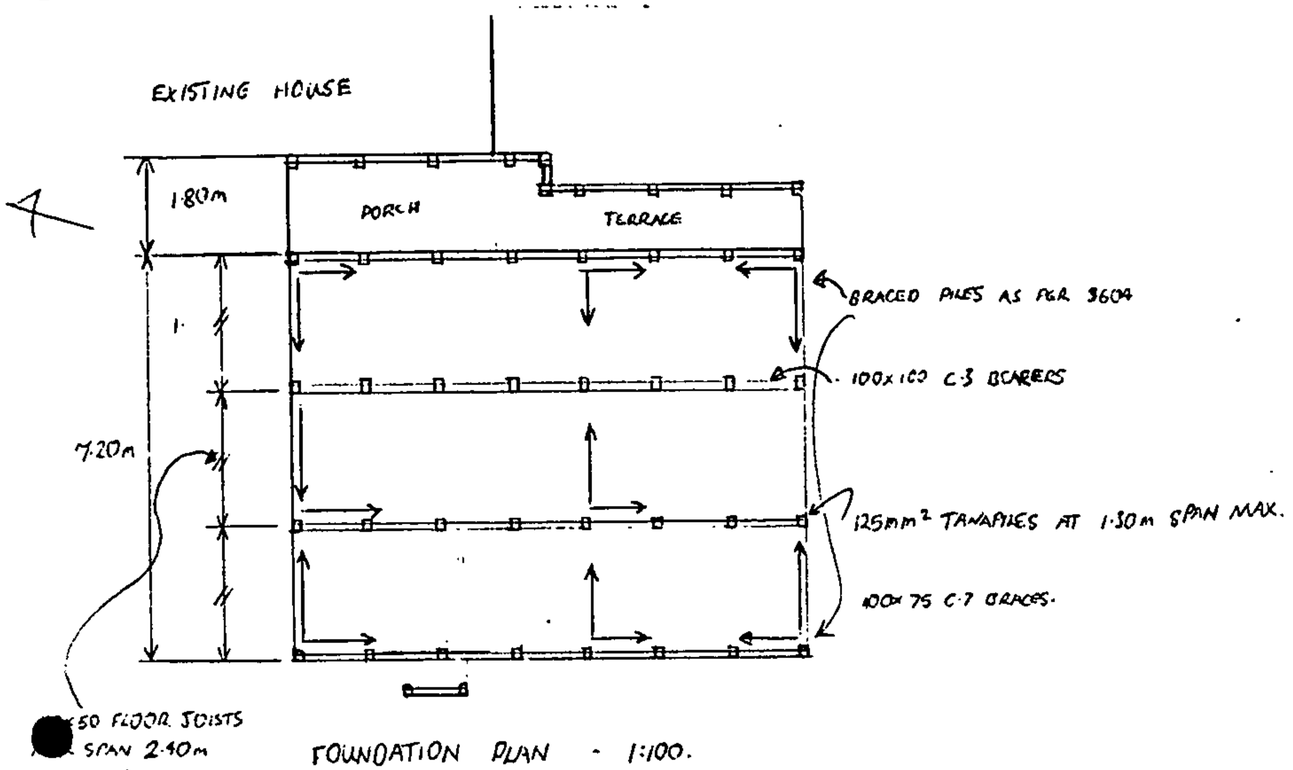
WIND: B.U.'s ACROSS — W x BL = 14 x 9·0 = 126·0

SKETCH PLAN (external and internal walls) :

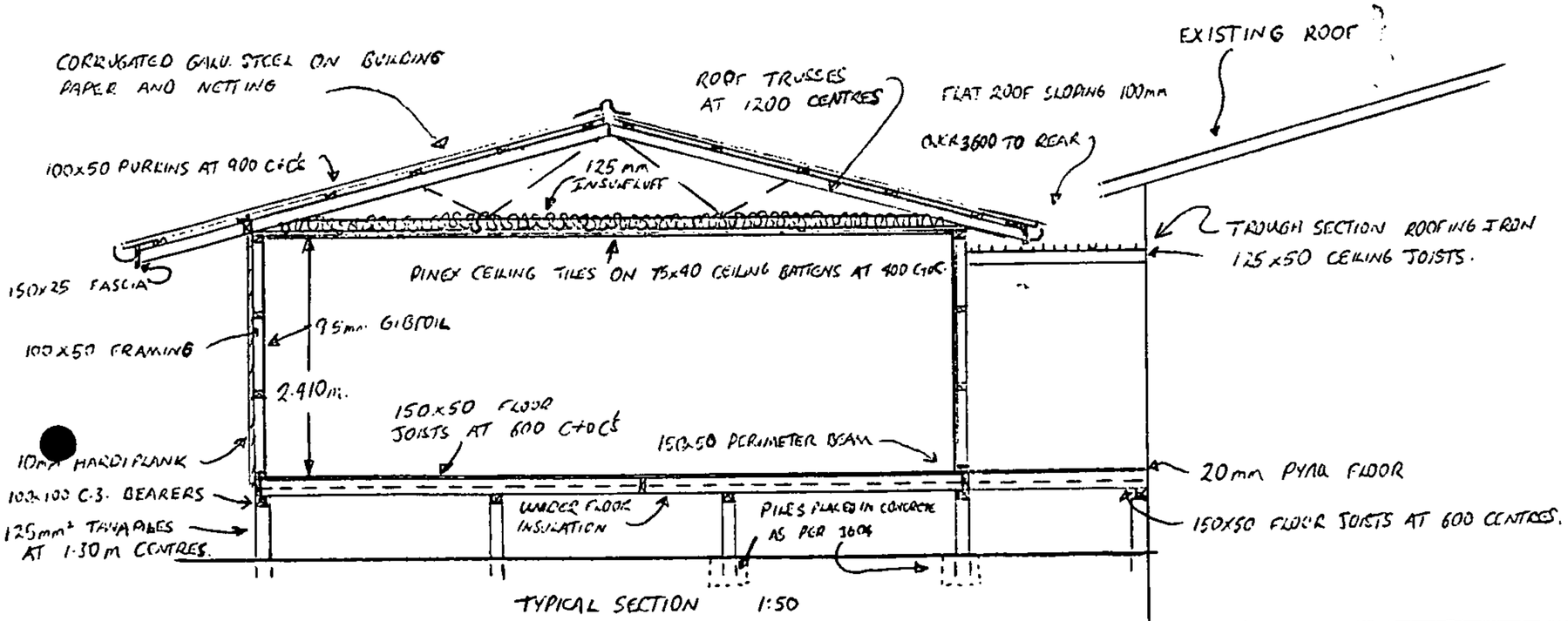


SHEET B

1	2	3	4	5	6	7	8
Total B.U.'s Required	Wall Line		Wall Bracing Elements Provided				
	Label	Minimum B.U.'s Required	Label No.	Type	Rating B.U.'s/m	Length (m)	B.U.'s Provided
ALONG	A	9 x 10	1	1	42	2.4	100.8
		90	Sub-total				100.8
	B		2	2	62	1.7	105.4
		72	Sub-total				105.4
	C	9 x 10	3	1	42	2.4	100.8
		90	Sub-total				100.8
	D						
			Sub-total				
129.6	TOTAL		TOTAL				307
ACROSS	L	7.2 x 10	4	1	42	2.4	100.8
		72	Sub-total				100.8
	M		5	2	62	2.0	124
		72	Sub-total				124.
	N	7.2 x 10	6	1	42	2.0	89
		72	Sub-total				84.6
	O						
			Sub-total				
	P						
			Sub-total				
129.6	TOTAL		TOTAL				308.9



FOUNDATION PLAN - 1:100.



TYPICAL SECTION 1:50

EXISTING HOUSE.

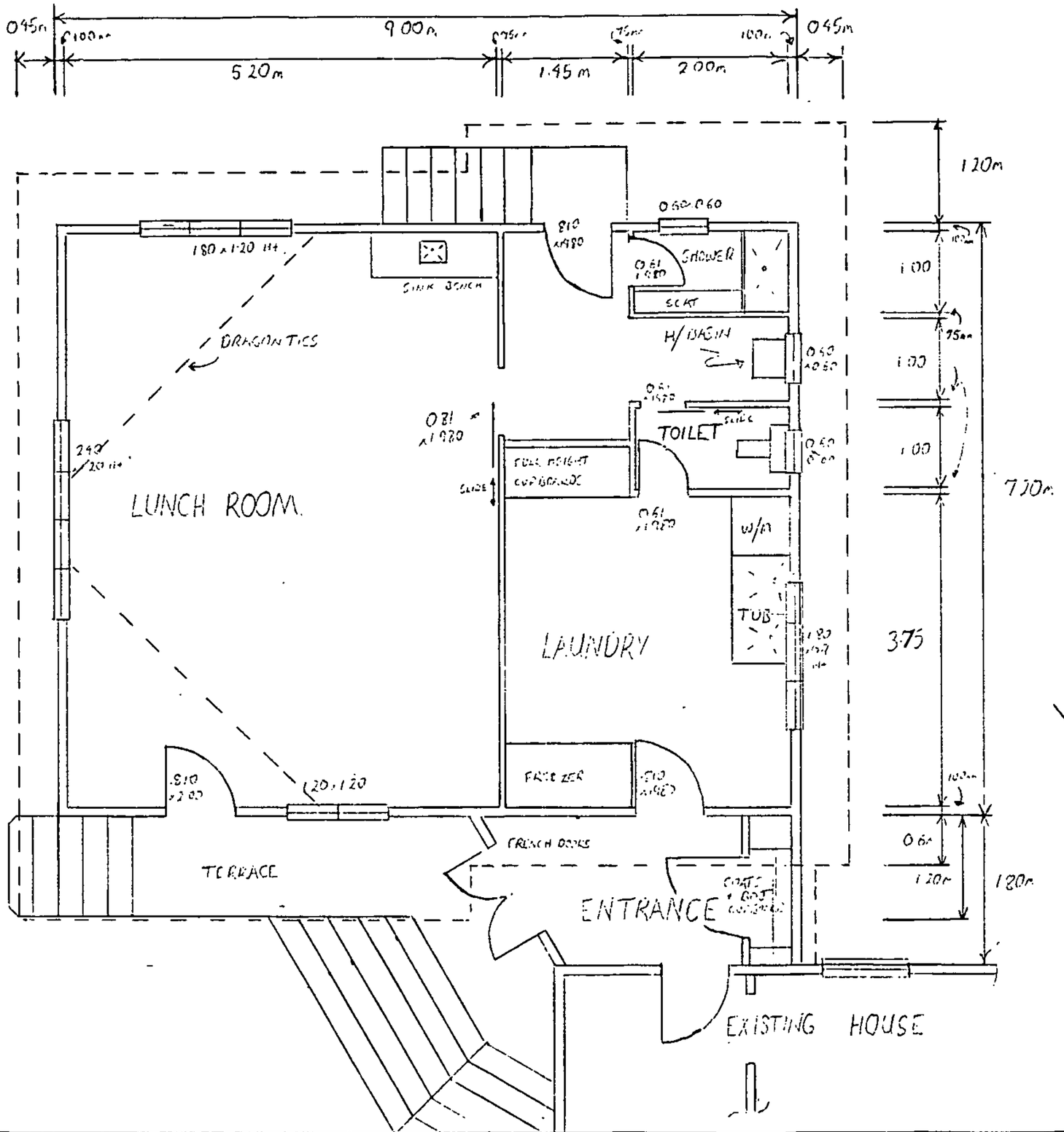
SCALES = 1:100, 1:50

DRAWING NO 1 OF 4

PROPOSED LUNCH ROOM FOR TAUKAU ORCHARDS.

DATE - 7 JULY 1986.

DRAWN BY - G J. O'KEEFE



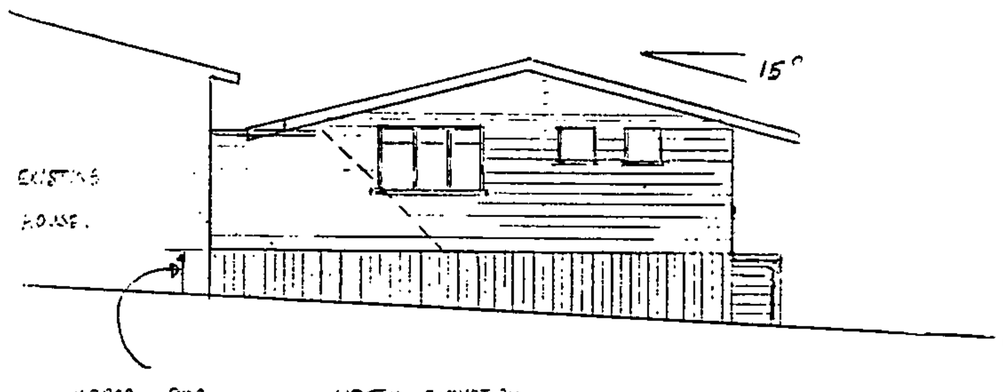
SCALE - 1:50 (ALL MEASUREMENTS METRIC)

DRAWING NO 1 OF 4.

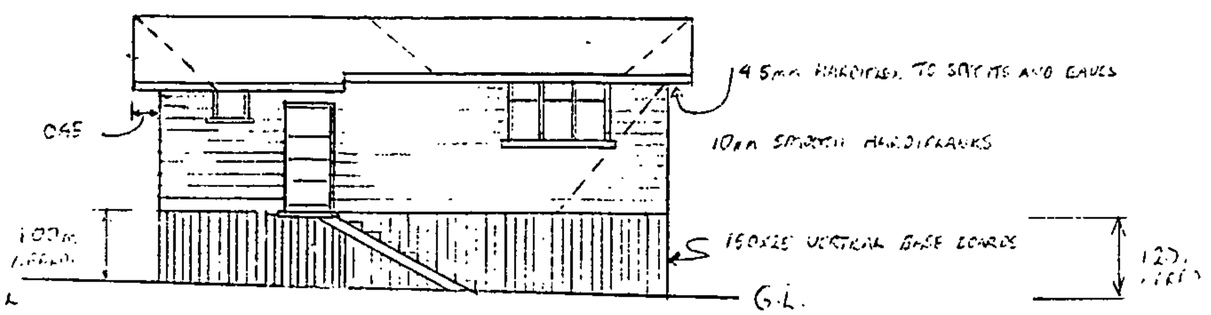
PROPOSED LUNCHROOM FOR TUAKAU ORCHARDS.

DRAWN BY CARL TORRESS ARCHITECT LTD.

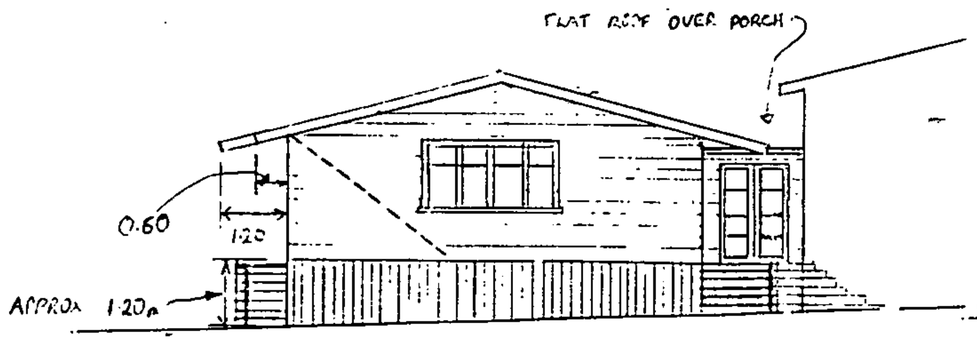
DATE 7.7.10 ADDRESS 16 7-10



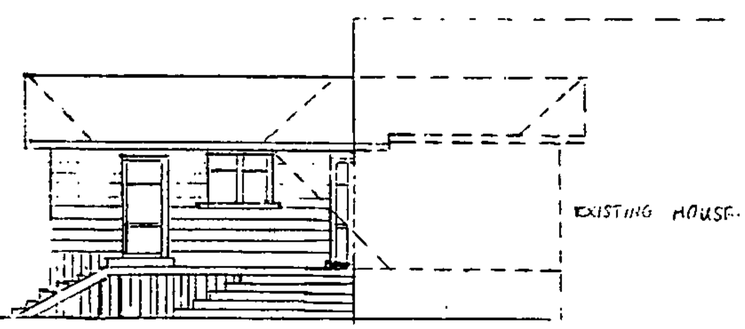
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

SCALE 1:100

DRAWING NO 2 OF 4

PROPOSED LUNCHROOM FOR TUAKAU ORCHARDS

DATE : 7 JULY 1981

DRAWN BY : G J. GREETE.

PT. ALLOT. 14

PT. ALLOT. 14

PT. ALLOT. 14

PT. ALLOT. 14

PT. ALLOT. 14

PT. ALLOT. 15

PT. ALLOT. 15

SEE DIAG. A

ESCOTTS ROAD (LEGAL) (20.12) (NOT FORMED)

GEORGE STREET (LEGAL) (SEALED)

MADILL STREET (LEGAL) (SEALED)

KAIROA STREET (50 WIDE)

STREAM

LOT 1 PROPOSED EXTENSION TO COUNCIL OBS. ONLY

EXISTING 192 HOUSE

NEW SEPTIC TANK SPECIFICATIONS

P.E.W. FENCE 10 YRS OLD ON BDY

P.E.W. FENCE 30 YRS OLD

P.E.W. FENCE & BARB HEDGE 40 YRS OLD ON BDY

P.E.W. FENCE 40 YRS OLD ON BDY

P.E.W. FENCE & BARB HEDGE 40 YRS

P.E.W. FENCE ON BDY 10 YRS OLD

P.E.W. FENCE 10 YRS OLD ON BDY

P.E.W. FENCE REMAINS 40 YRS OLD ON BDY

O.P. N FACE OF 30 YRS OLD POST

O.P. DP39571 W FACE OF POST

O.P. VI PP39571 REN 15.XIII

LOCAL AUTHORITY BOUNDARY

TUAKAU BOROUGH

FRANKLIN COUNTY

DIAGRAM A NOT TO SCALE

COORDINATES	mN	mE
O.R.M. 1 PP76144 SOURCE	657 573·79	316 365·22
I.T. II	657 240·53	316 273·78
I.T. X	656 802·64	316 394·85

BEARING DATUM :- GEODETIC 1949
COORDINATE DATUM :- OLD CADASTRAL MT EDEN CIRCUIT COORDINATES
ORIGIN, MT. EDEN, 700,000 N. 300,000 E

Total Area .....

Comprised in C.T. 1025/198 LTP (Akl) .....

I, DOUGLAS GRANT OLDFIELD of WAIUKU

Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction; that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1966

Dated at Pukekohe this 25th day of March 1982 Signature

Field Book 7299 p. 90-95 Traverse Book 946 p. 27-29

Reference Plans D.P.39571, DP46000, D.P.32393, DP76144, DP47930, DP42160, DP47252

Examined ..... Correct .....

Approved as to Survey

11, 6, 1982 for Chief Surveyor

Deposited this ..... day of 19

District Land Registrar

File 23-9

Received

Instructions

D.P.96281

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK... DIST. IV ONEWHERO

NZMS ..... SHEET No. TUAKAU 4

LOT 1 BEING PLAN OF PT. ALLOT. 14 PARISH OF TUAKAU

LOCAL AUTHORITY TUAKAU BOROUGH

Surveyed by BIRCH, MADSEN & PTNRS

Scale 1:1500 Date DEC. 1981

Printed by Lithoplates Instruments Ltd Wellington New Zealand

Crown Copyright Reserved Department of Lands and Survey Wellington

CODE COMPLIANCE CERTIFICATE No:6886
Section 43(3), Building Act 1991

Building Consent No: 35478

OWNER : MALCOLM BRETT TITCHMARSH

Mailing Address: 99 ESCOTTS RD, TUAKAU 1892
Phone: 2368046 (Pvt.)
Contact: MALCOLM BRETT TITCHMARSH
Mailing Address: 99 ESCOTTS RD, TUAKAU 1892
Phone: 2368046 (Pvt.)
Application received: 18/10/00

PROJECT LOCATION

Street Address: 99 ESCOTTS RD, TUAKAU 1892
Property ID: 10970
Assessment No: 03920/368.00
Legal: LOT 1 DP 169701

PROJECT

The project is for New Building
Intended Use(s): NEW SHED
Intended life: Indefinite but not less than 50 years

COUNCIL CHARGES

The Council's total charges payable on the uplifting of this code compliance certificate in accordance with the attached details are: $0.00

This is a final code compliance certificate issued in respect of all of the building work under the above building consent

Signed for and on behalf of the Council:

Name: [signature]

Position: Clerk 15/12/00.

*
*
*
*
*

Building Consent No:35478
Section 35, Building Act 1991

Issued:27Oct00

CONTACT : MALCOLM BRETT TITCHMARSH
99 ESCOTTS RD
TUAKAU 1892 Phone: 2368046 (Pvt.)

OWNER : MALCOLM BRETT TITCHMARSH
99 ESCOTTS RD
TUAKAU 1892 Phone: 2368046 (Pvt.)

Application received: 18Oct00

PROJECT LOCATION

Street Address: 99 ESCOTTS RD, TUAKAU 1892
Property ID: 10970
Assessment No: 03920/368.00
Legal: LOT 1 DP 169701

PROJECT

The project is for New Building
Intended Use(s): NEW SHED
Intended life: Indefinite but not less than 50 years
Value of Work: $3,000.00

COUNCIL CHARGES

The Council's total charges payable on the uplifting of this building consent in accordance with the attached details, are: $238.50

Receipt number: 1531304 Date: 17Oct00 Amount: $65.00

Franklin
DISTRICT COUNCIL

This building consent is a consent under the Building Act 1991 to undertake building work in accordance with the attached plans and specifications and with any condition defined so as to comply with the provisions of the building code; such work to be subject to inspection at any time during progress and to be carried out in strict conformity with this consent and the requirements of the Building Code.

IMPORTANT - YOU ARE FULLY RESPONSIBLE for any damage done to any works such as telephone cables, power cables, water mains, gas mains, sewers, pipes, footpaths, curbing, roads or other services.

An amendment to this building consent shall be applied for whenever building work has been or is intended to be carried out otherwise than in accordance with this building consent when such work affects or could affect compliance with the building code.

The issue of this building consent does not relieve the owner of the building or proposed building to which this building consent relates of any duty or responsibility under any other Act relating to or affecting the building or proposed building; or permit the construction, alteration, demolition or removal of the building or proposed building if that construction, alteration, demolition or removal would be in breach of any other Act. Examples would be the Resource Management Act 1991 and the Historic Places Act 1993. The latter prohibits the modification, damage or destruction of any archaeological deposit that is registered or not. It is important therefor that if any archaeological deposit is identified during earthworks or construction, the contractor should stop work and contact the Historic Places Trust immediately so that the deposit can be assessed and permission sought for continuing work on the project.

This consent expires and becomes void if the building work is not commenced within six months from the date of issue unless the applicant obtains the written consent of the Franklin District Council which may grant an extension of time in its absolute discretion.

The owner's attention is drawn to the requirements of the Plumbers, Gasfitters and Drainlayers Registration Act 1976. Only registered tradesmen may carry out sanitary plumbing, gasfitting and drainlaying work. A similar requirement in respect to electrical work and registered electricians is embodied in the Electrical Wiring legislation. If the identity of the registered tradesman carrying out such work authorised by this consent has not been provided then the owner must supply the particulars to the Franklin District Council before that part of the work is commenced. A form for this purpose is provided.

The owner of the property and the builder are responsible for the correct siting of buildings or additions thereon, according to the District Plan and the Building Code. The owner and builder shall ascertain the true position of survey pegs before building operations commence.

On completion of the building work the owner is required to apply for a Code Compliance Certificate.

Franklin District Council, 82 Manukau Road, Private Bag 5, Pukekohe, Franklin District DX: EP77018, Telephone 0-9-237-1300 Facsimile 0-9-237-1301

FRANKLIN DISTRICT COUNCIL
FIELD INSPECTION RECORD

BC No: 35478

RAPID number: _____

Owner's name: Titch Mash. Street/Road: 99 Escotts Rd Tuakau -

Val No: 3920/368.00

No of inspections paid for: 2

Builders Name: _____ Phone No: _____

Plumbers Name: _____ Phone No: _____

Building Type: Shed. Date Building Consent Issued 31-10-00 Date CCC Issued _____

Date of inspection	Type of inspection	Approved or Not	Remarks	Inspector's initials
24/11/00	Pole Holes	Yes		H
14-12-00	Final	YES	Open Structure.	HK.

Franklin DISTRICT COUNCIL

Building Consent Number 35478.

These Plans & Specifications are approved subject to all work being carried out in compliance with the Building Act 1991 and the New Zealand Building Code.

No deviation from these plans and specifications is permitted without the written consent of the Building Enforcement Officer.

These Plans & Specifications must be kept with the Building Consent on the site of the works during construction.

Notice of at least one (1) working day is to be given to the Franklin District Council for the inspections listed on the Building Consent. The Building Consent is to be signed by the Building Enforcement Officer when the work has been inspected and approved.

PLANS
AND SPECIFICATIONS
APPROVED
SUBJECT TO SUCH CONDITIONS AS ARE
ENDORSED ON OR APPENDED TO THE
BUILDING CONSENT

M. Bellhouse.
Bld. Enf. Officer

Date 26-10-2010

All Building Work is to fully comply with the NZ Building Code 1992. Acceptable Solutions and/or Alternative Solutions.

A **FINAL** Inspection is required when all work has been **COMPLETED.**

A **Code Compliance Certificate** will be issued by the Territorial Authority, **TO THE OWNER**, when a **FINAL** Inspection has been Approved.

Spouting, downpipes & stormwater drainage to be provided to the app. of the Building Enforcement Officer and NZ Building Code E1/VM1and G13/AS1.

AJAX Building & Industrial Fasteners
A division of Ajax Fasteners NZ Ltd

22 Saleyards Road
PO Box 22 446, Otahuhu
Auckland, New Zealand

Telephone 64 (9) 270 0606
Facsimile 64 (9) 270 1819

PRODUCER STATEMENT (DESIGN)

I, **A C van Blerk**, being registered under the provisions of the Engineers Registration Act 1924 (Registration No. 214689) and currently holding an Annual Practising Certificate, hereby certify that I have perused the design of roof truss frames and the stability of the trusses.

Client: **Independent Timber Merchants Society Ltd.**

Location: Tuakau ITM, Asott Road (Titchmarsh)

Design: Timber Pole Framed Structure.

The layout of the structure is shown on ITM drawing of a rural shed 6m span x 7.2m long x 3.6m eaves height. The frame to be as per ITM drawings.

This design has been prepared in accordance with sound and widely accepted engineering principles, to support dead and imposed loads specified in NZS 4203: 1992 ***General Structural Design and Design Loadings for Buildings***, with capacities so induced not to exceed the those specified in NZS 3603: 1990 ***Timber Structures Standard***.

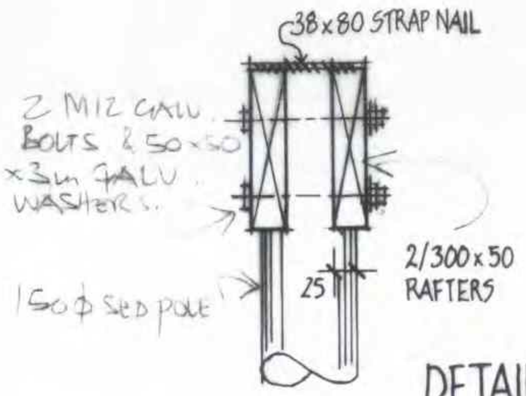
I believe on reasonable grounds that the design of these Claw Plated Rafters and Pole columns comply with the relevant provisions of the NZ Building Code (Approved Documents B1 - Verification method VM 1, and B2).

Signed: _____

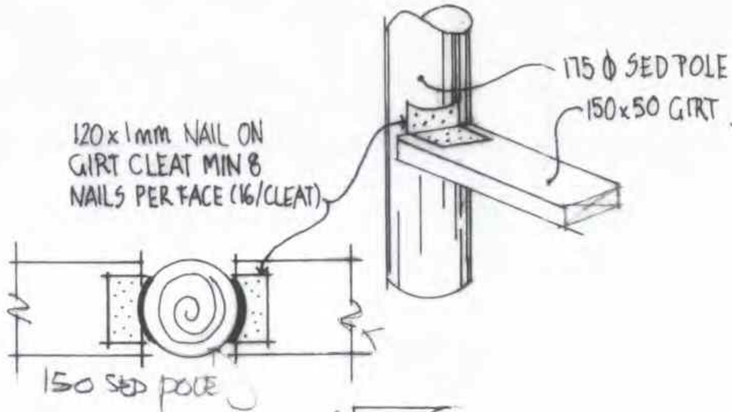
A C van Blerk B Sc (Eng). (Civil), MIPENZ, Reg. Eng.
SENIOR ENGINEER - PRYDA TIMBER CONNECTORS

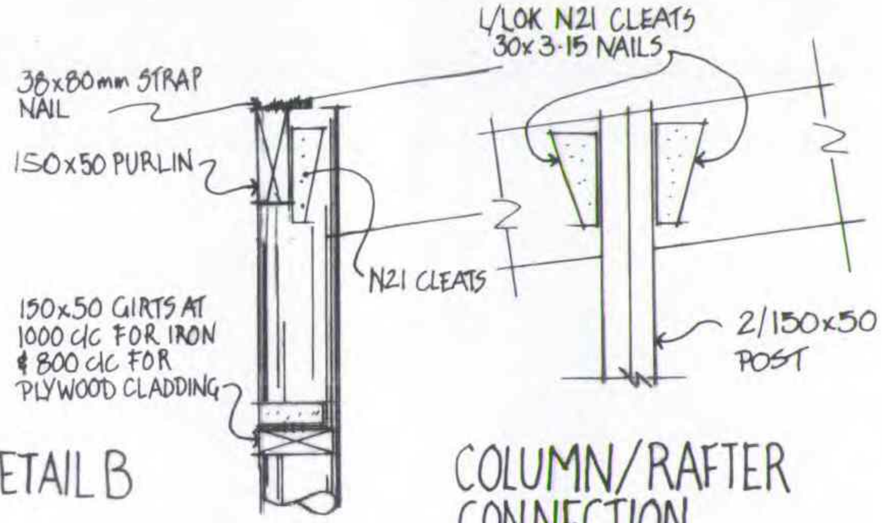
Date: 20 October, 2000

9862



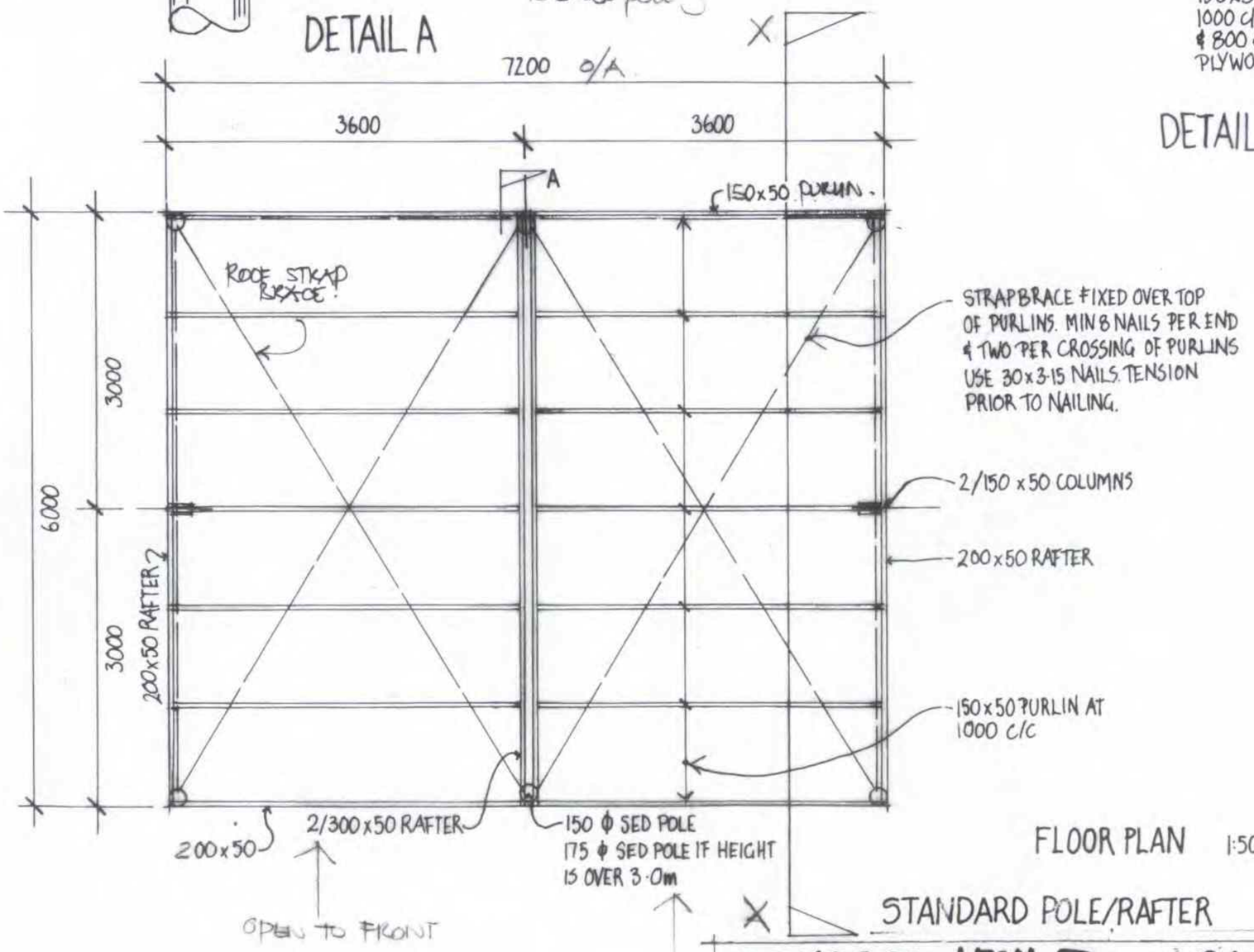
DETAIL A





DETAIL B

COLUMN/RAFTER CONNECTION



FLOOR PLAN 1:50

STANDARD POLE/RAFTER

- USE 175 ϕ SED POLES FOR STUD HEIGHT ABOVE 3.0M
- COLUMNS 2/200 x 50
- 150 x 50 GIRTS AT 1000 c/c

NOTE:

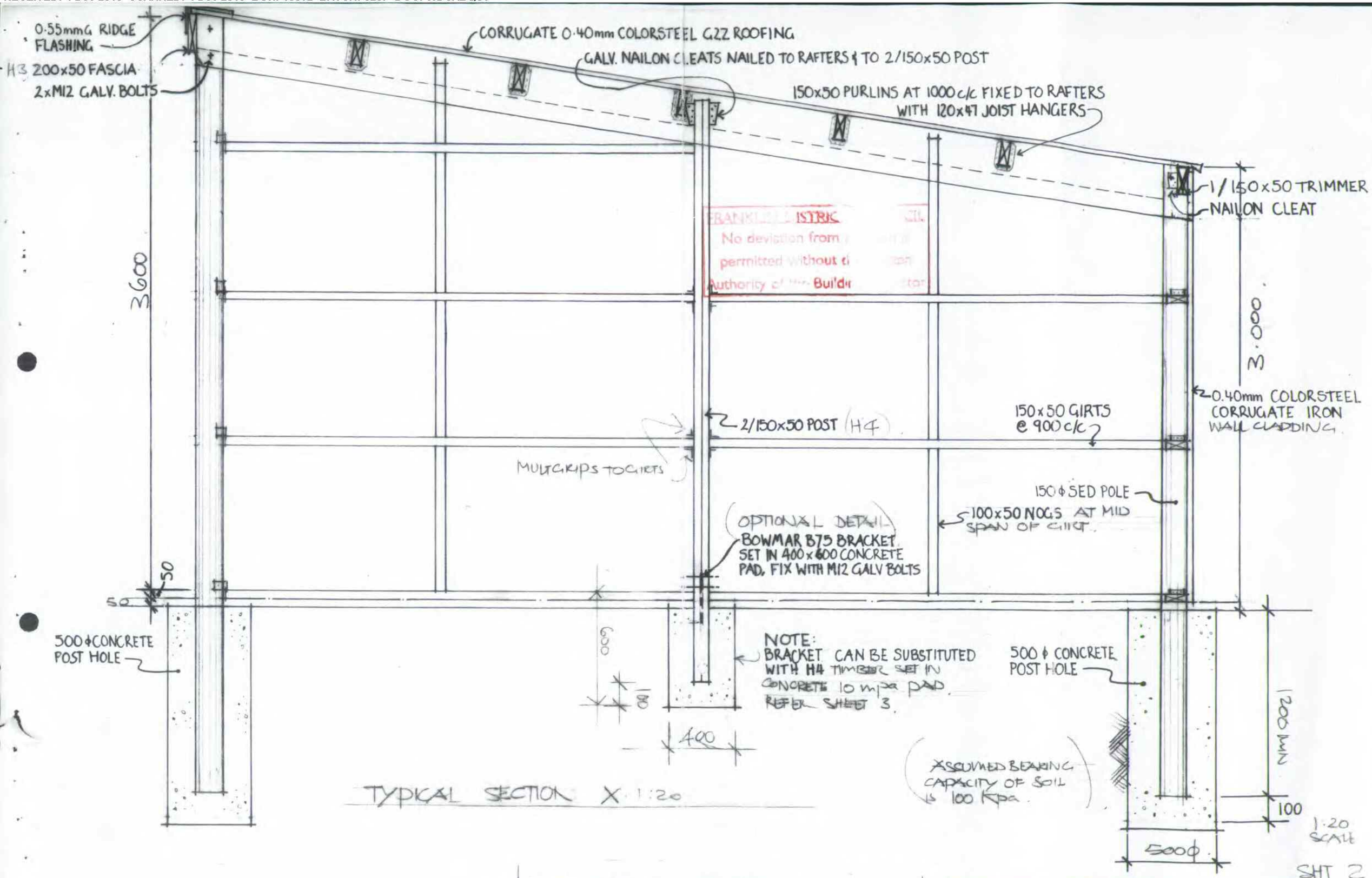
1. DESIGN ASSUMES SOIL CONDITIONS HAVE A MIN SOIL STRESS OF 100 KPa.
2. BUILDING ASSUMED TO BE FULLY CLAD ON SIDE AND BACK WALLS FRONT OF BUILDING ACROSS THE OVERHANG SECTION IS FULLY OPEN

SHT 1

STANDARD LEAN TO · 2 BAY

ITM STORE DESIGN · 09 415 2787

ITM RURAL



TYPICAL SECTION X 1:20

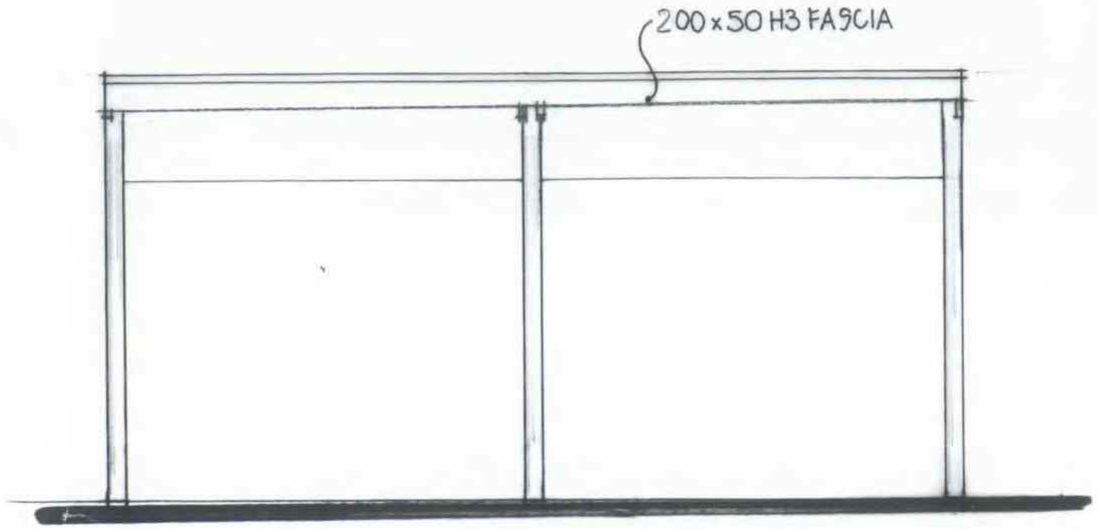
1:20 SCALE

STANDARD LEAN TO · 2 BAY.

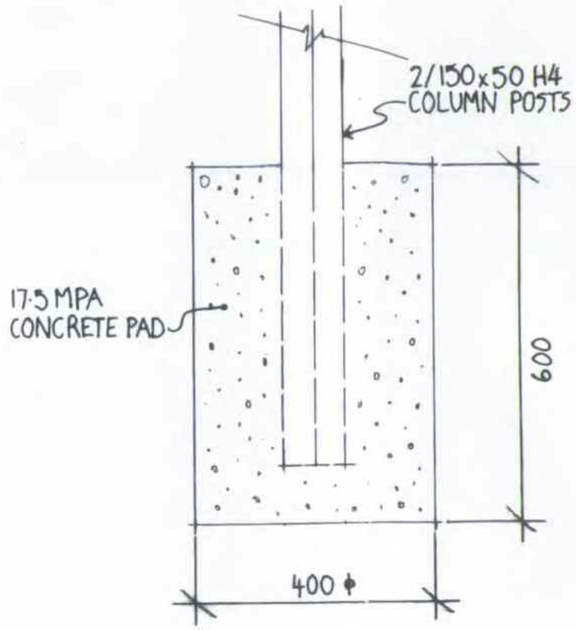
ITM STORE DESIGN · 00 415787

SHT 2

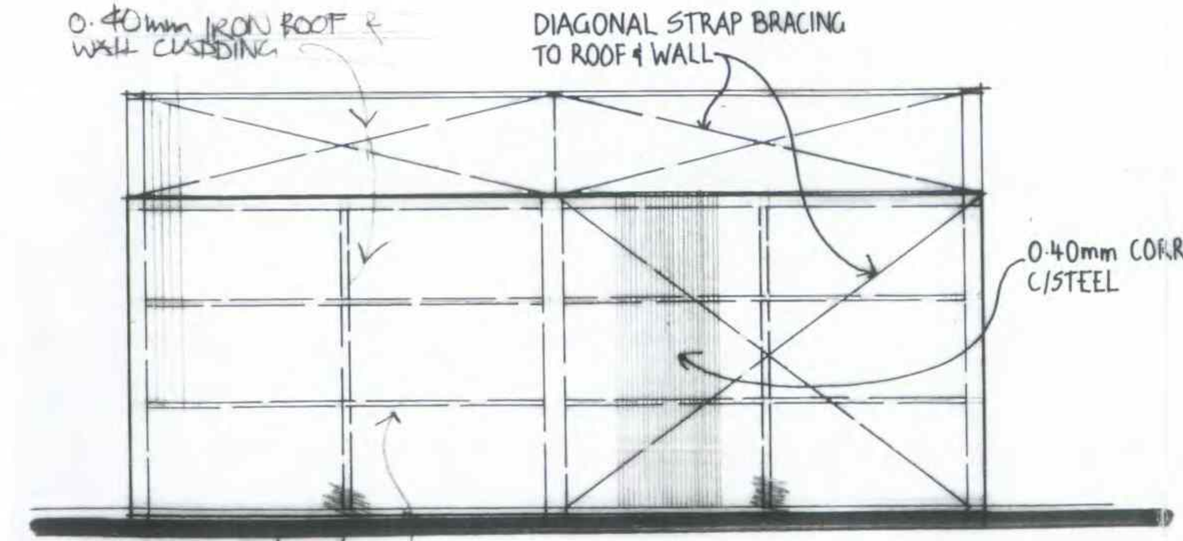
ITM RURAL



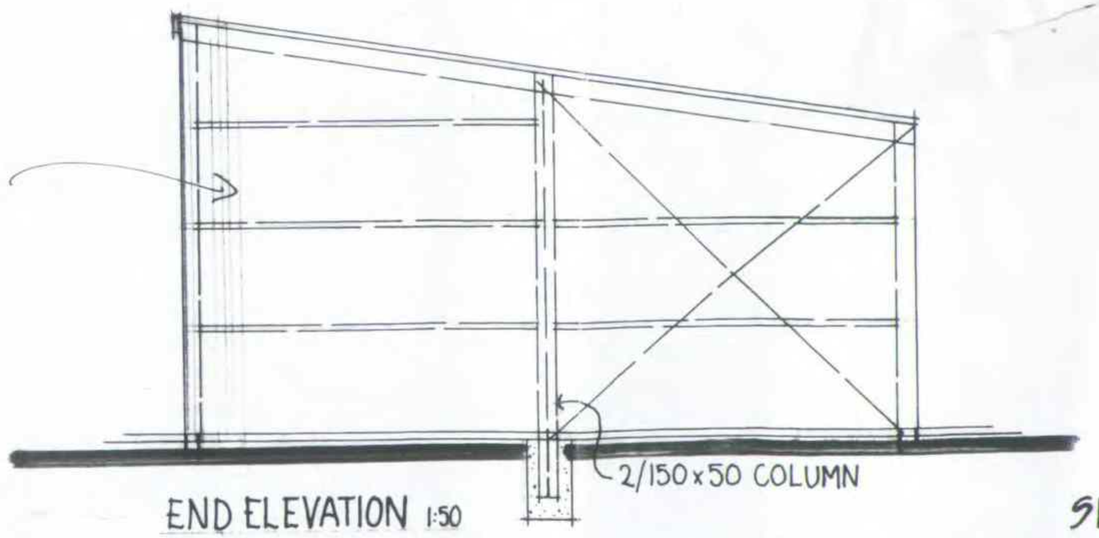
FRONT ELEVATION 1:50



ALTERNATIVE PAD DETAIL 1:10



REAR ELEVATION 1:50



END ELEVATION 1:50

SHT3

STANDARD LEAN TO · 2 BAY.

ITM STORE DESIGN · 09 415 2787

ITM RURAL

PT ALLOT 14
CT 1154/24 LTD

PT ALLOT 14
CT 1674/30

PT ALLOT 14
CT 31F/1230 LTD (3 shares)
CT 31F/1249 LTD (1 share)

STREET

ESCOTTS ROAD

F.D.C
Sports Fields

2
DP 46000
CT 1629/166

PT ALLOT 14
CT 1329/197 LTD

9
DP 32373

150 m

20m

LOT 1
12.8740 ha.

Existing House

Proposed Shed

TUAKAU BOROUGH

200 m

200 m

KAIROA STREAM
(5.00 WIDE)

LOCAL AUTHORITY BOUNDARY

1
DP 39571
CT 1041/110

FRANKLIN COUNTY

PT ALLOT 14
CT 587/45 LTD

PT ALLOT 15
CT 578/307 LTD

PT ALLOT 15
CT 936/238 LTD

3 - OCT 1994

REGISTERED DRAFTSMAN

NEW CT ALLOCATED
LOT 1 —

Total Area 12.8740 ha.

Comprised in CT

Registered Surveyor and before all necessary processing has been completed hereby certify that this plan has been made from Survey executed by me or under my direction, that such plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1908

Dated at Pukekohe this 25th day of October 1994

Field Book

Reference Plans

Examined

Checked

LAND REGISTRAR

Deposited as DP 96222

DISTRICT NORTH AUCKLAND
SHEET No

LOT 1 BEING PLAN OF PT ALLOT 14
SH OF TUAKAU

LOCAL AUTHORITY TUAKAU BOROUGH
Surveyed by BIRCH, MAPSEN & PTNRS.
Scale 1:1500 Date DEC 1991

SEARCH COPY

*
*
*
*
*

CODE COMPLIANCE CERTIFICATE No:7499
Section 43(3), Building Act 1991

Building Consent No: 38226

OWNER : MALCOLM BRETT TITCHMARSH

Mailing Address: JH BREWSTERS LTD, PO BOX 246, PUKEKOHE
Phone: 2368046 (Pvt.)
Contact: BREWSTER
Mailing Address: PO BOX 246, PUKEKOHE
Phone: PH 2388-037 (Bus.) FX 2388-426 (Pvt.)
Application received: 01/06/01

PROJECT LOCATION

Street Address: 99 ESCOTTS RD, TUAKAU 1892
Property ID: 10970
Assessment No: 03920/368.00
Legal: LOT 1 DP 169701

PROJECT

The project is for Alteration/Addns
Intended Use(s): INSTALL MILAN TUSCANY FIRE PLACE
Intended life: Specified as 5 years

COUNCIL CHARGES

The Council's total charges payable on the uplifting of this code compliance certificate in accordance with the attached details are: $0.00

This is a final code compliance certificate issued in respect of all of the building work under the above building consent

Signed for and on behalf of the Council:

Name: _____

Position: Clerk 19/6/01

Building Consent No:38226

Section 35, Building Act 1991

Issued:08Jun01

CONTACT : BREWSTER
PO BOX 246
PUKEKOHE
Phone: PH 2388-037 (Bus.)
FX 2388-426 (Pvt.)

OWNER : MALCOLM BRETT TITCHMARSH
JH BREWSTERS LTD
PO BOX 246
PUKEKOHE
Phone: 2368046 (Pvt.)

Application received: 01Jun01

PROJECT LOCATION

Street Address: 99 ESCOTTS RD, TUAKAU 1892
Property ID: 10970
Assessment No: 03920/368.00
Legal: LOT 1 DP 169701

PROJECT

The project is for Alteration/Addns
Intended Use(s): INSTALL MILAN TUSCANY FIRE PLACE
Intended life: Specified as 5 years
Value of Work: $2,372.00

COUNCIL CHARGES

The Council's total charges payable on the uplifting of this building consent in accordance with the attached details, are: $0.00

Receipt number: 1607792 Date: 01Jun01 Amount: $88.00

This building consent is a consent under the Building Act 1991 to undertake building work in accordance with the attached plans and specifications and with any condition defined so as to comply with the provisions of the building code; such work to be subject to inspection at any time during progress and to be carried out in strict conformity with this consent and the requirements of the Building Code.

IMPORTANT - YOU ARE FULLY RESPONSIBLE for any damage done to any works such as telephone cables, power cables, water mains, gas mains, sewers, pipes, footpaths, curbing, roads or other services.

An amendment to this building consent shall be applied for whenever building work has been or is intended to be carried out otherwise than in accordance with this building consent when such work affects or could affect compliance with the building code.

The issue of this building consent does not relieve the owner of the building or proposed building to which this building consent relates of any duty or responsibility under any other Act relating to or affecting the building or proposed building; or permit the construction, alteration, demolition or removal of the building or proposed building if that construction, alteration, demolition or removal would be in breach of any other Act. Examples would be the Resource Management Act 1991 and the Historic Places Act 1993. The latter prohibits the modification, damage or destruction of any archaeological deposit that is registered or not. It is important therefor that if any archaeological deposit is identified during earthworks or construction, the contractor should stop work and contact the Historic Places Trust immediately so that the deposit can be assessed and permission sought for continuing work on the project.

This consent expires and becomes void if the building work is not commenced within six months from the date of issue unless the applicant obtains the written consent of the Franklin District Council which may grant an extension of time in its absolute discretion.

The owner's attention is drawn to the requirements of the Plumbers, Gasfitters and Drainlayers Registration Act 1976. Only registered tradesmen may carry out sanitary plumbing, gasfitting and drainlaying work. A similar requirement in respect to electrical work and registered electricians is embodied in the Electrical Wiring legislation. If the identity of the registered tradesman carrying out such work authorised by this consent has not been provided then the owner must supply the particulars to the Franklin District Council before that part of the work is commenced. A form for this purpose is provided.

The owner of the property and the builder are responsible for the correct siting of buildings or additions thereon, according to the District Plan and the Building Code. The owner and builder shall ascertain the true position of survey pegs before building operations commence.

On completion of the building work the owner is required to apply for a Code Compliance Certificate.

1: Inspections by Territorial Authority:-

Notice that building work is ready for inspection shall be given to the Franklin District Council at least 1 (one) working day in advance of covering in of any of the following:-

Any other building work in respect of which such notice is required as a special condition of this building consent.

.

THIS IS NOT A CONSENT UNDER THE RESOURCE MANAGEMENT ACT 1991

Signed for and on behalf of the Council:

Name: V. Allen

Position: Clerk

Date: 8/6/01

Franklin
DISTRICT COUNCIL

APPLICATION FOR BUILDING CONSENT

(Section 33 Building Act 1991

(for FREE STANDING FIRE PLACES only - max value: $5,000.00)

PART A: General

(Complete Part A in all cases - Tick each applicable box and attach relevant documents in duplicate)

Applicant

(Under section 30 of the Building Act 1991, the applicant must be the owner of the land on which building work is contemplated or a person who, or which, has agreed in writing, whether conditionally or unconditionally, to purchase the land or any leasehold estate or interest in the land, or to take a lease of the land, while the agreement remains in force).

Owner's Surname Fitchmarsh Forename(s) Malcolm Brett Anna marie

Owner's Mailing Address: 99 Escotts Road Tuakau.

Contact Name & address *(print name and position)* Please forward all relevant documentation to J H Brewster Ltd PO Box 546 Pukekohe.

Telephone No 2368046 Fax No Position

Project

☑ New Fireplace

☐ With Wetback ☑ Without Wetback

Intended Uses: Residence Heating

Intended Life : Indefinite but not less than ~~50 years~~ ☐ or Specified as 5 years

Being stage 1 of an intended 1 stages

Estimated value *(inclusive of GST)* $ 2372.00

Project Location

Street Address *(if any)* 99 Escotts Road Tuakau.

Legal description *(as shown on certificate of title or rates notice,* *Property I.D*.....

Valuation No 03920/368.00 Lot No 1 DP 169701 Section

Block Survey District Site Area (m2)

For Office Use Only:

Received (Date) 1/6/01.

38225
38226

PIM Application Fee	*(85300/606)*	$ 20.00
Consent Application Fee	*(85400/606)*	$ 68.00
[illegible]	[illegible]	$ [illegible]
Code Compliance Cert	*(85300/606)*	$ 20.00
Total Payable on lodgement		$ 108.00

Application No

Receipt No 1607792.

Applicant's ID

Property ID

CCC 7499

This application is for:

- ☐ Building consent only, in accordance with project information memorandum No.....
- ☐ Both building consent and a project information memorandum

PART B: Key Personnel

(Complete Part B as far as possible in all cases. Give names, addresses and telephone numbers. Give relevant registration numbers, if known).

Building Certifier(s):

Address: Phone:

Installer: Phone:

Address: Fax:

Registered Plumber: J.H. BREWSTER LTD Phone: 2388037
135 MANUKAU RD

Address: P.O. BOX 246 Fax: 2388426
PUKEKOHE

PART C: Fire Unit Details

(attach the manufacturer's brochure of the fire unit showing clearances etc.,)

Make: Milan

Model: Tuscany

Wall Lining: Wall clearances to be provided: 200 mm.

Flue Type: S.S. Flue shield: (yes) / ~~no~~

Hearth Type: Hearth Size:

Wet-back System: ~~yes~~ / (no)
(A Registered Plumber is required to install the wet-back system)

Signed by or for and on behalf of the applicant:

Name: J.H. BREWSTER LTD
135 MANUKAU RD
P.O. BOX 246
PUKEKOHE

Signature:

Position: Date: 30.05.11

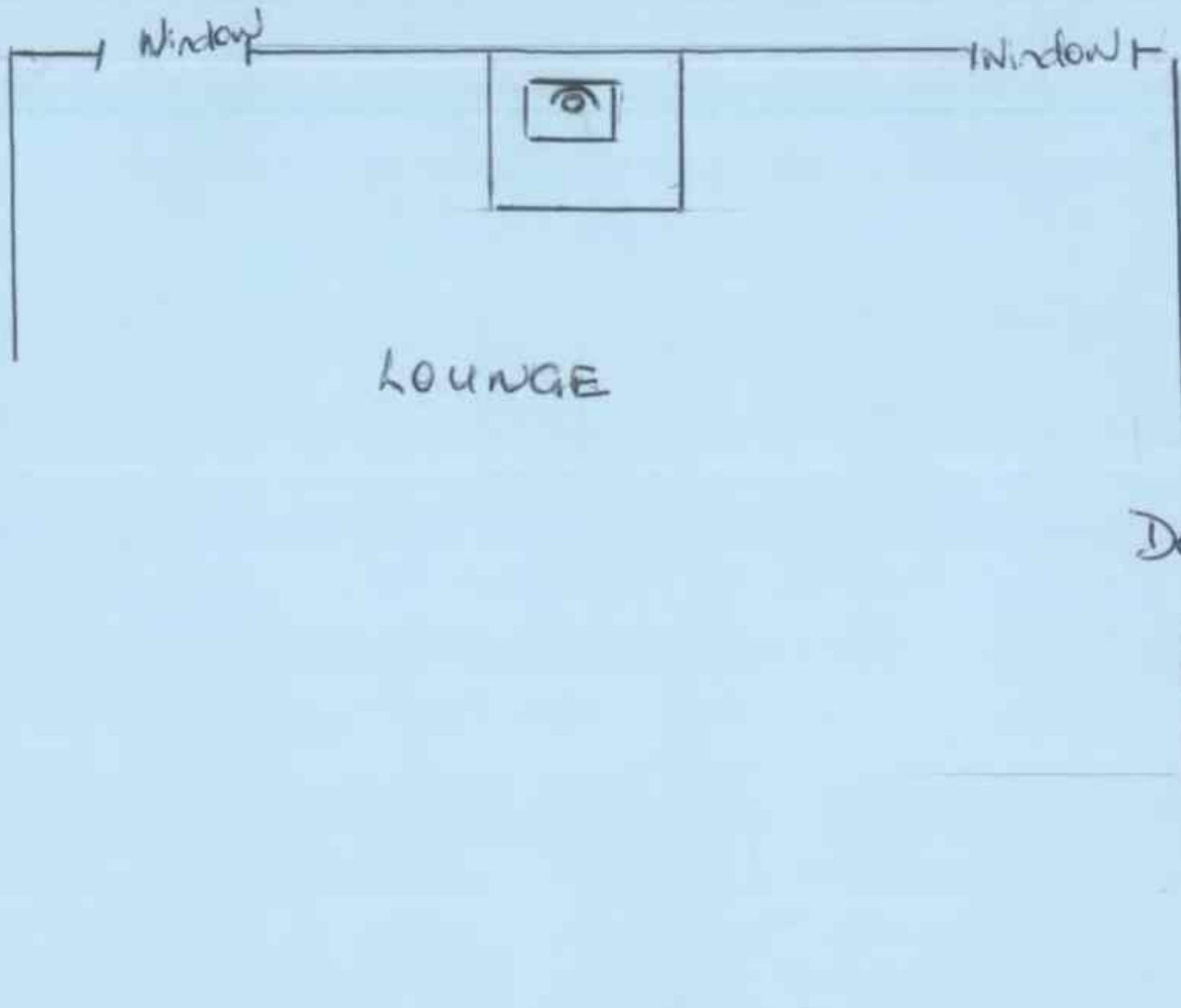
NOTE: Full construction details are required for any chimneys to be built of brickwork,concrete or precast masonry, including overall height and fixing at roof level showing seperation from timber roof framing, in which case a normal building consent application form should be used.

The manufacturer's brochure of the fire unit showing minimum wall clearances must be provided.

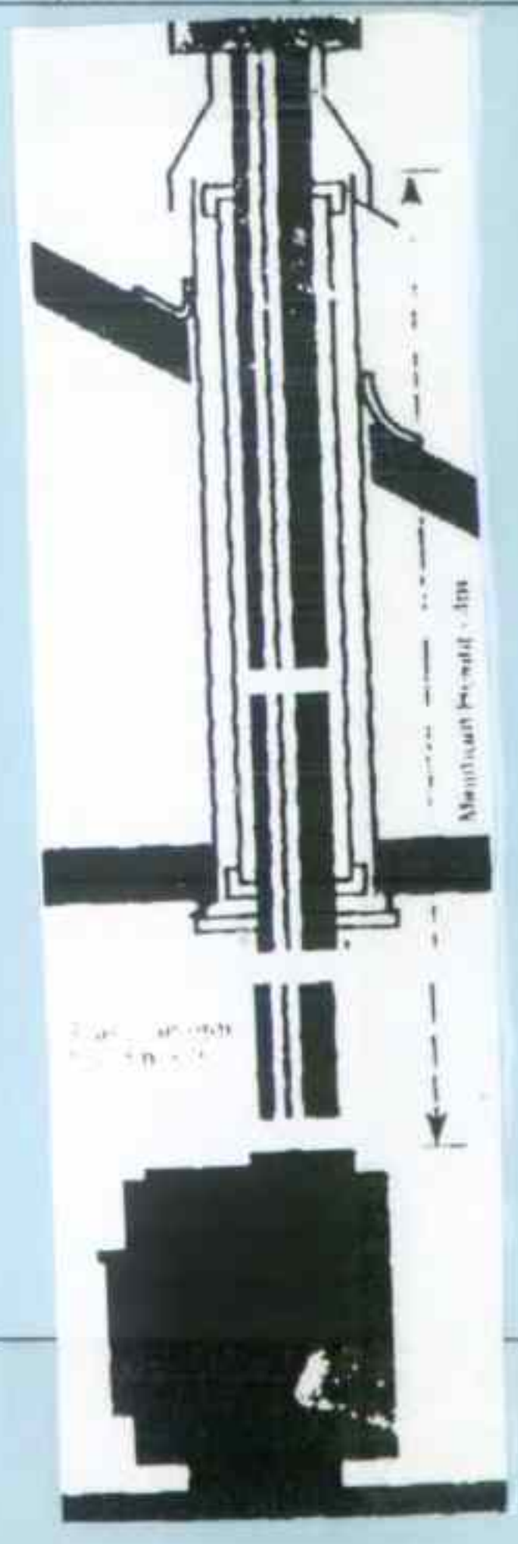
After the installation, a Producer Statement (Construction Review), may be required from the installer if that person is approved by the Franklin District Council to make such statements.

PART D: Plans and elevation

*(draw **plan** of the room showing the doors, windows, fire unit and extent of the hearth)*



*(Draw **elevation** of the fire unit, showing hearth, clearances from wall, and ceiling and roof penetration)*



*(Draw **property locality** plan):*

PART E: The extra charges related to this application may be:

	$	Code
Building Consent (less application fee)	_____	85400/615
Inspections Code	_____	85400/606
TOTAL	_____	

Balance Paid $ _____ **Receipt No:** _____ **Date:** _____

For Office Use Only:

Approved for Building Plumbing

FRANKLIN DISTRICT COUNCIL, Private Bag, Pukekohe
Manukau Road, Pukekohe Ph: (09) 2371300 Fax: (09) 2371301
Constable Road, Waiuku Ph: (09) 2371300 Fax: (09) 2356551
George St, Tuakau Ph: (09) 2371300 Fax: (09) 2371351

Privacy Act 1993 note: The information on this form will be used by the Franklin District Council Building Team to process the Building Consent Application.
The information will be held by the Franklin District Council and form part of the records required to be kept under section 27 of the Building Act 1991. Those records form a register which is available to the public. You have a right of access to, and may request correction of, any of the personal information provided.

Milan
HEATING SYSTEMS
TRIED TRUSTED PROVEN

YOUR AUTHORISED MILAN DEALER

J. H. BREWSTER LTD
135 MANUKAU RD
P.O. BOX 245
PUKEKOHE
PH (0923) 28037

Fire

Caldo (F1-11)

Piccolo

Tuscany

Milano

Ar'dore

Milan Insert

Rembrant Insert

Fire cost	Flue Kit	Heath Cost	Approx installation Cost	Extras	Date

Feb 2000

Milan heating systems are proudly manufactured by:

DALLAS METAL INDUSTRIES

7 REG SAVORY PLACE - EAST TAMAKI - AUCKLAND

PH 09 2739051 FAX 09 2733047

PO BOX 58678 GREENMOUNT AUCKLAND

Made in New Zealand

All specifications are subject to change or variation without notification.

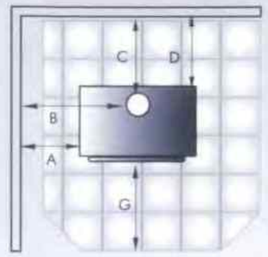
Milan
HEATING SYSTEMS

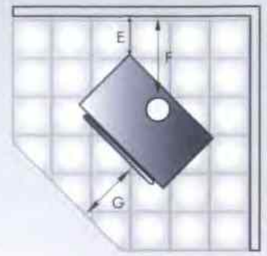
Milan
HEATING SYSTEMS
TRIED TRUSTED PROVEN
Made in New Zealand

Contents

Milan Showroom

Milan Showroom situated in our factory in Auckland





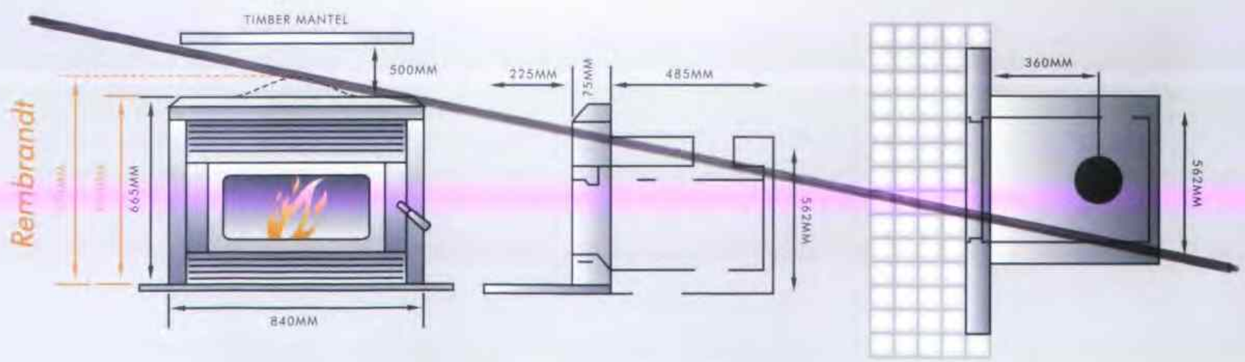
Minimum clearance to combustibles in millimeters NZS 7421 1990

INSTALLATION CLEARANCES		A	B	C	D	E	F	G
Caldo (F1-11)	Without Flue Shield	400	625	400	340	210	450	200
	With Flue Shield	400	625	200	140	75	315	200
Piccolo	Without Flue Shield	375	600	490	425	300	525	200
	With capped S/S Flue Shield	375	600	145	75	125	350	200
	With capped painted Flue Shield	375	600	420	350	200	425	200
Tuscany	Without Flue Shield	800	980	645	600	500	700	200
	With Flue Shield	750	930	245	200	350	550	200
Milano	Without Flue Shield	350	625	445	375	200	475	375
	With Flue Shield	350	625	145	80	75	350	375
A'rdore	Without Flue Shield	400	615	410	325	315	440	200
	With Double S/S Flue Shield	300	515	135	50	75	315	200
Milan Inbuilts								225

MINIMUM HEARTH SIZES	Insulated	Ash	Width	Depth
Caldo (F1-11)		✓	790 mm	760 mm
Piccolo		✓	800 mm	695 mm
Tuscany		✓	800 mm	975 mm
Milano	✓		940 mm	875 mm
Ar'dore		✓	820 mm	800 mm

MODEL	Wet Back Booster option	Overall Depth	Overall Width	Overall Height	Estimated Peak Output (Kw)
Caldo (F1-11)	✓	485 mm	600 mm	655 mm	14 kw
Piccolo	✓	500 mm	600 mm	660 mm	17 kw
Tuscany	✓	640 mm	510 mm	715 mm	20 kw
Milano	✓	470 mm	700 mm	660 mm	20 kw
Ar'dore	✓	635 mm	590 mm	695 mm	22 kw
Insert	✓				19 kw
Rembrandt	✓				19 kw

(Specifications given on this page are indicative only. Please refer to full installation and specification sheet before installation.)



Milan
HEATING SYSTEMS
TRIED TRUSTED PROVEN

MILAN INSERT

REMBRANDT

THE AR'DORE

When it's Cold outside, create Warmth inside - with MILAN

MILAN INBUILT RANGE

A high performing heating unit designed to fit in most existing fireplaces thus minimising installation time and expense.

This slow combustion heater will keep your home warmer for longer and is an ideal replacement for your drafty hungry open fire.

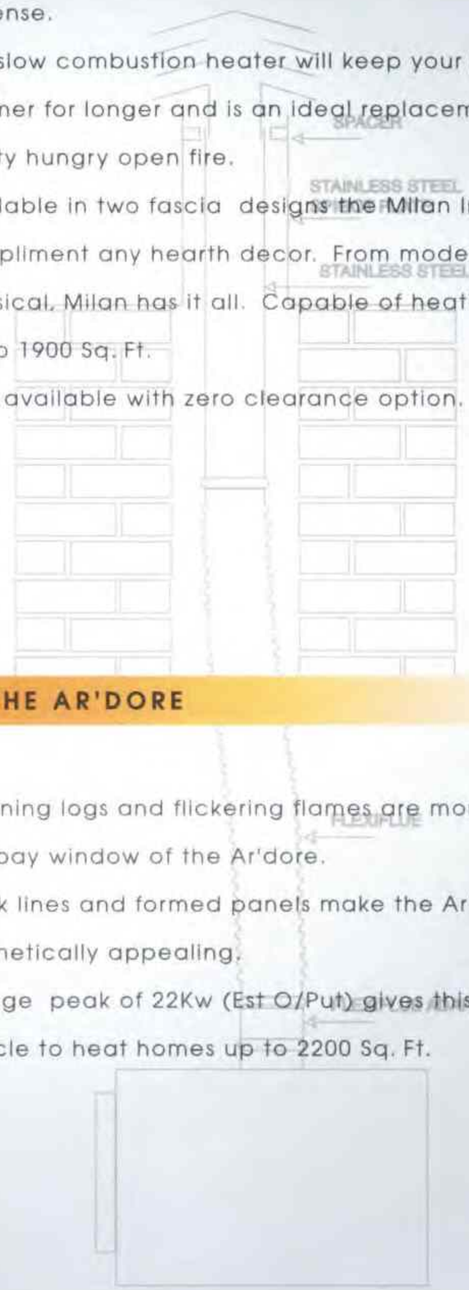
Available in two fascia designs the Milan Inbuilt will compliment any hearth decor. From modern to classical, Milan has it all. Capable of heating homes up to 1900 Sq. Ft.

Also available with zero clearance option.

Burning logs and flickering flames are more visible with the bay window of the Ar'dore.

Sleek lines and formed panels make the Ar'dore very cosmetically appealing.

A huge peak of 22Kw (Est O/Put) gives this fire the muscle to heat homes up to 2200 Sq. Ft.



Milan
TRIED TRUSTED PROVEN

PROUDLY HEATING
NEW ZEALAND
HOMES FOR OVER
FIFTEEN YEARS!

Firebox

Colours

Choice

Features

Milan Wood Fires

Manufactured in New Zealand by Dallas Metal Industries, Milan Fires bring you European inspired designs expertly engineered and manufactured by our highly trained staff.

Look at the Milan features.

Hot rolled steel plate totally sealed and brick lined. Five year warranty.

Milan Fires are available in a designer range of colours.

- Matt & Gloss Black
- Charcoal
- Forest Green.
- Gloss Brown Matt Brown
- Jasmine (Due to enameling costs, Jasmine fires are slightly more expensive.)

Colours are indicative only

Milan has a range of seven models beginning with the 14Kw(Est O/Put) Caldo to the 22Kw(Est O/Put) Ar'dore. No matter what area size you wish to heat, Milan can cater for your needs.

Single action heat controls for ease of operation.
Removable baffle for easy cleaning.
Extended burn times.
Air wash over glass.
Optional hot water boosters.
Durable vitreous enamel finish.
Cook top options.

Milan
HEATING SYSTEMS
TRIED TRUSTED PROVEN

THE CALDO (F1-11)

The Big Easy.
Easy on the eye, Easy to operate, Easy on the pocket.

This beautifully designed heater is a top buy for bottom dollar.

It is ideally suited for homes up to 1300 Sq. Ft.

Advanced inner heat shield technology allows Milan to high-temp powder coat the Caldo's outer cabinet giving the Caldo a durable non-fade finish.

Ash Hearth Approved.

(Available as a package: Fire, Hearth, Flue Kit. Consult your Milan agent.)

Cosmetically appealing shaped door.

THE PICCOLO

Advanced design features enable The Piccolo to be installed with small clearances but still capable of 17Kw (Est O/Put) heat output.

It will heat homes up to 1700 Sq. Ft in size. Soft lines and striking good looks may fool you into thinking this is a small fire, be warned!

The Piccolo out performs its rivals.

Ash Hearth Approved.

(Available as a package: Fire, Hearth, Flue Kit. Consult your Milan dealer.)

Milan
HEATING SYSTEMS
TRIED TRUSTED PROVEN

THE TUSCANY

The Tuscany is today's alternative to the 'Pot Belly'. Rustic inspiration blended with contemporary mood. Form without frills, elegant home heating with radiator efficiency.

The large flat top is ideal for cooking and the powerful Tuscany will heat homes up to 2500 Sq. Ft.

Modern technology enables the Tuscany to require an ash hearth only.

THE MILANO

There is something magical, almost hypnotic about watching the flickering flames of a fire and the Milano's wide screen door offers great viewing. Behind the elegant exterior hides a heart of heavy brick lined steel capable of heating homes up to 2000 Sq. Ft.

When it's Cold outside, create Warmth inside - with MILAN

Franklin DISTRICT COUNCIL

Building Consent Number 38226.

These Plans & Specifications are approved subject to all work being carried out in compliance with the Building Act 1991 and the New Zealand Building Code.

- No deviation from these plans and specifications is permitted without the written consent of the Building Enforcement Officer.
- These Plans & Specifications must be kept with the Building Consent on the site of the works during construction.

PLANS
AND SPECIFICATIONS
APPROVED
SUBJECT TO SUCH CONDITIONS AS ARE
ENDORSED ON OR APPENDED TO THE
BUILDING CONSENT
B. Hopper
Bld. Enf. Officer
Date 8/06/01

FRANKLIN DISTRICT COUNCIL
Approved for P.I.M. No. 38226

All Building Work is to fully comply with the NZ Building Code 1992. Acceptable Solutions and/or Alternative Solutions.

A Code Compliance Certificate will be issued by the Franklin District Council, **TO THE OWNER**, when a producer statement from a Council Approved Installer is received.

Fire Heater unit to be installed in strict compliance with manufacturers specifications and instructions, in accordance with NZS 7421:1990. An inspection is to be called for before appliance is used unless installed by a registered installer.

Provide seismic restraint to the Fire unit and the hearth in accordance with NZS 7421:1990 and NZB Code B1/AS3

J.H. Brewster Ltd.

Designers and Manufacturers of Heating & Plumbing Systems

P.O.Box 246

135 Manukau Road, Pukekohe. Phone 09-238 8037

TO Franklin District
(TERRITORIAL AUTHORITY)

BUILDING CONSENT NO: 38226
BUILDING REGULATION CLAUSE

PRODUCER STATEMENT - CONSTRUCTION

ISSUED BY: J.H Brewster Ltd (CERTIFIED INSTALLER) INSTALLER NO: 1646

TO: Mr & Mrs M. Titchmarsh
(OWNER)

IN RESPECT OF: INSTALLATION OF SOLID FUEL HEATER

AT: 99 Escotts Road
Tuakau
(ADDRESS)

LOT: DP: SD:

J.H Brewster Ltd (CERTIFIED INSTALLER) HAS CONTRACTED TO OWNER (OWNER/DEVELOPER)
TO PERFORM THE ABOVE WORK AS DESCRIBED.

I John Brewster CERTIFIED INSTALLER NO 1646 have sighted Building Consent No. 38226 and believe on reasonable grounds that the solid fuel heating appliance installation has been installed as per the above Building Consent and the Heater Manufacturers instructions in its present state.

I also understand that this Producer Statement, if accepted, will be relied upon by the Franklin District Council for the purpose of establishing compliance with the Building code.

SIGNATURE OF CERTIFIED INSTALLER:

DATE: 18.06.01

EMPLOYMENT STATUS
(COMPLETE AS APPLICABLE)

SELF EMPLOYED

ADDRESS: J.H. BREWSTER LTD
135 MANUKAU RD
P.O. BOX 246
PUKEKOHE

PHONE: 2388037

EMPLOYEE

EMPLOYER NAME:
ADDRESS:

PHONE:

28 March 2018

Ref No: J00779-Rev1

Hughes Developments Limited
C/- CivilPlan Consultants Limited
PO Box 97796

Attention: Mr R. Pitkethley

Dear Ryan

RE: Geotechnical Investigation Report for Residential Subdivision at 99 Escotts Road, Tuakau

1 PROJECT BRIEF, SCOPE AND OBJECTIVES

This report has been prepared for Hughes Developments Limited in support of an application to the Waikato District Council for Resource Consent in accordance with the requirements of the Resource Management Act 1991.

Where appropriate, it is in accordance with the recommendations of NZS 4404, Land Development and Subdivision Engineering and related documents.

The scope of this report encompasses the geotechnical suitability and stability of the land having regard for the nature of the development proposals.

Its principal objectives were to assess:

- Existing geomorphological features and their effects on existing and proposed site stability.
- The nature, bearing qualities and relative uniformity of the subsoils to the depths likely to be affected by proposed land development works and future building loads.
- Engineering works required to remediate areas having identified slope stability or groundwater problems.

2 RELATED REPORTS

As part of the preparation of this report we have reviewed the following existing geotechnical reports for the site:

- Ground Consulting Limited, Geotechnical Investigation Report at Escotts Road, Tuakau; Ref R1705-1, dated 28 November 2014.
- Ground Consulting Limited, Geotechnical Investigation Report (Addendum Report) at Escotts Road, Tuakau; Ref R1705-2, dated 8 June 2015.

These investigation reports were for a previous residential subdivision layout for the site comprising of 92 residential lots with a similar layout. It is unknown whether these reports were ever submitted to Council for any previous consent application(s) or subdivision scheme.

As part of their investigations, 23 no. hand auger boreholes were drilled to depths up to 4m and we have appended these borehole logs as supplementary information (Appendix 4).

The main findings of these reports were as follows:

- A geotechnical ultimate bearing capacity of 300kPa should apply for all lots contained within the subdivision.
- The soils were assessed to be Class M (moderately expansive) in terms of AS 2870.
- Computer slope stability assessments undertaken showed that some portions of the stream bank edge along the eastern boundary of the site returned factors of safety below required minimums. Building restriction zones, regrading of sections of slopes and subsoil drainage were recommended within areas of concern.

3 SITE DESCRIPTION

The study area (99 Escotts Road) is located off the eastern end of Escotts Road and this site is described as follows from the Ground Consulting Limited Geotechnical Investigation Report. We concur with this assessment and reiterate as follows:

Site Topography

The subdivision is located on two predominant landforms as follows:

Gently Sloping Terrace: The majority of the subdivision is located on an extensive gently sloping terrace with measured slope angles of less than 10° to the horizontal. The terrace slopes gently down from a high point at ~RL 41m which is located close to the existing end of Escotts Road.

Kairoa Stream Bank: The eastern extent of the gently sloping terrace is marked by a break of slope which delineates the upper portion of a bank which extends down to the Kairoa Stream. The Kairoa Stream is located on or close to the eastern subdivision boundary. The bank is between 5m and 10m high and consists of a series of moderately steep to steep slopes and gullies with intermediary gently sloping topography.

The steeper portions of the bank within the southern portion of the subdivision have been terraced as part of an abandoned orchard.

A tributary of the Kairoa Stream extends onto the south-western portion of the subdivision. This forms a small, moderately steep gully which extends down to existing ponds located to the south-west of the subdivision.

Site Features

The gently sloping terrace and gently sloping portions of the Kairoa Stream bank are presently utilized as a kiwifruit orchard. The orchard consists of series of timber posts, rails and wires which are accessed via. grassed tracks.

The steeper portions of the stream bank are covered in exotics, regenerating bush and fruit trees.

A dwelling is located near the intersection of proposed Roads 1 and 2. The dwelling is accessed via a driveway off Escotts Road.

The subdivision contains no other features of note.

Slope Instability Features

The gently sloping terrace which extends across the majority of the subdivision does not contain any slope instability features.

The steeper portions of the stream bank showed signs of shallow seated slumping typically where slope grades are 1(v) on 3(h) or steeper. The slope instability consisted typically of shallow regolith type failures forming creep terracettes and hummocky ground.

Some of the slopes near the stream edge have been terraced as part of an abandoned orchard. It is likely that the terracing has removed pre-existing slope creep.

4 DEVELOPMENT PROPOSALS

The attached Civil Plan Consultants Limited plan set (Appendix 1) presents the development proposals for the site and show the following:

- Subdivision into 93 new residential lots.
- Associated road, stormwater and sanitary sewer infrastructure.
- 2 new stormwater control ponds.
- 3 retaining walls up to 3.6m high along the eastern boundary of several lots within the eastern portion of site and along the southern boundary of several lots within the south-western portion of the site.

Bulk earthworks for the above proposals will comprise cuts of up to 4m deep and fills up to 4.5m deep.

5 FIELDWORK

We have relied on the Ground Consulting Limited field investigation data (attached in Appendix 4 as supplementary information) as part of the preparation of this report. Their field investigation included the drilling of 23 no. boreholes to depths up to 4m.

In addition, we visited site on 30 October 2017 and drilled 6 no. additional hand auger boreholes to depths up to 5m within proposed stormwater ponds and along the retaining wall alignment. Our borehole logs are attached in Appendix 3.

A summary of findings is as follows:

6 SUMMARY OF GROUND CONDITIONS

6.1 Published Geology

The Geological Map of New Zealand, Sheet 3, at a scale of 1:250,000 maps the subdivision as being underlain by the South Auckland Volcanic Field. The South Auckland Volcanic Field consists of basalt flows, scoria, tuff and ash deposits.

Within the vicinity of stream along the eastern boundary, the presence of Holocene age alluvial deposits overlying the above South Auckland Volcanic Field deposits is expected.

6.2 Previous Fieldwork Findings

6.2.1 Ground Consulting Limited Fieldwork Findings

Below is a summary of ground condition findings from the Ground Consulting Limited Geotechnical Investigation Report. We concur with their assessments and reiterate as follows:

Topsoil

Topsoil mantles the grassed and orchard portions of the subdivision to a measured depth of between 0.1m and 0.4m with an average topsoil depth of ~0.2m.

Slope Colluvium

Colluvial soil associated with regolith type slope instability features has developed on the steeper portions of the stream bank. The colluvium consists of disturbed weathered volcanic ash to an observed depth of up to 2.0m but typically less than 0.5m thick.

Weathered Volcanic Ash

A thick weathered volcanic ash layer underlies the subdivision. The weathered volcanic ash typically consists of clayey SILT with some sand which is very stiff to hard, moist, moderately plastic & insensitive.

Shear strength testing undertaken provided an undrained shear strength of between 142kPa and >199kPa with the majority of readings >199kPa.

Volcanic Tuff

Hand auger bore refusal was met within tests HA113, 118, 121 at a depth of between 2.1m and 3.0m. Refusal was typically on very dense silty fine SAND which typically forms the upper portion of weathered tuff deposits.

The hand auger bores are located close to the base of the stream bank. As such it is likely that the stream has eroded down to competent tuff deposits. The tuff deposits likely also underlie the subdivision at depth.

Groundwater

Groundwater was not encountered within any of the hand auger bores undertaken indicating a coherent groundwater table depth of at least 2.0m in the vicinity of the subdivision.

6.3 Lander Geotechnical Fieldwork Findings

6.3.1 HA1, HA2, HA4 and HA5

These boreholes were drilled along or near the proposed retaining wall alignments.

For HA1, HA2 and HA4 the ground conditions below the topsoil comprised:

- Orange/ brown, stiff to hard silty clay and clayey silt (ash) with sand and gravel inclusions and banding. Termination on inferred basalt boulders/ gravel was encountered and 1.7m, 2.2m and 4.9m respectively.
- Scala penetrometer testing within the base of boreholes HA1 and HA2 encountered effective refusal (i.e. hammer bouncing) within 300mm.

- Groundwater was encountered within HA2 only, with a standing water level at the completion of the borehole measured at 2.1m.

For HA5 the ground conditions below the topsoil comprised:

- Orange/ brown/ black, stiff to hard silty clay and clayey silt (ash and tuff) with some sand. Standing groundwater level encountered at 3.8m.

6.3.2 HA3 and HA6

These boreholes were drilling within proposed stormwater pond areas. Ground conditions encountered below the topsoil were as follows:

- HA3: orange/ brown, very stiff to hard silty clay (ash) with sand and gravel inclusions. Termination on inferred basalt boulders/ gravel at 1m. Scala penetrometer testing within borehole base encountered effective refusal (i.e. hammer bouncing). Standing groundwater level encountered at 0.9m.
- HA6: orange/ grey, firm to hard silty clay (alluvium). Termination on dense materials at 2.5m. Scala penetrometer testing within borehole base encountered effective refusal (i.e. hammer bouncing). Standing groundwater level encountered at 0.2m.

6.3.3 Trial Pits

In addition to the above hand auger boreholes, further fieldwork comprising of trial pits using a hydraulic excavator were undertaken on 6 December 2017 within the proposed stormwater pond areas with ground conditions summarised as follows:

Northern Pond (east of lots 80 to 83):

- TP1 excavated near the proposed pond found topsoil/ gully mullock to 0.4m. Beneath this, soft to firm, moist to wet, silty clay alluvium was encountered to 2.4m. Very stiff, moist, silty clay ash materials were encountered below this. Groundwater inflow was not encountered.

Southern Pond (east of lots 78 to 79)

- TP2 to TP4 excavated within the proposed pond area encountered hard, most, silty clay ash materials to between 1m and 1.5m depth. Below this, hard, moist to wet, gravelly clay and silty clay tuff with some to common basalt boulders up to 500mm in diameter was encountered. TP2 was terminated within this geology at 3.8m when an inferred basalt boulder too large to excavate was encountered. Groundwater inflow was encountered in all three trial pits between 1.5m and 3.5m.

7 SLOPE STABILITY

7.1 Approach to Slope Stability Analyses

A total of eight cross sections were provided to us by Civilplan Consultants Ltd (as appended) and seven of these cross-sections were used for computer slope stability analysis via SlopeW 2012 version 8 software using the Morgenstern-Price method for circular slips, which is considered to be the governing mode of failure for the geotechnical site model (based on geomorphology, as discussed in section 3).

The degree of stability of a slope is expressed as the factor of safety, which is the ratio of the forces resisting failure to the driving forces causing instability. Theoretical failure of a slope is possible when the factor is 1.0, while increasing values above 1.0 indicate improving stability. General industry standards require slopes within residential subdivisions to have minimum factors of safety of

1.5 and 1.3 under normal and worst credible groundwater conditions respectively. The worst credible groundwater level is based on the Ground Consulting Limited assessment of 2m above assumed existing groundwater level. We concur with this and have adopted the same transient groundwater level for our analyses.

Stability risks on this site were assessed by worst case scenario techniques. Worst case scenarios involve the assessment of the theoretically worst groundwater levels for an existing slope and then using assumed realistic parameters to establish the lowest factor of safety for these conditions. Seismic event (1 in 150 year event, as is usual industry standard for residential subdivision[1]) analysis was also undertaken using effective stress (pseudostatic) and also undrained shear strength parameters with a minimum factor of safety of 1.2 generally acceptable in this scenario.

For our analyses, the following table of conservative effective stress soil parameters were selected. These parameters have been selected based on our experience within similar geologies, and are no less conservative than the industry norm (based on Auckland Council Code of Practice for Land Development and Subdivision, Section 2, Version 1.6, Dated 24 September 2013).

Table 1: Effective Stress Parameters

Description	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (degrees)
Alluvium/ Recent Colluvium	16	3	28
Volcanic Ash	17	5	30
Weathered Volcanic Tuff	18	7	32
Engineer Certified Fill	18.5	5	32

Existing groundwater, elevated groundwater (2m above existing groundwater) and seismic cases were analysed for each cross section in order to assess the existing (pre development) and post development slope stability, results of which are appended. A summary of critical cases is presented in the following table:

Table 2: Minimum Factors of Safety

Case No.	Conditions of Analysis	Factor of Safety (F.O.S)	Meets F.O.S Criteria? (Y/N)
A.1	Section A – Existing Slope – Existing Groundwater	1.532	Y
A.2	Section A – Existing Slope – Elevated Groundwater	1.166	**N (<1.3)**
A.3	Section A – Existing Slope – Existing Groundwater – Seismic 1/150yr	1.251	Y
A.4	Section A – Proposed Slope – Existing Groundwater	1.854	Y
A.5	Section A – Proposed Slope – Elevated Groundwater	1.317	Y
A.6	Section A – Proposed Slope – Existing Groundwater – Seismic 1/150yr	1.520	Y
B.1	Section B – Existing Slope – Existing Groundwater	2.187	Y
B.2	Section B – Existing Slope – Elevated Groundwater	1.749	Y
B.3	Section B – Existing Slope – Existing Groundwater – Seismic 1/150yr	1.670	Y

Case No.	Conditions of Analysis	Factor of Safety (F.O.S)	Meets F.O.S Criteria? (Y/N)
B.4	Section B – Proposed Slope – Existing Groundwater	1.978	Y
B.5	Section B – Proposed Slope – Elevated Groundwater	1.627	Y
B.6	Section B – Proposed Slope – Existing Groundwater – Seismic 1/150yr	1.522	Y
C.1	Section C – Existing Slope – Existing Groundwater	4.350	Y
C.2	Section C – Existing Slope – Elevated Groundwater	3.383	Y
C.3	Section C – Existing Slope – Existing Groundwater – Seismic 1/150yr	2.817	Y
C.7	Section C – Remediated Slope (Retaining Wall) – Existing Groundwater	1.595	Y
C.8	Section C – Remediated Slope (Retaining Wall) – Elevated Groundwater	1.352	Y
C.9	Section C – Remediated Slope (Retaining Wall) – Existing Groundwater – Seismic 1/150yr	1.343	Y
E.1	Section E – Existing Slope – Existing Groundwater	1.317	**N (<1.5)**
E.2	Section E – Existing Slope – Elevated Groundwater	0.919	**N (<1.3)**
E.3	Section E – Existing Slope – Existing Groundwater – Seismic 1/150yr	1.119	**N (<1.2)**
E.7	Section E – Remediated Slope (3m Deep Counterfort Drains & Retaining Wall) – Existing Groundwater	1.636	Y
E.8	Section E – Remediated Slope (3m Deep Counterfort Drains & Retaining Wall) – Elevated Groundwater	1.572	Y
E.9	Section E – Remediated Slope (3m Deep Counterfort Drains & Retaining Wall) – Existing Groundwater – Seismic 1/150yr	1.341	Y
F.1	Section F – Existing Slope – Existing Groundwater	1.500	Y
F.2	Section F – Existing Slope – Elevated Groundwater	1.241	**N (<1.3)**
F.3	Section F – Existing Slope – Existing Groundwater – Seismic 1/150yr	1.230	Y
F.4	Section F – Proposed Slope – Existing Groundwater	1.700	Y
F.5	Section F – Proposed Slope – Elevated Groundwater	1.451	Y
F.6	Section F – Proposed Slope – Existing Groundwater – Seismic 1/150yr	1.389	Y
G.1	Section G – Existing Slope – Existing Groundwater	1.900	Y
G.2	Section G – Existing Slope – Elevated Groundwater	1.609	Y
G.3	Section G – Existing Slope – Existing Groundwater – Seismic 1/150yr	1.449	Y
G.4	Section G – Proposed Slope – Existing Groundwater	1.876	Y

Case No.	Conditions of Analysis	Factor of Safety (F.O.S)	Meets F.O.S Criteria? (Y/N)
G.5	Section G – Proposed Slope – Elevated Groundwater	1.526	Y
G.6	Section G – Proposed Slope – Existing Groundwater – Seismic 1/150yr	1.588	Y
H.1	Section H – Existing Slope – Existing Groundwater	2.186	Y
H.2	Section H – Existing Slope – Elevated Groundwater	1.743	Y
H.3	Section H – Existing Slope – Existing Groundwater – Seismic 1/150yr	1.800	Y
H.4	Section H – Proposed Slope – Existing Groundwater	1.568	Y
H.5	Section H – Proposed Slope – Elevated Groundwater	1.568	Y
H.6	Section H – Proposed Slope – Existing Groundwater – Seismic 1/150yr	1.419	Y

7.2 Discussion on Stability Analyses

As can be seen from the above results, the proposed land modification works generally improves the current slope stability factors of safety through easing slope gradients (i.e. removing driving force), filling of the toe of slopes and installation of retaining walls (i.e. increasing resisting force).

However, our stability analyses found that to achieve satisfactory factors of safety post development below the proposed retaining wall within the vicinity of cross-section E-E, a series of 3m deep counterfort drains will be required to control groundwater levels and achieve a satisfactory factor of under worst case scenario elevated ground water conditions (i.e. engineering remediation is required here).

It should be noted however that on slopes steeper than 1(v) in 4(h) shallow soil creep can also occur in the surficial soils and this cannot be modelled accurately using the computer slope stability software. This phenomenon occurs slowly generally due to seasonal fluctuations in moisture content and the expansive nature of the soils, coupled with gravity. Implications associated with this are presented later in the report, and in our experience are normally dealt with by the end user commensurate with the nature of a building development proposal (i.e. at Building Consent).

8 PROJECT EVALUATION AND RECOMMENDATIONS

8.1 General

Our review of existing geotechnical reports and recent field investigations have confirmed that the site is generally suitable for the proposed earthworks, subject to the comments and recommendations contained herein.

The undertaking of earthworks construction and drainage works in accordance with NZS 4404, "Code of Practice for Urban Land Subdivision" and related documents should ensure that the completed development is generally suitable for conventional light timber framed dwellings constructed in accordance with the requirements of NZS 3604. However, AS 2870 expansive Site Class provisions will apply.

The results of our computer analyses show that the bulk earthworks should generally improve the long-term factors of safety under both elevated and existing ground conditions. However, cross-section E-E' found that below the proposed retaining wall a series of 3m deep counterfort drains will be required to ensure satisfactory factors of safety are maintained.

8.2 Site Gradients Steeper Than 1(v) in 4(h)

As discussed in section 7.2, where gradients slope steeper than 1(v) in 4(h) soil creep can occur. Building and earthworks restrictions will therefore be imposed on lots where finished slope gradients are steeper than 1(v) in 4(h). This building line restriction will mainly affect the lots along the eastern boundary of the site and portions of the southern boundary of the site, where lots flank gullies and/or proposed ponds.

The extent of any building line restrictions within lots will be imposed as part of the geotechnical completion report. The likely restriction will state that any building development and/or earthworks within the vicinity of areas where slope gradients are 1(v) in 4(h) or steeper will be subject to specific geotechnical site investigation and foundation design, with a view to retaining walls or leading edge foundation piles to mitigate the long term effects of soil creep.

8.3 Geotechnical Drainage

8.3.1 Counterfort Drainage

As discussed in section 7.2 and 8.1, counterfort drainage will be required below the proposed retaining wall within the vicinity of cross-section E-E'. The attached CivilPlan Consultants drawing (drawing number 2011-01-220) show the proposed location of these drains (4no. in total spaced at approximately 12m centres), the exact location of these drains should be confirmed on site by the certifying geotechnical engineer prior to construction, and will need to ensure they do not conflict with future retaining wall foundations and/or public service lines.

Details on their construction is presented on the attached CivilPlan Consultants drawing (drawing number 2011-01-221). This plan shows that the drains should be 450mm to 600mm wide, a 160mm highway grade perforated drain coil should be place within the base of trench and backfill should be with SAP50 scoria (or approved alternative). A 0.5m thick clay capping layer should be placed over the drainage aggregate with non-woven geotextile cloth underlain the cap. The drains should outlet via the detailed outlet structures, just above working stream level.

The counterfort drains will need to be flushed with clean water after their construction to ensure that they will perform as intended. The permanent outlet structure locations for the drains should be positioned above the 100-year stream flood level to prevent debris blockages etc.

Provided the counterfort drains are constructed as specified, outlets are position above the 100-year stream flood level and they are flushed with clean water following construction, the drains are considered robust and will require no specific ongoing maintenance.

8.3.2 Underfill Drainage

The attached CivilPlan Consultants drawing (drawing number 2011-01-220) shows the proposed location of underfill drainage. These drains are to be positioned within the invert of the gully to be filled within the western portion of the site and beneath the proposed fill at the toe of slope within the north-eastern portion of the site. The construction and outlet details for these drains is shown on the attached CivilPlan Consultants drawing (drawing number 2011-01-221).

8.3.3 General

All geotechnical drains and outlets should be carefully recorded on as-built plans by a Registered Surveyor and the details forwarded to us for inclusion in our geotechnical completion report.

8.4 Stormwater Ponds

The CivilPlan Consultants Limited drawings show that two stormwater ponds are proposed with the invert depth of the northern pond to be up to 2.5m and the invert depth of the southern pond to be up to 4.5m.

Northern Pond (east of lots 80 to 83)

The trial pits (TP1) excavated near the vicinity of the northern pond found a layer of soft to firm alluvium to 2.4m with very stiff silt clay ash materials encountered below this.

The soft to firm alluvial layer will need to be undercut (and replaced with engineer certified clay fill) from beneath the proposed pond fill embankments and base of the pond to found the pond on the very stiff silt clay ash materials beneath.

Clay/impermeable liner requirements for this pond should be assessed during construction once the area has been excavated and groundwater conditions are understood.

The undercut cohesive (i.e. silt clay) soft to firm alluvial materials (excluding any gully mullock/ topsoil) from the pond area may be suitable for re-use as engineered fill, however given their wet current moisture content will likely require considerable drying/ mixing/ re-conditioning prior to re-using.

Southern Pond (east of lots 78 to 79)

The trial pits (TP2 to TP4) excavated within the southern pond encountered gravelly clay and silty clay materials below 1m depth. Some to common basalt boulders (up to approximately 500mm diameter) were also encountered within this material and TP2 terminated on an inferred basalt boulder at 3.8m (above proposed pond invert depth in this location of 4.5m).

The contractor should be made aware of the presence of these ground conditions (gravelly silts with common basalt boulders) and allowance for the possibility of difficult to excavate materials should be made. Some of the material excavated from the pond area (i.e. boulders) will not be suitable for reuse on site as engineered fill, assessment of material suitability for re-use should be made on site by the certifying Engineer.

Given the presence of gravelly materials with boulder inclusions, a clay liner (or alternative impermeable membrane) of this pond will likely be required (dependant on the pond design requirements). Assessment of clay/impermeable liner requirements and suitable clay source materials (if required) should be made on site during construction.

General Pond Construction Comments

Construction of pond fill embankments should comprise of undercutting/benching the subgrade down to suitable stiff inorganic natural ground to the satisfaction of the certifying geotechnical engineer. Pond fill embankments should consist of suitable plastic materials sourced from site, the fill testing control criteria for these materials is presented in section 8.9. As is good engineering practice, a seepage key should be provided beneath the centreline of any impoundment fill bunds, approximately 1m deep by 3m wide, and subject to ground conditions observed during construction.

If pond fill or cut batters are proposed steeper than 1(3) in 3(h) then the matter should be referred to us for further stability assessments.

8.5 Retaining Wall

Retaining walls up to 3.6m high (wall type to be confirmed) are proposed in the locations shown on the attached CivilPlan Consultants drawings.

These walls are subject to specific engineering design during building consent phase. Further investigation/ wall type consideration is recommended for the wall near the southern stormwater pond (east of Lot 78) given the potential presence of basalt boulders/floaters within this area (as discussed in section 8.4) which may be an issue for bored pile type wall designs

Building foundations and earthworks restrictions within the vicinity of the retaining walls will apply and this will be addressed as part of the geotechnical completion report.

8.6 Earthworks

8.6.1 General

The bulk earthworks for this development involves cuts within the central and eastern portions of the site and filling of the gully within the western portion of the site along with the construction of the stormwater ponds and installation of civil services and roads.

8.6.2 Site Preparation

Within areas of the subdivision affected by earthworks, all vegetation should be cleared. Outside the extent of the earthworks, vegetation cover should be disturbed as little as possible and reinstated wherever practical.

Topsoil should be stripped from all cut and fill areas, stripping operations being planned to extend well beyond cut and fill lines to avoid peripheral fill contamination. Stockpiles of topsoil and unsuitable materials should be sited well clear of the works on suitable areas of natural ground.

8.6.3 Material Suitability

Earthworks operations involving borrow materials should be relatively straightforward. Generally, we envisage these earthworks will involve inorganic, clayey silts and silty clays that should be suitable, with conditioning, for handling and compaction by conventional earthmoving plant.

It is likely that optimum water contents will be lower than the range of natural water contents and accordingly it might be necessary for some drying to take place before compaction. Conversely, the ash materials on this site likely contain the presence of allophanic soils. Allophanic soils show marked irreversible changes in their physical properties when dried below the natural water content. This is attributed to the collapse of the allophanic gel-like structure and aggregation into much coarser grain sizes. Therefore, there may be a risk that the soils may become problematic if over dried. Careful management of the borrow fill materials will therefore be necessary by the Contractor.

It is recommended that standard compaction curve testing and solid density testing is undertaken from representative borrow areas once the contractors digger has established and prior to bulk cut to fill commencing.

In addition, as stated in section 8.4, the trial pits excavated within the southern stormwater pond (TP2 to TP4) encountered gravelly materials with basalt boulder inclusions below 1m depth. The contractor should be made aware of the presence of these ground conditions (gravelly silts with common basalt boulders) and allowance for the possibility of difficult to excavate materials should be made. Some of the material excavated from the pond area (i.e. boulders) will not be suitable for reuse on site as

engineered fill, assessment of material suitability for re-use should be made on site by the certifying Engineer.

8.6.4 Benching of Slopes

All benching of slopes prior to the placement and compaction of filling should be in accordance with the normal requirements of NZS 4404 and related documents and should be the subject of Engineering inspections prior to the placement of any drainage works or filling.

8.6.5 Unsuitables

Any identifiable deposits of unsuitable materials, including existing uncertified filling and organic alluvial deposits, that are considered unfit for reworking should be undercut and disposed of off the site or on topsoil stockpiles if appropriate.

8.7 Foundations for Buildings

8.7.1 Bearing Capacity and Settlement Potential

A geotechnical ultimate bearing capacity of 300 kPa should generally be available for all shallow strip and pad foundations constructed on certified filling and on the stiff to hard natural ground.

However, within the areas of deeper cut, a value of less than 300 kPa may be specified subject to ground conditions exposed near finished subgrade level.

These issues will be re-addressed in our geotechnical completion report at which time it is recommended that a series of additional hand auger boreholes are undertaken within lots in cut ground.

8.7.2 Expansive Site Class

Based on the assessments made in the previous Ground Consulting Limited geotechnical reports (refer Section 2 above), the preliminary AS 2870 expansive Site Class for the subdivision is M (Moderate) where characteristic surface movement (y_s) up to 40mm can be expected.

However, this preliminary assessment will need to be re-assessed with laboratory testing at the completion of the subdivision, and in our experience of ground conditions within the Tuakau area (i.e. volcanic ashes) expansive site classes can typically range from M (moderate) to H1 (high).

Where Site Class M applies (subject to the aforementioned laboratory testing as part of the geotechnical completion report), foundation design may be carried out in accordance with AS 2870 or in accordance with NZS 3604 provided that in this latter case the minimum foundation depth below cleared ground level following topsoil removal and benching of building platform areas is 600mm, and for Class H1 this would increase to 900mm.

8.8 Roading and Services

8.8.1 Roading

We recommend that a programme of penetration resistance testing is carried out along the proposed Road to assess design CBR values once it is cut to subgrade level.

However, based on our past experience and review of vane shear strengths in the borehole logs, we anticipate that CBR values are likely to range from 3 to 5%. It should be noted that experience on

previous subdivisions in the area showed that penetrometers may return unrealistically low values in subgrades where the volcanic soils are sensitive to disturbance. In these instances, additional testing of the subgrade by Benkelman Beam and design precedence set on other developments within the area may prove useful in determining a pragmatic approach to dealing with such areas less conservatively than usual mechanistic CBR design approaches. In our experience, undercutting of areas displaying weak CBR subgrade is an economical approach. Chemical stabilisation (e.g. using lime/cement additives) will be subject to reactivity testing on the volcanic soils.

8.8.2 Trench Excavation

Some of the hand auger boreholes did not reach target depth (i.e. the boreholes drilled within the vicinity of the two stormwater ponds terminated at depths between 1m and 2.5m and basalt boulders were found below 1m depth within TP2 to TP4). The excavatability of the deeper stormwater and sanitary lines may therefore require determining prior to construction, the drain laying contractor should be made aware of the contents of this report in this regard.

8.8.3 Trench Backfill

The attached CivilPlan Consultants Limited drainage reticulation plan shows the proposed location of proposed stormwater and sanitary sewer lines.

Were trenches run parallel to contours, backfilling should be to the highest attainable and where possible the pipe bedding should contain a Novaflo drain coil that is either connected into a stormwater manhole (if possible) or outletted down slope into the stream reserve area. This is to help prevent instability arising from the ingress of surface water and/or lateral movement of trench sides that could lead to progressive land slippage and is especially important where the lines are in close proximity to buildings.

These recommendations should especially apply to **sewer line trenches A/3 to A/7 and B/4 to B/6**. The subdivision drainlaying contractor must be made aware of these requirements and of the need to contact us when trench backfilling is to take place, **and we recommend the 'For Construction' drawings highlight this requirement.**

8.8.4 Groundwater Problems

Construction of the stormwater and sanitary sewage reticulation during the winter months could involve raised groundwater levels and could cause problems with the stability of trench sides, leading to a need for additional subsoil drainage and/or dewatering, especially in areas where deep lines are required.

8.9 Compaction Control

Our preliminary recommendation for control criteria are as follows:

Minimum Shear Strength and Maximum Air Voids Method

(a) Air Voids Percentage

(As defined in NZS 4402)

General Fill	
Average value less than	10%
Maximum single value	12%
Within 500mm of carriageway subgrade	
Average value less than	8%
Maximum single value	10%
Stormwater Pond Embankment	
Average value less than	6%
Maximum value	8%

(b) Undrained Shear Strength

(Measured by Pilcon shear vane - calibrated using NZGS 2001 method)

General fill	
Average value not less than	**140 kPa**
Minimum single value	**110 kPa**
Within 500mm of carriage subgrade	
Average value not less than	**150 kPa**
Minimum single value	**120 kPa**
Stormwater Pond Embankment	
Average value not less than	**140 kPa**
Minimum single value	**110 kPa**

Note: The average value shall be determined over any ten consecutive tests

8.10 Fill Induced Settlements

Provided the recommendations of this report (i.e. geotechnical drainage, gully muckouts) are followed and given the presence of very stiff subsoils within the site in general, it is expected that any consolidation settlement will have abated by the time bulk earthworks have been completed (which are likely take a minimum of 3 months).

8.11 Plan Review and Further Work

If significant changes are proposed to be made to the earthworks plans reviewed to date, we reserve the right to revisit our evaluations and recommendations when they come to hand. Prior to bulk earthworks commencing, standard compaction curve testing is recommended to confirm the compaction control criteria.

It should be noted that it was not possible to cover all proposed building lots during the site investigation works carried out to date. Accordingly, it may be necessary at the time of preparation of our Geotechnical Completion report to undertake specific site investigation work on any previously uninvestigated lots that have either been cut or not affected by the earthworks.

8.12 Inspections

It is important that we are given the opportunity to examine the site during construction, so that the nature and quality of the exposed subsoils can be related to the report assumptions. In all circumstances however, if variations in the subsoils occur from those described or assumed to exist then the matter should be referred back to us immediately.

Following satisfactory completion of the works we should be in a position to issue a geotechnical completion report (and PS4's for retaining walls inspected by us).

9 LIMITATIONS

This report has been prepared solely for the use of our client, Hughes Developments Limited, their professional advisers and the relevant Territorial Authorities in relation to the specific project described herein. No liability is accepted in respect of its use for any other purpose or by any other person or entity. All future owners of this property should seek professional geotechnical advice to satisfy themselves as to its ongoing suitability for their intended use.

The opinions, recommendations and comments given in this report result from the application of normal methods of site investigation. As factual evidence has been obtained solely from boreholes which by their nature only provide information about a relatively small volume of subsoils, there may be special conditions pertaining to this site which have not been disclosed by the investigation and which have not been taken into account in the report.

If variations in the subsoils occur from those described or assumed to exist then the matter should be referred back to us immediately.

For and on behalf of Lander Geotechnical Consultants Limited

Prepared By:

Chris Edwards
Senior Engineering Geologist
MEngNZ.

Reviewed/ Authorised By:

Shane Lander
Principal Geotechnical Engineer
CMEngNZ, CPEng

Attachments:

Appendix 1: CivilPlan Consultants Limited Plan Set

Appendix 2: Lander Geotechnical Consultants Limited Figure 1

Appendix 3: Lander Geotechnical Field Investigation Data

Appendix 4: Ground Consulting Limited Field Investigation Data (Supplementary Data)

Appendix 5: Slope Stability Analysis Results

Appendix 1

CivilPlan Consultants Limited Plan Set

NOTES:

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM 1946.
   ORIGIN OF LEVELS
   RM II DP 56282 (CSFF)
   RL 39.48
2. EXISTING CONTOURS ARE SHOWN AT 0.5m INTERVALS.
3. DESIGN CONTOURS ARE SHOWN AT 0.5m INTERVALS.
4. CONTOURS SHOWN ARE FINISHED SURFACE LEVELS.
5. SILT AND STORMWATER CONTROL IS TO BE IMPLEMENTED DAILY AND COMPLY WITH THE GENERAL SPECIFICATION.
6. THE CONTRACTOR MUST BE AWARE OF AND COMPLY WITH COUNCIL REQUIREMENTS FOR EARTHWORKS, AT ALL TIMES.
7. IT IS INTENDED THAT THE CONTRACTOR SHALL GRADE THE EARTHWORKS TO THE FINISHED CONTOURS SHOWN. HOWEVER, THE FINAL MARRYING AND SHAPING OF THE EARTHWORKS AREAS ARE SUBJECT TO THE ENGINEERS APPROVAL.
8. ROAD LONGSECTION SUBGRADE LEVELS, TYPICAL CROSS-SECTION LEVELS AND BOUNDARY LEVELS TAKE PRECEDENCE OVER PLAN CONTOUR LEVELS.

LEGEND

10.0 PROPOSED MAJOR CONTOUR
EARTHWORK EXTENT
PROPOSED RETAINING WALL

GDS 09.2017
RJP
RJP

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PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
FINISHED CONTOURS PLAN

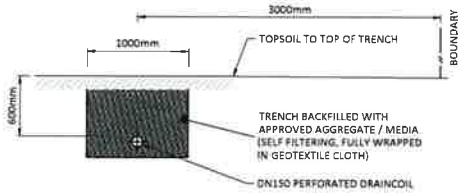
ISSUE STATUS: DRAFT@23.03.18
SCALE: (A1/A3) 1:1000 / 1:2000
SCALE BAR 1:2000@A3 0 20 40 60 80 100m
DRAWING NUMBER 2011-01-200 REV: –

NOTES:

1. PROPOSED ISOPACHS ARE SHOWN AT 0.5m INTERVALS.
2. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
3. ALL TOPSOIL TO BE STRIPPED AND STOCKPILED CLEAR OF THE PROPOSED EARTHWORKS IN A LOCATION AGREED WITH THE ENGINEER.
4. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE INSTALLED, AS-BUILT AND INSPECTED BY THE ENGINEER / COUNCIL REPRESENTATIVE PRIOR TO COMMENCING THE EARTHWORKS ON THE SITE.
5. AREA OF EARTHWORKS = 8.90 ha.
6. EARTHWORK VOLUMES ARE FROM EXISTING SURFACE, TOPSOIL STRIPPED 200mm TO FINISHED SUBGRADE SURFACE AND ARE:
   CUT VOLUME = 30,700 m3 (x0.8 COMPACTION = 24,560 m3 SOLID IN PLACE)
   FILL VOLUME = 30,000 m3 SOLID IN PLACE
   (SHORTFALL OF 5,500m3 SOLID IN PLACE)
7. UNDERFILL DRAINAGE TO BE CONFIRMED ON SITE DURING CONSTRUCTION.
8. COUNTERFORT DRAINS ARE 3m DEEP AT 12m SPACINGS AND ARE TO BE CONFIRMED ON SITE DURING CONSTRUCTION.

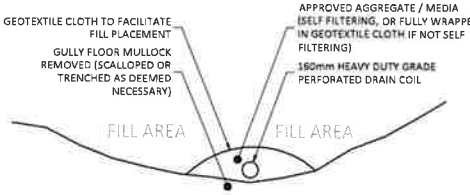
LEGEND

- 10.0 — PROPOSED CUT ISOPACH
- 10.0 — PROPOSED FILL ISOPACH
- EARTHWORKS ZERO CUT/FILL LINE
- EARTHWORK EXTENT
- UNDERFILL DRAIN
- COUNTERFORT DRAIN
- DRAIN OUTLET
- CUT — PROPOSED CUT
- FILL — PROPOSED FILL



TYPICAL DETAIL OF SUBSOIL DRAIN IN COUNCIL RESERVE

SCALE: (A1/A3) 1:25/1:50



TYPICAL UNDERFILL DRAIN DETAIL

SCALE: (A1/A3) 1:25/1:50

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RJP xx.xx.xx
RJP xx.xxxx

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PROJECT TITLE: HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE: PROPOSED ISOPACHS PLAN

ISSUE STATUS: DRAFT@23.03.18
SCALE: (A1/A3) 1:1000 / 1:2000
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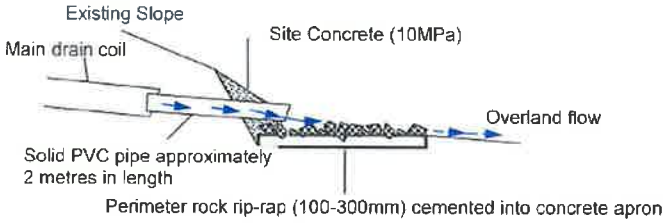
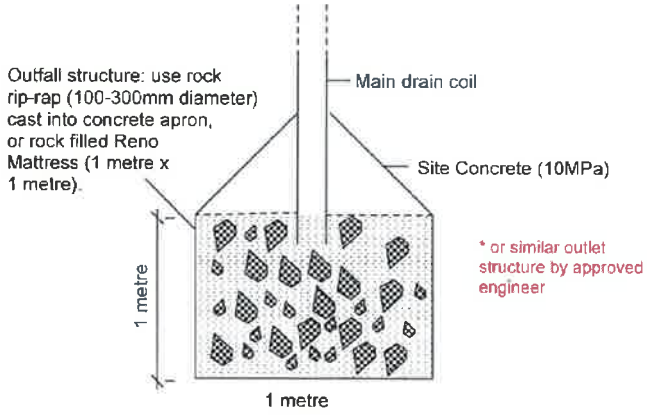
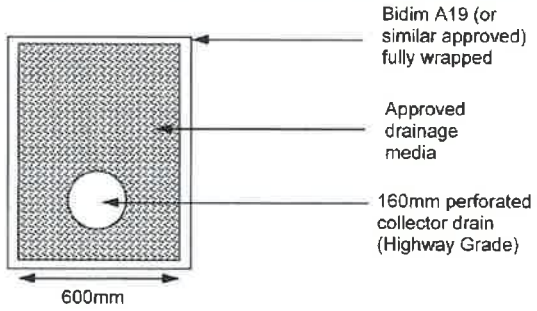
DRAWING NUMBER: 2011-01-220 REV: –



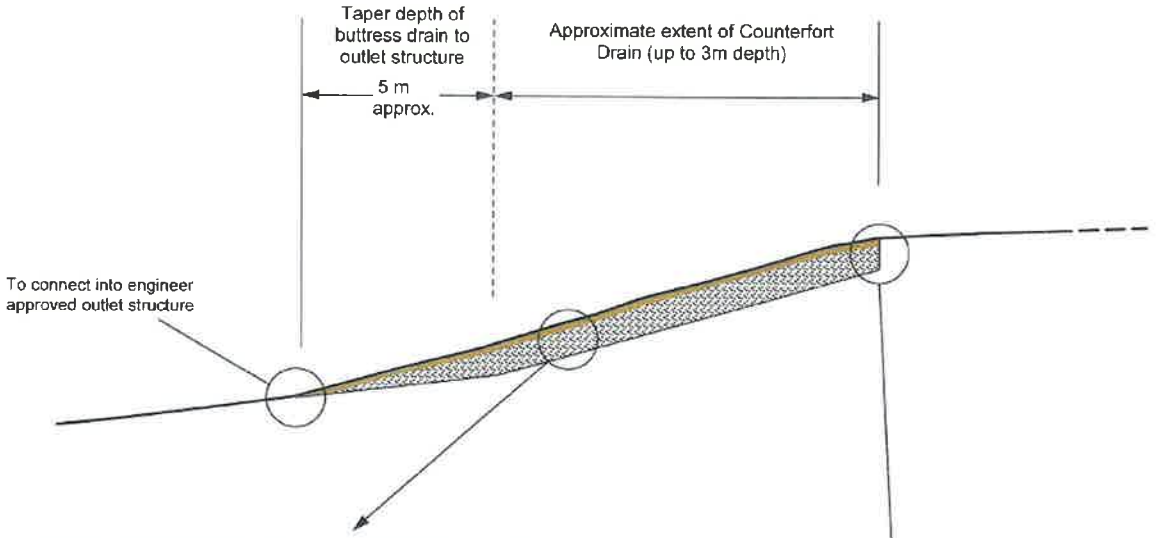
OUTLET STRUCTURE* - PLAN VIEW



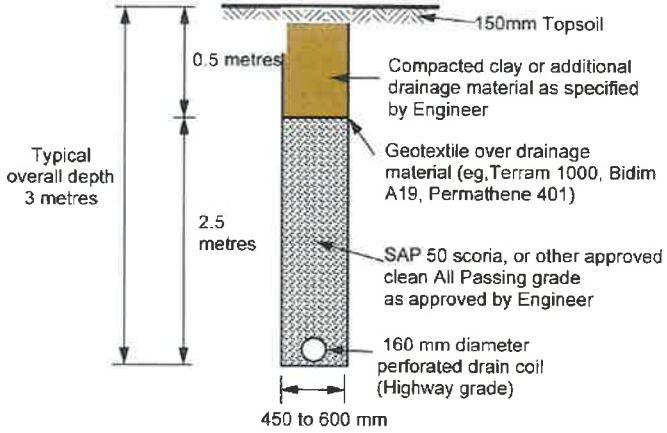
TYPICAL UNDERFILL DRAIN DETAIL - END VIEW

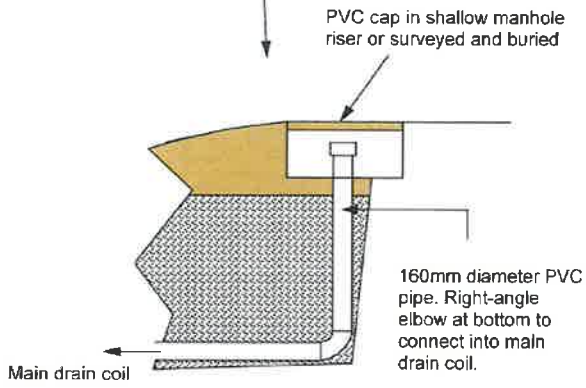


COUNTERFORT DRAINAGE DETAIL - CROSS SECTION VIEW



COUNTERFORT DRAINAGE DETAIL - END VIEW





FLUSHING PORT DETAILS - CROSS SECTION VIEW

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HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

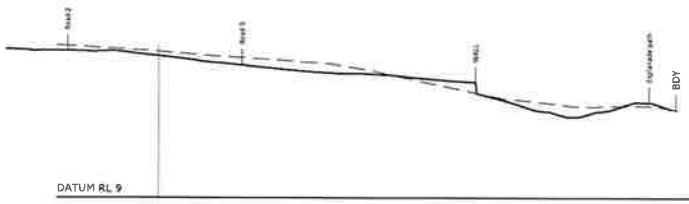
GEOTECHNICAL DRAINAGE DETAILS

ISSUE STATUS: DRAFT@23.03.18
SCALE: (A1/A3) NOT TO SCALE
SCALE BAR N T S
DRAWING NUMBER: 2011-01-221 REV: -

LEGEND

EXISTING GROUND LINE

PROPOSED GROUND LINE



DATUM RL 9

D 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000

DATUM RL 9

C 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000

DATUM RL 9

B 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000

DATUM RL 9

A 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000

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PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
EARTHWORKS CROSS SECTIONS
SHEET 1

ISSUE STATUS: DRAFT@23.03.18

SCALE: (A1/A3) 1:500 / 1:1000

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

DRAWING NUMBER: 2011-01-240 REV: –

LEGEND

EXISTING GROUND LINE

PROPOSED GROUND LINE

DATUM RL 9

H 200 SITE CROSS SECTION
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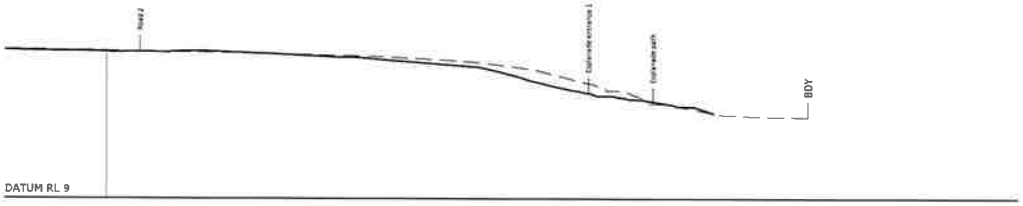
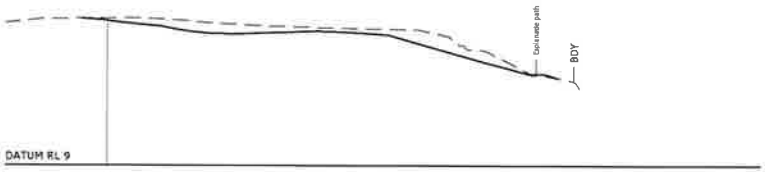


DATUM RL 9

G 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000



DATUM RL 9

F 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000

DATUM RL 9

E 200 SITE CROSS SECTION
SCALE: (A1/A3) 1:500/1:1000

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Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2465

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
EARTHWORKS CROSS SECTIONS
SHEET 2

ISSUE STATUS: DRAFT@23.03.18
SCALE: (A1/A3) 1:500 / 1:1000
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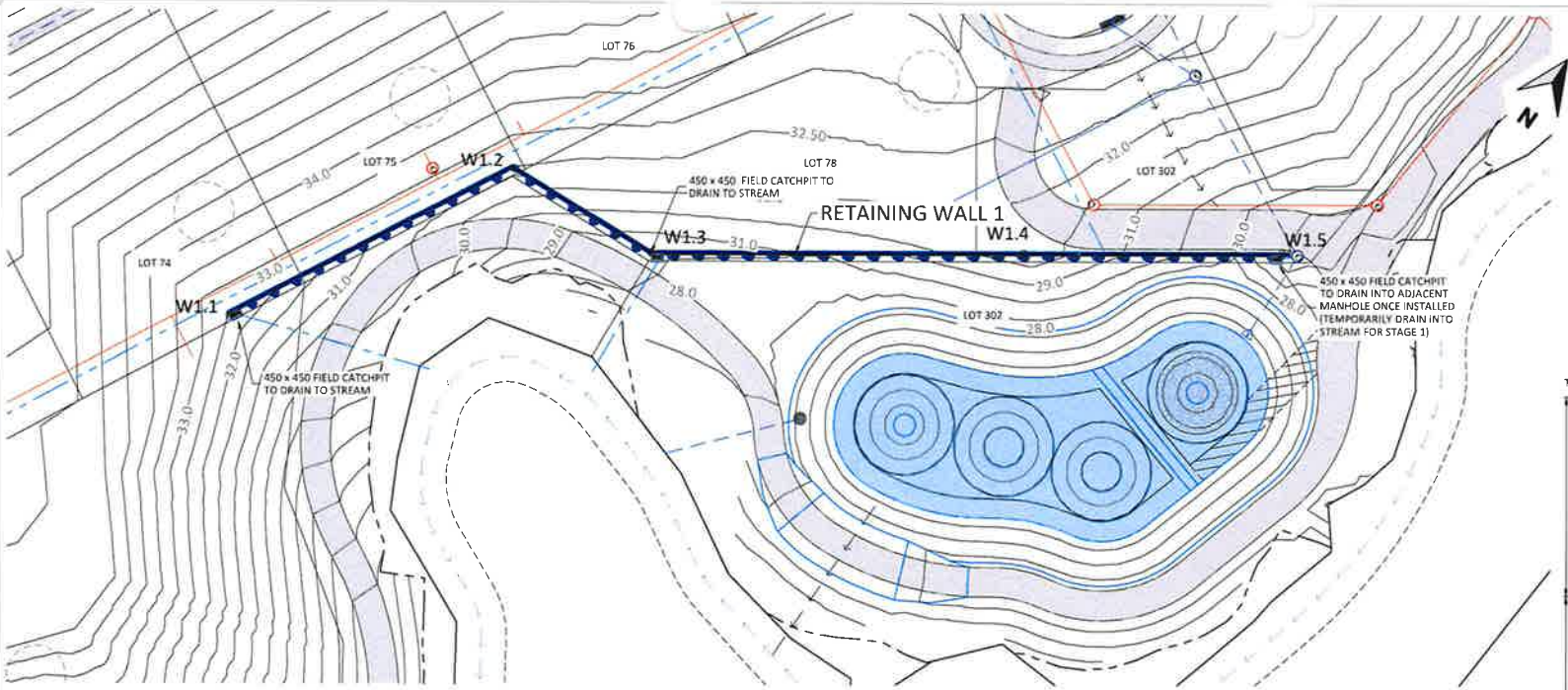
DRAWING NUMBER: 2011-01-241 REV: -



RETAINING WALL PLAN

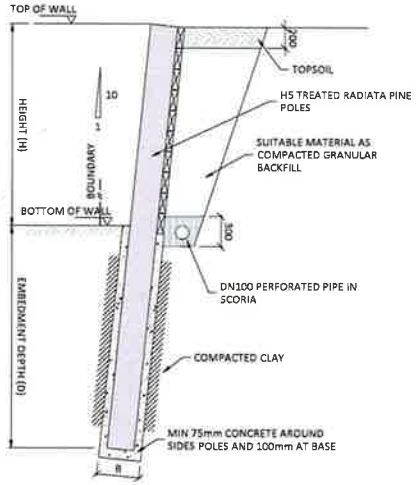
SCALE: (A1/A3) 1:250/1:500

LEGEND

- PROPOSED MAJOR CONTOUR
- EARTHWORK EXTENT
- PROPOSED RETAINING WALL

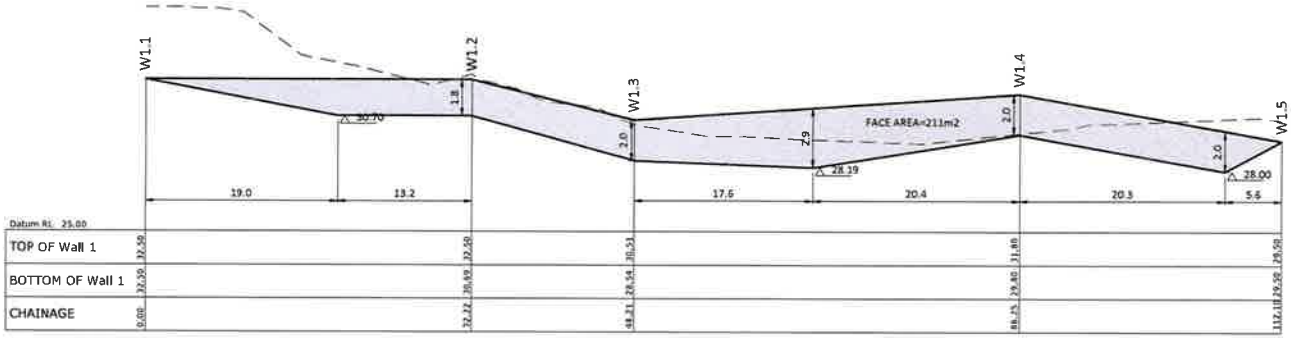
NOTES

1. WALL 1 IS A TIMBER POST RETAINING WALL.



RETAINING WALL 1 TYPICAL CROSS SECTION

SCALE: NTS

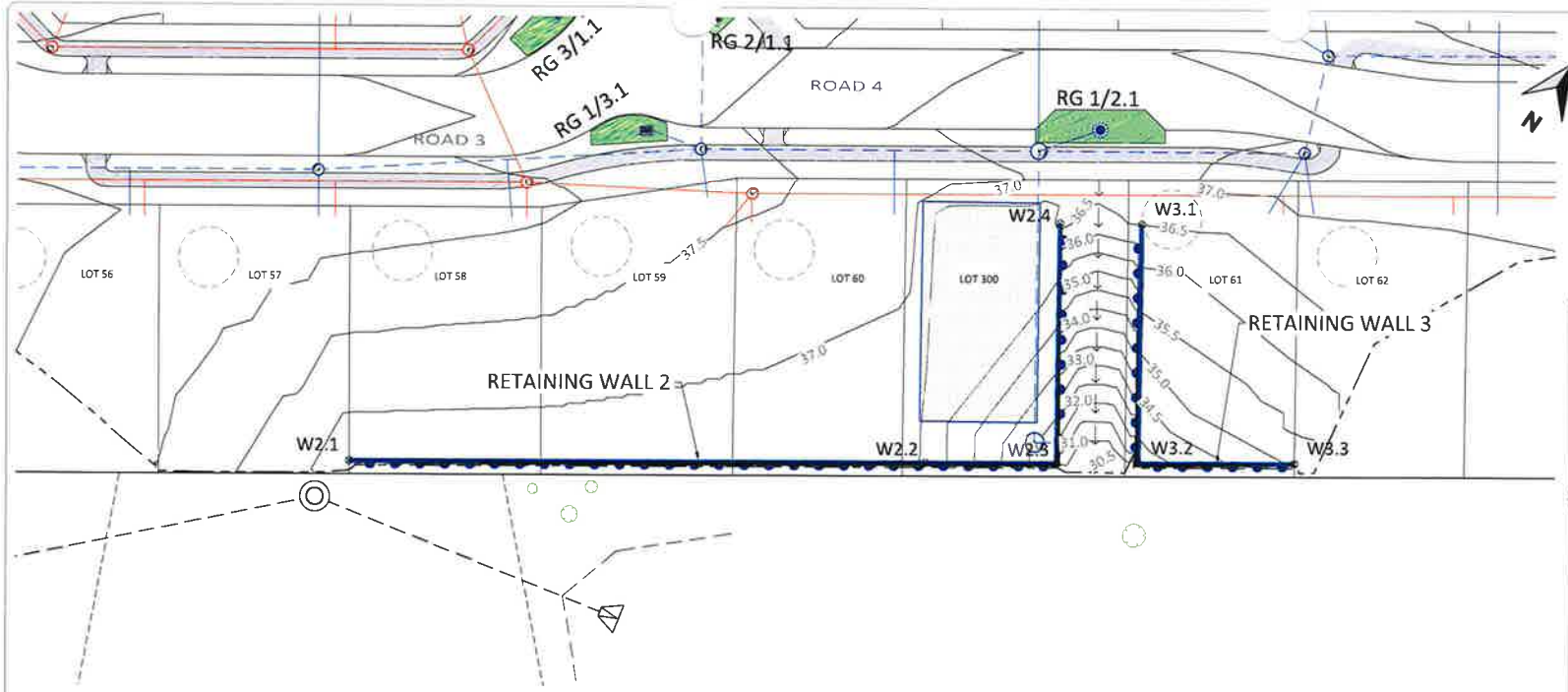


RETAINING WALL 1 LONGITUDINAL SECTION

SCALE: (A1/A3) 1:250H 1:125V / 1:500H 1:250V

WALLS ARE INDICATIVE ONLY-BUILDING CONSENT REQUIRED

	GDS 09.2017	CIVILPLAN CONSULTANTS Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445	HUGHES DEVELOPMENTS LIMITED 99 ESCOTTS ROAD TUAKAU	RETAINING WALL PLAN AND ELEVATION	ISSUE STATUS: DRAFT@23.03.18 SCALE (A1/A3) 1:250 / 1:500 SCALE BAR 1:500@A3 0 5 10 15 20 25m DRAWING NUMBER: 2011-01-270 REV: -



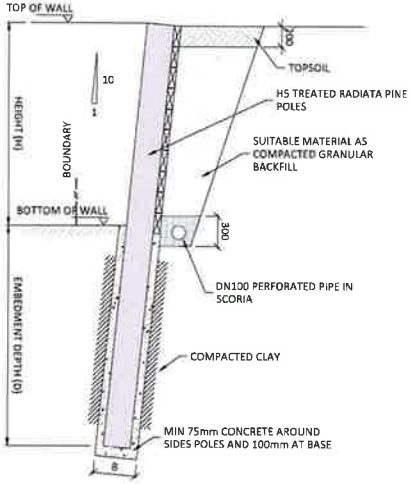
RETAINING WALL PLAN
SCALE: (A1/A3) 1:250/1:500

LEGEND

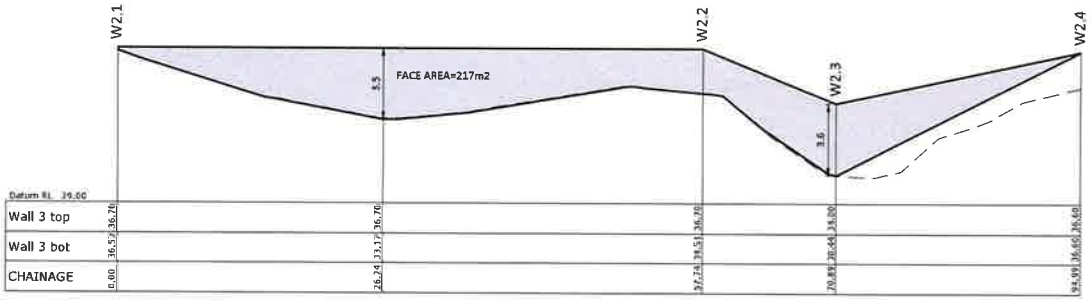
- PROPOSED MAJOR CONTOUR
- EARTHWORK EXTENT
- PROPOSED RETAINING WALL

NOTES

1. WALL 2 AND 3 ARE TIMBER POST RETAINING WALLS.
2. NO PART OF THE WALL IS TO BE WITHIN 1m OF THE BOUNDARY.



RETAINING WALL 2 AND 3 TYPICAL CROSS SECTION
SCALE: NTS



RETAINING WALL 2 LONGITUDINAL SECTION
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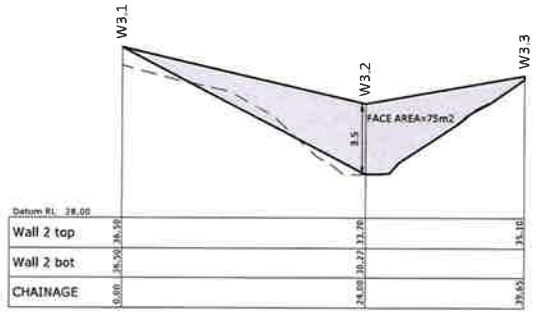

RETAINING WALL 3 LONGITUDINAL SECTION
SCALE: (A1/A3) 1:250H 1:125V / 1:500H 1:250V

WALLS ARE INDICATIVE ONLY-BUILDING CONSENT REQUIRED

GDS 09.2017

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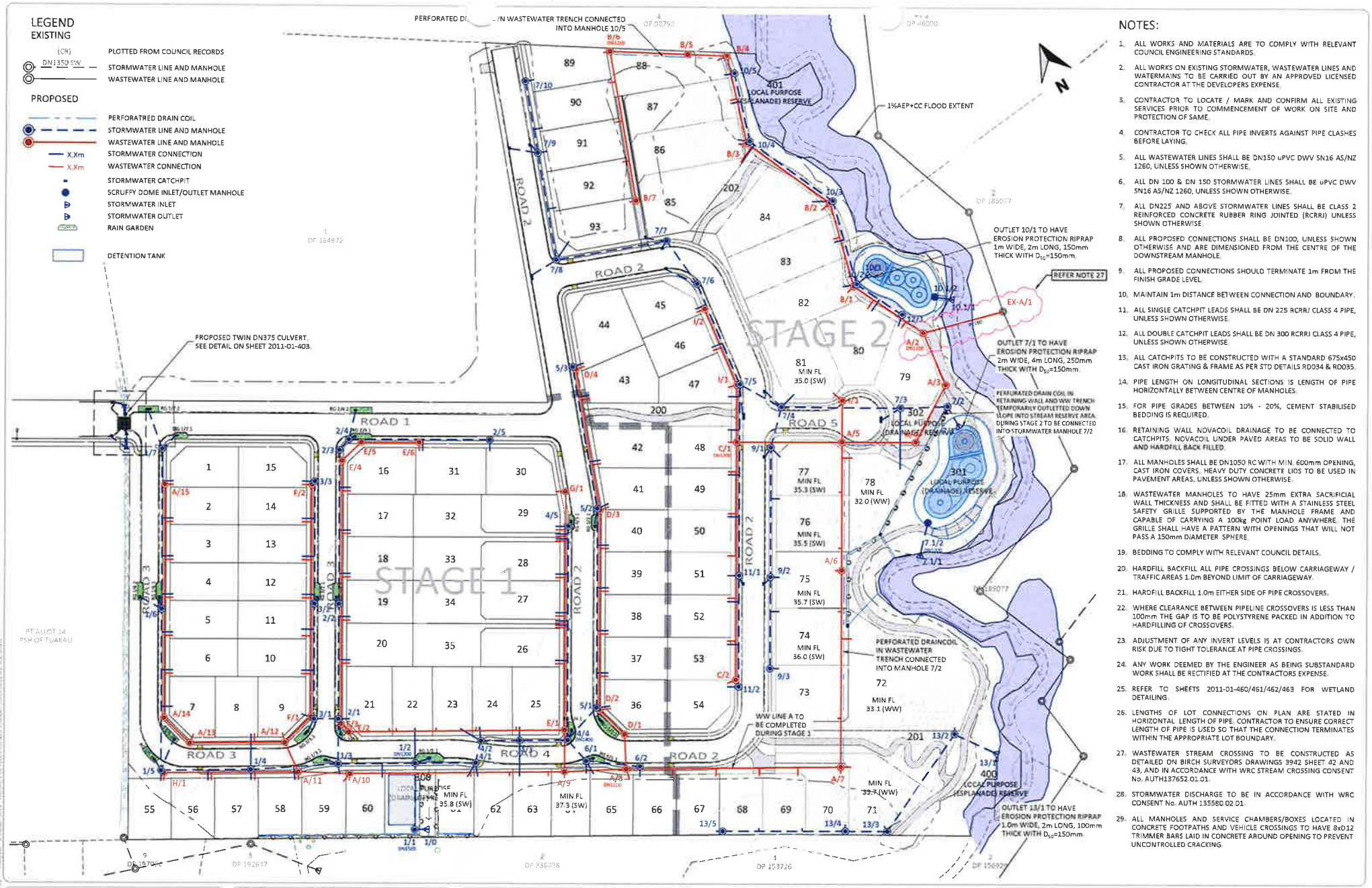
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

PROJECT TITLE:
HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

SHEET TITLE:
RETAINING WALL PLAN AND ELEVATION

ISSUE STATUS: DRAFT@23.03.18
SCALE: (A1/A3) 1:250 / 1:500
SCALE BAR 1:500@A3 0 5 10 15 20 25m
DRAWING NUMBER: 2011-01-271 REV: -

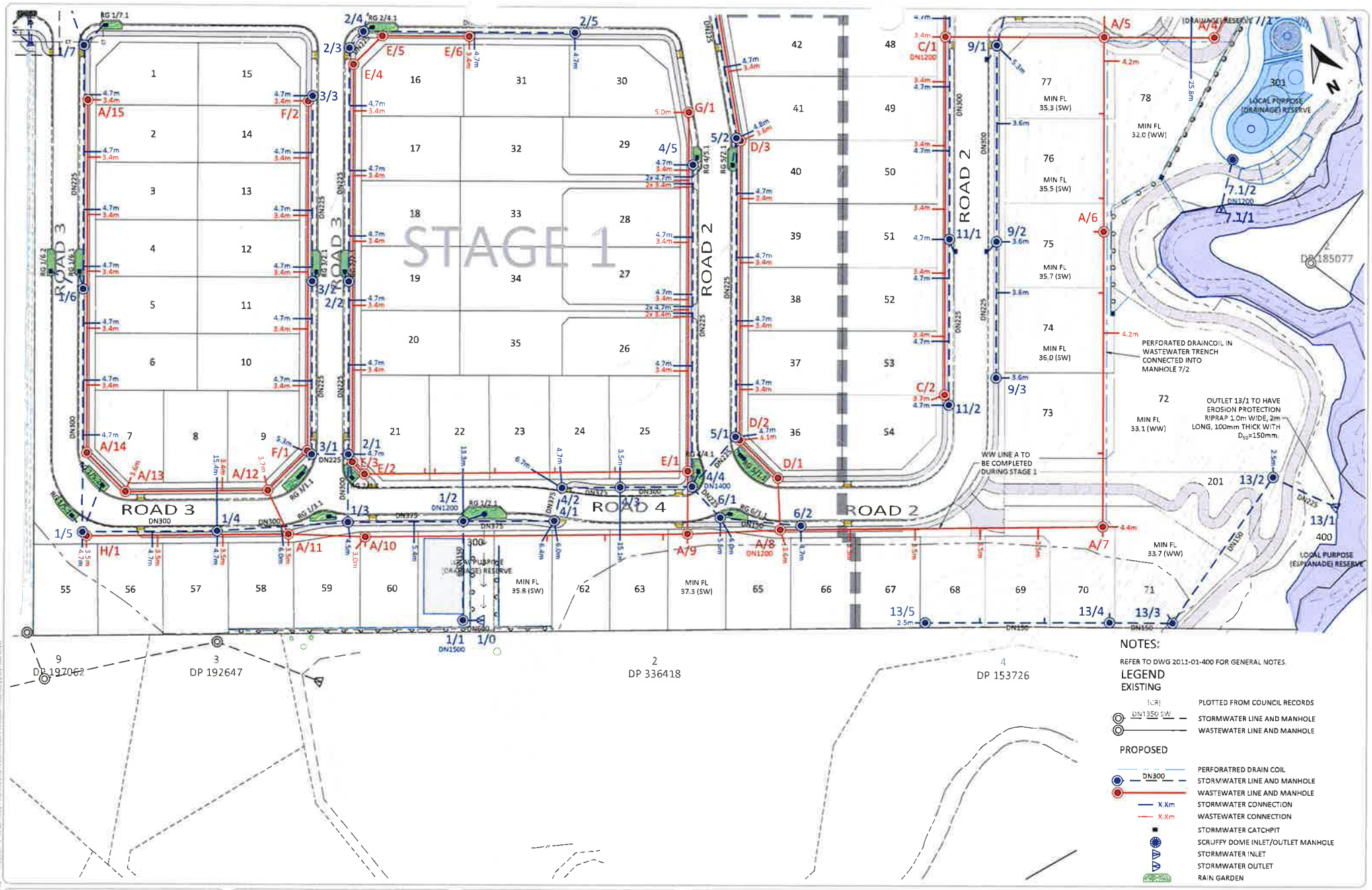


NOTES:

1. ALL WORKS AND MATERIALS ARE TO COMPLY WITH RELEVANT COUNCIL ENGINEERING STANDARDS.
2. ALL WORKS ON EXISTING STORMWATER, WASTEWATER LINES AND WATERMAINS TO BE CARRIED OUT BY AN APPROVED LICENSED CONTRACTOR AT THE DEVELOPERS EXPENSE.
3. CONTRACTOR TO LOCATE / MARK AND CONFIRM ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORK ON SITE AND PROTECTION OF SAME.
4. CONTRACTOR TO CHECK ALL PIPE INVERTS AGAINST PIPE CLASHES BEFORE LAYING.
5. ALL WASTEWATER LINES SHALL BE DN150 uPVC DWV SN16 AS/NZ 1260, UNLESS SHOWN OTHERWISE.
6. ALL DN 100 & DN 150 STORMWATER LINES SHALL BE uPVC DWV SN16 AS/NZ 1260, UNLESS SHOWN OTHERWISE.
7. ALL DN225 AND ABOVE STORMWATER LINES SHALL BE CLASS 2 REINFORCED CONCRETE RUBBER RING JOINTED (RCRRJ) UNLESS SHOWN OTHERWISE.
8. ALL PROPOSED CONNECTIONS SHALL BE DN100, UNLESS SHOWN OTHERWISE AND ARE DIMENSIONED FROM THE CENTRE OF THE DOWNSTREAM MANHOLE.
9. ALL PROPOSED CONNECTIONS SHOULD TERMINATE 1m FROM THE FINISH GRADE LEVEL.
10. MAINTAIN 1m DISTANCE BETWEEN CONNECTION AND BOUNDARY.
11. ALL SINGLE CATCHPIT LEADS SHALL BE DN 225 RCRRJ CLASS 4 PIPE, UNLESS SHOWN OTHERWISE.
12. ALL DOUBLE CATCHPIT LEADS SHALL BE DN 300 RCRRJ CLASS 4 PIPE, UNLESS SHOWN OTHERWISE.
13. ALL CATCHPITS TO BE CONSTRUCTED WITH A STANDARD 675x450 CAST IRON GRATING & FRAME AS PER STD DETAILS RD034 & RD035.
14. PIPE LENGTH ON LONGITUDINAL SECTIONS IS LENGTH OF PIPE HORIZONTALLY BETWEEN CENTRE OF MANHOLES.
15. FOR PIPE GRADES BETWEEN 10% - 20%, CEMENT STABILISED BEDDING IS REQUIRED.
16. RETAINING WALL NOVACOIL DRAINAGE TO BE CONNECTED TO CATCHPITS. NOVACOIL UNDER PAVED AREAS TO BE SOLID WALL AND HARDFILL BACK FILLED.
17. ALL MANHOLES SHALL BE DN1050 RC WITH MIN. 600mm OPENING, CAST IRON COVERS. HEAVY DUTY CONCRETE LIDS TO BE USED IN PAVEMENT AREAS, UNLESS SHOWN OTHERWISE.
18. WASTEWATER MANHOLES TO HAVE 25mm EXTRA SACRIFICIAL WALL THICKNESS AND SHALL BE FITTED WITH A STAINLESS STEEL SAFETY GRILLE SUPPORTED BY THE MANHOLE FRAME AND CAPABLE OF CARRYING A 100kg POINT LOAD ANYWHERE. THE GRILLE SHALL HAVE A PATTERN WITH OPENINGS THAT WILL NOT PASS A 150mm DIAMETER SPHERE.
19. BEDDING TO COMPLY WITH RELEVANT COUNCIL DETAILS.
20. HARDFILL BACKFILL ALL PIPE CROSSINGS BELOW CARRIAGEWAY / TRAFFIC AREAS 1.0m BEYOND LIMIT OF CARRIAGEWAY.
21. HARDFILL BACKFILL 1.0m EITHER SIDE OF PIPE CROSSOVERS.
22. WHERE CLEARANCE BETWEEN PIPELINE CROSSOVERS IS LESS THAN 100mm THE GAP IS TO BE POLYSTYRENE PACKED IN ADDITION TO HARDFILLING OF CROSSOVERS.
23. ADJUSTMENT OF ANY INVERT LEVELS IS AT CONTRACTORS OWN RISK DUE TO TIGHT TOLERANCE AT PIPE CROSSINGS.
24. ANY WORK DEEMED BY THE ENGINEER AS BEING SUBSTANDARD WORK SHALL BE RECTIFIED AT THE CONTRACTORS EXPENSE.
25. REFER TO SHEETS 2011-01-460/461/462/463 FOR WETLAND DETAILING.
26. LENGTHS OF LOT CONNECTIONS ON PLAN ARE STATED IN HORIZONTAL LENGTH OF PIPE. CONTRACTOR TO ENSURE CORRECT LENGTH OF PIPE IS USED SO THAT THE CONNECTION TERMINATES WITHIN THE APPROPRIATE LOT BOUNDARY.
27. WASTEWATER STREAM CROSSING TO BE CONSTRUCTED AS DETAILED ON BIRCH SURVEYORS DRAWINGS 3942 SHEET 42 AND 43, AND IN ACCORDANCE WITH WRC STREAM CROSSING CONSENT No. AUTH137652.01.01.
28. STORMWATER DISCHARGE TO BE IN ACCORDANCE WITH WRC CONSENT No. AUTH 135580.02.01.
29. ALL MANHOLES AND SERVICE CHAMBERS/BOXES LOCATED IN CONCRETE FOOTPATHS AND VEHICLE CROSSINGS TO HAVE 8xD12 TRIMMER BARS LAID IN CONCRETE AROUND OPENING TO PREVENT UNCONTROLLED CRACKING.

	GDS 09 2017	CIVILPLAN CONSULTANTS	HUGHES DEVELOPMENTS LIMITED 99 ESCOTTS ROAD TUAKAU	DRAINAGE RETICULATION PLAN OVERALL LAYOUT	DRAFT@23.03.18 1:750 / 1:1500 0 15 30 45 60 75m 2011-01-400 -

Level 3, 3 Osterley Way, Manukau, Auckland, Phone: 09 222 2445



NOTES:

REFER TO DWG 2011-01-400 FOR GENERAL NOTES.

LEGEND

EXISTING

- (CR) PLOTTED FROM COUNCIL RECORDS
- DN1350 SW — STORMWATER LINE AND MANHOLE
- WASTEWATER LINE AND MANHOLE

PROPOSED

- PERFORATRED DRAIN COIL
- DN300 — STORMWATER LINE AND MANHOLE
- WASTEWATER LINE AND MANHOLE
- X.Xm — STORMWATER CONNECTION
- X.Xm — WASTEWATER CONNECTION
- STORMWATER CATCHPIT
- SCRUFFY DOME INLET/OUTLET MANHOLE
- STORMWATER INLET
- STORMWATER OUTLET
- RAIN GARDEN

GDS 09.2017

CIVILPLAN CONSULTANTS
Level 3, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445

HUGHES DEVELOPMENTS LIMITED
99 ESCOTTS ROAD
TUAKAU

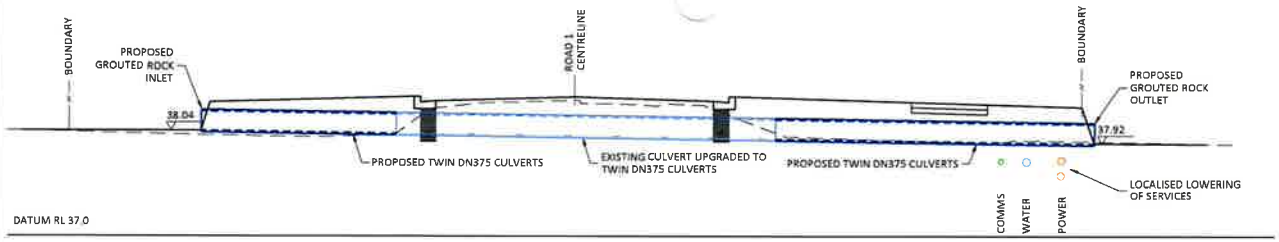
DRAINAGE RETICULATION PLAN
DETAIL SHEET 1

ISSUE STATUS: DRAFT@23.03.18

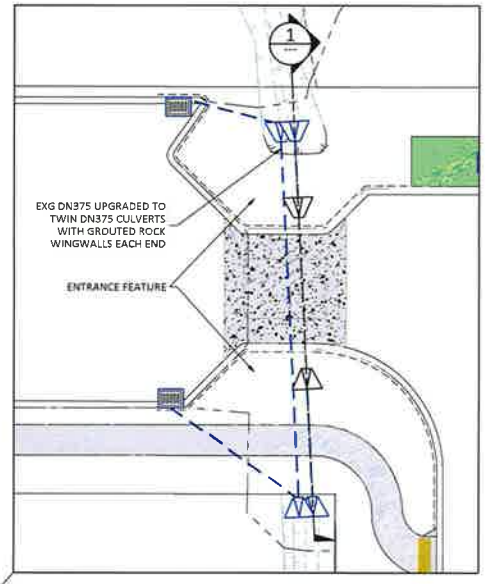
SCALE: (A1/A3) 1:500 / 1:1000

SCALE BAR @A1 0 10 20 30 40 50m

DRAWING NUMBER: 2011-01-401 REV: -



1 SECTION THROUGH EXISTING CULVERT
SCALE: (A1/A3) 1:50/1:100



PLAN OF EXISTING CULVERT UPGRADE
SCALE: (A1/A3) 1:125/1:250

NOTES:

1 REFER TO DWG 2011-01-400 FOR GENERAL NOTES

LEGEND

EXISTING

(CR) PLOTTED FROM COUNCIL RECORDS
DN1350 SW STORMWATER LINE AND MANHOLE
WASTEWATER LINE AND MANHOLE

PROPOSED

DN300 PERFORATRED DRAIN COIL
STORMWATER LINE AND MANHOLE
WASTEWATER LINE AND MANHOLE
X.Xm STORMWATER CONNECTION
X.Xm WASTEWATER CONNECTION
STORMWATER CATCHPIT
SCRUFFY DOME INLET/OUTLET MANHOLE
STORMWATER INLET
STORMWATER OUTLET
RAIN GARDEN

PERFORATED DRAINCOIL IN WASTEWATER TRENCH CONNECTED INTO MANHOLE 10/5

1 DP 98792

2 DP 185077

1%AEP+CC FLOOD EXTENT

OUTLET 10/1 TO HAVE EROSION PROTECTION RIPRAP 1m WIDE, 2m LONG, 150mm THICK WITH D_{50}=150mm.

OUTLET 7/1 TO HAVE EROSION PROTECTION RIPRAP 2m WIDE, 4m LONG, 250mm THICK WITH D_{50}=150mm.

REFER NOTE 27 ON 2011-01-400

PERFORATED DRAIN COIL IN RETAINING WALL AND WW TRENCH TEMPORARILY OUTLETTED DOWN SLOPE INTO STREAM RESERVE AREA DURING STAGE 2 TO BE CONNECTED INTO STORMWATER MANHOLE 7/2

MIN FL 35.0 (SW)

LOCAL PURPOSE (ESPLANADE) RESERVE

LOCAL PURPOSE (DRAINAGE) RESERVE

ROAD 1
ROAD 2
ROAD 5

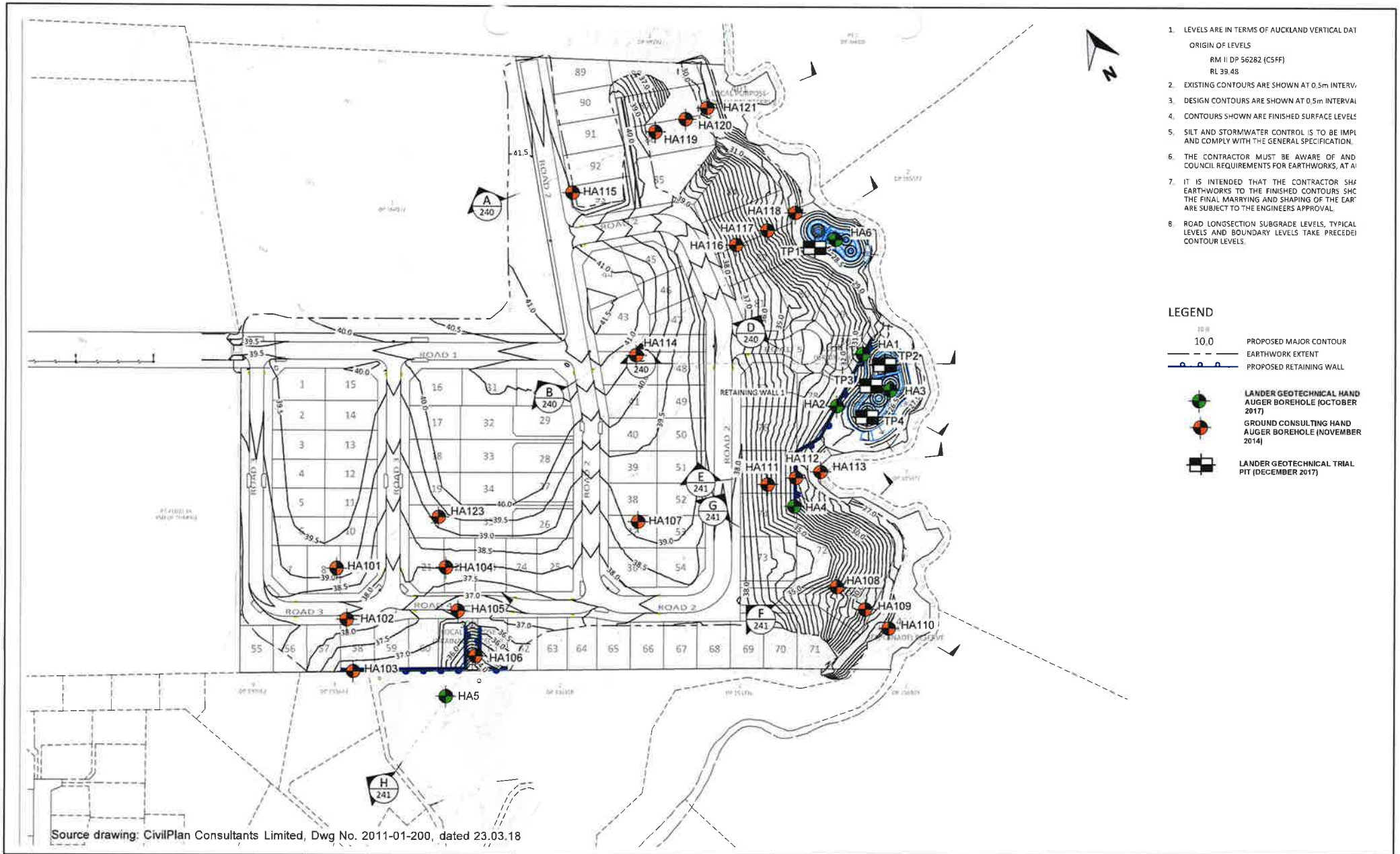
STAGE 2

GDS 09.2017	CIVILPLAN CONSULTANTS Level 2, 3 Osterley Way, Manukau, Auckland. Phone: 09 222 2445	HUGHES DEVELOPMENTS LIMITED 99 ESCOTTS ROAD TUAKAU	DRAINAGE RETICULATION PLAN DETAIL SHEET 2

ISSUE STATUS: DRAFT@23.03.18
SCALE (A1/A3) 1:500 / 1:1000
SCALE BAR 1:1000@A3 0 10 20 30 40 50m
DRAWING NUMBER: 2011-01-402 REV: -

Appendix 2

Lander Geotechnical Consultants Limited Figure 1



1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DAT
   ORIGIN OF LEVELS
   RM II DP 56282 (CSFF)
   RL 39.48
2. EXISTING CONTOURS ARE SHOWN AT 0.5m INTERV
3. DESIGN CONTOURS ARE SHOWN AT 0.5m INTERVAL
4. CONTOURS SHOWN ARE FINISHED SURFACE LEVELS
5. SILT AND STORMWATER CONTROL IS TO BE IMPL AND COMPLY WITH THE GENERAL SPECIFICATION.
6. THE CONTRACTOR MUST BE AWARE OF AND COUNCIL REQUIREMENTS FOR EARTHWORKS, AT A
7. IT IS INTENDED THAT THE CONTRACTOR SHA EARTHWORKS TO THE FINISHED CONTOURS SHC THE FINAL MARRYING AND SHAPING OF THE EAR ARE SUBJECT TO THE ENGINEERS APPROVAL.
8. ROAD LONGSECTION SUBGRADE LEVELS, TYPICAL LEVELS AND BOUNDARY LEVELS TAKE PRECEDE CONTOUR LEVELS.

LEGEND

- 10.0 — PROPOSED MAJOR CONTOUR
- EARTHWORK EXTENT
- PROPOSED RETAINING WALL
- LANDER GEOTECHNICAL HAND AUGER BOREHOLE (OCTOBER 2017)
- GROUND CONSULTING HAND AUGER BOREHOLE (NOVEMBER 2014)
- LANDER GEOTECHNICAL TRIAL PIT (DECEMBER 2017)

revision	description	drawn	approved	date

0 30.0 60.0 90.0 120.0
Horizontal Scale (metres)
0 30.0 60.0 90.0 120.0
Vertical Scale (metres)

drawn	MPC
approved	CE
date	9.11.17
scale	1:2000
original size	A3

LANDER geotechnical

client: HUGHES DEVELOPMENTS LTD
project: 99 ESCOTTS ROAD, TUAKAU
title: SITE INVESTIGATION PLAN
project no: J 00779
figure no: 01

Template revision: 1:2000 (10/7/14)

Appendix 3

Lander Geotechnical Field Investigation Data

Client : HUGHES DEVELOPMENTS LTD

Project Location : 99 ESCOTTS ROAD, TUAKAU

Job Number: J00779

Auger Borehole No. HA01

Sheet 1 of 6

Vane Head:	Logged By:	Processor:	Date:
946	JL	LJ	30.10.17

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION	Legend	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL						
silty CLAY, orange/brown. Very stiff, moist, medium plasticity [ASH]						
becoming high plasticity		0.5		186+		
becoming insensitive		1.0		155/106	1.5	
clayey SILT with minor fine sand, orange/brown. Very stiff, moist, low to medium plasticity, moderately sensitive, with occasional fine gravel sized inclusions						Scala Penetrometer Test (blows/100mm)
with some fine sand, with minor fine gravel sized inclusion		1.5		163/61	2.7	
				UTP		
EOB at 1.7m. Too hard to auger further. Inferred boulder inclusion. Scala penetrometer test commenced and found effective refusal at 2.0m.		2.0				16 12 20+ (ER) ER = Effective Refusal
		2.5				
		3.0				
		3.5				
		4.0				
		4.5				
		5.0				
		5.5				
		6.0				

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: TT

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client : HUGHES DEVELOPMENTS LTD

Project Location : 99 ESCOTTS ROAD, TUAKAU

Job Number: J00779

Auger Borehole No. HA02

Sheet 2 of 6

Vane Head:	Logged By:	Processor :	Date:
946	JL	LJ	30.10.17

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION	Legend	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL						
silty CLAY with trace fine sand, orange/brown. Very stiff, moist, medium plasticity, moderately sensitive, with occasional course sand to fine gravel sized inclusions [ASH]		0.5		131/45	2.9	
		1.0		184/70	2.6	
		1.5		186+		Scala Penetrometer Test (blows/100mm)
becoming saturated, insensitive, with some fine sand, with minor course sand to fine gravel sized inclusions		2.0	▽	139/75	1.9	
EOB at 2.2m. Too hard to auger further. Inferred boulder inclusion. Scala penetrometer test commenced and found effective refusal immediately.		2.5		UTP		20+ (ER)
		3.0				ER = Effective Refusal
		3.5				
		4.0				
		4.5				
		5.0				
		5.5				
		6.0				

LANDER geotechnical

Comments:
Groundwater encountered 2.0m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: TT

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	HUGHES DEVELOPMENTS LTD	**Auger Borehole No.**	HA03
Project Location :	99 ESCOTTS ROAD, TUAKAU		Sheet 3 of 6
Job Number:	J00779	Vane Head: 946 / Logged By: JL / Processor: LJ / Date: 30.10.17	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Legend	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL						
silty CLAY with trace fine sand, orange/brown. Very stiff, moist, medium plasticity, moderately sensitive [ASH]						
becoming wet, with occasional course sand to fine gravel sized inclusions		0.5		152/70	2.2	Scala Penetrometer Test (blows/100mm)
becoming saturated			▽			
EOB at 1.0m. Too hard to auger further. Inferred boulder inclusion. Scala penetrometer test commenced and found effective refusal immediately.		1.0		UTP		20+ (ER) ER = Effective Refusal
		1.5				
		2.0				
		2.5				
		3.0				
		3.5				
		4.0				
		4.5				
		5.0				
		5.5				
		6.0				

LANDER geotechnical

Comments:
Groundwater encountered 0.9m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: TT

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	HUGHES DEVELOPMENTS LTD	**Auger Borehole No.**	HA04
Project Location :	99 ESCOTTS ROAD, TUAKAU		Sheet 4 of 6
Job Number:	J00779	Vane Head: 946 / Logged By: JL / Processor: LJ / Date: 30.10.17	

Borehole Location:	mN	mE	Ground R.L.
	Description:	Refer to site plan	

SOIL DESCRIPTION	Legend	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL						
silty CLAY, orange/brown. Very stiff, moist, medium plasticity [ASH]		0.5		UTP		
becoming very stiff, insensitive		1.0		178/106	1.7	
with some course sand to fine gravel sized inclusions						
with trace course sand to fine gravel sized inclusions		1.5		UTP		
becoming high plasticity						
		2.0		117/65	1.8	
becoming yellow/brown, with minor course sand to fine gravel sized inclusions						
becoming moderately sensitive		2.5		107/41	2.6	
becoming stiff, wet		3.0		69/35	2.0	
at 3.2m, with intermixed white, high plasticity clay						
clayey SILT, orange. Very stiff, wet, medium plasticity, moderately sensitive		3.5		140/65	2.2	
		4.0		156/67	2.3	
clayey SILT, orange streaked light yellow/brown. Stiff, wet, low to medium plasticity, insensitive		4.5		86/45	1.9	
fine GRAVEL, black. Loose, saturated, no plasticity				UTP		
EOB at 4.9m. Too hard to auger further. Inferred boulder inclusion.		5.0				
		5.5				
		6.0				

LANDER geotechnical

Comments:
Groundwater not encountered.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: TT

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client : HUGHES DEVELOPMENTS LTD

Project Location : 99 ESCOTTS ROAD, TUAKAU

Job Number: J00779

Auger Borehole No. HA05

Sheet 5 of 6

Vane Head:	Logged By:	Processor :	Date:
2153	CE	LJ	30.10.17

Borehole Location: mN | mE | Ground R.L.

Description: Refer to site plan

SOIL DESCRIPTION	Legend	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL						
silty CLAY, orange. Hard, moist, medium plasticity [ASH]		0.5		UTP		
clayey SILT, orange. Hard, moist, medium plasticity		1.0		UTP		
		1.5		UTP		
		2.0		UTP		
becoming very stiff, moderately sensitive		2.5		101/39	2.6	
clayey SILT with fine sand, orange/brown. Stiff, moist, medium plasticity, insensitive, with some black streaks [TUFF]		3.0		91/49	1.9	
with moderately thin bed of fine gravel inclusions, and some limonite staining						
becoming very stiff		3.5	▽	196+		
becoming sensitive		4.0		156/35	4.5	
becoming brown, with black speckles, with some fine sand						
		4.5		UTP		
		5.0		UTP		
EOB at 5.0m. Target Depth.		5.5				
		6.0				

LANDER geotechnical

Comments:
Groundwater encountered 4.0m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm

Checked: TT

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client :	HUGHES DEVELOPMENTS LTD	**Auger Borehole No.**	HA06
Project Location :	99 ESCOTTS ROAD, TUAKAU		Sheet 6 of 6
Job Number:	J00779	Vane Head: 2153 / Logged By: CE / Processor: LJ / Date: 30.10.17	

Borehole Location: mN | mE | Ground R.L.
Description: Refer to site plan

SOIL DESCRIPTION	Depth (m)	Standing Water Level	Vane Shear(kPa) peak / residual	Soil Sensitivity	Sample and Laboratory / Other Test Details
TOPSOIL		▽			
silty CLAY, orange. Stiff, moist, high plasticity, insensitive [ALLUVIUM]	0.5		70/39	1.8	
becoming firm, wet, sensitive, push probed to 2.0m	1.0		28/7	4.0	
becoming light grey, stiff					
becoming stiff	1.5		98/17	5.8	
becoming very stiff	2.0		115/28	4.1	Scala Penetrometer Test (blows/100mm)
silty CLAY with trace fine sand, grey. Hard, moist, medium plasticity					
EOB at 2.5m. Too hard to auger further. Scala penetrometer test commenced and found effective refusal immediately.	2.5		UTP		20+ (ER) ER = Effective Refusal
	3.0				
	3.5				
	4.0				
	4.5				
	5.0				
	5.5				
	6.0				

LANDER geotechnical

Comments:
Groundwater encountered 0.8m.
UTP = unable to penetrate.
EOB = end of borehole.

Borehole Diameter: 50mm
Checked: TT

Topsoil	Sand	Sandstone	Plutonic		
Fill	Gravel	Siltstone	No Core		
Clay	Organic	Limestone			
Silt	Pumice	Volcanic			

Client : HUGHES DEVELOPMENTS LTD

Project Location : 99 ESCOTTS ROAD, TUAKAU

Job Number: J00779

Trial Pit No. TP01

Sheet 1 of 4

Vane Head:	Logged By:	Processor :	Date:
704	CE	TT	6/12/17

Pit Location: mN | mE | Ground R.L.

Description: Refer to site plan

Stratigraphy	SOIL DESCRIPTION	Depth (m)	Vane Dial Reading	Soil Sensitivity
ALLUVIUM	TOPSOIL/ GULLY MULLOCK			
	silty CLAY, light grey/ blue. Soft, moist to wet, medium plasticity, moderately sensitive to sensitive	0.5	16/8	2
	1.0m: becoming firm to stiff	1.0	42/27	1.8
		1.5	74/16	4.6
		2.0	45/16	2.8
ASH	silty CLAY, orange/ cream. Very stiff, moist, high plasticity, moderately sensitive	2.5	129/45	2.9
		3.0	159/45	3.5
	EOTP at 3.3m. Target Depth.		>180	-
		3.5		
		4.0		
		4.5		
		5.0		
		5.5		
		6.0		

Legend: Topsoil, Fill, Clay, Silt, Sand, Gravel, Organic, Pumice, Sandstone, Siltstone, Limestone, Volcanic, Plutonic, No Core

Groundwater

Sample and Laboratory Test Details

LANDER geotechnical

Comments: No groundwater noted

Excavator Used: 20T

Checked: CE

Client :	HUGHES DEVELOPMENTS LTD	**Trial Pit No.**	TP02
Project Location :	99 ESCOTTS ROAD, TUAKAU		Sheet 2 of 4
Job Number:	J00779	Vane Head: 704 / Logged By: CE / Processor : TT / Date: 6/12/17	

Pit Location: mN | mE | Ground R.L.
Description: Refer to site plan

Stratigraphy	SOIL DESCRIPTION	Legend	Depth (m)	Groundwater	Vane Dial Reading	Soil Sensitivity	Sample and Laboratory Test Details
ASH	TOPSOIL silty CLAY, orange. Hard, moist, medium plasticity		0.5		UTP		
			1.0		UTP		
TUFF	silty CLAY, white/ brown. Hard, moist, medium plasticity. With some basalt gravel inclusions		1.5		UTP		
			2.0		UTP		
	gravelly CLAY, brown/ black. Hard, moist to wet, low plasticity. With some/ common basalt boulders (up to 500mm diameter)		2.5		UTP		
			3.0		UTP		
			3.5	▽	UTP		
	EOTP at 3.8m. Encountered basalt boulder too big for excavator to remove.		4.0		UTP		
			4.5				
			5.0				
			5.5				
			6.0				

LANDER geotechnical

Comments:
Groundwater inflow at 3.5m

Excavator Used: 20T

Checked: CE

Topsoil	Sand	Sandstone	Plutonic	
Fill	Gravel	Siltstone	No Core	
Clay	Organic	Limestone		
Silt	Pumice	Volcanic		

Client :	HUGHES DEVELOPMENTS LTD	**Trial Pit No.**	TP03
Project Location :	99 ESCOTTS ROAD, TUAKAU		Sheet 3 of 4
Job Number:	J00779	Vane Head: 704 / Logged By: CE / Processor : TT / Date: 6/12/17	

Pit Location: mN | mE | Ground R.L.
Description: Refer to site plan

Stratigraphy	SOIL DESCRIPTION	Legend	Depth (m)	Groundwater	Vane Dial Reading	Soil Sensitivity	Sample and Laboratory Test Details
ASH	TOPSOIL clayey SILT, orange. Hard, moist, medium plasticity		0.5		UTP		
TUFF	gravelly CLAY, brown/ orange/ white. Hard, moist to wet, low plasticity. With some basalt boulders (up to 500mm diameter) 1.2m: becomming common basalt boulders (up to 400mm diameter)		1.0 1.5 2.0		UTP UTP UTP		
	EOTP at 2.5m. Target depth.		2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0		UTP		

LANDER geotechnical

Comments:
Groundwater inflow at 1.5m and 2.5m

Excavator Used: 20T

Checked: CE

Topsoil	Sand	Sandstone	Plutonic	
Fill	Gravel	Siltstone	No Core	
Clay	Organic	Limestone		
Silt	Pumice	Volcanic		

Client :	HUGHES DEVELOPMENTS LTD	**Trial Pit No.**	TP04
Project Location :	99 ESCOTTS ROAD, TUAKAU		Sheet 4 of 4
Job Number:	J00779	Vane Head: 704 / Logged By: CE / Processor: TT / Date: 6/12/17	

Stratigraphy	Pit Location:	mN	mE	Ground R.L.
		Description:	Refer to site plan	

SOIL DESCRIPTION

Stratigraphy	Soil Description	Depth (m)	Vane Dial Reading	Soil Sensitivity
ASH	TOPSOIL			
	silty CLAY, orange. Hard, moist, medium plasticity	0.5	UTP	
		1.0	UTP	
		1.5	UTP	
TUFF	silty CLAY, brown/ orange. Hard, moist, medium plasticity. With some gravel and small basalt boulders (up to 50mm diameter)	2.0	81/31	2.6
	gravelly CLAY, brown/ black. Hard, moist to wet, low plasticity. With common basalt boulders (up to 400mm diameter)	2.5	UTP	
		3.0	UTP	
	EOTP at 3.2m. Target depth.	3.5		
		4.0		
		4.5		
		5.0		
		5.5		
		6.0		

Groundwater: ▽

LANDER geotechnical

Comments:
Groundwater inflow at 3m

Excavator Used: 20T

Checked: CE

Topsoil	Sand	Sandstone	Plutonic
Fill	Gravel	Siltstone	No Core
Clay	Organic	Limestone	
Silt	Pumice	Volcanic	

Appendix 4

Ground Consulting Limited Field Investigation Data (Supplementary Data)

HAND-AUGER LOG

Bore No.: **HA 101**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
					>199	
			2		>199	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 102**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
					>199	
			2		>199	
					>199	
			3		193/108	
	Becoming dark orange/brown.				>199	
			4		>199	
	EOB @4.0m					
	No groundwater encountered		5			
			6			

HAND-AUGER LOG

Bore No.: **HA 103**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
					196/102	
	Becoming orange with pink mottles.		2		>199	
					>199	
	Becoming dark orange/brown.		3		>199	
					159/99	
			4		187/119	
	EOB @4.0m					
	No groundwater encountered		5			
			6			

HAND-AUGER LOG

Bore No.: **HA 104**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
	Becoming orange with pink mottles.		2		>199	
	EOB @2.0m				>199	
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 105**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
					>199	
	Becoming orange with pink mottles.		2		>199	
					193/111	
			3		196/114	
	Becoming dark orange/brown.				>199	
			4		>199	
	EOB @4.0m					
	No groundwater encountered		5			
			6			

HAND-AUGER LOG

Bore No.: **HA 106**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				159/119	
	Becoming orange with brown mottles.		1		>199	
					>199	
			2		>199	
					>199	
			3		>199	
	Becoming dark orange/brown.				>199	
			4		>199	
	EOB @4.0m					
	No groundwater encountered		5			
			6			

HAND-AUGER LOG

Bore No.: **HA 107**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.		0			
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming dark orange/brown.		1		>199	
					>199	
			2		>199	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 108**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
					>199	
			2		162/91	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 109**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
					>199	
			2		>199	
					>199	
			3		>199	
	Becoming light orange/brown.				>199	
			4		>199	
	EOB @4.0m					
	No groundwater encountered		5			
			6			

HAND-AUGER LOG

Bore No.: **HA 110**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
					>199	
	Becoming pinkish orange with brown mottles.		2		>199	
					>199	
	Becoming dark orange/brown.		3		>199	
					>199	
	EOB @4.0m		4		>199	
	No groundwater encountered		5			
			6			

HAND-AUGER LOG

Bore No.: **HA 111**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
	Becoming light orange with light brown mottles.				>199	
			2		>199	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 112**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light orange with brown mottles.		1		>199	
					>199	
	Becoming light brown.		2		>199	
					165/119	
			3		>199	
	Becoming dark reddish brown.				>199	
			4		>199	
	EOB @4.0m					
	No groundwater encountered		5			
			6			

HAND-AUGER LOG

Bore No.: **HA 113**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa)	Scala Penetrometer Test (blows/50mm)
					100 200	2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
					>199	
			2		>199	
	Becoming dark brown with red mottles.				>199	
	EOB @3.0m on auger refusal.		3		UTP	
	No groundwater encountered		4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 114**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming light brown with orange mottles.		1		>199	
	Becoming reddish brown.				>199	
			2		>199	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 115**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa)	Scala Penetrometer Test (blows/50mm)
					100 200	2 4 6 8 10
	TOPSOIL.					
WEATHERED VOLCANIC ASH	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				196/131	
	Becoming light brown with orange mottles.		1		>199	
	Becoming reddish brown.				>199	
			2		>199	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 116**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				182/136	
	Becoming dark brown with orange mottles.		1		156/108	
	Becoming reddish brown.				>199	
			2		>199	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 117**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa)	Scala Penetrometer Test (blows/50mm)
					100 200	2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				159/105	
	Becoming dark brown with orange mottles.		1		>199	
					193/114	
			2		142/105	
					>199	
			3		156/88	
	Becoming dark orange/brown.				182/111	
			4		>199	
	EOB @4.0m					
	No groundwater encountered		5			
			6			

HAND-AUGER LOG

Bore No.: **HA 118**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				>199	
	Becoming dark brown with orange mottles.		1		>199	
					>199	
	Very dense, silty SAND at base of auger.		2		190/82	
	EOB @2.5m on auger refusal.				UTP	
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 119**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				193/133	
	Becoming light brown with orange mottles.		1		>199	
	Becoming dark reddish brown.				>199	
			2		>199	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 120**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Very stiff to hard, moist, moderate plasticity, insensitive.				196/125	
	Becoming dark brown with orange mottles.		1		>199	
					159/97	
			2		>199	
					>199	
			3		153/94	
	Becoming dark orange with brown mottles.				184/115	
			4		>199	
	EOB @4.0m					
	No groundwater encountered		5			
			6			

HAND-AUGER LOG

Bore No.: **HA 121**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa) 100 200	Scala Penetrometer Test (blows/50mm) 2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming dark brown with orange mottles.		1		165/111	
					176/114	
	Dense, silty SAND on base of auger.		2		UTP	
	EOB @2.1m on auger refusal.					
	No groundwater encountered		3			
			4			
			5			
			6			

HAND-AUGER LOG

Bore No.: **HA 122**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa)	Scala Penetrometer Test (blows/50mm)
					100 200	2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming dark brown with orange mottles.		1		>199	
					>199	
	Becoming light reddish brown.		2		>199	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

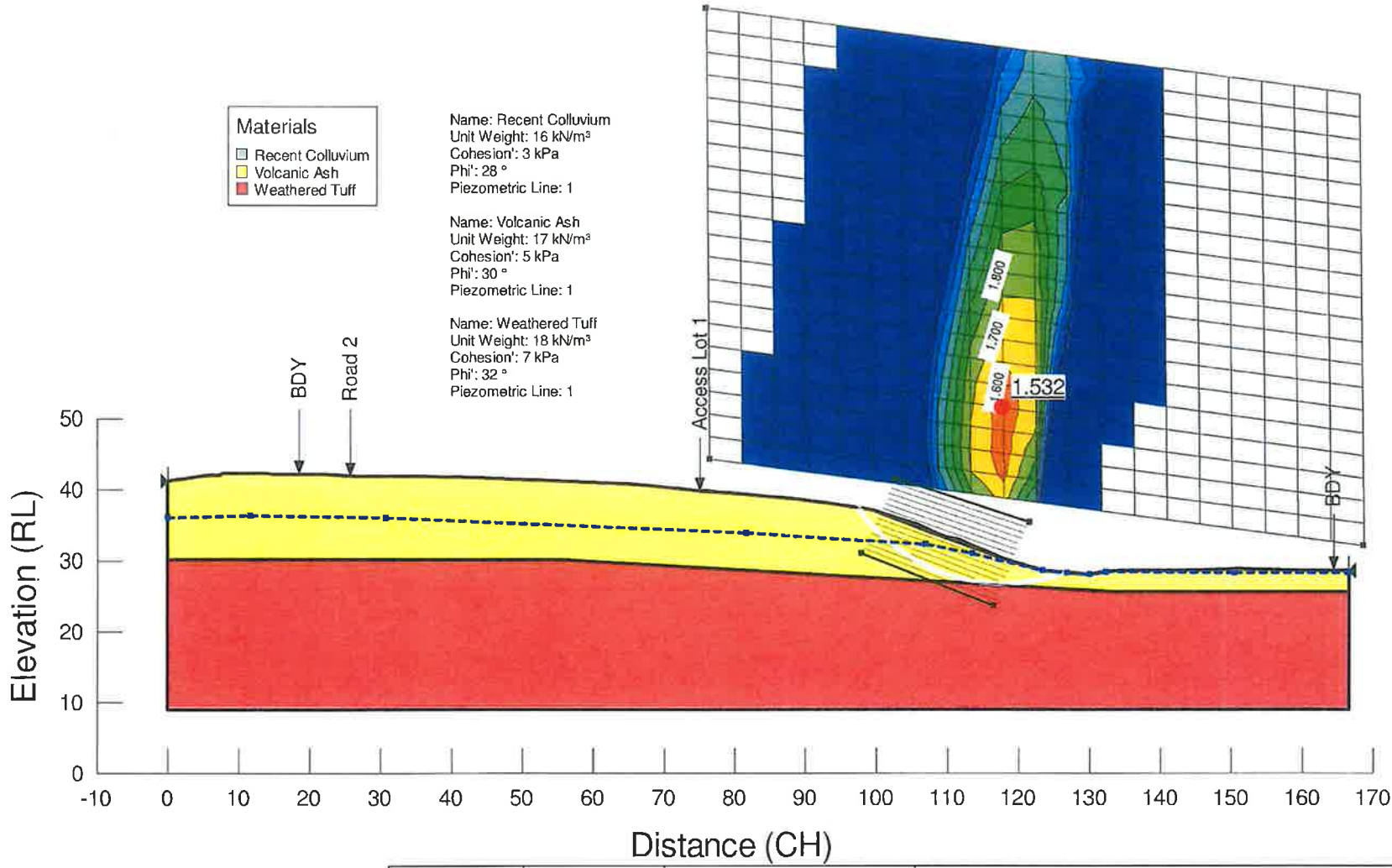
HAND-AUGER LOG

Bore No.: **HA 123**		Project: **Titchmarsh Subdivision. Escotts Rd, Tuakau.**	Ground CONSULTING LTD
Augered by: J.M	Checked by: F.W	Date: 03 November 2014	

Geology	Soil Description	Soil Symbol	Depth (m)	Water Level	Vane Shear Strength (kPa)	Scala Penetrometer Test (blows/50mm)
					100 200	2 4 6 8 10
WEATHERED VOLCANIC ASH	TOPSOIL.					
	Clayey SILT with some sand; Hard, moist, moderate plasticity, insensitive.				>199	
	Becoming dark brown with orange mottles.		1		>199	
	Becoming light reddish brown.				>199	
			2		>199	
	EOB @2.0m					
	No groundwater encountered		3			
			4			
			5			
			6			

Appendix 5

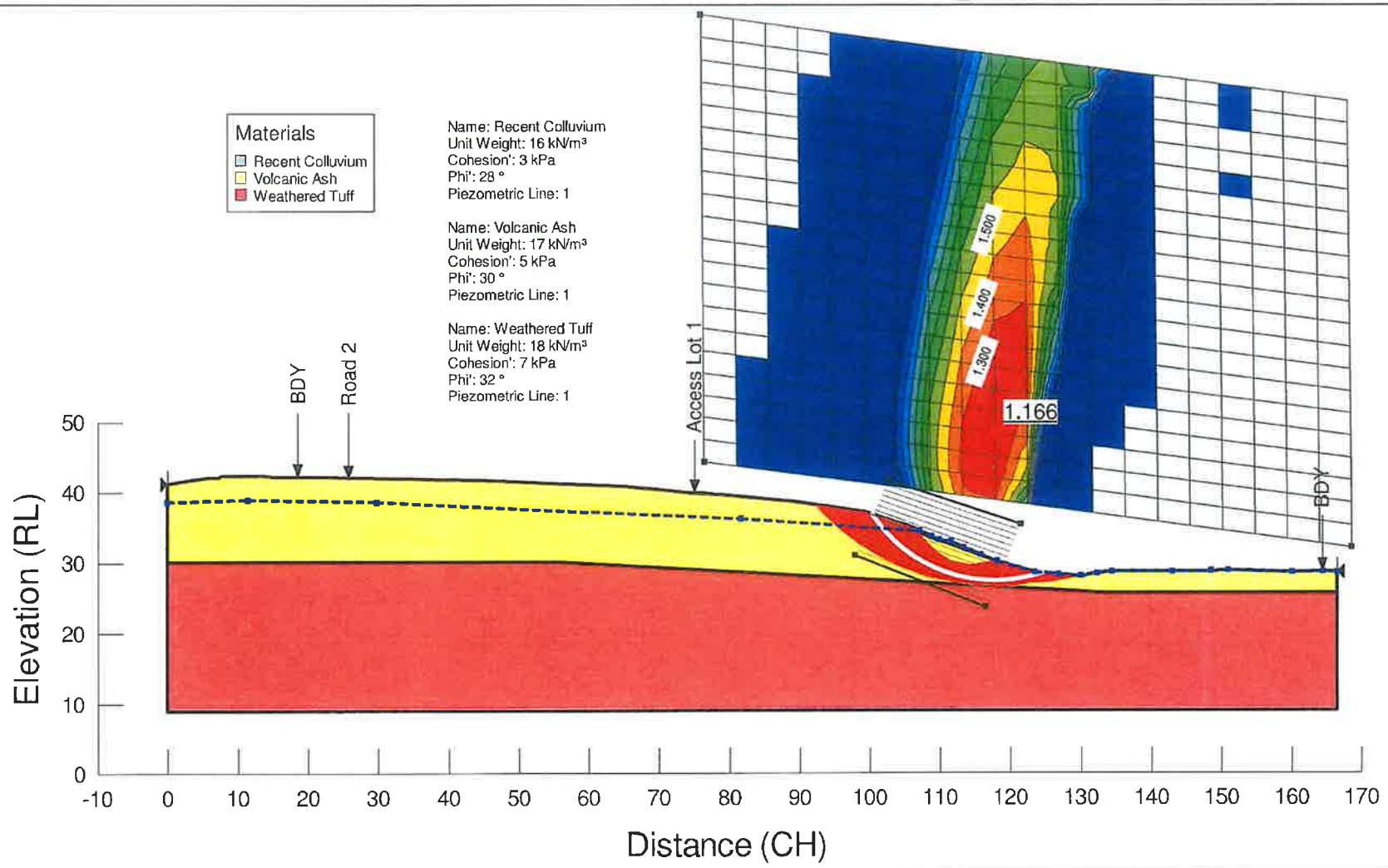
Slope Stability Analysis Results



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

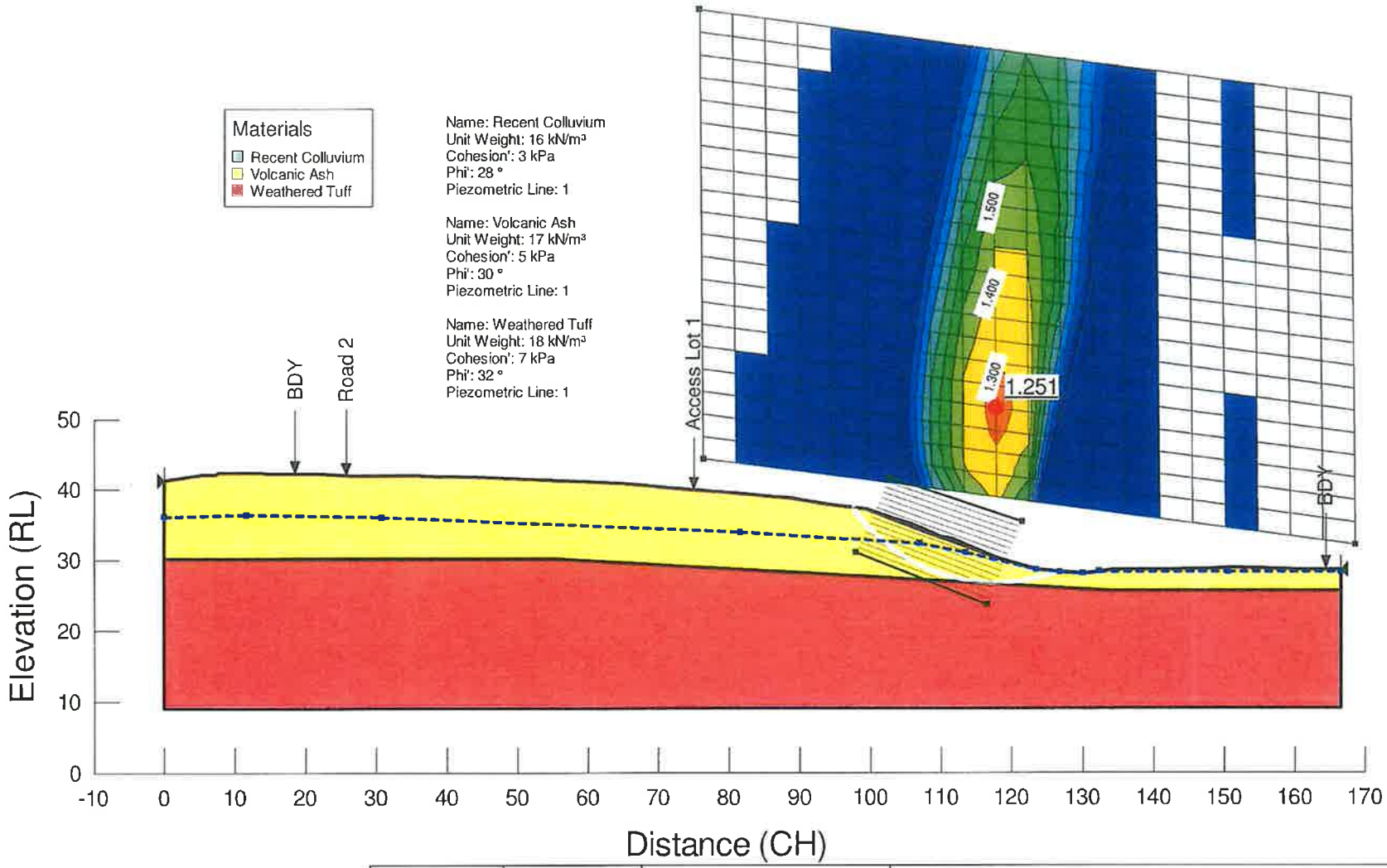
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION A-A': EXISTING SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: A.1



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

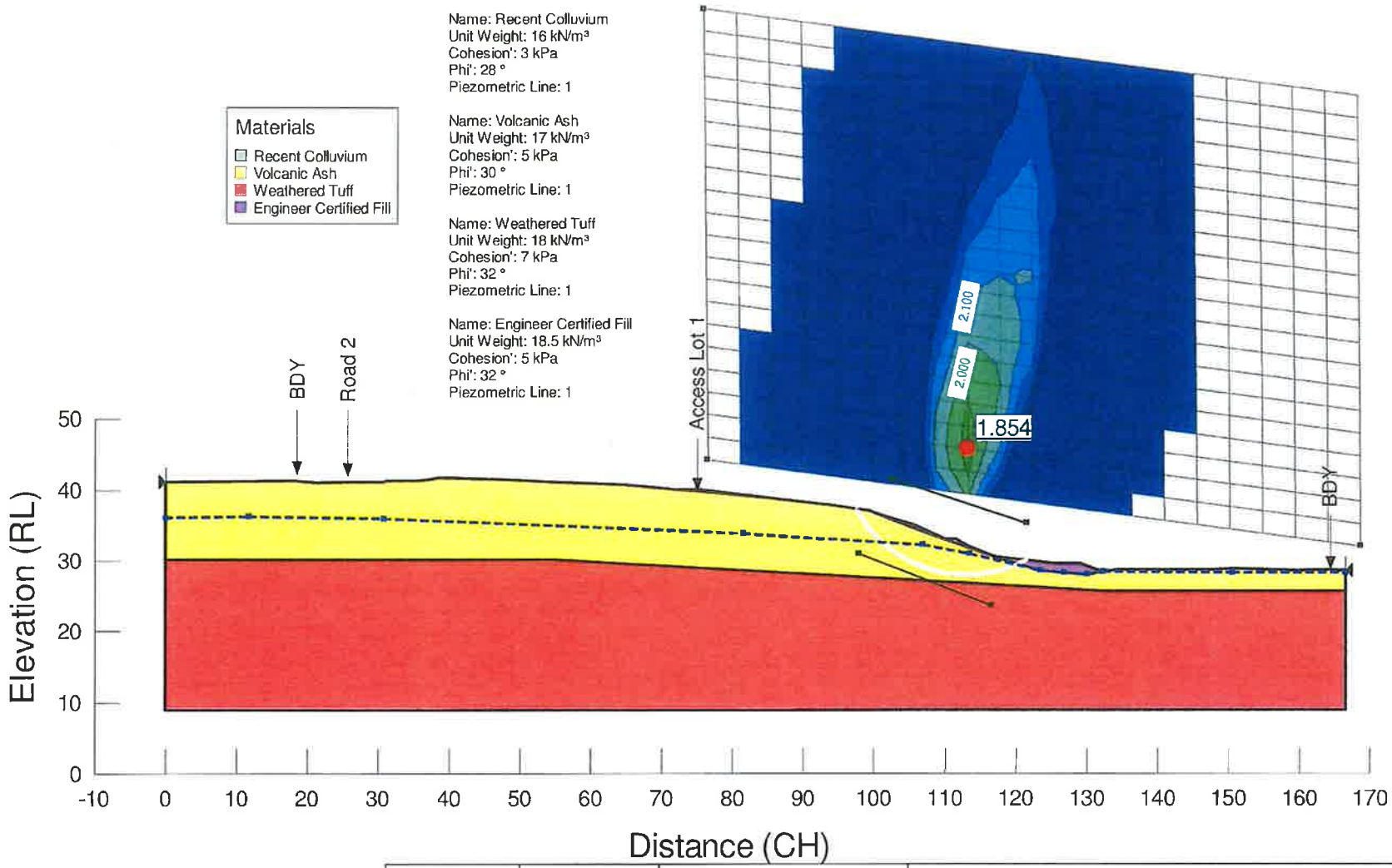
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION A-A': EXISTING SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: A.2



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

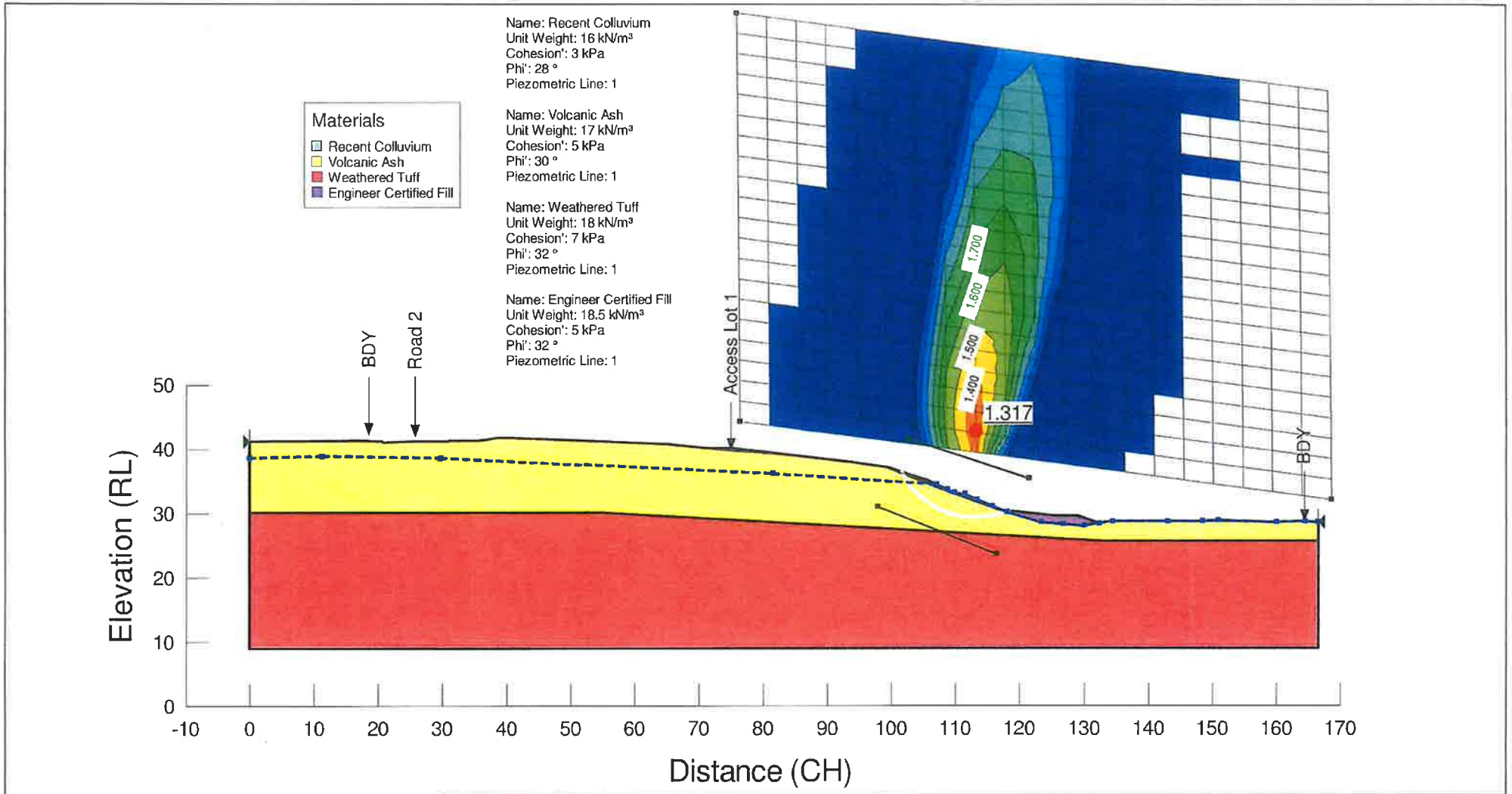
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION A-A': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: A.3



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

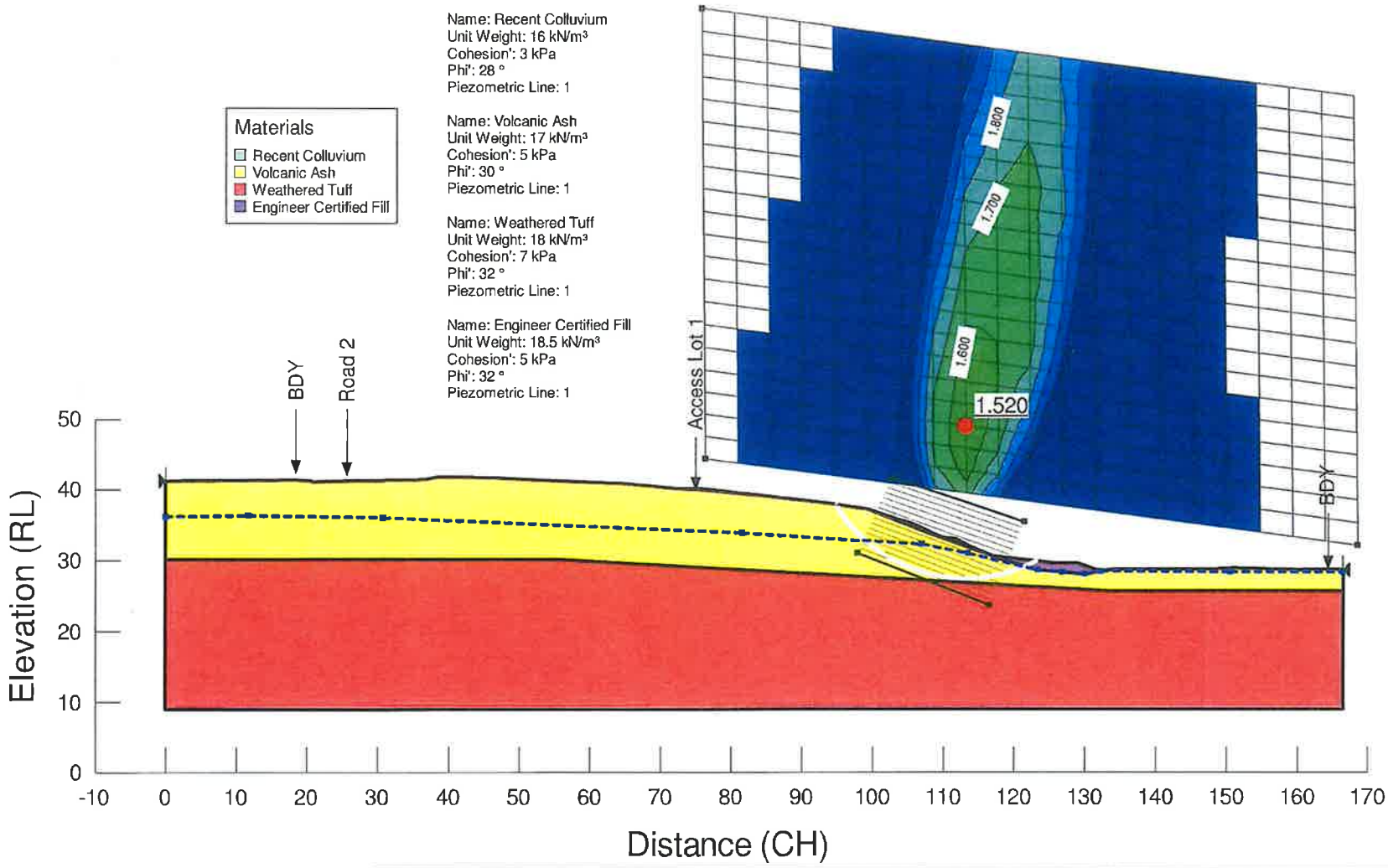
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION A-A': PROPOSED SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: A.4



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

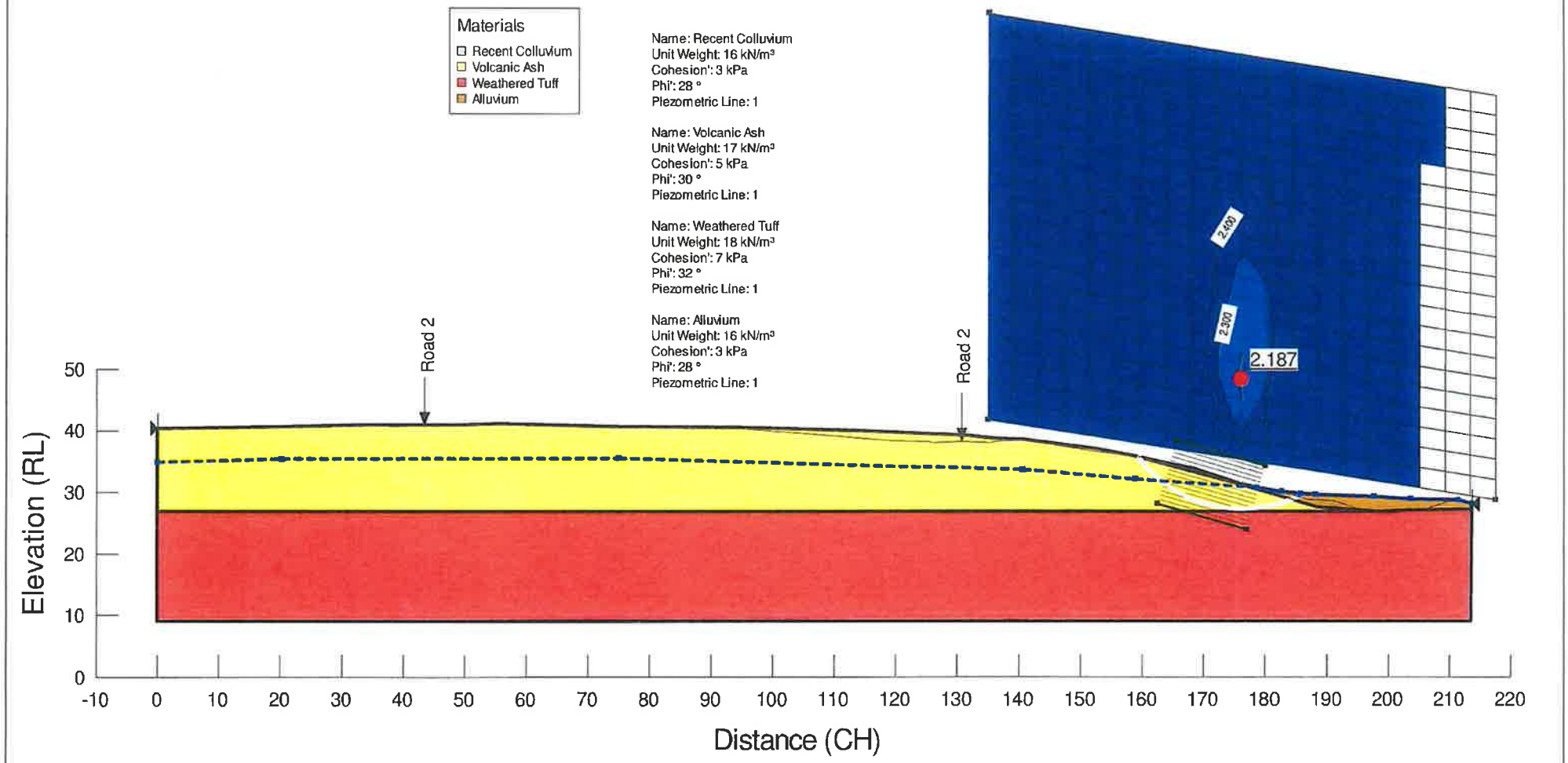
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION A-A': PROPOSED SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: A.5



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

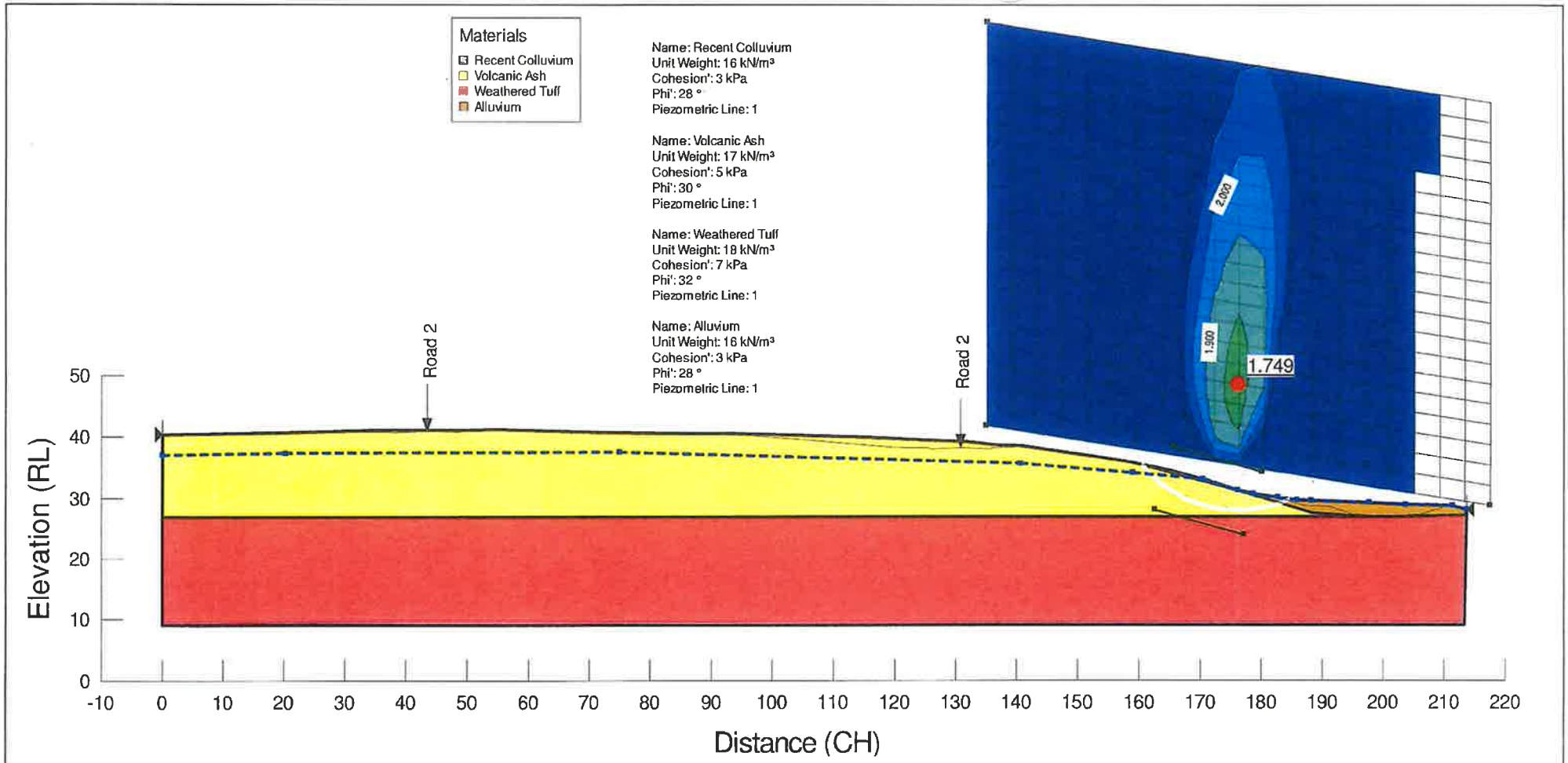
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION A-A': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: A.6



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

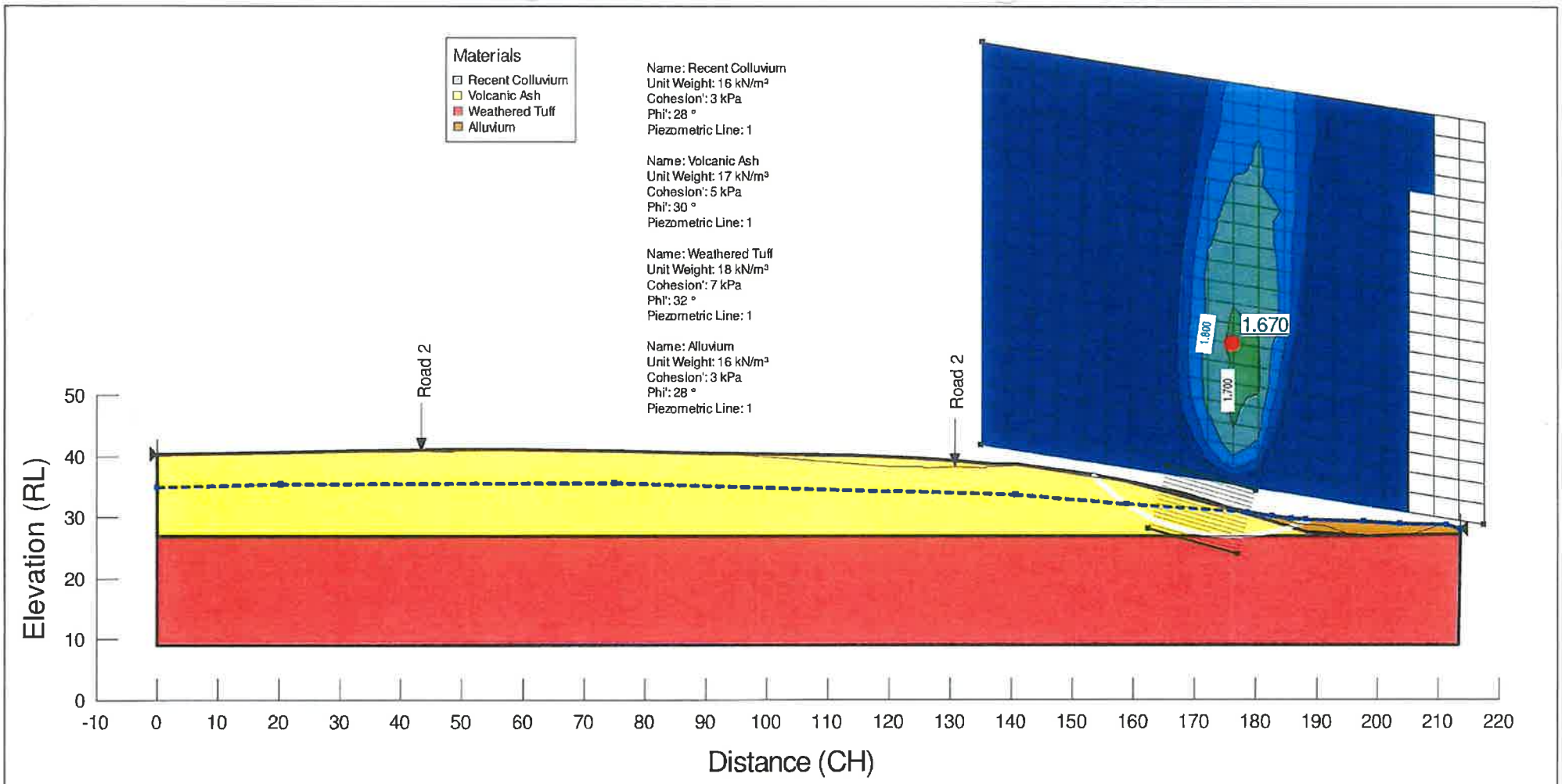
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION B-B': EXISTING SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: B.1



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

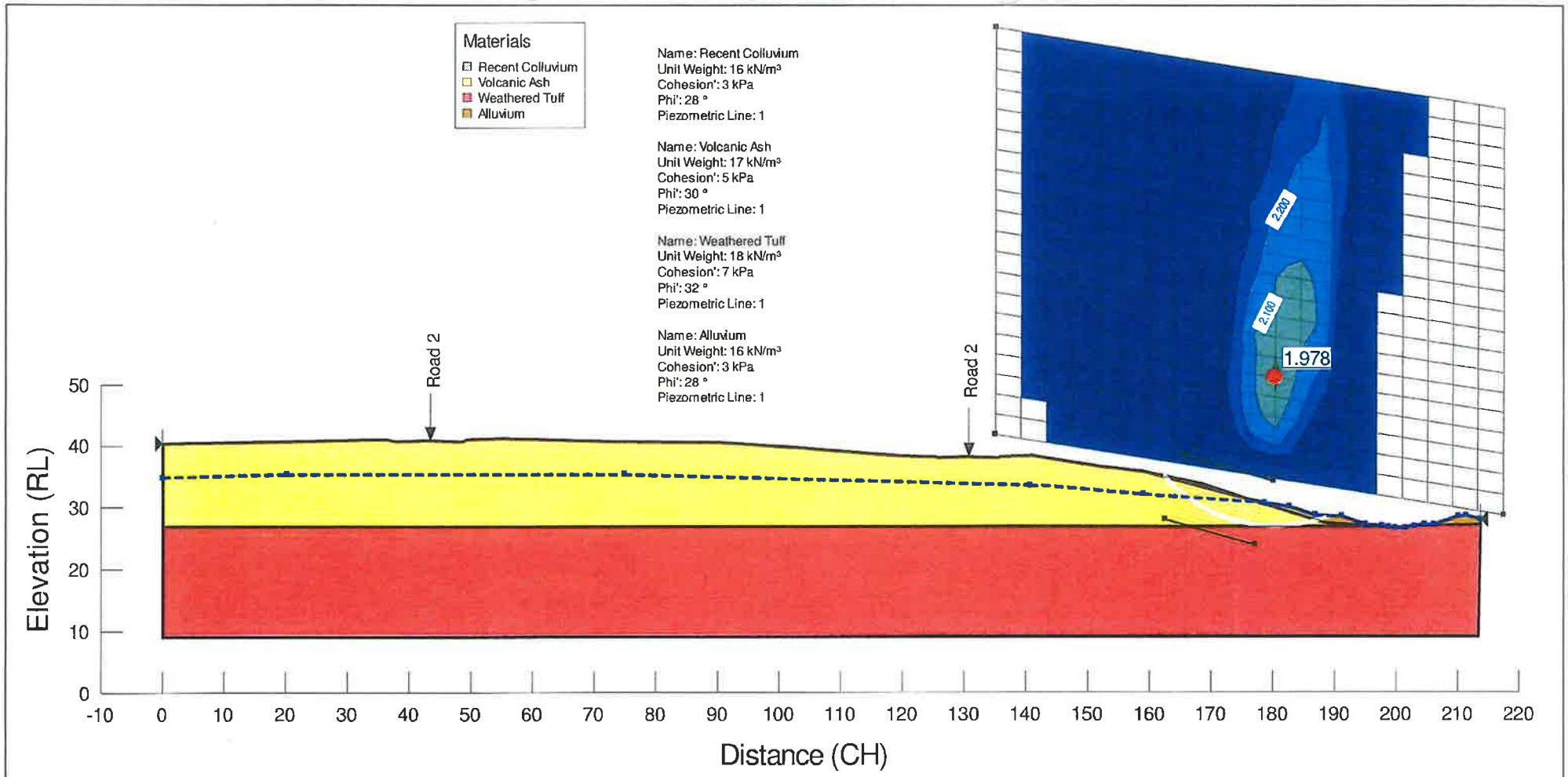
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION B-B': EXISTING SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: B.2



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

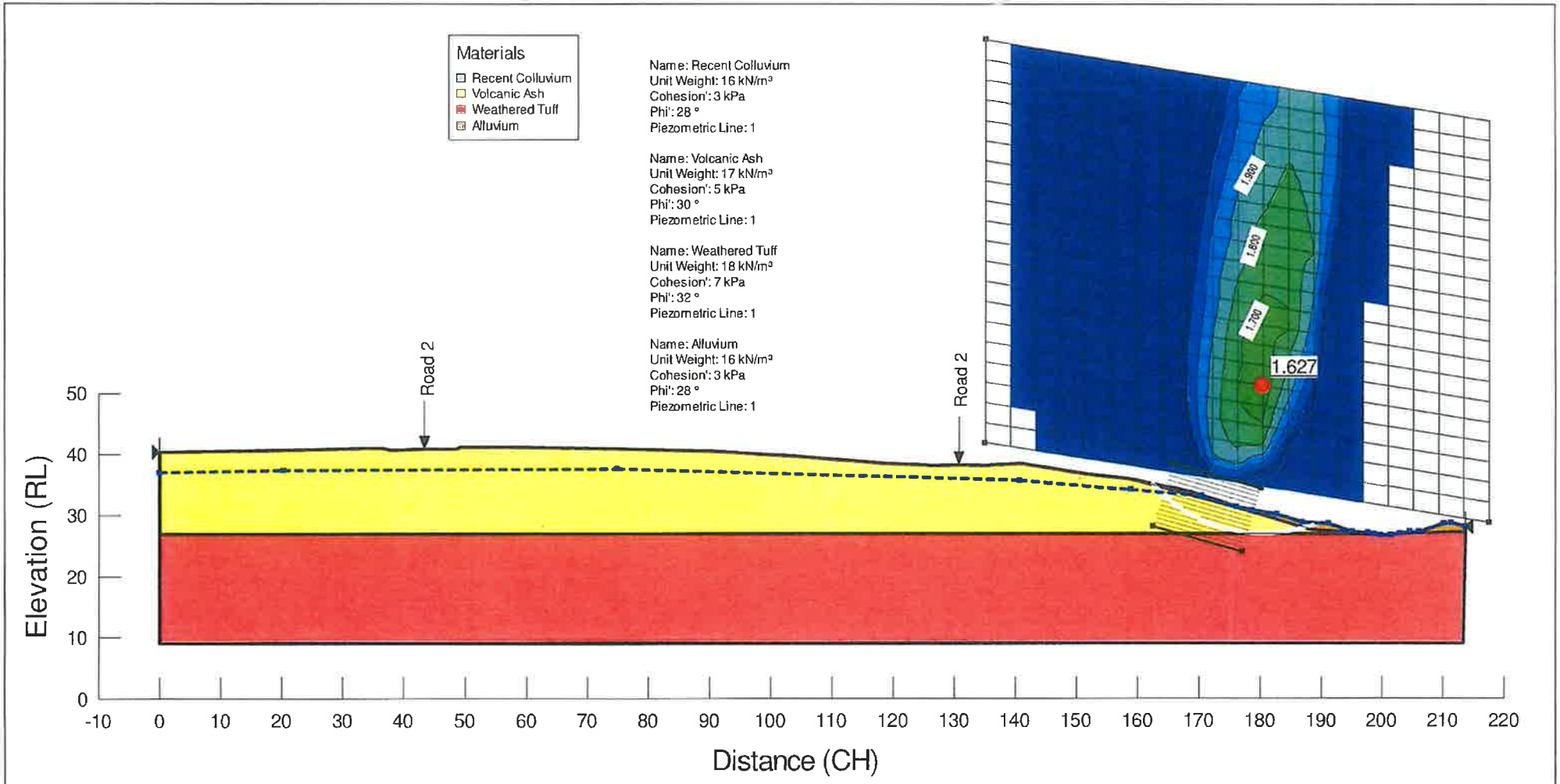
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION B-B': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: B.3



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

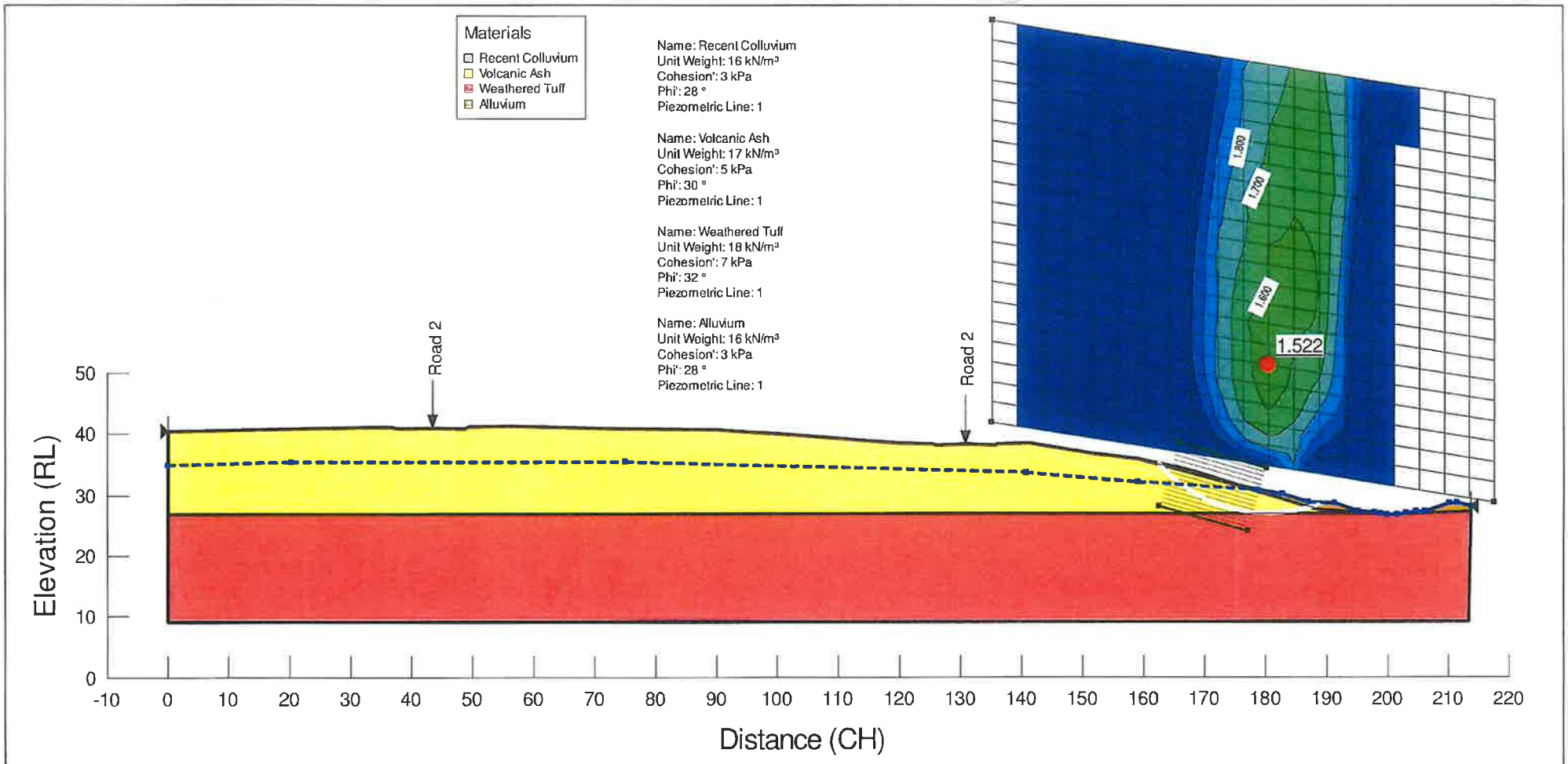
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION B-B': PROPOSED SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: B.4



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

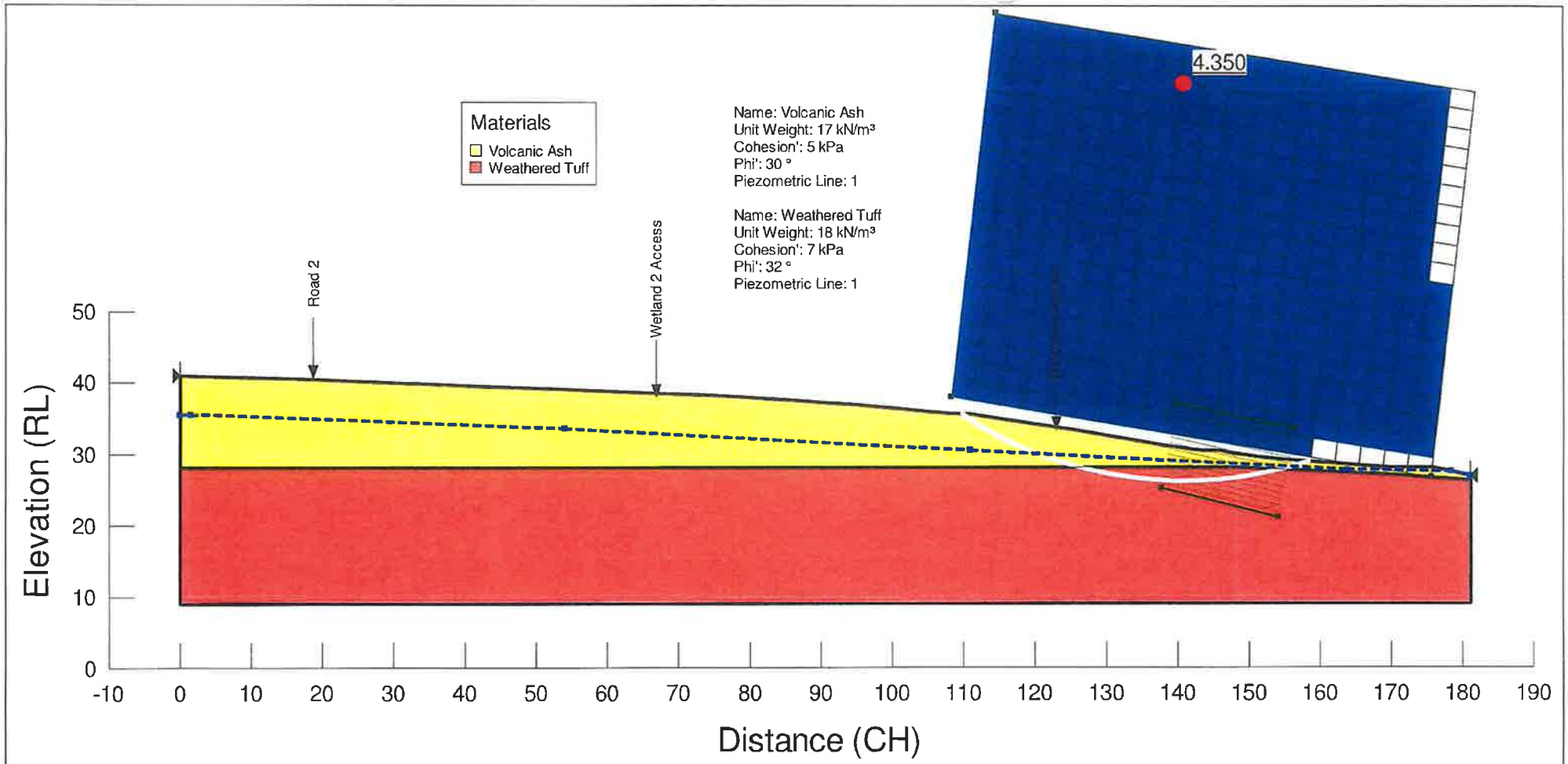
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION B-B': PROPOSED SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: B.5



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

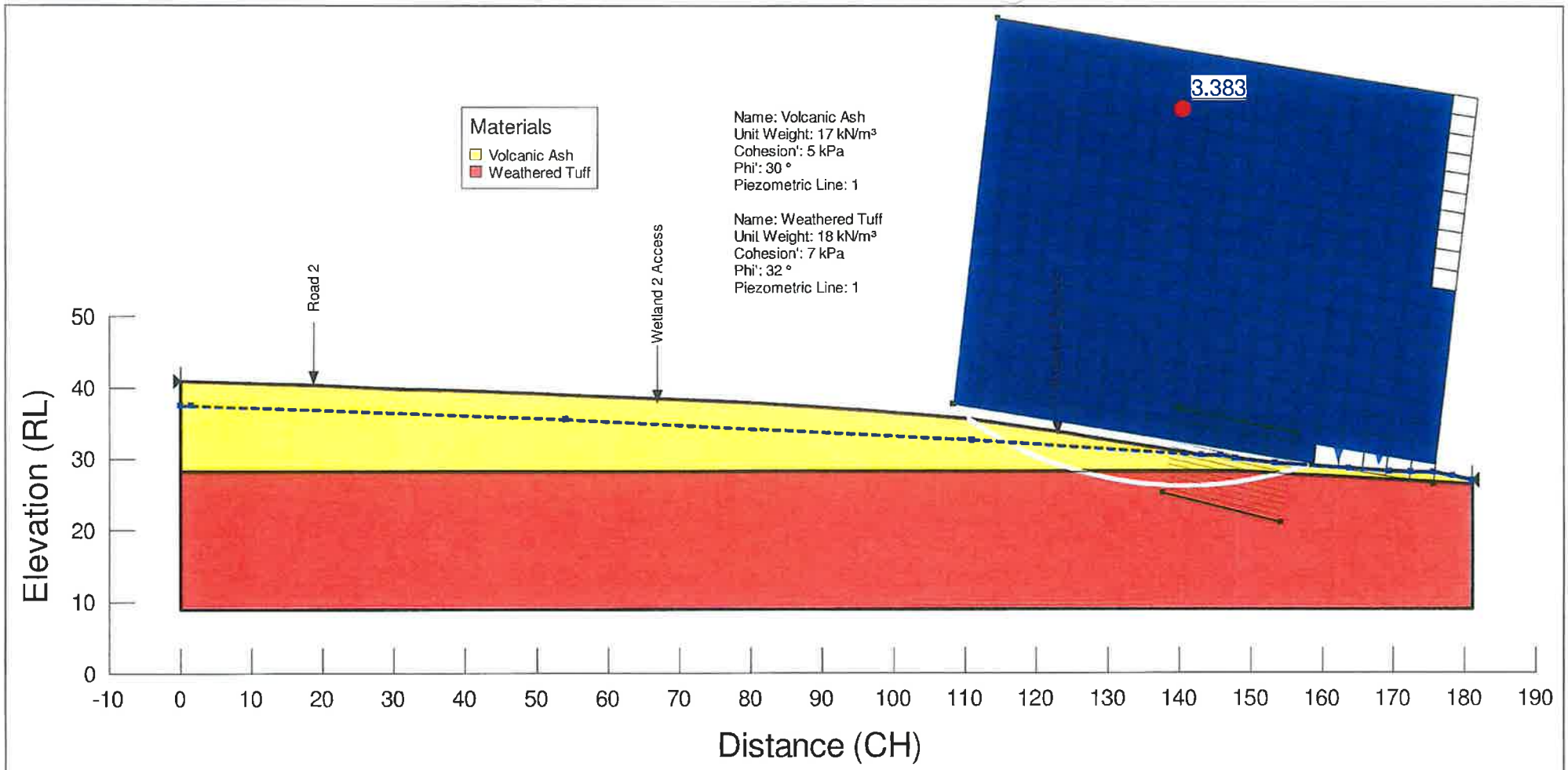
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION B-B': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: B.6



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

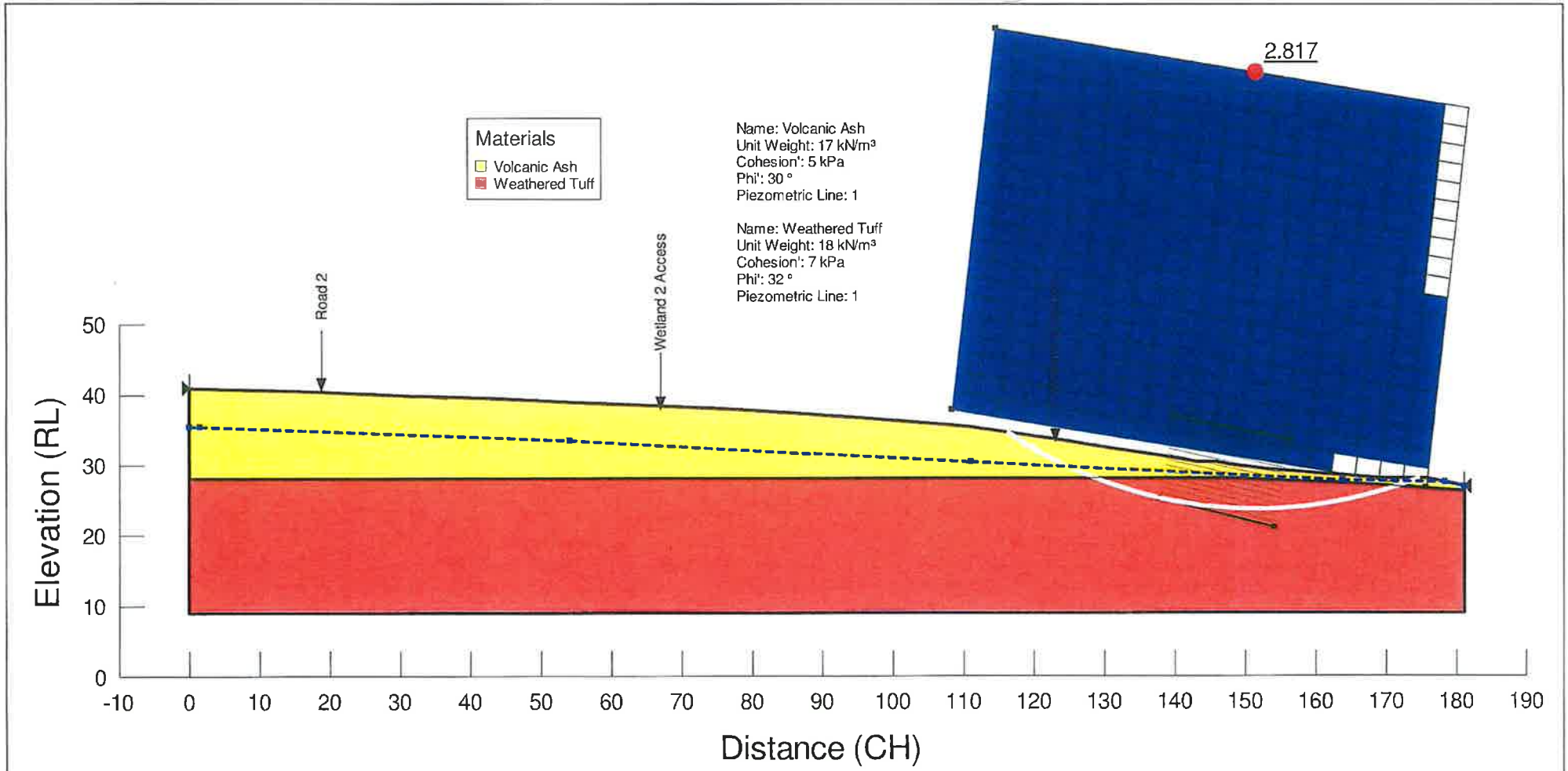
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION C-C': EXISTING SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: C.1



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

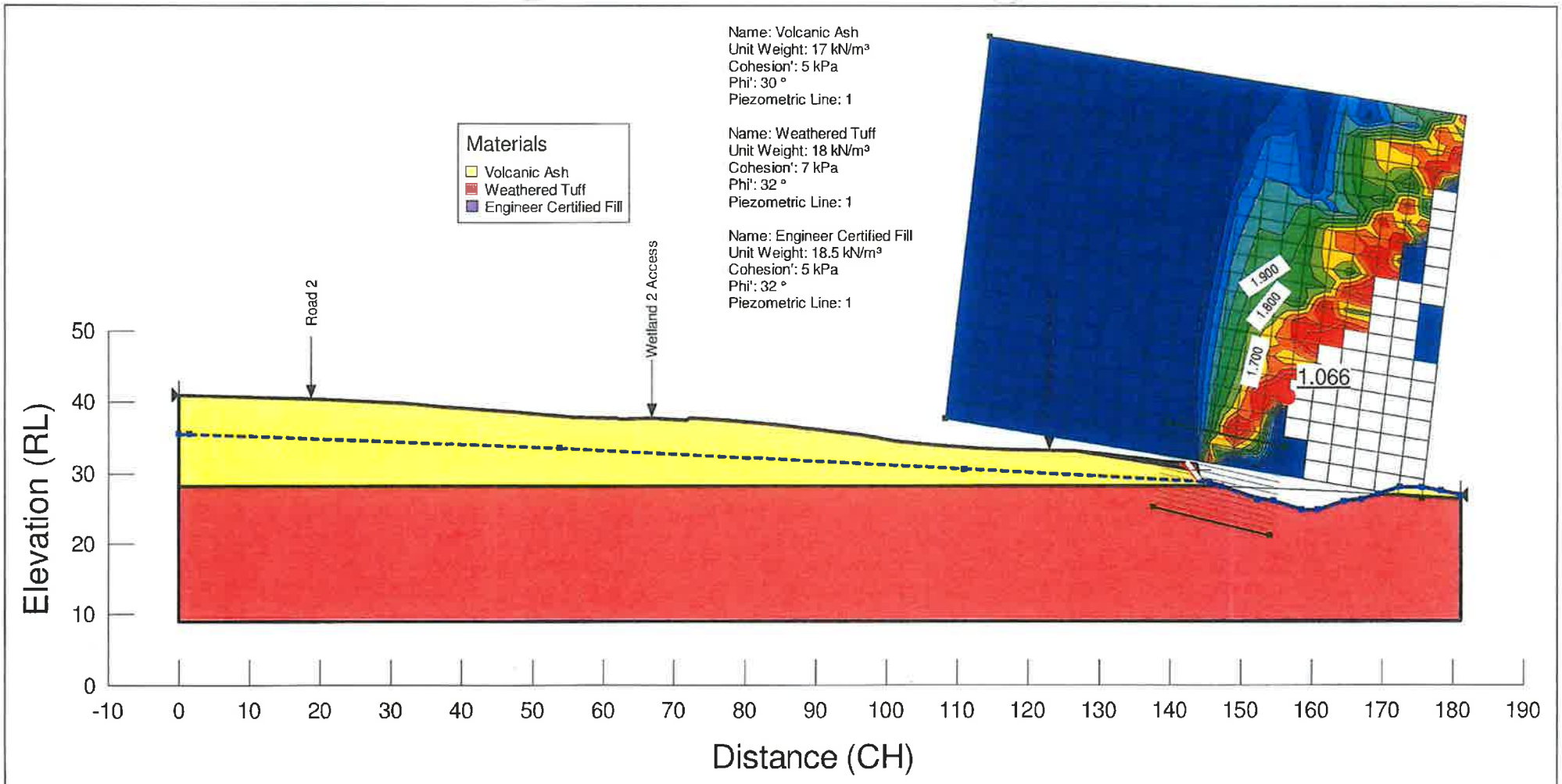
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION C-C': EXISTING SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: C.2



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

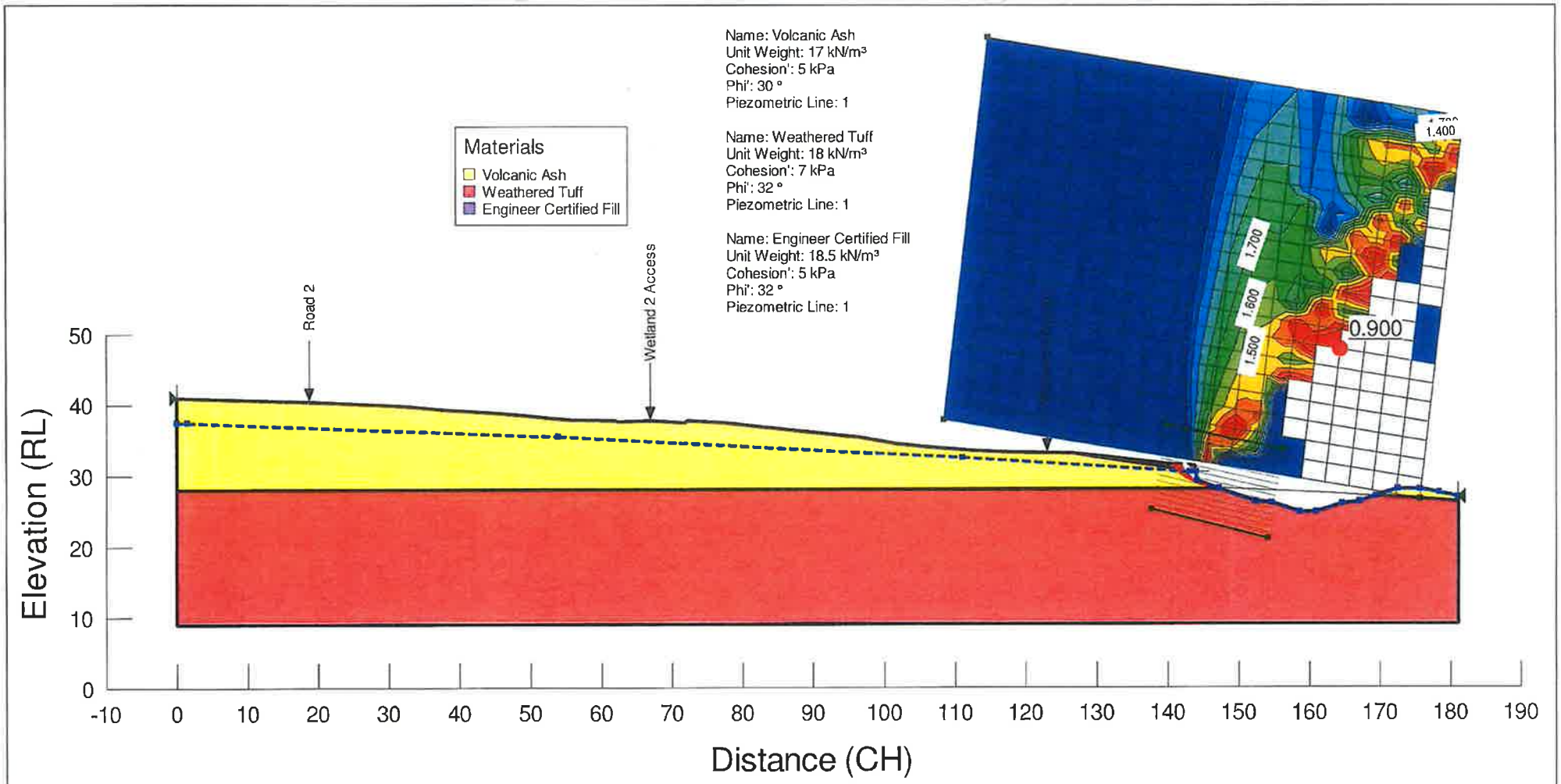
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION C-C': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: C.3



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

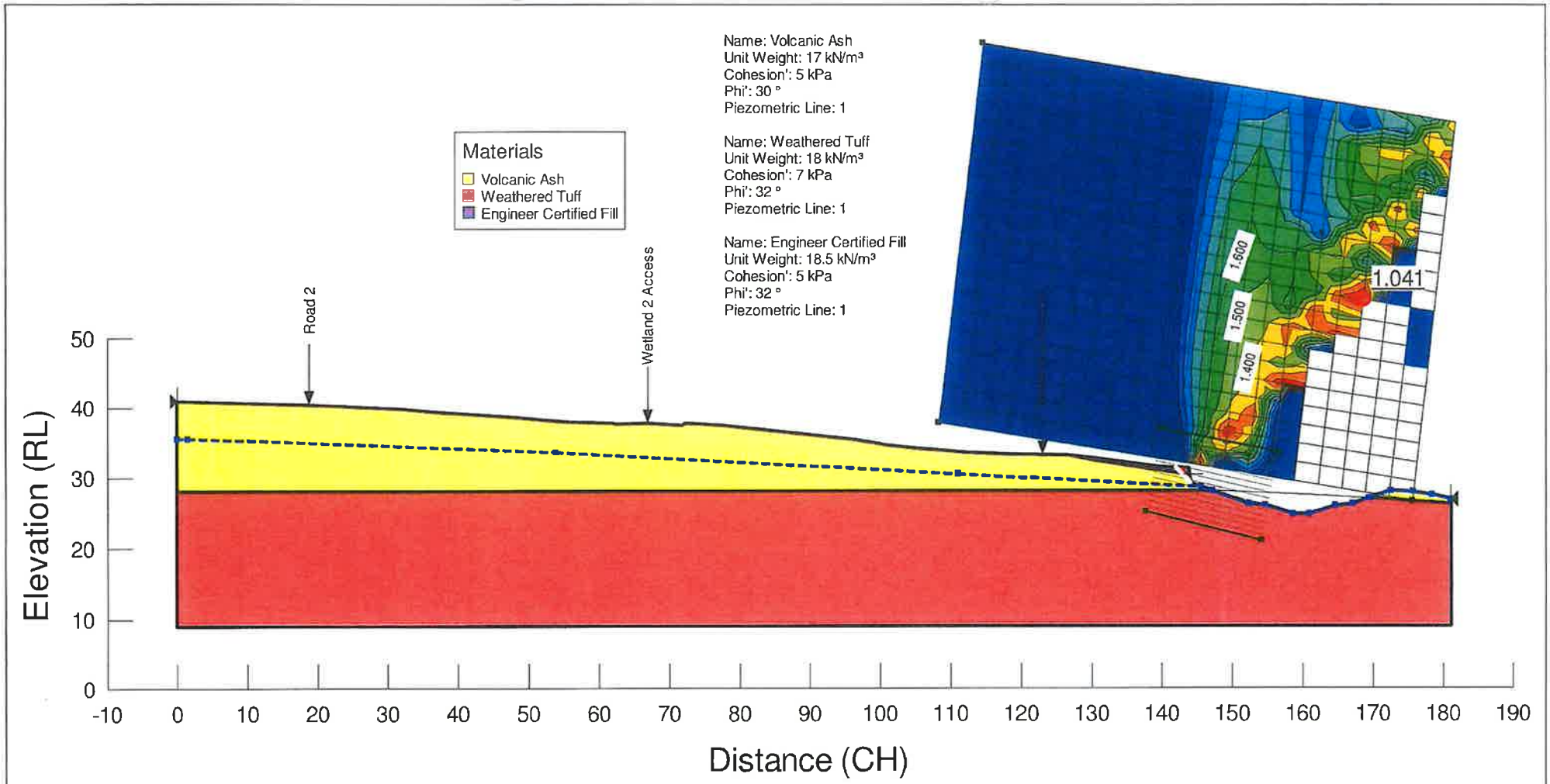
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION C-C': PROPOSED SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: C.4



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

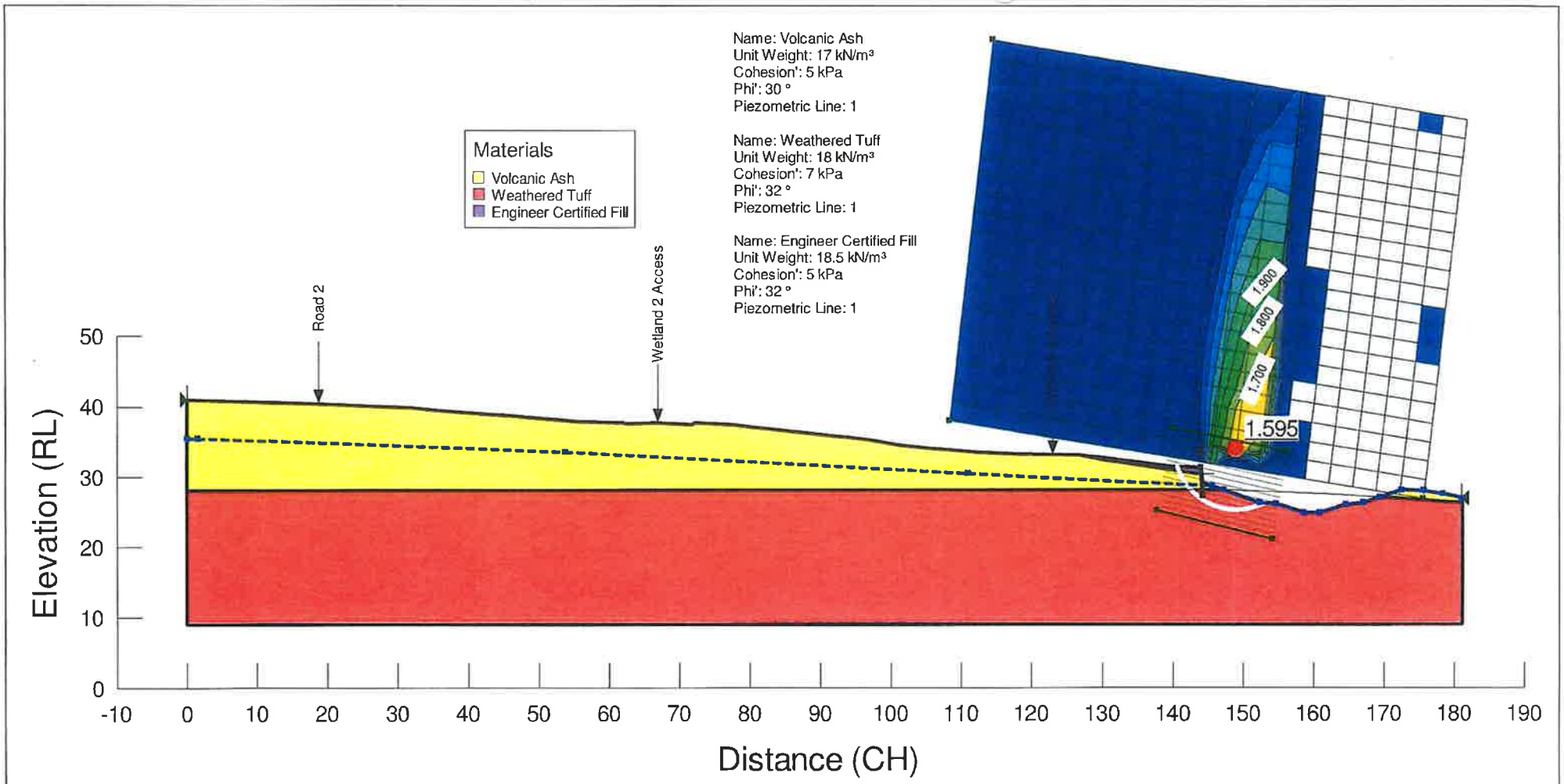
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION C-C': PROPOSED SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: C.5



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

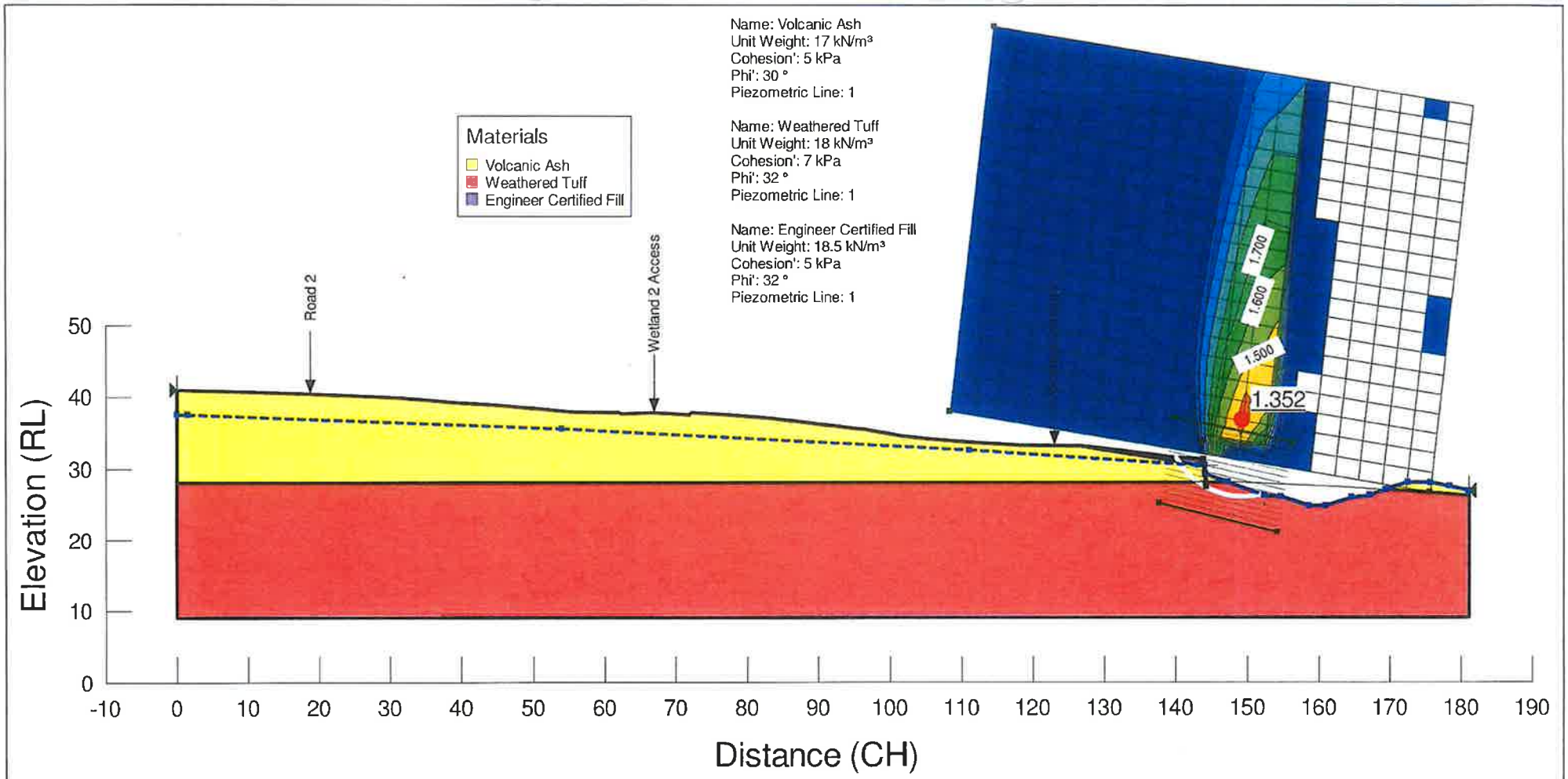
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION C-C': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: C.6



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

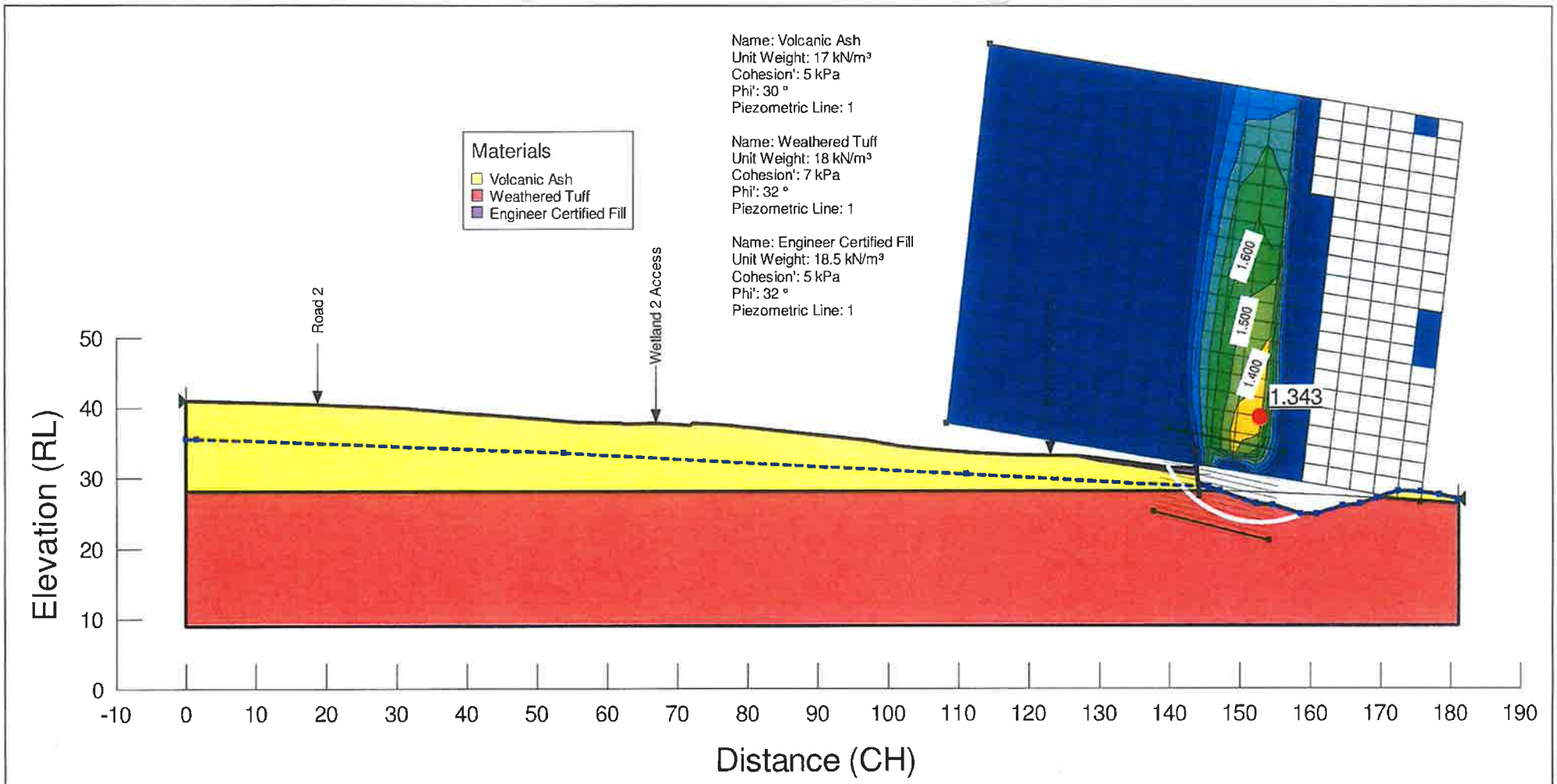
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION C-C': REMEDIATED SLOPE (RETAINING WALL) – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: C.7



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

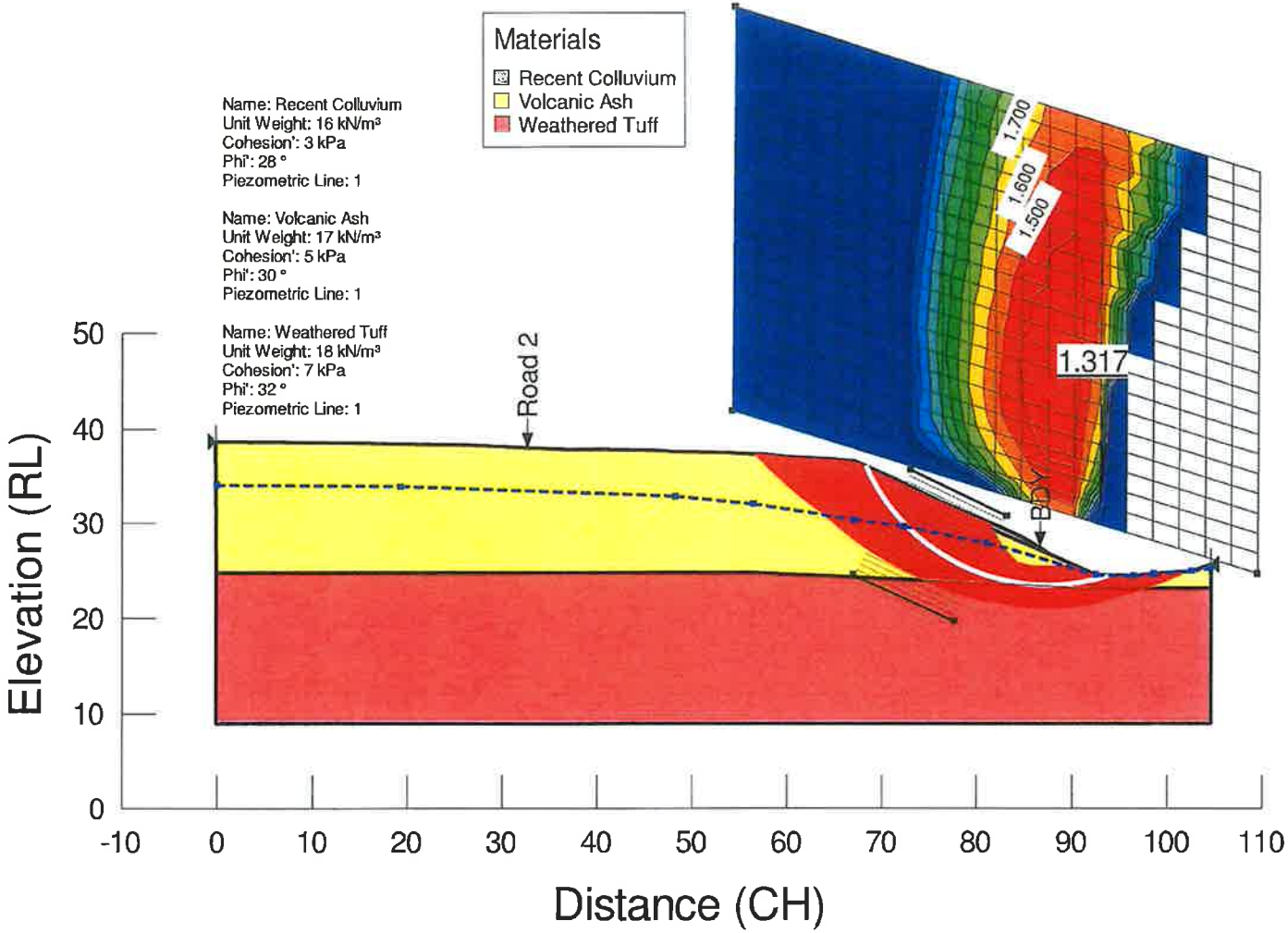
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION C-C': REMEDIATED SLOPE (RETAINING WALL) – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: C.8



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

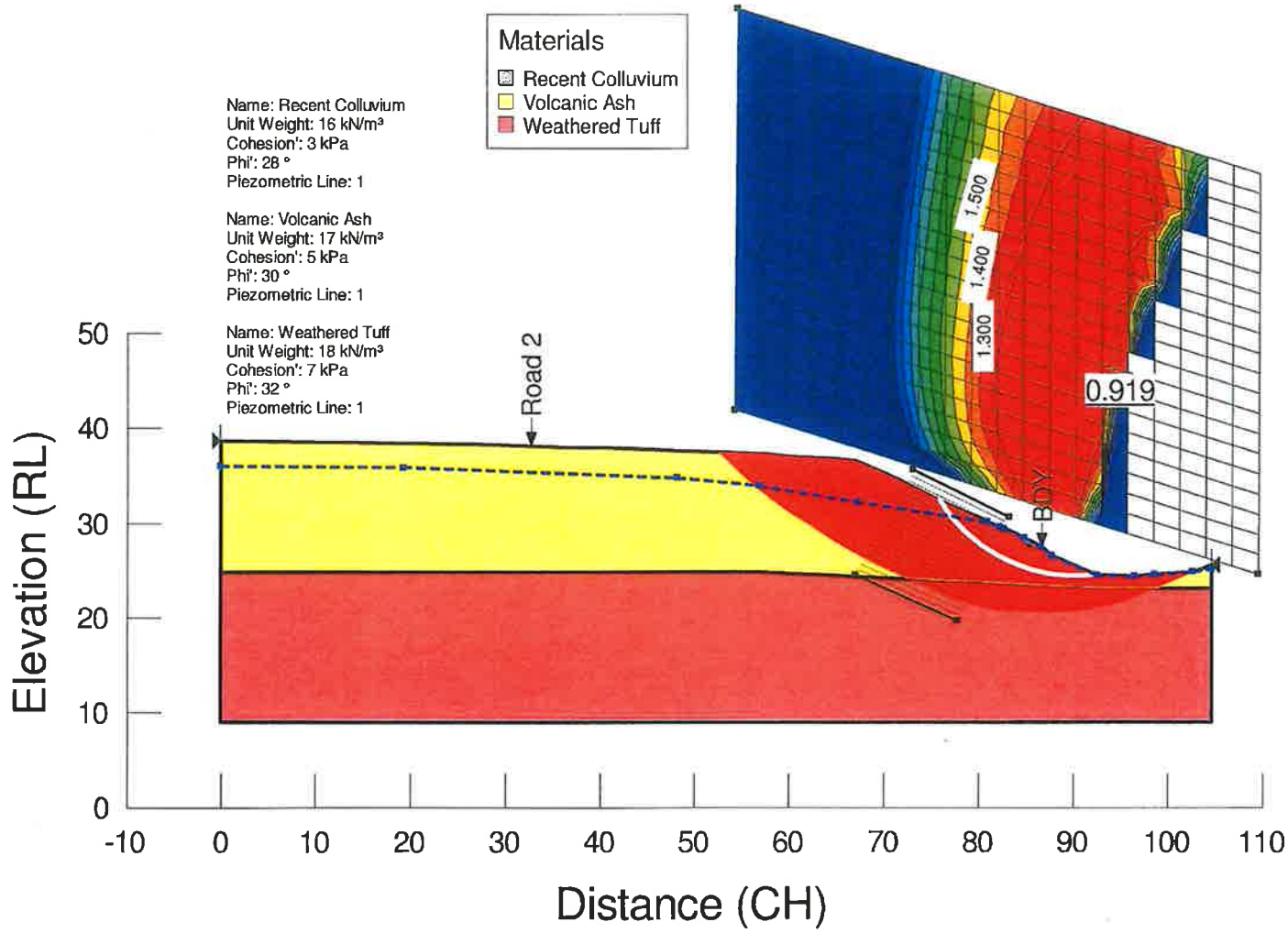
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION C-C': REMEDIATED SLOPE (RETAINING WALL) – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: C.9



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

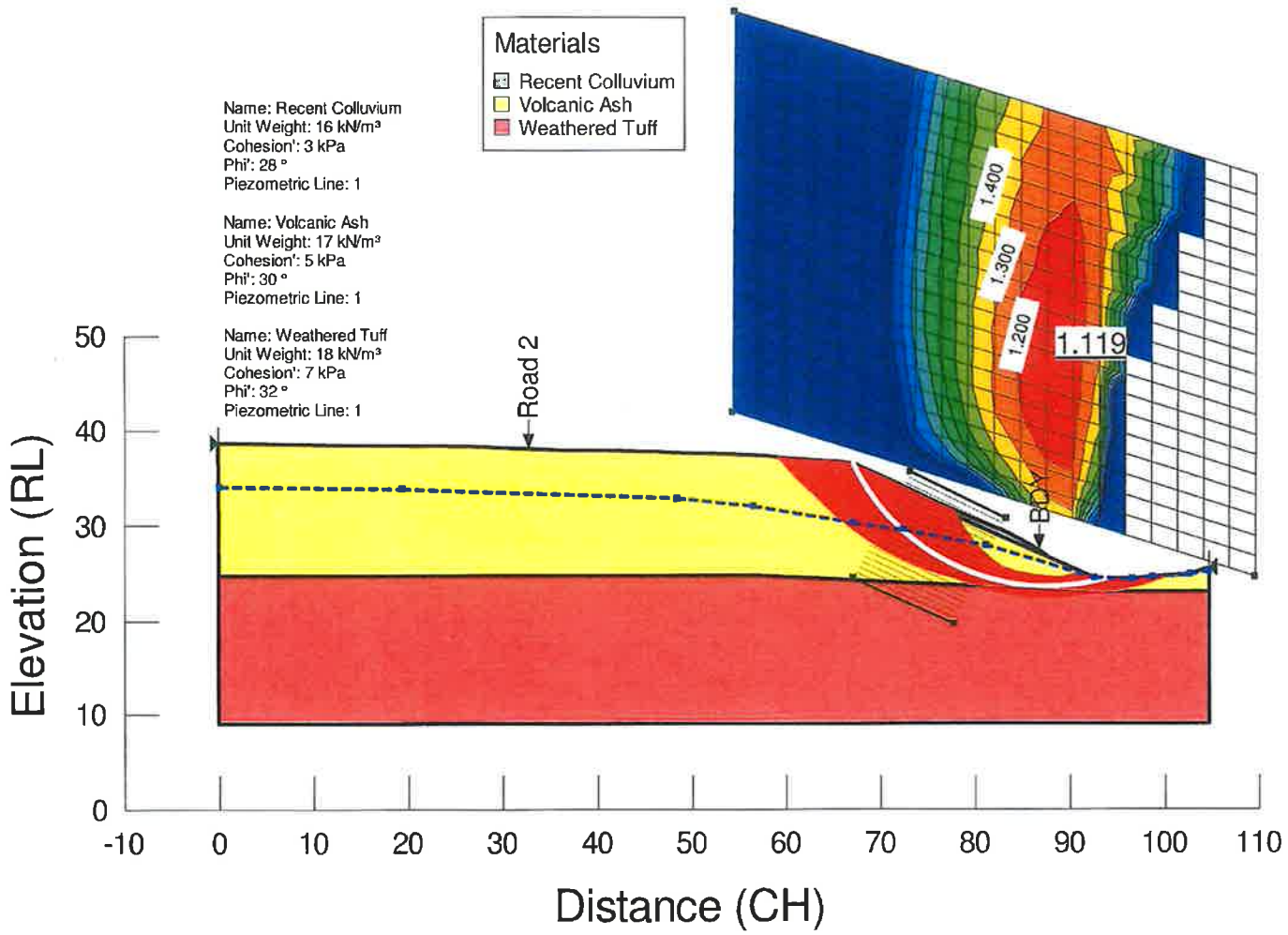
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION E-E': EXISTING SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: E.1



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

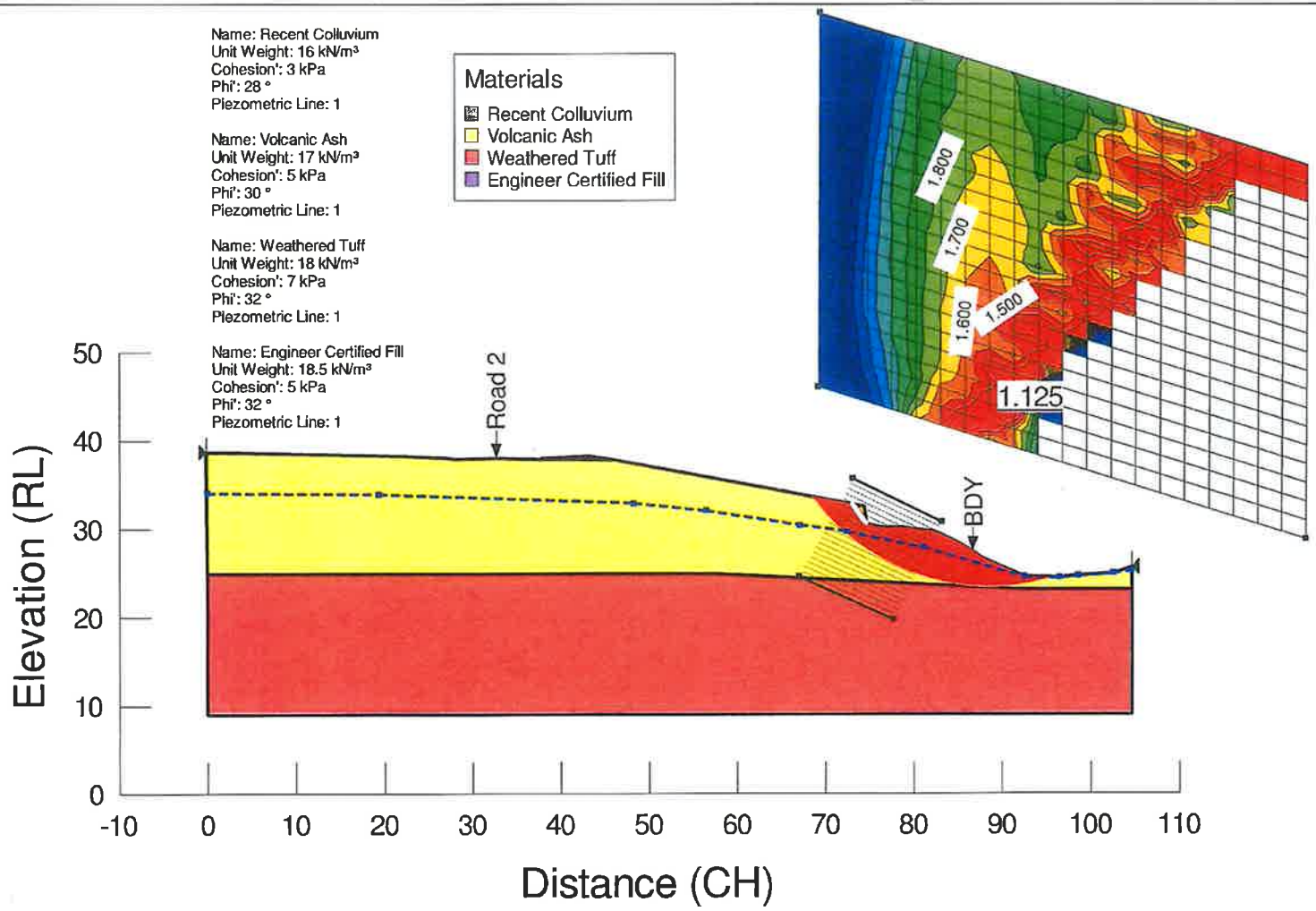
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION E-E': EXISTING SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: E.2



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

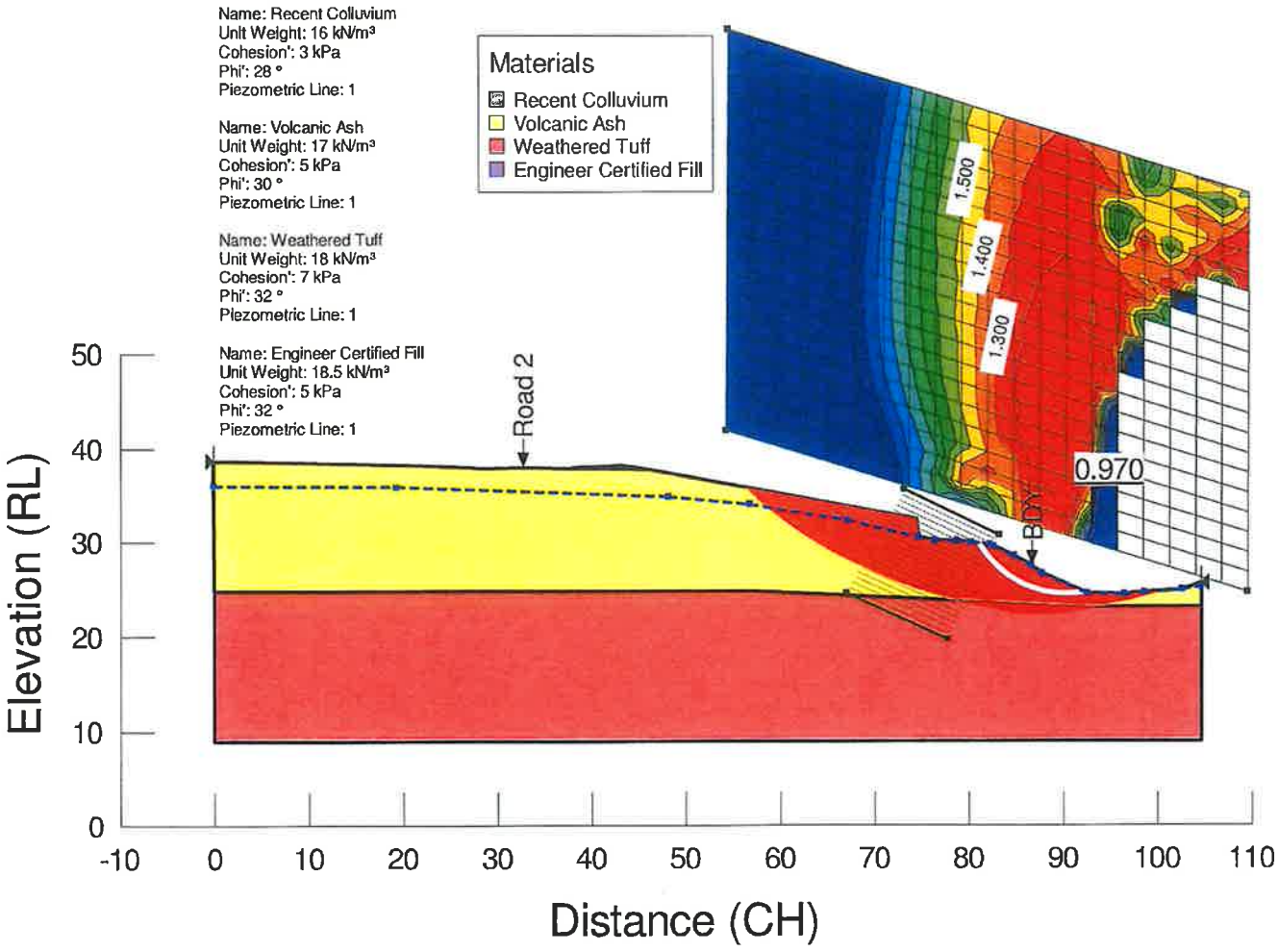
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION E-E': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: E.3



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION E-E': PROPOSED SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: E.4



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

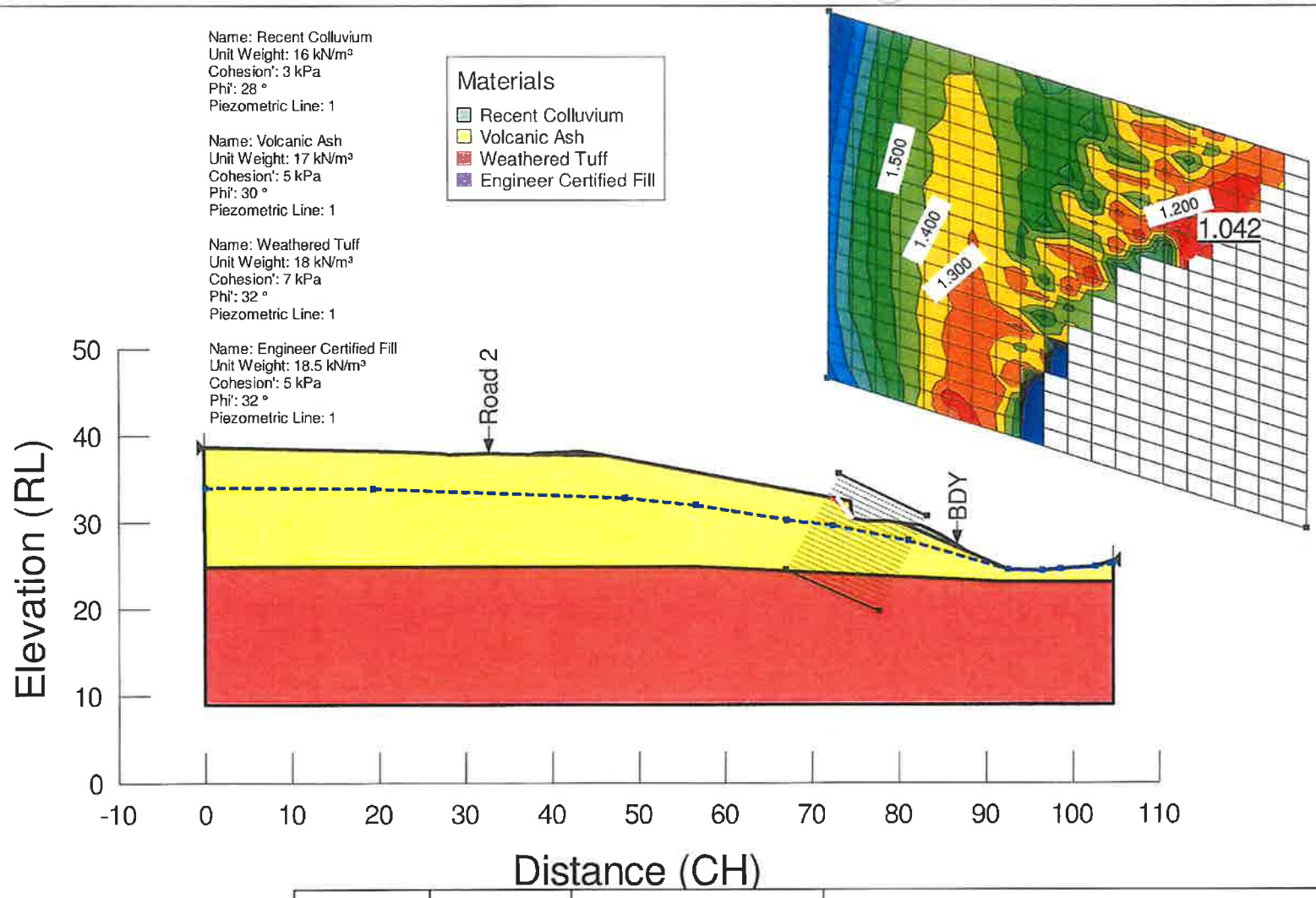
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION E-E': PROPOSED SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: E.5

Name: Recent Colluvium
Unit Weight: 16 kN/m³
Cohesion': 3 kPa
Phi': 28 °
Piezometric Line: 1

Name: Volcanic Ash
Unit Weight: 17 kN/m³
Cohesion': 5 kPa
Phi': 30 °
Piezometric Line: 1

Name: Weathered Tuff
Unit Weight: 18 kN/m³
Cohesion': 7 kPa
Phi': 32 °
Piezometric Line: 1

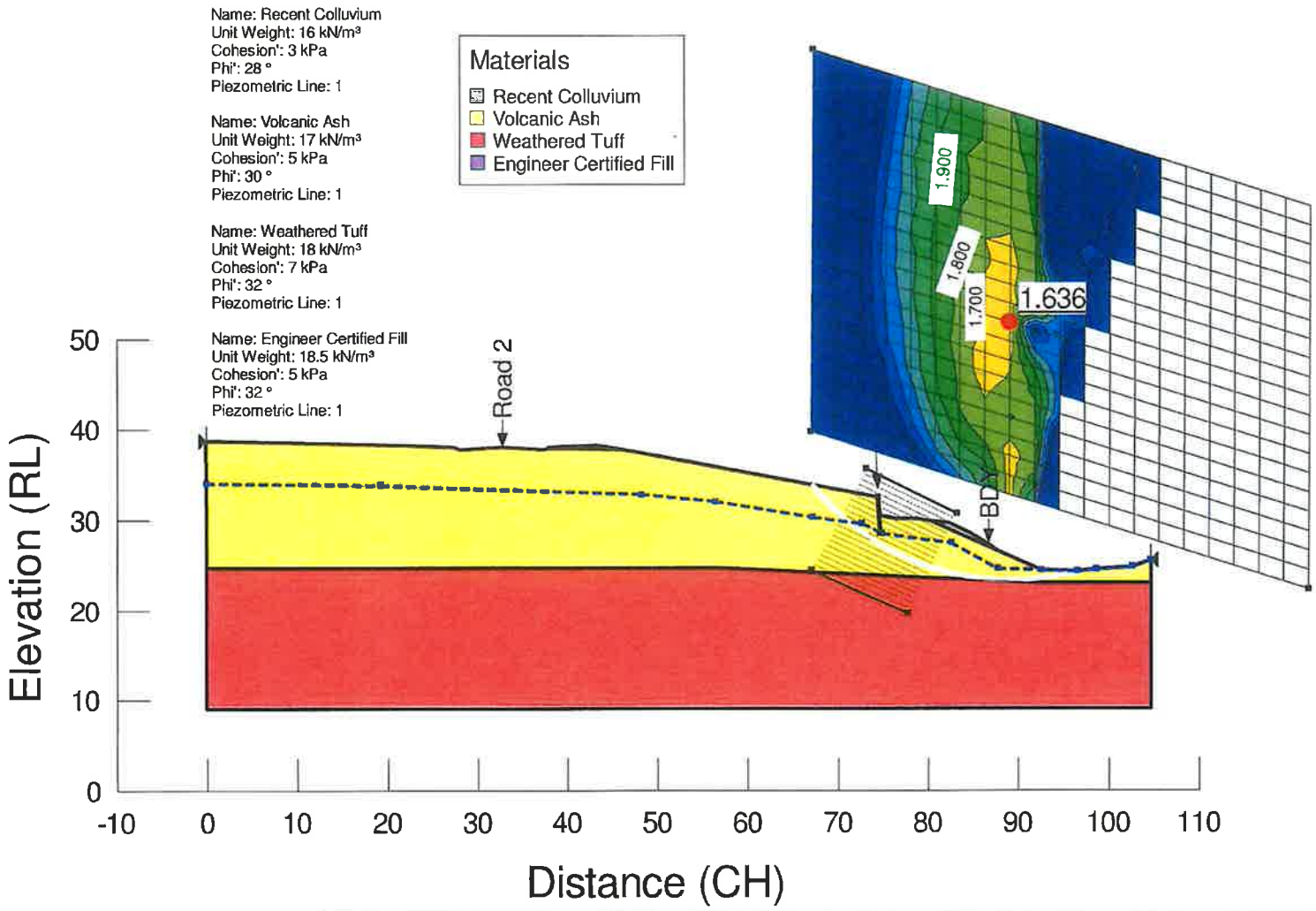
Name: Engineer Certified Fill
Unit Weight: 18.5 kN/m³
Cohesion': 5 kPa
Phi': 32 °
Piezometric Line: 1



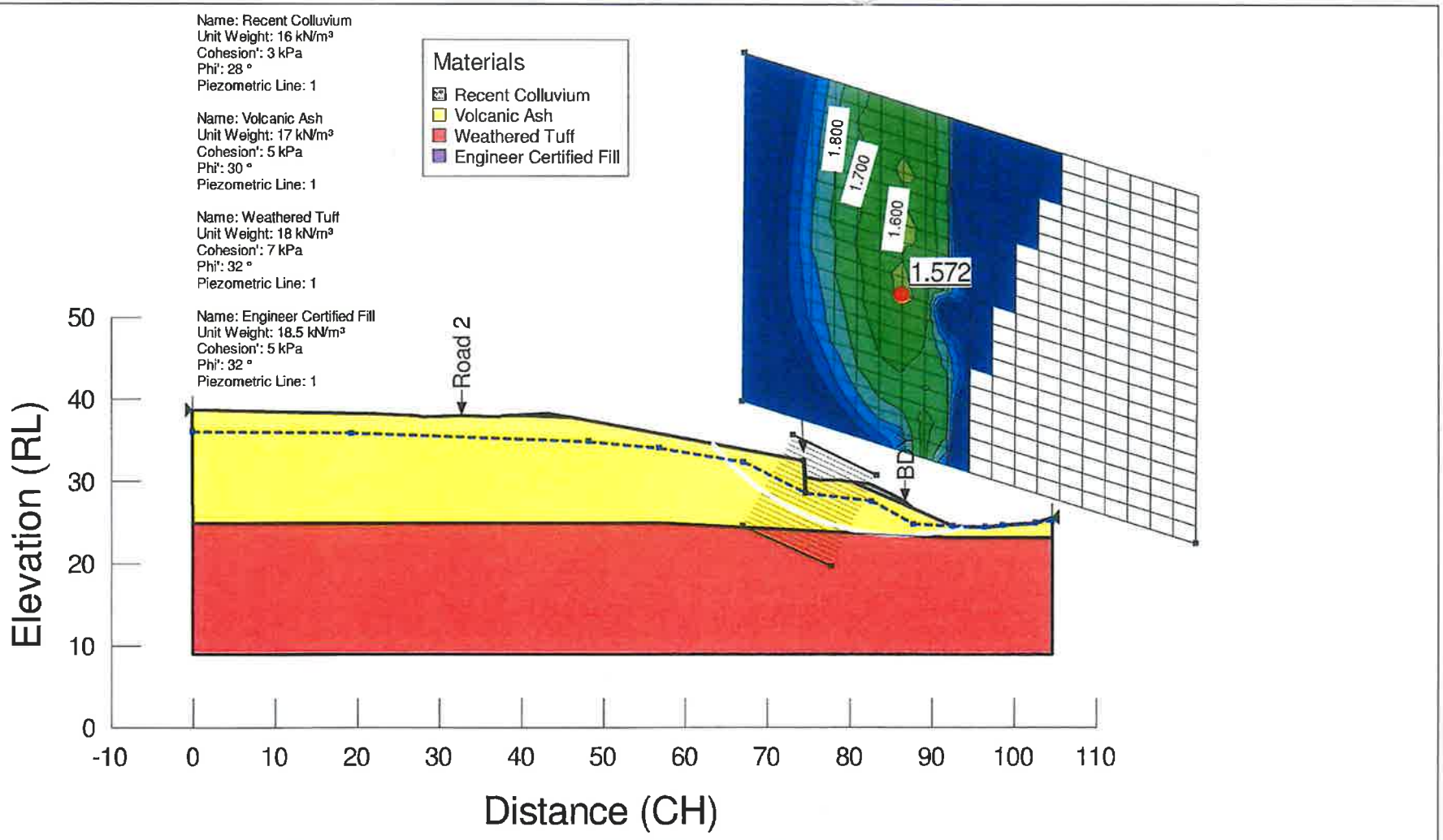
Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION E-E': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: E.6



Drawn	MPC	LANDER geotechnical	Client:	HUGHES DEVELOPMENTS LIMITED
Approved	CE		Project:	99 ESCOTTS ROAD, TUAKAU
Date	8/11/17		Title:	CROSS SECTION E-E': REMEDIATED SLOPE (3M DEEP COUNTERFORT DRAINS AND RETAINING WALL) – EXISTING GROUNDWATER (F.O.S <1.5)
Scale	Not to scale		Job no: J00779	Case no: E.7
Original Size	A4			



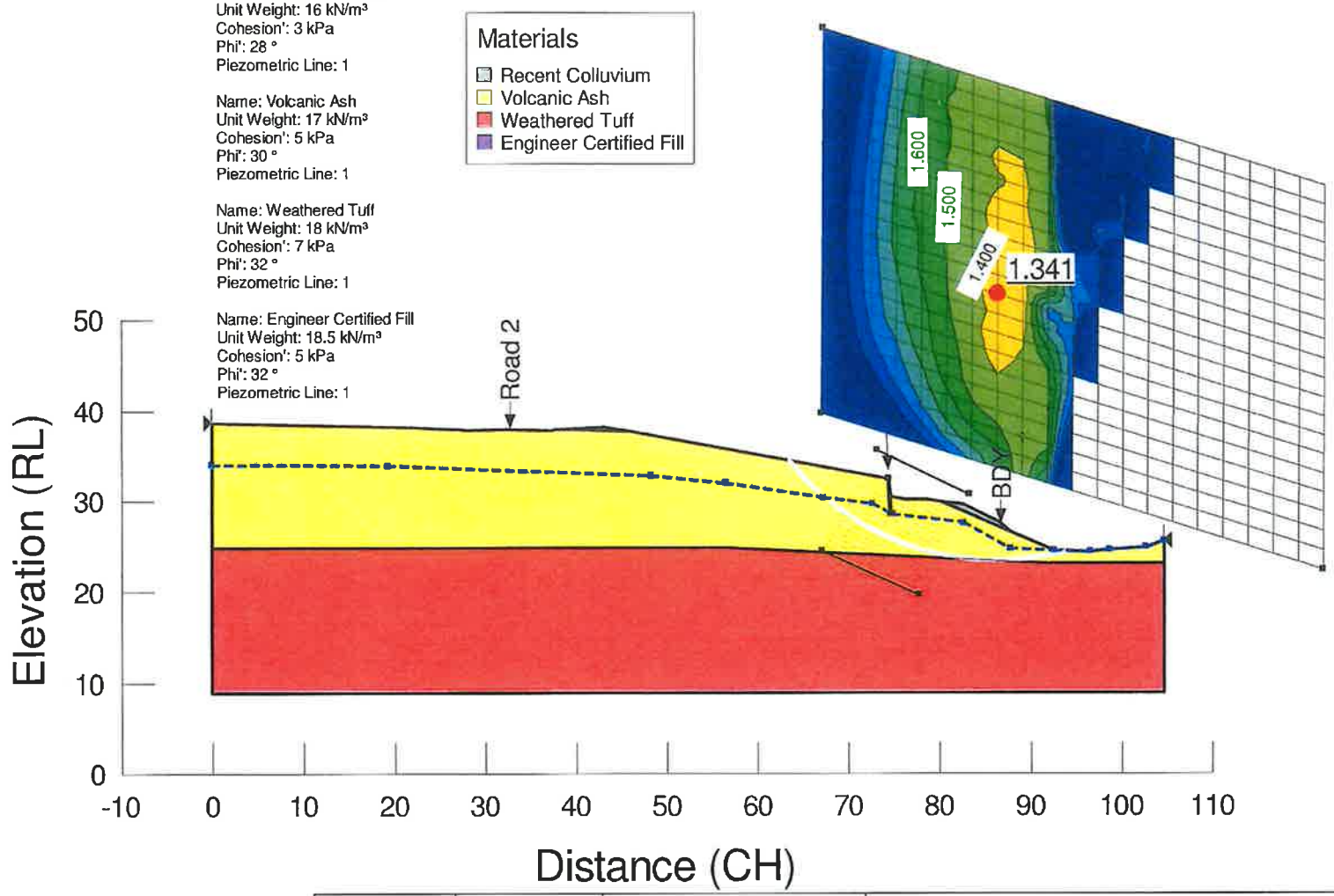
Drawn	MPC	LANDER geotechnical	Client:	HUGHES DEVELOPMENTS LIMITED
Approved	CE		Project:	99 ESCOTTS ROAD, TUAKAU
Date	8/11/17		Title:	CROSS SECTION E-E': REMEDIATED SLOPE (3M DEEP COUNTERFORT DRAINS AND RETAINING WALL) – ELEVATED GROUNDWATER (F.O.S <1.3)
Scale	Not to scale		Job no: J00779	Case no: E.8
Original Size	A4			

Name: Recent Colluvium
Unit Weight: 16 kN/m³
Cohesion': 3 kPa
Phi': 28 °
Piezometric Line: 1

Name: Volcanic Ash
Unit Weight: 17 kN/m³
Cohesion': 5 kPa
Phi': 30 °
Piezometric Line: 1

Name: Weathered Tuff
Unit Weight: 18 kN/m³
Cohesion': 7 kPa
Phi': 32 °
Piezometric Line: 1

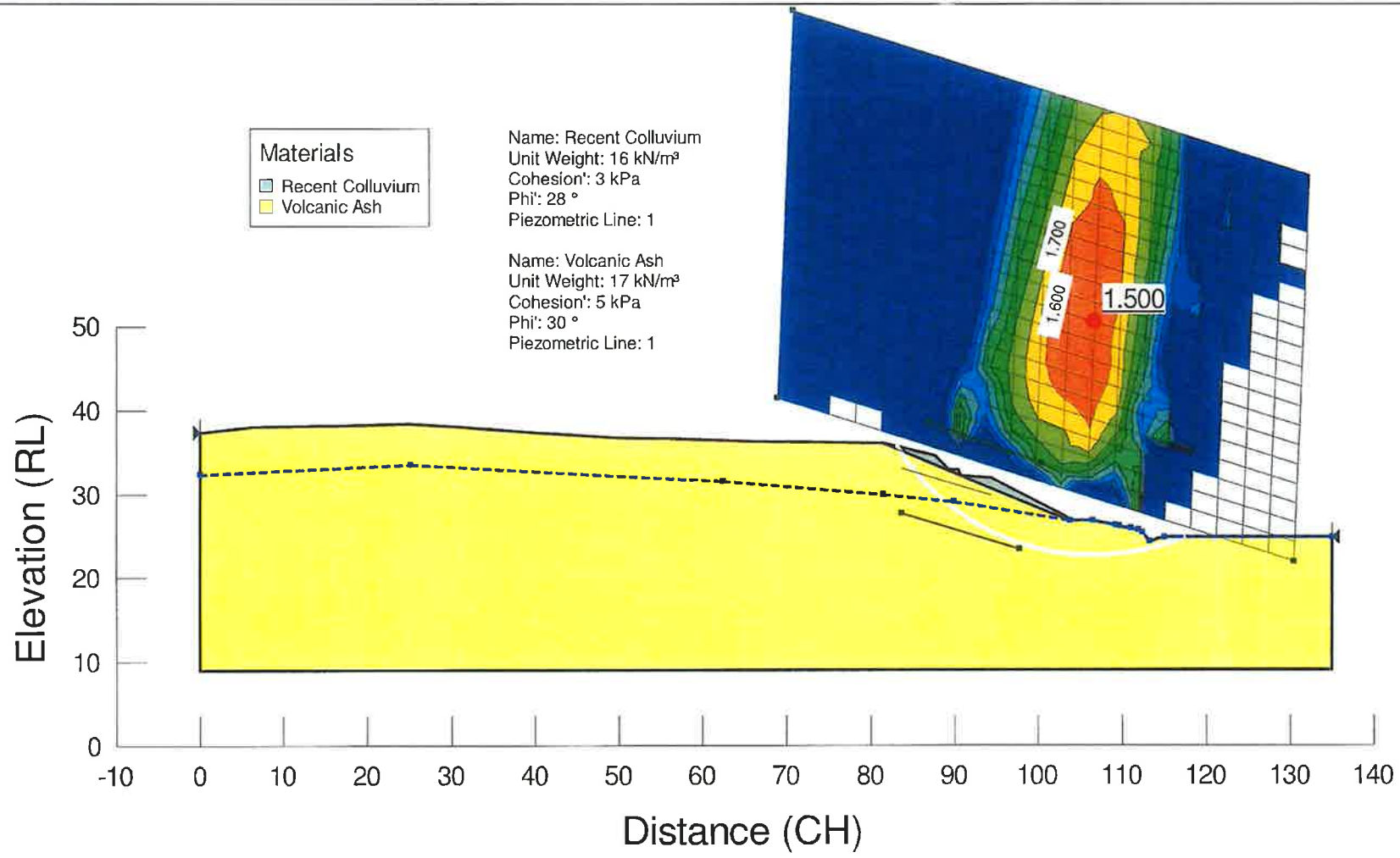
Name: Engineer Certified Fill
Unit Weight: 18.5 kN/m³
Cohesion': 5 kPa
Phi': 32 °
Piezometric Line: 1



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

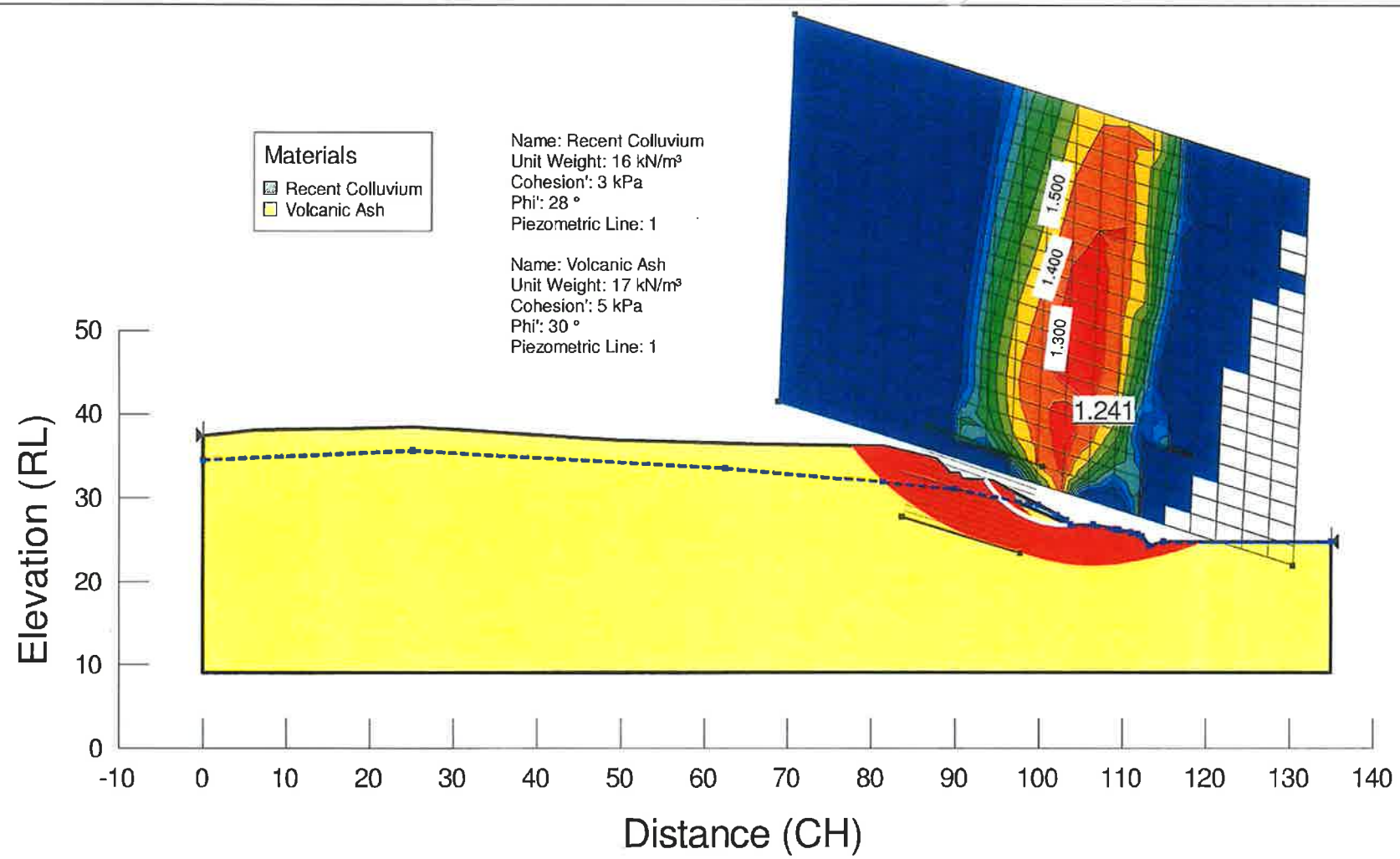
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION E-E': REMEDIATED SLOPE (3M DEEP COUNTERFORT DRAINS AND RETAINING WALL) – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: E.9



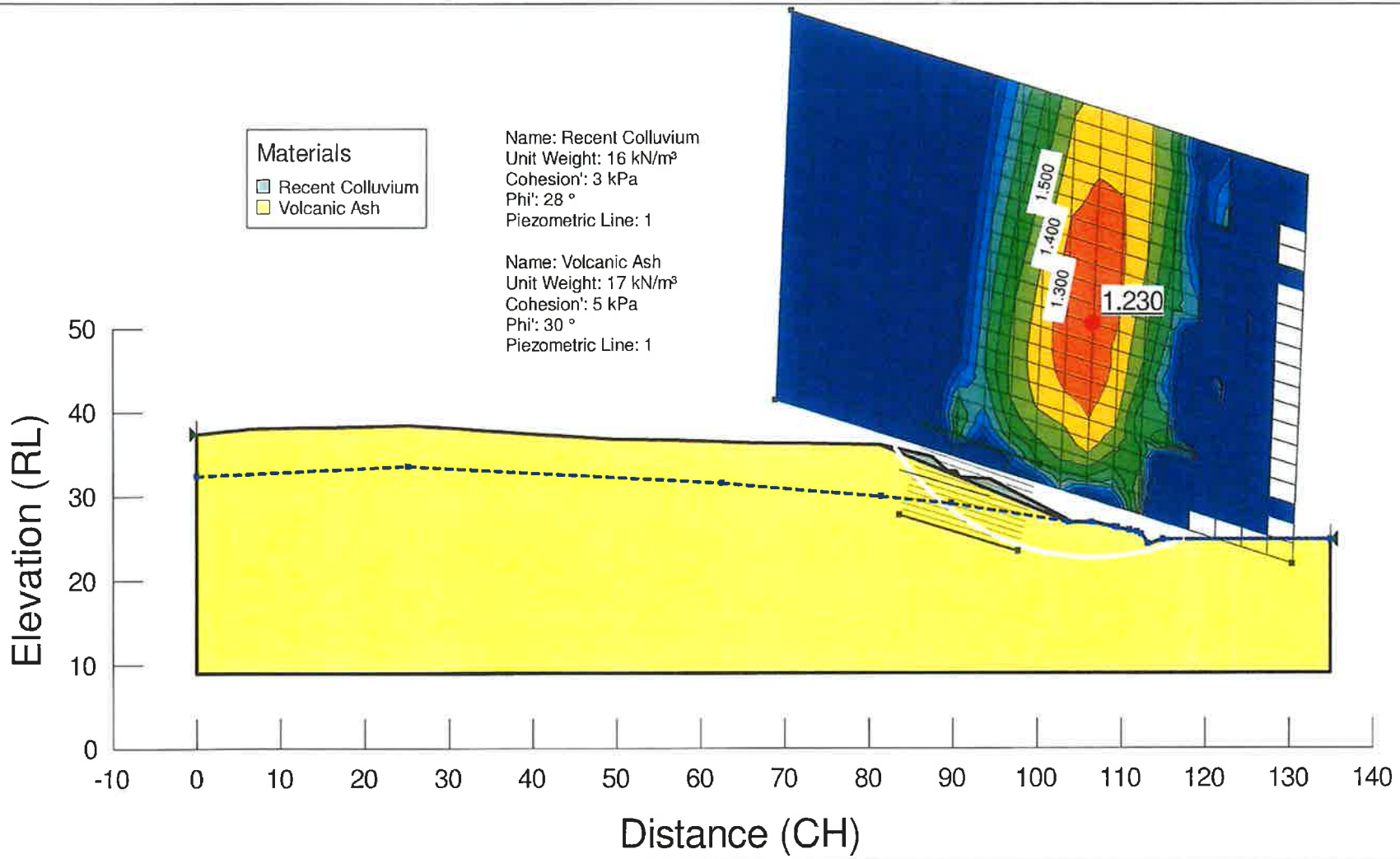
Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION F-F': EXISTING SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: F.1



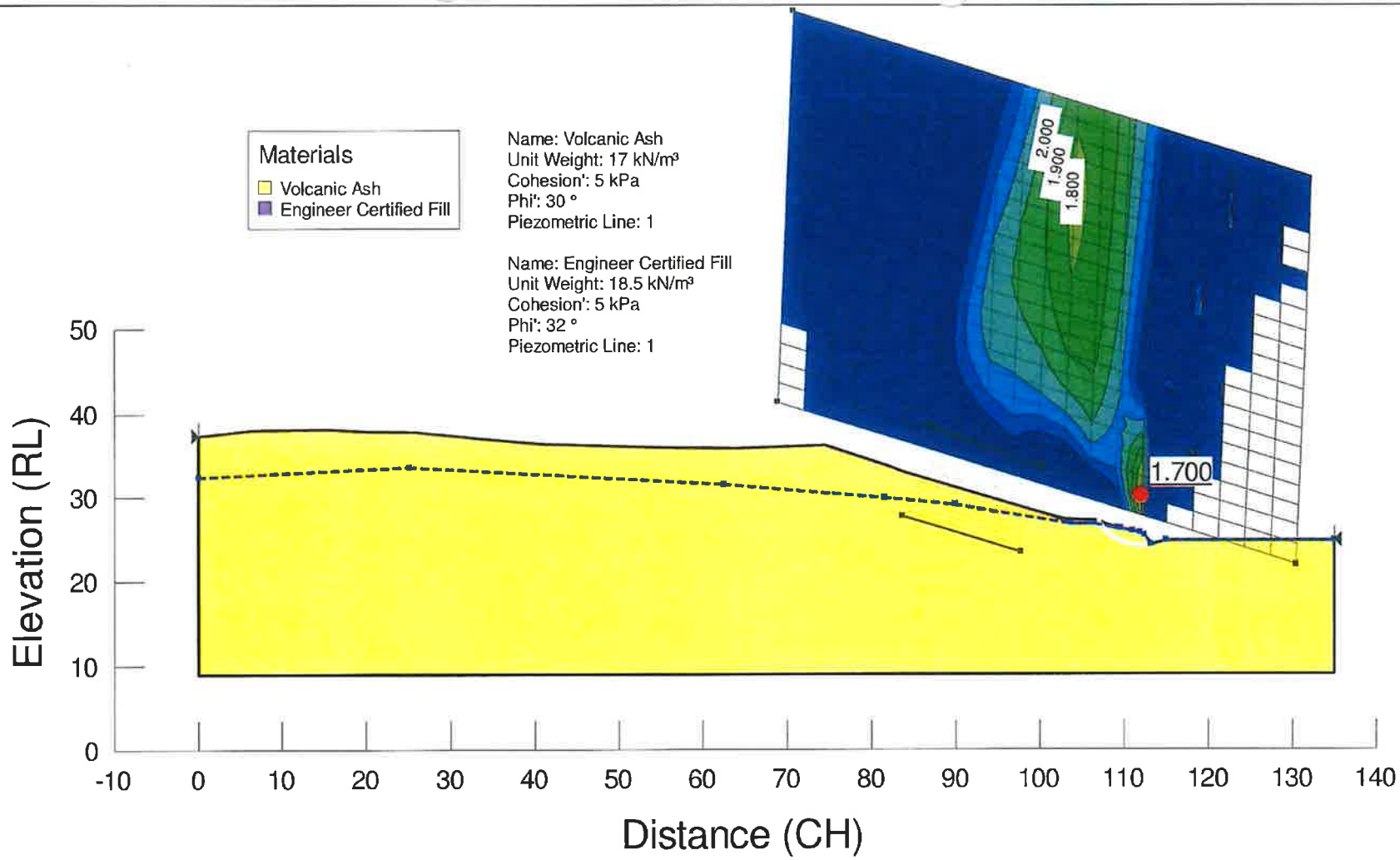
Drawn	MPC	LANDER geotechnical	Client:	HUGHES DEVELOPMENTS LIMITED
Approved	CE		Project:	99 ESCOTTS ROAD, TUAKAU
Date	8/11/17		Title:	CROSS SECTION F-F': EXISTING SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Scale	Not to scale		Job no: J00779	Case no: F.2
Original Size	A4			



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

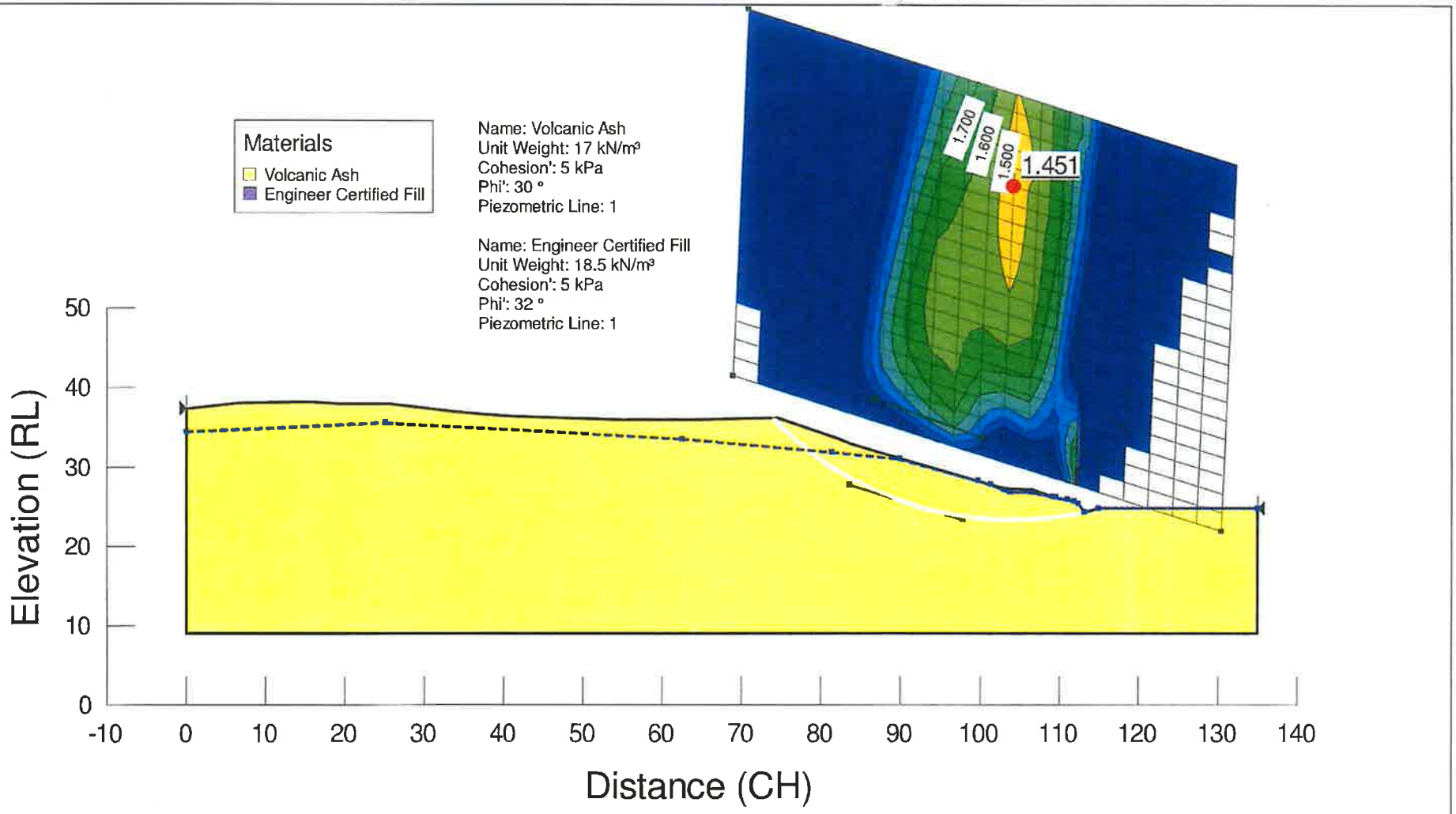
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION F-F': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: F.3



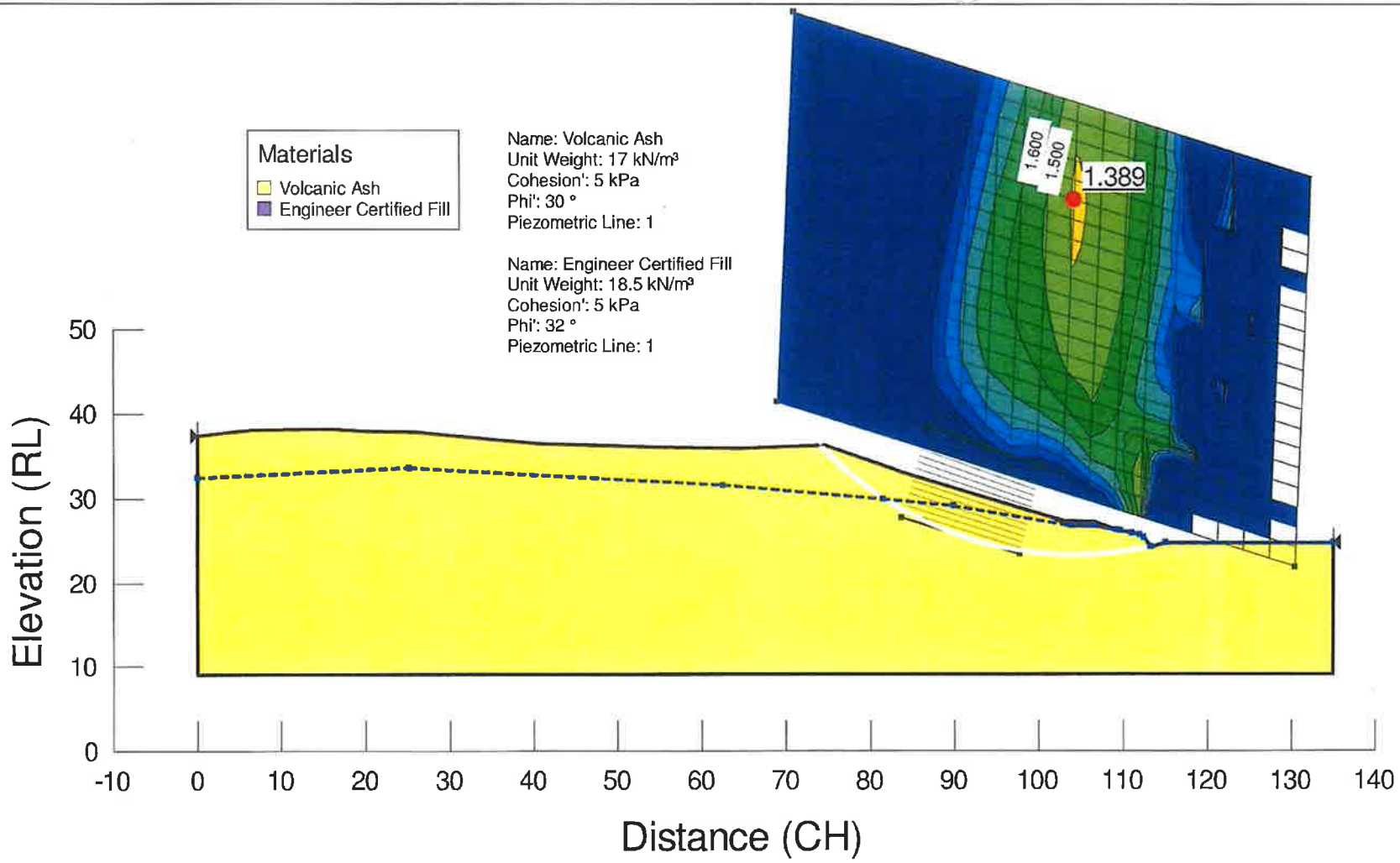
Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION F-F': PROPOSED SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: F.4



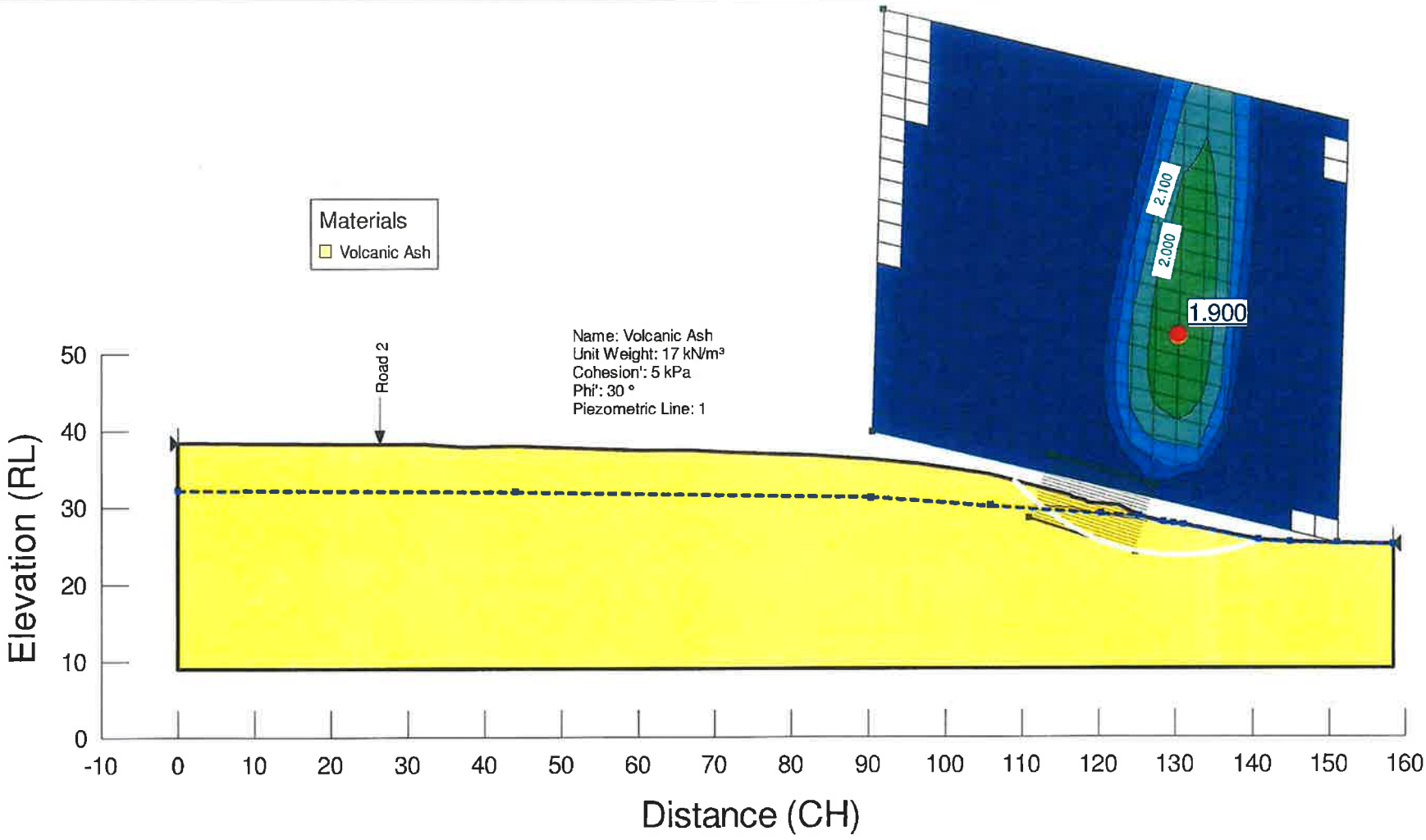
Drawn	MPC	LANDER geotechnical	Client:	HUGHES DEVELOPMENTS LIMITED
Approved	CE		Project:	99 ESCOTTS ROAD, TUAKAU
Date	8/11/17		Title:	CROSS SECTION F-F': PROPOSED SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Scale	Not to scale		Job no: J00779	Case no: F.5
Original Size	A4			



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

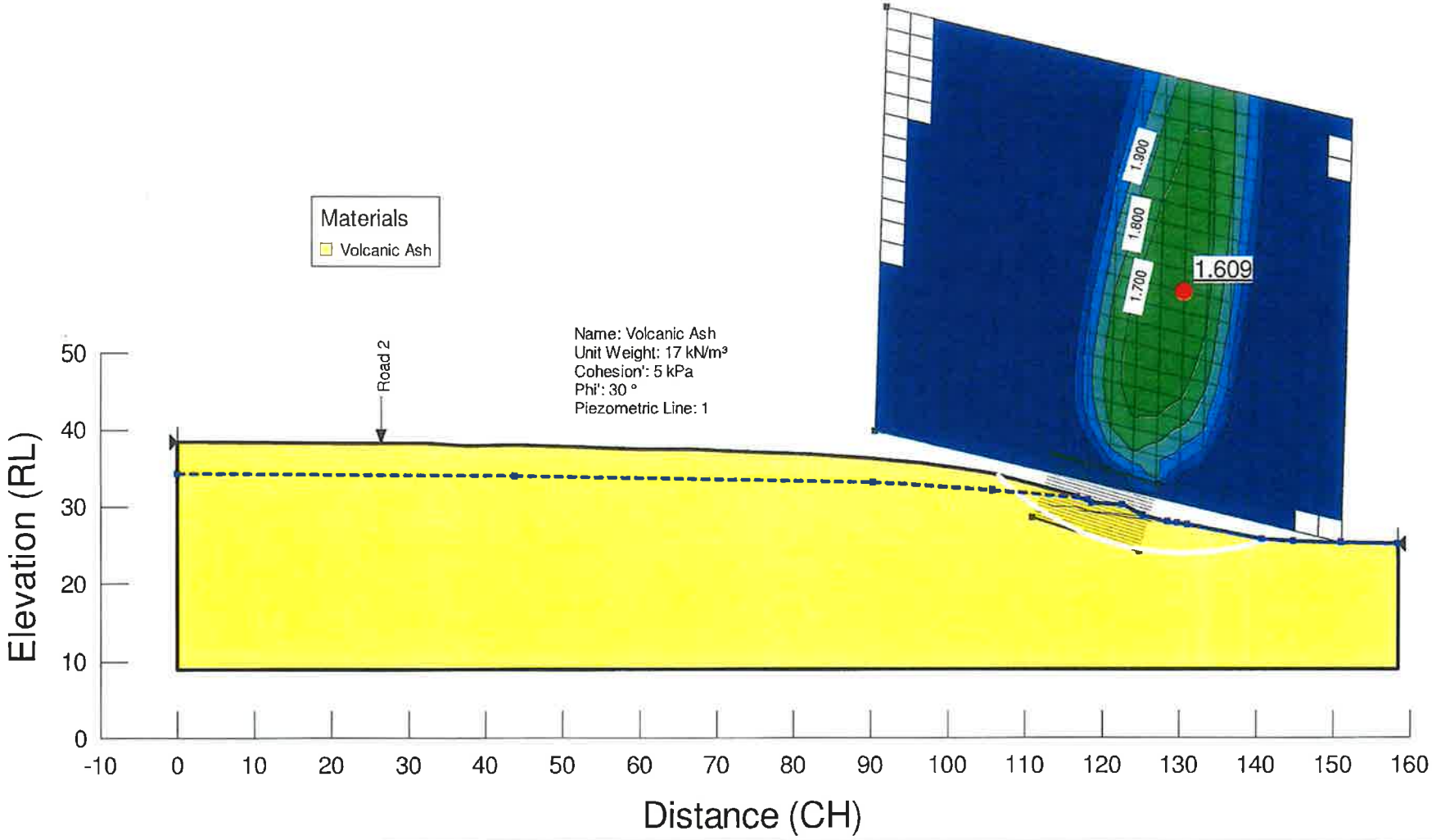
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION F-F': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: F.6



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

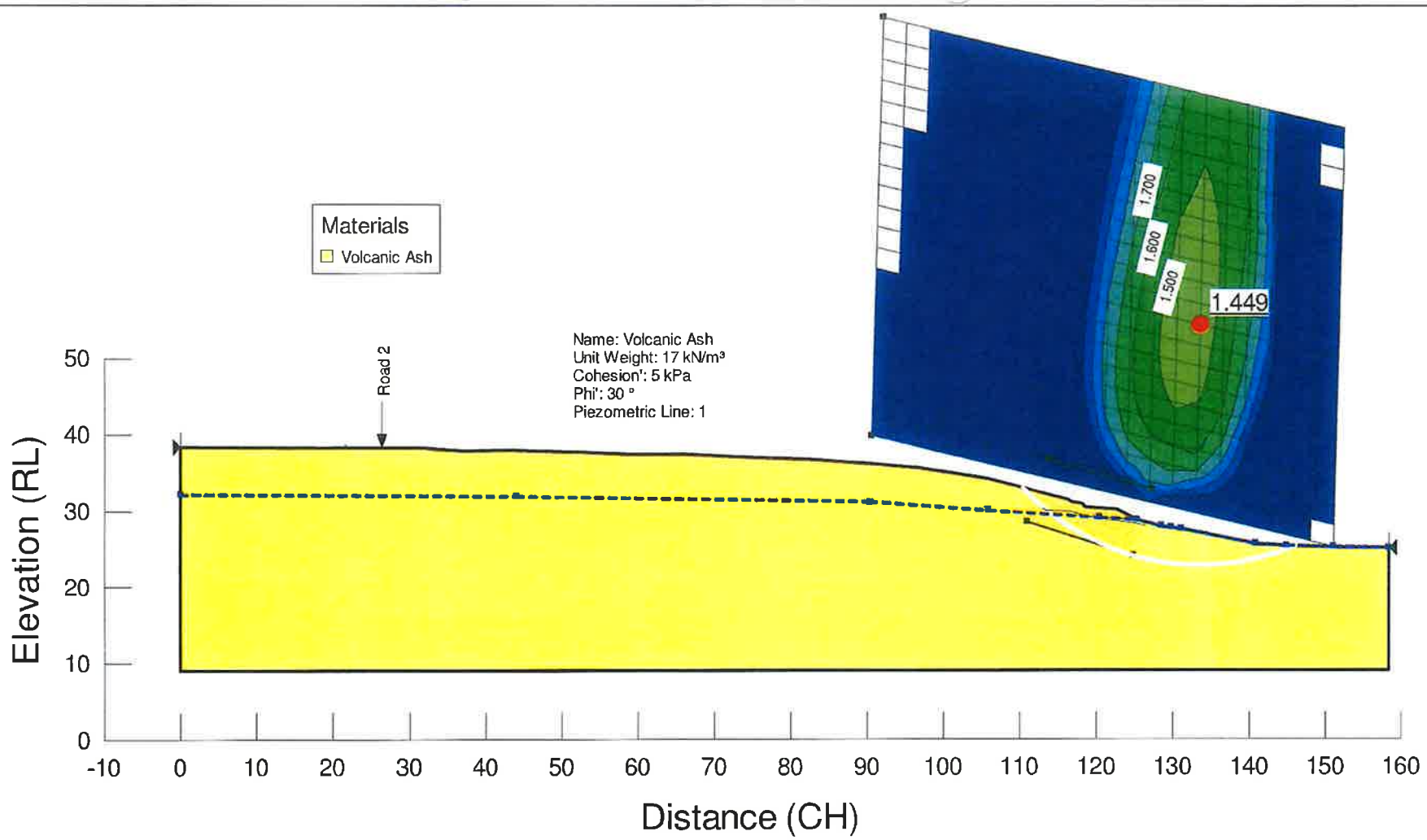
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION G-G': EXISTING SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: G.1



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

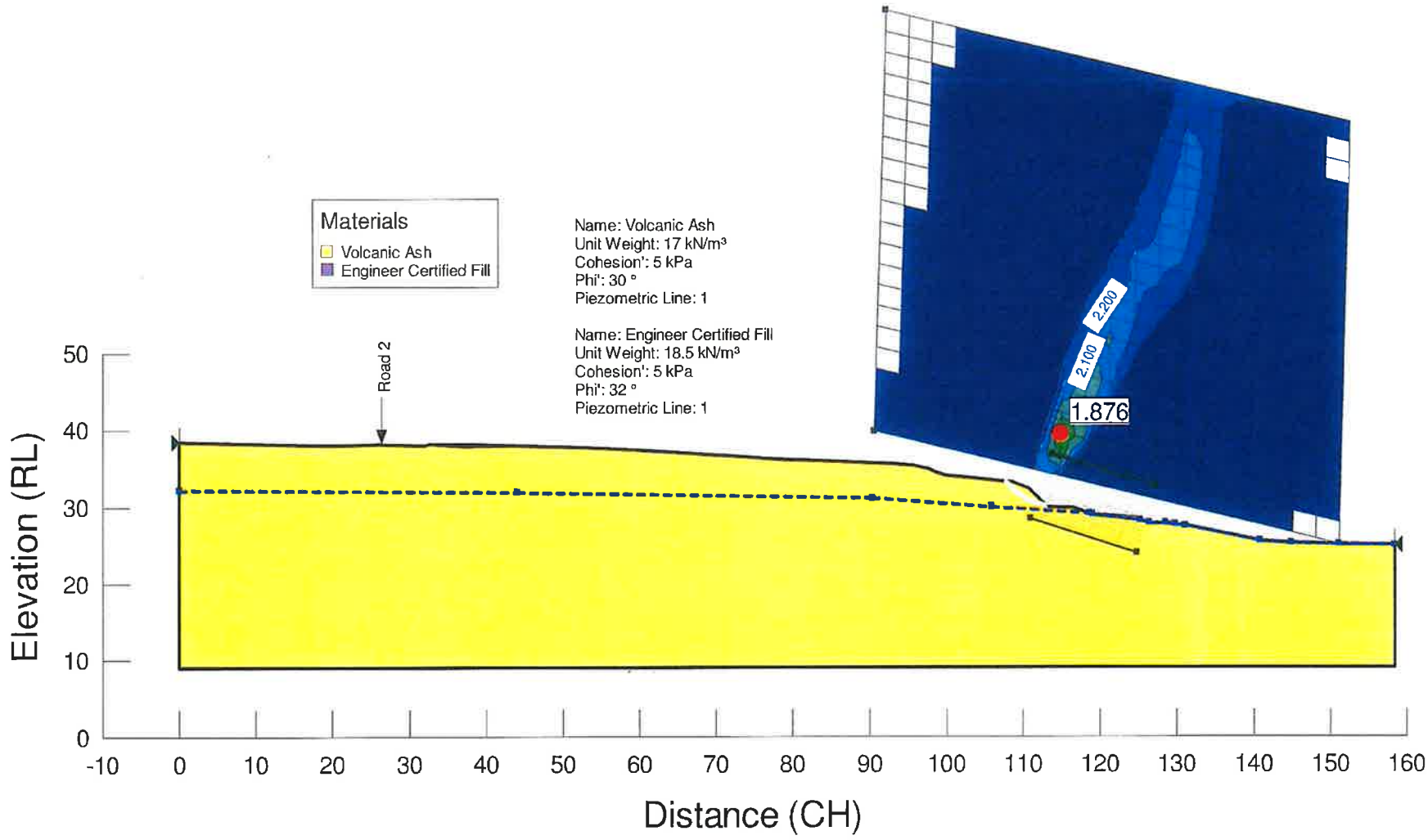
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION G-G': EXISTING SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: G.2



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

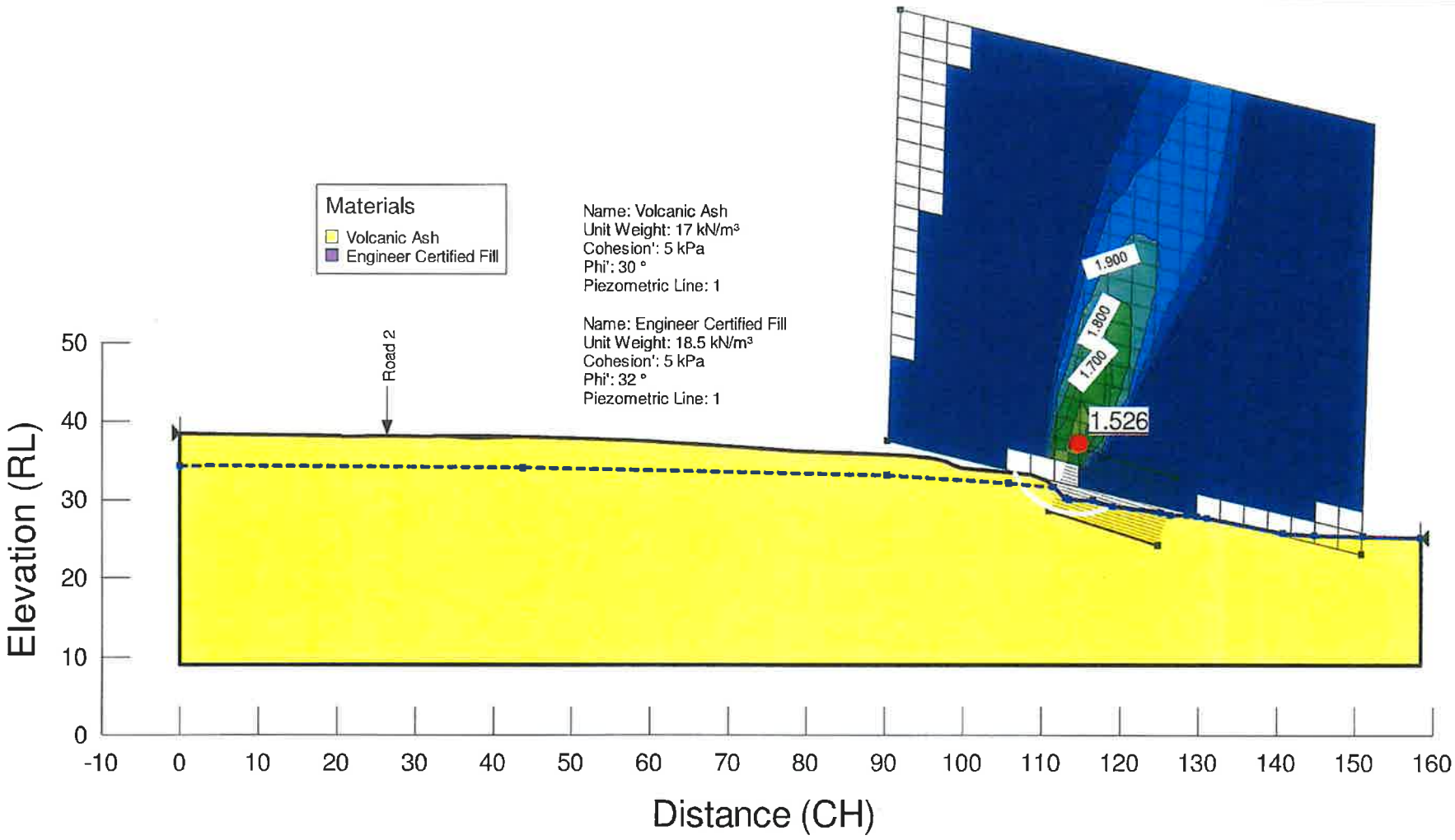
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION G-G': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: G.3



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

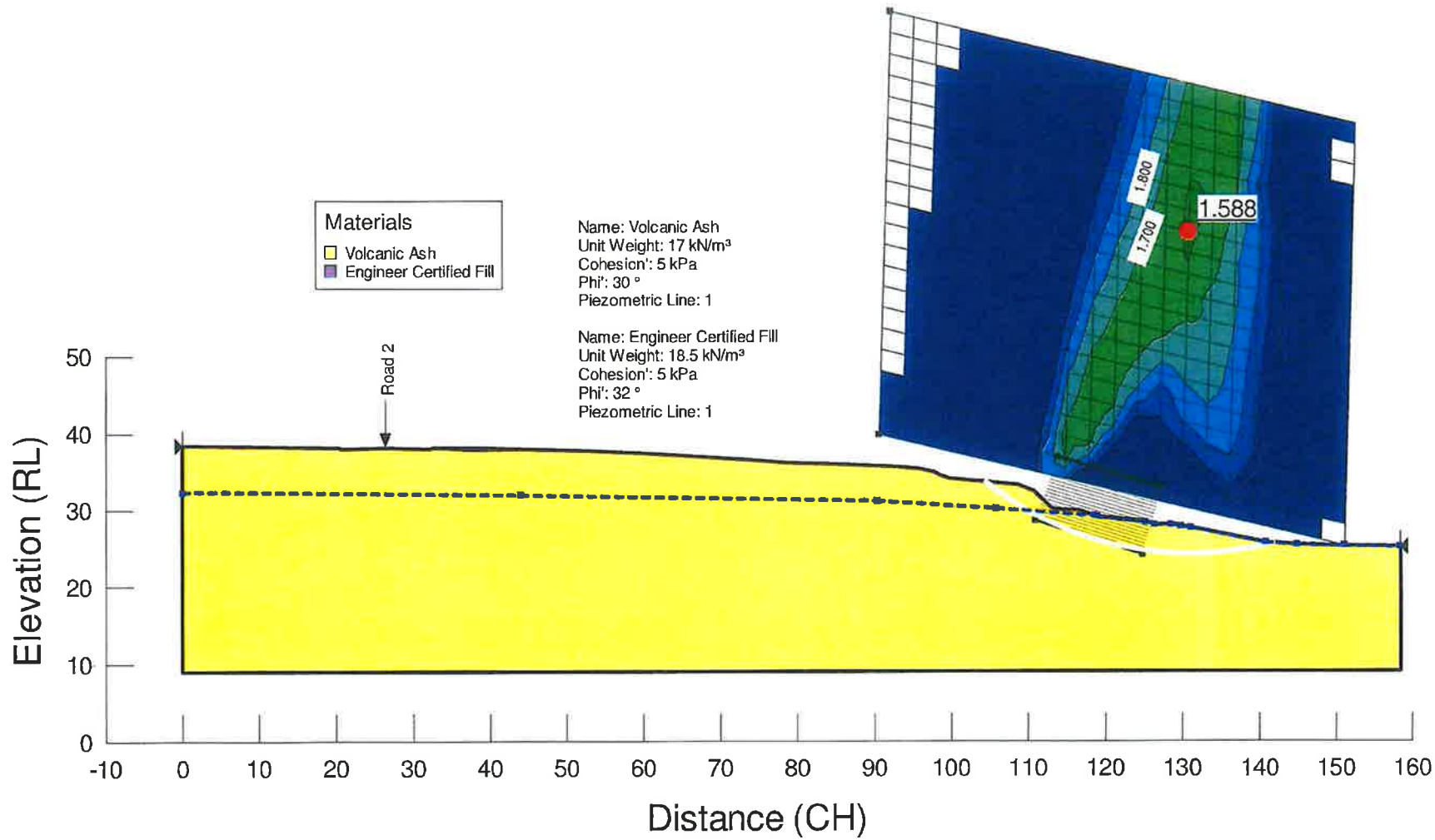
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION G-G': PROPOSED SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: G.4



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION G-G': PROPOSED SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: G.5



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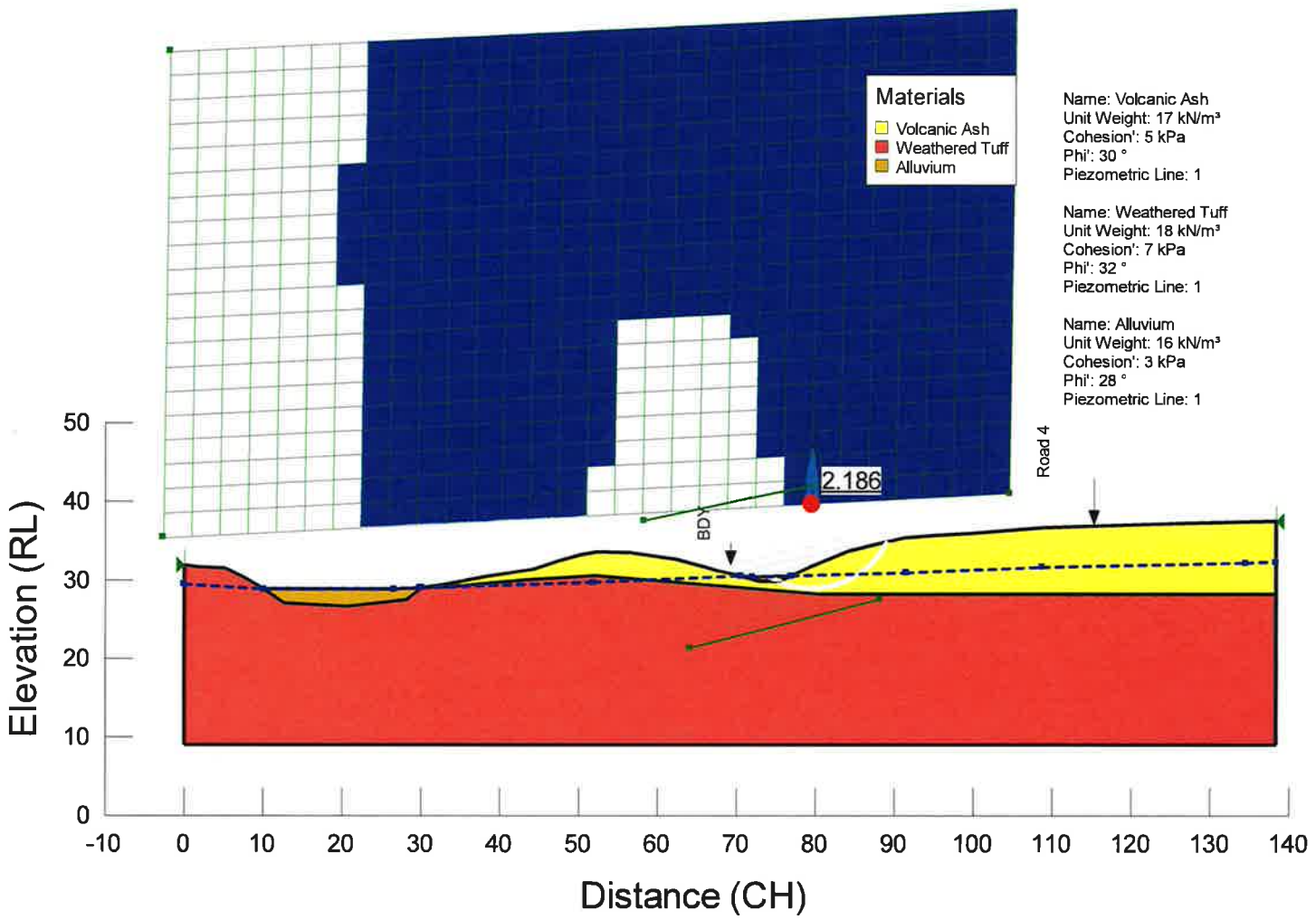
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

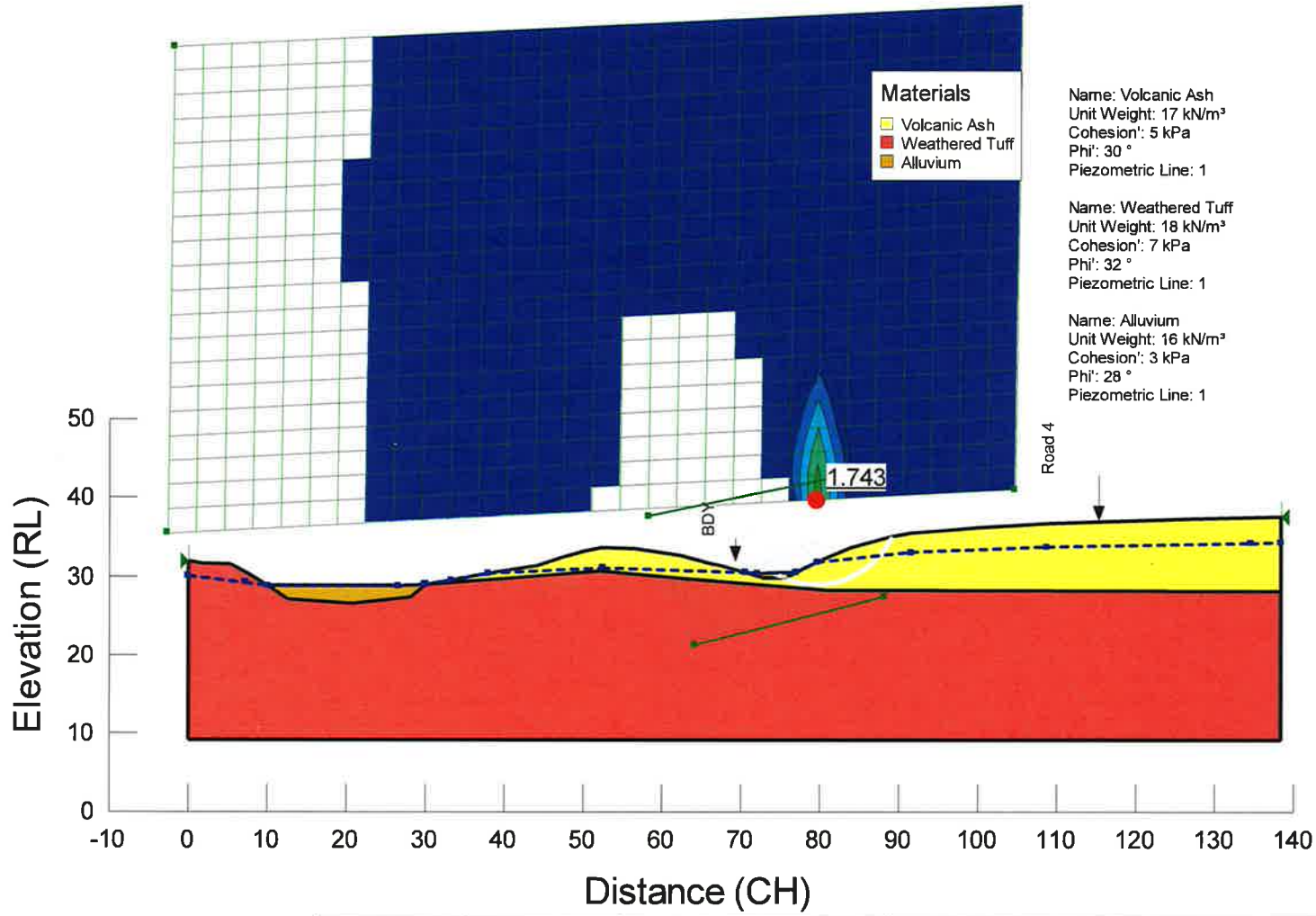
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION G-G': EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Job no: J00779	Case no: G.6



Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

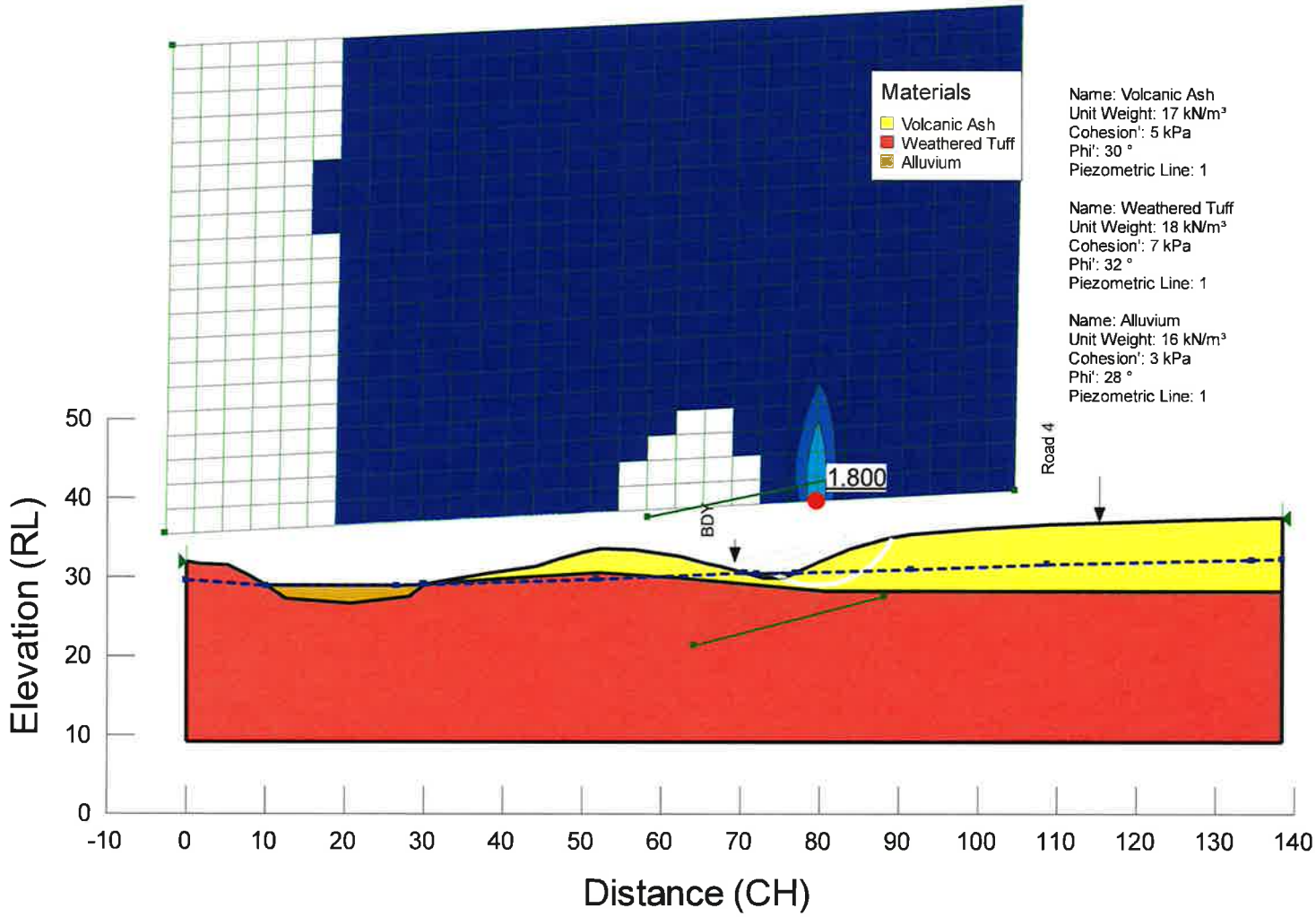
Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION H-H: EXISTING SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)
Job no: J00779	Case no: H.1



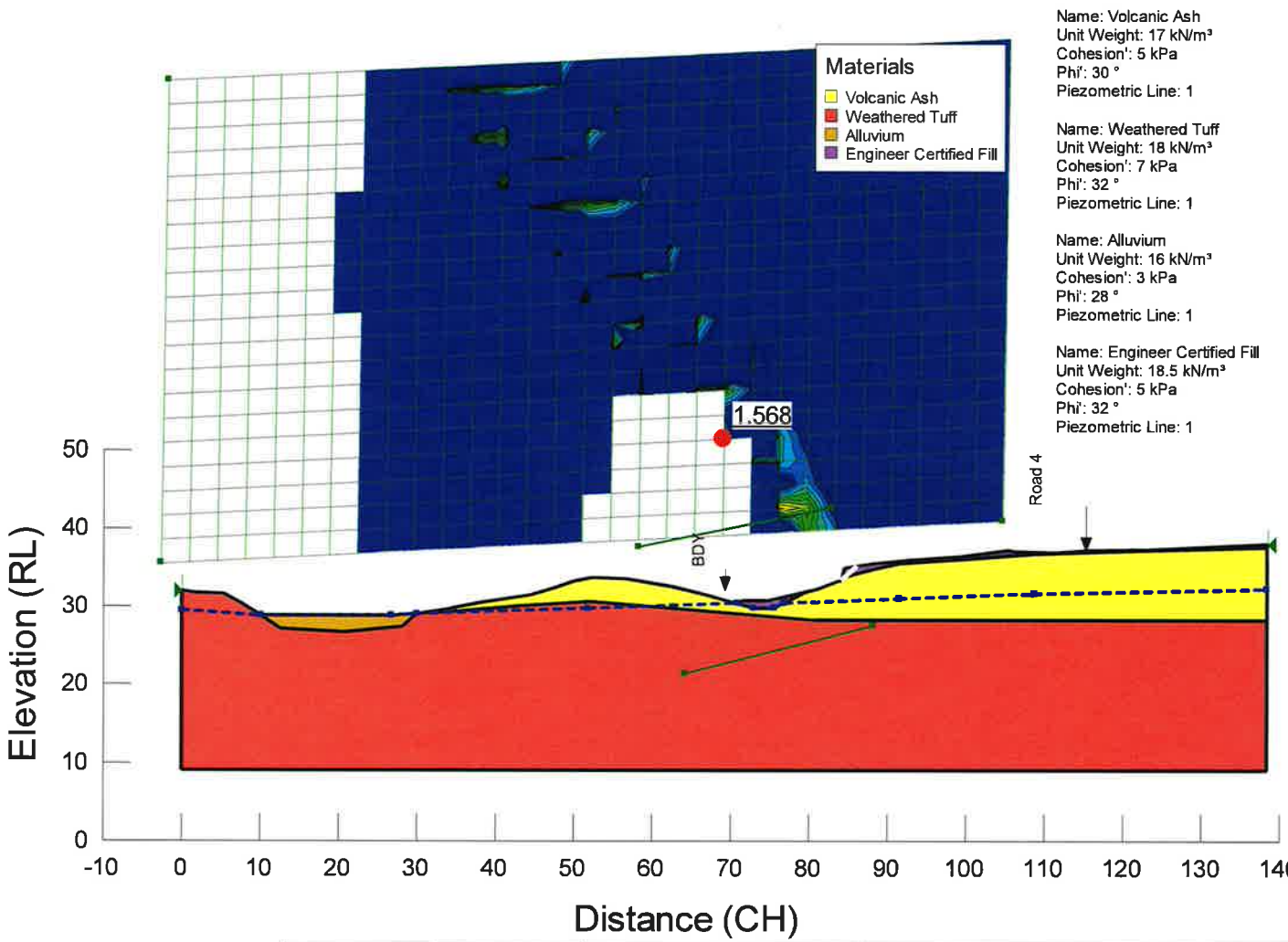
Drawn	MPC
Approved	CE
Date	8/11/17
Scale	Not to scale
Original Size	A4

LANDER geotechnical

Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION H-H: EXISTING SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: H.2



Drawn	MPC	LANDER geotechnical	Client:	HUGHES DEVELOPMENTS LIMITED
Approved	CE		Project:	99 ESCOTTS ROAD, TUAKAU
Date	8/11/17		Title:	CROSS SECTION H-H: EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)
Scale	Not to scale		Job no: J00779	Case no: H.3
Original Size	A4			



Name: Volcanic Ash
Unit Weight: 17 kN/m³
Cohesion': 5 kPa
Phi': 30 °
Piezometric Line: 1

Name: Weathered Tuff
Unit Weight: 18 kN/m³
Cohesion': 7 kPa
Phi': 32 °
Piezometric Line: 1

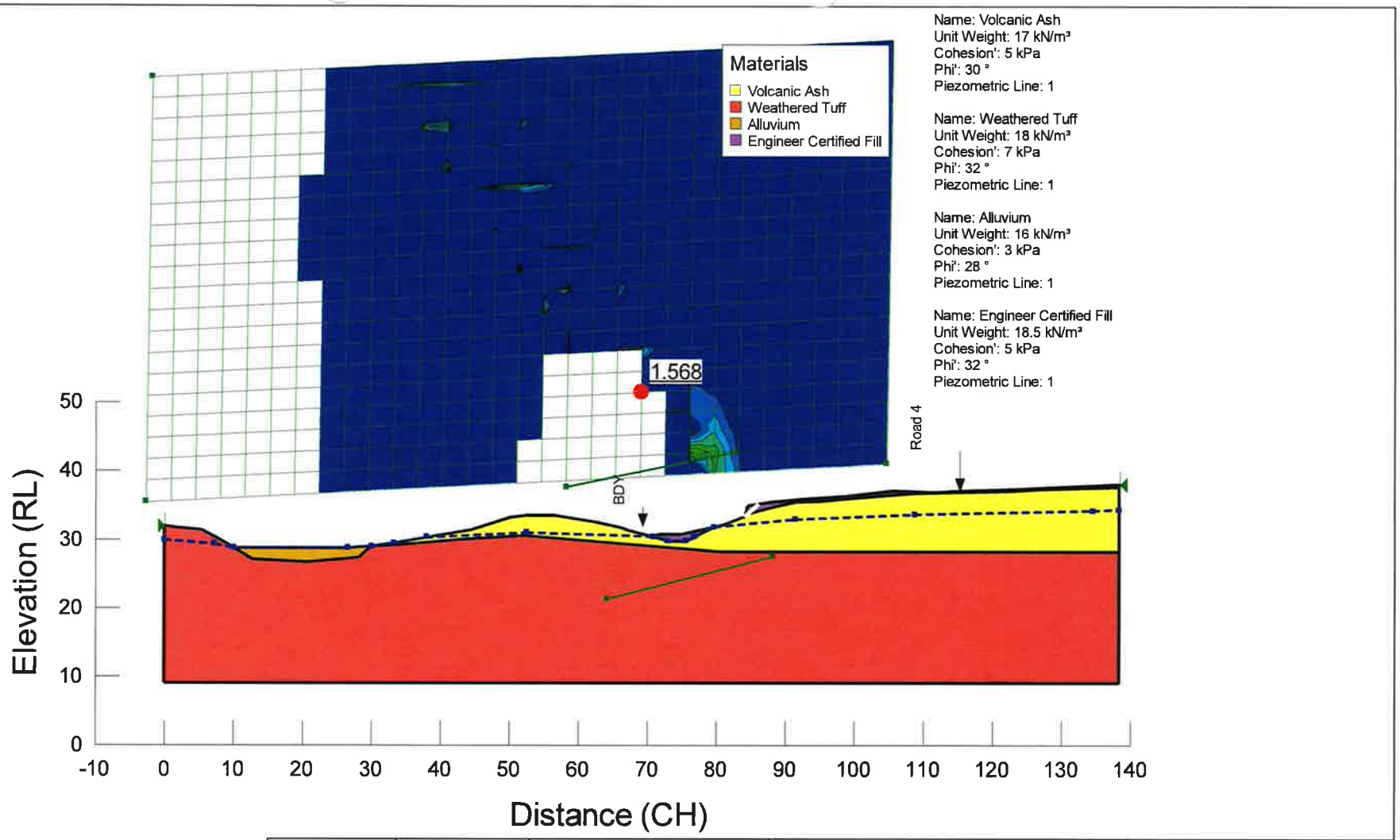
Name: Alluvium
Unit Weight: 16 kN/m³
Cohesion': 3 kPa
Phi': 28 °
Piezometric Line: 1

Name: Engineer Certified Fill
Unit Weight: 18.5 kN/m³
Cohesion': 5 kPa
Phi': 32 °
Piezometric Line: 1

Drawn	**MPC**
Approved	**CE**
Date	**8/11/17**
Scale	**Not to scale**
Original Size	**A4**

LANDER geotechnical

Client:	**HUGHES DEVELOPMENTS LIMITED**
Project:	**99 ESCOTTS ROAD, TUAKAU**
Title:	**CROSS SECTION H-H: PROPOSED SLOPE – EXISTING GROUNDWATER (F.O.S <1.5)**
Job no: **J00779**	Case no: **H.4**



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Date	8/11/17
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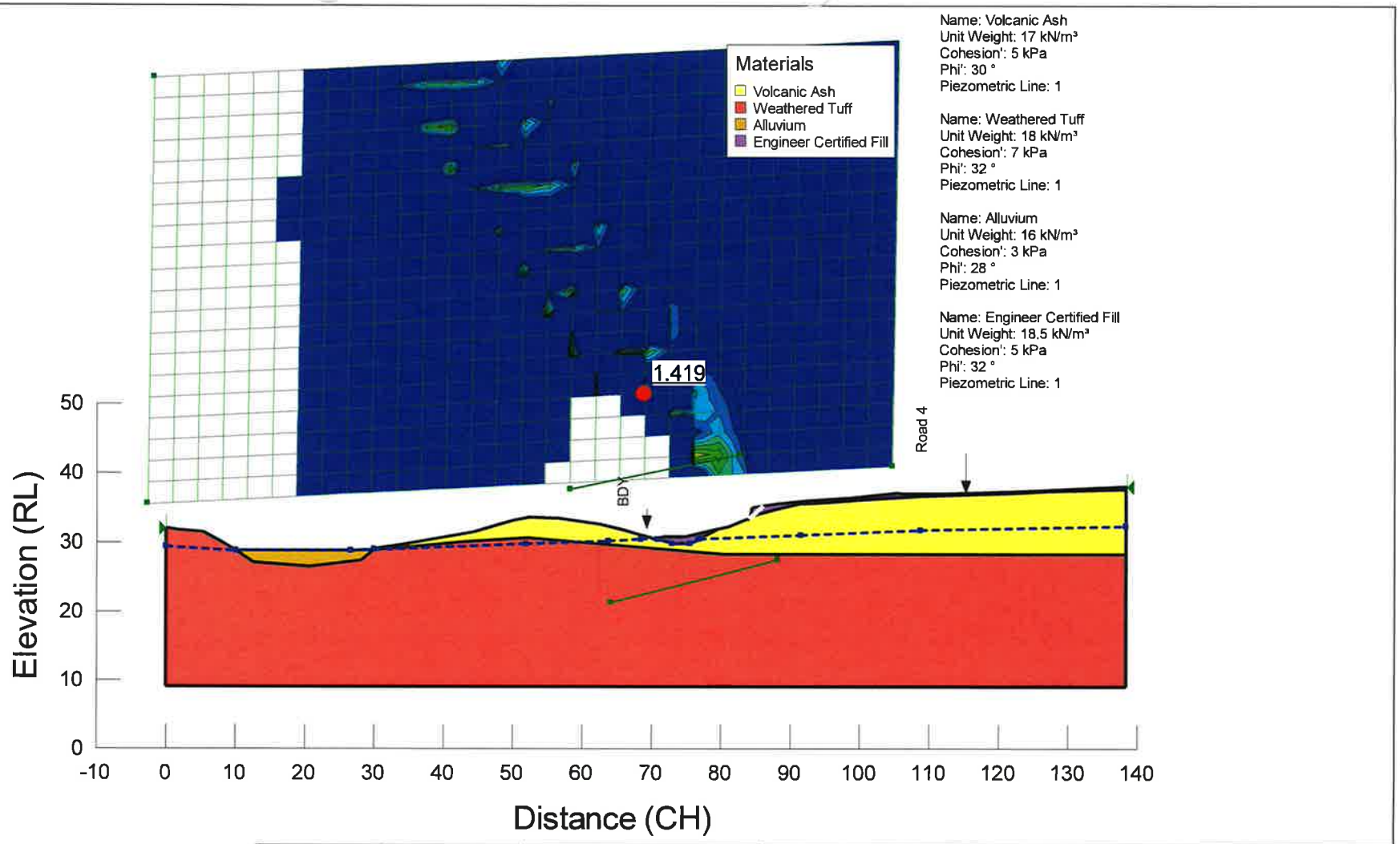
Original Size	A4

LANDER geotechnical

Client:	HUGHES DEVELOPMENTS LIMITED
Project:	99 ESCOTTS ROAD, TUAKAU
Title:	CROSS SECTION H-H: PROPOSED SLOPE – ELEVATED GROUNDWATER (F.O.S <1.3)
Job no: J00779	Case no: H.5

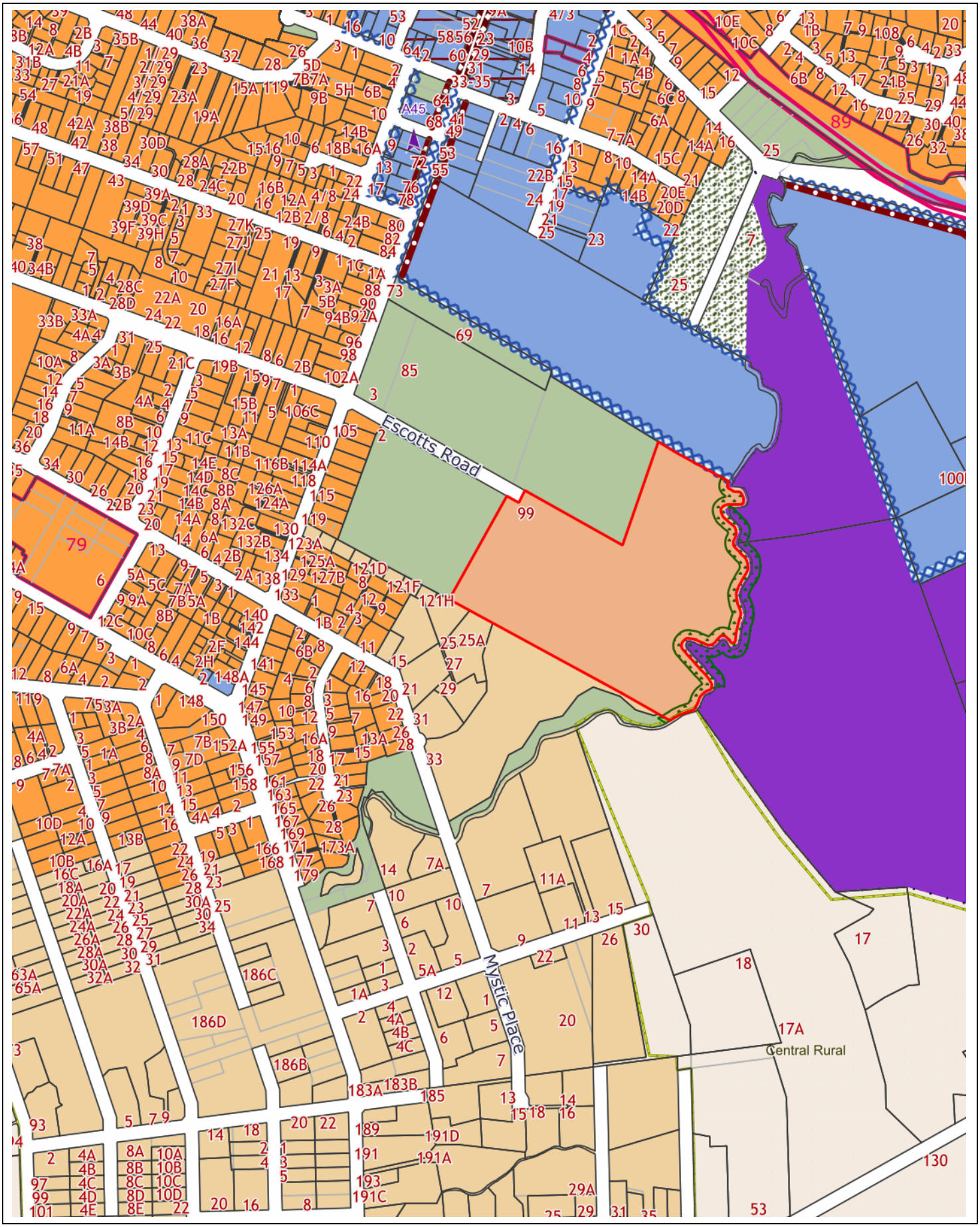


Drawn	**MPC**
Approved	**CE**
Date	**8/11/17**
Scale	**Not to scale**
Original Size	**A4**

LANDER geotechnical

Client:	**HUGHES DEVELOPMENTS LIMITED**
Project:	**99 ESCOTTS ROAD, TUAKAU**
Title:	**CROSS SECTION H-H: EXISTING SLOPE – EXISTING GROUNDWATER – SEISMIC 1/150yr (F.O.S <1.2)**
Job no: **J00779**	Case no: **H.6**

Waikato District Plan



SCALE 1:7408

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Projection: New Zealand Transverse Mercator
Datum: New Zealand Geodetic Datum 2000

Print Date: 3/08/2018

A4

Legend

Waikato District Plan

Waikato District Council

Context
- Plan Section Divide
- State Highway
- Rail
- Land Parcel
- Water Body
- Reserve

Building|Construction
- Airport Inner Noise Control Boundary
- Airport Outer Noise Control Boundary
- Airport SEL 95 Noise Control Boundary
- Background Noise Area
- High Background Noise Area
- Noise Control Boundary
- 40 Noise Boundary Distance (m)

Commercial
- Airport Obstacle Limitation Surface
- Area A and B (Pokeno)
- Area of Interest / Scheduled Area
- Business Centre Classification
- Housing Restriction Area
- Front Yard Control Line
- Main Frontage Control Line
- Mixed Use Policy Area
- Tamahere Commercial Area
- Town Centre
- Town Centre Overlay Area
- Verandah

Hazard Policies
- Catchment Management Plan Area
- 1% Design Flood Level
- Flood Limit
- Flood Risk
- Huntly East Mine Subsidence
- Huntly South Assessment 1
- Land Stability Policy Area
- Remediation Policy Area
- River Stability Policy Area

Culture & Heritage
- Battlefield View Shaft
- Heritage Area
- Heritage Item
- Notable Tree
- Schedule 8A
- Site of Significance
- Urupa
- Waikato River Catchment

Infrastructure
- Designation
- Gas Line
- Transmission Line
- Indicative Road Intent Important
- Indicative Road Intent Important Local A
- Indicative Road Intent Important Local B
- Indicative Road Location Important
- Indicative Road Location Important Collector
- Indicative Road Location Important Service Lane
- National Walkway
- Raglan Navigation Beacon
- Segregation Strip
- Walkway Cycleway Bridleway

Natural Environment
- Coastal Marine Area
- Conservation Policy Area
- Ecological Corridor
- Environmental Enhancement Overlay Area
- Environmental Protection Policy Area
- Gully Area
- Hauraki Gulf Catchment Area
- Identified Significant Natural Feature
- Landscape Policy Area
- Management Area
- Proposed Esplanade Reserve
- Ridgeline Policy Area
- 5 Schedule 5A Site of Special Wildlife Interest
- Threatened Species Serious Decline
- Threatened Species Gradual Decline
- Whaanga Coast Policy Area

Urban Environment
- Amenity Planting Requirement
- 100 Anticipated Dwelling Number
- Concept Plan
- Papakainga Policy Area
- Residential Large Lot Overlay Area
- Residential Medium Lot Overlay Area
- Structure Plan Boundary
- Urban Expansion Policy Area
- Village Growth Area

Minerals|Mining
- Aggregate Extraction Policy Area
- Aggregate Resource Policy Area
- Coal Mine Policy Area

Zones

Commercial
- Village Business (Franklin)
- Business (Waikato)
- Business (Franklin)

Open Space
- Forest Conservation (Franklin)
- Queen's Redoubt Heritage (Franklin)
- Recreation (Franklin)
- Wetland Conservation (Franklin)
- Recreation (Waikato)

Industrial
- Heavy Industrial (Waikato)
- Industrial 2 (Franklin)
- Industrial Services (Franklin)
- Light Industrial (Franklin)
- Industrial Park (Waikato)
- Light Industrial (Waikato)
- Industrial (Franklin)
- Maioro Mining (Franklin)
- Aggregate Extraction (Franklin)
- Timber Processing (Franklin)

Cultural
- Pa (Waikato)

Residential
- Residential (Franklin)

High Density
- Living (Waikato)
- Residential 2 (Franklin)
- New Residential (Waikato)

Low Density
- Living Zone Te Kauwhata Ecological (Waikato)
- Living Zone Te Kauwhata West (Waikato)
- Village (Franklin)
- Rural-Residential (Franklin)
- Country Living (Waikato)

Agriculture Production
- Coastal (Franklin)
- Coastal (Waikato)
- Rural (Franklin)
- Rural (Waikato)

Map Information

Map Coordinates - the grid coordinates, provided as easting and northing values, measured in metres, use the New Zealand Transverse Mercator 2000 projection grid coordinates. Eastings are labelled on the top and bottom margins, their values increase towards the east. Northings are labelled on the lateral margin. Their values increase towards the north. For example, the value 5884321 is read as 5884 km and 321 m. 1:50 000 maps are marked at 4 km intervals, the area of a grid is 16 square km or 1600 hectares.

On the overview map the following town abbreviations have been used; Pokeno as Pok, Te Kauwhata as TeK, Huntly as Hun, Ngaruawahia as Nga and Raglan as Rag

Introduction to the PLANNING MAPS

These planning maps are part of the Waikato District Plan. The maps are referred to in the text volumes.

Map layout
The maps are arranged to show zones and policy or other special controls Important to note is the delineation between the Waikato Section and the Franklin Section as shown on Map i and Map ii. This delineation is necessary due to the different zones between the two sections and development controls such as policy and overlay areas. Various colours, shadings and lines on the maps represent these zones, policy areas and special controls. The maps also include information such as the alignment of the major electricity and gas transmission corridors and designations.
See the map legend for details.

Zones
Except for roads in the Franklin Section all land in the Waikato District is in a zone. Land uses within each zone are expected to generate a compatible range of effects and provide a similar level of amenity.

Roads in the Waikato Section appear white in the maps, as the zone shading has been left off to assist map users with orientation. Although the roads are not shaded, they are in a zone, which is the zone of the land nearest to each point of the road. Where the zone is different on each side of the road, the boundary between the zones is the centre line of the road. Unformed roads are shown with zone shading.

Roads in the Franklin Section are not in a zone and appear white in the maps. This applies to both formed and unformed roads. For activities affecting roads in the Franklin Section refer to Part 15 or seek advice from the appropriate department within Council.

With the exception of the Waikato River and some of its tributaries within the Franklin Section, lakes and rivers appear with blue shading to assist map users with orientation. Although these rivers and lakes are not given any zone shading, they are in a zone, which is the zone of the land nearest to each point of the river or lake. Where the zone is different on each side of the river or lake, the boundary between the zones is the centre of the river or lake.

Activities on the surface of rivers, lakes and other water bodies are subject to the ordinary zone rules, for example the noise rules. A person wanting to build a structure in the water, such as jetty, would also have to observe the zone building standards (regional council consents may also be required).

Policy and Special Control Areas
These areas are mapped areas of the district where certain resource management issues are addressed in the plan, such as heritage, conservation areas, landscapes and ecological features. Some land in the district is not in any of these areas, while others may be affected by a number of these controls. If a site is in any of these areas various rules will apply to that particular activity. For example, the earthworks standards are stricter in a Landscape Policy Area.

Information items
Some of the notations on the maps are included for information and to assist orientation of map users, and may not be referred to in the text of the plan. These items include the Te Araroa National Walkway, the landfill site and the motorsport park at Hampton Downs, marae, urupa and various retirement homes. Identification of these sites on the planning maps does not change the legal or planning status of activities on the land.

Numbered sites
Some sites are shown on the maps with a number and symbol. These sites contain a Heritage Item, Maaori Site of Significance, Notable Tree, Outstanding Natural Feature or Designation. The rules that refer to these items are included in the rules for the zone that the site is in or the relevant chapter.

The numbers refer to the text in the plan: Appendices C and F and Chapter 30 of the Waikato Section, and Part 5, Part 8, Appendix Two and the Schedule of Designations of the Franklin Section. Refer to these sections to confirm the identity of the site and to find further information.

For designations in the Waikato Section, the letter before the number identifies the requiring authority that is responsible for the designation. For example, the letter J identifies all designations of New Zealand Transport Agency. See chapter 30 for more details.

For designations in the Franklin Section, numbers run in numerical order and do not identify the requiring authority that is responsible for the designation. See Schedule of Designations for more details.

Where land is designated, the legal rights and responsibilities of the requiring authority (e.g. New Zealand Transport Agency) and the landowner are set out in the Resource Management Act.

Hazards
Hazard areas shown on the planning maps are not exhaustive. Extensive areas of the district are subject to some flood, erosion, contaminated land or subsidence hazards, but not all these areas are shown on the planning maps. The Council does not have specific knowledge of all sites within the district. Applicants for resource consent will be required to identify relevant hazards in their locality.

Selected areas in the Living Zone of Huntly have been mapped as flood risk areas because of the particular risks in those areas and the availability of a Regional Council flood management plan. Note that the maps are at a scale of either 1:5,000 or 1:10,000: this means that precise detail for each property cannot be inferred from the maps. The maps are intended only to indicate general areas within which special enquiry about flood risks needs to be made. Within the mapped flood risk areas, there will be land that is not affected by the hazard. These areas can only be identified by a site-specific survey.

Utilities Plan

99 Escotts Road, Tuakau
LOT 1 DP 169701

SCALE 1:7408

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Datum: New Zealand Geodetic Datum 2000

Print Date: 3/08/2018

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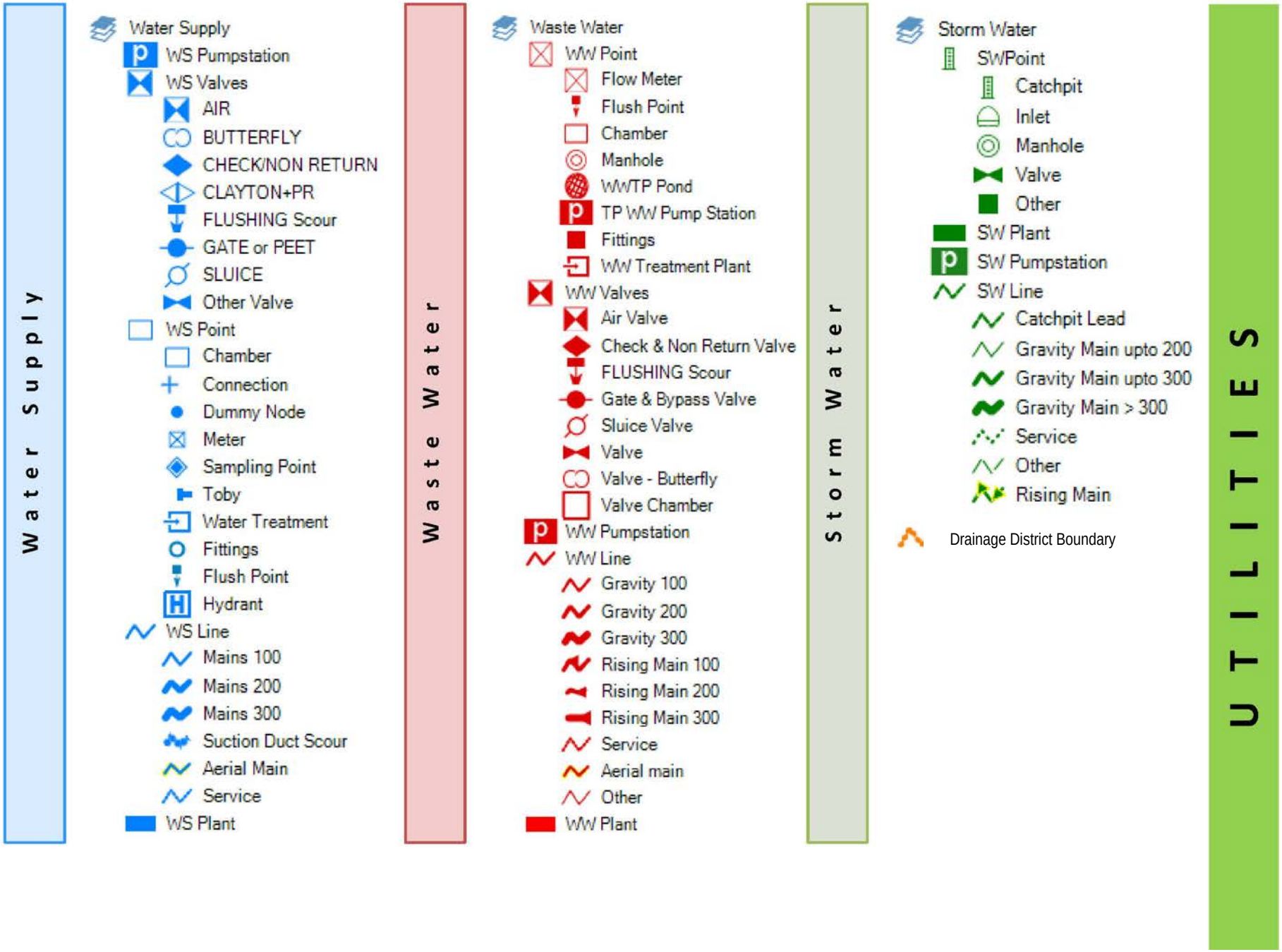
Water Supply
Water Supply
WS Pumpstation
WS Valves
AIR
BUTTERFLY
CHECK/NON RETURN
CLAYTON+PR
FLUSHING Scour
GATE or PEET
SLUICE
Other Valve
WS Point
Chamber
Connection
Dummy Node
Meter
Sampling Point
Toby
Water Treatment
Fittings
Flush Point
Hydrant
WS Line
Mains 100
Mains 200
Mains 300
Suction Duct Scour
Aerial Main
Service
WS Plant
Waste Water
Waste Water
Waste Water
WW Point
Flow Meter
Flush Point
Chamber
Manhole
WWTP Pond
TP WW Pump Station
Fittings
WW Treatment Plant
WW Valves
Air Valve
Check & Non Return Valve
FLUSHING Scour
Gate & Bypass Valve
Sluice Valve
Valve
Valve - Butterfly
Valve Chamber
WW Pumpstation
WW Line
Gravity 100
Gravity 200
Gravity 300
Rising Main 100
Rising Main 200
Rising Main 300
Service
Aerial main
Other
WW Plant
Storm Water
Storm Water
Storm Water
SW Point
Catchpit
Inlet
Manhole
Valve
Other
SW Plant
SW Pumpstation
SW Line
Catchpit Lead
Gravity Main upto 200
Gravity Main upto 300
Gravity Main > 300
Service
Other
Rising Main
Drainage District Boundary
UTILITIES