FILE COPY

(1 of 3)

85 ALAN LIVINGSTON DRIVE CAMBRIDGE

LAND INFORMATION MEMORANDUM

Pursuant to Section 44A of the Local Government Office and Meetings Act 1987

CAMBRIDGE

Waipā DISTRICT COUNCIL

Land Information Memorandum

For property located at
85 Alan Livingston Drive Cambridge 3434

LIM reference: LIM/0519/25
Application date: 18 June 2025

Applicant details	
Applicant	Derek James Watt
Client	
Postal address	85 Alan Livingston Drive Cambridge 3434

The cadastral information overlaid within this report is for indicative use only and is not intended for definitive legal, location, or formal reference purposes. Site specific investigations and verification should always be undertaken.

This LIM contains two parts:

- **Part 1** contains information required to be provided pursuant to Section 44A of the Local Government Official Information and Meeting Act 1987.
- **Part 2** contains Discretionary information that the Council considers may be of interest to any prospective purchaser of a site.

For information/notes:
This LIM contains mapping, cadastral, data, and other information about the site that has been drawn from various sources. Because of the nature of this information, its accuracy, precision, and completeness, will vary. The recipient of this LIM is advised to undertake further investigations and seek expert advice in terms of the applicability and accuracy of the information as it relates to the site.

Where information is sourced from the Waikato Regional Hazards Portal or from the Regional Council's Land Use Information Register of Potentially Contaminated Sites, the recipient of this LIM should be aware that these sources of information are subject to Terms of Use which in turn reference limitations of accuracy, disclaimers, and warnings in relation to this information.

Aerial Photography

High-resolution imagery for Cambridge, Hautapu, Kakepuku, Karapiro, Kihikihi, Mystery Creek, Ohaupo, Te Awamutu, Te Miro, Tokanui flown 17 February 2021;
Puahue, Wharepapa South flown 14 February 2021;
Kaniwhaniwha, Ngahinapouri, Pirongia, Te Pahu flown 31 January 2021.
Medium-resolution imagery for other rural areas and settlements flown March 2022 and for and some selected urban settlements flown March 2023.
Aerial photography has an accuracy of +/-0.1m in high-resolution imagery and +/-0.5m in medium-resolution imagery.
Position of property boundaries is INDICATIVE only and must not be used for legal purposes.
Imagery sourced from LandPro Ltd. and NZ Aerial Surveys Ltd.

Thursday 26 June 2025

Disclaimer
Because of the nature of the data, accuracy varies and the data should be regarded as indicative only in relation to the site subject to this LIM. Before relying on this information, further research and a site investigation should always be undertaken.

NORTH

PART 1

1a Site details	
Owner	C J Watt, D J Watt
Property address	85 Alan Livingston Drive Cambridge 3434
Legal description	LOT 178 DP 494295
Area	0.1343 ha
Record of title	Attached

1b Valuation details	
Valuation assessment number	04380/362.50
Date of valuation	1 August 2022
Land value	$815000
Value of improvements	$1110000
Capital value	$1925000

1c Rating details	
Rates struck for year 2024 to 2025	$5193.77
Balance of account	$0.00
Next instalment due date	21 August 2025
Penalty date	28 August 2025

Notes:

(1) Section 43 (3) of the Local Government Rating Act 2002 states that the *"rate shall not be affected by any alterations in the value or factors of a rating unit during the financial year in which the rates are set"*.

(2) The Balance of Account is at the date of this LIM and must not be relied on for settlement purposes as payments may have been received and/or additional charges imposed.

(3) The rates are a charge on the land pursuant to Section 59 of the Local Government Rating Act 2002. Any rates outstanding after Council receives a Notice of Sale pursuant to Section 31 of the Local Government Rating Act 2002, become the responsibility of the new owner.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**722971**
Land Registration District	**South Auckland**
Date Issued	26 February 2016

Prior References
680654

Estate	Fee Simple
Area	1343 square metres more or less
Legal Description	Lot 178 Deposited Plan 494295

Registered Owners
Derek James Watt and Christine Jane Watt

Interests

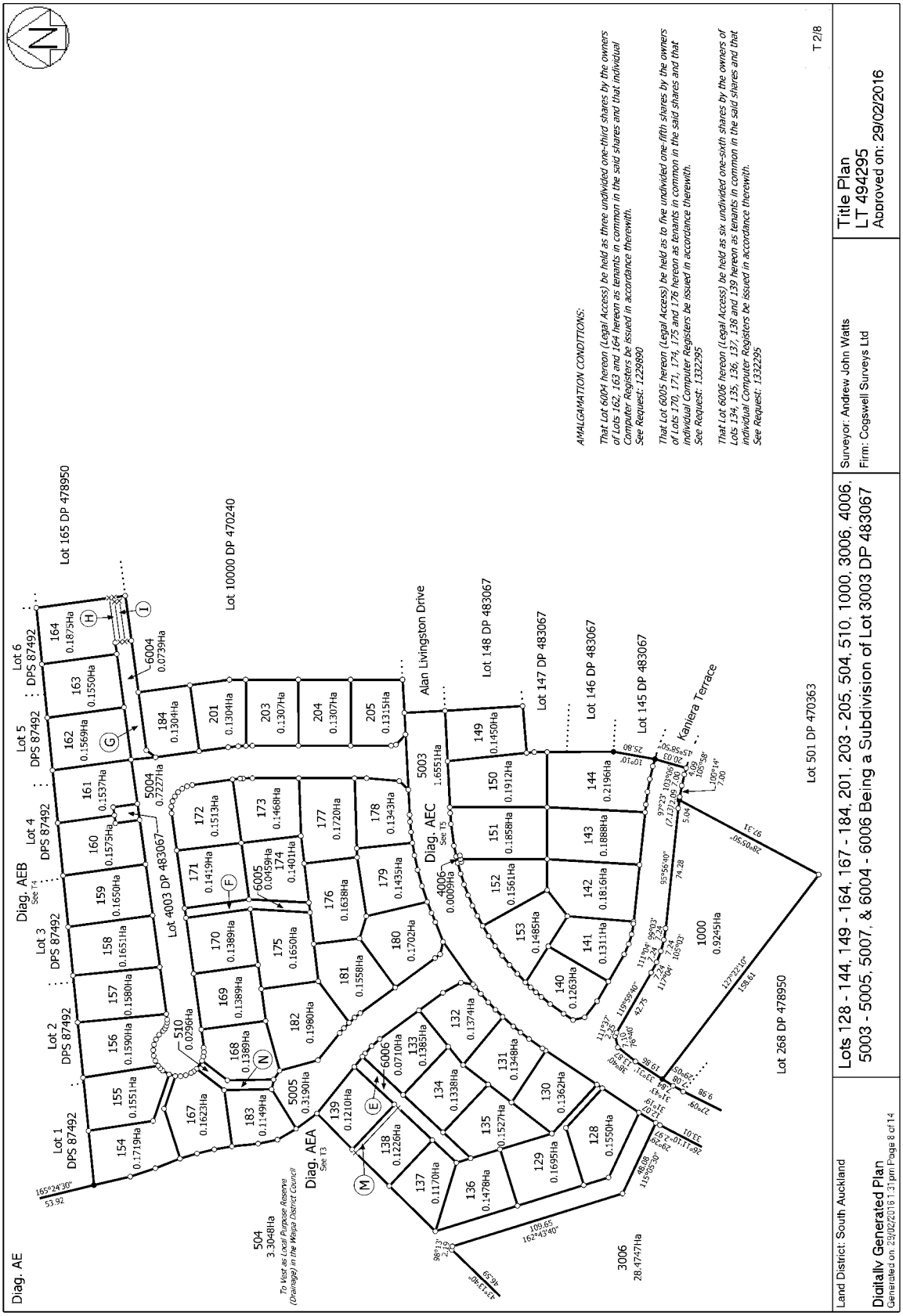
8770836.1 Encumbrance to Waipa District Council - 2.9.2011 at 9:11 am

8771707.1 Encumbrance to New Zealand Transport Agency - 15.9.2011 at 4:18 pm

10277783.4 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 26.2.2016 at 11:04 am

Land Covenant in Easement Instrument 10277783.11 - 26.2.2016 at 11:04 am

10865594.3 Mortgage to Bank of New Zealand - 11.8.2017 at 4:12 pm


Diag. AE
Diag. AEB
See T4
Diag. AEA
See T3
Diag. AEC
See T5
Lot 1 DPS 87492
Lot 2 DPS 87492
Lot 3 DPS 87492
Lot 4 DPS 87492
Lot 5 DPS 87492
Lot 6 DPS 87492
Lot 165 DP 478950
Lot 10000 DP 470240
Lot 4003 DP 483067
Lot 148 DP 483067
Lot 147 DP 483067
Lot 146 DP 483067
Lot 145 DP 483067
Lot 501 DP 470363
Lot 268 DP 478950
Alan Livingston Drive
Kahlera Terrace
504 3.3048Ha
To Vest as Local Purpose Reserve (Drainage) in the Waipa District Council
3006 28.4747Ha
1000 0.9245Ha
AMALGAMATION CONDITIONS:
That Lot 6004 hereon (Legal Access) be held as three undivided one-third shares by the owners of Lots 162, 163 and 164 hereon as tenants in common in the said shares and that individual Computer Registers be issued in accordance therewith.
See Request: 1229890
That Lot 6005 hereon (Legal Access) be held as to five undivided one-fifth shares by the owners of Lots 170, 171, 174, 175 and 176 hereon as tenants in common in the said shares and that individual Computer Registers be issued in accordance therewith.
See Request: 1332295
That Lot 6006 hereon (Legal Access) be held as six undivided one-sixth shares by the owners of Lots 134, 135, 136, 137, 138 and 139 hereon as tenants in common in the said shares and that individual Computer Registers be issued in accordance therewith.
See Request: 1332295
T 2/8
Land District: South Auckland
Digitally Generated Plan
Generated on 29/02/2016 1:31pm Page 8 of 14
Lots 128 - 144, 149 - 164, 167 - 184, 201, 203 - 205, 504, 510, 1000, 3006, 4006, 5003 - 5005, 5007, & 6004 - 6006 Being a Subdivision of Lot 3003 DP 483067
Surveyor: Andrew John Watts
Firm: Cogswell Surveys Ltd
Title Plan
LT 494295
Approved on: 29/02/2016

2a Details of buildings on the site

This section contains details of:

- Any Building Permits issued pursuant to Council's Building Bylaw.
- Any Building Consents and Code of Compliance Certificates issued pursuant to the Building Act 1991 and the Building Act 2004.
- Any Warrant of Fitness issued for buildings on the property pursuant to the Building Act 1991 and the Building Act 2004; and
- Any Notices issued for buildings on land likely to be subject to erosion, avulsion, alluvion, falling debris, subsidence, inundation or slippage pursuant to Section 641A(4) of the Local Government Act 1974 and Section 36(2) of the Building Act 1991 or Section 73 of the Building Act 2004.
- Any buildings subject to the special provisions for earthquake-prone buildings under Subpart 6A of the Building Act 2004.

The following **Building Consents** have been issued pursuant to the Building Act 1991, or the Building Act 2004:

Reference number	Description	Date issued	CCC issued
BC/0065/18	Erect New Dwelling With Attached Garage	22/02/2018	31/08/2018
BC/0286/18	Install Inground Swimming Pool	08/05/2018	25/09/2018

Notes:

(1) Refer to copies of the building plans, and Certificates (where relevant).
(2) For any further building enquiries please contact Councils Building Compliance Team.
(3) Prior to the Building Act 1991, Council was not required to keep detailed records for building permits issued. As such, limited information is held and in some cases we are unable to identify building permits for particular properties.

Waipa DISTRICT COUNCIL

Postal Address
Private Bag 2402
Te Awamutu 3840
New Zealand

Head Office
07 872 0030
101 Bank Street
Te Awamutu 3800

Cambridge Office
07 823 3800
23 Wilson Street
Cambridge 3434

Form 7 - Code Compliance Certificate CCC/0917/18

Section 95, Building Act 2004

The Building

Street address of building: 85 Alan Livingston Drive Cambridge 3434

Legal description of land where building is located: LOT 178 DP 494295

Property ID: 66402 Rating unit number: 04380/362.50

Building Name: N/A

Location of building within site/block number: N/A

Level/unit number: N/A

Current, lawfully established use: Detached Dwelling

Year First Constructed: 2018

Owner

Name of Owner:
DJ Watt & CJ Watt
Contact Name: Derek Watt

Mailing Address:
CJ Watt, DJ Watt
3A Robinson Street
Cambridge 3434

Street Address: N/A
Phone: N/A
Landline: N/A
Mobile: 021 769 211
Daytime: N/A
After Hours: N/A
Facsimile number: N/A
Email address: derekandchris@aol.co.nz
Website: N/A

First Point of Contact for Communications with the Building Consents Authority

Name of Contact:
Urban Homes NZ LTD
Contact Name: Joanna Chalmers

Mailing Address:
PO Box 1044
Waikato Mail Centre
Hamilton 3240

Phone: N/A
Landline: 078395570
Mobile: N/A
Facsimile number: N/A
Email address: joanna.chalmers@urban.co.nz

Building Work

Building consent number: BC/0065/18
Issued by: Waipa District Council
Completed Work: Lot 178 - Erect New Dwelling with Attached Garage
Value of work: $ 666,630.00

Code Compliance

The building consent authority named below is satisfied, on reasonable grounds, that –

(a) the building work complies with the building consent

Signature:

Position: Building Compliance Officer - Name: Murray Johnstone
On behalf of: Waipa District Council
Date CCC issued: 31/08/2018

Waipa DISTRICT COUNCIL

Form 5

Building Consent BC/0065/18

Section 51, Building Act 2004

The Building
Street address of building: 85 Alan Livingston Drive Cambridge 3434
Legal description of land where building is located: LOT 178 DP 494295
Property ID: 66402
Rating unit number: 04380/362.50
Building Name: N/A
Location of Building within site/block number: N/A
Level/Unit number: N/A

The Owner

Name of Owner:
DJ Watt & CJ Watt
Contact Person: N/A
Mailing Address:
CJ Watt, DJ Watt
3A Robinson Street
Cambridge 3434
Street Address: N/A

Phone
Landline: – 078381781
Mobile: – 021 024 48523
Daytime: – N/A
After hours: – N/A
Facsimile number: N/A
Email: derekandchris@aol.co.nz
Website: N/A

First Point of Contact for Communications with the Building Consent Authority
Name of Contact:
Urban Homes NZ LTD
Contact Person: N/A
Mailing Address:
PO Box 1044
Waikato Mail Centre
Hamilton 3240
Street Address:

Phone
Landline: – 078395570
Mobile: – 027 383 7600
Daytime: – 078395570
After Hours:- N/A
Facsimile number: N/A
Email: joanna.chalmers@urban.co.nz
Website: N/A

Building Work
The following building work is authorised by this building consent:
Proposed work: Lot 178 - Erect New Dwelling with Attached Garage
Classified Use: Detached Dwelling
Value of work: $666,630.00

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

WAIPA DISTRICT COUNCIL
Private Bag 2402, TE AWAMUTU 3480
Phone: 0800 924 723

This building consent also does not 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.

<u>This Building Consent is subject to the Following Conditions</u>

Building Act 2004 Section 90 – Inspections

On-site inspections to be completed by Waipa District Council Building Compliance Officers.

Booking Inspections

- Inspections must be booked prior to 4.00pm on the day preceding the day of the required inspection. Please quote the Building Consent number when booking inspections.
- Please arrange the booking of inspections and direct enquires regarding this consent to the Customer Support Centre, contact Te Awamutu 07 872 0030 or Cambridge 07 823 3800.

Inspections required for this building consent:

Foundations/Pile Holes (prior to pouring of concrete)

Boundary pegs are to be located.

All reinforcing steel is to be completed and tied in place.

Sub-Floor Plumbing and Waste Pipes (prior to back filling and laying of DPC)

All waste pipes to be fixed in place with correct falls.

Hot water cylinder drains to be fixed in place.

Floors – Concrete (prior to pouring of concrete)

Boundary pegs are to be located.

Finished floor heights are to be established in relation to a relevant and suitable datum.

DPC to be in place and all laps taped.

Reinforcement to be tied in place.

Plumbing to be installed.

Pre-Wrap/Structural Framing

At the completion of the framing and bracing/fixings but prior to the fixing of any wall wrap/cladding or roofing underlay/cladding.

Pre-lining/Framing

After the building is enclosed (cladding is complete) but prior to the fixing of any wall or ceiling linings.

WAIPA DISTRICT COUNCIL
Private Bag 2402, TE AWAMUTU 3480
Phone: 0800 924 723

Wall and ceiling insulation is to be in place.

Plumbing waste and water pipes are to be completed. Water pipes are to be under pressure test.

Post Lining (prior to stopping of walls)

Bracing elements to be complete as per manufacturer's installation requirements. Fire rated elements are to be completed as per manufacturer's installation requirements.

Inspection to be completed prior to applying any plaster or coating systems to the building elements.

Sanitary/Stormwater Drainage

After the completion of all drainage work AND prior to any backfilling. As Laid drainage plan to be provided at time of inspection.

Final Inspection

After completion of all work carried out under this Building Consent.

Site Specific Certification Requirements

Electrical/Gas Work

This building requires electrical/gas work to be undertaken and any work is to be done by an appropriately qualified person and an energy certificate of compliance is to be provided by that person.

Third Party Verification requirements – Producer Statements

The following certification documentation from suitably qualified engineers will be required to be supplied to Council for the following areas of work with the application for a Code Compliance Certificate

- PS4 – Sand-pad/Geotechnical conforming compliance with the consent documents.
- PS4 – Storm water Disposal System conforming compliance with the Consent documents

Compliance Schedule

A Compliance Schedule **is not** required for this building.

Attachment/s:

Advisory Notes

WAIPA DISTRICT COUNCIL
Private Bag 2402, TE AWAMUTU 3480
Phone: 0800 924 723

Signature: 

Position: Building Compliance Officer - Name: Danielle Hooper

On behalf of: Waipa District Council

Date building consent issued: 22 February 2018

WAIPA DISTRICT COUNCIL
Private Bag 2402, TE AWAMUTU 3480
Phone: 0800 924 723

Advisory Notes

Building Act 2004 Section 52 – Lapse of Building Consent

A building consent lapses and is of no affect if the building work to which it relates, has not commenced within 12 months after the date of issue of the building consent.

Restricted Building Work

- This Building Consent involves Restricted Building work that must be undertaken or supervised by a Licensed Building Practitioner that holds the appropriate license class.
- If you have not already done so, you are required to notify Council on the prescribed form, the name of every Licensed Building Practitioner who is going to be engaged to carry out the Restricted Building work prior to work commencing. The prescribed form can be obtained from a Council office or is available in the "Application Forms and Checklists" section of www.buildwaikato.co.nz.
- You will not be able to book inspections for Restricted Building work until written notification regarding the Licensed Building Practitioners has been received and approved by Council.
- You are required to obtain a "Record of Building Work memorandum" from all the Licensed Building Practitioners involved, detailing the Restricted Building work they have completed. The "Record of Building Work memorandum" is to be attached to the application for the Code Compliance Certificate.

Code Compliance Certificate

Following the completion of all building work to be carried out under this Building Consent the owner or his agent must as soon as practicable, apply to the Waipa District Council on the prescribed form for a Code Compliance Certificate.

As Built Drawings

The following as built drawings are required to be supplied with the application for a Code Compliance Certificate:

- Sanitary Drainage works
- Stormwater Drainage works

Accidental Discovery Protocols

In the event that bones or artefacts are discovered in the course of site excavation, the consent holder should cease works in that area and contact Council's Planning Department. The Council will notify Iwi and/or Heritage New Zealand Pouhere Taonga to determine the appropriate method of recording and/or removal. It should be noted that all sites associated with human activity prior to 1900 have protection under the Heritage New Zealand Pouhere Taonga Act 2014, regardless of whether the sites are registered.

Surveyor Verification

The building location and floor level is to be established by a registered surveyor with suitable verification of this from the surveyor supplied to Council at foundation inspection.

WAIPA DISTRICT COUNCIL
Private Bag 2402, TE AWAMUTU 3480
Phone: 0800 924 723

Waikato Building Consents

As Laid Drainage

Working Together

Building Consent Number: 0065/18 Date: 26 / 3 / 18 No. of pages:

Builder: URBAN HOMES.

Owner: WATT RESIDENCE

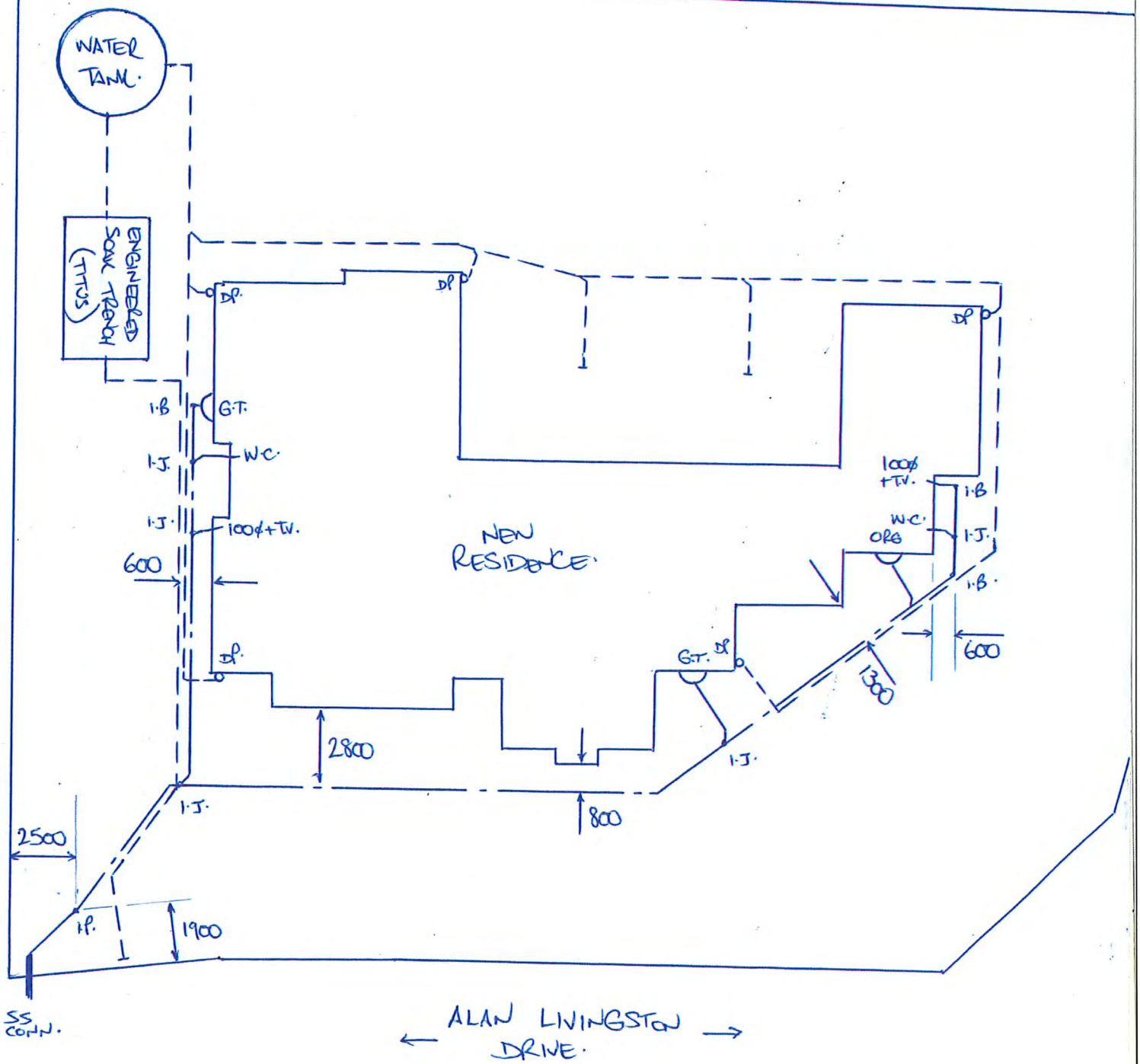
Address: 85 ALAN LIVINGSTON DRIVE, CAMBRIDGE.

Drain Layer Name: SAM HENDRICK (Please print clearly) Signature:

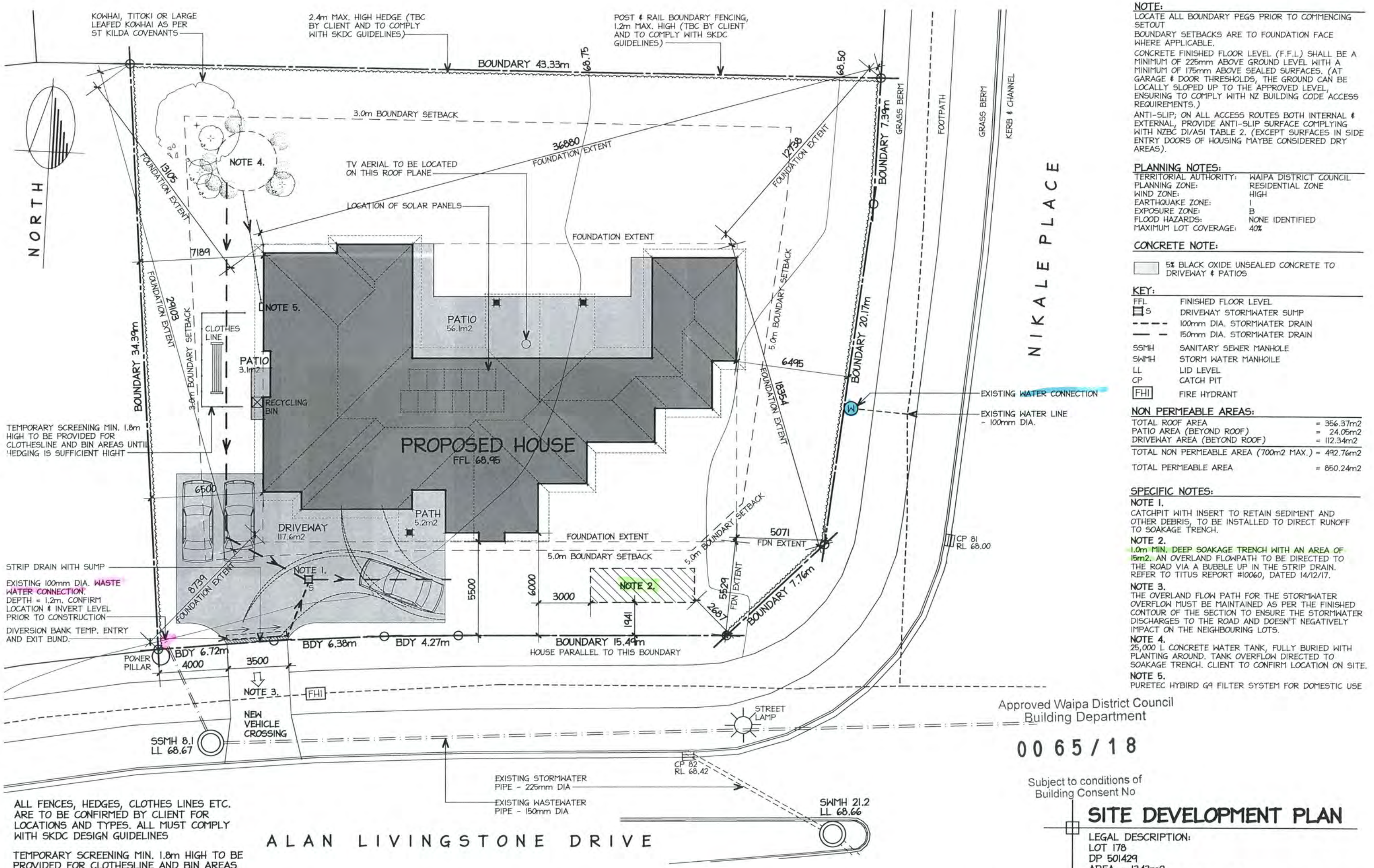
Registration Number: 17944 Business Name: DRAINAGE SYSTEMS.

To Council: (Tick) ☐ Hauraki ☐ Matamata Piako ☐ Waitomo ☐ Otorohanga ☐ Thames Coromandel ☑ Waipa ☐ Waikato ☐ Hamilton

BDY.



HAURAKI DISTRICT COUNCIL · matamata piako district council · Waitomo District Council · OTOROHANGA DISTRICT COUNCIL · Waipa DISTRICT COUNCIL · Waikato DISTRICT COUNCIL · THAMES COROMANDEL DISTRICT COUNCIL · Hamilton City Council Te kaunihera o Kirikiriroa



NOTE:

LOCATE ALL BOUNDARY PEGS PRIOR TO COMMENCING SETOUT

BOUNDARY SETBACKS ARE TO FOUNDATION FACE WHERE APPLICABLE.

CONCRETE FINISHED FLOOR LEVEL (F.F.L) SHALL BE A MINIMUM OF 225mm ABOVE GROUND LEVEL WITH A MINIMUM OF 175mm ABOVE SEALED SURFACES. (AT GARAGE & DOOR THRESHOLDS, THE GROUND CAN BE LOCALLY SLOPED UP TO THE APPROVED LEVEL, ENSURING TO COMPLY WITH NZ BUILDING CODE ACCESS REQUIREMENTS.)

ANTI-SLIP; ON ALL ACCESS ROUTES BOTH INTERNAL & EXTERNAL, PROVIDE ANTI-SLIP SURFACE COMPLYING WITH NZBC D1/AS1 TABLE 2. (EXCEPT SURFACES IN SIDE ENTRY DOORS OF HOUSING MAYBE CONSIDERED DRY AREAS).

PLANNING NOTES:

TERRITORIAL AUTHORITY:	WAIPA DISTRICT COUNCIL
PLANNING ZONE:	RESIDENTIAL ZONE
WIND ZONE:	HIGH
EARTHQUAKE ZONE:	1
EXPOSURE ZONE:	B
FLOOD HAZARDS:	NONE IDENTIFIED
MAXIMUM LOT COVERAGE:	40%

CONCRETE NOTE:

5% BLACK OXIDE UNSEALED CONCRETE TO DRIVEWAY & PATIOS

KEY:

FFL	FINISHED FLOOR LEVEL
S	DRIVEWAY STORMWATER SUMP
- - -	100mm DIA. STORMWATER DRAIN
— —	150mm DIA. STORMWATER DRAIN
SSMH	SANITARY SEWER MANHOLE
SWMH	STORM WATER MANHOILE
LL	LID LEVEL
CP	CATCH PIT
FHI	FIRE HYDRANT

NON PERMEABLE AREAS:

TOTAL ROOF AREA	= 356.37m2
PATIO AREA (BEYOND ROOF)	= 24.05m2
DRIVEWAY AREA (BEYOND ROOF)	= 112.34m2
TOTAL NON PERMEABLE AREA (700m2 MAX.)	= 492.76m2
TOTAL PERMEABLE AREA	= 850.24m2

SPECIFIC NOTES:

NOTE 1.
CATCHPIT WITH INSERT TO RETAIN SEDIMENT AND OTHER DEBRIS, TO BE INSTALLED TO DIRECT RUNOFF TO SOAKAGE TRENCH.

NOTE 2.
1.0m MIN. DEEP SOAKAGE TRENCH WITH AN AREA OF 15m2. AN OVERLAND FLOWPATH TO BE DIRECTED TO THE ROAD VIA A BUBBLE UP IN THE STRIP DRAIN. REFER TO TITUS REPORT #10060, DATED 14/12/17.

NOTE 3.
THE OVERLAND FLOW PATH FOR THE STORMWATER OVERFLOW MUST BE MAINTAINED AS PER THE FINISHED CONTOUR OF THE SECTION TO ENSURE THE STORMWATER DISCHARGES TO THE ROAD AND DOESN'T NEGATIVELY IMPACT ON THE NEIGHBOURING LOTS.

NOTE 4.
25,000 L CONCRETE WATER TANK, FULLY BURIED WITH PLANTING AROUND. TANK OVERFLOW DIRECTED TO SOAKAGE TRENCH. CLIENT TO CONFIRM LOCATION ON SITE.

NOTE 5.
PURETEC HYBIRD G9 FILTER SYSTEM FOR DOMESTIC USE

Approved Waipa District Council
Building Department

0065/18

Subject to conditions of
Building Consent No

SITE DEVELOPMENT PLAN

LEGAL DESCRIPTION:
LOT 178
DP 501429
AREA = 1343m2
SITE COVER = 302.52m2 (22.1%)

urban HOMES BUILT WITH INTEGRITY
PO BOX 1044, HAMILTON, NEW ZEALAND
PH (07) 839 5570,
E-MAIL office@urban.co.nz
www.urban.co.nz
BYRNE ENRIGHT ARCHITECTURE
www.designers.net.nz PH (07) 839 5774 E-MAIL admin@designers.net.nz

Issue:	Date:	Description:
WD1	24/01/18	WORKING DRAWINGS
DD1	12/12/17	DEVELOPED DESIGN FOR PRICING
SK7	11/10/17	PRELIMINARY DESIGN FOR CLIENT COMMENT

job: PROPOSED NEW HOUSE AT 85 ALAN LIVINGSTONE DRIVE, ST KILDA, CAMBRIDGE FOR DEREK AND CHRISTINE WATT
sheet: SITE DEVELOPMENT PLAN
date: 31/07/17
scale: 1:200
design: -
drawn: H.C

job no: 17/1961
sheet no: 1.1 of 23

FIXTURE	ABB.	FIXTURE PIPE
SINK (DOMESTIC)	S	40 AT 1:40
TUB	T	40 AT 1:30
VANITY OR WASH HAND BASIN	VB	40 AT 1:40
SHOWER	SH.	40 AT 1:40
WATER CLOSET PAN	WC	100 AT 1:60
TERMINAL VENT	TV	80mm
BACK VENT	BV	REFER TO NOTES
BATH	B	40 AT 1:40
INSPECTION BEND	IB	
GULLY TRAP	GT	
INSPECTION JUNCTION	IJ	
HOSE TAPS	HT	

STORMWATER TO ONSITE WATER TANK

150mm DIA. STORMWATER PIPE @ 1:200 FALL

100mm DIA. STORMWATER PIPE @ 1:100 FALL

INDICATIVE WATER FROM TANK TO WATERFILTER

INDICATIVE ROUTE OF NON POTABLE WATER SUPPLY

HWC DRAIN PIPE TO THE EXTERIOR

85mm THICK CONCRETE FIRTH RIB RAFT FLOOR SLAB INSTALLED STRICTLY TO MANUFACTURERS INSTRUCTIONS) WITH GRADE 500E REINFORCING MESH OVER 220mm POLYSTYRENE PODS ON 0.25mm POLYTHENE DPM OVER 25mm SAND BINDING ON COMPACTED FILL TO ENGINEERS RECOMMENDATIONS

OUTLINE OF BRICK VENEER

OUTLINE OF EXTERNAL TIMBER FRAME

REBATED JOINERY

SAWCUT

FREE JOINT

FFL 68.95

NOTE 3.

NOTE 1.

NOTE 2.

GARAGE DOOR REBATE

NON POTABLE SUPPLY TO HT

2/D10 x 1.2m LONG REINFORCING BARS AT INTERNAL CORNERS AS INDICATED

TO EXISTING COUNCIL WASTER WATER MAIN CONNECTION

100mm DIA. WASTEWATER PIPE @1:120 FALL

SANITARY PLUMBING:

INSTALL ALL FIXTURES ACCORDING TO THE MANUFAC. INSTRUCTIONS.

CONNECT WASTE OUTLETS TO TRAPS AND RUN WASTE PIPE BACK VENTS CONCEALED. SIZED & FIXED TO NZBC G13/AS1

CONCEAL ALL PLUMBING IN WALLS OR FLOORS, PROVIDE ACCESS PANELS WHERE REQUIRED.

ENSURE THAT WASTE AND VENT RUNS AVOID STRUCTURAL MEMBERS & WHERE OTHER TIMBERS SUCH AS TOP PLATES ARE CUT, STRENGTHEN THEM ACCORDINGLY WITH ADDITIONAL BLOCKING & 40x40x1mm 600 LONG MS (GALV.) ANGLE FIXED TO TOP PLATE & BLOCKING.

TEST SOIL AND WASTE DISPOSAL SYSTEMS TO ENSURE NO LEAKAGE EXISTS AND LEAVE IN PROPER WORKING ORDER

GULLY TRAPS; INSTALL IN ACCORDANCE TO NZBC G13/AS1 CLAUSE 3.3 GULLY TRAPS, COMPLETE WITH

PROVIDE INSPECTION POINTS AS PER NZBC E1/AS1 CLAUSE 3.7 ACCESS FOR MAINTENANCE.

ALL PIPES IN CONCRETE TO HAVE DENSO TAPE (SYNTHETIC FABRIC BASED TAPE IMPREGNATED & COATED WITH ORGANIC PETROLEUM BASED COMPOUNDS) APPLIED

PIPES SHALL INCORPORATE EXPANSION JOINTS IN ACCORDANCE WITH CHAPTER 8 OF NZS 7643.

HOTWATER PIPES TO BE SIZED ACCORDING TO NZBC G12 & NZS 4305:1996 MAINS PRESSURE.

VENT PIPES:
- DISCHARGE PIPES UP TO 40mm DIA. = 32mm VENT PIPE
- DISCHARGE PIPES OVER 40mm DIA. = 40mm VENT PIPE
- MAIN DRAIN VENT PIPE = 80mm DIA.

CONTRACTOR TO CO-ORDINATE ALL DRAINS LAID UNDER BUILDINGS WITH FOUNDATION CONSTRUCTION SETOUT TO ENSURE MIN. DEPTH AND FALL REQUIREMENTS

DRAINS UNDER BUILDINGS SHALL BE:

A) STRAIGHT AND OF EVEN GRADIENT.
B) SEPARATED FROM THE BUILDING FOUNDATION BY AT LEAST 25mm &
C) WHEN PASSING THROUGH CONCRETE, SLEEVED OR WRAPPED IN A DURABLE & FLEXIBLE MATERIAL TO ALLOW FOR EXPANSION & CONTRACTION.

DRAINS PASSING BENEATH BUILDINGS WITH A CONCRETE SLAB ON THE GROUND SHALL HAVE IN ADDITION TO ABOVE:

A) 50mm CLEARANCE FROM THE TOP OF THE PIPE TO THE UNDERSIDE OF THE SLAB, &
B) JUNCTIONS BENEATH THE BUILDING JOINING AT AN ANGLE OF NOT MORE THAN 45.
C) CLEANING ACCESS EITHER SIDE OF SLAB.

NOTE:

SHRINKAGE CONTROL JOINTS INDICATED ON PLAN ARE INDICATIVE ONLY & MUST BE CONFIRMED BY AN EXPERIENCED CONCRETE CUTTING CONTRACTOR

PLUMBING & DRAINAGE PLANS ARE SCHEMATIC ONLY IN LAYOUT, VERIFY ALL PIPE RUNS AND LEVELS ON SITE

ALL PLUMBING AND DRAINAGE TO COMPLY WITH THE NZBC G12/AS1 AND G13/AS1.

MATERIALS; UPVC PIPE TO NZS 7641 AND AS/NZS 1260 COMPLETE WITH FITTINGS BRAND-MATCHED TO THE PIPE MANUFACTURERS REQUIREMENTS.

ALL SINGLE FIXTURES DISCHARGING TO A GULLY TRAP WITH A DEVELOPED LENGTH GREATER THAN 3.5m TO BE VENTED WITH A BACK VENT(BV)IN ACCORDANCE WITH NZBC G13/AS1

SPECIFIC NOTES:

NOTE 1.
450mm DIA x 1200mm DEEP CONCRETE FOOTING REFER TO PROLAM DESIGN REPORT

NOTE 2.
450 SQ x 500 DEEP CONC. FOOTING TO SUPPORT POST ROOF AREA : 2m2, WINDZONE : HIGH = 0.10m3 (0.45 x 0.45 x 0.5 = 0.1m3)

NOTE 3.
ALLOW WATER CONNECTION TO FRIDGE

NOTE 4.
PURETEC HYBIRD G9 FILTER SYSTEM FOR DOMESTIC USE.

FOUNDATION & PLUMBING PLAN

FOR THE ST KILDA WATER REUSE DIAGRAM, REFER TO SPECIFICATIONS DOCUMENT

urban HOMES BUILT WITH INTEGRITY
PO BOX 1044, HAMILTON, NEW ZEALAND
PH (07) 839 5570,
E-MAIL office@urban.co.nz
www.urban.co.nz
BYRNE ENRIGHT ARCHITECTURE
www.designers.net.nz PH (07) 839 5774 E-MAIL admin@designers.net.nz

Issue:	Date:	Description:
WDI	24/01/18	WORKING DRAWINGS
DDI	12/12/17	DEVELOPED DESIGN FOR PRICING
SK7	11/10/17	PRELIMINARY DESIGN FOR CLIENT COMMENT

job: PROPOSED NEW HOUSE AT 85 ALAN LIVINGSTONE DRIVE, ST KILDA, CAMBRIDGE FOR DEREK AND CHRISTINE WATT
sheet: FOUNDATION & PLUMBING PLAN
date: 31/07/17
scale: 1:100
design: -
drawn: H.C

Job no: 17/1961
sheet no: 2.3 of 23

LINTEL SCHEDULE		
LINTEL	TIMBER SIZE	TIMBER TYPE
A	2/90 x 45	SG8
B	2/140 x 45	SG8
C	2/190 x 45	SG8
D	2/240 x 45	SG8
E	2/290 x 45	SG8
F	295 x 85	HYNE

TIMBER FRAMING NOTES:

CONFIRM ALL LINTEL SIZES WITH PRE-CUT MANUFACTURERS PLAN.

ALL TIMBER TO BE H1.2 TREATED EXCEPT WHERE NOTED OTHERWISE OR AS REQUIRED BY NZBC:B2/AS1.

ALL TIMBER TO BE SG8 UNLESS NOTED OTHERWISE.

ENTIRE HOME TO BE INSULATED WITH MAMMOTH R2.0 WALL AND R4.0 CEILING BATTS EXCLUDING GARAGE

GENERAL NOTES: **HIGH WINDZONE**

ALL WORK TO COMPLY WITH NZS3604:2011 & NZ BUILDING CODE

TRUSS DESIGNER TO INFORM BYRNE + ENRIGHT ARCHITECTURE LTD. IF ANY GIRDER TRUSS OR POINT LOAD IS SUPPORTED OVER A WINDOW OR DOOR OPENING

LINE ALL WET AREAS (BATHROOMS, KITCHEN, LDY, ETC.) WITH 10mm GIB AQUALINE

JOINER TO CHECK ALL WINDOW OPENING SIZES ON SITE PRIOR TO FABRICATION

SAFETY GLASS TO BE USED FOR ALL BATHROOMS & ENSUITES TO COMPLY WITH NZS4223 (DENOTED ON ELEVATIONS BY 'SG')

ALL INTERIOR DOORS TO BE GROOVED DOOR WITH SELECTED HARDWARE BY CLIENT, 1980mm DOOR HIGH TO 2.4m STUD, 2200mm DOOR HIGH TO 2.7m STUD.

GIB AQUALINE TO ALL WET AREAS WITH 2 COATS OF ENAMEL PAINT FINISH TO UNTILED WALLS

ALL GLAZING TO COMPLY WITH NZS 4223.

HOT WATER PIPES TO BE SIZED ACCORDING TO NZBC G12 & NZS 4305:1996. MAINS PRESSURE. 15mm DIA. ALLOW 12m MAX. PIPE LENGTH, PIPE LENGTH BEYOND THIS MUST BE LAGGED

SPECIFIC NOTES:

NOTE 1.
TILED SHOWER AREA TO BE LINED WITH 9mm HARDIES VILLABOARD COATED WITH 'WET SEAL' FLEXIBLE MEMBRANE WATERPROOFING SYSTEM WITH SELECTED CERAMIC TILES OVER. SHOWER WALLS TILED TO CEILING. INSTALLED STRICTLY TO MANUFACTURERS SPECIFICATIONS

NOTE 2.
BATHROOM & ENSUITE TO BE VENTED TO THE EXTERIOR (REFER TO ELECTRICAL PLAN).

NOTE 3.
REBATED SILLS TO SELECTED JOINERY UNITS.

NOTE 4.
UNDER TILE HEATING TO BATHROOM, ENSUITES & WC.

NOTE 5.
PURETEC G9 ULTRAWATER FILTER SYSTEM

NOTE 6.
FUJITSU ARTG54LHTA AIR CONDITIONING EXTERNAL UNIT.

NOTE 7.
2/45kg GAS BOTTLES 1m MIN. CLEARANCE ON CONCRETE PLINTH.

NOTE 8.
BEAM ABOVE REFER TO ROOF PLAN.

NOTE 9.
H5 90mm SQ. TIMBER POST CLAD IN 70 SERIES BRICK VENEER TO FORM 370mm SQ COLUMN.

NOTE 10.
CHANGE IN CEILING HEIGHT.

NOTE 11.
SELECTED INSULATED GARAGE DOOR.

NOTE 12.
H5 112mm SQ. TIMBER POST CLAD IN 70 SERIES BRICK VENEER TO FORM 370mm SQ COLUMN.

NOTE 13.
FREESTANDING BACK TO WALL INDUS 1700 ACRYLIC BATH.

NOTE 14.
ESCEA DF960 INTERIOR GAS FIRE, INSTALLED STRICTLY TO MANUFACTURERS SPECIFICATIONS

NOTE 15.
DOUBLE GLAZING TO GARAGE JOINERY.

NOTE 16.
ACCESS FOLD DOWN STAIRS. (FAKRO LWS2800).

NOTE 17.
700 x 700mm MANHOLE LOCATION T.B.C.

NOTE 18.
2200mm HIGH INTERNAL DOORS

Approved Waipa District Council
Building Department

0065/18

Subject to conditions of
Building Consent No

SMOKE ALARMS:

- SMOKE DETECTORS TO BE INSTALLED THROUGHOUT DWELLING IN COMPLIANCE WITH F7/AS1 OF THE NZBC
- THERE MUST BE A SMOKE DETECTOR WITHIN 3.0m OF EACH BEDROOM DOOR AND TO ALL ESCAPE PATHS. SMOKE DETECTORS TO BE MOUNTED ON CEILING NOT MORE THAN 300mm BELOW HIGHEST PART OF ROOM.

#S DENOTES SMOKE DETECTOR WITH HUSH BUTTON

GAS BOTTLE INSTALLATION NOTES:

CYLINDERS TO BE INSTALLED ON CONCRETE PLINTH (DRAINED) 50mm HIGH ABOVE FINISHED GROUND LEVEL. ALL CYLINDERS LARGER THAN 25L CAPACITY SHOULD BE SECURELY HELD IN PLACE BY BRACKETS FASTENED TO A WALL OR SIMILAR ANCHORAGE AS PER AS/NZS 5601.1:2010. CYLINDERS SHALL NOT BE USED TO SUPPORT OTHER CYLINDERS.

WALL LEGEND:

- 90 x 45 TIMBER FRAME WITH STUDS AT 400mm CTRS. & 3 ROWS OF NOGS
- 90 x 45 TIMBER FRAME WITH STUDS AT 600mm CTRS. & 2 ROWS OF NOGS
- 2/140 x 45 hyCHORDS TUDS AT 400mm CTRS, LINED WITH 7mm PLYWOOD, TO ENGINEER DESIGN & DETAILS, REFER TO EDA JOB REF#CAM-18000, DATED 15/01/18

FLOOR COVERINGS:

- HAMPTON OR LEXINGTON LAMINATED FLOORING TO ENTRY, SCULLERY AND KITCHEN
- SELECTED TILES TO BATHROOM, ENSUITE, WC & LAUNDRY

ALL OTHER AREAS TO BE CARPETED

GARAGE TO BE CARPETED

FLOOR PLAN

HABITABLE DWELLING AREA	= 219.7m2
GARAGE AREA	= 51.5m2
TOTAL AREA OVER TIMBER FRAME	= 271.2m2
TOTAL AREA OVER FOUNDATIONS	= 279.7m2

2.4m STUD HEIGHT TO BEDROOM AREAS
2.7m STUD HEIGHT TO LIVING AREAS

urban HOMES BUILT WITH INTEGRITY
PO BOX 1044, HAMILTON, NEW ZEALAND
PH (07) 839 5570,
E-MAIL office@urban.co.nz
www.urban.co.nz
BYRNE ENRIGHT ARCHITECTURE LTD
www.designers.net.nz PH (07) 839 5774 E-MAIL admin@designers.net.nz

Issue:	Date:	Description:
WD1	24/01/18	WORKING DRAWINGS
DD1	12/12/17	DEVELOPED DESIGN FOR PRICING
SK7	11/10/17	PRELIMINARY DESIGN FOR CLIENT COMMENT

job: PROPOSED NEW HOUSE AT 85 ALAN LIVINGSTONE DRIVE, ST KILDA, CAMBRIDGE FOR DEREK AND CHRISTINE WATT
sheet: FLOOR PLAN
date: 31/07/17
scale: 1:100
design: -
drawn: H.C

job no: 17/1961
sheet no: 2.1 of 23

Waipa DISTRICT COUNCIL

Postal Address
Private Bag 2402
Te Awamutu 3840
New Zealand

Head Office
07 872 0030
101 Bank Street
Te Awamutu 3800

Cambridge Office
07 823 3800
23 Wilson Street
Cambridge 3434

Form 7 - Code Compliance Certificate CCC/1023/18

Section 95, Building Act 2004

The Building

Street address of building: 85 Alan Livingston Drive Cambridge 3434

Legal description of land where building is located: LOT 178 DP 494295

Property ID: 66402 Rating unit number: 04380/362.50

Building Name: N/A

Location of building within site/block number: N/A

Level/unit number: N/A

Current, lawfully established use: Outbuilding

Year First Constructed: 2018

Owner

Name of Owner:
DJ Watt & CJ Watt
Contact Name: N/A

Mailing Address:
CJ Watt, DJ Watt
3A Robinson Street
Cambridge 3434

Street Address: N/A
Phone: 078381781
Landline: 078381781
Mobile: 021 024 48523
Daytime: N/A
After Hours: N/A
Facsimile number: N/A
Email address: derekandchris@aol.co.nz
Website: N/A

First Point of Contact for Communications with the Building Consents Authority

Name of Contact:
Elite Pools
Contact Name: N/A

Mailing Address:
31 Shakespeare Street
Leamington
Cambridge 3432

Phone: 027 210 4858
Landline: N/A
Mobile: N/A
Facsimile number: N/A
Email address: steve@elitepools.co.nz

Building Work

Building consent number: BC/0286/18
Issued by: Waipa District Council
Completed Work: Install Inground Swimming Pool
Value of work: $ 70,000.00

Code Compliance

The building consent authority named below is satisfied, on reasonable grounds, that –

(a) the building work complies with the building consent

Signature:

Position: Building Compliance Officer - Name: Murray Johnstone
On behalf of: Waipa District Council
Date CCC issued: 25/09/2018

Waipa DISTRICT COUNCIL

Form 5

Building Consent BC/0286/18

Section 51, Building Act 2004

The Building
Street address of building: 85 Alan Livingston Drive Cambridge 3434
Legal description of land where building is located: LOT 178 DP 494295
Property ID: 66402
Rating unit number: 04380/362.50
Building Name: N/A
Location of Building within site/block number: N/A
Level/Unit number: N/A

The Owner

Name of Owner:
DJ Watt & CJ Watt
Contact Person: N/A
Mailing Address:
CJ Watt, DJ Watt
3A Robinson Street
Cambridge 3434
Street Address: N/A

Phone
Landline: – 078381781
Mobile: – 021 024 48523
Daytime: – N/A
After hours: – N/A
Facsimile number: N/A
Email: derekandchris@aol.co.nz
Website: N/A

First Point of Contact for Communications with the Building Consent Authority
Name of Contact:
Elite Pools
Contact Person: N/A
Mailing Address:
31 Shakespeare Street
Leamington
Cambridge 3432
Street Address:

Phone
Landline: – N/A
Mobile: – N/A
Daytime: – 027 210 4858
After Hours:- N/A
Facsimile number: N/A
Email: steve@elitepools.co.nz
Website: N/A

Building Work
The following building work is authorised by this building consent:
Proposed work: Install Inground Swimming Pool
Classified Use: Outbuilding
Value of work: $70,000.00

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

WAIPA DISTRICT COUNCIL
Private Bag 2402, TE AWAMUTU 3480
Phone: 0800 924 723

This building consent also does not 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.

This Building Consent is subject to the Following Conditions

Building Act 2004 Section 90 – Inspections

On-site inspections to be completed by Waipa District Council Building Compliance Officers.

Booking Inspections

- Inspections must be booked prior to 4.00pm on the day preceding the day of the required inspection. Please quote the Building Consent number when booking inspections.
- Please arrange the booking of inspections and direct enquires regarding this consent to the Customer Support Centre, contact Te Awamutu 07 872 0030 or Cambridge 07 823 3800.

Inspections required for this building consent:

Bond Beams/Blockwork (prior to pouring of concrete)

All reinforcing steel to be tied in place.

Wash out ports to walls open to allow inspection of the base of the wall.

Floors – Concrete (prior to pouring of concrete)

Boundary pegs are to be located.

Finished floor heights are to be established in relation to a relevant and suitable datum.

DPC to be in place and all laps taped.

Reinforcement to be tied in place.

Plumbing to be installed.

Swimming Pools

Pool fence is to be inspected and approved by a Council Building Compliance Officer prior to the pool being filled or partly filled with water.

A temporary fence or barrier is to be installed complying with the requirements of Clause F9 of the NZBC if the pool is to be filled prior to the consented fencing being installed. An inspection of this fence or barrier is required to be completed by a Council Building Compliance Officer prior to the pool being filled or partly filled with water.

Final Inspection

After completion of all work carried out under this Building Consent.

WAIPA DISTRICT COUNCIL
Private Bag 2402, TE AWAMUTU 3480
Phone: 0800 924 723

Site Specific Certification Requirements

Compliance Schedule

A Compliance Schedule is not required for this building.

Attachment/s:

Advisory Notes

Signature: 

Position: Building Compliance Officer - Name: Allan Green

On behalf of: Waipa District Council

Date building consent issued: 08 May 2018

WAIPA DISTRICT COUNCIL
Private Bag 2402, TE AWAMUTU 3480
Phone: 0800 924 723

Advisory Notes

Building Act 2004 Section 52 – Lapse of Building Consent

A building consent lapses and is of no affect if the building work to which it relates, has not commenced within 12 months after the date of issue of the building consent.

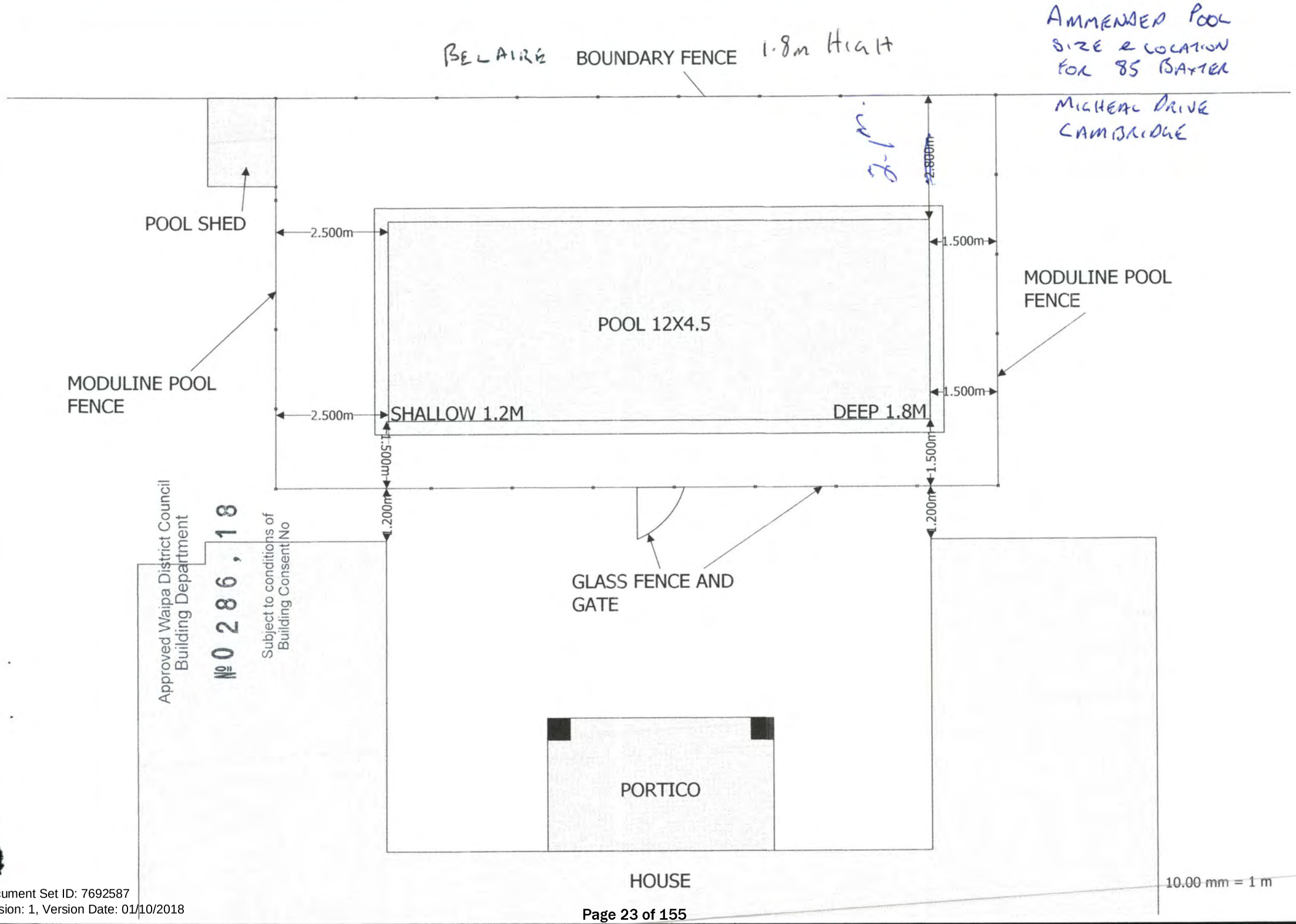
Code Compliance Certificate

Following the completion of all building work to be carried out under this Building Consent the owner or his agent must as soon as practicable, apply to the Waipa District Council on the prescribed form for a Code Compliance Certificate.

Accidental Discovery Protocols

In the event that bones or artefacts are discovered in the course of site excavation, the consent holder should cease works in that area and contact Council's Planning Department. The Council will notify Iwi and/or Heritage New Zealand Pouhere Taonga to determine the appropriate method of recording and/or removal. It should be noted that all sites associated with human activity prior to 1900 have protection under the Heritage New Zealand Pouhere Taonga Act 2014, regardless of whether the sites are registered.

WAIPA DISTRICT COUNCIL
Private Bag 2402, TE AWAMUTU 3480
Phone: 0800 924 723



2b Weathertight homes

This section contains details of any notices issued under the Weathertight Homes Resolution Act 2006 for any dwellings on the site:

Has a Weather tight Home Notice been issued for a dwelling on this site? No information known to Council

Note: Refer to further information if relevant.

2c Swimming pool / Spa pool details

This section contains details of any swimming pool that is known to be located on the site:

Is there a swimming pool located on the property? **Yes**

It is the owner/occupier's responsibility to maintain the fencing, gates and access into the pool area in a complying manner. Please refer to the information brochure to ensure the swimming/spa pool is still in compliance with the Building Act 2004 at the following link. <https://www.buildwaikato.co.nz/most-popular/pools>.

As of 1 January 2017, every residential pool must be inspected every 3 years. The inspection can be carried out by your local Territorial Authority (Council) or by an independent qualified pool inspector (IQPI) who has been approved by the Ministry of Business, Innovation, and Employment (MBIE). A register of IQPIs will be available on the MBIE website in 2017.

If the pool does not pass the inspection the inspector may issue a Notice To Fix. The Owner will have to address the compliance issues within the timeframe stated in the notice. Failure to comply with the Notice To Fix could result in an Infringement Notice and fine or prosecution.

Has the swimming pool fencing been inspected by Waipa District Council and approved in the last 3 years?

Yes

Please refer to the attached correspondence regarding the requirement of a backflow prevention.

Note: Small heated pools (spa) of less than 5m2 water surface area that have a safety cover as a means of restricting access are exempt from periodic inspection requirements.

Waipa DISTRICT COUNCIL

Postal Address
Private Bag 2402
Te Awamutu 3840
New Zealand

Head Office
07 872 0030
101 Bank Street
Te Awamutu 3800

Cambridge Office
07 823 3800
23 Wilson Street
Cambridge 3434

14/09/2022

PO/0219/19.01

CJ Watt, DJ Watt
85 Alan Livingston Drive
Cambridge 3434

Dear Christine

CERTIFICATE OF INSPECTION – 85 ALAN LIVINGSTON DRIVE CAMBRIDGE 3434

I write to confirm that the recent inspection of your swimming pool barrier has been conducted. The inspection was successful and the barrier complied with the legislation on the day of inspection.

I would like to take this opportunity to thank you for having your barrier inspected and also to remind you that pool safety is an on-going issue. If you have any queries or concerns regarding pool safety please contact us in the first instance.

It is a legal requirement that the pool barrier is inspected every three years. You may wish to make a note of the next due date, however we will be in contact with you at some stage in the future to remind you of the re-inspection date.

Yours sincerely

Ken Danby
SENIOR ENFORCEMENT OFFICER

Waipā DISTRICT COUNCIL

Postal Address
Private Bag 2402
Te Awamutu 3840
New Zealand

Head Office
07 872 0030
101 Bank Street
Te Awamutu 3800

Cambridge Office
07 823 3800
23 Wilson Street
Cambridge 3434

21 August 2024

66402

Record Number XXX

To the Property Owner
85 Alan Livingston Drive
Cambridge 3434

Dear Property Owner

Protection of Public Water Supply – backflow prevention for swimming pools

The rules around devices preventing contaminants from entering the drinking water supply have changed.

Filling your swimming pool is a potential risk to drinking water quality if it gets into the network through backflow or syphoning.

To help us maintain the quality of the water supply, we are checking backflow prevention devices at all properties with swimming pools.

Our records indicate that you have a swimming pool connected to the Council water supply. Our records do not show what type of backflow you have fitted on your pool or the simple non-return valve in the water meter box at your property boundary.

If you have a simple device, we would like to fit a testable non-return valve in your water supply meter box to replace it. The cost will be covered by Council and added to our annual testing programme.

Please let us know if you already have a private testable non-return fitted (and confirmation that it is tested annually) or have another protection device to prevent backflow during pool filling.

Please reply before Friday, 6 September 2024, to help us develop our installation plans.

Yours sincerely

Martin Mould
WATER SERVICES MANAGER

Martin.mould@waipadc.govt.nz

3a Water supply details

This section contains details of:

- Whether the property is supplied with drinking water and, if so, whether the supplier is the owner of the land or a networked supplier;
- If the land is supplied with drinking water by a networked supplier, any conditions that are applicable to that supply;
- If the land is supplied with water by the owner of the land, any information the Council has about the supply;
- Whether the water supply is on demand or is a restricted supply;
- The balance of any water rates account;
- A services map showing the location of any public water pipes and hydrants in the vicinity of the property; and
- Any information that has been notified to the Council by a drinking water supplier under section 69ZH of the Health Act 1956. That section applies to a drinking water supplier who considers that the connection of additional residential properties to that suppliers drinking water supply may compromise the suppliers' ability to provide an adequate supply of drinking water to any property.

Note:

(a) Section 69G Health Act 1956 contains a full definition of the terms "drinking water", "drinking water supplier" "drinking water supply" and "networked supplier" and where those words and expressions are used in this LIM report they have the same meaning as in Section 69G of the Health Act 1956.

(b) Drinking water is not necessarily the same as raw water and does not include water used for animals or irrigation that does not enter a dwelling house or building where water is drunk or used for food preparation.

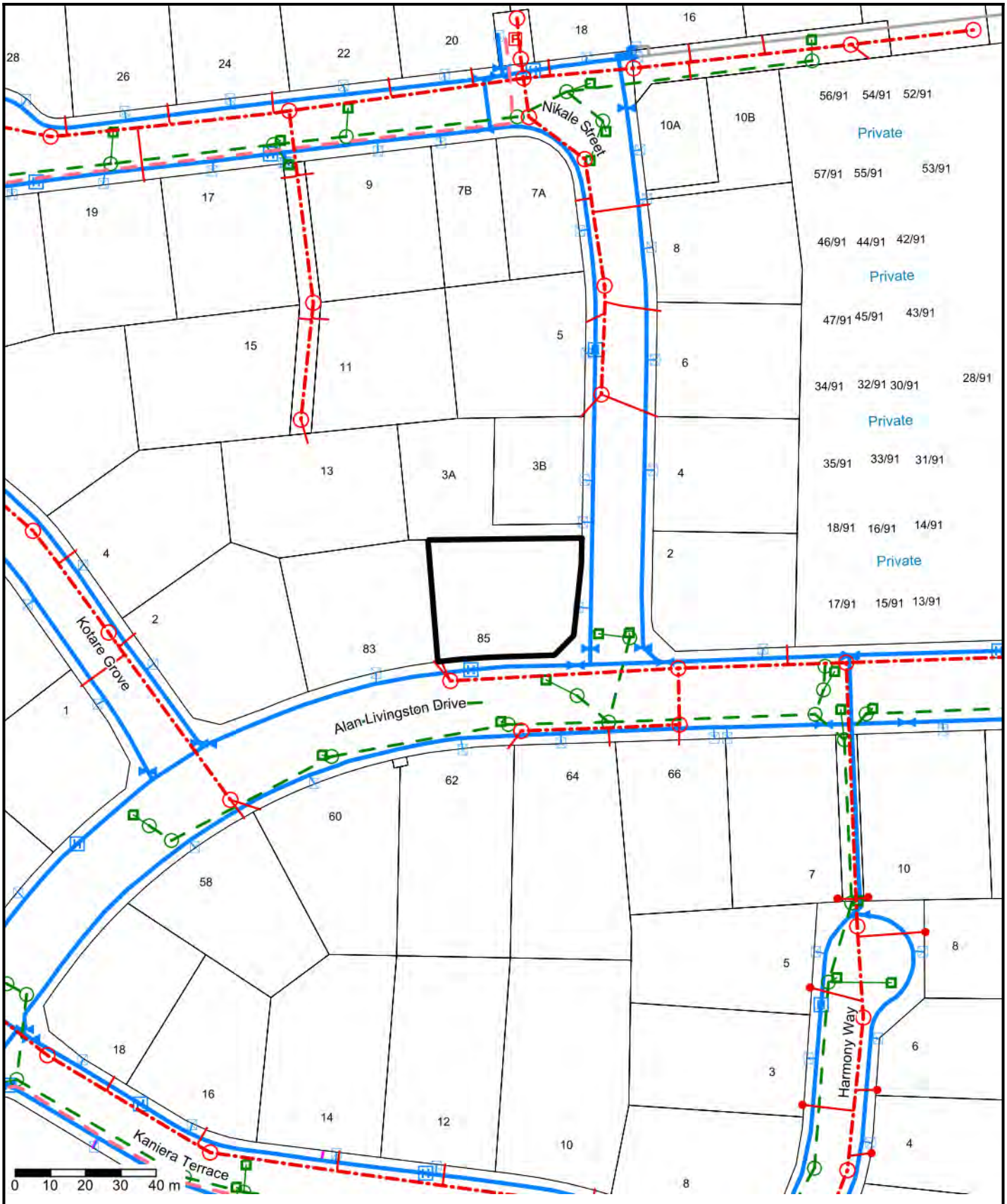
(c) New or Additional Connection
For any property for which, at present, has no water supply connection or where additional connections may be required (e.g. following a subdivision of the property) you should make enquiry of Council's Asset Coordinator to verify whether the property is able to be connected to a Waipā District Council Network Supply and the water availability.

The property is supplied with drinking water by Waipa District Council as networked supplier. The conditions of supply are those set out in the Waipa District Water Supply Bylaw 2013. A copy can be viewed on the Council's website, www.waipadc.govt.nz search for "Bylaws".

- The supply is an on demand supply, as defined in clause 9.4.2 of the Waipa District Water Supply Bylaw 2013.

Water meter on property?	Yes
Water meter number:	18MC253485
Balance of water rates account:	$73.38
Section 69ZH Health Act 1956	No

Note: Refer to services map which shows the location of any public water pipes and manholes in the vicinity of the property.



Waipā DISTRICT COUNCIL

Essential Services

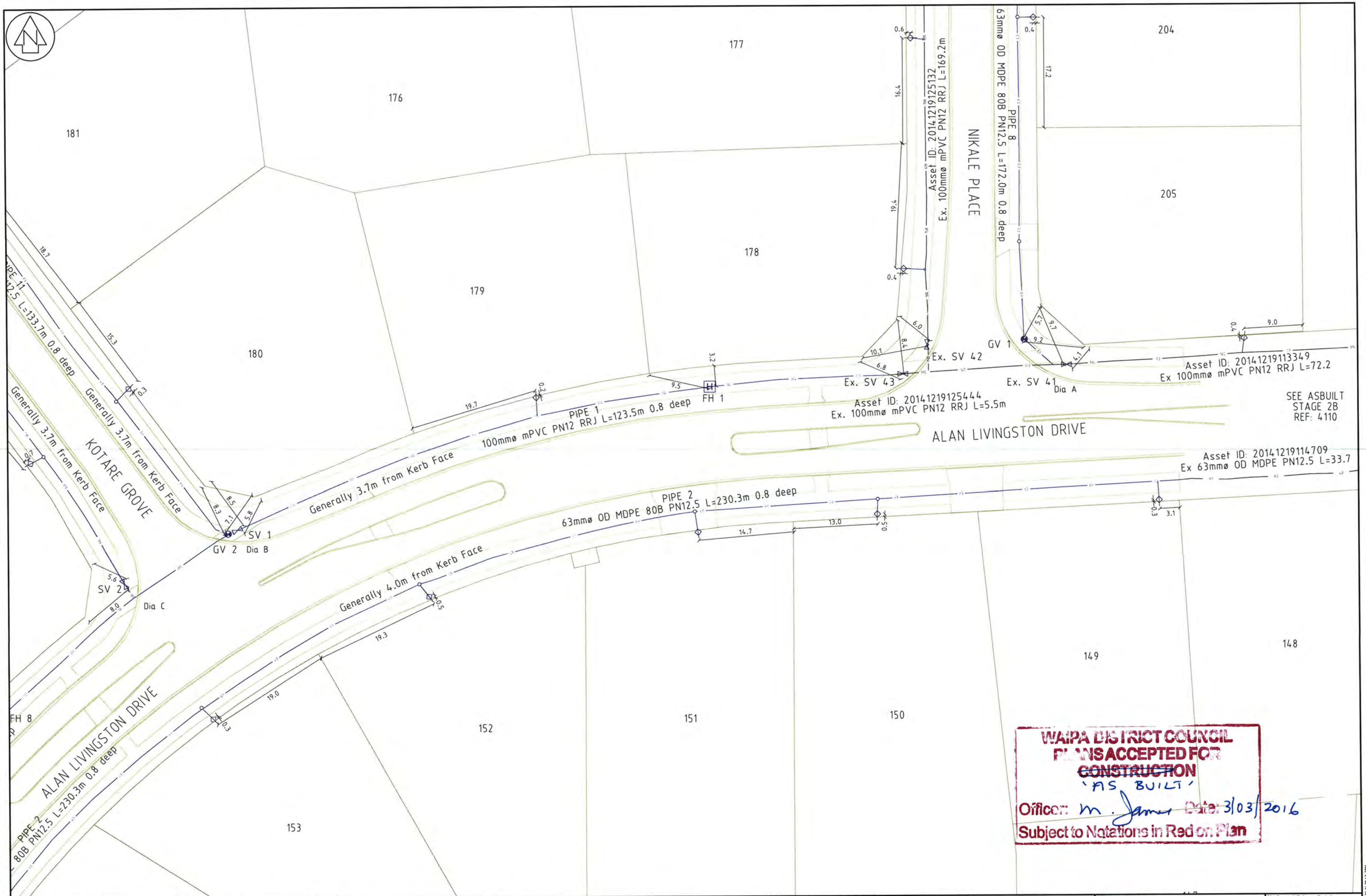
(Refer to Map Legend)

Thursday 26 June 2025

Disclaimer

Because of the nature of the data, accuracy varies and the data should be regarded as indicative only in relation to the site subject to this LIM. Before relying on this information, further research and a site investigation should always be undertaken.

NORTH



177
176
181
204
205
178
179
180
148
149
150
151
152
153
NIKALE PLACE
PIPE 8
63mmø OD MDPE 80B PN12.5 L=172.0m 0.8 deep
Asset ID: 20141219125132
Ex. 100mmø mPVC PN12 RRJ L=169.2m
GV 1
Ex. SV 42
Ex. SV 43
Ex. SV 41
Dia A
Asset ID: 20141219113349
Ex 100mmø mPVC PN12 RRJ L=72.2
SEE ASBUILT
STAGE 2B
REF: 4110
Asset ID: 20141219125444
Ex. 100mmø mPVC PN12 RRJ L=5.5m
ALAN LIVINGSTON DRIVE
Asset ID: 20141219114709
Ex 63mmø OD MDPE PN12.5 L=33.7
PIPE 1
100mmø mPVC PN12 RRJ L=123.5m 0.8 deep
FH 1
Generally 3.7m from Kerb Face
PIPE 2
63mmø OD MDPE 80B PN12.5 L=230.3m 0.8 deep
Generally 4.0m from Kerb Face
SV 1
GV 2
Dia B
KOTARE GROVE
Generally 3.7m from Kerb Face
Generally 3.7m from Kerb Face
PIPE 11
12.5 L=133.7m 0.8 deep
SV 2
Dia C
FH 8
ALAN LIVINGSTON DRIVE
PIPE 2
80B PN12.5 L=230.3m 0.8 deep
WAIPA DISTRICT COUNCIL
PLANS ACCEPTED FOR
CONSTRUCTION
'AS BUILT'
Officer: M. James Date: 3/03/2016
Subject to Notations in Red on Plan

COGSWELL SURVEYS LTD
REGISTERED PROFESSIONAL SURVEYORS
LAND & ENGINEERING SURVEYORS & DEVELOPMENT CONSULTANTS
5 MILICICH PLACE, P.O. BOX 156 CAMBRIDGE

CLIENT: GRANTCHESTER FARMS LTD

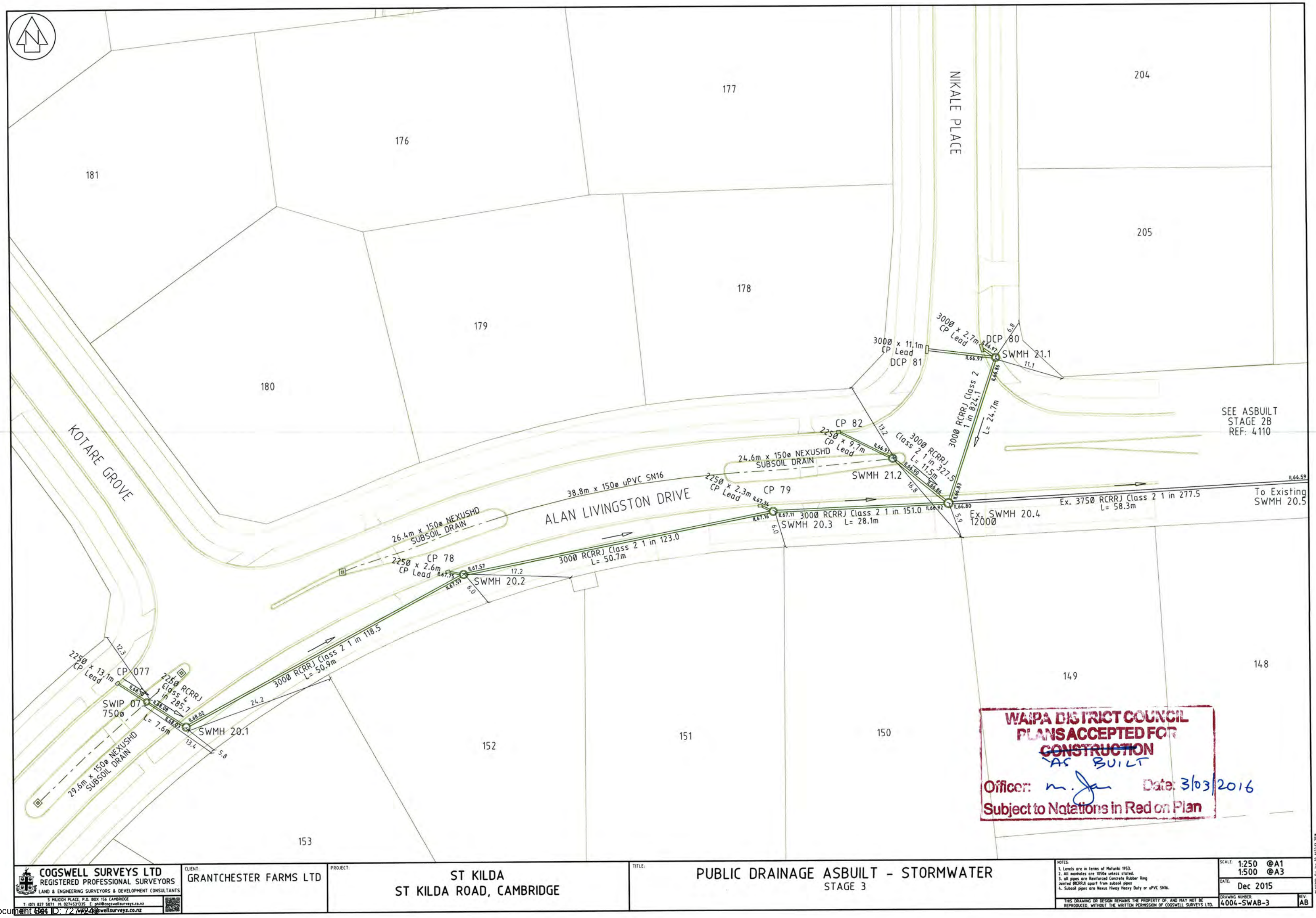
PROJECT: ST KILDA
ST KILDA ROAD, CAMBRIDGE

TITLE: WATER RETICULATION ASBUILT
STAGE 3

NOTES:
1. Levels are in terms of Moturiki 1953.

THIS DRAWING OR DESIGN REMAINS THE PROPERTY OF, AND MAY NOT BE REPRODUCED, WITHOUT THE WRITTEN PERMISSION OF COGSWELL SURVEYS LTD.

SCALE: 1:250 @A1 1:500 @A3
DATE: JAN 2016
DRAWING NUMBER: 4004-WRAB-2
REV: AB



WAIPA DISTRICT COUNCIL
PLANS ACCEPTED FOR CONSTRUCTION
~~CONSTRUCTION~~ AS BUILT
Officer: m. Jan Date: 3/03/2016
Subject to Notations in Red on Plan

COGSWELL SURVEYS LTD
REGISTERED PROFESSIONAL SURVEYORS
LAND & ENGINEERING SURVEYORS & DEVELOPMENT CONSULTANTS
5 MILDICH PLACE, P.O. BOX 156 CAMBRIDGE
T. (07) 827 5071 M. 0274531335 E. phil@cogswellsurveys.co.nz
www.cogswellsurveys.co.nz

CLIENT: GRANTCHESTER FARMS LTD

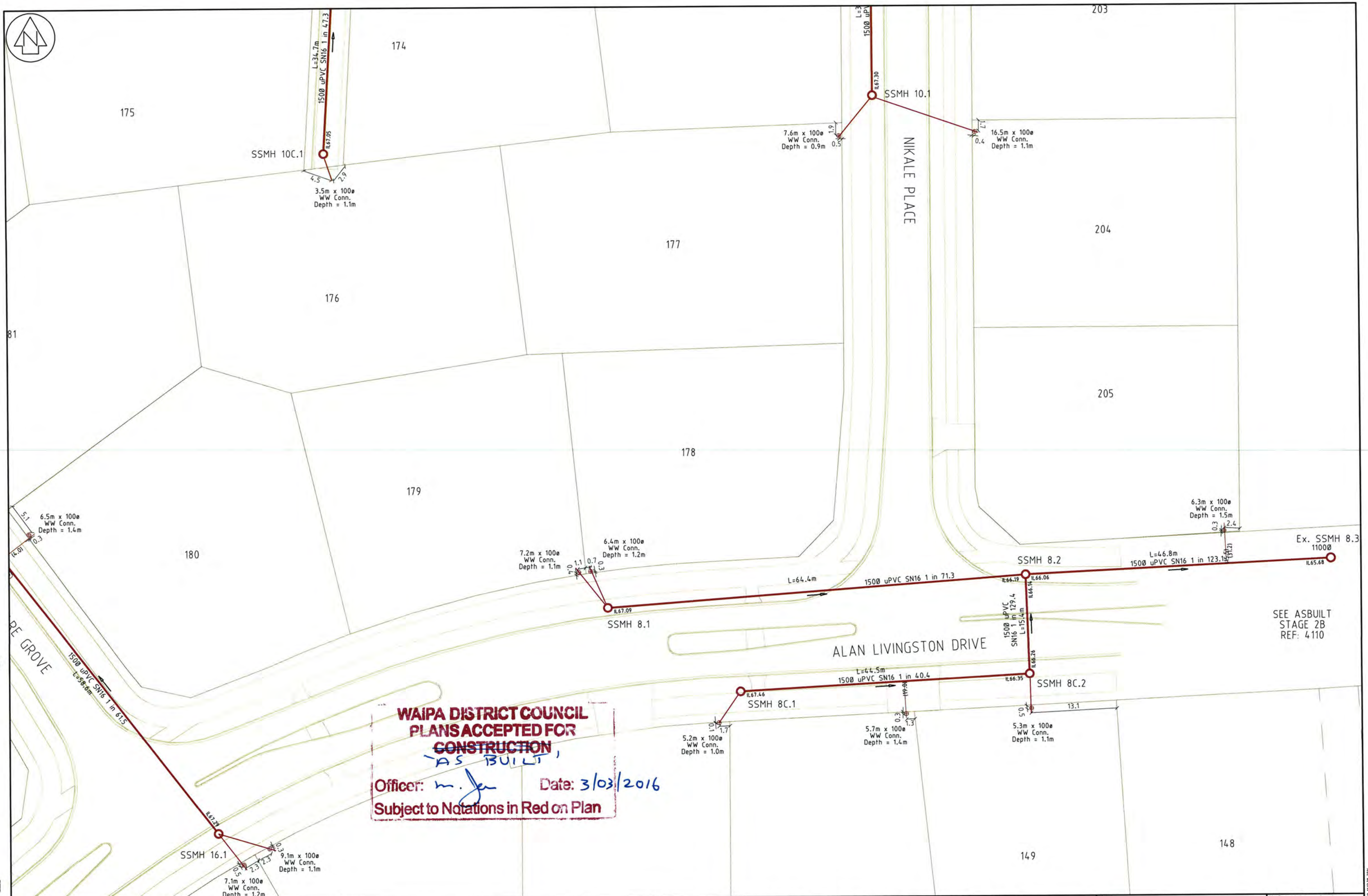
PROJECT: ST KILDA
ST KILDA ROAD, CAMBRIDGE

TITLE: PUBLIC DRAINAGE ASBUILT - STORMWATER
STAGE 3

NOTES:
1. Levels are in terms of Moturiki 1953.
2. All manholes are 1050ø unless stated.
3. all pipes are Reinforced Concrete Rubber Ring Jointed (RCRRJ) apart from subsoil pipes
4. Subsoil pipes are Nexus Hiway Heavy Duty or uPVC SN16.

SCALE: 1:250 @A1
1:500 @A3
DATE: Dec 2015
DRAWING NUMBER: 4004-SWAB-3
REV: AB

PLOTTED: Fri, Jan 22 13:23:23 2016



WAIPA DISTRICT COUNCIL
PLANS ACCEPTED FOR
CONSTRUCTION
'AS BUILT'
Officer:
Date: 3/03/2016
Subject to Notations in Red on Plan
NIKALE PLACE
ALAN LIVINGSTON DRIVE
SSMH 10.1
SSMH 10C.1
SSMH 8.1
SSMH 8.2
SSMH 8C.1
SSMH 8C.2
SSMH 16.1
Ex. SSMH 8.3
1100Ø
SEE ASBUILT
STAGE 2B
REF: 4110
L=34.7m
150Ø uPVC SN16 1 in 47.3
L=64.4m
150Ø uPVC SN16 1 in 71.3
L=46.8m
150Ø uPVC SN16 1 in 123.1
L=15.4m
150Ø uPVC SN16 1 in 129.4
L=44.5m
150Ø uPVC SN16 1 in 40.4
150Ø uPVC SN16 1 in 61.5
L=58.6m
3.5m x 100ø WW Conn. Depth = 1.1m
7.6m x 100ø WW Conn. Depth = 0.9m
16.5m x 100ø WW Conn. Depth = 1.1m
6.5m x 100ø WW Conn. Depth = 1.4m
7.2m x 100ø WW Conn. Depth = 1.1m
6.4m x 100ø WW Conn. Depth = 1.2m
6.3m x 100ø WW Conn. Depth = 1.5m
5.2m x 100ø WW Conn. Depth = 1.0m
5.7m x 100ø WW Conn. Depth = 1.4m
5.3m x 100ø WW Conn. Depth = 1.1m
9.1m x 100ø WW Conn. Depth = 1.1m
7.1m x 100ø WW Conn. Depth = 1.2m
174
175
176
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180
203
204
205
148
149

COGSWELL SURVEYS LTD
REGISTERED PROFESSIONAL SURVEYORS
LAND & ENGINEERING SURVEYORS & DEVELOPMENT CONSULTANTS
5 MILICICH PLACE, P.O. BOX 156 CAMBRIDGE
T: (07) 827 5071 M: 0274531335 E: phil@cogswellsurveys.co.nz
www.cogswellsurveys.co.nz

CLIENT: GRANTCHESTER FARMS LTD

PROJECT: ST KILDA
ST KILDA ROAD, CAMBRIDGE

TITLE: PUBLIC DRAINAGE ASBUILT - WASTEWATER
STAGE 3

NOTES:
1. Levels are in terms of Moturiki 1953.
2. All manholes are 1050ø unless stated.
3. all pipes are 150ø uPVC SN16 RRJ, unless stated.
4. Boundary positions are approx and subject to final survey.
5. Lot conn chainages are from upstream manhole.

SCALE: 1:250 @A1
1:500 @A3

DATE: JAN 2016

DRAWING NUMBER: 4004-WWAB-3

REV: AB

PLOTTED: Fri Jan 22 11:13:28 2016

3b Wastewater supply details

This section contains details of the availability of Council wastewater reticulation to the site:

The property is within a reticulated wastewater area.

Note: Refer to the services map which shows the location of any public wastewater pipes and manholes in the vicinity of the property.

3c Land drainage details

This section contains details of:

- The Land Drainage Area the property is located within;
- Private and public stormwater and sewerage drains;
- Trade Waste Certificates (if relevant).

The property is within an Urban Drainage Area and the Waipa District Land Drainage Area.

Note: Refer to the site drainage plan (if avaliable), and services map showing the location of any public stormwater pipes, catch pits or manholes in the vicinity of the property.

4a Waipā District Plan details	
This section contains the relevant details and planning maps and any proposed Plan Changes that may affect the property.	
Zoning & Policy Areas	See attached schedule
Refer to a copy of the relevant District Plan Maps for this site and Schedule of Notified Plan Changes.	

Schedule of Notified Plan Changes

Thursday 26 June 2025

For further information on proposed and notified plan changes that may affect your property, please see Council's website www.waipadc.govt.nz/our-council/waipa-district-plan/wpdc-variations or contact Council on 0800 924 723 quoting the relevant description below.

Council Plan Changes

No Council Plan Changes

Private Plan Changes

Application ID	Description	Notified Date	Decision Issued	Stage/Decision	Operative
PC/0001/23	Plan Change 32 - Proposed rezoning of land on the eastern side of Airport Road for business/industrial purposes				
PC/0001/24	Plan Change 27 - Rezone N3 Growth Cell - Ngahinapouri Growth Cell				
PC/0002/23	Plan Change 31 - Rezone the T4 Growth Cell in Te Awamutu from Deferred Residential Zone to Medium Density Residential Zone and to insert a new T4 Growth Cell Structure Plan into the District Plan				
PC/0002/24	Plan Change 14 – rezone part of the C10 growth cell at Hautapu (bounded by Zig Zag Road, Swayne Road, and the Waikato Expressway) from rural to industrial.and inclusion of the Mangaone Precinct Structure Plan	20 Jun 2024			
PC/0003/22	Plan Change 29 - Rezone Rural to Residential - 2025 Ohaupo Road				
PC/0003/24	Plan Change 33 - Rezone Area 7 of the C9 Growth Cell / Hautapu Industrial Structure Plan Area from Deferred Industrial to Industrial	15 May 2025			

Report on Zoning and Policy Areas

relevant to this property

Thursday 26 June 2025

For property specific District Plan chapter and district wide provision information use the Waipa District ePlan: https://www.waipadc.govt.nz/our-council/waipa-district-plan/waipa-eplan

Zoning

MEDIUM DENSITY RESIDENTIAL ZONE

Zone Overlay

Policy Type	Overlay Area
STRUCTURE PLAN	ST KILDA

Designation

Type	Reference	Facility	Authority	Activity	Location

N/A

Qualifying Matters

Infrastructure Constraint Qualifying Matter Overlay

Stormwater Constraint Qualifying Matter Overlay

Policy Areas

Landscape and Natural Areas

N/A

Significant Tree or Bushstand

Type	Ref Number

N/A

Significant Natural Area

Site Code	Name	Description	Area	Protection	Significance	Justification

N/A

Esplanade Requirements

N/A

Policy Overlays

Type	Comments

N/A

N/A

Heritage

Site Code	Name	Location	Description

N/A

Character Areas

N/A

Qualifying Matter

N/A

Protected Tree

Type	Species	English Name

N/A

Utilities

Type	Details	Comments

N/A

Natural Hazards

The property is not located within a District Plan potential flood area.

The property is not located within a Waipa River flood boundary.

Biodiversity Areas

River Stream Corridor

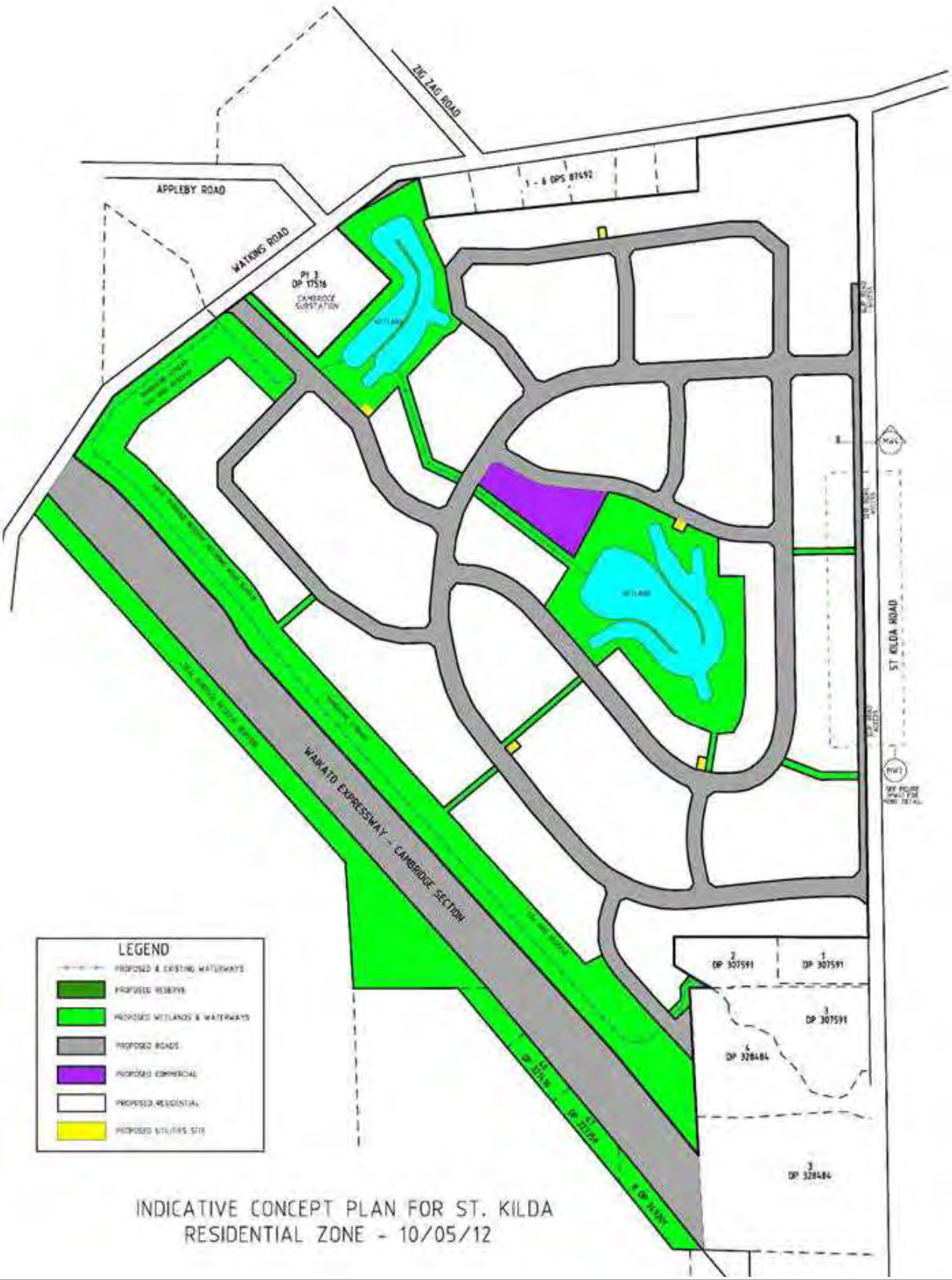
N/A

Indigenous Forest Corridor

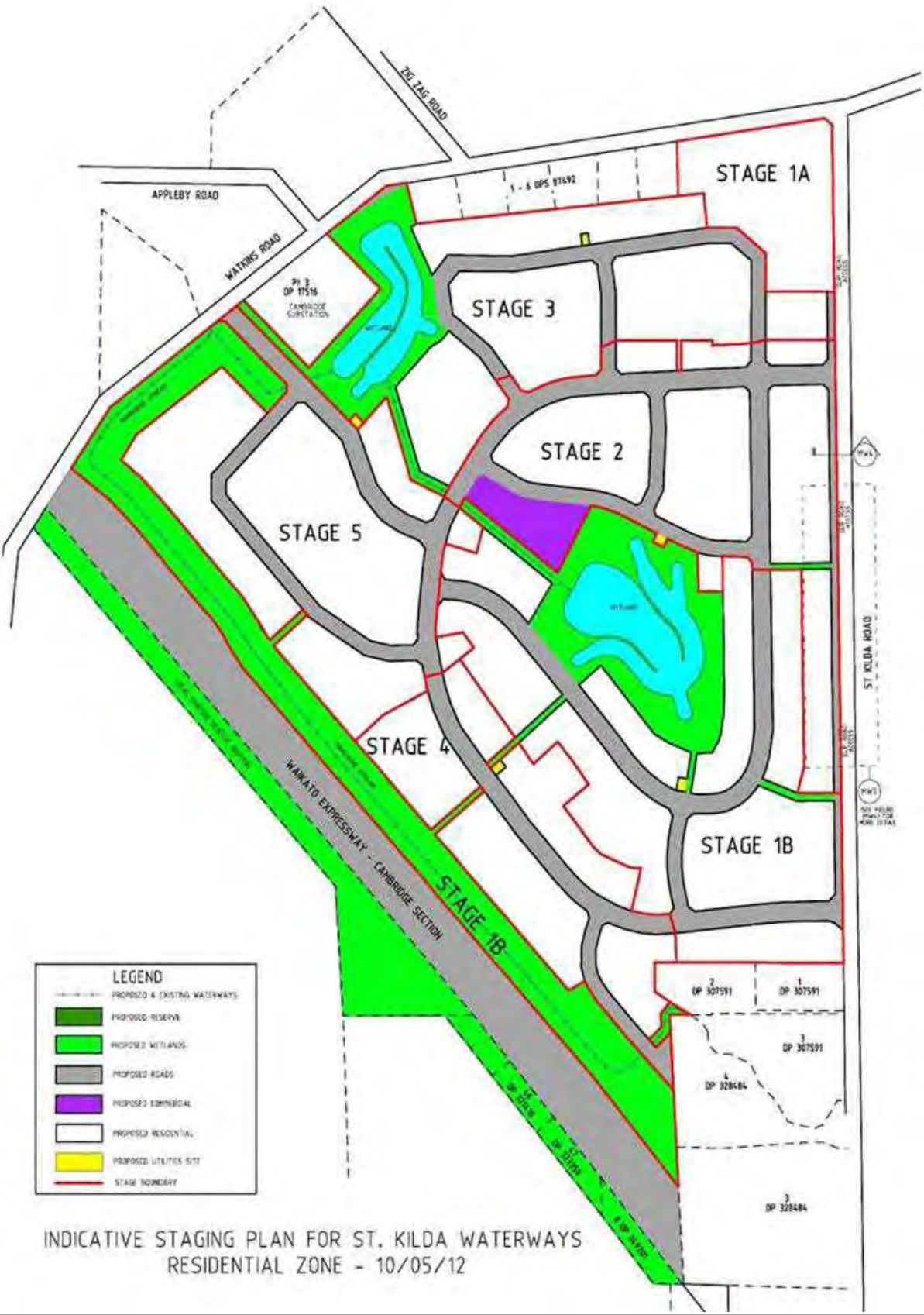
N/A

Peat Lake Catchment

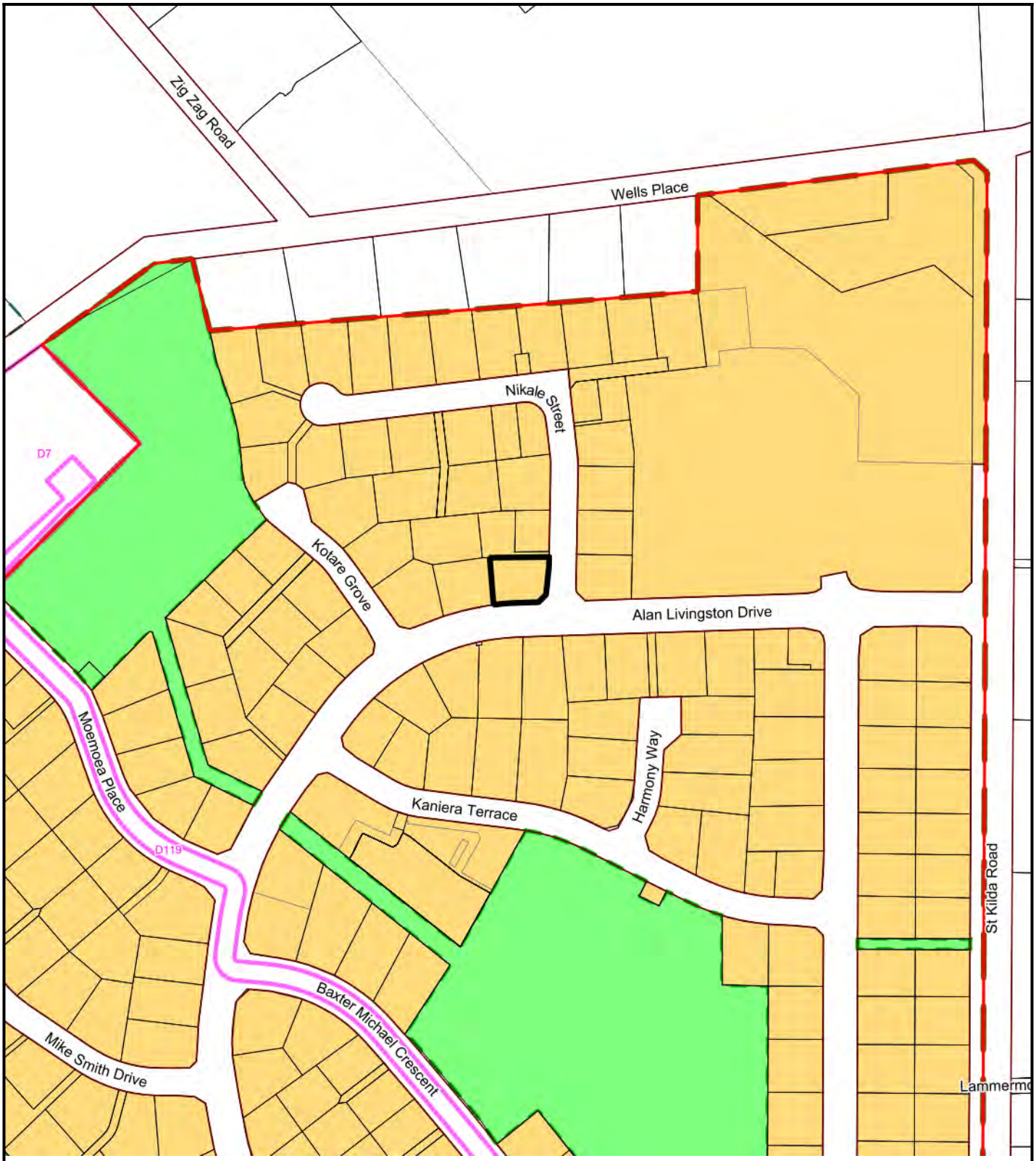
N/A



Revision Date: 12/06/2025



Revision Date: 12/06/2025



Waipā District Plan
Zones and Overlays

The Waipa District Plan was made operative on 14 August 2017 and has legal effect from this date. Further information on interpreting the District Planning Maps and which District Plan chapters and district wide provisions are specific to the property, is available via the Waipa District Council's website: https://www.waipadc.govt.nz/our-council/waipa-district-plan and the ePlan: https://www.waipadc.govt.nz/our-council/waipa-district-plan/waipa-eplan

Thursday 26 June 2025

Disclaimer
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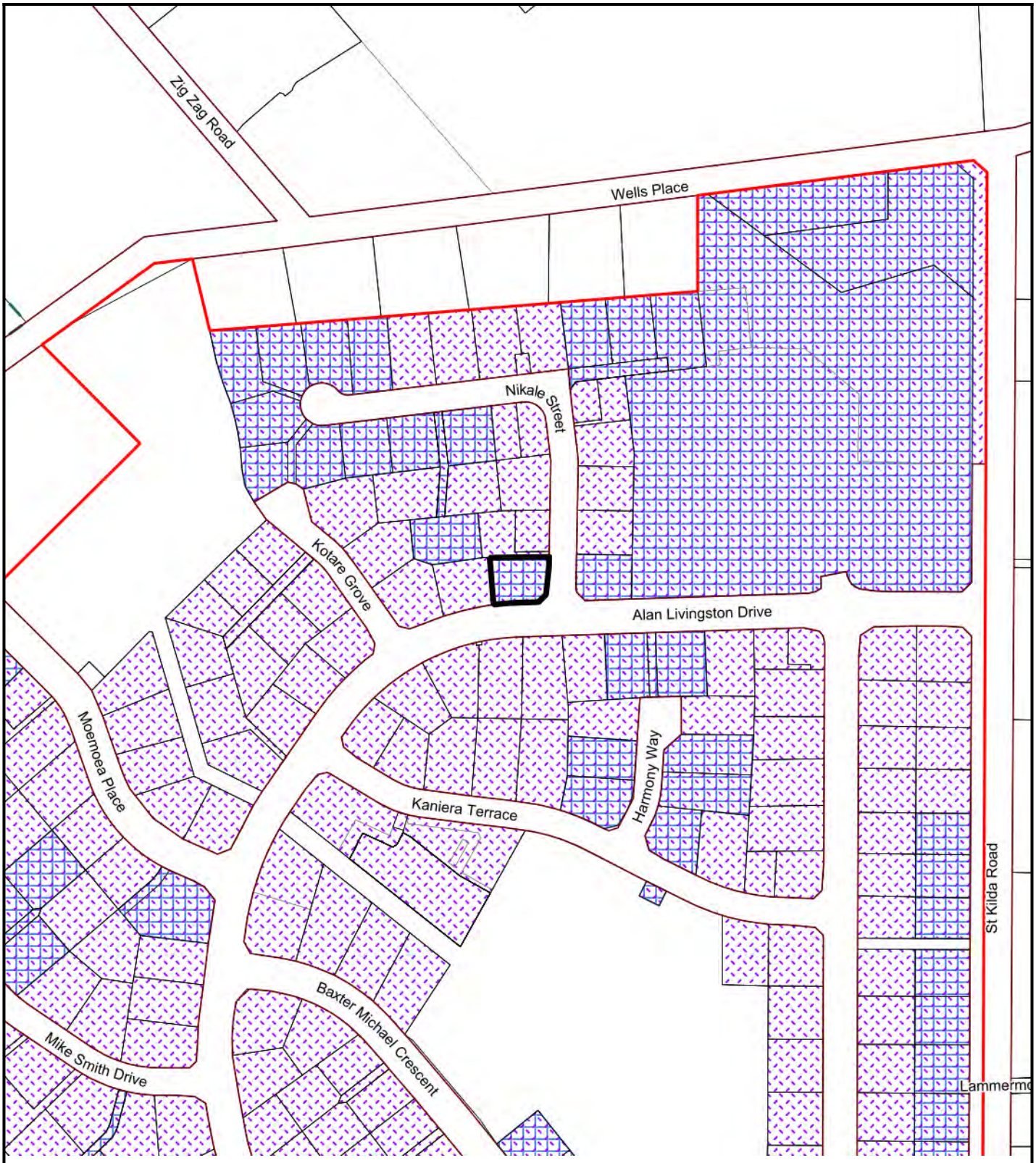
NORTH



Waipā District Plan

Qualifying Matters

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Thursday 26 June 2025

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Refer to the Zone Legend for Symbology.

NORTH

Zones Legend

AIRPORT

- Air Noise Boundary (ANB)
- Night Noise Boundary (SEL95)
- Outer Control Boundary (OCB)
- Airport Approach Surfaces
- Conical Surface
- Horizontal Surface
- Hamilton Airport Strategic Node
- Narrows Concept Plan Area
- Runway Protection Area
- Possible Future Airport Growth Area

DESIGNATIONS (Refer Appendix D1)

- Designation Approved
- Designation (Notice of Requirement)

OVERLAYS

- Structure Plan Area
- Core Campus Area
- Tokanui Dairy Research Centre
- Hydro Electric Power Generation Infrastructure Area
- Boundary of the Specialised Dairy Industrial Area

GENERAL

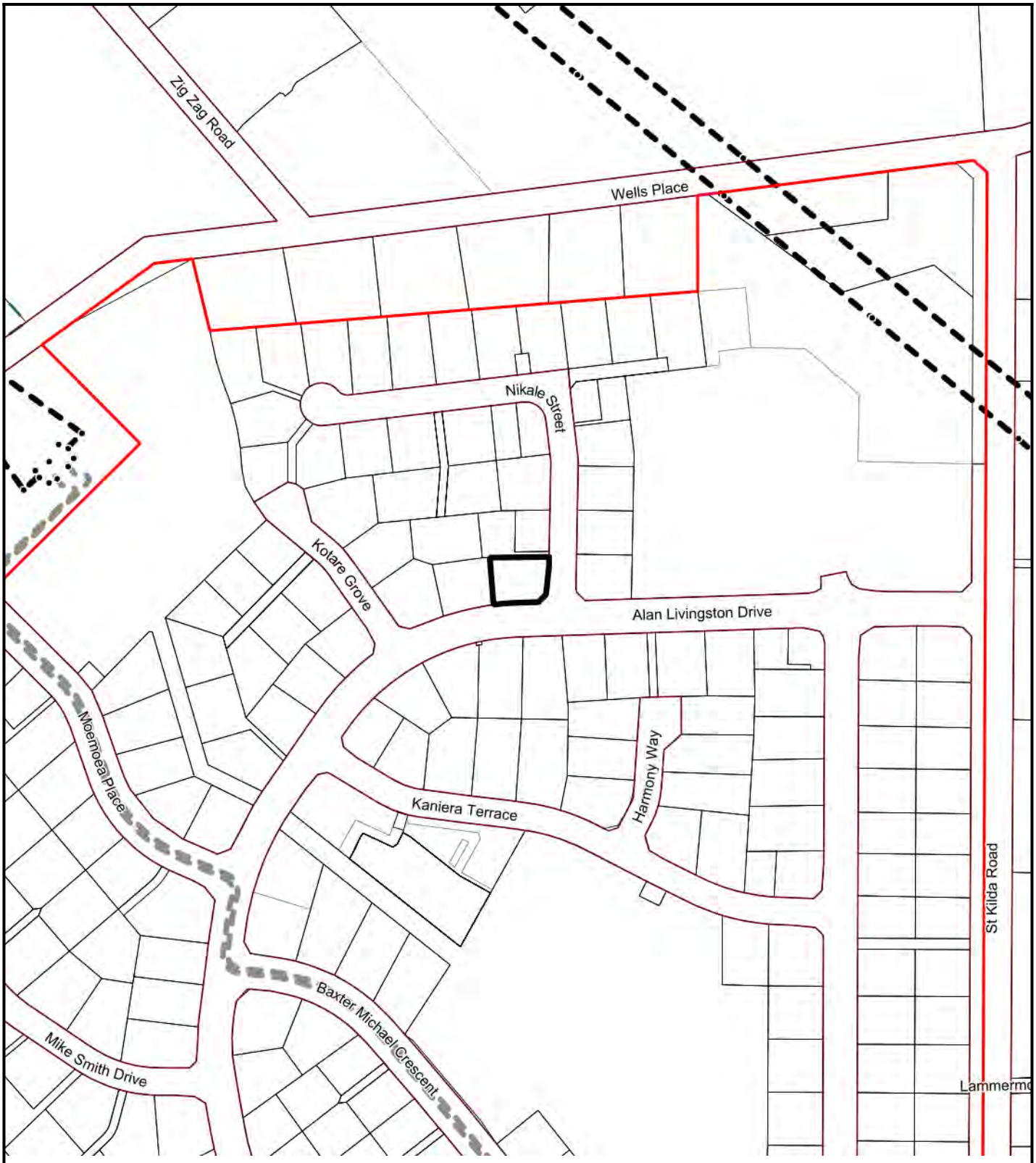
- District Boundary
- Other Council Boundary
- Urban Limits
- Strategic Road (Major or Minor Arterial)
- Formed Road
- Indicative Road
- Bridge
- Service Lane
- Unformed Road
- River, Lake or Stream

ZONES

- Airport Business Zone
- Commercial Zone
- Deferred Commercial Zone
- Industrial Zone
- Deferred Industrial Zone
- Hydro Power Zone
- Lake Karapiro Events Zone
- Large Lot Residential Zone
- Deferred Large Lot Residential Zone
- Marae Development Zone
- Medium Density Residential Zone
- Mystery Creek Events Zone
- Reserve Zone
- Deferred Reserve Zone
- Residential Zone
- Deferred Residential Zone
- Significant Mineral Extraction Zone
- St Peters School Zone
- Rural Zone

QUALIFYING MATTERS

- Infrastructure Constraint Qualifying Matter Overlay
- Regionally Significant Industry Qualifying Matter Overlay
- River-Gully Proximity Overlay
- Stormwater Constraint Qualifying Matter Overlay



Waipā District Plan

Policy Areas

The Waipa District Plan was made operative on 14 August 2017 and has legal effect from this date. Further information on interpreting the District Planning Maps and which District Plan chapters and district wide provisions are specific to the property, is available via the Waipa District Council's website: https://www.waipadc.govt.nz/our-council/waipa-district-plan and the ePlan: https://www.waipadc.govt.nz/our-council/waipa-district-plan/waipa-eplan

Thursday 26 June 2025

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NORTH

Policy Areas Legend

ESPLANADE REQUIREMENTS

- Access Strip
- Esplanade Reserve
- Esplanade Strip

LANDSCAPE AND NATURAL AREAS

- High Amenity Landscapes (includes adjacent water bodies)
- Outstanding Natural Feature and Landscape
- River and Lake Environs
- Significant Indigenous Forest (Local)
- Significant Natural Feature and Landscape (District)
- Visually Sensitive Hill Country
- Cultural Landscape Area Alert (Refer Note 4)
- Cultural Landscape Area Mountain
- Cultural Landscape Area Battle Site
- Significant Natural Area (Refer Appendix N5)
- Viewshaft and State Highway 3 Scenic Corridor
- Vista
- Significant Tree and Bush Stand

HERITAGE

- Archaeological Site (Refer Appendix N3)
- Archaeological Site - Reliability 1 (Refer Note 3 and Appendix N3)
- Cultural Sites (Refer Appendix N2)
- Heritage Item (Refer Appendix N1)
- Karapiro Hydroelectric Village Heritage Item
- Protected Tree
- Character Cluster
- Character Cluster Qualifying Matter Overlay
- Character Defining Property
- Non-Character Defining Property
- Character Precinct
- Character Precinct Cambridge A
- Character Precinct Cambridge B
- Character Streets
- Rangiaowhia Ridge Building Setback Area

GENERAL

- District Boundary
- Other Council Boundary
- Urban Limits
- STR Strategic Road (Major or Minor Arterial Route)
- Formed Road
- Indiciative Road
- Bridge
- Service Lane
- Unformed Road
- River, Lake or Stream

OVERLAYS

- Commercial Zone Height Overlay
- Dairy Manufacturing Site
- Large Format Retail Area
- Maungatautari Ecological Island Fenced Boundary
- Pedestrian Frontage
- Road Noise Effects Area
- Scheduled Industrial Site
- Specialised Dairy Industrial Area
- Special Amenity Area
- Tall Building Area
- Cambridge North Neighbourhood Centre
- Hydro Operating Easement
- Mystery Creek Events Centre Core Area
- Mystery Creek Events Lower Terrace Area
- Mystery Creek Events Upper Terrace Area
- Mystery Creek Rural Activities Overlay
- Mystery Creek Agri-Activities Overlay
- Quarry Buffer Area
- Mineral Extraction Area
- Maungatautari Ecological Island Fenced Boundary
- Dairy Manufacturing Noise Contour
- Mystery Creek Noise Contour
- Water Catchment Area (WCA)
- Scheduled Site

UTILITIES

- HV Electricity Structure
- HV Electricity Transmission Line
- HV Electricity Transmission Line (Underground)
- Gas Transmission Pipeline Corridor

NATURAL HAZARDS

- Flood Hazard Area

NOTE:

1. Referenced Sites

Some sites are shown on the maps with a reference number. These are archaeological sites, culture sites, designations (approved and notice of requirements), historic buildings/sites, protected trees or significant natural areas.

2. Achaeological Sites

Additional archaeological sites may have been identified since the notification of this Plan. For this reason people are also referred to the NZAA Database. Consultation with Heritage New Zealand is advisable.

3. Reliability 1

These sites have been field checked and documentation has been completed. These sites have a higher degree than the other sites.

4. Cultural Landscape Areas

There are two types, 'Cultural Landscape Area - Alert' and 'Cultural Landscape Areas'. The Cultural Landscape Area - Alert are identified for information purposes only. While the Cultural Landscape Areas have additional resources consent requirements for some activities.

Where the Cultural Landscape Area - Alert is shown on the Planning Maps to apply to a river or stream, it includes a 50m setback on either side of the bank from the river or stream.

5a Resource consents, notices, bonds, easements, and consent notices

This section contains details of:

- Any application for resource consent (subdivision, land use or notice) or other approval pursuant to the Resource Management Act 1991 that applies to the site.
- Any Environment Court or High Court Appeal of a resource consent decision pending on the property.
- Any current bond attached to the site;
- Any conditions of an ongoing nature pursuant to Section 221 of the Resource Management Act 1991, which is registered on the title ("consent notice"); and
- Any Waipā District Council easement registered on the record of title for the site.

A Consent Notice pursuant to Section 221 of the Resource Management Act is registered on the title. Refer to the attached information.

An Encumbrance is registered on the title. See attached information.

Have any resource consents or deemed permitted boundary activities been granted for the site?	Yes

Reference number	**Date Approved**	**Description**
LU/0174/14	14/08/2014	Onsite manoeuvring to encroach front and side yard setbacks.
LU/0005/13.01	08/09/2016	For the ability to construct one secondary dwelling per residential lot in the St Kilda Residential Zone and for the construction of 12 duplex dwellings across the whole subdivision, with a maximum of 5 duplex dwellings per underlying subdivision stage.
LU/0215/16	14/09/2016	Construct buildings within Stages 4 and 5 breaching the following performance standards of the St Kilda Residential Zone: • 2.4.2.4 – Minimum Building Setback from Internal Site Boundaries; • Rule 2.4.2.6 – Maximum Building Length; • Rule 2.4.2.27 – Neighbourhood Amenity and Safety; and • 2.4.2.38 – Secondary Dwelling

Notes: Refer to:

(a) Part 2 for a map showing the location of any resource consents granted on sites within a set distance from the property from 1 November 1989, and a schedule describing these resource consents;

View Instrument Details

Instrument No	10277783.4
Status	Registered
Date & Time Lodged	26 February 2016 11:04
Lodged By	Roberts, Pamela Ellen Fitzgibbon
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991

Affected Computer Registers	Land District
680654	South Auckland

Annexure Schedule: Contains 62 Pages.

Signature

Signed by Amanda Jane Vosper as Territorial Authority Representative on 25/02/2016 04:11 PM

***** End of Report *****

CONSENT NOTICE

IN THE MATTER AND	of the Land Transfer Act 1952
IN THE MATTER AND	of Section 221 of the Resource Management Act 1991
IN THE MATTER	of the Land in Certificate of Title 680654 (South Auckland Registry) and Plan No DP 494295

WHEREAS:

1. The **WAIPA DISTRICT COUNCIL** has pursuant to Sections 34A(1), 104, 104B, 108 and 220 of the Resource Management Act 1991 granted to **GRANTCHESTER FARMS LIMITED** subdivision consent for the subdivision of Lot 3003 DP 483067.

2. The subdivision to which consent has been given is shown on Plan No. DP 494295.

3. It was a condition of the said consent that pursuant to Section 108(2) of the Resource Management Act 1991 that:

   (a) The foundations of any building on Lots 128-144, 149-164, 167-184, 201, 203-205 and 1,000 DP 494295 (for which new certificates of title 722927 to 722981 and 722984 respectively have been allocated) must be designed by a Chartered Professional Engineer.

   (b) The minimum residential land level and minimum building platform level on Lots 128-144, 149-164, 167-184, 201, 203-205 and 1,000 DP 494295 (for which new certificates of title 722927 to 722981 and 722984 respectively have been allocated) must comply with Table 10 of the St Kilda Waterways Wetland Design Report, prepared by Beca, dated 5 April 2012, for the catchment the lot is located within. Where the catchment boundary traverses the lot the higher of the two levels must be adopted. Compliance with these levels must be demonstrated at the time of building consent of the dwelling.

   (c) The stormwater design for Lots 128-144, 149-164, 167-184, 201, 203-205 and 1,000 DP 494295 (for which new certificates of title 722927 to 722981 and 722984 respectively have been allocated) must provide for an on-site stormwater soakage system designed to cater for runoff from a 2 year return period rainfall event, unless it is demonstrated by a suitably qualified professional, that the ground conditions of the lot are not practical for on-site soakage. Where it has been demonstrated that on-site soakage is not practical all stormwater must be designed to be connected to the piped stormwater reticulation network. Compliance with this provision must be demonstrated at the time of building consent for the dwelling.

   Reason: *The above conditions will advise further owners of the special and continuing circumstances relating to development of their lot with regards to building foundations, the minimum land and building floor levels and the provision for on-site soakage.*

4. The said condition is to be complied with pursuant to the provisions of Section 221 of the Resource Management Act 1991 on a continuing basis.

NOW PURSUANT TO Section 221 of the Resource Management Act 1991 the **WAIPA DISTRICT COUNCIL HEREBY CONSENTS** to the deposit of the Survey Plan of Subdivision under the Land Transfer Act 1952.

DATED at Te Awamutu this 12th day of February 2016

.....
Authorised Officer

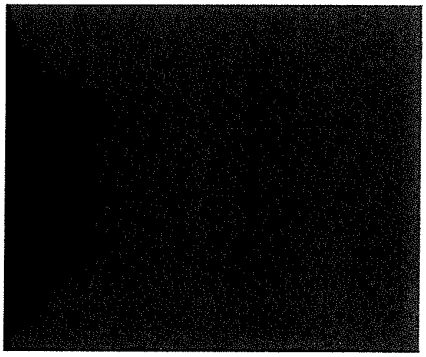
Report

St Kilda Waterways - Wetland Design Report

Prepared for Grantchester Farms Ltd (Client)

By Beca Infrastructure Ltd (Beca)

5 April 2012



Revision History

Revision N°	Prepared By	Description	Date
A	Peter Millais	For approval	5 April 2012
B	Peter Millais	Following client comments	10 April 2012

Document Acceptance

Action	Name	Signed	Date
Prepared by	Peter Millais	pp.	10/04/2012
Reviewed by	Mary Wood		
Approved by	Ian Garside		10/04/2012
on behalf of	Beca Infrastructure Ltd		

Table of Contents

Appendices

Appendix A – Drawings

3410439-CK-048	Rev A	Pre-development stormwater catchments
3410439-CK-049	Rev A	Post-development stormwater catchments
3410439-C-580	Rev A	Wetland 1 general arrangement
3410439-C-581	Rev A	Wetland 1 outlet, Sheet 1 of 2
3410439-C-582	Rev A	Wetland 1 outlet, Sheet 2 of 2
3410439-C-583	Rev A	Wetland 1 outlet details
3410439-C-584	Rev A	Wetland 2 general arrangement
3410439-C-585	Rev A	Wetland 2 outlet
3410439-C-586	Rev A	Wetland sections
3410439-C-587	Rev A	Wetland forebay details
3410439-C-588	Rev A	Stream diversion swale, plan and sections
3410439-C-589	Rev A	Stream diversion swale outlet
3410439-C-590	Rev A	Diversion swale culvert

Appendix B – Stormwater calculations

B1-3	Water Quality and Extended Detention Volumes, Stream diversion swale
B4-6	Water Quality and Extended Detention Volumes, Wetland 1
B7-9	Water Quality and Extended Detention Volumes, Wetland 2
B10	Wetland forebay sizing

Appendix C – Hydraulic model output charts

C1a	Pre- and post-development level upstream of Watkins Road culvert
C1b	Pre- and post-development flow in Mangaone Stream downstream of Watkins Road
C2	Level upstream of stream diversion swale outlet
C3a	Level at Wetland 1
C3b	Volume in Wetland 1
C4a	Level at Wetland 2
C4b	Volume in Wetland 2

Appendix D – SEEP analysis

1 Introduction

1.1 The site

St Kilda Waterways is a proposed residential subdivision located on relatively flat alluvial deposits on the northeast side of Cambridge. The 80 ha site, which is predominantly pasture at present, is located between St Kilda Road, Watkins Road and the proposed Waikato Expressway Cambridge Bypass, see Drawing 3410439-CK-049 in Appendix A.

The headwaters of the Mangaone Stream flow in a north-westerly direction across the site, leaving via a 1.05 m diameter culvert under Watkins Road. Stormwater from the existing Saffron Development, on the south side of the bypass designation, discharges to the Mangaone Stream immediately upstream of the culvert via a swale adjacent to Watkins Road.

1.2 Proposed development

The proposal includes construction of a stream diversion swale parallel to the Waikato Expressway designation, plus two wetlands to treat and attenuate stormwater runoff from the development of 285 sections of average size 1600 m^2 and associated local roads. The land will be re-contoured to drain to the stream diversion swale and the wetlands; as a result of this re-contouring, some areas along the northern and eastern boundaries of the site that presently drain to a separate stream will in future drain to the Mangaone Stream (compare drawings 3410439-CK-048 and CK-049).

Stream diversion swale

The existing Mangaone Stream at the site is often dry. The stream diversion swale will discharge via a throttled outlet and overflow weir into the existing Watkins Road swale. Details of the swale are shown on Drawings 3410439-C-588 and C-589 in Appendix A.

The swale has a catchment of 13 hectares within the development, most of which will enter via overland flow from residential areas, but it includes one pipe discharge from local road runoff. This outlet will be equipped with a water quality treatment device. The swale will also receive runoff from 5 hectares of the Waikato Expressway designation, until the expressway is constructed.

Wetlands 1 and 2

These wetlands have catchments of 40 ha and 24 ha respectively, comprising a mixture of overland flow from residential and reserve areas and reticulated stormwater from roads. The reticulated stormwater will discharge to the wetlands via forebays to limit sediment load into the main body of the wetlands. The wetland arrangements are shown on drawings 3410439-C-580 and C-584.

Wetland 1 will discharge via a culvert to Wetland 2. Wetland 2 will discharge to an outlet swale upstream of the Watkins Road culvert. In major flood events, less than 10% annual exceedance probability (AEP), water will back up at the Watkins Road culvert such that ponding occurs at the road between Wetland 2 and the Watkins Road swale.

Groundwater will be pumped to the wetlands from an existing borehole during dry periods in order to maintain a minimum water level for visual amenity and to maintain wetland vegetation.

1.3 Previous studies

The *Cambridge North Deferred Residential Zone Structure Plan* (Tonkin and Taylor, February 2004 for Waipa District Council) makes recommendations for the stormwater system for the development south of the bypass designation.

Proposed Residential Subdivision – St Kilda Waterways, Cambridge – Conceptual Stormwater Management System (Beca, June 2007), was prepared for the application for a plan change, and set out a conceptual design for stormwater management at the site.

Grantchester Farms Subdivision – Interpretive Geotechnical Report (Beca, July 2007) presents geotechnical recommendations for the development.

St Kilda Waterways: Proposed Stormwater Quantity Management (Beca, July 2008) was prepared in response to a request for further information. It considers various options for stormwater management, and reports on hydraulic modelling undertaken to assess those options.

1.4 Purpose of this report

The purposes of this design report are to:

- Summarise the design basis and assumptions;
- Outline maintenance requirements; and
- Provide data needed to support a resource consent application to Waikato Regional Council.

2 Design basis

2.1 Reference documents

The following documents have been referred to for the design:

Auckland Regional Council. *Guidelines for stormwater runoff modelling in the Auckland region.* ARC Technical Publication No. 108 (ARC TP108), 1999.

Auckland Regional Council. *Stormwater management devices: Design guidelines manual.* ARC Technical Publication No. 10 (ARC TP10). 2nd edition, May 2003.

Auckland Regional Council. *Landscape and Ecology Values within Stormwater Management.* ARC Technical Report TR2009/093.

Department of Building and Housing. *Compliance Document for New Zealand Building Code Clause E1 Surface Water.* October 2011 update.

Hamilton City Council. *Hamilton City Development Manual.* October 2010 update. In particular Volume 2, Design Guide, Part 4: Stormwater drainage, and Part 9: Planted Stormwater Devices. [This manual has been adopted by Waipa District Council, with no variances applicable to the wetland design].

Ministry for the Environment (MfE). *Climate change effects and impacts assessment: a guidance manual for local government in New Zealand.* 2nd edition, May 2008.

Ministry for the Environment (MfE). *Tools for estimating the effects of climate change on flood flow: a guidance manual for local government in New Zealand.* May 2010.

New Zealand Water Environment Research Foundation (NZWERF). *On-site stormwater management guideline.* 2004.

2.2 Design criteria

The primary functions of the wetlands are flood attenuation plus water quality treatment.

The adopted criteria, defined by Waipa District Council and Waikato Regional Council, are for design in accordance with ARC TP10, including:

- Attenuate peak flows to pre-development runoff rates for 50% and 10% annual exceedance probability (AEP) storm events;
- Pass the 1% AEP flow without
  - causing the water level in the Saffron swale to exceed 66.9 m RL,
  - causing increased flooding upstream of the Mangaone Stream diversion,
  - flooding onto any residential land, or
  - encroaching on a minimum 0.5 metres of freeboard to building platforms; and
- Provide emergency spillway capacity.
- Provide the water quality volume;
- Provide the extended detention volume;

The effects of climate change are considered using the mid-range (A1B scenario) projections to 2090, as given in MfE guidance; that is for a 2.1°C increase in average annual temperature, which

is consistent with the climate change adjustment adopted in the Hamilton City Development Manual for use in determining stormwater flows. The flooding consequences of a higher emissions scenario (A1F1, with 3.0°C temperature rise) are also considered, as recommended in MfE guidance.

2.3 Rainfall

Rainfall data for the site under present and future climate conditions have been taken from the NIWA High Intensity Rainfall Design System (HIRDS) Version 3, as given below in Tables 1 to 3.

Table 1 – St Kilda Waterways rainfall depth (mm) – Present climate

AEP	10m	20m	30m	60m	2h	6h	12h	24h	48h	72h
50%	9.1	12.7	15.4	21.5	28.0	42.7	55.6	72.6	85.6	94.3
10%	13.8	19.2	23.4	32.6	42.7	65.4	85.6	112.1	132.3	145.7
1%	23.2	32.4	39.4	55.0	72.3	111.5	146.7	192.9	227.6	250.7

Table 2 – St Kilda Waterways rainfall depth (mm) – Incorporating 2.1°C climate change

AEP	10m	20m	30m	60m	2h	6h	12h	24h	48h	72h
50%	10.6	14.8	17.7	24.5	31.6	47.5	61.2	79.2	92.4	101.2
10%	16.1	22.3	27.1	37.7	49.2	74.7	97.3	126.9	149.2	163.8
1%	27.1	37.8	46.0	64.2	84.4	130.2	171.3	225.3	265.8	292.8

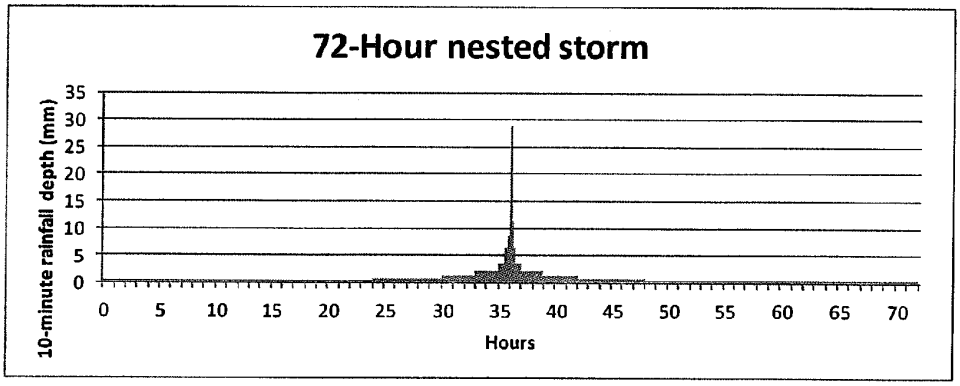
Table 3 – St Kilda Waterways rainfall depth (mm) – Incorporating 3.0°C climate change

AEP	10m	20m	30m	60m	2h	6h	12h	24h	48h	72h
1%	28.8	40.2	48.9	68.2	89.7	138.3	181.9	239.2	282.2	310.9

[The Hamilton City Development Manual, which pre-dates the release of HIRDS.V3, presents rainfall data derived from the Ruakura rainfall gauge and states that HIRDS-derived data is not acceptable for use within Hamilton City. The quality of HIRDS data has been greatly improved with the release of Version 3 in 2010, and we consider that data from HIRDS.V3 is most appropriate for the St Kilda site, which is 19 km from Ruakura. Both sets of data are similar for short duration more frequent storms, but HIRDS gives significantly greater depths for longer duration less frequent storms, therefore the use of HIRDS data is more conservative.]

72-hour nested storm hyetographs were prepared from the HIRDS data for use in the hydraulic model. The nested storm approach includes the peak intensity from short duration events, with the runoff depth from longer duration events. An example is given in Chart 1 below.

Chart 1 – 72-hour nested storm, 1% AEP incorporating 3.0 °C climate change



2.4 Design assumptions

Catchment areas and assumed extent of impervious cover are given in Table 4. The pre-development scenario assumed for assessing runoff attenuation includes the existing Saffron development, with residential areas assumed to have 65% impervious cover. Lesser impervious cover (45%) has been assumed for the St Kilda Waterways development, because of its larger average section size.

We assume that the outlet from the Saffron swale is as shown on the available drawings, and has not subsequently been modified. The drawings show:

- 450 mm diameter outlet pipe at invert level 65.14 m RL
- Overflow weir at 66.5 m RL
- Earth bund between the swale and Watkins Road, upstream of overflow weir, at 66.65 m RL.

Each St Kilda Waterways section will be required to store water in a 20 m^3 tank (or equivalent) for non-potable uses including toilet flush. Because the tanks could be full at the start of a storm they have been ignored for the purposes of assessing peak flows from the development, and roof runoff has conservatively been assumed to flow to the wetlands or stream diversion swale. However, for the purpose of assessing groundwater pumping requirements to maintain water level in the wetlands through dry weather, it has been assumed that there will be no runoff to the wetlands from an average roof area of 300 m^2 per section.

The Waikato Expressway will cross Watkins Road (which will be closed) on an embankment, and then descend into a cutting to pass under Thornton Road. All runoff from the expressway southeast of Watkins Road will flow to the southeast, and be removed from the Mangaone Stream catchment. However, the timing of the expressway is not yet confirmed, therefore it has conservatively been assumed to be pasture for both the pre- and post-development scenarios. It has been assumed that flow in the Watkins Road swale will not be restricted by a culvert under the expressway, and that the existing overland flow path across Watkins Road at 66.65 m RL will not be compromised by the expressway works.

Table 4 – Catchment areas upstream of Watkins Road culvert (m^2)

	Road reserve	Saffron residential	St Kilda residential	Grass/ pasture	Commer-cial	Wetland *	Sub-station	Total
	100% impervious	65% impervious	45% impervious	0 impervious	100% impervious	[100% impervious]	50% impervious	
Fixed catchments								
Watkins Road swale				19,200				19,200
Saffron swale, including part of expressway designation	30,800	104,900		102,400				238,100
Balance of expressway designation				53,700				53,700
Mangaone Stream upstream of St Kilda Waterways boundary (west and east of St Kilda Road)				381,000				381,000
Sub-total								**692,000**
Varying catchments								
a) Pre-development								
St Kilda and sub-station				517,500			11,900	**529,400**
b) Post-development								
Wetland 1	95,400		249,900	34,000	4,000	18,000		401,300
Wetland 2	39,000		140,900	20,100	5,200	10,000	17,200	232,400
Stream diversion swale	4,400		66,200	64,300				134,900
Sub-total								**768,600**
Pre-development total								**1,221,400**
Post-development total								**1,460,600**

*Wetland areas at normal water level.

During storm events exceeding the capacity of the reticulated stormwater system, excess runoff from 4 ha of the wetland catchments flows overland to the stream diversion swale.

3 Water quality and extended detention volumes

The water quality volume (WQV), calculated in accordance with TP10 is the runoff from one third of the 50% AEP 24 hour rainfall. TP10 requires that, when extended detention is provided, the permanent wetland pond volume be at least 50% of the WQV.

TP10 defines the extended detention volume as the runoff from a rainfall event of 34.5 mm. This amount is to be stored during a 50% AEP storm, and discharged slowly over at least 24 hours.

WQV and extended detention volume calculations are included in Appendix B, and summarised below in Table 5. For reference the table also includes data from the storage elevation curves for the stormwater devices.

Table 5 - Water quality and extended detention volumes

		Stream diversion swale	Wetland 1	Wetland 2
Water quality volume	m^3	1,053	5,498	2,834
Extended detention volume	m^3	1,546	7,681	3,970
Wetland area at outlet sill level	m^2	0	18,065	9,976
Required permanent depth for WQV	m	-	0.15	0.14
Required depth above outlet for extended detention	m	1.1	0.4	0.4

The table shows that the required water quality volume is easily exceeded with the proposed wetlands, which are sized for flood attenuation, indicating that the sediment removal efficiency of the wetlands will exceed the 75% required by TP10. There is no WQV requirement for the stream diversion swale, because separate water quality treatment is provided for the one piped outfall to the swale, and all other St Kilda runoff to the diversion swale is distributed overland flow.

Compliance with the extended detention requirement is readily achieved: refer to the hydraulic model output charts C2, C3b and C4b in Appendix C. Additional detention will also be provided by the required 20 m^3 storage at each section.

4 Design details

4.1 Wetland and forebay geometry

The wetlands will have a banded geometry, with normal water depths ranging from 0.15 to 1.0 m, and with maximum internal slopes of 1V:5H, as recommended in TP10. There will be a planted perimeter bench, normally 3 m wide, at 0.3 m below normal water level.

There is a risk of mosquito problems at wetland ponds, which will be mitigated by perimeter planting up to the 50% AEP flood level providing habitat for mosquito predators.

Reticulated stormwater will discharge into the wetlands via forebays. Internal bunds at 50% AEP flood level will be used to circulate the flow around each wetland and minimise dead zones. The geometry is such that velocities within the wetlands are always less than 0.25 m/s.

The total volume of forebays for each wetland provides 15% of the water quality volume for its catchment, with individual forebays sized according to their proportion of the incoming flow. The forebays include a planted perimeter bench, as a safety measure to exclude people, but the additional volume at the bench has been ignored when sizing the forebays. Their length to width ratio at normal water level is typically 2.5, with a minimum of 2.0 adopted for one at Wetland 2 where the available length is limited.

4.2 Wetland 1 outlet to Wetland 2

Water will flow from Wetland 1 to Wetland 2 via a culvert at 0.1% gradient, with manholes at maximum 80 m centres. A trash screen is provided at the culvert inlet, to minimise the risk of blockage in the nearly 400 m long culvert. The culvert sizing is such that the extended detention volume is released over more than the minimum 24-hours, without the need for a separate throttled outlet.

An overland flow path is provided above the culvert, to limit flood rise during major events, less than 1% AEP, or in case of culvert blockage. It is envisaged that the overland flow path will be used as a footpath, therefore a 2.0 x 2.0 m box culvert is provided where it passes under an internal road.

4.3 Wetland 2 outlet to Watkins Road swale

The Wetland 2 outlet is a culvert under the road. As for Wetland 1, there is no need for a separate throttled outlet to provide extended detention.

The road between Wetland 2 and the Watkins Road swale will have a low point at 66.5 m RL, which will be an overland flow path in the event of outlet blockage, and will be submerged in storm events of less than 10% AEP.

4.4 Stream diversion swale

The stream diversion swale will have a length of 1.2 km, mostly parallel to the Waikato Expressway designation. The swale invert drops from 67.8 m RL at the upstream boundary to 65.15 m RL at the outlet to the Watkins Road swale: an average gradient of 0.23%. The designed longitudinal gradient is 0.2% generally, with 0.6% at the upstream end so that there will be no increase in flood levels upstream of the property boundary.

The outlet from the stream diversion swale is designed to attenuate flood flows. It comprises a 300 mm diameter pipe for all flows up to 10% AEP, and an overflow weir to pass greater flows. To facilitate fish passage through the relatively small pipe, when there is water in the stream, a mussel rope will be fixed at the upstream end of the culvert and extend through its length.

A 1200 mm diameter culvert under an internal road near the upstream end has been sized to allow for fish passage, and its invert at the outlet is set below downstream bed level for the same reason. Its size is such that there is minimal headloss at the culvert, and low risk of blockage by debris.

4.5 Watkins Road swale outlet to Mangaone Stream

No change is proposed at the existing 1050 mm diameter culvert under Watkins Road. During extreme events or in case of culvert blockage, there is an overland flow path across Watkins Road at 66.65 m RL about 350 m southwest of the culvert and approximately opposite the end of the Saffron swale.

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(2 of 3)

85 ALAN LIVINGSTON DRIVE CAMBRIDGE

LAND INFORMATION MEMORANDUM

Pursuant to Section 44A of the Local Government Office and Meetings Act 1987

CAMBRIDGE

Waipā DISTRICT COUNCIL

4.6 Safety

The potential falling risk at the culvert headwalls has been mitigated by specifying safety handrailing where the drop exceeds 1.0 m.

Water risks have been mitigated by:

- Limiting normal maximum water depth to 1.0 m;
- Providing perimeter berms at 0.3 m below normal water level; and
- Providing perimeter planting up to the 50% AEP flood level.

During storm events the water level in the wetlands will rise at up to about 0.5 m/hour, and will overtop the circulation bunds, which are set at 50% AEP flood level, by up to one metre. We recommend that, if public access footpaths are provided along these bunds, then notices be erected to warn against using the paths during heavy rain.

5 Hydraulic modelling

InfoWorks Collection Systems version 12.5 software was used to model the hydraulics and hydrology of the St Kilda catchment. Runoff routing was characterised using the SCS Unit method with no loss to groundwater from wetlands, and three different surface types were identified: impervious wetland (water surface), impervious hardstand and pervious greenspace. A time of concentration of ten minutes was used for all post-development subcatchments within the St Kilda catchment. Storage within the pre-development catchment was estimated from existing topography and represented in the model mid-catchment.

Output from the model is summarised in Tables 6 and 7 below. Charts of level, flow and stored volume at key locations are given in Appendix C.

Table 6 – Modelled peak flows (m^3/s)

Location	50% AEP storm		10% AEP storm		1% AEP storm		
	Pre-dev No CC	Post-dev +2.1 °C	Pre-dev No CC	Post-dev +2.1 °C	Pre-dev No CC	Post-dev +2.1 °C	Post-dev +3.0 °C
Mangaone Stream d/s of Watkins Road	0.755	0.757	1.377	0.966	2.732	2.354	2.689
Outflow from Saffron swale	0.388	0.393	0.430	0.462	1.114	1.685	1.745
Mangaone Stream at St Kilda Waterways upstream boundary	0.241	0.273	0.382	0.494	0.757	1.037	1.113
Outflow from stream diversion swale	-	0.165	-	0.210	-	0.784	0.837
Outflow from Wetland 1	-	0.138	-	0.165	-	0.194	0.197
Outflow from Wetland 2	-	0.276	-	0.351	-	2.402	3.072

Pre-development flows are based on existing conditions, with no climate change.
Post-development flows are based on future conditions with allowance for climate change as noted.

Table 7 – Modelled peak water levels (m RL)

Location	50% AEP storm		10% AEP storm		1% AEP storm		
	Pre-dev No CC	Post-dev +2.1°C	Pre-dev No CC	Post-dev +2.1°C	Pre-dev No CC	Post-dev +2.1°C	Post-dev +3.0°C
U/s of Watkins Road culvert	65.650	65.646	66.001	65.763	66.710	66.612	66.653
Wetland 2	-	66.044	-	66.397	-	66.625	66.664
Wetland 1	-	66.963	-	67.475	-	67.956	68.006
Saffron swale, d/s end	66.075	66.157	66.335	66.417	66.713	66.688	66.712
Diversion swale, u/s of outlet	-	66.714	-	67.459	-	67.793	67.810
Diversion swale, d/s of boundary culvert	-	67.599	-	67.766	-	67.942	67.957
Mangaone Stream at St Kilda Waterways upstream boundary	68.103	68.050	68.490	68.113	68.812	68.239	68.252

Levels are quoted to the nearest millimetre for comparison reasons only. It does not represent the modelling accuracy.

In the event of the outlet culvert from the stream diversion swale becoming blocked, the modelled maximum level upstream of the outlet during a 1% AEP storm allowing for 3°C climate change is 67.865 m RL.

The modelling results show that the proposed works meet the requirement to attenuate peak flows for 50% and 10% AEP storm events to the corresponding pre-development flows. In addition, peak flow during a 1% AEP event is also attenuated to the pre-development flow.

During both pre-development and post-development 1% AEP flows, the bund at the north end of the Saffron swale is overtopped, resulting in minor flooding across Watkins Road. It is important, therefore, that the existing overland flow path across Watkins Road at 66.65 m RL is preserved during the construction and operation of the Waikato Expressway Cambridge Bypass. Chart C1a in Appendix C shows that the duration of overtopping Watkins Road from the Watkins Road swale is reduced in the post-development scenarios.

The 1% AEP storm allowing for 3°C climate change will result in flooding to a depth of approximately 0.15 m over the road between Wetland 2 and upstream of the Watkins Road culvert. This is considered acceptable in a major storm event. There is no flooding of the road during a 10% AEP storm.

At the outlet from Wetland 1, there is marginal overland flow during a 1% AEP storm allowing for 3°C climate change.

The model results show that the proposed St Kilda Waterways development will not cause any increase in flood levels outside the development, for storms up to 1% AEP. Recommended minimum levels within the development are given in Section 8.2.

6 Planting and landscaping

6.1 Planting design

The landscape design described here is limited to the extent of the wetlands including the immediate perimeter of the wetland ponds. Beyond this area in the surrounding reserves the landscape design will be completed separately as part of the broader subdivision design.

The wetland planting will provide both stormwater treatment and amenity improvement. The wetland area will be vegetated across the different bands of bunds and benches to provide the required treatment conditions. The wetlands have been designed with a range of planting zones: vegetated benches and slopes at different levels above and below the outlet sill water level. The planting zones are defined by the varying typical depths of water which determine the most appropriate plant species suited to the specific conditions. The zones proposed with their associated water depths include:

- Deep zone (over 0.6 m water depth)
- Shallow zone (0.3 m - 0.6 m)
- Wet margin (0 m - 0.3 m)
- Live storage zone (periodically inundated)
- Land edge (generally above water level but able to sustain inundation for short periods)

Plant species for each zone will be selected from the species lists provided within ARC Technical Publication No. 10 (TP10) and the Hamilton City Development Manual. It is envisaged that the sloped fringes of the Deep Zone will contain planting, however the 1 metre deep areas of the wetlands will be open water. For safety reasons and in keeping with the guidance in TP10 a 300 mm deep three metre wide bench will be created below the normal pond level. This bench will be densely planted with emergent plants to help restrict public access to deeper water. This planted bench is reduced to 1 metre wide around the proposed forebays to allow for access by excavators to clear accumulated sediment from the base of the forebay. Perimeter 'land edge' planting will be used to disguise the 'unnatural' edge of the wetland to integrate the wetland form within the reserve landscape.

The proposed forebays will require regular maintenance including debris removal and excavation of accumulated sediment. Grassed areas without planting will be located adjacent to the forebays to allow for excavator access.

A full landscape planting plan, planting schedule and specification will be completed for each wetland.

6.2 Wetland establishment

Because the establishment and performance of constructed wetlands can be significantly impacted by sedimentation from surrounding development, the planting of the wetlands should occur following the completion of overall site construction. The constructed wetlands can potentially be used as sediment ponds while surrounding development is undertaken and then converted to wetland use.

The accurate establishment of final grades and levels of benches and slopes within the wetland is crucial to achieve successful plant establishment. Final grades should be established prior to planting the ponds.

Wetland planting should be undertaken either in spring or autumn when plants are either emerging from or starting to enter dormancy over the winter months. Scheduling of planting will need to be

established as part of the construction programme. Planting should be undertaken with the pond water level lowered. ARC Technical Report TR2009/093 Landscape and Ecology Values within Stormwater Management recommends that plants should initially be planted in water no deeper than 100 mm, with a minimum 150 mm of plant foliage above the water level (with water levels gradually increasing). As such the planting and filling of the pond will need to be staged over a period.

Plants within the different zones highlighted above will require mulching with the use of a biodegradable weedmat fabric which will also assist with erosion control. Bark mulch should only be used in areas where ponding or flooding will not occur. It is recommended that the planted benches on the perimeter of the wetland which will provide a physical deterrent when established, are protected to prevent public access until they are established.

Plant grade / container size will be in accordance with the Hamilton City Development Manual. A suggested minimum plant grade is PB3 (1.5 L) to aid faster establishment and to minimize damage by pukekos. Another possible deterrent measure is installing biodegradable stakes at 45 degrees to make access to the plants more difficult for the birds.

Once vegetation is planted, it will require an intensive monitoring and maintenance regime over the first two years. This is expected to include watering, mulching, weed control, pest control, physical repair and potentially replanting (blanking). This monitoring and maintenance will enable the wetland vegetation to establish successfully and secure both the aesthetic appearance and stormwater treatment function.

7 Wetland operation and maintenance

7.1 Inspection and maintenance

Constructed wetlands operate as natural systems that take time to become established, and require maintenance so that they continue to work as designed and to look attractive. As with other 'natural' systems, the water within the wetlands may have variable colour and appearance. Wetlands may also be subject to occasional algal blooms and/or undesirable aquatic weeds: this may be mitigated by educating residents to minimise fertilizer use. It may be appropriate to provide educational signage at the wetlands explaining their functions: storm attenuation; water quality treatment; and providing for bio-diversity.

Ongoing monitoring and maintenance will be required throughout the life of the wetland. Management and maintenance tasks are likely to include:

- Inspection of structures for blockage by debris, plants, mulch or algae, and removal as necessary – monthly and following storms;
- General observations on water quality, algae, clarity, odour, insects, vandalism etc. including photos from fixed points – monthly. In the event of a perceived water quality issue, implement a water quality monitoring programme to sample water levels and target contaminants: this will determine what management actions to take;
- Monitor and control emergent macrophytes (aquatic weeds) – monthly during warm weather;
- Remove nuisance plant species, pruning and supplemental planting – every 6 months;
- Monitor wetland water level during prolonged dry weather, and supplement as necessary by pumping from groundwater (see below);
- Inspect for erosion damage or damaged structures, and repair as necessary; monitor sediment accumulation at the forebays and other key locations – annually;

- Remove sediment from forebays – when sediment exceeds 50% of their design volume, approximately every 5-7 years;
- Remove sediment from within wetland areas – when the pool volume has become reduced significantly, plants are "choked" with sediment, or the wetland becomes eutrophic – possibly every 50 years.

Debris removal will be required primarily at the forebays and the outlet structures. If an outlet pipe becomes blocked with debris, it may be cleared using water jetting between manholes.

Sediment removal should be undertaken when the wetland water level is low during summer: the water level should have dropped to at least 0.15 m below outlet level, so that forebays can be pumped out. Sediment collected at the forebays could be contaminated, so should be tested prior to dredging and removal to a suitable disposal site. Given the high quality residential environment, sediment should be removed from site as a wet sludge, rather than placed alongside the forebay to dry before removal.

Landscaping around the wetlands must take account of the need to retain maintenance access to both sides of each forebay and to the outlet structures.

We recommend that an Operation and Maintenance Manual for the stormwater system be prepared.

7.2 Pumping requirement during dry weather

7.2.1 Estimated seepage losses

The normal water level in the wetlands will be controlled by the level of their outlet sills, which is 66.14 m RL and 65.31 m RL for Wetland 1 and Wetland 2 respectively.

Groundwater levels have been recorded at two boreholes, BH1 near the south of the site, and BH3 near Watkins Road at the northwest of the site on ten occasions between June 2007 and January 2012: their locations are drawn in the 2007 geotechnical report. The recorded groundwater levels at these boreholes range from 65.5 to 67.1 m RL at BH1, and from 63.7 to 66.2 at BH3. These figures indicate that the groundwater level will sometimes be below wetland level, and at other times higher than wetland level. When the groundwater level is below wetland level, there will be seepage losses to groundwater.

Consideration was given to installing a low permeability liner to reduce seepage losses; however, this would have required a potentially unreliable under-drainage system to limit uplift pressure under the liner with high groundwater level. Accordingly no engineered liner is proposed. Based on a SEEP analysis, (see Appendix D) the estimated initial seepage loss from the unlined wetlands would be 4 mm/day from Wetland 1 and 5 mm/day from Wetland 2. These rates assume that a 300 mm layer of uncompacted topsoil is placed over the in-situ soil, including in the deepest parts of the wetlands where the topsoil is not required for planting. In practice, it is expected that the wetlands will be used as sediment ponds during land development, and the resulting sediment deposition is expected to reduce the seepage rate: it will be necessary to remove sediment from the forebays, but elsewhere the topsoil should be placed on top of the sediment, so that the sealing effect of the sediment is not disturbed.

The rate of loss is expected to reduce by one order of magnitude, to 0.5 mm/day from Wetland 1 and 0.6 mm/day from Wetland 2, as the base of the wetland becomes sealed with fine sediment and decomposed plant material over the early life of the wetland.

7.2.2 Water balance model

During dry weather water will be pumped into the wetlands from an existing borehole to replace water lost to evaporation and seepage, and to maintain the water at a level acceptable for visual amenity and survival of the wetland vegetation.

The average annual water requirement has been estimated using a daily water balance with 40 years of virtual climate data for the site. Virtual climate data was obtained for 1972-2011 from the NIWA Cliflo website for Station 28244, which is less than 1.5 km from the centroid of the St Kilda Waterways site.

The water balance model assumes that pumping occurs as necessary to avoid the wetlands dropping below a specified trigger level (below the outlet sill level). As discussed in Section 2.4, the model assumes zero runoff from roof areas, because of the use of rainwater tanks. Results from the model are given in Table 8. Seepage losses of 0.5 mm/day from Wetland 1 and 0.6 mm/day from Wetland 2 have been assumed, after initial sealing of the wetland base, as above. For comparison, the maximum evaporation loss during the 40 year record is 9.4 mm/day, but it is typically about half that during summer.

As expected, the greater the acceptable lowering, the less pumping is required, because the deficit will more frequently be made up by rainfall and runoff. We recommend that borehole pumping be used to maintain the wetland water level at no more than **0.15** m below the outlet sill level: this corresponds to the crest level of the planted bunds downstream of each forebay and across the wetlands.

Table 8 – Average annual requirement for pumped water (current climate, after sealing)

Trigger level for pumping, m	Wetland 1 Average annual data			Wetland 2 Average annual data			Total av annual pumped vol, m^3
	Pumped volume, m^3	Days pumping	m^3/d	Pumped volume, m^3	Days pumping	m^3/d	
0	15,944	236.5	67	9,041	236.5	38	24,985
-0.025	4,880	59.9	81	2,902	63.9	45	7,781
-0.05	2,210	25.1	88	1,377	28.0	49	3,588
-0.10	660	7.1	93	439	8.4	52	1,099
-0.15	**206**	**2.2**	**95**	**150**	**2.8**	**53**	**355**
-0.20	24	0.3	89	27	0.6	49	52
-0.225	0	0.0	5	6	0.2	34	6

As noted above, the seepage losses are expected to reduce by one order of magnitude as the base of the wetland becomes sealed with fine sediment and decomposed plant material. In the first year, with seepage rates of 4 mm/day from Wetland 1 and 5 mm/day from Wetland 2 before initial sealing, the modelled average annual pumping volume is 4180 m^3 for the 0.15 m trigger level.

The water balance will be affected by future climate changes. Table 9 shows projected changes in summer, when most pumping will be required.

Table 9 – Projected summer climate changes

	1990 to 2040	1990 to 2090
Temperature, Waikato	+1.1°C	+2.3°C
Precipitation, Ruakura	+1%	-1%
Westerly wind component	From 2.9 m/s to 2.6 m/s	From 2.9 m/s to 2.3 m/s

Source: MfE, 2008, average values.

Evaporation losses will be increased by rising temperature, but decreased by reduced wind speed; projected precipitation changes are minor. We expect that any change in pumping requirements as a result of these climate changes will be minor.

8 Conclusions and recommendations

8.1 Conclusions

The flood attenuation and water quality treatment criteria for the St Kilda Waterways development can be met through the wetlands and swale as described.

Groundwater will be used to supplement the wetlands during dry weather, to maintain the water levels within 150 mm of normal.

8.2 Recommendations

Flooding issues

Waikato Regional Council and Waipa District Council should ensure that the existing overland flow path across Watkins Road at 66.65 m RL is preserved during the construction and operation of the Waikato Expressway Cambridge Bypass.

Residential land and building platforms should be at or above the levels given in Table 10. During a 1% AEP storm event, including allowance for 3°C climate change, these levels result in no flooding of residential land, and provide 0.5 m freeboard to building platform levels.

Table 10 – Minimum levels

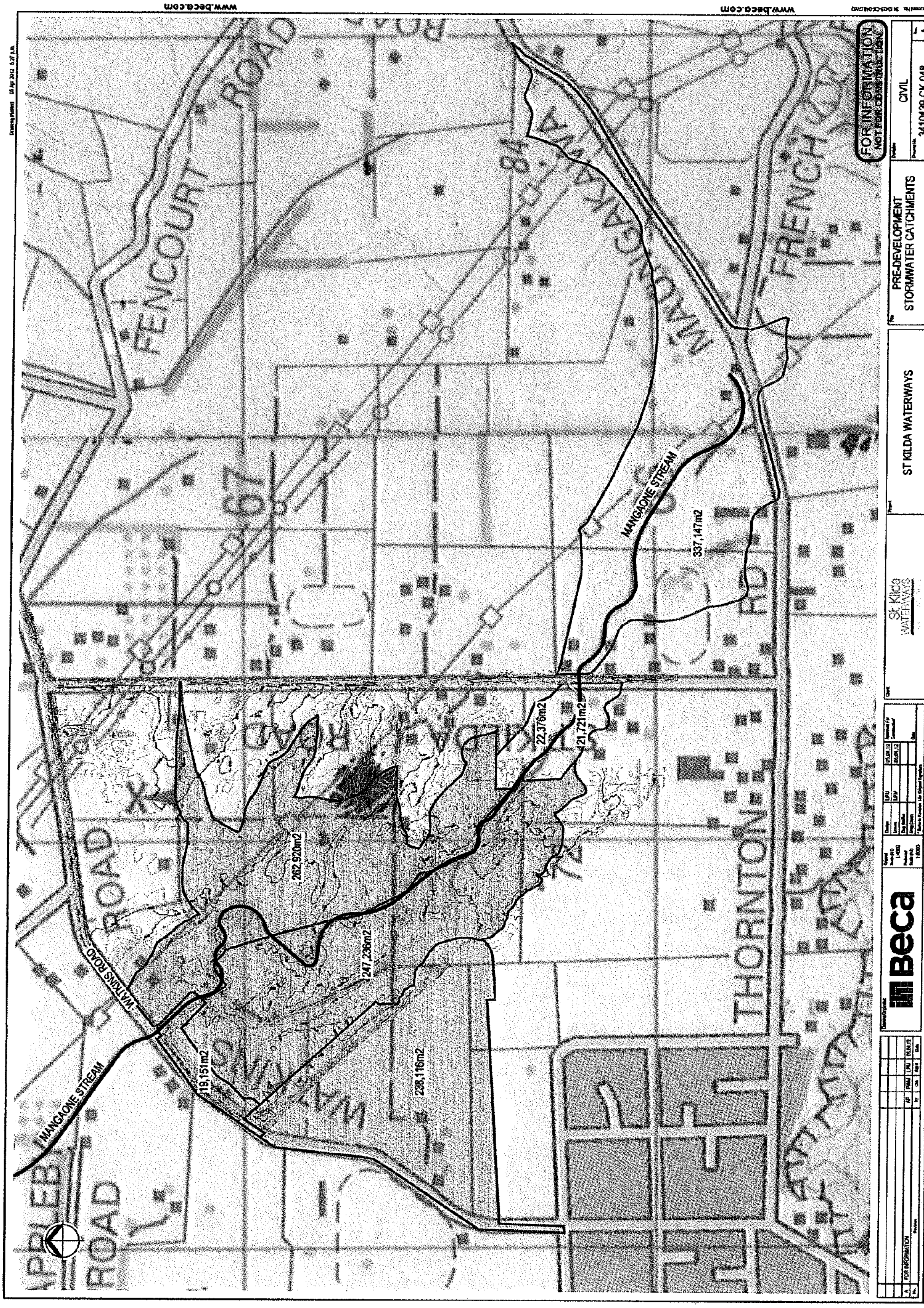
	Wetland 1 catchment	Wetland 2 catchment	Stream diversion swale catchment
Minimum residential land level	68.0 m RL	66.7 m RL	68.0 m RL
Minimum building platform level	68.5 m RL	67.2 m RL	68.5 m RL

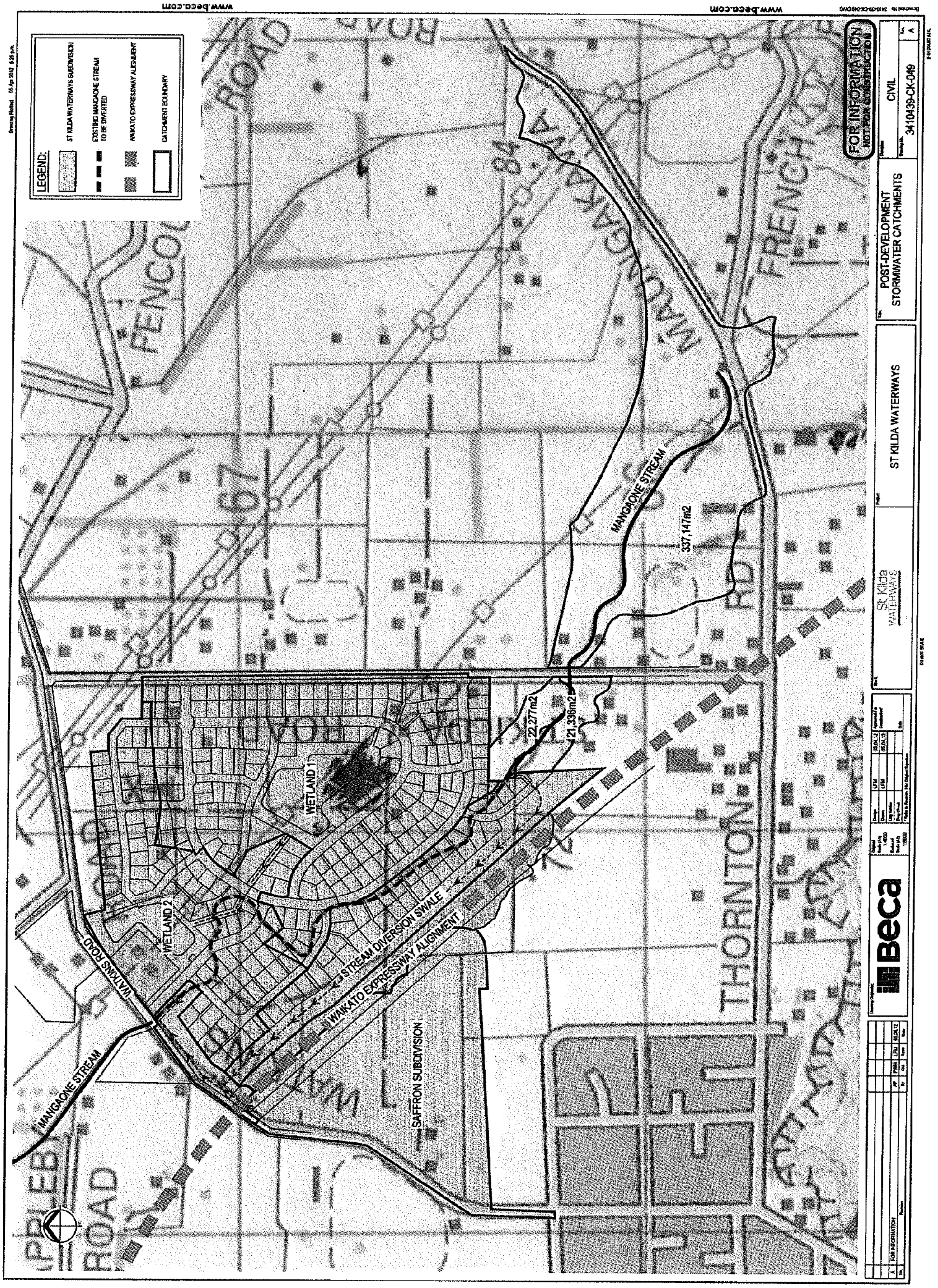
Wetlands

- Sediment deposited in the wetland forebays during site earthworks should be removed regularly, but sediment in the main body of the wetlands can be left to seal the surface and reduce seepage losses.
- Wetland topsoiling and vegetation planting should only be done following completion of site earthworks.
- Landscaping around the wetlands should allow for future maintenance access.
- An operation and maintenance manual for the wetlands should be prepared and implemented.

Appendix A

Drawings


PRE-DEVELOPMENT
STORMWATER CATCHMENTS
ST KILDA WATERWAYS
CIVIL
3410439-CK-048
FOR INFORMATION
NOT FOR CONSTRUCTION
Beca
www.beca.com
MANGAONE STREAM
337,147m2
262,920m2
247,236m2
238,116m2
19,151m2
22,376m2
21,721m2
WAITKINS ROAD
THORNTON
FENCOURT
ROAD
FRENCH
RD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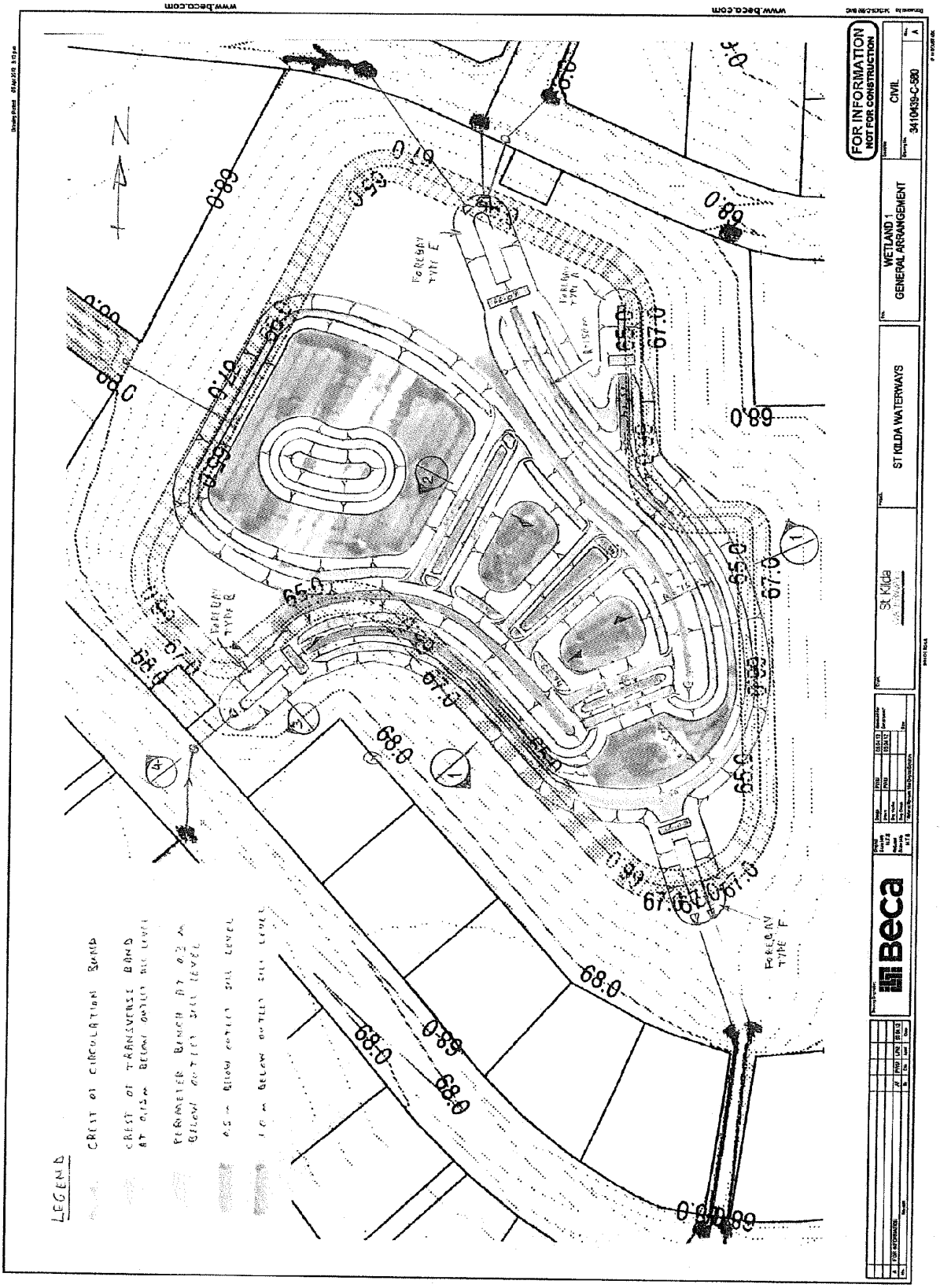
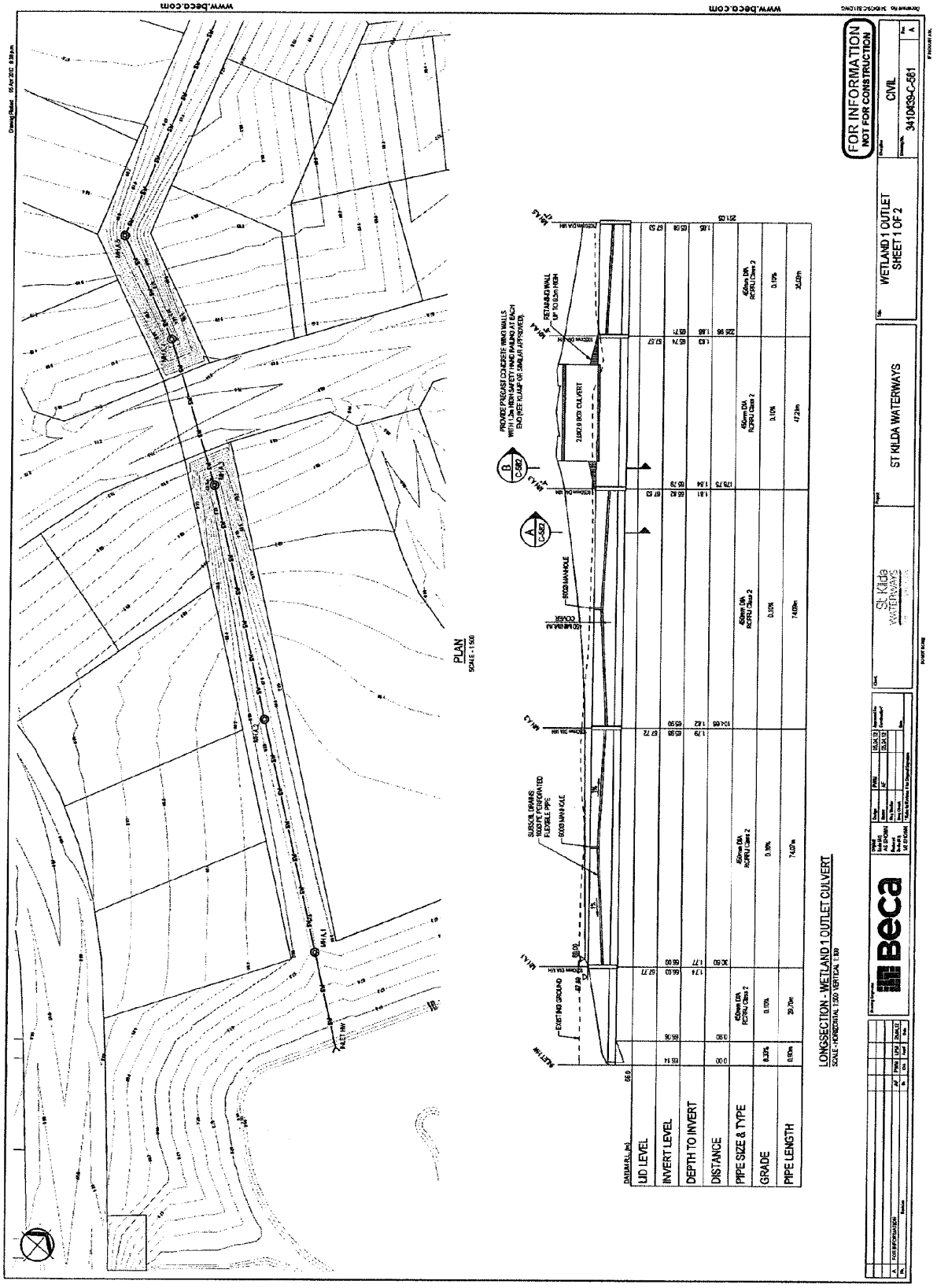
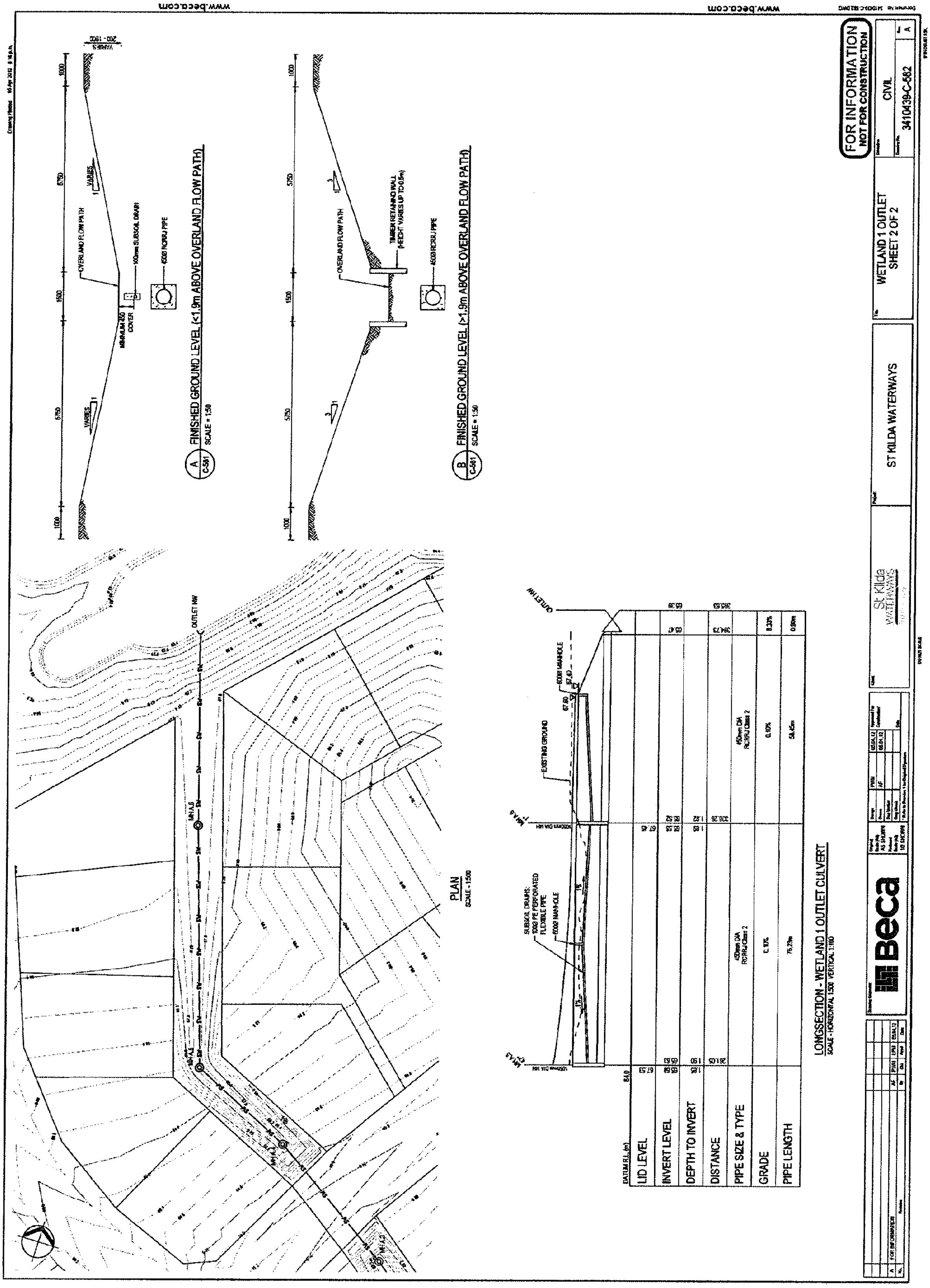
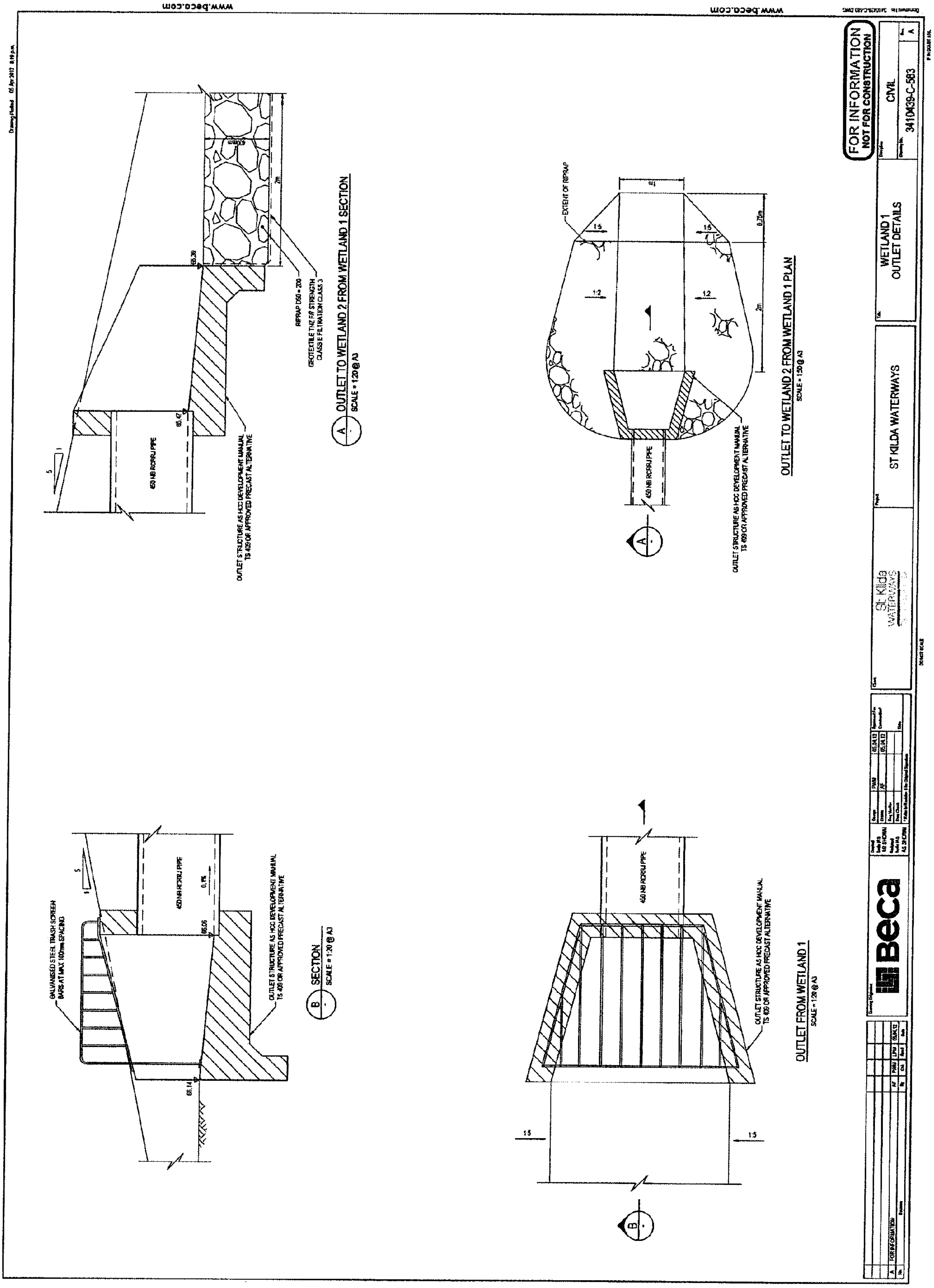
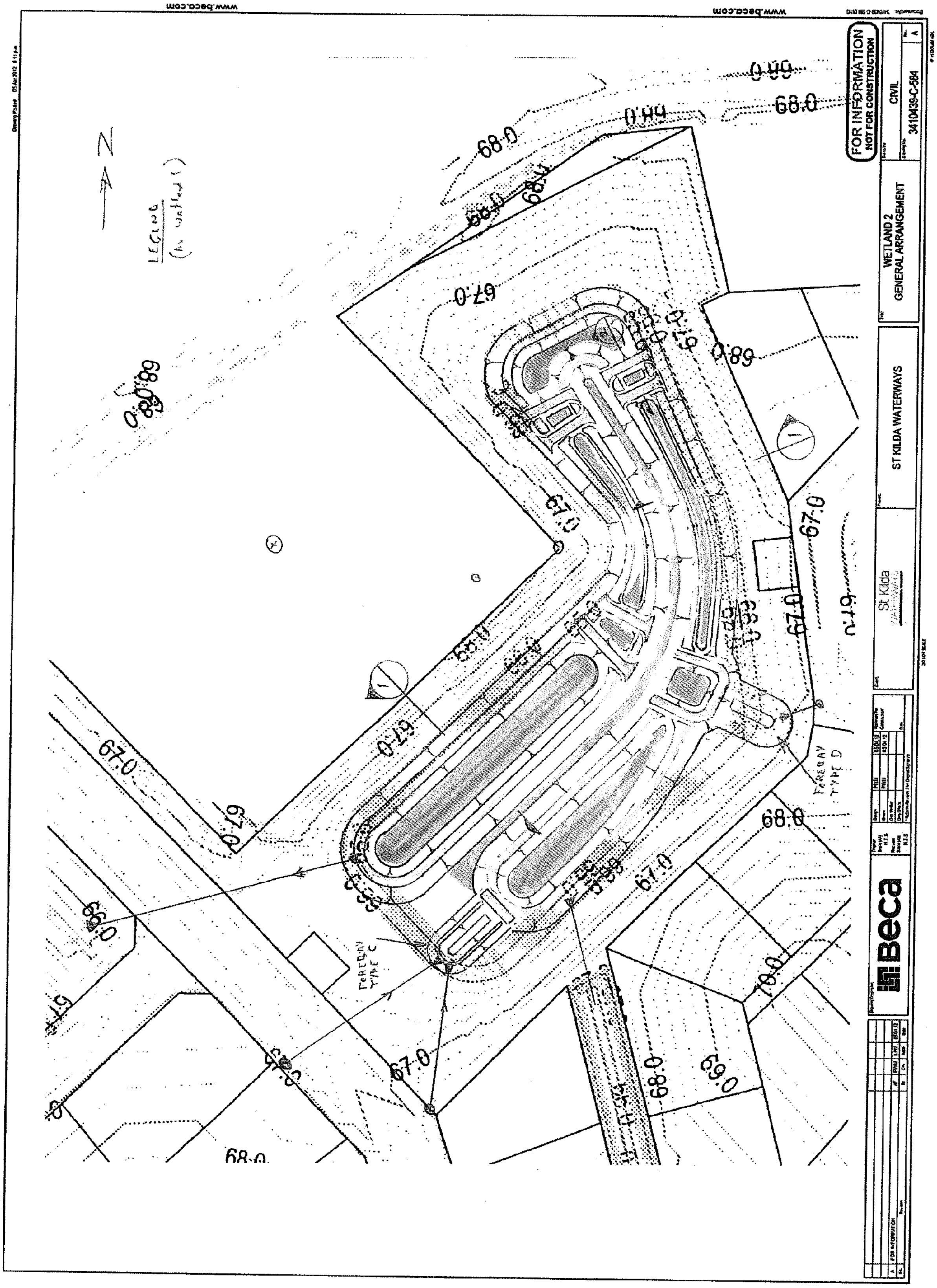
ST KILDA WATERWAYS SUBDIVISION
EXISTING MANGAONE STREAM TO BE DIVERTED
WAIKATO EXPRESSWAY ALIGNMENT
CATCHMENT BOUNDARY
WETLAND 1
WETLAND 2
WATKINS ROAD
MANGAONE STREAM
STREAM DIVERSION SWALE
WAIKATO EXPRESSWAY ALIGNMENT
SAFFRON SUBDIVISION
22,277m2
21,336m2
337,147m2
THORNTON
FRENCH
ROAD
FOR INFORMATION NOT FOR CONSTRUCTION
POST-DEVELOPMENT STORMWATER CATCHMENTS
ST KILDA WATERWAYS
CIVIL
3410439-CK-049
Beca
www.beca.com

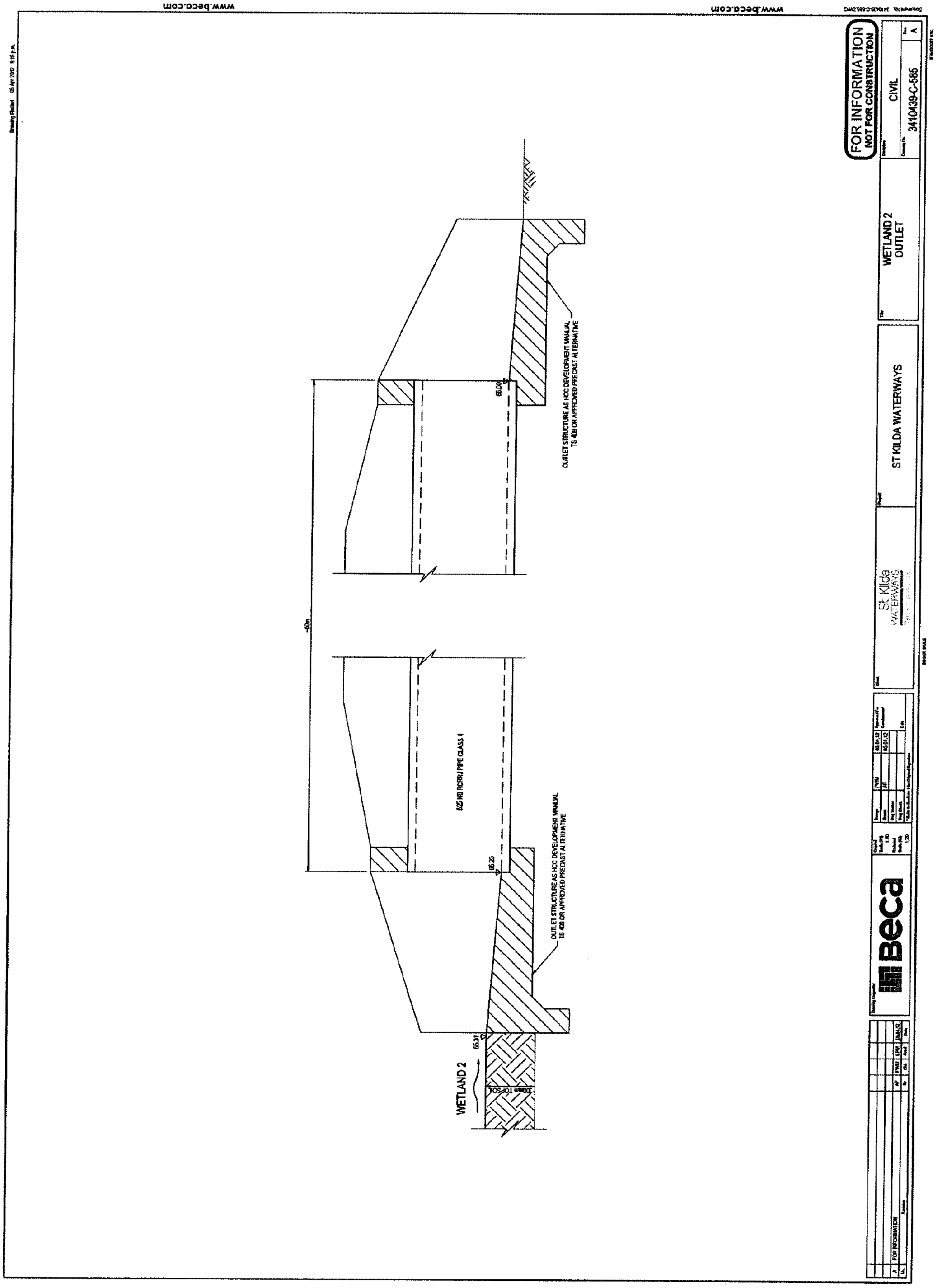

FOR INFORMATION
NOT FOR CONSTRUCTION
WETLAND 1
GENERAL ARRANGEMENT
CIVIL
3410439-C-080
ST KILDA WATERWAYS
St Kilda
Beca
LEGEND
CREST OF CIRCULATION BUND
CREST OF TRANSVERSE BUND
AT 0.15m BELOW OUTLET INV LEVEL
PERIMETER BENCH AT 0.2m
BELOW OUTLET INV LEVEL
0.5m BELOW OUTLET INV LEVEL
1.0m BELOW OUTLET INV LEVEL
FOREBAY TYPE E
FOREBAY TYPE D
FOREBAY TYPE C
FOREBAY TYPE F
www.beca.com

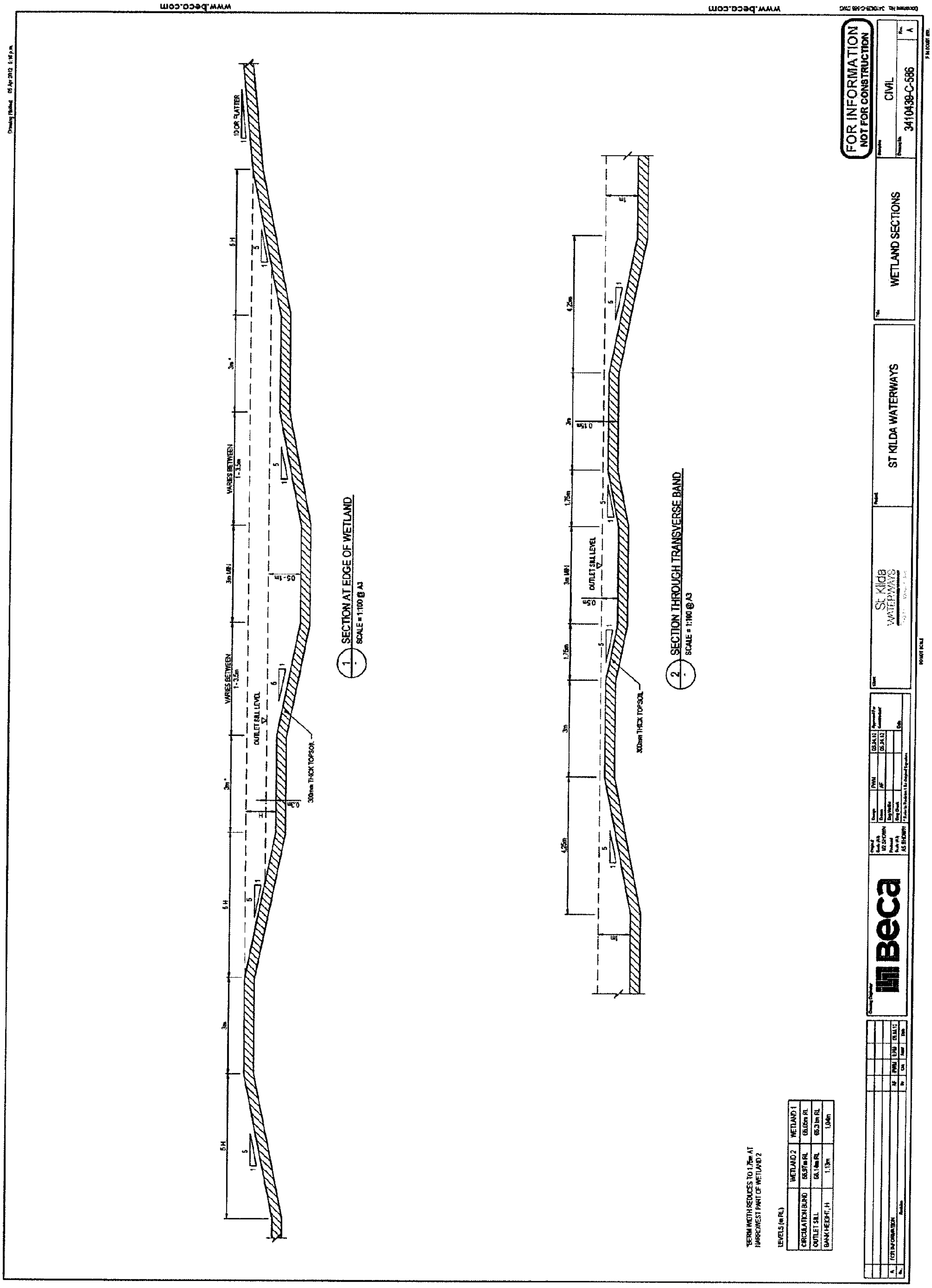

www.beca.com
PLAN
SCALE - 1:500
LONGSECTION - WETLAND 1 OUTLET CULVERT
SCALE - HORIZONTAL 1:500 VERTICAL 1:100
LID LEVEL
INVERT LEVEL
DEPTH TO INVERT
DISTANCE
PIPE SIZE & TYPE
GRADE
PIPE LENGTH
FOR INFORMATION
NOT FOR CONSTRUCTION
WETLAND 1 OUTLET
SHEET 1 OF 2
CIVIL
3410439-C-581
ST KILDA WATERWAYS
Beca


www.beca.com
FINISHED GROUND LEVEL (<1.9m ABOVE OVERLAND FLOW PATH)
FINISHED GROUND LEVEL (>1.9m ABOVE OVERLAND FLOW PATH)
OVERLAND FLOW PATH
PLAN
LONGSECTION - WETLAND 1 OUTLET CULVERT
EXISTING GROUND
OUTLET HW
DATUM R.L. (m)
LID LEVEL
INVERT LEVEL
DEPTH TO INVERT
DISTANCE
PIPE SIZE & TYPE
GRADE
PIPE LENGTH
Beca
St Kilda WATERWAYS
ST KILDA WATERWAYS
WETLAND 1 OUTLET
SHEET 2 OF 2
FOR INFORMATION
NOT FOR CONSTRUCTION
CIVIL
3410439-C-582

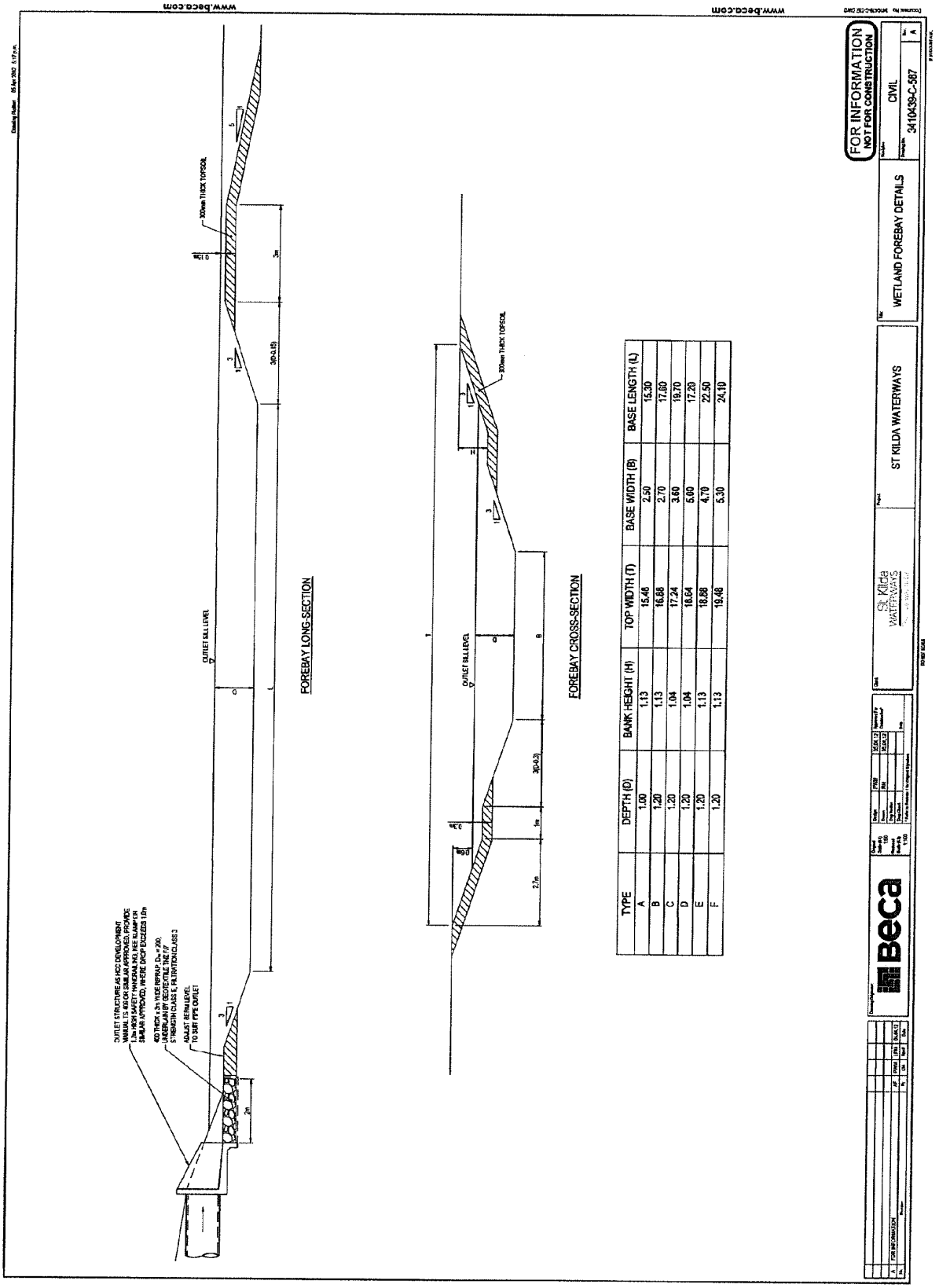

FOR INFORMATION
NOT FOR CONSTRUCTION
CIVIL
3410439-C-583
WETLAND 1
OUTLET DETAILS
ST KILDA WATERWAYS
Beca
www.beca.com
OUTLET TO WETLAND 2 FROM WETLAND 1 SECTION
OUTLET TO WETLAND 2 FROM WETLAND 1 PLAN
OUTLET FROM WETLAND 1
SECTION
450 NB RCRRJ PIPE
EXTENT OF RIPRAP
GALVANISED STEEL TRASH SCREEN BARS AT MAX 100mm SPACING


FOR INFORMATION
NOT FOR CONSTRUCTION
CIVIL
3410439-C-584
WETLAND 2
GENERAL ARRANGEMENT
ST KILDA WATERWAYS
St Kilda
Beca
www.beca.com

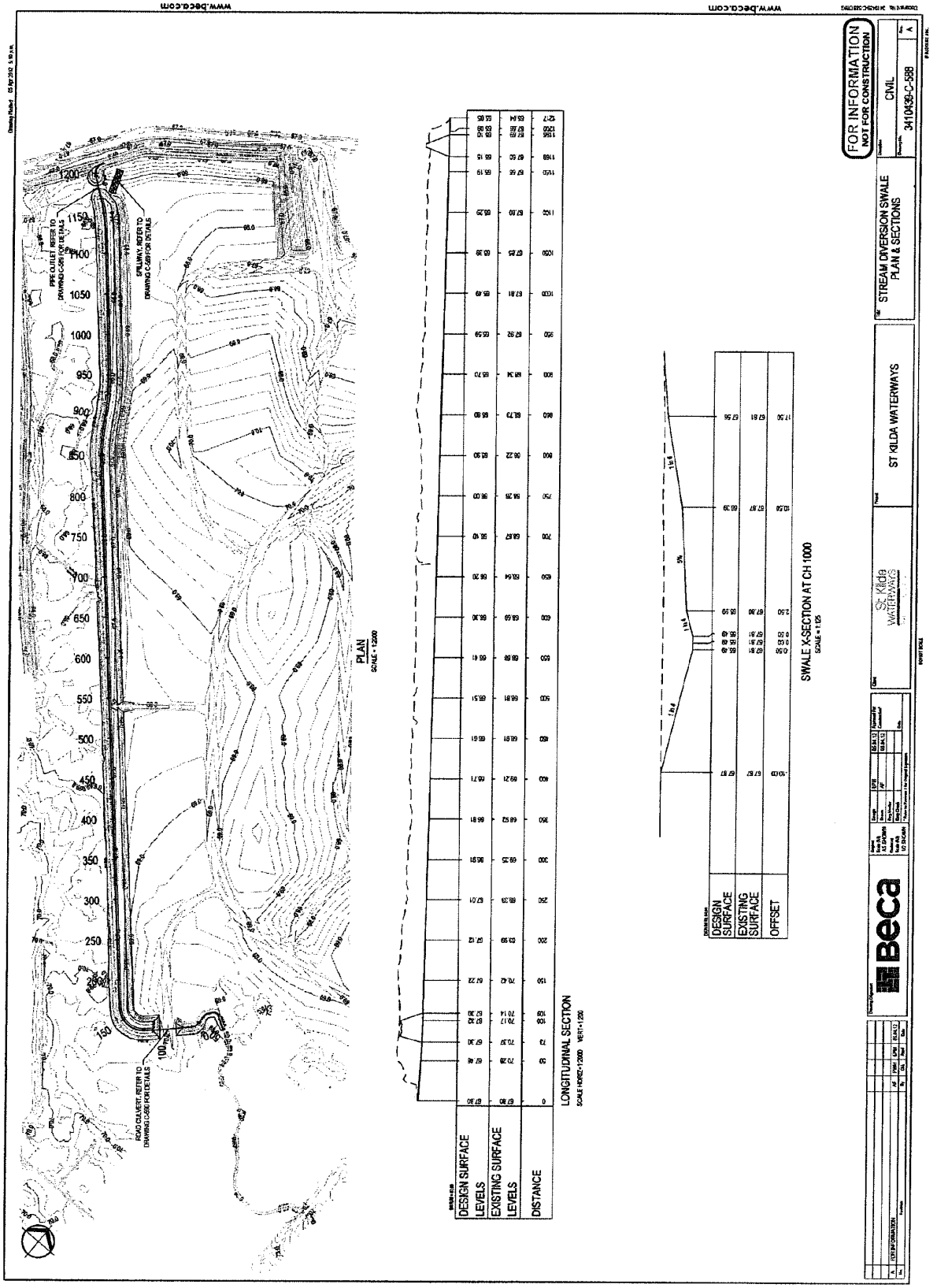

FOR INFORMATION
NOT FOR CONSTRUCTION
CIVIL
3410439-C-585
WETLAND 2
OUTLET
ST KILDA WATERWAYS
Beca
WETLAND 2
www.beca.com

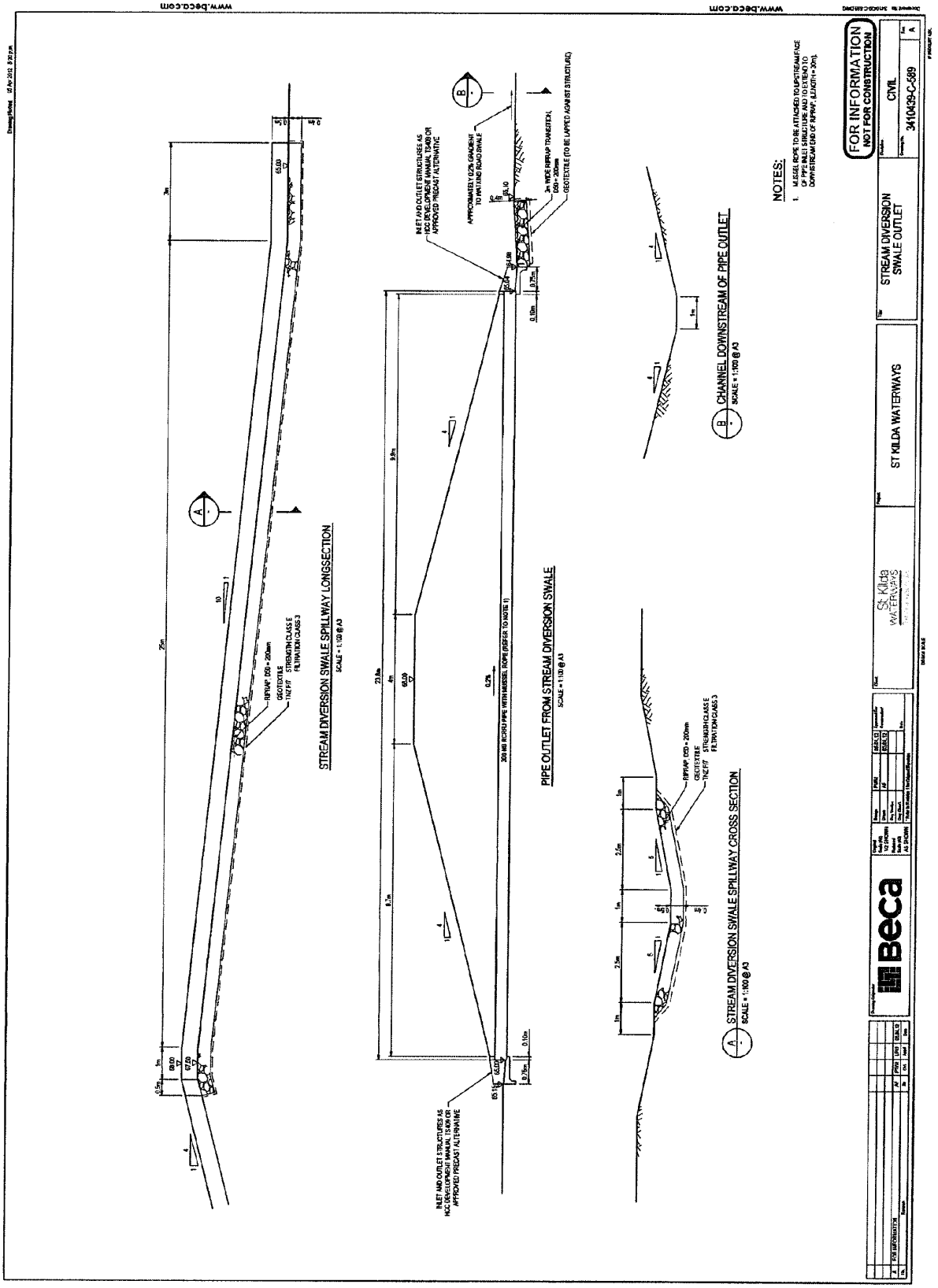


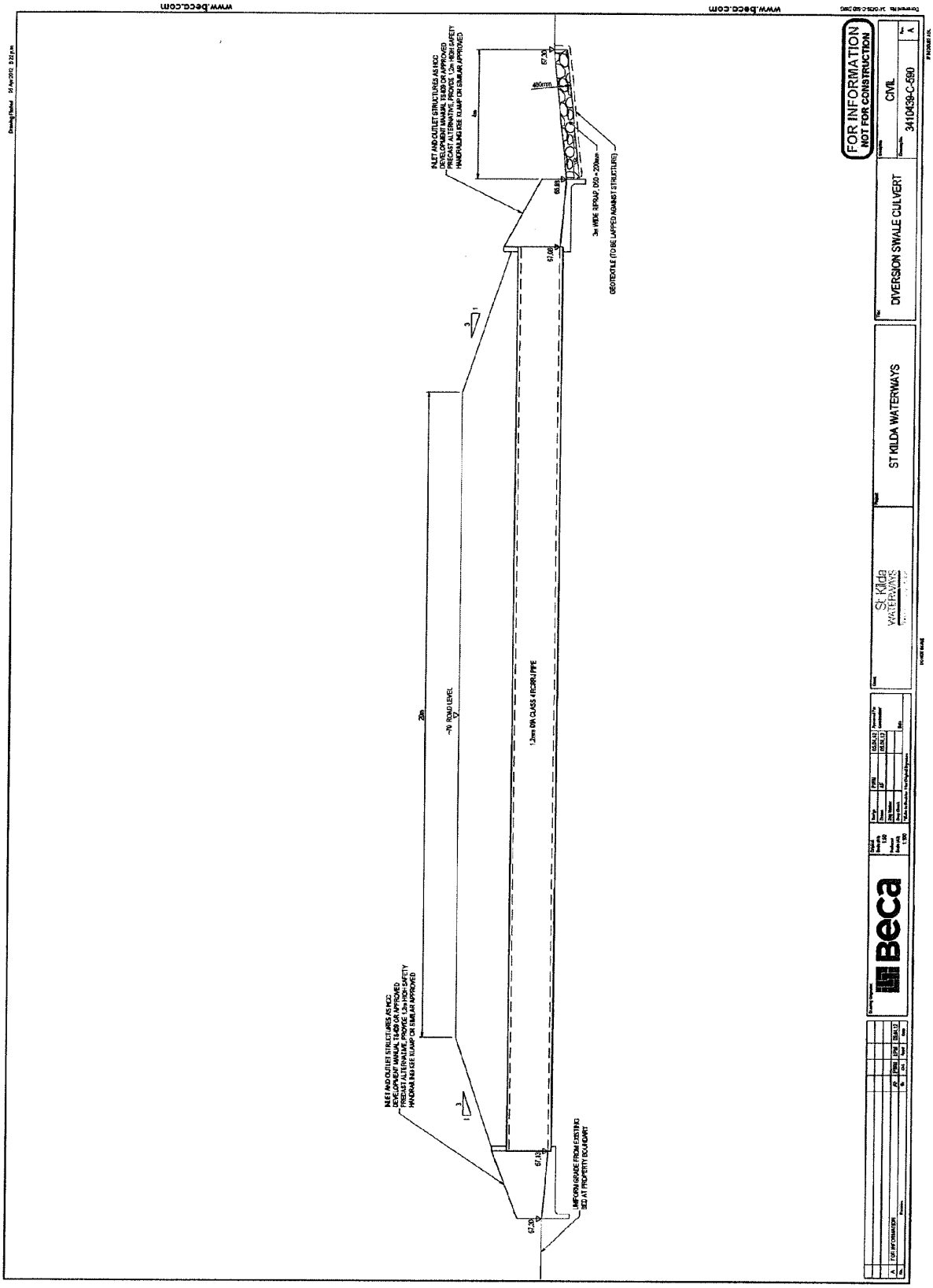
FOR INFORMATION
NOT FOR CONSTRUCTION
WETLAND SECTIONS
ST KILDA WATERWAYS
CIVIL
3410439-C-586
SECTION AT EDGE OF WETLAND
SCALE = 1:100 @ A3
SECTION THROUGH TRANSVERSE BAND
SCALE = 1:100 @ A3
300mm THICK TOPSOIL
OUTLET SILL LEVEL
VARIES BETWEEN 1 - 3.5m
10 OR FLATTER
LEVELS (m RL)
CIRCULATION BUND
OUTLET SILL
BANK HEIGHT, H
WETLAND 2
WETLAND 1
*BERM WIDTH REDUCES TO 1.75m AT NARROWEST PART OF WETLAND 2
Beca
www.beca.com



TYPE	DEPTH (D)	BANK HEIGHT (H)	TOP WIDTH (T)	BASE WIDTH (B)	BASE LENGTH (L)
A	1.00	1.13	15.46	2.50	15.30
B	1.20	1.13	16.68	2.70	17.60
C	1.20	1.04	17.24	3.60	19.70
D	1.20	1.04	18.64	5.00	17.20
E	1.20	1.13	18.68	4.70	22.50
F	1.20	1.13	19.48	5.30	24.10


www.beca.com
PLAN
SCALE = 1:2000
LONGITUDINAL SECTION
SCALE HORIZ=1:2000 VERT=1:200
DESIGN SURFACE LEVELS
EXISTING SURFACE LEVELS
DISTANCE
SWALE X-SECTION AT CH 1000
SCALE = 1:25
DESIGN SURFACE
EXISTING SURFACE
OFFSET
FOR INFORMATION
NOT FOR CONSTRUCTION
CIVIL
3410436-C-588
STREAM DIVERSION SWALE
PLAN & SECTIONS
ST KILDA WATERWAYS
St Kilda
WATERWAYS
Beca




www.beca.com
FOR INFORMATION
NOT FOR CONSTRUCTION
CIVIL
3410439-C-590
DIVERSION SWALE CULVERT
ST KILDA WATERWAYS
Beca
INLET AND OUTLET STRUCTURES AS HCC DEVELOPMENT MANUAL 15.609 OR APPROVED PRECAST ALTERNATIVE. PROVIDE 1.2m HIGH SAFETY HANDRAIL AS PER K-LAMP OR SIMILAR APPROVED
3m WIDE RIPRAP, D50 = 200mm
GEOTEXTILE (TO BE LAPPED AGAINST STRUCTURE)
~70 ROAD LEVEL
1.2mm DIA CLASS 4 RCRR LPIPE
UNIFORM GRADE FROM EXISTING BED AT PROPERTY BOUNDARY

Appendix B

Stormwater calculations

Job	St Kilda Waterways - Stream diversion swale
Job No	3410439
Designer	Peter Millais
Date	22/03/2012

Worksheet 1 : Runoff Parameters and Time of Concentration (from TP108)

1 Present/Developed ? Developed

2 Runoff Curve Number (CN) and Initial Abstraction (Ia)

Soil name and classification	Cover description (Cover type, treatment and hydrological condition)	Curve No (CN)	Imp Area	Perv Area	CN x Area
Alluvial	Road area	98	4434		434532
Alluvial	Residential area	61	29797.65	36419.35	4039237
Alluvial	Reserve area	61		60573	3694953
Alluvial	Commercial	98	0		0
Alluvial	Swale	100	2634		263400
	Totals		**36865.65**	**96992.35**	**8432122**

CN (weighted) = sum(CN x area)/sum area 63
Ia (weighted) = 5 x pervious area / total area 3.6

3 Time of concentration

Channelisation factor	C =	0.8	from Table 4.2, TP108
Catchment Length	L =	0.2	km (along drainage path)
Catchment Slope	S_c =	0.0033	m/m (by equal area method) - use Slope Worksheet
Runoff Factor CN / (200 - CN)		0.46	
Time of Concentration, impervious	t_c =	0.22	hrs
Time of Concentration, pervious	t_c =	0.34	hrs

Job	St Kilda Waterways - Stream diversion swale
Job No	3410439
Designer	Peter Millais
Date	22/03/2012

Worksheet 2 : Graphical Peak Flow Rate (From TP108)

1 Catchment Type — Developed Impervious

2 Data

Catchment Area	0.0369 km^2	36865.65 m^2
Runoff Curve Number (CN)	98	From Table 3.3/3.4 TP108
Initial Abstraction (Ia)	0.0 mm	Eqn 3.5, TP108
Time of Concentration (tc)	0.22 hrs	0.17 hrs min allowed by TP108

3 Storage S=(1000/CN-10)*25.4 — 5.2 mm

		Storm 1	Storm 2	Storm 3	Storm 4	Storm 5	
4 Average Recurrance Interval ARI (yr)		2	10	100	Scour	WQV	
5 24 hr Design Rainfall Depth, P_{24} (mm)		79.1	126.8	225	34.5	26.4	from HIRDS V3
6 Compute c*		0.884	0.924	0.956	0.769	0.718	
7 Specific Peak Flow Rate, q* (Fig 5.1)		0.154	0.155	0.156	0.147	0.144	from TP108, Fig 6.1
8 Peak Flow Rate, $q_p = q^* A^* P_{24}$ (m^3/s)		0.449	0.725	1.294	0.187	0.140	
9 Runoff Depth, Q_{24} (mm)		74.2	121.8	219.9	30.0	22.0	
10 Runoff Volume, V24 (m^3)		2737	4491	8108	1106	812	
Combined Imp + Perv	qp	0.764	1.462	3.149	0.251	0.171	
	V	4989	9554	20384	1546	1053	

Job St Kilda Waterways - Stream diversion swale
Job No 3410439
Designer Peter Millais
Date 22/03/2012

Worksheet 2 : Graphical Peak Flow Rate (From TP108)

1 Catchment Type — Developed Pervious

2 Data

Catchment Area	0.0970 km^2	96992.35 m^2
Runoff Curve Number (CN)	61	From Table 3.3/3.4 TP108
Initial Abstraction (Ia)	5.0 mm	Eqn 3.5, TP108
Time of Concentration (tc)	0.34 hrs	0.17 hrs min allowed by TP108

3 Storage S=(1000/CN-10)*25.4 — 162.4 mm

	Storm 1	Storm 2	Storm 3	Storm 4	Storm 5	
4 Average Recurrance Interval ARI (yr)	2	10	100	scour	WQV	
5 24 hr Design Rainfall Depth, P_{24} (mm)	79.1	126.8	225	34.5	26.4	from HIRDS V3
6 Compute c*	0.175	0.265	0.398	0.070	0.048	
7 Specific Peak Flow Rate, q* (Fig 5.1)	0.041	0.06	0.085	0.019	0.012	from TP108, Fig 6.1
8 Peak Flow Rate, $q_p = q^* A^* P_{24}$ (m^3/s)	0.315	0.738	1.855	0.064	0.031	
9 Runoff Depth, Q_{24} (mm)	23.2	52.2	126.6	4.5	2.5	
10 Runoff Volume, V24 (m^3)	2252	5063	12276	440	241	

Job	St Kilda Waterways - Wetland 1
Job No	3410439
Designer	Peter Millais
Date	26/03/2012

Worksheet 1 : Runoff Parameters and Time of Concentration (from TP108)

1 Present/Developed ? Developed

2 Runoff Curve Number (CN) and Initial Abstraction (Ia)

Soil name and classification	Cover description (Cover type, treatment and hydrological condition)	Curve No (CN)	Imp Area	Perv Area	CN x Area
Alluvial	Road area	98	95381		9347338
Alluvial	Residential area	61	112433	137418.1	15240911
Alluvial	Reserve area	61		33720	2056920
Alluvial	Commercial	98	4026		394548
Alluvial	Wetland	100	18366		1836600
	Totals		**230206**	**171138.1**	**28876317**

CN (weighted) = sum(CN x area)/sum area	72
Ia (weighted) = 5 x pervious area / total area	2.1

3 Time of concentration

Channelisation factor	C =	0.6	from Table 4.2, TP108
Catchment Length	L =	0.5	km (along drainage path)
Catchment Slope	S_c =	0.0074	m/m (by equal area method) - use Slope Worksheet
Runoff Factor CN / (200 - CN)		0.56	
Time of Concentration, impervious	t_c =	0.24	hrs
Time of Concentration, pervious	t_c =	0.36	hrs

Job St Kilda Waterways - Wetland 1
Job No 3410439
Designer Peter Millais
Date 26/03/2012

Worksheet 2 : Graphical Peak Flow Rate (From TP108)

1 Catchment Type — Developed Impervious

2 Data

Catchment Area	0.2302 km^2	230206 m^2
Runoff Curve Number (CN)	98	From Table 3.3/3.4 TP108
Initial Abstraction (Ia)	0.0 mm	Eqn 3.5, TP108
Time of Concentration (tc)	0.24 hrs	0.17 hrs min allowed by TP108

3 Storage S=(1000/CN-10)*25.4 — 5.2 mm

		Storm 1	Storm 2	Storm 3	Storm 4	Storm 5	
4 Average Recurrance Interval ARI (yr)		2	10	100	Scour	WQV	
5 24 hr Design Rainfall Depth, P_{24} (mm)		79.1	126.8	225	34.5	26.4	from HIRDS V3
6 Compute c*		0.884	0.924	0.956	0.769	0.718	
7 Specific Peak Flow Rate, q* (Fig 5.1)		0.15	0.152	0.153	0.146	0.142	from TP108, Fig 6.1
8 Peak Flow Rate, $q_p = q^* A^* P_{24}$ (m^3/s)		2.731	4.437	7.925	1.160	0.862	
9 Runoff Depth, Q_{24} (mm)		74.2	121.8	219.9	30.0	22.0	
10 Runoff Volume, V24 (m^3)		17089	28044	50630	6905	5073	
Combined Imp + Perv	qp	3.286	5.717	11.159	1.266	0.916	
	V	21063	36977	72291	7681	5498	

Job St Kilda Waterways - Wetland 1
Job No 3410439
Designer Peter Millais
Date 26/03/2012

Worksheet 2 : Graphical Peak Flow Rate (From TP108)

1 Catchment Type — Developed Pervious

2 Data

Catchment Area	0.1711 km^2	171138.1 m^2
Runoff Curve Number (CN)	61	From Table 3.3/3.4 TP108
Initial Abstraction (Ia)	5.0 mm	Eqn 3.5, TP108
Time of Concentration (tc)	0.36 hrs	0.17 hrs min allowed by TP108

3 Storage S=(1000/CN-10)*25.4 — 162.4 mm

	Storm 1	Storm 2	Storm 3	Storm 4	Storm 5	
4 Average Recurrance Interval ARI (yr)	2	10	100	scour	WQV	
5 24 hr Design Rainfall Depth, P_{24} (mm)	79.1	126.8	225	34.5	26.4	from HIRDS V3
6 Compute c*	0.175	0.265	0.398	0.070	0.048	
7 Specific Peak Flow Rate, q* (Fig 5.1)	0.041	0.059	0.084	0.018	0.012	from TP108, Fig 6.1
8 Peak Flow Rate, $q_p = q^* A^* P_{24}$ (m^3/s)	0.555	1.280	3.235	0.106	0.054	
9 Runoff Depth, Q_{24} (mm)	23.2	52.2	126.6	4.5	2.5	
10 Runoff Volume, V24 (m^3)	3973	8934	21661	776	425	

Job	St Kilda Waterways - Wetland 2
Job No	3410439
Designer	Peter Millais
Date	26/03/2012

Worksheet 1 : Runoff Parameters and Time of Concentration (from TP108)

1 Present/Developed ? Developed

2 Runoff Curve Number (CN) and Initial Abstraction (Ia)

Soil name and classification	Cover description (Cover type, treatment and hydrological condition)	Curve No (CN)	Imp Area	Perv Area	CN x Area
Alluvial	Road area	98	38998		3821804
Alluvial	Residential area	61	63399.15	77487.85	8594107
Alluvial	Reserve area	61		20066	1224026
Alluvial	Commercial	98	5227		512246
Alluvial	Wetland	100	9976		997600
	Totals		**117600.2**	**97553.85**	**15149783**

CN (weighted) = sum(CN x area)/sum area	70
Ia (weighted) = 5 x pervious area / total area	2.3

3 Time of concentration

Channelisation factor	C =	0.8	from Table 4.2, TP108
Catchment Length	L =	0.5	km (along drainage path)
Catchment Slope	S_c =	0.0074	m/m (by equal area method) - use Slope Worksheet
Runoff Factor CN / (200 - CN)		0.54	
Time of Concentration, impervious	t_c =	0.32	hrs
Time of Concentration, pervious	t_c =	0.49	hrs

Job St Kilda Waterways - Wetland 2
Job No 3410439
Designer Peter Millais
Date 26/03/2012

Worksheet 2 : Graphical Peak Flow Rate (From TP108)

1 Catchment Type — Developed Impervious

2 Data

Catchment Area	0.1176 km^2	117600.2 m^2
Runoff Curve Number (CN)	98	From Table 3.3/3.4 TP108
Initial Abstraction (Ia)	0.0 mm	Eqn 3.5, TP108
Time of Concentration (tc)	0.32 hrs	0.17 hrs min allowed by TP108

3 Storage S=(1000/CN-10)*25.4 — 5.2 mm

	Storm 1	Storm 2	Storm 3	Storm 4	Storm 5	
4 Average Recurrance Interval ARI (yr)	2	10	100	Scour	WQV	
5 24 hr Design Rainfall Depth, P_{24} (mm)	79.1	126.8	225	34.5	26.4	from HIRDS V3
6 Compute c*	0.884	0.924	0.956	0.769	0.718	
7 Specific Peak Flow Rate, q* (Fig 5.1)	0.137	0.138	0.139	0.13	0.128	from TP108, Fig 6.1
8 Peak Flow Rate, $q_p = q^* A^* P_{24}$ (m^3/s)	1.274	2.058	3.678	0.527	0.397	
9 Runoff Depth, Q_{24} (mm)	74.2	121.8	219.9	30.0	22.0	
10 Runoff Volume, V24 (m^3)	8730	14326	25864	3527	2591	
Combined Imp + Perv qp	1.544	2.676	5.258	0.571	0.423	
V	10995	19418	38212	3970	2834	

Job	St Kilda Waterways - Wetland 2
Job No	3410439
Designer	Peter Millais
Date	26/03/2012

Worksheet 2 : Graphical Peak Flow Rate (From TP108)

1 Catchment Type — Developed Pervious

2 Data

Catchment Area	0.0976 km^2	97553.85 m^2
Runoff Curve Number (CN)	61	From Table 3.3/3.4 TP108
Initial Abstraction (Ia)	5.0 mm	Eqn 3.5, TP108
Time of Concentration (tc)	0.49 hrs	0.17 hrs min allowed by TP108

3 Storage S=(1000/CN-10)*25.4 — 162.4 mm

	Storm 1	Storm 2	Storm 3	Storm 4	Storm 5	
4 Average Recurrance Interval ARI (yr)	2	10	100	scour	WQV	
5 24 hr Design Rainfall Depth, P_{24} (mm)	79.1	126.8	225	34.5	26.4	from HIRDS V3
6 Compute c*	0.175	0.265	0.398	0.070	0.048	
7 Specific Peak Flow Rate, q* (Fig 5.1)	0.035	0.05	0.072	0.013	0.01	from TP108, Fig 6.1
8 Peak Flow Rate, $q_p = q^* A^* P_{24}$ (m^3/s)	0.270	0.618	1.580	0.044	0.026	
9 Runoff Depth, Q_{24} (mm)	23.2	52.2	126.6	4.5	2.5	
10 Runoff Volume, V24 (m^3)	2265	5092	12348	442	242	

St Kilda Waterways - Wetland forebay sizing

Wetland 1

Outlet No.	Road Area (m2)	Lot Area (m2)	Reserve Area (m2)	Total Catchment (m2)	Effective runoff area	%	Outlets	%	Reqd. forebay volume	type	Depth	WL width	WL length	Top width	Top length	Base width	Base length
Impervious	100%	45%															
3	22,250	40,012	0	62,262	42,032	20.0%	3	20.0%	165	B	1.20	11.90	25.35	16.88	27.84	2.70	17.60
4	22,262	60,847	0	83,109	53,502	25.4%	4,17	35.4%	292	F	1.20	14.50	31.85	19.48	34.34	5.30	24.10
7	19,367	42,236	0	61,603	40,660	19.3%	7,8,9	32.0%	264	E	1.20	13.90	30.25	18.88	32.74	4.70	22.50
8	2,707	6,890	0	9,597	6,226	3.0%											
9	7,678	24,707	0	32,385	20,499	9.7%											
10	12,791	27,264	0	40,055	26,507	12.6%	10	12.6%	104	A	1.00	10.50	21.85	15.48	24.34	2.50	15.30
17	8,328	24,511	0	32,839	20,976	10.0%											
	95,383	226,467		321,850	210,402	100%		100%	825								

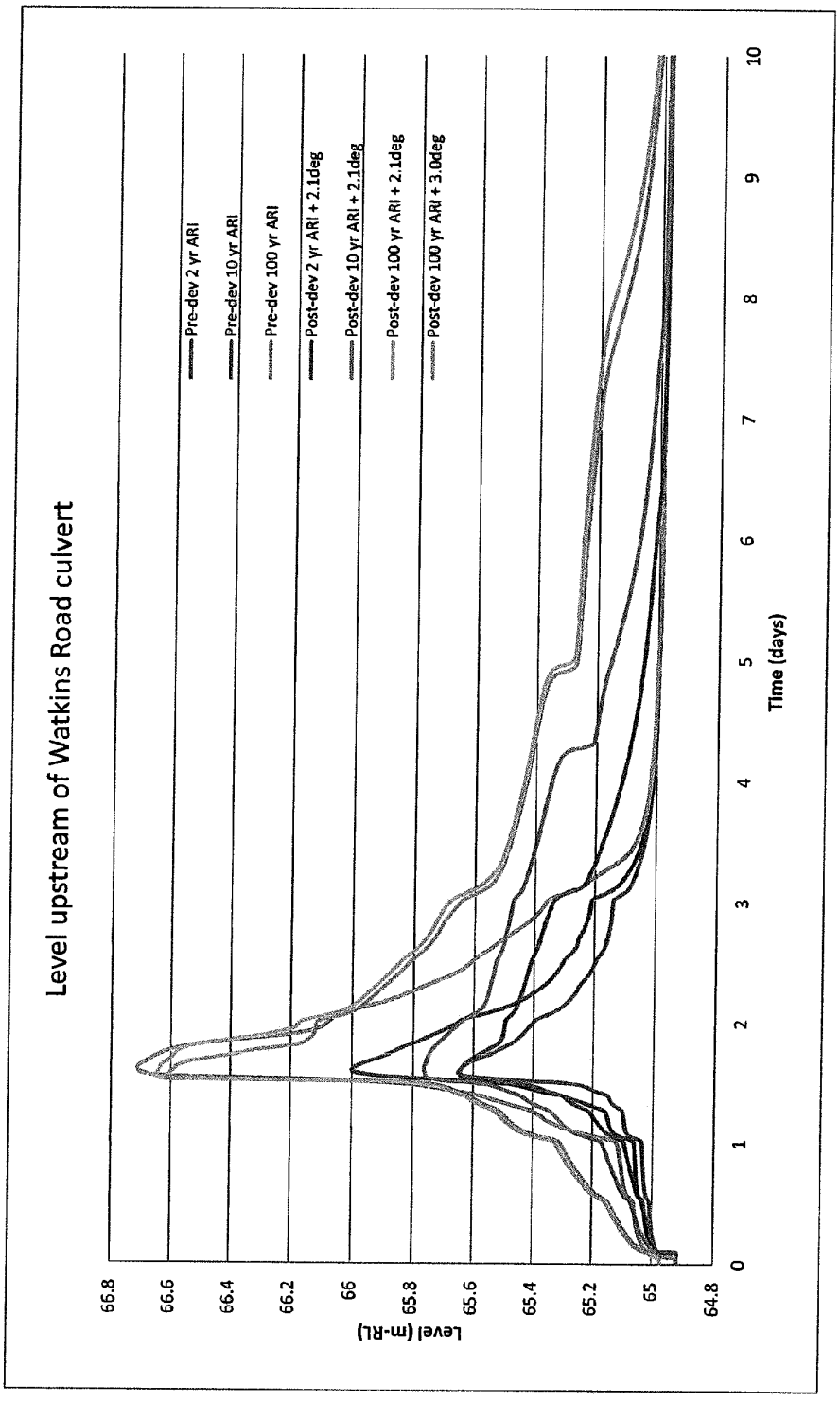
Wetland 2

Outlet No.	Road Area (m2)	Lot Area (m2)	Reserve Area (m2)	Total Catchment (m2)	Effective runoff area	%	Outlets	%	Reqd. forebay volume	type	Depth	WL width	WL length	Top width	Top length	Base width	Base length
Impervious	100%	45%															
11	18,714	62,553	0	81,267	51,247	51.7%	11	51.7%	220	D	1.20	14.20	24.95	18.64	27.17	5.00	17.20
13	4,304	2,209	0	6,513	5,089	5.1%	13,14	48.3%	205	C	1.20	12.80	27.45	17.24	29.67	3.60	19.70
14	16,012	51,504	0	67,516	42,738	43.1%											
	39,030	116,266		155,296	99,073	100%		100%	425								

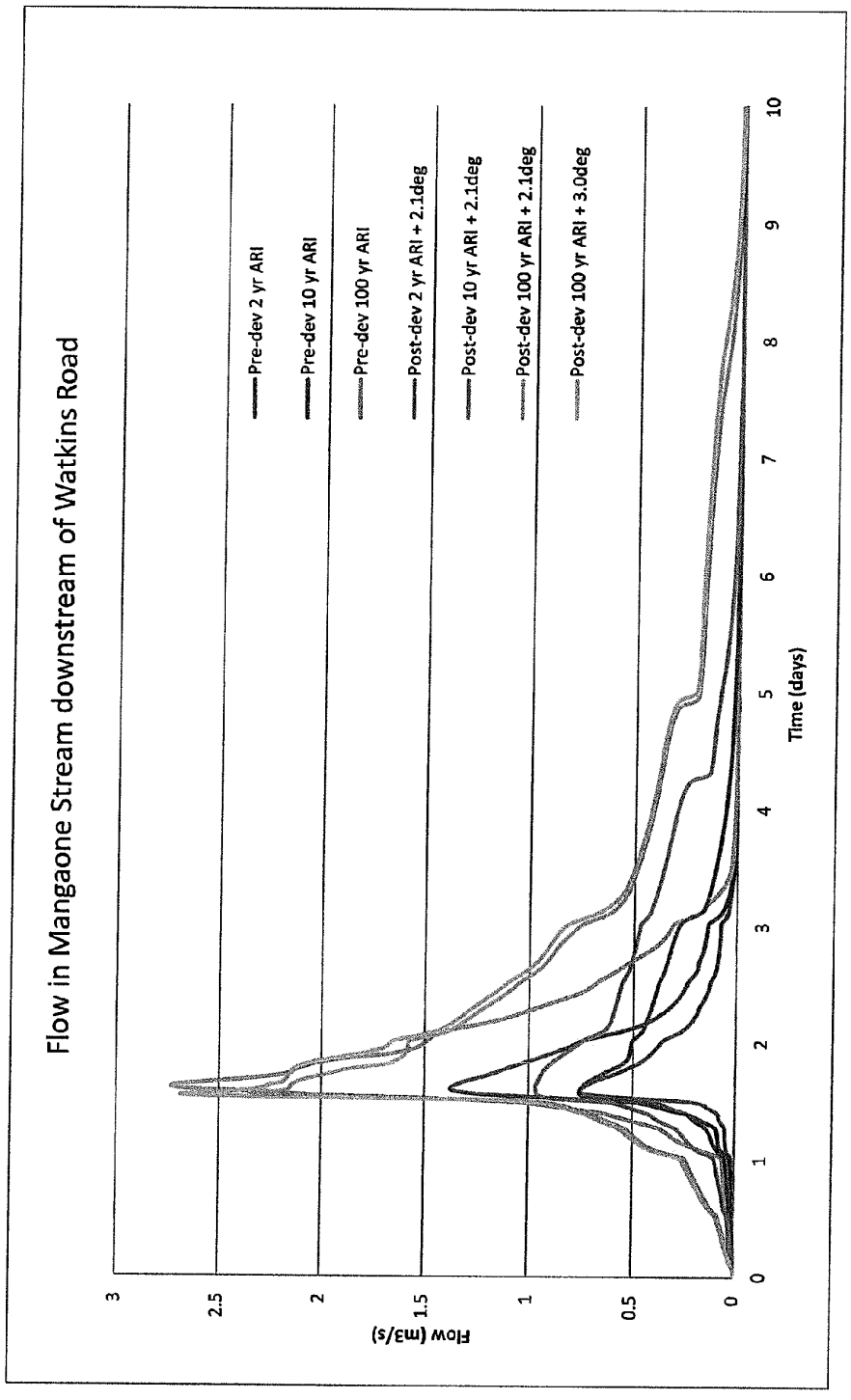
Beca

Appendix C

Hydraulic model output charts

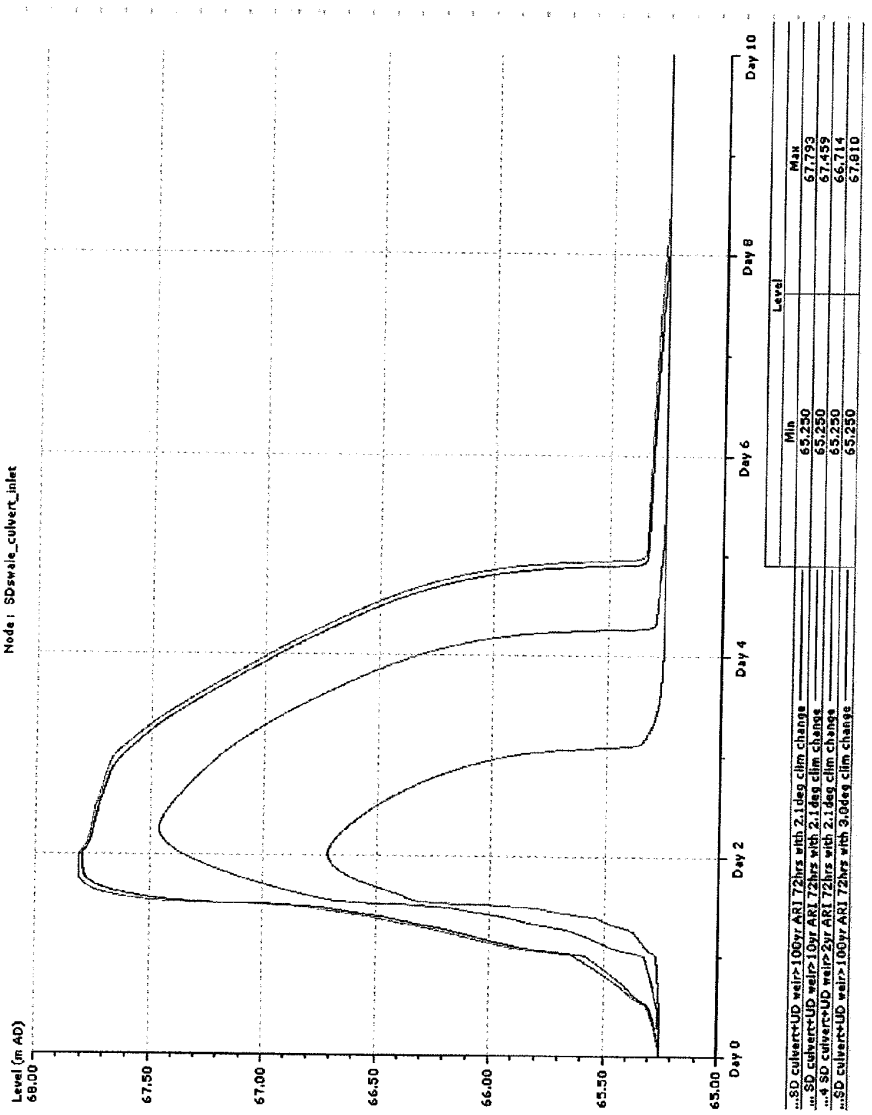


C1a – Level upstream of Watkins Road culvert

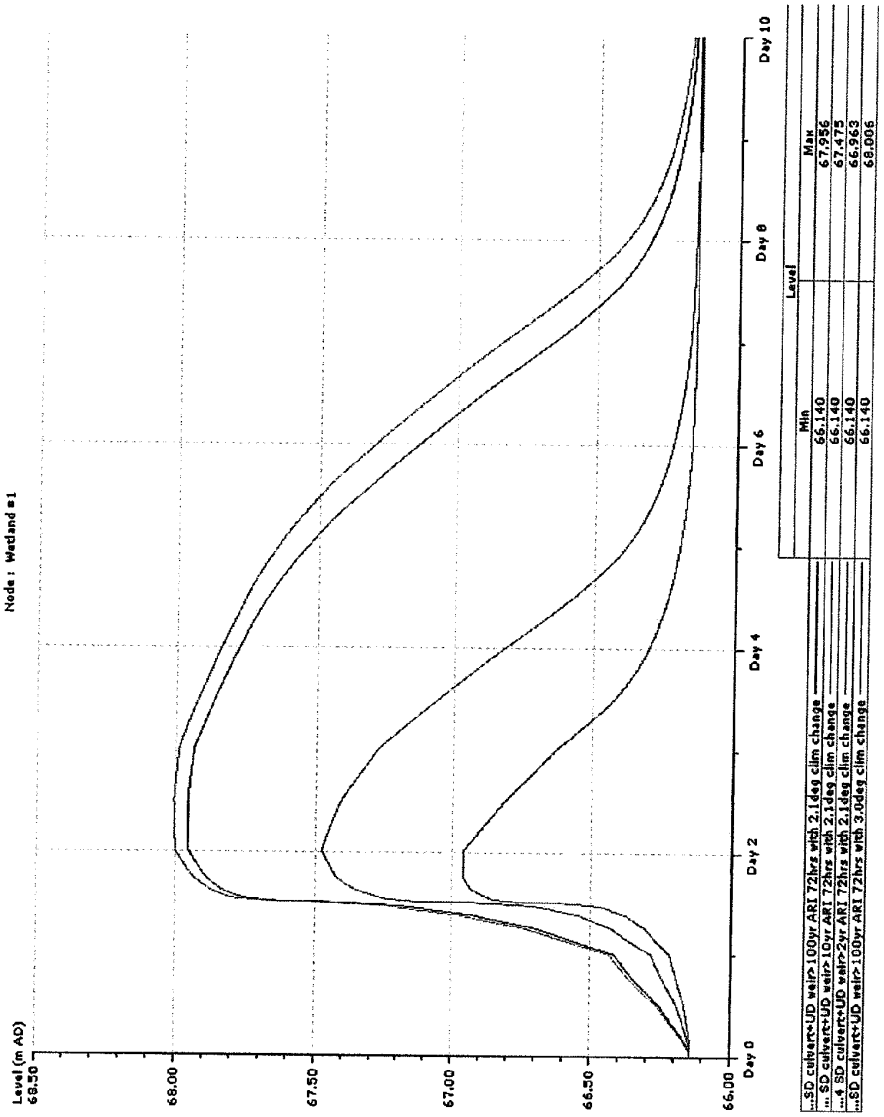


C1b – Flow in Mangaone Stream downstream of Watkins Road

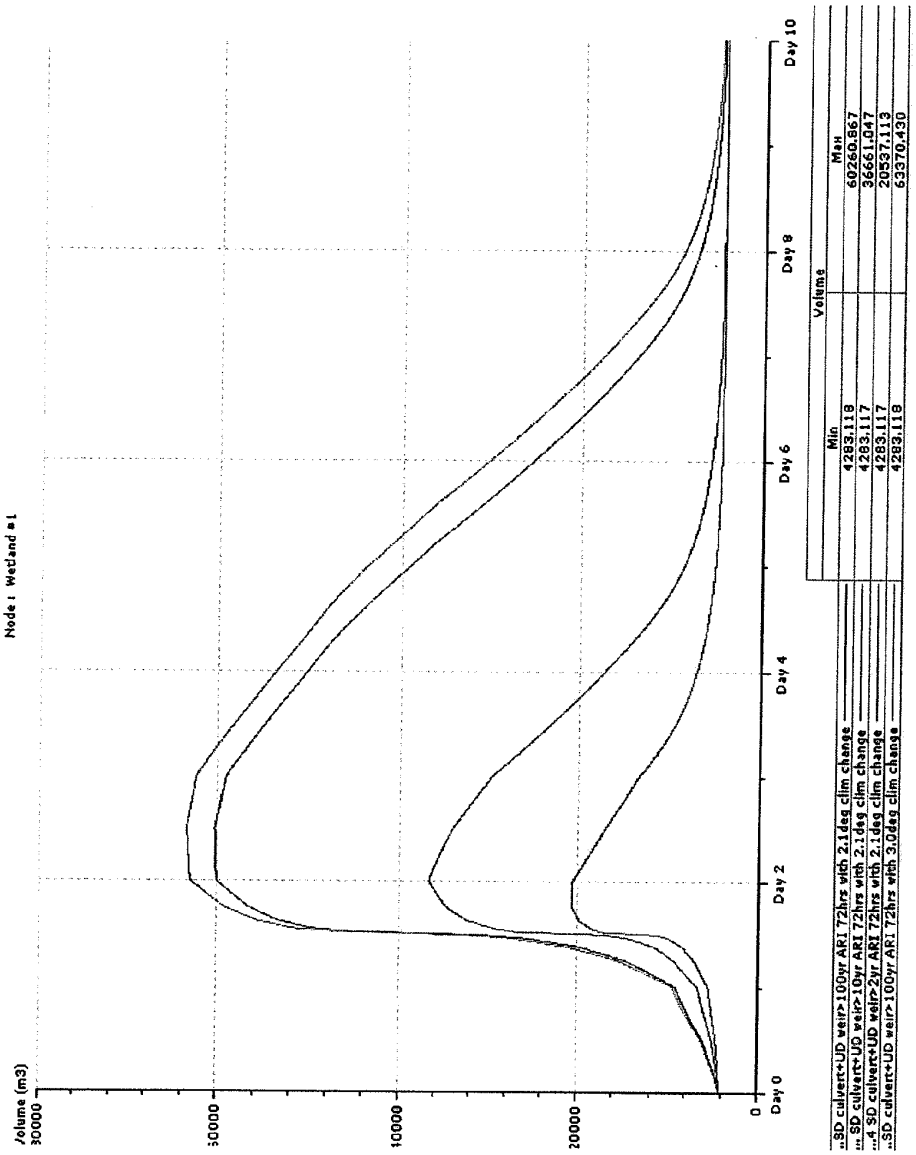
C2 – Level upstream of stream diversion swale outlet



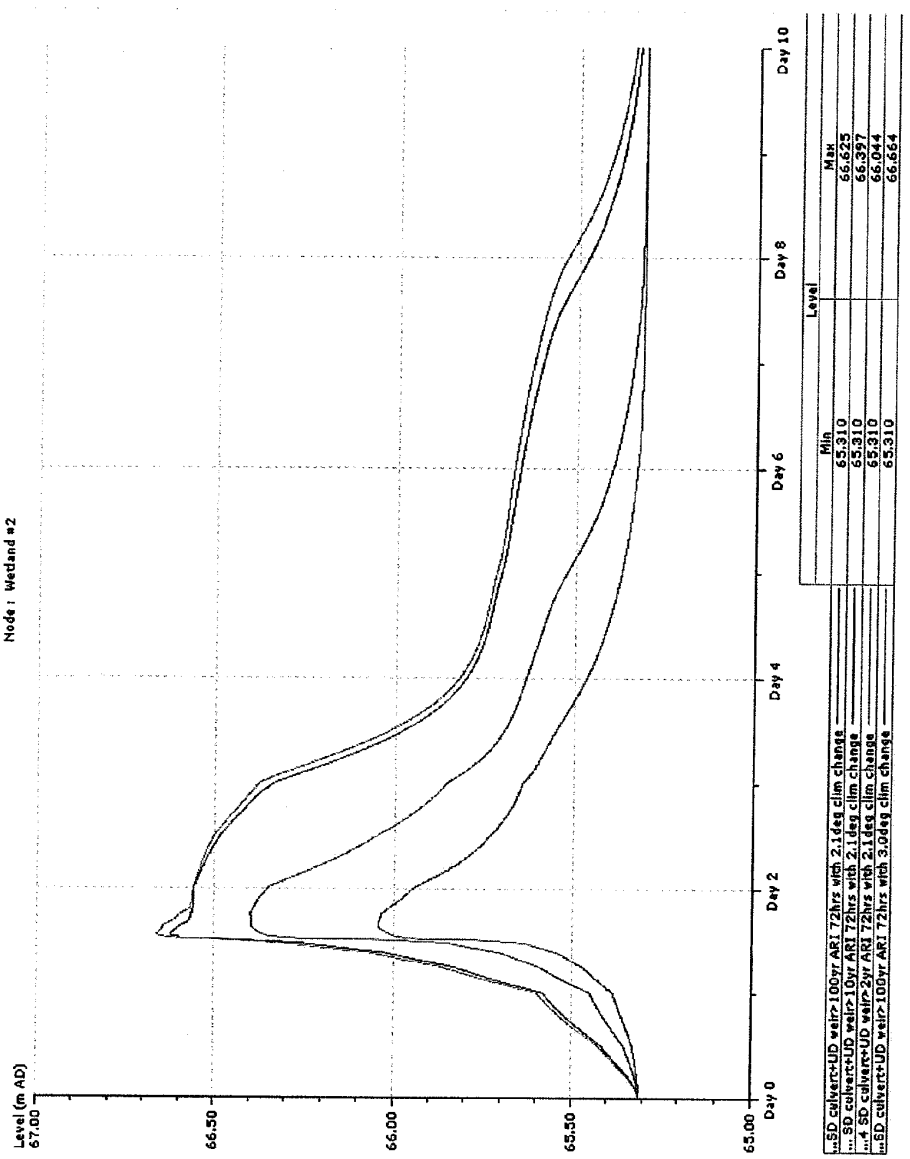
C3a – Level at Wetland 1



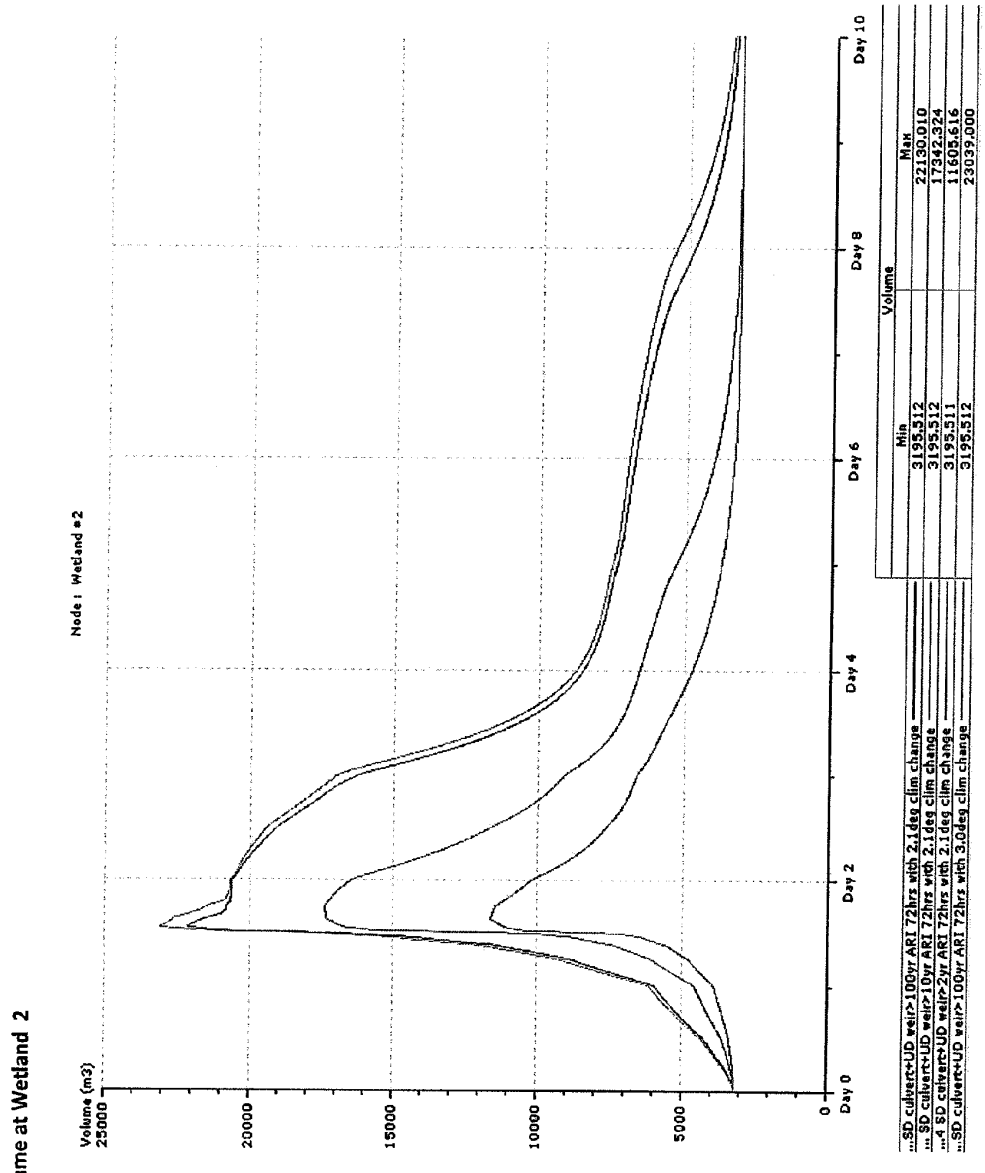
C3b – Volume at Wetland 1



C4a – Level at Wetland 2



C4b – Volume at Wetland 2



Appendix D

SEEP analysis

This Appendix presents preliminary estimates of leakage to and from wetlands proposed for the St Kilda Waterways development. Leakage into and from 2 proposed wetlands (a combination of ponds and near-pond areas) was calculated by using a generic 2-D, vertically oriented, finite-element model. The model was used to calculate the vertical infiltration rates during winter (higher groundwater levels) and summer (lower groundwater levels using two values of hydraulic conductivity of the soil layer that will underlie the wetland).

Hydrogeological modelling was performed using the GeoStudio software SEEP/W. The vertical infiltration rates calculated by SEEP/W were then applied to the entire wetland area. Geological and hydrogeological information used to construct the models was obtained from the *'Grantchester Farms Subdivision – Interpretive Geotechnical Report'* produced by Beca for Grantchester Farms Ltd in 2007.

A number of assumptions were made for the hydraulic properties of the underlying materials in the wetlands. Onsite falling-head permeability testing was undertaken in 2007 during geotechnical site investigations, in accordance with the Australia / New Zealand Standard AS / NZS1547:2000 – Onsite domestic-wastewater management. These tests were undertaken at depths of 0.5 m and 1.0 m, within the sandy or clayey SILT material. Values from these tests were used in the models to represent likely conditions shortly after completion of the wetlands. Values one order of magnitude less were also used to simulate the likely hydraulic conductivity of the top soil layer after the ponds have received runoff water containing fines, i.e. silts and clays (6 - 12 months after construction). Portions of the excavated wetlands would be set within the tightly packed 'medium dense' fine to coarse SAND, and the tightly packed 'dense' fine to coarse GRAVEL materials. We have estimated the hydraulic properties of these materials based on our experience with similar materials. The values used in the models are detailed in Table D1. High and low groundwater level information was available from 2 boreholes, offset from both Wetlands 1 and 2. The boundaries of the SEEP/W model were extended to reflect the water levels and offset distance from the wetlands.

Table D1 – Hydraulic conductivity values used in the wetland models

Material	Horizontal hydraulic conductivity – Kh (m/s)	Kh/Kv ratio
Topsoil	5e-07	0.1
Topsoil (long term case)	5e-08	0.1
Sandy Silty Clay	5e-07	0.1
Tightly packed fine to coarse Gravel	1e-04	1
Tightly packed medium dense fine to coarse Sand	5e-05	1

The SEEP/W model was run using a Steady-State analysis for both the initial post construction case, along with the 6 - 12 months after construction case and contains a constructed topsoil layer covering the entire wetland area. The 6 - 12 months after construction case takes into account sedimentation of fine materials and organic sediment which builds up at the base, forming a natural "seal", lowering the hydraulic conductivity of the lining materials.

Flow per unit area for Wetland 1 and 2 was calculated for both the high and low groundwater levels, representing the approximate maximum inflows and outflows from the wetlands as the natural groundwater level varies. Wetland 2 produced a higher rate of inflow and outflow, relative to Wetland 1. This difference is due to the greater seasonal change in groundwater level at Wetland 2 relative to Wetland 1 resulting in larger hydraulic gradients. These results are detailed in Tables D2

and D3 below. Figures D1 to D5 show the model set-up and details of the model results in the wetland area.

We understand that the ponds will be used as sediment ponds during subdivision construction and recommend that the sediment deposited be allowed to remain prior to placement of the topsoil to reduce the permeability of the near surface soils.

Table D2 – Flow rates during high and low groundwater levels for Wetlands 1 and 2, post-construction

Wet land	Water level	Flux m^3/s	Flow per unit area m/s	Flow per unit area mm/day	Pond area m^2	Total m^3/s	Total m^3/day	Flow direction
1	High	8.8E-07	6.8E-08	6	19,600	1.3E-03	114.6	Into wetland
	Low	6.4E-07	4.9E-08	4	19,600	9.7E-04	83.4	Out of wetland
2	High	2.3E-06	1.8E-07	15	10,300	1.8E-03	157.5	Into wetland
	Low	7.3E-07	5.6E-08	5	10,300	5.8E-04	50.0	Out of wetland

Table D3 – Flow rates during high and low groundwater levels for Wetlands 1 and 2, six to 12 months after construction

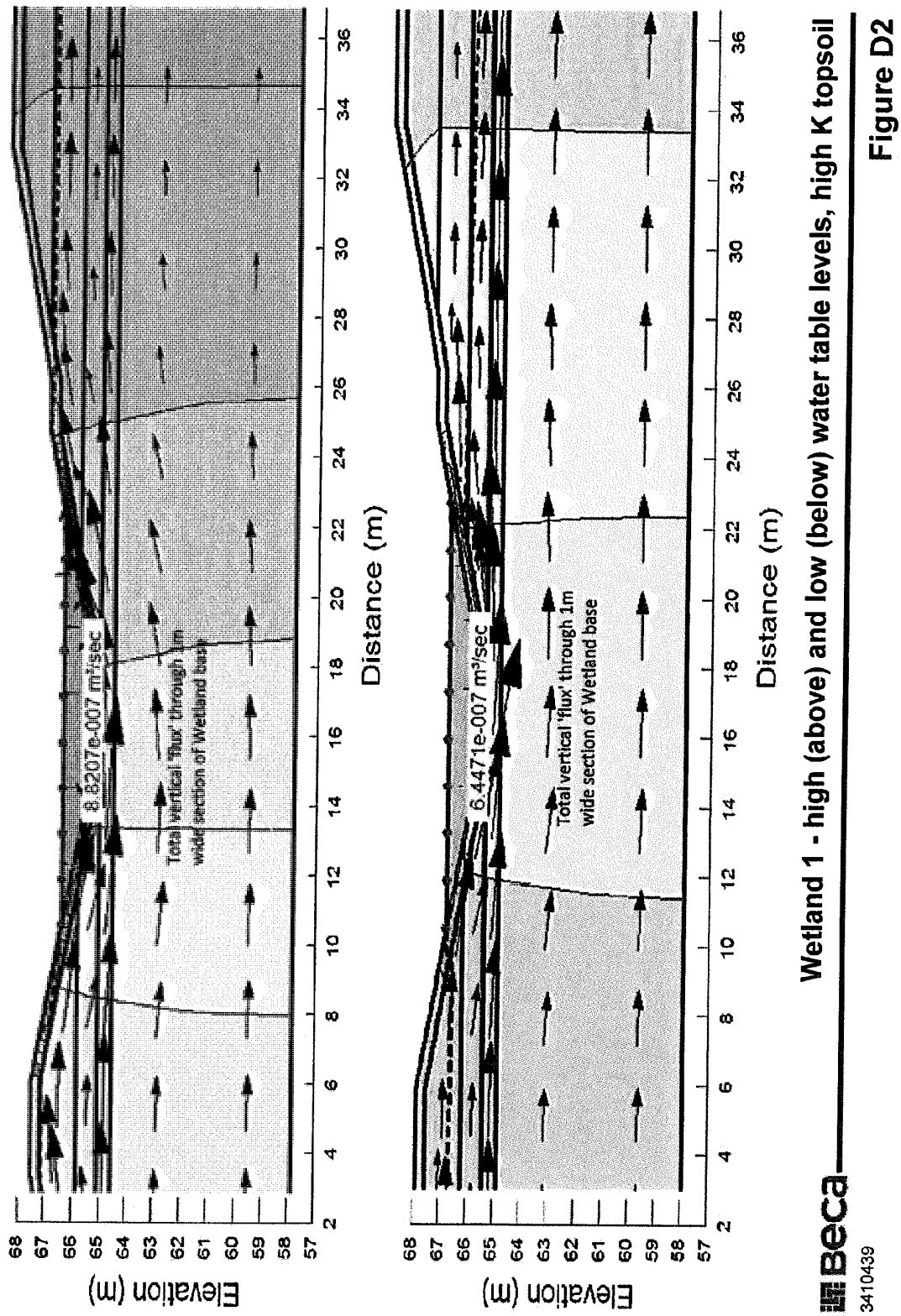
Wet land	Water level	Flux m^3/s	Flow per unit area m/s	Flow per unit area mm/day	Pond area m^2	Total m^3/s	Total m^3/day	Flow direction
1	High	1.0E-07	7.7E-09	0.7	19,600	1.5E-04	13.0	Into wetland
	Low	7.4E-08	5.7E-09	0.5	19,600	1.1E-04	9.6	Out of wetland
2	High	2.6E-07	2.0E-08	1.7	10,300	2.1E-04	17.8	Into wetland
	Low	8.5E-08	6.5E-09	0.6	10,300	6.7E-05	5.8	Out of wetland

SEEP/W model setup

Figure D1

Beca

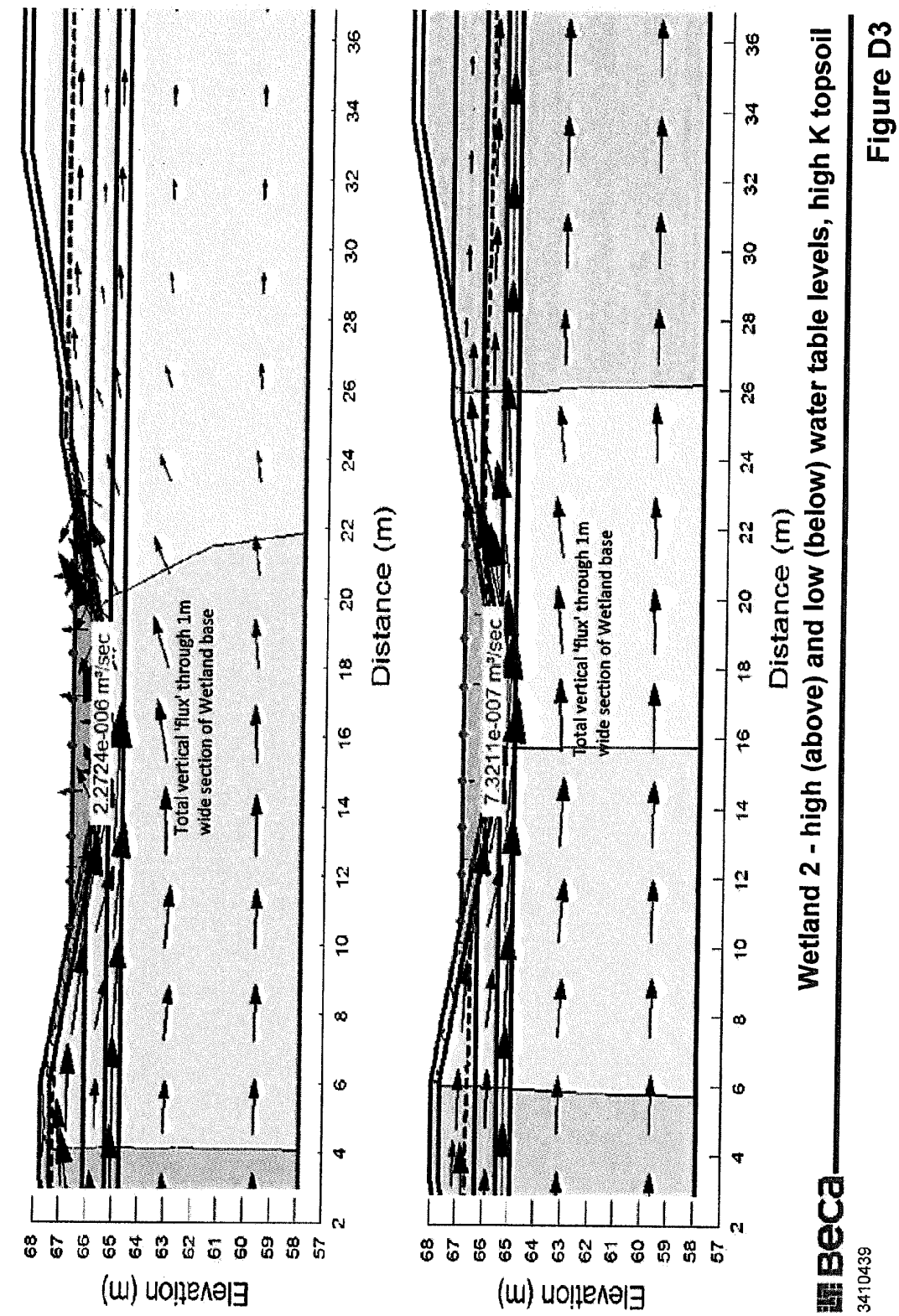
3410439



Wetland 1 - high (above) and low (below) water table levels, high K topsoil

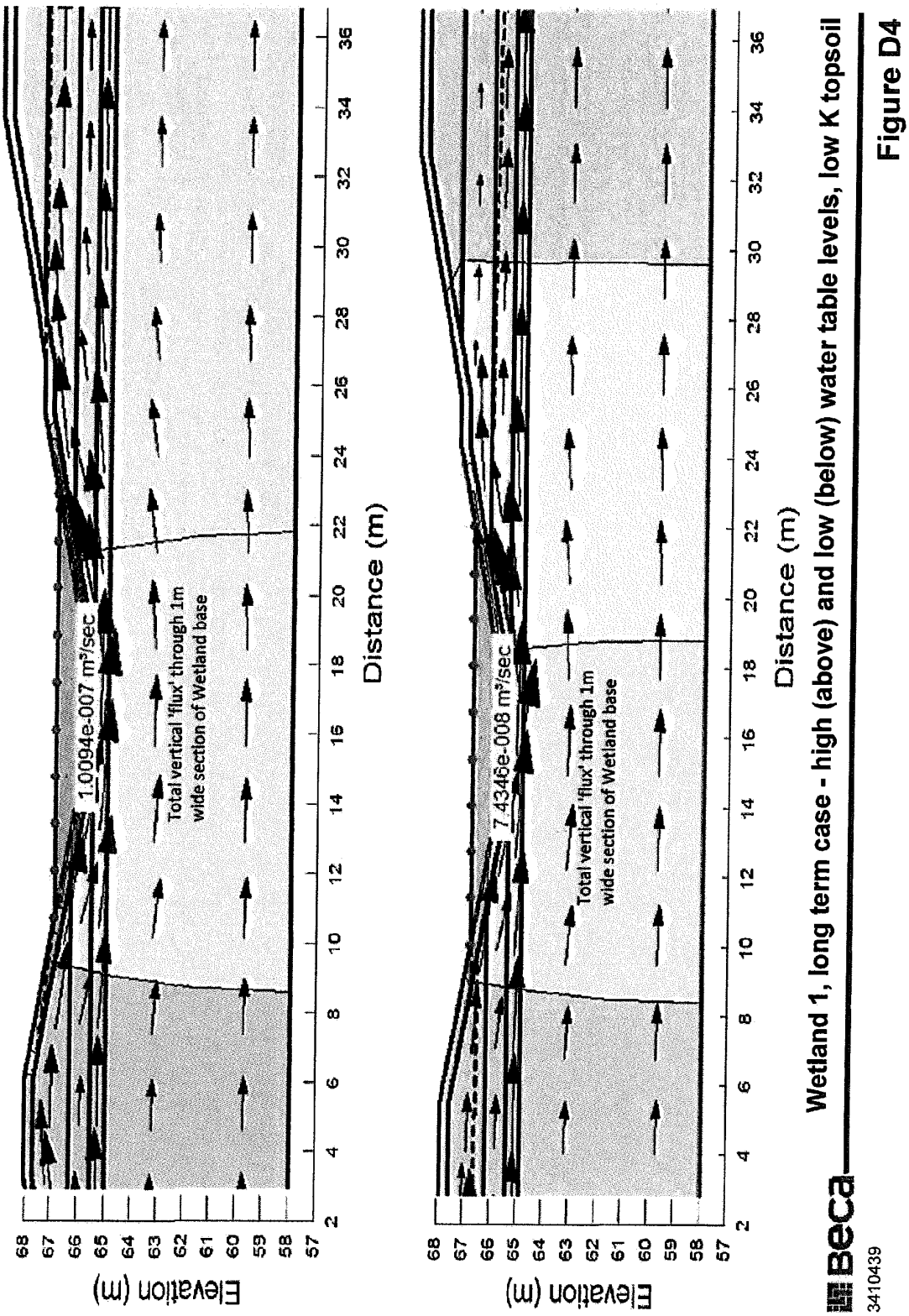
Figure D2

3410439



Wetland 2 - high (above) and low (below) water table levels, high K topsoil

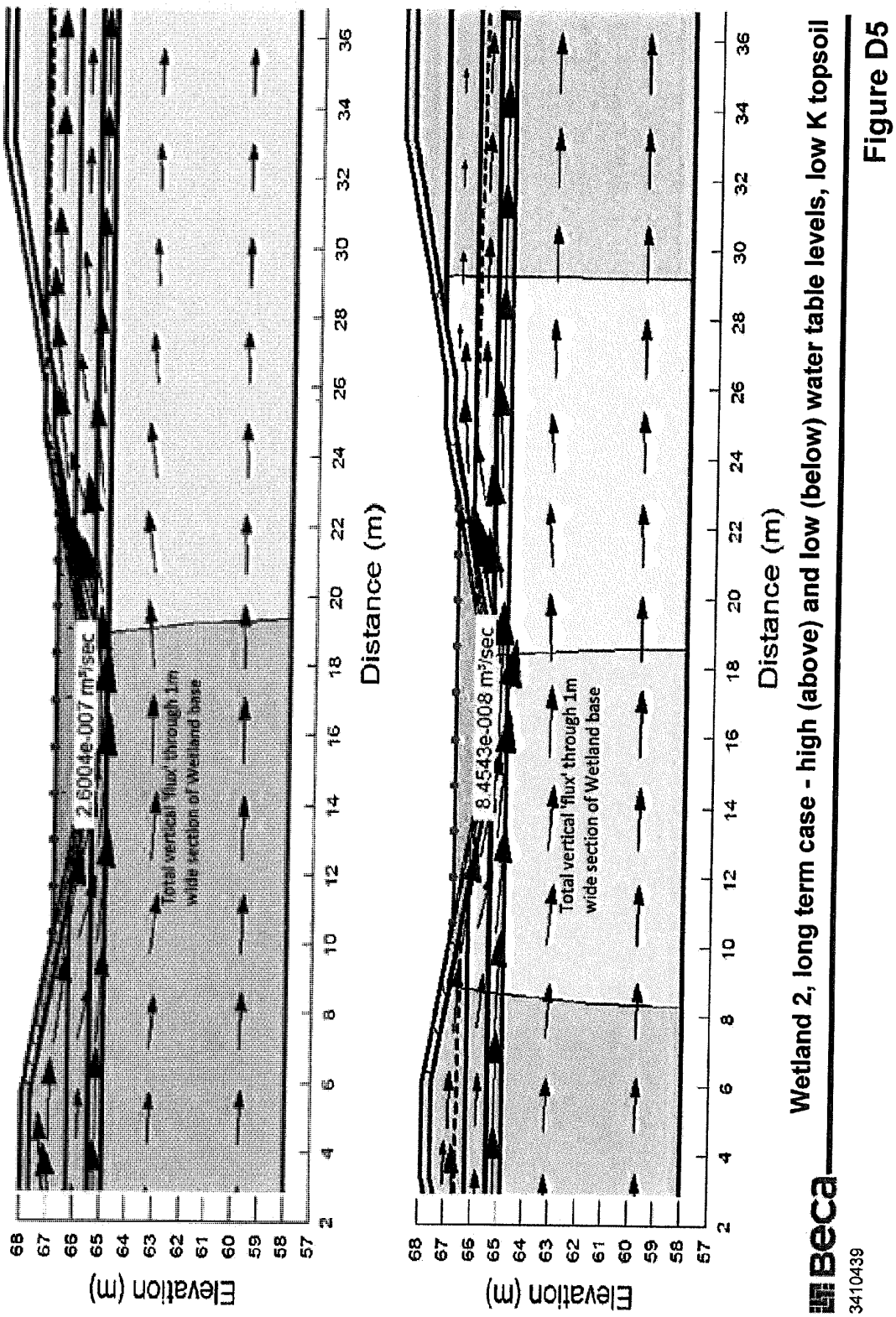
Figure D3



Wetland 1, long term case - high (above) and low (below) water table levels, low K topsoil

Figure D4

3410439



Wetland 2, long term case - high (above) and low (below) water table levels, low K topsoil

Figure D5

Beca

3410439

View Instrument Details

Instrument No.	8770836.1
Status	Registered
Date & Time Lodged	02 Sep 2011 09:11
Lodged By	Bracken, Michael Thomas
Instrument Type	Encumbrance

Affected Computer Registers	Land District
201810	South Auckland
116209	South Auckland

Annexure Schedule: Contains 8 Pages.

Encumbrancer Certifications

I certify that I have the authority to act for the Encumbrancer and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Louise Mary McCulloch as Encumbrancer Representative on 30/08/2011 01:16 PM

Encumbrancee Certifications

I certify that I have the authority to act for the Encumbrancee and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Michael Thomas Bracken as Encumbrancee Representative on 02/09/2011 09:00 AM

***** End of Report *****

Form E

Encumbrance Instrument

(Section 101 Land Transfer Act 1952)

Affected instrument Identifier and type (if applicable)	All/part	Area/Description of part or stratum
201810 116209	All All	

Encumbrancer

Grantchester Farms Limited

Encumbrancee

Waipa District Council

Estate or interest to be encumbered *Insert e.g. Fee simple; Leasehold in Lease No. etc.*

Fee simple

Encumbrance Memorandum Number

N/A

Nature of security *State whether sum of money, annuity or rentcharge and amount*

Rent charge – continued in clause 2 of Annexure Schedule

Encumbrance *Delete words in [ ], as appropriate*

The **Encumbrancer encumbers for the benefit of the Encumbrancee** the land in the above computer register(s) with the above sum of money, annuity or rentcharge, to be raised and paid in accordance with the terms set out in this Encumbrance Instrument and ~~[above Encumbrance Memorandum]~~ [Annexure Schedule(s)] **and** so as to incorporate in this Encumbrance the terms and other provisions set out in this Encumbrance Instrument and the ~~[above Encumbrance Memorandum] [and]~~ [Annexure Schedule(s)] for the better securing to the Encumbrancee the payment(s) secured by this Encumbrance, and compliance by the Encumbrancer with the terms of this encumbrance.

Form E *continued*

Terms

1	Length of term – **999 years from the date of this encumbrance instrument**
2	Payment date(s) – **June in each year if demanded by that date**
3	Rate(s) of interest - **Nil**
4	Event(s) in which the sum, annuity or rent charge becomes payable – **if demanded**
5	Event(s) in which the sum, annuity or rent charge ceases to be payable – **Refer Annexure Schedule**

Covenants and conditions *Continue in Annexure Schedule(s), if required*

Refer Annexure Schedule

Modification of statutory provisions *Continue in Annexure Schedule(s), if required*

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Form L

Annexure Schedule Page 1 of 6 Pages

Insert instrument type

Encumbrance Instrument

Continue in additional Annexure Schedule, if required

1. **DEFINITIONS AND INTERPRETATION**

1.1 **Definitions:** in this instrument, unless the context indicates otherwise:

"**Annual Rent Charge**" means the annual rent charge referred to in clause 2.

"**Encumbrance**" means this encumbrance instrument.

"**Encumbrancee**" means the Waipa District Council.

"**Encumbrancer**" means Grantchester Farms Limited which is registered as proprietor of the Land.

"**Land**" means the Encumbrancer's land described as:

(a) Lots 3 and 7 DP 349201 computer freehold register 201810; and

(b) Lot 1 DP 328484 computer freehold register 116209.

"**Legitimate Farming Operations**" means all farming activities and their effects which are permitted by the Resource Management Act 1991.

"**Plan Change**" means Plan Change 58 to the Waipa District Plan.

"**SKWRZ**" means the St Kilda Waterways Residential Zone.

"**Secured Obligations**" means the obligations secured by this instrument, as set out in Schedule 2.

"**Term**" means the term of 999 years from the date of this instrument.

1.2 **Interpretation**: in this instrument, unless the context indicates otherwise:

(a) **Defined Expressions**: expressions defined in the main body of this memorandum have the defined meaning in the whole of this memorandum including the background.

(b) **Joint and Several Liability**: an obligation by two or more persons binds those persons jointly and severally.

(c) **Plural and Singular**: words importing the singular number include the plural and vice versa.

(d) **Headings**: clause and other headings are for ease of reference only and will not affect this instrument's interpretation;

(e) **Parties**: references to any **party** include that party's executors,

administrators, successors and permitted assigns;

(f) **Persons**: references to a **person** include an individual, company, corporation, partnership, firm, joint venture, association, trust, unincorporated body of persons, governmental or other regulatory body, authority or entity, in each case whether or not having separate legal identity;

(g) **Clauses/Schedules/Attachments**: references to clauses, schedules and attachments are to clauses in, and the schedules and attachments to, this instrument. Each such schedule and attachment forms part of this instrument;

(h) **Statutory Provisions**: references to any statutory provision are to statutory provisions in force in New Zealand and include any statutory provisions which amends or replaces it, and any by-law, regulation, order, statutory instrument, determination or subordinate legislation made under it; and

(i) **Negative Obligations**: any obligation not to do anything includes an obligation not to suffer, permit or cause that thing to be done.

2. **ENCUMBRANCE**

2.1 The Encumbrancer encumbers the Land for the benefit of the Encumbrancee for the Term with an Annual Rent Charge of $1 payable in one sum upon demand by the Encumbrancee and thereafter on the anniversary of the date of such demand.

2.2 Encumbrancer for itself, its successors in title, assigns, lessees, licensees or occupiers of any part of the Land, hereby encumbers the Land for the benefit of the Encumbrancee.

2.3 Encumbrancer covenants with and for the benefit of the Encumbrancee that Encumbrancer will henceforth and at all times hereafter observe the stipulations and restrictions contained in Schedule 2 provided always that any party shall as regards this Encumbrance be liable only in respect of breaches of this Encumbrance which shall occur while it shall be the registered proprietor of the Land or any part thereof.

3. **BACKGROUND**

The Encumbrancer acknowledges and confirms the matters set out in Schedule 1.

4. **DISCHARGE OR REDEMPTION**

4.1 In recognition of the background matters in Schedule 1, the Encumbrancer irrevocably covenants with the Encumbrancee for the Term that, for as long as all the Secured Obligations are not fully performed:

(a) the Encumbrancee will have no obligation to discharge this encumbrance under section 97 of the Property Law Act 2007 or otherwise;

(b) the Encumbrancer will not take any steps whatsoever, including, without limitation, pursuant to section 97 of the Property Law Act 2007 or section 115 of the Property Law Act 2007 to redeem or discharge this encumbrance, or pursuant to section 317 of the Property Law Act 2007 to have this encumbrance revoked, cancelled, surrendered, discharged, lapsed or otherwise removed from the title to the Land;

(c) the Encumbrancer will not support any such steps being taken by a third party; and

(d) the Encumbrancer surrenders and waives any right, entitlement or ability that the Encumbrancer may have to have this encumbrance discharged, redeemed, revoked, cancelled, surrendered, discharged, lapsed or otherwise removed from the title to the Land.

4.2 To avoid any doubt:

(a) If the Secured Obligations are of a restrictive nature, for example by requiring the Encumbrancer not to do something, the performance of those obligations will require the Encumbrancer to observe and comply with those restrictions; and

(b) Where the Secured Obligations are of a continuing nature, they will be treated as not having been fully performed for as long as they are capable of still being performed, observed or complied with.

5. **COSTS**

The Encumbrancer will pay all legal costs attributable to the preparation, registration, enforcement and discharge of this encumbrance.

6. **IMPLIED TERMS**

6.1 Sections 71, 203, 204 and 205 of the Property Law Act 2007 apply to this Encumbrance (without prejudice to the Encumbrancee's rights of action at common law as a rent-chargee), except that:

(a) The Encumbrancee shall be entitled to none of the powers and remedies given to encumbrances by the Land Transfer Act 1952 and the Property Law Act 2007; and

(b) No covenant on the part of the Encumbrancer and its successors in title are implied in this Encumbrance other than the covenant for the further assurance implied by Section 154 of the Land Transfer Act 1952.

6.2 The Encumbrancer shall be entitled to a release of this encumbrance where:

(a) Encumbrancer is able to demonstrate to the Encumbrancee, upon reasonable grounds, that the obligations secured by this encumbrance have become obsolete; and

(b) in such circumstances the Encumbrancee shall provide Encumbrancer with

Form L

Annexure Schedule Page 4 of 6 Pages

Insert instrument type

Encumbrance Instrument

a full release of this encumbrance.

7. **CONSENT**

For the purposes of the Property Law Act 2007 and the Land Transfer Act 1952, the Encumbrancee consents to the following dealings affecting the Land without having to execute a consent instrument:

(a) creation, variation or surrender of an easement or covenant;

(b) creation or variation of a mortgage instrument;

(c) registration of a lease, lease variation instrument or surrender of a lease;

(d) the transfer of all or any part of the Land; and

(e) any dealing that is expressed as subject to this Encumbrance.

Form L

Annexure Schedule Page 5 of 6 Pages

Insert instrument type

Encumbrance Instrument

SCHEDULE 1

BACKGROUND

THIS INSTRUMENT RECORDS THAT:

A. Encumbrancer is the registered proprietor of the Land.

B. Encumbrancer has requested that the Encumbrancee approve a Plan Change allowing for the rezoning of the Land from Rural to SKWRZ in accordance with the provisions of the Plan Change.

C. The Encumbrancee has approved the Plan Change and will include the provisions of the Plan Change in its District Plan.

D. The Encumbrancee has requested Encumbrancer to make any prospective purchaser of the Land aware that the Land may be affected by the use of neighbouring land, which is zoned Rural in the Waipa District Plan, for Legitimate Farming Operations.

E. The Encumbrancee wishes to ensure that any residential activity within the new SKWRZ will not cause reverse sensitivity effects on, and thereby constrain, adjacent Legitimate Farming Operations. Accordingly, Encumbrancer has agreed to enter into and register this encumbrance.

F. The Encumbrancee also wishes to ensure that the owners of residential lots abutting the proposed reserve areas within the SKWRZ are aware that they will not be able to seek any contribution from the Encumbrancee towards the cost of constructing or maintaining any fence between their lots and the reserve areas.

Form L

Annexure Schedule Page 6 of 6 Pages

Insert instrument type

Encumbrance Instrument

SCHEDULE 2

COVENANTS

1. Encumbrancer acknowledges that the proposed SKWRZ is adjacent to land zoned Rural and that certain activities are permitted and occur in this zone which may produce adverse effects within the SKWRZ.

2. Encumbrancer hereby agrees that it, or any successors in title to any part of the Land:

   (a) shall not object to, or take any legal or other action in respect of, any effects generated by the use of land zoned Rural which is adjacent to the SKWRZ where those effects result from the use of that land for Legitimate Farming Operations;

   (b) will include in any lease, licence or any other written document relating to the use or occupation of any part of the Land for residential purposes, an encumbrance on the same terms as set out in this Schedule 2, for the benefit of the Encumbrancee, and to require compliance with such obligations;

   (c) shall not make any claim to the Encumbrancee pursuant to the Fencing Act 1978, or otherwise, for a monetary or any other contribution towards the costs of constructing or maintaining any fences on the boundaries of those parts of the Land which are to be vested in the Encumbrancee as reserve.

9246810_1.DOC

Waipa
DISTRICT COUNCIL

Private Bag 2402
Te Awamutu 3840, NEW ZEALAND
0800 WAIPADC (0800 924 723)
www.waipadc.govt.nz

14 August 2014

Your ref: H945
In reply please quote: LU/0174/14
If calling, please ask for: Planning Consultant – Cathy O'Callaghan

Environmental Management Services Ltd
PO Box 1307
Waikato Mail Centre
Hamilton 3240

Digitally Delivered

Dear Mark

LAND USE CONSENT: DISPENSE WITH ON-SITE MANOEUVRING - 75 ST KILDA ROAD, CAMBRIDGE

You are advised that your application has now been determined and has been granted. Please find enclosed a copy of the decision which has been decided under delegated authority.

To ensure that you understand all the obligations and requirements of this consent, it is important that you carefully read the following before you undertake any work associated with this consent:

- All sections of this letter; and
- Every condition of this consent, and the timeframes associated with them; and
- All advisory notes.

A When this consent commences

This resource consent commences on the date you are deemed to have received this letter, however it will not commence if you have lodged a formal objection to the consent, or you (or another person) has lodged an appeal to the Environment Court.

B When this consent will lapse

This resource consent lapses on the date specified in the consent or, if no date is specified, five years after the date of the commencement of the resource consent, unless the consent is given effect to, or the Council grants an extension.

C What you must do to comply with the conditions of consent

Each condition of this consent requires that you undertake certain matters within a certain timeframe. If a timeframe is not specified in a particular condition, then each condition must be complied with before the use to which the consent relates is established. If you do not

FILE COPY

(1 of 3)

85 ALAN LIVINGSTON DRIVE CAMBRIDGE

LAND INFORMATION MEMORANDUM

Pursuant to Section 44A of the Local Government Office and Meetings Act 1987

CAMBRIDGE

Waipā DISTRICT COUNCIL

understand any condition of this consent, please discuss this with your consultant, or the Council staff member noted at the top of this letter.

Please note that most conditions of this consent require on-going monitoring by Council's monitoring and enforcement officer.

D What to do if you want to change any conditions (section 127)

You are able to make an application at any time to Council to change or cancel any condition of this consent. However, please note that a proposed change may not be considered appropriate by Council staff for various reasons. Therefore it is recommended that you discuss any proposed changes with the staff member listed above before you make an application.

Any application must be accompanied by the relevant application fee.

E Review of decision on application

If you disagree with this decision, any of the conditions of this consent, or any additional charges imposed in processing this consent, you may lodge an objection ("section 357") in writing to Waipa District Council.

The objection must explain clearly the reasons you are objecting to the decision, conditions or charges; and must be received by Council within 15 working days[1] of you receiving this decision, or the invoice for the additional charge. Please note that should the objection be unsuccessful, an additional fixed charge will be invoiced to you.

F Fees and charges

Any additional fees and charges for processing this consent (if more than the deposit you have paid) will be calculated and invoiced to you as soon as practicable. Please also note that there may be further monitoring charges associated with this consent.

G Disclosure of information to third parties

The information you provided in your application (including personal information) is official information. Your application documents, the details of this consent and any ongoing communications between you and Council will be held at Council's offices and may be accessed upon request by a third party. Access to information held by Council is administered in accordance with the Local Government Official Information and Meetings Act 1987 and the Privacy Act 1993. Your information may be disclosed in accordance with the terms of these Acts.

H Surrender of consent

If this consent is no longer needed or wanted, it may be surrendered in part or in whole, by giving notice to Waipa District Council. Acceptance of the surrender is at the discretion of the

[1] **Note:** A working day means any day except a Saturday, a Sunday, Good Friday, Easter Monday, Anzac Day, Labour Day, the Sovereign's birthday, Waitangi Day, and any day between 20 December and 10 January (inclusive)

Council, so may not be allowed in some circumstances. Additionally, you may still be required to complete certain works to give effect to the consent prior to its surrender (for example, landscaping to mitigate visual effects of earthworks activities, etc.). If you do wish to surrender this consent at any time, please contact Council's planning team to discuss.

Any application must be accompanied by the relevant application fee.

I **Sale of your property (section 134)**

If you sell the property to which this consent relates, you may wish to transfer the consent to a new owner. However, unless expressly stated otherwise, landuse consents "run with the land" and do not need to be transferred to the property's new owner or occupier. Please advise Waipa District Council in writing if you do wish to record a change of ownership/address for correspondence. Any application must be accompanied by the relevant application fee.

Please do not hesitate to contact me on 0800 924 723 if you have any questions regarding any of the above advice.

Yours faithfully

Cathy O'Callaghan
PLANNING CONSULTANT

Waipa DISTRICT COUNCIL

Resource Consent

(Resource Management Act 1991)

DECISION ON APPLICATION LU/0174/14

Pursuant to Sections 34A(1), Section 104, 104B and 108 of the Resource Management Act 1991, the Waipa District Council, under delegated authority, grants Land Use Consent for a Discretionary Activity:

Activity:	Onsite manoeuvring to encroach front and side yard setbacks
Consent Holder:	Grantchester Farms Ltd
Location Address:	St Kilda Residential Zone Stages 1A-5, Cambridge.
Legal Description:	Lots 1 – 224 and Lots 226 – 285.

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

Advisory notes for this consent are attached in Schedule 2.

The reasons for this decision are detailed in the attached Schedule 3.

Dated at Cambridge this 14th day of August 2014.

For and on behalf of Waipa District Council

Cathy O'Callaghan
CONSULTANT PLANNER

Schedule 1

Conditions of Consent

Resource Consent No: LU/0174/14

General

1 The development shall proceed in accordance with the information submitted with the application on 15 July 2014. This information is entered into council records as LU/0174/14. A copy of the approved plan is attached.

2 On all lots, on-site manoeuvring areas shall:

a) Not encroach on any outdoor living area; and

b) Be designed, formed, and constructed in accordance with Appendix T2 of the District Plan and ensure that the surface of the required area provides a dust free environment; and

c) Provide for the safe and efficient disposal of surface stormwater clear of any adjoining access or road surface in a way that does not result in ponding or scouring; and

d) Be provided on the site on which the dwelling is located; and

e) Ensure that the vehicle manoeuvring space, including those spaces located in a garage, is of a standard adequate to accommodate a 99.8 percentile car as described in Appendix T2 of the District Plan, in order to ensure that all vehicles have the ability to access the adjoining road in a forward direction after no more than a three point turning manoeuvre on the site.

Accidental discovery protocols

3 If taonga (treasured or prized possessions, including Maori artefacts) or archaeological sites are discovered in any area being earth-worked, the consent holder shall cease work within a 100m radius of the discovery immediately and contact local iwi, the New Zealand Historic Places Trust (NZHPT) and Council's Manager Planning and Regulatory. Works shall not recommence in that area until a site inspection is carried out by iwi representatives, relevant Council staff and staff of the NZHPT (if they consider it necessary); the appropriate action has been carried out to remove the Taonga and record the site, or alternative action has been taken; and approval to continue work is given by Council's Manager Planning and Regulatory. The site inspection shall occur within 3 working days of the discovery being made.

4 If during construction activities, any Koiwi (skeletal remains) or similar material are uncovered, works are to cease within a 100m radius of the discovery immediately, and the consent holder shall notify the New Zealand Police, local iwi, the New Zealand Historic Places Trust (NZHPT) and Council's Manager Planning and Regulatory. Works shall not recommence in that area until a site inspection is carried out by iwi representatives, relevant Council staff and staff from the NZHPT and the New Zealand Police (if they consider it necessary); the appropriate ceremony has been conducted by iwi (if necessary); the materials discovered have been removed by the iwi responsible for the tikanga appropriate to their removal and preservation or re-interment, or alternative action (e.g. works are relocated) has been taken; and approval to continue work is given by Council's Manager Planning and Regulatory.

Monitoring and charges

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

Schedule 2

Advisory Notes

Resource Consent No: LU/0174/14

1 Failure to comply with the conditions of consent may result in Council taking legal action under the provisions of Part XII of the Resource Management Act 1991.

2 This consent is granted by the Council subject to the Council's officers and/or agents being permitted access to the property at all reasonable times for the purposes of carrying out inspections, surveys, investigations, tests, measurements or taking samples.

3 All earthworks associated with any development of land must be undertaken in accordance with the following matters :

i) All earthworks must be carried out so as to provide sound foundations as required under NZS 4431:1989 and avoid any hazard to persons or property;

ii) All earthworks must be carried out so as to avoid or mitigate any detrimental effect on the environment particularly with regard to the unnecessary destruction of vegetation, the contamination of natural water or the diversion of surface or ground water flows

iii) The existing landform must not be altered in such a manner that adjoining properties will be detrimentally affected particularly through changes in drainage systems or abrupt changes in ground level

iv) All earthworks must be carried out in accordance with the Waipa District Development and Subdivision Manual 2012.

Schedule 3

Reasons for Decision

Resource Consent No: LU/0174/14

1 The proposal is considered to be a Discretionary Activity under the Decisions Version of the Proposed Waipa District Plan. The proposal will have no more than minor adverse effects on the environment and is not contrary to the relevant Objectives and Policies of the Proposed Waipa District Plan.

2 The application was processed on a non-notified basis and was approved under delegated authority without the need for a Council hearing. Written approval was not required as no party was considered to be affected by the proposal.

3 The accidental discovery protocol conditions are required to ensure the consent holder is aware of their obligations in regards to the discovery of taonga (treasured or prized possessions, including Maori artefacts), archaeological sites, or skeletal remains.

4 The proposal is not considered to affect the streetscape or visual amenity of the sites as the Structure Plan Area has wide grass berms on either side of the pedestrian footpaths which offer a sense of green, open space and provide additional amenity.

5 The proposal is not considered to affect the safety of road users or pedestrians as conditions are in place to ensure that on-site manoeuvring is designed, formed, and constructed so that vehicles must access the road in a forward facing direction.

6 The proposal is not considered to affect the safety of road users or pedestrians as the Structure Plan Area has large road reserves which clearly define and separate pedestrian and vehicle movements.

Waipa DISTRICT COUNCIL

Private Bag 2402
Te Awamutu 3840, NEW ZEALAND
0800 WAIPADC (0800 924 723)
www.waipadc.govt.nz

08 September 2016

Your ref: H945
In reply please quote: LU/0005/13.01

Environmental Management Services Ltd
PO Box 1307
Waikato Mail Centre
Hamilton 3240

Digitally Delivered

Dear Mark

LAND USE CONSENT: .75 ST KILDA ROAD. RD 1. CAMBRIDGE 3493

You are advised that your application has now been determined and has been granted. Please find enclosed a copy of the decision which has been decided under delegated authority.

To ensure that you understand all the obligations and requirements of this consent, it is important that you carefully read the following before you undertake any work associated with this consent:

- All sections of this letter; and
- Every condition of this consent, and the timeframes associated with them; and
- All advisory notes.

A When this consent commences

This resource consent commences on the date you are deemed to have received this letter, however it will not commence if you have lodged a formal objection to the consent, or you (or another person) has lodged an appeal to the Environment Court.

Under Section 127 of the Resource Management Act 1991 the date of commencement is the date of receipt of the original decision letter 14 March 2014.

B When this consent will lapse

This resource consent lapses on the date specified in the consent or, if no date is specified, five years after the date of the commencement of the resource consent, unless the consent is given effect to, or the Council grants an extension.

C What you must do to comply with the conditions of consent

Each condition of this consent requires that you undertake certain matters within a certain timeframe. If a timeframe is not specified in a particular condition, then each condition must be complied with before the use to which the consent relates is established. If you do not

understand any condition of this consent, please discuss this with your consultant, or the Council staff member noted at the top of this letter.

Please note conditions of this consent require on-going monitoring by Council's monitoring and enforcement officer.

D What to do if you want to change any conditions (section 127)

You are able to make an application at any time to Council to change or cancel any condition of this consent. However, please note that a proposed change may not be considered appropriate by Council staff for various reasons. Therefore it is recommended that you discuss any proposed changes with the staff member listed above before you make an application.

Any application must be accompanied by the relevant application fee.

E Review of decision on application

If you disagree with this decision, any of the conditions of this consent, or any additional charges imposed in processing this consent, you may lodge an objection ("section 357") in writing to Waipa District Council.

The objection must explain clearly the reasons you are objecting to the decision, conditions or charges; and must be received by Council within 15 working days[1] of you receiving this decision, or the invoice for the additional charge. Please note that should the objection be unsuccessful, an additional fixed charge will be invoiced to you.

F Fees and charges

Any additional fees and charges for processing this consent (if more than the deposit you have paid) will be calculated and invoiced to you as soon as practicable. Please also note that there may be further monitoring charges associated with this consent.

G Disclosure of information to third parties

The information you provided in your application (including personal information) is official information. Your application documents, the details of this consent and any ongoing communications between you and Council will be held at Council's offices and may be accessed upon request by a third party. Access to information held by Council is administered in accordance with the Local Government Official Information and Meetings Act 1987 and the Privacy Act 1993. Your information may be disclosed in accordance with the terms of these Acts.

H Surrender of consent

If this consent is no longer needed or wanted, it may be surrendered in part or in whole, by giving notice to Waipa District Council. Acceptance of the surrender is at the discretion of the

[1] **Note:** A working day means any day except a Saturday, a Sunday, Good Friday, Easter Monday, Anzac Day, Labour Day, the Sovereign's birthday, Waitangi Day, and any day between 20 December and 10 January (inclusive)

Council, so may not be allowed in some circumstances. Additionally, you may still be required to complete certain works to give effect to the consent prior to its surrender (for example, landscaping to mitigate visual effects of earthworks activities, etc.). If you do wish to surrender this consent at any time, please contact Council's planning team to discuss.

Any application must be accompanied by the relevant application fee.

I **Sale of your property (section 134)**

If you sell the property to which this consent relates, you may wish to transfer the consent to a new owner. However, unless expressly stated otherwise, landuse consents "run with the land" and do not need to be transferred to the property's new owner or occupier. Please advise Waipa District Council in writing if you do wish to record a change of ownership/address for correspondence. Any application must be accompanied by the relevant application fee.

Please do not hesitate to contact me on 0800 924 723 if you have any questions regarding any of the above advice.

Yours faithfully

Kathryn Drew
Planning Consultant
Email: kdrew@bbo.co.nz

Waipa DISTRICT COUNCIL

Resource Consent

(Resource Management Act 1991)

DECISION ON APPLICATION LU/0005/13.01

Pursuant to Sections 34A(1), Section 104, 104B and 108 of the Resource Management Act 1991, the Waipa District Council, under delegated authority, grants Land Use Consent for a Discretionary Activity to:

Activity:	For the ability to construct one secondary dwelling per residential lot in the St Kilda Residential Zone and for the construction of 12 duplex dwellings across the whole subdivision, with a maximum of 5 duplex dwellings per underlying subdivision stage.
Consent Holder:	Grantchester Farms Ltd
Location Address:	75 St Kilda Road, RD1, Cambridge
Legal Description:	The proposed allotments of subdivision SP/0001/12.01 (excluding Stages 1A and 2A) being a subdivision of Lot 3002 DP 470240 as compromised in Certificate of Title 634857.

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

Advisory notes for this consent are attached in Schedule 2.

The reasons for this decision are detailed in the attached Schedule 3.

Dated at Cambridge this day 08 of September 2016.

For and on behalf of Waipa District Council

Kathryn Drew
CONSULTANT PLANNER

Schedule 1

Conditions of Consent

Resource Consent No: LU/0005/13.01

General

1 The construction of secondary dwellings and duplex dwellings within the St Kilda Residential Zone / St Kilda Structure Plan Area shall proceed in general accordance with the information submitted in support of the application LU/0005/13 as set out in the application documentation titled Grantchester Farms Ltd – St Kilda Housing Resource Consent Application, prepared by Environmental Management Services Ltd, dated December 2012 and the further information dated 28th February 2014; including the information supplied under the s.127 application titled Grantchester Farms Ltd – St Kilda S.127 Application to Amend Duplex Consent LU/0005/13 except where another condition of this consent must be complied with.

2 Pursuant to section 125(1) of the Resource Management Act 1991 this resource consent shall lapse ten years from the commencement of this consent.

This condition has changed

3 In addition to the residential activities permitted under the Operative Waipa District Plan and the Proposed Waipa District Plan the following residential activities shall be permitted in the St Kilda Residential Zone / St Kilda Structure Plan Area associated with this consent:

a) One principal dwelling and one secondary dwelling per residential lot, except where a duplex housing development is proposed on a lot and in this circumstance no secondary dwelling will be permitted; and

b) A maximum of 12 duplex dwellings across the whole subdivision, at a rate of no more than five (5) duplex dwellings per underlying stage, as demonstrated on the attached Nominated Duplex Lot Plan prepared by Cogswell Surveys Ltd, Ref:3741, dated 22 June 2016.

4 No person or company other than the consent holder can apply for a duplex dwelling building consent, unless specifically authorised in writing by the consent holder to submit such an application.

5 For the purpose of this consent, the activity of providing for duplex dwellings means:

"A residential building that contains two dwelling units located on a single site. The dwelling units share a common wall or common floor/ceiling, and generally are of a similar size."

6 Prior to the issue of a building consent for a duplex dwelling on any lot the consent holder must provide Council with:

a) Signed approvals from the St Kilda Development Committee confirming that the duplex development complies with the St Kilda Design and Building Guidelines; and

b) Site and elevation plans that demonstrate that the extent of buildings, structures and impermeable surface for the lot does not exceed 700m²; and

c) Site and elevation plans that demonstrate the duplex dwellings comply with all other site performance standards in the District Plan for St Kilda, as appropriate, excluding any required setbacks between the proposed duplex housing; and

d) Confirmation of compliance with condition 3(b) by providing a summary of the number of duplex dwellings that have been granted a building consent across the St Kilda subdivision, on what allotments and within which stage of the subdivision.

7 For the purpose of this consent, secondary dwellings must comply with the following requirements:

a) A secondary dwelling shall be erected in conjunction with the principle dwelling on the site or where there is already a principal dwelling on the site and shall be:

i) Encompassed within the bulk of the principal dwelling so that the building contains both dwellings and has the visual appearance of a single dwelling;

ii) no more than 70m² gross floor area, excluding garaging;

iii) designed so that the extent of buildings, structures and impermeable surface for the lot does not exceed 700m²; and

b) The site plans for the secondary dwelling building consent application must demonstrate that the secondary dwelling can comply with clauses 7(a)(i)-(ii) above and all other site performance standards in the District Plan for St Kilda, as appropriate.

Entrances for Duplex Dwellings

8 Prior to the occupation of any duplex dwelling the consent holder shall construct an urban residential vehicle crossing to each duplex unit on that allotment. The crossing is to be constructed to Council's standards as set out in the Waipa District Development and Subdivision Manual 2012. All work is to completed to the satisfaction of Council's Manager Development Engineering, and shall be at the consent holder's expense. The following issues shall also be addressed:

a) The crossing shall be construction in accordance with TS306, TS309 and TS310;

b) The crossing shall be formed with concrete in accordance with TS306; and

c) All work shall be completed by a Council approved contractor.

Water and Sewage Connections for Duplex Dwellings

9 The consent holder shall arrange for Council to install separate water connections to each duplex unit, at the consent holder's expense.

10 The consent holder shall provide separate sewage connections to each duplex unit. These connections shall be constructed and recorded in accordance with Council's standards as set out in the Waipa District Development and Subdivision Manual 2012. All work is to completed to the satisfaction of Council's Manager Development Engineering, and shall be at the consent holder's expense. An application with construction drawings shall be submitted to Council for acceptance

prior to any work being carried out. An inspection is required prior to any backfill being placed.

Stormwater Disposal and Minimum Floor Levels for Secondary and Duplex Dwellings

11 The stormwater design for secondary dwellings and duplex dwellings must provide for on-site stormwater soakage system designed to cater for runoff from a 2 year period rainfall event, unless it is demonstrated by a suitably qualified professional, that the ground conditions of the lot are not practical for on-site soakage. Where it has been demonstrated that on-site soakage is not practical all stormwater must be designed to be connected to the piped stormwater reticulation network. Compliance with this provision must be demonstrated at the time of building consent for the secondary dwellings and duplex dwellings.

12 The minimum residential land level and minimum building platform level for secondary dwellings and duplex dwellings must comply with Table 10 of the St Kilda Waterways Wetland Design Report prepared by Beca, dated 5 April 2012, for the catchment the lot is located within. Where the catchment boundary traverses the lot the higher of the two levels must be adopted. Compliance with the levels must be demonstrated at the time of building consent of the secondary dwelling or duplex dwelling.

Accidental Discovery Protocols

13 If taonga (treasured or prized possessions, including Maori artefacts) or archaeological sites are discovered in any area being earth-worked, the consent holder shall cease work within a 100m radius of the discovery immediately and contact local iwi, the New Zealand Historic Places Trust (NZHPT) and Council's Manager Planning and Regulatory. Works shall not recommence in that area until a site inspection is carried out by iwi representatives, relevant Council staff and staff of the NZHPT (if they consider it necessary); the appropriate action has been carried out to remove the Taonga and record the site, or alternative action has been taken; and approval to continue work is given by Council's Manager Planning and Regulatory. The site inspection shall occur within 3 working days of the discovery being made.

14 If during construction activities, any Koiwi (skeletal remains) or similar material are uncovered, works are to cease within a 100m radius of the discovery immediately, and the consent holder shall notify the New Zealand Police, local iwi, the New Zealand Historic Places Trust (NZHPT) and Council's Manager Planning and Regulatory. Works shall not recommence in that area until a site inspection is carried out by iwi representatives, relevant Council staff and staff from the NZHPT and the New Zealand Police (if they consider it necessary); the appropriate ceremony has been conducted by iwi (if necessary); the materials discovered have been removed by the iwi responsible for the tikanga appropriate to their removal and preservation or re-interment, or alternative action (e.g. works are relocated) has been taken; and approval to continue work is given by Council's Manager Planning and Regulatory.

Monitoring and Charges

15 The consent holder shall notify the Waipa District Council enforcement team in writing two weeks prior to the commencement of activities associated with this consent.

Note: this advice should be emailed to consentmonitoring@waipadc.govt.nz

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

Schedule 2

Advisory Notes

Resource Consent No: LU/0005/13

1 Failure to comply with the conditions of consent may result in Council taking legal action under the provisions of Part XII of the Resource Management Act 1991.

2 This consent is granted by the Council subject to the Council's officers and/or agents being permitted access to the property at all reasonable times for the purposes of carrying out inspections, surveys, investigations, tests, measurements or taking samples.

3 All earthworks associated with any development of land must be undertaken in accordance with the following matters :

i) All earthworks must be carried out so as to provide sound foundations as required under NZS 4431:1989 and avoid any hazard to persons or property;

ii) All earthworks must be carried out so as to avoid or mitigate any detrimental effect on the environment particularly with regard to the unnecessary destruction of vegetation, the contamination of natural water or the diversion of surface or ground water flows;

iii) The existing landform must not be altered in such a manner that adjoining properties will be detrimentally affected particularly through changes in drainage systems or abrupt changes in ground level; and

iv) All earthworks must be carried out in accordance with the Waipa District Council Code of Practice for Land Development and Subdivision for formation and construction standards.

4 All contractors or persons undertaking work in the road corridor, for which reinstatement work will be necessary, are required to make a Corridor Access Request (CAR) via the BeforeUDig website. A Traffic Management Plan for the works shall be submitted with the CAR.

5 The location of the water connection shall comply with all aspects of Waipa District Council Water Supply Bylaw 2013.

Schedule 3

Reasons for Decision

Resource Consent No: LU/0005/13

1 Pursuant to Section 95A-F of the Resource Management Act 1991 the application has not been publicly notified as the adverse effects of the proposal were not considered to be more than minor and there were not parties considered to be potentially affected by the proposal in a minor or more than minor way. Accordingly, the application was processed on a non-notified basis.

2 It has been determined that the actual and potential adverse effects of the proposal can be avoided, remedied or mitigated with appropriate conditions such that the effects are either less than minor or consistent with the permitted baseline.

3 Conditions are imposed that identify that Council will only accept building consents for duplex dwellings subject to those consents demonstrating compliance with performance standards specified in the consent conditions and for duplex dwellings provided that they are submitted by the consent holder. These controls will ensure that a level of control is maintained over where and how duplex dwellings are constructed as the consent lies with all land within the St Kilda subdivision and there is not specific design of the duplex dwellings approved.

4 Conditions have been imposed relating to the construction of secondary dwellings to ensure that the construction of secondary dwellings across the development is consistent with the provisions provided for in the Proposed District Plan.

5 Other consent conditions have been imposed that relate to providing suitable infrastructure (connections to Council's reticulation and entrances) to service the density of development proposed in general accordance with the information provided in support of this application (and the subdivision application for the site) and in accordance with Council's standards as set out in the Waipa District Development and Subdivision Manual 2012.

6 Compliance with condition 16 will avoid unnecessary site inspections being made (and inspection fees charged) by Council's Monitoring and Enforcement team.

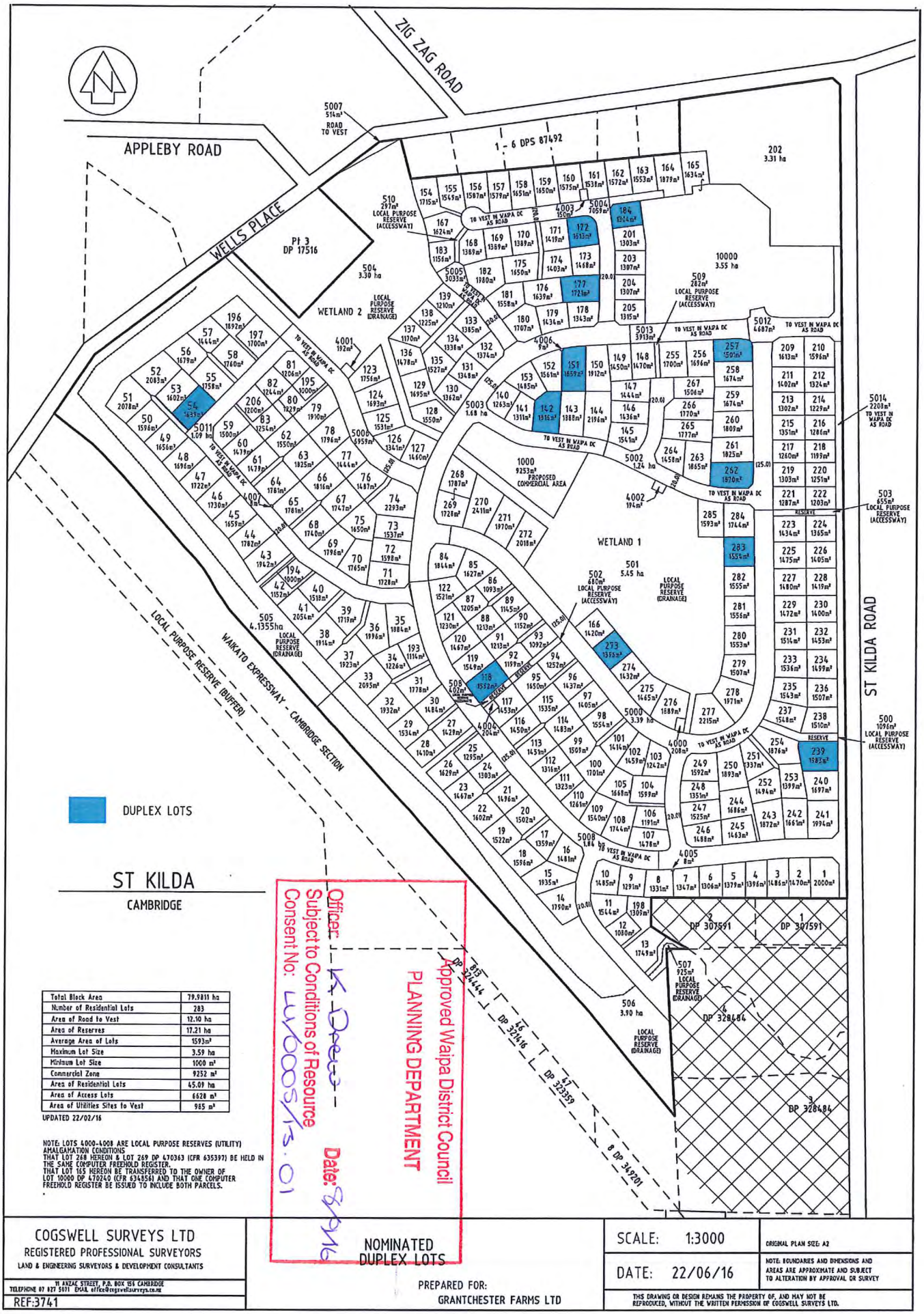
7 The accidental discovery protocol conditions are required to ensure the consent holder is aware of their obligations in regards to the discovery of taonga (treasured or prized possessions, including Maori artefacts), archaeological sites, or skeletal remains.

8 Subject to the above conditions, the proposal is considered to be generally consistent with the relevant objectives and policies of the Operative and Proposed District Plans and is considered to not give rise to more than minor adverse effects on the environment.

9 The application is considered to satisfy Section 104 and 104B of the Resource Management Act 1991 and is considered to be consistent with Part 2 of the Resource Management Act 1991.

This reason has been included

10 The Section 127 has been approved on the basis that it will not generate any additional environmental effects and there are no potentially affected parties.



Total Block Area	79.9811 ha
Number of Residential Lots	283
Area of Road to Vest	12.10 ha
Area of Reserves	17.21 ha
Average Area of Lots	1593m²
Maximum Lot Size	3.59 ha
Minimum Lot Size	1000 m²
Commercial Zone	9252 m²
Area of Residential Lots	45.09 ha
Area of Access Lots	6628 m²
Area of Utilities Sites to Vest	985 m²

UPDATED 22/02/16

NOTE: LOTS 4000-4008 ARE LOCAL PURPOSE RESERVES (UTILITY)
AMALGAMATION CONDITIONS
THAT LOT 268 HEREON & LOT 269 DP 470363 (CFR 635397) BE HELD IN THE SAME COMPUTER FREEHOLD REGISTER.
THAT LOT 165 HEREON BE TRANSFERRED TO THE OWNER OF LOT 10000 DP 470240 (CFR 634856) AND THAT ONE COMPUTER FREEHOLD REGISTER BE ISSUED TO INCLUDE BOTH PARCELS.

COGSWELL SURVEYS LTD
REGISTERED PROFESSIONAL SURVEYORS
LAND & ENGINEERING SURVEYORS & DEVELOPMENT CONSULTANTS
11 ANZAC STREET, P.O. BOX 156 CAMBRIDGE
TELEPHONE 07 827 5611 EMAIL office@cogswellsurveys.co.nz
REF:3741

NOMINATED DUPLEX LOTS

PREPARED FOR:
GRANTCHESTER FARMS LTD

SCALE: 1:3000
ORIGINAL PLAN SIZE: A2
DATE: 22/06/16
NOTE: BOUNDARIES AND DIMENSIONS AND AREAS ARE APPROXIMATE AND SUBJECT TO ALTERATION BY APPROVAL OR SURVEY

Waipa DISTRICT COUNCIL

Private Bag 2402
Te Awamutu 3840, NEW ZEALAND
0800 WAIPADC (0800 924 723)
www.waipadc.govt.nz

14 September 2016

Your ref: H1674
In reply please quote: LU/0215/16

Environmental Management Services Ltd
PO Box 1307
Waikato Mail Centre
Hamilton 3240

Digitally Delivered

Dear Mark

LAND USE CONSENT: ALAN LIVINGSTON DRIVE, CAMBRIDGE 3434

You are advised that your application has now been determined and has been granted. Please find enclosed a copy of the decision which has been decided under delegated authority.

To ensure that you understand all the obligations and requirements of this consent, it is important that you carefully read the following before you undertake any work associated with this consent:

- All sections of this letter; and
- Every condition of this consent, and the timeframes associated with them; and
- All advisory notes.

A When this consent commences

This resource consent commences on the date you are deemed to have received this letter, however it will not commence if you have lodged a formal objection to the consent, or you (or another person) has lodged an appeal to the Environment Court.

B When this consent will lapse

This resource consent lapses on the date specified in the consent or, if no date is specified, five years after the date of the commencement of the resource consent, unless the consent is given effect to, or the Council grants an extension.

C What you must do to comply with the conditions of consent

Each condition of this consent requires that you undertake certain matters within a certain timeframe. If a timeframe is not specified in a particular condition, then each condition must be complied with before the use to which the consent relates is established. If you do not understand any condition of this consent, please discuss this with your consultant, or the Council staff member noted at the top of this letter.

Please note conditions of this consent require on-going monitoring by Council's monitoring and enforcement officer.

D What to do if you want to change any conditions (section 127)

You are able to make an application at any time to Council to change or cancel any condition of this consent. However, please note that a proposed change may not be considered appropriate by Council staff for various reasons. Therefore it is recommended that you discuss any proposed changes with the staff member listed above before you make an application.

Any application must be accompanied by the relevant application fee.

E Review of decision on application

If you disagree with this decision, any of the conditions of this consent, or any additional charges imposed in processing this consent, you may lodge an objection ("section 357") in writing to Waipa District Council.

The objection must explain clearly the reasons you are objecting to the decision, conditions or charges; and must be received by Council within 15 working days[1] of you receiving this decision, or the invoice for the additional charge. Please note that should the objection be unsuccessful, an additional fixed charge will be invoiced to you.

F Fees and charges

Any additional fees and charges for processing this consent (if more than the deposit you have paid) will be calculated and invoiced to you as soon as practicable. Please also note that there may be further monitoring charges associated with this consent.

G Disclosure of information to third parties

The information you provided in your application (including personal information) is official information. Your application documents, the details of this consent and any ongoing communications between you and Council will be held at Council's offices and may be accessed upon request by a third party. Access to information held by Council is administered in accordance with the Local Government Official Information and Meetings Act 1987 and the Privacy Act 1993. Your information may be disclosed in accordance with the terms of these Acts.

H Surrender of consent

If this consent is no longer needed or wanted, it may be surrendered in part or in whole, by giving notice to Waipa District Council. Acceptance of the surrender is at the discretion of the Council, so may not be allowed in some circumstances. Additionally, you may still be required to complete certain works to give effect to the consent prior to its surrender (for example,

[1] **Note:** A working day means any day except a Saturday, a Sunday, Good Friday, Easter Monday, Anzac Day, Labour Day, the Sovereign's birthday, Waitangi Day, and any day between 20 December and 10 January (inclusive)

landscaping to mitigate visual effects of earthworks activities, etc.). If you do wish to surrender this consent at any time, please contact Council's planning team to discuss.

Any application must be accompanied by the relevant application fee.

I **Sale of your property (section 134)**

If you sell the property to which this consent relates, you may wish to transfer the consent to a new owner. However, unless expressly stated otherwise, landuse consents "run with the land" and do not need to be transferred to the property's new owner or occupier. Please advise Waipa District Council in writing if you do wish to record a change of ownership/address for correspondence. Any application must be accompanied by the relevant application fee.

Please do not hesitate to contact me on 0800 924 723 if you have any questions regarding any of the above advice.

Yours faithfully

Kathryn Drew
Planning Consultant

Resource Consent

(Resource Management Act 1991)

DECISION ON APPLICATION LU/0215/16

Pursuant to Sections 34A(1), Section 104, 104B and 108 of the Resource Management Act 1991, the Waipa District Council, under delegated authority, grants Land Use Consent for a Discretionary Activity to:

Activity: Construct buildings within Stages 4 and 5 breaching the following performance standards of the St Kilda Residential Zone:

- 2.4.2.4 – Minimum Building Setback from Internal Site Boundaries;
- Rule 2.4.2.6 – Maximum Building Length;
- Rule 2.4.2.27 – Neighbourhood Amenity and Safety; and
- 2.4.2.38 – Secondary Dwelling

Consent Holder: Grantchester Farms Ltd

Location Address: Alan Livingston Drive, Cambridge 3434

Legal Description: Lot 3006 DP 494295 as comprised in Certificate of Title 722985

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

Advisory notes for this consent are attached in Schedule 2.

The reasons for this decision are detailed in the attached Schedule 3.

Dated at Cambridge this 14th day of September 2016.

For and on behalf of Waipa District Council:

Kathryn Drew

CONSULTANT PLANNER

Schedule 1

Conditions of Consent

Resource Consent No: LU/0215/16

General

1 That construction of buildings within Stages 4 and 5 of the St Kilda Residential Zone shall proceed in general accordance with the information submitted in support of application LU/0215/16 as set out in the application documentation titled *"St Kilda Building Performance Standards – Resource Consent Application and Assessment of Environmental Effects"* dated 21 July 2016 and the further information received on the 22 August 2016 and the 12 August 2016, except where amended by conditions of this consent.

2 The development of all lots within Stages 4 and 5 of the St Kilda Residential Zone may breach the following performance standards of the Proposed Waipa District Plan as follows:

a) Rule 2.4.2.4 – Apart from Lots 108-122, all other lots within Stages 4 and 5 may have buildings that are setback 3m from the rear boundary of the relevant lot.
b) Rule 2.4.2.6 – All lots within Stage 4 and 5 may have dwellings where the maximum length exceeds 23m provided that such a design is approved by the St Kilda Design Committee prior to lodgement of the building consent application.
c) Rule 2.4.2.17 – All lots within Stages 4 and 5 may have a building whereby the 15% glazing to a public space is calculated by excluding the garage portion of the dwelling.
d) Rule 2.4.2.38 – All lots within Stages 4 and 5 may have secondary dwellings up to 100m².

3 Prior to the issue of a building consent that seeks to utilise one or more the dispensations provided for in this consent, the Applicant of that building consent shall provide Council with:

a) Signed approvals from the St Kilda Development Committee confirming that the building(s) seeking consent complies with the St Kilda Design and Building Guidelines;
b) Elevation plans that demonstrate that the building has at least 15% glazing on all facades that face a public space, but excluding the garage portion of the building; and
c) Site and elevation plans that demonstrate that the extent of buildings, structures and impermeable surfaces for the lot does not exceed 700m².

Charges

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

Schedule 2

Advisory Notes

Resource Consent No: LU/0215/16

1 This consent is granted by the Council subject to the Council's officers and/or agents being permitted access to the property at all reasonable times for the purposes of carrying out inspections, surveys, investigations, tests, measurements or taking samples.

2 All earthworks associated with any development of land must be undertaken in accordance with the following matters:

i) All earthworks must be carried out so as to provide sound foundations as required under NZS 4431:1989 and avoid any hazard to persons or property;

ii) All earthworks must be carried out so as to avoid or mitigate any detrimental effect on the environment particularly with regard to the unnecessary destruction of vegetation, the contamination of natural water or the diversion of surface or ground water flows;

iii) The existing landform must not be altered in such a manner that adjoining properties will be detrimentally affected particularly through changes in drainage systems or abrupt changes in ground level; and

iv) All earthworks must be carried out in accordance with the Waipa District Council Code of Practice for Land Development and Subdivision for formation and construction standards.

3 A Guidance Note has been prepared to provide Council staff with further guidance on the interpretation of 2.4.2.3 – Design of Building Façade so as to avoid the need for a dispensation as part of this consent process.

Schedule 3

Reasons for Decision

Resource Consent No: LU/0215/16

1 The proposal is not contrary to Part 2 of the Resource Management Act 1991.

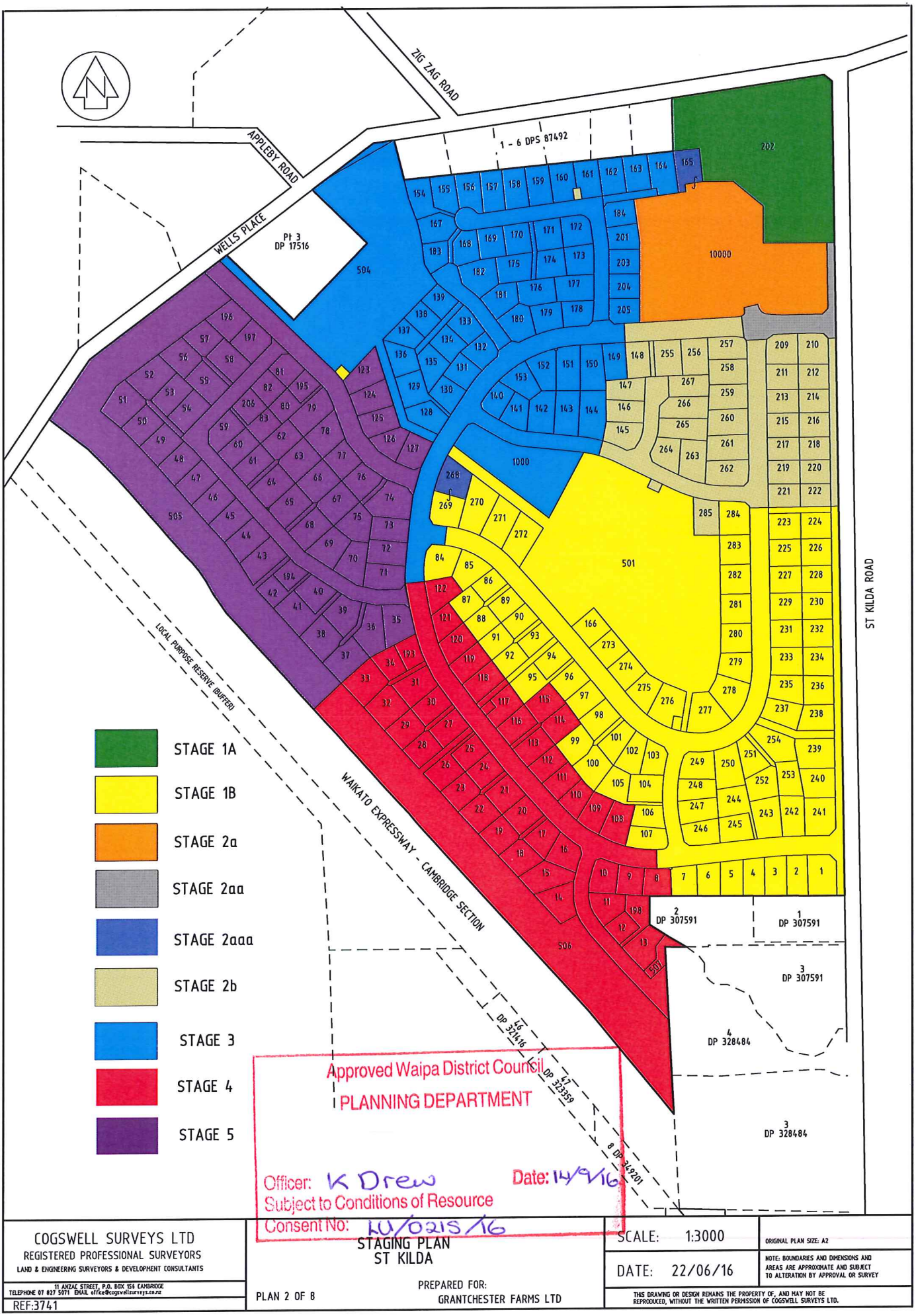
2 The proposal is considered to be a Discretionary Activity under the Proposed Waipa District Plan, being the most restrictive activity classification from the dispensations sought.

3 The assessment has concluded that the effects of the proposal with regard to effects on the density, character and visual amenity of the receiving environment will not be minor or more than minor as a result of the proposed dispensation sought. In practice the dispensations reflect a pragmatic compromise to sites within the Waipa District that are unique because of their orientation and size.

4 All building consent applications that seek to utilise dispensations provided for in this consent will be required to provide Council with a copy of the approval to that building from the St Kilda Design Committee. This process will ensure that Council staff are aware that such approval has been obtained before the building consent is lodged and processed.

5 Overall it is also considered that whilst the proposal seeks to dispense with some of the St Kilda Residential Zone performance standards the conditions of consent imposed and compromises made by Council and the Applicant in the assessment of this application will ensure that the proposal will not be contrary to the relevant objectives and policies of the Proposed Waipa District Plan.

6 The application was processed on a non-notified basis and was approved under delegated authority without the need for a Council hearing.



5b Development contributions

This section contains details of any outstanding development contributions levied, or statutory land charges imposed on the site for non-payment of a development contribution.

Is there a development contribution notice on this site?	No
Development contribution reference	N/A
Development contribution amount	N/A
Is there a statutory land charge imposed on this site?	No

Notes: Refer to a copy of the Development Contribution Notice (if relevant).
Any future subdivision or land use development of this property may be subject to Development Contributions in accordance with Council's Development Contribution Policy (allowed for under the Local Government Act 2002).

6 Special feature details

This section contains details of:

- Whether the site is affected by potential erosion, avulsion, falling debris, subsidence, slippage, alluvion, inundation, peat, contamination or poor soakage;
- whether there is the likely presence of hazardous substances on the site and in particular whether the site has been recorded as being on the Regional Council's HAIL list of potentially contaminated sites.
- Refer to a copy of special features map.

Are there any special features identified for this property? No information known to Council

Note:

The Waikato Regional Council Hazards Portal (Link below) contains information about the natural hazards that may be relevant to the site. Before exploring the Portal, please read the terms of use to understand the limitations of the information contained on the site. The recipient is advised to seek expert advice in terms of the applicability and accuracy of the information as it relates to the site.

https://waikatoregion.maps.arcgis.com/apps/MapSeries/index.html?appid=f2b48398f93146e8a5cf0aa3fddce92c

6a Urban Stormwater Flood Modelling

The 'Urban Stormwater Flood Modelling 1% AEP' map shows the extent of flooding in an extreme 1-in-100-year rainfall event, which has a 1% probability of occurring in any given year. This mean on average this event occurs once in one hundred years. The flood mapping extents include shallow flooding and low hazard water depths. The flooding extent shown uses the ground levels in 2019. Any changes to ground levels since this date (such as through development and earthworks) are not represented. If you would like further information related to your specific property, please contact info@waipadc.govt.nz.

The preparation and provision of this information has been made in good faith based on flood modelling data. While due care has been taken, Waipā District Council does not give any warranty, in relation to the accuracy, completeness or reliability of this information. Expert advice is recommended before seeking to rely on it.

Note: This is the latest flood hazard map. If there is any inconsistency with the Waipā District plan and/or Special Features information, then this map prevails.

Special Features

(Refer to Map Legend)

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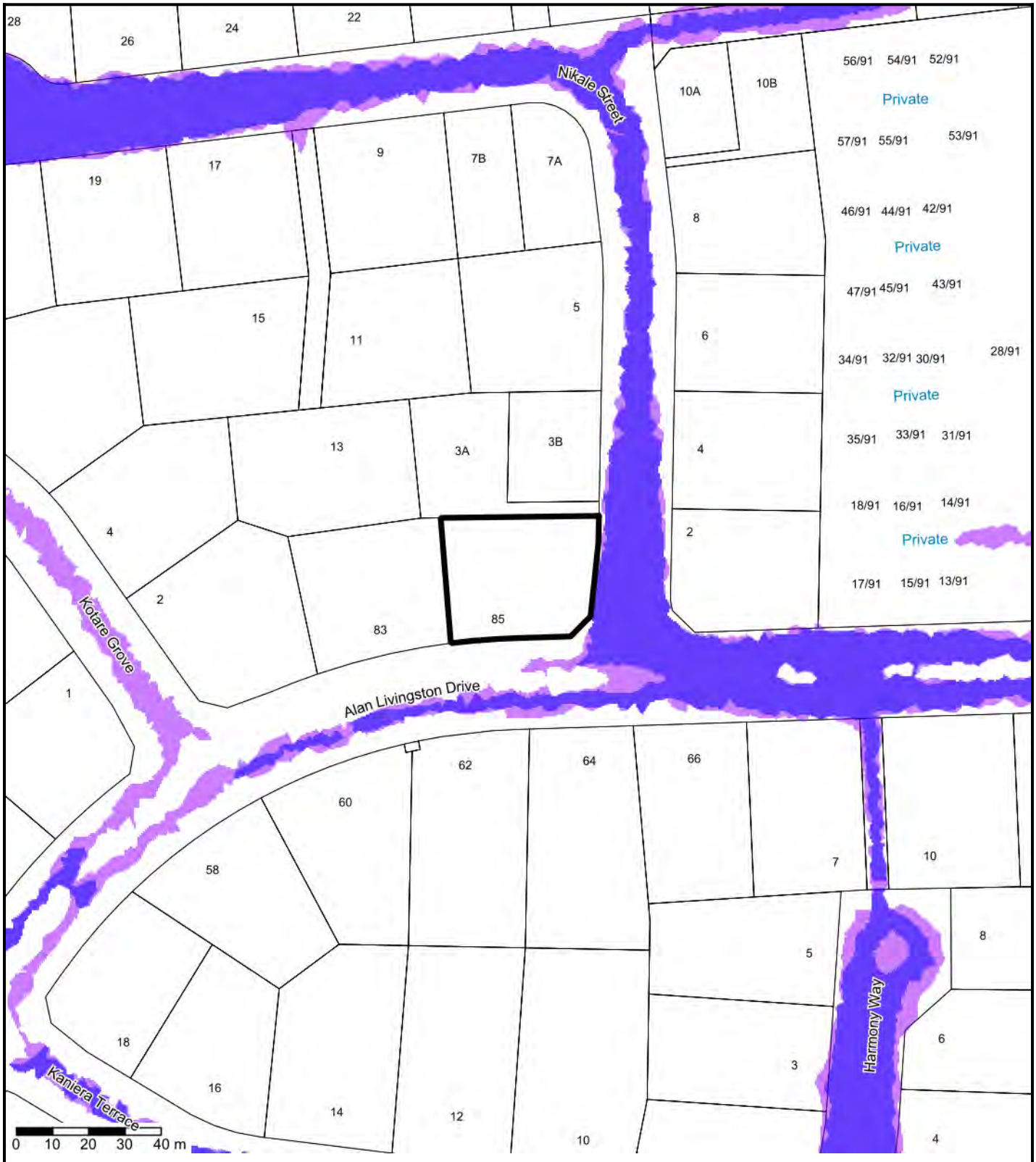
Data has been drawn from various sources including:

- Te Awamutu Flood Management Plan maps (Waikato regional Council)
- Landcare New Zealand's Land Resource Inventory Data (LRI)

HAIL Sites: "This dataset is still under development and subject to regular maintenance and should not be regarded as comprehensive. It is considered an accurate representation of information held by Waikato Regional Council on the day that it is accessed.
While Waikato Regional Council has exercised all reasonable skill and care in controlling the contents of this information, Waikato Regional Council accepts no liability in contract, tort or otherwise howsoever, for any loss, damage, injury or expense (whether direct, indirect or consequential) arising out of the provision of this information or its use by you."

Disclaimer
Because of the nature of the data, accuracy varies and the data should be regarded as indicative only in relation to the site subject to this LIM. Before relying on this information, further research and a site investigation should always be undertaken.



Urban Stormwater Flood Modelling 1% AEP

Flooding Extent: Existing

Flooding Extent: Climate Change

Note: Flood hazard maps are based on 2019 LIDAR (ground contour) data (Moturiki 1953 datum) and therefore any development after that year may not be precisely mapped. Reference should be made to development plans in this instance if there are concerns.

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Disclaimer
Because of the nature of the data, accuracy varies should be interpreted conservatively. If there is any doubt, further research and a site investigation will always be warranted.

If you would like further information related to your specific property, please contact info@waipadc.govt.nz

7a Alcohol licence details

This section contains details of any Alcohol Licence authorised for this site pursuant to the Sale and Supply of Alcohol Act 2012.

Is there a Alcohol Licence authorised for this site?	No

Note: Refer to a copy of the certificate issued for this property.

7b Environmental health details

This section contains details of:

- Any Health Certificate authorised for the property pursuant to the Health (Registration of Premises) Regulations 1966;
- Any Health Requisitions imposed on the property pursuant to the Health (Registration of Premises) Regulations 1966.
- Any Food Control Plan or National Programme registered pursuant to the Food Act 2014.

Is there a Health or Food Registration authorised for the site?	No
Have any Health Requisitions been imposed on the site?	No

Note: Refer to a copy of the certificate issued for this property.

7c Environmental monitoring details

This section contains details of:

- Any Abatement Notice currently issued on the property; and
- Any Enforcement Order currently issued or applied for on the property.

Is there an Abatement Notice currently issued on this site?	No
Is there an Enforcement Order currently issued on this site?	No
Has an application been made to a Court for an Enforcement Order on this site?	No

Notes: Refer to a copy of the Abatement Notice/Enforcement Order (if relevant).

7d Clanlabs

A Clandestine Laboratory (Clan Lab) is an area which has been set up illegally to manufacture illicit drugs **(i.e. methamphetamine)** or other prohibited substances, or other activities (such as chemical storage) supporting that purpose.

Has Council been notified by New Zealand Police of a Clanlab on this site?

No information known to Council

Note: Refer to further information if relevant.

Discretionary Information

Disclaimer
Waipā District Council may also supply information that has been supplied by a third party pursuant to Parts 2,3 or 4 of the Local Government Official Information and Meetings Act 1987. Waipa District Council cannot verify if this information is reliable or accurate. Any such third party information should be subject to further checking by the applicant. Waipā District Council will not accept any liability whatsoever, or subsequent loss, attributed to the third party information, in accordance with section 41 of the Local Government Official Information and Meetings Act 1987.

PART 2

Significant Projects

This section contains details of significant proposed or existing designations in Waipā District. Details below include the name of the designation, the requiring authority and the designations' status.

Cambridge to Piarere Project (Long Term Improvements Project)

Location / description
The Project is the construction, operation and maintenance of an approximately 16km median divided expressway, extending from the southern end of the Cambridge section of the Waikato Expressway to the intersection of State Highway 1 (SH1) and State Highway 29 (SH29) at Piarere.

Status
The application is being processed through the Fast Track consenting process under the Natural and Built Environment Act 2023, and was lodged with the Environmental Protection Authority (EPA) on 3 July 2024. Please contact Waka Kotahi NZ Transport Agency for further information.

Southern Links (D 156) – New Zealand Transport Agency

Location / description
To develop a network of integrated state highway and urban arterial routes linking SH1 from Kahikatea Drive in Hamilton City to Tamahere and the Waikato Expressway in the south, and SH3 from Hamilton International Airport to central and east Hamilton.

Status
Designation confirmed with 20 year lapse, construction not yet programmed.
Further information is available at: www.waipadc.govt.nz/HamiltonSouthernLinks, or the Council offices.

Te Awamutu Western Arterial (D 154) - Waipā District Council

Location / description
Located in Te Awamutu between the intersection of Paterangi Road and Alexandra Street, and extending approximately 4.6km to the intersection of St Leger Road, Golf Road, and State Highway 3.

Status
Designation approved, construction not yet commenced, and not currently funded in Council's 10 Year Plan.

Resource consents within vicinity of property

Refer to attached map and schedule of consents

Cell phone towers and antennas

Telecommunications infrastructure including cell phone towers and antennas are permitted activities under the National Environmental Standard (NES) for Telecommunication Facilities 2016. If the NES conditions are met, no resource consent is needed, and landowners need not be consulted on upgrades or new facilities. If telecommunications facilities are of interest, you are advised to contact telecommunications providers to obtain information on the locations of any existing facilities or any proposed upgrades or new facilities.

Liquor licence details and Environmental health details within vicinity of property

Refer to schedule of details if relevant

Fire Control

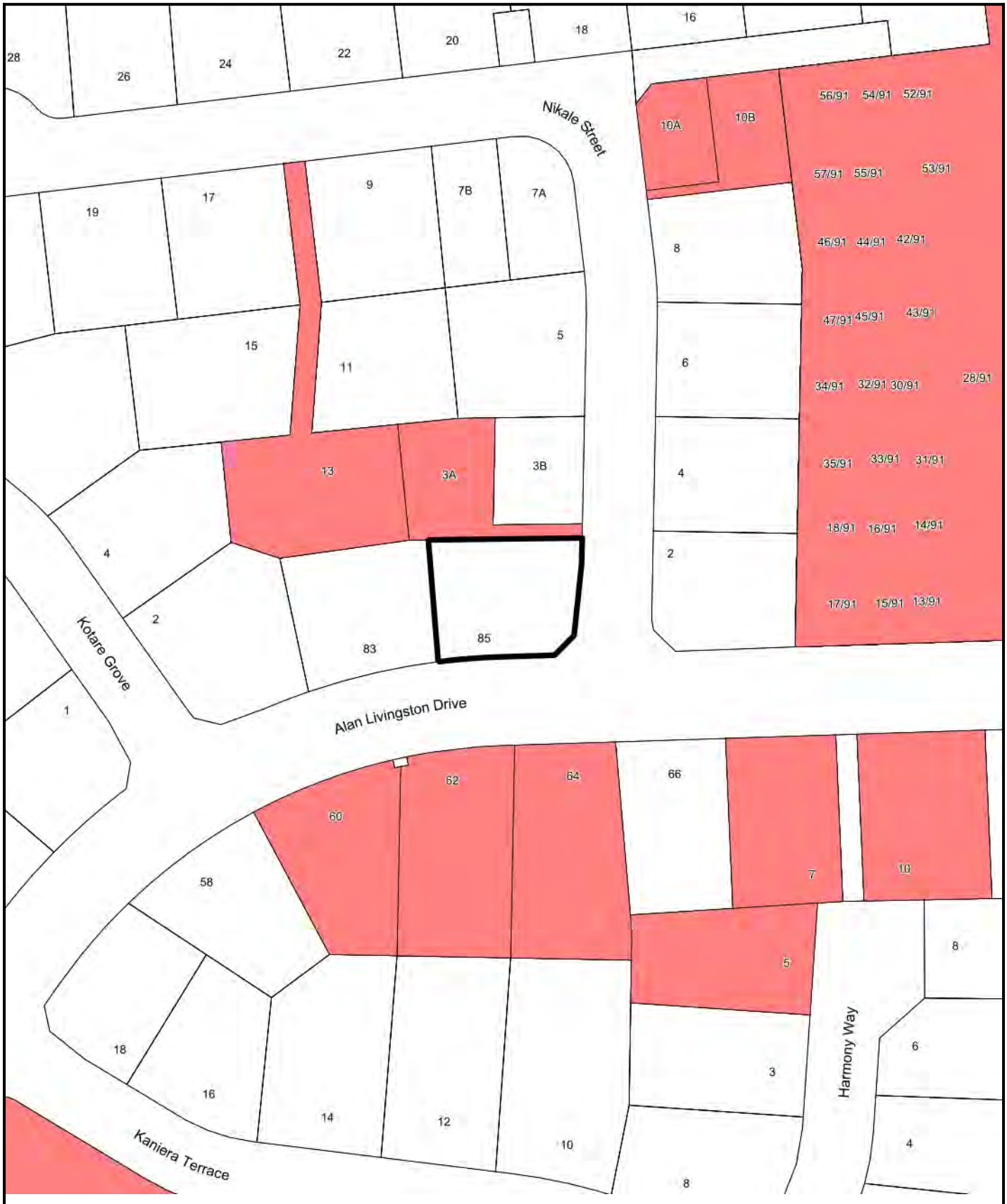
Fire and Emergency New Zealand administer all properties in the district in regards to fire control, please contact them for more information. www.checkitsalright.nz.

Refuse, and recycling collection details

This section contains details of the availability of a refuse/recycling collection system.

Refuse collection	Waipā District Council does not provide a refuse collection service. There are a number of private companies that provide a service within our District. Please contact private companies directly for information on collection availability and costs.
Recycling	Waipā District Council provides a recycling service to all rural and residential properties, but does not provide this service to any commercial or industrial property. Please refer to Council's website for further information. www.waipadc.govt.nz/recycling

Waipā DISTRICT COUNCIL



Land Use Consents

Granted since 1 November 1989

Please use the attached Land Use Consents Report for further details

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NORTH

Land Use Consents Report

Please use the attached Land Use Consent Map to locate the property to which the consent applies.

The Land Use Consent Map only relates to Land Use Consents approved from 1 November 1989.
This report only includes Land Use consents within a 50m buffer for properties in urban areas (residential, town centre, industrial and general), and a 400m buffer for all (other) rural areas. Further information on any resource consent can be obtained by contacting the Council Planning Department.

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Land Use Consents

Property Address	Application ID	Decision	Date Approved	Description
13 Nikale Street Cambridge 3434	LU/0325/20	#Approved	04/02/2021	Construct pool and surrounds exceeding maximum site coverage and impermeable surfaces in St Kilda Structure Plan Area
13 Nikale Street Cambridge 3434	NT/0042/21	#Approved	06/05/2021	Construct pool shed dispensing with internal boundary setback requirements in St Kilda Structure Plan Area
3A Nikale Street Cambridge 3434	LU/0070/17	#Completed	07/04/2017	Erect duplex dwellings breaching site coverage & impermeable surface in conjunction with SP/0032/17
60 Alan Livingston Drive Cambridge 3434	LU/0151/16	#APPROVED	01/06/2016	Construct vehicle crossing within 30m of an intersection
62 Alan Livingston Drive Cambridge 3434	LU/0306/18	#APPROVED	18/12/2018	Install swimming pool and an extension to the existing driveway breaching permeability
64 Alan Livingston Drive Cambridge 3434	LU/0161/23	#Approved	27/09/2023	Dwelling addition breaching internal site boundaries, site coverage and permeable surfaces

DISCLAIMER

This Land Information Memorandum has been prepared for the purposes of Section 44A of the Local Government Official Information and Meetings Act 1987 and includes all information required to be provided pursuant to Section 44A(2) that is known to the Waipā District Council relevant to the land described.

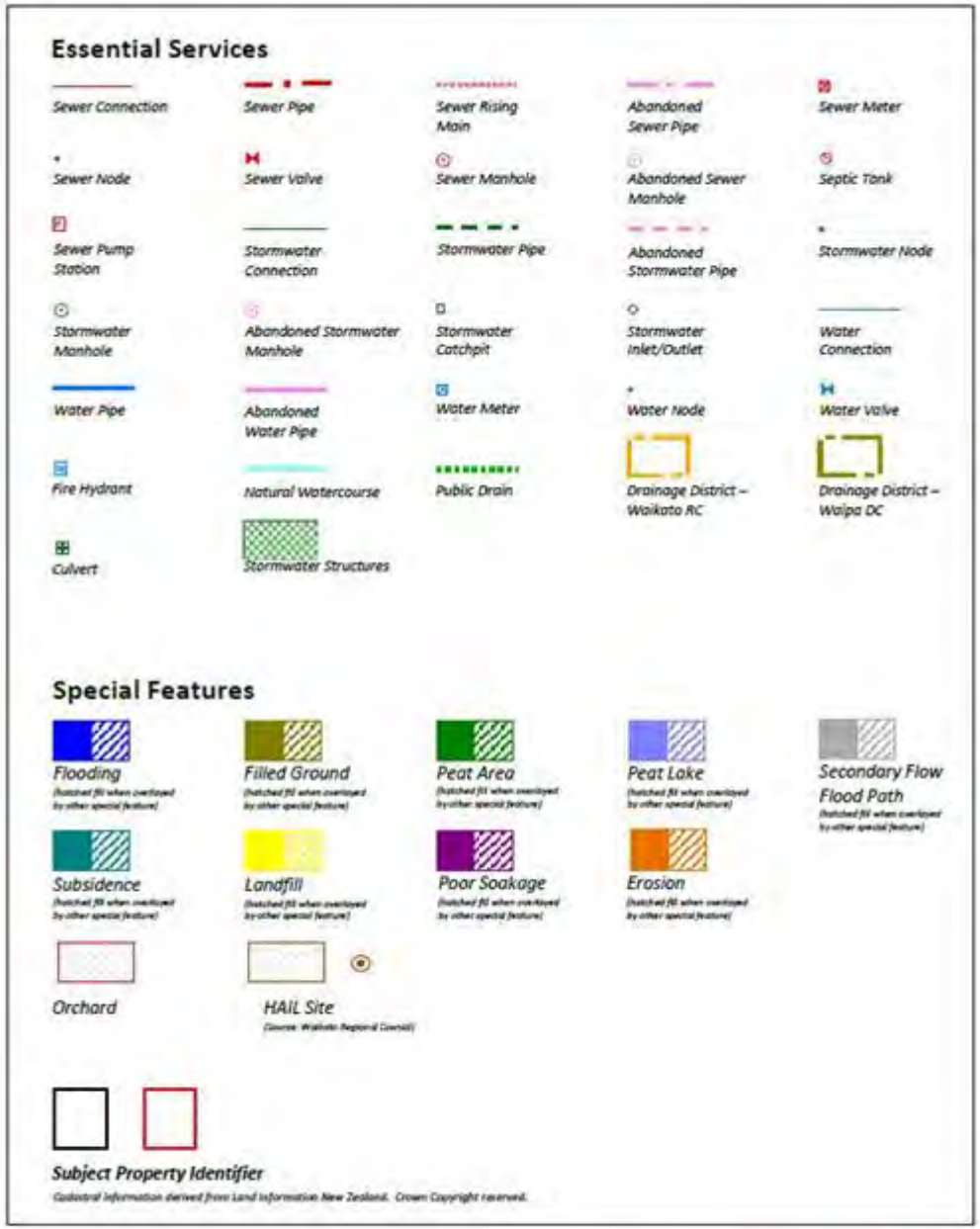
Signed for and on behalf of the WAIPĀ DISTRICT COUNCIL

Authorised Officer

26 June 2025

Date

The signing and dating of this LIM report is sufficient evidence of the correctness of the information provided, as at the date above.



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Map Legend

Waipā
DISTRICT COUNCIL

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Cambridge Office 07 823 3800 • 23 Wilson Street, Cambridge
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/WaipaDistrictCouncil /Waipa_NZ /Waipa_DC