

**Median water table elevation in
Christchurch and surrounding area
after the 4 September 2010 Darfield Earthquake
Version 2**

S. van Ballegooy, S. C. Cox, C. Thurlow,
H. K. Rutter, T. Reynolds, G. Harrington,
J. Fraser, T. Smith

GNS Science Report 2014/18

May 2014

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GNS Science Report 2014/18 May 2014

The following report is an update of the median water table elevation report for Christchurch and surrounding areas released in March 2013 (GNS Report 2013/01). The revision encompasses an extension of the period of groundwater monitoring (4 September 2010 to 30 November 2013) and new surfaces for improved definition of water table fluctuation.

BIBLIOGRAPHIC REFERENCE

S. van Ballegooy, S. C. Cox, C. Thurlow, H. K. Rutter, T. Reynolds, G. Harrington, J. Fraser, T. Smith, 2014. Median water table elevation in Christchurch and surrounding area after the 4 September 2010 Darfield Earthquake: Version 2. GNS Science Report 2014/18, 79 pages plus 8 appendices.

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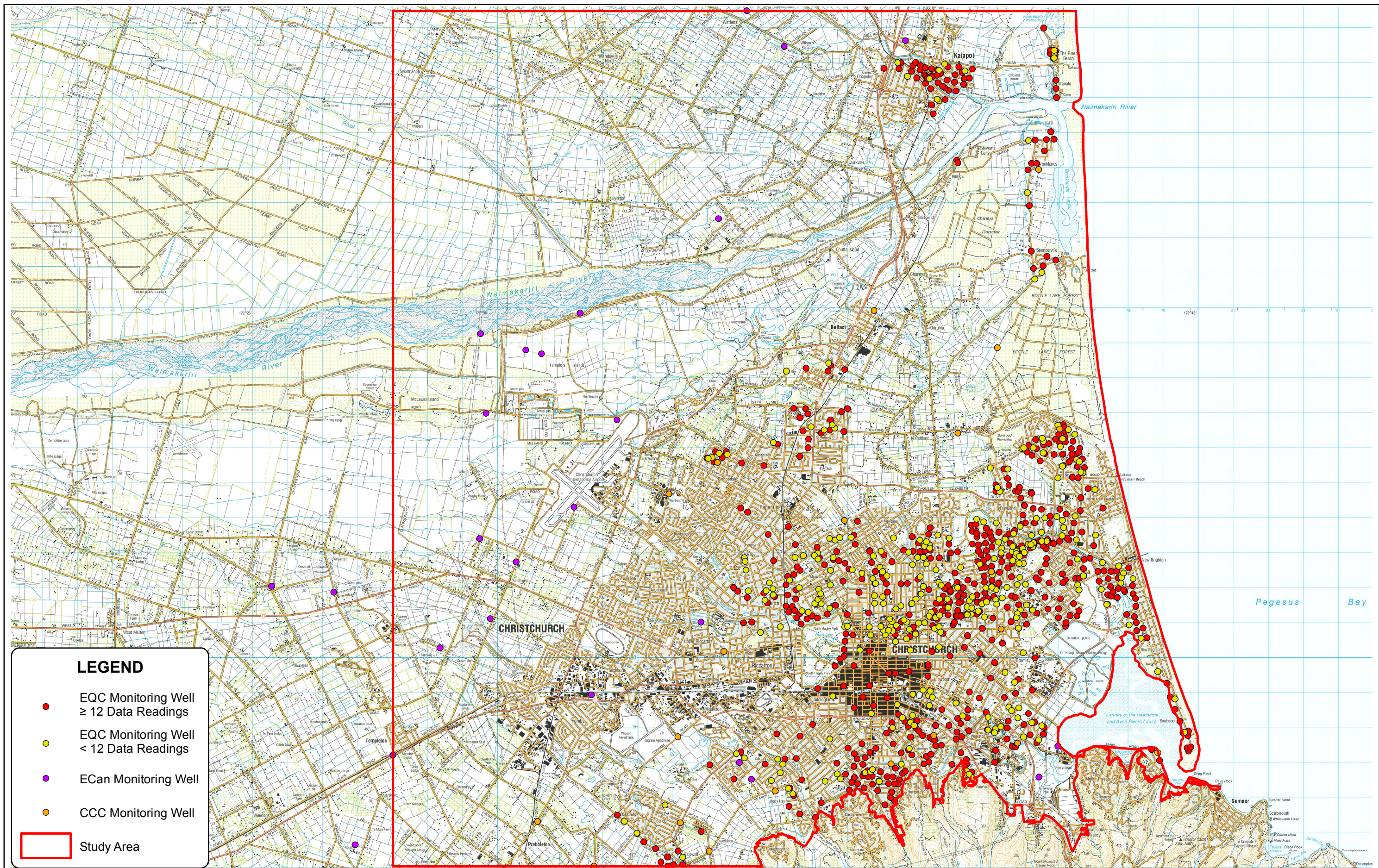
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APPENDIX B: MONITORING WELL DATA

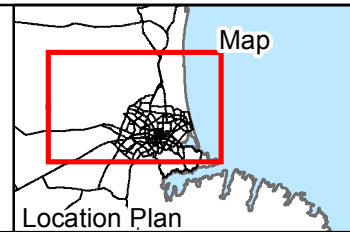
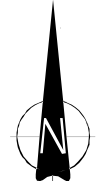
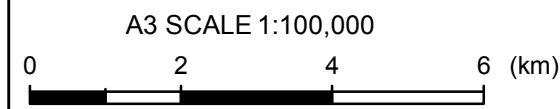
Figure B.1	Location plan for monitoring wells
Figure B.2	Depth of monitoring wells
Figure B.3	Example CCC monitoring well log
Figure B.4	MP and GL sign convention for ECan wells
Figure B.5	Example ECan monitoring well log
Figure B.6	EQC Initial Phase standard monitoring well detail
Figure B.7	EQC TC3 Phase standard monitoring well detail



LEGEND

- EQC Monitoring Well ≥ 12 Data Readings
- EQC Monitoring Well < 12 Data Readings
- ECan Monitoring Well
- CCC Monitoring Well
- Study Area

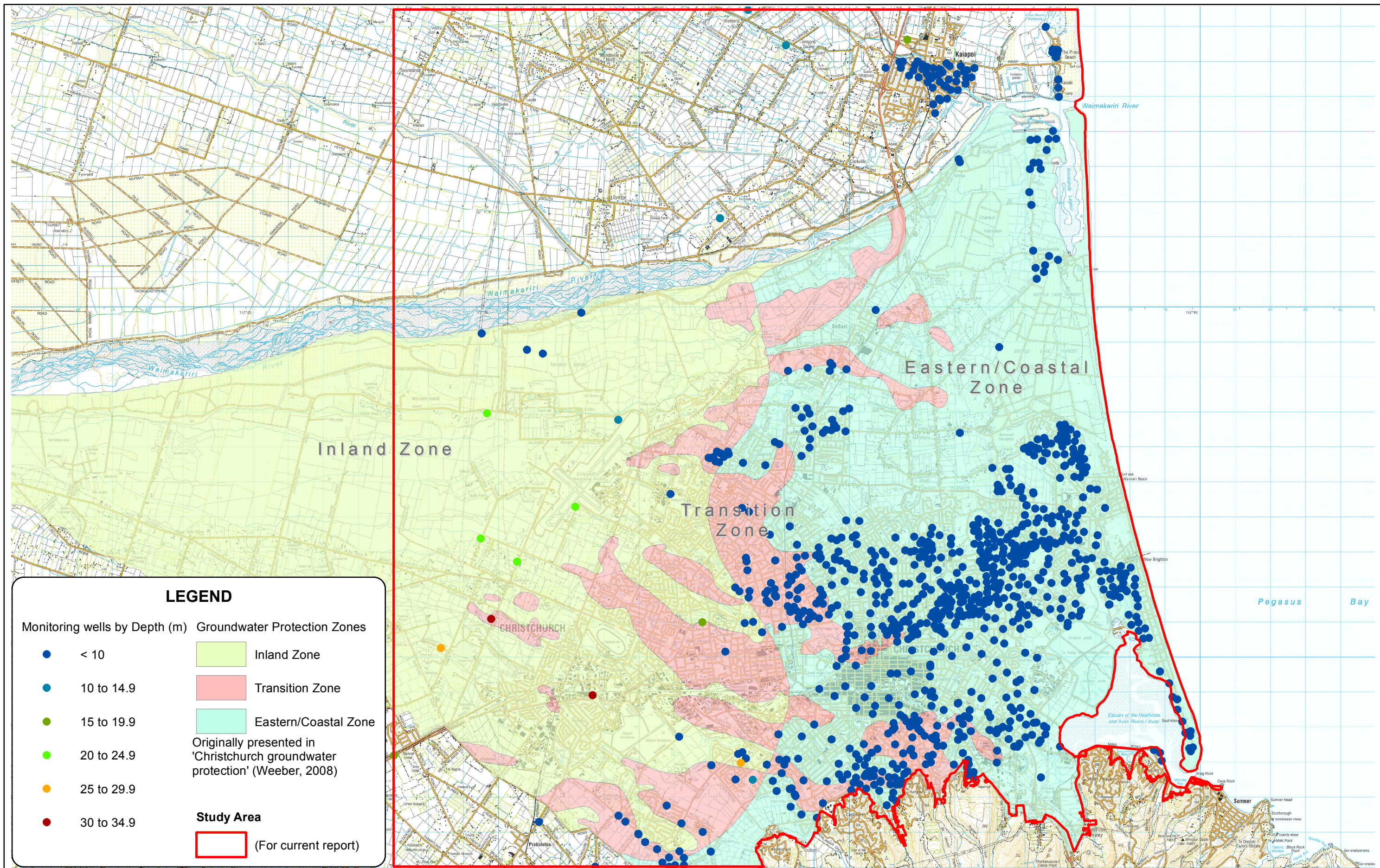
Notes: Contains data sourced from Land Information New Zealand and Landcare Research under CC-BY. <http://creativecommons.org/licenses/by/3.0/nz/>



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1:100,000		
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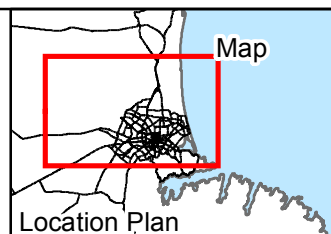
CHRISTCHURCH MEDIAN WATER TABLE ELEVATION REPORT

Location Plan for Monitoring Wells



Notes: Contains data sourced from Land Information New Zealand and Landcare Research under CC-BY. <http://creativecommons.org/licenses/by/3.0/nz/>

A3 SCALE 1:100,000



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CHRISTCHURCH MEDIAN WATER TABLE ELEVATION REPORT

Depth of Monitoring Wells

FIGURE No. Figure B.2

Rev. 0

Bore or Well No: M36/3167		
Well Name: HHN		
Owner: CHRISTCHURCH CITY COUNCIL		
Street of Well: 140 SPARKS ROAD		File No:
Locality: HOON HAY		Allocation Zone: Christchurch/West Melton
NZGM Grid Reference: M36:77915-37799 QAR 2		
NZGM X-Y: 2477915 - 5737799		
Location Description: TOBY BOX, END OF DRIVEWAY UNDER KOHUHU		Uses: Water Level Observation
ECan Monitoring: Christchurch City Council		
Well Status: Active (exist, present)		
Drill Date:		Water Level Count: 1755
Well Depth: 2.97m -GL		Strata Layers: 0
Initial Water Depth: -2.51m -MP		Aquifer Tests: 0
Diameter: 51mm		Isotope Data: 0
		Yield/Drawdown Tests: 0
Measuring Point Ait: 10.28m MSD QAR 4		Highest GW Level: 0.22m below MP
GL Around Well: 0.00m -MP		Lowest GW Level: 2.99m below MP
MP Description:		First Reading: 07 Jul 1969
		Last Reading: 05 Jun 2012
Driller: not known		Calc. Min. GWL: -2.74m -MP
Drilling Method: Unknown		Last Updated: 17 Oct 2006
Casing Material:		Last Field Check: 05 Jun 2012
Pump Type: Unknown		
Yield:		Screens:
Drawdown:		Screen Type:
Specific Capacity:		Top GL:
		Bottom GL:
Aquifer Type: Unknown		
Aquifer Name:		

Date	Comments
23 Oct 1998	In the grounds of Sparks Road pumping station. Grid reference verified by field visit.
26 Jan 2004	Data supplied by the Christchurch City Council, measured by and original data held by NIWA
10 May 2011	First WL reading set as ISWL

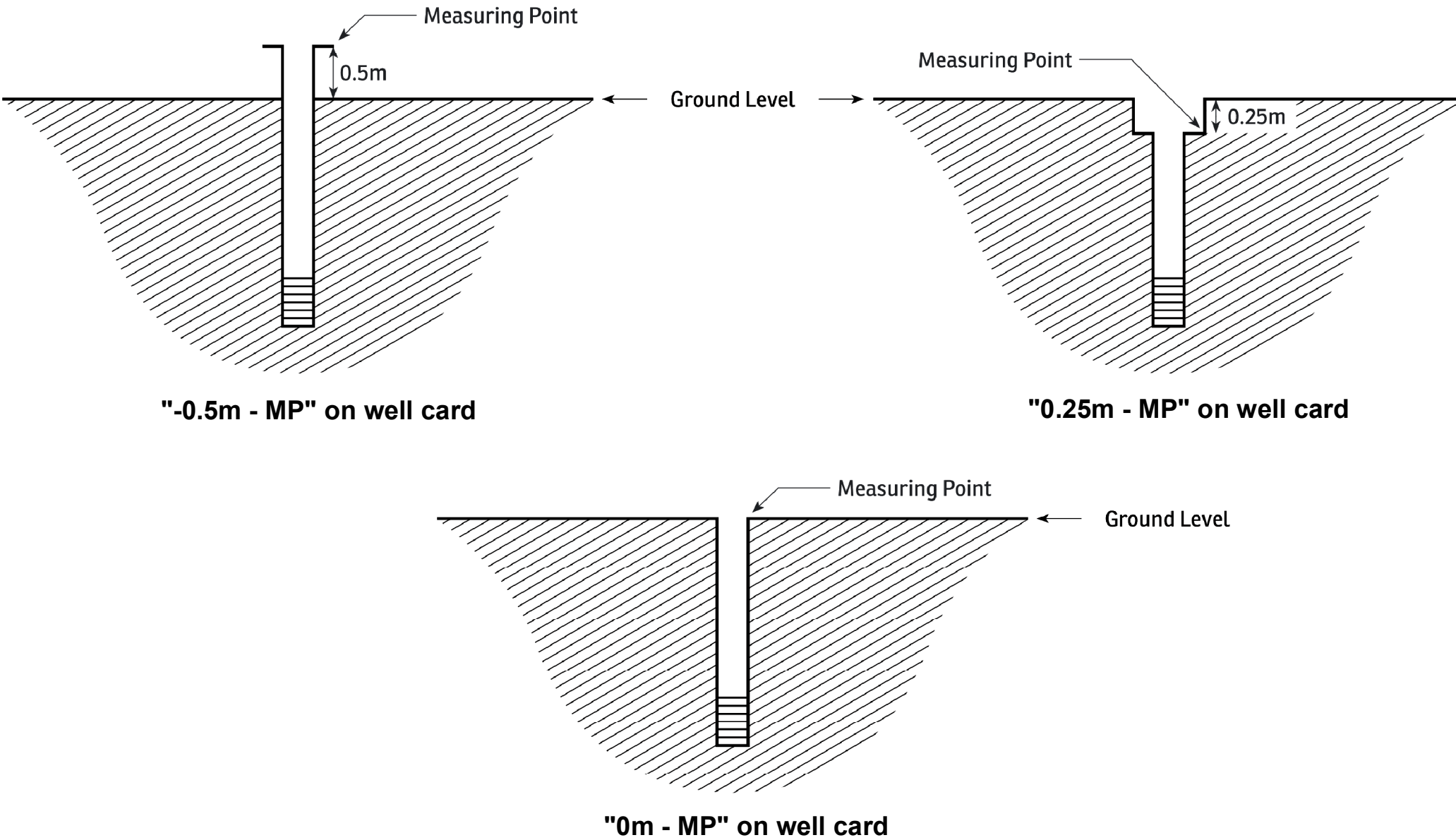
Notes:
Well log sourced from Environment Canterbury website.



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CHRISTCHURCH MEDIAN WATER TABLE ELEVATION REPORT	
Example Christchurch City Council Monitoring Well Log	
FIGURE No. Figure B.3	Rev. 0

Ground Level Distance from Measuring Point



Notes: Sourced from Environment Canterbury.



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ARCFILE 52020-0200-CPT020 SCALE (AT A3 SIZE)		
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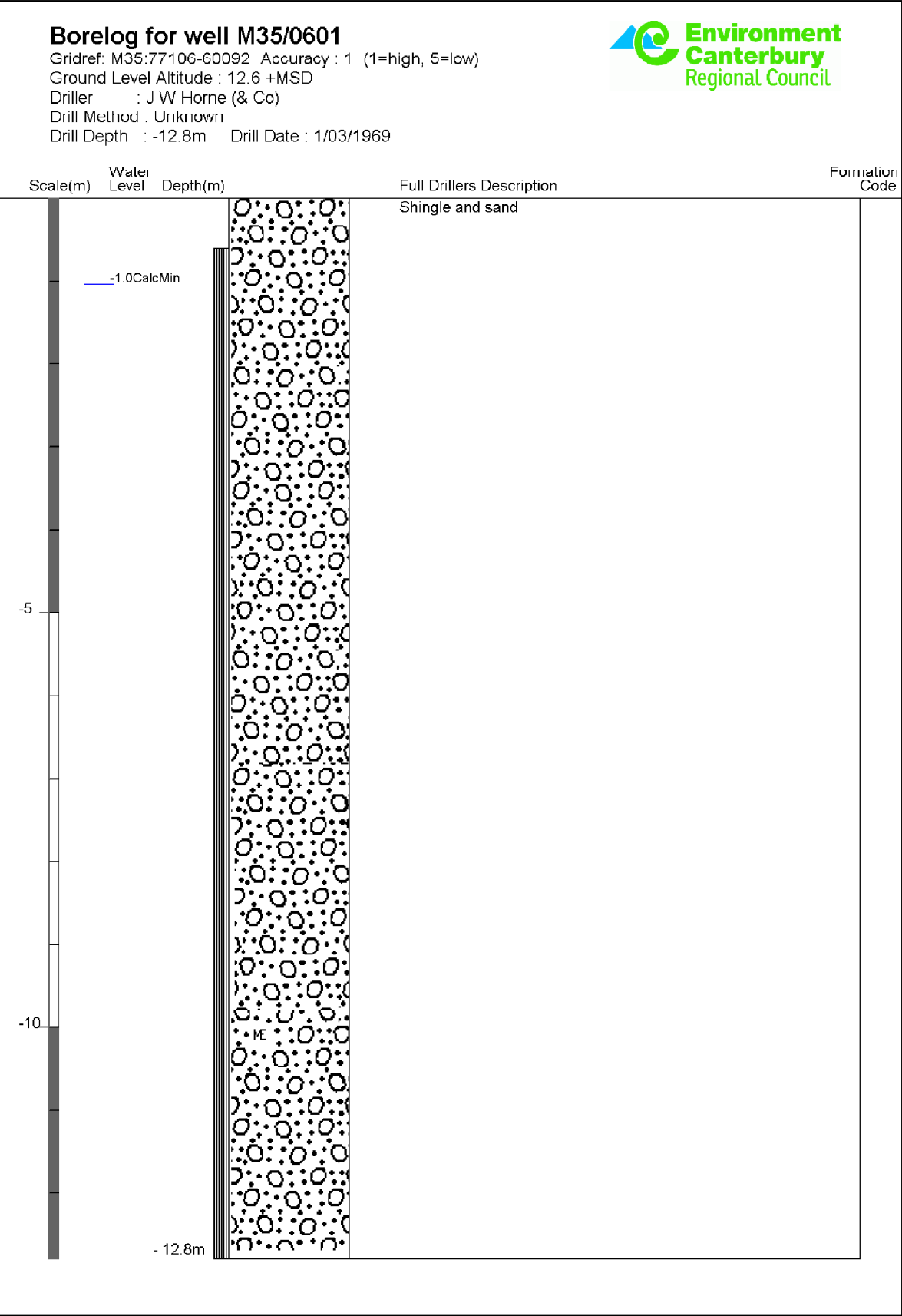
CHRISTCHURCH MEDIAN WATER
TABLE ELEVATION REPORT
Measuring point sign convention for
Environment Canterbury wells

FIGURE No. Figure B.4

Rev. 0

Bore or Well No: M35/0601 Well Name: ARMSTRONG WELL Owner: Threlkeld Estate Limited		 Environment Canterbury Your regional council
Street of Well: THRELKELDS ROAD Locality: OHOKA, NZGM Grid Reference: M35:77106-60092 QAR 1 NZGM X-Y: 2477106 - 5760092 Location Description: ALONG LANEWAY ECan Monitoring: Monthly Manual Well Status: Active (exist, present)		
File No: CO6C/10523 Allocation Zone: Cust		
Drill Date: 01 Mar 1969 Well Depth: 12.80m -GL Initial Water Depth: -0.44m -MP Diameter: 250mm		Water Level Count: 319 Strata Layers: 1 Aquifer Tests: 0 Isotope Data: 0 Yield/Drawdown Tests: 1
Measuring Point Ait: 12.80m MSD QAR 1 GL Around Well: -0.20m -MP MP Description: ToC		Highest GW Level: 0.01m below MP Lowest GW Level: 1.88m below MP First Reading: 30 Aug 1973 Last Reading: 12 Nov 2012 Calc. Min. GWL: -1.24m -MP Last Updated: 03 Feb 2010 Last Field Check: 12 Nov 2012
Driller: J W Horne (& Co) Drilling Method: Unknown Casing Material: STEEL Pump Type: Centrifugal (Surface) Yield: 19 l/s Drawdown: 6 m Specific Capacity: 3.28 l/s/m		Screens: Screen Type: Unknown Top GL: 0.60m Bottom GL: 12.80m
Aquifer Type: Unknown Aquifer Name:		

Date	Comments
05 Dec 1996	LOCATION EST WITH G.P.S 5/12/96 NEAR WELLS 0602 AND 0603. Previous owner IW TOOLEY
14 May 1999	Slot size 10 mm x 102 mm
03 Feb 2010	level ref LB361/3 p416
23 Aug 2010	Surveyed in 2010 as part of piezo survey. Old grid ref m35:77110-60100. Old height 12.81 m, QAR 1
10 May 2011	First WL reading set as ISWL
21 Jul 2011	Previous owner ARMSTRONG, GG & MA



Notes: Well log sourced from Environment Canterbury website.

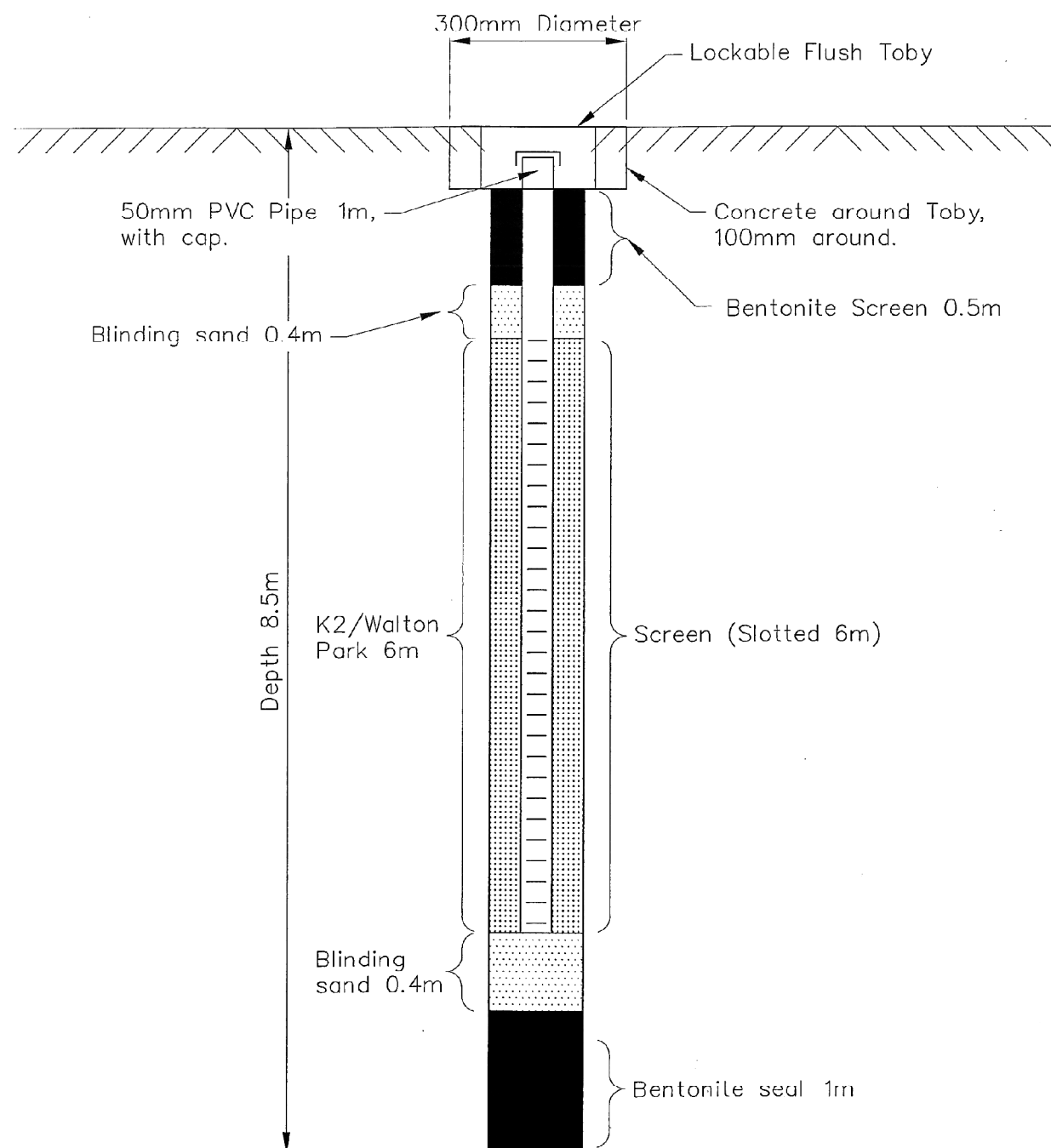


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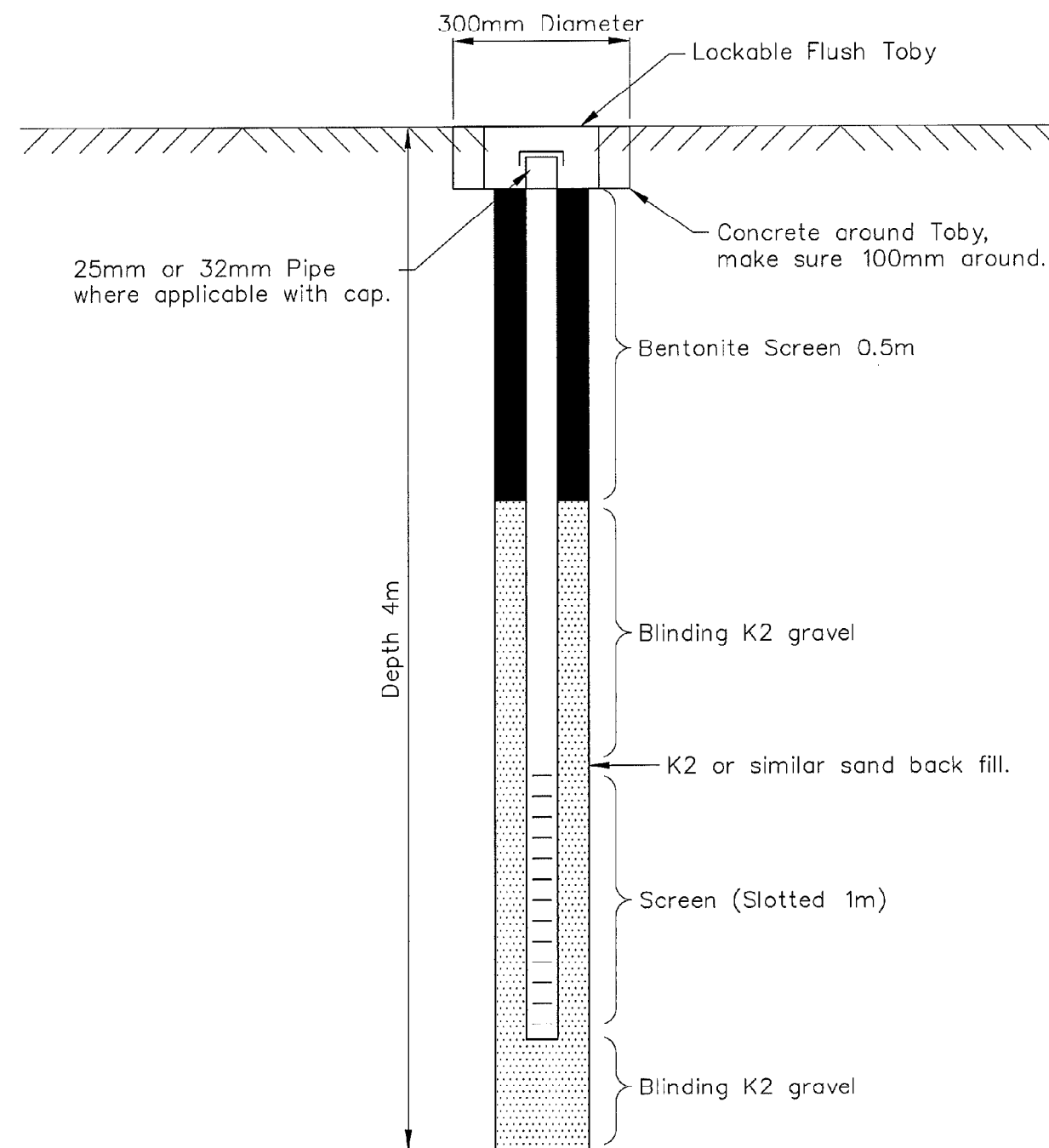
**CHRISTCHURCH MEDIAN WATER
TABLE ELEVATION REPORT**
 Example Environment Canterbury
 Monitoring Well Log

FIGURE No. Figure B.5

Rev. 0



EQC
GEOTECHNICAL INVESTIGATIONS
CHRISTCHURCH EARTHQUAKE RECOVERY
Stand Pipe Detail for Bore Holes



EQC
GEOTECHNICAL INVESTIGATIONS
CHRISTCHURCH
Stand Pipe Detail for CPT Holes

Notes:



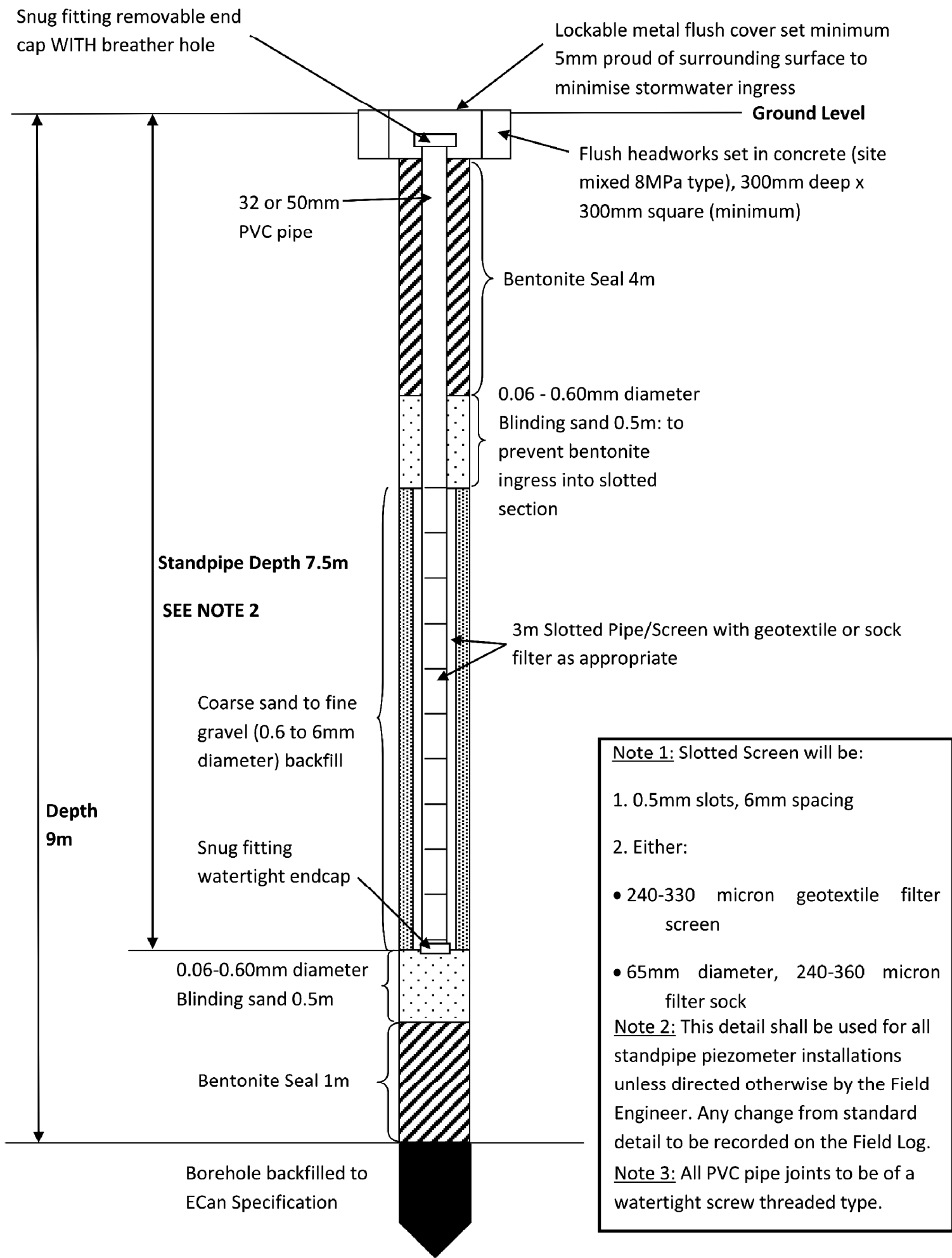
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Prepared By	Tonkin & Taylor Ltd.	
Ref.	52020.0200	

CHRISTCHURCH MEDIAN WATER
TABLE ELEVATION REPORT
Standard Monitoring Well detail for
2010/2011 ground investigations (EQC)

FIGURE No. Figure B.6

Rev. 0

Standpipe Piezometer Installations (Revision B, 30rd July 2012): Standard Detail for Boreholes – Technical
Category 3 Area Wide Investigations



Notes:



DRAWN	CXP	Feb.13
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APPROVED		
ARCFILE	52020-0200-CPT019	
SCALE	(AT A3 SIZE)	
Prepared by	Tonkin & Taylor Ltd	
Ref.	52020.0200	

CHRISTCHURCH MEDIAN WATER
TABLE ELEVATION REPORT
Standard Monitoring Well detail for TC3
ground investigations (EQC)

FIGURE No. Figure B.7

Rev. 0



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