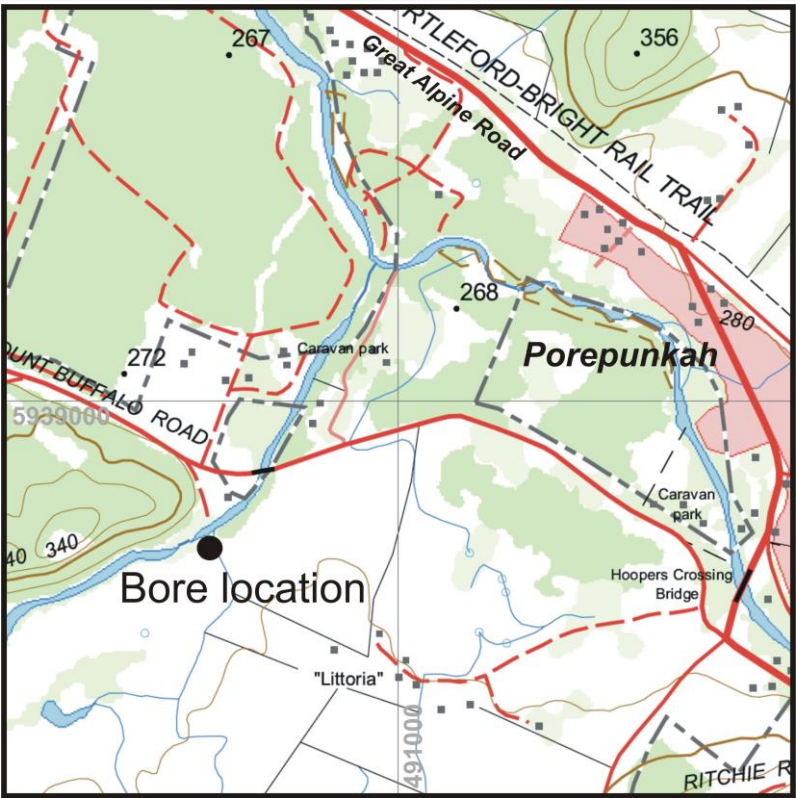




Borehole Infrastructure Report

Site Data		
Site Code		Barrett Lane B1
Site Name		Barrett Lane
Region		Buckland River, VIC
Easting	GDA94 Zone 55	0490392
Northing		5938540
Elevation (m AHD)		282
Bore Depth (m)		50
Screen Length (m)		2
Screen Top (m)		47
Screen Bottom (m)		49
Bore Top		Monument
Top of Pipe (m)		0.995
Date Completed		10 th July 2013



Construction details	
Borehole Type	Monitoring Bore
Installed by	Monash University
Drilled by	Alpine Drilling Pty Ltd
Drilling Method	Advanced Casing
Screen Type	Slotted PVC
Casing size / Type	80mm Class A PVC
Development Details	Purged prior to sampling



Description and Comments: Bore located close to the bridge (north side) on River Road.
Continuous Data: Continuous water depth and electrical conductivity data are available for this site, measured with InSitu AQUA TROLL 100 at 30 minute intervals.

Infrastructure Report by:	Contact Details:	Checked by: Prof Ian Cartwright
Dr Harald Hofmann		Ian.Cartwright@monash.edu

Groundwater Chemistry

Field Data	
Date of Sampling	22/08/2013
Depth Below Natural Surface (m)	8.145
Reduced Water Level (m)	
EC (µS/cm)	229
pH	6.78
DO (mg/l)	--

Stratigraphy:

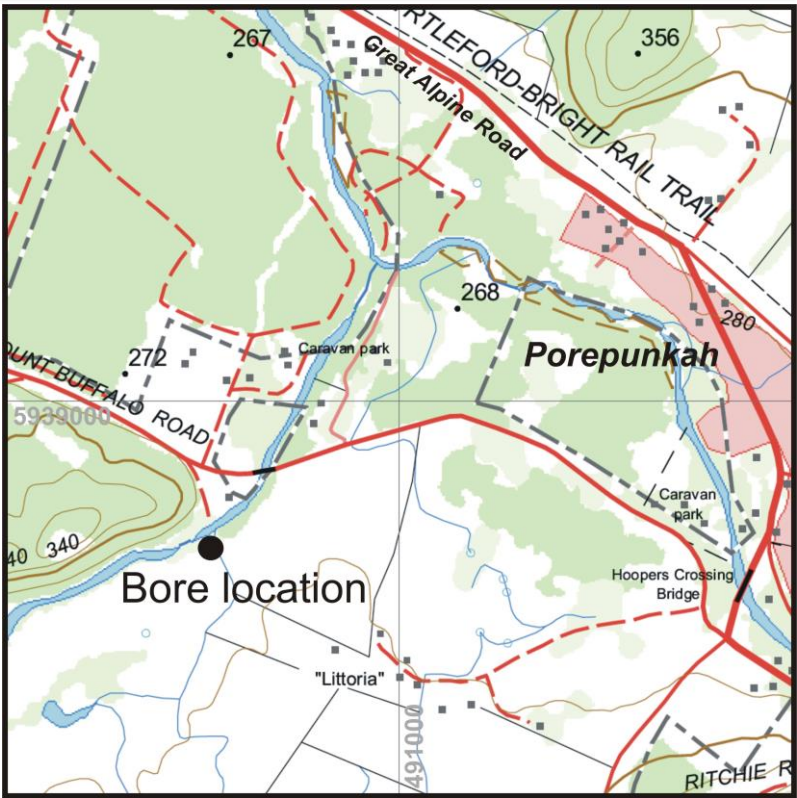
0 - 2 m Red clay
2 – 5 m Dry gravel
5 – 50m Firm shale

Anions		Cations		Isotopes	
HCO ₃ (mg/L)	83.6	Li (µg/L)	0.31	δ ¹⁸ O (‰)	-6.5
F (mg/L)	0.24	Na (mg/L)	78.3	δ ² H (‰)	-35
Cl (mg/L)	95.22	Mg (mg/L)	6.65	δ ¹³ C (‰)	-18.0
Br (mg/L)	0.21	K (mg/L)	1.84	¹⁴ C pMC	50.48
NO ₃ (mg/L)	0.24	Ca (mg/L)	5.84	Tritium (TU)	1.89
SO ₄ (mg/L)	7.86	Mn (µg/L)	7.28		
		Fe (µg/L)	19.21		
		Sr (µg/L)	59.33		
		Ba (µg/L)	41.25		



Borehole Infrastructure Report

Site Data		
Site Code		Barrett Lane 2
Site Name		Barrett Lane
Region		Buckland River, VIC
Easting	GDA94 Zone 55	0490392
Northing		598540
Elevation (m AHD)		282
Bore Depth (m)		25
Screen Length (m)		2
Screen Top (m)		22
Screen Bottom (m)		24
Bore Top		Monument
Top of Pipe (m)		0.99
Date Completed		10 th July 2013



Construction details	
Borehole Type	Monitoring Bore
Installed by	Monash University
Drilled by	Alpine Drilling Pty Ltd
Drilling Method	Advanced Casing
Screen Type	Slotted PVC
Casing size / Type	80mm Class A PVC
Development Details	Purged prior to sampling



Description and Comments: Bore located furthest from the bridge (north side) on River Road.
Continuous Data: Continuous water depth and electrical conductivity data are available for this site, measured with InSitu AQUA TROLL 100 at 30 minute intervals.

Infrastructure Report by:	Contact Details:	Checked by: Prof Ian Cartwright
Dr Harald Hofmann		Ian.Cartwright@monash.edu

Groundwater Chemistry

Field Data	
Date of Sampling	22/08/2013
Depth Below Natural Surface (m)	7.695
Reduced Water Level (m)	
EC (µS/cm)	310
pH	5.45
DO (mg/l)	Traces

Stratigraphy:

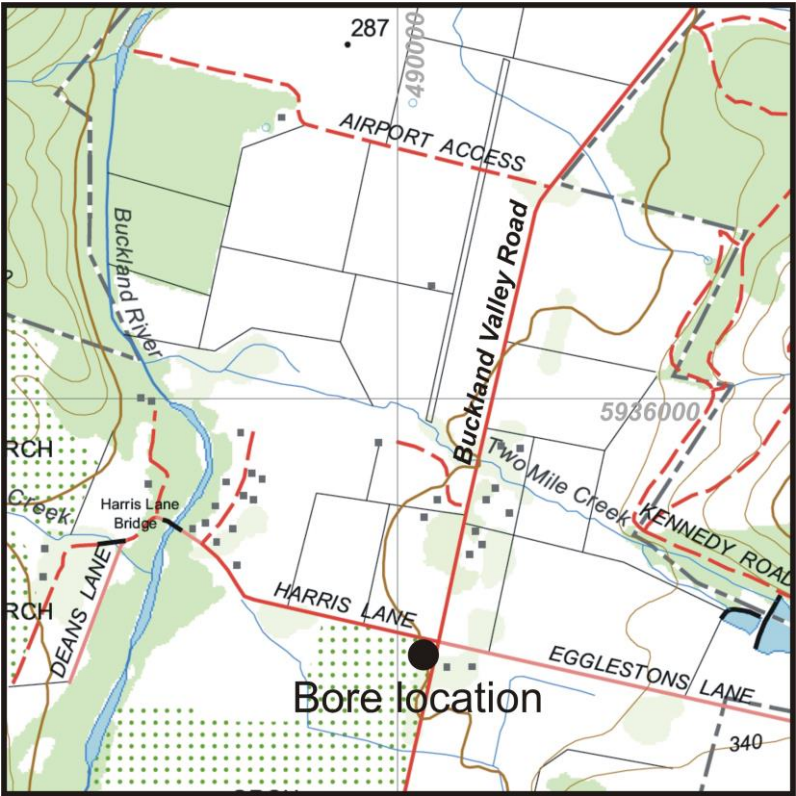
0 - 2 m Red clay
2 – 5 m Dry gravel
5 – 25m Firm shale

Anions		Cations		Isotopes	
HCO ₃ (mg/L)	88.2	Li (µg/L)	0.71	δ ¹⁸ O (‰)	-6.4
F (mg/L)	0.06	Na (mg/L)	100.2	δ ² H (‰)	-34
Cl (mg/L)	129.3	Mg (mg/L)	5.32	δ ¹³ C (‰)	-19.5
Br (mg/L)	0.004	K (mg/L)	2.39	¹⁴ C pMC	56.09
NO ₃ (mg/L)	0.14	Ca (mg/L)	7.17	Tritium (TU)	1.37
SO ₄ (mg/L)	4.12	Mn (µg/L)	14.2		
		Fe (µg/L)	8.72		
		Sr (µg/L)	39.36		
		Ba (µg/L)	41.74		



Borehole Infrastructure Report

Site Data		
Site Code		BVR B1
Site Name		Corner Harris Lane & Buckland Valley Road
Region		Buckland River, VIC
Easting	GDA94 Zone 55	0489914
Northing		5935212
Elevation (m AHD)		298
Bore Depth (m)		42
Screen Length (m)		2
Screen Top (m)		39
Screen Bottom (m)		41
Bore Top		Monument
Top of Pipe (m)		0.98
Date Completed		10 th July 2013



Construction details	
Borehole Type	Monitoring Bore
Installed by	Monash University
Drilled by	Alpine Drilling Pty Ltd
Drilling Method	Advanced Casing
Screen Type	Slotted PVC
Casing size / Type	80mm Class A PVC
Development Details	Purged prior to sampling



Description and Comments: Bore located on Harris Lane close to intersection with Buckland Valley Road.

Continuous Data: Continuous water depth and electrical conductivity data are available for this site, measured with InSitu AQUA TROLL 100 at 30 minute intervals.

Infrastructure Report by:	Contact Details:	Checked by: Prof Ian Cartwright
Dr Harald Hofmann		Ian.Cartwright@monash.edu

Groundwater Chemistry

Field Data	
Date of Sampling	22/08/2013
Depth Below Natural Surface (m)	6.808
Reduced Water Level (m)	
EC (µS/cm)	260
pH	5.28
DO (mg/l)	2

Stratigraphy:

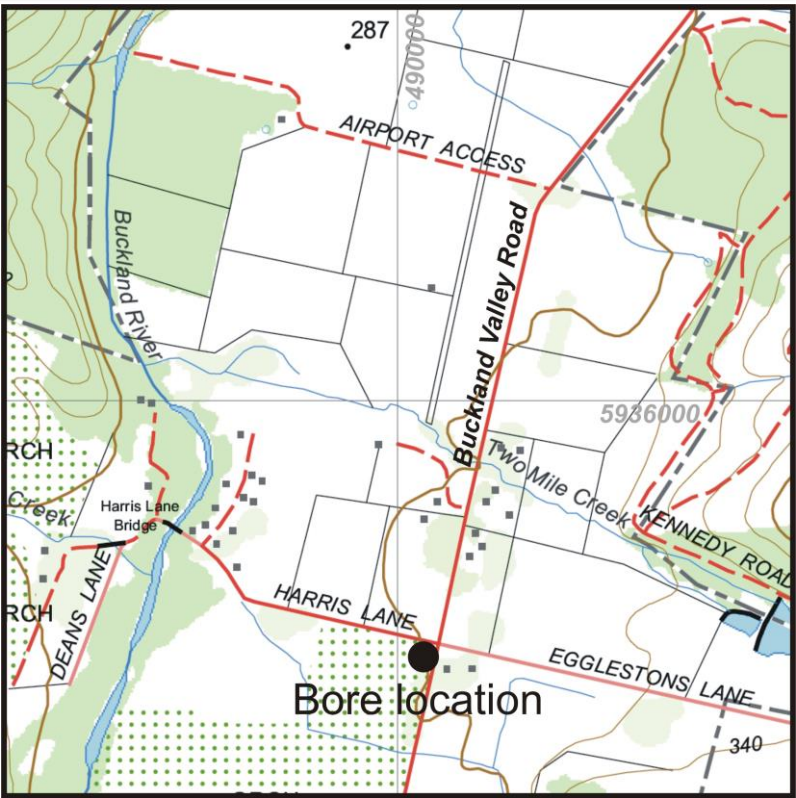
0 – 2 m Red clay
2 – 36 m River gravels
36 – 42m Weathered shale

Anions		Cations		Isotopes	
HCO ₃ (mg/L)	89.7	Li (µg/L)	1.10	δ ¹⁸ O (‰)	-6.3
F (mg/L)	0.09	Na (mg/L)	77.2	δ ² H (‰)	-34
Cl (mg/L)	95.3	Mg (mg/L)	7.71	δ ¹³ C (‰)	-17.6
Br (mg/L)	0.19	K (mg/L)	0.79	¹⁴ C pMC	72.06
NO ₃ (mg/L)	0.94	Ca (mg/L)	6.14	Tritium (TU)	0.836
SO ₄ (mg/L)	6.71	Mn (µg/L)	4.11		
		Fe (µg/L)	14.10		
		Sr (µg/L)	29.38		
		Ba (µg/L)	19.47		



Borehole Infrastructure Report

Site Data		
Site Code		BRV B2
Site Name		Corner Harris Lane & Buckland Valley Road
Region		Buckland River, VIC
Easting	GDA94 Zone 55	0489914
Northing		5935212
Elevation (m AHD)		298
Bore Depth (m)		15
Screen Length (m)		2
Screen Top (m)		12
Screen Bottom (m)		14
Bore Top		Monument
Top of Pipe (m)		0.98
Date Completed		10 th July 2013



Construction details	
Borehole Type	Monitoring Bore
Installed by	Monash University
Drilled by	Alpine Drilling Pty Ltd
Drilling Method	Advanced Casing
Screen Type	Slotted PVC
Casing size / Type	80mm Class A PVC
Development Details	Purged prior to sampling



Description and Comments: Bore located on Harris Lane close to junction with the Buckland Valley Rd.
Continuous Data: Continuous water depth and electrical conductivity data are available for this site, measured with InSitu AQUA TROLL 100 at 30 minute intervals.

Infrastructure Report by:	Contact Details:	Checked by: Prof Ian Cartwright
Dr Harald Hofmann		Ian.Cartwright@monash.edu

Groundwater Chemistry

Field Data	
Date of Sampling	22/08/2013
Depth Below Natural Surface (m)	6.17
Reduced Water Level (m)	
EC (µS/cm)	52.7
pH	5.15
DO (mg/l)	4

Stratigraphy:

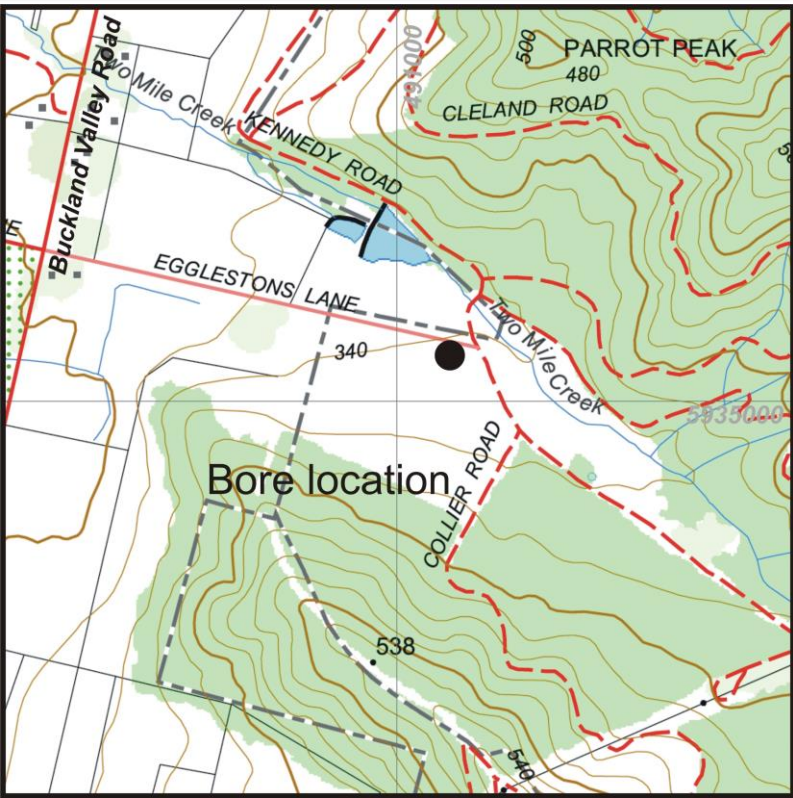
0 – 2 m Red clay
2 – 15 m River gravels

Anions		Cations		Isotopes	
HCO ₃ (mg/L)	14.17	Li (µg/L)	0.09	δ ¹⁸ O (‰)	-5.9
F (mg/L)	0.01	Na (mg/L)	5.90	δ ² H (‰)	-32
Cl (mg/L)	3.09	Mg (mg/L)	0.86	δ ¹³ C (‰)	-20.8
Br (mg/L)	0.01	K (mg/L)	0.37	¹⁴ C pMC	95.64
NO ₃ (mg/L)	2.56	Ca (mg/L)	0.61	Tritium (TU)	1.49
SO ₄ (mg/L)	0.33	Mn (µg/L)	7.29		
		Fe (µg/L)	11.20		
		Sr (µg/L)	15.22		
		Ba (µg/L)	9.01		



Borehole Infrastructure Report

Site Data		
Site Code		Egglestons B1
Site Name		Egglestons Lane
Region		Buckland River, VIC
Easting	GDA94 Zone 55	0491019
Northing		5934952
Elevation (m AHD)		339
Bore Depth (m)		60
Screen Length (m)		2
Screen Top (m)		57
Screen Bottom (m)		59
Bore Top		Monument
Top of Pipe (m)		0.955
Date Completed		10 th July 2013



Construction details	
Borehole Type	Monitoring Bore
Installed by	Monash University
Drilled by	Alpine Drilling Pty Ltd
Drilling Method	Advanced Casing
Screen Type	Slotted PVC
Casing size / Type	80mm Class A PVC
Development Details	Purged prior to sampling



Description and Comments: Bore located on Eggleston Lane near junction with Kennedy Rd.
Continuous Data: Continuous water depth and electrical conductivity data are available for this site, measured with InSitu AQUA TROLL 100 at 30 minute intervals.

Infrastructure Report by:	Contact Details:	Checked by: Prof Ian Cartwright
Dr Harald Hofmann		Ian.Cartwright@monash.edu

Groundwater Chemistry

Field Data	
Date of Sampling	22/08/2013
Depth Below Natural Surface (m)	7.13
Reduced Water Level (m)	
EC (µS/cm)	51.1
pH	5.38
DO (mg/l)	5

Stratigraphy:

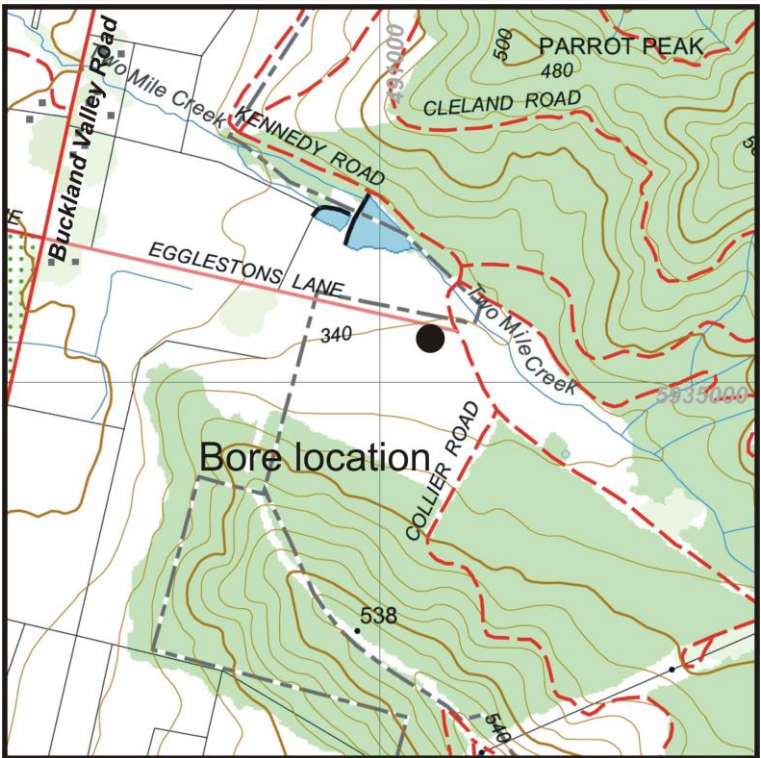
1 – 3 m Red clay
3 – 15 m Weathered gravels
15 – 45m Weathered shale
45 – 60m Firm shale

Anions		Cations		Isotopes	
HCO ₃ (mg/L)	15.32	Li (µg/L)	1.74	δ ¹⁸ O (‰)	-6.3
F (mg/L)	0.09	Na (mg/L)	2.84	δ ² H (‰)	-35
Cl (mg/L)	1.82	Mg (mg/L)	1.01	δ ¹³ C (‰)	-21.5
Br (mg/L)	0.01	K (mg/L)	0.83	¹⁴ C pMC	89.05
NO ₃ (mg/L)	0.30	Ca (mg/L)	1.89	Tritium (TU)	1.02
SO ₄ (mg/L)	0.70	Mn (µg/L)	11.20		
		Fe (µg/L)	17.28		
		Sr (µg/L)	19.33		
		Ba (µg/L)	14.38		



Borehole Infrastructure Report

Site Data		
Site Code		Monash B2
Site Name		Egglestons Lane
Region		Buckland River, VIC
Easting	GDA94 Zone 55	0491019
Northing		5934952
Elevation (m AHD)		339
Bore Depth (m)		25
Screen Length (m)		2
Screen Top (m)		23
Screen Bottom (m)		24
Bore Top		Monument
Top of Pipe (m)		1.01
Date Completed		10 th July 2013



Construction details	
Borehole Type	Monitoring Bore
Installed by	Monash University
Drilled by	Alpine Drilling Pty Ltd
Drilling Method	Advanced Casing
Screen Type	Slotted PVC
Casing size / Type	80mm Class A PVC
Development Details	Purged prior to sampling



Description and Comments: Bore located on Eggleston Lane near junction with Kennedy Rd.
Continuous Data: Continuous water depth and electrical conductivity data are available for this site, measured with InSitu AQUA TROLL 100 at 30 minute intervals.

Infrastructure Report by:	Contact Details:	Checked by: Prof Ian Cartwright
Dr Harald Hofmann		Ian.Cartwright@monash.edu

Groundwater Chemistry

Field Data	
Date of Sampling	22/08/2013
Depth Below Natural Surface (m)	5.03
Reduced Water Level (m)	
EC (µS/cm)	48.7
pH	5.15
DO (mg/l)	0

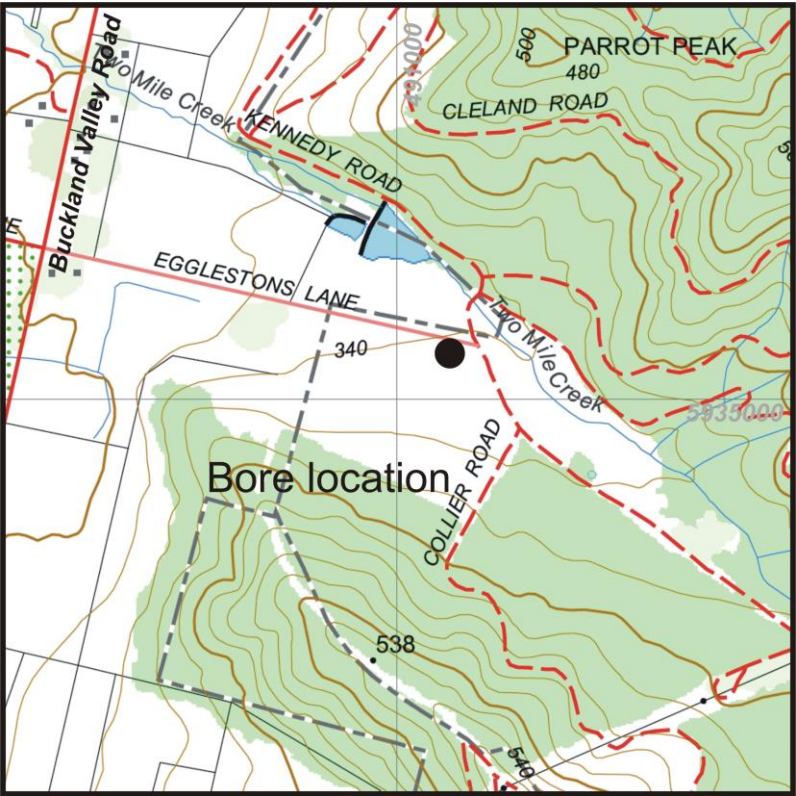
Stratigraphy:

1 – 3 m Red clay
3 – 15 m Weathered gravels
15 – 25m Weathered shale

Anions		Cations		Isotopes	
HCO ₃ (mg/L)	15.32	Li (µg/L)	0.81	δ ¹⁸ O (‰)	-6.5
F (mg/L)	0.06	Na (mg/L)	2.51	δ ² H (‰)	-35
Cl (mg/L)	2.04	Mg (mg/L)	1.28	δ ¹³ C (‰)	-20.8
Br (mg/L)	0.01	K (mg/L)	0.95	¹⁴ C pMC	84.54
NO ₃ (mg/L)	0.03	Ca (mg/L)	1.87	Tritium (TU)	1.10
SO ₄ (mg/L)	0.78	Mn (µg/L)	13.21		
		Fe (µg/L)	14.27		
		Sr (µg/L)	18.00		
		Ba (µg/L)	15.38		



Site Data		
Site Code		Monash B3
Site Name		Egglestons Lane
Region		Buckland River, VIC
Easting	GDA94 Zone 55	0491019
Northing		5934952
Elevation (m AHD)		339
Bore Depth (m)		15
Screen Length (m)		2
Screen Top (m)		13
Screen Bottom (m)		14
Bore Top		Monument
Top of Pipe (m)		1.06
Date Completed		10 th July 2013



Construction details	
Borehole Type	Monitoring Bore
Installed by	Monash University
Drilled by	Alpine Drilling Pty Ltd
Drilling Method	Advanced Casing
Screen Type	Slotted PVC
Casing size / Type	80mm Class A PVC
Development Details	Purged prior to sampling



Description and Comments: Bore located on Eggleston Lane near junction with Kennedy Rd.
Continuous Data: Continuous water depth and electrical conductivity data are available for this site, measured with InSitu AQUA TROLL 100 at 30 minute intervals.

Infrastructure Report by:	Contact Details:	Checked by: Prof Ian Cartwright
Dr Harald Hofmann		Ian.Cartwright@monash.edu

Groundwater Chemistry

Field Data	
Date of Sampling	22/08/2013
Depth Below Natural Surface (m)	4.68
Reduced Water Level (m)	
EC (µS/cm)	53.1
pH	5.07
DO (mg/l)	2

Stratigraphy:

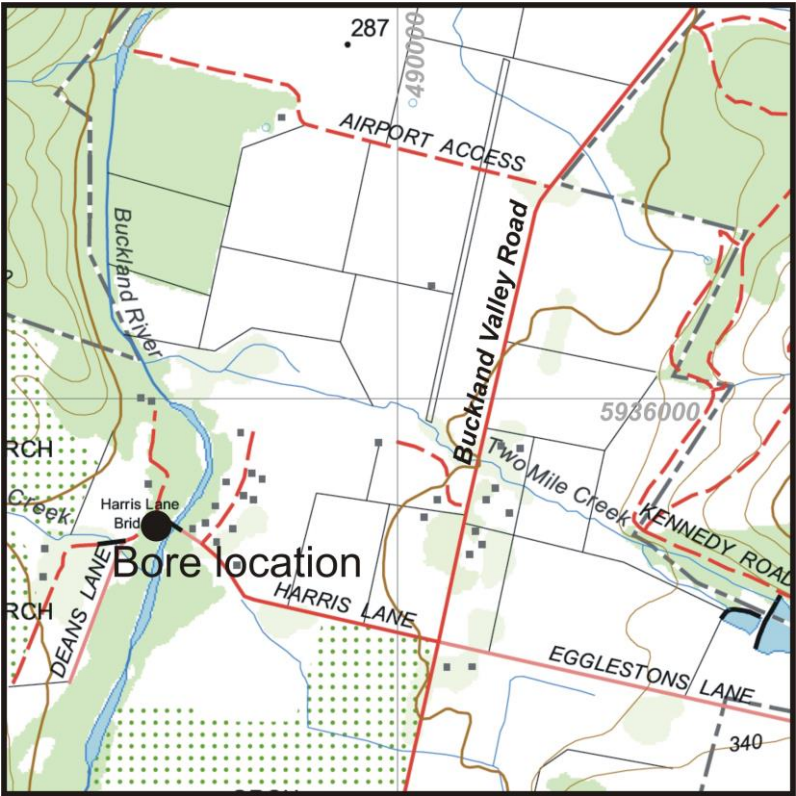
1 – 3 m Red clay
3 – 15 m Weathered gravels

Anions		Cations		Isotopes	
HCO ₃ (mg/L)	14.25	Li (µg/L)	0.14	δ ¹⁸ O (‰)	-6.4
F (mg/L)	0.10	Na (mg/L)	2.59	δ ² H (‰)	-35
Cl (mg/L)	2.15	Mg (mg/L)	1.22	δ ¹³ C (‰)	-23.3
Br (mg/L)	0.01	K (mg/L)	1.21	¹⁴ C pMC	100.2
NO ₃ (mg/L)	0.92	Ca (mg/L)	1.73	Tritium (TU)	1.79
SO ₄ (mg/L)	0.76	Mn (µg/L)	15.39		
		Fe (µg/L)	12.85		
		Sr (µg/L)	17.54		
		Ba (µg/L)	23.37		



Borehole Infrastructure Report

Site Data		
Site Code		Harris B1
Site Name		Harris Lane
Region		Buckland River, VIC
Easting	GDA94 Zone 55	0409301
Northing		5935504
Elevation (m AHD)		295
Bore Depth (m)		15
Screen Length (m)		2
Screen Top (m)		12
Screen Bottom (m)		14
Bore Top		Monument
Top of Pipe (m)		0.93
Date Completed		10 th July 2013



Construction details	
Borehole Type	Monitoring Bore
Installed by	Monash University
Drilled by	Alpine Drilling Pty Ltd
Drilling Method	Advanced Casing
Screen Type	Slotted PVC
Casing size / Type	80mm Class A PVC
Development Details	Purged prior to sampling



Description and Comments: Bore located close to the bridge (west side) on Harris Lane.
Continuous Data: Continuous water depth and electrical conductivity data are available for this site, measured with InSitu AQUA TROLL 100 at 30 minute intervals.

Infrastructure Report by:	Contact Details:	Checked by: Prof Ian Cartwright
Dr Harald Hofmann		Ian.Cartwright@monash.edu

Groundwater Chemistry

Field Data	
Date of Sampling	21/08/2013
Depth Below Natural Surface (m)	1.855
Reduced Water Level (m)	
EC (µS/cm)	50.4
pH	7.46
DO (mg/l)	0

Stratigraphy:

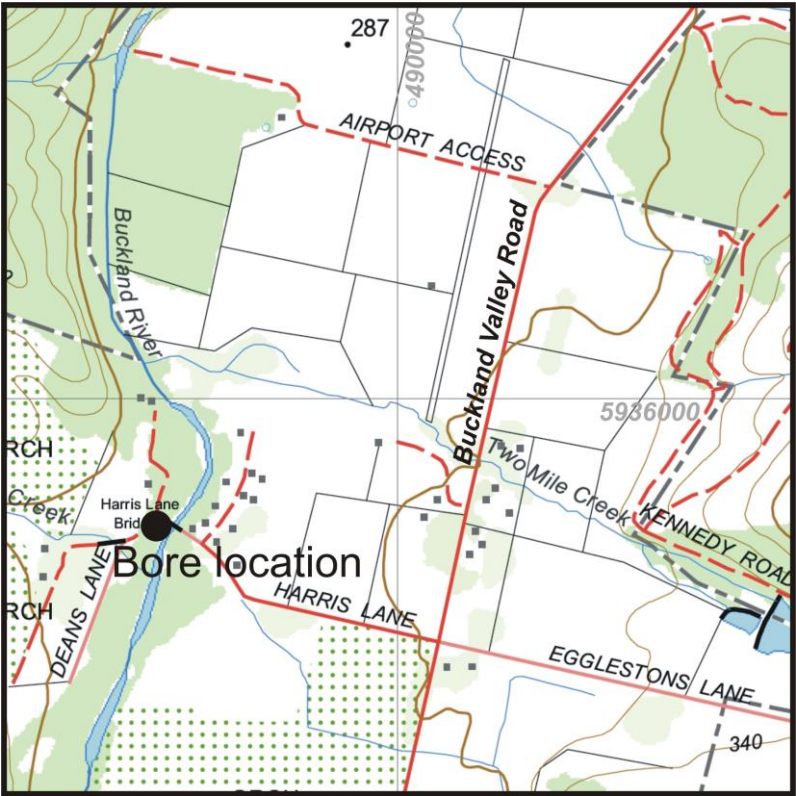
0 – 2 m Red clay
2 – 8 m Weathered shale
8 – 15m Firm shale

Anions		Cations		Isotopes	
HCO ₃ (mg/L)	16.3	Li (µg/L)	0.18	δ ¹⁸ O (‰)	-6.9
F (mg/L)	1.22	Na (mg/L)	3.87	δ ² H (‰)	-39
Cl (mg/L)	1.76	Mg (mg/L)	1.25	δ ¹³ C (‰)	-8.3
Br (mg/L)	0.01	K (mg/L)	1.42	¹⁴ C pMC	4.3
NO ₃ (mg/L)	0.03	Ca (mg/L)	1.64	Tritium (TU)	bd
SO ₄ (mg/L)	0.32	Mn (µg/L)	9.69		
		Fe (µg/L)	11.39		
		Sr (µg/L)	18.30		
		Ba (µg/L)	17.01		



Borehole Infrastructure Report

Site Data		
Site Code		Harris B2
Site Name		Harris Lane
Region		Buckland River, VIC
Easting	GDA94 Zone 55	0409301
Northing		5935504
Elevation (m AHD)		295
Bore Depth (m)		8
Screen Length (m)		2
Screen Top (m)		5
Screen Bottom (m)		7
Bore Top		Monument
Top of Pipe (m)		0.93
Date Completed		10 th July 2013



Construction details	
Borehole Type	Monitoring Bore
Installed by	Monash University
Drilled by	Alpine Drilling Pty Ltd
Drilling Method	Advanced Casing
Screen Type	Slotted PVC
Casing size / Type	80mm Class A PVC
Development Details	Purged prior to sampling



Description and Comments: Bore located close to the bridge (west side) on Harris Lane. **Continuous Data:** Continuous water depth and electrical conductivity data are available for this site, measured with InSitu AQUA TROLL 100 at 30 minute intervals.

Infrastructure Report by:	Contact Details:	Checked by: Prof Ian Cartwright
Dr Harald Hofmann		Ian.Cartwright@monash.edu

Groundwater Chemistry

Field Data	
Date of Sampling	21/08/2013
Depth Below Natural Surface (m)	2.025
Reduced Water Level (m)	
EC (µS/cm)	62
pH	5.74
DO (mg/l)	2

Stratigraphy:

0 - 2 m Red clay
2 – 8 m Weathered shale

Anions		Cations		Isotopes	
HCO ₃ (mg/L)	12.7	Li (µg/L)	0.77	δ ¹⁸ O (‰)	-6.7
F (mg/L)	0.06	Na (mg/L)	2.84	δ ² H (‰)	-37
Cl (mg/L)	1.90	Mg (mg/L)	0.90	δ ¹³ C (‰)	-22.2
Br (mg/L)	0.01	K (mg/L)	1.13	¹⁴ C pMC	94.35
NO ₃ (mg/L)	0.58	Ca (mg/L)	1.26	Tritium (TU)	2.12
SO ₄ (mg/L)	0.99	Mn (µg/L)	17.22		
		Fe (µg/L)	12.30		
		Sr (µg/L)	11.62		
		Ba (µg/L)	15.30		