



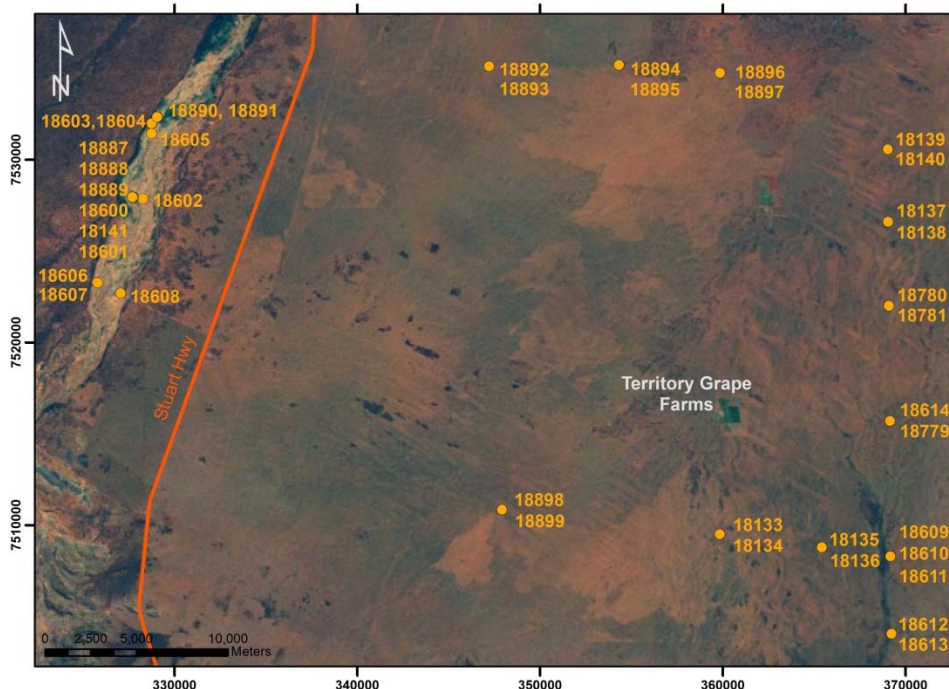
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report

Borehole Type	Multi-Level Piezometer	GPS Easting	(MGA-94 Zone 53)	369231
Unique Well ID	18612	GPS Northing		7504050
Completion Date	7 June 2011	Location		Pine Hill Station, NT
Drilled By	NRETAS	Installed By		NRETAS
Monument Type	Round-White-Swing Top	Depth Drilled		81.9 m
Monument Diameter/Width	216 mm	Drilled Diameter/Method		200 mm (min), Rotary Air
Development Details	Airlift 11 L/s.			
Project Comments: 18612 is a triple completion multi-level piezometer. It is located adjacent to 18613. Together, these bores provide a nest of five piezometers sampling different depths in the unconfined aquifer.				

Bore ID	Casing Size (mm)/ Type	TOC (mAHD)	Casing Depth (mBGL)		Screen Size (mm)/ Aperture (mm)/ Type	Cement (mBGL)		Screen Depth (mBGL)		SWL (mTOC)
	200/Steel		-0.85	5.7	NA	0.0	5.7	NA	NA	NA
18612-3	50/PVC9	583.504	-0.62	54	50/1/PVC	-0.5	1.0	51	53	34.045
18612-2	50/PVC9	583.463	-0.58	62	50/1/PVC	-0.5	1.0	60	61	34
18612-1	50/PVC12	583.431	-0.55	81.5	50/1/PVC	-0.5	1.0	78.5	80.5	33.93

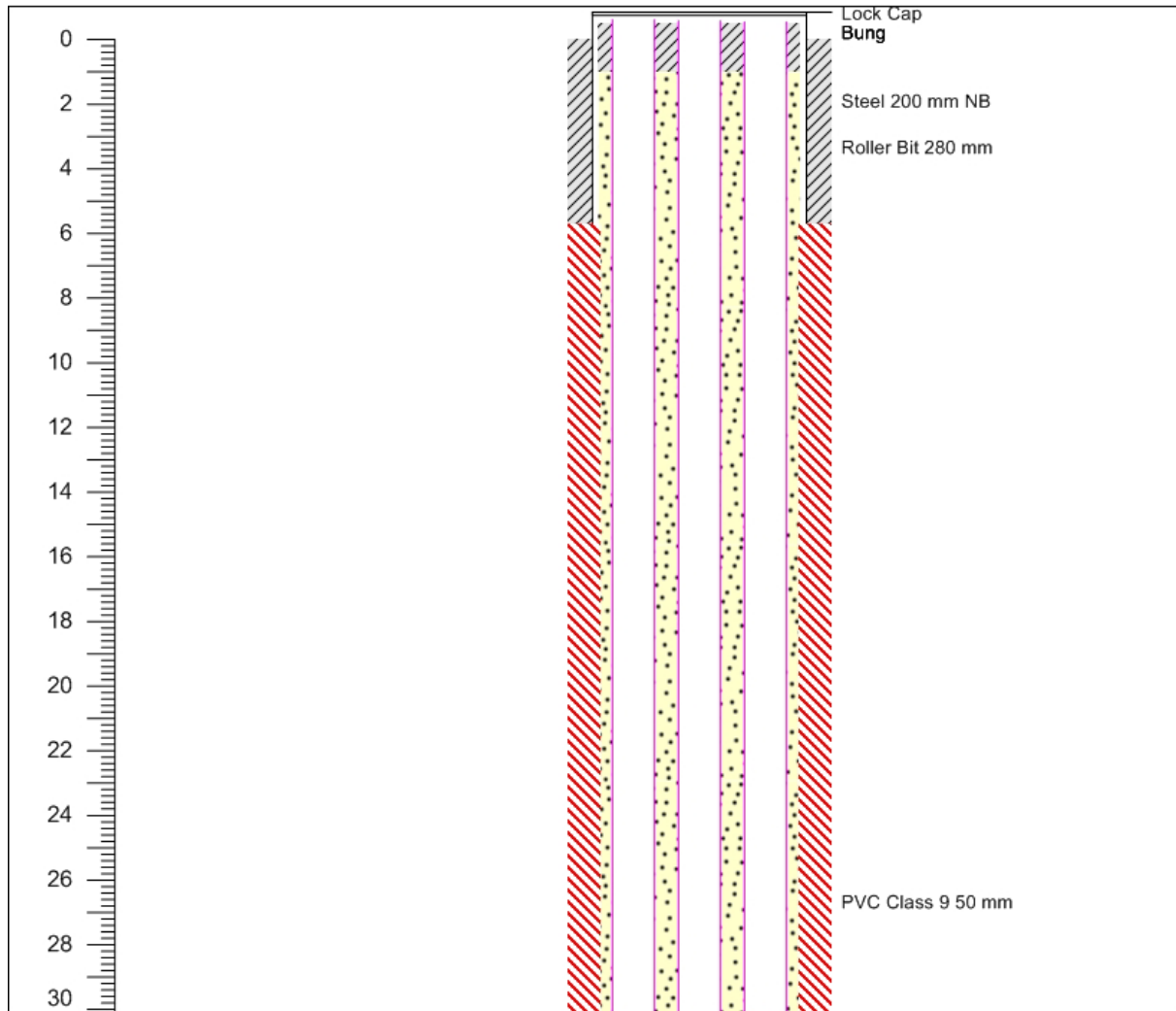


Map of Ti Tree Super Science Piezometer Locations, Pine Hill Station, NT.

Note* Appendix includes Well Completion, Lithology and Geophysical Logs, Hydraulic Test and Chemical Analysis.

Infrastructure Report prepared by:	Contact Details:	Checked by:
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Well Completion Log



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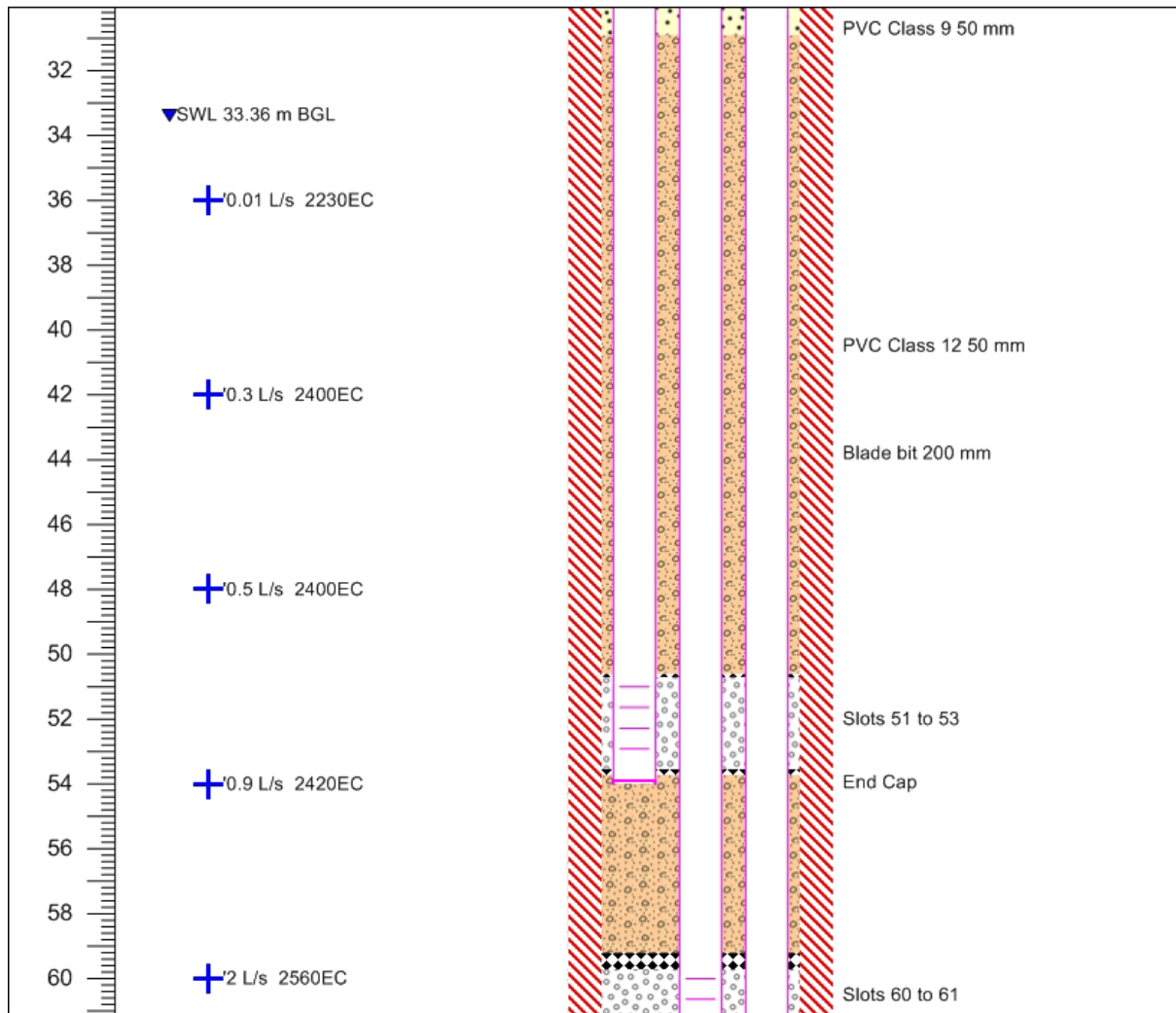
Date Start 4/06/2011

Completed 7/06/2011

Contractor NRETAS

Construction Legend

Steel	Gravel Pack	Bentonite
PVC	Lock Cap	Creek Sand
Slots	Bung	Fall Back
Hole	End Cap	Soil
Cement		



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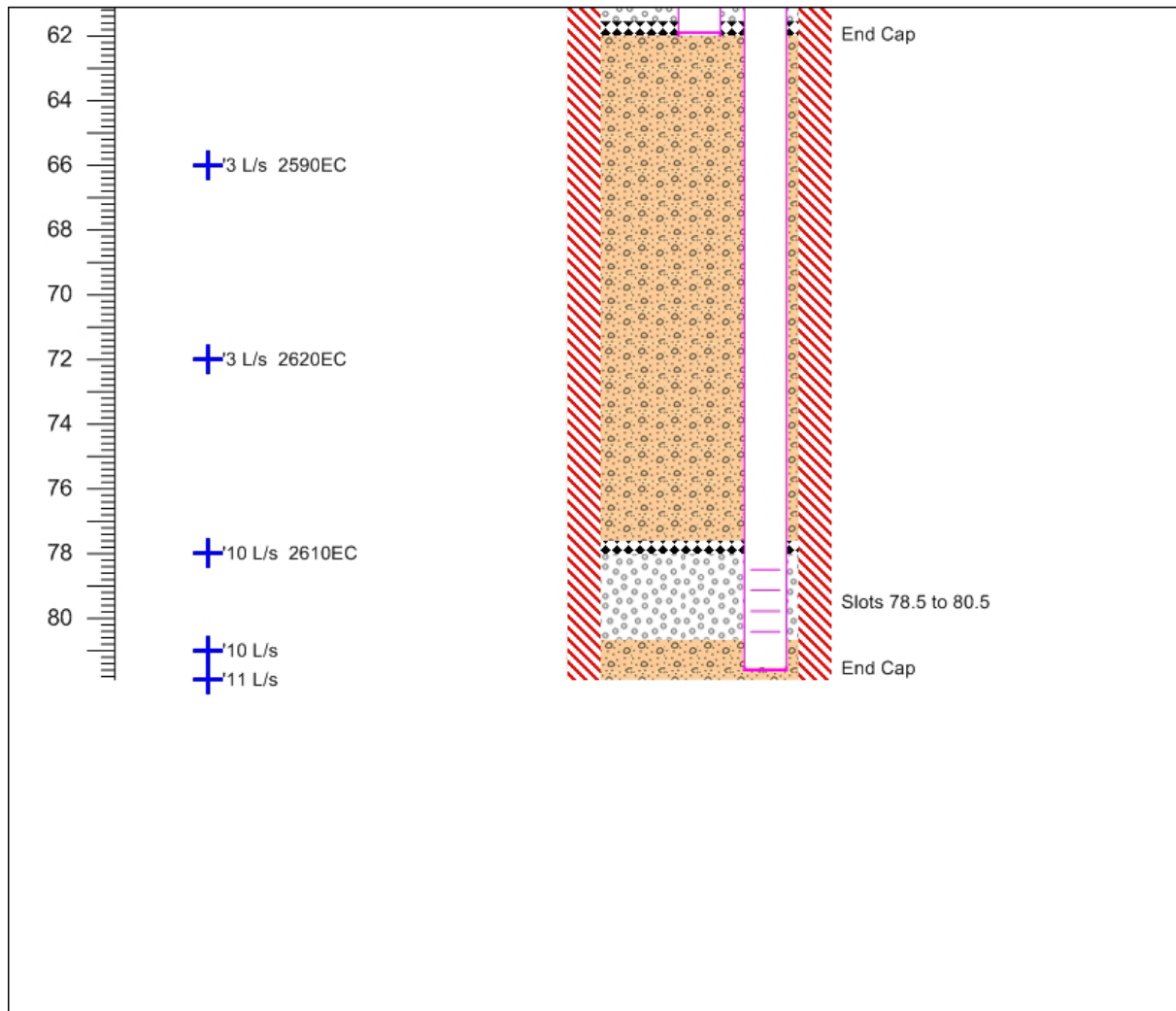
Date Start 4/06/2011

Completed 7/06/2011

Contractor NRETAS

Construction Legend

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Date Start 4/06/2011

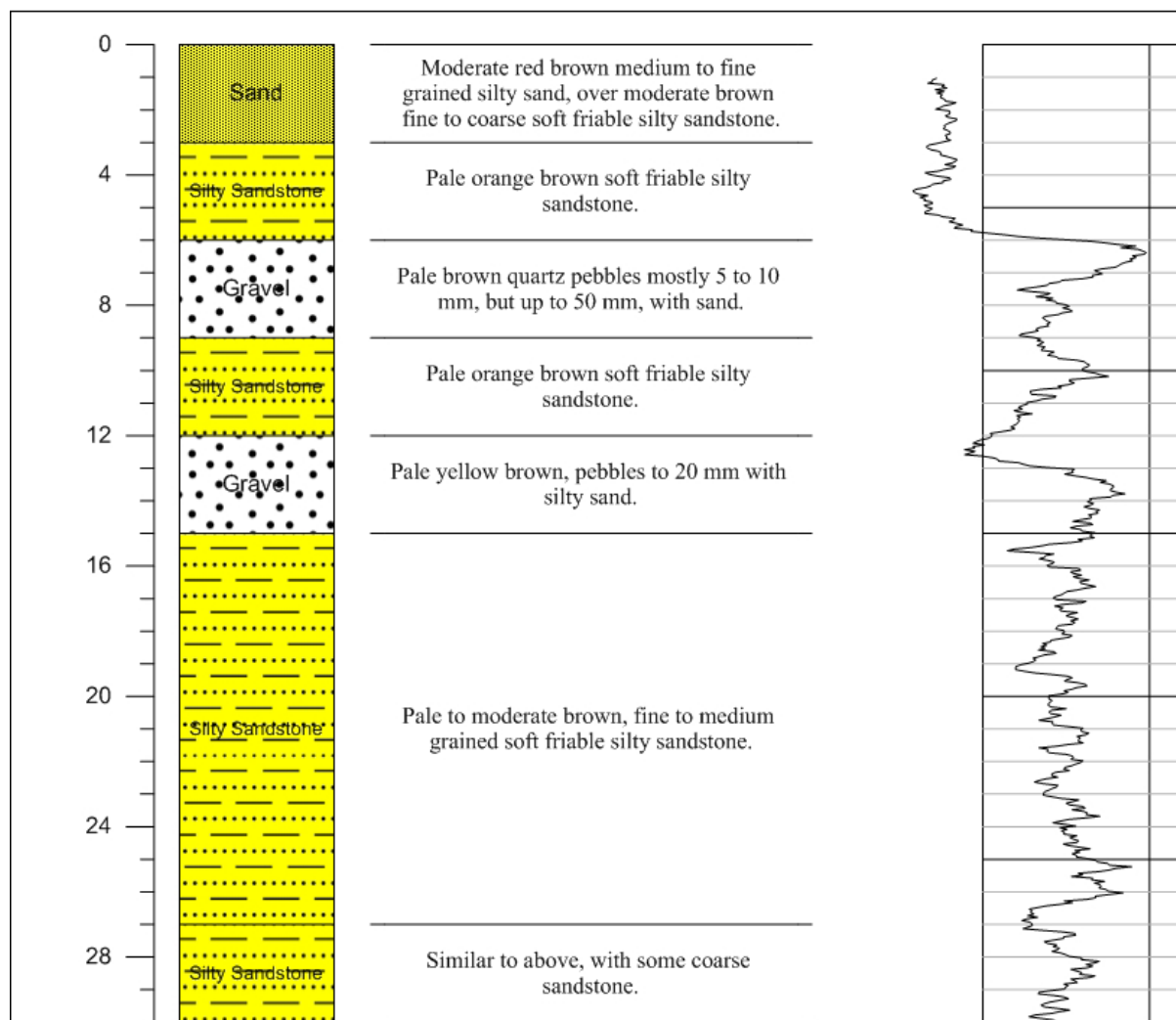
Completed 7/06/2011

Contractor NRETAS

Construction Legend

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Lithology Log



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Air Lift Yield L/s 11

Date Start 4/06/2011 Electrical Conductivity μ Siemens/cm 2610

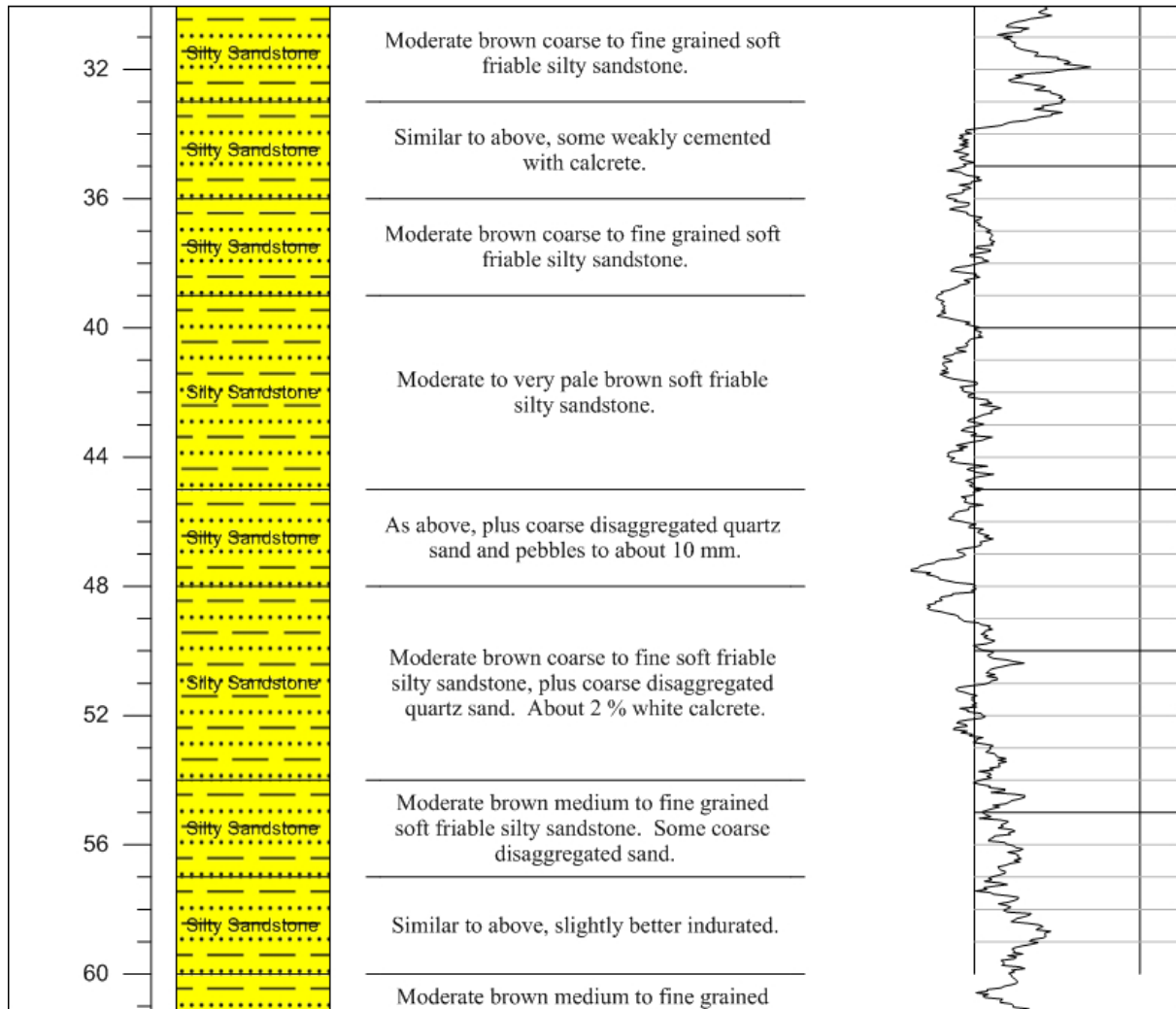
Completed 7/06/2011 Standing Water Level m BGL 33.36

Contractor NRETAS

Status Piezometer

Gamma cps

Depth of casing at logging 5.7 m



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Air Lift Yield L/s 11

Date Start 4/06/2011 Electrical Conductivity μ Siemens/cm 2610

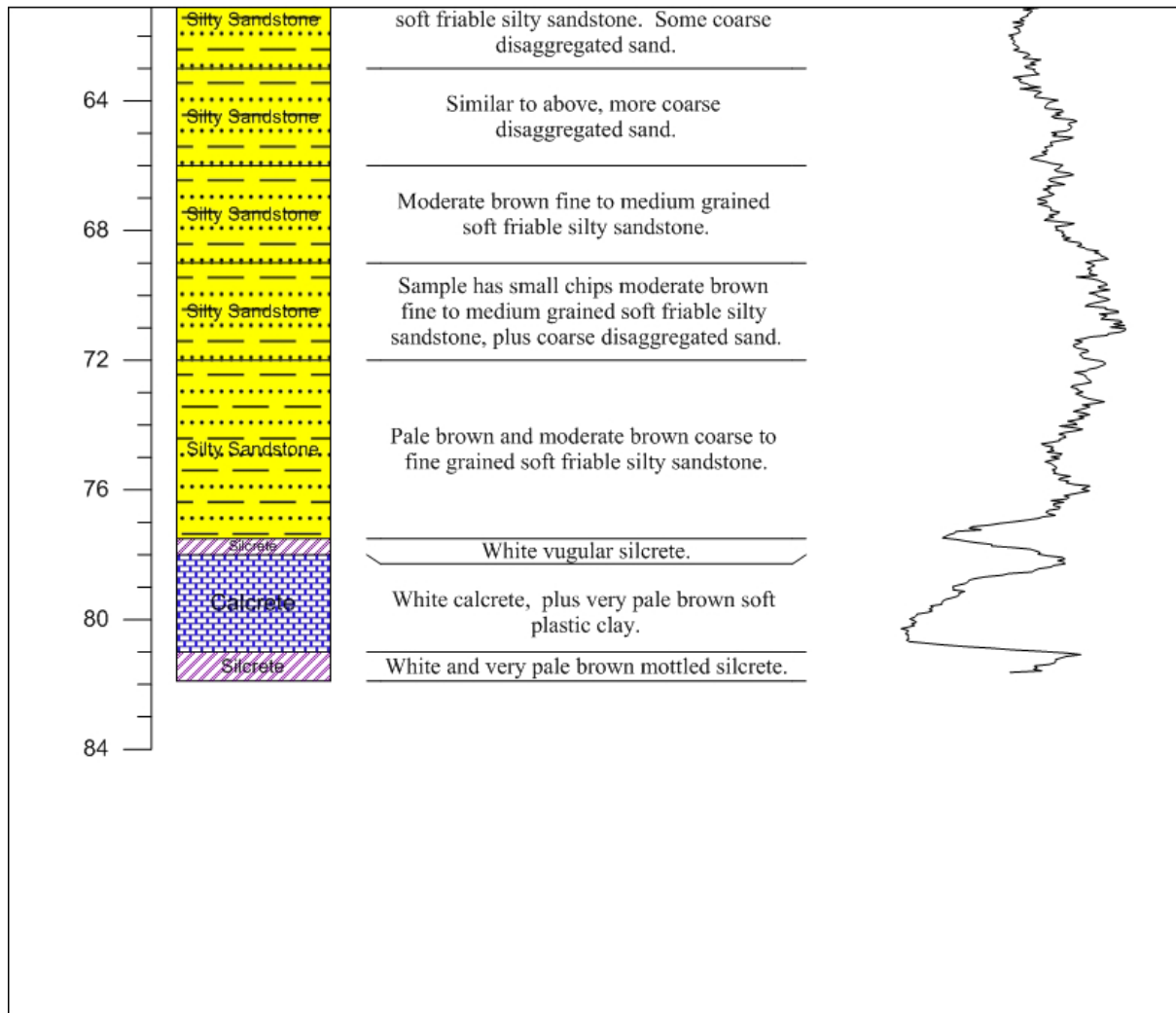
Completed 7/06/2011 Standing Water Level m BGL 33.36

Contractor NRETAS

Status Piezometer

Gamma cps

Depth of casing at logging 5.7 m



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Air Lift Yield L/s 11

Date Start 4/06/2011 Electrical Conductivity μ Siemens/cm 2610

Completed 7/06/2011 Standing Water Level m BGL 33.36

Contractor NRETAS

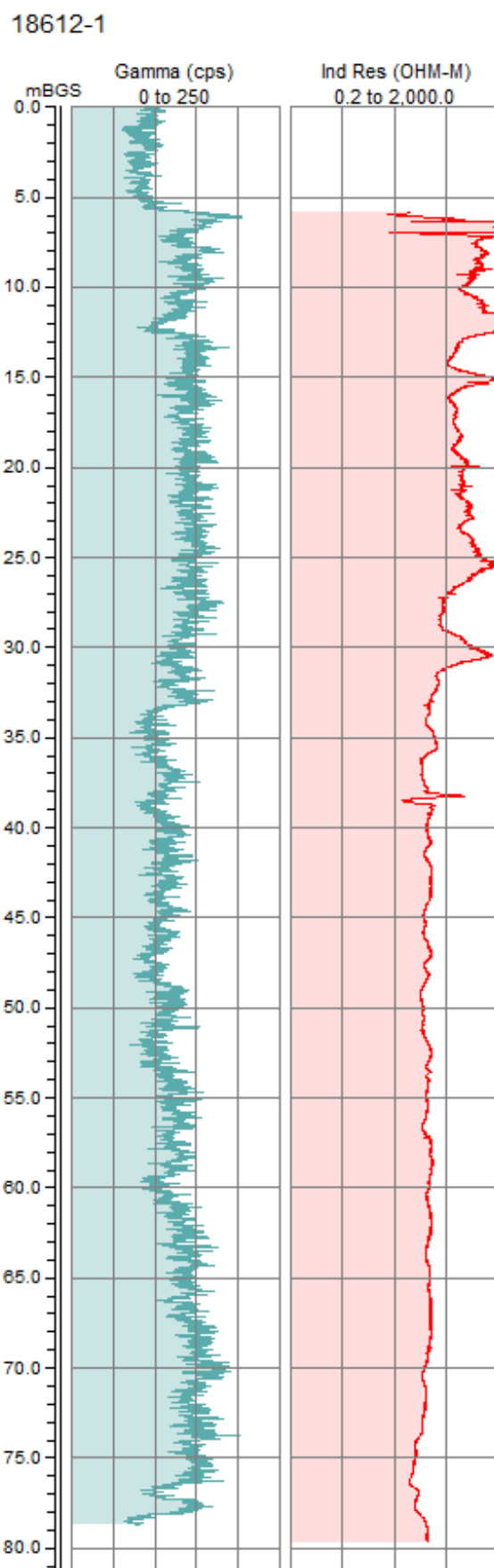
Status Piezometer

60 110
Gamma cps

Depth of casing at logging 5.7m

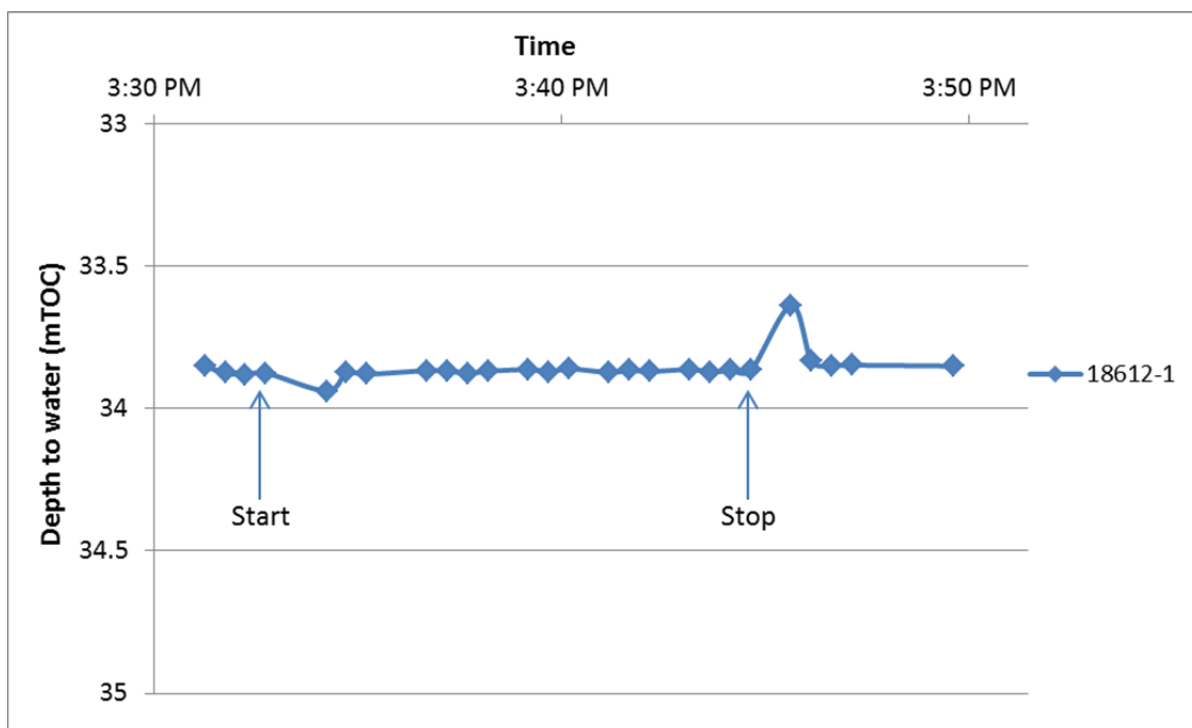
Geophysical Logs

The portable Mount Sopris logging system was used to collect geophysical data from 18612-1, the deepest piezometer. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.

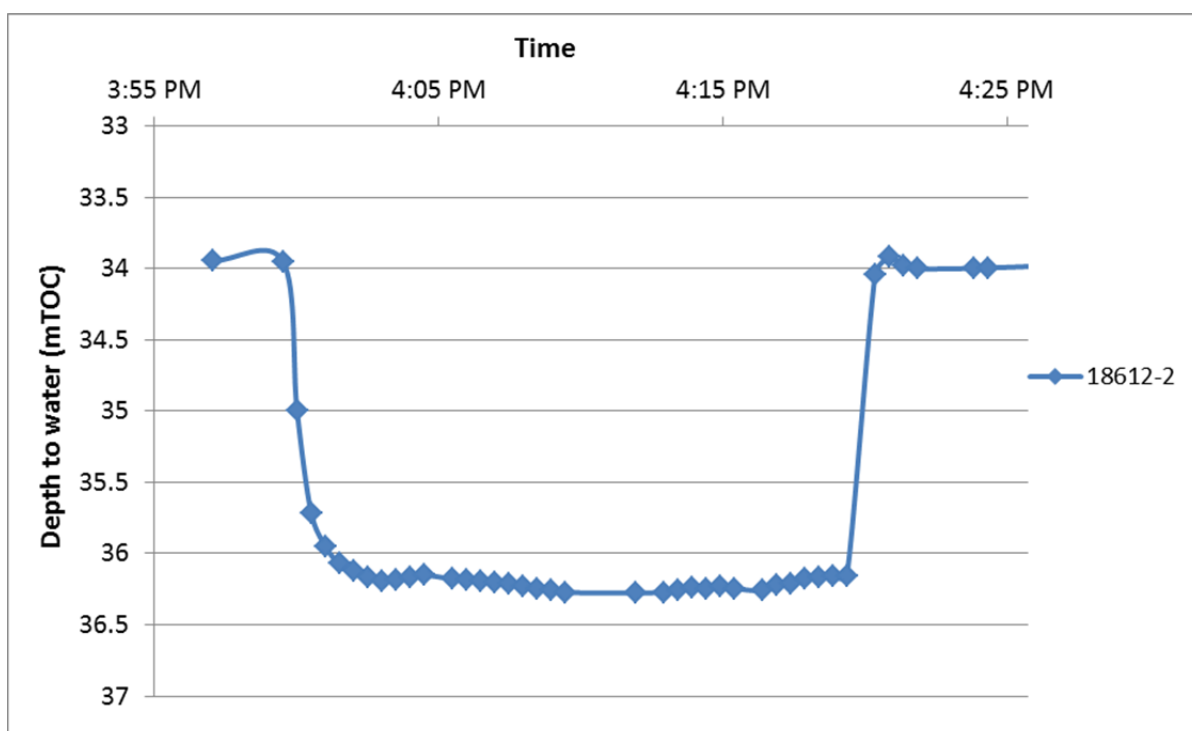


Pumping Test

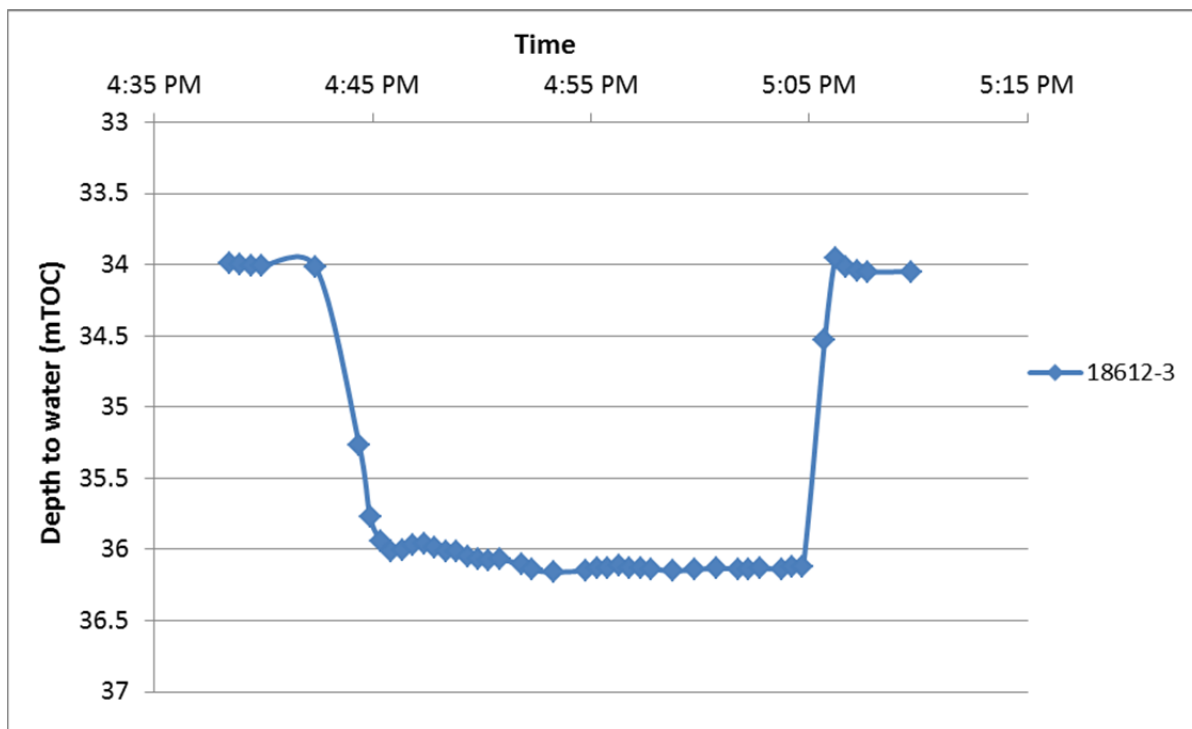
A pumping test was performed on piezometer 18612-1 on 8/08/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 45 mTOC and using a flow rate of 4.2 L/min. The results of the test are presented below. The higher water level occurring after the pump was turned off is likely from water draining out of the tubing. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18612-2 on 8/08/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 45 mTOC and using a flow rate of 5.2 L/min. The results of the test are presented below. The higher water level occurring after the pump was turned off is likely from water draining out of the tubing. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18612-3 on 8/08/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 45 mTOC and using a flow rate of 3.8 L/min. The results of the test are presented below. The higher water level occurring after the pump was turned off is likely from water draining out of the tubing. The report author may be contacted for the full data set.



Chemical Analysis

Basic chemical analysis of the dissolved solutes and concentration of ions in the borehole was performed. The testing also included hydrogen ion activity (pH) and fluid electrical conductivity (EC). Data from the chemical analysis is shown below.

Well ID	Date Sampled	SWL	Field Parameters				Laboratory Analyses							
		m	pH	EC	Temp	Alkalinity	Ca ²⁺	K ⁺	Mg ²⁺	Na ⁺	Si	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻
		TOC		μS/cm	°C	mg/L CaCo ³	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
18612-3	6/09/2011	34.05	7.3	2717	30	207	85.8	25.2	44.9	305	26.1	550	66	270
18612-2	6/09/2011	34.00	7.5	2985	30	248	87.3	28.4	50.1	398	29.6	560	75	360
18612-1	6/09/2011	33.93	7.4	2610	31	230	81.9	29.1	50.1	296	30.1	540	77	210