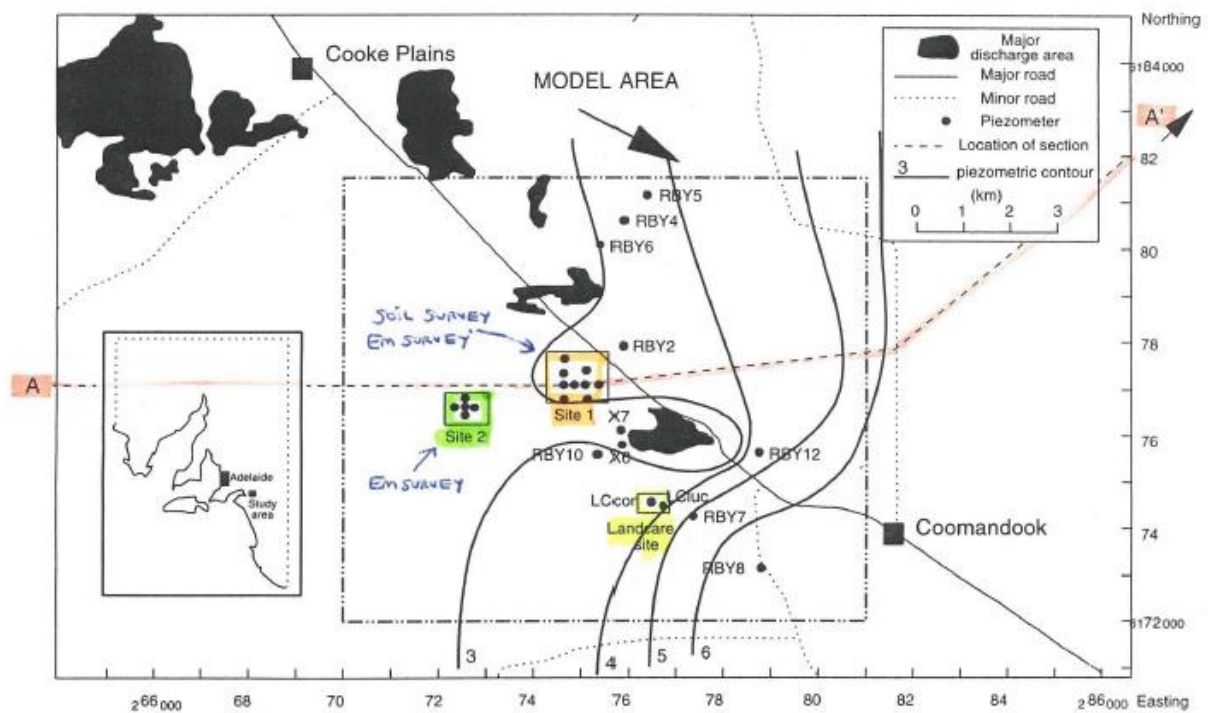


# Groundwater and Rainfall Trends *continued*

**Chris Henschke**– Senior Consultant Hydrogeology  
**PIRSA Rural Solutions**

## Coomandook Landcare Network

The Coomandook Landcare Network comprises 25 shallow wells up to 5.5m deep that were drilled in April 1994. The Landcare network is not part of the official DEW WaterConnect network. The location of the sites is shown on a map over the page. The map below shows the location of a revegetation Landcare site and the location of two CSIRO experimental sites which were the subject of instrumentation and groundwater flow modelling during the early 1990s.



The wells / 'piezometers' were routinely monitored during the 1990s but are now monitored on an ad-hoc basis. The following table provides some data and current status of the wells.



*A Coomandook Landcare Piezometer*

# Coomandook / Cooke Plains Landcare Monitoring Network

## End of winter readings page 1

Coomy landcare network	Unit number	location	Salinity	Date	Date	Date	Date	Date
			29/04/1994 (drill date) ppm (mg/l)	17/10/2001	20/10/2007	09/11/2009	21/09/2018	25/10/2019
			Water level measured to the top of the casing					
CL01	6827-1703	Simmons	18,200	1.69	1.57	1.69	1.15m	1.12
CL02	6827-1704	Teusner	2,966	3.07	3.10	3.12	2.70m	2.54
CL03	6827-1705	Ballard	24,100	1.80	1.97	1.94	1.72m	1.65
CL04	6827-1706	Hansen	21,300	3.29	3.25	3.28	2.89m	2.78
CL05	6827-1707	Murray	18,200	3.78	3.98	4.15	Dry	Dry
CL06	6827-1708	Poole	10,700		3.50	3.64	3.12	3.12
CL07	6827-1709	Freak	23,200	2.78	3.39	3.54	3.02	3.01
CL08	6827-1710	Freak	24,000		3.19	3.33	2.75	2.80
CL09	6827-1711	Freak	26,900	1.24	2.37	2.43	1.94	1.95
CL10	6827-1712	Freak	32,900	3.09	3.85	3.94	Could not find	broken off
CL11	6827-1713	Patterson	23,900	1.83	1.93	1.95	1.62m	1.59
CL12	6827-1714	Crouch	28,200	2.93	2.89	2.91	2.73m	2.35
CL13	6827-1717	Piggott	29,500	2.99	2.89	2.98	2.47m	2.38
CL14	6827-1716	Guthrie	26,400	1.75	1.70	1.78	1.58m	1.45
CL15	6827-1715	Kleinig	49,500	1.66	1.77	1.71	1.72m	1.62
CL16	6827-1693	Roberts	14,600	1.85		Missing	Missing	Missing
CL17	6827-1694	Roberts	29,300	1.70	2.02	1.89	Missing	Missing
CL18	6827-1695	Roberts	12,800	1.90		Missing	Missing	Missing
CL19	6827-1696	Roberts	14,600	1.67		Missing	Missing	Missing
CL20	6827-1697	Roberts	12,000	1.55	1.82	1.77	Missing	Missing
CL21	6827-1698	Roberts	12,500	1.68	1.82	1.83	Missing	Missing
CL22	6827-1699	Hansen	26,800	1.47	1.66	1.63	1.44m	1.42
CL23	6827-1700	Hansen	n/a	Not found	Not found	Not found	0.94m	0.91
CL24	6827-1701	Hansen	n/a	0.91	Not found	Not found	1.42m	1.44
CL25	6827-1702	Hansen	n/a	0.66	Not found	Not found	0.64m	0.62

# Coomandook / Cooke Plains Landcare Monitoring Network

## End of winter readings page 2

Coomy landcare network	Unit number	location	Salinity	Date	Date	Date	Date	Date	
			29/04/1994 (drill date) ppm (mg/l)	14/10/2020	22/09/2021	07/11/2022			
				Water level measured to the top of the casing					
CL01	6827-1703	Simmons	18,200	0.95	1.14	1.04			
CL02	6827-1704	Teusner	2,966	2.64	2.87	2.38			
CL03	6827-1705	Ballard	24,100	1.45	1.63	1.33			
CL04	6827-1706	Hansen	21,300	2.93	2.91	2.78			
CL05	6827-1707	Murray	18,200	Dry	Dry at 3.4m	Dry @3.4m			
CL06	6827-1708	Poole	10,700	3.20	3.25	3.24			
CL07	6827-1709	Freak	23,200	3.11	3.18	3.09			
CL08	6827-1710	Freak	24,000	crop	2.93	2.93			
CL09	6827-1711	Freak	26,900	1.85	1.98	1.84			
CL10	6827-1712	Freak	32,900	Broken at ground level	Broken at ground level	Broken at ground level			
CL11	6827-1713	Patterson	23,900	1.58	1.62	1.53			
CL12	6827-1714	Crouch	28,200	2.33	2.33	2.00			
CL13	6827-1717	Piggott	29,500	Broken at ground level	Broken at ground level	Broken at ground level			
CL14	6827-1716	Guthrie	26,400	1.27	1.34	1.17			
CL15	6827-1715	Kleinig	49,500	1.48	1.67	1.31			
CL16	6827-1693	Roberts	14,600	Missing	Missing				
CL17	6827-1694	Roberts	29,300	Missing	Missing				
CL18	6827-1695	Roberts	12,800	Missing	Missing				
CL19	6827-1696	Roberts	14,600	Missing	Missing				
CL20	6827-1697	Roberts	12,000	Missing	Missing				
CL21	6827-1698	Roberts	12,500	Missing	Missing				
CL22	6827-1699	Hansen	26,800	1.24	1.42	1.20			
CL23	6827-1700	Hansen	n/a	0.94	0.86	0.83			
CL24	6827-1701	Hansen	n/a	1.34	1.54	1.40			
CL25	6827-1702	Hansen	n/a	0.56	0.71	0.62			

# Coomandook / Cooke Plains Landcare Monitoring Network

## End of summer readings Page 1

Coomy Landcare network	Unit number	location	Salinity	Date	Date	Date	Date	Date
			29/04/1994 (drill date) ppm (mg/l)	09/07/2007	17/05/2008	20/05/2009	10/05/2016	21/04/2019
			<b>Water level measured to the top of the casing</b>					
CL01	6827-1703	Simmons	18,200	1.41	1.84	1.75	1.42	1.30
CL02	6827-1704	Teusner	2,966	3.21	3.26	3.25	2.96	2.94
CL03	6827-1705	Ballard	24,100	1.80	2.02	1.90	1.81	2.02
CL04	6827-1706	Hansen	21,300	3.33	3.33	3.30	2.99	2.98
CL05	6827-1707	Murray	18,200	4.05	4.1	4.17	3.07	Dry at 3.4m
CL06	6827-1708	Poole	10,700	3.54	3.59	3.64	3.26	3.2
CL07	6827-1709	Freak	23,200	3.39	3.52	3.53	3.11	3.16
CL08	6827-1710	Freak	24,000	3.31	3.39	3.39	2.98	2.95
CL09	6827-1711	Freak	26,900	2.28	2.50	2.46	2.09	2.18
CL10	6827-1712	Freak	32,900	3.89	3.84	3.84	3.49	broken off
CL11	6827-1713	Patterson	23,900	1.78	2.02	1.99	1.70	1.78
CL12	6827-1714	Crouch	28,200	2.76	3.00	2.86	1.70	2.51
CL13	6827-1717	Piggott	29,500	2.75	3.01	2.99	2.67	2.41
CL14	6827-1716	Guthrie	26,400	1.49	1.79	1.73	1.45	1.72
CL15	6827-1715	Kleinig	49,500	1.82	1.72	1.60	1.68	2.05
CL16	6827-1693	Roberts	14,600	1.54	1.61	Missing	Missing	Missing
CL17	6827-1694	Roberts	29,300	1.64	1.79	1.42	Missing	Missing
CL18	6827-1695	Roberts	12,800	1.57	1.88	Missing	Missing	Missing
CL19	6827-1696	Roberts	14,600	1.61	1.58	Missing	Missing	Missing
CL20	6827-1697	Roberts	12,000	0.86	1.23	1.07	Missing	Missing
CL21	6827-1698	Roberts	12,500	1.32	1.53	1.37	Missing	Missing
CL22	6827-1699	Hansen	26,800	1.64	2.11	1.98	1.64	1.82
CL23	6827-1700	Hansen	n/a	Not found	Not found	Not found	Not found	1.25
CL24	6827-1701	Hansen	n/a	1.75	Not found	Not found	Not found	1.76m
CL25	6827-1702	Hansen	n/a	1.71	Not found	Not found	Not found	Dry at 0.9m

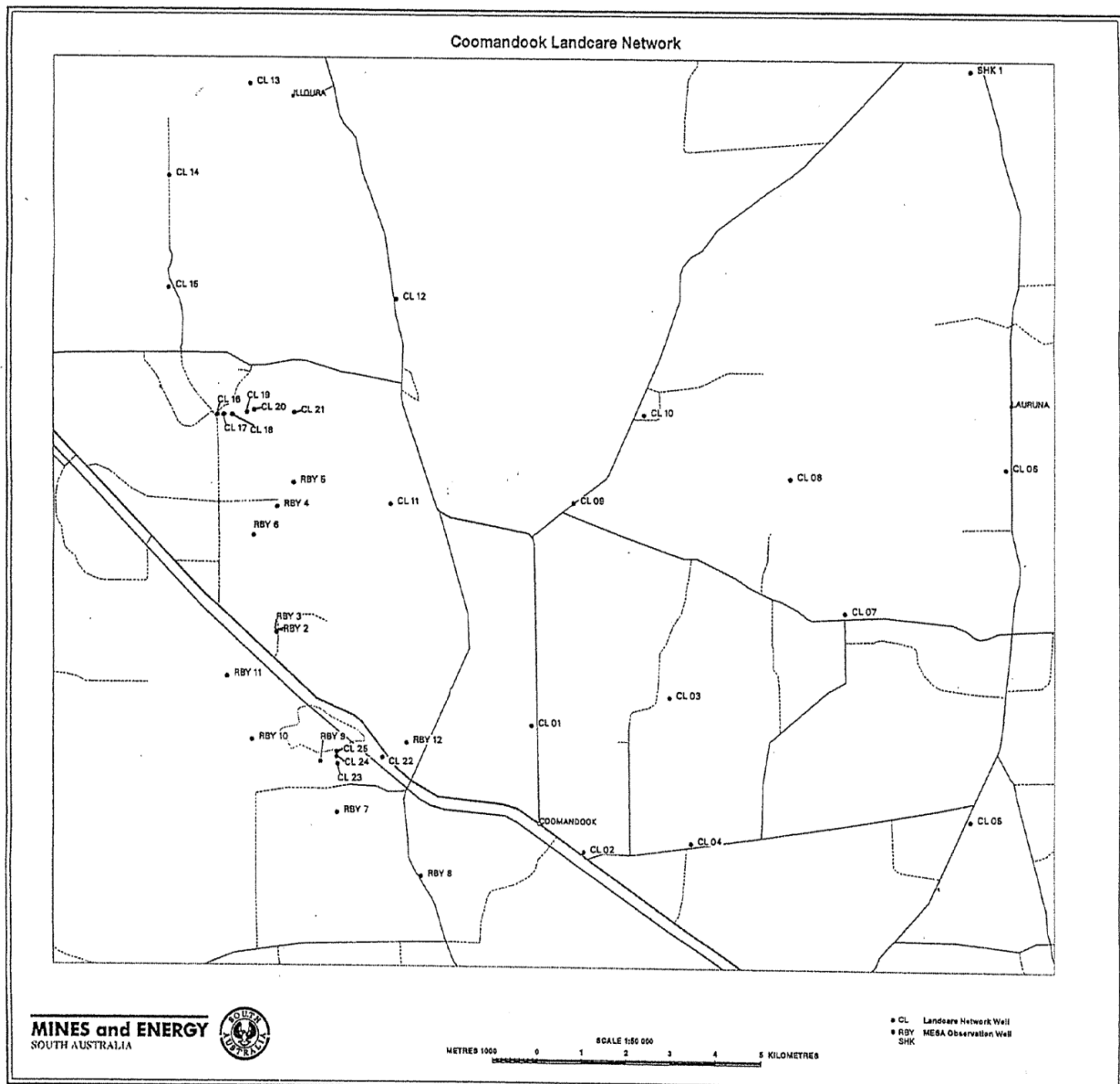
# Coomandook / Cooke Plains Landcare Monitoring Network

## End of summer readings Page 2

Coomy Landcare network	Unit number	location	Salinity	Date	Date	Date	Date	Date
			29/04/1994 (drill date)	27/04/2020	19/04/2021	26/04/2022	29/03/2023	
			ppm (mg/l)	Water level measured to the top of the casing				
CL01	6827-1703	Simmons	18,200	1.19	1.40	1.42	1.39	
CL02	6827-1704	Teusner	2,966	2.38	2.83	2.83	2.49	
CL03	6827-1705	Ballard	24,100	1.91	1.89	1.91	1.85	
CL04	6827-1706	Hansen	21,300	2.97	2.99	3.01	2.69	
CL05	6827-1707	Murray	18,200	dry	dry	dry	dry at 33.4m Needs clean out	
CL06	6827-1708	Poole	10,700	3.18	3.23	3.31	3.09	
CL07	6827-1709	Freak	23,200	3.06	3.18	3.24	3.02	
CL08	6827-1710	Freak	24,000	2.91	2.88	2.98	2.77	
CL09	6827-1711	Freak	26,900	2.10	2.12	2.17	1.98	
CL10	6827-1712	Freak	32,900	Broken at ground level	Broken at ground level	Broken at ground level	Repaired -dry Needs clean out	
CL11	6827-1713	Patterson	23,900	1.74	1.65	1.66	1.67	
CL12	6827-1714	Crouch	28,200	2.444	2.46	2.42	2.33	
CL13	6827-1717	Piggott	29,500	2.51	Broken off ground level	Broken at ground level	Broken at ground level	
CL14	6827-1716	Guthrie	26,400	1.51	1.44	1.48	1.49	
CL15	6827-1715	Kleinig	49,500	1.82	1.81	1.81	1.76	
CL16	6827-1693	Roberts	14,600	Missing	Missing	Missing	Missing	
CL17	6827-1694	Roberts	29,300	Missing	Missing	Missing	Missing	
CL18	6827-1695	Roberts	12,800	Missing	Missing	Missing	Missing	
CL19	6827-1696	Roberts	14,600	Missing	Missing	Missing	Missing	
CL20	6827-1697	Roberts	12,000	Missing	Missing	Missing	Missing	
CL21	6827-1698	Roberts	12,500	Missing	Missing	Missing	Missing	
CL22	6827-1699	Hansen	26,800	1.66	1.81	1.87	1.82	
CL23	6827-1700	Hansen	n/a	1.22	1.35	1.37	1.39	
CL24	6827-1701	Hansen	n/a	1.81	1.98	2.03	2.02 - mud Needs clean out	
CL25	6827-1702	Hansen	n/a	dry at 0.9m	dry at 0.9m	dry at 0.9m	dry at 0.9m Needs clean out	

## SEASONAL OBSERVATIONS

Date	Seasonal Observation	Seasonal Rainfall
7 <sup>th</sup> November 2022	<p>The 16 piezometers showed a rise in the water table of up to 0.4 of a meter, and one was the same as the end of 2021 winter bore run. The smallest rises corresponded to the heaviest crops or hay cuts. The biggest rises were on the low growth salty flats and samphire swamps, where less water was being up taken by the plants.</p> <p>The crops looked very good throughout the area. There were very heavy hay cuts, but a lot of weather damage, particularly in the earlier cut crops resulting in significant black staining.</p> <p>There was good regeneration of lucerne in areas cut for hay. The lucerne on the sandy grazing country was growing very well, as was newly sewn lucerne.</p> <p>Much of the samphire areas near Coomandook had large patches of puccinellia and clover. The owners said it was the best they had seen it for many years.</p>	
22 – 25 <sup>th</sup> May 2023	<p>The Coomandook Landcare Network comprises 25 shallow wells that were drilled in April 1994. In that time, some have silted up, particularly in the swampy areas or blocked with white snails, and several had been damaged.</p> <p>A repair and maintenance run was carried out on 22nd May and 23rd May 2023</p> <ul style="list-style-type: none"> <li>· 17 piezometers cleaned out using a fire fighter. 20mm blueline poly pipe (without a nozzle) slowly pushed to bottom of the 50mm poly casing. The bottom of the casings were capped, so it was easy to know when the bottom was reached.</li> <li>· 2 piezometers were completely blocked with snails, so caps were placed on all piezometers.</li> <li>· 2 piezometers repaired that were broken off at ground level.</li> <li>· 1 piezometer was broken off about 0.3m below ground level not repairable.</li> <li>· 6 piezometers broken off at or below ground level and not located.</li> <li>· 2 piezometers not cleaned out – clear to bottom of casing and had telemetry installed.</li> </ul>	



The depth to water column in the table is the water level recorded from the top of the PVC riser tube. As most of the wells have a shallow watertable (1 to 3m), records of rainfall vs. waterlevel taken during the 1990s indicate a rapid seasonal response to winter rainfall with subsequent falls of the watertable due to summer evaporation. As indicated in the table, some wells have gone dry and others are missing, presumably destroyed. In these cases, the water level is the last available reading.

The Landcare revegetation site comprised of a tagasaste plantation on a sandhill which had been in lucerne for 8 years and was renovated in 2004. Another revegetation site was located at the base of the sandhill, below the tagasaste block. A saltbush and tree shelter belt had been established around the perimeter of a large area of saline land. Despite the high water use strategy on the sandhill immediately upslope of the saline area, the watertable was still very shallow (0.6m from the surface in 2005). This confirms the difficulty of controlling dryland salinity in a regional discharge zone. Hydrographs are presented for three sites (CL 1, 6 and 11), but with large gaps in the record it is difficult to draw any further conclusions from the Landcare trial sites.

## Water Level: 6827-1703

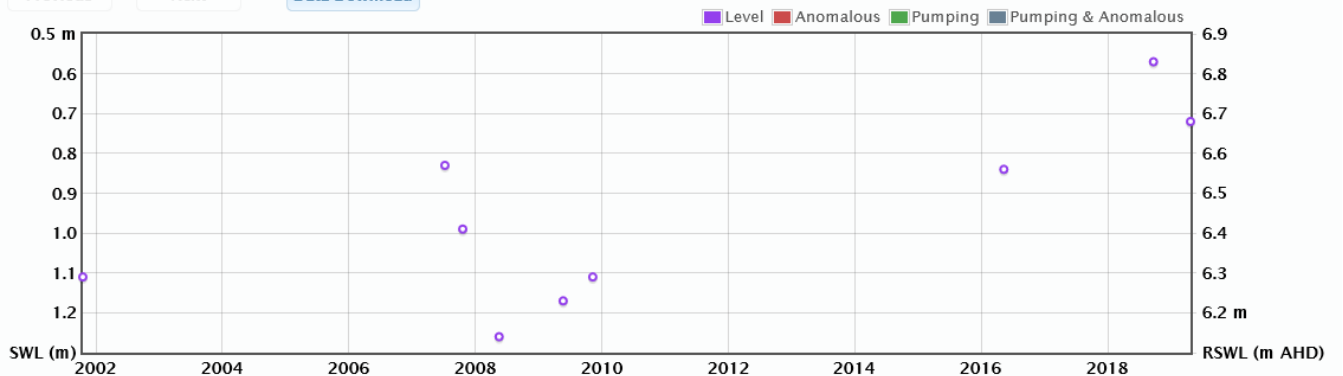
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## Water Level: 6827-1708

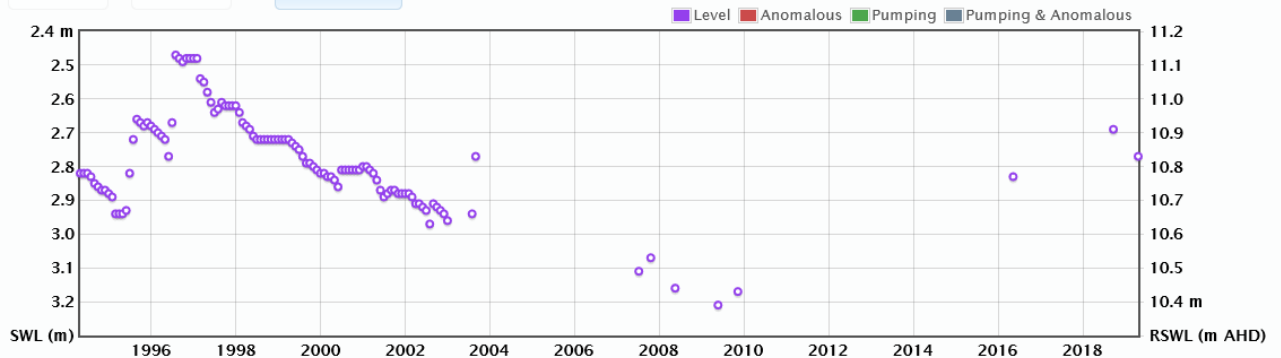
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## Water Level: 6827-1713

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