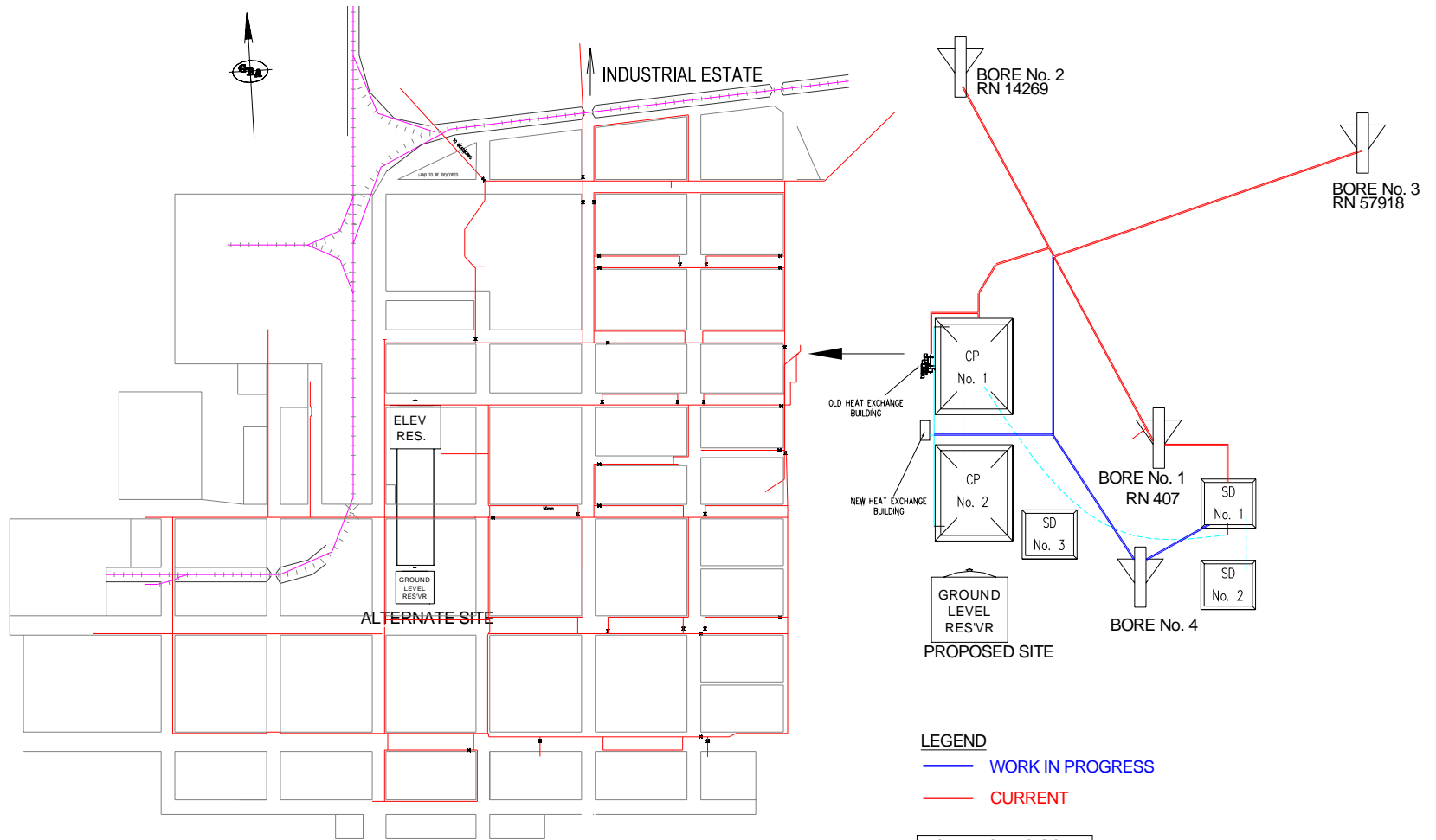


The background of the slide is a photograph of a vast blue ocean under a bright blue sky with wispy white clouds. The sun is visible on the left side, creating a bright glow and a shimmering reflection on the water's surface.

WINTON BORE WATER SUPPLY



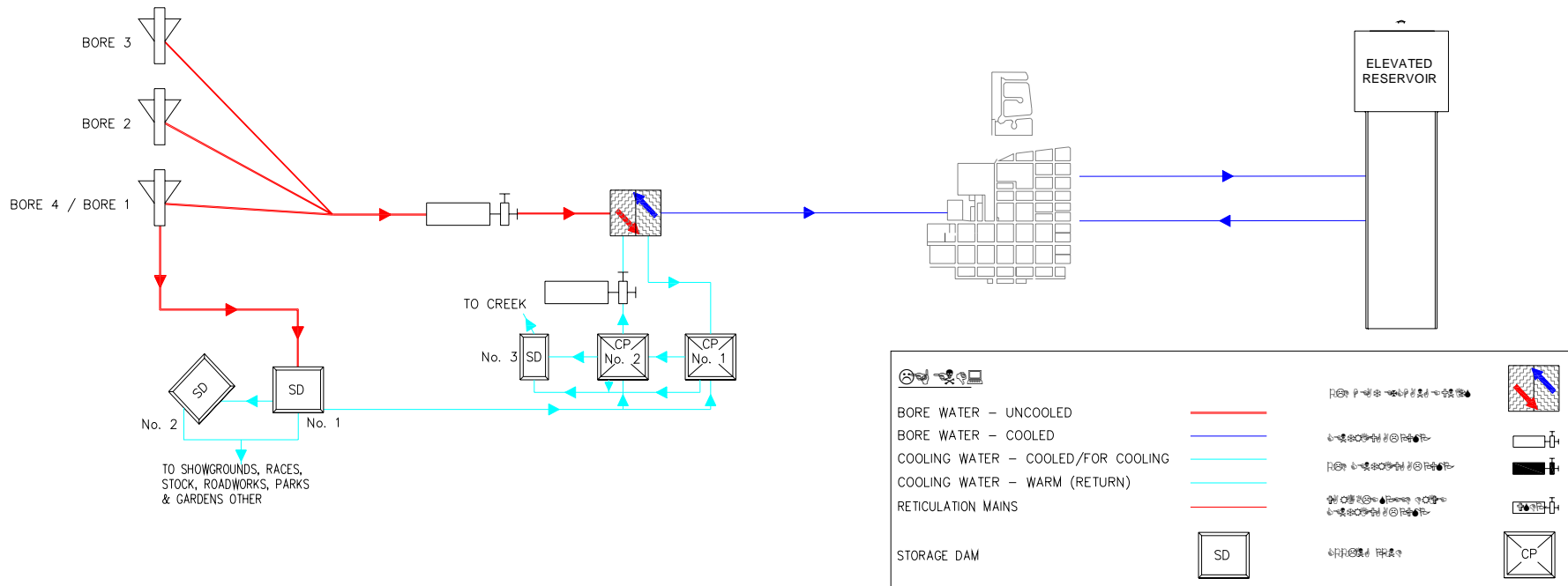
LEGEND
 — WORK IN PROGRESS
 — CURRENT

NOTE: NOT TO SCALE

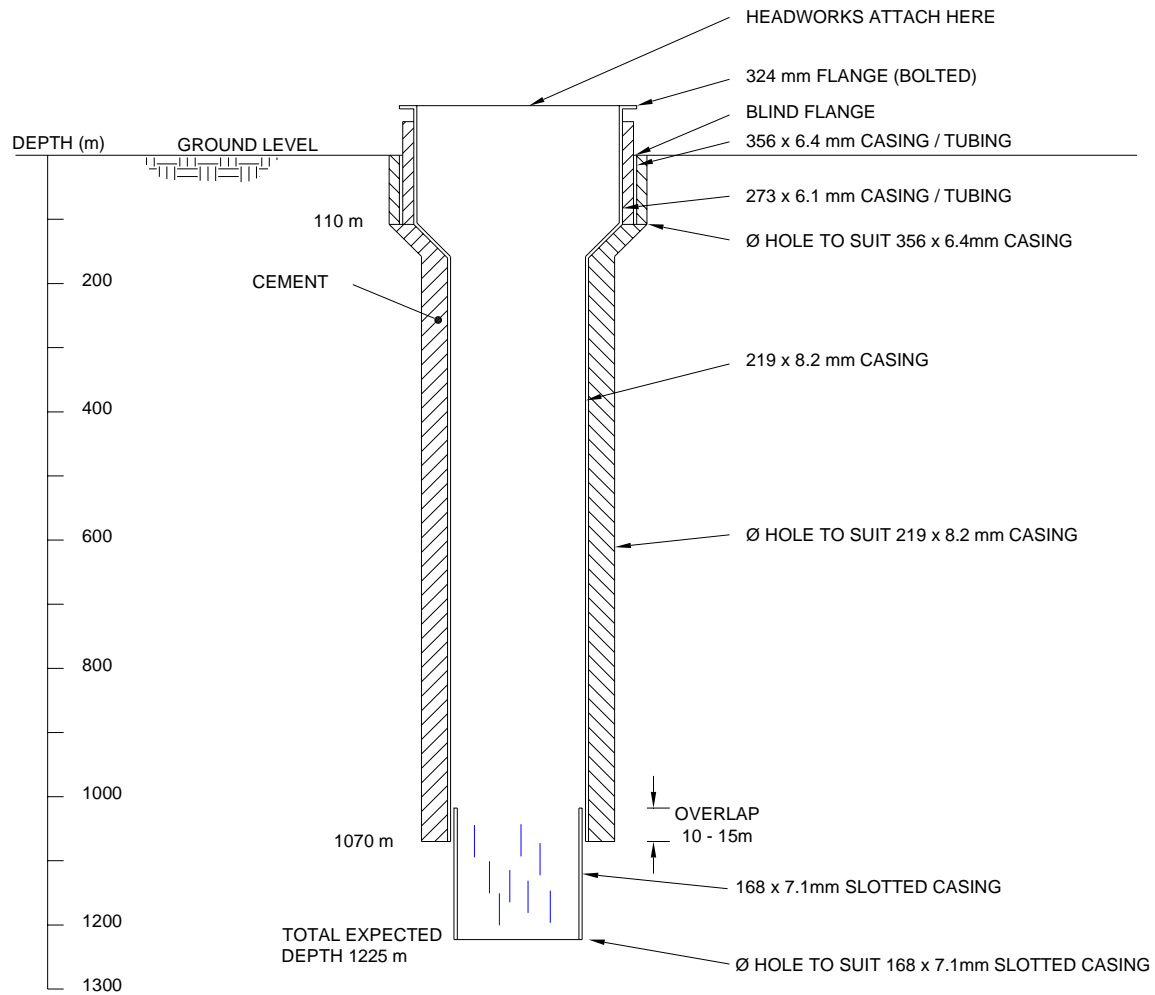
WINTON WATER SYSTEM SCHEMATIC

OVERVIEW

- Winton water source comprises three flowing bores.
- Bore No. 1 drilled in 1895.
- Bore No. 2 drilled in 1960.
- Bore No. 3 drilled in 1984.
- Bore No. 4 is under construction.
- The water temperature is around 85° C.
- Water is cooled through a heat exchange unit.
- The bore water either freeflows at 10 l/s or is pumped at 37 l/s.
- An elevated reservoir regulates pressure.
- There is currently no ground level water storage reservoir, but one may be constructed in the future.



WORK IN PROGRESS



WINTON BORE No. 4 - CONFIGURATION

Parameters that affect Bore Flow

Transmissivity- The measure of water flow through the strata.

Casing size - If casing is too small it restricts flow either due to headlosses and/or due to the area for the water to enter into the production casing is too small.

If the casing is too large then the restriction is the transmissivity & the extra bore cost produces no benefit.

Bore 4 Example - Configuration	Flow	Cost
168 mm casing top to bottom	32 l/s	\$700K
203 mm casing top to bottom	50 l/s	\$900K
203 mm casing with 168 mm production casing	42.5 l/s	\$900K

Construction- Not necessarily due to poor construction.

Winton's Bores

Bore No	Age (yrs)	Depth (m)	Temperature (deg C)	Static Pressure (m)	Predominant Bore size (mm)	Flow (l/s)
1	110	1222	85	34	127	19
2	45	1224	79	26	203	11
3	21	1222	85	32	168	30
4 Expected Figures	Under Construction	1225	85	30	203	42.5

Reasons for Bore 4 & its Configuration

- Security of supply - Age of Bore No1.
Just in case.
- Upgrade of supply - Winton's water supply was less than the towns demand.
Possible future growth.
Possible future industry.
- Unforeseen shortfalls - Unlucky.
Construction problems.
Bore 2 for example.
- Cost benefit - 168mm casing was just adequate.
One 203 mm bore was cheaper than two 168 mm bores.
- Construction - The 168 mm production casing ensured a positive cementing above the aquifer.
- DNR guidelines - To accommodate a future pump.
Satisfy casing collapse loads.
To ensure stability at the top of the bore.

