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Christchurch Southern Motorway Stage 2 and Main South Road Four-Laning

Groundwater

Local groundwater levels have a significant impact on the design of the motorway as:

- It affects how we manage stormwater
- It dictates that we cannot sink the motorway significantly below ground level

Most of the rain or stormwater runoff that falls on the highway will be disposed of by letting it soak into the ground. This disposal system needs to be above the natural groundwater level so the system operates effectively and filters the water before it reaches groundwater.

Long term records from Environment Canterbury (ECan) bores have been used as well as information collected along the route of the proposed highway to establish a 'design groundwater level.'

The design groundwater level is based upon:

- Historical high groundwater levels from ECan monitoring data
- Short term records from 10 groundwater level recorders installed along the proposed route
- Possible impacts from the proposed Central Plains Irrigation Scheme (which may raise groundwater levels)

The design groundwater level is then used to set the 'lowest possible level' of the highway. Accordingly the median of the highway is proposed to be built at existing ground level.

The level of the highway needs to allow room for the disposal and treatment of stormwater runoff above the potential high groundwater level. This avoids residual contaminants passing through the treatment system and into groundwater.

It will also mean that the highway is not flooded by runoff and groundwater during exceptionally rare weather events.

Cross-section diagram showing typical groundwater levels associated with the CSM2 and MSRFL project