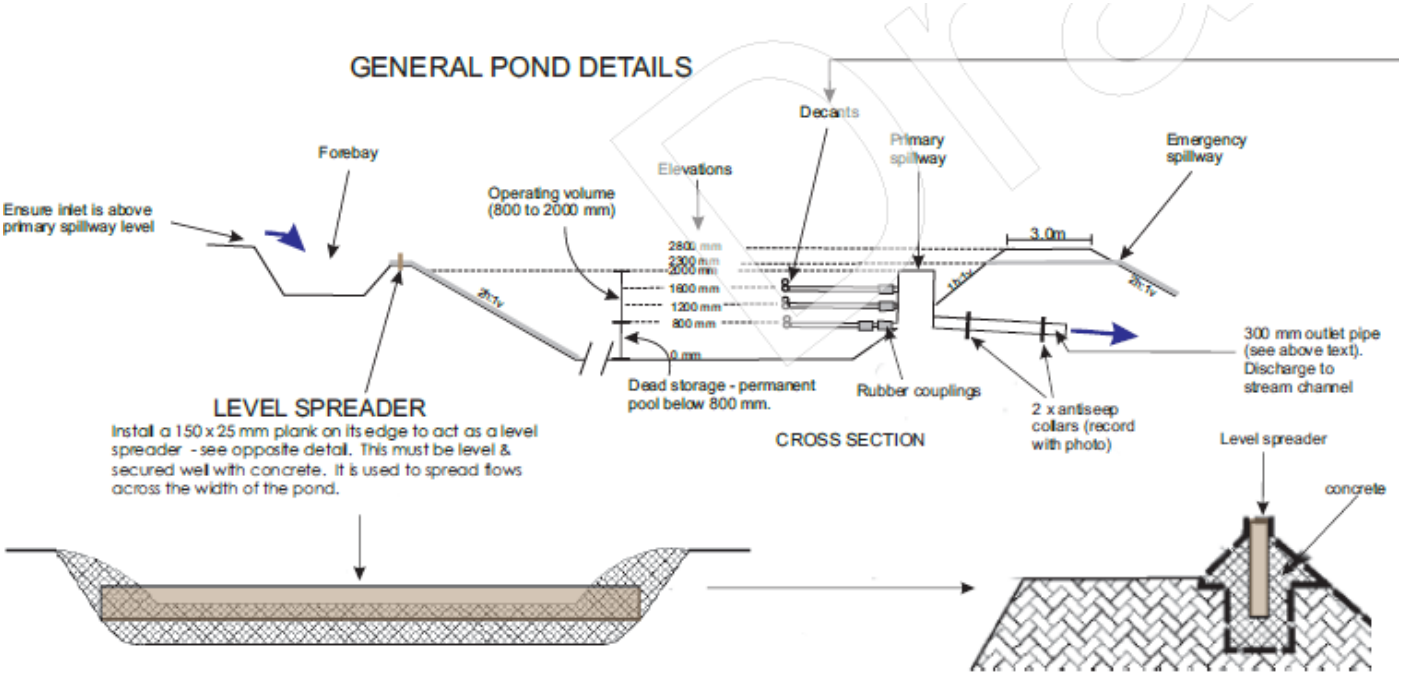
| Question | Answer |
|---|---|
| What is the best way to protect water quality? | PRE-TESTING of managed fill BEFORE it arrives on site. Testing of fill material will ensures prohibited contaminants do not arrive on site. Testing is done by trained staff and sent to independent laboratories. |
| What if fill fails pre-testing or testing on site? | Loads that FAIL are REJECTED and either tested further or sent to Hampton Downs<br><br>Additional tests are done on arrival to site (every 500m$^3$, + random testing + annual audit). |
| How do you avoid contaminating stormwater and overland flows on site? | Drainage is installed to DIVERT clean stormwater to the sides/top of the gully (so it doesn't mix with the fill). Drains are also installed underneath the fill, to collect any other runoff/soakage. |
| Where does all the current water flow in the gully go? | All flows are caught by sub-soil drains, swales and channels and directed to the engineered pond constructed at the base of the gully. |
| How do you minimise the amount of sediment discharged? | The treatment pond uses 'BEST PRACTICE' erosion and sediment control methods including diverting cleanwater, minimising the area exposed to erosion and diverting all site runoff to a flocculated sediment retention pond. Well maintained ponds (of type to be used) achieve an average of 95% sediment removal. and over 90% of dissolved metals. |
| What if the pond gets dirty or too full of sediment? | The pond is MONITORED DAILY and regularly de-silted when it is no more than 20% full. The sediment removed goes back into the fill area. |
| Does the pond discharge all the time? | No – the ponds only discharges during rain. Some rain events will not be large enough to cause a discharge. Between rain events the ponds will not discharge. |
| How do you know the water quality is good enough? | Experience in hundreds of sites throughout the Waikato and Auckland has confirmed the performance of the type of sediment retention ponds proposed. An estimate of sediment yield (sediment discharged annually) has been undertaken and the ecological assessment has been based on that yield. Typically, the estimates derived are conservative i.e. higher that actually occur. This approach was successfully used on the Huntly Bypass project. |
| How are you improving water quality? | By holistically restoring, enhancing and protecting 3.9 ha of stream and wetland habitat over five years. This will be fenced and covenanted. This habitat is at the headwaters of this stream, which eventually flows into Lake Waahi. By planting shading trees/plants and removing pest species, the water temperature is lowered – this improves habitat for kokopu (cockabully/whitebait) and reduces algae growth. |
| How are you protecting the 'essence' of the Lake? | LISTENING TO THE VOICE OF TE AO MAAORI (Maaori world view), is important for environmental stewardship. Gleeson are working with local Iwi to develop a Maatauranga Maaori Environmental Management Plan, which is a collaboration that respects, values, and acknowledges Maaori knowledge including the:<br><br>• concept of ki uta ki tai – from the mountains to the sea<br>• connections between people and place<br>• concept that small shifts in the mauri (life force) of any part of the environment can cause shifts in the mauri of related parts<br>• need for an intergenerational view over time. |


Any clean water discharge from Fill Area 2 flows 2.5km before discharging into Lake Puketirini. Clean water discharge from Fill Areas 3 and 4 flows 1km before discharging into the Waikato River


***Example of a sediment retention pond (photo courtesy of Southern Skies Environmental – Erosion & Sediment Control Specialists working with Gleeson)***




***Excerpt diagram from Erosion and Sediment Control Plans – Sediment Retention Pond Detail***