

**IECA Australasia and Auckland Council
Mini Conference
Wednesday 22nd September 2021**

9.30 - 9.45	Welcome and introduction to IECA
9.45 - 10.45	Introduction to Sediment Retention Ponds <i>Speaker:</i> Southern Skies
<p>DESCRIPTION: An introduction to the design and function of sediment retention ponds (SRPs) that will include:</p> <ul style="list-style-type: none"> • Basic design requirements. • Tips for construction, monitoring and management. • Chemical treatment – brief introduction in terms of SRP setup. • An understanding of SRP performance and what impacts that. • Options for SRP performance monitoring and when to utilise those. • Discussion on how sediment discharge limits are not compatible with SRP function and why response targets are a better alternative. 	
10.45 - 11.15	Morning tea with exhibitors in marquee
11.15 - 11.45	Innovation in monitoring <i>Speaker:</i> Ed Clayton, Senior Scientist, Mote Ltd.
<p>DESCRIPTION: The freshwater impacts of large-scale earthworks developments can be many and varied. Runoff from sites during high-intensity rain events can lead to public concern and water quality issues have been a priority for the New Zealand public for a number of years. The last 20 years has seen the introduction of regulations and guidelines (such as TP90 and now, GD05) aimed at setting standards that consider how erosion and sediment generation can be managed to reduce freshwater impacts, yet very little data gets collected on how efficient site controls are once they are installed. Some sites require monitoring as part of consent conditions, but this often encompasses manual sampling after rain events constraining the data gathering to the availability of persons to collect the data. Where automated monitoring is required, systems can be expensive due to reliance on technologies that are often not designed specifically for earthworks, rather adopted from monitoring networks designed to collect data to scientific levels of precision. We are facing a technological change, however. Low-cost open-source Internet of Things (IoT) platforms based on hobbyist electronics (such as Arduino and Raspberry Pi systems) are rapidly expanding. Monitoring systems can be built for hundreds, rather than thousands (or even tens-of-thousands) of dollars.</p> <p>This presentation will explore the use of low-cost IoT technology on earthworks sites and how adoption could lead to greatly reduced environmental impacts. Communication platforms are beginning to encompass cheap cellular, wifi and satellite technology, ensuring real-time communication at even the most remote sites. While it is true that the cheaper systems often lack the precision of the “traditional” sensors, these new technologies are enabling much better spatial and temporal resolutions for data collection, to the point that all erosion and sediment control systems can have devices to measure water quality parameters. Allowing communication between sites devices also means responsive control and management, sensors can feedback to flocc dosing devices to alter dosing rates, manage SRP outlet controls and collect samples.</p>	

11.45 - 12.15	<p>Digital innovation in erosion and sediment control <i>Speaker:</i> Alex Bees, Environmental Manager, Fletcher Construction Company</p>
<p>DESCRIPTION: On the back of the Auckland region’s most extreme drought in modern times, Watercare activated an emergency drought response project to deliver an additional 50 million litres of treated water per day from the Waikato River. The solution was to design, consent, procure, construct and commission a new water treatment plant in 12 months, a process which would normally take four years. The complex and rapid nature of the programme presented unique challenges which were addressed through innovative digital engineering and contributed to the success of the project, which was completed on time and under budget, without compromising environmental outcomes.</p> <p>An additional water source for the region was necessary to maintain water security and reduce the need for further water restrictions. Innovative digital techniques were employed to manage bulk earthworks and produce erosion and sediment control plans, where a lack of accurate and up-to-date topographical and aerial imagery existed for the site. Topographical survey data and digital tools were used to design sediment retention ponds, which were then accurately constructed with GPS-enabled excavators. 3D as-built models of the erosion control devices were used to confirm compliance with design criteria and sediment control guidelines.</p>	
12.15 - 12.45	<p>Waimea Community Dam Project – <i>The taming of the Lee River,</i> Tasman District <i>Speaker:</i> Omar Seychell - Fulton Hogan</p>
<p>DESCRIPTION: The Waimea Community Dam Project is an augmentation scheme which will add to the region’s water supply. It will do this by;</p> <ul style="list-style-type: none"> - capturing Lee River flows; - storing the water in a reservoir in the Lee Valley, and then; - allowing controlled release of stored water into the river system during periods of high water demand and/or low natural river flows. <p>It is expected that works will be complete by March 2023 with works having commenced in March 2019.</p>	
12.45 - 13.30	<p>Lunch with exhibitors in marquee</p>

13:30 - 14:00	<p>Ara Tūhono - Pūhoi to Warkworth: On the road to completion. <i>Speakers:</i> Hannah Giess, Environmental Manager, NX2 and Gabby Coster, Environmental Advisor</p>
<p>DESCRIPTION: As the focus has shifted from large-scale earthworks to road construction, the Ara Tūhono - Pūhoi to Warkworth motorway team has been navigating the transition from dirty to clean – and the challenges between.</p> <p>Environmental Manager Hannah Giess and Environmental Advisor Gabriella Coster will reflect on the bulk earthworks before diving into some of the key challenges they have faced in transitioning into alignment, finishing and pavement works, as well as some of the lessons learned along the way.</p>	
14:00 - 14.30	<p>City Rail Link Field trip background <i>Speaker:</i> Hugh Leersnyder, Downer Ltd.</p>
<p>DESCRIPTION: The City Rail Link (CRL) is a game-changer for Auckland and the Link Alliance’s construction of it is similarly impressive. The CRL is a 3.45km twin-tunnel underground rail link up to 42 metres below Auckland’s city centre. It will transform the downtown Britomart Transport Centre into a two-way through-station that better connects the Auckland rail network and allows the rail network to at least double rail capacity. It includes a redeveloped Mt Eden Station, where the CRL connects with the North Auckland (Western Line) and two new underground stations. Within the 9-hectare site, buildings have been demolished and the heavy civil works is well underway to form the redeveloped Mt Eden station and the City Rail Link tunnel approaches.</p> <p>The Link Alliance’s Mt Eden station site is complex with extensive construction activities underway. The most recognisable piece of machinery is the now underground tunnel boring machine (TBM) “Dame Whina Cooper”, named in honour of Dame Whina Cooper. Our TBM is an Earth Pressure Balance (EPB) machine. It is 7.15 metres in diameter and 130 metres in length with 12 gantries trailing the shield. “Dame Whina Cooper” has been designed specifically to cater to the challenging alignment. Attendees will be able to view the spoil management systems for the TBM, in addition to the impressive civil works surrounding.</p>	
14.30 - 15.00	<p>Panel Q and A To round out the day we will invite all our presenters to join our panel discussion in a Q and A session on all things erosion and sediment related.</p>
15:00	Finish