

NZ Transport Agency

Water Workshop

April 21st 2016

13:00 – 16:00

Venue: NIWA, 10 Kyle Street, Christchurch

The NZ Transport Agency would like to invite you to a Transport and Water workshop to learn more about and discuss two key topics. The first project is a piece of research commissioned by NZTA looking at the environmental risk of stormwater runoff from roads. The second project describes groundwater issues related to ground soakage disposal of stormwater runoff and the operation of aggregate quarries.

Places are limited. Please RSVP by **April 11th** to: environment@nzta.govt.nz

AGENDA

13:00 – 13:20	Tea and coffee
13:20 – 13:30	Welcome to Workshop and introduction to Session One – <i>NZ Transport Agency</i>
13:30 – 14:10	Session One: Risk assessment of road stormwater runoff research presentation – <i>Laurie Gardiner (MWH) and Jonathan Moores (NIWA)</i>
14:10 – 14:30	Questions
14:30 – 14:50	Break
14:50 – 14:55	Welcome Back and introduction to Session Two – <i>NZ Transport Agency</i>
14:55 – 15:35	Session Two: Groundwater issues: stormwater soakage and aggregate sources - <i>Peter Callander (PDP)</i>
15:35 – 15:55	Questions
15:55 – 16:00	Wrap up – <i>NZ Transport Agency</i>

Session One: Risk assessment of road stormwater runoff research presentation

Laurie Gardiner (MWH) and Jonathan Moores (NIWA)

13:20 – 14:30

Road runoff can have potentially significant adverse effects on aquatic receiving environments. Contaminants in stormwater discharges from the road network are complex and include fuels, additives, oil, grease and brake and tyre residues containing a variety of toxic and ecotoxic components, including heavy metals and organic compounds. Receiving environments of stormwater from roads include streams, rivers, lakes, wetlands, estuaries, harbours and the open coastline. The characteristics of each of these different types of water body influence the fate of contaminant inputs, how they are assimilated and therefore their sensitivity.

Reflecting the need for cost-effective ways of prioritising the management of stormwater in relation to the risk of adverse effects, the NZ Transport Agency commissioned MWH in association with NIWA to develop a screening model that addressed the following research question:

Under what conditions is stormwater run-off likely to cause adverse environmental effects?

Building on earlier research, the aim of this 1-year study was to revise and enhance the Transport Agency's Vehicle Kilometres Travelled (VKT) screening tool for road runoff to allow its wider application to rivers/streams and coasts/estuaries, and with provision for factoring in the effects of pathway attenuation, traffic congestion and non-road pollution sources. While the principal intention was to develop an improved screening method for road networks, a secondary objective was to describe ways in which the method could be extended to provide for an absolute risk assessment in relation to established effects thresholds.

The Road Stormwater Screening (RSS) Model developed in this study provides a robust, consistent method for establishing the relative risk of adverse effects from road runoff that can be applied anywhere in New Zealand using existing datasets.

The RSS model should be of assistance to the NZ Transport Agency and territorial authorities in screening and prioritising areas of the road network for improved management of road runoff. The risk-based approach used in assessing the impact of stormwater discharges on receiving environments aligns with current development by regional councils to move towards a risk-based stormwater consenting regime in support of the National Policy Statement for Freshwater Management.

Laurie Gardiner and Jonathan Moores will present the findings of this research, including the Porirua Harbour case study. They would welcome any feedback on the model and its potential application from an end user perspective.

Session Two: Groundwater Issues: Stormwater Soakage and Aggregate Sources

Peter Callander (Pattle Delamore Partners Ltd)

14:50 – 16:00

The Canterbury plains have been formed by the extensive deposition of glacial and river derived gravels, sands and silts which have subsequently been re-worked and sorted as they have spread out across the plains. At the coastal margin of some areas there are also fine grained estuarine and marine deposits arising from variations in sea level that have occurred during alternating glacial and inter-glacial periods in the recent geologic past. These conditions have led to a wide range of geologic conditions.

Of particular relevance to NZTA work is the plentiful source of roading aggregate provided by the alluvial deposits on the plains and the opportunity for rapid soakage disposal of stormwater provided in areas where permeable gravels occur at or near the ground surface. These gravel dominated strata also form the porous media that supports an extensive aquifer system. This groundwater is widely used as a source of water supply for townships and private dwellings in Canterbury. The groundwater also provides baseflow to springfed streams that are highly valued by their local communities.

This session will provide a description of the strata and aquifer structure in and around Christchurch city and the groundwater flow patterns that result. This local setting provides an example of a range of different groundwater settings that occur throughout the Canterbury plains and in many other areas throughout New Zealand. An objective understanding of the groundwater environment helps determine an appropriate consideration of contamination risks arising from stormwater discharge and aggregate abstraction activities. That understanding also allows for appropriate mitigation measures to be developed that can minimise the risk of adverse effects that might otherwise arise.

See invitation for the full agenda