

Stormwater Meanderings

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Stormwater discharges - integrating technical knowledge with the resource consent process

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Introduction

The purpose of this article is to outline some important issues relating to the stormwater discharge permit process and to identify specific methods to address those issues.

The process for stormwater discharge permit applications frequently faces at least two significant Resource Management Act (RMA) challenges. Firstly, the relevant RMA framework in many operative regional plan(s) provides limited technical guidance beyond imprecise objectives and policies that often effectively repeat provisions already in various sections of the RMA and national/regional policy statements.

The Land and Water Forum process is beginning to raise awareness about the need to make environmental outcome provisions clearer, including specifying numerical water quality 'standards' in regional plans. An increasing number of operative regional plans provide meaningful resource consent guidance via either numerical receiving water quality 'standards' at the level of an objective and/or policy, and/or via detailed minimum stormwater treatment/management requirements in rules.

Secondly, many resource consents granted for stormwater developments do not meet established good practice. They often contain uncertain conditions that leave too much discretion to a council officer and/or do not include conditions needed to provide assurance about whether adverse environmental effects will be within the anticipated limits accepted by the resource consent decision maker.

There is a significant amount of information available on: the design and effectiveness of stormwater management and treatment systems, environmental monitoring programmes to assess the effects of discharges, and the cultural, economic, environmental, and social matters relevant to the RMA resource consent process. However, this substantial knowledge is frequently not brought together and translated into robust resource consent conditions that provide clear environmental outcomes and certainty for those with responsibilities for those stormwater systems. Therefore, the purpose of this brief article is to focus specifically on the need to better integrate our technical knowledge with the resource consent process to achieve greater certainty with resource consents granted for stormwater discharges.

Is the stormwater resource consent process different?

Stormwater discharges permits are different from many other discharge permits in terms of the ability to readily prescribe or proscribe critical aspects of the discharge. For example, it is relatively common for many wastewater discharge permits to specify percentile limits for key contaminants and to specify a detailed monitoring and reporting programme. Similarly, most wastewater discharge permits would usually specify some form of maximum discharge rate (e.g., l/s, m³/d, etc.), but this cannot easily be applied to stormwater discharges. Discharge permit limits on contaminants and rates of discharge provide an assurance about environmental effects and provide certainty to both the consent holder and the consent authority about what constitutes compliance. However, there are clearly difficulties in applying such limits to



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an intermittent, highly variable stormwater discharge where the timing of discharges is unpredictable and the discharge is often difficult to sample.

The difficulties in applying 'normal' discharge permit limits to stormwater discharge permits have resulted in a range of alternative approaches. The most common method is for a decision maker, after being satisfied that a specific treatment system would result in acceptable adverse effects, to specify that that proposed treatment system must be installed and operated as proposed. Less frequently, a minimum performance standard (e.g., a total suspended solids percentage reduction for a specific storm event) is specified. The latter approach is often complemented by 'assurance conditions' such as certification from an appropriately qualified and experienced person that a specific design has been installed or that the design is consistent with a performance requirement. Some discharge permits require targeted environmental monitoring and reporting to help provide an assurance that the environmental effects are within the limits anticipated.

One additional complexity that can contribute to discharge permit uncertainty is the frequent need by an applicant for flexibility on a final stormwater treatment design. There can be many valid considerations that mean that a final design is best formulated relatively late in a development (e.g., post geotechnical investigations). Provided that a decision-maker is confident that the necessary level of management/treatment is readily achievable, appropriate conditions can provide both flexibility and certainty. However, a more complex suite of conditions are needed to achieve this, for example, that require independent certification of a design that it meets a specified performance standard, certification of the installed system, post installation environmental monitoring and reporting, and response requirements in the event of inadequate performance.

Many stormwater discharge permits incorporate few technical specifications and often don't incorporate measures to ensure that a specific design is installed and operating as anticipated. In many situations this is not a significant issue because there is constructive dialogue between the consent holder, the consent authority and other interested/potentially affected persons. However, if these relationships break down, many stormwater discharge permits do not provide the necessary 'backstops' to enable poor performance to be remedied. There often seems to be a lack of recognition of the potential issues and the means available to provide the necessary regulatory consent structure to provide sufficient certainty for all parties.

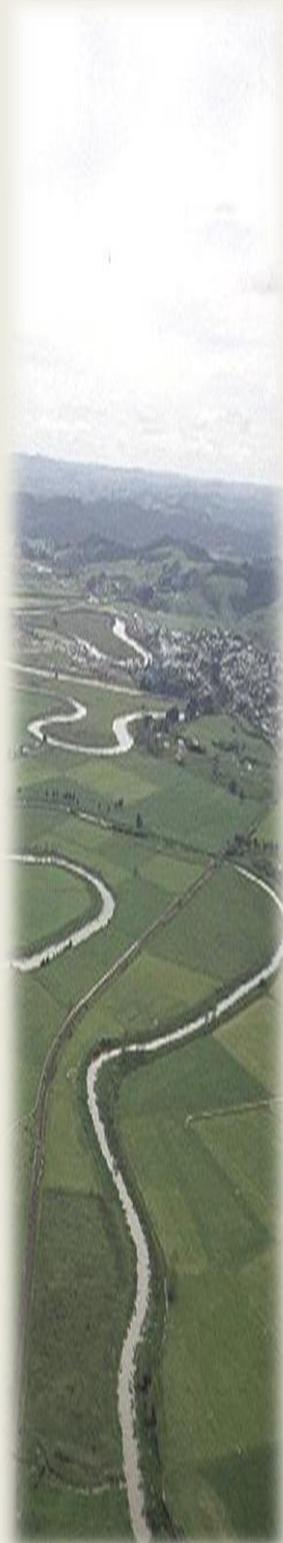
Another significant issue is the relatively high level of reliance on the use of short-term consent duration and/or review conditions to address uncertainties. While these approaches may have some superficial appeal, they usually have significant disadvantages and should only be relied on in limited circumstances. In most situations other mechanisms such as those outlined above are more appropriate to address any residual uncertainty.

Many stormwater discharge permits are still being granted with key conditions missing and with many conditions not consistent with good practice¹. This is potentially significant both in terms of environmental outcomes, and the resources that may be spent resolving consequential disputes between consent holders and consent authorities.

In summary, many stormwater discharge permits currently have one or more of the following limitations:

1. Unavailable external document references
2. Secondary approvals
3. Inappropriate reliance on management plans
4. Uncertain wording

¹ <http://www.qualityplanning.org.nz/consents/conditions-res-con.php>



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5. Inadequate technical specifications
6. Inadequate assurance requirements
7. Inadequate performance assessment and response requirements
8. Reliance on a short duration discharge permit
9. Excessive reliance on a review condition

Consents that have one or more of these limitations have a high level of uncertainty, both in terms of compliance requirements and the actual/potential adverse effects on the environment.

Stormwater discharge permit condition issues and solutions

Issue	Examples	Explanation	Solution outline
1. Unavailable external document references	<p>“the stormwater treatment system shall be constructed in general accordance with the information contained in the application”,</p> <p>‘the stormwater swales shall be installed in accordance with XYZ guidelines’, etc.</p>	<p>The documents may not be readily available, they may lack adequate certainty for construction or compliance/ enforcement and original application documents may have been modified during the resource consent process. Many “guidelines” do not contain adequate detail for construction or compliance certainty.</p> <p>Do the conditions address any potential conflicts between external documents and conditions?</p>	<p>Technical specifications need to be physically attached to a consent document or readily and publicly available. References to external standards/ guidelines should specify which requirements must be complied with and those requirements need to be written as mandatory conditions e.g., photos with ticks and crosses, to indicate what is and what is not appropriate, are not adequate</p>
2. Secondary approvals	<p>“...the stormwater management system shall be approved by the Manager in writing, prior to construction.”</p>	<p>Secondary approvals are unlawful unless proposed by a resource consent applicant and accepted by the decision-maker.</p> <p>They can result in giving too much discretion to a council officer and can result in disagreements about what is required to obtain ‘approval’.</p>	<p>Substantive decisions should be made by a delegated decision maker as part of the formal resource consent process and not ‘passed’ to an officer to determine without reference to a formal process. Technical issues can be addressed via certification and/or assurance conditions rather than via secondary approvals.</p>
3. Inappropriate reliance on management plans	<p>“The environmental monitoring shall be undertaken in accordance with the management plan to be submitted within three months of the grant of resource consent.”</p>	<p>Reliance on management plans, often in conjunction with secondary approvals, can result in debate between the consent authority and the consent holder about what is required. Management plans can be appropriate mechanisms to demonstrate how a substantive explicit requirement will be met e.g., detailing how stormwater swales will be maintained.</p>	<p>Substantive issues should be resolved during the resource consent process and not left to a management plan. Alternatively, performance or outcome specifications can be assured with certification conditions.</p>
4. Uncertain wording / requirements	<p>“best practicable means shall be used to ...”</p> <p>“shall include appropriate measures to avoid erosion”</p> <p>Erosion control plans with inadequate performance specifications submitted after the grant of consent</p>	<p>Wording that is uncertain should not be relied on to address substantive issues. This type of wording may be appropriate for a minor matter or when complemented by specific examples of what must, or must not, be done.</p>	<p>Substantive issues should be resolved during the resource consent process or addressed with a certification process.</p>



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Issue	Examples	Explanation	Solution outline
5. Inadequate technical specifications	Inadequate technical specifications, performance standards or certification processes for the treatment system and/or inadequate monitoring and reporting requirements, e.g., no contaminant detection limits specified. “..in general accordance with ...as modified by ... any other documentation submitted by ... relevant to the application.”	The absence of appropriately detailed technical specifications can result in unanticipated adverse effects and/or lack of assurance about environmental effects. Monitoring requirements without detailed specifications can result in the provision of, for example, environmental monitoring data with detection limits well above concentrations of concern.	Every stormwater discharge permit should include an appropriate level of technical specifications relative to the scale of the development. Monitoring and reporting requirements need to include detailed requirements regarding locations, frequency, reporting, sampling and analytical methodology and detection limits.
6. Inadequate installation assurance requirements	“...structures shall be <i>installed in accordance with best engineering practice</i> ...”.	The greater the potential adverse environmental effects, the greater the need for an appropriate level of assurance that a specific design has been installed in accordance with all relevant requirements - “best engineering practice” is uncertain.	Certification from a specifically qualified and experienced person that a specific design has been installed in accordance with the design specifications. The level of assurance should reflect the potential adverse effects. While the default would generally be for the discharge permit holder to arrange for independent certification, if the situation warrants additional independent assurance, a consent condition could provide for the consent authority to nominate a joint certifier.
7. Inadequate performance assessment and response requirements	For major discharges where there is a level of uncertainty about adverse effects, there is a consistent lack of requirements to check and respond to a performance and/or environmental outcome requirement. Instead short-term consents are often used in an attempt to address any residual uncertainty.	The higher the level of potential adverse environmental effects, the greater the need for feedback on whether the anticipated level of adverse effects occur. Lack of recognition of the potential for ‘feedback control’ conditions often results in decisions to grant short-term permits.	Monitoring and reporting on a specific adverse effect and a feedback control mechanism to ensure that the adverse effect is controlled to stay within a prescribed limit, e.g., a requirement for further management and/or treatment if a specific trigger is breached.
8. Reliance on a short duration discharge permit	Frequent examples of reliance on short-term consent duration e.g., 10 years for major stormwater infrastructure and or reliance on review condition to address potential adverse effects.	A short-term consent duration for long-term essential infrastructure is usually only justifiable to address an unsatisfactory short-term situation or where the receiving environment is becoming more sensitive. Otherwise it is usually a “blunt instrument” ² that	Uncertainty usually drives short-term consent duration. However, there are better methods available to address that uncertainty and to provide greater certainty for consent holders. For example, feedback control conditions that tighten condition requirements in

² High Court commented that limiting consent duration to ten years was a “blunt instrument” for mitigating effects. (*Genesis Power Limited v Manawatu-Wanganui Regional Council*, CIV-2004-485-1139)



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Issue	Examples	Explanation	Solution outline
		often does not address an issue ³ . The result can be unnecessary repetition of the resource consent process.	response to breaches of specific environmental standards.
9. Excessive reliance on a review condition	Major new stormwater discharge permits with minimal conditions other than a review condition.	The formal review process has significant limitations for all parties. For example, the consent authority may have to undertake a major investigation to show that an unanticipated adverse effect is being caused by the exercise of a resource consent. The resource consent holder would be involved in a process with many uncertainties.	A review condition is usually essential but should not be the sole mechanism to address potential adverse effects that could be foreseeable and better addressed with e.g., a combination of certification, monitoring, reporting and feedback control conditions.

Conclusions

There is a frequent disconnection between our technical knowledge about stormwater management, environmental monitoring and our application of the Resource Management Act resource consent process. This is characterised by frequent examples of resource consents for stormwater discharges that are fundamentally uncertain and do not meet good practice guidelines.

Stormwater discharges have some different characteristics compared to more 'steady state' wastewater discharges. However, these issues can be addressed if there is greater appreciation of the need to integrate technical knowledge about stormwater management and resource consent good practice to provide certainty for all parties and certainty about environmental outcomes.

Some feedback from Issue 9 – In support of Swales

Thanks for your support of swales – I'm particularly keen on swales planted in permanent no-mow groundcovers as I think this avoids the risks so common to mown grass, especially in new Zealand, being:

- compaction – especially when tractor-mown and where part of a larger area that is better-drained
- mowing clippings entering drains/waterways
- scalping (a kiwi – special... I have seen only 1 or 2 swales here with the '100mm' standard sward)
- ryegrass used in establishment on horrid mixed topsoil/subsoil that can't support this N-demanding plant, so the swale vegetation changes to slippery clover, and flat weeds (especially with scalping)

We have a lovely range of NZ prostrate groundcovers including Coprosma, Pimelea, Muehlenbeckia as well as the rushes you mentioned. They do need some maintenance, especially to begin with, but once established the maintenance is a fraction of mown grass – the Morrin Rd netball centre is one example, and parts of the Auckland Motorway, especially where mowing is dangerous. (Robyn)

³ A replacement resource consent application is not considered on the same basis as a new application. The decision-maker must have regard to "...the value of the investment of the existing consent holder."(section 104(2A)).

