

Waverley Bulk Transport Limited
Quarry Monitoring Programme Report
2009-2013
Technical Report 2013–81

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Executive summary

Waverley Bulk Transport Limited operates a dry crushing shell rock quarry located on Rangitatau West Road at Maxwell, in the Waitotara catchment two kilometres from the Makokako Stream. It operates on a commercial basis.

This report for the period July 2009-June 2013 describes the monitoring programme implemented by the Taranaki Regional Council to assess the Company's environmental performance during the period under review, and the results and environmental effects of the Company's activities.

The Company held two resource consents during the period under review. Resource consent 4350-2 permits the discharge of stormwater into the Makokako Stream and includes a total of 13 conditions setting out the requirements that the Company must satisfy. This consent expired in June 2011. Resource consent 9570-1 permits the discharge of stormwater into and onto land and includes a total of 5 conditions setting out the requirements that the Company must satisfy.

The Council's monitoring programme for the period under review included three inspections. The monitoring showed that the site is being well managed with respect to control of stormwater discharges. There was no water quality sampling carried out at the site for the reporting period as the inspections noted that it was not warranted.

The monitoring showed that there had been no significant adverse effects in the receiving environment as a result of the Company's quarrying activity. During the period under review, the Company demonstrated a high level of environmental performance and compliance with the resource consents.

This report includes a recommendation for the 2014-2016 monitoring period.

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1. Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report is for the period July 2009-June 2013 by the Taranaki Regional Council describing the monitoring programme associated with resource consents held by Waverley Bulk Transport Limited. The Company operates a quarry situated on Rangitatau West Road near Maxwell in the Waitotara catchment.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents held by Waverley Bulk Transport Limited that relate to discharges of water from a quarry in the Waitotara catchment. This is the second report to be prepared for Waverley Bulk Transport Ltd by the Taranaki Regional Council to cover the water discharges and their effects from this quarry.

1.1.2 Structure of this report

Section 1 of this report is a background section. It sets out general information about compliance monitoring under the *Resource Management Act 1991* (RMA) and the Council's obligations and general approach to monitoring sites through annual programmes, the resource consent held by Waverley Bulk Transport Ltd in the Waitotara Catchment, the nature of the monitoring programme in place for the period under review, and a description of the activities and operations conducted in the Company's site.

Section 2 presents the results of monitoring during the period under review, including scientific and technical data.

Section 3 discusses the results, their interpretation, and their significance for the environment.

Section 4 presents recommendations to be implemented in the 2009-2013 monitoring years.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

1.1.3 The Resource Management Act 1991 and monitoring

The *Resource Management Act 1991* (RMA) primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

- (a) the neighbourhood or the wider community around a discharger, and may include cultural and socio-economic effects;
- (b) physical effects on the locality, including landscape, amenity and visual effects;
- (c) ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;

- (d) natural and physical resources having special significance (eg, recreational, cultural, or aesthetic);
- (e) risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Taranaki Regional Council is recognising the comprehensive meaning of 'effects' inasmuch as is appropriate for each discharge source. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans; and maintains an overview of performance of resource users against regional plans and consents. Compliance monitoring, (covering both the quarrying activity and its impacts on the receiving waters) also enables the Council to continuously assess its own performance in resource management as well as that of resource users particularly consent holders. It further enables the Council to continually re-evaluate its approach and that of consent holders to resource management, and, ultimately, through the refinement of methods, and considered responsible resource utilisation to move closer to achieving sustainable development of the region's resources.

1.1.4 Evaluation of environmental performance

Besides discussing the various details of the performance and extent of compliance by the consent holder(s) during the period under review, this report also assigns an overall rating. The categories used by the Council, and their interpretation, are as follows:

- A **high** level of environmental performance and compliance indicates that essentially there were no adverse environmental effects to be concerned about, and no, or inconsequential non-compliance with conditions.
- A **good** level of environmental performance and compliance indicates that adverse environmental effects of activities during the monitoring period were negligible or minor at most, or, the Council did not record any verified unauthorised incidents involving significant environmental impacts and was not obliged to issue any abatement notices or infringement notices, or, there were perhaps some items noted on inspection notices for attention but these items were not urgent nor critical, and follow-up inspections showed they have been dealt with, and any inconsequential non-compliances with conditions were resolved positively, co-operatively, and quickly.
- **Improvement required (environmental) or improvement required (administrative compliance)** (as appropriate) indicates that the Council may have been obliged to record a verified unauthorised incident involving measurable environmental impacts, and/or, there were measurable environmental effects arising from activities and intervention by Council staff was required and there were matters that required urgent intervention, took some time to resolve, or remained unresolved at the end of the period under review, and/or, there were on-going issues around meeting resource consent conditions even in the absence of environmental effects. Abatement notices may have been issued.

- **Poor performance (environmental) or poor performance (administrative compliance)** indicates generally that the Council was obliged to record a verified unauthorised incident involving significant environmental impacts, or there were material failings to comply with resource consent conditions that required significant intervention by the Council even in the absence of environmental effects. Typically there were grounds for either a prosecution or an infringement notice.

For reference, in the 2012-2013 year, 35% of consent holders in Taranaki monitored through tailored compliance monitoring programmes achieved a high level of environmental performance and compliance with their consents, while another 59% demonstrated a good level of environmental performance and compliance with their consents.

1.2 Process description

1.2.1 Background

In the past, a large percentage of aggregate production came from river-based sites within Taranaki. The Waiwhakaiho River supplied much of New Plymouth's requirements as far back as the 1950s with the Waitara River, Waiongana River, Kapuni Stream and Waingongoro River also providing a valuable source of aggregate. The aggregate source within these rivers was often over-exploited. The protective armouring of the boulders and gravel was removed in places, exposing the underlying erodible ash beds and creating deep narrow channels, which moved progressively upstream with no noticeable recovery. This brought about the need for the Shingle Extraction Bylaw introduced in 1974. Aggregate extraction from rivers was then controlled through the issue of permits accompanied by a set of conditions, with the removal of river-based aggregate being restricted to that for river control purposes only.

Historically, land-based sites required steady markets to compete with the easily won river-based extraction operations. However, in the early 1980s, due to the restriction placed on river-based aggregate extraction (and the completion of various major river control programmes and 'Think Big' projects) land-based sites became more widespread (Taranaki Regional Council, 1992).

Thirty operating quarries presently supply aggregate in Taranaki. These quarries are generally (but not in this case) located in a reasonable proximity to urban areas, from which the greatest demand for aggregate stems.

Provision of aggregate to meet longer term demand will continue to be dominated by several large quarry operations. Extra demand on alluvial terraces and lahatic deposits has occurred due to the control of river bed extraction. These resources are of good quality and are relatively plentiful. Importation of various aggregates may need to continue to meet the requirement for aggregate types not available in Taranaki.

Quarrying and shingle extraction in Taranaki is covered by the RMA and, if the minerals in question are Crown owned, by the Crown Minerals Act 1991.

Regional Councils have no control over the provision of exclusive rights to minerals. However, Regional Councils do have control over the environmental effects of

aggregate extraction from river and lake beds, and land in certain circumstances, and these controls may act as a constraint or limitation on allocation decisions.

Sections 15 and 30 of the RMA give Regional Councils responsibility for the discharge of contaminants into the environment. Discharges of water into water, contaminants onto or into land that may result in water contamination, and contaminants from industrial premises into air or onto and into land, may not take place unless expressly allowed by a rule in a regional plan, a resource consent, or regulations. Aggregate extraction often involves washing aggregates, and therefore requires the discharge of wastes. Other discharges, such as emissions to air from crushing and processing plants, disposal of spoil and solid wastes, and discharges of stormwater are also the responsibility of regional councils.

1.2.2 Waverley Bulk Transport Quarry

The Company's Rangitatau West Road quarry is situated on a rocky bluff approximately 2 km above the Makokako Stream. The site was established in 2005-2006 and has a current exposed quarried area of approximately 2 hectares. The aggregate is processed by dry crushing and no aggregate washing is carried out on site. The site is well screened from the road and neighbouring properties by a surrounding pine plantation.



Photo 1 Aerial view, Waverley Bulk Transport Ltd's Rangitatau West Road quarry

The quarrying process at this site involves progressively lowering an approximately 15 hectare bench-like shelf of exposed shellrock by approximately 20 metres. The shellrock bench has been first stripped of a thin layer of top soil and overburden in stages. This material has been stockpiled on site for future reinstatement and

rehabilitation purposes. Before the site was established as a quarry it was in pasture, and used for grazing, and it is intended that following the quarrying operations it will be rehabilitated and reinstated as such.

The contour and aspect of the strata being quarried allows all of the stormwater from quarried areas to be contained within the quarry pit and discharge is currently entirely via seepage to ground.

When the site was first established a silt pond was maintained outside and above the main pit. Stormwater was pumped out of the pit to be treated through it before discharge. It is intended that the site is operated in a manner that ensures that the bottom of the cut always slopes back to the hillside or the quarry pit. This ensures that no untreated stormwater can escape from the site. The site also contains some minor springs whose waters need to be controlled appropriately on an ongoing basis.



Photo 2 Stormwater collection area at base of quarry pit well away from Makokako Stream from which stormwater drains via seepage to ground

1.3 Resource consents

1.3.1 Water abstraction permit

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14.

Ensuring sufficient volumes of water within streams and rivers to protect aquatic habitat is a primary concern of the Council with respect to water abstraction permits. Water abstraction for quarries is primarily only required for the washing of aggregate and as Waverley Bulk Transport Limited do not wash aggregate their

water needs are minimal and they do not hold nor need any permit to abstract water. As there is no water abstraction permit, any water use must comply with the 50 cubic metres per day and 1.5 litres per second allowed under the permitted activity rule [Rule 15] of the Regional Freshwater Plan.

1.3.2 Water discharge permit

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations.

Waverley Bulk Transport Ltd held water discharge permit **4350-2** to cover the discharge of stormwater from the quarried area. This permit was issued by the Taranaki Regional Council on 7 December 1999 under Section 87(e) of the RMA. The resource consent expired on 1 June 2011 and was surrendered.

There were 13 special conditions attached to this consent, summarised as follows:

Condition 1 requires the consent holder to provide Council with a stormwater management plan prior to exercise of consent.

Condition 2 states that there is to be no direct discharge of untreated stormwater or groundwater.

Condition 3 states that there is to be no aggregate washing on site.

Condition 4 requires the site be contoured and bunded and directed to treatment systems.

Condition 5 requires the consent holder to control erosion and minimise amount of silt and sediment in stormwater.

Condition 6 requires progressive reinstatement of the site to minimise stormwater catchment area.

Condition 7 requires proper and efficient maintenance of silt control structures.

Condition 8 related to concentration limits in the discharge.

Condition 9 relates to effects on water quality within the mixing zone

Condition 10 relates to effects on water clarity within the mixing zone.

Condition 11 relates to contingency planning.

Condition 12 allows review consent conditions.

Condition 13 relates to consent lapse.

A copy of the permit is attached to this report in Appendix I.

1.3.3 Water discharge permit

Waverley Bulk Transport Ltd holds water discharge permit **9570-1** to discharge stormwater into and onto land. This permit was issued by the Taranaki Regional Council on 28 May 2013 under Section 87(e) of the RMA. The resource consent will expire on 1 June 2028.

There are five special conditions attached to this consent, summarised as follows:

Condition 1 states that quarry activities shall not exceed 2 hectares.

Condition 2 states that runoff shall pass through settlement ponds.

Condition 3 states that all earthworks shall be stabilised with vegetation.

Condition 4 requires the consent holder at all times adopt best practicable option.

Condition 5 allows the review of consent conditions.

A copy of the permit is attached to this report in Appendix I.

1.3.4 Air discharge permit

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations.

Rule 17 of the Council's Regional Air Quality Plan for Taranaki (RAQP) allows the discharge of emissions from quarrying operations as a permitted activity, subject to compliance with various environmental performance conditions. Waverley Bulk Transport Limited does not hold any air discharge consent.

1.3.5 Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. There are no solid waste discharge activities at this site, Waverley Bulk Transport Limited does not hold any consent to discharge wastes to land.

1.4 Monitoring programme

1.4.1 Introduction

Section 35 of the RMA sets out obligations upon the Taranaki Regional Council to gather information, monitor, and conduct research on the exercise of resource consents, and the effects arising, within the Taranaki region and report upon these.

The Taranaki Regional Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations, and seek information from consent holders.

The monitoring programme for the Waverley Bulk Transport site consisted of an annual site inspection to check for RMA and HSNO compliance.

1.4.2 Programme liaison and management

There is generally a significant investment of time and resources by the Taranaki Regional Council in ongoing liaison with resource consent holders over consent conditions and their interpretation and application, in discussion over monitoring requirements, preparation for any reviews, renewals, or new consents, advice on the Council's environmental management strategies and the content of regional plans, and consultation on associated matters.

1.4.3 Site inspections

The Waverley Bulk Transport Ltd site was visited three times during the monitoring period. With regard to the consent for the discharge of contaminated stormwater to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, and noxious or offensive emissions. The neighbourhood was surveyed for environmental effects.

2. Results

2.1 Water

2.1.1 Inspections

During the period under review the Council carried out three routine inspections at the Waverley Bulk Transport Ltd quarry site. Inspection notes are as follows below.

30 September 2009

An inspection was undertaken with staff onsite. Product was being crushed at the site at the time. A large quantity of product was stockpiled. Stormwater was no longer being pumped up to the settling pond, but was soaked away in the quarry pit. Photographs were taken for the report. The site was tidy at the time of inspection.

23 August 2010

The site was tidy with stockpiles of product. No crushing of product was occurring at the time of inspection. Stormwater was directed to a low lying area of the quarry where it soaked away.

17 September 2013

Processing and extraction was occurring at the time of inspection. There was not a lot of product stored onsite. There was a small pile of waste that had been dumped from offsite. This matter was discussed with the site manager as well as the need to install silt controls.

2.2 Investigations, interventions, and incidents

The monitoring programme for the period was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the consent holder. During the period matters may arise which require additional activity by the Council for example provision of advice and information, or investigation of potential or actual courses of non-compliance or failure to maintain good practices. A pro-active approach that in the first instance avoids issues occurring is favoured.

The Taranaki Regional Council operates and maintains a register of all complaints or reported and discovered excursions from acceptable limits and practices, including non-compliance with consents, which may damage the environment. The Unauthorised Incident Register (UIR) includes events where the company concerned has itself notified the Council. The register contains details of any investigation and corrective action taken.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified company is indeed the source of the incident (or that the allegation cannot be proven).

In the 2009-2013 period, it was not necessary for the Council to undertake significant additional investigations and interventions, or record incidents, in association with the company's conditions in resource consents or provisions in Regional Plans in relation to the Company's activities during the monitoring period.

3. Discussion

3.1 Discussion of site performance

During the period under review three random compliance and monitoring inspections of the Company's site were carried out. Upon each inspection the site was found to be tidy and well managed with the quarry pit floor and surroundings contoured and bunded to retain sediment within silt control structures and soakage areas. No samples were taken as no reason was given for any concern that contaminated discharges were escaping from the immediate site surrounds.

No complaints have been received by the Council and there was no need to issue any abatement notices or environmental infringement fines. The site is well screened from the road and nearby residences by a surrounding pine plantation which would help with prevention of noise and dust nuisances.

A stormwater management plan and spill contingency plan have been previously supplied by the Company to the Council and are still considered adequate for the purpose. Staff have a spill kit on site and are trained in its use.

3.2 Environmental effects of exercise of the consent

The main potential environmental effect of quarry operations on waterways is the discharge of stormwater or washwater containing high concentrations of suspended solids. Such discharges may result in a discolouration of the waterway near the discharge point and may result in the smothering of benthic life, form a barrier to fish movement and may affect fish spawning habitats. As no aggregate washing is carried out on the Waverley Bulk Transport site the risk is of sediment contaminating natural waters is minimised, however careful management is still needed to ensure that stormwater that has entrained sediment on exposed quarry faces is controlled, so it cannot affect the nearby Makokako Stream.

Monitoring of the site during the 2007-2009 monitoring period has indicated that stormwater discharges from the site have had no discernable effect on the receiving waters of the Makokako Stream.

3.3 Evaluation of performance

A summary of the consent holder's compliance record for the years under review is set out in Tables 1 and 2.

Table 1 Summary of performance for Consent 4350-2 to discharge stormwater into the Makokako Stream

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Consent holder shall provide a stormwater management plan	Notification received	Yes
2. There shall be no direct discharge of untreated stormwater or groundwater	Site inspections	Yes

Condition requirement	Means of monitoring during period under review	Compliance achieved?
3. No aggregate washing shall be undertaken	Site inspections	Yes
4. As far as is practicable the active quarry site shall be contoured/bunded	Site inspections	Yes
5. Consent holder shall undertake measures to control erosion of exposed areas	Site inspections	Yes
6. Consent holder shall operate and progressively reinstate the quarry site	Site inspections	Yes
7. Consent holder shall properly and efficiently maintain and operate the silt control structures	Site inspections	Yes
8. Discharge must not exceed consent condition concentrations	Site inspections	Yes
9. Following a discharge there shall be no effects down stream after a reasonable mixing distance of 10 m	Site inspections	Yes
10. The active quarry area and surrounding areas, shall be reinstated satisfactorily, prior to the surrender or lapsing of the consent	Site inspections	Yes
11. Consent holder shall provide a contingency plan	Contingency plan received	Yes
12. Option for review	N/A	Yes
13. Consent shall lapse	N/A	Yes
Overall assessment of consent compliance and environmental performance in respect of this consent		High

Table 2 Summary of performance for Consent 9570-1 to discharge stormwater into and onto land

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1 Quarry activities shall not exceed 2 hectares at any one time	Inspections of data and site inspections	Yes
2 Settlement ponds and sediments traps must be in place to capture any run-off	Site inspections	Yes
3 Earthworks shall be stabilised with vegetation	Site inspections	Yes

Condition requirement	Means of monitoring during period under review	Compliance achieved?
4 Adopt best practicable option	Site inspections	Yes
5 Option for review	Review not required until June 2016	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High

During the year, the Company demonstrated a high level of environmental performance and compliance with the resource consents.

3.4 Recommendations from earlier reports

In the 2007-2009 Biennial Report, it was recommended:

1. THAT monitoring of consented activities at Waverley Bulk Transport Limited's Rangitatau Road Quarry in the 2009-2011 monitoring period continue at the same level as in 2007-2009

3.5 Alterations to monitoring programmes for 2013-2015

In designing and implementing the monitoring programmes for water discharges in the region, the Taranaki Regional Council has taken into account the extent of information made available by previous authorities, its relevance under the RMA, the obligations of the Act in terms of monitoring discharges and effects, and subsequently reporting to the regional community, the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki that are discharging to the environment.

It is proposed that for the Company's Rangitatau Road quarry that the monitoring programme for the 2013-2015 monitoring period continue at the same level as in 2011-2013. A recommendation to this effect is attached to this report.

4. Recommendations

1. THAT monitoring of consented activities at Waverley Bulk Transport Limited's Rangitatau Road Quarry in the 2013-2015 monitoring programme continue at the same level as in 2011-2013.

Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

Al*	Aluminium.
As*	Arsenic.
Biomonitoring	Assessing the health of the environment using aquatic organisms.
BOD	Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate.
BODF	Biochemical oxygen demand of a filtered sample.
Bund	A wall around a tank to contain its contents in the case of a leak.
CBOD	Carbonaceous biochemical oxygen demand. A measure of the presence of degradable organic matter, excluding the biological conversion of ammonia to nitrate.
cfu	Colony forming units. A measure of the concentration of bacteria usually expressed as per 100 millilitre sample.
COD	Chemical oxygen demand. A measure of the oxygen required to oxidise all matter in a sample by chemical reaction.
Condy	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 20°C and expressed in mS/m.
Cu*	Copper.
Cumec	A volumetric measure of flow- 1 cubic metre per second (1 m ³ s ⁻¹).
DO	Dissolved oxygen.
DRP	Dissolved reactive phosphorus.
<i>E.coli</i>	<i>Escherichia coli</i> , an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
Ent	Enterococci, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre of sample.
F	Fluoride.
FC	Faecal coliforms, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
Fresh	Elevated flow in a stream, such as after heavy rainfall.
g/m ³	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
l/s	Litres per second.
MCI	Macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats.
mS/m	Millisiemens per metre.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to 7 times the width of the stream at the discharge point.
NH ₄	Ammonium, normally expressed in terms of the mass of nitrogen (N).

NH ₃	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).
NO ₃	Nitrate, normally expressed in terms of the mass of nitrogen (N).
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water.
O&G	Oil and grease, defined as anything that will dissolve into a particular organic solvent (e.g. hexane). May include both animal material (fats) and mineral matter (hydrocarbons).
Pb*	Lead.
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.
Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
PM ₁₀	Relatively fine airborne particles (less than 10 micrometre diameter).
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	Resource Management Act 1991 and including all subsequent Amendments.
SS	Suspended solids.
SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU.
UIR	Unauthorised Incident Register entry- an event recorded by the Council on the basis that it had potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
Zn*	Zinc.

*an abbreviation for a metal or other analyte may be followed by the letters 'As', to denote the amount of metal recoverable in acidic conditions. This is taken as indicating the total amount of metal that might be solubilised under extreme environmental conditions. The abbreviation may alternatively be followed by the letter 'D', denoting the amount of the metal present in dissolved form rather than in particulate or solid form.

For further information on analytical methods, contact the Council's laboratory.

Bibliography and references

Taranaki Regional Council, 1992: Regional Policy Statement Working Paper. Aggregate extraction in Taranaki. TRC Report

Taranaki Regional Council, 2009: Waverley Bulk Transport Limited Monitoring Programme Biennial Report 2007-2009'. Technical Report 2009-5

Appendix I

Resource consents held by Waverley Bulk Transport Limited

SURRENDERED

5-03-2012



PRIVATE BAG 713
47 CLOTON ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

Discharge Permit

**Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council**

Name of
Consent Holder: Waverley Bulk Transport Limited
 2 Bear Street
 WAVERLEY

Consent Granted
Date: 7 December 1999

Conditions of Consent

Consent Granted: To discharge treated stormwater from quarrying activities
 into the Makokako Stream in the Waitotara catchment at or
 about GR: R22:697-576

Expiry Date: 1 June 2011

Review Date(s): June 2005

Site Location: Rangitatau West Road, Maxwell

Legal Description: Pt Lot 1 DP 2962 Lots 5 & 6 DP 77930 Blks V & VI
 Nukumaru SD

Catchment: Waitotara

Tributary: Makokako

General conditions

- a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) That unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) That the consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

1. THAT the consent holder shall provide a stormwater management plan to the General Manager, the Taranaki Regional Council, at least one month prior to the exercise of this consent to ensure that stormwater control is adequate to ensure that the conditions of this consent can be met.
2. THAT there shall be no direct discharge of untreated stormwater or groundwater from the quarry site into the Makokako Stream as a result of the exercise of this consent.
3. THAT no aggregate washing shall be undertaken as a part of this consent.
4. THAT as far as is practicable the active quarry site shall be contoured/bunded so that:
 - a) all water generated in this area is directed to the silt control structures for treatment prior to discharge; and
 - b) the flow of uncontaminated stormwater into this area is prevented.
5. THAT the consent holder shall undertake measures during excavation to control erosion of exposed areas within the quarry site and to minimise the amounts of silt and sediment which could be contained in the stormwater licensed by this consent.
6. THAT the consent holder shall operate and progressively reinstate the quarry site in a manner which minimises the quarry stormwater catchment area, and ensures that the area of exposed unvegetated earth within the quarry's stormwater catchment is kept to a minimum at all times.
7. THAT the consent holder shall properly and efficiently maintain and operate the silt control structures in such a manner that any discharge which may occur shall not breach the conditions of this consent. The silt control structures shall be operated, as far as practicable, so as to maximise the treatment of the stormwater, and to minimise the duration, frequency, and rate of the discharge.
8. THAT the following concentrations shall not be exceeded in any discharge:

<u>Component</u>	<u>Concentration</u>
pH (range)	6-9
Suspended solids	100 gm ⁻³
Total recoverable hydrocarbons	15 gm ⁻³

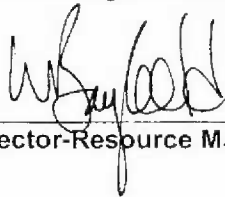
This condition shall apply prior to the entry of any discharge into the receiving waters of the Makokako Stream, at a designated sampling point approved by the General Manager, Taranaki Regional Council.

Consent 4350-2

9. THAT after allowing for reasonable mixing, within a mixing zone extending 10 metres downstream of the discharge point, the discharge shall not give rise to any of the following effects in the receiving waters of the Makokako Stream:
 - a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
 - b) any conspicuous change in the colour or visual clarity;
 - c) any emission of objectionable odour;
 - d) the rendering of fresh water unsuitable for consumption by farm animals;
 - e) any significant adverse effects on aquatic life.
10. THAT on cessation of quarrying operations at the site licensed by this consent, the active quarry area, including the silt control structures and surrounding areas, shall be reinstated satisfactorily, prior to the surrender or lapsing of this consent.
11. THAT prior to the exercise of this consent, the consent holder shall provide a contingency plan to the Taranaki Regional Council, outlining measures and procedures to be undertaken to prevent the spillage or accidental discharge of contaminants in the stormwater catchment, and measures to avoid, remedy or mitigate the environmental effects of such a spillage or discharge. The consent holder shall annually review and maintain the plan.
12. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2005, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.
13. THAT this consent shall lapse on the expiry of six years after the date of commencement of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(b) of the Resource Management Act 1991.

Signed at Stratford on 7 December 1999

For and on behalf of
Taranaki Regional Council



Director-Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of Consent Holder: Waverley Bulk Transport Limited
2 Bear Street
WAVERLEY 4510

Decision Date: 28 May 2013

Commencement Date: 28 May 2013

Conditions of Consent

Consent Granted: To discharge stormwater onto and into land from quarrying activities

Expiry Date: 1 June 2028

Review Date(s): June 2016, June 2022

Site Location: Rangitatau West Road, Waitotara

Legal Description: Lot 6 DP 77930 (Discharge source & site)

Grid Reference (NZTM) 1759360E-5595856N

Catchment: Waitotara

Tributary: Makokako

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The active area of the quarry shall not exceed 2 hectares at any one time.
2. If any area of soil is exposed, all run off from that area shall pass through settlement ponds or sediment traps with a minimum total capacity of;
 - a) 100 cubic metres for every hectare of exposed soil between 1 November to 30 April; and
 - b) 200 cubic metres for every hectare of exposed soil between 1 May to 31 October;unless other sediment control measures that achieve an equivalent standard are agreed to by the Chief Executive of the Taranaki Regional Council.
3. All earthworked areas shall be stabilised vegetatively or otherwise as soon as is practicable immediately following completion of soil disturbance activities.
4. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or likely adverse effect on the environment associated with the discharge of contaminants from the site.
5. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 28 May 2013

For and on behalf of
Taranaki Regional Council

Director-Resource Management