

Winstone Aggregates Limited
Monitoring Programme
Annual Report
2012-2013
Technical Report 2013– 07

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Executive summary

Winstone Aggregates Limited operates a quarry located on Wiremu Road, Opunake, in the Oaonui catchment. The quarry has operated on a commercial basis since 1985. This report for the period July 2012-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 holds two resource consents to cover operations at the quarry site, which include a total of seventeen special conditions setting out the requirements that the Company must satisfy. The site operator holds consents to abstract water from an unnamed tributary of the Manganui Stream, and to discharge of treated washwater and stormwater into an unnamed tributary of the Manganui Stream.

The Council's monitoring programme for the year under review included four inspections. Overall, the monitoring showed that there were no adverse effects on the receiving waters of the unnamed tributary a result of the Company's activities. Environmental performance by Winstone Aggregates was high.

No incidents or complaints were reported in relation to operations carried out at the Winstone Aggregate, Wiremu Road quarry.

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.

This report includes recommendations for the 2013-2014 year.

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1. Introduction

This is the Annual Report for the period July 2012-June 2013 by the Taranaki Regional Council describing the monitoring programme associated with resource consents held by Winstone Aggregates Limited (Winstone Aggregates). The Company operates a quarry situated on Wiremu Road, Opunake.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents held by Winstone Aggregates that relate to abstractions and discharges of water in the Oaonui catchment. This is the nineteenth Annual Report to be prepared by the Taranaki Regional Council to cover the abstraction of water and discharges to water and land at the site and their environmental effects at the site.

1.1.1 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 and the Council's obligations and general approach to monitoring sites through annual programmes, the resource consents held by Winstone Aggregates in the Oaonui catchment, the nature of the monitoring programme in place for the period under review, and a description of the activities and operations conducted at the 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 2013-2014 monitoring year.

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

1.1.2 The Resource Management Act (1991) and monitoring

The Resource Management Act 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 Resource Management Act to assess the effects of the exercise of consents. In accordance with section 35 of the Resource Management Act 1991, 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 activity and impact) monitoring, 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.

1.1.3 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 (such as data supplied after a deadline) 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 desirable (environmental) or improvement desirable (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

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).

Twenty-eight operating quarries presently supply aggregate in Taranaki. These quarries are generally 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 laharic deposits has occurred due to the controlled 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 extraction of gravel in NZ is regulated by two statutory processes. Allocation and protection of priority rights to extract gravel is obtained under the Crown Minerals Act from NZ Petroleum and Minerals, a division of the Ministry of Economic Development.

Regulatory responsibility for control of environmental effects of quarrying and extraction is under the RMA 1991 as applied by respective regional councils. In some cases these controls may act as a constraint or limitation on allocation decisions.

Sections 15 and 30 of the Resource Management Act 1991 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/into land, may not take place unless expressly allowed by a rule in a regional plan, a resource consent, or regulations. Aggregate extraction usually 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.

1.2.1 Winstone Aggregates Ltd – Wiremu Road Quarry

The Winstone aggregates quarry operation is located near the corner of Arawhata Road and Wiremu Road, approximately 12 km inland from the coast, and 4 km below the Egmont National Park boundary. The quarry is situated between two unnamed tributaries of the Manganui Stream, in the Oaonui catchment (Figure 1).



Figure 1 Location of Winstone Aggregate – Wiremu Road quarry

The site was first excavated in 1983. Winstone Aggregates began operating at the site in September 2000. This site is well established and presently covers an area of approximately 34 ha, including roads, reinstated land and treatment ponds (Figure 2).

Until 25 July 2008 resource consent **1509-3** restricted the maximum active stormwater catchment area to six hectares. The Company successfully applied for a change of consent conditions to increase the active catchment area to 40 hectares. The operation continues to extract aggregate from extensive volcanoclastic (lahar) deposits in the area. The hummocky lahar landforms which contain the aggregate resource are visible in Figure 2 (below).

Plant and equipment includes excavators, haul trucks, screen and crusher, washers, and office buildings.

The quarry site is bisected by Wiremu Road into two main areas, referred to here as the upper (northern) and lower (southern) sites. Bunding and contouring is used to isolate stormwater generated within the active sites from the surrounding land. Within the active sites, further bunding, contouring and channelling directs site stormwater and washwater to the treatment ponds.

The upper site includes an excavation area, product stockpiles, stormwater and groundwater treatment ponds. The ponds at the upper site discharge into an unnamed tributary at designated site IND001028 (Figure 3).

The lower site is the larger of the two, and includes the offices, excavation pits, product stockpiles, processing areas, and the washwater, stormwater and groundwater treatment ponds, and reinstated land. Washwater is treated through a series of five ponds, prior to being gravity fed to a large (former) excavation pit for recycling. Recycling minimises the volume of water abstracted for washing and discharge. The ponds at the lower site discharge into an unnamed tributary at designated site IND001023 (Figure 3).

Reinstatement is carried out using hard fill and other inert materials sourced from the quarry property.

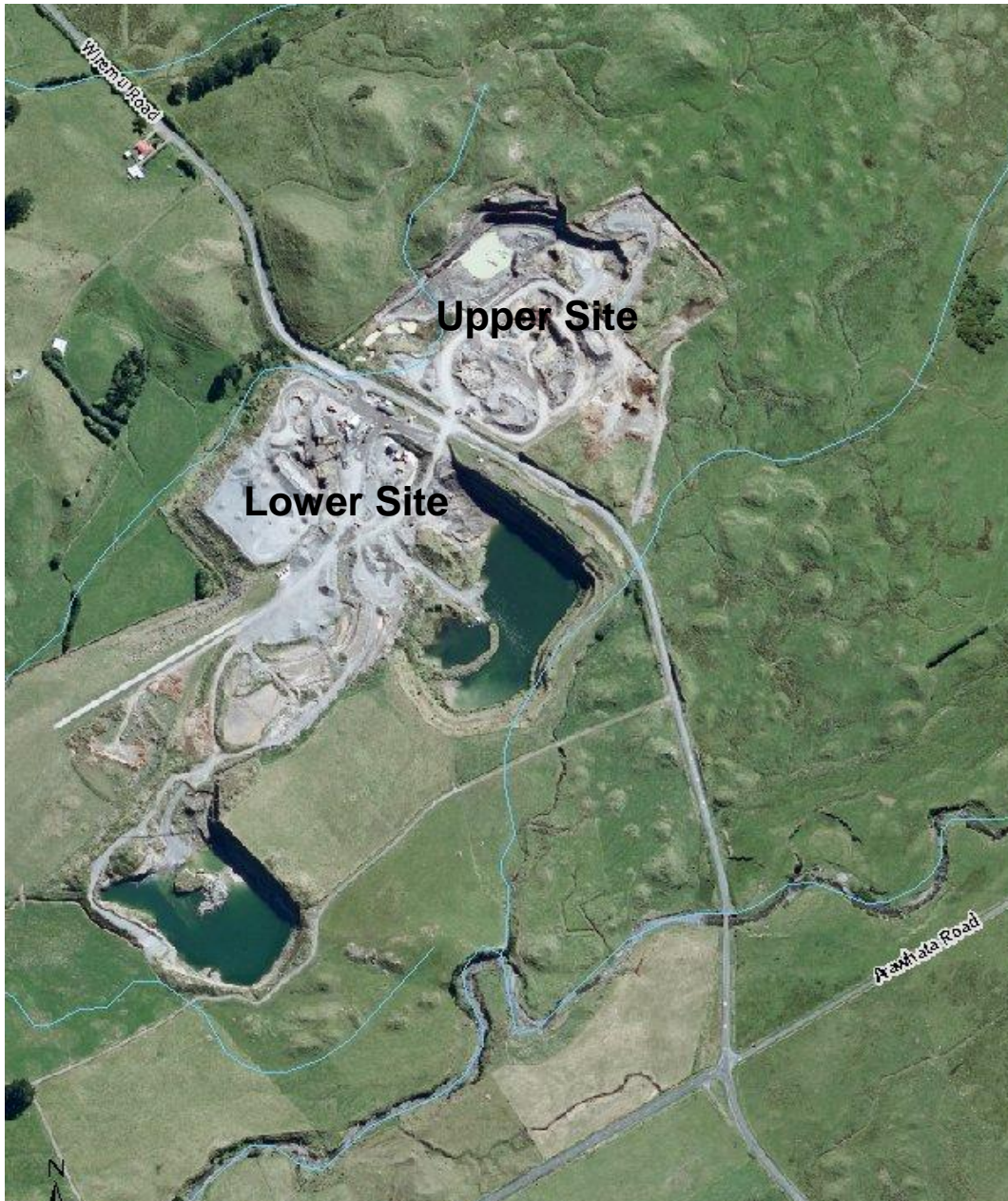


Figure 2 Wiremu Road quarry aerial view of site and waterways

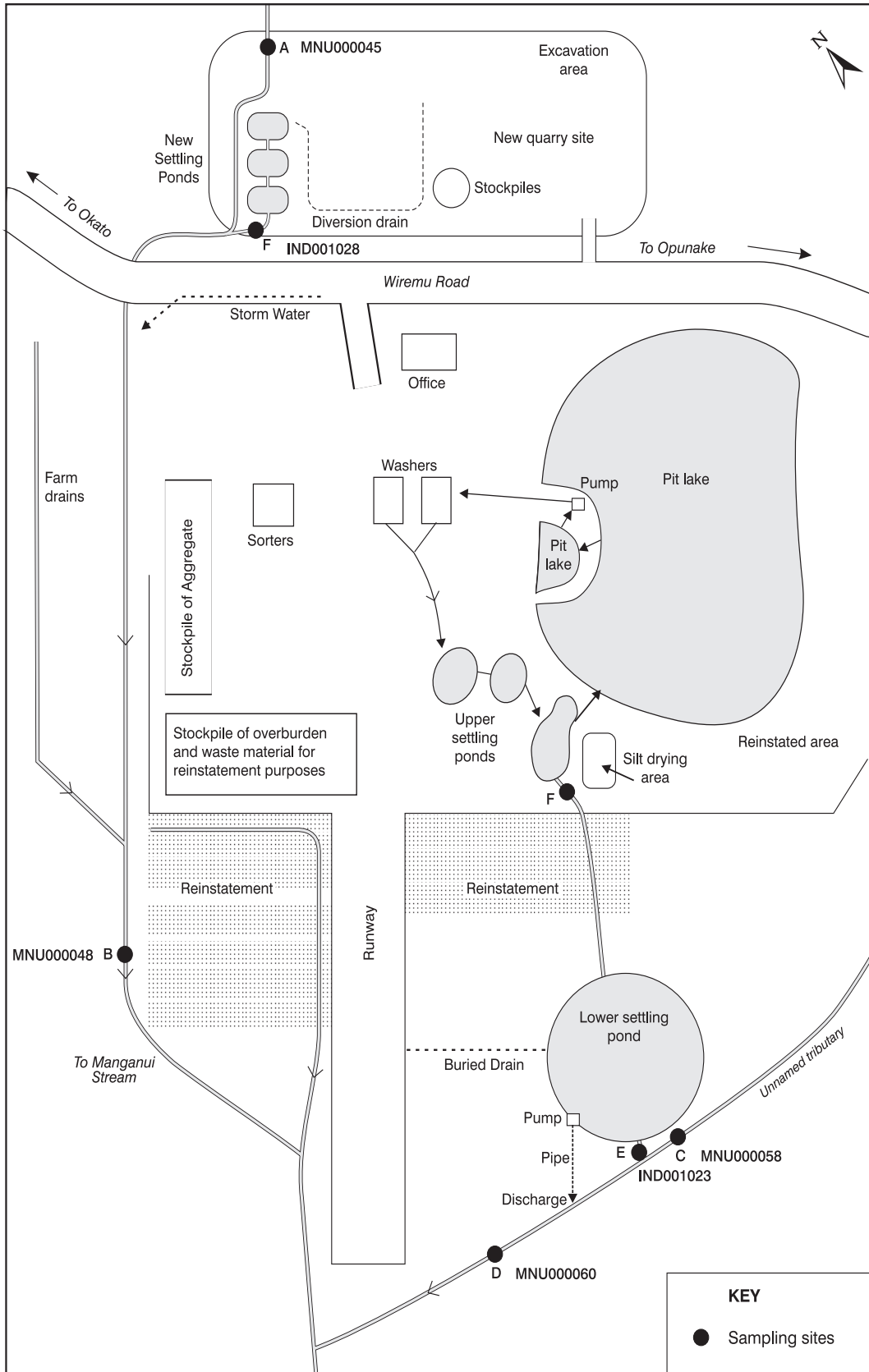


Figure 3 Wiremu Road quarry site layout, sampling sites and waterways

1.3 Resource consents

1.3.1 Water abstraction permit

Section 14 of the Resource Management Act 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.

Sufficient volumes of water within streams and rivers to protect aquatic habitat is a primary concern of the Regional Council with respect to water abstraction permits. Water abstraction for quarries is primarily only required for the washing of aggregate, and in this regard the Council encourages the recycling of both washwater and stormwater to minimise the requirement to abstract surface water.

Often when combined with efficient recycling, the small volumes of surface water required to be abstracted for washing at quarries fit within the permitted activity rule [Rule 15] of the Regional Fresh Water Plan for Taranaki. That is, the abstraction volume shall not exceed 50 cubic metres per day, and the abstraction rate shall not exceed 1.5 litres per second.

Winstone Aggregates hold water abstraction permit **1508-3** to take water from an unnamed tributary of the Manganui Stream in the Oaonui catchment for quarrying purposes.

There are two conditions attached to this consent.

Condition 1 states the maximum rate of water abstraction, (25 litres per second).

Condition 2 states consent review dates.

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

1.3.2 Water discharge permit

Section 15(1)(a) of the Resource Management Act 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.

Water quality is a primary concern to the Regional Council with regard to aggregate extraction. A quarry can operate as either a dry quarry, discharging only stormwater or a washing quarry, where aggregate washing facilities are in place. Many of the quarries in Taranaki have some form of washing facility and also operate in the vicinity of a water body or have some form of discharge into a water body.

Waste water from aggregate washing has a high silt concentration. Discharge of this water into a waterbody, particularly to a river during low flow, results in a smothering of in stream life and deterioration in aesthetic conditions and can affect downstream abstractions of water, local fisheries and recreational activity.

Stormwater is generally less contaminated (in terms of silt concentration) and run-off tends to occur when rivers are in higher flow. This means that the effect of silt contamination is reduced due to lower quantities, dilution and carrying capacity. The installation of appropriate stormwater diversion structures, together with construction and maintenance of contaminated stormwater and aggregate washing discharge treatment facilities are most important in maintaining water quality.

Winstone Aggregates hold water discharge permit **1509-3** to discharge treated stormwater and washwater from quarrying activities into an unnamed tributary of the Manganui Stream.

There are fifteen special conditions attached to this consent.

Condition 1 requires consent holder to adopt best practicable option.

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

Conditions 3 and 4 state the washing areas are to be bunded and recirculation systems implemented to minimise any discharge.

Condition 5 requires the active quarry site be bunded.

Condition 6 requires the consent holder to undertake measures to control erosion and minimise silt and sediment in stormwater.

Condition 7 requires progressive reinstatement of the site.

Condition 8 requires proper and efficient maintenance and operation of silt control structures.

Condition 9 states concentration limits.

Condition 10 relates to mixing zone.

Condition 11 states that the site is to be reinstated on cessation of quarrying.

Condition 12 requires consent holder to maintain a contingency plan for the site.

Condition 13 states the maximum discharge of treated stormwater and washwater.

Condition 14 states the maximum active stormwater catchment area.

Condition 15 is a review provision.

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

1.3.3 Air discharge permit

Section 15(1)(c) of the Resource Management Act 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 16 of the Council's Regional Air Quality Plan for Taranaki (July 2011) allows the discharge of emissions from quarrying operations as a permitted activity, subject to compliance with various environmental performance conditions.

Winstone Aggregates holds no air discharge consent for the Wiremu Road quarry operation because airborne discharges (mostly dust) meet the requirements of Rule 16 of the Regional Air Quality Plan.

1.4 Monitoring programme

Section 35 of the Resource Management Act sets out obligation/s 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 Winstone Aggregates at the Wiremu Road site consists of three primary components.

1.4.1 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.

1.4.2 Site inspections

The Winstone Aggregates, Wiremu Road quarry site was visited four times during the monitoring period. With regard to consents for the abstraction of and discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process washwaters. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being collected by the consent holder were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

1.4.3 Chemical sampling

Sampling at the Winstone Aggregates quarry is scheduled to be undertaken only when warranted, at the discretion of the inspecting officer. During the period under review it was deemed unnecessary.

It was noted during inspections of the site that the discharge from the ponds was having no adverse visual effect on the receiving waters.

2. Results

2.1 Water

2.1.1 Inspections

23 October 2012

The inspecting officer was met onsite with the consent holder. There was no processing at the time of inspection. There was a lot of product stockpiled onsite. The silt ponds looked good and there was no visual impact on the receiving waters. The reinstated areas were tidy. However, the flow meter had not been installed. Overall the site was tidy.

19 December 2012

There was material being processed on both sides of the quarry at the time of inspection; no washing was occurring. All the silt ponds looked good with no visual impact in the receiving waters. It was not determined if the flow meter had been installed at the time of inspection. The reinstated areas looked good. Extraction area and site was tidy.

3 April 2013

There was washing occurring on both sides of the quarry at the time of inspection. All the silt ponds looked good with no visual impact on the receiving waters. The extraction area had been extended and this area was tidy. There had been minimal re-instatement since the last inspection. There was a lot of material stockpiled onsite. Overall the site were tidy.

28 June 2013

There was no noticeable dust or odour beyond site boundary. Processing and stockpiling of material was being undertaken at time of inspection. Dam looked satisfactory and a flow meter had been installed to measure and record the discharge to the unnamed tributary. Silt ponds looked to be working well and the receiving waterbody looked visibly clear of silt, sediment and hydrocarbons. The site looked tidy and appeared to be operating within consent conditions.

2.1.2 Results of abstraction and discharge monitoring

No samples were collected from the site as the discharge from the site was having no adverse visual effect on the receiving waters.

2.1.3 Results of receiving environment monitoring

No receiving environment monitoring was undertaken during the period under review. Inspections of the site found the discharge was having no visual effect on the receiving waters.

2.2 Air

2.2.1 Inspections

Air monitoring inspections were carried out in conjunction with routine compliance monitoring inspections. There were no issues noted with regard to discharges to air. No dust, odour or other emissions were observed during inspections.

2.3 Investigations, interventions, and incidents

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the consent holder. During the year matters may arise which require additional activity by the Council e.g. 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 2012-2013 monitoring period, there were no incidents recorded by the Council that were associated with operations at the Winstone Aggregates quarry.

3. Discussion

3.1 Discussion of site performance

During the 2012-2013 monitoring period the Council carried out four inspections of the Winstone Aggregates quarry site. The site was found to be tidy and well managed. The ponds and bunding generally looked good. There was no discolouration of, or any other effects on the receiving waters noted during inspections of the site.

3.2 Environmental effects of exercise of consents

The main potential effect on waterways that quarries have is the discharge of washwater containing high suspended solids concentrations into nearby waterways. Such discharges may result in discolouration of the waterway near the discharge point and smothering of benthic stream life, which can also form a barrier to fish movement and may affect fish spawning habitats.

The Taranaki Regional Council monitors for possible effects on stream life by conducting a visual inspections of the streambed both upstream and downstream of the quarry.

Inspections found the site to be tidy and well managed. There were no adverse effects noted as a result of the discharge on any occasion during the period under review. No chemical sampling was undertaken as it was not warranted.

3.3 Evaluation of performance

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

Table 1 Summary of performance for Consent 1509-3 to discharge treated stormwater and washwater

| Condition requirement | Means of monitoring during period under review | Compliance achieved? |
|---|--|----------------------|
| 1. Adopt best practicable option | Inspections of site | Yes |
| 2. No direct discharge of untreated stormwater or washwater | Inspections of site | Yes |
| 3. Washing area to be bunded | Inspections of site | Yes |
| 4. Implementation of appropriate recirculation systems | Inspections of site | Yes |
| 5. Bunding of active quarry area | Inspections of site | Yes |
| 6. Control erosion and minimise silt and sediment in stormwater catchment | Inspections of site | Yes |
| 7. Progressive reinstatement of the quarry site | Inspections of site | Yes |

| Condition requirement | Means of monitoring during period under review | Compliance achieved? |
|---|---|----------------------|
| 8. Properly maintain erosion control structures | Inspections of site | Yes |
| 9. Concentration limits | No samples collected during period under review | Yes |
| 10. Mixing zone | Inspections | Yes |
| 11. Reinstatement of site on cessation of quarrying | N/A | N/A |
| 12. Maintain contingency plan | Updated contingency plan approved August 2010 | Yes |
| 13. Maximum discharge rate for stormwater and washwater | Inspections of site | Yes |
| 14. Maximum stormwater catchment area | Inspections of site | Yes |
| 15. Review provision | Last review date June 2012, Consent expires June 2018 | N/A |
| Overall assessment of consent compliance and environmental performance in respect of this consent | | High |

N/A = not applicable

Table 2 Summary of performance for Consent 1508-3 to take water from an unnamed tributary of the Manganui Stream

| Condition requirement | Means of monitoring during period under review | Compliance achieved? |
|---|--|----------------------|
| 1. Rate of abstraction not to exceed 25 litres/second | Site inspection | Yes |
| 2. Review provision | Last review date June 2012, Consent expires 2018 | N/A |
| Overall assessment of consent compliance and environmental performance in respect of this consent | | High |

N/A =not applicable

Winstone Aggregates achieved a high level of environmental performance and compliance with resource consents during the monitoring period under review. There were no unauthorised incidents, complaints or any other need for Council intervention.

3.4 Recommendations from the 2011-2012 Annual Report

In the 2011-2012 Annual Report, it was recommended:

1. THAT monitoring of discharges from Winstone Aggregates' Wiremu Road quarry in the 2012-2013 year continue at the same level as in 2011-2012.
2. THAT the option for a review of resource consents **1508-3** and **1509-3** in June 2013, as set out in conditions 15 and 2 of the consents, not be exercised, on the grounds that the conditions are adequate to deal with adverse effects.

These recommendations were implemented during the year under review.

3.5 Alterations to monitoring programmes for 2013-2014

In designing and implementing the monitoring programmes for air/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 Resource Management Act, the obligations of the Act in terms of monitoring emissions/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 emitting to the atmosphere/discharging to the environment.

It is proposed that for 2013-2014, the monitoring programme for the Winstone Aggregates Wiremu Road quarry remains unchanged.

3.6 Exercise of optional review of consent

The last optional review date was June 2012. No review was undertaken as the conditions of consents are adequate to deal with any adverse effects.

Both consents are due to expire June 2018.

4. Recommendations

1. THAT monitoring of consented activities at Winstone Aggregates Wiremu Road quarry in the 2013-2014 year continues at the same level as in 2012-2013.

Glossary of common terms and abbreviations

The following abbreviations and terms are 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 |
| Incident | an event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred |
| Intervention | action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring |
| Investigation | action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident |
| 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 |
| UI | Unauthorised Incident |
| UIR | Unauthorised Incident Register – contains a list of events recorded by the Council on the basis that they may have the 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.

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Taranaki Regional Council, 2012: Winstone Aggregates Limited Wiremu Road
Quarry Monitoring Programme Annual Report 2011-2012. Technical Report 2011-54

Appendix I

Resource consents held by Winstone Aggregates Limited



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

CHIEF EXECUTIVE
PRIVATE BAG 713
47 CLOTEN ROAD
STRATFORD
NEW ZEALAND
PHONE: 06-765 7127
FAX: 06-765 5097
www.trc.govt.nz

Please quote our file number
on all correspondence

Name of
Consent Holder: Winstone Aggregates Limited
P O Box 17195
Greenlane
AUCKLAND 1546



Change To
Conditions Date: 25 July 2008 [Granted: 14 January 2000]

Conditions of Consent



Consent Granted: To discharge up to 200 litres per second of treated stormwater and up to 35 litres per second of treated waste washwater from quarrying operations into an unnamed tributary of the Manganui Stream in the Oaonui catchment at or about (NZTM) 1678941E-5642442N

Expiry Date: 1 June 2018

Review Date(s): June 2012

Site Location: Wiremu Road Quarry, Wiremu Road, Opunake



Legal Description: Lot 1 DP 17648 Pt Ngatitara 32 DP 682 Lots 3 & 4 DP 9331 Secs 10, 11, 12 & Pt Sec 1 Blk VII Opunake Lot 25 DP 792 Sec 1 SO 13192 Secs 1-3 SO 13207 Blks III & VII Opunake SD

Catchment: Oaonui

Tributary: Manganui

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

General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) 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) 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

Condition 1 [new]

1. 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 adverse effects on the environment from the exercise of this consent.

Condition 2 - 12 [unchanged]

2. That there shall be no direct discharge of untreated stormwater or washwater from the active quarry site into the unnamed tributary of the Manganui Stream as a result of the exercise of this consent.
3. That the area used for the washing of aggregate shall be bunded/contoured to ensure separation from the stormwater catchment.
4. That the consent holder shall implement appropriate recirculation systems, so as to minimise the volume of the washwater discharge.
5. That the active quarry site shall be contoured/bunded so that all stormwater generated in this area is directed to the silt control structures for treatment prior to discharge, and the flow of uncontaminated stormwater into this area is prevented.
6. 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.
7. 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.

Consent 1509-3

8. 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 washwater, and to minimise the duration and frequency of the discharge.
9. That the following concentrations shall not be exceeded in the discharge effluent:

| Component | Concentration |
|------------------|----------------------|
| pH [range] | 6-9 |
| Suspended solids | 100 gm ⁻³ |

This condition shall apply prior to the entry of the stormwater and washwater into the receiving waters of the unnamed tributary of the Manganui Stream, at a designated sampling point.

10. That after allowing for reasonable mixing, within a mixing zone extending 25 metres downstream of the discharge points, the discharge shall not give rise to any of the following effects in the receiving waters of the unnamed tributary of the Manganui 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.
11. 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.
12. That the consent holder shall maintain a contingency plan for the site, outlining measures and procedures to be undertaken to prevent the spillage or accidental discharge of contaminants, and the procedures to be carried out should such a spillage occur.

Condition 13 [new]

13. The maximum rate for the discharge of treated stormwater and aggregate washing water does not exceed 235 litres per second.

Condition 14 [new]

14. That the maximum area of the active quarry stormwater catchment shall be no more than 40 hectares.

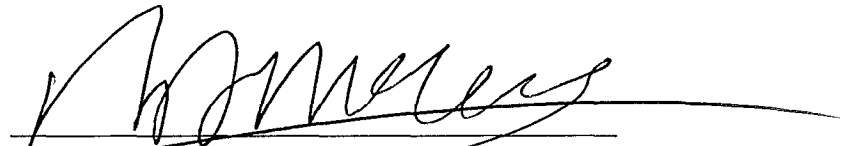
Consent 1509-3

Condition 15 [previously condition 13]

15. 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 2012, 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.

Signed at Stratford on 25 July 2008

For and on behalf of
Taranaki Regional Council



Director-Resource Management



Water Permit

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

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

Name of
Consent Holder: Winstone Aggregates Limited
P O Box 3247
NEW PLYMOUTH

Consent Granted
Date: 14 January 2000

Conditions of Consent

Consent Granted: To take water from an unnamed tributary of the Manganui Stream in the Oaonui catchment for quarrying purposes at or about GR: P20:890-042

Expiry Date: 1 June 2018

Review Date(s): June 2006, June 2012

Site Location: Wiremu Road Quarry, Wiremu Road, Opunake

Legal Description: Lot 1 DP 17648 Lots 3 & 4 DP 9331 Lot 32 DP 682 Secs 9 & 10 Blk VII Opunake SD

Catchment: Oaonui

Tributary: Manganui
Unnamed tributary

Consent 1508-3

General conditions

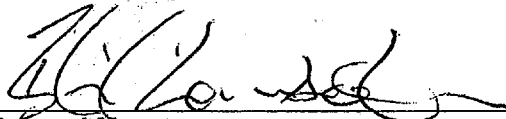
- a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) That unless it is otherwise 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 rate of abstraction shall not exceed 25 litres/second.
2. 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 2006 and/or June 2012, for the purpose of ensuring that the conditions adequately deal with the environmental effects 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.

Transferred at Stratford on 10 July 2000

For and on behalf of
Taranaki Regional Council



General Manager