APPENDIX G

Draft Rehabilitation Management Plan
Roydon Quarry
Rehabilitation Plan

Proposed Roydon Quarry
Templeton
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### REPORT DETAILS

**Project Name:** Draft Roydon Quarry Rehabilitation Plan  
**Document Type:** Draft Quarry Rehabilitation Plan  
**Date:** November 2018  
**Document Author:**

### AUTHORISATION FOR ISSUE

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Date</th>
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<tbody>
<tr>
<td>Environmental Advisor</td>
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<td>South Island Resources and Sustainability Manager</td>
<td>Name</td>
<td>Date</td>
</tr>
</tbody>
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Appendix 1: Environmental Policy
1.0 INTRODUCTION

1.1 Background

Fulton Hogan Limited (Fulton Hogan) is a leading infrastructure, construction, roadworks and aggregate supplier in New Zealand. Fulton Hogan currently has three fixed aggregate quarries located in the greater Christchurch area and began its operations in the Canterbury region over 50 years ago. The Roydon Quarry site, located in Templeton, is proposed to be another long-term operation.

This Draft Quarry Rehabilitation Plan has been prepared to accompany the joint resource consent applications to Selwyn District Council and Environment Canterbury for the proposed Roydon Quarry. It has drawn on similar Fulton Hogan operations, for which Quarry Rehabilitation Plans have been developed in accordance with Activity Specific Standard 17.8.3.14 ‘Quarry site rehabilitation’ of the Christchurch District Plan (CDP). This Rehabilitation Plan has also been prepared giving regard to that standard, Policy 17.2.2.13 Policy - Quarry Site Rehabilitation, and the ‘Draft Quarry Rehabilitation Plan Guidance’ document prepared by Christchurch City Council and dated August 2018. Selwyn District Council (SDC) does not have a guidance document for writing quarry rehabilitation plans, therefore the relatively recently developed CDP standard has been used.

Table 1: Christchurch District Plan: Quarry Site Rehabilitation Plan Requirements

<table>
<thead>
<tr>
<th>Applicable to</th>
<th>Standard</th>
</tr>
</thead>
</table>
| All quarry sites | a. A quarry site rehabilitation plan shall be:  
| | 1. prepared by a suitably qualified or adequately experienced person(s);  
| | 2. certified by Council as containing methods and processes capable of achieving full quarry site rehabilitation and containing the matters listed under clause iii.; and  
| | 3. implemented by quarry operators; and  
| | b. The quarry site rehabilitation plan shall be submitted to Council for certification within 2 years of 12 August 2016, or for new quarries prior to commencement of quarrying activity; and  
| | c. The quarry site rehabilitation plan shall include:  
| | 1. The quarry rehabilitation objectives for the site;  
| | 2. A description of the proposed rehabilitation works, including:  
| | A. The proposed final landform;  
| | B. Whether clean fill or other material will be used in the rehabilitation;  
| | C. The type of land uses that the rehabilitated quarry could support following rehabilitation;  
| | D. The patterns of surface drainage and subsoil drains; and  
| | E. Any landscaping and planting.  
| | d. A program and reasonable timescales for progressive rehabilitation.  
| | e. Measures to mitigate any potential effects arising from undertaking rehabilitation other than those already addressed through quarry site mitigation.  
| | f. Measures to mitigate potential ongoing adverse effects on the stability of adjoining land and its susceptibility to subsidence and erosion.  
| | g. A process for review of the quarry site rehabilitation plan. |
1.2 Rehabilitation Objectives

Site rehabilitation will be implemented at the completion of each stage of extraction. Whilst timing of stage completion can adapt to fluctuations in aggregate demand, the sequence of extraction activity forms the basis for how rehabilitation efforts occur. The rehabilitation objectives are as follows:

- Progressive rehabilitation of the site throughout the stages of extraction.
- Stabilisation of quarry faces and grassing of completed and restored extraction areas to create a free draining and stable landform.
- Ensure any areas where works have been completed are left in a safe and stable condition.
- Monitoring and controlling plant and animal pests during rehabilitation works.
- Ensure that any areas where work is completed has adequate stormwater drainage or soakage.
- To reduce the footprint of open area as far as practicable.
- Sites are rehabilitated in a way which enables subsequent use of the land for an appropriate future land use.
- To mitigate any potential environmental effects.

The development of this plan has also been formulated by taking into account feedback Fulton Hogan has received from consultation on the proposed quarry.

1.3 Environmental Policy

Fulton Hogan seeks ongoing improvement in its environmental performance through an ISO 14001, certified environmental management system. Fulton Hogan’s Environmental Policy is included as Appendix 1.
2.0 SITE CONTEXT AND OVERVIEW

2.1 Site Location

The site is located within a block of land bound by Curraghs Road, Dawsons Road, Maddisons Road, and Jones Road, and comprises an area of approximately 170 hectares, as shown on Figure 1.

The site is located on the edge of the Selwyn District, with the opposite side of Dawsons Road being the western border of Christchurch City.

The site is legally described in accordance with Table 2, below, and the street addresses of the site are 107 Dawsons Road and 220 Jones Road.

Table 2: Certificates of Title

<table>
<thead>
<tr>
<th>Certificate of Title</th>
<th>Legal Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB20F/554</td>
<td>Rural Section 6475 and Rural Section 6324</td>
</tr>
<tr>
<td>CB291/71</td>
<td>Lot 1 Deposited Plan 4031</td>
</tr>
<tr>
<td>CB39/215</td>
<td>Rural Section 6342</td>
</tr>
<tr>
<td>815228</td>
<td>Section 7 Survey Office Plan 510345</td>
</tr>
<tr>
<td>815227</td>
<td>Rural Section 5381 and Section 6 Survey Office Plan 510345</td>
</tr>
</tbody>
</table>

2.2 Site Character and Activities

The existing site, comprised of multiple properties, is currently almost entirely used for pastoral grazing including sheep farming, whereas others serve as dairy support units for part of the year. Shelter belts exist along a number of the site boundaries including much of the northern boundary, part of the Dawsons Road boundary and along the entirety of the Curraghs Road boundary. Additional vegetation is located throughout the site, being of an exotic nature and for the most part located around existing dwellings on the property. The dwellings and farm buildings would mostly be demolished to enable the quarry development, as would removal of surplus internal shelterbelts.

2.3 Surrounding Site Character

The surrounding area is generally rural in nature, although a number of indications of the Christchurch urban area are evident, including the site being within the noise contours associated with the Christchurch International Airport and the construction of the Christchurch Southern Motorway extension. Templeton township lies approximately 700 m east of the site boundary.

Rural activities within the immediate vicinity include farming (both intensive and pastoral), horse training facilities and some forestry. These rural land uses often have a dwelling associated with them, including to the north and west along Maddisons and Curraghs Road. On Maddisons Road there is a Samadhi Buddhist Vihara facility and the Weedons NZCMA (Caravan Park) is located some 270 m west of the site at 286 Jones Road.

The neighbouring land to the east, adjacent to Dawsons Road is owned by Christchurch City Council and is in pasture. Fulton Hogan understands that the Council’s longer-term plans for this land may include playing fields, urban growth, greenspace and 60 ha proposed for a future cemetery. South of the site is a thin strip of berm between Jones Road and the Main South Line railway. To the south of the railway line, between Main South Road, is an industrial yard (Farm Chief, 10 Curraghs Road), a dwelling located at 1090 Main South Road and a small production woodlot.
3.0 REHABILITATION PROGRAMME

3.1 Site Preparation and Quarrying Activities

Development of the quarry will take place in a number of phases, comprising the following activities:

- Use of suitable on-site material (supplemented by imported topsoil) to create perimeter bunds.
- Planting around bunds to establish boundary screening.
- Development of quarry pit area – removal of topsoil and subsoil overburden material and initial extraction to develop a working pit.
- Construct site infrastructure such as site entrances, haul roads, establish processing plant and field conveyors, sediment ponds, weighbridge, workshop and site offices etc.
- Extraction of aggregate in stages as indicatively shown on Figure 1.
- Rehabilitation of worked out areas.

3.2 Cleanfilling Operations

Cleanfill material brought to the site will enable the expedition of site rehabilitation. Site preparation and ongoing development during operational phases will take into account cleanfilling requirements such as location of haul roads to the cleanfill tip head.

Cleanfill, will be brought to the site from suitable locations within Christchurch and will be unloaded at the fill tip head/placement area prior to being spread across the cleanfill area by a loader. In wetter months, a bulldozer or tracked loader may be also be used.

All material to be used in the backfilling and rehabilitation of the site is to be inert cleanfill material meeting the definition of cleanfill under the LWRP and will be in accordance with a Cleanfill Management Plan prepared for the site.

Visual inspections of the quality of the fill material coming to the site will assist in ensuring that the material is consistent with any resource consent requirements, and any unacceptable loads will be turned away from the site. This will take place by inspecting all material once it is placed at the fill tip head. Should any unacceptable loads reach the tip head and be unloaded, it will be removed from the site for transportation to landfill.

The deposition of cleanfill will be managed so that if the demand from the construction industry arose, concrete and asphalt waste from roading can be removed, recycled and reused. This presents a possibility in the future that some material could be extracted, crushed and processed.

The rate of rehabilitation and final contours will largely depend upon the rate of incoming cleanfill material.

3.3 Rehabilitation Procedure

Following completion of filling in an area, rehabilitation involves re-spreading and contouring of topsoil materials and stored overburden materials to a minimum depth of 300 mm, stabilisation of battered slopes and grassing or planting of other vegetation in completed and restored extraction areas to create a free draining and stable landform. Monitoring of revegetation will occur to ensure the success of the rehabilitation. Key principles of rehabilitation include:
• Reinstallation of top soil to ensure the soil can be used for agricultural or other uses. This may require the soil to be mixed with organic material or a soil conditioner.

• Appropriate vegetation cover undertaken using appropriate planting. Top soil and re-grassing should be undertaken during September to November or March to May.

• Development of a free draining stable landform.

• The removal of all quarry operating machinery, equipment and buildings at the conclusion of all extraction activities.

• Maintaining the site through controlling weeds, mowing/grazing and/or planting programmes.

• Monitor and where necessary, maintain rehabilitated areas to ensure they are functioning appropriately post-closure for a period of 24 months.

Rehabilitation planning that is integrated with extraction sequences will ensure rehabilitation can commence, in areas where extraction activity has concluded. This will ensure that vegetation can be established, or a return to other land use (e.g. pasture), as soon as possible rather than leaving a disused quarry area on part of the site. It also ensures that rehabilitation effort is not wasted on areas which will be disturbed again later.

Owing to the large size of the site, combined with community interest in future land uses and the potential to actively invest in the site over a long period of time, Fulton Hogan sees the Roydon site as providing the potential to be an exemplar in terms of site rehabilitation. Additionally, as only part of the site will ever be actively used for quarrying at one time, there are opportunities to continue with traditional farming and productive activities on the site both prior to quarrying commencing and as stages of the quarry are progressively rehabilitated.

While the final use is unlikely to be determined until sometime in the future, Fulton Hogan will restore the site to a form in that it can be used for a variety of activities. These range from farming, to animal boarding, recreation and other uses provided for within the Rural zones. The final landform will also enable other activities should the zoning change over time with the growth of Templeton and Christchurch.

It is possible that the site may be used for ongoing processing of aggregates once the resource on the site is exhausted. Should this situation arise in the future, it is envisaged that such an area would be restricted to the fixed processing area and the immediately surrounding area for stockpiling. Any such areas would be located at least 400 m from site boundaries.

Accordingly, the areas designated for long-term production support will be the last to be released for rehabilitation, as the quarry could not operate to any degree without these. As identified above, this includes the sediment pond, crushing plant, administration and service areas etc. All internal site infrastructure will be decommissioned when there is no further requirement for processing.

3.4 Rehabilitation Timescale

Time frames for rehabilitation of the site will be driven largely by the rate of extraction and will occur progressively over the site once filling in completed stages has been completed. It is anticipated, that rehabilitation of each worked-out stage will be completed within twelve months of the stage being finished (i.e. within a year of filling concluding).

An indicative timeframe for rehabilitation is set out in Table 3 below.
Table 3: Indicative Rehabilitation Stages

<table>
<thead>
<tr>
<th>Rehabilitation Stage</th>
<th>Area (ha)</th>
<th>Date of Completion (Indicative only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>36 ha</td>
<td>End 2028</td>
</tr>
<tr>
<td>Stage 2</td>
<td>34 ha</td>
<td>End 2036</td>
</tr>
<tr>
<td>Stage 3</td>
<td>25 ha</td>
<td>End 2044</td>
</tr>
<tr>
<td>Stage 4</td>
<td>36 ha</td>
<td>End 2052</td>
</tr>
<tr>
<td>Stage 5</td>
<td>29 ha</td>
<td>End 2060</td>
</tr>
<tr>
<td>Stage 6 (retained aggregate processing and other activities)</td>
<td>40 ha</td>
<td>Area required for ongoing processing and ancillary activities.</td>
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</table>

3.5 Surface Drainage Patterns and Subsurface Drains

The Dawson’s Road quarry site is located over an unconfined aquifer within the Springston Formation. Below this is Aquifer 1 formed by the Riccarton Gravels. The site is located within the Selwyn-Waihora zone of the CWMS and in the Selwyn-Waimakariri Groundwater Allocation Zone, but lies outside the Christchurch Groundwater Protection Zone 1 (CGPZ1), as identified by the LWRP Planning Map (Christchurch Map 11).

The Landcare Canterbury Soil Information database\(^1\) describes the soils as ‘Templeton moderately deep silty loam’ in the north west part of the site and the ‘Eyre shallow stony loam’ in the south east of the site.

The Canterbury region mainly consists of fast draining soils allowing for effective soakage of surface storm water. The following measures are proposed, to enhance the performance of natural stormwater drainage systems on the site:

- Cleanfill materials will be deposited in a manner that encourages free draining of stormwater runoff into the permeable ground.

- When backfilling extraction areas to achieve the final rehabilitated ground level, an appropriate mix of cleanfill and adequate layers of permeable and subsoil and healthy productive topsoil will be used to achieve the finished ground levels.

- Topsoil will not be compacted when being used to raise the quarry floor. It will be loosely placed and spread by appropriate machinery e.g. grading to address high and low points. In the event that compaction of the topsoil occurs, Fulton Hogan plans to, as they do on some of their current operations, rip the soil to maintain a friable soil state which promotes normal soil infiltration and good crop/pasture establishment and growth.

Owing to the high infiltration rates (>5,000 mm/hr for the deeper gravels and >100 mm/hr for the top soils) and minimal rainfall, subsoil drains are not considered necessary, however the quarry will undergo regular monitoring for drainage performance.

\(^1\) Landcare Research S-map. http://smap.landcareresearch.co.nz
3.6 Proposed Final Landform

Excavated pit levels will guide the final land form of the rehabilitated site. The minimum finished floor level for the site, following operational rehabilitation and cleanfilling activities, will be at least 1.3 metres (m) (this includes a minimum topsoil of 300 mm) above highest recorded ground water levels in the vicinity of the site, at the time of backfilling occurring. Where there is available cleanfill material, parts of the site may be backfilled to a higher landform.

The final internal slopes of the quarry will be formed to provide an irregular form to the edge of the quarry but at gradients which allow for the placement of topsoil and grass growth. The slope gradient should vary between 1 in 3 and 1 in 6 with an irregular form to negate a linear, uniform appearance of the slopes to create a more natural appearance.

3.7 Land Use Following Quarrying

As noted above while the final use is unlikely to be determined until sometime in the future, Fulton Hogan will restore the site to a form in that it can be used for a variety of activities. These range from farming, to animal boarding, recreation and other uses provided for within the Rural zones. The final landform will also enable other activities should the zoning change over time with the growth of Templeton and Christchurch.

Fulton Hogan has undertaken a site-specific assessment of a range of possible land uses. Table 4 identifies several possible land uses and their respective advantages, constraints and requirements in terms of bringing these forward. It is implicit that other consenting projects for these may be required.

Table 4: Roydon Quarry – Assessment of Possible Post-Quarrying Rehabilitation Land Use

<table>
<thead>
<tr>
<th>Concept/Advantages</th>
<th>Constraints</th>
<th>Requirements</th>
</tr>
</thead>
</table>
| **Peri-Urban Development** | - Divide the site (minus buffer strip) into 40 x 4 ha rural residential lifestyle blocks.  
- Proximity to city and proven demand for such typology.  
- Finished ground levels would have to be suitable for living – a pit is susceptible to winter fog and summer heat.  
- As this involves the introduction of additional households to the area, residential effects would have to be assessed, including reverse sensitivity e.g. airport noise contour (50dB) area. | | |
| **Agricultural/Horticultural/Equine/Animal Boarding** | - This site is proven as a viable sheep farming and dairy support location.  
- Site could accommodate a large equestrian or bloodstock centre.  
- Proposing a large-scale poultry farming operation, with large sheds and grain silos, could generate controversy.  
- Not commonly a production horticulture (market gardens, orchards, vineyards) area.  
- The final landform could have a reduced livestock carrying capacity, primarily because of the reduced net areas due to the buffers and batter slopes and the potential need for reduced nutrient loading at reduced ground levels. The desire to reduce stock numbers, to minimise the soil compaction risk and impact on the topsoil (which would affect the soil drainage and soil structure) also affects this livestock carrying potential. | | |
| **Commercial/Industrial** | - There is likely to be appropriate roading infrastructure, following the motorway extension etc.  
- Not dissimilar to effects and character associated with a large quarry.  
- Underlying zoning and RPS direction may not support this.  
- Sensitivity by community around different potential effects.  
- Market appetite for business premises in that location e.g. there are already at least 3 industrial commercial activities between Johns Road and SH1.  
- Would possibly need some subdivision of the 170 ha area (or boundary adjustments) so multiple businesses could co-exist on building platforms (the airport noise contour across part of the parent site might need to be considered). | | |
It is also possible that the site may be used for a combination of the above activities, or as noted earlier, for ongoing processing of aggregates once the resource on the site is exhausted. Should this situation arise in the future, it is envisaged that such an area would be restricted to the fixed processing area and the immediately surrounding area for stockpiling. Any such areas would be located at least 400 m from site boundaries.

Accordingly, the areas designated for long-term production support will be the last to be released for rehabilitation, as the quarry could not operate to any degree without these. As identified above, this includes the sediment pond, crushing plant, administration and service areas etc. All internal site infrastructure will be decommissioned when there is no further requirement for processing.

An artist’s impression of a peri-urban site rehabilitation concept is shown as Figure 2.

### 3.8 Landscaping and Planting

Fulton Hogan proposes to undertake extensive perimeter landscaping including planting alongside of the earth bunds around the sites perimeter. Graphic illustrations for the proposed plantings along the sites boundaries are shown in Figure 3, Figure 4, Figure 5A and Figure 5B.

Vegetation types on the site are predominantly exotic species, with small amounts of native species, used predominantly for shelter belts running along the paddock boundaries. The shelter belts consist mostly of either *Pinus radiata*, *Cupressus macrocarpa*, *Hoheria augustifolia*, *Plagianthus regius* or *Eucalyptus* species varying in height between 4 – 8m forming mostly dense, visually impenetrable screens along stretches of the western, eastern and northern boundaries. Open grass fields fill the centre of the site itself. The open grass fields are only disrupted by small clusters of existing vegetation and individual eucalyptus trees with an estimated height of 20m.

The existing vegetation is proposed to be retained and will be enhanced with new vegetation where there may be gaps or the vegetation, where it is dying or in poor condition, and to provide additional rows of planting. Earth bunding will be set back from the boundary so as to accommodate the existing and any new vegetation as shown in the edge treatment graphic illustrations in Figure 3, Figure 4, Figure 5A and Figure 5B. As shown in these illustrations, Fulton Hogan is committed to incorporating native vegetation where practicable into screening and has nurseries and gardening staff to achieve this.
Figure 2: DCM Artist's Impression

The sketch above shows an impression from above Jones Road looking to the northwest. The planting and bunds established during operation are retained with the quarry slopes softened and grassed. The placement of topsoil would allow for future rural activities.
Figure 3: Edge Treatment 1 for Jones Road and Dawsons Road
Figure 4: Edge Treatment 2 for Carraghs Road

A through, 12m wide, mulch track is to be constructed around the perimeter of the site. The base width of the track area is 1.2m, with a variable 12 - 17% gradient on the inside slope.

A manual maintenance path was along the top of the bank. The front edge of the bank had to be filled with planting soil, an additional approximately 3m behind the existing site boundary.

A temporary irrigation scheme would be operated for the 2 years of establishment. Fallow (local) shrubs would also be installed.
Figure 5A: Edge Treatment 3 for 319 Maddisons Road

Figure 5B: Edge Treatment 3 for 319 Maddisons Road
While new vegetation will take some years to attain maturity, it is expected that within five years of being planted, new areas of vegetation will provide substantial screening to a height in excess of 3 m. Irrigation will be established along the site boundaries to help achieve this screening.

Existing vegetation is already close to or along the boundaries of Dawsons and Curraghs Roads and for that reason it would look unusual to step back any new plantings on these road ways. Along Jones Road however, it is proposed that any plantings will be maintained at a maximum height of 5m to minimise shading along the road side.

Immediately following construction, the bunds are to be sown with grass or hydro-seeded to achieve swift grass cover and watered regularly to ensure grass cover is established immediately after construction. To assist in achieving swift grass cover, construction of the bunds shall take place between the months of February to May or August to November to enable grassing of the bunds to occur in autumn or spring.

The grassed bunds shall be mown regularly or grazed to give a tidy appearance. The grassed bunds shall be watered (to suppress potential dust) until a grass cover has been established. All landscaping shall be maintained. Any dead, diseased, or damaged landscaping is to be replaced immediately with plants of a similar species.

It is anticipated that as with the other large Fulton Hogan Christchurch quarries (including Miners Road and Pound Road), the majority of plants required for the bund landscaping will be locally-sourced as part of the Fulton Hogan “Legacy Planting Project”. This plan seeks to improve biodiversity in the vicinity of worksites and is anticipated to provide a habitat for birds and invertebrates. Flourishing native flora providing such habitat will particularly be the case with the outer rows of smaller native plantings.

In the same way as existing operations at Miner’s Road, Fulton Hogan will employ their landscape division to manage the extensive landscaped areas at the proposed Dawson’s Road site. Any overgrown trees or shrubs will be cut back; the dead, diseased, or damaged specimens replaced with similar plants.

In terms of final landform (after operations), this bunding with mixed native and exotic planting can be retained around the site perimeter to provide permanent habitat for birds and invertebrates. It is possible to co-exist with future land uses on the 170 ha area.
4.0 ENVIRONMENTAL EFFECTS AND MANAGEMENT

4.1 Site Management

The overall management of site rehabilitation will be the responsibility of the Roydon Quarry Manager or by delegated authority. Responsibilities include:

- Managing daily quarry operations – extraction and manufacturing of aggregates to supply orders.
- Ensuring constant compliance with the conditions of all resource consents pertaining to the site.
- Communicating resource consent requirements to staff, contractors and all other relevant parties.
- Overseeing compliant implementation of the Site Rehabilitation Plan and other management plans.

4.2 Site Access

The main vehicle crossing for the site is proposed to be on Jones Road, with roundabouts indicatively designed for nearby intersections (where Dawson’s Road meets Jones Road and Main South Road).

4.3 Management of Potential Effects

Potential effects, such as dust and noise, that could emerge from major rehabilitation shall be addressed through general quarry site management and in compliance with any consent conditions, relevant legislative requirements and best practices. This will include implementing policies found in other management plans prepared for Roydon Quarry. Measures shown in Table 5 are management tools used to mitigate any potential effects that are directly attributable to quarry rehabilitation activities.

Table 5: Potential Mitigation Measures – for Effects Caused by Rehabilitation Activities

<table>
<thead>
<tr>
<th>Potential Effect</th>
<th>Mitigation Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Instability</td>
<td>• Battered slopes will be graded to a maximum of 3H:1V.</td>
</tr>
<tr>
<td></td>
<td>• Minimal compaction of fill to promote free draining.</td>
</tr>
<tr>
<td></td>
<td>• Exposed areas to be grassed with a suitable species.</td>
</tr>
<tr>
<td></td>
<td>• Suitably shape the surface where overland flow paths exist.</td>
</tr>
<tr>
<td>Groundwater contamination by cleanfilling activities</td>
<td>• Groundwater monitoring programme – quarterly to annual sampling.</td>
</tr>
<tr>
<td></td>
<td>• Customer loads strictly assessed against fill acceptance criteria.</td>
</tr>
<tr>
<td></td>
<td>• Further evidence requested for questionable or long-term sources.</td>
</tr>
<tr>
<td></td>
<td>• Surveillance by weighbridge CCTV of all loads entering the site.</td>
</tr>
<tr>
<td></td>
<td>• Checks made on imported material at all stages of deposition process.</td>
</tr>
<tr>
<td></td>
<td>• Rejection if load description is contrary to actual content in truck.</td>
</tr>
<tr>
<td>Dust</td>
<td>• Sealing of main haul roads.</td>
</tr>
<tr>
<td></td>
<td>• Signage and enforcement of speed limits.</td>
</tr>
<tr>
<td></td>
<td>• For unsealed roads in current operation, during dry weather keep in a visibly damp condition using water cart.</td>
</tr>
<tr>
<td></td>
<td>• Expedite grass coverage of unworked dirt areas, using hydroseed mix.</td>
</tr>
<tr>
<td>Potential Effect</td>
<td>Mitigation Measure</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------</td>
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</tbody>
</table>
| Noise            | • Rehabilitation work to only happen during the relevant consented hours.  
|                  | • Work in conformity with District Plan standards and NZS6803:1999.  
|                  | • Site equipment to be well maintained and fitted with noise suppression parts, to further minimise sound from major rehabilitation activities.  
|                  | • Maintain site roading to a good standard, so as to reduce noise effects from coarse road surfaces.  
|                  | • The proposed bunding and vegetation screening will provide additional noise mitigation. |
| Visual           | • The proposed bunding and planting on the site perimeter, as illustrated in Figure 4 - 6 of this Plan, is to be established by the time any other quarry rehabilitation activities occur. |
5.0 DOCUMENT REVIEW

In order to provide a general update on rehabilitation-related activities, Fulton Hogan proposes to report on an annual basis. This includes covering circumstances arising during the gradual development at the Dawson’s Road site, which may alter the timing and staging of rehabilitation works. It is expected that the quarry’s consents will include a condition about reviewing the need for updating site management plans, including the rehabilitation plan. In some years it may not be necessary to alter the contents of the plan if there are no unexpected occurrences, however in other years Fulton Hogan may wish to adjust their strategy. As a minimum for the Rehabilitation Plan, Fulton Hogan proposes to conduct a more thorough revision on a five-yearly basis. Should any of the following circumstances occur, this will trigger an unscheduled update (out of annual review timeframe):

- When there is a fundamental shift in operational activities (e.g. unscheduled move to a new area).
- Following significant environmental incidents (e.g. flooding on the site, causing damage to assets).

In a scheduled review of the Site Rehabilitation Plan, it is proposed that the following matters be considered. This is in terms of suitability of existing content and whether new information is required:

- Outlining rehabilitation activities undertaken during the reporting period.
- Areas of the site to be quarried (extraction) over the next 12 months.
- Plans for earthworks, including overburden stripping and disposal, over the next 12 months.
- Areas of vegetation removed and areas planted during the reporting period.
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Appendix 1: Environmental Policy
Environmental Policy

Working together to protect our environment

We will:

■ Work towards minimising our environmental footprint through innovation, energy and resource efficient operations focused on reducing, reusing and recycling
■ Meet or exceed all obligations and consent conditions applicable to our activities
■ Recognise that environmental management encompasses diverse aspects including flora, fauna, water, community and cultural interests
■ Identify impacts to the environment and implement effective controls
■ Set objectives and targets to measure, manage and improve our performance
■ Train our people to identify environmental risks and opportunities to improve our performance
■ Work closely with our subcontractors and suppliers to ensure they meet our expectations
■ Drive continual improvement through the proactive use of environmental management systems

Our people will be environmental leaders by:

■ Minimising the long term environmental impact of our activities
■ Planning for and addressing all environmental risks and opportunities
■ Pursuing innovative ways to improve our environmental performance