

## **Amalgamated Conditions 214073/77 and 214075**

CRC214073 – Use land to excavate material and to deposit material over an aquifer

CRC214075 – Discharge stormwater and water onto land and into land

CRC214077 – Discharge contaminants onto or into land

Advice Note: The activities at the site are also subject to the following resource consents or changes to them:

CRC214073  
CRC214074  
CRC214075  
CRC214076  
RC215276  
RC185244

Woodstock Quarries Limited has applied for resource consent from the Waimakariri District Council (WDC - Consent Number RC215276) and Canterbury Regional Council (CRC) to undertake earthworks and to establish and operate a landfill and associated activities at 513 Trig Road near Oxford.

The conditions of resource consent, as issued by the two organisations, have been prepared in consultation with one another and where possible consistency of wording and numbering has been incorporated into the two documents including reference to a single Landfill Management Plan for the consented activity. On this basis the conditions of the WDC and CRC consents (including appended schedules) should be read and applied concurrently to ensure a consistency of application of requirements.

The schedules appended to, and forming part of the conditions of consent are:

1. Waste Acceptance Criteria
2. Landfill Management Plan Objectives and contents
3. Peer review panel scope of responsibility

## Glossary

Activation of consent	The date at which the consent holder advises the consenting authority that it intends to commence the activities authorised under the consent. It does not apply to the activities associated with existing consents.
Aftercare	The period of maintenance of the landfill site after the cessation of all landfill waste placing and the completion of all closure works.
Approval by Council	The process of the Council receipting and accepting plans, drawings and specifications.
Certify	The process of a professional reviewer confirming that plans, drawings and specifications have been prepared in accordance with recognised standards.

Closure	The process of completing capping and other works upon the completion of the placing of landfill waste. Closure may occur in stages prior to the cessation of the placing of all landfill waste.
Council	Unless other-wise stated means Canterbury Regional Council.
Construction stage	A defined scope of engineering works that is a discrete part of the overall programme of works. It may include earthworks (including blasting), drainage works, the construction of landfill cells, mechanical works, buildings or other structures, pavement construction, landscaping and any other associated works including alterations to existing site infrastructure. It does not apply to the quarry related activities associated with existing consents (RC185244).
Deposition of landfill waste	Placement of landfill waste within developed cells.
Deposition date	The date that landfill waste acceptance commences at the landfill. This date is to be notified to the Council in writing.
Landfill footprint	That area for landfill waste deposition depicted by the pink line on Drawing B2 (Rev R) Remediated Surface with toe bund included in the stamped approved plan set.
Landfill liner	The construction of the cohesive soil and geosynthetic materials that make up the liner system. It does not include the earthworks required prior to the construction of the liner system.
Landfill site	That area depicted on Drawing B6 Landfill Site Boundary included in the approved plan set stamped approved plan set.
Landfill waste	Material that complies as acceptable waste material listed in the Waste Acceptance Criteria (Schedule 1 of this consent).
Lower wetland	The wetland at the southern boundary of the landfill site associated with Woodstock Stream.
Upper wetland	The area of Beech tree dieback located adjacent to the energy dissipator and surface water dispersal zone, as the dissipator and zone are shown on Drawing B2.
Physical works	Includes all vegetation clearance, earthworks associated with extending the existing quarry area in the landfill footprint, construction of sediment ponds, bund, clay excavations, internal road formation/upgrade, stockpiles, fill and container transfer area and associated activities.
Wetland boundary	The point in the transition from wetland to dryland where wetland plant species occur at more than four times their ungrazed height apart.

## **Conditions common to 214073, 214075 and 214077**

### **Limits**

#### **General**

1. See individual consent sections conditions 78 and 145.

#### **Duration**

2. The term of this Consent shall be 35 years from the date of its commencement.

#### **Lapse**

3. The lapsing date for the purposes of section 125 of the Resource Management Act 1991 shall be (date) (5 years from commencement).

#### **Review**

4. The Canterbury Regional Council may annually, on the last working day of May or November, serve notice of its intention to review the conditions of this consent for the purposes of:
  - a. Dealing with any adverse effect on the environment which may arise from the exercise of this consent and which is appropriate to deal with at a later stage; or
  - b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

#### **Prior to commencement of works**

5. There must be no landfill physical works beyond the working areas as detailed on Plan A6 (Operational works area) prior to the completion of and submittal for approval to the Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring of:
  - a. Ground and surface water baseline assessments, and
  - b. An Ecological Impact Assessment in the areas where habitat is to be removed for landfill physical works, and
  - c. A baseline ecological assessment of the lower wetland area.
6. At least 30 working days prior to the commencement of works, the Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring must be informed of the commencement of works.
7. At least 15 working days prior to the commencement of works, the consent holder must request a pre-construction site meeting with the Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring and all relevant parties, including the primary contractor. At a minimum, the following must be covered at the meeting:
  - a. Scheduling and staging of the works;
  - b. Responsibilities of all relevant parties, including confirmation that the person [or persons] implementing the ESCP on the site is [are] suitably trained and/or experienced;
  - c. Contact details for all relevant parties;
  - d. Expectations regarding communication between all relevant parties;
  - e. Procedures for implementing any amendments;

- f. Site inspection; and
  - g. Confirmation that all relevant parties have copies of the contents of this resource consent document and all associated erosion and sediment control plans and any other discharge treatment methodologies employed.
- 8. Prior to commencement of the works all personnel working on the site must be made aware of, and have access to, the following:
  - a. The contents of this resource consent document and all associated documents;
  - b. Resource Consents CRC214073, CRC214074 CRC214075 CRC214076 CRC214077, RC215276 (Waimakariri District Council Consent) and all associated documents, including the Erosion and Sediment Control Plan (ESCP), Landfill Management Plan, Landfill Monitoring Plan, Air Quality Management Plan and Landfill Closure Plan.
- 9. All works shall be undertaken generally in accordance with the drawings included in the Drawing Index attached to this consent and the Landfill Management Plan except where amendments are required by conditions of these consents. In the event of differences or conflict between the measures described in the drawings or Landfill Management Plan, and the conditions, the conditions shall prevail.
- 10. All investigations, design, and supervision and quality assurance of construction must be undertaken by a Chartered Engineer experienced in such works or works of a similar nature. The following shall be prepared by a suitably qualified and experienced person and shall be submitted to the Canterbury Regional Council Regional Leader – Monitoring and Compliance for approval at least one month prior to the commencement of each stage of the physical works within the landfill site boundary for the purpose of the construction of the landfill and associated activities:
  - a) Details of all works to be undertaken in the stage including clearance of vegetation, earthworks, drainage, stockpiles, fill, roading, remediation and structures;
  - b) Detailed drawings for the landfill construction and all associated facilities including site plans, building plans, earthworks plans, construction plans and elevations;
  - c) Supporting calculations;
  - d) Specifications for the works, including those for imported materials, and including details of material testing to be completed during the construction of the stage;
  - e) Details of any temporary works that will be removed following the completion of the construction stage;
  - f) Details of any emergency management facilities to support the site emergency management plan for the stage;
  - g) A Site Specific Erosion and Sediment Control Plan for the proposed stage;
  - h) A proposed construction programme;

- i) Where required, the design for the stage shall be certified by a Chartered Professional Engineer on a Producer Statement - Design (PS1);
- j) Where required, the Chartered Professional Engineer shall provide a detailed observation programme that is required to enable the designer to issue a Producer Statement – Construction Review (PS4);
- k) Where required, a letter from the Peer Review Panel confirming that they have reviewed the technical details of the stage of proposed works.

### **Community Liaison Group**

11. Prior to the deposition of landfill waste, the consent holder shall establish and operate, for the life of the activity, a website, which enables the community to gain full access to the resource consent application, further information, approval decision (including conditions), all information required to be submitted to Regional Leader – Compliance Monitoring at Canterbury Regional Council as part of these conditions of consent and copies of the Councils approvals. This includes the Landfill Management Plan.
12. The consent holder's website, as required by the condition above, shall include contact details for a representative of the landfill to respond to public queries including for operation related issues and emergency events. If multiple representatives are appointed, a documented chain of accountability shall be provided detailing who is responsible for site management.
13. The Consent Holder must, in consultation with mana whenua, Oxford Ohoka Community Board and the owners and occupiers of the four adjoining sites establish and maintain a Community Liaison Group (CLG). The Consent Holder must invite CLG membership in accordance with a to d:
  - a. A Chair voted in from and by the CLG members
  - b. Two representatives from the Oxford Ohoka Community Board
  - c. One or more representatives from Ngai Tuahuriri Runanga
  - d. A representative from each of the four adjoining properties.
14. The role of this group will be to bring feedback from the community to the Consent Holder, disseminate information about the landfill to the local community, and to hear concerns of local residents relating to the landfill and receive, discuss and consider material.
15. The Consent Holder must take all practicable steps to ensure that the CLG comprises up to 7 representatives (including the Chair but not including the Consent Holder). The Consent Holder must host meetings of the CLG on a quarterly basis (or less frequently as determined by the CLG). Meeting minutes shall be taken by the Consent Holder and distributed to the members of the CLG. The Consent Holder shall cover any associated costs of hosting the meeting and cover reasonable costs of mana whenua participation.

*Advice note: Meetings of the CLG will be open to the public to attend but without member rights and voting rights and will be subject to the meeting protocols set by the chairperson.*

16. The Consent Holder must present information at meetings of the CLG including:
- Any proposed changes to management plans
  - Any new resource consent applications, including variations to existing consents, prior to lodgement
  - Operational aspects of the landfill, and
  - The results of monitoring required as a condition of consent

and must provide the opportunity for the CLG to give feedback on these matters.

### **Landfill Management Plan**

17. A Landfill Management Plan (LMP) shall be prepared by a suitably qualified and experienced person, prior to commencement of physical works and must be submitted to the Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring for approval. The LMP and any revisions must include the best practicable options for achieving compliance with the conditions of CRC214073, CRC214074, CRC214075, CRC214076 and CRC214077, along with RC215276. The Consent Holder shall implement the approved LMP.

***Advice note:***

*The approval process is confined to confirming that the Landfill Management Plan adequately gives effect to the conditions of CRC214073, CRC214074, CRC214075, CRC214076 and CRC214077, and RC215276.*

18. The LMP shall as a minimum:
- Achieve the objectives set out in Schedule 2 to these conditions of consent; and
  - Include the LMP contents as detailed in Schedule 2 to this consent; and
  - Describe the methodology for giving effect to consent conditions; and
  - Include details of the steps to be taken to correct any element of non-compliance.
19. The format of the LMP shall be a series of sections to address the requirements of the Waimakariri District and Canterbury Regional Council resource consents (including conditions), in general accordance with the section topics set out in following LMP sections and contents table. The Landfill Management Plan and all sub-sections of the LMP must be prepared in accordance with the relevant section objectives and contents framework as set out in Schedule 2 attached to this consent and contain, as a minimum, specific management plans as set out under the section headings in the LMP sections and contents table.

LMP sections and contents table

Section	Title
1	General (WDC and CRC)
2	Site Management (WDC and CRC)
3	Site Development <ul style="list-style-type: none"> <li>• Construction Environmental Management Plan (WDC and CRC)</li> <li>• Landfill Liner Quality Plan (WDC and CRC)</li> </ul>

4	Landfill Operation <ul style="list-style-type: none"> <li>• Transport Management Plan (WDC)</li> <li>• Litter Management Plan (WDC)</li> <li>• Landfill Pest Management Plan (WDC and CRC)</li> </ul>
5	Landfill waste Acceptance (WDC and CRC)
6	Air Quality <ul style="list-style-type: none"> <li>• Air Quality Management Plan (WDC and CRC)</li> </ul>
7	Landfill Gas <ul style="list-style-type: none"> <li>• Landfill Gas Management Plan (CRC)</li> </ul>
8	Ecological <ul style="list-style-type: none"> <li>• Ecological Impact Assessment (WDC and CRC)</li> <li>• Indigenous Vegetation (and habitat of fauna) Restoration Plan (WDC and CRC)</li> <li>• Indigenous Fauna Management Plan (WDC)</li> <li>• Wetland Management Plan (WDC and CRC)</li> <li>• Pest Management Plan (WDC and CRC)</li> </ul>
9	Landscape <ul style="list-style-type: none"> <li>• Ecological Impact Assessment (WDC and CRC)</li> <li>• Landscape Concept Plan (WDC)</li> <li>• Landscape Management Plan (WDC)</li> </ul>
10	Groundwater <ul style="list-style-type: none"> <li>• Groundwater Monitoring and Response Plan (CRC)</li> </ul>
11	Surface Water <ul style="list-style-type: none"> <li>• Surface Water Monitoring and Response Plan (CRC)</li> </ul>
12	Leachate <ul style="list-style-type: none"> <li>• Leachate Management Plan (CRC)</li> </ul>
13	Erosion and Sediment Control <ul style="list-style-type: none"> <li>• Erosion and Sediment Control Management Plan (WDC and CRC)</li> <li>• Site Specific Erosion and Sediment Control Plans (WDC and CRC)</li> <li>• Erosion and Sediment Control Maintenance Plan (WDC and CRC)</li> </ul>

14	Emergency response <ul style="list-style-type: none"> <li>• Site Emergency Management Plan (WDC and CRC)</li> <li>• Hazardous Substances Management Plan (WDC and CRC)</li> </ul>
15	Closure <ul style="list-style-type: none"> <li>• Final Closure Plan (WDC and CRC)</li> </ul>
16	Aftercare <ul style="list-style-type: none"> <li>• Aftercare Plan (WDC and CRC)</li> </ul>

20. The Plans that are required as part of the Landfill Management Plan must be submitted to the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager for review and approval in accordance with the timeframes set out below:

Construction Environmental Management Plan	At least three months prior to commencement of a construction stage
Landfill Liner Quality Plan	At least three months prior to laying of first landfill liner
Air Quality Management Plan	At least two months prior to first deposition of landfill waste
Landfill Gas Management Plan	At least two months prior to first deposition of waste
Wetland Management Plan	At least two months prior to deposition of landfill waste
Groundwater Monitoring and Response Plan	At least one month prior to installation of groundwater monitoring system
Surface Water Monitoring and Response Plan	At least one month prior to beginning surface water monitoring
Leachate Management Plan	At least two months prior to first deposition of landfill waste
Erosion and Sediment Control Management Plan (ESCMP)	At least one month prior to commencement of the first construction stage
Site Specific Erosion and Sediment Control Plans (SSESCP)	At least one month prior to commencement of a construction stage
Erosion and Sediment Control Maintenance Plan	At least one month prior to commencement of a construction stage
Hazardous Substances Management Plan (HSMP)	At least one month prior to commencement of the first construction stage
Final Closure Plan	At least three years before expected landfill closure date
Aftercare Plan	At least one year before expected landfill closure completion date

21. With the agreement of the Waimakariri District Council Planning Manager and Canterbury Regional Council Attention: Regional Leader – Compliance Monitoring the LMP may be amended by the consent holder to improve management of earthworks and land fill operation and ensure the conditions of consent are complied with. In addition to the requirement for endorsement from the Independent Review Panel, the revised LMP and

the name of the person preparing or reviewing any part of the LM and their qualification shall be provided to Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring for approval. Once approved, the amendments shall be deemed to be part of the LMP.

22. A copy of the LMP shall be made available to all persons authorised to carry out activities on the site.
23. The LMP may be prepared, submitted and approved on a partial basis (ie on an individual management plan basis) in order to meet the requirements of other conditions of this consent.
24. Where there is a conflict between the LMP and the consent conditions, the consent conditions shall prevail.

### **Peer Review Panel**

25. The Consent Holder shall establish, at its own cost, a Peer Review Panel, to review the design, construction, operation, and after-care of the Landfill and all relevant management plans and drawings required under RC215276, CRC214073, CRC214074, CRC214075, CRC214076, and CRC214077 that are required to be approved by Council to assess whether or not the design meets relevant industry and professional standards and work is undertaken by appropriately qualified personnel in accordance with good practice. The Peer Review Panel shall operate in accordance with the scope of responsibilities set out in Schedule 3 attached to this consent and comprise at least two independent persons who shall be:
  - a. experienced in landfill design, construction, and management;
  - b. experienced in landfill geotechnical, groundwater and surface water aspects;
  - c. recognised by their peers as having such experience, knowledge, and skill; and
  - d. approved in writing by Waimakariri District Council and Canterbury Regional Council.
26. Prior to submission of any document in relation to landfill waste containment, landfill waste management and land filling for the approval of Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring the Consent Holder shall obtain and provide written comment and endorsement from the Peer Review Panel.
27. The Peer Review Panel shall prepare a six monthly report for the Consent Holder on the adequacy of the following matters:
  - PRP membership and deliberations
  - matters reviewed and reported
  - approvals given
  - geotechnical investigations
  - engineering final design
  - construction activity
  - construction quality assurance
  - lining system performance
  - landfill waste pile stability
  - land movement and stability
  - landfill waste containment
  - leachate containment and collection

- leachate handling and disposal on site
- landfill gas capture
- landfill gas monitoring of fugitive emissions and subsurface migration
- odour
- groundwater and surface water quality
- failures and damage relating to any above topic, and response by WQL.

28. Where the Peer Review Panel does not have expertise in any of the areas it is required to report on, as detailed above, it must, with the agreement of the Consent Holder and Canterbury Regional Council, engage the services of an appropriate expert to report on the relevant matter to the Peer Review Panel. The report shall form part of the review provided by the Peer Review Panel as required by this condition.

Copies of all reports shall be sent to the Consent Holder, the Waimakariri District Council, and the Canterbury Regional Council by 31 August each year, unless otherwise agreed in writing with the Councils.

29. The Consent Holder must action all recommendations and/or directions of the Peer Review Panel.

#### **Access to the site**

30. Prior to the deposition of landfill waste, the consent holder shall construct and maintain a stock proof fence to prevent ready access of unauthorised persons or stock into the Landfill Site area. All fencing shall be maintained by the consent holder for the life of the consent.

31. The landfill site shall not be available to the general public for either the delivery of landfill material or the collection of quarry material. Landfill waste shall be delivered to the landfill footprint only by parties who have been given prior written authorisation by the Consent Holder.

#### **Accidental Discovery Protocol**

32. During earthworks (including quarrying):

- Any activity which may modify, damage or destroy a pre-1900 archaeological site or material must follow the archaeological authority process under the Heritage New Zealand Pouhere Taonga Act 2014. An archaeological authority is required from Heritage New Zealand to modify, damage or destroy any archaeological site, whether recorded or not in the New Zealand Heritage List/Rārangī Kōrero.
- In the event of accidental discovery of any archaeological material, all works must cease immediately in the part of the site known, or suspected, to be an archaeological site.
- The Canterbury Regional Council, Heritage New Zealand Pouhere Taonga and Papatipu Rūnanga, as
- as the New Zealand Police in the case of discovery of kōiwi/human bones,

must be informed immediately of the disturbance, and the archaeological authority process under the Heritage New Zealand Pouhere Taonga Act 2014 must be followed.

- e. In the event of the accidental discovery of Māori archaeological sites or material, the attached accidental discovery protocol for Māori archaeology must be followed in addition to the process under the Heritage New Zealand Pouhere Taonga Act 2014.
- f. To ensure that all statutory and cultural requirements have been met, any works in the part of the site subject to the archaeological discovery must not recommence until authorised by the Canterbury Regional Council and:
  - i. Upon completion of the archaeological authority process referred to under (c); and
  - ii. In the event of the accidental discovery of Māori archaeological sites or material, and in addition to (c) upon completion of the process referred to under (d); and
  - iii. In the event of the discovery of kōiwi/human bones, the New Zealand Police.

## **Site development**

### **General conditions**

33. General earthworks and sediment control measures shall be constructed and carried out in accordance with the principles contained within the Canterbury Regional Council publication Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury. Where the Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury does not cover a particular situation GD05 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region will be utilised. The Consent Holder shall instruct a suitably qualified and experienced person to prepare an Erosion and Sediment Control Plan (ESCP) and submit it to the Canterbury Regional Council for approval prior to earthworks commencing.

34. All works shall be undertaken in accordance with the consent application documents, including:

- The Resource Consent Application as updated by the Proposal Description dated 28 September 2023
- The approved application plans stamped RC215276, and referenced September 2023 Drawing Index Issue 6
- Schedules 1, 2 and 3 to this approval

except where amendments are required by conditions of these consents. In the event of differences or conflict between the measures described in the documents, and the conditions, the conditions shall prevail.

35. The Consent Holder shall construct and maintain appropriate stormwater management measures, including drains and sediment traps for the interception and treatment of

stormwater run-off from the works. These measures shall remain in place over the duration of the construction period and for a period following construction to allow suitable cover of vegetation to establish on restored areas.

*Advice note:*

*For the purpose of this consent stormwater means*

*Surface water runoff that has come in contact with refuse shall not be discharged as stormwater and shall be considered leachate.*

*Surface runoff from the following areas is classified as stormwater:*

- *natural undisturbed catchment areas;*
- *Intermediate cap areas, and*
- *permanent cap areas that are uncontaminated by leachate and refuse subject to the following:*

*Stormwater from capped landfill areas may not be considered as stormwater until the following steps have been undertaken:*

- a. Final Capping has been completed in accordance with the accepted landfill stage design;*
- b. All bare surfaces have been re-vegetated, (minimum grass seeding has taken place).*

36. A sediment pond designed in accordance with the Canterbury Regional Council publication Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury shall be constructed within or immediately adjacent to the Container Transfer Area. Stormwater run-off from the Container Transfer Area shall be collected and treated in this sediment pond prior to discharge. Where the Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury does not cover a particular situation, GD05 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region will be utilized.

37. Stormwater and underdrainage water from the quarry and landfill shall be captured in surface water drains located around the perimeter of the quarry and landfill and shall be discharged to sediment ponds to be constructed downslope to the south of the quarry and landfill footprint in the location shown on the application documents. The under drainage system shall be provided with monitoring points for each landfill cell with provision for diversion to the leachate management system should contamination be detected.

38. The sedimentation ponds shall be designed to manage a 10 percent AEP design flood, with provision to pass a 1 percent AEP design flood. The sedimentation ponds shall be designed in accordance with the Canterbury Regional Council publication Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury. Where the

Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury does not cover a particular situation GD05 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region will be utilised.

39. All permanent diversion channels (surface water drains) shall be designed to manage and be erosion protected to withstand flows from a 1 percent AEP (Annual Exceedance Probability) design flood.
40. Quarry Bench drains and other temporary drains shall be designed for the 10 percent AEP event. Diversion channels shall be designed such that if this capacity is exceeded the preferential (secondary) flow path is, as far as practicable, away from the Landfill.
41. Diversion channels and cut-off drains shall be maintained to minimise the infiltration and run-off of stormwater onto the Landfill from areas outside the Landfill footprint.
42. Scour protection works of concrete, rock or timber construction shall be placed at the outlet of the sedimentation ponds to prevent scour.
43. The Consent Holder shall be responsible for the structural integrity and maintenance of all dam works, and for any erosion control and energy dissipation works that become necessary as a result of the exercise of this consent.
44. As-built drawings shall be forwarded to Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring following completion of principal works and structures, which shall include the sedimentation ponds, toe bund, leachate collection system, landfill gas system, and landfill cells. These drawings shall include:
  - a) 0.5 metre contours for the liner base;
  - b) final elevations of the liner prior to placement of the leachate drainage layer and
  - c) spot levels to plus or minus 10 millimetres at leachate collection sump locations.

They shall also include copies of field records showing details of the exposed ground surface prior to liner placement, including a record of any sub-liner ground improvements undertaken.

45. A certificate signed by the person or persons responsible for designing the principal works and structures of the landfill or a competent person shall be submitted to the Canterbury Regional Council within one month of completion of the principal works and structures associated with each stage of the landfill construction to certify that the works were carried out in accordance with the design plans submitted.
46. There shall be no earthworks (including quarrying) or vegetation clearance within 50m of a water body inside the Landfill Site Boundary except that earthworks and vegetation clearance may take place up to 10m away from the Wetland Boundary of the Upper Wetland.

## **Indigenous Fauna and Flora Management**

47. Prior to vegetation clearance and physical works commencing in those areas within the landfill site which have been identified for vegetation clearance and earthworks (including quarrying), an ecological impact assessment (EcIA), indigenous vegetation (and habitat of fauna) restoration plan, indigenous fauna management plan, wetland management plan and pest management plan shall be prepared by a suitably qualified person, and submitted to WDC Manager of District Plan Implementation for approval. These plans shall become a section of the LMP. The plans shall include, but not be limited to the matters identified in the Ecological Enhancement and Restoration objectives and contents within schedule 2.
48. The Ecological Impact Assessment shall identify ecological values on-site and the appropriate measures to avoid or mitigate the effects on these values. The EcIA shall include, but not be limited to:
- Assessment of the actual and potential adverse and/or positive effects on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity;
  - Identification of areas of significant indigenous vegetation and significant habitat for indigenous fauna;
  - Surveys of indigenous fauna including lizards, birds and bats during suitable survey conditions (September to May);
  - Recommendations for the development of indigenous flora and fauna management plans where deemed appropriate based on surveys.
49. Any ecological management plan/s for indigenous flora or fauna shall be prepared by a suitably qualified and experienced ecologist, and submitted to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring Monitoring for approval. The management plan/s shall include, but not be limited to:
- The provisions of Department of Conservation Wildlife Act Authorisations where appropriate;
  - Department of Conservation's Bat Roost Protocols (BRPs);
  - Address the effects management hierarchy;
  - Schedules for implementation of management plans prior to commencement of physical works.
50. The EcIA shall be used to inform an Indigenous Vegetation (and Habitat of Fauna) Restoration Plan, prepared by a suitably qualified and experienced ecologist, which shall also inform the Landscape Management Plan. The Ecological Impact Assessment, and subsequent Indigenous Vegetation (and Habitat of Fauna) Restoration Plan, Wetland Management Plan and Pest Management Plan shall be submitted to Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring for approval. The plans shall become part of the LMP.
51. Any vegetation clearance or earthworks in areas subject to ecological management plans shall be in accordance with those management plans and supervised and

confirmed as being in accordance with the plan by a suitably qualified ecologist. The confirmation shall be forwarded to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring.

52. If mature Beech forest is removed within the landfill site boundary, an area of existing mature Beech Forest shall be set aside within Lot 1 DP 481768 outside the landfill site boundary. The area to be set aside shall be confirmed by an appropriately qualified and experienced ecologist as being of an equivalent or better ecological value as the area to be removed. A covenant shall be registered on the Record of Title for Lot 1 DP 481768 which shall ensure the ongoing preservation of this area in perpetuity. The Waimakariri District Council shall be a party to this covenant whereby the covenant cannot be removed without Waimakariri District Council approval.

### **Wetland management**

53. A Wetland Management Plan must be prepared by a suitably qualified person and submitted to Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring for approval at least two months prior to landfill physical works commencing. The Wetland Management Plan must include, but not be limited to, the matters identified in the Wetland Management Plan objectives and contents within schedule 2. Any works that may impact on the wetland must be in accordance with the Wetland Management Plan and supervised and confirmed as being in accordance with the plan by a suitably qualified ecologist.

### **Groundwater**

54. Groundwater monitoring wells P1 to P11 must be installed and commissioned at or about the locations shown on Drawing E2.2, which is attached to and forms part of this resource consent. An appropriately qualified hydrogeologist shall be on-site during installation of the monitoring wells.
55. These monitoring wells shall be installed as follows:
- a. Monitoring wells P1 to P10 shall be installed to the base of weathered strata or below and to at least 1 metre below the base of the landfill drainage blanket elevation with plain casing to 1 metre depth and screened to the base.
  - b. Monitoring well P11 shall be installed to a depth of 10 metres to intercept the expected thickness of weathered rock with plain casing to 1 metre depth and screened to the base.
56. Following the installation of monitoring wells in accordance with condition 55, the consent holder shall monitor each well as follows:
- a. Every month for at least 12 months prior to landfill physical works for the landfill, and quarterly thereafter for the Schedule A parameters.
  - b. Every three months for at least 12 months prior to landfill physical works for the landfill, and annually thereafter for the Schedule B parameters.
  - c. In all instances monitoring shall comprise measurement of groundwater levels and water quality sampling.

57. Groundwater sampling undertaken in accordance with condition 56 shall follow the procedures defined in the Groundwater Monitoring and Response Plan (GWMRP) for the site. The Objectives and Content of the GWMRP are detailed in Section 10 of Schedule 2 LMP and shall form part of the LMP. The GWMRP must be issued to CRC for review and approval at least one month prior to installation of the groundwater monitoring system.

58. Groundwater samples taken in accordance with condition 56 shall be analysed for the following determinands:

Schedule A	Schedule B	
pH	pH	Copper
Electrical conductivity	Electrical conductivity	COD
Temperature (for information only)	Bicarbonate	Dissolved iron
	Boron	Lead
	Calcium	Magnesium
	Chloride	Manganese
	Total hardness	Mercury
	Total alkalinity	Nickel
	Dissolved Reactive Phosphorus	Nitrate
	Ammonia	Potassium
	Dissolved Aluminium	Sodium
	Dissolved Arsenic	Sulphate
	Dissolved Cadmium	Total Petroleum Hydrocarbons
	Dissolved Chromium	Dissolved Zinc

59. pH and electrical conductivity shall be monitored using field meters which are calibrated in accordance with the manufacturer's instructions. A full record of calibration shall be maintained and submitted as part of the reporting defined in Condition 63. All other parameters shall be analysed by an IANZ accredited laboratory.

60. Sample results collected in accordance with Condition 56(a) (excluding temperature) for the 12-month monitoring period shall be analysed to define an initial baseline range (maximum-minimum). This range shall be reviewed after two years and updated on an ongoing basis using sampling results from upgradient monitoring well P11.

61. Sample results collected in accordance with Condition 56(a) (excluding temperature) after deposition of landfill waste at the landfill shall be compared to the range for each parameter defined in accordance with Condition 60. The following actions shall be undertaken in the event that any sample falls outside of the range:

- collection of a confirmatory sample from the well(s) in which out of range value was recorded;
- if the out-of-range value is confirmed, collect a sample for that well and analyse the sample for parameters in Condition 58 Schedule B and follow the procedure in

condition 62.

62. Sample results collected in accordance with Condition 61(b) shall be compared to the most recent version of the ANZG (Australian and New Zealand Guidelines for Fresh and Marine Water Quality) 95% species protection levels, which shall be used as trigger levels. If any sample exceeds these trigger values, the actions defined in the Monitoring and Mitigation Plan to be provided for the landfill shall be implemented. These actions may include:

- collection of a confirmatory sample from the well(s) in which the trigger exceedance was recorded;
- evaluation of whether the exceedance relates to a leachate discharge;
- investigation into the source and pathway of any such leachate discharge;
- investigation of potential surface water effects in accordance with condition 65; and
- implementation of appropriate remedial actions as required.

### **Ground water reporting**

63. The consent holder shall prepare an annual Groundwater Monitoring Report for the year 01 July to 30 June. The report shall be submitted to Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager by 31 August each year. The report shall include:

- a. groundwater level elevation at all installed monitoring wells and a graph of recorded groundwater levels;
- b. the results of laboratory analyses of samples taken from each monitoring well including comparison to the ANZG 95% species protection levels and graphs of key water quality indicator parameters (eg chloride, ammonia, EC, pH) over time;
- c. the maximum, minimum and average concentrations or values for each determinand detected at a concentration exceeding the laboratory detection limit, calculated from the total database of results from all samples analysed to that date;
- d. an assessment of the data to identify whether any consent conditions have been triggered or breached, or if there is any other indication of potential effects on freshwater; and
- e. a summary of any responses to monitoring or communications with Canterbury Regional Council during the year to 30 June.

The report shall be submitted to Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager.

### **Responses to ground water monitoring**

64. If analysis undertaken in accordance with condition 61, 62 or 63 shows that any determinand is detected above levels specified in Schedule A or B, the consent holder shall immediately:

- a. notify the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager; and
  - b. identify the current New Zealand or other relevant standard for the compound/s detected and identify the risk or potential risk to human health or the environment from the presence of the compound at the concentration detected.
65. If a risk assessment undertaken under condition 64(b) concludes that the concentration or value of a determinand poses an immediate risk to human health or aquatic ecosystems the consent holder shall:
- a. immediately notify the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager; and
  - b. prepare a Remedial Action Plan that includes all practicable measures to protect human health and the environment. These measures may include:
    - i. evaluation of the source of the contaminant(s); and
    - ii. evaluation of the appropriateness of monitored natural attenuation; and/or
    - iii. removal of material that is the source of the contamination or cap the area of the fill that contains the source material; and/or
    - iv. in situ or ex situ treatment of the groundwater plume.
  - c. The Remedial Action Plan shall be submitted to Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager for accreditation within 1 month of completion of the risk assessment from condition 64(b);
  - d. Implement all necessary measures to protect human health and the environment in accordance with the accredited Remedial Action Plan.

## **Surface water**

### **Baseline monitoring**

66. A minimum of one month prior to landfill physical works commencing, the consent holder must have completed an assessment of instream biota, surface water quality, and a quantitative habitat assessment of the Woodstock Stream, and a habitat assessment of the ephemeral stream to the east of the landfill. These assessments must be done at the sites identified in Table 2 and Drawing E2.1 (Monitoring sites for biota study and biannual water sampling). A final report of the findings of the assessments along with a monitoring program report must be provided to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring for approval within three months of the first deposition of landfill waste. The assessment must take place at the sites on the Woodstock Stream listed in Table 2, and must, as a minimum, include:
- a. A quantitative habitat assessment conducted in accordance with the *Stream Habitat Assessment Protocols for wadeable rivers and streams of New Zealand* (2009); and
  - b. 12 consecutive monthly water samples. These water samples must be analyzed for all of the parameters set out in Condition 71 below; and
  - c. Two rounds of quantitative macroinvertebrate sampling collected between 10 months and 14 months. This sampling shall be conducted in accordance with the *Protocols for sampling macroinvertebrates in wadeable streams* (2001);

and

- d. Two rounds of fish sampling conducted at the same time as the macroinvertebrate samples. This sampling must be conducted in accordance with the *New Zealand Freshwater Fish Sampling Protocols* (2013).

67. A minimum of one month prior to landfill physical works commencing, twelve months of continuous monitoring for pH and conductivity must have been completed at the sites identified in Table 1. The results of this monitoring must be included in the final report required under Condition 66.

68. Within three months of the first deposition of landfill waste in the landfill, the Consent Holder must monitor water quality in the Woodstock Stream at or near the locations set out in Table 1 and shown on Drawing E2.1, with final sites to be provided to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring for approval. Monitoring must comprise measurement of pH and conductivity at the surface water locations set out in Table 1 and shown on Drawing E2.1:

Table 1: Continuous surface water monitoring sites.

Site	Description	Reason for monitoring	NZTM X	NZTM Y
Woodstock Stream DS1	Located ~40 metres downstream of where any discharges from the sediment retention pond (SRP) discharge enter the Woodstock Stream	Detect direct leachate discharges to the Woodstock Stream	1517729	5209785
Woodstock Stream DS2	Located ~40 metres downstream of where the ephemeral stream to the south of the landfill enters the Woodstock Stream.	Detect direct leachate discharges to the Woodstock Stream and indirect discharges from ephemeral stream to the south of the proposed landfill	1518554	5208976

69. Site Specific trigger levels for response to monitoring of surface water quality must be set by an appropriately qualified person using the following:

- a. pH = the mean plus or minus three standard deviations of the 12 months of continuous pH monitoring data collected in accordance with Condition 67 at each of the sites in Table 2.
- b. Conductivity = the mean plus three standard deviations of the twelve months of continuous conductivity monitoring data collected in accordance with Condition 67 at each of the sites in Table 2.

70. The Consent Holder must submit a report to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring with the trigger levels set as of condition 69 for approval within two months of the analysis.

## Operational monitoring

71. The Consent Holder must monitor for the following parameters twice a year at the locations identified in Table 2 and Drawing E2.1, to coincide with low flows during the winter groundwater level maximum (generally September) and summer groundwater minimum (generally April):

- a. estimate of flow
- b. pH (field and laboratory)
- c. conductivity (field and laboratory)
- d. BOD5
- e. chloride
- f. potassium
- g. ammoniacal nitrogen
- h. nitrate nitrogen
- i. total nitrogen
- j. total and dissolved reactive phosphorous
- k. potassium
- l. total and dissolved zinc
- m. total and dissolved copper
- n. total and dissolved chromium
- o. dissolved arsenic
- p. total and dissolved nickel
- q. total and dissolved lead
- r. hardness
- s. total and dissolved boron
- t. suspended solids.

Sampling must be undertaken in accordance with protocols approved in writing by Canterbury Regional Council. The results of such monitoring must be interpreted by a suitably qualified expert and reported in writing to the Canterbury Regional Council as part of the Surface Water Monitoring Report required by Condition 70.

Table 2: Monitoring sites for biota study and biannual water sampling

Site	Description	Reason monitoring for	NZTM X	NZTM Y
Woodstock Stream US	Located ~ 300 metres upstream of where any discharges from the SRP discharge enter the Woodstock Stream	Provide a reference site against which water quality and ecology at Woodstock Stream DS1 and Woodstock Stream DS2 can be benchmarked	1517649	5210183

Woodstock Stream DS1	Located ~40 metres downstream of where any discharges from the SRP discharge enter the Woodstock Stream	Detect effects of direct leachate discharges and SRP discharges to the Woodstock Stream	1517729	5209785
Woodstock Stream DS2	Located ~40 metres downstream of where the ephemeral stream to the south of the landfill enters the Woodstock Stream.	Detect effects of direct leachate discharges to the Woodstock Stream and indirect discharges from ephemeral stream to the south of the proposed landfill	1518554	5208976
Eastern Ephemeral Stream	Located in the middle reaches of the ephemeral stream to the east of the landfill site	Detect effects of leachate discharges	1519046	5209749

72. Sample results collected in accordance with Condition 71 must be compared to the most recent version of the ANZG 95% species protection levels, which must be used as trigger levels for response.

73. The Consent Holder must monitor for the following macroinvertebrate parameters:

- a. taxa richness,
- b. MCI,
- c. QMCI,
- d. %EPT taxa and
- e. %EPT individuals

once a year at the following locations identified in Table 2 and Drawing E2.1

- f. Woodstock Stream US
- g. Woodstock Stream DS1, and
- h. Woodstock Stream DS2

Sampling must be undertaken in accordance with protocols approved in writing by Canterbury Regional Council. The results of such monitoring must be interpreted by a suitably qualified expert and reported in writing to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring as part of the Surface water Monitoring Report required by Condition 74.

#### Surface water monitoring reporting

74. The Consent Holder must prepare an annual Surface water Monitoring Report for the year 01 July to 30 June. The report must be submitted to Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager by 31 August each year. The

report must include:

- a. the results of laboratory analyses of samples taken from monitoring site and compared to the ANZG 95% species protection levels;
- b. an assessment of the ecological and water quality data collected in accordance with Conditions 68, 71 and 73 to identify whether any consent conditions have been triggered or breached, or if there is any other indication of potential effects on freshwater; and
- c. a summary of any responses to monitoring or communications with Canterbury Regional Council during the year to 30 June.

#### Response to surface water monitoring

75. If the trigger levels for response in Condition 62, 69 or 72 above are exceeded the consent holder must investigate the likely cause and effects of the exceedance and implement the actions defined in the Surface Water Monitoring and Response Plan (SWMRP). The Objectives and Contents of the SWMRP are detailed in Section 11 of Schedule 2 LMP and shall form part of the LMP. As a minimum these actions will include:

- a. collection of a confirmatory sample from the sites at which the trigger exceedance was recorded within 24 hours of the exceedance being detected;
- b. evaluation of whether the exceedance relates to a leachate discharge;
- c. investigation into the source and pathway of any such leachate discharge;

and if the results of (a) to (c) confirm that a leachate discharge has occurred:

- d. quantitative macroinvertebrate sampling conducted in accordance with the Protocols for sampling macroinvertebrates in wadeable streams (2001) at the locations identified in Condition 73 (f) to (h).
- e. fish sampling conducted in accordance with the New Zealand Freshwater Fish Sampling Protocols (2013).
- f. evaluation of the results of ecological monitoring conducted in accordance with (d) and (e) and water quality sampling conducted in accordance with Condition 71 by a suitably qualified and experienced freshwater scientist to determine whether the discharge of leachate has resulted in an adverse effect on aquatic life. As a minimum this evaluation will include:
  - i. Upstream – downstream comparisons of:
    1. Native fish species presence-absence, and
    2. The macroinvertebrate metrics listed in Condition 73(a) to (e), and
    3. Toxicant concentrations and exceedance frequency of the most recent version of the ANZG 95% species protection levels; and
  - ii. Comparisons with the baseline data collected in accordance with Condition 66; and
  - iii. Trend analysis of macroinvertebrate data collected in accordance with Condition 66(c) and Condition 73, and
  - iv. If necessary, a description of the additional data required to fully understand and manage the adverse effects of the leachate discharge through the Remedial Action Plan described below in Condition 76.

76. If the effects assessment undertaken in accordance with Condition 75 concludes that there is evidence of a leachate discharge causing any of the following adverse effects:
- i. Toxicant concentrations at the locations identified in Condition 73(f) to (g) is exceeding the greater of:
    - a. The most recent version of the ANZG 95% species protection levels,
    - b. The 80<sup>th</sup> percentile of samples collected at the locations identified in Condition 73(f) to (g) prior to leachate discharge, and
    - c. The 80<sup>th</sup> percentile of samples collected at the 'Woodstock Stream US' site in Table 2 and Drawing E2.1.
  - ii. A 20% decrease in QMCI (determined through equivalence testing) at the following sites, where such a decrease was not observed prior to the leachate discharge:
    - a. Woodstock Stream US and Woodstock Stream DS1,
    - b. Woodstock Stream US and Woodstock Stream DS2, or
    - c. Woodstock Stream DS1 and Woodstock Stream DS2.
  - iii. Any other adverse effects deemed to be more than minor by the suitably qualified and experience freshwater scientist responsible for fulfilling (f) of Condition 75.

The consent holder shall immediately:

- iv. notify the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring; and
- v. prepare a Remedial Action Plan that includes all practicable measures to protect the environment. These measures may include:
  - a. evaluation of the source of the contaminant(s); and
  - b. removal of material that is the source of the contamination or cap the area of the fill that contains the source material; and/or
  - c. in situ or ex situ treatment of the groundwater plume.
  - d. further technical investigation of the adverse effects of the leachate discharge on aquatic life, where this is identified as necessary under Condition 75(f)(iv).
  - e. actions to offset or compensate for any residual effects that cannot be minimized or remediated through i-iv.
- vi. The Remedial Action Plan shall be submitted to Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring for approval within 1 month of completion of the effects assessment from condition 75.
- vii. Implement all necessary measures to protect aquatic life in accordance with the accredited Remedial Action Plan.

77. A minimum of one month prior to landfill physical works commencing, twelve months of continuous water quality monitoring for the parameters listed in condition 71 must have been completed at the surface water take from the Eyre River at 402 Trig Road. The results of this monitoring must submitted to Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring and be used to establish existing water quality at the water take point. Following deposition of landfill waste in the landfill

commencing, water quality testing at this water take point must be done once every six months, at the cost of the Consent Holder, and compared to the baseline information. If the results of the water quality testing confirms water quality degradation in the Eyre River at the water take point has resulted from leachate contamination such that the quality of the water does not achieve either the baseline or the quality required for the permitted or consented purpose of the water take, whichever is the lower quality, the Consent Holder shall provide an alternative supply of water of an equivalent quantity and quality to the baseline until such time that the water quality in Eyre River at the point of take meets the baseline or permitted or consented purpose of the take, whichever is the lower quality.

## **Conditions for 214073/214077 only (excavation and landfill)**

### **General conditions**

78. The works authorised under this consent are limited to earthworks (including quarrying) and landfill activities being the following:

- a) Site preparation activities including vegetation, topsoil and overburden stripping, removal and storage;
- b) Construction and maintenance of bunds, stockpiles and operational infrastructure;
- c) Excavation (including blasting), loading and transportation of material;
- d) Processing of aggregate by crushing and screening;
- e) Stockpiling of excavated aggregate;
- f) Deposition of landfill waste material.

at, 513 Trig Road, Woodstock Road legally described as Lot 1 DP 481768, as shown on approved plan set stamped CRC214073.

All works shall be undertaken generally in accordance with the consent application documents (where applicable), including the drawings included in the Drawing Index attached to this consent except where amendments are required by conditions of these consents. In the event of differences or conflict between the measures described in the documents, and the conditions, the conditions shall prevail. The activities consented to are limited to earthworks (including quarrying), landfill construction, landfill operations, landfill capping and associated works as shown on Drawings Revision 6 and described as follows:

- h) Earthworks activities including vegetation, topsoil and overburden stripping, excavation (including by blasting), loading and transportation of material, and cut to fill of material;
- i) Processing of aggregate by crushing and screening, storage of processed material, and transport of rock and processed material;
- j) Extraction of clay resources C1 and C2 shown on Drawing F7 (Rev G) Stockpiles and Fill and remediation of the extraction area;
- k) Construction and maintenance of bunds and stockpiles;
- l) Construction and maintenance of associated erosion and sediment control facilities;
- m) The stockpiling of imported construction materials;

- n) Construction and maintenance of landfill cells including construction of underdrainage, liner, and leachate drainage systems;
- o) Deposition of landfill waste material. For the purposes of this consent, landfill means material that complies with the Waste Acceptance Criteria (Schedule 1 of this consent);
- p) Landfill capping and remediation;
- q) Construction and maintenance of the Container Transfer Area and associated erosion and sediment control facilities, shown on Container Transfer/Site Facilities Drawing F1;
- r) Upgrade of existing haul roads as required by conditions of this consent.

79. The extent of the landfill area, where landfill waste is to be deposited, must not extend beyond the broken pink line shown as the Extent of the Landfill on Drawing B2 (Rev R) Remediated Surface with toe bund included in the approved plan set stamped CRC214073.

80. The extent of combined landfill activity operations as identified on the approved plans, must not extend beyond the orange line shown as Landfill Site Boundary on Drawing B6 Remediated Surface with toe bund included in the approved plan set stamped CRC214073.

### **Bond**

81. Prior to the first exercise of this consent, the Consent Holder shall enter into an enforceable written agreement acceptable to the Waimakariri District Council and Canterbury Regional Council, that provides for a bond in favour of both Councils pursuant to sections 108(2)(b) and 108A of the Resource Management Act 1991. The purpose of the bond is for the following:

- (a) Secure compliance with all the conditions of consents RC215276, CRC214073, CRC214074, CRC214075, CRC214076 and CRC214077 and enable any adverse effects on the environment resulting from the Consent Holder's activities, and not authorised by a resource consent or rule in any relevant District or Regional Plan, to be avoided, remedied or mitigated. This will include a provision for plausible risks or events that could potentially arise and require remedial works to prevent adverse environmental effects (Compliance) including a provision for any on-site and off-site ecological enhancement or restoration to the extent that it is required in the response to the works that have occurred as part of giving effect to the consent.
- (b) Secure the completion of closure and rehabilitation in accordance with the approved Aftercare section of the Landfill Management Plan, including any future approvals, resource consents acquired and obtained to cover aftercare,

including reasonable provision for early closure events and associated costs in the event of abandonment of the site (early closure):

- (c) Ensure the performance of any monitoring obligations of the Consent Holder under this consent post closure, as well as any site aftercare obligations such as care of the landfill cap and pollution prevention infrastructure (aftercare).

82. The amount (quantum) of the bond shall be adjusted over time as determined by any review conducted in accordance with Condition 88, provided that at any given time the amount shall be sufficient to cover the estimated cost at that time (including any contingency) of the bond components outlined in Condition 83.

83. The quantum for the components in Condition 82 shall be determined as follows:

(a) Part 1 – Compliance

The Part 1 component of the bond shall be derived based on reasonably foreseeable contingency scenarios defined in Appendix 7 (Environmental Risk Assessment Report Issue 2) of the Resource Consent application. This component of the bond shall be required for as long as the landfill activity is receiving landfill waste.

The amount shall include provision for the cost of monitoring, site management and regulator inputs required by the resource consents.

(b) Part 2 – Closure

The Part 2 component of the bond shall be calculated by determining the likely maximum cost (including a 10% contingency) to close and secure the site at any point within a 5 year period following the review date. The Part 2 bond quantum will be derived in current day dollars. Where a risk based approach is adopted to assess potential remedial or other costs associated with the bond quantum, then costs shall be assessed to the 90% confidence limit using appropriate engineering methodology.

The amount shall include reasonable provision for all works necessary to close the site, including but not limited to the following:

- (i) Allowance for repair of damage associated with plausible early closure scenarios including, if applicable, repair of damage due to earthquake or extreme weather events.
- (ii) Allowance for remediation of any adverse effect on the environment that may arise from the site relating to plausible early closure scenarios.
- (iii) Allowance for the full extent of the works needed to complete final capping, revegetation, leachate and gas collection infrastructure and removal of any redundant site infrastructure.
- (iv) Allowance for any other rehabilitation work required by the sections on closure and aftercare in the Landfill Management Plan.

- (v) Allowance for the cost of monitoring, site management and regulator inputs required by the resource consents during closure works.

(c) Part 3 – Aftercare

The Part 3 component of the bond shall be calculated as the Net Present Value of all aftercare costs and shall be based on the cost elements as set out in the Ministry for the Environment Landfill Full Cost Accounting Guide March 2004. Aftercare costs shall be assessed as series of individual cost items, appropriately assessed over the duration of the aftercare period, with the amounts to be inclusive of contingency and a reasonable allowance for capital works or capital equipment replacement. This component will be developed using commercial financial parameters appropriate at the time of the initial assessment subject to amendment by scheduled review.

- 84. The amount of the bond required by Condition 82 shall be initially set on the basis of cost estimates prepared by the Consent Holder and detailed in a bond report. The bond report shall be submitted to the Councils for review and approval prior to the commencement of placement of landfill waste at the site. The amount of the bond shall cover costs associated with the three components defined in Condition 83.
- 85. An experienced practitioner shall conduct the assessment required to prepare the bond report. The method of conducting the bond assessment shall be documented in the bond report. The bond report shall include all assumptions made in completing the quantitative risk assessment.
- 86. The Consent Holder's bond shall be in a form agreed between the Consent Holder and Councils and shall, subject to these conditions, otherwise be on terms and conditions agreed between them. The Consent Holder's bond shall name the Councils as the parties able to draw on the bond. The bond shall be available to the Councils regardless of whether the qualifying event for payment of the bond is the result of any deliberate or inadvertent act of the Consent Holder or its agents.
- 87. Should the Consent Holder and the Councils be unable to reach mutual agreement on the form, terms and conditions, or amount of the bond, in either the establishment of the bond in accordance with Condition 81 or for the quantum for the components set out in Condition 83 or in subsequent review of the bond or in terminating the bond, then the matter shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1996. Arbitration shall be commenced on advice by either party that the bond is disputed, such notice to be given within 14 days of receipt by the Councils of the bond established or proposed to be established by the Consent Holder. If the parties cannot agree upon an arbitrator within 7 days of receiving advice that the bond is in dispute, then an arbitrator shall be appointed by the President of Engineering New Zealand. Such arbitrator shall give an award in writing within 30 days after his/her appointment, unless both parties mutually agree that time shall be extended. The parties shall bear their own costs in connection with arbitration. In all other respects, the provisions of the Arbitration Act 1996 shall apply. If the decision of the arbitrator is not made available by the 30th day after appointment of the

arbitrator, then the bond shall be fixed by the Councils, until such time as the arbitrator does make his/her decision. The Consent Holder shall establish or re- establish the bond in accordance with the arbitrator's decision within 60 days after the decision.

88. The quantum of all components of the Consent Holder's bond shall be reviewed every five years from the first placement of refuse at the landfill, by means of review of the bond report. If, on review, the quantum of the bond to be provided by the Consent Holder varies by more than 10% of the sum secured by the current bond, then within 60 days of the Consent Holder being given written notice by the Councils of the new amount to be secured by the bond, the Consent Holder shall execute and lodge with the Councils a variation of the existing bond or a new bond for the amount fixed on review by the Councils.
89. The Consent Holder may apply to have the bond amended, discharged or reviewed at any time, in which case the Councils must advise the Consent Holder of their decision on the application within 60 days of them receiving the application. An application by the Consent Holder to amend the amount of the bond must be supported by a bond report, giving consideration to the following:
- (a) Environmental performance, including verification that groundwater and surface water are not polluted as a result of the landfill activities;
  - (b) Extent to which the planting programme has been completed;
  - (c) Degree of landfill waste stabilisation, as reflected in the results of monitoring of settlement, landfill gas and leachate; and,
  - (d) Integrity of closure works, including the landfill cap and surface water controls.
90. The bond shall continue to be maintained in favour of both Councils throughout the aftercare period and must be adjusted at the periodic reviews to align with future conditions at the site following closure. Unless otherwise defined in these conditions, the aftercare period commencement date shall be no earlier than the date of completion of capping of the final landfill cell, or the date of closure following abandonment prior to the final landfill cell being completed. If the landfill has been monitored and a bond report approved by both Councils affirms that there are no existing or predicted adverse environmental effects from the landfill operation, then both Councils may at their discretion discharge any remaining component(s) of the bond. The bond period may at the Councils discretion be extended beyond 30 years following site closure, if the bond report at that time indicates that the landfill continues to pose an ongoing unacceptable risk to the environment such that there is an ongoing requirement for aftercare.
91. All costs relating to the bond including the costs of the consent authorities and their technical experts must be paid by the Consent Holder, other than in relation to arbitration (see above), in which case both parties shall bear their own costs.

92. The Consent Holder must supply separate Closure and Aftercare Plans within 5 years of the first deposition of landfill waste in the landfill and update the plans every 5 years. The plans must consider the surrounding environment and any changes that may have occurred over the 5 years as well as the scope outlined in schedule 2. The Plans must be reviewed by the Peer Review Panel every 5 years prior to being sent to the Councils for approval.

## **Site development**

### **General conditions**

93. The existing bund along the south-eastern edge of the quarry operation must be maintained at all times, except when required to be reconstructed to create the toe bund for the landfill. The bund must be constructed only of excavated aggregate, cleanfill and topsoil from the site.

### **Construction Quality Procedures**

94. The bedrock under the landfill must be inspected by a suitably qualified and experienced geologist prior to installation of the landfill liner system to identify any area of potentially high permeability. Any areas of potentially high permeability must be treated, appropriately drained and sealed as required to remedy the area to a non-permeable state.
95. The bedrock on the landfill sidewalls must be inspected by a suitably qualified and experienced geologist prior to installation of the landfill liner system to identify any area of potential weakness or instability. Any areas of weakness or instability must be repaired in accordance with the directions of the engineering geologist.
96. Leachate drainage and liner grades must be configured such that the design maximum head of leachate on the liner is no greater than 300 millimetres over all areas of the liner apart from a sump area where the maximum head of leachate must not exceed 1.5 metres.
97. The Consent Holder must prepare a site plan showing the final concept leachate collection system. This plan must include, as a minimum, the compartmentalised leachate collection system, leachate sumps, sump pumps, power supply to the sump pumps, leachate riser pipes and leachate clean-out pipe locations.
98. The Consent Holder must prepare a site plan showing the final concept subliner drainage system. This site plan must include as a minimum:
- i. The lateral extent of the underdrainage/subliner drainage system.
  - ii. Where the subliner drainage system terminates in an inspection manhole.
  - iii. How the inspection manholes are linked prior to discharge into the common discharge network to the sedimentation ponds.
99. The Consent Holder must prepare a site plan showing the final concept leachate leak detection system. The site plan must include as a minimum:

- a) The lateral extent of the leachate leak detection system.
  - b) The leachate leak detection system pipework located under the Southern Toe Bund.
  - c) The pipework terminations in a leachate inspection manhole.
  - d) How the leachate inspection manholes are linked prior to discharge into the Leachate Storage Facility.
100. The drainage layer beneath the landfill liner must be a minimum thickness of 100mm and comprise gravels with an average hydraulic conductivity of  $1 \times 10^{-03}$  m/s or more.
101. The landfill underdrainage system must be maintained and discharges from that system monitored for the life of the landfill and the aftercare period.
102. In addition to standard soil classification testing requirements for soil liners (including those in WasteMINZ, Technical Guidelines for Disposal to Land 2018 – Appendix B, B.1 Landfill liners), the loess soil to be used for a Type 1 lining system must be assessed as part of the detailed landfill design for its suitability for use as a low permeable mineral liner within the landfill liner design by:
- a. Determining through a dispersivity test what percentage of stabiliser is required to stabilise the loess and reduce its dispersivity to a non-dispersive status. The dispersivity test shall be undertaken in both de-ionised water and a leachate equivalent solution;
  - b. Assessing the change, if any, in the Atterberg limits of unstabilised loess against stabilised loess. The Atterberg limits shall be determined using NZS 4402:1988 Test 2.4; and
  - c. Using a triaxial cell, assessing the change, if any, in saturated hydraulic conductivity of a re-compacted stabilised sample of loess across a range of moisture contents and strains, using first de-ionised water, then a leachate equivalent solution.

If loess soils do not meet required Type 1 lining system requirements, stabilisers may be used.

103. A minimum of five of each of the dispersivity, Atterberg limits and saturated hydraulic conductivity tests must be undertaken on the loess to ensure representative results are obtained. The results of this testing must inform the landfill design and assessment of the suitability of stabilised loess as a component of the liner design. Stabilised loess must be assessed as not acceptable if there is an increase in hydraulic conductivity of the material caused by suspected brittle micro-fracturing. The tests must be carried out on representative samples of loess taken from areas intended to be used as liner materials. Should additional sources be identified later, then further samples, representative of those additional borrow areas, must be taken and tested.
104. If loess is identified as unsuitable for use as a mineral component of the landfill liner, alternative materials must be considered as part of the liner design. Where an

alternative and remote source for the mineral liner component is required, the material must be confirmed as being suitable in accordance with the same level and type of pre-characterisation testing as required for loess under conditions 1 and 2 of this consent.

105. The detailed design of the landfill must include slope stability analysis to verify that the landfill will be stable in the short (construction/operation) and long- term (closure/post closure). This must include geotechnical stability analysis of the proposed sub-grade arrangement for each stage based on the proposed excavation/filling arrangement.
106. The analysis must adopt the following relevant factors of safety (FOS) adopted for landfill industry practice, with justification provided for any deviations from these values.:

<b><i>Design Scenario</i></b>	<b><i>Minimum FOS</i></b>	<b><i>Or Maximum Displacement Liner</i></b>	<b><i>Or Maximum Displacement Capping</i></b>
<i>Static long term</i>	<i>1.5</i>		
<i>Static short term</i>	<i>1.2</i>		
<i>Static – elevated leachate levels</i>	<i>1.1</i>		
<i>SLS Earthquake (150 year)</i>	<i>1.0</i>	<i>&lt;0.3m</i>	<i>&lt;1.0m</i>
<i>ULS Earthquake (2500 year)</i>	<i>1.0</i>	<i>&lt;0.5m</i>	<i>&lt;2.0m</i>

107. The detailed design of the landfill must include stability analysis to verify the placement of landfill waste achieves landfill waste stability as set out in Condition 106 in the short (construction/operation) and long-term (closure/post closure) and ensures the interface friction angle at the base of the landfill between the landfill waste and liner protects against a base slide failure or a potential circular slip failure through the base. This must include:
  - a. Veneer slope stability analysis of the proposed liner and capping arrangements for each stage.
  - b. Landfill waste stability analysis of the proposed landfill stages
108. The analysis must utilise site specific parameters where possible for the various materials, and/or publicly available material data where site-specific information is not available. Where publicly available material data is used, a verification programme must be included as part of the detailed design documentation provided to CRC for review and approval to verify that the construction materials align with any assumptions made as part of the slope stability analysis.

109. As part of the detailed design, the latest seismic design standards must be adhered to. A sensitivity assessment shall also be carried out for design events with a range of PGAs above and below the specific SLS and ULS events to consider and address possible uncertainties in the performance of the landfill.

### **Lining system**

110. Prior to the commencement of landfill activities in an active operations area, the area subject to landfill activities must be constructed and lined in accordance with Drawings C1 to C5 and in accordance with the following requirements:
- The lining system must be installed to the relevant GRI standards with Quality Assurance (QA) overseen by a party independent from the lining installer, contractor, or landfill operator. The purpose of the QA process is to provide reliability that the lining system has been installed to landfill industry accepted standards.
  - The construction specification must specify the standards to be achieved and the quality control testing required by the contractor to demonstrate compliance with the specification. The QA process comprises an oversight of the testing undertaken by the contractor, continuous observation of lining system placement and testing, and a review of all quality control documentation produced by the supplier and contractor.
  - Items that are observed and reviewed as part of the QA process must include:
    - All specified manufacturing QA documentation and independent laboratory testing of the geosynthetic materials supplied by the manufacturer;
    - All compaction testing associated with installing the cohesive soil liner (strength, density, moisture content, air voids);
    - Permeability testing of the placed cohesive soil layer by an independent accredited laboratory;
    - Thickness of the compacted cohesive soil layer;
    - Approval of the cohesive soil surface for placing any geosynthetic lining components;
    - Approval of the geosynthetic liner placement methodology and panel layout;
    - Observation of placing, welding, and testing of geosynthetic lining components to include:
      - a) Shear and peel testing of test weld samples at the commencement of each day and when weather conditions change;
      - b) Shear and peel testing of destructive test samples;
      - c) Air pressure testing of all dual track fusion welds;
      - d) Vacuum box or spark testing of all extrusion welds;
      - e) Visual inspection of the completed surface;

- Review of all construction records;
- Fulltime or alternative by GPS limited controlled machines or equivalents.
- On completion of the construction of the liner system, a report must be prepared to include all the test results, a description of the observations undertaken and certification that the lining system has been installed in accordance with the specifications. This report must be submitted to the Peer Review Panel (PRP) who would make recommendations to Environment Canterbury, prior to any landfill waste being placed in that cell.

## **Review and completion of works**

111. At least 3 months prior to commencing construction of the landfill lining system, the Consent Holder must prepare, for the review of the PRP and for approval by CRC, a Landfill Liner Quality Plan (LLQP) for construction of the lining system. The LLQP must set out how the Consent Holder will verify that the constructed lining system meets the specified requirements. It shall also set out any reporting requirements. The PRP shall provide their recommendation for CRC to certify the LLQP. All work shall be carried out in accordance with the certified LLQP. The Objectives and Content of the LLQP are detailed in Section 3 of Schedule 2 LMP and shall form part of the LMP.
112. The PRP must:
  - a) As far as practicable notify CRC and WDC in writing 2 weeks prior to all site inspections and meetings with the Consent Holder.
  - b) Copy CRC and WDC into all communication.
  - c) Annually prior to undertaking its functions, consult with the Consent Holder, CRC and WDC on areas to focus on.
  - d) Provide all reports including drafts simultaneously to the Consent Holder, CRC and WDC.

## **Site Elevation Survey**

113. Prior to undertaking quarry activities associated with landfill activities, the consent holder must establish a surveyed datum point at natural ground level in an area that will not be excavated. This point must thereafter be used to determine the depth of excavation at any point within the site.
114. Prior to the removal of overburden, the consent holder must survey the site to determine elevations of the natural ground level of the site relative to Mean Sea Level. The s
115. urvey shall be undertaken by a registered surveyor to an accuracy of +/- 200 millimetres vertically and be provided to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring.

116. Once aggregate excavation has commenced the consent holder must undertake, at six monthly intervals or otherwise on request from the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring, a laser level survey of all depths of excavated and filled areas on the site. The survey shall be provided to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring. The survey is not required if there has been no excavation or deposition of landfill in the preceding six-month period. Alternative methods for achieving this condition, such as GPS depth technology on excavation machinery may be used subject to approval in writing from the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring.

### **Lining system**

117. The landfill liner must be designed and installed in accordance with Drawing C5, or an alternative design as certified by the Peer Review Panel and approved by the Canterbury Regional Council. Subject to achieving accepted industry and professional design standards, as confirmed by the Peer Review Panel, the liner must, as a minimum, include the following components:
- Underdrainage
  - Protective geotextile layers
  - Graded fill
  - Compacted clay liner
  - Geosynthetic clay liner
  - Textured HDPE layer of minimum 1.5mm thickness
  - Leak detection drainage layer
  - Leachate drainage layer

### **Landfill Operation**

#### **General conditions**

118. Accepted material must be recorded in a digital database, with the database record being provided to the Canterbury Regional Council, Regional Leader – Compliance Monitoring upon request, and including as a minimum the following information:
- a. The time and date of delivery at the weighbridge;
  - b. The name of the landfill waste generator;
  - c. The name of the landfill waste hauler;
  - d. The details of the landfill waste haulers vehicle;
  - e. The unique identifier of each container;
  - f. The details of the Waste Permit under which the waste has been approved for disposal;
  - g. The unique identifier of the manifest for each container;
  - h. The weight of the delivered material;
  - i. The date and time of deposition at the landfill face;
  - j. The GPS co-ordinates of the location where the material was deposited on site.

119. The consent holder must have a digital camera system that can verify the time and date of each container as the container either enters or leaves the landfill waste deposition area.
120. Each Waste Permit must include, as a minimum, the following information:
- a. The unique Waste Permit identifier
  - b. The date of issue of the Waste Permit
  - c. The name of the landfill waste generator
  - d. The name of the landfill waste generator's contact person
  - e. The telephone number and email address of the landfill waste generator's contact person
  - f. The address of the site that the landfill waste is being generated from
  - g. The name of the owner of the site where the landfill waste is being generated from
  - h. A description of the landfill waste material
  - i. Any laboratory reports pertaining to the composition of the landfill waste material
  - j. Any authorisation under which the material was removed from the source site (e.g. resource consent)
  - k. Any sampling or other auditing conditions
  - l. The name and signature of the person assessing and determining whether the material was acceptable.
121. Water used for container or landfill face access vehicle washdown, must be treated as leachate, with appropriate storage and re-use within the landfill or disposal off-site to an approved facility.
122. A wheel wash for the landfill waste mule trucks must be installed at the entry/exit point of the current operational waste cell and appropriately utilized to avoid distribution of waste containment material.
123. Landfill waste shall only be discharged onto, or into, land on those areas of the site identified as the Landfill Footprint as shown on the application plans.
124. The Quarry and Landfill Manager (the site manager), or another nominated person, shall be available at all times (including outside site operation hours) to respond to complaints and issues related to quarry and landfill operations at the site.
125. The maximum area of the landfill working face must not be greater than 900m<sup>2</sup> until such time that proven management capability is in place. Following written agreement from Canterbury Regional Council, RMA Monitoring and Compliance Manager that competent landfill working face management is in place, the landfill working face may be increased to a maximum of 1500m<sup>2</sup>.

## **Landfill Annual report**

126. The Consent Holder shall prepare a Landfill Annual Report for the period of 1 July to 30 June each year, and provide this to Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager. The Annual Report shall be provided by 31 August each year and shall include but not be limited to:
- a. a summary of quarry and landfill operations for the year including material amounts; and
  - b. information demonstrating compliance with any other operational limits or restrictions required by current resource consents CRC214073, CRC214074, CRC214075, CRC214076, CRC214077; and
  - c. information demonstrating that the WAC maximum putrescible material content has been complied with; and
  - d. the results of under-drainage discharge monitoring and actions taken where an exceedance is recorded.

## **Hours of operation**

127. The operation for the consented activity shall not be undertaken on Public Holidays and shall be limited to the following hours:

### **Transport Operations Beyond the Boundary of the Site.**

- Between the hours of 7am and 6pm (Monday to Thursday)
- Between the hours of 7am and 5pm (Friday)
- Between the hours of 7am and 11am (Saturday)

### **Earthworks and Landfill operations**

- Between the hours of 6am and 8pm (Monday to Friday)
- Between the hours of 7am and 12pm (Saturday).

## **Waste placement**

128. The operation of the landfill shall be completed in 'cells' of a maximum 50 metres width and 350 metres length and 10 metres height. At the end of each day the working face of the deposited material shall be temporarily capped with:
- clean fill; or
  - soil cover to a minimum depth of 150 millimetres; or
  - an alternative cover that performs to an equivalent or higher standard to a 150 millimetres soil cover, at the end of each working day.
129. The first 3 metres of landfill waste, located on top of the leachate drainage layer, shall be materials of significant permeability such as fine demolition rubble. This 3 metre zone shall not have long lengths of steel or timber, nor contain landfill waste that has sharp edges. Sludges, fine grained materials other than the liner protection layer, special wastes, or landfill wastes with the potential to affect the physical or chemical integrity of the liner including potentially combustible material, shall not be placed within 3 metres of the liner and/or leachate drainage layer.

130. If topsoil is imported to the site, for temporary stockpiling and use in the landfill capping layer at a later date, or imported to the site for direct use in the final capping layer, it shall be tested for the parameters:
- a. Heavy metals (HM): Arsenic, Cadmium, Chromium (total), Copper, Lead, Nickel, Zinc and Mercury
  - b. Polycyclic Aromatic Hydrocarbons (PAH)
  - c. Organochlorine Pesticides (OCP)
  - d. Asbestos (semi-qualitative analysis)
- at a rate of 1 test per 500m<sup>3</sup> of incoming material by an IANZ certified laboratory.
131. Asbestos-contaminated material must be only accepted for deposition at the site if it is:
- a. Composed of soil or building material fragments and does not include bulk asbestos materials;
  - b. Double wrapped in polyethylene material to avoid, as far as practicable, the egress of any material ;
  - c. Accompanied by a description of the form and friability of the material.
132. Rejected material must be retained in the truck/container and removed from the site for and disposal of at another site licensed to receive it within 48 hours of its arrival.
133. If the consent holder becomes aware that material which does not meet the waste acceptance criteria has been deposited, the consent holder must:
- a. Ensure the area is marked and closed off immediately;
  - b. Engage a Suitably Qualified and Experienced Contaminated Land Practitioner to advise on the appropriate disposal location;
  - c. Remove the material from the site within 5 working days; and
  - d. Provide a report to the Canterbury Regional Council, Attention: Regional Leader-Monitoring on how the incident occurred, where the material has been disposed of, validation sampling results and procedures to be implemented to prevent recurrence.

## **Cover**

133. When completed, each cell shall be temporarily capped. The temporary capping shall be placed with a minimum gradient of 1V:20H and a maximum gradient of 1V:3H and shall be contoured to avoid flow concentration of precipitation. The minimum standard for the temporary capping shall be:
- a. 150mm growth layer
  - b. 600mm compacted soil ( $k < 1 \times 10^{-7}$  m/s)

134. The Consent Holder may construct an alternative temporary capping design that is at least the equivalent of the minimum standard above, however, the temporary capping layer shall not include materials with a high (more than 50%) clay content.
135. Daily Cover, Thickened Daily Cover, and Intermediate Cover must be used in accordance with the following guidelines:
- a. Daily Cover (DC): 150 mm thick soil, placed in one single layer, use DC on site up to one month, maximum allowable area: 5,000 m<sup>2</sup>.
  - b. Thickened Daily Cover (TDC): 300 mm thick soil, placed in two layers, use TDC on site up to 3 months, maximum allowable area: 20,000 m<sup>2</sup>.
  - c. Intermediate Cover (IC): 600 mm thick low permeability soil, placed in four layers, use IC on site up to 5 years, no maximum allowable area.
136. The Consent Holder shall take all practicable measures to prevent leaks and avoid spills of fuel or any other hazardous substances, and shall prepare a Hazardous Substances Management Plan (HSMP) at least one month prior to the commencement of the first construction stage. The Objectives and Content of the HSMP are detailed in Section 14 of Schedule 2 LMP and shall form part of the LMP. The HSMP shall include, but not limited to, the following measures:
- a. No refuelling or maintenance of vehicles or machinery can occur on the quarry pit floor, with the exception of the mobile plant;
  - b. No storage of fuels or lubricants for vehicles and machinery within the quarry pit;
  - c. Appropriate servicing and maintenance of vehicles and machinery such that they do not result in leaks or spills;
  - d. Keeping a spill kit capable of absorbing all fuel and oil products on site and available at all times; and
  - e. Training all staff involved in the refuelling or maintenance activities in the use of spill kits.
137. In the event of a spill of fuel or any other hazardous substance, the consent holder shall:
- a. Clean up the spill as soon as practicable and take measures taken to prevent a reoccurrence;
  - b. Inform the Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring within 24 hours of a spill event exceeding one hundred litres and provide the following information:
    - i. The date, time, location and estimated volume of the spill;
    - ii. The cause of the spill;
    - iii. The type of hazardous substance(s) spilled;
    - iv. Clean up actions undertaken; Details of the steps taken to control and remediate the effects of the spill on the receiving environment;

- v. An assessment of any potential effects on the environment of the spill; and
- vi. Measures to be undertaken to prevent a reoccurrence of the spill. The Consent Holder shall maintain a record of all spills on site and provide this to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring by 31 August of each year or on request.

### **Waste acceptance criteria**

138. Waste accepted at the landfill must only be as set out in the Waste Acceptance Criteria attached as Schedule 1 to this consent.

### **Waste acceptance procedure**

139. The procedure to issue a Special Waste Permit in accordance with the Waste Acceptance Criteria must ensure that for material containing soil:
- i. A detailed site investigation report, preliminary site investigation report or landfill waste characterisation report, as appropriate, prepared by a Suitably Qualified and Experienced Contaminated Land Practitioner (SQEP), is provided;
  - ii. An SQEP has certified that the samples have been tested for relevant determinands;
  - iii. Soil sample data for each source area within the site is provided at a minimum sampling rate of one sample per 100m<sup>3</sup> of soil, with a minimum of three samples per source area.

***Advice note:*** Source area means an identified part of a site expected to have a particular contaminant profile, which has been characterised by a Suitably Qualified and Experienced Practitioner.

### **Quarry operation**

140. The maximum rates of material handling at the site shall be:
- a. 375,000m<sup>3</sup> per year of aggregate excavation;
  - b. 200,000m<sup>3</sup> per year of aggregate processing; and
  - c. 250,000 tonnes per year of landfill waste.

Except that in the first 24 months following commencement of physical works of this consent up to 1,000,000m<sup>3</sup> of earthworks can be undertaken in the first 12 month period and 500,000m<sup>3</sup> in the second twelve month period as required to develop the landfill and associated infrastructure.

141. The total area of land in use at any time for excavation, processing, stockpiles, fill deposition, and site restoration must not exceed the area shown as a dashed orange line on Drawing B6 Landfill site boundary.

142. The maximum quantity of aggregate material stored within the site at any time shall be 375,000m<sup>3</sup>, except that during the first two years following commencement of physical works a maximum of 500,000m<sup>3</sup> of aggregate material may be stored within the site.
143. Stockpiles shall:
- a. be only of aggregate excavated from the quarry, unsaleable material from the site or construction materials required for use in the landfill; and
  - b. not be located on or within 50 metres of land that is being or has been filled with landfill waste.
144. There must be no quarrying within 50 metres of land that is being or has been filled with landfill waste.

## Conditions for 214075 only (Discharge stormwater and water)

### General conditions

145. The discharges must be only from quarry and landfill activities, including:
- a. Site preparation activities including vegetation, topsoil and overburden stripping, removal and storage;
  - b. Construction and maintenance of bunds and stockpiles;
  - c. Excavation (including blasting), loading and transportation of material;
  - d. Processing of aggregate by crushing and screening;
  - e. Stockpiling of excavated aggregate;
  - f. Deposition of fill material; and
  - g. Site management including the deposition of material and soil, site contouring, capping and revegetation.

at 513 Trig Road, Woodstock, legally described as Lot 1 DP 481768, as shown on drawings referred to in the Drawing Index and stamped CRC214073.

146. Prior to construction the consent holder must undertake the following:
- a. retain an appropriately qualified and experienced person to complete the final detailed stormwater design for the landfill.
  - b. submit to the Peer Review Panel a stormwater design report which includes details and plans showing the various components of the stormwater management system, including but not limited to the stormwater pond and forebay shown on the concept drawings accompanying the application.

The Peer Review Panel shall confirm the design is in accordance with Canterbury Regional Council Erosion & Sediment Control Toolbox to Canterbury Regional Council for approval at least one month prior to construction of the stormwater management system. Where the Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury does not cover a particular situation GD05 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region will be utilised. Site stormwater shall be managed in accordance with the certified stormwater design report.

147. The Consent Holder must construct and maintain appropriate stormwater management measures, including drains and sediment traps for the interception and treatment of stormwater run-off from the works. These measures shall remain in place over the duration of the construction period and for a period following construction to allow suitable cover of vegetation to establish on restored areas.

*Advice note:*

*For the purpose of this consent stormwater means*

*Surface water runoff that has come in contact with refuse shall not be discharged as stormwater and shall be considered leachate.*

- *Surface runoff from the following areas is classified as stormwater:*
- *natural undisturbed catchment areas;*
- *Intermediate cap areas, and*
- *permanent cap areas that are uncontaminated by leachate and refuse subject to the following:*

*Stormwater from capped landfill areas may not be considered as stormwater until the following steps have been undertaken:*

- a. Final Capping has been completed in accordance with the accepted landfill stage design;*
- b. All bare surfaces have been re-vegetated, (minimum grass seeding has taken place).*

## **Site Development**

### **Sediment ponds**

148. Sediment ponds designed in accordance with the Canterbury Regional Council publication Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury must be constructed within or immediately adjacent to the Container Transfer Area and for the quarry/landfill in the location shown as sediment control ponds on Drawing B1. Stormwater run-off must be collected and treated in these sediment ponds prior to discharge. Where the Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury does not cover a particular situation GD05 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region must be utilised.
149. The sediment ponds must be designed to manage a 10 percent AEP design flood, with provision to pass a 1 percent AEP design flood. The sediment ponds must be designed in accordance with the Canterbury Regional Council publication Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury. Where the Canterbury Regional Council Erosion & Sediment Control Toolbox for Canterbury does not cover a particular situation GD05 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region will be utilised.

## **Landfill operation**

### **Underdrainage discharges**

150. Intercepted groundwater under-drainage flows must be captured and discharged to the surface water drainage system and routed through the sediment control ponds.
151. The Consent Holder must measure and record the volume of groundwater discharged from the under-drainage system. The volume of groundwater discharged via the under drainage system per month shall be reported in writing and accompanied by a time trend curve to the Canterbury Regional Council, Attention: Regional Leader –

Compliance Monitoring in the Landfill Annual Report.

152. The Consent Holder must install a monitoring system for the discharge from the under drainage system for each landfill cell prior to it mixing with any other under drainage discharges or water and monitor these discharges separately and continuously with a minimum 15 minute logging frequency at each monitoring point. The combined outflow from the underdrainage system must be monitored continuously via a pH and conductivity probe with a minimum 15 minute logging frequency. Monitoring must for the following parameters:
  - a. pH
  - b. Conductivity
153. The consent holder must continuously monitor discharges from the sediment pond outlet. Monitoring must for the following parameters:
  - c. pH
  - d. Conductivity
154. Trigger levels to indicate potential leachate contamination of the underdrainage system must be determined from baseline water chemistry parameters derived from an analysis of the test results from the groundwater monitoring bores as detailed in Conditions 54 and 55 of this consent and shown on Drawing E2.2. Trigger levels for response to monitoring of underdrainage quality shall be set by an appropriately qualified person using the following:
  - a. pH = the mean plus or minus three standard deviations of pH data from at least twelve months of monitoring.
  - b. Conductivity = the mean plus three standard deviations of conductivity data from at least twelve months of monitoring.
155. The Consent Holder must provide time trend plots of all the data required under Condition 154 of this consent.
156. The Consent Holder must submit a report to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring with the recommended trigger levels set in accordance with condition 154 for approval before the deposition of landfill waste. The trigger levels may be reviewed after six months from the deposition date and again after 2 years from the deposition date. If a review recommends amendments to the trigger levels the Consent Holder must submit a report to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring with the proposed new trigger levels for approval.
157. The Consent Holder must take samples of the underdrainage at least 4 times per year which shall be analysed for the following determinands:
  - Bicarbonate
  - Dissolved iron
  - Calcium

Lead  
Chloride  
Manganese  
Total hardness  
Mercury  
Total alkalinity  
Nickel Dissolved  
Reactive Phosphorus  
Nitrate  
Ammonia  
Potassium  
Aluminium  
Sodium  
Arsenic  
Sulphate  
Cadmium  
Total Petroleum Hydrocarbons  
Chromium  
Zinc

158. The consent holder must prepare an annual Underdrainage Monitoring Report for the year 01 July to 30 June. The report must be submitted to Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager by 31 August each year. The report shall include:
- a. the results of laboratory analyses of samples taken from the underdrainage system
  - b. an assessment of the data to identify whether there is any indication of potential effects on underdrainage discharges:
  - c. a summary of any responses to monitoring or communications with Canterbury Regional Council during the year to 30 June.

#### **Leachate discharges**

159. The Consent Holder must undertake six monthly sampling and testing for PFAS of the leachate and provide a copy of the test results to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring within 14 days of the test results being produced.
160. The Consent Holder must provide a summary of PFAS testing in the Landfill Annual Report.
161. The monitoring system must be fitted with an alarm to indicate when the trigger levels for pH and conductivity have been exceeded at the outlet of the underdrainage system.
162. Leachate discharged from the leachate management system installed above the landfill upper/primary liner and from the leak detection layer must be collected and stored in tanks located adjacent to the quarry and landfill. The leachate collected may be used to dampen landfill waste deposited in the landfill. The Consent Holder shall prepare and maintain a Leachate Management Plan (LMP) at least two months prior

to deposition of landfill waste. The Objectives and Content of the LMP are detailed in Section 12 of Schedule 2 LMP and shall form part of the LMP.

163. The quantity of leachate produced from the landfill must be measured and recorded. The results must be included in the Landfill Annual Report.
164. The following actions shall be carried out if leachate is detected in the leak detection layer discharge:
  - a. At 180 litres per hectare per day (lphd) Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring must be notified.
  - b. At 500lphd investigations must be commenced to identify the location of the leak and Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring notified.
  - c. At 1000lphd landfill waste deposition must cease in the cell within which the leak has been detected in accordance with b. Landfill waste deposition in the identified cell must not begin again until repairs are completed and the leachate discharge rate from the affected cell reduces to below 180lphd.
165. Sufficient leachate storage to hold a minimum of 10 days of leachate generation shall be provided at all times.
166. The consent holder must monitor the operating volume at the Leachate Storage Facility on a daily basis. Monitoring results shall be reported to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring on a monthly basis. If the leachate operating volume indicates that there is less than 10 days storage as required by condition 166, the reporting frequency must be increased to daily, until the 10-day storage volume has been met for five consecutive days.
167. The consent holder must monitor the level of leachate in all landfill cells daily at the leachate sump. Monitoring results must be reported to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring on a monthly basis. If the leachate level exceeds 300 mm above the liner surface for more than five days, the reporting frequency must be increased to daily, until the leachate level returns below the 300 mm above the liner surface level for five consecutive days.
168. The Consent Holder must ensure that a fully functional and appropriately sized standby leachate pump and riser is available at all times to enable removal of leachate from the landfill should there be a malfunction of the main pump and riser for each cell. The consent holder must provide evidence that the standby leachate riser and pump is available in accordance with this condition to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring at all reasonable times.
169. The Consent Holder must ensure that a fully functional and appropriately sized backup power supply is available at all times to enable removal of leachate from the landfill should there be a malfunction of the main power supply. The consent holder must provide evidence that the backup power supply is available in accordance with this

condition to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring at all reasonable times.

170. The consent holder must always maintain the leachate collection pipes in a free-flowing condition. To this end, leachate pipe blockage monitoring must be undertaken every 5 years and the result of monitoring reported to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring within the annual report. If the monitoring demonstrates that the leachate collection pipes are not free flowing flushing will be undertaken and reported to the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring within the annual report.
171. If the quantity of leachate produced is likely to exceed the on-site storage capacity the consent holder must remove the excess quantity to an approved treatment facility. The Consent Holder must notify the Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring prior to removal of leachate from the site. Written evidence that any leachate removed has been disposed of to an approved facility must be provided to the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager within 7 days of disposal.

**Advice note:**

*The Consent Holder is advised that confirmation of the ability to accept the leachate from an approved facility for discharge should be sought as soon as possible to ensure a viable disposal option is identified.*

**Response to leachate discharge detection**

172. If the trigger levels agreed as of condition 154 are exceeded, the Consent Holder must investigate the likely cause of the exceedance. The outcome of the investigation must be included in the Landfill Annual Report.
173. If landfill leachate is considered a likely cause of the exceedance, the Consent Holder must immediately take a grab sample of the under-drainage discharge and analyse this sample for the parameters listed below:
- a. Bicarbonate
  - b. Dissolved iron
  - c. Calcium
  - d. Lead
  - e. Chloride
  - f. Manganese
  - g. Total hardness
  - h. Mercury
  - i. Total alkalinity
  - j. Nickel Dissolved
  - k. Reactive Phosphorus
  - l. Nitrate
  - m. Ammonia
  - n. Potassium

- o. Aluminium
- p. Sodium
- q. Arsenic
- r. Sulphate
- s. Cadmium
- t. Total Petroleum Hydrocarbons
- u. Chromium
- v. Zinc

174. Sampling must be undertaken in accordance with protocols approved in writing by the Canterbury Regional Council.
175. If the results of the grab sample analysis confirms the presence of leachate contamination, then the Consent Holder must immediately report to the Canterbury Regional Council on action taken and further actions to address leachate contamination.
176. The results of the grab sample analysis must be reported to the Canterbury Regional Council within two weeks of sampling, unless otherwise agreed in writing by Canterbury Regional Council.
177. If monitoring of the discharge system indicates leachate contamination, then the Consent Holder must take immediate steps to prevent further leachate contamination. The Consent Holder must immediately report to Canterbury Regional Council on actions taken and further actions proposed to address leachate contamination.
178. The sedimentation pond must be configured such that in the case of contamination being detected at the outlet, the outflow can be stopped for situations which do not result in flow over the spillway and shall include provision for pumping to enable contaminated stormwater to be recirculated to the Landfill, diverted to an approved offsite leachate facility, or diverted to the leachate system for treatment as leachate.

#### **Erosion and sediment control**

179. The concentration of total suspended solids in the discharge from the quarry/landfill sediment ponds shall not exceed 100g/m<sup>3</sup> except when the background total suspended solids in the Woodstock Stream is greater than 100g/m<sup>3</sup> in which case the visual clarity standards in attached Table S5A shall apply.
180. The concentration of total suspended solids in the discharge from the Container Transfer sediment pond shall not exceed 100g/m<sup>3</sup>.
181. There shall be no discharge to surface water that results in any of the following effects:
  - a. the production of any conspicuous oil or grease film, scums or foams or floatable or suspended material;
  - b. any conspicuous change in colour or visual clarity;
  - c. the rendering of freshwater unsuitable for consumption by farm animals;
  - d. any significant adverse effect on aquatic life in Woodstock Stream downstream of the discharge point.

182. Unless otherwise agreed to in writing by the Canterbury Regional Council, monitoring for TSS shall be undertaken in accordance with the steps below:
- a. The Consent Holder shall take samples at the following locations four times per year:
    - i. the monitoring site identified in Table 2 and Drawing E2.1 as Woodstock Stream US; and
    - ii. the outlets of the quarry/landfill sediment ponds (including the Container Transfer sediment pond).
  - b. Samples shall be taken:
    - i. No less than two months apart; and
    - ii. Within 12 hours of a rainfall event that results in a discharge from the quarry/landfill sediment ponds.
  - c. If the TSS concentrations in conditions 179 and 180 are exceeded, the Consent Holder shall notify the Canterbury Regional Council as soon as practicable but within 48 hrs that the exceedance has occurred, including the following (if relevant):
    - i. Investigations that are being and/or will be undertaken on site to identify the cause of the exceedance;
    - ii. Remedial actions that have been and/or will be undertaken on site to reduce the likelihood of a recurrence of the exceedance; and
    - iii. Time frames for undertaking any identified remedial actions (short-term and long term).

Table S5A

Water quality class	DOC*	Temperature	pH	Visual clarity	Colour	DIN*	DRP*	E. coli*	Toxicants
	Change shall be less than (mg/l)	Average change shall not exceed (°C)	Shall be between (no units)	% change shall not exceed	% change shall not exceed (Munsell units)	Shall be less than (mg/l)	Shall be less than (mg/l)	95% of samples shall be less than (E. coli* per 100 ml)	Shall not exceed the concentration specified in Table s5B for the relevant level of protection (see note below)
Rivers and artificial watercourses									
Alpine-upland	2.0	2.0	6.5 – 8.5	20	5	0.08	0.005	260	99%
Alpine-lower						0.18	0.007	550	95%
Hill-fed – upland						0.21	0.006	260	99%
Hill-fed – lower				20	5	0.47	0.006		95%
Hill-fed – lower – urban						0.47	0.006	550	90%
Lake-fed				20	5	0.21	0.003	260	99%
Banks Peninsula				35	10	0.09	0.025	550	99%
Spring-fed - upland				20	5	0.10	0.007	260	99%
Spring-fed - lower basin				35	10	0.47	0.010	550	95%
Spring-fed - plains				35	10	1.50	0.016	550	95%
Spring-fed - plains - urban				20	5	1.50	0.016	550	90%
Lakes						TN*	TP*		
Large high country lakes	2.0	2.0	6.5 - 8.5	20	5	0.073	0.004	260	99%
Small to medium high country lakes						0.16	0.009	260	99%
Coastal lakes and lagoons						0.340	0.020	550	95%
Artificial – on-river						0.016	0.009	260	99%
Artificial – other						0.340	0.020	260	95%

**Key to Abbreviations**

DOC = Dissolved organic carbon  
DIN = Dissolved inorganic nitrogen  
TN = Total nitrogen  
DRP = Dissolved reactive phosphorus  
TP = Total phosphorus  
*E. coli* = *Escherichia coli*

Schedule 1: Waste Acceptance criteria

Schedule 2: Management Plan objectives and content frameworks

Schedule 3: Peer Review Panel responsibilities