

# Resource Consent Application Form 28

Use of land for earthworks for residential development



This application is made under Section 88 of the Resource Management Act 1991

Phone: 0800 474 082

Website: [www.orc.govt.nz](http://www.orc.govt.nz)

## IMPORTANT NOTES TO THE APPLICANT

This form is to be used for the use of land for earthworks for residential development that requires consent. Ensure that you complete this Application Form 28 and Resource Consent Application Form 1 in full.

**Earthworks:** Means the alteration or disturbance of land, including by moving, removing, placing, blading, cutting, contouring, filling or excavation of earth (or matter constituting the land including soil, clay, sand and rock); but excludes gardening, cultivation, and disturbance of land for the installation of fence posts.

Please refer to the **Earthworks for Residential Development Factsheet** for additional information about the use of land for earthworks for residential development

*Your land use activity may also require consent under the relevant city or district plan provisions. Please check with your local city or district council*

The application will be assessed in terms of potential adverse effects on soil loss, water quality and cultural values.

For the consent application to be processed efficiently in the minimum time and at minimum cost, it is critical that as much relevant information as possible is included with the application. If all the necessary information is not entered on the form or supplied with the application then Otago Regional Council may return your application, request further information, or publicly notify your application. This will lead to delays in the processing of your application and may increase processing costs. This application form, when properly completed, should provide an adequate "Assessment of Effects on the Environment" (AEE) where the adverse effects of a proposal are not significant. However, this can only be determined on application.

You may wish to provide a separate AEE using this form as a template.

## PART A: GENERAL

**A.1 Is this application (*tick which applies*):**

- for a NEW consent to use land for earthworks for residential development?
- to REPLACE a current land use consent?

Land use consent number: \_\_\_\_\_

Expiry date: \_\_\_\_\_

## PART B: LOCATION OF THE EARTHWORKS ACTIVITY

**B.1 Landholding where the earthworks will occur**

*A landholding is defined as either land in a single certificate of title, land in two or more adjoining certificates of title with a common occupier, or all contiguous land acquired under one instrument of conveyance and occupied by a common occupier.*

**a. Name of owner(s)**


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**b. Address/Location**


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**c. Legal description(s) of the landholding (as shown on Certificate of Title)**


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**d. Please attach a current Certificate of Title to the application**

Yes, Certificate of Title attached

**e. Which city/district are you in?**

Queenstown Lakes District

Central Otago District

Dunedin City

Clutha District

Waitaki District

**B.2 Earthworks area****a. How large will the area of earthworks be in any 12 month period?**

\_\_\_\_\_ square metres

**b. How large is the total area of earthworks?**

\_\_\_\_\_ square metres

**B.3 Please provide a map or aerial image showing:**

The landholding boundary, as per the legal description(s) above

All areas where earthworks will occur

Within and near the areas where earthworks will occur, identify:

- Any waterways, including rivers, streams, lakes, drains, water races and ponds
- Any wetlands
- The coastal marine area
- Any bores or soak holes

- Any existing vegetation
  - Any fish or bird habitat or nesting areas
  - Any Department of Conservation reserves
  - Any public gathering areas or amenity areas
  - Nearby dwellings
- The location of any contaminated or potentially contaminated land
- Nature of the terrain where earthworks will occur, including slope (flat, rolling, steep) and direction of slope
- A north symbol (oriented to the top of the page if possible) and scale bar

**B.4 In addition to the map or aerial image required above, you may also wish to provide some photos of the site, and any of the waterbodies identified on the map.**

**B.5 Nearby sensitive receptors**

*Any sensitive receptors (as per the table) should be identified on the map required under B.3. Please fill out the table below to clearly identify the separation distance from the earthworks area to these sensitive receptors, and any others not marked on the plan, use the table below.*

- a. Please use the table below to identify any sensitive receptors near the areas where earthworks will occur.**

Sensitive receptor	Specific details about the sensitive receptor*	Distance to earthworks area
River		
Stream		
Lake		
Drain		
Water race		
Pond		
Wetland		
Bore		
Soakhole		
Neighbouring Dwellings		
Vegetation, including natives		
Fish habitat		
Bird habitat		
Bird nesting areas		
Department of Conservation reserves		
Public gathering areas		
Amenity areas		
Other		

\* Details might include address of dwellings, bore numbers, waterbody names, reserve names, types of habitat present

**B.6 Underlying material**



**C.2 Scale of the earthworks**

a. What is the maximum depth of earthworks?  
\_\_\_\_\_ metres

b. Volume of earthworks  
\_\_\_\_\_ cubic metres

**C.3 Duration of works**

a. When are works expected to start?  
\_\_\_\_\_

b. How long are works expected to take?  
\_\_\_\_\_ months

**C.4 Stabilisation of the site**

a. Will the area of earthworks be stabilised upon completion of works?

Yes

No

b. If yes, how?

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c. If no, why not?

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**PART D: MANAGEMENT OF THE EARTHWORKS**

**D.1 Erosion and sediment control**

*Otago Regional Council defers to the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region, 2016 guideline document, published by Auckland Council (GD2016/005) for guiding erosion and sediment control measures when undertaking earthworks.*

a. Will you be undertaking the earthworks in accordance with an erosion and sediment control plan?

Yes

No

If no, why not, and what measures do you propose to manage erosion and sediment on site?

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**b. Have you already created an erosion and sediment control plan?**

Yes

No

If yes, please attach it to your application.

*Your erosion and sediment control plan will need to be certified by Otago Regional Council prior to the commencement of works.*

**D.2 Water management**

**a. Is groundwater likely to be encountered during works?**

Yes

No

If yes, how will works and groundwater be managed?

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**b. If there are any surface waterbodies within the landholding, please describe how earthworks will managed to avoid sediment loss to those waterbodies.**

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**c. How will stormwater and sediment laden run-off be managed on site?**

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**D.3 Contamination**

a. Is the site contaminated or potentially contaminated?

Yes

No

b. If the site is contaminated or potentially contaminated, what is the contaminant type and source, and how will the works be managed in light of this?

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**D.4 Vehicles and machinery**

a. Will vehicles and machinery be stored on site?

Yes

No

b. If yes, will vehicles and machinery be refuelled and stored more than 20 metres from any waterbodies and bores?

Yes

No

If no, why not?

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**D.5 Standard conditions**

a. On land use consents for earthworks, Otago Regional Council often recommends several standard conditions to manage actual and potential effects. Do you agree to the following conditions on your consent?

i. Requiring all staff and contractors on site to have access to the consent document

*This condition ensures all people on site are aware of the requirements of the consent.*

- Yes
- No

**ii. Archaeological Discovery Protocol**

*If an unidentified archaeological site is located, operations must cease near the area, Heritage New Zealand and Otago Regional Council must be notified. If the site is Maori in origin, iwi groups must also be notified.*

- Yes
- No

**iii. Advising Otago Regional Council prior to commencement of works**

- Yes
- No

**iv. Providing Otago Regional Council with photos of the site upon completion of works**

- Yes
- No

**b. If you don't agree to any of these conditions, why not?**

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**PART E: ASSESSMENT OF ENVIRONMENTAL EFFECTS**

*In assessing the potential effects of your earthworks activity, the key effects council staff will look at are the effects on erosion, flood flows and essential structures, surface and groundwater quality, ecosystems and instream values, amenity values, people and communities, and effects on Kai Tahu cultural and spiritual beliefs, values and uses.*

**E.1 Describe the actual and potential effects your land use may have on erosion, land instability, sedimentation or property damage**

*The use of land for earthworks has the potential to result in erosion, land instability, sedimentation in waterbodies, or property damage (eg essential structures). In this section, describe how your earthworks activity and associated discharges of water to land or water will be managed to ensure adverse effects on these matters will be avoided or minimised as best possible.*







**E.7 Describe the actual and potential positive effects of your land use.**

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**PART F: ALTERNATIVES**

**F.1** Have any alternatives to the proposed earthworks and methodology been considered? If so, why has the proposed method been chosen over the alternatives?

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**PART G: CONSULTATION**

**G.1** Please describe any consultation undertaken with persons/parties potentially affected by your proposed discharge.

*Parties may include Public Health South, landowners, neighbours, Aukaha, Te Ao Marama, Forest and Bird, Fish and Game Otago and Department of Conservation.*

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**G.2** Please attach any written approvals received to the application.

*Please note that the Council only accepts unconditional written approvals and any conditions proposed by affected parties need to be agreed to and incorporated into the application.*

**PART H: DEPOSIT**

*A deposit is required upon lodgement of your application. Refer to the fees on Form 1. This deposit is not the final or maximum cost of your application. Further charges are incurred in accordance with Councils scale of fees and charges.*

**H.1** Deposit Enclosed

- Yes
- No

**PART I: CHECK LIST**

**I.1** Use the checklist below to ensure you've provided all of the relevant information to complete your application.

- Fully completed this application form and Form 1?
- Attached a detailed site map? *Refer to B.3*
- Attached any relevant photos? *Refer to B.4*
- Attached an Erosion and Sediment Plan? *Refer to D.3*

- Attached any written approvals? Refer to G.2
- Paid your deposit or attached a cheque? Refer to H.1
- Attached Certificate of Title(s) less than 3 months old? Refer to B.1
- An assessment of the activity against the relevant parts of the RMA, Regional Policy Statement (Operative and Partially Operative) and Water Plan.

To keep consent processing costs to a minimum it is strongly recommended that the checklist is complete and all items required are attached **before** you lodge your application to the Otago Regional Council. If you have any queries relating to information requirements, please contact the Otago Regional Council Offices:

Dunedin:  
70 Stafford St  
Private Bag 1954  
Dunedin 9054

Phone 03 474 0827  
Fax 03 479 0015

Alexandra:  
Dunorring St  
PO Box 44  
Alexandra 9340

Phone 03 448  
8063 Fax 03 448  
6112

Queenstown:  
Terrace Junction  
1092 Frankton  
Road Queenstown  
9300

Phone 03 442 5681  
Fax 03 442 5682

**Freephone: 0800 474 082**  
**Website: [www.orc.govt.nz](http://www.orc.govt.nz)**

# Earthworks for residential development

Good practice

**Earthworks are a necessary part of preparing land for residential development, but if the right practices aren't used, soil can be lost to water bodies.**

This sediment can have a range of negative impacts on water quality and ecosystems. Soil can be contaminated, or soil loss can cause stability issues and water runoff with lots of sediment can also be a nuisance to neighbouring landowners.



Coffer dam (yellow device in water) limits area sediment travelling further if it does reach water

## How you can minimise the risk of sediment loss

The best measures to manage the effects of earthworks depend on the type and scale of the activity and site characteristics that affect the risk associated with an activity. Factors influencing the amount of soil loss from earthworks sites are:

- ▶ Soil type and characteristics
- ▶ Topography of the area of earthworks
- ▶ Proximity to sensitive receivers, such as receiving waters to any sediment run-off
- ▶ Area of works
- ▶ Land stability
- ▶ Duration of soil exposure
- ▶ Weather and climate (including rainfall, season etc)

## Types of mitigation measures include:

- ▶ Sediment control, including simple silt and sediment barriers, diversions of run-off, chemical treatment, decanting earth bunds
- ▶ Soil stabilisation (including battering, engineered structures, revegetation, waterproof covers, staging with progressive stabilisation)
- ▶ Limiting works during wetter months/ days
- ▶ Limiting the time bare soil is exposed
- ▶ Monitoring during works whether measures are working properly and adapt if necessary



### Good practice some examples :



Well maintained silt fencing



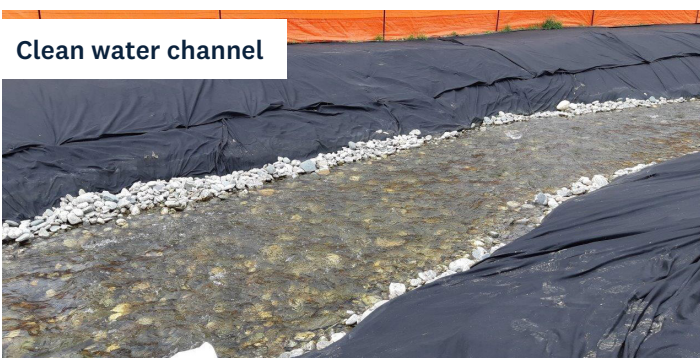
Settling pond with decanting structure

Artificial covers may be used to filter sediment and cover exposed soils.

Sediment sinks to bottom leaving only clean water on top.



Coffer dam (yellow device in water) limits area sediment travelling further if it does reach water.



Clean water channel

Pre existing waterways may be diverted through or around work sites. May need additional resource consent.

### Examples of common issues mitigating sediment



Water through this catchment has overwhelmed the sediment controls.



Sediment controls only work if they are regularly maintained: unfortunately filter sock has been moved and not put back in place



Monitoring to ensure that sediment that has been mobilised is not overwhelming the controls.



Good intentions to cover disturbed land, however no work has been done to manage sediment from the channel itself.

More information about our resource consent process is available at:

[www.orc.govt.nz/consents](http://www.orc.govt.nz/consents) or by calling 0800 474 082

# Earthworks for residential development

## Consent requirements

**Earthworks are a necessary part of preparing land for residential development, but if the right practices aren't used, soil can be lost to water bodies.**

This sediment can have a range of negative impacts on water quality and ecosystems. Soil can be contaminated, or soil loss can cause stability issues and water runoff with lots of sediment can also be a nuisance to neighbouring landowners.

Proposed changes to the Water Plan (PC8) mean discharges of sediment from earthworks associated with residential development need to be avoided as a first priority, then best practice methods need to be used to minimise sediment loss if avoidance is not achievable.

## What qualifies as 'residential' earthworks\*

The regional provisions under PC8 are applied in a broad sense and are not 'bound' by any underlying District Plan zoning as 'residential' or any definitions of 'residential activity' or 'residential development' in any District Plans.

Examples that may require a consent from us include earthworks to establish building platforms, driveways and infrastructure (such as pipes, local roads) for residential dwellings or subdivisions in any zone.

PC8 excludes earthworks associated with business activities or developments, such as farm tracks, quarrying, construction of dams, works associated with plantation forestry

**\*NOTE:** These examples are not an exhaustive list. Please contact ORC to confirm whether you will need to apply for consent under PC8

## DEFINITIONS

### EARTHWORKS

The alteration or disturbance of land, including by moving, removing, placing, blading, cutting, contouring, filling or excavation of earth (or any matter constituting the land including soil, clay, sand and rock). This excludes gardening, cultivation, and disturbance of land for the installation of fence posts.

### LANDHOLDING

For land subject to the Land Transfer Act 1952, land in: (i) A single certificate of title; or (ii) Two or more adjoining certificates of title, with a common occupier. For land not subject to the Land Transfer Act 1952, all contiguous land last acquired under one instrument of conveyance and occupied by a common occupier.





## Do you need a resource consent?

PC8 has been developed to manage the discharge of sediment from earthworks resulting in adverse effects on water quality. Rules 14.5.1.1 and 14.5.2.1 set out the specific requirements for earthworks. You will need a resource consent if you can't meet the below criteria:

- ▶ The area of exposed earth is no larger than 2,500m<sup>2</sup> per landholding in a 12-month period,
- ▶ Works are not within ten metres of a water body (such as a river, stream, wetland or lake), drain, water race or the coast
- ▶ Exposed earth is stabilised when works are completed
- ▶ Works are not on (potentially) contaminated land
- ▶ Soils and debris are not placed where sediment can enter waterways or the coastal marine area
- ▶ Works will not result in flooding, erosion, land instability, subsidence or property damage

If you cannot meet one or more of these criteria, you will need both a regional land use consent under section 9(2) RMA and a discharge consent under s15 RMA.

## If you need consent, we'll need to know:

- ▶ Where and how much land will be exposed
- ▶ What you will do to minimise the risk of sediment loss
- ▶ The extent to which your proposal complies with the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016 (Auckland Council Guideline Document GD2016/005). These guidelines contain a comprehensive set of potential measures that can be used to avoid sediment loss from your site and/ or into water.
- ▶ Whether there will be adverse effects on water bodies, ecological values, other properties, human use or Kāi Tahu values

**NOTE:** Look out for discharges into District or City Council networks (such as stormwater and/ or sewer lines). You may require affected party approval from them.

The best measures to manage the effects of earthworks depend on the type and scale of the activity and site characteristics that affect the risk associated with an activity.

**We strongly encourage the submission of management plans** (such as erosion and sediment control plans) as part of an application (in particular for larger developments and/ or complex sites) so we can ensure that you are using the best options to control sediment run-off. You can find more information on minimising sediment loss and mitigation measures in the factsheet '**Earthworks for residential development - Good practice**'

## Other resource consents that may be required

Depending on its nature and location an application involving earthworks for residential development may require other resource consents, for example:

- ▶ Diversion and discharges of contaminated water
- ▶ Natural hazards
- ▶ Dust – air discharges
- ▶ Contamination Discharges/ Contaminated land
- ▶ Coastal consent (where outfall installed for discharge of sediment/ stormwater to the coast )
- ▶ Defence against water (where earthen bunds are proposed to mitigate sediment run-off)

**NOTE:** You may also need bylaw approval from ORC for this.

- ▶ Local council consents: Earthworks are managed by district and city councils as well as Otago Regional Council. You will need to check whether your earthworks also require resource consent from your district or city council.



## Consent Team Procedure Manual

### Chapter 57: Earthworks for Residential Development (under PC8)

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#### 1 Introduction

This chapter covers information relevant for the processing of applications for earthworks for residential development under PC8.

The various consent processing steps, from lodgement through to notification, are explained in Chapter 6 of the CPM and are not repeated here. Instead, this chapter focusses on anything additional or different that you need to know when processing a consent application for earthworks for residential development.

Please also note that this chapter focusses on earthworks for residential development only, and that there are other activities and rules in the plans that may involve other types of earthworks which are not discussed here.

## **2 Background Information**

### *2.1 What are earthworks*

'Earthworks' means the alteration or disturbance of land, including by moving, removing, placing, blading, cutting, contouring, filling or excavation of earth (or any matter constituting the land including soil, clay, sand and rock) but usually excludes gardening, cultivation, and disturbance of land for the installation of fence posts (see Ministry for the Environment. 2019. 2I Definitions Standard – Recommendations on Submissions Report for the first set of National Planning Standards.)

### *2.2 Why do we control earthworks*

Section 30(1)(c) of the RMA requires regional councils, among other things, to control the use of land for the purpose of soil conservation and maintenance and enhancement of the quality of water and ecosystems in water bodies and coastal water, and to control the discharges of contaminants into or onto land, air, or water and discharges of water into water. Accelerated loads of sediment have the ability to change the physical, chemical, or biological condition of water and, therefore, fall within the definition of 'contaminant' under the RMA.

When earthworks are undertaken, sub-soils and/or introduced soils (also known as fill) are exposed to the elements which can result in erosion and sediment-laden water discharges, if not managed appropriately. Accelerated loads of sediment have the ability to change the physical, chemical, or biological condition of water and, therefore, fall within the definition of 'contaminant' under the RMA.

For example, an excess of sediment can affect water depths, water coverage, the type of sediment found on the floor (for example the size of the particles) and the clarity of the water. When an excess of sediment enters the catchment, it can be suspended in the water, reducing light by affecting water clarity and turbidity (the amount of suspended material in the water). Such environmental changes can affect ecosystems, including changes to vegetation, be detrimental to fish habitats, degrade spawning areas and deplete invertebrate populations. Such adverse effects can also lead to a loss in cultural values.

Erosion causing stability issues and sediment-laden water runoff can also be a nuisance to neighbouring landowners, especially in the residential environment where buildings can be affected.

### *2.3 Earthworks for residential development under PC8*

Discharges of sediment from earthworks are managed in four ways under both the Water and Waste Plans:

- by the general discharge provisions in section 12.C of the Water Plan;

- by the stormwater discharge provisions in section 12.B of the Water Plan;
- by the contaminated land discharge and cleanfill provisions in the Waste Plan; and
- non-regulatory methods outlined in section 15 of the Water Plan.

The Water Plan contains objectives to:

- 7.A.1: To maintain water quality in Otago lakes, rivers, wetlands, and groundwater, but enhance water quality where it is degraded.
- 7.A.2: To enable the discharge of water or contaminants to water or land, in a way that maintains water quality and supports natural and human use values, including Kāi Tahu values.
- 7.A.3: To have individuals and communities manage their discharges to reduce adverse effects, including cumulative effects, on water quality.

While the above objectives address the types of effects ORC would be concerned about, there are no provisions specific to earthworks activities in the operative plans. As such, PC8 contains new provisions on earthworks in order to manage the effects from these activities primarily on water quality.

The purpose of the provisions is stated in Policy 7.D.10 (proposed as part of PC8): “The loss or discharge of sediment from earthworks is avoided or, where avoidance is not achievable, best practice guidelines for minimising sediment loss are implemented.”

So what does ‘residential development’ mean in the context of PC8? When assessing an application, you must first decide whether or not the proposal involves ‘earthworks for residential development’. Any earthworks not for ‘residential development’ is not addressed by these PC8 provisions.

While ‘residential development or ‘residential earthworks’ is not specifically defined in PC8 feedback from the policy team has clarified that these provisions are not associated or ‘bound’ by any underlying District Plan zoning as ‘residential’ or any definitions of ‘residential activity’ or ‘residential development’ in any District Plans, and are intended to be applied in a broader sense.

Examples where PC8 provisions apply:

- when earthworks are undertaken to establish a building platform for a residential dwelling in any zone.
- when earthworks are undertaken to establish a driveway that gives access to a residential dwelling in any zone.
- when earthworks are undertaken to establish infrastructure that is specifically designed to directly accommodate residential activity in any zone (e.g. installation of a local road to a new subdivision, connection of site onto stormwater reticulation systems).

Examples where PC8 provisions do not apply:

- when earthworks are undertaken to farm tracks.

- when earthworks are undertaken to establish a commercial or industrial building, even if that building is being established in a residential zone.
- when earthworks are undertaken to establish infrastructure in any zone, including residential zone, if the infrastructure is not directly associated with the residential activity on/in the vicinity of the site (e.g. installation of railway tracks).

Further refinement and guidance will occur as PC8 moves through the hearing/mediation process. If in doubt, please discuss with your senior planner/ Principal/ TL.

#### *2.4 Earthworks subject to other provisions*

Please remember that there are other activities that may involve earthworks that are subject to other provisions and not covered by PC8 (but that such proposals may have a 'earthworks for residential earthworks' component, and vice versa).

Examples of activities addressed by other provisions:

- earthworks related to stream clearances
- construction of a dam
- land disturbance activities associated with plantation forestry (as addressed by the National Environmental Standard for Plantation Forestry)
- quarrying
- reclamation (coastal and streams)

### **3 Consent types and activity status**

If a proposal cannot meet all of the permitted activity criteria under Rule 14.5.1.1, then a restricted discretionary activity consent is required.

Rule 14.5.2.1 is a 'dual provision' and triggers both a regional land use consent under section 9(2) RMA and a discharge consent under s15 RMA as it states [emphasis added]: "Except as provided by Rule 14.5.1.1, the use of land, and the associated discharge of sediment into water or onto or into land where it may enter water, for earthworks for residential development is a restricted discretionary activity."

In some instances, it may be quite clear that there will not be any discharges at all to water. However, the discharge component of the rule under s15 will be triggered if the permitted activity criteria cannot be met (irrespective of the activity appearing to be very low risk in terms of discharges). The assessment of effects may state 'no' adverse effects are generated in those instances.

Depending on its nature and location (as well as the proposal in its entirety), an application involving earthworks for residential development may require other resource consents, for example:

- Diversion and discharges of contaminated water
- Natural hazards
- Dust – air discharges
- Contamination Discharges/ Contaminated land
- Outfall installed for discharge of sediment/ stormwater to the coast (coastal consent)

- Defence against water (where earthen bunds are proposed to mitigate sediment run-off)

Bundling may apply where more than one resource consent is required, and the activities are inextricably linked. The most restrictive activity class will set the overall activity status for the activity.

When bundling is appropriate, be mindful of the 'leading' activity when choosing a template for your report – even though a proposal may involve 'earthworks for residential development', a different template other than the specific for 'earthworks for residential development' may be more appropriate as the starting point, with relevant sections from the earthworks report template being inserted. If in doubt, please discuss your choice of template with your senior/ Principal/ TL.

It is technically possible to have a land use consent (s9) and discharge permit (s15) on the same consent document which is beneficial for 'earthworks for residential activities' as the rule clearly links the activities and there is no differentiation in matters for discretion or conditions that could be imposed (other than s123 conditions that may not be required for the s9 consents and thus defaulting to 5 years as per s123(d)<sup>1</sup>). However, at this time Accela is not able to support two different consent types within one consent document, and therefore two separate consent documents are required.

Where an additional consent is required for something other than discharging sediment during the earthworks phase, e.g. to discharge stormwater from the residential site or a standalone structure this will be better placed on a separate consent document.

## **4 Processing an application**

### *4.1 Information requirements*

Where resource consent is applied for, the application must demonstrate how the proposal meets the permitted activity conditions as required by Schedule 4, clause 3(a) RMA.

The permitted activity criteria under Rule 14.5.1.1 provide guidance what needs to be assessed and what information should be provided to confirm compliance (or otherwise).

### *4.2 Processing the application*

When processing the application, you need to confirm what permitted activity criteria have been met and which ones are infringed (therefore triggering the need for consent). The application should clearly demonstrate this.

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<sup>1</sup> S123(d) the period for which any other resource consent is granted is the period (not exceeding 35 years from the date of granting) specified in the consent and, if no such period is specified, is 5 years from the date of commencement of the consent under [section 116](#).

*(a) The area of exposed earth is no more than 2,500 m<sup>2</sup> in any 12-month period per landholding*

This means that the area of exposed earth is tallied up over any 12-month period (rather than a calendar year), without counting the same area twice.

In order to confirm whether this criterion is infringed, you will need to consider the proposal and all of its relevant components, including anything not described in the application but possibly required due to connection with the activity. If there is the potential to breach this area a detailed description of the timing of the works is needed, which should be provided with the consent application) to confirm whether the area will be earth-worked within a 12-months period. Some staged proposal may involve smaller areas of earthworks within a 12-months period despite overall involving areas that exceed 2500sqm.

*(b) Earthworks do not occur within 10 metres of a water body, a drain, a water race, or the coastal marine area*

This condition means that earthworks even over small areas, for example, excavations for a dwelling extension, but that are within 10m of a water body, a drain, a water race, or the coastal marine area will require consent.

Please be aware that this rule sits alongside any relevant permitted activity rules; for example, if you were installing a crossing over the bed of a river under permitted activity Rule 13.2.1.7B, it may be unable to meet Rule 14.5.1.1 and therefore require consent under PC8 provisions.

*(c) Exposed earth is stabilised upon completion of the earthworks to minimise erosion and avoid slope failure.*

This will need to be assessed on a case by case basis as it incorporates factors such as slope, soil type, rainfall, stabilisation method, and use. It may be possible for the Consents Officer to assess this as long as finished site contours stabilisation method is provided as part of the application. This will require some understanding of best practice sediment control measures, such as the outlined in Auckland Council's Guideline Document 2016/005 - Erosion and Sediment Control Guide for Land. If a proposal appears to involve a steep slope or stabilisation measures are not sufficient or not sufficiently detailed in the application, this will need to be addressed at s92 stage. Compliance may be able to provide guidance whether the permitted activity can be met.

*(d) Earthworks do not occur on contaminated or potentially contaminated land.*

Contaminated land is defined in the RPW. You will need to check the HAIL register to confirm whether the site is identified and the associated details. A site may feature on the HAIL list but be confirmed as a "verified non-HAIL", meaning it is not potentially contaminated. If the land is discovered to be 'potentially contaminated', the proposal may need an additional consent for this, and you need to follow the process that is fully detailed in the Waste Plan chapter.

*(e) Soil or debris from earthworks is not placed where it can enter a water body, a drain, a race or the coastal marine area; and*

This will need to be assessed on a case by case basis but may be challenging to assess and information as part of the application will likely be required to confirm whether this criterion is met. Mitigation measures could include having soil on impervious material and having it fully covered, not placing it near waterways, removing it from the site and the like.

In many cases, a way to capture any soil run-off is required, e.g. silt fences. The correct location and placement of these silt fences is important to ensure they appropriately mitigate effects. The application should contain information to this regard, and reliance on conditions (such as construction management plans) without some details as part of the application may not be sufficient in order to inform your s95 assessment (and to determine the level of effects). The compliance team can assist with you with this, and the standard conditions contain guidance what conditions would be appropriate.

Some properties will be located far away from water bodies and/or on flat land that ensures this rule is met and no further mitigation measures may be required.

*(f) Earthworks do not result in flooding, erosion, land instability, subsidence or property damage at or beyond the boundary of the property where the earthworks occur; and*

This criterion can be met by having appropriate sediment control measures in place and progressively stabilise their earthworks in high risk areas. The application should include details as to how this will be achieved as it would not be possible for the Consents officer to assess compliance with this otherwise.

In addition, proximity to neighbours will need to be assessed. For some sites a detailed site contour map will be required, but for lower risk proposals a brief description accompanying (hand) sketched site layout may be sufficient.

Site visits are useful (especially for large residential earthworks applications) in order to understand the existing environment, including visualising the proximity to sensitive receivers such as waterways, slope of area of works, vegetation and the like, and may assist deciding whether a permitted activity criterion is met or not.

Once it is confirmed what permitted activity criteria are infringed, Rule 14.5.2.1 outlines the matters over which ORC has restricted its discretion:

- a) Any erosion, land instability, sedimentation or property damage resulting from the activities;
- b) Effectiveness of the proposed erosion and sediment control measures in reducing discharges of sediment to water or to land where it may enter water;
- c) Compliance with the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016;
- d) Any adverse effects on water quality, including cumulative effects, and consideration of trends in the quality of the receiving water body;
- e) Any adverse effect on any natural or human use value, and on use of the coastal marine area for contact recreation and seafood gathering; and
- f) Measures to avoid, remedy or mitigate adverse effects on Kai Tahu cultural and spiritual beliefs, values and uses.



Remember that only these matters can be considered, and conditions can be imposed only addressing these matters.

### *4.3 Making your assessment*

When considering an application for earthworks for residential development, sensitive receivers must be located in order to determine whether the proposal may cause any significant effect. However, the proximity of sensitive receivers, such as water ways is not fully indicative of the level of effects that may be generated.

Primary factors influencing the amount of soil loss from earthworks sites are:

- Weather (including climate change)
- Topography
- Soil characteristics
- Ground cover
- Duration of soil exposure

These factors should be considered when assessing earthworks and effective mitigation measures/ conditions, to reduce the amount of erosion and/ or prevent sediment reaching sensitive receivers. So questions to think about involve these matters. Please note that these matters need to be considered together, for example, increased rainfall on a flat site away from waterways may not be of concern while earthworks during seasons of more rain on a steep slope near a waterway may warrant some more scrutiny of proposed mitigation measures.

#### *Weather*

Rainfall and wind have the potential to initiate erosive processes and cause significant erosion and sedimentation issues. Rainfall intensity, duration and frequency are the main factors that determine the volume of runoff at a given site. During seasons of increased rainfall particularly careful consideration should be given to the types of control measures proposed to ensure they can accommodate the potentially increased sediment run-off from increased rainfall volumes. But high intensity rainfall events that result in significant erosion can be experienced at any time of the year, particularly in late summer and autumn, and may be expected to increase with climate change. As such, there should always be a contingency plan in place in case this occurs, especially for sites subject to higher risk.

#### *Topography*

Slope length and angle have a significant role in increasing risk. For example, as the slope of a site steepens and lengthens, the potential for soil erosion increases, as the velocity of run-off increases and with it the sediment it carries and erodes. As flows pass further down a slope, so the potential for erosion increases. Therefore, the lower sections of slopes typically experience more significant erosion than the upper sections. This is a consideration not also when looking at the natural slope but slopes created due to excavations or fill. Even stock piling of soil should be considered in terms of the risk it causes for erosion to occur from the pile.

### Soil characteristics

Soil erodibility refers to the susceptibility of soil particles to become detached by erosive forces. It can be determined by the combination of soil characteristics. The following table is from Auckland Council's guidance document GD05 and shows that all soils are not equal when it comes to potential for erosion:

Soil characteristic	Explanation
Texture	<ul style="list-style-type: none"> <li>• Soil texture refers to the particle sizes and their relative proportions that make up a particular soil. The three major classes of soil particles are sand, silt and clay.</li> <li>• Soils that contain higher proportions of fine sand and silts are considered more erodible.</li> <li>• Erodibility decreases with clay content, as clay binds soil particles together. However, while clay is more resistant to erosion, once eroded, it is far more difficult to settle out and retain on site.</li> </ul>
Organic matter content	<ul style="list-style-type: none"> <li>• Organic matter refers to the plant and animal litter component within soil.</li> <li>• It's primarily found within topsoil and can reduce runoff and erosion potential as it often improves soil structure and increases permeability, water holding capacity and soil fertility.</li> </ul>
Structure	<ul style="list-style-type: none"> <li>• Soil structure refers to the arrangement of particles into aggregates, and includes the size, shape and distribution of pores within and between the aggregate.</li> <li>• When soil is compacted, water tends to run off rather than infiltrate, increasing the potential for erosion.</li> </ul>
Soil permeability and porosity	<ul style="list-style-type: none"> <li>• Soil permeability refers to the ability of the soil to allow air and water to move through the soil.</li> <li>• Soil porosity refers to the fraction of the total soil volume that is taken up by pore space.</li> <li>• Soils of high porosity generate less runoff than soils with a low permeability.</li> <li>• Organic matter and the associated biological activity in soils play an important role in maintaining porosity.</li> </ul>
Soil moisture	<ul style="list-style-type: none"> <li>• During summer periods, evaporation can lead to higher rates of wind erosion when soil moisture is low.</li> <li>• In those conditions, soil particles are less bound by moisture and are more easily windborne, particularly when disturbed by construction vehicles and machinery.</li> </ul>

### Ground cover

Ground cover helps control a site's erosion potential. Ground cover such as vegetation and impervious surfaces provide protection from erosive forces of raindrops, wind and flowing water. On a vegetated site, the potential for erosion is greatly reduced as the ground cover provides instant protection by reducing the impact of rainfall, dispersing flows, slowing down runoff and maintaining the soil's ability to absorb water. As such, stabilising exposed soil through re-grassing or other forms of cover can greatly reduce the risk of erosion and resultant sediment run-off.

### Duration of soil exposure

The duration of soil exposure to potential erosion is complex, but in simple terms, the longer an earthworks site is exposed, the greater the chance that it will be subject to rainfall. In times of more frequent rainfall there will be less opportunity for ground surfaces to dry between rainfall events, which in turn increases the total amount of runoff that occurs in any given event. Minimising the duration of works should minimise rainfall experienced during a project. Staging works to minimise the area of ground exposed to erosion at any one time is an appropriate measure to minimise the erosion potential from high intensity rainfall events. A balance is always required between the

overall duration of earthworks and the staging of works, and this needs to be considered together with all the factors that may affect the level of risk from earthworks.

So when considering an application, questions to ask (yourself and/ or the applicant) should include:

- Are there sensitive receivers, e.g. waterways nearby? Where are they located (e.g. next to an area where fill is occurring)?
- How steep is the site? In particular, the area subject to earthworks?
- Will it be cut or fill? How much (area/ volume)? Where within the site? How will any fill be stabilised?
- What type of soils?
- When (and how long) will earthworks occur? Time of year?
- How long will individual areas be exposed for? Will there be any staging that would allow areas to be stabilised as soon as possible?
- Will there be stockpiling of soil? Where (near sensitive receivers)? For how long?
- Contingency plan for accidental sediment spill?

Not all of these questions will have the same importance for all applications, but answers to them will influence the mitigation measures that are required.

An application should contain sufficient information on mitigation measures to enable the consent officer to make a recommendation on the level of effects and appropriateness of the application overall. Reference in an application that measures implemented will be in accordance with GD05 is not enough, especially not for larger scale projects – some information specific to the proposal at hand and the site in question needs to be provided.

This can be a draft plan that conveys sufficient certainty to ORC that the environmental effects of the earthworks can be managed within an appropriate 'envelope of effects' while providing flexibility for the contractor to modify their approach based on the practical site constraints. The standard conditions manual contains conditions for this.

It is inappropriate to leave everything up to 'after the fact', that is, to the compliance officer to negotiate what type of measures should be implemented.

For larger sites, ideally a draft management plan should be submitted as part of the application and include the following:

- Site description including soil, slope (contours at an interval suitable for design), and total site area
- Detailed programme of works which identifies:
  - o Details of the construction period/dates/timeframes/methodologies
  - o Details of any staging plans for disturbed areas

- o The area of disturbance at each stage, including consideration of progressive stabilisation and minimisation of exposed soil
- o Length of exposed roads, tracks and trenches o Cut/fill volume details
- o Location and volume details of any stockpiles o Extent and type of vegetation to be removed or planted.
  - Drawings and description of mitigation measures to be implemented
  - Details of the receiving environment that the project drains into and the pathways and distance to these
  - The methodology for implementing these control measures (considering any staging of the works)
  - A programme detailing the frequency and methodology of any inspections, monitoring and maintenance of measures (including checks proposed during rainfall events)
  - Emergency procedures to be implemented if there is an accidental untreated sediment discharge to surface water.

Remember, all proposals are different and require a bespoke approach. While the standard conditions give an indication when they may be appropriate (low risk, medium risk, high risk), you need to fully understand a proposal in order to recommend appropriate conditions that are not too onerous but also sufficiently address any potential effects, based on site characteristics, the type of proposal and the sensitive receivers around.

#### *4.4 Technical audits*

Sometimes it is advisable to obtain technical advice to determine both the effects of earthwork activities and appropriate mitigation measures to manage their effects (to be imposed as conditions of consent). This might include advice, for example, regarding geotechnical/ hazards, structural engineering, or ecological matters. The matters for discretion in rule 14.5.2.1. give guidance as to what matters need to be addressed and what technical advice may be sought once an application has been received.

Also, the workability of potential conditions should be assessed. Some of the conditions require the consent holder to contact ORC (and in particular the compliance team) before commencement of works in order to have finalised management plans agreed to, or, in case of very complex (and often staged) developments, may require the submission of adaptive management plans to be reviewed and agree to by the compliance team before works can continue. If you are considering imposing these types of conditions, it is recommended that you check with the compliance team whether your conditions would be workable for them.

The risk matrix for earthworks for residential development provides guidance to determine whether a technical audit is required.

#### *4.5 Collaboration with territorial authorities*

Under section 31(1), territorial authorities have responsibility for managing the effects of the use, development or protection of land and associated natural and physical resources of the district as well as the control of any actual or potential effects of the use, development or protection of land. This provides for territorial authorities to manage the effects of land use from earthworks, such as stability of neighbouring sites, amenity effects including noise and vibration from construction earthworks, visual landscape effects, or sediment run-off that affects persons and public pipe systems (such as resulting in blockages etc).

It is noted that most district plans also contain setback requirements from waterways, and some (such as in Queenstown-Lakes and Dunedin City) include requirements for implementation of sediment control practices to prevent sediment entering water bodies. Information on the QLDC zones can be found on their website and in their District Plan.

To reduce cost and complexity for applicants where possible, consent planners must check with the applicant whether they have applied for a TA consent. Please note that as the focus of territorial authorities and regional Councils is different, and resultant plan rules have different requirements (such as matters of discretion).

If the application is still being processed by the TA:

- The ORC planner must liaise with the processing officer from the TA;
- It may be appropriate for one technical auditor to carry out both audits for ORC and the TA (if the technical auditor has contracts with both authorities); and
- Work to align conditions to prevent contradictory requirements for the consent holder. On occasion this may require an applicant agreeing to or requesting an extension of time (under s37) to allow for this to be arranged.

If the consent has already been processed by the TA, the processing planner must:

- Request a copy of the TA consent and any reports on the application including a technical audit; and
- Work to align conditions to prevent contradictory requirements for the consent holder. On occasion this may require an applicant agreeing to or requesting an extension of time (under s37) to allow for this to be arranged.

Work is on-going to raise awareness of ORC requirements and conditions with territorial authorities in Otago, and those authorities' requirements (and sets of standard conditions, where available) with ORC staff to enable better collaboration and customer service.

## **5 Affected persons**

Whether persons are considered adversely affected will depend on the nature and scale of the proposal and potential for adverse effects. In general, the following parties could be considered potentially affected:

- Property owners and occupants (where it is not the applicant), often in terms of sediment run-off, stability. It is important to identify the environmental effect on the landowner or occupier and they cannot be considered affected solely on the basis of property ownership.
- Mana Whenua e.g. Aukaha/TAMI – effects on iwi values identified in Schedule 1 of the RPW, especially where the discharge of sediment (contaminant) may affect iwi values including the mauri of water.
- Department of Conservation due to effects on the native natural values identified in Schedule 1 of the RPW
- Otago/Central South Island Fish and Game Council due to effects on game fish and game bird values identified in Schedule 1 of the RPW and amenity values;
- Local Authorities, in particular where there may be effects on public infrastructure owned by them. Of particular note is discharges of sediment (contaminants) into public pipes where these lead to Local authorities breaching their own discharge consents or permitted activity conditions
- Permitted users and consent holders in surrounding environment: Be mindful of permitted uses in the surrounding environment (whether currently occurring or having potential to occur in future) and any unimplemented consent (that are likely to be implemented) that may be adversely affected by the proposal you are assessing. This is covered in the report template under the 'Receiving environment' heading.

Make sure you are clear about the reasons for considering someone as an affected party and also explain why you have opted to NOT consider someone as an affected party. Refer to Chapter 6 of the CPM for further information on affected parties

## **6 Mitigation measures and consent conditions**

Mitigation measures to manage the effects of earthworks are dependent on the type and scale of the activity and site characteristics that affect the risk associated with an activity. For example, proposal over large areas that are to be carried out in several stages to enable large scale greenfield subdivisions, require particular consideration to ensure measures are appropriate for each individual stage, that are very different from a small residential dwelling extension on a flat site that requires consent due to its location within 10m of a watercourse.

Site characteristics to consider include:

- soil type and characteristics;
- topography of the area of earthworks;
- proximity to sensitive receivers, such as receiving waters to any sediment run-off;
- Area of works;
- Land stability;
- Weather and climate (including rainfall, season etc).

Be mindful that mitigation measures (and resultant conditions) are effective, efficient and workable and should be commensurate with the scale and risk of the proposal. The standard conditions manual has a section on 'earthworks for residential

development' and also contains guidance on when to use what conditions, based on risk.

Types of mitigation measures (and associated conditions) can be grouped into pre-development, development in progress, and post-development conditions, and can include:

- Physical mitigation measures:
  - Sediment control, including simple silt and sediment barriers, diversions of run-off, chemical treatment, decanting earth bunds
  - Soil stabilisation (including battering, engineered structures, revegetation, waterproof covers, staging with progressive stabilisation)
  - Limiting works during wetter months/ days
- Monitoring and Reporting:
  - Baseline monitoring prior to commencement of works
  - Monitoring and Reporting during construction (including discharge quality)
  - Site management plans (including erosion and sediment control plans, adaptive management plans<sup>2</sup>, before and during construction etc)
  - Completion reports and photos.

It can be difficult to decide whether management plans (such as erosion and sediment control plans) are required during processing or whether it is appropriate to require them after a consent has been granted. This has to be considered on a case-to-case basis and are related to the potential risk with an application. You also have to be mindful how much information you need to make a notification recommendation and to identify the level of adverse effects. Sometimes it may be appropriate to require a draft management plan as part of the processing of the consent, and then require a finalised plan containing more details as a condition of consent before works commence. This allows the applicant/ consent holder and their contractors some flexibility while satisfying your requirement for certainty during your assessment.

Please discuss your approach with your senior/ Principal/ Team Leader. The compliance team can also assist. The compliance team are also most suited to review

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<sup>2</sup> The requirement for an AMP for large scale earthwork projects acknowledges the need to allow flexibility in design and implementation of the preferred erosion and sediment control methodology. Specific feedback control and/or review provisions can be imposed to ensure that if the environmental effects of the activity exceed a specified threshold, then changes to the way the activity is managed must occur. This could include – but is not limited to - alterations to erosion and sediment control measures and methodologies, additional erosion and sediment controls, refinement of chemical treatment systems, progressive stabilisation in sub-catchments, or reducing the extent of open area on site. It could also include ceasing works on site until appropriate measures have been taken. Appropriate monitoring and reporting conditions will continue to be essential to ensure the consent holder achieves and reports on compliance with critical performance or operational standards.

finalised management plans for suitability when they are submitted by a consent holder in fulfilment of conditions of consent.

## **7 The consent document**

Although Rule 14.5.2.1 is a 'dual provision' and triggers both a regional land use consent under section 9(2) RMA and a discharge consent under s15 RMA, Accela is not set up to deal with combined consent documents (i.e. one consent document for both types of consent) and therefore, separate consent documents are required for both consent types.

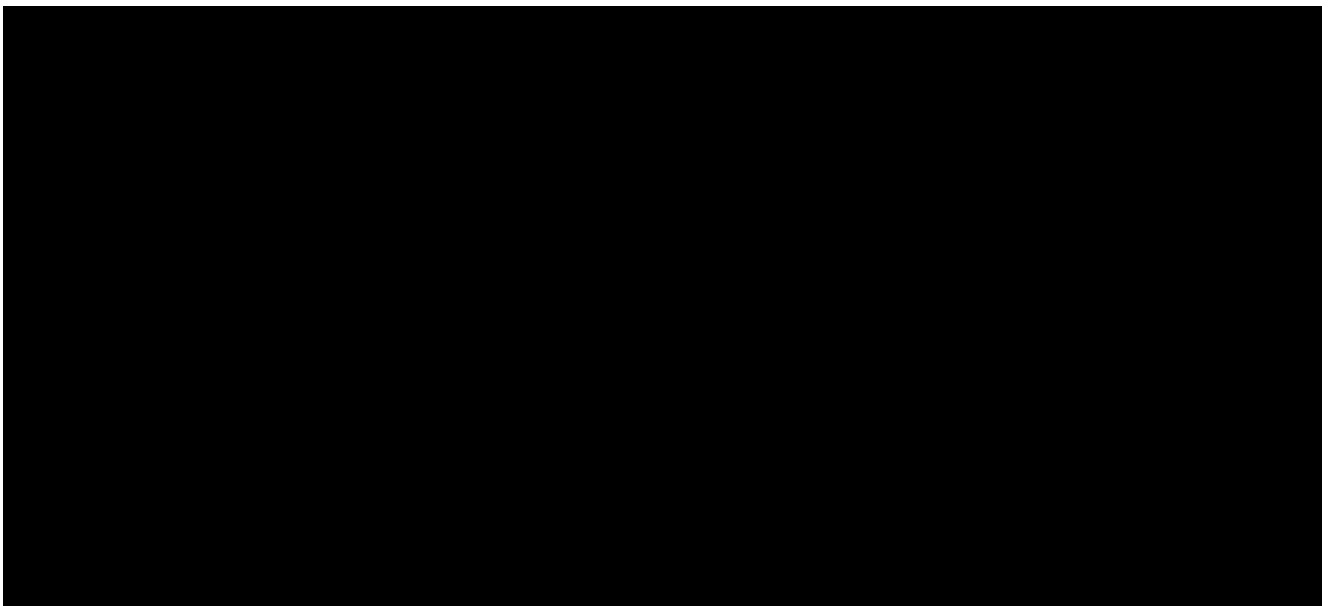
To avoid duplication and confusion for applicants, a main (or lead) consent document will be issued for one of the consent types that contains all conditions, while the other consent document contains the standard "in accordance" condition and a second condition that refers to the conditions attached to the other consent document for the associated consent type, as follows:

2. This consent must be exercised in conjunction with Land Use Consent **RMXYZ**.

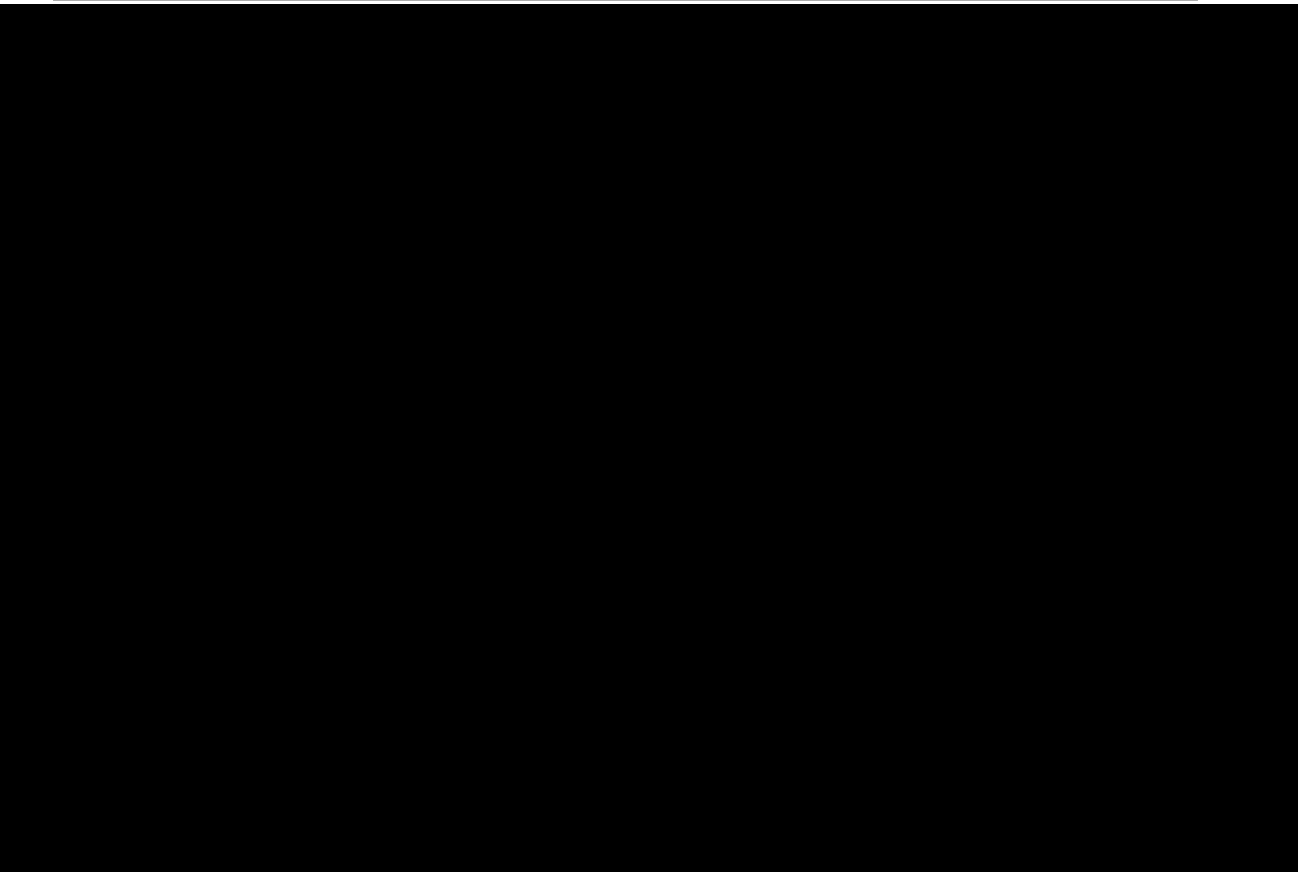
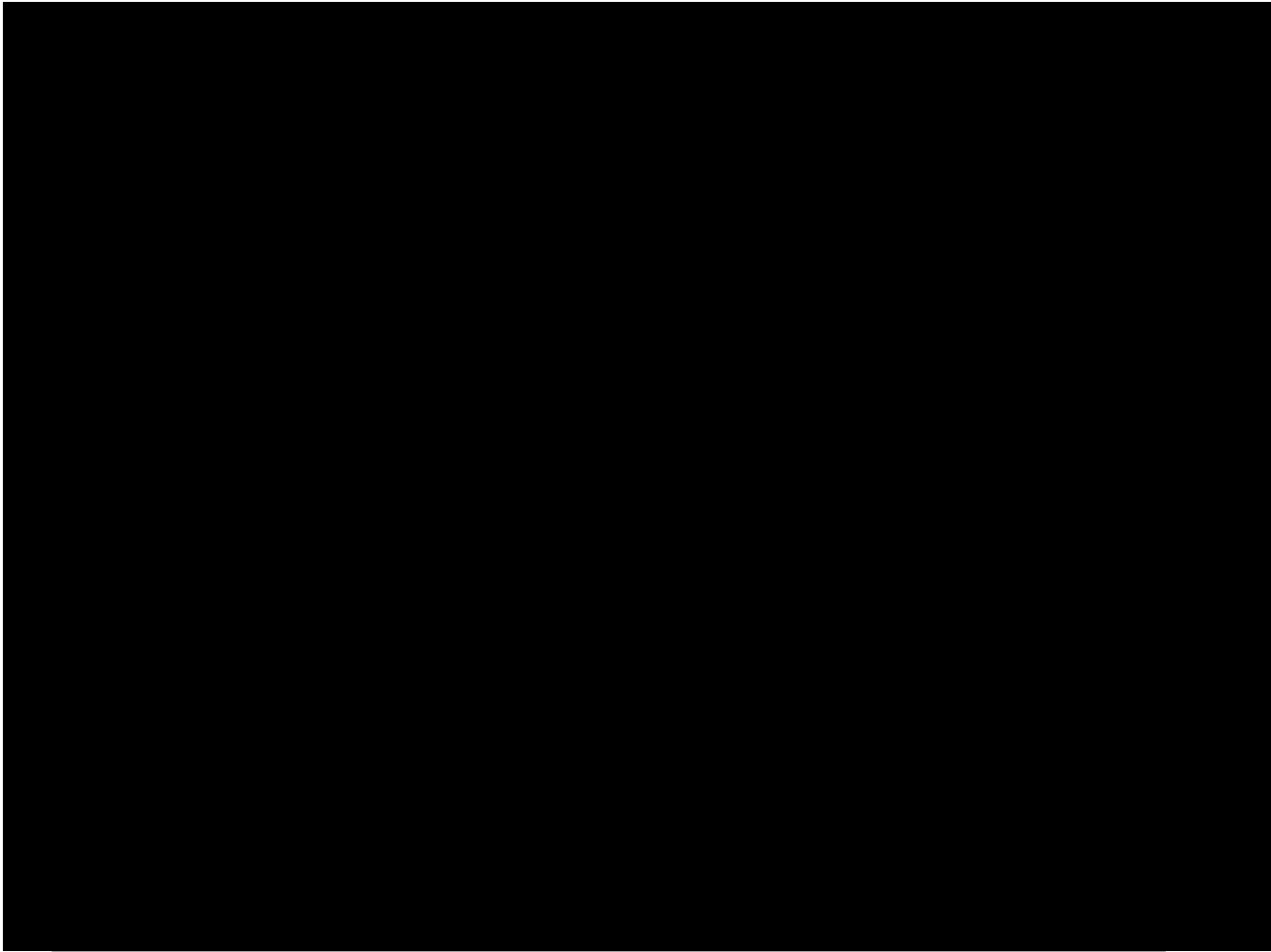
In most instances the main consent document should be associated with the land use consent as the discharge would be a result from the land use (earthworks for residential development) but there may be instances where the discharge permit may be more suitable as the main consent document and may need more conditions added to it than just the two outlined above. You are encouraged to discuss with a senior/ TL/ Principal if you think that approach would be more suitable.

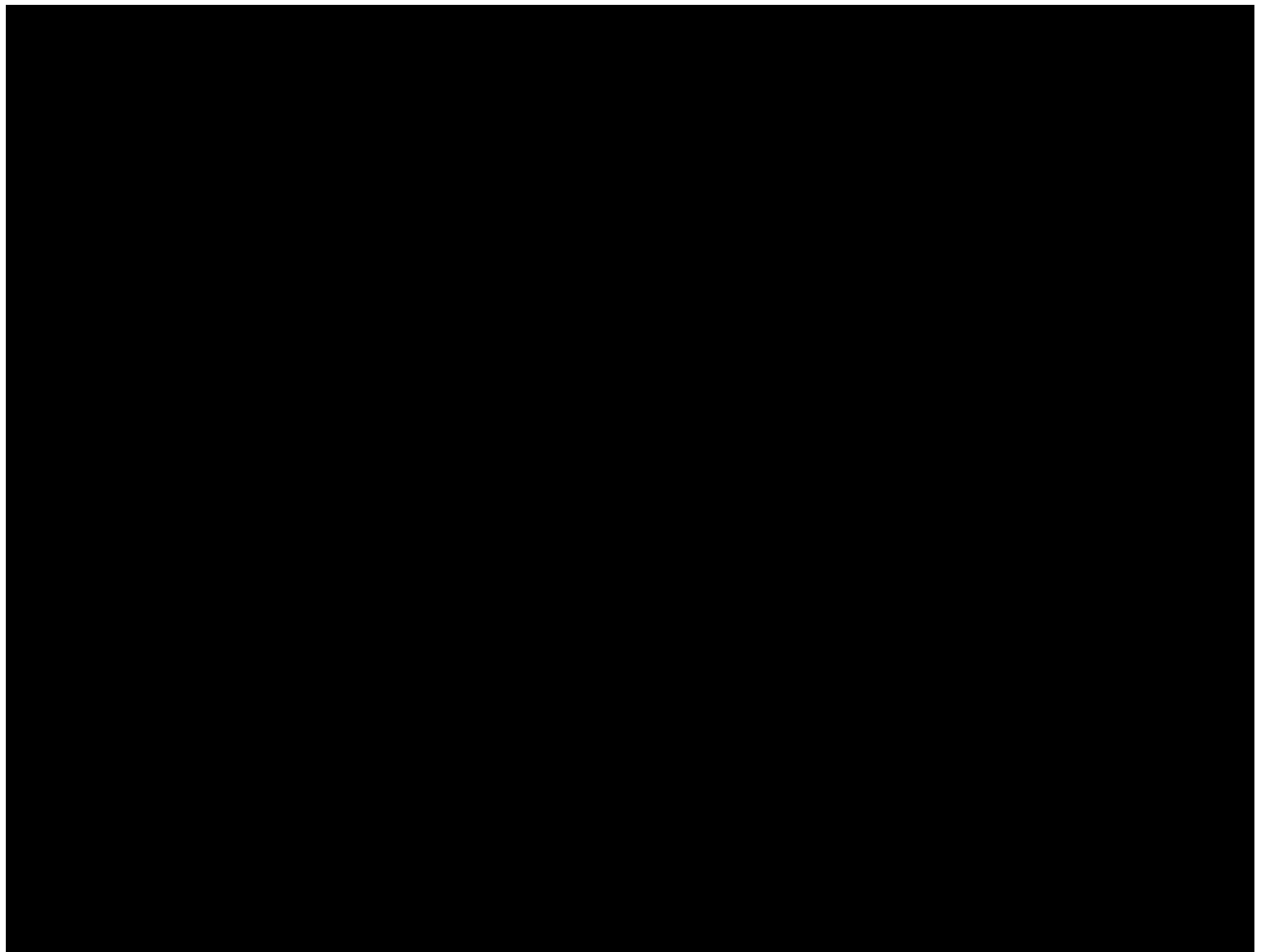
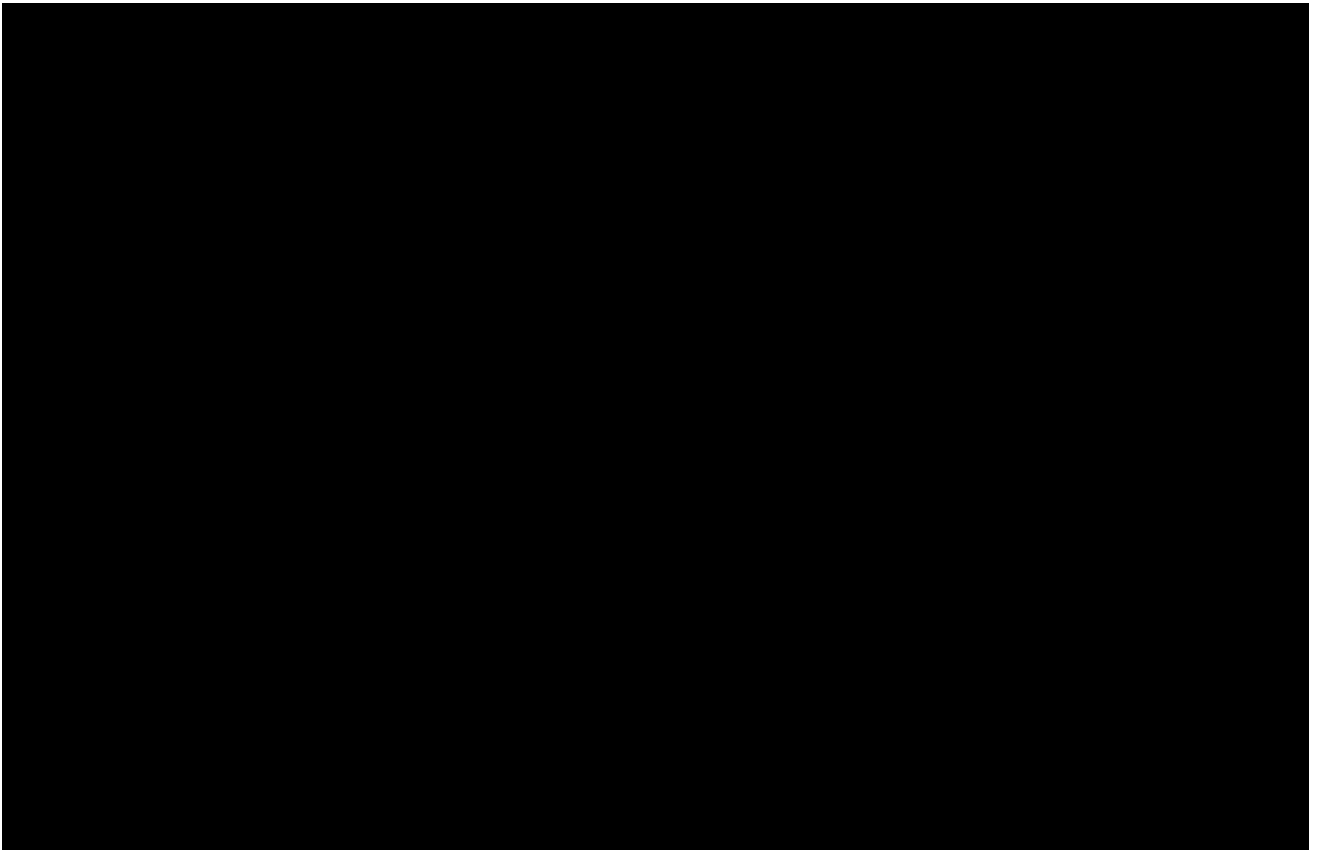
The wording for the conditions to be included in the subservient consent document can be found in the standard conditions manual.

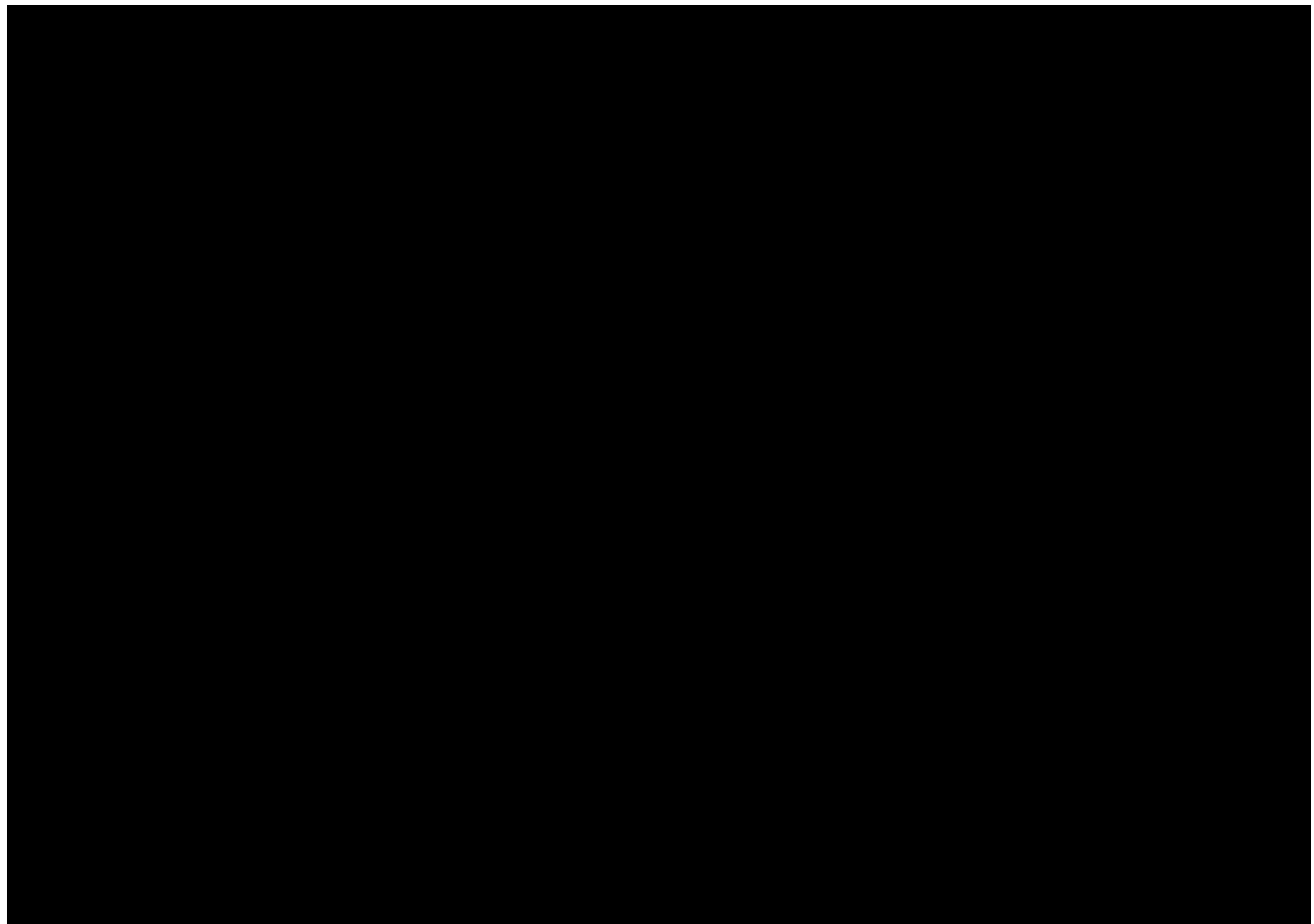
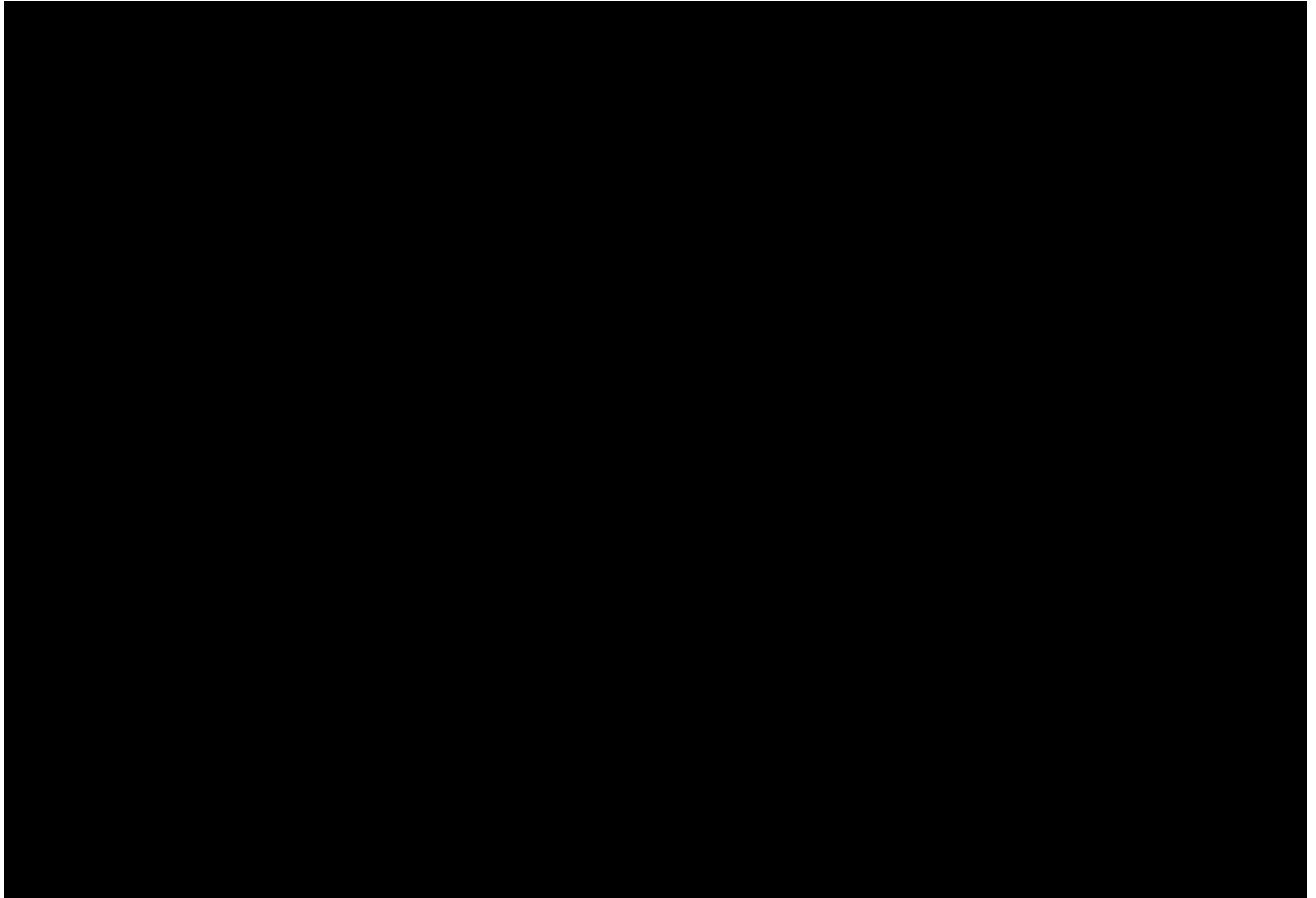
## **8 Some examples of applications that have been processed**











## Should I send my earthworks application for technical review?

### Technical Audit Matrix – Earthworks for residential development (Consent number **RMXX.XXX**)

This technical audit matrix is to be used to help with determining whether an application requires a technical audit.

Each risk factor in the matrix is assigned a number: green =1, orange = 2 and red = 3. The higher the number, the greater the risk not undertaking a technical audit may pose.

If any parts of the application fall into the Red High risk category, then you need to discuss the application with Team Leader. If your total is more than 14, you will need to discuss the application with a Team Leader as it may need a technical audit. Anything more than 17 should be going for technical audit.



Technical Reports -  
Consent Application

Before using this matrix, please check whether there is any information available in the technical audits file:

#### Key issues and potential risks:

Before completing the matrix, make sure you have identified the key issues and potential risks in relation to your application and note why this is a key issue/ risk. This will help you with completing the matrix below. This may be done at your s88 check time and also when the application check is completed with your senior. Undertaking this exercise will help you put the key issues into your reports.

*Note: 'Key issues' are the most important aspects that need to be considered as part of processing the application. 'Potential risks' can include matters related to the actual proposal (technical matters, effects), as well as contentiousness, previous non-compliance and complaints. Please ensure this list is concise and focusses on the key issues only and does not include other aspects that are less important for your recommendation.*

- Example key issue: works on sloping site adjacent to watercourse – potential for sediment run-off
- Example risk: nearby sensitive receivers
- Example risk: previous non-compliances by same developer
- ....
- ....

## Should I send my earthworks application for technical review?

	Low risk (1)	Medium risk (2)	High risk (3)	Score
<b>Scale of activity</b>	Small scale, low complexity, no staging <i>Simple, straightforward application for low risk activity with no potential adverse effect</i>	Medium scale, possible staging <i>low to medium risk with some potential for adverse effects</i>	Large scale, complex application, may involve staging <i>medium to high risk, public interest, likely adverse effects if not managed appropriately</i>	
<b>Sensitivity of receiving environment</b>	Site is significant distance from waterbodies, not contaminated land	Some sensitive receivers in the general vicinity of the works	Close proximity to sensitive receivers, including watercourses	
<b>Scheduled values</b>	No Scheduled values	May affect 1 or 2 Scheduled values	Many Scheduled values identified	
<b>Identified adverse effects/concerns</b>	No ecological, cultural or recreational values that will potentially be adversely affected	Some ecological, cultural or recreational values that will potentially be adversely affected	High cultural, recreational and ecological values that will potentially be adversely affected	
<b>Other Site specifics</b>	flat area of works  no known site instability concerns	Sloping area of works  Known instability concerns or soil type prone to erosion	Sloping area of works  Known instability concerns or soil type prone to erosion	
<b>Proposed mitigation</b>	Detailed erosion and sediment plan provided evidence of compliance with Auckland Guideline Document GD2016/005 OR Scale and site specifics allow effects to be managed via condition (no ESCP required)	Some/ draft erosion and sediment mitigation proposed.	No erosion and sediment plan provided	

## Should I send my earthworks application for technical review?

<b>Potentially affected parties</b>	No potentially affected parties	Several potentially affected parties	Many potentially affected parties /application of interest to wider public	
<b>Is there conflicting views/knowledge? Do we have certainty?</b>	Certainty No conflicts	Some certainty	Uncertainty ORC and applicant disagree	
<b>Total score</b>				<b>/24</b>

## Library of questions for technical audits

The below is a list of potential questions to ask for each consent activity type. You do not need to use all questions that are under the topic, please use your judgement.

### Contents

Gravel Takes.....	<b>Error! Bookmark not defined.</b>
Stream Clearance.....	<b>Error! Bookmark not defined.</b>
Air quality.....	<b>Error! Bookmark not defined.</b>
Surface water – Ecology.....	<b>Error! Bookmark not defined.</b>
Surface water – Hydrology.....	<b>Error! Bookmark not defined.</b>
Surface water – Ecology and Hydrology 6 year permits.....	<b>Error! Bookmark not defined.</b>
Groundwater.....	<b>Error! Bookmark not defined.</b>
Wastewater.....	<b>Error! Bookmark not defined.</b>
Hazard assessment .....	<b>Error! Bookmark not defined.</b>
Defence against water outside a waterbody.....	<b>Error! Bookmark not defined.</b>
Coastal.....	<b>Error! Bookmark not defined.</b>
General Structures.....	<b>Error! Bookmark not defined.</b>
<b>Earthworks.....</b>	<b>1</b>
Water Permit Data.....	<b>Error! Bookmark not defined.</b>

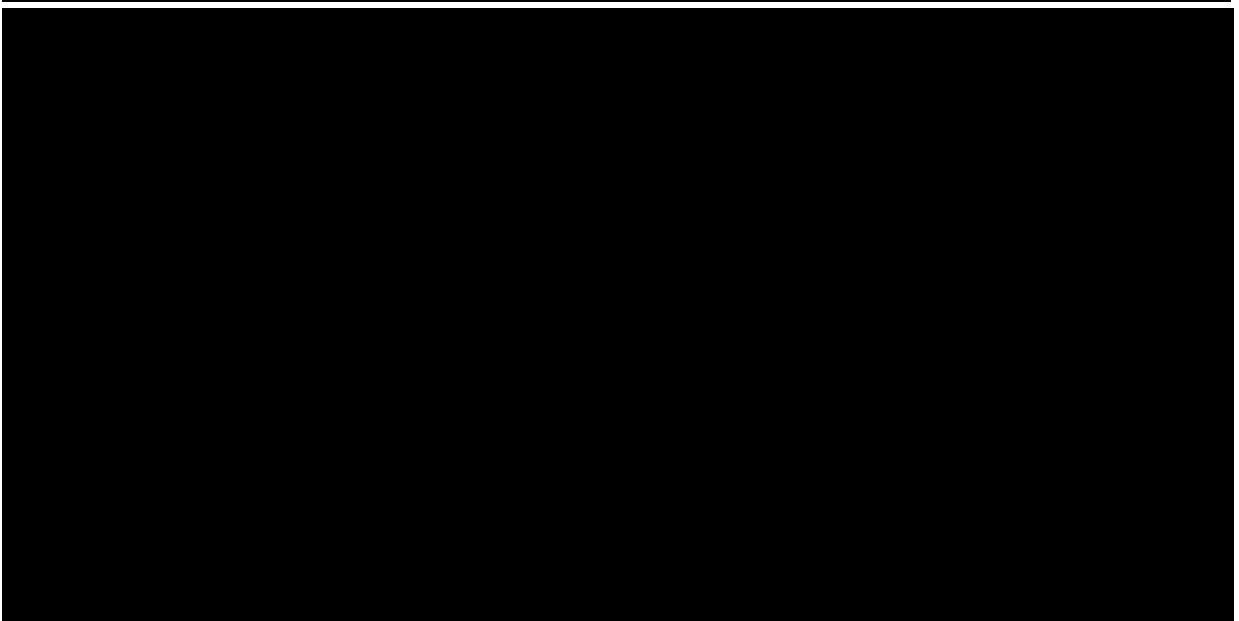
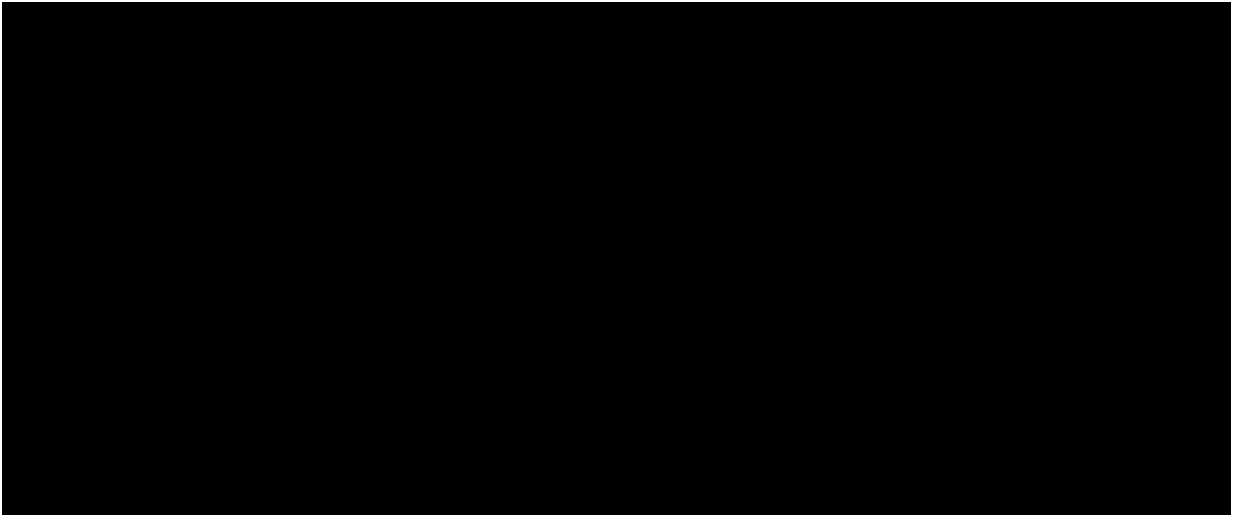
[...]

### Earthworks

- Does the application appropriately identify sensitive areas? Yes/no.
- Is the description of the sensitive areas' attributes potentially affected by the activity accurate? Yes/no.
- Have the effects on water quality been appropriately assessed? Please include details on the appropriateness of the method of assessment.
- Have the effects on aquatic/ terrestrial ecosystems been appropriately assessed? Please include details on the appropriateness of the method of assessment.
- Is the proposed staging appropriate?
- Has the effect on other properties/other surrounding activities/ local authority networks\* been appropriately assessed? Yes/no
- Have the cumulative effects of the activity been appropriately assessed? Yes/no
- Is the proposed monitoring appropriate? Should there be any amendments to sampling frequency/ analytes sampled/ location of monitoring?
- Based on the proposed mitigation methods (if any are proposed) are the mitigation measures proposed by the applicant appropriate in this circumstance? If no, why not?

- Please focus on [select relevant]:
  - Type of measure(s) proposed
  - Location/ placement of measure(s)
  - Adaptive management approach
- ***Will there be any (sediment) discharge INTO a local authority pipe network (who in turn may require consent to discharge such sediment FROM their pipes)***



**Appendix: 5****3.31 THE USE OF LAND FOR EARTHWORKS FOR A RESIDENTIAL DEVELOPMENT****3.32 LAND USE CONSENT****General Conditions****Condition X: Activity***All risk and all consents*

This consent authorises the use of land for residential earthworks and the associated discharge of sediment laden water to XX *[name water bodies if relevant]*, within the area of land shown on Plan X *[depending on application, available areas may be the entire property, or only selected sites]*.

**Condition X: Activity in accordance with plans***All risk and all consents*

The **use of land for earthworks for residential development** must be carried out in accordance with the plans and all information submitted with the application, detailed below, and all referenced by the Consent Authority as consent number **[insert consent reference number/s]**.

- a) Application form, and assessment of environmental effects prepared by **[name]**, dated **[date]**.
- b) **[list reports supporting the application: report title date]**
- c) **[list plans provided with application: plan title, date]**
- d) **[list other additional information where relevant]**

If there are any inconsistencies between the above information and the conditions of this consent, the conditions of this consent will prevail.

*Practice Note: This condition is to be included on all consents. Full reference should be given to all relevant plans and documents (including any s92 information). Ensure you refer to final versions of plans and documents.*

**Condition X: Copies of documents must be present on-site***All risk and all consents*

Prior to commencement of the works described in condition **[x]** of this consent the Consent Holder must ensure that all personnel working on the site are made aware of, and have access at all times to:

- a) The contents of this document;
- b) **The final erosion and sediment control plan as required by condition X;**
- c) **The Environmental Management Plan as required by condition x;**
- d) **Insert any other relevant documents**

Copies of these documents must be present on-site at all time while the work authorised by this consent is being undertaken.

*Practice Note: This condition should be imposed where the consent authorises construction works or any ongoing land use activity involving works/contractors.*

**Condition X: Exercise of consent in conjunction with other consent/s***All risk and all consents*

The **[activities/works]** authorised by this consent must only be exercised in conjunction with consent **[insert consent reference and purpose]**.

*Practice Note: This condition should be included if the consent need to be exercised with another consent.*

**Condition X: In accordance with Auckland Council Guideline Document GD2016/005**

*Low risk consents – check your matrix*

All earthworks for residential development must be carried out in accordance with the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016 (Auckland Council Guideline Document GD2016/005).

*Practice note: This condition should be imposed where none or no detailed mitigation measures have been proposed or where the application only states that they will comply with GD05, and where due to the low risk no further detail is required as part of the processing of the application.*

**Condition X: Ensure machinery does not discharge/ spill hazardous substance during earthworks**

*All risk and all consents*

All machinery associated with the earthworks activity must be operated in a way, which ensures that spillages of hazardous substances such as fuel, oil, grout, concrete products and any other contaminants are prevented.

*Practice note: This Condition should be used where there is some risk of effects identified (risk indicators could include: site characteristics requiring a range of machinery, and possibly storage/refill areas). Consideration should be given to whether there are activities occurring next to sensitive environments or the nature or volumes of materials being used on site pose a high risk of discharging hazardous substances.*

**Condition X New: Ensure stability of the site/neighbouring sites**

*All risk and all consents*

All earthworks must be managed to ensure that they do not lead to any uncontrolled instability or collapse either affecting the site or adversely affecting any neighbouring properties. In the event that such collapse or instability does occur, it must immediately be rectified.

**Pre-Commencement Conditions****Condition X: Prestart notification to Consent Authority**

*Low risk consents – check your matrix*

The Consent Holder must notify the Consent Authority in writing of the commencement date of **[insert works/activity]** no less than 10 working days prior to the commencement of works.

*Practice Note: This condition should be included on simple coastal/damming/water /land use consents where prestart notification to council is required.*

*Medium-high risk only – check your matrix*

The Consent Holder must notify the Consent Authority in writing of the commencement date of [insert works/activity], no less than 10 working days prior to the commencement of works. The prestart notification must include the following information:

- a) The start date of works
- b) Photographs of the area/s where work is to be undertaken - Photographs must be in colour and no smaller than 200 x 150 millimetres in size and be in JPEG form.
- c) Advise the Environmental Representative for the works programme and provide contact details to the Consent Authority.

*Practice Note: This condition should be included on more complex coastal/damming/ water/ land use consents where prestart notification and photographs to council are required.*

**Condition X: Site Induction for all staff/ contractors**

*Medium-high risk only – check your matrix*

Prior to commencing any work on site, the Consent Holder must ensure that all staff (including all sub-contractors) involved in, or supervising, works onsite have attended an Environmental Site Induction. A record of attendance must be maintained and made available upon request.

**Condition X: Environmental Management Plan**

*High risk (draft EMP required during consent processing) - check your matrix*

At least 15 working days prior to the first exercise of this consent, the Consent Holder must submit a Environmental management Plan (EMP) for review and acceptance by the Consent Authority. This document must be prepared by a Suitably Qualified and Experienced Person. The EMP must be based on the draft EMP dated XXX submitted as part of the application, and must address the following (as a minimum):

- a) Administrative Requirements
  - i. Weekly site inspections
  - ii. Monthly environmental reporting
  - iii. Independent audit by Suitably Qualified and Experienced Person
  - iv. Notification and management of environmental incidents
  - v. Records and registers
  - vi. Environmental roles and responsibilities of personnel (including nomination of Principal Contractor)
  - vii. Site induction
- b) Operational Requirements
  - i. Erosion and sedimentation, including an Erosion and Sediment Control Plan to be prepared by a Suitably Qualified and Experienced Person
  - ii. Water quality
  - iii. Dust
  - iv. Cultural heritage
  - v. Noise
  - vi. **Vibration [remove if not relevant]**

- vii. Indigenous vegetation clearance
- viii. Chemical and fuel management
- ix. Waste management

Works must not commence until the Consent Authority has confirmed in writing that the EMP has been accepted.

### **Condition X: Erosion and sediment control plan**

*Medium- high risk - Medium-high risk only – check your matrix*

Prior to the commencement of earthwork activity on the subject site, an Erosion and Sediment Control Plan (ESCP) must be prepared and submitted to the Consent Authority for acceptance. The ESCP must contain sufficient detail to address the following matters [add/delete matters as relevant]:

- a) Specific erosion and sediment control works (locations, dimensions, capacity etc);
- b) Supporting calculations and design drawings;
- c) Catchment boundaries and contour information;
- d) Details of construction methods;
- e) Timing and duration of construction and operation of control works;
- f) Processes in place if unexpected contaminated land is encountered;
- g) Measures to avoid silt and/or sediment tracking onto roads and then to water for the duration of the earthworks, including but not limited to:
  - i. Providing stabilised entry and exit point(s) for vehicles;
  - ii. Provide wheel wash facilities; and
  - iii. Clean road surfaces using street-sweepers immediately where sediment has been tracked onto the road.
- h) Details relating to the management of exposed areas; and
- i) Monitoring and maintenance requirements.

Works must not commence until the Consent Authority has provided their acceptance of the ESCP in writing.

*Practice Note: This condition is required for consents with medium to high risk and is to be included on all in-river resource consents where the release of sediment needs to be effectively controlled.*

*(very) High risk:*

- a) The Erosion and Sediment Control Plan (ESCP) that forms part of the EMP required by **Condition X** must be prepared by a Suitably Qualified and Experienced Person and must contain sufficient detail to address the following matters:
  - i. Specific erosion and sediment control works (locations, dimensions, capacity etc);
  - ii. Supporting calculations and design drawings;
  - iii. Catchment boundaries and contour information;
  - iv. Details of construction methods;
  - v. Timing and duration of construction and operation of control works;
  - vi. Details relating to the management of exposed areas; and

- vii. Monitoring and maintenance requirements including at a minimum:
  - (i) inspection of the sediment and erosion controls at the site on a monthly basis; and
  - (ii) If a heavy rainfall event is forecast, undertake pre-event inspections and any maintenance that is required and postpone work as required.
- b) The ESCP must be updated when:
  - i. The construction program moves from one Stage to another; or
  - ii. Any significant changes have been made to the construction methodology since the original plan was accepted for that Stage; or
  - iii. There has been an Environmental Incident and investigations have found that the management measures are inadequate.
- c) Any updated versions of the ESCP must be submitted to the Consent Authority immediately for review and acceptance. Works on a new Stage must not commence until the Consent Authority has confirmed in writing that the updated ESCP has been accepted, and all works must be undertaken in accordance with the most current ESCP accepted by the Consent Authority.
- d) The Consent Holder must establish and implement document version control and ensure that the Consent Authority is provided with an electronic copy of the most current and complete version of the EMP and ESCP at all times.

*Practice Note: This condition is required for staged applications only. It can be imposed with or without conditions relating to Adaptive Management Plans.*

#### **Condition X: Implementation of Controls prior to Commencement of Works**

##### *Very low risk (No ESCP required during processing or prior to commencement):*

To ensure effective management of erosion and sedimentation during earthworks, the consent holder must ensure that all practicable measures are taken to:

- a) divert clean runoff away from disturbed ground;
- b) control and contain stormwater run-off;
- c) avoid sediment laden run-off from the site.

##### *Low risk:*

Prior to the commencement of earthworks activity, all required erosion and sediment control measures on the subject site must be constructed in accordance with the information contained and approved in the application **OR** approved **XX** Erosion and Sediment Control Management Plan *[include specific reference to the document]*.

*Practice Note: This condition is required to be included if requirement for an erosion and sediment control plan is included in consent conditions OR if measures were proposed and approved as part of the consent*

##### *Medium and high risk:*

Prior to commencement of earthworks for the initial stage and/ or any subsequent new stage of works, the Consent Holder must install erosion and sediment controls in

accordance with the ESCP and provide As-Built Documentation to the Consents Authority. These measures must remain in place for the duration of the respective stage(s) or until all exposed areas of earth are permanently stabilised.

## In Progress Conditions

### Condition X: Complaints

#### *Medium – high risk*

The Consent Holder must maintain a record of any [insert nature of complaint – e.g. air quality, sediment discharge] complaints received in relation to the exercise of this consent. The register must include, but not be limited to:

- a) The date, time, location and nature of the complaint;
- b) The name, phone number, and address of the complainant, unless the complainant elects not to supply this information;
- c) action taken by Consent Holder to remedy the situation and any policies or methods put in place to avoid or mitigate the problem occurring again.

A record of the complaints must be submitted to the Consent Authority by [X each year or every X months] and made available for inspection at other times upon request.

OR

A record of the complaints must be submitted to the Consent Authority along with the Monthly Environmental Report required by Condition X

OR

[for more contentious activities e.g. contaminated land activities] *The Consent Holder must, within 24 hours, inform the Consent Authority of any complaints received from any person about activities on the site associated with the consented works.*

*Practice Note: General condition that can be amended as required to the specific activity or nature of the activity.*

### Condition X: Earthworks near riverbed

#### *All risk (where near river)*

In carrying out any earthworks directly adjacent to the riverbed, the following standards must be adopted:

- a) Keep work areas outside flowing water to the extent practicable;
- b) Minimise the overall non-stabilised earthworks footprint;
- c) Progressively stabilise completed areas of earthworks as soon as practicable;
- d) Divert clean run off away from non-stabilised earthworks areas;
- e) Use the best practicable option to design and install a variety of perimeter controls for the management of flows of water and sediment and sediment retention; and
- f) If a heavy rainfall event is forecast, undertake pre-event inspections and any maintenance that is required and postpone work as required.

In the event that a discharge occurs, works must cease immediately, and the discharge must be mitigated and/or rectified to the satisfaction of the Consent Authority.

*Practice Note: Use this condition as a standalone condition for smaller scale earthwork activities. For larger scale earthwork activities, additional conditions should be added, including an Environmental Management Plan condition and an Erosion and Sediment Control Plan required during processing.*

### **Condition X: Ensure effectiveness of sediment and erosion controls**

*Low, medium, high*

The operational effectiveness and efficiency of all erosion and sediment control measures specifically required by condition **XX** or by the **XX** Erosion and Sediment Control Plan [include specific reference to the document] must be maintained throughout the duration / each stage [delete as required] of earthworks activity, or until the site is permanently stabilised against erosion [select relevant]. A record of any maintenance work must be kept and be supplied to the Consent Authority on request.

*Advice Note: As a guide, maintenance of the erosion and sediment control measures required by condition (XX) should seek to ensure that the accumulated sediment be removed from sediment retention devices prior to reaching 20% storage live storage capacity. Sediment removed from treatment devices should be placed on stable ground where it cannot re-enter the device or be washed into any watercourse.*

*Where maintenance work is required to ensure the effectiveness of these erosion and sediment control measures, the record should include the date, time and details on the nature of any maintenance. The site manager (or equivalent) will need to ensure regular inspections of these measures, and particularly within 24 hours after any rainstorm event. Where it is identified that erosion and sediment control measure have become ineffective and maintenance is required, the consent authority should be contacted.*

### **Condition X: Certification of erosion and sediment controls**

*Medium to high*

Within 10 working days following installation of the specific erosion and sediment control works referred to in condition [X], and prior to the commencement of earthworks activity on the subject site, a suitably qualified professional must provide written certification that the erosion and sediment control measures have been constructed and completed in accordance with [the erosion and sediment control plan or condition reference] to the Consent Authority.

Certification of the sediment and erosion control structure(s) should contain sufficient details to address the following matters: [Add matters that should be specifically addressed in this assessment e.g.]:

- Details on the contributing catchment area
- Retention volume of structure (dead storage and live storage measured to the top of the primary spillway)
- Dimensions and shape of structure
- Position of inlets/outlets



### Details regarding the stabilisation of the structure

The operational effectiveness and efficiency of all erosion and sediment control measures must be maintained throughout the duration/each stage of earthwork activity, or until the site is permanently stabilised against erosion. A record of any maintenance work must be kept and be supplied to the Consent Authority on request.

*Practice Note: Use this condition where review and acceptance of erosion and sediment controls are required prior to earthworks commencing.*

### Condition X: Notification and photographs upon completion

#### All risk

The Consent Holder must notify the Consent Authority in writing no less than 10 working days following the completion of residential earthworks [of each stage – delete if necessary], and must provide photographs of the area/s where work has been undertaken [specify the photographs required in further detail is needed].

[this condition may be modified to include the provision of as built plans if required]

Photographs must be in colour and be no smaller than 200 x 150 millimetres in size and be in JPEG form, and to the satisfaction of the Consent Authority.

*Practice Note: This condition should be included if the prestart condition which requires photographs is also to be imposed, or if council considers photographs are required to demonstrate that the works have been completed satisfactorily.*

### Condition X: Minimise runoff

#### All risk

During earthwork activities, the ingress and accumulation of surface run off water and/or perched groundwater must be minimised by:

- a) Maintaining a waterproof cover over any excavation trenches and pits outside of working hours;
- b) Diversion of surface water flow around the work areas; and
- c) Regular disposal of the water, if ponding occurs within the excavation.

*Practice Note: This condition is required to be included on resource consents as required.*

### Condition X: Not authorising works on a contaminated site

- (a) This consent does not authorise work on a contaminated site.
- (b) If unexpected contamination is discovered, the consent holder must cease all earthworks in the area of the contamination immediately and notify the consent authority. Works in the area affected by contamination can only recommence once any required consents are obtained.

### Advice note X:

Additional consent(s) may be required if material other than cleanfill is proposed to be used on site.

### Condition X: Stabilised entrance to site

In order to prevent site access points from becoming sediment sources that lead to sediment laden water entering waterways from the road, the consent holder must ensure that all ingress and egress points to the site are Stabilised Construction Entrances. All construction traffic must be limited to these entrances only.

### Condition X: Minimising disturbance and contaminant release

#### Medium to high

For the duration of all [specify activities to which this condition relates. E.g. construction activities] and during the first exercise of this consent [or, if possible, specify the particular activity or works to make it clear what first exercise means]:

- a) All machinery must be clean, free of contaminants and in good repair, prior to entering the site;
- b) No construction materials may be left in a position where they could be carried away by storms, floods, waves or other natural events;
- c) The Consent Holder must take all practicable measures to prevent spills of hazardous substances being discharged into water or onto land in a manner that may enter water. Such measures may include, but not be limited to;
  - i. all practicable measures must be undertaken to prevent oil and fuel leaks from vehicles and machinery;
  - ii. fuel storage tanks and machinery must be maintained at all times to prevent leakage of oil and other contaminants;
  - iii. no refuelling of machinery or equipment must occur in the CMA/river;
  - iv. there must be no storage of fuel within [x] metres of the CMA/river;
  - v. a spill kit, that is capable of absorbing the quantity of oil and petroleum products that may leak or be spilt must be kept on-site at all times.
- d) The Consent Holder must inform the Consent Authority immediately and no later than 24 hours of an oil spill and must provide the following information;
  - i. the date, time, location and estimated volume of the spill;
  - ii. the cause of the spill;
  - iii. clean up procedures undertaken;
  - iv. details of the steps taken to control and remediate the effects of the spill on the receiving environment;
  - v. as assessment of any potential effects of the spill; and
  - vi. measures to be undertaken to prevent a recurrence.
- e) All damage and disturbance to XXXXX caused by vehicle traffic, plant and equipment must be remedied as soon as practicable;
- f) Within 10 working days following the completion of earthworks on the subject site all areas of exposed soil must be permanently stabilised against erosion.
- g) All machinery, fencing, signs, chemicals, rubbish, debris and other materials must be removed upon completion of the works within X timeframe. [include any additional requirements to leave the site tidy as appropriate – these need to be specific]

*Practice Note: For more complex construction activities and effects, it will likely be appropriate to require the preparation of a Construction Management Plan as well.*

**Condition X: Incidence response***Low to medium risk*

Where any incident caused by the residential earthworks [specify type of effect that would be of particular importance based on site specifics] has led to any adverse environmental effects occurring offsite that exceed what has been granted as part of this consent, the Consent Holder must:

- a) Report to Consent Authority details of the incident within 12 hours of becoming aware of the incident.
- b) Identify any corrective actions taken by the Consent Holder so far.
- b) Provide a comprehensive Environmental Incident Report to the Consent Authority within 10 working days of the incident occurring.

**Condition X: Discharge must not give rise to significant effects**

The discharge, must not give rise to all or any of the following effects in the receiving water:

- a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or
- b) Any conspicuous change in the colour or visual clarity; or
- c) A noticeable increase in local sedimentation.

**Advice Note X: Conspicuous change:**

To calculate the change in clarity in the water, follow the below calculation:

Upstream – Downstream = Change

Change ÷ Upstream X 100 = % Change

A conspicuous change in visual clarity is defined as 40%.

**Condition X: Requirements for decanting earth bunds (DEBs)***Medium to high risk*

All decanting earth bunds utilised during earthworks must be designed to ensure that they:

- a. have a **two percent** storage capacity, being at least two cubic metres of impoundment volume **for every 100m<sup>2</sup> of contributing catchment**;
- b. have a level invert and two layers of geotextile covering and pinned securely to the emergency spillway to prevent erosion;
- c. use floating decant devices that discharge at a rate of **3 litres** per second, per hectare of contributing catchment;

*(Delete if not applicable)* All DEBs must be chemically treated in accordance with the Chemical Management Plan required under condition X.

*Practice Note: This condition will be appropriate in almost all situations where DEBs are proposed. Importantly, this condition must only be imposed when DEBs have been discussed and approved as part of the assessment process.*

**Condition X: Chemical Treatment Management Plan to be supplied***Medium to high risk*

Prior to the commencement of residential earthworks activity on the subject site, a finalised Chemical Treatment Management Plan (CTMP) must be prepared in accordance with XX [specific reference to any relevant code of practice – e.g. GD05] and submitted to the Consent Authority for review and acceptance. No earthwork activities must commence until acceptance in writing is provided by the Consent Authority that the CTMP meets the requirements of suitably mitigating/ avoiding adverse effects, and the measures referred to in that plan for the sediment retention ponds and/or decanting earth bunds (add or delete as required) have been put in place.

The CTMP must include the following formation as a minimum:

- a) Specific design details of chemical treatment system based on a rainfall activated dosing methodology for the site's sediment retention ponds;
- b) Monitoring, maintenance (including post-storm) and contingency programme (including a record sheet);
- c) Details of optimum dosage (including assumptions);
- d) Results of initial chemical treatment trial;
- e) A spill contingency plan; and
- f) Details of the person or bodies that will hold responsibility for long term operation and maintenance of the chemical treatment system and the organisational structure which will support this system.

*Practice Note: This condition can be employed when a Chemical Treatment Management Plan (CTMP) has been approved during the consent process (sometimes identified as a Flocculation Management Plan). It can be employed when either a draft CTMP requires finalisation, or where a CTMP is required to be prepared subsequent to the granting of consent.*

**Condition X: Approved chemical treatment management plan***Medium to high risk*

All sediment retention ponds and/or decanting earth bunds must be chemically treated in accordance with the Chemical Treatment Management Plan (CTMP) [include specific reference to the document]. All measures required by the CTMP must be put in place prior to commencement of the residential earthworks activity and be maintained for the duration of the residential earthworks..

**Condition X: Archaeological Discovery Protocol***All risk*

In the event that an unidentified archaeological site is located during works, the following will apply;

- a) Work must cease immediately at that place and within 20 metres around the site.

- b) All machinery must be shut down, the area must be secured, and the Heritage New Zealand Pouhere Taonga Regional Archaeologist and the Consent Authority must be notified.
- c) If the site is of Maori origin, the Consent Holder must also notify the appropriate iwi groups or kaitiaki representative [insert iwi groups/Kaitiaki representative if known to assist Consent Holder as to who to contact] of the discovery and ensure site access to enable appropriate cultural procedures and tikanga to be undertaken, as long as all statutory requirements under legislation are met (Heritage New Zealand Pouhere Taonga Act 2014, Protected Objects Act 1975).
- d) If human remains (koiwi tangata) are uncovered the Consent Holder must advise the Heritage New Zealand Pouhere Taonga Regional Archaeologist, NZ Police, the Consent Authority and the appropriate iwi groups or kaitiaki representative and the above process under (c) will apply. Remains are not to be disturbed or moved until such time as iwi and Heritage New Zealand Pouhere Taonga have responded.
- e) Works affecting the archaeological site and any human remains (koiwi tangata) must not resume until Heritage New Zealand Pouhere Taonga gives written approval for work to continue. Further assessment by an archaeologist may be required.
- f) Where iwi so request, any information recorded as the result of the find such as a description of location and content, must be provided for their records.

#### **Advice Note X: Heritage New Zealand Pouhere Taonga Act 2014**

##### *All risk*

Under the Heritage New Zealand Pouhere Taonga Act 2014 an archaeological site is defined as any place in New Zealand that was associated with human activity that occurred before 1900 and provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand (see Section 6). For pre-contact Maori sites this evidence may be in the form of Taonga (artefacts) such as toki (adzes) or flake tools as well as bones, shells, charcoal, stones etc. In later sites of European/Chinese origin, artefacts such as bottle glass, crockery etc. may be found, or evidence of old foundations, wells, drains or similar structures. Pre-1900 buildings are also considered archaeological sites. Burials/koiwi tangata may be found from any historic period. Archaeological sites are legally protected under Sections 42(1) & (2) of the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence under Section 87 of the Heritage New Zealand Pouhere Taonga Act 2014 to modify or destroy an archaeological site without an Authority from Heritage New Zealand Pouhere Taonga irrespective of whether the works are permitted, or a consent has been issued under the Resource Management Act 1993 or Building Act 1991.

#### **Condition X: Staging of earthworks – site management and erosion**

##### *All risk*

- a) The area of earthworks must be progressively stabilised against erosion at all stages of the earthwork activity and must be sequenced to minimise the discharge of contaminants to groundwater or surface water in accordance with **XX** Erosion and Sediment Control Plan.

- b) Interim stabilisation measures may include but are not limited to [add or delete as necessary]:
- i. the use of waterproof covers, geotextiles, or mulching
  - ii. top-soiling and grassing of otherwise bare areas of earth
  - iii. aggregate or vegetative cover that has obtained a density of more than 80% of a normal pasture sward

*Practice Note: The above conditions can be applied in instances where the extent of work required is likely to require earthworks to occur in a progressive/staged manner. This is usually identified as part of the application.*

#### *Medium to high risk*

Earthworks on the site must be staged in accordance with the application documents such that no more than [enter staging limit – i.e. area (hectares / demarcated stage)] are disturbed at any one time, and must be sequenced to minimise the discharge of sediments to groundwater/ surface water [select relevant] in accordance with XX Erosion and Sediment Control Plan.

*Practice Note: The above conditions is only required in instances where staging is proposed.*

#### **Condition X : Monthly monitoring**

##### *Medium -high risk*

The Consent Holder must engage a Suitably Qualified and Experienced Person to monitor the site monthly to;

- a) Ensure that the site is complying with its EMP and ESCP; and
- b) Identify any new environmental risks arising that could cause an environmental effect and suggest alternative solutions that will result in more effective and efficient management.

The outcome of these inspections must be included in the Monthly Environmental Report referred to in Condition X.

##### *Medium -High risk*

During the exercise of this consent, the Consent Holder must complete and submit reporting to the Consent Authority in the form of a Monthly Environmental Report. The Monthly Environmental Report must be submitted within 5 working days of the end of each month. The Monthly Environmental Report must include reporting and statements actively addressing but not limited to the following that occurred during the reporting month:

- a) Updates to the EMP and the ESCP;
- b) Weekly Site Inspections – number of inspections completed, and summary of corrective actions undertaken;

- c) Reporting on monitoring undertaken (including Pre- and Post-Rainfall Events as required by condition X and water quality sampling required by condition X) and whether non-conforming results were obtained; and

### **Condition X: Baseline monitoring is required**

#### *High risk*

- a) A **Freshwater and/or Coastal Baseline Report** containing pre-construction **in-stream** monitoring, in accordance with Conditions **(XX) – (XX)**, must be undertaken by a suitably qualified and experienced freshwater ecologist **for one summer and one winter period (delete or edit if required)**.
- b) The report must be provided to the Consent Authority for written acceptance at least 15 working days prior to the programmed commencement of works and must confirm pre-construction baseline environmental conditions.
- c) The **[Freshwater and / or Coastal]** Baseline Report must include as a minimum, information on the following matters:

*[Add and/or delete matters that should be addressed in this report e.g.]:*

- i. **sediment quality such as description of sediment inputs, transport, substrate composition and embeddedness,**
- ii. **water quality such as TSS and turbidity,**
- iii. **actual and potential inanga spawning habitat; and**
- iv. **identify the pre-construction condition of any Erosion Prone Streams against which to measure construction effects and possible mitigation measures.**

*Practice Note: This condition is only relevant where this information has not been provided as part of the application (and it was appropriate to leave the provision of this information until after the consent has been granted). The pre-construction baseline monitoring provides a more detailed understanding of receiving environment characteristics over a range of weather conditions and / or seasons. Due to this, the period for which the baseline monitoring needs to take place will vary based on the proposal. The details and content of that monitoring will also be specific to each site and cannot be easily represented in a template.*

### **Adaptive Management Plan (AMP) conditions**

#### **Condition X: AMP to be supplied**

##### *medium to high risk*

- a) No less than **20** working days (**edit number of working days if required**) prior to the commencement of earthworks on site an Adaptive Management Plan must be submitted

- to Consent Authority for review and acceptance. The purpose of the Adaptive Management Plan is to [insert purpose].
- b) The Adaptive Management Plan must include as a minimum, information on the following matters:
- i. [Add and/or delete matters that should be specifically addressed e.g.]:
  - ii. erosion and sediment control plan implementation;
  - iii. receiving environment monitoring;
  - iv. weather monitoring;
  - v. erosion and sediment control device monitoring;
  - vi. data interpretation;
  - vii. trigger thresholds;
  - viii. management responses;
  - ix. reporting.

#### **Condition X: Compliance with AMP**

*medium to high risk*

The consent holder must implement and comply with the Adaptive Management Plan referenced in **Condition X [or as submitted as part of the application]**, or any subsequent revisions accepted by the Consent Authority for the duration of the earthworks. Any proposed revisions of the Adaptive Management Plan must be submitted to the Consent Authority for written acceptance at least **10 working days (edit number of working days if required)** prior to formalising and implementing the revision.

*Practice Note: These conditions can be employed where an AMP has not been submitted as part of the application, yet the proposal involves large-scale earthworks which will require significant refinement of erosion and sediment control management once the consent for the development is granted.*

*Not all large-scale earthwork proposals will require the submission of an AMP. However, as a guide, if a site comprises one or more of the following characteristics an AMP should be provided as part of the AEE, or be required to be provided prior to any earthworks commencing:*

- earthworks exceeding **5ha**;
- earthworks proposed to be undertaken over multiple stages;
- anticipated duration of the residential earthworks programme;
- proximity of sensitive and/or complex ecological systems/receiving environments including, but not limited to streams and wetlands,
- slope of earthworks area and proximity to sensitive and/or complex ecological systems/receiving environments



**Condition X: Provide data to Consent Authority***Medium to high risk*

Upon request by the Consent Authority, the consent holder must make available any monitoring results and data recorded in accordance with the Adaptive Management Plan.

*Practice Note: A report containing sampling and monitoring results may be requested by the Consent Authority. This report is expected to contain the following details:*

- *the results of all monitoring within that period;*
- *a summary of receiving environment effects, including any ecological changes and subsequent ecological response;*
- *a summary of any event trigger levels exceedance that occurred and any subsequent change of the AMP.*

**Condition X : Changes to Adaptive Management Plan initiated by Council***Medium to high risk*

If in the Consent Authority's opinion, there are changes required to be made to the Adaptive Management Plan as a result of observed inefficiencies on site or identified within the site reporting, the Consent Authority may request that the Adaptive Management Plan be updated to address those inefficiencies. If such a request is made by the Consent Authority, the revised plan must be submitted to the Consent Authority within 5 working days of the request. The revision may not be implemented without the Consent Authority's approval.

*Practice note: Change requests could be addressed via s128 process however having this specific condition would allow for issues be resolved quicker. By its very nature, Adaptive Management Plans are a 'live' document.*

**After Completion of earthworks****Condition X: Manage erosion if work stopped/completed***All risk*

- a) Within 10 working days following completion or abandonment of earthworks on the subject site all areas of exposed soil must be permanently stabilised against erosion to the satisfaction of the Consent Authority.
- b) In accordance with condition (XX) measures to stabilise against erosion may include **[add or delete as necessary]**:
  - i. the use of mulching
  - ii. top-soiling and grassing of otherwise bare areas of earth

- iii. aggregate or vegetative cover that has obtained a density of more than 80% of a normal pasture sward

The on-going monitoring of these measures is the responsibility of the consent holder.

*Practice Note: This condition could be applied to large or small sites depending on the slope and surrounding environment (i.e. sensitive receptors, coastal environments etc.) and the nature of the earthwork activities proposed (staged etc).*

### **Condition X: Review condition**

*Medium to high risk*

The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent during the period of **three months either side of the date of granting of this consent** each year, or within two months of any enforcement action taken by the Consent Authority in relation to the exercise of this consent, **[insert if required- or on receiving monitoring results]**, for the purpose of:

- (a) Determining whether the conditions of this consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage, or which becomes evident after the date of commencement of the consent;
- (b) Ensuring the conditions of this consent are consistent with any National Environmental Standards, relevant regional plans, and/or the Otago Regional Policy Statement;
- (c) Reviewing the frequency of monitoring or reporting required under this consent;
- (d) **[if required]** Amending the monitoring programme set out in accordance with Condition/s **[X]**; or

*Practice Note: This condition should only be imposed in cases where the nature of the activity is such that a review is required after the consent has been given effect. Reasons for using this condition should always be outlined in the processing officers' report, and the condition should be explicit on the timeframes for a review, the effects that are of concern, and any information requirements.*

are permitted, or a consent has been issued under the Resource Management Act 1993 or Building Act 1991.

## **3.33 DISCHARGE CONDITIONS**

### **Condition X: As per the application**

The discharge to land must be carried out in accordance with the plans and all information submitted with the application, detailed below, and all referenced by the Consent Authority as consent number RXYZ.

- a) Application form, **details**
- b) **other information**
- c) **other information**

If there are any inconsistencies between the above information and the conditions of this consent, the conditions of this consent will prevail.

**Condition X: Operate with Land use consent**

This consent must be exercised in conjunction with Land Use Consent **RM XYZ**

**Condition X: Discharge quality standards**

*High risk*

The quality of **XXXX** must not exceed the standards specified below when sampled at **XXXX**:

Parameter [check relevant parameter against discharge type and likely contaminants of concern]	Units	Discharge Standard
5-day Biochemical Oxygen Demand (BOD <sub>5</sub> )	[unit and also measurement to be considered i.e. 95%ile, rolling medians etc, and insert requirements on the number of observations required for the reporting of percentile values either within or below the table as needed]. If you are adding in BOD <sub>5</sub> and there is a testing requirement make sure you specify what type of test you need as there are two main types of tests - TBOD <sub>5</sub> (Total Biochemical Oxygen Demand) and CBOD <sub>5</sub> (Carbonaceous Biochemical Oxygen Demand).	[to insert]
Total Suspended Solids (TSS)		
Total nitrate+nitrite nitrogen [(NO <sub>3</sub> -N) and/or (NO <sub>2</sub> -N)]		
Total ammoniacal nitrogen (NH <sub>3</sub> )		
Total nitrogen (TN)		
Total phosphorus (TP)		
Other (as applicable)		

[insert requirements on the number of observations required for the reporting of percentile values either within or below the table as needed]

*Practice Note: This condition must be imposed where discharge limits are considered to be appropriate. TSS is likely to be the most useful, alongside any limits for hydrocarbon related contaminants, or anything linked to potential contaminants on site. For most consents you will not need this condition.*

### Condition X: Discharge quality monitoring

*High risk*

Samples of **XXXX** must be collected and analysed for the following parameters at the frequencies specified below at the following map reference **NZTM 2000 in the XXXX**:

Parameter [check relevant parameter against discharge type and likely contaminants of concern]	Units	Monitoring Frequency
5-day Biochemical Oxygen Demand (BOD <sub>5</sub> )	[unit and also measurement to be considered i.e. 95%ile, rolling medians etc, and insert requirements on the number of observations required for the reporting of percentile values either within or below the table as needed]. If you are adding in BOD <sub>5</sub> and there is a testing requirement make sure you specify what type of test you need as there are two main types of tests - TBOD <sub>5</sub> (Total Biochemical Oxygen Demand) and CBOD <sub>5</sub> (Carbonaceous Biochemical Oxygen Demand).	[to insert i.e. daily, weekly, monthly etc]
Total Suspended Solids (TSS)		
Total nitrate+nitrite nitrogen [(NO <sub>3</sub> -N) and/or (NO <sub>2</sub> -N)]		
Total ammoniacal nitrogen (NH <sub>3</sub> )		
Total nitrogen (TN)		
Total phosphorus (TP)		
Other (as applicable)		

[insert requirements on the number of observations required for the reporting of percentile values either within or below the table as needed]

All samples must be collected and analysed in accordance with the latest edition of *[insert relevant/recommended guideline]* ; or by similar methods certified as being equivalent in writing by the Consent Authority.

*Practice Note: This condition must be imposed where discharge limits are considered to be appropriate. TSS is likely to be the most useful, alongside any limits for hydrocarbon related contaminants, or anything linked to potential contaminants on site. For most consents you will not need this condition.*

### **Condition X: Actions if discharge quality standards are exceeded**

#### *High risk*

In the event of one or more of the limits set out in condition [X] being exceeded, the Consent Holder must resample and/or retest that parameter to confirm the exceedance within 5 working days of the original sampling. In circumstances where one or more of the limits set out in condition [X] are exceeded on two consecutive sampling occasions and these results are confirmed exceedances (i.e. it is not due to faulty testing or other parameters affecting the results), the Consent Holder must report to the Consent Authority within 48 hours of any confirmed exceedance.

- a) This notification must include advice of any corrective actions taken by the Consent Holder.
- b) A comprehensive Environmental incident report must be provided to the Consent Authority within 20 working days of the notification of the exceedance. This report must include:
  - i. identification of the likely cause of the limit exceedance;
  - ii. the effects on the receiving environment likely to arise because of the limit exceedance;
  - iii. the management responses and remedial action undertaken so far;
  - iv. actions that may be necessary to prevent any further limit exceedances occurring;
  - v. identify remedial action that may be necessary and confirmation of implementation *Advice note: The consent holder is required to obtain any resource consents required prior to implementing remedial action.*
- c) **Within one month of the exceedance being detected, the Consent Holder must update the ESCP as necessary and provide a copy to the Consent Authority [delete as required]**

*Practice Note: This condition must be imposed where discharge limits are considered to be appropriate. For most consents you will not need this condition.*

## Appendix 6: Consent Examples

Our Reference: A1422340

RM20.385.01

### LAND USE CONSENT

Pursuant to Section 104C of the Resource Management Act 1991, the Otago Regional Council grants to:

Name: Orchard Road Holdings Limited

Address: Unit 2, 14 Teviot Street, Dunedin

To undertake earthworks for the purpose of residential development

For a term expiring: 10 December 2023

Location: Approximately 600 metres southwest of the intersection of Ballantyne Road and Enterprise Drive, Wanaka

Legal description: Lot 999 DP535926

Map reference of centre point: NZTM2000 1294793E 5041773N

#### Conditions Specific

1. The activities authorised by this consent must be carried out in accordance with the plans and all information submitted with the application, detailed below, and all referenced by the Consent Authority as application number RM20.385:
  - a) Consent Application dated 16 November 2020, lodged by Willowridge Developments Limited; and
  - b) Alpine Meadows Stage 1 Bulk Earthworks - Environmental Management Plan (Revision B), The Property Group, 2 July 2020.

If there are any inconsistencies between the above information and the conditions of this consent, the conditions of this consent will prevail.
2. This consent must be exercised in accordance with the Alpine Meadows Stage 1 Bulk Earthworks - Environmental Management Plan (Revision B), The Property Group, 2 July 2020, attached to the consent as Appendix 1, or any subsequent versions that provide further avoidance or mitigation of potential or actual adverse effects.
3. a) The EMP and any subsequent versions must be prepared by a Suitably Qualified and Experienced Person and must contain sufficient detail to address the following matters:
  - i) Specific erosion and sediment control works (locations, dimensions, capacity etc);
  - ii) Supporting calculations and design drawings;

- iii) Catchment boundaries and contour information;
  - iv) Details of construction methods;
  - v) Timing and duration of construction and operation of control works;
  - vi) Details relating to the management of exposed areas; and
  - vii) Monitoring and maintenance requirements.
- b) The EMP must be updated when:
- i) The construction program moves from one Stage to another; or
  - ii) Any significant changes have been made to the construction methodology since the original plan was accepted for that Stage; or
  - iii) There has been an Environmental Incident and investigations have found that the management measures are inadequate.
- c) Any updated versions of the EMP must be submitted to the Consent Authority immediately for review and acceptance. Works on a new Stage must not commence until the Consent Authority has confirmed in writing that the updated EMP has been accepted. If no such confirmation has been received within 15 working days of the updated EMP being submitted, then it can be assumed that it has been accepted.
4. The Consent Holder must establish and implement document version control. The Consent Authority must be provided with an electronic copy of the most current and complete version of the EMP at all times.
  5. Prior to the first exercise of this consent, the Consent Holder must nominate an Environmental Representative for the works programme and provide contact details to the Consent Authority.
  6. Prior to commencing any work on site, the Consent Holder must ensure that all staff (including all sub-contractors) involved in, or supervising, works onsite have attended an Environmental Site Induction. A record of attendance must be maintained and made available to the Consent Authority upon request.
  7. The Consent Holder must ensure that all personnel working on the site are made aware of, and have access at all times to:
    - a) The contents of this document; and
    - b) The Environmental Management Plan.
 Copies of these documents must be present on-site at all time while the work authorised by this consent is being undertaken.
  8. Prior to bulk earthworks operations for the initial stage, or any subsequent new stage of works, the Consent Holder must install erosion and sediment controls in accordance with the EMP as well as provide As-Built Documentation for these controls prepared by a Suitably Qualified and Experienced Person. These measures must remain in place for the duration of the project, until all exposed areas of earth are permanently stabilised.

#### **Performance Monitoring**

9. a) The Consent Holder must undertake and document weekly and Pre and Post-Rain Event site inspections.
- b) A Rain Event is defined as any precipitation event that generates overland flow.

c) Records of these inspections must be submitted along with the Monthly Environmental Report required by Condition 13.

10. The Consent Holder must engage a Suitably Qualified and Experienced Person to monitor the site monthly to;
- a) Ensure that the site is complying with the EMP; and
  - b) Identify any new environmental risks arising that could cause an environmental effect and suggest alternative solutions that will result in more effective and efficient management.

The outcome of these inspections must be included in the Monthly Environmental Report referred to in Condition 13 below.

11. The following standards apply to any discharge of stormwater or surface water runoff from the site:
- a) Total Suspended Sediment (TSS) - No increase in TSS from upstream of the site (where clean water is captured) to downstream of the site where that stormwater or surface flows beyond the site boundary.
  - b) pH - 6.5-8.5 (applicable when flocculants have been applied)
  - c) Hydrocarbons or tanins - no visible trace
  - d) Waste - no visible waste/litter

Samples must be collected and analysed for the parameters and at the frequencies specified in the current version of the Environmental Management Plan.

12. a) In the event of one or more of the limits set out in Condition 11 being exceeded, the Consent Holder must notify the Consent Authority within 12 hours of becoming aware of the incident, and, within one week of the exceedance being detected:
- i) Investigate the cause of the exceedance;
  - ii) Take remedial action to ensure that no further exceedances occur; and
  - iii) Complete and submit an Incident Report Form to the Consent Authority.
- b) Within one month of the exceedance being detected, the Consent Holder must update the EMP as necessary and provide a copy to the Consent Authority.
13. During the exercise of this consent, the Consent Holder must complete and submit reporting to the Consent Authority in the form of a Monthly Environmental Report. The Monthly Environmental Report must be submitted within 5 working days of the end of each month. The Monthly Environmental Report must include reporting and statements actively addressing but not limited to the following that occurred during the reporting month:
- a) Updates to the EMP;
  - b) Weekly Site Inspections – number of inspections completed, and summary of corrective actions undertaken;



- c) Reporting on monitoring undertaken (including Pre- and Post-Rainfall Events and water quality sampling) and whether non-conforming results were obtained; and
- d) Positive environmental outcomes achieved and opportunities identified by the consent holder.

### General

14. The Consent Holder must, within 24 hours, inform the Consent Authority of any complaints received from any person about activities on the site associated with the consented works.
  
15. a) On completion of each stage of the earthworks, all earthworked areas must be top-soiled and revegetated or otherwise permanently stabilised.  
b) The Consent Holder must notify the Consent Authority in writing of the completion of each stage of earthwork no less than 10 working days following the completion of works, and must provide photographs of the area/s where work has been undertaken. Photographs must be in colour and be in JPEG form.
  
16. Hours of operation for earthworks activities must be limited to Monday to Saturday (inclusive): 8.00am to 6.00pm, excluding public holidays.
  
17. In the event that an unidentified archaeological site is located during works, the following will apply;
  - a) Work must cease immediately at that place and within 20 metres around the site.
  - b) All machinery must be shut down, the area must be secured, and the Heritage New Zealand Pouhere Taonga Regional Archaeologist and the Consent Authority must be notified.
  - c) If the site is of Maori origin, the Consent Holder must also notify the appropriate iwi groups or kaitiaki representative of the discovery and ensure site access to enable appropriate cultural procedures and tikanga to be undertaken, as long as all statutory requirements under legislation are met (Heritage New Zealand Pouhere Taonga Act 2014, Protected Objects Act 1975).
  - d) If human remains (koiwi tangata) are uncovered the Consent Holder must advise the Heritage New Zealand Pouhere Taonga Regional Archaeologist, NZ Police, the Consent Authority and the appropriate iwi groups or kaitiaki representative and the above process under (c) will apply. Remains are not to be disturbed or moved until such time as iwi and Heritage New Zealand Pouhere Taonga have responded.
  - e) Works affecting the archaeological site and any human remains (koiwi tangata) must not resume until Heritage New Zealand Pouhere Taonga gives written approval for work to continue. Further assessment by an archaeologist may be required.

18. The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent during the period of three months either side of the date of granting of this consent each year, or within two months of any enforcement action taken by the Consent Authority in relation to the exercise of this consent, for the purpose of:
- a) Determining whether the conditions of this consent are adequate to deal with any adverse effect on the environment that may arise from the exercise of the consent and is appropriate to deal with at a later stage, or which becomes evident after the date of commencement of the consent;
  - b) Ensuring the conditions of this consent are consistent with any National Environmental Standards, relevant regional plans, and/or the Otago Regional Policy Statement;
  - c) Reviewing the frequency of monitoring or reporting required under this consent;
  - d) Amending the monitoring programme set out in accordance with Conditions 9, 10 and 11.

#### **Notes to the Consent Holder**

1. *Under the Heritage New Zealand Pouhere Taonga Act 2014 an archaeological site is defined as any place in New Zealand that was associated with human activity that occurred before 1900 and provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand (see Section 6). For pre-contact Maori sites this evidence may be in the form of Taonga (artefacts) such as toki (adzes) or flake tools as well as bones, shells, charcoal, stones etc. In later sites of European/Chinese origin, artefacts such as bottle glass, crockery etc. may be found, or evidence of old foundations, wells, drains or similar structures. Pre-1900 buildings are also considered archaeological sites. Burials/koiwi tangata may be found from any historic period. Archaeological sites are legally protected under Sections 42(1) & (2) of the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence under Section 87 of the Heritage New Zealand Pouhere Taonga Act 2014 to modify or destroy an archaeological site without an Authority from Heritage New Zealand Pouhere Taonga irrespective of whether the works are permitted, or a consent has been issued under the Resource Management Act 1993 or Building Act 1991.*
2. *If you require a replacement consent upon the expiry date of this consent, any new application should be lodged at least 6 months prior to the expiry date of this consent. Applying at least 6 months before the expiry date may enable you to continue to exercise this consent under section 124 of the Resource Management Act 1991 until a decision is made on the replacement application (and any appeals are determined).*
3. *The Consent Holder is responsible for obtaining all other necessary consents, permits, and licences, including those under the Building Act 2004, the Biosecurity Act 1993, the Conservation Act 1987, and the Heritage New Zealand Pouhere Taonga Act 2014.*

4. *This consent does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007 and the Health and Safety at Work Act 2015), regulations, relevant Bylaws, and rules of law. This consent does not constitute building consent approval. Please check whether a building consent is required under the Building Act 2004.*
  
5. *Where information is required to be provided to the Consent Authority, this must be provided in writing to [compliance@orc.govt.nz](mailto:compliance@orc.govt.nz). The email heading must reference this consent and the condition/s the information relates to.*

Issued at Dunedin this 10<sup>th</sup> day of December 2020



Joanna Gilroy  
**Manager Consents**

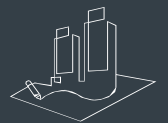
**Attachment 1** - Alpine Meadows Stage 1 Bulk Earthworks - Environmental Management Plan  
(Revision B), The Property Group, 2 July 2020

**ACCEPTED ENGINEERING DESIGN  
TO BE READ IN CONJUNCTION WITH EA LETTER  
RM191334**

**09 July 2020**



STRATEGIC PROBLEM SOLVING FOR INNOVATIVE OUTCOMES



# Environmental Management Plan

Alpine Meadows Stage 1 Bulk Earthworks

Orchard Road, Wanaka

Orchard Road Holdings Limited

May 2020

**ACCEPTED ENGINEERING DESIGN  
TO BE READ IN CONJUNCTION WITH EA LETTER  
RM191334**

**09 July 2020**

### Document Control

<b>Title</b>	Alpine Meadows Stage 1 Bulk Earthworks – Environmental Management Plan
<b>Client</b>	Orchard Road Holdings Limited
<b>Our Ref.</b>	716333
<b>Prepared by</b>	Quinn McIntyre (MSc, CEnvP, NZPI), Planning Manager – South Island   
<b>Reviewed by</b>	Quinn McIntyre - The Property Group

### Revision Register

Rev	Rev Date	Rev Details	Approved by
A	26/05/20	EMP for Construction	Project Manager
B	02/07/20	EMP for Construction (minor revisions)	Project Manager

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- Appendix 2** Calculations for Diversion Drain Channels and Sediment Retention Pond
- Appendix 3** Cut and Fill Plan / Construction Zones (Staging)
- Appendix 4** Site Environmental Induction Handout
- Appendix 5** Site Environmental Induction Register
- Appendix 6** Weekly Site Inspection Proforma
- Appendix 7** Water Quality Monitoring Results Proforma
- Appendix 8** Complaints Register
- Appendix 9** Incident Report Proforma
- Appendix 10** EMP Non-Conformance Register
- Appendix 11** Archaeological Discovery Protocol

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EMERGENCY CONTACTS

Please contact the Alpine Meadows Stage 1 Environmental Representative prior to making contact with the following emergency contact list. Contact made with any of the following should be undertaken with due consultation of the Environmental Representative or Project Manager.

<b>Element</b>	<b>Emergency Contact</b>	<b>Details</b>
Pollution incident	Otago Regional Council (ORC) Spill Hotline	0800 800 033
Environmental Complaint	Environmental Representative	Tim McDougall – 020411 23020
Discovery of contaminated land	Environmental Representative	Tim McDougall – 020411 23020
Unexpected heritage finds	Environmental Representative	Tim McDougall – 020411 23020
Discovery of human remains	New Zealand Police	111
Fire including bushfire	Fire and Emergency New Zealand (FENZ)	111
Public utilities	Queenstown Lakes District Council	03 441 0499
Internal contacts	Project Manager	Brendan Fenn – 027 435 2133
Internal contacts	Site Engineer	Steve Dickey – 027 433 3058
Internal contacts	Environmental Consultant	Quinn McIntyre – 021 022 600 46

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1.0 INTRODUCTION

### **1.1 Environmental Management Plan**

On behalf of Orchard Road Holdings Limited ('ORHL'), The Property Group ('TPG') has prepared this Environmental Management Plan ('EMP') to outline the mitigation measures to manage the environmental effects associated with the bulk earthworks phase of the Alpine Meadows Stage 1 Subdivision at Orchard Road, Wanaka.

The current project was consented under RM191334 and allows earthworks to prepare the site for future subdivision construction. This EMP responds to the environmental management related conditions of RM191334, specifically conditions 16-30.

This EMP will be used primarily to demonstrate how the best practice Environmental Management will be used to mitigate any Environmental concerns onsite. However, this report will also provide the technical guidance associated with environmental management to the contractor.

This EMP has been prepared according to *QLDC Guidelines for Environmental Management Plans, June 2019* ('The Guidelines'). According to the EMP Categories outlined in The Guidelines, this project is considered to have a 'High' environmental risk level and as such this EMP has been prepared on that basis.

The EMP is intended to be effective and practical. It provides a commitment to conforming to applicable environmental legislation (i.e. the *Resource Management Act, 1991* and relevant National Environmental Standards), regional and district planning documents and associated guidelines and standards along with continual improvement in environmental performance. It details how environmental safeguards outlined within relevant consents and specialist reports will be addressed. The principle purpose of the EMP is to be a reference manual for Alpine Meadows construction personnel, which contains mitigation measures to be implemented to manage the potential environmental effects of the construction works.

The Alpine Meadows project requires that the Project Team will continue to implement and develop the EMP requirements as defined in this document throughout the construction phase. This will ensure continual improvement and will account for:

- Changes to the construction program
- Improvements/changes to environmental management techniques
- Objectives and target review

### **1.2 Project Overview**

The scope of construction works generally involves:

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- Clearing of pasture vegetation.
- Installation of erosion and sediment controls
- Bulk earthworks (cut & fill)
- Stockpiling of topsoil and fill material for future use
- Installation of drainage channels and culverts
- Rehabilitation of disturbed areas.

### **1.3 Scope of the EMP**

The EMP applies to all the Projects activities during the bulk earthworks.

The aim is to reduce the environmental effects of the Project construction activities on the environment and stakeholders, whilst maintaining a high standard ensuring compliance to the approved resource consent conditions and The Guidelines.

The EMP includes as a minimum the following:

- Identification of significant aspects and environmental risks
- Strategies to manage environmental aspects and risks
- Includes all mitigation measures committed to in the relevant Resource Consent (RM191334)
- Evolves as mitigation measures are refined and site inspection results improve (driving continuous improvement)
- Includes contingency planning
- Provides a framework for impact monitoring, reporting, reviewing and improving
- Identified roles and responsibilities
- Includes procedures for investigating and resolving environmental non-conformances and initiating corrective and preventative actions
- Including a series of 'environmental operating procedures' for each environmental element according to The Guidelines

### **1.4 EMP Updates**

To drive continual improvement of environmental management on the Project, the EMP will be regularly reviewed through ongoing monitoring of the site to ensure that the document remains fit for purpose.

Changes to the EMP may be implemented as a result of the following:

- The construction program moves from one stage to another
- Significant changes to the construction methodology
- To respond to improvements identified as a result of an Environmental Incident, management failure or corrective action
- Where directed by QLDC's Monitoring and Enforcement team.

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All updates to the EMP shall be managed through document control procedures as recorded on page 2 of the EMP and shall be submitted to QLDC for acceptance at [RCMonitoring@qldc.govt.nz](mailto:RCMonitoring@qldc.govt.nz).

**1.5 Suitably Qualified and Experienced Professional**

This EMP has been prepared by Quinn McIntyre of The Property Group. Quinn is a Certified Environmental Practitioner (CEnvP) which meets the qualifications criteria required by The Guidelines.

Quinn has worked in various environmental roles on a range of construction projects, including bulk earthworks in New Zealand and Australia. His previous environmental roles included management of all environmental elements including erosion and sediment control and due to the sensitivity of that environment included monthly environmental audits undertaken by Quinn including auditing the erosion and sediment controls onsite.

Quinn has also prepared a number of EMPs and Erosion and Sediment Control Plans (ESCP) for Medium and High-Risk sites in the Queenstown Lakes District which have been accepted by QLDC on review of The Guidelines.

It is considered that Quinn meets the criteria of a Suitably Qualified and Experienced Professional (SQEP) for the purposes of preparing this EMP and overseeing the environmental aspects of this project.

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2.0 CONSTRUCTION METHODOLOGY

## 2.1 Sequencing of Works

Construction on this project will continue according to the following steps which will ensure that the Project is constructed as efficiently as possible whilst achieving the environmental objectives outlined in this EMP. The staging order has been selected to ensure the earthworks undertaken onsite do not cause any sediment-laden water to leave the site through the natural overland flow channels or via overland sheet flow.

The Zones outlined in the Paterson Pitts Group drawing '*Site Management Plan Construction Zones Overview*' and '*Site Management Plan Cut / Fill Areas*' attached as **Appendix 3** outlines the various 'Zones' and 'Cut and Fill' areas described below. The se together form the staging of this project.

This methodology will need to be read in conjunction with the Erosion and Sediment Control Plan attached as **Appendix 1** and the erosion and sediment control device detail outlined in Section 4 of this EMP:

### Establishment works

**Step 1** – Install sediment retention pond (SRP) and connect to attenuation pond downstream.

**Step 2** – Install dirty water diversion channel along northern boundary of works extent, installing check dams and drop out pits as works progress.

**Step 3** – Starting from Orchard Road install stabilised access, haul road, clean water diversion bund, dirty water diversion channel, culverts and finally the level spreader.

**Step 4** – Install super silt fences and drop pipe structures in centre of site.

**Step 5** – Install laydown and stockpile area.

**Step 6** – Starting from the SRP construct bund and dirty water channel along eastern boundary.

### ***Zone 1 cut and Upper Zone 3 fill***

**Step 7** – Working from the northern end of Zone 1 and moving south strip topsoil and commence cut and fill in Zone 3. Install sediment fence and contour drains as necessary as part of treatment train in combination with the dirty water diversion channels on the north and east extents of the works site.

Prepare finished surface subgrade prior to re-spreading of topsoil.

Spread topsoil, seed and apply any long-term stabilisation polymer (Enviroloc or similar) as works progress to provide for stabilisation as quickly as possible. Once stabilisation is achieved (i.e. 80% vegetative cover) this completed area can be diverted past the SRP directly to the attenuation pond as clean water. This

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should be undertaken at the direction of the Site Engineer.

***Zone 2 cut and Lower Zone 3 fill***

**Step 8** – Repeat Step 7 above between Zone 2 and Lower Zone 3.

Any excess fill to be stockpiled in accordance with the requirements for stockpiles outlined in section 4.2.5.12 of this EMP.

***Zone 4 cut and fill***

**Step 9** – Starting at the northern extent of Zone 4, commence stripping of topsoil, cutting and filling (i.e. to Fill 4 and 5 areas) with any excess fill to be deposited at the stockpile site.

A silt fence will be required at the toe of Fill 5.

As with previous stages commence topsoil, seed and apply any long-term polymers as soon as practicable to achieve early stabilisation. Once stabilisation is achieved (i.e. 80% vegetative cover) this completed area can be diverted past the SRP directly to the attenuation pond as clean water.

***Zone 5 cut and fill***

**Step 10** – Starting at the northern extent of Zone 5, commence stripping, cutting and filling (ie. to Fill 4 and 5 areas) with any excess fill to be deposited at stockpile. Once structural earthworks are complete, spread topsoil, seed and apply any long-term polymers. Once stabilisation is achieved (i.e. 80% vegetative cover) this completed area can be diverted past the SRP directly to the attenuation pond as clean water. sited at the stockpile site regrassing as works progress.

**Decommissioning**

**Step 11** – As soon as Zone 5 has reached stabilisation (i.e. 80% vegetative cover) and all areas have been re-routed past the SRP and directly to the attenuation pond, erosion and sediment controls can be removed unless they will be utilised for Stage 2 e.g. bunds, SRP, stockpile protection.

**2.2 Hours of Operation**

From Monday to Friday, site works will begin at 0700 hours to allow for set-up and pre-start checks.

Noise producing plant, vehicles or other earthworks activities may be undertaken between 0800 and 1700 from Monday to Friday.

No works are to be undertaken on Weekends or Public Holidays.

The above does not include emergency works or works required for incident investigation or response



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3.0 EMP IMPLEMENTATION

**3.1 Environmental Roles and Responsibilities**

Individual environmental responsibilities for the Project are detailed below:

Role	Environmental Responsibilities
<p><b>Project Manager</b></p> <p>Brendan Fenn – 027 435 2133</p>	<p>The Project Manager has responsibility for the effective implementation of the EMP and has overall responsibility for the environmental performance of the project.</p> <p>The Project Manager is primarily responsible for:</p> <ul style="list-style-type: none"> <li>- Ensuring adequate resources are in place to implement the EMP</li> <li>- Ensuring that project objectives and targets are achieved in accordance with the relevant EMP</li> <li>- Ensuring Project Managers, Supervisors, Employees and Sub-Contractors operate within the guidelines of the EMP</li> <li>- Ensuring that an EMP is prepared and that environmental standard, processes and procedures meet relevant resource consent conditions</li> <li>- Overseeing the successful implementation, monitoring and review of the EMP</li> <li>- Providing reporting of environmental incidents to the QLDC and other periodic environmental reports to QLDC as required by The Guidelines</li> <li>- Ensuring that inspections and audits are carried out in accordance with the relevant EMP</li> <li>- Restrict or stop any activity on the Project that has the potential to or has caused environmental effects</li> <li>- Delegate authority of the above responsibilities.</li> </ul>
<p><b>Site Supervisor</b></p> <p>TBC</p>	<p>The Site Supervisors are accountable to the Project Manager and responsible for:</p> <ul style="list-style-type: none"> <li>- Ensuring they understand and comply with EMP</li> <li>- Ensuring that site employees and sub-contractors are working in compliance with environmental requirements and work activities are not impacting the environment</li> <li>- Coordinating the implementation of the EMP</li> <li>- Identifying resources required for the implementation of the EMP</li> <li>- Coordinating actions in emergency situations/rapid stabilisation of site and</li> </ul>

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	<p>allocating appropriate resource for these activities</p> <ul style="list-style-type: none"> <li>- Restrict or stop any activity on the Project that has the potential to or has caused environmental effects</li> <li>- Ensuring that adequate instructions and information is provided to Operators which relate to environmental risks onsite</li> </ul>
<p><b>Environmental Representative</b></p> <p>Tim McDougall 021 411 230 20</p>	<p>The Environmental Representative is accountable to the Project Manager and supports the Project Manager and Site Supervisor in the day to day implementation of the EMP. This is a key environmental role for the Project and includes the following responsibilities:</p> <p><i>Coordinate the Implementation of the EMP</i></p> <ul style="list-style-type: none"> <li>- Ensure installation of environmental controls as per the EMP</li> <li>- Undertake environmental site inspections of the project including end-of-day inspections of controls</li> <li>- Oversee the maintenance and improvement of defective environmental controls</li> <li>- Undertake Environmental Incident reporting.</li> </ul> <p><i>Communication</i></p> <ul style="list-style-type: none"> <li>- Keep project leadership informed of environmental performance of the project</li> <li>- Inform staff of procedures and constraints applicable to managing specific environmental issues</li> <li>- May be responsible for providing environmental inductions to all staff and sub-contractors.</li> </ul> <p><i>Complaints and Incidents</i></p> <ul style="list-style-type: none"> <li>- Assist the project leadership in attending to Environmental Incidents and Complaints.</li> </ul> <p><i>Familiarity</i></p> <p>The Environmental Representative will be familiar with:</p> <ul style="list-style-type: none"> <li>- Environmental aspects of the project</li> <li>- Environmental Management Plan</li> <li>- Best practice erosion and sediment control from:</li> </ul>

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	<ul style="list-style-type: none"> <li>• Guidance Document 2016/005: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05); and/or,</li> <li>• Similar Regional Council guidelines from throughout New Zealand based on GD05 or internationally recognised best practice.</li> </ul>
<p><b>Environmental Consultant (SQEP)</b></p> <p>Quinn McIntyre 021 022 600 46</p>	<p>The Environmental Consultant will oversee the environmental management of the site and provide technical environmental management advice as and when required. The Environmental Consultant will undertake monthly monitoring of the site in accordance with The Guidelines to ensure that the EMP continues to provide adequate environmental management for the Project.</p> <p>The Environmental Consultant will deliver the Site Environmental Induction to core staff and also prepare and submit monthly reporting to Council.</p>
<p><b>All staff</b></p>	<p>All Project staff have responsibility for their own environmental performance and the impact they have on Project environmental performance. In particular, all staff are required to:</p> <ul style="list-style-type: none"> <li>- Undertake all activities in accordance with the requirements of the EMP</li> <li>- Ensure they are aware of the contact person related to environmental matters</li> <li>- Report to the Site Supervisor or Environmental Representative, any activity that has the potential to or has resulted in an Environmental Incident.</li> </ul>
<p><b>Subcontractors</b></p>	<p>The Project has a responsibility to ensure that all persons involved with the Project, including Subcontractors/Suppliers/Consultants and their employees shall comply with relevant environmental requirements. All subcontractor personnel are considered equivalent to staff personnel in all aspects of environmental management and control and their responsibilities mirror that of staff.</p> <p>All subcontractors and their employees shall participate in the Site Environmental Induction prior to commencing works.</p>

**3.2 Site Environmental Induction**

All staff and subcontractors will attend a site environmental induction to ensure they are aware of their environmental responsibilities. This will involve an induction session for all regular site staff prior to ground-disturbing activities with subcontractors to be inducted as they come onto the Project prior to undertaking work.

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A copy of the Site Environmental Induction material includes the following (document attached as **Appendix 4**):

- Basic roles and responsibilities for environmental management
- Specific locations within the site of environmental significance or risks, including Sensitive Environmental Receptors
- Scope and conditions of resource consents applicable to the works
- The limit of clearing and earthworks for each Stage of works
- Environmental management measures stipulated in the EMP
- Procedures of notifying of potential Environmental Incidents
- Procedures for managing storm events (wind and rain)

The induction will be delivered to core staff by the Environmental Consultant and then from that point on for sub-contractors and new staff by the Environmental Representative (see section 3.1). This will ensure that core staff are appropriately familiar with the environmental management approach for the site and will also provide the Environmental Representative with an example of how to deliver inductions from that point on.

The Project will maintain a register of all persons inducted and the register is attached as **Appendix 5**.

**3.3 Environmental Inspections**

Regular environmental inspections will be undertaken of the site to confirm that the environmental management of the site is capable of preventing environmental effects of the construction activity. Details of the specific environmental inspections to be undertaken by the Environmental Representative are outlined in the following table:

Environmental Inspection	Timing	Purpose
Weekly Inspection	Every 7 days	A comprehensive environmental inspection of the site to verify that: <ul style="list-style-type: none"> <li>- The management measures prescribed in the EMP for all environmental elements are present, functional and adequate</li> <li>- Identify any activities that may cause an environmental incident or actual or potential environmental effects</li> <li>- Identify maintenance requirements for implemented management measures.</li> </ul>

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		All weekly inspections will be recorded on the Weekly Site Inspection proforma attached as <b>Appendix 6</b> .
<b>End-of-Day Inspection<sup>1</sup></b>	End of each working day	<p>To ensure that:</p> <ul style="list-style-type: none"> <li>- Erosion and sediment controls are present, functional and adequate</li> <li>- Identify any activities that may cause an environmental incident or actual or potential environmental effects.</li> </ul> <p>This inspection will inform any improvement work required for the following day unless an issue is identified that presents risk of a potential environmental incident occurring overnight. This would warrant immediate remediation.</p> <p>Observations and remediation measures taken will be recorded in a daily job diary.</p>
<b>Pre-Event Inspection</b>	Prior to Significant Rain Event <sup>2</sup>	<p>To ensure that:</p> <ul style="list-style-type: none"> <li>- Erosion and sediment controls are present, functional and adequate to perform in the upcoming event based upon the forecast accumulation of rainfall.</li> </ul> <p>This inspection will inform any preventative work required prior to the event and may also result in escalation of the Rapid Response Procedure (see section 4.4).</p> <p>Observations and preventative measures taken will be recorded in a daily job diary.</p>
<b>Post-Event</b>	Immediately following a	To identify any failures of the erosion and sediment control devices that require remediation and if required if any environmental

<sup>1</sup> While The Guidelines require daily pre-start inspections, it is considered more appropriate for this site based on the inherent risks that the daily inspection occurs immediately prior to site shut-down each day so that any imminent environmental incidents can be remediated immediately.

<sup>2</sup> For the purposes of this EMP a significant rain event is defined as any rain event that is capable of generating overland flow.

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<b>Inspection</b>	Significant	incidents have occurred that require notification to QLDC/ORC.
	Rain Event	Observations and remedial actions shall be recorded in a daily job diary. Any environmental incidents shall result in the completion of an Environmental Incident Report being completed and submitted to QLDC within 10 working days of the incident occurring.

**3.4 Monthly Monitoring by SQEP**

The site will be monitored by a SQEP to ensure that the EMP is being implemented such that potential or actual environmental effects are appropriately managed. This monitoring will identify any unforeseen issues that may be arising and will advise on alternative environmental solutions that will result in more effective environmental management. Where these situations arise the SQEP will update the EMP accordingly and submit to QLDC for acceptance. Any updates will be managed through document control.

As the Environmental Consultant who is also a SQEP will be working with close supervision of the site, no independent environmental audits are considered necessary.

**3.5 Monthly Environmental Reporting**

The project will complete and submit exception reporting to QLDC in the form of a monthly environmental report within 5 working days of the end of each month.

The monthly environmental report will include the following information:

- Updates to the EMP and the Erosion and Sediment Control Plan ('ESCP') made during the month
- Number of weekly and pre and post rain event site inspections completed, and summary of corrective actions undertaken
- Summary of monitoring observations by SQEP and where any corrective actions were advised and whether they have been completed
- Positive environmental outcomes achieved and opportunities.

This reporting will be completed and submitted to Council by the Environmental Consultant (SQEP).

**3.6 Environmental Incident Management**

**3.6.1 Environmental Incident Response**

Environmental incidents shall be responded to immediately as the Project team becomes aware of them. This will involve:

- Immediate cessation of the activity that caused the incident

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- Investigation into the cause of the incident
- Contact Environmental Consultant for advice where site staff are unsure of how to control (to be engaged by the Project Manager)
- Formulation of a solution to bring the incident under control or remediate any environmental damage
- Implement any remediation works.

### **3.6.2 Notification of Environmental Incidents**

The Project Manager shall notify QLDC and/or ORC of the details of any Environmental Incident within 12 hours of becoming aware of the incident. This will be through a phone call to Council Monitoring and Enforcement staff.

### **3.6.3 Environmental Incident Reporting**

The Project Manager shall provide an Environmental Incident Report within 10 working days of the incident occurring. The Incident Report proforma is attached as **Appendix 9**.

### **3.7 Records and Registers**

The following records will be collated onsite and shall be available to QLDC on request within 24 hours of a request being made by a QLDC official. These records will include the following:

- Environmental Induction attendance register
- Environmental Incident reports and associated corrective actions undertaken
- Complaints register and associated corrective actions undertaken
- Daily diary entries (including pre-start inspection observations)
- Post-Rain event inspection observations and corrective actions
- Weekly Site Inspection checklists
- Monitoring results (e.g. water quality)
- EMP Non-conformance register (based on weekly inspection results or otherwise identified) and associated corrective actions taken

All records will be kept in an organised central location onsite and will be managed by the Project Manager.

### **3.8 Complaints Procedure**

ORHL aims to conduct its business activities in a professional manner with minimal to no impact on others not directly involved with the works being undertaken.

In the event that a complaint is lodged directly or indirectly, the complaint is to be recorded, and an investigation is to be carried out. Upon notification the Project Manager are to be informed of the complaint. A response shall be provided to the complainant, acknowledging receipt of the complaint and

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outlined proposed controls that are to be implemented. At the completion of the investigation, all corrective actions are to be closed out and a follow up of the original complaint is to be conducted to ensure the actions implemented have been effective.

Any complaint when investigated was found to be warranted shall be recorded as an environmental incident and shall be managed in accordance with the procedure outlined in section 3.6 above.

All complaints will be recorded on the Complaints Register (proforma attached as **Appendix 8**).

### **3.9 EMP Non-Conformance and Corrective Actions**

Any non-conformances found during site inspections, various monitoring or as a result of incidents or complaints shall be recorded in the EMP Non-Conformance Register. This will detail when corrective actions are due by, how they were to be carried out and date when they were closed-out and shall be reported upon in the Monthly Environmental Report to QLDC. The EMP Non-Conformance Register is attached as **Appendix 10**.

This measure is to ensure that no issues slip through the gaps or escalate into much larger issues. It will also provide a clear record of evidence that can be used to defend any potential complaint or formal enforcement action.



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**4.0 EROSION AND SEDIMENT CONTROL MEASURES**

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#### **4.1 Performance Criteria**

To avoid the discharge of any sediment-laden water (defined as over 50mg/L Total Suspended Sediment) into the Council stormwater networks, across the boundary of the site or into any waterways located within or adjacent the site.

#### **4.2 Management Measures**

##### **4.2.1 Erosion and Sediment Control Principles**

Erosion and sediment control ('ESC') devices shall be installed, maintained and decommissioned in accordance with the following principles:

- a) Erosion and sediment controls are integrated with construction planning
- b) A 'treatment train' approach so that the super silt fences ('SSF') operate as efficiently and effectively as possible
- c) Separation of 'clean' and 'dirty water' with clean water to be diverted around the site to minimise the volume of dirty water needing management onsite
- d) The extent and duration of soil exposure is minimised
- e) Soil erosion is minimised as far as reasonable and practical
- f) Controls are maintained in proper working order at all times
- g) The site is monitored, and ESC practices adjusted to maintain the required performance standard
- h) Avoidance of sediment discharge off site
- i) Progressively stabilise and revegetate disturbed or completed areas.

##### **4.2.2 Objectives of the ESCP**

This ESCP is based upon the following key objectives to be achieved during the life of the construction program:

- The avoidance of sediment-laden water into waterbodies within and adjacent to the site as well as Council's stormwater network is paramount
- The avoidance of sediment-laden water passing across the southern boundary to residential properties and roads
- A treatment train approach will be employed to ensure the SSFs can function as efficiently as possible during the construction-phase

##### **4.2.3 As-built verification**

Once the ESC devices and treatment train has been constructed, as-built documentation will be signed off to verify that the controls have been installed in accordance with the approved ESCP.

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**4.2.4 Inspections**

There are four streams of inspections/monitoring to be undertaken throughout the construction project:

- Daily inspections of ESC devices to ensure all devices are installed correctly, fully functional, provide for at least 80% capacity and identification for any new erosion opening up onsite that was not anticipated by the ESCP or the ESCP is not adequately controlling the issue. This will be undertaken immediately prior to the end of each working day.
- Pre-storm event inspections to ensure the same outcomes as the daily inspections and inform the rapid response procedure.
- Storm event monitoring to ensure the ESC devices continue to function correctly and inform any necessary emergency responses. Much of this monitoring will focus on the functioning and capacity of the SRP and also check that no errant stormwater is crossing the boundary of the site. Stormwater inlets along the downstream roading network are to be monitored during the event.
- Post-storm event inspections to ensure the same outcomes as the daily inspections, specifically to identify any necessary maintenance work or new controls.

**4.2.5 Guidance on Erosion and Sediment Control Devices**

The effective control of surface water will be achieved through the utilisation of carefully selected ESC devices to achieve a certain purpose. These guidelines to the devices employed on this project should be read in conjunction with the ESCP attached as **Appendix 1** of this document.

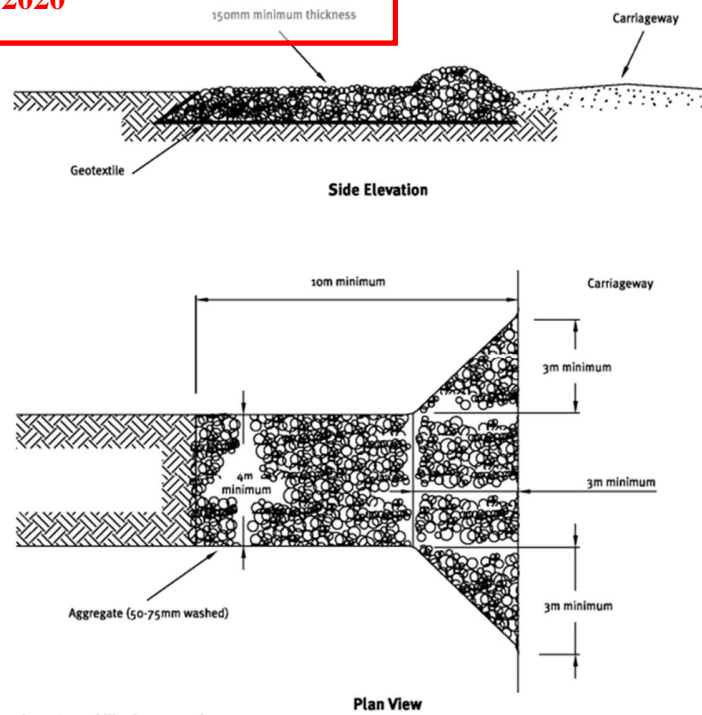
Erosion and sediment control measures will be installed in general accordance with *Guidance Document 2016/005: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region* (GD05).

**4.2.5.1 Stabilised Access**

The stabilised access will be located off Orchard Road. Rock will be placed at the entrance in accordance with GD05 and extend 20m into the site. This will be constructed as follows:

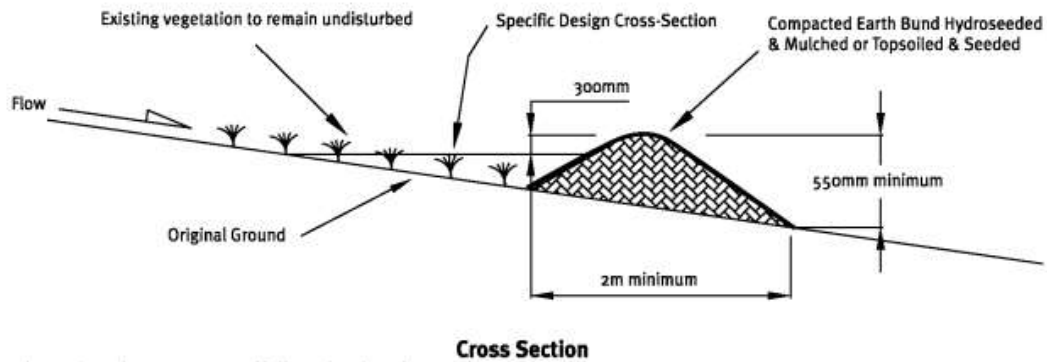
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**4.2.5.2 Clean water runoff diversion bunds and channels**

Clean-water runoff diversion bunds will be utilised onsite to divert clean water from entering the works site (or the contributing catchment). These shall be constructed as follows (complete guidelines on pages 38-42 of GD05):



Clean water diversion channels will also be required to divert recently completed stages past the dirty water diversion channels and the SRP. These will be included as revisions to the ESCP as works progress. This is crucial to ensure that the contributing catchment of the un-exposed catchment of the works area does not enter and overwhelm the SRP.

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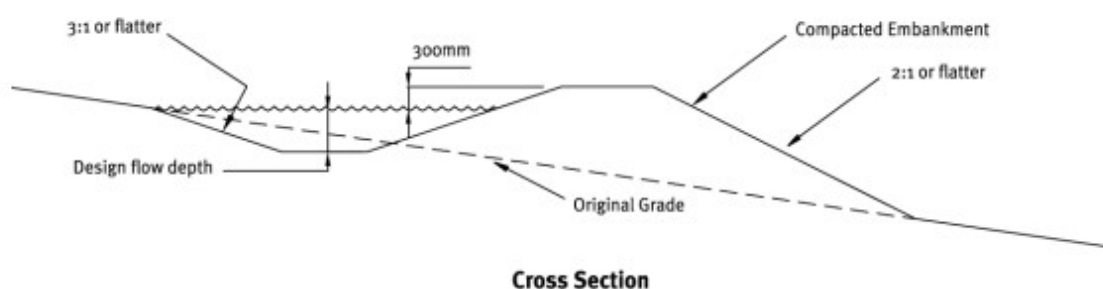
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#### **4.2.5.3 Dirty water diversion channels and contour drains (cut-offs)**

Dirty water diversion channels and contour drains will be installed to capture and carry dirty stormwater through the site in a contained manner. These will be used for two purposes:

- a. To periodically break overland flow across disturbed areas to limit slope length and thus the erosive potential of runoff and direct it to appropriate controls or stable outlets (in this case the SSFs)
- b. To transport sediment-laden water captured along the road alignment

The main dirty water diversion channels will be of a trapezoidal design that meets the requirements of GD05 i.e. sufficient capacity to carry 5% AEP storm event plus a freeboard of 300mm (calculations provided in **Appendix 2**). Drop-out pits and rock check dams will also be included in the dirty water diversion channels as part of a treatment train approach. The dirty water diversion channels will be built as follows (complete guidelines on pages 43-46 of GD05):



Contour drains will be constructed as works commence and exact placement will be decided upon by the Site Engineer overseeing the work. These will be informally designed to a depth of 500mm and will be of a U-shaped cross-section. No contour drain will have more than 0.5 ha draining to it (complete guidelines on pages 47-50 of GD05).

#### **4.2.5.4 Combined clean water diversion bunds and dirty water diversion channels**

Due to the flat nature of the site and the fact that the separation of clean and dirty water needs to occur at the haul routes, a combined clean and dirty water channel will be deployed. This simply utilises the same principles of the previous two sections on clean and dirty water channels, however the channels are side by side and the fill won from the dirty water excavation will be utilised for the clean water diversion bund. It is crucial that the bund be appropriately compacted to ensure there is no mixing between these two.

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Schematically the combined channels will be the inverse of the dirty water diversion drain as follows:



**4.2.5.5 Drop-out pits**

Drop-out pits shall be utilised to allow heavier sediment particles to drop out before they reach the sediment retention devices as these are much easier to clean out and will also take the load of the devices and together will act as a 'primary' pond in smaller events. These shall be 500mm to 1,000mm deep and 1,000mm wide.

**4.2.5.6 Check dams**

Rock check dams will be deployed primarily to reduce velocity of water in the diversion channels. They will also act to capture some coarse sediment; however, this will be limited due to the rock sizing and that job will be mainly undertaken by the drop-out pits.

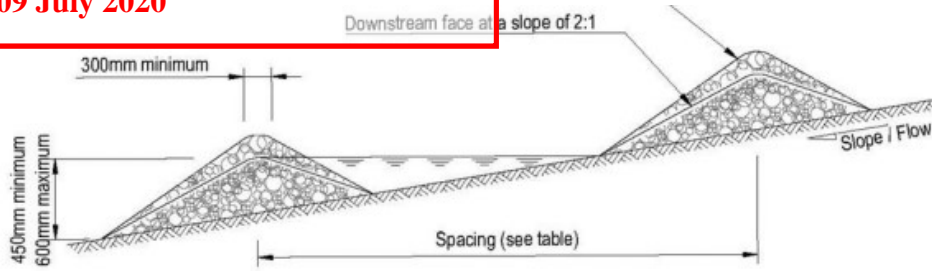
The site is generally flat so check dams will be spaced at intervals of every 25m. However, in the few areas where slope does vary the rock checks will vary in accordance with the following table taken from GD05:

Slope of site (%)	Spacing (m) between dams with a 450 mm centre height	Spacing (m) between dams with a 600 mm centre height
Less than 2%	24	30
2 - 4%	12	15
4 - 7%	8	11
7 - 10%	5	6
>10%	Unsuitable - use stabilised channel or specific engineered design	Unsuitable - use stabilised channel or specific engineered design

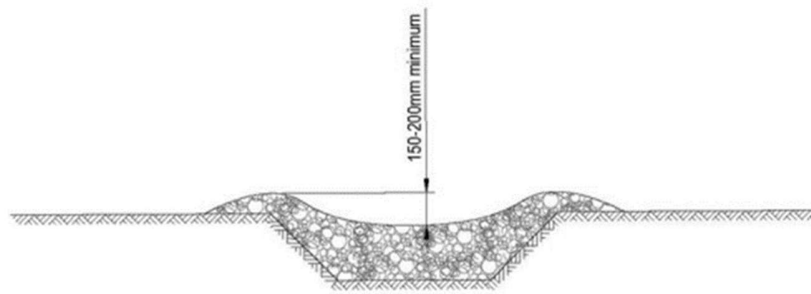
The design of the check dam shall be in accordance with the following diagram taken from GD05:

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Elevation

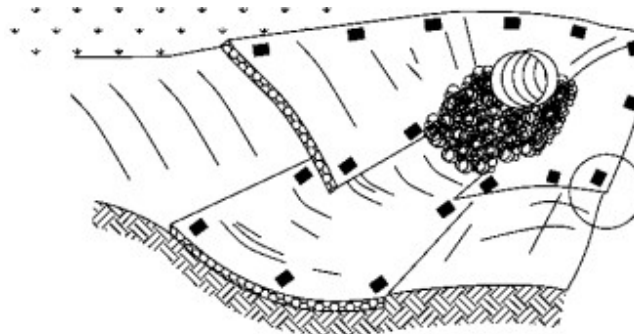


Cross-section

**4.2.5.7 Temporary culvert**

Culverts will be required to transport dirty water from one side of the haul road alignment to the other.

Culverts will consist of agricultural pipe size large enough to fit with the swale depth beneath the access. Geofabric and rock will need to be placed at the outlet to prevent scour from the higher velocity water exiting the culvert.



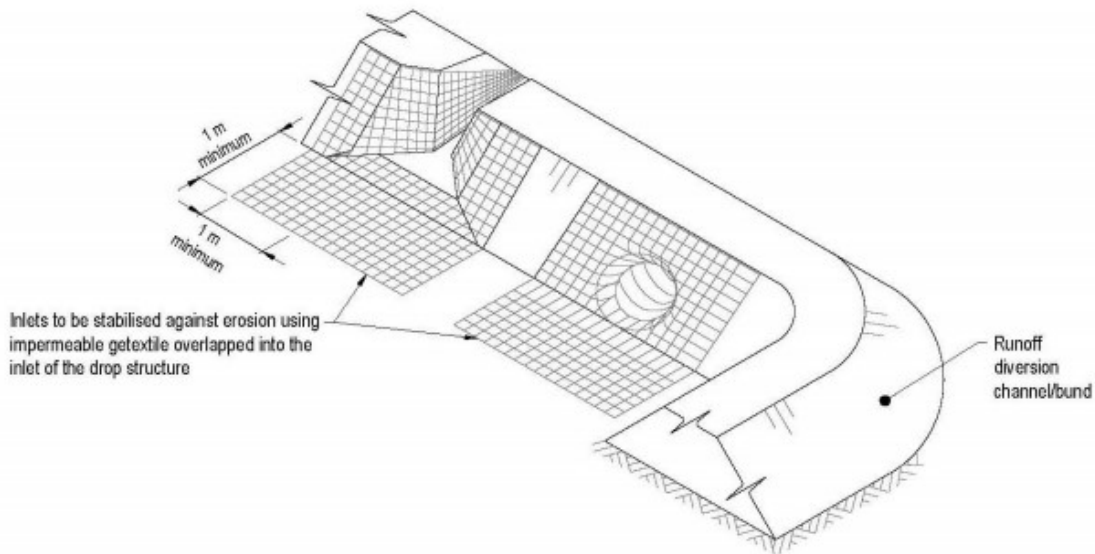
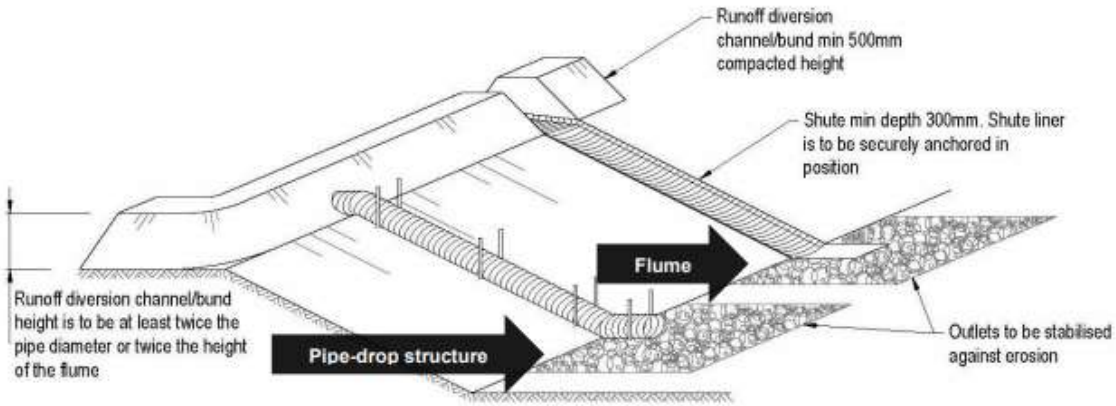
**4.2.5.8 Pipe-drop structures**

A pipe drop structure shall be utilised to transport concentrated clean water flow from the southern area of the site to the large gully without eroding the adjacent stockpile and dirty water works area. The diversion channels shall direct clean or dirty water to the inlet of these structures and transport the water via a 300mm Novacoil pipe to the gully. This will discharge onto a rip-rap pad to reduce velocity and help

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spread the concentrated flow to dissipate energy before it flows into rank grass. The pipe drop structure shall be constructed as follows ignoring detail associated with flumes (complete guidelines on pages 55-59 of GD05):



**4.2.5.9 Level Spreader**

A level spreader shall be used to dissipate the velocity from the dirty water diversion channel near the site laydown area. this will ensure that the dirty water running off the haul road track enters the remainder of the contributing catchment in a way that does not cause any scour of the exposed surface. It is expected that the majority of this stormwater will infiltrate at the top end of the worksite near the laydown area.

The level spreader will follow the same principle of a forebay to a sediment retention pond and will consist of a sump with a timber levelled into the ground which water will flow over. This will need to be concreted in.

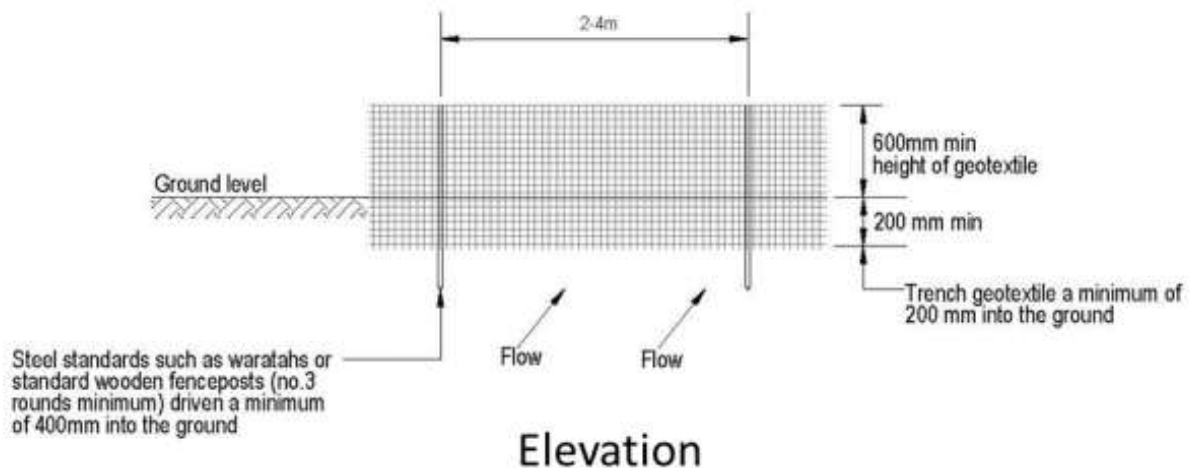
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**4.2.5.10 Standard silt fence**

Standard silt fences will be located in the centre of the site to stabilise the large central stockpile and to help attenuate clean water into the overland flow gully. The implementation of the silt fence at the stockpile is considered best practice while the silt fence as an attenuation device is a practical method to ensure that clean water that enters the gully and flows across the eastern boundary is commensurate with predevelopment flow levels. Due to the flat topography upstream of the fence coupled with the rank grass onsite, it is not expected that the silt fence will collect a large volume of stormwater however during early storm events this device will be monitored for performance and can be quickly upgraded to a super silt fence if it is observed to be struggling to contain the volume of water that makes its way to the gully. The silt fence will be installed according to GD05 as follows (complete guidelines on pages 120-125 of GD05):





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**4.2.5.11 Sediment retention pond**

A sediment retention pond ('SRP') will be installed at the Ballantyne Road end of the site and will process sediment-laden water captured from the dirty water diversion channels. The staging of construction as outlined in section 2.1 will ensure that the pond only deals with a maximum exposed area of 5ha at any one time.

Due to the slope length being greater than 200m in length GD05 requires that the SRP would need to accommodate a minimum volume of 3% of the contributing catchment area (300m<sup>3</sup> for each hectare of contributing catchment). However, it is considered that 2% of the contributing catchment is considered appropriate in this case due to a combination of factors, being:

- the very flat slope grade (<1%) over the extent of the slope length,
- presence of free-draining sandy gravels and gravelly sand,
- the use of check dams in dirty water diversion drains,
- use of chemical treatment to speed up settlement,
- the presence of a large existing attenuation pond if required as emergency that can easily be brought online.

The site has been broken down into construction zones (or stages) to ensure that the maximum area of exposed soil is never more than 5ha. Therefore require a minimum of 1,000m<sup>3</sup> of storage (being the volume between the floor of the SRP and the primary spillway).

Details are outlined in the ESCP drawing attached as **Appendix 1** and calculations outlined at **Appendix 2** with complete guidelines on SRPs outlined on pages 91-99 of GD05.

A floc box (or similar) will be utilised on the SRP with products carefully chosen off the shelf from reputable stockists.

The clean water that discharges from the SRP will run into the attenuation pond downstream from the SRP.

**4.2.5.12 Stockpiles**

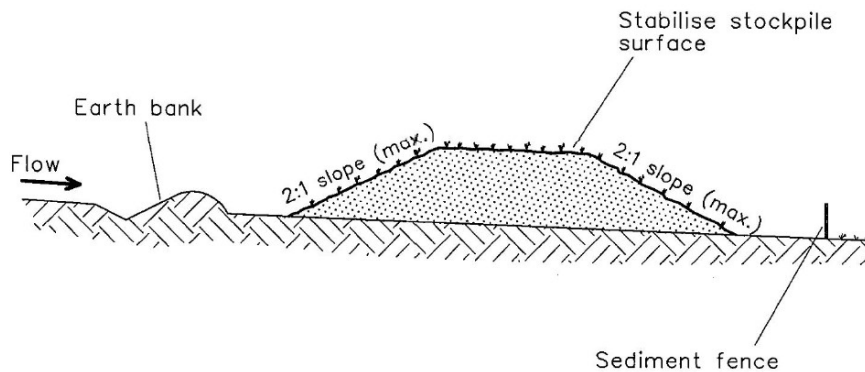
Any uncovered stockpiles will be limited to a maximum height of 2m to mitigate wind effects and to preserve the quality of the topsoil as future planting media for revegetation. However, where this is not possible stockpiles may be constructed high provided they are progressively stabilised (e.g. with a cover crop, erosion blanket or polymer).

A perimeter bank will be installed upslope of the stockpile to direct runoff in a controlled manner around the stockpile. A sediment fence may also need to be installed on the downslope of the stockpile. Stockpiles

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will be constructed as follows (perimeter banks and sediment fences only where necessary):



**4.3 Maintenance of Erosion and Sediment Control Devices**

Ongoing maintenance of the site shall be undertaken according to the ESCP as follows:

- Clean out sediment of all ESC devices (e.g. behind check dams and sediment fences) as soon as 20% capacity has been reached and prior to any forecast storm event.
- Brush down sediment stains on sediment fencing material (SSFs and regular sediment fence)
- Regular clean out of sediment from SRPs, SSFs and sediment fences (as soon as weather permits following rain event).
- 

Any mucked-out sediment will be stockpiled dried and reused as planting media for re-grassing.

Spare erosion and sediment control products will be stored onsite at all times including but not limited to:

- Geofabric material (at least one roll)
- Pins for geofabric material or plastic (x 100)
- Silt fencing (remainder of roll)
- Waratahs (x 10)
- Silt fence clips (x 24)
- Novacoil pipe (at least 30m)
- Novacoil pipe coupling or tape
- Additional flocculant (enough to last for 1 week of continual use)
- Black plastic sheeting for rapid response of stockpiles or exposed channels (x 1 large roll)

**4.4 Rapid Response Procedure for Significant Rain Events**

The Site Manager will ensure that forecast weather is observed and understood at all times. If a significant storm is forecast, all works will cease in sufficient time for site staff to inspect ESC devices and undertake any maintenance or upgrading necessary to stabilise the site. Observations will continue through the storm event to ensure the functioning of ESC devices, in particular the function and capacity of the SRP,

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silt fences, dirty water diversion channels and pipe-drop structures.

To provide for additional reserve capacity in the event of any short-circuiting of the SRP or any other unforeseen event, the adjacent large attenuation pond currently located can be brought in line during storm events where it is practical to do so. This will require clean water from the SRP to be diverted past the attenuation pond.

#### **4.5 Decommissioning and Removal**

Erosion and sediment control devices will remain in place until 'stabilisation' of the site has been achieved. This is defined as vegetative cover (i.e. grass) reaching 80% coverage across the site. This will be undertaken in consultation with the SQEP during monthly inspections.

All geofabric material, sediment fence material and battens, rock material from accesses, drains and inlets and any armoured outlets shall be removed from the site.

All permanent stormwater system inlets shall remain 'capped-off' until such time as the site reaches stabilisation. Any permanent related stormwater infrastructure (such as pipes, scruffy domes, attenuation devices, etc) shall be cleaned prior to them being brought into commission as designed. This is to protect Council's stormwater network and avoid any offsite discharge of sediment through this recently constructed infrastructure.

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5.0 DUST MANAGEMENT

### **5.1 Performance Requirements**

The project must ensure that reasonable and practical measures are taken to avoid dust moving across the boundaries of the site at all times or into waterways that run through the site.

### **5.2 Dust-generating Activities**

There are a range of activities that will produce dust onsite including:

- General disturbance of soil (particularly during drier months)
- Vehicle movements along haul roads
- Stockpiling of topsoil
- Mud-tracking onto roads or spillage from overloaded haulage vehicles if poorly managed

### **5.3 Sensitive Receptors and Prevailing Winds**

Key sensitive receptors to protect from the effects of dust include the residential dwellings to the west and south-east of the site. The prevailing wind is a northerly that combined with the exposed nature of the site the Project has the potential to experience high-velocity wind conditions. The project will need to ensure the site is prepared appropriately to manage potential dust effects.

### **5.4 Management Measures**

The following measures will be deployed to ensure dust generation onsite is minimised:

- Dust suppression of haul roads, unsealed roads, stockpiles and work areas will be achieved primarily using recycled water (from sediment retention devices) or Council supply (if devices are empty) by water trucks or other methods (e.g. k-lines) approved by the Site Manager.
- A speed limit will be posted as 20/km/hr, unless deemed otherwise by the Site Manager.
- Only designated access points and haul routes are to be used.
- To avoid spillage risks, trucks will not be overloaded.
- All trucks must have tail gates up and swept or cleaned prior to entering external roads.
- Rumble grids and/or wheel washes will be provided at exits where required to reduce tracking of soil onto external roads. This is an adaptive measure and will only be utilised when the need arises.
- All material spilt onto external roads will be cleaned and removed.
- If dust activities cannot be controlled due to high winds, works will need to cease until favourable conditions return (generally once dust has potential to cross the boundaries of the site)
- Stockpiles heights are to be minimised as much as possible (<2m) unless they are covered (e.g. an erosion blanket, chemical sealant, temporary cover crop or mulched).
- Long-standing stockpiles (greater than 12 weeks) shall be seeded or mulched to provide both wind

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and erosion protection.

**5.5 Monitoring**

Site staff will maintain continual vigilance for any increases in wind to ensure measures are deployed prior to dust crossing site boundaries. Also, weekly inspections will ensure that the management measures described above are sufficient and performing effectively.

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6.0 WATER QUALITY MANAGEMENT

Water quality is a key environmental element that needs to be managed on the Project.

**6.1 Waterbodies within and adjacent the site**

There are no waterways or ephemeral streams within the subject site with the Cardrona River being located approximately 850m to the east of the site.

There is one larger gully at the south east corner of the site which will collect overland flow during heavy storm events. This currently runs across the boundary onto the eastern neighbours property and this EMP has been designed to ensure that overland flow remains clean and does not exceed predevelopment flow volumes.

All overland flow paths are depicted on the ESCP attached as **Appendix 1**.

**6.2 Performance Criteria**

Waters released from the site will meet conditions of relevant resource consents and the comply with requirements of The Otago Regional Council Water Plan. Specific Project Water Quality Criteria for the water quality of all discharges crossing the site boundary are outlined in section 6.4 below.

**6.3 Management Measures**

The following table outlines the Project specific activities that have the potential to release contaminants into waterbodies and how they will be managed during the Project:

Activity	Environmental Effect/Issue	Management measures
Vegetation clearance	Exposed soil prone to erosion with potential for sediment to enter waterbodies.	See Erosion and Sediment Control (section 4)
Disturbance of exposed soil	Disturbed soil prone to erosion with potential for sediment to enter waterbodies.	See Erosion and Sediment Control (section 4)
Refuelling and servicing plant	Chemical spills entering waterbodies	See Chemicals and Fuels Management (section 10)

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Vehicle washdown	Pollutants such as soil, grease and noxious weeds entering waterbodies	<ul style="list-style-type: none"> <li>• A wash down bay will be installed where 'sticky' soil is encountered and the stabilised access found to be not preventing mud tracking out onto surrounding roads. This will be an adaptive measure and only utilised if and when the need arises.</li> </ul>
Stockpiling vegetative waste	Tannins and acetic acid entering waterbodies	<ul style="list-style-type: none"> <li>• Vegetation or mulch stockpiles shall be located away from overland flow paths</li> <li>• Where stockpiling vegetation/mulch for extended periods or during rain events, construct small earth bund around stockpile to capture runoff</li> <li>• Where practical, turn material regularly to allow composting to occur.</li> </ul>
Hydro-mulching	Fertiliser, nutrients and seeds entering waterbodies.	<ul style="list-style-type: none"> <li>• Do not spray within waterbody</li> <li>• Do not spray within ephemeral path when a Significant Rain Event is forecast in the next 3 days.</li> </ul>
Flocculant	Overdosed stormwater in sediment retention basins causes pollution when discharged into waterbody	<ul style="list-style-type: none"> <li>• 'Environmentally-friendly' products selected</li> <li>• Flocculants are stored, dosed and monitored according to best practice erosion and sediment controls</li> <li>• Removal of sludge shall be in accordance with manufacturer's advice/instructions</li> <li>• Any use of flocculation and observations shall be recorded in the daily job diary.</li> </ul>

**6.4 Project Water Quality Criteria**

Any waters exiting the boundary of the site must meet the following criteria:

Parameter	Discharge Criteria
Suspended solids	< 50mg/L Total Suspended Solids
pH	6.5 – 8.5
Hydrocarbons or tannins	No visible trace