Northbrook

Arrowtown

Construction Management Plan

(Draft)

May 2020

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Rev:	Date:	Prepared By:	Reviewed By:	Comments:
0	19/05/2020	LC	various	Issued as draft

1 INTRODUCTION

This Construction Management Plan (CMP) has been prepared to address the potential effects which may arise from the construction of the proposed Northbrook Arrowtown Retirement Village (**Northbrook**). It provides the framework and parameters within which the construction activities associated with the development of the proposed retirement village can be managed in order to mitigate the actual and potential construction effects.

This CMP is a draft only. Following the preparation of detailed construction drawings, confirmed staging, and the appointment of contractors, and prior to the commencement of works on-site, this draft CMP will be reviewed, updated and submitted to the Queenstown Lakes District Council (QLDC) for acceptance.

The site is located off the new access road to Waterfall Park (Ayr Avenue). This road is accessed off Arrowtown-Lake Hayes Road. The site is largely on flat to gently sloping land. To the north of the construction area there is a pastured hill on a relatively steep slope. To the east of the main construction areas and in particular the lower village area is the existing Ayr Avenue and adjacent to that, Mill Creek. A small spring-fed ephemeral stream runs through the middle of the main plateau construction area. To the west of the site is an existing public cycle trail. There are two smaller works areas: recreation area and public transport node. The recreation area is adjacent to Mill Creek with the public transportation node involving works to Arrowtown-Lake Hayes Road.

The site has particular sensitivity to Mill Creek (and subsequently Lake Hayes) and neighbours along the southern boundary. Throughout the works, additional care and consideration is to be given in particular to these sensitive environmental receptors.

The site and Ayr Avenue, where construction access will occur through, is all owned by Waterfall Park Developments Ltd (WPDL).

This draft CMP has been prepared with input from main contractors and relevant members of the design team.

2 ROLES AND RESPONSIBILITIES

2.1 Project Director

Name *[position yet to be filled]*

Postal address

Email

Mobile

The Project Director has overall responsibility for the whole project, including supervising and coordinating the project managers, site managers, logistics manager and communications manager.

2.2 Project Managers and Environmental Representatives

Name *[positions yet to be filled]*

Postal address

Email

Mobile

The Project Managers have overall responsibility for the project delivery and contracting for their particular buildings and construction zones. This includes supervising the contract works and ensuring that the contractor meets their obligations under the construction contract, the technical specifications and this CMP.

In addition, the Project Managers will have responsibility for managing and responding to any environmental issues during construction. In doing this, the Project Managers must ensure that all environmental consents and conditions are met, and that the environmental requirements of the CMP and associated Management Plans are adhered to at all times and implemented by the Site Managers.

2.3 Site Managers (or Supervisors)

Name *[position yet to be filled]*

Postal address

Email

Mobile

The Site Managers will have responsibility for site safety and activity, stormwater and sediment control, waste management, parking, delivery and noise control within their particular construction zone. The Site Managers will also be responsible for maintaining all records and inspection reports.

2.4 Communication Manager

Name *[position yet to be filled]*

Postal address

Email

Mobile

The Communication Manager will be the point of contact between the community and the project.

The Communication Manager will make contact with those most potentially affected owners and occupants prior to periods of activity that might cause disruption, to advise of the potential disruption and time periods.

3 CONSTRUCTION ACTIVITIES

3.1 Site Establishment

A main site office area will be established and will consist of portable office building(s), meeting room(s), and toilet/handwashing facility. It will also include a parking and turning area for vehicles not needing to access the site any further. The location of this and other lay down areas will be identified at detailed design once construction staging is confirmed.

Ablutions will be provided in the form of 'portaloos' or connection to the mains system. Portaloos will be emptied as necessary and the waste removed from site.

A washdown area will be established and vehicles entering and exiting the site will be inspected for cleanliness and if necessary, washed down.

Separate project/site offices may also be required depending on staging and construction methodology. These would likely consist of a site office, toilet/handwashing facility, tool/equipment storage, and lunch room. These areas would also act as laydown and storage areas.

3.2 Construction Hours

The following hours of operation apply:

- Monday to Friday (Inclusive): 7:30am to 6:00pm
- Saturday: 7:30am to 6:00pm
- Sunday and public holidays: No activity to be undertaken

3.3 Construction Methodology

The construction methodology, including anticipated duration, will be established for each stage during detailed design. This is to be confirmed once final construction methodologies, programmes and logistics are agreed with the chosen civil, landscaping and main contractors.

3.4 Refueling

There will be some requirement for re-fueling on-site. For example for the crawler cranes and earthworks moving equipment. Fuel for this equipment will be delivered directly to this machine and there will be no large-scale fuel storage on-site. Refueling directly to the vehicle reduces the chance of any spill due to reduced handling.

Refuelling and the storage of contaminants will be restricted to the laydown areas and construction carparking areas, and away from any watercourses. A spill-kit will be present on-site.

3.5 Damage

Any damage to road surfaces and berms at the intersection with Lake Hayes-Arrowtown that result from work carried out will be remedied.

Suitable measures will be implemented to prevent deposition of any debris on surrounding public roads by vehicles moving to and from the site. In the event that any material is deposited on any roads, action will be undertaken to clean the roads.

4 EARTHWORKS MANAGEMENT

Refer to Appendix 1 for the Draft Earthworks Management Plan prepared by Paterson Pitts Group (with review by Fluent Solutions and Wilson Contractors).

5 CONSTRUCTION TRAFFIC MANAGEMENT

5.1 Access & Deliveries

A Construction Site Management Plan will be developed at detailed design for each stage to identify access and delivery routes and points.

Construction access into the site will be via the intersection with Arrowtown-Lake Hayes Road and along the new access road, Ayr Avenue.

Depending on final timing and methodology, a temporary construction traffic crossing may be required over the ephemeral.

5.2 Parking

Light vehicle parking for the contractor, sub-contractors and site visitors will be provided at the site office/laydown area(s).

5.3 Construction Traffic Management Plan

Refer to Appendix 2 for an outline of the Construction Traffic Management Plan.

All contractors obligated to implement temporary traffic management plans shall employ a qualified STMS on site. The STMS shall implement the Temporary Traffic Management Plan (TTMP).

6 CONSTRUCTION NOISE MANAGEMENT

Refer to the draft Construction Noise Management Plan attached as Appendix 3.

7 CONTAMINATED SOIL MANAGEMENT

There is a possible area of soil contamination within the site. Prior to works starting further tests will confirm if contamination is present or not. If this area is identified as being contaminated then a Contaminated Soil Management Plan (CSMP) will be prepared by Environmental Consultants Otago Ltd. This CSMP will set out responsibilities for soil handling, management and disposal procedures and controls to minimise or mitigate the effects of earthworks within the contaminated site.

If any potentially contaminated materials are discovered whilst undertaking construction work, works shall cease immediately within a 20m radius of the area and the Principal and Engineer to the Contractor shall be notified. No work shall recommence until an agreement has been reached between the parties regarding appropriate protection measures.

8 ARCHAEOLOGICAL PROTOCOLS

8.1 Koiwi Accidental Discovery

If Koiwi (human skeletal remains) are discovered whilst undertaking construction work, then the following shall be undertaken:

- Construction work within a 50m radius of the site shall cease immediately and indefinitely until Te Ao Marama Inc and/or New Zealand Police advise that it can recommence;
- Advice of the discovery shall be reported, as soon as practicable, to Te Ao Marama Inc (Ngai Tahu Murihiku Resource Management Consultants), the New Zealand Police, the Project Liaison Advisor and the Grantor.
- No work shall recommence until an agreement has been reached between the parties regarding appropriate protection measures for the artefact or material found.

8.2 Taonga or Artefact Discovery

Taonga or artefact material other than Koiwi will be treated in a similar manner so that their importance can be determined and the environment recorded by qualified archaeologists alongside the appropriate Tangata Whenua.

8.3 Archaeological Authority

The conditions contained within the Archaeological Authority (no. 2019/363: F41/578 Ayrburn Farm, Lake Hayes Road, Arrowtown) will be adhered to as specified in the authority and as detailed in the archaeological assessment prepared by the approved archaeologist in October 2018.

9 WASTE MANAGEMENT

On-site skip bins will be utilised for the disposal of any waste. These will be located at each construction zone and will be emptied as necessary.

The typography of the site and perimeter fence and plantings will prevent the spread of wind-blown rubbish. At no point shall waste from site be allowed to migrate beyond the site boundaries and onto public road or private property adjacent to the site. Skips are to be covered as appropriate to prevent fly-off.

Contractors are encouraged to hold a SiteWise Green Certificate and use methods such as a REBRI waste management plan to minimise waste to landfill and maximise recycling. This includes reducing materials ordered and working with the supply chain and trade partners to minimise construction waste.

10 HEALTH AND SAFETY

10.1 Legal Requirements

A comprehensive Health and Safety Plan will be prepared by the Site Manager(s) and Contractor(s) prior to the start of the relevant construction phase.

The objectives of the Health and Safety Plan will be to ensure compliance with all relevant health and safety legislation, regulation and procedures including the *Health and Safety at Work Act 2015*. This is to include the minimum personal protective equipment standards.

10.2 Training & Induction

All personnel, including any sub-contractors, shall be required to go through the main contractor's induction process prior to accessing and working on the site.

The Site Manager(s) will maintain the site specific safety plan to ensure all contractors have carried out the site training and that no person shall enter the site without having been inducted to the site prior.

An up-to-date register is to be maintained on-site for all persons completing the induction. All persons are to sign the register upon completion of the induction.

10.3 Site Access & Security

Site access will be via the new access road (Ayr Avenue) that comes off Arrowtown-Lake Hayes Road. Refer to the CTMP for further information.

The site will be secured to prevent unauthorised public access.

10.4 Emergency Plan

Fire extinguishers, emergency egress directions, and first aid stations, will be provided in each site office. Emergency evacuation points will be nominated to meet the emergency evacuation requirements.

10.5 Specific Hazards and Health Issues

Prior to commencing works on-site, a hazards register will be developed and reviewed at least monthly during construction by the Project Manager or delegated authority. Risk treatment options will be developed as an ongoing concern, the hazards board at the site entry will be updated daily, and any amendments required to the health and safety plan will be re-issued to the appropriate people.

11 RISK MANAGEMENT

11.1 Complaints Action Process

On commencement of the project, site signage will be installed detailing first points of contact (including phone numbers).

All employees of the main contractor(s) will be trained to immediately report and feedback to the Site Manager(s) and Communication Manager issues raised (be it complaints and or praise) from site visitors or neighbouring properties.

All complaints will be followed up and an appropriate course of action taken by the Communication Manager in the following manner:

1) Ensure Complaints Register is completed;
2) Record complaint;
3) Facilitate open discussion with affected parties;
4) Discuss appropriate solutions;
5) Implement solutions and monitor both nuisance and complainant.

All feedback will be recorded in a feedback record, which will be maintained by the Communication Manager.

The feedback record will cover the following points:

1. Date of Complaint
2. Complainants Name
3. Complaint Recipients Name
4. Summary of Complaint
5. Action Taken
6. Details of Report back to Complainant
7. Conclusion

11.2 Inspections, Reporting and Records

The site office(s) will be the principal point for all site management. All records will be stored at the site office.

The Project and Site Manager(s) shall be responsible for maintaining all records and inspection reports, and shall make this information available to suitably authorised persons upon request.

The site offices will be used for sub-contractor and staff induction.

The Site Managers shall make a written record of employees or contractors who do not follow the guidelines set out in this draft CMP. As applicable, the contractors' employer shall also be notified of each infringement. Any employee or contractor who repeatedly ignores the requirements of this Plan shall be banned from site.

11.3 Example Reporting Schedule

Reporting Type	Action	Responsibility
Daily Inspections		Site Manager
	Site Safe / Hazards	
	Activity	
	Stormwater Control / ESMP Measures	
	Waste Management	
	Contaminated Soil (as applicable)	
	Parking	
	Noise Control	
	Complaint Register	
Weekly Inspections		Project Manager
	Accidents/ Near Misses	
	Correspondence	
	Plant/ Equipment Safety Certification	
Monthly Report		Project Manager
	Project Overview	
	Construction Program	
	Construction Report	
	Hazard Report	

12 REVIEW

This draft CMP will be reviewed by the contractor when appointed and will be revised as necessary. The CMP will be updated, with the necessary approval, throughout the course of the project to reflect material changes associated with changes to construction techniques or the natural environment. Consultation with the QLDC and potentially affected landowners may be required for any relevant revisions of a material nature.

A copy of the original CMP document and subsequent versions will be kept for the project records, and marked as obsolete. Each new/updated version of the CMP documentation will be issued with a version number and date to eliminate obsolete CMP documentation being used.

APPENDIX 1 EARTHWORKS MANAGEMENT PLAN (DRAFT)

PATERSONPITTSGROUP

Your Land Professionals
www.ppgroup.co.nz
0800 PPGROUP

Earthworks Management Plan

(DRAFT)

PROJECT	NORTHBROOK, RETIREMENT VILLAGE
PRINCIPAL	WATERFALL PARK DEVELOPMENTS LTD
OUR REF	O6388/S1
DATE	19TH MAY 2020

Rev:	Date:	Prepared By:	Reviewed By:	Comments:
0	19/05/2020	SB	various	Issued as draft

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1. INTRODUCTION

The scope of this draft Earthworks Management Plan is limited to the proposed earthworks, pavement construction and services installation as shown on Paterson Pitts Group drawing set "Waterfall Park Developments Ltd – Northbrook Resource Consent Drawings Q6388-62-1", sheets 001 - 606. The plans provide drawings, specifications and standards for the proposed works to ensure that any significant adverse effects on people, property, public or the environment are avoided mitigated or remedied.

The following reports have been produced by others and should be referred to in conjunction with this Earthworks Management Plan.

- Northbrook Retirement Village – Water, Wastewater and Stormwater Infrastructure and Flood Assessment, Fluent Solutions (May 2020)
- Northbrook - Geotechnical Report, GeoSolve (April 2020)
- Northbrook Retirement Village – Transportation Assessment, Carriageway Consulting (May 2020)
- Northbrook Retirement Village – Architects Report, Studio Pacific (May 2020)
- Northbrook Landscape Design Strategy – Winton (May 2020)

A detailed Erosion Sediment Management Plan (ESMP) is to be prepared at the time of detailed design along with the final Earthworks Management Plan (EMP).

The site has particular sensitivity to Mill Creek (and subsequently Lake Hayes) and neighbours along the southern boundary. Throughout the works, additional care and consideration is to be given in particular to these sensitive environmental receptors.

2. RESOURCE CONSENT DRAWINGS

This report should be read in conjunction with the Paterson Pitts drawing set "Waterfall Park Developments Ltd – Northbrook Resource Consent Drawings Q6388-62-1", sheets 001 - 606. These sheets will be collectively referred to as the 'drawings' in this report.

3. DESCRIPTION OF THE PROPOSED WORKS

Sheet 300 of the drawings shows the road layout of the proposed retirement village development. The development consists of the following construction elements:

- Retirement Village: 122 Accommodation Units, 5 Apartment Blocks, Active Recreation Building, Clubhouse/Cafe, Aged Care Facility, Medical Centre, Childcare Centre, and various ancillary structures and sheds.
- Recreation Area: Tennis Court, Bowling Green and Golf Course.
- Public Transport Node (refer to sheet 306).
- Roading network including, carparks, retaining walls, culverts and pedestrian / cycle paths.
- Drainage and utility reticulation for all buildings.
- Associated landscaping works, including construction of rock weirs, stormwater treatment ponds and swales.

3.1. EARTHWORKS QUANTITIES

The following approximate earthworks volumes and quantities are proposed.

Strip topsoil	28,500m³
Cut to subgrade	28,000m³
Total Cut	**56,500m³**
Fill to design levels	10,000m³
Imported pavement and building foundation materials	23,700m³
Re-spread topsoil	12,500m³
Total Fill	**46,200m³**
Balance	
Excess Cut (to waste offsite)	18,000m³
Excess Topsoil (to waste offsite)	16,000m³
Total area to be exposed	11.5ha
Maximum cut depth	3.0m
Maximum fill depth	3.5m

It is anticipated that the majority of cut material generated by the proposal will be loess and unsuitable for engineering fill under the pavement layers and building platform. In the first instance, this material will be utilised where engineered fill is not required. Excess cut will be carted to an offsite facility.

The proposal will generate approx. 16,000m³ of excess topsoil which will also be carted to an offsite facility.

To enable the construction of pavement layers, paths and building foundations approx. 23,700m³ of various aggregate materials will be imported from an offsite location.

The source location / destination for material to be carted to and from site will be determined nearer to the time of construction. Where possible, imported material will be backloaded to reduce the number of vehicle movements. A Construction Traffic Management Plan will be prepared prior to any public roads being used for carting material offsite.

3.2. CONSTRUCTION

3.2.1. General

All site access, gates, signage, sediment and erosion, and general site management measures will be completed prior to commencing earthworks on site. Sediment and erosion controls are covered in more detail in Section 5 of this plan.

3.2.2. Earthworks, Pavement and Services

Earthworks for the retirement village will be carried out in stages to minimise the works area exposed at any one time and mitigate the dust sediment and erosion hazards. Diversion channels / bunds will be installed around the proposed earthworks extents to separate clean and dirty runoff. A sediment pond will be located at the low point of the earthworks catchment for treatment of sediment laden runoff from the active works site.

Topsoil for each stage will stripped and taken to stockpile for reuse or carted to waste off site. In the instance where the timing for removal of topsoil does not align with the receiving site, it will be stockpiled in an alternate location and removed when appropriate. Bulk earthworks will follow. For areas that do not require engineered fill the in-situ cut will be utilised. The balance of cut material will be carted off site in the same manner as the topsoil. All stockpile locations are to be carefully considered in relation to their proximity to Mill Creek.

As earthworks are completed drainage lines will be installed, starting from the outlet and working upstream. As the network extends and becomes operational, runoff from clean water areas will be diverted into the piped system so that clean and dirty water can be separated to reduce the volume of sediment laden water that requires treatment. During construction the permanent treatment ponds will be utilised for secondary treatment of any water conveyed through the stormwater network.

Roading construction will follow drainage, as pavement sub-base layers are formed it will provide all weather access for construction traffic, further preventing mud from being carried onto any adjoining roads.

Installation of services, construction of footpaths, topsoil and landscaping of berms will run concurrently with the remaining road construction. As these works are completed the exposed area will be reduced.

3.2.3. Carpark Construction

A similar methodology to that above will be adopted for carpark construction. The sediment and erosion controls established for carpark construction will be located so that they can be retained for adjacent construction works to follow.

3.2.4. Building Construction

Building construction will commence once the civil construction has been completed to an appropriate level for vehicle access and servicing. Each stage and/or cluster of buildings (as appropriate) will be treated as a separate site with its own erosion and sediment controls to provide flexibility regarding construction programming and sequencing.

As a minimum each building site will have a silt fence to isolate their catchment and a functioning stormwater lateral to outlet any treated runoff. Any water diverted to the piped network will be conveyed to the stormwater pond where secondary treatment will take place prior to discharge into Mill Creek.

3.2.5. Ephemeral Stream Culvert / Weir Construction

There are two culverts, a boardwalk, and a series of weirs and ponds to be constructed within the existing ephemeral stream. Given the irregular and low stream flows, it is intended to complete any works within the stream bed when the flows are negligible and not connected to Mill Creek. To prevent any dirty water discharge or contamination from the relevant works, any upstream flow will be blocked and any water build up will be pumped to a discharge point downstream of the works area (or a flume system used). Only when the works are completed, and all areas have been stabilised, will the watercourse be reinstated.

All work areas within the stream will be as small as possible to limit disturbance of the existing bed. Programming will be carefully planned and monitored so the works are completed in an efficient manner to limit the duration of exposure and mitigate the risk.

3.2.6. Recreation Area and Transport Node

The recreation and transport node works will be treated in isolation from the main retirement village. Particular consideration is to be given to the proximity to Mill Creek. Sediment and erosion controls implemented will be similar to the building sites, with perimeter controls such as silt fences or earth bunds installed around the extent to prevent the discharge of dirty water during construction. Runoff generated from the site will be treated via decant structure or ground soakage with clean water dispersed as overland flow.

4. SITE MANAGEMENT

4.1. ROLES, RESPONSIBILITIES & KEY CONTACT DETAILS

4.1.1. Environmental Representative and Construction Project Manager

The nominated Environmental Representative is responsible for overseeing day-to-day implementation of environmental controls and administrative activities (including weekly inspections) and actively support other key management roles. The purpose of the Environmental Representative is to verify that the management measures prescribed in the EMP and ESMP are present, functional and adequate (i.e. reasonable and practical), observe the site for actual or potential adverse environmental effects, identify maintenance requirements for implemented management measures, and verify preparedness for adverse weather conditions where rain and/or wind is forecast.

Name *(position yet to be filled)*
Postal address
Email
Phone

4.1.2. Site Supervisor

Name *(position yet to be filled)*
Postal address
Phone

4.1.3. Otago Regional Council (Senior Environmental Officer)

Name *(representative to be advised)*
Postal address
Email
Phone

4.1.4. Queenstown Lakes District Council (Senior Monitoring & Enforcement Officer)

Name *(representative to be advised)*
Postal address
Email
Phone

4.1.5. Queenstown Lakes District Council (Resource Management Engineering)

Name *(representative to be advised)*
Postal address
Email
Phone

4.2. NOISE AND HOURS OF OPERATION

The following hours of operation apply:

- Monday to Friday (Inclusive): 7:30am to 6:00pm
- Saturday: 7:30am to 6:00pm
- Sunday and public holidays: No activity to be undertaken

Machinery used on site will not exceed the noise levels specified in NZS6803:1999.

The following table from NZS6803:1999 outlines the relevant "long-term" noise limits that apply for this project.

Time of week	Time period	dB L_{eq}	dB L_{max}
Weekdays	0630-0730	55	75
	0730-1800	70	85
	1800-2000	65	80
	2000-0630	45	75
Saturdays	0630-0730	45	75
	0730-1800	70	85
	1800-0630	45	75

These limits apply outside neighbouring buildings; one metre from the façades and 1.2 to 1.5 metres above the relevant floor level.

Sensitive environmental receptors in particular include the adjacent properties along the southern boundary of the site with specific consideration to be given to them during the course of the works.

Noise from the site will be minimised through the following actions:

- No plant/equipment deliveries to the site shall occur between 6pm and 7.30am daily.

- Movement of all machinery, for instance trucks, excavator and loader, on site shall be in such a manner that ensures there is no excessive acceleration or braking.
- No amplified music shall be played within the work site.
- Banging or dropping of metal on metal is to be avoided.
- There will be no shouting or communicating in raised voices whilst on site.
- Site Manager's contact details clearly displayed on the project board on site for any adjacent privately-owned properties to contact should they need to voice any concerns about noise levels.

Noise levels shall be monitored and assessed:

- In accordance with NZS 6803:1999.
- During critical phases of construction when noise levels may exceed the relevant standards, or in response to reasonable noise complaints being received.
- If required, at locations representative of sensitive receivers in the vicinity.

In the event that a measurement shows non-compliance with the noise performance standards of Table 1 the following procedures shall be implemented:

- Further measurements shall be undertaken where necessary, to determine the extent of non-compliance.
- A report shall be prepared, outlining the non-compliance and, if required, potential mitigation and management measures.
- Upon implementation of any additional mitigation measures, further measurements shall be undertaken to confirm the effectiveness of those mitigation measures.

4.3. CONSTRUCTION PLANT, FACILITIES AND CONTAMINANT RUNOFF MANAGEMENT

The main site office, associated facilities including ablutions and laydown area are to be located at or near the entrance to the construction activities (location dependent on staging). A sign-in register will be located prior to entering the construction site.

Ablutions will be provided in the form of 'portaloos' or connection to the mains system. Portaloos will be emptied as necessary and the waste removed from site.

Light vehicle parking for the contractor, sub-contractors and site visitors will be provided at the site office/laydown area.

Refuelling and the storage of contaminants will be restricted to the laydown areas and away from any watercourses.

4.4. ARRIVAL AT SITE AND EXIT FROM SITE

The main site access (Road 01 alignment) and connection to the Waterfall Park Access Road formation will feature an AP65 metal course for the first 20m.

A washdown area will be established and vehicles entering and exiting the site will be inspected for cleanliness and if necessary, washed down.

In addition, 'shake down' grids may be used at appropriate locations as works progress to prevent deposition of debris on surrounding roads.

4.5. REGRASSING

Depending on the time of year and staging of works, re-grassing of disturbed areas and areas of earthworks will occur as soon as practicable as the construction sequence allows and once the risk of disturbance from further works is sufficiently reduced. Other measures, such as erosion protection matting or temporary surface stabilisation will be applied if the season and sequencing of works does not allow for regrassing immediately.

To minimise the time these areas are susceptible to erosion, hydroseeding will be used rather than ordinary drill seeding to help promote quicker establishment of the grass and provide some protection from rain drop impact.

4.6. STOCKPILE MANAGEMENT

Stockpile locations will be carefully selected to suit the active works area, ensuring they are both readily accessible but do not impede the construction operation. All stockpiles will be contained within the catchment of a sediment pond. Silt fences, earth bunds and diversion channels will be installed as required to ensure that runoff from stockpiled is directed to the associated pond.

All stockpiled material shall be shaped, compacted and maintained in a tidy manner and suitably covered / suppressed if they are not active in the day to day operation.

4.7. WASTE MANAGEMENT

On-site skip bins shall be utilised for the disposal of any waste. These shall be located at each construction zone and shall be emptied as necessary.

At no point shall waste from site be allowed to migrate beyond the site boundaries and onto public road or private property adjacent to the site.

4.8. CONTAMINATED SOIL MANAGEMENT

Any works in confirmed contaminated areas are to be undertaken under a Contaminated Soils Management Plan.

If any potentially contaminated materials are discovered whilst undertaking construction work, works shall cease immediately within a 20m radius of the area and the Principal and Engineer to the Contractor shall be notified. No work shall recommence until an agreement has been reached between the parties regarding appropriate protection measures.

5. SEDIMENT AND EROSION CONTROL

5.1. PRE-DEVELOPMENT OVERLAND FLOW

In its natural landform of the retirement village area can be separated into three main catchments as detailed below. The land within all three catchments currently comprises grassed paddocks and semi-vegetated hillside.

There are also small works areas contained within the recreation and public transport node areas.

5.1.1. Western Catchment

The western catchment contains the west upper and west lower neighbourhood zones. Overland flow from this catchment generally runs from north-west to south-east, then drains to the ephemeral stream. From this point the formation of the ephemeral stream runs along the southern boundary before discharging into Mill Creek.

The catchment includes a significant area to the north and west which are outside of the development extents. Cut off drains / swales will be integrated into the development to divert upstream runoff around the works area.

5.1.2. Central Catchment

The central catchment contains; the north, spur, central, village, south and east neighbourhood zones. Similar to the western catchment overland flow generally runs from north-west to south-east, with sheet flow down the bank into the ephemeral stream to the south and into Mill Creek to the east.

The catchment includes a significant area to the north which is outside of the development extents. Cut off drains / swales will be integrated into the development to divert upstream clean water runoff around the works area.

5.1.3. Lower Village

The third and much smaller catchment comprises the lower village neighbourhood zone. Runoff from the catchment sheet flows to the east, where it is conveyed by a swale formed by the recent Waterfall Park Access Road construction. The swale outlets to Mill Creek.

Overland flow from the upstream catchment will be managed within the central catchment area.

Particular consideration is to be given to the proximity to Mill Creek during construction activities.

5.1.4. Recreation and Public Transport

The proposed work extents within the recreation and public transport nodes zones area very small. The land within these areas currently comprises of grassed paddocks of road verge.

Due to the small nature of these areas, works will be isolated from the surrounding catchment using silt fences or earth bunds. Runoff generated from the works area will be treated on site via decanting device or ground soakage and discharged overland. Particular consideration is to be given to the proximity to Mill Creek during construction activities.

5.2. EROSION AND SEDIMENT CONTROL MEASURES

A detailed ESMP will be developed at detailed design and provided to QLDC for review and acceptance. This document will identify the conditions that need to be managed and measures to be put in place to avoid erosion and sedimentation effects on the environment during construction. The most sensitive environments in this case being Mill Creek and the ephemeral stream.

The ESMP will need to be a live document to respond to changing site conditions and staging.

The ESMP will provide strategy and plans broadly containing:

- Sequencing works to minimise erosion and sedimentation;
- Areas for storage of materials, plant and machinery;
- Areas for storage of imported material, topsoil, and waste material;
- Detailed measures and methodology for works within the ephemeral stream bed and within proximity to Mill Creek;
- Measures to monitor and manage stormwater runoff (clean and dirty) and stabilise disturbed ground;
- Measures for the effective treatment of stormwater.

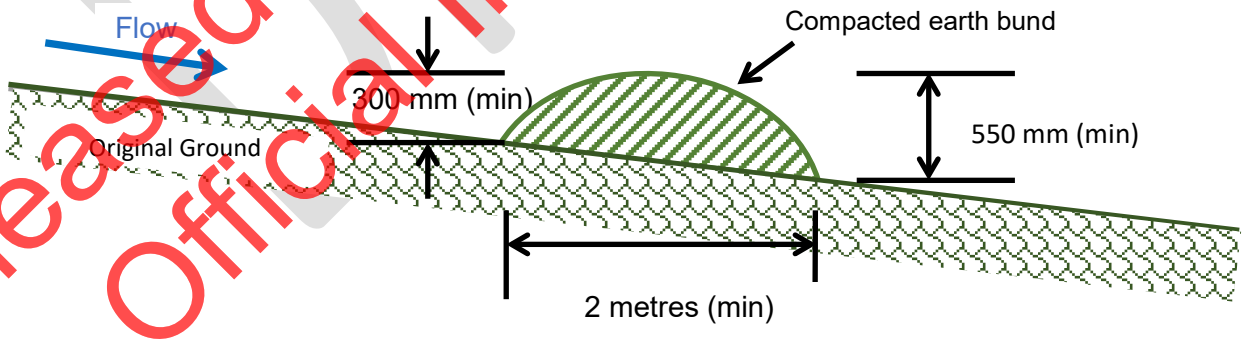
Examples of controls that might be used are noted below. These are indicative only at this stage and specific measures for specific areas and purposes will be identified at detailed design.

5.2.1. Runoff Diversion Channel / Bund

Runoff diversion channels or bunds installed on the upslope extent of the works area will provide clean water diversions and will be lined with fabric or sown in grass to prevent sediment the transportation of sediment. These diversions will convey water around the perimeter of the development and discharge to the existing watercourse on the downstream extent, this will limit the volume of runoff within the site requires treatment and protect the work areas. These would be sized to carry at least the 2yr ARI flow.

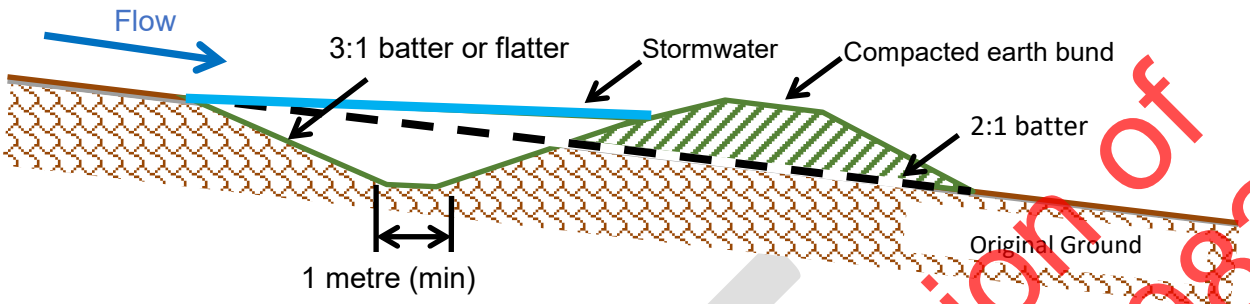
Additional diversions will be installed within the work site to manage flow path lengths and direct sediment laden water to an appropriate sediment pond or alternate treatment device, these will be considered as dirty water diversions.

All diversion channels and bunds constructed for the proposed works will be regularly inspected by the contractor. Any damage or sediment build up will be repaired or removed immediately. No site works will recommence after a significant rain event before all diversion channels and bunds are inspected.



NB. 1. Soil to form bund to be taken from disturbed area.
2. Vegetation in undisturbed area to remain intact.

Fig.1 – Diversion Bund Section



NB. 1. Soil to form bund to be taken from disturbed area.
2. Vegetation in undisturbed area to remain intact

Fig.2 – Diversion Channel Section

5.2.2. Silt Fences and Super Silt Fences

Silt fences and super silt fences can be used on slopes to intercept sheet flows whereby the flow is detained to allow sediment to drop out of the runoff. Silt fences will be utilised in several areas during the proposed works. Multiple rows of silt fence will form the final system of barriers for overland flow from the proposed earthworks before discharging into the natural watercourses. By the time overland flow reaches this point it will already have passed through the sediment detention ponds. Silt fences will also be utilised at the toe of fill batters where the runoff catchment only consists of the batter itself. This will prevent any sediment from the batter from entering the wider network of overland flow. Silt fences are to be constructed from geotextile, a minimum of 600mm in height and 200mm into the ground. Silt fences are to be installed along the contours to reduce the velocity of flow behind them.

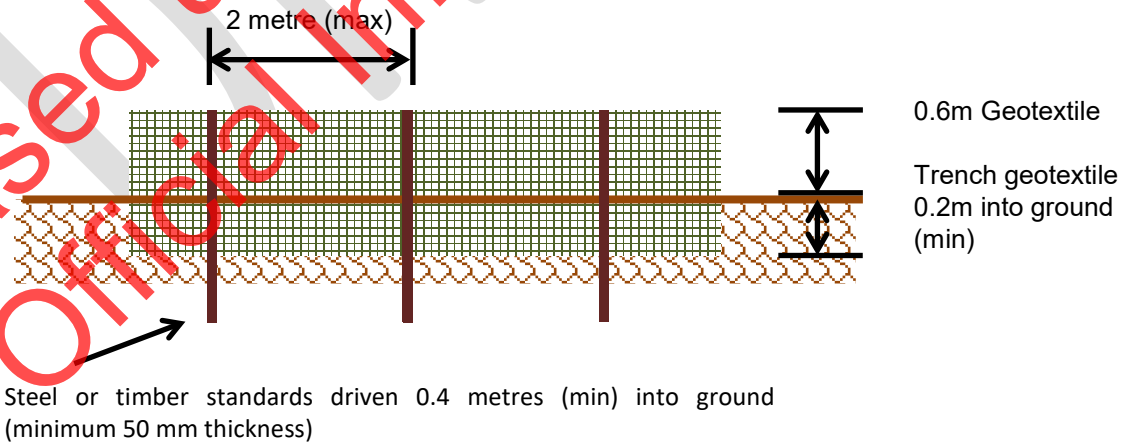


Fig.3 – Indicative Silt Fence Design

Silt fences should be installed so that:

- There are no gaps between joins in the fabric
- The geotextile is appropriate as per manufacturers specifications
- The geotextile is buried so that water cannot pass under the fence
- Returns are installed as support at right angles to main fence as required (minimum 2 metre length)

Table 1 - Silt fence design layout

Slope (%)	Slope spacing per fence (m) (maximum)	Return spacing (m)	Silt Fence length (m) (max)
<2%	Unlimited	None required	Unlimited
2-10%	40	60	300
10-20%	30	50	230
20-33%	20	40	150
33-50%	15	30	75
>50%	6	20	40

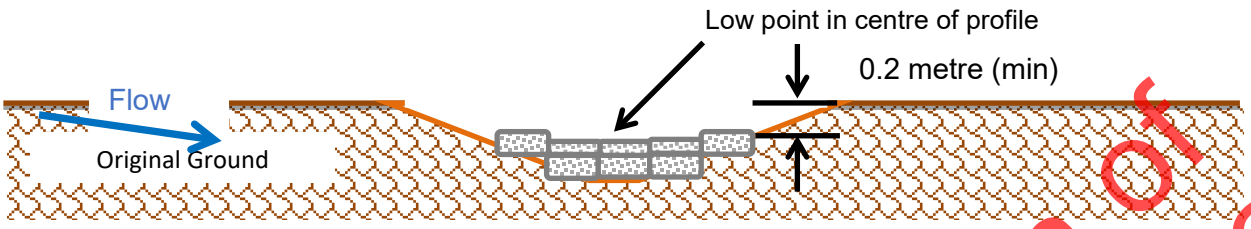
All silt fences will be inspected regularly by the contractor. Sediment deposited behind the silt fence will be removed and any damaged sections of silt fence will be replaced.

5.2.3. Rock Check Dams

A rock check dam is a small temporary dam constructed across a channel (i.e. a concentrated flow), usually in series, to reduce flow velocity and may also help to retain sediment. A reduction in the flow velocity will help reduce erosion of the channel. Rock check dams will be used in the runoff diversion channels on steeper slopes and most importantly in the existing overland flow channel that runs along the northern boundary of the site as this channel is where the water from the sediment detention pond will be discharged to.

Table 2 – Check Dam Design

Slope of channel	Spacing between dams (metres)	
	450 mm height	600 mm height
<2%	24	30
2% - 4%	12	15
4% - 7%	8	11
7% - 10%	5	6
>10%	Stabilised channel	



NB. 1. Vegetation in undisturbed area to remain intact

Fig.4 – Rock Check Dam Section

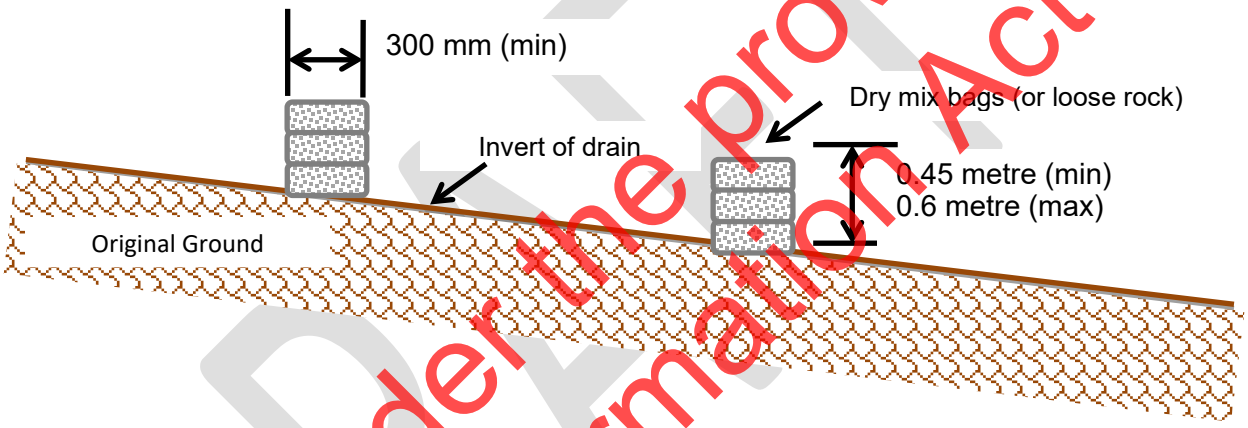


Fig.5 - Rock Check Dam Profile

Rock check dams will be inspected regularly by the contractor and any sediment build up will be removed.

5.2.4. Drop Structures (Pipe and Flume)

Any areas identified where water from channels and drains must rapidly descend to a lower level, a pipe drop structure or flume is used.

The inlet of the pipe or flumed section should be flared and sufficiently protected to prevent undermining and scour. A plastic or other impervious membrane should be considered at the inlet to prevent undermining and outflanking of the structure.

The drop structure must extend beyond the toe of the slope and dissipate with adequate protection (such as rip rap) to minimise erosion and undermining of the slope.

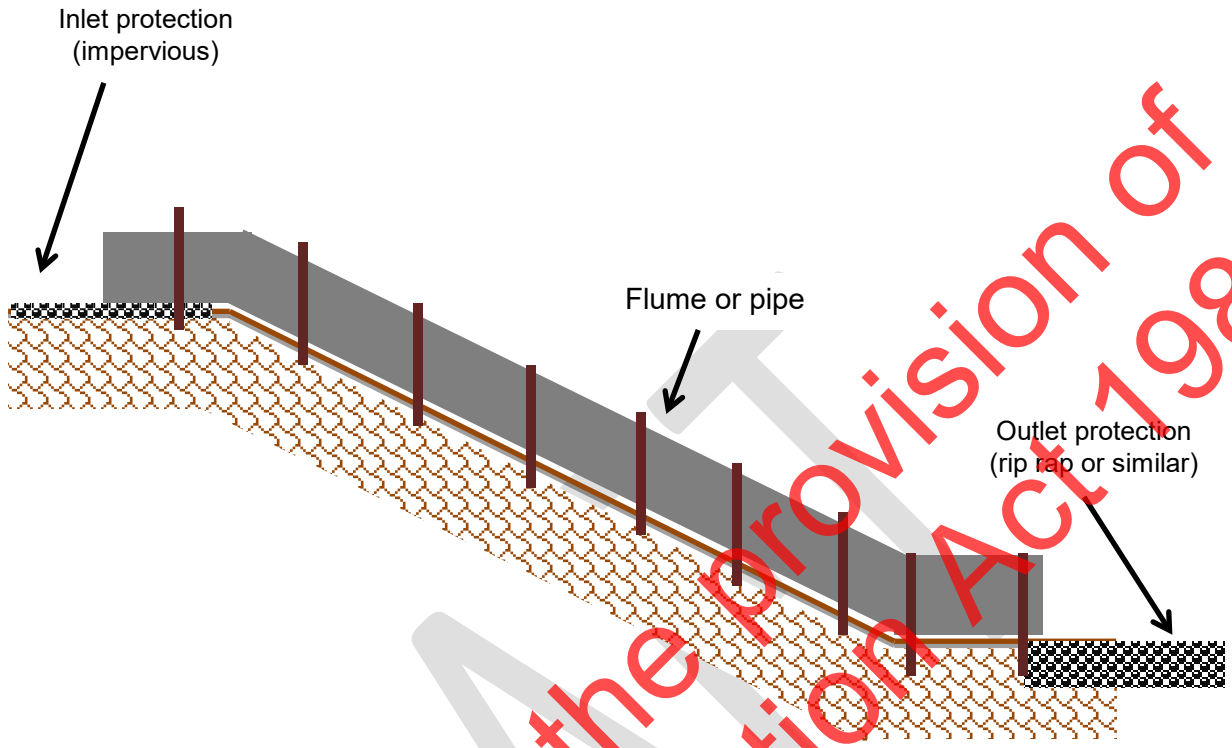


Fig.6 - Drop Structure Schematic

5.2.5. Sediment Detention Ponds

A sediment detention pond is used to treat sediment laden runoff from any exposed area, thus protecting the downstream environment from discharge of any sediment, to prevent water quality degradation.

The proposed sediment detention ponds will be designed and constructed in accordance with the Auckland Regional Council's Erosion and Sediment Control Guide GD05.

All aspects of the sediment ponds and discharge points will be regularly inspected, maintained and cleaned out by the contractor. Any damage will be repaired immediately.

Particular consideration is to be given to the eastern treatment ponds and proximity to Mill Creek with a silt fence to be established between the ponds and the stream.

5.2.6. Re-grassing and Planting

As per section 4.5 above, re-grassing and/or planting of cut and fill batters outside of the building and parking areas will occur as soon as possible in order to minimise the time any area is susceptible to erosion.

As the development is progressively completed, or final control measures are installed and functional, the temporary silt and sediment control measures will be progressively removed.

6. DUST CONTROL

The soils within this development have the potential to generate dust. The methods used to eliminate/reduce the creation of dust and its subsequent effects will include but are not limited to the following:

- Keep stripped areas as small as possible – cut and cover method;
- Re-spread topsoil and establish grass (or alternative measures if outside the grassing season) over finished areas as soon as practicable;
- Monitor weather forecasts and manage daily tasks to suit expected wind speeds;
- Reduce or suspend work that has the potential to produce dust during times of high wind;
- Roll/compact stripped surfaces, stockpiles and completed surfaces;
- Prior to leaving site at days end, undertake site inspection with respect to potential causes of dust and remediate if necessary;
- Water stripped surfaces with a water cart;
- Establish K-lines.

Water carts shall refill from the QLDC reticulation at an offsite location. All necessary QLDC approvals shall be sought prior and approved filling methods including back flow prevention utilised.

7. INDUCTIONS, INSPECTIONS AND RECORDING

7.1. INDUCTION

All workers, including subcontractors, will complete a site induction upon arrival at site. As part of their site induction they shall be fully informed of the details of this Earthworks Management Plan and the Erosion Sedimentation Management Plan.

The induction shall include but not be limited to:

- Roles and responsibilities for environmental management,
- Specific locations within the site of environmental significance or risks, including exclusion zones and sensitive receptors,
- Scope and conditions of resource consent conditions,
- Explanation of the erosion and sedimentation control measures in place and how they work,
- Erosion and sedimentation control maintenance and monitoring requirements,
- Requirements and procedures for preparing for an imminent rain and/or wind event,
- Procedures to reduce and mitigate dust,
- Sensitive locations on site (not covered by point 2 above),
- Areas where access is not permitted,
- Parking and material storage areas including refuelling areas and spill management protocol;
- Expectations for specific work,
- Archaeological protocols,
- Procedures for notifying of potential environmental incidents and complaints.

An up-to-date register shall be maintained on site recording all persons that have completed the induction. All workers and subcontractors shall sign the register upon completion of the induction.

7.2. INSPECTIONS AND RECORDING

The site office will be the principal point for all site management. A site diary and all necessary records shall be kept on site at all times. The Site Manager shall be responsible for maintaining all records and shall make this information available to suitably authorised persons upon request.

The Site Manager shall make a written record of employees or sub-contractors who do not follow the guidelines set out in this plan. As applicable, the sub-contractor's employer shall also be notified of each infringement. Any employee or sub-contractor who repeatedly ignores the requirements of this Plan shall be banned from site.

The contractor shall undertake at a minimum, daily inspections of all dust, erosion and sediment control measures to ensure that they are either functioning or capable of functioning as intended. Pre-start meetings and tail-gate meetings shall include discussion on specific works required for site management and dust, erosion and sediment control with details of the discussion recorded in the site diary.

The site diary shall also record details of end-of-day stabilisation inspections, including sub-contractor areas, plus any additional works carried out in anticipation of adverse weather. When rain and wind events are forecast, all work considered at risk from adverse weather is to cease with enough time to carry out all necessary site management works to protect the site and adjoining property (as applicable).

The contractor shall ensure that no works recommence after any rain event significant enough to generate overland flow until a thorough inspection of all erosion and sediment controls has been undertaken and any remedial works required completed. Inspection details and remedial works undertaken shall be recorded in the site diary.

A weekly site inspection is to be undertaken as per the checklist attached at Appendix A.

8. RISK MANAGEMENT

8.1. EVENT AND INCIDENT MANAGEMENT

Refer to the attached checklist at Appendix B and Failure Assessment Form at Appendix C.

Refer to Section 3.2.4 of the ESMP for further information.

8.2. COMPLAINTS ACTION PROCESS

On commencement of the project, site signage shall be installed detailing first points of contact (including phone numbers).

All employees of the main contractor will be trained to immediately report and feedback to the Site Manager issues raised (be it complaints and or praise) from site visitors or neighbouring properties.

All complaints will be followed up and an appropriate course of action taken by the Site Manager in the following manner:

1. Ensure Complaints Register is completed;

2. Record complaint;
3. Facilitate open discussion with affected parties;
4. Discuss appropriate solutions;
5. Implement solutions and monitor both nuisance and complainant.

All feedback will be recorded in a feedback record, which will be maintained by the Site Manager.

The feedback record will cover the following points:

1. Date of Complaint
2. Complainants Name
3. Complaint Recipients Name
4. Summary of Complaint
5. Action Taken
6. Details of Report back to Complainant
7. Conclusion

Refer to the Complaints Form at Appendix D.

8.3. REVIEW

This plan will be updated, with the necessary approval, throughout the course of the project to reflect material changes associated with changes to construction techniques, changing site conditions or the natural environment. Consultation with the QLDC and potentially affected landowners may be required for any relevant revisions of a material nature.

Reasons for making changes to the plan will be documented. A copy of the original document and subsequent versions will be kept for the Project records and marked as obsolete. Each new/updated version of the plan documentation will be issued with a version number and date to eliminate obsolete documentation being used.

9. ARCHAEOLOGICAL AND HERITAGE PROTOCOLS

9.1. KOIWI ACCIDENTAL DISCOVERY

If Koiwi (human skeletal remains) are discovered whilst undertaking construction work, then the following shall be undertaken:

- Construction work within a 20m radius of the site shall cease immediately and indefinitely until Te Ao Marama Inc and/or New Zealand Police advise that it can recommence;
- Advice of the discovery shall be reported, as soon as practicable, to Te Ao Marama Inc (Ngai Tahu Muriniku Resource Management Consultants), the New Zealand Police, the Project Liaison Advisor and the Grantor.
- No work shall recommence until an agreement has been reached between the parties regarding appropriate protection measures for the artefact or material found.

9.2. TAONGA OR ARTEFACT DISCOVERY

Taonga or artefact material other than Koiwi will be treated in a similar manner so that their importance can be determined, and the environment recorded by qualified archaeologists alongside the appropriate Tangata Whenua.

9.3. ARCHAEOLOGICAL AUTHORITY

The conditions contained within the Archaeological Authority (no. 2018/123: F41/578 Ayrburn Farm, Lake Hayes Road, Arrowtown) will be adhered to as specified in the authority and as detailed in the archaeological assessment prepared by the approved archaeologist in October 2018.

10. APPENDICES

10.1. APPENDIX A – WEEKLY SITE INSPECTION CHECKLIST

ENVIRONMENTAL MANAGEMENT RECORD

To be completed by the Environmental Representative: [INSERT]

	[example]	[insert date]
Time completed	7.45am	
Erosion & sediment controls - walk site and confirm that required controls are in place and working effectively	Y	
Visual check of the clarity of creek. Check that no noticeable discolouration occurring after 50m downstream from all discharge points.	No discolouration noted	
Vehicles & plant - parked outside of overland flow paths (& contained within designated areas)	Y	
Stockpiled material - outside of overland flow paths, located within designated areas, contained to prevent run-off, covered if in place for >6-weeks.	Y	
Dust control - exposed areas properly stabilised as per the methods outlined in the EMP. Inspect site for visual evidence of dust travelling beyond the boundaries and remedy as required. Reduce or suspend works if dust is seen moving across the boundary.	Y	
Check no unnecessary excavation etc occuring or left unnecssarily exposed (e.g. could be premanently stablised)	Okay	
Debris - no tracking onto Arrowtown-Lake Hayes Road	Okay	
Site kept clean and free of rubbish. No rubbish tracking across boundaries.	Okay	
Weather:		
Observations on-site	overcast with light showers in the afternoon	
Mill Creek flow rate (https://www.orc.govt.nz/managing-our-environment/water/water-monitoring-and-alerts/kawarau/mill-creek at-fish-trap-arrow-basin-area)	record flow rate /observations	
Weather forecast - check forecast (Metservice) for rainfall events (20mm/12hrs) and wind speeds for overnight, next day (or weekend), and week ahead. Check controls, implement measures, and alert others as required.	Y	
Latest version of ESMP & EMP available on site	Yes	
Advise to the distribution list if any changes or updates required to the EMP &/or ESMP (e.g. due to changes in construction methodology, measures not working as intended, or incident occured).	No updates to report	
Check and confirm no erosion, scouring, land instability or property damage occuring through the site & on neighbouring boundaries.	Okay	
Completed by:		
Name		
Signature		

10.2. APPENDIX B – EVENT CHECKLIST

ENVIRONMENTAL MANAGEMENT RECORD To be completed by the Environmental Representative:[INSERT]

	EXAMPLE	[insert date]	[insert date]	[insert date]
DURING EVENT (= forecast 20mm/12hrs):				
Remove all plant from the creek bed (if applicable) and all machinery/vehicles from the overland flow path.				
Check all site measures are stable and undertake a daily evening check (regardless of the time of day). Undertake further checks as required.				
AFTER EVENT:				
Check all erosion and sediment controls are still in place and effective. Any fixes or remedial measures to be undertaken before works in that area can recommence.				
STEPS IF FAILURE				
Fix any problems immediately Complete Failure Assessment Form and Contractor's Incident Form within 24 hours of the incident occuring and copy provided to distribution list. Advise Client /Fluent / PPG of failure and discuss and implement corrective measures to prevent it from occurring again.				

10.3. APPENDIX C – FAILURE ASSESSMENT FORM

Sediment Control Failure Assessment Form

Date	

Recorded by	

Failure (what failed)

What management measures were in place to prevent the incident from occurring and what are the likely causes of the failure?

Outcome (what was affected)

Action (how does the Contractor propose to mitigate the issue and prevent re-occurrence)

Signed	

Reviewed by	

10.4. APPENDIX D – COMPLAINTS FORM

Complaints Form

Date received	

Received by	

Complaint (Write Description)

Cause of Issue

Outcome

Action – How does the Contractor propose to mitigate the issue and prevent re-occurrence

Signed	

Reviewed by	

APPENDIX 2 CONSTRUCTION TRAFFIC MANAGEMENT PLAN (DRAFT)

1.0 Introduction

This document is outlines the strategy for a Construction Traffic Management Plan (CTMP). It has been prepared so that the overarching purposes, objectives and specific requirements for the management of construction traffic are well-understood and can inform the preparation of the Temporary Traffic Management Plans (TTMP) before the construction commences.

At this stage, the bulk of the specific construction methodologies and main contractors are not yet known. Consequently it is intended to provide guidance to inform the TTMPs at a later stage. However there are some elements which are more prescriptive where particular matters are already fixed.

2.0 Purpose, Objectives and Methods

The purpose of the CTMP is to set out in detail the ways in which construction traffic will be managed to:

- ensure the safe and efficient performance of the road network for all road users; and
- minimise adverse effects on the nearby community from construction traffic; and
- ensure that the community is provided with appropriate information about the traffic management arrangements as applicable.

For clarity, TTMPs will be required under the Code of Practice for Temporary Traffic Management (CoPTTM) because construction traffic is expected to vary the normal operating conditions of the road network. These temporary traffic management provisions are subject to approval by the road controlling authority, which in this case will be Queenstown Lakes District Council (QLDC). Since TTMPs provide a significant amount of detail which is not yet known, and as they will be subject to change, they are not included within the first iteration of this report but rather this report provides information to assist when they are developed.

The objectives of this CTMP are to:

- ensure the requirements of relevant Acts, Regulations, Bylaws and consent conditions in relation to construction traffic are adhered to;
- support a culture of road safety awareness and commitment;
- ensure best practice in transport safety;
- ensure emergency services are not obstructed;
- minimise disruption to the surrounding communities; and
- minimise traffic generation.

These objectives will be achieved through the following methods:

- a collaborative process will be implemented between the consent-holder's representative(s), the Council, and the contractor to ensure that construction traffic is managed appropriately;
- as and when appropriate, the local community, emergency services and other key stakeholders will be consulted with regard to the management of construction traffic;
- sufficient time will be provided between the production of the draft TTMPs and the approvals to ensure that the needs of all relevant stakeholder concerns have been considered.

3.0 Contents

Introduction

The CTMP will be a living document, reviewed and updated regularly both prior to and during construction. To ensure that it remains an important element in the management of construction traffic, the following matters will be included or reviewed in due course.

Construction Programme

The start and end dates for the key construction stages and activities likely to generate traffic will be included.

Traffic Flows

- The number of type of vehicles expected for each stage of the construction process;
- A consideration of how traffic volumes will be minimised;
- An assessment of how the traffic generation arising from employees and subcontractors will be managed, particularly in respect of managing the parking demand;
- Ways in which traffic volumes will be minimised at sensitive times, such as at peak periods on the adjacent road network.

Site Access and Vehicle Routes

- The location of the site access(es);
- An assessment of how road safety risks arising from the interaction of pedestrians and construction vehicles at the site access will be minimised;
- The routes to be used by construction vehicles;
- Ways to ensure that the through traffic movement on the frontage road is not adversely affected by the movement of vehicles to/from the site;
- Management methods to ensure that vehicles do not wait on the frontage road.

Driver Protocols

- Ways in which safe driving behaviours and practices for drivers will be encouraged and supported;
- Ways in which breaches of driver protocols will be addressed.

Monitoring

- Methods for ensuring that the adjacent roads remain free of debris, such as an inspection and sweeping regime;
- Ways in which adherence to the CTMP will be monitored;
- Ways in which road incidents (crashes and near-hits) will be reported, assessed and addressed;
- Ways in which feedback from the public or other stakeholders will be recorded, assessed and actioned.

Communications

- The processes for ensuring that the contents of the CTMP are communicated to all contractor staff and subcontractors;
- Ways in which the public and stakeholders are able to make comments and provide feedback as and when they desire;
- Processes for engagement and liaison with other stakeholder groups, such as the emergency services;
- The timing / triggers for communication with all stakeholders.

Temporary Traffic Management Plans

- The Temporary Traffic Management Plans approved by the Council.

4.0 Management and Review

This CTMP will be reviewed by the contractor when appointed and will be revised in accordance with the overall CMP.

The CTMP will be reviewed on a regular basis. The first review must take place at least one month prior to construction commencing.

At a minimum, each review will involve:

- Any changes to the construction programme that affect traffic flows;
- Any reports of incidents (crashes and near-hits), and the actions taken to address these;
- Feedback from the public and other stakeholders, and actions taken in response;
- A review of the communication processes to ensure they remain robust.

Consultation with QLDC may be required for any relevant revisions of a material nature for the CTMP.

APPENDIX 3 CONSTRUCTION NOISE MANAGEMENT PLAN (DRAFT)

1.0 Introduction

This Construction Noise Management Plan (CNMP) has been prepared to ensure that noise from activities on the Waterfall Park site will be minimised.

This CNMP identifies the performance standards that must, where practicable, be complied with. It also sets out best practicable options for noise management for the project and the operational procedures and practices for minimising potential noise disturbance of neighbours.

Sensitive environmental receptors in particular include the adjacent properties along the southern boundary of the site with specific consideration to be given to them during the course of the works.

2.0 Roles and Responsibilities

All contractors, subcontractors and agents engaged in the operation, activities and servicing of the site will be made familiar with the procedures set-down in this CNMP and will be required to adhere to it. The Site Managers will be responsible for the implementation of the CNMP and ensuring all required noise and mitigation measures are installed correctly and functional before the relevant site activity commences.

3.0 Performance standards

The "long term" noise limits are contained within NZS 6803:1999 "Acoustics – Construction Noise" (NZS 6803). The following table outlines the relevant noise limits that apply for this project.

Time of week	Time period	dB L_{eq}	dB L_{max}
Weekdays	0630-0730	55	75
	0730-1800	70	85
	1800-2000	65	80
	2000-0630	45	75
Saturdays	0630-0730	45	75
	0730-1800	70	85
	1800-0630	45	75
Sundays and public holidays	0630-0730	45	75
	0730-1800	55	85
	1800-0630	45	75

Table 1: NZS 6803:1999 'typical duration' noise limits in residential zones

These limits apply outside neighbouring buildings; one metre from the façades and 1.2 to 1.5 metres above the relevant floor level.

Machinery used on-site will not exceed the noise levels specified in the QLDC Operative District Plan.

4.0 Mitigation during Construction

Noise from the site will be minimised through the following actions:

- No plant/equipment deliveries to the site shall occur between 6pm and 7.30am daily.
- Movement of all machinery, for instance trucks, excavator and loader, on site shall be in such a manner that ensures there is no excessive acceleration or braking.
- No amplified music shall be played within the work site.
- Banging or dropping of metal on metal is to be avoided.
- There will be no shouting or communicating in raised voices whilst on site.
- Site Manager's contact details clearly displayed on the project board on site for any adjacent privately-owned properties to contact should they need to voice any concerns about noise levels.

Noise levels shall be monitored and assessed:

- In accordance with NZS 6803:1999.
- During critical phases of construction when noise levels may exceed the relevant standards, or in response to reasonable noise complaints being received.
- If required, at locations representative of sensitive receivers in the vicinity.

In the event that a measurement shows non-compliance with the noise performance standards of Table 1 the following procedures shall be implemented:

- Further measurements shall be undertaken where necessary, to determine the extent of non-compliance.
- A report shall be prepared, outlining the non-compliance and, if required, potential mitigation and management measures.
- Upon implementation of any additional mitigation measures, further measurements shall be undertaken to confirm the effectiveness of those mitigation measures.
- If further review or measurement is considered necessary, a suitably qualified and experienced acoustic consultant may be engaged to undertake compliance noise measurements in response to any complaints.

5.0 Review

This CNMP will be reviewed by the contractor when appointed and will be revised in accordance with the overall CMP. The CNMP will be updated, with the necessary approval, throughout the course of the project to reflect material changes associated with changes to construction techniques or the natural environment. Consultation with QLDC may be required for any relevant revisions of a material nature for the CNMP.

A copy of the original CNMP document and subsequent versions will be kept for the project records, and marked as superseded. Each new/updated version of the CNMP will be issued with a version number and date to eliminate obsolete CNMP documentation being used.