Submitted in support of the Fast Track Consent Application

CONTRACTOR MANAGEMENT PLAN

Rangitoopuni Development

Project No.	1E0TBC	**Region**	Auckland
Project File Name	1E0TBC-CV-PMP-001 Rangitoopuni Development 2025-04-29		

Rev No.	Date	Section Amended and Description	Amended by	Approved by	External Approval
1	29/04/2025	First Issue	[redacted]		
12	21/10/2024	Risk Register	[redacted]		

CERTIFIED
ISO 9001
ISO 14001
ISO 45001

Contents

I. CONSTRUCTION METHODOLOGY AND PROGRAMME

1 Project Overview and Scope

Rangitoopuni Development is a Land Development project located along Lots 1 and 2 DP 590677, Riverhead, Auckland. This Contractors Management Plan is provided in support of the application for Fast Track Consent and will be updated during the contract tender stage.

Works shall include but not limited to the following:

- Site establishment and disestablishment
- Environmental management – erosion/sediment control
- Bulk / minor earthworks
- Stormwater drainage
- Wastewater drainage
- Roading
- Water supply
- Power and telecom utilities
- Hard landscaping (footpaths, carriageways, parking bays and pram crossings)
- Soft landscaping and reinstatement

The intended development will comprise:

  - Lot 1 – Countryside Living Subdivision: **208 lots**
  - Lot 2 – Retirement Village: **260 villas** and **36 care units**; **296 units** in total

- The countryside living subdivision includes community facilities (solely for the use of the future subdivision residents) comprised of a community building, residents carpark, bush trail and outdoor recreation areas, such as a basketball and tennis court.
- The retirement village includes a café, wellness centre, and amenity building.

The countryside living areas will feature onsite effluent disposal, whilst rain caught water will be the primary means of potable and non-potable water supply. Stormwater discharge into the various streams and overland flowpaths within the site.

The Retirement Village will be supported by a communal wastewater treatment plant, with disposal to ground. Primary water supply will be via way of roof caught water and will be supplemented as needed by a bore and or other means. Stormwater discharge would be via the tributaries of the Rangitopuni River.

The roading network within the site would be for the most part privately owned and formed around the existing forestry roads where possible. The roads would feature a combination of chipseal and or concrete finishes. Forestry Road extension (road to vest) is the only public road within the development.

Please refer to Appendix 1 Project Site Information for a project site information.

Please refer to Appendix 2 Project Site Layout for the site layout.

2 Project Objectives and Goals

The standard Dempsey Wood practices which will assure the Client that the construction targets and completion dates will be met are summarised as follows:

- Through Dempsey Wood's fully integrated construction methodology, programme, stakeholder management, HSEQ management and TMP – all integrated in our comprehensive Project Management Plan.
- Through Dempsey Wood's realistic and achievable programme aligned to our organisational structure.

Updated programmes will be reviewed weekly by the site team to monitor progress and identify areas of concern, discuss, agree, and implement preventative/corrective measures.

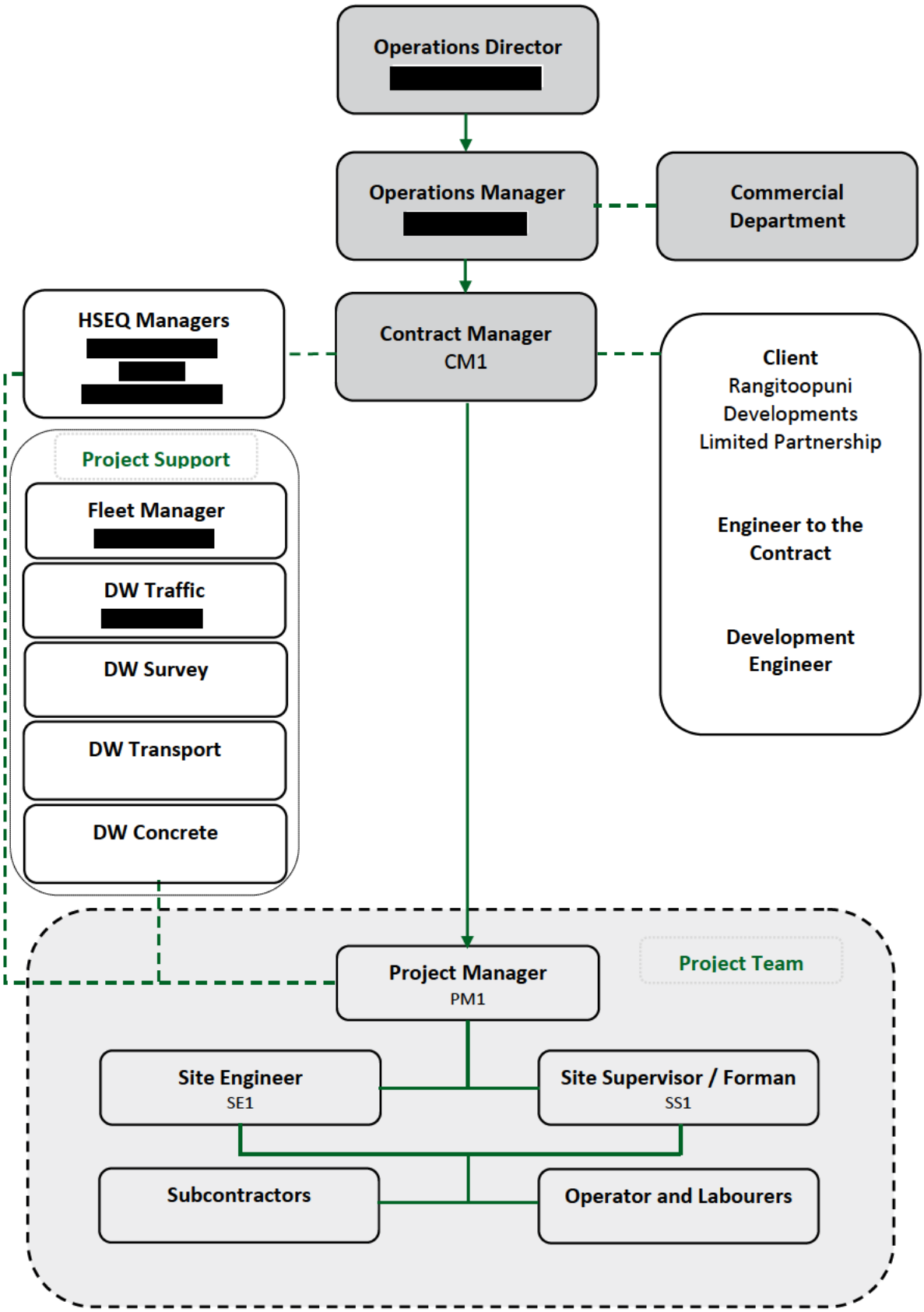
- Through Dempsey Wood's contract management and organisational structure, comprising 100% Dempsey Wood personnel.
- Through the utilisation of Dempsey Wood's in-house resources to undertake the majority of the contract works supplemented by prequalified subcontractors with backup resources identified if required.
- Through the open and enhanced communications stemming from Dempsey Wood's management from board to shovel
- Through the development of positive stakeholder relationships and initiatives that will turn negative perceptions into positive outcomes.

2.1 Code of Conduct

Although this is not a hearing before the Environment Court, I record that I have read and agree to comply with the Environment Court's Code of Conduct for Expert Witnesses as specified in the Environment Court's Practice Note 2023. I confirm that this report is within my area of expertise, except where I state that I rely upon the evidence or reports of other expert witnesses lodged forming part of the project's application material. I have not omitted to consider any material facts known to me that might alter or detract from the opinions expressed.

3 Proposed Project Team

Figure 1 Project Organisational Chart



4 Roles and Responsibilities

Contact list of DW site-specific personnel, their role and responsibility can be found in Appendix 3 Project Stakeholders and Contacts

Contract Manager

The Contract Manager endeavours to ensure the project is executed in line with Dempsey Wood policies and procedures, ensuring ongoing compliance, to support the Project Manager, advising and assisting as required and that adequate resources are made available for the project and provide an alternative point of contact for the Client should the need arise to gain a greater perspective in communications.

Project Manager / Project Engineer

The Project Manager has overall management responsibility for the successful delivery of the project on time, on cost and meeting quality, health safety, environmental and contractual criteria.

The Project Manager endeavours to ensure the works is being carried out in accordance with the specification, ensuring that all workmanship and materials meet the specification, provides support to the Site Engineer and Supervisor in assisting with planning of the works and job safety analysis, and ensure environmental objectives are achieved.

Site Supervisor / Foreman

The Project Supervisor oversees and manages the site works to achieve prompt and efficient execution of the works, assists, and advises on the program, planning of work methodologies, effectively communicates the daily program of works, assigns specific tasks to individuals, ensure workmanship and materials meet the specification, and endeavours to ensure that they are carried out safely and protecting the environment.

Site Engineer / Graduate Site Engineer

The Site Engineer endeavours to ensure the works is being carried out in accordance with the specification, ensuring that all, provides support to the Project Manager and Supervisor in assisting with planning of the works and job safety analysis as appropriate and in assisting the co-ordination of efforts onsite and material deliveries.

The Site Engineer shall be responsible for ensuring proper documentation fo works is achieved as per requirements.

Project Workers (Subcontractors, Operators and Labourers)

Project workers on the project including the Client and Engineers are responsible for their own safety and quality of workmanship and ensuring their work does not adversely affect the health and safety of others. They are also responsible through their employer for ensuring they have the necessary knowledge and experience to perform their work, report hazards, near misses, incident and accidents to the project management team and ensure appropriate safety and personal protective equipment is worn at all times. Additionally, they have a duty of care to report and assist in stopping unsafe work practices.

Regional Health and Safety Advisor

The Regional Health and Safety Advisor provides technical advice and endeavours to ensure compliance with the Dempsey Wood policies and specific procedures applicable.

The Regional Health and Safety Advisor shall lead any H&S investigations that could occur.

Quality Manager

The Quality Manager provides technical advice and endeavours to ensure compliance with the Dempsey Wood policies, specific procedures, and guidelines applicable. The Quality Manager shall advice and assist the project manager to ensure that all workmanship and materials meet the project specification and investigate any non-conformances.

Environmental and Sustainability Manager

The Environmental and Sustainability Manager provides technical advice and endeavours to ensure compliance with the Dempsey Wood policies and specific procedures applicable.

Fleet Manager

The Fleet Manager endeavours to manage internal and external plant, machineries, and vehicles, is responsible for maintenance, availability, and efficient deployment of the same, advises and supports onsite management in safe and efficient use, investigating damaged and misuse to ensure such incidents are prevented.

DW Traffic / Traffic Manager

The Traffic Manager is responsible for developing and gaining Auckland Transport's acceptance and then implementing the project Traffic Management Plan (TMP). They provide a supporting role to the STMS in ensuring they have adequate training, resources, and employees to manage the project TMP.

Site Traffic Management Supervisor

The STMS is responsible for the Traffic Management Plan; its ongoing effective operation on the site as well as its compliance to the SML requirements, ensures the initial plan is working and seeks to improve upon it for the project stakeholders, specifically both neighbouring residents and the project team.

The STMS liaises with the Project Manager on the program, the upcoming works and traffic management requirements and reports directly to the Temporary Traffic Management Manager (TTMM). The STMS communicates to the TTMM as to the site situation and upcoming resource requirements. The STMS is responsible for the management of the Traffic Controllers (TC's) that remain onsite, ensuring they are properly briefed and performing their role satisfactorily.

DW Survey / Survey Manager

The Survey Manager endeavours to ensure that Dempsey Wood's survey management meets its contract and statutory obligations.

DW Transport / Transport Manager

The Transport Manager is responsible for transport of heavy equipment, procurement, and timely delivery of construction materials.

DW Concrete / Concrete Manager

The Concrete Manager is responsible for booking, providing resources, and timely delivery of concrete works like kerbs, footpaths, vehicle crossings, JOALs, etc.

5 Project and Contract Management

5.1 Handover and Establishment

5.1.1 Client Handover to Dempsey Wood

Upon formal acceptance, a handover meeting is requested between the Client and Dempsey Wood, prior to an internal handover to the project team. This is to ensure an opportunity to review the tender tags and acceptance together, ensure clear understanding of the requirements of all parties prior to starting on site, to set some initial dates for site handover and preconstruction meetings and the information required by consent and contract prior to starting onsite.

Prior to possession of site, the Client and Engineer shall inform Dempsey Wood of any existing latent site conditions that they are aware of, and that may put project workers at risk – such as existing services, site contamination, structures below ground, access limitations and the like and provide Dempsey Wood with any documentation in their possession in relation to such conditions.

5.1.2 Commercial Handover to the Project Team

Upon contract award and prior to mobilising on site, an internal Dempsey Wood handover meeting is held between the Dempsey Wood Commercial team and key members of the project team to identify key project requirements and deliverables, review construction methodologies and highlight project risks identified during the tender process.

5.1.3 Consents

The Client arranges for any consent and pays any fees as may be required from various authorities for the completion of the work on this contract.

All permits to work, consents, approvals (including earthworks consents, engineering works approval) etc. are to be obtained by the Client prior to the commencement of the contract works. Where the Client instructs Dempsey Wood to commence the contract works prior to such consents being in place this is at the Client's risk.

Dempsey Wood is responsible for reporting, monitoring and liaison with the consent agents and the project specific approach to environmental management, compliance monitoring and recording of consent compliance throughout the works.

5.1.4 Existing Services

Dempsey Wood shall liaise with the Engineer and determine responsibilities as outlined in the contract documents. Utility providers will be contacted with regards to the works and the vicinity to their respective assets. Dempsey Wood shall obtain up to date copies of service plans from the various controlling utility providers and if necessary, consult with them on site to determine exact locations and any restrictions imposed by them.

5.2 Meetings and Reporting

5.2.1 External Project Preconstruction/Pre-Start/Kick-off Meeting

The purpose of the project external preconstruction/pre-start/kick-off meeting is to discuss with the project delivery team (Rangitoopuni Developments Limited Partnership, Engineer to the Contract, Dempsey Wood, and any other nominated contractors) and other stakeholders (community, local iwi, schools, etc) the boundaries of works and the necessary arrangements as the project progresses.

5.2.2 Internal Project PreCon

Prior to any works starting onsite, an Internal Project PreCon shall be held to discuss the scope of works, the site conditions, the project risks and critical activities and the requirements for quality, environmental, health and safety, fleet, transport, survey, traffic, or any other general requirements. The nominated or domestic subcontractors shall be reviewed if prequalification is done, and necessary contract agreements are in place.

The purpose of this process is to co-ordinate efforts by assigning preconstruction tasks to those involved to ensure these early aspects of the project are planned for, resourced, procured, and delivered timely.

5.2.3 Progress Report

Progress reports shall be prepared by Dempsey Wood every month/as required and submitted to the Engineer by email. Reports shall be handed to the Engineers representative at the regular site meeting. Reporting shall continue until Dempsey Wood has completed all work, which is known to be outstanding at the completion date stated in the Certificate of Practical Completion of the final Separable Portion.

Dempsey Wood shall, on or before the 5th Working Day of each Month provide a monthly progress report to the Engineer on the contract works including:

- A construction progress for the month
- An update on personnel and plants, status of long term lead materials, and other resources

- Current challenges encountered and potential risks
- An update on notifications and other correspondences
- Progress against programme and a programme showing forecast and actual progress together with an estimated practical completion date
- A report on health and safety at the site and any other information reasonably required by the Rangitoopuni Developments Limited Partnership or the Engineer
- A report on sustainability and environment at the site and any other information reasonably required by the Rangitoopuni Developments Limited Partnership or the Engineer
- A report on quality assurance and quality control at the site and any other information reasonably required by the Rangitoopuni Developments Limited Partnership or the Engineer
- Such other reports and information in connection with the progress of the contract works as may reasonably be requested from time to time.

5.2.4 Daily Diary

Dempsey Wood personnel shall complete the daily diary record. This is to record activities for the day, daily progress, the weather, the materials received, and the personnel and subcontractors that were onsite on the day.

5.3 Communication

All formal communications to Dempsey Wood should be addressed to the Project Manager and copied to personnel believed to be relevant to the issue to expedite the appropriate responses. This is either via an email, a notification/instruction, or a meeting.

5.3.1 Notice to Engineer

Outgoing correspondence will be directed to the Client with any relevant personnel copied into the correspondence to expedite the matter at hand. This formal communication will be in writing preferably using the **Notice to Engineer (NTE)** to track correspondence.

All correspondence will be stored and tracked in **Project Hub in Dempsey Wood's SharePoint Document Management System (DMS)** and an updated register will be communicated when required or in the progress report.

5.3.2 Complaints

Dempsey Wood records complaints made direct to its personnel and responds directly or refers it as soon as possible to the Client to action. All complaints are recorded, and the register is available for review at any time by the Engineer.

5.4 Project Programme

Dempsey Wood will re-issue the tender programme once timelines have been established and a close review of sequencing, methodologies and resources is undertaken. The program will be revised with the updated dates and shall be used as the Contract Programme.

The programme will be formatted in **Microsoft Project** for illustration and includes sequencing, milestones, durations, and a critical path for ease of monitoring and to illustrate the impact of changes and issues arising.

5.5 Document and Record Control

It is the Project Manager's and Site Engineer's responsibility to maintain and ensure all project records are documented, reviewed, controlled, stored, and protected. The appropriate place for all documents and records is the **Project Hub in Dempsey Wood's SharePoint Document Management System (DMS)**.

5.5.1 Drawings

Only drawings which have been clearly marked as having been issued **FOR CONSTRUCTION** are to be used by Dempsey Wood for setting out and construction of the contract works. Any drawing revisions and the revision register shall be controlled as issued to Dempsey Wood.

5.6 Plant, Machines, Vehicles and Equipment

All plants, machines, vehicles, and equipment are maintained and certified. A register of all plants, machines, vehicles, and equipment and their maintenance or certification are maintained within **DW Fleet Management.**

6 Publicity and Public Relations Management

6.1 Stakeholder Liaison and Communication

After contract award, Dempsey Wood will meet with the Client to discuss and agree on initial and on-going stakeholder communications. This can be done in the External Project Preconstruction/Pre-Start/Kick-off Meeting or a separate communication. From there and as required, a comprehensive Communications and Stakeholder Management Plan will be implemented to ensure the Client, the local community and other affected parties are kept informed and to resolve issues. This plan will include the following:

- Communication objectives and strategy.
- Key messages for the project.
- Identification and roles of the project communications personnel (internally and externally).
- A comprehensive register of all key project stakeholders, including all relevant details as well as address and contact details.
- Risks and issues management, including the Complaints Register.

The contractor's representative will provide prompt notifications to all affected stakeholders in advance of the contract works that will impact on them, and ensure contract works and any issues arising from these are effectively communicated and/or addressed before they become problems.

Prior to any works commencing, Dempsey Wood will undertake a **letter-drop** to all affected businesses and neighbourhood. The consultations to be undertaken will be instrumental in mitigating the effects of construction as they:

- Provide people with the opportunity to have any queries (in particular, any concerns addressed) about the works answered before these works commence.
- Enable people to inform the project team of any special needs they might have (e.g., dialysis machines requiring uninterrupted power, disabled people dependent on vehicular access, babies etc.) to ensure these are considered when the works were undertaken.

7 Proposed Construction Method and Staging

Dempsey Wood will typically sequence our works as follows:

- Site establishment.
- Erosion and sediment controls.
- Earthworks.
- Drainage.
- Underchannel subsoil drainage.
- Sub-base placement.
- Watermains and other utilities.
- Kerb and channel and/or dish channels.
- Parking bays, footpaths, and vehicle crossings.
- Basecourse placement.
- Asphalt or concrete road construction.
- Landscaping/reinstatement.

Following handover/acceptance of the site, Dempsey Wood will utilise the staging plans and sequence of work provided. Dempsey Wood will utilise the SIM as a provision for all weather access to the site allowing materials to be delivered. Drainage will be the first stage of work. Starting from the downstream end of the line, working our way upstream leaving the surplus material on the adjacent lots for later removal. As drainage progresses from the downstream manhole a civil crew will be established. Utilising the Dempsey Wood GPS controlled plant, we will carry out the subgrade trim of the carriageway and berms. Post completion of the subgrade trim, the utility services and carriage way construction can take place. Finally, placement of the top soiling, grassing and clean-up will complete the stage ready for handover.

Drainage construction will be in a linear direction from the downstream manhole heading upstream. To mitigate any adverse ground conditions, we have based our construction on either benching or shoring utilising temporary shields. Ground water will be controlled through building temporary sumps and pumping to the downstream manholes. Dirty water will be treated prior to discharging to the environment. To enable the backfill specifications several different forms of compaction equipment will be utilised to achieve the different specification requirements. The use of smaller hand operated compactors will be utilised for the pipe bedding and haunching spec. A small front drum compactor will be utilised to achieve the clay trench backfill requirements. We have assumed that the excavated material from the trench can be placed without conditioning. Dempsey Wood will have a Site Engineer dedicated to the quality control of the site which they will be in control of daily checking and recording of the grades and compaction requirements.

Throughout the duration of each separable portion, Dempsey Wood will endeavour to keep an accurate record of work completed and QA records. All levels and finished surfaces will be surveyed and recorded daily or as when required by utilising the Dempsey Wood in-house Survey Department. By enabling a clean clear history of record keeping and an ongoing collection of data, Dempsey Wood will be able to provide the required handover documents as per the required times/dates.

Dempsey Wood's established Project Management System encompasses all aspects of contract management and complies with our best practice accreditation standards. This system enables us to design and build effective project management plans that conform to the specific requirements of each contract we undertake. This integrated structure identifies clear lines of responsibility and accountability within the project team and in regard to our liaison with the client and all stakeholders.

All of our personnel are trained and experienced in our management systems and receive a full induction to ensure their compliance. Updates are communicated through regular meetings.

Upon contract award a contract programme will be developed. The approved programme will be used to monitor and track progress against plan on a weekly basis and to plan sufficient resources for tasks to achieve the required productivity. By proactively monitoring the baseline construction programme we will identify any

potential programme slippage, develop a mitigation strategy to bring the programme back on track, plan for additional resourcing requirements and timing, and prepare a cashflow, cost-to-complete, and final cost forecast. Programme updates will be included in the Monthly Report. Our Site Supervisor / Foreman will be provided with a three-week look-ahead programme and with weekly targets.

II. HEALTH AND SAFETY MANAGEMENT PLAN

This Health and Safety Management Plan is also commonly called as **Site-Specific Safety Plan** (**SSSP**).

1 Project Specific HSE Requirements

1.1 Notification to WorkSafe NZ

The WorkSafe NZ hazardous work notification is completed and forwarded to WorkSafe NZ where applicable for the project. The Client shall be notified when DW or its subcontractors are undertaking WorkSafe Notifiable works.

1.2 Worker Engagement, Participation and Representation

Dempsey Wood endeavours to:

- Ensure there are opportunities for workers to engage, participate and represent workers in the workplace.
- Encourage participation in the various standard meetings within Dempsey Wood.
- Promote worker engagement and participation through the election and the running of our HSEQ committee, of which the members are representative of the worker groups.
- Implement appropriate policies with regards training and election of HSEQ Representatives.
- Encourage workers to accurately report, record and evaluate near misses, incidents and accidents and participate in the follow up investigations.
- Promote the health and safety, environmental and quality issues on the site through the project daily project pre-starts, weekly HSEQ toolbox meetings, Take 5's and conveying clearly to all workers in simple language any changes to policy, incidents or near misses that were formulated or discussed at the construction management meetings.
- Carry out Dempsey Wood and project inductions as a company and then separately and specifically for each project involving project workers and regular "visitors". The Dempsey Wood and project specific inductions are documented.
- Ensure HSEQ Alerts are being raised and sent out as a result of something significant or a trend becoming apparent or important information. It is documented and discussed at Project HSEQ Toolbox Meetings.

Worker engagement is supported by the below Site Safety Board which is displayed on Dempsey Wood sites.

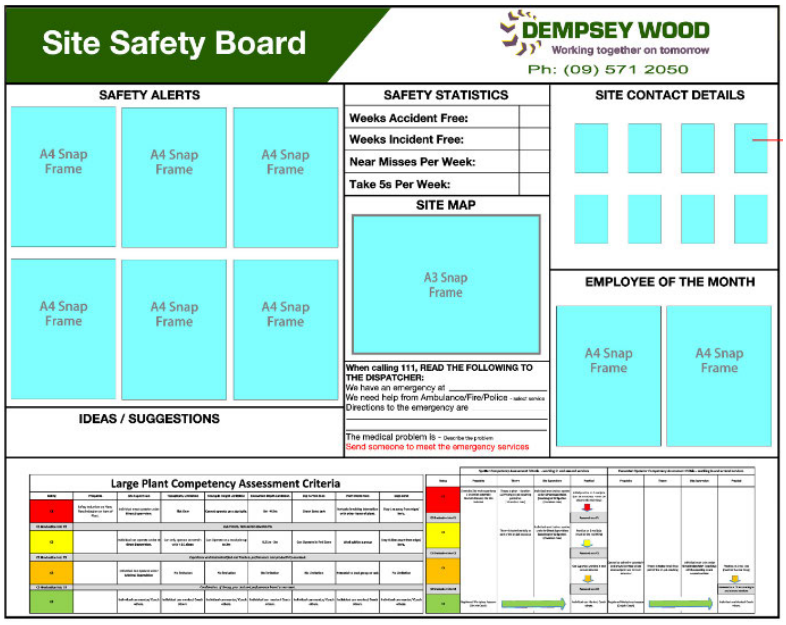


Figure 2 Site safety board

1.3 Project Specific Induction

Project workers (employees, contractor, subcontractors, and trainees) will receive an induction when arriving on site. All visitors to site must undergo a visitor's briefing so they are aware of the environmental, cultural and health and safety requirements while on site. Visitors not inducted must be accompanied by a member of the Dempsey Wood Site Management Team or appointed representative at all times.

Project workers who have not been inducted must be made known to the project management team so that arrangements can be made for their induction at the earliest opportunity. Whoever is responsible bringing the person onto site is responsible for notifying the project management team.

DW will ensure that information provided via the general Rangitoopuni Developments Limited Partnership induction is also addressed within the Project Specific Induction.

1.4 Training and Certification

Dempsey Wood project workers are assessed to perform their tasks, operate, or drive plant. Dempsey Wood have an in-house competency matrix to manage this and ensure the project is resourced appropriately. Subcontractors are expected to similarly have reviewed and checked the competency of their workers in the work and plant they are expected to operate.

1.5 Personal Protective Equipment

The mandatory personal protective equipment (PPE) persons shall wear on the project site is:

- White safety helmet (or hard hat) – green for first aiders
- Safety footwear – lace up safety boots / safety gum boots
- Orange high visibility vests with reflective bands
- Gloves when carrying out manual tasks

The above excludes working in an enclosed vehicle, plant, machinery and site facilities or a designated project stand down area.

Note - For Client and specific tasks there are additional specific PPE requirements.

1.6 Fitness for Work

All project workers are expected to arrive at work fit and ready to carry out their daily duties. The following factors can impair the ability to work safely:

- Fatigue
- Illness
- Alcohol impairment
- Drugs impairment (including prescribed medication)

The use, sale, transfer, supply, manufacture, possession or misuse of alcohol or drugs in the workplace is prohibited and poses unacceptable risks to all workers and the public and is contrary to Dempsey Wood's commitment to provide, maintain and improve standards of health and safety in the workplace. In addition, the possession or misuse of alcohol or illegal drugs is a criminal offence, which is considered as serious misconduct by Dempsey Wood.

As part of Dempsey Wood's commitment to maintaining a drug-free work environment, DW workers and workplaces are subject, through the TDDA, to pre-employment, post incident/accident, just cause and random drug and alcohol screening (of which the latter is conducted at monthly intervals with a testing ratio of 30% of the workforce).

1.7 Fatigue Management Guideline

It is recognised that extended working hours may be necessary to maintain flexibility in meeting variable workloads and to address short term needs. The guideline provided below should not be considered the norm from day to day or week to week.

The following guidelines apply to workers:

- A maximum of 5 x 11-hour shifts may be worked consecutively.
- A maximum of 1 x 14 hours may be worked in any 24-hour period.
- A minimum break of 10 hours shall be taken between any two periods of work.
- A maximum of 70 hours per week shall be worked.

1.8 Hour of Work

All construction/earthworks' activities on the site will comply with the **New Zealand Standard 6803:1999 for Acoustics – Construction Noise**, at all times. In order to comply with the standard Dempsey Wood will work between the following hours unless written approval is received from the Council:

Summer (1 November – 30 April)

- Monday to Friday 7:00am to 6:00pm
- Saturday 7:30am to 6:00pm

Winter (1 May – 31 October)

- Monday to Friday 7:30am to 5:00pm
- Saturday 8:00am to 1:00pm

Note: the above working hours is subject to the project specific consent conditions

1.9 Daily Project Pre-Start

The content of these meetings typically covers project level related matters such as, but not limited to:

- The days program of work.
- Assigned tasks and their applicable works controls.
- Health and Safety, Environmental and Quality hazards, and risk.
- Assigned plant and operator competencies.
- Allowing workers an opportunity to raise any health and safety or environmental concerns.
- General information.

1.10 Project Health Safety and Environmental (HSE) Toolbox

Weekly HSE toolbox meetings are held with project workers working on the project at the time. These meetings are health safety and environmental focused and minuted. Copies of completed meeting minutes will be issued to the Engineer and Client H&S Manager, as required.

A DW representative will also attend sitewide Toolbox meetings as undertaken by the Client. Dempsey Wood will then circulate relevant information back to their site team and subcontractors.

1.11 Housekeeping

Good housekeeping is important to maintaining a safe project workplace. It is the responsibility of all persons to keep the project work area clean and free of debris and potential hazards.

Site offices, toilets, washing up facilities and drinking facilities shall be kept clean and sanitary.

1.12 Managing Covid-19 and Other Pandemics

Dempsey Wood construction sites operating at all government alert levels during an epidemic or pandemic shall ensure they are protecting all workers including subcontractors, labour hire, suppliers and others and minimising the risk of spread of infection.

Only workers Dempsey Wood deem necessary to carry out work programs to service the needs of the project, shall be permitted access to the site. Workers who are vulnerable to the pandemic will complete DW self-assessment form prior to commencing site works.

All personnel entering the site shall complete the government QR code (these are located at site access locations and induction room), as required by the government. All site works will comply with Dempsey Wood's pandemic site management plan, policies, procedures, and guidelines.

2 Project Health and Safety Risk Management

2.1 Safe System of Work or Particular Hazardous Works

For work that has significant (unacceptable) health, safety, and environmental risk a "safe system of work" e.g., a permit to work may be implemented or a job safety analysis developed. An example of work that may require a "safe system of work" is:

- Entry into a confined space
- Hot work (other than in designated areas)
- Groundbreaking
- Working at height

The purpose of hazard and risk management is to endeavour to identify hazards and risks at the project site that could cause injury, illness, damage, loss or have an adverse environmental effect, assess them, and implement controls. A table of potential hazards applicable to works can be found in Appendix 6 Example of Hazardous Substance Register.

Dempsey Wood have identified the below Top 10 Critical Health and Safety Risks:

Figure 3 DW workplace top ten critical risks

2.2 Hazard and Risk Management Process

Hazard and risk management takes the form of various actions, systems and processes within Dempsey Wood described below.

Hazard and risk identification process:

- Identifying and reporting by anyone at any time, hazards and risks that contribute to near misses, incidents, and accidents
- Reviewing hazards and risks during inspections and audits including general site walk overs
- Identifying hazards and risks associated with planning, design, purchase, and implementation of new processes/equipment/plant
- Identifying the emergency response associated with the day's activities and location during the pre-start team briefing, Take 5's or as part of the normal briefing process and as and when changes occur
- Developing "safe system of work" such as checklists, procedures and job safety analysis based of the level of risk associated with the works activity
- Ensuring, through induction, that workers monitor known hazards and risks and report new hazards and risks

The risk assessment of the activity provides a risk rating based on the risk score and provides an outcome of whether the risk is rated as low, medium, or high and ultimately whether the risk is acceptable to proceed with the activity. Risks with a high residual rating (i.e., high score) shall not proceed and risks with a medium residual score shall in all cases have acceptable controls put in place. – refer to the risk matrix at the end of this procedure.

2.3 Job Safety Analysis (JSA)

The JSA is a more detailed risk analysis which describes the work steps, hazards and risk and controls associated with the work. On this project the following JSAs are applicable.

- DW-HS-JSA-001 Compound Set Up
- DW-HS-JSA-002 Site Disestablishment
- DW-HS-JSA-003 Equipment and Material Delivery
- DW-HS-JSA-004 Drainage Construction
- DW-HS-JSA-005 Confined Space
- DW-HS-JSA-006 Manhole Installation
- DW-HS-JSA-007 CCTV Inspection of Lines
- DW-HS-JSA-008 Seal and Grout Abandoned Lines
- DW-HS-JSA-009 Stormwater Manhole
- DW-HS-JSA-010 Plant and Equipment
- DW-HS-JSA-011 Trenching (Deeper than 1.5m)
- DW-HS-JSA-012 Carriageway Backfilling and Reinstatement
- DW-HS-JSA-013 Bulk Earthworks
- DW-HS-JSA-014 Removal of Unsuitable Material into Stockpile
- DW-HS-JSA-015 Hotmix Surfacing
- DW-HS-JSA-016 Kerb and Channel
- DW-HS-JSA-017 Road Reserve Reinstatement
- DW-HS-JSA-018 Asphalt Laying
- DW-HS-JSA-019 Contaminated Hot Spot Removal
- DW-HS-JSA-020 Asbestos Cement Pipe
- DW-HS-JSA-021 Butt Welding
- DW-HS-JSA-022 Identifying Underground Services
- DW-HS-JSA-023 Concrete Saw Use
- DW-HS-JSA-024 Manual Handling
- DW-HS-JSA-025 Driven Steel Piles
- DW-HS-JSA-026 Lifting and Rigging

2.4 Safety Data Sheets (SDS)

Health and safety risks associated with using hazardous substances will be managed as part of the overall risk management approach. Where possible in the first instance consideration should be given to using less hazardous alternatives. These will be discussed with the Engineer for approval.

Safety Data Sheets (SDS) are used to ensure the health and safety aspects such as precautions when using, emergency first aid and personal protective equipment (PPE) are understood and complied with. SDSs are available at the project. A hazardous substance is not to be used on site unless it has been approved to be brought onto the project site by the Project Manager and it has a current SDS.

Hazardous Substances Register, Appendix 6 Hazardous Substance Register Hazardous Substance Register, detailing the risks and controls for every substance on site, will be kept alongside stored substances.

3 Incident, Accident, Reporting, Recording and Investigation

3.1 Initial Notification

Dempsey Wood are familiar with Client incident reporting timeframe requirements, as detailed below.

Near misses, incidents and accidents should be reported to the Project Management Team. These are initially notified by the workers directly involved and as soon as possible after the event.

In the event of a significant event, as part of an immediate response, emergency services will be notified as appropriate. Following this the HS Advisor will be notified so that support and advice can be provided straight away. The HSW Manager and the Engineer are notified as soon as possible, third parties such as Worksafe New Zealand and local councils will then be notified as applicable. All high risk events (as defined in the DW risk matrix) will be notified to the Client as soon as practicable following the event.

Dempsey Wood have an exclusive, dedicated near miss reporting process. The worker either phones **0800 BUGGER (0800 284437)** and verbally reports the near miss or use DW's **ACUITE Construction Intelligence** reporting. The call centre has a set of 6 standard questions asked of the worker. There after the worker notifies the site management. The near miss is then immediately reported by the call centre via email to the HSW Team (or designate) who follow up as appropriate.

3.2 Recording and Reporting

Near misses, incidents and accidents including notifiable injury or illness and adverse environmental effects are recorded and reported by the Project Management Team, forwarded to the Dempsey Wood HSW Manager and the Engineer to the Contract, Client HS Manager, and WorkSafe New Zealand when required and local councils if applicable.

3.3 Investigation and Preventive Action

In the event of a notifiable injury or illness or adverse environmental effect Dempsey Wood will endeavour to:

- Take control and lead the investigation, identify the immediate and underlying cause(s), and implement improvements as and when required
- Ensure ongoing monitoring, trending, or a need for further analysis of near misses, incidents, and accidents as part of continual improvement and statistical analysis

3.4 First Aid Treatment

First aid kits are available in the project site office and key Dempsey Wood vehicles. There are designated certified first aid personnel onsite whose names are recorded on the Project Safety Board. These persons are readily available should the need arise

4 Subcontractor Management

4.1 Dempsey Wood Subcontractors

Subcontractors will work under the Dempsey Wood project management system. Under the supervision of Dempsey Wood, they are responsible for controlling the immediate health, safety and environmental hazards and risks of their own work activities. Once approved through our strict prequalification process, Dempsey Wood uses subcontractors based on their past performance and availability, while always looking for new resources to service projects, Dempsey Wood endeavours to build partnerships with preferred subcontractors and suppliers that transcend single projects.

Dempsey Wood endeavours to ensure that all subcontractors are competent, that is both trained and experienced in their work. In order to support this competency all subcontractor operators must undergo a

Dempsey Wood competency assessment and be assigned a rating as part of an assurance measure, as detailed in Appendix 7 Large Plant Competency Assessment Criteria.

Subcontractor induction forms part of the overall training requirements to commence work on DW construction sites including specifics for access/egress and personal protective equipment (PPE) etc.

Subcontractor induction contains the training matrix that generates and sustains the environment and culture where people-based safety is visible.

4.2 Subcontractor Monitoring and Evaluation

Dempsey Wood monitors Subcontractors as part of general project control and as part of the Dempsey Wood scheduled audits. Repeated non-conformance by Subcontractors may result in a **'Stop Work Order'** or an immediate termination of their contract.

5 Emergency Response

The Project Manager is the emergency coordinator for the site. An alternative emergency coordinator is appointed when the Project Manager is away from the project site. Emergency response plans as per plans,
Appendix 8 Emergency Response Plans,
Appendix 9 Emergency Response Medical Service – Non DW Nominated Doctor,
Appendix 10 Emergency Response Medical Service – DW Nominated Doctor, and
Appendix 11 Emergency Response Medical Service – AED Locations to Site.

The Emergency Response Plan shall be displayed in the project site office. Project workers will be briefed on these response plans at the project induction.

A site map detailing any areas of particularly hazardous works and information for emergency services first responders is displayed on the Site Safety Boards.

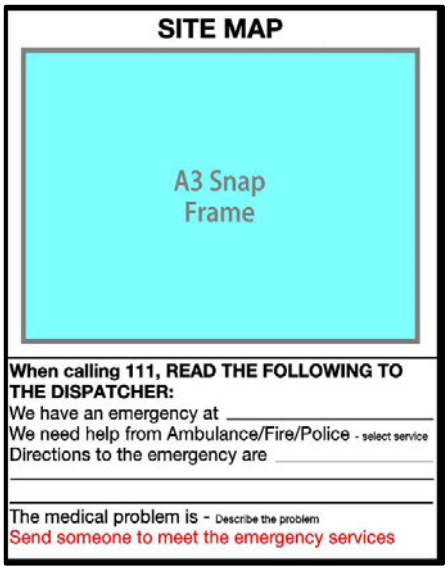


Figure 4 Site Map for hazardous works and first responder details

6 HS Inspection and Audits

The Project Management Team within their daily activities onsite review the overall site for health safety and environmental issues and health safety and environmental hazards and risks. Weekly Project Site Management HSE inspections and monthly audits are recorded on the **ACUITE Construction Intelligence** and findings are raised in the Project HSE Toolbox Meetings.

Copies of monthly audits will be issued to the Engineer and Client HS Manager.

Inspections and audits are carried out by the HSW Group, Project Management (Project Manager, Supervisor or Project Engineer) or where specifically required member of the HSE Committee. This excludes general supervision of the project sites, informal visits by the HSW Group and third-party auditors, and engineers or Client representatives.

6.1 Site Management HS Audits and Inspections

Ensure Site Management Inspections and Audits are carried as per the schedule and that identified actions are recorded and followed up. The schedule is controlled by the **ACUITE Construction Intelligence**.

These inspections and audits are broken down into 10 separate smaller elements with a reduced scope making it easier to carry out in a lesser timeframe. Some of these audits can be interpreted as an inspection.

6.2 HSEQ Group Audit

Audits (external certifying body) of the Dempsey Wood management system against the **ISO 45001, ISO 9001, and ISO 14001 criteria** occur annually.

Projects are audited based on scale and complexity. They are audited for compliance with the Dempsey Wood management system and specific inspection criteria. The reports are forwarded to the Project Manager and Contract Manager. The results of the report are captured within ACUITE's Audits Register reflecting the scores and follow up actions required.

A review of previous audits is additionally carried out prior to each subsequent audit to ensure identified actions have been followed through.

7 Project Establishment

7.1 Access, Control and Security

Dempsey Wood acknowledges its duty of care to those that might be affected by activities on site including trespassers. The site access point (entrance) and controls such as office, project safety hazard board, signage and fencing shall be established. Project workers, except drivers entering the project site for specific deliveries will sign in on arrival and sign out when they leave the project site. The exception is that Dempsey Wood employees will sign in and out via the prestart sign off sheet.

7.2 Site Visitors

Access to the site is controlled. Until a person has completed the project specific induction that person is controlled by a person who has completed the project specific induction. The visitor must **sign in** the site access register on arrival and **sign out** when leaving the project.

7.3 Signage, Barriers, and Fencing

Signs, barriers, and fencing is erected on the project where required to notify, warn, and protect the public, project workers and traffic from inadvertently entering the site, work or hazardous areas or being exposed to project hazards.

7.4 Accommodation and Welfare Facilities

The site office accommodation will be of good industry standard, based on portable units sourced from reputed suppliers. The welfare area will include certain common facilities such as safety induction room, canteen eating area, WC facilities and area for changing/drying clothing.

The minimum numbers of welfare arrangements are listed below.

Table 1Site office accommodation standards

Workers	Urinal	Water Closet	Toilet
Male	One urinal where **15** males are employed, plus one urinal for each additional **30** males	One water closet for **15** or less workers, plus water closet for each additional **30** workers	One toilet if the maximum number of persons of either sex, engaged or employed at any one time is fewer than **10**
Female	Suitable provision for the disposal of sanitary towels.	As above	As above if toilet is secure

III. ENVIRONMENTAL MANAGEMENT PLAN

1 Project Specific Environmental Requirements

1.1 Statutory Requirements

Delivery of the programme of works must comply with a range of legislation, regulations, strategies, and policies in order to provide for the management of the environment.

1.2 Consent Requirements

The project has applied for resource consent to authorise earthworks, vegetation removal, works in a SEA and discharge of contaminants and treated stormwater. A copy of the consent is outlined in Appendix 12 Resource Consents.

1.3 Contractual Requirements

All works are to be carried out in general accordance with the construction drawings and management plans required by any resource consent conditions and attached as appendices to the resource consent application. This will require all subcontractors to be prequalified and will be required, by a condition of their contract with DW, to actively manage the subcontract works and comply fully with resource consent conditions.

2 Environmental Management

Dempsey Wood endeavours to ensure works and work practices are in accordance with the resource consent conditions and carried out in accordance with the practices of the Auckland Council technical guide **GD05**, a copy of which is available on the Auckland Council website.

As a minimum, any event in which contaminant could potentially enter waterways will be notified to the Rangitoopuni Developments Limited Partnership as soon as possible (as such an event could affect consents).

2.1 Monitoring, Mitigation and Contingency Measures

Mitigation and Contingency Measures will include but not limited to:

- Daily weather watch in order to anticipate periods of risk as well as periods for maintenance;
- Regular monitoring in compliance with Council requirements;
- For dust control, water trucks, and hydrants will be utilised if necessary;
- A sweeper truck will maintain the existing sealed road free of construction spoil if necessary; and,
- DW maintains a weather watch through **MetService** and **MetVUW** to alert the sites of impending adverse weather (generally >25mm over 24 hours). An email is provided to all Project Managers to serve as notice of that incoming event. Updates are provided at 3-days and 1-day out to prepare for the event.

2.2 Environmental Risks

The following items have been identified as major environmental critical risks:

Figure 5 DW Top ten environmental critical risks

2.2.1 Poor Erosion and Sediment Control

An erosion and sediment control plan in accordance with **Auckland Council Guideline Document GD05** will be submitted for review and acceptance. On acceptance of the plan, DW will undertake construction of these controls during the initial stages of the work. Where possible existing vegetation will remain in place to provide cover and limit the areas exposed to the weather.

The approved controls will be constructed and maintained in accordance with **GD05**. The site will generally be protected from erosion by diverting clean water around the site and rapid stabilisation upon completion. Appropriate sediment control will generally be provided by chemically treated sediment retention ponds, decanting earth bunds, super silt fences and/or silt fences.

Ongoing maintenance of the controls will be undertaken along with both onsite and offsite audits to complement the AC auditing process. The information from these audits will feed into DW's KPIs and Environmental Competency Training Program.

2.2.2 Regulatory Non-Compliance

DW maintains an active database to keep track of our site scores and overall environmental performance. The results from these inspections form part of the DW Environmental Key Performance Indicator.

Complaints will be registered in **ACUITE**, and an action plan developed to address individual complaints within 24 hours, and then enacted within 72 hours. Complaints received directly by Dempsey Wood will be conveyed to Auckland Council, along with the incident report and remediation plan within 24 hours of receipt of the complaint.

Incidents and subsequent investigations will recorded in **ACUITE** along with immediate actions undertaken and actions to prevent reoccurrence. Notifiable incidents will be notified to the Client and Council as soon as practicable. If necessary, environmental communications in the form of Info Packs or Environmental Alerts will be generated and disseminated across the company to summarise lessons learned.

A review of the conditions of the resource consent will be undertaken prior to the commencement of works, to assess the compliance status with the conditions. The conditions will be reviewed at quarterly intervals during works to identify potential non-compliance and prepare an action plan to ensure ongoing compliance with the resource consent.

Inspections of control measures will be undertaken regularly throughout the works, and before and after rainfall, to ensure devices are operating at peak efficiency. Audits of the controls will be undertaken by site management in accordance with the audit schedule. The Environmental Team will aim to undertake an audit of the controls monthly and provide advice on their inspections to identify potential non-compliances and troubleshoot issues before they arise.

2.2.3 Dust & Odour Discharges

DW will endeavour to ensure that dust nuisance and odorous discharges brought about by the works activities are kept to a minimum. Dust will be managed by using a water cart over areas that are likely to generate dust, or manually watering with hose and standpipe. Odour discharges will be managed by covering or removing odorous materials.

Daily project pre-start meetings will reinforce the need for all workers to be cognisant and responsive to the conditions or activities that generate dust or odour. The Project Manager and Supervisor will be notified if dust is observed or if conditions exist where dust or odour could be a problem.

The corrective action for the elimination of fugitive dust at this site is presented below:

- Reduce the pace of, or cease, dust or mud producing activity until the problem is corrected;
- Increase frequency, volume, and/or coverage of water sprays, to prevent soil from drying;
- Controlling the route and speed of vehicles through the site;
- Modify works activities and methods to minimise problematic conditions;
- Increase level of worker awareness and instruct them on implementation of any new or modified works activities;
- Perform routine inspection of dust suppression methods and work areas for dust sources.

If potentially contaminated material is identified (i.e., potential ACM, visually stained soil materials, or odorous soil materials), the following should be observed as general site requirements:

- Stop work in the vicinity and restrict access to the area. Shut down equipment and move workers to an upwind location.
- Dempsey Wood to notify the Engineer and the Consent Monitoring Officer of the discovery.
- The area must be evaluated and sampled by an authorised Contaminated Land Practitioner before work continues.

2.2.4 Mud Tracking on Roads

The minimisation of mud tracking on the roads will entail the use of a compliant stabilised construction entrance. At a minimum, mud control techniques as applicable will be employed in:

- Areas of heavy equipment and vehicular traffic;
- Keeping streets clean of tracked soils;
- Soil and fill excavation activities;
- Exposed excavation faces or disturbed ground surfaces;
- Soil and fill stockpiles;
- Soil loading and unloading operations – direct loading in the first instance; and,
- Soil backfill placement, grading, and compacting.

In some locations, this may require the use of dedicated wheel wash facilities.

2.2.5 Damage to Archaeological & Heritage Sites

DW will endeavour to protect and preserve the historical and cultural heritage of New Zealand. In the unlikely event that the project disturbs material of archaeological or heritage significance, the project will implement procedures such as an accidental discovery protocol in accordance with the **Heritage New Zealand Pouhere Taonga Act (2014)** and the **RMA (1991).** This will also involve liaison with the Cultural Heritage Implementation Team at Auckland Council.

In the event of the accidental discovery of sensitive material such as human remains and kōiwi, an archaeological site, a Māori cultural artefact/taonga tūturu, or a protected New Zealand object as defined in the **Protected Objects Act 1975** (including any fossil or sub-fossil), or a lava cave greater than 1m diameter:

- Works shall immediately cease within 20m of any part of the discovery, and earth moving activities shall be stopped. The area of the discovery will be secured using a high visibility mesh fence and include a sufficient buffer area to ensure all sensitive materials remain undisturbed;
- The relevant authorities will be informed of the discovery:
    - The NZ Police if the discovery is of human remains or kōiwi;
    - The project archaeologist;
    - Auckland Council in all cases;
    - Heritage NZ Pouhere Taonga; and,
    - Mana Whenua if the discovery is an archaeological site, Māori cultural artefact, or kōiwi.
- DW will wait for and enable an inspection of site by the relevant authority;
- Following inspection and consultation with relevant parties, Council will determine the extent of the area within which work must cease; and
- Works will not recommence until requirements of E11.6.1(3)(f)/E12.6.1(3)(f) of AUP(OP) are met.

Mana whenua representatives shall be given the opportunity to undertake tikanga Māori protocols to acknowledge the whenua and to protect those working on the development site. Mana whenua will also have the opportunity to monitor the removal of topsoil in areas with a higher likelihood of unexpected discovery such as ridgelines, streams, and coastal margins.

2.2.6 Disturbance of Sensitive Ecology

If the conditions of the resource consent require the consultation of a suitably qualified, competent, and experienced arborist, one will be engaged to supervise all works for the removal of trees, works near mature and protected trees, coordinate site works and implement the tree protection method for the duration of the project.

In general, native trees and vegetation will be protected, where not slated for removal, using temporary orange safety mesh fencing set up outside the dripline.. Vegetation clearance and tree works will also be undertaken

outside the key breeding period for native avifauna if a pre-clearance check confirms the presence of native avifauna active nests.

Any stream works activity on site will be undertaken in accordance with the finalised stream works methodology report submitted for approval. A suitably qualified and experienced ecologist/herpetologist shall be engaged to undertake any surveys and relocation of native fish, invertebrates, or lizards. Appropriate management plans for addressing relevant species will also be developed and submitted to Council for review and approval based on the outcomes of survey results.

2.2.7 Noise and Vibration Management

Dempsey Wood, where applicable, will discuss with the adjacent properties any noise or vibration generation that may constitute a problem and explain means to minimise it. Earthworks activities shall be controlled at times to comply with the noise and vibration rules in either the resource consent or permitted activity provisions of the Auckland Council Unitary Plan.

Any complaints received about noise will be considered by Dempsey Wood with the Engineer to determine measures to minimise the noise problem.

2.2.8 Chemical Spills and Adverse pH Discharges

It is intended that all on site vehicles will be re-fuelled and serviced with the use of a mobile fuel and service vehicles. Using these methods of servicing eliminates the need to store large quantities of fuel, oil, and greases on site. Spills shall be reported to the Project Manager and recorded.

Chemicals will be stored in accordance with best practice – upright, in their original containers, within drip trays or a bunded area, and inside a lockable shipping container or shed.

Spills shall be cleaned up using the project spills kits and all materials and substances shall be disposed of appropriately. Spills to waterways shall be notified to the relevant Council authority and be cleaned up in an appropriate manner.

Concrete washing and/or chemical treatment of sediment ponds can result in adverse levels of pH (either acidic or alkaline). Management protocols will be adhered to avoid or minimise these effects.

Dedicated areas will be available for the treatment of cement-impacted water and washing down of concrete trucks. Impounded water that has been impacted by cement will be carted offsite for disposal at an appropriate facility. Every effort will be made to eliminate the risk of discharge of cement-impacted water to watercourses, drains and stormwater systems.

Chemical treatment of sediment retention devices will be undertaken in accordance with an approved CTMP and the pH of water within those devices will be monitored. Balancing of pH will be undertaken in accordance with best practice if the water is shown to be outside of the acceptable limits (i.e., pH5.5 – pH8.5).

2.2.9 Land Contamination

Earthwork activities will be undertaken in accordance with the 'Remediation Action Plan' for any soil contamination on site and conditions of consent.

It may be possible for accidental discoveries of contamination which have not been previously identified and will require remediation. Should unexpected contamination be found these will be addressed accordingly.

During the performance of the work, Dempsey Wood will stop work immediately if any contamination is found on any part of the site. Dempsey Wood will immediately advise the Engineer and cease work at this location and implement precautionary measures to contain the material. A suitably qualified and experienced practitioner will be engaged to assess the situation, including possible sampling, and testing in accordance with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS 2011). All asbestos containing material or asbestos contaminated soil shall be removed, disposed of, and

managed in accordance with the requirement of Approved Code of Practice for Management, Removal of Asbestos (Work Safe NZ 2016) and the NZ Guidelines for Assessing and Managing Asbestos in Soil (BRANZ 2017).

If site contamination is identified this will be treated as a latent condition to the contract. Where contaminated material is identified and required to be moved off site the following will be carried out:

- Waste shall be correctly identified, properly contained, securely transported, and disposed of at a correct waste disposal facility;
- Contaminated fill is removed and disposed of at the appropriate disposal sites;
- Direct loading into trucks – if possible;
- Define truck loading area clear of contaminated material and adjacent to the site;
- Bunding the area to ensure rain is contained during the excavation phase;
- Dust will be controlled by dampening if required;
- Keeping access to the contaminated area restricted; and,
- Use of personal protective clothing and equipment such as dust masks.

2.2.10 Waste Minimisation and Segregation

Dempsey Wood is committed to diverting waste from landfill. Following the waste hierarchy, a site-specific waste management plan is prepared, if required, which provides direction to site management on ways they can reduce, reuse, and recycle.

The plan identifies common site waste materials and provides specific storage and recycling methods. The plan is tailored to each individual site as required, identifying major waste material streams and site-specific processes. All employees, contractors and subcontractors are to be informed of the Site-Specific Waste Minimisation Plan and their responsibilities to reduce waste, reuse, and recycle as many materials on site as possible. Everyone on site is made aware of the plan (normally located on the inside of the site office) and it is a regular item in toolbox discussions. Although Dempsey Wood has a general skip on site, we see this as a last resort for disposal and encourage our staff to share innovative ideas which encourage the diversion of waste from the landfill.

3 Pre-Construction Requirements

All DW staff and subcontractors will undergo an environmental induction prior to commencing work on the site. Staff who have completed the environmental induction will be included in the site record to show they have been inducted onto the site.

All visitors to site must undergo a visitor's briefing so they are aware of the environmental, cultural and health and safety requirements while on site. Visitors not inducted must always be accompanied by a member of the Dempsey Wood Site Management Team or appointed representative.

In addition to the above requirements, DW will conduct:

- Environmental Awareness Training
- Toolbox talks with an environmental focus
- As-Built of Environmental Controls

3.1 During Construction Requirements

Regular monitoring will be carried out during the works. At a minimum, this may include:

Daily inspections/observations to check the EMP are implemented. For example, daily inspections of erosion and sediment control measures to flag any maintenance issues.
Fortnightly documented inspections (in Acuite) by the Site Management Team, to check compliance with the EMP. Also, to include opportunities for improvement.

Monthly documented review of the EMP by the Environmental Manager or Project Manager to check whether the EMP process is working as well as it can, that response actions are occurring, and that any additional inspections are occurring.

Any additional requirements for regular monitoring will be set out in EMPs. Response monitoring shall be done as required after a complaint, incident, notable event (e.g., heavy rain) or trigger event required by an adaptive monitoring plan.

All enquiries, issues and environmental management-related complaints will be investigated using the Incident Reporting and Investigation Forms in **ACUITE**.

3.2 Post Construction Requirements

A final inspection will be undertaken in conjunction with the practical completion and handover phase. All Council sign-offs and approvals will be confirmed at this stage.

IV. QUALITY MANAGEMENT PLAN

1 Project-Specific Quality Requirements

Dempsey Wood will provide, as required, documents and records of complying with quality requirements such as:

Table 2 Quality requirements for materials

Ensuring material specifications are met	Approval through NTEs for high-risk materials (e.g., concrete, asphalt, steel structure, precast, etc.)
Delivery and acceptance of materials	Delivery dockets
Handling, stockpiling, and storing materials	Clause 4.3 of this plan, Safety Data Sheets (SDS)
Compliance testing	Test results (aggregates, concrete, asphalt, precast, etc)

Table 3 Quality requirements for plants, machines, vehicles, and equipment

Maintenance, repair, certification of plants, machines, and vehicles	Weekly plant, machines, vehicle, and equipment check sheets recorded on DW Fleet Management
Records of plant hire/hours of use	Plant time sheets
Adequate operator experience	Competency matrix – TOPGUN

Table 4 Quality requirements for methodology

Construction methodology and practices	Method Statement / Construction Execution Plan / Methodologies, as required
Traffic control and public safety	Approved Traffic Management Plan (TMP) or an internal Traffic Movement Plan
Site safety	Daily Site Pre-Start and Weekly HSEQ Toolbox meetings
Compliance testing	Checklists, evidence of hold point releases and inspections, stringing record sheets, and test results for aggregates, compaction, deflections, pipe CCTV inspections, etc.

2 Quality Risks

Risk management applies as equally to quality as to any other discipline for this Project. Project Risks shall be discussed at **Internal Project PreCon** and at regular intervals throughout the project lifecycle, which will continually identify, monitor, report, and control quality risks.

Where significant adverse quality trends and/or deviations are found, Dempsey Wood's Quality Manager will immediately discuss the issue with the project team. When considered appropriate a **'Stop Work Order'** may be issued by the Quality Manager for the process under investigation to prevent further potentially non-conforming work being produced.

Dempsey Wood has identified the following Top 10 Critical Quality Risks:

Figure 6 DW Top 10 quality risks

3 Quality Planning

3.1 Contract Documents and Relevant Specifications

Contract documents (For Construction drawings, specifications, consents, etc.) and relevant standards will be made available by the Engineer to the Contract for the Project Team. The quality requirements addressed in the contract documents will form the fundamental part of project-specific ITPs and construction checklists.

Should any conflict arise between the Design Engineer's specifications and drawings, and Council's specifications and code of practices, the Project Manager shall notify the Engineer to the Contract for clarification through a **Notice to Engineer**.

3.2 Project Work Breakdown Structure

The project programme will be broken down, as required, to manageable and definable work structure.

Project construction work structure are initially identified, and the details refer to the controls in **Dempsey Wood's SharePoint Document Management System (DMS).**

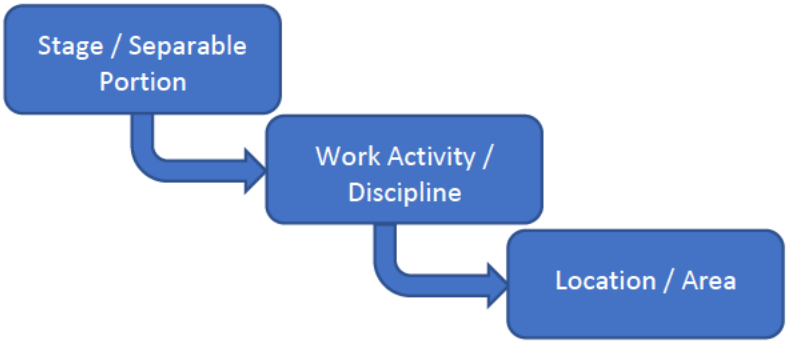


Figure 7 Definable work structure categories

Proposed Work Breakdown Structure is listed in Appendix 13 Work Breakdown Structure.

3.3 Inspection and Test Plans (ITPs)

Prior to commencing key construction activities, Dempsey Wood will develop ITPs to ensure that all relevant inspection and testing requirements from the contract documents and relevant specifications are known. Each ITP will include relevant **Hold and Witness Points**, the frequencies, the conformance criteria, and the records to be submitted as evidence of conformance.

ITPs required for the project is listed on Appendix 14 Inspection and Test Plan.

3.4 QA/QC Checklists

Dempsey Wood Construction Checklists are also developed to complement the ITPs. These checklists or check sheets, together with the any required Council QA forms, will be used for collecting QA/QC data of construction activities.

Refer to Appendix 15 Construction Checklists for the list of applicable checklists.

3.5 Test Record Sheets

Dempsey Wood develop record sheets for tests not required to be conducted by an IANZ certified test laboratory but by trained DW's personnel. This includes Stringing Sheets, Shear Vane Test and Pressure Tests among others.

Refer to Appendix 16 Test Record Sheets for the list of applicable test record sheets.

4 Managing Quality

4.1 Record Management

Construction documents and records shall be set up in **Dempsey Wood's SharePoint Document Management System (DMS)**. This will be a standalone SharePoint site where all Project Stakeholder can collaborate and work together on project documents. QA handover documents can be shared online for updated submissions.

All records produce from the construction will be saved and stored in the system for **7 years.** Once 7 years has expired, these records will be archived into DW's online archive system.

All significant hard copies or printed documents shall, like-wise, be stored in Dempsey Wood's archive boxes for **7 years.**

4.2 Material Management

Special attention shall be drawn to material/product receiving inspections. Materials/products imported to the site for incorporating into the works permanently shall be inspected by Dempsey Wood Site Engineer. If there are major defects identified, the Site Engineer shall reject the material/products and take immediate actions to isolate them with appropriate marks. The supplier shall be notified and a minor OFI report shall be submitted.

Final quality check of materials/products prior to installation into the works will also be conducted by the Foreman/Supervisor, Site Engineers, and Subcontractor. This will be recorded on the relevant checklists to ensure there are unacceptable material/products are installed.

Whenever required, material/product documents will be sent to Engineer to the Contract for review and approval prior to its procurement. The Material Certificates/Test Reports and/or Material/Product Producer Statements are to be provided by the supplier/subcontractor to Dempsey Wood Site Engineer for review before submitting to the Engineer to the Contract.

All the material/products on site shall be handled and stored as per the manufacturer's advice and be protected from any damages.

4.3 Inspection and Test Management

Dempsey Wood will liaise with the relevant inspector/ engineer/ authority to ensure inspections are arranged and completed as required in the contract documents and relevant specifications. The site team shall provide a **24 hours' notice period** to inform the inspectors of any Hold and Witness points as approved in the ITPs.

In any event that Dempsey Wood requires technical instructions from the Engineer to the Contract due to site condition or design ambiguity prior to a scheduled inspection, Dempsey Wood will provide at least **48 hours' notice period.**

Sampling and testing will be undertaken as required in the contract documents and relevant specifications by DW or by IANZ-certified test laboratory. If done internally, this shall be recorded on QA/QC Checklists and Test Record Sheets.

4.3.1 Hold and Witness Points.

Dempsey wood will strictly comply with the required hold and witness points specified in the consents, the contract documents and specifications, and any requirements set from External Project Preconstruction/Pre-Start/Kick-off Meeting which may include any or combination of the following:

- All set out and levels, mainly on earthwork fills, drainage, roading, services, kerb, and channel, JOALs, footpaths, vehicle crossings, traffic signalisation, structural items, retaining walls, culverts, and landscaping.
- Subgrade inspection - for agreed undercuts, soft spots, and visible unsuitable materials
- Concrete boxing/pre-pour inspections: concrete kerb & channel, JOALs, pram crossings & vehicle crossings, and other structural works. The Engineer shall inspect the boxing, granular bedding, and rebars prior to pouring concrete.
- Pre-seal (including coloured surfacing) inspections
- Inspection by Engineer of all test pits and inspection holes
- Trench pits
- Drainage lines
- Inspection for practical completion

Note: Hold Points are points beyond which works shall not proceed until the Development Engineer and/or Engineer to the Contract inspects and approves continuing the work activity. **Witness Points** are identified points in the process where Development Engineer/Engineer witness, review and inspect the work activity during the construction process. The work activity however may proceed.

4.3.2 Calibration

The following requirements may apply:

- Calibration shall be carried out by an external agency that is suitably qualified to perform the calibration.
- The equipment shall be calibrated at appropriate intervals, normally every year, or as defined.
- The calibration shall be traceable to international or national measurement standards and regulations.
- The agency completing the calibration shall provide a certificate of compliance or certificate of fit for

purpose accompanied by a calibration, inspection of test report as applicable.

- Records of calibration, inspection or testing i.e., reports and certificates shall be maintained with the equipment.

4.3.3 Earthwork Testing

If earthworks testing is included on Dempsey Wood's project scope, it is the Site Engineer's responsibility to check the test reports/results and ensure that it complies with the project requirements.

If earthwork testing shall be done by a nominated third-party testing subcontractor or by the Geotechnical Engineer, Dempsey Wood shall notify them for each earthwork tests required in the specifications.

All test reports shall be filed in the Quality folders in **Dempsey Wood's SharePoint Document Management System (DMS)**. These reports may be sent to Engineer to the Contract/Design Engineer for review upon request.

4.3.4 Concrete Testing

Dempsey Wood will ensure the concrete supplier(s) do conduct the relevant concrete tests including slump tests and compression strength tests in accordance with the project specifications.

Evidence shall be provided on the concrete dockets and test certificates/registers, as requested.

4.3.5 Roading Testing

Pavement material tests will be conducted according to the project specifications. Material test reports will be submitted to Engineer to the Contract for approval, as required.

Pavement construction quality control tests (e.g., stringing, proof rolling, compaction, deflections, etc.) will be conducted as specified in the contract documents and relevant specifications.

Inspection requests shall be notified as required according to the hold and witness points in the ITPs.

Construction test reports shall be submitted periodically, as required, or as part of the QA Handover submission.

4.3.6 Drainage Testing

Drainage material tests will be conducted according to the project specifications. All test reports will be submitted to Engineer to the Contract for approval, as required.

CCTV for the pipelines will be performed by CCTV subcontractor who will provide quality footages and reports.

All drainage videos must follow the Auckland Council Stormwater Code of Practice and the Watercare Wastewater Code of Practice and shall be supplied to the Engineer to the Contract along with technician's comments on any evident fault lines.

All pipelines and manholes are to be clearly labelled and identified in accordance with the design labelling.

The status of pipeline CCTV will be recorded and tracked through the **DW's CCTV and Test Tracker**.

4.4 Survey Management

Dempsey Wood surveyor(s) will carry out the following survey tasks, as specified in the contract.

4.4.1 Setting out

Setting out will be based upon **survey control points** and **CAD** provided by Rangitoopuni Developments Limited Partnership.

All set out will be checked against the drawings.

4.4.2 As-built Survey

All As-built surveys shall be carried out according to terms, standards, requirements, rules, clauses, and conditions in the contract. Dempsey Wood shall pick up As-built points for claim purposes. Survey data will be provided monthly to the Engineer to the Contract with the claim to confirm quantities claimed, if required in the contract.

The following list is a guide of minimum requirements:

- Sewer reticulation – all lot connections, manholes, bends, inspection chambers, rock in trenches
- Stormwater reticulation – all lot connections, manholes, bends, inspection chambers, connections to rain gardens and bio-retention, connections from subsoil and underchannel drains, rock in trenches
- Water reticulation - bends, tees, end caps, lot connections, hydrants, and valves
- Utilities (Gas, Power, Telecom) – depths, ducts, crossings, furniture, joints, TUDs and connections
- Roading – undercuts, subgrades, underchannel drains, gullets, metal courses, seal
- Earthworks – stripped surface, cut surface, undercut surface, rock surface, all geotechnical remediation features (subsoils, shear keys, etc.), unsuitable/organics, finished surfaces
- Retaining walls – top and bottom of wall alignments and drainage with connection locations to stormwater reticulation picked up. Individual palisade wall piles to be surveyed with heights.

Dempsey Wood will refer to Council's **Quality Assurance Manual** and **Regulatory Engineering As-built requirements** for details, as mandated in the contract.

4.5 Supplier/Subcontractor QA/QC

Dempsey Wood have selected and will be selecting their suppliers/sub-contractors for this project using a prequalification system and comprehensive tendering assessment criteria. During the procurement process, invitations to tender will only be issued to those suppliers/sub-contractors who are known to Dempsey Wood and who have performed to the required minimum standards on previous projects.

Suppliers/sub-contractors will collect and maintain their own quality records progressively and Dempsey Wood's Site Engineers will review these records. These records shall be progressively submitted to DW along with the subcontractor's monthly claim.

The reviewed records are then to be filed into the allocated record folders in **Dempsey Wood's SharePoint Document Management System (DMS).**

4.6 Non-conformance product or services

Upon suspicion or identification of any non-conforming product or service by any Dempsey Wood worker or Project Stakeholder, notification to the Project Manager or delegated authority responsible for nonconformity of product or service.

If a non-conforming product or service is confirmed, action shall be taken to identify, isolate, or mark the product to prevent inadvertent or unintended use.

If at any site visit, inspection, or audit, a non-conforming workmanship is found varying any of the For Construction drawings, specifications or methodology, the site management shall provide an **Opportunity for Improvement (OFI)** detailing the description, immediate actions, root causes, corrective actions, and preventive actions to the Engineer, as required. A **'stop work order'** may be issued by the Quality Manager to further investigate the issue and prevent further potentially non-conforming works being constructed.

4.7 Quality Inspections and Audits

Regular audits will be carried out during the works. At a minimum, this will include:

- **Weekly Site Inspections**
- **Quality Performance Audit**

4.8 Quality Report

The Quality Report shall be included in the project's monthly report which shall include the following:

- Confirmation that Inspection and Test Plans and Test Results have been completed, and other relevant deliverables have been supplied for the work for which a claim for payment is made
- A summary of any non-conformances/ Opportunities for Improvement
- An update on the progress of completion documents or QA handover documents
- Records of recent Quality Inspections and Audits

5 Practical Completion and Handover

The overall strategy for project completion and handover is:

1. A meeting shall be conducted with the Engineer to the Contract to summarise the records needed for project completion. A list of project completion or QA handover documents shall be finalised between the teams.
2. Dempsey Wood shall prepare the project-specific ITPs. Thes ITPs shall be sent for approval, if required. The ITPs shall highlight the hold and witness points identified in the contract documents and relevant specification, including the consents and permits.
3. During construction, Dempsey Wood will ensure that hold and witness points are organised, conducted, and recorded according to the ITPs and checklists.
    - Dempsey Wood shall ensure that all physical works are checked, and necessary QA documentation are completed as the work progresses.
    - Hard copies of these records shall be stored onsite and will be scanned when the activity is completed.
    - Quality records shall be collected, reviewed, and stored in **Quality folders in Dempsey Wood's SharePoint Document Management System (DMS)**. The folder can be shared with the Engineer to the Contract, if requested.
    - Timely updates of completion documents shall be tracked on the approved Project Completion Documents list.
    - The Quality Manager/Engineer will be tracking the status of works against the completion documents through regular site visits, inspections, and audits.
4. Upon or near completion of all physical works, the documents shall be packed in line with the milestones (separable portions, stages, EPAs, or work breakdown structure) on the approved Project Completion Documents list.
    - Dempsey Wood shall ensure that the necessary prefinal inspections are conducted and documented as per 5.1 in this PMP. The inspection records/reports will form part of the practical completion handover documents.
    - The Project Team shall aim to complete the project snag free upon handover.
    - Dempsey Wood shall submit the completed Project Completion Documents list, signed Inspection and Test Plans (ITPs), Producer Statements, and other records listed on the list to the Engineer to the Contract for review and acceptance.
5. Dempsey Wood shall formally request for final inspection and Practical Completion Certificate. The **Practical Completion Certificate** shall then be issued to Dempsey Wood as per the contract.

The project shall not be regarded practically completed until all contracted works are completed except for minor omissions and minor defects. The following information may be required as part of the handover list:

- As-builts drawings
- Inspection records
- Test records
- Producer Statements (PS and CS)

5.1 Final Inspections – Practical Completion Certificate

Dempsey Wood shall notify the Engineer to the Contract when the full Contract Works or any Separable Portion/Stage qualifies for the issuance of a **Practical Completion Certificate** through an **NTE.** This formal notification shall be given in advance to facilitate any early inspections and/or snagging works.

As soon as its practical, after the early inspections and snagging works are completed, a joint final inspection will be held. Thereupon, a **Practical Completion Certificate** shall be issued stating the date at which the Contract Works or Separable Portion/Stage were completed.

6 Final Completion and End of Defects Liability Period

After the Practical Completion Certificate is issued to Dempsey Wood, the defects liability period shall commence as per the duration stipulated in the Contract. Dempsey Wood shall send a formal notification requesting the release of the **Final Completion Certificate** before or at the end of the defects liability period.

V. TRAFFIC MOVEMENT PLAN

Site Access Plan

Sonia Rana (111079, TTMP)	DEMPSEY WOOD Working together on tomorrow	DEMPSEY WOOD Working together on tomorrow	Site Access	6C / 01

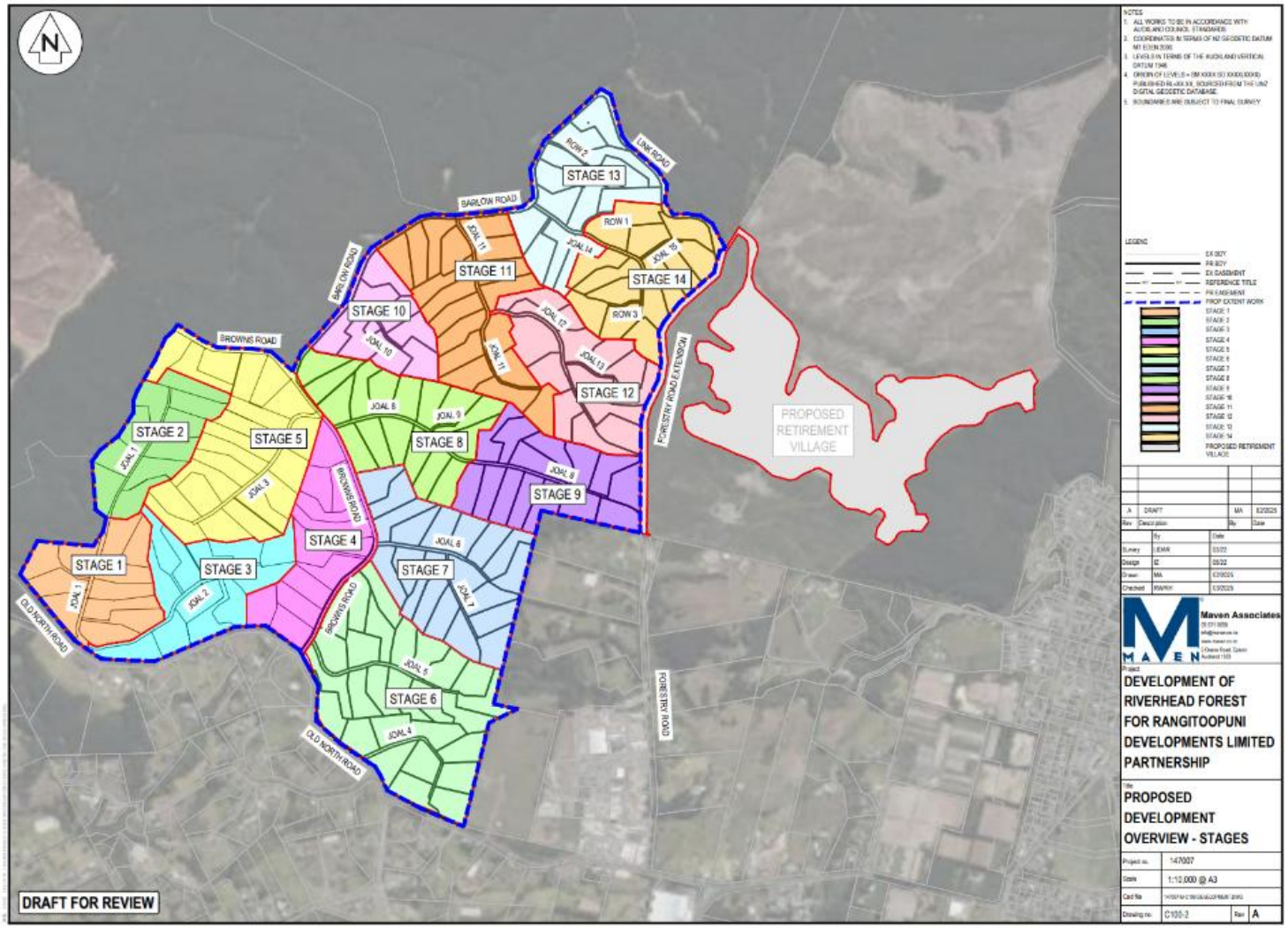
APPENDICES

1 Project Site Information

Description of Works:	Land Development		
Project:	Rangitoopuni Development		
Site Address:	Lots 1 and 2 DP 590677, Riverhead, Auckland		
Regional H&S Advisor:	INNOCENT JONAH		
Project Manager / Emergency Co-ordinator:	PM1		PMNo
Emergency Signal:	Sounding of Continuous Air Horn or by Telephone		
Action in case of Emergency:	First Aid, Evacuate to Emergency Evacuation Point, Notify Emergency Services 111, Notify Service Provider (Power, Water, Telecom, Gas)		
Emergency Evacuation Point:	Front of Portacom		
Notifiable Work:	Trench Excavations		
Hazard Management:	Project Management Plan, Site Induction, Project HSE Toolbox Meetings, Daily Project Pre-Start, Job Safety Analysis, Permits and Take 5's		
Communications of HSEQ issues:	Daily Project Pre-Start, Weekly HSEQ Toolbox Meetings, HSEQ Committee		
Accident/Emergency Clinic:	Westgate Medical Centre 13E Maki Street Westgate		Telephone (09) 833 3134
First Aiders:	**Identified by Green Hard Hats**		
First Aid kits:	Dempsey Wood Vehicles and Site Office		
Fire Extinguishers:	Site Office		
Personal Protection Equipment:	Mandatory	White Hard Hats, Orange Hi Visibility Vests, Gloves, Safety Boots lace up, and Sunscreen	
	Task specific	Eye Protection, Hearing Protection	
Site HSEQ Checks	Daily Project Pre-Start by Project Manager		
Site Safe Passports:	All Current or Booked into for Re-Certification		
Visitors:	Report to Site Office and Sign in Phone the Project Manager		PMNo

Dempsey Woods Nominated Company Doctors	
Hobsonville and Whenuapai - Westgate Medical Centre Fernhill Drive, Massey Business Hrs – 8am to 7pm **Contact number: (09) 833 3134**	**Botany - The Doctors Ti Rakau** 316 Ti Rakau Drive, Burswood Business Hrs – 7am to 6pm **Contact Number: (09) 273 8980**
Onehunga - The Doctors Onehunga 73 Church Street, Onehunga Business Hrs – 8am to 8pm **Contact number: (09) 634 5184**	**The Airport - The Airport Doctors** 3/400 George Bolt Memorial Drive, Auckland Airport Business Hrs – 8am to 6pm **Contact number: (09) 256 8655**
Papakura - Counties Urgent Care 6-18 O'Shannessey Street, Papakura Business Hrs – 8am to 10pm **Contact number: (09) 299 9380**	**Morrinsville - Morrinsville Medical Centre** 17 Canada Street, Morrinsville Business Hrs – 8am to 5pm **Contact Number: (07) 889 5126**

2 Project Site Layout



3 Project Stakeholders and Contacts

The following are key project key stakeholder and contacts. This list shall be updated on an ongoing basis.

Project Aspect		Stakeholder	Position	Contact Details
Contractor	**Dempsey Wood**	CM1	Contract Manager	CMNo @dempseywood.co.nz
		PM1	Project Manager	PMNo @dempseywood.co.nz
		SE1	Site Engineer/ Grad Site Engineer	@dempseywood.co.nz
		SS1	Foreman /Supervisor	@dempseywood.co.nz
		[redacted]	HSW Manager	[redacted]
		[redacted]	Regional HS Advisor	[redacted]
		[redacted]	Environmental Coordinator/Manager	[redacted]
			Quality Engineer/Manager	@dempseywood.co.nz 021 xxx xxx
Client	**Rangitoopuni Developments Limited Partnership**		Client's Representative	
Engineer	**Engineer to the Contract**		Engineer to the Contract	
			Engineer's Representative	
Designer			Design Engineer	
			Geotech Engineer	
Territorial Authority	**Council**		Compliance Officer	
	Water Authority		Compliance Officer	

4 DW Policy Statements

DEMPSEY WOOD
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QUALITY POLICY

Dempsey Wood is an innovative civil engineering company operating within the North Island, Te Ika-a-Māui, with working environments that include large scale earthworks, road construction, structures, stormwater, wastewater, water networks, parks and environmental works and construction site preparation.

The Dempsey Wood family/whānau is one where we look after one another. We work as a team and use our combined strength to overcome challenges.

Learning about and understanding a partner's requirements is an important first step in delivering all projects with pride and confidence in the quality of our work.

Statements of Commitment

Working together, we will:

- Provide processes to define and achieve customer and contractual requirements
- Develop processes that ease the way for our teams to work together from the tender phase, through construction and to handoverment
- Develop and employ project-specific controls for quality-risk mitigation and take responsibility and accountability for any non-conforming outputs
- Provide leadership, awareness, and necessary training to develop and maintain strong, competent teams
- Ensure subcontractors and suppliers consistently exceed Dempsey Wood and project-specific requirements
- Ensure all quality information is documented, reviewed, controlled, communicated, stored, and protected
- Continually seek improvement in our quality assurance and control performance, and maintain best practice standards
- Develop and promote innovative cost-effective solutions and quality programmes

We will continually lift our regulatory compliance standards for Health, Safety, Environment, Quality and Sustainability and frequently review and adapt our processes.

We commit to provide sufficient resources to implement these policies, processes and standards - from the boardroom to the shovel - so we can exceed our objectives and responsibilities.

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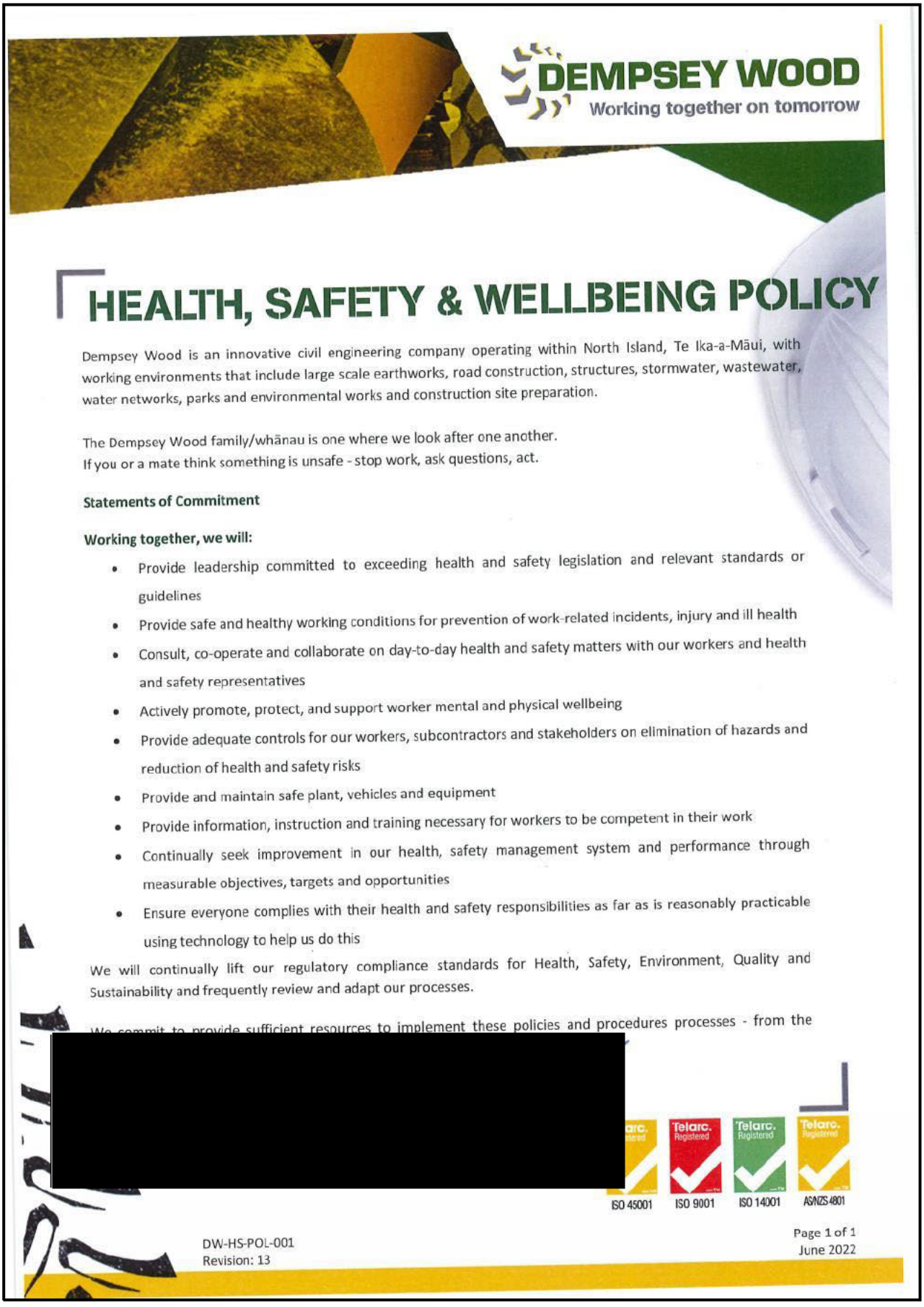

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HEALTH, SAFETY & WELLBEING POLICY

Dempsey Wood is an innovative civil engineering company operating within North Island, Te Ika-a-Māui, with working environments that include large scale earthworks, road construction, structures, stormwater, wastewater, water networks, parks and environmental works and construction site preparation.

The Dempsey Wood family/whānau is one where we look after one another.
If you or a mate think something is unsafe - stop work, ask questions, act.

Statements of Commitment

Working together, we will:

- Provide leadership committed to exceeding health and safety legislation and relevant standards or guidelines
- Provide safe and healthy working conditions for prevention of work-related incidents, injury and ill health
- Consult, co-operate and collaborate on day-to-day health and safety matters with our workers and health and safety representatives
- Actively promote, protect, and support worker mental and physical wellbeing
- Provide adequate controls for our workers, subcontractors and stakeholders on elimination of hazards and reduction of health and safety risks
- Provide and maintain safe plant, vehicles and equipment
- Provide information, instruction and training necessary for workers to be competent in their work
- Continually seek improvement in our health, safety management system and performance through measurable objectives, targets and opportunities
- Ensure everyone complies with their health and safety responsibilities as far as is reasonably practicable using technology to help us do this

We will continually lift our regulatory compliance standards for Health, Safety, Environment, Quality and Sustainability and frequently review and adapt our processes.

We commit to provide sufficient resources to implement these policies and procedures processes - from the

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ENVIRONMENTAL POLICY

Dempsey Wood is an innovative civil engineering company operating within the North Island, Te Ika-a-Māui, with working environments that include large scale earthworks, road construction, structures, stormwater, wastewater, potable water networks, parks and environmental works and construction site preparation.

We continue to deliver good value to our clients and communities and leaving our sites in a better condition. Our approach strives for operational excellence based on principles of value creation, financial viability, technical achievability and the adoption of innovative approaches. Central to our work are our people within the Dempsey Wood family.

To that end, we will integrate environmental principles with our decision-making processes and the important bottom line.

Statements of Commitment

Working together, we will:

- Minimise adverse environmental effects to ensure we exceed our compliance targets
- Provide training, support and resources to enable our people to achieve environmental best practice
- Seek innovative solutions and technologies that can improve our environmental performance
- Work in a collaborative manner with our communities and seek to positively influence our partners
- Build enduring relationships with the relevant regulatory authorities
- Ensure that subcontractors comply with our environmental standards and processes
- Maintain ISO14001:2015 certification
- Measure our program to benchmark against our goals

We will continually lift our regulatory compliance standards for Health, Safety, Environment, Quality and Sustainability and frequently review and adapt our processes.

We commit to provide sufficient resources to implement these policies, processes and standards - from the boardroom to the shovel - so we can exceed our objectives and responsibilities.

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SUSTAINABILITY POLICY

Dempsey Wood is an innovative civil engineering company operating within New Zealand, with working environments that include large scale earthworks, road construction, structures, stormwater, wastewater, water networks, parks and environmental works and construction site preparation.

We continue to deliver good value to our clients and communities whilst leaving our sites in a better condition. Our approach strives for operational excellence based on principles of value creation, financial viability, technical achievability, and the adoption of innovative approaches. Central to our work are our people within the Dempsey Wood family.

To that end, we will integrate sustainability principles with our decision-making, processes and the important bottom line.

Statements of Commitment

Working together, we will:

- Seek to decouple our carbon emissions from our growth using commercially viable solutions
- Undertake continuous waste reduction within all our operations
- Derive efficiency improvements via innovation and technologies that deliver greater value for money
- Collaborate with our communities and establish strategic partnerships with them
- Seek opportunities to positively influence our clients, supply chain and subcontractors
- Adopt a broader outcomes approach with diversity, job opportunities and enhancing our people's lives
- Provide ongoing training, support programs and positive engagement to our people and subcontractors
- Measure our progress to benchmark against our goals

We will continually lift our regulatory compliance standards for Health, Safety, Environment, Quality and Sustainability and frequently review and adapt our processes.

We commit to provide sufficient resources to implement these policies, processes, and standards - from the boardroom to the shovel - so we can exceed our objectives and responsibilities.

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COMMUNITY AND STAKEHOLDER POLICY

Dempsey Wood is an innovative civil engineering company operating within the North Island, Te Ika-a-Māui, with working environments that include large scale earthworks, road construction, structures, stormwater, wastewater, water networks, parks and environmental works and construction site preparation.

The Dempsey Wood family/whānau is one where we look after one another.

We are committed to give back to the communities we live and work in, by playing our part. Not only will we contribute to the construction of our communities, but understand the needs and aspirations of our stakeholders and communities. We realise the importance to create meaningful social, economic and environmental outcomes.

Statements of Commitment

Working together, we will:

- Engage early and authentically with the community and stakeholders in making decisions that impact them.
- Understand the needs, aspirations and goals of communities and stakeholders, including their realities and uniqueness.
- Create positive social outcomes and opportunities that leave a positive legacy, through investment and support.
- Ensure all employees and contractors behave in an ethical and moral manner that safeguards and promotes the health and security of the community members and stakeholders.
- Be open, transparent and responsive to community and stakeholder issues and needs in planning and carrying out our work.
- Ensure our workforce reflect the diversity of the community and support culture and its expression.
- Minimise effects on the local natural environment, histories, and cultures important to the community.
- Track and report on community and stakeholder engagement initiatives and lessons learnt to ensure continuous improvement.

We will continually lift our delivery in best practice to engage and effectively communicate with the communities and stakeholders we work alongside.
We commit to provide sufficient resources to implement these policies, processes and standards - from the boardroom to the shovel - so we can exceed our objectives and responsibilities.

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DW-SR-POL-001
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TIRITI POLICY

Purpose

This policy sets out Dempsey Wood's commitment to give effect to Te Tiriti o Waitangi within its policies and practices. Under Article 3, operating in the spirit of Te Tiriti o Waitangi and acting in good faith, our intention is to foster mutual regard and understand the multicultural nature of Aotearoa. Thereby we ensure Tangata Whenua and Tangata Tiriti have opportunities to participate fully in all levels and aspects of our organisation.

Statements of Commitment

Working together, we will:

- Endorse, validate and respect cultural values, knowledge and diversity with a focus on partnership and manaakitanga
- Work in collaboration with iwi, hapū, whānau and Māori within the community, in extension to our current networks
- Ensure positive involvement of Tangata Whenua and Tangata Tiriti at all levels of the business, including decision-making, planning, and development
- Ensure Tangata Whenua and Tangata Tiriti perspectives are represented through policy and procedures
- Be inclusive and authentic of important expressions of identity, language, and culture
- Actively protect Māori knowledge, interests, values, and other tāonga
- Deepen our understanding of Te Tiriti o Waitangi, Tikanga, Te Ao Māori
- Create an environment that feels safe and nurtures all people through the spirit of Te Tiriti o Waitangi
- Seek to understand needs for Tangata Whenua and Tangata Tiriti and provide culturally appropriate support.

We will continually be an effective community organisation through the principles of partnership, protection and participation. We will frequently review and adapt our processes to ensure this value and vision remains equitable and non-discriminatory. We commit to provide sufficient resources to implement these policies, processes and standards - from the boardroom to the shovel - so we can exceed our objectives and responsibilities.

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DW-IN-POL-002
Revision: 1

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Jan 2021

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ALCOHOL AND DRUG POLICY

Dempsey Wood is committed to providing all persons such as Managers, Supervisors, Employees, Subcontractors, Visitors and Public with a safe and healthy work environment. Dempsey Wood recognises that working under the adverse effects of alcohol, controlled or uncontrolled substances (drugs) is an unacceptable risk and is incompatible with a safe and healthy working environment.

General

- Dempsey Wood employees and subcontractors are expected to report to work in a fit for work condition meaning:
  - They are able to perform their duties in a safe, productive, and healthy manner.
  - They do not place themselves or any other person at risk of harm.
- Dempsey Wood carries out and has defined protocols for pre-employment, post incident, random site and reasonable cause situations.
- Persons identified as been under the adverse effects of alcohol or drugs will immediately be removed from the workplace.
- Alcohol and or drug testing requires:
  - Site management taking a sample of breath as an indication there is "zero presence of alcohol" in an employee's system within "working hours" or
  - A certified testing agency, medical practitioner or nurse taking urine, or a blood.
- Non-negative (failed) results will be verified by an accredited testing agency (laboratory).
- Testing will meet the requirements and criteria of AS/NZS 4308 or requirements and criteria determined by an appropriate authority.
- As part of pre-employment testing a failed test will result in withdrawal of an offer of employment.
- Dempsey Wood will treat a failed alcohol or drug test or refusal to test as serious misconduct resulting in a subsequent disciplinary meeting. The outcome of the disciplinary meeting may result in an individual alcohol and drug random testing agreement being established, dismissal or termination of contract.
- The individual alcohol and drug random testing agreement will involve random testing over a 2-year period with a minimum of 6 random tests per year. Any failed test during or after this period will result in dismissal or termination of contract. The individual will pay for all costs of the individual random testing during this period.
- Unlawful manufacture, distribution, dispensing, possession, or misuse of drugs in the workplace is prohibited and will be regarded as serious misconduct.
- No alcohol is to be consumed on Dempsey Wood work sites unless authorised by a Senior Manager and only when work has been completed for that day or shift.
- Consumption of alcohol or drugs while on duty or off duty resulting in potentially putting others at risk of harm in the workplace will be regarded as serious misconduct.
- Education will be offered which generally includes the effects of alcohol and drugs in the workplace, alcohol and drug procedures, testing and monitoring procedures such as post incident, reasonable cause and ongoing random testing.
- Assistance programmes, rehabilitation or case management support information will be made available to the affected persons.
- Confidentiality of the person's information relating to test results will be maintained and only used for the purposes intended.

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Revision: 7

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5 Project Hazard and Risk Rating

The Register Project Activities, Hazards and Risk Ratings is the list of civil works hazards and risks, residual risk scores and risk ratings. These are used where applicable in conjunction with the job safety analysis and work instructions.

Rangitoopuni Developments Limited Partnership Notified Potential Hazards:

The Client draws attention to the following significant hazards.

- Machinery hazards (moving parts, excavators, and front-end loaders, including vehicular movements in and out of the site etc.).
- Trenching and excavation.
- Underground and overhead services (power, gas, water, telecom cables, sewer, household service & streetlight poles, etc.).
- Noise.
- Traffic.
- Vibration from equipment.
- Exposure to the elements (sunburn, etc.).
- Potential contaminated soils.
- Road geometry - work in the proximity of intersections, on bends and limited sightline visibility.
- General public/pedestrians, aggressive behaviour.
- Hazardous materials (bitumen, asbestos etc.).
- Proximity of the operational electrified railway corridor.
- Proximity of the overhead high voltage power lines.
- Working over water.
- Working near heavy machinery.
- All general work tasks required at an engineering construction, site such as welding.

Table 5 Example of Hazards and Risk Rating Register

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
I.	**PEOPLE**							
1.1	Pedestrians and General Public	• Being struck by plant or machinery	25 High	Yes	M	• Construction warning / information signs erected around site boundary or walkways	Daily	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		• Struck by debris • Injury • Slips, trips, and falls				• Fencing is appropriate and secured around the site or walkways or work areas • Sign in Registers are readily available as applicable • Safety Notice Boards are displayed on Site Offices at site entrances as applicable • Disabled and pedestrian pathways established where required • Where required TMP is established to control traffic and public in work area		
1.2	Subcontractor Working on Site	• Injury to themselves and others	16 High	Yes	M	• Subcontractors are DW pre-qualified • Site induction is carried out and records maintained • Safe system of work is established were required e.g., JSA or Dig Permit for high risk work activities • Subcontractors carry out daily pre-activity starts (Take 5's) and review JSA as applicable • Project Management Team surveillance audits are carried out on the subcontractors and recorded • Project Pre-Start and HSE Toolbox meetings are attended and minuted • Signed contracts – Subcontractor Agreement and Schedule of Conditions are in place as applicable • Post contract performance evaluations meetings are carried out & recorded	Daily while in operation	Medium
1.3	Lifting, Manual Handling	• Back injury • Sprains and strains • Crush injuries • Slips, trips, and falls	20 High	Yes	M	• Take 5 is carried out as applicable • Use mechanical lifting aids aid in the first instance if possible • Ask for assistance if required • Awareness and training provided • Use correct lifting techniques (bend knees and straight back) • Stretch and warm up before commencing any lifting • Good housekeeping – a place for everything and everything in its place	Before lifting or manual handling	Low
1.4	Fatigue	• Reduction in a person's ability to	16 High	Yes	M	**Guideline**	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		perform work safely and effectively. • Reduced alertness. • Increase in errors, workplace incidents and injuries.				• Take regular, quality, rest breaks in their working day • Make sure working hours are not too long - does anyone work in excess of 12 hours regularly (including overtime) • Schedule tasks suitably throughout a work period - for most people, low points occur between 3.00am and 5.00am, and between 3.00pm & 5.00pm. • Get sufficient sleep - people generally need between 7.5 and 9 hours of sleep a night to maintain health and alertness • Limit periods of excessive mental or physical demands • Turn up in a state fit for work • Inform your manager or supervisor if a task is beyond your capabilities • Eat a balanced diet, particularly foods that provide a steady release of energy throughout the day (e.g., whole grains) • Drink sufficient amounts of fluid • Communicate with your manager or a supervisor if you start showing the signs and symptoms of fatigue		
1.5	Stress	• Stress is the feeling of being under too much mental or emotional or physical pressure. • Pressure turns into stress when you feel unable to cope. Persons have different ways of reacting to stress, so a situation that feels stressful to one person may be	16 High	Yes	M	**Guideline** • Get sufficient sleep - people generally need between 7.5 and 9 hours of sleep a night to maintain health and alertness • Take regular, quality, rest breaks in their working day – large workloads • Eat a balanced diet, particularly foods that provide a steady release of energy throughout the day (e.g., whole grains) • Make sure working hours are not too long - does anyone work in excess of 12 hours regularly (including overtime) • Limit periods of excessive mental or physical demands	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		motivating to someone else				• Avoid as appropriate climatic extremes - high or low temperatures • Communicate with your manager or a supervisor if you start showing the signs and symptoms of stress		
1.6	Vibration	• Vibration can cause damage to nearby buildings Can cause damage to nerve endings / blood vessels – hand arm vibration (HAV's) also known as white knuckle	12 Medium	Yes	M	• Comply with the Consent Conditions – Consent Conditions are readily available on site. • **If sensitive buildings in area and vibration could potentially cause damage to adhere to the following guidelines:** • Undertake a background survey prior to works commencing on site if required • Take photos of the buildings near the site – dilapidation survey • Consider the location of haul roads and where possible locate the roads well away from the sensitive areas • Monitor the site and comply with the required standards • Ensure vibrating equipment is well maintained or limits vibration by design • Limit duration of use – take short regular breaks • Develop a Noise and Vibration Management Plan for the works – if required • Use PPE which reduces vibration e.g., anti-vibration gloves	Daily	Medium
1.7	Noise	Nuisance noise can mean: • lack of sleep for shift workers or infants or disturbance to those who are at home during the day	15 High	Yes	M	• Comply with the Consent Conditions – Consent Conditions are readily available on site. • Take 5 is carried out as applicable • **Standards to help minimise the effects of noise from works include:** • Have copy of relevant noise requirements available on site as applicable. • Install permanent noise walls/barriers/bunds as soon as practical if applicable.	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		• disturbance to commercial or retail workers • excessive noise resulting in hearing loss (NIHL) incurred				• Locate storage / parking areas away from adjoining properties. • Monitor wind direction if applicable. • Consider noise control when selecting plant for each work area. • Maintain construction plant appropriately. • Monitor construction noise including public feedback. • If appropriate during night work turn off reversing beepers. • Monitor noise levels with calibrated monitor to ensure under 85 dBA (time weighted average (TWA) over 8hrs) or provide and use hearing protection • Provide appropriate grade hearing protection for recorded noise levels, plugs or earmuffs • Where relevant, undertake representative construction noise level testing (in accordance with NZS 6803: 1999 - "Acoustics – Construction Noise") to verify that required levels of noise are not being exceeded. • Develop a Noise and Vibration Management Plan for the works – if required		
1.8	Occupational Overuse Syndrome (OOS)	Pain and discomfort in joints/muscles	15 High	Yes	M	• Review occupational overuse syndrome (OOS) at induction • Educate and Training on hazards / prevention of OOS • Workstation / work practices reviewed • Pain and discomfort survey completed as required • Incident reporting and investigation procedures • Regular rests breaks / micro breaks taken • Stretching exercises taken regularly	Daily, weekly, monthly	Low
1.9	COVID-19	• Fatality • Serious Injury • Site Closure • Reputation	20 High	Yes	M	Dempsey Wood site operates under our Covid-19 Site Management Plan. Including: • Masks • Hygiene measures • Social distancing	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Working bubbles • All persons entering the site must use the Covid-19 QR Code. • Vaccinations are encouraged and supported		
1.10	Working beside Public Roads	• Struck by vehicle • Abused by member of public	25 High	Yes	M	• Approved Traffic Management Plan in place where required • All works and controls compliant with the Code of Practice Temporary Traffic Management	Daily	Medium
1.11	Working in Isolation/ Alone	• Fatality • Serious Injury • Site Closure • Reputation	12 Medium	Yes	M	• Workers not permitted on site without supervision • High risk work must not be completed while working in isolation • When work is to be completed in an isolated area, a buddy system must be implemented or a form of regular communication	When required	Low
I.	**SERVICES**							
2.1	Over Head Power Lines	• Electrocution • Fatality • Burns • Loss of service to local businesses • Fire • Damage to plant	15 High	Yes	M	• Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable • Check if the power lines can be isolated / de-energised • Obtain Close Approach Consent / Permit to Work from asset owner if working within 4m of overhead lines and within 5m of power poles • Appoint a safety observer when operating plant within 4m of overhead lines and within 5m of power poles • Skilled operators to operate plant near overhead power lines • The DW Top 10 Risks are known and displayed on sites • Where required TMP is established to control traffic and public in work area	Daily	Low
2.2	Underground Services	Electrocution Fatality	25 High	Yes	M	• Safe system of work e.g., JSA is established as applicable	When required	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		Burns Loss of service to local businesses Fire Damage to plant				• Take 5 is carried out as applicable • Check if the services can be isolated / de-energised • Only certified personnel to disconnect/connect services • Obtain Close Approach Consent / Permit to Work from asset owner if working within 4m of overhead lines and within 5m of power poles • Contact local service provider and determine if they need to or want to provide stand over personnel • Issue a Dig Permit when breaking ground • Appoint a safety observer when operating plant within 4m of overhead lines and within 5m of power poles - exposing all services • Service plans on site - do not rely on plans to be 100% correct – use only a guide, remain observant • Locate and mark out all services before works commence • Pilot hole for all services – safe hand dig pilot holes to confirm final position of services • Do not handle or alter exposed services unless connecting services and authorised to complete the activity • Treat all service as alive at all times • Report any damage immediately, stop work and have services inspected for damage and have repaired if required before work commences • The DW Top 10 Risks are known and displayed on sites • Where required TMP is established to control traffic and public in work area		
I.	**CONCRETE**							
3.1	Curbing / Footpaths (Cement work)	• Being struck by plant, traffic, or machinery • Flying Debris • Noise	12 Medium	Yes	M	• Take 5 is carried out as applicable • Isolate work area • Fencing is appropriate and secured around the site or walkways or work areas or rain gardens	Daily while in operation	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		• Dust • Slips, trips, and falls				• PPE - safety boots, gloves, hearing protection, face and eye protection, respiratory protection • Disabled and pedestrian pathways established where required • Cover cess pits to prevent contaminates entering water ways • Manual handling techniques applied • Where required TMP is established to control traffic and public in work area • Use the appropriate respiratory, hand and skin protective equipment – PPE • No dry cement cutting is permitted on Dempsey Wood Sites		
3.2	Concrete Cutting and Concrete Wash – silica dust & adverse pH discharges	• Dirt in concrete cutting wastewater or from concrete wash can smother living things in streams. • Typically, it has a very high pH which can have a dramatic effect on waterways • High pH is bad because: • it attacks the sensitive membranes of fish & eels • it causes chemical burns to fish, insects, and plants • Skin Dermatitis – allergic dermatitis • Flying Debris	15 High	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site **When undertaking concrete works, use the following guidelines:** • Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable • Use the appropriate respiratory, hand and skin protective equipment – PPE • No dry concrete cutting is permitted on Dempsey Wood Sites • The DW Top 10 Risks are known and displayed on sites • Where required TMP is established to control traffic and public in work area Prior to starting work assess the site and block off all stormwater drains using drain plugs, sandbags, or portable bund, which will prevent any contaminated run-off entering the stormwater system. DO NOT forget to remove these blocks when the concrete work is complete, or you will cause flooding.	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		• Injury				**Capture the cutting water/cement slurry for safe disposal. Options include:** • Ground soakage: dig a pit and direct water to it to soak into the ground. Make sure it does not run overland to the stormwater system or a natural water body. If necessary, direct it away from protected trees. • Capture the flow for manual disposal: block the outlet of a stormwater catchpit and use it as a sump. Use a submersible pump to remove the wastewater to a container and dispose of safely to land or remove from site. • Use vacuum loading trucks to remove the waste for larger jobs. **Concrete dust will raise the pH of water if it comes in contact with it. When grinding concrete, minimise dust reaching waterways by:** • Screening works, if practical • Removing dust build up (by sweeping or by washing-using procedures described above) from locations where it can wash to the stormwater system or to water ways.		
X.	**EARTHWORKS**							
4.1	Manholes	• Crushing • Falling into or from height • Engulfment / fatality	15 High	Yes	M	• Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable • Proper covers are placed over top entrances, or they are fenced off or they are backfilled around them as applicable • Persons do not stand in the same trenched area when manholes are being placed into position i.e., outside the "exclusion" zone • Certified chains are used to lift and place manholes • Ensue access and egress are established for trenched areas	Daily while in operation	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Refer to the "trenching" hazard and controls (8.0) that are applicable		
4.2	Piling	• Can cause unnecessary sediment discharge to water way	15 High	Yes	M	**Give careful consideration to the location of the piling rig so cause the minimum disturbance necessary.** • Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable • Often required to dewater from inside of pile. If dewatering from the inside of a pile, ensure the dewatering performance standards above are adhered to. • Also adhere to noise mitigation measures. • Fencing is appropriate and secured around the site or walkways or work areas	Daily	Medium
4.3	Trenches & Excavation	• Collapse • Crushing • Falling into or from height • Engulfment / fatality	20 High	Yes	M	• Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable • Issue a Dig Permit when breaking ground • Ensure "shielding, sloping and or benching" of trench > 1.5 metres deep as per Excavation Safety Guidelines • If battered - the wall of the trench should be sloped back to a predetermined angle to ensure stability. Battering reduces the risk of ground collapse by cutting the excavated face back to a safe slope • If benched - prevent ground collapse by excavating the sides of the trench to form one or more horizontal steps with vertical surfaces between levels • When using shoring, it may be possible to excavate below the base of the shoring, that is: 'flying shoring'. To do this, excavate to a maximum depth of 600mm below the base of the shoring, if: • The shoring is designed to resist the forces calculated for the full depth of the excavation, and	Daily while in operation	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						there are no indications, while the excavation is open, of instability below the bottom of the shoring. • Ensure the trench shield is at least 200mm above ground level or install kick boards • Ensure the works area boundaries – plant, stored materials and fencing are outside the 1m "exclusion" zone i.e., from the edge of the trench in all directions • Ensue access and egress are established • Access to open trenching must be controlled when no work is being undertaken, i.e., work stopped indefinitely or end of shift • Back fill trenching as soon as possible • Inspect trenches every morning before entering • De-water as required - materials must not enter directly into storm water systems • The DW Top 10 Risks are known and displayed on sites • Where required TMP is established to control traffic and public in work area		
4.4	Confined Space	• Contaminated atmosphere • Overcome by gases or vapours • Fatality	20 High	Yes	M	• Safe system of work e.g., JSA is established as required • Take 5 is carried out as applicable • Persons entering or acting as a safety observer during confined space entry are trained in confined space and hold current certifications • Confined space procedure is followed, and permit is issued as required • Check that the work will not create additional hazards - risks • Risk assessment is carried out and recorded for an alternative methodology if required • Atmospheric conditions are tested and checked as safe prior to entry • Gas monitor has a current calibration certification	Before and during work	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Communications is established between persons working inside – persons outside, e.g., safety observer • Emergency equipment on site e.g., rescue rope, breathing apparatus is available as applicable • Nearest medical services are known • Confined space emergency response plan (specific rescue) at the place of work and persons inducted in response plan		
4.5	Working at Height	• Fall from height resulting in death or serious injury • Dropped objects	20 High	Yes	M	• Working at Height identified on Take 5 as requiring additional controls • Working at Height permit • All workers trained in working at height • Fall protection equipment, including harnesses, inspected prior to use • Drop zone established below working area	Before and during operation	Low
4.6	Unstable or Sloping Ground Conditions	• Tip over of machinery or plant • Slips, trip, and falls • Personal injury • Damage to plant and machinery	16 High	Yes	M	• Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable • Assess the ground conditions and make a considered decision about what activities can and cannot be carried out – notify project team • Ensure ground condition stable to support machinery • Check with Geotech, third parties regarding stability where applicable • Appropriate plant and machinery are used with ROP • Ensure the works area boundaries – operating plant, stored materials and fencing are outside the 1m "exclusion" zone i.e., from the edge of the trenches in all directions • Seatbelts to be worn when operating plant	Daily while in operation	Low
X.	**MACHINERY**							

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
5.1	Moving Plant / Machinery / Trucks	• Injury • Collisions • Runaway plant • Dust • Noise • Pollution, environmental damage • Tipover	15 High	Yes	M	• Take 5 is carried out as applicable • Site plant vehicles rules established and made known as applicable when driving on site • Review ground and soil condition to ensure stable for truck movements • Monitor daily operations • Always gain operators attention before approaching plant or machinery i.e., moving into the plant or machinery's working zone • Always make and maintain eye contact with the operators • Seat belts fitted and used • Create separation between plant, machinery, and persons • Noise protection is used • Ensure handbrake applied, disengaged and key removed when plant and machinery is unattended • Trained operators to operate plant and machinery • Always wear high visibility clothing • Deliver and remove plant and machinery after hours in off peak times to reduce impact on traffic flows and local commercial environment • ROPs fitted on plant operating on excessive uneven or sloping ground • The DW Top 10 Risks are known and displayed on sites • The Moxys Do's and Don'ts are known and displayed in sites • TMP is established for entering and exiting site as applicable	While in operation	Low
5.2	Faulty Plant, Machinery, Equipment	• Break down • Injury • Collisions	12 Medium	Yes	M	• Take 5 is carried out as applicable • Daily checks are carried out before operating equipment – faults are recorded and reported • Faulty equipment is "tagged out" from further use • Repairs are completed and verified as applicable before operating the equipment again	Before operation	**Low**

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Regular planned maintenance is carried out – as per specifications		
5.3	Manoeuvring and Reversing	• Collisions • Tipover • Crushing or entrapment	15 High	Yes	M	• Take 5 is carried out as applicable • Safety observer to be used when reversing as required • Maintain low speeds – site limits • Ensure intended route is clear before commencing move • Both the operator and driver to check for persons and approaching persons to check with operator or driver • Ensure nobody is in a blind spot • Use mirrors when reversing • Keep special watch for foot traffic • Check soil conditions • Keep clear of trenches and banks • Be aware of possible sun strike • The DW Top 10 Risks are known and displayed on sites • The Moxys Do's and Don'ts are known and displayed in sites	While in operation	Low
5.4	Loading and Unloading	• Falling materials • Crushing or entrapment • Serious injury • Damage to plant or machinery • Dust • Fall into or from height	15 High	Yes	M	• Loading protocols must be followed between drivers and operators – moving into and from the loading zones – move when positively indicated or shown to do so • Isolate or make know to others to keep clear of loading – unloading area • Ensure nobody is in blind side of trucks while being loaded - unloaded • Truck driver should be in cab or in front of cab well clear and line of site of the operator during loading – unloading operations • The driver must ensure loads are secure, lashed properly or evenly spread • Ensure ground conditions are stable	While in operation	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Ensure the loading – unloading area is not on a "steep" slope • High visibility vest, and safety boots to be worn by drivers • Monitor dust and implement management program if required • Trained operators with current certifications to drive – operate plant		
5.5	Lifting Loads with Mobile Plant	• Falling materials • Crushing or entrapment • Serious injury • Fall into or from height	15 High	Yes	M	• Lifting to be completed by competent operator • Isolate or make know to others to keep clear of lifting area • Ensure ground conditions are stable • Ensure the lifting area is not on a "steep" slope • Lifting equipment must have current inspection tags • Mobile plant and lifting equipment must be rated to the load	Before and during operation	Medium
I.	**EQUIPMENT / MATERIALS**							
6.1	Power Tools and Leads	• Electrocution • Injury / lacerations • Fatality	15 High	Yes	M	• Carry out check prior to use • Electrical equipment has current electrical inspection and test tag • Portable RCDs tested and tagged and used for electrical power hand tools • Regular testing and tagging of electrical power hand tools are evident (tag is < 3 months old on construction sites) • Faulty tools / equipment is tagged out from further use until repaired	Before operation	Low
6.2	Asbestos and Asbestos Cement (AC) Pipe	• Asbestosis • Lung Cancer • Mesothelioma	15 High	Yes	M	• Determine if the asbestos can release asbestos fibres (friable) • Friable – means asbestos that under ordinary conditions can easily crumble (i.e., the potential to release asbestos fibres) • Only a person holding a Restricted Certificate of Competence must do the friable work (damaged, crushed, or shattered asbestos) or directly supervise	Before and during and after work	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						this type of work – Worksafe NZ must be notified of friable work • Carry out an inspection to determine what hazards – risks exist • A Job Safety Analysis or similar should be prepared for the work • Take 5 is carried out as applicable • Additionally, For Asbestos Cement (AC) Pipe • Check to make sure the AC pipe is not damaged, crushed or shattered (friable). If the AC pipe is intact and not damaged, crushed or shattered (non-friable) then the work is not notifiable and not classed as restricted work • If the AC pipe is damaged, crushed or shattered (friable), then the work is notifiable and a person holding a Restricted Certificate of Competence must either do the work or directly supervise the work • The area the AC pipe has to be removed from, should be appropriately cordoned off to restrict access • The AC pipe should be dampened down to suppress the creation of any airborne asbestos fibres. Polythene should be laid directly below the AC pipe to capture any dust or broken material that may come loose • Wear minimum P2 mask and full body disposable coveralls • Ensure persons decontaminate themselves after the work • Ensure tools and equipment are wet wiped and stored correctly after the work • Ensure coveralls and filters/pre-filters are disposed of as contaminated		
6.3	Lime Stabilisation	• Airborne contamination • Uncontrolled run	12 Medium	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		off • Contamination via catch pits and stormwater inlets downstream				• Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable **The following procedures will be followed as a minimum:** • Wherever possible, lime will not be stored on site and will be delivered as required. • Lime stabilisation will not take place during periods of rain or when rain is forecast within 24 hours. • Lime stabilisation will not take place where wind direction and or wind strength are likely to result in an airborne discharge past site boundaries. Consider adjacent land uses e.g., orchards and vineyards might be particularly susceptible to damage. • Runoff from the lime stabilisation area will be controlled by a low bund or directed to an appropriate impoundment area. Where runoff is directed to a sediment retention pond. The decants of the pond may be lifted to prevent discharge from this pond until the pH has dropped to a suitable level. • Cover or seal will be placed as soon as is possible after completion of lime stabilisation. Wherever practical a thin layer of cover material will always be placed over the top at the end of each day. • Where practical, collect and remove free lime. • In the area to be limed, find out the location, including depth, of all watermains and their shut off valves. • Consider blocking catch pits during liming but remember to re-open catch pits prior to rain. • Have sufficient sandbags and/or plugs to block all catch pits and stormwater inlets downstream of the stabilisation activity, if necessary. • Prior to sealing pre-sweeping needs to take place, stabilized materials can become airborne, water carts must be used if the surface is dry and sweep		

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						into a windrow and collect with a suction road sweeper. The sweepings need to be disposed of in a designated area		
6.4	Fuel and Oils Spill Prevention	Risks to human health and environmental harm due to: • poisoning of plants and animals, habitat, or food sources • contamination of soil and water • Fire	12 Medium	Yes	M	**The following are minimum requirements to prevent spills:** • Take 5 is carried out as applicable • Limited volumes of fuel will be stored on site, the majority of fuel deliveries will be by mini tanker (direct filling). • Each site will have a spill kit(s) appropriately sized for the nature of the work activity • Mini tankers will carry a spill containment kit and will include an auto shut-off system. • Mini tanker operators will be advised of areas not available for re-fuelling, e.g., within 10m of a watercourse. • Oils, grease will be stored in secure facilities. • Plant will not be stored or serviced within 10m of a watercourse. • Runoff from any centralised re-fuelling or maintenance area will be controlled in accordance with TP90. • Bins will be provided for the disposal of empty oil containers, grease cartridges, oily rags. • If possible, plant operating over the marine area will use biodegradable hydraulic oils. • SDS sheets are available on site • Spill kit use is made known to persons on site and emergency response process is displayed	Daily	Low
6.5	Fuel and Oil Spill Procedure (Chemical Spills)	Risks to human health and environmental harm due to: • Poisoning of plants and animals, habitat, or food sources.	12 Medium	Yes	M	**In the event of a spill to ground the following procedures will be followed:** • The source of the spill will be identified, and further spillage prevented by stopping the machine, ceasing refuelling, plugging the burst hose, and standing up overturned containers.	Daily	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		• Contamination of soils and water. • Fire.				• If the spill is in excess of 50 litres, the Site Management will immediately notify the Engineer and the relevant Regional Council. • The area of the spill will be contained as appropriate. • Any free fuel or oil will be soaked up by sawdust (from the spill containment kit) or similar absorbent product and disposed of in the spill container. • Any contaminated soil will be excavated and also disposed of in the spill container if the volume is too great a similar appropriate container or sealed body truck will be used. • Contaminated soil will be disposed of at a registered landfill. • Dispersing agents will not be used to control spills of fuel or oils. • Details of the spill and remedial actions are recorded, as an incident. **In the event of a spill to a watercourse or the coastal area the following procedures will be followed:** • If the spill is in excess of 2 litres, the Site Management will immediately notify the Engineer and the relevant Regional Council. (Follow Regional Council pollution control staff direction as appropriate once they reach site.) • The source of the spill will be identified, and further spillage prevented by stopping the machine, ceasing refuelling, plugging burst hose, standing up overturned containers, and containing any residual spilled fuel or oil. • If the watercourse is ephemeral and there is no flowing water a temporary bund will be placed at the lowest extent of the spill within the worksite. • If the watercourse is perennial, there is flowing water, or the spill is to the coastal area the		

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						absorbent boom from the spill kit is to be installed at the lower extent of the spill or around the spill. • Any free fuel or oil on the land next to the watercourse is to be soaked up by sawdust (from the spill containment kit) or similar and disposed of in the spill container. • Fuel or oil floating on the surface of the water will be absorbed / mopped up with the absorbent pads from the spill kit or rags and or suitable non-woven geotextile. • Any contaminated soil outside the watercourse will be excavated and also disposed of in the spill container if the volume is too great a similar appropriate container or sealed body truck will be used. • Contaminated soil will be disposed of at a registered landfill. • Dispersing agents will not be used to control spills of fuel or oils. • Details of the spill and remedial actions are to be recorded, as an incident		
6.6	Materials contaminated with Polycyclic Aromatic Hydrocarbons (PAH's), heavy metals, or other contaminant of concern (Land contaminatio n)	• Adverse effect on human health due to exposure to hazardous substances. • Environmental harm from discharge of contaminants.	12 Medium	Yes	M	• Take 5 is carried out as applicable • All personal to be inducted regarding the exclusion zone • Disposable gloves and overalls for truck driver and labour as required • Area designated and fenced off during and after excavation is completed • No eating drinking or smoking during and after handling materials • Wash tubs and running water to de-contaminated • All contaminated material to be disposed at an approved landfill • Dust is controlled	Prior to starting works, and as required	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Contaminated surfaces are protected from potential erosion and runoff is diverted to an appropriate sediment control measure		
6.7	Storage of Chemicals – Hazardous Substances	Even a minor spill can quickly contaminate a large area, causing significant environmental damage. Effects can include: • poisoning plants, animals, habitat, or food sources • poison seabirds • contaminate soils and water • cause safety issues if there's a spill	15 High	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site Site management to carry out inspections - audits of standard of chemical – substances controls **The following are minimum environmental requirements when storing chemicals:** • Only buy and hold on site the volumes of chemicals – substances required to complete that project. • Be aware of and comply with HAZNO requirements, e.g., storage and volume requirements. • Secure the storage containers and ensure the lids are securely fastened. • Ensure containers are properly labelled and appropriate for the chemicals – substances • Make sure the chemicals – substances are stored in a safe place and the storage areas are controlled. • Ensure storage areas are well away from stormwater inlets and waterways. • Do not pour chemicals – substances down the stormwater drain, onto the ground or into a waterway. • Reuse and recycle chemicals – substances – substances where possible. • Dispose of old or used chemicals – substances to approved hazardous chemical stations. • If unsure where to dispose of the chemicals – substances contact the local regional council. • Ensure the appropriate PPE is used when handling chemicals – substances • Safety Data Sheets (SDS) are available on site	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
6.8	Bitumen / Emulsion Spraying	• Spillages into waterways, onto ground • Burns	12 Medium	Yes	M	**When spraying with bitumen / emulsion use the following guidelines.** • Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable • Only trained staff to operate spraying equipment • Ensure weather is suitable for applying materials • Keep spill kits close by and ensure they are full at all times. • Follow emergency procedures (environmental spill section) • In the case of a larger spill use materials close by to contain, i.e.: use loader and chip to create a bunding system • All staff to be made aware of Safe Handling of Bitumen • Ensure safe heating levels for bitumen units • Ensure the appropriate PPE is used to protect against skin contact - burns **Any spills are to be reported to Site Management immediately who will inform local authorities, if necessary, all clean up material is to be disposed of in appropriate areas.**	Daily	Medium
6.9	House Keeping	• Porta Loos • Discharge of sewage to the environment • Keeping the yard clean. If poorly managed it looks bad and attracts vermin and can add to the stormwater load	12 Medium	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site. Site management to carry out inspections - audits of standard of housekeeping • Consider careful placement of porter loos • Place the porter loos well away from cesspits, stormwater inlets of water ways • Place the porter loo on stable flat ground • If the site is prone to high winds, ensure the porter loo is anchored to ground • Remove rubbish off the site on a regular basis Store materials in a tidy well managed manner	Daily	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						Litter / used materials / rubbish should be controlled on sites using the following guidelines: • Periodically place bins – skips with lids around the site. • Remove the rubbish from the bins – skips on a regular basis. • Do not allow the bins – skips to spill over with rubbish. • Dispose of the rubbish to an approved dump site. E.g., local landfill.		
6.10	Chemical Spraying	Sprays drifting beyond the boundary of the spray area can cause the following effects: • Damage valuable crops • Damage human or animal health • Poison aquatic life in waterways	15 High	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site • Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable **Prior to spraying:** • The spray applicator must be "GROWSAFE" trained. • Weather conditions must be assessed – particularly wind direction – strength • Neighbours must be notified (Discuss when you plan to spray, what you will be spraying, application method and mitigation methods to prevent spray drift)	Daily	Medium
I.	**ENVIRONMENTAL**							
7.1	Poor Erosion and Sediment Control	Environmental harm in waterways due to: • Smothering of aquatic life • Destruction of food sources • Damage to fish and insect gills • Turbidity increasing water temperature	15 High	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site Site management to carry out regular inspections and audits of all erosion and sediment controls **The DW standard is GD05 (or its equivalent) or as specifically required by consents or regional/district planning documents.** Minimum procedures are:	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		and reducing light penetration • Exacerbating flooding • Smothering by accumulation in streams and estuaries.				• A copy of GD05 or equivalent must be available on site or be accessible by the internet. Personnel (including sub-contractors) must be made aware of its location and contents and that their work constructing controls will be checked against it. • Site Management must check a control has been built to GD05 after it has been constructed. A note recording the check must be made in the daily diary (or equivalent). Most resource consents require that controls are As-Built, and a certificate of compliance is forwarded to Council prior to works commencing. • Erosion and sediment control plans must be kept up to date throughout the job and be accessible at all times. Dempsey Wood will not work without an up to date and approved plan throughout the job. • Discuss proposed changes to (or removal of) controls with the Council. Usually, any changes or removal of controls must be approved prior to undertaking. • All personnel responsible for constructing or maintaining controls must attend the Dempsey Wood training course. **Minimum control principles are:** • Controls will be installed wherever works involve land disturbance or a potential discharge to the environment, even if the works are a permitted activity. • All relevant controls must be installed around the perimeter of a catchment before works start. Start with clean water diversions, then control measures, then dirty water diversions. • Limit the area of disturbance where practical. • All levels and surfaces are to be finished and maintained to minimise as far as practical ponding of water. • Reinstate perimeter controls daily, or before rain, e.g., clean, and dirty water channels or bunds.		

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Install appropriate sediment retention devices. Sediment Retention Ponds will typically be used where the contributing catchment exceeds 3,000m² (0.3ha), with Decanting Earth Bunds being utilised for areas smaller than this. Silt Fences will be used around drainage inlets (catch pits & manholes) or for small areas where there is insufficient room for other controls. • Protect steep slopes, i.e., Restabilise ASAP, and divert runoff around slopes by temporary drains or bunds. • Protect watercourses by diverting dirty water away by diversion bunds or channels to a sediment control device). • Areas are to be rapidly and progressively stabilised as they are completed. Stabilise by making resistant to erosion through application of aggregate, geotextile, vegetation, or mulch. **Minimum maintenance requirements are:** • Remove accumulated sediment from sediment retention devices before total storage volume of device has been reduced by 20%. • Repair or maintain all controls immediately upon finding an issue. • Reinstate controls on a daily basis, or as soon as practicable, and always before rain. • Repair or replace all controls that fail as a result of rain as soon as practicable. Report issues to Council.		
7.2	Vegetation Removal	• Inadvertent damage or loss of vegetation • Falling trees • Noise • Cuts and lacerations • Flying debris	12 Medium	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site • Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable **The following is the minimum standard for vegetation removal.**	Daily	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		• Being struck by branches				**First confirm any necessary consents are in place and comply with relevant consent requirements.** **To minimise damage to vegetation outside those areas to be cleared:** • Isolate or define areas outside of work area with protective fencing, marker tape, pegs or by marking perimeter trees. Ensure protection method has appropriate signage. • Fell trees toward and into work area • Access the site only through defined, approved access points and routes • Do not cross watercourses with machinery or drag felled trees across watercourses. Where crossing a watercourse is required, it is likely that a consent will be needed. • Avoid washing organic material into watercourses. • Mulch is not to be stockpiled within 10m of watercourses **To avoid disturbance of soil resulting in sediment discharge** • Stabilise disturbed areas, including access tracks with mulch • Use temporary storage areas within the work area for mulch and logs until access has been provided by earthworks • Keep machinery out of steep gullies. • Install GD05 (or equivalent) controls as required to control any sediment generated **To avoid the spread of weeds and plant diseases** Handling of mulch and soil to be undertaken under guidance of arborist to comply with regulations to prevent the spread of weeds and plant diseases such as Myrtle Rust and Kauri Dieback.		
7.3	Works Within (and in close proximity to)	• Environmental harm resulting from sediment	15 High	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
	a Watercourse	discharge and stream bed disturbance				• Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable • Emergency Response Plan in place including specific rescue equipment such as ropes, resuscitation, floatation devices as applicable **Generally, there must be a resource consent for this kind of work, and it will usually only be granted if there is no other alternative.** *If there is no consent, check with the Council before work starts and obtain written confirmation that no consent is required. Keep a record of this written confirmation on file.* **The following minimum standards will be followed:** • All works in a watercourse shall be carried out in accordance with a Streamworks Management Plan approved by Council. • All work in watercourses will be carried out in a suitable fine weather window. • Keep machinery out of the watercourse. Work from the banks. • Stream flows shall be diverted around the works area by a diversion channel, or dams and over-pumping. Dams shall be constructed from non-erodible material. • Pumps shall be discharged in a manner that does not cause scour at their outlets. • Dirty water from within the work area shall be pumped out to a suitable sediment control device. • In the event of bad weather, temporary diversion dams shall be removed and all exposed areas that may be subject to inundation shall be stabilised with pinned cloth. • Where possible, surrounding vegetation shall be protected from disturbance as much as possible.		

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• If temporary structures are required, these should be prefabricated from non-erodible materials and removed after use. If a sub-contractor is doing this work, a written method statement must be agreed with Site Management prior to the work. This method statement must be reviewed by the person in the role of Dempsey Wood Environmental Manager, a Project Manager, or the Area Manager. The activity must be actively supervised by Dempsey Wood Site Management. This is not something you can leave and check at the end of the day.		
7.4	Bodies of Water, Streams, and Ponds	• Drowning • Damage to plant and machinery • Biological hazards associated with • Falling into Stream • Contaminants from Stream carried off site on plant and equipment	20 High	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site • Safe system of work e.g., JSA is established as applicable • Take 5 is carried out as applicable • Drain or divert water before work commences, if possible, in the first instance • Use of water pumps to control build up • Fence off work area to restrict access • Signage for deep water • Ensure plant entering area have ROP's fitted in case of tip over and maintain minimum approach distances as applicable • Anti-bacterial hand wash facility available • Inoculations against waterborne contaminants • Ensure plant and equipment used in stream is thoroughly washed before being taken off site • Emergency Response Plan in place including specific rescue equipment such as ropes, resuscitation, floatation devices as applicable	Ongoing	Low
7.5	Structures in and around waterways	• Structures in a water course can cause erosion and movement of the	12 Medium	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site • Safe system of work e.g., JSA is established as applicable	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		riverbed which can also increase sediment levels of the water course.				• Take 5 is carried out as applicable *Enquire whether a resource consent is required for the activity.* *Generally, if damming or diverting the waterway, a consent will be required from the Regional Council.* **The following minimum standards should be followed:** • Undertake the works in a window of dry weather. • Keep machinery out of the water way. Work from the riverbanks. • Ensure the works does not impede the natural river flow and potentially cause flooding on neighbouring properties. • Install erosion and sediment controls around the area you are working to minimise sediment discharge to the water way. • Ensure the structure is not going to change the flow of the current water way. i.e., bridge abutment marries into the riverbank and is not left sticking out of the bank • Emergency Response Plan in place including specific rescue equipment such as ropes, resuscitation, floatation devices as applicable		
7.7	Open Burning	Burning creates harmful gases such as dioxins - it can also get out of control easily, causing harm. Smoke can: • pollute the air • cause visual pollution • endanger peoples' health • damage	12 Medium	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site • Take 5 is carried out as applicable **Standards are:** • Burning is not permitted in urban areas. Dispose of materials from urban areas to approved landfills. • Vegetation should be mulched on site or taken to an approved green waste landfill. **If in a rural zone where burning is permitted the following principles should be followed:** • Contact your District Council and local fire department to obtain the appropriate permits.	Daily	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Do not under any circumstances burn chemicals or materials that can produce toxic gases, food waste, metals, plastic, rubber, treated timber, waste oil petroleum products.		
7.8	Dust, odour, and Mud, including silica dust	Dust and mud can: • contaminate drinking water supplies and/or swimming pools • settle in or on houses causing nuisance • impair traffic visibility • effect respiratory system • cause sediment discharge and associated environmental harm	12 Medium	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site Site management to carry out inspections and audits of standard environmental controls for mud, odours, and dust. **Standards to help minimise the effects of dust, odours, and mud as applicable from works include:** • Minimising exposed surfaces by only exposing surfaces to be actively earth worked and by stabilising completed areas. • By taking note of the wind direction and modifying work practices, or halting work in certain areas where dust or mud generation is excessive. • Mixing the soil with wetter layers below. • Using compactors and rollers to seal the surface and covering odorous materials. • Prevent access to areas where vehicles are generating dust or mud. • Using water carts to apply water to areas generating dust. Where possible water carts should have canons to apply water to trenches, stockpiles where a truck cannot drive. • Obtaining a water source before the works commence or harvesting runoff in sediment retention ponds. • Reducing the speed of earthmoving plant in localised areas if appropriate. • Covering or reducing loads moving within and from site. • Establishing a wheel wash facility and or carrying out road sweeping as applicable.	Daily	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Minimising the height from which excavated material is dropped into trucks etc. • Using sprinkler systems where appropriate in high use areas such as access points. • Ensuring sufficient resources are available to apply water to the site as required. • Develop a Dust Management Plan for the site.		
7.9	Dewatering	Environmental harm resulting from sediment discharge	12 Medium	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site • Take 5 is carried out as applicable **When dewatering, follow the minimum standards below:** • If the water is potentially contaminated or volumes are high, check whether a Resource Consent is required for the discharge. • If the only contaminant is sediment, discharge into the inlet of a sediment treatment device such as a sediment retention pond or decanting earth bund (DEB). Ensure the T-bars are raised to prevent discharge during pumping. • Silt fences or turkey nests can be used if the flows are not concentrated, and the discharge rate or volume is very low. • Sucker trucks can also be used if pumped volumes are expected to be low. • Use a float or equivalent to ensure the pump inlet is as close to the surface of the water column and does not suck sediment from the base of the pond or trench. • Have someone supervising the pumping to ensure the pump does not suck mud or suck dry or discharge high levels of sediment. • Ensure the pump outlet area is protected against erosion. Discharging onto polythene or cloth and rock is generally acceptable.	Daily	Medium

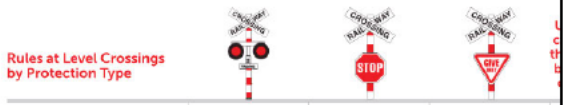
No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
7.10	Archaeology & Heritage	Regulatory non-compliance due to disturbance of archaeological features that are protected under the Heritage New Zealand Pouhere Taonga Act (2014).	15 High	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site **All known archaeological sites shall be protected by secure fencing with appropriate signage before works commence.** All on-site construction staff involved in earthworks should be culturally inducted and briefed regarding the possible presence of archaeological sites, the appearance of sites, and steps to be taken should a site be found. The Archaeological Emergency Response Procedure poster shall be clearly displayed within the site office. **The most likely type of feature to be found during earthworks is a midden of Māori origin.** • Middens are deposits of shell, bones, charcoal, stones, and other 'rubbish' materials. • Māori ovens (hangi) are generally circular, up to 4 metres in diameter, and filled with charcoal and stones, and possibly some bone. • Pre-1900 European rubbish pits are often square or rectangular, and are filled with bone, glass, ceramics, charcoal etc. • Lines of placed stonework, or regular rows of posts found when topsoil is stripped off may represent the archaeological remains of a building, or settlement. • Generally, if shells, charcoal, or bones (other than a cattle or sheep), glass or ceramic are found in a concentration, an archaeological site might be present. **Steps to Take** • If a suspected archaeological site is found, work in the area should stop immediately and Site Management notified. • The site should be fenced off at a 20 metre radius using waratahs and hi visibility mesh, to prevent further disturbance.	Daily and as required	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• The Site Manager shall inform the relevant parties of the discovery: ▪ The Client and Engineer; ▪ The NZ Police if the discovery is of human remains or koiwi; ▪ The project archaeologist ▪ The Council in all cases; ▪ Heritage New Zealand Pouhere Taonga; and, ▪ Mana whenua if the discovery is an archaeological site, Māori cultural artefact, or koiwi. • Appropriate responses should be received before further action is taken. In general, the project archaeologist will advise on appropriate action. This may involve archaeological excavation and recording of the site, followed by offsite analysis and report preparation. • Mana whenua shall be enabled to undertake tikanga Māori protocols to bless the site, acknowledge the whenua and protect the people working at the site, place rahui (whakatapu) or lift rahui (whakanoa).		
7.11	Excessive usage of water, electrical energy, and fuel	• Unnecessary emissions of carbon dioxide • Impact of sustainability	12 Medium	Yes	M	**The following are minimum requirements:** • Set up metrics for the usage of water, electrical energy, and fuels, monitor and report usage with the aim to identify improvements. • Where possible, connect to main electrical grid to reduce reliance on generators. • Harvest non-potable water for appropriate functions on site, e.g., hand and tool washing.	Daily	Low
7.12	Road Geometry – work in the proximity of intersection, on bends and limited	• Collision • Fatality • Serious Injury	20 High	Yes	M	• Construction warning / information signs erected around site boundary or walkways • Fencing is appropriate and secured around the site or walkways or work areas • An approved TMP is established to control traffic • As per CoPTTM	Daily while in operation	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
	sightline visibility							
7.13	Mud Tracking from Site	• Sediment discharge • Enforcement from the Regulator	16 High	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site • Stabilised entrance in accordance with GD05 to be installed at ingress and egress points to site. • Vehicles and machinery to keep to clean/stabilised surfaces to prevent muddying of tires, tracks, etc. • Wash wheels of vehicles prior to leaving site. • Ensure stormwater inlets below the exit point to the site are protected in accordance with GD05.	Daily	Low
7.14	Disturbance of Sensitive Ecology	• Damage to native flora and fauna. • Enforcement from the Regulator	12 Medium	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site **Trees:** • Ensure protected vegetation is securely fenced off with appropriate signage. No people, machinery, or materials to enter protected area. • Arborist to provide specialist input on branch and root pruning. • Handling of mulch and soil to comply with regulations to prevent the spread of weeds and plant diseases such as Myrtle Rust and Kauri Dieback. **Fish, Lizards, Bats, Birds, and Insects:** • Ensure appropriate specialist is engaged to undertake works related to their ecological field of expertise – e.g., ecologist, freshwater ecologist, herpetologist, ornithologist, etc. Commencement of works in affected areas shall only be undertaken once signoff from specialist is received.	Daily and as required	Low
7.15	Waste minimisation and segregation	• Unnecessary waste to landfill • Reputational harm • Impact of	12 Medium	No	M	Comply with requirements of Regulator, Consent Conditions, or commercial agreements at time of tender. • Implement Waste Management Plan on site.	Before and during operation	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
		sustainability				• Ensure waste partitioning is carried out on site to maximise recycling and diversion from landfill.		
7.17	Regulatory Non-Compliance	• Environmental harm leading to non-compliance. • Time delays and cost to project. • Reputational harm	12 Medium	Yes	M	Comply with the Consent Conditions – Consent Conditions are readily available on site • Audits of environmental controls are undertaken in accordance with schedule. • An assessment of compliance with consent conditions is undertaken before the project, and at minimum 6-monthly intervals during project.	Before and during operation	Low
I.	**WEATHER**							
8.1	Sun	• Heat stroke • Sun burn • Skin cancer	16 High	Yes	M	• Take 5 is carried out as applicable • Provide drinking water – readily available on site • Provide appropriate buildings to shelter from sun during breaks • Provide hats, sunglasses, and sunscreen (block) • Provide education on sun safety	As and when required	Low
8.2	Rain Adverse Weather Fog	• Slips, trips, and falls • Hypothermia • Flu • Reduced visibility on site • Reduced visibility exiting site	16 High	Yes	M	• Take 5 is carried out as applicable • PPE, wet weather gear, high visibility vest or jackets available and used • Work is stopped if weather conditions deteriorate to a point additional hazard – risks are being created • Keep dry and warm during cold wet weather condition • If visibility is <300m on an 80+kph zone, vehicle work is stopped as per COPTTM • If visibility is <200m on a <80kph zone, vehicle work is stopped as per COPTTM	As and when required	Low
8.3	Temperature extremes – hot and cold	• Hypothermia (cold) – drop in body temperature • Hyperthermia (heat) rise in body temperature	15 High	Yes	M	Take 5 is carried out as applicable **The following are guidelines:** **Cold Conditions** • Minimise cold temperature exposure with enough warm, dry clothing for protection • Keep hands dry and warm to ensure feel and touch (dexterity)	Daily	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Minimise time spent in cold conditions **Hot Conditions** • Drink plenty of fluids - minimise intake of coffee, sugary drinks • Stay cool with loosely fitted clothing – stay in shaded areas wherever possible • Avoid wearing bulky or heavy clothing or non-breathable clothing • Minimise time spent in heat Conditions		
9	**Night Works**							
9.1	Insufficient Lighting	• Traffic collisions • Plant and Property damage • Personal Injury	15 High	Yes	M	• The lighting levels provided must be suitable to ensure worker and traffic areas are suitability lit. • Tower lights to be set up so the light beam shines downwards to avoid any nuisance to other stakeholders / properties. • Light Towers erected on firm / level ground. • Maintenance work to be completed by a competent person. • All the electrical lighting fixtures equipment will be inspected periodically to ensure safe use. • Traffic controller / spotter will be assigned for all vehicle movements	Daily	Low
10	**Rail**							
10.1	Railway Level Crossings	• Being struck by train • Injury • Damage	20 High	Yes	M	• KiwiRail Induction completed • Obey the warning signs and look carefully in both directions for trains • Listen, be aware and pay careful attention to your surroundings • Always ensure there is space on the other side of the crossing for your vehicle • When approaching a level crossing where lights and bells are operating, or barrier arms are lowered or have started to come down, you must: – stop your car – wait for the train to pass	As required	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						– wait for the lights to stop flashing and the barrier arms to lift before entering the crossing • When approaching a level crossing where lights and bells are operating, or barrier arms are lowered or have started to come down, you must: – stop your car – wait for the train to pass – wait for the lights to stop flashing and the barrier arms to lift before entering the crossing		
						 Heavy vehicles: STOP / STOP / GIVE WAY School buses: STOP / STOP / STOP Vehicles carrying class 1, 2.1 or 3 dangerous goods: STOP / STOP / STOP Large passenger service vehicles (more than 12 passengers): STOP / STOP / STOP		
						Stacking distances • It is important to have a good understanding of the length of your vehicle to understand how much room there is for your vehicle on the other side of the crossing. • Never enter a level crossing if you are unsure whether there is enough space on the other side. Always err on the side of caution. Many collisions occur because the back of the vehicle is left hanging on the tracks	As required	Low
10.2	Pedestrians	• Being struck by train • Injury • Damage	20 High	Yes	M	• Only ever cross the railway at a formed pedestrian crossing or at a designated overpass or underpass • It is illegal to cross the railway tracks at any point other than an official pedestrian crossing.	Daily	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• Keep to the path and always stop, look, and listen for trains • Remember to: – obey the warning signs at the crossing – look for trains both ways up and down the tracks – only cross if you are sure there are no trains in sight – if lights are flashing or bells ringing, this means a train is approaching – if there is a pedestrian swing gate, wait until the gate opens fully before entering the crossing • Not all pedestrian crossings have lights and bells. – At crossings with only signs it is important to always stop and look both ways for trains. Wait until the train has passed, and check again both ways before crossing the tracks		
10.3	Overhead Wires	• Electrocution • Fatality • Burns • Damage	20 High	Yes	M	• KiwiRail Induction completed • KiwiRail Electrical Awareness Training completed • The wires in Auckland and the Central North Island carry 25,000 volts AC and Wellington carry 1,500 volts DC • Always stay clear of electric wires, never touch them, or throw objects at them • The electricity can "jump" or pass through objects and you can be electrocuted without even directly touching the overhead wires **Over height loads** • Be extremely careful when you are around overhead wires with high vehicles, or any tall object such as ladders, poles, or masts • Level crossings have a height restriction and vehicles which exceed that height must not cross the level crossing • In any emergency around overhead wires, **call 0800 808 400**	As required	Medium

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						Some parts of the rail corridor are electrified. These areas have traction overhead wires. If you wish to work within four metres of an electrified area including traction poles, overhead wires, substations, or switchgear equipment you will need an Electrical Safety Permit or Permit to Work Near Railway Power Lines. Training in Electrification Awareness may also be required.		
10.4	Platforms and Stations	• Electrocution • Fatality • Burns • Damage	20 High	Yes	M	• Always expect a train on a platform and stand at least 1.5 metres away from the platform edge • Fast trains can create a vacuum called a 'back draft' that can blow you over or suck you under a train. Under no circumstances should you ever sit on the edge of a platform	As required	Low
						Platform Safety • Train stations and platforms can pose safety risks if you do not follow some simple safety guidelines. • Always stand well behind the yellow line on the platform and do not walk over the line until the train has come to a complete stop. • Be careful of the gap between the platform and the train – and take particular care to step well clear of the gap as you board the train. • All platforms are different, and the size of the gap may vary from station to station. Let passengers who are disembarking clear the area completely before boarding the train		
						Anything with wheels has the potential to be dangerous on a train platform: • Never use skateboards, scooters, or bikes on a train platform, and always turn wheels so they are at right angles to the tracks. • Always walk and don't run on a train platform, to avoid tripping and potentially falling onto the tracks. • If you drop anything onto the rail tracks, you should leave it and request assistance from station staff. If		

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						no station staff are available, phone the railway emergency help line on 0800 800 400		
						Boarding a train • Never board a train once the whistle has blown and the doors have started closing. Train doors are not like an elevator and will not respond to a sensor. Your arm or body may get caught in the doors and you could be dragged under the train		
						Arriving and leaving a station • There are crossings in New Zealand where the pedestrian level crossing is further down from the station. • If a train is sitting and not moving at the platform, and the level crossing alarms are operating, you MUST not cross the level crossing to get your train on time • When arriving or leaving a station, always use the designated pedestrian areas at railway stations and never walk across the tracks. Obey the signs and only cross at legal entry and exit points		
10.5	Electric Trains	• Electrocution • Fatality • Burns • Damage	20 High	Yes	M	**Safety around Electric Trains** • Electric trains are faster and quieter than diesel-powered trains. • The best way to stay safe around electric trains is to remain focused at all times. Look for trains in both directions before crossing the tracks and always wait for the bells and lights to stop before crossing the tracks	As required	Low
						Overhead wires • KiwiRail Induction completed • KiwiRail Electrical Awareness Training completed • Electric trains are powered by overhead wires which also has safety implications.		

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						• These wires carry electrical energy 100 times more powerful than what is used in homes, and the electricity can jump or arc across the air. This means that people need to stay clear of these wires at all times, and never let anything such as kites or balloons come into contact with them		
10.6	Rail Corridor Access	• Being struck by train • Injury • Damage	20 High	Yes	M	• KiwiRail Induction completed • KiwiRail Electrical Awareness Training completed • Cat 3 Medical completed **OBTAIN A PERMIT TO ENTER** • To ensure people working within the rail corridor are kept safe, you must have a valid permit to be on the rail corridor • When you apply for a permit to enter rail land, we'll work with you to find out what conditions the permit needs to keep you safe. It will depend on: • what you want to do on rail land • how close to rail lines or structures you will be • how close you need to be to electric systems and the tracks • when you need to do the work. Getting permission also involves signing an indemnity form and depending on the nature of the request for access, we may require you to enter into a formal agreement with us recording the specific terms upon which access is provided. Sometimes you'll need more than one permit to do your work. For example, if you are working in an area with electrical overhead wires, you will also need an Electrical Safety Permit or Permit to Work Near Railway Power Lines ELECTRICAL SAFETY PERMIT OR PERMIT TO WORK NEAR RAILWAY POWER LINES You must have KiwiRail approval before you can enter the rail corridor.	As required	Low

No.	Hazard / Aspect	Consequence / Impact	Inherent Risk Score & Risk Rating	Significant Yes/No	Controls E.M	Actions/Controls (elimination, isolation and minimisation)	Monitor schedule	Residual Risk Score & Risk Rating
						In electrified rail areas with traction overhead wires, you also need an Electrical Safety Permit or Permit to Work Near Railway Power Lines if you are working within four metres of an electrified area including traction poles, overhead wires, substations, or switchgear equipment. Training in Electrification Safety Awareness may also be required. Applications MUST be received at least two weeks prior to your proposed access.		

Risk Matrix

Risk		Consequence				
		Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
(Injury - illness criteria) »		Not likely to cause injury - harm	First Aid	Medical Treatment Restricted Duties	Lost Time Injury	Permanent Disability Fatality
(Environmental criteria) »		Nuisance, no clean up. Aesthetic impact only	Minor clean up, minimal impact	Major clean up, reversible effects, Site works disruption. Legal breach	Serious local ecosystem damage, reversible effects. Legal breach	Extensive and irreversible effects. Legal breach
Likelihood	**Almost Impossible**	L	L	L	L	L
	Not likely to Occur	L	L	L	M	M
	Could Occur	L	L	M	M	H
	Known to Occur	L	M	M	H	H
	Common Occurrence	L	M	H	H	H

RISK RATING

Risk Rating	Pattern	Action (control)
Low	L	Risk can be monitored or accepted
Medium	M	Risk should be reduced at reasonable cost, reduce risk as low as reasonably possible
High	H	Immediate action required reducing risk (significant). Activity shall not proceed

Note: Where required the risk analysis process above is encapsulated within the job safety analysis (JSA).

6 Hazardous Substance Register

Substance, chemical, solvent, resin, acid powder	Hazard potential and who else may be harmed	Please state how hazardous substances will be handled and stored safely	Please state the required personal protective equipment and clothing	Potential Harm	Location	Approx. Quantities
Oil	Skin / Eyes	Direct from container into plant - kept secure	Wash hands Hand protection Eye protection	Irritant if inhaled, contact with skin and eyes. Irritation, nausea and vomiting if ingested	Drip Tray in Site Container	Litres
Grease	Skin / Eyes	Direct from container into plant - kept secure	Wash hands Hand protection Eye protection	Combustible material. Eye, skin, and inhalation irritant.	Segregated in Site Container	Kilograms
Cement	Skin / Eyes / Lungs	From bag, mixed & applied - kept secure	Wash hands Hand protection Respiratory protection Eye protection	Respiratory and skin irritation. Serious eye damage. Harmful to aquatic life.	Site Container	Kilograms
Epoxy UN 3082	Skin / Eyes	Store in tightly sealed containers to prevent moisture absorption and loss of volatiles	Wash hands Hand protection Eye protection	Irritant if ingested or inhaled. Irritant to eyes. Skin dermatitis with prolonged or repeat contact	Segregated in Site Container	Kilograms
Petrol UN1203	Skin/Eyes	Store in a cool place in a sealed container Direct from container into plant	Wash hands Hand protection Eye protection Ventilated area	Extremely flammable. Irritation to skin. Harmful if inhaled. Aspiration if swallowed. Possible carcinogen.	Drip Tray in Site Container	Litres
Diesel UN3082	Skin / Eyes	Store in a cool place in a sealed container Direct from container into plant	Wash hands Hand protection Eye protection Ventilated area	Extremely flammable. Irritation to skin. Harmful if inhaled Aspiration if swallowed	Drip Tray in Site Container	Litres
2 Stroke UN1203	Skin / Eyes	Store in a cool place in a sealed container Direct from container into plant	Wash hands Hand protection Eye protection	Heating may cause fire. Irritant to skin and eyes. May cause cancer if inhaled.	Drip Tray in Site Container	

			Ventilated area	May cause damage to organs. Harmful to aquatic life.		Litres
Polyaluminium Chloride (PAC)	Skin / Eyes	Containers should be stainless steel / plastic	Wash hands Hand protection Eye protection	Irritant to skin and eyes.	Drip Tray in Site Container	Litres
Marking Spray	Skin / Eyes	Store in a cool, dry, well-ventilated place and out of direct sunlight. Store away from sources of heat and/or ignition.	Wash hands Hand protection Eye protection	Irritant to skin and eyes if inhalation or ingestion. Highly flammable	Segregated from flammables in Site Container	Kilograms
SDS declaration: We acknowledge the requirement of retaining technical information relating to all the hazardous substances listed above and the health risks, information, instruction, and training to use protective equipment have been conveyed to project persons as listed within the Training Register.						
Project Manager		PM1		**Signature**		

7 Large Plant Competency Assessment Criteria

Large Plant Competency Assessment Criteria								
Rating	**Prequisite**	**Site Supervision**	**Topography Limitation**	**Stockpile Height Limitation**	**Excavation Depth Limitation**	**Dig Permit Zone**	**Plant Interaction**	**Edge Limit**
C1	Safety Induction on Plant. Fleet Induction on item of Plant.	Individual must operate under **Direct Supervision**.	**Flat Only**	**Cannot operate on a stockpile.**	**0m - 0.5m**	**Green Zone only**	**No tasks involving interaction with other items of plant.**	**Stay 1m away from edge/ kerb.**
C1 Graduation into C2	***Experience, task based assessment.***							
C2		Individual can operate under **In-direct Supervision**.	Can only operate on terrain with **< 3:1 slope**	Can Operate on a stockpile **up to 3m**	**0.51m - 3m**	**Can Operate in Red Zone**	**Work within a group**	**Stay 0.50m away from edge/ kerb.**
C2 Graduation into C3	***Experience and tasks identified and tracked, performance and productivity assessed.***							
C3		Individual can operate under **Minimal Supervision**	**No limitation**	**No limitation**	**No limitation**	**No Limitation**	**Potential to lead group or task**	**No Limitation**
C3 Graduation into C4	***Combination of theory, practical and performance based assessment.***							
C4		**Individual can mentor/ Coach others.**	**Individual can mentor/ Coach others.**	**Individual can mentor/ Coach others.**	**Individual can mentor/ Coach others.**	**Individual can mentor/ Coach others.**	**Individual can mentor/ Coach others.**	**Individual can mentor/ Coach others.**

8 Emergency Response Plans

Emergency Co-ordinator: **PM1**

Alarm:

1. Sounding of air horn held in site office or use of telephones.
2. Vehicle horns (blown continuously on and off) by person closest to accident/emergency.
3. Emergency coordinator to delegate personnel to meet emergency service and direct to incident scene.
4. All clear to be given by emergency coordinator.

Note – any person can initiate an emergency if they assess and determine the situation requires it.

- On hearing the alarm all personnel must move to their designated assembly point by the most direct safe route.
- Before leaving the immediate work area, ensure all plant, machinery or equipment is made safe.
- Warn all persons you pass.
- Report to Emergency Coordinator on arrival at the assembly point – a roll call will be carried out using the site access register and timesheets.
- All instructions will be given by the Emergency Coordinator – post response review is carried out.
- If away from your normal work area report to the nearest assembly point and report into Coordinator.

As applicable follow the applicable event below:

Fire or On-Site Vehicle Accident	Trench Collapse	Cable, Gas or Water Main Strike	Dangerous Good Spill

• Assist with any first aid requirements delegated by Emergency Coordinator.
• Use fire extinguishers to put out fire if it is safe to do so.
• Ensure plant or machinery is shut down or switched off.
• Notify emergency services if required.
 	
Note: the above process should be applied for serious injuries where emergency medical assistance is required.
	• Time is of the essence if the person is buried, therefore locate injured or trapped person by immediately:
	  • Using the excavator or quickest means possible dig down next to and outside of the existing trench; and
	  • alongside where the person is; and
	  • then from the newly excavated trench dig by hand inwards towards the vicinity of the person.
	• A spotter must be used when excavating trapped or injured persons.
	• Notify emergency services as soon as possible.
	• Emergency Coordinator must be notified.
	• If appropriate batters, benching or a shield must be used to shore trench faces before entering.
		• Shut down all plants and machinery immediately.
		• If a gas main, evacuate the area immediately upwind by at least 30m.
		• If a gas main rupture review evacuation point to determine if safe and up wind of leak.
		• Isolate and segregate immediate area around incident site to form a containment zone.
		• Notify Service Provider of incident to have services switched off/shut down and to initiate their response plans.
		• Switch off gas or water mains if able.
		• Do not attempt a rescue until the site is made safe and power, water or gas is switched off.
		• Notify affected persons/residents/businesses in the immediate area.
			• Shut down all plants and machinery immediately.
			• If a Spill near designated evacuation point. Emergency Coordinator to select an alternative evacuation point and ensure up wind of spill.
			• Isolate and segregate immediate area around incident site to form a containment zone.
			• Complete scene assessment and if safe utilise spill kit content to contain spill.
			• Once spill is contained commence clean-up process, Emergency Coordinator to ensure safe methodology is established for clean-up and disposal of contaminated materials.
			• Notify the authorities e.g., councils as applicable.

First Aid to injured:	Project Manager/Foreman or certified staff designated
First Aid kits:	Located in company vehicles and site office
Fire extinguisher:	Site Office
Evacuation assembly point:	Site Office
Nearest Company Doctor:	Westgate Medical Centre (DW Company Nominated Doctor) 13E Maki Street Westgate Shopping Centre Massey Auckland Telephone (09) 833-3134
Project:	Rangitoopuni Development
Site Address:	Lots 1 and 2 DP 590677, Riverhead, Auckland
Contact Details:	[redacted]
Project Manager:	PM1 PMNo
First Aiders:	Identified by **GREEN** hard hats

Notification of Emergency Services:

1.	Police, Ambulance and Fire Service	111
2.	Gas leak. Call the Fire department	111 and Vector 0508 832 867
3.	Damage to power cable. Call Vector	0508 832 867
4.	Damage to Telecom. Call telecom	124
5.	KiwiRail Ontrack Emergency	0800 808 400
6.	Auckland Council	(09) 301 0101
7.	Auckland Council	24-Hour Pollution Hotline - (09) 377 3107
8.	Watercare Services	(09) 442 2222 (Faults and emergencies)

9 Emergency Response Medical Service – DW Nominated Doctor

Westgate Medical Centre (DW Doctor)

13E Maki Street, Westgate

Contact number: (09) 833 3134

Mon - Sun	8am to 8pm

15 min (9.1 km)

via Fred Taylor Dr/Rte 23 and Coatesville Riverhead Hwy/Rte 28

Fastest route, despite the usual traffic

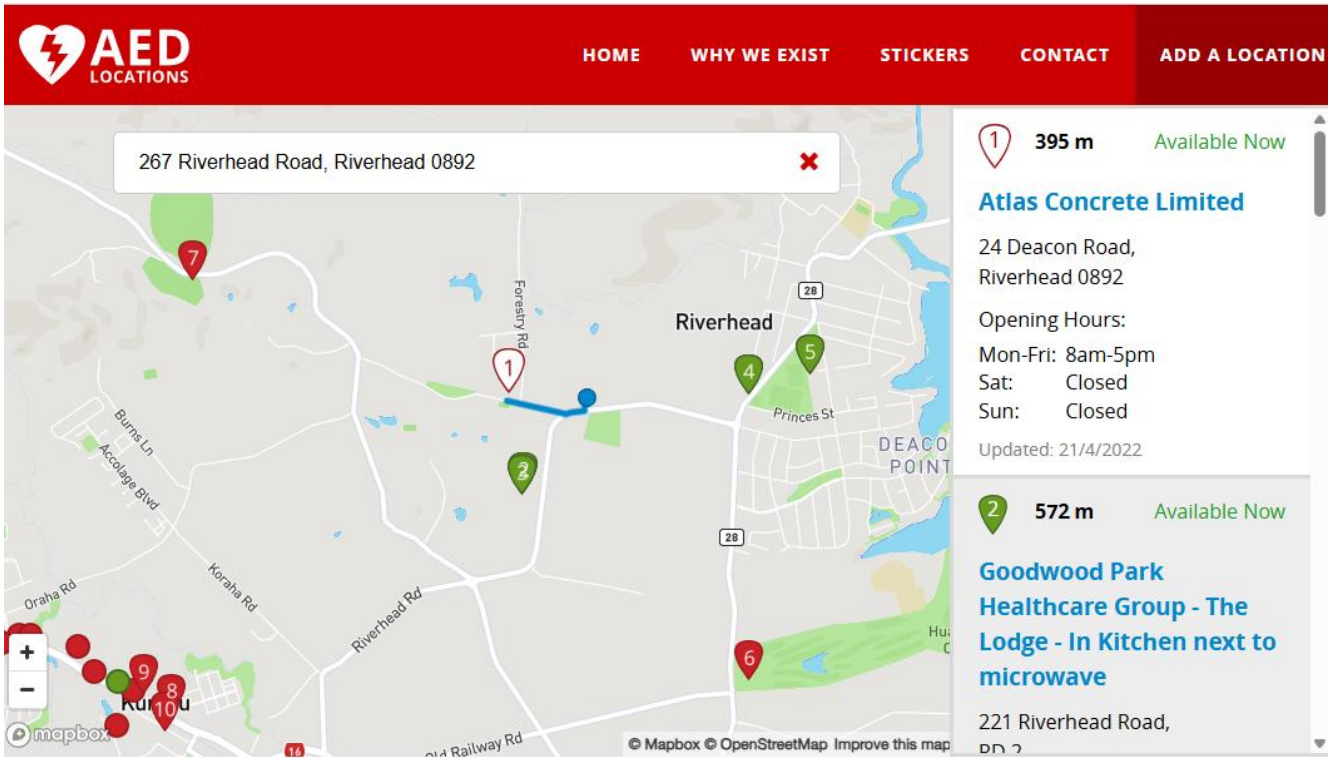
Westgate Shopping Centre
13E Maki Street, Massey, Auckland 0614

- Take Maki St/Westgate Access Rd to Fred Taylor Dr/Rte 32
  2 min (350 m)
- Continue on Fred Taylor Dr. Drive to Coatesville Riverhead Hwy/Rte 28 in Riverhead
  11 min (8.8 km)

Riverhead

10 Emergency Response Medical Service – AED Locations to Site

The Nearest Automated External Defibrillator (AED) is located as shown below



11 Resource Consents

12 Work Breakdown Structure

No.	Work Breakdown Structure				Comment
	Stage/SP	Activity	Location/Area	Code	
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					

13 Inspection and Test Plan

No.	Doc No.	Title	Status
1.	DW-QL-ITP-001	Earthworks – Topsoil Stripping and Cut	
2.	DW-QL-ITP-002	Earthworks – Fill	
3.	DW-QL-ITP-003	Earthworks – Subsoil Drain	
4.	DW-QL-ITP-004	Earthworks – Shear Key Drain	
5.	DW-QL-ITP-005	Earthworks – Gully Drain	
6.	DW-QL-ITP-006	Earthworks – Counterfort Drain	
7.	DW-QL-ITP-007	Drainage – Stormwater	
8.	DW-QL-ITP-008	Drainage – Wastewater	
9.	DW-QL-ITP-009	Drainage – Pump Station	
10.	DW-QL-ITP-010	Roading – All layers	
11.	DW-QL-ITP-011	Roading – Intersections All Layers	
12.	DW-QL-ITP-012	Roading – Underchannel Drain	
13.	DW-QL-ITP-013	Roading – Subgrade	
14.	DW-QL-ITP-014	Roading – Subgrade Improvement Layer	
15.	DW-QL-ITP-015	Roading – Subbase	
16.	DW-QL-ITP-016	Roading – Basecourse	
17.	DW-QL-ITP-017	Roading – Cement Modified Basecourse	
18.	DW-QL-ITP-018	Roading – Foamed Bitumen Basecourse	
19.	DW-QL-ITP-019	Roading – Chipseal	
20.	DW-QL-ITP-020	Roading – Asphalt	
21.	DW-QL-ITP-021	Streetlights	
22.	DW-QL-ITP-022	Marking, Signages and Signals	
23.	DW-QL-ITP-023	Utilities – Watermain	
24.	DW-QL-ITP-024	Utilities – Power, Telecom and Gas	
25.	DW-QL-ITP-025	Kerb and Channel	
26.	DW-QL-ITP-026	Footpath, Pram or Vehicle Crossing, Parking Bay	
27.	DW-QL-ITP-027	Hard Landscaping - Stream Work	
28.	DW-QL-ITP-028	Soft Landscaping - Planting	
29.	DW-QL-ITP-029	Concrete Works – Cast in-situ	
30.	DW-QL-ITP-030	Concrete Works – Precast	
31.	DW-QL-ITP-031	Steel Works – Reinforcing	
32.	DW-QL-ITP-032	Steel Works – Structural	
33.	DW-QL-ITP-033	Retaining Wall – Timber Pole	
34.	DW-QL-ITP-034	Retaining Wall – Palisade	

35.	DW-QL-ITP-035	Retaining Wall – Steel Post	
36.	DW-QL-ITP-036	Retaining Wall – MSE Wall	
37.	DW-QL-ITP-037	Retaining Wall – Segmental Block	
38.	DW-QL-ITP-038	Retaining Wall – Precast Panel	
39.	DW-QL-ITP-039	Retaining Wall – Stonestrong	
40.	DW-QL-ITP-040	Retaining Wall – Gabions	
41.	DW-QL-ITP-041	Retaining Wall – Terramesh	
42.	DW-QL-ITP-042	Retaining Wall – Piling and Anchoring	
43.	DW-QL-ITP-043	Riprap Works	
44.	DW-QL-ITP-044	Pile Foundation Works	
45.	DW-QL-ITP-045	Rock Bolt Works	
46.	DW-QL-ITP-046	Soil Nailing Works	
47.	DW-QL-ITP-047	Underpass	
48.	DW-QL-ITP-048	Boardwalk	
49.	DW-QL-ITP-049	Bridge Finishes	
50.	DW-QL-ITP-050	Cantilevered Path	
51.	DW-QL-ITP-051	Culverts	

14 Construction Checklists

No.	Doc No.	Title	Status
1.	DW-QL-CHK-001	Topsoil Stripping and Excavation	
2.	DW-QL-CHK-002	Fill – Subgrade	
3.	DW-QL-CHK-003	Fill – Cohesive	
4.	DW-QL-CHK-004	Fill – Non-cohesive	
5.	DW-QL-CHK-005	Fill – Engineered	
6.		Landscaping	
7.		Earthworks – Subsoil Drain	
8.		Earthworks – Shear Key	
9.		Earthworks – Gully Drain	
10.		Earthworks – Sand Blanket	
11.		Earthworks – Leachate Drain	
12.		Earthworks – Counterfort Drain	
13.		Stormwater – Manhole and Pipeline	
14.		Stormwater – Drilled Pipeline	
15.		Stormwater – Raingarden	
16.		Stormwater – Overflow Manhole	
17.		Wastewater – Manhole and Pipeline	
18.		Wastewater – Drilled Pipeline	
19.		Wastewater – Pump Station	
20.		Manhole and Catchpit Completion	
21.		Roading – Underchannel Drains	
22.		Roading – Subgrade	
23.		Roading – Subbase	
24.		Roading – Basecourse	
25.		Roading – Chipsealing	
26.		Roading – Asphalt	
27.		Roading – Concrete	
28.		Streetlights	
29.		Road Marking	
30.		Road Signage	
31.		Road Signal	
32.		PE Butt Weld	
33.		Utilities – Service Ducts	
34.		Utilities – Common Service Trench	

35.		Utilities – Watermain	
36.		Utilities – Power, Telecom and Gas	
37.		Kerb and Channels	
38.		Footpath, Pram or Vehicle Crossing, Parking Bay	
39.		Concrete Works – Cast in-situ	
40.		Concrete Works – Precast	
41.		Retaining Wall – Timber Pole	
42.		Retaining Wall – Palisade	
43.		Retaining Wall – Steel Post	
44.		Retaining wall – MSE	
45.		Retaining Wall – Segmental Block	
46.		Retaining Wall – Precast Panel	
47.		Retaining Wall – Stonestrong	
48.		Retaining Wall – Gabions	
49.		Retaining Wall – Terramesh	
50.		Retaining Wall – Piling and Anchoring	
51.		Arch Culvert	
52.		Concrete Collar	
53.		Guard Rail	
54.		Fencing	

15 Test Record Sheets

No.		Test Record Sheet Title
1.	DW-QL-TRS-001	Stringing
2.	DW-QL-TRS-002	Straight Edge
3.	DW-QL-TRS-003	Shear Vane
4.	DW-QL-TRS-004	Scala Penetrometer
5.	DW-QL-TRS-005	Clegg Hammer
6.	DW-QL-TRS-006	Pressure
7.	DW-QL-TRS-007	Pile
8.	DW-QL-TRS-008	Bolt Torque