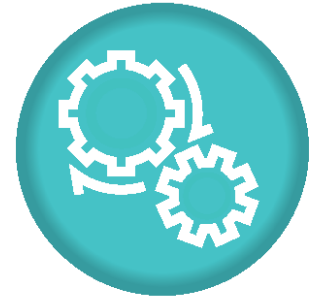


Harania – Tennessee Bridge

Draft Construction Environmental Management Plan (CEMP)

October 2024



Document Details

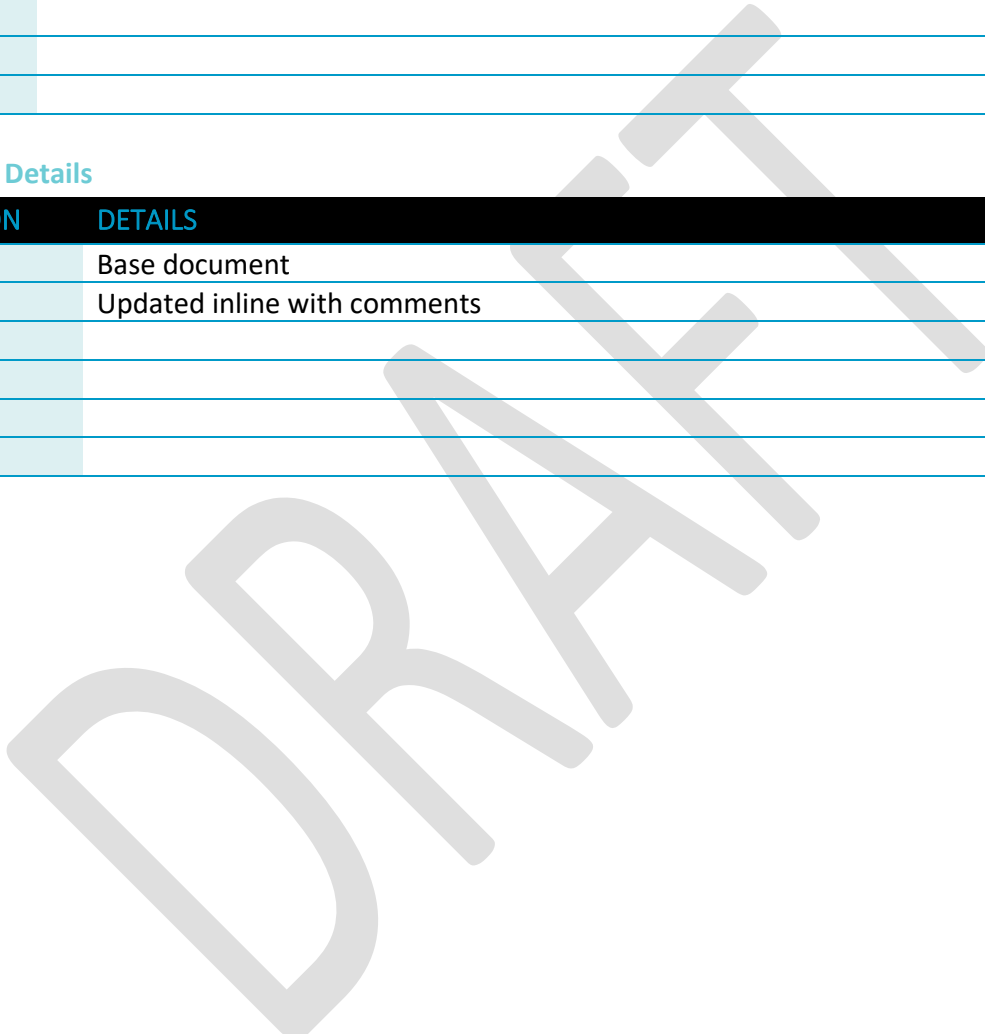
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1 Introduction

1.1 Document Purpose and Scope

Fulton Hogan have been engaged by Auckland Council (the Consent Holder) to prepare a preliminary Construction Environmental Management Plan (CEMP) for the proposed upgrade of the existing Tennessee Avenue embankment dam, being the Tennessee Bridge project (the Project). This draft CEMP has been prepared to support the Resource Consent application for the construction activities for “the Project”. This draft CEMP has been prepared to set out a pathway for the development of the Final CEMP prior to the commencement of the proposed construction works.

The purpose of the CEMP is to set out the practices and procedures to be adopted to ensure compliance with the conditions of the consent and to outline all measures to avoid, remedy, or mitigate potential adverse effects associated with the proposed flood resilience works.

N.B. This document should be considered as a working draft and will be updated to reflect the “conditions of consent” once issued.

The scope of the CEMP is to:

- » Set out the management procedures and construction methods associated with the works involved for the Project
- » Identify the compliance requirements for the Project
- » Set out a framework for management of the environmental effects identified from construction works
- » Enable compliance with all environmental legislation, including the designation, and resource consent conditions
- » Cover the requirement of a Construction Environmental Management Plan as per Auckland Council’s Guideline for preparing a construction environmental management plan.

1.2 Background

The Harania catchment was one of the worst affect areas of Auckland following the January 2023 floods. Healthy Waters identified significant flooding, causing risk to life, and widespread flood damage to approximately 60 homes, which occurred due to poor flood conveyance at the locations of the current Tennessee Avenue and Blake Road embankment dams. The hydraulic capacity of the dam embankments is undersized, and they are also submerged below the watercourse beds causing elevated floodwaters on their upstream sides.

The embankments at the Harania catchment were formed to construct the Eastern Interceptor Sewer in 1964. The sewer consists of a 2.5 m diameter semi-elliptical concrete wastewater pipeline that follows a 19 km path across Auckland, from Ōkahu Bay to the Māngere Wastewater Treatment Plant. The creek flows through concrete culvert pipes placed underneath the sewer.

The observed flood extent from the January 2023 flood event is shown on the left-hand side of Figure 1-1. The figure also shows the number of property parcels where buildings have been identified as having an intolerable risk to life, habitable floor flooding and flooding of property. The proposed flood resilience works will remove all of the flood risk from these properties shown on the right-hand side in Figure 1-1 and outlined in **Error! Reference source not found..**

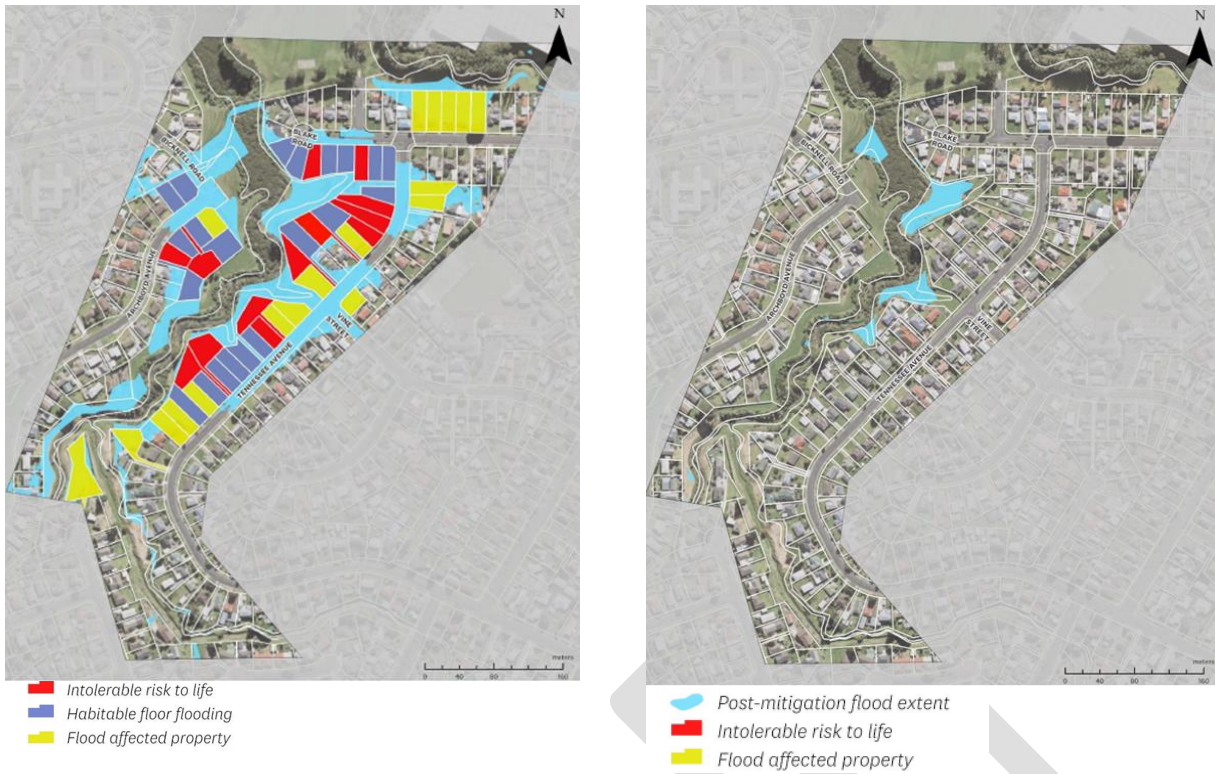


Figure 1-1: Estimated flood extent January 2023 and flood risk to properties (left), estimated flood extent post works (right) (Source: Healthy Waters, 2024)

In addition to causing upstream risk to life due to the limited capacity of the outlet culverts, there is potential for a dam breach-induced structural failure of the Eastern Interceptor during flood conditions (i.e. high upstream water levels). A failure at this location could result in ground slumping and sinkhole formation which would be large enough for people to fall into, creating an immediate safety risk. There could also be significant discharge of raw wastewater into the inner Manukau Harbour, causing extensive environmental damage. Additionally, this would cause widespread public health implications as raw wastewater would back up in the Eastern and Southern Interceptors, causing overflows into private property along their lengths. There are around 10 low-lying locations within 4 km of the area that could overflow under these conditions, eight of which are in private property.

1.3 Project Description

This Project also takes into consideration interactions with Auckland Council (AC) and key stakeholders such as Mana Whenua and Watercare.

The Environmental Manager will review updates to this plan collaboratively prior to the commencement of the Project construction period.

The key Project parameters are as per Table 1 below:

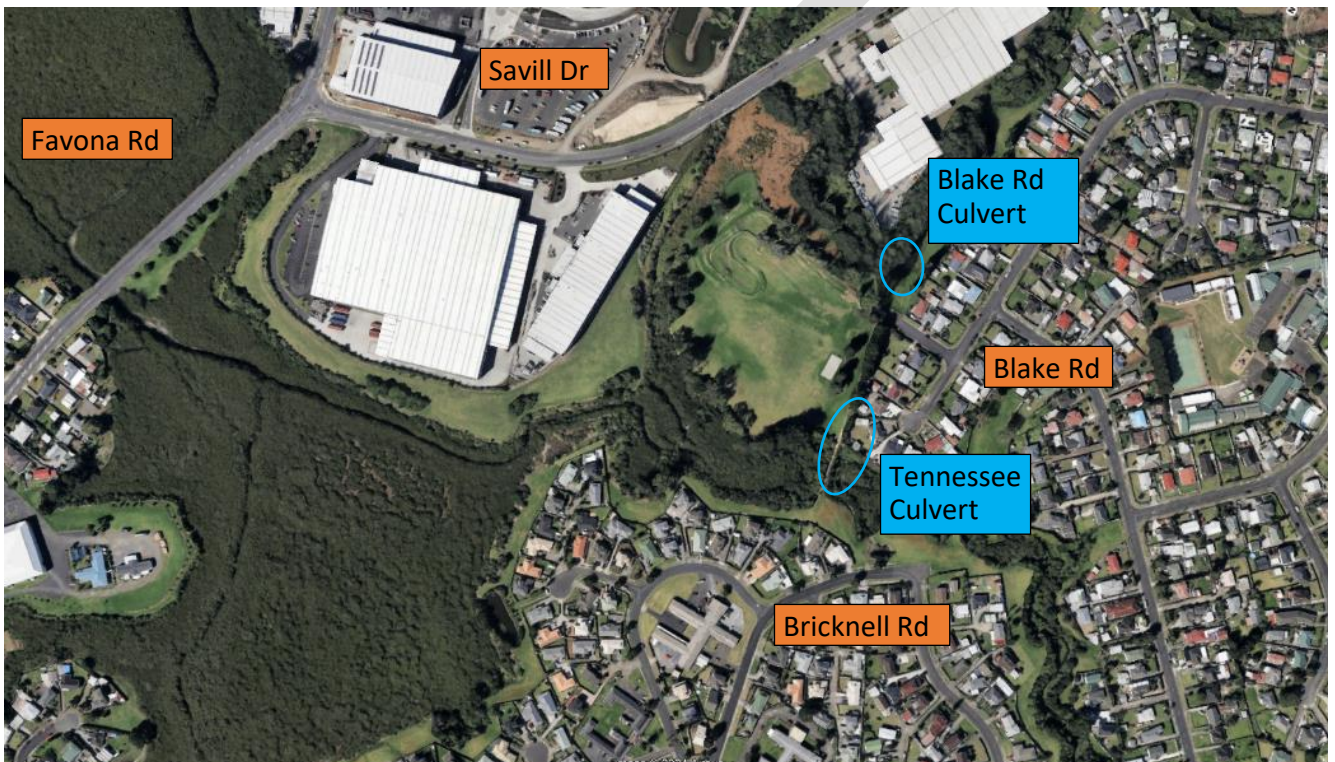
Table 1 - Project Parameters

ITEM	DETAIL
Project Name	Tennessee Bridge
Nature of the Project Works	Pipe Bridge to divert the Eastern Interceptor over a pipe bridge to allow the existing embankment and sewer line to be removed.

Catchment Clarification	Harania Catchment
Works Commencement	Early 2025
Project End Date	Mid 2026
Consultant	Tonkin and Taylor and ach consulting
Auckland Council Project Manager	Leighton Gillespie

1.4 Location

The extent of the Harania Catchment Project can be in Figure 1 below.



The construction phasing for these works can be seen in Figure 2 below. Note that the below plan is subject to change and will be confirmed at a later time.

1.5 Schedule of Construction Activities

1.5.1 Indicative staging of works

Description	Start	Finish	Duration
Site Establishment	25 Feb 25	17 Mar 25	3 weeks
Site Clearance / Erosion & Sediment Control	11 Mar 25	29 Apr 25	6.5 weeks
Access Staging	30 Apr 25	10 Jul 25	10 weeks
Pipe Bridge - Piling	14 May 25	13 Aug 25	13 weeks
Pipe Bridge – Piers	21 Jul 25	03 Nov 25	15 weeks
Pipe Bridge - Superstructure	19 Aug 25	17 Jun 26	40 weeks
Tie In Chambers	29 Sep 25	25 May 26	31 weeks

Remove existing Embankment / landscaping	26 May 26	08 Jul 26	6 weeks
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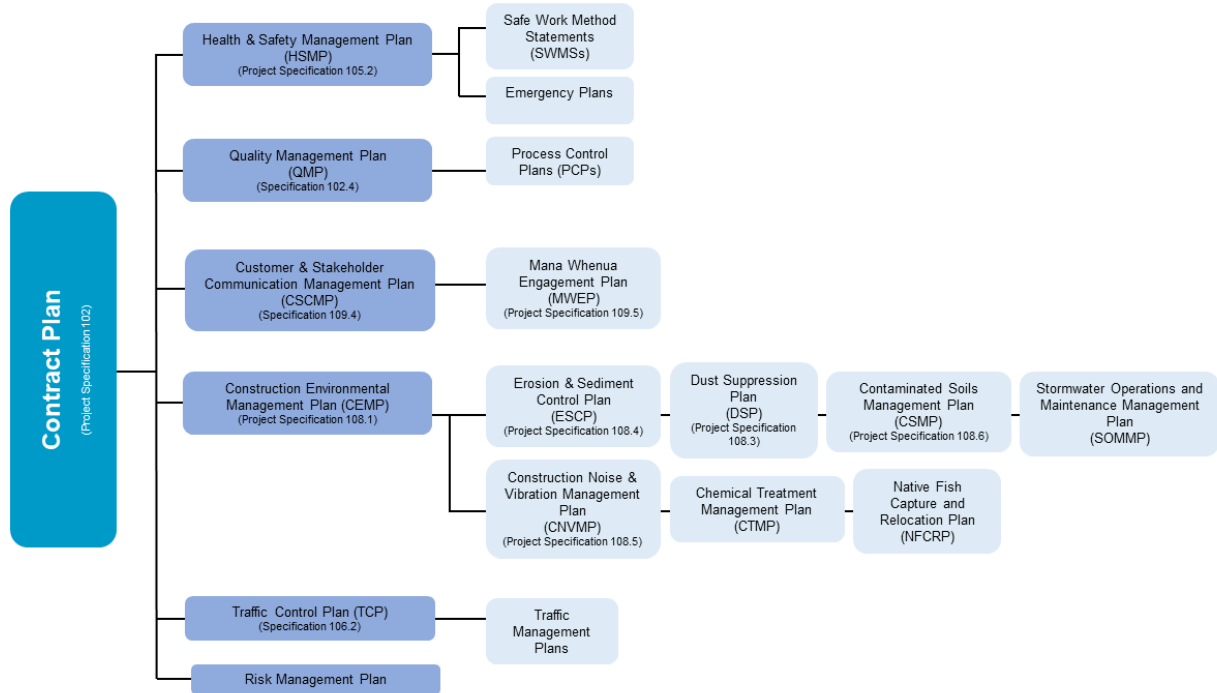
1.5.2 Working Hours

Construction hours will generally be between 0700 to 1700hrs, Monday to Friday, but longer hours may be required at some times to effectively complete work tasks and maintain programme. To facilitate the connection of the new sewer, night-time construction activities may be required e.g. tie in works, which can only be undertaken during low sewer flow levels. Night works will be at limited times and as shorter durations when possible. Every attempt will be undertaken to keep the noise limits down to a minimum practical however to achieve the desired outcome - a site/activity specific Construction Noise and Vibration Management Plan (CNVMP) will be utilised.

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1.6 Relationship to Other Plans

The relationship between the various management plans for this Project can be seen in the diagram below:



Additionally, Work Instructions will be developed to ensure that certain activities relating to this contract (including those specifically detailed within consent conditions), are undertaken in an environmentally and socially responsible manner (refer Section 3.5.1).

1.6.1 Revision and Distribution

The CEMP and its sub management plans are 'live' documents and will be reviewed and updated as required during the course of the project. At any time, the most recent version of this plan will be held by the Environmental Manager as identified in Section 1.8 and located on the "M Files" database. A copy will also be available for viewing in the project's site office.

Any significant material amendments shall be submitted in writing to the Auckland Council Monitoring Officer for certification at least 10 working days prior to any changes taking effect. Any changes to management plans shall remain consistent with the overall intent of the relevant management plan and shall be consistent with the requirements of the relevant conditions attached to these consents.

1.7 Environmental Policy

The CEMP shall give effect to both the Auckland Council Policy (Appendix B) and Fulton Hogan's Environmental Policy and Sustainability Policy (Figure 4, and Figure 5 respectively). The key messages of these policies are that being proactive is essential; meeting legal compliance is mandatory and continual improvement is the overarching philosophy. The implementation of the CEMP will assist in achieving these policies during the construction of the project.



Environmental Policy

Fulton Hogan Group Policy June 2024

Responsible stewards of our natural environment

We care for the planet, our countries, and our communities. We will work to reduce our impact on the environment, be good stewards of the resources we have access to and play our part in enhancing environmental outcomes for future generations.

We will:

- Respect community and cultural interests including local flora, fauna, and water ways
- Minimise our impact on the natural environment by preventing pollution, reducing waste, and adopting a responsible approach to the use of natural resources
- Reduce our carbon emissions and always look to reduce, reuse and recycle materials
- Work collaboratively with our employees, stakeholders, subcontractors, and suppliers to meet our legislative requirements, and lift the standards of our industry
- Integrate environmental considerations into the design, planning and delivery of our work to reduce risk and achieve better environmental and community outcomes
- Measure our performance to identify risks and opportunities and set measurable objectives and targets to enable continual improvement
- Strive for a simple and intuitive environmental management system that promotes high levels of ownership by every individual
- Require this same standard of environmental performance from our subcontractors



C W Bruyn
Managing Director

Figure 2: Fulton Hogan Environmental Policy



Sustainability Policy

Fulton Hogan Group Policy June 2024

Doing the right thing now and into the future

Our approach to sustainability is simple and it is anchored by putting our purpose of creating, connecting, and caring for communities at the heart of everything we do. To deliver good work for our customers, we must also play our part in addressing global environmental challenges and enhancing social outcomes, all the while ensuring a long-term profitable and ethically-operated business.

We will:

Environment | *Be responsible stewards of our natural environment.*

- Optimise the consumption of materials, energy and water and pursue circular outcomes
- Engineer out and reduce carbon emissions
- Prevent pollution and leave a positive legacy
- Drive environmental initiatives to regenerate healthy new ecosystems, helping flora and fauna recover and thrive

Social | *Connect, enable, and positively influence our people and communities.*

- Put the safety and wellbeing of our people at the heart of everything we do
- Foster a supportive, equitable, and inclusive workplace for present and future employees
- Work in partnership to invest in, strengthen, and build resilient communities to achieve positive and lasting outcomes for all
- Actively and respectfully engage with the Māori and First Nations people of Australia to support social and economic equality through employment, procurement and cultural awareness

Business | *Be a successful, profitable, and enduring business.*

- Uphold the application of ethical values and business behaviours
- Consider the life cycle impacts of materials in procurement decisions while promoting ethical and environmentally sustainable practices within the entire supply chain
- Leverage digital technologies to enable sustainable growth and enhance efficiency
- Support sustainable development through the introduction of new ideas that have a positive social, environmental or business outcome
- Foster collaboration with our partners and industry

C W Bruyn
Managing Director

1.8 Environmental Objectives

The Project Team has identified the following environmental objectives specific to this site. These objectives should be considered in all relevant aspects of the project.

Table 2: Construction Environmental Objectives

ASPECT	OBJECTIVE	METHOD OF IMPLEMENTATION
Noise	Manage construction and maintenance noise to acceptable levels.	» Construction Noise and Vibration Management Plan
Air Quality	All activities on site to consider utilising non fossil fuel options	» Environmental and Social Management Plan » Fulton Hogan Environmental and Sustainability Policy » Waste Management Plan
	Manage the environmental impacts of dust generated during construction.	» Dust Suppression Plan
Water Resources	Avoid, remedy or mitigate the adverse effects of run-off from site activities to sensitive receiving environments including streams, wetlands and the coastal marine area.	» Site Specific Erosion and Sediment Control Plans » Chemical Treatment Management Plan (if required in the Site Specific Erosion and Sediment Control Plan).
	Ensure stormwater treatment devices on the site are effective.	» Waste Management Plan
Erosion and Sediment Control	Enhance and contribute to community cohesion	» Auckland Council Environmental and Social Responsibility Policy » Fulton Hogan Environmental and Sustainability Policy » Stakeholder and Communications Management Plan » Site Specific Erosion and Sediment Control Plans
Culture and Heritage	Proactively limit the disturbance of significant cultural and heritage features (if required).	» Communication Plan including with Māori entities (mana whenua) representatives and the stakeholder advisory group » Cultural monitors and cultural indicators » Accidental Discovery Protocol
Ecological Resources	No net loss of native vegetation, wetlands, critical habitat or endangered species.	» Ecological Management Plan, including: <ul style="list-style-type: none"> ○ Fish Management Plan (including salvage and relocation) ○ Avifauna Management Plan ○ Mokomoko (lizard) Management Plan ○ Vegetation Management Plan
	Limit the spread of plant pests.	» » Erosion and Sediment Control Plan » Waste Management Plan
Protected Trees	Identify and protect trees	» Tree Protection Methodology
Spill Response and Contamination	Implement stormwater controls and retention devices that can accommodate spills in areas of high environmental risk.	» Environmental and Social Management Plan » Emergency Spill Response Plan and Procedure
	Ensure the removal, placement and disposal of contaminated soils is achieved in accordance with best practices	» Contaminated land site management procedures
Vibration	Avoid or reduce, as far as practicable, the disturbance to communities from vibration during construction and maintenance.	» Construction Noise and Vibration Management Plan

	Mitigate vibration where levels are unreasonable and exceed relevant criteria set in New Zealand or internationally accepted thresholds.	
Social Responsibility	Minimise the disruption to communities that construction activities may have.	» Construction Traffic Management Plan
Resource Efficiency	Make resource efficiency an integral part of the project activities.	» Auckland Council Environmental and Social Responsibility Policy
	Manage energy consumption and waste associated with Auckland Council's business in a cost effective and sustainable manner.	» Fulton Hogan Environmental and Sustainability Policy » Site specific Waste Management Plan

1.9 Roles, Responsibilities and Contact Details

All staff, including sub-contractors, have the responsibility to consider environmental and social impacts when they manage and undertake their work. Fulton Hogan is committed to continuous improvement in Environmental and Social Management. Key personnel responsible for implementing the CEMP are identified in Table 3.

Table 3: Project Interested Parties - Roles and Responsibilities

POSITION	CONTACT	KEY COMPLIANCE RESPONSIBILITIES
Principal Representative	Leighton Gillespie	» The Auckland Council person responsible for the designation and resource consents for the project
Engineer		»
Engineer's Representative		» CS VUE Permit Manager (Compliance Management System)
Contractors Representative		» Overall responsibility for the Project » Implement, review and update CEMP » Auckland Council's main contact person for project related environmental protection matters
Project Engineer		» Daily management of site and site-related activities » Ensure construction activities comply with the CEMP and related procedures »
Environmental Manager	Allan Wright – 027 577 0065 TAYLOR McGlone - 0273190584	» Undertake onsite environmental compliance reviews, audits, and training » Complaints management relevant to the CEMP » Responsible for providing feedback on compliance with relevant legislative requirements to Construction Manager and wider Project Management Team » CS VUE Condition Manager » Review and update condition compliance in CS VUE
ESCP Specialist / Erosion Sediment Control Manager	Southern Skies - 021597799	» Development of Erosion & Sediment Control and Chemical Treatment Plans » Erosion & Sediment Control training » Erosion & Sediment Control Compliance monitoring
Contamination Specialist		» Contaminated soil testing and management
Ecologist		» Native fish management » Lizard Management » Birds nesting
Quality Manager	Gareth Manderson – 022 193 7186	» Management of key quality systems associated with the Project » Providing input into continuous improvement opportunities identified as required

Communications and Engagement Manager	Nettie Bird – 027 211 0197	<ul style="list-style-type: none"> » Communication to stakeholders and the public throughout the construction phase » Complaints management
All persons on site	Site Supervisors	<ul style="list-style-type: none"> » Undertake works in compliance with the CEMP » Notify of any incidents, accidents or near misses
Iwi Liaison/ Cultural Monitor	TBC	<ul style="list-style-type: none"> » Communication and consultation with Iwi partners

2 Environmental and Social Management

With reference to the Auckland Council guideline for preparing Environmental and Social Management Plans, this Environmental Management Plan identifies the likely or potential environmental and social impacts, the environmental and social legal requirements and the Project team's system requirements, which this plan will meet.

2.1 Environmental and Social Impacts

The potential environmental and social impacts associated with the project have been assessed using the Auckland Council Environmental and Social Responsibility Screen as referenced in Table 4 below.

The purpose of utilising this assessment is to identify potential short/long term environmental and social risks, impacts and improvement opportunities around the life of the project.

Table 4: Potential Environment Aspects & Social Impacts

ENVIRONMENTAL ASPECT	ACTIVITY	IMPACT OR POTENTIAL IMPACT (WITHOUT MANAGEMENT)	IMPACT MANAGEMENT TECHNIQUE
Social	Flooding Excavation of earth abutments and vegetation Temporary Construction of new haul roads and site compounds	<ul style="list-style-type: none"> » Reduction of local road network (including active modes) » Restriction to property access 	<ul style="list-style-type: none"> » Traffic Management Plan » Construction Traffic Management Plan » Communication Plan » Work instruction or methodology
Natural Environment	Water Resources and Erosion and Sediment Control Weed and pest management Land/ stream bed Disturbance Construction in/over watercourses and/or margins Discharges – construction and operational Stormwater discharges during operation Sewage discharges during new pipeline/bridge installation and change over to new pipe Removing vegetation Fuel Spill	<ul style="list-style-type: none"> » Sedimentation » Reduced or no fish passage » Reduction/loss of habitat » Reduction in water quality as a result of stormwater discharges » Reduction in water quality as a result of unintended sewage overflows » Spread of weeds or pests » Incorrect tree removal 	<ul style="list-style-type: none"> » Site Specific Erosion and Sediment Control Plan » Ecological Management Plan, including: <ul style="list-style-type: none"> ○ Fish Management Plan (including salvage and relocation) ○ Avifauna Management Plan ○ Mokonoko (lizard) Management Plan ○ Vegetation Management Plan » Spill Response Protocol » Works methodology documented and discussed prior to, and during specific risk activities

				<ul style="list-style-type: none"> » Arborist monitoring and Tree Protection Methodology
Human Health	Noise and Vibration	<p>Operation of heavy machinery</p> <p>Piling operations and installation of sheet piles (coffer dams)</p> <p>Vegetation/Tree removal</p> <p>Demolition of existing sewer main and removal off site</p>	<ul style="list-style-type: none"> » Physical damage to structures » Nuisance to the public » Ecological impacts to native birds, fish, lizards, bats. 	<ul style="list-style-type: none"> » Construction Noise and Vibration Management Plan » Work instructions » Ecological Management Plan » Ecologist/arborist engagement
	Air Quality	Dust generated from earth works, haul roads and stockpiles	<ul style="list-style-type: none"> » Nuisance to the public » Contamination of property » Contribution to sediment loading 	<ul style="list-style-type: none"> » Site Specific Erosion and Sediment Control Plan » Environmental and Social Management Plan » Dust Suppression Plan
	Hazardous Substances including raw sewage	<p>Earthworks on contaminated land</p> <p>Sewage spillage due to failure of pipework or overflows</p> <p>Plant refuelling</p>	<ul style="list-style-type: none"> » Contamination from spills or runoff » Contamination from raw sewage contact or spillages » Fuel/chemical spills leaks 	<ul style="list-style-type: none"> » Contaminated land site management procedures » Accidental Discovery Protocol » Spill Response Protocol » Works methodology and PPE requirements
Culture and Heritage	Archaeology & heritage values	Works uncovering archaeological items	<ul style="list-style-type: none"> » Loss of heritage values » Potential damage to archaeological items » Reputational damage with key stakeholders 	<ul style="list-style-type: none"> » Communications Plan including with Māori entities (mana whenua) representatives. » Accidental Discovery Protocol - specific to project works.

2.2 Legislative Requirements

The Tennessee Bridge project is an Auckland Council project aimed towards reducing the impact of flooding in the Harania catchment and is currently applying for resource consents for the associated works including construction activities. The environmental legislative requirements of the project are set as per below:

- » Table 5 identifies and summarises the applicable legislation. It is noted that the resource consent has been obtained under the Severe Weather Emergency Recovery (Auckland Flood Resilience Works) Order 2024 (AC-OIC), overriding resource consent requirements under plans and environmental standards as detailed below. Whilst resource consent is not specifically required under these documents, they are included below as they are relevant for permitted activities.
- » Table 6 sets out resource consents;
- » Table 7 sets a summary of the specific consent conditions relating to the Project. For the full resource consent document, including all conditions, please see Appendix C.

The tables will be updated, and subsequent changes made to the applicable management plans or operating procedures as new consents or authorities are granted, or variations to the existing set are approved.

Table 5: Applicable Legislations Aligned with Resource Consents and Designation

LEGISLATION	DESCRIPTION	REQUIREMENT	REGULATOR	LINK
Resource Management Act 1991 (RMA)	To promote the sustainable management of natural and physical resources. The RMA provides the local and regional authorities with the necessary powers to formulate plans and set rules and standards for a multitude of activities.	Every person has a duty to avoid, remedy, or mitigate any adverse effect on the environment arising from an activity carried on or on behalf of that person, whether or not the activity is in accordance with the rules in a plan, a resource consent, a designation section 10, section 10A, or section 20A.	Ministry for the Environment (and Local Authorities)	Link
Severe Weather Emergency Recovery Legislation Act 2023 (SWERLA)	The Severe Weather Emergency Recovery Legislation Act 2023 (SWERLA) commenced on 12 April 2023 for the principal purpose of assisting communities and local authorities affected by severe weather events to respond to, and recover from, the impacts of the severe weather events.	N/A	Ministry for the Environment (and Local Authorities)	LINK
Severe Weather Emergency Recovery (Auckland Flood Resilience Works) Order 2024 (AC-OIC)	Section 7 of SWERLA provides for the Governor-General to grant exemptions from, modify or extend any legislation listed in Schedule 2, including the RMA, by way of Order in Council. The AC-OIC	The AC-OIC reclassifies the project works as controlled activities under the RMA, overriding certain rules in the Auckland Unitary Plan – Operative in Part, National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 and National Environmental Standard for Freshwater.	Auckland Council	[TBC]
National Environmental Standard for Assessing and Managing Contaminants in Soil to	The NES for Assessing and Managing Contaminants in Soil to Protect Human Health provides a nationally consistent set of planning controls and soil contaminant values; ensures that land affected by contaminants in soil is appropriately identified and assessed before it is developed; and if	Any activity that disturbs soil over 25m ³ in volume at a HAIL site requires consent under this NES and therefore under the AC-OIC.	Auckland Council	Link

Protect Human Health 2011	necessary, the land is remediated, or the contaminants contained to make the land safe for human use.			
National Policy Statement for Freshwater Management, 2020 – Amended February 2023	The National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises: (a) first, the health and well-being of water bodies and freshwater ecosystems (b) second, the health needs of people (such as drinking water) (c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.	Through engagement with communities and Tangata Whenua, regional councils need to give effect to Te Mana o te Wai. The policy outlines that when managing freshwater, the health and well-being of the water is protected, and human health needs are provided for before enabling other uses of water.	Auckland Council	Link
National Environmental Standard for Freshwater, 2020	The National Environmental Standard for Freshwater has been designed to regulate any activities that pose a risk to the health of waterways throughout New Zealand.	NES sets out requirements for carrying out certain activities that pose risks to freshwater and freshwater ecosystems. Anyone carrying out these activities will need to comply with the standards.	Ministry for the Environment (and Local Authorities)	Link
Auckland Unitary Plan – Operative in Part	The Auckland Unitary Plan – Operative in Part (2016) has been developed under the Resource Management Act 1991, and is intended to provide direction regarding the use, development and protection of natural and physical resources in the region, as well as promoting the sustainable management of these resources.	Activities carried out under this contract must comply with consent conditions and rules defined within the Auckland Unitary Plan. Where they do not, consent will be obtained prior to works commencing under the AC-OIC.	Auckland Council	Link
Heritage New Zealand Pouhere Taonga Act 2014	The purpose of this Act is to promote the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand.	Section 42 of the Act directs that an authority is required from Heritage New Zealand Pouhere Taonga if there is 'reasonable cause' to suspect an archaeological site may be modified, damaged or destroyed in the course of any activity.	Heritage New Zealand Pouhere Taonga	Link
Biosecurity Act 1993	The purpose of the Biosecurity Act 1993 is to enable New Zealand to exclude, eradicate or effectively manage pests and unwanted organisms already in the country. The Biosecurity Act requires regional councils and unitary authorities to formulate a regional pest management strategy, list plant and animal species and state objectives, policies and rules with regard to pests, their status and required/anticipated control.	Pest management activities must comply with Local Authority pest management policies and rules.	Ministry for Primary Industries (and Local Authorities)	Link
Wildlife Act (1953)	The purpose of the Wildlife Act (WA 1953) is to actively advance conservation by initiating, implementing and managing monitoring projects where no existing monitoring programmes are in place.	The Wildlife Act (1953) is implemented to avoid and minimise mortality of wildlife protected by the Act. This includes species such as capture of native lizards from vegetation in the footprint during vegetation clearance and relocating any captured individuals to safe and suitable habitats.	Department of Conservation (DOC)	Link

3 Implementation and Operation

3.1 Auckland Council Compliance Management System

CS-VUE™ is a legal compliance system adopted by Auckland Council to manage environmental statutory requirements. The Auckland Council requires CS-VUE™ to be used to track and record the compliance of the following legal obligations:

- » Resource consents
- » Department of Conservation concessions and other approvals
- » Heritage New Zealand authorities
- » Any other agreements or obligations which have compliance conditions.

The Project Team will also use CS-VUE™ to monitor, track and record compliance of the authorities granted to the Auckland Council which relate to this project.

CS-VUE™ is a secure database which matches each consent and condition of (or other legal obligation) with a consent manager and condition manager and automatically sends an email notifying them of compliance requirements. The Project consent manager is the Project Teams contractor's representative who is responsible for overseeing consent compliance management, and the condition manager is the Construction Manager who is responsible for ensuring day-to-day compliance.

CEMP and sub-plans are the primary vehicle for ensuring compliance. However, online reporting generated from the CS-VUE™ will be used to quickly update evidence to demonstrate compliance in CS-VUE™, with all entries/changes date stamped and annotated with the person's name.

Post-construction, the responsibility of any conditions which have on-going maintenance and operational requirements will be transferred to the Auckland Council Asset Manager. All consents that only apply to the construction phase will be surrendered post construction as per the Auckland Council delegations. All authorities granted to the Auckland Council will be archived in CS-VUE™.

3.2 Aspect-Specific Environmental Management Plans

Fulton Hogan will develop a comprehensive suite of Management Plans which will describe the processes used to mitigate and manage the environmental impacts on specific aspects of this contract (**Table 8**). There are a number of Work Instructions relevant to each of the management plans. Copies of the management plans and work instructions are kept in the site office and are also available via Fulton Hogan's "M Files" share point.

Anyone working on the project, including sub-contractors, are to have knowledge and understanding of the relevant management plans and work instructions prior to undertaking their works.

3.3 Identification of Environmental Standards

As per the Fulton Hogan Ltd Living Safely Manual and as per the HSMP, Risk control plans are to be developed for each item of work during the planning phase prior to works commencing. These plans will reference relevant work instructions, potential environmental risks, and site-specific controls to mitigate the risk and ensure the work is completed in a safe manner.

Following completion of construction activities, vegetation will be reinstated as per the landscaping / planting plan.

3.4 CEMP Management Plans Summary

Table 8: Summary of CEMP Sub-Management Plans

MANAGEMENT PLAN	SUMMARY	REFERENCE
Construction Noise and Vibration Management Plan	The purpose of the CNVMP is to provide a framework for the development and implementation of the Best Practical Option (BPO) for the management of construction noise and vibration effects on affected stakeholders, as well as defining the procedures to be followed when noise and vibration standards are not met following the adoption of the BPO.	Appendix tbc

MANAGEMENT PLAN	SUMMARY	REFERENCE
Contaminated land site management procedures	The purpose of the site management procedures is to provide for the management of soil and water during the earthworks, including site controls, monitoring methods i.e. dust suppression, procedures for testing and protocols for unexpected contamination discovery and contingency.	Appendix tbc
Erosion and Sediment Control Plan (ESCP)	The purpose of the ESCP shall be to minimise erosion risks, sediment discharge and dust emissions from the site to the extent practicable over the earthworks period.	Appendix tbc
Dust Suppression Plan (DSP)	The purpose of the DSP is to identify the potential sources of air contamination and best practice to manage it.	Appendix tbc
Chemical Treatment Management Plan (ChTMP)	The purpose of the ChTMP is to set out management methods, controls and reporting standards to be implemented in order to meet the legislative requirements relating to the chemical treatment of the sediment control devices associated with the project. This plan is to be created and utilised if/ when the need for such treatment devices is deemed necessary as part of the Site Specific Erosion and Sediment Control Plans.	Appendix tbc
Ecological Management Plan (EMP)	The purpose of the EMP is to set out protocols to avoid, minimise and remedy potential adverse effects on the ecological and biodiversity values within the project area associated with the proposed works. The EMP includes a Fish Management Plan (FMP), Avifauna Management Plan (AMP), Mokomoko Management Plan (MMP) and a Vegetation Management Plan (VMP).	Appendix tbc
Construction Traffic Management Plan (CTMP)	The purpose of the CTMP is to set out measures that will be taken to avoid, remedy, mitigate, minimise or manage the traffic effects associated with construction works for the duration of the Project.	Appendix tbc
Tree Protection Methodology (TPM)	The purpose of the TPM is to minimise adverse effects on protected trees to be retained within the works area.	Appendix tbc

3.5 Operational Requirements

In addition to the sub-management plans, the following operational requirements will be used by the Project to ensure the environmental effects are managed.

3.5.1 Protocols, Work Instructions

Along with the Management Plans and procedures detailed above; Work instructions and procedures will be developed and reviewed prior to works are undertaken to ensure that activities relating to the project works (including those specifically detailed within consent conditions) are undertaken in an environmental and socially responsible manner.

Anyone working on the Project, including sub-contractors, are to have a good knowledge and understanding of the relevant management plan, protocols and work instructions prior to undertaking works.

3.5.2 Pre-construction

A Pre-Start meeting shall be held on site not less than five working days before the anticipated commencement of works. This meeting shall include the Auckland Council Monitoring Officer(s), and will discuss the scope of the proposed works, erosion and sediment control measures, and will ensure that all relevant parties are aware of, and familiar with the necessary conditions of this consent.

The following information shall also be made available at least 10 days prior to the pre-start meeting:

- » Conditions of consent;
- » Timeframes for key stages of the works authorised under this consent
- » Contact details of the site contractor and site stormwater engineer;
- » Construction plans,
- » Site Specific Erosion and Sediment Control Plans

A representative of the local Iwi shall also be invited to attend this meeting.

3.5.3 Iwi Consultation

Aim to achieve an acceptable environmental outcome for the Māori entities representatives. The project will consult and collaborate with (Input names) by:

- » Hui's
- » Supplying management plans for review and feedback prior to Council submission
- » Obtaining guidance on cultural indicators provided by cultural monitors.
- » Undertaking a site blessing
- » Inclusion at the project pre-start meeting
- » Reporting to the Māori entities representatives.

Undertaking a project cultural induction and subsequent contractor cultural inductions on a periodic basis as agreed with (Input Names) (i.e. when new contractors start on site, monthly follow up)

- » Collaboration with archaeologist and cultural monitoring of initial earthworks

3.5.4 Accidental Discovery Protocol

All earthworks will take place in accordance with the Auckland Council Minimum Standard P45 – Accidental Archaeological Discovery Specification (Appendix tbc).

In the event that any archaeological sites, Kōiwi (human remains) or Taonga, or suspected archaeological artefacts are uncovered on site, the following applies:

- » The Accidental Archaeological Discovery Specification will be enacted (Section 2 of Appendix tbc);
- » Contractor to cease earthworks within a 20m radius from any edge of the discovery,
- » Contractor to secure the discovery area, ensuring the area (and any object(s) contained within) remains undisturbed and meets health and safety requirements
- » Contractor to immediately advise the Auckland Council representative of the discovery, who shall advise the appropriate people of the discovery
 - The New Zealand Police, if any kōiwi/human remains are uncovered as per the requirements of the
 - Coroners Act 1988
 - Contact the project archaeologist
 - The regional archaeologist at HNZPT
 - Appropriate Iwi group(s) or kaitiaki representative(s)
 - Auckland Council – to ensure compliance with accidental discovery processes in the AUP.

3.5.5 Spill Response Protocol

The key requirements which will be adhered to in order to reduce spill risk on this project are as follows:

- » Refuelling and maintenance shall be undertaken with the use of drip trays/absorbent pads or similar to prevent spills.
- » Refuelling and maintenance of plant shall be undertaken only when appropriate controls such as bunding or drip trays are in place There shall be no refuelling with 20m of a waterway or stormwater discharge channel unless additional controls are in place that eliminate the risk of spills entering the stormwater system.
- » Good, tidy housekeeping,
- » Materials are stored in an appropriate, safe and secure location away from waterways or stormwater drains,
- » Materials are stored/used in appropriate volumes,
- » Containers are clearly and properly labelled,
- » Containers have their proper lids firmly on, are covered to prevent rain contact and bunded to provide a secondary containment area should a container spill or leak,
- » Less hazardous options are substituted whenever possible.

To ensure that the project is prepared to respond in the event of a spill, the following measures will be put in place:

- » A site-specific Dangerous Goods store shall be utilised to contain all chemicals/fuels and will have suitable integrated secondary containment capability. An Inventory of chemicals is to be available together with the relevant SDS. The container will comply with HSNO requirements and will be locked when not in use and overnight. Any signage must comply with HSNO.
- » The site shall have correct spill kit(s) for the spill risk, fully stocked and appropriately located to allow for rapid response,
- » Secondary containment process in place, be it a drip tray, bund or emergency spill shut off valve so that spills can be easily and safely contained,
- » Works planning shall include a spill plan for individual work sites near high-risk receptors,
- » All relevant staff shall be trained and competent at safe handling practice, and
- » Regular tailgates shall be held on spill response to ensure everyone on site knows what to do should a spill occur. Spill drills and/or spill kit training sessions may be conducted from time to time to test the team's spill response performance and knowledge.

The procedure to be followed in the event of any spill incident is outlined below:

- » ASSESS – always ensure your safety and the safety of those around you. Check for any injuries. If safe to do so secure the scene and keep members of the public safe. Wear appropriate PPE/PPC.
- » CALL 111 – In the event of a major spill or significant community or environmental effect call 111 to mobilise emergency services. REMEMBER – do not use a mobile phone in the hazardous area if vapours may be present. If you do need to use a mobile phone, move to a safe distance away from the spill before doing so.
- » ACTIVATE - shut-down or shut-off – If it is safe to do so activate the emergency stop / shut-off valve or take whatever action safely possible to minimise the volume of material spilt.
- » LOCATE - If the liquid is flammable locate and extinguish any potential ignition source. If safe to do so locate and review SDS.
- » CONTAIN – Stop liquid from leaving the site and/or entering any waterway or stormwater drain.
- » NOTIFY – Tell your FH Manager and/or your SQTE or Environmental Advisor & decide whether potentially affected neighbours should be advised.
- » ASSIST – Help emergency services and/or clean-up operations where possible.
- » RECORD – Note details of the emergency event, take photos of the area.
- » CLEAN UP – Ensure the affected area is cleaned up using appropriate absorbent material, sucker truck or excavator.
- » DISPOSE – All waste from the incident is to be disposed of legally to an approved contractor or site.
- » CAMs – Fill out a CAMs case
- » RESTOCK – Replace any items used from spill kits and PPE.

(This information shall be displayed on site in the form of the FH E09 Spill Checklist poster.)

3.5.6 Dust Control

The emphasis of the site dust strategy will be one of prevention. Disturbed areas will be progressively stabilised and stockpiles and bunds will be covered with geotextile or grassed and mulched immediately. Vehicle movements on site will be governed by speed restrictions which will, among other things, assist in preventing dust generation.

In the main site yard, a water sprinkler may be utilised to suppress dust during dry weather periods within ESCP controlled areas. A water cart will also be made available if required to provide assistance.

The Supervisors will obtain daily weather forecasts and circulate to all appropriate staff to ensure that during dry weather everyone knows the probability of dust creation. Dust control measures will be put on standby if dry, windy conditions are forecast.

For further information, please refer to Dust Suppression Plan (DSP).

3.5.7 Waste Minimisation

The delivery throughout the lifecycle of this project will be aligned to an industry recognised ISC rating standard towards waste minimisation, monitoring and reporting. Industry best practices shall be incorporated into the Project methodologies so as to minimise waste creation where possible. This aligns with Auckland Council's commitment on sustainability and ISC requirements under the project contract.

Fulton Hogan is responsible for the minimisation of all wastes within the site so as not to cause adverse environmental effects (including environmental nuisance off site).

Fulton Hogan shall ensure that:

- » All site crew will undertake a site induction which will address waste management and housekeeping expectations on the project
- » All waste is removed from site (including construction yards)
- » No waste shall be burnt onsite
- » All machinery, fencing, signs, chemicals, rubbish, debris and other materials must be removed upon completion of works
- » Bins are available at common areas at all times
- » Bins are fitted with lids (excluding gantry style bins) and emptied prior to being filled to capacity
- » Maintain the site free of litter and ensure that no litter leaves the boundary of the site or enters any waterway within the site
- » The work site including construction yards are to be left in a tidy condition at the end of each day in terms of disposal/ storage of rubbish and storage of construction materials.
- » A process is in place for monitoring and segregating waste streams
- » Waste streams are reviewed regularly in accordance with ISC credit requirements

The Project has 3 principal goals around waste management that will be incorporated into this project.

These being:

- » Goal 1: Prevent the harmful effects of waste to the environment and human health
- » Goal 2: Minimise Waste to Landfill
- » Goal 3: Record Waste to landfill and Waste diverted from landfill figures

Waste prevention, reuse, recycling and recovery are collectively defined as waste minimisation. Energy recovery is an important level in the hierarchy as many materials have significant embedded energy that can be recovered (e.g. wood waste). Waste disposal should only be used when no option further up the hierarchy is possible. The following waste hierarchy will be adopted for this project to increase resource efficiency and decrease the total amount of waste produced.

3.5.8 Light Spill

Where temporary lighting is needed, the extent of lighting will be limited to addressing safety only concerns to minimise disturbance to local residents and wildlife. Night works (including associated lighting) will be carefully communicated to stakeholders and the community well in advance of the works to be undertaken. Lighting used during construction will be positioned to minimise overspill to other areas and must be installed such that there is minimal interference to the general public or residences including vehicle road movements.

3.5.9 Network Utilities

To ensure we maintain a safe and efficient operation of all potentially affected network utilities within the project footprint, we will develop a Work Instruction which applies to the installation of Utilities for the Project. This work instruction will include the following:

- » Site set out
- » Excavation of trenches (as per trench detail provided by Service Providers)
- » Excavation of joint bays and tie in locations (as per Service Provider requirements)
- » Installation of service ducts
- » Surveying and as-built of all services
- » Backfill and protection of services

This Work Instruction refers to the personnel, plant and equipment that will be used in the works and takes into account the health, safety, environmental and quality risks that may arise as a result of the work.

3.5.10 Traffic Management

A Traffic Management Plan (TMP) will be provided to the Engineer for review prior to the start of construction. This plan will be prepared by the Project Temporary Traffic Manager who is suitably qualified and experienced as per Auckland Council's Code of Practice for Temporary Traffic Management (CoPTTM: Part 8 of the Traffic Control Devices Manual (TCD Manual)), and New Zealand Guide to Temporary Traffic Management (NZGTTM).

Consultation with Auckland Transport will be undertaken to document any comments within the final TCP with the purpose of managing potential effects of temporary traffic management activities during construction.

A Construction Traffic Assessment has been undertaken and the CTMP is included in the appendices.

3.5.11 Project Signage

Project signage will be erected at the entry points of the Project. The notice boards will identify the Project name and expected completion date as well as providing contact details of personnel responsible to act in the event of a complaint or emergency.

3.5.12 Public Safety and Land Stability

Earthworks will be undertaken in a manner that maintains the safety of the public and the stability of surrounding land and structures through compliance with the project specific Health and Safety Management Plan (HSMP), Traffic Control Plan (TCP), Construction Traffic Management Plan (CTMP), the Construction Noise and Vibration Management Plan (CNVMP), and will reference any this Construction Environmental Management Plan (CEMP).

Various sections of works will also be undertaken at night under suitable road closures and management to minimise motorist safety risks.

3.5.13 Eastern Interceptor Sewer

Workover consent from Watercare will be required for all works undertaken in close proximity to the Eastern Interceptor Sewer. The sewer will be protected with a concrete slab at the site entrance off Blake Road. Machinery will be positioned outside of the zone of influence of the Eastern Interceptor Sewer (approximately 3m from the centreline). Where it is necessary to undertake works within the area e.g. tie in chambers, specific temporary works will be designed to protect the sewer.

Prior to works commencing within 3 of the sewer at the tie in chambers, secondary containment will be installed to prevent any sewage entering the Harania catchment in the very unlikely event that the sewer was to burst / leak. The containment level will be above the existing pipe soffit therefore preventing the sewage from leaving the containment area. An emergency plan will be agreed prior to works commencing with Watercare, which will include the correct disposal of any contaminated land / sewage.

General Site Layout

The site compound will be managed in a manner which will focus on:

- » Keeping people and plant separate so far as practical
- » Minimising the interaction between light and heavy vehicles.
- » Compliance with all environmental requirements, including;
 - Dust Management
 - Management of mud tracking off site
 - Effective waste management
 - Keeping hazardous substances in secure and bunded locations at least 20m away from all waterways
 - Ensuring all potentially polluting activities (such as refueling) are undertaken in a manner where any potential spills/ leaks will not enter stormwater conveyance areas or other existing waterways.

The site layout plan will be discussed during the Project Site Induction to ensure all staff and visitors are familiar with the onsite requirements.

3.6 Emergency Contacts and Response

ROLE	NAME	ORGANISATION	PHONE	EMAIL
Internal				
24 hr Number		Fulton Hogan	0800 348 007	
Environmental Advisor	Allan Wright	Fulton Hogan	027 577 0065	Allan.wright@fultonhogan.com
Health and Safety Manager	Leo Comesky	Fulton Hogan	0275417102	Leo.Comesky@fultonhogan.com
Contractor's Representative	Richard Anthony	Fulton Hogan	027 584 0460	Richard.anthony@fultonhogan.com
Construction Manager	tbc	Fulton Hogan		
External				
Auckland Council Monitoring Officer		Auckland Council		
Emergency Services		Police Fire Ambulance	111	
Pollution Response Team		Auckland Council	09 377 3107	
Earthworks Specialist	Zac Woods	Southern Skies Environmental Ltd	021 597 799	zac@southernskies.co.nz

3.7 Feedback and Complaints Management

Feedback and Complaints relating to environmental and social matters will be managed in accordance with the Communication Plan. All complaints received will be lodged and recorded on Fulton Hogan's Incident reporting form. Any complaints relevant to this CEMP will be forwarded on to the Environmental Manager who will respond quickly and appropriately to close it out.

For queries or complaints an initial response shall be provided within one working day and the team will consult with the specified technical experts where required to ensure a robust response is provided. If it will take more than one day to provide a satisfying resolution, the member of the public will be kept informed on progress, and correspondence or further verbal conversations regarding the feedback will be recorded.

This 24-hour time frame will not apply in situations of feedback on hazards or where the complaint relates to construction noise or vibration. In these instances, the Stakeholder and Communications Manager will use best endeavour to respond immediately.

The Stakeholder and Communications Manager / Project Engagement Lead will immediately escalate all serious or urgent feedback queries to the Communications and Engagement Team Manager and/or relevant Auckland Council member to ensure key personnel are involved in the response process.

3.8 Training

All construction staff will be adequately skilled and experienced for the work they will undertake. No employee is asked to perform any task without the proper skills, experience and qualifications, unless adequate training and induction is immediately available.

Training will be provided to ensure all staff are made aware of their environmental obligations on the project. Training records are captured in the Project Teams human resource records. A summary of the key project training that will be delivered to staff is outlined in Table 9.

Table 9: Training to Implement CEMP

TYPE OF TRAINING	PURPOSE	CONVENOR	ATTENDEES	FREQUENCY
Site Induction (including	Induct new staff to the project, providing a general overview to the environmental values, risks, stakeholders, sensitive receptors and contacts for the project as	Project Engineers/ Site Engineers	All Staff including sub-contractors	Prior to commencing on site works

cultural induction)	well as cultural requirements and the background to these.			
EnviroWise	General Environmental Awareness Training covering all environmental risks likely to be encountered during the project works activities.	Environmental Manager and/ or delegate	All FH staff	Within the 1st 12 months of starting with FH and 5-yearly refresher thereafter
Spill Response	Specialised training to manage the risks, prepare and respond to spill	Environmental Manager and/ or delegate	Senior Site Team	
Weekly Toolbox Talks	Daily and weekly toolbox talks held to plan and discuss environmental and safety risks and appropriate mitigation and work practices	Site Supervisor/ Project Engineers/ Site Engineers/ Project Manager	All Staff including sub-contractors	Weekly
Contaminated land Induction	Inform staff in what to look out for in regard to contaminated land, and what to do if discovered. Understanding Accidental Discovery protocol	Environmental Manager and/ or delegate	Construction and Earthworks personnel	Prior to commencing on site works
Erosion and Sediment Control Training	Specialised training will be provided to staff who are involved in the construction, maintenance and decommissioning of erosion and sediment control devices.	Environmental Manager and/ or delegate	Site Supervisor/ Project Engineers/ Site Engineers/ Project Manager	Prior to commencing on site works
Construction Water Management	To train personnel on construction water management and how to comply with the ESCP	Environmental Manager and/ or delegate	Site Supervisor/ Project Engineers/ Site Engineers/ Project Manager	Prior to commencing on site works

3.9 Monitoring and Review

To ensure the CEMP and its associated sub plans are implemented effectively and continually improved, a monitoring and review process will be followed so that new and emerging risks can be identified early, and existing risks are continually managed in the best possible manner as the project progresses.

Where amendments are necessary, the CEMP will be re-submitted to the Auckland Council Monitoring Officer for certification within 10 working days after the amendments are made. Any changes to management plans shall remain consistent with the overall intent of the relevant management plan and shall be consistent with the requirements of the relevant conditions attached to these consents.

Monitoring and reviews of the environmental management system will be undertaken on the project to meet the standard accreditation requirements for Infrastructure Sustainability Council (ISC).

4 Compliance Monitoring

The environmental sub management plans identify the specific monitoring requirements.

In addition to the monitoring identified in the sub management plans, Auckland Council requires compliance to be recorded in CS-VUE™ as outlined in Section 3.1. This will be undertaken by the Environmental Manager or delegate and will be regularly updated as evidence (records) of compliance is produced.

Auckland Council will also undertake compliance monitoring against the conditions of consent. Reports from this monitoring which identify corrective actions will be managed through the corrective and preventive action process in Section 4.2.

4.1 Compliance Audits

Environmental compliance audits of the project site will be undertaken periodically during construction by the Environmental Manager or delegates. The objective of the audits is to determine if the environmental management requirements are being implemented and maintained, assess the effectiveness of the environmental controls being applied, and identify areas of non-compliance or improvement opportunities so that corrective actions can be taken. E37 Compliance audits will be undertaken on a monthly basis.

4.2 Corrective and Preventative Action

The corrective and preventative action process aligns with the Quality Management Plan. Corrective and preventative actions will be identified through compliance monitoring, audits, and complaints/ feedback processes. The actions will be assessed and when relevant discussed with Auckland Council. Compliance shall be included as a regular agenda item at Management and project meetings with minutes recorded. The CEMP and the sub management and mitigation plans and operating procedures will be updated as required.

4.3 Management Review

Annually (or when any major changes to legislation or policy occurs, or as otherwise required by consent conditions), a management review of the CEMP and the sub management plans will be undertaken. This review may be led by the Contractors Representative and will include the Environmental Manager and Auckland Council Owner Interface Manager. The review will focus on how environmental compliance is being managed and achieved and identifying areas of improvement.

Fulton Hogan is ISO14001 certified. To maintain their certification, independent audits will take place to assess their businesses conformity to ISO14001.

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Appendix A: Site Specific Erosion and Sediment Control Plans

Refer to ESCP sub-plan

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Appendix B: Auckland Council Environmental and Social Responsibility Policy

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Appendix C: Resource Consent Document

DRAFT

Appendix X: Construction Noise and Vibration Management Plan

Available as separate sub-plan

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Appendix X: Contaminated land site management procedures

Available as separate sub-plan

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Appendix X: Dust Suppression Plan

Available as separate sub-plan

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Appendix X: Ecological Management Plan

Available as separate sub-plan

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Appendix X: Accidental Discovery Protocol

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Appendix X: Chemical Treatment Management Plan

To be supplied later

DRAFT

Appendix X: Construction Traffic Management Plan

To be supplied later

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Appendix X: Tree Protection Methodology

To be supplied later

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Appendix X: Stormwater Operations and Maintenance Management Plan

To be supplied later

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