

DRAFT EROSION AND SEDIMENT CONTROL PLAN

Central Interceptor Point Erin Tunnel

Point Erin Park, Herne Bay

Prepared for Watercare Services Limited

Prepared by: **McConnell Consultancy Ltd**

Date: **25 January 2023**



DOCUMENT CONTROL

Point Erin Erosion and Sediment Control Plan			
Revision	Date	Details	Prepared by
1	25 Jan. 23	Final for Consent Application	M. McConnell

CONTENTS

1.	OVERVIEW	5
1.1.	Scope	5
1.2.	Location and Site Description	5
2.	DESCRIPTION OF WORKS	8
2.1.	Shaft Site	8
2.2.	Flow Control Site	9
3.	EROSION AND SEDIMENT CONTROL PHILOSOPHY AND PROCESSES..	10
3.1.	Objectives	10
3.2.	Design	11
3.3.	Principles	11
3.4.	Review	11
4.	EROSION AND SEDIMENT CONTROL DETAILS.....	13
4.1.	Shaft Platform	13
4.1.1.	Platform Construction.....	13
4.1.1.	Shaft excavation and connecting tunnel construction.....	13
4.2.	Flow Control Platform	13
4.2.1.	Platform Construction.....	13
4.2.2.	Flow Control Structure excavation	14
4.3.	Stockpiling	14
4.4.	Stabilisation	14
4.5.	Chemical Treatment	14
4.6.	As-Built Certification.....	15
4.7.	Winter Works	15
4.8.	Monitoring and Maintenance.....	15
4.9.	Removal of ESC Measures	15

5.	APPENDIX	16
5.1.	Appendix A - Erosion and Sediment Control Drawings	16

1. OVERVIEW

1.1. Scope

This Erosion and Sediment Control Plan (**ESCP**) has been prepared to support the resource consent application by Watercare Services Ltd (Watercare) for the proposed extension of the Central Interceptor (CI) wastewater interceptor (Point Erin Tunnel / the Project). The proposed Point Erin Tunnel will run from the current termination point of the CI Grey Lynn Tunnel at Tawariki Street through to Point Erin Park in Herne Bay. The Point Erin Tunnel will ensure combined overflows are picked up and conveyed to Māngere Wastewater Treatment Plant for safe treatment, reducing overflows to the environment and improving the quality of waterways and swimmable beaches by 2028.

The Project involves constructing a terminal shaft and control chamber within Point Erin Park in Herne Bay (**the Site**) to allow for the retrieval of the CI tunnel boring machine (TBM) and connections to the local sewer network. This ESCP has been prepared to determine the most appropriate erosion and sediment control (**ESC**) measures to manage site runoff associated with the earthworks for the proposed construction activities at Point Erin Park. There are no surface works required along the alignment of the tunnel itself as the tunnel is constructed entirely below ground at depths generally ranging between 20 m and 60 m with all tunnelling spoil removed at the existing consented/designated CI May Road shaft site. Therefore tunnelling activities do not require ESC and are not addressed in this ESCP.

This ESCP has been prepared in accordance with Auckland Council's Guideline Document 2016/005 *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region, June 2016 (GD05)*.

This ESCP addresses the following earthwork activities:

- Establishment of the erosion and sediment controls;
- Site establishment and enabling works;
- General earthworks; and
- Final landscaping and stabilisation.

1.2. Location and Site Description

Point Erin Park is owned by Auckland Council and covers an area of approximately five hectares. The park comprises a large area of grassed open space which is used for a variety of passive and active recreation uses and also contains a number of mature trees. A key feature of Point Erin Park is the Point Erin Pools, which dominate the northern portion of the park. There are a number of other amenities inside the park including a children's playground, car parking, a toilet block, basketball half-court, paved walking/cycling paths and picnic tables and seating. A dense and mature area of predominantly native trees which is identified as a Significant Ecological Area (SEA) in the AUP is located along the northern bank / cliff face of the headland. The SEA and the northern part of the

Point Erin Pools are also identified as a Site and Place of Significance to Mana Whenua.

Vehicle access to the park is from Sarsfield Street which forms the southern boundary of the park. The park is bounded by Curran Street and the SH1 onramp to the Auckland Harbour Bridge on its western boundary, and the SH1 Shelly Beach Road offramp on its eastern side.

Masefield Beach and Reserve is located immediately to the west of Curran Street. The surrounding areas of Herne Bay and St Mary's Bay comprise predominantly residential dwellings of varying scale, typically between one to three storeys in height. Ponsonby Primary School is also located on Curran Street approximately 80 m south of the Project site at its closest point.

Terminal shaft and control chamber construction areas

The terminal shaft and associated construction area is proposed to be located in the grassed area immediately to the south of the Point Erin Pools. The terminal shaft provides for the removal of the CI TBM. The area of Point Erin Park to be occupied by the terminal shaft construction area (3,150 m²) is grassed and falls with an average grade of 10% from the Point Erin Park access to the west.

The control chamber, plant room and associated construction area is proposed to be located towards the southwestern corner of Point Erin Park. The area of the park to be occupied by the control chamber construction area (1,880 m²) adjacent to Sarsfield Street and Curran Street is also grassed. This area also includes several trees, some of which will be pruned or potentially removed as part of the project. This area is steeper, approximately 33%, typically falling from Curran Street to the east. The lower portion of this work area is within an identified Flood Prone Area.

There are no watercourses within or adjacent to the proposed work areas. However, AC Geomaps indicates that an overland flow path (3ha to 100ha in size) exists in the southwestern corner of the park. The southwestern corner is also identified as being within a 1 per cent Annual Exceedance Probability (AEP) floodplain and flood prone area.



Figure 1: Site Location showing terminal shaft construction area (orange), control chamber construction area in the south western corner (yellow), and tunnel alignment (blue) (Aerial source: AC GIS).

2. DESCRIPTION OF WORKS

Watercare is proposing to extend the Central Interceptor Tunnel (CI) wastewater conveyance and storage tunnel from Tawariki Street in Grey Lynn to a new terminal shaft in Point Erin Park ("Project"). The tunnel extension will ensure combined overflows are picked up and conveyed to Māngere Wastewater Treatment Plant for safe treatment, reducing overflows to the environment and improving the quality of waterways and swimmable beaches by 2028.

The Project involves the construction, commissioning, operation and maintenance of a wastewater interceptor tunnel and associated activities in Point Erin Park in Herne Bay. Given that no surface works are required for the Point Erin Tunnel component of the Project, this assessment is focused only on the works proposed in Point Erin Park

Specifically, the works in Point Erin Park include:

- The terminal shaft and associated construction area is proposed to be located in the grassed area immediately to the south of the Point Erin Pools (referred to as the main construction area). Earthworks of approximately 3,150m² are required for the terminal shaft construction platform.
- The control chamber, plant room and associated construction area is proposed to be located towards the southwest corner of Point Erin Park near the intersection of Curran and Sarsfield Streets (referred to as the southwestern construction area). Earthworks of approximately 1,880m² are required for the control chamber and plant room construction platform.

The Project works within these two locations broadly comprise:

- Construction of infrastructure (including the terminal shaft, control chamber, plant room, air vent, and connections/adits).
- Earthworks of approximately 5,000 m² in total across the two construction areas (as noted above, approx. 3,150 m² in the grassed area to the south of the Point Erin Pools and approx. 1,880 m² in the southwest corner of the park).
- Tree works (pruning, works in the root zone, removal, relocation).
- Temporary works including retaining walls to create level working areas, site access and internal circulation, and contractor's site compound.
- Transport movements including delivery of plant and construction materials, removal of material excavated during the construction of the temporary shaft and control chamber, and removal of the TBM.
- Park reinstatement and landscaping following completion of construction works.

2.1. Shaft Site

The shaft will be excavated to a depth of approximately 31 m, with the finished shaft invert

approximately 29 m deep. The shaft diameter will be approximately 12 m for TBM retrieval requiring an excavation of approximately 3,500m³.

Construction spoil from the tunnel will be taken back down the CI Point Erin Tunnel and removed at the existing consented/designated CI May Road shaft site.

During the construction of the connection tunnel a further 1,000m³ of drilled material will be removed.

Formation of the platform

To facilitate the required construction plant, in particular the cranes, level platforms will be formed within the shaft site area. These platforms will be relatively small and will include a level laydown area for the storage of construction materials. To provide for this area, a temporary retaining wall is required at the western extent of the platform.

The platform areas will be formed by relatively minor excavations of less than 1m. It is anticipated that this material will be unsuitable to be used as fill behind the retaining wall and will therefore need to be removed from the Site.

The backfill of the wall will be with suitable imported material.

The surface of the platform will be stabilised with compacted aggregate.

Construction activities following formation of platform

The excavation of the shaft will be undertaken by excavator. This excavation will be undertaken progressively with the excavated material being loaded into skips which will then be lifted from the shaft by crane. These skips will then be emptied into a muck bin from which an excavator will load trucks for offsite disposal.

It is anticipated that groundwater will be encountered during the shaft excavation. This will be removed by pumping to a water treatment plant (e.g. lamella clarifier or similar) which in turn will discharge to the existing piped stormwater network.

The above excavation works will be managed to keep all work areas clean. Management measures include maintaining a stabilised site; dedicated/ bunded spoil stockpile areas; clean loading areas (to avoid vehicle tracking); and general housekeeping to maintain a tidy site.

Contingency for wheel washing will be provided by a wheel washing facility near the entrance to the Site.

2.2. Control Chamber Site

The control chamber to be constructed is approximately 12m x 12m and 20m deep requiring an excavation of approximately 2,900m³. Installation of the stub tunnel towards Sarsfield Street will require the removal of approximately 350m³ of material.

Formation of the platform

To facilitate the required construction plant, in particular the cranes, a level platform area will be formed around the construction area. To provide for this level platform a retaining wall is required at

the eastern extent of the platform.

As the platform is partially within a Flood Prone Area, the retaining wall will raise this area above the potential flood height.

To form the platform suitable backfill material will be imported to Site.

The surface of the platform will be stabilised with compacted aggregate.

Construction activities following formation of platform

The excavation of the control chamber will be undertaken by excavator. This excavation will be undertaken progressively with the excavated material being loaded into skips which will then be lifted from the excavation by crane. These skips will then be emptied into a muck bin from which an excavator will load trucks for offsite disposal.

As above, groundwater encountered during the chamber excavation will be pumped to a water treatment plant for discharge prior to discharge to the existing piped stormwater network.

Similarly, excavation works will be managed to keep all work areas clean. Management measures include maintaining a stabilised site; dedicated/ bunded spoil stockpile areas; clean loading areas (to avoid vehicle tracking); and general housekeeping to maintain a tidy site.

Contingency for a wheel washing facility will be provided near the exit.

3. EROSION AND SEDIMENT CONTROL PHILOSOPHY AND PROCESSES

3.1. Objectives

The ESCP objectives for these works are:

- To ensure that sediment discharges from the works are minimised to the greatest extent practical.
- To ensure that all ESC measures are designed and approved prior to construction works.
- To ensure that all ESC measures are implemented prior to commencement of construction works.
- To ensure that all guideline and regulatory requirements are met as a minimum standard.

These objectives will be measured by the project's ability to meet environmental targets:

- No environmental or regulatory breaches (compliance with consent conditions; no prosecutions, enforcement orders, abatement or infringement notices received).
- Conduct regular environmental inspections.
- Induct all employees and subcontractors on the environmental rules and procedures relevant to the project.

3.2. Design

ESC devices have been designed in accordance with the design principles of GD05.

The ESCP has been designed to detail how the construction of the platforms will be undertaken and managed, and also how the construction activities on the completed platforms will be managed.

This ESCP has been developed based on the anticipated construction methodologies at the time of consent application, to address any potential modifications as a result of detailed design and or revised construction methodologies a Final ESCP will be provided to AC for certification prior to the commencement of earthworks at the Site.

Sizing and design information for the ESC measures are included in Section 4. The general philosophies and strategies behind the ESCP are outlined below.

As-builts and an audit programme ensures compliance with the design requirements and guidelines.

The overarching sediment control principle to be used is to ensure all sediment laden runoff during platform construction is discharged via the super silt fences, and during subsequent works via the water treatment plants.

Earthworks and land disturbance will only be undertaken where it is authorised by the resource consent.

Once all works are completed the park areas will be reinstated.

3.3. Principles

The general principles adopted during the construction activities which will be incorporated in the ESCP are as follows:

- Minimise the necessary area of disturbance as far as practically possible while meeting the development requirements of the Site.
- Carefully plan works to minimise the area of disturbance at any one time. Due to the small size of the construction areas and the intense nature of the works it is not practical to stage the construction works.
- Divert clean water runoff away from the platform area, thus reducing the contributing catchment to the exposed working areas.
- Ensure sediment laden water from the construction activities is intercepted and discharged via the sediment retention devices.
- Regularly inspect the ESC measures and undertake any maintenance necessary to maximise the sediment retention efficiency of the site.
- Undertake ongoing assessment of the ESC methodology and, if required, adjust as the work progresses.
- Ensure site staff are aware of the requirements of the ESCP and the relevant resource consent conditions.

3.4. Review

This ESCP is a live document and will be revised / confirmed prior to commencement of works to address:

- Final design;
- Associated confirmed construction methodologies; and
- Final consent conditions.

Commitment and continuous improvement to environmental management is critical to its success and continuation. As part of continuous improvement, additional changes to the ESCP may be appropriate during the course of the project. These changes may be a result of:

- Any significant changes to construction activities or methods.
- Key changes to roles and responsibilities within the Site.
- Changes in industry best practice standards or recommended erosion and sediment controls.
- Changes in legal or other requirements (social and environmental legal requirements, Resource Consent Conditions, Auckland Council objectives and relevant policies, plans, standards, specifications, and guidelines).
- Results of inspection and maintenance programmes, logs of incidents, corrective actions, internal or external assessments.
- The outcome of investigations into discharges of contaminants.

Reasons for making changes to the ESCP will be documented. Any new/updated version of the ESCP documentation will be issued with a version number and date. A copy of the current ESCP document and subsequent versions will be kept for the Project records. Superseded versions will be marked as obsolete.

Any relevant revisions to the ESCP will be submitted to the Auckland Council for certification at least 10 days before becoming operational.

4. EROSION AND SEDIMENT CONTROL DETAILS

The ESC methodology has been designed in accordance with best practice and the principles outlined in GD05.

A draft ESC drawing is provided in Appendix A. A final ESCP will be submitted post consent and prior to commencement of works.

4.1. Terminal Shaft Platform

4.1.1. Platform Construction

Access to the Site will be via a stabilised construction access from the existing Point Erin Park Access Road.

Stripped topsoil will be utilised to form a cleanwater diversion bund around the northern and eastern extent of the platform. This bund will be a minimum of 550mm high and will be grassed and stabilised with coconut matting until the grass has grown. These bunds have a maximum contributing catchment of 2,000m².

A super silt fence will be installed below the retaining wall and along the southern edge of the works.

This super silt fence (SSF) will be installed approximately 2m outside the work area to allow returns to be installed at 20m centres along the southern portion. Along the western extent this SSF will be installed along the contour negating the need for returns.

Stripped topsoil and surplus excavated material will be removed from site.

The completed platform surface will be stabilised with clean aggregate.

4.1.2. Shaft excavation and connecting tunnel construction

During these operations the potential discharge of sediment comes from two potential sources. The first is the excavation/tunnelling operation, and the second is from the platform surface.

Discharges from the excavation/tunnelling operation are managed by collecting and discharging these via pumping to a water treatment plant. Collection of this runoff will include a sump to collect runoff from the muck bin. This water treatment plant will discharge to the existing piped stormwater network.

Discharges from the completed platform area will be minimised by ensuring this surface remains clean. Surface runoff from the platform area will continue to discharge via the perimeter super silt fence.

A cattle grate wheel wash facility will be installed at the exit from the site to allow (as a contingency) the wheels of vehicles exiting the site to be water blasted before exit. This facility will discharge to a sump from which any collected water will be pumped to the water treatment plant.

4.2. Control Chamber Platform

4.2.1. Platform Construction

Access to the Site will be via a stabilised construction access from Sarsfield Street.

The existing kerb and channel on Sarsfield and Curran Street will be retained as cleanwater diversions.

A super silt fence will be installed below the retaining wall and eastern edge of the works.

This super silt fence will be installed approximately 2m outside the work area to allow returns to be installed at 10m centres.

Stripped topsoil and surplus excavated material will be removed from Site.

The completed platform surface will be stabilised with clean aggregate.

4.2.2. Control Chamber excavation

During these operations the potential discharge of sediment comes from two potential sources. The first is the excavation, and the second is from the platform surface.

Discharges from the excavation are managed by collecting and discharging these via pumping to a water treatment plant. Collection of this runoff will include a sump to collect runoff from the muck bin. This water treatment plant will discharge to the existing piped stormwater network.

Discharges from the completed platform area will be minimised by ensuring this surface remains clean. Surface runoff from the platform area will continue to discharge via the perimeter super silt fence.

A cattle grate wheel wash facility will be installed at the exit from the Site to allow (as a contingency) the wheels of vehicles exiting the site to be water blasted before exit. This facility will discharge to a sump from which any collected water will be pumped to the water treatment plant.

4.3. Stockpiling

Stockpiling of topsoil and excess fill material will be avoided as far as practicable as there is insufficient room to maintain these stockpiles. Where temporary stockpiling is required, this will be within the Site's perimeter bunds.

4.4. Stabilisation

Progressive stabilisation will be undertaken as areas are completed.

At the completion of all works, the platforms will be removed and the disturbed areas reinstated to the pre-works condition (or as otherwise agreed with the landowner).

4.5. Chemical Treatment

The primary control measures on site during platform construction are the super silt fences, these do not benefit from chemical treatment.

During the excavation/tunnelling operations following platform construction, the water treatment plants are likely to benefit from chemical treatment.

Prior to these activities commencing, chemical bench testing will be undertaken to determine the effectiveness of chemical treatment and the appropriate dose rate.

The results and management of the chemical treatment systems will be detailed within a Chemical Treatment Management Plan (ChTMP) – noting the CI Project has an existing, certified ChTMP. The ChTMP will be provided prior to commencement of activities being undertaken on site.

If chemical treatment is required, it will be undertaken in accordance with the recommendations of the ChTMP.

4.6. As-Built Certification

Prior to earthworks commencing, as-builts for the SSFs for that area will be provided to the Auckland Council. The as-built certification will confirm that the controls have been constructed in accordance with the ESCP and GD05.

4.7. Programme

The CI TBM is expected to arrive at Tawariki Street in Grey Lynn in February 2025 and at Point Erin Park in May 2025 (noting timeframes may change as the TBM progresses along the CI alignment).

The CI tunnelling operations occur 24 hours a day, 7 days a week as provided for under the CI and Grey Lynn Tunnel suite of consents and designations. Watercare seeks the same timeframes for the Point Erin Tunnel. The tunnelling activities are located entirely below ground and a seasonal restriction is not necessary or appropriate.

Ideally construction works at Point Erin Park will commence at least 12 months prior to the expected arrival of the TBM at Point Erin Park i.e. site establishment in the first half of 2024.

Watercare requests that a seasonal earthworks restriction is not imposed on this consent for the following reasons:

- The nature of the project, being significant large-scale infrastructure works and the potential for delays (incl. Covid-19 related delays and supply chain issues);
- The construction programme and in particular the fact that a TBM would be making its way towards the site and there is no option of the TBM waiting in the ground for the terminal shaft construction to be completed.

This is consistent with the existing CI and GLT consents which do not impose a seasonal restriction. It is also supported by the small-scale nature of the land disturbance works at Point Erin Park and the limited potential for erosion and sedimentation. Following site establishment across a total area of approximately 5,000m², the construction areas will be stabilised such that the potential for erosion and sedimentation is even further limited.

Overall construction works at Point Erin are expected to take approximately two years (i.e. around 2024 to mid-late 2026), although it may take longer depending on the TBM's progress and other factors such as supply chains and resourcing (e.g. up to three years). It is relevant to note that construction will not be continuous over this full duration, rather there is likely to be periods of more intensive or less intensive construction and then 'quieter' periods, for example when waiting for the arrival of the TBM.

4.8. Monitoring and Maintenance

All erosion and sediment control measures and methodologies will be monitored and maintained during the works in accordance with GD05. Monitoring will be undertaken before and immediately after rain events as well as during heavy rainfall events. Any required maintenance or improvements to control measures will be undertaken immediately.

4.9. Removal of ESC Measures

The removal of any ESC measure from any area where soil has been disturbed as a result of the exercise of this consent will only occur after consultation and approval has been obtained from the Auckland Council.

5. APPENDIX

5.1. Appendix A - Erosion and Sediment Control Drawings

Drawing number	Drawing title	Date	Revision
431-001	Erosion and Sediment Control – Draft for Consent	25-01-23	B



				BY	DATE
				DESIGNED	
				SURVEYED	
B	For Consent	DMM	25-01-23	AUTOCAD	
A	For Review	DMM	22-12-22	APPROVED	
	AMENDMENT	APP'D	Date		



CENTRAL INTERCEPTOR POINT ERIN TUNNEL



0274 838923 info@mcconnell.nz
www.mcconnell.nz

Erosion and Sediment Control			
TITLE: Draft for Consent			
Client: Tonkin + Taylor			
Plot Date	Scale: 1:750 @ A3	Job No.: 2022 - 431	
File Number	Drawing No.	Rev. No.	Sheet No.
431	431 - 100	B	1