

Lessons learned from one of New Zealand's most challenging civil engineering projects: rebuilding the earthquake damaged pipes, roads, bridges and retaining walls in the city of Christchurch 2011 - 2016.

Environmental Management Plan

Story: SCIRT Management Plans

Theme: The SCIRT Model

A plan which outlines how to manage the environmental impacts that result from SCIRT works.

This document has been provided as an example of a tool that might be useful for other organisations undertaking complex disaster recovery or infrastructure rebuild programmes.

For more information about this document, visit www.scirtlearninglegacy.org.nz



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Environmental Management Plan

Review:

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Authorisation:

Name	Position	Date	Signature
David Hanham	SQE Manager	18/3/16	
Ian Campbell	Executive General Manager	22/3/16	

1.0 Scope & Purpose

The Stronger Christchurch Infrastructure Rebuild Team (SCIRT) Environmental Management Plan (EMP) is designed to manage the environmental impacts that result from the operations at all the sites under the SCIRT umbrella. The activities of all of the employees are subject to the policies and procedures described in this manual. The SCIRT EMP is designed to conform to the International Standard ISO14001:2004 document.

Primary responsibility for environmental management during construction phase is with the Non Owner Participant (NOP) Delivery Teams using their own environmental management systems. This EMP provides a framework to set expectations and for alignment of the different Delivery Teams environmental management systems to improve environmental performance throughout the course of the SCIRT programme of works.

2.0 Environmental Policy

SCIRT have developed a [Sustainability Policy](#) which is displayed prominently in the IST and available on ProjectCentre. The policy documents SCIRT's intentions and principles in relation to environmental performance and provides the framework for setting environmental performance goals. It is reviewed by the SQE Manager and authorised by the SCIRT Board.

3.0 Roles & Responsibilities

Environmental management is everybody's business. This should be firmly embedded into the thinking and actions of all employees of SCIRT. There is coaching, resources and support available for SCIRT sites.

The EMP is implemented and operated through a responsibility structure as outlined below:

3.1 Executive General Manager (EGM)

The Executive General Manager has overall responsibility for the environmental performance and compliance of SCIRT, including being responsible to the Board.

3.2 SQE Manager

The SQE Manager is responsible for leading the safety, quality and environmental teams, and maintaining a strategic overview of SCIRT environmental management. The SQE Manager provides assurance the environmental management systems are effective, promotes a positive environmental culture and is the champion of excellence, raising industry standards of performance.

3.3 Design Manager

The Design Manager is responsible for checking environmental and planning components have been considered during the design process and the appropriate regulatory permissions are obtained early.

3.4 Delivery Managers

The Delivery Managers are responsible for ensuring that construction environmental performance meets expectations and promoting a positive environmental culture.

3.5 IST Environmental Manager/Advisor

Provides environmental and planning support to the Delivery and Design Teams; monitor and review changes to environmental legislation; ensure that the SCIRT environmental management, consent compliance and reporting processes are met; and obtain necessary regulatory permissions.

3.6 Delivery Team Environmental Managers/Advisors

Provide environmental advice and support to construction teams; ensure the required environmental information recording and reporting is done; provide information and advice to Delivery Team management on environmental risks, performance and compliance; co-ordinate internal and external audits.

3.7 Operational Leaders

Contract managers, project managers, site engineers, site supervisors and foremen will ensure that: environmental systems under their responsibility are administered; the environmental performance of their site is managed and reviewed; resources are made available to facilitate any environmental objectives; direct reports and employees are aware of environmental responsibilities; reporting to their manager on environmental issues is done effectively and in a timely manner.

3.8 Environmental Leadership Group (ELG)

The Environmental Leadership Group (ELG) will provide strategic direction of environmental issues within the SCIRT programme while improving the environmental culture and sustainability of the rebuild.

3.9 All Staff

All Staff will ensure that: they are aware of environmental requirements and adopt good environmental practices; they comply with all policies, procedures and regulations; they report any hazards, near misses and take all reasonable precautions to prevent damage to the environment.

4.0 Legal Requirements

The SCIRT IST Environmental team monitors any changes or updates that are required, or need comment on behalf of SCIRT. The legislation monitored includes the following: [Resource Management Act 1991](#), [Canterbury Earthquake Recovery Act 2011](#), Local authority bylaws and regulations including district and regional plans, [Heritage New Zealand Pouhere Taonga Act 2014](#), [Climate Change Response Act 2002](#), [Energy Efficiency and Conservation Act 2000](#), [Hazardous Substances and New Organisms \(HSNO\) Act and Regulations 1996](#), [Biosecurity Act and Regulations](#).

SCIRT operate under several global consents for the works undertaken. These are outlined as follows (Note: an up to date list is stored on Project Centre or the SCIRT G drive):

Consent Number	Authority	Details	Expiry Date
CRC100748	ECan	Dam & Divert Water	6/1/2045
CRC100749	ECan	Discharge water to water	6/1/2045
CRC146620	ECan	For works in beds and margins of waterways	6/1/2045
CRC121013	ECan	To install permanent and temporary bores for groundwater monitoring and investigation purposes	6/12/2021
CRC121310	ECan	To discharge water and contaminants to water	8/3/2022
CRC121311	ECan	To take and use groundwater for site dewatering purposes	8/3/2022
RMA92019127	CCC	Global Consent for Works Affecting Protected Vegetation (+Variation)	N/A
2012/321eq	HNZ	Archaeological Authority (Christchurch)	18/4/2016
2012/320eq	HNZ	Archaeological Authority (Lyttelton)	18/4/2016
RMA 92020001	CCC	Global consent to construct Pump Stations (+ Variation)	17/07/2022
CRC122121	ECan	Earthworks within 1m of Aquifer	11/10/2022
RMA92020520	CCC	Disturbance of Contaminated Soil	30/10/2022
CRC131405	ECan	Sewer Over flow Consent (NB authorisation required from Executive General Manager to use this consent – see memo)	9/3/2022
CRC133186	ECan	Fuel storage for diesel generators at new pump stations	16/4/2048
CRC133187	ECan	Discharge to air from diesel generators at new pump stations	21/5/2048
CRC133234	ECan	Discharge of stormwater from new pump stations	23/4/2048
2013-580eq	HNZ	Global Archaeological Authority for works on private land and in the CMA (Christchurch)	18/4/2016
2013-614eq	HNZ	Global Archaeological Authority for works on private land and in the CMA (Lyttelton)	18/4/2016
RMA92022494	CCC	Global heritage consent	N/A
RMA92020603	CCC	Outline Plan Waiver for all NZTA asset repairs	N/A

SCIRT teams also operate under specific consents for several projects. Project specific consents are listed below (Note: an up to date list is stored on Project Centre or the SCIRT G drive).

Consent Number	Authority	Details	Expiry Date
CRC132423	ECan	10634 – Main Road causeway seawall	29/1/2048
CRC132235	ECan	10979 – Main Road seawall between Scott Park and the causeway	2/5/2043
CRC136468	ECan	10724 – Bridge St bridge repairs and detour structure	21/9/2017
CRC145555	ECan	11109 – Southshore coastal stormwater outfalls	16/5/2049
CRC082336	ECan	10466 – Fitzgerald Ave twin bridges, widen bridge	20/6/2023
CRC082337	ECan	10466 - Fitzgerald Ave twin bridges, divert water	20/6/2023
CRC082338	ECan	10466 - Fitzgerald Ave twin bridges, discharge water	20/6/2023
CRC140688	ECan	11200 – Beachville eastern seawall	19/12/2048
2014-379eq	HNZ	10611 – Moncks Cave water pump station relocation	18/4/2016
RMA92022063	CCC	10832 – PS15 work within stream setback	N/A

RMA92026333	CCC	10796 - Outline Plan Waiver for Anzac Drive bridge reconstruction	N/A
RMA92021333	CCC	10482 – Triumphal Arch repair	N/A
CRC154591	ECan	Port Hills Mass Movement – Quarry Rd	28/01/2025
RMA92028039	CCC	Port Hills Mass Movement – Quarry Rd	N/A
2015-694eq	HNZ	Port Hills Mass Movement – Quarry Rd	18/04/2016
CRC154170	ECan	Port Hills Mass Movement – Defender Lane and Maffey's Rd	09/02/2025
RMA92028039A	CCC	Port Hills Mass Movement – Defender Lane and Maffey's Rd	N/A
2015-854eq	HNZ	Port Hills Mass Movement – Defender Lane	18/4/2016
2015-966eq	HNZ	10861 - Rocking Horse Road Wastewater Laterals	18/04/2016
2015-1032eq	HNZ	Sumner Bowling Club	18/04/2016
2015-1091eq	HNZ	Eastern Terrace Works	18/04/2016
2016-060eq	HNZ	Sydenham Wastewater Laterals	18/04/2016
2016-091eq	HNZ		18/04/2016
CRC157418	ECan	Beachville Northern Seawall	02/07/2050
2016-173eq	HNZ	Port Hills Mass Movement – Maffey's Road Bund	18/04/2016
RMA92031290	CCC	Port Hills Mass Movement – The Brae/Quarry Road	N/A
2016-403eq	HNZ	Port Hills Mass Movement – The Brae/Quarry Road	18/04/2016
2016-555eq	HNZ	4/4A Fendalton Road Wastewater Laterals	18/04/2016
2016-578eq	HNZ	Moncks Bay Lane Wastewater Laterals	18/04/2016

Compliance responsibility tables for resource consents and archaeological authorities are compiled by the SCIRT IST and are available on Project Centre (Register→007:Health, Safety, Quality & Environmental→30 Global Consent & Authorisations→ Compliance Responsibility Tables). These tables specify the organisation or position responsible for compliance with each aspect of the resource consent or authority.

5.0 Training

All staff are expected to undertake their home organisation environmental training, while some staff are required to undertake additional relevant competence training. All training registers are held and administered by home organisations.

6.0 Objectives & Targets

SCIRT's Key Result Areas (KRAs) and Key Performance Indicators (KPIs) are reviewed annually for relevance and to address any new needs. KRAs and KPIs are developed using guidance from the Boards Environmental KRA Objective: *"To deliver an environmentally sensitive rebuild and minimise impacts during and after construction."* For further detail on how the KRAs and KPIs are administered and verified, refer to the [SCIRT KRA Management Plan](#).

6.1 Environmental Key Risks

The Environmental Leadership group has identified five key environmental risks for SCIRT work, and minimum standards in order to prevent incidents in these risk areas. The Five Key Risks and Minimum Standards have been endorsed by the SCIRT Board and Management, and are communicated widely to all SCIRT staff. Construction Teams are expected to meet these minimum standards. The minimum standards and key risks are stored on project

centre under ([Register](#)→[007:Health, Safety, Quality & Environmental](#)→[35 Environmental Mngt Plans & Procedures](#)).

6.2 Environmental Legacy

KPI 5.1 is delivery of an environmental legacy which enables usage of the SCIRT EMS post-SCIRT. A legacy framework has been developed, and progress is measured and reported to the SCIRT Board on a monthly basis.

7.0 Performance Monitoring and Reporting

7.1 Monitoring

Site audits are to be carried out on a monthly basis by the delivery team responsible for the site. The Delivery Team environmental management system describes the system for ensuring: audits address consent compliance requirements and environmental risk management; corrective action identification and close out; reporting of any environmental hazards, near misses and incidents; and root cause analysis.

A verification audit is carried out by SCIRT IST once per month for each delivery team on one selected site. This is the Quality of Audit (KPI 5.2), which checks the quality of the delivery team audit system, consent compliance and on-site environmental risk management.

Regulatory compliance visits are scheduled at the regulatory authority's discretion. Typically, the regulator takes a risk-based approach is taken to site selection and monitoring frequency. Regulator monitoring reports are issued directly to the delivery team, CCC and IST. A copy is stored on the SCIRT G drive, on the CCC TRIM filing system and within the Delivery Team's internal filing system.

7.2 Reporting

Incident reporting and investigation is the responsibility of Delivery Teams. The requirements for incident reporting, investigation and escalation is set out in [Notice of Requirement 009](#).

Every month, a compliance report and environmental performance update is prepared by the IST Environmental team, with input from the Environmental Leadership Group and Regulatory staff (when possible), and reviewed by the SCIRT EGM and Board. The monthly update includes; data on performance against objectives, updates on key issues, and upcoming priorities.

8.0 Emergency Response

Each delivery team has a specific Emergency Response Plan. It is the Delivery Teams responsibility to ensure all staff and subcontractors are aware of and working under this plan. Each site has an evacuation plan, and nominated emergency response coordinators.

9.0 Communications (Internal & External)

All external communications to the general public are managed through SCIRT’s Communications Manager. External communications to environmental regulators and stakeholders are managed through the IST environmental team. Internally, communications are through the Environmental Leadership Group.

The following documentation is used to communicate the project environmental and planning risks and controls; the applicable resource consents; and any unusual project specific environmental issues.

Document Type	Document Purpose	Document Creator	Document Recipient	Relevant Project Stages
Project design report (concept and detailed) and risk register	Identify relevant environmental considerations to design. Identify environmental risks to the project.	Designer	TOC Team, Delivery Team Project Manager	Concept Design, Detailed Design, TOC, Construction Allocation, Construction
Project Centre ENVC form	Identify consenting requirements and project specific environmental risks or issues.	IST Environmental Advisor	Delivery Team Environmental Advisor	Concept Design, Detailed Design, TOC, Construction Allocation
Project Specific Environmental Management Plan	Document project construction specific environmental risks and controls.	Delivery Team Environmental Advisor or Project Manager	Project Construction Team	Construction

10.0 EMS Records

The following EMS records are held electronically on Project Centre; this EMP, design reports, project risk register, ENVC form, IST Quality of Audit assessment, KPI documentation, resource consents, archaeological authorities, compliance responsibility tables, procedures and guidelines, incident reports, and may also include other relevant records.

The following EMS records are held electronically in delivery team document control systems; delivery team corporate EMPs, delivery team internal audits, project specific environmental risk assessments, project specific environmental management plans, and may also include other relevant records.

The following EMS records are held electronically on the CCC TRIM filing system; resource consent applications, resource consent monitoring reports, external audits, and may also include other relevant records.

11.0 Management Review

Planned formal reviews of the EMP are conducted at least once per calendar year. The EMP is reviewed and updated by the IST Environmental team, and reviewed by the SCIRT EGM.

In addition, the SQE manager provides EMP updates as necessary during regular management meetings to maintain an ongoing awareness.

The SCIRT Board is provided with environmental performance information on a monthly basis as described in section 7.2 above.

12.0 Other Documentation

Management Plans and other issue-specific documentation which follows this corporate Environmental Management Plan are stored on Project Centre ([Register](#)→[007:Health, Safety, Quality & Environmental](#)→[35 Environmental Mngt Plans & Procedures](#)).

12.1 Management Plans

There are various SCIRT Management Plans which must be adhered to under the programme of works. These are outlined below (Note: an up to date list is stored on Project Centre):

- [Site Management Plan \(Earthworks\)](#)
- [Tree Management Plan](#)
- [Archaeological Management Plan](#)
- Heritage report on Significant Red Rock walls (CCC)

12.2 Procedures & Guidelines

Similarly, there are Procedures & Plans, as outlined below (Note: an up to date list is stored on Project Centre):

- [Accidental Sewage Overflow Response Procedure](#)
 - [Accidental Discovery Protocol](#)
 - [Operational Summary for working around trees](#)
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- [Dewatering Best Practice Paper](#)
 - [Working with Abandoned Gas Mains memo](#)
 - Pump Station Architectural Design Guideline
 - Retaining wall urban design guideline
 - [Pump station noise design memo](#)
 - [Coal Tar Disposal Methodology](#)
 - [Deconstruction Methodology \(Lyttelton Red Rock Walls\)](#)
 - [Compliance Responsibility Tables for Consents](#)
 - [Designers Guideline 008](#)
 - Multi-Criteria Assessment Tool for Project Option Selection (BECA) [Report](#) & [Tool](#)
 - [Heritage Guide for Delivery Teams](#)
 - [Noise Mitigation Best Practise Guide](#)
 - [Management Plan for implementing wastewater discharge consent](#)
 - [Wastewater Overpumping Best Practise Guide](#)
 - [Burwood Resource Recovery Park Procedures](#)
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