SCIRT Rebuilding Infrastructure

LEARNING LEGACY

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.

Construction Management Plan

Story: SCIRT Management Plans

Theme: The SCIRT Model

A plan which describes how SCIRT is to carry out construction 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

Programme funded by
Christchurch City Council
New Zealand Government

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city care
Downer
Fulton Hogan
McConnell Dowell
Fletcher

SCIRT
Rebuilding Infrastructure

Construction Management Plan

Review:

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F	Approved	Hunter Morton	Tim Mason	24-05-16

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1 ACRONYMS, ABBREVIATIONS AND DEFINITIONS

Term	Definition
CCC	Christchurch City Council
CERA	Canterbury Earthquake Recovery Authority
DMT	Delivery Management Team
DPS	Delivery Performance Score
DT	Delivery Team
IST	Integrated Services Team
ITP	Inspection and Test Plan
KPI	Key Performance Indicator
KRA	Key Result Area
NZTA	New Zealand Transport Agency
NOP	Non Owner Participant
OLG	Operational Leadership Group
SCIRT	Stronger Christchurch Infrastructure Rebuild Team
DLT	Delivery Leadership Team
TMTG	Tactical Management Traffic Group
TOC	Target Out-turn Cost

2 INTRODUCTION

2.1 PURPOSE OF THIS PLAN

The purpose of this *Construction Management Plan* is to describe how SCIRT intends to undertake construction of the Christchurch horizontal infrastructure rebuild works. Such works shall include the construction of the 3 waters (water, waste water and stormwater) roadway, bridges, retaining walls and associated facilities required to complete the rebuild works. It shall also identify other key aspects of the rebuild programme that have significant potential impact upon the successful delivery of the construction stage.

2.2 PROGRAMME DETAILS

The full scope of the SCIRT rebuild programme is detailed in the *Programme Management Plan*.

3 OBJECTIVES

3.1 CONSTRUCTION OBJECTIVES

Construction objectives are consistent with the Alliance Agreement objectives and include:

- Lifting the zero harm performance of all Alliance Participants to industry best practice in NZ.
- Protecting the environment and reducing health hazards.
- Doing the right thing at the right time to the right standard every time.
- Providing value for money.
- Using innovation to add value for both the rebuild work and wider industry.
- Maintaining high levels of customer service and an open and honest dialogue with all residents and affected businesses.
- Effectively co-ordinating with others doing rebuild work / BAU work.
- Lifting the capability of the sector wide workforce.
- Maintaining a sustainable Christchurch infrastructure sector market.

To enable achievement of these objectives SCIRT will:

- Implement city-wide Programme requirements against defined indicators and objectives, and detailed planning input criteria, to achieve 'best value' for the Owners;
- Ensure that the Programme is managed through effective contingency planning, risk management, regular coordination, and accurate reporting;

- Coordinate the Delivery Teams to ensure that critical resources (labour, materials and plant) are deployed effectively on a priority, 'Best for the People of Christchurch' basis;
- Provide effective community and stakeholder management in order that there is a 'no surprises' approach and that all parties feel satisfied with the Project outcomes upon completion.

4 CONSTRUCTION MANAGEMENT ORGANISATION AND RESPONSIBILITIES

4.1 CONSTRUCTION ORGANISATIONAL STRUCTURE

The SCIRT Organisational structure is described within the *Programme Management Plan*.

The SCIRT rebuild programme comprises hundreds of projects. The SCIRT **Non Owner Participants (NOPs)** (City Care, Downer, Fletcher, Fulton Hogan and McConnell Dowell) have provided five **Delivery Teams (DTs)** to be responsible for delivery of the physical works required for projects. These teams are required to utilise home organisation resources, processes and systems to manage works carried out by themselves and their subcontractors in compliance with SCIRT requirements.

A **Delivery Management Team (DMT)** within the **Integrated Services Team (IST)** is responsible for the allocation of projects to Delivery Teams, for coordination and oversight of the whole construction programme and for ensuring effective communication and collaboration between the Delivery Teams and between the DTs and the Designers and other functional teams within the IST.

The DMT also manages the coordination with Client asset owners and operators, regulatory authorities, utility network providers and other rebuild programme managers required to enable the SCIRT construction programme.

A number of functional teams within the IST support the programme-wide coordination and management of specific construction management functions including health and safety, community and stakeholder relations, environmental impact management, quality management, design support, human resources, commercial administration and reporting.

4.2 DELIVERY TEAMS

The physical delivery and deployment of labour, plant and material to undertake each project is the responsibility of the Delivery Team. Delivery Teams report to both SCIRT senior management and their home organisations.

Each Delivery Team is under the direction of a **Delivery Team Leader** who is also responsible for required liaison and reporting to the SCIRT Delivery Manager and the IST on matters including:

- Health and Safety;
- Environmental issues;
- Community and Stakeholder issues;
- Quality;
- Commercial issues including project cost forecasting and performance;
- Project schedule forecasting and performance;
- Risk management
- Resource management;
- Business barriers/ constraints;
- Project design issues.

Each Delivery Team will have **Project Managers** who are responsible for the day–to–day management of the Projects assigned to them by the Delivery Team Leader. The Project Managers will liaise directly with the DMT Project Coordinators to ensure project issues are resolved efficiently and effectively.

4.3 DELIVERY MANAGEMENT TEAM

The Delivery Management Team is led by the **Delivery Manager** who is a member of the SCIRT **Management Team** and reports to the SCIRT **General Manager.**

To ensure clarity of communication and direction with regard to specific project and delivery team matters, the Delivery Manager is assigned individual responsibility to the Delivery Teams.

The Delivery Manager is responsible for:

- Allocation of projects to Delivery Teams;
- Facilitating and ensuring collaboration between teams;
- Generally ensuring SCIRT objectives, as defined in the Alliance Agreement, are met in the execution of rebuild construction works;

The Delivery Manager will delegate responsibilities as appropriate to members of the Delivery Management Team which will include personnel reporting to the Delivery Manager with roles and responsibilities as follows:

Operations Manager — The Operations Manager reports to the Delivery Manager and shall be accountable for monitoring the delivery of project construction packages allocated to their assigned Delivery Teams and for providing support and advice and initiating remedial action where required for project matters including :

- Design – co-ordination and integration within the overall rebuild programme, ensuring efficient communication between the delivery and design teams;
- Construction Planning (ECI performance)
- Site safety, quality and environmental performance;
- Cost and schedule performance
- Community and Stakeholder interaction;
- Quality and consistency of delivery standards;

Completions Manager

The Completions Manager reports to the Delivery Manager, manages and co-ordinates the completion activities of the rebuild works to ensure performance objectives are met including:

- Co-ordination of the five Delivery Teams and IST resource to achieve completion targets.
- Prioritisation and management of completion gates to ensure best for programme results including Identification and resolution of issues relating to completion of construction works.
- Provide timely and accurate reporting on completion progress, key issues and identify and implement improvement strategies.
- Driving resolution of escalated Delivery Team issues around completion.
- Ensuring consistency of approach across all Delivery Teams regarding completion processes.

Project Coordinators

The five Project Co-ordinators are assigned to each Delivery Team with responsibility for managing the day-to-day interface between Delivery Teams and IST, monitoring and resolution of project issues and ensuring clear communication and provision of reporting data.

Scheduler

Establishing and maintaining the master schedule for the rebuild programme to show duration and timing for all phases of each rebuild project and report on actual progress against that schedule.

Traffic Management

Traffic modelling and planning to minimalise traffic congestion city-wide, and to coordinate the Traffic Management Tactical Group (TMTG) to ensure optimised delivery performance. TMP approval, maximisation of worksite utilisation, prioritising in the event of conflict and

	optimisation of resources.
Utilities Coordinator	Managing the interface between the SCIRT rebuild programme and Utility Network Providers to ensure utility requirements are effectively met in project design and construction and opportunities for collaboration are fully realised.
Property Coordinator	Identifying, monitoring and managing the resolution of property issues for the rebuild programme, working with Client property and legal service departments and property owners as required. Advising design and delivery team on property impacts.
Commissioning Coordinator	Providing specialist advice and support to Delivery Teams for the commissioning of Pump Stations and other mechanical/electrical installations and ensuring effective coordination with asset owners and operations.
Delivery Administrator	Provide administrative support to the Delivery Manager and Delivery Management Team.

For clarity of reporting relationships, oversight of the functional roles within the DMT is the responsibility of the Delivery Manager. Project Coordinators, Scheduler, Property and Commissioning Coordinators will report to the Operations Manager.

4.4 DELIVERY LEADERSHIP TEAM (DLT)

The Delivery Leadership Team, comprising the Delivery Manager and five Delivery Team Leaders, is a steering group established to optimise delivery performance by facilitating communication and collaboration between delivery teams and the resolution of tactical issues impacting on the construction programme.

The DLT will meet regularly, at least twice per month. Agenda items will include:

- Monthly review of delivery performance metrics.
- Development and implementation of initiatives to enhance construction performance.
- Review of functional group initiatives and coordination with IST functional leaders.
- Preparation of proposals to SCIRT Management Team and Board and the implementation of Board directives.

Refer *Attachment 1* for the DLT Terms of Reference.

4.5 OPERATIONAL LEADERSHIP GROUP (OLG)

The Operational Leadership Group, comprising the Operations Manager, Project Coordinators and operational management representatives from each of the

Delivery Teams, is a coordination group with the purpose to discuss and resolve operational issues impacting on the delivery of the construction programme

The OLG shall meet regularly, at least twice per month. These meetings will discuss common operational matters, share experience and identify solutions that enable all teams to consistently perform in accordance with construction best practice.

Refer *Attachment 2* for the OLG Terms of Reference.

4.6 FUNCTIONAL GROUPS

Functional Groups comprising appropriate representatives from the DMT and Delivery Teams have been formed by the Delivery Leadership Group to coordinate and resolve issues in specific functional areas including:

- Traffic Management
- Scheduling
- Utilities Coordination

Other functional groups have been formed by IST functional managers to similarly coordinate and resolve issues in areas including:

- Health and Safety
- Quality Management
- Stakeholder and Community Engagement
- Environmental Management
- Commercial Management
- Human Resources

For Terms of Reference for these other groups refer to the associated Management Plans.

4.7 BEST PRACTICE WORKING GROUPS

Where the resolution of specific construction issues requires in-depth investigation and option identification and selection, the Delivery Managers, DLT or OLG will establish and empower 'Best Practice' Working Groups comprising relevant specialists drawn from within the IST, the Delivery Teams, Contractors, Suppliers and consultant experts.

These working groups will make recommendations to the Delivery Managers or DLT who will determine the action or further referral required. Areas of investigation might include the likes of:

- PE pipe welding
- Trench backfilling
- Site housekeeping

4.8 MONTHLY PERFORMANCE REPORTING AND REVIEW

Delivery Teams are required to report at the end of each month on progress and/or performance with regard to project cost, schedule, resources, and SCIRT non-cost Key Result Areas (KRAs).

Reporting format and content are required to meet IST business systems requirements to enable collation into reports on overall SCIRT performance. Reporting requirement may be varied from time to time by the SCIRT Board, General Manager, Delivery Managers or IST functional managers.

Upon completion of monthly reporting a formal meeting is held to review the performance of each Delivery Team, generally and on individual projects. These meetings are attended by the Delivery Team Leader, Delivery Manager and Project Coordinator and operational, commercial, scheduling or other personnel from both the Delivery Team and IST as are deemed necessary to ensure effective review.

As a minimum, these meetings will review performance in the following areas:

- Safety, environmental and quality performance;
- Progress of works;
- Cost performance;
- Schedule and cost forecasting;
- Risk management;

The following will also be discussed at these meetings, when required:

- ECI performance
- Effectiveness of work procedures;
- Subcontractor performance;
- Audit and inspection findings;
- Stakeholder and community performance;
- KRA performance and impact on project allocation;
- Communication and interface issues;
- Lessons learned, innovations and other suggestions for improvement.

Each Delivery Team will also be expected to comply with home organisation requirements with regard to monthly reporting and in-depth project performance analysis and review, facilitated by corporate support.

5 CONSTRUCTION PLANNING

5.1 PROJECT ALLOCATION

Projects are allocated by the Delivery Manager to Delivery Teams in accordance with the procedure set out in the *Procurement Management Plan*. This requires a target work-share to be established for each Delivery Team based on cost performance against TOC and performance in the SCIRT non-cost Key Result Areas (KRAs). Projects are allocated for construction to Delivery Teams to achieve the target work shares but the Delivery Manager is required to take into account Delivery Team capability, availability and other factors when deciding which project(s) to allocate to achieve a team's required share.

5.2 PLANNING REQUIREMENTS

The following elements shall be addressed in the planning of SCIRT construction works:

- Construction Methodology;
- Environmental Methodology;
- Interface with other works;
- Inspection and Test plan;
- Testing and Commissioning Methodology;
- Quality Management;
- Traffic Management;
- Risks Assessment;
- Schedule;
- Productivity targets;
- Resources deployed (people and plant);
- Community relations and media;
- Site specific Health and Safety plan, including hazard analysis and emergency procedures;
- Project sign-off process, including final consents and other legislative requirements.

5.3 ECI PROCESS

Early Contractor involvement (ECI) will start during the Concept Design phase and continue through to Detailed Design Completion. The ECI team will provide the following key deliverables upon completion of design:

- Construction Methodology

- Draft Baseline Schedule
- Inspection and Test Plan (ITP)
- Updated Project Risk Register
- Outline Traffic Management Plan
- Temporary Works Bill of Quantities and review of Permanent Works BOQ

TOC will not proceed until all ECI documentation has been provided. Refer *Attachment 3* for details of the ECI process and requirements.

5.4 CONSTRUCTION METHODOLOGY

Construction methodology is to be developed progressively by the Delivery Teams to ensure the safe construction of specific Projects and to ensure effective pre-planning is undertaken. The Delivery Team home organisations have extensive experience in preparing construction methodology and are expected to support Delivery Teams with resources and provision of template and archive documentation accordingly.

The methodology will determine the key infrastructure elements and priority areas. Of particular interest are the following activities:-

- Bridge Construction;
- Excavation in Soft Ground;
- Piling;
- Retaining Walls;
- Deep Drainage;
- Pavement Construction;
- Surfacing;
- Utilities.

Methodology development will include and take into account an assessment of safety and environmental risks and issues and how these will be eliminated, isolated or minimised. Safe work practice statements will be prepared for all construction tasks in accordance with home organisation requirements and made available with the construction methodology.

5.5 PROGRAMME SCHEDULE

The rebuild programme schedule has been established and maintained as outlined in the *Schedule Management Plan.* The schedule will take into account:

- Project Prioritisation and relationships between projects;
- Construction methodologies and techniques;
- Resource availability and the efficient and cost-effective use thereof;

- Procurement, Commissioning and other pre and post construction activities;
- Traffic management constraints;
- Community considerations;
- Other rebuild activities, such as the vertical construction industry demands;
- Programme funding.

Delivery Teams are responsible for providing detailed project schedules which are summarised and amalgamated into the Rebuild Programme schedule by the Business Systems Scheduler.

A baseline schedule will be agreed for each project prior to construction commencing. The Delivery Team's ongoing performance against that baseline schedule will be measured and reported.

5.6 Risk Management

The *Risk and Opportunities Management Plan* details how SCIRT manages risks associated with the rebuild works.

The IST will consider the risks associated with the Programme for the rebuild as a whole. Managing the Project-specific construction and handover risks is the responsibility of the respective Delivery Team assigned to that Project. The Delivery Team will address the project construction and handover risks as part of their construction methodology.

Where appropriate, risks will be eliminated. If this cannot be practicably achieved, every endeavour will be made to mitigate the impact of the risk.

Any risks that do eventuate which will have a significant impact on the performance or reputation of the wider SCIRT team will be notified through to the Delivery Manager and Operations Manager by the Delivery Team Leader within 24 hours of being realised.

5.7 Planning for Commissioning and Handover

In planning the work to be delivered under a Project, particular consideration will be given to any need to commission assets such as pumping stations. Construction methodology will include specific commissioning planning and specific quality assurance tasks and protocols to be established with the Asset Owner.

Commissioning involves particular hazards that need to be carefully considered and captured in the Health and Safety Management System. Commissioning also involves Measurement, Inspection and Testing that is beyond the norm of most Quality Management System content, and so particular procedures will need to be followed.

The Commissioning Coordinator will be as a conduit for establishing procedures between the Asset Owner and SCIRT.

5.8 SERVICE CONTINUITY

In planning projects, the IST and Delivery Teams will consider methodologies that minimise the disruption to the existing service amenity during the execution of the Project Works. The extent to which this may dictate construction methodology will be considered in order to arrive at an appropriate Delivery TOC.

Refer the *Utilities Management Plan* for details of requirements.

5.9 RESOURCE DEMAND

The rebuild schedule is used to estimate future resource requirements which are required by the DLT to develop strategies and plans to ensure the Delivery Teams have the required resource to meet their requirements.

Delivery Teams will cooperate to provide 'best for the people of Christchurch' deployment of resources in accordance with these strategies and plans e.g. Pipelining, CCTV.

6 CONSTRUCTION MANAGEMENT

6.1 PROJECT DOCUMENTATION

Once awarded a project, the Delivery Team is responsible for reviewing the ECI documents and finalising a project specific execution plan.

A pre-construction meeting involving Designers, Delivery and other appropriate parties will be held before physical works commence to ensure all project documentation has been provided, reviewed, agreed (where required) and is available on Project Centre.

All correspondence will be in accordance with the *Internal Communication Plan.*

6.2 PROCUREMENT STRATEGY FOR CONSTRUCTION

The primary objective of the SCIRT strategy for procuring goods and services for design and construction of the Rebuild is to provide Value for Money and ensure a sustainable business future for Christchurch. In general, purchases for goods and services will be made through the Delivery Teams, with purchases only being made through the IST where added value can be demonstrated.

Further details can be found in *Procurement Management Plan*.

6.3 TRAFFIC MANAGEMENT

The *Traffic Management Plan* details how SCIRT will manage traffic for the duration of the Project. SCIRT's objectives are to maximise the efficiency of every closure by performing multiple planned works, avoiding repeat closures where possible, and

planning to avoid congestion by adopting a holistic approach in the allocation of the Projects and by engaging in effective stakeholder liaison.

6.4 Minimising Safety Risks

The *Health and Safety Management Plan* outlines the SCIRT system for minimising safety risks and details the process for carrying out "hazard identification", "risk assessment" and "control processes". This process will be applied to each element of the construction works.

The project Health and Safety Plan will be maintained by the relevant Delivery Team and updated as new safety issues arise.

6.5 Temporary Works

The responsibility for the design and adequacy of any temporary works belongs to the Delivery Team assigned to that particular Project. The temporary works design will conform with the requirements of the *Design Management Plan* including design issues relating to temporary works which may present considerable risk to quality, safety or the environment. The construction of temporary works are also subject to requirements of the *Quality Management Plan* and the *Traffic Management Plan*, including construction procedures, and ITPs as required.

SCIRT temporary construction works may include, but not be limited to, the following temporary works

- Dewatering systems.
- Network diversions and over pumping.
- Service protection measures.
- Deep pit excavation protection.
- Temporary access roads.
- Temporary diversion of the general public (pedestrian and vehicular).
- Falsework and formwork to pile caps, columns and bridge decks.
- Temporary bracing for beam erection.
- Safety railings around all elevated work areas as described in the regulations of the Workplace Health and Safety Act.

All temporary structural works considered to be significant will be designed and verified by a competent chartered professional engineer. An appropriately qualified and competent engineer will also certify significant temporary structural works prior to use as being fit for purpose.

Delivery Team Site Engineers and Supervisors will be responsible to ensure that actual conditions and imposed loads are within the parameters of the design at all times. Regular inspections of temporary structures are required to ensure no damage or instability has occurred that may affect safe operation, particularly in

the immediate aftermath of a significant seismic event. All these checks will be documented in relevant quality assurance checklists to be completed prior to use of temporary works structures.

Temporary works which may affect the permanent works, or be left in place, must be approved by the permanent works Designer before construction.

6.6 Utility Services Works

The investigation and incorporation of services adjustments and relocations is addressed in *Utilities Management Plan.* The services agencies or their approved subcontractors and installers will generally carry out the required works. Whilst on site, such entities will be bound by the provisions of the SCIRT Management Plans. Most service agencies have their own operating rules and rights of entry, which will be incorporated in the construction methodology where appropriate.

6.7 Quality Assurance

Each of the Non-Owner Participants is required to provide for their Delivery Team a Quality Assurance system that provides the systematic monitoring, measuring, inspection and testing required to ensure products and completed work conform to design, specification and statutory requirements.

The management of the quality, measuring and reporting process and structured inspections and audits are detailed in the *Quality Management Plan*. Further requirements are detailed in other plans including:

- *Health and Safety Management Plan.*
- *Environmental Management Plan.*
- *Traffic Management Plan.*

These plans also detail the reporting required from the Delivery Teams.

System procedures relating to non-conformances are detailed in the *Quality Management Plan* and managed by the Delivery Teams.

6.8 Auditing

The main aim of auditing is to identify opportunities for improvement,

The process to measure overall compliance to systems and performance to objectives in relation to construction works is described in Section 8.3 of the *Quality Management Plan*. In addition, auditing will ensure that all necessary construction specifications, statutory compliances and stakeholder requirements are being adhered to.

During Construction, CVA`s (Construction Verification Audits) are held for each project. Verification Audit Scoring for each project will contribute to the delivery performance (DPS) score.

6.9 MAINTENANCE DURING CONSTRUCTION

SCIRTs maintenance obligations during the Construction phase are stipulated in:

- *The CSS*
- *CCC Road Asset Maintenance in Earthquake Rebuild Zones*
- *CCC Water and Waste Guidelines*
- *CCC WW Main & Repair Strategy*
- *CCC Technical Standards*
- *3W Guidelines*
- *For M & E plant, supplier specifications and O & M Manuals*

In general, each Delivery Team is responsible for the maintenance of their work sites and any traffic diversion routes throughout the construction of each Project.

The Delivery Team will also liaise with the appropriate CCC Maintenance contractor to ensure a 'best for the people of Christchurch' approach is also adopted when responding to maintenance needs, such as after hour call outs.

6.10 SITE ACCESS/REQUIREMENTS FOR NON SCIRT CONTRACTORS

Non SCIRT works inside SCIRT work sites are subject to agreement and control by the Delivery Team. The Delivery Team will induct such entities and ensure they are bound by the provisions of the SCIRT Management Plans and Delivery Team methodology and rules.

Provision for access to private property by emergency services shall be maintained at all times. Safe access for Utility Network operators shall be provided as required to satisfy their operational requirements.

6.11 PROJECT RECORDS

Project communication and records are managed in accordance with the *Internal Communication and Administration Plans*.

7 COMMISIONING AND HANDOVER REQUIREMENTS

Commissioning activities will be required for all pump stations, lift stations and other installations with significant mechanical/electrical componentry. Delivery Teams are required to prepare, in consultation with designers, specialist suppliers, asset owners and the IST Commissioning Coordinator, a commissioning plan that details the specific commissioning process and detailed schedule for each installation.

Generally the project Technical Specification will detail what is required to validate design or verify that construction conforms to design. Asset Owner specifications and standard processes may also require to be adhered to. Designated Asset Owner and Operator representatives may elect to participate in all commissioning

and final inspection procedures. This participation will be managed by the IST Commissioning Coordinator.

Commissioning and operational handover will typically precede formal project handover due to operational requirements. In these instances, the O & M Manual in draft format, will be provided to the Asset Owner's operational team as part of the operational handover process.

All projects which have been constructed over public land (reserves and open spaces) or on properties where easements have been obtained (retaining walls and private easements) will require cadastral surveying upon completion.

Defects identified in works will be required to be remedied before a project is deemed to be physically complete. However, snags of a minor nature that do not impact operational performance and of a value less than $20,000 may be entered on to defects list of work ('snag list') to be completed during the handover phase. (NOR0090SCIRT Preparation prior to Client Walkover and Transition of Projects into Handover).

Handover artefacts shall contain sufficient detail so as to show the QA requirements established by the Inspection and Test Plan (ITP), have been met in all respects. The submitted handover artefacts shall comply with those listed on the Handover Checklist (Refer NOR0045) (*Attachment 4*), including ITP, certifying records, and as-built records. The handover requirements vary across the specific asset groups involved in the Project scope, so NOR0045 should be referenced for each project.

The Delivery Team will submit the handover artefacts detailed in NOR0045 within the handover period.

Then the Delivery Team Handover Co-ordinator will mark the H2 box on the project form in Project Centre, signifying submission of the first survey as-built template (SAT), completion of the GIS update, completion of the final as built drawings and financial data relevant to the Project. This culminates in the SCIRT General Manager moving the Project through the "PC1: Practical Completion" gate, which is the starting point for the 12 month defects liability period.

8 EMERGENCY RESPONSE & CRISIS MANAGEMENT

The *Emergency Response Plan (ERP)* outlines the function, roles and responsibilities of the Stronger Christchurch Infrastructure Rebuild Team (SCIRT), along with its associated resource during an emergency event or any other major incident affecting the construction works under the control of SCIRT. SCIRT's Emergency Response Plan (ERP) has been developed to deal with a physical event, such as incident and emergency investigation and environmental incidents.

The ERP may be used in conjunction with the *Crisis Management Plan (CMP)* and will support and supplement the Christchurch City Council's Emergency Response Plans. The Crisis Management Plan has been developed to provide SCIRT with clear

direction and guidelines regarding communication in the event of a major incident or event that may impact negatively on SCIRT or its parent organisations.

For each and every Project allocated to a Delivery Team, a site specific emergency plan is developed. This will include but not be limited to the following areas for emergency planning,

- Site specific emergencies (such as fire, traffic accidents, Health and Safety incidents, confined spaces, service strikes, environmental spills and other risk areas to the project).
- Emergency procedures for major events such as earthquake, flooding and significant weather events.

The *Environmental Management Plan, Traffic Management Plan* and *Stakeholder Management Plan* also include additional information on the management of environmental, traffic and other incidents.

9 SITE ESTABLISHMENT AND CONSTRUCTION DEPOTS

9.1 PROJECT SITE ESTABLISHMENT

Each site establishment shall include

- All required HSE equipment and arrangements.
- Clear and safe demarcation of site works from the public as noted on TMP.
- Adequate provision for laydown areas.
- Entry controls including access roads, parking and pedestrian walkways.
- Site offices and other construction messing facilities, signage, etc.
- Waste control.
- Toilets.
- SCIRT signage in accordance with the Stakeholder Management Plan

9.2 DELIVERY TEAM CONSTRUCTION DEPOTS

Each Delivery Team will establish and manage an operational depot in a location suitable to ensure ease of access to the general work area.

These work Depots will be available for storage and general SCIRT use and use by other Delivery Teams as appropriate, by prior arrangement through the Delivery Manager, in consultation with the Host Delivery Team.

The depots will be located near residential areas and may be in use for 5 years. Required consents must be obtained and the depots must maintain a professional appearance and operations arising from them will be conducted in consideration of the local community.

All depots will be appropriately signed in the SCIRT branding as per the Stakeholder Management Plan.

10 MANAGEMENT PLAN CONTROL

10.1 AUTHORISATION

Initial authorisation is in accordance with the Alliance Agreement, Section 6.1.1. All plan revisions are authorised by the SCIRT General Manager.

10.2 DISTRIBUTION

The Plan is a controlled document and shall be distributed and revised in accordance with the SCIRT *Quality Management Plan*. Hard copies are Un-Controlled copies. The Controlled copies are maintained in "Project Centre" which is a secure website which supports various project management functions for the Programme including "configuration management" i.e. version control of documents.

11 INTERFACES WITH OTHER MANAGEMENT PLANS

The interfacing of this plan with other plans is fully described in Section 4 of the *Programme Management Plan.* A detailed list of the other Project Plans is included in the SCIRT Management Plans Map.

12 ROLES AND RESPONSIBILITIES

The responsibility for meeting the key requirements of this plan are assigned primarily to the roles identified in the table below

Responsibility	**Role**
Plan preparation/revision	Delivery Manager
Plan Issue/Revision authorisation	Executive General Manager
Plan Evaluation and Review	Quality Manager and Executive General Manager

SCIRT
Rebuilding Infrastructure

Stronger Christchurch Infrastructure Rebuild Team

1 Magdala Place, Middleton
PO Box 9341, Tower Junction, Christchurch 8149

DELIVERY LEADERSHIP TEAM

Terms of Reference

Purpose & Function

Achieve outstanding delivery of the rebuild works by collectively working to:

- Provide consistent leadership
- Drive collaboration
- Provide direction and guidance to Operational Leadership Group and functional groups
- Resolve delivery issues for Board, Management Team and RCG
- Demonstrate value in delivery
- Focus on moving the programme back towards a Net gain position
- Review risks and develop strategy to deal with it
- Continuously challenge how we do things

Membership/Representation

Membership will consist of senior representation from:

SCIRT Delivery Managers
Delivery Team Leaders:

- Fletcher Construction
- Downer
- McConnell Dowell
- Fulton Hogan
- City Care

Quorum

In order for meetings to go ahead and actions to be agreed, the minimum number of people to attend meetings is 4.

Sub Groups

There may be occasion to undertake sub-group meetings to complete a specific piece of work, or where data or preparation needs to be undertaken by a specific sector or named partners. Any formed sub-groups will report to the Delivery Leadership Group who will agree and lead on the strategic direction of the activity being undertaken.

Frequency

The frequency of meetings will be as agreed by the group to achieve the objectives in a timely manner. The frequency of meetings should be reviewed by the Delivery Leadership Team as part of an annual review.

Review of Terms of Reference

This will be undertaken annually, to ensure continuing relevance and ongoing development of the Delivery Leadership Group. The next review is due in **January 2015.**

SCIRT
Rebuilding Infrastructure

Stronger Christchurch Infrastructure Rebuild Team

1 Magdala Place, Middleton
PO Box 9341, Tower Junction, Christchurch 8149

OPERATIONAL LEADERSHIP GROUP

Terms of Reference

Purpose and Function

Achieve outstanding delivery of the rebuild works by collectively and consistently working to:

- Identify and develop opportunities for value/performance improvement with the goal of improving productivity
- Sharing initiatives, lessons learnt, best practice
- Resolving road blocks
- Ensure quality and value

Membership/Representation
Membership will consist of representation from:

IST Delivery Managers / IST Project Co-ordinators
Delivery Team Operational Managers from the five delivery teams

Quorum
In order for meetings to go ahead and actions to be agreed, the minimum number of people to attend meetings is 6 (including a minimum of 2 IST representatives and 3 delivery team representatives). Where operations managers from the delivery teams cannot attend, a delegate shall take his place.

Sub Groups
There may be occasion to undertake sub-group meetings to complete a specific piece of work, or where data or preparation needs to be undertaken by a specific sector or named partners. Any formed sub-groups will report to the Operational Leadership Group who will agree and lead on the strategic direction of the activity being undertaken.

Frequency
The frequency of meetings will be fortnightly. The frequency of meetings will be reviewed by the Operational Leadership Group as part of an annual review.

Review of Terms of Reference
This will be undertaken annually, to ensure continuing relevance and on-going development of the Operational Leadership Group. The next review is due in **January 2015**.

ATTACHMENT 3:

ECI REQUIREMENTS

CONTENTS

A1. INTRODUCTION

This document outlines the purpose and processes associated with Early Contractor Involvement (ECI) through concept and detailed design of the SCIRT rebuild projects. Furthermore, this document also identifies the expected deliverables as part of this process with examples of recommended tools to ensure that the maximum value is extracted from ECI.

A2. DESCRIPTION

The purpose of ECI is to provide a structured process with dedicated forums designed to facilitate interaction between delivery and design teams to ensure that constructability opportunities, issues and risks are identified and taken into consideration throughout the design process. In order to satisfy this requirement, the Design Lead and the Delivery Team ECI Lead will work closely together to ensure transparency and accuracy around key milestone dates and deliverables for each project.

There are a number of pre-construction processes that rely on information provided through the design process. This information can affect the construction critical path. In working with the designers, the delivery team can minimise the time lag between design completion and construction commencing. In order to track these pre-construction processes and critical dates, it is necessary to ensure adequate documentation is maintained and agreement is reached between design and delivery teams on key ECI milestone targets during the design process.

Another key outcomes of the ECI process is the development of a construction methodology, construction schedule and other deliverables that will inform the Estimating Team, to enable the development of an accurate target outturn cost (TOC).

The flowchart attached as Appendix A summarises the key ECI processes, milestones and deliverables.

A3. ECI TEAM - RESPONSIBILITIES AND SCOPE

a. The ECI Manager

This role will be filled by a member of the Delivery Team. This person will lead and 'chair' the ECI team interactions and be responsible for ensuring that key dates and deliverable requirements are met.

b. ECI team

Design Lead: The key role for this individual in the ECI process is to competently identify and communicate the design parameters and issues. Evaluating input from the delivery team and integrating modifications accordingly will also form a key

component of this role.

Delivery Lead / Project Manager: The key role for this individual is to competently identify and communicate the construction methodology and any associated issues. Additionally, this person is required to listen to, and evaluate input from the designer and make any required modifications accordingly. This person may also be the ECI Manager.

Additional Specialist Input: There will be a number of additional specialist inputs required through the ECI process possibly including:

- Environmental Specialist;
- Traffic Management;
- Utilities Coordinators;
- CCC Property;
- Health and Safety;
- Procurement; and
- Planning.

The timeframes associated with these inputs will be adequately identified, agreed and managed to ensure accountability and timing around Project Design and Delivery.

A4. CONCEPT DESIGN

a. Introduction

Upon allocation of a project to a Delivery Team the ECI Manager/Lead will initiate the ECI process and collate the necessary information prior to the Concept Design initiation Workshop.

b. Milestones

The relevant milestones through the Concept Design process are as follows:

1. Design Initiation Workshop
2. Risk Workshop
3. Design / Delivery Interface as required

c. Required Outputs / Deliverables

The required deliverables through the Concept Design process are as follows:

1. Outline Construction Schedule – To be provided to the Scheduling Team
2. Outline Construction Methodology
3. Resource Assessment

4. Interface Assessment – Utilities providers / other NOPs / Stakeholders engaged where necessary
5. Preliminary Traffic Staging Plan – To IST Traffic Management Teams
6. Environmental Assessment – Specialist engaged where necessary

d. Tools

The tools to be utilised through the Concept Design process include the Project Lifecycle checklist and Part A of the *ECI Milestone Management Document.*

The checklist (attached as Appendix A) seeks to ensure that due attention has been given to all relevant considerations through the process.

Part A of the Milestone Management Document works to ensure that actions and accountabilities are documented and tracked through the concept design process with a view to delivering required outputs.

A5. DETAILED DESIGN

a. Introduction

The ECI process during Detailed Design will be an extension of the Concept Design process, developing in more detail the outline construction planning and risk and constructability assessment and input provided during Concept Design

b. Milestones

The relevant milestones through the Detailed Design process are as follows:

1. Design Risk Workshop
2. Constructability Workshop
3. Design / Delivery Interface as required
4. Handover Meeting

c. Outputs / Deliverables

The required deliverables to be provided at the end of the Detailed Design process are as follows:

1. Integrated Construction Methodology including consideration of:
    a. Site Specific Health & Safety management
    b. Environmental Protection
    c. Community & Stakeholder Communications
    d. Resource & Procurement requirements
    e. Temporary Works required
2. Detailed Construction Schedule – To be provided to the Scheduling Team

3. Traffic Staging Plan – To IST Traffic Management Teams
4. Inspection & Test Plan (ITP) – To be agreed with Designer
5. Review and incorporation of construction risks into Project Risk Register
6. Review and proposed temporary works items for Project Bill of Quantities

All of the above required deliverables will be uploaded onto Project Centre as and when required by the TOC estimating team.

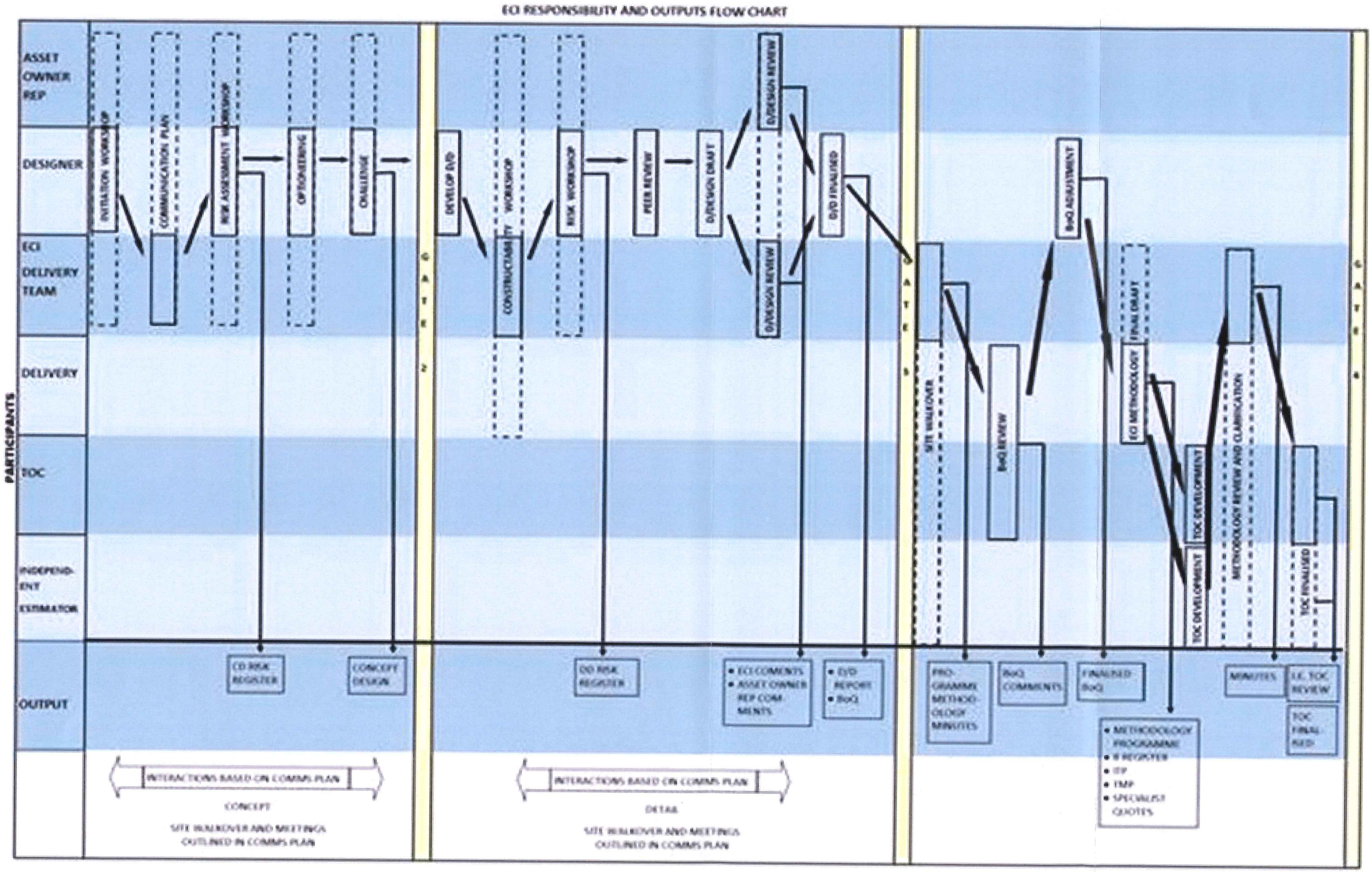
Depending on the complexity of the project, other required outputs could include:

- Consent Application(s);
- Environmental Specialist assessment, testing and monitoring programme;
- Easements / Access Agreements;
- Temporary works design;
- Pre-condition surveys;
- Specialist plant / materials acquisition;
- Interface and coordination programme.

A6. TOOLS

Each Delivery Team is required to put processes and procedures in place to enable them to meet these ECI requirements. Appendices B and C provide examples of an ECI Checklist and an ECI Milestone Management Plan that could be employed to manage and control Delivery Team ECI efforts.

APPENDIX A – ECI PROCESS CHART



APPENDIX B – ECI CHECKLIST

ECI Check List One - Scoping Documents prior to Concept Design initiation workshop

Project:	**SCIRT Number:**
Location:	
Stage: Concept Design /start up:	**Date:**

Task	Detail	Status
Scope of work	Indicate as in table below	
Very rough order Cost	$,000	
Approximate Completion dates	▪ Concept ▪ Design	
Expected Construction start date		
Construction Duration	Estimated - Months	

Waste Water	
Length of pipe in metres	
Diameter x	
Diameter y	
Diameter z	
Structures (pump stations)	

Storm Water	
Length of pipe – metres	
Diameter x	
Diameter y	
Other	

Roading	
Length metres	
Area square metres	
Other	
Structures	
Temporary Works	
Utilities	
Traffic	
Environmental	

APPENDIX C - ECI MILESTONES MANAGEMENT DOCUMENT

Project Steering ECI Milestone Management

Project: _____

SCIRT Project No. 10XXX

Controlled Live Document

Owner: Project Delivery Manager

Revision Control			
Rev	**Date**	**By**	**Comments**

ECI Key Staff

Delivery Team -	

Design Team -	

Christchurch City Council	

Integrated Services Team	

ACTIONS & CONSIDERATIONS			MILESTONES			
No.	**Item**	**Comment**	**Action Who**	**Start**	**Complete By**	**Critical Path Y/N**
CONCEPT DESIGN DEVELOPMENT – PART A						
1.0 Programme						
1.1	**Concept Design Programme**	*Indicating agreed milestones, key dates etc,*				
1.1a	**Concept Design Critical Path Items**	*Required to complete items under '2.0 General Considerations'*				
1.2	**Outline Construction Timeframe and Schedule**					
2.0 General Considerations						
2.1	**GIS and Master Schedule Assessment**	*Identification of potential interface issues*				
2.2	**Traffic Management Assessment**	*Dialogue established with internal FH TM Coordinator and IST TM resource if required*				

2.3	**Environmental Assessment**	*Dialogue with FH Environmental Advisor - Identification of all potential issues*				
2.4	**Resource Assessment**	*Consideration given to any potential resourcing and procurement issues; Subcontractor / Materials / Special Plant etc...*				
2.5	**Outline Methodology**	*Half-page likely work sequence brief...*				
2.6	**Risk Register**	*Risk register generated, initial risks identified*				

Concept Design Outcomes

Concept Design Completion Date:	**XX XXXX 2012**	**Expected Detailed Design Completion Date:**	**XX 2012**
Expected Construction Start Date:	**XX 2012**	**Expected Construction Completion Date:**	**XX 2013**
Concept Design Cost Estimate:	**$XXXX**		

Deliverables

Outline Construction Schedule		**Resource Assessment**		**Preliminary TMP**			
Outline Methodology		**Interface Assessment**		**Environmental Assessment**			

ACTIONS & CONSIDERATIONS			MILESTONES			
No.	**Item**	**Comment**	**Action Who**	**Start**	**Complete By**	**Critical Path Y/N**
DETAILED DESIGN DEVELOPMENT – Part B						
1.0 Programme						
1.1	**Detailed Design Programme**	*Indicating agreed milestones, key dates etc,*				
1.1a	**Detailed Design Critical Path Items**					
1.2	**Construction Programme**					
1.3	**Temporary Works**	*Is this required? What is involved?*				

2.0 Property Issues						
2.1	**Building Consent**	*Info required to assist this process, timeframes etc,*				
2.2	**Easements**	*Info required to assist this process, timeframes etc,*				
2.3	**Access Agreements**	*Info required to assist this process, timeframes etc,*				
2.4	**Land Designation**	*Info required to assist this process, timeframes etc,*				
2.5	**Ground Remediation**	*Info required to assist this process, timeframes etc,*				
2.6	**Other**					
3.0 Procurement						
3.1	**Long Lead Items *(Design Dependent Items)***	*Large diameter pipe, pumps, generators, etc, - Items unable to be ordered until design specification determined*				
4.0 Traffic Management						
4.1	**Traffic for Christchurch Review (Website)**	*To gain an understanding of other work likely to be in the area*				

4.2	**TMP Submission**					
5.0	**Quality**					
5.1	**ITP Generation (Generic / Custom)**					
5.2	**Additional Monitoring Required**	*Monitoring determined in order to satisfy Designer for PS3 / PS4*				
6.0	**Environmental Considerations**					
6.1	**Dewatering**	*High / Med / Low Risk area?*				
6.2	**Contaminated Land**	*Evidence of...??*				
6.3	**Archaeological**	*High / Med / Low Risk area?*				
6.4	**Coal Tar**	*Evidence of...??*				
6.5	**Asbestos**	*Evidence of...??*				
6.6	**Trees**	*Construction likely to impact on surrounding trees?*				
6.7	**Other**					

7.0	**Utilities Considerations / Coordination**					
7.1	**Identification of Utilities Plans**					
7.2	**Coordination Offer**					
8.0	**Health & Safety Considerations**					
8.1	**Risk Minimisation**	*'Engineering out' of Health & Safety Considerations*				
9.0	**Communications**					
9.1	**Key information for Consultation**	*Information necessary to facilitate consultation / communication with key stakeholders*				
10.0	**Risk Management**					
10.1	**Completed Risk Register**					

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Project Handover Documentation Requirements – Project Coordinator Checklist

SCIRT PROJECT NUMBER: PROJECT TITLE: Version 3 Issued 21 May 2014

Responsibility (DT/IST)	Document	Preparation Stage	SCIRT Phase	Document Type	CCC Required File Naming Convention (example) (MUST BE UNIQUE)	Further Notes	
DT00	Handover Checklist	End of Construction	HD	RP	_____-HD-WW-RP-1001[1]Handover Checklist	To be uploaded when the project header form H1 box is ticked, by either the Project Coordinator or the Dlivery Team Document Controller.	
DT01	Project Inspection and Test Plan	During Construction	CN	RP	_____-CN-WW-RP-000X[1]Inspection and Test Plans	PDF file format. Fully completed with signatures and dates.	
DT02	Engineering Test Reults (Pipes) • Proving pressure test for catchment element (pressure systems, not for gravity) • Proving vacuum test for catchment element (vacuum systems) • Water leakage reduction report • Asbuilt CCTV logsheets	During Construction	CN	RP	_____-CN-WW-RP-000X[1]Engineering *Type of test* _____-CN-WW-RP-000X[1]CCTV Logsheets	PDF file format. Only listed engineering pipe test required. All other test records to be archived and stored as per standard QA requirements. All tests for a specific pipe (ID xxxxxx) or street, manhole to manhole, to be grouped together.Further specific test results may be requested if required for specialist projects or for audit purposes. Asbuilt CCTV will require full redline markups for processing, with asset IDs as per SAT .	
DT03	Engineering Test Results (Other Assets) • Benkleman beam test • NAASRA Roughness • Pump station pipework pressure test • Pump station pump tests • Water well log and quality tests	During Construction	CN	RP	_____-CN-WW-RP-000X[1]Engineering: *Type of test*	PDF file format. Only listed engineering pipe test required. All other test records to be archived and stored as per standard CCC requirements. Further specific test results may be requested if required for specialist projects or for audit purposes.	
DT04	Statements of Warranty	Commissioning	HD	RP	_____-HD-WW-RP-000X[1]Warranties	PDF file format. Warranty separated for individual assets but scanned all into one file for project centre. Note that for pump/lift stations these will also be included in Section 7 of the Operations & Maintenance Manual.	
DT05	Product Manuals	Commissioning	HD	RP	_____-HD-WW-RP-0005[1]Product Manual	PDF file format. Only one product manual per model per project. Product Manuals to be separately bound as Section 9 of the O&M Manual, but scanned all into one file for project centre.	
DT06	CCC Asset Pick Up Sheets	Commissioning	HD	AB	_____-HD-WW-AB-000X[1]SAP As Built Asset Data	Microsoft Excel format. Refer to NoR73 for current templates.	
DT07	• Draft Operations and Maintenance Manual, and • Final Operations and Maintenance Manual • Asset Owner's Manual for applicable structures, e.g. for PS with demountable roofs and new NZTA bridges require the Bridge Data System (BDS) to be updated.	Commissioning	HD	RP	_____-HD-WW-RP-000X[1]Draft Operations and Maintenance Manual _____-HD-WW-RP-000X[1]Final Operations and Maintenance Manual _____-HD-WW-RP-000X[1] Asset Owners Manual	PDF file format. Note that CCC also require ONE hard copy of the draft and then ONE hard copy of the final O&M Manual to be located in the pump/lift station control cabinet itself. The Draft O&M Manual will contain the redline marked up drawings. The Final O&M Manual will contain the final as built drawings. Note that an Asset Owners Manual may be needed for applicable structures, e.g. pumping stations and reservoirs with demountable roofs. New NZTA bridges require the Bridge Data System (BDS) to be updated.	
DT08	Post Construction Road Safety Audit Report	End of Construction	HD	RP	_____-HD-WW-RP-000X[1]Post Construction Road Safety Audit	PDF file format. Only required if a design safety audit was conducted, typically where kerb, road use or alignment changes. Project must pass final audit.	

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Project Handover Documentation Requirements – Project Coordinator Checklist

SCIRT PROJECT NUMBER: PROJECT TITLE: Version 3 Issued 21 May 2014

Responsibility (DT/IST)	Document	Preparation Stage	SCIRT Phase	Document Type	CCC Required File Naming Convention (example) (MUST BE UNIQUE)	Further Notes	
DT09	• PS3 Built to Plan Certificate • PS4 Built to Plan Certificate	End of Construction	HD	CE	_____-HD-WW-CE-000X[1]PS3 _____-HD-WW-CE-000X[1] PS4	PDF file format. Producer Statement 4 signed by Engineers (from IST or otherwise).	
DT10	IDS Contractor's Completion Certificate	End of Construction	HD	CE	_____-HD-WW-CE-000X[1]Infrastructure Design Standard Contractor's Certificate	PDF file format. Standard IDS Appendix 8 format.	
DT11	RAMM Data Using current CCC or NZTA templates. CCC need retaining walls and roading captured in RAMM.	End of Construction	HD	RP	_____-HD-WW-RP-000X[1]RAMM Inventory	RAMM Inventory to be uploaded to project centre in Excel format. Refer to NOR47 for the RAMM flowchart for clarification on thresholds for requiring inventory update sheets. Typically inventories will be accepted by CCC/NZTA RAMM representatives before end of handover. All CCC RAMM data is to be uploaded to RAMM Contractor as usual, whether or not RAMM inventory update sheets are required.	
DT12	• Street Light Certificate of Compliance • Electrical Certificate of Compliance • Installation Control Point Number (ICP#) for new electrical installations	End of Construction	HD	CE	_____-HD-WW-CE-000X[1] Street Light Certificate of Compliance _____-HD-WW-CE-000X[1] Electrical Installation Certificate _____-HD-WW-CE-000X[1]Installation Control Point Number	PDF file format. Street lighting certificate is required only if a new lighting standard is installed.	
DT13	• The current SAT format is required per asset type (combined survey and metadata for 12D processing). • GIS Abandoned/ removed tool for decommissioned assets. • Older format was to provide metadata: and separate survey data, including reduced levels. Format of survey data can be a CSV file, or DWG (or similar) file.	During Construction	HD	RP	_____-HD-WW-RP-000X[1]SAT As Built Asset Data _____-HD-WW-RP-000X[1]Final SAT As Built Asset Data _____-HD-WW-RP-000X[1]As Built Survey Data _____-HD-WW-RP-000X[1]As Built Survey DWG (or similar file type) _____-HD-WW-RP-000X[1]Metadata	Required format is the current Survey As-built Template (SAT). Please refer to the current Survey As-built Guidelines (SAG) for details. For each revision of the SAT format provided, a 12D validation report will be generated by IST 12D Team for the DT, unless a Final SAT is provided. Metadata to be supplied to IST by Delivery Teams in standard SCIRT Excel metadata template (WW, WS or SW).GIS data then supplied from SCIRT GIS to CCC GIS. GIS Metadata is not required for projects that have no pipeworks (i.e. purely: structural or roading).	
DT14	Red Line Marked up Drawings of the construction issue drawings set.	During Construction	HD	RP	_____-HD-WW-RP-000X[1]Marked Up Drawings	Needs to contain the full drawing set as latest revisions, including any agreed design changes. All changes, including as-built survey levels, are to be marked up in red pen for drafters to produce as built drawings. Each page shall be signed and dated, even in case of 'no changes'. Red pen markups also to be included in Draft O&M Manuals. A quality colour scan is to be provided.	
DT15	Construction photos (IDS requirement)	During Construction	-	-	Not to be uploaded to Project Centre unless as pat of a PDF'd word document. Construction photos sets are to go onto the GIS photo database via Handover Coordinator.	Photos to be either emailed in a zipped folder or supplied via USB/CD to Handover Coordinator. Need to be rotated correctly and unnecessary photos removed. Will be automatically resized and renamed.	
DT/IST	Final As Built Drawings	End of Construction	HD	DG	_____-HD-GE-DG-1000[1]Final As Built Drawings	PDF file format. PDF to be in vector form not raster. After hardcopy checkprints are approved by delivery teams, the design team will finalise the drawings. Handover Coordinator to upload finalised as built drawing PDFs to project centre on behalf of the delivery teams. Checkprints are not to be uploaded on project centre. Final as built drawings also to be included in Draft O&M Manuals.	

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Project Handover Documentation Requirements – Project Coordinator Checklist

SCIRT PROJECT NUMBER: PROJECT TITLE: Version 3 Issued 21 May 2014

Responsibility (DT/IST)	Document	Preparation Stage	SCIRT Phase	Document Type	CCC Required File Naming Convention (example) (MUST BE UNIQUE)	Further Notes	
IST01	IDS Design Certificate Design Review Certificate PS2 Building Design Peer Review Certificate Design Report (Concept and/or Detailled)	Design Phase	DE	CE	_____-DE-WW-CE-000X[1] Design Certificates _____-DE-WW-CE-000X[1] Concept Design Report and/or _____-DE-WW-CE-000X[1] Detailled Design Report	PDF file format.	
IST02	Environment Canterbury (Ecan) Consent Details	End of Construction	CO	CO	_____-CO-WW-CE-000X[1] Environment Canterbury Consent	PDF file format. Only if different from SCIRT Global Consents. Includes water wells.	
IST03	Cost of Works	Completion of project	HD	RP	_____-HD-WW-RP-000X[1]Cost of Works	Microsoft Excel and PDF file format. Cost of works broken down to asset capitalisation level.	
IST04	Practical Completion Certificate	Completion of Project	HD	CE	_____-HD-WW-CE-000X[1] Practical Completion Certificate	PDF file format.	