QUALITY MANAGEMENT PLAN

DOCUMENT NO: MMA-QA-PLN-PW-GE-GE029

CONTRACT NO: 2018181

NZ TRANSPORT AGENCY WAKA KOTAHI Mt Messenger Bypass

New Zealand Government

ACCEPTANCE				
	Name	Title	Signature	Date
Prepared by	Ramy Faragalla	Alliance Quality Manager		12/10/2023
Reviewed by	Kamanth Ramlal	CPS Manager – Alliance Leadership Team		12/10/2023
Approved by	Tony Pink	Project Alliance Manager		13/10/23
PAB approval	Darryl Coalter	Project Alliance Board		07/11/2023

REVISION SCHEDULE		
Revision Number	Date	Description
A	16-Dec-2022	Draft
B	15-Jan-2023	For Review
0	12-Oct-2023	Final Quality Management Plan for Use

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Contents

1. GLOSSARY

Acronym/ Abbreviation	Definition
APMP	Alliance Project Management Plan
AMT	Alliance Management Team
ATW	Authority to Work
CMP	Construction Management Plan
CWP	Construction Work Pack
DCP	Document Control Plan
HP	Hold Point
IMS	Integrated Management System
ITP	Inspection (and) Test Plan
ITR	Inspection and Test Record (Pack)
IANZ	International Accreditation New Zealand
IMTE	Inspection, Measurement and Testing Equipment
JSEA	Job Safety and Environmental Analysis
KPI	Key Performance Indicator
KRA	Key Result Area
MS	Method Statement
MDR	Manufacturer Data Report
MTMA	Mt Messenger Alliance
NCR	Non-Conformance Report
NTC	Notice to Contractor
NZTA	New Zealand Transport Agency/ Waka Kotahi
OFI	Opportunity for Improvement
OIM	Owner Interface Manager
PDCA	Plan, Do, Check, ACT - Systematic approach
PS3	Producer Statement 3 - Completion of Construction
PS4	Producer Statement 4 - Construction Review
QMP	Quality Management Plan
QA	Quality Assurance
QC	Quality Control
QIR	Quality Inspection Report
RFI	Request for Information
RP	Responsible Person
SR	Survey Request
STIP	Schedule of Test & Inspection Plan
TATA	Te Ara o Te Ata
TBA	To Be Advised

TR	Test Request
CWP	Construction Work Pack
WP	Witness Point
WBS	Work Breakdown Structure

2. INTRODUCTION

The Mount Messenger Bypass Alliance is made up of Waka Kotahi, Downer NZ, HEB Construction, Tonkin & Taylor and WSP.

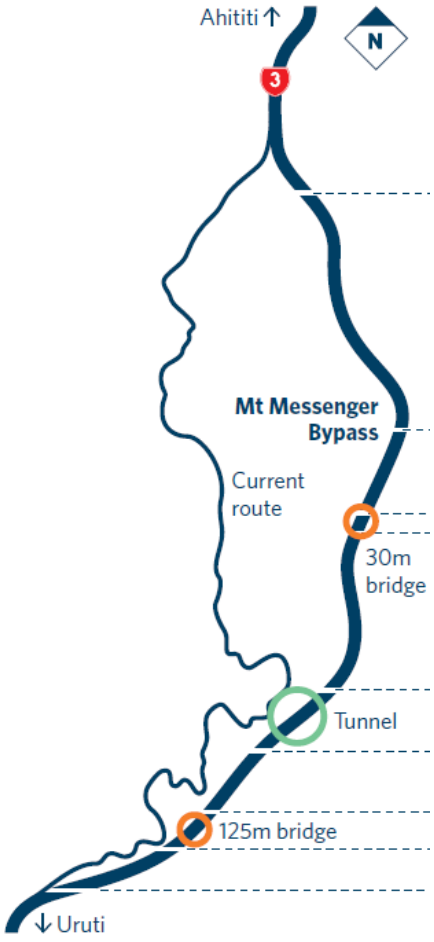
The Waka Kotahi's objectives for the project are as follows:

- A rich understanding of the environment and the people inspires us to deliver a new pathway that's in harmony with the land.
- Establish strong relationships to create a resilient and safe network by way of sound financial management and operational excellence to produce an enduring legacy.

2.1 Project Location

Mount Messenger Bypass map, project layout and lot mapping as per below Figure 1 Project Map and Figure 2 Project Layout & Lot Mapping.

Figure 1 Project Map



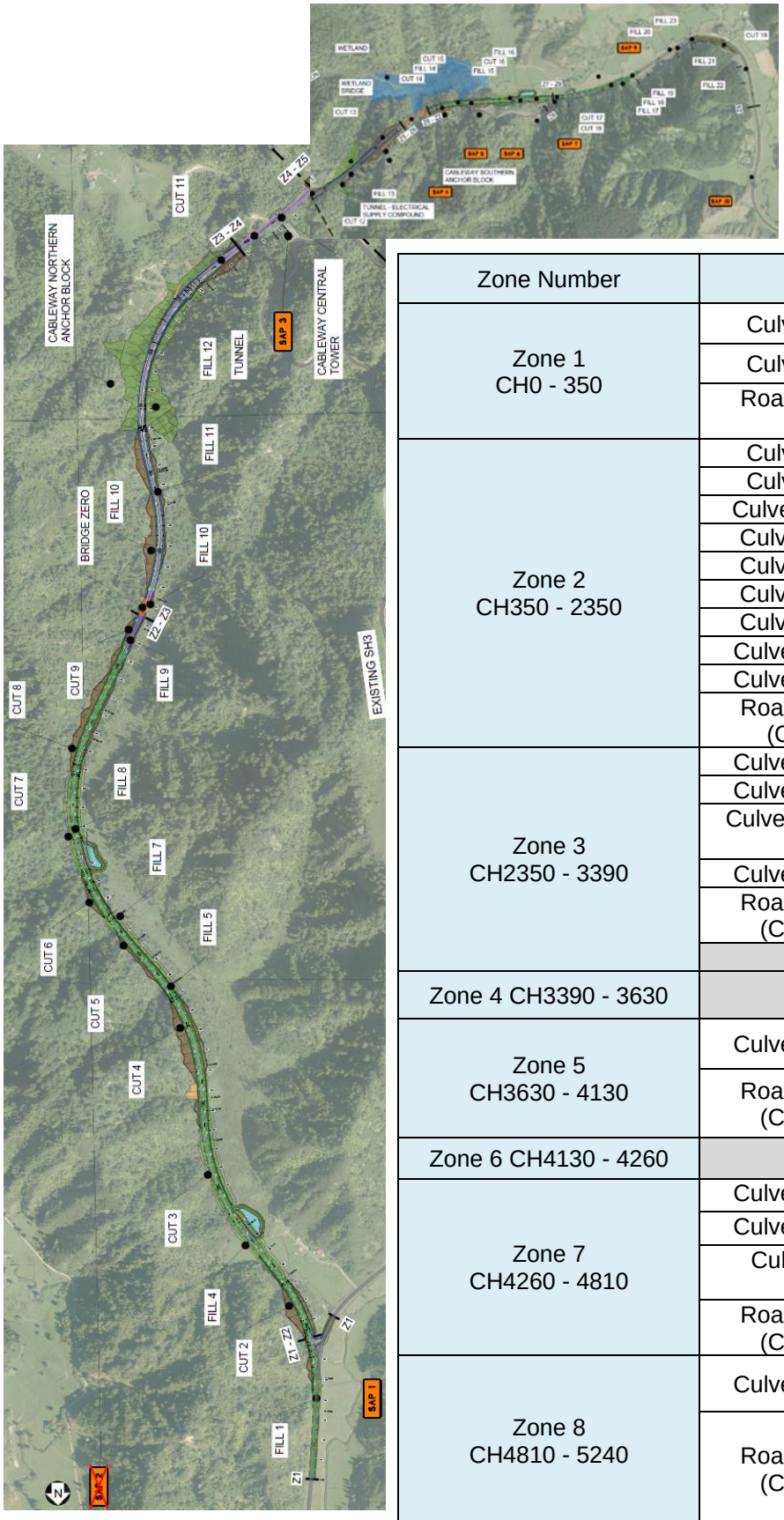


Figure 2 Project Layout & Lot Mapping

Zone Number	Drainage	Cut #	Fill #
Zone 1 CH0 - 350	Culvert 1 (CH230)	Cut 01	Fill 1
	Culvert 2 (CH310)		Fill 2
	Roadside Drainage (CH0-350)		Fill 3
Zone 2 CH350 - 2350	Culvert 3 (CH580)	Cut 02	Fill 4
	Culvert 5 (CH880)	Cut 03	
	Culvert 5A (CH1030)	Cut 04	Fill 5
	Culvert 6 (CH1290)	Cut 05	
	Culvert 7 (CH1500)	Cut 06	Fill 6
	Culvert 8 (CH1680)	Cut 07	Fill 7
	Culvert 9 (CH1860)	Cut 08	Fill 8
	Culvert 10 (CH2200)	Cut 09	Fill 9
	Culvert 11 (CH2300)		
	Roadside Drainage (CH350-2350)		
Zone 3 CH2350 - 3390	Culvert 13 (CH2680)	Cut 10	Fill 10
	Culvert 14 (CH2875)		Fill 11
	Culvert 15A (CH2810-3320)		
	Culvert 15 (CH2960)	Cut 11	Fill 12
	Roadside Drainage (CH2350-3350)		
	Bridge 00		
Zone 4 CH3390 - 3630	Tunnel		
Zone 5 CH3630 - 4130	Culvert 16 (CH3790)	Cut 12	Fill 13
	Roadside Drainage (CH3630-4130)	Cut 13	
Zone 6 CH4130 - 4260	Bridge 01		
Zone 7 CH4260 - 4810	Culvert 17 (CH4420)	Cut 14	Fill 14
	Culvert 18 (CH4720)	Cut 15	Fill 15
	Culvert 18 Temp. (CH4760)	Cut 16	Fill 16
	Roadside Drainage (CH4260-4470)		
Zone 8 CH4810 - 5240	Culvert 20 (CH5130)	Cut 17	Fill 17
			Fill 18
	Roadside Drainage (CH4910-5130)	Cut 18	Fill 19
			Fill 20
		Cut 19	Fill 21
			Fill 22
Zone 9 CH5240 - 5720	Roadside Drainage (CH5450-5700)		

2.2 Key Elements of the Project

- A 1,200m cableway to enable construction plant and personnel access to the Northern region.
- A tunnel (240m in length) through the ridgeline in proximity to the existing Mt Messenger rest area, with associated tunnel control building and emergency water supply tanks.
- A 120m long bridge over a wetland on a tributary of the Mimi River.
- Bulk earthworks over a total area of approximately 19ha, with a cut volume of approximately 960,000m3 and a bulk fill volume of approximately 890,000m3.
- Ten cuttings with heights of up to 60m, covering a combined distance of around 2.6km (including the tunnel portals).
- Thirteen earth embankments up to about 40m in height (with most typically less than 5m high), along a combined distance of approximately 2.5km.
- Retaining walls and mechanically stabilised earth (MSE) embankments.
- Stormwater drainage (including the installation of approximately 1,200m of culverts), treatment and attenuation facilities (including stormwater retention ponds, swales and road drainage network) as well as stream diversions to recreate and reconnect streams.
- Pavement construction and surfacing activities.
- Site reinstatement and landscape planting.
- Features of cultural expression.

As part of the Project, there is a package of measures aimed at mitigating its impact on the environment and promoting biodiversity. One of these measures is pest management, which will be carried out over a large forested area, the Pest Management Area (PMA), located next to the Project Area. Additionally, a specific location within the PMA, called the Core Offset Pest Management Area (COPMA), spanning 250 hectares, will be intensively managed to counteract the negative impact of target pest species. Restoration planting will also be conducted to support biodiversity.

2.2 Summary of the Scope of Works

The following are a summary of the key components of the scope of work for the project:

- Management Plans
- Design Packages
- Construction Work Packs
- Construction of Cableway
- Construction of Bridge, Tunnel, Cut and Fill areas.
- Pavement and Surfacing
- Handover process

The Mount Messenger Bypass Alliance management framework integrates project functions and defines delivery methodologies and processes, as shown below in Figure 3 Mount Messenger Bypass Alliance Management Framework. The Management Plans serve as the integration document that identifies and details both the Alliance management practices, structure, and execution methods as well as project-specific requirements.

The Management Plans include several subordinate plans that detail specific functions needed for successful project delivery. The relationship between the Mount Messenger Bypass alliance management system, Management Plans, and subordinate plans is illustrated in flowchart Appendix A.

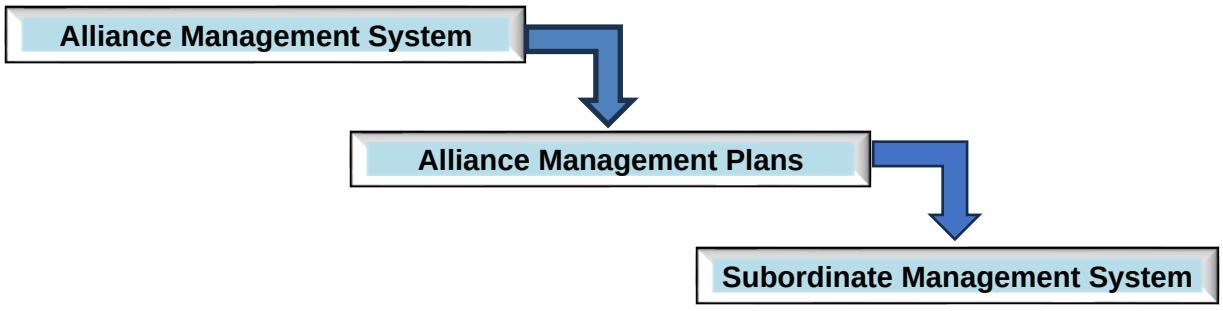


Figure 3 Mount Messenger Bypass Alliance Management Framework

This Quality Management Plan (QMP) is a subordinate to Project Management Plan which has been developed to:

- Satisfy the requirements of the contract.
- Support the Project Team in completing the requirements of the project.

This QMP is linked to the following plans:

Management Plan	Type	Document No
Project Management Plan	PSP	MMA-GOV-PLN-PW-GE-GE001
Design Management Plan	PSP	MMA-DES-DSM-E1-RPT-3350
Construction Phase Services Management Plan	PSP	MMA-DES-E1-28058
Construction Management Plan	PSP	MMA-CON-PLN-PW-GE-GE004
Survey Management Plan	PSP	MMA-CON-PLN-PW-GE-GE005
Health and Safety Management Plan	PSP	MMA-PRC-RPT-31386
Operation and Maintenance Management Plan	PSP	MMA-OMM-PLN-PW-GE-GE011
Construction Environmental Management Plan (CEMP)	PSP	MMA-ENV-RMP-RPT-15631
Risk Management Plan	PSP	MMA-RSK-PLN-PW-GE-GE028
Project Controls Management Plan	PSP	MMA-PRC-PLN-PW-GE-GE030
Document Control Plan	PSP	MMA-DOC-PLN-PW-GE-GE033
Project System Management Plan	PSP	MMA-SYS-PLN-PW-GE-GE034
Completion & Commissioning Management Plan	PSP	MMA-COM-PLN-PW-GE-GE035
Procurement Management Plan	PSP	MMA-PRO-PLN-PW-GE-GE036
Stakeholder and Communications Management Plan	PSP	MMA-SYS-PLN-PW-GE-GE041

Table 1: List of Management Plans associated with the Quality Management Plan

The above management plans are live documents that will be updated regularly, at least once a year, during construction in accordance with Project Management Plan MMA-GOV-PLN-PW-GE-GE001. All management plans are presented in Appendix A: "Schematic for Management Plans".

3 PURPOSE OF THE QUALITY MANAGEMENT PLAN

A Quality Management Plan (QMP) is a core component of the Project Management Plan (PMP) and for the maintenance of internal & external compliance of the project. It is a project specific and developed by the Quality Manager for current appropriateness.

The purpose of this plan is to define the process and organisation of resources that will:

- Ensure the project complies with all specifications, safety, environmental and other requirements.
- Support the Alliance achieving their project quality objectives, goals, and targets.
- Ensure the Alliance delivers a product that meets agreed requirements.
- Ensure the project is performed in a manner that supports continued accreditation of the Participant's Management Systems.
- Describes management responsibilities that related to quality management.
- Describes the process of ensuring conformance through system procedures and controls.
- Promotes the activities to measure, analysis, and improvement.

3.1 Project Quality Objectives

The Alliance quality objectives are:

- Work complies with specified requirements of contract 2018181 Mount Messenger Bypass Alliance.
- Ensure that construction meets all the requirements of the design drawings and specifications.
- All functional audits (e.g., safety, environmental & quality) are undertaken to schedule.
- Non-conforming products and services are identified and reported for immediate corrective actions.
- Handover process with QA/QC Documentation.

3.2 Implementation of the Quality Management Plan

The approved Quality Management Plan (QMP) will be distributed with the latest and current versions to all Alliance team members through InEight.

The QMP will be monitored for effectiveness for the following aims:

- Evaluating the practical implementation of the QMP.
- Determine risk in relation to the requirements.
- Take corrective action where appropriate.
- Identify opportunities for improvement in the QMP and associated activities.

The Quality Manager is responsible for communicating requirements of this QMP to the project team and ensuring compliance.

3.3 Revision of the Quality Management Plan

The approved Quality Management Plan (QMP) will be annually reviewed for adequacy and effectiveness by the Quality Manager will be formally approved by the Alliance Manager.

The QMP will be revised annually or in the following cases:

- To reflect any changes to quality management plan inputs, including the specific case for which the QMP was established.
- As a result of audit findings and Management Review Meetings.
- A significant change in design and construction processes requires new documentation not covered by the existing QMP.

Revisions will be made known to all those involved in its use via InEight. Any documents affected by changes in the QMP will be revised accordingly and submitted to PAB.

4 PROJECT QUALITY REQUIREMENTS

A comprehensive Quality Management System (QMS) will be developed for every phase of the scope of works to comply with the

- Requirements of Alliance
- Requirements of Legislation of New Zealand

4.1 The Alliance Requirements

The Alliance project will need to comply with Project Alliance Agreement (PAA) and the Minimum Requirements (MR) that replaces NZTA's standards in terms of Quality Requirements.

4.2 Standards and Legislation Requirements

This plan has been developed using the elements of AS/NZS ISO 10005 Quality Management System – Guidelines for Quality Plans. Sections of this standard are also detailed in other subordinate management plans to the Project Management Plan, detailed in Section 2.2 Table 2: List of Management Plans associated with the Quality Management Plan.

All New Zealand laws apply to this construction project, the following acts and legal instruments are the key pieces of legislation most directly related to quality management on this project (health, safety and environmental legislative requirements are covered under their respective management plans):

- Building Act 2004
- Building Regulations 1992
- Construction Contracts Act 2002
- Construction Contracts Regulations 2003
- Consumer Guarantees Act 1993
- Contract and Commercial Law Act 2017
- Utilities Access Act 2010 (National Code of Practice for Utility Operators Access to Transport Corridors)
- Weights and Measures Act 1987

5 DEMONSTRATION OF QUALITY MANAGEMENT SYSTEM

5.1 Electronic Document Control

Project documents will be managed to ensure correct revisions are available to relevant personnel in accordance with the Project Document Control Plan (MMA-DOC-PLN-PW-GE-GE033). Controlled copies will be maintained in hard or electronic format as needed. InEight will serve as the Electronic Document Management System (EDMS) for the Alliance Team project, and documents will be numbered according to the Project numbering structure.

The Document Numbering Structure will be as per Appendix B -: Structure for Document Numbering

The project's Document Control representative will manage all documents through InEight. Extracted documents become uncontrolled, and working files will be kept on Teams - SharePoint. Quality-related project forms will also be on Teams - SharePoint. The Document Control representative will update any changes to templates and forms. Superseded documents will be managed to prevent unintended use, and document and drawing submittals to PAB & OIM will be finalized electronically in PDF. All documents will contain a revision status and once approved, will be raised to revision 0 and re-issued. Works may not commence until approved by an authorized person, and revisions to documents and drawings will be identified whenever possible.

5.2 Integration of Management Plans

The below diagram has been developed to explain the integration of quality management system with Design and Construction Management Plans which is linked to this document.

Design and Construction work packs will be identified as a master document that contains most mandatory information to carry out the site construction works. Work Packs & LOTs are detailed in below sections.

Overview of the integration

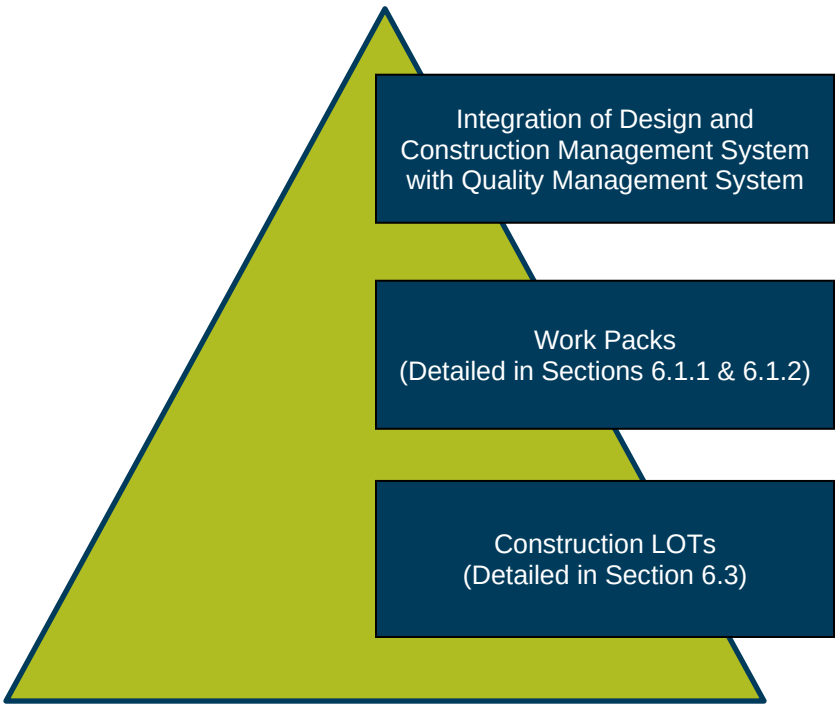


Figure 4

Overall procedure of the QMS (Figure 5) has been developed to achieve the Project Quality Objectives in the below Flowchart.

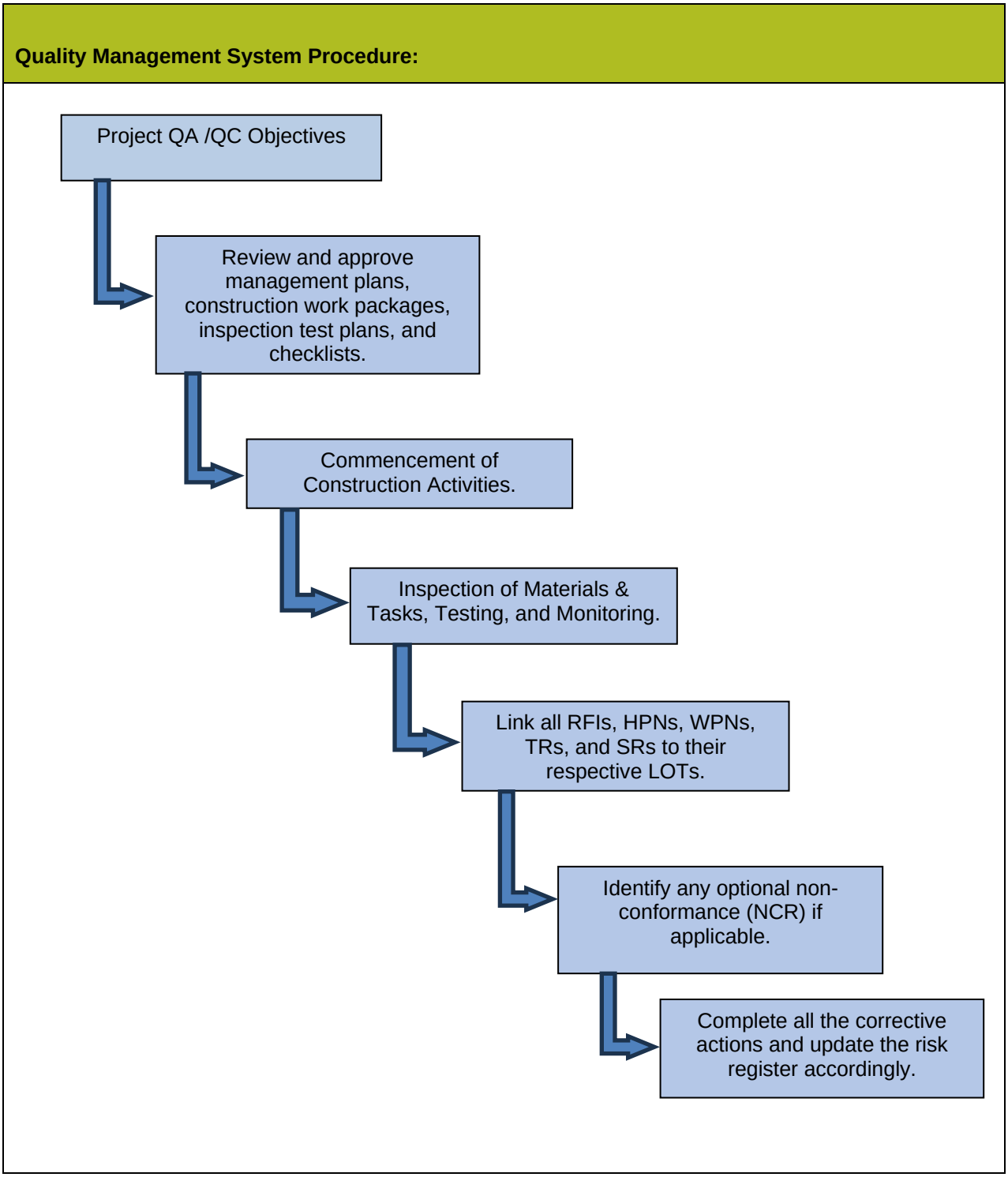


Figure 5

6 QUALITY MANAGEMENT SYSTEM DURING THE PROJECT CYCLE

Purpose of this plan is to create a QMS for every Phase of the works:

- Pre-Construction (Design Phase)
- During Construction (Construction Phase)
- Post-Construction (Completion and Handover Phase)

6.1 Pre-Construction (Design Phase)

Part of the phase, all required documentation will be Developed, Reviewed and Approved in accordance with Alliance Standards & Specifications:

- Management Plans
- Design Work Packs
- Construction Work Packs
- Document Management System

6.1.1 Design Work Pack (DWP)

The Design Work Pack is a plan that details the wide-ranging information on specific assets in accordance with its locations. Package will be developed by the Design Team that includes the below

- IFC Drawings
- Technical Specification
- Schedule of Test and Inspection Frequency

All this information is detailed in Design Management Plan which is linked to this document. This package will lead the construction team to develop Construction Work Packs.

6.1.2 Construction Work Pack (CWP)

The Construction Work Pack Plan is a master document that breaks down the scope of works into logical packages to allow for efficient delivery and management. Every aspect of the project is to be covered by an approved Construction Work Pack prior to that element of site work starting. The Construction Work Pack Plan is reviewed and augmented periodically to ensure adequate coverage for upcoming activities and acceptable time for planning.

The Construction Work Pack is intended to cover the planning and controlled delivery of each package of work to ensure the delivery and quality outcomes are met and the specific risks associated with that package are managed.

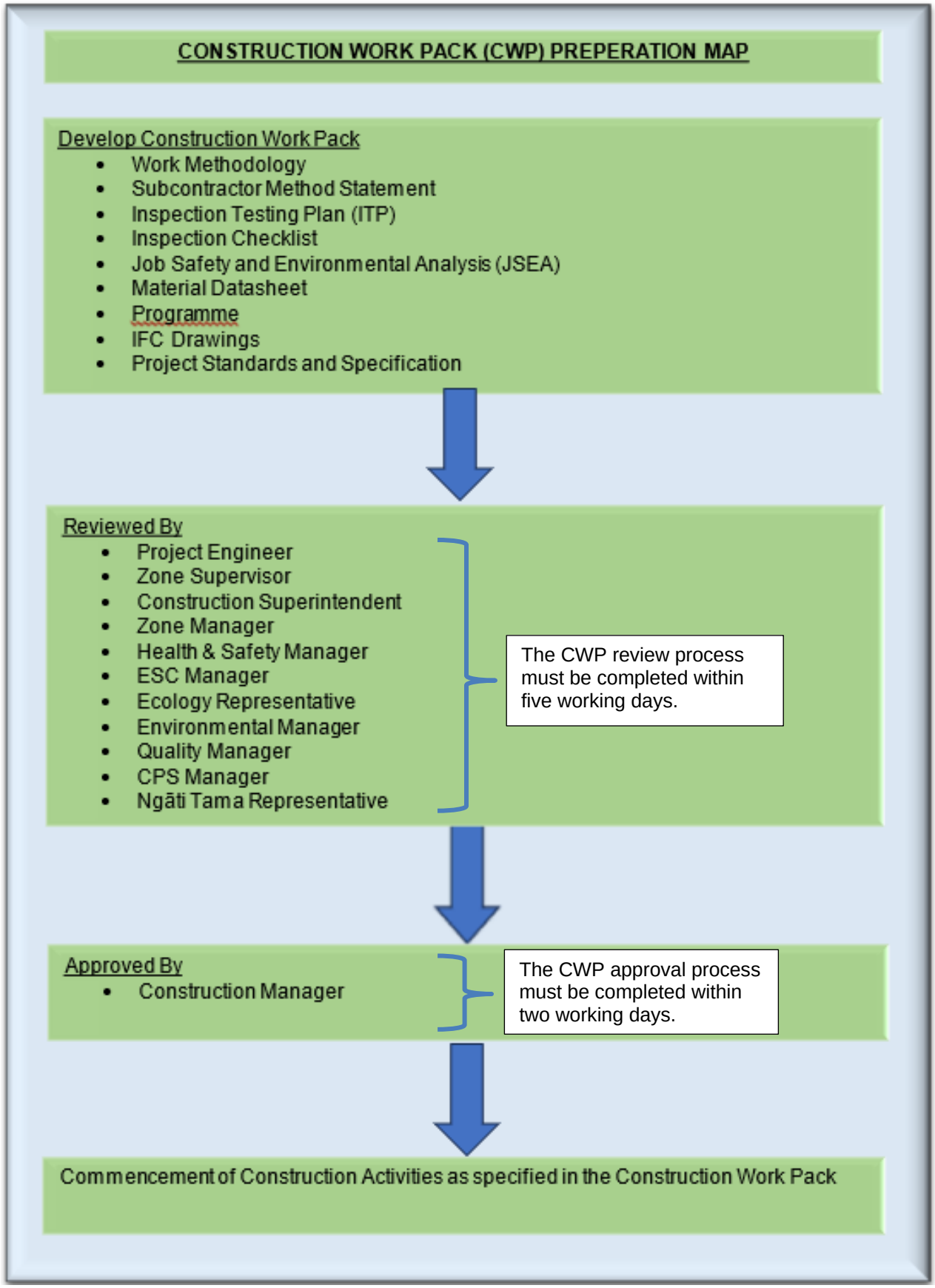

CONSTRUCTION WORK PACK (CWP) PREPERATION MAP
Develop Construction Work Pack
Work Methodology
Subcontractor Method Statement
Inspection Testing Plan (ITP)
Inspection Checklist
Job Safety and Environmental Analysis (JSEA)
Material Datasheet
Programme
IFC Drawings
Project Standards and Specification
Reviewed By
Project Engineer
Zone Supervisor
Construction Superintendent
Zone Manager
Health & Safety Manager
ESC Manager
Ecology Representative
Environmental Manager
Quality Manager
CPS Manager
Ngāti Tama Representative
The CWP review process must be completed within five working days.
Approved By
Construction Manager
The CWP approval process must be completed within two working days.
Commencement of Construction Activities as specified in the Construction Work Pack

Figure 6

Once the CWP contents are developed as mentioned above in Step:1, the plan will be circulated and briefed in a meeting to all parties as mentioned in Step:2 & Step:3, for review and approval respectively. Author of the work pack will make sure that the plan will allow a maximum of Seven working days for the reviewer to comment. If no comments received within the period, the document will be sent out to Construction Manager for approval.

The signed off or approved Construction Work Pack will be uploaded in InEight and circulated to all relevant personnel via InEight.

6.1.3 Construction Work Pack – Issued for Construction

The above planning tasks should be completed well ahead of the scheduled start of the CWP. To manage changes in the interim, appropriate CWPs are to be reviewed at the weekly site planning meeting closer to commencement of construction. Once updated, the status of the Pack is upgraded to “For Construction” and initial briefing session of the overall CWP pack will be organised to all relevant parties by the Project Engineer.

When there is a need to modify the Construction Work Pack, such changes can arise from various sources, including site personnel, engineers, or safety inspectors. Capturing these modifications during construction is essential for maintaining safety, quality, and compliance with project requirements, as well as for outlining the potential impact on the project.

The process for capturing and managing Construction Work Pack changes is as follows:

- If the changes involve safety considerations, a review and assessment of the Job Safety and Environmental Analysis (JSEA) will be conducted to evaluate potential hazards and mitigation measures. This assessment helps determine the feasibility of implementing the proposed changes safely.
- If the changes involve quality risks, a review and assessment of the Construction Risk Register will be conducted to evaluate potential hazards and mitigation measures aimed at minimizing non-conformance and optional rework.
- Once the Construction Work Pack has been updated, the revision will be 'revved up' and sent for the review and approval process, as detailed in Figure 6.
- The Approved updated Construction Work Pack will be uploaded into InEight and communicated to all relevant parties, including site personnel, subcontractors, and any other stakeholders who need to be aware of the modifications. This ensures that everyone is on the same page regarding the updated Construction Work Pack.
- If the changes require new procedures or safety protocols, training and awareness programs may be conducted to ensure that all personnel are familiar with and can safely implement the revised Construction Work Pack.
- Throughout construction, ongoing monitoring and inspections will be conducted to ensure that the Construction Work Pack changes are being followed correctly. Non-compliance or deviations are addressed promptly to maintain safety and quality.

6.1.4 Review & Approval Workflow Process:

In the event that amendments are needed in IFC or approved documents, the Document Controller will initiate a workflow for the document within InEight. As part of this process, InEight will automatically alter the status of the document, rendering it inaccessible to all individuals except for those on the reviewers' panel until it obtains approval. The Document Controller will verify that the document has undergone the necessary revisions and received approval from all relevant parties. Subsequently, they will complete the workflow, causing InEight to revert the document's status to IFC, thereby making it accessible to everyone once again.

Below Table is developed to identify the Project’s Review & Approval Workflow Process to demonstrate the Alliance Quality Management System:

REVIEW & APPROVAL WORKFLOW – QUALITY					
No	**Description**	**Prepared by / Responsible Person**	**Reviewed by**	**Approved by**	**Comments**
1	Management Plans	Alliance SMEs	OIM/ Alliance SMEs	Project Alliance Board / Alliance Management Team	
2	Schedule of Testing & Inspection Plan	Project Engineer	CPS/Design verifier	CPS/Design Lead	
3	Drawings / Specification	Design SME	Design Verifier	Design Lead /CPS	
5	Method Statement	Project Engineer	Design / Construction Team	Zone Manager	Involvement of Superintendent and supervisors required
6	JSEA	Project Engineer	Construction / H&S / Environmental teams	Zone Manager / H&S Manager / Environmental Manager	
7	Developing ITPs & ITRs	Project Engineer	Design Work / CPS Manager, / Zone Manager & Quality Manager	Construction Manager,	
8	IANZ Testing Laboratory	Project Engineer	Construction Manager / Quality Manager	CPS Lead	
9	Tools / Equipment	Project Engineer	Project Engineer / Zone Manager / Superintendent	Project Engineer / Zone Manager	Involvement of Superintendent and supervisors required
10	Material	Project Engineer	Design or Construction Team where appropriate	Design or Construction Team where appropriate	
11	Mix Design	Project Engineer	Design or Construction Team where appropriate	/ Designer/ CPS Manager or Construction Team where appropriate	
12	Temporary works - Minor	Site Engineer	Project Engineer	Zone Manager	Includes Temporary Traffic Management
13	Temporary works - Major	Project Engineer	Temporary Works Co-ordinator	Zone Manager	Includes Temporary Traffic Management
14	Generate, Verify & Closure of LOT	Project Engineer	Zone Manager / Quality Manager	CPS/ Construction Manager	
15	Non-Conformance Report	Site Engineer / Project Engineer	Zone Manager/ Quality Manager	/ Construction Manager/ CPS	NCR will be raised in InEight. NCRs that do not meet the Owner's minimum requirements will go to OIM for approval.

REVIEW & APPROVAL WORKFLOW – QUALITY					
No	**Description**	**Prepared by / Responsible Person**	**Reviewed by**	**Approved by**	**Comments**
16	Hold Point & Witness Point (HPN & WPN)	Site Engineer / Project Engineer	/ Construction SME	/ CPS	HPN, WPN will be raised through CONQA
17	Request for Information (RFI)	Site Engineer / Project Engineer	Construction SME	/ CPS/ Construction SME	RFI will be raised through InEight
18	Testing Reports / Results	Site Engineer / Project Engineer	Quality Lead	Zone Manager	Will be confirmed on due course
19	Completing ITPs & ITRs	Site Engineer / Project Engineer	Zone Manager/	Construction Manager, CPS & Quality Lead	
20	As-Built & As-Built with Redline Mark-ups	Site Engineer / Project Engineer	Zone Manager/ Quality Manager/ CPS	Quality and Handover Manager	
21	Handover Documentation	Quality Manager	Alliance Project Manager	Project Alliance Board	Details can be found in Completion and Handover Management Plan

Table 3

6.2 During-Construction (Construction Phase)

The Quality Team will generate Construction LOTs in alignment with the project's work breakdown structure, ensuring that each site activity is assigned a Lot in both InEight and CONQA. These LOTs will be meticulously tracked using the LOT Register, a tool developed and maintained by the Quality Manager. The LOT Register is located in Teams SharePoint under the Document Control folder structure.

Each entry in the LOT register will contain comprehensive details for each LOT, encompassing information such as the Responsible Engineer, Start Date, Completion Date, unique LOT number, and relevant CWP & ITP document numbers. This register will provide an overview of the status of ITP item closures in CONQA and the submission status of the handover Package (LOT) in InEight.

The Project Quality Manager will perform weekly reviews to ensure the ongoing effectiveness of the LOT register and the monitoring systems in place. This practice guarantees that the register remains up to date and that monitoring systems continue to operate efficiently.

6.3 Post-Construction (Completion & Handover Phase)

The responsible Site/Project Engineer will have the responsibility of uploading all essential verification records, completing checklists, adding Redline Mark-up drawings, signing off on the Hold Points and Witness Points, and ultimately signing the ITP. All relevant correspondences will be linked to the LOT in InEight, ensuring they are readily available for submission upon completion of the LOT.

In addition, the Quality Manager will perform regular audits on the provided Quality records in CONQA. This process is implemented to ensure that the project has been constructed in strict accordance with the project documents and meets the customer's satisfaction.

To summarize the workflow of the LOT process, a construction LOT Flowchart has been developed in Figure 7, aligning with the Document Control Management plan. .

Construction LOT Workflow:

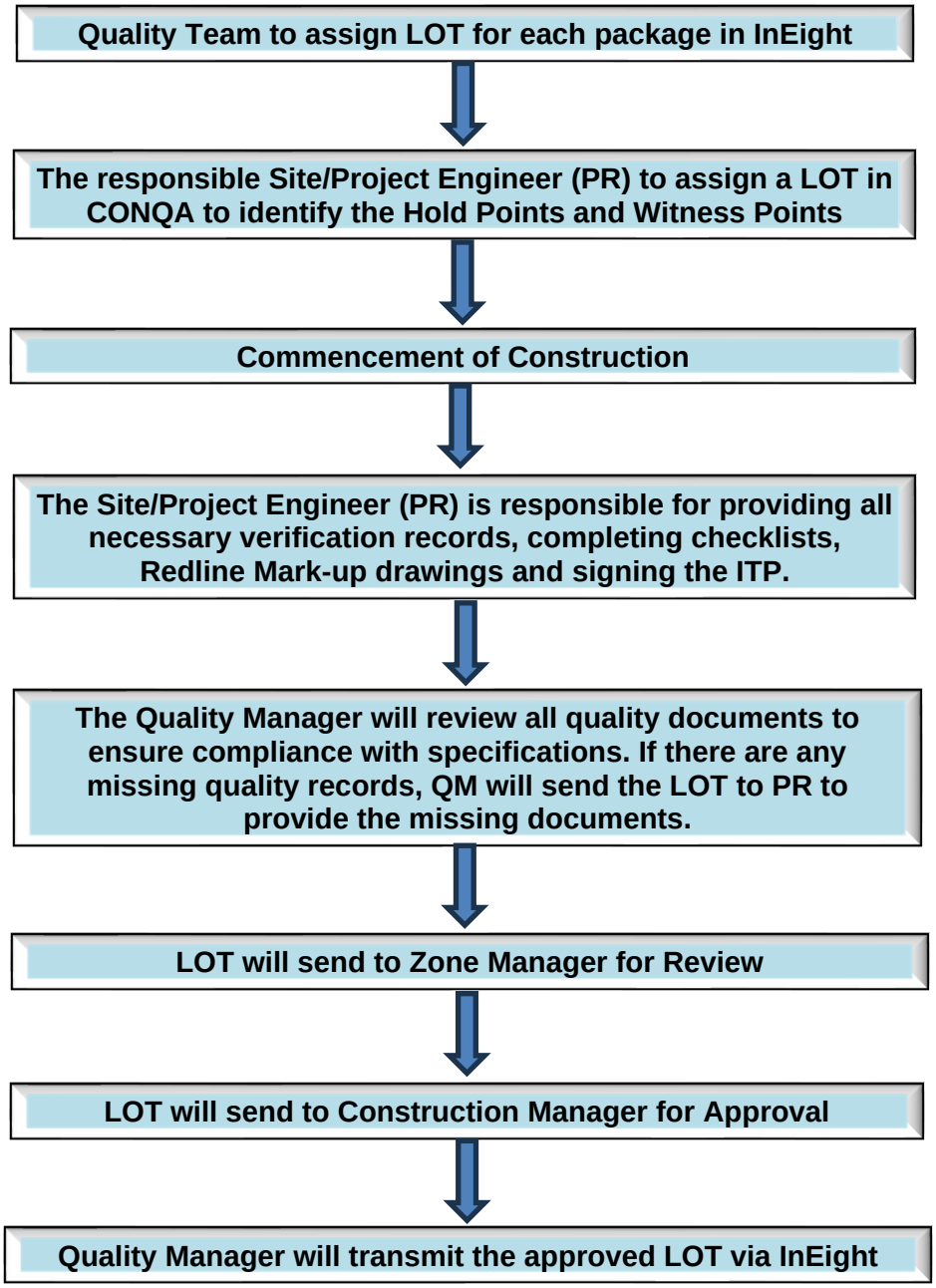


Figure 7

The Quality Team will check the following:

- All supporting documentation has been completed signed and dated by all relevant parties.
- Any RFI/ NCRs raised relevant to a Work Lot have been closed.
- Redline mark-ups & as-built drawings are attached where required.

The final Handover Package (LOT) will contain at least the following:

- Construction Work Pack (CWP).
- Material Certificates.
- Supplier Test Results & Records.
- Test Results.
- Inspection Checklist Records.
- Survey As-Built Drawings in CAD
- Redline Mark-up drawings
- Evidence of the closure of any relevant NCRs for this LOT.
- Any relevant RFI or formal correspondence that provided the site team with new information was not captured in the IFC drawings or deviated from project documents.
- Signed off Inspection Testing Plan (ITP).

The flowchart in Figure 8 below summarizes the required documents for LOTs aligned with the Project Management plan.

LOT Index:

LOT Index

1. **CONSTRUCTION WORK PACK**
2. **MATERIAL COMPLIANCE**
3. **CONSTRUCTION RECORDS**
   - **3.1. Approval Check Sheet**
   - **3.2. Test Results**
   - **3.3. Any other Verification Records**
4. **POST CONSTRUCTION RECORDS**
   - **4.1. Survey As-Builts CAD Drawings (ITP # 4.02)**
   - **4.2. Redline Drawings (ITP # 4.03)**
5. **FORMAL CORRESPONDENCE (NCRs, RFIs…)**
6. **SIGNED ITP**

Figure 8

The handover packages (LOT) will be compiled progressively during the contract execution and kept up to date at CONQA. The Project Quality Manager will review all quality records progressively to ensure compliance with project Specification requirements, IFC drawings and Alliance Quality Management Plan.

Upon completion, and within 90 days of completing the physical work, the Quality Team will perform a comprehensive review of the verification records available in CONQA, which are provided by the responsible site engineer. This review is to ensure that all verification records, as outlined in the approved ITP and described above, have been supplied and comply with the project's specifications and IFC drawings. Subsequently, the final Handover Package (LOT) will be submitted via InEight to the Alliance Leader Team (ALT) for the closeout of this LOT.

The completed Handover Packages (LOTs) will be stored in InEight in accordance with the Document Control Management Plan. These stored LOTs will be in electronic format, aligning with the Alliance Document Management System's preference for electronic record-keeping wherever possible.

7 INTEGRATED PLANNING FOR SAFETY, QUALITY AND ENVIRONMENTAL

Each Project Area will be broken down into logical construction packages to allow for efficient delivery, integrating elements for management of safety, quality, and environment protection within the process. Every aspect of the project is covered by a Construction Work Pack developed prior to the relevant site work starting.

8 JOB START BRIEFING

Once the CWP is approved through the process as outlined in Figure 6 above, it will be submitted to all relevant parties via InEight.

Prior to the start of each shift each crew will be given a Job Start Briefing by the Construction Team that will cover all that day's tasks from the Construction Work Packs that are relevant to the audience. Any changes to the CWP that has been briefed earlier will also be discussed at the same time. These briefing will be detailed including the final check, that those staffs are trained and competent to perform the tasks required.

Briefing will include discussion of the specific safety, quality, and environmental protection aspects of the activities to be undertaken in that shift. Also include specifics of inspection and testing requirements relevant to that shift. The briefing will be archived in Teams SharePoint to record it and use it for briefing any new employee.

Team members will need to sign on to the Job Start plan before they commence work. As the work must be performed in accordance with the Job Start Briefing, Project engineer will take the responsibility to review the CWP in accordance with the site condition and approved by the Construction Manager.

9 SPECIFIC QUALITY PLANS FOR CWP & LOT

Key quality planning is developed in aspect of the Construction Work Pack management process as below

- Clarifying scope and nature of the Works via Requests for Information (RFI)
- Development and execution of Inspection & Test Plans (ITP) that includes HPN, WPN…
- Development and execution of Inspection & Test Records (ITR)
- Progress of As-built Packs with Redline Markings (if any)
- Advancing to Handover Checklists

9.1 Request for Information (RFI)

The design documentation will include detailed definition of the assets that to be constructed and those requirements will be found by a combination of a technical specification and drawings notes.

In most instances, that information will be found to be adequately definitive. However, if design requirements provided may be unclear, incomplete, or conflicted. In these instances, a Request for Information (RFI) will be raised for the Design team to clarify the requirements prior to construction and during construction.

Where there is any uncertainty as to the precise design requirements, the Construction Pack Engineer's interpretation of the design information is to be recorded in an RFI. This interpretation is to be sent to the Design Team for confirmation. These RFIs are to be crafted in a way that no response is required from the Designer unless they disagree with the interpretation.

The Design team may, of their own volition, recognise the need to alter or augment the design documentation to clarify the design requirements. This will be done by the way of a RFI and may include sketches and marked up drawings as an interim measure until the formal drawings and specification can be revised and transmitted.

All RFI forms will be generated through the relevant Construction LOT in InEight and standalone RFI forms are not allowed in any phase of the construction process. Responsible Personnel will not carry out the construction until relevant RFI is clarified and closed. Approval workflow process of a RFI is explained in Table 2 – Section 6.1.4.

9.2 Prescribed Inspection and Testing

There are two specific requirements on certain inspections and tests that are compulsory.

- Certification for Public Use inspections that to allow the scope of work to be opened for public.
- Alliance Designer will need to provide a PS4-Construction Review attesting that the works having been constructed in accordance with the design.

Between design documents and Building Consent pack will identify,

- All compulsory sampling, inspection, and testing requirements
- All instances where materials and workmanship are required to be "approved" via. hold or witness points

This compulsory inspection and testing are to be included in the Inspection and Test Plan.

9.3 Inspection and Test Plan Documentation (ITP) & Inspection and Test Record (ITR)

As an outcome of the Methodology Workshop, an ITP from Construction Work Pack will be produced that provides a comprehensive definition of all types of inspection and testing to be applied, in accordance with project specification and the Schedule of Test and Inspection Plan (STIP).

Inspection and Testing Record (ITR) Packs will be created for work packs where required. The ITP will be reviewed each day by the Construction Pack Supervisor prior to the relevant Job Start Briefing to confirm the type and number of Inspections and Tests planned for that day's activities. As part of ITP requirement, Test Request (TR) will be raised through the construction LOT for construction sample testing.

9.4 Hold Point (HPN) & Witness Point (WPN)

Hold Points are designated to ensure that construction work complies with specified requirements before proceeding further. They are integrated into Inspection and Test Plans (ITPs) and checklists, with release authorized by the relevant authority. Proceeding before Hold Points are released places the risk and expense on the Alliance. The Quality Manager (QM) must confirm compliance before seeking release. Deviations require dispensation requests through CONQA. The Site team is required to provide a minimum of 48 hours' notice to the authorized personnel responsible for the release of Hold Points and Witness Points. This advance notice allows for adequate preparation to attend and oversee the Witness Points or inspect the Hold Points. The release of Hold and witness points process will follow the workflow in Table 2.

Verification activities are identified as follows:

Hold Point (H) – Work shall not proceed past the Hold Point until released by the organisation imposing the Hold Point.

Witness Point (W) – A verification point that may be witnessed by the organisation imposing the Witness Point.

Inspection (I) – Formal inspection activity to be undertaken and recorded.

Review(R) – The process of verifying by examination of documentary evidence that nominated inspections and/or tests have been satisfactorily conducted.

9.5 Non-Conformance Report (NCR)

A Non-Conformance Report is a design and construction-related document that reports issues where there has been a deviation from project specification or where work fails to meet agreed quality requirements. NCR can be raised during or after the completion of construction activities, but it must be raised through the relevant construction LOT.

NCR procedure has been developed to reduce and prevent non-compliance to technical specifications and standards, design drawings, contract requirements, building/resource consent requirements, and the business system practices. This procedure also applies to suppliers and subcontractors as appropriate. For any non-compliances relating to Health & Safety, Environmental, Quality or Process/System Controls, NCRs should be raised internally by the Alliance but may also be identified as a result of internal/ external audits i.e. supplier/sub-contractor, the OIM, or a third party inspection if any.

Identifying NCRs

Any non-conformances of products and/or services in the control of the Alliance should be identified by the Operational Project Team during completion of works.

Potential NCRs can be identified by:

- Operational Project Team
- Internal inspections by Quality, HSE and project control teams
- Subcontractor or Supplier parties

Raising NCRs

NCRs should be raised by the Operational Teams within each relevant Project Area via InEight.
This will allow the teams to have full awareness and management of the NCRs that need to be closed out.

The InEight system template for NCRs is to be used for immediate corrective action to enable intervention and prevention of impact to the project programme and cost. An NCR should be submitted via InEight for each singular specific issue which can be isolated, corrected and closed out. Recommendations and opportunities for improvements from audits and inspections can also be included on the NCR.

Corrective actions can be project-specific or related to the quality system. In both cases, the actions should be verified for effectiveness.

Causes of detected non-conformities should promptly be identified so that corrective action may be taken and recurrence prevented. These causes may include:

- Non-complying received materials,
- Inadequate procedures.
- Non-compliance against documented procedures.
- Inadequate process control.
- Lack of training.
- Inadequate working conditions.
- Inadequate resources (human or material).

The responsible site engineer must assess the risk rating according to the Risk Control Management Plan. If the risk rating is High or Critical, they must update the construction risk register to capture the likelihood of the risk and measure required risk control to prevent recurrence.

An additional classification to ensure priority close out of critical non-conformance. Identified only for urgent or major and significant issues such as:

- Absence or total breakdown of system, control, or procedure to meet the contract requirement.
- Multiple non-conformances against the contract requirement.
- OIM consideration of significant control penalties including contract cancellation/ non-renewal.
- Failure of system or material which is likely to result in remedial or re-work.
- A failure that may affect long term durability or performance.

Monitoring and Close Out

The Project Quality Manager will investigate non-conformances, identify root causes, and monitor the NCR register on InEight. They will ensure the timely closure of NCRs.

If the Non-Conformance does not meet the minimum requirements of the Client Specifications, the Quality Manager will send the NCR to OIM for approval of the proposed corrective action before closing it out.

Workflow for the Non-Conformance Report (NCR) Has been developed below in Figure 9:

Workflow of Non-Conformance Report

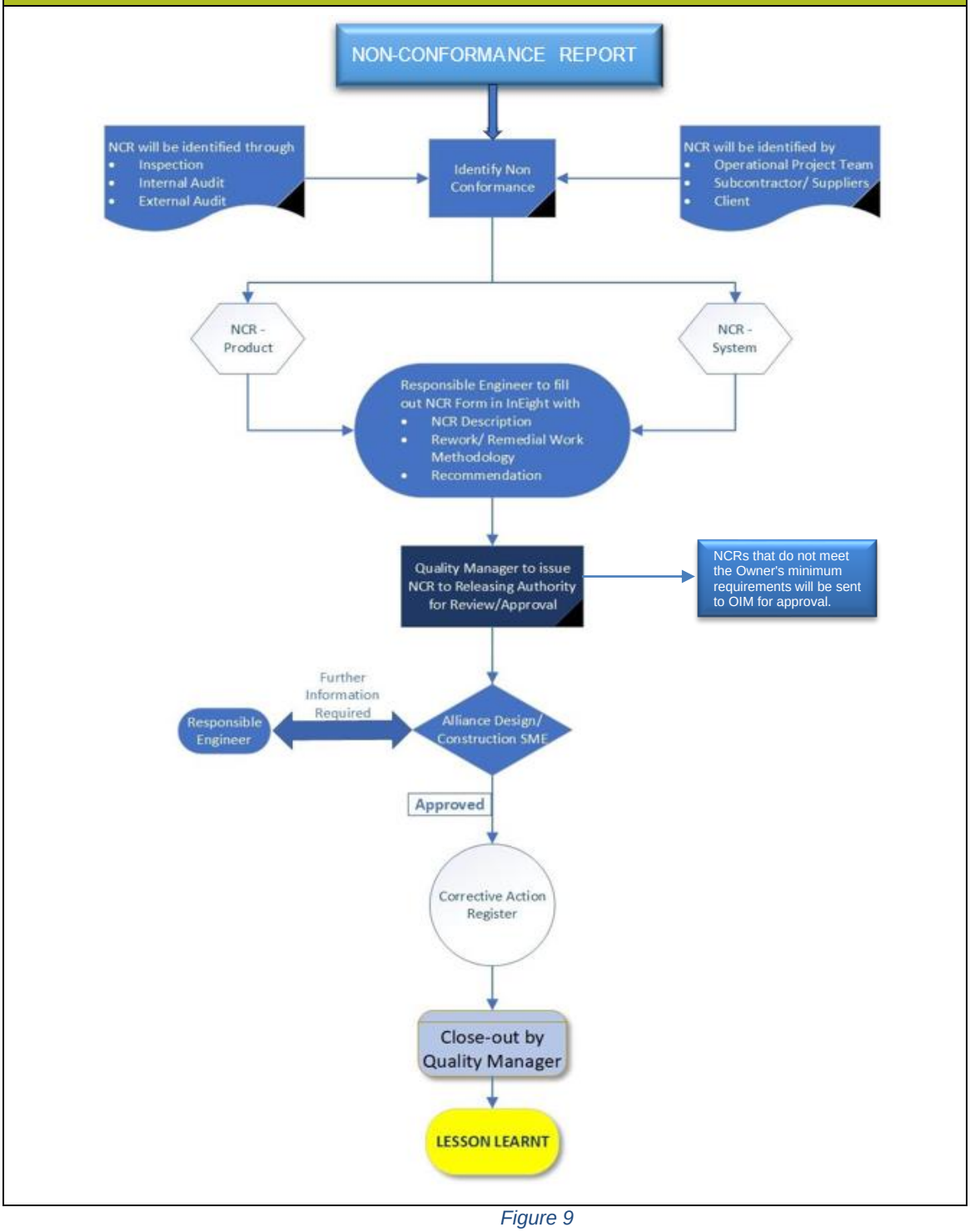


Figure 9

9.6 Corrective Action

Non-conformance shall be managed using the NCR system through the respective LOT in InEight. This system automatically produces reports showing which actions remain open. These reports will be discussed at regular management meetings to promote closure of NCRs. Non-conformance reports are divided into two different approaches as below

- Simple rework action which does not affect the integrity of the design will be capture in NCR form for

Record purpose and it may have a durability consequence.
- Remedial/repair work that potentially relies on any concession to the specified quality standards, must be approved by the Representative (as per attached NCR Workflow in Figure 9) prior to execution.

Until non-conforming corrective actions are approved, the remedial work shall be clearly identified to ensure the work is not covered or built upon. Every NCR action will be registered as Corrective Actions and Site Team will address any optional area for improvement as lesson learnt. Corrective actions are to eliminate the cause of non-conformity and to prevent recurrence.

The Quality Manager will ensure that the NCR register and Lessons Learned are correct and up to date.

9.7 Redline mark-up & Survey As-Built Drawings

During construction, the Site Team will capture any deviations from the IFC drawings and save them in InEight. The step-by-step process for preparing redline drawings is detailed in Appendix J.

On completion of construction activities, the Responsible Site/Project Engineer must upload redline markups and survey as-built drawings for the relevant Lot in CONQA as part of the handover package documentation. The redline markups will capture on-site changes to the original IFC drawings, showing the dimensions, geometry, and location of all work elements completed under the contract. The survey team will provide survey as-built drawings in a CAD file to capture the as-built levels and actual location as constructed. The survey work will be executed in accordance with the Survey Management Plan (Document Number MMA-CON-PLN-PW-GE-GE005).

9.8 Checklist for Handover Process

A comprehensive checklist will be developed on due course to satisfy the requirements of handover process that will be identified in the Completion & Commissioning Management Plan (Document Number MMA-HR-PLN-PW-GE-GE031).

10 QUALITY IN PROCUREMENT

The process for managing purchasing shall be carried out in accordance with the Procurement Plan to support quality as outlined below and the plan is linked to this document.

10.1 Suppliers

The procurement process will fulfil the requirements of clause 8.4 of ISO 9001:2015 related to controlling externally provided services, products, and procedures. A list of potential suppliers will be created and maintained based on their quality systems, financial and personnel capacity, and documented experiences. Purchase orders will specify contract quality requirements. All supply agreements, including the procurement philosophy, methods, process steps, and systems outlined in the purchasing, quality surveillance, expediting, and logistics of material/equipment, will comply with the Procurement Management Plan (MMA-PRO-PLN-PW-GE-GE036) during the project execution phase.

All supply agreements will include for the following:

- Relevant Project Specifications & IFC Drawings.
- Prescribed inspection and testing requirements (which may include off-site inspections or 3rd party certification).
- All materials procured which could be adversely affected by the weather are to be protected to ensure the quality of the product is maintained, this includes both in transport and when on site.
- Warranties as applicable

10.2 Subcontractors

The subcontractors' responsibilities will be defined based on their ability to perform quality assurance activities for their contracted works. They are expected to participate in meetings, and their performance will be monitored for conformance to program and product quality.

The project Quality Manager will expedite inspection and test witnessing based on the approved ITP. If the ITP requires CPS/Design Lead oversight, the Subcontractor must give at least 48 hours' notice. Quality records generated by Subcontractors will be reviewed by the project Quality Manager and Site Engineer to ensure accuracy and timely production. These records will be incorporated into CONQA. Subcontractors' activities will be monitored against the approved Inspection and Test Plan and system and activity audits. The Project Quality Manager will conduct audits related to the Contract and request corrective actions if required. The project Quality Manager and responsible Site Engineer will verify that the applicable procedures have been performed during production activity and that the end product is fit for purpose.

The responsibilities of Sub-contractors will be defined on a case-by-case basis with consideration of their ability to perform quality assurance activities to their scope of contracted works. Sub-contractors will be expected to:

- Participate in Construction Pack Briefings, Job Start Briefings and Toolbox Meetings to discuss on any quality issues and to initiate site quality inspections & testing requirements by the Alliance.
- Fulfil corrective actions assigned to them to correct non-conformance and to take action to avoid future non-conformance.
- Provide evidence of all requirements are met from their inhouse Quality Management System Formal assessments will be undertaken to determine the suitability of Subcontractors to assume additional responsibilities for quality management.

11 QUALITY RISK MANAGEMENT

The Construction Risk Assessment (MMA-RSK-RSK-PW-GE-GE001) will identify all quality and construction risks and opportunities and will be in compliance with the Risk Management Plan (MMA-RSK-PLN-PW-GE-GE028). The Construction Risk Assessment will be owned by the Quality Manager but will be updated by the site team to ensure that individuals working on the ground can add any optional risks to the risk register.

The Construction Risk Register is a live document to be continuously updated throughout the project to reflect new information and changes in risk, including any upcoming critical Non-Conformance.

To mitigate the likelihood and consequence of risks identified within the Construction Risk Register, additional measures may be put in place to reduce risk occurrence and improve the effectiveness of the Quality Management System.

The project will implement any changes necessary to its quality management systems and processes in response to changes in risk to drive continuous improvement for the project.

12 WARRANTIES

Materials procurement will comply with Alliance Project Specifications and Industry Standards. The handover packages (LOTs) will contain all necessary warranties as required by the Project specifications. All warranties should meet the minimum requirements and have a duration from the date of handover. These warranties will be provided in favour of the end users/Owners.

13 CALIBRATION OF EQUIPMENT

It is a testing process to compare a reading of a piece of equipment with another equipment that has been calibrated and referenced to a known set of parameters that complies with the alliance standards.

All equipment used for inspection, monitoring, measuring, or testing, including all third-party equipment, must be suitable, well-maintained, and regularly checked. All equipment must be calibrated or verified against national or international measurement standards at the beginning of its use and at specified intervals thereafter. Critical tools and equipment will be registered, and those required to comply with the Minimum Requirements Schedule will be calibrated by an IANZ-certified testing laboratory or approved third-party services. If there is no such

standard, record and retain the basis used for calibration or verification in the Calibration Register. The calibration regime must meet the manufacturer's recommendations and NZ Standards. Appendix D contains the template for registering calibration equipment. The register shall include the unique serial numbers and the last calibration date and frequency. Calibration records of all equipment identified within the calibration register will be retained. Each equipment or device will have identification on it to determine its current calibration status. The Project Quality Manager will review this register weekly and ensure no un-calibrated equipment is used across the project. All equipment and devices must be stored, maintained, and monitored according to manufacturer requirements to protect them from damage or deterioration that could affect calibration status and measurement results. The operator or Project Quality Manager shall regularly inspect equipment and devices for condition, suitability for measurement, and fitness for purpose.

14 MEETINGS & REPORTING

During Construction, key Minutes of meetings and reporting will be captured through in Teams/SharePoint except the AMT/PAB level meetings will be in InEight. It will be captured in Project Controls Management Plan which is linked. Quality Meeting will be conducted on a weekly basis mainly with construction team & CPS Team and monthly with the management team for action and reporting.

15 PLANT & EQUIPMENT

A part of the development of Method Statements, it is required to select the appropriate plant and equipment items which have been designed for that type of operation and can be operated within the safe working limits of those respective items and the Site Superintendent will take this responsibility. If external expertise is required on specific instance it will need to be approved by the Zone Manager. If any critical equipment that is required to calibrate will comply as mentioned in Section 13

16 IDENTIFICATION AND TRACEABILITY

The responsible Engineer will ensure appropriate traceability records are maintained for the works in accordance with project specifications and project documents. Supplier certificates/records and the supplied items will be correlated on receipt of materials. All requirements will be incorporated into CW, ITPs and checklists, and relevant documentation will be compiled and included in the Final Handover Packages (LOTs).

Any material, equipment or batch that does not demonstrate the required identification or does not comply with the specified requirements shall be identified as non-conforming and be quarantined and, wherever possible, segregated. In these instances, a Non-Conformance Report (NCR) shall be generated for deficient documentation, the supplier informed immediately, and the respective items segregated until the appropriate certificates/records are provided.

The responsible Engineer is to ensure appropriate traceability records are maintained, where required, as detailed in the ITPs to provide proper traceability of structural elements incorporated in the works. This may include concrete dockets and reinforcing delivery information. This will consider requirements for material to be inspected and tested prior to delivery if appropriate and/or required by the design documentation. Product traceability will be captured by the third-party application and will be explained in the Project Controls Management Plan.

17 TRAINING AND COMPETENCY

All personnel shall receive training of a type and level of detail that is appropriate for the quality aspects of their role. At a minimum, all personnel working at site & office will be given a project induction prior to commencing any work. The purpose of the induction is to ensure that, at a minimum, the employee or sub-contractor understands:

- Project quality requirements.
- Individual responsibility in quality.
- The Construction Work Pack & Handover Package.
- The implications of not conforming to the project quality requirements.

Any additional training for specific staff based on position and responsibilities will be identified by the Site Superintendent and / or Project Engineer and takes responsibility of training and it will be provided prior to the commencement of the work.

All project site team members will receive training and induction according to the Training Matrix in Table 4, which is a dynamic document subject to changes during the project lifecycle.

	SharePoint Training	Document Control Management Software InEight & CONQA	Quality & Document Control Induction
Document Controller	Once	Yearly	Yearly
Site/Project Engineer	Once	Yearly	Yearly
Supervisor/Superintendents	Once	Once	Once
Quality Engineer/ Manager	Once	Yearly	Owner
CPS	Once	Yearly	Yearly

Table 4

For all training provided by the project, attendance records and assessments of training will be maintained.

18 WORK SUPERVISION

The quality controls documents such as Construction Work Packs (CWPs) and Inspection and Test Plans (ITPs) will be planned, prepared for all related project activities, and in compliance the project specifications, drawings, statutory requirements and relevant codes and construction standards.

The responsible Site engineer along with Superintendent will regularly monitor the works to ensure that all activities are performed in accordance with the requirements of:

- Applicable Regulations and Legislation;
- The Contract documents;
- This Quality Management Plan and other relevant Plans / Procedures;
- Approved Engineering Standards and Specifications; and
- Approved Manufacturing Drawings and Specifications.

Alliance Quality Engineer/Manager will randomly conduct audits and inspections as part of the quality inspection and testing program.

Subcontractors work performance will be monitored and audited to make sure it is being completed to the prescribed quality requirements. This may involve direct inspection and testing activities or auditing of the Subcontractors own quality system.

19 MANAGING REVISIONS

Any changes in Drawings, Standards & Specifications will be officially notified to alliance by the Design team in conjunction with Document Control team via Transmittals in InEight. Document Revision will be accurately revised, and the affected area will be "clouded" on the drawing. Details of how revisions will be managed is captured in the Document Control Plan.

20 QUALITY AUDITING PROCESS

This auditing will include both evaluations of the degree to which the plan is being followed and gauge the effectiveness of the processes established, including Supplier and Sub-Contractor requirements as well. A regular check of the completeness and status of the quality records will also be conducted. This is to ensure quality records are kept up to date as the work proceeds. The schedule of audits and their records will be controlled by the Quality Manager.

The NCR will be raised to record if any non-conformance discovered and track corrective actions through to closeout and this will be discussed at regular management meetings.

Auditing process is categorised as below:

- Internal Quality will be conducted once in every six months
- Owner Interface Manager will conduct their own quality audit once every year or as required. Audits will be carried out under the Downer audit requirements. Internal audits will include SME representatives from the Alliance participants.

Part of the Auditing plan, Supplier/ Sub-Contractor's premises will be audited where required. Schedule for Annual Audits and template for Quality Audit check sheet are attached as Appendix: E & F respectively. Auditing check sheet for individual departments will be prepared by the department leads on due course.

21 DEFECT NOTICE

Defect Notice will be issued by OIM, PAB or the Project Director at any time of the construction phase or at Defect Liability Period. The Alliance Defect Notice has been detailed in the Project Management Plan.

- During Construction phase, Defect Notice will be converted as an "Non-Conformance Report (NCR)" through the relevant Construction LOT to monitor & complete the remediation by the Alliance. And it will be noted in "Corrective Actions Register" to prevent recurrence.
- Defect Notice that issued at "Defect Liability Period" will be identified as is and noted in "Defects Register".

22 PUNCH LIST PROCESS

Punch List is a quality management tool used to identify defects and damages at the practical completion of works.

When a Construction Package is deemed ready, a walkover inspection is to be coordinated by the relevant project Engineer.

There are two types of walkover inspections that should be conducted as follows:

- Internal walkover, Construction Team will ensure to inspect their work for snags prior to relevant LOT closure and external snagging inspection.
- External walkover, an inspection process that will be captured as part of the Handover Management Plan which will be conducted in the presence of OIM and Owner's SMEs for final handover as required.

All defects shall be recorded in the Punchlist Register during the walkover inspection and uploaded to the relevant Construction Package (LOT) in the CONQA.

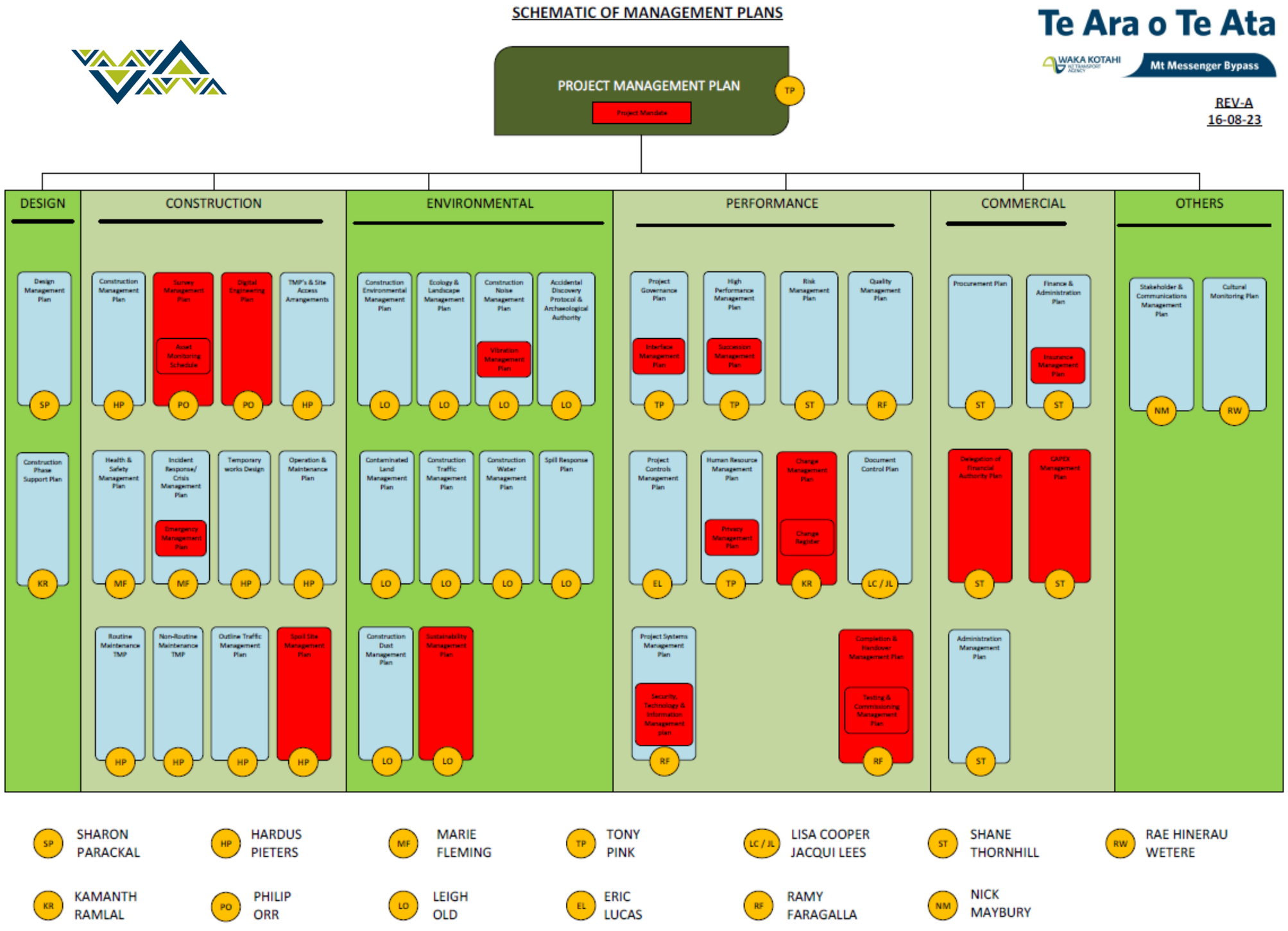
Final Close-out process for all punch list items will be recorded and uploaded in CONQA as detailed in the Completion & Commissioning Management Plan (MMA-COM-PLN-PW-GE-GE035)

23 APPENDICES

- Appendix - A: Schematic Plan for Management Plans

- Appendix - B: Structure for Document Numbering
- Appendix - C: Quality Risk Management process
- Appendix - D: IMTE Register Template
- Appendix - E: Annual Auditing Schedule
- Appendix - F: Quality Audit Check sheet
- Appendix - G: Quality Policy
- Appendix - H: Alliance Organisational Structure
- Appendix - I: Roles and Responsibilities Chart
- Appendix - J: Markup Drawings Process

Appendix - A: Schematic Plan for Management Plans



Appendix - B: Structure for Document Numbering

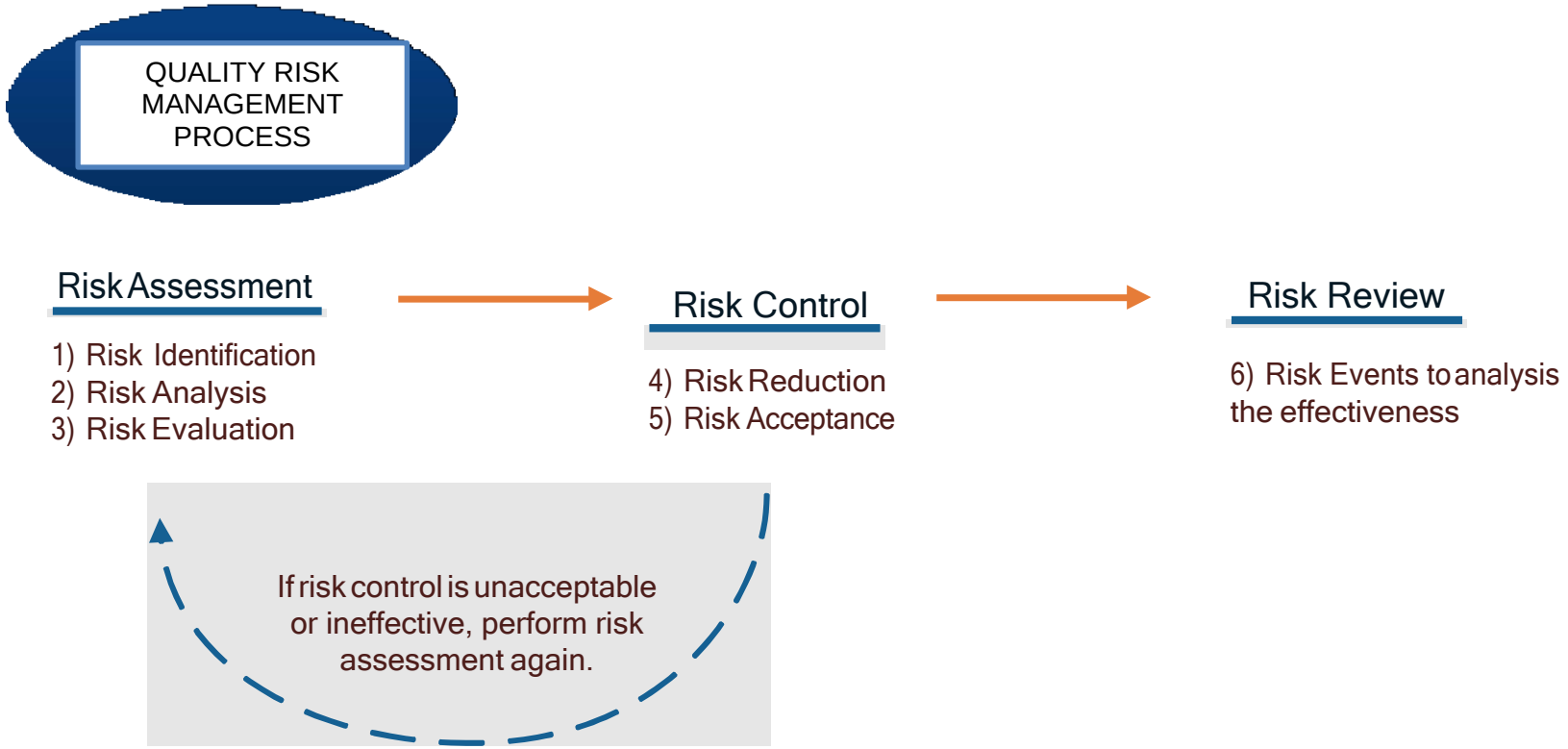
Project Title	Function Classification		Document Type		Location		Discipline		Work Activity	
MMA	Commercial	CMC	Handover Package	LOT	Zone 1	Z01	Drainage	DR	Culvert	CVXXX
	Risk Management	RSK	Construction Work Pack	CWP	Zone 2	Z02	Earthworks	EW	Cut	CUXXX
	Project Controls	PRC	Inspection Testing Plan	ITP	Zone 3	Z03			Fill	FLXXX
	Procurement	PRO	Checklist	CHL	Zone 4	Z04	Pavement	PV	Subgrade	SGXXX
	Subcontract Administration	SUB	Form	FRM	Zone 5	Z05			Subbase	SBXXX
	Governance	GOV	Report	RPT	Zone 6	Z06			Base Course	BCXXX
	Insurance	INS	Plan	PLN	Zone 7	Z07			Chip Sealing	CSXXX
	Engineering	ENG	Job Safety & Environmental Analysis	JSEA	Zone 8	Z08			Asphalt Concrete	ACXXX
	Finance	FIN	Policy	POL	Zone 9	Z09			Wire Rope Barrier	WRXXX
	Management Systems	SYS	Procedure	PRO	Project Wide	PW			Line Marking	LMXXX
	Quality	QA	Chart	CHT					Signage	SNXXX
	Health & Safety	HS	Letter	LET			Services	SE	Power	PWXXX
	Environment	ENV	List	LST					Water	WTXXX
	Doc Controller	DOC	Minutes of Meeting	MOM			Bridge 00	BR00	Substructure	SUXXX
	Human Resources	HR	Procedure Qualification Record	RQR			Bridge 01	BR01	Super structure	SPXXX
	Infrastructure	INF	Register	REG					Surveillance	SVXXX
	Compliance	CPL	Safe Work Method Statement	SWMS			Tunnel	TU	Excavation	EXXXX
	Plant	PLT	Weld Procedure Specification	WPS					Shotcrete	SCXXX
	Design	DES	Project Programme	PRG					Mechanical	MEXXX
	Construction	CON	Audit	AUD					Electrical	ELXXX
	Geotechnical	GO	Drawing	DRW			Landscape	LD	Tree Mulching	TMXXX
	Sustainability	SUS	Risk Register	RSK					Topsoil	TSXXX
	Operation & Maintenance Manual	OMM	Construction	CON					Fencing	FNXXX
	Commissioning	COM					General	GE	General	GEXXX
							Temporary Works	TW	Concreting	COXXX
									Site Inspection	SIXXX
									Bond Monitoring	BMXXX
									Safe Operating Procedure	SOXXX
							Fill Disposal	DS	Fill Disposal Site	FSXXX

Revision of Documents should be as follows:

For Draft Documents, The Revision should be A, B, C,……

For Final Documents (Issued For Construction), The Revision should be 0, 1, 2, 3, ……..

Appendix - C: Quality Risk Management process



REV - 01

Appendix - D: IMTE Register Template

Project	**Mount Messenger Bypass Alliance**
Site Location	
Revision	**1**

INSPECTION, MEASURING & TEST EQUIPMENT REGISTER (IMTE)										
Item	Date	Asset Number	IMTE Description/ Model Number	Serial Number	Calibration Frequency	Calibration Due Date	Responsibility for Calibration	Calibration Method	Location/ Allocation	Comments
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Appendix - E: Annual Auditing Schedule

INTERNAL AUDITING SCHEDULE

Discipline	Frequency	Responsible Auditor	Sep-23		Oct-23		Nov-23		Dec-23		Jan-24		Feb-24		Mar-24		Apr-24		May-24		Jun-24		Jul-24		Aug-24		Sep-24	
			Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Design/ CPS	once in 1st six months and then annually	Design Manager & CPS Manager			✇																						✇	
Health & Safety	once every 3 months	H&S Manager			✇						✇						✇						✇					
Environmental	once every month	Environmental Manager			✇		✇		✇		✇		✇		✇		✇		✇		✇		✇		✇		✇	
Procurement, Supply & Commercial	once every year	Commercial Manager					✇																					
Construction	once every 6 months	Construction Manager			✇												✇											
Quality / Document Control	once every 6 months	Quality Manager			✇												✇											
Sub-Contractor/ Supplier	once every 6 months	Quality Manager & CPS Manager					✇														✇							
Owner Rep.	once every year	Owner Interface Manager								✇																		

1) All Audit Reports should be sent to the Quality Team, accompanied by the Line Manager's acceptance signature, within two weeks of the audit date. 2) If any Non-Conformance is identified during the Internal Audit, the Responsible Engineer will initiate it in InEight using the NCR Form. 3) All audit reports and findings will be communicated to the PAB, Alliance Project Manager, and any relevant stakeholders in a timely manner, as necessary. 4) All audits will be carried out as per the above Schedule within 4 weeks. 5) The Project Admin/Document Controller will issue a reminder to the auditor at least two weeks in advance of the audit date.	**Revision - B**

Te Ara o Te Ata
WAKA KOTAHI Mt Messenger Bypass E
REV - 01

Appendix - F: Quality Audit Check sheet

Project Name:	**Te Ara o Te Ata**	**Zone No.:**	
Auditee:		**Audit No.:**	
Auditor:	**Ramy Faragalla**	**Date.:**	

	Documents Requirements	Max Score	Actual Max Score or N/A	Actual Audit Score	Software	Comments
1.1	Have CWP's been created and approved?	5				
1.2	Have ITP's been created and approved?	5				
1.3	Have any quality risks associated with the Work Pack been identified in the Work Pack Risk Register, and have appropriate measures of control been taken to manage the risks?	5				
1.4	Has the QA register been created?	5				
1.5	Has the QA Register being filled out during construction?	5				
1.6	Has the Lot Register been updated?	5				
1.7	Have the LOTs been created in InEight?	5				
1.8	Are the latest relevant drawing revisions available in InEight?	5				
1.9	Have ITP's been created and approved?	5				
	Total:	**30**				

	Quality Testing Requirements	Max Score	Actual Max Score or N/A	Actual Audit Score	Software	Comments
2.1	Has the site team inspected all received material to ensure compliance with specifications and receipt of required test reports?	5			CONQA	
2.2	Have the delivered materials been stored on-site according to the manufacturer's specifications?	5			Photos on CONQA	
2.3	Have ITP's been signed off in CONQA during construction?	5			CONQA	
2.4	Have ITP verification records being progressively completed and uploaded to the lot(s) in CONQA?	5			CONQA	

2.5	Have ITP hold points listed below been signed off?					
2.5.1		5			CONQA	
2.5.2		5				
2.5.3		5				
2.6	Have all the required checklists been completed and signed?	5				
2.7	Has surveying been undertaken on completed sections?	5				
2.8	Have the photos of the construction been taken and uploaded on SharePoint or CONQA?	5			SharePoint/ CONQA	
2.9	Have the redline markup drawings been completed progressively during construction?	5			CONQA/ Hard copy	
	Total:	**45**	**0**	**0**		

General Quality Requirements		**Max Score**	**Actual Max Score or N/A**	**Actual Audit Score**	**Software**	**Comments**
3.1	Have all RFI responses been resolved within the agreed timeframe?	5			InEight	
3.2	Have the root causes been identified and documented in InEight through raised NCRs?	5			InEight	
3.3	Have all the corrective actions for the NRCs been completed within the agreed time frame?	5			InEight	
3.4	Has the risk register for CWP been updated after raising each non-conformance?	5			InEight	
3.5	Have all the observations and findings from previous audits been closed?	10				
	Total:	**30**	**0**	**0**		

Total Audit score	**105**	**0**	**0**		
Actions:					

Appendix - G: Project Quality Policy

QUALITY POLICY

This document outlines the policy for quality, incorporating the delivery management of projects, in New Zealand.

OUR PURPOSE

Our purpose is to enable maintain the confidence and trust of our customers and partners, and deliver projects, products and services right first time, within budget, and to schedule, by:

- establishing quality requirements
- evaluating performance to requirements
- managing non-conformance and continuous improvement; and
- implementing and maintaining the enterprise quality management system.

OUR OBJECTIVES

To achieve our purpose, we will:

- define the quality strategy
- operate in accordance with our 10 Quality Principles
- define clear quality requirements, controls and plans that are measurable and verifiable, and meet the needs and expectations of our customers
- analyse if the performance of quality plans has been achieved
- define and monitor performance indicators, including customer satisfaction and contract retention, to ensure we meet our quality objectives
- ensure a continuous improvement framework is established and utilised to identify, manage and share solutions and initiatives
- ensure timely treatment of non-conformance to an acceptable level of risk, while maintaining a culture of transparency where reporting of non-conformance is encouraged, proactively managed and supports a learning environment
- administer and provide governance for the enterprise quality management system to manage content, business processes and compliance
- ensure the enterprise quality management system complies with ISO 9001 and other relevant standards to drive consistency and improvement
- evaluate the performance of the enterprise quality management system's on-going effectiveness and applicability; and
- apply the enterprise quality management system to our supply chain management with ongoing development and performance evaluation, partnering with customers, suppliers and subcontractors with compatible, robust systems and processes.

Tony Pink
Alliance Manager
Mt Messenger Alliance

Nov-22

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Version 1.0

10 Quality Principles

By applying these principles in our work we keep the confidence and trust of our customers and partners, maintain our status as an industry leader, and deliver projects, products and services right first time, within budget, and to schedule.

1

Customer focus
Drive to deliver and exceed customer expectations, keeping our customer's customers in mind.

2

Leadership
Drive improvement of projects, goods and services via effective leadership.

3

Engagement of people
Involve everyone in the process, through effective communication, leadership and education.

4

Relationship management
Relationships creating success through understanding the stakeholders' needs and expectations. Work together to develop effective relationships.

5

Right first time
Deliver quality projects, goods and services, right first time, within budget and to schedule.

6

Value-add thinking
Work out how to consistently add value and eliminate waste.

7

Data driven decision making
Establish priorities and required actions through data and evidence driven decision making.

8

Risk + opportunity management
Apply a risk and opportunity based approach and implement treatments appropriate to planned activities.

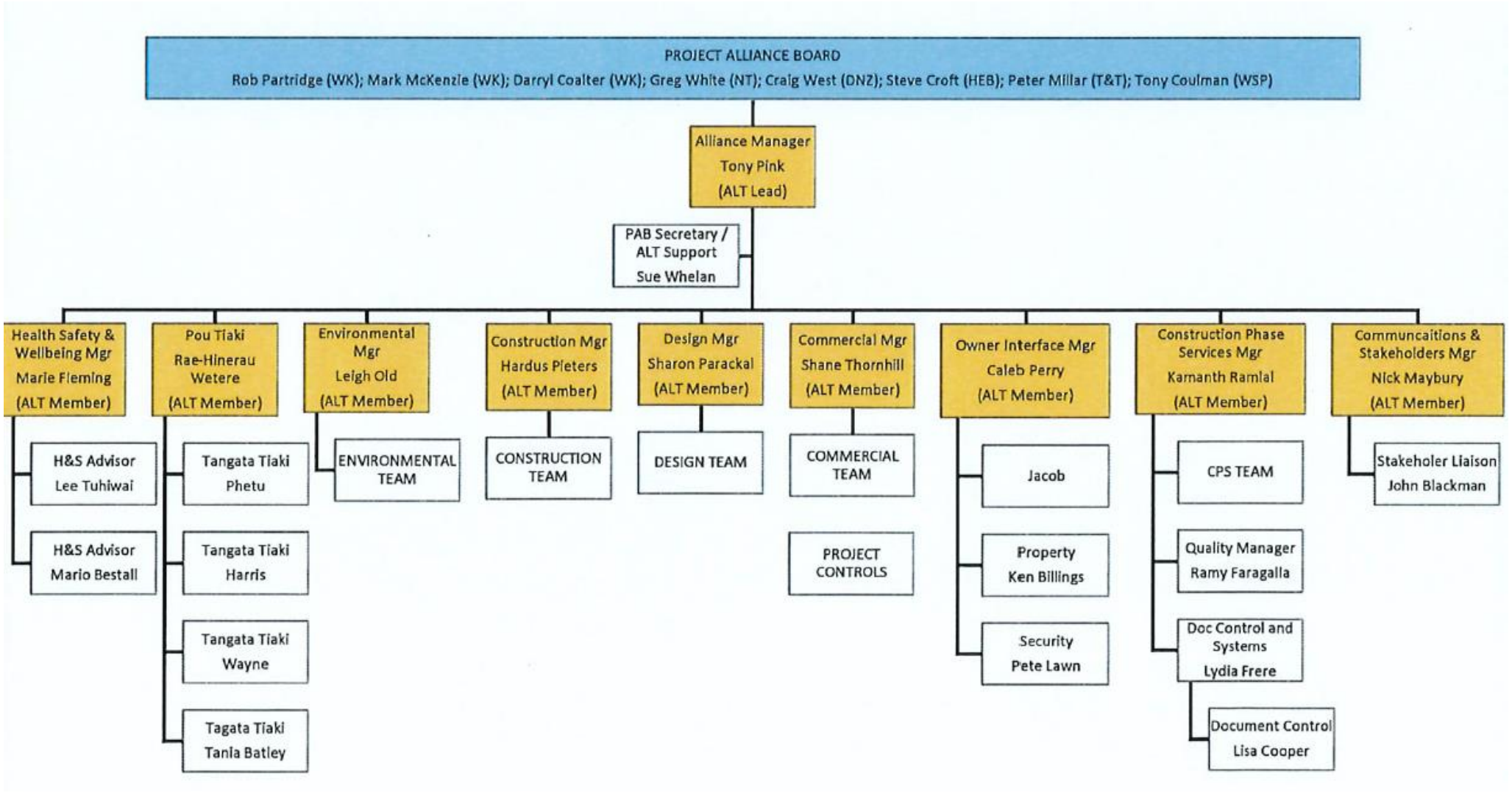
9

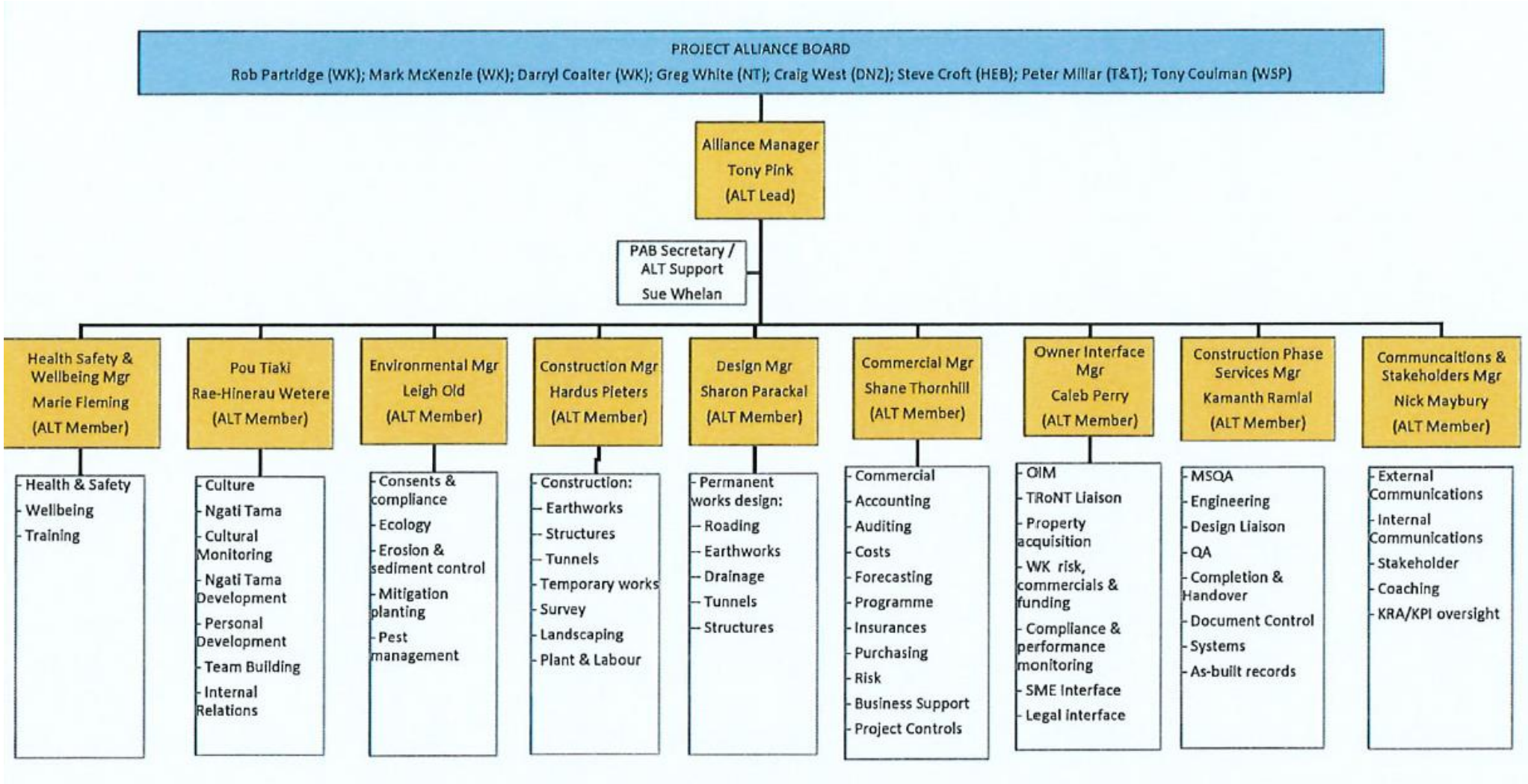
Process approach
Use a process approach to identify, document and consistently execute key activities efficiently and effectively.

10

Continuous improvement
Continually improve, innovate and sustain processes and outcomes to increase quality, productivity, drive down costs and drive customer value.

Appendix - H: Alliance Organisational Structure




PROJECT ALLIANCE BOARD
Rob Partridge (WK); Mark McKenzie (WK); Darryl Coalter (WK); Greg White (NT); Craig West (DNZ); Steve Croft (HEB); Peter Millar (T&T); Tony Coulman (WSP)
Alliance Manager
Tony Pink
(ALT Lead)
PAB Secretary / ALT Support
Sue Whelan
Health Safety & Wellbeing Mgr
Marie Fleming
(ALT Member)
- Health & Safety
- Wellbeing
- Training
Pou Tiaki
Rae-Hinerau Wetere
(ALT Member)
- Culture
- Ngati Tama
- Cultural Monitoring
- Ngati Tama Development
- Personal Development
- Team Building
- Internal Relations
Environmental Mgr
Leigh Old
(ALT Member)
- Consents & compliance
- Ecology
- Erosion & sediment control
- Mitigation planting
- Pest management
Construction Mgr
Hardus Pieters
(ALT Member)
- Construction:
- Earthworks
- Structures
- Tunnels
- Temporary works
- Survey
- Landscaping
- Plant & Labour
Design Mgr
Sharon Parackal
(ALT Member)
- Permanent works design:
- Roading
- Earthworks
- Drainage
- Tunnels
- Structures
Commercial Mgr
Shane Thornhill
(ALT Member)
- Commercial
- Accounting
- Auditing
- Costs
- Forecasting
- Programme
- Insurances
- Purchasing
- Risk
- Business Support
- Project Controls
Owner Interface Mgr
Caleb Perry
(ALT Member)
- OIM
- TIRoNT Liaison
- Property acquisition
- WK risk, commercials & funding
- Compliance & performance monitoring
- SME Interface
- Legal Interface
Construction Phase Services Mgr
Kamanth Ramlal
(ALT Member)
- MSQA
- Engineering
- Design Liaison
- QA
- Completion & Handover
- Document Control
- Systems
- As-built records
Communcaitions & Stakeholders Mgr
Nick Maybury
(ALT Member)
- External Communications
- Internal Communications
- Stakeholder
- Coaching
- KRA/KPI oversight

Appendix - I: Roles and Responsibilities Chart

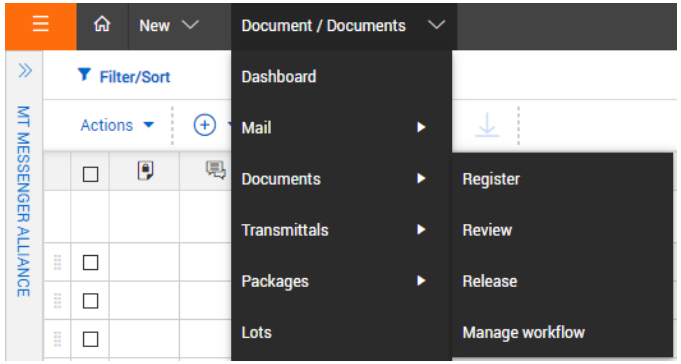
Quality Management Plan	Responsibility																		
Workgroup	Construction												Design	Project Controls					AMT & Leadership
Role	Superintendent	Supervisor	Construction Manager	Zone Manager	Project Engineer	Site Engineer	Operators / Field Staff	Quality Manager	Quality Engineer	Safety Manager	Environmental Manager	Traffic Manager	Design Manager	Document Controller	Site Quantity Surveyor	Procurement Manager	Project Control Managers	Alliance Manager	Comments
Project Quality Objective Measurements			Assist	Assist	Assist			Own	Assist	Assist	Assist		Assist	Assist					
Construction Work Pack Development	Assist	Assist	Approve	Assist	Own	Assist			Assist	Assist	Assist	Assist	Assist						
Inspection and Test Planning			Approve	Own	Own	Assist		Assist	Assist										
Inspection and Test Plan - Execution	Assist	Assist		Assist	Assist	Own	Assist		Assist										
Inspection and Test Records					Assist	Own								Assist					
Supervisor Coordination Meeting	Own	Assist		Assist															
Site wide Muster	Own	Assist																	
Plant Management	Own	Assist		Assist															
Procurement Management Planning	Own	Assist		Assist				Assist	Assist						Assist	Own	Assist		
Site Establishment/Infrastructure	Own	Assist		Assist															
Labour Hire	Own	Assist			Assist														
Methodology Workshops	Assist	Assist	Own	Assist	Assist	Assist	Participate	Assist	Assist	Assist	Assist		Assist						
Daily Briefing	Assist	Own				Assist	Participate			Assist									
Methodology Execution	Assist	Own		Assist	Assist	Assist	Assist												
JSEA Execution		Own		Assist	Assist	Assist	Assist			Assist									
Materials Management	Assist	Own																	
Erosion & Sediment Control Implementation/Maintenance		Own								Assist	Assist								
Materials Certificates		Assist				Own			Assist					Assist					
Wastage Measurement		Assist			Own	Assist			Assist										
Testing Equipment Logbooking in-charged		Own				Assist								Assist					
Testing Equipment Calibration Regime in-charged		Assist				Assist			Own										
Identify & Raise Non-conformance			Assist		Own	Assist		Assist	Assist				Assist						As per NCR Flowchart
Non-conformance Approval & Closing out			Own	Assist	Assist	Assist		Own	Assist				Assist						As per NCR Flowchart
Change Management			Assist														Assist	Own	
Subcontract Administration		Assist			Assist	Assist									Own				
Temporary Works Certificates			Authorize		Assist	Assist													
Site Safety & Environmental Inspections	Assist		Assist		Assist	Assist				Own	Own						Assist		
Permits to Work					Assist	Assist				Own									
Construction Noise and Vibration Monitoring						Assist					Own								
TMP Monitoring												Own							
Generating LOTs					Assist	Assist			Own					Assist					
Quality Management Process and Measuring				Assist	Assist			Assist							Own				
Quality Mangement Plan			Assist	Assist				Own	Assist								Review		Review by OIM Approve by PAB
As-built Survey Information and Records			Own		Own	Assist								Assist					
As-builts and QA Documentation Handover			Assist	Assist	Assist	Assist		Own	Assist				Assist	Assist					

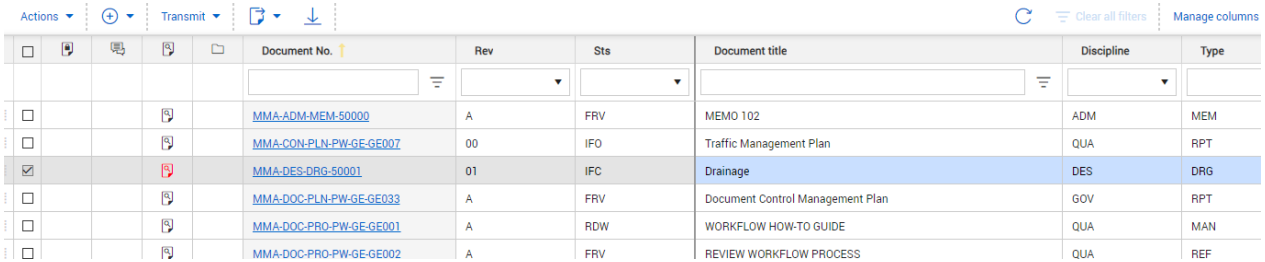
APPENDIX - I
REV - 01

Appendix - J: Markup Drawings Process

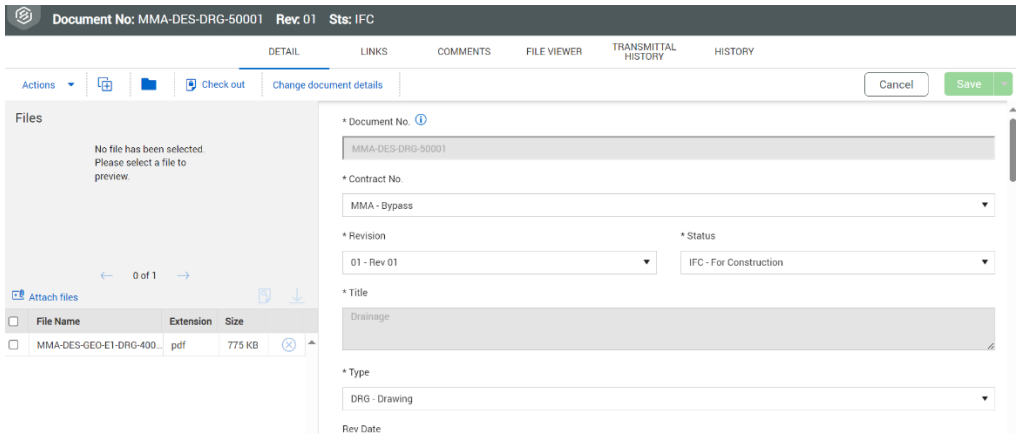
As part of the commissioning, project closeout, and handover processes, maintaining a complete and accurate set of As-Built documentation at each project phase is crucial. To achieve this, the project team follows a structured process for redlining drawings to highlight any deviations from the current IFC drawings. Here is a step-by-step breakdown of this process:

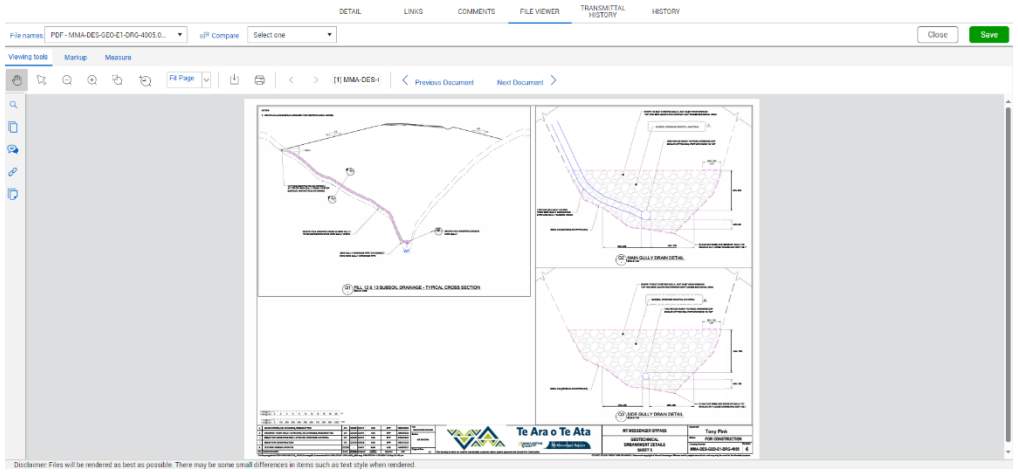
1. **Select the Drawing**: Identify the IFC drawing in the InEight platform that requires redlining.



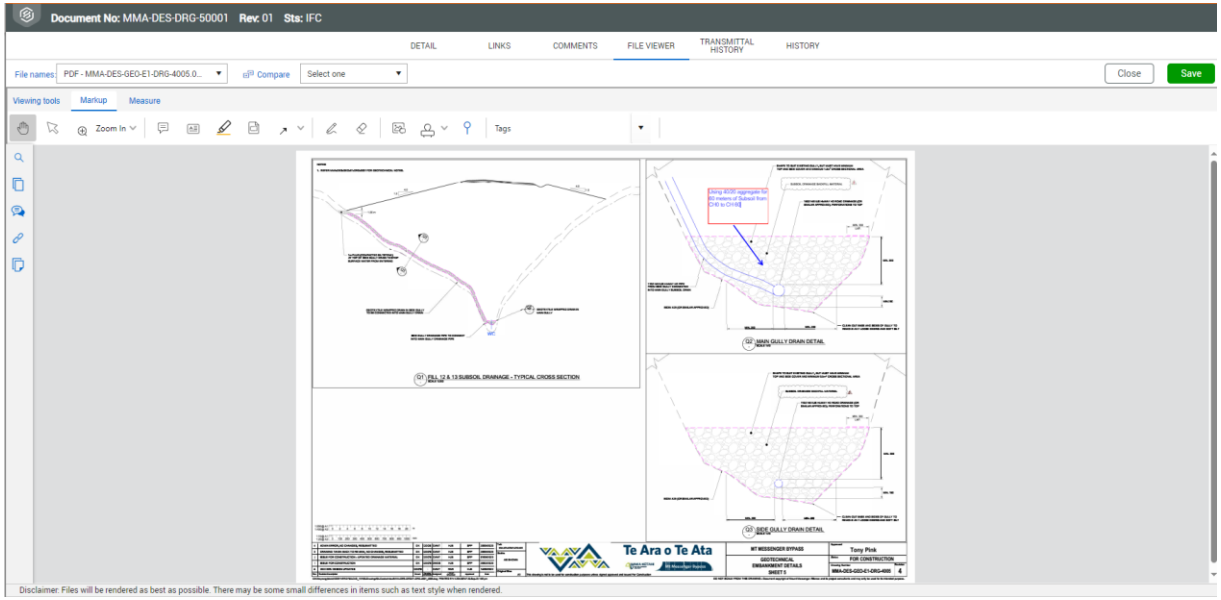


2. **Enable Annotation Mode:** Access the selected IFC drawing using the platform's File Review tools.

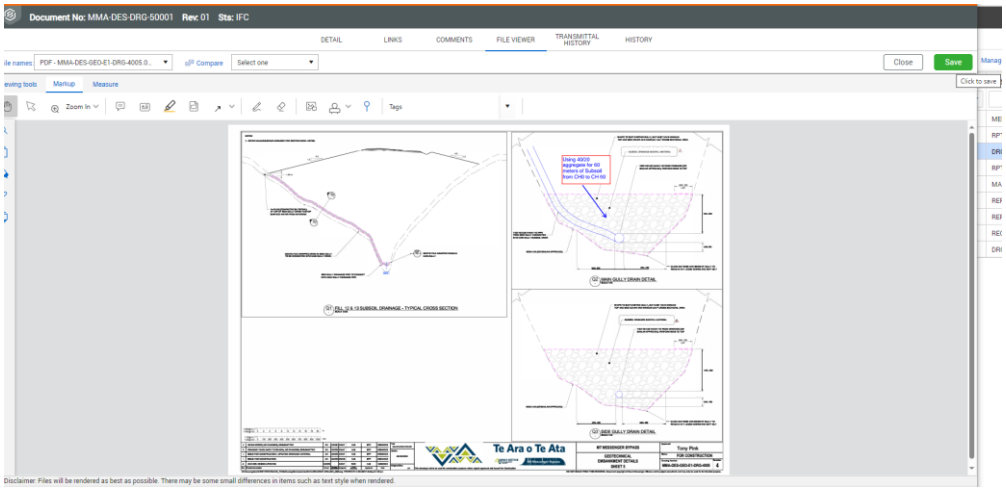




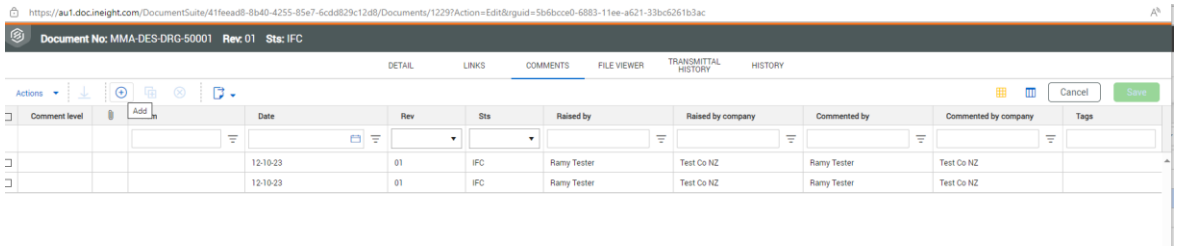
3. **Apply Annotations:** The site team will use the Markup tools within the platform to add markups and comments directly onto the drawing. These markups could include notes, highlights, and stamp to indicate changes or deviations from the original IFC drawing.

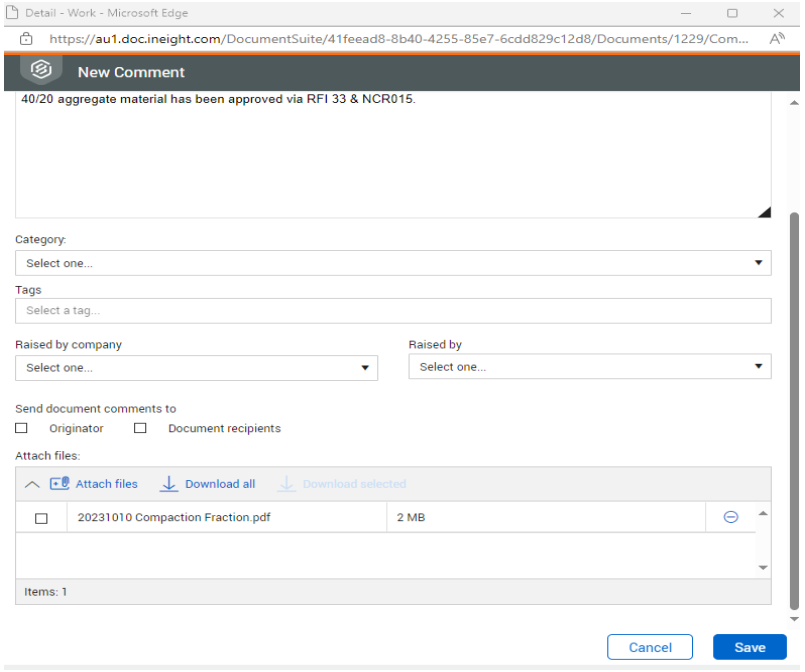


4. **Save Annotations:** Ensure that all annotations are saved within the InEight platform.

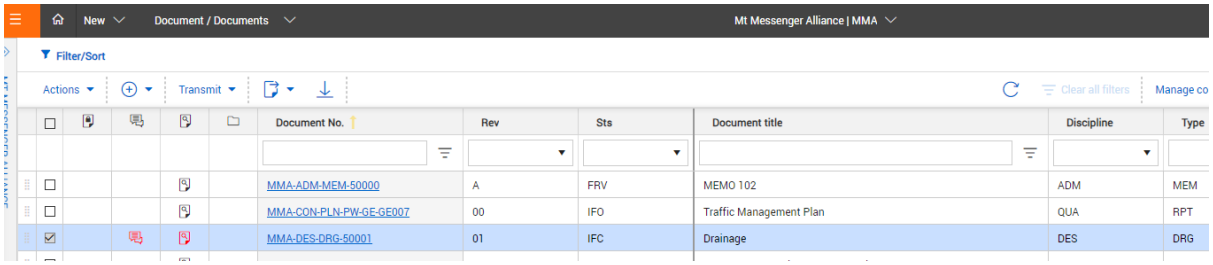


5. **Add comments:** Site Team will add comments and attach files (if required) within the InEight platform.





6. **Integrate with Project Data:** The InEight platform will link the marked-up drawing to the original IFC drawing, creating an integrated record of the changes or deviations.



The described method streamlines the workflow for marking up IFC drawings to document changes or deviations, ensuring that the final marked-up drawings accurately represent the as-built site condition. By utilizing InEight's annotation and integration features, the project team can effectively manage the redlining process throughout the project life cycle, allowing all relevant site engineers to contribute to preparing the redline drawings.
Properly executed Markup Drawings Processes are instrumental in ensuring all project stakeholders can access accurate and up-to-date information, reducing errors and improving overall project quality.