Roydon Quarry, SH1 / Dawsons Road Queue Management Plan

This Queue Management Plan has been prepared for the benefit of Fulton Hogan Limited. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the Queue Management Plan may be made available to Selwyn District Council and other persons for an application for permission or approval or to fulfil a legal requirement.

Rev. No.	Date	Description	Prepared By	Reviewed By	Approved By
A	31/10/2019	For consultation with NZTA	Andrew Metherell	Bevan Wilmshurst	Andrew Metherell
B	5 / 11 /2019	Address NZTA comment on Objective	Andrew Metherell		Andrew Metherell
C	11/11/2019	Final Draft	Andrew Metherell		Andrew Metherell
D	13/11/2019	Add Southbound Queue	Andrew Metherell		Andrew Metherell
E	28/1/2020	Incorporate Additional NZTA Edits	Andrew Metherell		Andrew Metherell
F	4/02/2022	Incorporate Environment Court Consent Order Conditions of Consent, Changes related to recent construction of CSM2	Andrew Metherell	Andrew Leckie	Andrew Metherell
G	30/3/2022	Finalise for Certification following stakeholder workshop	Andrew Metherell	Andrew Leckie	Andrew Metherell

1 Introduction

1.1 Background

Fulton Hogan has received resource consent for a new quarry to be accessed from Jones Road to the west of Dawsons Road. In broad terms, the consent allows for maximum quarry traffic generation of up to 1,200 heavy vehicle movements per day (600 movements inwards, 600 movements outwards), and a lesser 800 vehicles per day averaged over 60 calendar days.

The consent requires all heavy vehicle traffic generated by the quarry to use the route to State Highway 1 (SH1) via Dawsons Road, crossing the main south railway line.

A potential effect of the quarry that has been assessed in detail is the safety impact of queuing in the vicinity of the roundabout NZTA recently constructed at SH1 / Dawsons Road / Waterholes Road as part of Christchurch Southern Motorway Stage 2 ("CSM2"). There are two matters identified:

- The northbound queue generated by the Dawsons Road railway level crossing, and any impacts when it extends back to the SH1 roundabout. This involves a potential change to the normal queueing at the roundabout when the queue extends back.
- The southbound queue generated on the Dawsons Road (north) approach to the SH1 roundabout, and any impacts it has when it extends to the railway. This may involve a change if drivers crossing the railway ignored the 'keep clear' markings and/or mis-judged the available space on the other side of the railway crossing, and a train is travelling through the level crossing

In both cases, the effect relates to changes in the likelihood of queuing extending to either the roundabout or railway level crossing, and the consequential impact of any queue on the safety and efficiency of traffic.

A management plan approach has been put forward as a response to addressing remaining areas of concern from the road controlling authorities. That allows for actual effects on the transport network to be taken into account through monitoring, and mitigation (if any) to be put in place based on re-evaluation of the roundabout operation following the monitoring.

1.2 Queue Management Plan Purpose

This Queue Management Plan sets out the management plan approach to monitoring and mitigation (if needed) for the queue back from the Dawsons Road railway crossing to the SH1 roundabout, and from the SH1 roundabout to the railway, as a result of changes in traffic patterns associated with the Quarry.

The management plan is a requirement of a series of conditions of consent for the quarry. The wording of the condition of consent associated with the management plan, as included in the Environment Court Consent Order 3 November 2021 is included in **Appendix A**.

A workshop was held on 24 February 2022 to discuss the version F Queue Management Plan content. This was attended by representatives from Fulton Hogan, Selwyn District Council, Waka Kotahi, Christchurch City Council, and KiwiRail as required by conditions 49-52. No specific changes have been made to the Queue Management Plan as a result. Matters of discussion requiring action are encompassed in the matters to be addressed through implementation of the plan, such as monitoring and reporting.

The monitoring and mitigation required by the management plan condition is to address changes to safety risk as a result of queue back from the railway line or roundabout. Safety risk at the SH1 intersection will include within the roundabout circulating lanes, as well as on approach and exit lanes. Safety risk at the railway is in relation to the movement across the railway. The design plans that the management plan is based on are attached in **Appendix B**.

2 Safety Risk Assessment

2.1 Assessment Framework

Any mitigation required to be put in place by Fulton Hogan will relate to an assessment of the effect on road safety. The effect of the quarry in this case relies on assessment of the future transport network (allowing for

changes recently made due to CSM2 and changes proposed to the Dawsons Road / Jones Road intersection) with forecast traffic volumes. It also relates to a relatively low frequency event where a train generates a railway level crossing closure that results in a queue extending to the SH1 roundabout, or a queue from SH1 extending to the railway when a train is passing through. The effect assessment can be considered in terms of the change in risk to safety of road users.

A commonly used method for assessing road safety risk is set out through the NZTA road safety audit process. The expected crash frequency is qualitatively assessed on the basis of expected exposure (how many road users will be exposed to a safety issue) and the likelihood of a crash resulting from the presence of the issue. The severity of a crash outcome is qualitatively assessed on the basis of factors such as expected speeds, type of collision, and type of vehicle involved. Safety concerns are summarised by a concern assessment rating matrix.

Table 2-1: Concern Assessment Rating Matrix

Severity (likelihood of death or serious injury)	**Frequency** (probability of a crash)			
	Frequent	Common	Occasional	Infrequent
Very likely	Serious	Serious	Significant	Moderate
Likely	Serious	Significant	Moderate	Moderate
Unlikely	Significant	Moderate	Minor	Minor
Very unlikely	Moderate	Minor	Minor	Minor

Typical guidance for a suggested action for each concern category is given in Table 2-2.

Table 2-2: Concern Categories

Concern	Suggested action
Serious	Major safety concern that must be addressed and requires changes to avoid serious safety consequences.
Significant	Significant safety concern that should be addressed and requires changes to avoid serious safety consequences.
Moderate	Moderate safety concern that should be addressed to improve safety.
Minor	Minor safety concern that should be addressed where practical to improve safety.

A method also used for assessing level crossing safety is the Level Crossing Safety Impact Assessment (LCSIA), a process carried out for KiwiRail which identifies the level of crash risk of existing or upgraded crossings, or a change in use at the crossing. The crash risk is represented as a score for the level crossing, which is then placed in risk bands representing the likelihood of death or serious injury. Criteria are applied to determine if changes in risk are acceptable. The LCSIA process has already been used for an assessment of the change in level crossing crash risk as a result of the quarry, and associated network changes.

2.2 Assessed Level of Safety Risk

2.2.1 Northbound Queue Back from Railway to Roundabout

Scheme stage and detailed design stage road safety audits of the NZTA roundabout at SH1 / Dawsons Road have not identified queue back from the railway into the SH1 roundabout, or from the SH1 roundabout into the railway as a road safety concern, indicating any concerns have at the time of design not met the threshold for comment. It is noted that the NZTA roundabout design would have been subject to further post-construction road safety audit as part of its commissioning.

The risk to safety needs to take into account the likelihood of queues occurring that extend from the railway line to the roundabout, the likelihood of an increase in collisions within the roundabout or its vicinity (including approach and exit lanes), and the safety consequence of any collisions.

In terms of likelihood, extensive modelling undertaken for the Quarry proposal has identified that there is the potential for queueing without or with the quarry. The frequency will likely increase once the quarry is operational, but will still be very low in terms of overall operational time of the roundabout, and would not occur each time a train passes through the level crossing.

Assessments of safety risk are that the safety concern associated with queue back from the railway into the roundabout are of a low enough concern that they can be confirmed and mitigated (if necessary) through actions resulting from the management plan process. Following recent transport network changes and once the quarry is operational, the observation of actual road user responses, and monitoring of safety performance provides NZTA, Fulton Hogan (and Kiwi Rail as required) the opportunity to confirm the need for and type of any mitigation. This will take into consideration the level of safety concern identified, and how the quarry related traffic is contributing to any change in safety concern.

2.2.2 Southbound Queue Back from SH1 Roundabout to Railway

An LCSIA was included in the Fulton Hogan consent application for the change in use of the level crossing and the proposed improvement works on the north side of the railway to support quarry operations. That did allow for the recently constructed CSM2 roundabout as a reference against which the quarry was compared. The crossing was identified as having a Medium Low risk band under the scenarios of without and with quarry. This change was considered acceptable to KiwiRail, and represents a "relatively safe level crossing situation".

To address the residual concerns of the road controlling authorities, the risk to safety needs to take into account the likelihood of queues occurring that extend from the SH1 roundabout to the railway line, the frequency of trains, the level of compliance with signage and markings, and where any misjudgement of the space available for queueing could result in a vehicle straddling the railway level crossing. Based on the active and passive measures in place at the crossing, the risk of collision between a vehicle and a train would be assessed.

The detailed traffic modelling indicated that queues would generally be contained within the available queue distance, although it is recognised that there is some potential for occasional queues to extend at least close to the railway. As drivers approach from the north a precise decision making process is involved as to whether there is space on the southern side of the railway. The modelling suggests only a small difference in queue length between the without and with quarry scenarios, although the mix of traffic changes with more heavy vehicles with the quarry. This should be at least partly addressed in the with quarry scenario by removing or improving the short stacking distances on the north side of the railway easing the decision making.

2.3 Initial Considerations to Address Risk

The SH1 roundabout has recently been constructed, and it is understood no physical changes were made to address any safety concerns associated with queue back. Through the assessment process, and ongoing consultation with NZTA and KiwiRail, potential responses to address the risk of concern to NZTA have focused on mitigation that warns vehicle drivers of risks associated with the queuing. This has included a range of potential measures that can be staged and will be considered for implementation based on actual assessed risk following monitoring:

- Monitoring of traffic volumes and queuing, and its influence on roundabout and railway operation and road safety;
- Potential mitigation in the form of queue activated warning signs on the basis of Level Crossing Safety Impact Assessment "LCSIA" recommendations and use as the standard warning device of queues in the vicinity of railways; and
- Potential mitigation in the form of railway activated warning signs, possibly linked to variable message signs.

This management plan sets out the framework for monitoring performance, and developing mitigation if required, based on the level of safety concern.

3 Objectives of Management Plan

The objective of the Plan shall be to ensure that the operation of the quarry does not result in a change in safety risk:

- At the roundabout on SH1 / Dawsons Road (including within the roundabout, and on its approach and exit lanes), specifically arising from queue back from the adjacent railway level crossing.

- At the Dawsons Road railway level crossing associated with changes in the southbound queue on Dawsons Road from the SH1 / Dawsons Road roundabout.

Safety at the roundabout and railway associated with the queue back shall be assessed in accordance with a fit for purpose Safety Risk Assessment which is carried out in accordance with the approach set out within Section 2 of this draft Roydon Quarry, SH1 / Dawsons Road Queue Management Plan. This will involve management measures to monitor and review changes in operation and safety from the queuing events.

Where a change in safety risk is identified, mitigation is to be provided by Fulton Hogan to address the change in safety concern at the roundabout on SH1 / Dawsons Road.

The proposed approach to monitoring and mitigation are set out in the following sections of this Queue Management Plan.

4 Monitoring

Phase 1: Baseline Traffic Monitoring - Before the Quarry is Operational and prior to commissioning of the works at Jones Road / Dawsons Road

As a new roundabout has been installed by NZTA at SH1 / Dawsons Road and has been open from late 2020 / early 2021 (before the Quarry is operational), it is likely that a post construction safety audit has been carried out by NZTA of the CSM2, including at the SH1 / Dawsons Road roundabout. There is a possibility that the audits could have recommended design provisions to address any safety concerns raised with the railway level crossing. Through the recent commissioning period, it is likely that the major changes in traffic patterns will be starting to establish and should form a baseline for future monitoring.

Actions:

1. Fulton Hogan will meet with NZTA, Selwyn District Council, Christchurch City Council and KiwiRail to discuss any feedback from the NZTA post construction review of the roundabout operation, and whether measures have been planned or implemented that would also address any of the queueing concerns.

2. At least 3 months after CSM2 and the SH1 roundabout opening, Fulton Hogan will source or undertake a 7-day automatic traffic count on Dawsons Road between SH1 and Jones Road to establish changes in traffic patterns that have occurred due to CSM2. Pre-CSM2 traffic counts were included in the Integrated Transport Assessment for the Quarry application.

3. Fulton Hogan will undertake a comparison of the traffic counts to the modelled traffic forecasts, and assess the need for video (or other appropriate method such as installation of loop detectors) monitoring during the busiest period to determine whether there are observations of queue back from the railway line, or from the SH1 roundabout to the railway line. The monitoring would identify how traffic responds to the queue back.

   For the queue back from the railway, the effectiveness of such monitoring can be considered based on the modelling outputs for the without quarry scenario, where it was determined that a volume of approximately 200vph in the northbound direction on Dawsons Road would generate a probability of queue back to the roundabout greater than 5% of times that a train passes (during the period that the train passes), and 300vph northbound would generate a queue back approximately 30% of the times that a train passes.

4. Fulton Hogan will undertake a safety assessment, with reference to the assessment framework in Section 2.1 of this plan, of the observed queueing behaviour and traffic responses to the northbound and southbound queueing on Dawsons Road. As part of that assessment, a review will be undertaken of crash records at the roundabout since opening of the roundabout, and identify any safety trends of concern including issues resulting from vehicles queueing back from the level crossing (such as an increase in frequency of crashes or typical crash types having higher severity outcomes than would normally be anticipated).

5. Fulton Hogan to meet with NZTA, Selwyn District Council, Christchurch City Council and KiwiRail to review the monitoring outcomes, and consideration of need for mitigation.

Outcomes

1. Agree whether NZTA will have a responsibility in monitoring (and mitigating) any safety concerns in the short term, considering the changes in travel patterns and observations of queuing.

2. Agree whether there is still the potential need for mitigation, and whether it should be installed at the outset, based on the observations, and consideration of assessments undertaken.

3. Where the need for mitigation is not clearly identified as part of Phase 1, further monitoring by Fulton Hogan will be required during the quarry opening period. It may also be determined that additional monitoring during the pre-opening period would be effective, if volumes are near the threshold where queue back may be observed over a limited monitoring period.

Phase 2: Monitoring Post Opening of Quarry

The quarry will take some time to become fully operational, and that offers the opportunity to confirm some of the potential variables such as changes in traffic patterns due to the other mitigation put in place (e.g. the safety improvements at Jones Road / Dawsons Road proposed as an aspect of the quarry development), and the change in queuing due to the quarry.

Actions:

1. Fulton Hogan will meet with NZTA, Selwyn District Council, Christchurch City Council and KiwiRail to discuss any further feedback from its on-going review of the roundabout operation (including recorded notifications of concerns, near misses, or vehicle incidents from their network managers and road users), and whether mitigation has been implemented that would also address any concerns with the quarry.

2. At a time agreed by Fulton Hogan, NZTA, Selwyn District Council, Christchurch City Council and KiwiRail (based on the scale of quarry operations), Fulton Hogan will undertake a 7-day automatic traffic count on Dawsons Road between SH1 and Jones Road to establish changes in traffic patterns that have occurred due to the quarry related network changes, and linked to quarry traffic generation records.

3. Fulton Hogan will undertake a comparison of the traffic counts to the modelled traffic forecasts (used for the quarry assessment) and confirm the need for video (or other appropriate method) monitoring during the busiest period to determine whether there are observations of queue back from the railway line. The monitoring would identify how traffic responds to the queue back.

4. Fulton Hogan will undertake a safety assessment, with reference to the assessment framework in Section 2.1 of this plan, of the observed queueing behaviour and traffic responses to the northbound and southbound queueing on Dawsons Road. In addition, a review will be undertaken of crash records at the roundabout since the opening of the roundabout, and operation of the quarry, and identify any safety trends of concern including issues resulting from vehicles queueing back from the level crossing (such as an increase in frequency of crashes or typical crash types having higher severity outcomes than would normally be anticipated).

5. Fulton Hogan to meet with NZTA, Selwyn District Council, Christchurch City Council and KiwiRail to review the monitoring outcomes, and consideration of need for mitigation.

Outcomes

1. Agree whether there is still the potential need for mitigation, and whether it should be installed based on the observations, and consideration of assessments undertaken.

2. If the parties agree mitigation is required, it will be undertaken within six months of the parties' agreement. The mitigation shall be undertaken by Fulton Hogan, at their cost, unless agreed otherwise.

3. Where the need for further monitoring is identified, the requirements of this additional monitoring will be agreed by all parties.

Phase 3: Repeat Monitoring – Established Quarry (or post Mitigation Implementation)

Where agreed as required during Phase 2, monitoring after opening of the quarry will be required to represent conditions associated with full operation of the quarry. The monitoring is expected to be as per Phase 2, and in

the absence of agreed mitigation will be undertaken annually for up to three years, or until mitigation has been installed (if required).

5 Mitigation

5.1 Approaches to Mitigation

A suite of potential mitigation options is presented, to be confirmed following monitoring based on current best practice for managing traffic movements and queues in the vicinity of roundabouts and railways.

The mitigation should be sufficient to achieve the level of safety concern at the level identified in Phase 1 monitoring (without quarry), or so that the remaining concern after mitigation is no more than a minor safety concern.

Where there is no change in the assessed safety concern due to the quarry, then Fulton Hogan will not be required to implement any form of mitigation.

It is set out in the monitoring approaches that qualified transport engineers representing each of Fulton Hogan, NZTA, Selwyn District Council, Christchurch City Council and KiwiRail will review the level of safety concern and specific mitigation package through a workshop process.

The concepts to be put forward for initial consideration and refinement are set out below. This is not intended to be a required or an exhaustive list of potential mitigation, with the actual provision to be confirmed following the review and workshop process based on assessed levels of risk.

5.2 Queue Back from Railway Line to Roundabout

5.2.1 Review Static Warning Signage

The most basic option will be to review the effectiveness of existing static signage on the approach to the roundabout, and ensure it meets the guidance and requirements of the NZTA Traffic Control Devices Manual for warning of the presence of the railway. It is noted that the CSM2 does not include any railway warning signage on the roundabout approaches from SH1 or Waterholes Road (which is a recommendation of the NZTA Traffic Control Devices Manual), so there may be opportunity to revise the advance warning signage. Some example signage for consideration is set out below (which would be adapted for the roundabout):

WXL2

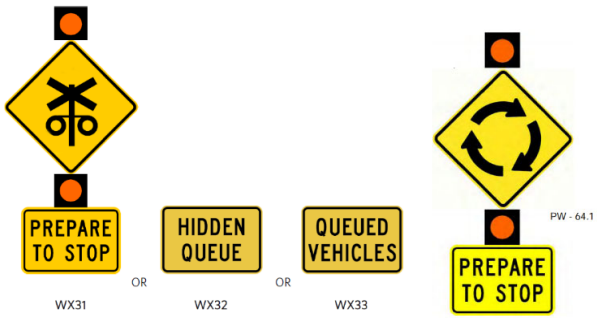
5.2.2 Advance Queue Warning

Vehicle Detection

If queue frequency and safety risk is at a higher level, a method for consideration is the use of vehicle activated queue warning signs on the approach(es) to the roundabout. A queue that is detected as approaching the roundabout would set off the queue warning signs, which would include alternating orange lights.

If required, it is expected one or more detectors would need to be installed on Dawsons Road, linked to advance warning signs on SH1 approach from the west, and potentially from the south on Waterholes Road and the east

on SH1. This would be considered based on the agreed level of likelihood and concern of queues influencing each of the roundabout approaches. Examples of standard signage to be considered include:



It is anticipated some of the existing signage may need to be relocated to ensure an appropriate sequence of guidance and warning on the approach to the roundabout. That will be considered following review of the as-built CSM2 signage and need for adjusted signage.

Railway Detection

If the frequency of queue back is considered sufficiently high that all railway level crossing closures should activate an advance warning, then a railway activated warning sign could be implemented. There would need to be certainty that there is a high likelihood of queue back most of the time. As there is not a short stacking issue (defined as separation less than 26m from the railway) the use of railway detection would need to be carefully considered.

The signs would most likely be of the same message as identified by the vehicle detected sign. However, both methods of detection offer opportunities for use of different sign and warning types.

5.2.3 Variable Message Sign

A more complex Variable Message Sign has been suggested as a potential option by NZTA. The otherwise blank digital sign would be activated by the presence of a queue on Dawsons Road, or train passing through the level crossing (as per the advance queue sign). The variable message would then convey a warning or message to drivers approaching the roundabout. The nature of the variable message sign is such that the message could be refined over time, or be used for other general road information messages when not activated for the warning.

5.2.4 Other Measures

It is noted that other measures could be contemplated, and developed through the ongoing monitoring workshop process. An example of more active control of traffic is through the use of queue or railway activated traffic signals (as has been installed at the Halswell Junction Road / Springs Road intersection). Such measures would be contemplated if the signage or warning system has not achieved the required outcomes (which is considered unlikely).

5.3 Queue Back from Roundabout to Railway Line

5.3.1 Review Static Warning Signage and Road Markings

The most basic option will be to review the compliance and effectiveness of static signage on the approach to the railway crossing, and ensure it meets the guidance and requirements of the NZTA Traffic Control Devices Manual for warning of the presence of the railway.

It is noted that the CSM2 detailed design drawings did not show yellow box markings on the railway (which is a recommendation of the LCSIA for Fulton Hogan), and such markings have not been installed.

A consideration would be a downstream marker, sign, or road marking highlighting the necessary distance required for long vehicles to queue clear of the railway. Such a treatment could be highlighted to those inducted to the Fulton Hogan quarry, and would quickly highlight when a queue exceeds the available downstream storage distance.

5.3.2 Active Warning Signage

KiwiRail in discussions mentioned the possibility of a warning sign ahead of the railway crossing activated by a queue length detector. Similar to the signage options set out in 5.2, such a sign would add caution for drivers to be aware of the shorter downstream storage distance.

5.3.3 Downstream "Escape Bay"

The NZTA Traffic Control Devices Manual provides an option of a downstream "escape bay". This could be installed on the eastern side of Dawsons Road immediately south of the railway to provide additional storage distance if a driver misjudges the gap available for queueing.

6 Dispute resolution

If a dispute, difference or question arises between Fulton Hogan, NZTA and/or KiwiRail (Parties) out of or in connection with this Management Plan (Dispute), the parties will follow the dispute resolution procedure in Appendix C.

No Party may commence any court or arbitration proceedings or take any other action relating to a Dispute unless the Party has complied with the procedure in Appendix C.

7 Reporting of Outcomes and Actions

Condition 55C stipulates that once the QMP is certified, the consent holder must report to the New Zealand Transport Agency, Kiwi Rail, Christchurch City Council, Selwyn District Council, and the Community Liaison Group at the following times:

a. At the completion of baseline monitoring and prior to the quarrying operations commencing;
b. six months after quarrying operations commence; and
c. Annually thereafter for a period of three years, or until the New Zealand Transport Agency and KiwiRail agree no further monitoring and mitigation is needed to achieve the purpose set out in condition 47, whichever is earlier.

Each report must contain the following details:

a. A description of the monitoring undertaken during the reporting period and analysis of the results;
b. A description of any mitigation measures implemented during the reporting period, or planned for the following reporting period; and
c. Any amendments identified as being necessary to the QMP for the following reporting period.

Appendix A

Conditions of Consent – As included in Environment Court Consent Order 3 November 2021

Roydon Quarry, SH1 / Dawsons Road Queue Management Plan

45. Within three months of the date of commencement of this consent the consent holder must submit a Roydon Quarry, SH1 / Dawsons Road Queue Management Plan ('the QMP') to the SOC Manager for certification.

46. The QMP required by condition 45 must be prepared by a suitably qualified, independent and experienced traffic engineer and must be in general accordance with the "draft Roydon Quarry, SH1 / Dawsons Road Queue Management Plan" attached as "Appendix E" prepared by Stantec: Version E January 2020.

47. The purpose of the QMP is to ensure that quarrying operations do not result in an increase in the safety risk at the SH1 / Dawsons Road roundabout.

48. Safety at the SH1 / Dawsons Road roundabout must be assessed in accordance with a fit for purpose Safety Risk Assessment carried out in accordance with the approach set out in Section 2 of the draft Roydon Quarry, SH1 / Dawsons Road Queue Management Plan dated 28 January 2020 or any subsequent amendment made to the QMP. The QMP must include details relating to:
    a. The monitoring required to identify any changes in the operation and safety risk at the SH1 / Dawsons Road roundabout arising from the impact of quarrying operations on northbound traffic queuing back from the railway level crossing into the roundabout, and southbound traffic on Dawsons Road queuing back from SH1 towards the railway, including:
        i. baseline traffic monitoring (required to be undertaken prior to the quarrying operations commencing);
        ii. monitoring after the quarrying operations commence; and
        iii. where required, repeating monitoring of (i) and (ii) above;
    b. How it will be determined whether mitigation is required and the methods required to address the assessed safety risk arising from the quarrying operations;
    c. The procedures and timeframes for the installation of the mitigation measures (if any);
    d. How any required mitigation will be monitored for effectiveness and any ongoing review requirements for the QMP; and
    e. Reporting requirements.

49. Prior to submitting the Final QMP to the SDC Manager for certification, the consent holder must provide the New Zealand Transport Agency, KiwiRail, Selwyn District Council and Christchurch City Council with an opportunity to participate in a collaborative workshop with the consent holder to discuss a draft of the QMP ('Draft QMP').

50. If New Zealand Transport Agency, KiwiRail, Christchurch City Council and/or Selwyn District Council agree to participate in a workshop:
    a. The consent holder must provide a copy of the Draft QMP to the participating organisations at least 10 days before the workshop;
    b. The consent holder must circulate a record of the workshop discussions to the participating organisations within 5 working days of the completion of the workshop; and
    c. The participating organisations must be given an opportunity to provide written feedback to the consent holder on the Draft QMP within 15 working days of the completion of the workshop.

51. If New Zealand Transport Agency, Kiwi Rail, Christchurch City Council and/or Selwyn District Council decline the opportunity to participate in a collaborative workshop, the consent colder must provide a copy of the Draft QMP to the declining organisation and they must be given 15 working days to provide written feedback to the consent holder on its content.

52. The consent holder must ensure that all written feedback received from the New Zealand Transport Agency, Kiwi Rail, Christchurch City Council and/or Selwyn District Council on the Draft QMP is provided to the SDC Manager when the QMP is submitted for certification, along with a clear explanation of where any comment made on the Draft QMP has or has not been incorporated into the QMP and the reasons why.

53. The consent holder must ensure that a copy of the certified QMP is provided to the Community Liaison Group at the next scheduled meeting.

54. Once the QMP is certified, the consent holder must implement the QMP.

55. Once the QMP is certified, the consent holder must report to the New Zealand Transport Agency, Kiwi Rail, Christchurch City Council, Selwyn District Council, and the Community Liaison Group at the following times:
    a. At the completion of baseline monitoring and prior to the quarrying operations commencing;
    b. six months after quarrying operations commence; and
    c. Annually thereafter for a period of three years, or until the New Zealand Transport Agency and KiwiRail agree no further monitoring and mitigation is needed to achieve the purpose set out in condition 47, whichever is earlier.

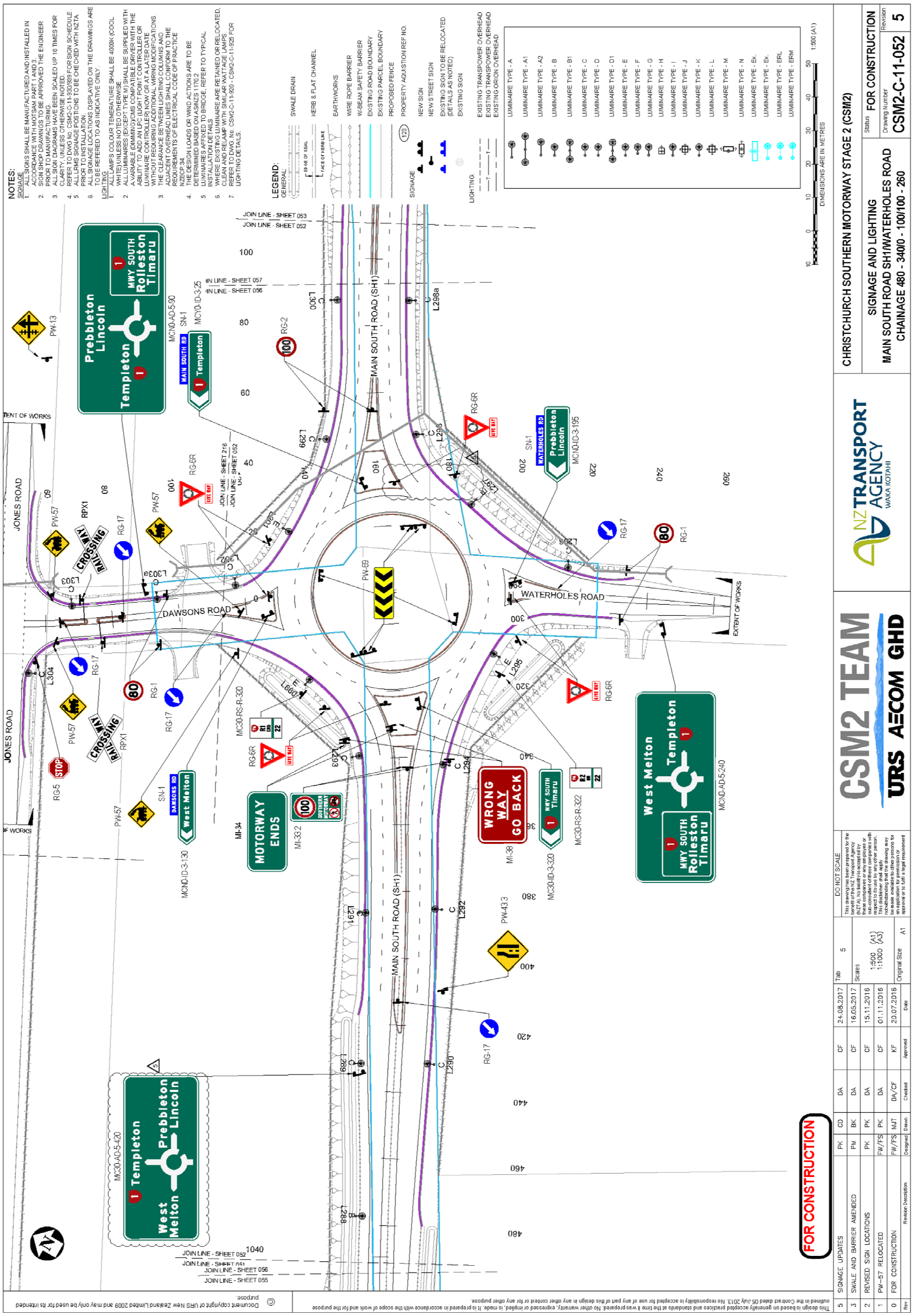
    Each report must contain the following details:

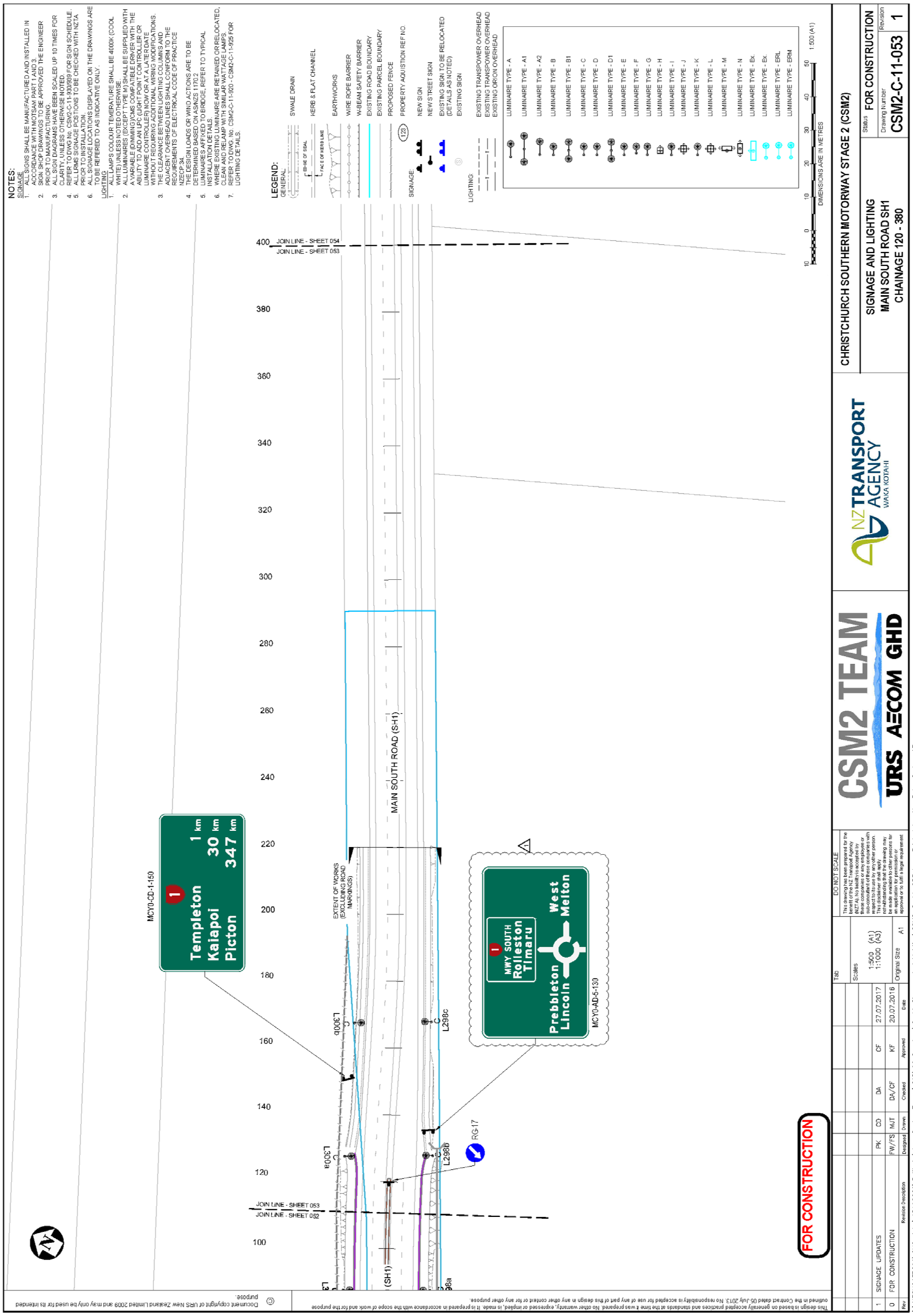
    a. A description of the monitoring undertaken during the reporting period and analysis of the results;
    b. A description of any mitigation measures implemented during the reporting period, or planned for the following reporting period; and
    c. Any amendments identified as being necessary to the QMP for the following reporting period.

56. The QMP is to be an adaptive document. It may be updated by the consent holder at any time provided that prior to doing so further consultation and collaboration occurs with the New Zealand Transport Agency and KiwiRail. Any changes made to the QMP must be consistent with achieving the purpose set out within condition 47. Any updated provisions must not be implemented until the updated QMP has been re-certified by the SOC Manager.

Appendix B

SH1 / Dawsons Road / Waterholes Road Signage Plan


CHRISTCHURCH SOUTHERN MOTORWAY STAGE 2 (CSM2)
SIGNAGE AND LIGHTING
MAIN SOUTH ROAD SH1/WATERHOLES ROAD
CHAINAGE 480 - 340/0 - 100/100 - 260
FOR CONSTRUCTION
CSM2-C-11-052
CSM2 TEAM
URS AECOM GHD
NZ TRANSPORT AGENCY
WAKA KOTAHI
FOR CONSTRUCTION
MAIN SOUTH ROAD (SH1)
WATERHOLES ROAD
DAWSONS ROAD
JONES ROAD



FOR CONSTRUCTION
Templeton 1 km
Kaiapoi 30 km
Picton 347 km
MCY0-CD-1-150
MWY SOUTH
Rolleston
Timaru
Prebbleton
Lincoln
West Melton
MCY0-AD-5-130
MAIN SOUTH ROAD (SH1)
CSM2 TEAM
URS AECOM GHD
NZ TRANSPORT AGENCY
WAKA KOTAHI
CHRISTCHURCH SOUTHERN MOTORWAY STAGE 2 (CSM2)
SIGNAGE AND LIGHTING
MAIN SOUTH ROAD SH1
CHAINAGE 120 - 380
FOR CONSTRUCTION
CSM2-C-11-053

Appendix C – Dispute Resolution Procedure

Notice of dispute

1. A Party claiming that a Dispute has arisen must give written notice to the other Party / Parties specifying and giving details of the matter in Dispute.

Amicable resolution

2. After a Party has given notice of a Dispute, the Parties must each use their reasonable endeavours to resolve the Dispute amicably by discussions and negotiations in the utmost good faith within 30 Business Days of the date of that notice, including by each Party making available for a meeting in person or via video conference representatives with authority to settle the Dispute (subject to board approval, if required).

Formal dispute resolution mechanisms

3. If any Dispute between the Parties is not resolved following discussions and negotiations, the Dispute can be referred to an independent expert for determination and/or formal mediation in accordance with the procedures set out below.

Formal mediation

4. If any Dispute between the Parties is not resolved following the discussions conducted pursuant to clause 2, then the Parties shall mediate their Dispute according to the following process (subject, however, to the ability to refer a Dispute to an Independent Expert as contemplated in clauses 3 and 5):

   i. Either Party may give a written to the other, requiring that the Dispute between the Parties be referred to mediation. The mediation notice will set out the nature of the Dispute, but need not detail the background or the Parties' positions in relation to the Dispute.

   ii. The Parties will seek to agree upon and appoint a mediator to consult with the Parties and assist the Parties to reach agreement in respect of the Dispute no later than five Business Days from the date of receipt of the mediation notice by the receiving Party. If the Parties are unable to agree upon the person to be appointed as mediator within that time, then either Party may request the President for the time being of the New Zealand Law Society or his or her nominee to appoint a mediator, whose decision regarding the choice of mediator will be final and binding on the Parties.

   iii. Following the appointment of a mediator pursuant to clause 4(ii) he or she will, in consultation with the Parties, settle a timetable and the procedures to be adopted during the mediation.

   iv. The Parties will attend all meetings called by the mediator and at such meetings will participate in the mediation in the utmost good faith, and will use all reasonable endeavours to reach an agreed solution that is acceptable to all Parties. While the Parties may, if they wish, have the assistance of legal counsel in the mediation, all proceedings of the mediation will be conducted on a strictly without prejudice basis, and all documents prepared for it or information exchanged will be similarly without prejudice. For the avoidance of doubt, it is expressly agreed by the Parties that nothing that transpires during the course of the mediation discussions and negotiations (other than any settlement or supplementary written agreement between the Parties) is intended to or will in any way affect the rights or prejudice the position of the Parties to the Dispute in respect of subsequent adjudication, arbitration or litigation or other legal proceedings of any kind.

v. The mediator will have no power of decision on any matters other than timetabling and procedural matters. If the mediator is unable to facilitate the mutually acceptable resolution of the Dispute by agreement between the Parties within 20 Business Days of the mediator's appointment, the mediator will submit to both Parties a report setting out the facts and other relevant information as found by the mediator, the mediator's opinion in relation to the matters in dispute and, having regard to those facts and the mediator's opinion, the mediator's proposed settlement or method of resolution of the Dispute that the mediator considers to be appropriate.

vi. Following receipt of the mediator's report pursuant to clause **Error! Reference source not found.**iv, either Party may notify the other in writing whether or not the mediator's report and proposed settlement or method of resolution is acceptable to it. If both Parties so agree, it will be deemed that the Parties accept the mediator's decision and it will then be binding on them.

vii. All costs incurred in respect of the mediation, including the mediator's fees and incidental expenses (but not any legal fees incurred by either Party), will be borne equally by the Parties, who will be severally liable to the mediator in respect of their applicable share, unless otherwise agreed by the parties.

Expert determination

5. If a Dispute is referred to independent expert determination:

a) the independent expert who is suitably qualified and experienced in relation to the subject matter of the matter or Dispute will be appointed by agreement between the Parties or, failing agreement within 10 Business Days, by President for the time being of the New Zealand Law Society (or his or her nominee) (**Independent Expert**);

b) the Independent Expert will act as an expert and not as an arbitrator, and referral of the Dispute to the Independent Expert will not be a submission to arbitration for the purposes of the Arbitration Act and the provisions of the Arbitration Act will not govern that referral;

c) within five Business Days of the Independent Expert accepting the appointment, the Party who notified the dispute will send written submissions on the Dispute to the Independent Expert and the other Parties.

d) within 10 Business Days of the Parties receiving the above submissions, the other Party / Parties will submit any written submissions they wish to make to the Independent Expert and the other Parties. The Party who notified the dispute will then have 5 working days to make any written submissions in reply;

e) the Parties will give the Independent Expert all necessary assistance that the Independent Expert reasonably requires to determine the Dispute;

f) the Independent Expert will, unless the Parties otherwise agree, be directed to deliver a written determination to the Parties within 10 Business Days of having received all of the Parties' written submissions;

g) the Independent Expert will have the power to compel either Party to produce any information material to the Dispute which that Party has in its possession and which that Party could be required to produce on discovery in a New Zealand court proceeding to the Independent Expert and to the other Party;

h) the Independent Expert's decision will be final and binding and, to the extent it is lawful to do so, the Parties waive any right of appeal or review; and

i) the Independent Expert's fees will be at the Parties' cost, and the Independent Expert will determine the proportion of those fees that each Party will be required to pay, having regard (amongst other things) to the conduct of the Parties.