

Technical Report No 7

# Christchurch Southern Motorway Stage 2 and Main South Road Four Laning

## Landscape Context Report

November 2012



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Quality Assurance Statement			
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This technical report has been produced in support of the Assessment of Environmental Effects (AEE) for the Main South Road Four Laning and Christchurch Southern Motorway Stage 2 Project. It is one of 20 Technical Reports produced (listed below), which form Volume 3 of the lodgement document. Technical information contained in the AEE is drawn from these Technical Reports, and cross-references to the relevant reports are provided in the AEE where appropriate.

A Construction Environmental Management Plan (CEMP) has been prepared to provide the framework, methods and tools for avoiding, remedying or mitigating environmental effects of the construction phase of the Project. The CEMP is supported by Specialised Environmental Management Plans (SEMPs), which are attached as appendices to the CEMP. These SEMPs are listed against the relevant Technical Reports in the table below. This Technical Report is highlighted in grey in the table below. For a complete understanding of the Project all Technical Reports need to be read in full along with the AEE itself; however where certain other Technical Reports are closely linked with this one they are shown in bold.

No.	Technical Report Title	Primary AEE Chapter Reference	SEMPs
1	Design philosophy statement	4	
2	Traffic and transportation effects report	11	Construction Traffic Management Plan
3	Assessment of stormwater disposal and water quality	19	Erosion and Sediment Control Plan, Accidental Aquifer Interception Management Plan
4	Landscape and visual effects	15	Landscape Management Plan
5	Assessment of effects – urban design	14	Landscape Management Plan
6	Urban and landscape design framework	14, 15	Landscape Management Plan
7	Landscape context report	15	Landscape Management Plan
8	Assessment of operational noise effects	17	
9	Assessment of construction noise & vibration	17	Construction Noise and Vibration Management Plan
10	Assessment of air quality effects	18	Air Quality Management Plan
11	Geotechnical engineering and geo-hazards assessment	3, 21	
12	Assessment of archaeological effects	24	
13	Social impact assessment	26	
14	Economic impact assessment	25	
15	Cultural impact assessment	23	
16	Contaminated land assessment	22	
17	Aquatic ecology assessment	20	
18	Terrestrial ecology assessment	20	
19	Lighting assessment	16	
20	Statutory provisions report	6, 28	
-	Construction Environmental Management Plan	5	

For further information on the structure of the lodgement documentation, refer to the 'Guide to the lodgement documentation' document issued with the AEE.

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# 1. Proposal Description

The NZ Transport Agency (NZTA) seeks to improve access for people and freight to and from the south of Christchurch via State highway 1 (SH1) to the Christchurch City centre and Lyttelton Port by constructing, operating and maintaining the Christchurch Southern Corridor. The Government has identified the Christchurch motorway projects, including the Christchurch Southern Corridor, as a road of national significance (RoNS).

The proposal forms part of the Christchurch Southern Corridor and is made up of two sections: Main South Road Four Laning (MSRFL) involves the widening and upgrading of Main South Road (MSR), also referred to as SH1, to provide for a four-lane median separated expressway; and the construction of the Christchurch Southern Motorway Stage 2 (CSM2) as a four-lane median separated motorway. The proposed construction, operation and maintenance of MSRFL and CSM2, together with ancillary local road improvements, are referred to hereafter as 'the Project'.

## 1.1 MSRFL

Main South Road will be increased in width to four lanes from its intersection with Park Lane north of Rolleston, for approximately 4.5 km to the connection with CSM2 at Robinsons Road. MSRFL will be an expressway consisting of two lanes in each direction, a median with barrier separating oncoming traffic, and sealed shoulders. An interchange at Weedons Road will provide full access on and off the expressway. MSRFL will connect with CSM2 via an interchange near Robinsons Road, and SH1 will continue on its current alignment towards Templeton.

Rear access for properties fronting the western side of MSRFL will be provided via a new road running parallel to the immediate east of the Main Trunk rail corridor from Weedons Ross Road to just north of Currags Road. For properties fronting the eastern side of MSRFL, rear access is to be provided via an extension of Berketts Drive and private rights of way.

The full length of MSRFL is located within the Selwyn District.

## 1.2 CSM2

CSM2 will extend from its link with SH1 / MSRFL at Robinsons Road for approximately 8.4 km to link with Christchurch Southern Motorway Stage 1 (CSM1, currently under construction) at Halswell Junction Road. The road will be constructed to a motorway standard comprising four lanes, with two lanes in each direction, with a median and barrier to separate oncoming traffic and provide for safety.<sup>1</sup> Access to CSM2 will be limited to an interchange at Shands Road, and a half-interchange with eastward facing ramps at Halswell Junction Road. At four places along the motorway, underpasses (local road over the motorway) will be used to enable connectivity for local roads, and at Robinsons / Currags Roads, an

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<sup>1</sup> CSM2 will not become a motorway until the Governor-General declares it to be a motorway upon request from the NZTA under section 71 of the Government Roading Powers Act 1989 (GRPA). However, for the purposes of this report, the term "motorway" may be used to describe the CSM2 section of the Project.

overpass (local road under the motorway) will be provided. CSM2 will largely be constructed at grade, with a number of underpasses where elevated structures provide for intersecting roads to pass above the proposed alignment.

CSM2 crosses the Selwyn District and Christchurch City Council boundary at Marshs Road, with approximately 6 km of the CSM2 section within the Selwyn District and the remaining 2.4 km within the Christchurch City limits.

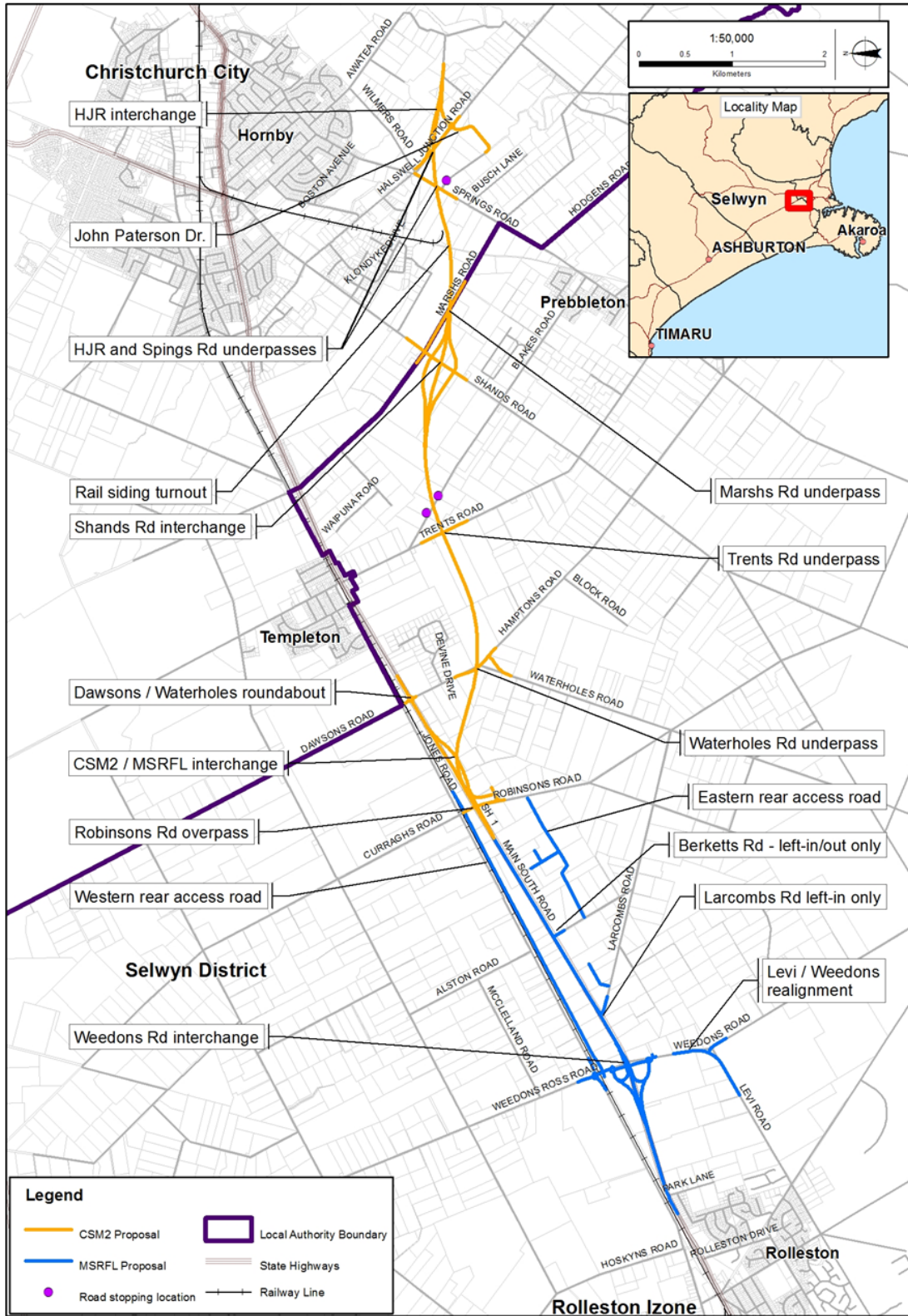
### 1.3 Key design features

The key design features and changes to the existing road network (from south to north) proposed are:

- a new full grade separated partial cloverleaf interchange at Weedons Road;
- a new roundabout at Weedons Ross / Jones Road;
- a realignment and intersection upgrade at Weedons / Levi Road;
- a new local road running to the immediate east of the rail corridor, to the west of Main South Road, between Weedons Ross Road and Curraghs Road;
- alterations and partial closure of Larcombs Road intersection with Main South Road to left in only;
- alterations to Berketts Road intersection with Main South Road to left in and left out only;
- a new accessway running to the east of Main South Road, between Berketts Road and Robinsons Road;
- an overpass at Robinsons and Curraghs Roads (the local roads will link under the motorway);
- construction of a grade separated y-junction (interchange) with Main South Road near Robinsons Road;
- a link road connecting SH1 with Robinsons Road;
- a short new access road north of Curraghs Road, adjacent to the rail line;
- a new roundabout at SH1 / Dawsons Road / Waterholes Road;
- an underpass at Waterholes Road (the local road will pass over the motorway);
- an underpass at Trents Road (the local road will pass over the motorway);
- the closure of Blakes Road and conversion to two cul-de-sacs where it is severed by CSM2;
- a new full grade separated diamond interchange at Shands Road;
- an underpass at Marshs Road (the local road will pass over the motorway);
- providing a new walking and cycling path linking the Little River Rail Trail at Marshs Road to the shared use path being constructed as part of CSM1;
- an underpass at Springs Road (the local road will pass over the motorway);
- a new grade separated half interchange at Halswell Junction Road with east facing on and off ramps linking Halswell Junction Road to CSM1; and
- closure of John Paterson Drive at Springs Road and eastern extension of John Paterson Drive to connect with the CSM1 off-ramp via Halswell Junction Road roundabout (east of CSM2).

The proposed alignment is illustrated in Figure 1 and encompasses the MSRFL and CSM2 alignments between Rolleston and Halswell Junction Road.

Figure 1 Location Map





## 1.4 Purpose of Report

The purpose of this report is to outline the landscape design philosophy associated with both the Christchurch Southern Motorway (CSM2) and Main South Road Four-Laning (MSRFL) developments (together, the Project). This report outlines landscape treatment associated with the motorway features within the designation and landscape treatment that is considered consistent with the Christchurch Southern Motorway Stage 1 (CSM 1) project, and that of the surrounding peri-urban and rural landscape character. The report also outlines landscape measures that are aligned with recommendations or landscape mitigation measures included in various technical reports including the Landscape and Visual effects Assessment, Terrestrial Ecology and Aquatic Ecology Assessments .

## 1.5 Landscape Design Vision

The landscape design vision for the Project is to provide an environment that supports the “Garden City” image of Christchurch currently being established as part of the (CSM1) project. This is proposed to be achieved by integrating the existing landscape character associated with the rural and peri-urban environment that transitions from Selwyn District through to Christchurch City.

The long term vision for the landscape design is therefore to establish an open ‘rural parkland’ along the route that incorporates the surrounding rural landscape features and allows open views across the plains to both the Port Hills and the Southern Alps. Planting will be featured at key node points with the establishment of native tree copses, native embankment planting, and specimen tree planting and planting associated with proposed landscape mitigation measures.

## 1.6 Regional Context

The Project is part of the greater State highway network that adjoins CSM1 at the eastern end and SH1 at the western end and extends to Rolleston. At these tie-in’s, the transitions should consider the quality and character of the journey preceding it to ensure the journey has the best landscape contextual fit.

The Project also interfaces with several arterial and local roads along its length. Detailed landscape treatment of these intersections will need to align with Christchurch City Council (CCC) and Selwyn District Council (SDC) aspirations for these roads, which will be coordinated during the detailed design stage of the project.

## 1.7 Landscape Context

### 1.7.1 Vegetation

The existing vegetation pattern on or adjacent to the alignment consists of a mixture of exotic trees, shelterbelts/hedgerows and amenity planting associated with rural residents and open pasture. The vegetation cover is highly modified and contains no evident remnant native vegetation; instead the only native species present tend to be associated with a thin dispersal of amenity planting around existing rural residential buildings and boundaries.

## 1.7.2 Soils

The CSM2 and MSRFL alignment sits on a gravel outwash plain of varying age, textures and depth. At the eastern end of the alignment where the CSM2 joins CSM-1, the soils transition from primary Selwyn soils (tussock young plains ecosystem) through a zone of Kaiapoi soils (Totara mid older plains ecosystem) between Springs Road and Shands Road, and Waimakariri soils (Houhere mid older plains ecosystem) from Shands Road through the remainder of the alignment.

The soil types are typically thin, and as a result, have a low level of moisture holding capacity. However all of the soil types in this area have been modified over time through rural activities and it is anticipated the soils will have the capability of supporting a range of native and exotic plant species.

## 1.7.3 Views

As for the CSM-1 project, the CSM2 and MSRFL section has both open views and channelled views of the Port Hills and the Southern Alps. The Port Hills in particular will act as a navigation marker for travellers entering Christchurch, while the Southern Alps form a more distant view for those travelling west. The views to both the Port Hills and Southern Alps will be heightened when viewed from the proposed overpasses along the route.

Along the MSRFL section of the Project, the views afforded include glimpses of both the Port Hills and Southern Alps through gaps in hedgerows and amenity planting that is located on the boundaries of most rural residential properties that front the motorway. This planting pattern typifies the landscape character of this section of the motorway and is anticipated to be largely retained as part of the MSRFL section of the Project.

## 1.8 Design Standards

This landscape design report addresses the NZTA Urban Design Policy (2007) requirement for urban design to be considered at all project stages through design principles and concepts that aim to ensure that:

- Roads fit in sensitively with the landform and the built, natural and community environments through which they pass.
- All systems of movement along and across the corridor are integrated into the design of projects with good connections and access to communities.
- The design contributes to the quality of public space and to the road user's experience.

The design principles also reflect the NZTA Manual SP/M/020 Guidelines for Highway Landscaping version 2. This manual like the NZTA Urban Design Policy shall be considered at all project stages.

The landscape design considered a number of reference documents including the following:

- Christchurch City Plan
- Selwyn District Plan
- Greater Christchurch Urban Development Strategy

- Christchurch South West Area Plan, April 2009
- Indigenous Ecosystems of Otautahi Christchurch, Lucas Associates
- Transpower's Corridor Management Policy – Red Zone: Trees/ Vegetation
- The Electricity (Hazards from Trees) Regulation, 2003
- CSM-1 Environmental Urban Design and Landscape Masterplan, May 2010

## 1.9 Key Landscape Design Principles

The key principles that underpin the design rationale and the subsequent landscape design of the Project are:

- Underlying landscape character – retention of the existing rural pastoral character by introducing planting that represents the existing cultural planting patterns and historic planting fabric of the plains landscape.
- Integration with CSM1 planting – adopt similar landscape design principles used on CSM1 to help integrate the planting designs, target plants best suited for the receiving environment and consider the planting that best suits the transition between urban, peri-urban and rural landscape character.
- Continue the curvilinear road that is well integrated with the CSM1 motorway alignment and provides a strong contrast to the straight roads and patchwork land pattern associated with the plains landscape.
- Views – Maintain areas along the alignment with open views to the Port Hills and Southern Alps and contain enclosed views to the immediate rural surroundings.
- Nodes – include more detail at key nodes (intersections/ interchanges) through planting and material selection to provide a change in the visual environment at these driver decision points. Develop native tree copses that represent historic vegetation patterns and that are best suited to the soil and environmental conditions.
- Existing vegetation – where possible, retain existing vegetation within the Project designation to retain the existing landscape character. Of particular importance is the retention of shelterbelt lines that bisect the Project alignment and existing mature trees species found along the Project alignment.
- Landscape mitigation planting – integrate informal woodland cluster planting and shelterbelt planting into the Project alignment to avoid, reduce or mitigate any visual effects associated with the motorway.
- Cycleway/walkway connectivity – provide cycleway and walkway links that are aligned with those outlined in the South West Area Plan and linked to the existing cycle rail trail. The alignment of the cycleway/walkway across the motorway alignment will allow for safety sightlines, setbacks and consider (Crime Prevention through Environmental Design CPTED) provisions as part of future design phases.
- Riparian planting – incorporate planting to accommodate identified riparian habitat through both CSM2 and MSRFL.

## 1.10 Landscape Design Statement

### 1.10.1 Planting Concept

The landscape design responds strongly to the surrounding landscape character and seeks to assimilate with the landscape design philosophy adopted for the CSM1 project. In particular, the design responds to the existing rural character and seeks to emulate this cultural planting typology, while also representing a distinctive historic planting pattern through the use of native plant signatures at key node points throughout the route. The landscape concept and area description's outlined below are represented on the Landscape Concept Drawings in Appendix A.

The landscape design will continue the planting pattern currently being established in the CSM1 project which focuses landscape treatment primarily on interchange embankment planting, specimen tree (amenity planting), visual mitigation planting and any planting associated with storm water treatment systems. As a contrast to predominantly exotic tree parkland concept associated with CSM1, the specimen tree planting associated with the CSM2 planting will have a large proportion of native specimen trees to exotic specimen primarily as a landscape reference to the historic vegetation pattern associated with the Canterbury plains landscape.

The grassed median will remain a consistent element throughout both the CSM2 and MSRFL and join the CSM1 median near the Halswell Junction Road underpass.

Roundabout planting within CSM2 will comprise massed low level native grasses to maintain low levels of maintenance and open sightlines for motorway users. Roundabouts associated with MSRFL will be grass cover allowing for open sightlines and contextual fit with the surrounding rural and rural residential landscape character.

### 1.10.2 Proposed Landscape Design – Area Descriptions

The following area descriptions provide a landscape design commentary of the proposed landscape mitigation measures outlined in the Landscape and Visual Assessment (Technical Report 4), terrestrial ecological recommendations associated with reptilian fauna and aquatic ecological recommendations associated with riparian planting of stock water races/drains within the designation.

Detailed landscape context and landscape character descriptions associated with the areas listed below are outlined in the Landscape and Visual Effects Technical Report 4.

#### *Weedons Road to SH1 (Waterholes Road)*

Plan reference: 62236-A-L0011-L016, 62236-A-L018, 62236-B-L011, 62236-B-L013

This area extends from Weedons Road where the Project will join the existing four laning section near Rolleston and continue north to the key node point where the MSRFL section joins the CSM 2 alignment. The landscape treatment in this area varies to that of the CSM2 section and responds to the existing State highway corridor landscape character. The landscape design seeks to achieve the following:

- Development of native tree copses and dry land shrub planting within the geometry of the SH1 and Weedons Road interchanges. The tree copse could be established through a native nursery crop to

establish quick vegetation cover and increase the survival chances of emergent canopy trees species. This planting methodology could apply to all tree copses referred to in this design report.

- Embankment planting at the SH1 and Weedons Road interchanges and Robinsons Road overpass will incorporate a mix of native species on steep slopes and retention of grass cover on slopes motorway margins deemed mow-able.
- Additional amenity specimen tree planting will feature along this section with particular emphasis on treatment where local roads intersect with SH1. The specimen trees will be formed in clusters on an 'island' of either mulch or under planting to enable ease of maintenance.
- Where practical, retain existing shelterbelt/hedgerow lines and amenity planting within the designation but clear of the minimum clear zone setback, services and storm water swales, culverts and the like. Maintenance of safe sight lines from intersections and private residents serviced off the State highway (if any) shall also be considered. Of particular note is the retention of the existing tree line located on the south side of the motorway between Weedons Road and Rolleston. It is understood the retention of these trees is being accommodated by the inclusion of a motorway barrier.
- Develop site specific landscape treatment to complement any noise mitigation recommendations. Any amenity planting associated with noise mitigation initiatives shall consider both the residents and the motorway users.
- Riparian planting will be incorporated with the drain alignment proposed to extend along the base and eastern side of the Weedons Road bridge embankments. Riparian planting will include native species that provide suitable water habitat and shade conditions for the native fish species identified in the ecological assessment.
- Planting of low native shrubs and grasses to roundabouts at Jones Road and Weedons interchange north and south. This treatment also maintains low levels of maintenance and allows open sightlines for motorway users.
- Areas of boulder field lizard habitat are proposed along the northern margin of slip road at Weedons Road interchange and at two separate strips along the northern margin of the Main South Road where the MSRFL section merges with CSM 2. Prostrate native species may also be incorporated into the boulder fields to support the creation of this habitat.

### *SH1 to Trents Road*

Plan reference: 62236-B-L012, 62236-B-L014-I016.

This area retains a relatively open aspect to the surrounding rural landscape, with more intense landscape treatment at the Hamptons Road overpass. The landscape design seeks to achieve the following:

- Embankment planting at the Hamptons Road overpass incorporating a mix of native species on steep slopes and retention of grass cover on slopes and motorway margins deemed mow-able. Specimen tree planting is incorporated at the base of the embankments alongside Waterholes and Hamptons Road and arranged in informal clusters/groups on 'islands' of either mulch or under planting to enable ease of maintenance.
- A hedgerow is proposed along the designation boundary associated with proposed landscape mitigation. The intention is for the hedgerow to tie into the ends of existing hedgerows bisected by

the motorway designation. The planting provides additional landscape screen mitigation to adjacent residents including the Claremont rural residential subdivision located north of the motorway alignment.

- Areas of boulder field lizard habitat are proposed on the rectangular area immediately north of the motorway and west of Trents Road. Prostrate native species may also be incorporated into the boulder field to support the creation of this habitat.
- Retention of view gaps to the rural surrounding, the Port Hills and distant views to the Southern Alps.
- Where practical, retain existing shelterbelt/hedgerow lines within the designation but clear of the required minimum clear zone setback, services and storm-water swales, culverts and the like. Maintenance of safe sight lines shall also be considered.
- Planting of low native shrubs and grasses to roundabout at Waterholes Road. This treatment also maintains low levels of maintenance and allows open sightlines for motorway users.
- Riparian planting will be incorporated with the drain alignment proposed to extend along the base and eastern side of the Waterholes Road bridge embankments. Riparian planting will include native species that provide suitable water habitat and shade conditions for the native fish species identified in the ecological assessment.

### *Trents Road to Shands Road*

Plan reference: 62236-B-L016-L018

This area, like SH1 to Trents Road, retains a relatively open aspect to the surrounding rural landscape. The landscape design seeks to achieve the following:

- Embankment planting on the Trents Road overpass incorporating a mix of native species on steep slopes and retention of grass cover on slopes and motorway margins deemed mow-able. Specimen tree planting is incorporated at the base of the embankments and arranged in informal clusters/groups on 'islands' of either mulch or under planting to enable ease of maintenance.
- Informal woodland tree planting (mix of exotic and native) and hedgerow planting associated with proposed landscape mitigation. The planting provides additional landscape screen mitigation to adjacent residents.
- A mixture of trees and hedgerow are incorporated at both termination points on Blakes Road. A cluster of trees are incorporated on the north side of the motorway to provide a visual barrier and a means to reduce the risk of headlight glare from Blakes Road onto the motorway. A section of hedgerow will be aligned on the south side of the motorway and extend approximately 400 metres from Blakes Road towards the Shands Road interchange. This section of hedgerow will provide landscape screen mitigation to the adjacent rural residents. A cluster of trees will be incorporated on the south side of the hedgerow to improve the amenity associated with the termination point of Blakes Road.
- Retention of view gaps to the rural surrounding, the Port Hills and distant views to the Southern Alps.
- Where practical, retain existing shelterbelt/hedgerow lines within the designation but clear of the required minimum clear zone setback, services and storm-water swales, culverts and the like. Maintenance of safe sight lines shall also be considered.

- Riparian planting will be incorporated with the drain alignment proposed to extend along the base and eastern side of the Trents Road embankments and on the south side of the motorway both east and west of Trents Road. Riparian planting will include native species that provide suitable water habitat and shade conditions for the native fish species identified in the ecological assessment.

### *Shands Road/ Marshs Road Interchange*

Plan reference: 62236-B-L019

This area features significant landscape treatment that aims to integrate the Marshs Road over-bridge and the Shands Road interchange with the surrounding environment. The landscape design seeks to achieve the following:

- Development of four native tree copses and dry land shrub planting within the geometry of the Shands Road interchange. The dry land shrub planting shall be incorporated under the existing power transmission lines to comply with the Transpower clear zone and setback requirements.
- Embankment planting incorporating a mix of native species on steep slopes and retention of grass cover on slopes and motorway margins deemed mow-able.
- Informal woodland tree planting (mix of exotic and native) associated with proposed landscape mitigation. The planting provides partial landscape screen mitigation to adjacent residents, including the Aberdeen rural residential subdivision located south of the motorway alignment. Woodland tree planting will form informal clusters/groups on 'islands' of either mulch or under planting to enable ease of maintenance.

### *Marshs Road to Springs Road*

Plan reference: 62236-B-L021-L024

This area retains a relatively open aspect to the surrounding rural landscape and the landscape approach seeks to achieve the following:

- Informal woodland tree planting (mix of exotic and native) associated with proposed landscape mitigation. The planting provides additional landscape screen mitigation to adjacent residents. Woodland tree planting will form informal clusters/groups on 'islands' of either mulch or under planting to enable ease of maintenance.
- Retention of view gaps to the rural surrounding and the Port Hills.
- Integration of the cycleway/ walkway extending along the northern boundary to the proposed industrial area (Plan Change 54 to the Christchurch City Plan) and passes over the motorway alignment via the Marshs Road over bridge and connects with the Little River rail trail..
- Riparian planting will be incorporated with the drain alignment proposed to extend along the base and south side of the Marshes Road bridge embankments. Riparian planting will include native species that provide suitable water habitat and shade conditions for the native fish species identified in the ecological assessment.

### *Springs Road/ Halswell Junction Road*

This area forms the transition from CSM1 to CSM2 and the landscape design in this area seeks to achieve the following:

- Integration of the CSM2 landscape design with that being implemented on the CSM1 project through a mix of exotic and native specimen tree clusters, native re-vegetation planting, and open grass areas that integrate with the surrounding pastoral and rural residential landscape.
- Development of a native tree copse and native dry land shrub planting within the geometry of the Springs Road overpass and CSM2 motorway alignment.
- Retention (where possible) of open views to the Port Hills.
- Embankment planting incorporating a mix of native species on steep slopes and retention of grass cover on slopes and motorway margins deemed mow-able.
- Informal woodland tree planting (mix of exotic and native) associated with proposed landscape mitigation.
- Roundabout planting of low native shrubs and grasses to integrate with CSM1 roundabout landscape treatment. This treatment also maintains low levels of maintenance and allows open sightlines for motorway users.
- Riparian planting will be incorporated with the drain proposed along the designation south of both Springs Road and Halswell Junction Road. Riparian planting will include native species that provide suitable water habitat and shade conditions for the native fish species identified in the ecological assessment.



## 1.11 Plant Species Selection

The following plant species mix features both native and exotic species and are included in the Landscape Concept Drawings (Refer Appendix 1). The species selection is based on exotic species found commonly throughout the route, historic referenced native plants that have a local and regional based seed source and those plants deemed able to tolerate the soil and environmental conditions.

Embankments Low Planting		
Botanical Name	Common Name	% mix
<i>Corokia cotoneaster</i>	Wire Netting Bush	15%
<i>Cortaderia richardii</i>	Toetoe	10%
<i>Hebe odora</i>	Boxwood Hebe	10%
<i>Hebe strictissima</i>	Koromiko	10%
<i>Muehlenbeckia astonii</i>	Shrubby Tororaro	15%
<i>Phormium cookianum</i>	Mountain Flax	25%
<i>Poa cita</i>	Silver Tussock	15%
Total Plants		100%

Embankments High Planting		
Botanical Name	Common Name	% mix
<i>Coprosma crassifolia</i>	Thick leaved Mikimiki	8%
<i>Coprosma propinqua</i>	Mikimiki	5%
<i>Coprosma robusta</i>	Karamu	10%
<i>Coprosma rubra</i>	Stemmed Coprosma	7%
<i>Coprosma virescens</i>	Pale Green Coprosma	5%
<i>Cordyline australis</i>	Ti Kouka / Cabbage Tree	5%
<i>Corokia cotoneaster</i>	Wire Netting Bush	5%
<i>Cortaderia richardii</i>	Toetoe	5%
<i>Dodonaea viscosa</i>	AkeAke	5%

<i>Hebe strictissima</i>	Koromiko	5%
<i>Kunzea ericoides</i>	Kanuka	6%
<i>Olearia paniculata</i>	Akiraho	5%
<i>Phormium cookianum</i>	Harakeke / Mountain Flax	10%
<i>Pittosporum tenuifolium</i>	Kohuhu	6%
<i>Pseudopanax crassifolius</i>	Horoeka / Lancewood	5%
<i>Sophora microphylla</i>	Kowhai	8%
		<b>100%</b>

### Dry Woodland Planting

Botanical Name	Common Name	% mix
<b>Trees</b>		
<i>Cordyline australis</i>	Cabbage tree	7%
<i>Kunzea ericoides</i>	Kanuka	6%
<i>Olearia paniculata</i>	Akiraho	5%
<i>Pittosporum tenuifolium</i>	Kohuhu	5%
<i>Sophora microphylla</i>	Kowhai	7%
<b>Shrubs</b>		
<i>Carmichaelia australis</i>	NZ broom	2%
<i>Coprosma crassifolia</i>	Thick leaved miki-miki	2%
<i>Coprosma propinqua</i>	Mikimiki	6%
<i>Corokia cotoneaster</i>	Wire Netting Bush	5%
<i>Discaria toumatou</i>	Matagouri	2%
<i>Melicytus alpinus</i>	Porcupine shrub	6%
<i>Muehlenbeckia astonii</i>	Shrubby tororaro	6%
<i>Olearia adenocarpa</i>	Plains olearia	2%

<i>Ozothamnus leptophylla</i>	Golden cottonwood	5%
<i>Phormium cookianum</i>	Harakeke / Mountain Flax	4%
<i>Phormium tenax</i>	New Zealand flax	4%
<i>Sophora prostrate</i>	Kowhai	6%
<b>Groundcovers</b>		
<i>Carex comans</i>	Tussock sedge	4%
<i>Cortaderia richardii</i>	Toetoe	4%
<i>Festuca novae-zelandaie</i>	Hard tussock	4%
<i>Muehlenbeckia axillaris</i>	Mat pohuehue	4%
<i>Poa cita</i>	Silver tussock	4%
		<b>100%</b>

#### Native tree copse Planting

Botanical Name	Common Name	% mix
<b>Trees</b>		
<i>Podocarpus totara</i>	Totara	10%
<i>Prumnopitys taxifolia</i>	Matai	10%
<b>Subsidiary trees</b>		
<i>Cordyline australis</i>	Cabbage tree	5%
<i>Dodonea viscosa</i>	Akeake	5%
<i>Hoheria augustifolia</i>	Houehere	5%
<i>Kunzea ericoides</i>	Kanuka	6%
<i>Olearia paniculata</i>	Akiraho	5%
<i>Pittosporum tenuifolium</i>	Kohuhu	5%
<i>Pseudopanax crassifolius</i>	Lancewood	4%
<i>Sophora microphylla</i>	Kowhai	5%

**Nursery plants**

<i>Coprosma crassifolia</i>	Thick leaved miki-miki	8%
<i>Coprosma propinqua</i>	Mikimiki	8%
<i>Leptospermum scoparium</i>	Manuka	8%
<i>Phormium cookianum</i>	Harakeke / Mountain Flax	8%
<i>Phormium tenax</i>	New Zealand flax	8%
		<b>100%</b>

**Clustered Tree Planting**

Botanical Name	Common Name	% mix
<b>Native trees</b>		
<i>Cordyline australis</i>	New Zealand flax	5%
<i>Podocarpus totara</i>	Totara	30%
<i>Sophora microphylla</i>	Kowhai	20%
<b>Exotic trees</b>		
<i>Fagus sylvatica</i>	European Beech	5%
<i>Fraxinus excelsior</i>	Common Ash	5%
<i>Quercus canariensis</i>	Mirbeck oak	10%
<i>Quercus cerris</i>	Turkey oak	10%
<i>Quercus robur</i>	Common oak	10%
<i>Quercus ilex</i>	Holm oak	5%
		<b>100%</b>

### Hedgerow Planting

Botanical Name	Common Name	
<b>Native and Exotic trees</b>		
<i>Dodonea viscosa</i>	Ake ake	As required
<i>Cupressus macrcarpa</i>	Macrocarpa	As required
<i>Pinus sp</i>	Pine	As required
<i>Pittosporum eugenioides</i>	Lemonwood	As required

### Riparian Planting

Botanical Name	Common Name	% mix
<b>Native trees</b>		
<i>Carex secta</i>	Purei	33%
<i>Juncus gregiflorus</i>	Jointed twig rush	33%
<i>Phormium cookianum</i>	Coastal Flax	33%

## 1.12 Lizard Habitat Sites

Throughout the site there are discrete habitats supporting native lizard species. As the landscape concept develops through subsequent design phases, ground condition modifications (boulder fields) and native plant species will be specified in selected locations that will help support these identified communities. The areas identified in the terrestrial ecology report (Technical Report 18) are identified as recommended locations for protective lizard habitat and are outlined as follows:

Landscape Drawing No.	Habitat Site	Comments
62236-A-L012-L013	Grass verge and embankments along northern margin of slip road at Weedons Road interchange	1,200m <sup>2</sup> of boulderfield as one strip along north margin of roadside
62236-B-L012	Grass verge and embankments along	Two separate strips of boulderfield,

	northern margin of Main South Road.	adding up to 750m <sup>2</sup> located along the northern margin of MSR, opposite the landscaping plantings
62236-B-L016	Dry woodland embankment planting and grassed basin near Trents Road	Concentrate 2,250m <sup>2</sup> area of boulderfield in grassed basin; potential release & monitoring site.

### 1.13 Conclusion

The landscape design encompasses many components of the Project and serves as a key means of integrating the proposed motorway and associated structures with the CSM 1 project and surrounding peri-urban and rural landscape character.

The landscape concept drawings outline the key landscape features that address the recommendations outlined in other Technical reports including Landscape and Visual Assessment, Terrestrial and Aquatic Ecology Assessment and integration of urban design elements. These features include planting aligned with visual screen mitigation, siting of boulder fields and planting associated with lizard habitats, riparian planting associated with aquatic habitat in stock water races and amenity planting associated with key node points throughout the project.

The landscape concept aligns with the NZTA landscape guidelines attributing to clear zones, setbacks, eco-sourcing of plants and planting layouts that provide efficiencies around maintenance practices.

## Appendix A – Landscape Concept Drawings

*Refer to Plan Set in Volume 5*