CHRISTCHURCH CITY COUNCIL

CONSTRUCTION STANDARD SPECIFICATION

PART 1 – GENERAL

CSS: PART 1 2014

TABLE OF CONTENTS

APPENDICES

1 Compliance Requirements Checksheet
2 Tramway Route
3 Application to Work Near Tram Tracks

STANDARD DETAILS

Trench Restoration	SD 101	Trench Restoration
Traffic Management	SD 102	Temporary Bus Stop
Tree and Vegetation Protection	SD 110	Tree Drip Line

1.0 FOREWORD

This Specification forms Part 1 of the Christchurch City Council Civil Engineering Construction Standard Specification (abbreviated as CSS). All parts of the CSS should be read in conjunction with each other and the Infrastructure Design Standards (abbreviated as IDS).

The full Specification includes the following Parts:

CSS: Part 1 2014 - General
CSS: Part 2 2014 - Earthworks
CSS: Part 3 2014 - Utility Drainage
CSS: Part 4 2014 - Water Supply
CSS: Part 5 2014 - Lights
CSS: Part 6 2014 - Roads
CSS: Part 7 2014 - Landscapes

Each Part of the Standard Specification includes those Standard Details (SD) relating to that part of the specification only. The Standard Details are not to scale and all units are in millimetres (mm) unless otherwise shown. All rights reserved on Standard Details.

2.0 RELATED DOCUMENTS

The following documents shall be read and form part of this standard specification, together with revisions, replacements and amendments up to the date of calling tenders. The requirements of this specification supersede the requirements of any related documents listed or referred to within this specification. Where this document is referred to in a contract, the requirements of that contract supersede the requirements of this specification.

Christchurch City Council RMA92019127 Global Consent for Works Affecting Protected Vegetation

Christchurch City Council Guidelines for Entering and Working in Confined Spaces

Christchurch City Council Schedule of Local and Special Conditions to the National Code for Utility Operators' Access to Transport Corridors 2013

National Code for Utility Operators' Access to Transport Corridors 2011 http://www.nzuag.org.nz/national-code/CodeNov11.pdf

Code of Practice for Temporary Traffic Management (CoPTTM) http://www.nzta.govt.nz/resources/code-temp-traffic-management/copttm.html

NZS 3910: 2003	Conditions of contract for building and civil engineering construction
NZS 4402:1986	Soil testing for engineering purposes
NZS 4407: 1991	Methods of sampling and testing road aggregates
NZS 4454: 2005	Composts, soil conditioners and mulches
NZS 6803: 1999	Acoustics – construction noise

Transit New Zealand Specifications

New Engineering Contract Edition 3 (NEC3)

Occupational Safety and Health Service Guidelines for the Management and Removal of Asbestos Revised January 1999 www.osh.govt.nz/publications/booklets/asbestos-management-removal/guidelines.asp

Canterbury Regional Council Canterbury Regional Pest Management Strategy 2005-2015

NZQA Unit Standard 25832 Use a nuclear density meter to measure compaction of soils, sands and gravels

3.0 DEFINITIONS

The following definitions apply in the CSS, unless inconsistent with the context. These definitions are additional to those definitions in the City Plan and the IDS.

Engineer	as defined in NZS 3910 "Conditions of contract for building and civil engineering construction". (Note this is different from the Engineer as Professional Advisor definition in IDS: Part 1 – Introduction.)
Qualified arborist	a person who is in possession of a recognised arboriculture degree, diploma or certificate, and on the job experience, is familiar with the equipment and hazards involved in arboriculture operations, has demonstrated proficiency in inspecting, analysing and treating hazardous trees and has demonstrated the ability to perform the tasks involved. A Certificate as referred to in this definition shall consist of a minimum of 240 New Zealand Qualifications Authority credits of learning (i.e. Level 4) or equivalent.

4.0 APPROVAL OF MATERIALS, OPERATORS/CONTRACTORS, LABORATORIES AND WORKMANSHIP

'Approved' in this document means approved by the Engineer unless otherwise specified.

Schedules of approved materials and contractors can be found on the Christchurch City Council web page at:
www.ccc.govt.nz/business/constructiondevelopment/approvedmaterials.aspx
www.ccc.govt.nz/business/constructiondevelopment/approvedcontractors.aspx

Selected materials are specified in this document.

Council prefers that sustainable business practices and materials be used for Council infrastructure. To help achieve this, Council will be incorporating a tender attribute reflecting the incorporation of sustainable materials and processes. Contractors demonstrating sustainable practices will receive credit through the attribute assessment as part of the tender analysis process.

These practises could include utilising materials that contain a recycled component or that are able to be recycled at the end of their life or by proposing processes with reduced environmental impact e.g. drilling pipes as an alternative to open trenching.

Approved laboratories are IANZ accredited to carry out the particular test being requested.

5.0 QUALITY ASSURANCE

5.1 Quality Plan

All Project Quality Systems and the Contract Quality Plan shall comply with IDS: Part 3 - Quality Assurance, as specified.

Where the Contractor is responsible for aspects of design, the Project Quality System shall also cover details of this.

Examples of Compliance Requirements Checksheets are appended to each part, where available.

5.2 Personnel

Personnel shall comply with the requirements of IDS: Part 3 - Quality Assurance.

5.3 Reporting

Records of testing and maintenance inspections shall comply with the Contract Quality Plan, including the interval of supply. Further information is available in IDS: Part 3 - Quality Assurance.

5.4 Audits

The Engineer may carry out audits and inspections during the Contract, which may include checks of the Contractor's Quality System and records. They shall be kept up to date and be available for audit at all times during construction. If so instructed, the Contractor shall forward copies of all or part of the records to the Engineer

Records shall be kept on site, where specified.

5.5 Completion Certificate

The Contractor shall certify that all work has been carried out in accordance with the Contract, prior to the issue of the Certificate of Practical Completion, for the whole or parts of the works as appropriate.

5.6 Construction Records

Provide construction records as specified in the relevant part of the IDS e.g. IDS clause 7.3 – Quality Assurance Requirements and Records.

The particular requirements for as-built records for each type of work are set out in IDS: Part 12 - As-Built Records and in CSS: Part 2 clause 7.8 – As-Built Records, CSS: Part 4 clause 20.0 – As-Built Records or CSS: Part 5 clause 9.0 – Completion Procedures and Certification.

Where collection of as-built information is by others, the Contractor shall facilitate the compilation of accurate records of all works constructed, particularly underground structures and services. The Contractor shall notify the Engineer if, at any time, the proposed work will inhibit the obtaining of sufficient measurements to compile these plans and shall allow the Engineer sufficient opportunity to obtain these measurements.

5.7 Measurement of Works and Basis of Payment

All costs involved in the establishment and operation of the Project Quality System, including supplying records to Council, shall be borne by the Contractor, if not scheduled separately.

All costs involved in the obtaining and providing of as-built records shall be included in the rates for the relevant item.

6.0 TEMPORARY TRAFFIC CONTROL

Temporary traffic control shall be carried out in accordance with the "Code of Practice for Temporary Traffic Management" (CoPTTM), except where amended by the following clauses.

Christchurch City Council (CCC), Environment Canterbury (Ecan) and the New Zealand Transport Agency (NZTA) have set up the Christchurch Transport Operations Centre (CTOC) as the Road Controlling Authority for Christchurch City and created a website http://tmpforchch.co.nz/ for the submission of Traffic Management Plans (TMP) within the Christchurch Area. All Traffic Management Plans applicable to the Christchurch area must be submitted to Council, Ecan and NZTA using this system.

CoPTTM shall be amended by the CTOC Local Operating Procedures for Temporary Traffic Management (LOP). Details of the LOP are available at http://tmpforchch.co.nz/downloads/.

6.1 Traffic Management Plans

Each TMP must be designed, installed and managed by a qualified Site Traffic Management Supervisor (STMS).

Site specific situations may demand particular requirements of the TMP, which will be detailed in the contract documents.

6.2 Amendments to the "Code of Practice for Temporary Traffic Management" by the Road Controlling Authority

Christchurch road level classifications are available at http://tmpforchch.co.nz/downloads/. Roads not detailed on this list are classed as low volume roads in accordance with the CoPTTM.

The following amendments to the Code apply for work within the Christchurch City Council area.

6.2.1 Variable Message Signs (VMS)

Due to the risk of diminished impact caused by overuse of mobile VMS, these devices should only be considered for significant traffic management operations where road user behaviour modification or awareness is essential.

6.2.2 Truck Mounted Attenuators (TMA)

A TMA is required on multilane L2 roads with posted speed limits of 60km/hr or above.

The STMS may consider replacing the TMA with an arrowboard on constrained L1 and L2 single carriageway sites (one lane each way) that are in a low speed urban environment with a posted speed limit of 50km/hr or less,

6.2.3 Working Near the Tram Tracks

Site specific Traffic Management Plans for work within legal roads that are travelled over by the Christchurch Tram shall be submitted to the Road Controlling Authority. Generic diagrams may be included in the Traffic Management Plan. The tramway route is shown in Appendix 2.

The Traffic Management Plan shall include an 'Application to Work Near Tram Tracks'. A form template is appended to this part. This form should be signed by the Contractor and the Tramway Company before presentation with the Traffic Management Plan. Also note the requirements in clause 9.1 – The Christchurch Tram.

The form is intended for Christchurch Tramway Ltd's use and recordkeeping.

6.2.4 Footpath Widths

The minimum clear footpath width in residential locations shall be 1.2m. The minimum clear footpath width in CBD locations shall be 2.0m.

6.2.5 Bus Operations

The TMP shall incorporate the required measures to cater for buses including bus lanes and bus stops, as detailed in clause 25.0 – Bus Infrastructure.

6.3 Road Closures

A temporary road closure is required where a road will be closed to the movement of vehicular traffic. Temporary road closures shall be applied for using the Temporary Road Closure Application Form, available at www.ccc.govt.nz/thecouncil/newsmedia/publicnotices/roadclosures.aspx. This form can be completed and submitted online. A TMP shall be submitted as part of the application.

Signage requirements are detailed in Temporary Road Closure -Signage Requirements, details of which are available at the web address.

An application for a road closure shall be made between 10 and 21 working days in advance, depending on the closure type and its effects. Further information is available in the Temporary Road Closure for Road Works Information Sheet, which is available at the web address.

6.4 Events

A Traffic Management Plan is required for any event affecting the normal operating conditions of any road and its road reserve. Temporary road

closures shall be applied for using the Temporary Road Closure Application Form, as detailed in clause 6.3 - Road Closures.

An application for a road closure for an event shall be made either 60 or 84 days in advance, depending on the closure type. Further information is available in the Temporary Road Closure for Events Information Sheet, which is available at the web address.

6.5 Measurement of Works and Basis of Payment

Payment will be in accordance with Appendix D of the "Code of Practice for Temporary Traffic Management". The duration of the traffic management services shall be from the date the Contractor commences construction on site to the Work Completion Date as defined below.

The Work Completion Date shall be the earliest of either:

- The Date of Practical Completion.
- The Contract Completion Date as stated in the Special Conditions of Contract, or as otherwise extended by the Engineer by approved time extensions.
- The date after which temporary traffic control is no longer required.

The Contractor must provide temporary traffic control between the Contract Completion Date and the Date of Practical Completion, at their expense, where the Date of Practical Completion is after the Contract Completion Date.

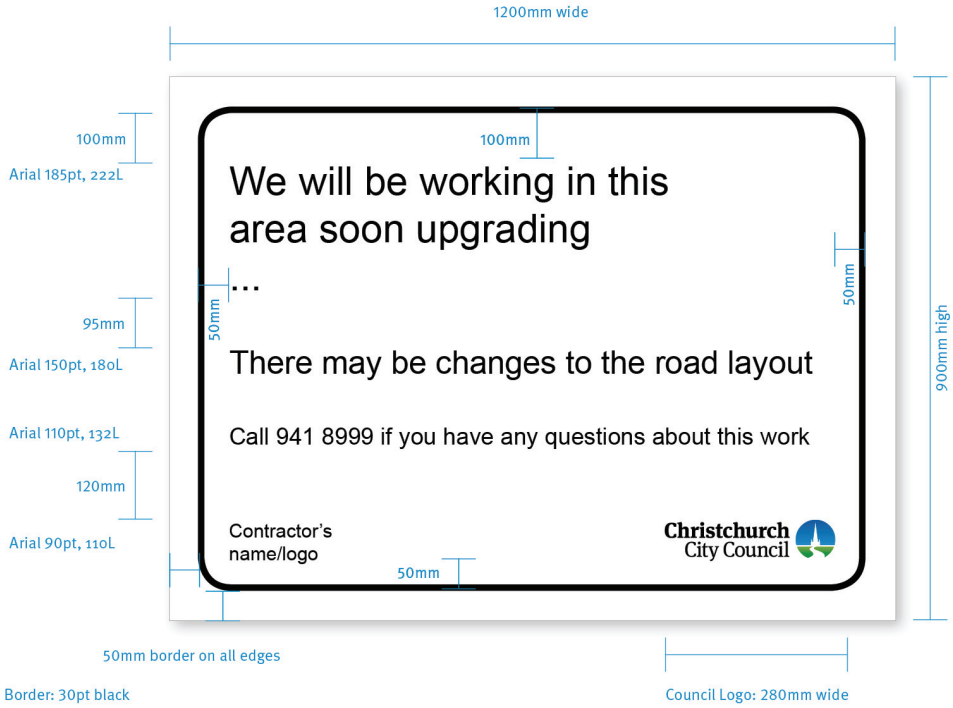
7.0 NOTICE BOARDS

The Contractor shall erect the notice board at each end of the work in a suitably lighted position, visible to pedestrians and traffic. The notice board shall not obstruct sightlines or inconvenience the public or property owners. Each notice board shall display the 'Contractor's Name'. Add the specified type of work after upgrading e.g. "... upgrading the water supply".

The Christchurch City Council logo specification can be obtained by contacting the Communications Team, phone 941-8556

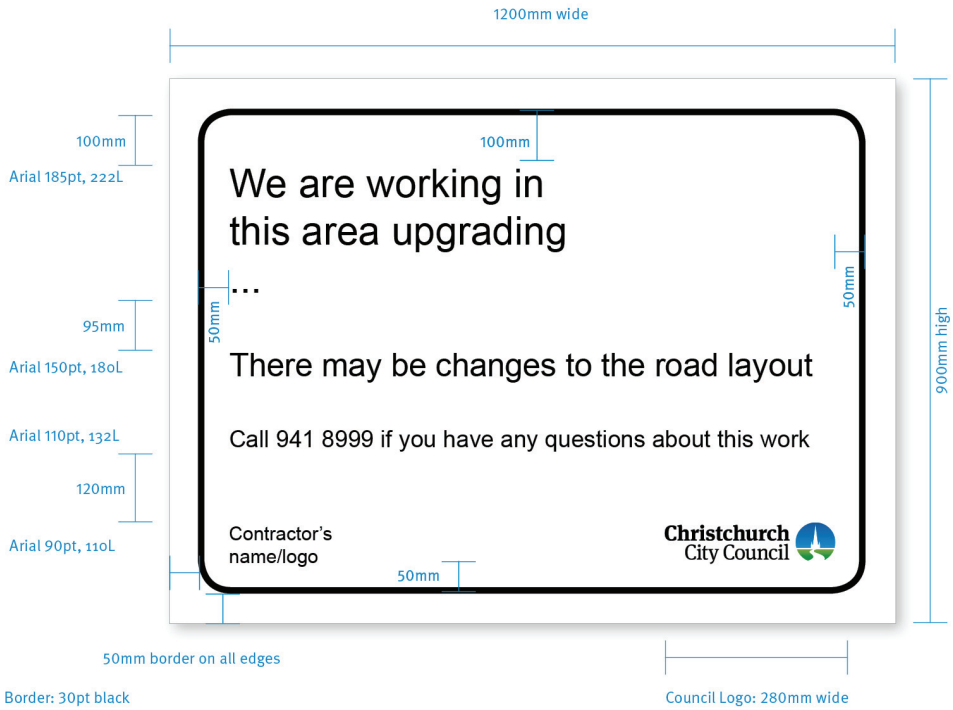
7.1 Pre-construction Notice Board

The notice board shall be erected two weeks prior to works commencing on site and shall be removed when the Construction Notice Board is erected.



7.2 Construction Notice Board

The notice board shall be erected immediately prior to works commencing on site.



Where work is being carried out on behalf of other parties, e.g. trenching for Utility Operators, land development, a similar sign shall be erected

displaying the Principal's name in place of the Christchurch City Council name and logo.

7.3 Measurement of Works and Basis of Payment

7.3.1 Pre-construction Notice Board
Notice boards shall include the supply, erection, maintenance over the two-week period and removal.

7.3.2 Construction Notice Board
Notice boards shall include the supply, erection, maintenance over the period of physical works and removal.

8.0 ACCEPTANCE OF SITE

Before work commences, the Contractor shall notify the Engineer of any existing defects that may impact on works. The Contractor shall take sufficient records (e.g. photographs, videotapes) of any pre-existing conditions or defects to allow a true assessment of any deterioration in their condition caused by their operations.

9.0 EXISTING SERVICES

The Contractor should obtain the latest information from the respective authorities on all services.

Any group of services of the same nature belonging to the same authority and with an overall dimension less than 600mm horizontally and vertically shall be regarded as one service for payment purposes.

9.1 The Christchurch Tram

The tramway comprises 1435mm gauge steel track supported by a continuous reinforced concrete foundation pad. Power is supplied to the system with a 600 volt direct current single overhead wire at an average height of 6.0 metres. The track is used as the return current conductor and could form an electrical hazard if broken. Note that the track may be live in areas even though the overhead is not erected.

Where any excavation occurs which could affect the stability of the tram track, appropriate technical advice as to its safety shall be sought and appropriate measures taken to rectify the situation.

No person or mechanical plant shall work any closer than 4 metres from the overhead contact system without permission from the Tramway Operations Manager.

10.0 NOTIFIABLE WORKS

All work in confined spaces shall be subject to the conditions set out in the Christchurch City Council "Guidelines for Entering and Working in Confined Spaces". Prior to the commencement of work the Contractor shall present proof to the Engineer that ***any person entering a confined space holds a current 'Confined Spaces Entry Permit'.***

The Contractor shall not start any notifiable work until written notice has been lodged with the Occupational Safety and Health Service of the Department of Labour, as required under the Health and Safety in Employment regulations 1992.

These notifications may include work in any excavation greater than 1.5 metres deep and having a depth greater than the horizontal width.

11.0 TOILET FACILITIES

The Contractor shall provide an on-site toilet for the use of the contract or sub-contract staff for the full duration of all on-site work.

12.0 HOURS OF WORK

No work shall be undertaken on Sundays, Public Holidays, or outside the hours of 7.00 am to 6.00 pm without the Engineer's prior consent.

Work is deemed to include any plant activity associated with the running up of operating pressures for hydraulic and lubricating systems and the cooling down of plant drive systems.

13.0 NOISE

Noise shall be limited to comply with the requirements of NZS 6803 "Acoustics - Construction Noise".

The Contractor shall adopt the best practical option to minimise the effects of noise generation and comply with the requirements of NZS 6803 "Acoustics - Construction Noise" by including, in the planning of the work, factors such as placing of plant, programming the sequence of operations and other management functions, noise insulation and silencers.

14.0 STOCKPILES

The size and location of stockpiles shall be in accordance with the Traffic Management Plan. The Engineer shall approve the location of all stockpiles prior to their formation.

Only in the event of all other alternatives being deemed inappropriate shall the Contractor seek the Engineer's permission to use a reserve for a stockpile site. Note that the use of a reserve will incur costs and must be approved in writing by the Transport and Greenspace Manager.

Stockpiles shall not block existing drainage paths. The Contractor shall remove all surplus material from the site without undue delay. Areas used for stockpiles shall be restored to existing or better condition.

15.0 WORK ON OR ADJACENT TO PRIVATE PROPERTY

15.1 Agreements and Notifications

All agreements to carry out work in private property shall be in writing.

The Contractor shall give each owner and/or occupier written notice of the intended time of entering the property at least two weeks before doing so or a lesser time where agreed with the owner/occupier.

The Contractor shall keep the Engineer fully informed of any negotiations with the owners and/or occupiers, and shall supply copies of all correspondence concerning these negotiations.

15.2 Progress of Work

The Contractor shall cause as little inconvenience as possible to the owners and occupiers, and shall restrict all operations to the areas agreed by the owners and occupiers or as specified.

Once work in private property has started, this portion of the work shall proceed with as much speed as possible and no other work shall be undertaken which will hinder progress on this portion.

15.3 Planting and Existing Structures

Any fences, paths, structures or other private property disturbed, damaged or removed by the Contractor's operations shall be restored as soon as possible to an equivalent condition and to the satisfaction of the owner.

The Contractor shall provide adequate support to any excavation when working in close proximity to the road boundary to prevent any damage or subsidence into the excavation.

15.4 Clearance

A written clearance from each owner or owner's agent shall be obtained before the "Certificate of Practical Completion" is issued.

The Engineer may also require that the Contractor obtain a written clearance from nearby owners if their properties have been affected by the Contractor's operations.

16.0 POTABLE WATER CONTAMINATION

Where pressurised watermains are damaged and any leakage occurs, positive pressure shall be maintained in the damaged pipe, to prevent contamination of the water supply.

Only the Council's nominated water supply maintenance contractor may turn off the water flow in a pipe.

Where contamination is found, the Council is required to immediately isolate and remove the source of the contamination, because it could impact severely on the health of consumers, particularly the elderly, infants and people with immune deficiencies.

Where this contamination is caused by work carried out by a Contractor, this Contractor shall incur the costs of remedial work.

16.1 Standpipes

Any contractor wanting to access the Council's water supply shall apply for a water connection and hire a Council approved standpipe from Humes Pipelines, 48 Hazeldean Road, Christchurch, phone 339 5909 or 0800 101 999.

These stand pipes are fitted with a backflow prevention device and water meter. Applications for water connections shall be made by completing a WS1 form available at http://resources.ccc.govt.nz/files/WS1-waterconnection.pdf and e-mailing this through to the water connections mailbox (water.connections@ccc.govt.nz).

16.2 Measurement of Works and Basis of Payment

All costs involved in the prevention of contamination of Christchurch's water supply shall be borne by the Contractor.

17.0 ASBESTOS

Removal and disposal of asbestos shall comply with "Guidelines for the Management and Removal of Asbestos". Contact the Council's landfill operator for requirements regarding the handling and disposal of asbestos.

18.0 EROSION, SEDIMENT AND DUST CONTROL

18.1 Dust Nuisance

The Contractor shall take all reasonable precautions to mitigate the dust nuisance to adjacent properties and the public.

Where the Contractor stockpiles material on or off the site, any measures required to prevent a dust or litter nuisance shall be taken at the Contractor's cost.

Should the Contractor fail to take immediate action to satisfactorily control dust or litter when instructed to do so by the Engineer, or if the Contractor can not be contacted, the Engineer may have the necessary work carried out and recover all costs incurred from the Contractor.

18.2 Stormwater and Land Drainage

Contractors shall design and implement an Erosion and Sediment Control Plan (ESCP), in accordance with IDS clause 4.8 – Erosion, Sediment and Dust Control, to control the discharge of contaminants during construction. The Contractor shall submit the ESCP to Council one week before construction starts.

The Council will audit the Erosion and Sediment Control Plan for compliance over the period of the works.

Possible sources of contaminants from construction activities additional to those in IDS clause 4.8 – Erosion, Sediment and Dust Control, include sawcutting, grooving, waterblasting, dewatering and uncontrolled runoff. Possible contaminants include slurries from cutting pavers, dust from stockpiles, bituminous materials and fine silts removed by dewatering activities.

18.3 Measurement of Works and Basis of Payment

All work to control erosion, sediment and dust and to prevent contamination shall be included in the rates for the relevant items being constructed.

19.0 PROTECTION OF NATURAL ASSETS AND HABITATS

Natural assets and habitats include landscape features such as waterways, wetlands and their wildlife, planting including trees, shrubs, grass areas and groundcover and structures.

19.1 Existing Features

Before the commencement of the work, the Contractor shall clearly identify and protect all site features (e.g. specimen trees, shrubs, plant beds and structures) that are to be preserved or reinstated.

19.2 Waterways and Their Wildlife

Any natural waterways shall be outside of the Contractor's work site unless the contract specifically states otherwise.

19.3 Tree and Vegetation Protection

Protected trees and vegetation include notable trees and heritage trees, as listed in the City Plan, trees in special purpose zones including Special Purpose Road Zones (street trees); trees and vegetation protected in other zones; Ecological Heritage Sites, as identified in the City Plan; or trees on the list of trees protected by subdivision approval and by resource consent. This latter list is available through the Council's Arborist team.

Private trees include trees located within private property that may be affected by road upgrades, significant trees or vegetation on land identified for intensification in both Greenfield and Brownfield areas.

Work around and on protected trees and vegetation may require a resource consent for the works.

19.4 Protection of Existing Trees (including Private Trees)

Where works on protected trees and vegetation are covered under the Global Consent for Works Affecting Protected Vegetation, the relevant conditions of the resource consent shall take preference over the following requirements.

A temporary barrier shall be erected around all existing trees that are identified to be retained on site. This barrier shall create a physical barrier with a minimum height of 1.8 metres, for example hurricane fencing, erected at the extremity of the tree's drip line as defined in SD 110 .

Where the work site is only on one side of the tree the barrier shall be erected along the face of the tree adjacent to the work site in each direction away from the tree and at the drip line as defined in SD 110.

This barrier shall be erected before any works around or adjacent to the trees commence and shall not be removed or moved until that section of work is complete, without the prior approval of the Council's Arborist.

No chemicals, fill, equipment or machinery shall be stored behind the barrier or within the drip line except on existing hard surfaces. No machinery shall be parked within or driven through the fenced area. Water used for washing down machinery shall not run off under the dripline unless on an existing sealed surface.

There must not be any direct contact between wash down water, chemicals, fill, equipment or machinery and the root plate.

Where it is not possible to complete the works without encroaching within the tree's drip line, a proposed methodology shall be submitted to the Engineer for approval prior to work commencing. Where there are excavations (including thrusting pits) within the drip line the Contractor shall appoint a qualified arborist. The name and qualifications of the arborist shall be submitted to the Council's Arborist for approval. This arborist shall be present on site at all times whilst these works are being undertaken.

19.4.1 Tree Roots and Root Plates

All roots larger than 25mm diameter shall be retained in an undamaged state and protected, unless the Council's Arborist gives permission in advance for them to be cut. No ripping or tearing of roots (including the root plate itself) shall occur.

Roots which have a significant affect on the health and stability of the tree shall not be cut without the Council Arborist's approval. Where consent is given to cut roots they shall be severed cleanly with a saw or pruning shears by a qualified arborist. The name and qualifications of the arborist shall be submitted to the Council through the Contract Quality Plan.

All exposed roots and cut root ends shall be protected from drying and frost with damp sacking/scrim, polythene or similar material if not backfilled immediately.

Where the Engineer has not approved the use of excavated material for backfilling, backfill shall consist of 70% first grade top soil and 30% coir (or a similar product approved by the Engineer). The backfill shall be mixed thoroughly.

Unless prior approval from the Council's Arborist has been obtained, all underground services within the tree's drip line as defined in SD 110 shall be installed by trenchless methods. Otherwise, excavations within the distances set out in the table below shall be carried out by hand. Care shall be exercised while excavations are carried out so root damage is minimised.

Trunk diameter at ground level	Minimum distance from edge of trunk	Tree class
0 - 100mm	1 metre	All
101 - 300mm	2 metre	All
301 - 500mm	4 metre	All
501 - 1000mm	5 metre	Protected trees
501mm and above	5 metre	Other trees
1001mm and above	10 metre	Protected trees

Other trees are those not defined as protected trees in clause 19.3 – Tree and Vegetation Protection.

19.5 Damage to Existing Features

The Contractor shall compensate the Council for any damage done to existing features, either by means of a monetary sum or by replacement of that feature. The Engineer will determine any compensation for damaged landscape planting, in consultation with the Council.

19.6 Tree Removal

No trees shall be removed unless they have been specifically identified and marked during a joint inspection by the Engineer and the Contractor. Trees shown on the drawings as conflicting with the works, but without an explanation of whether or not they are to be removed, must not be removed until they are identified as above. The Contractor shall notify the Engineer of trees which are not shown on the drawings, but which appear to be in conflict with the works.

19.7 Measurement of Works and Basis of Payment

All work around existing features shall be included in the rates for the relevant items being constructed.

20.0 ARCHAEOLOGICAL DISCOVERY

An archaeological authority is required if there is "reasonable cause" to suspect that an activity may affect any archaeological material. An authority is required regardless of the legal status of the land on which the site is located, whether the activity is permitted under the District or Regional Plan or whether a resource or building consent has been granted.

If previously unknown archaeological material is uncovered during earthworks:

- *all work within 100m of the site shall cease immediately,*
- *the site shall be secured to prevent disturbance of the remains and make the site safe,*
- *the Contractor shall notify the Engineer, who shall contact the Historic Places Trust.*

21.0 NOTIFICATION OF AUDIT INSPECTIONS

The Contractor shall give a minimum of two working days notice to the Engineer when works are ready for audit inspections. Audit inspections include standards and material compliance inspections of all aspects of work.

22.0 ACCESS AND TEMPORARY BRIDGING

Access to properties shall be maintained at all times when the Contractor is off-site. Access to commercial properties shall be maintained at all times during business hours (unless by mutual agreement with the owner or occupier). Access to all other properties shall be maintained at all times unless by mutual agreement with the owner or occupier.

The Contractor shall contact each property owner or occupier at least three days prior to commencing work near their property and inform them of the length of time that property will be affected by the work. The Contractor shall keep diary notes and records of contact and discussions with property owners and occupiers.

22.1 Temporary Bridging

Should steel plates be used as temporary bridging they shall be:

- 12mm thick with chamfered edges.
- secured to the carriageway without a gap between the plate and the road surface.
- placed to prevent noise from vehicles when being crossed.
- used to span a maximum distance of 1.0m.
- wide enough to ensure that the sides of the trench remain stable.

Steel plates shall not be used as temporary bridging within the carriageway for more than 24 hours. The Engineer shall approve their use before installation.

22.2 Measurement of Works and Basis of Payment

The provision of adequate temporary crossings and bridging shall be included in the rates for the relevant item being constructed.

23.0 METER SHROUDS

The Contractor shall obtain the necessary parking meter shrouds where metered spaces are being used during the course of the works. The cost of obtaining meter shrouds shall be borne by the Contractor.

24.0 TAXI STANDS

Where work on roads obstructs adjacent taxi stands, the Contractor shall make arrangements for alternative taxi stands, including the covering of signs that are temporarily not in use.

The Contractor shall notify the Taxi Federation where temporary stands are not immediately adjacent to the relocated stand.

24.1 Measurement of Works and Basis of Payment

The provision of taxi stands shall be included in the rate for the item affecting them.

25.0 BUS INFRASTRUCTURE

Buses should not be delayed and where possible priority shall be given to their movements.

All in-use bus stops shall be accessible to all intending passengers, including those with disabilities. Access should be via a smooth, unobstructed path a minimum of 1200mm wide and of materials suitable for the smooth operation of a wheelchair.

25.1 Temporary Bus Stops

Where work on roads obstructs adjacent bus stops the Contractor shall provide temporary bus stops for the full period of the works. The temporary stops shall comply with SD 102 and be located as near as possible to the current stop. The Site Traffic Management Supervisor shall confirm that the bus stop is provided as part of the Traffic Management Plan (TMP).

The bus stop area, including lead-in and out, shall be kept free of obstructions at all times.

Both bus doors shall be clear of cutdowns. Temporary stops should be adjacent to a full height kerb where possible. Where proposed stops are over vehicle crossings, residents shall be advised in writing before placement and any concerns raised by them taken into account. The camber of the verge should be considered to ensure that the step up into the bus is not excessive nor that the bus is leaning on an excessive angle.

Notification of temporary bus stop locations and their intended duration shall be made to ECanBusControl@ecan.govt.nz a minimum of two working days prior to their relocation.

25.1.1 Pedestrian Requirements

Temporary bus stops shall have a waiting area adjacent to the bus boarding area. Both areas shall be clean, level, dry and of sufficient size to accommodate all intending passengers. If a suitable area is not currently available, the Contractor shall construct one.

25.1.2 Signage

A Temporary Bus Stop sign should be placed 5.0m inside the clear area of the bus stop directly adjacent to the passenger's boarding area. Signs shall be on full height poles and not obscured by other signs or obstructions. In high parking demand areas, discuss additional signage requirements with Council.

Permanent bus stop signs shall be covered and signage attached directing passengers to the temporary bus stop. Where no temporary bus stop is available a map showing alternate bus stop locations shall be displayed. Notification signage shall be in place on permanent bus stops two working days prior to the stop being unavailable for use.

25.2 Bus Route Detours

Traffic detours or road closures on a bus route should be avoided at all times and should only be applied when there is no alternative site work practice available. Any road or lane closures shall allow buses particularly to return to their normal route as soon as possible once past the closure.

Any detour for buses should follow the same route in both directions to avoid confusion for passengers. Detours shall be along suitable roads allowing free bus movement and the placement of temporary bus stops.

Notification of any detours shall be made to ECanBusControl@ecan.govt.nz (as per the TMP Form) a minimum of five working days prior to the commencement of the detour.

25.3 Bus Lanes

There shall be no impediment to the operation of bus lanes during their operational hours. "No impediment" includes that but is not limited to:

- no cones shall be placed in the bus lane, even for works associated with a side street,
- no equipment shall be left in the bus lane at any time.
- works should be undertaken outside operational hours, where possible,
- uncompleted works should be backfilled and compacted at grade to provide a seamless surface or be covered with a clearly visible non-skid steel plate.

All work shall be sealed and repainted within 24 hours.

Operational hours for bus lanes are generally between 7am – 9am along inbound routes, and 2.30pm – 6pm along outbound routes, Monday to Friday. The operational hours for a particular area should be checked according to the signage posted along the bus lane.

Where emergency works are required in a bus lane the Bus Exchange Control Room shall be advised immediately (using their emergency only number 353 9703) of the details of the work being done, the expected duration and what procedures are in place to accommodated bus priority.

Where the bus lane becomes unavailable during operating hours due to the works, alternative Traffic Management measures shall be required to allow buses priority to manoeuvre around works without delay at all times.

25.4 Measurement of Works and Basis of Payment

The provision of temporary bus stops and bus route detours shall be included in the rate for the item affecting the bus infrastructure.

26.0 SURFACE BOXES

26.1 Access to Fire Hydrants and Sluice Valves

Fire hydrants shall remain visible and accessible at all times.

If a sluice valve is covered, its location shall be marked with offset pegs.

The Contractor shall provide immediate access to any covered valves on request.

26.2 Adjustment of Fire Hydrant, Sluice Valve and Combination Boxes

Fire hydrant, sluice valve and combination surface boxes shall be adjusted in accordance with CSS: Part 4 clause 12.4 – Surface Boxes Installed or Adjusted Separately from Watermain Works.

26.3 Roadmarking of Fire Hydrants and Sluice Valves

Roadmarking of fire hydrants and sluice valves shall be carried out in accordance with the requirements of CSS: Part 4 clause 19.0 – Location Marking of Fire Hydrants and Sluice Valves.

26.4 Adjustment of Manholes

Manholes shall be adjusted in accordance with CSS: Part 3 clause 16.0 – Adjusting Manholes to Altered Surface Levels.

26.5 Adjustment of Other Network Assets

All network assets not owned by the Christchurch City Council shall be adjusted in accordance with that utility operator's requirements.

26.6 Measurement of Works and Basis of Payment

All work to provide access to fire hydrants and sluice valves shall be included in the rates for the relevant item being constructed.

27.0 TRAFFIC SIGNAL LOOPS

All signalised intersections have wire detector loops sawcut into the road surface. These loops are either approximately 1.5m or 30m behind the limit lines. They are vital to the operation of the traffic signals at the intersection and, in many cases, the surrounding signalised intersections. The loops must be kept in operation as long as possible, by cutting them at the last instance and restoring them as soon as practicable. To facilitate this, the following procedure shall be followed.

27.1 Permission

Permission to cut any loop shall be gained from the CTOC Real Time Operations Team, phone 941-8620, 72 hours prior to the proposed cutting.

Permission is not automatic and may be withheld, for instance until after special events or until other work is completed. Generally, only one intersection per street shall be cut at any one time. However, where extenuating circumstances can be proven, this restriction may be lifted after consultation with the CTOC Real Time Operations Team.

27.2 Loop Reinstatement Fee

The Contractor will not pay the fee, unless otherwise specified. Where it is specified that the Contractor pay the fee, it shall be paid to Christchurch City Council before permission will be given to cut any loops. It is also payable where the loop has been reinstated again as set out in the "Timing" clause below.

Fees to reinstate loops will be individually determined. Typically the fee to have one loop reinstated in a Level 1 road is $500.

Where permission has not been obtained prior to cutting the loop, a penalty of $250 will be added to this fee.

27.3 Replacement

27.3.1 Timing

The Contractor shall give notice that the loop is ready to be replaced no more than three days after it has been cut.

If notification is not received within this time, Council shall issue a 24-hour notice of its immediate intention to reinstate the loop. The Contractor may be liable for the cost of a further loop reinstatement if the completion of the works necessitates cutting the loop again.

27.3.2 Extensions to Reinstatement Timing

If the Contractor considers that the time allowed above is inadequate for reinstatement and notification, they should contact the CTOC Real Time Operations Team, who may extend these periods where extenuating circumstances can be proven.

Where the works to allow loop reinstatement cannot be completed within an acceptable time frame, e.g. works including porous asphalt, the loop may need to be installed into a temporary surface and then reinstated when the final surfacing is applied. In this circumstance, the loop fee will be paid twice. Milling, stripping or resurfacing in conjunction with this reinstatement, as set out in the following clause, may also be required.

27.3.3 Damage to Road Surface through Multiple Loop Cutting

Where the works will result in three separate loop cuts in the final road surface, the area of the loops shall be resurfaced. These cuts may exist prior to the work or be new cuts necessary due to the Contractor's works.

The Contractor shall mill or strip and resurface the area to the same standards as the final surfacing of their excavation. This resurfacing shall be completed prior to loop reinstatement.

27.4 Measurement of Works and Basis of Payment

Traffic loop reinstatement, where specified, shall include the fees as set out above, any temporary installations required, milling, stripping and resurfacing where necessary as stated above.

Where traffic loop reinstatement is not specified separately, the Contractor shall allow for any milling, stripping and resurfacing as stated above in the rates for the relevant items being constructed.

Where the traffic loop reinstatement is due to damage or lack of notification on behalf of the Contractor, all fees, any temporary

installations required, milling, stripping and resurfacing where necessary as stated above shall be at the Contractor's cost.

28.0 EXCAVATION

Excavation carried out to permit the installation of network services in legal roads shall be carried out in accordance with the particular requirements regarding materials and their depths of the Works Access Permit for that work. Apply for a Corridor Access Request (CAR) at www.beforeudig.co.nz to obtain the Works Approval Notice.

Note that www.beforeudig.co.nz does not provide information on the location of Orion's reticulation or of reticulated gas services within Christchurch. Search at http://www.oriongroup.co.nz/securememberarea.aspx for Orion's reticulation and contact lpgasbuiltrequest@contactenergy.co.nz for reticulated gas.

All works shall also comply with the National Code for Utility Operators' Access to Transport Corridors and the CCC Local and Special Conditions, except where superseded by the CSS series or the contract documents.

Where pipes or other services or structures in the vicinity of the works may be structurally endangered by subsoil dewatering, the Contractor shall stop pumping and make suitable arrangements to prevent the removal of these sediments.

The Contractor shall notify the Engineer when the base of the excavation may be unsuitable. The Engineer may order extra excavation to remove this material.

Specific requirements regarding the excavation for network services are detailed in that Part e.g. CSS: Part 4 clause 9.0 - Excavation.

29.0 BACKFILLING

Backfill includes filling to trenches and other excavations and excludes haunching, bedding and metalcourses or topsoil. Backfill material shall be as specified. The Engineer may approve the use of excavated material for backfill.

29.1 Backfilling Within Legal Road

The backfilling and maintenance of excavations for the installation of network services in legal roads must be carried out in accordance with the particular requirements regarding materials and their depths of the Works Access Permit for that work. All works shall also comply with the National Code for Utility Operators' Access to Transport Corridors and the CCC Local and Special Conditions, except where superseded by the CSS series or the contract documents.

Excavations in permanent surfaces shall be sealed within five days of backfilling.

29.2 Trafficked Areas

CCC pitrun and CCC AP65 shall be compacted to a minimum dry density of 2,150kg/m3.

The dry density shall be determined in accordance with NZS 4402.4.1.1 "New Zealand standard compaction test" for stabilised materials or NZS 4402.4.1.3 "New Zealand Vibrating Hammer Compaction Test" for granular materials, unless otherwise specified.

29.3 Pedestrian Areas

CCC pitrun and CCC AP65 shall be compacted to a minimum dry density of 2,150kg/m3.

The dry density shall be determined in accordance with NZS 4402.4.1.1 "New Zealand standard compaction test" for stabilised materials or NZS 4402.4.1.3 "New Zealand Vibrating Hammer Compaction Test" for granular materials, unless otherwise specified.

29.4 Landscape Areas

Backfill material shall be compacted to 70% of that material's maximum dry density (MDD).

The dry density shall be determined in accordance with NZS 4402.4.1.1 "New Zealand standard compaction test" for stabilised materials or NZS 4402.4.1.3 "New Zealand Vibrating Hammer Compaction Test" for granular materials, unless otherwise specified.

29.5 Quality Assurance

The Contractor shall ensure that sufficient records are kept to show that the backfill complies with the above requirements. **The Transport and Greenspace Unit may request records of compaction tests on work carried out under a Works Access Permit**.

29.5.1 Compaction Tests

Compaction tests, by Nuclear Densometer, Clegg hammer or other approved impact device, shall be carried out on each compacted layer. Nuclear density testing shall be carried out by an operator holding Unit Standard 25832 Use a nuclear density meter to measure compaction of soils, sands and gravels. All compaction testing appliances shall hold current calibration certificates.

As a guide, a minimum Clegg Impact Value of 35 in the carriageway, right of way or commercial crossing or 25 in other areas shall be achieved at any point on any layer.

30.0 RESTORATION AND FINAL SURFACING

Restoration and final surfacing shall be carried out in accordance with the requirements in CSS: Part 6 - Roads or CSS: Part 2 - Earthworks and CSS: Part 7 - Landscapes for that type of work.

30.1 Restoration and Final Surfacing in Legal Roads

Restoration, final surfacing and excavation maintenance in legal roads shall be carried out in accordance with the particular requirements regarding materials and their depths of the Works Access Permit for that work.

Where the work is included within contract works, it shall be carried out in accordance with the particular requirements, regarding materials and their depths, of the specified restoration type, as detailed in SD 101.

Work shall also comply with the National Code for Utility Operators' Access to Transport Corridors and the CCC Local and Special Conditions, except where superseded by the CSS series or the contract documents.

30.2 Lengths of Open Trench

Trenches are considered 'open' until within 10mm of the finished surface.

Trench restoration or final surfacing shall be continually carried out to ensure the maximum lengths of open trenching, as specified in the particular parts, are not exceeded. These lengths may be reduced at intersections and where crossing carriageways.

31.0 WATER AND WASTEWATER PERMIT TO WORK

A Permit to Work is required where contractors intend to carry out works on water supply and wastewater assets which:

- *for water supply pipes, result in a shutdown and supply interruption for longer than 4 hours on pipes of 200mm and larger.*
- *for wastewater pipes, require overpumping or bunging when workmen are not on site.*
- *are likely to affect a headworks asset e.g. pump station (water or wastewater), reservoir or trunk main.*
- *may isolate parts of the network for the purpose of flow monitoring.*

Permits to Work shall be applied for using the form available at resources.ccc.govt.nz/files/Business/constructiondevelopment/CCCPermitToWork.pdf. An application shall be made at least five working days in advance but pump station and reservoir permits may require a longer processing time. Further information is available at www.ccc.govt.nz/business/constructiondevelopment/permittowork.aspx.

32.0 CCC AGGREGATE GRADINGS AND SPECIFIC REQUIREMENTS

Metalcourses may contain up to 5% of recycled glass, providing the material complies with all other specified requirements. Council will be incorporating a tender attribute reflecting the incorporation of sustainably produced materials.

All testing shall be carried out in accordance with the relevant test procedure in NZS 4407 "Methods of sampling and testing road aggregates". Testing shall be carried out in an approved laboratory.

32.1 CCC Pitrun

Pitrun does not have a specified grading however it shall meet the following criteria:

- Pitrun shall not be gap graded.
- Pitrun shall be free of organic matter.
- The fraction passing the 75-micron sieve shall be substantially non-plastic.
- Pitrun shall not contain stone larger than 150mm.

River-run material from Waimakariri River sources downstream of the railway bridge adjacent to Main North Road, or any material excavated from below water level, is not acceptable as sub-base material.

32.2 CCC AP65

Sieve Size	Percent Passing
65.0 mm	100
37.5 mm	60 - 90
19.0 mm	45 - 65
9.5 mm	30 - 50
4.75 mm	20 - 40
2.36 mm	10 - 28
1.18 mm	7 - 22
0.600 mm	5 - 16
0.300 mm	4 - 12
0.150 mm	3 - 8
0.075 mm	3 - 6

- CCC AP65 shall be free of organic matter.
- Less than 10% fines shall pass a 2.36mm sieve after a crushing resistance test with a 130kN load.

- CCC AP65 shall either have a sand equivalent greater than 25 or the fraction of the aggregate passing a 0.075mm sieve shall have a clay index less than 3 or the fraction of the aggregate passing a 0.425mm sieve shall have a plasticity index less than 5.

32.3 CCC GC 65-40

Sieve Size	Percent Passing
75.0 mm	100
63.0 mm	80 – 100
37.5 mm	0 - 5

- 50% of the aggregate by weight shall have 2 or more broken faces.
- Aggregate shall be free of deleterious material.

32.4 CCC RCC M/4:AP40

Recycled crushed concrete (RCC) M/4:AP40 shall comply with the TNZ M/4 Specification.

32.5 CCC Drainage AP40

Sieve Size	Percent Passing
45.0 mm	100
37.5 mm	95 - 100
19.0 mm	50 - 100
9.5 mm	25 - 50
2.36 mm	0 - 15
0.600 mm	0 - 8

- 50% of the aggregate by weight shall have 2 or more broken faces.
- Aggregate shall be free of deleterious material.
- Fines (percentage passing 0.425mm sieve) shall be non-plastic.

32.6 CCC Stabilised AP40

Sieve Size	Percent Passing
37.5 mm	100
19.0 mm	80 - 95
9.5 mm	50 - 75
4.75 mm	30 - 50
2.36 mm	20 - 38
1.18 mm	17 - 33
0.600 mm	14 - 28
0.300 mm	10 - 23
0.150 mm	8 - 20
0.075 mm	5 - 12

- 50% of the aggregate by weight of total quantity retained on a 4.75mm sieve shall have 2 or more broken faces.

- Aggregate shall be free of deleterious material.
- Fines (percentage passing 0.425mm sieve) shall have a plasticity index less than 5.

The percentage of material within the given fractions shall be as follows:

Sieve Size	Percent
19.0 - 4.75 mm	17 - 56%
9.5 - 2.36 mm	12 - 27%
2.36 - 0.600 mm	10 - 20%

32.7 CCC Stabilised AP20

Sieve Size	Percent Passing
19.0 mm	100
9.5 mm	55 - 80
4.75 mm	35 - 60
2.36 mm	25 - 45
1.18 mm	22 - 40
0.600 mm	18 - 35
0.300 mm	15 - 30
0.150 mm	12 - 23
0.075 mm	8 - 15

- 50% of the aggregate by weight of total quantity retained on a 4.75mm sieve shall have 2 or more broken faces.
- Aggregate shall be free of deleterious material.
- Fines (percentage passing 0.425mm sieve) shall have a plasticity index less than 5.

The percentage of material within the given fractions shall be as follows:

Sieve Size	Percent
9.5 - 2.36 mm	20 - 45%
2.36 - 0.600 mm	5 - 25%

32.8 CCC Drainage AP20

Sieve Size	Percent Passing
19.0 mm	100
9.5 mm	46 - 63
4.75 mm	20 - 40
2.36 mm	0 - 25
1.18 mm	0 - 15
0.600 mm	0 - 10
0.300 mm	0 - 5
0.150 mm	0

- 50% of the aggregate by weight of total quantity retained on a 4.75mm sieve shall have 2 or more broken faces.

- Aggregate shall be free of deleterious material.
- Fines (percentage passing 0.425mm sieve) shall have a plasticity index less than 5.

32.9 CCC GC 22-16

Sieve Size	Percent Passing
26.5 mm	100
22.4 mm	95 - 100
16.0 mm	0 - 5
13.2 mm	0

- 50% of the aggregate by weight of total quantity retained on a 4.75mm sieve shall have 2 or more broken faces.
- Aggregate shall be free of deleterious material.
- AGD : ALD shall be less than 2.25.

32.10 CCC GC 14-10

Sieve Size	Percent Passing
19.0 mm	100
16.0 mm	95 - 100
9.5 mm	0 - 5

- 90% of the aggregate by weight shall have 2 or more broken faces.

32.11 Swale (2A) Sand

Sorting	Mean grain size (d_{50}) mm	
(d_{60}/d_{10})	Minimum	Maximum
1.0	0.13	0.59
2.0	0.15	0.75
3.0	0.20	1.15
5.0	0.58	2.40
17.0	5.40	5.40

- The sand shall be free of organic matter.
- d_x is the sieve size that x% of the sample, by weight, shall pass.

The two columns in the above table set out the axes for plotting the material envelope.

To determine the above sorting and mean grain size values of any material, first plot its sieve analysis. Then, to determine the d_{10} value for example, read from the plotted sieve analysis the particle size (mm) equating to the 10% passing point on the curve.

32.12 Backfilling Sand

Sieve Size	Percent Passing
9.5 mm	100
0.075 mm	0 - 12

- The sand shall be free of organic matter.
- Fines (percentage passing 0.075mm sieve) shall be non-plastic.

32.13 Stiff Flowable Mix

Material	Proportion
CCC Stabilised AP20	1m^3 (loose)
Hydrated Lime	60kg
Cement	120kg
Water (total)	120 litres

- Site mixed material requires the Engineer's prior approval.

32.14 Firm Mix

Material	Proportion
CCC Stabilised AP20	1 m^3 (loose)
Hydrated Lime	60kg

- Site mixed material requires the Engineer's prior approval.

32.15 Lime Stabilised Backfill

Material	Proportion
CCC Stabilised AP40	1 m^3 (loose)
Hydrated Lime	40kg

- Site mixed material requires the Engineer's prior approval.

32.16 Filter Medium

Sieve Size	Percent Passing
26.5 mm	100
19.0 mm	90 - 100
9.5 mm	55 - 80
4.75 mm	40 - 60
2.36 mm	36 - 52
1.18 mm	26 - 42
0.600 mm	18 - 30
0.300 mm	8 - 18
0.150 mm	0 - 5

- 50% of the aggregate by weight of total quantity retained on a 4.75mm sieve shall have 2 or more broken faces.

- Aggregate shall be free of deleterious material.
- Fines (percentage passing 0.425mm sieve) shall have a plasticity index less than 5.

33.0 CCC ASPHALTIC CONCRETE GRADING

All asphaltic concrete shall be manufactured to the requirements of the current Transit New Zealand M/10 Specification and supplied by an asphalt plant certified to AS/NZS ISO 9001: 2000 "Quality management systems – Requirements".

33.1 CCC AC5

AC5 shall be manufactured to the gradings below.

Sieve Size	Percent Passing
6.7 mm	100
4.75 mm	90 – 100
2.36 mm	60 – 80
1.18 mm	40 – 60
0.600 mm	27 - 43
0.300 mm	18 – 32
0.150 mm	12 – 22
0.075 mm	6 - 12

- Bitumen shall be 80/100 penetration grade complying with the requirements of TNZ M/1.
- Air voids shall be between 2.5 and 3.5%.
- Sufficient bitumen shall be incorporated in the mix so that a minimum stability of 6.6kN is achieved. (Bitumen content will be generally about 7.0%).

33.2 CCC AC7

AC7 shall be manufactured to the gradings below.

Sieve Size	Percent Passing
6.7 mm	100
4.75 mm	75 - 90
2.36 mm	60 - 75
1.18 mm	40 - 60
0.600 mm	30 - 47
0.300 mm	20 - 35
0.150 mm	12 - 22
0.075 mm	6 - 12

- Bitumen shall be 80/100 penetration grade complying with the requirements of TNZ M/1.

- Sufficient bitumen shall be incorporated in the mix so that a minimum stability of 6.6kN is achieved. (Bitumen content will be generally about 7.0%).
- Air voids shall be between 3.0 and 3.5%.

33.3 CCC AC16

AC16 shall be manufactured to the gradings below.

Sieve Size	Percent Passing
16.0 mm	100
9.5 mm	70 - 90
4.75 mm	52 - 70
2.36 mm	40 - 55
1.18 mm	29 - 43
0.600 mm	20 - 32
0.300 mm	13 - 23
0.150 mm	8 - 16
0.075 mm	4 - 10

34.0 CCC LAWN SEED MIXTURES

- All ryegrasses shall contain a live endophyte content of no less than 80%, have 98% purity and 90% germination unless otherwise specified.
- The Engineer shall approve all cultivars prior to sowing.
- The Contractor shall provide seed certificates to the Engineer confirming purity, germination and endophyte information if requested. These certificates shall be less than 12 months old.
- Proportions of mix shall be by weight.

34.1 Amenity Area Mix

Amenity area mix shall contain:

70% Sports (dwarf) ryegrass (a mixture of up to 3 cultivars may be used)
25% Chewings type red fescue
5% Brown top

34.2 Berm Mix

Berm mix shall contain:

75% Winter active ryegrass (a mixture of up to 3 cultivars may be used such as Collosseum, Arena and Tambour)
12% Chewings type red fescue
12% Creeping type red fescue
1% Colonial bentgrass (Brown top)

34.3

Pasture Mix

Pasture mix shall contain:

70%	Pasture ryegrass with no endophyte
10%	Cocksfoot
10%	White clover
10%	Red clover

34.4 Playing Field Mix

Playing field mix shall contain:

100%	Sports turf ryegrass with 80% endophyte

35.0 TOPSOIL

35.1 Imported First Class Topsoil

*Topsoil shall be sourced from an **original** ground surface layer that has been subject to minimal prior disturbance.*

Topsoil shall exhibit the presence of biological activity as evidenced by adequate aggregation and organic matter content. The material shall be acceptable for growing all of the appropriate species, given adequate management, and shall not contain any substances injurious to plant growth.

Soil arising from re-claimed land, industrial sites, or land that has been used for the disposal of any industrial, domestic or agricultural wastes shall not be used.

35.1.1 Topsoil Characteristics

The topsoil shall contain less than 5% by dry weight of solid detritus and debris (brick, concrete, glass, metal, plastic, wood, rubber, tree roots). The stone content shall be less than 10% by dry weight. The topsoil shall not contain any object larger in dimension than 30 mm.

Soil shall be well aerated, as evidenced by an absence of mottling and grey/blue colours. There shall be no traces of a sewage-like smell.

The clay content shall not exceed 25% by dry weight. The soil shall have an organic matter content between 7% and 20% by dry weight. Topsoil containing recognisable remains of fresh plant or organic material is unacceptable.

Organic matter is defined as the remnants of fully decomposed material of biological (primarily plant) origin. Undecomposed or

partly decomposed plant material visible to the naked eye is not classified as organic matter.

35.1.2 Topsoil Structure

The topsoil shall be loose and friable, breaking down by hand to aggregates of 1-10 mm in diameter.

Samples of such soils shall exhibit a stability ratio of more than 50% and a mean weight diameter of more than 0.75 mm under standard wet sieving conditions (as determined by NZSTI structural stability assessment test).

Soil with coarse aggregates, mainly 30-70 mm in diameter, or large clods, (greater than 50mm in diameter) with roots present only in cracks between clods and needing considerable force to break them apart, is unacceptable.

35.1.3 Soil Handling and Storage

Topsoil that has been handled in any way when its moisture content is above field capacity is unacceptable. Topsoil that has had its structure modified by milling, crushing or any comparable processing, is unacceptable. Topsoil that has been rotary hoed more than twice since it was 'mined' is unacceptable.

Sieving, with the exception of through any mesh finer than 30mm, is acceptable only where screened topsoil is specified.

Topsoil may be stored in the open for up to 3 months provided stockpiles are less than 3m in height. Topsoil may be stored for longer periods if under cover and air-dry and with a stockpile height of less than 3m.

35.1.4 Nutrient Content and Soil pH

Topsoil shall have a soil pH of between 5.5 and 7.5.

Nutrient amendment may be required.

35.1.5 Testing

The Engineer may require test results to confirm the topsoil complies with this specification. Testing shall be carried out in an approved laboratory.

The basic soil nutrient test shall include pH, phosphorus, extractable cations, cation exchange capacity and total base saturation.

35.2 Imported Second Class Topsoil

Second class topsoil shall not contain any substances injurious to plant growth.

Soil arising from re-claimed land, industrial sites, or land that has been used for the disposal of any industrial, domestic or agricultural wastes shall not be used.

The Engineer may approve excavated material for use as second class topsoil.

35.2.1 Second Class Topsoil Characteristics

Second class topsoil shall contain less than 15% by dry weight of stones, solid detritus and debris (brick, concrete, glass, metal, plastic, wood, rubber, tree roots). Second class topsoil shall not contain any object larger in dimension than 30 mm.

The clay content shall not exceed 20% by dry weight. The soil shall have an organic matter content over 2.5% by dry weight. Second class topsoil containing recognisable remains of fresh plant or organic material is unacceptable.

Organic matter is defined as the remnants of fully decomposed material of biological (primarily plant) origin. Undecomposed or partly decomposed plant material visible to the naked eye is not classified as organic matter.

35.2.2 Soil pH

Second class topsoil shall have a soil pH of between 5.5 and 7.5.

35.2.3 Testing

The Engineer may require test results to confirm the second class topsoil complies with this specification. Testing shall be carried out in an approved laboratory.

35.3 Measurement of Works and Basis of Payment

Testing of topsoil shall be included in the rate for supply.

36.0 MULCH

36.1 Recycled Mulch

All mulch shall be pasteurised composted mulch complying with the requirements of NZS 4454 "Composts, soil conditioners and mulches".

Recycled mulch shall consist of the following grades:

- Normal grade as defined by NZS 4454 "Composts, soil conditioners and mulches" (with more than 20% of particles under 20mm diameter).
- Medium grade, with a minimum of 70% of particles between 40mm and 75 mm diameter.
- Over 80mm grade, with no less than 70% of particles 75mm diameter or greater.

36.2 'Bark' Mulch

'Bark' mulch is primarily derived from bark. Bark mulch shall not have more than 25% wood chips. The inorganic component of bark mulch shall not exceed 1.0%.

Generally, 'bark' mulch shall consist of three grades:

- Fine grade, where 60% of particles are under 10mm diameter and 40% are between 11-40mm diameter.
- Medium grade, where all particles are between 11-40mm diameter.
- Coarse grade, where 25% of particles are between 11-40mm diameter and 75% are between 41-350mm diameter.

Premium grades shall have less than 2% wood chip and shall be subject to approval by the Engineer.

37.0 SOIL CONDITIONERS OR COMPOST

37.1 Soil Conditioner

All soil conditioners shall be pasteurised composted soil conditioners complying with the requirements of NZS 4454 "Composts, soil conditioners and mulches".

37.2 Compost

All composts shall be pasteurised composted composts complying with the requirements of NZS 4454 "Composts, soil conditioners and mulches".

38.0 STRUCTURAL SOIL

Structural soil shall consist of 2.7 parts structural aggregate to one part moist soil mix, mixed to provide a homogeneous material. Slow release fertiliser, to the manufacturer's recommendations, shall be incorporated. The Engineer shall inspect all site mixed material prior to placement.

38.1 Structural Aggregate

Sieve Size	Percent Passing
45.0 mm	100
37.5 mm	95 - 100
26.5 mm	20 - 55
19.0 mm	0 - 10

- 75% of the aggregate by weight shall have 2 or more broken faces.

38.2 Soil Mix

The soil mix shall be 30-50% clay content (including the clay content of the first class topsoil) by dry weight, 30% peat by volume and the balance first class topsoil. The peat shall not contain any object larger in dimension than 30 mm.

39.0 ANNUAL BEDDING MIX

Annual bedding mix shall contain:

- 15% sand
- 10% compost
- 75% first class topsoil

To each cubic metre add 1.5kg dolomite lime.

If the mix will be planted within one month add 4kg specified slow release fertilizer.

COMPLIANCE REQUIREMENTS CHECKSHEET – GENERAL

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
1		**CONTRACTURAL**						
	H&S Act	H&S	Inspect	Measures in place				
	Pt 1 5.1	QA and CQP	Inspect	Measures in place				
	Pt 1 5.2	Personnel	Inspect	Qualifications comply				
	Pt 1 5.6	Construction records	Inspect	Records available for audit				
2		**NOTICE BOARDS**						
	Pt 1 7.0	Notice board layout	Inspect	1200mm x 900mm, correct details				
	Pt 1 7.1	Preconstruction notice board installation	Inspect	Erected 2 weeks before work commences, lit and visible, not obstructing				
	Pt 1 7.2	Construction notice board installation	Inspect	Erected before work commences, lit and visible, not obstructing				
3		**SITE MANAGEMENT**						
	Pt 1 13.0	Noise	Inspect	Measures in place to control				
	Pt 1 6.0	TMP	Inspect	Measures in place				
	Pt 1 9.0	Existing services	Inspect	Service plans obtained				
	Pt 1 10.0	Notifiable works – confine spaces	Inspect	Complies with CCC guidelines, entry permit held, OSH notified				
	Pt 1 11.0	Toilet	Inspect	Available on site				
	Pt 1 12.0	Hours of work	Inspect	Programmed works comply with restrictions				
	Pt 1 14.0	Stockpiles	Inspect	Covered by TMP and approved by engineer				
	Pt 1	Audit inspections	Inspect	Adequate notice to carry out				

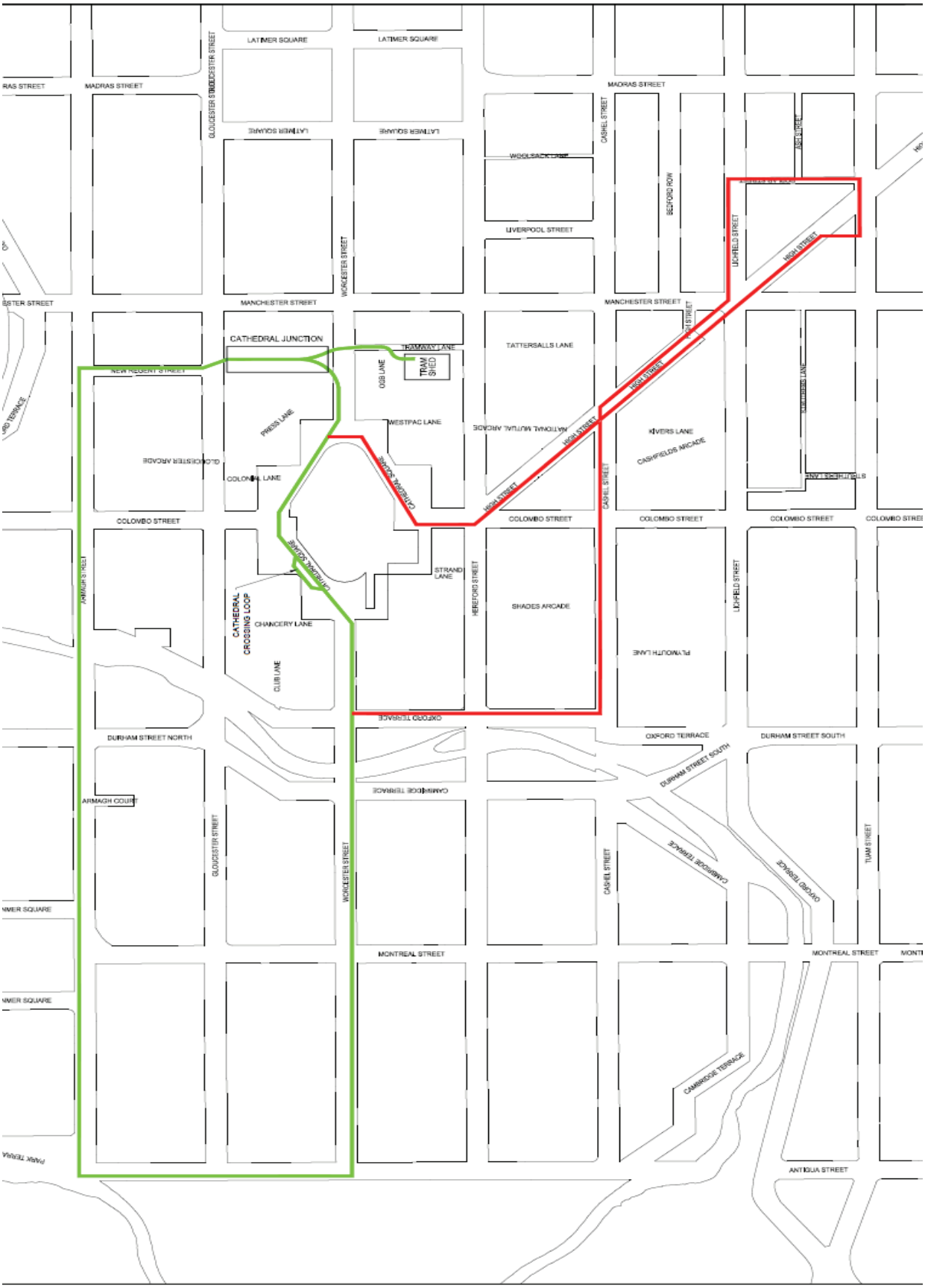
ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	21.0							
4		**PRIVATE PROPERTY**						
	Pt 1 15.1	Agreements	Inspect	Written agreement prior to work				
	Pt 1 15.1	Notification	Inspect	Written notice given 14 days before work				
	Pt 1 15.4	Clearance	Inspect	Written clearance received				
5		**POTABLE WATER CONTAMINATION**						
	Pt 1 16.0	Potable water contamination	Inspect	Positive pressure maintained through damaged pipe				
	Pt 1 16.1	Standpipes	Inspect	Approved standpipes used				
6		**EROSION SEDIMENT AND DUST CONTROL**						
	Pt 1 18.1	Dust	Inspect	Measures in place to control				
	Pt 1 18.2	Land drainage water contamination	Inspect	Site complies with General Authorisation or specific resource consent				
	Pt 1 18.2	Water control	Inspect	All contaminants intercepted and controlled				
7		**PROTECTION OF NATURAL ASSETS & HABITATS**						
	Pt 1 19.1	Existing features	Inspect	Features to be preserved marked				
	Pt 1 19.3	Tree and vegetation protection	Inspect	Complies with resource consent				
	Pt 19.4	Existing trees	Inspect	Fence installed outside drip line prior. No trees removed unless identified				
	Pt 1 19.4.1	Tree roots	Inspect	Protective measures taken, hand or trenchless excavation near tree				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
8		**ACCESS**						
	Pt 1 22.0	Access and temporary bridging	Inspect	Access provided				
	Pt 1 22.0	Notification	Inspect	Contact made > 3 days prior				
	Pt 1 24.0	Taxi stands	Inspect	Relocated prior				
9		**BUS INFRASTRUCTURE**						
	Pt 1 25.1	Bus stops	Inspect	Relocated prior				
	Pt 1 25.2	Bus detours	Inspect	Priority given				
	Pt 1 25.3	Bus lanes	Inspect	Kept clear				
10		**SURFACE BOXES**						
	Pt 1 26.1	Access to fire hydrants & sluice valves	Inspect	Fire hydrants accessible Sluice valves offset marked or accessible				
	Pt 1 26.2	Fire hydrant & sluice valve adjustment	CSS part 4	Complies with specification				
	Pt 1 26.3	Fire hydrant & sluice valve roadmarking	CSS part 4	Complies with specification				
	Pt 1 26.4	Manhole adjustment	CSS part 3	Complies with specification				
	Pt 1 26.5	Adjustment of other service boxes	Inspect	Complies with operator's specification				
11		**TRAFFIC SIGNAL LOOPS**						
	Pt 1 27.1	Traffic signal loops	Inspect	Permission to disturb received				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	Pt 1 27.2	Loop reinstatement fee	Inspect	Fee paid before permission requested				
	Pt 1 27.3	Loop reinstatement timing	Inspect	Loop able to be reinstated within 3 days				
12		**EXCAVATION, BACKFILLING AND RESTORATION**						
	Pt 1 28.0	Excavation in legal road	WAP	Complies with WAP				
	Pt 1 29.1	Backfilling in legal road	WAP	Excavations shall be sealed within 5 days				
	Pt 1 29.2	Trafficked area backfill	NZS 4402.4.1.1	Compacted to 2150kg/m^3				
	Pt 1 29.3	Pedestrian area backfill	NZS 4402.4.1.1	Compacted to 2150kg/m^3				
	Pt 1 29.4	Landscape area backfill	NZS 4402.4.1.1	Compacted to 70% MDD				
	Pt 1 29.5	QA	Inspect	Records kept and available				
	Pt 1 29.5.1	Compaction tests	Measure	Test results on layers available				
	Pt 1 30.0	Restoration and final surfacing - berms	Inspect	Complies with requirements in CSS Part 2 and 7				
	Pt 1 30.0	Restoration and final surfacing – plant beds	Inspect	Complies with requirements in CSS Part 2 and 7				
	Pt 1 30.0	Restoration and final surfacing - paths	Inspect	Complies with requirements in CSS Part 6				
	Pt 1 30.0	Restoration and final surfacing - road	Inspect	Complies with requirements in CSS Part 6				
	Pt 1 30.1	Restoration in legal road	WAP	Complies with requirements of WAP, sawcutting, resurfacing widths				
	Pt 1 30.2	Lengths of open trench	Measure	10m when offsite				
	Pt 3	Lengths of open	Measure	Lesser of one manhole length or 50m				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	6.4.1	trench - drainage						
	Pt 4 9.1	Lengths of open trench - water	Measure	<50m in commercial area or <100m elsewhere				

TRAMWAY ROUTE



(Form 32)

CHRISTCHURCH TRAMWAY LIMITED

Phone: 03 366 7830 Fax: 03 366 6943

APPLICATION TO WORK NEAR TRAM TRACKS

Permit Number :

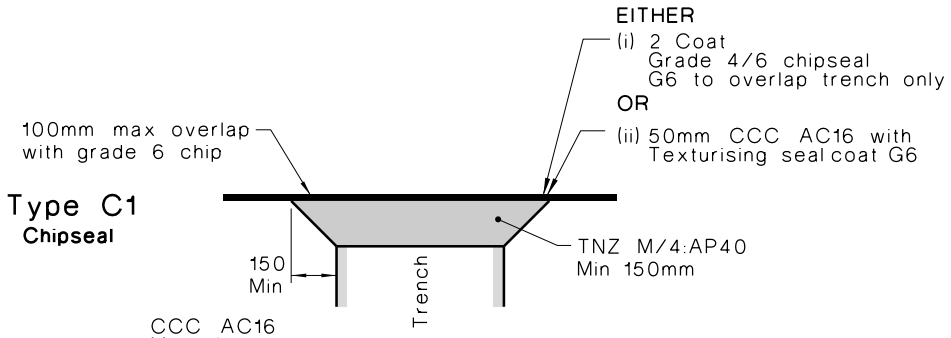
Name of Contractor :	
Address of Contractor or Contractor's Agent:	
Phone Number:	Fax Number:
Mobile Number:	Contact Tel NR:
Detail of work to be carried out:	
Period required: From: / / …..AM/PM	Period required: To: / / …..AM/PM
Street /Location where work is to be carried out:	

A copy of the Application Form, signed by both parties, must be submitted to the Christchurch City Council along with the Traffic Management Plan for Approval prior to any work commencing.

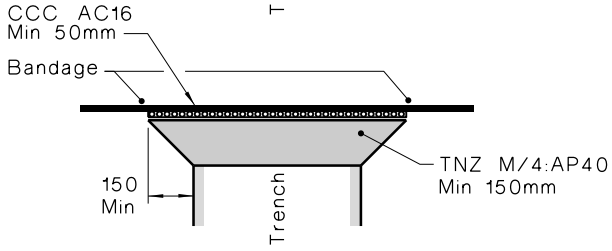
IF WORK TO BE CARRIED OUT IS CLOSER THAN 2.2M FROM THE CENTRE OF THE TRACK EXTRA CONDITIONS WILL APPLY:	
SIGNATURE FOR CONTRACTOR CARRYING OUT WORK:	
PRINT NAME OF RESPOSIBLE PERSON ON SITE:	
WORK TO BE CARRIED OUT IS APPROVED WITH THE ABOVE CONDITIONS	
SIGNATURE- **CHRISTCHURCH TRAMWAYS LTD:**	**SIGNATURE -** **CCC TRANSPORT & GREEN SPACE ASSET PROTECTION ENGINEER:**
PRINT NAME:	**PRINT NAME:**
DATE:	**DATE:**

RS010101C

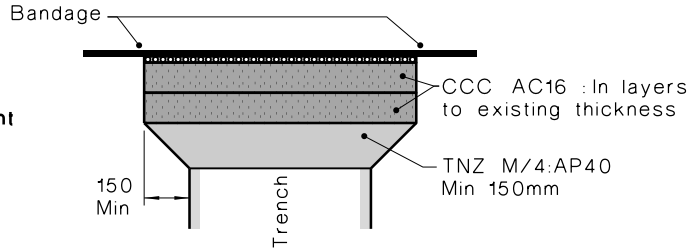
Type C1
Chipseal



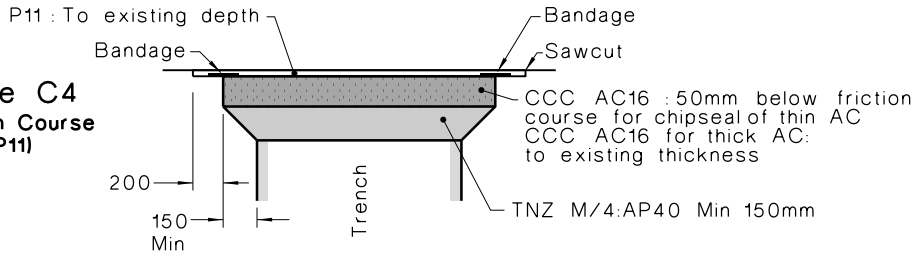
Type C2
Thin AC



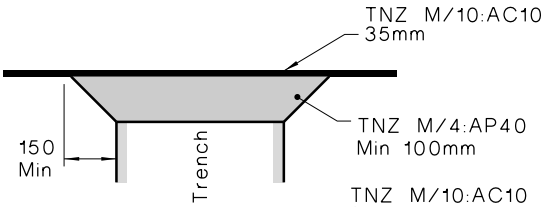
Type C3
Rigid Pavement



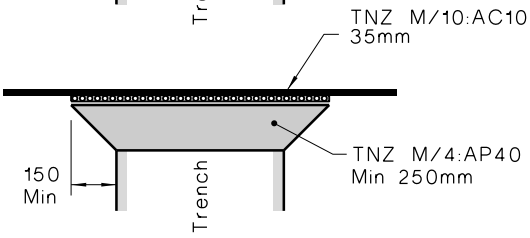
Type C4
Friction Course (P11)



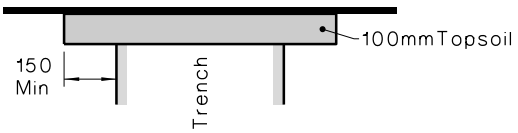
Type F1
Standard Footpath



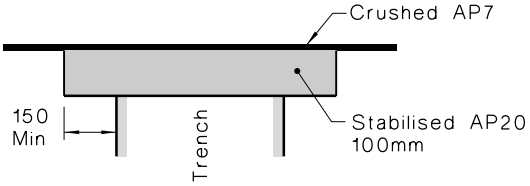
Type F2
Commercial Crossing



Type F3
Grass Berms



Type F4
Gritted Berms



Christchurch City Council

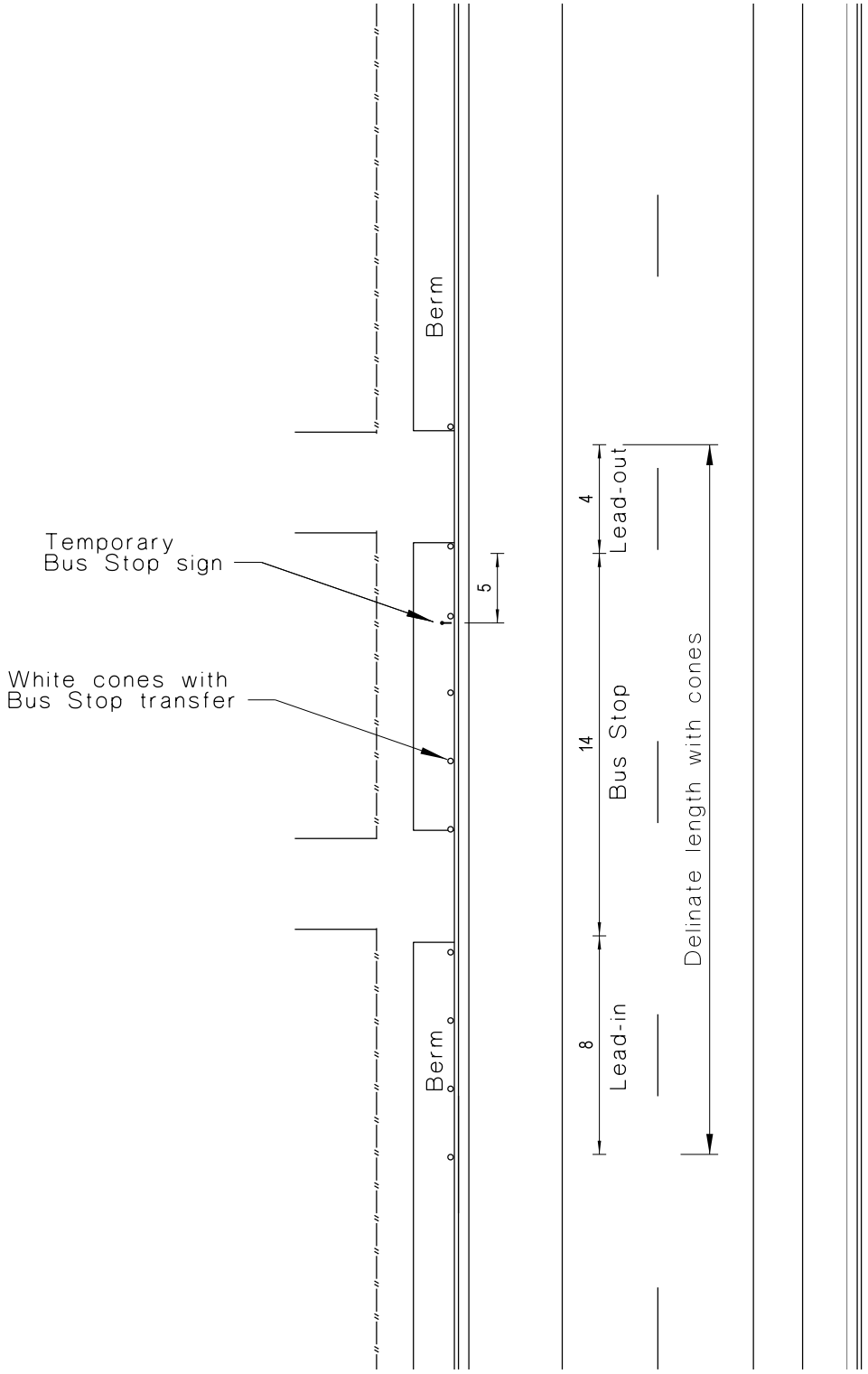
TRENCH RESTORATION

ISSUE DATE	DEC 2009

SD101

SHEET 1

RS010201A



NOTES:

1. Locate Bus Stop outside of vehicle crossings where possible.
2. Provide signage to comply with clause 23.1
3. Provide pedestrian access to comply with CSS: Part 1 clause 23.0

Christchurch City Council

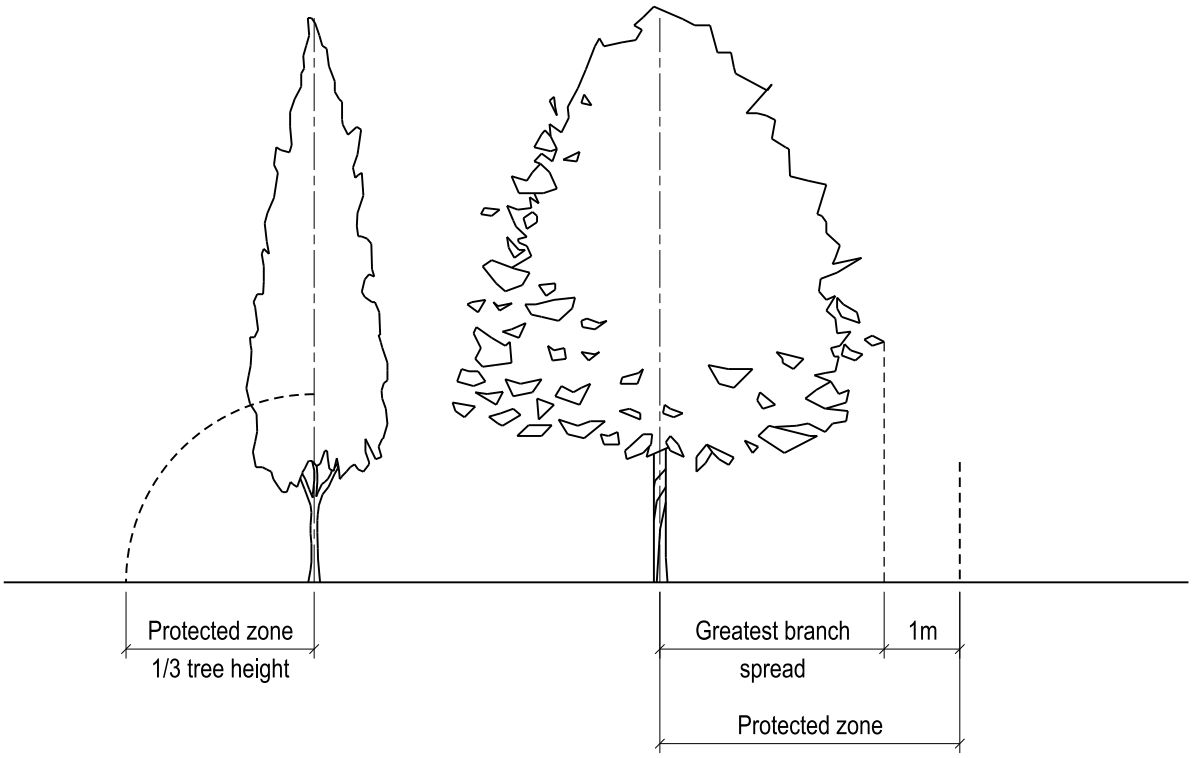
TEMPORARY BUS STOP

ISSUE DATE	DEC 2009

SD102

SHEET 1

RS111001A



NOTES:

1) The drip line radius is the greater of the defined protected zone distances.

2) All requirements of CSS Part 1, clause 19.4 Protection of existing trees (including private trees) must be followed.

Christchurch City Council

TREE DRIP LINE

ISSUE DATE	MAR 2013

SD110

SHEET 1 OF 1