

Queenstown Lakes District Council

Land Development and Subdivision Code of Practice

Amendments and Modifications to NZS4404:2010

The following amendments are to be applied to NZS4404:2010 Sections 1 to 7 inclusive as the Queenstown Lakes District Council Land Development and Subdivision Code of Practice.

Proposed amendments are shown in green in the document, any text in blue are previous amendments made in 2015, the text in black is the original NZS 4404:2010.

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Referenced Documents

NEW ZEALAND STANDARDS - Added

NZS 4121:2001 Design for access and mobility: Buildings and associated facilities

ROADS - Added

Auckland Traffic Management Unit: Traffic Signals Design Guidelines

Related Documents

Added

Queenstown Lakes District Council Town Centre Design Guidelines 2018

Queenstown Lakes District Council Town Centre Spatial Framework 2018

1. General Requirements and Procedures - Add to clause

Any work carried out on Council Assets requires Council approval.

1.2.2 Definitions – add to clause

Dwelling unit	Any building or group of buildings, or part thereof used, or intended to be used principally for residential purposes and occupied, or intended to be occupied by not more than one household. This definition shall exclude Residential Flats
Residential flat	A residential activity that, consists of no more than one flat in the same ownership as the residential unit; and is contained within the same residential unit; and if attached to a detached accessory building does not cover more than 50% of the total Gross Floor Area of the building containing the flat and detached accessory building; and contains no more than one kitchen and one laundry; and does not cover more than 35% of the total Gross Floor Area of the building(s) containing the residential unit and flat (but excluding accessory buildings)

1.3 Context – replace clause with

This Standard is relevant to Acts such as the Resource Management Act, Building Act, Historic Places Act and other legislation. The purpose of NZS 4404:2010 is to provide standards for the implementation of well-designed land development and subdivision infrastructure projects that have obtained the necessary resource consents under the RMA, and comply with other legislation. LAs will be able to invoke compliance with this Standard and their own local additions and variations, to ensure that the sustainability, urban design, and environmental impact objectives of land development and subdivision projects are carried through to completion. The LA can agree to deviations of the Code at their discretion. The interrelationship between this Standard and these Acts is outlined below.

The Standard also provides best practice land development and subdivision infrastructure techniques in low impact design, climate change, and urban design.

1.8.1 Acceptance of design and construction - amend clause

- (b) (ii) Roading and site access including a design and access statement (see 3.2.6 of NZS4404:2010) and a road safety audit (see 3.2.7 of NZS4404:2010). Documentation shall demonstrate compliance with relevant resource consent conditions or explanations if deviations are proposed.
- (b) (viii) Lighting (including design parameters and isolux plot lines (provides the points of equal illuminance, in lux, from a specific stated mounting position. The diagram can be used to assess the distribution characteristics of the luminaire in addition to determining lighting levels)
- (b) (ix) Three Waters Facility Asset Identification Specifications (refer Appendix K)
- (e) An access and maintenance strategy shall be provided for all non-standard assets to be vested to QLDC. Please refer to Council's Vesting of Roads and Reserves policy 2016 on Council's website. Unless otherwise agreed in writing with QLDC, or as required by relevant legislation, the strategy document shall be prepared on the basis that no specialist training or equipment shall be required to access the vested asset.

1.8.2.4 Content of drawings - amend clause

- (e) The horizontal and vertical location and alignment, lengths, sizes (including Outside Diameter (OD), Inside Diameter (ID) and Nominal Diameter (ND) for all PE Pipes), materials, minimum cover, position relative to other services of all proposed water, wastewater, and stormwater systems and service connections, valves, hydrants, manholes, bends, tees, meters and backflow devices, and services that may be reconnected or plugged, and any proposed overland stormwater flow path;

1.8.10 Completion documentation - amend clause

- (g) Other documentation required by the TA including, but not limited to, operation and maintenance manuals for 3 waters facilities, and warranties for new facilities (involving electrical and mechanical plant or stormwater low impact design facilities) and asset valuations for all infrastructures to be taken over by the TA.

- (h) A schedule of all assets to be taken over (vested) by Council. The schedule shall utilise QLDC's Asset Register Templates. Please refer to Council's Vesting of Roads and Reserves policy 2016 on Council's website.
- (i) At practical completion and prior to section 224c, all new assets in reserves and road reserves shall be provided on an asset register and as-built plans as per the approved Council templates. All information shall be accurately recorded by GPS. Assets shall include, but not necessarily be limited to, the following:
- Turf, revegetation and garden areas
 - Specimen trees, including species and size at time of planting
 - Trail, tracks and paths/walkways including alignment, width and construction type
 - Irrigation including pipes, connections, valves, controller boxes, and sprinklers
 - Built assets including, toilets, seats, picnic tables, barbeques, bollards, fences, barriers, gates, signs, bins, playground equipment and surfacing, car park surfacing, kerbing, drainage etc. The type, make and supplier (where relevant) of each asset shall be identified.

Schedule 1C (page 36) - amend schedule

To remove the word 'approved by' and replace with 'accepted by'

Schedule 1D (page 37) - amend schedule

To replace entire schedule with:

1.11 Council Approved Materials List – new clause

The current listing of Council approved materials can be found on the QLDC website.

- a) AM1 – Stormwater
- b) AM2 – Wastewater
- c) AM3 – Water Supply

SCHEDULE 1D

AS-BUILT PLANS / ASSET DATA SPECIFICATION

Three Waters

As-built Information shall be submitted in accordance with QLDCs Three Waters As-Built/Data Specification; and shall observe the requirements of spatial data, attribution, digital formats, and the method of submission as defined in the document.

- a) Underground asset data required to be supplied as per QLDCs Three Waters As-Built Specification including Outside Diameter (OD), Inside Diameter (ID) and Nominal Diameter (ND) for all PE Pipes;
- b) Facility assets (treatment plants, pump stations, etc.) to be supplied as per QLDC's Facility Asset Register Template;
- c) Stormwater management devices – as-built plans for low impact stormwater management devices and non-reticulated components;
- d) Flood and secondary flow information, flood water levels and the extent of any overland secondary flows shall be shown where these have been obtained or derived during the design.

Roading

As-built Information shall be submitted in accordance with QLDCs Roothing As-Built /Data Specifications; and shall observe the requirements of spatial data, attribution, digital formats, and the method of submission as defined in the document:

- a) Road names as approved by the TA
- b) Details of above ground roading assets such as road markings, signs, signals, roading drainage (Kerb & Channel, culverts, surface water channels), footpaths and traffic calming, roading retaining walls
- c) Road and footpath pavement and surfacing information including installation/construction dates, location coordinates, areas, widths, layer depths & types, material types, material data (chip size, PSV), and material sources;
- d) Street Lighting; Current ICP identifier, GPS location, Lamp Model, Lamp Make, Lamp Description, Lamp Wattage, Gear/Ballast Model, Gear/Ballast Make, Gear/Ballast Description, Gear/Ballast Wattage, Lamp Install date, Pole install date, pole number if assigned, Pole model/make, pole height, mount method, bracket info (tilt, angle), supply point, network owner
- e) Provision of construction schedules to indicate quantities installed in development (financials not required).
- f) The results of any testing; i.e. CBR or roughness
- g) Details of any warranty's, especially any electrical

Parks and Open Space

As-built Information shall be submitted in accordance with QLDCs Parks and Open Space As-Built/Data Specification; and shall observe the requirements of spatial data, attribution, digital formats, and the method of submission as defined in the document.

- a) Reserve or development names where available.
- b) Turf and garden areas.
- c) Specimen trees; including species and the size at time of planting (tree guard data should be identified where relevant).
- d) Trail, tracks and paths/walkways; including alignment, width, construction type, material and layer depths (where relevant).
- e) Irrigation including pipes, connections, valves, controller boxes, and sprinklers.
- f) Amity Lighting; (as per Roothing Street lighting) Current ICP identifier, GPS location, Lamp Model, Lamp Make, Lamp Description, Lamp Wattage, Gear/Ballast Model, Gear/Ballast Make, Gear/Ballast Description, Gear/Ballast Wattage, Lamp Install date, Pole install date, pole number if assigned, Pole model/make, pole height, mount method, bracket info (tilt, angle), supply point, network owner
- g) Assets such as public conveniences, seats, public toilets, benches, picnic tables, bollards, fences, barriers, gates, signs, bins, cattle stops, playground equipment, fixed sporting equipment etc. Should have type, material, and manufacturer / supplier (where relevant) identified.
- h) Walls, retaining walls, bridges, boardwalks, drainage and culverting etc. should include type, material and dimensional data.
- i) Surfaces such as car parks and playgrounds etc. should include installation / construction dates, layer depths, and material types.

2 Earthworks and Geotechnical Requirements

2.2.1 Objective – Amend and add to clause

A geo-professional shall meet the requirements of section 1.7.1 as amended by QLDC's Land Development and Subdivision Code of Practice Part 1

And

- Modifications to the existing natural environment are to be minimised or avoided in order to preserve the existing landscape and habitat features as far as is practicable;
- The resultant land forms for the completed subdivision are to provide for stable, safe landforms and access to these landforms for the proposed developments intended purpose.
- Where landforms require specialist design assessment to satisfy the point above. The landform design and construction compliance or limitations on the land forms post construction shall be adequately detailed and reported to council via a geotechnical completion report for inclusion on the landforms title or consent conditions to ensure landform conditions are adequately addressed in perpetuity.

2.6.1 Geotechnical completion report – Add to clause

- For all developments where a new title or lot is created a geo-professional shall submit a geotechnical completion report to the developer and the TA accompanied by a statement of professional opinion as set out in Schedule 2A. The geotechnical Completion report shall identify the following: Any specific design requirements which would necessitate the building design deviating from NZS 3604;
- Any specific design requirements or recommendations which would necessitate alternative foundation designs deviating from NZS 3604;
- The Schedule 2A certification shall include a statement under Clause 3(e) covering Section 106 of the Resource Management Act 1991;
- The expected level of site movement from reactive soil (expansive soils) under AS 2870:1996 shall be identified by their respective class and included in the geotechnical completion report. The soil properties used in determining the class are to be recorded in the report
- The site subsoil class to the provisions of NZS 1170.5 section 3 and NZS 1170.5 Supp 1 C3.1.3 shall be identified in the geotechnical completion report;
- The report shall describe the extent of inspection, revisit and review all inferences and assumptions made during the investigation, assess the results of testing and state the geo-professional's professional opinion on the compliance of the development with the standards set by the geo-professional;
- The report shall also include all geotechnical reports prepared for the development;
- Documentation on the testing of the soils for compaction shall be included in the geotechnical completion report. This documentation should clearly show the areas in which compaction met the required standards, as well as any areas requiring retesting, and areas which did not meet the standards;
- The documentation will also detail any areas with development constraints or geotechnical conditions;
- For other developments where there are no earthworks or the natural ground is unaffected by earthworks the geotechnical completion report will comprise the geotechnical assessment report if prepared, or if absent the completion report shall investigate and provide as a minimum the investigations in accordance with section 2.3.2 of this COP and section 3.3.7 of NZS3604: 2011 or subsequent versions and sections related to subsurface investigations for each building platform area or lot;
- For large or more complex developments where there may have been several stages of geotechnical reporting, all prior reports covering the subject area of land under certification shall be included in the geotechnical completion report.

3 Roads

3.2.6 Design and access statement – Add to clause

(g) Car parking

3.2.7 Road safety audit – Add to clause

Road safety audits carried out in accordance with the NZTA Road safety audit procedures for projects shall be provided for the design phase of all publicly accessible roads in the Council. Post construction road safety audits may be required at Councils discretion.

3.2.8 Vesting – New clause

All roads that provide access to 12 or more dwelling units shall vest in the Queenstown Lakes District Council as Legal Public Road.

Exemptions to vesting requirements above will only be provided at Council's discretion and demonstration of compliance with clause 3.3.16.

3.2.9 Curb side rubbish collection services – New clause

QLDC will not provide curb side rubbish collection services to private roads or no exit roads that do not comply with this Code of Practice.

3.3.1.1 Replace clause with

A movement lane may include a single lane operating in a one-way configuration or in two directions. Normal camber is 4%, except asphalt may be 3%. Maximum superelevation is 6%. Superelevation is not required where design speed is less than or equal to 50 km/hr.

3.3.1.3 Replace clause with

Each on-street/road parking/passing area should be a minimum 2.1 x 6 m, and a loading area a minimum 2.5 x 12 m, each with appropriate entry and departure tapers outside of the movement lane. Indented car parking shall be a minimum of 2.5m x 6.1m. Provision is to be made on one lane two way carriageways for passing every 100 m and at corners.

3.3.1.6 Remove clause

~~Shoulder widths on rural roads need to be assessed for each project based on the speed environment of the area and terrain. For high speed environments where high non-motorised use is expected, shoulder widths may need to be increased to optimise overall road safety.~~

3.3.1.9 Add to clause

Where a private way adjoins a Collector Road or higher, it shall have a 5m traffic width and 6.5m road reserve width for a minimum of 6m from road boundary.

3.3.2.1 Add to clause

Parking provisions for narrow carriageways as per 3.3.2.4 below.

3.3.2.4 Parking provisions for narrow carriageways – new clause

Parking on carriageways less than 7.2m in width shall be restricted to one side of the carriageway and road markings will be required to outline where parking is not permitted to meet this criteria.

Table 3.2 – amend column heading “Min. road width (m)” to “Min. road reserve width (m)”

Table 3.2 – amend Cyclist column - 3.3.1.5 amend to reference 3.3.1.4 and 3.3.7 amend to reference 3.3.8.

Table 3.2 – amend Land Use column – remove reference to 3.3.1.6.

3.3.6 Parking, passing and loading – Replace clause with

Public parking and loading can be provided either on or off-street (i.e. indented). Facilities shall meet the needs of the area and the requirements of the TA, and shall be addressed in the design and access statement (see 3.2.6). For a residential

subdivision, where physically possible the minimum on-street parking provision will be 1 car park per residential unit/lot (based on permitted density) – see C3.3.6 below. Further guidance on parking demand associated with land use can be found on the Trips Database Bureau website <http://www.tdbonline.org/home> and NZTA Research Report 363.

C3.3.6

The total number of on-street car parks is to be assessed based on the proposed and surrounding land uses and any requirements for on-site parking as specified in the Transport Section of the District Plan. For example, a residential subdivision in the Low Density Residential Zone with no other non-residential activities/land uses in the vicinity will have a minimum on-street parking requirement of 1 car park per residential dwelling/lot (based on permitted density). This assessment is based on a total (on-street and off-street) parking demand of 3 parking spaces (refer Trips Database Bureau website <http://www.tdbonline.org/home> and NZTA Research Report 363), with the District Plan requiring 2 of these parking spaces to be provided on-site.

Passing provision shall be in accordance with the design guidance in table 3.2 and the requirements of the TA.

Acceptable and alternative on-street car park and loading dimensions should be taken from AS 2890.5 and/or the Austroads guides. Acceptable dimensions and construction details for indented parallel parking bays in suburban residential areas are shown in Drawing B5-3 Parking Bay. These should have minimum dimensions of 2.5m x 6.1m, with appropriate entry and departure tapers. All indented parking bays shall be designed and constructed to avoid sharp corners. Corners shall be designed and constructed with adequate radii to allow for cleaning by street cleaners utilising rotary brushes.

Parking bays should be evenly distributed along the street. When parking bays are located in front of properties, consider the possible location of the property access, which may need restriction by a Consent Notice or Encumbrance.

Parking and loading shall not be provided so that it has the potential to obstruct the movement of emergency or service vehicles along a road (e.g. as a result of parking on both sides of the road). Alternate provision within sites may be demonstrated in addition to the requirements of the district plan, particularly when establishing rules for new subdivisions.

3.3.8 No-exit roads – add to clause

No-exit roads and lanes shall provide for road turning at the end of the road for an appropriate vehicle as described in RTS 18: New Zealand on-road tracking curves for heavy vehicles. An 8m rigid truck (10m radius) shall be catered for in any areas where rubbish collection will occur. The design of turning facilities for light vehicles shall be in accordance with AS 2890.5. See figure B5-2 for acceptable solutions.

An on-road turning area may provide for parking or landscaping in the centre of the turning area. The minimum kerb gradient around turning heads shall be 0.5%. Appropriate drainage shall be provided.

3.3.11 Footpaths, accessways, cycle paths and berms – add to clause

Footpaths shall be separated from the kerb line by a minimum of 0.9m berm except:

- (a) At indented parking bays
- (b) In Commercial Town Centres
- (c) In steep terrain when approved by Council

3.3.11.1 Footpaths and access ways – Amend in clause

Footpaths shall be a minimum of 1.5m wide surfaced over their full width and timber edging, or an alternative approved material shall be installed for all footpaths. Footpaths that are grass bordered shall be curved at turns or splayed at 45° to prevent damage from grass maintenance. The cross fall should be no greater than 2%. Wider footpaths or areas of local widening will often be required by the TA where higher use or other needs dictate such widening.

Tactile pavers must be designed and installed as recommended in “RTS 14 - Guidelines for facilities for blind and vision impaired pedestrians”. Refer to NZS 4121:2001, Design for Access and Mobility - Buildings and Associated Facilities and NZTA Pedestrian Planning and Design Guide.

3.3.14 Road Lighting – Amend in clause

All lighting should comply with QLDCs Southern Light Part One – A Lighting Strategy and Part Two – Technical Specifications.

And

All lighting assets including but not limited to columns, lamps and mountings shall be approved by Council's Asset Performance Team

3.3.16 Private ways, private roads, and other private accesses – add to clause

A maximum 3-point turning head in the common area shall be provided at the end of all accesses serving three or more rear lots or dwelling units. Circular, L, T, or Y shaped heads are acceptable. Suitable dimensions are shown in Appendix B Drawing B5-1 and Drawing B5-2.

3.3.16.2 Stormwater design - Replace clause with

All shared urban accesses shall be surfaced and have their edges defined by a structural edge.

Rural accesses shall be formed with safe water tables/edge drains along but adequately clear of each side of the access.

Accesses sloping up from the road shall have a stormwater collection system at the road reserve boundary so as to avoid stormwater run-off and debris migration onto the public road. Stormwater shall discharge via an appropriately sized and designed stormwater system acceptable to the TA (see Drawing B5-9 for examples of typical sump to driveway or right of way). Rural side drains shall not discharge directly to the roadside drain. Where accesses pass over the side drain they shall be provided with a culvert of size appropriate for the design flow but not less than 300 mm diameter.

Accesses that slope down from the road shall be designed to ensure that road stormwater is not able to pass down the access. Side drainage in context with the area shall be provided to stop the concentration and discharge of stormwater and debris onto adjacent properties or any land which could be at risk of instability or erosion.

Where an overland flow path departs from the road reserve, accesses shall be designed to direct secondary flow away from building floors and to follow designed overland flow paths.

Commercial and industrial accesses shall drain from their sumps through a lead directly or through a stormwater treatment device to a public stormwater main.

3.3.19.3 Subsurface drains – add to clause

For typical details of under-kerb drainage and subsoil drainage see Appendix B Drawing B5-4.

3.3.19.6 Kerbs and channels – Amend in clause

Where kerbs and channels are to be provided on carriageways they should comply with Appendix B Drawing B5-8 **kerb and Dished Channels**, or their slip-formed equivalent may be used subject to the approval of the TA. Pedestrian crossings (pram crossing) should be provided for disability access at regular intervals and at locations where pedestrians are reasonably expected to transition between footpaths and the street. Refer to NZS 40121 for requirements.

3.3.19.7 Sumps – Amend in clause

Sumps used in all public places shall comply with the TA's current standard details.

Stormwater sumps are classified as three types according to the design of their inlets:

- (a) Grated only inlet sumps: Grated inlets are effective in intercepting gutter flows. They also provide access openings for maintenance. Grated inlets are prone to blockage and problems of increased pavement maintenance in the immediate vicinity of the inlet, therefore, their use in street gutters are discouraged. They are suitable for non-kerbed situations such as yards, end of ditches, open car parks, access ways, driveways, medians, and ponding areas. Appendix B Drawing B5-10 show details of common types of grated inlet;

- (b) Back entry inlet sumps: Back entry inlets are less affected by blockage, and they are more effective in intercepting flows in sag areas;
- (c) Combined grates and back entry inlet sumps: This system of combining a back entry with the traditional grated inlet significantly improves flow intake and is less prone to blockage from debris. This type of inlet should be used in all situations where possible. Appendix B [Drawing B5-11 to B5-15](#) show typical examples of this type of inlet.

[Appendix B Drawing B5-9](#) shows an acceptable detail for sumps in access ways, footpaths, and rights of way. A flat channel or yard sump and various styles of hillside sump are shown in [Drawing B5 11 to Drawing B5 15](#).

A double back-entry sump for road low points is shown in Appendix B [Drawing B5-15](#).

3.4.1 Introduction – add to clause

[Basecourse preparation and subsequent road sealing shall not occur in the period between 15 May and 15 September each year. Any exemptions shall be at the discretion of Council.](#)

3.4.3.1 Acceptable surfacing materials – add to clause

[\(f\) Metalled surface at the sole discretion of LA.](#)

3.4.3.2 Road surface tolerances and texture – amend clause

The finished surface of new roads shall have a NAASRA roughness satisfying the TA's standards at the time of construction. No abrupt or abnormal deviations shall occur and no areas shall pond water. The surface shall be of uniform texture expected by best trade practice and satisfy density standards applicable to the surfacing being used. The skid resistance and surface texture of roads where design speeds exceed 70 km/h, shall comply with NZTA specification T/10 and its accompanying notes.

Where hard surfacing is required for areas that are not movement lanes, alternative materials and porous pavements that achieve the durability, maintenance, and amenity requirements are acceptable with the approval of the TA.

[Roughness readings are not required on lengths 150m or less e.g. cul-de-sacs, as the shape requirements as per TNZ Specifications are expected to be sufficient to control isolated bumps over this short length.](#)

[NAASRA is recommended to be undertaken prior to surfacing however it is the finished surface which must satisfy Council Standards. The appropriateness of the NAASRA rating may depend on the road environment, consideration will be taken into account for short, low speed urban roads. It is recognised that survey equipment has operational limits. These include a minimum speed below which the quality of the data collected is compromised. Therefore the Survey Contractor must advise the Client of the minimum speed and other conditions that adversely affect the data quality and advise how the data may be flagged when these situations are encountered. These limitations must be passed to Council along with the completed survey data.](#)

[Surface Ride for new, rehabilitated or reconstructed pavements](#)

[The new pavement must have an average dynamic roughness, when measured over a length of 100m, of less than 60 NAASRA counts/km for any three consecutive results and no individual value greater than 70 within the extent of the re-surfacing area unless it can be clearly attributable to a permanent feature such as a bridge joint.](#)

[Surface Ride for Resurfacing Sites](#)

[The pre-resurfacing site roughness measure must be obtained from RAMM database – high speed roughness count. Where these measures do not exist, testing must be performed. The average roughness count must be used to benchmark the resurfacing works, as described below.](#)

[The new surface when measured over a length of 100m must achieve an average NAASRA roughness less](#)

than the value calculated using the formula below. No two consecutive counts must exceed 70 and no individual count greater than 80 within the extent of the resurfacing are permitted unless this can be clearly attributable to a permanent feature such as a bridge joint.

NAASRA Count Criteria = $0.7D + 5$ (D = average NAASRA roughness measure determined before the commencement of asphalt resurfacing.)

Where the roughness improvement criteria is not satisfied, remedial works must be undertaken to bring the roughness to the acceptable limit at no additional cost to Auckland Transport.

Surface Irregularities

The new pavement must be free from depressions or areas that pond water, any abrupt surface level, including service covers and irregularities exceeding 6 mm when measured with a 5m straight edge.

All service covers must be raised during new surfacing or resurfacing operations to be flush with the adjacent finished pavement surface level.

Density

The density requirements for the compacted mat are as defined in the NZTA P/9 P specification or as stated in the specific contract requirements.

Flushing, Shoving, Segregation and other Defects

The asphalt surfacing must not exhibit any signs of flushing, shoving or segregation following completion of the works and at completion of the defect liability period. Water cutting is not an acceptable remedy for flushed surfaces.

3.4.4 Road surfacing materials – Amend in clause

All materials used in road surfacing shall comply with the appropriate NZTA specifications.

The following surfacing options will be acceptable for roads covered by the Code of Practice.

When chip seals are used, QLDC require a second coat seal to be undertaken the following season (either a single coat or two coat depending on the situation, single coats are generally not considered appropriate in our urban environment) as the first coat (even a two coat first coat) is not considered to be fully waterproof and therefore leaves the pavement susceptible to the freeze/thaw conditions in the district.

Polymer modified bitumen >2% shall be added where the site stress factor from table 6-2 of CSNZ is greater than 4 and/or where the site is in winter shade for greater than 4 hours".

3.4.4.1 First and second coat chip seals – Replace clause with

For single coat first coat seals the chip size shall generally be grade 3 on all roads. Alternatively a two coat first coat with grade 3/5 chip may be appropriate where higher stresses from traffic are expected. The binder application rate shall be designed to suit the conditions and chip size, refer to 'Chip sealing in New Zealand' <https://www.nzta.govt.nz/resources/chipsealing-new-zealand-manual/chipsealing-in-new-zealand/>

For second coat seals the chip size shall generally be grade 4 or 5. Two coat second coat seals may also be appropriate with grade 4/6 acceptable for local roads and grade 3/5 for other roads. The second coat seal is the responsibility of the developer and must be applied in the season following the first coat. Refer to 'Chip sealing in New Zealand' <https://www.nzta.govt.nz/resources/chipsealing-new-zealand-manual/chipsealing-in-new-zealand/> Chapter 6 for appropriate treatment selection and Chapter 9 for design.

The second coat seal can be undertaken via two options:

- 1) independently by the developer (A bond will be required to ensure this work is undertaken and confirmation of second coat seal details must be provided using the Roading Asset data provision/RAMM update sheet process.)
- 2) As part of the Councils annual sealing programme and the developer covers costs paid to the council for undertaking this work. The developer must arrange to cover the QLDC costs and provide payment prior to 224(c) certification for subdivision.

The developer is responsible for undertaking the second coat pre-reseal repairs as per 3.4.10. These should be identified and rectified within the defect liability period.

3.4.4.2 Double wet lock coat – Delete clause

3.4.11 Deflection testing prior to surfacing – amend clause

Prior to placing the surfacing layer (except for cast in situ concrete roads) deflections shall be tested by the Benkelman beam method (see table 3.4). At least 95% of all tests shall comply with the standards appropriate to the road type. Where the TA does not have its own deflection standards table 3.4 shall be considered as a minimum standard. In addition no test shall give deflections greater than 25% above the specified maximum.

3.4.12 Surfacing specification – amend clause

Chip sealing construction standards shall comply with NZTA specifications P/3 for first coat seals and P/4 for resealing.

Asphaltic concrete construction standards shall comply with NZTA specification M/10.

3.4.14.1 Concrete – Add to clause

Where required, vehicle and pedestrian crossings shall be constructed in accordance with the TA standard details (refer Drawing B5-21 to 3.3.11.1 tactile pads shall be required at pedestrian kerb crossings in accordance with RTS 14).

3.4.14.4 Surface finish, tolerances – Amend in clause

The surface finish should be determined in relation to the anticipated service conditions in accordance with NZS 3114:1987. Reference to the type and frequency of loading, impact, abrasion, chemical resistance, and other factors such as hygiene, dust prevention, skid resistance and aesthetics where applicable shall be provided in the design.

4 Stormwater

4.2.1 General – Add to clause

(h) Climate change

4.3.3 Future development – Replace clause with

Unless agreed in writing by the Council where further subdivision or development is allowed for within the current district plan upstream of the one under consideration the council shall require infrastructure to be constructed to the upper limits of the subdivision/development to allow for future connections.

The assessment of required capacity shall be on the basis of full development to the extent defined in the current district plan. Where infrastructure may service adjacent land then the full development to the extent defined in the current district plan of all the land that may be serviced by the infrastructure shall be included in the capacity calculations.

Where the new infrastructure being installed is required by Council to service future development then that infrastructure will be designed and constructed on the basis of full development to the extent defined in the current district plan.

The cost of increased infrastructure to service adjacent future development shall be agreed in writing with the Council's Asset Performance Team prior to commencing work.

4.3.5 Design criteria – Amend in clause

When the design process includes the use of a hydrological or hydraulic model, all underlying assumptions (such as run-off coefficients, time of concentration, and catchment areas) shall be clearly stated so that a manual check of calculations is possible. A copy of the model may be required by the TA for either review or records or both.

The design shall accommodate all upstream catchments. (The catchment area shall be based on geographical and topographical boundaries and not development boundaries).

Discharge to an existing reticulated network, or other Council owned stormwater network, shall require consent/permission from the Council.

Discharge to be at a rate no greater than would have occurred for the underdeveloped catchment during a 60 minutes 5 year storm with no initial infiltration unless greater capacity in the downstream stormwater network can be proven through modelling or first principle hydraulic calculations. The designer shall undertake the necessary design and prepare design drawings compatible with the TA's design and performance parameters. Designers shall ensure the following aspects have been considered and where appropriate included in the design:

- (a) The size of pipes, ponds, swales, wetlands, and other devices in the proposed stormwater management system;
- (b) How the roading stormwater design is integrated into the overall stormwater system;
- (c) The type and class of materials proposed to be used;
- (d) System layouts and alignments including:
 - (i) Route selection showing infrastructure to be vested located on Council Land only, unless specifically agreed with QLDC;
 - (ii) Topographical and environmental aspects (see 5.3.4.3);
 - (iii) Easements - The stormwater infrastructure shall be centrally located within the easement. Easements of a minimum width of 3.0m shall be provided for all storm water systems that are to be vested in Council or the system owner where they cross any private land.

4.3.5.1 Design storms – Replace clause with

Council has 3 primary objectives for stormwater quantity management. These are:

- I. Preventing onsite flooding and frequent overland flows discharging from sites across adjacent properties;
- II. Preventing the surcharge of downstream primary drainage network and flooding of downstream properties; and
- III. Preventing downstream flooding and downstream overland flow path and receiving environment erosion.

All sites shall provide onsite primary network drainage capacity for the 5% AEP developed site peak flowrate.

When discharging to an existing and unknown primary drainage network the onsite primary drainage network discharge peak flow rate shall be no greater than the 20% AEP pre-developed sites peak flow rate unless otherwise approved by Council.

When discharging to new primary drainage networks the onsite primary drainage network downstream discharge peak flow rate shall be no greater than the 5% AEP developed site peak flow rate unless otherwise approved by Council.

Overland flow downstream discharges of the 1% AEP post-development peak flowrate shall be no greater than the 1% AEP pre-development peak flowrate.

C4.3.5.1

Rainfall intensity shall allow for a temperature increase of 2.1 degrees due to climate change. Rainfall intensity design charts developed from local data should be used if available. High Intensity Rainfall Design Systems (HIRDS) data available from NIWA is another source for rainfall design data.

4.3.7.2 Low impact design process – Amend in clause

(c) Integrated approach. Ensure that those who will become responsible for the ongoing operation and maintenance of low impact devices are involved in the design process. The use of Low Impact Design Considerations shall include a process to provide the most appropriate asset / facility in the long term and its effectiveness shall be demonstrated to the TA. This is critical to informing the development of a practical design that will enable ease of maintenance and develop ownership for ensuring the device performs as it was intended;

4.3.7.3 Low impact design devices – Amend in clause

(a) Detention system;

4.3.7.8 Rainwater tanks – Add to clause

All potable use to be approved by the TA.

4.3.9.2 Materials – Amend in clause

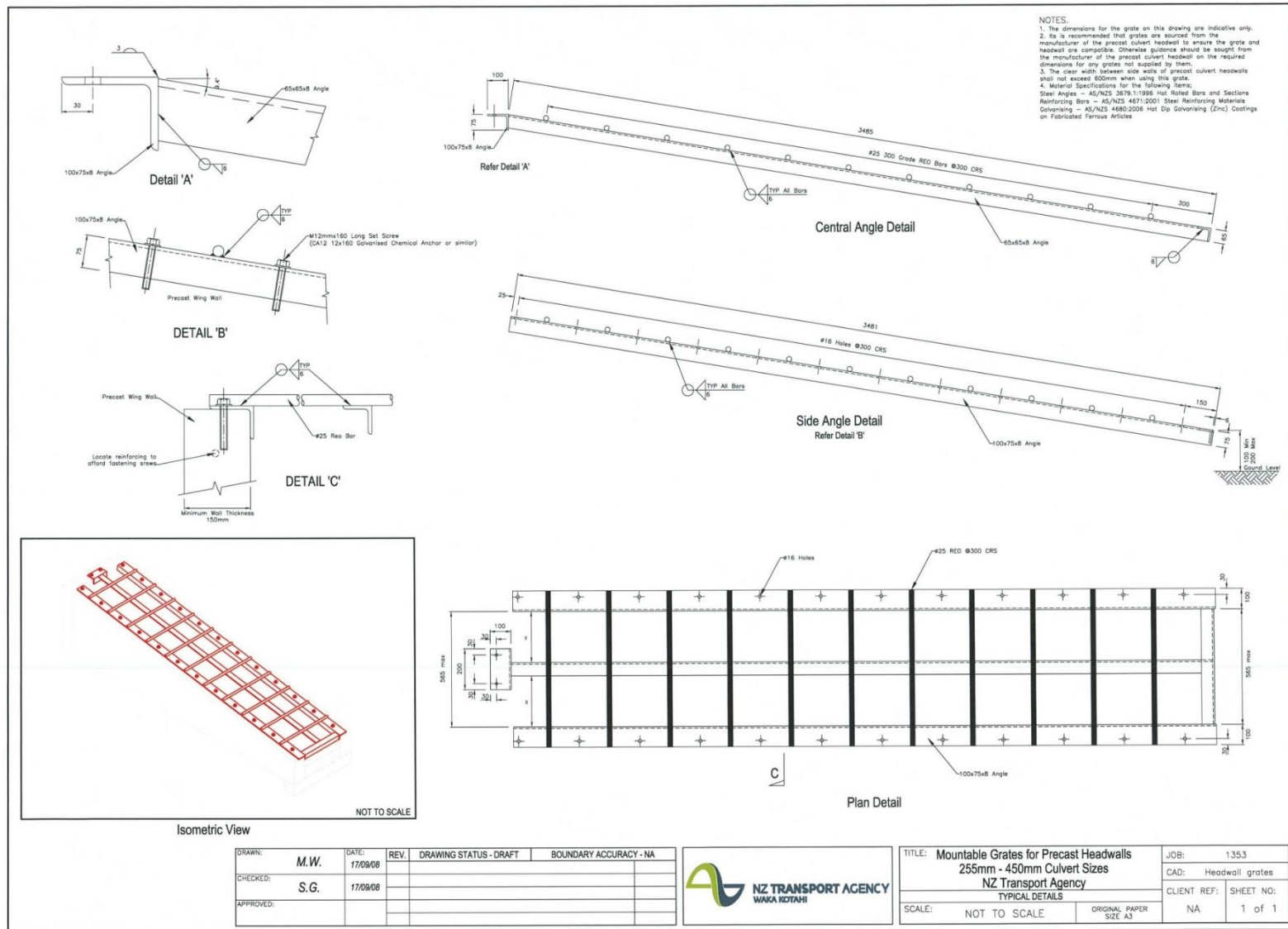
PE100 replaces PE 100.

4.3.9.4 Minimum Cover – Amend in clause

Cover in carriageways, trafficable footpaths and crossings shall be no less than 1m. Cover on cover crossings if re-enforced can be reduced from 1m if approved by the TA. Cover outside of the carriageway, footpaths, crossings or other trafficable areas shall be no less than 0.6m.

4.3.9.6 Culverts – Add to clause

Mountable and traversable culverts are required where they are to be located within a clear zone and pipe diameter is 300mm or greater. Cross drainage structures require traversable grates and parallel (to the road) drainage structures require mountable grates. Examples of mountable and traversable grates for culverts are shown in Appendix B Drawing B5-16 & Drawing B5-17.



Drawing B5-17

4.3.10.1 Standard manholes – Add to clause

Materials used for the construction of manholes to be agreed by with the TA.

4.3.11 Connection to the public system – Amend in clause

- a) Connection shall be by gravity flow via laterals to public mains or waterways
- b) All new urban lots shall be provided with individual service laterals, unless on-site disposal is approved by the TA; Connection to kerb adaptors in kerb and channel will not be allowed in new developments.

4.3.12.1 Permanent disconnection of stormwater lateral – New clause

Where existing property connections are to be disconnected, they shall be disconnected and capped off at least 200mm outside the property boundary. The location of the capped end shall be fixed by GPS and included in the as-built data.

4.3.14 Sumps – New clause

- a) Sumps shall be placed at a maximum of 90 metre intervals
- b) No back entry is permitted for mountable kerbs
- c) Double sumps comprises, two single sumps connected via a single minimum 300mm lead, with one of the sumps discharging via a 300mm lead to the outfall.
- d) Double sumps (or duplicate sumps and leads) shall be provided:
 - i. Where a single sump has insufficient intake capacity,
 - ii. On grades steeper than 1 in 12 (8.3%),
 - iii. Where two sub-catchments meet.
- e) Specific design requirements are required where design exceeds 12%

4.5.4 Inspection and acceptance – Add to clause

Inspection to reference assets as per provided as built, and shall reference the Resource Consent Number. Acceptance will only be for pipe of Grade 1.

4.5.6 Location and Marking of laterals – New clause

A blue painted push on cap shall be installed at the end of the stormwater laterals. The stormwater lateral shall be located on the right hand side of foul sewer lateral (viewed from the road reserve looking into the property).

5 Wastewater

5.3.3 Future Development – Add to clause

Before commencing development a developer shall liaise with the Council's Asset Performance Team as to whether infrastructure should be upsized to service adjacent future development. If such upgrades are required, agreement shall be reached with QLDC for Council to cover the costs of upgrades.

5.3.5.6 Maximum velocity – Replace clause with

The preferred maximum velocity for peak wet weather flow is 3.0 m/s. Where a steep grade that will cause a velocity greater than 3.0 m/s is unavoidable or where a pipe of grade >7 % drains to a manhole, the following precautions shall be taken:

- (a) Steep grades shall be continuous through the manhole at the same grade.
- (b) Depth of a manhole to exceed 1.5m to invert for 150mmØ and 225mmØ pipes.
- (c) Depth of a manhole is to exceed 2.0m deep for 300mmØ pipes.
- (d) Change of direction at the manhole is not to exceed 45°.
- (e) No drop junctions or verticals shall be incorporated in a manhole.
- (f) Inside radius of channel inside a manhole is to be greater than 6 times the pipe diameter and benching is to extend 150mm above the top of the inlet pipe.

To avoid excessively deep channels within manholes, steep grades (>7 %) shall be "graded-out" at the design phase where practicable. The design of pipelines on gradients over 7% must be agreed with Council.

5.3.6.8 Trenchless technology – Amend in clause

(h) Pipe jacking (GRP/reinforced concrete)

5.3.7.1 Pipe location – Amend in clause

The preferred layout/location of pipes within roads, public reserves, and private property may vary and shall be to the requirements of each TA. QLDC's preference is for all infrastructure to be located within public land. Where this is impractical and that is agreed with Council, access shall be legally secured and it shall be demonstrated how the infrastructure can be readily accessed for routine or emergency maintenance.

- (c) Within reserves outside the 1% AEP flood area;

5.3.7.2 Materials – Amend in clause

PE100 replaces PE 100.

5.3.7.4 Pipes in private property – Amend in clause

Where pipes to be vested to the TA are designed to traverse private properties, they should be protected by legal easements of the TA.

Pipes shall be centrally located within an easement of 3.0m minimum width unless agreed with council prior to resource consent.

5.3.7.5 Minimum Cover - Amend in clause

Cover in carriageways, trafficable footpaths and crossings shall be no less than 1m. Cover outside of the carriageway, footpaths, crossings or other trafficable areas shall be no less than 0.6m.

5.3.8.3 Maintenance structure spacing – Amend clause

For reticulation pipes, the maximum distance between any two consecutive maintenance structures shall be 100 m.

5.3.8.4.2 Maintenance structure spacing – Amend clause

- (a) One minimum standing area of 350 mm x 350 mm or of 350 mm diameter (where the ladder or step irons are located), and a second minimum width standing area of 250 mm x 250 mm or of 250 mm in diameter, as shown in Appendix B Drawing B10-5 and Drawing B1-6.

Figure 5.1 – Multiple MSs between MH and ‘last’ MH/TMS - amend figure

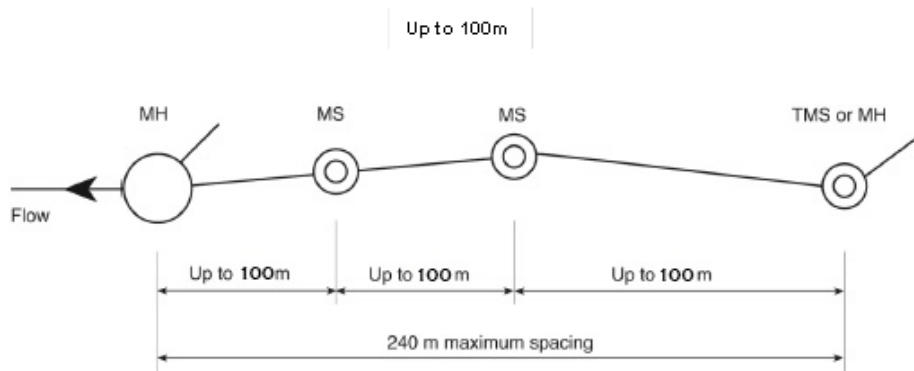


Figure 5.1 – Multiple MSs between MH and ‘last’ MH/TMS

Figure 5.2 – Multiple MSs between consecutive MHs - amend figure

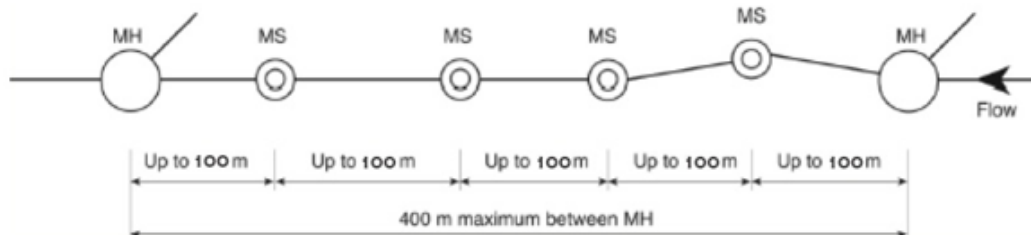


Figure 5.2 – Multiple MSs between consecutive MHs

5.3.8.4.4 Internal falls through MHs – Amend clause

On pipes where the internal fall across the base of the MH is not achievable due to a large difference between the levels of incoming and outgoing pipes (see Appendix B Drawing B1 5 and Drawing B1 6;), then internal or external drops shall be provided.

5.3.8.4.8 Bolt-down covers – Amend clause

MHs should, where practicable, be located on ground that is at least 300 mm above the 1% AEP flood level. Where this is not practicable, bolt-down access covers may be specified by the TA. It will also be necessary to specify the tying together of MH components where bolt-down covers are specified and precast components are used.

5.3.8.4.9 Size of manholes – New clause

The standard internal diameter of circular MHs is 1050 mm and preferred nominal internal diameters are 1050 mm, 1200 mm, and 1500 mm.

When considering the appropriate MH diameter, consideration shall be given by the designer to the base layout to ensure hydraulic efficiency and adequate working space in the chamber (as detailed in 5.3.8.4.2). Where the effective working space is reduced by internal drop pipes, a larger diameter may be required.

Where there are several inlets, consultation with the TA on the layout of the chamber is recommended.

The base layout of MHs shall comply with Drawing B1-5.

5.3.8.5 Maintenance shafts – Amend clause

Where maintenance shafts (MSs) have been approved by the TA, and where it is expected that human access below ground will not be required, MSs can be used on DN 150, DN 200, and DN 225 pipes as an alternative to MHs, providing 5.3.8.5.1 and 5.3.8.5.2 are satisfied. See Appendix B Drawing B7-8, Drawing B7-10 and Drawing B7-11.

For construction details see Appendix B Drawing B7-10 and Drawing B7-11.

5.3.8.6 Terminal maintenance shafts – Amend clause

For construction details see Appendix B Drawing B7-12.

5.3.10.5 Connection depth – Add to clause

Where an approved connection to Council's reticulation is from a private sewer pressure main, Council requires an approved boundary kit for each connection to be located within the road reserve at the property boundary.

5.3.10.6 Location and Marking of laterals – New clause

A red painted glued cap shall be installed at the end of the foul sewer laterals. The foul sewer lateral shall be located on the left hand side of the stormwater lateral (viewed from the road reserve looking into the property).

5.3.10.7 Permanent disconnection of wastewater lateral – New clause

Where existing property connections are to be disconnected, they shall be disconnected and capped off at least 200mm outside the property boundary. The location of the capped end shall be fixed by GPS and included in the as-built data.

5.3.11 Pumping stations and pressure mains – Amend in clause

Pressure mains shall be designed and installed in accordance with the standards of the TA. If the TA has no applicable standards, then they shall be designed in accordance with Sewage Pumping Station Standard WSA 04.

Wastewater pump stations shall be designed in accordance with Appendix G – Sewer Pump Station **Error! Reference source not found.** Design of electrical systems shall be in accordance with the QLDC Electrical & SCADA Standard Network Flowmeters Standard (2010).

Surge analysis and protection against surge pressures will be also required for wastewater pump/ pumping main system.

5.5.2 Trenching – Add to clause

See Appendix B Drawing B1-1 to drawing B1-4 for guidance.

5.5.4 Inspection and acceptance – Add to clause

Inspection to reference assets as per provided as built, and shall reference the Resource Consent Number.

Acceptance will only be for pipe of Grade 1.

6 Water Supply

6.3.5.3 Peak flows – remove clause

~~Water demands vary on a regional basis depending on a variety of climatic conditions and consumer use patterns. The TA should be able to provide historically-based demand information appropriate for design. Where peak demands are required for the design of a distribution system, the value shall be calculated from the following formulae:~~

~~**Peak Day Demand (over a 12-month period) = Average Day Demand x PF**~~

~~Unless specified otherwise by the TA:~~

~~(a) PF = 1.5 for populations over 10,000;~~

~~(b) PF = 2 for populations below 2,000.~~

~~**Peak Hourly Demand = Average Hourly Demand (on peak day) x PF
(over a 24-hour period)**~~

~~Unless specified otherwise by the TA:~~

~~(a) PF = 2 for populations over 10,000;~~

~~(b) PF = 5 for populations below 2,000.~~

6.3.5.6 Minimum water demand – Amend clause

Following receipt of validated modelling data the daily consumption has been amended to

- (a) Daily consumption of 700 L/person/day (occupancy per residence = 3 people);
- (b) Peak hour factor of up to 4.0 (Queenstown), 6.6 (Rest of District);
- (c) Firefighting demands as specified in SNZ PAS 4509;
- (d) The network should be designed to maintain appropriate nominated pressures for both peak demand (average daily demand in L/s x peak hour factor) and firefighting demand scenarios. These figures should be applied to mains of 100 mm diameter or greater. Mains less than 100 mm in diameter can be sized using the multiple dwellings provisions of AS/NZS 3500.1 table 3.2.

When supported by alternative modelling/metering data that has been approved by Council the following minimum water demand figures may be used at the sole discretion of the Council.

- (a) Daily consumption of 250 L/p/day;
- (b) Peak hour factor of up to 4.0 (Queenstown), 6.6 (Rest of District);
- (c) Firefighting demands as specified in SNZ PAS 4509;
- (d) The network should be designed to maintain appropriate nominated pressures for both peak demand (average daily demand in L/s x peak hour factor) and firefighting demand scenarios. These figures should be applied to mains of 100 mm diameter or greater. Mains less than 100 mm in diameter can be sized using the multiple dwellings provisions of AS/NZS 3500.1 table 3.2.

6.3.5.11 District Metered Area infrastructure – New clause

In the event a development crosses or incorporates a District Metered Area or areas, then the appropriate infrastructure is required to be installed. This would include water meters, valving, housing and associated communication requirements.

6.3.6.1 Materials – Amend in clause

PE100 replaces PE 100.

Refer to clause 11.1 - Council Approved Materials List.

6.3.8.1 General – Add to clause

Locating infrastructure to be vested on private land will not be acceptable unless specifically agreed with the TA. Water mains are usually located in the road. The location shall be specified by the TA, within the road or space allocation nominated by the road controlling authority. Where approved by the TA water mains may be located in private property or public reserve, and in this case easements shall be required.

(e) All water mains shall be laid within legal public road reserves where practicable. Easements of a minimum width of 3.0m shall be provided for all water supply systems that are to be vested in Council or the system owner where they cross any private land. The services shall be centrally located within the easement.

6.3.10.2 Minimum pipe sizes – Amend in clause

The minimum pipe and fittings PN to be used for water reticulation mains shall be PN12 (see Appendix A for list of pressure pipe and fittings Standards).

6.3.12.2 Seismic design – Amend clause

All pipes and structures shall be designed with adequate flexibility and special provisions to minimise risk of damage during earthquake. Historical experience in New Zealand earthquake events suggest that suitable pipe options, in seismically active areas, may include rubber ring joint PVC pipes, or PE pipes. Specially designed flexible joints shall be provided at all junctions between pipes and rigid structures (such as reservoirs, pump stations, bridges and buildings) in natural or made ground or as agreed with TA.

6.3.12.10.1 Minimum cover – Amend in clause

Cover in carriageways, trafficable footpaths and crossings shall be no less than 1m. Cover outside of the carriageway, footpaths, crossings or other trafficable areas shall be no less than 0.6m.

6.3.12.11.1 Thrust blocks – Amend in clause

Typical contact areas for selected soil conditions and pipe sizes are shown in Appendix B Drawing B2-6 and Drawing B7-6.

6.3.12.11.2 Anchor blocks – Amend in clause

Anchor blocks are designed to prevent movement of pipe bends in a vertical direction. They consist of sufficient mass concrete to prevent pipe movement (see Appendix B Drawing B2-6 and Drawing B7-6).

6.3.14.3.2 Branch mains – Amend in clause

Stop valves shall be located on branch mains adjacent to the through water main. The type of joint to be used (Soc-Soc, FI-Soc or FI-FI) shall be based on the required security of the water mains. For transfer mains or reticulation mains (\geq DN 300, a tee with a flanged branch, and a flanged valve shall be used (see figure 6.1 and Appendix B Drawing B7-3 and Drawing B7-4).

Where a road crossing is necessary immediately after the tee branch and there is no space available adjacent to the tee, a stop valve shall be installed on the opposite side of the road (see figure 6.1 and Appendix B Drawing B7-3 and Drawing B7-4).

6.3.16.2 Property Service Connections – Replace clause with

Each Residential Unit shall be provided with a 20mm (ID) dia connection. The connection to each Residential Unit shall include a 20mm (ID) dia Acuflo Manifold including internal backflow prevention located within an Acuflo manifold box on the property boundary within the road reserve.

For Multi-unit developments and multiple rears lots that exceed 5 lots or units then a suitably designed rider main can be installed with the toby valves located within the ROW adjacent to the individual properties or units.

Where it is not practical to install all the meters within the road reserve (i.e. multiple dwellings of three levels or greater), QLDC may at its sole discretion, consent to remote water meters being installed within the property, where

they are readily accessible for reading, maintenance or replacement. In addition to separate meters within the property, multi-unit developments must also have a single property meter located on QLDC's side of the point of supply.

The Acuflo manifold box shall be extended and the Acuflo manifolds shall be located with 550-650mm cover to ground level for all 20mm connections. The toby valve for all other service connections shall be located with 550-650mm cover to ground level within a standard valve box.

Valves shall be located clear of vehicle manoeuvring areas, where practicable. Where this cannot be achieved, the valve shall be protected within a pre-approved trafficable valve box.

Where the District Plan permits two or more Residential Units to be constructed on a single Lot, individual 20mm (ID) dia service connections shall be provided to each Residential Unit or one 25mm (ID) dia service connection for a maximum of two Residential Units. Each service connection shall be connected to the nearest trunk water main or rider water main. 25mm dia water connections shall be divided and reduced to a 20mm dia water connection to each Residential Unit served.

6.3.16.3 Permanent disconnection of water lateral – New clause

Permanent disconnection will disable the connection to the extent it will not be possible to restore service through the pipe.

This will require the water connection to the main (whether in the verge or road carriageway) being disconnected and capped off at the main.

6.3.17.1 Permanent ends of water mains – Amend in clause

A method of flushing shall be provided at the end of the rider main and water main, which shall be suitably anchored (see [Appendix B Drawing B7-4](#)).

6.3.19 Building over Council Infrastructure – Add to clause

- iii. The pipe runs in a straight line both vertically and horizontally between valves and shall be PE100;

6.4.2 Information to be provided – Amend in clause

- (g) Locations and details of thrust blocks and anchors, see [Appendix B Drawing B7-6](#)

6.5.2 Embedment – Amend in clause

Pipes and fitting shall be surrounded with a suitable bedding material in accordance with [Appendix B Drawing B1-2 to Drawing B1-4](#).

6.5.3.1 Carriageways – Amend in clause

Pipe trenches within a carriageway shall be backfilled using an approved hardfill placed immediately above the pipe embedment and compacted in layers not exceeding 200 mm in loose depth, as per [Appendix B Drawing B1-2 to Drawing B1-4](#)

6.5.3.2 Berms – Amend in clause

Pipe trenches under grass berms and footpaths shall be backfilled in accordance with the requirements of [Appendix B Drawing B1-2](#)

6.5.3.3 Detector tape – Amend in clause

Open trenching – backfill shall be placed to 100 mm below existing ground level. At this point, where required by the TA, the contractor shall provide and lay metallic 'detector' tape coloured blue, stipulating 'Danger – Water Main Below' (or similar). See [Appendix B Drawing B1-1](#)

7 Landscape

7.1 Scope – Add to clause

Design and construction shall be undertaken in accordance with the requirements of Part 7, Landscape of NZS 4404:2010 except as amended and extended for Queenstown Lakes District Council requirements in the clauses below, and any Queenstown Lakes District Council guidelines and specifications relating to landscape and reserves. Developments shall comply with Section 7 Landscape of NZS 4404:2010 except as modified by this document.

Throughout the section where the QLDC or Council Operations [Parks] Department is referred to, this should be taken as the QLDC or Council Parks and Open Space Planning team.

7.2 General – Add to clause

All landscaping and built assets in reserves and road reserves to be vested to Council shall be maintained by the developer for a minimum period of 3 years from the time of receiving 224c certification. A developer's agreement shall be provided to Parks and Open Space Planning team outlining how the reserves will be maintained within this period and the condition they shall be in at the end of this period".

7.2.3 Reserves and land protection covenants - Add to clause

Unless a license to occupy is agreed by QLDC, gardens in road reserves shall only be provided in areas that are adjacent to commercial or community uses i.e. shops, hospitality, parks, schools or community facilities. In all residential areas, the expected level of service for road reserves is trees and lawn unless a license to occupy the road reserve that ensures maintenance of the garden(s) by the licensee is agreed by QLDC.

If gardens are provided for in road reserves (in accordance with the above clause and not covered by a license to occupy) the developer shall maintain the garden areas for a period of one year from the time the road is vested. All trees planted in road reserves shall also be maintained by the developer for a period of one year. A developer's agreement shall be provided detailing the maintenance specifications for trees and garden areas in road reserves. At the end of the one year period all trees and planting is to be shown to be of good health and free of structural defects otherwise term will start again - after tree or plants has been replanted.

7.3.1 Location – Add to clause

All new trees in reserves and road reserves require the approval of the QLDC Arborist unless trees are approved species from QLDC Street Tree Planting Guidelines Appendix L. Refer Appendix I for QLDC Street Tree Planting Guidelines.

7.3.6 Species selection – Add to clause

In selecting species for planting, take into account the overall composition, low maintenance, and longevity, as well as the need to comply with the TA's planting policies. All new trees in reserves and road reserves require the approval of the QLDC Arborist unless trees are approved species from QLDC Street Tree Planting Guidelines Appendix L. Refer Appendix I for QLDC Street Tree Planting Guidelines.

7.3.10 Planting period and irrigation – Add to clause

All other reserves, including berms in the road reserve, shall not be irrigated unless with the written agreement of QLDC Parks and Open Space Planning team.

Irrigation shall be designed in accordance with the design standards and specifications included in Appendix F.

7.3.11 Trails and Track – New Clause

All new trails and tracks shall be developed in accordance with the QLDC 2016 Cycle Trail and Track Design Standards & Specifications Appendix J.

QLDC LDSC 2017

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7.4.11.1 Planting period and irrigation – Add to clause

(k) All boundaries are to be surveyed and clearly pegged or otherwise fenced where required;

7.4.11.2 Maintenance period – New clause

Generally, the maintenance period for new reserves shall be three years from receiving section 224c certification. The maintenance required during this period shall be outlined in a Maintenance Agreement between the developer and QLDC Parks and Open Space Manager that shall be established prior to obtaining section 224c certification. The Maintenance Agreement shall ensure that all new reserve and road reserve areas are managed in accordance with QLDC maintenance standards. At a minimum, the maintenance period shall include the following requirements:

- (a) all new assets, including irrigation, shall be kept in good working order and be free of defects or disrepair.
- (b) turf, specimen trees and vegetation shall be maintained to an acceptable standard as specified by QLDC Parks and Open Space Planning team.
- (c) the reserves shall be kept in a tidy condition and to not have any loose litter or collections of refuse.
- (d) health and safety plans shall be provided for all contractors undertaking maintenance in the reserves or road reserves.

7.5.1 Asset register and plans – New clause

At practical completion and prior to section 224c certification, all new reserve and road reserves asset information should be submitted electronically with spatial attributes as outlined in Schedule D.

Appendix A - Acceptable Pipe and Fitting Materials – Add to appendix

Add to appendix

For ALL PE pipes dimensions shall be provided for Outside Diameter (OD), Inside Diameter (ID) and Nominal Diameter (ND)

Table A1 – Acceptable pipe materials and Standards – Add after table heading

Note: PVC only used if specifically agreed with TA

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Appendix F – ~~Vehicle Crossings~~ – Deleted and replaced with

Appendix F – Irrigation System – New appendix

Appendix G – Sewer Pump Station - New appendix

Appendix H – Water Supply Pump Station Design Guidelines - New appendix

Appendix I – Street Tree Planting Guidelines - New appendix

Appendix J – Cycle Trail and Track Design Standards & Specifications - New appendix

Appendix K – Three Waters Facility Asset Identification Specification - New appendix