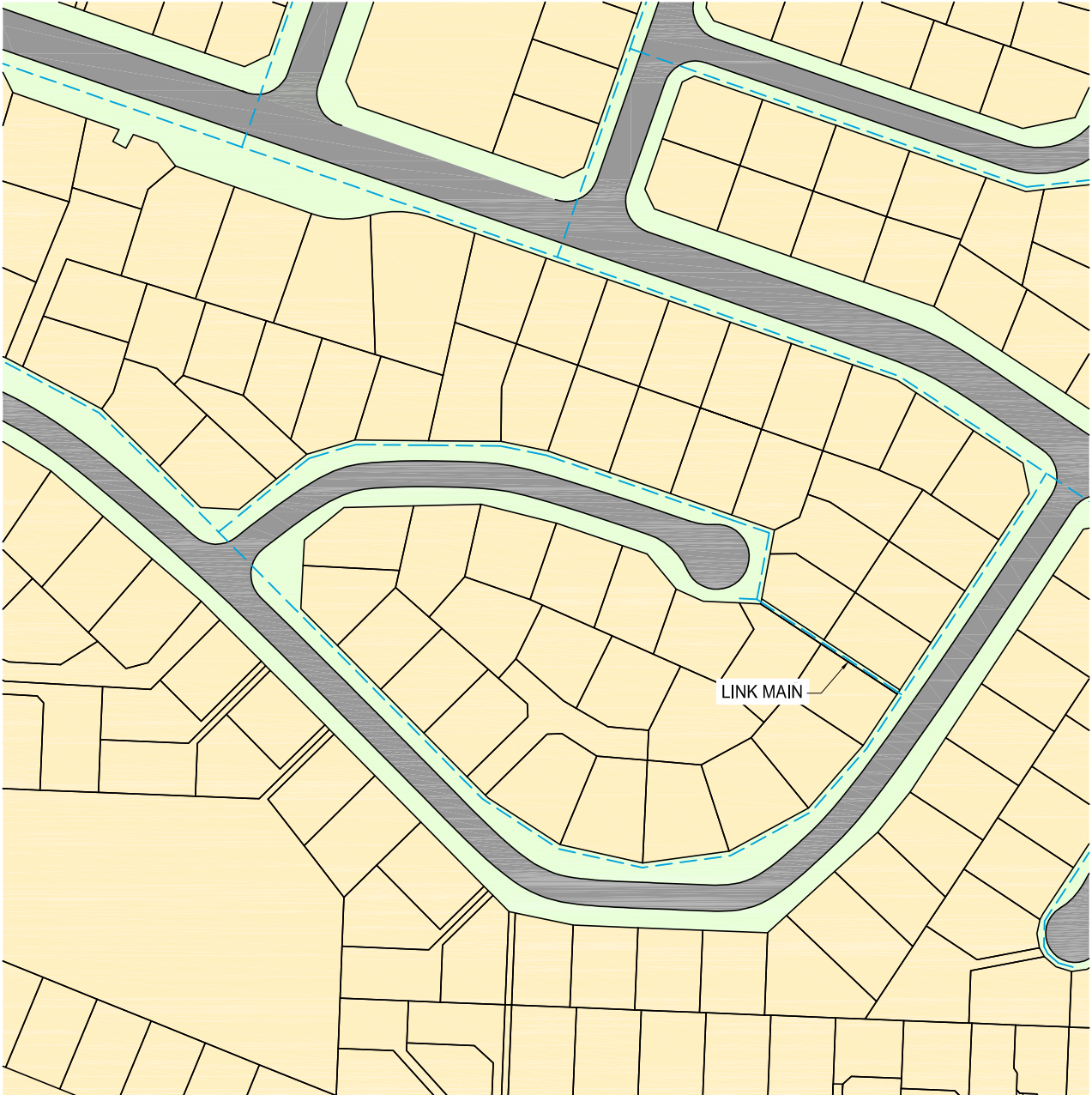


NOTES:

- 1. Rider mains are not shown



WATER SUPPLY
LOOPED AND LINKED PRINCIPAL MAINS

W701

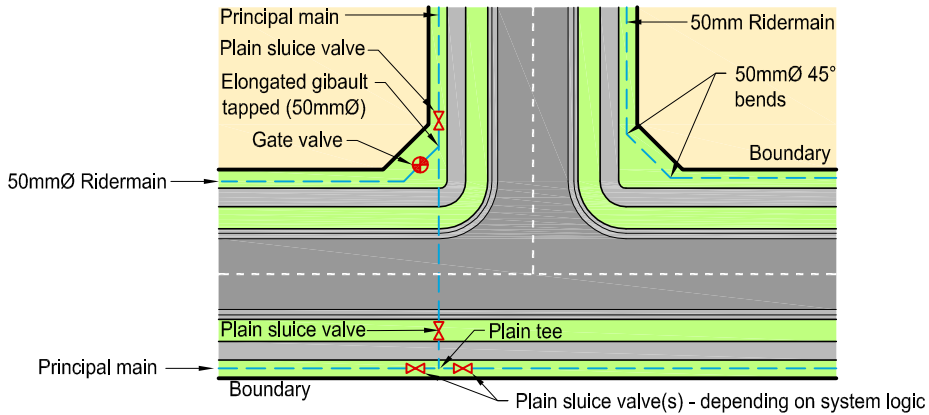
DEVELOPMENT CODE

VERSION 1
AUG 09

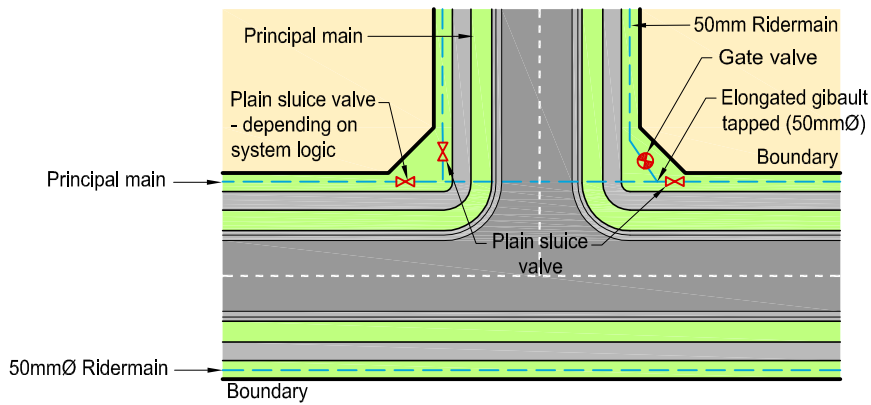
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NOTES:

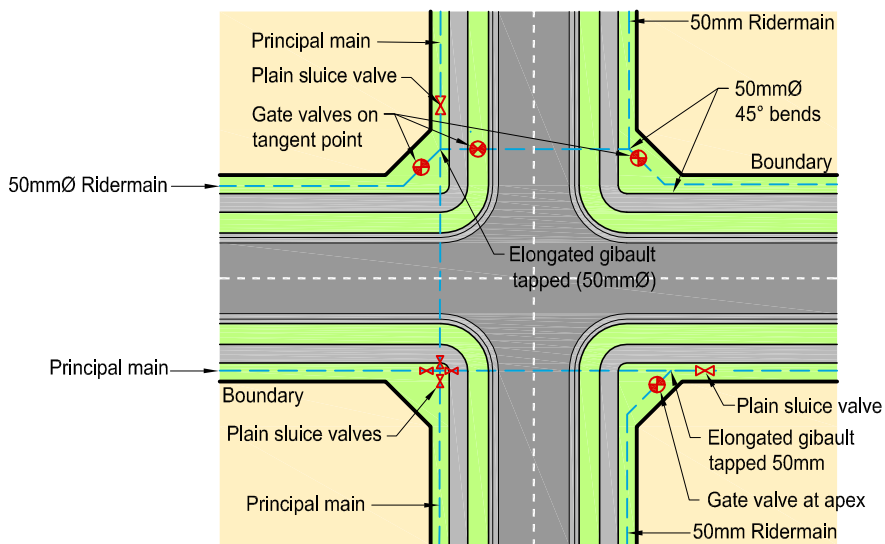
1. Valves to be located adjacent to changes in boundary direction where practicable.



TEE INTERSECTION No. 1



TEE INTERSECTION No. 2



CROSS INTERSECTION

WATER MAIN
LOCATION AT INTERSECTIONS

W705

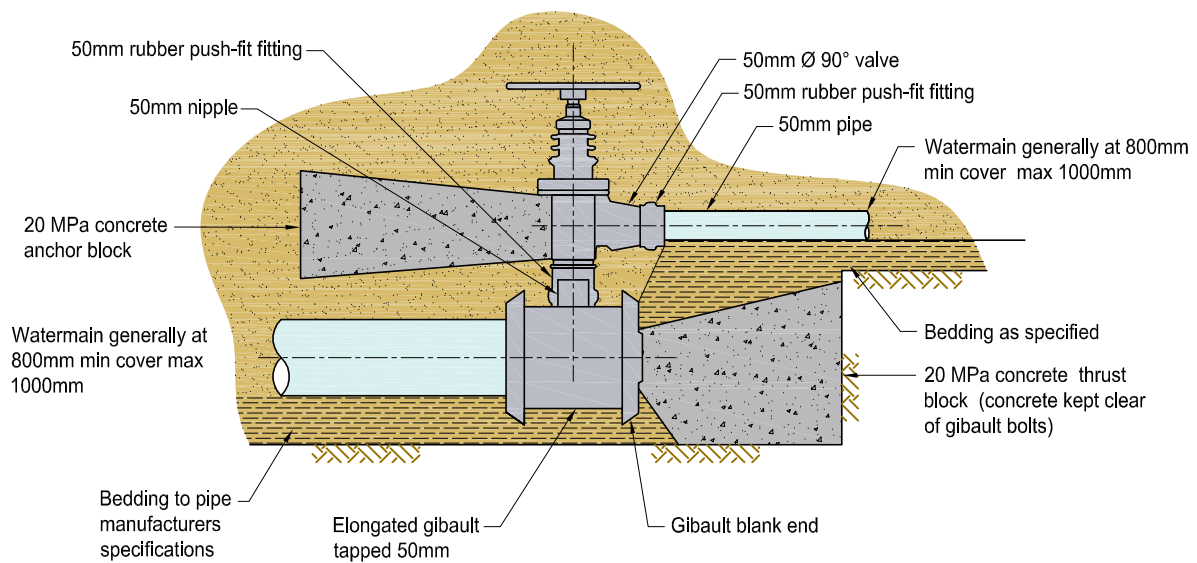
DEVELOPMENT CODE

VERSION 1
AUG 09

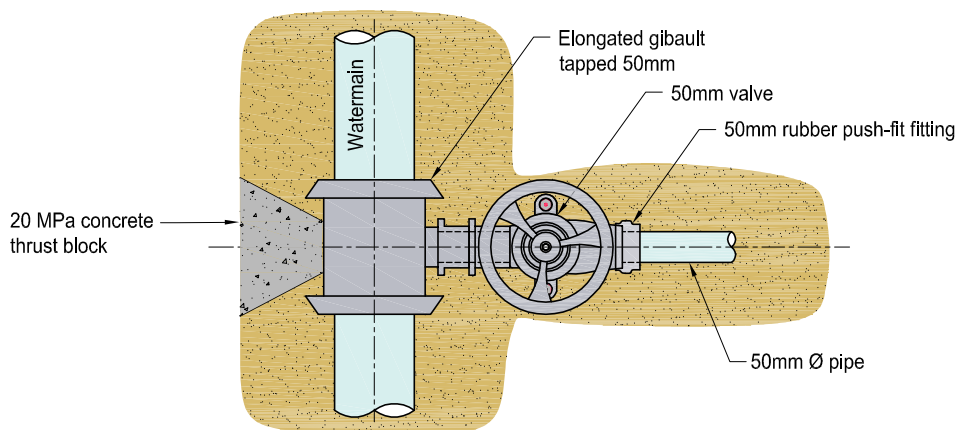
1

NOTES:

1. Watermain cover is generally 800mm to 1000mm max in the berm and footpath and 1000mm to 1200mm max in the carriageway.
2. Spindle extensions may be used on ridermain valves.
3. All fittings to be approved material.
4. Galvanised iron is not an alternative.



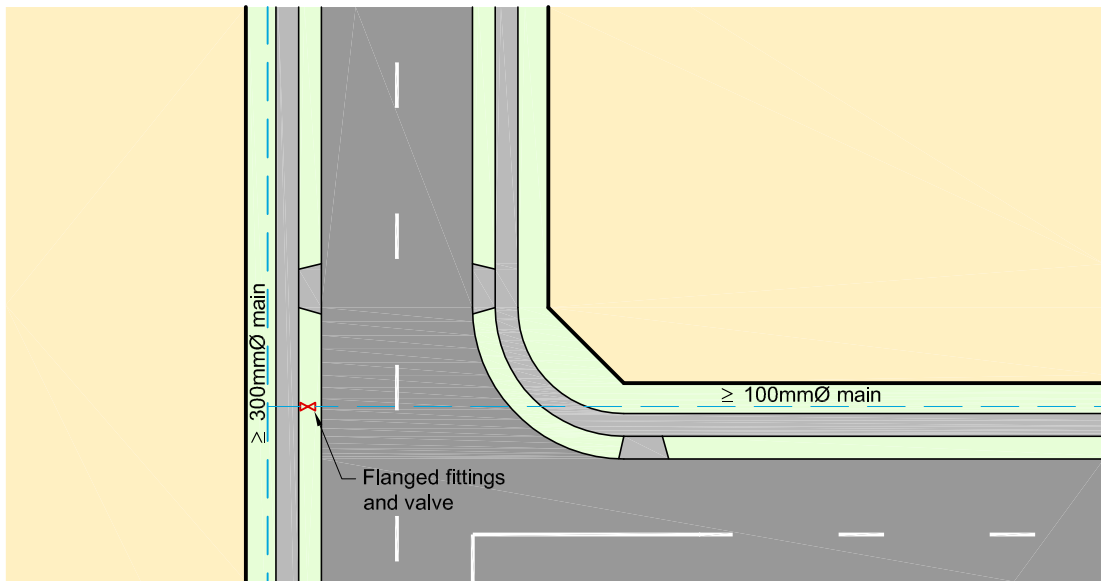
STRAIGHT LINE CONNECTION - ELEVATION



90° CONNECTION - PLAN

WATER MAIN
MAIN TO MAIN CONNECTION

W706



BRANCH VALVE ADJACENT TO MAIN



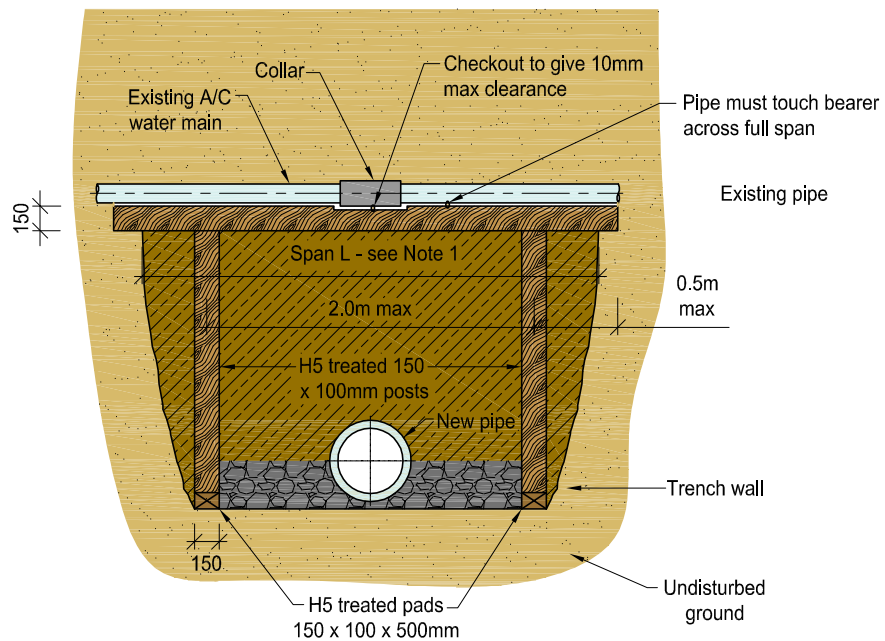
VALVE AND HYDRANT COMBINATION FOR
PRESSURE ZONE DIVIDING VALVES

NOTE:

Pressure 'X' and pressure 'Y' are 2 differing pressures. Closed valve with fire hydrant on each side allows for reading of these pressures or flushing of the line.

NOTES:

1. Supports structures to water mains, where the span 'L' between trench side batter is in excess of 3000mm, require specific design by Engineer.
2. Before backfilling, support MUST be checked by a Council representative.
3. All timber to be H5 treated.
4. All cut ends to be treated to prevent moisture damage.



WATER MAIN SUPPORT FOR ASBESTOS CEMENT MAIN

W709

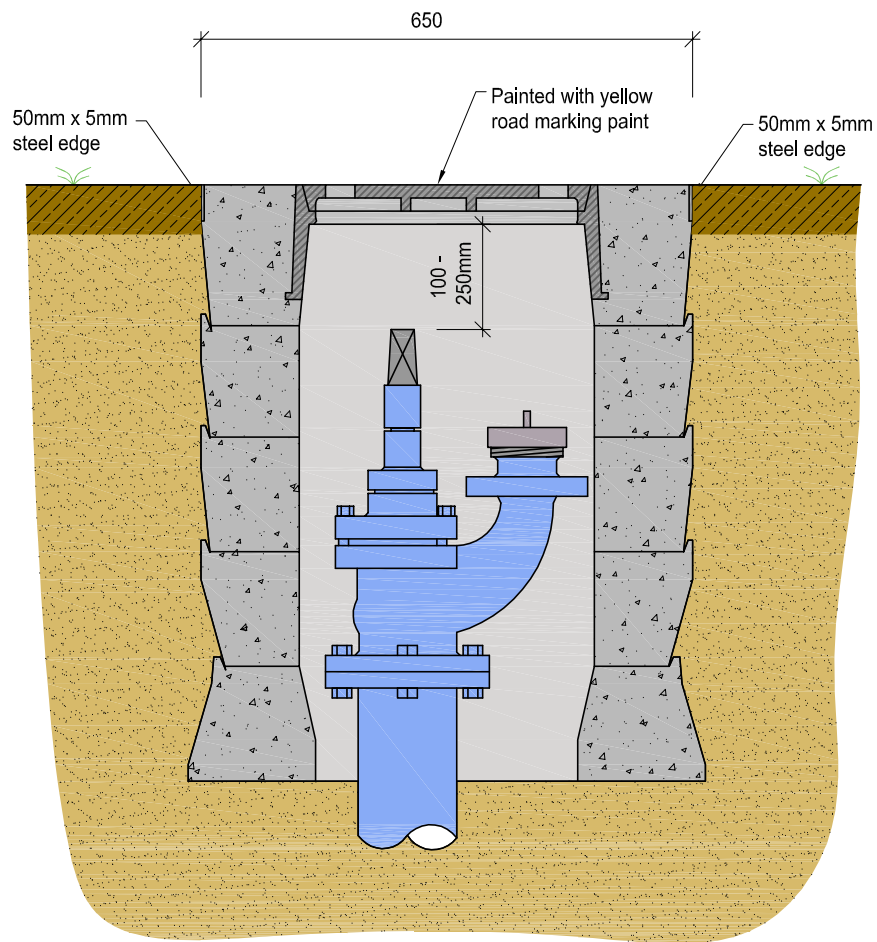
DEVELOPMENT CODE

VERSION 1
AUG 09

1



EXAMPLE PHOTO



WATER FITTINGS
HYDRANT SURROUND

W713

DEVELOPMENT CODE

VERSION 1
AUG 09

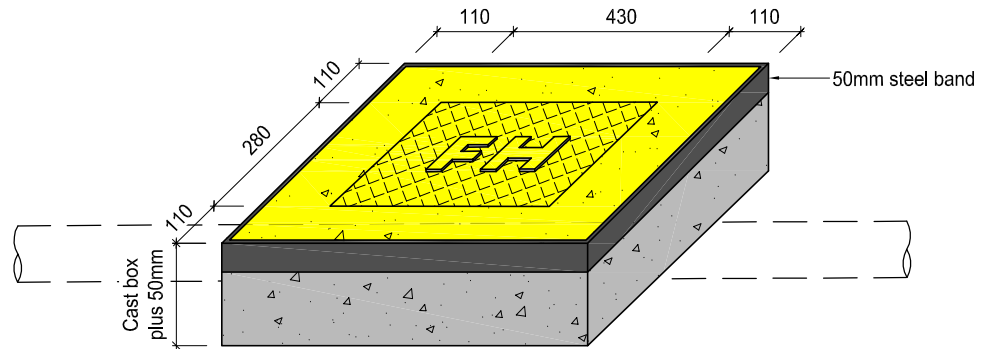
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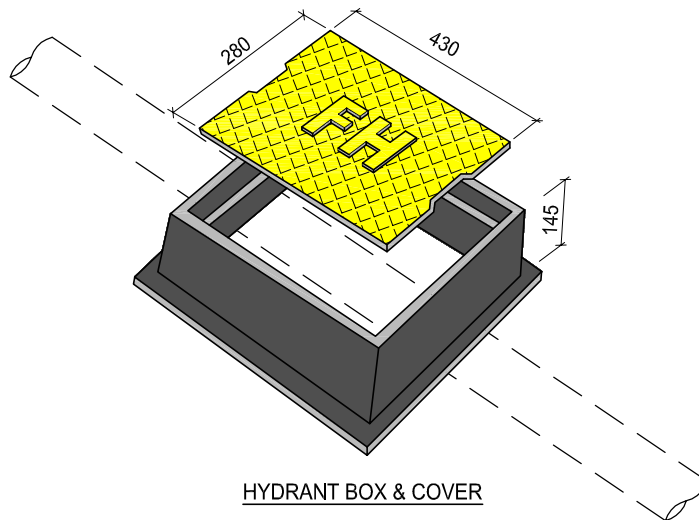
EXAMPLE PHOTO

NOTES:

- 1. Dimensions are approximate.
- 2. Lid to be painted yellow with road marking paint (TNZ M7).



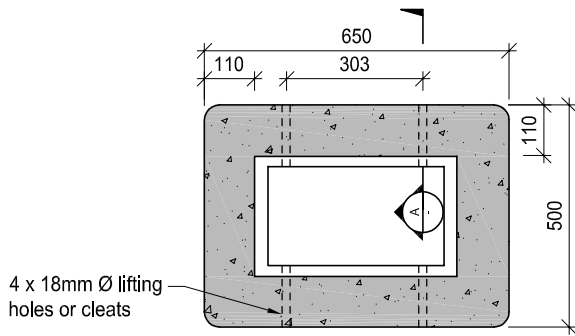
HYDRANT BOX WITH CONCRETE SURROUND



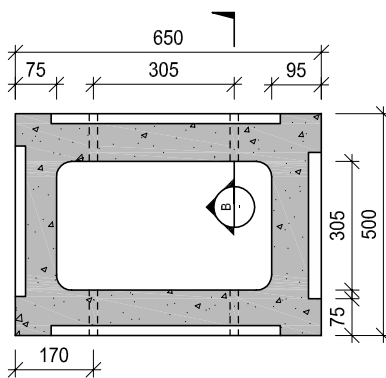
HYDRANT BOX & COVER

NOTES:

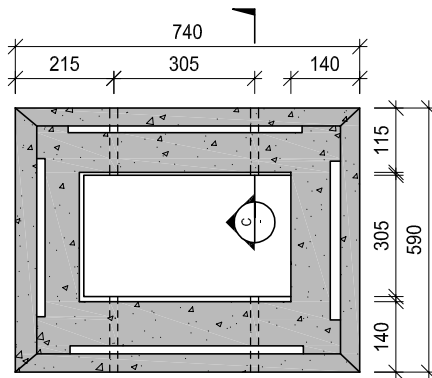
1. Concrete to manufacturer's specifications.



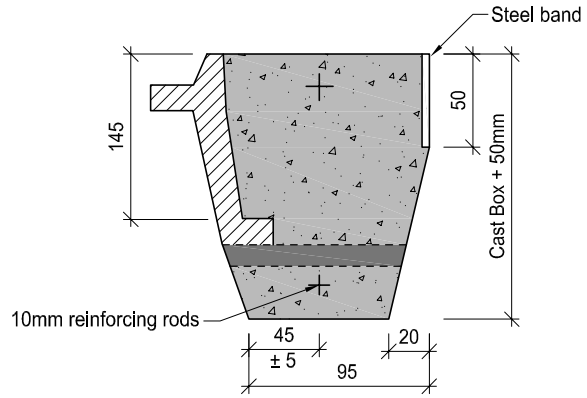
PLAN OF TOP BLOCK



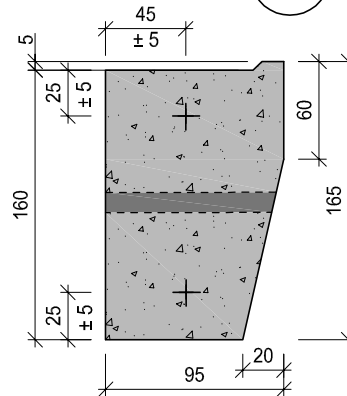
PLAN OF INTERMEDIATE BLOCK



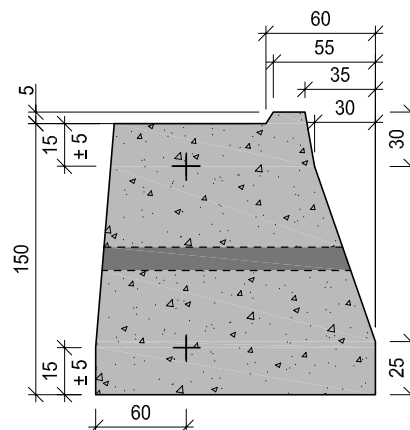
PLAN OF BASE BLOCK



SECTION A



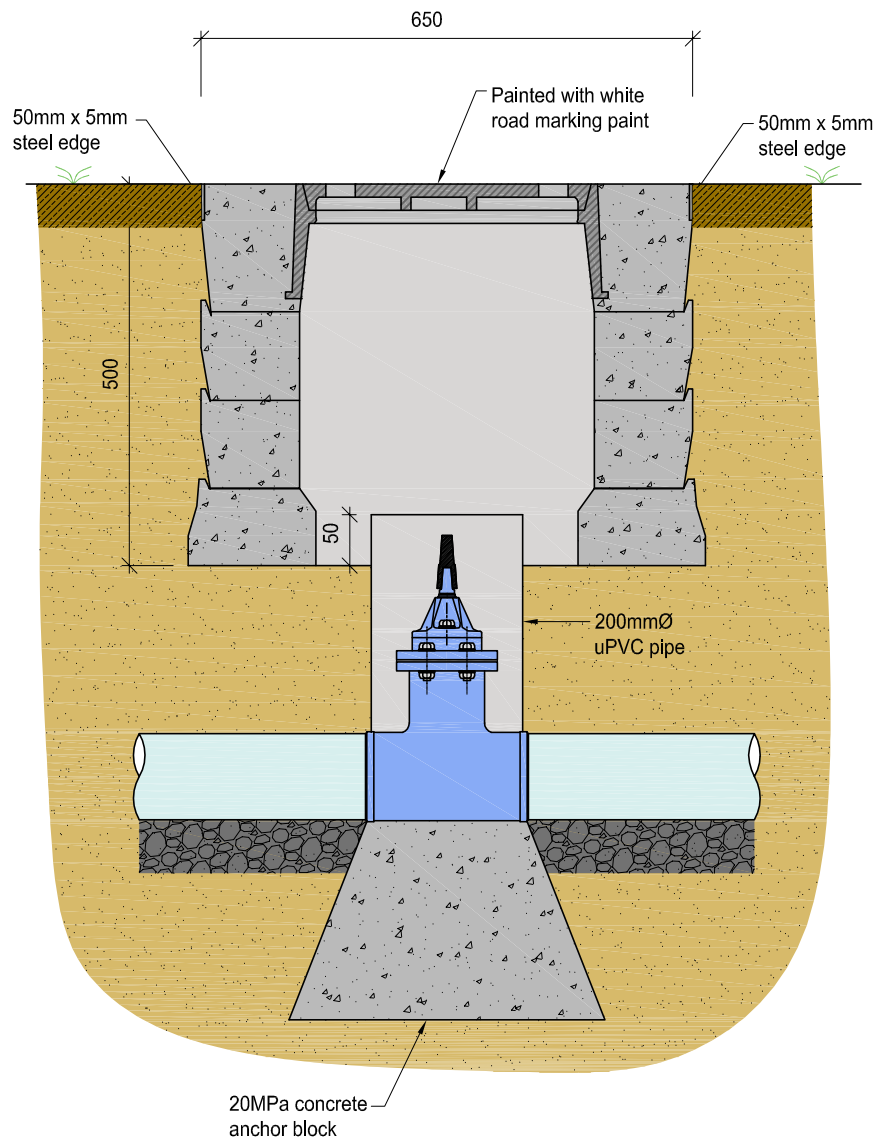
SECTION B



SECTION C

NOTES:

1. Concrete to manufacturer's specifications.



WATER FITTINGS VALVE SURROUND

W716

DEVELOPMENT CODE

VERSION 1
AUG 09

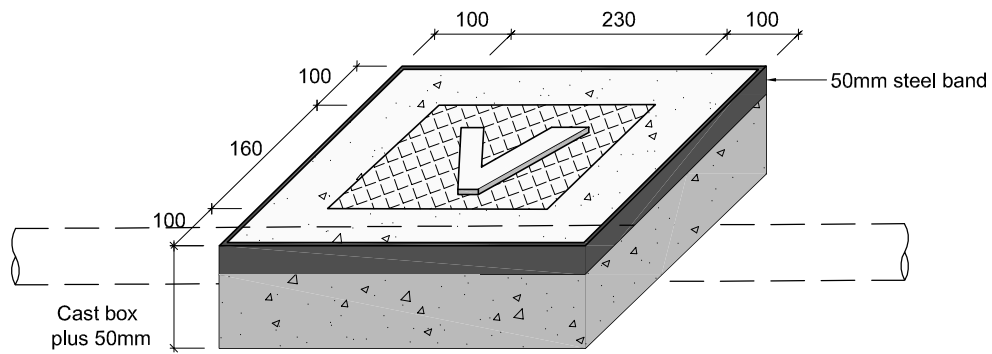
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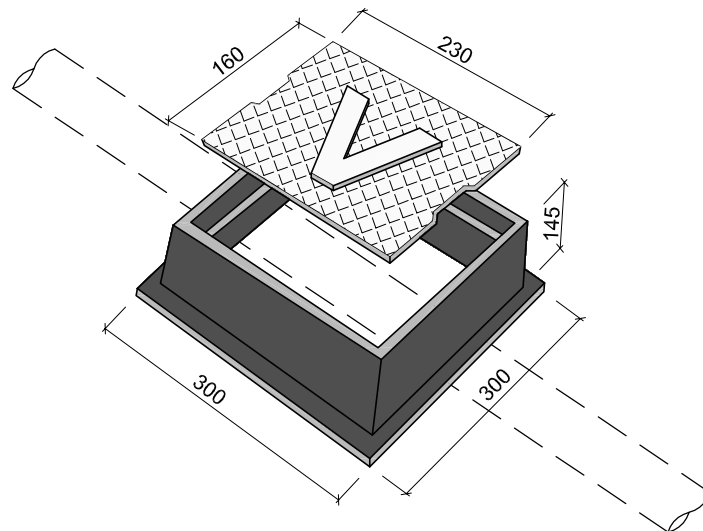
EXAMPLE PHOTO

NOTES:

1. Dimensions are approximate.
2. Lid painted White with road marking paint. (TNZ: M7)



VALVE BOX & COVER
(with concrete surroundings)



VALVE BOX & COVER

WATER FITTINGS
VALVE BOX

W717

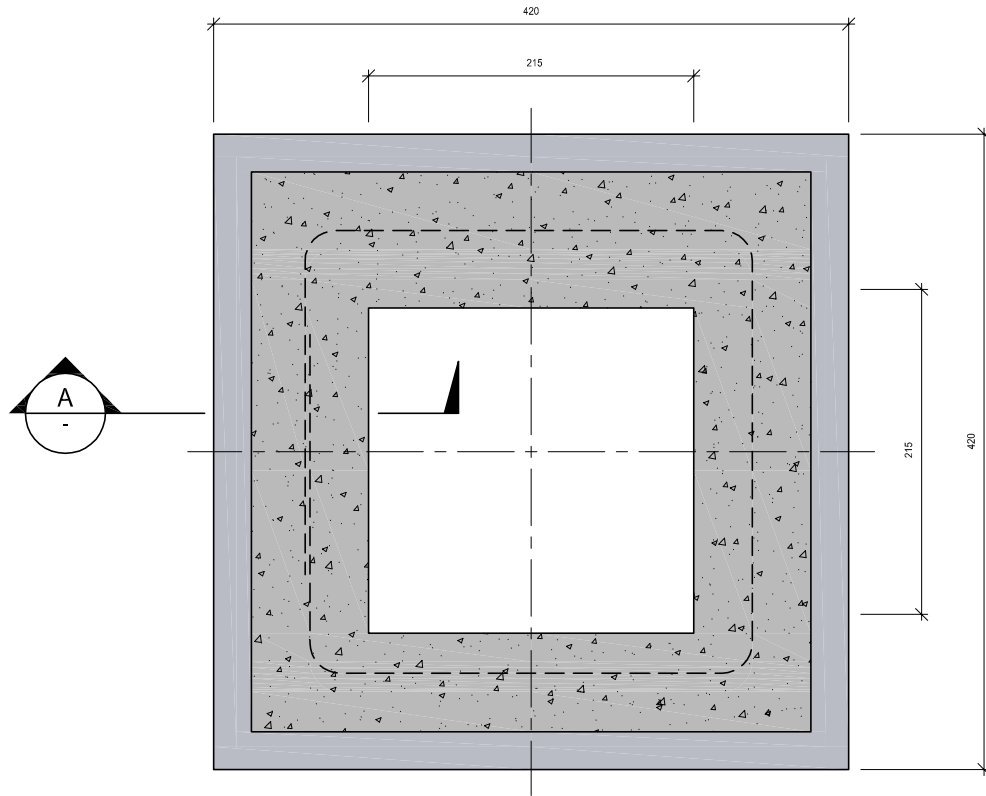
DEVELOPMENT CODE

VERSION 1
AUG 09

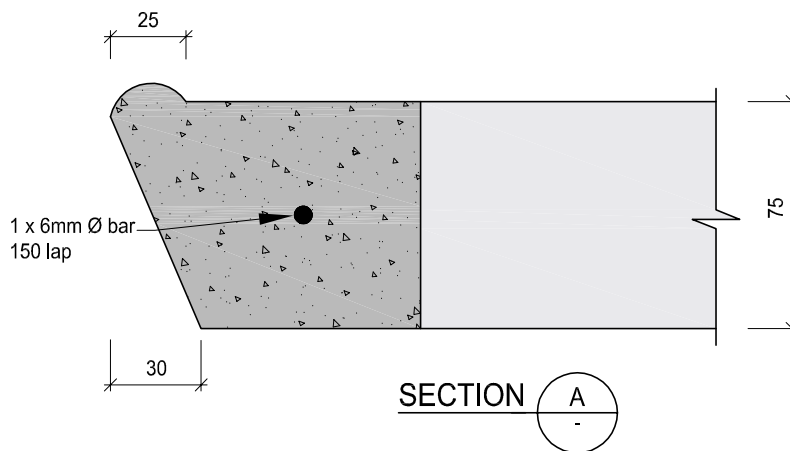
1

NOTES:

- 1. Minimum 25mm cover to all steel.
- 2. Concrete strength min 20MPa at 28 days.
- 3. Overall dimension of opening 215mm min.



PLAN



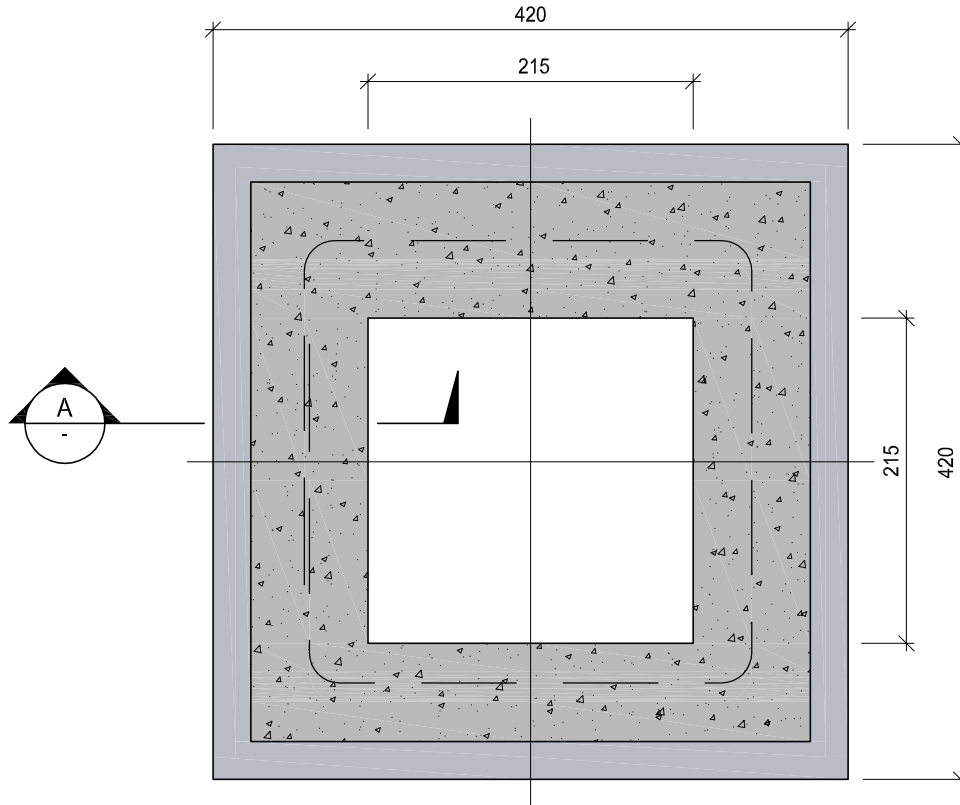
SECTION A

WATER FITTINGS
VALVE SURROUND 75mm CONCRETE

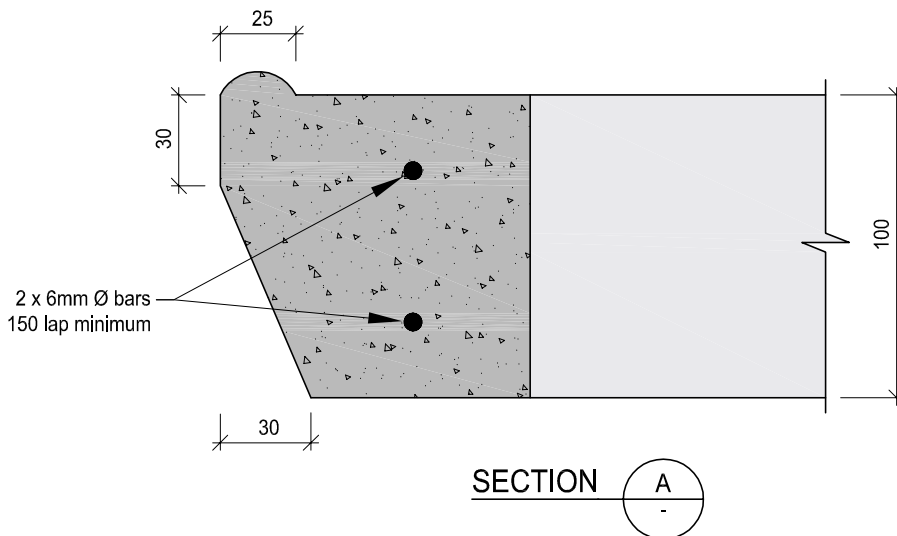
W718

NOTES:

- 1. Minimum 25mm cover to all steel.
- 2. Concrete strength min 20MPa at 28 days.
- 3. Overall dimension of opening 215mm min.



PLAN



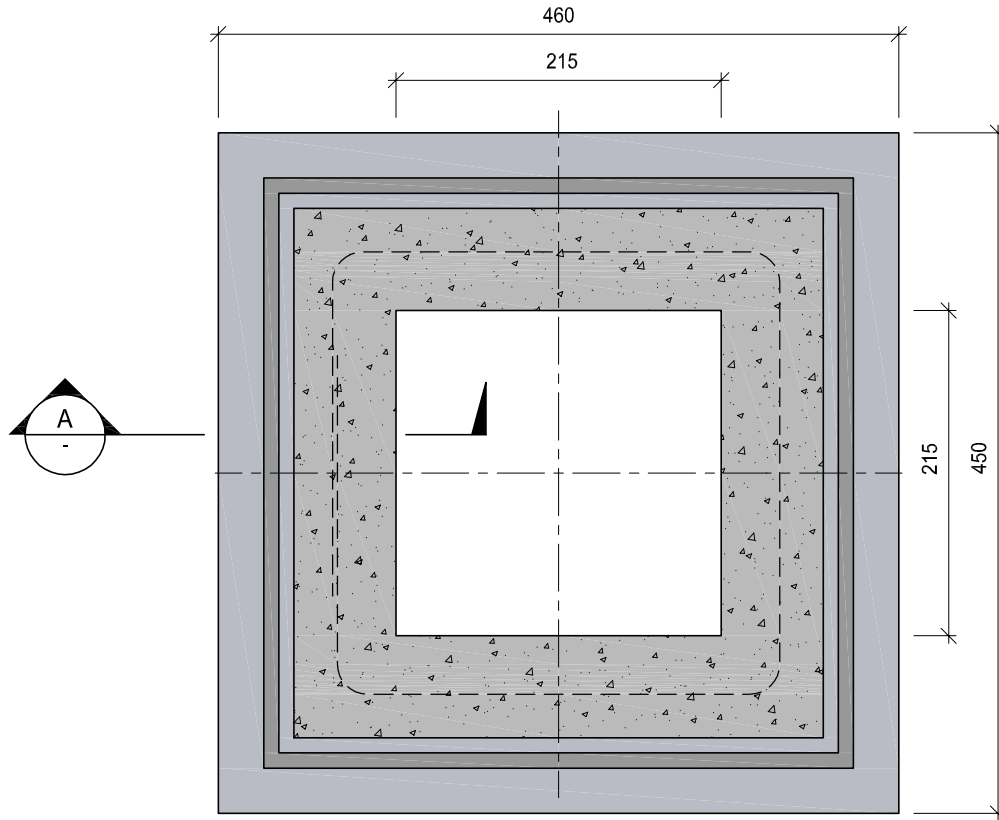
SECTION A

WATER FITTINGS
VALVE SURROUND 100mm CONCRETE

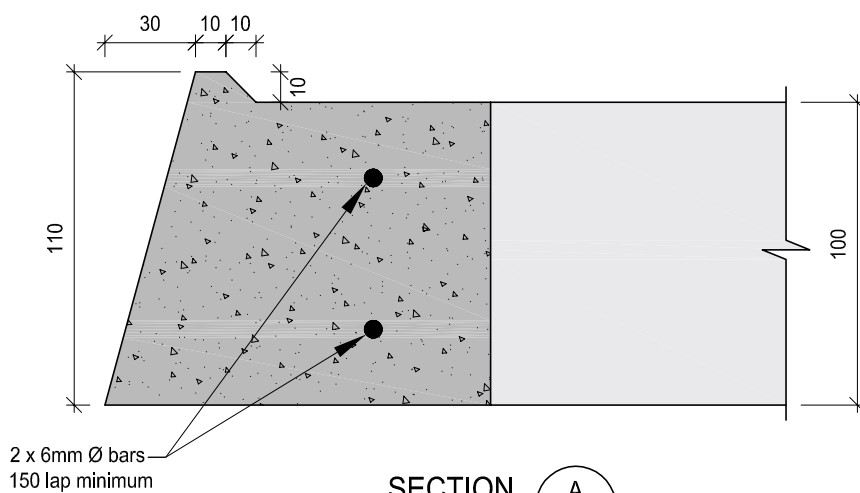
W719


NOTES:

1. Minimum 25mm cover to all steel.
2. Concrete strength min 20MPa at 28 days.
3. Overall dimension of opening 215mm min.



PLAN



SECTION 

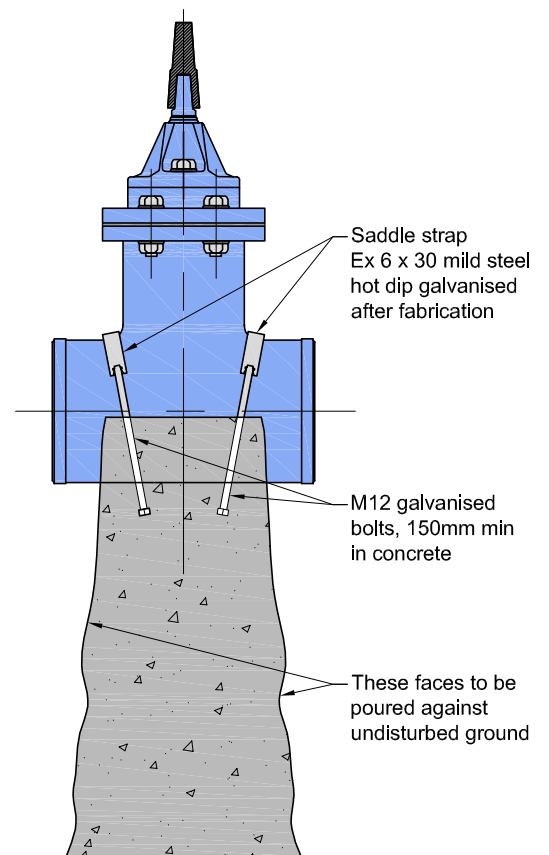
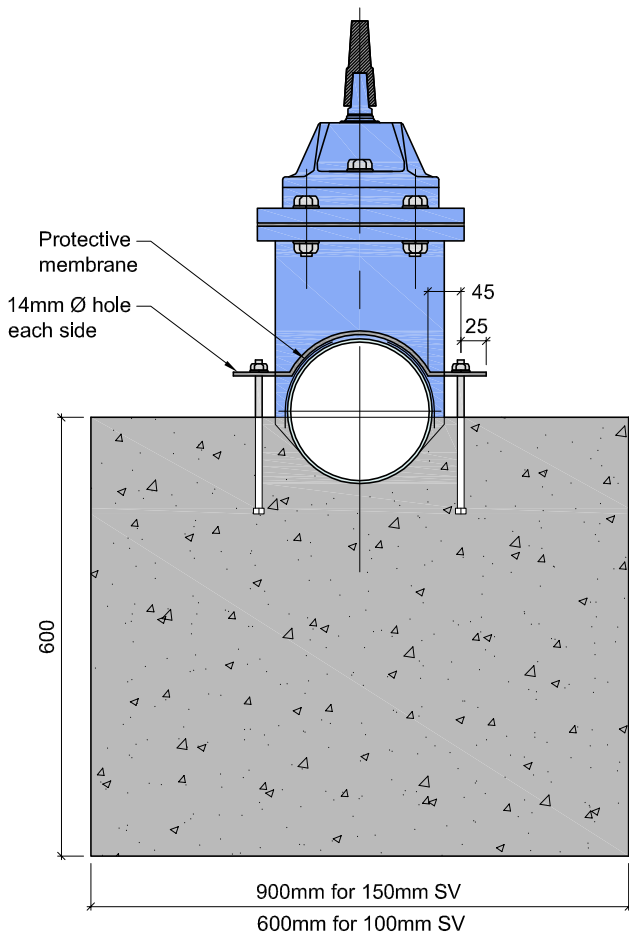
WATER FITTINGS

VALVE SURROUND HEAVY DUTY CONCRETE

W720

NOTES:

- Valves larger than 150mm Ø require specific design.



WATER FITTINGS

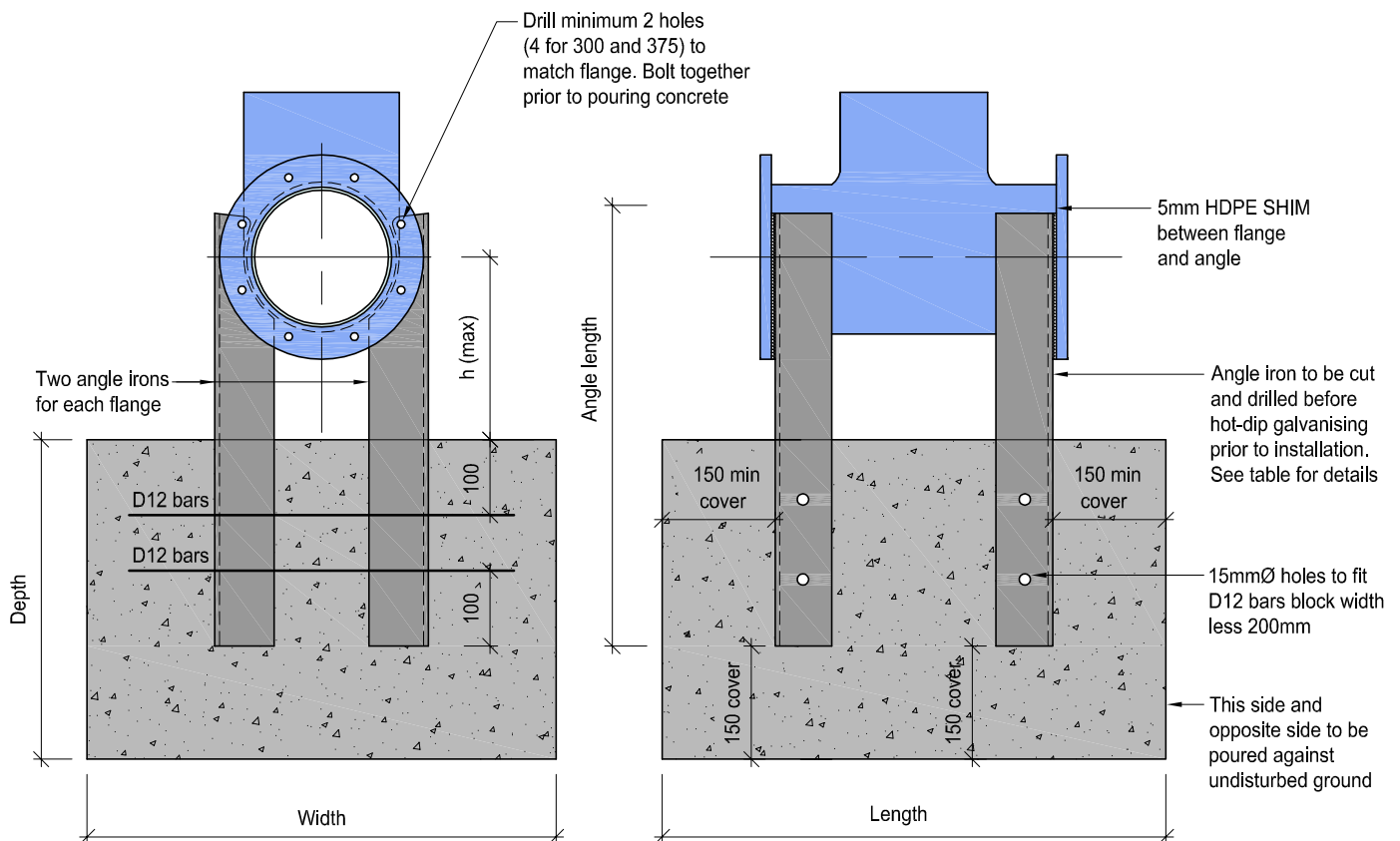
ANCHOR BLOCK FOR SLUICE VALVES ON MAINS

W721

NOTES:

1. This generic anchor block detail is for use in stiff predominantly cohesive free draining volcanic soils encountered locally within the Western Bay of Plenty area, with a minimum shear strength of 75kPa over the depth of the anchor block. Specific anchor block design shall be required where these minimum requirements are not achieved. This detail is not applicable to other soil types (eg within sandy, alluvial or peaty soils) or if elevated groundwater levels are encountered.
2. The soil strength shall be confirmed at each anchor block location by one hand auger undertaken to base of the anchor block with shear vanes undertaken within undisturbed soils at 0.5m centres vertically. Shear vanes to be undertaken in full accordance with the "Guideline for Hand Held Shear Vane Test, NZ Geotechnical Society Inc, August 2001" and corrected in accordance with BS1377:1990.
3. The anchor block excavation shall be excavated to the minimum dimensions shown on the drawing and shall be free from standing water and debris before backfilling with mass concrete.
4. The minimum mass concrete strength is to be 20MPa at time of Pressure Testing pipeline.
5. No excavation shall be undertaken below the top of the anchor block when excavating the pipeline.

Nominal Bore	Block				EA Angles (x4)	Angle Length
	Width	Height	Length	h (max)		
100	600	500	600	210	75 x 6	560
150	1000	600	600	240	75 x 6	700
200	1000	1000	800	270	100 x 6	1150
250	1000	1300	1000	310	100 x 12	1550
300	1200	1500	1200	330	125 x 12	1800
375	1500	1800	1200	380	150 x 16	2200



WATER FITTINGS

ANCHOR BLOCK FOR FLANGED FITTINGS ON MAINS

W722

NOTES:

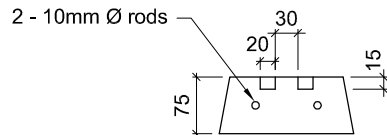
1. Marker posts are multi-use: "V" or "H".
2. Top of marker to be 610mm above finished ground level.



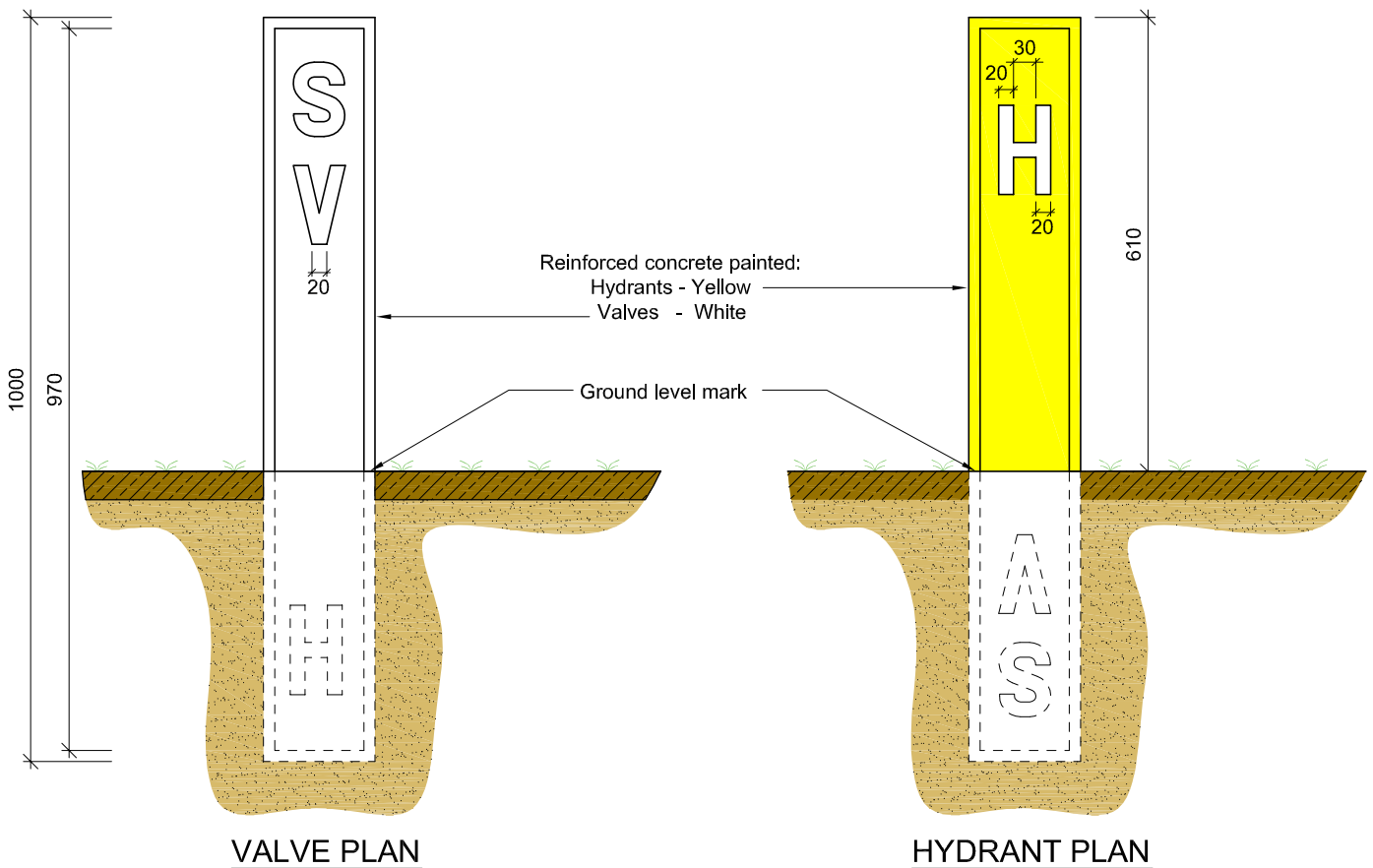
EXAMPLE PHOTO FOR VALVES



EXAMPLE PHOTO FOR HYDRANTS



CROSS SECTION

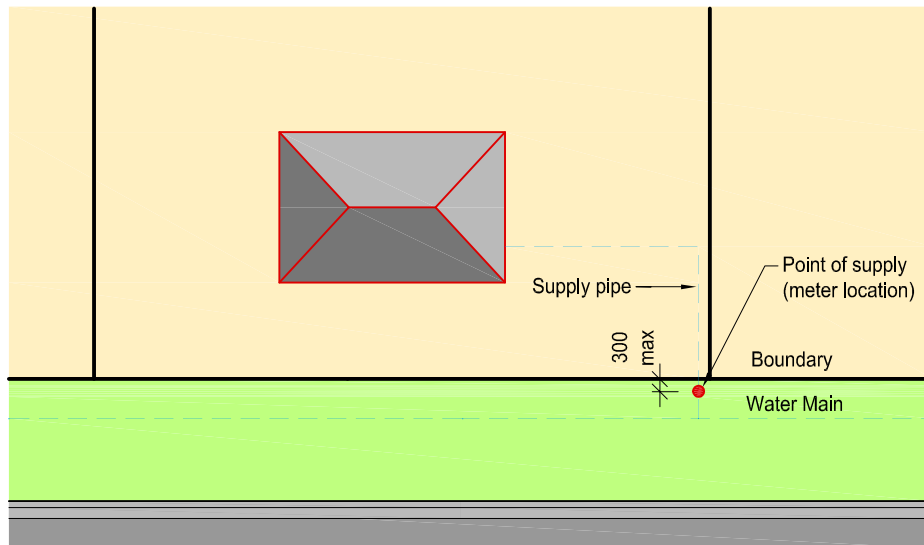


VALVE PLAN

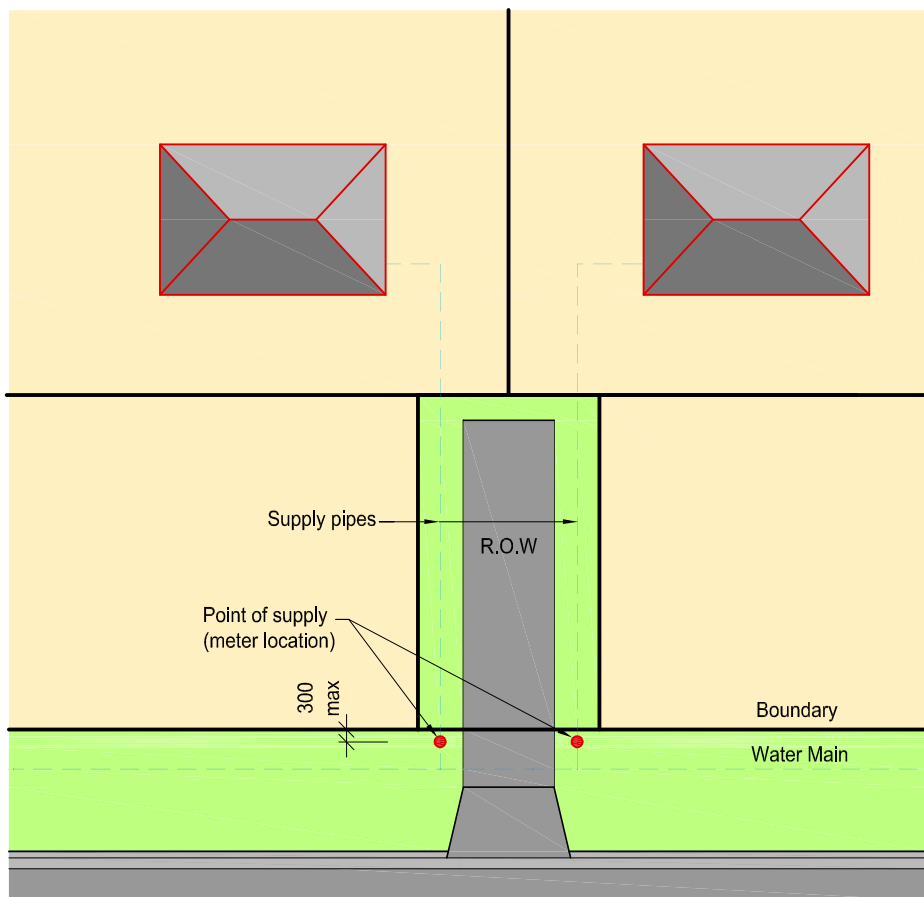
HYDRANT PLAN

WATER FITTINGS
HYDRANT & VALVE MARKER POST

W724



TYPE 1 - HOUSE WITH STREET FRONTAGE



TYPE 2 - REAR LOTS ON RIGHT OF WAY (UP TO 6 CUSTOMERS)

WATER METER

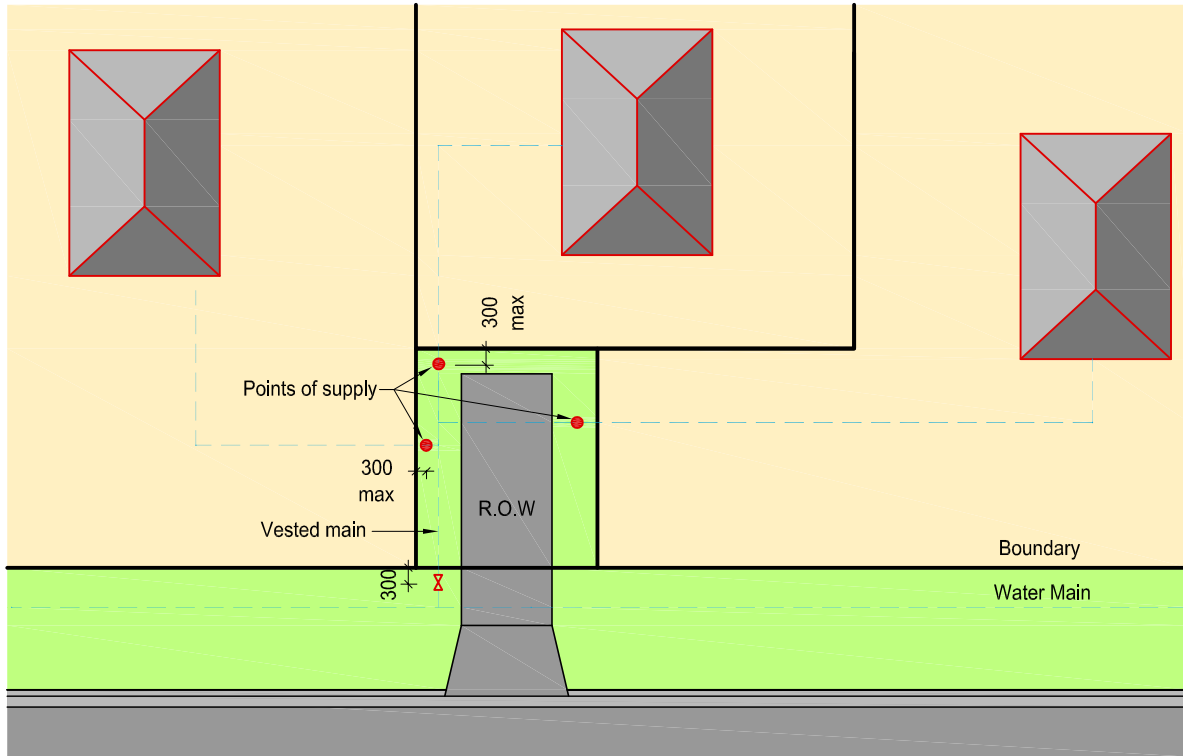
TYPE 1 & 2 POINT OF SUPPLY LOCATION INSTALLATION

W727

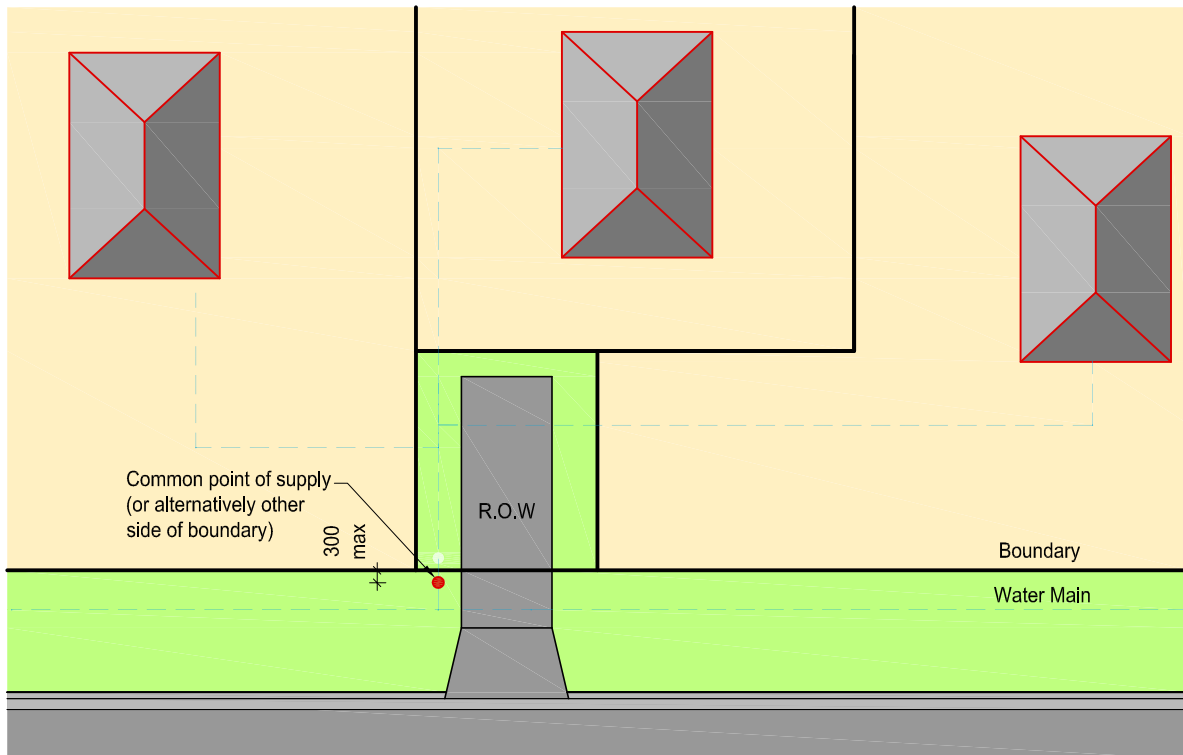
DEVELOPMENT CODE

VERSION 1
AUG 09

1



TYPE 3 - REAR LOTS ON RIGHT OF WAY
(7 OR MORE CUSTOMERS)



TYPE 4 - COMMON POINT OF SUPPLY FOR BODY CORPORATE

WATER METER

TYPE 3 & 4 POINT OF SUPPLY LOCATION INSTALLATION

W728

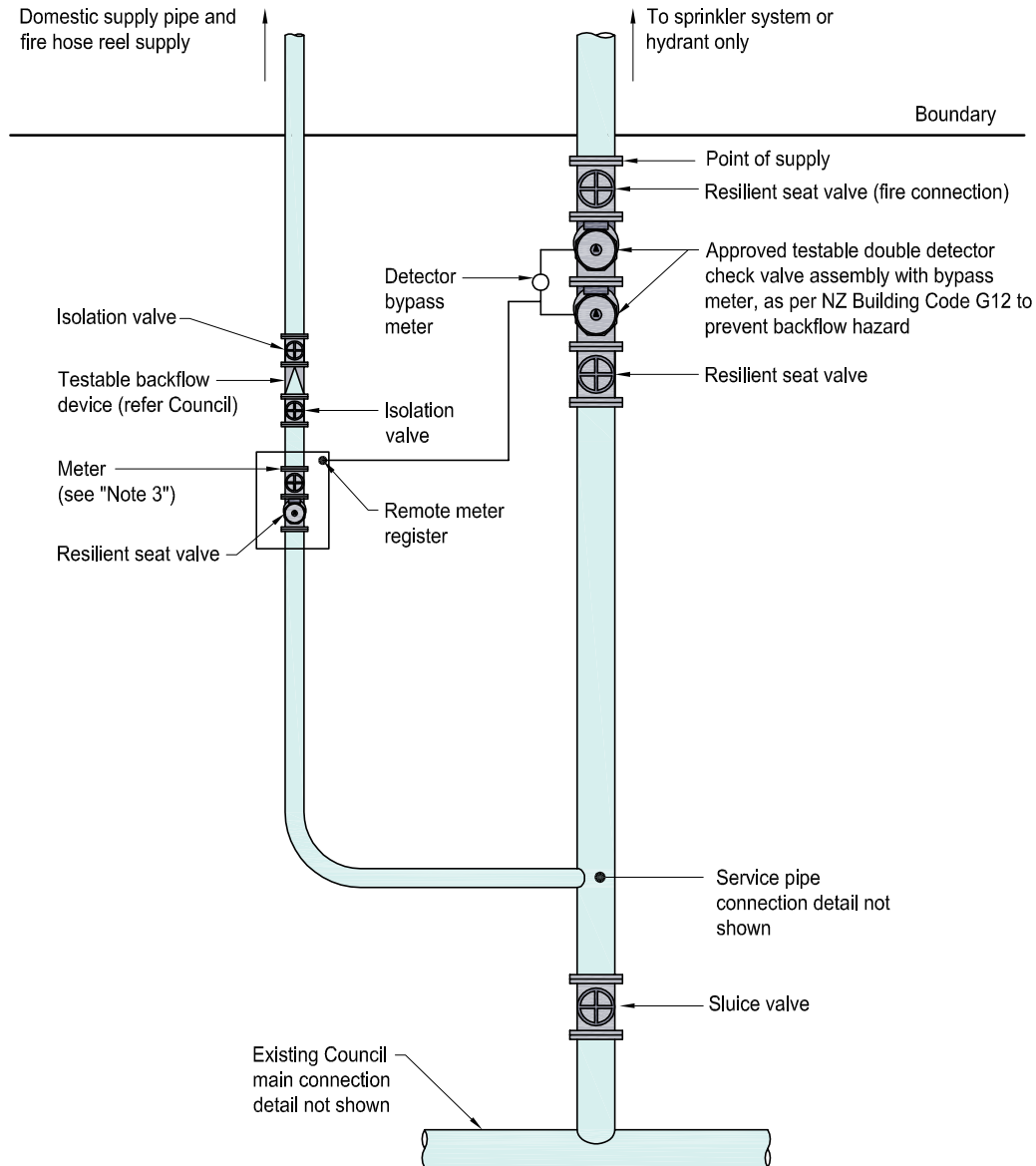
DEVELOPMENT CODE

VERSION 1
AUG 09

1

NOTES:

1. This arrangement is to be used for all premises requiring a fire connection.
2. All water used (except for fire fighting) will be charged for.
3. Upstream and downstream meter clearance as per manufacturer's specifications.

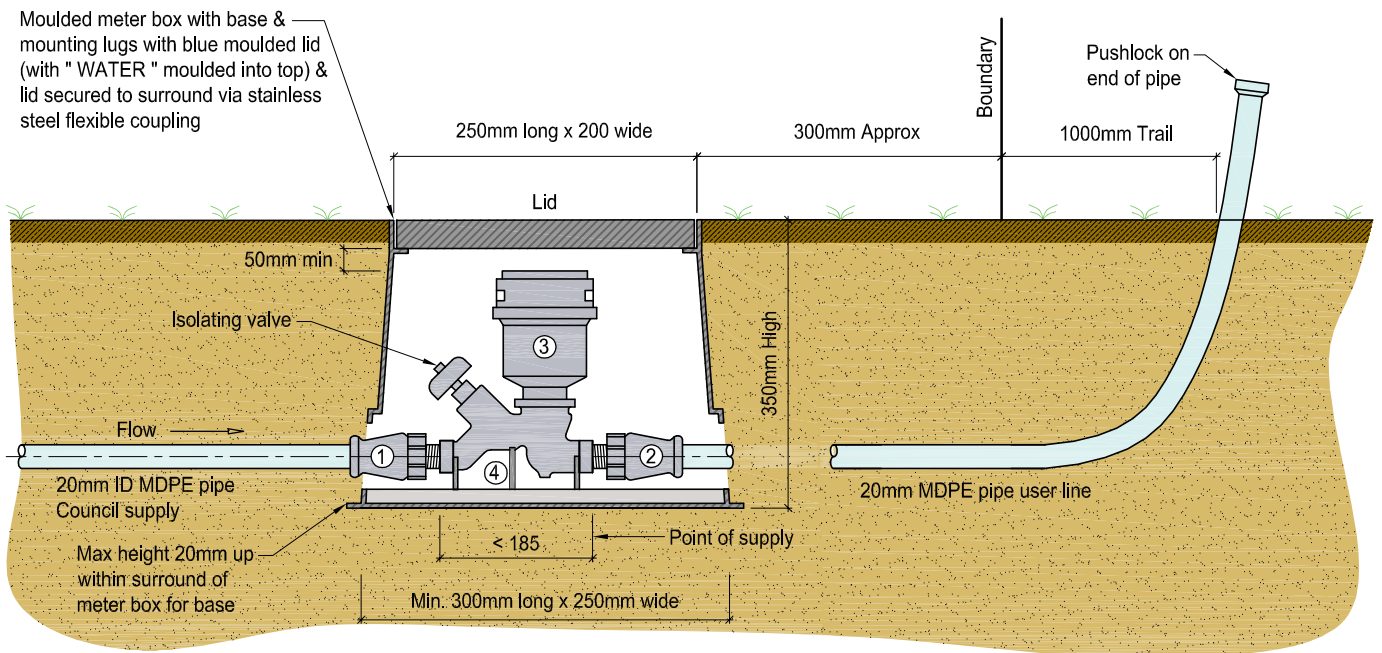


FIRE SYSTEM CONNECTION WITH POTABLE SUPPLY

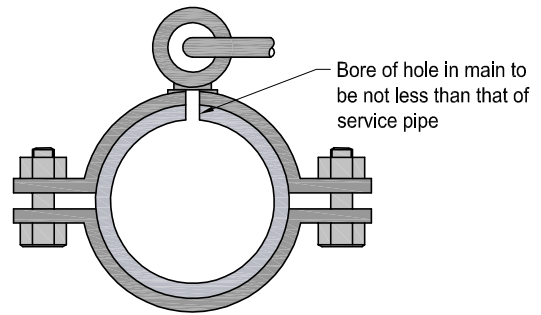
WATER METER

FIRE SYSTEM CONNECTION WITH POTABLE SUPPLY INSTALLATION

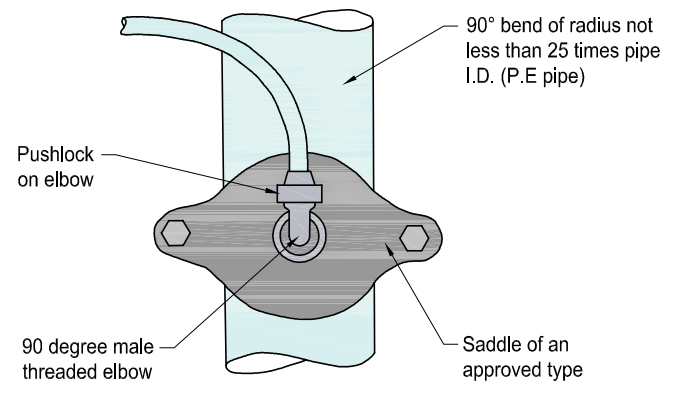
W729



① & ②	Approved fitting. Male threaded adaptor 25mm x $\frac{3}{4}$ " BSP thread
③	Approved Council water meter
④	Approved 20mm manifold assembly with dual check valve, female BSP $\frac{3}{4}$ " thread both ends (or similar approved)



ELEVATION



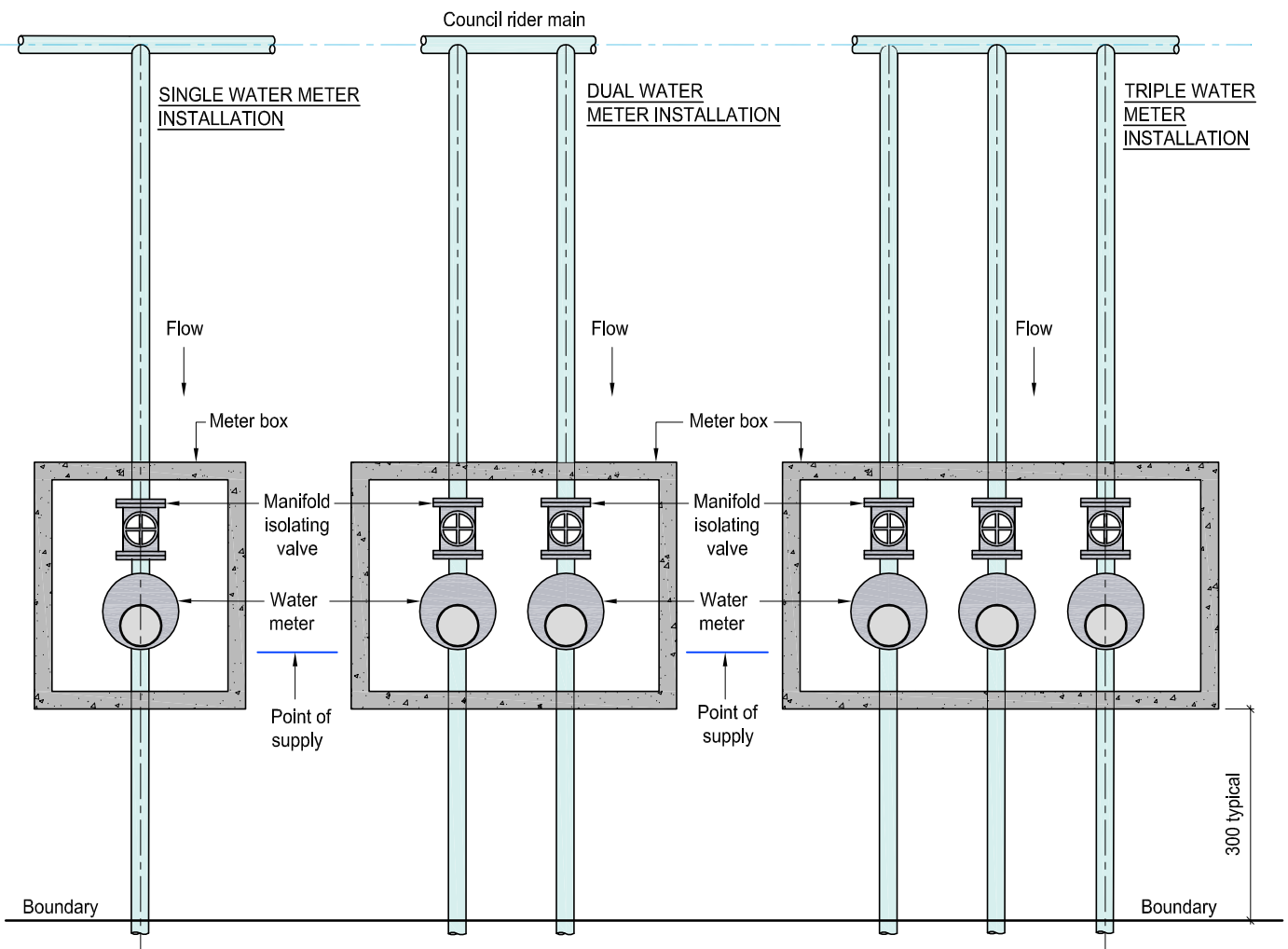
PLAN

PROPERTY CONNECTION
STANDARD 20mm MANIFOLD CONNECTION

W730

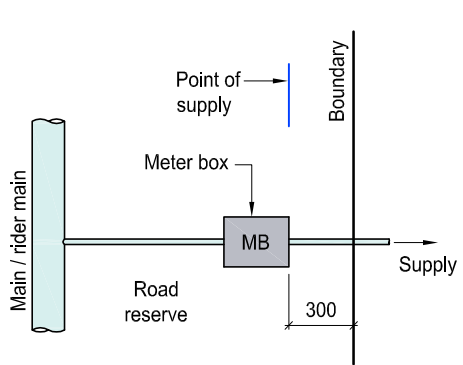
NOTES:

1. Only to be used after approval of Council.

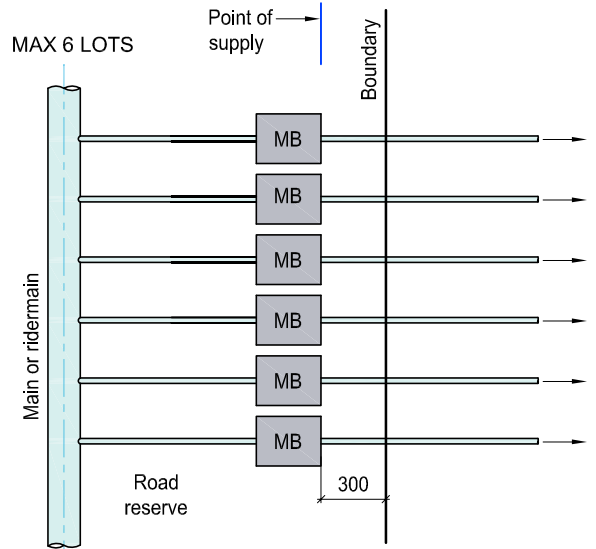


PROPERTY CONNECTION
STANDARD 20mm MANIFOLD CONNECTIONS - PLAN VIEW

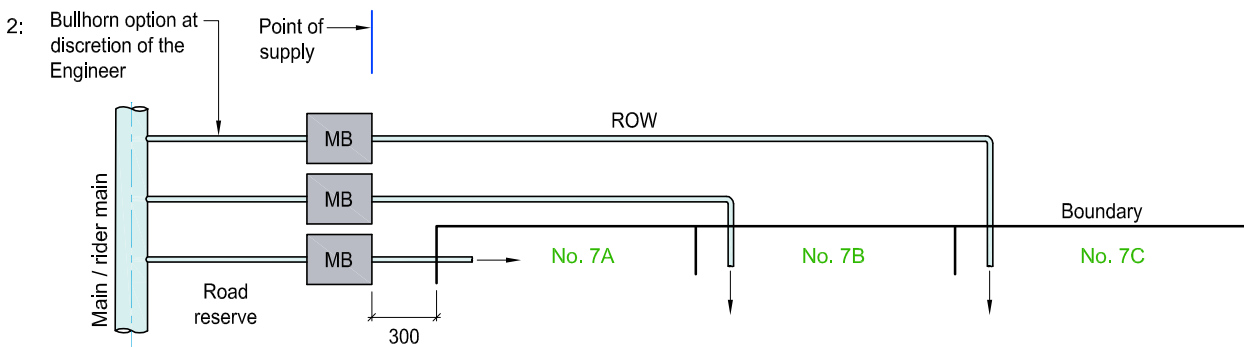
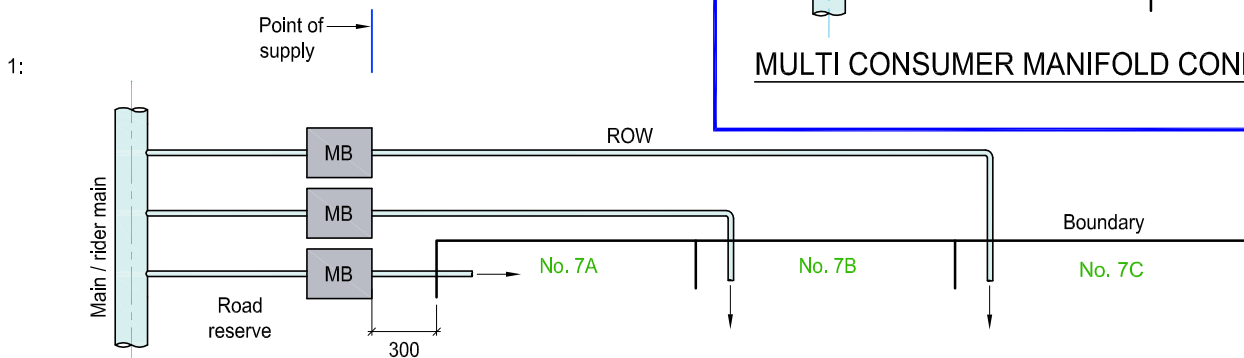
W731



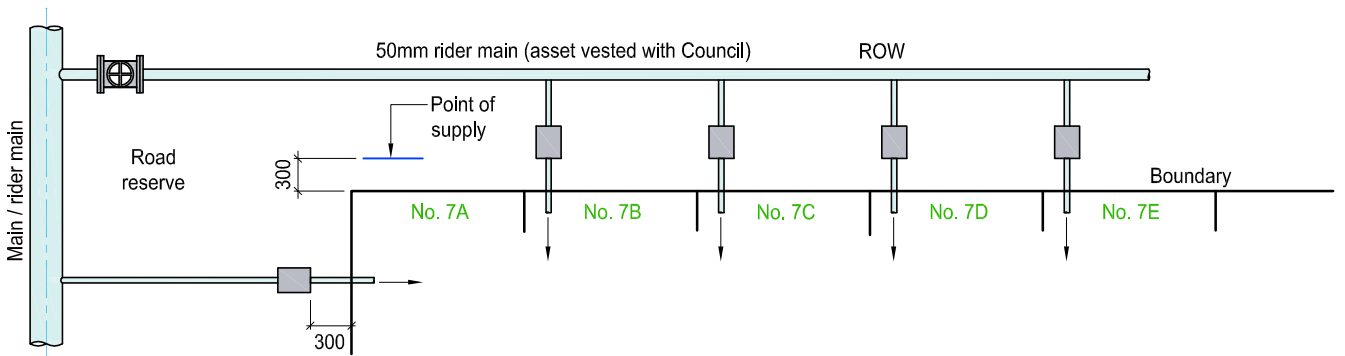
SINGLE USER MANIFOLD CONNECTION



MULTI CONSUMER MANIFOLD CONNECTION



UP TO TWO CUSTOMERS FOR BACK LOTS (two alternatives)



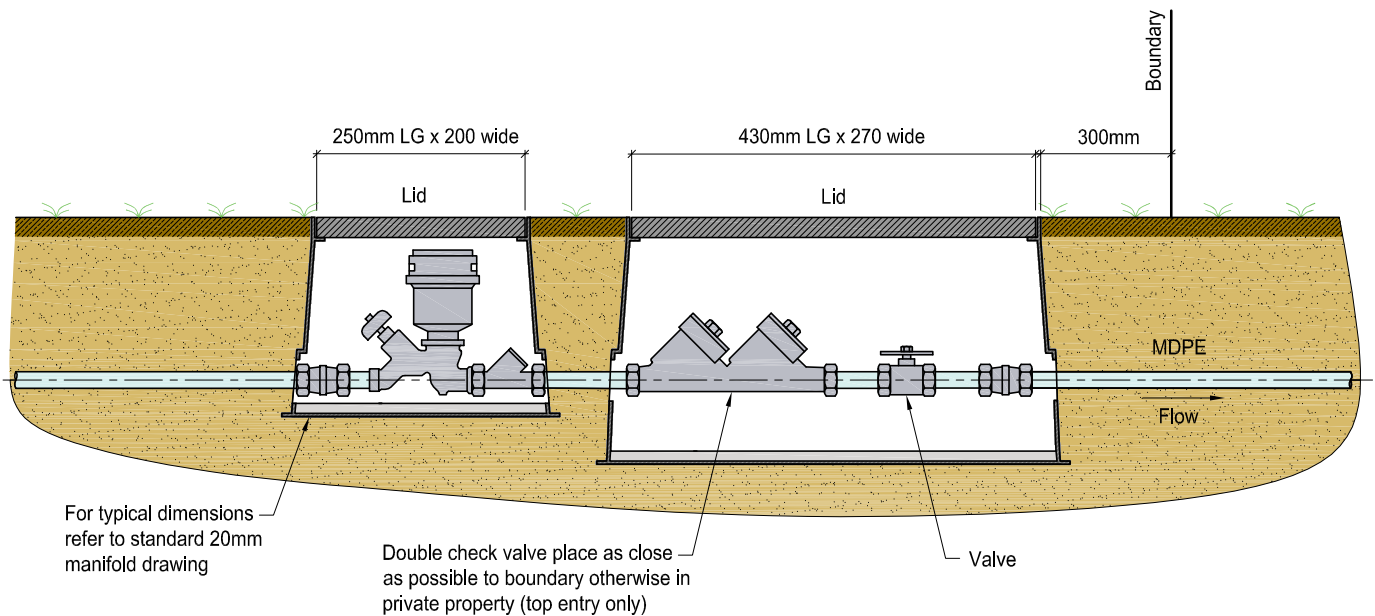
SIX AND MORE CUSTOMERS FOR BACK LOTS

PROPERTY CONNECTION
 MULTIPLE 20mm MANIFOLD CONNECTIONS

W732

NOTES:

1. Meter installation in accordance with manufacturers specification or otherwise minimum 5 x pipe diameter.
2. Meter box to be manufactured to Nextep standard or equivalent.



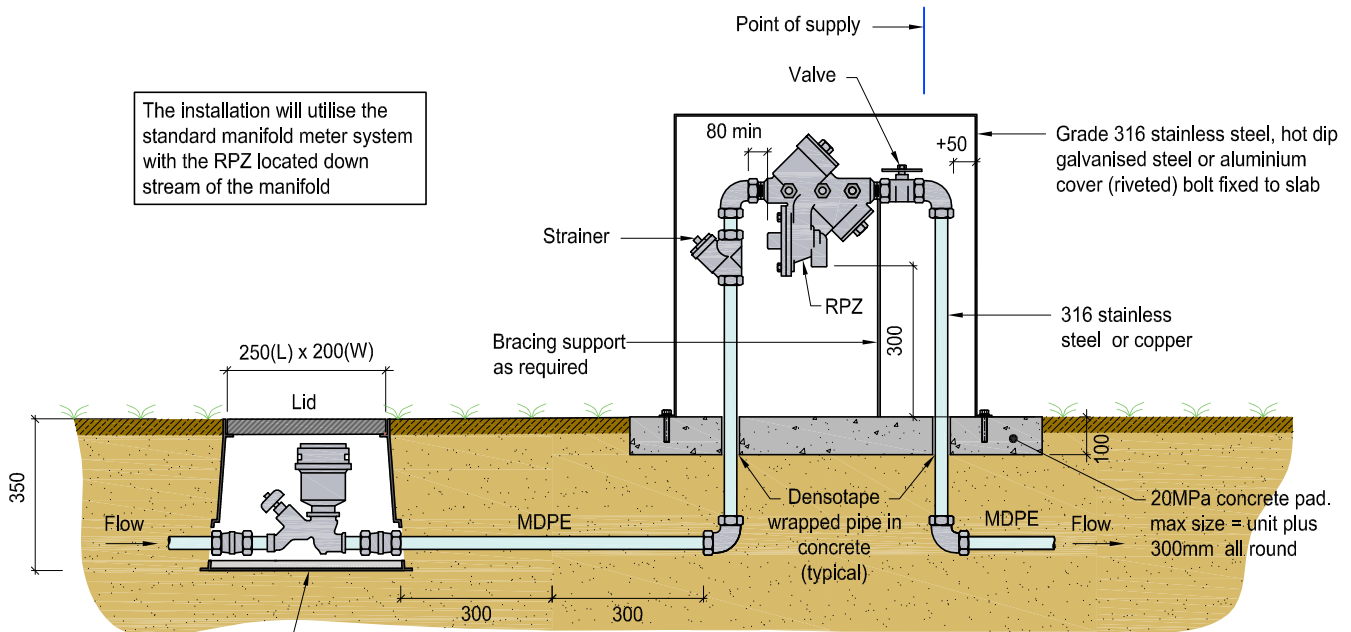
PROPERTY CONNECTION

20mm CONNECTION REQUIRING DOUBLE CHECK VALVE

W733

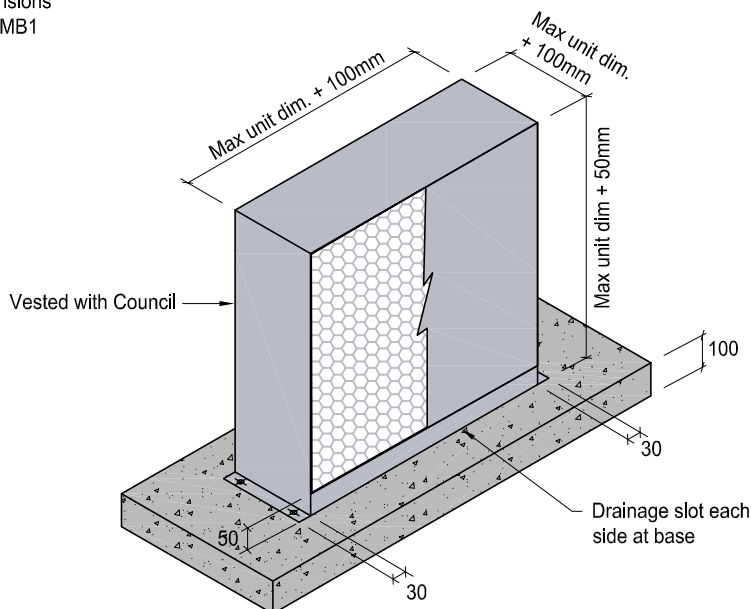
NOTES:

1. Meter Installation in accordance with manufacturers specification or otherwise minimum 5 x pipe diameter.
2. Above ground components installed parallel with boundary.
3. Protective cage as per standard drawing.
4. Ground stabilisation to be determined by a standard compaction test to ensure no settlement of meter box.
5. As a minimum, all backflow devices to be installed and supported to manufacturers specification.
6. Valves to be located in vertical or horizontal position to suit installation.



The installation will utilise the standard manifold meter system with the RPZ located downstream of the manifold

For typical dimensions refer MB1



Grade 316 SS, HOT DIPPED GALVANISED OR ALUMINIUM COVER

PROPERTY CONNECTION

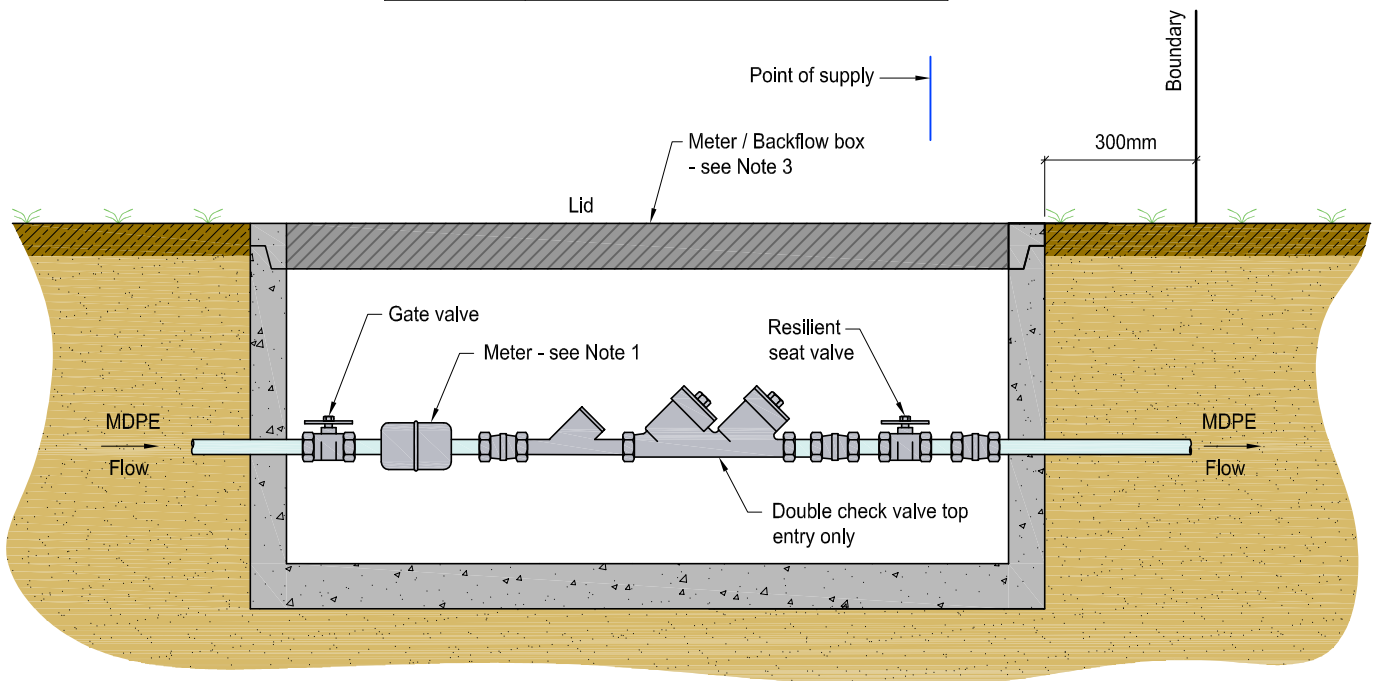
20mm CONNECTION REQUIRING RPZ INSTALLATION

W734

NOTES:

1. Meter installation in accordance with manufacturer's specification or otherwise minimum 5 times pipe diameter.
2. Meter box to be manufactured to Nextep standard or equivalent.

Connection Size (mm)	Meter Size
25 / 40	Meter size to be in accordance with Council standard water connection sizes



PROPERTY CONNECTION

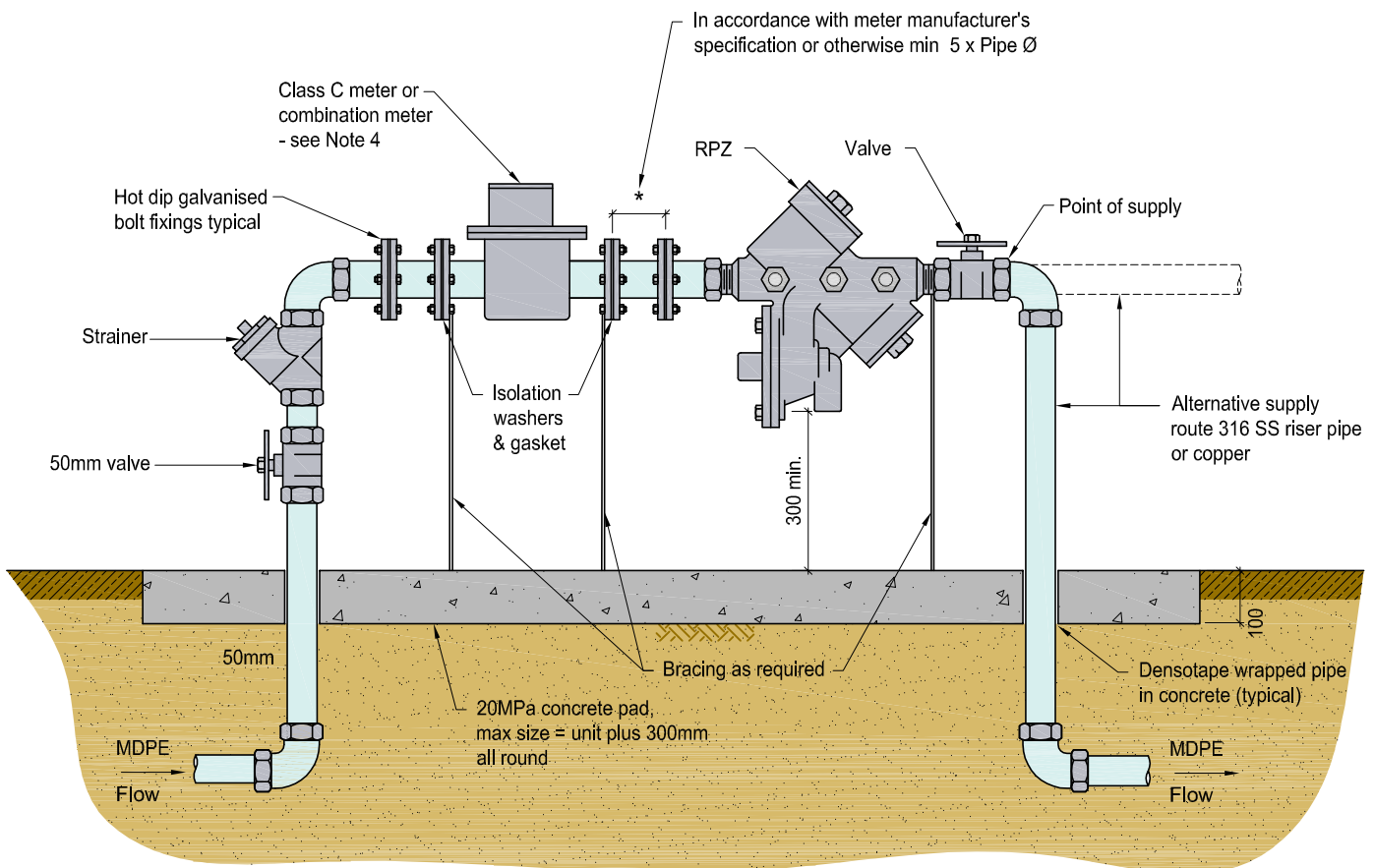
25mm OR 40mm METER INSTALLATION WITH DOUBLE CHECK VALVE

W735

NOTES:

1. Meter Installation in accordance with manufacturers specification or otherwise minimum 5 x pipe diameter.
2. Above ground components installed parallel with boundary.
3. Protective cage as per standard drawing.
4. Ground stabilisation to be determined by a standard compaction test to ensure no settlement of meter box.
5. As a minimum, all backflow devices to be installed and supported to manufacturers specification.
6. Valves to be located in vertical or horizontal position to suit installation.
7. Isolation washers and gaskets to be used between components of dissimilar metals.

Connection size (mm)	Meter size
Up to 50	Meter size to be in accordance with Council standard water connection sizes



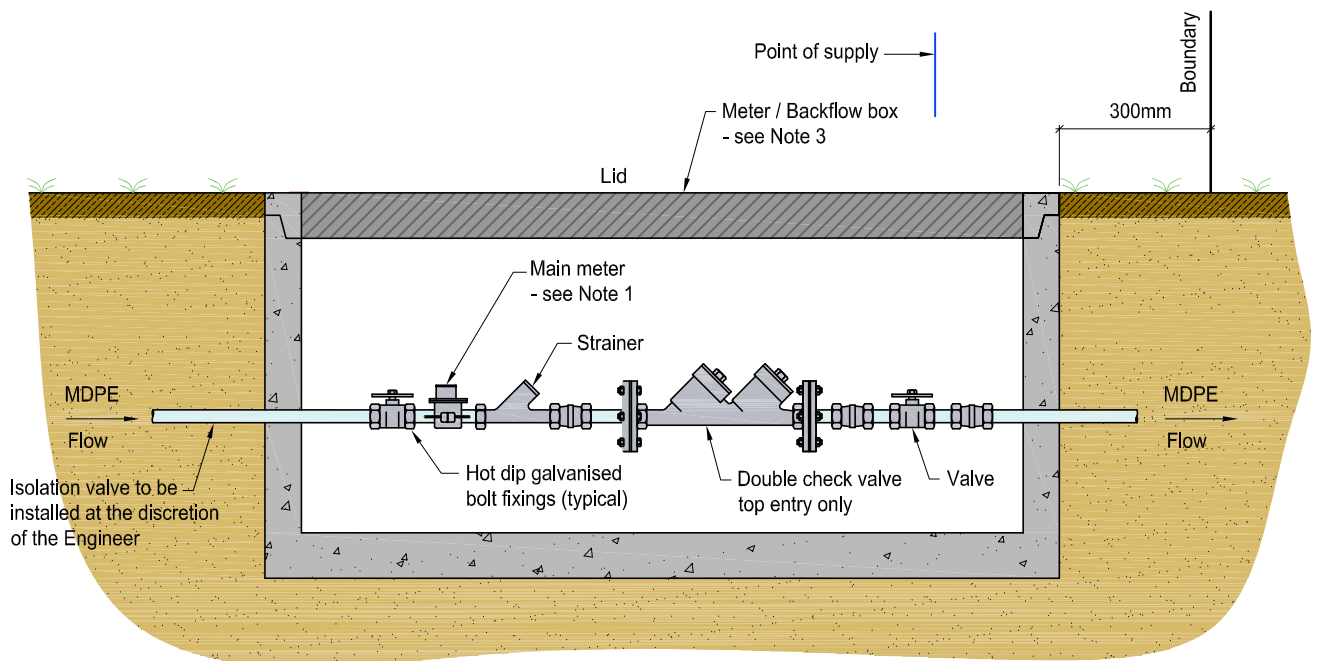
PROPERTY CONNECTION

25mm OR 40mm METER INSTALLATION WITH RPZ

W736

NOTES:

1. Meter installation in accordance with manufacturer's specification or otherwise min. 5 times pipe diameter.
2. Isolation washers and gaskets to be used between components of dissimilar metals.
3. Meter box to be manufactured to Nextep standard or equivalent



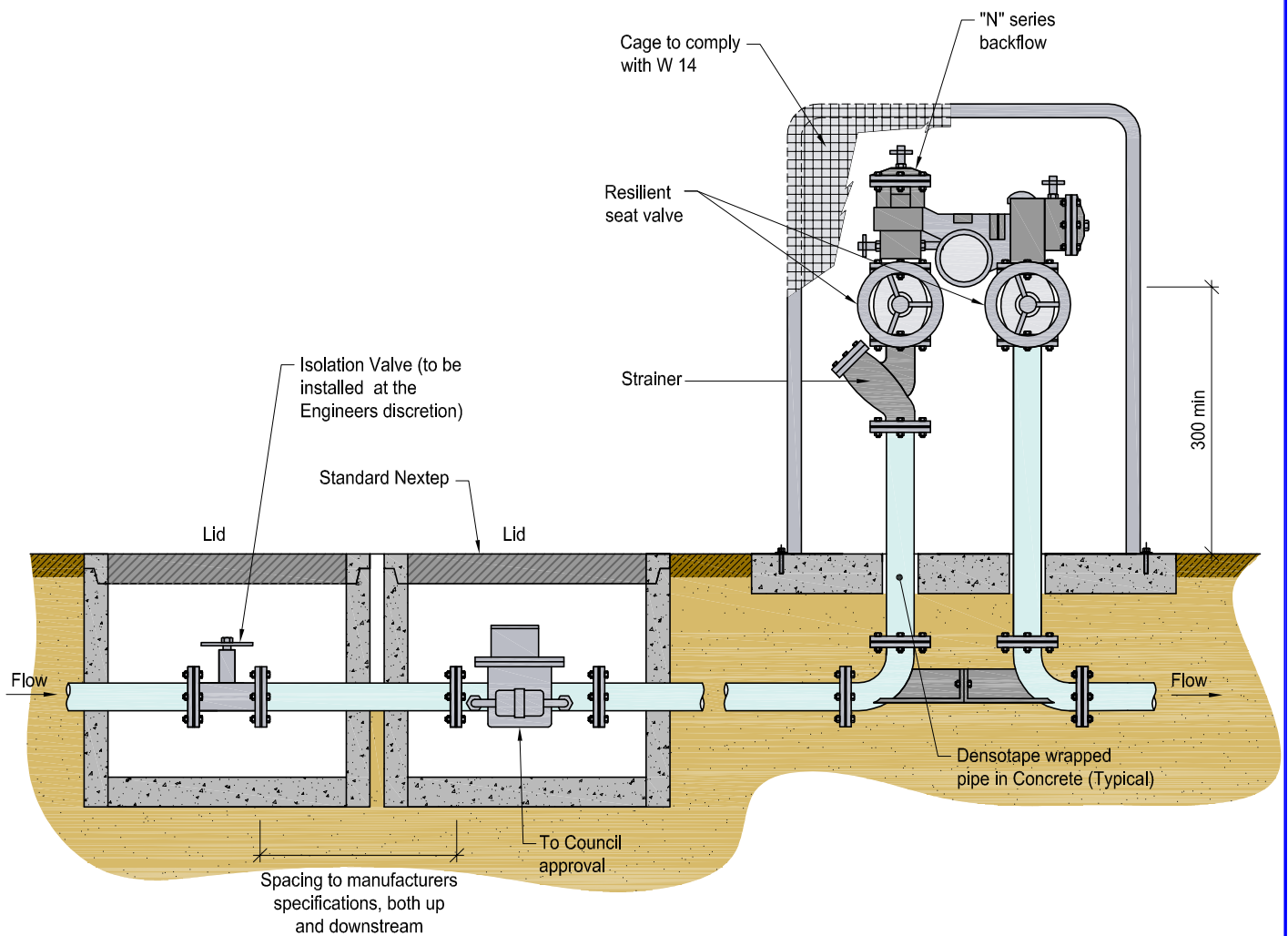
PROPERTY CONNECTION

50mm COMBINATION METER INSTALLATION WITH DOUBLE CHECK VALVE

W737

NOTES:

1. Meter Installation in accordance with manufacturers specification or otherwise minimum 5 x pipe diameter.
2. Above ground components installed parallel with boundary.
3. Protective cage as per standard drawing.
4. Ground stabilisation to be determined by a standard compaction test to ensure no settlement of meter box.
5. As a minimum, all backflow devices to be installed and supported to manufacturers specification.
6. Valves to be located in vertical or horizontal position to suit installation.
7. Isolation washers and gaskets to be used between components of dissimilar metals.



PROPERTY CONNECTION

COMBINATION METER INSTALLATION WITH RPZ

W738

DEVELOPMENT CODE

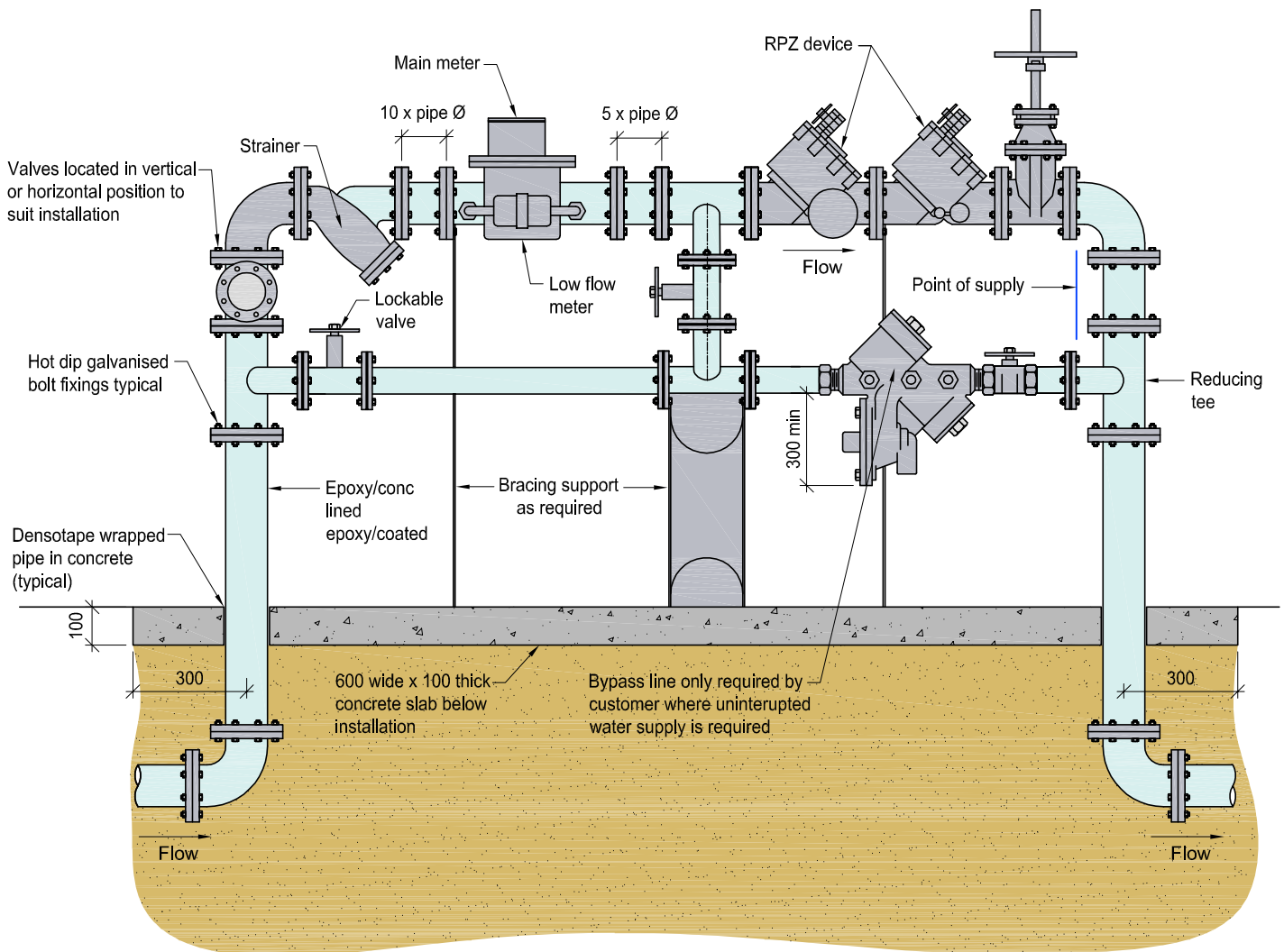
VERSION 1
AUG 09

1

NOTES:

1. Meter Installation in accordance with manufacturers specification or otherwise minimum 5 x pipe diameter.
2. Above ground components installed parallel with boundary.
3. Protective cage as per standard drawing.
4. Ground stabilisation to be determined by a standard compaction test to ensure no settlement of meter box.
5. As a minimum, all backflow devices to be installed and supported to manufacturers specification.
6. Valves to be located in vertical or horizontal position to suit installation.
7. Isolation washers and gaskets to be used between components of dissimilar metals.

Combination Meter Size
Meter sizes to be in accordance with Council standard connection sizes



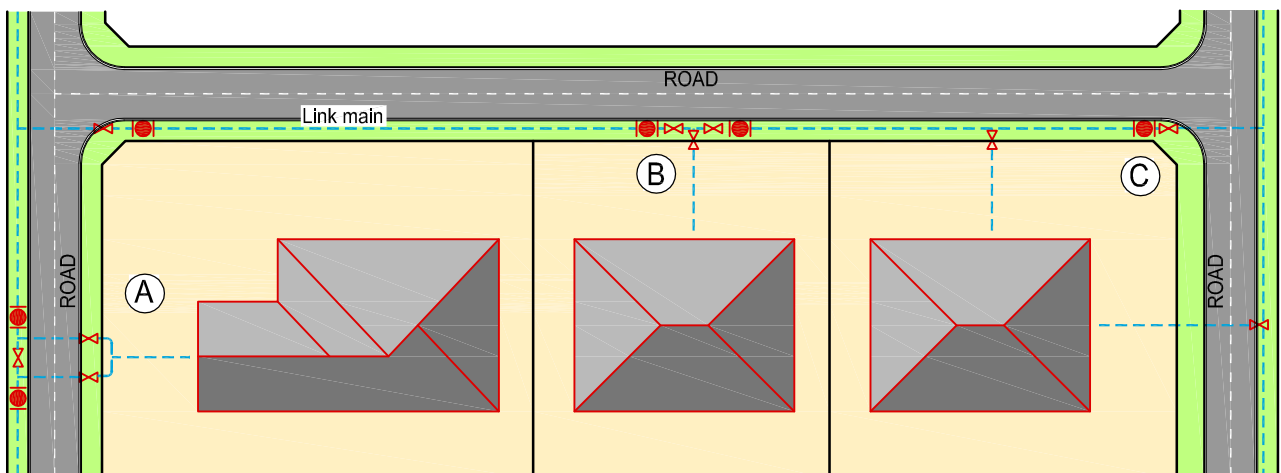
PROPERTY CONNECTION

COMBINATION METER INSTALLATION WITH RPZ & BYPASS OPTION

W739

NOTES:

1. Example A
Feed from two directions off a large diameter water main. The arrangement is more complicated than example B, but is justified by the cost of an additional large diameter stop valve which would be required if using example B.
2. Example B
Feed from two directions off a smaller diameter main. This is a simpler arrangement than example A, but requires two valves on the main.
3. Example C
Feed from two separate mains, for fire supply only.



INDUSTRIAL / COMMERCIAL PROPERTIES

X	Valve
●	Hydrant

PROPERTY CONNECTION

SECURE CONNECTION

W740

DEVELOPMENT CODE

VERSION 1
AUG 09

1