# Appendix 1 Standard Details

The following Standard Details are provided below:

DR01 – Manhole Details

DR02 – Internal Drop Details

DR03 – Typical Trench and Waterstop Details

DR04 – Baffled Sump Plan and Sections

DR05 – Trapped Yard Sump

DR06 – Possible Location for Stormwater Soakage in Upper Hutt

DR07 – Lateral Connections to Public Stormwater or Wastewater Mains

DR08 – Tree Dripline

DR09 – Building in Close Proximity

WS01 – Typical Water Reticulation Layout

WS02 – Water Distribution Pipe Junctions and Connections

WS03 – Typical Thrust Block Details

WS04 – Typical Anchor Block Details

WS05 – Typical Valve Details

WS06 – Rider Main Scour Detail

WS07 – Fire Hydrant Box

WS08 – Typical Domestic Manifold and Water Meter

WS09 – Below Ground Meter and Backflow Installation

WS10 – Above Ground Meter and Backflow Installation

WS11 – Below Ground Meter and Backflow Installation

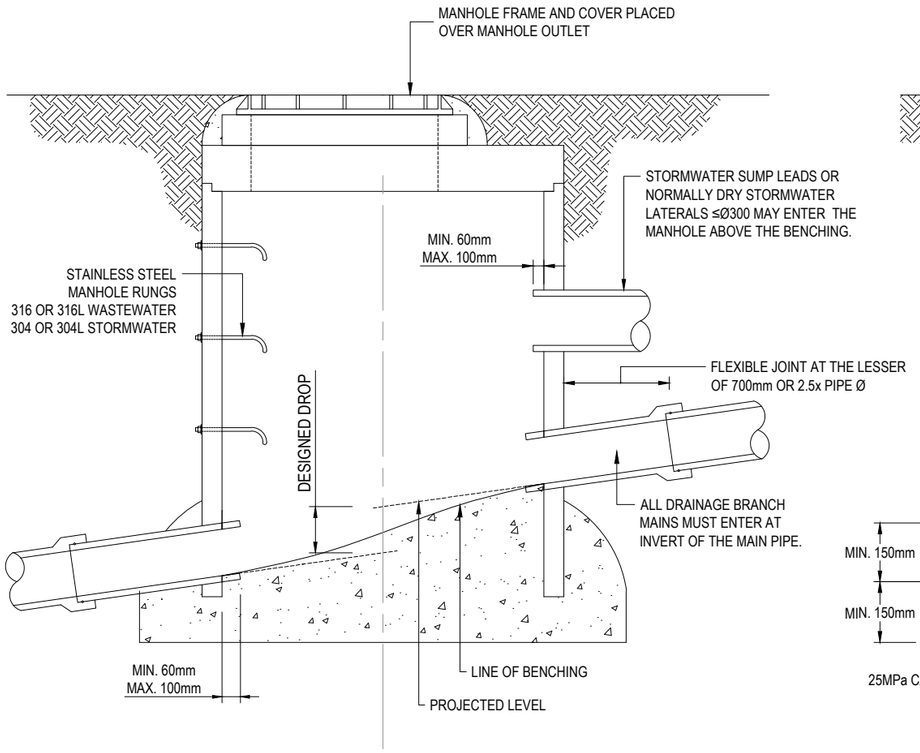
WS12 – Above Ground Meter and Backflow Installation

WS13 – Fire Service and Metered Supply

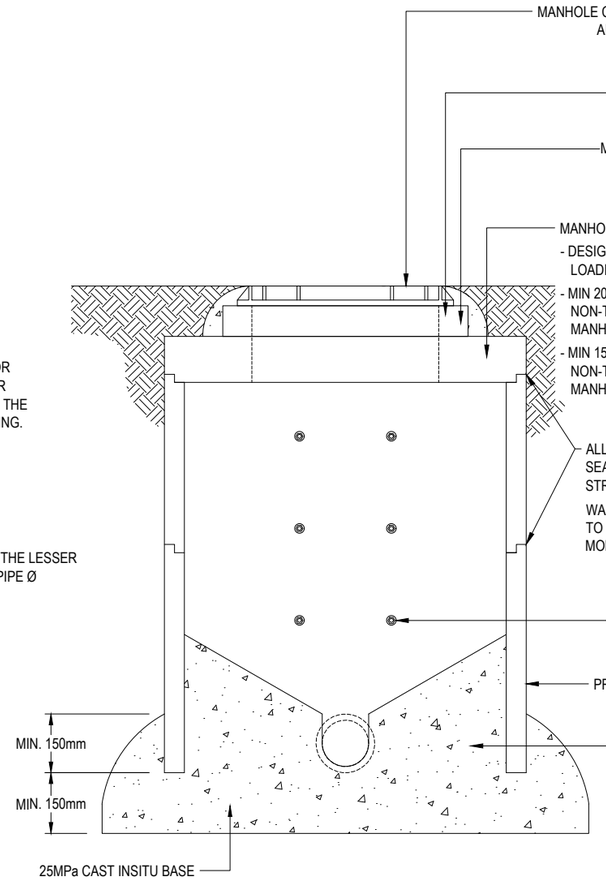
WS14 – Examples of Water Main Connections

NOTES:

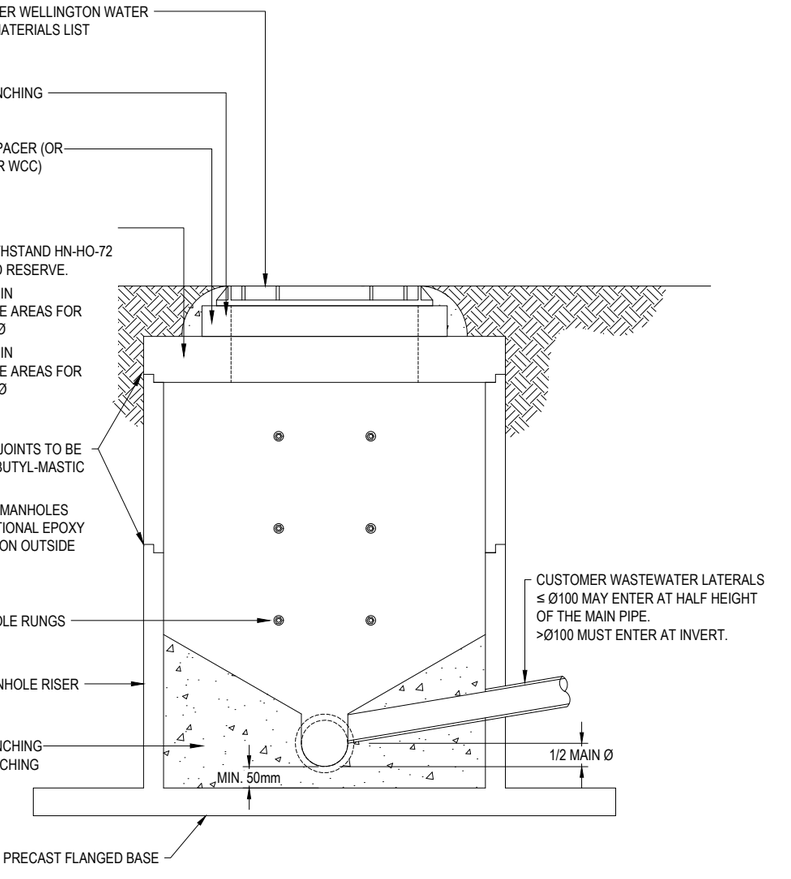
1. MANHOLES AND BASES TO BE DESIGNED AGAINST FLOATATION WITH A SAFETY FACTOR OF 1.25 IN AREAS OF HIGH WATER TABLE OR LIQUEFACTION POTENTIAL.
2. MANHOLE BENCHING AND BASE TO BE POURED TO A MINIMUM 150mm BELOW LOWEST PIPE INVERT. THIS INCLUDES MINIMUM DEPTH BETWEEN LOWEST PIPE INVERT AND PRECAST FLANGED BASE.
3. SAFETY GRILLES SHALL BE FITTED INTO MANHOLE ACCESS LID FRAMES FOR ALL NEW MANHOLES THAT ARE 3m OR DEEPER. GRILLES SHALL COMPLY WITH AS3996 CLASS A AND BE CONSTRUCTED FROM STAINLESS STEEL 316L GRADE OR AN APROVED ALTERNATIVE MATERIAL WITH ADEQUATE STRENGTH AND CORROSION PROPERTIES.




CROSS SECTION THROUGH STANDARD MANHOLE




TYPICAL MANHOLE BENCHING AND HAUNCHING DETAILS




TYPICAL MANHOLE BENCHING AND HAUNCHING DETAILS

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |
| B | MANHOLE DETAILS AMENDMENT | AL | | | 03/21 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | A MCDONALD | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | T STRANG | 11/21 |
| APPROVED | T STRANG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## MANHOLE DETAILS

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. DR01



WARNING: PRINTED COPIES ARE UNCONTROLLED

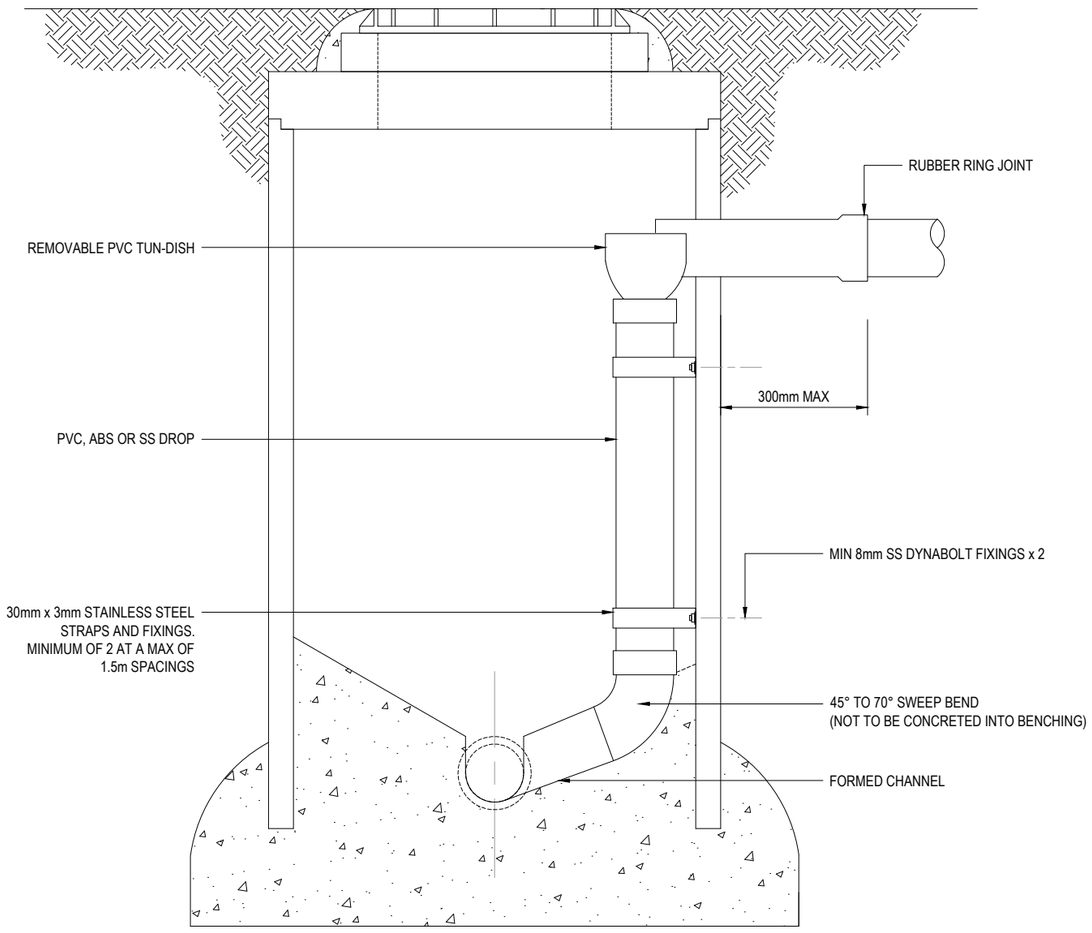
COLOUR PLOT

PLOT DETAILS:
Date Plotted: Nov 26, 2021 - 4:05pm
Plotted By: Andrew Lim

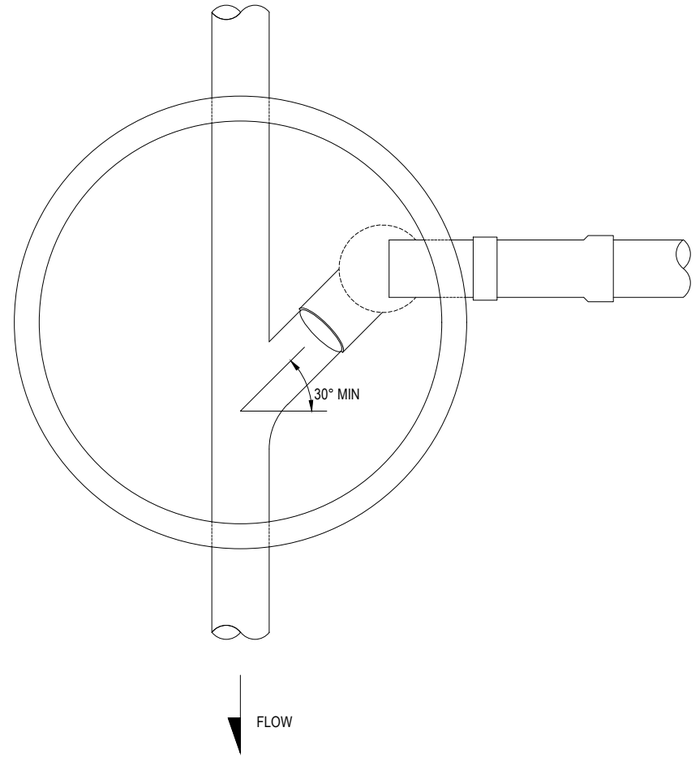
File Name: DR01 (2021) Manhole details.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\DR01-05

NOTES:

1. MINIMUM INTERNAL CLEARANCE BETWEEN DROP STRUCTURE AND OPPOSITE MANHOLE WALL SHALL BE 1000mm.
2. ALL METALLIC FIXINGS SHALL BE STAINLESS STEEL.
3. INTERNAL DROP SHALL BE FOR A MAXIMUM OF 225Ø.




TYPICAL INTERNAL DROP DETAILS




PLAN VIEW

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | T STRANG | 11/21 |
| APPROVED | T STRANG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## INTERNAL DROP DETAILS

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

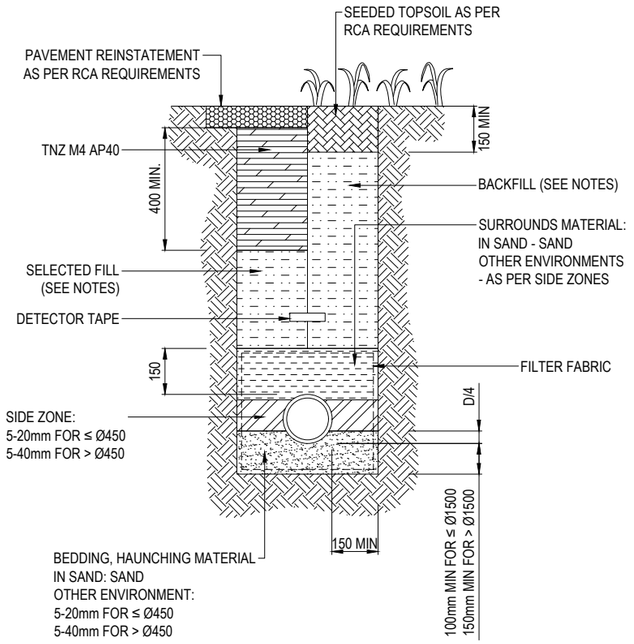
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. DR02

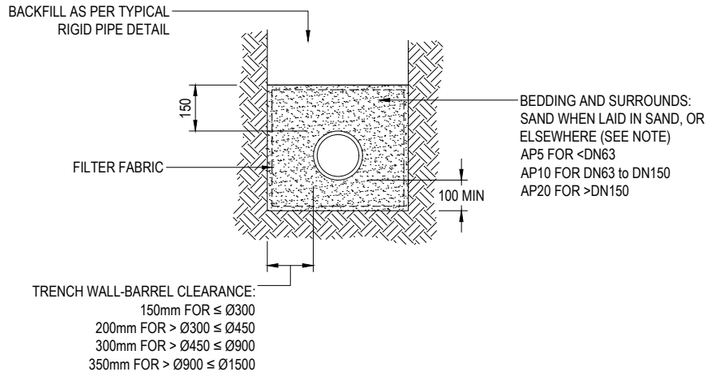


PLOT DETAILS:
Date Plotted: Nov 26, 2021 - 4:14pm
Plotted By: Andrew Lim

File Name: DR02 (2021) Internal drop details.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\DR01-05



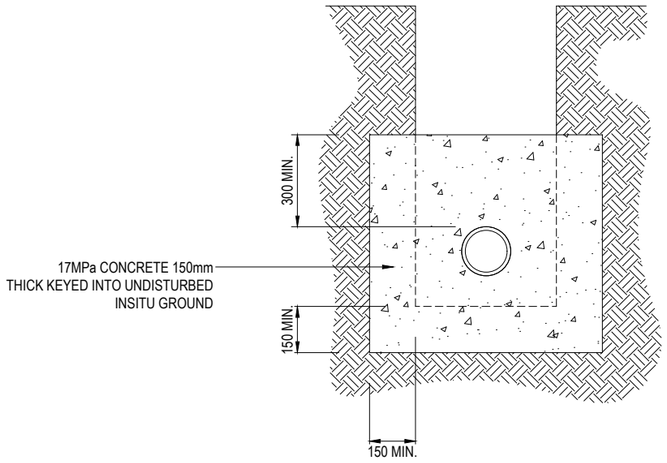

TYPICAL RIGID PIPE
TRENCH DETAIL

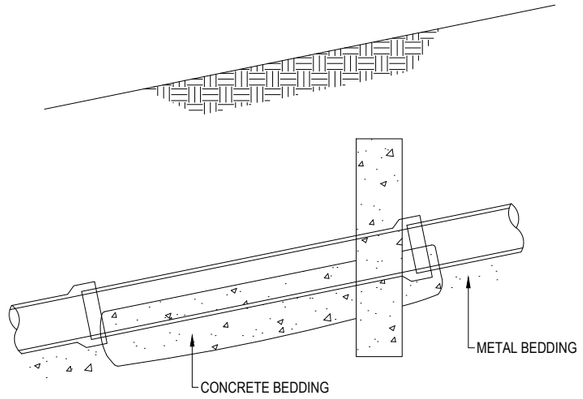



TYPICAL FLEXIBLE PIPE
BEDDING AND SURROUNDS DETAIL

NOTES:

1. BACKFILL IS GENERALLY AP40 OR AP65 BUT THIS MAY DIFFER IN CERTAIN AREAS IN ACCORDANCE WITH RCA OR OTHER REQUIREMENTS.
2. RIGID PIPES INCLUDE: CONCRETE PIPES, EARTHENWARE PIPES.
3. FLEXIBLE PIPES INCLUDE ALL PVC PIPES, ALL POLYETHYLENE PIPES, COPPER, POLYBUTYLENE, CORRUGATED STEEL AND ALUMINIUM PIPES, STEEL AND DUCTILE IRON PIPES.
4. FOR FLEXIBLE PIPES, BEDDING AND SURROUNDS MAY BE SINGLE SIZE AGGREGATE WHERE NECESSARY, FOR EXAMPLE 5-14mm OR 8mm DOWN.




TYPICAL WATERSTOP DETAIL

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | T STRANG | 11/21 |
| APPROVED | T STRANG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

TYPICAL TRENCH AND WATERSTOP DETAILS

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -
DRAWING N°. DR03

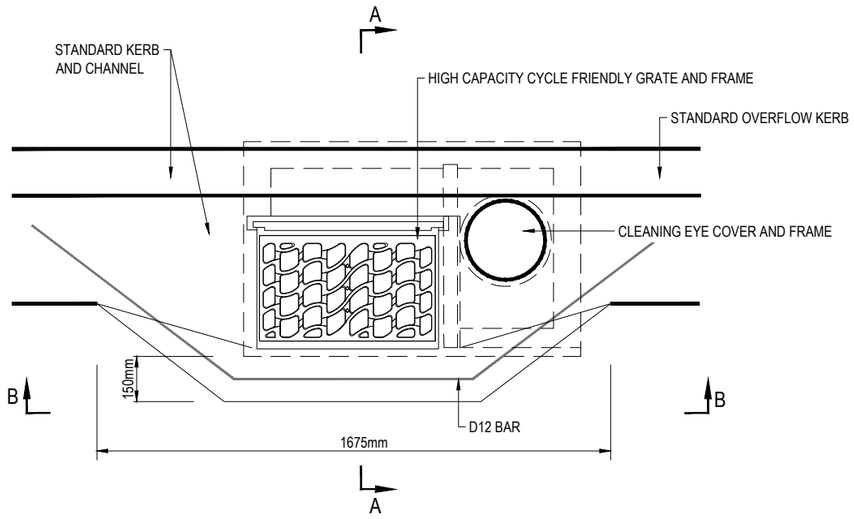


WARNING: PRINTED COPIES ARE UNCONTROLLED

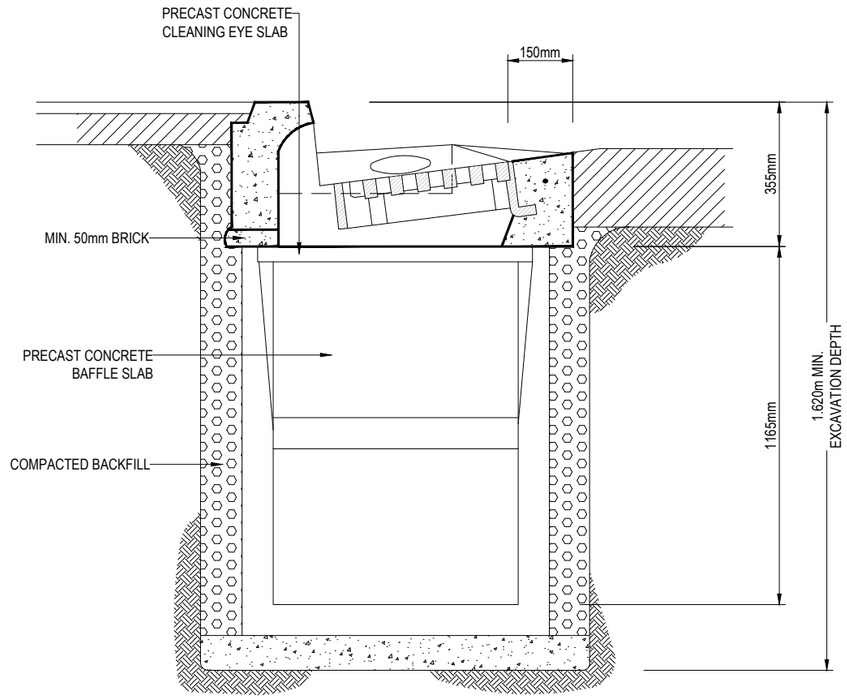
COLOUR PLOT

PLOT DETAILS:
Date Plotted: Dec 01, 2021 - 4:17pm
Plotted By: Andrew Lim

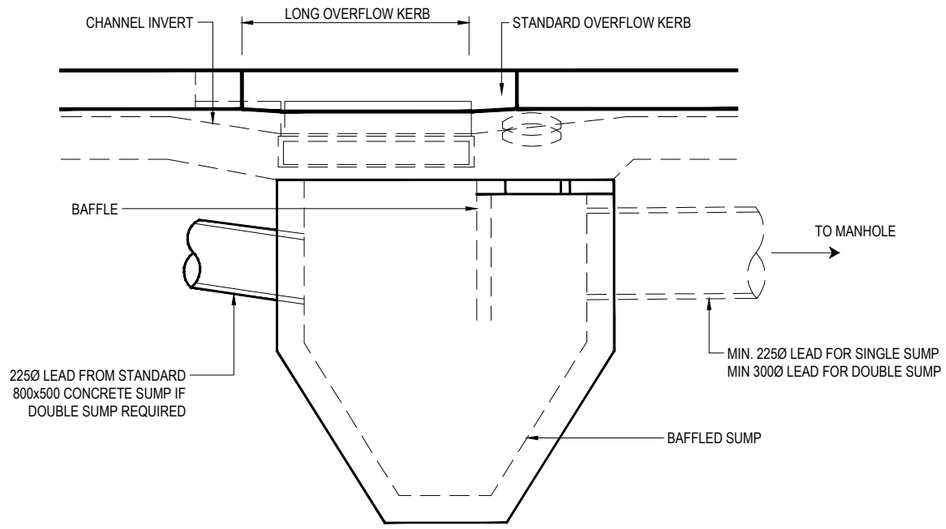
File Name: DR03 (2021) Trench and water stop details.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\DR01-05




SINGLE BAFFLED SUMP - PLAN




SECTION A-A




SECTION B-B

NOTES:
1. SUMPS ALSO REQUIRE COUNCIL RCA APPROVAL.

| REV | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | 02/20 |
| B | NOTE ADDED | JS | | 07/24 |

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | T STRANG | 11/21 |
| APPROVED | T STRANG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

BAFFLED SUMP
PLAN AND SECTIONS

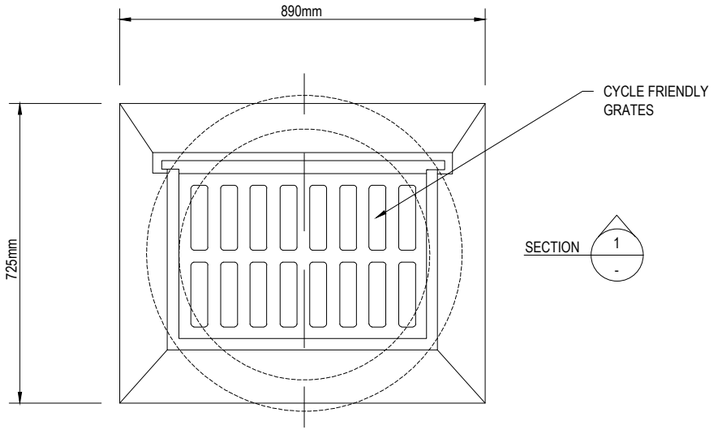
SCALE: NOT TO SCALE
SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1
PROJECT/FILE NUMBER: -
DRAWING N°. DR04



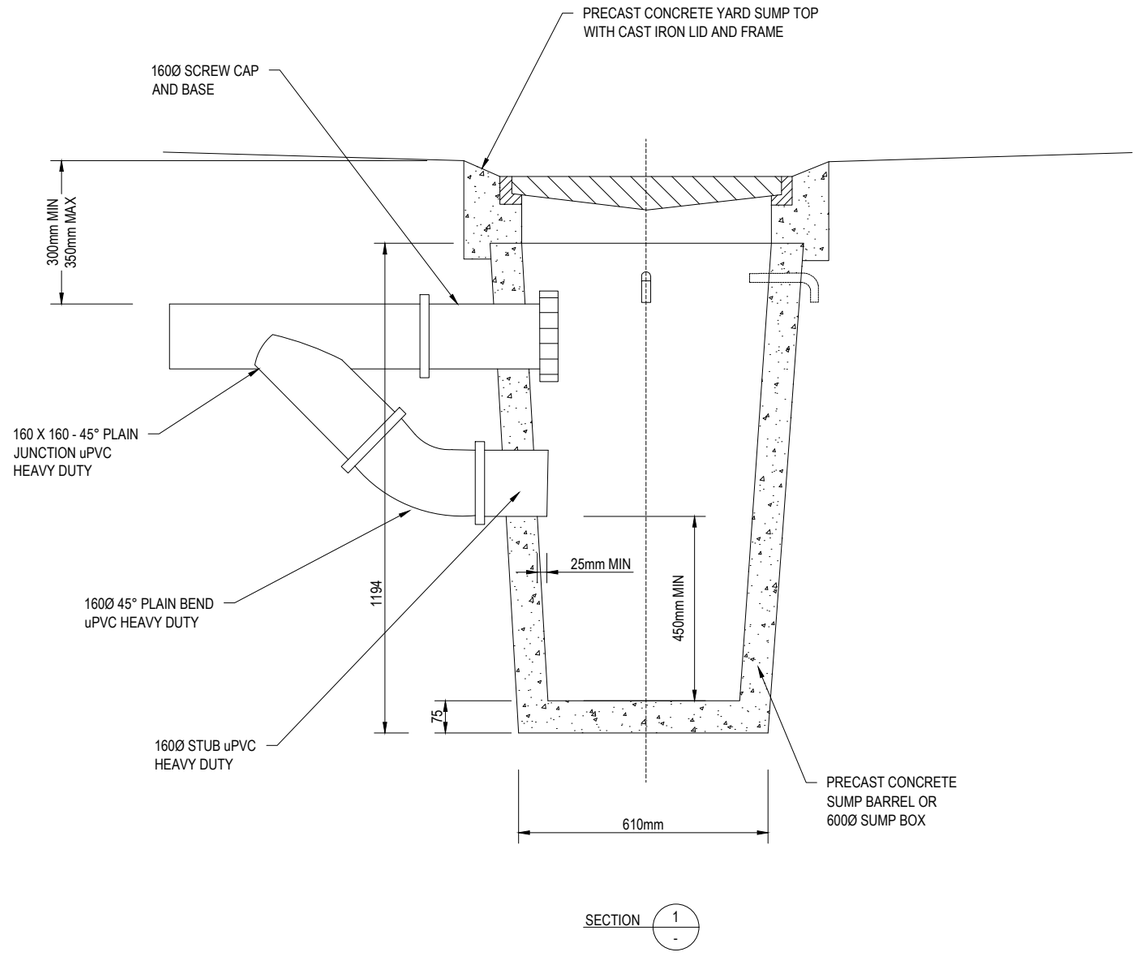
WARNING: PRINTED COPIES ARE UNCONTROLLED

COLOUR PLOT

PLOT DETAILS:
Date Plotted:
Plotted By: Jack Scott
File Name:
File Location: C:\USERS\JACK.SCOTT\ONEDRIVE - WELLINGTONWATER\DOCUMENTS\REGIONAL SPEC DRAWINGS




PLAN




| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | T STRANG | 11/21 |
| APPROVED | T STRANG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## TRAPPED YARD SUMP

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. DR05

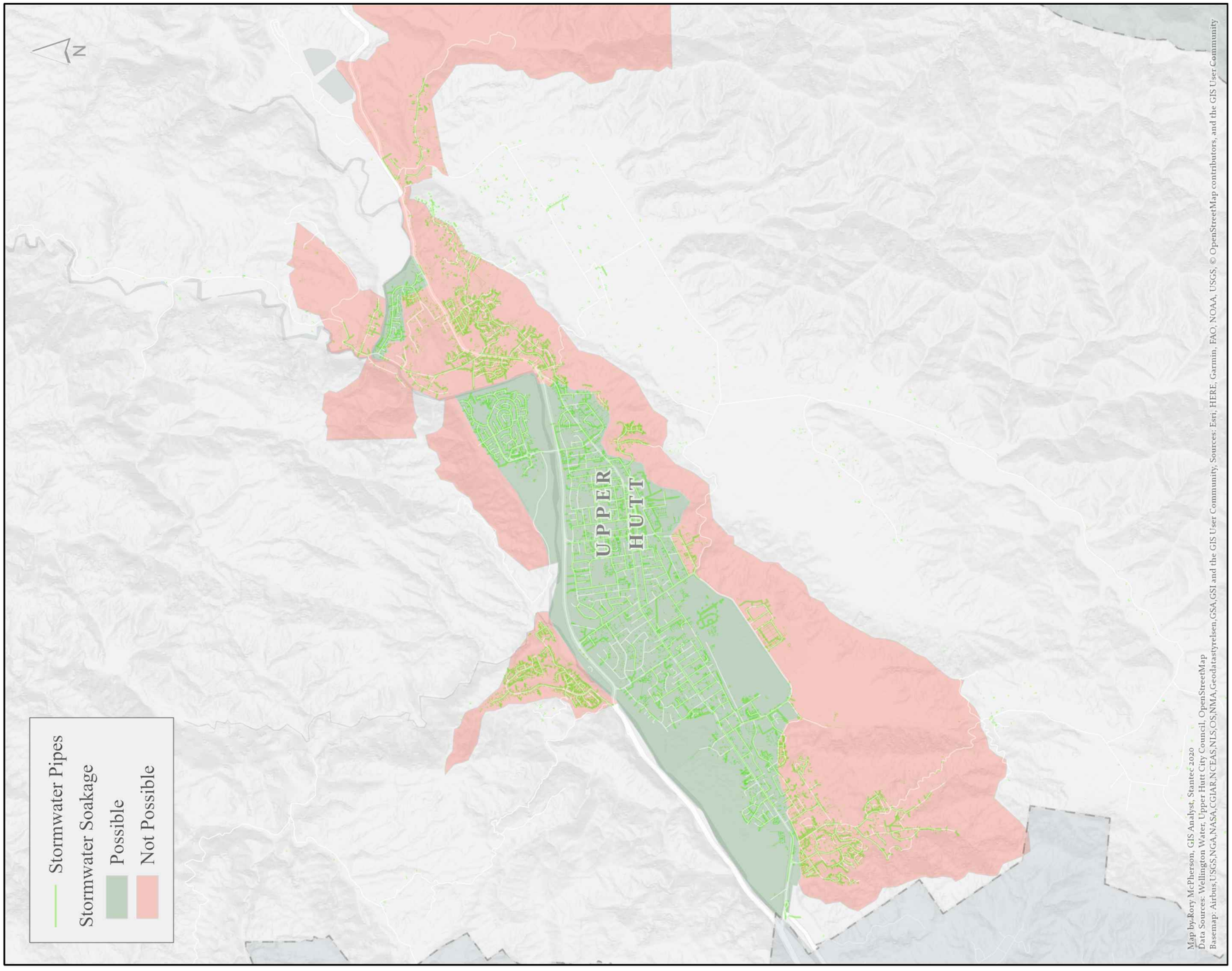


WARNING: PRINTED COPIES ARE UNCONTROLLED

COLOUR PLOT

PLOT DETAILS:
Date Plotted: Nov 29, 2021 - 9:44am
Plotted By: Andrew Lim

File Name: DR05 (2021) Trapped yard sump.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\DR01-05




| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY | AA | | 02/20 | | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | T STRANG | 11/21 |
| APPROVED | T STRANG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## POSSIBLE LOCATION FOR STORMWATER SOAKAGE IN UPPER HUTT

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. DR06

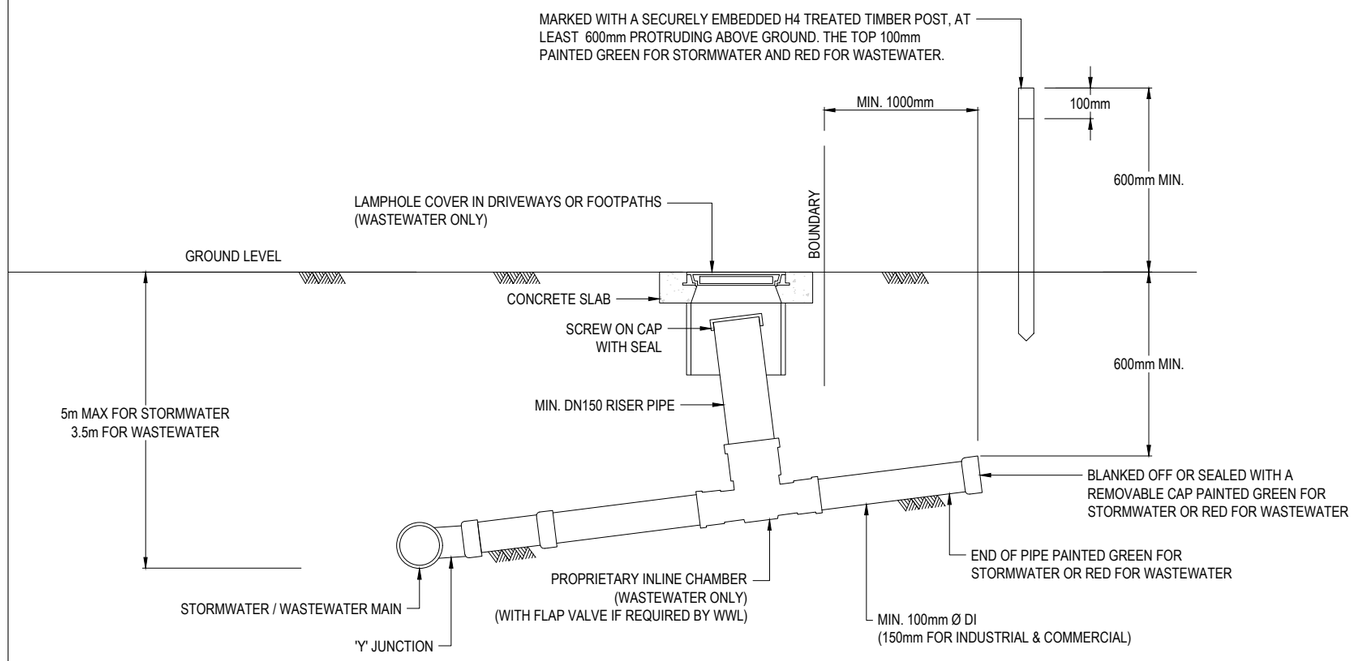


WARNING: PRINTED COPIES ARE UNCONTROLLED

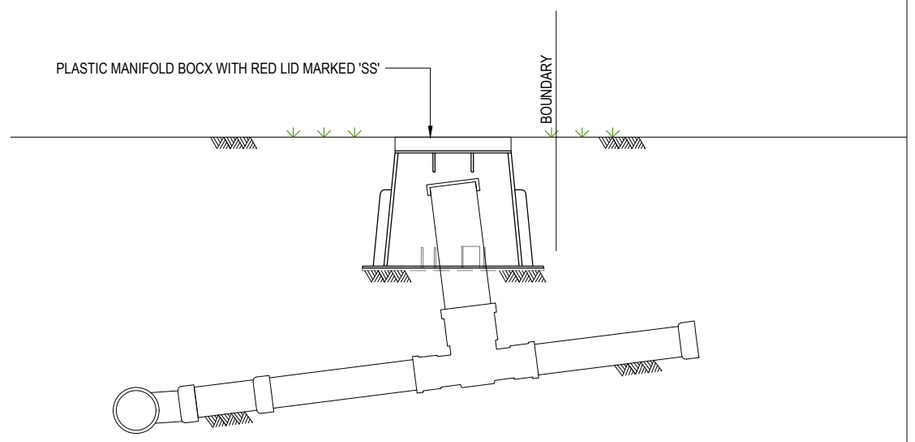
COLOUR PLOT

PLOT DETAILS:
Date Plotted: Dec 01, 2021 - 4:42pm
Plotted By: Andrew Lim

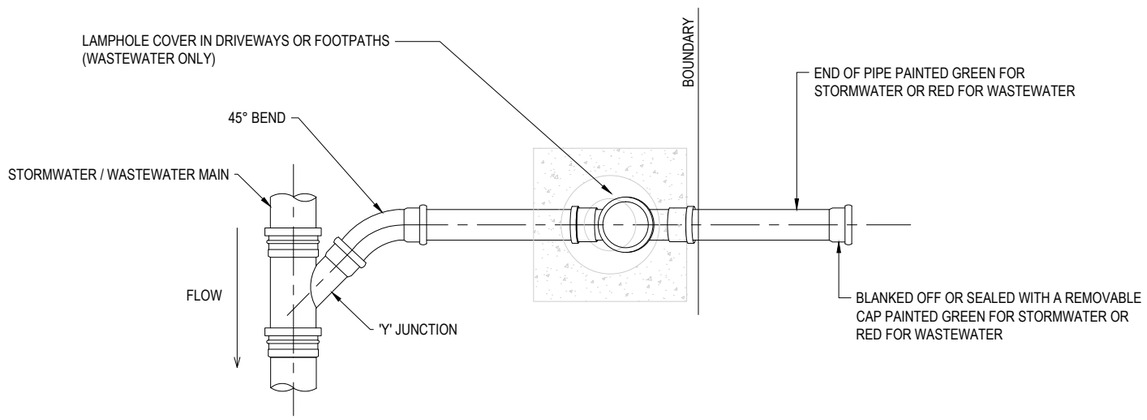
File Name: DR06 (2021) Stormwater soakage map.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\DR01-05



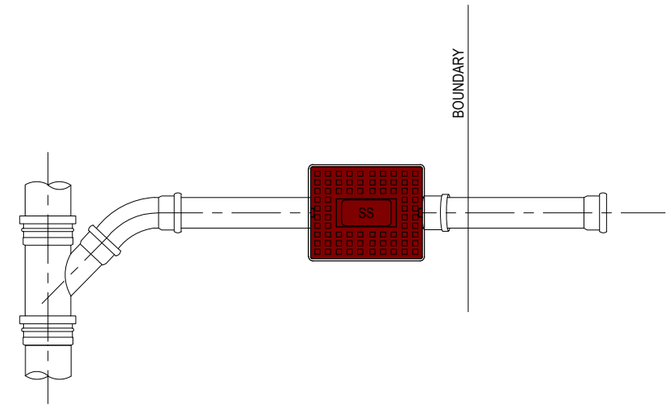

STANDARD STORMWATER OR WASTEWATER CONNECTION TO PUBLIC - SECTION VIEW




CLEANING EYE DETAIL FOR WASTEWATER CONNECTIONS IN GARDEN OR BERN AREAS - SECTION VIEW




STANDARD STORMWATER OR WASTEWATER CONNECTION TO PUBLIC - PLAN VIEW (SEALED AREAS, E.G. FOOTPATHS, DRIVEWAYS)




CLEANING EYE DETAIL FOR WASTEWATER CONNECTIONS IN GARDEN OR BERM AREAS - PLAN VIEW

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY | AL | | | 03/20 | | | | |
| B | CLEANING EYE DETAIL ADDED | AL | TS | | 10/21 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | T STRANG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | T STRANG | 11/21 |
| APPROVED | T STRANG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

LATERAL CONNECTIONS TO PUBLIC STORMWATER OR WASTEWATER MAIN

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. DR07

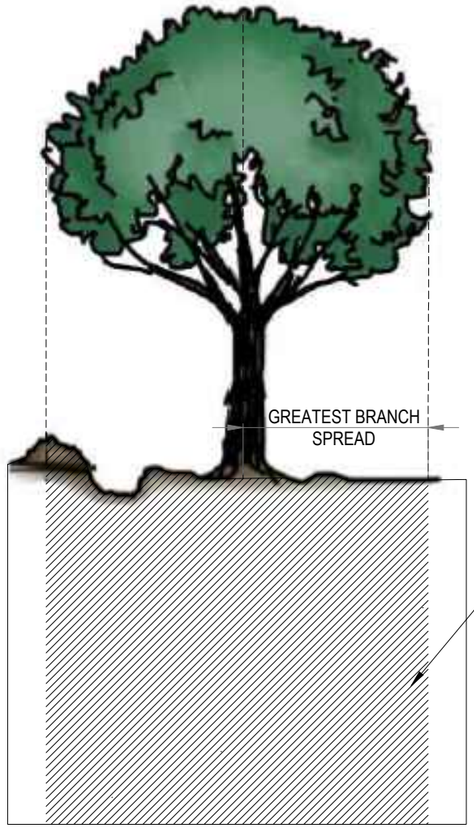


WARNING: PRINTED COPIES ARE UNCONTROLLED

COLOUR PLOT

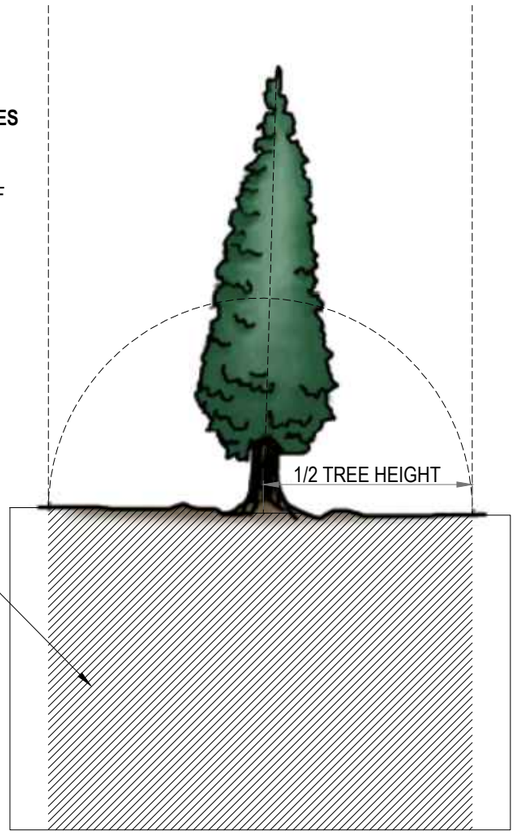
PLOT DETAILS:
Date Plotted: Dec 02, 2021 - 1:13pm
Plotted By: Andrew Lim

File Name: DR07 (2021) Lateral connections.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\EXCEL SHEET LIST




**SPREADING CANOPY TREES**

THE DRIPLINE IS DEFINED AS THE OUTER EXTENT OF THE BRANCH SPREAD.




**COLUMNAR CANOPY TREES**

THE DRIPLINE IS CALCULATED AS HALF THE HEIGHT OF THE TREE.

NOTES:

1. IF IN DOUBT ABOUT WHICH TO APPLY, USE WHICHEVER OF THE TWO MEASUREMENTS IS GREATER.
2. WITH IRREGULAR SHAPED TREES (e.g. LEANING TREES), THE DRIPLINE IS CALCULATED BY TAKING THE GREATEST RADIAL SPREAD OF THE CANOPY FROM THE TRUNK IN A FULL CIRCLE AROUND THE TREE.

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 03/20 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | T STRANG | 11/21 |
| APPROVED | T STRANG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

TREE DRIPLINE

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. DR08

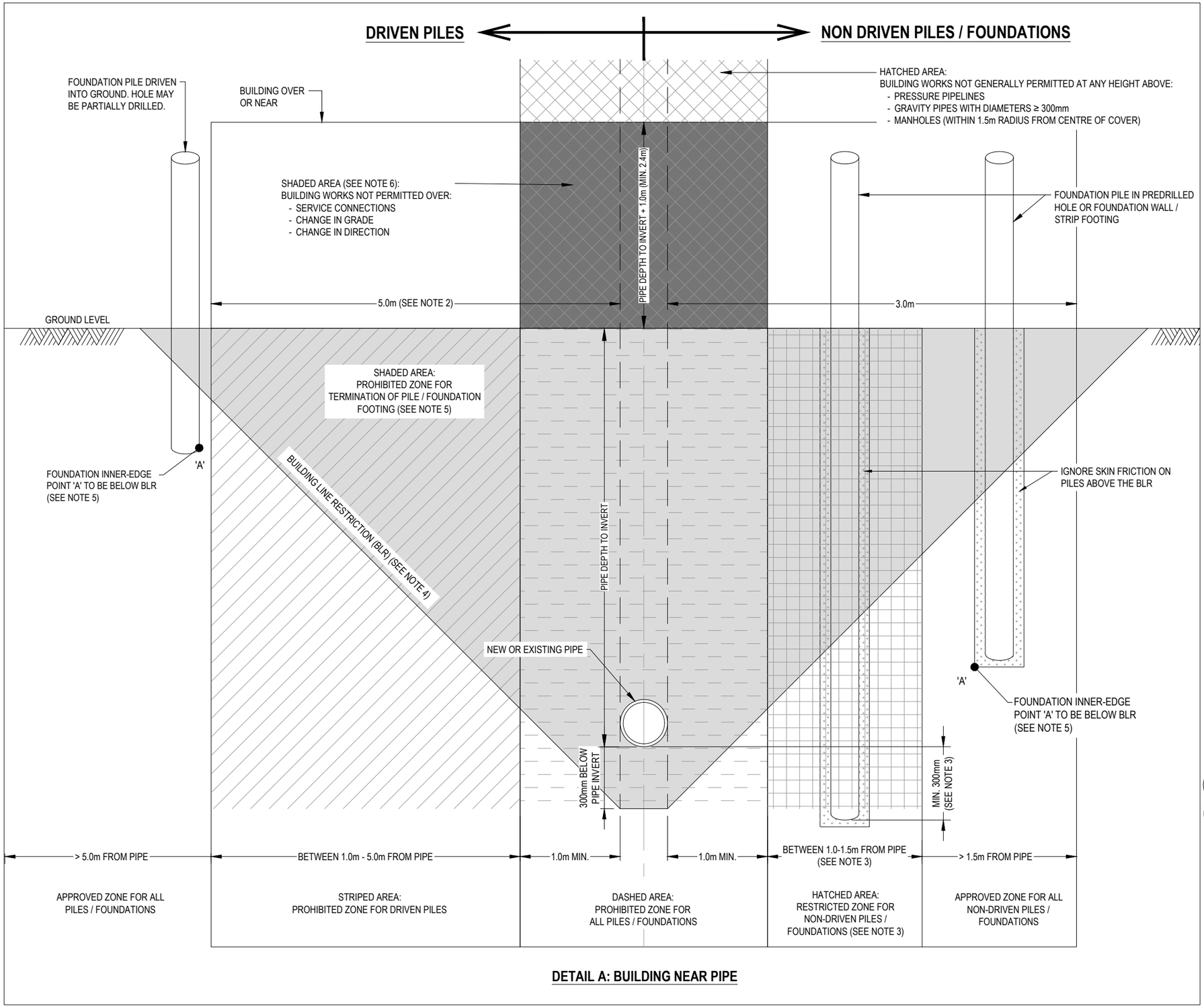


WARNING: PRINTED COPIES ARE UNCONTROLLED

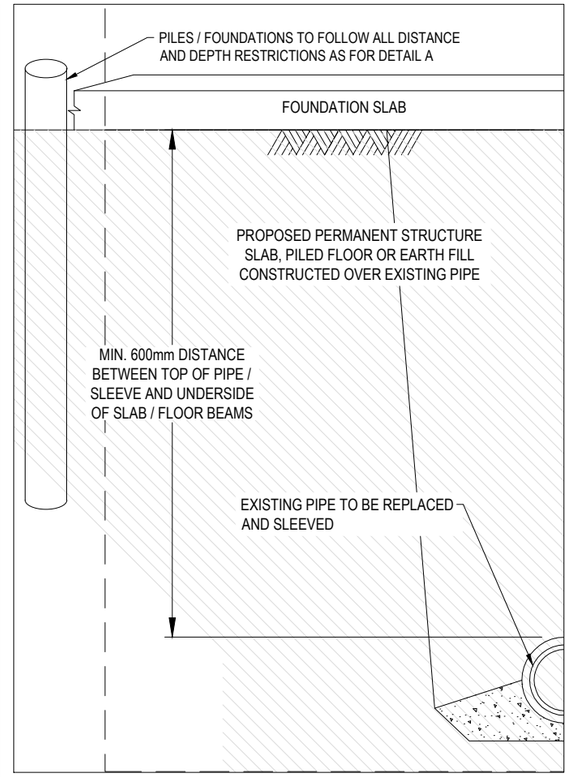
COLOUR PLOT

PLOT DETAILS:
Date Plotted: Dec 01, 2021 - 4:54pm
Plotted By: Andrew Lim

File Name: DR08 (2021) Tree dripline.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\DR01-05




## DETAIL A: BUILDING NEAR PIPE




## DETAIL B: BUILDING OVER PIPES - SLEEVING REQUIREMENTS

NOTES:

1. ALL HORIZONTAL DISTANCES ARE FROM THE OUTSIDE FACE OF THE PIPE / SLEEVE.
2. NO DRIVEN PILES WITHIN 5.0m OF ALL PIPELINES.
3. PILES WITHIN 1.0m - 1.5m FROM THE OUTSIDE OF THE PIPE REQUIRE WRITTEN APPROVAL FROM WELLINGTON WATER, AND MUST TERMINATE MIN. 300mm BELOW THE INVERT OF THE PIPE / SLEEVE.
4. THE ANGLE OF THE BUILDING LINE RESTRICTION (BLR) IS TYPICALLY 45 DEGREES (1H : 1V) FOR COHESIVE SOILS.
5. PILE / FOUNDATION INNER-EDGE POINT 'A' MUST BE BELOW THE BLR.
6. ZONE EXTENDS LONGITUDINALLY ALONG THE PIPE ALIGNMENT FOR A DISTANCE OF 1.0m OR THE DEPTH TO INVERT (WHICHEVER IS GREATER).
7. WRITTEN APPROVAL IS REQUIRED FROM WELLINGTON WATER FOR ANY BUILDING WORK OVER OR NEAR A PUBLIC PIPE. WRITTEN APPROVAL MAY BE WITHHELD IF THE FUNCTION AND OPERABILITY OF THE PUBLIC MAIN ARE UNDULY COMPROMISED BY THE PROPOSAL.

| REV | AMENDMENT | DWN | CHK | DATE | REV | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY | AA | AM | 02/21 | | | | | |
| B | NOTES & LABELS REVISIONS | AA | AM | 10/21 | | | | | |
| C | REVISED NOTES | JS | | 07/24 | | | | | |

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | A MCDONALD | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | T STRANG | 11/21 |
| APPROVED | T STRANG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

BUILDING IN CLOSE PROXIMITY

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. DR09



COLOUR PLOT

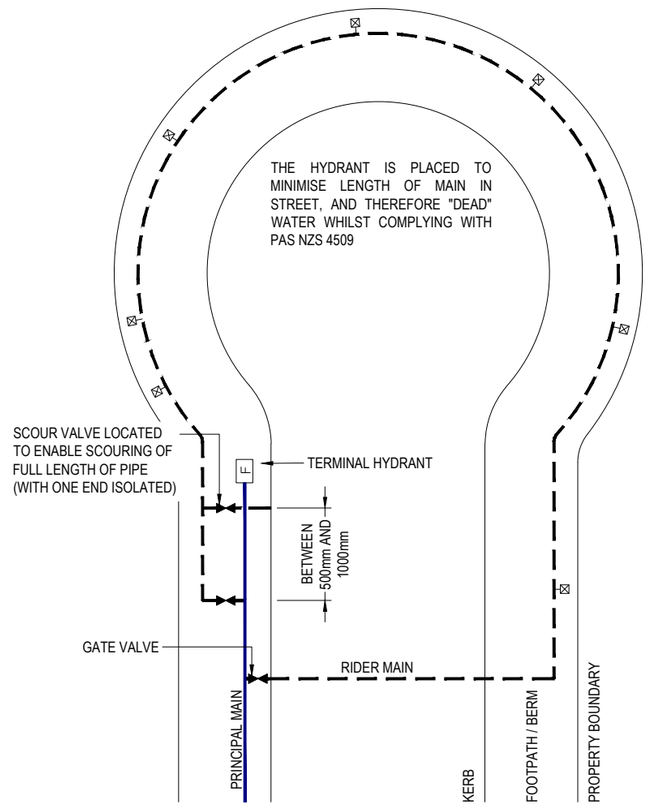
PLOT DETAILS:
Date Plotted:
Plotted By: Jack Scott
File Name:
File Location: C:\USERS\JACK.SCOTT\ONEDRIVE - WELLINGTONWATER\DOCUMENTS\REGIONAL SPEC DRAWINGS

NOTE:

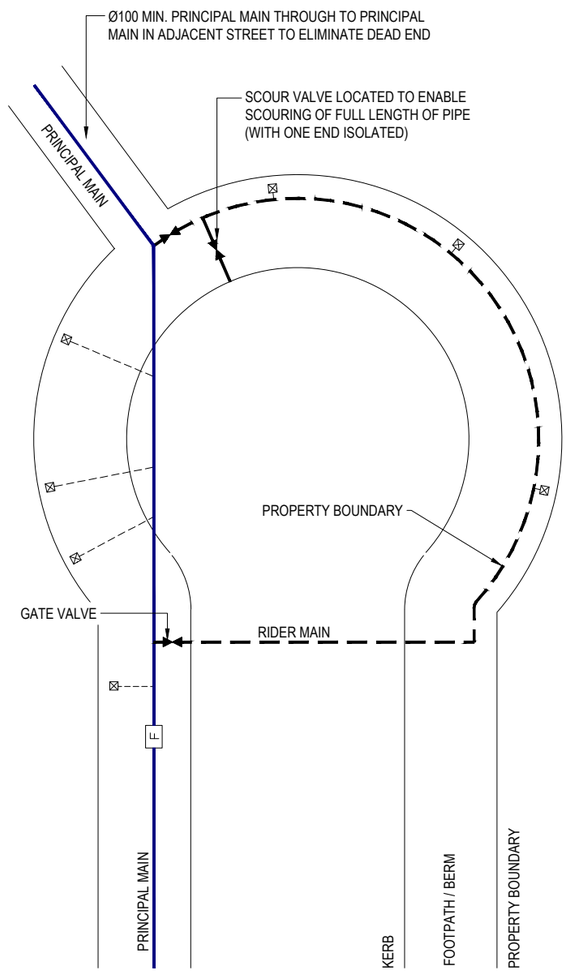
1. THE EXAMPLES SHOWN HERE ARE TYPICAL AND MAY VARY DUE TO IN-SITU CIRCUMSTANCE OR CHANGE IN COUNCIL POLICY.

## SERVICES LEGEND

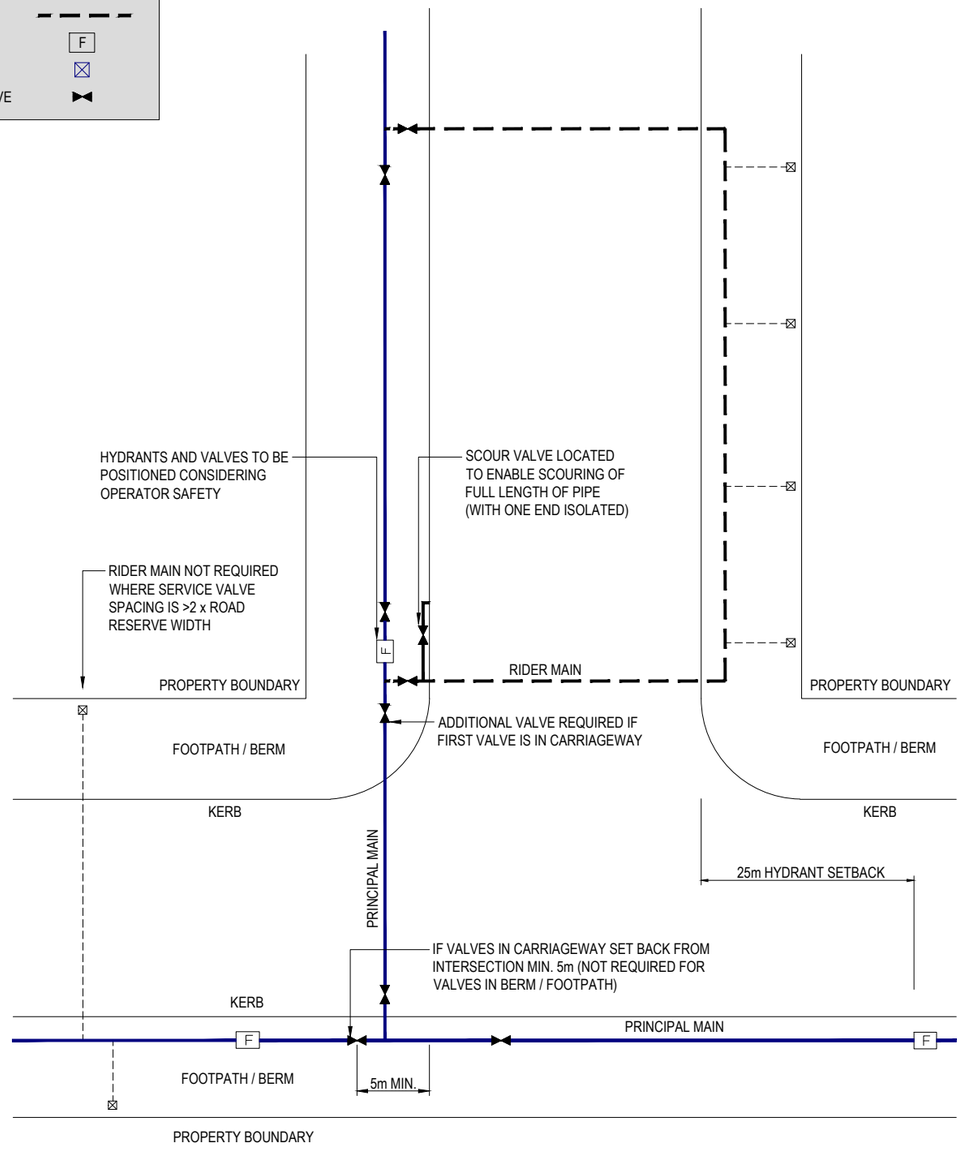
- PRINCIPAL MAIN
- RIDER MAIN
- HYDRANT (F)
- SERVICE VALVE
- GATE VALVE / SCOUR VALVE




TERMINAL PRINCIPAL MAIN




LINKED PRINCIPAL MAIN




TYPICAL INTERSECTION

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | EG | | 02/20 | | | | |
| B | SCOUR VALVES ON RIDER MAINS | AL | EG | | 11/21 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 11/21 |
| APPROVED | K WYNN | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## TYPICAL WATER RETICULATION LAYOUT

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. WS01

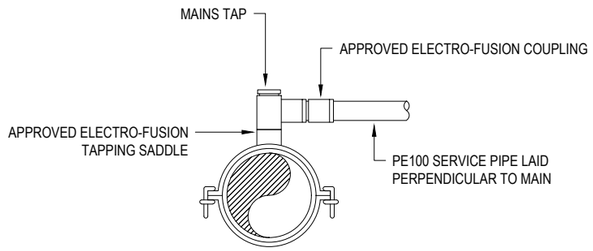


WARNING: PRINTED COPIES ARE UNCONTROLLED

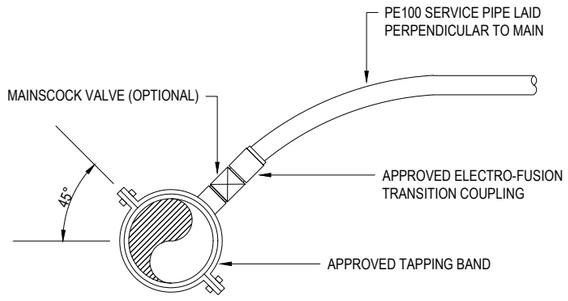
COLOUR PLOT

PLOT DETAILS:
Date Plotted: Dec 02, 2021 - 1:27pm
Plotted By: Andrew Lim

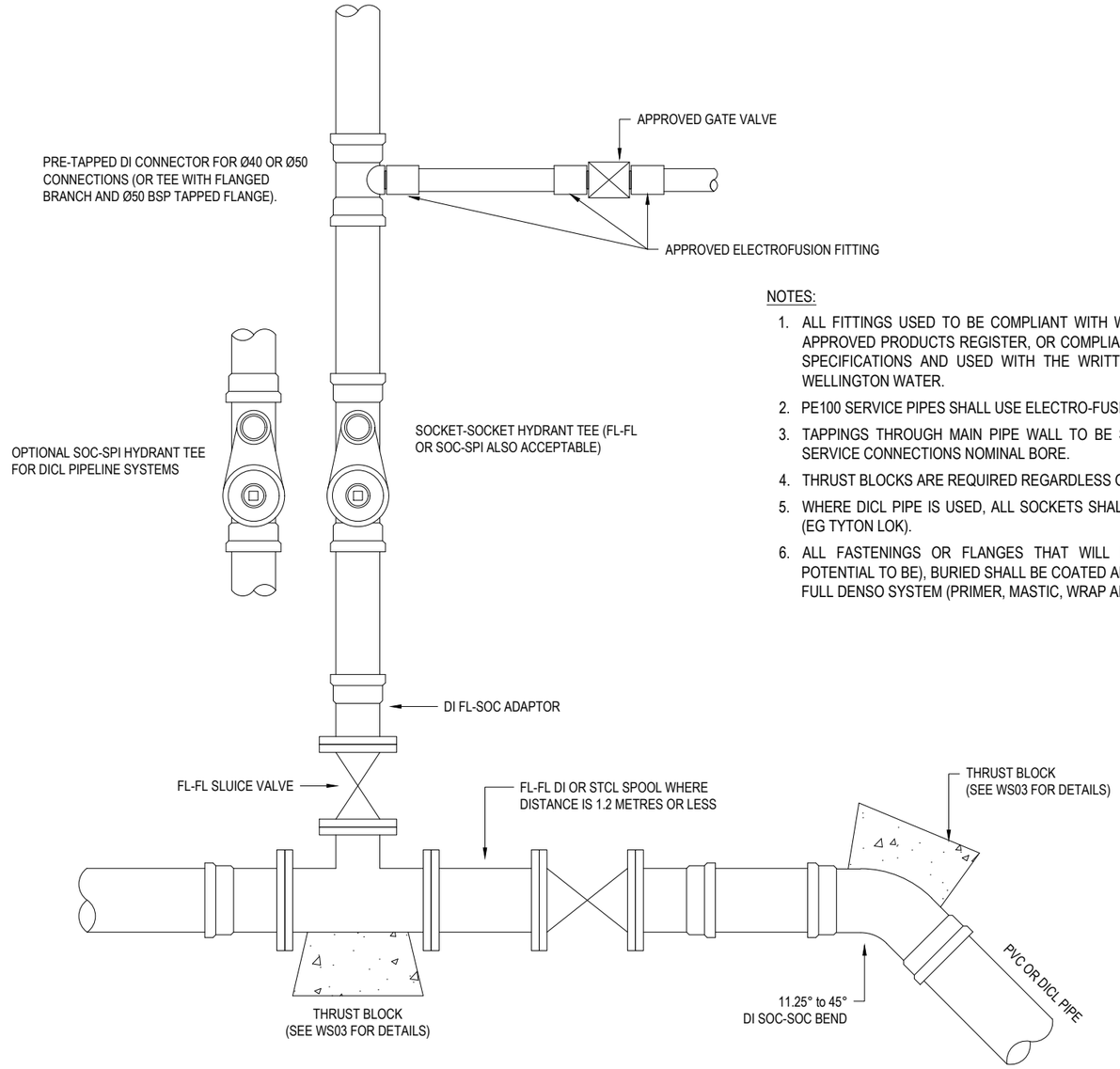
File Name: WS01 (2021) water reticulation layout.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\WS01-08




TYPICAL TAPPING TO PE PIPE




TYPICAL TAPPING TO PVC/DICL PIPE




TYPICAL PVC OR DICL PIPE CONNECTIONS ≤ DN200

NOTES:

1. ALL FITTINGS USED TO BE COMPLIANT WITH WELLINGTON WATER APPROVED PRODUCTS REGISTER, OR COMPLIANT WITH TECHNICAL SPECIFICATIONS AND USED WITH THE WRITTEN PERMISSION OF WELLINGTON WATER.
2. PE100 SERVICE PIPES SHALL USE ELECTRO-FUSION FITTINGS.
3. TAPPINGS THROUGH MAIN PIPE WALL TO BE SAME DIAMETER AS SERVICE CONNECTIONS NOMINAL BORE.
4. THRUST BLOCKS ARE REQUIRED REGARDLESS OF JOINT TYPE.
5. WHERE DICL PIPE IS USED, ALL SOCKETS SHALL HAVE GRIP RINGS (EG TYTON LOK).
6. ALL FASTENINGS OR FLANGES THAT WILL BE (OR HAVE THE POTENTIAL TO BE), BURIED SHALL BE COATED AND WRAPPED IN THE FULL DENSO SYSTEM (PRIMER, MASTIC, WRAP AND OVER WRAP).

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |
| B | REVISIONS | AL | EG | | 10/21 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | C WANG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 12/21 |
| APPROVED | K WYNN | 12/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## TYPICAL WATER DISTRIBUTION PIPE JUNCTIONS AND CONNECTIONS

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. WS02



WARNING: PRINTED COPIES ARE UNCONTROLLED

COLOUR PLOT

PLOT DETAILS:
Date Plotted: Dec 09, 2021 - 7:56pm
Plotted By: Andrew Lim

File Name: WS02 (2021) Water distribution pipe junctions and connections.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\WS01-08

NOTES:

1. THRUST BLOCKS TO BE POURED AGAINST FIRM, CLEAR AND UNDISTURBED NATIVE GROUND.
2. THRUST BLOCKS FOR PIPES >DN300 TO BE SPECIFICALLY DESIGNED.
3. MINIMUM BEARING AREAS MAY BE INCREASED PRO-RATA FOR INCREASED TEST PRESSURES.
4. THRUST BLOCK VOLUMES ARE FOR A 1600kPa TEST PRESSURE. ADJUST VOLUMES FOR HIGHER TEST PRESSURES.
5. MINIMUM COVER TO PIPE CROWN SHALL BE 600mm, OR SPECIFIC DESIGN IS REQUIRED.
6. SHALL NOT BE PLACED UNDER WORKING OR TEST LOAD FOR AT LEAST 3 DAYS AFTER POURING, WHERE THIS IS UNAVAILABLE, TOMMING WITH TIMBER STRUTS TO PROVIDE IMMEDIATE THRUST RESTRAINT IS ALLOWABLE IF APPROVED BY WELLINGTON WATER.
7. THRUST BLOCKS ARE NOT REQUIRED ON PE PRESSURE PIPELINES AT CHANGES OF DIRECTION, TEES AND CHANGES IN PIPE DIAMETER UNLESS SPECIFICALLY REQUIRED BY THE DESIGNER.
8. PRECAST THRUST BLOCKS MAY BE PERMITTED, REFER TO SECTION 6.3.6.3 OF THE REGIONAL SPECIFICATION.
9. A PROTECTIVE POLYTHENE MEMBRANE IS REQUIRED BETWEEN THE FITTING AND THE THRUST BLOCK TO PREVENT ABRASIVE DAMAGE TO THE WATER MAIN.
10. ALL FASTENINGS OR FLANGES THAT WILL BE (OR HAVE THE POTENTIAL TO BE) BURIED SHALL BE COATED AND WRAPPED IN THE FULL DENSO SYSTEM ( PRIMER, MASTIC, WRAP AND OVER WRAP).
11. THE BEARING PRESSURE OF THE SOIL SHALL BE CHECKED TO ENSURE IT HAS THE MINIMUM REQUIRED BEARING STRENGTH AS SPECIFIED IN THE DESIGN.
12. THE WATER TABLE IS ASSUMED TO BE BELOW THE BASE OF THE THRUST BLOCK. IF THIS ASSUMPTION DOES NOT APPLY, A CHARTERED ENGINEER MUST BE ENGAGED TO DESIGN THE BLOCK.

| MINIMUM BEARING AREA (m²) FOR PN16 PIPES | | | | | |
|---|---|---|---|---|---|
| ASSUMED TEST PRESSURE 1600 kPa, ASSUMED HORIZONTAL SOIL BEARING PRESSURE 75kPa | | | | | |
| PIPE DN | 11.25° BEND | 22.5° BEND | 45° BEND | 90° BEND | END CAP / TEE / INLINE |
| Ø100 | 0.1 | 0.2 | 0.3 | 0.5 | 0.4 |
| Ø150 | 0.2 | 0.3 | 0.6 | 1.1 | 0.8 |
| Ø200 | 0.3 | 0.5 | 1.0 | 1.9 | 1.4 |
| Ø300 | 0.6 | 1.2 | 2.3 | 4.2 | 3.0 |

VALUES IN THE TABLE ABOVE INCLUDE, FACTOR OF SAFETY = 1.5

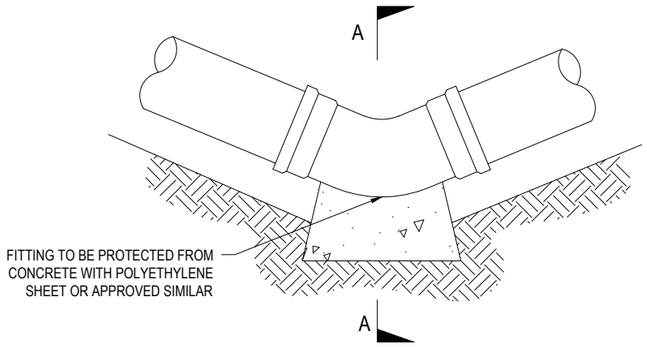
THE FOLLOWING FORMULAE CAN BE USED TO CALCULATE MIN. BEARING AREAS:

FOR BENDS = $\frac{AP2\sin(\theta/2)SF}{SBP}$ m²

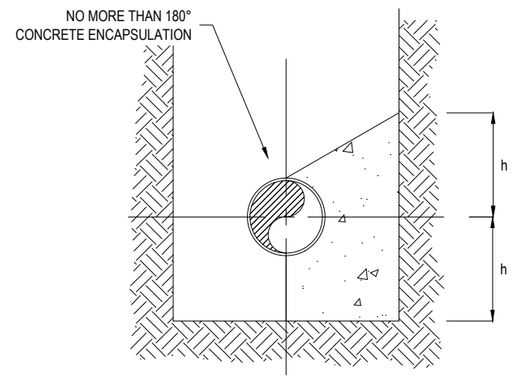
FOR END CAPS / TEES = $\frac{APSF}{SBP}$ m²

WHERE:
A = AREA OF PIPE (m² : USING OUTSIDE DIA. OF PIPE)
P = TEST PRESSURE OF PIPE (kPa)
θ = ANGLE OF BEND
SBP = SAFE BEARING PRESSURE OF IN SITU SOIL (kPa)
SF = FACTOR OF SAFETY, 1.5

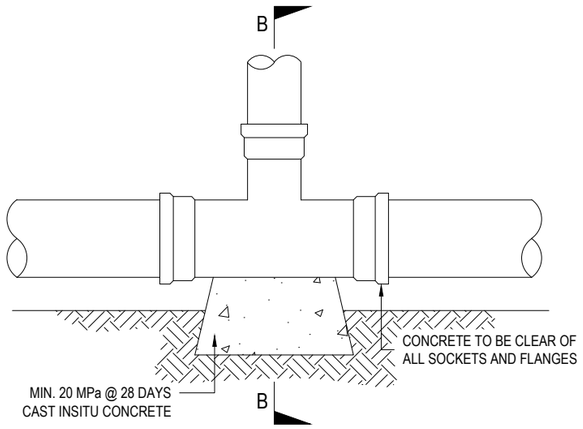
| ALLOWABLE BEARING PRESSURE | | |
|---|---|---|
| VERTICAL BEARING PRESSURE (kPa) OF SOIL FOR PIPE ≤DN 300 MEASURED USING A SCALA PENETROMETER | | |
| BLOWS PER 100 mm | VERTICAL BEARING PRESSURE (kPa) | HORIZONTAL BEARING PRESSURE (kPa) |
| 2 | 65 | 32.5 |
| 3 | 100 | 50 |
| 5 | 150 | 75 |
| 7 | 200 | 100 |



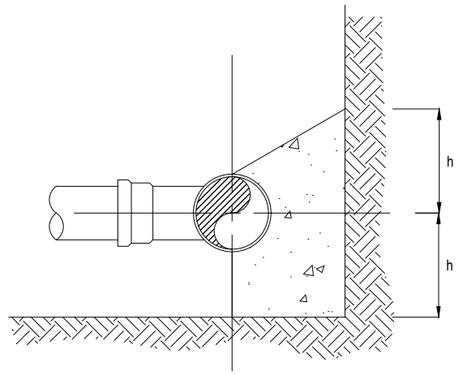

TYPICAL THRUST BLOCK DETAIL ON BENDS - PLAN VIEW



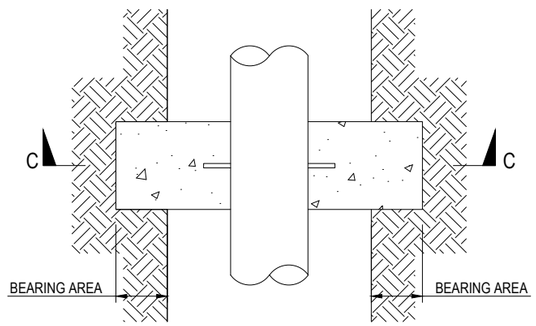

SECTION A-A



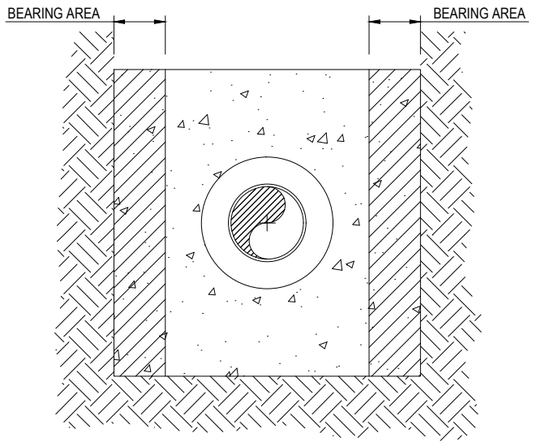

TYPICAL THRUST BLOCK DETAIL ON TEE - PLAN VIEW




SECTION B-B




TYPICAL IN-LINE THRUST BLOCK DETAIL - PLAN VIEW




SECTION C-C

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |
| B | TABLE AND DETAILS UPDATE | AL | | | 11/21 | | | | |
| C | NOTES AND TABLES REVISION | JS | | | 07/24 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | C WANG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 12/21 |
| APPROVED | K WYNN | 12/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## TYPICAL THRUST BLOCK DETAILS

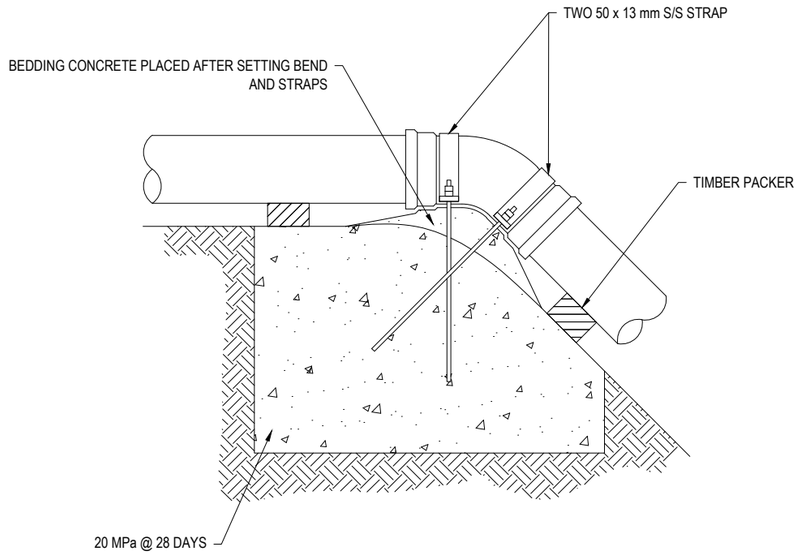
SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -
DRAWING N°. WS03

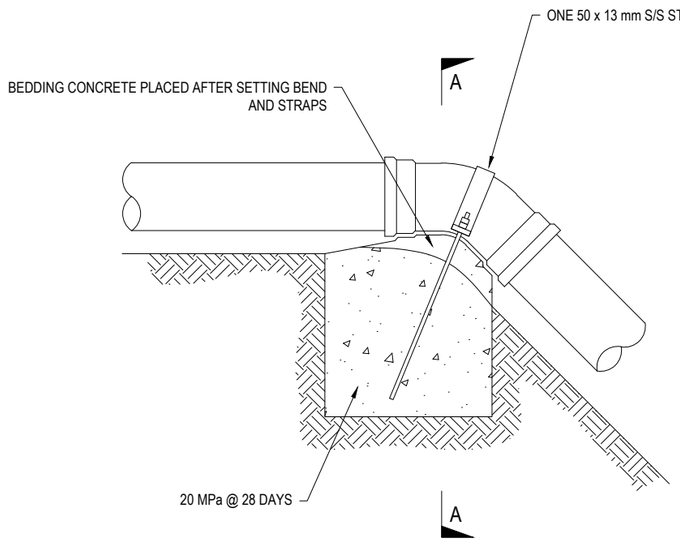


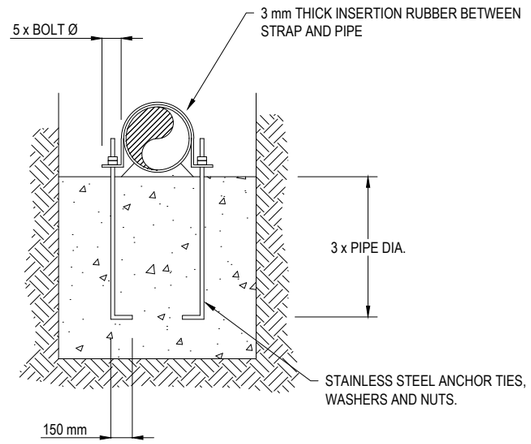
WARNING: PRINTED COPIES ARE UNCONTROLLED

COLOUR PLOT

PLOT DETAILS:
Date Plotted:
Plotted By: Jack Scott
File Name:
File Location: C:\USERS\JACK.SCOTT\ONEDRIVE - WELLINGTON\WATER\DOCUMENTS\REGIONAL SPEC DRAWINGS




A-A

TYPICAL ANCHOR BLOCK DETAILS

| MINIMUM ANCHOR VOLUME (m³) FOR 1600 kPa TEST PRESSURE | | | | NO. OF STRAPS | THREAD SIZE |
|---|---|---|---|---|---|
| PIPE DN | 11.25° | 22.5° | 45° | | |
| Ø100 | 0.14 | 0.28 | 0.51 | 1 | M12 |
| Ø150 | 0.30 | 0.60 | 1.11 | 1 | M16 |
| Ø200 | 0.51 | 1.01 | 1.88 | 2 | M16 |
| Ø250 | 0.79 | 1.57 | 2.91 | 2 | M20 |
| Ø300 | 1.11 | 2.21 | 4.10 | 2 | M20 |

THE FOLLOWING FORMULA CAN BE USED TO CALCULATE MINIMUM ANCHOR VOLUME:

$$F = A P \sin\theta$$

$$V = \left( \left( \frac{F \times 1000}{g} \right) - M_W \right) / \rho$$

WHERE:

A = AREA OF PIPE (m² USING OUTSIDE DIA. OF PIPE)

ρ = TEST PRESSURE (kPA)

θ = ANGLE OF BEND

F = VERTICAL FORCE COMPONENT ON PIPE (kN)

g = ACCELERATION DUE TO GRAVITY (m/s²)

$M_W$ = MASS OF WATER FOR A 1m SECTION OF PIPE (kg)

ρ = DENSITY OF CONCRETE (kg/m³)

1. VOLUMES CALCULATED USING VERTICAL FORCE ONLY, HORIZONTAL FORCE WILL BE ACCOMMODATED BY BEARING AREA OF ANCHOR BLOCK.
2. DENSITY OF CONCRETE ASSUMED TO BE 2300 kg/m$^3$
3. MASS OF WATER HAS BEEN INCLUDED IN THE EQUATION FOR A 1m LENGTH OF PIPE.
4. MINIMUM STRAP SIZE 50 x 13mm
5. NO SAFETY FACTOR HAS BEEN USED AS THERE IS LITTLE VARIABILITY IN THE INPUT VALUES.
6. THE MASS OF BEDDING AND BACKFILL HAS NOT BEEN INCLUDED IN THE CALCULATION.

NOTES:

1. ANCHOR BLOCKS TO BE POURED AGAINST FIRM, CLEAR AND UNDISTURBED NATIVE GROUND.
2. ANCHOR BLOCKS FOR PIPES >DN300 TO BE SPECIFICALLY DESIGNED.
3. ALL CONCRETE TO BE CLEAR OF FLANGES & SOCKETS.
4. ANCHOR BLOCK VOLUMES ARE FOR A 1600kPa TEST PRESSURE. ADJUST VOLUMES FOR HIGHER TEST PRESSURES.
5. ALL FASTENINGS OR FLANGES THAT WILL BE (OR HAVE THE POTENTIAL TO BE), BURIED SHALL BE COATED AND WRAPPED IN THE FULL DENSO SYSTEM (PRIMER, MASTIC, WRAP AND OVER WRAP).
6. ANCHOR TIES IN UNREINFORCED ANCHOR BLOCKS SHOULD EXTEND INTO THE BLOCK BY AT LEAST 3/4 OF THE DEPTH OF THE BLOCK.
7. ANCHOR BLOCKS LARGER THAN 1.2m$^3$ SHOULD BE REINFORCED. THE REINFORCED BAR SHOULD BE D16 AT 200mm CENTERS BOTH WAYS, ON ALL FACES. MINIMUM 75mm COVER.

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |
| B | CALCULATION FOR 1600 kPa AND ADDITIONAL NOTES | AL | AP | | 11/21 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | A PAWSON | 11/21 |
| DRAWING UPDATE | A LIM | 11/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | J EWEG | 11/21 |
| APPROVED | K WYNN | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

TYPICAL ANCHOR BLOCK DETAILS

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°: WS04

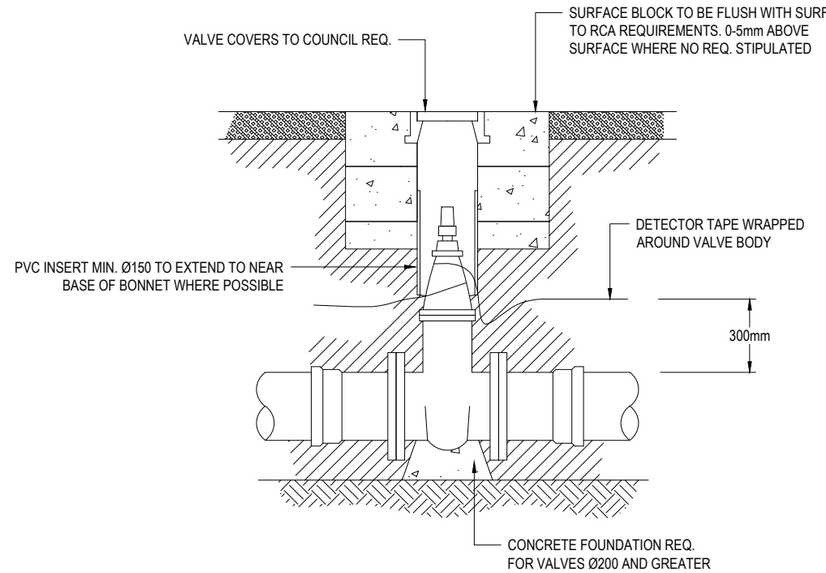


PLOT DETAILS:
Date Plotted: Dec 09, 2021 - 5:16pm
Plotted By: Andrew Lim

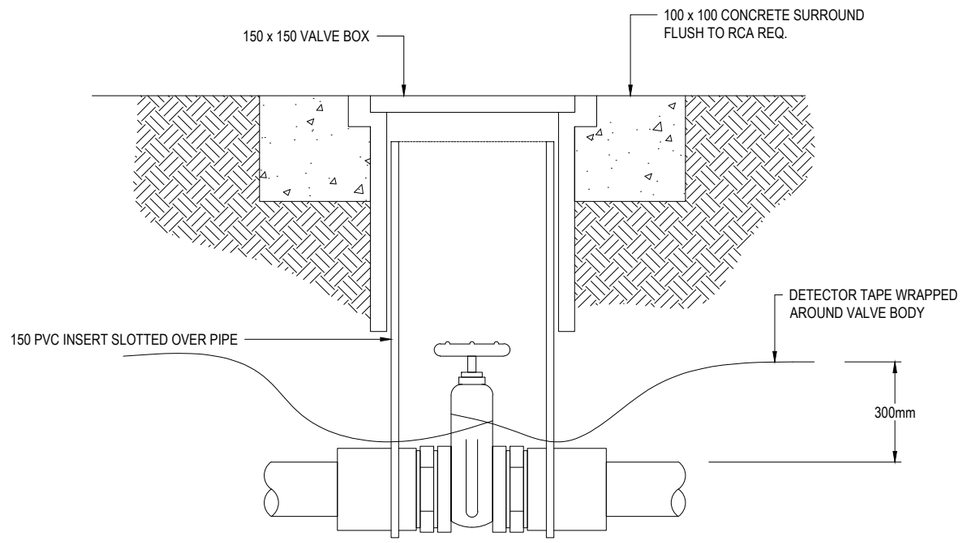
File Name: WS04 (2021) Anchor block details.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\WS01-08

NOTES:

1. NOMINAL DEPTH OF BETWEEN 100 AND 350mm FROM GROUND LEVEL TO TOP OF GATE VALVE SPINDLE CAP.
2. METALLIC DETECTOR / WARNING TAPE TO BE LAID 300mm ABOVE ALL BULK, TRUNK, PRINCIPAL AND RIDER MAIN PIPES AND 100mm ABOVE SERVICE PIPES AND CONTINUE THROUGH VALVE ENCLOSURE WHILST MAINTAINING TAPE CONDUCTIVITY.
3. THRUST BLOCKS MAY BE REQUIRED FOR VALVES TO SECURE AGAINST LATERAL THRUST WHEN VALVE CLOSED AND MAIN IS DRAINED ON ONE SIDE OF THE VALVE. REFER TO WS14 AND WS03.
4. ALL VALVES SHALL INCLUDE A TAG OR OTHER MEANS TO CLEARLY INDICATE CLOSING DIRECTION.
5. ALL FASTENINGS OR FLANGES THAT WILL BE (OR HAVE THE POTENTIAL TO BE), BURIED SHALL BE COATED AND WRAPPED IN THE FULL DENSO SYSTEM (PRIMER, MASTIC, WRAP AND OVER WRAP).




GATE VALVES
Ø80 AND ABOVE




GATE VALVES Ø50 OR LESS

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |
| B | REVISED NOTES | AL | EG | | 11/21 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 12/21 |
| APPROVED | K WYNN | 12/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## TYPICAL VALVE DETAILS

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -
DRAWING N°. WS05



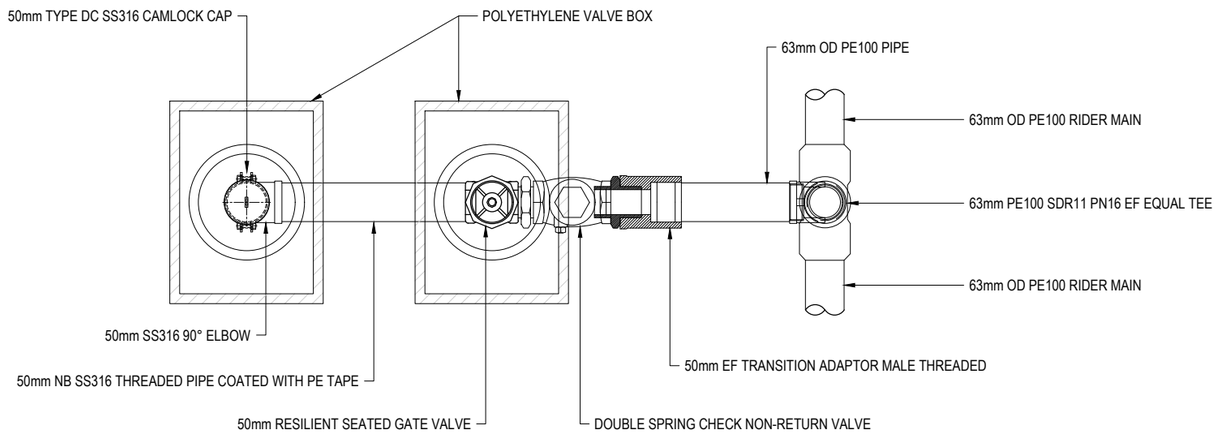
WARNING: PRINTED COPIES ARE UNCONTROLLED

COLOUR PLOT

PLOT DETAILS:
Date Plotted: Dec 09, 2021 - 8:22pm
Plotted By: Andrew Lim

File Name: WS05 (2021) Typical valve details.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\WS01-08

BERM / FOOTPATH




PLAN

NOTE:

1. ALL FASTENINGS OR FLANGES THAT WILL BE (OR HAVE THE POTENTIAL TO BE), BURIED SHALL BE COATED AND WRAPPED IN THE FULL DENSO SYSTEM (PRIMER, MASTIC, WRAP AND OVER WRAP).

Revisions for this Standard Drawing are needed to reflect proposed changes to **STD_0001 RSWS Section 6.4.20.7 Scour valves.**




ELEVATION

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 03/20 | | | | |
| B | BACKFLOW PREVENTION | AL | EG | | 11/21 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | J DUGGAN | 09/21 |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 11/21 |
| APPROVED | K WYNN | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

RIDER MAIN
SCOUR DETAILS

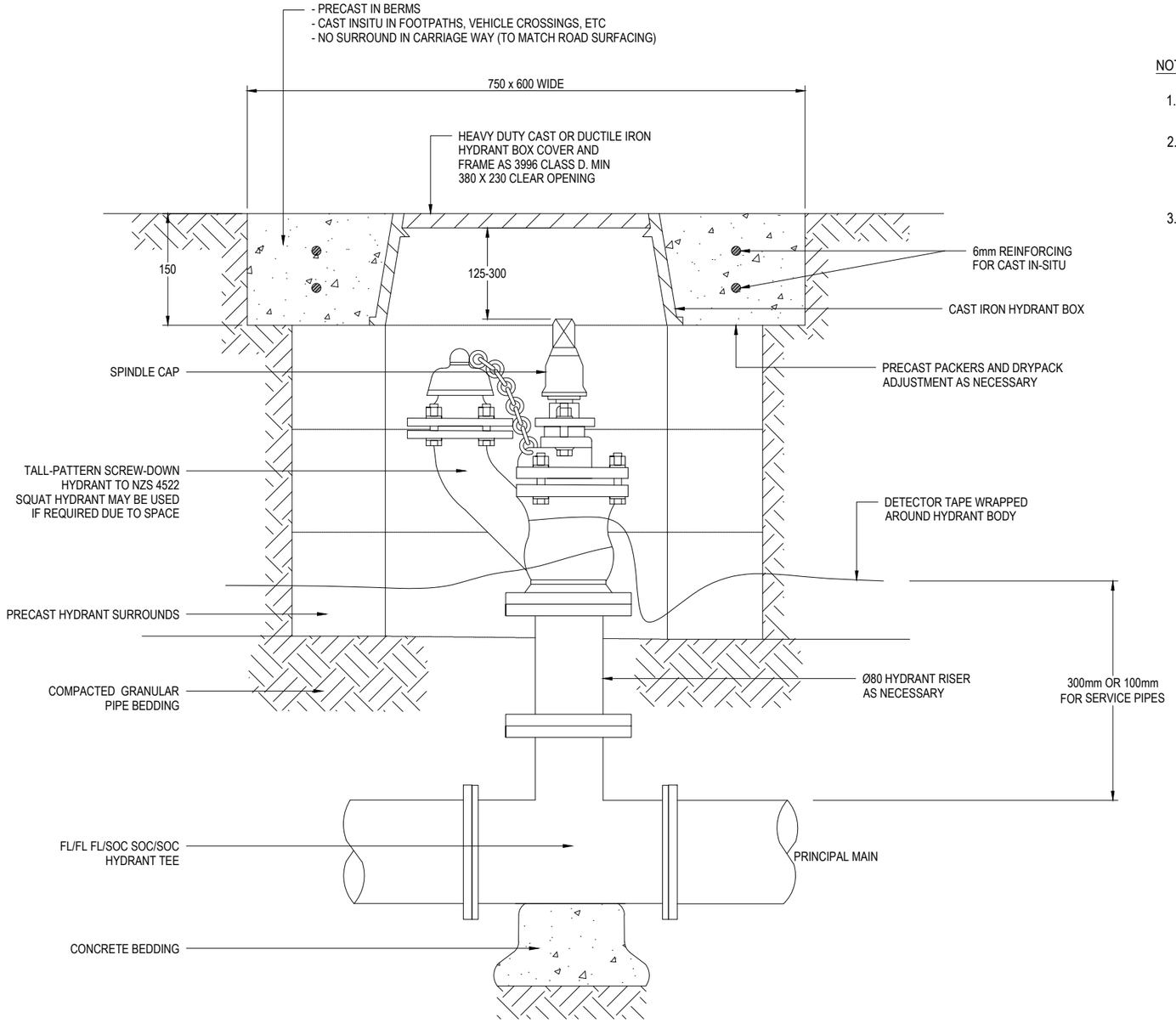
SCALE: NOT TO SCALE
SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1
PROJECT/FILE NUMBER: -
DRAWING N°. WS06



WARNING: PRINTED COPIES ARE UNCONTROLLED

COLOUR PLOT

PLOT DETAILS:
Date Plotted:
Plotted By: Jack Scott
File Name:
File Location: C:\USERS\JACK.SCOTT\ONEDRIVE - WELLINGTONWATER\DOCUMENTS\REGIONAL SPEC DRAWINGS




NOTES:

1. MARKING OF HYDRANTS SHALL INCLUDE THE HYDRANT BOX LID, ANY CONCRETE SURROUND AND REQUIRED ROAD MARKINGS.
2. METALLIC DETECTOR / WARNING TAPE TO BE LAID 200 TO 300mm ABOVE ALL BULK, TRUNK, PRINCIPAL AND RIDER MAIN PIPES AND 100mm ABOVE SERVICE PIPES, AND CONTINUE THROUGH HYDRANT ENCLOSURE WHILST MAINTAINING TAP CONDUCTIVITY.
3. ALL FASTENINGS OR FLANGES THAT WILL BE (OR HAVE THE POTENTIAL TO BE), BURIED SHALL BE COATED AND WRAPPED IN THE FULL DENSO SYSTEM (PRIMER, MASTIC, WRAP AND OVER WRAP).

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | E GREENBERG | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 11/21 |
| APPROVED | K WYNN | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## FIRE HYDRANT BOX

SCALE: NOT TO SCALE

SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1

PROJECT/FILE NUMBER: -

DRAWING N°. WS07



WARNING: PRINTED COPIES ARE UNCONTROLLED

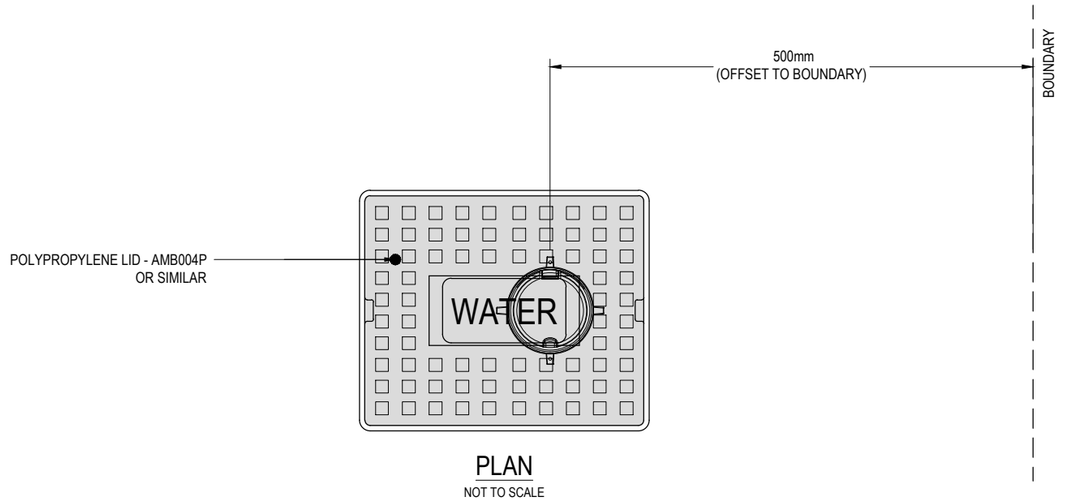
COLOUR PLOT

PLOT DETAILS:
Date Plotted: Dec 08, 2021 - 9:25am
Plotted By: Andrew Lim

File Name: WS07 (2021) Fire hydrant box.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\WS01-08

## NOTES:

1. VALVE AND METER SHALL BE LOCATED IN THE ROAD RESERVE ADJACENT TO THE STREET BOUNDARY OF THE PROPERTY SERVICED AS PER THE REQUIREMENTS OF THE REGIONAL STANDARD FOR WATER SERVICES.
2. VALVE BOX SHALL BE ARRANGED AT RIGHT ANGLES TO THE PROPERTY BOUNDARY.
3. VALVE BOX SHALL HAVE PLASTIC BASE CORRECTLY INSTALLED AND FITTED.
4. SERVICE VALVE (OR METER) SHOULD NOT BE LOCATED IN DRIVEWAYS OR AREAS WHERE VEHICLE TRAFFIC IS LIKELY WITHOUT CONSIDERATION OF MINIMUM TRAFFIC LOADING REQUIREMENTS.
5. WHERE THE SERVICE VALVE CANNOT BE INSTALLED OUTSIDE OF THE DRIVEWAY, AND A HIGH DENSITY PE SURFACE BOX IS USED, IT SHALL BE SET WITH A 20MPa CONCRETE SURROUND A MINIMUM 100mm THICK AND 150mm WIDE. ADEQUATE CARE MUST BE TAKEN BY THE INSTALLER FOR THE CONCRETE SURROUND NOT TO AFFECT THE SAFE OPENING AND CLOSING OF THE BOX LID.
6. THE TOP SURFACE OF THE CONCRETE SURROUND SHALL:
   - FALL 4-6mm TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BOX.
   - BE SQUARED WITHIN FORMWORK AND BE NEAT AND TIDY.
   - BE TROWELLED TO BE FLUSH WITH THE TOP OF THE BOX.
   - HAVE A BROOMED FINISH WHEN NOT IN THE CBD.
   - HAVE AN EXPOSED AGGREGATE FINISH WHEN IN THE CBD.
7. FOR NEW CONNECTIONS, A MINIMUM OF 1m SERVICE PIPE SHALL BE PROVIDED INSIDE THE BOUNDARY ON THE CUSTOMER SIDE OF THE MANIFOLD. THIS SERVICE SHALL BE SECURE PLUGGED.
8. DETECTOR TAPE TO BE INSTALLED ABOVE SERVICE PIPE ARRANGEMENT, UP TO THE SERVICE VALVE BOX.
9. CUT 'V' IN KERB TO MARK LOCATION OF THE SERVICE VALVE.
10. WHERE INSTALLATION CONFLICTS WITH LOCAL COUNCIL BYLAWS, THE BYLAWS TAKE PRECEDENCE. APPROVAL MUST BE OBTAINED PRIOR TO CONSTRUCTION FROM WELLINGTON WATER.

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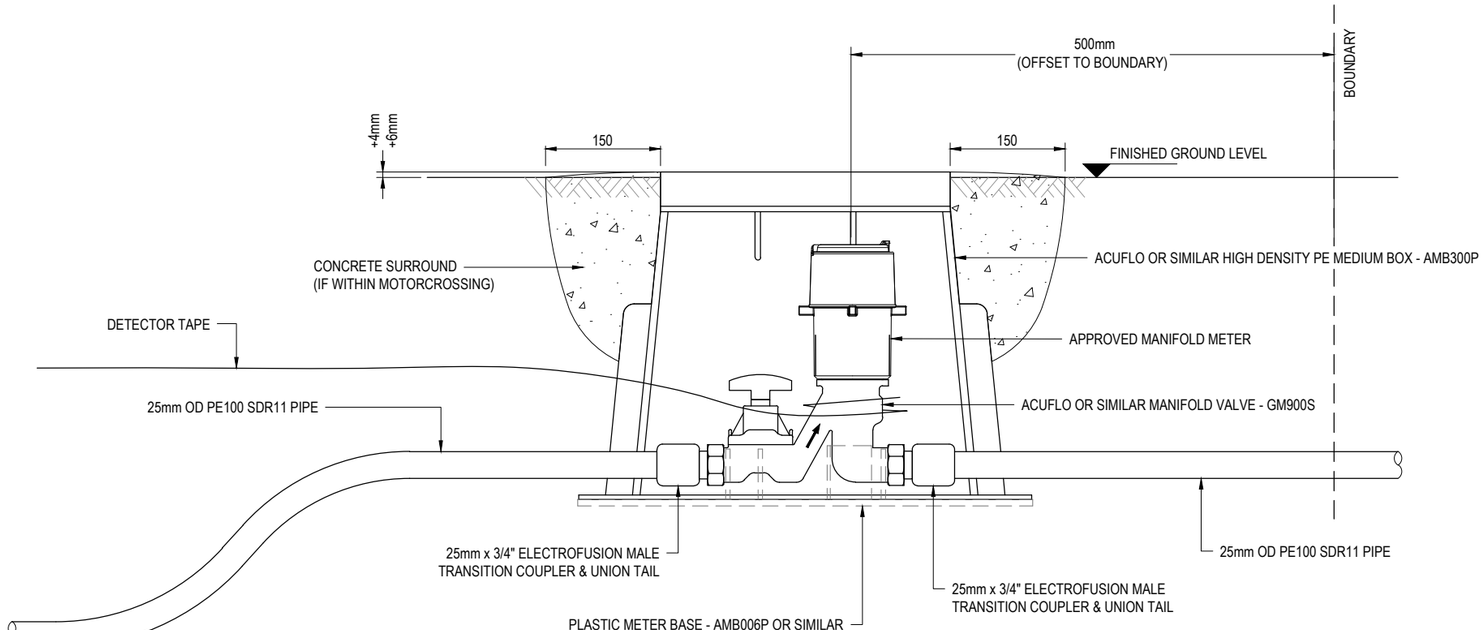


SECTIONAL ELEVATION
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| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | SS | CB | GC | 03/20 | | | | |
| B | REVISED TABLE AND NOTES | AL | DM | GC | 07/20 | | | | |
| C | REVISED NOTES AND LABELS | AL | SS | | 10/21 | | | | |
| D | REVISED NOTES | JS | | | 07/24 | | | | |
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Wellington Water

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|---|---|---|
| DESIGN | T BIAGIOLI | 09/19 |
| UPDATE | S SURESH | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 11/21 |
| APPROVED | K WYNN | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## TYPICAL DOMESTIC MANIFOLD AND WATER METER

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -
DRAWING N°. WS08



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Date Plotted:
Plotted By: Jack Scott
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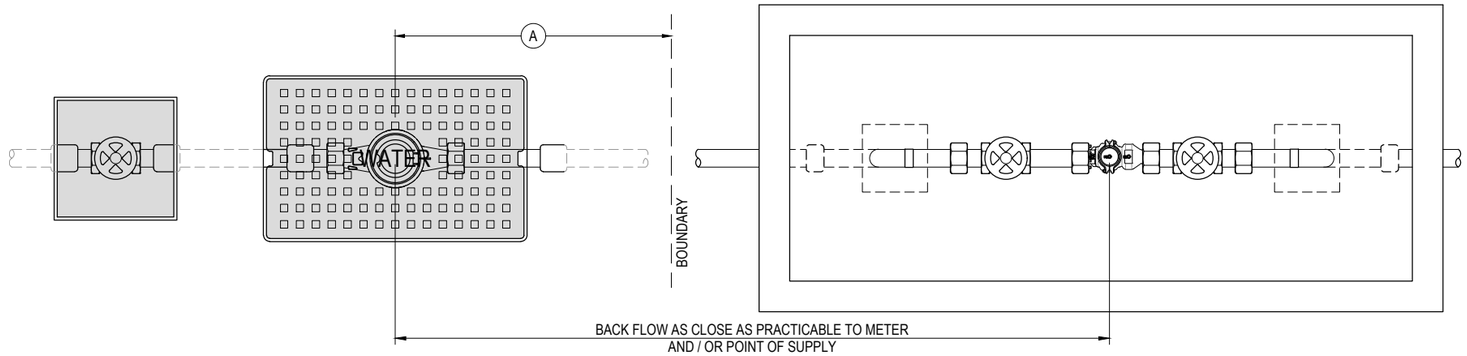
| COMMERCIAL WATER METER - STANDARD BELOW GROUND INSTALLATION | |
|---|---|
| ITEM | DESCRIPTION / SPECIFICATION |
| 1 | ACUFLO OR SIMILAR MIDI BOX – AMB300P / JUMBO BOX - AMBJ320P |
| 2 | POLYPROPYLENE LID- AMBJ004P OR SIMILAR |
| 3 | PLASTIC METER BASE – AMB006P / AMBJ005P OR SIMILAR |
| 4 | SERVICE VALVE AS PER THE APPROVED PRODUCTS REGISTER |
| 5 | APPROVED IN-LINE WATER METER<br>[25mm OR SMALLER TO BE MANIFOLD TYPE] |
| 6 | DR BRASS UNION TAIL |
| 7 | ELECTROFUSION THREADED TRANSITION FITTING |
| 8 | APPROVED BACKFLOW DEVICE |
| 9 | 25, 32, 40mm PE100 SDR11 PIPE |
| 10 | CONNECTION AS REQUIRED |
| 11 | STRAINER - SCREEN SIZE BACKFLOW<br>MANUFACTURER'S RECOMMENDATION |
| 12 | 25, 32 & 40mm COPPER ELBOW<br>MAY BE BRAZED OR CROXED<br>BRAZED CONNECTION ONLY (FOR WCC) |
| 13 | CABINET OR PROTECTIVE<br>ENCLOSURE (SEE NOTES) |
| 14 | CROX CONNECTION |
| 15 | 25, 32 & 40mm COPPER PIPE |
| 16 | PIPE WRAPPED WITH DENSO GREASE TAPE |
| 17 | 25, 32 & 40mm COPPER ELBOW<br>BRAZED CONNECTION ONLY |
| 18 | CONCRETE SLAB - GRADED TO KERB FOR DRAINAGE |
| DIMENSION | |
| A | OFFSET: METER TO BOUNDARY<br>500mm |
| B | REQUIRED CLEARANCE:<br>MINIMUM: 50mm<br>MAXIMUM: 200mm |
| C | MINIMUM DIMENSION: 400mm |
| D | MINIMUM DIMENSION: 300mm |
| E | MINIMUM CLEARANCE:<br>300mm |

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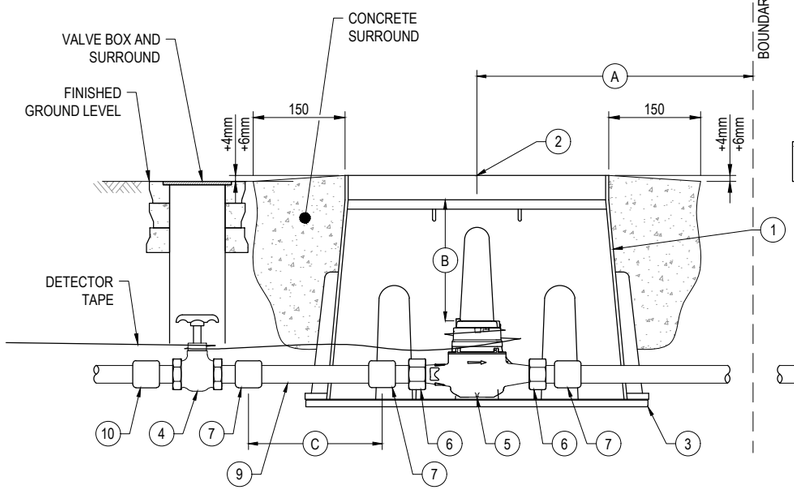


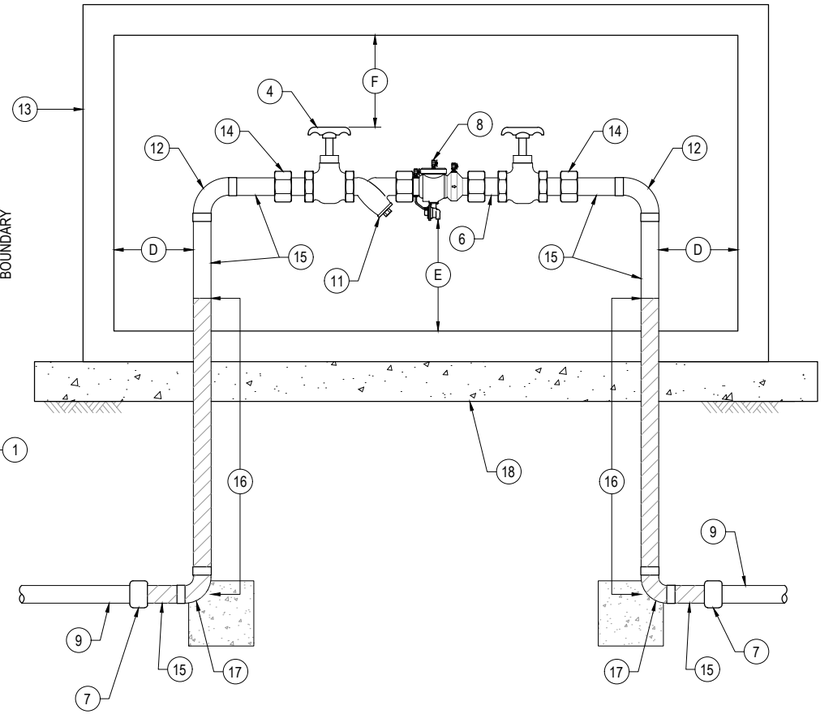


ELEVATION
NOT TO SCALE

## NOTES:

1. SERVICE VALVE AND METER SHALL BE INSTALLED IN THE ROAD RESERVE OUTSIDE THE PROPERTY SERVICED. WHERE THIS IS NOT PRACTICABLE, LOCATION TO BE CONFIRMED WITH WELLINGTON WATER PRIOR TO INSTALLATION.
2. SERVICE VALVE AND METER SHALL BE POSITIONED IN THE ROAD RESERVE AS PER THE REQUIREMENTS OF THE REGIONAL SPECIFICATION FOR WATER SERVICES.
3. SERVICE VALVE AND METER BOXES SHALL BE SET-UP AT RIGHT ANGLES TO THE PROPERTY BOUNDARY.
4. METER BOX SHALL HAVE PLASTIC BASE CORRECTLY INSTALLED AND FITTED.
5. SERVICE VALVE AND METER SHOULD BE INSTALLED OUTSIDE OF THE MOTORCROSSING.
6. WHERE THE METER CANNOT BE INSTALLED OUTSIDE OF THE MOTOR CROSSING, THE PLASTIC METER BOX SHALL BE SET WITH A 20mPa CONCRETE SURROUND A MINIMUM 100mm THICK AND 150mm WIDE. ALTERNATIVELY, THE METER SHALL BE INSTALLED IN AN APPROVED DUCTILE IRON OR CAST IRON BOX COMPLETE WITH CONCRETE PACKER BLOCKS. SIZE OF BOX MUST BE SUFFICIENT TO ENABLE METER TO BE SERVICED WITHIN BOX.
7. THE TOP SURFACE OF THE CONCRETE SURROUND SHALL:
   - FALL 4-6 mm TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE METER BOX.
   - BE SQUARED WITHIN FORMWORK AND BE NEAT AND TIDY.
   - BE TROWELLED TO BE FLUSH WITH THE TOP OF THE BOX.
   - HAVE A BROOMED FINISH WHEN NOT IN THE CBD.
   - HAVE AN EXPOSED AGGREGATE FINISH WHEN IN THE CBD.
8. DETECTOR TAPE TO BE INSTALLED ABOVE SERVICE PIPE ARRANGEMENT, UP TO THE METER BOX.
9. WHERE INSTALLATION CONFLICTS WITH LOCAL COUNCIL BYLAWS, THE BYLAWS TAKE PRECEDENCE. APPROVAL MUST BE OBTAINED PRIOR TO CONSTRUCTION FROM WELLINGTON WATER.

## NOTES (ENCLOSURE):

1. THE ENCLOSURE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE BOUNDARY. WHERE THIS IS NOT PRACTICABLE, LOCATION TO BE CONFIRMED WITH WELLINGTON WATER PRIOR TO INSTALLATION.
2. THE ENCLOSURE SHALL BE CONSTRUCTED FROM POWDER COATED MILD STEEL MESH WITH POWDER COATED STEEL BRACKETS TO FORM EDGES AND VERTICAL SUPPORTS. VERTICAL SUPPORTS TO BE BOLTED INTO THE FINISHES AT GROUND LEVEL.
3. THE WIRE MESH ENCLOSURE SHALL HAVE A HINGED PANEL FOR MAINTENANCE ACCESS TO FITTINGS AND PIPEWORK. PANEL IS TO BE SECURED WITH A PADLOCK OR OTHER SECURITY MECHANISM AS AGREED WITH WELLINGTON WATER.

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | SS | CB | GC | 03/20 | | | | |
| B | REVISED TABLE AND NOTES | AL | DM | GC | 07/20 | | | | |
| C | REVISED TABLE, NOTES AND ENCLOSURE | AL | SUS | | 10/21 | | | | |
| D | REVISED ENCLOSURE | JS | | | 07/24 | | | | |
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Wellington Water

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| DESIGN | T BIAGIOLI | 09/19 |
| UPDATE | S SURESH | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 11/21 |
| APPROVED | K WYNN | 12/21 |

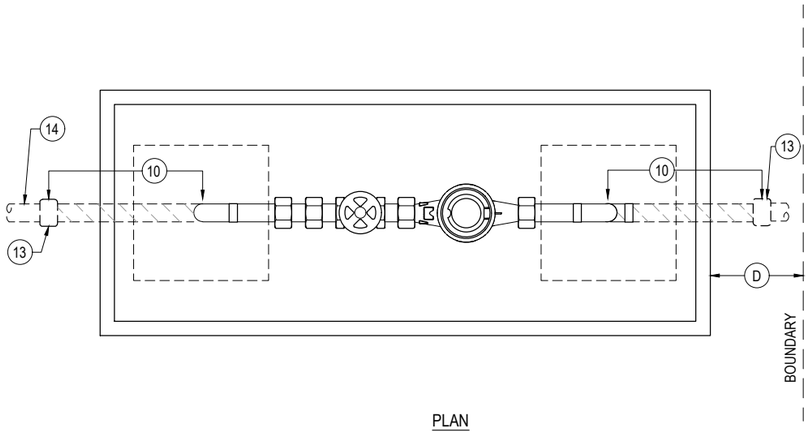
# REGIONAL SPECIFICATION FOR WATER SERVICES

## BELOW GROUND COMMERCIAL METER AND BACKFLOW INSTALLATION (25mm TO 40mm)

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -
DRAWING N°. WS09



PLOT DETAILS:
Date Plotted:
Plotted By: Jack Scott
File Name:
File Location: C:\USERS\JACK.SCOTT\ONEDRIVE - WELLINGTONWATER\DOCUMENTS\REGIONAL SPEC DRAWINGS

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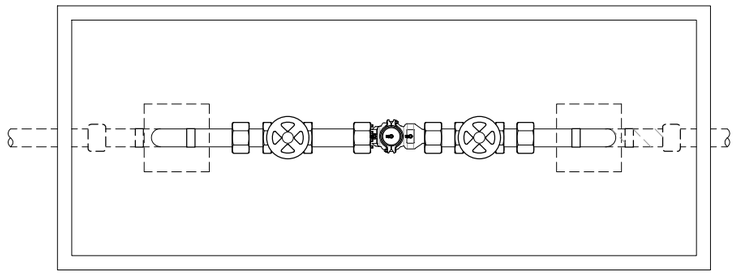
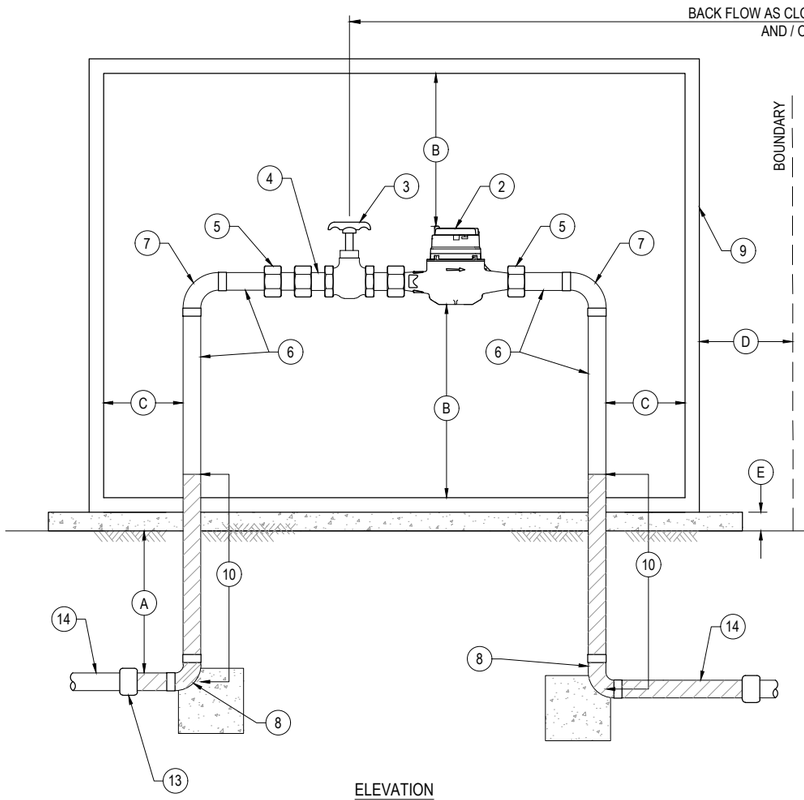


| COMMERCIAL WATER METER - STANDARD ABOVE GROUND INSTALLATION | |
|---|---|
| ITEM | DESCRIPTION / SPECIFICATION |
| 1 | SERVICE VALVE AS PER THE APPROVED PRODUCTS REGISTER |
| 2 | APPROVED IN-LINE WATER METER |
| 3 | BUILDING ISOLATION VALVE |
| 4 | DR BRASS UNION TAIL |
| 5 | CROX CONNECTION |
| 6 | 32 & 40mm COPPER PIPE |
| 7 | 32 & 40mm COPPER ELBOW<br>BRAZED CONNECTION ONLY |
| 8 | 32 & 40mm COPPER ELBOW<br>BRAZED CONNECTION ONLY |
| 9 | CABINET OR PROTECTIVE ENCLOSURE (SEE NOTES) |
| 10 | PIPE WRAPPED WITH DENSO GREASE TAPE |
| 11 | STRAINER - SCREEN SIZE TO BACKFLOW<br>MANUFACTURER'S RECOMMENDATION |
| 12 | APPROVED BACKFLOW DEVICE |
| 13 | ELECTROFUSION THREADED TRANSITION FITTING |
| 14 | 32, 40mm PE100 SDR11 PIPE |
| 15 | CONCRETE SLAB - GRADED TO KERB FOR DRAINAGE |
| DIMENSION | |
| A | DEPTH TO SERVICE PIPE:<br>MINIMUM: 600mm |
| B | MINIMUM CLEARANCE:<br>300 mm |
| C | MINIMUM CLEARANCE:<br>300mm |
| D | DISTANCE TO BOUNDARY:<br>MAXIMUM: 400mm |
| E | MINIMUM THICKNESS:<br>100mm FIBRE REINFORCED<br>150mm UN-REINFORCED |

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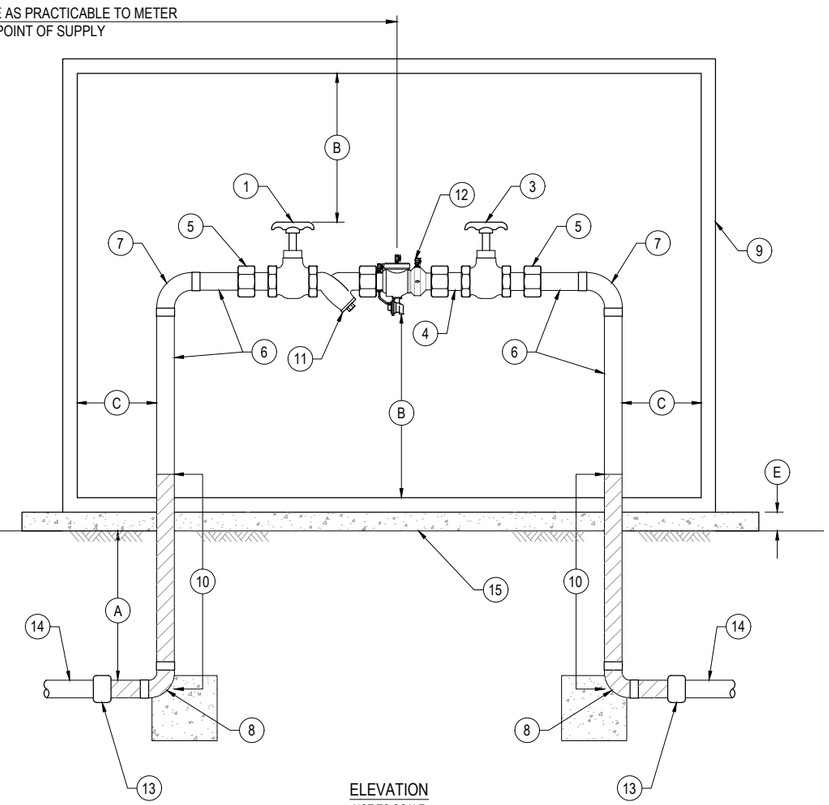
NOT TO SCALE

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NOT TO SCALE

## NOTES:

1. VALVE AND METER SHALL BE INSTALLED IN THE ROAD RESERVE OUTSIDE THE PROPERTY SERVICED.
2. METER ASSEMBLY AND CABINET CAN BE SET-UP EITHER PARALLEL OR PERPENDICULAR TO THE PROPERTY BOUNDARY, BUT MUST BE SQUARE WITH THE BOUNDARY.
3. THE COPPER PIPE SHALL BE WRAPPED WITH DENSO GREASE TAPE WHERE IT IS IN CONTACT WITH CONCRETE AND IN THE BOUNDARY AREA BETWEEN BELOW GROUND AND ABOVE GROUND.
4. SERVICE SHALL BE CLEARLY MARKED AS PER THE REQUIREMENTS OF THE REGIONAL SPECIFICATION FOR WATER SERVICES.
5. DETECTOR TAPE TO BE INSTALLED ABOVE SERVICE PIPE ARRANGEMENT, UP TO THE FIRST UPSTREAM VERTICAL BEND (FITTING No. 8).
6. WHERE INSTALLATION CONFLICTS WITH LOCAL COUNCIL BYLAWS, THE BYLAWS TAKE PRECEDENCE. APPROVAL MUST BE OBTAINED PRIOR TO CONSTRUCTION FROM WELLINGTON WATER.

## NOTES (ENCLOSURE):

1. THE ENCLOSURE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE BOUNDARY. WHERE THIS IS NOT PRACTICABLE, LOCATION TO BE CONFIRMED WITH WELLINGTON WATER PRIOR TO INSTALLATION.
2. THE ENCLOSURE SHALL BE CONSTRUCTED FROM POWDER COATED MILD STEEL MESH WITH POWDER COATED STEEL BRACKETS TO FORM EDGES AND VERTICAL SUPPORTS. VERTICAL SUPPORTS TO BE BOLTED INTO THE FINISHES AT GROUND LEVEL.
3. THE WIRE MESH ENCLOSURE SHALL HAVE A HINGED PANEL FOR MAINTENANCE ACCESS TO FITTINGS AND PIPEWORK. PANEL IS TO BE SECURED WITH A PADLOCK OR OTHER SECURITY MECHANISM AS AGREED WITH WELLINGTON WATER.

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | SS | CB | GC | 03/20 | | | | |
| B | REVISED TABLE AND NOTES | AL | DM | GC | 07/20 | | | | |
| C | REVISED TABLE, NOTES, PLAN VIEW AND ENCLOSURE | AL | SUS | | 10/21 | | | | |
| D | REVISED ENCLOSURE | JS | | | 07/24 | | | | |

Wellington Water

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| DESIGN | T BIAGIOLI | 09/19 |
| UPDATE | S SURESH | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 12/21 |
| APPROVED | K WYNN | 12/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## ABOVE GROUND COMMERCIAL METER AND BACKFLOW INSTALLATION (32mm TO 40mm)

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -
DRAWING N°. WS10



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File Name:
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| FIRE SERVICE CONNECTION WITH METERED SERVICE CONNECTION - STANDARD BELOW GROUND INSTALLATION | |
|---|---|
| ITEM | DESCRIPTION / SPECIFICATION |
| 1 | DI TEE ON MAIN - BRANCH FLANGED |
| 2 | SERVICE VALVE<br>- APPROVED RESILIENT SEATED GATE VALVE<br>- FLANGE / FLANGE - AS / NZS 4087 FIG B5<br>MUST BE FLANGED TO TEE ON MAIN |
| 3 | FLANGE DI SPOOL, LENGTH = 5 x DIA. MINIMUM (REFER NOTE 4) |
| 4 | APPROVED METER |
| 5 | APPROVED THRUST TYPE DISMANTLING JOINT |
| 6 | APPROVED BACKFLOW DEVICE |
| 7 | MAINTENANCE TOP PANEL |
| 8 | CAST-INSITU CONCRETE THRUST BLOCK (SEE NOTES) |
| 9 | WATER PIPE (50mm OR GREATER)<br>- AS / NZS 2280 FLANGED BENDS<br>- DI FLANGED SPOOLS (REFER NOTE 4)<br>- ALL FLANGES AS / NZS 4087 FIG B5 |
| 10 | CABINET OR PROTECTIVE ENCLOSURE (SEE NOTES) |
| 11 | CONCRETE SLAB - GRADED TO KERB FOR DRAINAGE |
| 12 | STANDARD PRECAST CONCRETE MANHOLE |
| 13 | PN16 STRAINER - SCREEN SIZE TO BACKFLOW MANUFACTURER'S RECOMMENDATION |
| 14 | 90° FLANGED DI BEND |
| 15 | REMOTE READER FOR METER LOCATED IN TOBY BOX |
| 16 | VALVE SUPPORT BRACKET AS PER SUPPLIER'S RECOMMENDATION |

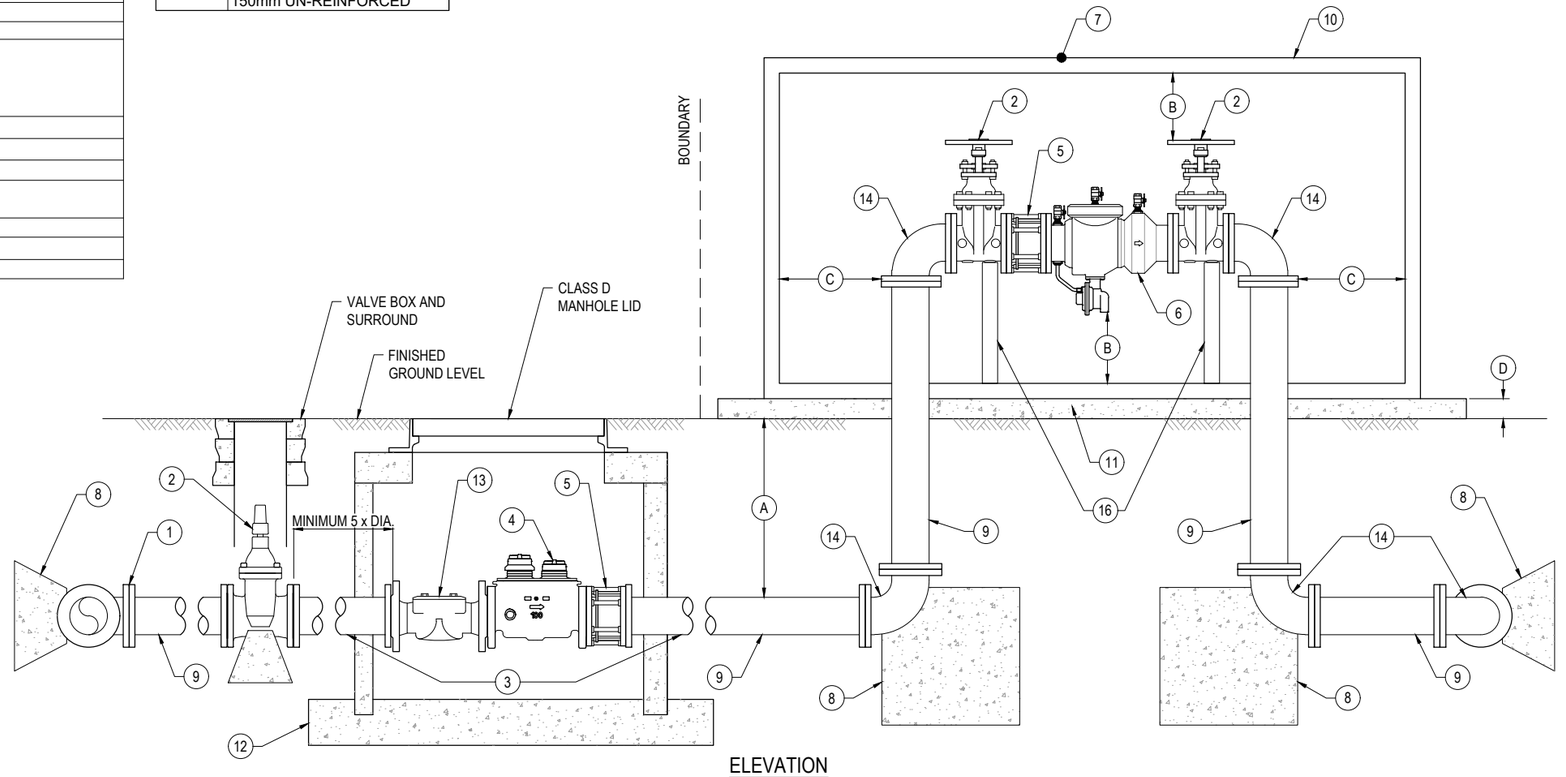
| ITEM | DIMENSION |
|---|---|
| A | DEPTH (TO MAIN):<br>MINIMUM: 700mm<br>MAXIMUM: 800mm |
| B | MINIMUM CLEARANCE:<br>300mm |
| C | MINIMUM CLEARANCE:<br>300mm |
| D | MINIMUM THICKNESS:<br>100mm (FIBRE REINFORCED)<br>150mm UN-REINFORCED |

## NOTES:

1. VALVE AND METER SHALL BE INSTALLED IN THE ROAD RESERVE OUTSIDE THE PROPERTY SERVICED. BACKFLOW PREVENTER SHALL BE INSTALLED AS CLOSE AS PRACTICABLE TO THE PROPERTY BOUNDARY (ON THE PUBLIC OR PRIVATE SIDE), AS APPROVED BY WELLINGTON WATER. VALVE AND METER INSTALLATION CAN BE SET-UP EITHER PARALLEL OR PERPENDICULAR TO THE PROPERTY BOUNDARY, BUT MUST BE SQUARE WITH THE BOUNDARY.
2. VALVE SHALL BE CLEARLY MARKED AS PER THE REQUIREMENTS OF THE REGIONAL SPECIFICATION FOR WATER SERVICES.
3. THRUST BLOCKS SHALL BE INSTALLED TO PROVIDE VERTICAL SUPPORT AS WELL AS HORIZONTAL THRUST RESTRAINT - THRUST BLOCKS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REGIONAL SPECIFICATION FOR WATER SERVICES.
4. CLS SPOOLS MAY BE PERMITTED FOLLOWING AGREEMENT WITH WELLINGTON WATER.
5. DETECTOR TAPE TO BE INSTALLED ABOVE SERVICE PIPE ARRANGEMENT, UP TO THE METER CHAMBER.
6. WHERE INSTALLATION CONFLICTS WITH LOCAL COUNCIL BYLAWS, THE BYLAWS TAKE PRECEDENCE. APPROVAL MUST BE OBTAINED PRIOR TO CONSTRUCTION FROM WELLINGTON WATER.

## NOTES (ENCLOSURE):

1. THE ENCLOSURE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE BOUNDARY. WHERE THIS IS NOT PRACTICABLE, LOCATION TO BE CONFIRMED WITH WELLINGTON WATER PRIOR TO INSTALLATION.
2. THE ENCLOSURE SHALL BE CONSTRUCTED FROM POWDER COATED MILD STEEL MESH WITH POWDER COATED STEEL BRACKETS TO FORM EDGES AND VERTICAL SUPPORTS. VERTICAL SUPPORTS TO BE BOLTED INTO THE FINISHES AT GROUND LEVEL.
3. THE WIRE MESH ENCLOSURE SHALL HAVE A HINGED PANEL FOR MAINTENANCE ACCESS TO FITTINGS AND PIPEWORK. PANEL IS TO BE SECURED WITH A PADLOCK OR OTHER SECURITY MECHANISM AS AGREED WITH WELLINGTON WATER.

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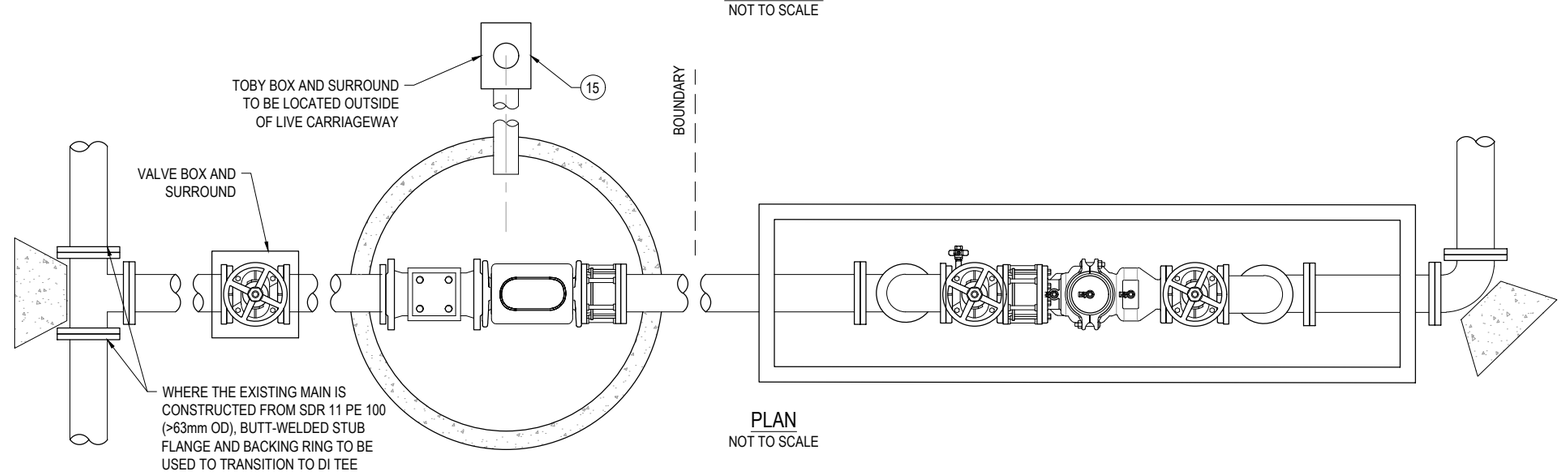


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| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | SS | CB | GC | 03/20 | | | | |
| B | REVISED TABLE AND NOTES | AL | DM | GC | 07/20 | | | | |
| C | REVISED TABLE, NOTES AND STRAINER LOCATION | AL | SUS | | 11/21 | | | | |
| D | REVISED ENCLOSURE | JS | | | 07/24 | | | | |

Wellington Water

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| DESIGN | T BIAGIOLI | 09/19 |
| UPDATE | S SURESH | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 12/21 |
| APPROVED | K WYNN | 12/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## BELOW GROUND COMMERCIAL METER AND BACKFLOW INSTALLATION (50mm AND LARGER)

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -
DRAWING N°. WS11



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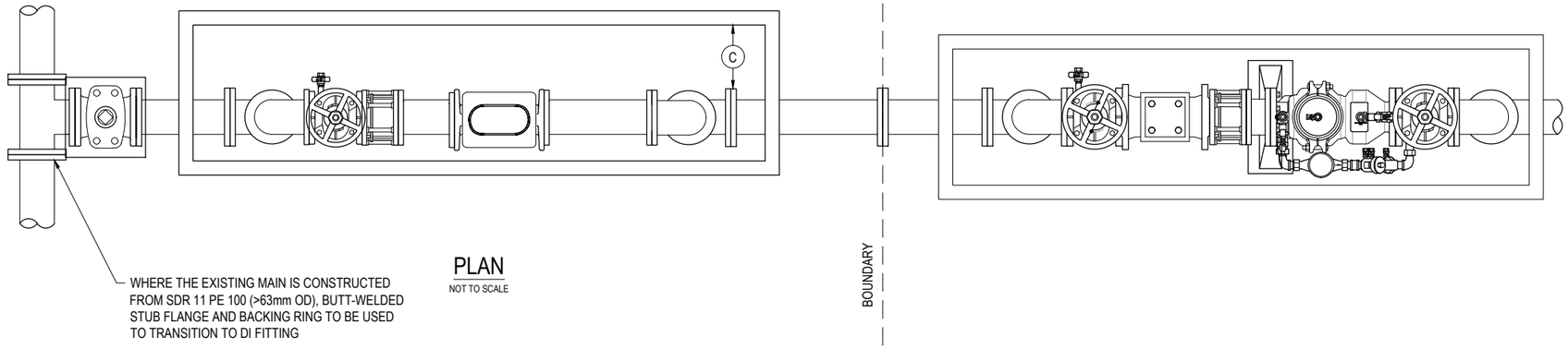
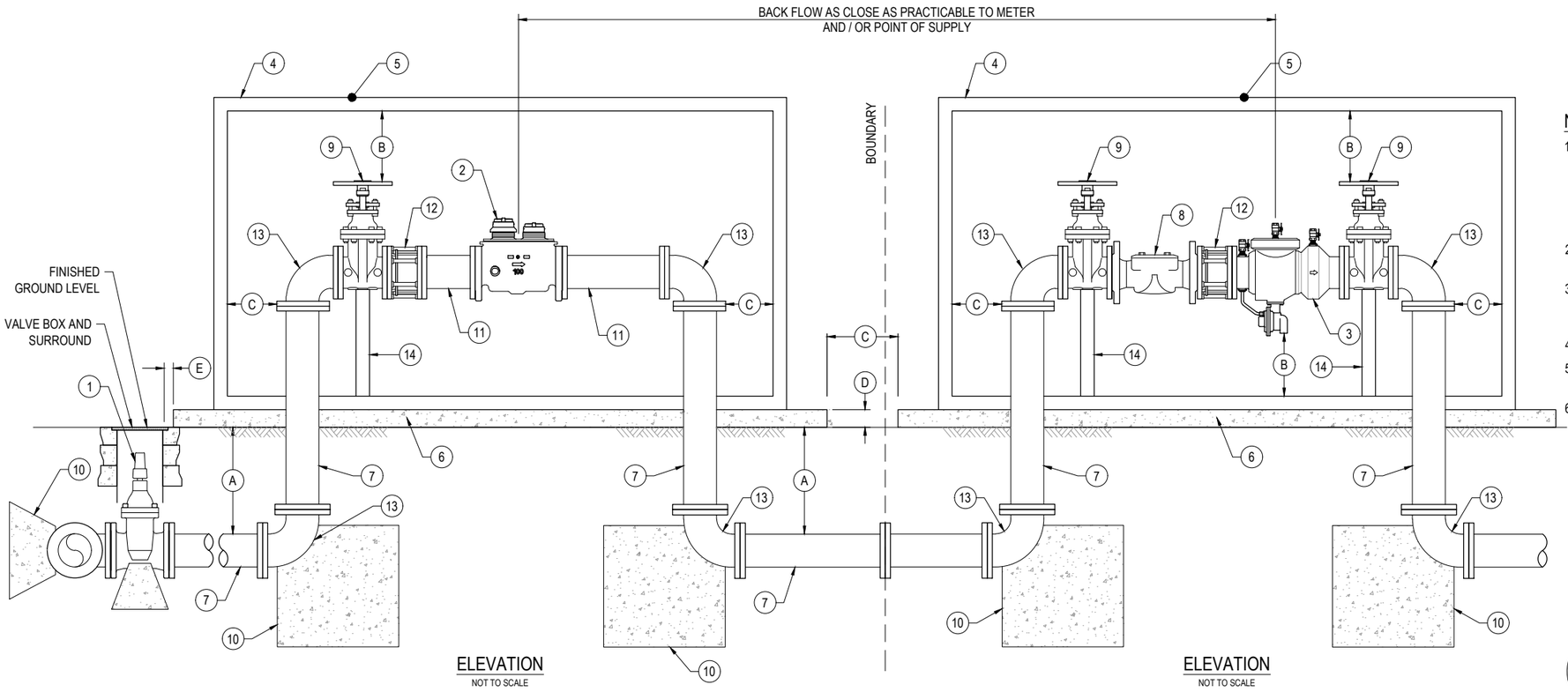



PLAN
NOT TO SCALE

BOUNDARY

| COMMERCIAL WATER METER - STANDARD ABOVE GROUND INSTALLATION | |
|---|---|
| ITEM | DESCRIPTION / SPECIFICATION |
| 1 | SERVICE VALVE<br>- APPROVED RESILIENT SEATED GATE VALVE<br>- FLANGE / FLANGE - AS / NZS 4087 FIG B5 |
| 2 | APPROVED METER |
| 3 | APPROVED BACKFLOW DEVICE |
| 4 | CABINET OR PROTECTIVE ENCLOSURE (SEE NOTES) |
| 5 | MAINTENANCE TOP PANEL |
| 6 | CONCRETE SLAB - GRADED TO KERB FOR DRAINAGE |
| 7 | WATER PIPE (50mm OR GREATER)<br>- AS / NZS 2280 FLANGED BENDS<br>- DI FLANGED SPOOLS (REFER NOTE 5)<br>- ALL FLANGES AS / NZS 4087 FIG B5 & B7 |
| 8 | PN16 STRAINER - SCREEN SIZE TO BACKFLOW MANUFACTURER'S RECOMMENDATION |
| 9 | ISOLATION VALVE (FOR TESTING BACKFLOW DEVICE) |
| 10 | CAST IN-SITU CONCRETE THRUST BLOCK (SEE NOTES) |
| 11 | FLANGE DI SPOOL (REFER NOTE 5)<br>LENGTH = 5 x PIPE NOM. DIAMETER |
| 12 | APPROVED THRUST TYPE DISMANTLING JOINT |
| 13 | 90° FLANGED DI BEND |
| 14 | VALVE SUPPORT BRACKET AS PER SUPPLIER'S RECOMMENDATION |

| DIMENSION | WCC |
|---|---|
| A | DEPTH (TO MAIN):<br>MINIMUM: 700mm<br>(OR AS REQUIRED FOR HEADROOM ON VALVE)<br>MAXIMUM: 900mm<br>MAXIMUM: 1,300mm (FOR WCC) |
| B | MINIMUM CLEARANCE:<br>300mm |
| C | MINIMUM CLEARANCE:<br>300mm |
| D | MINIMUM THICKNESS:<br>100mm (FIBRE REINFORCED)<br>150mm UN-REINFORCED |
| E | MINIMUM OFFSET TO VALVE SURROUND : 300mm |




ELEVATION
NOT TO SCALE

ELEVATION
NOT TO SCALE

## NOTES:

1. VALVE AND METER SHALL BE INSTALLED IN THE ROAD RESERVE OUTSIDE THE PROPERTY SERVICED. BACKFLOW PREVENTER SHALL BE INSTALLED AS CLOSE AS PRACTICABLE TO THE PROPERTY BOUNDARY (ON THE PUBLIC OR PRIVATE SIDE), AS APPROVED BY WELLINGTON WATER. VALVE AND METER CAN BE SET UP EITHER PARALLEL OR PERPENDICULAR TO THE PROPERTY BOUNDARY, BUT MUST BE SQUARE WITH THE BOUNDARY.
2. VALVE SHALL BE CLEARLY MARKED AS PER THE REQUIREMENTS OF THE REGIONAL SPECIFICATION FOR WATER SERVICES.
3. THRUST BLOCKS SHALL BE INSTALLED TO PROVIDE VERTICAL SUPPORT AS WELL AS HORIZONTAL THRUST RESTRAINT - THRUST BLOCKS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REGIONAL SPECIFICATION FOR WATER SERVICES.
4. CLS SPOOLS MAY BE PERMITTED FOLLOWING AGREEMENT WITH WELLINGTON WATER.
5. DETECTOR TAPE TO BE INSTALLED ABOVE SERVICE PIPE ARRANGEMENT, UP TO THE VERTICAL BEND (FITTING No. 13).
6. WHERE INSTALLATION CONFLICTS WITH LOCAL COUNCIL BYLAWS, THE BYLAWS TAKE PRECEDENCE. APPROVAL MUST BE OBTAINED PRIOR TO CONSTRUCTION FROM WELLINGTON WATER.

## NOTES (ENCLOSURE):

1. THE ENCLOSURE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE BOUNDARY. WHERE THIS IS NOT PRACTICABLE, LOCATION TO BE CONFIRMED WITH WELLINGTON WATER PRIOR TO INSTALLATION.
2. THE ENCLOSURE SHALL BE CONSTRUCTED FROM POWDER COATED MILD STEEL MESH WITH POWDER COATED STEEL BRACKETS TO FORM EDGES AND VERTICAL SUPPORTS. VERTICAL SUPPORTS TO BE BOLTED INTO THE FINISHES AT GROUND LEVEL.
3. THE WIRE MESH ENCLOSURE SHALL HAVE A HINGED PANEL FOR MAINTENANCE ACCESS TO FITTINGS AND PIPEWORK. PANEL IS TO BE SECURED WITH A PADLOCK OR OTHER SECURITY MECHANISM AS AGREED WITH WELLINGTON WATER.

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMNARY ISSUE | SS | CB | GC | 03/20 | | | | |
| B | REVISED TABLE AND NOTES | AL | DM | GC | 07/20 | | | | |
| C | REVISED TABLE AND NOTES, VALVE REMOVAL | AL | SUS | | 11/21 | | | | |
| D | REVISED ENCLOSURE | JS | | | 07/24 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | T BIAGIOLI | 09/19 |
| UPDATE | S SURESH | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 12/21 |
| APPROVED | K WYNN | 12/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

ABOVE GROUND COMMERCIAL METER AND BACKFLOW INSTALLATION (50mm AND LARGER)

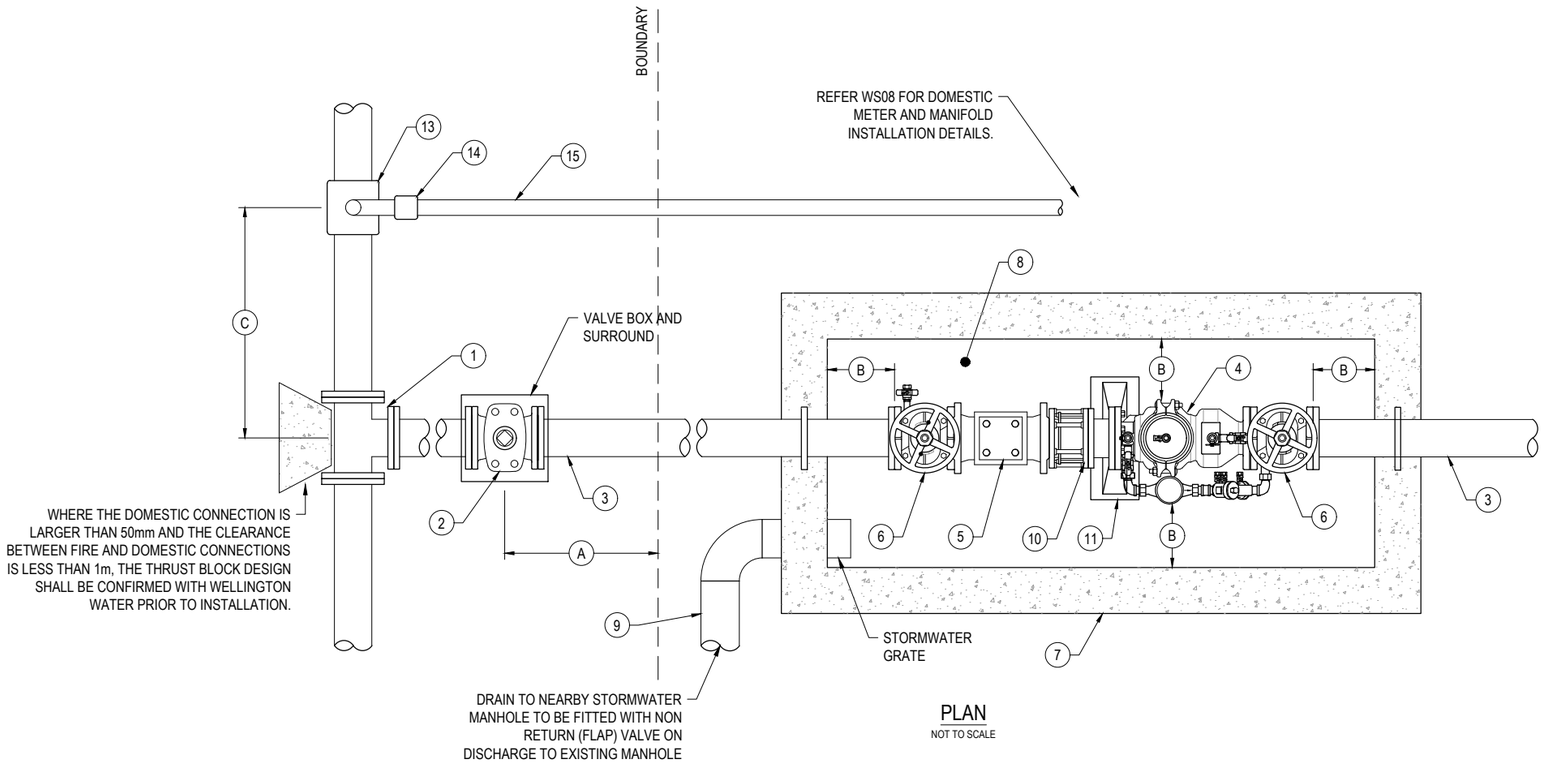
SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -
DRAWING N°. WS12



COLOUR PLOT

PLOT DETAILS:
Date Plotted:
Plotted By: Jack Scott
File Name:
File Location: C:\USERS\JACK.SCOTT\ONEDRIVE - WELLINGTONWATER\DOCUMENTS\REGIONAL SPEC DRAWINGS

| FIRE SERVICE CONNECTION WITH METERED SERVICE CONNECTION - STANDARD BELOW GROUND INSTALLATION | |
|---|---|
| ITEM | DESCRIPTION / SPECIFICATION |
| 1 | TEE ON MAIN - BRANCH FLANGED |
| 2 | SERVICE VALVE<br>- APPROVED RESILIENT SEATED GATE VALVE<br>- FLANGE / FLANGE - AS / NZS 4087 FIG B5<br>MUST BE FLANGED TO TEE ON MAIN |
| 3 | FLANGED CLS PIPE<br>- MINIMUM WALL THICKNESS = 4.8 mm<br>- FLANGED AS / NZS 4087 FIG B7 |
| 4 | APPROVED DOUBLE-CHECK DETECTOR-CHECK BACKFLOW DEVICE |
| 5 | PN16 STRAINER - SCREEN SIZE TO MANUFACTURER'S RECOMMENDATION |
| 6 | APPROVED ISOLATION VALVES (FOR TESTING BACKFLOW DEVICE) |
| 7 | PURPOSE DESIGNED CONCRETE CHAMBER (SEE NOTES) |
| 8 | CHAMBER LIDS (SEE NOTES) |
| 9 | DRAIN (100 mm NB MINIMUM) |
| 10 | APPROVED THRUST TYPE<br>DISMANTLING JOINT |
| 11 | METER / BACKFLOW SUPPORT<br>(SHOWN WITH HARDWOOD WEDGES) |
| 12 | VALVE SUPPORT BRACKET AS PER SUPPLIER'S RECOMMENDATION |
| 13 | APPROVED TAPPING BAND |
| 14 | ELECTROFUSION MALE TRANSITION FITTING |
| 15 | PE100 SDR11 PN16 PIPE |
| DIMENSION | |
| A | OFFSET: VALVE TO BOUNDARY<br>500 mm |
| B | MINIMUM CLEARANCE:<br>300 mm |
| C | MINIMUM CLEARANCE:<br>1000 mm UNLESS FLANGED (IN WHICH CASE THE CLEARANCE DISTANCE CAN BE REDUCED TO THE CLEARANCES SPECIFIED FOR PARALLEL WATER MAINS IN THE REGIONAL STANDARD FOR WATER SERVICES. |



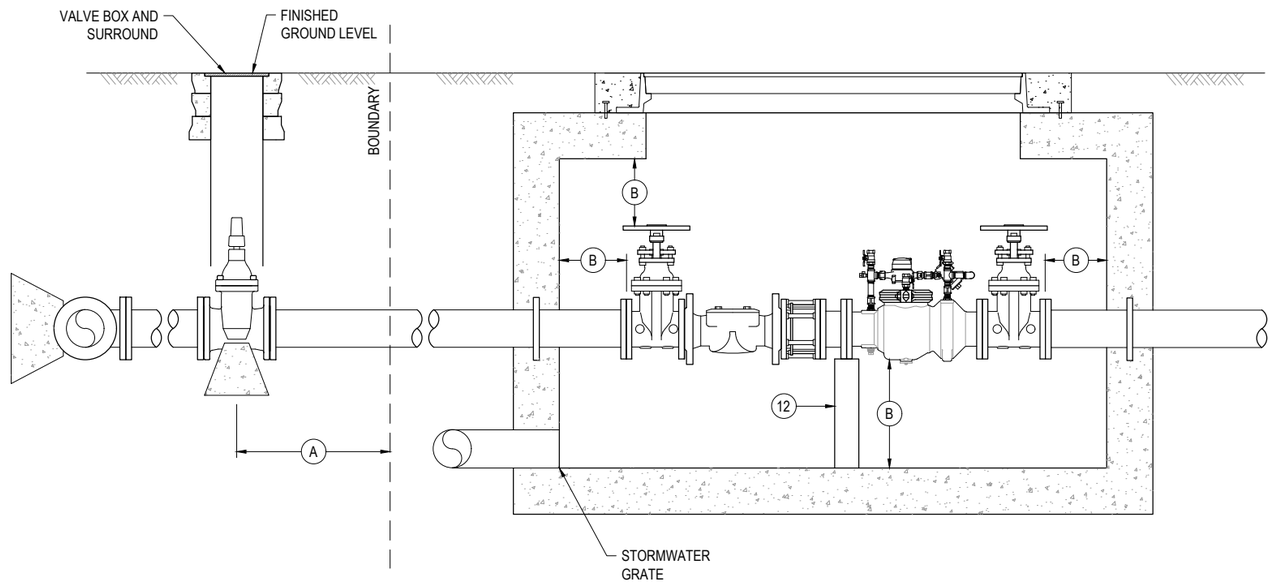

PLAN
NOT TO SCALE

## NOTES:

1. VALVE AND BACKFLOW SHALL BE INSTALLED IN THE ROAD RESERVE OUTSIDE THE PROPERTY SERVICED - EXCEPT WHERE APPROVED IN WRITING BY WELLINGTON WATER.
2. VALVE AND METER INSTALLATION CAN BE SET-UP EITHER PARALLEL OR PERPENDICULAR TO THE PROPERTY BOUNDARY, BUT MUST BE SQUARE WITH THE BOUNDARY.
3. FIRE VALVE ON MAIN SHALL HAVE SPECIAL VALVE BOX WITH "FS" CAST AS PER THE REQUIREMENTS OF THE REGIONAL SPECIFICATION FOR WATER SERVICES. THE LID SHALL BE PAINTED GREEN (IN REFLECTIVE PAINT).
4. DETECTOR TAPE TO BE INSTALLED ABOVE SERVICE PIPE ARRANGEMENT, UP TO THE METER CHAMBER
5. WHERE INSTALLATION CONFLICTS WITH LOCAL COUNCIL BYLAWS, THE BYLAWS TAKE PRECEDENCE. APPROVAL MUST BE OBTAINED PRIOR TO CONSTRUCTION FROM THE ENGINEER.

## NOTES (CHAMBER):

1. THE CHAMBER SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE BOUNDARY. WHERE THIS IS NOT PRACTICABLE, LOCATION TO BE CONFIRMED WITH WWL PRIOR TO INSTALLATION.
2. THE CHAMBER SHALL BE CONSTRUCTED FROM EITHER PRE-CAST, OR PLACED IN-SITU REINFORCED CONCRETE WITH WALLS NOT LESS THAN 150 mm THICK.
3. THE CHAMBER SHALL PROVIDE A MINIMUM OF 200 mm MAINTENANCE ROOM AROUND ALL FITTINGS.
4. A DRAIN SHALL BE INSTALLED IN THE CHAMBER - A FLAPGATE VALVE SHALL BE INSTALLED ON THE DRAIN TO PREVENT SURCHARGE AND VERMIN ENTRY TO PIPE.
5. THE CHAMBER SHALL HAVE REMOVABLE LIDS INSTALLED - THE LIDS SHALL BE FULL WIDTH AND FULL LENGTH GATIC, WEBFORGE OR SIKA LIDS SHALL BE ACCEPTABLE (OR SIMILAR APPROVED BY WELLINGTON WATER).




ELEVATION
NOT TO SCALE

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | SS | CB | GC | 03/20 | | | | |
| B | REVISED TABLE AND NOTES | AL | DM | GC | 07/20 | | | | |
| C | REVISED TABLE, NOTES, SERVICE VALVE LOCTION AND LID FOR CHAMBER | AL | SUS | | 11/21 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | T BIAGIOLI | 09/19 |
| UPDATE | S SURESH | 10/21 |
| DRAWING UPDATE | A LIM | 10/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | K WYNN | 12/21 |
| APPROVED | K WYNN | 12/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

## FIRE SERVICE CONNECTION AND METERED SUPPLY

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.
DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -
DRAWING N°. WS13



PLOT DETAILS:
Date Plotted: Dec 09, 2021 - 5:12pm
Plotted By: Andrew Lim

File Name: WS13 (2021) Fire service connection and metered supply.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE\WCC WATER SUPPLY CONNECTION STANDARD

NOTES:

1) CONNECTION TO EXISTING PIPES WILL TYPICALLY OCCUR AT A FLANGE DI BEND OR TEE OR AT A FLANGED STCL SPECIAL.

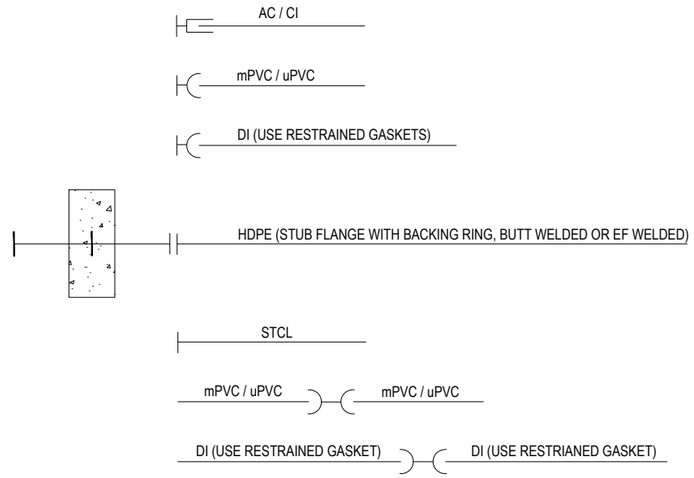
2) STCL OR DI SPOOL WITH A PUDDLE FLANGE AND CONCRETE THRUST WALL SHOULD BE USED WHEN CONNECTING HDPE PIPE TO AC, CI, PVC OR DI TO ACCOMMODATE THE FORCES GENERATED BY THE POISSON EFFECT IN THE HDPE.

3) IF THERE IS A DIFFERENCE IN THE DEPTH OF THE EXISITNG MAIN AND THE NEW MAIN THEN A ROCKER PIPE OF THE SAME MATERIAL AS THE NEW MAIN MAY BE USED AND A MECHANICAL JOINT MAY BE USED TO CONNECT IT TO THE EXISTING MAIN. IF THE DEFLECTION IS GREATER THAN 3° THEN A STCL SPECIAL OR STANDARD DI FLANGED BENDS WILL BE REQUIRED.

| PIPE ABBREVIATIONS | |
|---|---|
| AC | ASBESTOS CEMENT |
| CI | CAST IRON |
| DI | DUCTILE IRON |
| HDPE | HIGH DENSITY POLYETHYLENE |
| mPVC | MODIFIED POLYVINYL CHLORIDE |
| uPVC | UNPLASTICISED POLYVINYL CHLORIDE |
| STCL | STEEL CEMENT LINED |

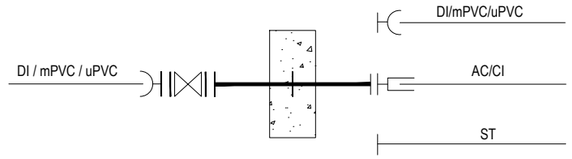
| LEGEND | |
|---|---|
| | FLANGED/FLANGED JOINT |
| | FLANGE/SOCKET ADAPTER |
| | MECHANICAL FLANGE ADAPTER |
| | MECHANICAL JOINT |
| | SOCKET/SOCKET CONNECTOR |
| | SLUICE VALVE |
| | PUDDLE FLANGE WITH CONCRETE THRUST BLOCK |

PREFERRED CONNECTIONS FOR VARIOUS MATERAL TYPES.




ACCEPTABLE CONNECTION TYPES FOR REPAIRS OR CONNECTIONS TO EXSITING PIPES WHERE THE PREFERRED CONNECTIONS ARE NOT POSSIBLE.


STCL OR DI FLANGED SPOOL WITH A PUDDLE FLANGE AND CONCRETE THRUST WALL SHOULD BE USED WHEN AN IN-LINE VALVE HAS BEEN INSTALLED TO ENSURE THE VALVE IS RESTRAINED FROM EITHER DIRECTION. THE PUDDLE FLANGE SPOOL AND IN-LINE VALVE SHOULD BE FLANGED TOGETHER.




## EXAMPLES OF WATER MAIN CONNECTIONS

NOTE: DOES NOT INCLUDE FIRE HYDRANTS

PLAN VIEWS

DIAGRAMMATIC ONLY

| REV | AMENDMENT | DWN | CHK | REV | DATE | AMENDMENT | DWN | CHK | DATE |
|---|---|---|---|---|---|---|---|---|---|
| A | PRELIMINARY ISSUE | AL | | | 02/20 | | | | |
| B | RATIONALISED NUMBER OF CONNECTIONS | AL | EG | | 11/21 | | | | |

Wellington Water

| | | |
|---|---|---|
| DESIGN | WWL | - |
| UPDATE | J EWEG | 11/21 |
| DRAWING UPDATE | A LIM | 11/21 |
| CHECKED | E GREENBERG | 11/21 |
| REVIEWED | J EWEG | 11/21 |
| APPROVED | J EWEG | 11/21 |

# REGIONAL SPECIFICATION FOR WATER SERVICES

EXAMPLES OF WATER MAIN CONNECTIONS

SCALE: NOT TO SCALE | SHEET No. 1 OF 1 SHEETS.

DRAWING SIZE: A1 | PROJECT/FILE NUMBER: -

DRAWING N°. WS14



COLOUR PLOT

PLOT DETAILS:
Date Plotted: Dec 03, 2021 - 9:11am
Plotted By: Andrew Lim

File Name: WS14 (2021) Examples of water main connections.dwg
File Location: C:\USERS\ALIM\ONEDRIVE - WELLINGTONWATER\007 WWL\WWL\WATER SERVICES STANDARD DWG\WWL TEMPLATE