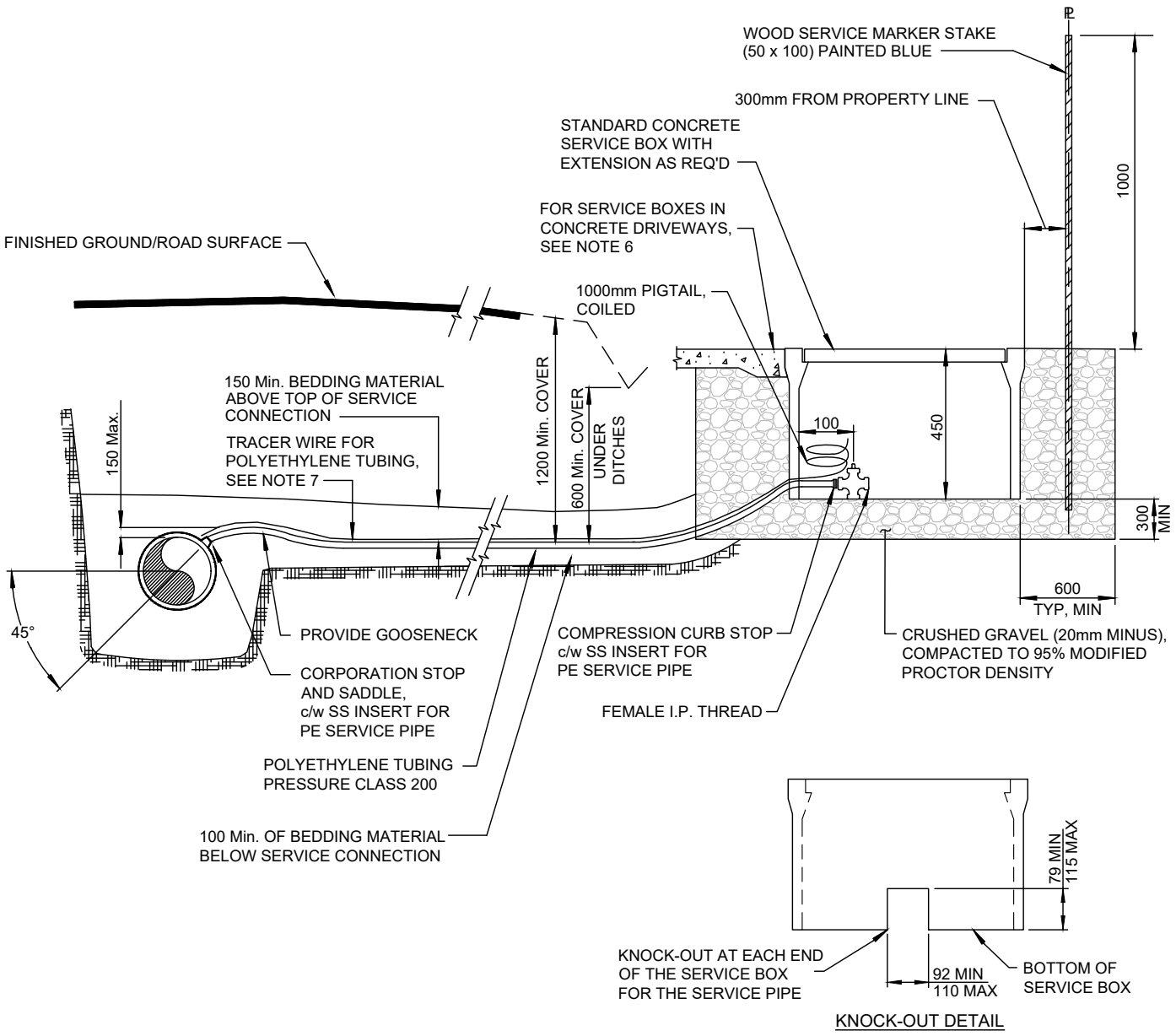


KNOCK-OUT DETAIL

NOTES:

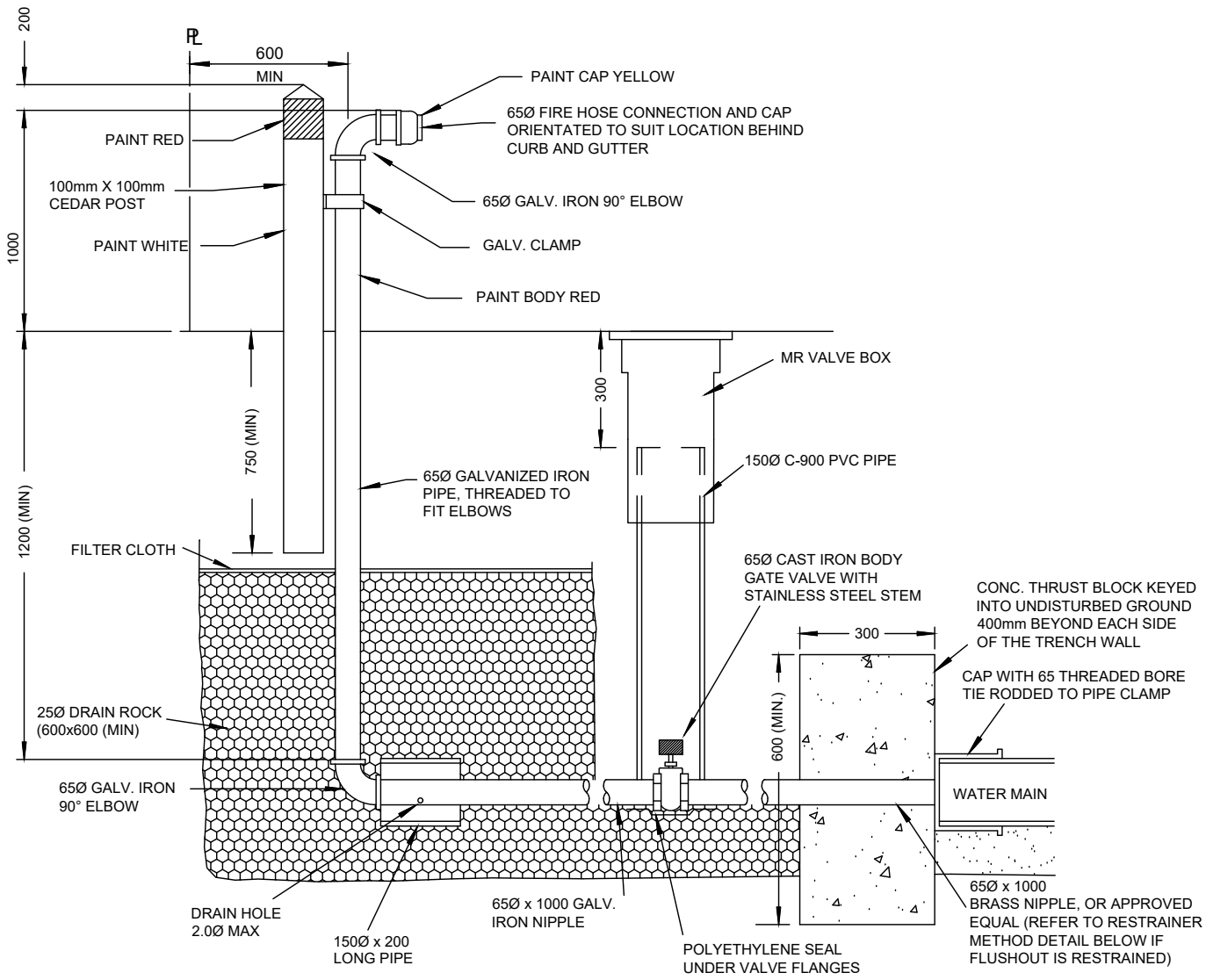
1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 5.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. NOMINAL TRENCH WIDTH FOR SERVICE CONNECTION TO BE 600mm.
3. CONCRETE SERVICE BOX SHALL BE INSTALLED AS PART OF THE INITIAL SERVICE INSTALLATION AS PER SECTION 5.56.6
4. FOR 19mm and 25mm DIA. WATER CONNECTION, SERVICE BOXES SHALL BE CONCRETE WITH TOUCH READ CAST IRON LIDS.
5. FOR 38mm AND 50mm DIA. WATER CONNECTION, SERVICE BOXES SHALL BE CONCRETE WITH STEEL TOUCH READ TRAFFIC LIDS.
6. WHEN SERVICE BOX IS WITHIN A CONCRETE DRIVEWAY, CONCRETE ADJACENT TO THE SERVICE BOX MUST BE A MINIMUM OF 150mm THICK FOR A MINIMUM DISTANCE OF 150mm AROUND THE OUTSIDE EDGES OF THE SERVICE BOX.
7. TRACER WIRE SHALL BE 14 GAUGE AND BLUE IN COLOUR AS PER SECTION 5.30.1. TRACER WIRE SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS AND BE ATTACHED TO THE THE CORPORATION STOP AND RUN ON TOP OF THE SERVICE PIPE TO THE CURB STOP WHERE IT SHALL BE COILED NEATLY WITHIN THE BOX WITH 1000mm OF SURPLUS LENGTH. TRACER WIRE SHALL BE SECURED TO THE SERVICE PIPE AT 1.0m INCREMENTS USING ELECTRICAL TAPE. WIRE SHALL NOT BE WRAPPED AROUND THE SERVICE PIPE.
8. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
9. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

CITY OF NANAIMO
THE HARBOUR CITY

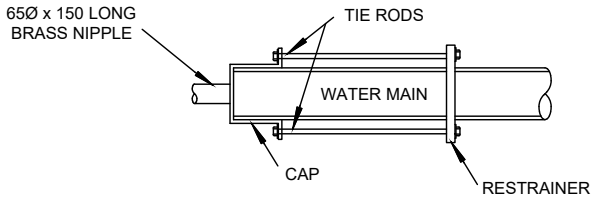
WATER SERVICE CONNECTION
(19Ø TO 50Ø)

Scale:	NTS
Created:	MAR 2016
Rev Date:	MAY 2020
Dwg No:	W-1

3.6.2020



THRUST BLOCK METHOD



RESTRAINER METHOD

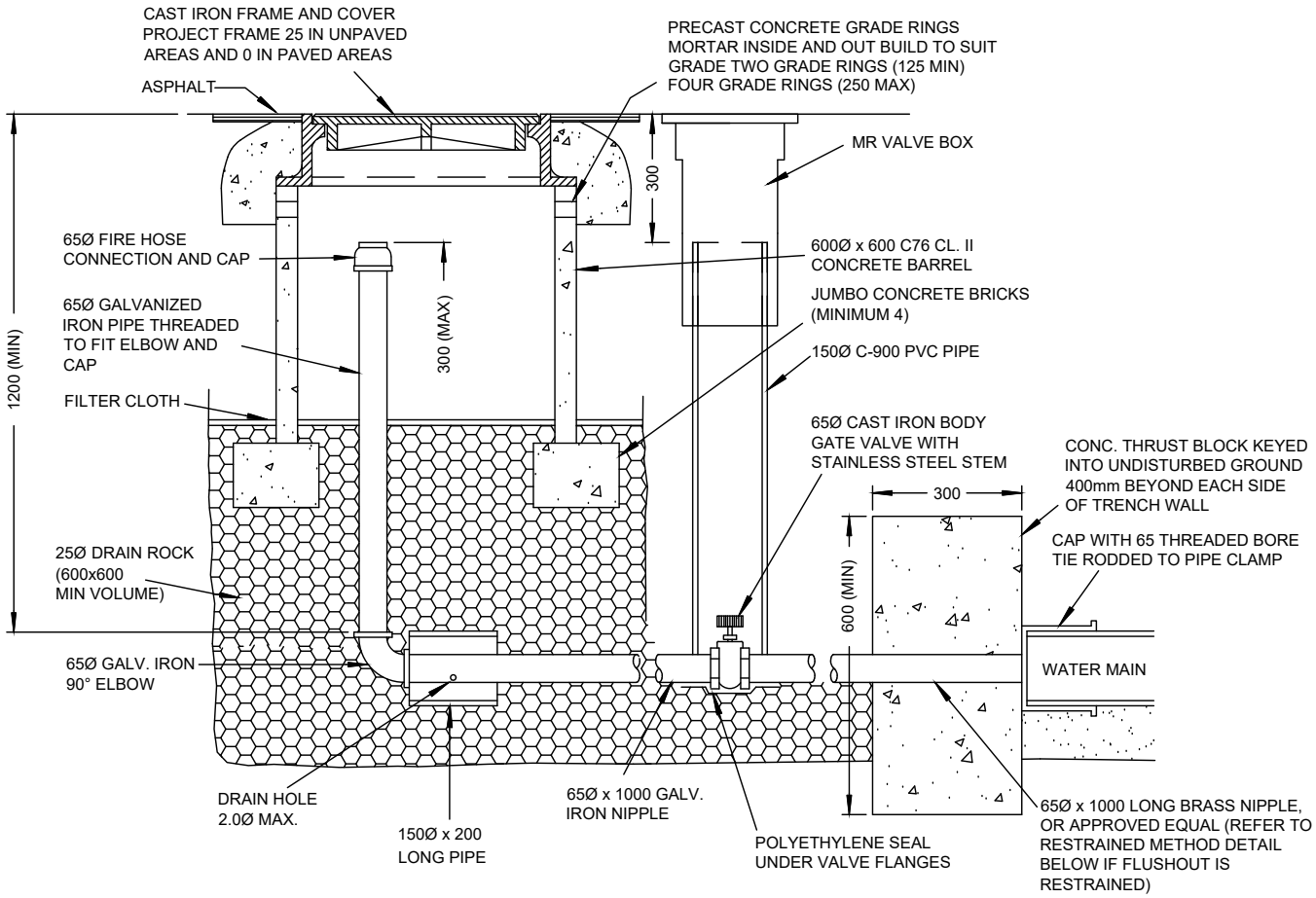
NOTES:

1. NOMINAL TRENCH WIDTH FOR FLUSHOUT IS 600mm VALVE BOX NOT TO CONFLICT WITH CURB AND GUTTER CURB AND GUTTER NOT SHOWN.
2. 150Ø x 200 PIPE TO BE PLACED AROUND PIPE AT DRAIN HOLE TO PREVENT EROSION.
3. ABOVE GROUND FLUSHOUT TO BE RESTRAINED AS PER THRUST BLOCK OR RESTRAINER METHOD AT THE DISCRETION OF THE ENGINEER.
4. WHEN RESTRAINER METHOD IS USED, RESTRAIN AS PER MANUFACTURER'S RECOMMENDATIONS.
5. ONLY PRODUCTS APPROVED BY CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
6. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

CITY OF NANAIMO
THE HARBOUR CITY

ABOVE GROUND FLUSHOUT C/W THRUST BLOCK AND OPTIONAL RETRAINED METHOD

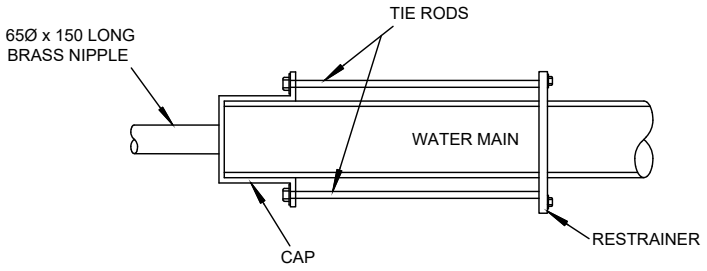
Scale:	NTS
Created:	MAY 2013
Rev Date:	NOV 2016
Dwg No:	W-2A



THRUST BLOCK METHOD

NOTES:

1. NOMINAL TRENCH WIDTH FOR FLUSHOUT IS 600mm VALVE BOX NOT CONFLICT WITH CURB AND GUTTER CURB AND GUTTER NOT SHOWN.
2. LETTERING ON MANHOLE COVER SHALL REFER TO "CITY OF NANAIMO WATERWORKS" LETTERING SHALL BE 25 FLATTENED FACE GOTHIC LETTERING WITH FACE OF LETTERS RAISED TO THE SAME ELEVATION AS THE TOP OF THE RIBS.
3. NOT TO BE USED IN AREAS WHERE WATER TABLE COULD BE ABOVE FIRE HOSE CONNECTION.
4. SURROUNDING GRADE TO DRAIN AWAY FROM COVER.
5. 150Ø x 200 PIPE TO BE PLACED AROUND PIPE AT DRAIN HOLE TO PREVENT EROSION.
6. FLUSHOUTS LOCATED ON GRAVEL ROADS OR SHOULDERS REQUIRE A 1.5m X 1.5m HOT MIX ASPHALT APRON, 50mm THICK.
7. BELOW GRADE FLUSHOUT TO BE RESTRAINED AS PER THRUST BLOCK OR RESTRAINER METHOD AT THE DISCRETION OF THE ENGINEER.
8. WHEN RESTRAINER METHOD IS USED, RESTRAIN AS PER MANUFACTURER'S RECOMMENDATIONS.
9. ONLY PRODUCTS APPROVED BY CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
10. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

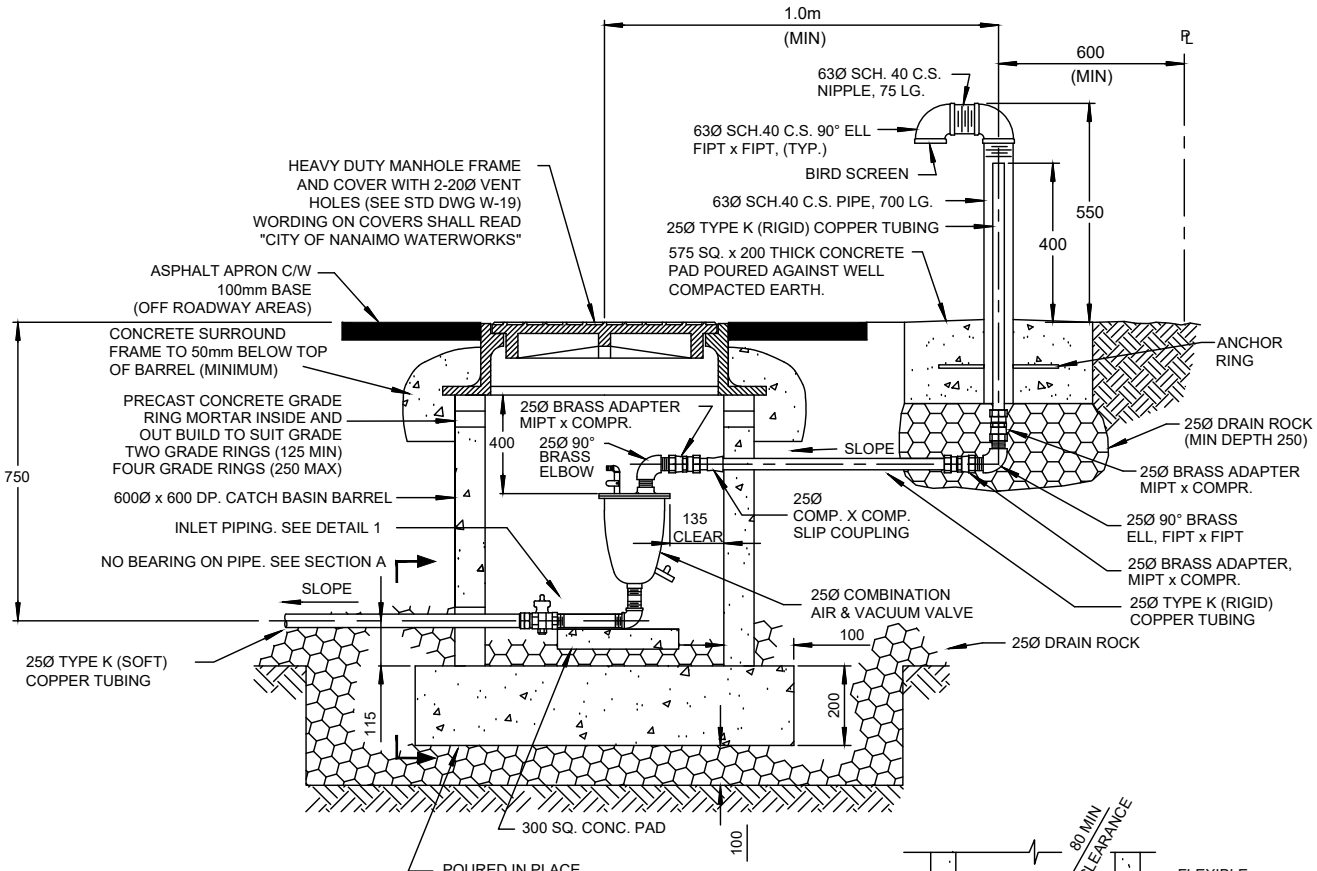


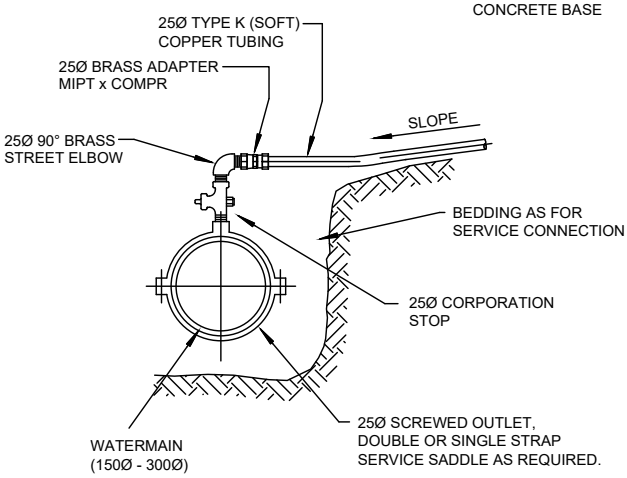
RESTRAINER METHOD

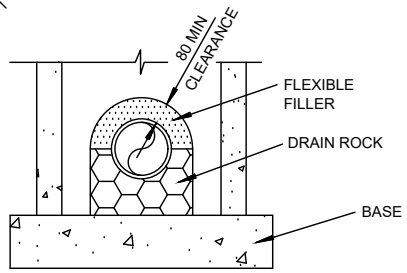
CITY OF NANAIMO
THE HARBOUR CITY

BELOW GROUND FLUSHOUT C/W
THRUST BLOCK AND OPTIONAL
RESTRAINED METHOD

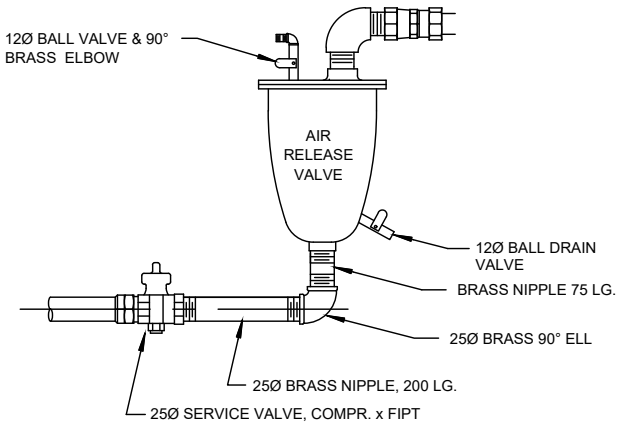
Scale:	NTS
Created:	NOV 2009
Rev Date:	NOV 2016
Dwg No:	W-2B







SECTION A



DETAIL 1

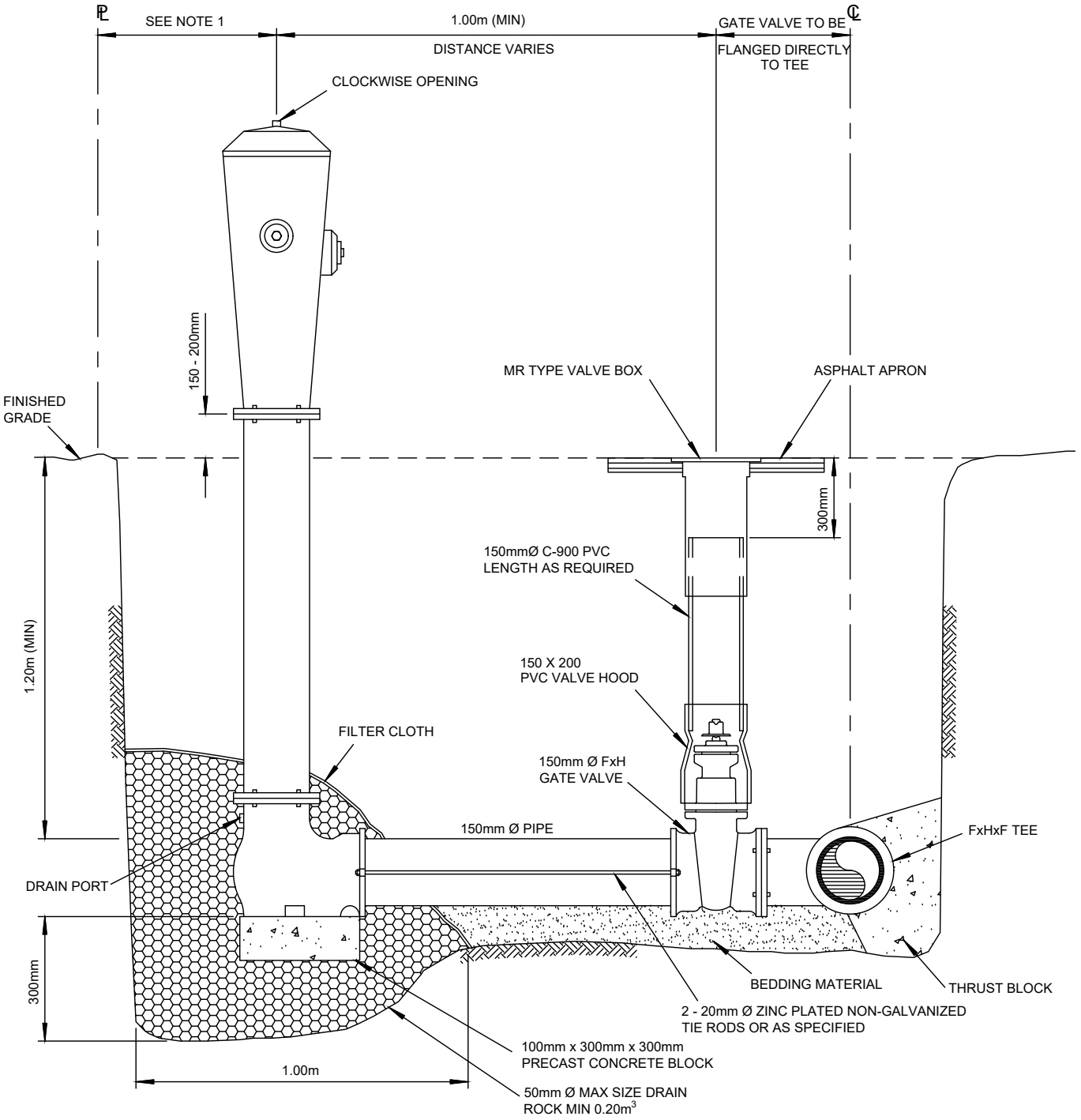
NOTES:

1. CHAMBERS LOCATED ON GRAVEL ROADS OR SHOULDERS REQUIRE A 1.5m x 1.5m HOT MIX ASPHALT APRON, 50 THICK.
2. PLACE FILTER CLOTH OVER DRAIN ROCK PRIOR TO BACKFILL.
3. ABOVE GROUND VENT PIPING TO BE PAINTED FOREST GREEN.
4. PRECAST CB BARREL SHALL BE AN ACCEPTABLE ALTERNATIVE TO MANHOLE BARREL AND POURED IN PLACE BASE.
5. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
6. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

CITY OF NANAIMO
THE HARBOUR CITY

AIR RELEASE VALVE ASSEMBLY AND CHAMBER FOR 150Ø - 300Ø MAIN

Scale:	NTS
Created:	MAY 2013
Rev Date:	NOV 2016
Dwg No:	W-4



NOTES:

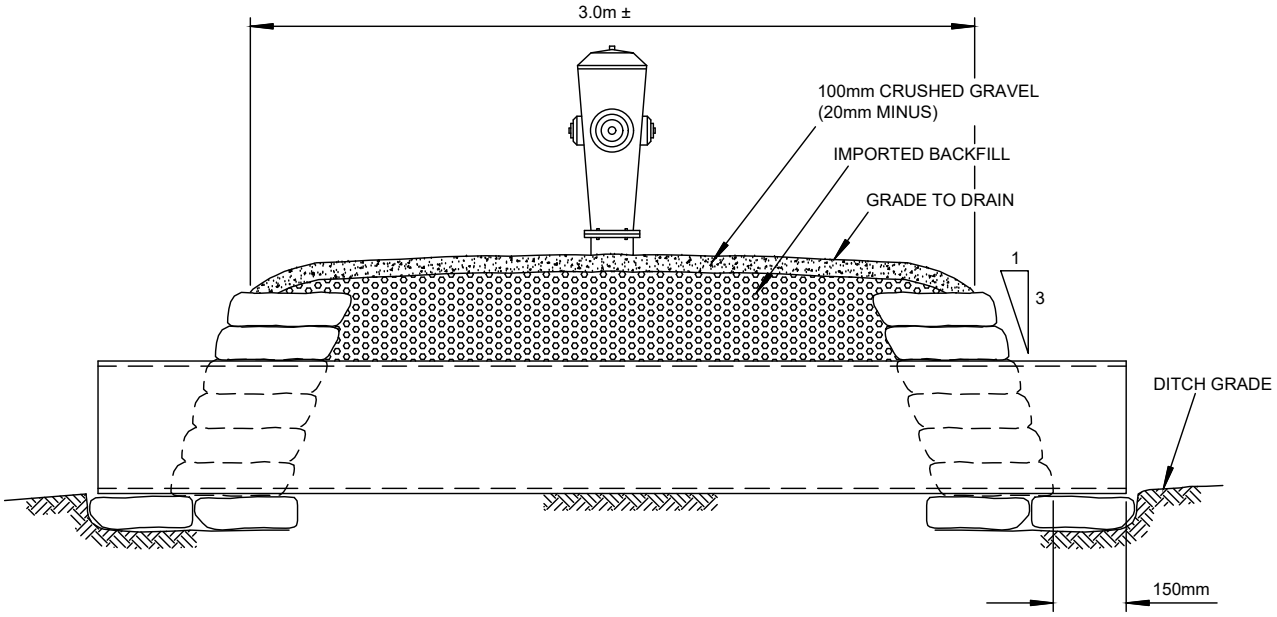
1. FOR HYDRANT OFFSETS REFER TO DESIGN DRAWINGS. AT NO TIME SHALL HYDRANTS BE CONSTRUCTED CLOSER THAN 1.0 METERS TO THE PROPERTY LINE.
2. HOSE AND PUMPER NOZZLE MUST FACE CURB.
3. HYDRANT FLANGES SHALL BE SET 150 - 200mm ABOVE A POINT 2% UP FROM THE TOP OF THE CURB OR FROM THE TOP OF THE EDGE OF THE ASPHALT WHERE THERE IS NO CURB UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
4. VALVE BOXES LOCATED OUTSIDE PAVED AREAS REQUIRE A 1.5m X 1.5m HOTMIX ASPHALT APRON, 50mm THICK.
5. FOR VALVE NUT EXTENSION REQUIREMENTS REFER TO STD. DWG. NO. W-16.
6. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR CONSTRUCTION.
7. OUT OF SERVICE HYDRANTS SHALL BE BAGGED AS PER 5.52.2(h).

CITY OF NANAIMO
THE HARBOUR CITY

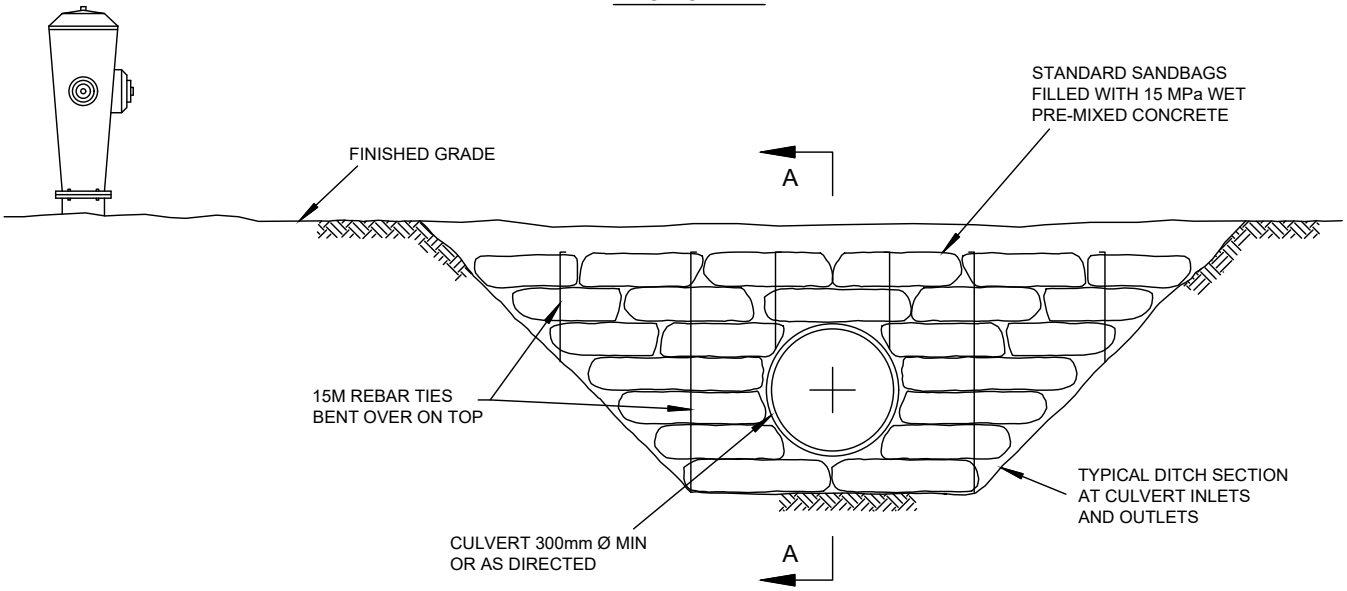
HYDRANT CONNECTION

Scale:	NTS
Created:	NOV 2009
Rev Date:	NOV 2016
Dwg No:	W-5

3.6.2020



SECTION A-A



ELEVATION

NOTES:

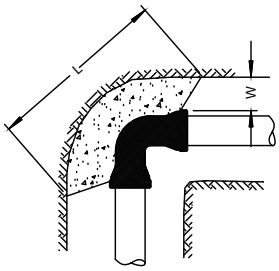
1. IF THE HORIZONTAL DIRECTION OF FLOW AT CULVERT INLETS AND OUTLETS EXCEEDS 30°, THE THE SANDBAG BULKHEADS REQUIRE CURVED WING WALLS TO FUNNEL THE FLOW.
2. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.

CITY OF NANAIMO
THE HARBOUR CITY

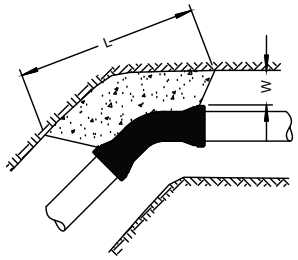
HYDRANT ACCESS - DITCH
CROSSING DETAIL

Scale:	NTS
Created:	MAY 1999
Rev Date:	NOV 2016
Dwg No:	W-7

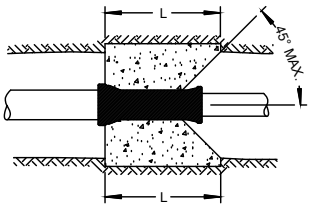
3.6.2020



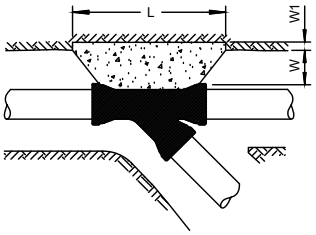
HORIZONTAL 90° BEND



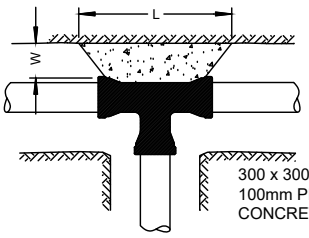
HORIZONTAL 45° BEND



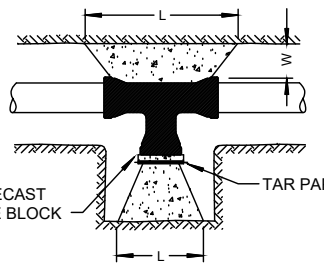
REDUCER



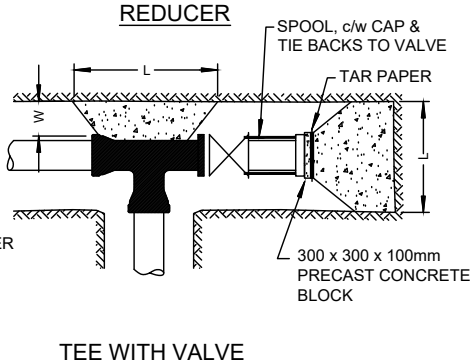
WYE



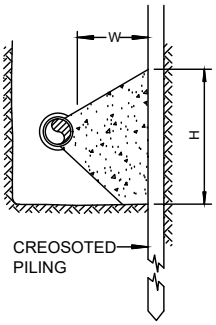
TEE

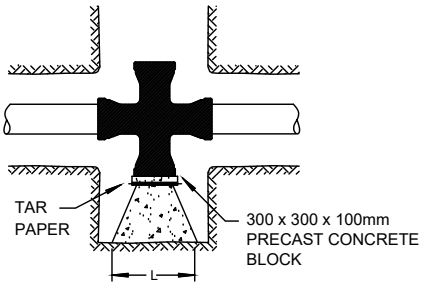


TEE WITH PLUG



TEE WITH VALVE





CROSS WITH PLUG

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONS APPLY TO THE LARGER DIAMETER END OF THE FITTING.
3. FOR CONCRETE SPECIFICATIONS SEE SECTION 11.
4. CONCRETE MINIMUM COMPRESSIVE STRENGTH SHALL BE 20MPa @ 28DAYS.
5. WHERE GROUND CANNOT BE EXCAVATED TO FREE STANDING UNDISTURBED SOIL, SMALL PLANK SHEET PILING SHALL BE DRIVEN TO PROVIDE UNDISTURBED THRUST AREA. PILING TO BE DRIVEN PRIOR TO EXCAVATING FOR THRUST BLOCK. PILING SHOULD BE USED ONLY BELOW THE PERMANENT WATER TABLE.

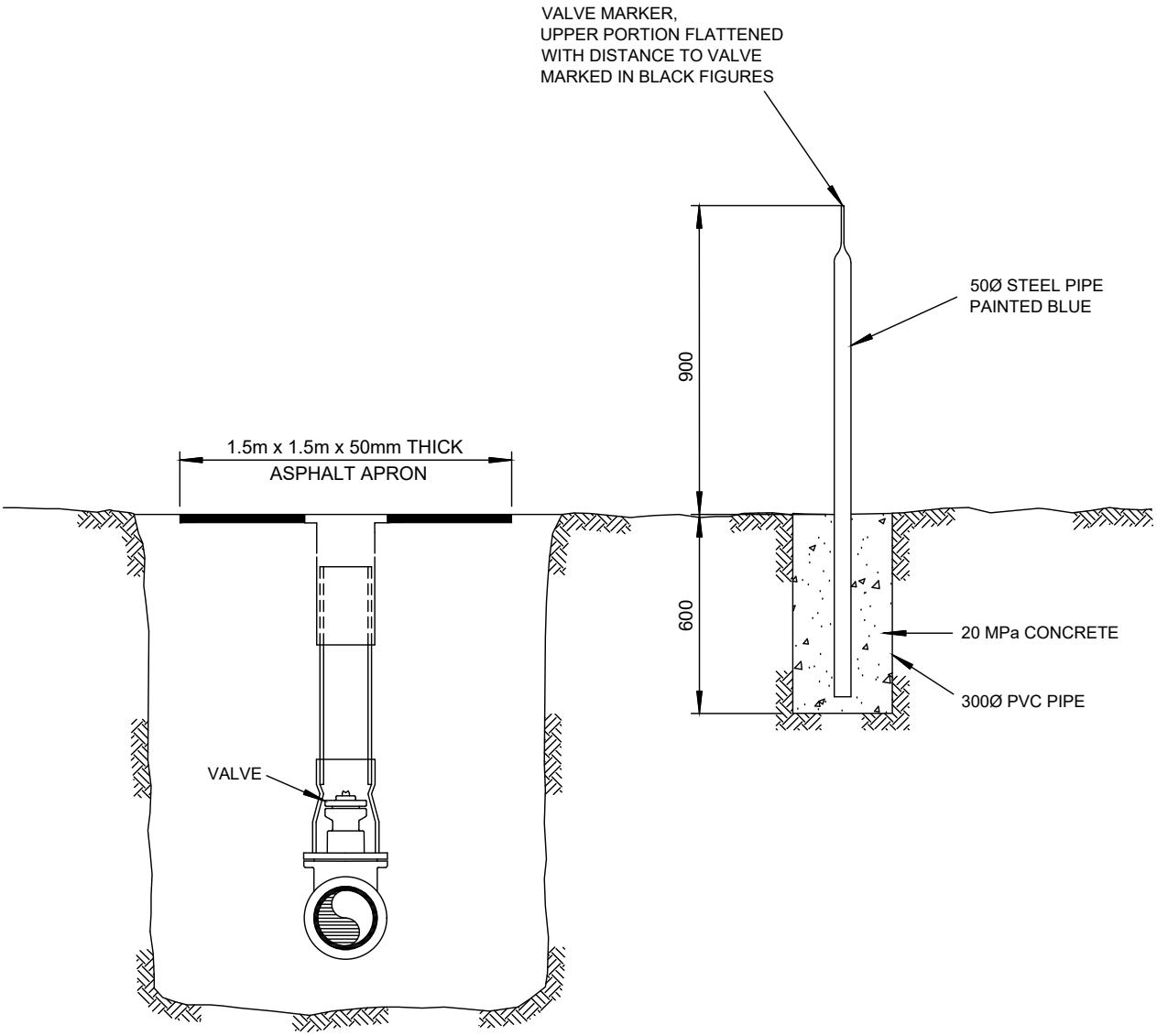
MINIMUM THRUST AREAS FOR FITTINGS AT 1034 kPA PRESSURE AND FOR SOILS WITH MIN. BEARING OF 96kPA
(NOT TO BE USED FOR SOFT CLAY, MUCK, PEAT, etc.)

TYPE OF FITTING	FITTING SIZE	OUTSIDE OF FITTING TO BEARING FACE	LENGTH	HEIGHT	TYPE OF FITTING	FITTING SIZE	OUTSIDE OF FITTING TO BEARING FACE	RECESS IN TRENCH	LENGTH	HEIGHT
	D	W	L	H		D	W	W	L	H
90° BEND	150	300	900	450	CROSS	150	300		600	450
	200	350	1050	600		200	350		750	600
	250	375	1450	750		250	375		1000	750
	300	400	1650	900		300	400		1200	900
45° BEND	150	300	450	450	45° WYE	150	300	300	450	450
	200	350	600	600		200	350	400	600	600
	250	375	750	750		250	375	500	750	750
	300	400	900	900		300	400	600	900	900
11 1/4° BEND 22 1/2° BEND	150	300	450	225	* REDUCER	150	300	150	450	450
	200	350	600	300		200	350	200	600	600
	250	375	835	450		250	375	250	750	750
	300	400	900	450		300	400	300	900	900
TEE	150	300	600	450	CAPS AND PLUGS (IF NOT BOLTED)	150	300		450	450
	200	350	750	600		200	350		600	600
	250	375	1000	750		250	375		750	750
	300	400	1200	900		300	400		900	900

CITY OF NANAIMO
THE HARBOUR CITY

THRUST BLOCK DETAILS

Scale:	NTS
Created:	MAY 2006
Rev Date:	NOV 2016
Dwg No:	W-8



NOTES:

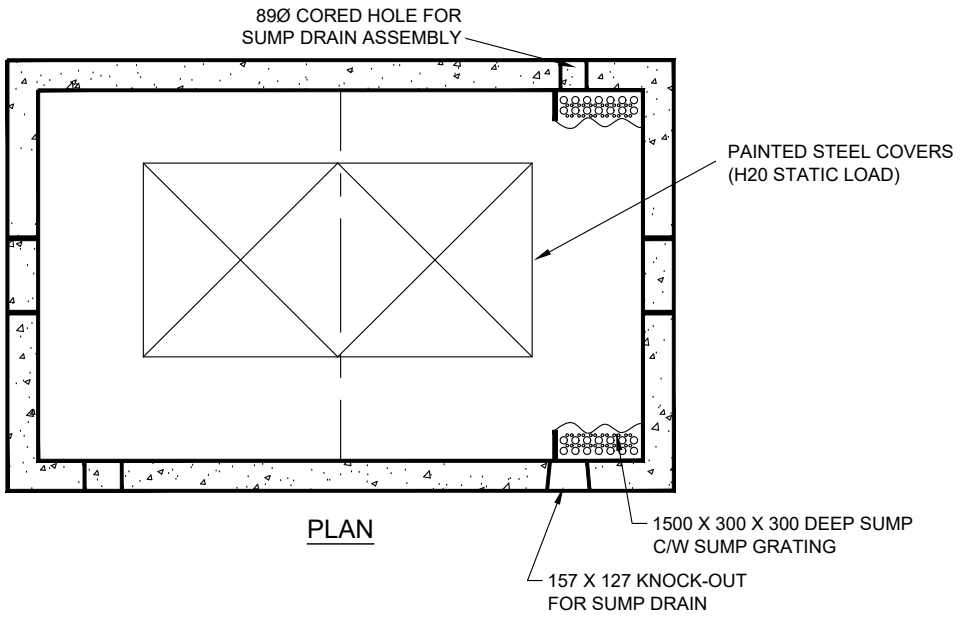
1. FOR USE ONLY WHERE VALVE BOXES ARE LOCATED OUTSIDE THE PORTION OF A STREET.
2. THE VALVE MARKER SHALL BE LOCATED ON SITE BY THE ENGINEER, WITH THE FLATTENED END AND MARKED DISTANCE FACING THE VALVE BOX.
3. VALVE BOXES IN UNPAVED AREAS REQUIRE A 1.5m x 1.5m HOTMIX ASPHALT APRON, 50mm THICK.
4. FOR VALVE NUT EXTENSION REQUIREMENTS REFER TO STD. DWG. NO. W-16.
5. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

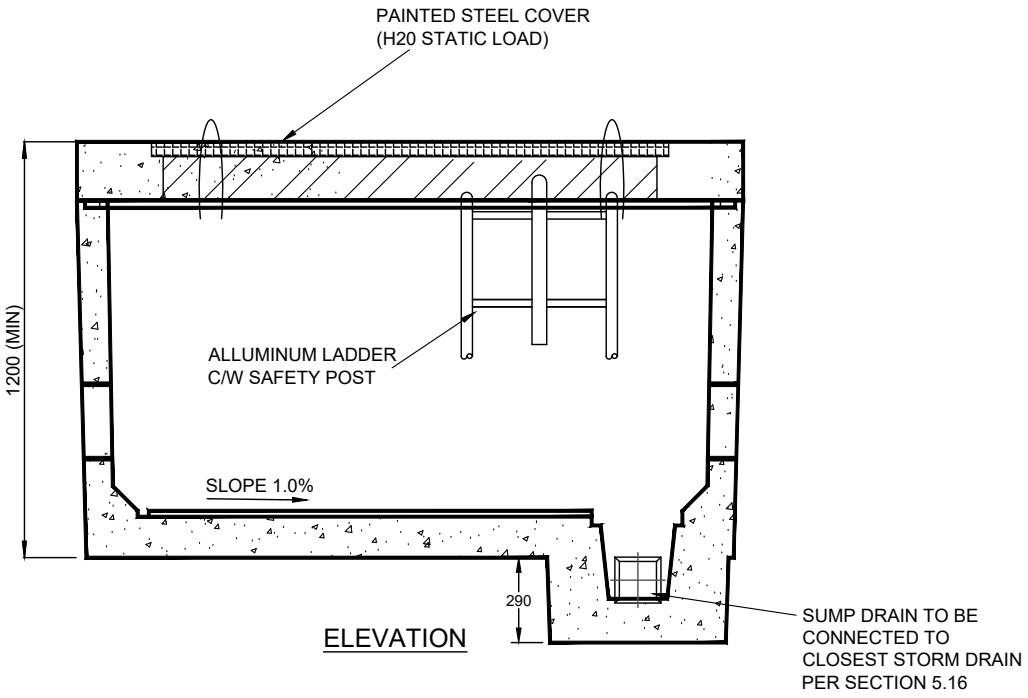
CITY OF NANAIMO
THE HARBOUR CITY

VALVE BOXES IN UNPAVED AREAS

Scale:	NTS
Created:	NOV 2009
Rev Date:	NOV 2016
Dwg No:	W-9

3.6.2020





NOTES:

1. USE THIS DRAWING ONLY AS A GUIDE. DETAIL DESIGN SHALL CONSIDER EXISTING SITE AND SOIL CONDITIONS AND INCLUDE STEEL REINFORCEMENT.
2. CONCRETE AND REINFORCING STEEL SHALL CONFORM TO SECTION 11.
3. DESIGN VAULT TO WITHSTAND CS600 LOADING.
4. SIZE VAULT TO PROVIDE MINIMUM CLEARANCES AS PER SECTION 5.13.
5. CHAMBERS LOCATED ON GRAVEL ROADS OR SHOULDERS REQUIRE A 1.5m X 1.5m HOT MIX ASPHALT PERIMETER APRON, 50mm THICK.
6. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
7. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
8. MINIMUM 200mm CLEAR DISTANCE FROM FLANGE OR BOLTED CONNECTION TO THE INSIDE WALL.
9. A DCVA BACKFLOW PREVENTION ASSEMBLY SHALL BE A SPECIAL CASE. THE PRECAST VAULT SHALL BE A MINIMUM OF 2000mm L X 1200mm W. DEPENDENT UPON THE DCVA MANUFACTURED CLEARANCE AND ORIENTATION A LARGER VAULT MAY BE REQUIRED.
10. SUBJECT TO APPROVAL BY THE CITY ENGINEER A METER AND BACKFLOW PREVENTION ASSEMBLY MAY BE INSTALLED IN A MECHANICAL ROOM.

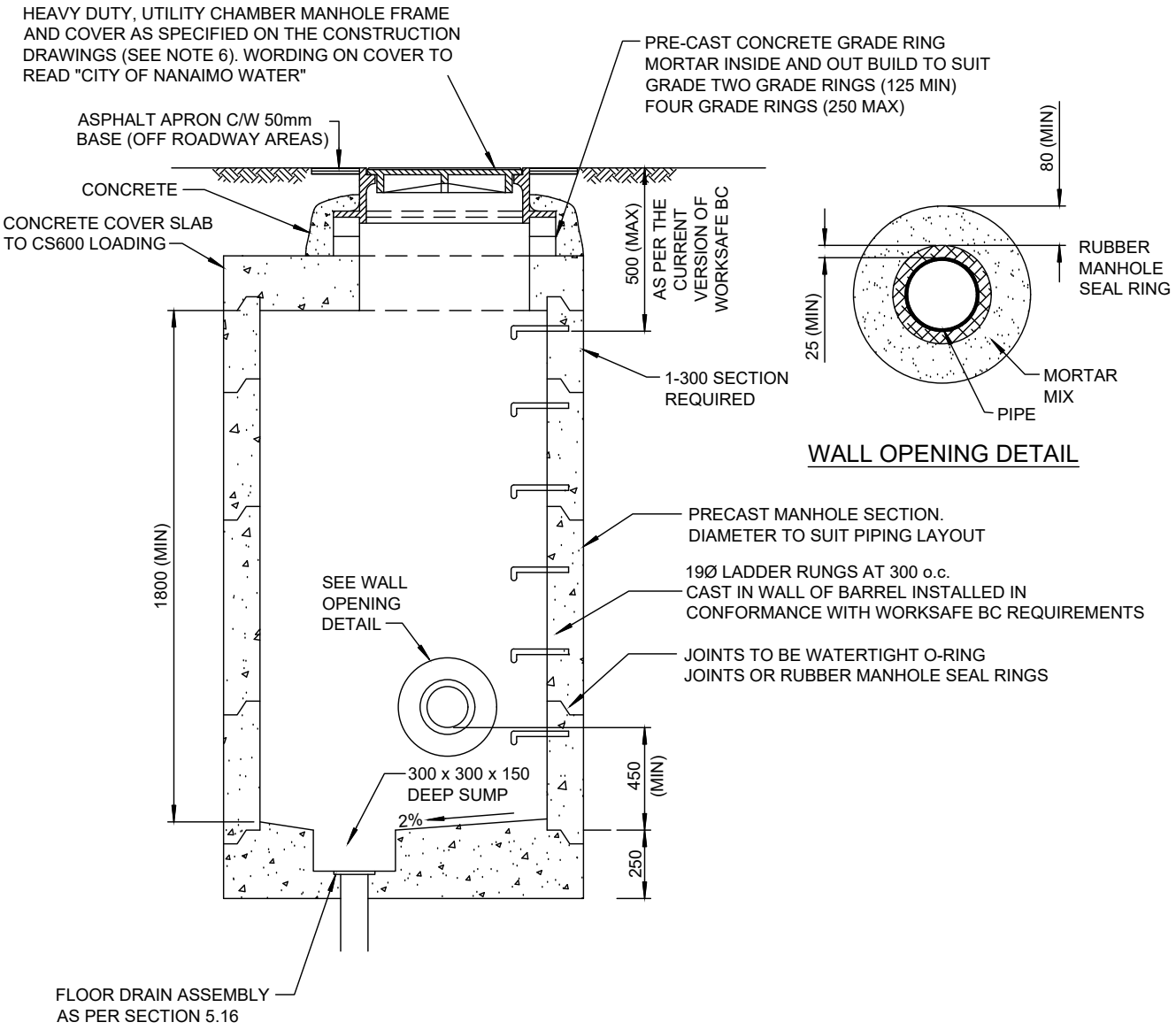
MINIMUM INTERVAL DIMENSION FOR THE PRECAST VAULT METER CHAMBER

DOMESTIC/ FIRE METER	LENGTH	WIDTH
100-150Ø	2000	1200
150-250Ø	2600	1200
DCVA	SEE NOTE 9	

CITY OF NANAIMO
THE HARBOUR CITY

METER / DCVA BACKFLOW PREVENTION ASSEMBLY PRECAST VAULT

Scale:	NTS
Created:	MAY 2012
Rev Date:	MAY 2020
Dwg No:	W-11



NOTES:

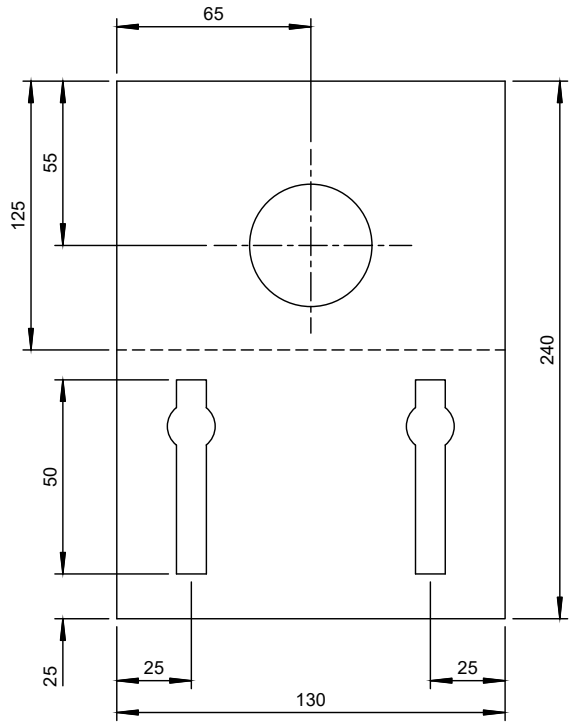
1. CHAMBERS LOCATED IN UNPAVED AREAS REQUIRE 1.5m X 1.5m GRAVEL OR PAVED SURFACE AROUND COVER. PROJECT COVER 0mm IN PAVEMENT OR 25mm IN UNPAVED AREAS.
2. CHAMBER MANHOLES LOCATED IN UNPAVED AREAS REQUIRE A 1.5m X 1.5m, 50mm THICK HOT MIX ASPHALT APRON.
3. ONLY PRODUCTS APPROVED BY THE DIRECTOR OF ENGINEERING AND PUBLIC WORKS AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
5. MINIMUM 200mm CLEAR DISTANCE FROM FLANGE OR BOLTED CONNECTION TO THE INSIDE WALL.
6. WATERTIGHT MANHOLE FRAME AND COVER WHEN SPECIFICALLY APPROVED BY THE ENGINEER.

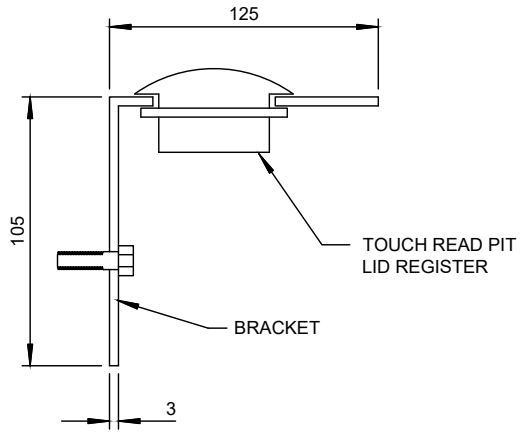
CITY OF NANAIMO
THE HARBOUR CITY

METER CHAMBER
PRECAST CIRCULAR
MANHOLE

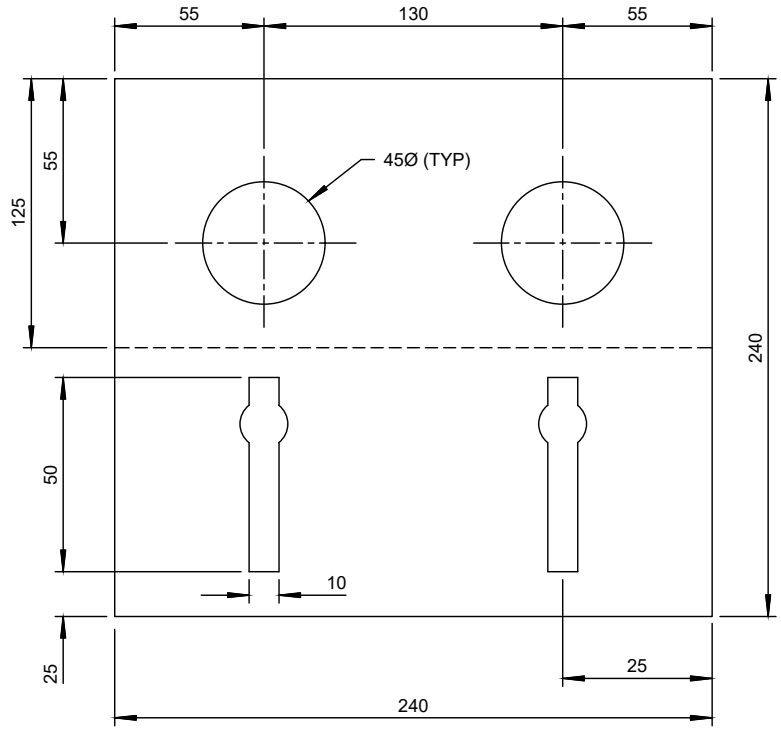
Scale:	NTS
Created:	MAY 2013
Rev Date:	NOV 2016
Dwg No:	W-11A

3.6.2020





SINGLE METER BRACKET



DOUBLE METER BRACKET

NOTES:

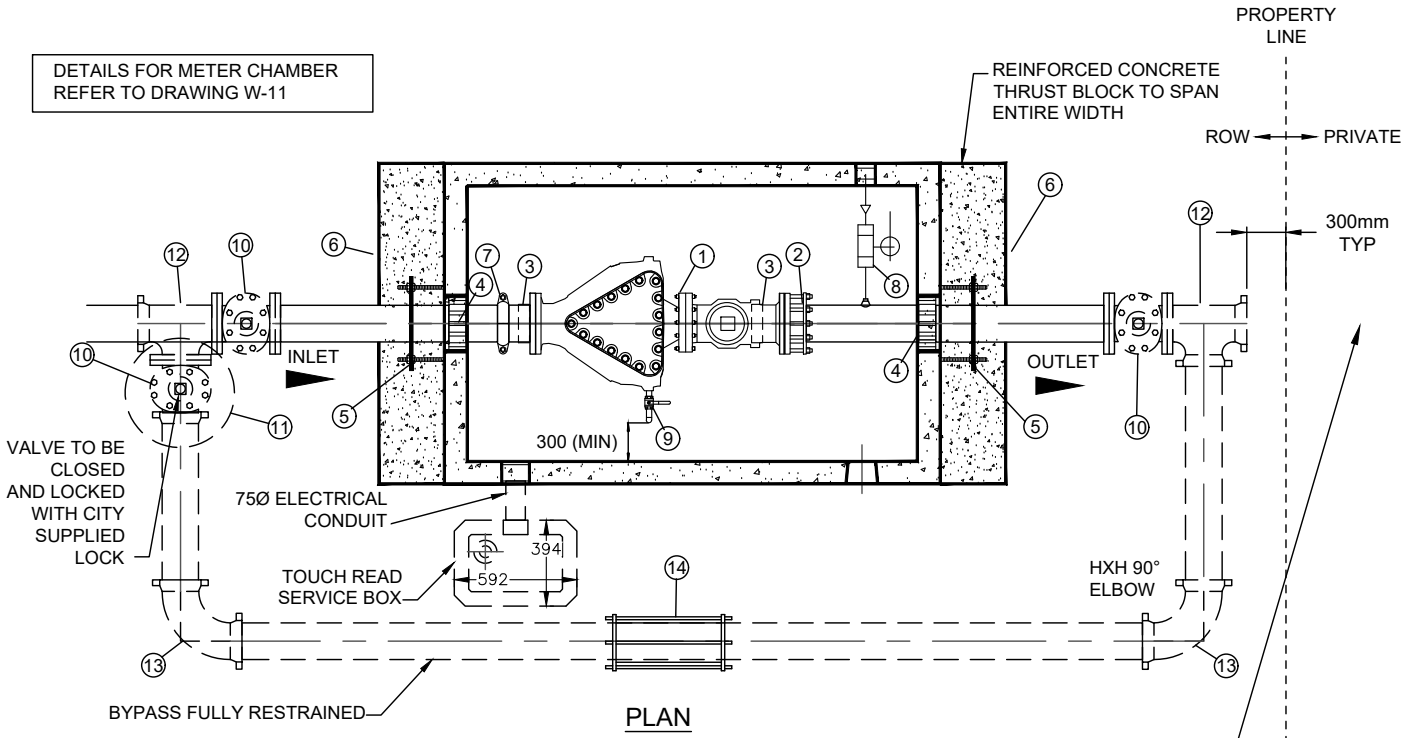
1. BRACKETS TO BE CONSTRUCTED OUT OF 3mm ALUMINUM PLATE.
2. BRACKETS TO BE MOUNTED WITH TWO 6mm STAINLESS STEEL BOLTS WITH LEAD ANCHORS.
3. IN PRECAST MANHOLE METER CHAMBERS THE BRACKET SHALL BE MOUNTED BETWEEN THE FIRST AND SECOND LADDER RUNG.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

CITY OF NANAIMO
THE HARBOUR CITY

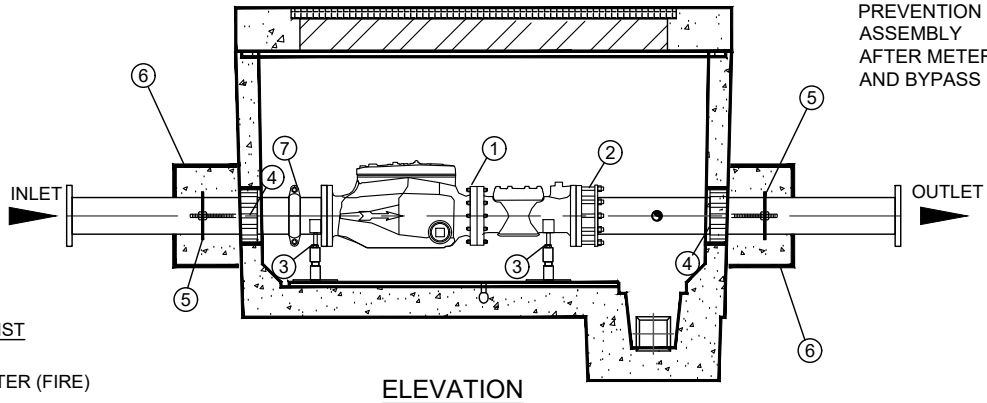
WATER METER
TOUCH READ
BRACKET

Scale:	NTS
Created:	MAY 2013
Rev Date:	NOV 2016
Dwg No:	W-12

DETAILS FOR METER CHAMBER
REFER TO DRAWING W-11



PLAN



ELEVATION

MATERIAL LIST

1. WATER METER (FIRE)
2. FLANGE COUPLING ADAPTER FOR STEEL PIPE
3. GALVANIZED STEEL ADJUSTABLE PIPE SUPPORT
4. PIPE SEAL ASSEMBLY
5. THRUST-SEAL PLATE C/W BOLTS
6. REINFORCED CONCRETE THRUST BLOCK TO SPAN ENTIRE WIDTH
7. COUPLING
8. SUMP JET (OPTIONAL)
9. STRAINER DRAIN ASSEMBLY
10. GATE VALVE
11. VALVE BOX C/W LOCKING LID
12. TEE
13. 90° ELBOW
14. COUPLING

NOTE:

1. THRUST BLOCKING TO BE INSTALLED AS REQUIRED.
2. METER ASSEMBLY TO BE SUPPORTED BY STEEL PIPE SUPPORTS AS REQUIRED.
3. FABRICATED STEEL PIPE AND FITTING TO BE SCHEDULE 40 SANDBLASTED, EPOXY LINED, AND COATED TO AWWA C-210 & ANSI/NSF-61 SPECIFICATION.
4. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER OR LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION. ONLY UL LISTED/FM APPROVED PRODUCTS SHALL BE APPROVED FOR FIRELINE SERVICE.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
6. PROVIDE APPROVED BACKFLOW PREVENTION ASSEMBLY AFTER THE METER AND BYPASS ACCORDING TO CITY OF NANAIMO CROSS CONNECTION CONTROL BYLAW.

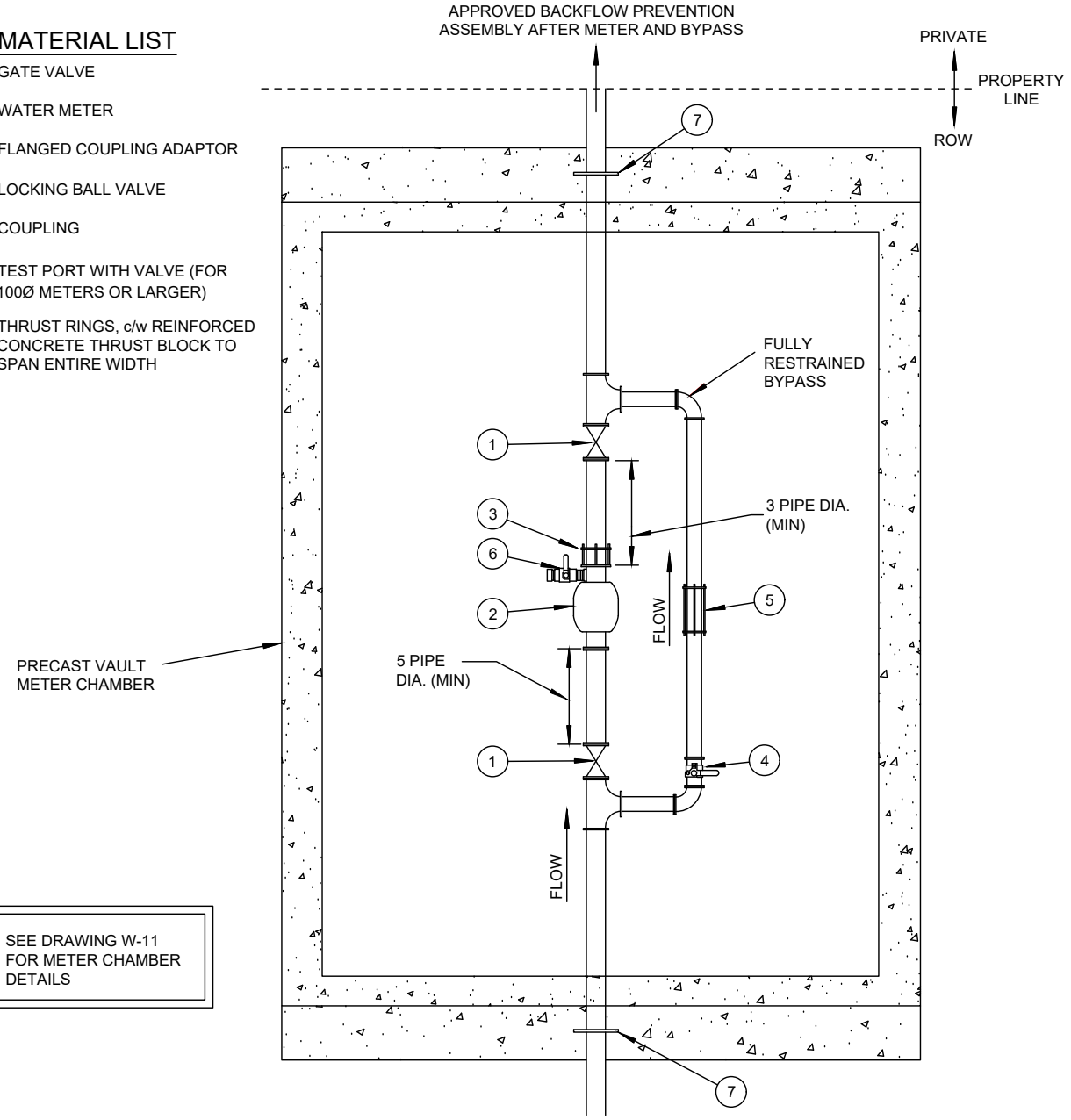
CITY OF NANAIMO
THE HARBOUR CITY

FIRE/DOMESTIC WATER METER
PIPING LAYOUT (100Ø - 250Ø)

Scale:	NTS
Created:	MAY 2013
Rev Date:	MAY 2020
Dwg No:	W-13

MATERIAL LIST

1. GATE VALVE
2. WATER METER
3. FLANGED COUPLING ADAPTOR
4. LOCKING BALL VALVE
5. COUPLING
6. TEST PORT WITH VALVE (FOR 100Ø METERS OR LARGER)
7. THRUST RINGS, c/w REINFORCED CONCRETE THRUST BLOCK TO SPAN ENTIRE WIDTH



SEE DRAWING W-11 FOR METER CHAMBER DETAILS

NOTES:

1. METER ASSEMBLY TO BE SUPPORTED BY STEEL PIPE SUPPORTS AS REQUIRED.
2. THRUST BLOCKING TO BE INSTALLED AS REQUIRED.
3. METER BY-PASS MAY BE INSTALLED OUTSIDE THE CHAMBER. VALVES OUTSIDE THE CHAMBER SHALL BE D.I. GATE VALVES AS PER SECTION 5.24.
4. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCT LIST WILL BE ACCEPTED FOR INSTALLATION.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
6. PROVIDE APPROVED BACKFLOW PREVENTION ASSEMBLY AFTER THE METER AND BYPASS ACCORDING TO CITY OF NANAIMO CROSS CONNECTION CONTROL BYLAW.

CITY OF NANAIMO
THE HARBOUR CITY

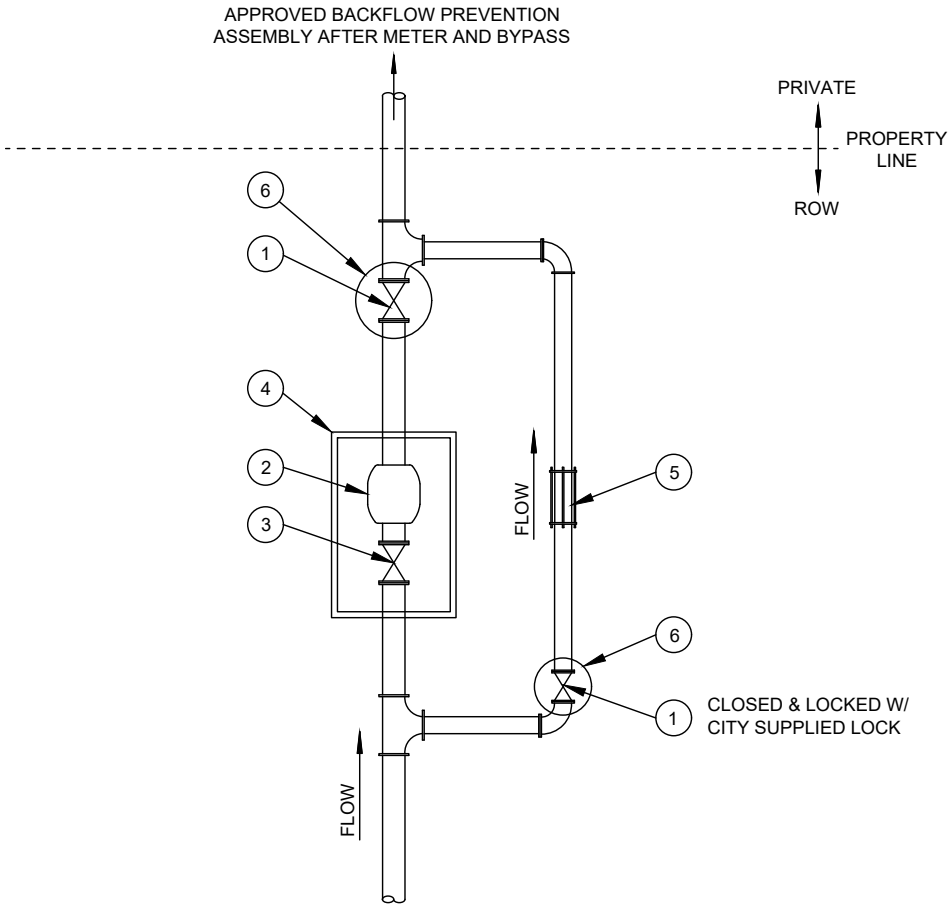
DOMESTIC WATER METER
PIPING LAYOUT (75Ø - 250Ø)

Scale:	NTS
Created:	MAY 2012
Rev Date:	MAY 2020
Dwg No:	W-14

3.6.2020

MATERIAL LIST

1. GATE VALVE
2. WATER METER - DOMESTIC
3. CURB STOP
4. METER BOX
5. COUPLING
6. VALVE BOX



PLAN

NOTES:

1. METER BY-PASS MAY BE INSTALLED OUTSIDE THE METER BOX. VALVES OUTSIDE THE METER BOX SHALL BE AS PER SECTION 5.30.8.
2. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCT LIST WILL BE ACCEPTED FOR INSTALLATION.
3. PROVIDE APPROVED BACKFLOW PREVENTION ASSEMBLY AFTER THE METER AND BYPASS ACCORDING TO CITY OF NANAIMO CROSS CONNECTION CONTROL BYLAW.

CITY OF NANAIMO
THE HARBOUR CITY

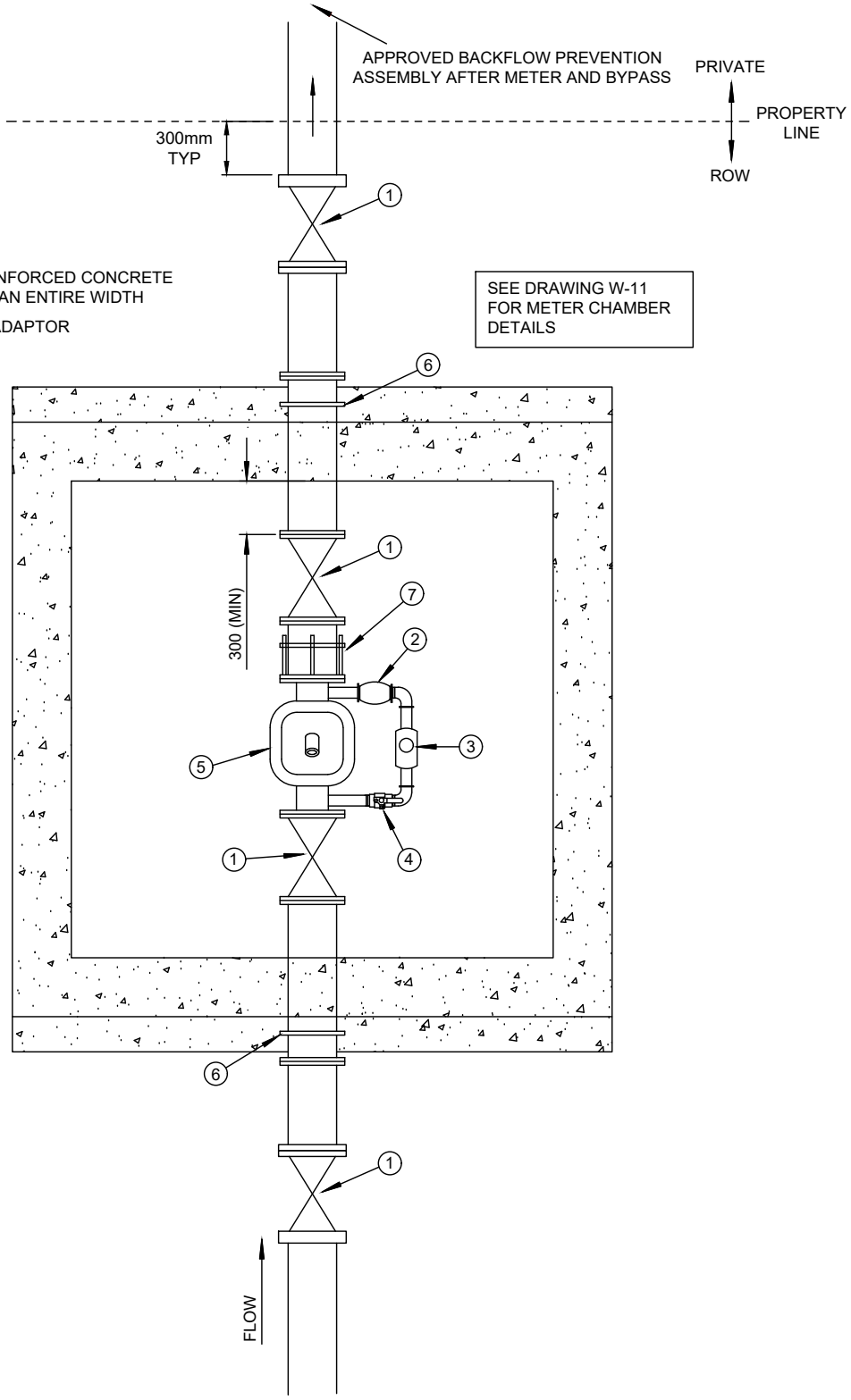
DOMESTIC WATER METER
PIPING LAYOUT (38Ø & 50Ø)

Scale:	NTS
Created:	MAY 2013
Rev Date:	MAY 2020
Dwg No:	W-14A

3.6.2020

MATERIAL LIST

1. GATE VALVE (OS&Y)
2. CHECK VALVE
3. BY-PASS METER
4. LOCKING BALL VALVE
5. DETECTOR CHECK
6. THRUST RING, c/w REINFORCED CONCRETE THRUST BLOCK TO SPAN ENTIRE WIDTH
7. FLANGED COUPLING ADAPTOR



NOTES:

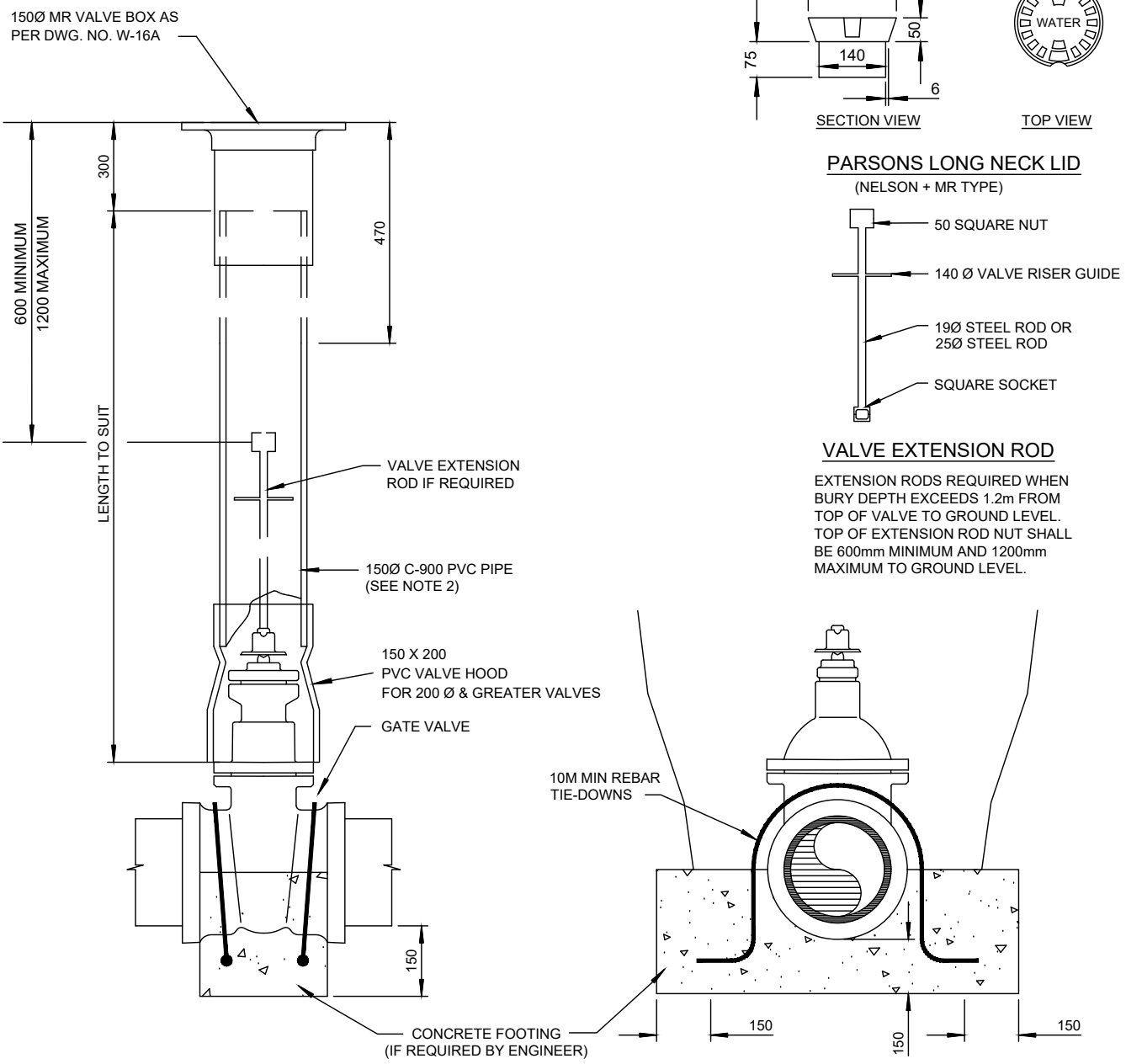
1. METER ASSEMBLY TO BE SUPPORTED BY STEEL PIPE SUPPORTS AS REQUIRED.
2. THRUST BLOCKING TO BE INSTALLED AS REQUIRED.
3. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCT LIST WILL BE ACCEPTED FOR INSTALLATION. ONLY UL/FM LISTED PRODUCTS SHALL BE APPROVED FOR FIRE LINE SERVICE.
4. PROVIDE APPROVED BACKFLOW PREVENTION ASSEMBLY AFTER THE METER AND BYPASS ACCORDING TO CITY OF NANAIMO CROSS CONNECTION CONTROL BYLAW.
5. SUBJECT TO APPROVAL BY THE CITY ENGINEER A METER AND BACKFLOW PREVENTION ASSEMBLY MAY BE INSTALLED IN A MECHANICAL ROOM.

CITY OF NANAIMO
THE HARBOUR CITY

DETECTOR CHECK FIRE LINE SERVICE
PIPING LAYOUT (100Ø - 250Ø)

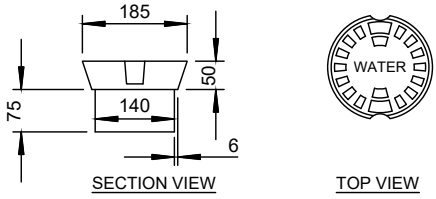
Scale:	NTS
Created:	MAY 2013
Rev Date:	MAY 2020
Dwg No:	W-15

3.6.2020



ASSEMBLY WITH CONCRETE FOOTING

SECTION OF CONCRETE FOOTING



PARSONS LONG NECK LID

(NELSON + MR TYPE)

VALVE EXTENSION ROD

EXTENSION RODS REQUIRED WHEN BURY DEPTH EXCEEDS 1.2m FROM TOP OF VALVE TO GROUND LEVEL. TOP OF EXTENSION ROD NUT SHALL BE 600mm MINIMUM AND 1200mm MAXIMUM TO GROUND LEVEL.

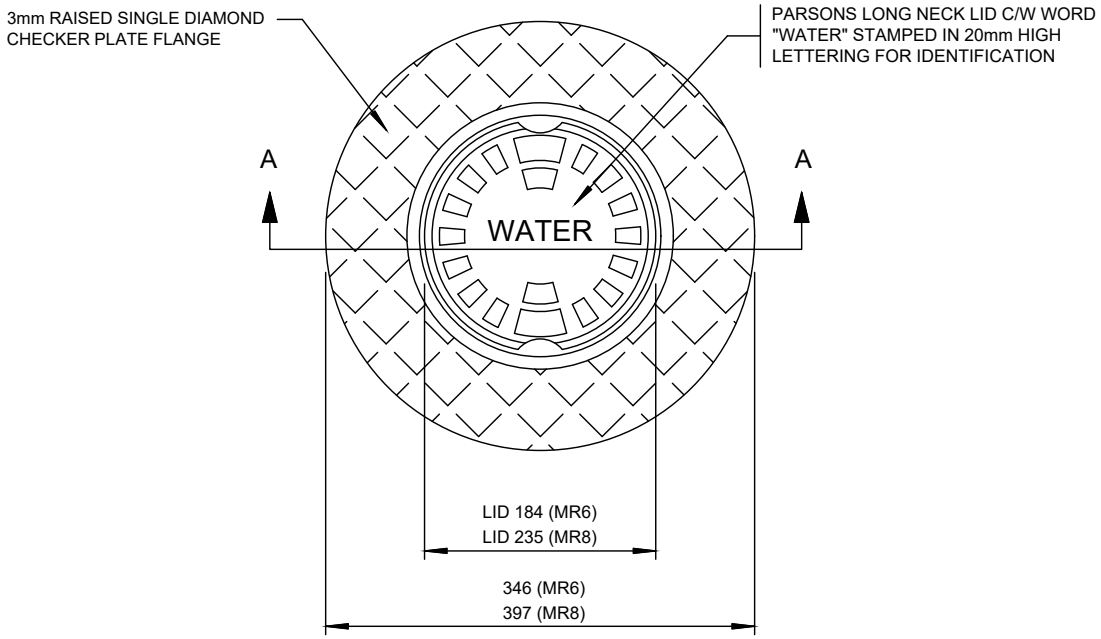
NOTES:

1. VALVE RISER PIPE IN TRAVELED AREAS SHALL BE 150Ø DR-18 PVC AND IN UNTRAVELED AREAS SHALL BE 150Ø DR-35 PVC AT THE DISCRETION OF THE ENGINEER.
2. VALVE BOX SHALL BE MR TYPE AS PER STD. DWG. NO. W-16A. NELSON-TYPE VALVE BOX SHALL BE USED IN NON-PAVED AREAS AT THE DISCRETION OF THE ENGINEER.
3. ALL MR AND NELSON BOX LIDS SHALL BE PARSONS LONG NECK.
4. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR CONSTRUCTION.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
6. NO TIE-DOWNS REQUIRED IF VALVE FLANGED TO RESTRAINED TEE.

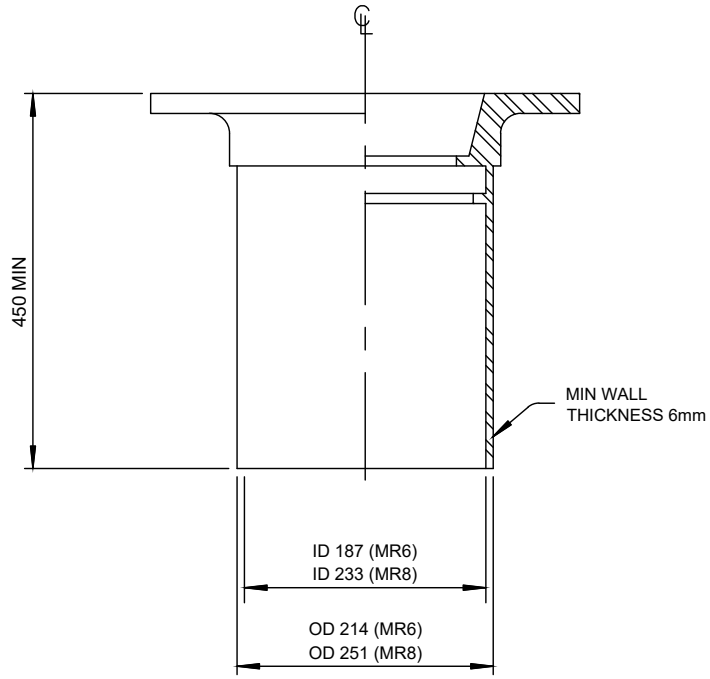
CITY OF NANAIMO
THE HARBOUR CITY

GATE VALVE & VALVE NUT EXTENSIONS

Scale:	NTS
Created:	MAY 2013
Rev Date:	NOV 2016
Dwg No:	W-16



PLAN



SECTION A - A

NOTES:

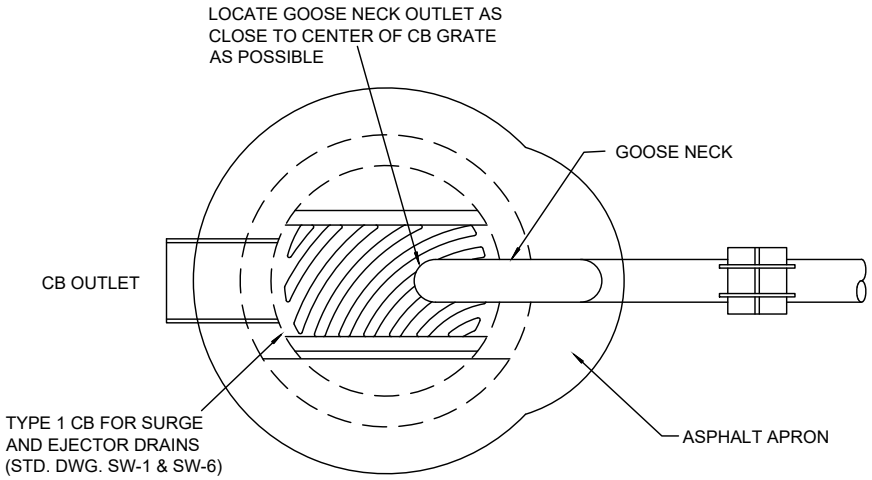
1. FINISH COATING TO BE BITUMINOUS DIP.
2. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCT LIST WILL BE ACCEPTED FOR CONSTRUCTION.
3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

CITY OF NANAIMO
THE HARBOUR CITY

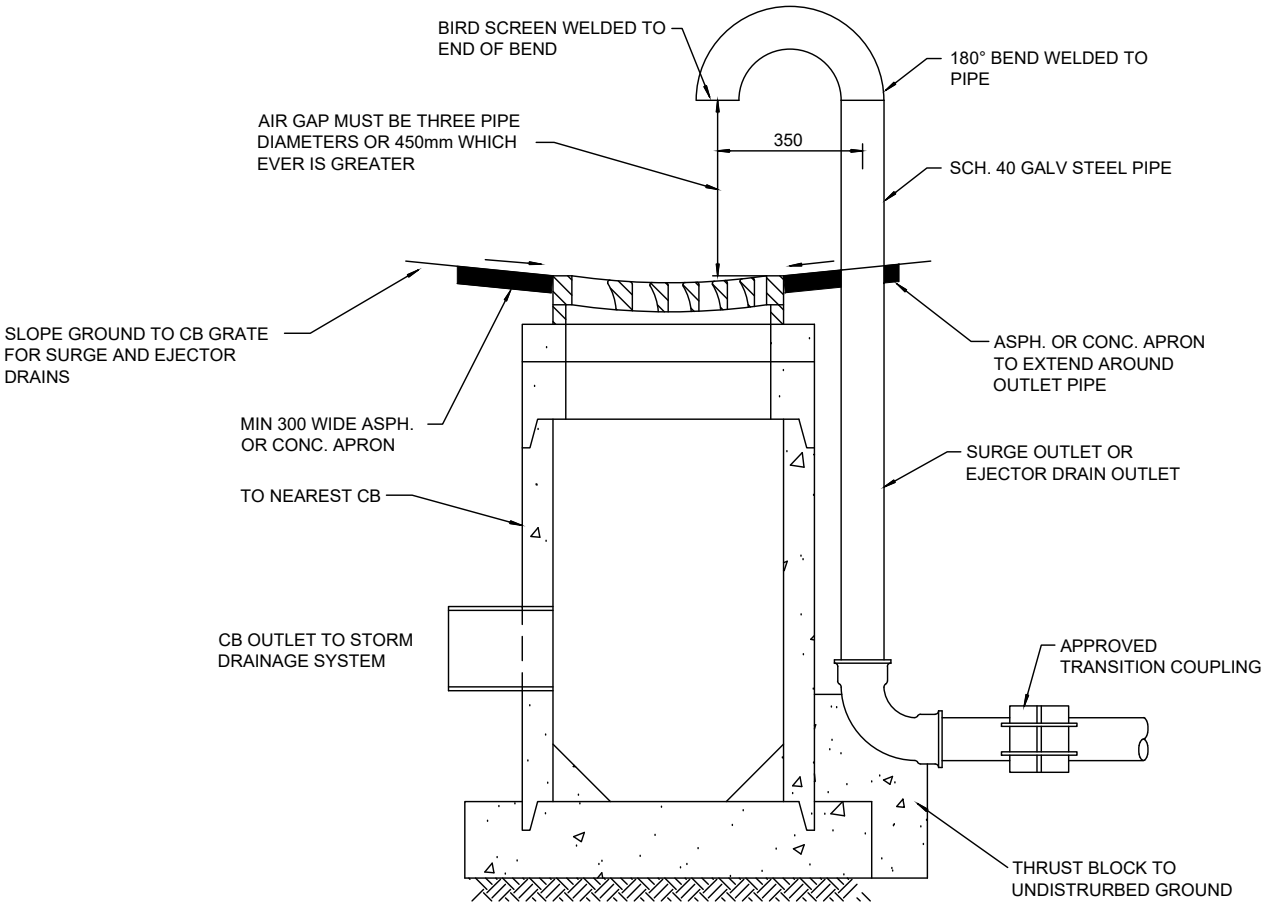
MR TYPE WATER VALVE BOX

Scale:	NTS
Created:	NOV 2009
Rev Date:	NOV 2016
Dwg No:	W-16A

3.6.2020



PLAN VIEW



SIDE VIEW

NOTE:

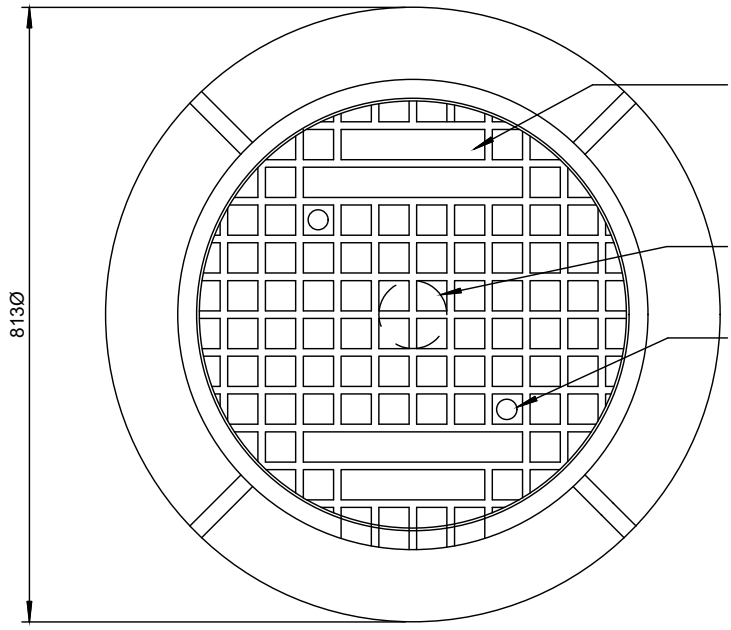
1. CONCRETE NO POST BARRIER PROTECTION REQUIRED FOR VENTS WITHIN 4.0m OF ROADWAY.
2. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
3. ALL DIMENSION IN MILLIMETERS UNLESS OTHERWISE SHOWN.

CITY OF NANAIMO
THE HARBOUR CITY

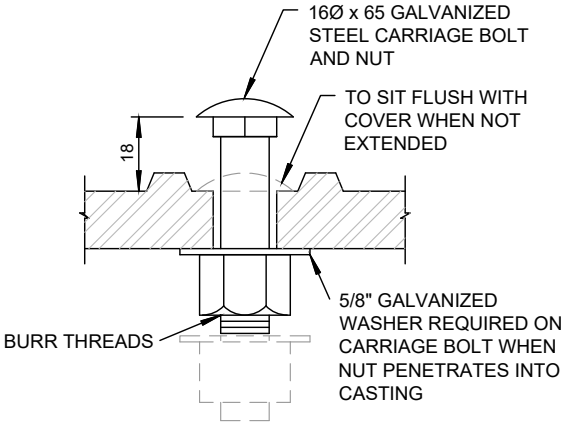
GOOSE NECK FOR PRESSURE REDUCING STATION DRAIN

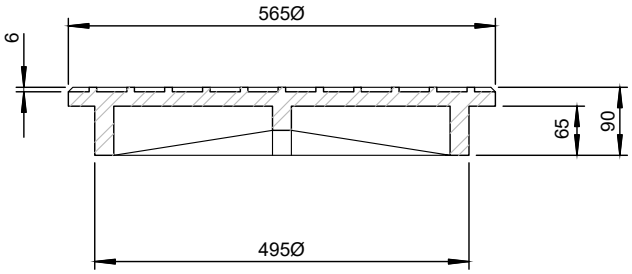
Scale:	NTS
Created:	MAY 2012
Rev Date:	MAY 2020
Dwg No:	W-18

3.6.2020

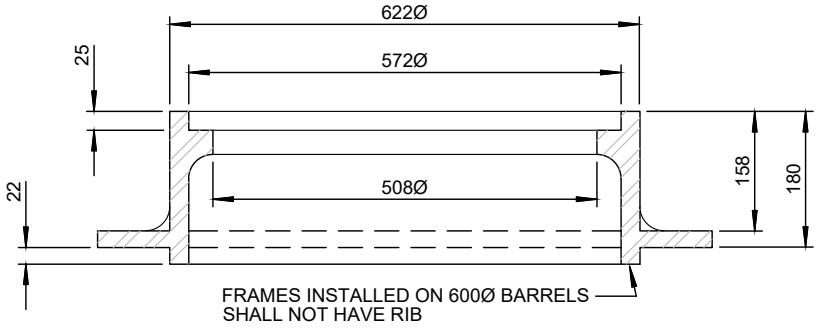


PLAN





COVER



FRAME

NOTES:

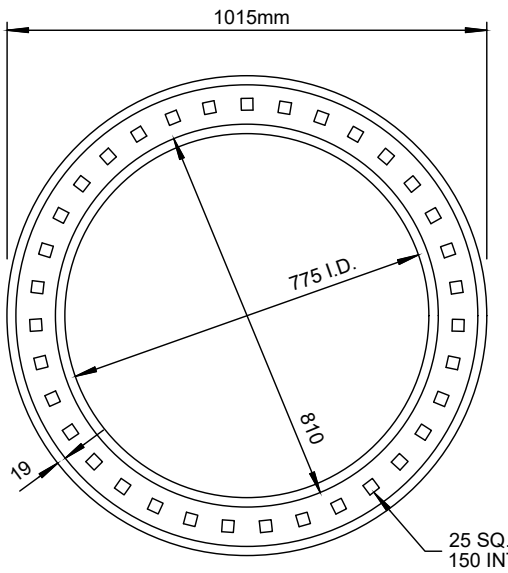
1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 5.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. CASTINGS SHALL BE CERTIFIED TO MEET CS-600 LOADING.
3. ALL BEARING SURFACES BETWEEN FRAME, COVER AND RISER RINGS SHALL BE MACHINED FOR NON-ROCKING FIT IN ALL POSITIONS. ALLOW 1.5mm RAISED FACE IN CASTINGS FOR MACHINING.
4. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
5. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

CITY OF NANAIMO
THE HARBOUR CITY

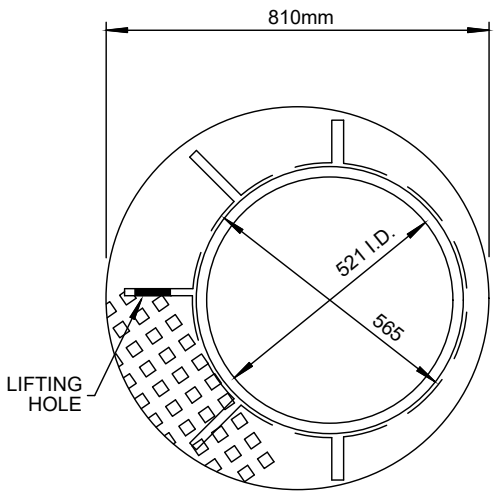
MANHOLE COVER AND FRAME

Scale:	NTS
Created:	MAR 2016
Rev Date:	NOV 2016
Dwg No:	W-19

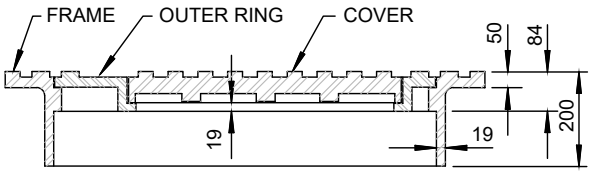
3.6.2020



PLAN OF FRAME



PLAN OF OUTER RING



SECTION OF FRAME, RING
AND COVER

NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 5.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. CASTINGS SHALL BE CERTIFIED TO MEET CS-600 LOADING.
3. THIS MANHOLE FRAME AND COVER IS TO BE USED FOR ACCESS TO UNDERGROUND UTILITY CHAMBERS, INCLUDING PUMPS STATIONS AND PRVs, WHERE A LARGER ACCESS DIAMETER IS REQUIRED.
4. FOR COVER LETTERING AND BOLTING REQUIREMENTS REFER TO STD. DWG. W-19 OR W-21.
5. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
6. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

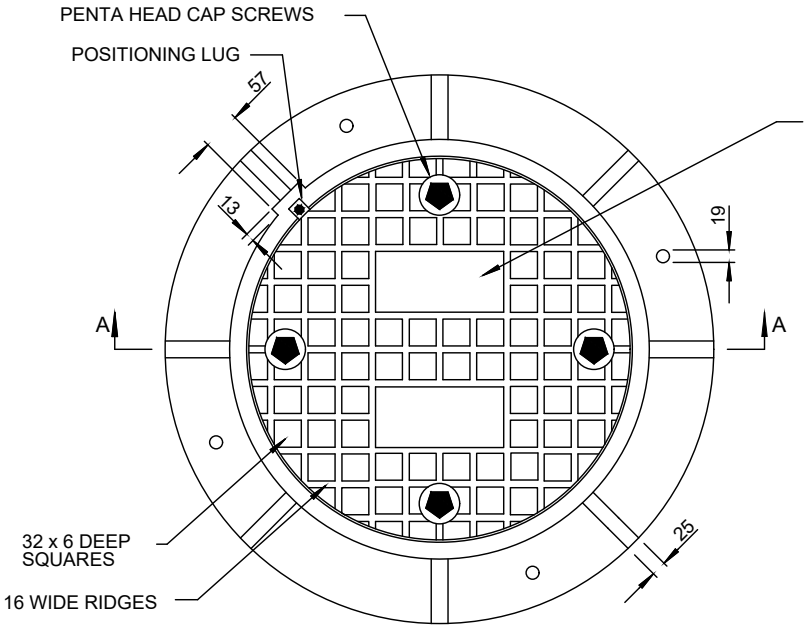
CITY OF NANAIMO
THE HARBOUR CITY

UTILITY CHAMBER
MANHOLE FRAME, RING
AND COVER

Scale:	NTS
Created:	MAR 2016
Rev Date:	NOV 2016
Dwg No:	W-20

3.6.2020

APPLICATION: UNITS ARE FOR USE IN AREAS WHERE FLOODING OR HIGH TIDES ARE POSSIBLE. THIS UNIT SHALL HAVE A POSITIONING LUG IN COVER FOR EASY REPLACEMENT OF CAP SCREWS AND SHALL BE EQUIPPED WITH FOUR ONLY 19Ø HOLES IN FRAME FOR ANCHOR BOLTS AS SHOWN.

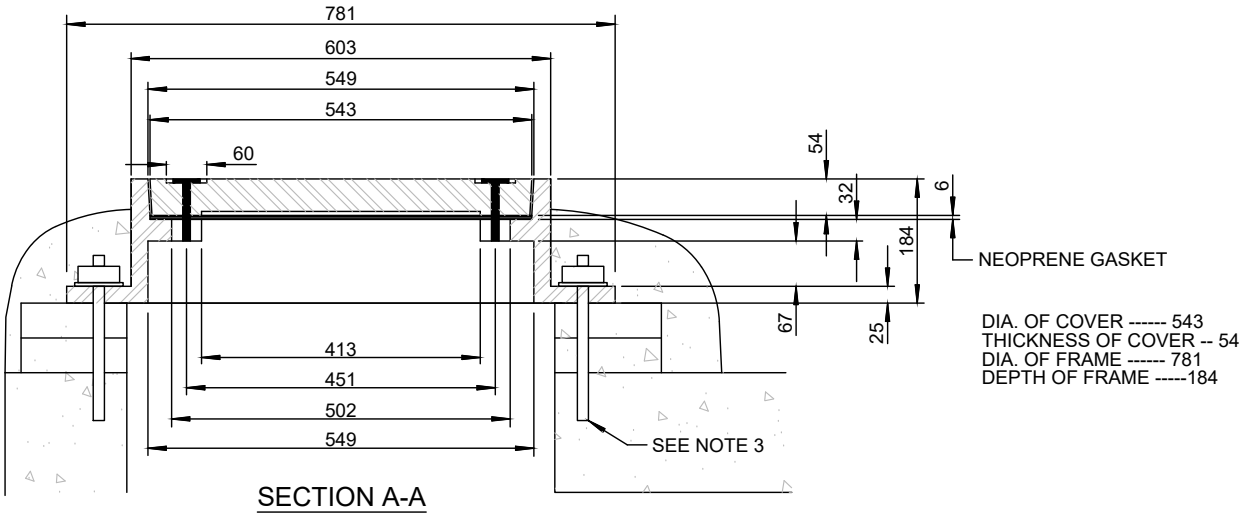


REFERRING TO "CITY OF NANAIMO WATER", LETTERING SHALL BE 25 FLATTENED FACE GOTHIC WITH FACE OF LETTERS RAISED TO THE SAME LEVELS AS THE TOP OF THE RIBS (IN STATUTORY RIGHTS-OF-WAY INCLUDE THE WORDING "DO NOT COVER" ON THE MANHOLE LID)

PLAN

WEIGHT OF UNIT SHOWN IS
FRAME = 113.4 kg
COVER = 56.7 kg

FURNISHED WITH:
A) FOUR 13x57 PENTA HEAD STAINLESS STEEL CAP SCREWS TO DISCOURAGE VANDALISM.
B) A 6mm THICK NEOPRENE GASKET FULLY ENCOMPASSING BOLT HOLES.
C) METAL SURFACES BETWEEN FRAME AND COVER MACHINED TO ENSURE NON ROCKING FIT IN ALL POSITIONS. ALLOW 1.5 RAISED FACE IN CASTING FOR MACHINING.
D) MANUFACTURE BOLT HOLES TO PERMIT INTERCHANGING OF COVERS BETWEEN FRAME UNITS.



SECTION A-A

DIA. OF COVER ------ 543
THICKNESS OF COVER -- 54
DIA. OF FRAME ------ 781
DEPTH OF FRAME -----184

NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 5.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. CASTINGS SHALL BE CERTIFIED TO MEET CS-600 LOADING.
3. FRAME SHALL BE SET IN MORTAR AND BOLTED TO THE MANHOLE SLAB WITH 19Ø STAINLESS STEEL BOLTS, WASHERS AND NUTS.
4. THIS DRAWING TO BE READ IN ACCORDANCE WITH DRAWING W-11A.
5. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
6. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

3.6.2020

CITY OF NANAIMO
THE HARBOUR CITY

WATERTIGHT MANHOLE
FRAME AND COVER

Scale:	NTS
Created:	MAR 2016
Rev Date:	NOV 2016
Dwg No:	W-21