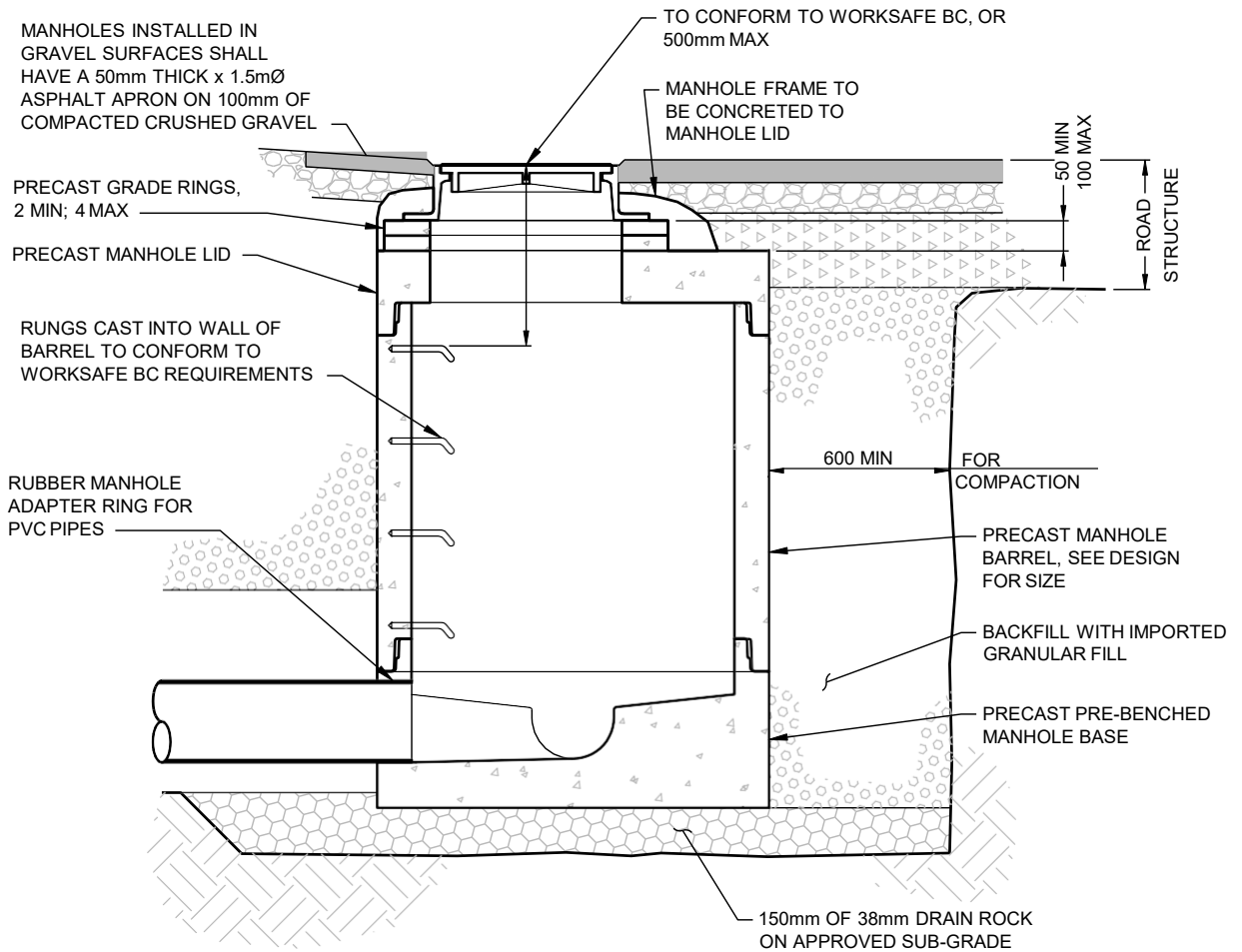


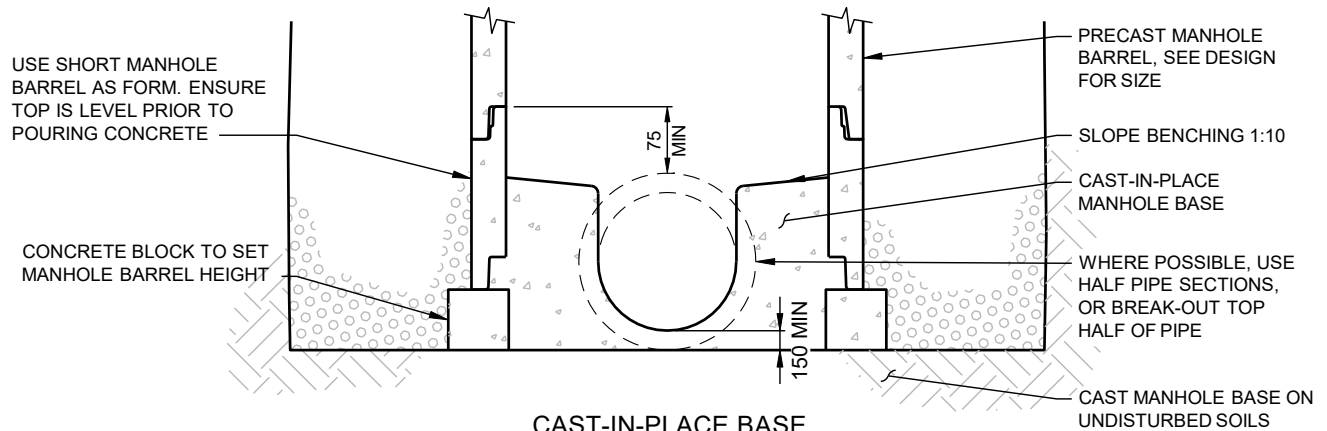
NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. FOR MANHOLE CHANNELING, REFER TO SECTION 6.49.
3. ALL CHANNELS SHALL BE FINISHED WITH A STEEL TROWEL. BENCHING (HATCHED AREAS), SHALL BE BROOM FINISHED.
4. MANHOLE COVER AND RUNG LOCATIONS SHALL BE AS SHOWN, UNLESS NOTED OTHERWISE.
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.



**TYPICAL SECTION**

1:25



**CAST-IN-PLACE BASE**

**NOTES:**

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. FOR MANHOLE BENCHING, SEE STD DWG S-1.
3. ~~FOR FRAME AND COVER DETAILS, SEE STD DWG S-9.~~ **FOR COVER LETTERING AND BOLTING REQUIREMENTS, REFER TO STD. DWG. S-9 OR S-15. FOR FRAME AND RING, REFER TO STD. DWG. S-10.**
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.
6. LOW PROFILE FRAMES NOT PERMITTED IN ROADS UNLESS APPROVED BY CITY ENGINEER.
7. CASTING TO BE SET FLUSH WITH TRAVELLED SURFACE SUCH THAT THERE ARE NO IRREGULARITIES GREATER THAN 6mm WHEN CHECKED WITH A 3m STRAIGHT EDGE IN ANY DIRECTION.

Ed  
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DROP PIPE CAN BE ONE  
NOMINAL PIPE SIZE LESS  
THAN MAIN PIPE BUT NOT  
LESS THAN 200Ø DROP  
PIPING TO BE 200Ø MIN.,  
EXCEPT IF MAIN IS LESS THAN  
200Ø, DROP PIPING TO  
EQUAL MAIN.

38mm DRAIN ROCK

RUBBER MANHOLE  
ADAPTER RING FOR  
PVC PIPES

### DROP MANHOLE TYPE 1

1:25

Ed  
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DROP PIPE CAN BE ONE  
NOMINAL PIPE SIZE LESS THAN  
MAIN PIPE BUT NOT LESS THAN  
200Ø DROP PIPING TO BE 200Ø  
MIN., EXCEPT IF MAIN IS LESS  
THAN 200Ø, DROP PIPING TO  
EQUAL MAIN.

38mm DRAIN ROCK

RUBBER MANHOLE  
ADAPTER RING FOR  
PVC PIPES

### DROP MANHOLE TYPE 2

1:25

#### NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. FOR MANHOLE DETAILS, SEE STD DWG S-2.
3. FOR MANHOLE BENCHING, SEE STD DWG S-1.
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.

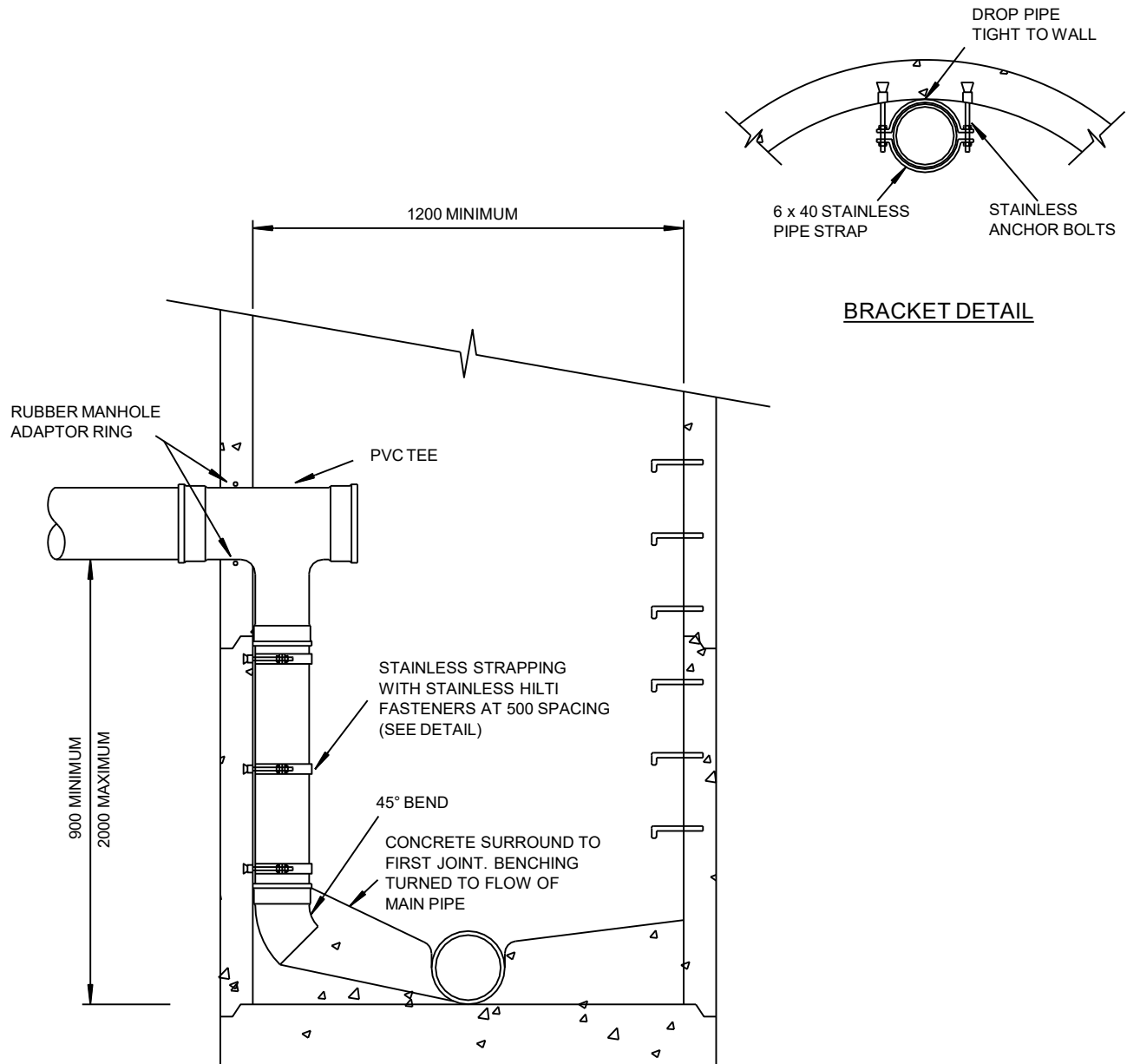


### SANITARY DROP MANHOLE

Scale: 1:25  
Created: MAR 2016  
Rev Date: MAY 2020  
Dwg No: S-3

Ed  
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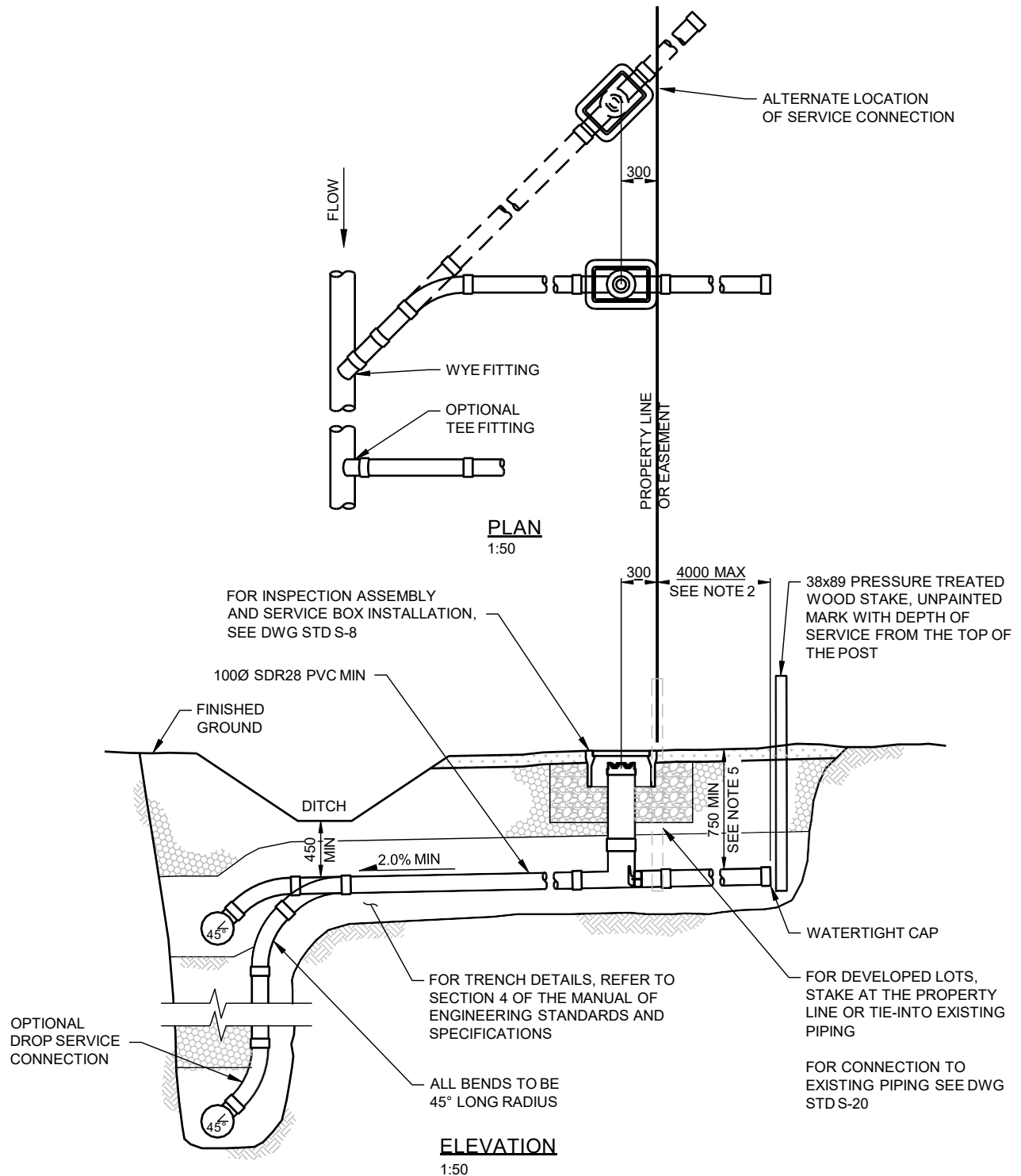
Ed  
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DROP MANHOLE - TYPE III

NOTES:

1. INSIDE DROP TO BE USED ONLY WHERE PERMITTED BY THE CITY ENGINEER.
2. MAXIMUM SIZE OF DROP PIPE TO BE 150Ø DR28 PVC.
3. THIS DRAWING SHOWS INSIDE DROP ONLY. SEE DRAWING S-2 FOR ALL OTHER DETAILS PERTAINING TO MANHOLE REQUIREMENTS.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS SHOWN OTHERWISE
5. ALL MOUNTING & BRACKET HARDWARE, (STRAPS & BOLTS) SHALL BE STAINLESS STEEL
6. DROP PIPE SHALL BE TIGHT TO THE INSIDE FACE OF THE MANHOLE BARREL.



**NOTES:**

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. WHERE DEPTH OF SERVICE AT PROPERTY LINE IS GREATER THAN 2.0m, EXTEND THE SERVICE PAST THE PROPERTY LINE EQUAL TO ITS DEPTH, TO MAXIMUM OF 4.0m.
3. WHERE SERVICE IS INSTALLED IN ROCK, THE TRENCH IS TO EXTEND 3.0m PAST THE PROPERTY LINE.
4. SANITARY SEWER INSPECTION ASSEMBLY, INCLUDING PROPERTY SIDE STUB TO BE WHITE.
5. SERVICE PIPE DEPTH TO BE INSTALLED TO PROVIDE SUFFICIENT DEPTH TO SERVICE THE BASEMENT PLUMBING BY GRAVITY IN ACCORDANCE WITH THE **NATIONAL BC** PLUMBING CODE. MINIMUM COVER OF SERVICE PIPE AT PROPERTY LINE TO BE 0.75m.
6. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
7. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

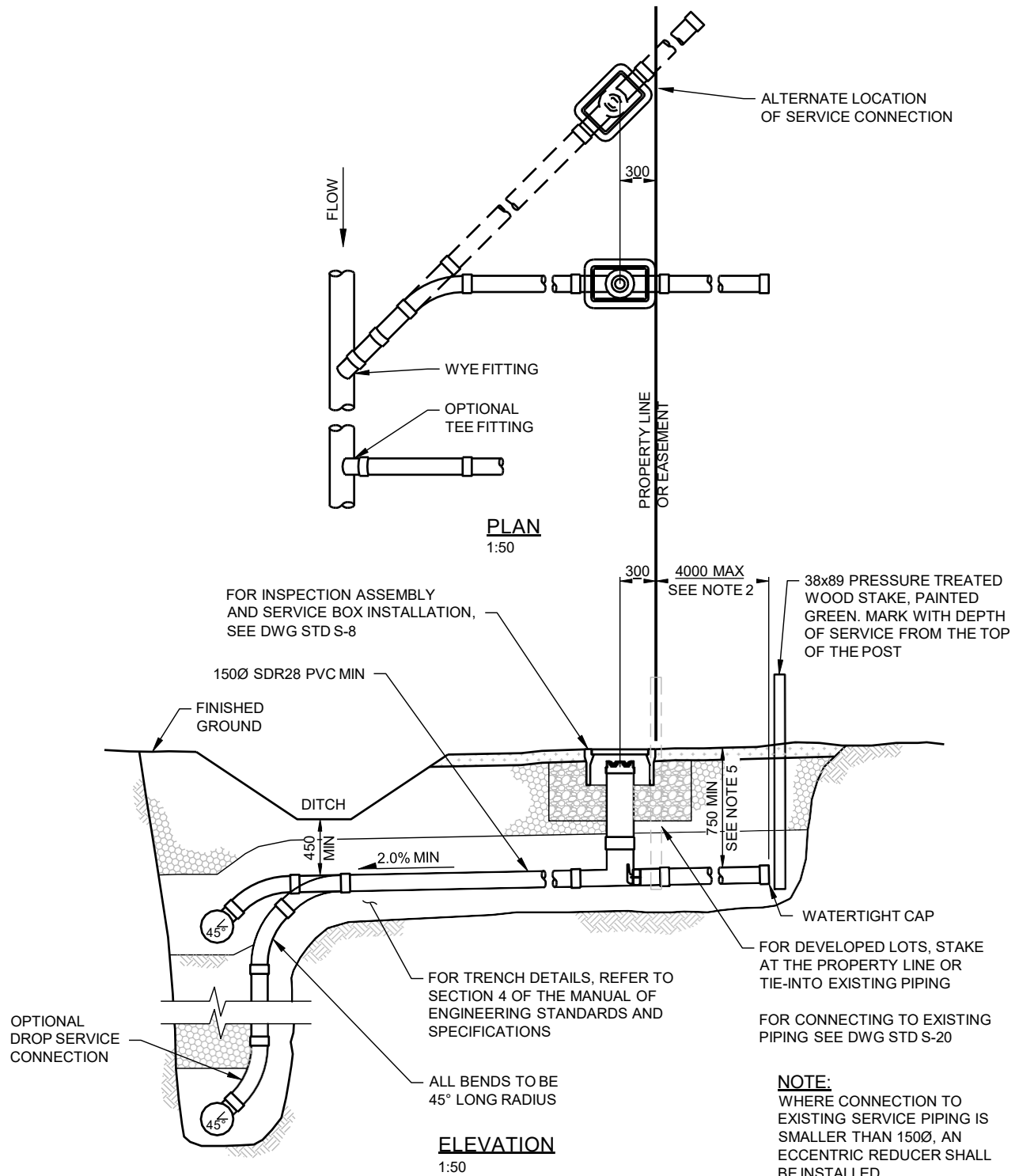
Scale: 1:50

Created: MAR 2015

Rev Date: MAY 2020

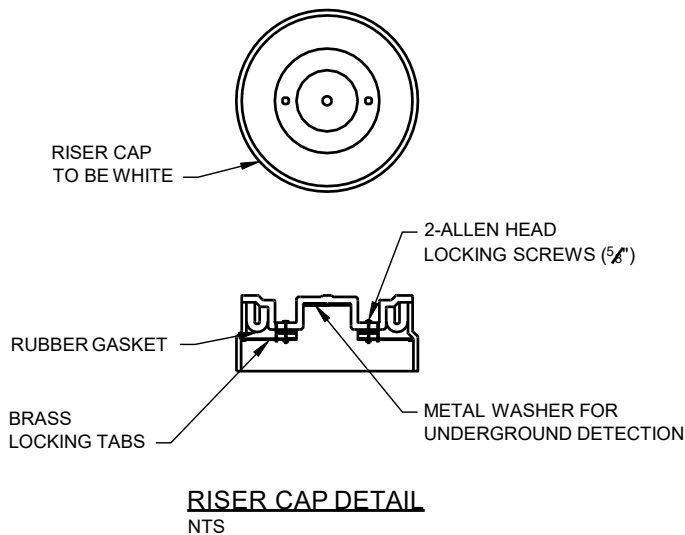
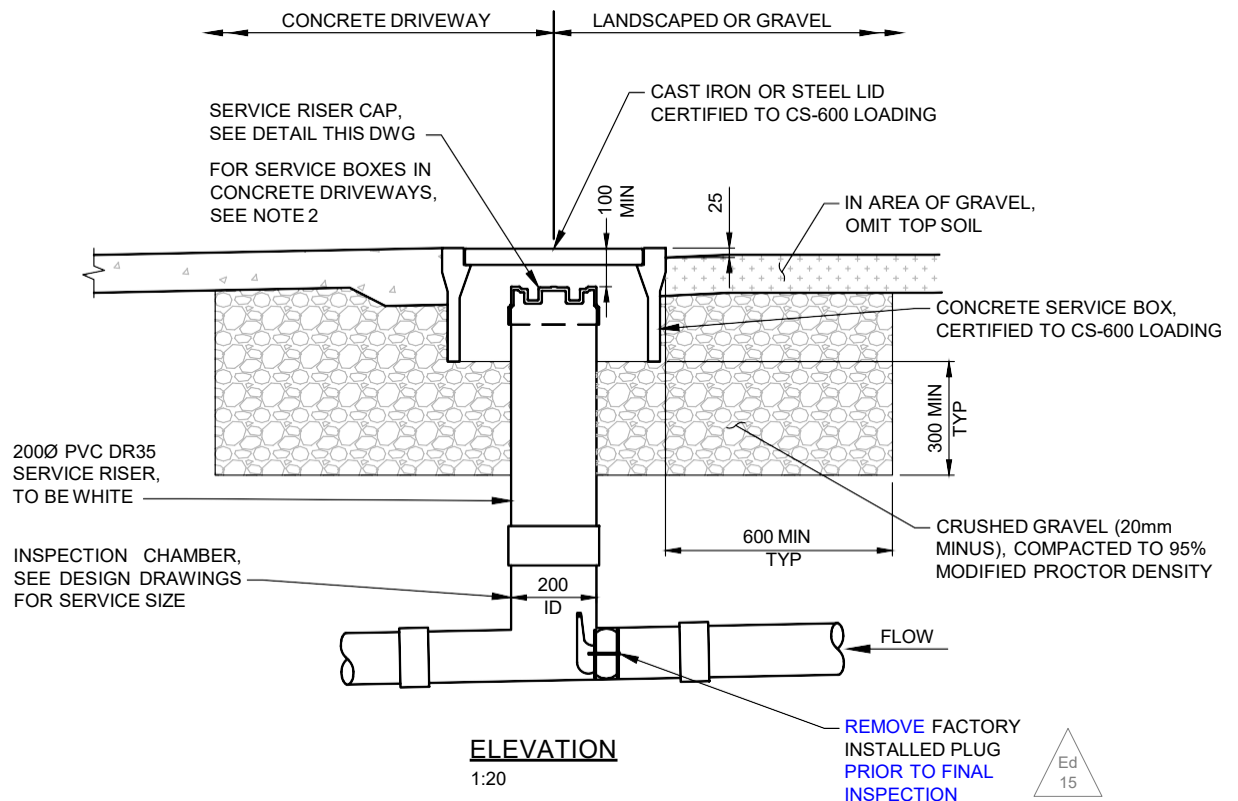
Dwg No: S-5

**GENERAL SANITARY SERVICE CONNECTION DETAIL  
RISER AND NON-RISER TYPES**



**NOTES:**

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. WHERE DEPTH OF SERVICE AT PROPERTY LINE IS GREATER THAN 2.0m, EXTEND THE SERVICE PAST THE PROPERTY LINE EQUAL TO ITS DEPTH, TO A MAXIMUM OF 4.0m.
3. WHERE SERVICE IS INSTALLED IN ROCK, THE TRENCH IS TO EXTEND 3.0m PAST THE PROPERTY LINE.
4. SANITARY SEWER INSPECTION ASSEMBLY, INCLUDING PROPERTY SIDE STUB TO BE WHITE.
5. SERVICE PIPE DEPTH TO BE INSTALLED TO PROVIDE SUFFICIENT DEPTH TO SERVICE THE BASEMENT PLUMBING BY GRAVITY IN ACCORDANCE WITH THE BC PLUMBING CODE. MINIMUM COVER OF SERVICE PIPE AT PROPERTY LINE TO BE 0.75m.
6. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
7. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.



NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. 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.
3. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
4. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

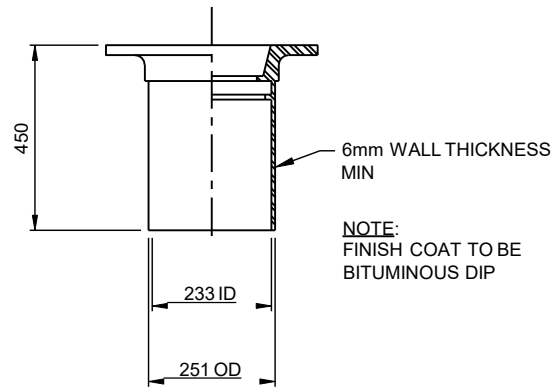
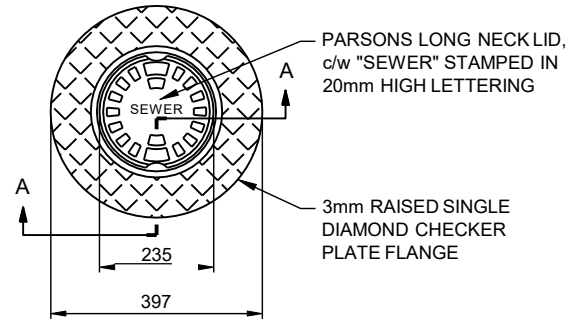
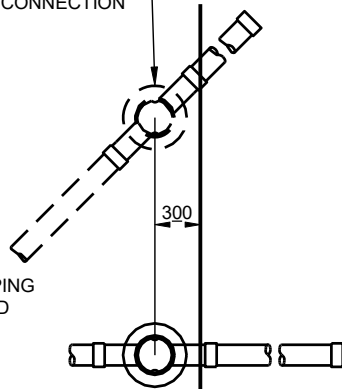


ALTERNATE LOCATION  
OF SERVICE CONNECTION

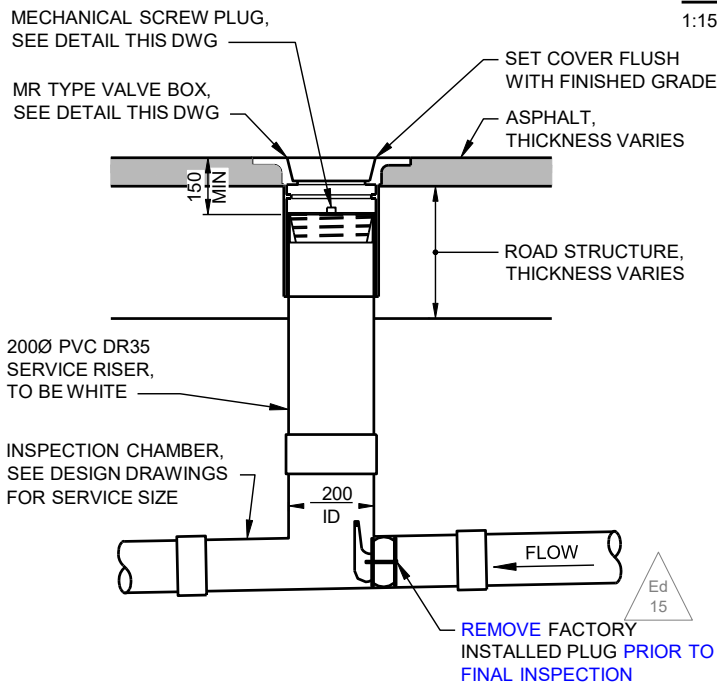
FOR SERVICE PIPING  
DETAILS, SEE STD  
DWGS-5

PROPERTY LINE  
OR EASEMENT

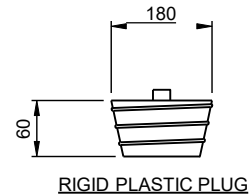
**PLAN - VALVE BOX LOCATIONS**  
NTS



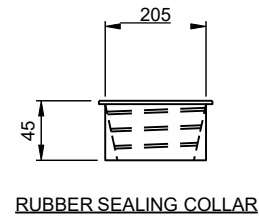
**MR STYLE VALVE BOX**  
1:15



**INSPECTION ASSEMBLY ELEVATION**  
1:20



**RIGID PLASTIC PLUG**



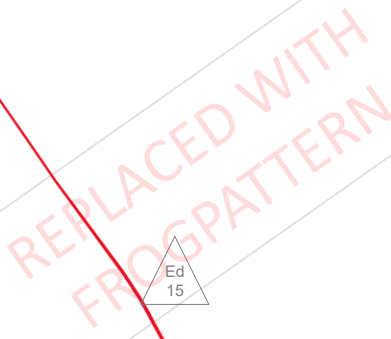
**RUBBER SEALING COLLAR**

**MECHANICAL SCREW PLUGS**  
1:10

**NOTES:**

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
3. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

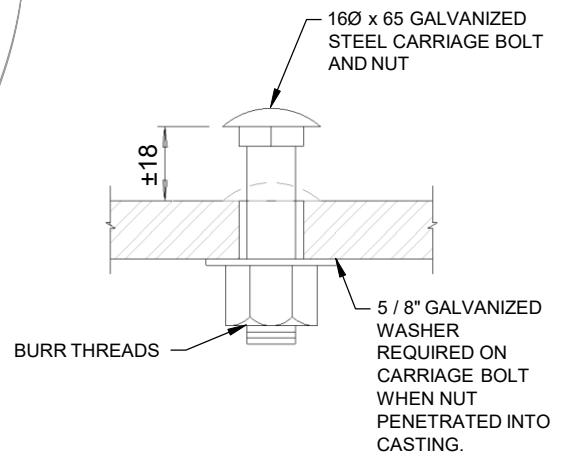




1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. CASTINGS SHALL BE CERTIFIED TO MEET CS-600 LOADING.
3. ALL BEARING SURFACES BETWEEN FRAME, COVER AND RISER RINGS SHALL BE MACHINED FOR NON-ROCKING FIT IN ALL POSITIONS. ALLOW 1.5mm RAISED FACE IN CASTINGS FOR MACHINING.
4. PAINT THE INSIDE SURFACE OF THE MANHOLE FRAME IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION WITH ENAMEL RUST PAINT. COLOUR TO BE YELLOW.
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.

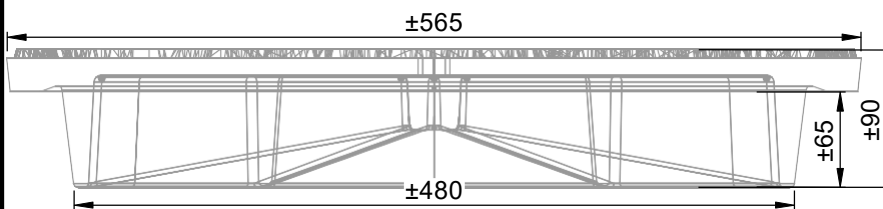


PLAN



**IMPORTANT:**  
CARRIAGE BOLT TO EXTEND  
**EXACTLY 18mm ABOVE CASTING.**

CARRIAGE BOLT DETAIL



COVER

**NOTES:**

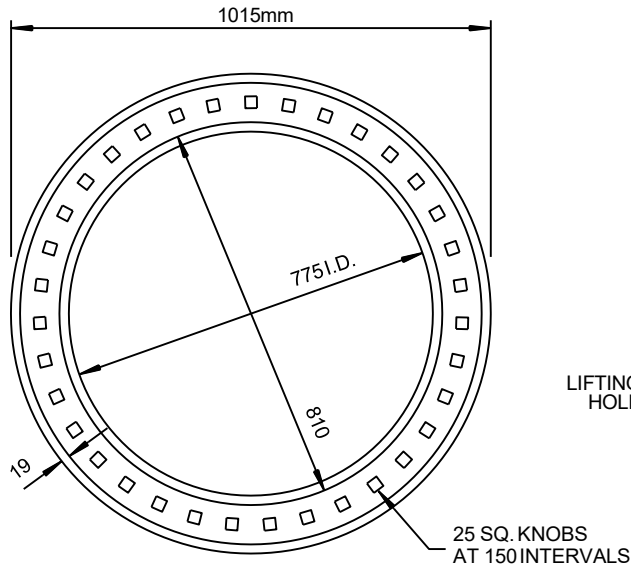
1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. CASTINGS SHALL BE CERTIFIED TO MEET CS-600 LOADING.
3. ALL BEARING SURFACES BETWEEN FRAME, COVER AND RISER RINGS SHALL BE MACHINED FOR NON-ROCKING FIT IN ALL POSITIONS. 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.
6. REFERRING TO "CITY OF NANAIMO SANITARY", LETTERING SHALL BE 25 FLATTENED FACE GOTHIC WITH FACE OF LETTERS RAISED TO THE SAME LEVELS AS THE TOP OF THE RIBS.
7. REFER TO STANDARD DRAWING S-10 FOR FRAME

Ed  
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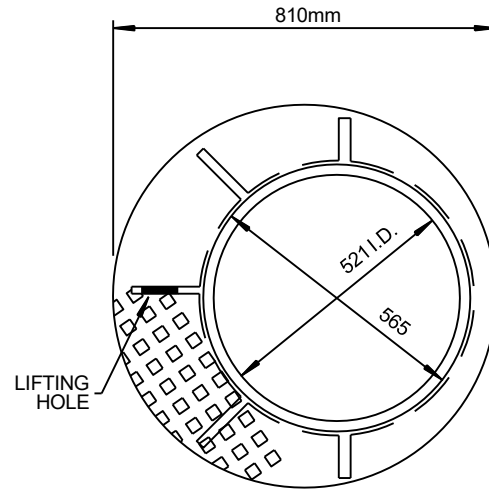
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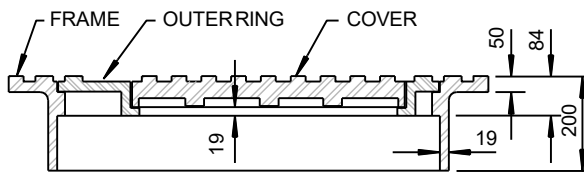
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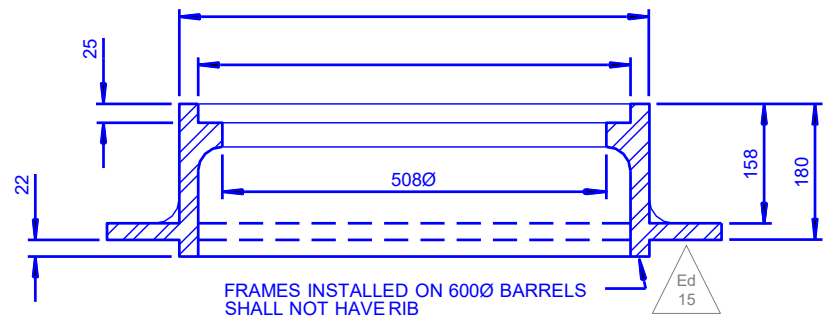
PLAN OF FRAME



PLAN OF OUTER RING



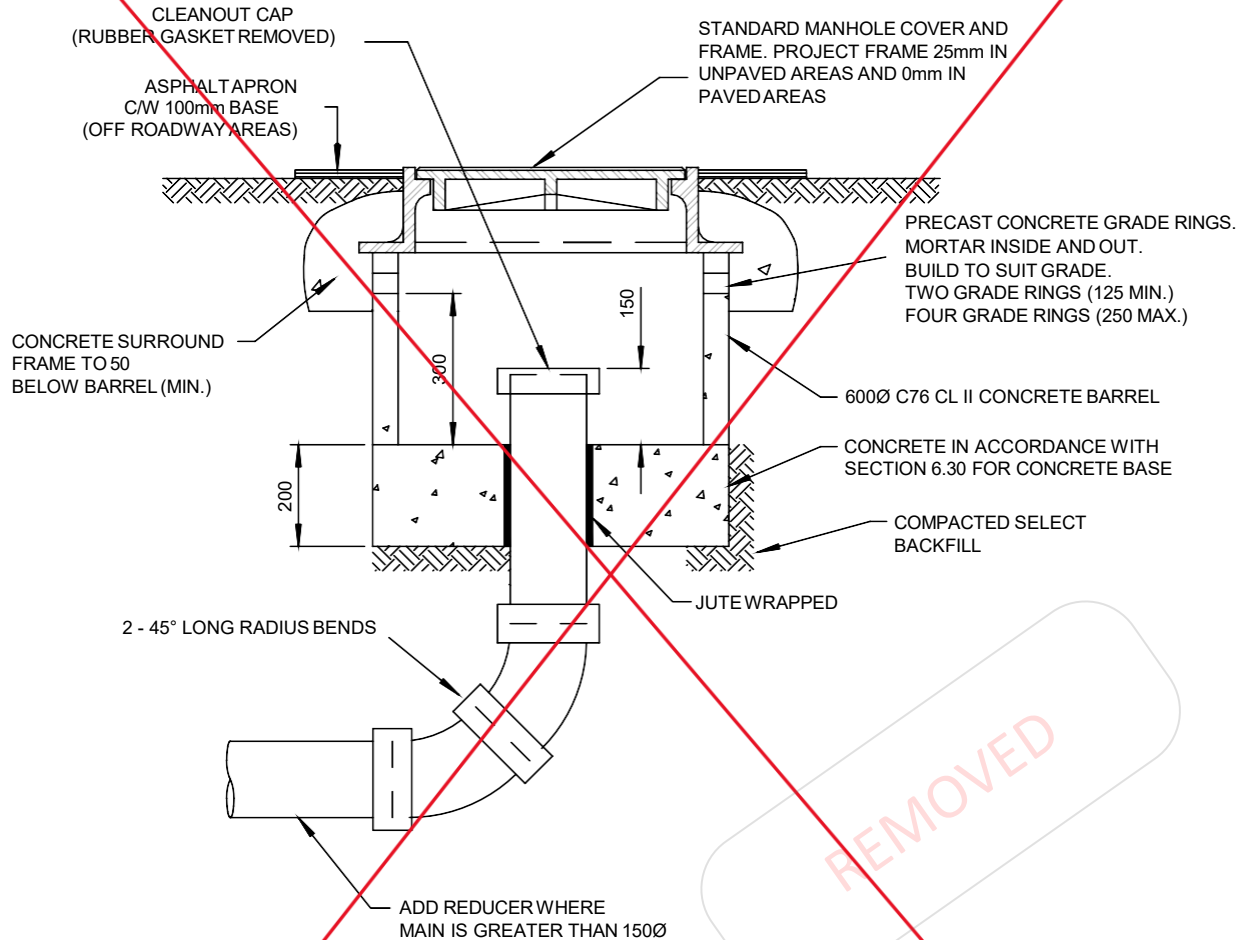
SECTION OF FRAME, RING  
AND COVER



FRAME

NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. CASTINGS SHALL BE CERTIFIED TO MEET CS-600 LOADING.
3. FOR COVER LETTERING AND BOLTING REQUIREMENTS REFER TO STD. DWG. S-9 OR S-15.
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.



NOTES:

1. TEMPORARY CLEANOUT STRUCTURES MAY ONLY BE USED AT THE DISCRETION OF THE CITY ENGINEER WHERE THERE IS DEVELOPMENT PHASING.
2. USE WHERE NO SERVICE EXTENSION IS REQUIRED.
3. ~~FRAME AND COVER AND BOLT TO STANDARD DRAWING S-9 (SANITARY MANHOLE FRAME AND COVER), OR STANDARD DRAWING S-15 (WATERTIGHT SANITARY MANHOLE FRAME AND COVER).~~ FOR COVER LETTERING AND BOLTING REQUIREMENTS, REFER TO STD. DWG. S-9 OR S-15. FOR FRAME AND RING, REFER TO STD. DWG. S-10.
4. CLEAN OUT STRUCTURES LOCATED ON GRAVEL ROADS OR SHOULDERS REQUIRE A 1.5 m x 1.5 m HOT MIX ASPHALT APRON, 50 mm THICK.
5. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
6. ALL DIMENSIONS IN MILLIMETERS UNLESS SHOWN OTHERWISE.



CITY OF NANAIMO

THE HARBOUR CITY

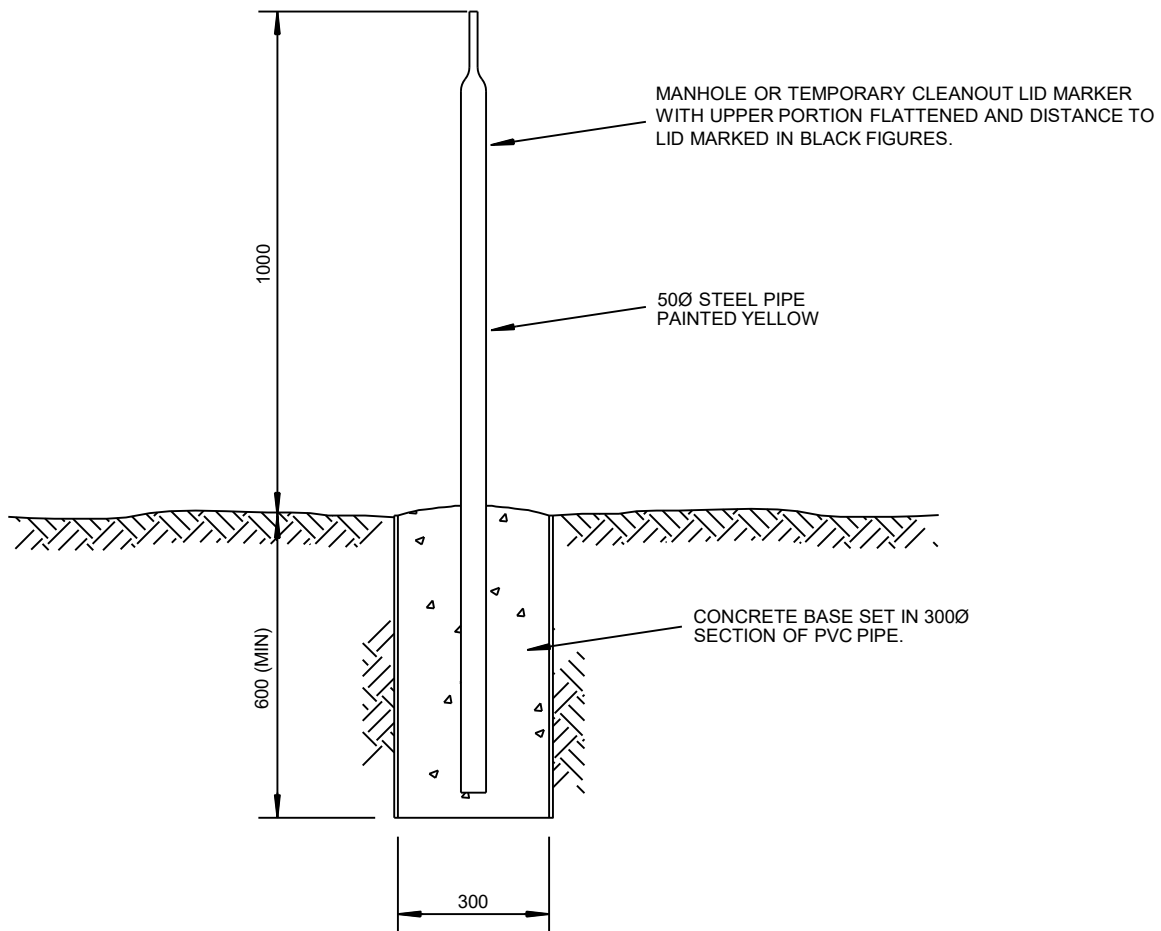
TEMPORARY SANITARY  
CLEANOUT STRUCTURE

Scale: NTS

Created: JUNE 2013

Rev Date: NOV-2016

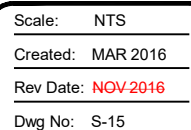
Dwg No: S-12

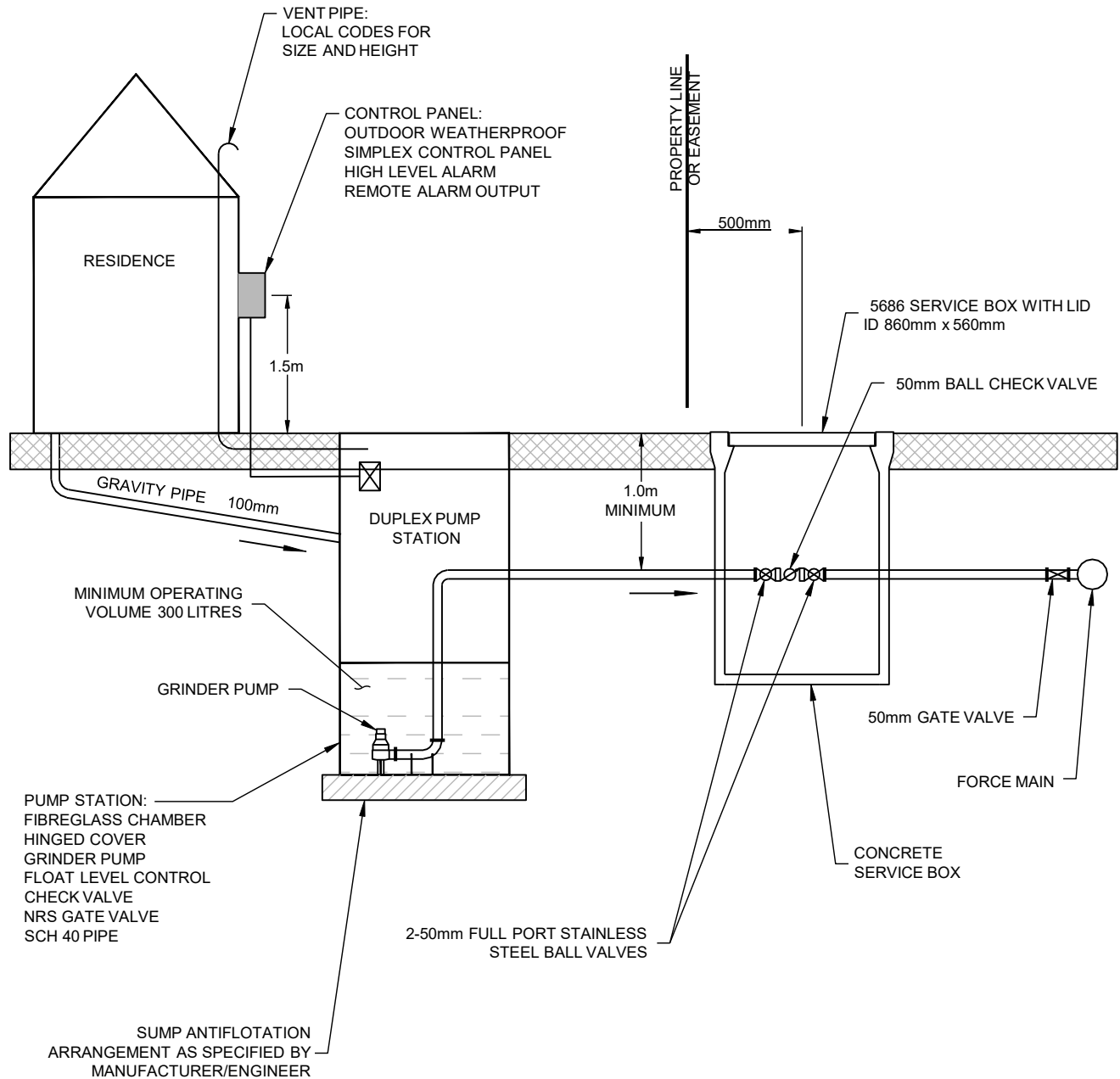


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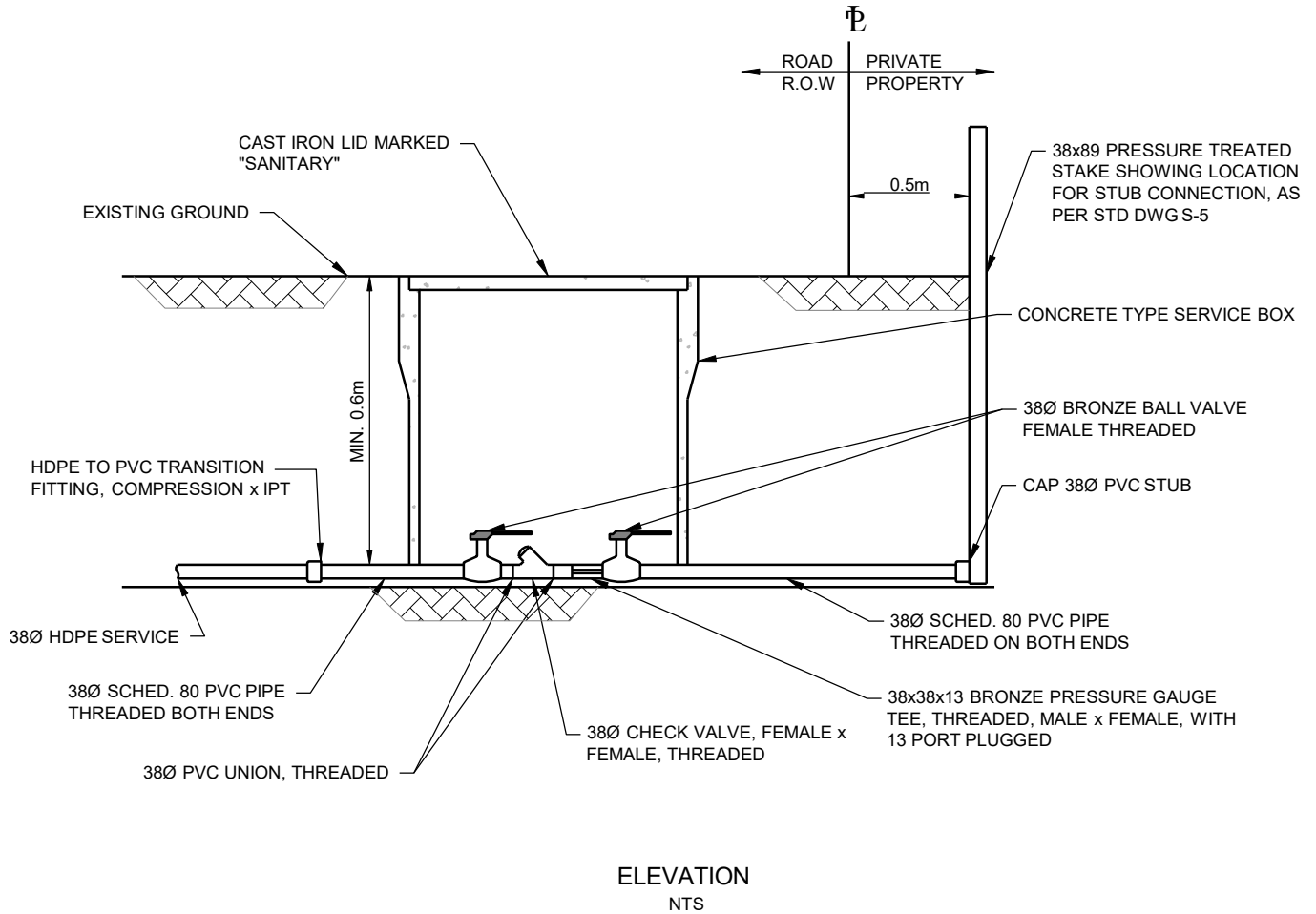
1. FOR USE ONLY WHERE MANHOLE OR TEMPORARY CLEANOUT LIDS ARE LOCATED OUTSIDE THE PAVED PORTION OF A STREET.
2. THE MARKER SHALL BE LOCATED ON SITE BY THE ENGINEER WITH THE FLATTENED END AND MARKED DISTANCE FACING THE LID.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS SHOWN OTHERWISE.

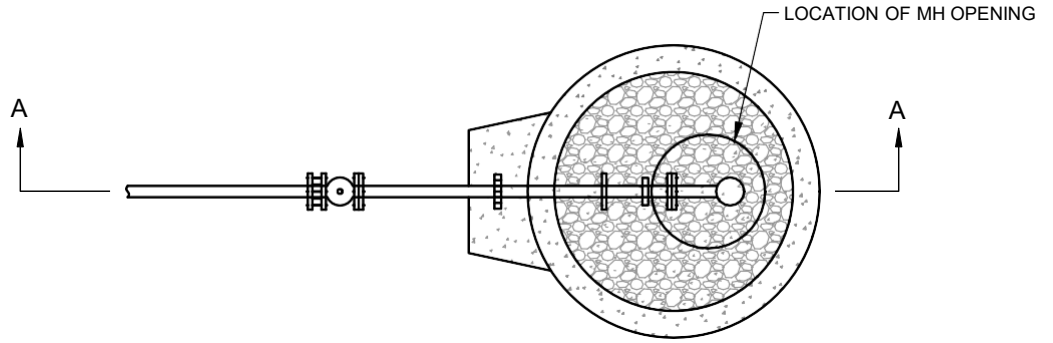
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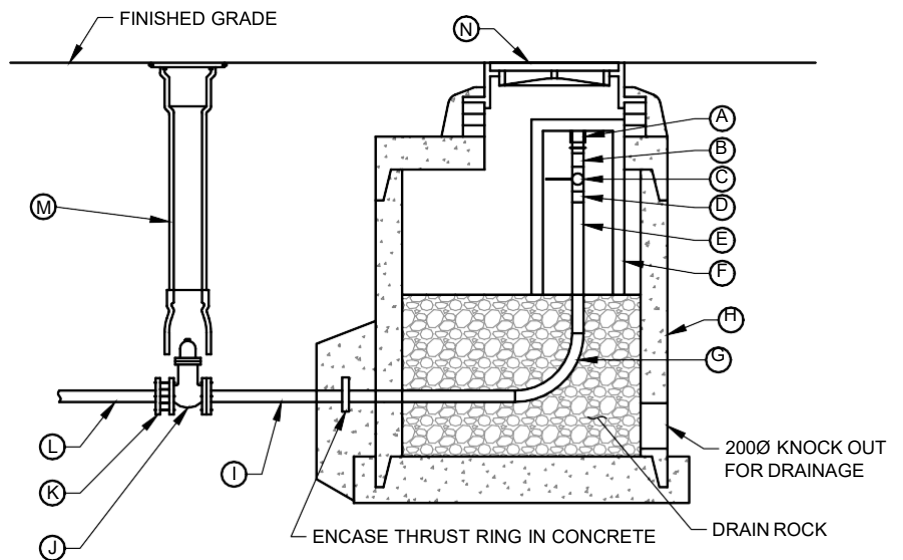






PLAN VIEW

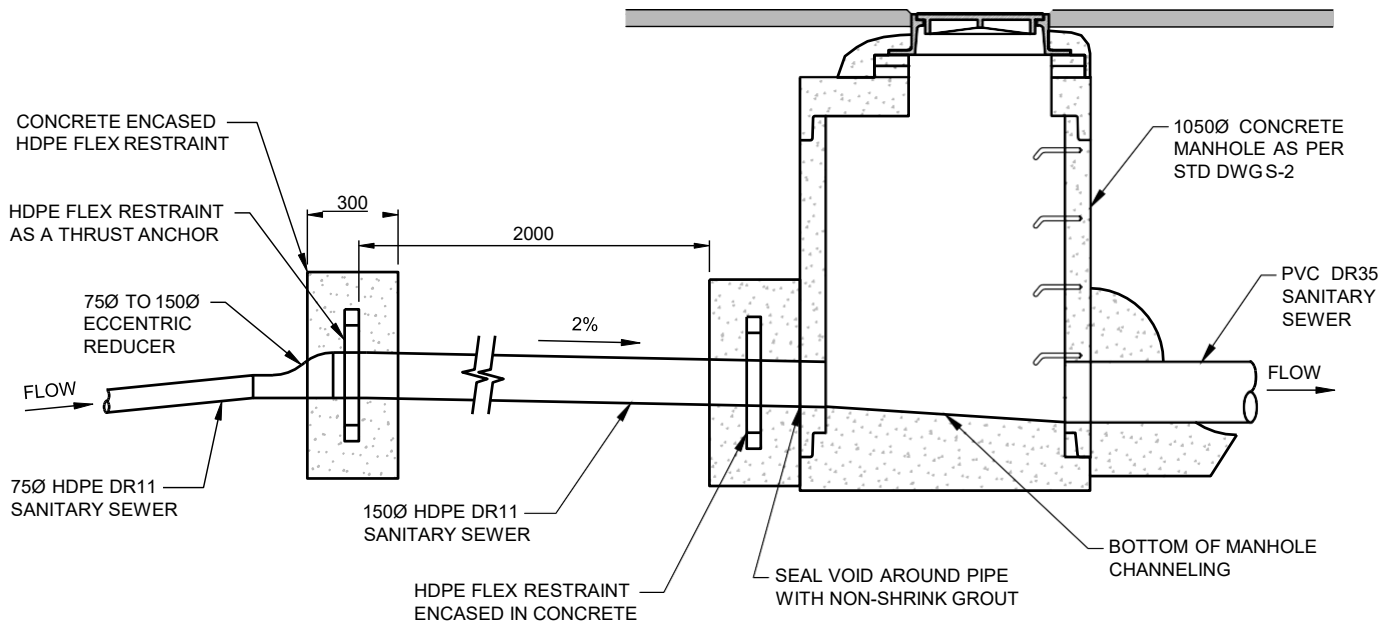
LPS END OF LINE FLUSHOUT MH LIST OF MATERIALS	
ITEM	DESCRIPTION
A	65Ø FIRE HOSE CONNECTION PER C.O.N. SPECIFICATIONS
B	65X50 REDUCER, MALE x MALE IPT
C	50Ø BRONZE BALL VALVE, FEMALE x FEMALE IPT
D	50Ø PVC SCHED. 80 ADAPTER, MALE x MALE IPT
E	50Ø S.S. PIPE, THREADED TO FIT BEND AND PVC ADAPTER
F	50mm THICK HIGH DENSITY STYROFOAM INSULATION
G	50Ø S.S. LONG RADIUS 90° BEND, IPTxIPT
H	1050Ø MANHOLE TO C.O.N. SPECIFICATIONS
I	50Ø S.S. SPOOL PIECE c/w 100Ø x 13mm THRUST RING, FxIPT
J	50Ø BALL VALVE, FxF
K	50Ø HDPE STUB END WITH METAL BACKING FLANGE
L	50Ø HDPE DR11 PIPE
M	150x200 VALVE HOOD, 150Ø PVC RISER & 150Ø MR VALVE BOX
N	HEAVY DUTY MH FRAME AND COVER AS PER C.O.N. STD. DWG. No. S-9



SECTION A  
NTS

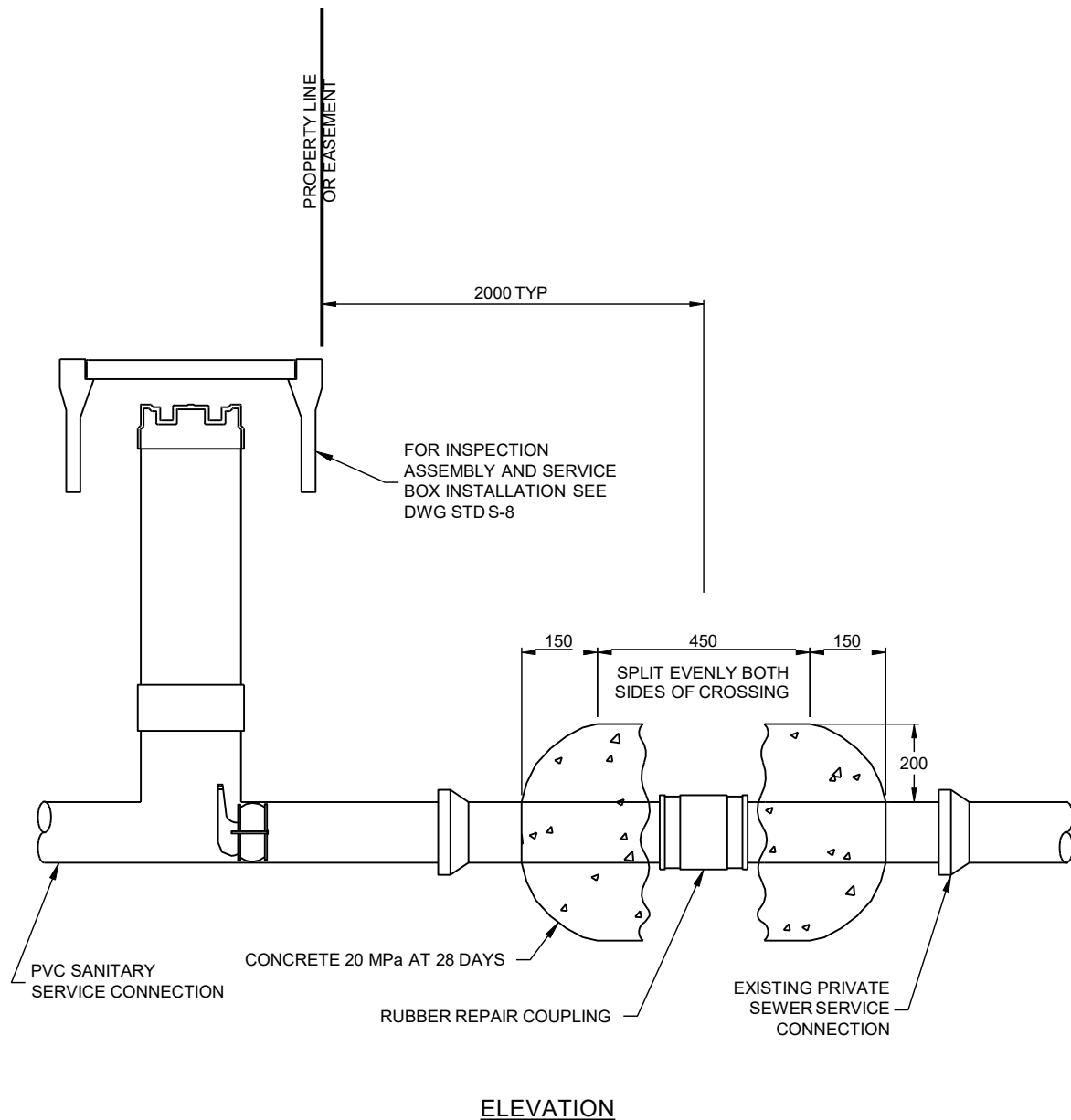
NOTES:

1. S.S. = STAINLESS STEEL TYPE 316 SCHEDULE 40.
2. FIRE HOSE EQUIPMENT CONNECTION TO BE DIRECTLY ACCESSIBLE THROUGH MANHOLE ACCESS.



NOTES:

1. REFER TO STD DWG S-2 FOR GENERAL NOTES AND CONCRETE REQUIREMENTS.
2. ALL HDPE JOINTS TO BE HEAT BUTT FUSED.



NOTES:

1. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
3. SPIGOTS IF PRESENT SHALL BE REMOVED BEFORE COUPLING IS INSTALLED.