

CITY OF SAFETY HARBOR



STANDARD ENGINEERING DETAILS

PREPARED BY THE CITY OF SAFETY HARBOR
ENGINEERING AND PUBLIC WORKS DEPARTMENTS

REVISED: AUGUST 2025

CITY OF SAFETY HARBOR

THE CONTRACTOR IS REQUIRED TO COMPARE THESE STANDARD DETAILS WITH THE INDEX FOR COMPLETENESS. IF ANY PAGES ARE MISSING OR ILLEGIBLE IT IS HIS/HER RESPONSIBILITY TO REQUEST REPLACEMENTS FROM THE ENGINEER.

C = CONSTRUCTION
LS = LIFT STATION

W = WATER
ST = STORM SEWER

F = FIRE
MISC = MISCELLANEOUS

SS = SANITARY SEWER
LA = LANDSCAPE

DETAIL NUMBER	DETAIL NAME
C1	OPEN CUT PAVEMENT TRENCH
C2	TRENCH BACKFILL
C3	TYPICAL PAVEMENT TIE-IN & TYPICAL PAVEMENT SECTION
C4	STREET SECTION
C5	GRID BLOCKS
C6	TURF BLOCKS
C7	EDGING CONNECTION
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C9	CLAY PAVER BRICK & HEADER CURB (FOR PARKING AREAS)
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C14	HANDICAP PARKING SIGN & PAVEMENT MARKINGS
C15	PARKING WHEEL STOP
C16	BICYCLE RACK
C17	BICYCLE RACK NOTES
W1	WATER NOTES
W2	UTILITY SEPARATION REQUIREMENTS F.A.C. RULE 62-555.314
W3	JACK & BORE UNDER ROADWAY FOR WATER MAIN & FORCE MAIN
W4	JACK & BORE UNDER RAILROAD FOR WATER MAIN & FORCE MAIN
W5	TYPICAL ROAD CROSSING FOR WATER SERVICE LINES
W6	RESTRAINED JOINT REQUIREMENTS
W7	2" PERMANENT BLOW-OFF ASSEMBLY
W8	2" TEMPORARY BLOW-OFF ASSEMBLY
W9	BLOW-OFF REMOVAL PROCEDURE TEMPORARY BLOW-OFF
W10	COMBINATION AIR-VACUUM VALVE ASSEMBLY
W12	DOUBLE SERVICE
W13	DOUBLE SERVICE (FOR DIFFERENT CIRCUMSTANCES)
W14	1" SINGLE SERVICE (4" W.M. OR ABOVE)
W15	SERVICE - 2"x1" TAP
W16	2" TAP INSTALLATION (30" OR LESS OF COVER)
W17	2" TAP INSTALLATION (GREATER THAN 30" OF COVER)
W18	2" MJ TAP TEE (30" OR LESS OF COVER)
W19	2" MJ TAP TEE (GREATER THAN 30" OF COVER)
W20	WET TAP (6" PIPE & LARGER)
W21	MANIFOLD SERVICE FOR BELOW GROUND METER ASSEMBLY
W22	2" MANIFOLD SERVICE
W23	4" MANIFOLD SERVICE
W24	DOUBLE CHECK VALVE ASSEMBLY BELOW GROUND INSTALLATION
W25	REDUCED PRESSURE BACKFLOW ASSEMBLY ¾" OR 1"

CITY OF SAFETY HARBOR

CONTINUED

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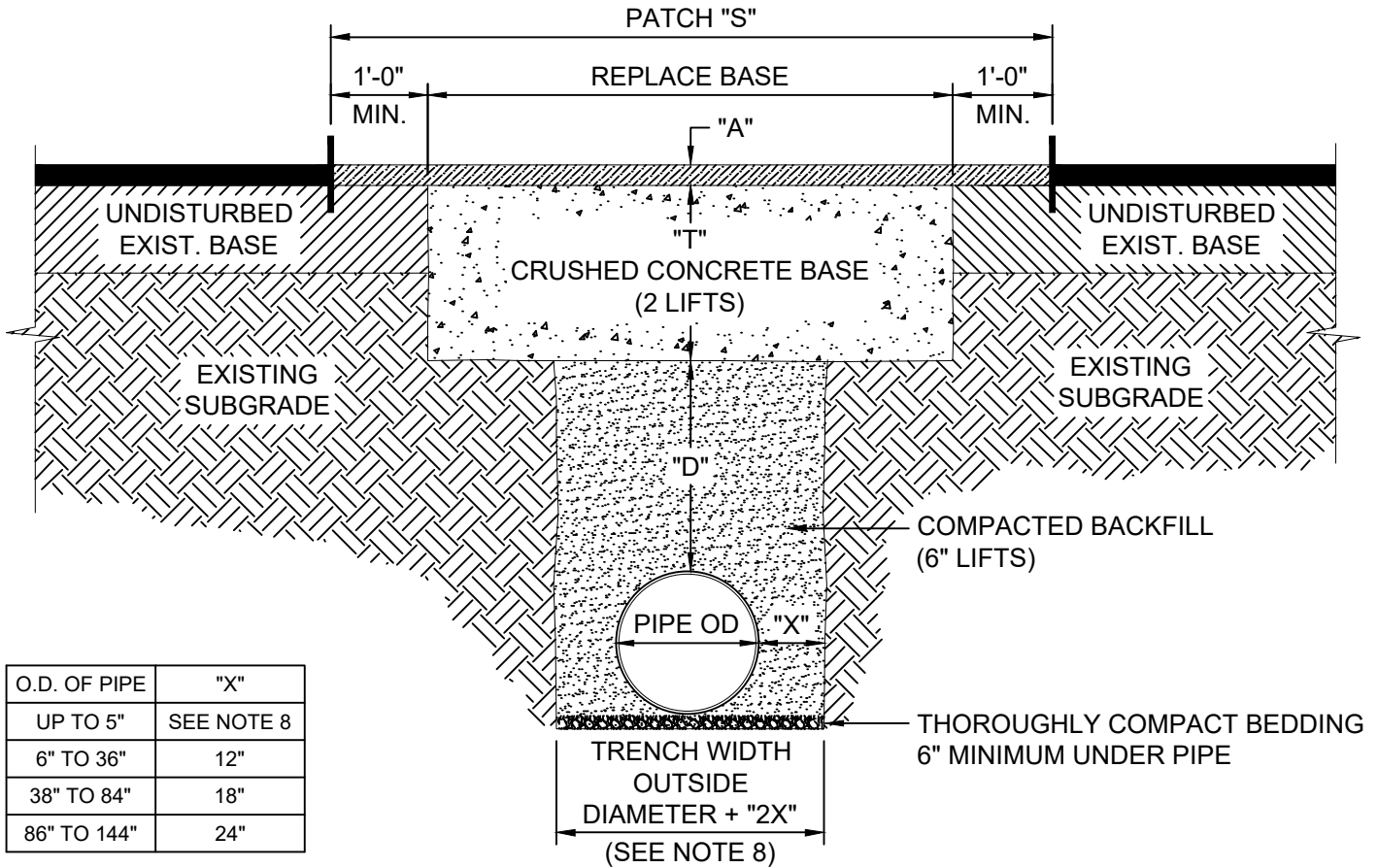
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DETAIL NUMBER	DETAIL NAME
W25B	REDUCED PRESSURE BACKFLOW ASSEMBLY 1-½" OR 2"
W26	PRECAST CONCRETE THRUST BLOCK
W27	DEADMAN
W28	LOCATOR WIRE INSTALLATION (TOP VIEW)
W29	LOCATOR WIRE INSTALLATION (SIDE VIEW)
W30	VALVE BOX TRACER WIRE INSTALLATION
W31	CONCRETE COLLAR (WATER)
W32	WATER CURB MARKINGS
F1	FIRE HYDRANT
F2	FIRE HYDRANT GUARDS
F3	2" FIRE LINE ASSEMBLY
F4	DOUBLE DETECTOR CHECK VALVE ASSEMBLY FOR FIRE PROTECTION
SS1	SANITARY SEWER NOTES
SS2	JACK & BORE UNDER ROADWAY FOR GRAVITY SEWER
SS3	CONNECTION TO EXISTING MANHOLE
SS4	SHALLOW MANHOLE
SS5	STANDARD DROP MANHOLE
SS6	STANDARD MANHOLE
SS7	STANDARD MANHOLE FRAME & COVER
SS8	SINGLE & DOUBLE SERVICE CONNECTION
SS9	SERVICE DROP CONNECTION
SS10	TYPICAL CLEANOUT DETAILS
SS11	AIR RELEASE VALVE ASSEMBLY
SS12	PERMANENT BLOWOFF
SS15	CONCRETE COLLAR (SEWER)
SS16	SANITARY SEWER CURB MARKINGS
SS17	VALVE BOX TRACER WIRE INSTALLATION SANITARY SEWER
LS1	LIFT STATION NOTES
LS2	LIFT STATION CONCRETE SLAB
LS3	LIFT STATION PLAN
LS4	LIFT STATION PROFILE
LS5	LIFT STATION DATA SHEET
LS6	LIFT STATION CONTROL PANEL
ST1	STORM SEWER NOTES
ST2	UNDERDRAIN
MISC1	DUMPSTER ENCLOSURE
LA1	TREE PROTECTIVE BARRIER
LA2	TREE TRUNK (BARK) PROTECTION
LA3	ROOT PRUNING SPECIFICATIONS
LA4	SIDEWALK CONSTRUCTION WITH TREE PROTECTION

RIAUTOCAD STANDARDS/DETAILS/CITY DETAILS/OPEN CUT PAVEMENT TRENCH.DWG



O.D. OF PIPE	"X"
UP TO 5"	SEE NOTE 8
6" TO 36"	12"
38" TO 84"	18"
86" TO 144"	24"

SCHEDULE					
	ITEM	ALLEY / DRIVE	STANDARD ROAD	COMMERCIAL ROAD	REMARKS
A	ASPHALT THICKNESS (MIN.)	1" TYPE SP9.5	1-3/4" TYPE SP9.5	2-1/4" TYPE SP12.5	
T	BASE THICKNESS (MIN.)	REPLICATE EXISTING BASE THICKNESS + 2"			MAY BE SUBSTITUTED WITH ASPHALT OR AS DIRECTED BY CITY ENGINEER
S	PATCH WIDTH (MIN.)	24"	10'	10'	
D	COVER DEPTH (MIN.)	30"	36"	36"	

- NOTES:
- ALL PAVING PREPARATION SHALL MEET CITY OF SAFETY HARBOR'S STANDARD SPECIFICATIONS.
 - TRENCH BACKFILL SHALL BE PLACED IN 6-INCH LIFTS, EACH LIFT COMPACTED TO 100% OF THE MAXIMUM DENSITY BY AASHTO T-99. FLOWABLE FILL MAY BE SUBSTITUTED FOR BACKFILL ON A CASE BY CASE BASIS. FLOWABLE FILL SHALL MEET FDOT STANDARD SPECIFICATIONS, AS APPROVED BY THE CITY ENGINEER.
 - CLAY IS NOT AN ACCEPTABLE BACKFILL MATERIAL.
 - PAVEMENT JOINTS SHALL BE MECHANICALLY SAW CUT IN NEAT LINES 1-FOOT BEYOND ANY SETTLED OR BROKEN AREAS.
 - BASE MATERIAL SHALL BE CRUSHED CONCRETE OF THE THICKNESS SHOWN (MIN. LBR 100) AND SHALL BE PLACED IN 6" COMPACTED LAYERS TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 (MODIFIED).
 - AS AN ALTERNATIVE TO COMPACTED BASE AND IN WET AREAS, FULL-LIFT ASPHALTIC CONCRETE, FINE TRAFFIC LEVEL C TYPES SP9.5 OR 12.5, SHALL BE PLACED IN 2" COMPACTED LAYERS WITH A MINIMUM THICKNESS EQUAL TO THE EXISTING BASE (6" MIN.).
 - INSTALL CLEAN DRY COMPACTABLE MATERIAL AROUND THE PIPE.
 - FOR PIPES/CONDUITS LESS THAN 5-INCHES OD, DITCH WIDTH MAY BE REDUCED TO A WIDTH OF A MECHANICAL TAMPER. BACKFILL WITH DRY 15:1 SAND/CEMENT MIX, OR OTHER APPROVED MATERIAL, TO 4 -INCHES ABOVE.
 - DENSITY TESTS WILL BE PERFORMED AT THE CONTRACTOR'S EXPENSE FOR EACH 6-INCH LIFT OF COMPACTED MATERIAL PLACED AND COMPACTED AT LOCATIONS DESIGNATED BY THE CITY ENGINEER. ALL DENSITY REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
 - CONTRACTOR TO SUBMIT BEDDING SHOP DRAWING FOR CITY APPROVAL.



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

OPEN CUT PAVEMENT TRENCH

REVISIONS

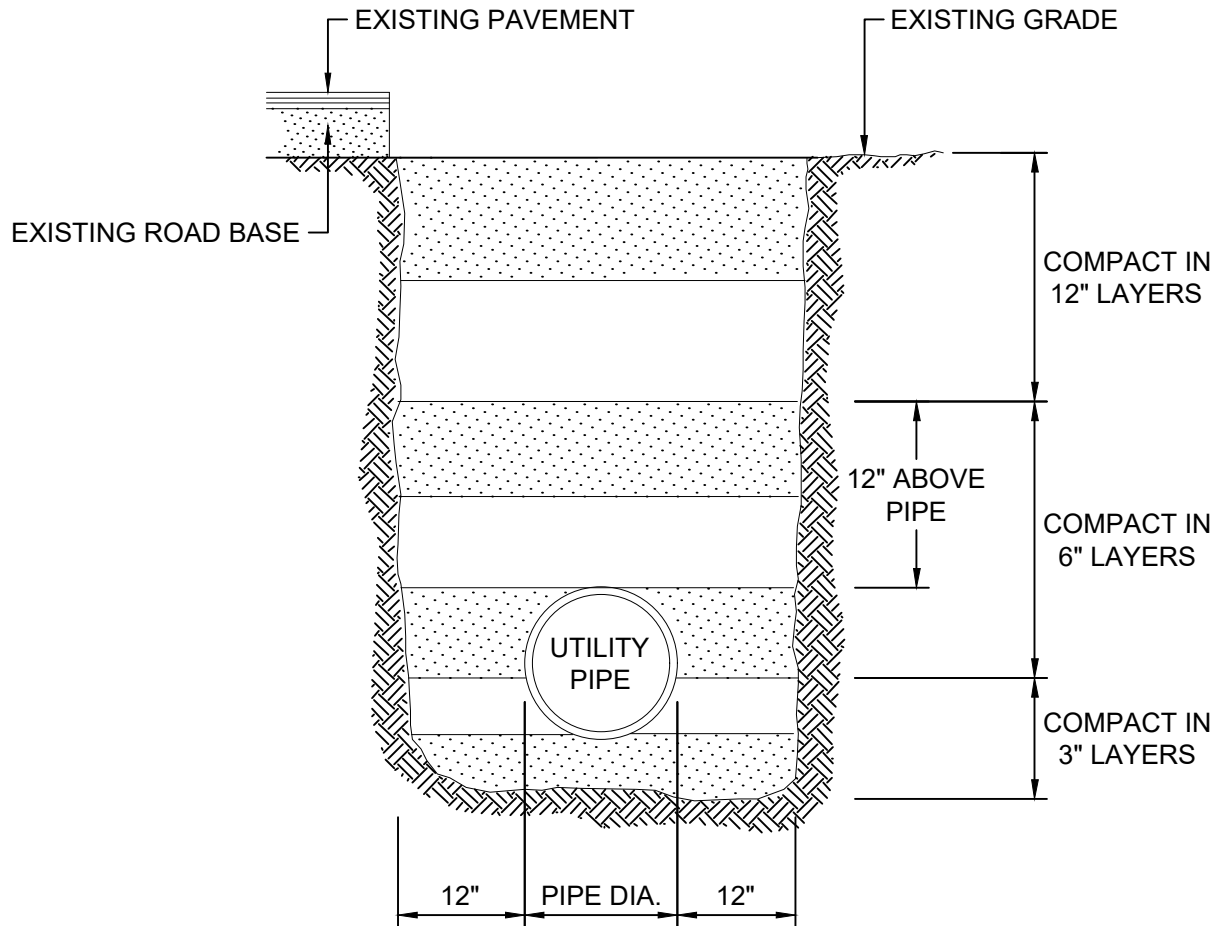
BY	DATE
BD	12/31/2019
SS	07/05/2022

SCALE: N.T.S.

DATE: JANUARY 2011

DETAIL NUMBER:

C1



NOTES:

1. TRENCHES LOCATED UNDER PAVEMENT SHALL BE COMPACTED TO 100% OF MAXIMUM DENSITY BY A.A.S.H.T.O. T-99, METHOD C.
2. TRENCHES NOT LOCATED UNDER PAVEMENT SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY BY A.A.S.H.T.O. T-99.
3. TRENCH BACKFILL SHALL BE PLACED IN 6-INCH LIFTS, EACH LIFT COMPACTED TO 100% OF THE MAXIMUM DRY DENSITY BY A.A.S.H.T.O. T-99. FLOWABLE FILL MAY BE SUBSTITUTED FOR BACKFILL ON A CASE BY CASE BASIS. FLOWABLE FILL SHALL MEET FDOT STANDARD SPECIFICATIONS, AS APPROVED BY THE CITY ENGINEER.
4. CLAY IS NOT AN ACCEPTABLE BACKFILL MATERIAL.
5. INSTALL CLEAN DRY COMPACTABLE MATERIAL AROUND THE PIPE.
6. DENSITY TESTS WILL BE PERFORMED AT THE CONTRACTOR'S EXPENSE FOR EACH 6-INCH LIFT OF COMPACTED MATERIAL PLACED AND COMPACTED AT LOCATIONS DESIGNATED BY THE CITY ENGINEER. ALL DENSITY REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
7. REPLACEMENT OF PAVED SURFACES SHALL BE MADE IN ACCORDANCE WITH SAFETY HARBOR CITY STANDARDS.



CITY OF SAFETY HARBOR

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TRENCH BACKFILL

REVISIONS

BY	DATE
BD	12/31/2019
SS	05/25/2022

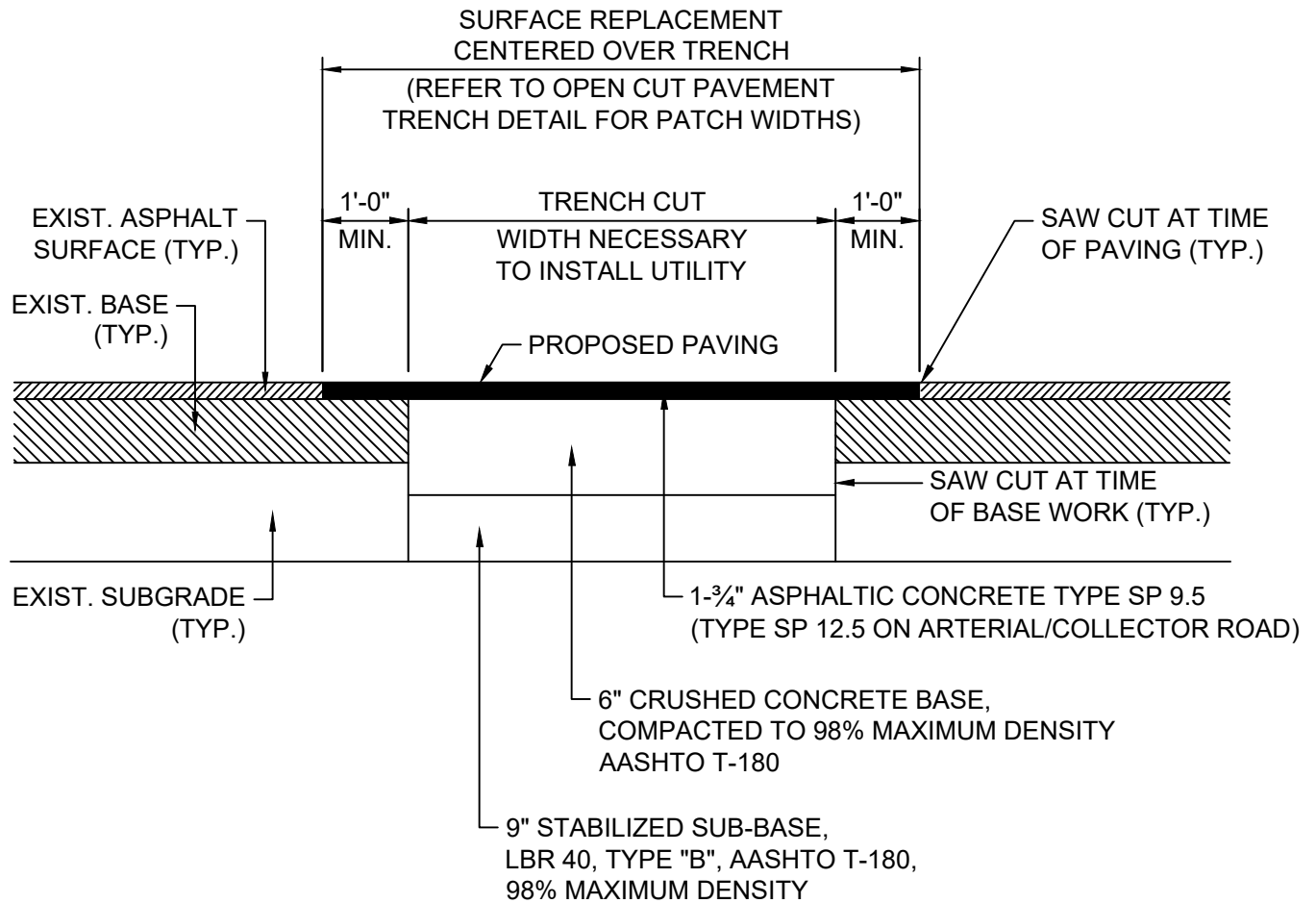
SCALE: N.T.S.

DATE: APRIL 2003

DETAIL NUMBER:

C2

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAIL\TYPICAL PAVEMENT TIE-IN & TYPICAL PAVEMENT SECTION.DWG



NOTE:

TIE-IN MUST PAVE ONE LANE WIDTH.
IF WORK AFFECTS TWO INTERSECTING STREETS, ENTIRE INTERSECTION MUST BE PAVED
AND MUST MEET ADA REQUIREMENTS.



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TYPICAL PAVEMENT TIE-IN & TYPICAL PAVEMENT SECTION

REVISIONS

BY	DATE
BD	11/01/2017
SS	05/25/2022

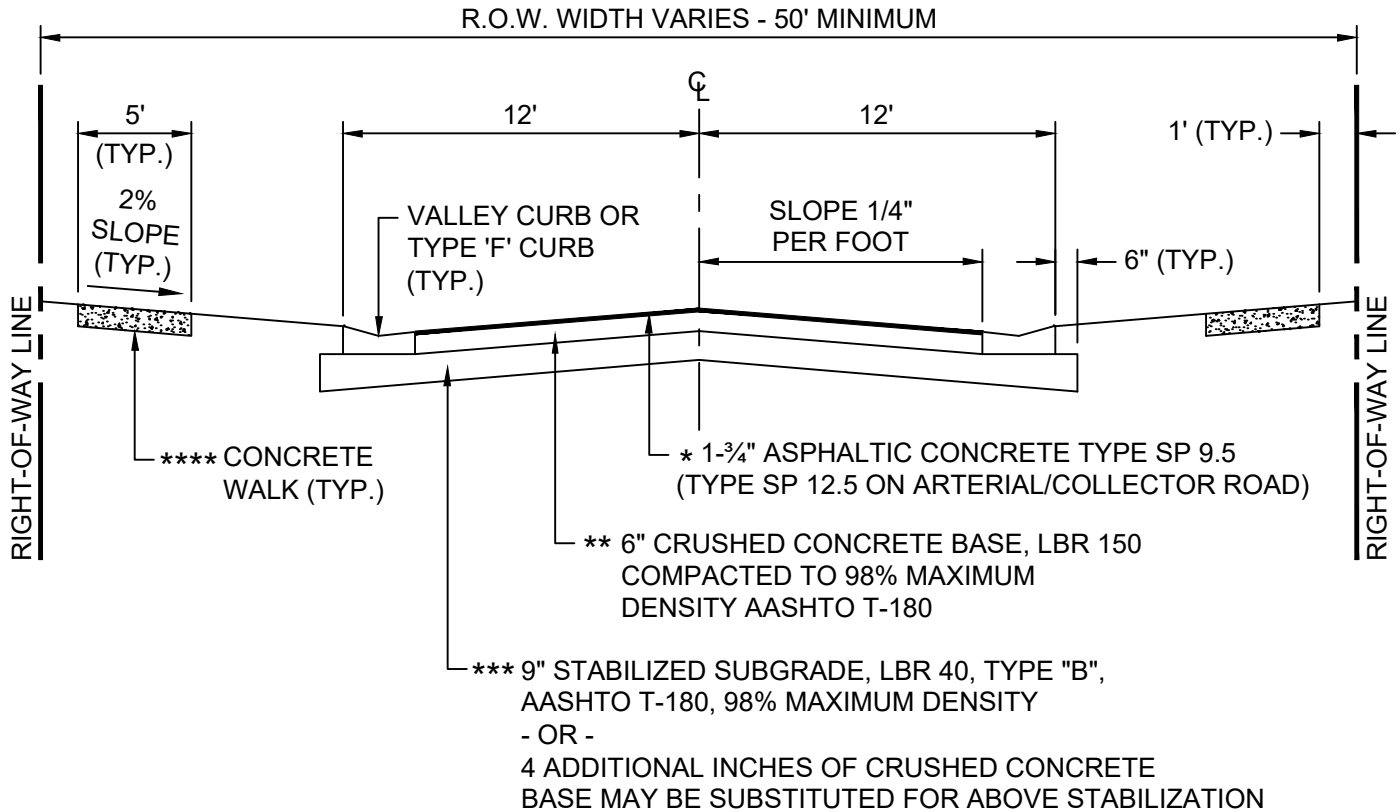
SCALE: N.T.S.

DATE: MAY 2014

DETAIL NUMBER:

C3

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NOTE:

SEE CONSTRUCTION DRAWINGS FOR CURB TYPE AND LANE WIDTHS. SIDEWALK WIDTH REQUIREMENTS ARE LISTED ON THE SIDEWALK DETAIL. ANY SIDEWALK WITHIN 6' OF BACK OF CURB SHALL BE 6" THICK.

INDUSTRIAL STREET REQUIREMENTS

- * 2-1/4" ASPHALTIC CONCRETE TYPE SP 9.5 (TYPE SP 12.5 ON ARTERIAL/COLLECTOR ROAD)
- ** 9" CRUSHED CONCRETE, COMPACTED TO AASHTO T-180, 98% MAXIMUM DENSITY
- *** 12" STABILIZED SUBGRADE - OR - 5-1/2 INCHES OF ADDITIONAL CRUSHED CONCRETE
- **** SIDEWALKS SHALL MEET ALL CURRENT ADA GUIDELINES



CITY OF SAFETY HARBOR

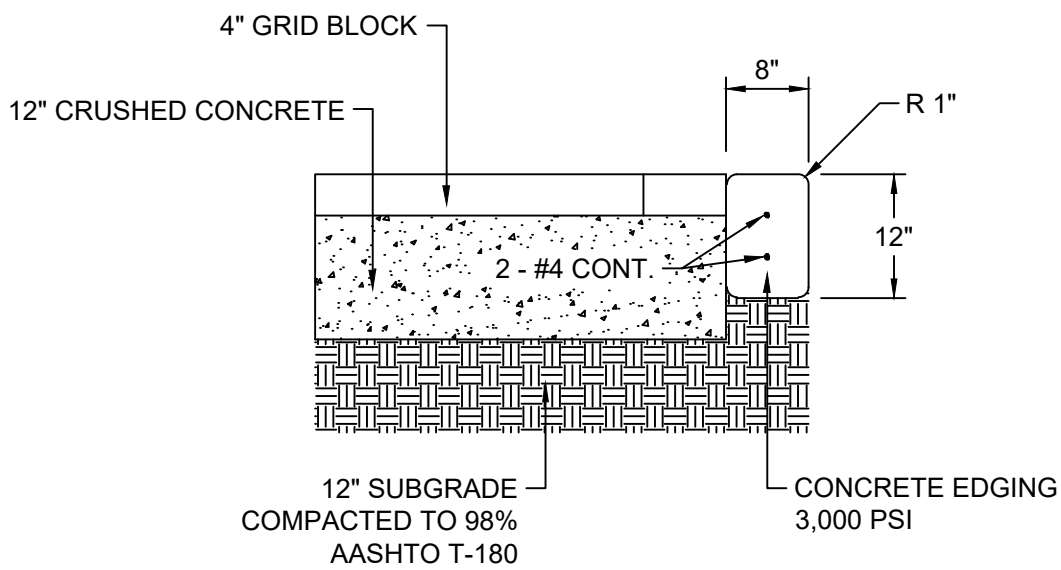
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STREET SECTION

REVISIONS

BY	DATE
BD	11/01/2017
TAW	12/31/2019
SCALE: N.T.S.	
DATE:	APRIL 2014
DETAIL NUMBER:	
C4	

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\GRID BLOCKS.DWG



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GRID BLOCKS

REVISIONS

BY	DATE

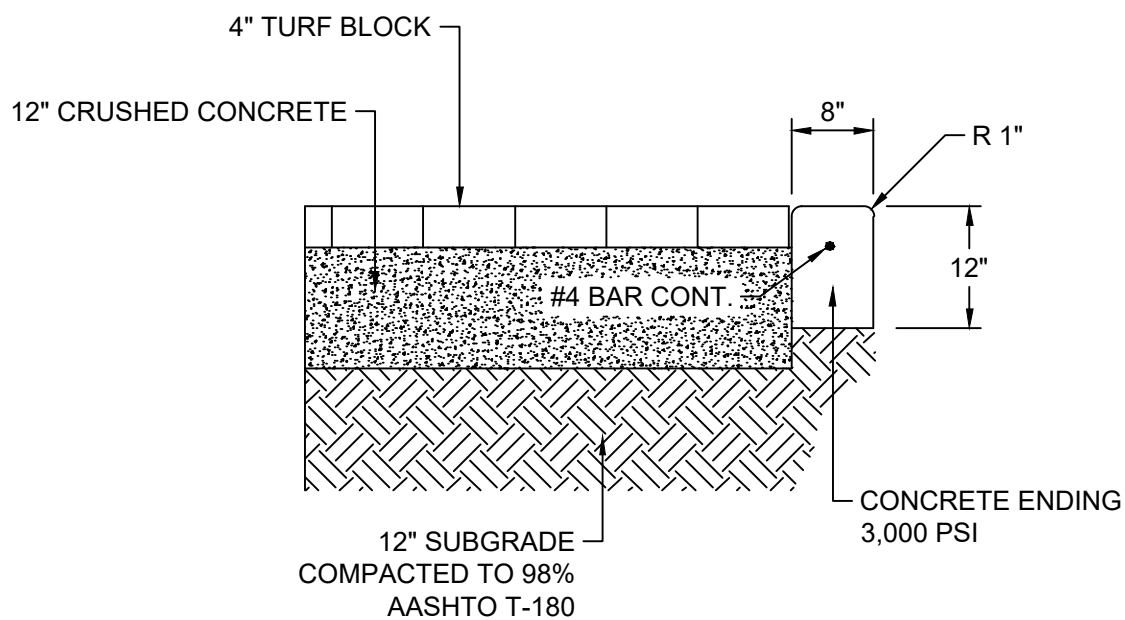
SCALE: N.T.S.

DATE: MARCH 2012

DETAIL NUMBER:

C5

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAIL\TURF BLOCK.DWG



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TURF BLOCKS

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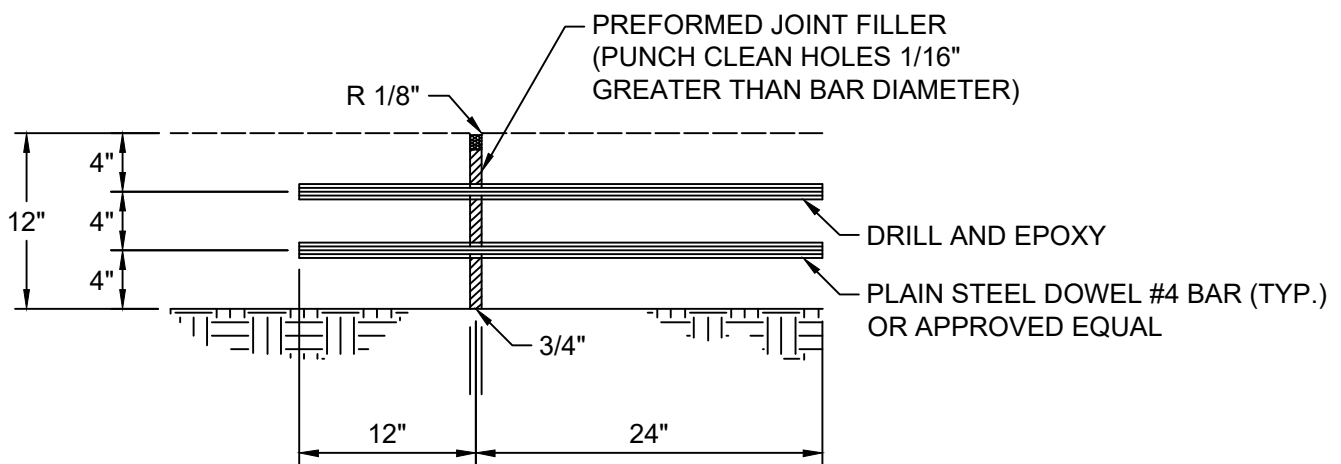
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DATE: MARCH 2012

DETAIL NUMBER:

C6

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\EDGING CONNECTION.DWG



NOTES:

1. DRILL HOLES SHALL BE CLEANED FREE OF DUST TO INSURE EPOXY BOND.
2. DOWELS SHALL BE INSPECTED FOR EPOXY BONDING PRIOR TO POURING NEW CURB.



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EDGING CONNECTION

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BD	11/10/2015

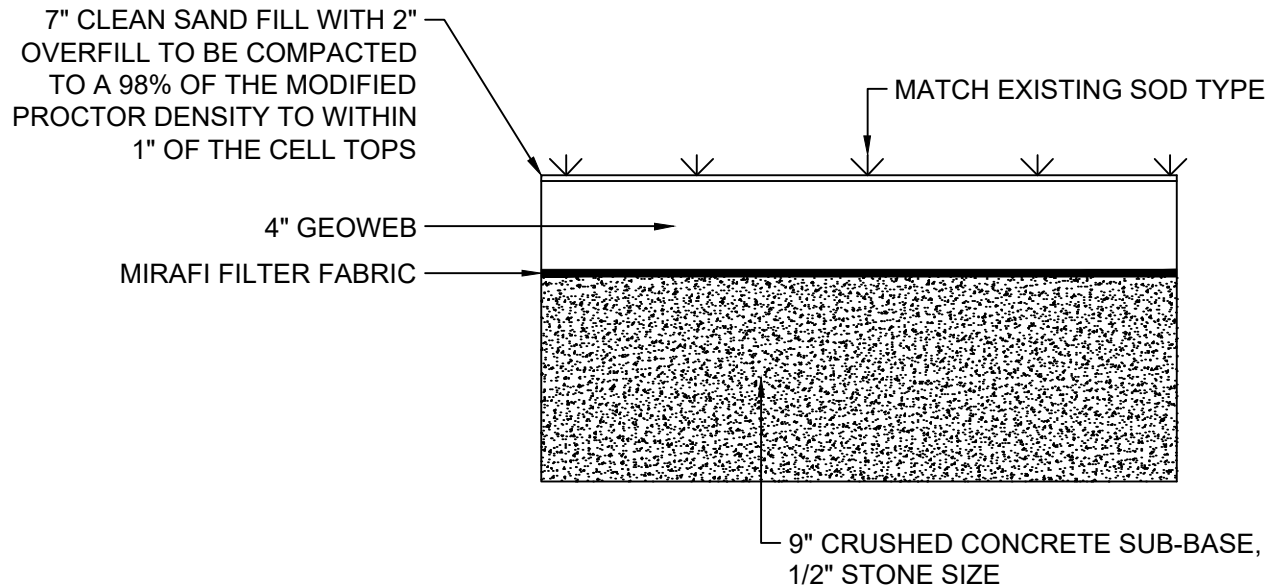
SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

C7

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\GRASS PARKING AREA STABILIZATIONS.DWG



NOTES:

SUB-GRADE PREPARATION - THE SITE SHALL BE EXCAVATED TO ALLOW FOR THE APPROPRIATE SUB-BASE THICKNESS. SUB-GRADE SHALL BE COMPACTED TO 98% DENSITY AASHTO T-180.

PLACEMENT - THE 4" DEPTH GEOWEB SHALL BE EXPANDED AND PLACED BY HAND. ADJACENT SECTIONS ARE TO BE ATTACHED WITH HOG RINGS. SAND INFILL IS TO PLACED IN THE END CELLS TO ANCHOR THE GEOWEB IN THE EXPANDED POSITION FINISHING - GEOWEB TO BE OVERFILLED BY 2" TO 3" AND COMPACTED WITH A ROLLER COMPACTOR TO 98% OF THE MODIFIED PROCTOR DENSITY. EXCESS OVERFILL IS TO BE REMOVED TO WITHIN 1" OF THE CELL TOPS. SOD IS TO PLACED DIRECTLY ON TOP OF THE SAND FILLED GEOWEB.



CITY OF SAFETY HARBOR

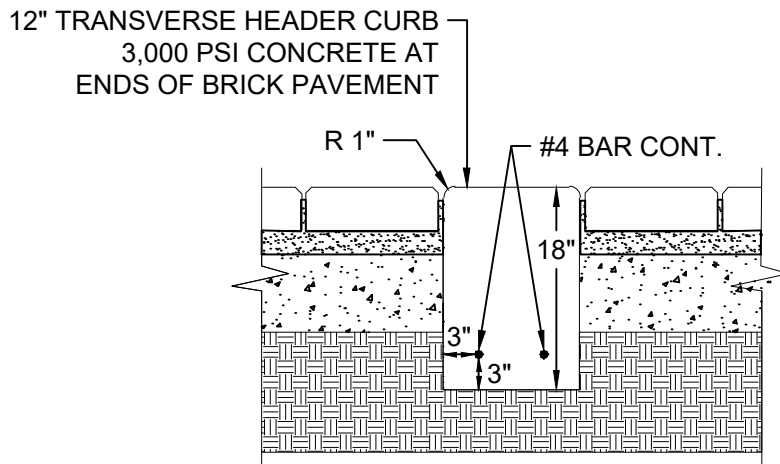
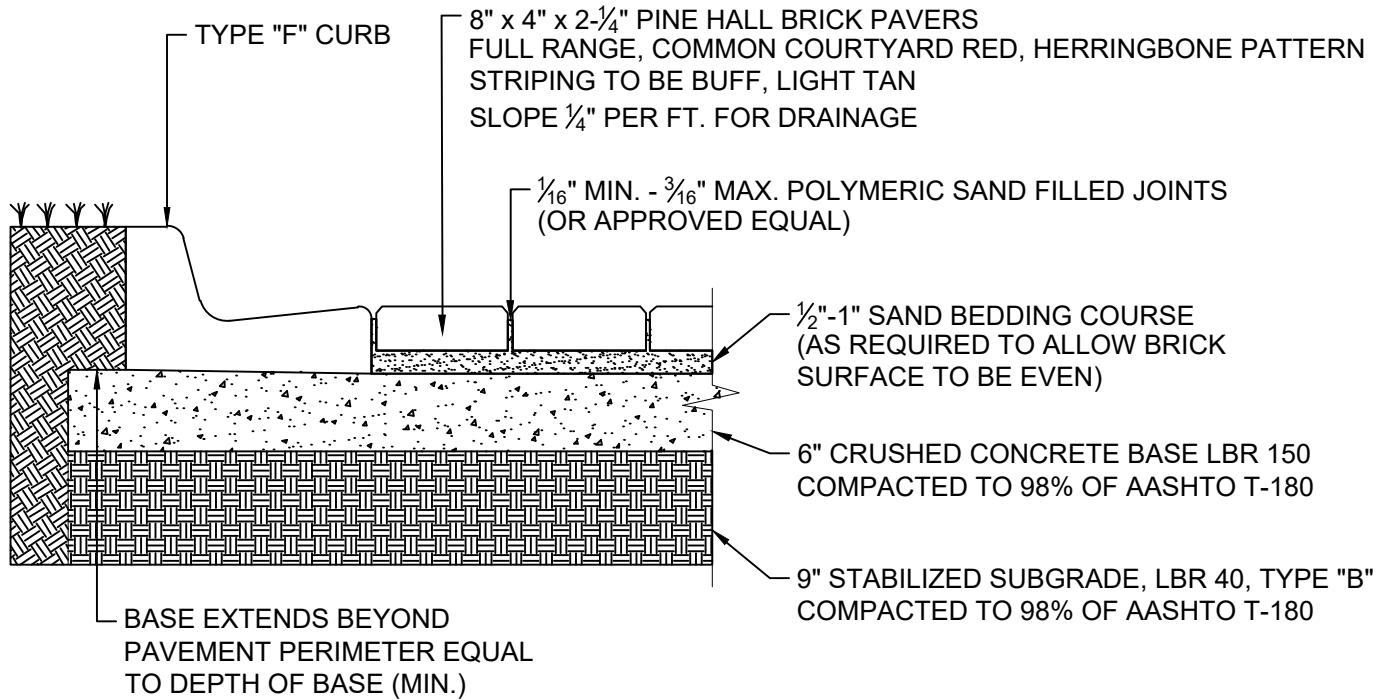
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**GRASS PARKING
AREA STABILIZATIONS**

REVISIONS

BY	DATE
BD	11/10/2015
SCALE: N.T.S.	
DATE:	MARCH 2012
DETAIL NUMBER:	
C8	

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TYPICAL SECTION AT TRANSVERSE HEADER CURB

NOTE:
WORK SHALL BE IN GENERAL CONFORMANCE TO PINELLAS COUNTY
RESIDENTIAL DRIVEWAY/SIDEWALK PAVER DETAIL, INDEX ID 1345.



CITY OF SAFETY HARBOR

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CLAY PAVER BRICK & HEADER CURB (FOR PARKING AREAS)

REVISIONS

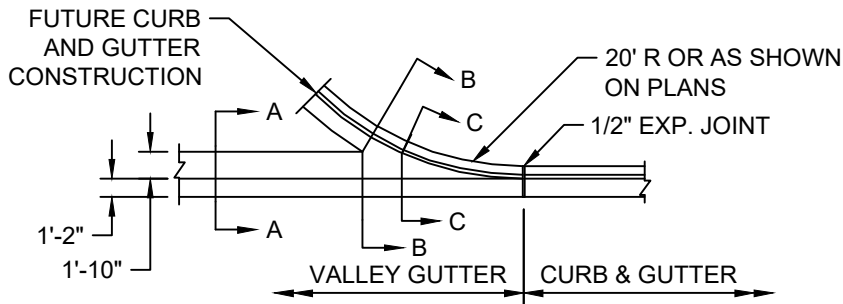
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SCALE: N.T.S.

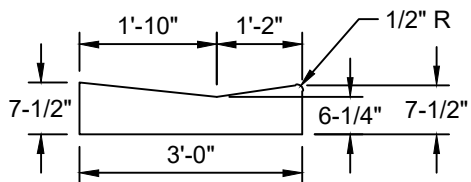
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DETAIL NUMBER:

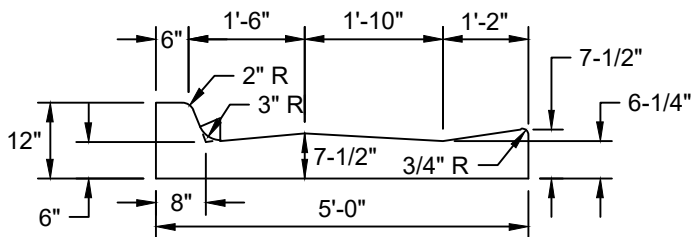
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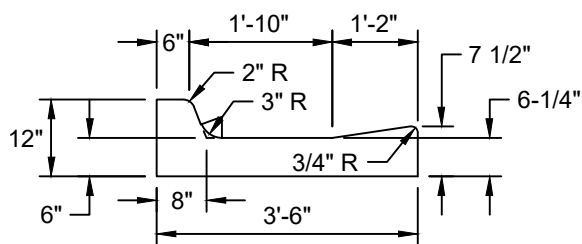
PLAN



SECTION AA



SECTION BB

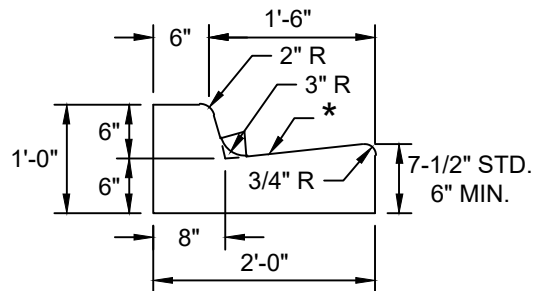


SECTION CC
VALLEY GUTTER

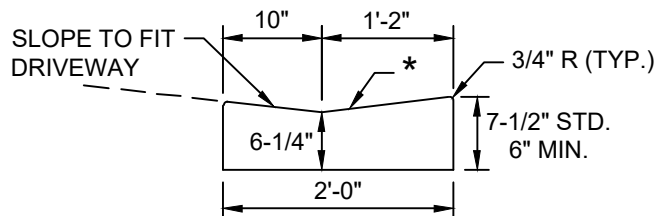
GENERAL NOTE:

1. FOR CURB, GUTTER, CURB AND GUTTER AND TRAFFIC SEPARATORS PROVIDE 1/8" - 1/4" CONTRACTION JOINTS AT 10' CENTERS (MAX.). CONTRACTION JOINTS ADJACENT TO CONCRETE PAVEMENT ON TANGENTS AND FLAT CURVES ARE TO MATCH THE PAVEMENT JOINTS, WITH INTERMEDIATE JOINTS NOT TO EXCEED 10' CENTERS.

* NOTE: WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT. THE THICKNESS OF THE LIP SHALL BE 6", UNLESS OTHERWISE SHOWN ON PLANS.

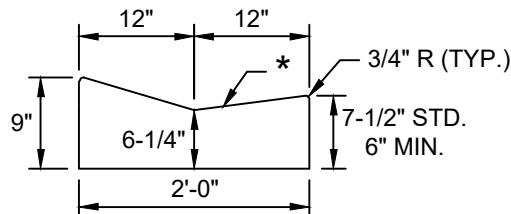


TYPE F CURB

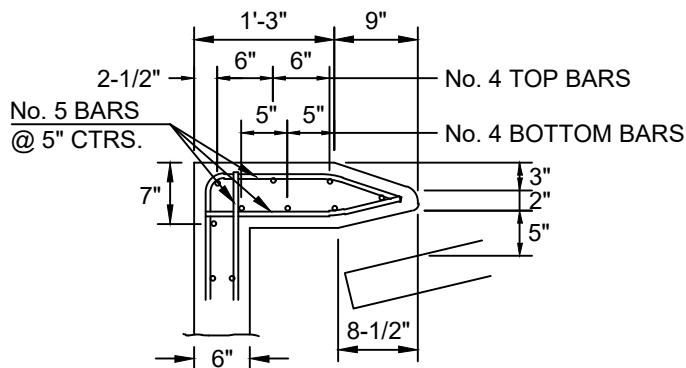


NOTE: TO BE PAID FOR AS PARENT CURB.

DROP CURB



VALLEY CURB



TOP MODIFICATION FOR TYPE E CURB



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CURB DETAILS

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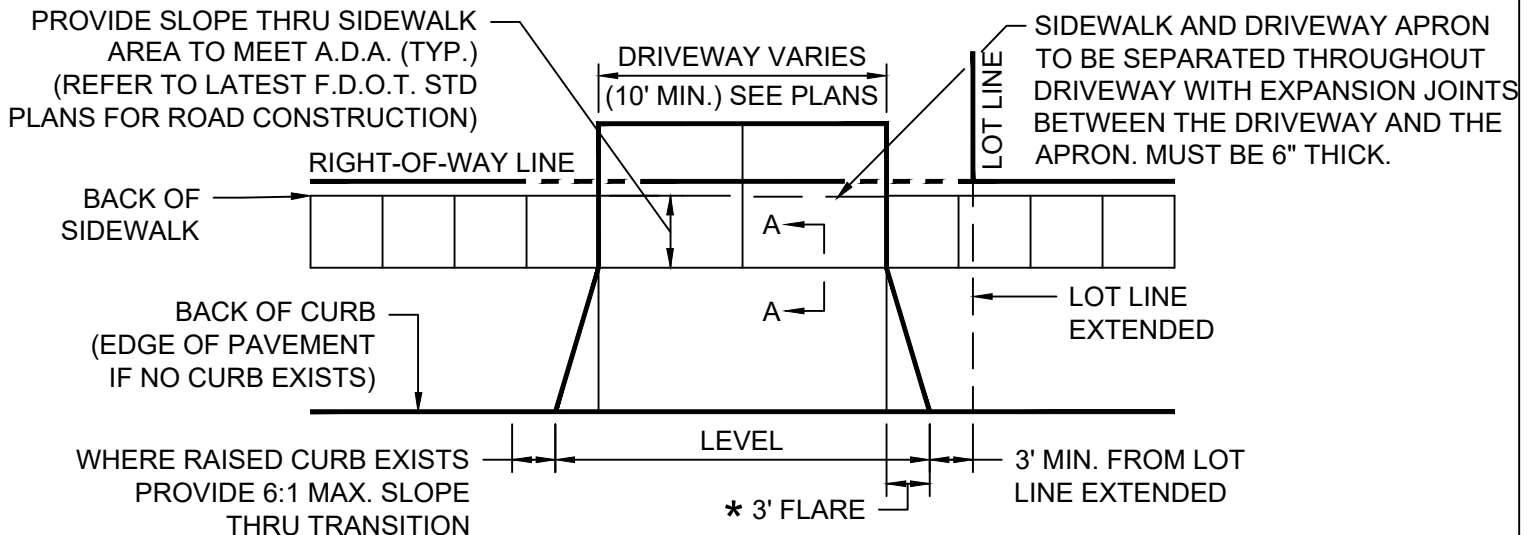
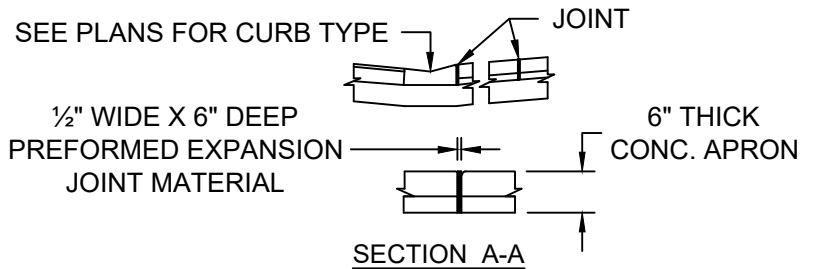
C10

NOTES

1. THE LOCATION OF DRIVEWAYS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. CONCRETE DRIVEWAYS WITHIN THE RIGHT-OF-WAY SHALL BE 6" THICK AND REINFORCED BY 6" X 6" X 10 GAUGE WIRE MESH PLACED IN THE CENTER OF THE FORM. EXPANSION JOINTS SHALL BE PROVIDED AT THE EDGE OF CURB OR PAVEMENT AT THE SIDEWALK JOINTS AND AT THE PROPERTY LINE. CONCRETE SHALL BE 3,000 PSI.
3. EXCEPT AS SPECIFIED ABOVE, THE ENGINEER SHALL DETERMINE IN THE FIELD WHAT MATERIALS SHALL BE USED IN THE CONSTRUCTION OF DRIVEWAYS.
4. CONSTRUCTION OF APRON / DRIVEWAY CROSS SLOPES SHALL COMPLY WITH LATEST F.D.O.T. STANDARD PLANS FOR ROAD CONSTRUCTION INCLUDING A.D.A. REQUIREMENTS.
5. IF DEEMED NECESSARY BY A QUALIFIED CERTIFIED ARBORIST, **ROOT PRUNING** SHALL BE DONE NEAREST TO THE LIMITS OF CONSTRUCTION AS POSSIBLE AND SHALL BE CONDUCTED PER ANSI A300 (PART 8) ROOT MANAGEMENT STANDARDS. CONTACT THE CITY OF SAFETY HARBOR ARBORIST FOR INSPECTIONS PRIOR TO PRUNING ANY ROOT 2-INCHES IN DIAMETER OR ABOVE. ROOT PRUNING WITHIN THE CRITICAL ROOT ZONE OF ANY TREE SHOULD BE AVOIDED.
6. IF THIS IS AN ASSESSMENT PROJECT AND THE DISTANCE BETWEEN THE APRON AND THE EXISTING DRIVEWAY IS 2'-0" OR LESS, THE CONTRACTOR SHALL EXTEND APRON CONSTRUCTION TO CONNECT TO EXISTING DRIVEWAY (PAYABLE UNDER THIS CONTRACT). IF THIS DISTANCE IS GREATER THAN 2'-0", CONSTRUCTION OF THE DRIVEWAY SHALL BE AGREED UPON THE PROPERTY OWNER AND CONTRACTOR, AT THE PROPERTY OWNERS EXPENSE.

*CITY DEVELOPMENT STANDARDS:

ARTICLE X, SEC.149.00(E): THE DRIVEWAY ENTRANCE FLARE OR CURB TRANSITION SHALL NOT BE LESS THAN 3' NOR MORE THAN 7' IN WIDTH AT THE EDGE OF PAVEMENT OR CURB LINE.



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DRIVEWAY APRON

REVISIONS

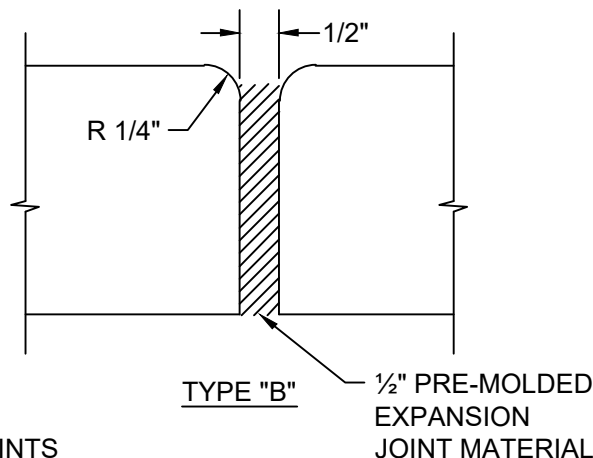
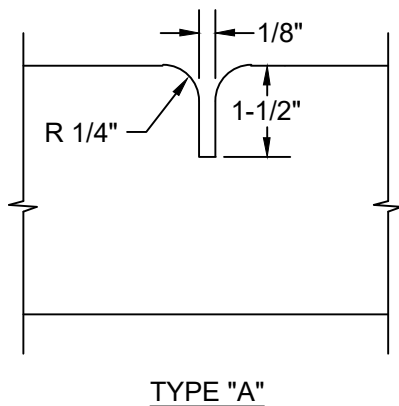
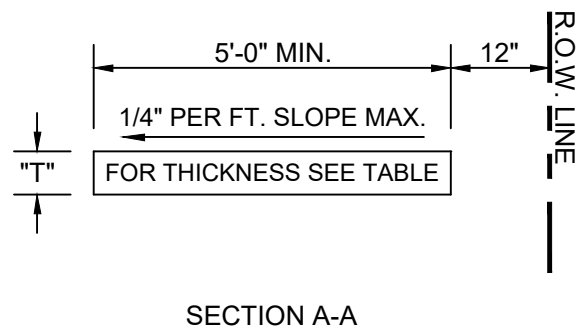
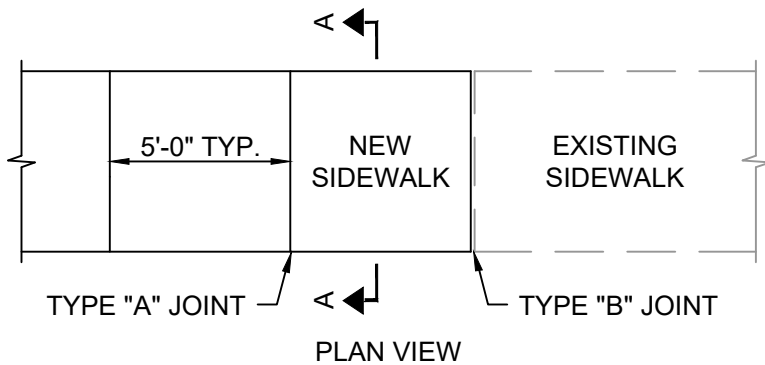
BY	DATE
SS	05/25/2022
TAW	08/25/2025

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

C11



SIDEWALK JOINTS

WIDTH OF SIDEWALKS	
WIDTH	TYPE OF ROADWAY
5'	LOCAL AND RESIDENTIAL ROADWAYS
6'	MAJOR AND MINOR ARTERIAL ROADWAYS

TABLE OF SIDEWALK JOINTS	
TYPE	LOCATION
"A"	5'-0" CENTER TO CENTER ON SIDEWALKS
"B"	WHERE A SIDEWALK ABUTS EXISTING WALKS, CURBS, DRIVEWAYS, ETC. AND AT A MAXIMUM 50 LF CENTER TO CENTER.

NOTES:

1. CONCRETE SHALL BE 3,000 P.S.I.
2. WELDED WIRE FABRIC (WWF) MAY BE REQUIRED FOR SIDEWALKS UNDER TREE CANOPIES AT THE DISCRETION OF THE CITY.
3. ALTERNATE FOR FIBERMESH IN SOME LOCATIONS.
4. SIDEWALK WITHIN CITY RIGHT-OF-WAY SHALL BE 6" THICK.

TABLE OF SIDEWALK THICKNESS	
DISTANCE FROM BACK OF CURB OR EDGE OF PAVEMENT W/ NO CURB	"T"
GREATER THAN OR EQUAL TO 6 FEET	4"
LESS THAN 6 FEET	6"



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SIDEWALK DETAILS

REVISIONS

BY	DATE
BD	11/01/2017
SS	05/25/2022

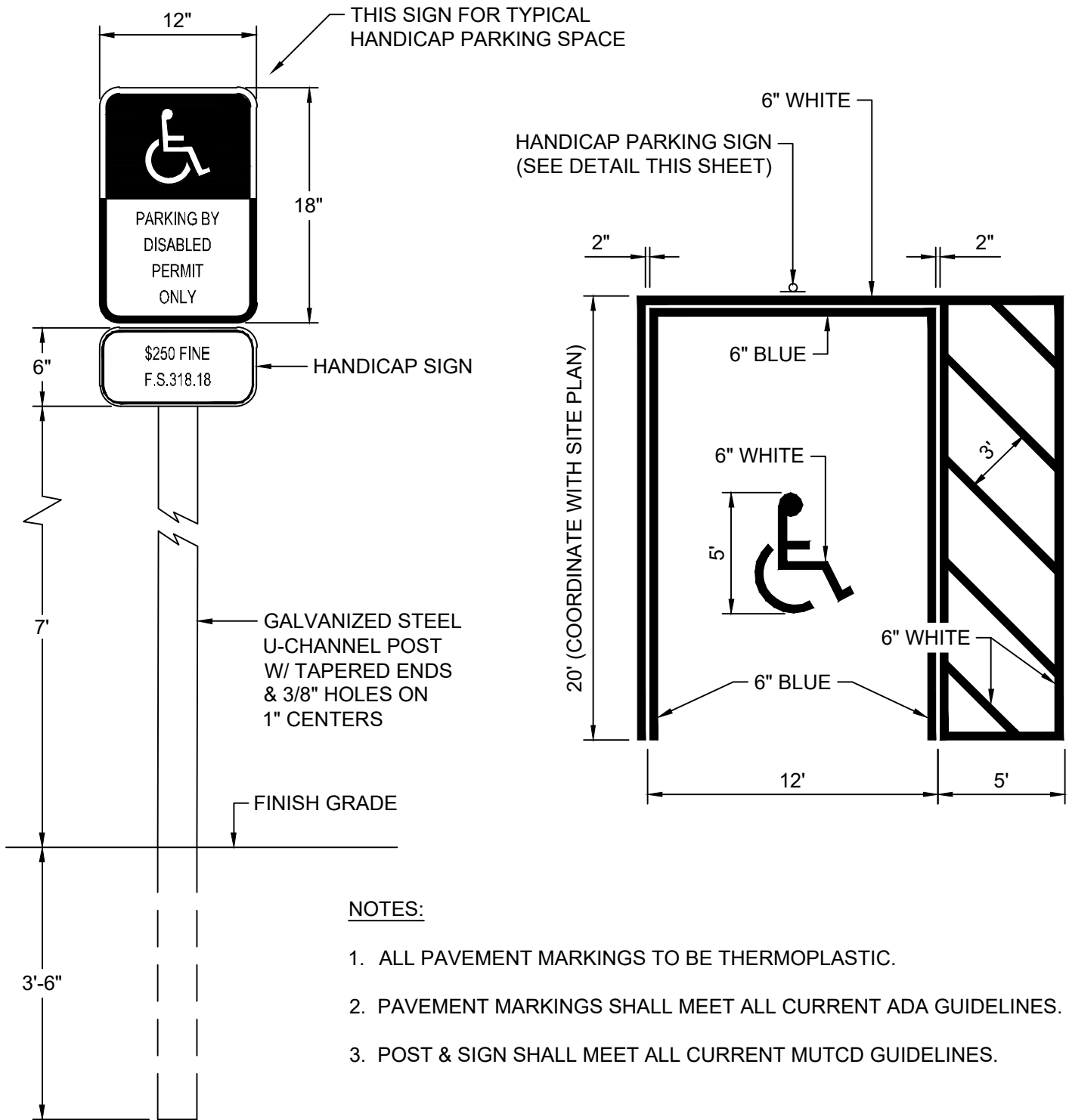
SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

C12

RI/AUTOCAD STANDARDS/DETAILS/CITY DETAILS/HANDICAP PARKING PAVEMENT MARKINGS.DWG



NOTES:

1. ALL PAVEMENT MARKINGS TO BE THERMOPLASTIC.
2. PAVEMENT MARKINGS SHALL MEET ALL CURRENT ADA GUIDELINES.
3. POST & SIGN SHALL MEET ALL CURRENT MUTCD GUIDELINES.



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

**HANDICAP PARKING SIGN
& PAVEMENT MARKINGS**

REVISIONS

BY	DATE
BD	11/01/2017
SS	05/25/2022

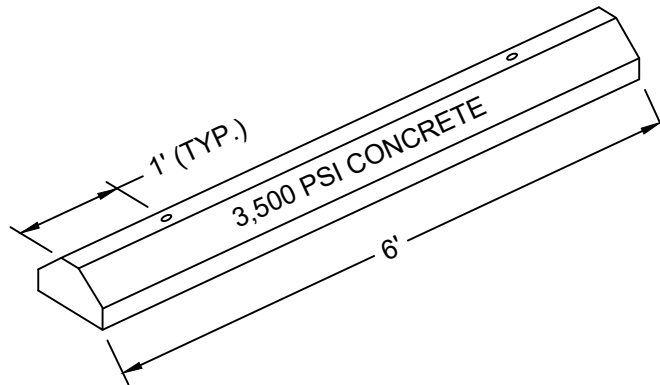
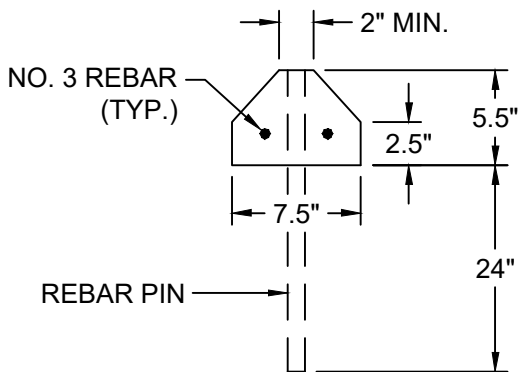
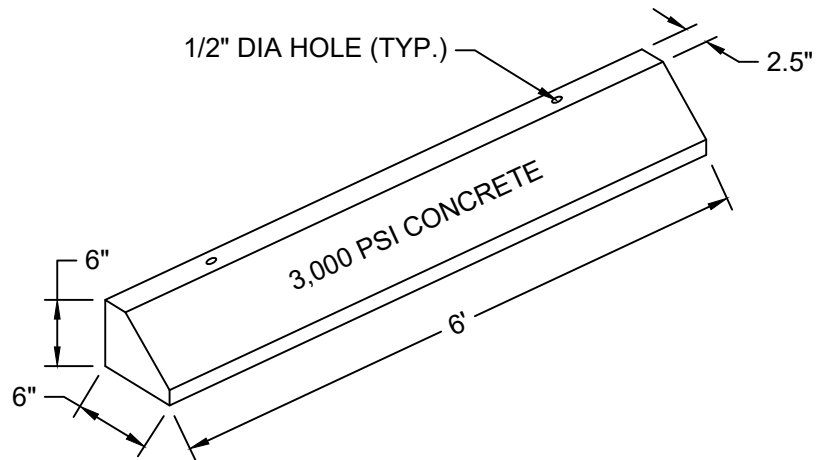
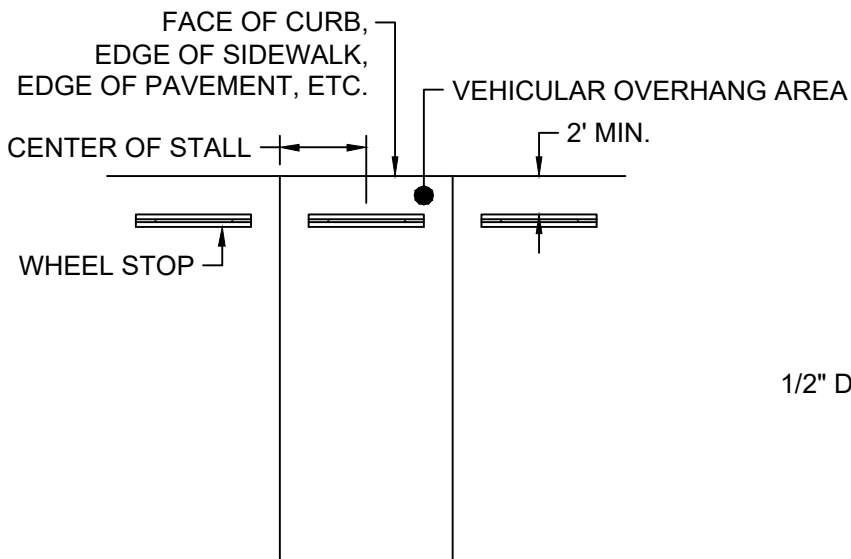
SCALE: N.T.S.

DATE: OCTOBER 2015

DETAIL NUMBER:

C14

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\SPARKING WHEEL STOP.DWG



NOTES:

1. WHEEL STOPS SHALL BE PLACED 2' FROM SURFACE EDGE AS SHOWN ABOVE.
2. HANDICAP WHEEL STOPS SHALL BE PAINTED BLUE TO MATCH PARKING STALL STRIPING.



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PARKING WHEEL STOP

REVISIONS

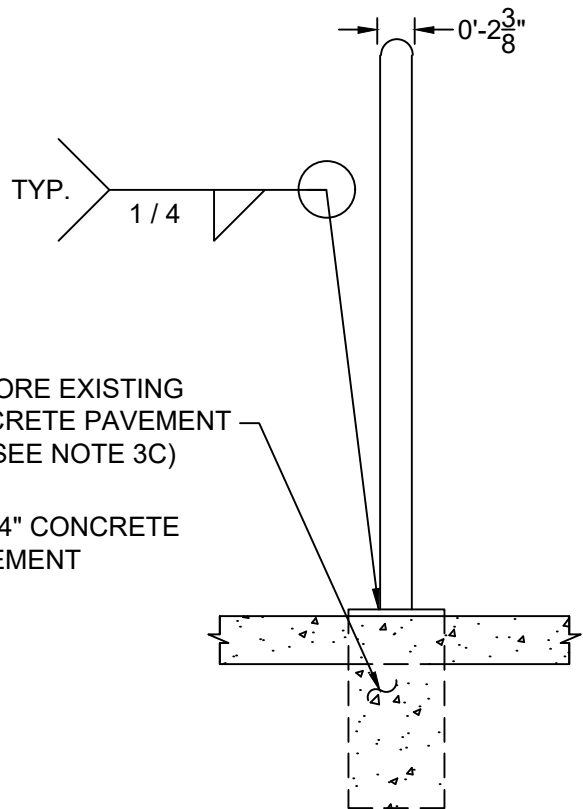
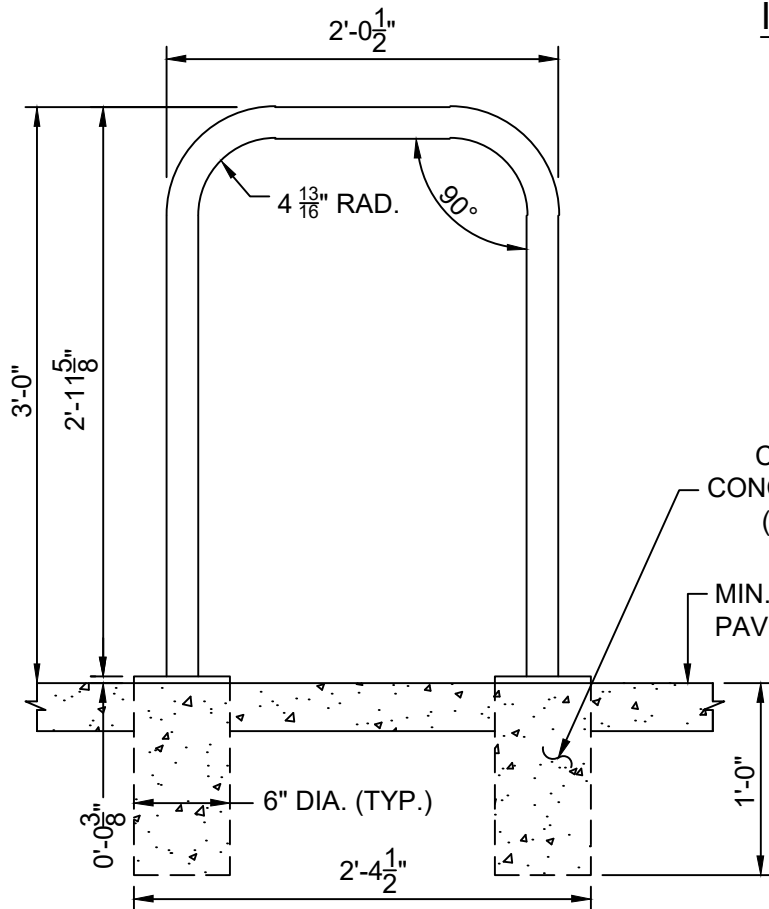
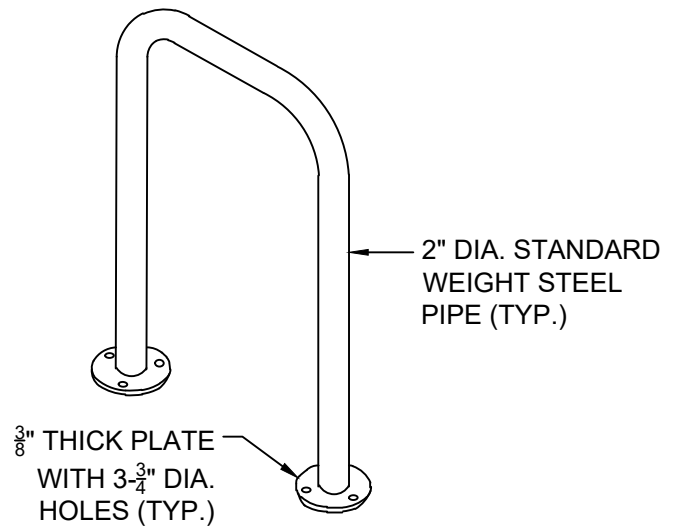
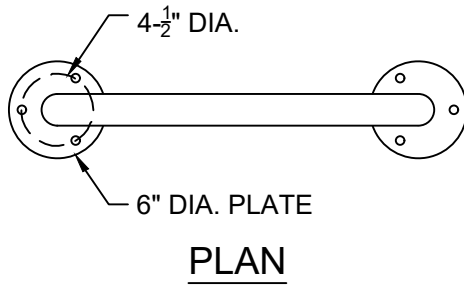
BY	DATE
BD	02/14/2017

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

C15



SECTION

END VIEW



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

BICYCLE RACK

REVISIONS

BY	DATE

SCALE: N.T.S.

DATE: OCTOBER 2019

DETAIL NUMBER:

C16

NOTES:

1. MATERIALS:

- A. PIPE: ASTM A53 GRADE B STANDARD WEIGHT STEEL PIPE: 2 INCH DIA. CONSTRUCTED OF 90 DEGREE BENDS WITH AN INSIDE RADIUS BEND OF 4-13/16 INCHES.
- B. PLATE: ASTM A36 3/8 INCH THICK PLATE WITH THREE 3/4 INCH DIA. HOLES AT 120 DEGREES SPACING.
- C. BOLT: DRIVE TYPE ANCHOR BOLT MADE OF ZINC PLATED AISI 1038 HEAT TREATED CARBON STEEL, 1/2 INCH DIA BY 3 INCHES LONG. THE ANCHOR BOLT SHALL BE MANUFACTURED BY POWERS FASTENERS (WWW.POWERS.COM), ALLIED BOLT INC (HTTP://ALLIEDBOLTINC.COM) OR APPROVED EQUIVALENT. NO ANCHOR BOLT SHALL CONTAIN ANY SHARP EDGES.
- D. THE BICYCLE RACK SHALL ALLOW FOR USE OF A CABLE AS WELL AS A U-SHAPED LOCK.

2. MATERIAL FINISH:

- A. ALL METAL COMPONENTS INCLUDING ALL BOLT HOLES SHALL HAVE MINIMUM 4 MIL THICK BLACK COLORED, LONG WEARING, MILDEW AND ULTRAVIOLET RAY RESISTANT ELECTROSTATIC POLYESTER COATING MADE OF TRIGLYCIDYL (TGIC) APPLIED IN THE FACTORY PRIOR TO DELIVERY. OTHER ALTERNATE COATINGS ARE CITY APPROVED POLYVINYL, THERMOPLASTIC OR POWDER COATING.
- B. BEFORE COATING APPLICATION, THE BICYCLE RACK SHALL BE SANDBLASTED AND EPOXY PRIMED.
- C. ALL FINISH COATINGS SHALL BE MAINTAINED BY THE INSTALLER. ANY DAMAGED SURFACE AREA INCLUDING THOSE RESULTED FROM THE INSTALLER'S OPERATION SHALL BE REPAIRED TO THE CITY ENGINEER'S SATISFACTION WITH APPROVED MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S APPLICABLE EPA AND/OR STATE REQUIREMENTS.

3. MOUNTING PROCEDURES:

- A. ALL BICYCLE RACKS SHALL BE INSTALLED IN THE SIDEWALK FURNITURE ZONE AT A LOCATION APPROVED BY THE COMMUNITY DEVELOPMENT DIRECTOR. A MINIMUM 48 INCH WIDE UNOBSTRUCTABLE SIDEWALK MUST BE MAINTAINED. NO INTERFERENCE WITH THE PEDESTRIAN ACCESS AND/OR THE EGRESS TO THE PARKING ZONE SHALL BE PERMITTED.
- B. UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER, ALL INSTALLATIONS SHALL CONFORM WITH THE FOLLOWING CLEARANCES AND APPLICABLE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS:
 - a. MINIMUM 45 FEET CLEARANCE FROM ALL STREET CORNERS TO PROVIDE THE REQUIRED VISIBILITY TRIANGLE.
 - b. MINIMUM 4 FEET CLEARANCE FROM BUS STOP, BUS SHELTER, OR ITS REQUIRED CLEAR APPROACH AREA. FOR ARTICULATED BUS STOP, MINIMUM 55 FEET CLEARANCE SHALL BE PROVIDED.
 - c. MINIMUM 25 FEET FROM ANY PORTION OF THE BEGINNING OF THE CURB RETURN (BCR), THE END OF THE CURB RETURN (ECR), THE TOP OF THE CURB OF ANY CURB RAMP OR ALLEY INTERSECTION.
 - d. MINIMUM 48 INCHES CLEARANCE FROM ANY FIRE DEPARTMENT CONNECTION, STAND PIPE, INLET, OUTLET, OR DRAIN PIPE THAT ARE INSTALLED AT THE EXTERIOR OF THE BUILDING. PROVIDE MINIMUM 48 INCHES CLEAR SIDEWALK ACCESS FROM THE STREET CURB TO THE FIRE FACILITIES.
 - e. MINIMUM 24 INCHES CLEARANCE FROM THE CURB FACE.
 - f. MINIMUM 63 INCHES (36 INCHES PLUS 27 INCHES WHEEL SPACE) CLEARANCE BETWEEN ANY PART OF THE RACK OR RACK POST, AND ANY SIDEWALK FURNITURE OR IMPROVEMENT INCLUDING BUT NOT LIMITED TO STREET TREE AND TREE WELL, PARKING METER, STREET LIGHTING STANDARD, TRAFFIC SIGN OR POST, HYDRANT, OTHER UTILITY FACILITY AND ITS ACCESS OPENING.
 - g. IF ADDITIONAL RACK IS INSTALLED SIDE BY SIDE, IT SHALL HAVE MINIMUM 30 INCHES CLEARANCE BETWEEN THE RACKS OR THE RACK POSTS.
 - h. IF ADDITIONAL RACK IS INSTALLED END TO END, IT SHALL HAVE AT LEAST 90 INCHES (36 INCHES PLUS TWO-27 INCHES WHEEL SPACE) CLEARANCE BETWEEN THE RACKS OR RACK POSTS.
 - i. MINIMUM 3 INCHES CLEARANCE FROM ANY EXPANSION JOINT OR CONTROL JOINT IN THE CONCRETE PAVEMENT. DO NOT AFFIX BICYCLE RACK OVER OR NEAR ANY UTILITY FACILITY, STORM DRAIN CATCH BASIN OR STRUCTURE.
- C. ALL BOLT HOLES IN THE CONCRETE PAVEMENT OR THE CONCRETE FOUNDATION SHALL BE PREDRILLED HOLES, 1/2 INCH DIA BY 2-3/4 INCHES DEEP. PRIOR TO INSTALLATION, ALL BOLT HOLES SHALL BE CLEANED OF DUST OR DELETERIOUS MATERIAL. ALL ANCHOR BOLTS SHALL BE DRIVEN VERTICALLY THROUGH THE SUPPORT PLATE INTO THE BOLT HOLES UNTIL THE HEAD IS FIRMLY SEATED AGAINST THE SUPPORT PLATE. NO PROTRUDING OR NON-FLUSH ANCHOR BOLTS SHALL BE USED.
- D. FOR CONCRETE PAVEMENT THAT IS LESS THAN 3 INCHES THICK, CONSTRUCT CONCRETE FOUNDATION IN ACCORDANCE WITH THE SPECIFIED DETAILS. FOR CONCRETE PAVEMENT THAT IS NOT LEVEL, USE HOT DIPPED GALVANIZED STEEL OR STAINLESS STEEL WASHERS TO LEVEL THE RACK AND THE SUPPORT PLATES BEFORE DRIVING THE ANCHOR BOLTS. FILL ALL OPENINGS AND VOIDS WITH NON-SHRINK GROUT AFTER ERECTION OF THE BICYCLE RACK.

4. MAINTENANCE AGREEMENT:

- A. ALL BICYCLE RACKS INSTALLED UNDER WORK PERMIT SHALL BE MAINTAINED BY THE PERMITTEE.

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\BICYCLE RACK NOTES.DWG



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

BICYCLE RACK NOTES

REVISIONS

BY	DATE

SCALE: N.T.S.

DATE: OCTOBER 2019

DETAIL NUMBER:

C17

NOTES:

1. TAPS, TESTING AND INSPECTIONS ARE TO BE SCHEDULED 48 HOURS IN ADVANCE WITH THE PUBLIC WORKS WATER/WASTEWATER DIVISION. CALL 727-724-1550.
2. TAPS SHALL ONLY BE ALLOWED ON MONDAY AND TUESDAY TO ALLOW AMPLE TIME FOR BACTERIOLOGICAL TESTS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PRESSURE TESTING (150PSI MINIMUM - 155PSI MAXIMUM) AND CHLORINATING THE NEW WATER MAIN FOR TWO HOURS. THE CITY WILL PROVIDE BACTERIOLOGICAL TESTING (MONDAYS/TUESDAYS ONLY). THE CITY OF SAFETY HARBOR WILL FLUSH AND PULL THE WATER SAMPLES AND SUBMIT TO LAB FOR TESTING.
4. FIRST ROUND OF WATER SAMPLES WILL BE COVERED BY THE CITY OF SAFETY HARBOR. IF A FAILURE IS PRESENT, REQUIRING A SECOND SET OF SAMPLES OR MORE, CONTRACTOR WILL BE BILLED BY THE CITY OF SAFETY HARBOR FOR ALL COST ASSOCIATED INCLUDING THE WATER THAT IS UTILIZED DURING THE FLUSHING PROCESS.
5. CONTRACTOR IS ALWAYS RESPONSIBLE TO HAVE PROPER DECHLORINATING EQUIPMENT (APPROVED BY CITY STAFF) WHILE FLUSHING WATER MAINS UNDER SUPERVISION OF CITY STAFF.
6. A CHLORINATION AND SAMPLING PLAN MUST BE SUBMITTED FOR ANY NEW WATER MAIN INSTALLATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHLORINATE THE WATER MAIN PER AWWA GUIDELINES AND FDEP REGULATIONS. CITY OF SAFETY HARBOR WILL BE ON SITE TO INSPECT THE CHLORINATING PROCESS.
7. WATER TAPS SHALL NOT BE INSTALLED UNDER DRIVEWAYS. NO SIZE ON SIZE TAPS ALLOWED.
8. METER BOXES SHALL NOT BE INSTALLED IN DRIVEWAYS. MINIMUM 3' CLEARANCE FROM EDGE OF DRIVEWAY SHALL BE LEFT FOR MAINTENANCE PURPOSE.
9. WATER MAIN SHALL BE INSTALLED AT A DEPTH OF 24" MINIMUM AND 36" MAXIMUM.
10. RISERS ON FIRE HYDRANTS SHALL NOT BE INSTALLED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY DEPTH AND ORDER CORRECT SIZE HYDRANT AND FOLLOW FIRE PREVENTION CODE ON MOST CURRENT PORT HEIGHT REQUIREMENTS.
11. NO GLUE JOINT FITTINGS WILL BE ALLOWED ON WATER MAIN OR SERVICE CONNECTIONS UP TO METER.
12. VALVE BOXES OR LOCATE STATIONS SHALL NOT BE IN ADA RAMPS WHENEVER POSSIBLE.
13. LOCATE STATIONS SHALL BE INSTALLED AT EVERY FITTING OR CHANGE IN DIRECTION OF WATER MAIN OR WERE DESIGNATED BY CITY OFFICIAL.
14. EXISTING WATER VALVE(S) ARE TO BE OPERATED BY CITY STAFF ONLY.
15. ALL JOINTS SHALL BE MECHANICALLY RESTRAINED (CONTRACTOR MAY OPT TO UTILIZE SDR-17 PVC RESTRAINED JOINT PIPE).
16. NEW WATER MAINS SHALL BE THE FOLLOWING MATERIALS: PVC WATER LINES AND FITTINGS 2" AND SMALLER SHALL BE SDR-21. LARGER PVC WATER MAINS SHALL BE IN ACCORDANCE WITH AWWA C-900 AND MEET THE REQUIREMENTS OF DR-14, OR DR-18 FOR FIRE MAINS.
17. WATER METER BOXES SHALL NOT BE INSTALLED IN SIDEWALKS UNLESS OTHERWISE APPROVED BY CITY STAFF. METER BOX SHALL BE INSTALLED TO HAVE STRAIGHT ACCESS TO CURB STOP AND METER AND BACKFLOW.
18. FIRE HYDRANT STINGER LINES SHALL NOT BE ALLOWED TO BE TAPPED UNDER ANY CIRCUMSTANCES.
19. CITY OF SAFETY HARBOR MUST APPROVE ALL MATERIALS UTILIZED ON WATER MAINS. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO DELIVERY.
20. A LICENSED PLUMBER MUST MAKE ALL CONNECTIONS FROM THE CITY'S METER TO THE CUSTOMER'S CONNECTION.
21. CURB STOP LOCK RING (HOLE) NEEDS TO POINT IN DIRECTION OF FLOW WHEN OPEN. THE HOLES SHOULD LINE UP WHEN CURB STOP IS CLOSED.
22. MATERIAL WILL NEED TO BE INSPECTED BY CITY STAFF PRIOR TO INSTALL.
23. 4" AND LARGER WET TAPS, SADDLE MUST BE PRESSURE TESTED TO 150 PSI FOR 15 MINUTES IN PRESENCE OF CITY STAFF.
24. TAPS WILL NOT BE ALLOWED UNTIL METER AND BACKFLOW HAS BEEN PURCHASED THROUGH BILLING DEPARTMENT. METER AND BACKFLOW SHALL BE PURCHASED FIRST PRIOR SCHEDULING OF ANY TAPS.
25. CONTRACTOR SHALL PURCHASE CONSTRUCTION METER IF NEEDED FOR WATER USE.
26. NO PEX TUBING ALLOWED FOR CONNECTING TO METER.

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\WATER NOTES.DWG



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

WATER NOTES

REVISIONS

BY	DATE

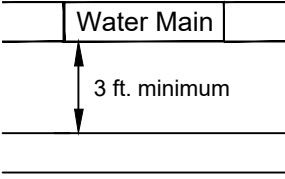
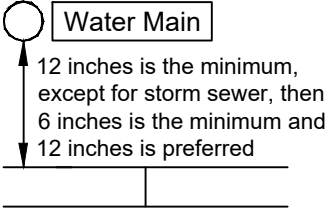
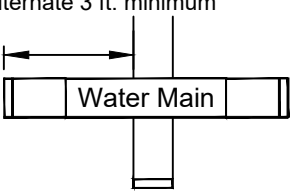
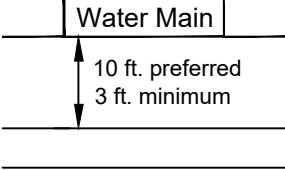
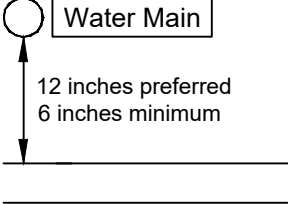
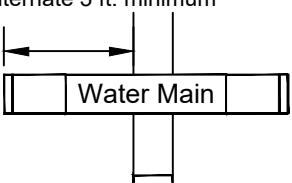
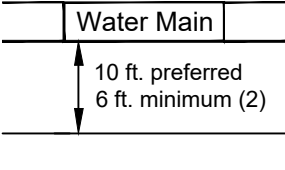
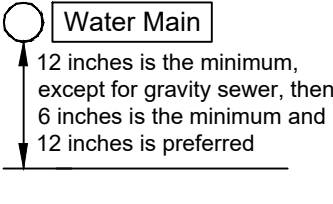
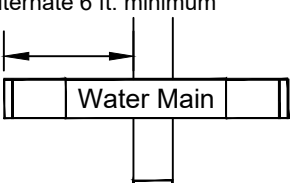
SCALE: N.T.S.

DATE: OCTOBER 2019

DETAIL NUMBER:

W1

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other Pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossings (Full Joint Centered)
Storm Sewer, Stormwater Force Main, Reclaimed Water			
Vacuum Sanitary Sewer			
Gravity or Pressure, Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water			
On-Site Sewage Treatment & Disposal System	10 ft. minimum	---	---

DISCLAIMER-THIS DOCUMENT IS PROVIDED FOR YOUR CONVENIENCE ONLY.
PLEASE REFER TO F.A.C. RULE 62-555.314 FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.

1. WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES.
2. 3 FT. FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.



CITY OF SAFETY HARBOR

Engineering Department
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UTILITY SEPARATION REQUIREMENTS
F.A.C. RULE 62-555.314

REVISIONS

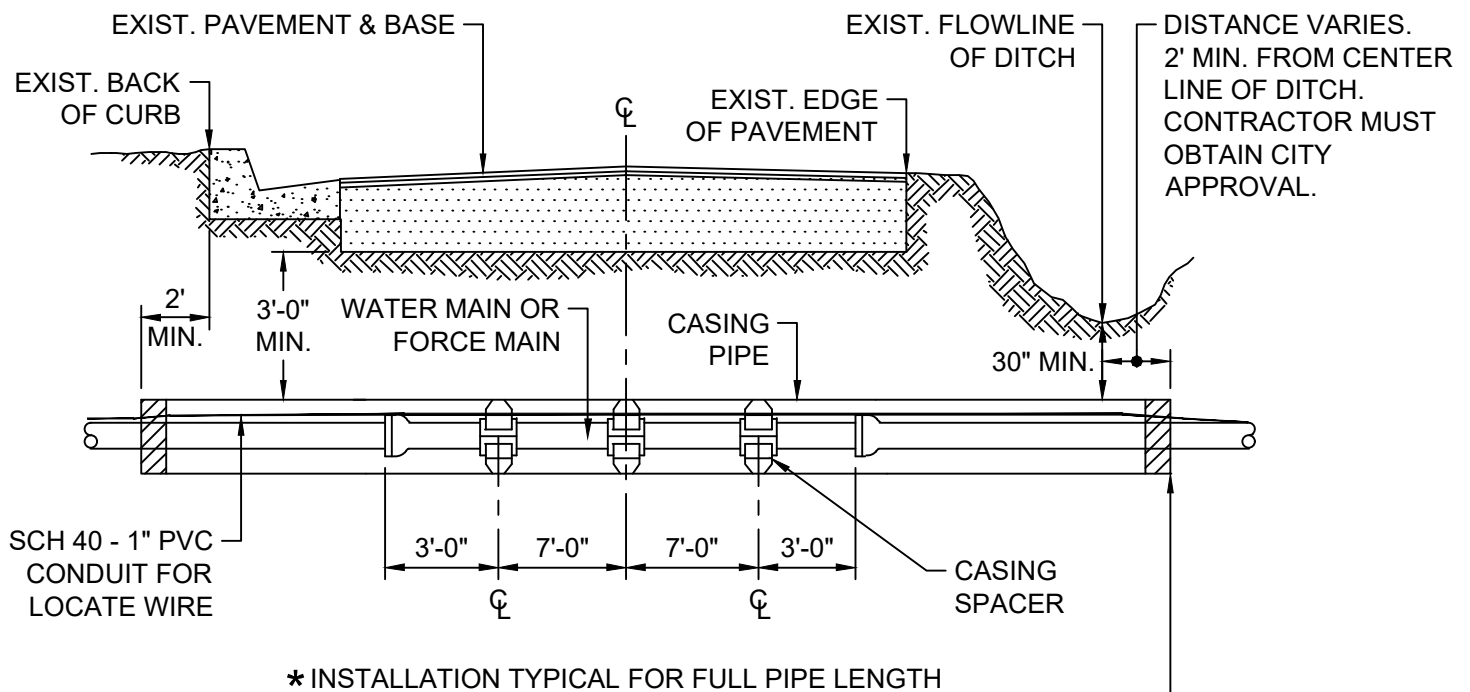
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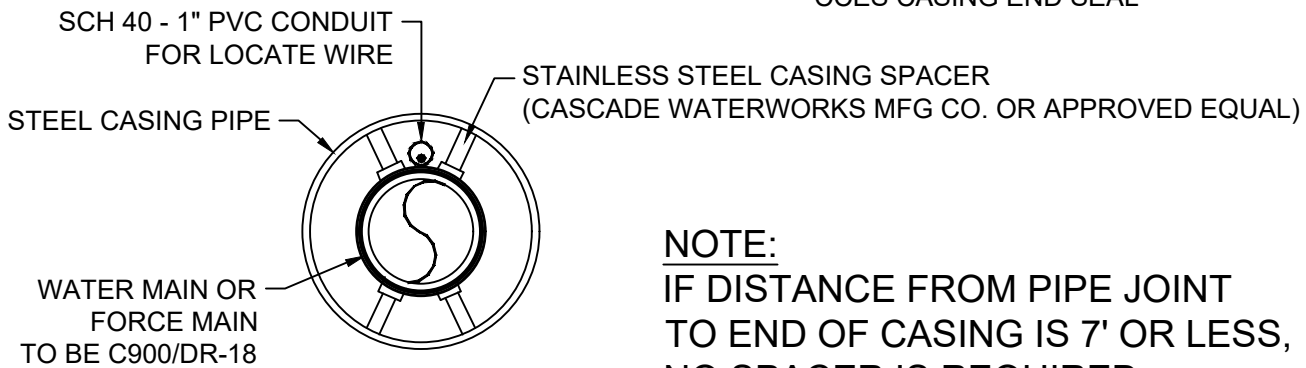
DATE: MARCH 2012

DETAIL NUMBER:

W2



ENDS OF CASING TO BE SEALED WITH CASCADE CCES CASING END SEAL



NOTE:
IF DISTANCE FROM PIPE JOINT TO END OF CASING IS 7' OR LESS, NO SPACER IS REQUIRED.

CARRIER (WATER MAIN) & CASING SIZES									
WATER MAIN OR FORCE MAIN	4"	6"	8"	10"	12"	14"	16"	18"	20"
CASING	8"	12"	16"	20"	24"	28"	32"	36"	40"
CASING/WALL THICKNESS	.188	.188	.219	.250	.281	.344	.406	.406	.500

NOTE: 1" WATER SERVICE TO HAVE 2" SCH 40 CASING, NO SPACER, WIRE TAPE TO POLY. REFERENCE - W5.

ALL PIPE WITHIN CASING MUST BE RESTRAINED.
TYPE OF RESTRAINTS SHALL BE APPROVED BY CITY PRIOR TO INSTALLATION.



CITY OF SAFETY HARBOR

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**JACK & BORE UNDER ROADWAY FOR
WATER MAIN & FORCE MAIN**

REVISIONS

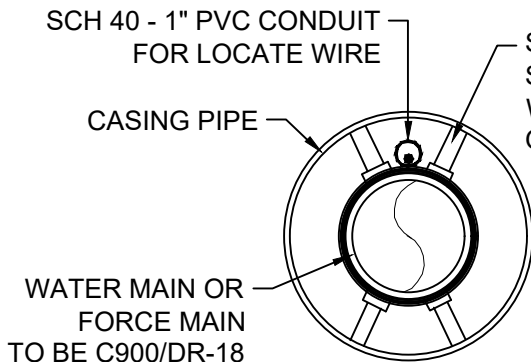
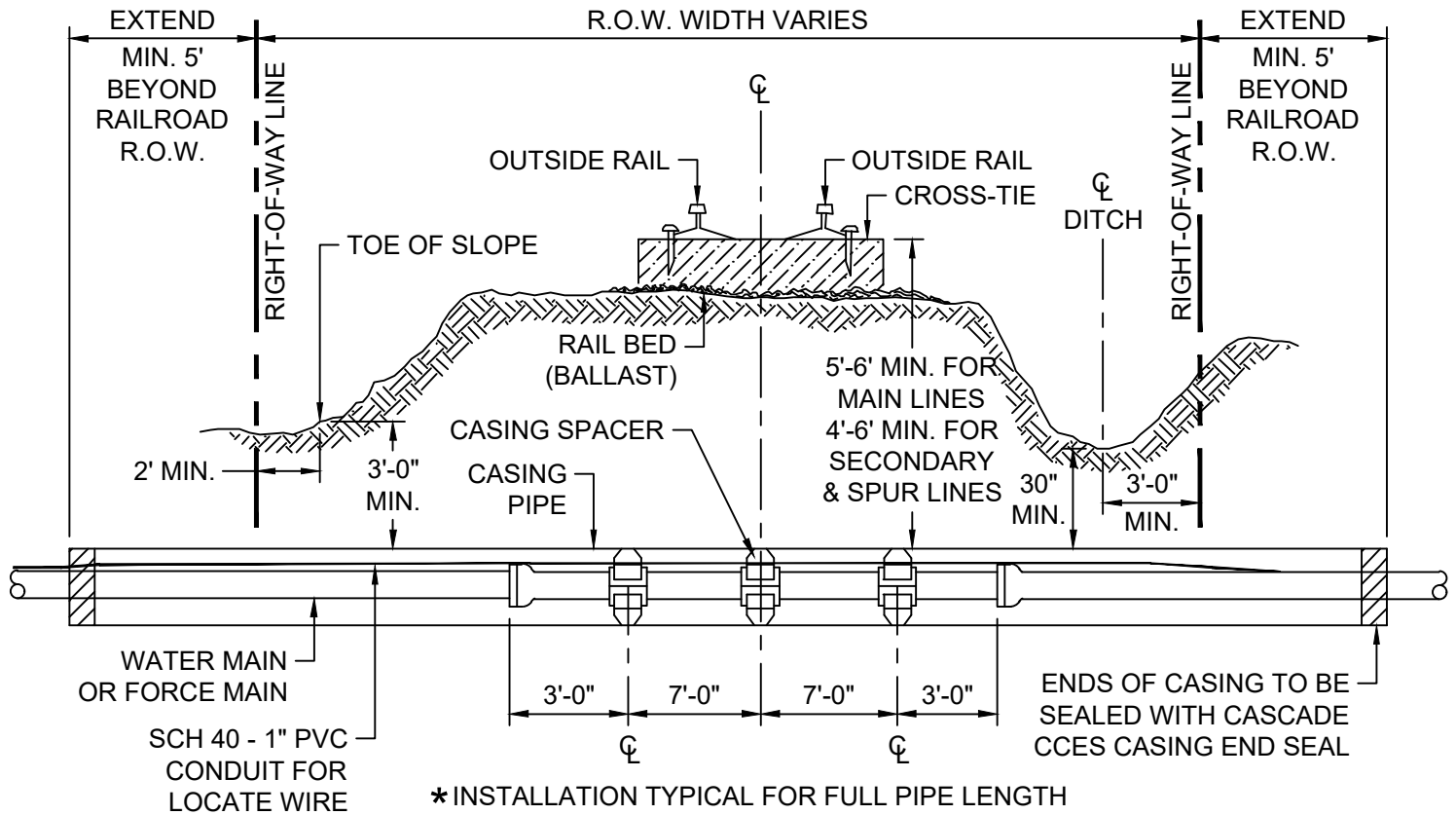
BY	DATE
BD	12/31/2019
SS	05/25/2022

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

W3



NOTES:

1. CASING SHALL BE STEEL ASTM A-139, GRADE B.
2. CENTERLINE OF TRACKS IS DETERMINED AS CENTERLINE OF SINGLE TRACK SET OR OUTSIDE SET OF TRACKS FOR DOUBLE SET.

NOTE:

IF DISTANCE FROM PIPE JOINT TO END OF CASING IS 7' OR LESS, NO SPACER IS REQUIRED.

CARRIER (WATER MAIN) & CASING SIZES

WATER MAIN OR FORCE MAIN	4"	6"	8"	10"	12"	14"	16"	18"	20"
CASING	8"	14"	16"	20"	24"	28"	32"	36"	40"
CASING/WALL THICKNESS	.188	.250	.281	.344	.375	.438	.500	.531	.594

ALL PIPE WITHIN CASING MUST BE RESTRAINED.

TYPE OF RESTRAINTS SHALL BE APPROVED BY CITY PRIOR TO INSTALLATION.



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**JACK & BORE UNDER RAILROAD FOR
WATER MAIN & FORCE MAIN**

REVISIONS

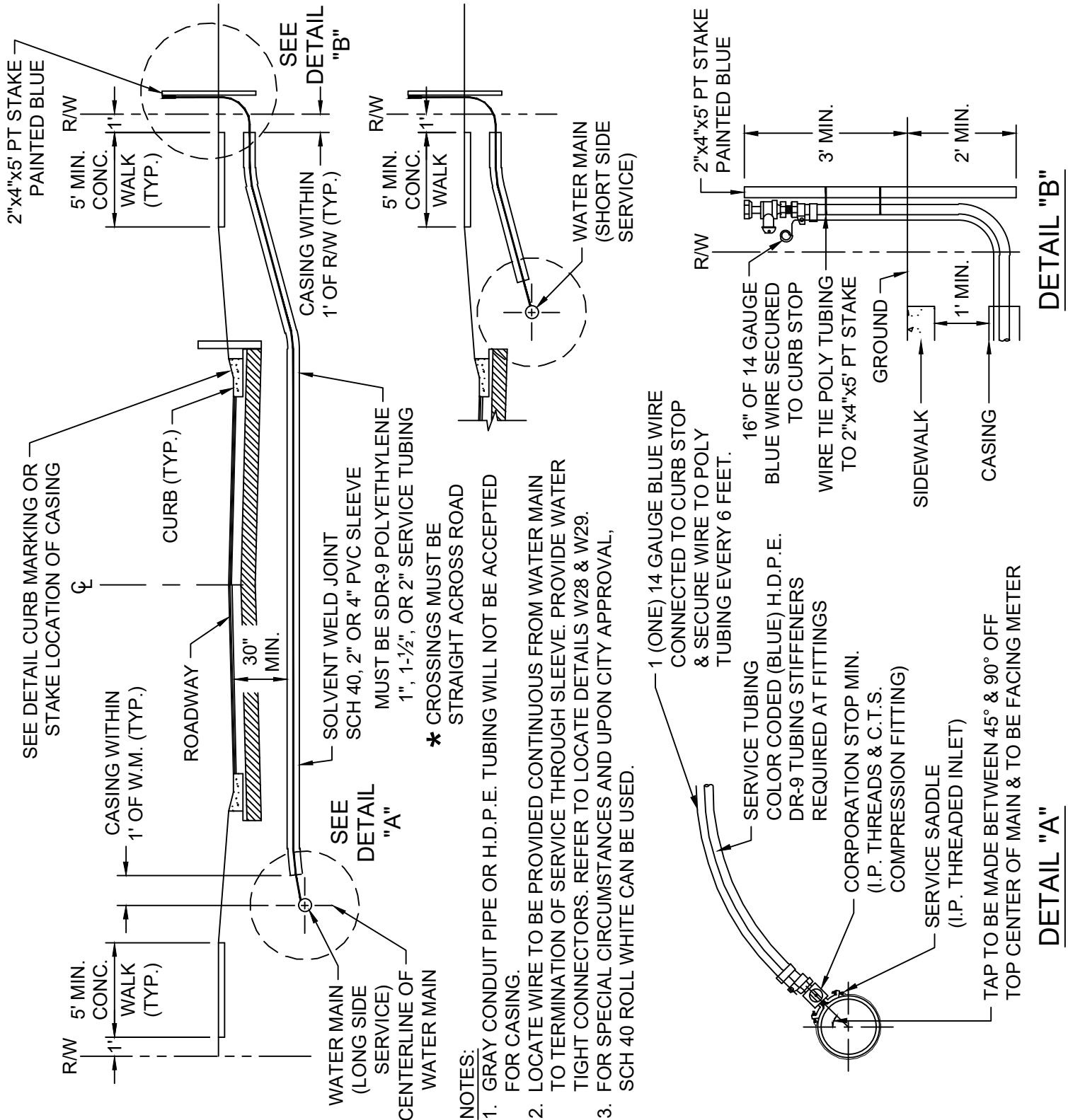
BY	DATE
BD	11/10/2015

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

W4



CITY OF SAFETY HARBOR

Engineering Department
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TYPICAL ROAD CROSSING FOR WATER SERVICE LINES

REVISIONS

BY	DATE
BD	12/31/2019
SS	05/25/2022

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

W5

\\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\RESTRAINED JOINT REQUIREMENTS.DWG

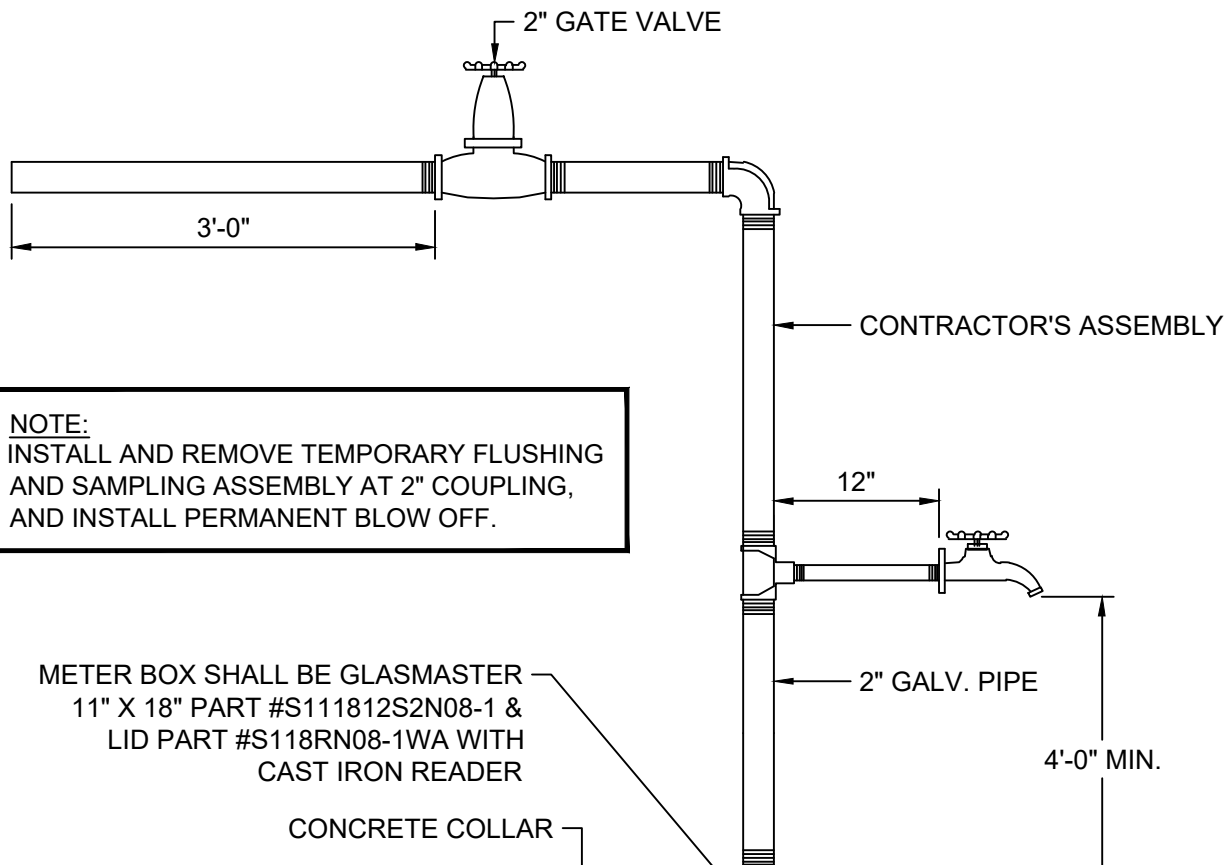
PIPE SIZE	FITTING TYPE						
	90°	45°	22-1/2°	11-1/4°	DEAD END	TEE	VALVE
2"	3	1	1	1	4	3	3
4"	3	1	1	1	4	3	3
6"	4	2	1	1	6	4	4
8"	5	2	1	1	9	5	5
10"	6	3	1	1	10	6	6
12"	7	3	2	1	11	7	7
16"	8	4	2	1	14	8	8
20"	9	4	2	1	18	11	11
24"	10	4	2	1	22	13	13

TABLE APPLIES TO 20 FOOT PIPE LENGTHS @ 150 P.S.I.G. FOR 2 HOURS. (PER AWWA SPECIFICATIONS). TEST PRESSURE WITH 24" MIN., 36" MAX. OF COVER OVER PIPE. NUMBERS SHOWN IN TABLE ARE THE NUMBER OF BELL JOINTS FOR EACH SIDE OF FITTING. CONTINUE TO PLACE THE NEXT PIPE WITH NUMBER OF RESTRAINED BELL JOINTS AS CALLED OUT IN THE TABLE.

NOTES:

- 1. NO GLUED JOINTS WILL BE ALLOWED. RESTRAINERS ARE THE ONLY ACCEPTABLE METHOD OF RESTRAINT.
- 2. APPLIED TO WATER AND FORCE MAIN INSTALLATIONS.
- 3. EBAA IRON WORKS MEGALUG ONLY (HAND TORQUED TO MANUFACTURERS SPECIFICATIONS).
- 4. APPLY TO EXISTING PIPE IN GROUND. ALL NEW INSTALLS ARE REQUIRED TO BE RESTRAINED.

	CITY OF SAFETY HARBOR Engineering Department 750 Main Street, Safety Harbor, FL 34695 Phone (727) 724-1555	REVISIONS	
		BY	DATE
		BD	11/01/2017
		BD	12/31/2019
	RESTRAINED JOINT REQUIREMENTS	SCALE: N.T.S.	
		DATE: NOVEMBER 2003	
		DETAIL NUMBER: W6	



NOTE:
INSTALL AND REMOVE TEMPORARY FLUSHING
AND SAMPLING ASSEMBLY AT 2" COUPLING,
AND INSTALL PERMANENT BLOW OFF.

METER BOX SHALL BE GLASMASTER
11" X 18" PART #S111812S2N08-1 &
LID PART #S118RN08-1WA WITH
CAST IRON READER

CONCRETE COLLAR
ADJUSTABLE VALVE BOX

24" MIN.
36" MAX.

6" MIN.

4"

4'-0" MIN.

2" PLUG & COUPLING
(BRASS)

LOCATE WIRE TO
BE PULLED UP
INTO METER BOX

2" NIPPLE (BRASS)

2" X 90° ELBOW
(BRASS)

2" WATER MAIN WITH THREADED
MALE ADAPTER (BRASS)

DRAINAGE STONE

2" RESILIENT WEDGE GATE VALVE

2" X 6" LONG NIPPLE (BRASS)



CITY OF SAFETY HARBOR

Engineering Department
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2" PERMANENT BLOW-OFF ASSEMBLY

REVISIONS

BY	DATE
BD	11/01/2017
BD	12/31/2019

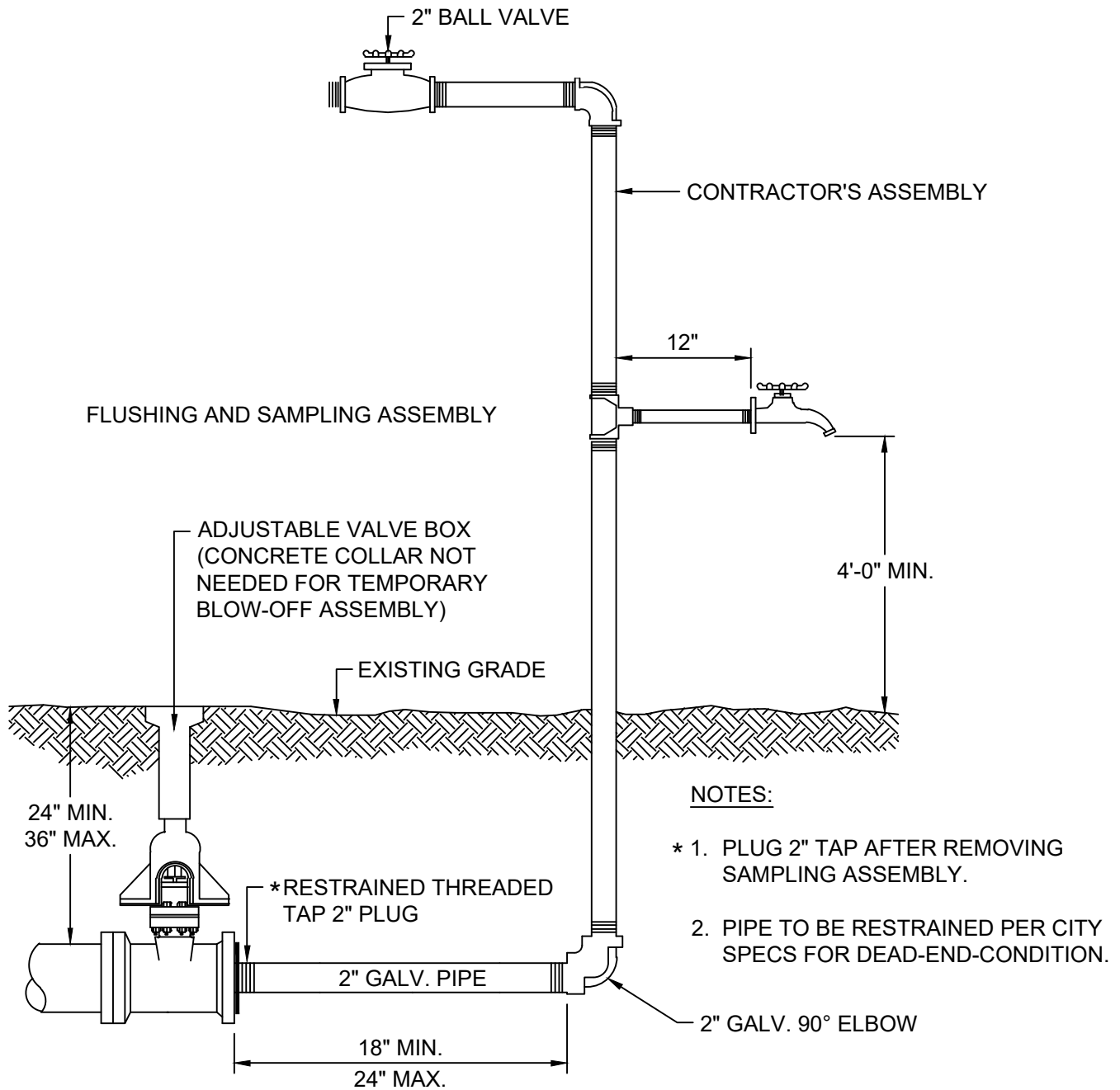
SCALE: N.T.S.

DATE: JUNE 2013

DETAIL NUMBER:

W7

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\2" TEMPORARY BLOW-OFF ASSEMBLY.DWG



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750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

2" TEMPORARY BLOW-OFF ASSEMBLY

REVISIONS

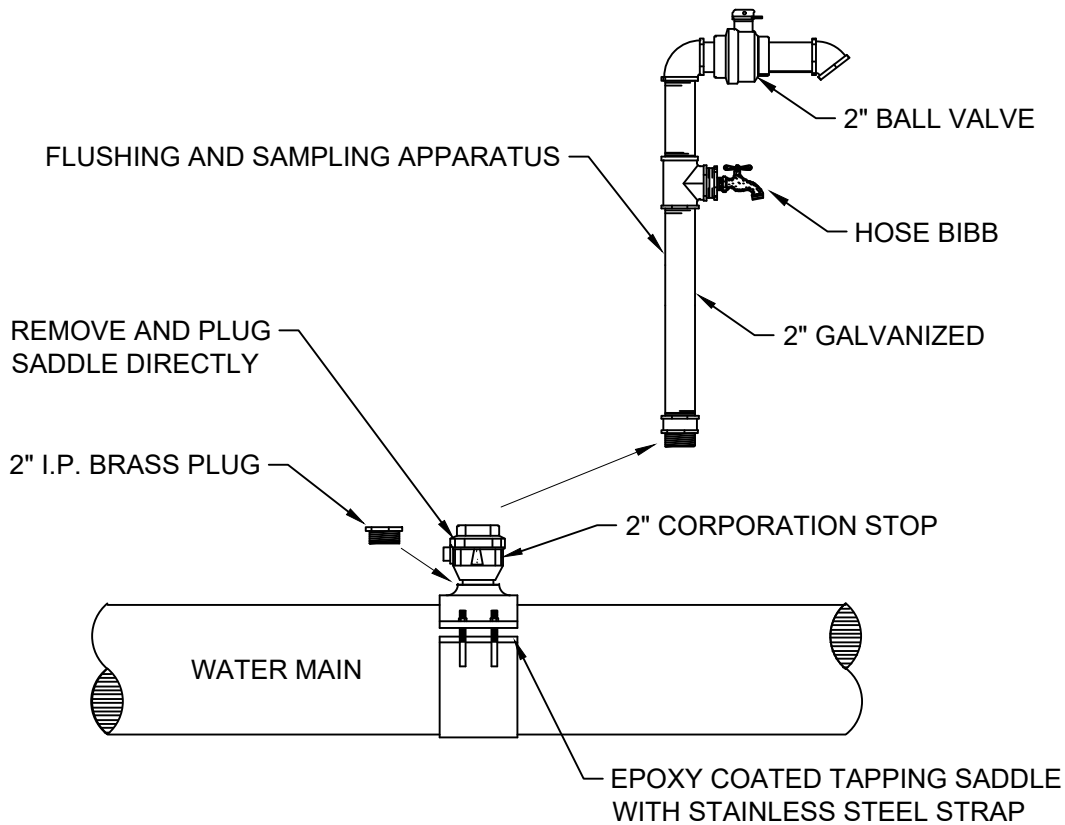
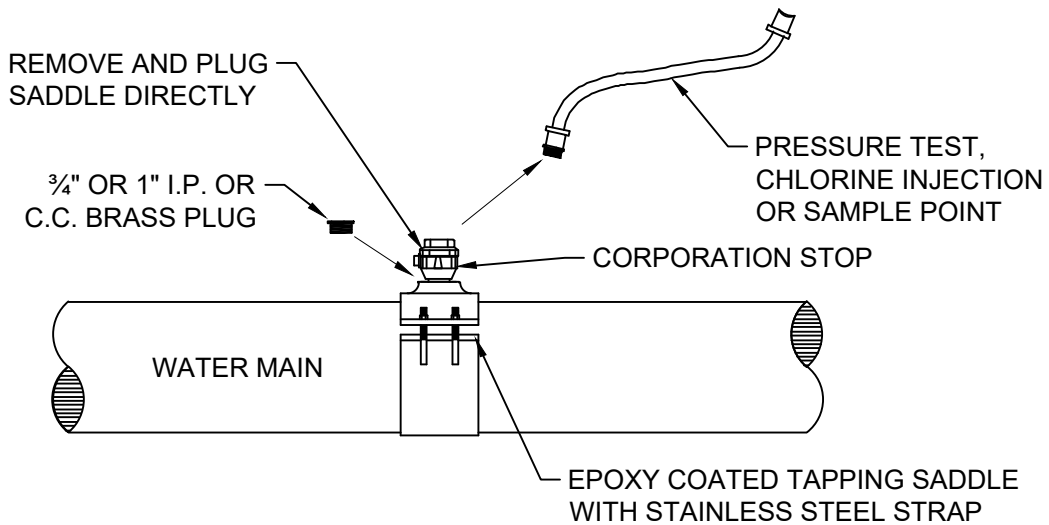
BY	DATE
BD	12/31/2019
SS	05/27/2022

SCALE: N.T.S.

DATE: JUNE 2013

DETAIL NUMBER:

W8



NOTE:
ALL INJECTION, SAMPLE POINTS AND STAND PIPES MUST BE REMOVED AND PLUGGED AFTER APPROVAL BY F.D.E.P.



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

BLOW-OFF REMOVAL PROCEDURE TEMPORARY BLOW-OFF

REVISIONS

BY	DATE
BD	11/01/2017
SS	05/25/2022

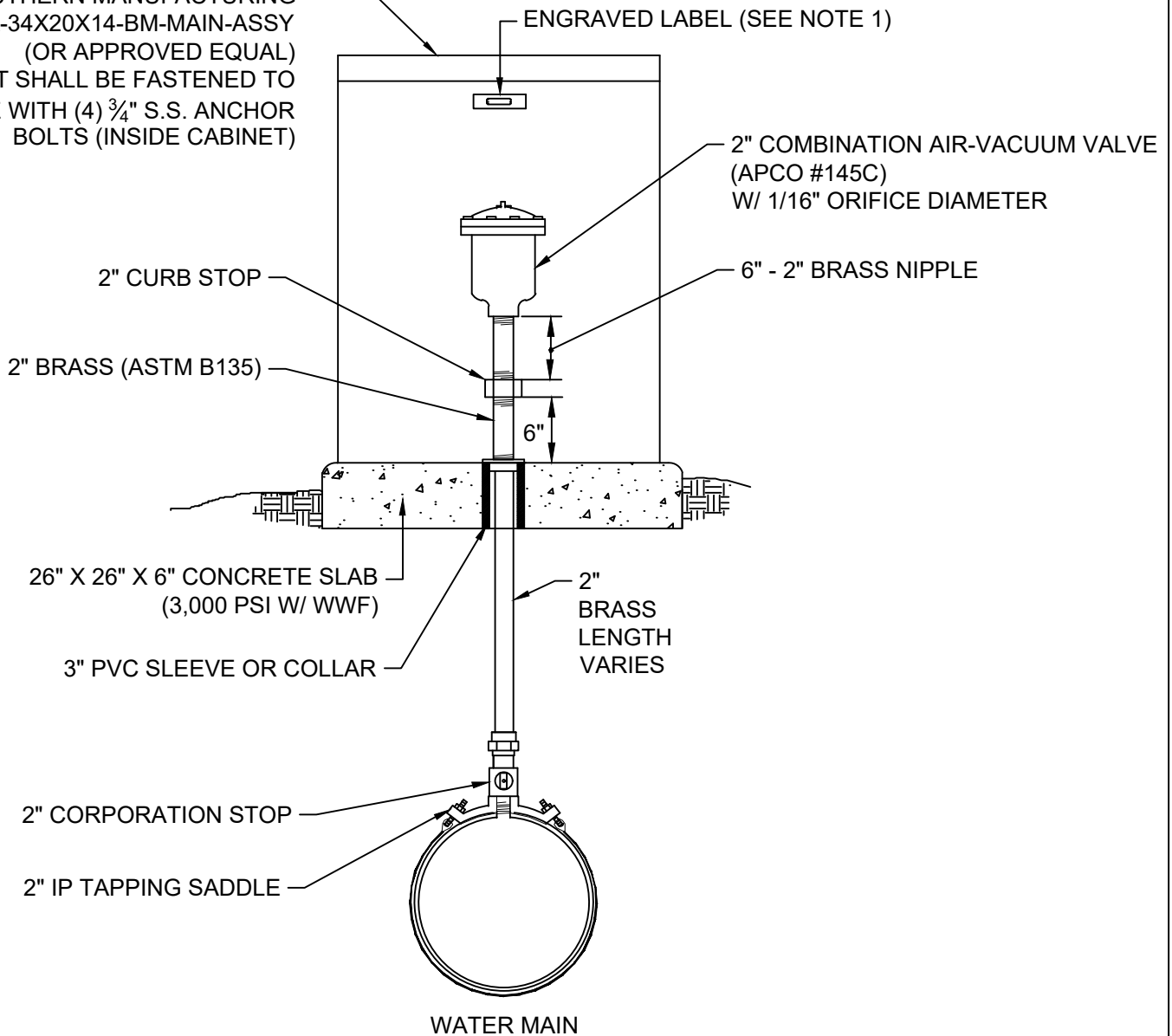
SCALE: N.T.S.

DATE: JULY 2008

DETAIL NUMBER:

W9

STAINLESS STEEL ENCLOSURE
MANUFACTURED BY
SOUTHERN MANUFACTURING
PART# CA-34X20X14-BM-MAIN-ASSY
(OR APPROVED EQUAL)
CABINET SHALL BE FASTENED TO
CONCRETE WITH (4) 3/4" S.S. ANCHOR
BOLTS (INSIDE CABINET)



NOTE:

1. ENGRAVED S.S. 3" LONG LABEL WITH 1/4" LETTERS, WHITE ON BLACK, MOUNTED WITH 2 ALUM. RIVETS ON INSIDE BACK PANEL ABOVE ARV WITH WORDS: "CITY OF SAFETY HARBOR" AND "PUBLIC WORKS DEPARTMENT"



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

COMBINATION AIR-VACUUM VALVE ASSEMBLY

REVISIONS

BY	DATE
TW	06/09/2022
SS	07/22/2022

SCALE: N.T.S.

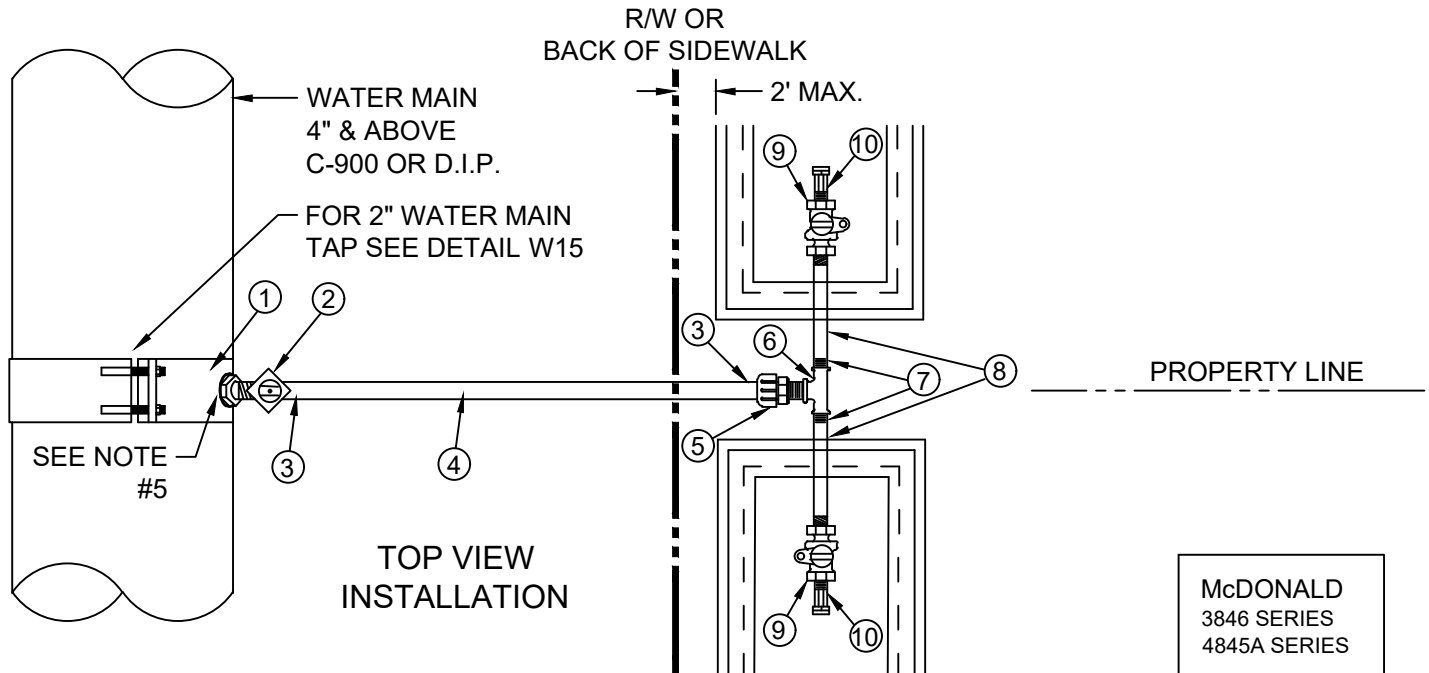
DATE: NOVEMBER 2003

DETAIL NUMBER:

W10

NOTES:

1. FOR A NEW SERVICE WHEN AN EXISTING METER IS NOT PRESENT, THE CITY WILL SUPPLY AND INSTALL THE FOLLOWING: 3/4" OR 1" WATER METER, DOUBLE CHECK VALVE ASSEMBLY, AND METER BOX WITH A READER LID. CUSTOMER MUST PAY FOR PARTS, IN ADVANCE, THROUGH THE CITY'S UTILITY BILLING DEPARTMENT.
2. FOR ALL CAPITAL IMPROVEMENT PROJECTS OR SUBDIVISION DEVELOPMENTS, THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING THE METER BOXES WITH A READER LID.
3. CONTRACTOR TO RECONNECT TO CUSTOMER'S EXISTING SERVICE LINE.
4. CUSTOMER'S SERVICE LINE MUST EXIT THROUGH THE MOUSE HOLE OF METER BOX. METER BOX SHALL NOT BE ALTERED.
5. DRILL BIT OR SHELL CUTTER SIZE MUST BE 7/8".
6. ALL FITTINGS SHALL BE LEAD FREE.
7. PVC SCH 40 MUST EXTEND FROM BACK OF METER/BACKFLOW 12" OUTSIDE METER BOX.



FITTINGS FOR INSTALLATION SUPPLIED BY THE CONTRACTOR

- ① SADDLE WITH S.S. STRAP (INLET 1" MIN. I.P. THREADS)
- ② 1" CORPORATION STOP (I.P. THREADS BY COMPRESSION)
(FORD F1100-4 OR McDONALD 4704-22)
- ③ TWO (2) 1" INSERT STIFFENER S.S. NOT SHOWN (MUELLER PART # 528705 or McDonald Part # 6133T WILL ONLY BE ACCEPTED)
- ④ 1" BLUE POLYETHYLENE TUBING (SDR-9)
- ⑤ 1" CTS COMP x MNPT FORD C8444 OR MCDONALD 4753Q
- ⑥ 1" BRASS TEE (IMPORTS ACCEPTED)
- ⑦ TWO (2) 1" x 3/4" BRASS REDUCERS (McDONALD 747014)
- ⑧ TWO (2) 3/4" x 6" BRASS NIPPLES
- ⑨ TWO 3/4" BALL VALVES WITH LOCK WINGS (FORD B11-233W OR MCDONALD 3/4" x 5/8" x 3/4" 6101W)
- ⑩ FOUR METER COUPLINGS (McDONALD 3/4" 5030-005, 1" 5124-111, AND FORD 3/4" C38-23-2-5-NL, 1" C38-24-2-5-NL)

McDONALD
3846 SERIES
4845A SERIES

FORD
202BS STYLE
FC202 STYLE
FCP-202 STYLE



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

DOUBLE SERVICE

REVISIONS

BY	DATE
SS	07/06/2022
SS	10/11/2023

SCALE: N.T.S.

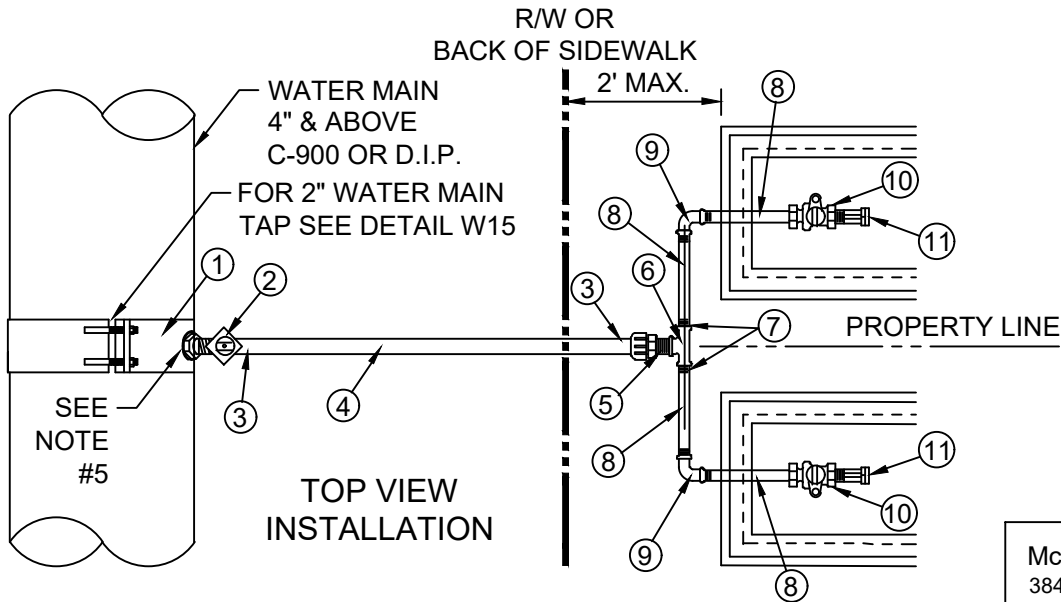
DATE: MARCH 2012

DETAIL NUMBER:

W12

NOTES:

1. FOR A NEW SERVICE WHEN AN EXISTING METER IS NOT PRESENT, THE CITY WILL SUPPLY AND INSTALL THE FOLLOWING: 3/4" OR 1" WATER METER, DOUBLE CHECK VALVE ASSEMBLY, AND METER BOX WITH A READER LID. CUSTOMER MUST PAY FOR PARTS, IN ADVANCE, THROUGH THE CITY'S UTILITY BILLING DEPARTMENT.
2. FOR ALL CAPITAL IMPROVEMENT PROJECTS OR SUBDIVISION DEVELOPMENTS, THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING THE METER BOXES WITH A READER LID.
3. CONTRACTOR TO RECONNECT TO CUSTOMER'S EXISTING SERVICE LINE.
4. CUSTOMER'S SERVICE LINE MUST EXIT THROUGH THE MOUSE HOLE OF METER BOX. METER BOX SHALL NOT BE ALTERED.
5. DRILL BIT OR SHELL CUTTER SIZE MUST BE 7/8".
6. ALL FITTINGS SHALL BE LEAD FREE.
7. PVC SCH 40 MUST EXTEND FROM BACK OF METER/BACKFLOW 12" OUTSIDE METER BOX.



FITTINGS FOR INSTALLATION SUPPLIED BY THE CONTRACTOR

- ① SADDLE WITH S.S. STRAP (INLET 1" MIN. I.P. THREADS)
- ② 1" CORPORATION STOP (I.P. THREADS BY COMPRESSION)
(FORD F1100-4 OR McDONALD 4704-22)
- ③ TWO (2) 1" INSERT STIFFENER S.S. NOT SHOWN (MUELLER PART # 528705 OR McDONALD PART # 6133T WILL ONLY BE ACCEPTED)
- ④ 1" BLUE POLYETHYLENE TUBING (SDR-9)
- ⑤ 1" CTS COMP x MNPT FORD C8444 OR MCDONALD 4753Q
- ⑥ 1" BRASS TEE (IMPORTS ACCEPTED)
- ⑦ TWO (2) 1" x 3/4" BRASS REDUCERS (McDONALD 747014)
- ⑧ FOUR (4) 3/4" x 8" BRASS NIPPLES
- ⑨ TWO (2) 3/4" BRASS 90° BEND (IMPORTS ACCEPTED)
- ⑩ TWO 3/4" BALL VALVES WITH LOCK WINGS (FORD B11-233W OR MCDONALD 3/4" x 5/8" x 3/4" 6101W)
- ⑪ FOUR METER COUPLINGS (McDONALD 3/4" 5030-005, 1" 5124-111, AND FORD 3/4" C38-23-2-5-NL, 1" C38-24-2-5-NL)

McDONALD
3846 SERIES
4845A SERIES

FORD
202BS STYLE
FC202 STYLE
FCP-202 STYLE



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
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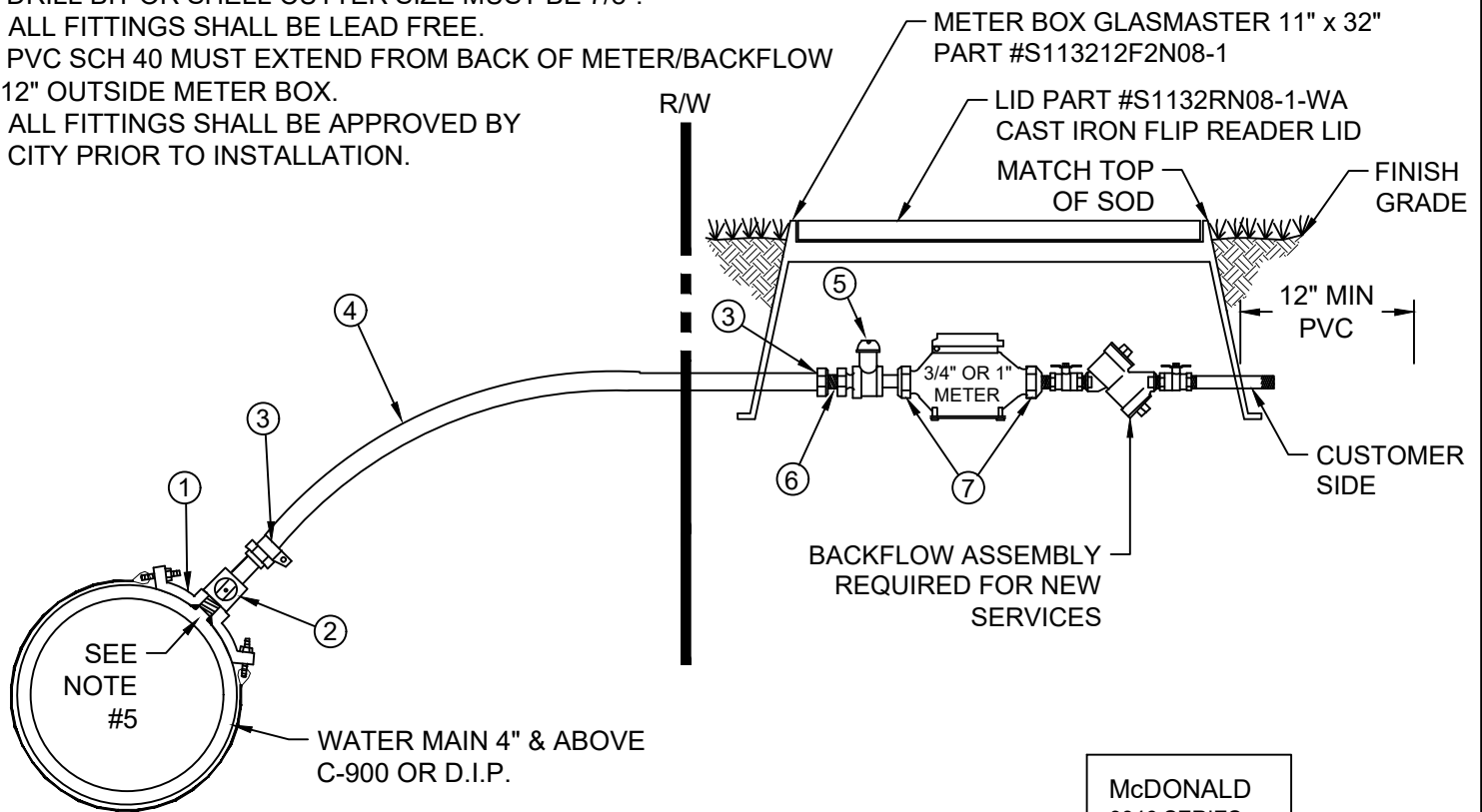
**DOUBLE SERVICE (FOR
DIFFERENT CIRCUMSTANCES)**

REVISIONS

BY	DATE
SS	10/11/2023
SCALE: N.T.S.	
DATE:	MARCH 2012
DETAIL NUMBER: W13	

NOTES:

1. FOR A NEW SERVICE WHEN AN EXISTING METER IS NOT PRESENT, THE CITY WILL SUPPLY AND INSTALL THE FOLLOWING: 3/4" OR 1" WATER METER, DOUBLE CHECK VALVE ASSEMBLY, AND METER BOX WITH A READER LID. CUSTOMER MUST PAY FOR PARTS, IN ADVANCE, THROUGH THE CITY'S UTILITY BILLING DEPARTMENT.
2. FOR ALL CAPITAL IMPROVEMENT PROJECTS OR SUBDIVISION DEVELOPMENTS, THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING THE METER BOXES WITH A READER LID.
3. CONTRACTOR TO RECONNECT TO CUSTOMER'S EXISTING SERVICE LINE.
4. CUSTOMER'S SERVICE LINE MUST EXIT THROUGH THE MOUSE HOLE OF METER BOX. METER BOX SHALL NOT BE ALTERED.
5. DRILL BIT OR SHELL CUTTER SIZE MUST BE 7/8".
6. ALL FITTINGS SHALL BE LEAD FREE.
7. PVC SCH 40 MUST EXTEND FROM BACK OF METER/BACKFLOW 12" OUTSIDE METER BOX.
8. ALL FITTINGS SHALL BE APPROVED BY CITY PRIOR TO INSTALLATION.



FITTINGS FOR INSTALLATION:

- ① SADDLE WITH S.S. STRAP (I.P. INLET THREADS)
- ② 1" CORPORATION STOP (I.P. THREADS BY COMPRESSION)
(FORD F1100-4 OR McDONALD 4704-22)
- ③ TWO (2) 1" INSERT STIFFENER S.S. NOT SHOWN
(MUELLER 528705 OR McDONALD 6133T)
- ④ 1" BLUE POLYETHYLENE TUBING (SDR-9)
- ⑤ 1" BALL VALVE WITH LOCK WINGS (FORD #B 11-344W OR McDONALD 1" X 3/4" X 1" - 6101W)
- ⑥ 1" TCTS COMP X MNPT (FORD C8444 OR McDONALD 4753Q)
- ⑦ METER COUPLINGS (McDONALD 3/4" 5030-005, 1" 5124-111, OR FORD 3/4" C38-23-2-5-NL, 1" C38-24-2-5-NL)
IF NEEDED INSTALL BRASS 1"X3/4" REDUCER (McDONALD 747014)

McDONALD
3846 SERIES
4845A SERIES

FORD
202BS STYLE
FC202 STYLE
FCP-202 STYLE



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

**1" SINGLE SERVICE
(4" W.M. OR ABOVE)**

REVISIONS

BY	DATE
BD	12/31/2019
SS	07/06/2022

SCALE: N.T.S.

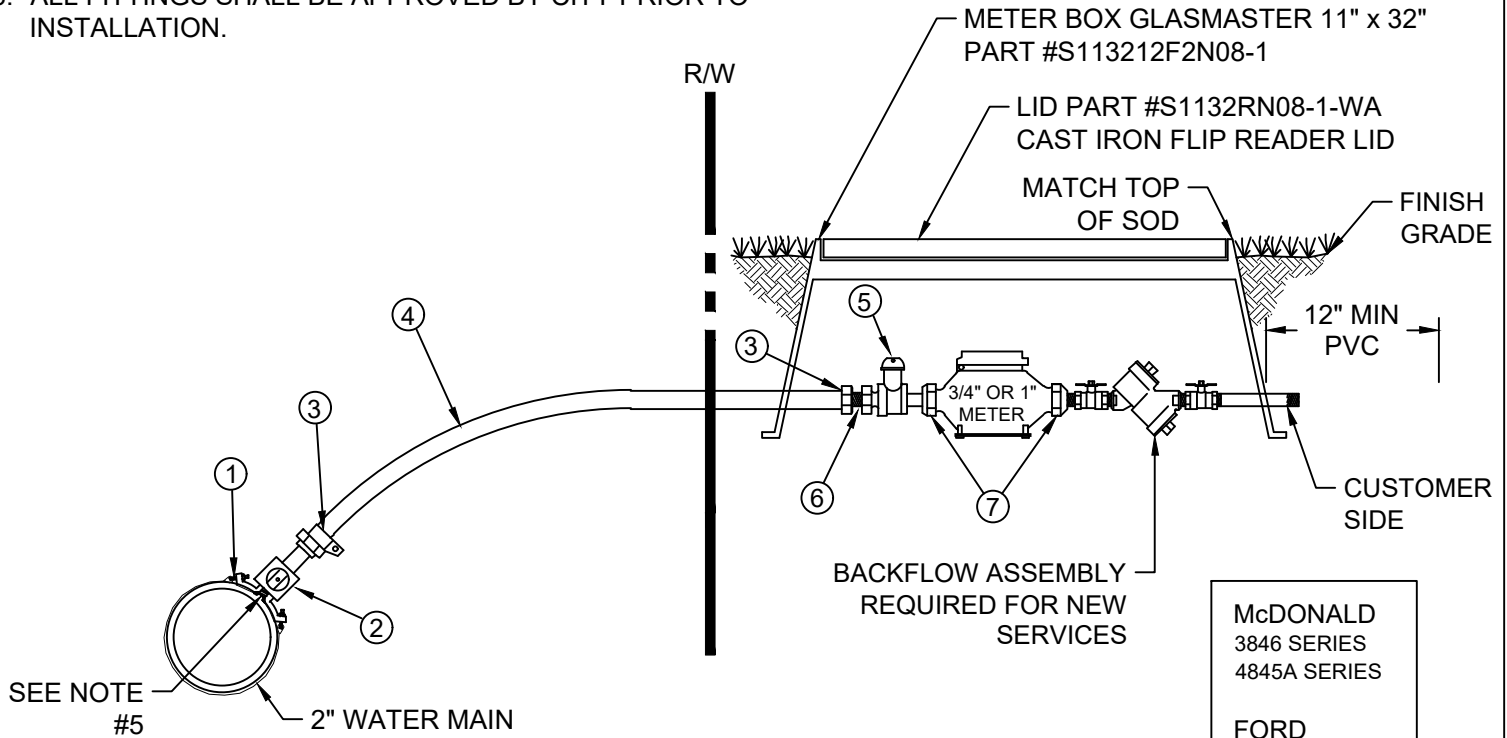
DATE: SEPTEMBER 2012

DETAIL NUMBER:

W14

NOTES:

1. FOR A NEW SERVICE WHEN AN EXISTING METER IS NOT PRESENT, THE CITY WILL SUPPLY AND INSTALL THE FOLLOWING: 3/4" OR 1" WATER METER, DOUBLE CHECK VALVE ASSEMBLY, AND METER BOX WITH A READER LID. CUSTOMER MUST PAY FOR PARTS, IN ADVANCE, THROUGH THE CITY'S UTILITY BILLING DEPARTMENT.
2. FOR ALL CAPITAL IMPROVEMENT PROJECTS OR SUBDIVISION DEVELOPMENTS, THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING THE METER BOXES WITH A READER LID.
3. CONTRACTOR TO RECONNECT TO CUSTOMER'S EXISTING SERVICE LINE.
4. CUSTOMER'S SERVICE LINE MUST EXIT THROUGH THE MOUSE HOLE OF METER BOX. METER BOX SHALL NOT BE ALTERED.
5. DRILL BIT OR SHELL CUTTER SIZE MUST BE 7/8". A 3/4" SERVICE LINE WILL NOT BE ACCEPTED.
6. ALL FITTINGS SHALL BE LEAD FREE.
7. PVC SCH40 MUST EXTEND FROM BACK OF METER/BACKFLOW 12" OUTSIDE METER BOX.
8. ALL FITTINGS SHALL BE APPROVED BY CITY PRIOR TO INSTALLATION.



FITTINGS FOR INSTALLATION SUPPLIED BY THE CONTRACTOR

- ① SADDLE WITH S.S. STRAP (I.P. INLET THREADS) 2" PVC SCH 40, 2" CLASS 200 OR 2" GALVANIZED PIPE
- ② 1" CORPORATION STOP (I.P. THREADS BY COMPRESSION) (FORD F1100-4 OR McDONALD 4704-22)
- ③ TWO (2) 1" INSERT STIFFENER S.S. NOT SHOWN (MUELLER 528705 OR McDONALD 6133T)
- ④ 1" BLUE POLYETHYLENE TUBING (SDR-9)
- ⑤ 1" BALL VALVE WITH LOCK WINGS (FORD #B 11-344W OR McDONALD 1" X 3/4" X 1" - 6101W)
- ⑥ 1" CTS COMP X MNPT (FORD C8444 OR McDONALD 4753Q)
- ⑦ METER COUPLINGS (McDONALD 3/4" 5030-005, 1" 5124-111, OR FORD 3/4" C38-23-2-5-NL, 1" C38-24-2-5-NL) IF NEEDED INSTALL BRASS 1"X3/4" REDUCER (McDONALD 747014).

McDONALD
3846 SERIES
4845A SERIES

FORD
202BS STYLE
FC202 STYLE
FCP-202 STYLE

CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

REVISIONS

BY	DATE
BD	12/31/2019
SS	07/06/2022

SCALE: N.T.S.

DATE: SEPTEMBER 2012

DETAIL NUMBER:

W15

SERVICE - 2"x1" TAP



THIS LIST IS NOT A QUANTITY LIST. CONTRACTOR IS RESPONSIBLE TO CHECK THE DETAIL CONFIGURATION AND TOTAL THE ITEMS.

- ① 2" I.P. INLET THREADS SADDLE WITH S.S. STRAP.
- ② 2" BALL CORPORATION STOP
MALE BY FEMALE
(FORD FB-1700-7 OR MCDONALD 3149B)
- ③ 2" x 6" BRASS NIPPLE
- ④ 2" RESILIENT WEDGE GATE VALVE
- ⑤ ONE (1) ADJUSTABLE TOP VALVE BOX - TYLER / UNION 6850 OR EQUIVALENT

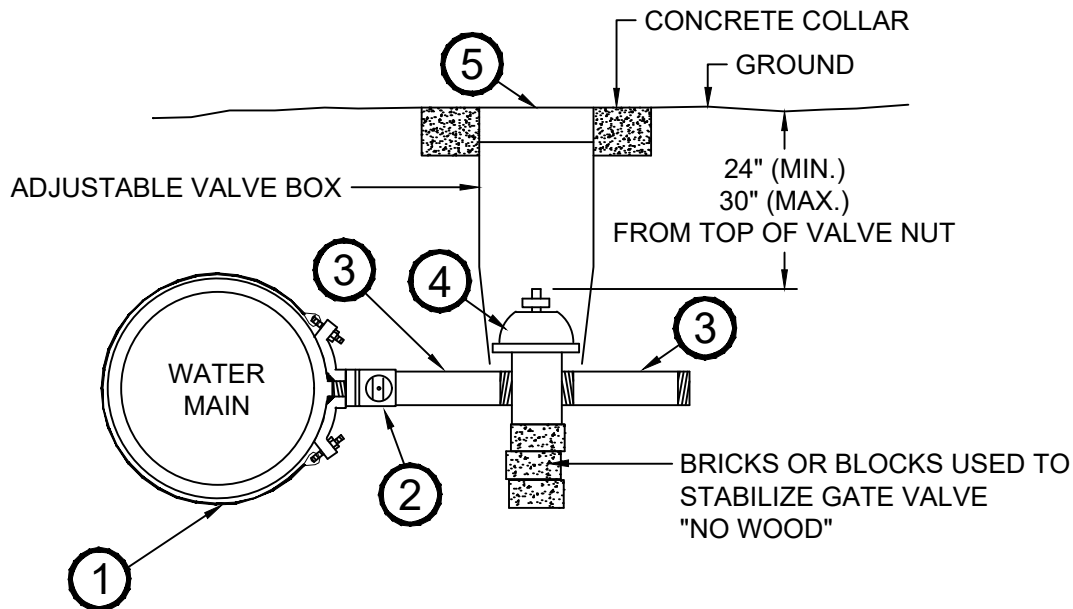
MCDONALD
3846 SERIES
4845A SERIES

FORD
202BS STYLE
FC202 STYLE
FCP-202 STYLE

NOTES:

1. DRILLING BIT SHELL OR HOLE CUTTERS MUST BE 1-7/8". IF INSTALLATION CAN'T BE DONE USING DETAIL W16, THEN USE DETAIL W17. CITY INSPECTOR MUST RETRIEVE COUPON.
2. ALL FITTINGS SHALL BE LEAD FREE.

* IF WATER MAIN HAS 30" OF COVER OR LESS, USE THIS DETAIL PROVIDING NO UTILITY CONFLICTS.



SIDE VIEW INSTALLATION



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

**2" TAP INSTALLATION
(30" OR LESS OF COVER)**

REVISIONS

BY	DATE
BD	11/01/2017
BD	12/31/2019

SCALE: N.T.S.

DATE: MARCH 2012

DETAIL NUMBER:

W16

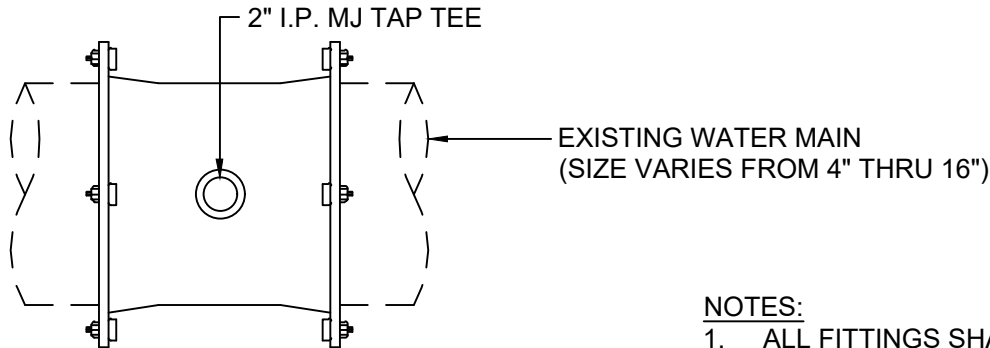
3. AUTOCAD STANDARDS/DETAILS/DETAILS/2" TAP 1 5" OR 2" ABOVE GROUND METER INSTALLATION DWG

W17

THIS LIST IS NOT A QUANTITY LIST. CONTRACTOR IS RESPONSIBLE TO CHECK THE DETAIL CONFIGURATION AND TOTAL THE ITEMS.

- ① 2" BALL CORPORATION STOP MALE BY FEMALE (FORD FB-1700-7 OR MCDONALD 3149B)
- ② 2" x 6" BRASS NIPPLE
- ③ 2" RESILIENT WEDGE GATE VALVE
- ④ ONE (1) ADJUSTABLE TOP VALVE BOX - TYLER / UNION 6850 OR EQUIVALENT

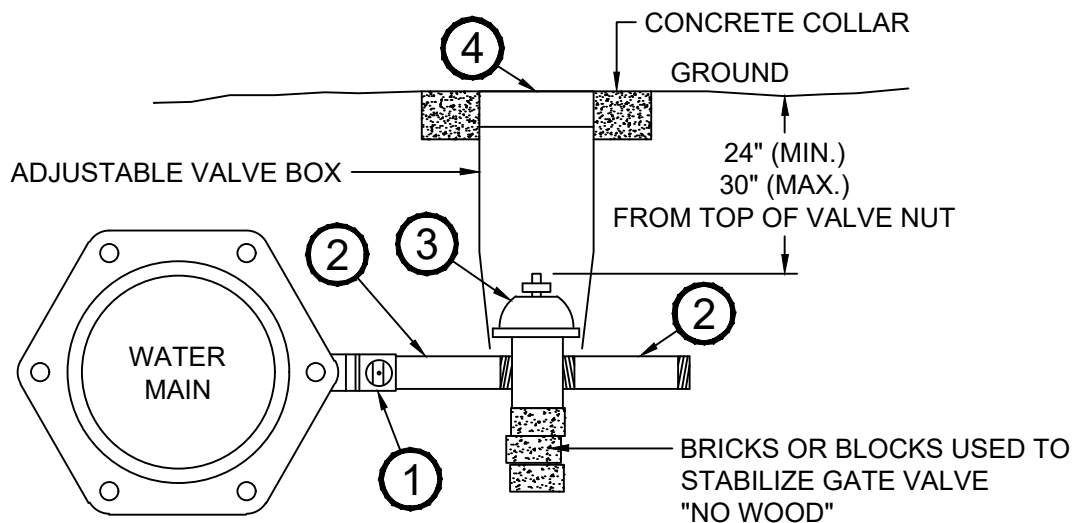
* IF WATER MAIN HAS 30" OF COVER OR LESS, USE THIS DETAIL PROVIDING NO UTILITY CONFLICTS.



FRONT VIEW INSTALLATION

NOTES:

1. ALL FITTINGS SHALL BE LEAD FREE.
2. ALL FITTINGS SHALL BE APPROVED BY CITY STAFF PRIOR TO INSTALLATION.



SIDE VIEW INSTALLATION

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\2" MJ TAP TEE.DWG



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

2" MJ TAP TEE (30" OR LESS OF COVER)

REVISIONS

BY	DATE
BD	12/31/2019
SS	05/26/2022

SCALE: N.T.S.

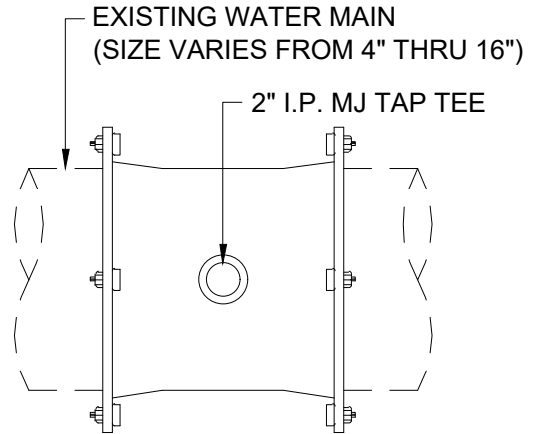
DATE: NOVEMBER 2015

DETAIL NUMBER:

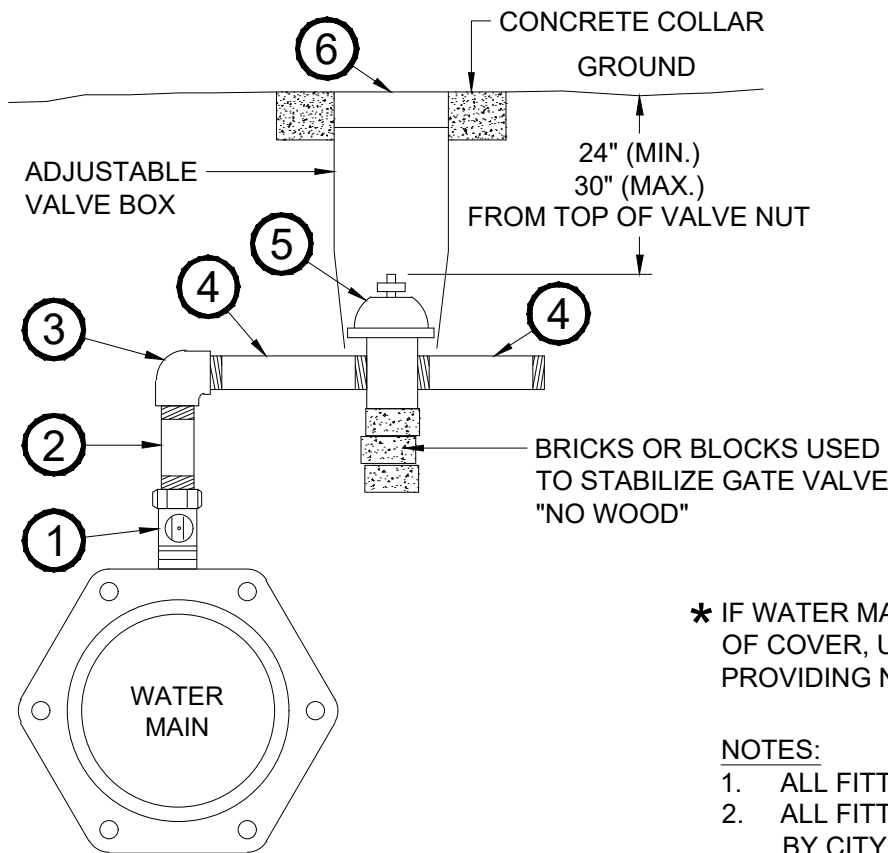
W18

THIS LIST IS NOT A QUANTITY LIST. CONTRACTOR IS RESPONSIBLE TO CHECK THE DETAIL CONFIGURATION AND TOTAL THE ITEMS.

- ① 2" BALL CORPORATION STOP MALE BY FEMALE (FORD FB-1700-7 OR MCDONALD 3149B)
- ② 2" BRASS NIPPLE x (MAY VARY DEPENDING ON DEPTH OF WATER MAIN)
- ③ 2" BRASS 90° BEND
- ④ 2" x 6" BRASS NIPPLE
- ⑤ 2" RESILIENT WEDGE GATE VALVE
- ⑥ ONE (1) ADJUSTABLE TOP VALVE BOX - TYLER / UNION 6850 OR EQUIVALENT



FRONT VIEW INSTALLATION



* IF WATER MAIN HAS OVER 30" OF COVER, USE THIS DETAIL PROVIDING NO UTILITY CONFLICTS.

NOTES:

1. ALL FITTINGS SHALL BE LEAD FREE.
2. ALL FITTINGS SHALL BE APPROVED BY CITY STAFF PRIOR TO INSTALLATION.

SIDE VIEW INSTALLATION



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

2" MJ TAP TEE (GREATER THAN 30" OF COVER)

REVISIONS

BY	DATE
BD	12/31/2019
SS	05/26/2022

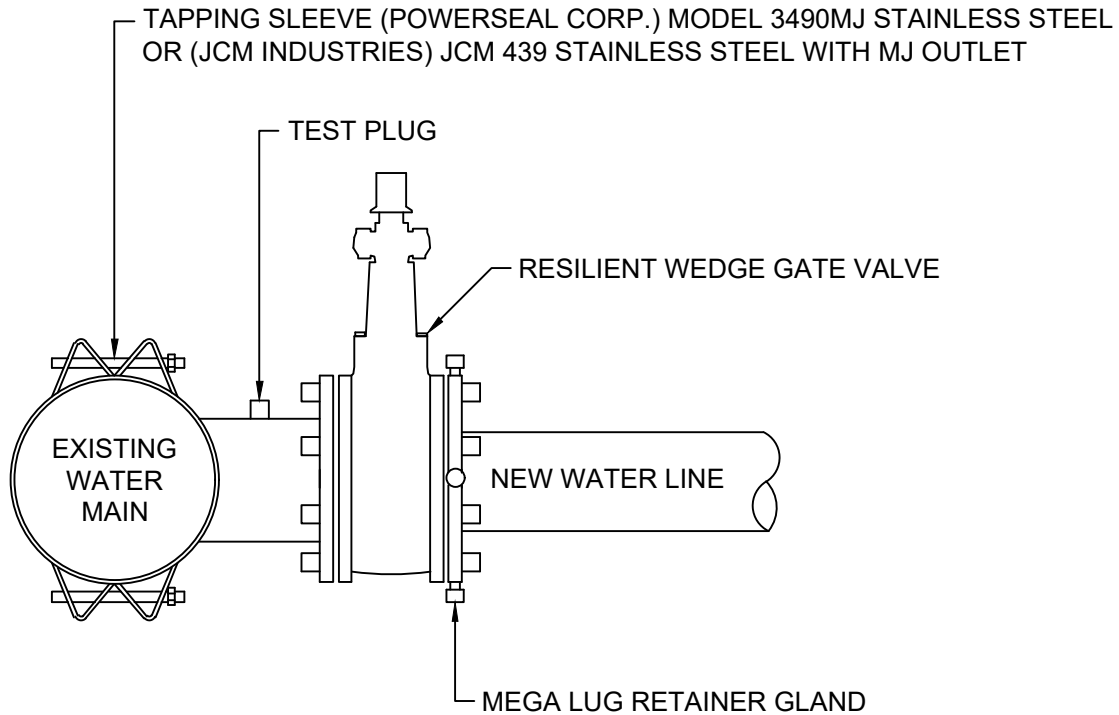
SCALE: N.T.S.

DATE: APRIL 2016

DETAIL NUMBER:

W19

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\WET TAP DETAIL (6" PIPE AND LARGER).DWG



NOTES:

1. CITY INSPECTOR MUST BE PRESENT FOR TAP & COLLECTION OF THE COUPON.
2. PRESSURE TEST @ 150 P.S.I. FOR 15 MINUTES IN THE PRESENCE OF A CITY INSPECTOR.
3. NO SIZE ON SIZE TAPS WILL BE PERMITTED.



CITY OF SAFETY HARBOR

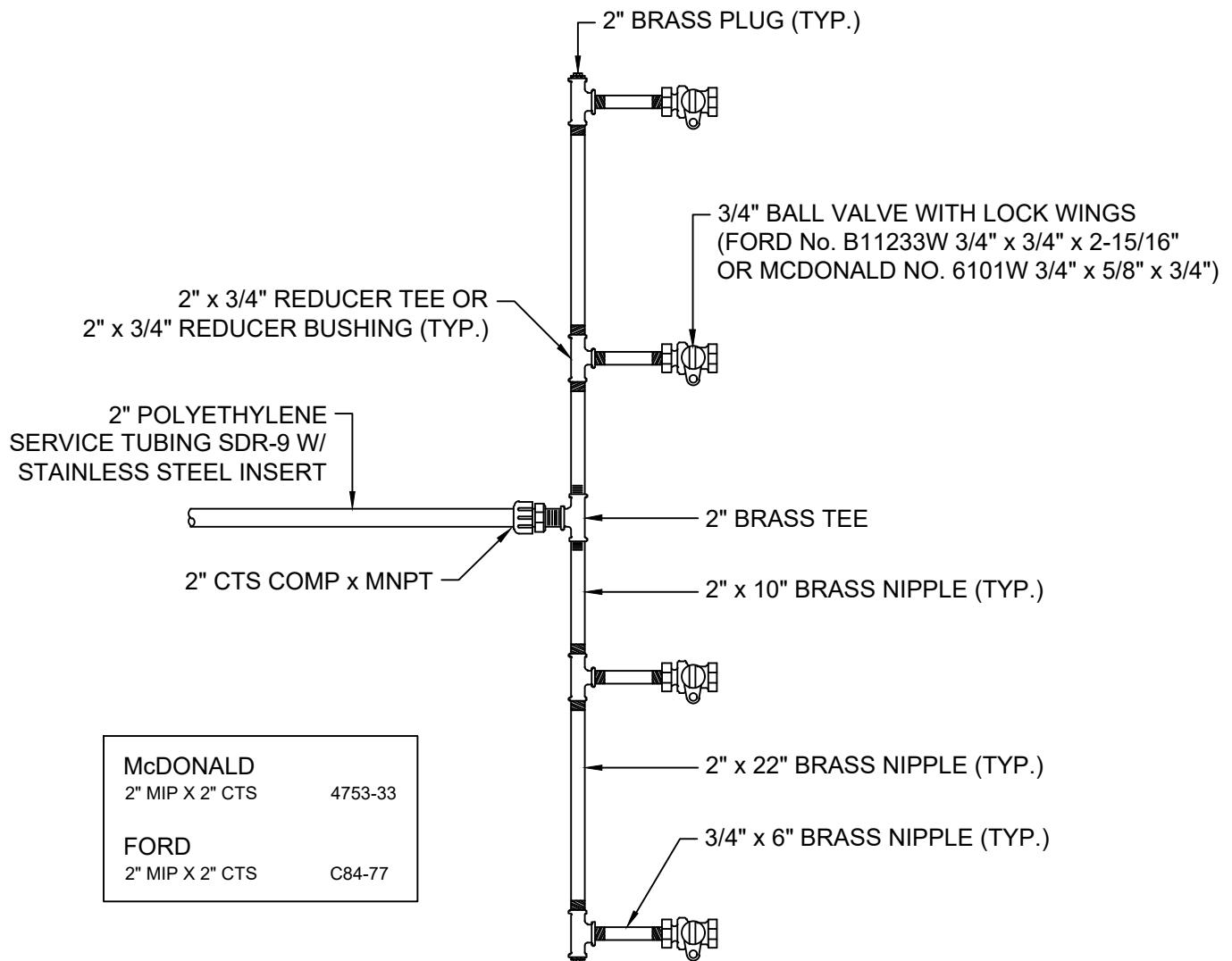
Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

WET TAP (6" PIPE & LARGER)

REVISIONS

BY	DATE
TAW	07/01/2015
SCALE: N.T.S.	
DATE: NOVEMBER 2003	
DETAIL NUMBER:	
W20	

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\MANIFOLD SERVICE.DWG



NOTES:

1. ALL PIPES & FITTINGS TO BE BRASS (LEAD FREE).
2. ALL FITTINGS SHALL BE APPROVED BY CITY STAFF PRIOR TO INSTALLATION.
3. LOCK WINGS SHALL OPEN TOWARD THE METER.
4. FOR A NEW SERVICE WHEN AN EXISTING METER IS NOT PRESENT, THE CITY WILL SUPPLY AND INSTALL THE FOLLOWING: 3/4" WATER METER, DOUBLE CHECK VALVE ASSEMBLY, AND METER BOX WITH A READER LID. CUSTOMER MUST PAY FOR PARTS, IN ADVANCE, THROUGH THE CITY'S UTILITY BILLING DEPARTMENT.
5. FOR ALL CAPITAL IMPROVEMENT PROJECTS OR SUBDIVISION DEVELOPMENTS, THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING THE METER BOXES WITH A READER LID.
6. ASSEMBLY MAY BE MODIFIED FOR SPECIAL CIRCUMSTANCES WITH APPROVAL FROM CITY STAFF.



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

**MANIFOLD SERVICE FOR BELOW
GROUND METER ASSEMBLY**

REVISIONS

BY	DATE
BD	12/31/2019
SS	05/26/2022

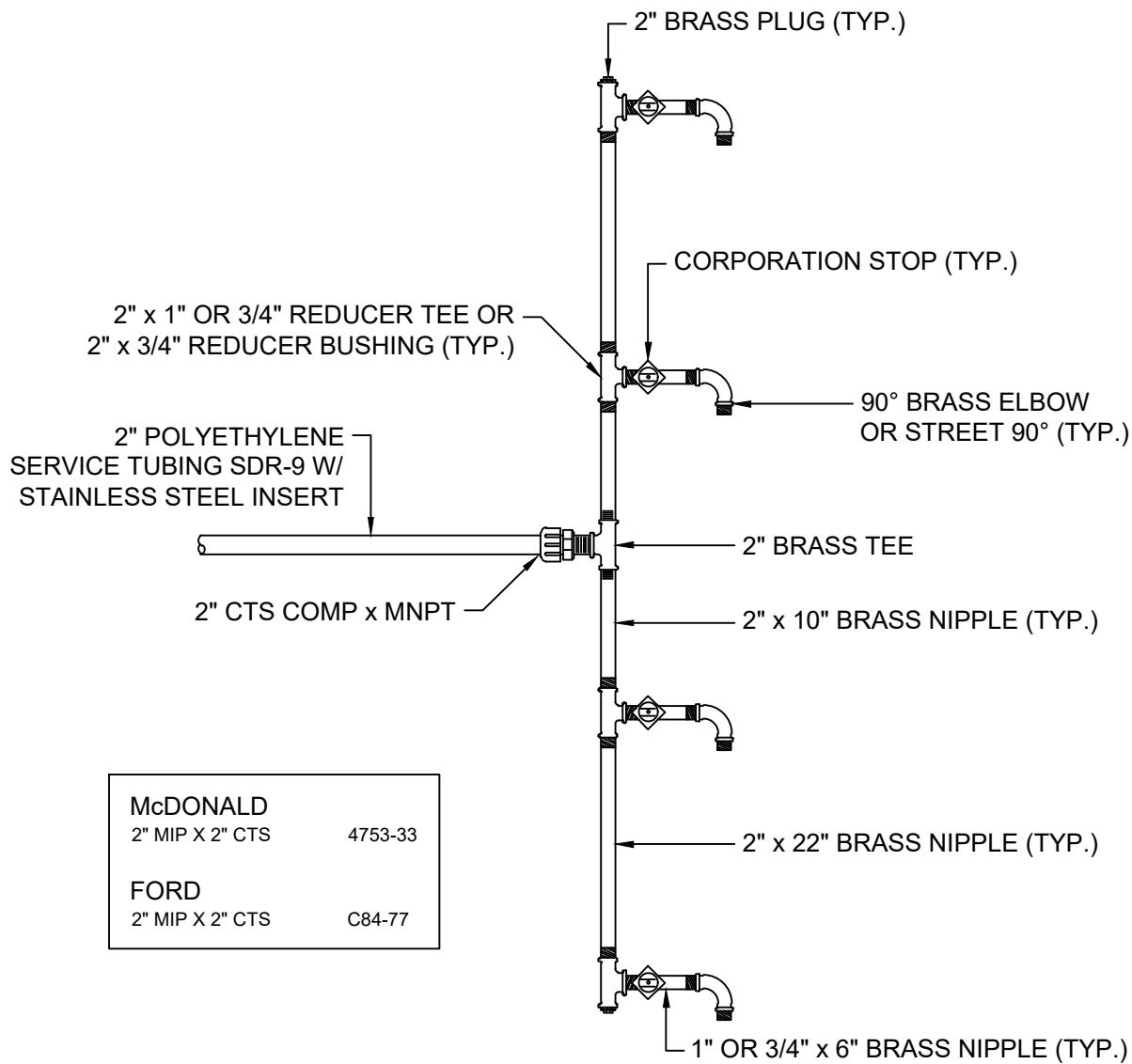
SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

W21

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\MANIFOLD SERVICE 2".DWG



NOTES:

1. ALL PIPES & FITTINGS TO BE BRASS (LEAD FREE).
2. ALL FITTING SHALL BE APPROVED BY CITY STAFF PRIOR TO INSTALLATION.
3. FOR A NEW SERVICE WHEN AN EXISTING METER IS NOT PRESENT, THE CITY WILL SUPPLY AND INSTALL THE FOLLOWING: 3/4" OR 1" WATER METER, DOUBLE CHECK VALVE ASSEMBLY, AND METER BOX WITH A READER LID. CUSTOMER MUST PAY FOR METER AND BACKFLOW, IN ADVANCE, THROUGH THE CITY'S UTILITY BILLING DEPARTMENT.
4. FOR ALL CAPITAL IMPROVEMENT PROJECTS OR SUBDIVISION DEVELOPMENTS, THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING THE METER BOXES WITH A READER LID.
5. ASSEMBLY MAY BE MODIFIED FOR SPECIAL CIRCUMSTANCES WITH APPROVAL FROM CITY STAFF.



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

2" MANIFOLD SERVICE

REVISIONS

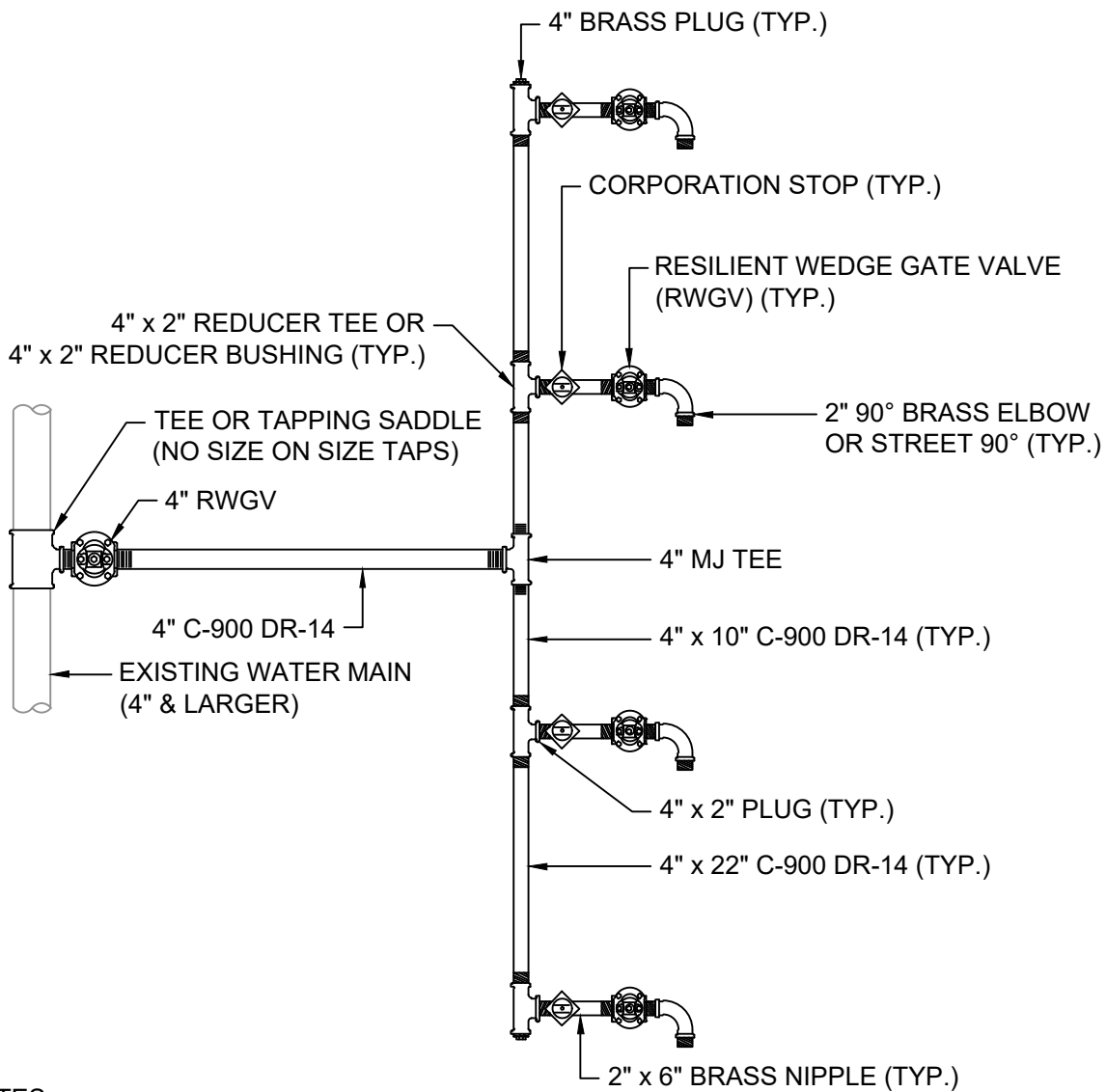
BY	DATE
SS	07/06/2022

SCALE: N.T.S.

DATE: OCTOBER 2019

DETAIL NUMBER:

W22



NOTES:

1. ALL PIPES & FITTINGS TO BE BRASS (LEAD FREE), UNLESS NOTED OTHERWISE.
2. MECHANICAL JOINT FITTINGS SHALL BE USED FOR MANIFOLD ASSEMBLY.
3. ALL FITTINGS SHALL BE APPROVED BY CITY STAFF PRIOR TO INSTALLATION.
4. FOR A NEW SERVICE WHEN AN EXISTING METER IS NOT PRESENT, THE CITY WILL SUPPLY AND INSTALL THE FOLLOWING: WATER METER, DOUBLE CHECK VALVE ASSEMBLY, AND METER BOX WITH A READER LID. CUSTOMER MUST PAY FOR PARTS, IN ADVANCE, THROUGH THE CITY'S UTILITY BILLING DEPARTMENT.
5. FOR ALL CAPITAL IMPROVEMENT PROJECTS OR SUBDIVISION DEVELOPMENTS, THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING THE METER BOXES WITH A READER LID.
6. ASSEMBLY MAY BE MODIFIED FOR SPECIAL CIRCUMSTANCES WITH APPROVAL FROM CITY STAFF.



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

4" MANIFOLD SERVICE

REVISIONS

BY	DATE
SS	05/26/2022

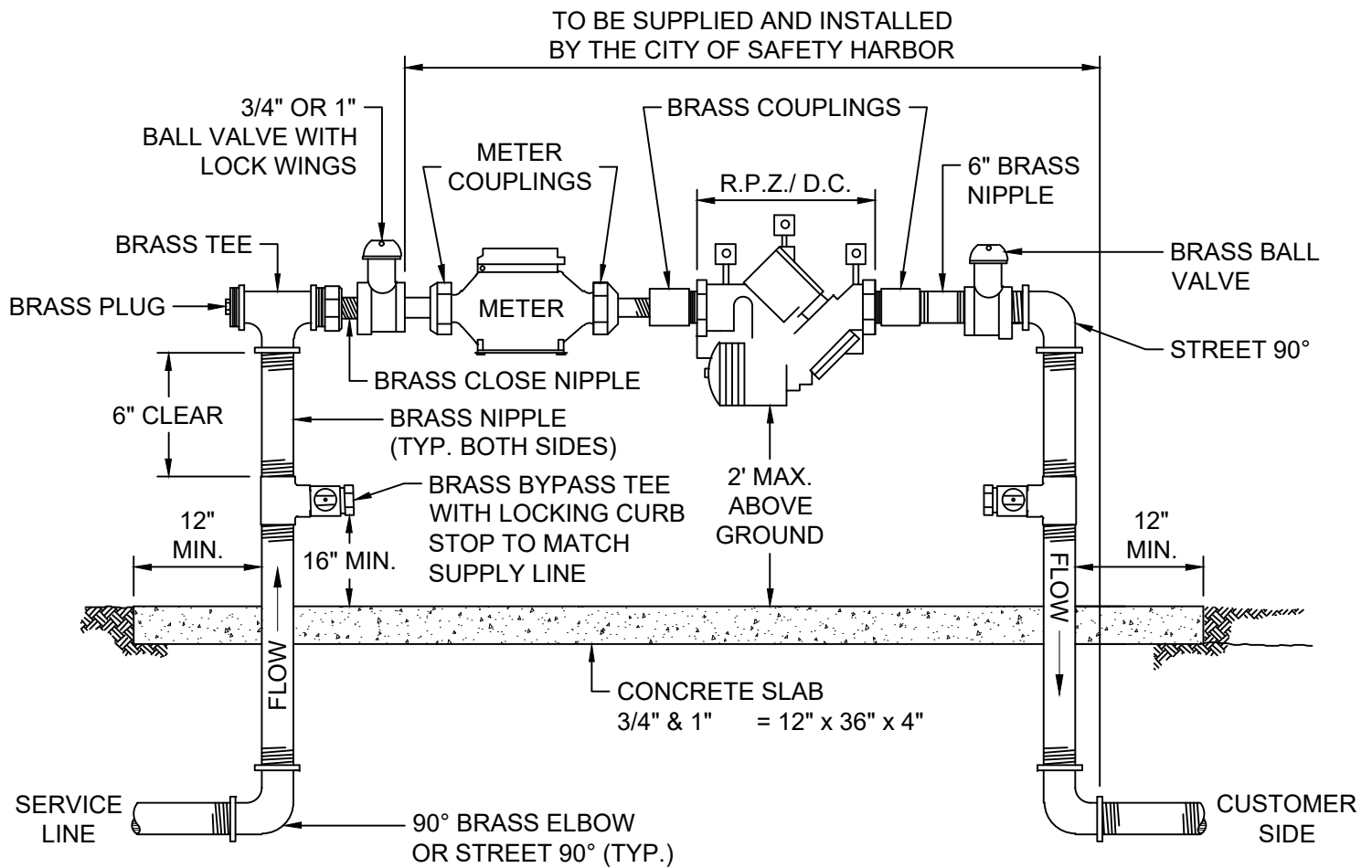
SCALE: N.T.S.

DATE: OCTOBER 2019

DETAIL NUMBER:

W23

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\REDUCED PRESSURE BACKFLOW ASSEMBLY.DWG



NOTES:

1. TO PREVENT DAMAGE TO DEVICE, TURN WATER ON VERY SLOWLY.
2. ADDITIONAL FITTINGS MAY BE REQUIRED THAT HAVE NOT BEEN REPRESENTED ON THE DETAIL. CONTRACTOR SHALL SUPPLY ALL NECESSARY FITTINGS TO ENSURE THAT THE SYSTEM IS COMPLETE AND FUNCTIONAL.
3. METER BYPASS SHALL NOT BE USED AS A CONNECTION POINT FOR TEMPORARY WATER USE.

SIDE VIEW

SIZES: 3/4" OR 1"



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

**REDUCED PRESSURE BACKFLOW
ASSEMBLY 3/4" OR 1"**

REVISIONS

BY	DATE
BD	12/31/2019
SS	07/22/2022

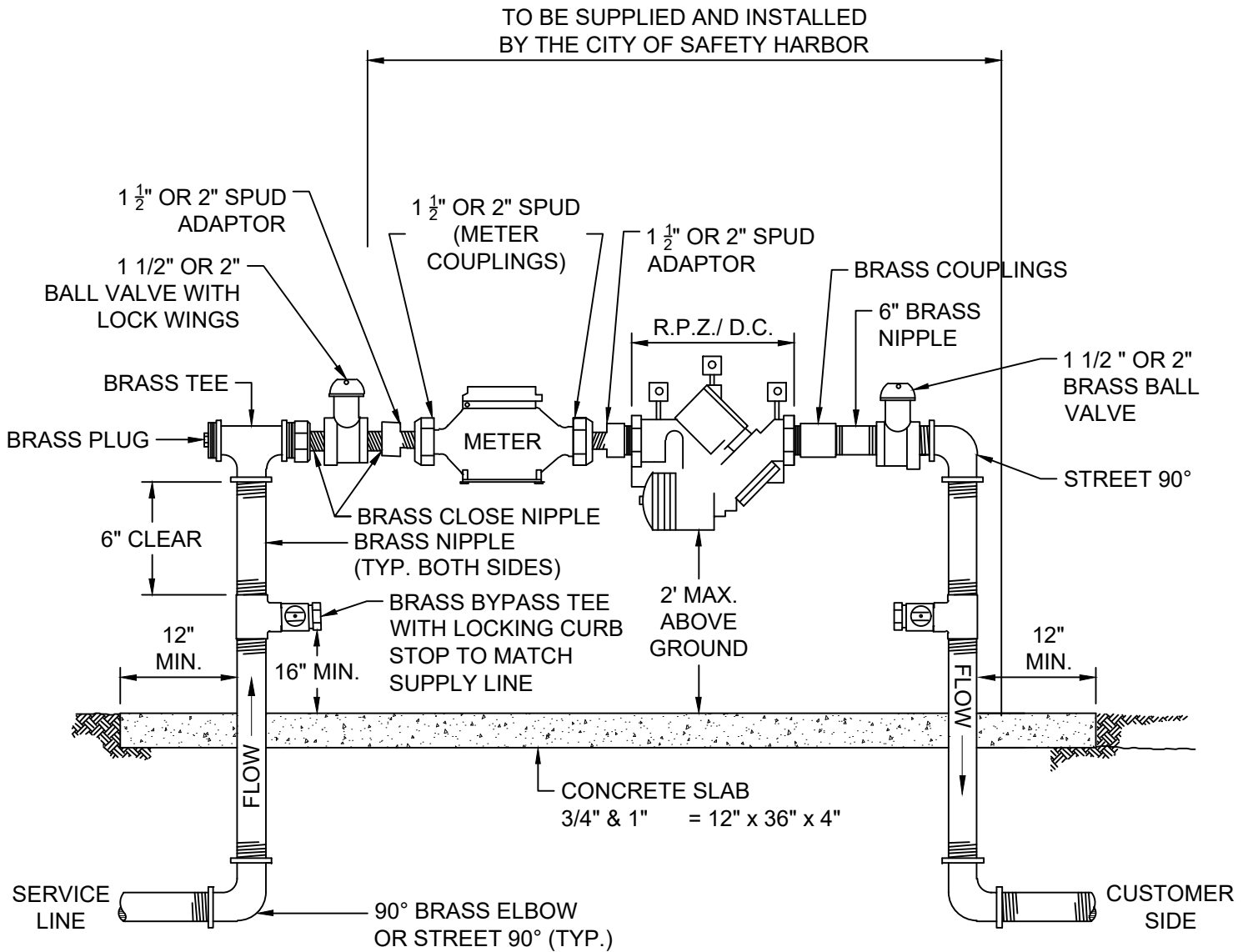
SCALE: N.T.S.

DATE: SEPTEMBER 2012

DETAIL NUMBER:

W25

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\REDUCED PRESSURE BACKFLOW ASSEMBLY 1-2.DWG



NOTES:

1. TO PREVENT DAMAGE TO DEVICE, TURN WATER ON VERY SLOWLY.
2. ADDITIONAL FITTINGS FOR 1 1/2" OR 2" METER MAY BE REQUIRED THAT HAVE NOT BEEN REPRESENTED ON THE DETAIL. CONTRACTOR SHALL SUPPLY ALL NECESSARY FITTINGS TO ENSURE THAT THE SYSTEM IS COMPLETE AND FUNCTIONAL.
3. METER BYPASS SHALL NOT BE USED AS A CONNECTION POINT FOR TEMPORARY WATER USE.

SIDE VIEW

SIZES: 1 1/2" OR 2"



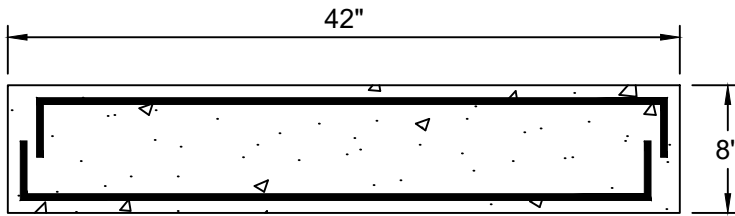
CITY OF SAFETY HARBOR

Engineering Department
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Phone (727) 724-1555

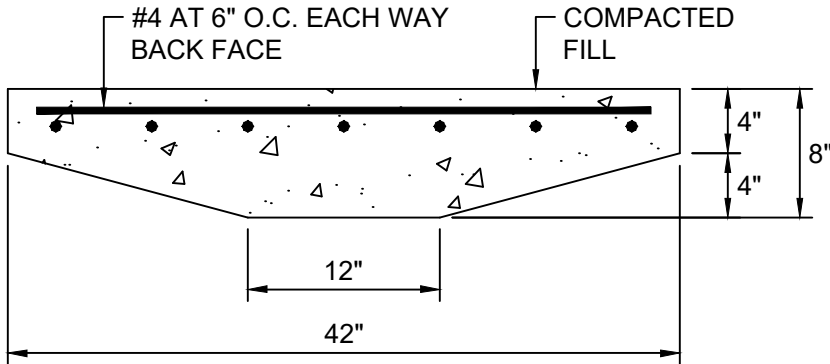
**REDUCED PRESSURE BACKFLOW
ASSEMBLY 1-1/2" OR 2"**

REVISIONS

BY	DATE
SS	07/22/2022
SCALE: N.T.S.	
DATE: SEPTEMBER 2012	
DETAIL NUMBER:	
W25B	



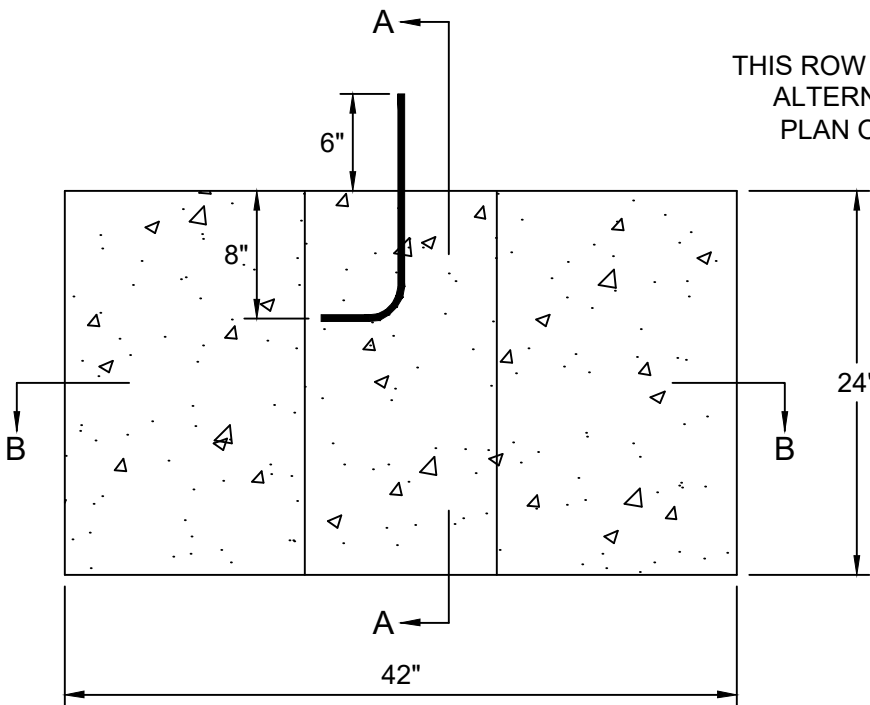
ALTERNATE SECTIONAL PLAN



SECTION B-B

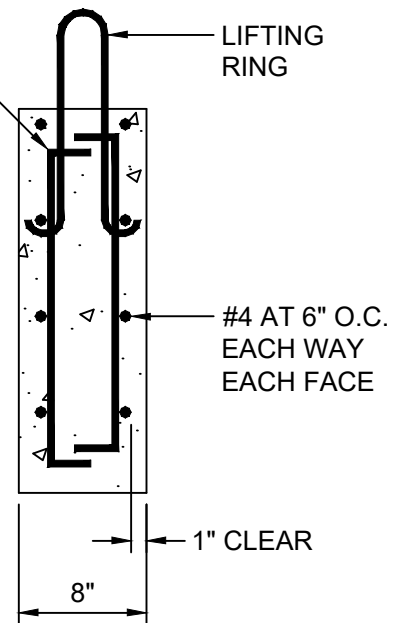
NOTES:

1. BLOCK MAY BE TAPERED OR STRAIGHT, AT THE CONTRACTOR'S OPTION.
2. REINFORCEMENT TO BE: #4 @ 6" E/W.
3. REINFORCING TO BE STANDARD DEFORMED BAR. FC = 3,000 PSI.
4. FLAT SIDE OF THRUST BLOCK SHALL BE PLACED AGAINST SOIL COMPACTED TO 100% DENSITY.
5. USE WHERE SPECIFIED AND/OR ORDERED. 4" PRESSURE PIPE ONLY.



ELEVATION

THIS ROW FOR
ALTERNATE
PLAN ONLY



SECTION A-A



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PRECAST CONCRETE THRUST BLOCK

REVISIONS

BY	DATE
SS	05/26/2022

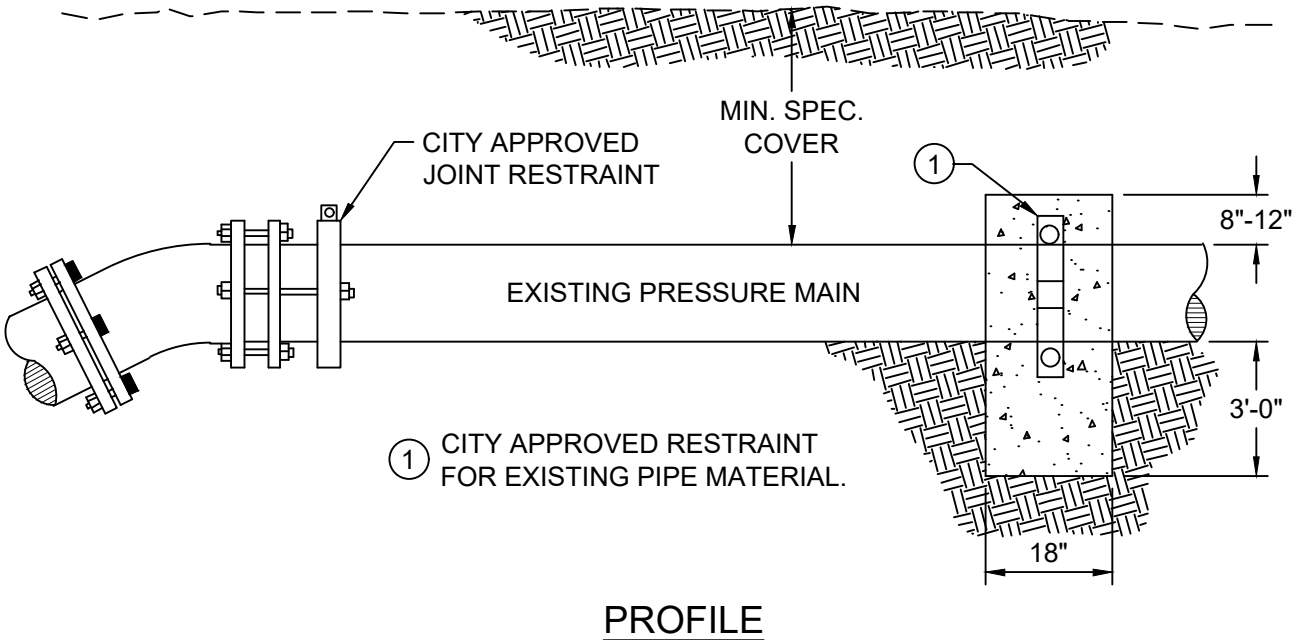
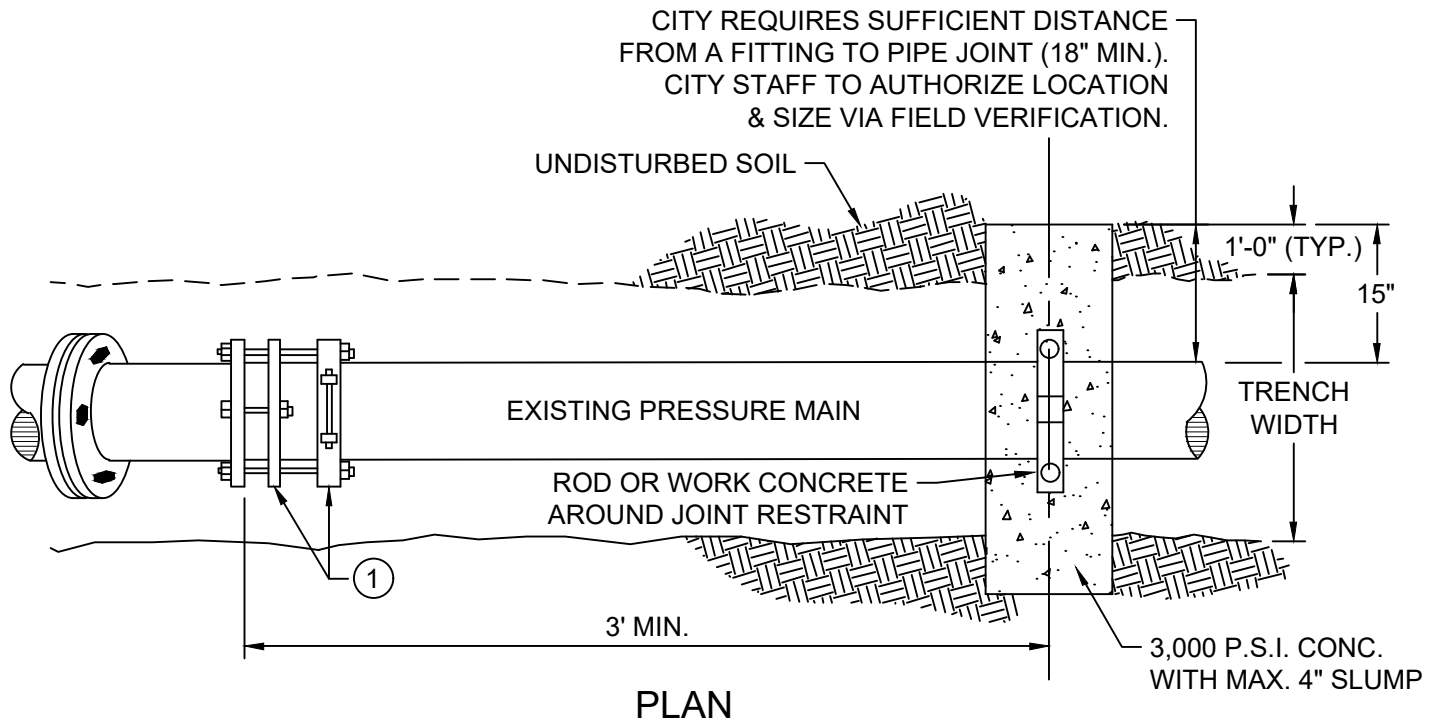
SCALE: N.T.S.

DATE: OCTOBER 2019

DETAIL NUMBER:

W26

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\DEADMAN DETAIL.DWG



NOTE:
FITTING CONNECTION TO EXISTING PIPE AND DEADMAN
MUST BE PART OF ONE INTEGRAL JOINT OF PIPE.



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DEADMAN

REVISIONS

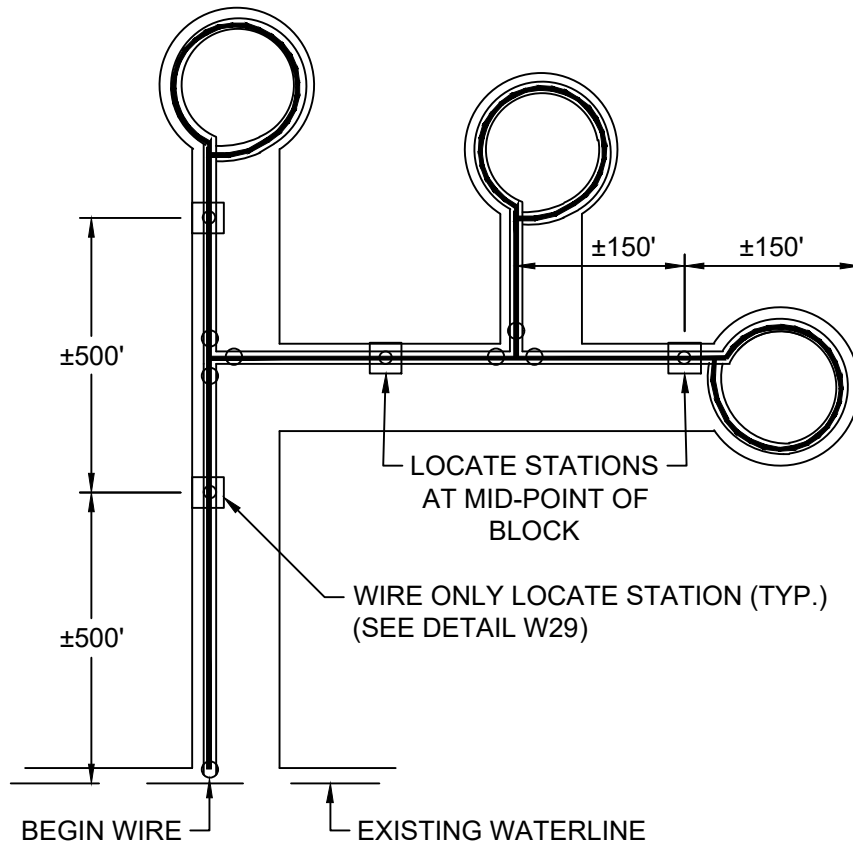
BY	DATE
BD	12/31/2019
SS	05/26/2022

SCALE: N.T.S.

DATE: AUGUST 2006

DETAIL NUMBER:

W27



TOP VIEW

NOTES:

1. WIRE LOCATE STATIONS ARE TO BE INSTALLED EVERY 500' UNLESS BLOCK IS LESS THAN 500'. THEN LOCATE STATIONS ARE TO BE INSTALLED AT MID-POINT OF BLOCK.
2. WIRE LOCATE STATIONS ARE TO BE INSTALLED AT EVERY TURN/FITTING.
3. WIRE TO CONTINUE THROUGH TEES ON MAIN LINES AND BROUGHT UP IN LOCATE STATION AT MID-BLOCK LOCATIONS.
4. WIRE SHALL BE CONTINUOUS, UTILIZING WATERPROOF CONNECTORS ONLY AT WIRE SPOOL TERMINATION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING LOCATE WIRES PRIOR TO PROJECT COMPLETION.



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LOCATOR WIRE INSTALLATION (TOP VIEW)

REVISIONS

BY	DATE
BD	11/01/2017
BD	12/31/2019

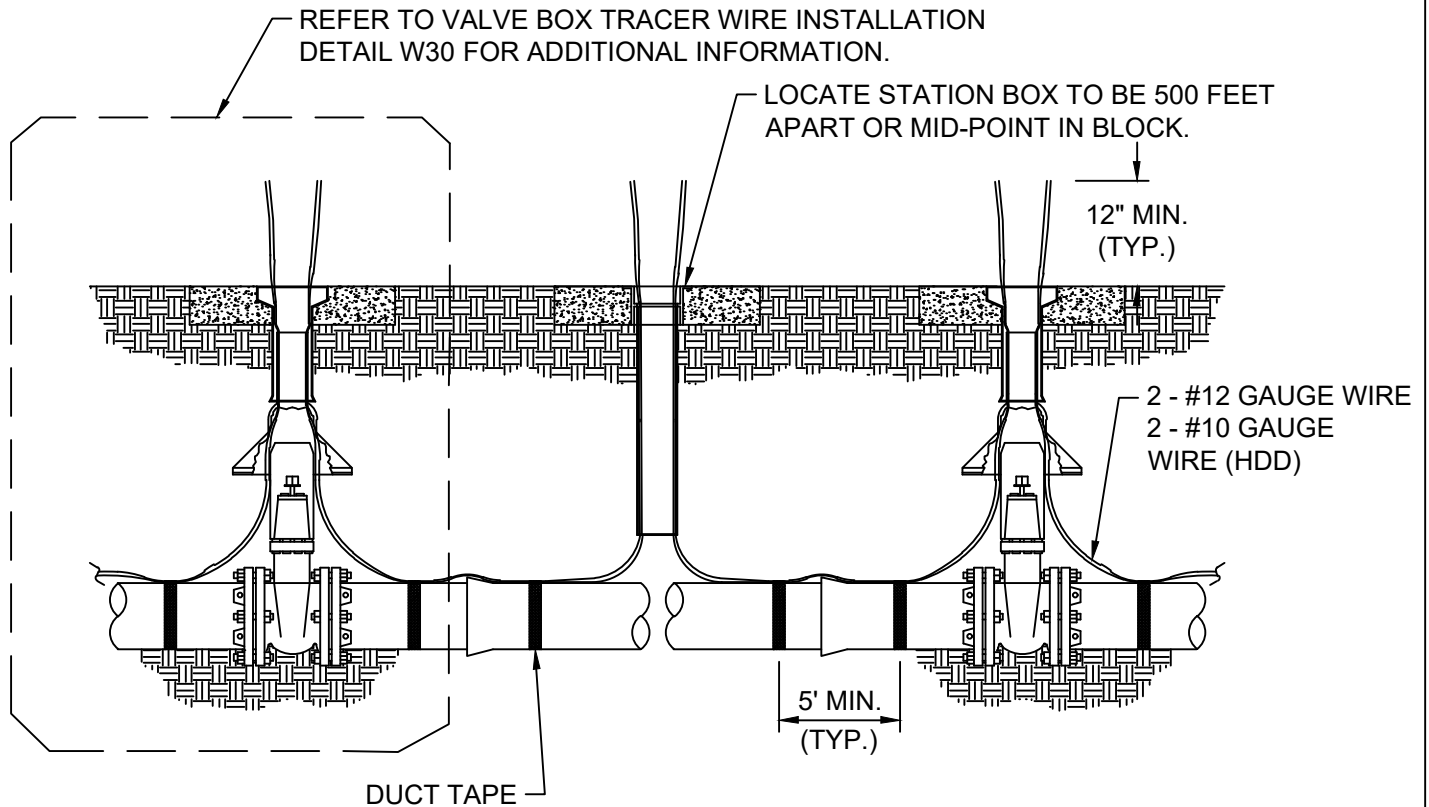
SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

W28

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\LOCATOR WIRE INSTALLATION SIDE VIEW.DWG



SIDE VIEW

LOCATE STATION BOX WITHIN "GREEN" AREAS REQUIRES A CONCRETE COLLAR. LOCATE STATION BOX IS TO CONSIST OF A USF #7621 HANDHOLE RING & COVER, MARKED "W" FOR WATER OR "S" FOR SEWER, ENCASED IN A CONCRETE COLLAR PER CITY OF SAFETY HARBOR STANDARDS. NO CONCRETE COLLAR IS REQUIRED FOR LOCATE STATIONS WITHIN PAVEMENT OR SIDEWALK UNLESS OTHERWISE DIRECTED BY CITY STAFF.

NOTES:

1. USE 2 #12 GAUGE COPPERHEAD HIGH STRENGTH WIRE; 2 #10 GAUGE FOR HDD. BLUE IN COLOR FOR WATER MAIN. GREEN IN COLOR FOR FORCE MAIN. WIRE TO RUN CONTINUOUSLY THRU TEST STATIONS FOR THE ENTIRE LENGTH OF THE PIPE LINE.
2. LEAVE ENOUGH "SLACK" IN WIRE SO IT CAN BE EXTENDED 12" ABOVE THE VALVE BOX AT TEST STATION.
3. ATTACH WIRE ON TOP OF PIPE LINE 5'-0" ON CENTER, USING DUCT TAPE OR APPROVED EQUAL.
4. **DO NOT** WRAP WIRES AROUND OPERATING NUT ON VALVE.
5. CONNECTIONS BETWEEN WIRES SHALL BE MADE USING WATERPROOF CONNECTORS.



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LOCATOR WIRE INSTALLATION (SIDE VIEW)

REVISIONS

BY	DATE
BD	11/01/2017
SS	07/22/2022

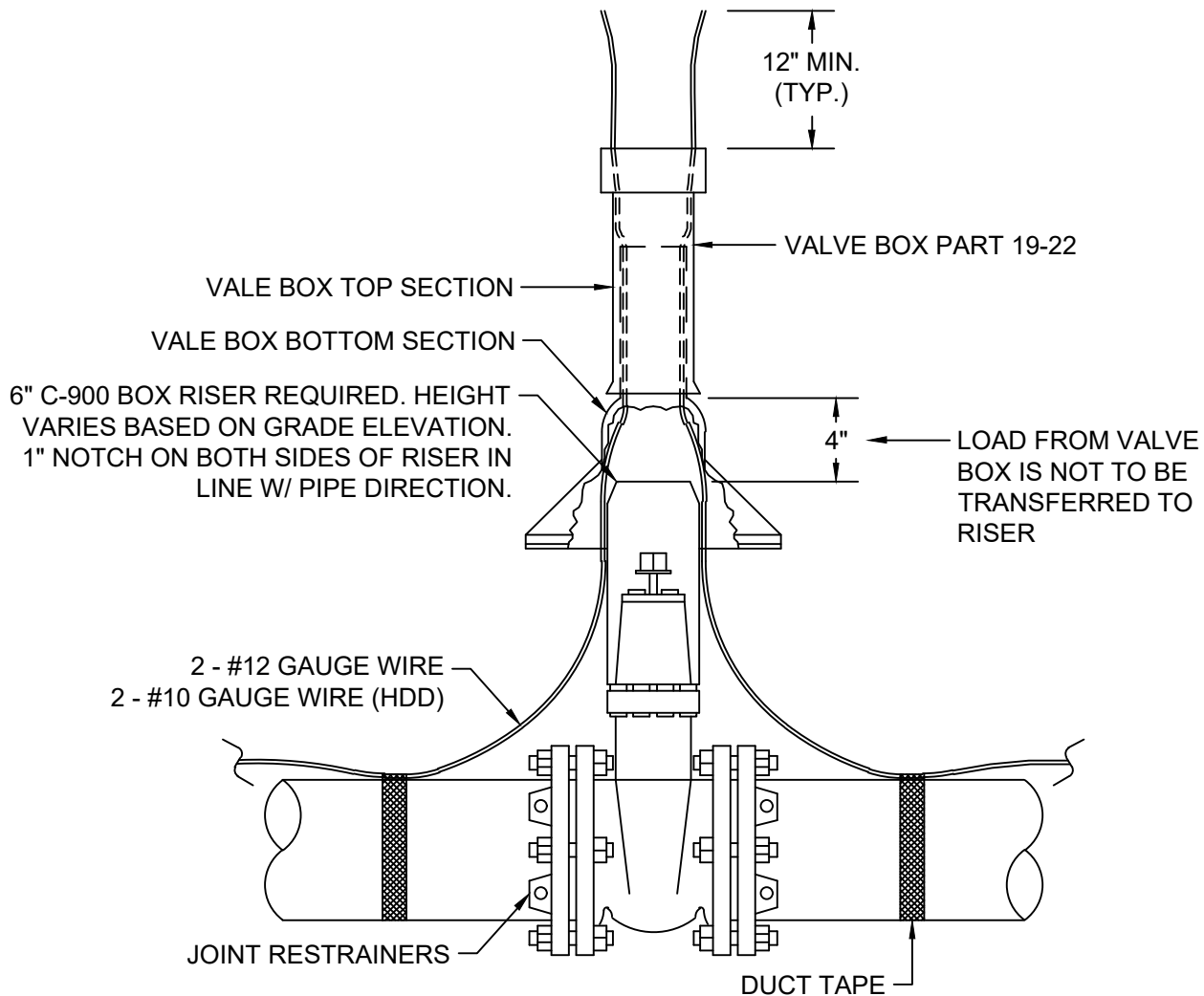
SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

W29

RIAUTOCAD STANDARDS/DETAILS/CITY DETAILS/VALVE BOX TRACER WIRE INSTALL.DWG



VALVE BOX WITHIN "GREEN" AREAS REQUIRES A CONCRETE COLLAR. VALVE BOX IS TO CONSIST OF A RUSSELL PIPE & FOUNDRY 2-PIECE HANDHOLE RING & COVER (PART# 19-22), MARKED "WATER" FOR WATER, ENCASED IN A CONCRETE COLLAR PER CITY OF SAFETY HARBOR STANDARDS. NO CONCRETE COLLAR IS REQUIRED FOR VALVE BOXES WITHIN PAVEMENT OR SIDEWALK UNLESS OTHERWISE STATED.

NOTES:

1. USE 2-#12 GAUGE COPPERHEAD HIGH STRENGTH WIRE; 2-#10 GAUGE FOR HDD. BLUE IN COLOR FOR WATER MAIN. WIRE TO RUN CONTINUOUSLY THRU TEST STATIONS FOR THE ENTIRE LENGTH OF THE PIPE LINE.
2. LEAVE ENOUGH "SLACK" IN WIRE SO IT CAN BE EXTENDED 12" ABOVE THE VALVE BOX AT TEST STATION.
3. ATTACH WIRE ON TOP OF PIPE LINE 5'-0" ON CENTER, USING DUCT TAPE OR APPROVED EQUAL.
4. **DO NOT** WRAP WIRES AROUND OPERATING NUT ON VALVE.
5. CONNECTIONS BETWEEN WIRES SHALL BE MADE USING WATERPROOF CONNECTORS.



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**VALVE BOX TRACER WIRE
INSTALLATION**

REVISIONS

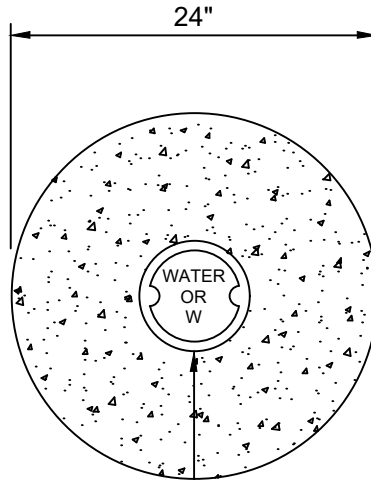
BY	DATE
BD	11/01/2017
SS	07/07/2022

SCALE: N.T.S.

DATE: FEBRUARY 2016

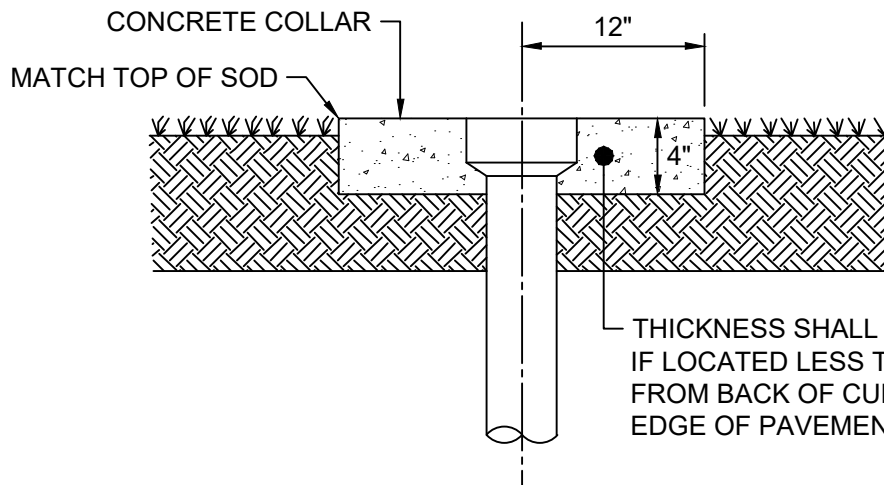
DETAIL NUMBER:

W30



IF VALVE BOX AND COVER, MARKING ON LID SHALL READ "WATER", CENTERED IN PAD.

IF LOCATE STATION, MARKING ON LID SHALL READ "W", CENTERED IN PAD.



NOTES:

1. NO RISERS TO BE USED IN NEW INSTALLATIONS.
2. VALVE BOX MUST BE CENTERED OVER OPERATING NUT.
3. VALVE BOX MAY BE IMPORTED OR DOMESTIC.
4. VALVE BOX MUST BE SCREW TYPE.



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CONCRETE COLLAR (WATER)

REVISIONS

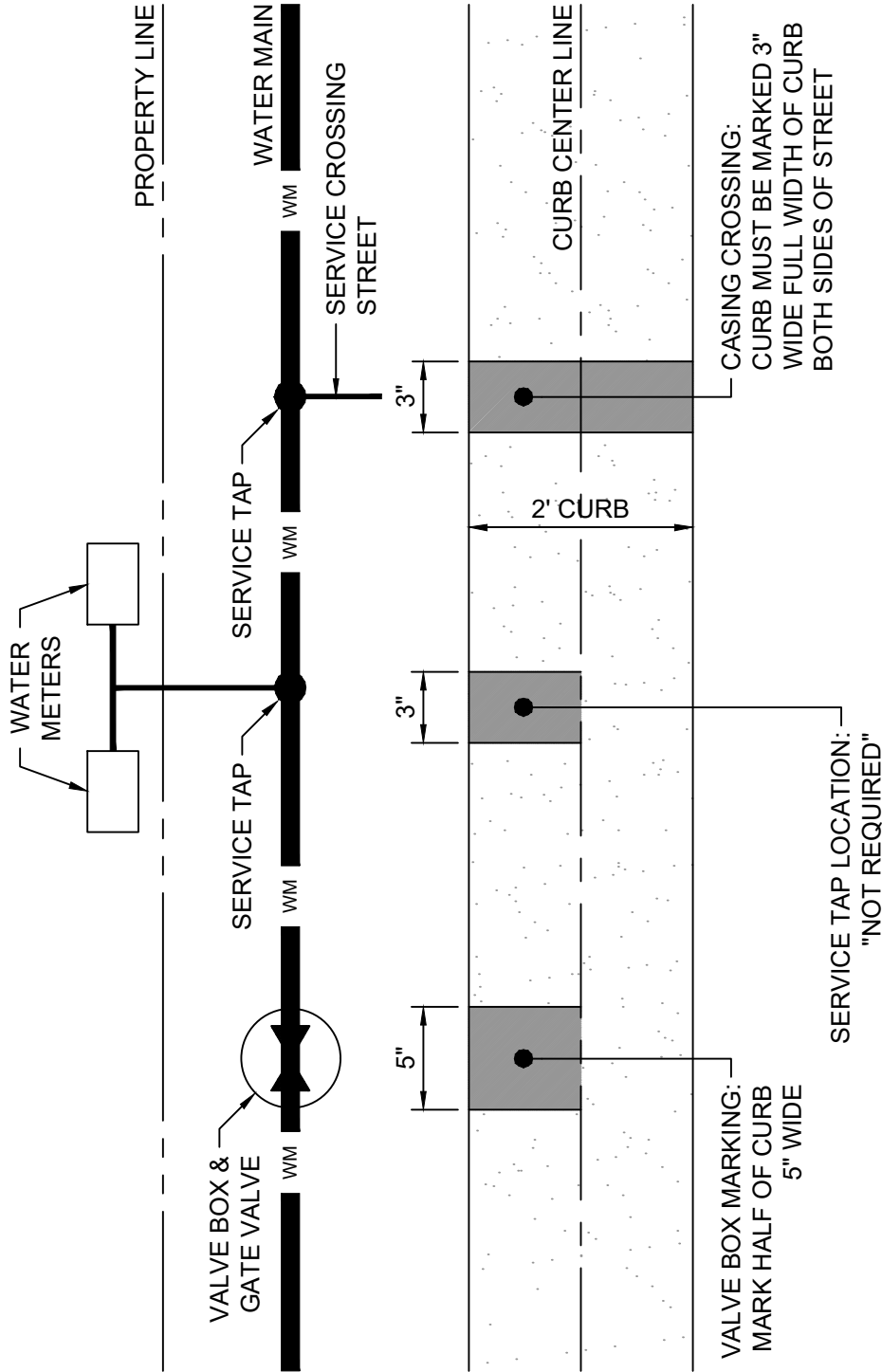
BY	DATE
BD	11/01/2017
SS	05/26/2022

SCALE: N.T.S.

DATE: JUNE 2013

DETAIL NUMBER:

W31



* LIGHT BLUE ENAMEL PAINT ONLY



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WATER CURB MARKINGS

REVISIONS

BY	DATE

SCALE: N.T.S.

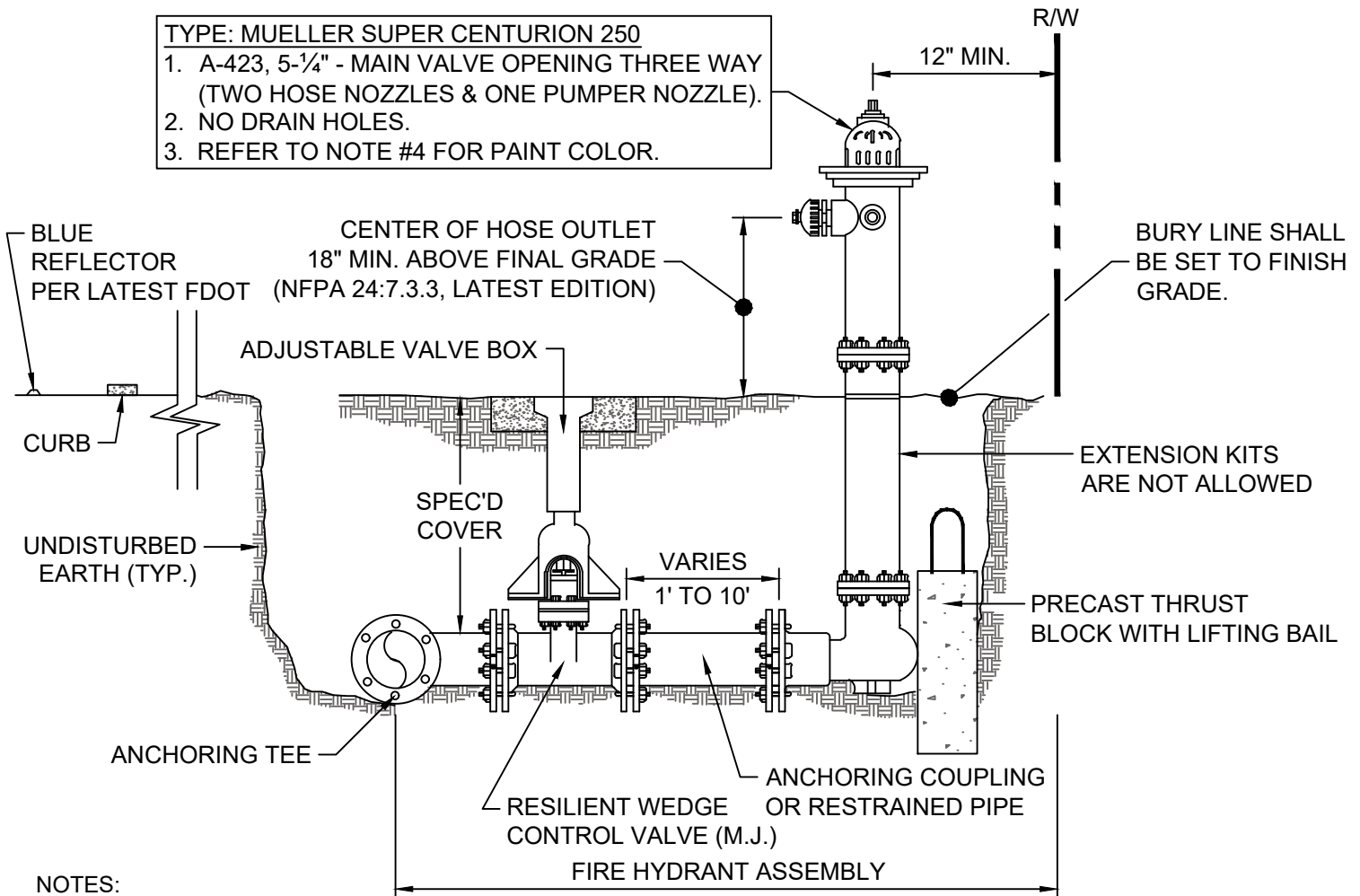
DATE: NOVEMBER 2003

DETAIL NUMBER:

W32

TYPE: MUELLER SUPER CENTURION 250

1. A-423, 5-1/4" - MAIN VALVE OPENING THREE WAY (TWO HOSE NOZZLES & ONE PUMPER NOZZLE).
2. NO DRAIN HOLES.
3. REFER TO NOTE #4 FOR PAINT COLOR.



NOTES:

1. IF VALVE(S) IS TO BE LOCATED WITHIN A PAVED SURFACE, OR WITHIN 3' FROM PLUG, IT IS TO BE ENCASED IN A CONCRETE COLLAR PER CITY OF SAFETY HARBOR STANDARDS.
2. IF FIRE HYDRANT IS TO BE LOCATED WITHIN 15 FEET OR LESS OF A VEHICULAR TRAVELED AREA, GUARD POSTS ARE TO BE INSTALLED PER CITY OF SAFETY HARBOR STANDARDS UNLESS OTHERWISE DIRECTED BY THE DIRECTOR OF PUBLIC WORKS OR APPROVED REPRESENTATIVE.
3. A SECOND VALVE MAY BE REQUIRED, AS DIRECTED BY THE DIRECTOR OF PUBLIC WORKS, THE CITY ENGINEER OR AN APPROVED REPRESENTATIVE, IF DISTANCE BETWEEN VALVE AND HYDRANT IS EXCESSIVE.
4. ALL PUBLIC FIRE HYDRANTS TO BE PAINTED WITH 2204 CLEAR BASE SILICON ALKYD S.G. BRIGHT YELLOW ENAMEL OR EQUAL (2 COATS). ALL PRIVATE FIRE HYDRANTS TO BE PAINTED RUST-OLEUM OR KRYLON OSHA SAFETY RED OR SIMILAR (2 COATS).
5. ALL FIRE HYDRANT WEEP HOLES ARE TO BE PLUGGED.
6. DISTANCE FROM FIRE HYDRANT MAIN PORT TO EDGE OF SIDEWALK SHALL BE A MINIMUM OF 2'.
7. CONCRETE COLLAR MAY VARY BY LOCATION. REFER TO DETAIL W31.
8. SHOULD EXISTING CONDITIONS NOT MEET CRITERIA, CONTRACTOR TO NOTIFY CITY ENGINEERING DEPARTMENT FOR REVIEW.
9. AT ALL HYDRANT LOCATIONS, INSTALL BLUE REFLECTIVE PAVEMENT MARKERS PER LATEST F.D.O.T. STD PLANS.
10. PER FLORIDA FIRE PREVENTION CODE 18.5.7.1, A 36-INCH CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS EXCEPT AS OTHERWISE REQUIRED OR APPROVED BY THE FIRE MARSHAL.

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\FIRE HYDRANT.DWG



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FIRE HYDRANT

REVISIONS

BY	DATE
BD	12/31/2019
SS	07/06/2022

SCALE: N.T.S.

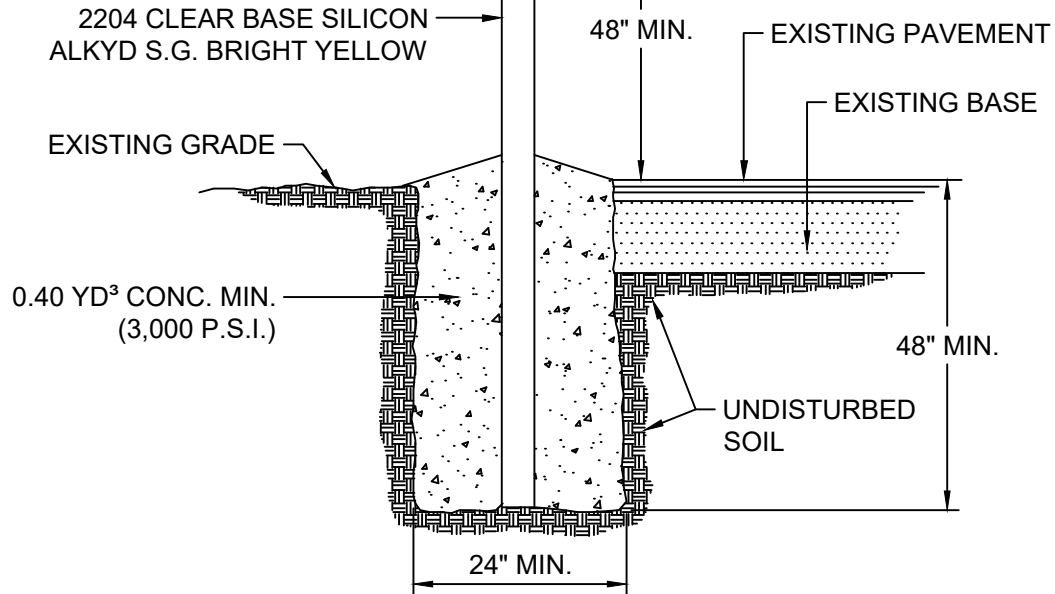
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DETAIL NUMBER:

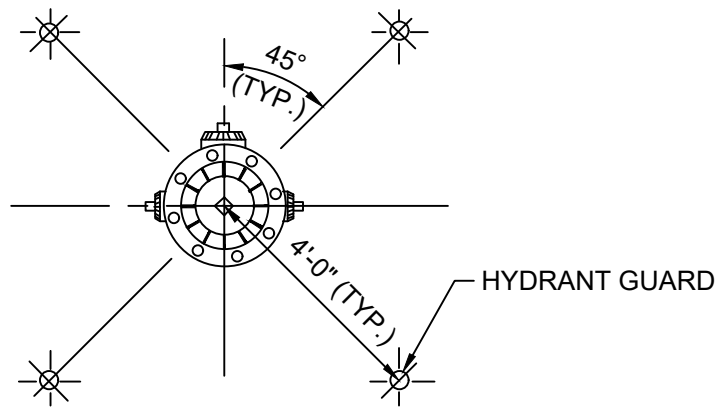
F1

6" D.I.P. OR SCH. 40 STEEL PIPE SHALL BE USED FOR PROTECTION OF FIRE HYDRANTS.
 4" SCH. 40 STEEL PIPE (MIN.) SHALL BE USED FOR PROTECTION OF BACKFLOW DEVICES & ABOVE GROUND WATER METERS.
 BOTH ARE TO BE FILLED WITH & SET IN CONCRETE.

NOTE:
 4" DIA. PIPE MAY BE UTILIZED FOR PROTECTION OF FIRE HYDRANTS AT THE DISCRETION OF THE PUBLIC WORKS DIRECTOR OR APPROVED REPRESENTATIVE.



INSTALLATION



LAYOUT



CITY OF SAFETY HARBOR

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FIRE HYDRANT GUARDS

REVISIONS

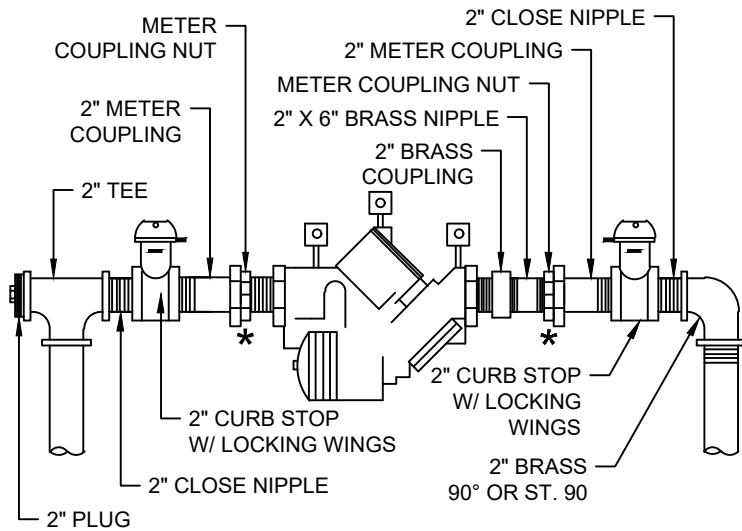
BY	DATE
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SS	05/26/2022

SCALE: N.T.S.

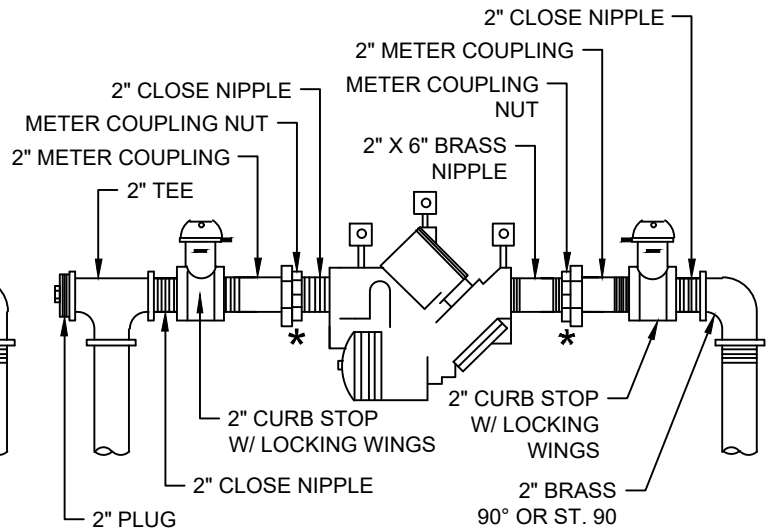
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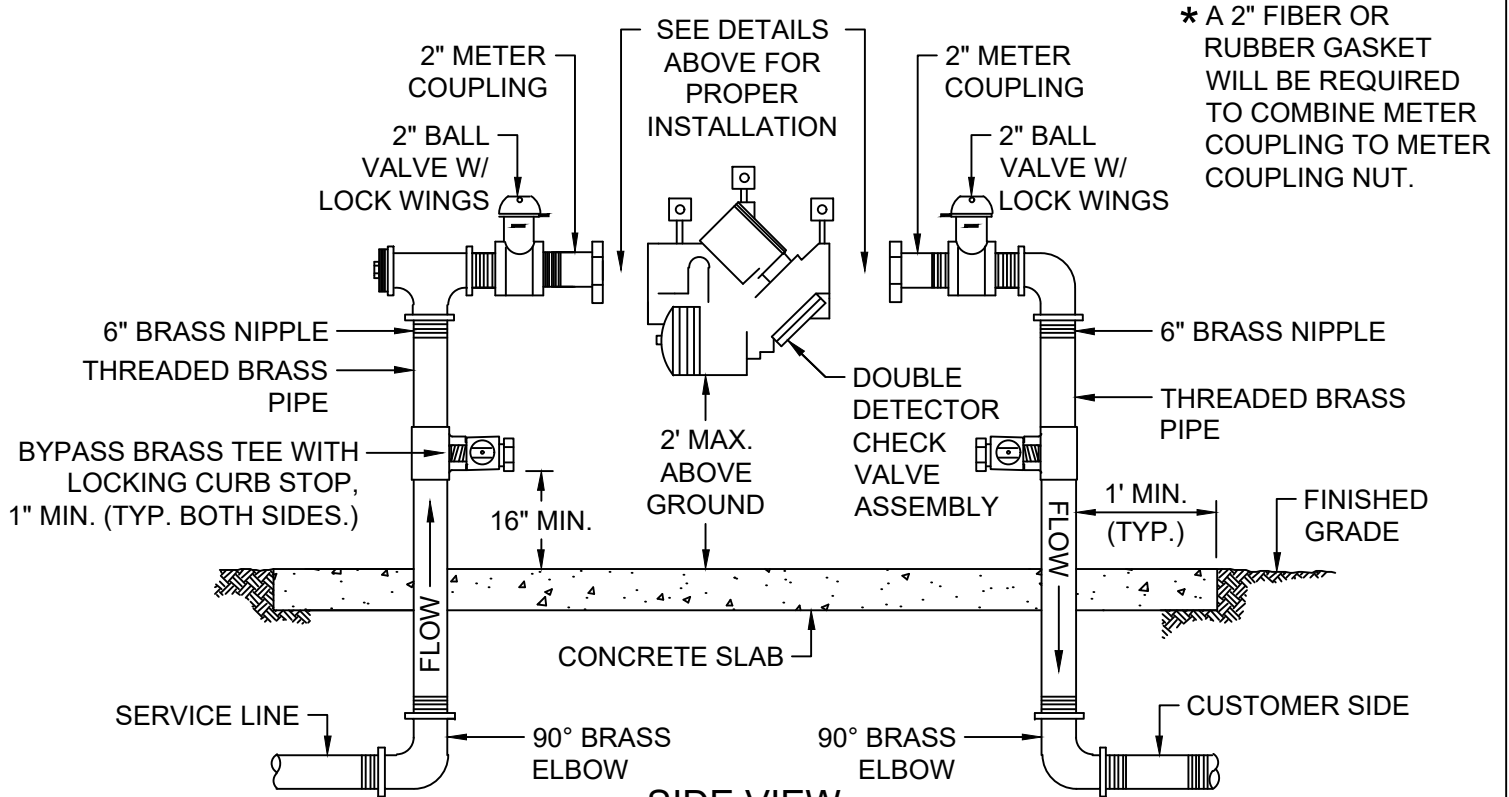
F2



DDCV WITH MALE THREADS



DDCV WITH FEMALE THREADS



NOTES:

1. TO PREVENT DAMAGE TO DEVICE, TURN WATER ON VERY SLOWLY.
2. ADDITIONAL FITTINGS MAY BE REQUIRED THAT HAVE NOT BEEN REPRESENTED ON THE DETAIL. CONTRACTOR SHALL SUPPLY ALL NECESSARY FITTINGS TO ENSURE THAT THE SYSTEM IS COMPLETE AND FUNCTIONAL.

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\2\" FIRE LINE ASSEMBLY.DWG



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2" FIRE LINE ASSEMBLY

REVISIONS

BY	DATE
BD	11/10/2015
BD	11/01/2017

SCALE: N.T.S.

DATE: JANUARY 2006

DETAIL NUMBER:

F3



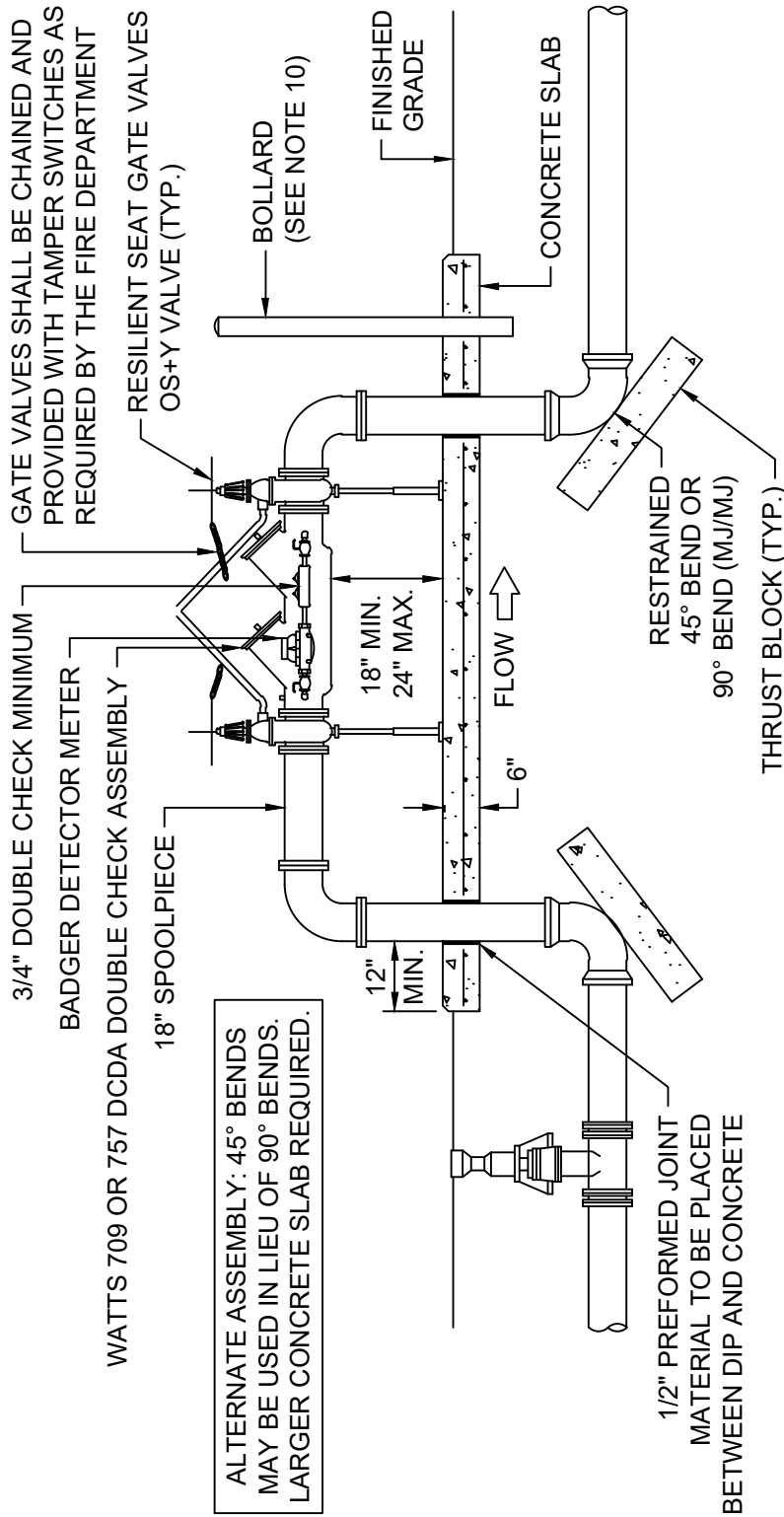
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DOUBLE DETECTOR CHECK VALVE ASSEMBLY FOR FIRE PROTECTION

REVISIONS

BY	DATE
SCALE: N.T.S.	
DATE:	DECEMBER 2019
DETAIL NUMBER:	
F4	



NOTES:

1. ALL PIPE AND FITTINGS SHALL BE CEMENT LINED CLASS 50 DIP FOR A 4" AND LARGER PIPE. ABOVE GROUND DIP SHALL BE FLANGED. UNIFLANGES WILL NOT BE PERMITTED.
2. CERTIFICATION OF PROPER INSTALLATION AND OPERATION WILL BE REQUIRED FROM A CERTIFIED BACKFLOW PREVENTION TECHNICIAN PRIOR TO WATER MAIN ACCEPTANCE BY THE CITY OF SAFETY HARBOR'S PUBLIC WORKS DEPARTMENT.
3. THE BACKFLOW PREVENTION DEVICE ASSEMBLY SHALL BE ON THE APPROVED LIST OF THE CITY OF SAFETY HARBOR.
4. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE PROPER OPERATION MAINTENANCE AND TESTING OF THE BACKFLOW PREVENTION DEVICE ASSEMBLY.
5. 6" THICK CONCRETE SLAB SHALL BE REINFORCED WITH NO. 6X6-W10XW10 AND SHALL BE TYPE II, PORTLAND CEMENT WITH A MINIMUM 28 DAY STRENGTH OF 3,000 PSI.
6. SLAB WIDTH SHALL BE 5'-0" TYPICAL AND LENGTH SHALL VARY WITH ASSEMBLY.
7. ENTIRE ASSEMBLY SHALL BE PAINTED RUST-OLEUM OR KRYLON OSHA SAFETY RED OR SIMILAR (2 COATS).
8. THE BACKFLOW PREVENTION DEVICE ASSEMBLY SHALL BE UL LISTED FOR FIRE MAIN USE.
9. A FREE STANDING 5" STORTZ CONNECTION TEE SHALL BE APPROXIMATELY 15-20 FEET FROM THE BUILDING.
10. WHERE REQUIRED, A MINIMUM OF 4 - 4" DIAMETER, CONCRETE FILLED BOLLARDS SHALL BE PLACED AROUND THE ASSEMBLY FOR PROTECTION. REFER TO DETAIL F2.

NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE STRICTEST CONSTRUCTION SPECIFICATIONS AS REQUIRED BY THE CITY OF SAFETY HARBOR, PINELLAS COUNTY UTILITY AND TESTING FREQUENCY STANDARDS, FLORIDA DEPARTMENT OF TRANSPORTATION, OR AS REQUIRED BY THE CITY ENGINEER.
2. ALL PIPE STUBS FROM MANHOLES FOR FUTURE CONNECTIONS SHALL BE PROVIDED WITH WATERTIGHT PLUGS PLACED WITHIN THE MANHOLE.
3. MANHOLES SHALL CONSIST OF A MINIMUM NUMBER OF PRECAST SECTIONS, AS APPROVED BY THE CITY ENGINEER.
4. SHALLOW TYPE MANHOLES WITH DEPTHS BETWEEN 3'-6" AND 5'-0" MAY BE CONSTRUCTED OF BRICK WITH A 3'-0" INSIDE DIAMETER AND CONE. ALL SHALLOW TYPE MANHOLES WITH DEPTHS OF 3'-6" OR LESS SHALL BE SUBMITTED FOR APPROVAL.
5. NO FLAT TOPS UNLESS SPECIFIED BY CITY STAFF FOR SPECIAL CONDITIONS. FLAT TOPS WILL REQUIRE A 32" RING AND COVER - USF 667 RING AND COVER, CR OUTER COVER, CE INNER COVER.
6. DOG HOUSE MANHOLES WILL NOT BE ACCEPTABLE.
7. A COAL TAR EPOXY PROTECTIVE COATING, EQUAL TO KOPPERS 300M, SHALL BE APPLIED TO THE OUTSIDE OF PRECAST CONCRETE SANITARY SEWER MANHOLE STRUCTURES. THE INSIDE SHALL BE SPRAY LINED. SHOP DRAWINGS SHALL BE SUBMITTED TO CITY FOR REVIEW AND APPROVAL
8. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM SPECIFICATION C-478 EXCEPT AS NOTED.
9. A DROP MANHOLE SHALL BE REQUIRED WHEN THE INVERT OF ANY INCOMING PIPE IS MORE THAN 2 FEET ABOVE THE INVERT OF THE MANHOLE, UNLESS OTHERWISE NOTED. INSIDE DROP MANHOLES ARE NOT PERMITTED.
10. a) 8" TO 24" DIA. PIPE: 4'-0" MIN. INSIDE DIA. MANHOLE, 8" THICK
b) 27" TO 36" DIA. PIPE: 5'-0" MIN. INSIDE DIA. MANHOLE, 12" THICK.
c) 42" TO 48" DIA. PIPE: 6'-0" MIN. INSIDE DIA. MANHOLE, 12" THICK.
11. a) 8" TO 24" DIA. PIPE: RING SHALL HAVE A 24" OPENING. REFER TO DETAIL SS7.
b) 30" AND LARGER DIA. PIPE: RING SHALL HAVE A 32" OPENING. REFER TO DETAIL SS7.
12. ALL CLEANOUT BOXES SHALL BE DFW, MODEL #D-1100 OR APPROVED EQUAL.
13. MINIMUM SLOPE = 1/8 INCH PER FOOT. USE GREATER SLOPE WHEN POSSIBLE.
14. ALL PROPERTY CORNERS DISTURBED OR REMOVED DUE TO CONSTRUCTION WILL BE REPLACED BY A CERTIFIED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
15. WHEN A FORCE MAIN IS PROPOSED TO DISCHARGE INTO A GRAVITY MANHOLE, THE INSIDE OF THE MANHOLE SHALL HAVE A SPRAY ON LINER. SHOP DRAWINGS SHALL BE SUBMITTED TO CITY FOR REVIEW AND APPROVAL. SPRAY LINER SHALL BE CEMENTITIOUS.
16. SEWER MAIN PIPING MUST BE 8" GREEN SDR-26.
17. FOLLOWING INSTALLATION OF NEW SEWER MAINS AND MANHOLES, THE CONTRACTOR SHALL PERFORM, AT THEIR EXPENSE, AN INFILTRATION OR EXFILTRATION TEST, A TELEVISION INSPECTION, AND A MANDREL TEST ON ALL GRAVITY SEWERS IN ACCORDANCE WITH ENGINEERING AND REGULATORY AGENCY REQUIREMENTS. PUBLIC WORKS SHALL BE PRESENT FOR SUCH TESTING. THE CONTRACTOR SHALL NOTIFY PUBLIC WORKS 48 HOURS IN ADVANCE OF ANY TESTING.
18. ALL NEW SANITARY SEWER PIPING SHALL BE SUBJECT TO VISUAL INSPECTION BY PUBLIC WORKS PRIOR TO THE PLACEMENT OF BACKFILL MATERIAL. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT 48 HOURS IN ADVANCE OF ANY INSPECTIONS.
19. ALL MATERIALS SHALL BE APPROVED BY PUBLIC WORKS PRIOR TO INSTALLATION.
20. GASKET FITTINGS SHALL BE USED ON MAIN LINES AND SERVICES.
21. GLUE FITTINGS SHALL BE USED FOR 2-WAY CLEANOUT ASSEMBLY.
22. THE CONTRACTOR IS RESPONSIBLE FOR PRESSURE TESTING (150PSI MINIMUM - 155 PSI MAXIMUM).



CITY OF SAFETY HARBOR

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SANITARY SEWER NOTES

REVISIONS

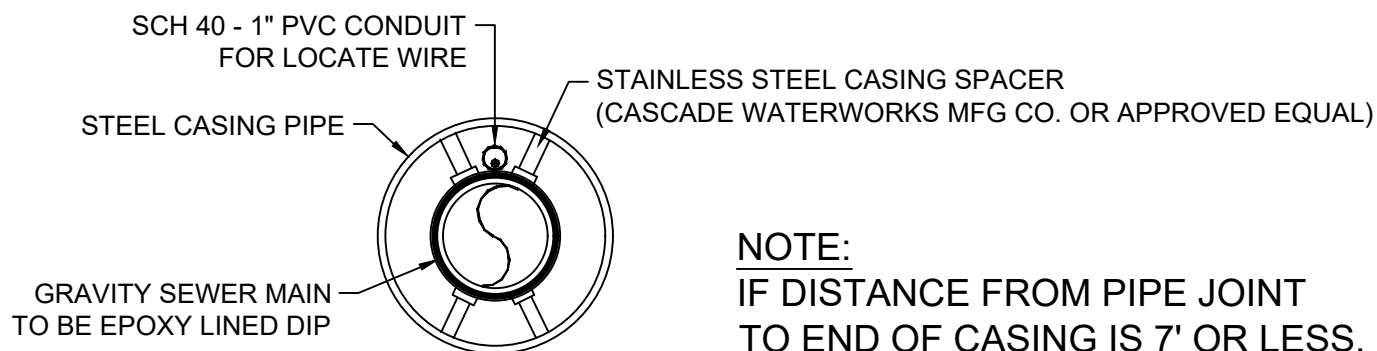
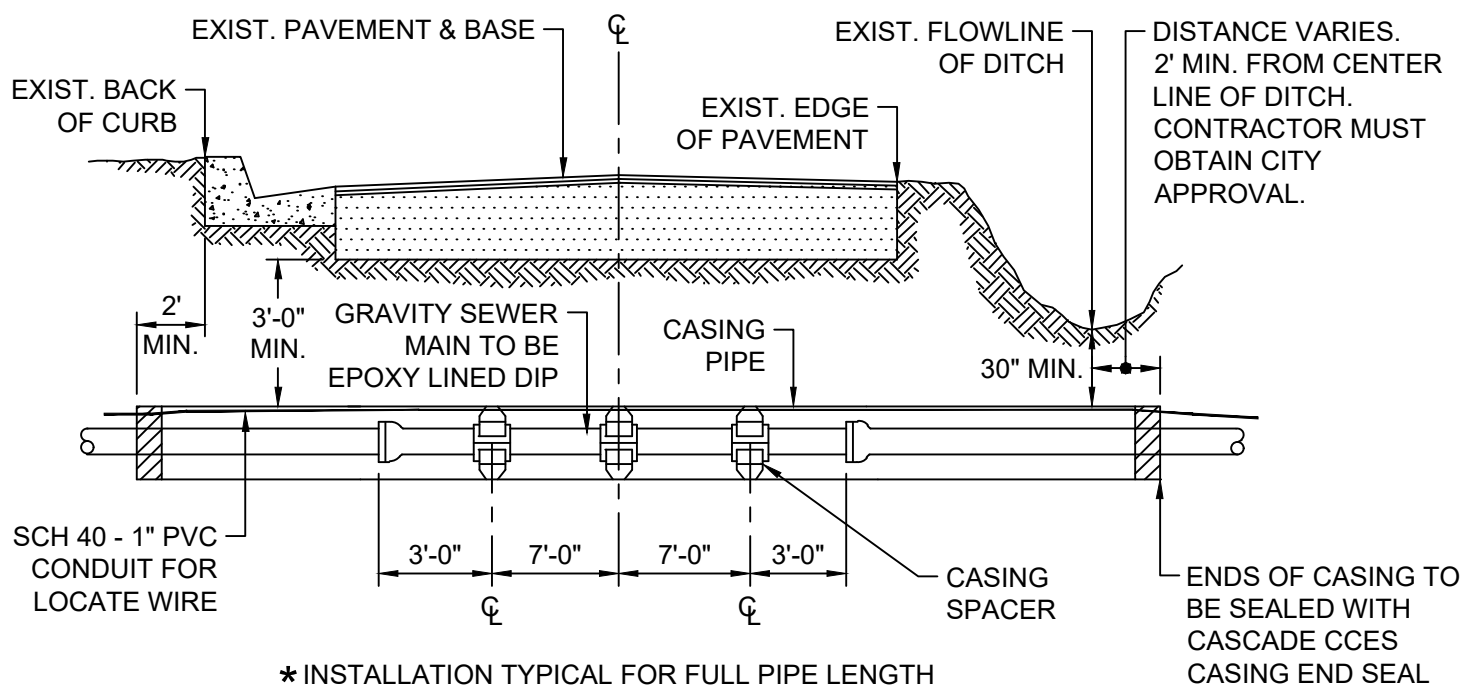
BY	DATE
BD	12/31/2019
SS	07/07/2022

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

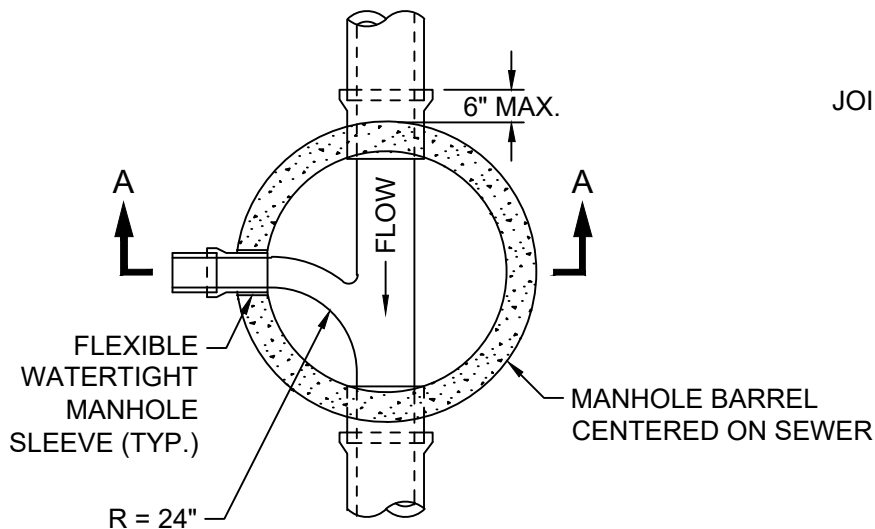
SSI



CARRIER (SEWER MAIN) & CASING SIZES									
SEWER MAIN	4"	6"	8"	10"	12"	14"	16"	18"	20"
CASING	8"	12"	16"	20"	24"	28"	32"	36"	40"
CASING/WALL THICKNESS	.188	.188	.219	.250	.281	.344	.406	.406	.500

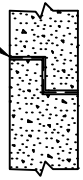


R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\CONNECTION TO EXISTING MANHOLE.DWG

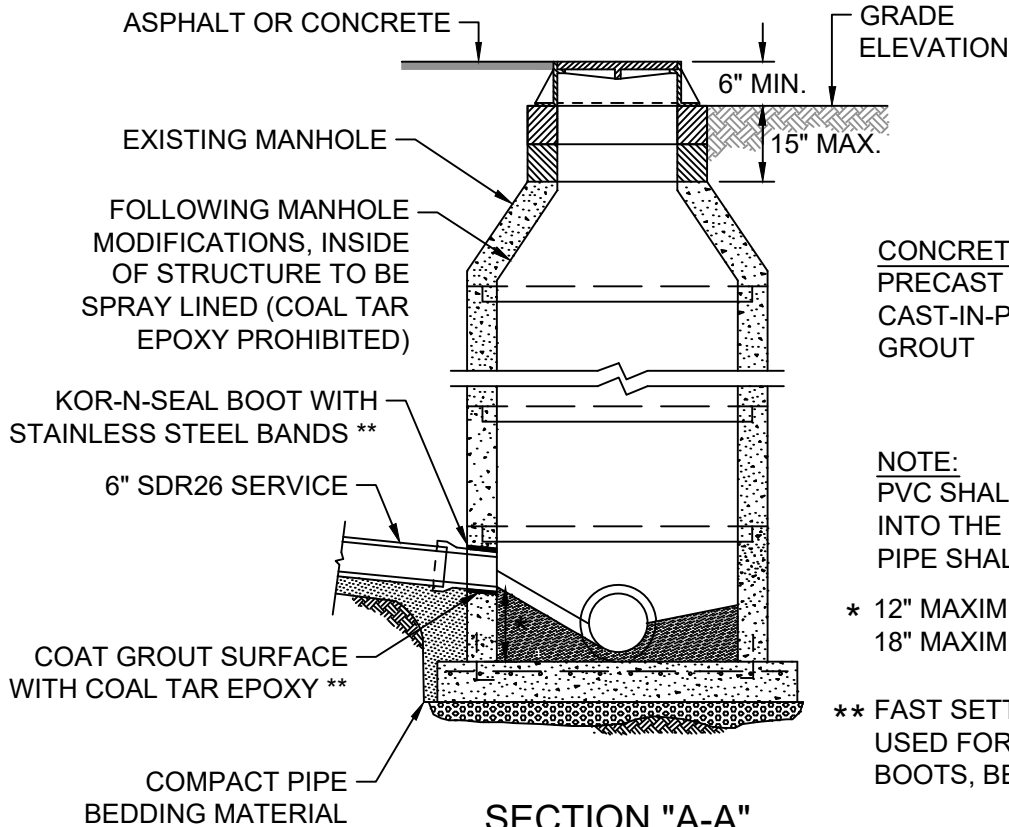


SECTIONAL PLAN

PREFORMED RAM-NEK
JOINT SEALING COMPOUND
(OR APPROVED EQUAL)



**MANHOLE BARREL
JOINT DETAIL**



SECTION "A-A"

CONCRETE REQUIREMENTS

PRECAST	f 'c = 4,000 psi
CAST-IN-PLACE	f 'c = 3,000 psi
GROUT	f 'c = 2,500 psi

NOTE:

PVC SHALL EXTEND ALL THE WAY INTO THE MANHOLE. NO CLAY PIPE SHALL BE LEFT IN PLACE.

- * 12" MAXIMUM FOR FORCE MAINS.
18" MAXIMUM FOR GRAVITY MAINS.

** FAST SETTING CONCRETE SHALL NOT BE USED FOR SEALING PIPES; KOR-N-SEAL BOOTS, BENCHES, ETC.



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CONNECTION TO EXISTING MANHOLE

REVISIONS

BY	DATE
BD	12/31/2019
SS	07/07/2022

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

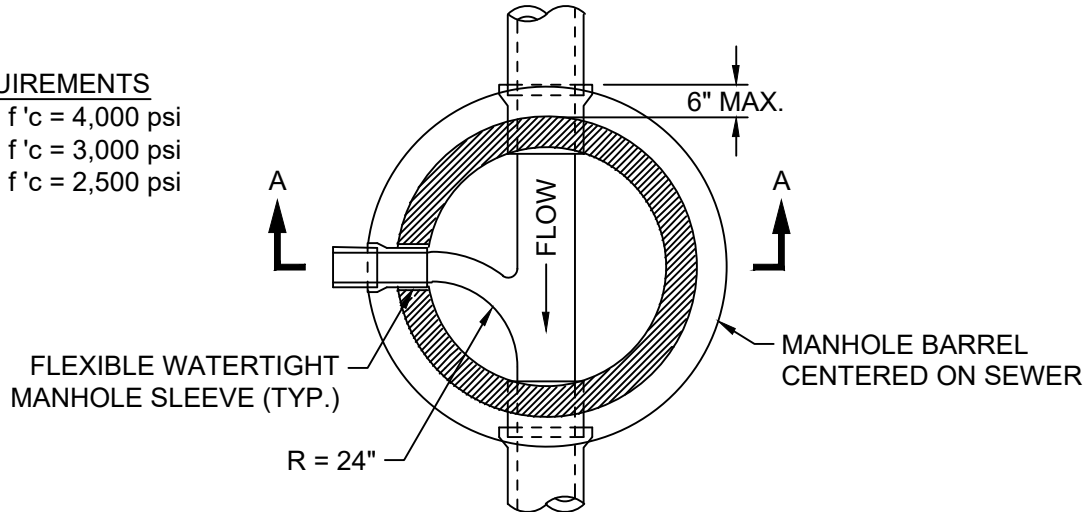
SS3

NOTES:

1. FRAME AND COVER SHALL BE CENTERED IN THE MANHOLE.
2. WALLS SHALL BE CLAY BRICK (SEE NOTE 4 ON DETAIL SSI).

CONCRETE REQUIREMENTS

PRECAST $f'c = 4,000$ psi
CAST-IN-PLACE $f'c = 3,000$ psi
GROUT $f'c = 2,500$ psi

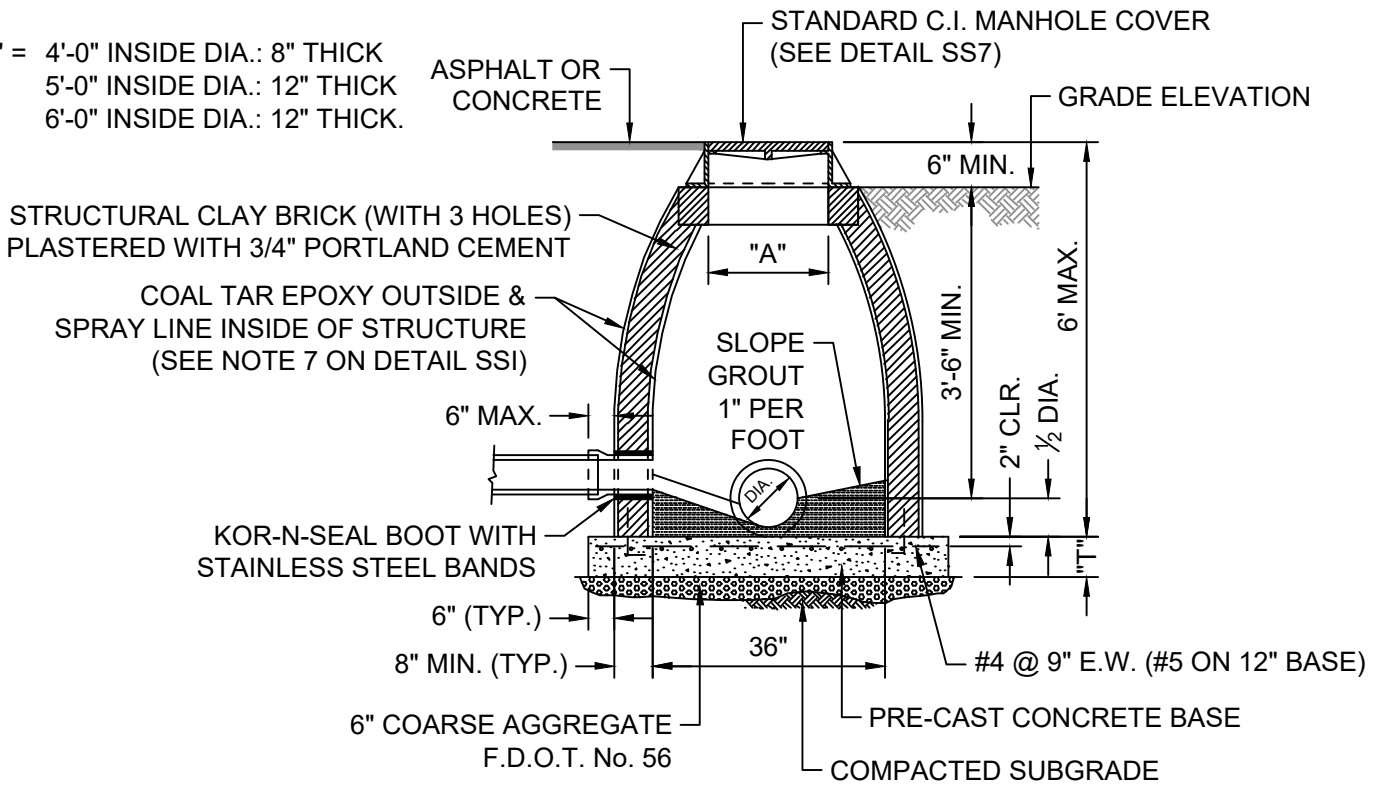


LEGEND

"A" = 8" TO 24" DIA. PIPE: 24" OPENING
30" & LARGER DIA. PIPE: 32"-36" OPENING

"T" = 4'-0" INSIDE DIA.: 8" THICK
5'-0" INSIDE DIA.: 12" THICK
6'-0" INSIDE DIA.: 12" THICK.

SECTIONAL PLAN



SECTION "A-A"



CITY OF SAFETY HARBOR

Engineering Department
750 Main Street, Safety Harbor, FL 34695
Phone (727) 724-1555

SHALLOW MANHOLE

REVISIONS

BY	DATE
BD	11/01/2017
BD	12/31/2019

SCALE: N.T.S.

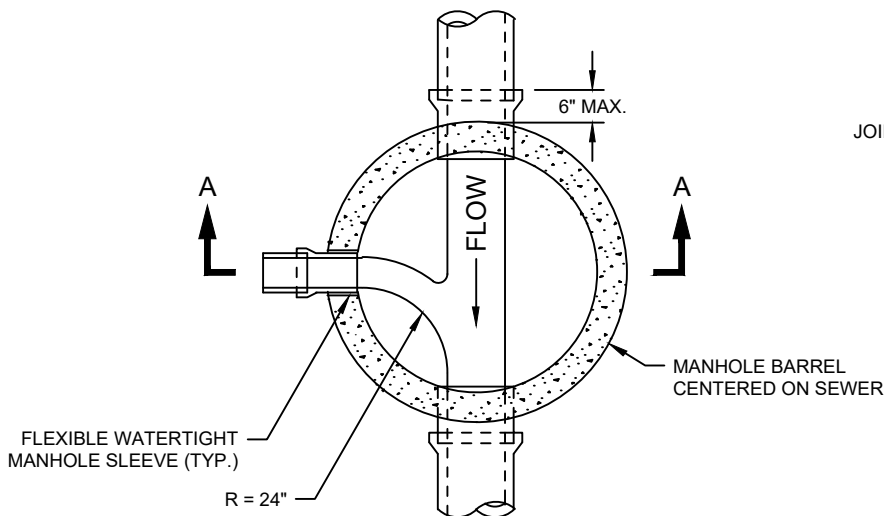
DATE: MARCH 2012

DETAIL NUMBER:

SS4

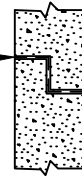


SS5



SECTIONAL PLAN

PREFORMED RAM-NEK
JOINT SEALING COMPOUND
(OR APPROVED EQUAL)



**MANHOLE BARREL
JOINT DETAIL**

CONCRETE REQUIREMENTS

PRECAST $f'c = 4,000$ psi
CAST-IN-PLACE $f'c = 3,000$ psi
GROUT $f'c = 2,500$ psi

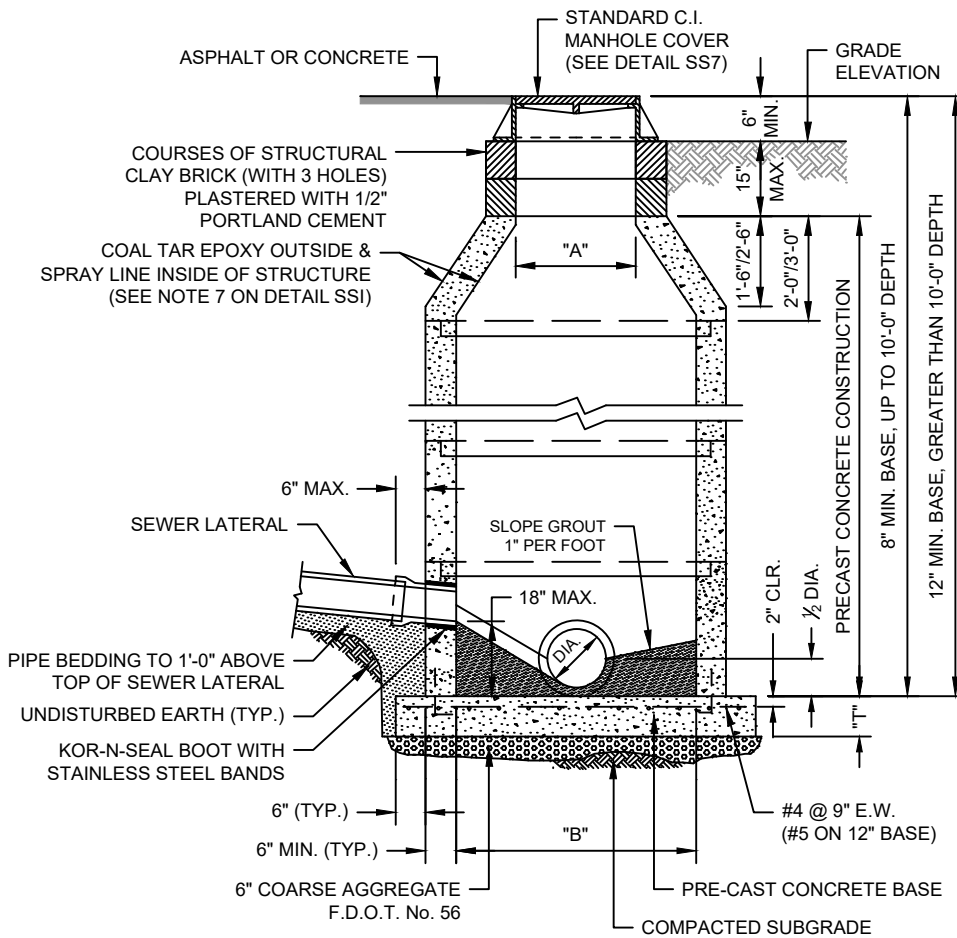
LEGEND

"A" = 8" TO 24" DIA. PIPE: 24" OPENING
30" & LARGER DIA. PIPE: 32"-36" OPENING

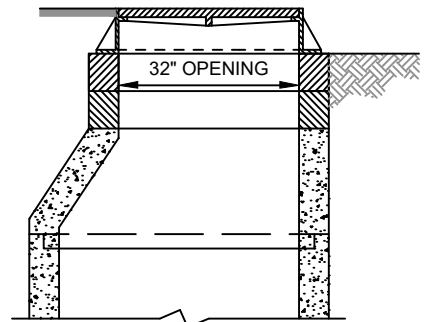
"B" = 8" TO 24" DIA. PIPE: 4'-0" MIN. INSIDE DIA.
27" TO 36" DIA. PIPE: 5'-0" MIN. INSIDE DIA.
42" TO 48" DIA. PIPE: 6'-0" MIN. INSIDE DIA.

"D" = DIA. OF PIPE

"T" = 4'-0" INSIDE DIA.: 8" THICK
5'-0" INSIDE DIA.: 12" THICK
6'-0" INSIDE DIA.: 12" THICK.



SECTION "A-A"



NOTE:
ECCENTRIC MANHOLES ARE
ACCEPTABLE FOR 32" OPENINGS
FOR 30" & LARGER DIA. PIPE



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STANDARD MANHOLE

REVISIONS

BY	DATE
BD	12/31/2019
SS	05/26/2022

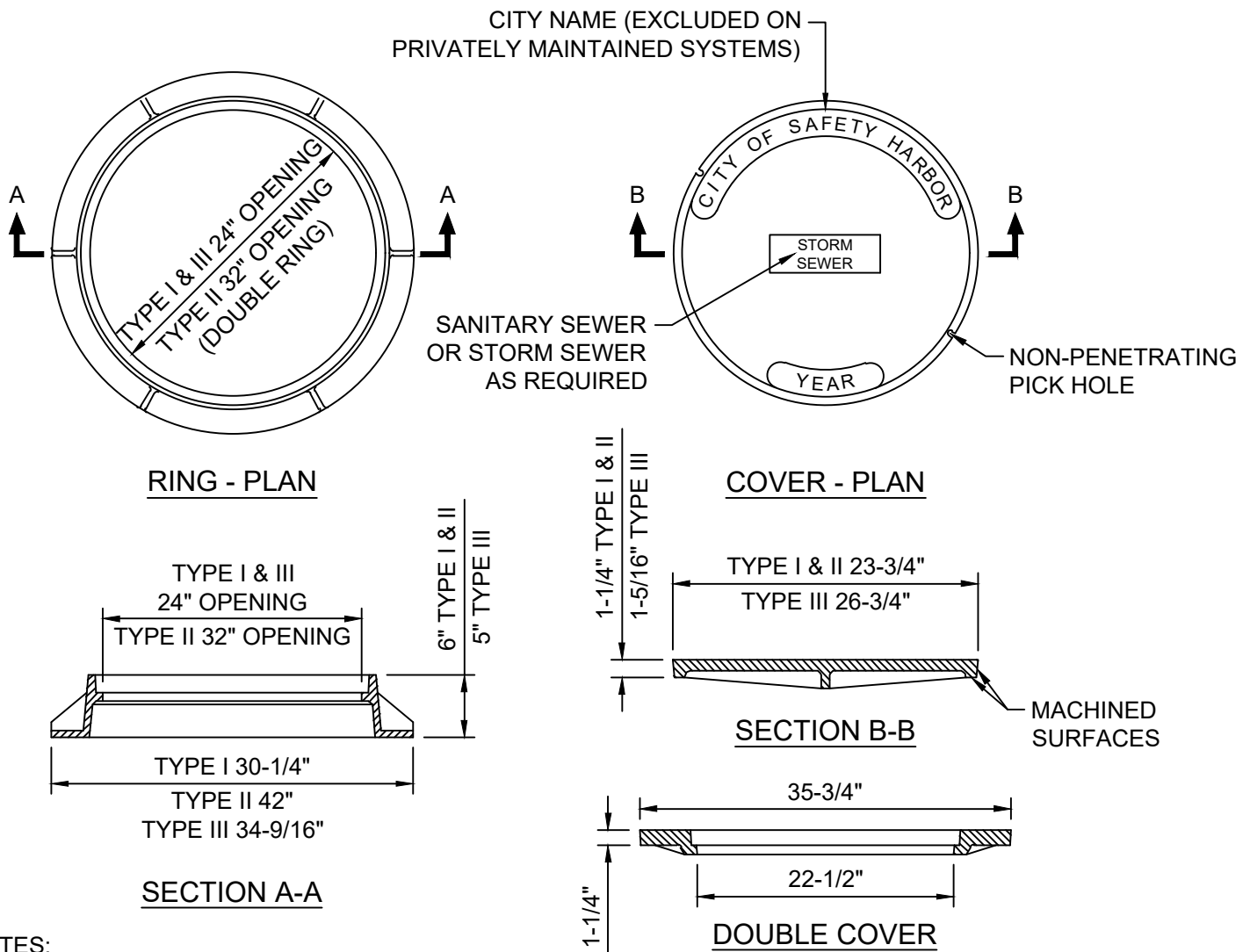
SCALE: N.T.S.

DATE: MARCH 2012

DETAIL NUMBER:

SS6

RI/AUTOCAD STANDARDS/DETAILS/CITY DETAILS/STANDARD MANHOLE FRAME & COVER.DWG



NOTES:

1. TYPE I RING, TO BE USED WHEN THE DIAMETER OF THE LARGEST PIPE IN THE STRUCTURE IS 24" OR LESS. RING AND COVER TO BE U.S. FOUNDRY CAT. #170-CE OR EQUAL.
2. TYPE II RING, TO BE USED WHEN THE DIAMETER OF THE LARGEST PIPE IN THE STRUCTURE IS 24" OR MORE. DOUBLE RING AND COVER TO BE U.S. FOUNDRY CAT. #667-CR OR EQUAL.
3. TYPE III RING, TO BE USED ON ALL CURB INLET SLAB LIDS. SLAB LIDS SHALL BE 6" THICK. RING AND COVER TO BE U.S. FOUNDRY CAT. #1292-CN OR APPROVED EQUAL.
4. MANHOLE RING SURFACE IN CONTACT WITH THE COVER SHALL BE MACHINED SMOOTH.

APPROXIMATE WEIGHTS - LBS.			
	TYPE I	TYPE II	TYPE III
RING	150	220	190
COVER	145	O - 220	140
		I - 145	
TOTAL	295	585	330

O = OUTER COVER
I = INNER COVER



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STANDARD MANHOLE FRAME & COVER

REVISIONS

BY	DATE
BD	12/31/2019

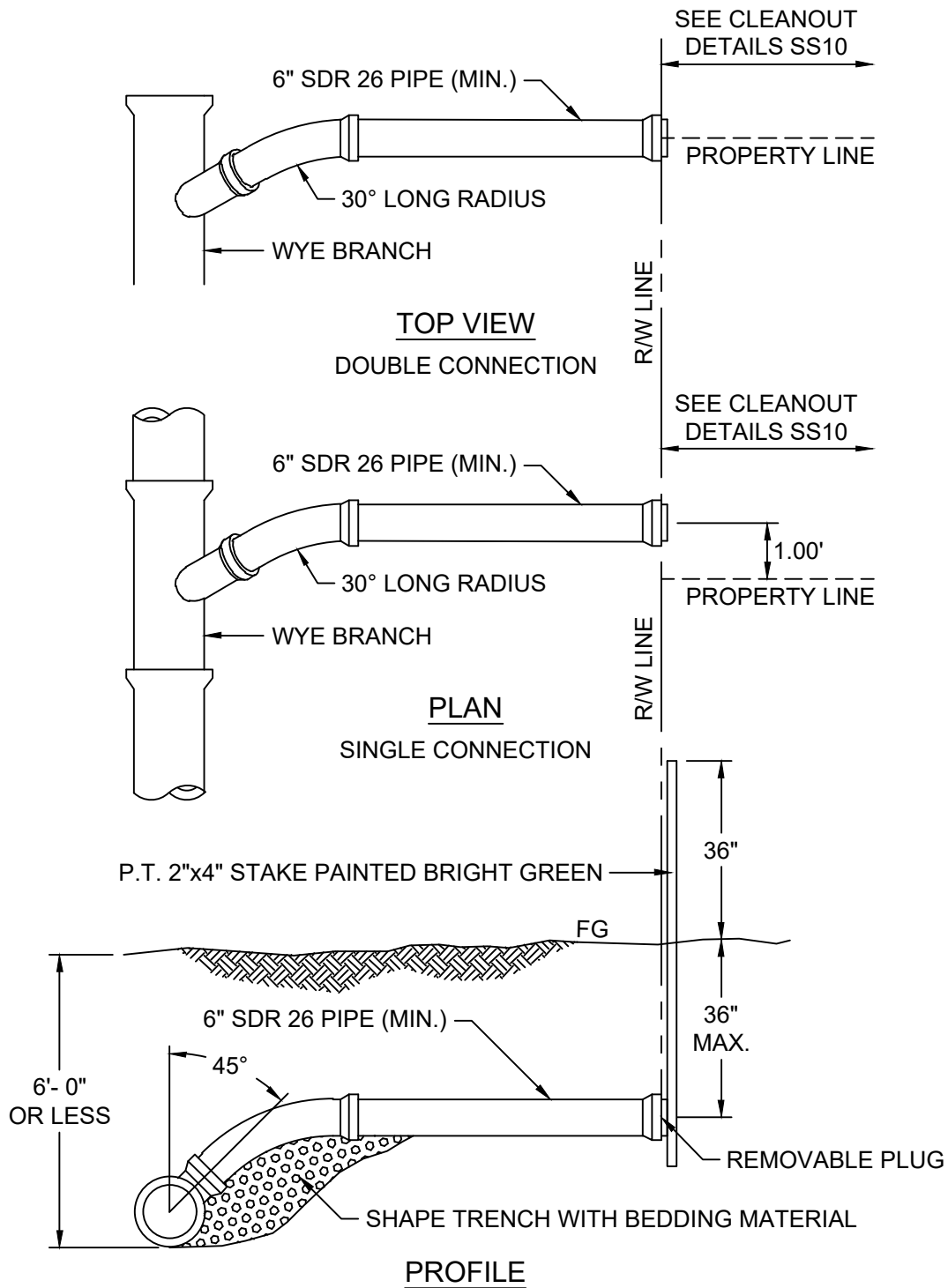
SCALE: N.T.S.

DATE: FEBRUARY 2011

DETAIL NUMBER:

SS7

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\SINGLE & DOUBLE SERVICE CONNECTION.DWG



TO BE USED WHEN THE DEPTH OF THE MAIN IS 6'-0" OR LESS

NOTE: GASKET FITTINGS ONLY, NO GLUE.



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**SINGLE & DOUBLE
SERVICE CONNECTION**

REVISIONS

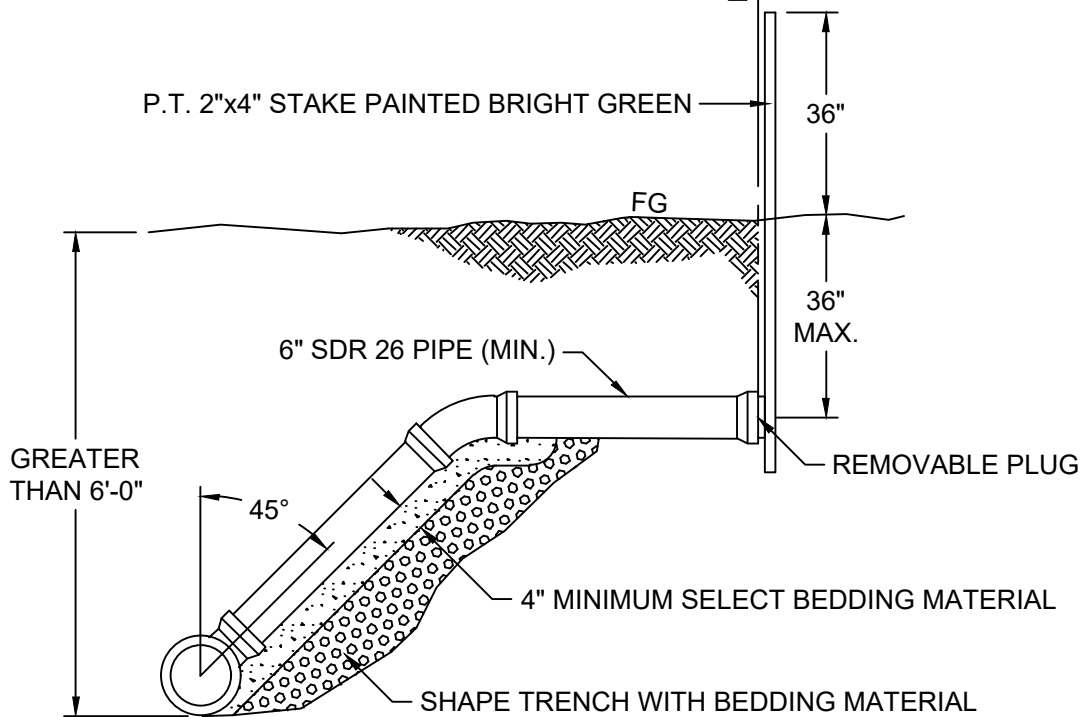
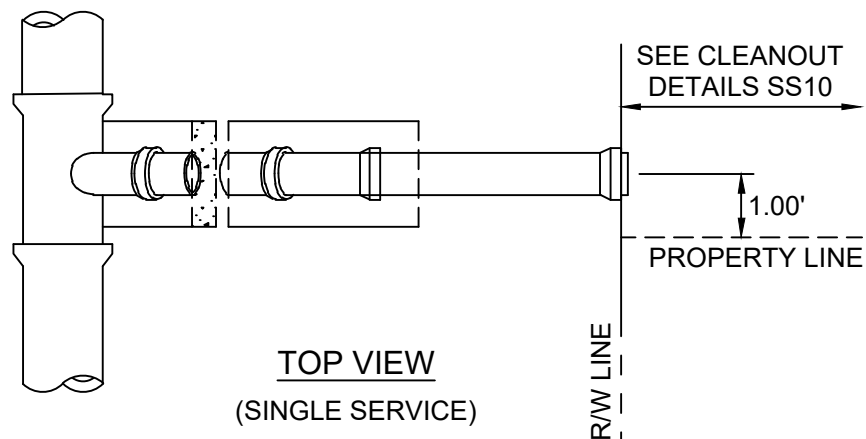
BY	DATE
BD	12/31/2019
SS	05/26/2022

SCALE: N.T.S.

DATE: MARCH 2012

DETAIL NUMBER:

SS8



PROFILE

TO BE USED WHEN THE DEPTH OF THE MAIN IS 6'-0" OR GREATER

NOTE: GASKET FITTINGS ONLY, NO GLUE.



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SERVICE DROP CONNECTION

REVISIONS

BY	DATE
BD	12/31/2019
SS	05/26/2022

SCALE: N.T.S.

DATE: MARCH 2012

DETAIL NUMBER:

SS9

SINGLE SERVICE CONNECTION

4" 2-WAY CLEANOUT
SOLVENT WELD
(NO GASKETS)

6" PIPE MIN.
SDR-26

1.00'

R/W LINE

PROPERTY LINE

CONSTRUCTED
BY CONTRACTOR

DOUBLE SERVICE CONNECTION

6" PIPE MIN.
SDR-26

6"x4"x4" DOUBLE
WYE BRANCH
(INSTALLED BY
THE DEVELOPER)

R/W LINE

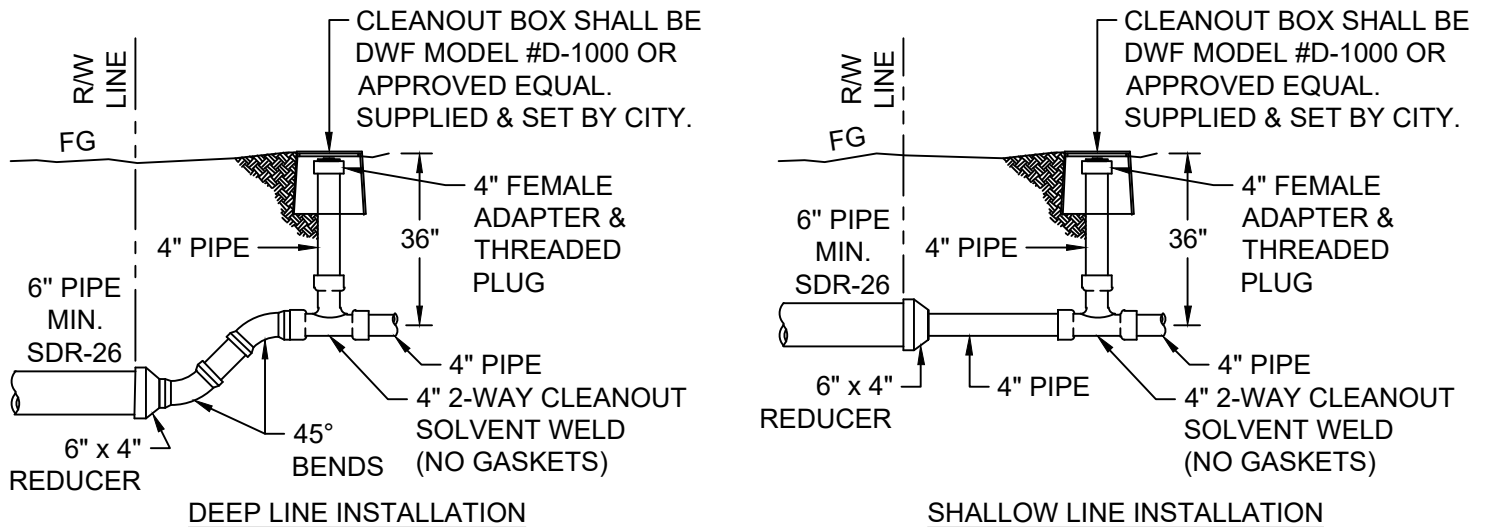
PROPERTY LINE

PLUG

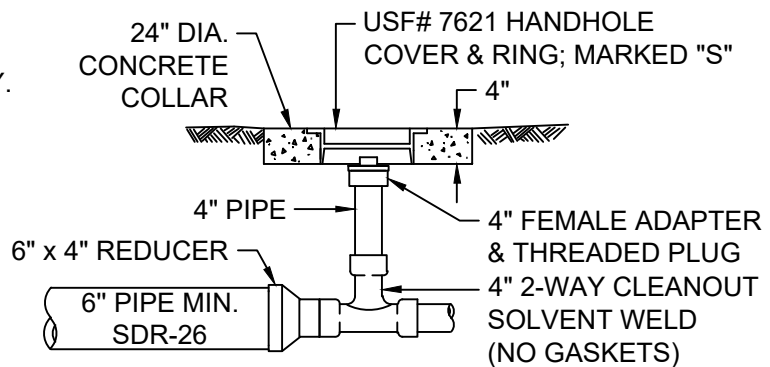
CONSTRUCTED
BY CONTRACTOR

NOTE:
GASKET FITTINGS
SHALL BE USED.

PROFILE VIEW



NOTE:
CLEANOUT ASSEMBLY SHALL
HAVE CEMENT WELD JOINTS
USF# 7621 REQUIRED IF LOCATED
IN SIDEWALK OR DRIVEWAY.



PROFILE FOR CLEANOUT WITHIN A SIDEWALK OR DRIVEWAY (OR AS REQUIRED BY CITY ENGINEER)

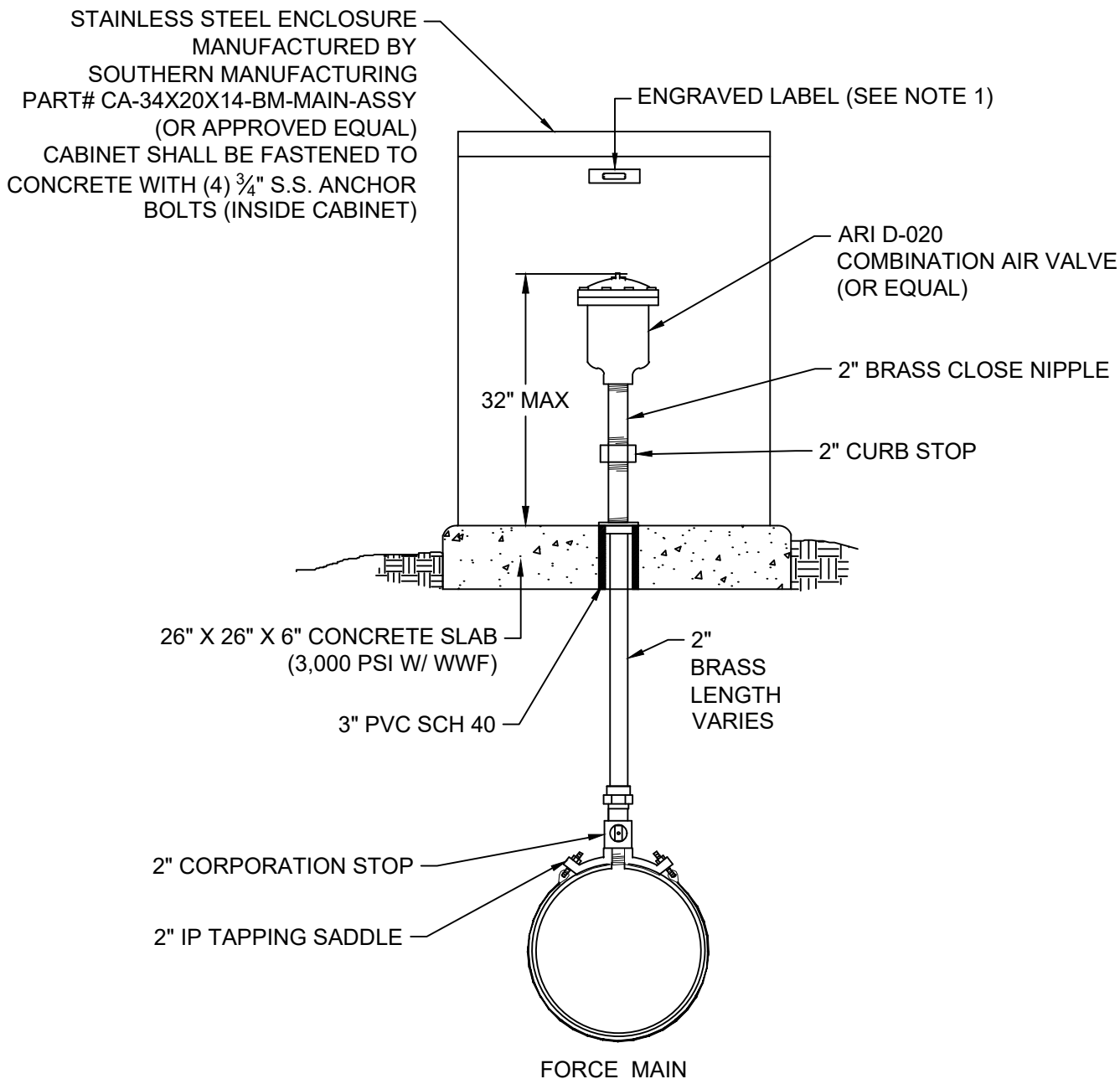


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TYPICAL CLEANOUT DETAILS

REVISIONS	
BY	DATE
BD	11/01/2017
SS	05/26/2022
SCALE: N.T.S.	
DATE: NOVEMBER 2012	
DETAIL NUMBER:	
SS10	

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\AIR RELEASE VALVE ASSEMBLY.DWG



NOTES:

1. ENGRAVED S.S. 3" LONG LABEL WITH $\frac{1}{4}$ " LETTERS, WHITE ON BLACK, MOUNTED WITH 2 ALUM. RIVETS ON INSIDE BACK PANEL ABOVE ARV WITH WORDS:
"CITY OF SAFETY HARBOR"
"PUBLIC WORKS DEPARTMENT"



CITY OF SAFETY HARBOR

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Phone (727) 724-1555

AIR RELEASE VALVE ASSEMBLY

REVISIONS

BY	DATE
BD	12/31/2019
SS	07/22/2022

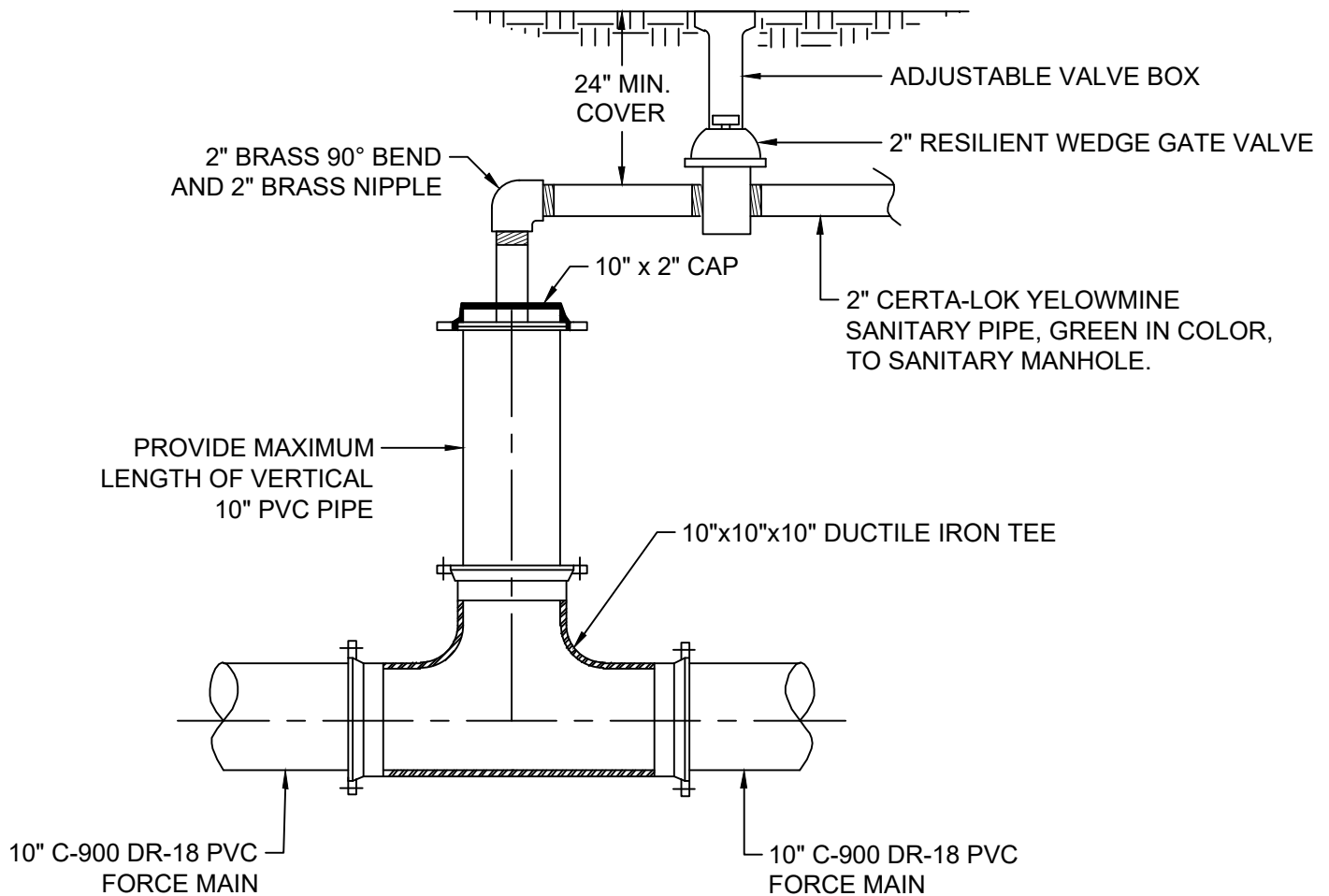
SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

SS11

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\PERMANENT BLOWOFF.DWG



NOTE:

CONCRETE COLLAR MAY VARY BY LOCATION. REFER TO DETAIL ----.



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PERMANENT BLOWOFF

REVISIONS

BY	DATE
BD	11/01/2017
SS	07/06/2022

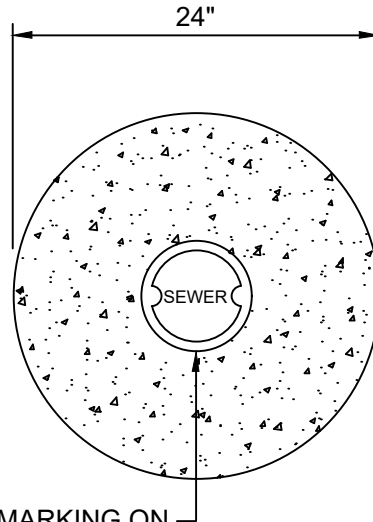
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DATE: MAY 2014

DETAIL NUMBER:

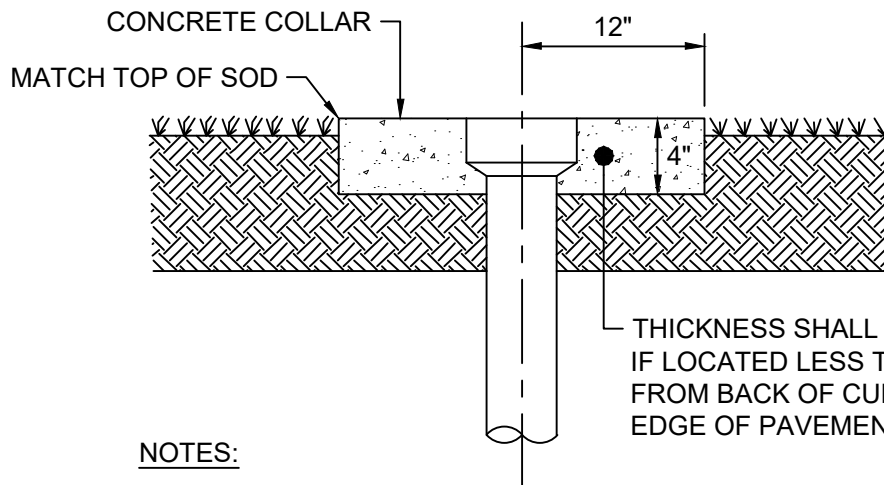
SS12

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\CONCRETE COLLAR SS.DWG



IF VALVE BOX AND COVER, MARKING ON LID SHALL READ "SEWER", CENTERED IN PAD.

IF LOCATOR BOX AND COVER, MARKING ON LID SHALL READ "S", CENTERED IN PAD.



NOTES:

1. NO RISERS TO BE USED IN NEW INSTALLATIONS.
2. VALVE BOX MUST BE CENTERED OVER OPERATING NUT.
3. VALVE BOX MAY BE IMPORTED OR DOMESTIC.
4. LID MUST READ SEWER.
5. REFERENCE CITY CLEANOUT DETAIL SS10.



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CONCRETE COLLAR (SEWER)

REVISIONS

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BD	11/01/2017
SS	05/26/2022

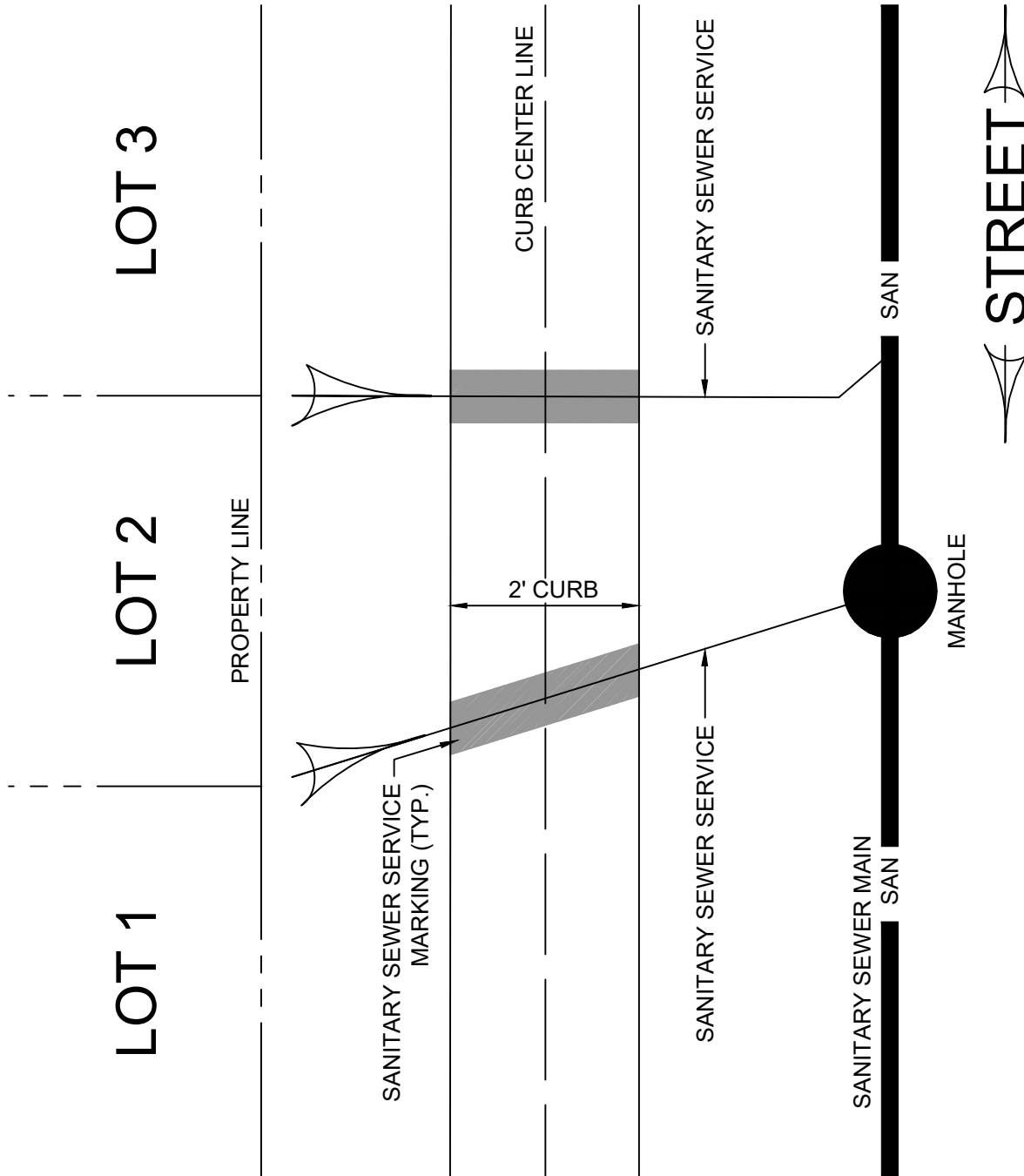
SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

SS15

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\SANITARY SEWER CURB MARKINGS.DWG



NOTES:

- 1. PAINT MUST MARK THE FULL LENGTH OF THE CURB, 5" WIDE. (LT. GREEN ENAMEL PAINT ONLY)
- 2. MARKINGS MUST BE PLACED WHERE SEWER LINE COMES OUT FROM UNDER CURB GOING TO PROPERTY.



CITY OF SAFETY HARBOR

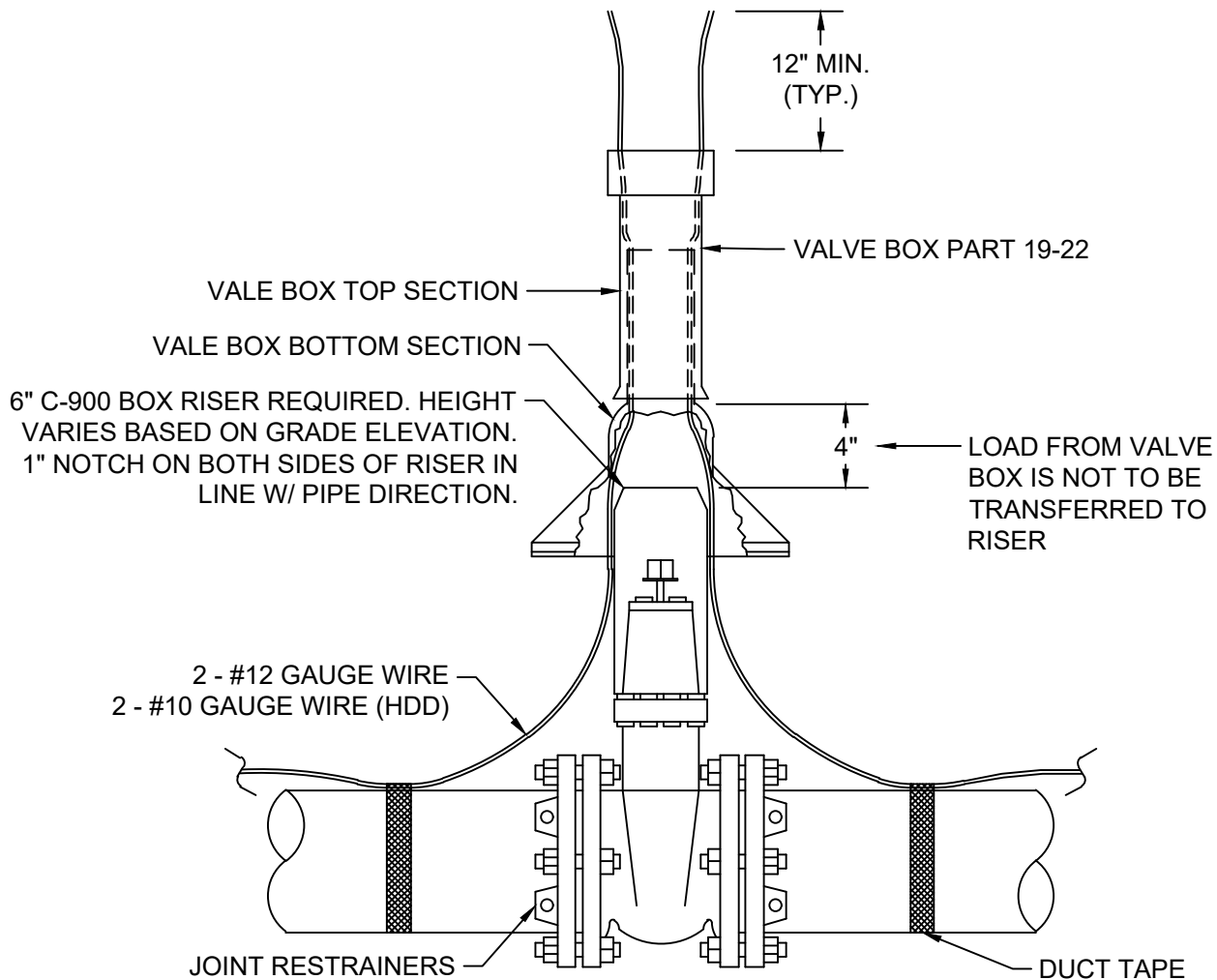
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SANITARY SEWER CURB MARKINGS

REVISIONS

BY	DATE
SCALE: N.T.S.	
DATE: NOVEMBER 2003	
DETAIL NUMBER:	
SS16	

\\RAUTOCAD\STANDARDS\DETAILS\CITY DETAILS\VALVE BOX TRACER WIRE INSTALL SEWER.DWG



NOTES:

1. A RESILIENT WEDGE GATE VALVE OF THE APPROPRIATE SIZE MUST BE PLACED JUST OVER THE PROPERTY LINE. THIS VALVE MUST HAVE CONCRETE COLLAR INSTALLED AS PER CITY ENGINEERING DETAIL SS15.
2. USE 2-#12 GAUGE COPPERHEAD HIGH STRENGTH WIRE; 2-#10 GAUGE FOR HDD. GREEN IN COLOR FOR FORCE MAIN. WIRE TO RUN CONTINUOUSLY THRU TEST STATIONS FOR THE ENTIRE LENGTH OF THE PIPE LINE.
3. LEAVE ENOUGH "SLACK" IN WIRE SO IT CAN BE EXTENDED 12" ABOVE THE VALVE BOX AT TEST STATION.
4. ATTACH WIRE ON TOP OF PIPE LINE 5'-0" ON CENTER, USING DUCT TAPE OR APPROVED EQUAL.
5. **DO NOT** WRAP WIRES AROUND OPERATING NUT ON VALVE.
6. CONNECTIONS BETWEEN WIRES SHALL BE MADE USING WATERPROOF CONNECTORS.

VALVE BOX WITHIN "GREEN" AREAS REQUIRES A CONCRETE COLLAR. VALVE BOX IS TO CONSIST OF A RUSSELL PIPE & FOUNDRY 2-PIECE HANDHOLE RING & COVER (PART# 19-22), MARKED "SEWER" FOR SEWER, ENCASED IN A CONCRETE COLLAR PER CITY OF SAFETY HARBOR STANDARDS. NO CONCRETE COLLAR IS REQUIRED FOR VALVE BOXES WITHIN PAVEMENT OR SIDEWALK UNLESS OTHERWISE STATED.



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**VALVE BOX TRACER WIRE
INSTALLATION SANITARY SEWER**

REVISIONS

BY	DATE
SS	07/07/2022

SCALE: N.T.S.

DATE: FEBRUARY 2016

DETAIL NUMBER:

SS17

GENERAL NOTES

1. PUMPS SHALL BE FLYGT, 3-PHASE, 240 VOLTS, WITH SIZE AND MODEL APPROVED BY PUBLIC WORKS.
2. VALVE VAULT WALLS SHALL BE COATED OUTSIDE w/ TWO COATS COAL TAR EPOXY.
3. WET WELL BASE AND FIRST RISER UNIT TO BE CAST MONOLITHIC.
4. VALVE VAULT SHALL HAVE SLOPED FLOOR W/ DRAIN TO WET WELL.
5. ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE MADE WATERTIGHT UTILIZING A PIPE CASING SEALED W/ CONCRETE.
6. PUMP LIFTING DEVICE SHALL BE GRIP-EYE, 304 SS 5/16" MINIMUM CHAIN.
7. WET WELL & VALVE VAULT COVERS SHALL BE ALUMINUM WITH 304 S.S. HARDWARE LOCKABLE, (HALIDAY, O.E.) AS SUPPLIED BY PUMP MANUFACTURER (LOADING 300 PSF). HINGE LOCATIONS SHALL BE DETERMINED FROM THE SITE PLAN. VALVE VAULT COVER SHALL BE A DOUBLE DOOR DESIGN.
8. ALL HARDWARE (NUTS, BOLTS, ACCESSORIES, ETC.) SHALL BE 304 S.S. ALL M.J. ADAPTERS SHALL HAVE S.S. SET BOLTS.
9. EXTERIOR WALLS OF THE WET WELL AND VALVE VAULT SHALL BE EPOXY COAL TAR COATED, (2 COATS). THE INTERIOR SURFACES OF THE WET WELL, SHALL BE LINED WITH A FIBERGLASS LINER AS APPROVED BY THE CITY. ANY PIPE ENTERING THROUGH THE WET WELL WALLS WILL BE SEALED ALL AROUND TO THE INTERIOR WALLS BY USE OF FIBERGLASS PATCHING KIT. THERE SHALL BE NO MORTAR EXPOSED INSIDE THE WET WELL.
10. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY THE CITY OF SAFETY HARBOR PRIOR TO EQUIPMENT PURCHASE OR COMMENCING CONSTRUCTION.
11. ACCESS TO THE LIFT STATION SHALL BE STABILIZED PER CITY STANDARDS FOR A DRIVEWAY ACCESS.

ELECTRICAL NOTES

1. THE EMERGENCY GENERATOR RECEPTACLE SHALL BE RUSSELL STOLL CAT. #JRS 1044 FR OR APPROVED EQUAL.
2. THE ALARM SILENCER BUTTON SHALL BE MOUNTED OUTSIDE OF THE CONTROL CABINET.
3. LIGHTNING ARRESTOR SHALL BE INSTALLED BETWEEN THE DISCONNECT AND THE CONTROL PANEL CABINET. THE LIGHTNING ARRESTOR SHALL BE GROUNDED TO A #8 COPPER GROUND, ALSO A SECONDARY SURGE ARESTOR, (CAT. #SA-20, 175 VOLTS, OR APPROVED EQUAL.
4. METER SOCKET SUPPLIED BY CONTRACTOR, LOCATION TO BE APPROVED BY THE CITY.
5. FLEXIBLE IMMERSIBLE PUMP CONTROL CABLES SHALL RUN WITHOUT SPLICES FROM THE PUMPS TO THE S.S. JUNCTION BOX.
6. THE MAIN DISCONNECT SHALL BE PROVIDED IN A SEPARATE RUST PROOF BOX, WITH A PROVISION FOR LOCKING IN THE "ON" AND "OFF" POSITION.
7. GROUND FAULT CIRCUIT PROTECTION SHALL BE PROVIDED.
8. ALL CIRCUIT BREAKERS SHALL BE HEAVY DUTY MOLDED. (SQUARE D)
9. ALL WIRING SHALL BE COPPER, COLOR CODED AND IDENTIFIED BY NUMBERS AT TERMINALS AND ON WIRING DIAGRAM.
10. THERE SHALL BE NO ELECTRICAL JUNCTION BOXES IN WET WELL.
11. CONTROL PANEL SHALL BE AS MANUFACTURED BY QCI-APOPKA, FL.
12. FLOAT LEVEL SENSORS SHALL BE PROVIDED BY THE CITY.

MECHANICAL NOTES

1. ALL PIPING IN THE PUMP STATION SHALL BE DUCTILE IRON UNLESS OTHERWISE NOTED (PROTECTO 401 LINED).
2. THE CONTRACTOR SHALL PROVIDE A 1" WATER SERVICE AS INDICATED ON THE PLANS.
3. THE CONTRACTOR SHALL INSURE THAT A NAME PLATE SHALL BE FURNISHED FOR EACH PUMP INDICATING THE CAPACITY, TDH, SPEED AND EFFICIENCY.
4. CHECK VALVES SHALL BE CLOW, OF THE OUTSIDE WEIGHTED LEVER TYPE.
5. GATE VALVES SHALL BE AMERICAN FLOW CONTROL AND MUST BE AWWA/ULFM APPROVED, (OR APPROVED EQUAL).
6. INFLUENT GRAVITY LINE SHALL EXTEND 4" INSIDE THE WET WELL.
7. A PRESSURE GAUGE DESIGNED TO MEASURE PUMP DISCHARGE PRESSURES (0-50 psi) SHALL BE FURNISHED AT THE TIME OF FINAL INSPECTION.
8. DUCTILE IRON GRAVITY SEWER PIPE SHALL BE LINED w/ PROTECTO 401 CERAMIC EPOXY AS PROVIDED BY U.S. PIPE & FOUNDRY CO., OR EQUAL.
9. ALL WALL OPENINGS IN THE PUMP STATION FOR PIPES, ETC. SHALL BE WATER TIGHT.

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\LIFT STATION NOTES.DWG

CITY OF SAFETY HARBOR

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LIFT STATION NOTES

REVISIONS

BY	DATE
BD	11/10/2015
BD	11/01/2017

SCALE: N.T.S.

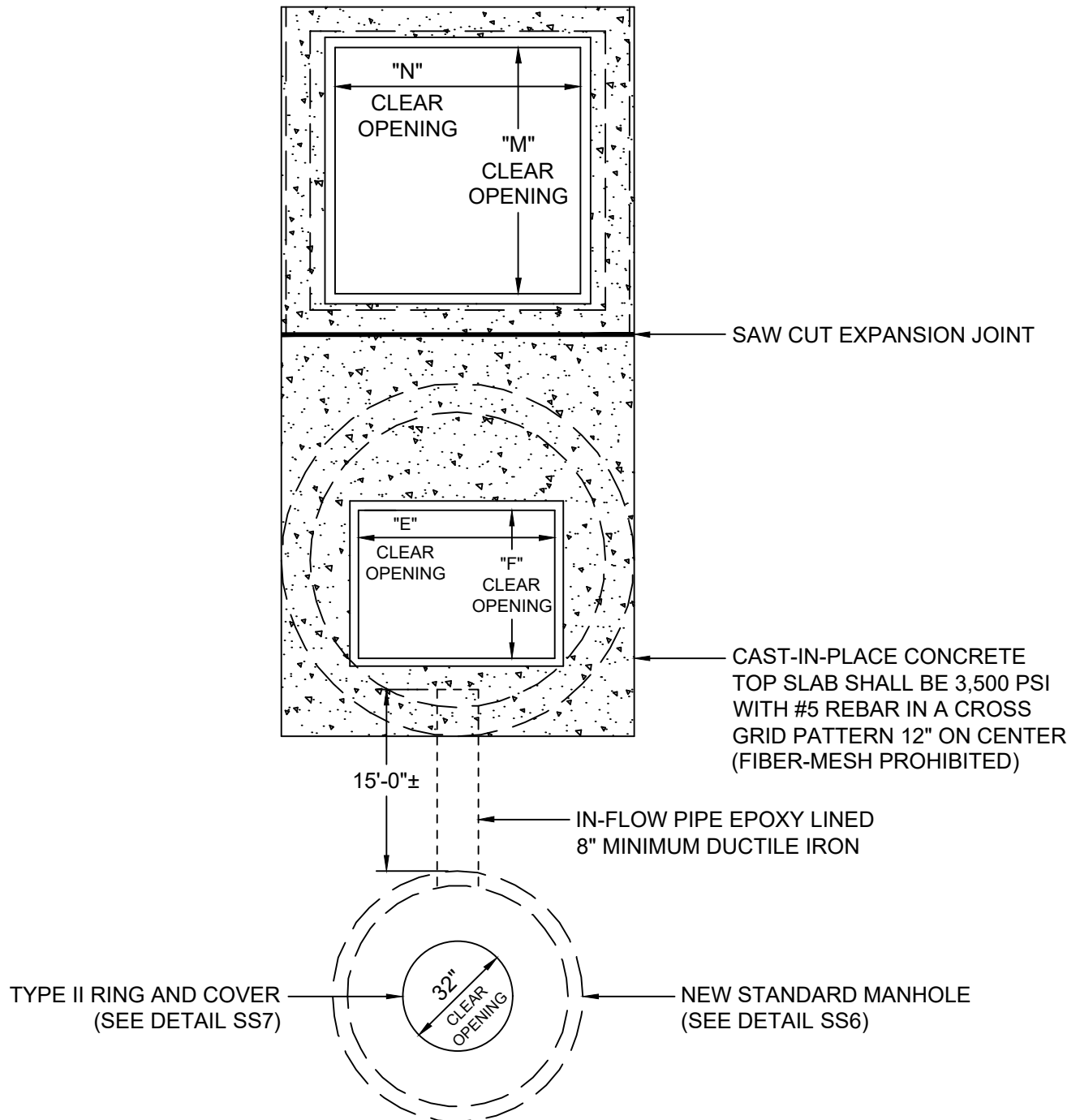
DATE: NOVEMBER 2003

DETAIL NUMBER:

LS1



R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\LIFT STATION CONCRETE SLAB.DWG



NOTE:

1. CONTROL PANEL & METER SHALL BE PLACED ON A 6" THICK CONCRETE SLAB; 3,500 PSI W/ #5 REBAR. LOCATION TO BE DETERMINED BASED ON SITE CONDITIONS.



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LIFT STATION CONCRETE SLAB

REVISIONS

BY	DATE
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SCALE: N.T.S.

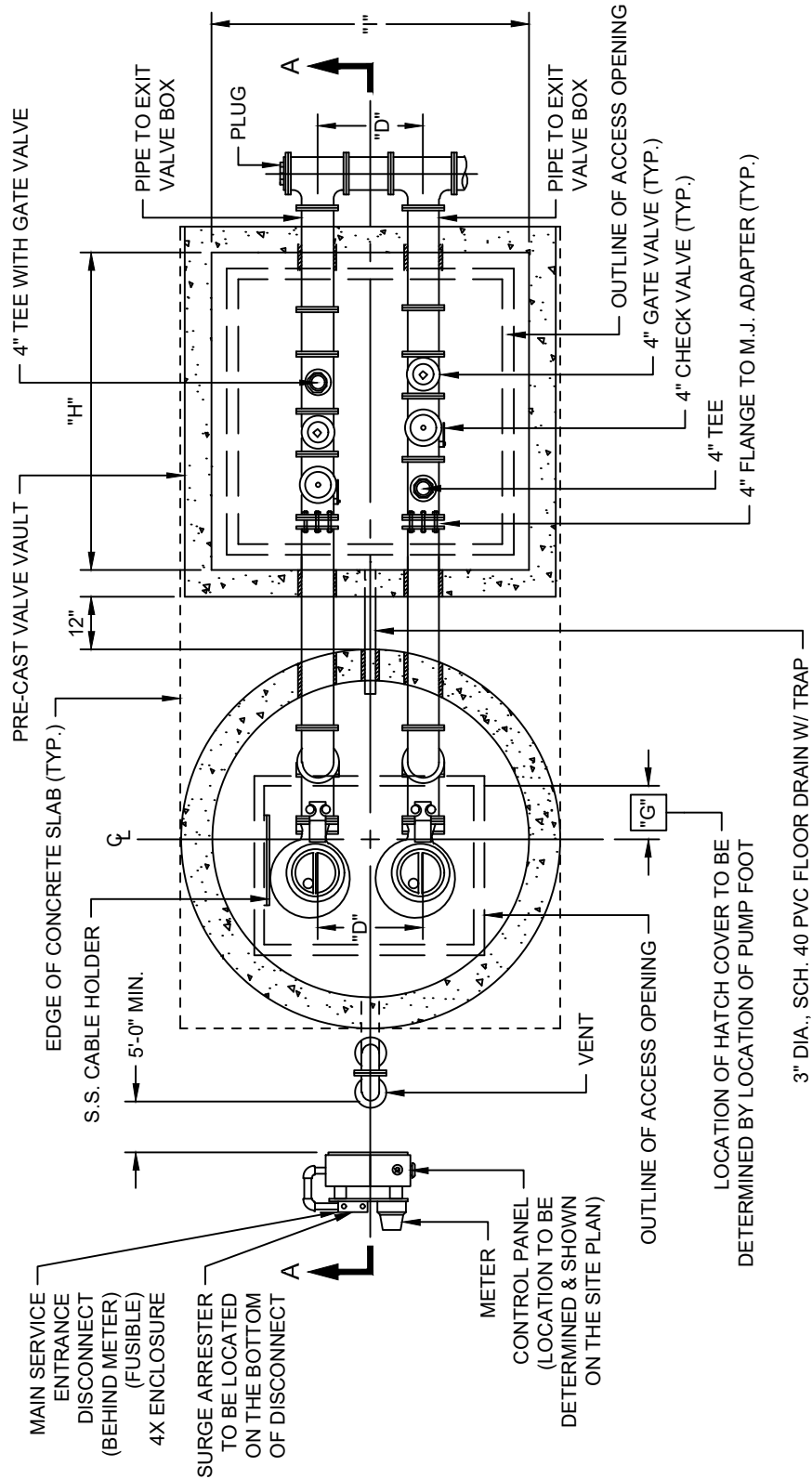
DATE: NOVEMBER 2003

DETAIL NUMBER:

LS2

NOTES:

1. THE FRONT OF THE CONTROL PANEL SHALL BE FLUSH WITH THE EDGE OF THE SLAB.
2. TWO (2) LB'S USED FOR POWER ENTRY.
3. SEE DETAIL LS4 FOR SECTION "A-A".



PLAN VIEW



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LIFT STATION PLAN

REVISIONS

BY	DATE
BD	11/01/2017

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

LS3



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LIFT STATION PROFILE

REVISIONS

BY	DATE
BD	11/01/2017

SCALE: N.T.S.

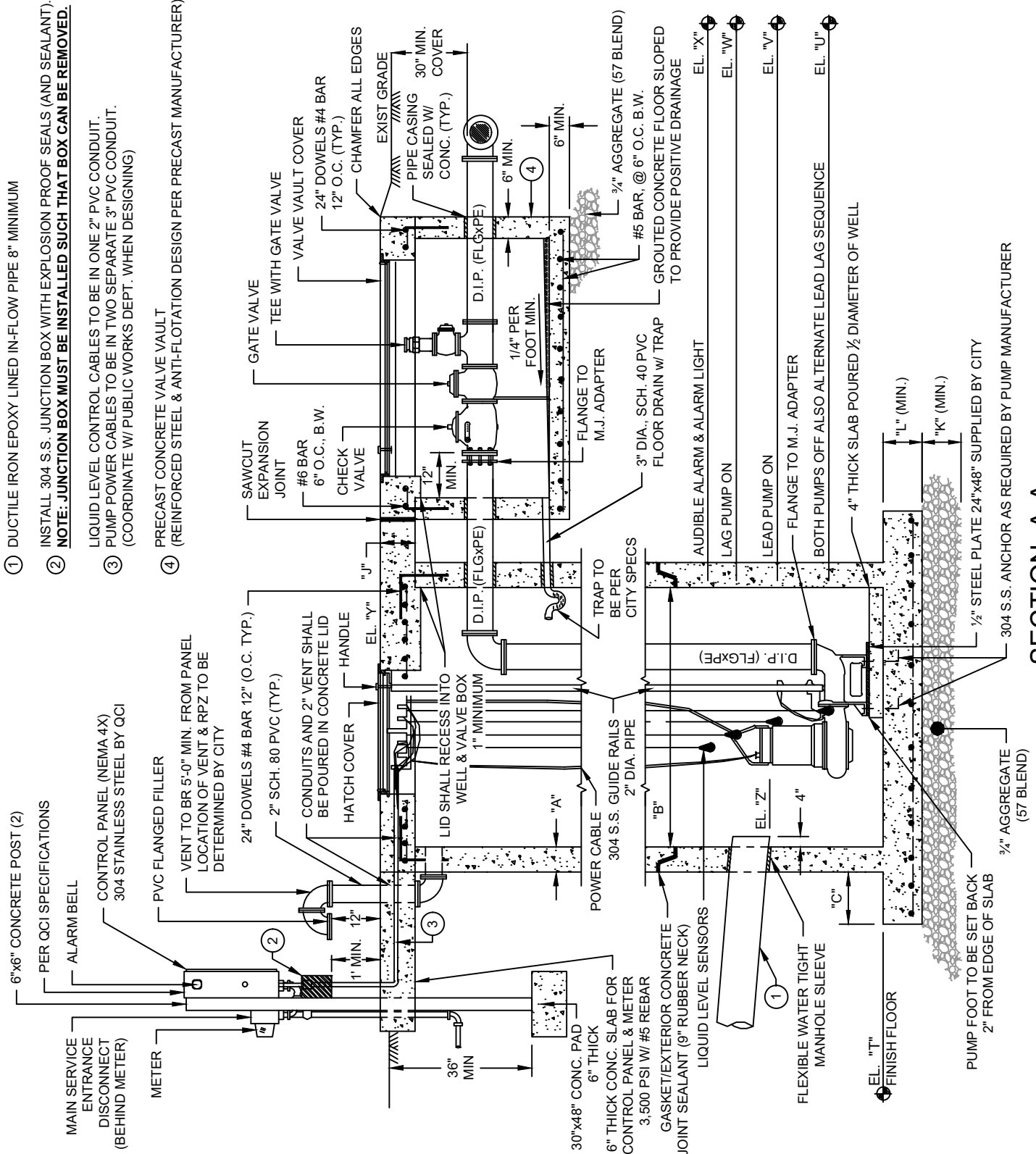
DATE: NOVEMBER 2003

DETAIL NUMBER:

LS4

NOTES:

- DUCTILE IRON EPOXY LINED IN-FLOW PIPE 8" MINIMUM
- INSTALL 304 S.S. JUNCTION BOX WITH EXPLOSION PROOF SEALS (AND SEALANT).
NOTE: JUNCTION BOX MUST BE INSTALLED SUCH THAT BOX CAN BE REMOVED.
- LIQUID LEVEL CONTROL CABLES TO BE IN ONE 2" PVC CONDUIT.
PUMP POWER CABLES TO BE IN TWO SEPARATE 3" PVC CONDUIT.
(COORDINATE W/ PUBLIC WORKS DEPT. WHEN DESIGNING)
- PRECAST CONCRETE VALVE VAULT
(REINFORCED STEEL & ANTI-FLOTATION DESIGN PER PRECAST MANUFACTURER)



SECTION A-A

LIFT STATION DATA

PUMPING STATIONS	DIMENSIONS	RECORD DATA	COMMENTS
DIM A			ASTM C76, CLASS #
DIM B			6 FT MINIMUM WET WELL DIAMETER
DIM C	PER MFG		
DIM D	2'		DIST FROM CENTER LINE OF BOTH PUMPS
DIM E	48"		S1R3648 HALLIDAY ALUM. FRAME & COVER
DIM F	36"		300# LOAD
DIM G			SEE NOTE
DIM H	7'		VALVE VAULT BOX
DIM I	6'		
DIM J			8 INCH MINIMUM (SEE NOTE ON DETAIL LS3)
DIM K	10" MIN		
DIM L	PER MFG		
DIM M	60"		S2R6060 HALLIDAY ALUM. FRAME & COVER
DIM N	60"		300# LOAD
ELEV T			FINISHED FLOOR ELEVATION
ELEV U	PER CITY		BOTH PUMPS OFF
ELEV V	PER CITY		LEAD PUMP ON
ELEV W	PER CITY		LAG PUMP ON
ELEV X	PER CITY		AUDIBLE ALARM & ALARM LIGHT
ELEV Y			GROUND ELEVATION
ELEV Z			? FT FROM BOTTOM ELEV.

NOTE:
EACH LIFT STATION WILL HAVE A DATA SHEET OF ITS OWN.
THIS IS FOR REFERENCE ONLY.



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LIFT STATION DATA SHEET

REVISIONS

BY	DATE
BD	11/10/2015
BD	11/01/2017

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

LS5



LIFT STATION CONTROL PANEL

REVISIONS	
BY	DATE
SCALE: N.T.S.	
DATE:	NOVEMBER 2003
DETAIL NUMBER:	
LS6	

NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE STRICTEST CONSTRUCTION SPECIFICATIONS AS REQUIRED BY THE CITY OF SAFETY HARBOR, PINELLAS COUNTY UTILITY AND TESTING FREQUENCY STANDARDS, FLORIDA DEPARTMENT OF TRANSPORTATION, OR AS REQUIRED BY THE CITY ENGINEER.
2. ALL PIPE STUBS FROM STORM WATER STRUCTURES FOR FUTURE CONNECTIONS SHALL BE PROVIDED WITH WATERTIGHT PLUGS PLACED WITHIN THE MANHOLE.
3. STORM WATER STRUCTURES SHALL CONSIST OF A MINIMUM NUMBER OF PRECAST SECTIONS, AS APPROVED BY THE ENGINEER.
4. ALL STORM WATER PIPE JOINTS SHALL BE WRAPPED WITH TYPE D-3 FILTER FABRIC, WITH A MINIMUM OF 12" ON EACH SIDE OF JOINT, PER LATEST F.D.O.T. STD PLANS.
5. SHALLOW TYPE MANHOLES WITH DEPTHS BETWEEN 3'-6" AND 5'-0" MAY BE CONSTRUCTED OF BRICK WITH A 4'-0" INSIDE DIAMETER AND CONE, OR A FLAT SLAB TOP. MANHOLES WITH DEPTHS LESS THAN 3'-6" WILL NOT BE ACCEPTED. ALL SHALLOW TYPE MANHOLES OR JUNCTION BOXES WILL BE APPROVED BY THE CITY ENGINEER PRIOR TO INSTALLATION.
6. STORM WATER STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM SPECIFICATION C-478 EXCEPT AS NOTED.
7. a) 8" TO 24" DIA. PIPE: 4'-0" MIN. INSIDE DIA. MANHOLE, 8" THICK
b) 27" TO 36" DIA. PIPE: 5'-0" MIN. INSIDE DIA. MANHOLE, 12" THICK.
c) 42" TO 48" DIA. PIPE: 6'-0" MIN. INSIDE DIA. MANHOLE, 12" THICK.
8. a) 8" TO 24" DIA. PIPE: RING SHALL HAVE A 24" OPENING. REFER TO DETAIL SS7.
b) 30" AND LARGER DIA. PIPE: RING SHALL HAVE A 32" OPENING. REFER TO DETAIL SS7.
9. ALL PROPERTY CORNERS DISTURBED OR REMOVED DUE TO CONSTRUCTION WILL BE REPLACED BY A CERTIFIED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
10. UNLESS OTHERWISE SPECIFIED, DRAINAGE STRUCTURES SHALL CONFORM TO THE APPLICABLE PORTIONS OF THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS (LATEST EDITION).
11. THE FINISHED GRADE AND SLOPE OF THE INLET TOPS ARE TO CONFORM WITH THE FINISHED CROSS SLOPE AND GRADE OF THE PROPOSED SIDEWALK AND/OR PARKWAY.
12. WHEN INLETS ARE TO BE CONSTRUCTED ON A CURVE, REFER TO THE PLANS TO DETERMINE THE RADIUS AND, WHERE NECESSARY, MODIFY THE INLET DETAILS ACCORDINGLY, BEND STEEL WHEN NECESSARY.
13. ALL REINFORCING STEEL SHALL HAVE 1-1/4" MINIMUM COVER UNLESS OTHERWISE SHOWN, INLET TOPS SHALL BE EITHER CAST-IN-PLACE OR PRECAST CONCRETE.
14. PRE-CASTING OF THIS INLET TOP WILL BE PERMITTED. PRECAST UNITS SHALL CONFORM TO THE DIMENSIONS SHOWN OR IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. REQUEST FOR SHOP DRAWING APPROVAL SHALL BE DIRECTED TO THE CITY ENGINEER.
15. CONCRETE MEETING THE REQUIREMENTS OF A.S.T.M. C478 (4,000 P.S.I.) MAY BE USED IN LIEU OF CLASS ~ CONCRETE FOR PRECAST UNITS, MANUFACTURED IN PLANTS WHICH ARE UNDER THE STANDARD OPERATING PROCEDURES FOR THE INSPECTION OF PRECAST DRAINAGE PRODUCTS.
16. THE CORNER FILLETS SHOWN FOR RECTANGULAR THROATS ARE NECESSARY ONLY WHEN THROATS ARE TO BE USED IN CONJUNCTION WITH CIRCULAR INLET BOTTOMS OR WHEN USED ON SKEW WITH RECTANGULAR INLET BOXES.
17. ALL STEEL USED FOR FRAME AND COVER SHALL MEET THE REQUIREMENTS OF ASTM A-36.
18. EITHER CAST IRON COVERS OR STEEL COVERS MAY BE USED. IRON COVERS SHALL BE CLASS No. 30 CASTINGS IN ACCORDANCE WITH ASTM A-48.
19. WHEN ALTERNATE "G" COVER IS SPECIFIED IN PLANS EITHER THE CAST IRON COVER AND GALVANIZED STEEL FRAME OR THE GALVANIZED STEEL COVER AND FRAME MUST BE USED. COVERS ARE TO BE GROUTED IN ACCORDANCE WITH THE GROUTING DETAIL, IN LIEU OF TACK WELDING.
20. PATCHING OF EXISTING STRUCTURES SHALL MEET FDOT STANDARDS.
21. STORM PIPES UNDER VEHICULAR TRAFFIC MUST BE RCP.

R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\STORM SEWER NOTES.DWG



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STORM SEWER NOTES

REVISIONS

BY	DATE
BD	12/31/2019
SS	07/07/2022

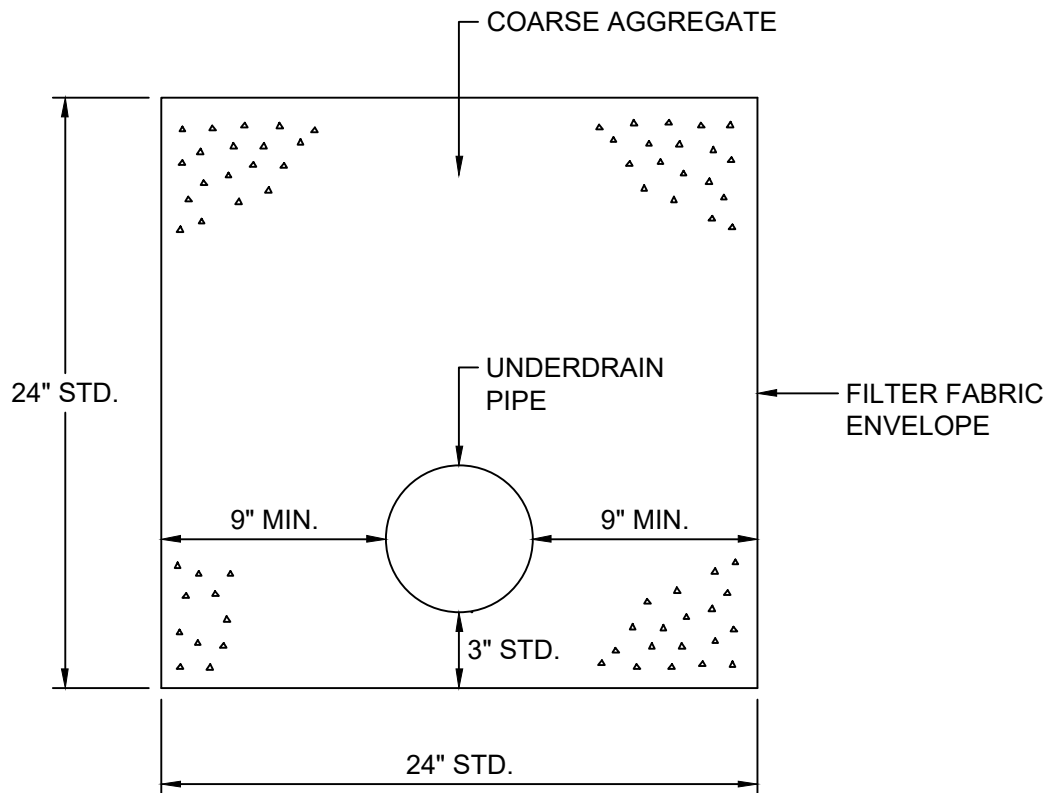
SCALE: N.T.S.

DATE: AUGUST 2013

DETAIL NUMBER:

ST1

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SEE LATEST F.D.O.T. STANDARD PLANS



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UNDERDRAIN

REVISIONS

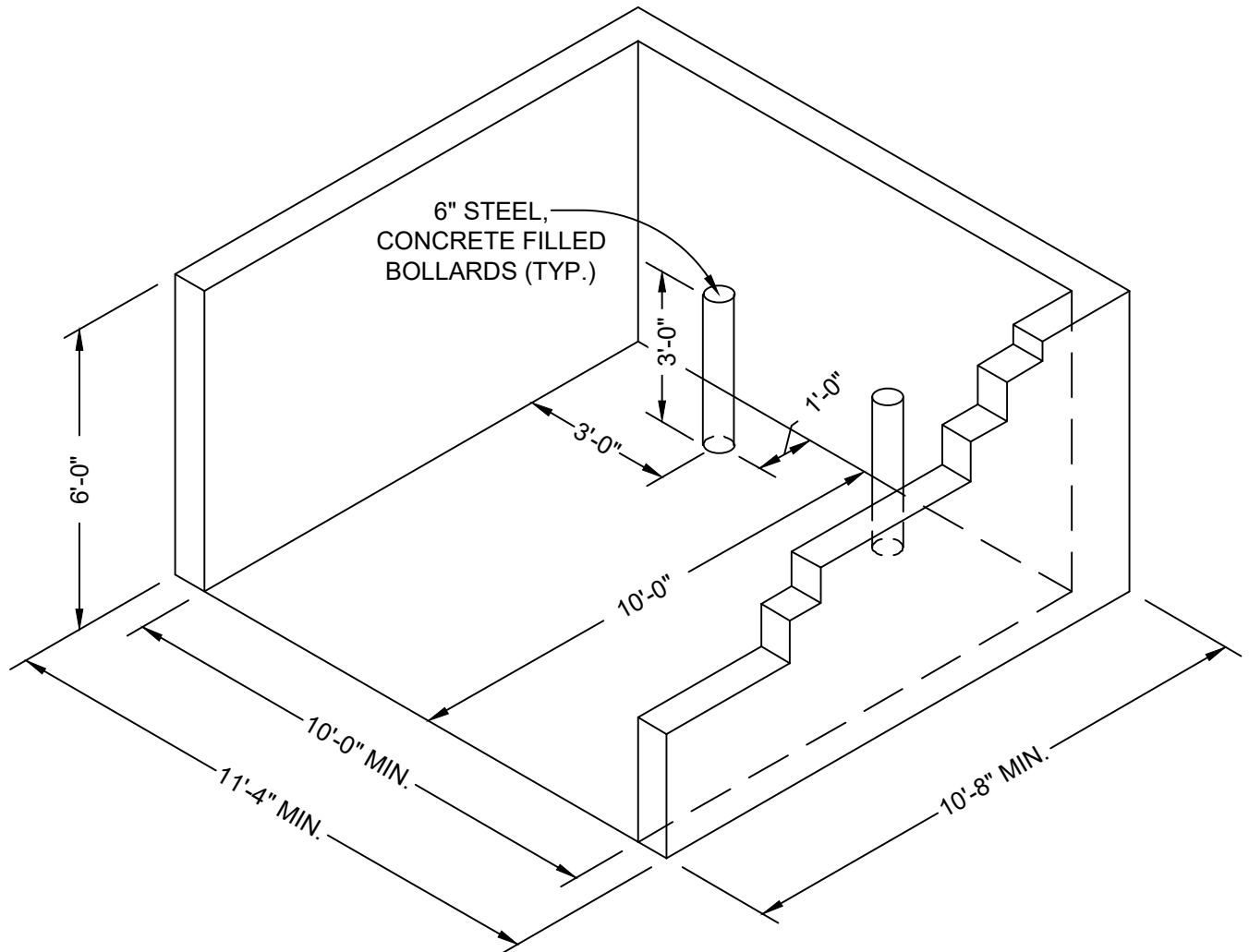
BY	DATE
SS	07/07/2022

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

ST2



NOTES:

1. WALLS WILL BE CONSTRUCTED OF EITHER CONCRETE BLOCK, WOOD STOCKADE OR VINYL FENCE, 6' HIGH.
2. SLAB IS TO BE A MINIMUM OF 6" THICK WITH 3,000 PSI CONCRETE REINFORCED WITH 6"x6" #10 WWF.
3. INSTALL DOUBLE SWING GATE FOR CLOSURE WITH MINIMUM 10' OPENING.
4. WALLS TO BE REINFORCED AT EACH CORNER WITH #4 VERTICAL BARS.
5. EACH CORNER CAVITY TO BE FILLED SOLID WITH 3,000 PSI CONCRETE.
6. ENCLOSURE IS FOR DUMPSTER ONLY, NO STORAGE.



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DUMPSTER ENCLOSURE

REVISIONS

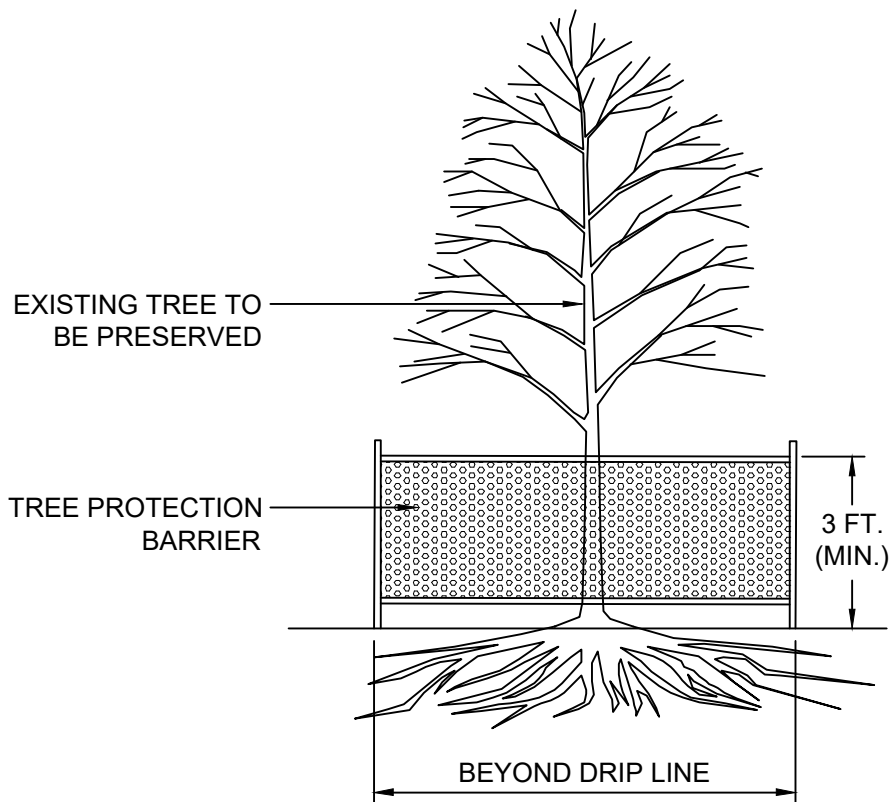
BY	DATE
BD	11/10/2015

SCALE: N.T.S.

DATE: NOVEMBER 2003

DETAIL NUMBER:

MISC1



GENERAL NOTES:

1. A TEMPORARY PROTECTIVE BARRIER SHALL BE PLACED AT THE DRIP LINE OF THE TREE(S) TO BE SAVED. THE PROTECTIVE BARRIER SHALL BE APPROVED BY THE CITY ARBORIST AND REMAIN IN PLACE UNTIL LAND ALTERATION, SITE CLEARING, AND CONSTRUCTION ACTIVITIES ARE COMPLETE.
2. FOR (2) INCH CALIPER TREES OR SMALLER, THE PROTECTIVE RADIUS SHALL BE A MINIMUM OF (6) FOOT DIAMETER.
3. THE TEMPORARY PROTECTIVE BARRIER SHALL COMPLETELY ENCIRCLE THE TREE(S) CREATING A PROTECTIVE RADIUS AROUND THE TREE(S) TO BE SAVED. IF THE DRIP LINE OF THE TREE(S) CANNOT BE BARRICADED DUE TO CONSTRUCTION ACCESS THE PROTECTIVE BARRIER SHALL BE INSTALLED AT THE GREATEST EXTENT POSSIBLE WITH THE REMAINDER OF THE DRIP LINE TO BE MULCHED AT A DEPTH OF (5) TO (6) INCHES TO PREVENT COMPACTION OF THE ROOT SYSTEM DURING CONSTRUCTION ACTIVITIES. MULCH TO BE REMOVED FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES.
4. AT A MINIMUM, THE TEMPORARY PROTECTIVE BARRIER SHALL BE (3) FEET IN HEIGHT AND BE CONSTRUCTED OF (2) INCH x (2) INCH VERTICAL POSTS INSTALLED (6) INCHES BELOW GRADE. POSTS SHALL BE INSTALLED AT A MAXIMUM OF (10) FEET ON CENTER. AVOID DRIVING POSTS INTO MAJOR ROOTS. ORANGE MESH FENCING SHALL BE SECURELY ATTACHED TO POSTS ENCIRCLING THE TREE(S) AND DEFINING THE PROTECTIVE RADIUS.
5. FOR TREES (12) INCH DBH OR LARGER THE PROTECTIVE BARRIER SHALL BE CONSTRUCTED OF CHAIN LINK FENCING WITH POSTS INSTALLED AT A MAXIMUM OF (10) FEET ON CENTER.
6. DEAD TREES, SCRUB, OR UNDERGROWTH SHALL BE CUT FLUSH WITH ADJACENT GRADE. THERE WILL BE NO SOIL DISTURBANCE WITHIN THE PROTECTIVE BARRIER OF TREES TO BE PRESERVED.
7. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER (1) INCH IN DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHOULD BE TEMPORARILY COVERED WITH (2) INCH MINIMUM DEPTH DAMP MULCH AS SOON AS POSSIBLE TO PREVENT DRYING.
8. NO EQUIPMENT OR MACHINERY SHALL BE USED WITHIN THE PROTECTIVE BARRIER. WORK WITHIN THE PROTECTIVE BARRIER SHALL BE DONE MANUALLY.
9. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE IS ALLOWED WITHIN THE LIMIT OF THE PROTECTIVE BARRIER.



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TREE PROTECTIVE BARRIER

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BD	12/31/2019

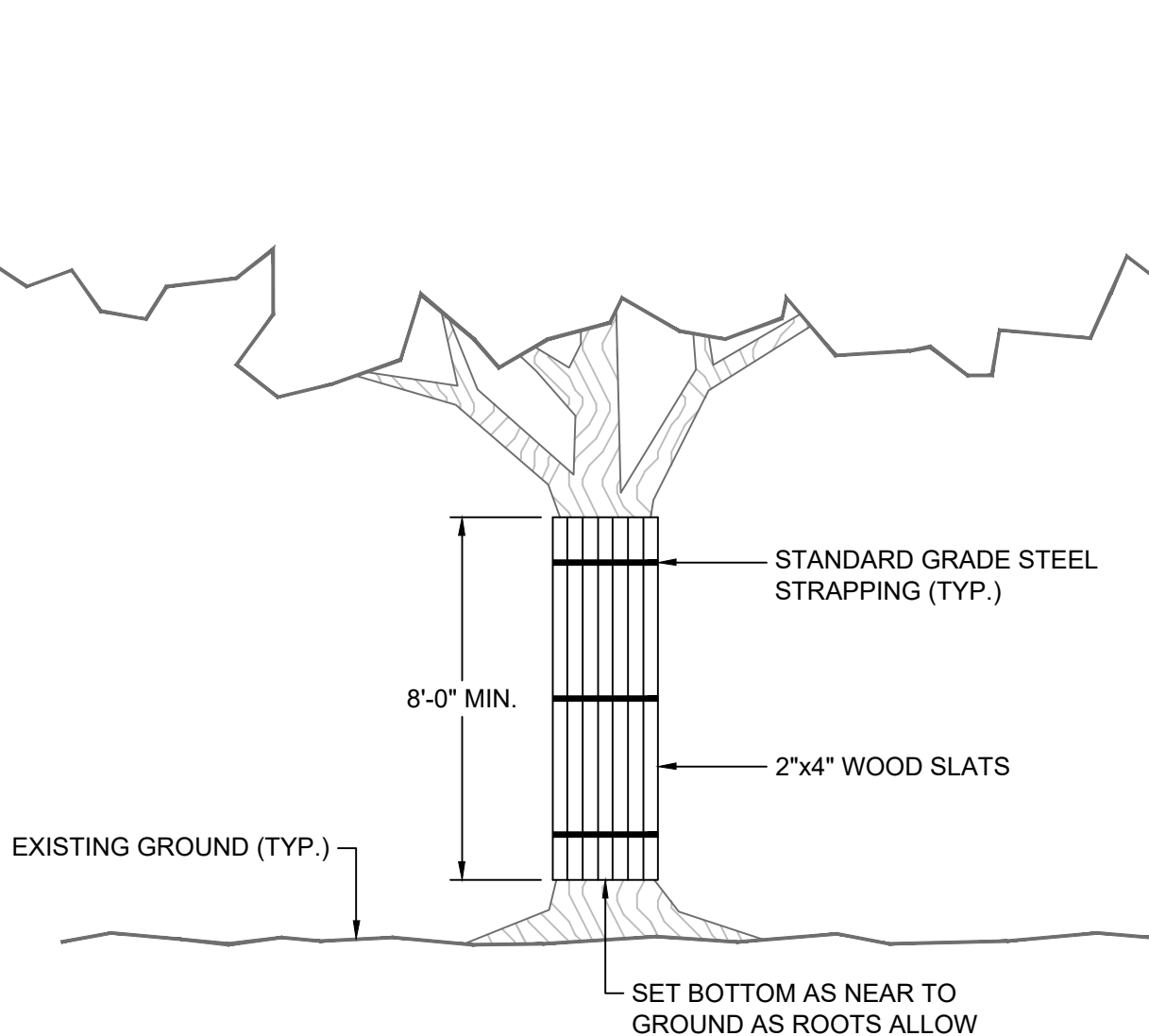
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DATE: APRIL 2015

DETAIL NUMBER:

LA1

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NOTES:

1. CONTRACTOR SHALL WRAP TREE TRUNK WITH BURLAP PRIOR TO INSTALLING 2"x4" WOOD SLATS.
2. CONTRACTOR SHALL NOTIFY CITY ARBORIST AT 727-724-1555 EXT. 1303, FOR TREE INSPECTION PRIOR TO BEGINNING CONSTRUCTION.



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TREE TRUNK (BARK) PROTECTION

REVISIONS

BY	DATE
SS	05/26/2022
TAW	01/29/2024

SCALE: N.T.S.

DATE: FEBRUARY 2017

DETAIL NUMBER:

LA2

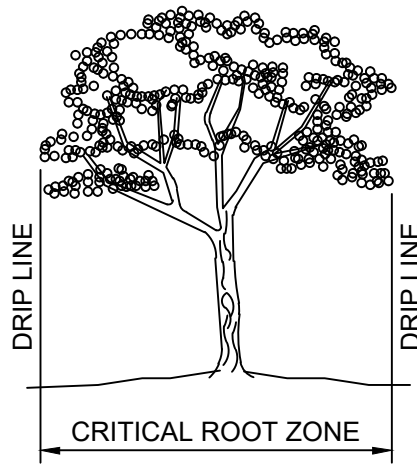


FIGURE 1

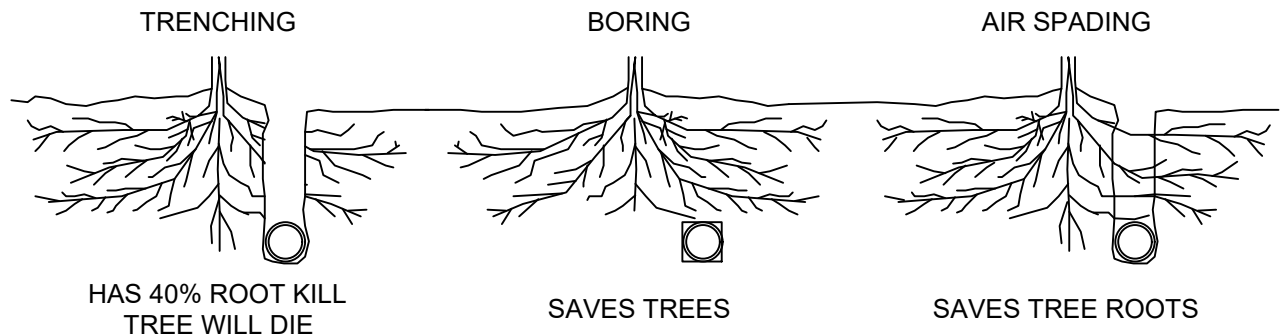


FIGURE 2

ROOT PRUNING SPECIFICATIONS

WHEN CONSTRUCTION ACTIVITIES AFFECT PROTECTED TREES SO THAT THE CRITICAL ROOT ZONE (SEE FIGURE 1) IS DISTURBED, ADHERENCE TO THE FOLLOWING ARBORICULTURAL TECHNIQUES IS REQUIRED.

UTILITIES SHALL BE ROUTED IN THE CRITICAL ROOT ZONE AREA OF A PROTECTED TREE BY BORING AND AIR SPADING. THESE PROCEDURES WILL PREVENT DAMAGE TO THE TREE'S ROOT SYSTEM.

ROOT PRUNING: WHEN CRITICAL ROOT ZONE AREA IS DISTURBED, AFFECTED ROOTS MUST BE SEVERED BY CLEAN PRUNING CUTS AT THE POINT WHERE CONSTRUCTION IMPACTS THE ROOTS. A STUMP GRINDER, CHAIN SAW, HAND SAW AND LOPPER ARE TOOLS THAT WILL MAKE A CLEAN CUT.

ROOT PRUNING IN THE CRITICAL ROOT ZONE REQUIRES APPROVAL BY THE CITY ARBORIST. ROOT PRUNING SHALL BE DONE A MINIMUM OF 5 (FIVE) TIMES THE TRUNK DIAMETER AND ONLY ON ONE SIDE. LARGER TREES WILL REQUIRE MORE DISTANCE.



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ROOT PRUNING SPECIFICATIONS

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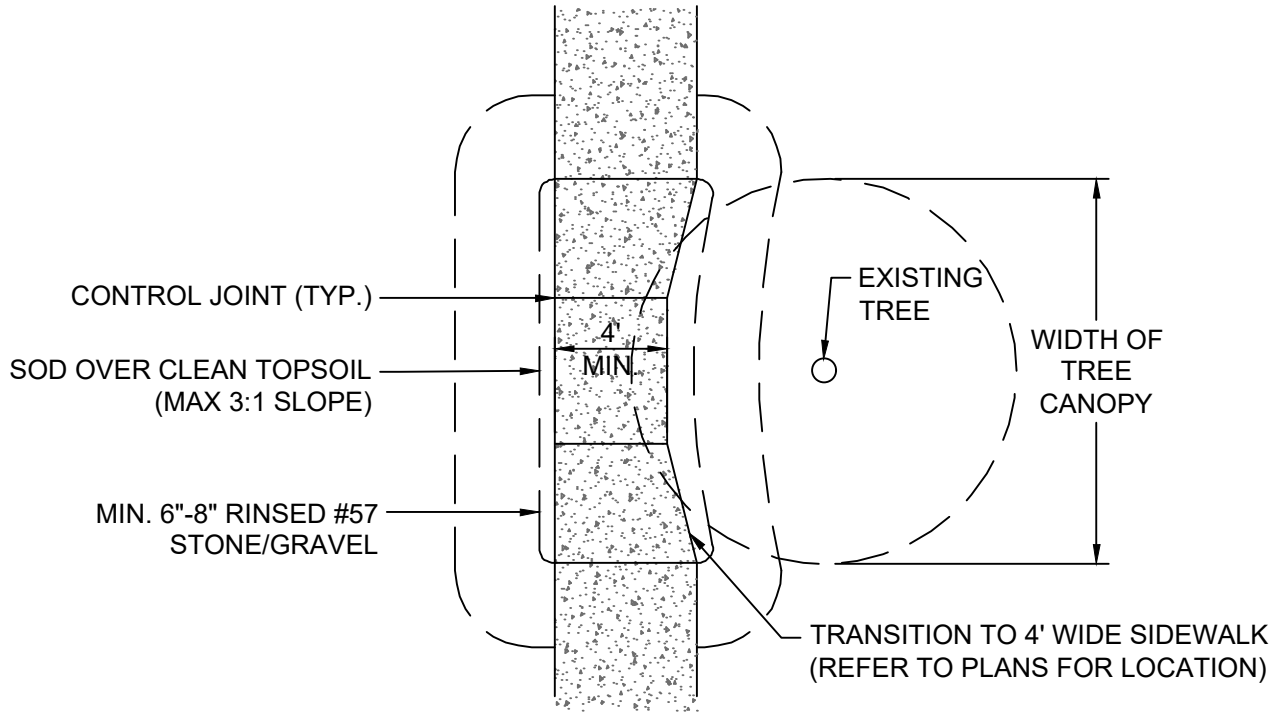
SCALE: N.T.S.

DATE: JULY 22, 2015

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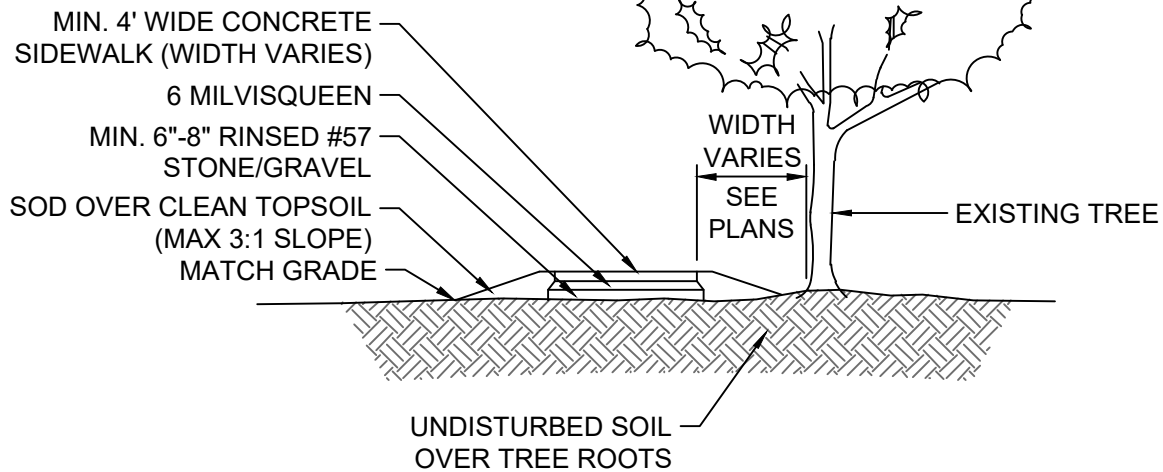
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R:\AUTOCAD STANDARDS\DETAILS\CITY DETAILS\SIDEWALK CONSTRUCTION WITH TREE PROTECTION.DWG



PLAN VIEW

NOTE: ALL CONCRETE SIDEWALK CONSTRUCTION SHALL CONFORM WITH CITY STANDARDS. REFER TO DETAIL C11 AND C12.



SECTION VIEW



CITY OF SAFETY HARBOR

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SIDEWALK CONSTRUCTION WITH TREE PROTECTION

REVISIONS

BY	DATE
JVC	5/18/2023

SCALE: N.T.S.

DATE: JULY 22, 2015

DETAIL NUMBER:

LA4