

TRIBUTARY (UNIT 4 AMENITY CENTER)

FOR

LENNAR HOMES, LLC

S.R. 200 (A1A)

A PORTION OF SECTION 45 (ROBERT HARRIS GRANT), AND A PORTION
OF SECTIONS 22, 23, 26, AND 27, TOWNSHIP 2 NORTH, RANGE 26
EAST, ALL IN NASSAU COUNTY, FLORIDA.

PROJECT OWNER AND CONSULTANTS

OWNER: LENNAR HOMES, LLC
9440 PHILIPS HIGHWAY, SUITE 7
JACKSONVILLE, FL 32256
CONTACT: CHRIS YOUNG
TEL: (904) 380-0948

ENGINEER: DOMINION ENGINEERING GROUP, INC.
4348 SOUTHPOINT BLVD, SUITE 201
JACKSONVILLE, FLORIDA 32216
CONTACT: MIKE BOWLES
TEL: (904) 854-4500 FAX: (904) 854-4505

SURVEYOR: CLARY & ASSOCIATES
3830 CROWNE POINT ROAD
JACKSONVILLE, FLORIDA 32257
TEL: (904) 260-2703

ENVIRONMENTAL: BIO-TECH CONSULTING, INC.
1157 BEACH BLVD.
JACKSONVILLE BEACH, FLORIDA 32250
CONTACT: JASON MILTON
TEL: (877) 894-5696

LANDSCAPE: BASHAM & LUCAS DESIGN GROUP, INC.
7645 GATE PARKWAY, SUITE 101
JACKSONVILLE, FLORIDA 32256
CONTACT: MATT RELYEA
TEL: (904) 731-2323 EXT. 105

UTILITY PROVIDERS

WATER & SEWER: JEA
21 WEST CHURCH STREET, T-4
JACKSONVILLE, FL 32207
CONTACT: KYLE WATSON, P.E.
TEL: (904) 665-6046

ELECTRIC: FLORIDA POWER & LIGHT
56905 GRIFFIN ROAD
CALLAHAN, FLORIDA 32011
CONTACT: DANIEL TERZA
TEL: (904) 225-3004

NATURAL GAS: FLORIDA PUBLIC UTILITIES COMPANY
780 AMELIA ISLAND PARKWAY
FERNANDINA BEACH, FLORIDA 32034
CONTACT: LINDA WINSTON
TEL: (904) 430-4718



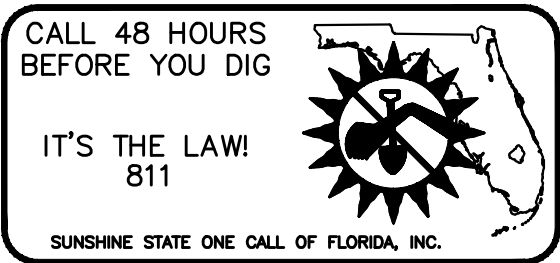
LOCATION MAP
N.T.S.

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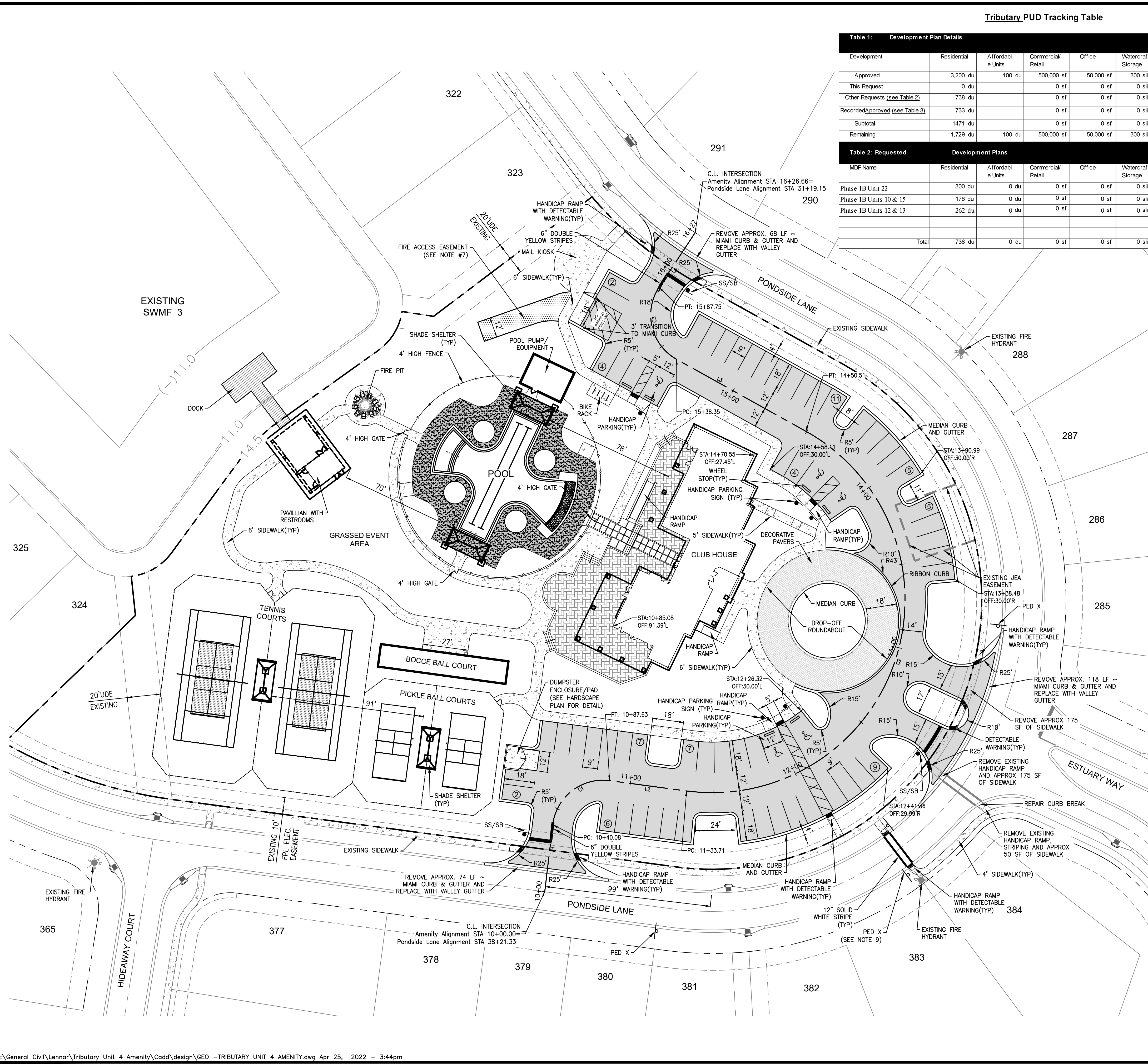


C.A. No. 26821



REVISIONS	
JEA SUBMITTAL	09/21/21
COUNTY SUBMITTAL	11/11/21
JEA SUBMITTAL	01/18/22
COUNTY SUBMITTAL	04/11/22
COUNTY SUBMITTAL	04/25/22

WILLIAM E. SCHAEFER, P.E.
FLA. REGISTERED ENGINEER # 40229



Z:\General Civil\Lennor\Tributary Unit 4 Amenity\Cadd\design\GEO -TRIBUTARY UNIT 4 AMENITY.dwg Apr 25, 2022 - 3:44pm

Tributary PUD Tracking Table

Table 1: Development Plan Details							
Development	Residential	Affordabl e Units	Commercial/ Retail	Office	Watercraft Storage	Flex Industrial	Recreation
Approved	3,200 du	100 du	500,000 sf	50,000 sf	300 slips	250,000 sf	60.8 ac
This Request	0 du		0 sf	0 sf	0 slips	0 sf	3.3 ac
Other Requests (see Table 2)	738 du		0 sf	0 sf	0 slips	0 sf	0.0 ac
Recorded/Approved (see Table 3)	733 du		0 sf	0 sf	0 slips	0 sf	29.0 ac
Subtotal	1471 du		0 sf	0 sf	0 slips	0 sf	32.3 ac
Remaining	1,729 du	100 du	500,000 sf	50,000 sf	300 slips	250,000 sf	28.5 ac

Table 2: Requested Development Plans							
MDP Name	Residential	Affordabl e Units	Commercial/ Retail	Office	Watercraft Storage	Flex Industrial	Recreation
Phase 1B Unit 22	300 du	0 du	0 sf	0 sf	0 slips	0 sf	0 ac
Phase 1B Units 10 & 15	178 du	0 du	0 sf	0 sf	0 slips	0 sf	1.4 ac
Phase 1B Units 12 & 13	262 du	0 du	0 sf	0 sf	0 slips	0 sf	0 ac
Total	738 du	0 du	0 sf	0 sf	0 slips	0 sf	1.4 ac

LEGEND

SITE BOUNDARY	
RIGHT OF WAY	
FENCE	
PROPOSED PAVEMENT	
PROPOSED POOL DECK	
EXISTING PAVEMENT	
RADIUS	R
POINT OF CURVATURE	P.C.
POINT OF INTERSECTION	P.I.
POINT OF TANGENCY	P.T.
PUBLIC UNOBSTRUCTED DRAINAGE EASEMENT	UDE
PRIVATE UNOBSTRUCTED DRAINAGE EASEMENT	PUDE
STOP SIGN & 24" STOP BAR	SS/SB
PEDESTRIAN CROSSING SIGN (W11-2)	PED X

NOTES:

- BOUNDARY INFORMATION AND TOPOGRAPHIC DATA PROVIDED BY CLARY AND ASSOCIATES.
- ALL DIMENSIONS ARE TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED ON PLANS.
- ALL CROSSWALKS SHALL BE 12" WIDE SOLID WHITE.
- ALL STRIPING AND SIGNAGE SHALL MEET NASSAU COUNTY STANDARDS AND SPECIFICATIONS.
- ALL HANDICAPPED RAMPS SHALL MEET NASSAU COUNTY STANDARDS AND SPECIFICATIONS.
- ALL RAISED PAVEMENT MARKERS TO BE INSTALLED PER FDOT INDEX 17352.
- STABILIZED TURF TO BE INSTALLED BY CONTRACTORS. AREA TO BE STABILIZED UNDER SOD, SEE DETAIL SHEET C5.
- EXACT DIMENSION OF TENNIS COURTS, PICKLE BALL COURTS, AND BOCCIE BALL COURTS BY SPECIALTY CONTRACTORS.
- ALL CROSS WALK LOCATIONS WITHOUT A STOP CONDITION SHALL BE EQUIPPED WITH FLUORESCENT YELLOW GREEN W11-2 SIGN WITH A W16-7P PLAQUE MOUNTED BELOW PER MUTCD SECTION 2B.

ALIGNMENT LINES		
L#	DISTANCE	BEARING
L1	40.08	N6°48'40"E
L2	46.08	S82°22'42"E
L3	87.84	N60°54'19"W
L4	38.91	N33°27'25"E

ALIGNMENT CURVE				
C#	LENGTH	RADIUS	DELTA	CHORD
C1	47.55	30.00	90.8105	N52°12'59"E
C2	316.80	114.50	158.5270	N18°21'30"E
C3	49.41	30.00	94.3622	N13°43'27"W

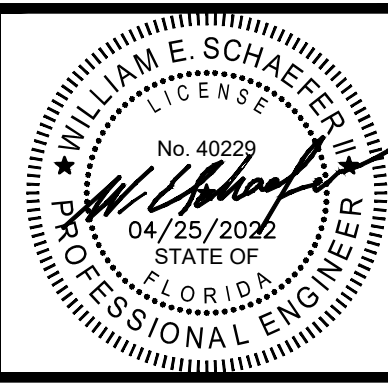
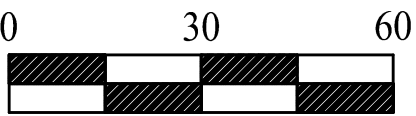
PARKING CALCULATIONS

TOTAL FLOOR SPACE PROPOSED - 5,434 SQ.FT.
1 PARKING SPACE PER EVERY 200 SQ.FT. OF GROSS FLOOR SPACE

TOTAL SPACES REQUIRED - 5,434/200 = 27.17 (28 SPACES)
HANDICAP PARKING SPACES REQUIRED - 21 TO 50 SPACES REQUIRED = 2 HANDICAP SPACES
TOTAL SPACES PROVIDED - 62 SPACES: 57 REGULAR SPACES AND 5 HANDICAP SPACES

SITE DATA SUMMARY

- TOTAL ACRES - 144,160 SQ.FT. (3.31 AC)
- TOTAL DEVELOPED - 139,480 SQ.FT. (3.20 AC)
- FLUM - MULTI-USE / PUD
- PROPOSED TOTAL BUILDING SQ. FT. (UNDER ROOF):
CLUB HOUSE - 5,195 SQ.FT.
PAVILLION RESTROOMS - 239 SQ.FT.
TOTAL PROPOSED - 5,434 SQ.FT.
- THE FLOOR AREA RATIO (FAR) PERCENTAGE - 3.8%
- MAX BUILDING HEIGHTS - 35 FT.
- TOTAL IMPERVIOUS AREA - 54,725 SQ.FT. (1.26 AC.) (38%)
- MAX ISR: 75%
- MAX FLOOR AREA RATIO: 70%
- REQUIRED SETBACKS: (FRONT: 0', SIDES: 0', REAR: 0')
i. 10' SEPARATION BETWEEN ALL STRUCTURES



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PLANNERS AND ENGINEERS

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TRIBUTARY UNIT 4 AMENITY CENTER

FOR LENNOR HOMES

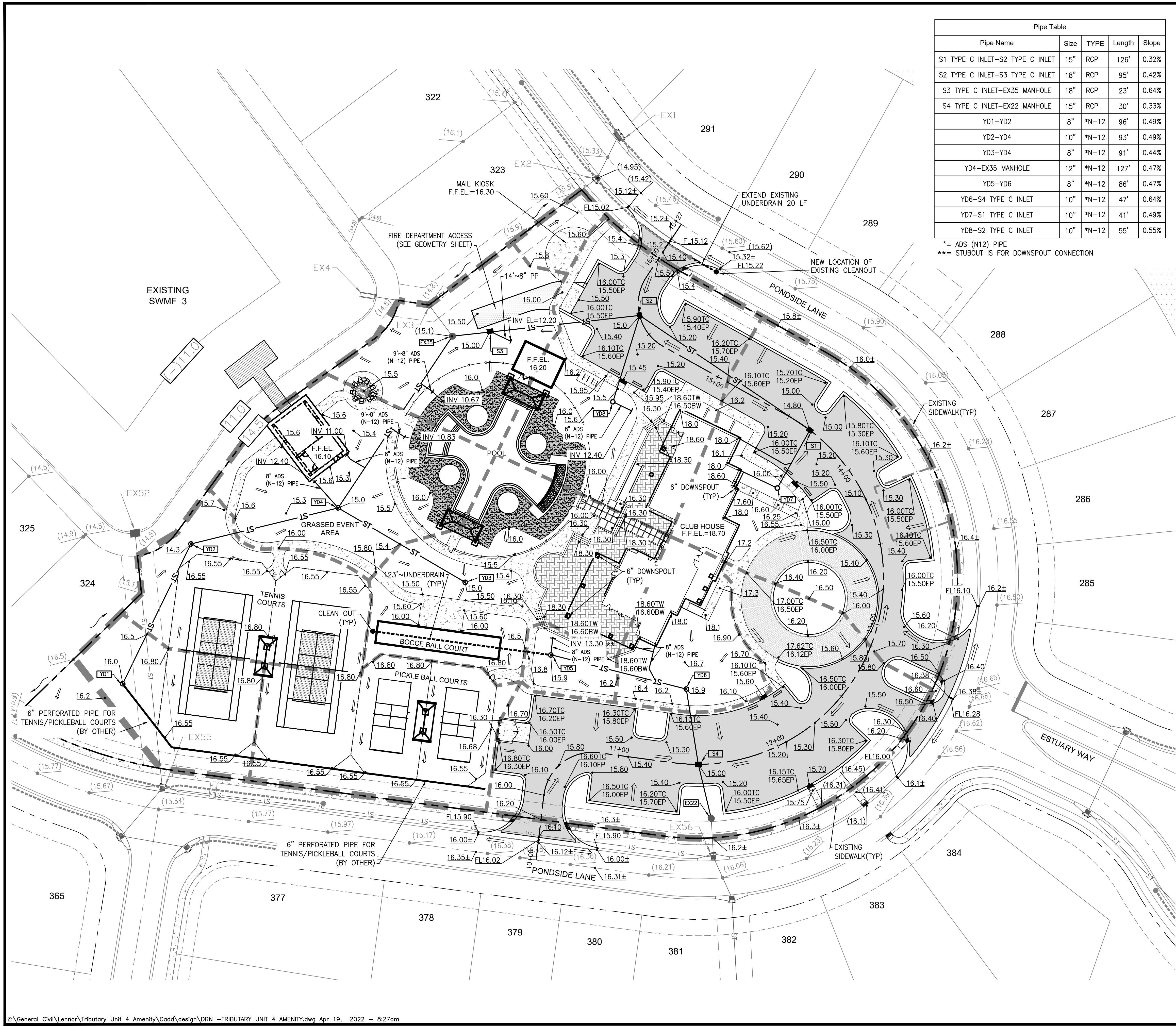
GEOMETRY PLAN

REVISIONS

PLOT DATE:
DRAWN BY: JMM
DESIGNED BY: JMM/MB
CHECKED BY: WES
SCALE: AS NOTED
JOB NO.: 2106.007
© LATEST DATE HEREON
SHEET NO.

C1

OF XX



Pipe Table				
Pipe Name	Size	TYPE	Length	Slope
S1 TYPE C INLET-S2 TYPE C INLET	15"	RCP	126'	0.32%
S2 TYPE C INLET-S3 TYPE C INLET	18"	RCP	95'	0.42%
S3 TYPE C INLET-EX35 MANHOLE	18"	RCP	23'	0.64%
S4 TYPE C INLET-EX22 MANHOLE	15"	RCP	30'	0.33%
YD1-YD2	8"	*N-12	96'	0.49%
YD2-YD4	10"	*N-12	93'	0.49%
YD3-YD4	8"	*N-12	91'	0.44%
YD4-EX35 MANHOLE	12"	*N-12	127'	0.47%
YD5-YD6	8"	*N-12	86'	0.47%
YD6-S4 TYPE C INLET	10"	*N-12	47'	0.64%
YD7-S1 TYPE C INLET	10"	*N-12	41'	0.49%
YD8-S2 TYPE C INLET	10"	*N-12	55'	0.55%

*= ADS (N12) PIPE
**= STUBOUT IS FOR DOWNSPOUT CONNECTION

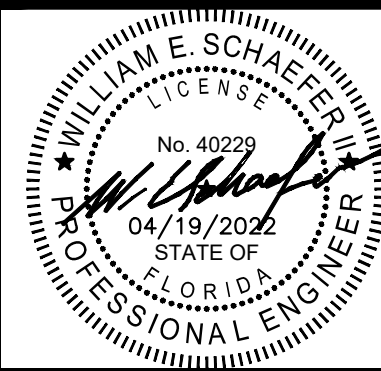
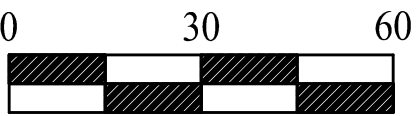
LEGEND

- EXISTING RIGHT OF WAY
- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- PROPOSED POOL DECK
- EXISTING SPOT ELEVATION
- PROPOSED ROAD ELEVATION
- EXISTING ELEVATION
- PROPOSED ELEVATION
- TOP OF CURB
- EDGE OF PAVEMENT
- TOP OF WALL
- BOTTOM OF WALL
- EXISTING TOP OF BANK
- PROPOSED DRAINAGE FLOW
- EXISTING DRAINAGE FLOW
- PROPOSED INLET
- PUBLIC UNOBSTRUCTED DRAINAGE EASEMENT
- PRIVATE UNOBSTRUCTED DRAINAGE EASEMENT
- YARD DRAIN NUMBER
- DRAINAGE STRUCTURE NUMBER
- YARD DRAIN

NOTES:

- CONTRACTOR SHALL SUPPLY ENGINEER OF RECORD WITH SHOP DRAWINGS OF ADS YARD DRAINS AND ASSOCIATED PIPE AND FITTINGS.
- FINE DETAIL GRADING TO TENNIS COURTS, PICKLEBALL COURTS AND BOCCIE BALL COURT BY SPECIALTY CONTRACTOR.
- POOL DECK GRADING SHALL BE COMPLETED BY POOL ENGINEER.

Structure Table	
Structure Name	Structure Details
EX22 MANHOLE	RIM = 16.30 INV IN = 10.40(N) INV OUT = 9.90(S) (NEW)
EX35 MANHOLE	RIM = 15.10 INV IN = 11.10(E) INV IN = 10.40(SW) INV OUT = 8.20(NW) (NEW)
S1 TYPE C INLET	RIM = 14.80 INV IN = 12.50(SW) INV OUT = 12.30(NW)
S2 TYPE C INLET	RIM = 15.00 INV IN = 11.90(SE) INV IN = 12.00(S) INV OUT = 11.90(W)
S3 TYPE C INLET	RIM = 15.00 INV IN = 11.50(E) INV IN = 12.10(SE)(8") INV OUT = 11.25(W)
S4 TYPE C INLET	RIM = 15.00 INV IN = 12.50(N) INV OUT = 10.50(S)
(12") YD1	RIM = 16.00 INV IN = 13.50(SE)(6") INV OUT = 12.10(NE)
(12") YD2	RIM = 14.30 INV IN = 11.63(SW) INV OUT = 11.46(E)
(12") YD3	RIM = 15.00 INV OUT = 12.30(NW)
(18") YD4	RIM = 15.00 INV IN = 11.00(W) INV IN = 11.90(SE) INV IN = 12.30(NW) INV OUT = 11.00(NE)
(12") YD5	RIM = 15.80 INV IN = 13.40(W)(6") INV IN/OUT = 13.20(N,E)
(12") YD6	RIM = 15.90 INV IN = 12.80(W) INV OUT = 12.80(S)
(12") YD7	RIM = 15.70 INV IN = 12.70(NW) INV OUT = 12.70(NE)
(12") YD8	RIM = 15.30 INV IN = 12.30(SE) INV OUT = 12.30(N)



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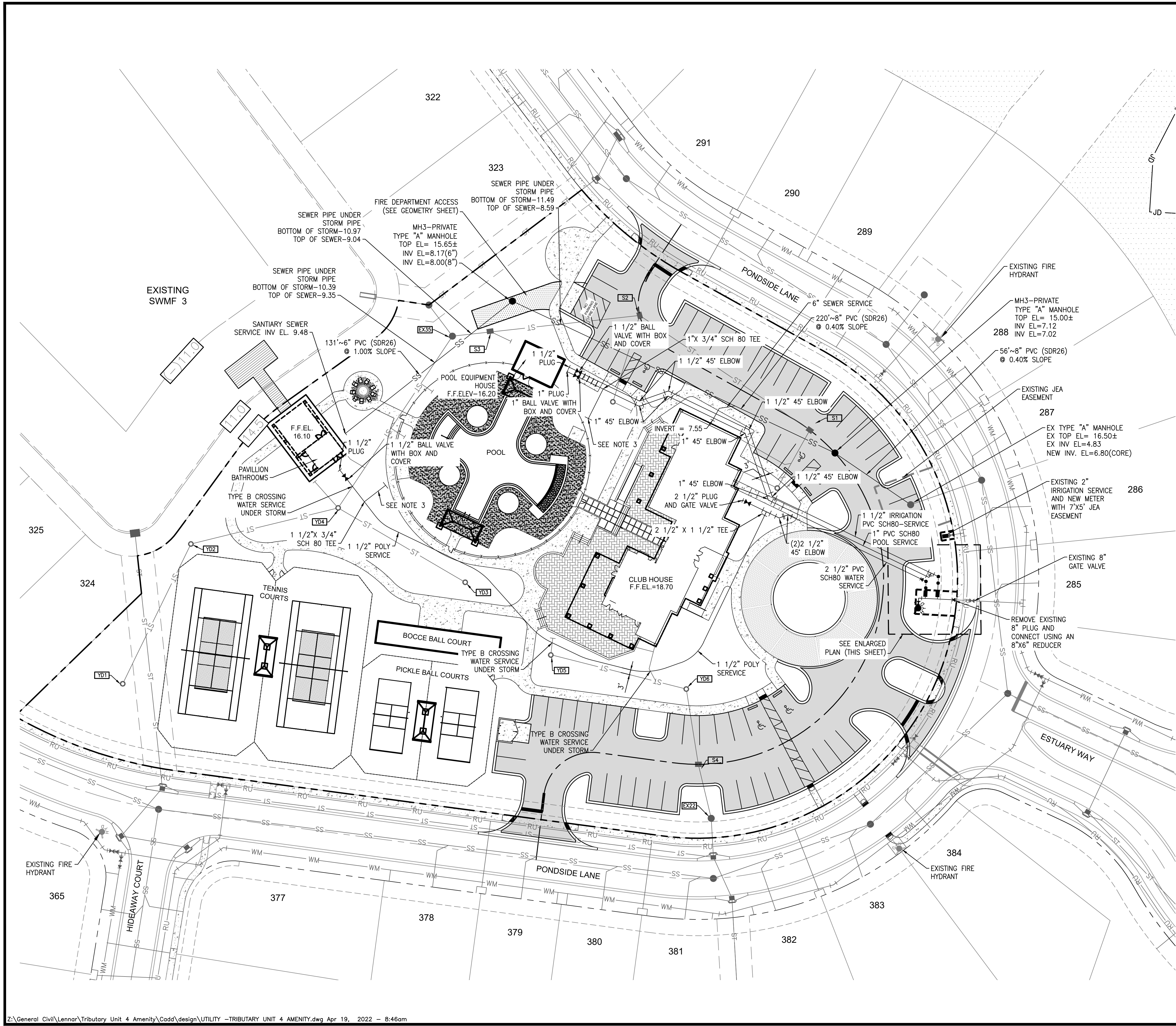
TRIBUTARY UNIT 4 AMENITY CENTER
FOR
LENNAR HOMES
PAVING AND DRAINAGE PLAN

REVISIONS

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SCALE: AS NOTED
JOB NO.: 2106.007
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C2

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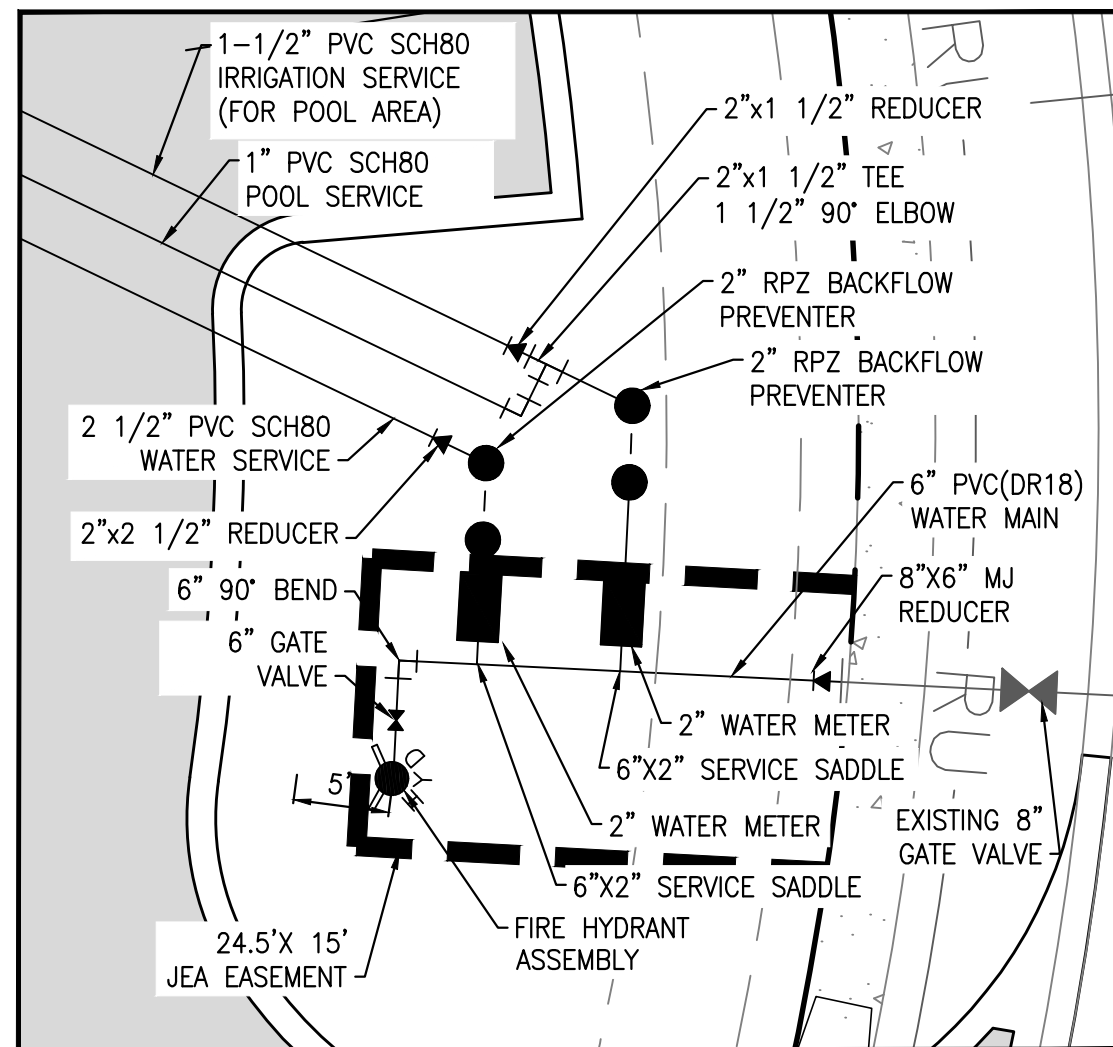


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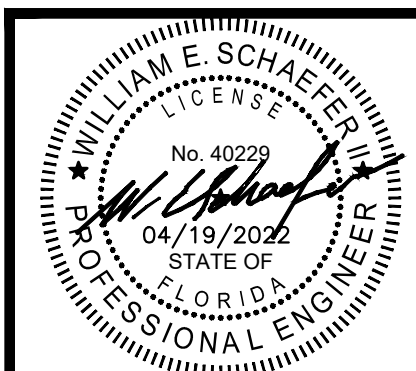
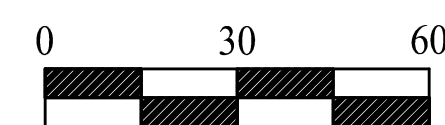
SITE BOUNDARY	---
PROPOSED PAVEMENT	---
UTILITY EASEMENT	---
PROPOSED STORM WATER	ST
PROPOSED SANITARY SEWER	SS
EXISTING WATER MAIN	WM
PROPOSED WATER MAIN	WM
EXISTING REUSE MAIN	RU
PROPOSED REUSE MAIN	RU
SWMF TOP OF BANK	X
FENCE	---
PROPOSED FIRE HYDRANT	●
PROPOSED MANHOLE	○

GENERAL NOTES

- BEFORE SERVICE IS PROVIDED, THE UTILITY DEPT. MUST BE IN RECEIPT OF FDEP LETTER OF RELEASE FOR WATER SERVICE.
- BEFORE SERVICE IS PROVIDED, THE UTILITY DEPT. MUST BE IN RECEIPT OF FDEP LETTER OF RELEASE FOR WASTEWATER SERVICE.
- CONTRACTOR SHALL STUB OUT 3/4" PVC SCH80 SERVICE TO OUTDOOR POOL SHOWER AREAS.



ENLARGED PLAN
SCALE: 1"=10'



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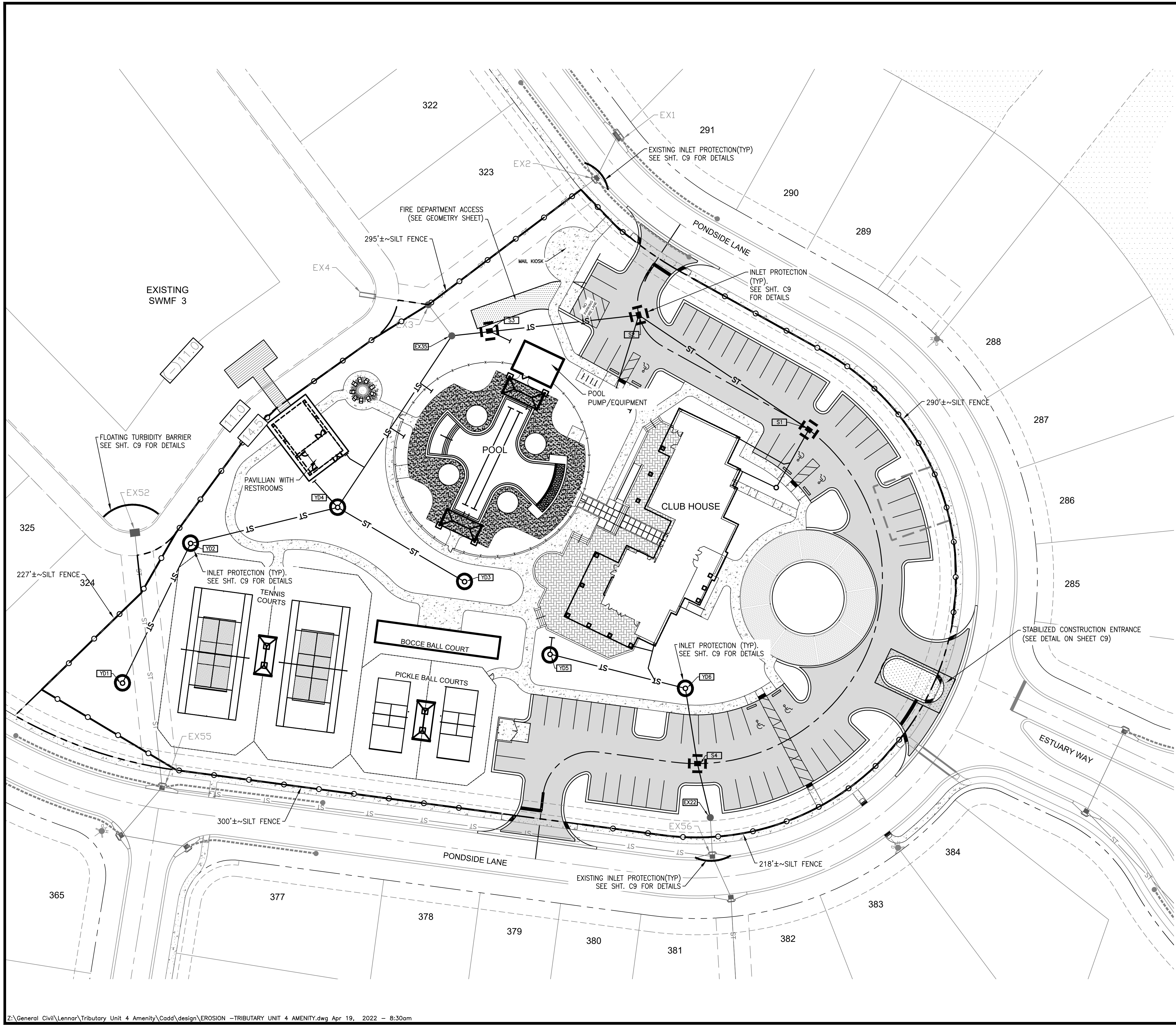
TRIBUTARY UNIT 4 AMENITY CENTER
FOR
LENNAR HOMES
UTILITY PLAN

REVISIONS

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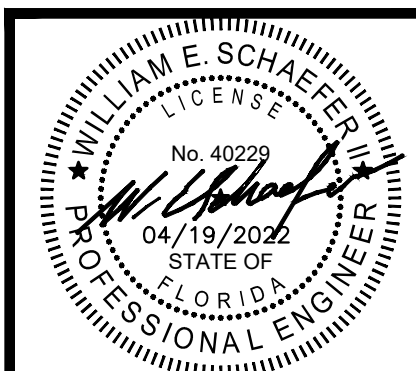
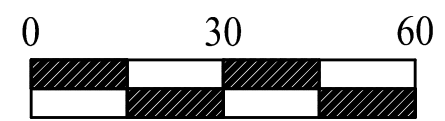
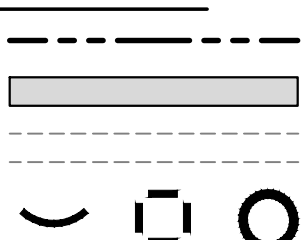
C3

OF XX



LEGEND

- SITE BOUNDARY
- PROPOSED PAVEMENT
- EXISTING PAVEMENT
- INLET PROTECTION



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TRIBUTARY UNIT 4 AMENITY CENTER

FOR
LENNAR HOMES

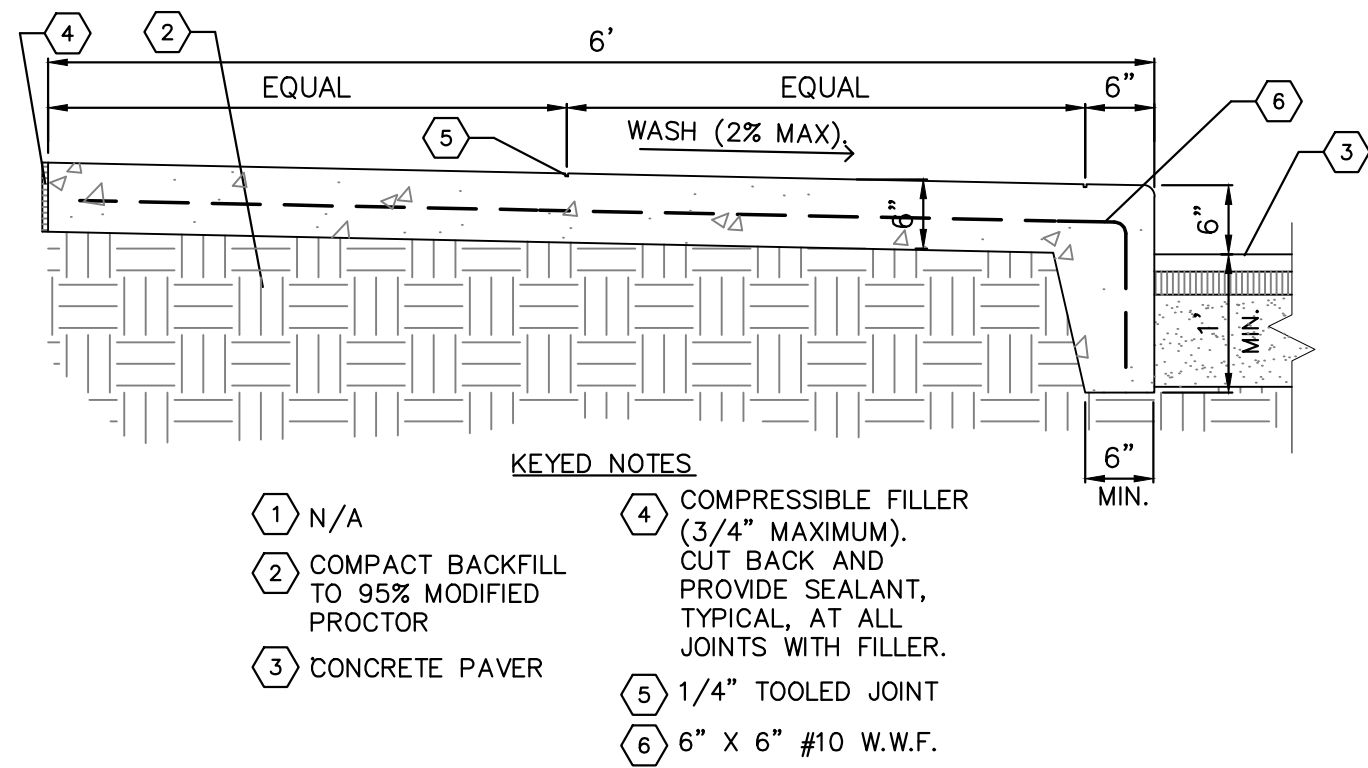
EROSION CONTROL PLAN

REVISIONS

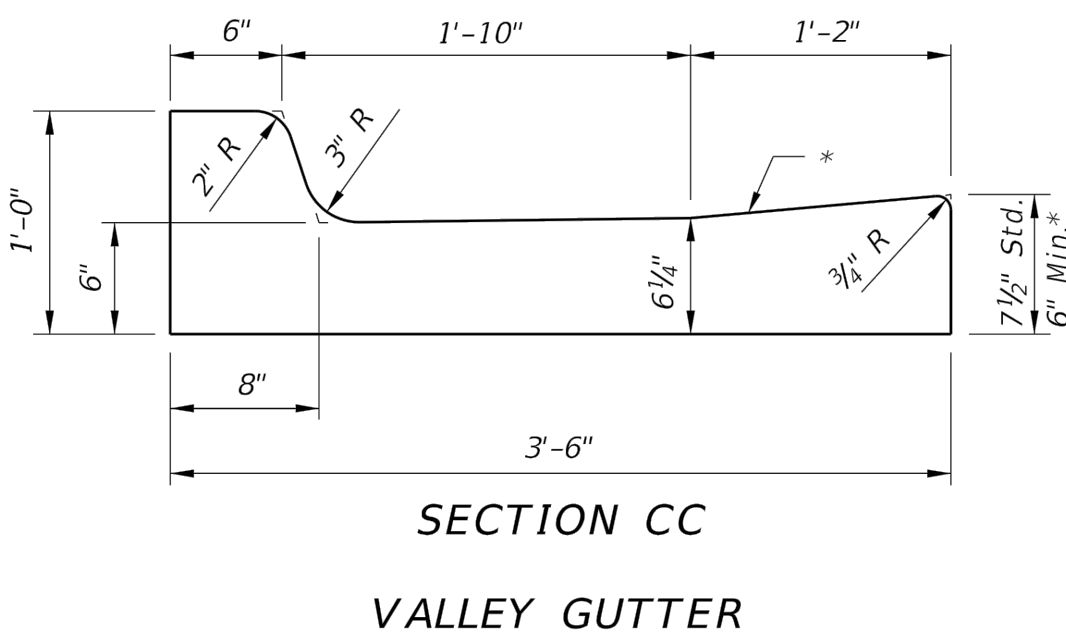
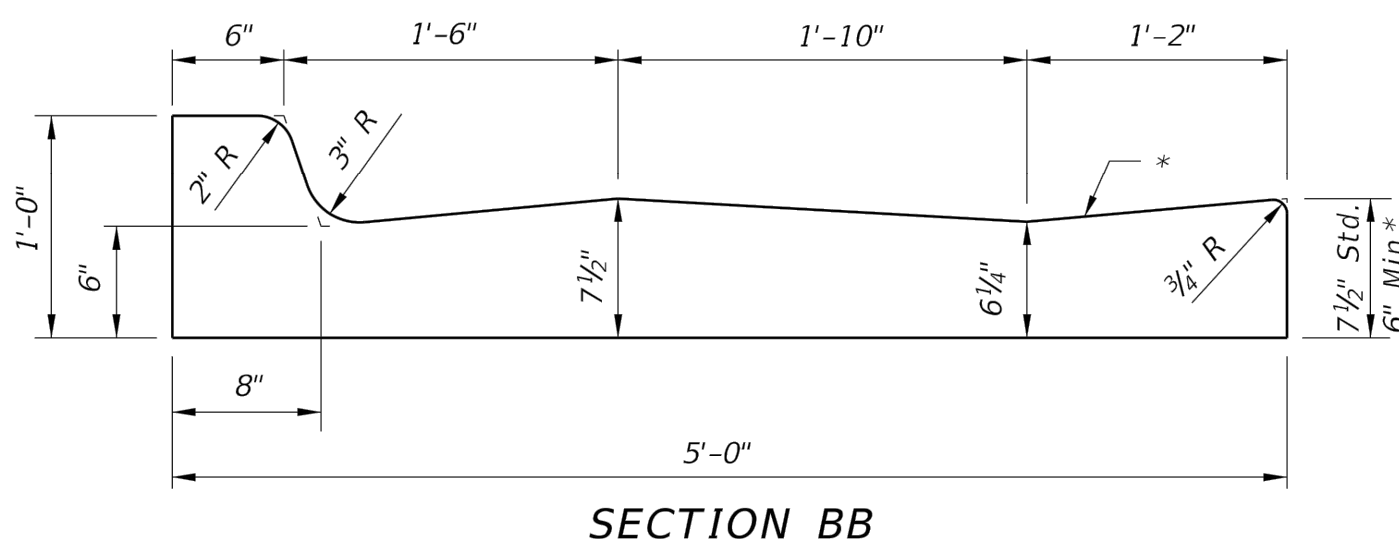
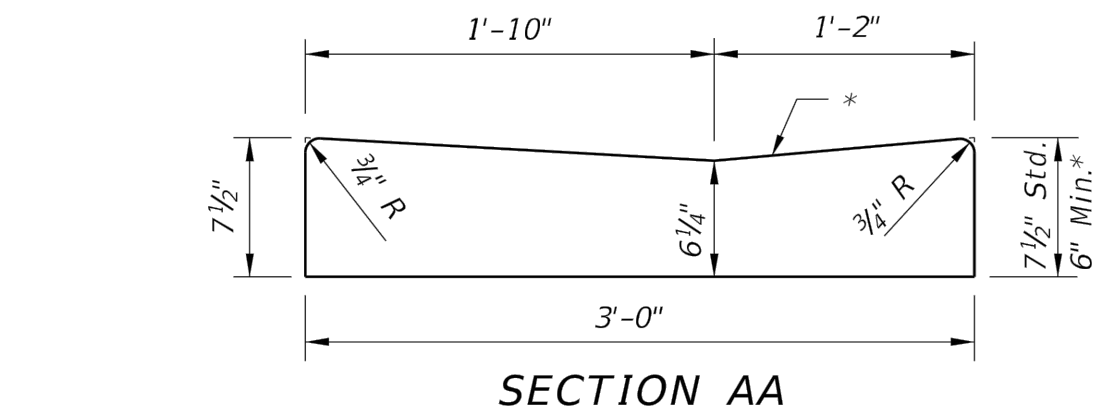
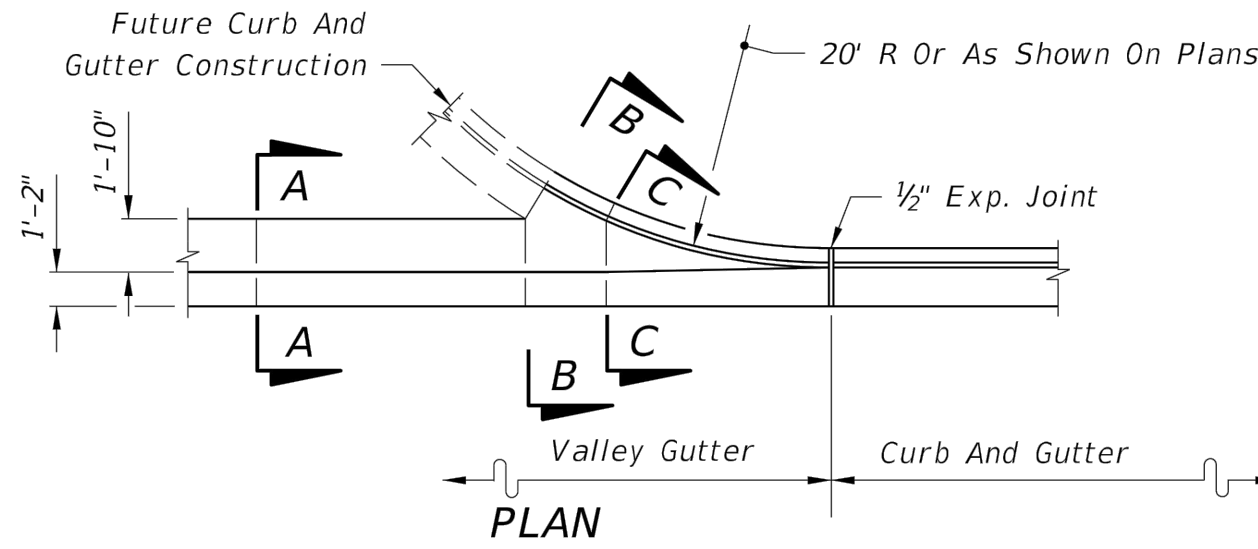
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SECTION -TURNDOWN SIDEWALK
N.T.S.

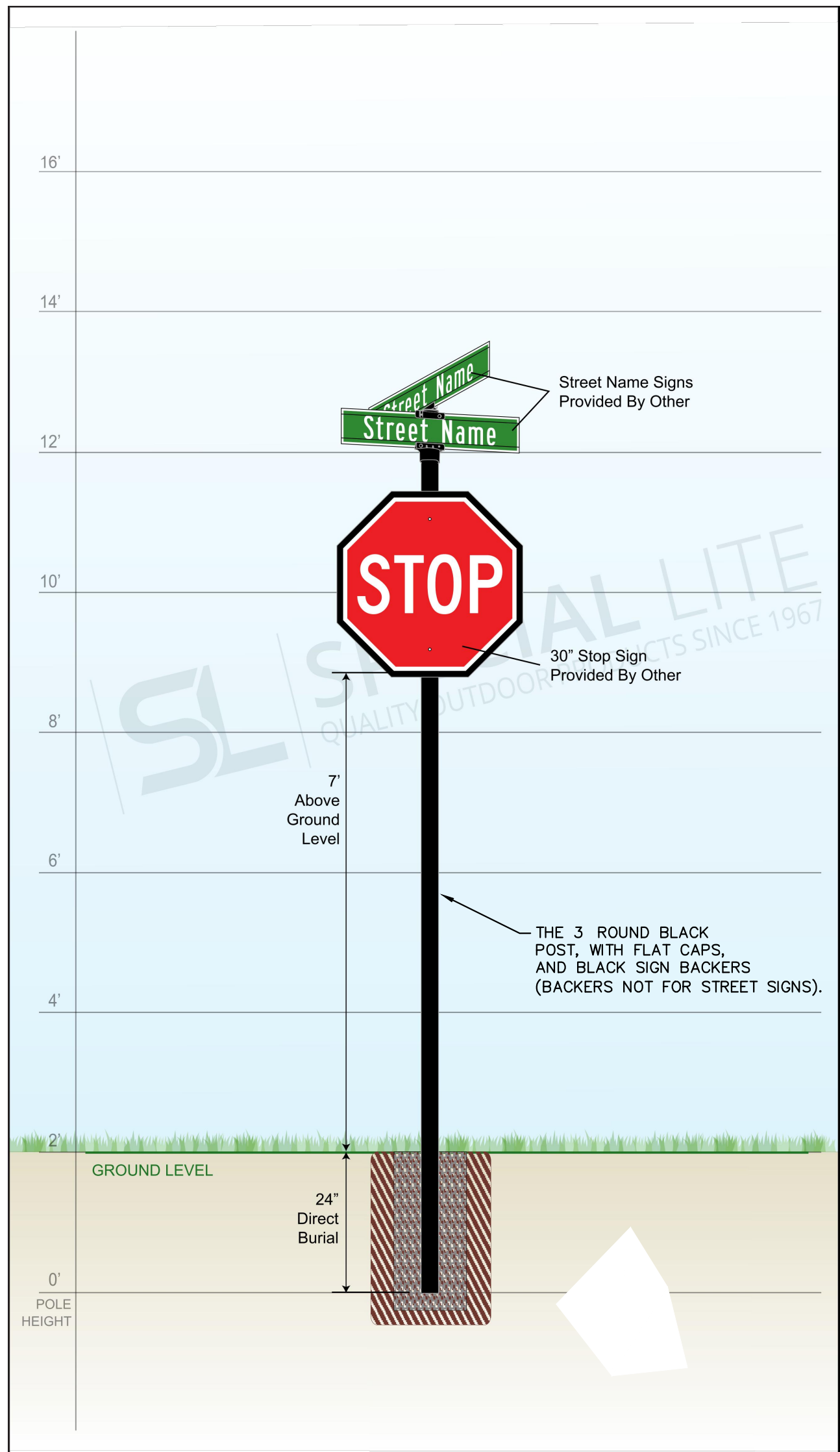
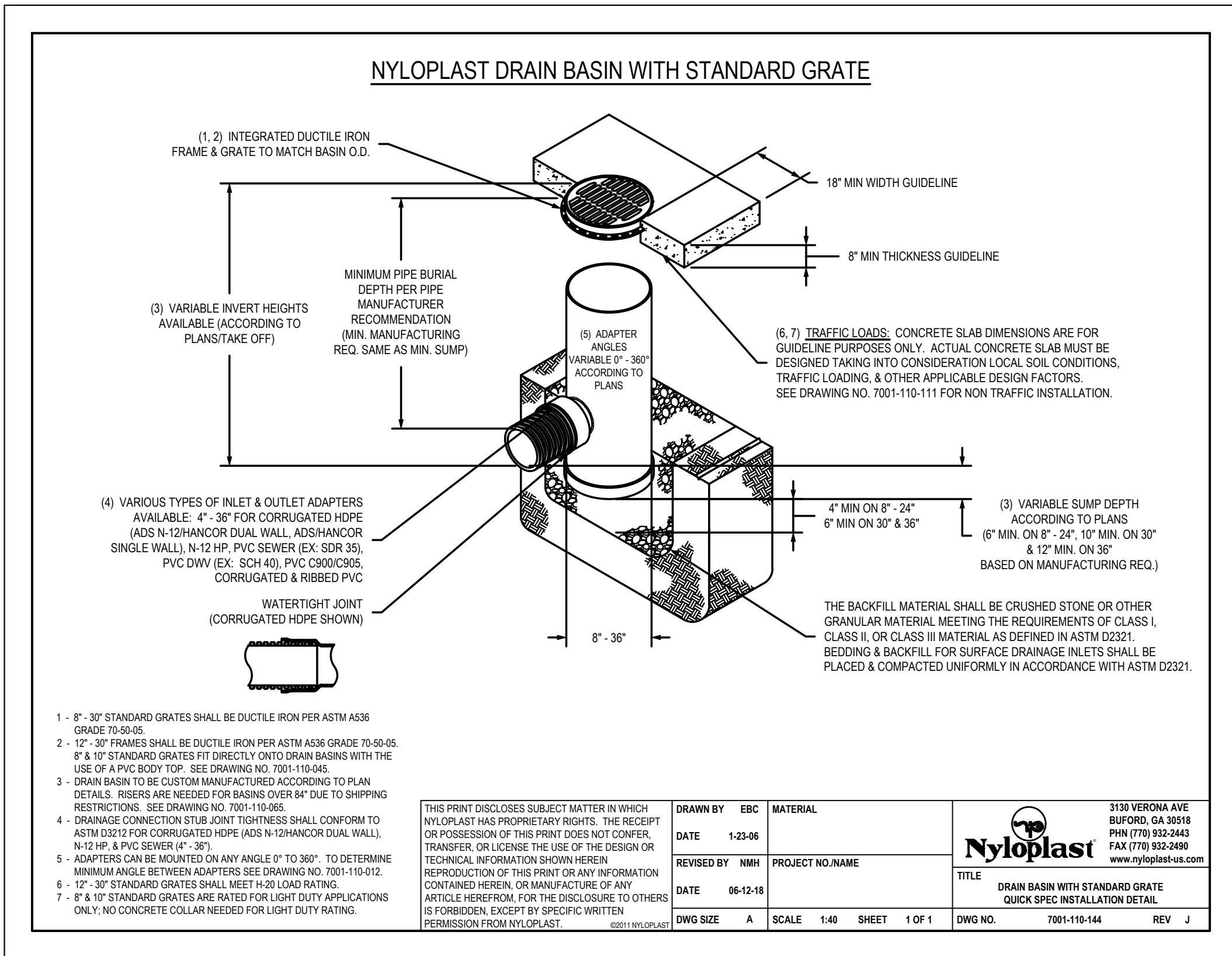
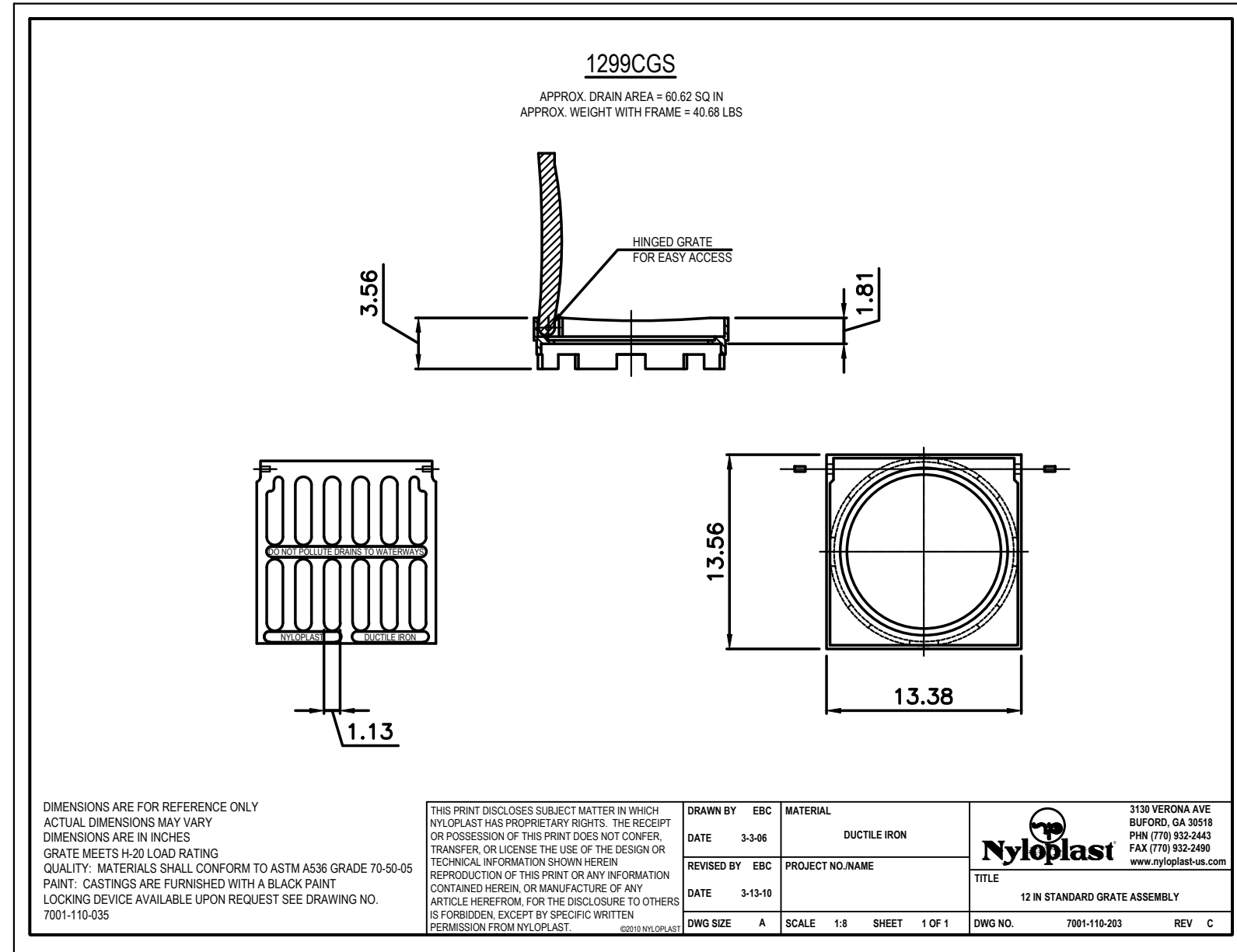


* When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement. The thickness of the lip shall be 6", unless otherwise shown on plans.

■ Rotate entire section so that gutter cross slope matches slope of adjacent circulating roadway pavement.

For use adjacent to concrete or flexible pavement. For details depicting usage adjacent to flexible pavement, see Sheet 2. Expansion joint, preformed joint filler and joint seal are required between curb & gutter and concrete pavement only, see Sheet 2.

FDOT INDEX 520-001
VALLEY GUTTER DETAIL
N.T.S.



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TRIBUTARY AMENITY CENTER
FOR
THREE RIVERS DEVELOPEMENT, LLC.

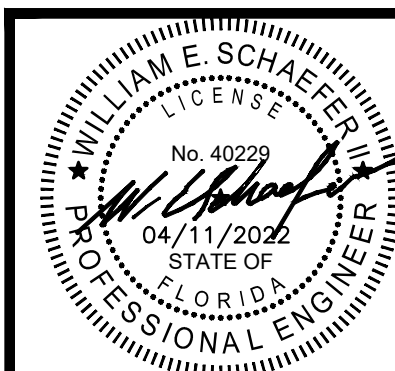
PAVING AND DRAINAGE DETAILS

REVISIONS

PLOT DATE:
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DESIGNED BY: JMM
CHECKED BY: WES
SCALE: AS NOTED
JOB NO.:
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OF



GENERAL NOTES:

- ALL WORK AND MATERIALS SHALL BE IN COMPLETE ACCORDANCE WITH ALL RELATIVE SECTIONS OF THE NASSAU COUNTY ROADWAY AND DRAINAGE STANDARDS, (LATEST REVISION) AND ALL CURRENT COUNTY STANDARD DETAILS AS WELL AS ALL APPLICABLE STATE AND LOCAL REGULATIONS. THE WORK SHALL ALSO BE PERFORMED AND TESTED IN ACCORDANCE WITH THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL INVESTIGATION REPORT PROVIDED BY AGES OF JAX, INC. (JOB #J16756 REPORT #001). IF MORE STRINGENT THAN COUNTY REQUIREMENTS.
- ALL WORK SHALL BE PERFORMED IN A SAFE MANNER. ALL SAFETY RULES AND GUIDELINES OF O.S.H.A. SHALL BE FOLLOWED. THE CONTRACTOR SHALL BE WHOLLY RESPONSIBLE FOR ANY INJURIES OF HIS EMPLOYEES, AND ANY DAMAGE TO PRIVATE PROPERTY OR PERSONS DURING THE COURSE OF THIS PROJECT. ALL COSTS ASSOCIATED WITH COMPLYING WITH O.S.H.A. REGULATIONS AND THE FLORIDA TRENCH SAFETY ACT MUST BE INCLUDED IN THE CONTRACTORS BID.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE JOB SITE PRIOR TO PREPARING THE BID FOR THE PURPOSE OF FAMILIARIZING HIMSELF WITH THE NATURE AND THE EXTENT OF THE WORK AND LOCAL CONDITIONS, EITHER SURFACE OR SUBSURFACE, WHICH MAY AFFECT THE WORK TO BE PERFORMED, AND THE EQUIPMENT, LABOR AND MATERIALS REQUIRED. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF COMPLETE PERFORMANCE UNDER THIS CONTRACT. THE CONTRACTOR IS ALSO URGED TO TAKE COLOR PHOTOGRAPHS ALONG THE ROUTE OF THE PROJECT TO RECORD EXISTING CONDITIONS PRIOR TO CONSTRUCTION, AND TO AID IN RESOLVING POSSIBLE FUTURE COMPLAINTS THAT MAY OCCUR DUE TO THE CONSTRUCTION OF THE PROJECT.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EITHER CONDUCT ANY FIELD EXPLORATION OR ACQUIRE ANY GEOTECHNICAL ASSISTANCE REQUIRED TO ESTIMATE THE AMOUNT OF UNSUITABLE MATERIAL THAT WILL REQUIRE REMOVAL AND/OR TO ESTIMATE THE AMOUNT OF OFF SITE BORROW THAT WILL BE REQUIRED.
- ALL IMPROVEMENTS SHOWN ARE TO BE WARRANTED BY THE CONTRACTOR TO THE DEVELOPER AND/OR THE COUNTY FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY THE OWNER AND THE COUNTY.
- ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1988 (NAVD.) UNITED STATES COASTAL AND GEODETIC SURVEY (U.S.C. & G.S.), AS DETERMINED BY CLARY AND ASSOCIATES, INC.
- FOR BOUNDARY, ROADWAY AND LOT GEOMETRY INFORMATION SEE PLAT.
- THE CONTRACTOR WILL CONTRACT WITH AN INDEPENDENT TESTING LABORATORY TO PERFORM MATERIAL TESTING AND SOIL TESTING IN ACCORDANCE WITH COUNTY REQUIREMENTS. THIS SHALL INCLUDE DENSITY TESTS IN ALL PAVEMENT AREAS AND IN ALL UTILITY TRENCHES LOCATED IN PAVEMENT AREAS. CONCRETE TESTING AND ALL OTHER MATERIAL TESTING PRIOR TO LINEROCK PLACEMENT, THE PROJECT GEOTECHNICAL ENGINEER SHALL MAKE RECOMMENDATION FOR UNDERDRAIN PLACEMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSURANCE REQUIRED FOR THE PROJECT INCLUDING COUNTY RIGHT-OF-WAY PERMITS FOR WORK IN THE COUNTY RIGHT- OF-WAY OR EASEMENT.
- THE CONTRACTOR SHALL COORDINATE THE WORK WITHIN COUNTY OR STATE RIGHT-OF-WAY WITH THE PROPER AGENCIES FOR MAINTENANCE OF TRAFFIC AND METHOD OF CONSTRUCTION AND REPAIR.
- ALL PUBLIC DRAINAGE EASEMENTS SHALL BE "UNOBSTRUCTED" EASEMENTS. ALL "UNOBSTRUCTED" EASEMENTS TO BE CLEAR AND DRIVEABLE.
- "AS-BUILT" DRAWINGS – AS-BUILTS TO THE OWNER AND THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT ARE REQUIRED TO BE SIGNED AND SEALED BY A FLORIDA REGISTERED LAND SURVEYOR THEREFORE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTRACT WITH A LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA FOR THE PREPARATION, FIELD LOCATIONS, CERTIFICATION AND SUBMITTAL OF "AS-BUILT" DRAWINGS IN ACCORDANCE WITH NASSAU COUNTY AS-BUILTS REQUIREMENT CHECKLIST AND SURVMD REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROCESS THE "AS-BUILT" DRAWINGS FOR APPROVAL BY THE COUNTY, AND OWNER.
- THE CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION WITH ALL OTHER CONTRACTORS. IN THE EVENT OF ANY CONFLICT WHATSOEVER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- ALL CLEARING AND GRUBBING REQUIRED FOR ALL ROADWAY, UTILITIES, DITCHES, AND BERMS INCLUDED IN THIS PROJECT AND THE CLEARING AND GRUBBING OF ALL RIGHT-OF-WAY OR EASEMENTS SHALL BE CONSIDERED AS PART OF THE PROJECT.
- ALL AREAS SHOWN TO BE FILLED SHALL BE CLEARED AND GRUBBED IN ACCORDANCE WITH NASSAU COUNTY ROADWAY AND DRAINAGE STANDARDS AND SHALL BE FILLED WITH CLEAN STRUCTURAL FILL, COMPACTED AND TESTED IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION REPORT.
- CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL SURVEY AND PROPERTY MONUMENTS. IF A MONUMENT IS DISTURBED, THE CONTRACTOR SHALL CONTRACT WITH THE SURVEYOR OF RECORD FOR REINSTALLATION OF THE MONUMENT.
- ALL DEBRIS RESULTING FROM ALL ACTIVITIES SHALL BE PROPERLY DISPOSED OF OFF-SITE BY CONTRACTOR.
- ALL EXCESS SUITABLE AND UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR UNLESS DIRECTED OTHERWISE BY ENGINEER OR OWNER.
- ALL EXISTING TREES TO REMAIN SHALL BE PRESERVED AND PROTECTED.
- BURNING OF TREES, BRUSH AND OTHER MATERIAL SHALL BE APPROVED, PERMITTED AND COORDINATED WITH COUNTY FIRE MARSHAL.
- ROADWAY UNDERDRAINS SHALL BE AS REQUIRED ON THE PLANS OR AS MAY BE DETERMINED NECESSARY BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY NASSAU COUNTY CONSTRUCTION INSPECTOR AND THE ENGINEER IF HIGH GROUND WATER CONDITIONS ARE PRESENT DURING THE PREPARATION OF THE ROADWAY SUB-BASE.
- CONTRACTOR SHALL PROVIDE CONTRACTION JOINTS AT 10' INTERVALS AND EXPANSION JOINTS SHALL BE CONSTRUCTED AT 50' INTERVALS AND AT ALL RADIUS POINTS ON ALL CURBING.
- CONTRACTOR SHALL PROVIDE EXPANSION JOINTS AT 18' INTERVALS AND CONTRACTION JOINTS SHALL BE SPACED AT 6' INTERVALS BETWEEN EXPANSION JOINTS.
- MAINTENANCE OF TRAFFIC SHALL CONFORM TO F.D.O.T. STANDARD INDEX 102-600, LATEST EDITION AND IN ACCORDANCE WITH THE NASSAU COUNTY ROAD CLOSURE POLICY.
- ALL SIGNING AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH F.D.O.T. STANDARD INDEXES 11860, 17346, AND 17352 LATEST EDITION.
- ALL EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED ROADWAY/SITE DEVELOPMENT SHALL BE REMOVED BY THE CONTRACTOR UTILIZING THE HYDRO-BLASTING METHOD.
- ALL AREAS DISTURBED IN THE COUNTY RIGHT OF WAY SHALL BE SODDED.
- ANY CONCERNS OR CONFLICTS WITH ADA GRADING OR ANY OTHER GRADING ON SITE THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
- ALL DRAINAGE PIPES INSTALLED WITHIN ROADWAY RIGHT-OF-WAYS/EASEMENTS(PUBLIC OR PRIVATE) SHALL BE TELEVISED BY A COMPANY OR INDIVIDUAL CERTIFIED TO PERFORM SUCH WORK PER LDC 6.04.07.L.S.G. THIS REQUIREMENT MAY ONLY BE WAIVED ON COMMERCIAL SITES IF THE ENGINEER OF RECORD CERTIFIES BY LETTER THAT THE SITE DOES NOT RECEIVE ANY RUNOFF FROM NASSAU COUNTY RIGHT-OF-WAYS. IF THERE IS ANY CONNECTION OR RELATIONSHIP BETWEEN THE PROJECT SITE AND A COUNTY OWNED OR MAINTAINED DITCH, POND OR STRUCTURE, IT SHALL BE REQUIRED. THIS TELEVISING OF THE DRAINAGE LINE SHALL BE DONE IN COLOR AND SHALL BE OF SUCH QUALITY AS TO VISUALLY IDENTIFY THE PROPER CONSTRUCTION OF ALL JOINTS AND PIPE ALIGNMENT. A VIDEO TAPE SHALL BE PROVIDED TO THE COUNTY UPON COMPLETION. THE TELEVISING OF THE DRAINAGE LINES SHALL BE AFTER THE PLACEMENT OF THE BASE MATERIAL AND PRIOR TO THE FINAL WEARING SURFACE OF THE ROADWAY. THE APPROVAL BY THE COUNTY, OF THE TELEVISING SHALL BE REQUIRED PRIOR TO THE PLACEMENT OF THE FINAL WEARING SURFACE OF THE ROADWAY. TELEVISED RECORD SHALL BE REVIEWED AND CERTIFIED BY THE ENGINEER OF RECORD (EOR).
- A PRE-CONSTRUCTION MEETING WITH NASSAU COUNTY ENGINEERING SERVICES CONSTRUCTION INSPECTOR IS REQUIRED (904-530-6225).

EROSION & SEDIMENT CONTROL NOTES:

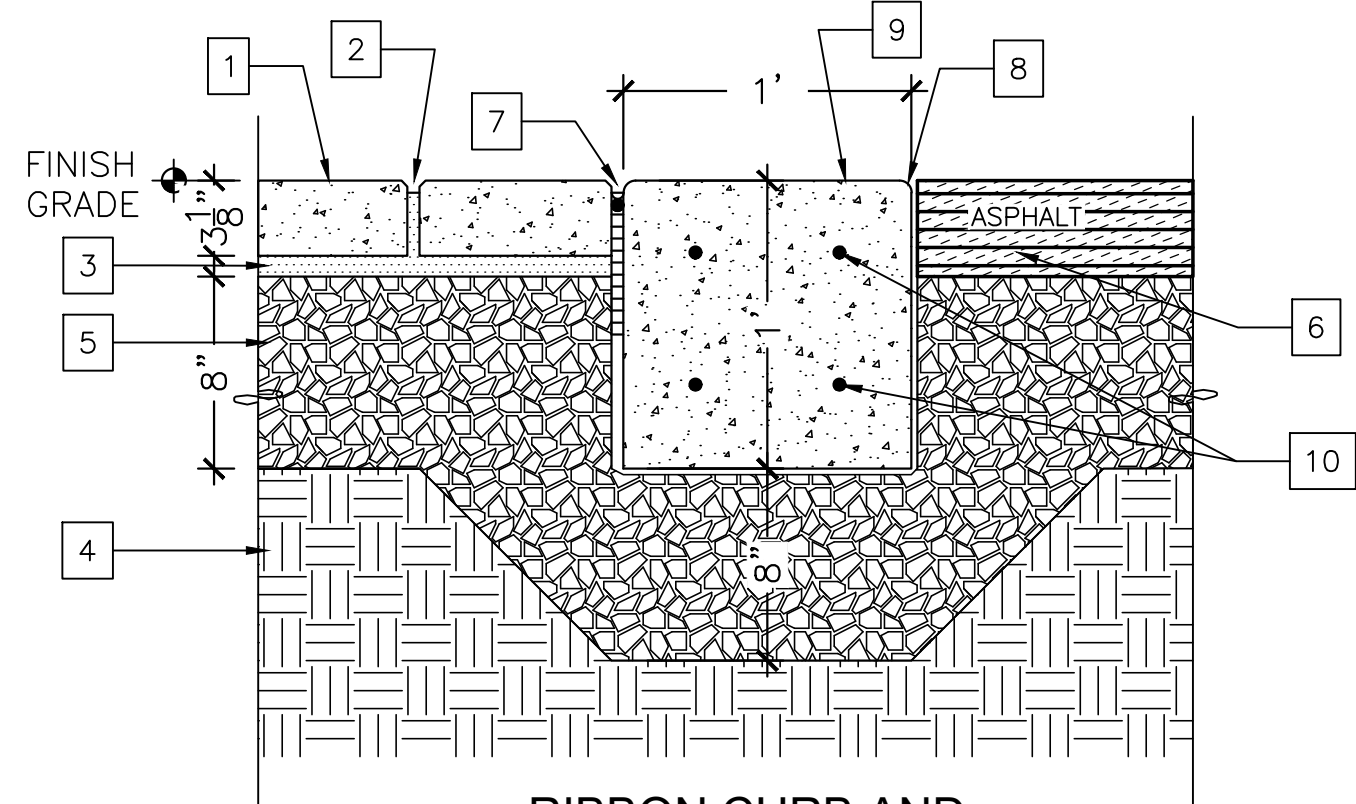
- THESE PLANS INDICATE THE MINIMUM EROSION & SEDIMENT CONTROL MEASURES REQUIRED FOR THIS PROJECT. FOR ADDITIONAL INFORMATION ON SEDIMENT AND EROSION CONTROL REFER TO "THE FLORIDA DEVELOPMENT MANUAL-A GUIDE TO SOUND LAND AND WATER MANAGEMENT" FROM THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (F.D.E.P.) CHAPTER 6. THE CONTRACTOR SHALL PROVIDE EROSION PROTECTION AND TURBIDITY CONTROL AS REQUIRED TO INSURE CONFORMANCE TO STATE AND FEDERAL WATER QUALITY STANDARDS AND MAY NEED TO INSTALL ADDITIONAL CONTROLS TO CONFORM TO AGENCIES REQUIREMENTS. IF A WATER QUALITY VIOLATION OCCURS, THE CONTRACTOR SHALL BE WHOLLY RESPONSIBLE FOR ALL DAMAGE AND ALL COSTS WHICH MAY RESULT INCLUDING LEGAL FEES, CONSULTANT FEES, CONSTRUCTION COSTS AND FINES.
- THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING THE BEST EROSION AND SEDIMENT CONTROL PRACTICES AS OUTLINED IN THE PLANS AND SPECIFICATIONS AND THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT SPECIFICATIONS AND CRITERIA.
- EROSION AND SEDIMENT CONTROL BARRIERS SHALL BE PLACED ADJACENT TO ALL WETLAND AREAS WHERE THERE IS POTENTIAL FOR DOWNSTREAM WATER QUALITY DEGRADATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING A PERMANENT STAND OF SOD AND/OR GRASS PER COUNTY STANDARDS AND MEETING THE N.P.D.E.S. FINAL STABILIZATION REQUIREMENTS.
- IF DEWATERING CAPACITIES REQUIRES A CONSUMPTIVE USE PERMIT (C.U.P.) IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO OBTAIN THE PERMIT THROUGH THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT.
- PRIOR TO COMMENCEMENT OF CONSTRUCTION AND EXCAVATION ACTIVITIES, THE CONTRACTOR SHALL PERFORM GROUNDWATER TESTING IN ACCORDANCE WITH THE ENVIRONMENTAL PROTECTION AGENCY FEDERAL REGISTER, PAGE 42739, PART 1A.3, TO DETERMINE PETROLEUM CONTAMINATION LEVELS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING N.P.D.E.S. PERMIT, IF REQUIRED, IN ORDER TO DISCHARGE ANY GROUNDWATER ENCOUNTERED DURING CONSTRUCTION AND DEWATERING OPERATIONS.
- 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR WILL SUBMIT A "NOTICE OF INTENT" TO THE EPA IN ACCORDANCE WITH NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM RULES AND REGULATIONS.

UTILITY NOTES:

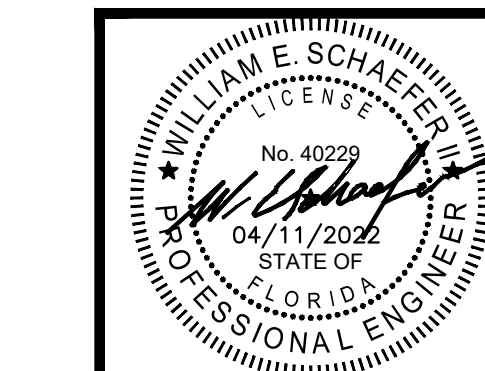
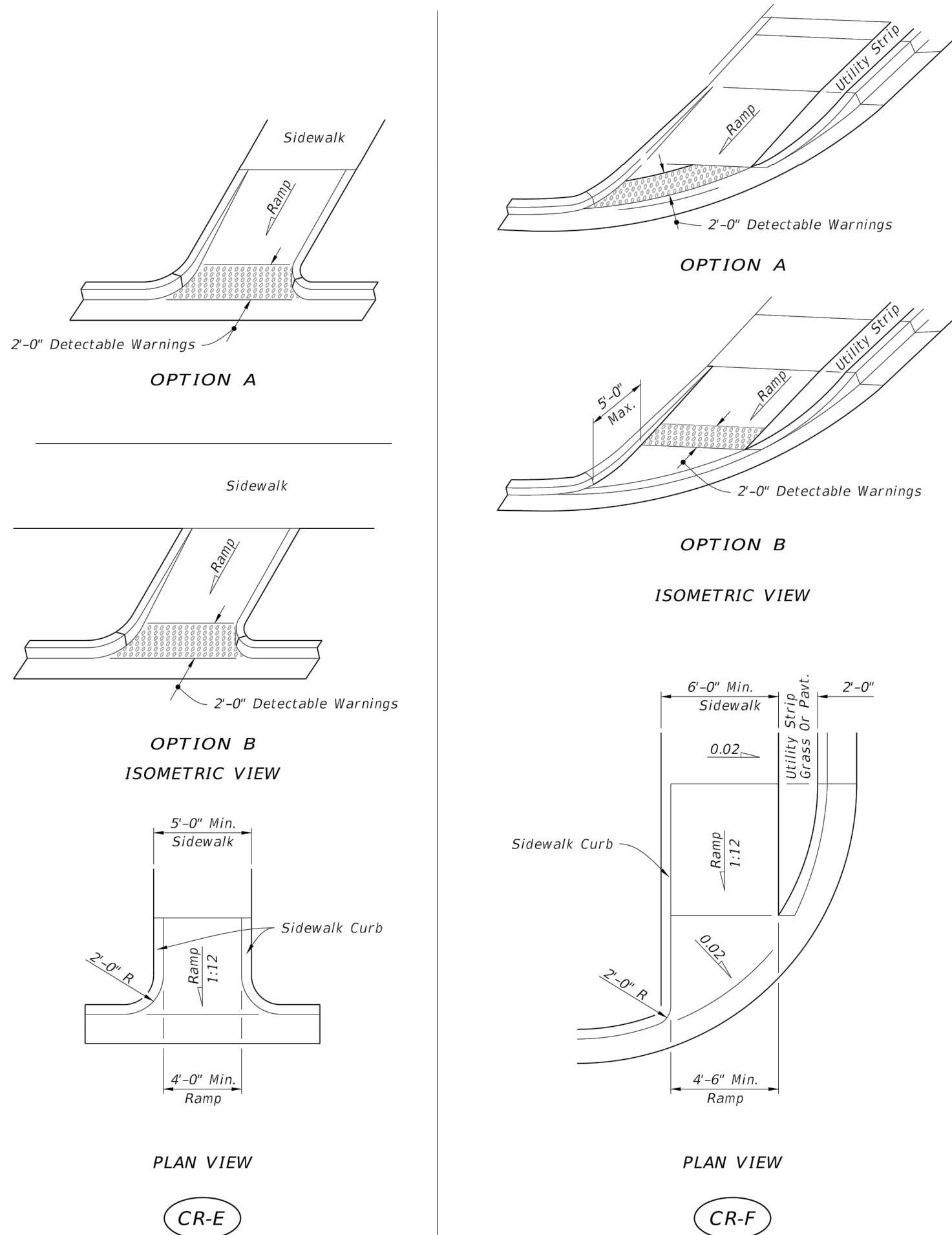
- THE LOCATION OF ALL EXISTING UTILITIES, STRUCTURES AND IMPROVEMENTS SHOWN ON THE DRAWINGS IS BASED ON LIMITED INFORMATION AND MAY NOT HAVE BEEN VERIFIED. THE LOCATIONS ARE APPROXIMATE. THE CONTRACTOR SHALL NOTIFY RESPECTIVE UTILITY OWNERS AND FIELD VERIFY LOCATIONS OF EXISTING UTILITIES AND OTHER IMPROVEMENTS PRIOR TO COMMENCING ANY CONSTRUCTION. IF THE LOCATIONS SHOWN ARE CONTRARY TO THE ACTUAL LOCATIONS, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER OF THE DISCREPANCY. THIS DISCREPANCY SHOULD BE RESOLVED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING IN AREAS NEAR EXISTING UTILITIES AND IMPROVEMENTS AND SHALL BE RESPONSIBLE FOR AND SHALL REPAIR OR PAY FOR ALL DAMAGE MADE TO EXISTING UTILITIES OR OTHER IMPROVEMENTS. PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL GRADES, INVERTS AND TYPE OF MATERIAL OF EXISTING UTILITIES TO WHICH HE SHALL CONNECT.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON ALL MATERIALS, IF REQUIRED, TO THE ENGINEER FOR REVIEW AND APPROVAL, PRIOR TO SUBMITTAL TO THE COUNTY & JEA, AND PRIOR TO PURCHASE OR CONSTRUCTION OF ANY UTILITY PIPE OR STRUCTURE.
- ALL PIPE LENGTHS ARE SCALED DIMENSIONS. ALL DRAINAGE STRUCTURES SHALL BE CONSTRUCTED TO CONFORM WITH COUNTY REQUIREMENTS AND SHALL BE CONSTRUCTED TO CONFORM WITH CURBING, PROPERTY LINES AND LOW POINTS AS SHOWN ON THE PLANS.
- CONTRACTOR SHALL INSURE THAT ALL DRAINAGE STRUCTURES, PIPES, ETC. ARE CLEAN AND FUNCTIONING PROPERLY AT TIME OF ACCEPTANCE.
- ALL DRAINAGE STRUCTURES TO HAVE TRAFFIC BEARING GRATES UNLESS OTHERWISE NOTED.
- ALL DRAINAGE PIPE JOINTS IN COUNTY DRAINAGE EASEMENTS, DRAINAGE EASEMENTS BETWEEN PRIVATE LOTS, DRAINAGE RIGHT-OF-WAYS AND UNDER PAVED ROADS ARE TO BE FILTER-WRAPPED.
- ALL INVERTS IN DRAINAGE STRUCTURES TO BE PRE CAST OR BRICK WITH LAYER OF MORTAR BETWEEN EACH LAYER OF BRICK, OR REDDI-MIX CONCRETE W/ #57 STONE.
- UNSUITABLE MATERIALS UNDER WATER, SEWER PIPE, STORM PIPE OR STRUCTURES SHALL BE REMOVED AND REPLACED WITH SELECTED BACKFILL, PROPERLY COMPACTED.
- ALL UNDERGROUND UTILITIES MUST BE INSTALLED PRIOR TO PREPARATION OF SUB GRADE FOR PAVEMENT.
- ALL WATER AND SEWER CONSTRUCTION WITHIN THE COUNTY SHALL BE ACCOMPLISHED BY AN UNDERGROUND UTILITY CONTRACTOR LICENSED UNDER THE PROVISIONS OF CHAPTER 489 FLORIDA STATUTES.
- CONTRACTOR SHALL PROVIDE, TO THE ENGINEER, A SCHEDULE OF INVERT ELEVATIONS OF ALL SANITARY MANHOLES OR DRAINAGE STRUCTURES PRIOR TO THE PLACEMENT OF THE LINEROCK BASE COURSE. THIS SCHEDULE TO BE PROVIDED BY THE REGISTERED LAND SURVEYOR SUBMITTING THE "AS BUILT" DRAWINGS FOR THIS PROJECT.
- ALL SEWER MAINS SHALL BE PVC (ASTM-3034) SDR-26 FOR DEPTHS TO 12 FEET, SDR26 FOR DEPTHS 12' OR DEEPER, OR IN EASEMENTS UNLESS OTHERWISE NOTED. FORCE MAINS TO BE PVC - DR18 PIPE UNLESS OTHERWISE NOTED AND SHALL HAVE A MINIMUM COVER OF 36" FROM FINISHED GRADE.
- SANITARY SEWER SERVICES SHALL BE 6" PVC WITH A MINIMUM SLOPE OF 0.006 FEET PER FOOT AND SHALL BE TERMINATED AT THE RIGHT-OF-WAY LINE WITH A DEPTH OF 48" UNLESS OTHERWISE DETAILED OR RESTRICTED DUE TO DEPTH OF SEWER MAIN.
- ALL WATER MAINS SHALL BE FLUSHED IN ACCORDANCE WITH AWWA C651 DISINFECTION STANDARDS AND/OR JEA APPLICABLE STANDARDS AND SPECIFICATIONS.
- ALL WATER LINES 4" OR LESS SHALL BE NATIONAL SANITARY FOUNDATION POTABLE WATER (N.S.F.P.W.) RATED.
- WATER AND SEWER LINES ARE DESIGNATED TO FINISHED GRADES AND SHALL BE PROTECTED UNTIL FINISHED WORK IS COMPLETE.
- HORIZONTAL SEPARATION BETWEEN WATER MAINS, VALVES, FITTINGS AND SANITARY OR STORM SEWER SHALL IN ACCORDANCE WITH THE F.D.E.P. REGULATIONS AND JEA STANDARD DETAILS.
- ALL WATER LINE CROSSINGS SHALL HAVE A FULL LENGTH OF PIPE CENTERED OVER THE EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING AT CROSSINGS. WATER MAINS CROSSING SANITARY AND STORM SEWER LINES, AS WELL AS VALVES AND FITTINGS, MUST HAVE A MINIMUM 18" VERTICAL SEPARATION. IF THIS SEPARATION CANNOT BE OBTAINED, THE WATER MAIN MUST BE CONSTRUCTED OF DUCTILE IRON PIPE FOR A DISTANCE OF 10' EITHER SIDE OF THE SANITARY OR STORM SEWER MAIN, OR INSTALL WATER MAIN IN D.I. SLEEVE MIN. LENGTH 20' CENTERED, ENDS OF SLEEVE TO BE GROUT FILLED, IN EITHER CASE, MINIMUM OF 6" OF VERTICAL SEPARATION SHALL BE MAINTAINED.
- MECHANICAL RESTRAINING DEVICES ARE REQUIRED IN ACCORDANCE WITH JEA STANDARDS WHERE WATER MAINS ARE TERMINATED AND AT ALL BENDS AND TEES.
- UNLESS OTHERWISE NOTED, ALL OFF-SITE WATER MAIN TO BE PVC DR18, C-900 AND ALL ON-SITE WATER MAIN 4" AND GREATER SHALL BE DR25, C-900. ALL ON-SITE WATER MAIN 3" OR SMALLER SHALL BE SCHEDULE 40 PVC AND N.F.S.P.W. RATED.
- ALL GATE VALVES SHALL BE UTILITY COMPANY STANDARD. VALVES SHALL BE MECHANICAL JOINT, CAST IRON, BRONZE FITTED WITH RESILIENT SEAT. ALL VALVES SHALL OPEN BY TURNING TO THE LEFT. VALVES SHALL BE RATED AT 200 PSI WORKING PRESSURE AND 400 PSI TEST PRESSURE.
- FIRE HYDRANTS SHALL BE J.E.A. STANDARD. HYDRANTS SHALL BE PAINTED AS PER J.E.A. STANDARDS.
- ALL ELECTRIC CONDUIT WORK SHALL BE COMPLETED PRIOR TO THE PRESSURE TESTING OF WATER AND SEWAGE FORCE MAINS.
- ALL WATER MAINS SHALL BE BACTERIOLOGICAL AND PRESSURE TESTED AT 150 PSI FOR 2 HOURS IN ACCORDANCE WITH AWWA C-600 STANDARDS. NO CONNECTION TO EXISTING POTABLE WATER SYSTEM SHALL BE ALLOWED UNTIL ALL PROPOSED WATER LINES HAVE BEEN PRESSURE TESTED, DISINFECTED, AND CLEARED FOR SERVICE. THE ENGINEER MUST BE NOTIFIED 48 HOURS PRIOR TO PERFORMING THE PRESSURE TEST AND MUST BE PRESENT.

KEY NOTES

- | | | | |
|---|--|----|---|
| 1 | UNIT PAVER 3-1/8" MIN. THICKNESS SET HAND-TIGHT, REFER TO PAVING SCHEDULE FOR PATTERN, COLOR AND SWEEP JOINTS WITH FINE MASON SAND | 6 | ASPHALT PAVEMENT (CONTRACTOR TO PROTECT ADJACENT SURFACES) |
| 2 | COARSE CONCRETE SAND SETTING BED (1/2" MIN., 1" MAX.) | 7 | 1/2" FULL DEPTH EXPANSION JOINT WITH BACKER ROD AND SEALANT, JOINT SEALANT COLOR TO MATCH ADJ. PAVING |
| 3 | COMPACTED SUB-GRADE | 8 | 1/2" RADIUS |
| 4 | COMPACTED CRUSHCORE BASE | 9 | CONCRETE RIBBON CURB |
| 5 | | 10 | STEEL REINFORCEMENT #4 BARS CONTINUOUS |



RIBBON CURB AND
PAVER DETAIL
N.T.S.



DOMINION ENGINEERING GROUP, INC.

PLANNERS AND ENGINEERS

4348 SOUTHPOINT BLVD, SUITE 201, JACKSONVILLE, FLORIDA 32216

C.A. NUMBER: 26821

FAX 904-854-4505

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TRIBUTARY AMENITY CENTER
FOR
THREE RIVERS DEVELOPEMENT, LLC.

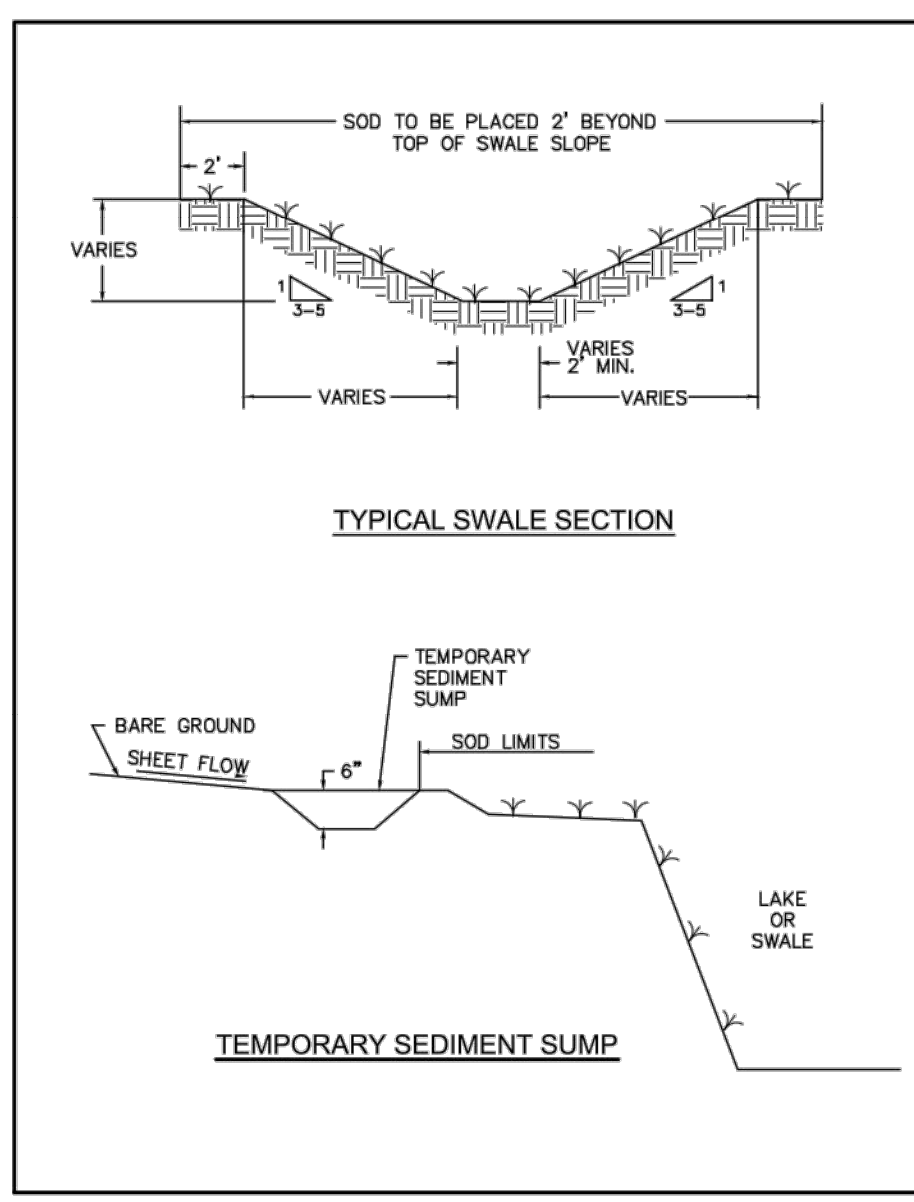
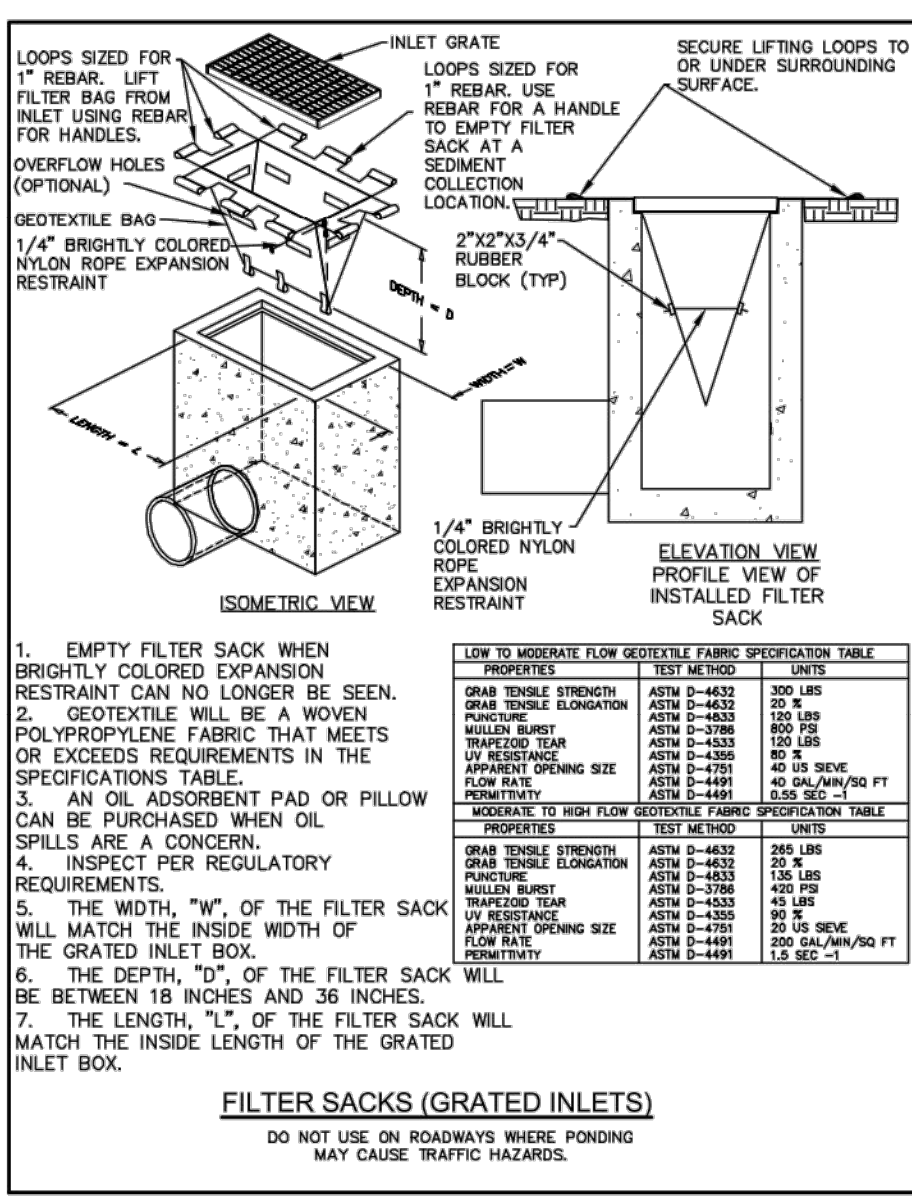
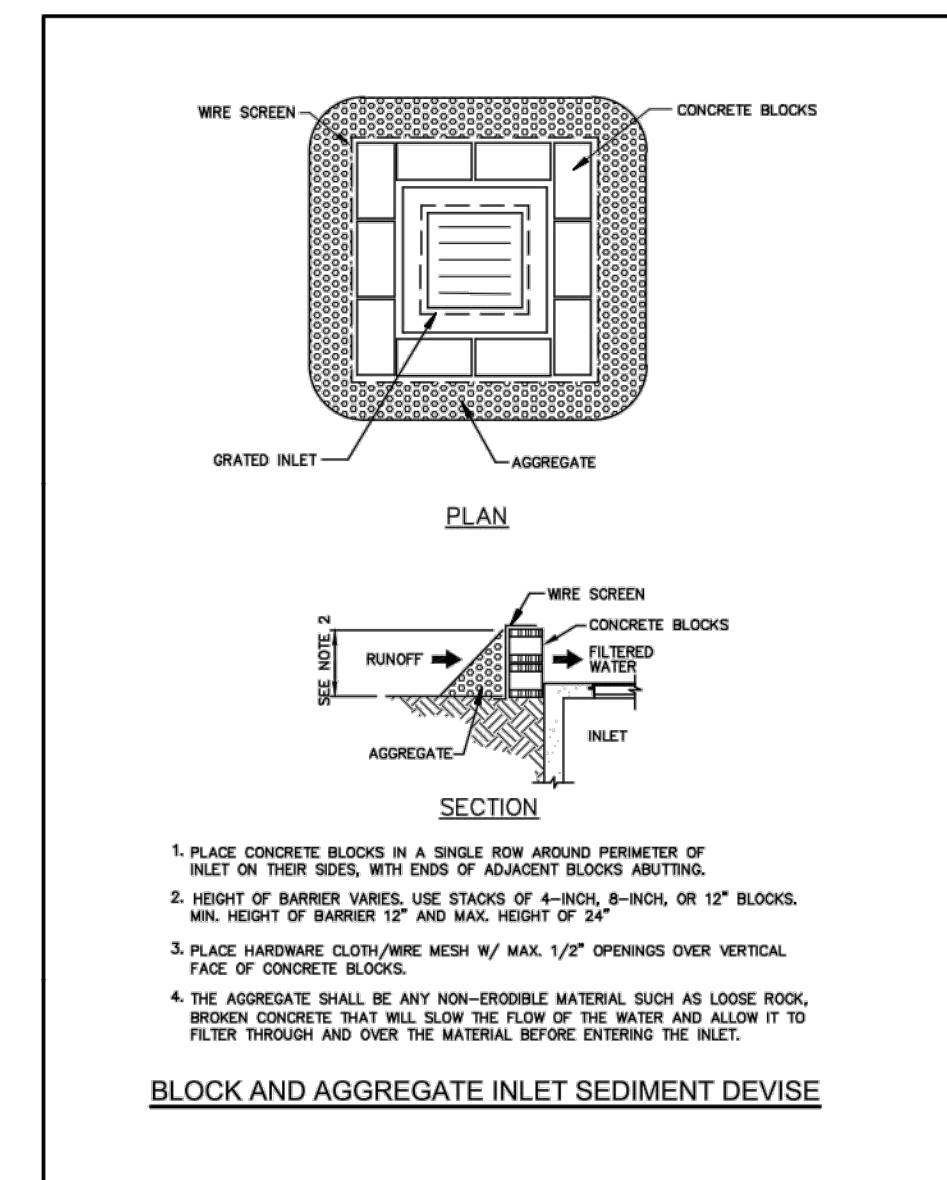
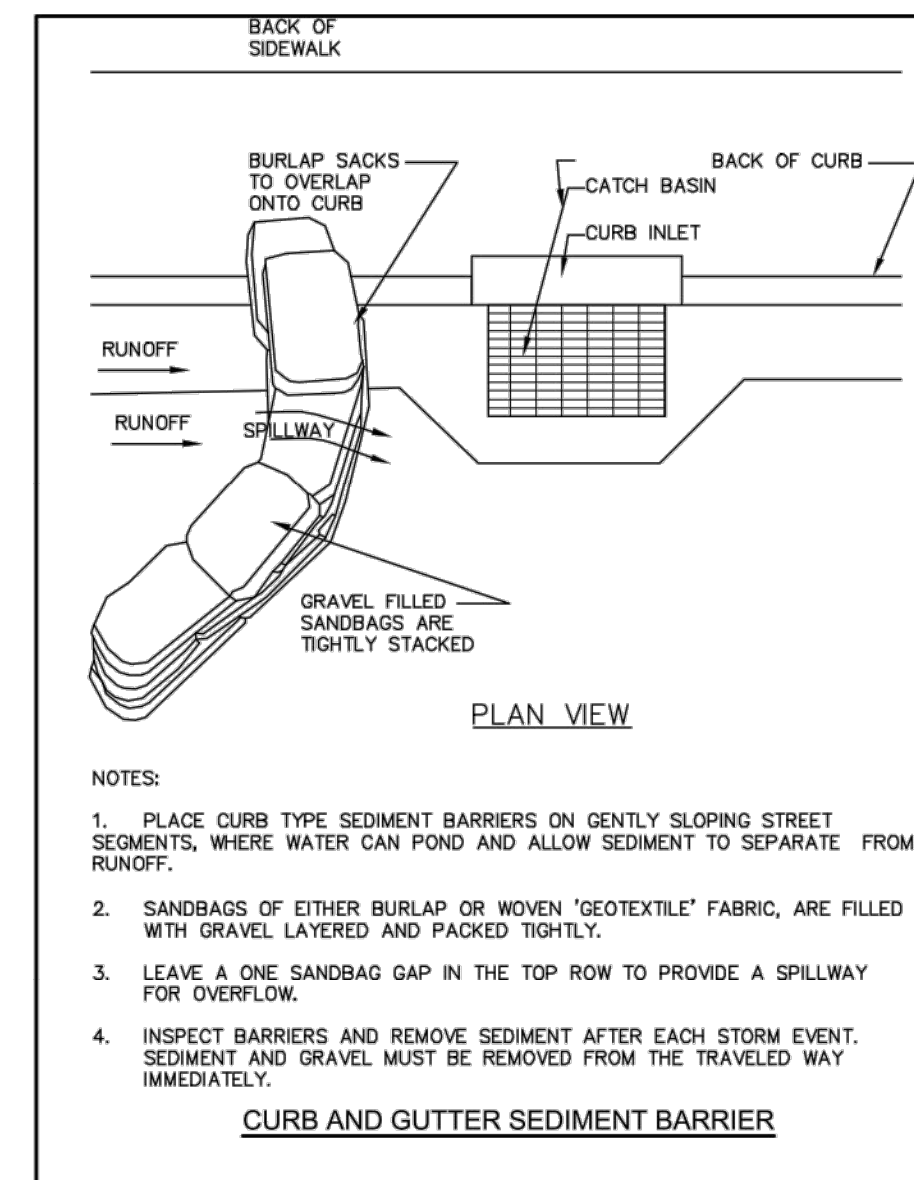
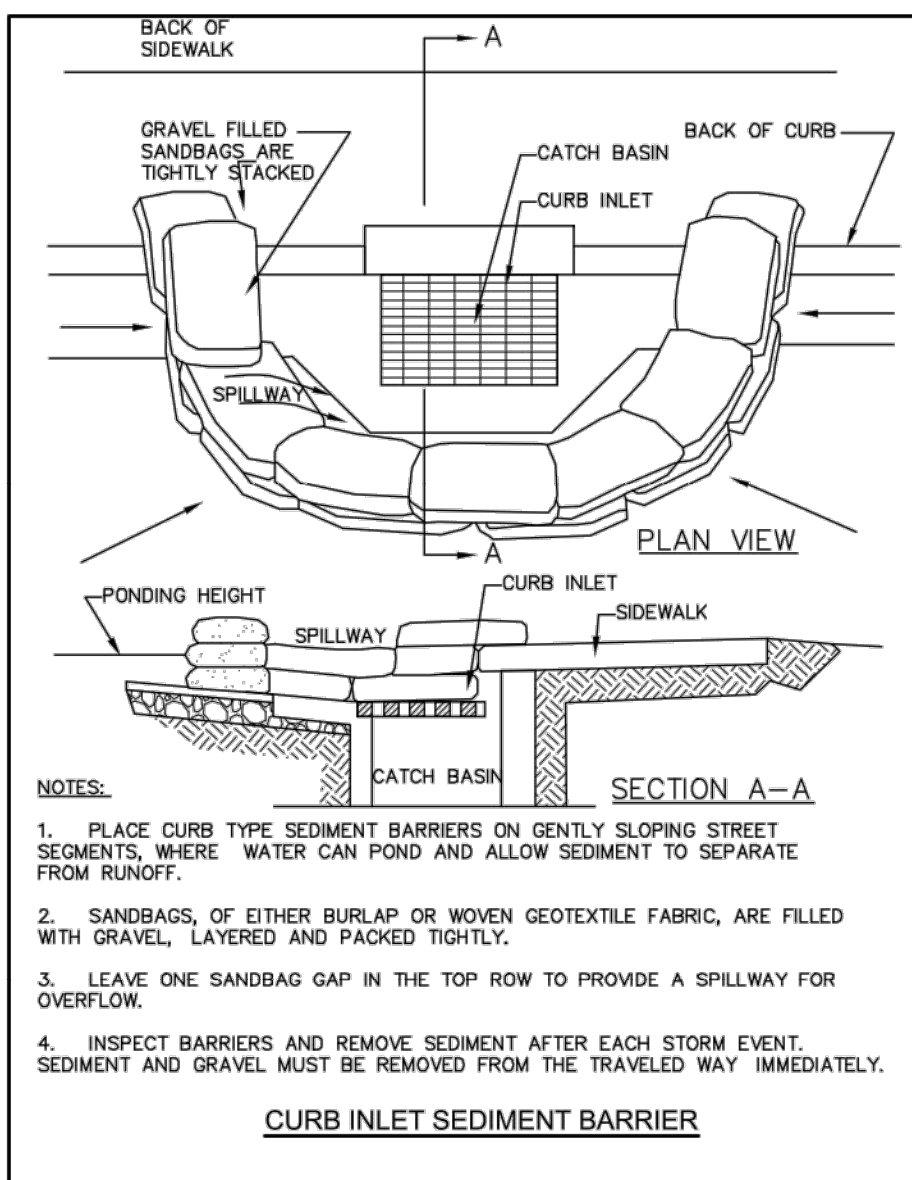
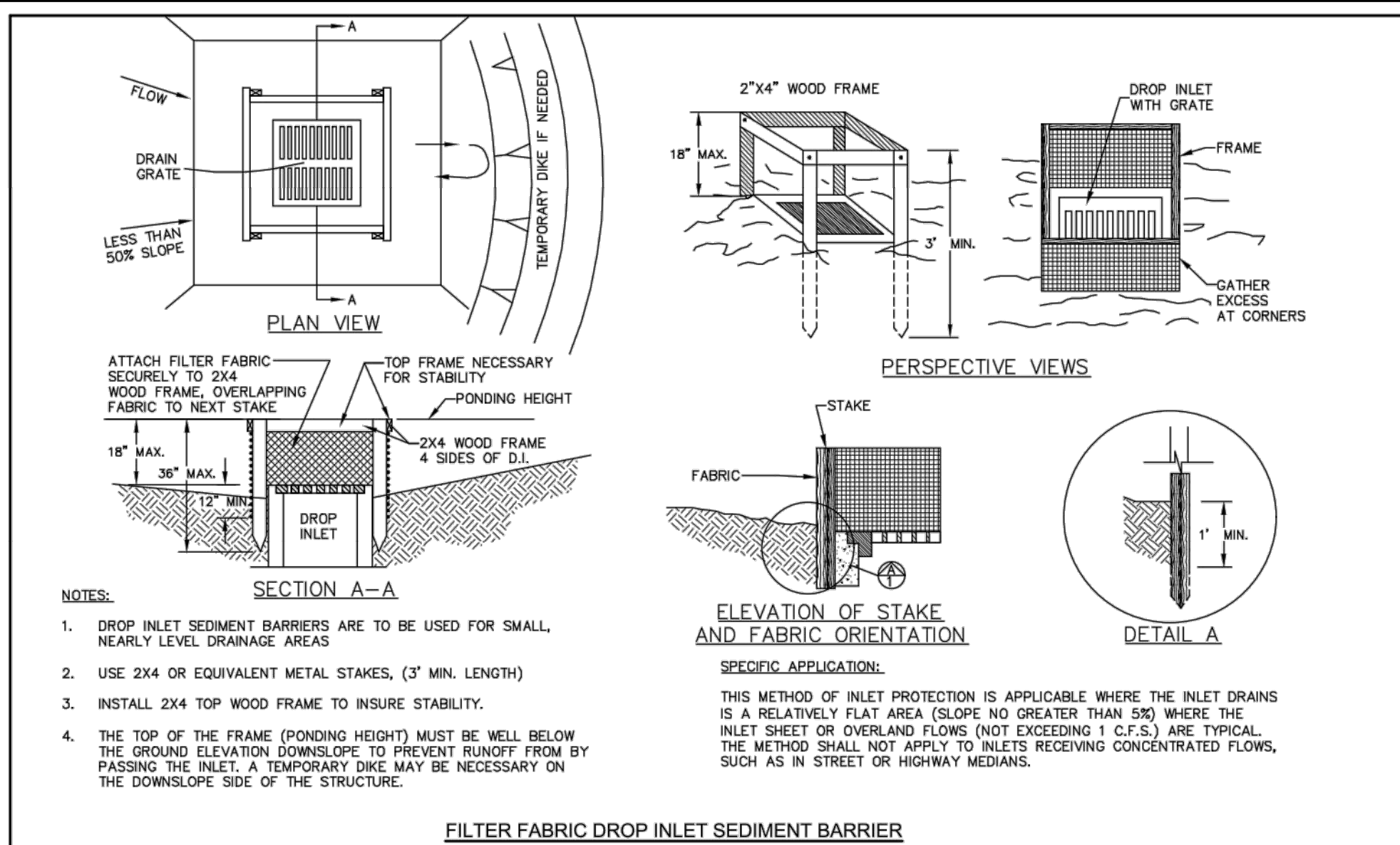
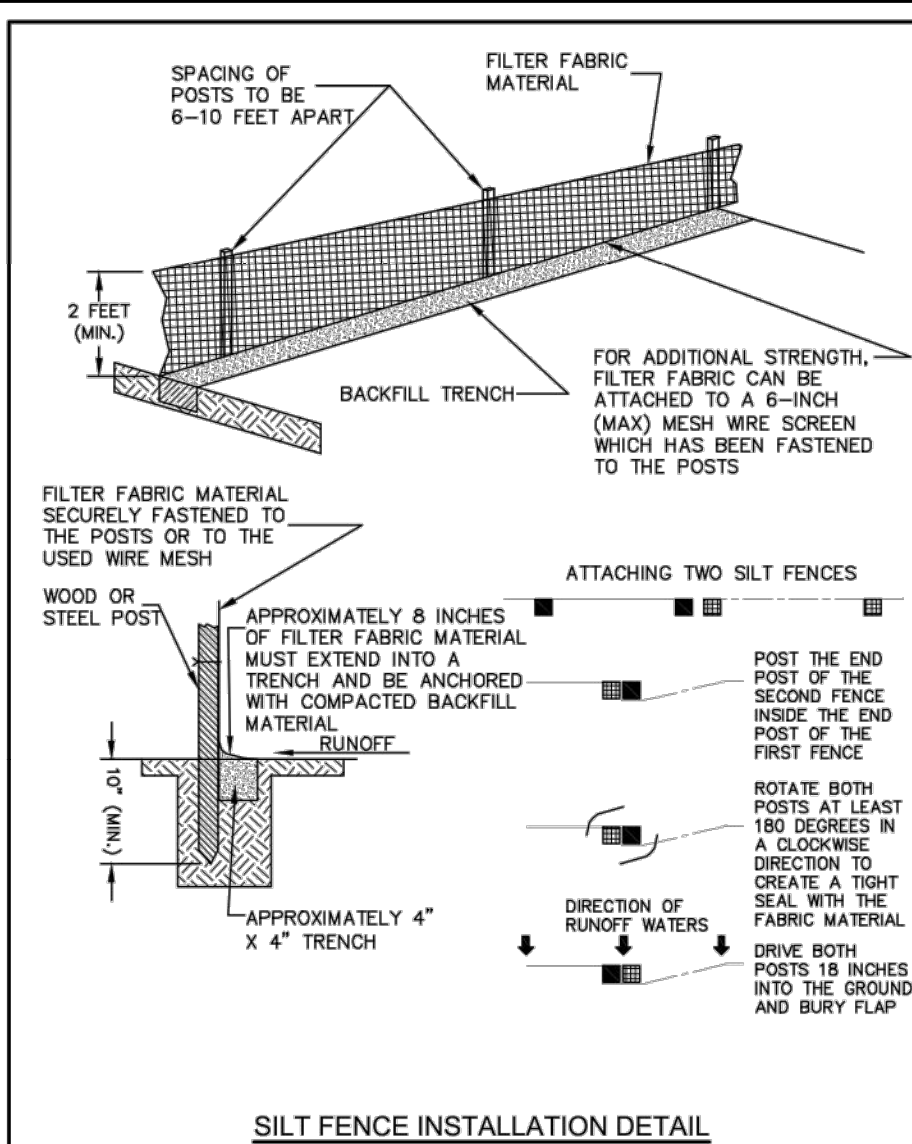
GENERAL NOTES AND DETAILS

REVISIONS

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DESIGNED BY: JMM
CHECKED BY: WES
SCALE: AS NOTED
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© LATEST DATE HEREON
SHEET NO.

C7

OF



PROJECT: _____

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

STRUCTURAL CONTROLS

DATE: _____

EARTH DIKES/SWALES

DIKE OR SWALE	FROM	TO	IS DIKE/SWALE STABILIZED ?	IS THERE EVIDENCE OF WASHOUT OR OVERTOPPING

MAINTENANCE REQUIRED FOR EARTH DIKE/SWALE: _____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

CATCH BASIN/CURB INLET/OUTFALL TURBIDITY CONTROLS

STRUCTURE/ OUTFALL	ARE TURBIDITY CONTROLS IN PLACE	ANY EVIDENCE OF CLOGGING/WASHOUT OR BYPASSING ?	ARE TURBIDITY CONTROLS IN NEED OF REPLACING	DOES SILT NEED TO BE REMOVED FROM AROUND CONTROL

MAINTENANCE REQUIRED FOR CATCH BASIN/CURB INLETS/OUTFALLS TURBIDITY CONTROLS: _____

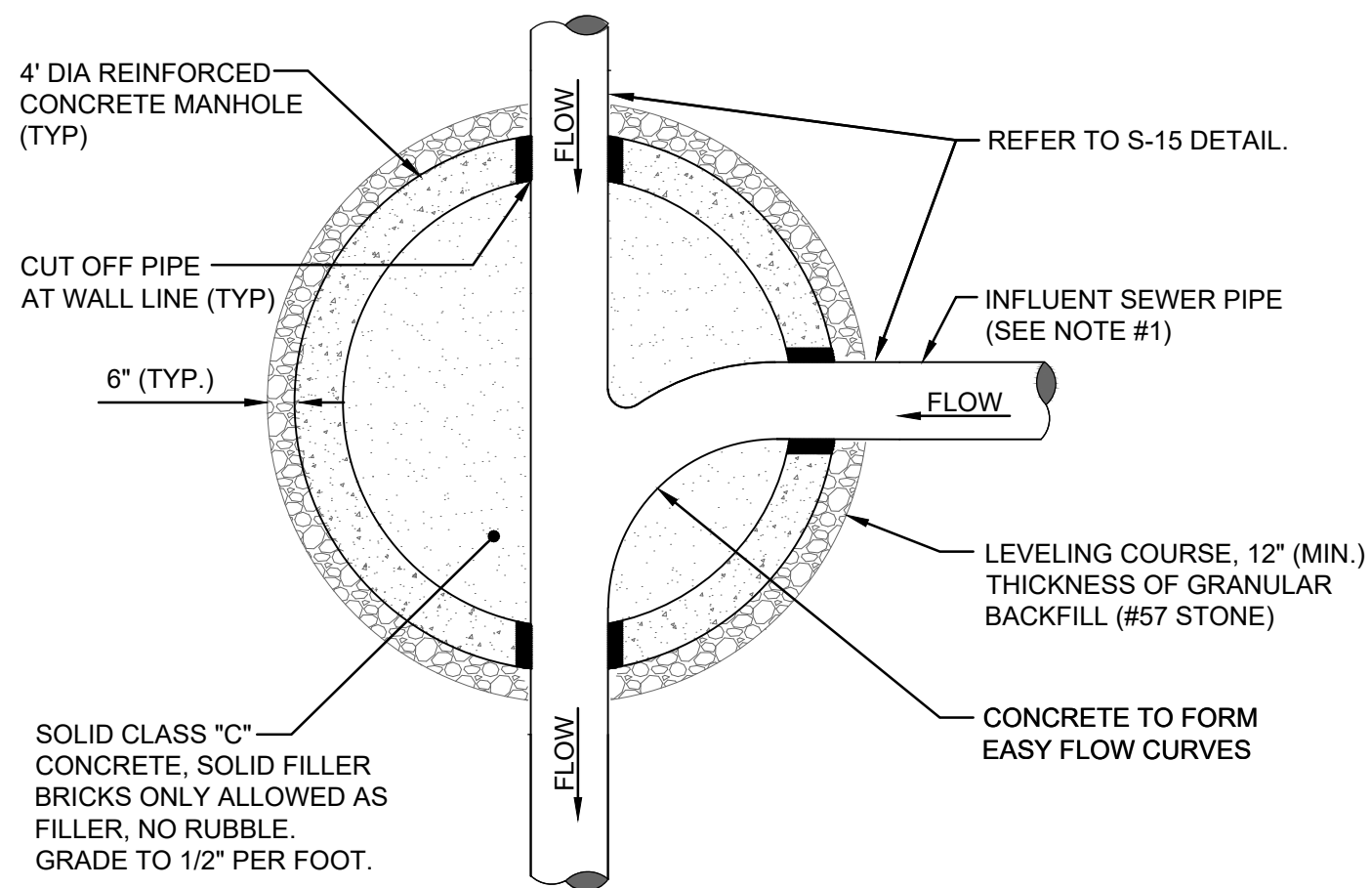
TO BE PERFORMED BY: _____ ON OR BEFORE: _____

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© LATEST DATE HEREON SHEET NO.	
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OF <u>XX</u>	

DOMINION ENGINEERING GROUP, INC.
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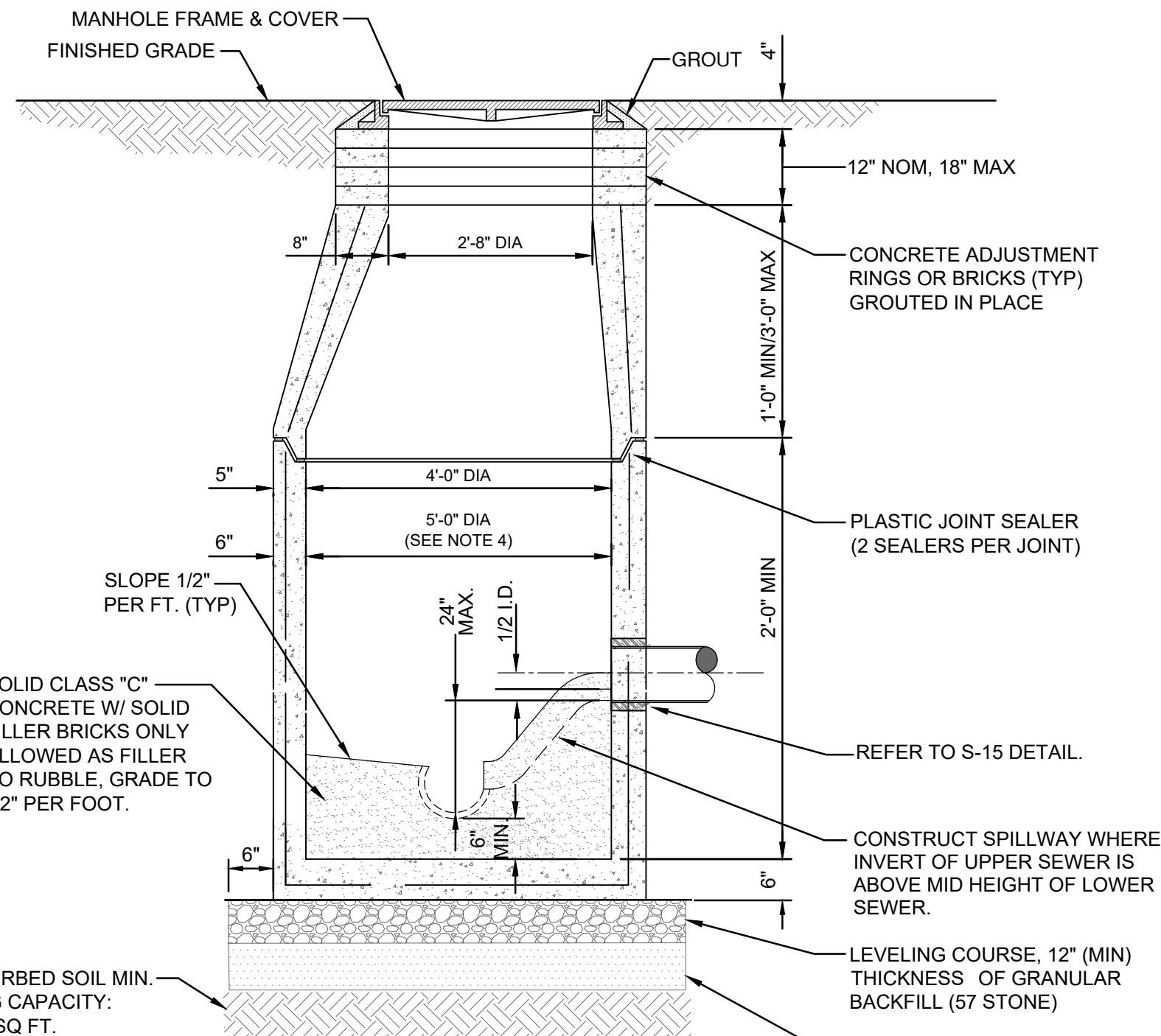


NOTES:

1. THE ANGLE BETWEEN ALL INFLUENT FLOW CHANNELS AND EFFLUENT PIPE SHALL BE BETWEEN 90° - 180° UNLESS OTHERWISE APPROVED BY JEA.

PLAN VIEW (S-3)

(FOR SECTION VIEW SEE S-2)



SECTION VIEW (S-2)

(FOR PLAN VIEW SEE S-3)

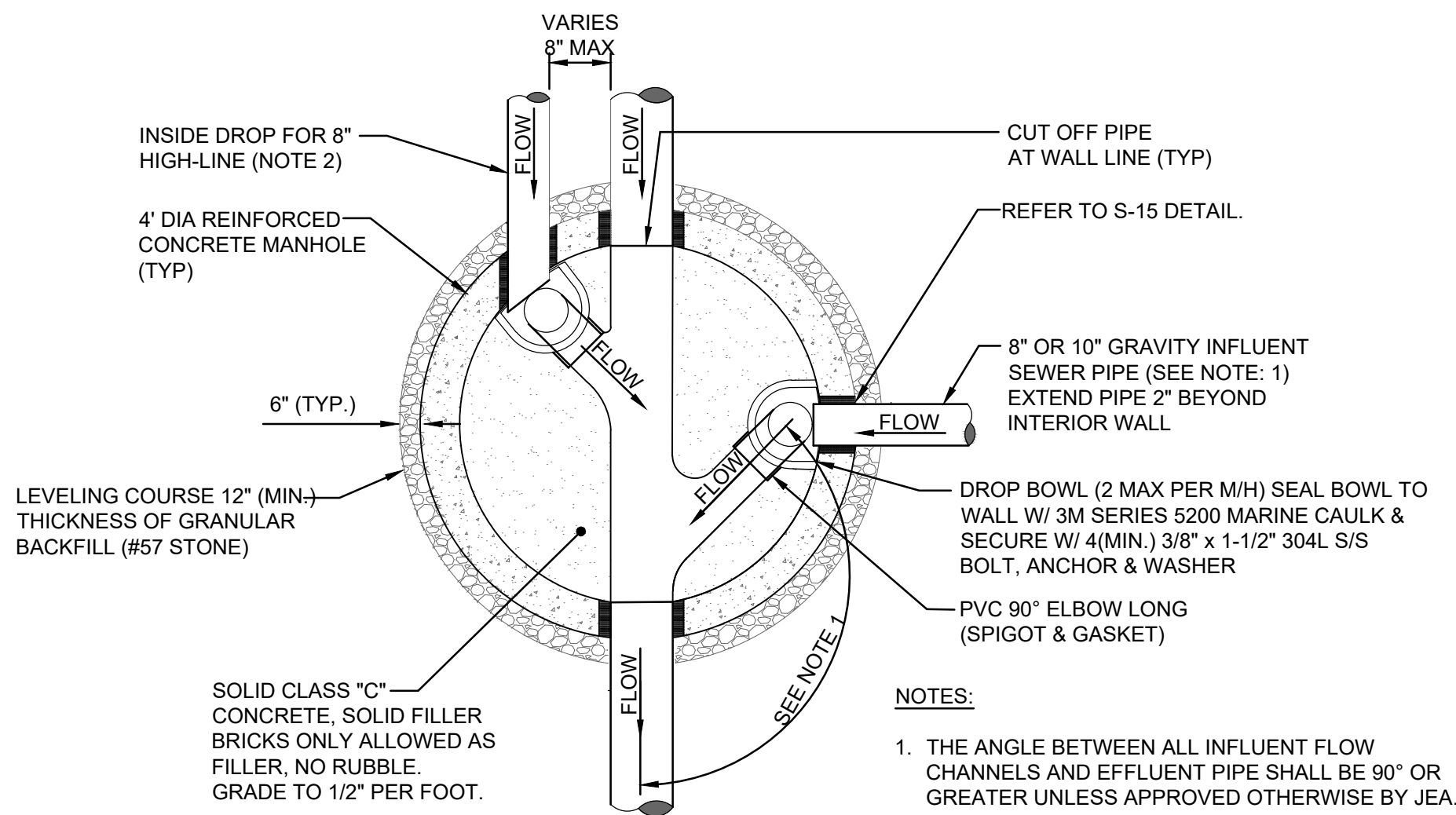
NOTES:

1. PRECAST MANHOLE SECTIONS TO BE MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITIONS OF A.S.T.M. C-478 WITH 4000 LB. CONC., TYPE II CEMENT. ALL LIFTING HOLES AND OUTSIDE INSERTS SHALL BE FILLED WITH NON-SHRINK GROUT AND COATED WITH BITUMINOUS WATERPROOFING MATERIAL.
2. THE INTERIOR AND EXTERIOR OF MANHOLE AND ADJUSTING RINGS SHALL BE GIVEN TWO COATS OF BITUMINOUS WATERPROOFING MATERIAL.
3. IF SPECIALTY LINER IS TO BE INSTALLED ON INSIDE SURFACE OF MANHOLE, THE BITUMINOUS WATERPROOFING MATERIAL SHALL BE OMITTED ON THE INSIDE.
4. JUNCTION MANHOLE (CLOSEST TO WETWELL) SHALL BE 5' DIA WITH SPECIALTY LINER.
5. ALL MANHOLE JOINTS BELOW THE TOP COVER SECTION SHALL INCLUDE A 6\"/>
6. IN SILTS, CLAY OR HIGHLY ORGANIC SOILS (FINE-GRAINED SOILS INCLUDING SOIL GROUPS ML, CL, OL, MH, CH, OH AND PT) THE SOILS SHALL BE OVER-EXCAVATED AN ADDITIONAL 24\"/>

**SANITARY SEWER TYPE "A" MANHOLE
8"-21" SEWERS**

JANUARY 2020

PLATES S-2, S-3

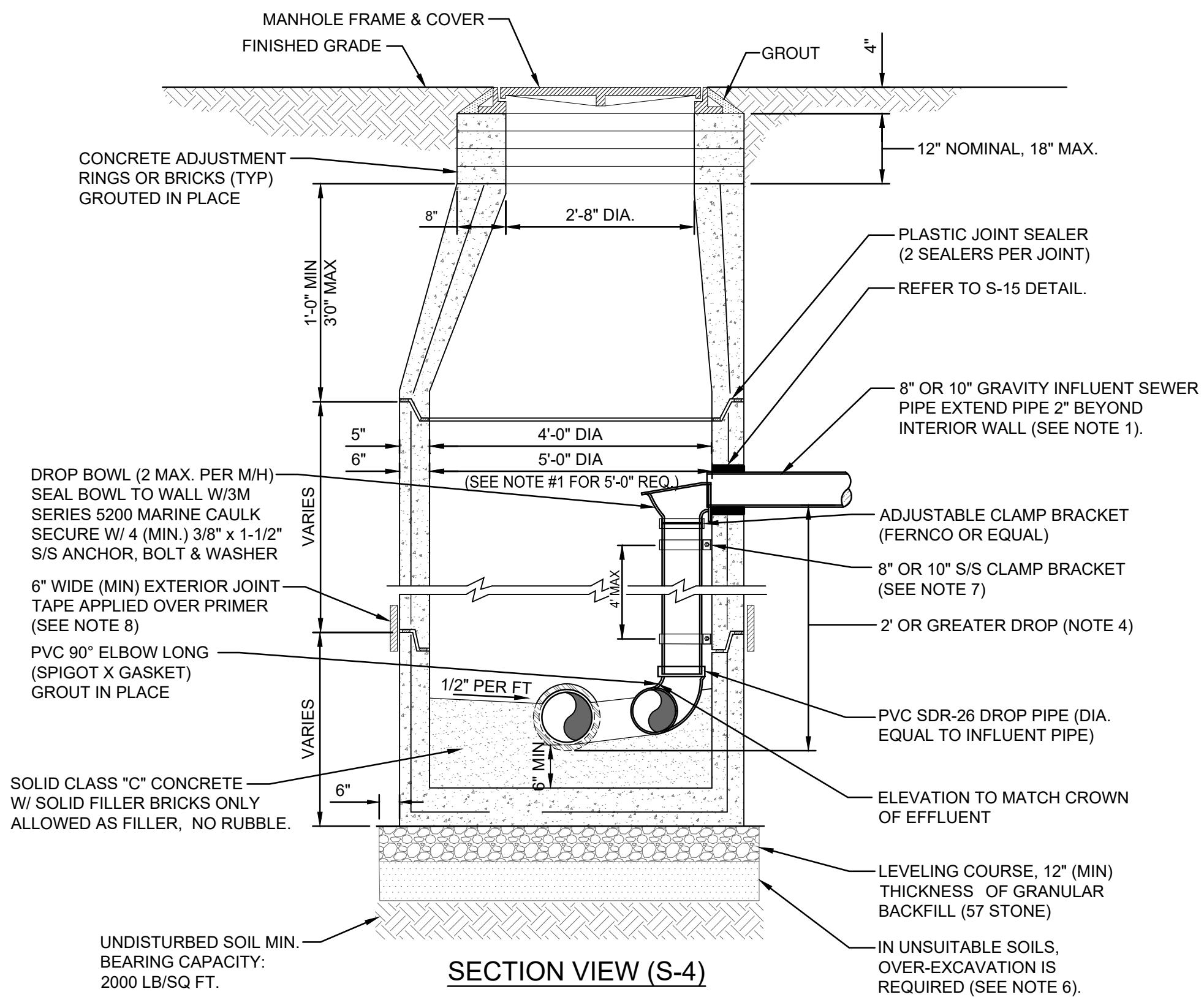


NOTES:

1. THE ANGLE BETWEEN ALL INFLUENT FLOW CHANNELS AND EFFLUENT PIPE SHALL BE 90° OR GREATER UNLESS APPROVED OTHERWISE BY JEA.
2. THE 8\"/>

PLAN VIEW (S-5)

(FOR SECTION VIEW SEE S-4)



SECTION VIEW (S-4)

(FOR PLAN VIEW SEE S-5)

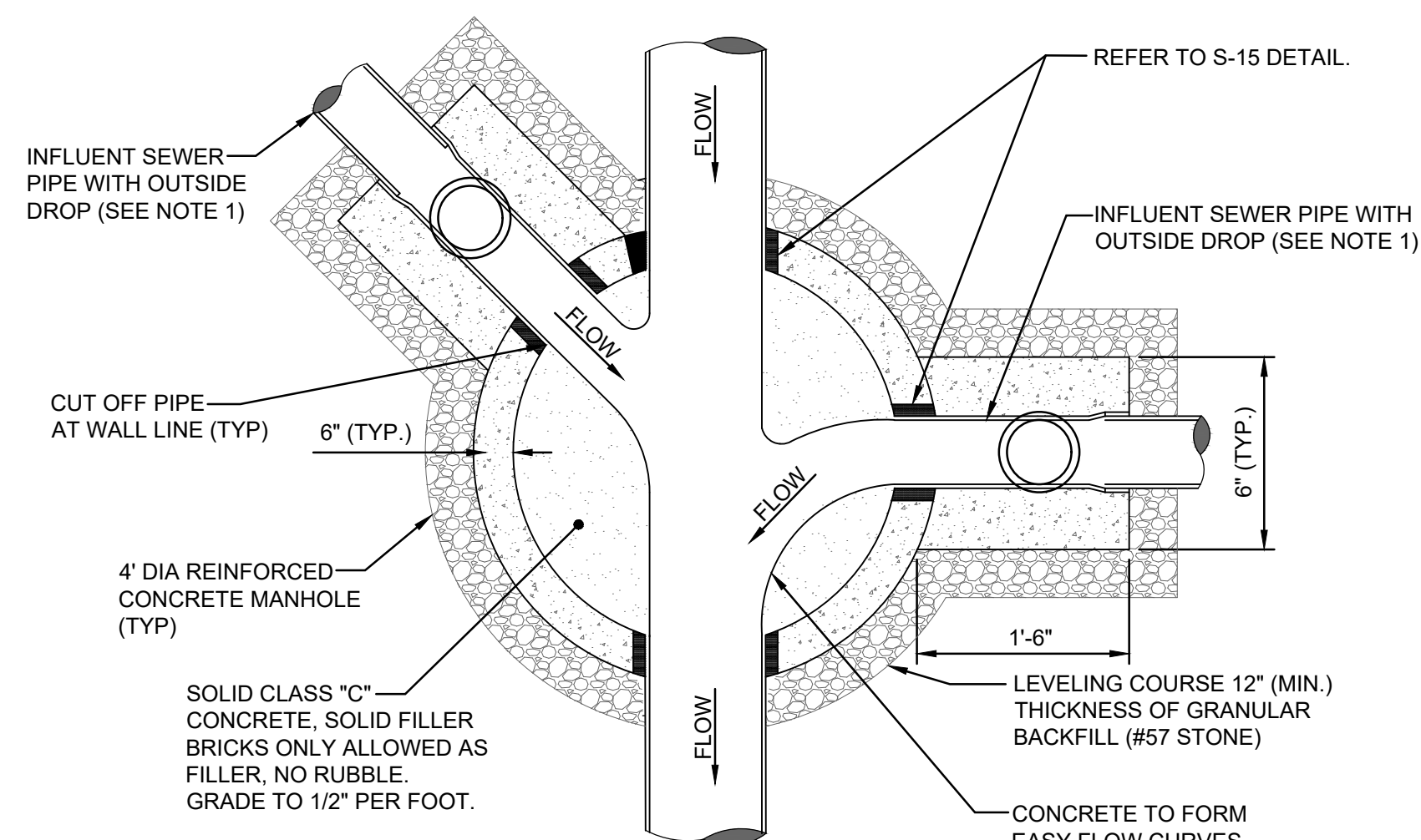
NOTES:

1. THIS ASSEMBLY IS FOR 8\"/>
2. PRECAST MANHOLE SECTIONS TO BE MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITIONS OF A.S.T.M. C-478 WITH 4000 LB. CONC., TYPE II CEMENT. ALL LIFTING HOLES AND OUTSIDE INSERTS SHALL BE FILLED WITH NON-SHRINK GROUT AND COATED WITH BITUMINOUS WATERPROOFING MATERIAL.
3. THE INTERIOR AND EXTERIOR OF MANHOLE AND THE INTERIOR OF ADJUSTMENT RINGS SHALL BE GIVEN TWO COATS OF BITUMINOUS WATERPROOFING MATERIAL.
4. TYPE "B" MANHOLE MUST BE USED FOR 2\"/>
5. THE DROP BOWL ASSEMBLY SHALL BE INSTALLED PRIOR TO APPLICATION OF SPECIALTY LINING MATERIAL.
6. A TYPE "D" MANHOLE SHALL BE UTILIZED WHEN THREE OR MORE (2\"/>
7. ADJUSTABLE CLAMPING BRACKET (MIN. 2 PER DROP BOWL ASSY). 1-1/2\"/>
8. ALL MH JOINTS BELOW THE TOP CONE SECTION SHALL INCLUDE A 6\"/>
9. IN SILTS, CLAY OR HIGHLY ORGANIC SOILS (FINE-GRAINED SOILS INCLUDING SOIL GROUPS ML, CL, OL, MH, CH, OH AND PT) THE SOILS SHALL BE OVER-EXCAVATED AN ADDITIONAL 24\"/>

**SANITARY SEWER TYPE "B" MANHOLE
8"-10" SEWERS**

JANUARY 2020

PLATES S-4, S-5

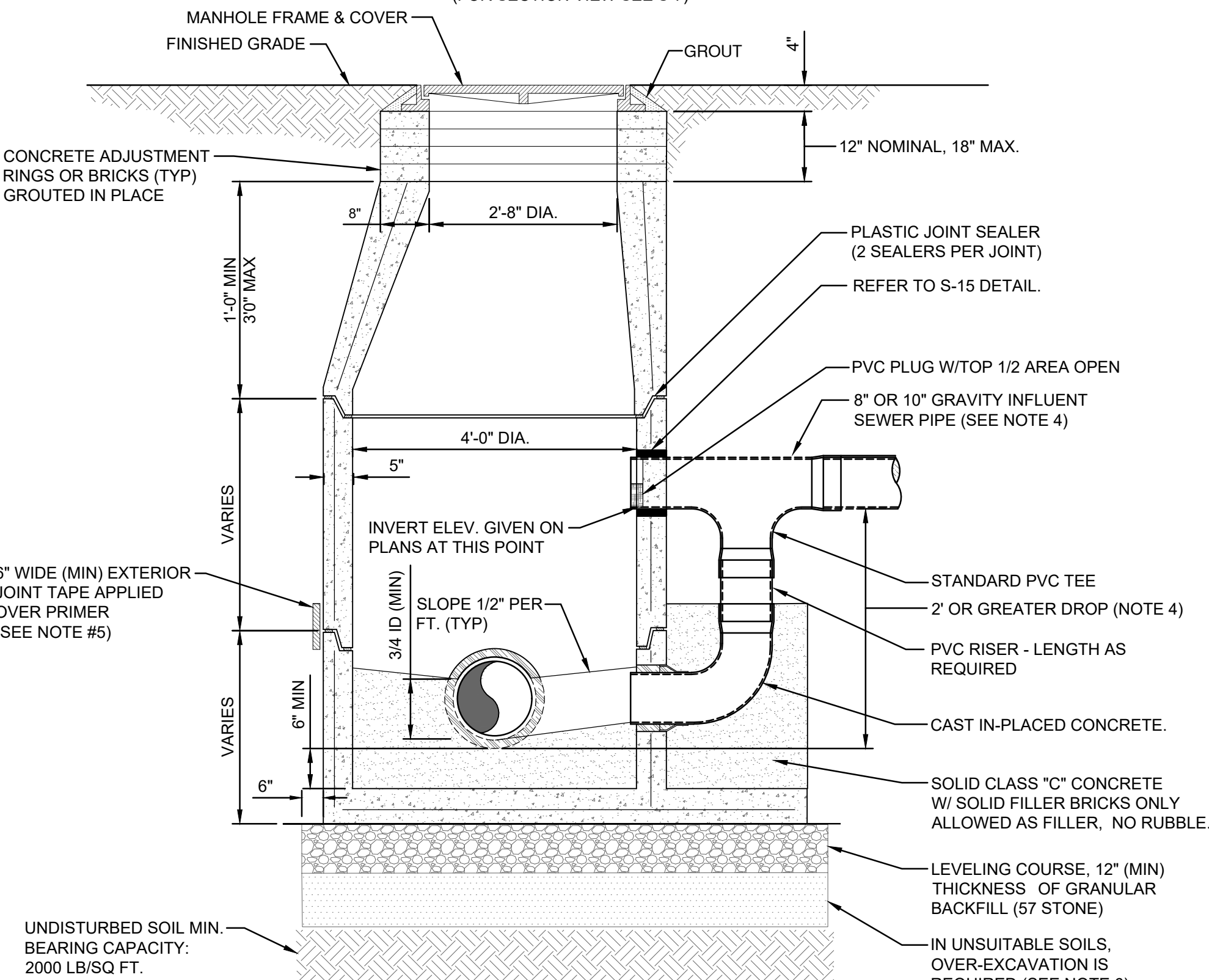


NOTES:

1. THE ANGLE BETWEEN ALL INFLUENT FLOW CHANNELS AND EFFLUENT PIPE SHALL BE 90° OR GREATER UNLESS APPROVED OTHERWISE BY JEA.
2. THE INTERIOR AND EXTERIOR OF THE MANHOLE AND THE INTERIOR OF THE ADJUSTMENT RINGS SHALL BE GIVEN 2 COATS OF BITUMINOUS WATERPROOFING MATERIAL.
3. IF SPECIALTY LINER IS TO BE INSTALLED ON INSIDE OF MANHOLE, THE BITUMINOUS WATERPROOFING MATERIAL SHALL BE OMITTED ON THE INSIDE.
4. TYPE "D" MANHOLES SHALL BE USED FOR 12\"/>

PLAN VIEW (S-8)

(FOR SECTION VIEW SEE S-7)



SECTION VIEW (S-7)

(FOR PLAN VIEW SEE S-8)

NOTES:

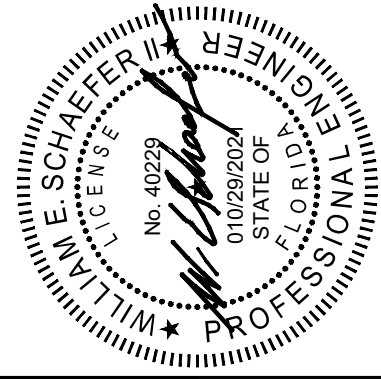
1. PRECAST MANHOLE SECTIONS TO BE MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITIONS OF A.S.T.M. C-478 WITH 4000 LB. CONC., TYPE II CEMENT. ALL LIFTING HOLES AND OUTSIDE INSERTS SHALL BE FILLED WITH NON-SHRINK GROUT AND COATED WITH BITUMINOUS WATERPROOFING MATERIAL.
2. THE INTERIOR AND EXTERIOR OF MANHOLE AND THE INTERIOR OF THE ADJUSTMENT RINGS SHALL BE GIVEN TWO COATS OF BITUMINOUS WATERPROOFING MATERIAL.
3. IF SPECIALTY LINER IS TO BE INSTALLED ON INSIDE SURFACE OF MANHOLE, THE BITUMINOUS WATERPROOFING SHALL BE, OMITTED ON INSIDE.
4. TYPE "D" MANHOLE SHALL BE USED FOR 12\"/>
5. ALL MH JOINTS BELOW THE TOP CONE SECTION SHALL INCLUDE A 6\"/>
6. IN SILTS, CLAY OR HIGHLY ORGANIC SOILS (FINE-GRAINED SOILS INCLUDING SOIL GROUPS ML, CL, OL, MH, CH, OH AND PT) THE SOILS SHALL BE OVER-EXCAVATED AN ADDITIONAL 24\"/>

**SANITARY SEWER TYPE "D" MANHOLE
12"-21" SEWERS**

JANUARY 2020

PLATES S-7, S-8

DOMINION ENGINEERING GROUP, INC.
4348 SOUTHPOINT BLVD., SUITE 201
JACKSONVILLE, FLORIDA 32216
904-854-4500



DESIGNER:

DRAWN BY:

DATE:

CHECKED BY:

DATE:



JEA STANDARD
SANITARY SEWER DETAILS

PROJ. NO.

DATE: JANUARY 2014

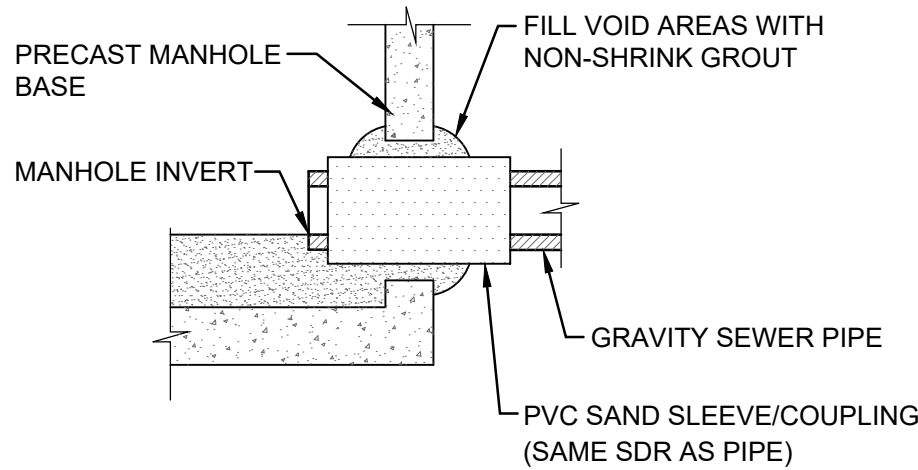
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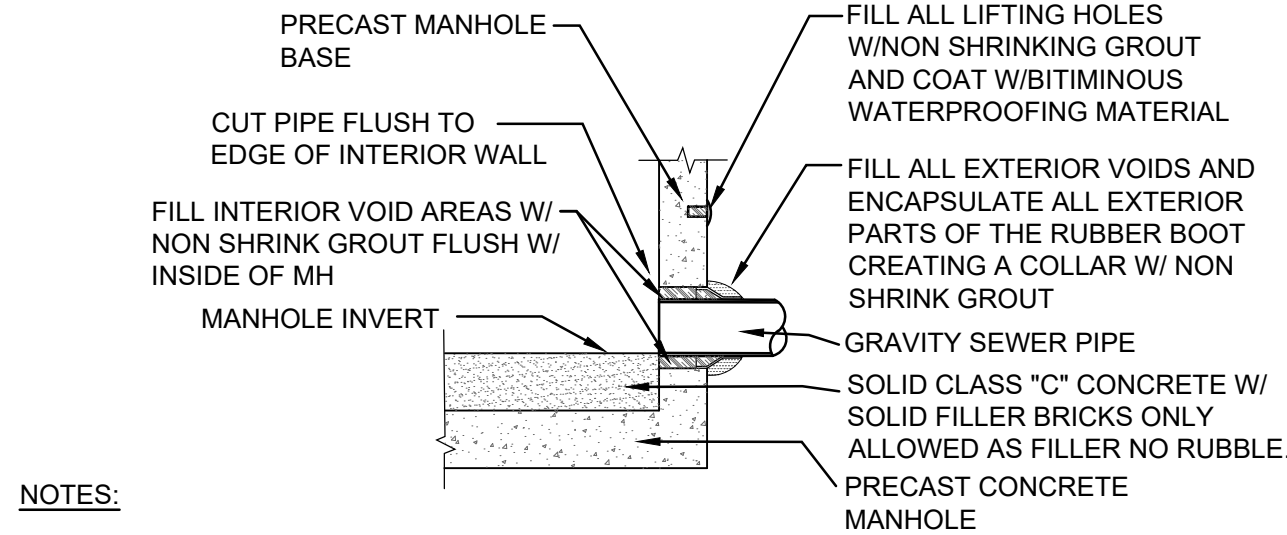
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DRAWING NO.
S-STD-1

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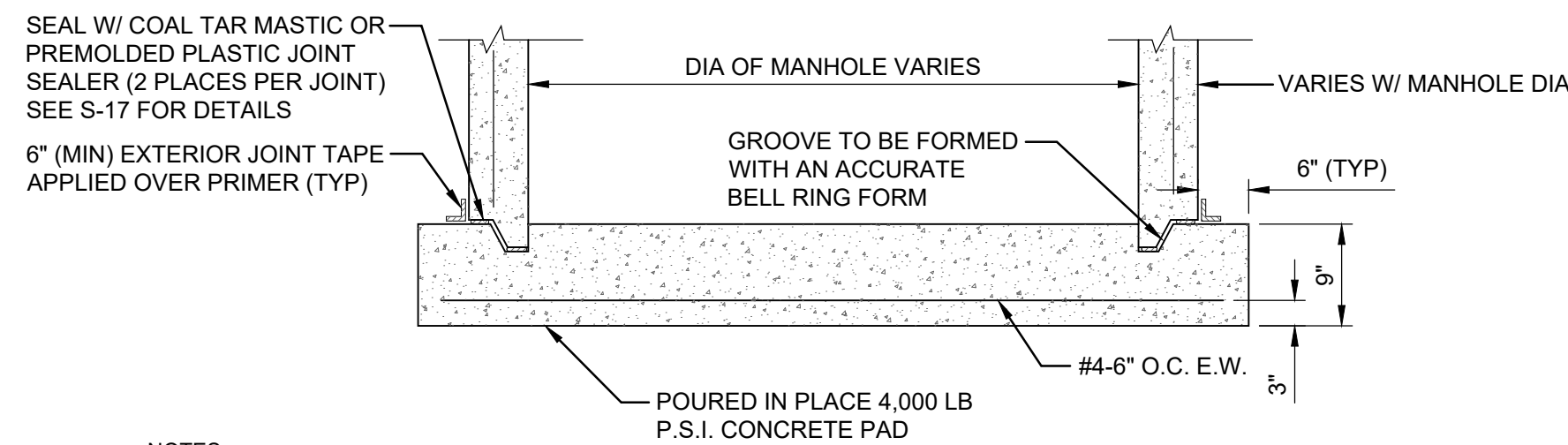


PVC SAND SLEEVE
(FOR EXISTING AND NEW M/H CONSTRUCTION)



NOTES:
RUBBER BOOT, DOUBLE BANDED, 316 S/S CLAMPS,
MEETING THE ASTM C923 STANDARD. Kor-N-Seal® I EX SERIES
CONNECTOR WITH DOUBLE STAINLESS STEEL BANDS OR EQUAL

RUBBER BOOT
(FOR NEW M/H CONSTRUCTION ONLY, MAXIMUM DEPTH 15FT)



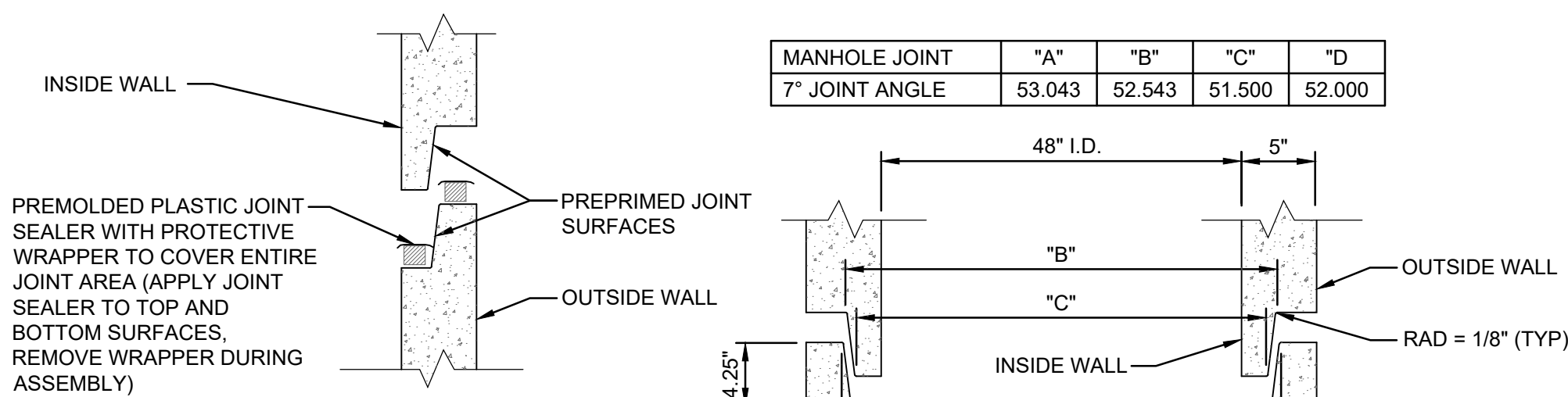
NOTES:
THE USE OF THE POURED IN PLACE MANHOLE BOTTOM SHALL BE MINIMIZED
AND SHALL BE SPECIFICALLY APPROVED BY JEA PRIOR TO CONSTRUCTION.

MANHOLE BOTTOM

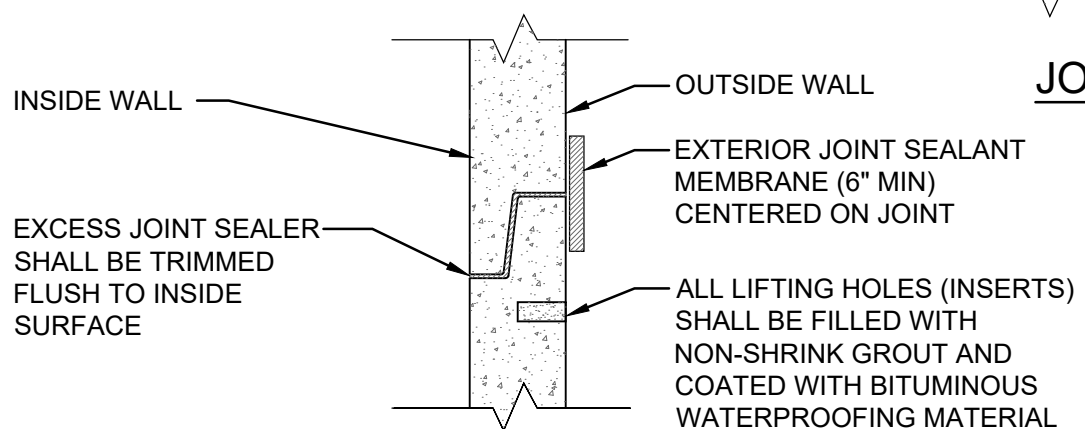
MANHOLE PIPE CONNECTION DETAIL

JANUARY 2020

PLATE S-15



JOINT ASSEMBLY DETAIL

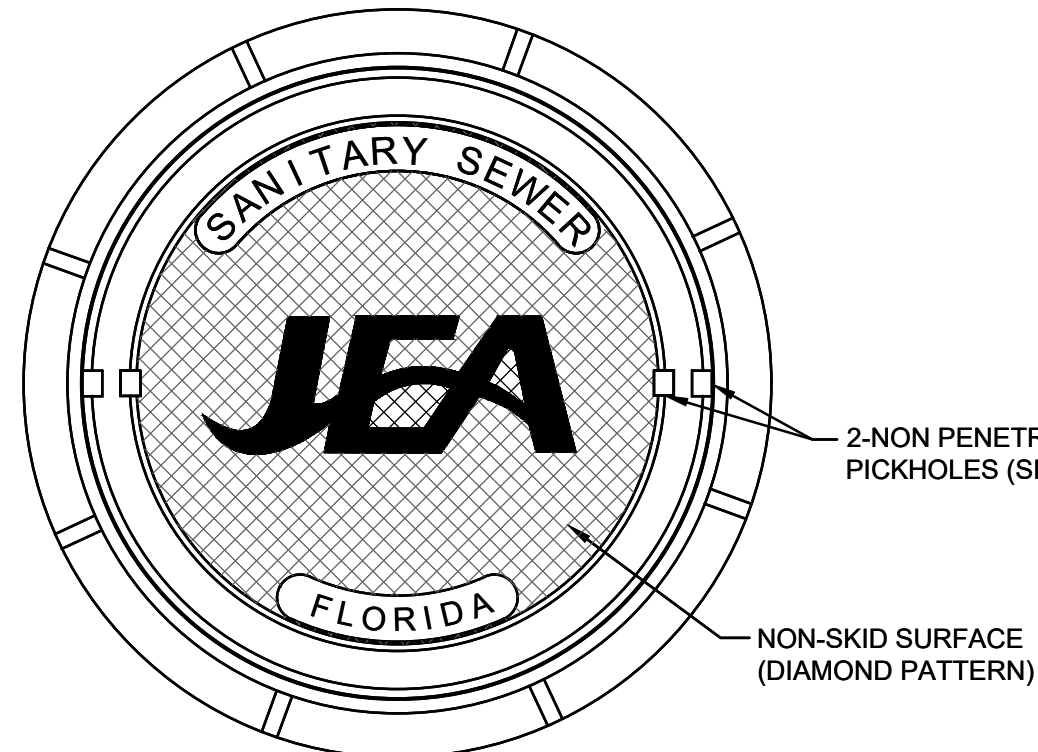


COMPLETED JOINT DETAIL

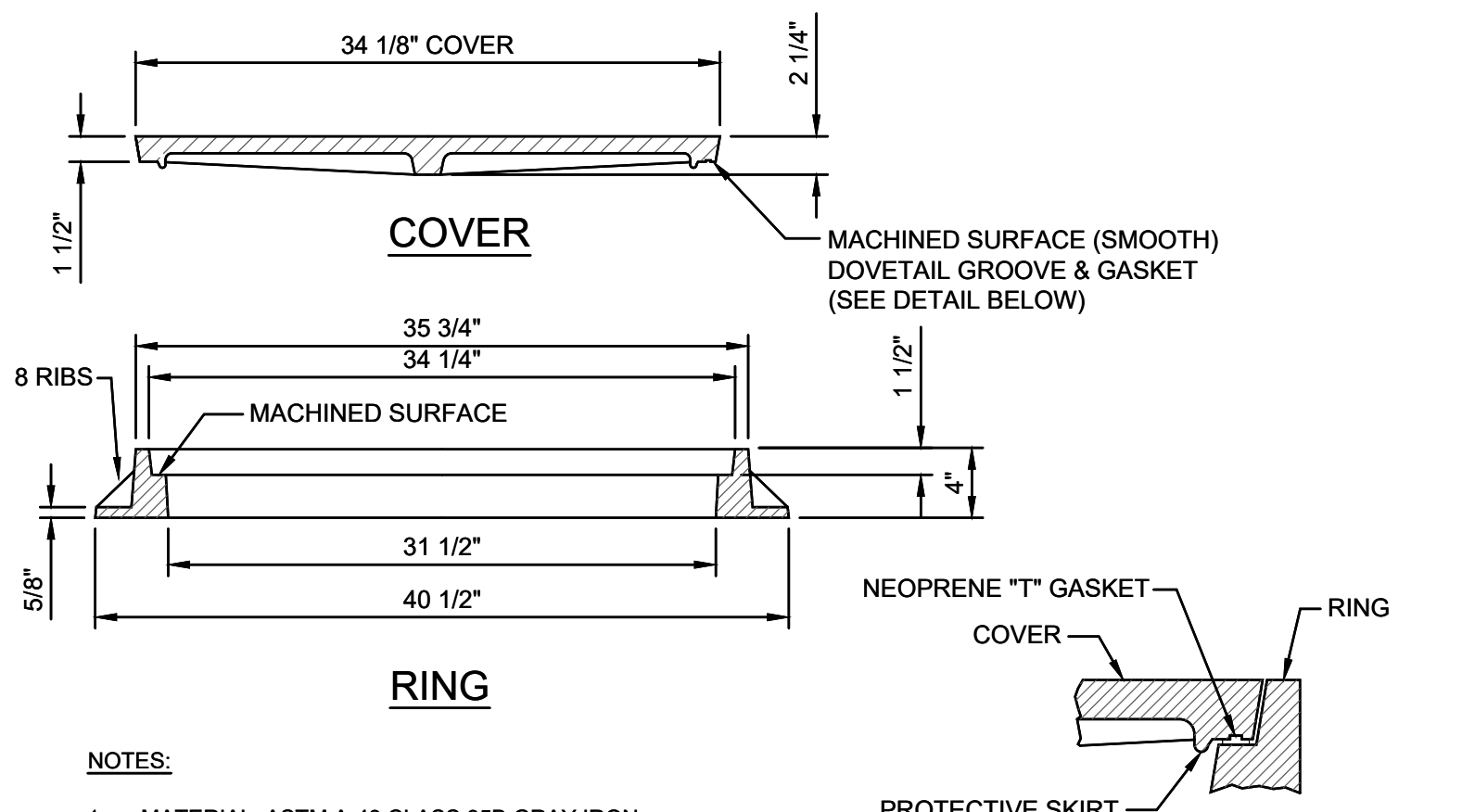
PRECAST SEWER MANHOLE JOINT DETAIL

JANUARY 2020

PLATE S-17



PICKHOLE DETAIL



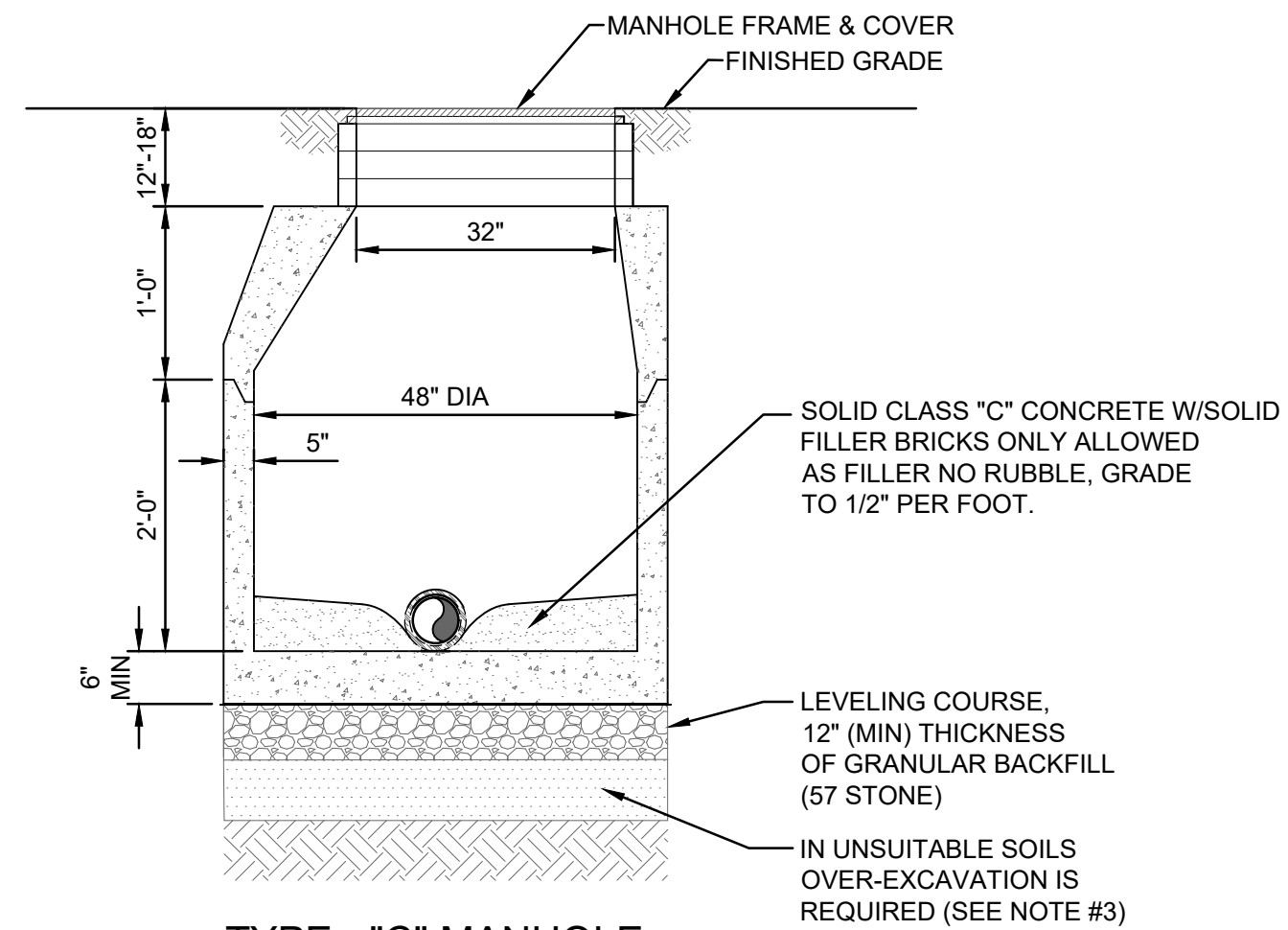
NOTES:

1. MATERIAL: ASTM A-48 CLASS 35B GRAY IRON.
2. RING WEIGHT 230 LBS APPROX.
3. COVER WEIGHT 230 LBS. APPROX.
4. ALL DIMENSIONS ARE SHOWN IN INCHES.
5. FOR MANHOLES WHICH WILL BE MAINTAINED BY JEA (INCLUDING UTILITY DEDICATION PROJECTS), THE COVER SHALL INCLUDE THE "JEA" LOGO AND A NEOPRENE GASKET.
6. FOR MANHOLES WHICH WILL BE MAINTAINED BY PARTIES OTHER THAN JEA (SUCH AS PRIVATE SEWER COLLECTION SYSTEMS, PRIVATE (FORCE MAIN) PUMP OUT BOX AND SYSTEMS NOT MAINTAINED BY JEA), THE COVER SHALL INCLUDE "SANITARY SEWER" GENERIC LETTERING (NO "JEA" LOGO OR NEOPRENE GASKET).

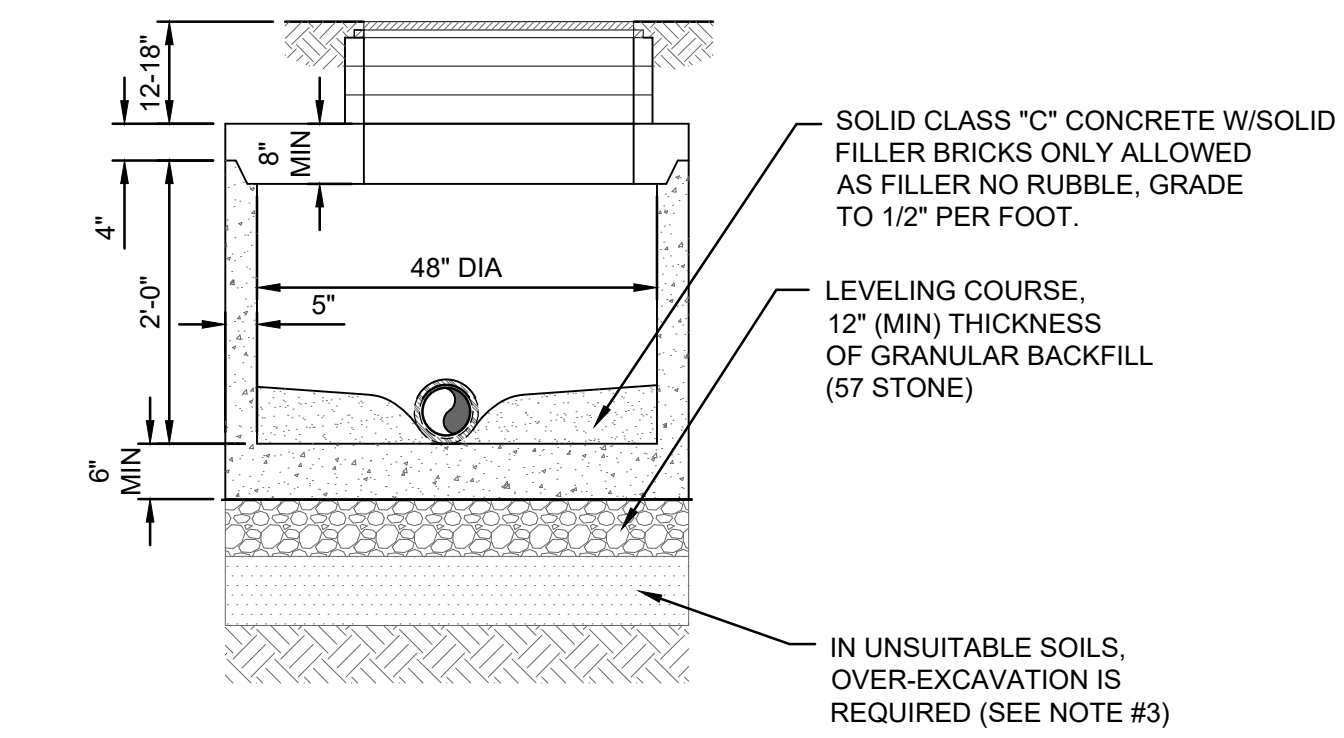
SANITARY SEWER MANHOLE FRAME AND COVER

JANUARY 2020

PLATE S-1



TYPE - "C" MANHOLE



TYPE - "C" MANHOLE WITH FLAT TOP

SECTION VIEWS

NOTES:

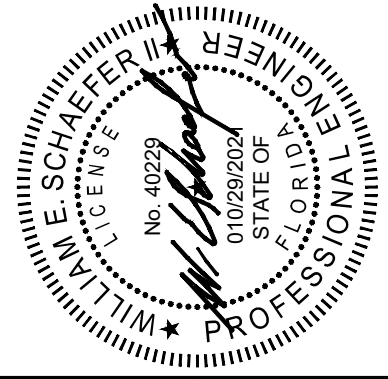
1. PRECAST MANHOLE SECTIONS TO BE MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITIONS OF A.S.T.M. C-478 WITH 4000 LB. CONC., TYPE II CEMENT. ALL LIFTING HOLES AND OUTSIDE INSERTS SHALL BE FILLED WITH NON-SHRINK GROUT AND COATED WITH BITUMINOUS WATERPROOFING MATERIAL.
2. THE INTERIOR AND EXTERIOR OF MANHOLE AND INTERIOR OF ADJUSTMENT RINGS SHALL BE GIVEN TWO COAT OF BITUMINOUS WATERPROOFING MATERIAL.
3. IN SILTS, CLAY OR HIGHLY ORGANIC SOILS (FINE-GRAINED SOILS INCLUDING SOIL GROUPS ML, CL, OL, MH, CH, OH AND PT) THE SOILS SHALL BE OVER-EXCAVATED AN ADDITIONAL 24" (AT A MIN.) AND BACKFILLED WITH AASHTO CLASS A-3 SOIL (COMPACTED TO 98%, ASTM D1557) OR OVER-EXCAVATE AN ADDITIONAL 12" (AT A MIN.) AND BACKFILL WITH GRANULAR BACKFILL (57 STONE).

SANITARY SEWER TYPE "C" MANHOLE 8"-21" SEWERS

JANUARY 2020

PLATE S-6

DOMINION ENGINEERING GROUP, INC.
4348 SOUTHPOINT BLVD., SUITE 201
JACKSONVILLE, FLORIDA 32216
904-854-4500



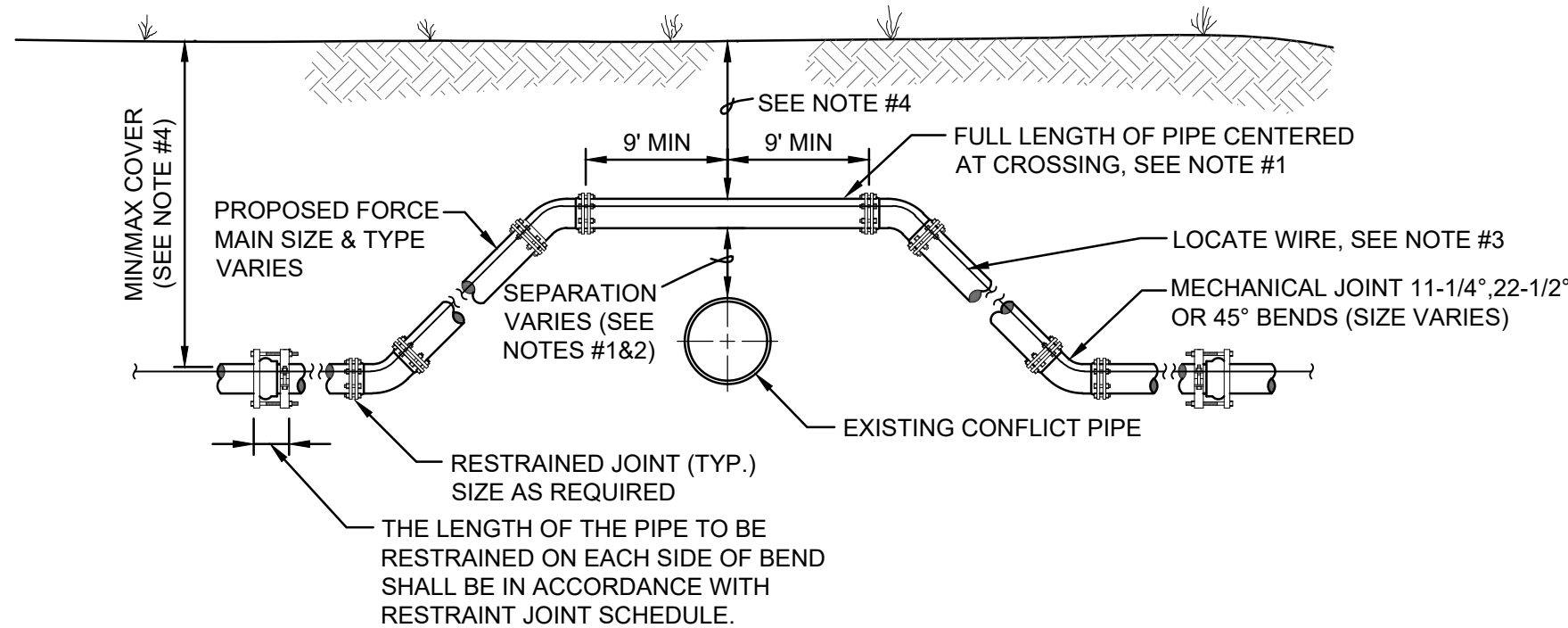
DESIGNER:
DRAWN BY:
DATE:
CHECKED BY:
DATE:



JEA STANDARD
SANITARY SEWER DETAILS

PROJ. NO.
DATE: JANUARY 2014
SCALE: AS NOTED
NO. SHEETS
SHEET NO. C12
DRAWING NO. S-STD-1

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CASE "A" CROSSING

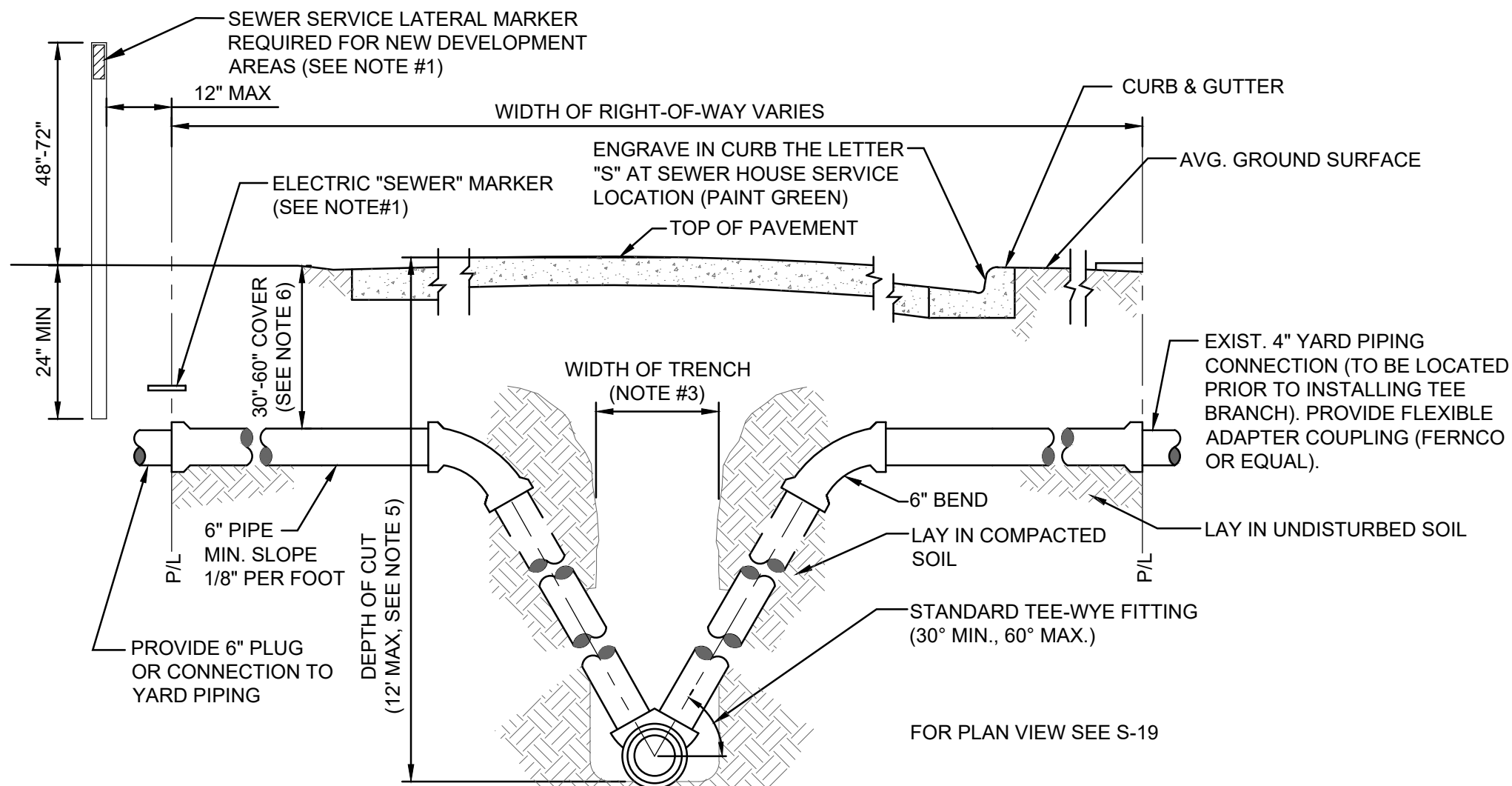
NOTES:

1. IF EXISTING CONFLICT PIPE IS A WATER OR RECLAIMED WATER MAIN, 12-INCHES OF SEPARATION IS REQUIRED. A FULL LENGTH OF PIPE SHALL BE CENTERED OVER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSINGS.
2. FOR OTHER LOCATION LIMITATIONS SEE DETAIL (S-26 & S-27).
3. LOCATING WIRE REQUIRED: SEE DETAIL S-49.
4. THE COVER FOR PIPING LESS THAN 24" SIZE SHALL BE 30" (MIN) IN UNPAVED AREAS, 36" (MIN) IN PAVED AREAS AND A MAXIMUM COVER OF 60", UNLESS PRE-APPROVED BY JEA. THE COVER FOR PIPING 24" SIZE AND LARGER SHALL BE 36" (MIN) IN PAVED AND UNPAVED AREAS AND A MAXIMUM COVER OF 84", UNLESS APPROVED BY JEA.
5. THE SOILS BETWEEN THE MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST ASTM D 1557.

ADJUSTMENT OVER EXISTING UTILITIES
MECHANICAL RESTRAINTS

JANUARY 2020

PLATE S-39



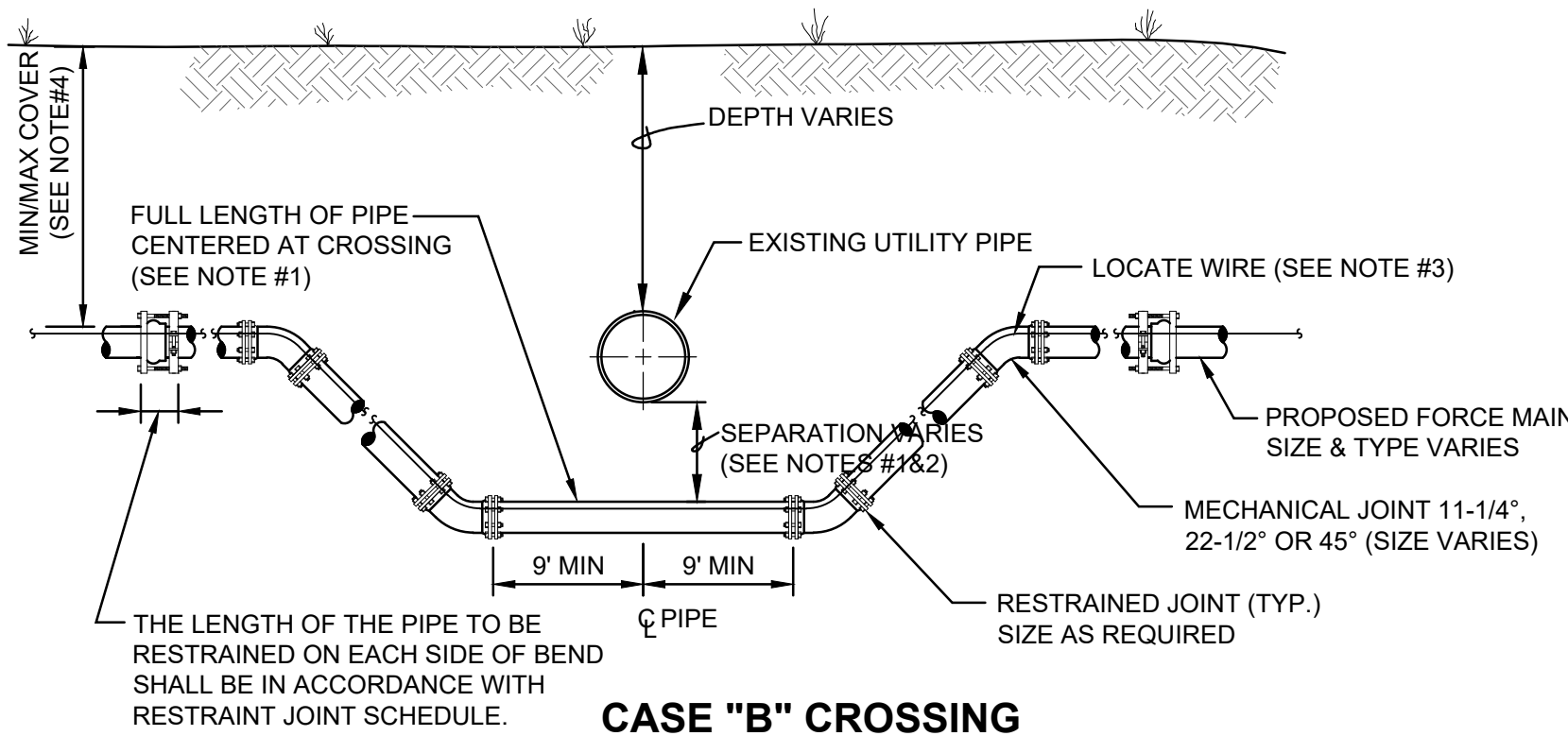
NOTES:

1. TO MARK THE LOCATION OF THE 6" PLUG FOR NEW SERVICE: FOR PROJECTS WHERE NO CONCRETE CURB EXIST, AN ELECTRONIC "SEWER" MARKER IS REQUIRED FOR ALL LATERALS WHICH ARE "NOT" IN USE". FOR NEW DEVELOPMENT AREAS WHERE THE SEWER LATERAL IS "NOT" IN USE", A LANDSCAPE TIMBER OR 3x3 MIN. P.T. POST (TOP PAINTED GREEN) SHALL BE INSTALLED. WHERE REQUIRED BY JEA OR NO CONCRETE CURB EXIST, AN ELECTRONIC "SEWER" MARKER SHALL BE INSTALLED TO MARKER SHALL ALSO BE INSTALLED.
2. THE MINIMUM SIZE OF ALL HOUSE LATERALS SHALL BE 6 INCHES. THE MAXIMUM LENGTH OF A HOUSE LATERAL SHALL BE 60 FEET (LENGTH BETWEEN SEWER MAIN OR MANHOLE TO CUSTOMERS PROPERTY LINE).
3. SEE MEASUREMENT AND PAYMENT SECTION FOR MAXIMUM PAYMENT WIDTHS.
4. ALL GRAVITY SEWER MAINS AND ASSOCIATED SEWER LATERAL PIPE AND FITTINGS (INCLUDING THE TEE-WYE FITTING) SHALL BE PVC SDR-26.
5. UNLESS APPROVED OTHERWISE BY A JEA O&M MANAGER, NO GRAVITY SEWER MAIN WITH SEWER SERVICE LATERALS SHALL BE CONSTRUCTED WITH A "DEPTH OF CUT" GREATER THAN 12 FEET.
6. SEWER SERVICE LATERALS ASSOCIATED WITH GRAVITY SEWER MAINS WHICH ARE DEEPER THAN 12 FEET, MUST BE ROUTED TO A GRAVITY SEWER HIGH-LINE, A MANHOLE OR OTHER JEA APPROVED METHOD.
7. THE SEWER SERVICE LATERAL SHALL BE CONSTRUCTED AT A DEPTH TO ALLOW A GRAVITY CONNECTION BY THE CUSTOMER, WHERE POSSIBLE (CONTINGENT UPON MEETING THE CUSTOMER'S ON-SITE CONDITIONS AND LOCAL CONSTRUCTION STANDARDS). A LATERAL REQUIRING MORE THAN 60" OF COVER MUST BE APPROVED, PRIOR TO CONSTRUCTION, BY JEA.

HOUSE LATERAL - SECTION VIEW

JANUARY 2020

PLATE S-20



CASE "B" CROSSING

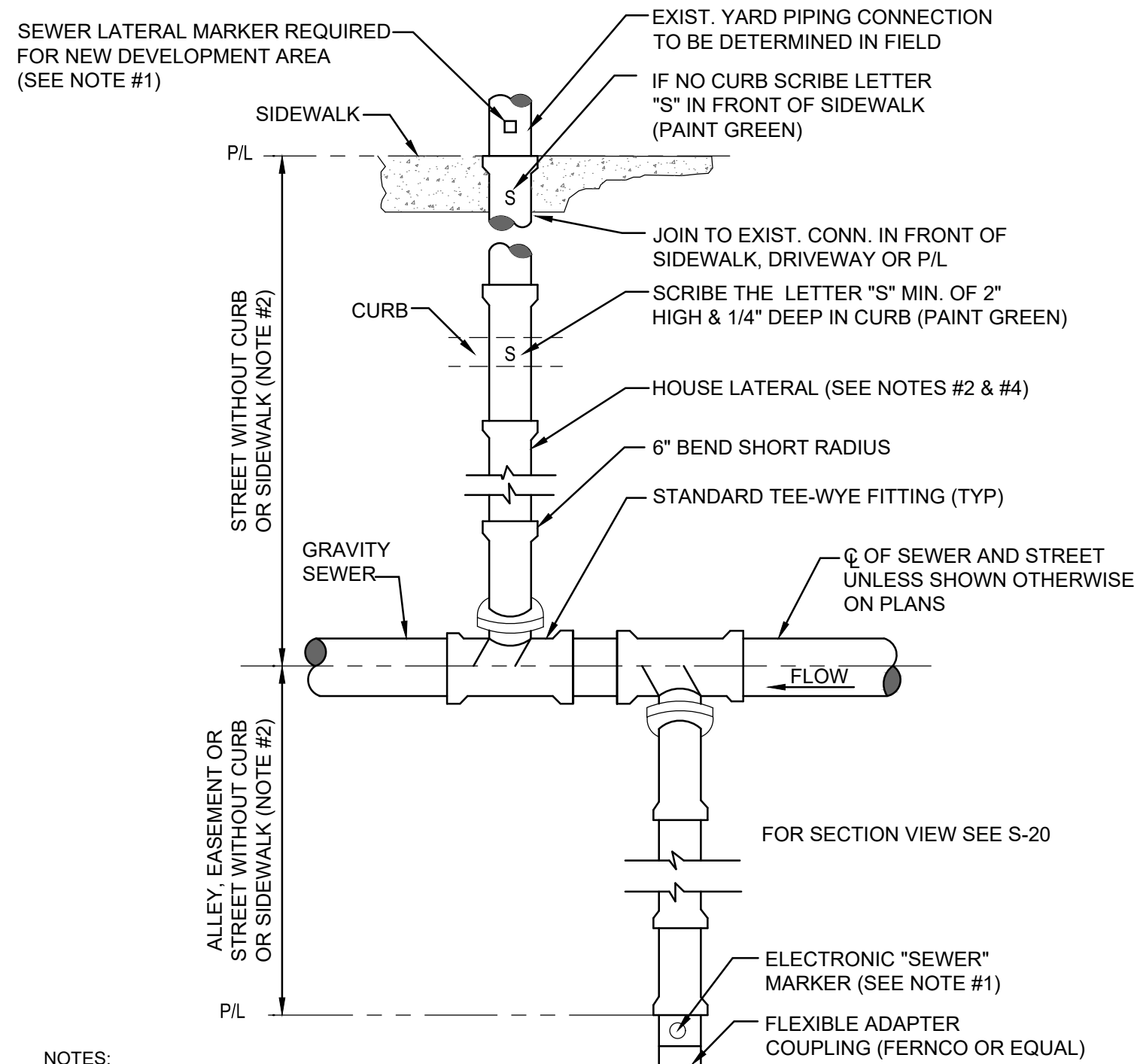
NOTES:

1. IF EXISTING CONFLICT PIPE IS A WATER OR RECLAIMED WATER MAIN, 12-INCHES OF SEPARATION IS REQUIRED. A FULL LENGTH OF PIPE SHALL BE CENTERED OVER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSINGS.
2. FOR OTHER LOCATION LIMITATIONS SEE DETAIL (S-26 & S-27).
3. LOCATING WIRE REQUIRED: SEE DETAIL S-49.
4. THE COVER FOR PIPING LESS THAN 24" SIZE SHALL BE 30" (MIN) IN UNPAVED AREAS, 36" (MIN) IN PAVED AREAS AND A MAXIMUM COVER OF 60", UNLESS PRE-APPROVED BY JEA. THE COVER FOR PIPING 24" SIZE AND LARGER SHALL BE 36" (MIN) IN PAVED AND UNPAVED AREAS AND A MAXIMUM COVER OF 84", UNLESS APPROVED BY JEA.
5. THE SOILS BETWEEN THE MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST ASTM D 1557.

ADJUSTMENT UNDER EXISTING UTILITIES
MECHANICAL RESTRAINTS

JANUARY 2020

PLATE S-41



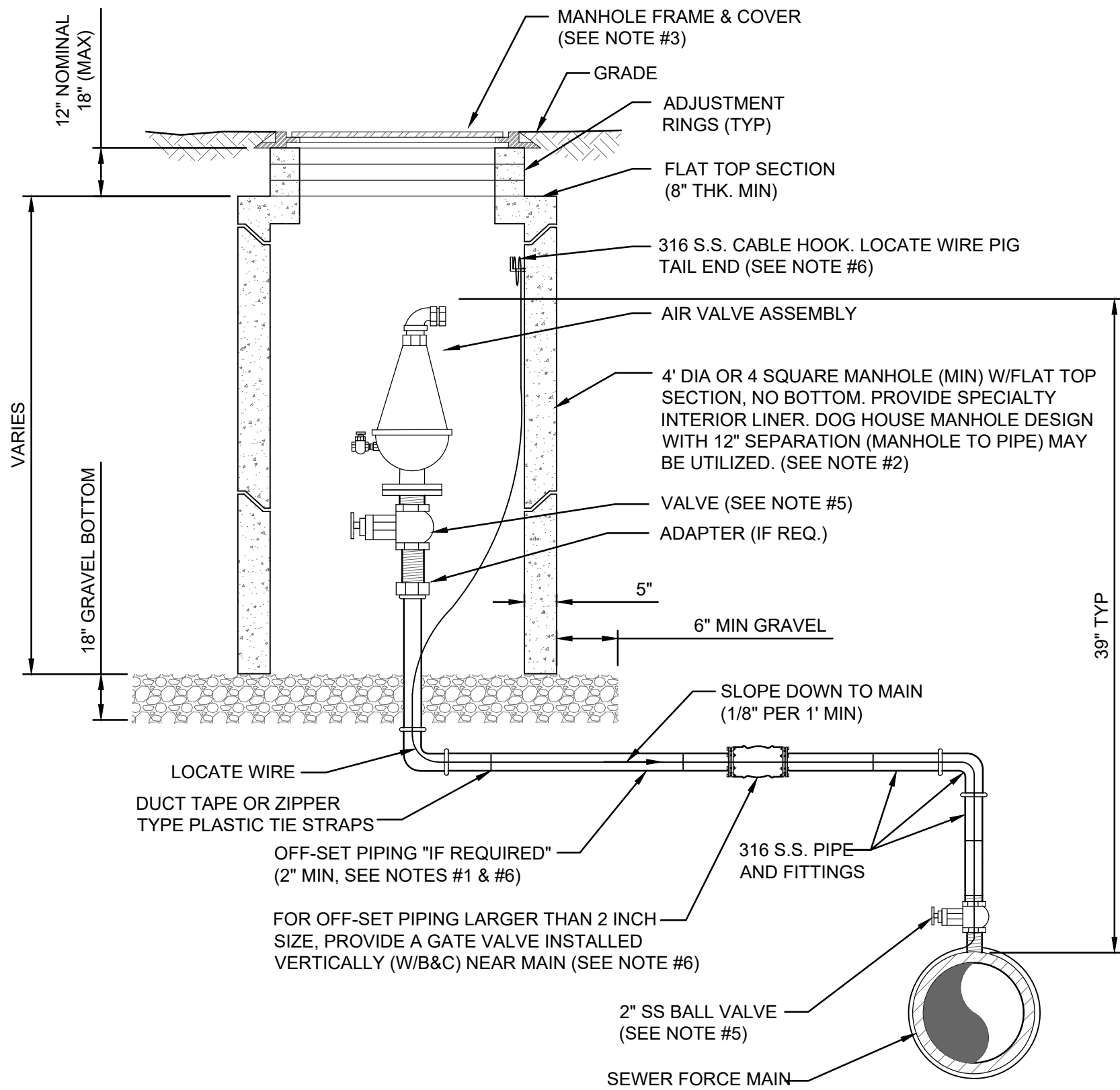
NOTES:

1. TO MARK THE LOCATION OF THE 6" PLUG FOR NEW SERVICE: FOR PROJECTS WHERE NO CONCRETE CURB EXIST, AN ELECTRONIC "SEWER" MARKER IS REQUIRED FOR ALL LATERALS WHICH ARE "NOT" IN USE". FOR NEW DEVELOPMENT AREAS WHERE THE SEWER LATERAL IS "NOT" IN USE", A LANDSCAPE TIMBER OR 3x3 MIN. P.T. POST (TOP PAINTED GREEN) SHALL BE INSTALLED. WHERE REQUIRED BY JEA OR NO CONCRETE CURB EXIST, AN ELECTRONIC "SEWER" MARKER SHALL BE INSTALLED TO MARKER SHALL ALSO BE INSTALLED.
2. THE MINIMUM SIZE OF ALL HOUSE LATERALS SHALL BE 6 INCHES. THE MAXIMUM LENGTH OF A HOUSE LATERAL SHALL BE 60 FEET (LENGTH BETWEEN SEWER MAIN OR MANHOLE TO CUSTOMERS PROPERTY LINE).
3. NO SEWER SERVICE CONNECTIONS PERMITTED ON GRAVITY SEWER PIPE WHICH ARE 16" AND LARGER.
4. ALL GRAVITY SEWER MAINS AND ASSOCIATED SEWER LATERAL PIPE AND FITTINGS (INCLUDING THE TEE-WYE FITTING) SHALL BE PVC SDR-26.

HOUSE LATERAL - PLAN VIEW

JANUARY 2020

PLATE S-19



NOTES:

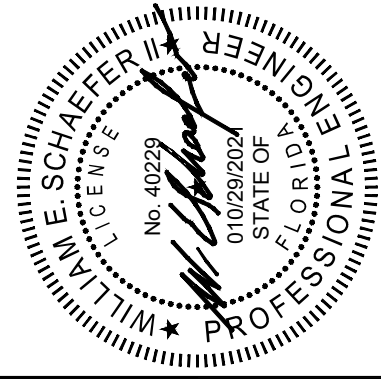
1. THE AIR ASSEMBLY MANHOLE SHALL BE LOCATED OUTSIDE OF THE ROADWAY PAVEMENT AREA (I.E. LOCATED IN NON-TRAFFIC AREAS). IF OFF-SET PIPING IS REQUIRED, THE PIPING SHALL BE 2 INCH MINIMUM, (SAME SIZE AS AIR VALVE INLET). FOR PIPE SIZES 3 INCH AND SMALLER, PIPING SHALL BE 316 STAINLESS STEEL SCH 40, STD GRADE, THREADED. FOR PIPE SIZES 4 INCH AND LARGER, PIPING SHALL BE 316 STAINLESS STEEL SCH. 10 (MIN), WELDED OR PVC DR-16 PIPE AND FITTINGS-RESTRAINED.
2. THE CONCRETE MANHOLE SHALL INCLUDE A POLYURETHANE SPECIALTY LINER (PER SPEC SECTION 446) TO BE INSTALLED ON THE INTERIOR SURFACES INCLUDING THE RISER SECTION TOP AND THE ADJUSTMENT RINGS. A BITUMINOUS WATERPROOFING MATERIAL SHALL BE PROVIDED ON THE OUTSIDE SURFACES OF THE MANHOLE.
3. FRAME AND COVER SHALL BE JEA STANDARD. THE COVER SHALL HAVE NO GASKET TO ALLOW AIR TO EXIT VAULT (REMOVE GASKET IF NECESSARY FROM THE UNDER SIDE OF STANDARD JEA COVER). THE COVER (WHEN FLIPPED OPEN) MUST CLEAR THE AIR VALVE ASSEMBLY AT ALL TIMES OR A SQUARE TOP WITH ALUMINUM DOOR SHALL BE PROVIDED (NON-TRAFFIC LOCATIONS ONLY).
4. FOR PIPE SIZES 3 INCH AND SMALLER, PROVIDE A STAINLESS STEEL BALL VALVE (2" MIN). FOR PIPE SIZES 4 INCH AND LARGER, PROVIDE A FLANGE GATE VALVE (WHEEL OPERATOR) OR PLUG VALVE. (LEVER ARM OPERATOR) SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
5. FOR A 2" AIR VALVE, PROVIDE 2" STAINLESS STEEL BALL VALVE AT THE MAIN. FOR AIR VALVES LARGER THAN 2" SIZE, PROVIDE A TAPPING SLEEVE OR DUCTILE IRON TEE FITTING. ALSO, FOR OFF-SET PIPING LARGER THAN 2 INCH SIZE, PROVIDE A GATE VALVE (INSTALLED VERTICALLY NEAR MAIN). SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
6. LOCATE WIRE SHALL HAVE ENOUGH SLACK TO REACH 4' ABOVE FINAL GRADE.

AIR VALVE ASSEMBLY INSIDE MANHOLE

JANUARY 2020

PLATE S-29

DOMINION ENGINEERING GROUP, INC.
4348 SOUTHPOINT BLVD., SUITE 201
JACKSONVILLE, FLORIDA 32216
904-854-4500



DESIGNER:
DRAWN BY:
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DATE:



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SANITARY SEWER DETAILS

PROJ. NO.
DATE: JANUARY 2014
SCALE: AS NOTED
NO. SHEETS: 1
SHEET NO.: C13
DRAWING NO.: S-STD-1

PVC PIPE RESTRAINT NOTES:

- THIS SCHEDULE SHALL BE UTILIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THE ABOVE SCHEDULE, AT A MINIMUM.
- ASSUMPTIONS: PVC PIPE, SAFETY FACTOR=1.5, TEST PRESSURE=150PSI, SOIL=GM OR SM, TRENCH TYPE 3, DEPTH OF COVER=30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE.
- BENDS AND VALVES: SHALL BE RESTRAINED ON EACH SIDE OF FITTING.
- VERTICAL OFFSETS: ARE APPROX. 3 FEET COVER ON TOP AND APPROX. 8 FEET COVER ON BOTTOM. PER THE DETAILS, L_U IS THE RESTRAINED LENGTH FOR THE UPPER (TOP) LEVEL. L_L IS THE RESTRAINED LENGTH FOR THE LOWER (DEEPER) LEVEL. ASSUME 45 DEGREE BENDS.
- TEES: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE ABOVE FOR RESTRAINT LENGTH ON TEE "BRANCH" LINE.
- HDPE TO PVC TRANSITIONS: THE PVC PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).
- THE INSTALLATION OF BELL HARNESS RESTRAINTS AT PVC JOINTS (DR-18 & 25 PIPE) SHALL BE COMPLETED PER THE MANUFACTURERS RECOMMENDATION, WHICH INCLUDES NOT OVER TIGHTENING THE PARALLEL RODS/NUTS. THESE NUTS SHOULD ONLY BE SNUG TIGHT. THE HOME MARKS ON THE PIPE SHOULD ALWAYS BE VISIBLE AFTER THE RESTRAINT IS INSTALLED. OVERHOMING THE JOINT MAY CAUSE A FAILURE AT THE BELL RESULTING IN A SERVICE OUTAGE.

LENGTH (L) TO BE RESTRAINED

NOMINAL PIPE SIZE (IN.)	HORIZONTAL BENDS				VERTICAL OFFSETS (SEE NOTE 4)		VALVES OR DEAD ENDS
	90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	UPPER L (FT.)	LOWER L (FT.)	
4	21	9	5	3	17	3	47
6	30	13	6	3	23	4	66
8	38	16	8	4	30	6	86
10	45	19	9	5	36	7	103
12	53	22	11	6	43	8	121
14	61	26	13	6	50	9	140
16	66	28	14	7	55	10	154
18	73	30	15	8	60	11	170
20	79	33	16	8	66	12	186
24	79	33	16	8	77	15	185
30	93	39	19	10	97	17	222
36	106	39	21	11	107	20	257
42	117	49	24	12	120	24	289
48	144	53	26	13	133	26	321

(SEE PLATE Nos. 38C & 38D FOR ADDITIONAL DETAILS)

REDUCERS	
SIZE (IN.)	L (FT.)
6x4	34
8x6	36
8x4	62
10x8	35
10x6	63
12x10	36
12x8	64
16x12	66
16x10	92
20x18	35
20x16	66
20x12	117
24x20	56
24x18	80
24x16	101
30x24	78
30x20	121
36x30	78
36x24	141
42x36	75
42x30	140
48x42	75
48x36	139

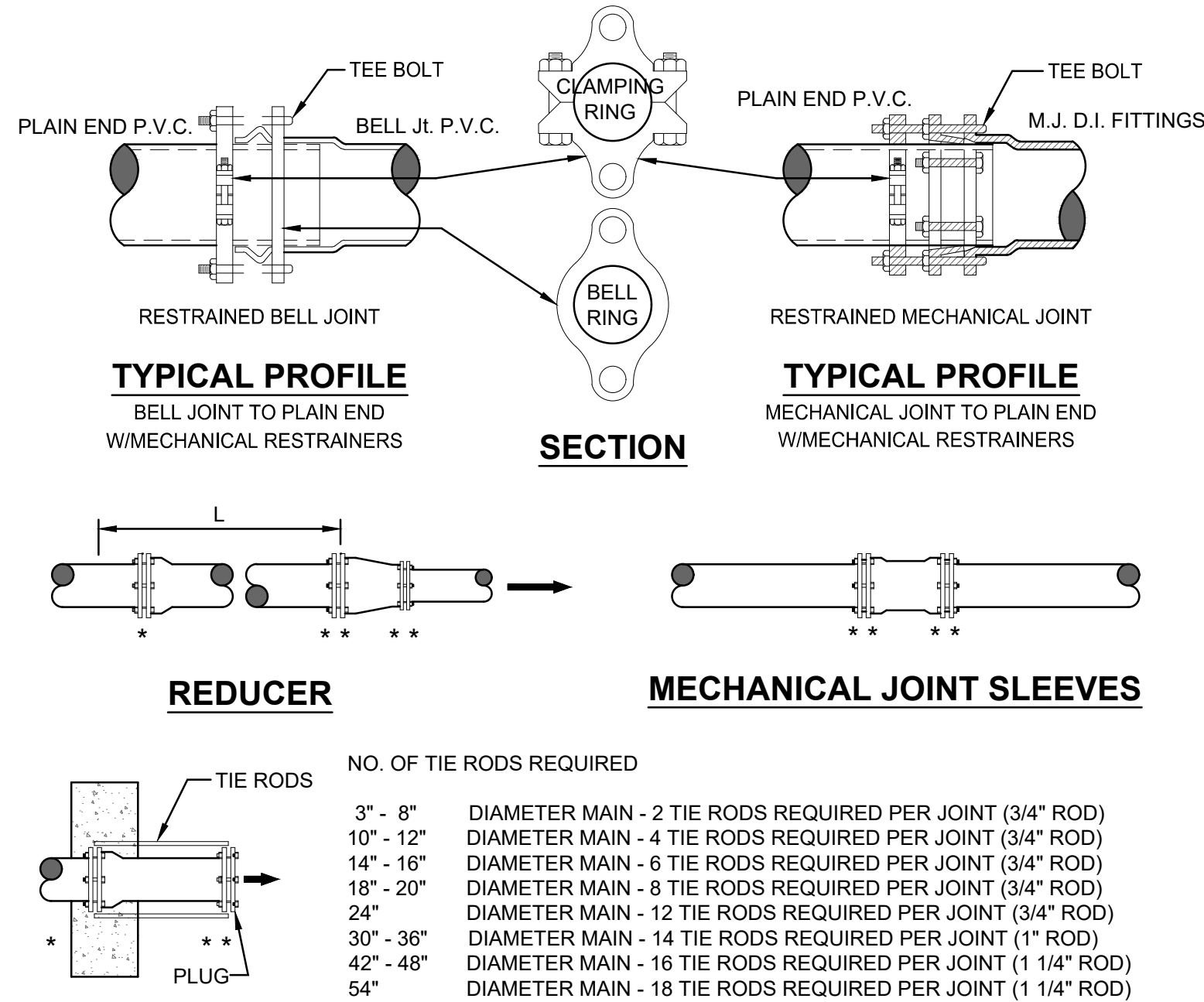
TEES SEE NOTE 5		
RUN SIZE (IN.)	BRANCH SIZE (IN.)	L (FT.)
4	4	F.O.
4	6	10 F.O.
4	4 < LESS	F.O.
8	8	29 F.O.
8	6 < LESS	F.O.
10	10	45 F.O.
10	8	13 F.O.
12	12	62 F.O.
12	10	32 F.O.
12	8 < LESS	F.O.
16	16	94 F.O.
16	12	39 F.O.
16	10 < LESS	F.O.
20	20	125 F.O.
20	16	76 F.O.
20	12	14 F.O.
20	10 < LESS	F.O.
24	24	124 F.O.
24	20	84 F.O.
24	16	36 F.O.
24	12 < LESS	F.O.
30	30	159 F.O.
30	24	104 F.O.
30	20	60 F.O.
30	16 < LESS	F.O.
36	36	192 F.O.
36	30	142 F.O.
36	24	83 F.O.
36	20	33 F.O.
36	16 < LESS	F.O.
42	42	223 F.O.
42	36	178 F.O.
42	30	124 F.O.
42	24	59 F.O.
42	20	5 F.O.
42	16 < LESS	F.O.
48	48	253 F.O.
48	42	209 F.O.
48	36	162 F.O.
48	30	104 F.O.
48	24	54 F.O.
48	20 < LESS	F.O.

F.O. = FITTING ONLY

PVC PIPE RESTRAINT JOINT SCHEDULE

JANUARY 2020

PLATE S-38A



DEAD - END THRUST COLLAR ANCHOR

TO BE USED INSTEAD OF TOTAL RESTRAINED LENGTH (OPTIONAL) SIZE AS PER THRUST BLOCK DETAIL (W-38). SEE DETAILS W-36 & W-37.

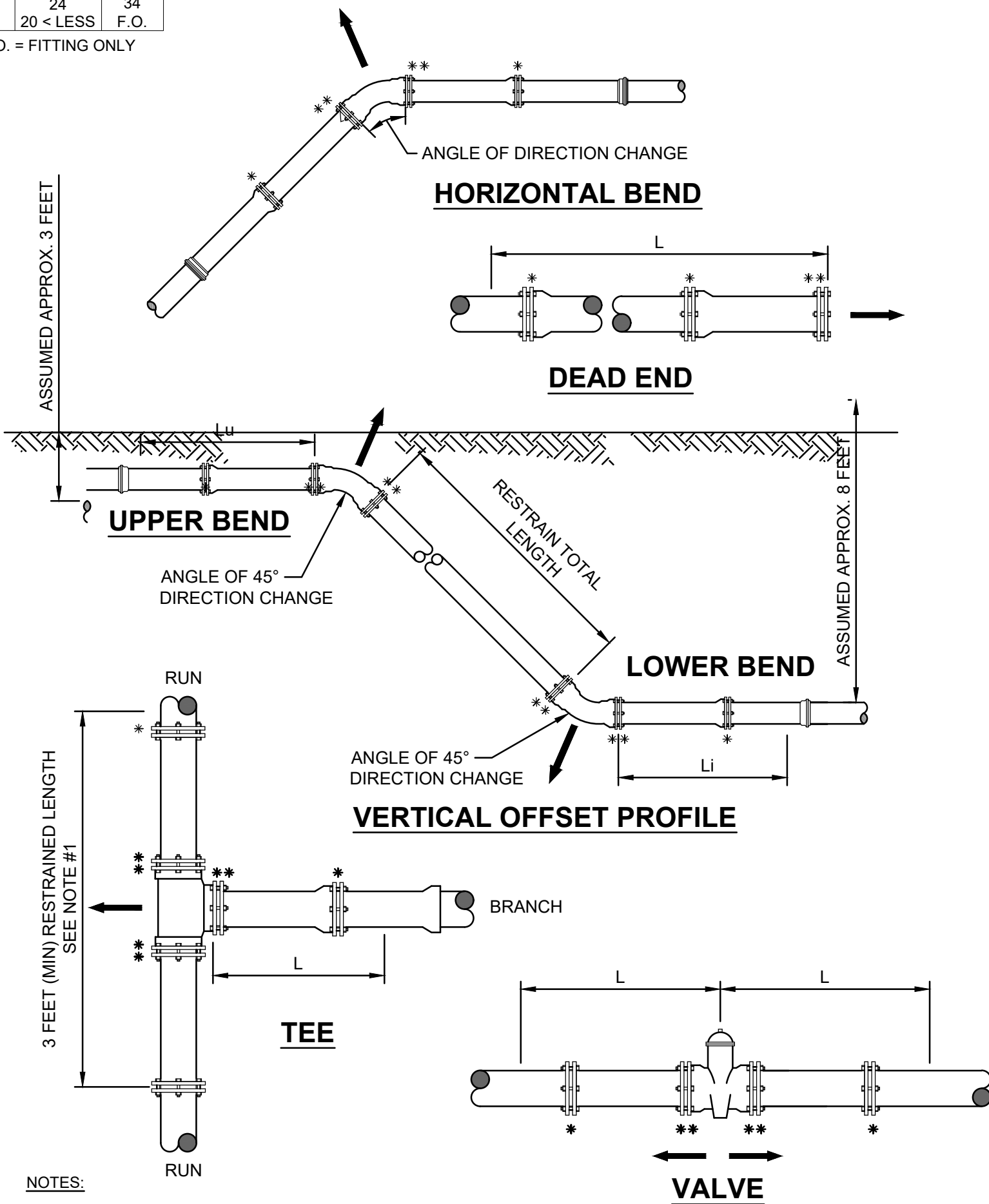
GENERAL NOTE:

- PAY ITEM * * * DENOTES A RESTRAINT WHICH IS PAID FOR ON A PER EACH BASIS.
- PAY ITEM * * * DENOTES A RESTRAINT WHICH IS INCLUDED IN THE UNIT PRICE BID FOR FITTING OR VALVE.
- ➡ INDICATES DIRECTION OF THRUST FORCE.

MECHANICAL RESTRAINT DETAILS - I

JANUARY 2020

PLATE S-38C



NOTES:

- TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 6 FEET (MIN.). THE PROJECT ENGINEER CAN INCREASE THIS LENGTH TO REDUCE THE NUMBER OF RESTRAINTS REQUIRED. ANY CHANGES TO THIS TABLE MUST BE SUMMITTED TO JEA FOR APPROVAL.
- PAY ITEM "" DENOTES A RESTRAINT WHICH IS PAID FOR ON A PER EACH BASIC.
- PAY ITEM """" DENOTES A RESTRAINT WHICH IS INCLUDED IN THE UNIT PRICE BID FOR FITTING OR VALVE.

MECHANICAL RESTRAINT DETAILS - II

JANUARY 2020

PLATE S-38D

DOMINION ENGINEERING GROUP, INC.
4348 SOUTHPOINT BLVD., SUITE 201
JACKSONVILLE, FLORIDA 32216
904-854-4500



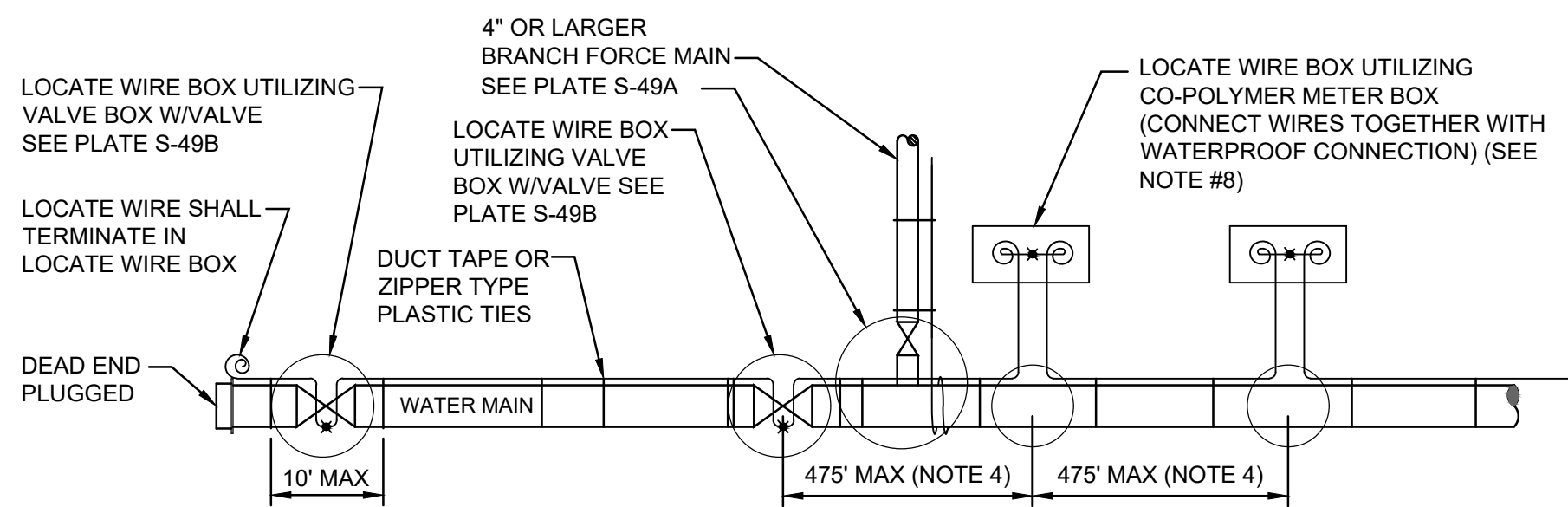
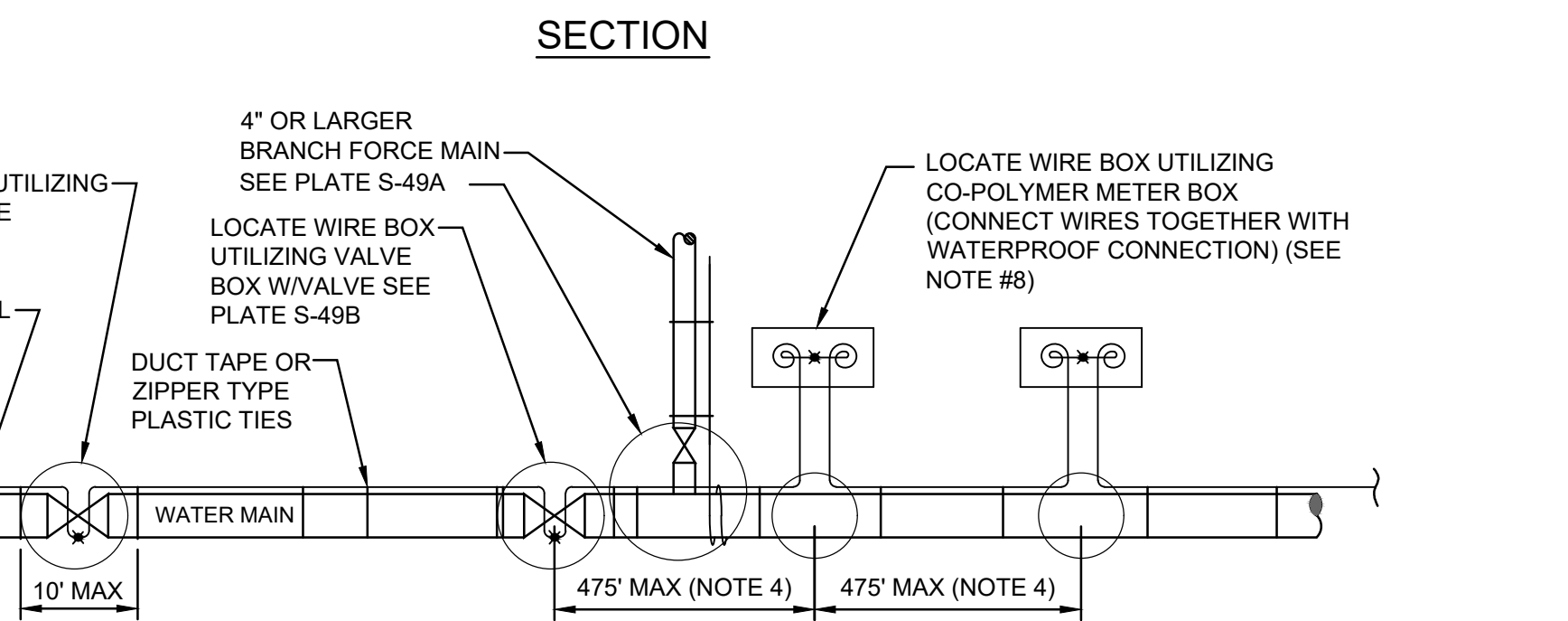
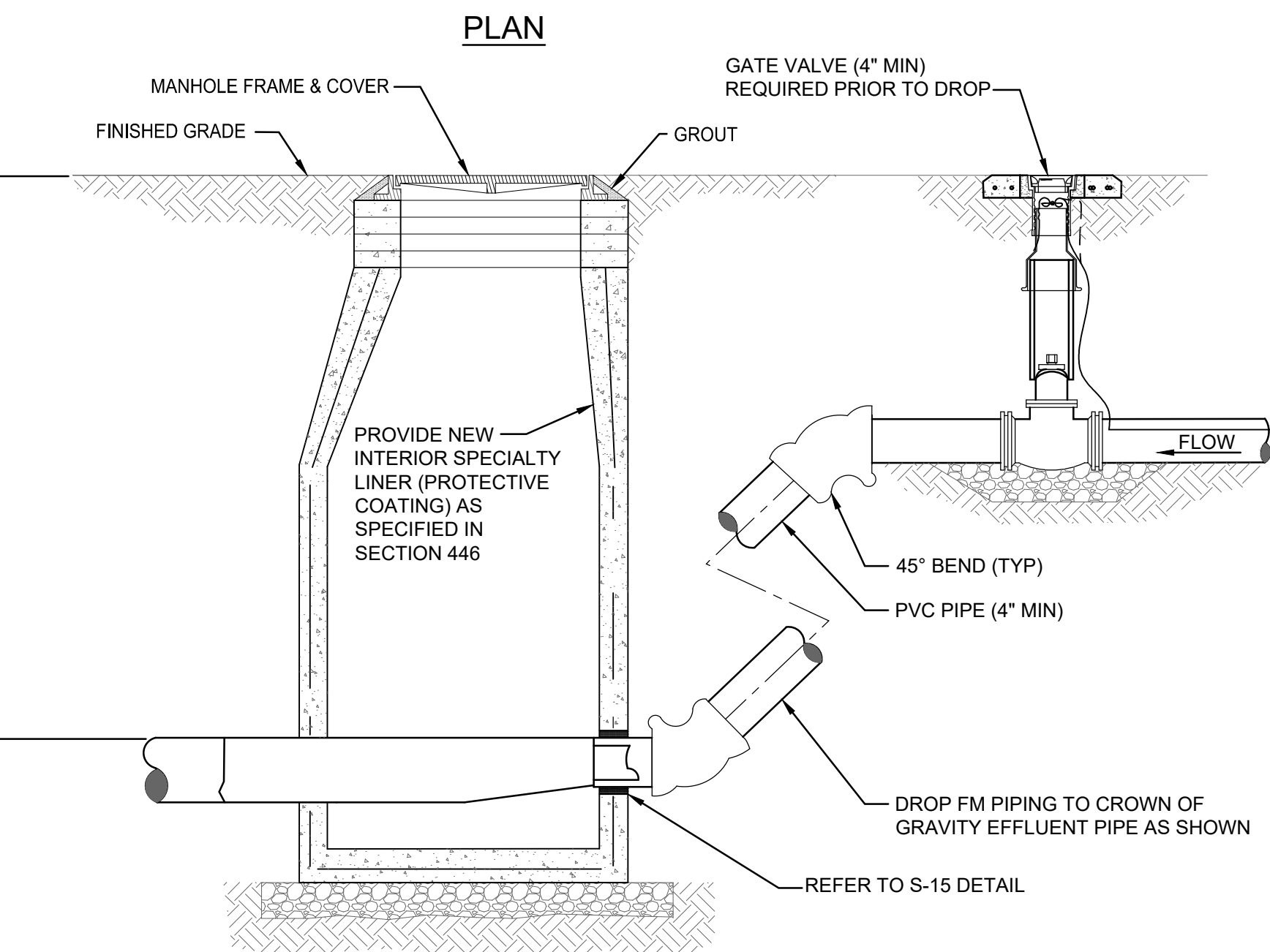
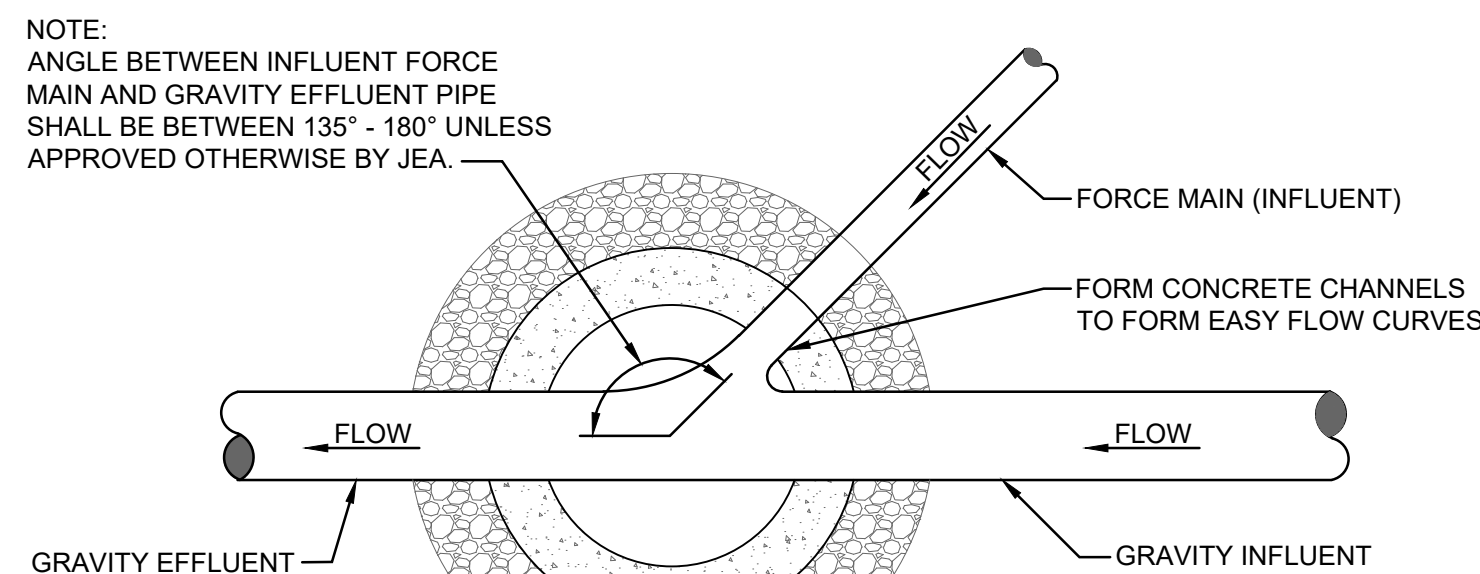
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DRAWN BY:
DATE:
CHECKED BY:
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JEA STANDARD
SANITARY SEWER DETAILS

PROJ. NO.
DATE: JANUARY 2014
SCALE: AS NOTED

NO. SHEETS
1
SHEET NO.
C14
DRAWING NO.
S-STD-1



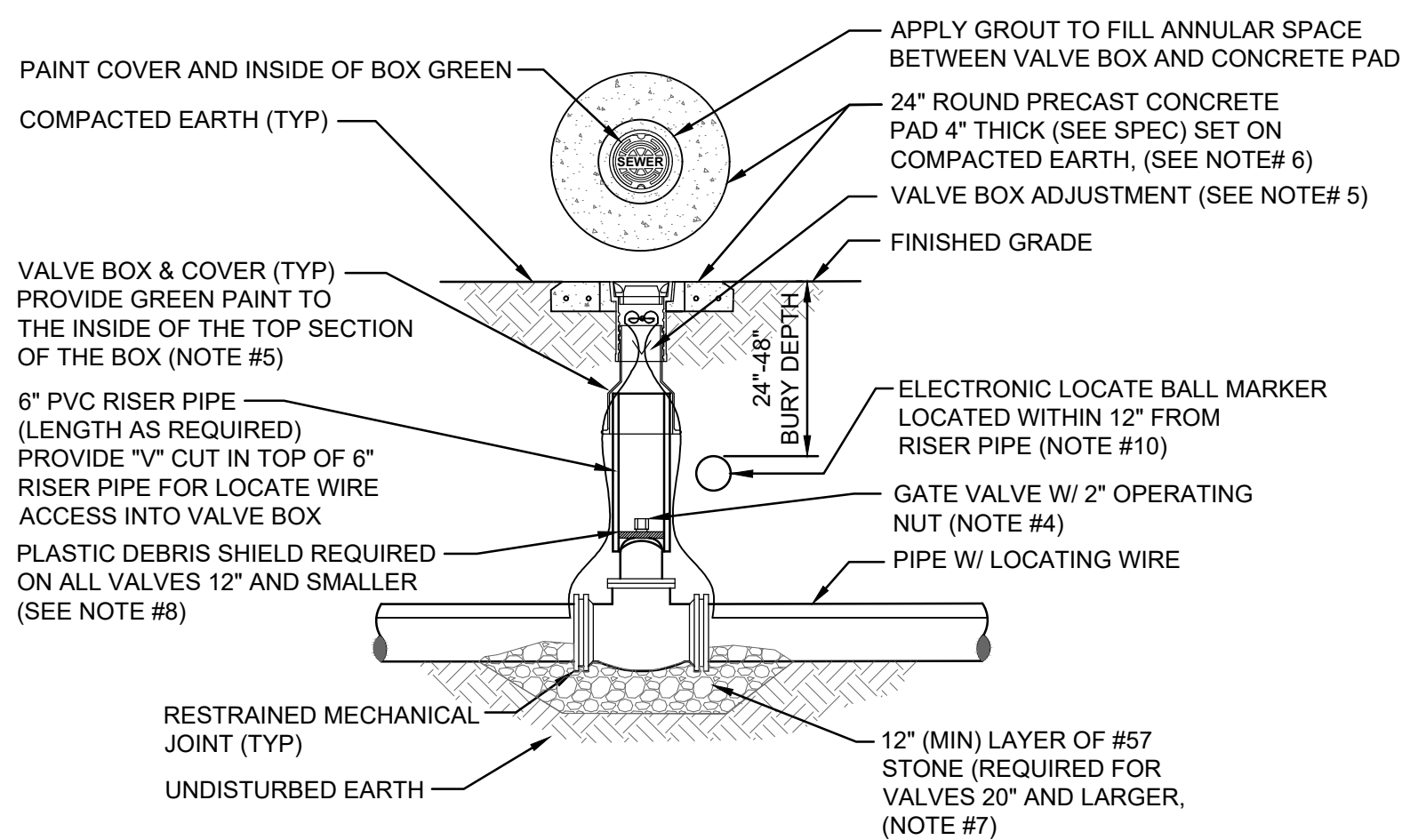
- NOTES:

1. LOCATING WIRE TO BE INSTALLED IN EITHER THE ONE OR ELEVEN O'CLOCK POSITION ON ALL DUCTILE IRON OR PVC (PRESSURE MAINS). LOCATE WIRE SHALL ALSO BE INSTALLED ON ALL (HDPE) POLY MAIN PIPING (1:00 OR 11:00 POSITION, IF POSSIBLE).
2. SECURE LOCATING WIRE TO PVC FORCE MAIN BY USE OF DUCT TAPE OR ZIPPER TYPE PLASTIC TIE STRAPS SPACED AT A MAXIMUM DISTANCE OF TEN (10') AND AT EACH SIDE OF BELL JOINT OR FITTING.
3. THE ENTIRE LOCATING SYSTEM SHALL BE SUBJECTED TO TESTING TO DETERMINE ITS RELIABILITY. WHERE INSTALLED UNDER PAVEMENT AREAS, TESTING SHALL BE DONE PRIOR TO THE PLACEMENT OF PAVEMENT, UNLESS APPROVED OTHERWISE BY JEA.
4. LOCATING WIRE SHALL TERMINATE WITHIN AN ACTIVE VALVE BOX (WITH A VALVE) OR A METER BOX (IF NO VALVE) AT 475' INTERVALS. SEE DETAIL PLATE S-498. WIRE CONNECTIONS BELOW GROUND (OUTSIDE OF A BOX) SHALL BE AVOIDED.
5. LOCATING WIRE SHALL BE 12 GAUGE COPPER WIRE WITH 03 INCHES (MINIMUM) HDPE INSULATION THICKNESS, 0.141 INCHES (MINIMUM) O.D. RATED BREAK LOAD 250LBs., UF RATED (DIRECT BURIAL). GREEN COLOR. FOR HDD INSTALLATIONS, THE LOCATE WIRE SHALL BE COPPER CODED STEEL AS SPECIFIED IN SPEC. SECTION 750.
6.  INDICATES THAT THE WIRES ARE CONNECTED TOGETHER WITH WATERPROOF CONNECTION. (SEE DETAIL W-498)
7.  INDICATES A WIRE PIG-TAIL (24" LONG)
8. AN "LW" CUT SHALL BE CARVED IN THE CONCRETE CURB AND PAINTED AT ALL LOCATE WIRE BOXES.
9. FOUR LANES OF TRAFFIC (HAVING TWO LANES OF TRAFFIC IN EACH DIRECTION) OR GREATER THE LOCATE WIRE AND VALVE BOX SHALL BE OFF-SET TO THE RIGHT-OF-WAY.

LOCATE WIRE CONSTRUCTION FOR FORCE MAINS

JANUARY 2020

PLATE S-49



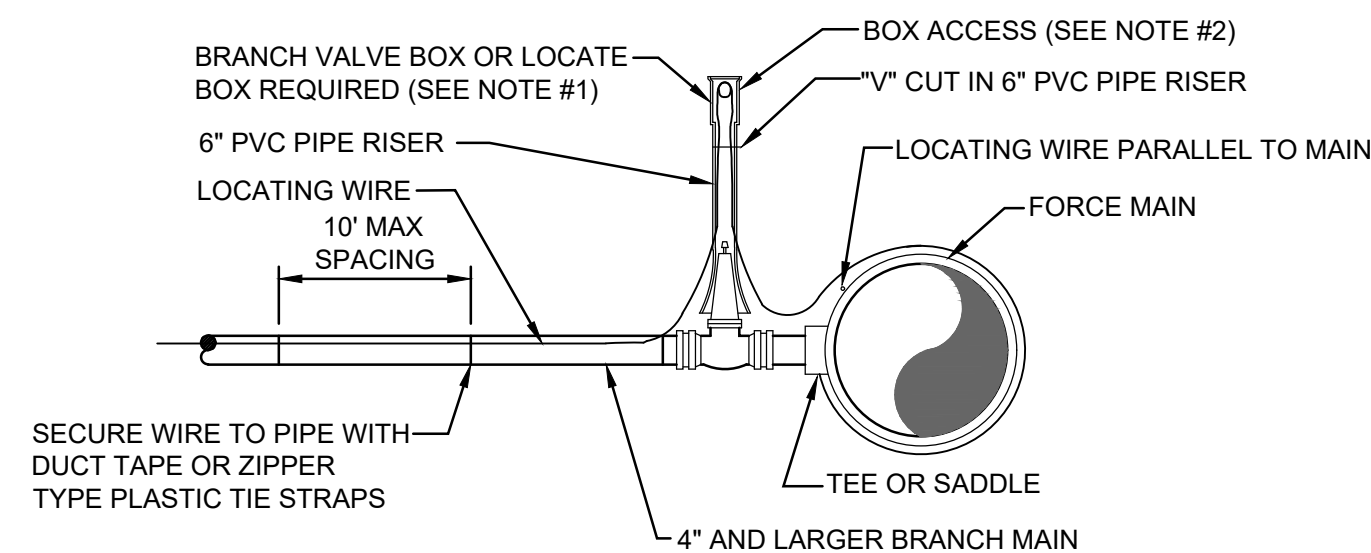
- NOTES:

1. FOR UNPAVED LOCATIONS, A PRECAST CONCRETE VALVE PAD SHALL BE PROVIDED AND INSTALLED FLUSH WITH GRADE. CONCRETE PAD IS NOT REQUIRED FOR VALVE LOCATED IN THE ROADWAY, UNLESS SHOWN OR NOTED OTHERWISE.
2. LOCATING WIRE IS REQUIRED ON ALL PRESSURE PIPING (SEE DETAIL S-49).
3. A "V" CUT SHALL BE CARVED IN THE CURB CLOSEST/ASPHALT IF NO CURB) ADJACENT TO ALL BELOW GRADE VALVES. THE "V" CUT IS TO BE PAINTED GREEN.
4. IN PAVED AREAS, INSTALL VALVE AT A DEPTH TO ALLOW A 12" MIN. DISTANCE BETWEEN THE VALVE COVER PLATE AND THE TOP OF THE VALVE OPERATING NUT. OUTSIDE OF PAVED AREAS (GRASS), INSTALL VALVE AT A DEPTH TO ALLOW A 6" MINIMUM DISTANCE BETWEEN THE VALVE COVER AND THE TOP OF THE VALVE OPERATING NUT. OPERATING NUT/STEM EXTENSION SHALL BE PROVIDED (WHERE APPLICABLE) SO THAT THE OPERATING NUT WILL BE NO MORE THAN 30 INCHES BELOW FINISHED GRADE.
5. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS. ROUTE LOCATE WIRE TO A "V" CUT IN THE TOP OF THE 8" PVC RISER PIPE FOR LOCATED WIRE ACCESS INTO VALVE BOX. THE LOCATE WIRES WITH A 24" LONG PIG-TAIL AT THE TOP SHALL BE CONNECTED TOGETHER WITH A WIRE NUT.
6. BRASS IDENTIFICATION TAG INDICATING "SEWER", VALVE SIZE, DIRECTION AND TURNS TO OPEN & VALVE TYPE. PROVIDE A 1/2" HOLE IN BRASS TAG AND ATTACH TAG (TWIST WIRE AROUND TAG) TO THE END OF THE LOCATE WIRE. TAGS ARE NOT REQUIRED ON VALVES INSTALLED ON FIRE HYDRANT BRANCH LINES.
7. IN LIEU OF PRECAST CONCRETE PAD, A 6" THICK X 24" (ROUND OR SQUARE) POURED CONCRETE PAD W/2 - #4 REBAR AROUND PERIMETER, MAY BE USED.
8. GRAVEL SHALL BE PROVIDED UNDER ALL VALVES 20" AND LARGER. THE MINIMUM VERTICAL LIMIT OF GRAVEL IS 12" UNDER THE VALVE UP TO 1/2 THE OVERALL HEIGHT OF THE VALVE.
9. FOR VALVES 12 INCH AND SMALLER, PROVIDE A WHITE OR BLACK PLASTIC DEBRIS SHIELD WHICH INSTALLS BELOW THE OPERATING NUT. THIS SHIELD SHALL COVER THE RISER PIPE BOX OVER THE OPERATING NUT AND MINIMIZE INFILTRATION. SHIELD SHALL BE BY AFC, BOX/OK OR APPROVED EQUAL.
10. ALL VALVES SHALL BE INSTALLED WITH AN ELECTRIC LOCATE MARKER. MARKER SHALL BE 4" DIA. COLOR CODED BALL MARKER (3M-1404XR FOR SEWER).

SEWER VALVE DETAIL

JANUARY 2020

PLATE S-30

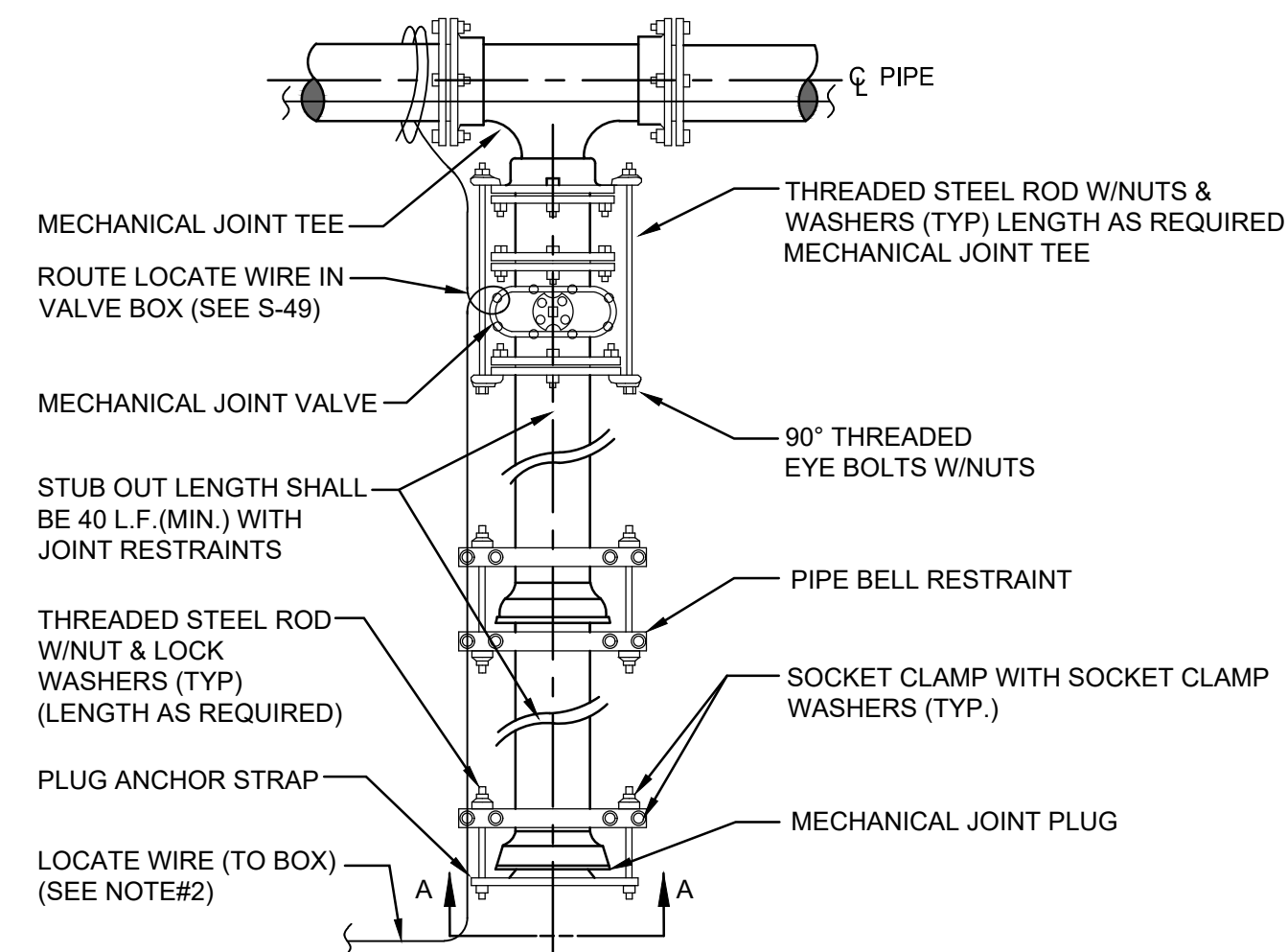


BRANCH FORCE MAIN

(4" AND LARGER SEWER MAIN)

- NOTE

1. NOTE THAT THE BRANCH WIRE IS NOT CONNECTED TO THE MAIN WIRE.
2. LOCATE WIRE SHALL ENTER THE VALVE BOX THROUGH A "V" CUT IN THE 6" PVC RISER PIPE SECTION (SEE S-30)
3. LOCATE WIRE BOX SHALL BE INSTALLED OUTSIDE OF SIDEWALKS, DRIVEWAYS AND PAVEMENT.
4. ⌀" INDICATES A WIRE PIG-TAIL (4' LONG)



PLAN

SECTION "A-A"

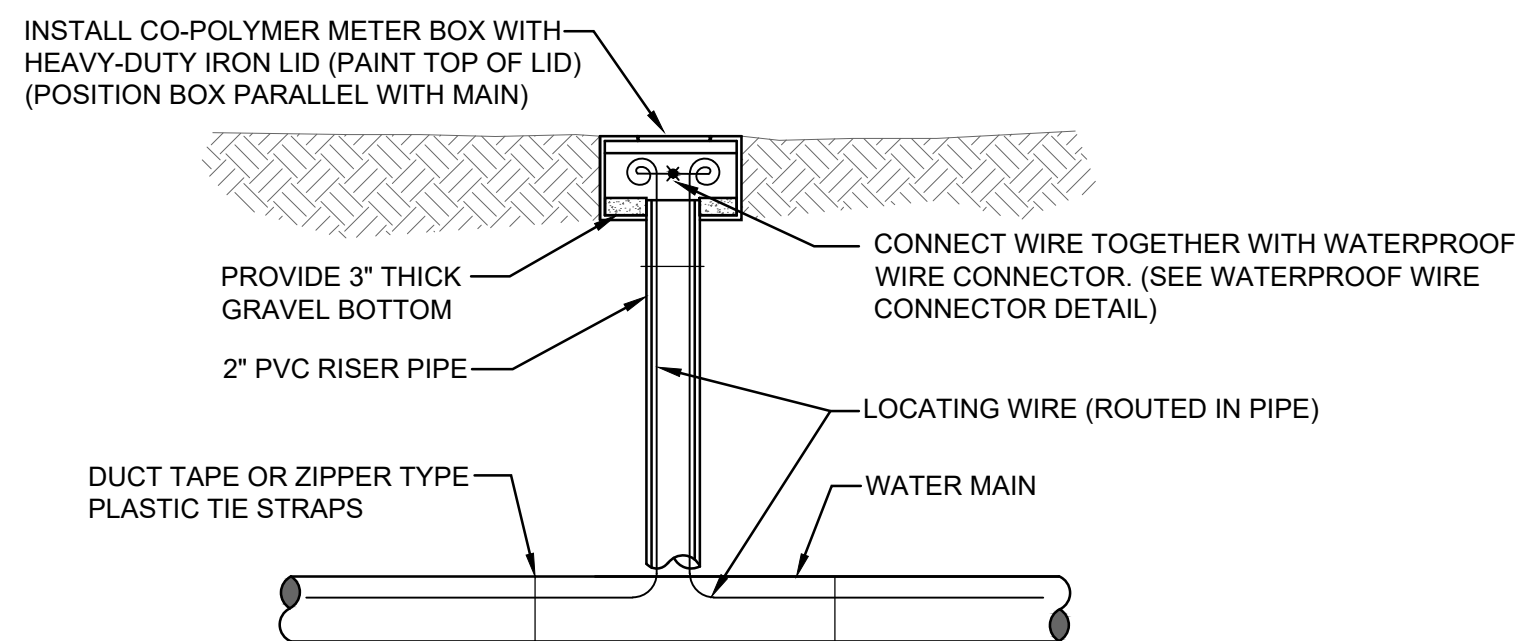
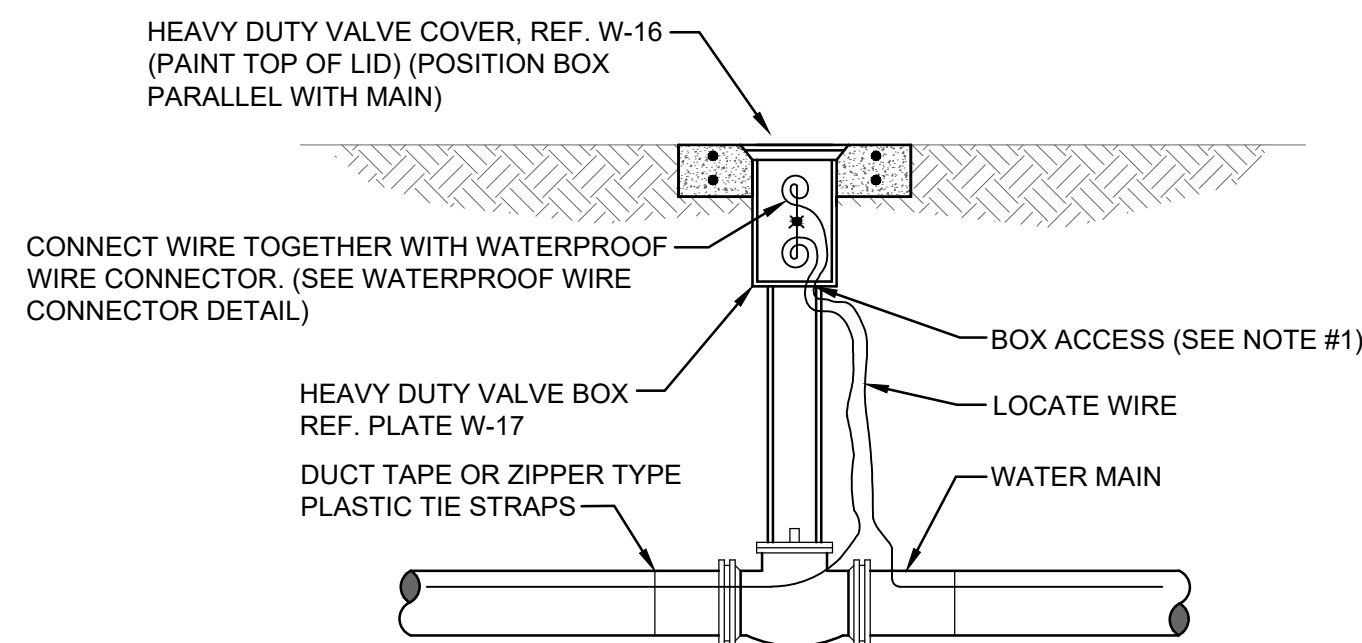
1. IN LIEU OF BELL/ROD RESTRAINTS, MECHANICAL JOINT RESTRAINTS MAY BE USED.
2. LOCATING WIRE REQUIRED. UTILIZING A LOCATE WIRE BOX INSTALLED AT PLUG LOCATION.
3. NUMBER OF THE RODS REQUIRED IS AS FOLLOWS:

3" - 8"	DIAMETER MAIN - 2 TIE RODS REQUIRED PER JOINT (3/4" ROD)
10" - 12"	DIAMETER MAIN - 4 TIE RODS REQUIRED PER JOINT (3/4" ROD)
14" - 16"	DIAMETER MAIN - 6 TIE RODS REQUIRED PER JOINT (3/4" ROD)
18" - 20"	DIAMETER MAIN - 8 TIE RODS REQUIRED PER JOINT (3/4" ROD)
22"	DIAMETER MAIN - 12 TIE RODS REQUIRED PER JOINT (3/4" ROD)
30" - 36"	DIAMETER MAIN - 14 TIE RODS REQUIRED PER JOINT (1" ROD)
42" - 48"	DIAMETER MAIN - 16 TIE RODS REQUIRED PER JOINT (1 1/4" ROD)
54"	DIAMETER MAIN - 18 TIE RODS REQUIRED PER JOINT (1 1/4" ROD)
4. THE LOCATION OF THE DEAD END PLUG SHALL NOT BE UNDER PAVEMENT, IF POSSIBLE. THE STUB OUT SHALL EXTEND BEYOND THE INTERSECTION AREAS OR ROAD CROSSING BY 10 FEET (MIN.) WHERE POSSIBLE.

PLUGGED DEAD END USING MECHANICAL RESTRAINTS

JANUARY 2020

PLATE S-44



LOCATE WIRE BOX

JANUARY 2020

PLATE S-49B

[illegible]

HORIZONTAL & VERTICAL SEPARATION REQUIREMENTS

PROPOSED UTILITY												
CONFLICTING UTILITY	POTABLE WATER			WASTEWATER GRAVITY AND FORCE MAIN			RECLAIMED WATER			VACUUM SEWERS		
	HORIZ.	VERT.	JOINT SPACING*	HORIZ.	VERT.	JOINT SPACING*	HORIZ.	VERT.	JOINT SPACING*	HORIZ.	VERT.	JOINT SPACING*
POTABLE WATER	3' NOTE 1	12"	3' NOTE 2	6' to 10'	12" NOTE 5	6' NOTE 2	3'	12"	6' NOTE 2	3' to 10'	12"	3' NOTE 2
RECLAIMED WATER	3'	12"	6' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3'	12"	6' NOTE 2	3' NOTE 1	12"	3' NOTE 2
WASTEWATER (GRAVITY AND FORCE MAIN)	6' to 10'	12"	6' NOTE 2	3' NOTE 1	12"	6"	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2
VACUUM SEWERS	3' to 10'	12"	3' NOTE 2	3' NOTE 1	12"	6"	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2
RIGHT OF WAYS	3' NOTE 1	N/A	N/A	3' NOTE 1	N/A	N/A	3' NOTE 1	N/A	N/A	3' NOTE 1	N/A	N/A
PERMANENT STRUCTURES (SIGNS, POLES, ETC.)	3' NOTE 1	N/A	N/A	3' NOTE 1	N/A	N/A	3' NOTE 1	N/A	N/A	3' NOTE 1	N/A	N/A
STORM SEWERS	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2
GAS	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2
TREES	3'-6' NOTE 6	N/A	N/A	3'-6' NOTE 6	N/A	N/A	3'-6' NOTE 6	N/A	N/A	3'-6' NOTE 6	N/A	N/A
ALL OTHER UTILITIES	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2

NOTES:

1. THIS SEPARATION REQUIREMENT IS TO PROVIDE ACCESSIBILITY FOR CONSTRUCTION AND MAINTENANCE. THREE FEET OF HORIZONTAL SEPARATION IS THE MINIMUM FOR PIPES WITH THREE FEET OF COVER. FOR PIPES INSTALLED AT GREATER DEPTH, PROVIDE AN ADDITIONAL FOOT OF SEPARATION FOR EACH ADDITIONAL FOOT OF DEPTH.
2. THE MINIMUM JOINT SPACING REQUIRED FROM CROSSING FROM OTHER UTILITIES WHILE STILL MAINTAINING MINIMUM VERTICAL SEPARATION.
3. DISTANCES GIVEN ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
4. NO WATER PIPE SHALL PASS THROUGH OR COME INTO CONTACT WITH ANY PART OF SANITARY OR STORM WATER MANHOLE OR STRUCTURES.
5. WATER MAIN SHOULD CROSS ABOVE OTHER PIPES WHENEVER POSSIBLE. WHEN WATER MAIN MUST BE BELOW OTHER UTILITY PIPING, THE MINIMUM SEPARATION SHALL BE 12 INCHES.
6. REFER TO POTABLE WATER PIPING- SECTION 350, III.4.11.

SEPARATION REQUIREMENTS FOR WATER, WASTEWATER AND RECLAIMED WATER MAINS

JANUARY 2020

PLATE W-10

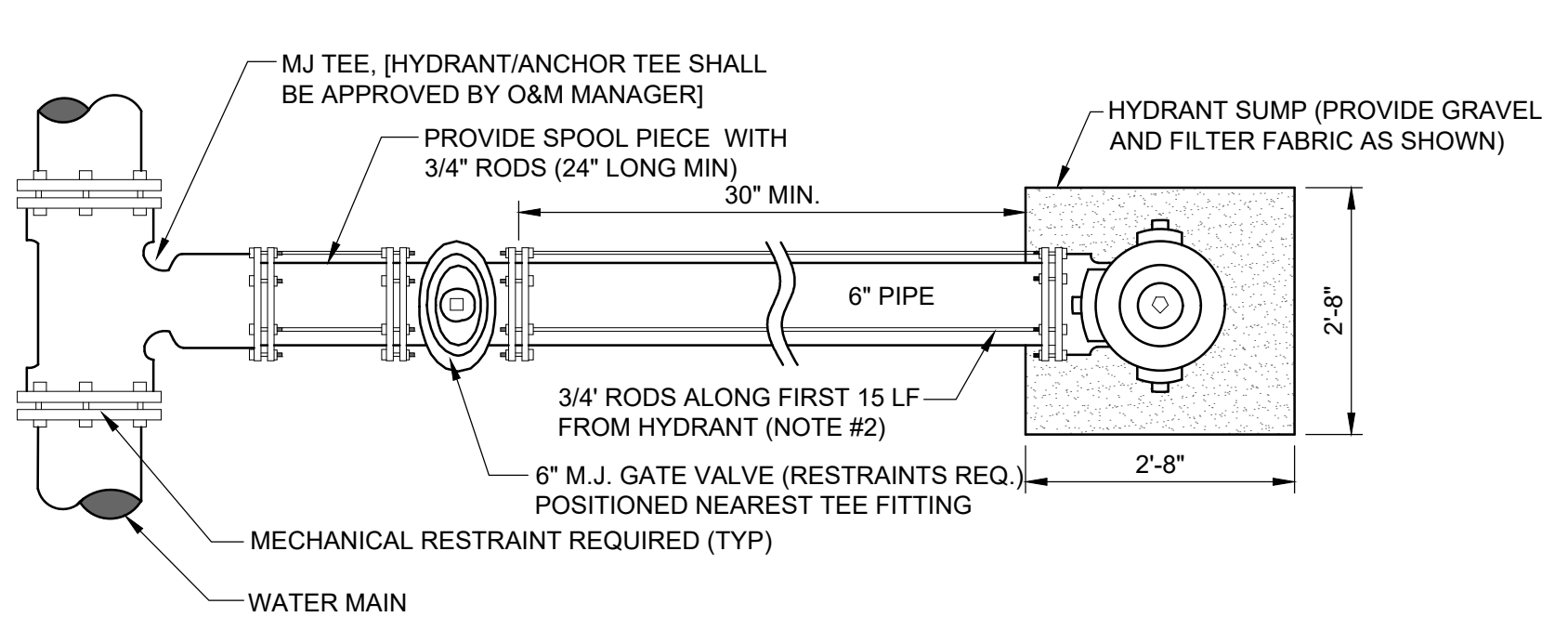
WATER MAIN AND NON-WATER MAIN SEPARATION REQUIREMENTS - NOTES

1. IT IS REQUIRED THAT "WATER MAINS" BE INSTALLED, CLEANED, DISINFECTED AND HAVE A SATISFACTORY BACTERIOLOGICAL SURVEY PERFORMED IN ACCORDANCE WITH THE LATEST APPLICABLE AWWA STANDARDS, CHAPTER 62-555, F.A.C. AND LATEST ISEA WATER AND SEWER STANDARDS. FOR THE PURPOSE OF THIS SECTION, THE PHRASE "WATER MAINS" SHALL MEAN MAINS, INCLUDING TREATMENT PLANT PROCESS PIPING, CONVEYING EITHER RAW, PARTIALLY TREATED, OR FINISHED DRINKING WATER; FIRE HYDRANT LEADS; AND SERVICE LINES THAT HAVE AN INSIDE DIAMETER OF THREE (3) INCHES OR GREATER. IN ADDITION, THE PHRASE "RECLAIMED WATER" REFERS TO THE WATER REGULATED UNDER PART II OF CHAPTER 62-610, F.A.C.
2. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE- (3) FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER.
3. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX (6) FEET, AND PREFERABLY TEN (10) FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS MAY BE REDUCED TO THREE (3) FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX (6) INCHES ABOVE THE TOP OF THE SEWER (SPECIAL CASE).
4. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX (6) INCHES, AND PREFERABLY TWELVE (12) INCHES, ABOVE OR AT LEAST TWELVE (12) INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
5. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST TWELVE (12) INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
6. AT THE UTILITY CROSSINGS DESCRIBED IN NOTES 4 AND 5 ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. JOINTS, IF ANY, OF THE WATER MAIN SHALL BE TWENTY- (20) FEET FROM THE JOINTS OF THE OTHER WATER MAIN JOINTS ARE AT LEAST THREE (3) FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER, AND AT LEAST SIX (6) FEET FROM ALL JOINTS IN GRAVITY OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINE CONVEYING RECLAIMED WATER.
7. NEW OR RELOCATED FIRE HYDRANTS SHALL BE LOCATED SO THAT THE HYDRANTS ARE AT LEAST THREE (3) FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER; AT LEAST THREE (3) FEET, AND PREFERABLY TEN (10) FEET, FROM ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER; AT LEAST SIX (6) FEET, AND PREFERABLY TEN (10) FEET, FROM ANY EXISTING OR PROPOSED GRAVITY OR PRESSURE-TYPE SANITARY SEWER OR WASTEWATER FORCE MAIN.
8. WHERE AN UNDERGROUND WATER MAIN IS BEING LAID LESS THAN THE REQUIRED MINIMUM HORIZONTAL DISTANCE FROM ANOTHER PIPELINE AND WHERE AN UNDERGROUND WATER MAIN IS CROSSING ANOTHER PIPELINE AND JOINTS IN THE WATER MAIN ARE BEING LOCATED LESS THAN THE REQUIRED MINIMUM DISTANCE FROM JOINTS IN THE OTHER PIPELINE, THE ALTERNATIVE DESIGN CONSULTANT SHALL CONSULT THE DESIGN ENGINEER TO OBTAIN APPROVAL OF ANY ALTERNATIVE CONSTRUCTION METHODS, PRIOR TO CONSTRUCTION.

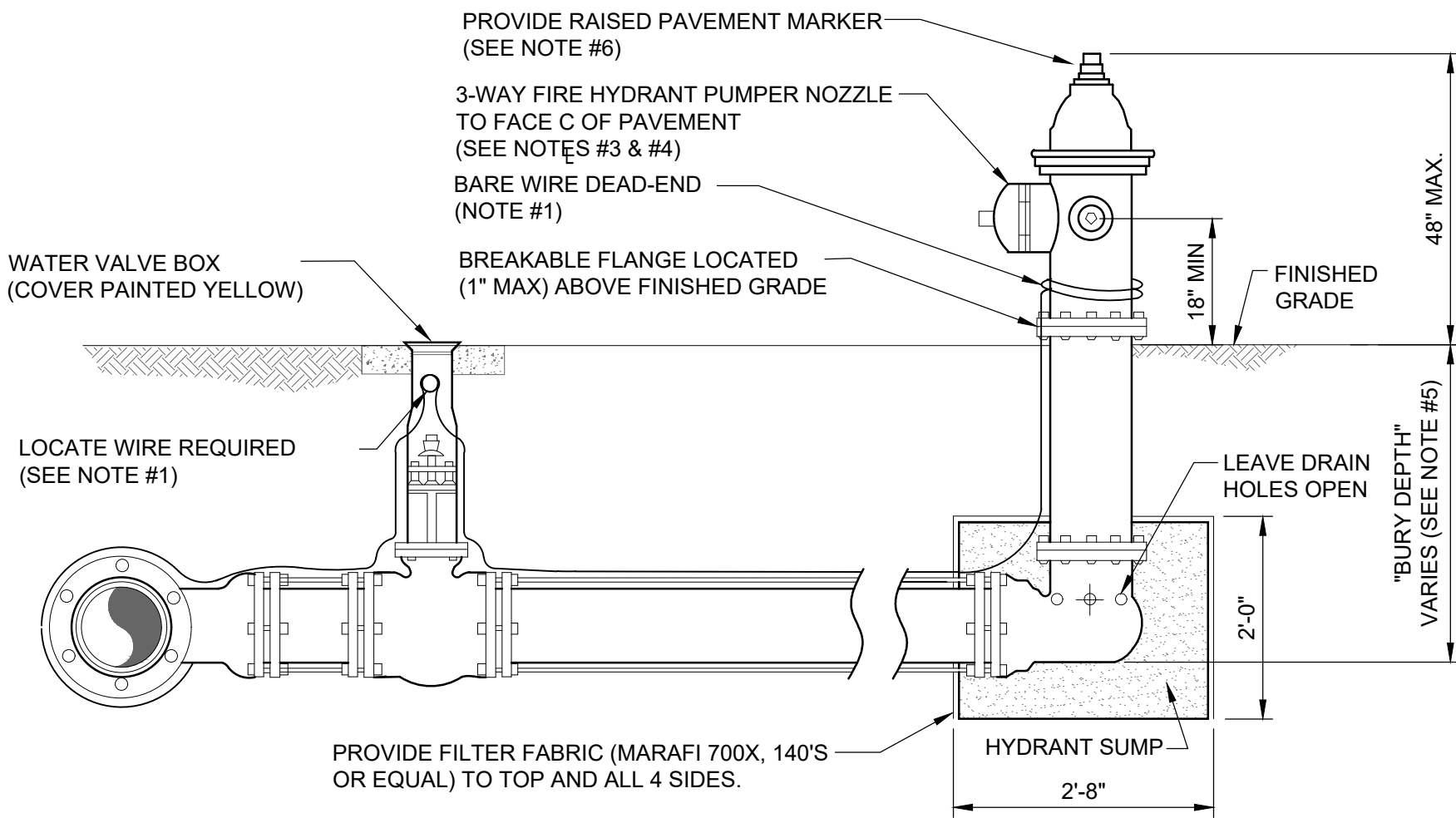
NOTES ON UTILITY SEPARATION REQUIREMENTS

JANUARY 2020

PLATE W-11



PLAN



SECTION

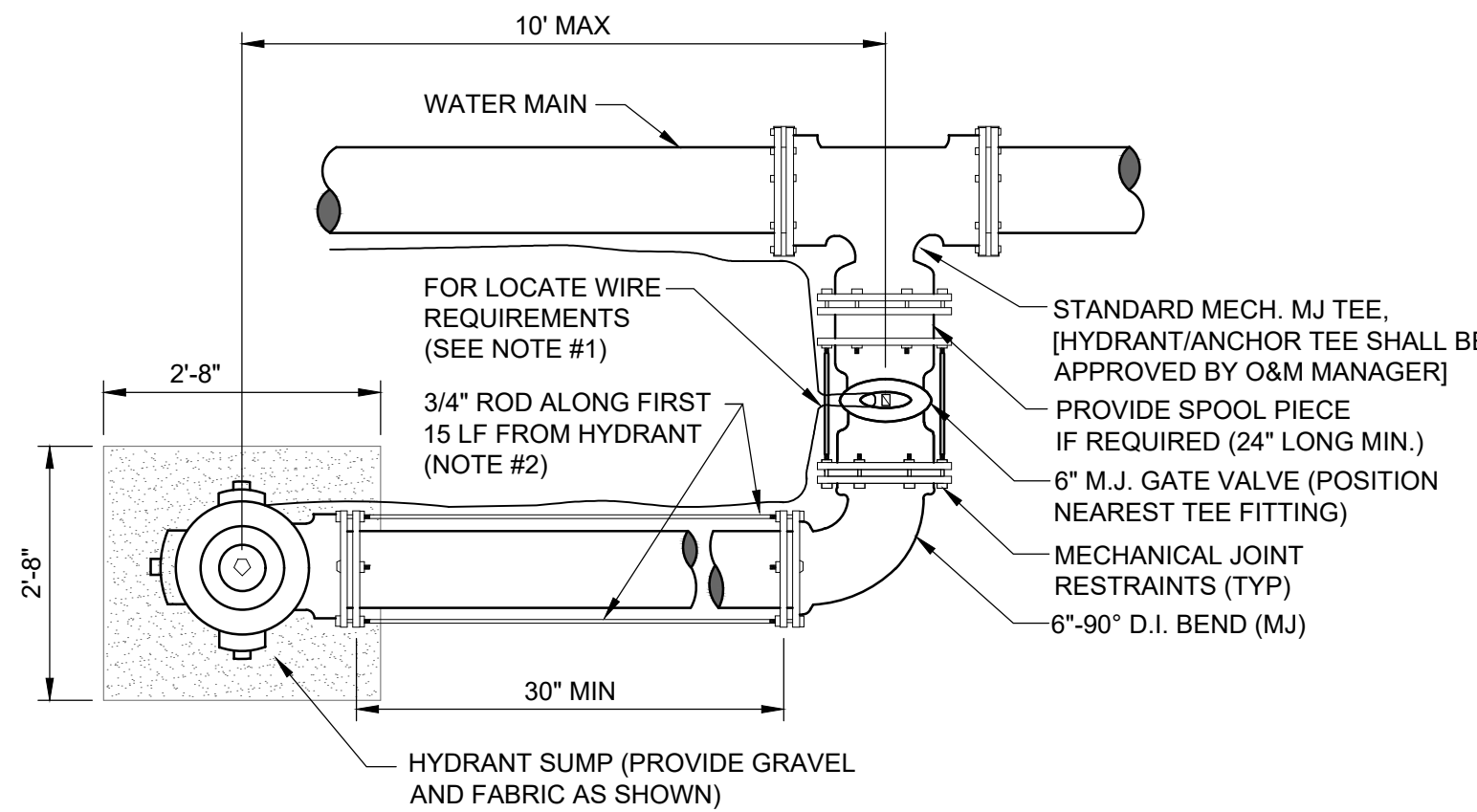
NOTES

1. LOCATE WIRE SHALL BE ROUTED FROM THE VALVE TO THE HYDRANT AS SHOWN ABOVE LEAVING ENOUGH SLACK TO REACH 4' ABOVE FINAL GRADE. THE END OF THE WIRE SHALL BE SECURED TO THE PIPE MAIN. SEE SECTION 350, LOCATE WIRE INSTALLATION PARAGRAPH.
2. FIRE HYDRANTS SHALL BE INSTALLED BETWEEN BACK OF CURB AND FACE OF SIDEWALK AND NOT WITHIN SWALE/DITCH AREAS. THE DISTANCE RANGE FROM EDGE OF ADJACENT PAVEMENT, BACK OF CURB AND FACE OF SIDEWALK SHALL BE IN COMPLIANCE WITH LOCAL COUNTY FIRE DEPARTMENT RULES AND AS APPROVED BY JEA AND APPLICABLE PERMITTING AGENCIES. DISTANCE SHALL BE MEASURED TO THE CLOSEST PART OF THE FIRE HYDRANT (I.E. THE PUMPER NOZZLE). THE MAXIMUM DISTANCE (BACK OF CURB) SHALL BE IN COMPLIANCE WITH LOCAL COUNTY FIRE DEPARTMENT RULES AND AS APPROVED BY JEA. FOR OTHER LOCATION LIMITATIONS SEE PLATES W-10 AND W-11. IF PIPING BETWEEN TEE AND HYDRANT IS LONGER THAN 80 LF, AN ADDITIONAL 6" GATE VALVE IS REQUIRED AT THE HYDRANT LOCATION (PROVIDE 30' SEPARATION). ADDITIONAL VALVE SHALL BE INSTALLED ALONG THE HYDRANT BRANCH MAIN WHICH IS WITHIN 15 LF OF THE HYDRANT SHALL BE RESTRAINED UTILIZING ONLY TWO 3/4" DIA (THREADED ENDS) STEEL RODS AND EYE BOLTS (NO JOINT RESTRAINT DEVICES REQUIRED). A SPLIT SERRATED RING WITH RESTRAINT EARS (EBA4 15 FPO6 or EQUAL) MAYBE USED IN THIS ASSEMBLY. ALL OTHER JOINTS ALONG THE HYDRANT BRANCH MAIN OUTSIDE OF THE FIRST 15 LF SHALL INCLUDE JOINT RESTRAINTS.
3. OPERATION OF THE FIRE HYDRANT SHALL BE EITHER FULL OPEN POSITION OR TOTALLY CLOSED POSITION. THE HYDRANT SHALL NOT BE UTILIZED TO THROTTLE OUTLET FLOW.
4. PRIOR TO PROJECT FINAL INSPECTION, THE HYDRANT AND ALL ABOVE GROUND PIPING SHALL BE RE-OILED, GREASED AND REPAINTED (RUS-KIL ENAMEL-INTERNATIONAL YELLOW OR EQUAL). PRIVATELY OWNED AND MAINTAINED FIRE HYDRANTS SHALL BE PAINTED RED.
5. FIRE HYDRANTS SHALL BE ORDERED WITH PROPER "BURY DEPTH" TO MEET ACTUAL FIELD CONDITIONS. THIS IS ESPECIALLY IMPORTANT FOR BRANCH LINES WITH TEE-OFF TO A FLOOR WATER MAIN, UNLESS OTHERWISE SPECIFIED OTHERWISE BY JEA. THE INSTALLATION OF (4) SLOTTED END IS NOT REQUIRED WHEN UTILIZED TO CORRECT AN IMPROPERLY FURNISHED HYDRANT. THE USE OF HYDRANT EXTENSIONS SHOULD BE MINIMIZED.
6. BLUE REFLECTIVE MARKERS SHALL BE INSTALLED IN SUCH A MANNER THAT THE REFLECTIVE FACE OF THE MARKER IS PERPENDICULAR TO THE LINE PARALLEL TO THE ROADWAY CENTERLINE. THE BLUE REFLECTIVE MARKERS SHALL BE PLACED IN THE CENTER OF THE TRAVEL LANE, DIRECTLY ACROSS FROM AND ADJACENT TO EACH FIRE HYDRANT.

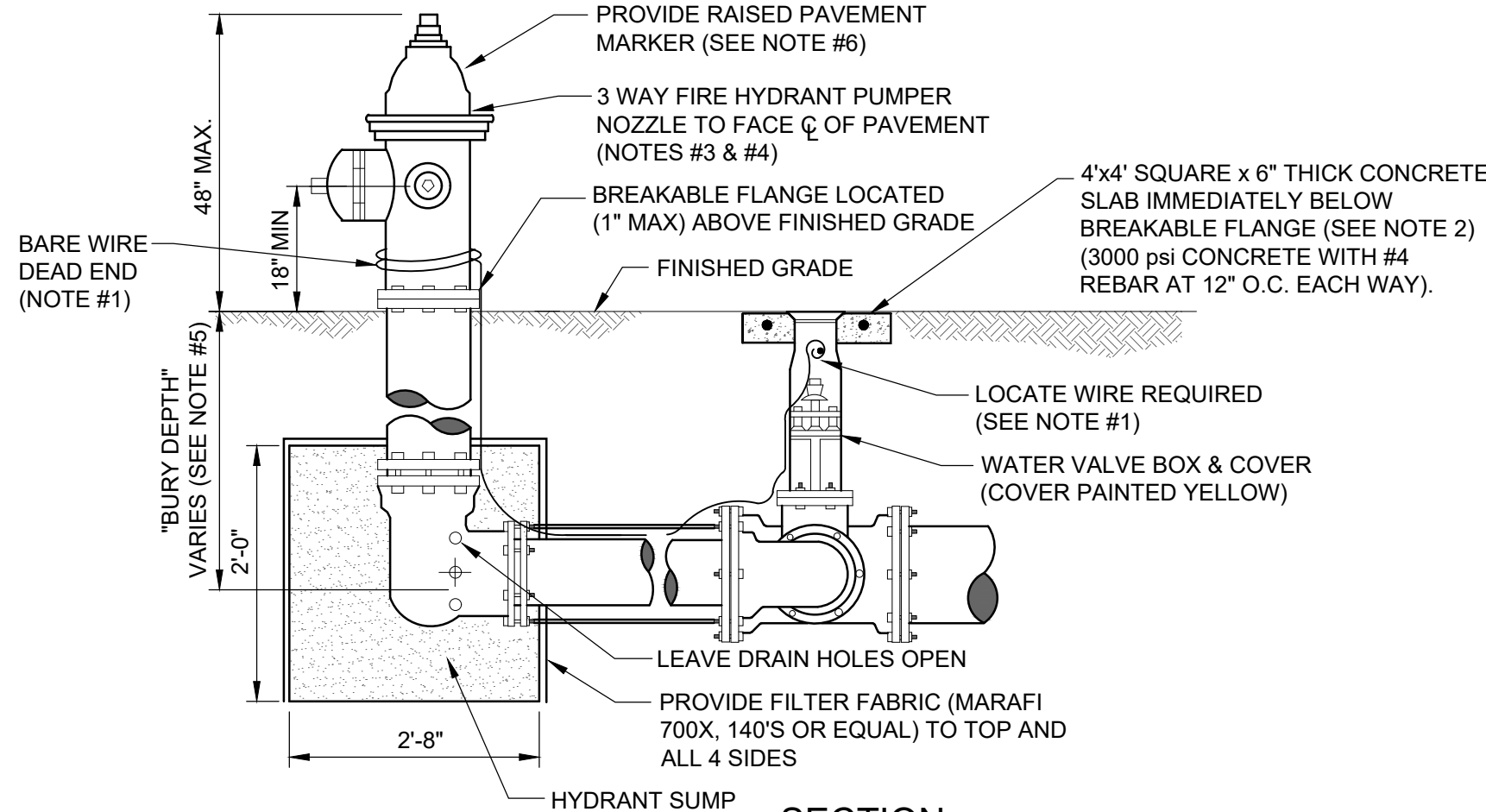
FIRE HYDRANT INSTALLATION USING MECHANICAL JOINT TEE

JANUARY 2020

PLATE W-13



PLAN



SECTION

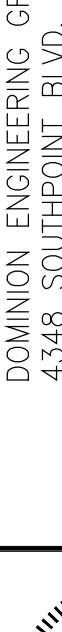
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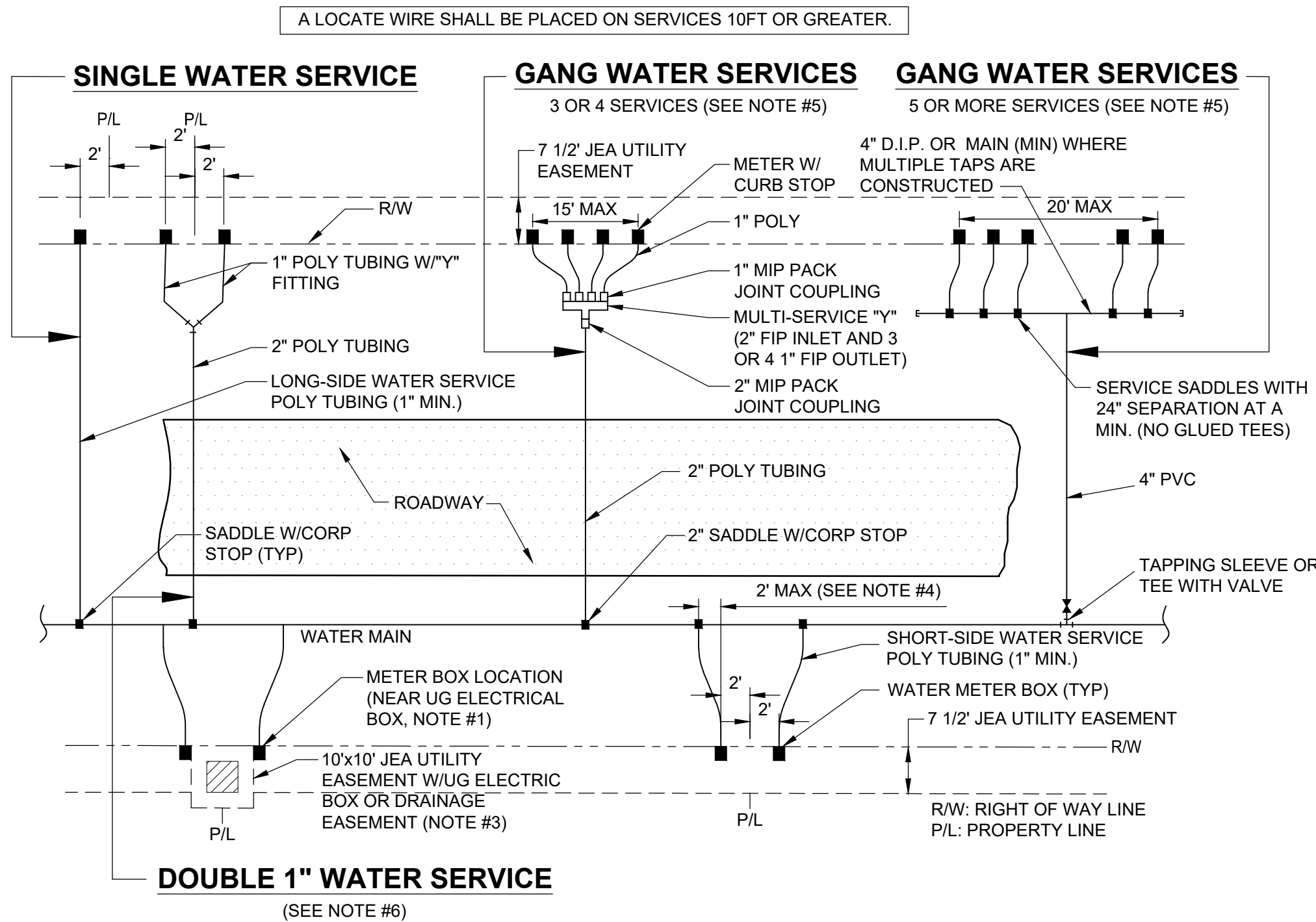
1. LOCATE WIRE SHALL BE ROUTED FROM THE VALVE TO THE HYDRANT AS SHOWN ABOVE LEAVING ENOUGH SLACK TO REACH 4' ABOVE FINAL GRADE. THE END OF THE WIRE SHALL BE SECURED TO THE PIPE MAIN. SEE SECTION 350, LOCATE WIRE INSTALLATION PARAGRAPH.
2. FIRE HYDRANTS SHALL BE INSTALLED BETWEEN BACK OF CURB AND FACE OF SIDEWALK. ALL HYDRANTS SHALL BE LOCATED NO LESS THAN THREE (3) FEET FROM THE EDGE OF PAVEMENT OR BACK OF CURB OF THE ADJACENT ROADWAY AND NO LESS THAN THREE (3) FEET FROM ANY PHYSICAL FEATURE WHICH MAY OBSTRUCT ACCESS OR VIEW OF ANY HYDRANT UNLESS OTHERWISE APPROVED BY THE JEA. THE MAXIMUM SPLIT DISTANCE (BACK OF CURB) SHALL BE IN COMPLIANCE WITH LOCAL COUNTY FIRE DEPARTMENT RULES AND AS APPROVED BY JEA. FOR OTHER LOCATION LIMITATIONS SEE PLATES W-10 AND W-11. IF PIPING BETWEEN TEE AND HYDRANT IS LONGER THAN 80 FT. AN ADDITIONAL 6" GATE VALVE IS REQUIRED AT THE HYDRANT LOCATION (PROVIDE 30" SEPARATION). ALL PIPING, VALVES AND FITTINGS ALONG THE HYDRANT BRANCH MAIN WHICH IS WITHIN 15' OF THE HYDRANT SHALL BE RESTRAINED UTILIZING ONLY TWO 3/4" DIA (THREADED ENDS) STEEL RODS AND EYE BOLTS (NO WELD RESTRAINT DEVICES REQUIRED). A SPLIT SEPARATED RING WITH RESTRAINT EARS (JEA# 145 or EQUAL) MAYBE USED IN THIS ASSEMBLY. ALL OTHER JOINTS ALONG THE HYDRANT BRANCH MAIN BE OUTSIDE OF THE FIRST 15' WITH LOCAL INCLUDE JOINT RESTRAINTS.
3. OPERATION OF THE FIRE HYDRANT SHALL BE EITHER FULL OPEN POSITION OR TOTALLY CLOSED POSITION. THE HYDRANT SHALL NOT BE UTILIZED TO THROTTLE OUTLET FLOW.
4. PRIOR TO PROJECT FINAL INSPECTION, THE HYDRANT AND ALL ABOVE GROUND PIPING SHALL BE RE-OILED, GREASED AND REPAINTED (RUS. VIL ENAMEL-INTERNATIONAL YELLOW OR EQUAL). PRIVATELY OWNED AND MAINTAINED FIRE HYDRANTS SHALL BE PAINTED RED.
5. FIRE HYDRANTS SHALL BE ORDERED WITH PROPER "BURY DEPTH" TO MEET ACTUAL FIELD CONDITIONS, THIS IS ESPECIALLY IMPORTANT FOR BRANCH LINES WHICH TEE-OFF A 12" OR LARGER WATER MAIN, UNLESS APPROVED OTHERWISE BY JEA. THE INSTALLATION OF BRANCH LINES IS NOT ACCURATE WHEN UTILIZED TO CORRECT AN IMPROPERLY FURNISHED HYDRANT. THE USE OF HYDRANT EXTENSIONS SHOULD BE MINIMIZED.
6. BLUE REFLECTIVE MARKERS SHALL BE INSTALLED IN SUCH A MANNER THAT THE REFLECTIVE FACE OF THE MARKER IS PERPENDICULAR TO A LINE PARALLEL TO THE ROADWAY CENTERLINE. THE BLUE REFLECTIVE MARKERS SHALL BE PLACED IN THE CENTER OF THE TRAVEL LANE, DIRECTLY ACROSS FROM AND ADJACENT TO EACH FIRE HYDRANT.

FIRE HYDRANT INSTALLATION LIMITED SPACE

JANUARY 2020

PLATE W-14

NO. SHEETS		PROJ. NO.		JEA STANDARD				DESIGNER:				COMMUNION ENGINEERING GROUP, INC.	
SHEET NO.		DATE: JANUARY 2014		WATER AND RECLAIM DETAILS				DRAWN BY:				1348 SOUTHERN BLVD., SUITE 201	
C16		SCALE: AS NOTED						CHECKED BY:				JACKSONVILLE, FLORIDA 32216	
DRAWING NO.								DATE:				904-854-4500	
S-STD-1												NO. BY DATE REVISIONS	
												6.	
												4.	
												3.	
												1.	

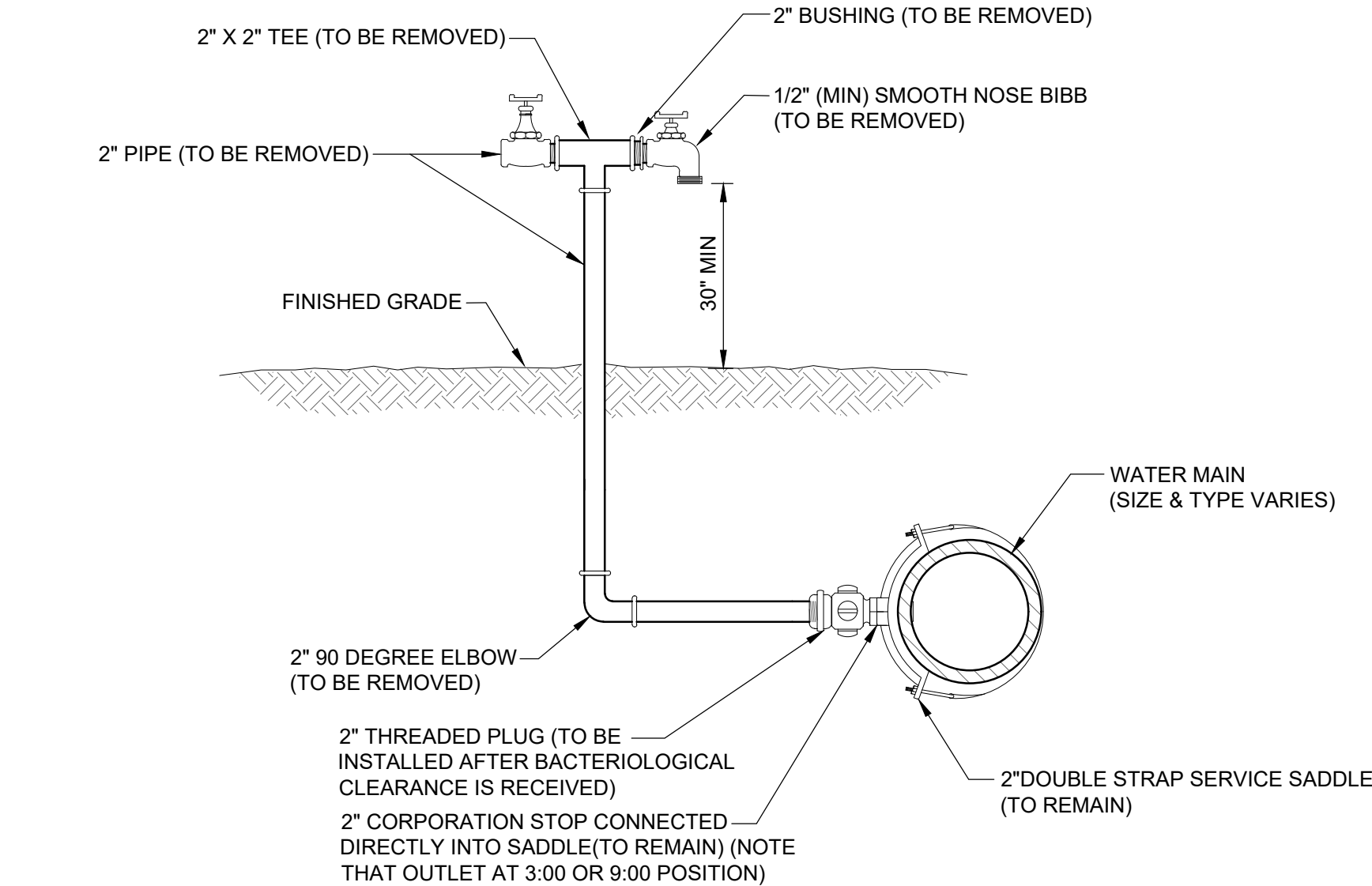


- NOTES :**
- THE SKETCHES ABOVE INDICATE TYPICAL WATER SERVICE AND METER BOX LOCATIONS. ACTUAL LOCATIONS OF BOXES MAY VARY SLIGHTLY ACCORDING TO FIELD CONDITIONS ENCOUNTERED. TYPICALLY, THE METER BOX SHALL LOCATED AT THE R/W LINE BUT INSIDE THE 7 1/2" ELECTRIC EASEMENT.
 - UNLESS SPECIFIED OTHERWISE BY THE APPLICABLE COUNTY (NASSAU, CLAY OR ST. JOHNS COUNTY), THE METER BOX SHALL BE LOCATED IN THE JEA 7 1/2" UTILITY EASEMENT, AND TWO FEET INSIDE OF THE PROLONGATION OF ONE OF THE SIDE PROPERTY LINES. IF A CONFLICT EXISTS WITH OTHER UTILITIES, THE METER BOX MAY BE ADJUSTED TO FOUR FEET (MAX.) INSIDE PROPERTY LINES (IN LIEU OF TWO FEET). UNLESS APPROVED OTHERWISE BY JEA, THE WATER METER BOX SHALL BE LOCATED IN NON-TRAFFIC AREAS (NOT IN SIDEWALKS OR DRIVEWAYS). IF THE METER BOX IS APPROVED BY JEA TO BE LOCATED IN A DRIVEWAY OR SIDEWALK, THEN THE CONSTRUCTION SHALL MEET STANDARD DETAIL NUMBERS W-384, AT A MINIMUM (SEE W-3 AND W-4 FOR THE REQUIREMENTS OF SPECIAL ORDER POLYMER BOX AND TOP). SET TOP OF BOX AT FINISHED GRADE. IF AN UNAPPROVED METER BOX IS IDENTIFIED BY JEA, THEN THE CONTRACTOR OR CUSTOMER SHALL BE RESPONSIBLE FOR THE COST OF RELOCATING ANY METER BOX WHICH IS LOCATED IN THE SIDEWALK OR DRIVEWAY OR THE COST TO PROVIDE THE CORRECT METER BOX. JEA SHALL APPROVE ALL DEVIATIONS TO THE ABOVE PRIOR TO CONSTRUCTION.
 - IF DRAINAGE OR OTHER EASEMENT LOCATED BETWEEN LOTS, METER BOXES SHALL BE LOCATED AT THE EASEMENT LINE BUT OUTSIDE THE EASEMENT AREA.
 - FOR SINGLE SERVICES, THE HORIZONTAL DISTANCE (PERPENDICULAR TO THE MAIN) BETWEEN THE SERVICES SADDLE AND THE METER BOX SHALL BE 2 FEET MAXIMUM. FOR DOUBLE 1" SERVICES, THE 2" POLY MAIN SHALL BE LOCATED CENTERED BETWEEN THE TWO METER BOXES. LOCATE WIRE IS REQUIRED ON ALL SERVICES 10' OR GREATER IN LENGTH. IF LOCATE WIRE IS REQUIRED, THE WIRE SHALL RUN FROM THE METER BOX (W/ PIG TAIL) TO THE MAIN (DEAD END SHALL BE TAPED WITH NO CONNECTION TO MAIN WIRE WITH THE LAST 24 INCHES STRIPED OF INSULATION/BARE WIRE AS GROUND). ALL EXCEPTIONS TO THIS REQUIREMENT MUST BE APPROVED BY JEA. THIS WILL ASSIST IN LOCATING EXISTING SERVICE LINES IN THE FUTURE.
 - GANG WATER SERVICES: FOR 3 OR 4 SERVICES IN ONE AREA, A DUCTILE IRON PIPE (D.I.P.) WATER MAIN EXTENSION W/LOCATE WIRE MAY BE UTILIZED ON EITHER SHORT-SIDE OR LONG SIDE SERVICES WHERE SHOWN ON THE DRAWINGS. LOCATE WIRE SHALL EXTEND FROM ONE METER BOX TO CORP STOP AT WATER MAIN. FOR 5 OR MORE SERVICES IN ONE AREA, A WATER MAIN EXTENSION W/LOCATE WIRE MAY BE UTILIZED ON EITHER SHORT-SIDE OR LONG SIDE SERVICES WHERE SHOWN ON THE DRAWINGS (TAPS STAGGERED AND AT 2 FEET ON CENTER-MIN). FOR WATER SUPPLY HEADERS WHERE 5 OR MORE TAPS ARE CONSTRUCTED, THE HEADER PIPE SHALL BE 4" AT A MINIMUM. EXAMPLE: CONSTRUCT A 4" MAIN PVC CROSSING THE STREET FOR 5 RESIDENTIAL CUSTOMERS, UTILIZING 4" DIP, 4" PIPE, 4"x1" SADDLES AND 1" CORP STOPS (NO GLUED TEE FITTINGS). THE 4" OR LARGER D.I.P. WATER MAIN MUST BE SIZED AND DESIGNED BY THE P.E. ENGINEER.
 - DOUBLE 1" WATER SERVICES IS ALLOWED FOR SHORT SIDE OR LONG SIDE SERVICES AND WHERE SHOWN ON THE DRAWINGS.
 - A 1" IRRIGATION SERVICE MAYBE TAPPED INTO THE (1" MIN) DOMESTIC WATER SERVICE LINE (WHICH SERVES THE SAME CUSTOMER) UTILIZING A 1" BRONZE "Y" FITTING. (IN AREAS WHERE NO RECLAIMED WATER IS AVAILABLE).
 - No 2" AND SMALLER WATER SERVICE TAPS PERMITTED ON WATER MAINS WHICH ARE 20" AND LARGER SIZE.
 - RECLAIMED WATER METER BOXES OR SERVICES SHALL BE CONSTRUCTED SIMILAR TO THE ABOVE AND SHALL BE LOCATED, AT A MIN. OF 10' FROM THE POTABLE WATER SERVICE, AND/OR BOX AND NOT ALLOWED IN CONCRETE OR ASPHALT UNLESS APPROVED OTHERWISE BY JEA.
 - SERVICE SIZE SHALL BE SAME AS THE METER SIZE.

WATER OR RECLAIM SERVICE INSTALLATIONS 2" AND SMALLER METER

JANUARY 2020

PLATE W-1



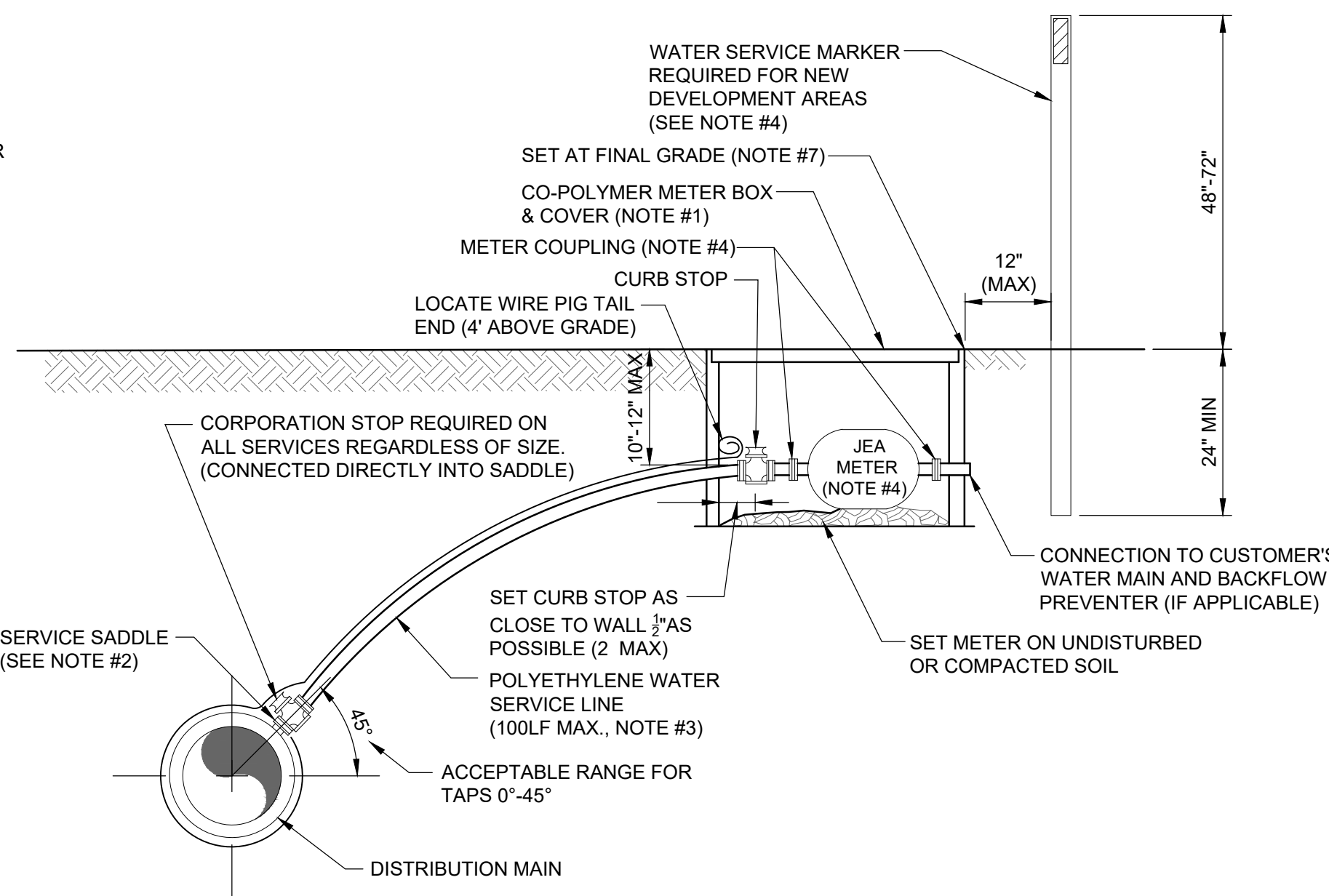
NOTES:

- LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN THE ROADWAY BUT ROUTED TO THE ROADWAY SHOULDERS (NON-TRAFFIC AREAS).
- ALL PIPE & FITTING SHALL BE GALVANIZED MATERIAL OR PVC (S-40).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY PIPING & FITTING (AS NOTED) AFTER BACTERIOLOGICAL CLEARANCE IS RECEIVED
- THE CONTRACTOR SHALL COMPLY WITH ALL JEA RULES AND POLICES AS OUTLINED BY THE JEA'S ENVIRONMENTAL RESPONSE COORDINATOR (ERC) AND OTHER ASSOCIATED JEA STANDARDS.

2" TEMPORARY SAMPLE TAP FOR STUB OUT

JANUARY 2020

PLATE W-26



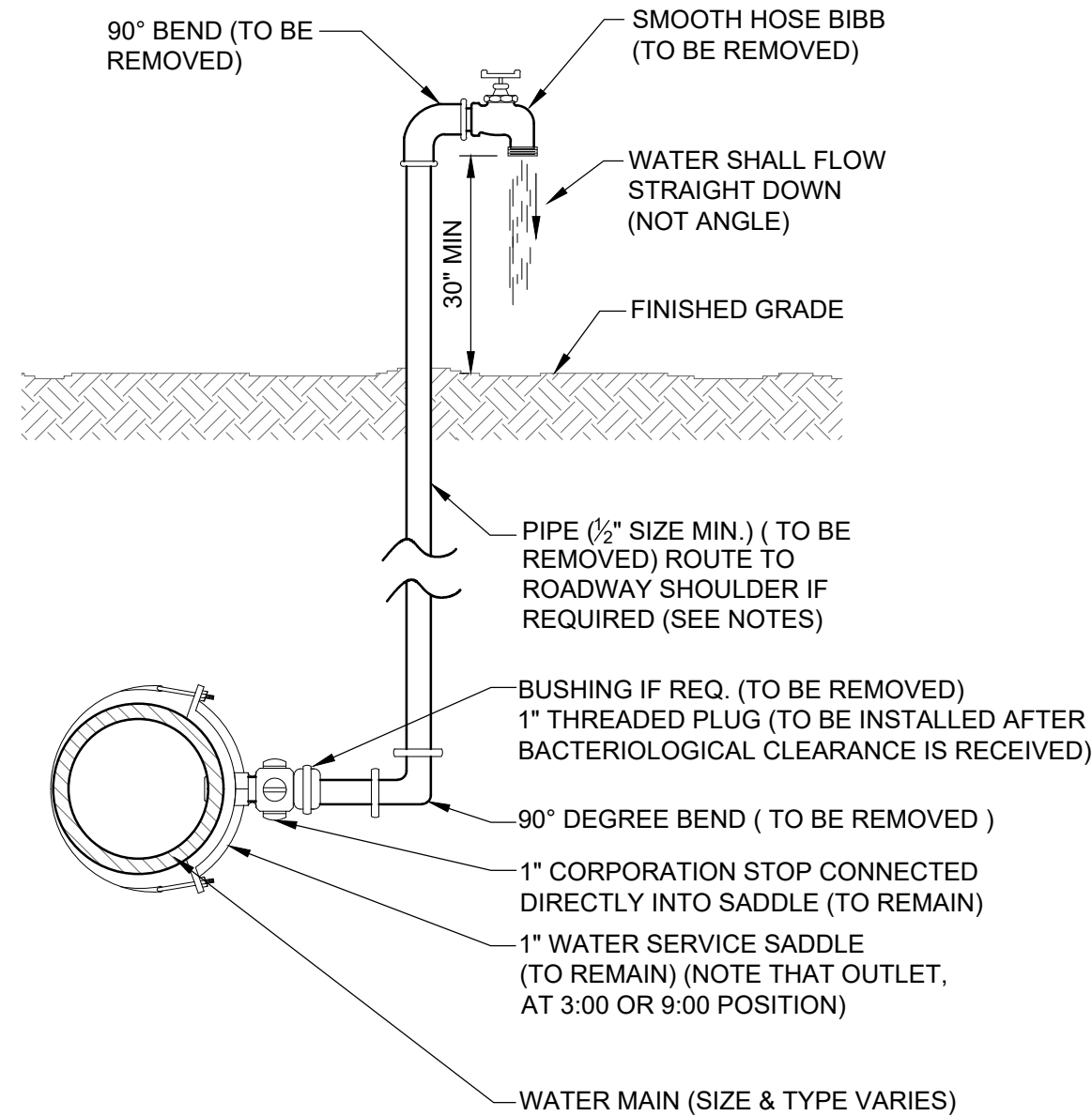
NOTES:

- SEE PLATE W-1 FOR METER LOCATION REQUIREMENTS.
- SINGLE BAND SADDLES SHALL BE UTILIZED ON NEW 1" WATER SERVICES WHICH ARE INSTALLED ON A DRY 10" SIZE OR SMALLER WATER MAIN (NEW WATER MAIN CONSTRUCTION). FOR WET TAPS OR WATER MAINS 12" SIZE AND LARGER, A DOUBLE BAND SADDLE IS REQUIRED. BRASS SADDLES MAY BE UTILIZED ON NEW 1 INCH AND SMALLER WATER SERVICES WHICH ARE INSTALLED ON A DRY 10 INCH OR SMALLER PVC WATER MAIN.
- NO OPEN CUT UNDER ROADWAY PAVING ALLOWED UNLESS THE ROADWAY IS BEING RECONSTRUCTED OR IF DIRECTED OTHERWISE BY JEA. CONSTRUCT POLY LINE WITH 24" (MIN.) COVER UNDER ROADWAYS. THE POLY WATER SERVICE LINE SHALL BE SAME SIZE AS THE METER (1" MINIMUM) AND BE INSTALLED PERPENDICULAR TO THE MAIN AND NOT EXCEED 100LF UNLESS APPROVED OTHERWISE BY JEA.
- INSTALL PVC PLUG IN ALL CURB STOPS IF WATER SERVICE IS "NOT IN USE" (I.E.: IF NO METER IS INSTALLED). WATER SERVICES SERVING VACANT LOTS (SERVICE NOT IN USE), SHALL INCLUDE A "W" CUT INTO THE CURB (CLOSEST TO THE METER BOX), AND PAINTED BLUE (PAINTED PURPLE FOR RECLAIMED WATER). IN ADDITION, FOR NEW DEVELOPMENT AREAS WHERE THE WATER SERVICE IS "NOT IN USE", A LANDSCAPE TIMBER OR 3x3 MIN. P.T. POST (TOP PAINTED BLUE OR PURPLE FOR RECLAIMED WATER). THE REMOVAL OR TRANSFER OF A WATER SERVICE SHALL INCLUDE BRASS METER COUPLINGS (HEX ON BARREL TYPE).
- NO 2" AND SMALLER WATER SERVICE TAPS PERMITTED ON WATER MAINS WHICH ARE 20" AND LARGER SIZE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF THE METER OR ELECTRONIC DEVICES IF DAMAGED BY THE CONTRACTOR DURING THE CONSTRUCTION PERIOD.
- METER BOX AND TOP SHALL BE CLEAR OF ALL DEBRIS TO ALLOW FULL ACCESS TO BOX (I.E. NO DIRT, TRASH OR OTHER DEBRIS PLACED ON TOP OF BOX).
- LOCATE WIRING REQUIRED ON ALL SERVICES 10' OR GREATER IN LENGTH. SEE PLATE W-44.

WATER SERVICE DETAIL- 2" AND SMALLER METER

JANUARY 2020

PLATE W-2



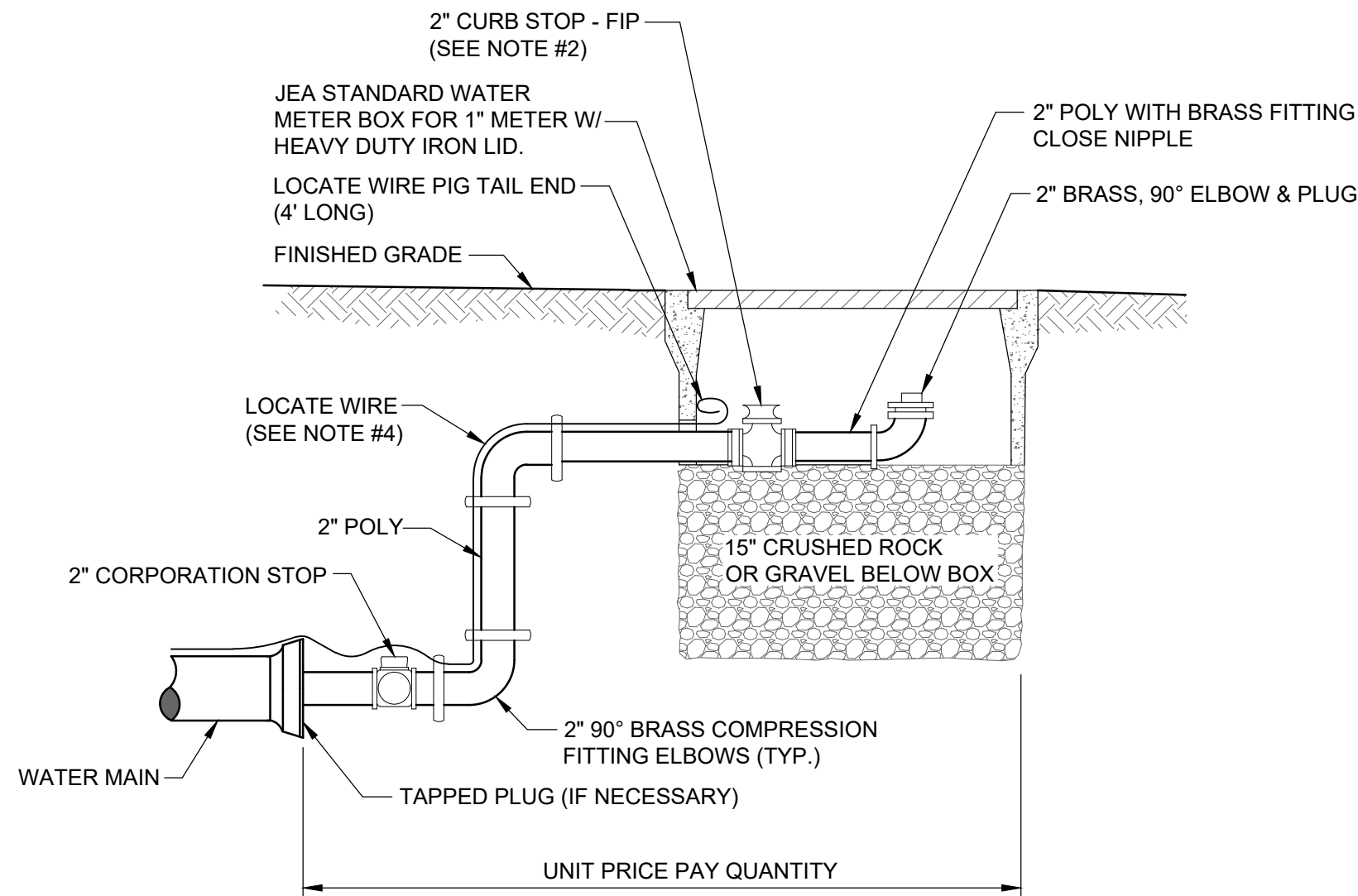
NOTES:

- LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN THE ROADWAY BUT ROUTED TO THE ROADWAY SHOULDERS (NON-TRAFFIC AREAS).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY PIPING & FITTINGS (AS NOTED), AFTER BACTERIOLOGICAL CLEARANCE IS RECEIVED.
- PIPE AND FITTINGS SHALL BE PVC (SCH. 40) OR GALV. MATERIAL.
- THE USE OF THE ABOVE CONSTRUCTION FOR A TEMPORARY SAMPLE POINT SHALL BE LIMITED TO AREAS WHERE A SAMPLE TAP BY ALTERNATIVE METHODS (SEE W-24) IS NOT FEASIBLE OR IF DIRECTED OTHERWISE BY JEA.
- THE CONTRACTOR SHALL COMPLY WITH ALL JEA RULES AND POLICES AS AS OUTLINED BY JEA'S ENVIRONMENTAL RESPONSE COORDINATOR (ERC) AND OTHER ASSOCIATED JEA STANDARDS.

TEMPORARY SAMPLE TAP

JANUARY 2020

PLATE W-25



NOTES:

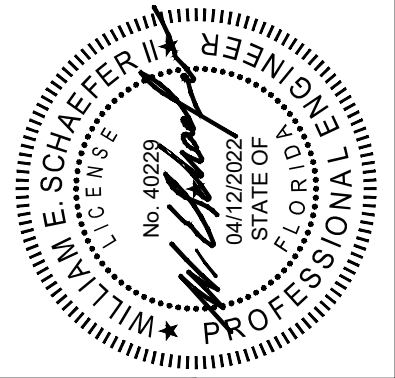
- PIPE SHALL BE POLYETHYLENE. FITTINGS SHALL BE BRASS.
- THE 2" CURB STOP SHALL BE ALL BRONZE. FITTINGS SHALL BE BRASS.
- ANY RECLAIMED WATER VALVE SHALL HAVE RECLAIMED EMBLEM.
- LOCATE WIRE FOR 10' OR GREATER IN LENGTH.
- CANNOT BE PLACED UNDER CONCRETE OR PAVEMENT.
- PLACE 2 FEET PAST LAST WATER MAIN SERVICE CONNECTION.

FLUSHING VALVE BELOW GRADE

JANUARY 2020

PLATE W-28

DOMINION ENGINEERING GROUP, INC.
4348 SOUTHPOINT BLVD., SUITE 201
JACKSONVILLE, FLORIDA 32216
904-854-4500



JEA STANDARD
WATER AND RECLAIM DETAILS

NO. SHEETS	PROJ. NO.	DATE:	SCALE:
1		JANUARY 2014	AS NOTED
SHEET NO.			
C17			
DRAWING NO.			
S-STD-1			



ADJUSTMENT OVER EXISTING UTILITIES MECHANICAL RESTRAINTS

JANUARY 2020

PLATE W-32



MAXIMUM ALLOWED OFFSET FOR PIPE BY JOINT DEFLECTION

DUCTILE IRON PIPE (Mechanical Joint)			RESULTING RADIUS OF CURVE WITH 20FT. LENGTHS
PIPE SIZE (IN.)	(X) MAX. OFFSET (IN.)	(Y) ANGLE AT ONE BELL	
-	-	-	-
4	27	6.5°	177 FT
6	24	5.7°	200 FT
8 - 12	17.5	4.2°	273 FT
14 - 16	12	2.9°	400 FT
18 - 20	10	2.4°	477 FT
24 - 30	8	1.9°	600 FT
36	7	1.7°	687 FT
42 - 48	6.7	1.6°	716 FT

ADJUSTMENT UNDER EXISTING UTILITIES PIPE JOINT DEFLECTION

JANUARY 2020

PLATE W-40



ADJUSTMENT UNDER EXISTING UTILITIES MECHANICAL RESTRAINTS

JANUARY 2020

PLATE W-34



MAXIMUM ALLOWED OFFSET FOR PIPE BY JOINT DEFLECTION

DUCTILE IRON PIPE (Mechanical Joint)			RESULTING RADIUS OF CURVE WITH 20FT. LENGTHS
PIPE SIZE (IN.)	(X) MAX. OFFSET (IN.)	(Y) ANGLE AT ONE BELL	
-	-	-	-
4	27	6.5"	177 FT
6	24	5.7"	200 FT
8 - 12	17.5	4.2"	273 FT
14 - 16	12	2.9"	400 FT
18 - 20	10	2.4"	477 FT
24 - 30	8	1.9"	600 FT
36	7	1.7"	687 FT
42 - 48	6.7	1.6"	716 FT

ADJUSTMENT OVER EXISTING UTILITIES

PIPE JOINT DEFLECTION

JANUARY 2020

PLATE W-41



OPEN CUT TRENCH FOR PRESSURE PIPE

JANUARY 2020

IN CITY RIGHT OF WAY

PLATE W-42



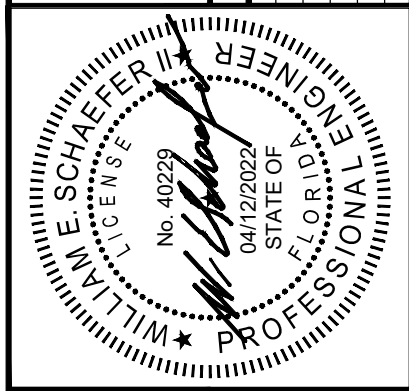
1. FOR UNPAVED LOCATIONS, A PRECAST CONCRETE VALVE PAD SHALL BE PROVIDED AND INSTALLED FLUSH WITH GRADE. CONCRETE PAD IS NOT REQUIRED FOR VALVE LOCATED IN THE ROADWAY, UNLESS SHOWN OR NOTED OTHERWISE.
2. LOCATING WIRE IS REQUIRED ON ALL PRESSURE PIPING (SEE DETAILW-44).
3. A "V" CUT SHALL BE CARVED IN THE CURB CLOSEST/ADJACENT(1) (ASPHALT IF NO CURB) TO ALL BELOW GRADE VALVES. THE "V" CUT IS TO BE PAINTED BLUE WATER/PURPLE RECLAIMED.
4. IN PAVED AREAS, INSTALL VALVE AT A DEPTH TO ALLOW A 12" MIN. DISTANCE BETWEEN THE VALVE COVER PLATE AND THE TOP OF THE VALVE OPERATING NUT. OUTSIDE OF PAVED AREAS (GRASS), INSTALL VALVE AT A DEPTH TO ALLOW A 6" MINIMUM DISTANCE BETWEEN THE VALVE COVER AND THE TOP OF THE VALVE OPERATING NUT. OPERATING NUT/STEM EXTENSION SHALL BE PROVIDED (WHERE APPLICABLE) SO THAT THE OPERATING NUT WILL BE NO MORE THAN 30 INCHES BELOW FINISHED GRADE.
5. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS. ROUTE LOCATE WIRES THRU A "V" CUT IN THE TOP OF THE 6" PVC RISER PIPE FOR LOCATE WIRE ACCESS INTO VALVE BOX. THE LOCATE WIRES WITH A 24" LONG PIG-TAIL AT THE TOP SHALL BE CONNECTED TOGETHER WITH A WIRE NUT.
6. BRASS IDENTIFICATION TAG INDICATING "WATER", VALVE SIZE, DIRECTION AND TURNS TO OPEN & VALVE TYPE. PROVIDE A 1/2" HOLE IN BRASS TAG AND ATTACH TAG (TWIST WIRE AROUND TAG) TO THE END OF THE LOCATE WIRE. TAGS ARE NOT REQUIRED ON VALVES INSTALLED ON FIRE HYDRANT BRANCH LINES.
7. IN LIEU OF PRECAST CONCRETE PAD, A 6" THICK X 24" (ROUND OR SQUARE) POURED CONCRETE PAD W/2 - #4 REBAR AROUND PERIMETER, MAY BE USED.
8. GRAVEL SHALL BE PROVIDED UNDER ALL VALVES 20" AND LARGER. THE MINIMUM VERTICAL LIMIT OF GRAVEL IS 12" UNDER THE VALVE UP TO 1/2 THE OVERALL HEIGHT OF THE VALVE.
9. FOR VALVES 12 INCH AND SMALLER, PROVIDE A WHITE OR BLACK PLASTIC DEBRIS SHIELD WHICH INSTALLS BELOW THE OPERATING NUT. THIS SHIELD SHALL COVER THE RISER PIPE BOX OVER THE OPERATING NUT AND MINIMIZE INFILTRATION. SHIELD SHALL BE BY AFC, BOXLOK OR APPROVED EQUAL.
10. ALL VALVES SHALL BE INSTALLED WITH AN ELECTRIC LOCATE MARKER. MARKER SHALL BE 4" DIA. COLOR CODED BALL MARKER (3M-1403XR FOR WATER AND 1408XR FOR RECLAIMED WATER).

WATER VALVE INSTALLATION DETAIL

JANUARY 2020

PLATE W-18

NO.	BY	DATE	REVISIONS
6.			
5.			
4.			
3.			
2.			
1.			



DESIGNER:
DRAWN BY:
DATE:
CHECKED BY: 18
DATE:



JEA STANDARD WATER AND RECLAIM DETAILS

NO. SHEETS 1	PROJ. NO.
SHEET NO. C18	DATE: JANUARY 2014
DRAWING NO. S-STD-1	SCALE: AS NOTED

PVC PIPE RESTRAINT NOTES:

1. THIS SCHEDULE SHALL BE UTILIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THE ABOVE SCHEDULE, AT A MINIMUM.
2. ASSUMPTIONS: PVC PIPE, SAFETY FACTOR=1.5, TEST PRESSURE=150PSI, SOIL=GM OR SM, TRENCH TYPE 3, DEPTH OF COVER=30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE.
3. BENDS AND VALVES: SHALL BE RESTRAINED ON EACH SIDE OF FITTING.
4. VERTICAL OFFSETS: ARE APPROX. 3 FEET COVER ON TOP AND APPROX. 8 FEET COVER ON BOTTOM. PER THE DETAILS, L_u IS THE RESTRAINED LENGTH FOR THE UPPER (TOP) LEVEL. L_i IS THE RESTRAINED LENGTH FOR THE LOWER (DEEPER) LEVEL. ASSUME 45 DEGREE BENDS.
5. TEES: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE ABOVE FOR RESTRAINT LENGTH ON TEE "BRANCH" LINE.
6. HDPE TO PVC TRANSITIONS: THE PVC PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).
7. THE INSTALLATION OF BELL HARNESS RESTRAINTS AT PVC JOINTS (DR-18 & 25 PIPE) SHALL BE COMPLETED PER THE MANUFACTURERS RECOMMENDATION, WHICH INCLUDES NOT OVER TIGHTENING THE PARALLEL RODS/NUTS. THESE NUTS SHOULD ONLY BE SNUG TIGHT. THE HOME MARKS ON THE PIPE SHOULD ALWAYS BE VISIBLE AFTER THE RESTRAINT IS INSTALLED. OVERHOMING THE JOINT MAY CAUSE A FAILURE AT THE BELL RESULTING IN A SERVICE OUTAGE.

LENGTH (L) TO BE RESTRAINED

NOMINAL PIPE SIZE (IN.)	HORIZONTAL BENDS				VERTICAL OFFSETS 45° BENDS (SEE NOTE 4)		VALVES OR DEAD ENDS
	90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	UPPER L (FT.)	LOWER L (FT.)	
4	21	9	5	3	17	3	47
6	30	13	6	3	23	4	66
8	38	16	8	4	30	6	86
10	45	19	9	5	36	7	103
12	53	22	11	6	43	8	121
14	61	26	13	6	50	9	140
16	66	28	14	7	55	10	154
18	73	30	15	8	60	11	170
20	79	33	16	8	66	12	186
24	79	33	16	8	77	15	185
30	93	39	19	10	97	17	222
36	106	39	21	11	107	20	257
42	117	49	24	12	120	24	289
48	144	53	26	13	133	26	321

(SEE PLATE Nos. 38C & 38D FOR ADDITIONAL DETAILS)

REDUCERS	
SIZE (IN.)	L (FT.)
6x4	34
8x6	36
8x4	62
10x8	35
10x6	63
12x10	36
12x8	64
16x12	66
16x10	92
20x18	35
20x16	66
20x12	117
24x20	56
24x18	80
24x16	101
30x20	121
36x30	78
36x24	141
42x36	75
42x30	140
48x42	75
48x36	139

TEES SEE NOTE 5		
RUN SIZE (IN.)	BRANCH SIZE (IN.)	L (FT.)
4	4	F.O.
6	6	10
8	4 < LESS	F.O.
8	8	29
10	6 < LESS	F.O.
10	10	45
12	8	13
12	6 < LESS	F.O.
12	12	62
16	10	32
16	8 < LESS	F.O.
16	16	94
20	12	39
20	10	5
20	10 < LESS	F.O.
20	20	125
24	16	76
24	12	14
24	10 < LESS	F.O.
24	24	124
30	20	84
30	16	36
30	12 < LESS	F.O.
30	30	159
36	24	104
36	20	60
36	16	5
36	16 < LESS	F.O.
36	36	192
42	30	142
42	24	83
42	20	33
42	16 < LESS	F.O.
42	42	223
48	36	178
48	30	124
48	24	59
48	20	5
48	16 < LESS	F.O.
48	48	253
48	42	209
48	36	162
48	30	104
48	24	34
48	20 < LESS	F.O.

F.O. = FITTING ONLY

DUCTILE IRON PIPE RESTRAINT NOTES:

1. THIS SCHEDULE SHALL BE UTILIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THE ABOVE SCHEDULE, AT A MINIMUM.
2. ASSUMPTIONS: DUCTILE IRON PIPE (WITHOUT POLY WRAP), SAFETY FACTOR=1.5, TEST PRESSURE=150PSI, SOIL=GM OR SM, TRENCH TYPE 3, DEPTH OF COVER=30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE. FOR D.I.P. WIPOLY WRAP, USE RESTRAINT JOINT SCHEDULE FOR PVC PIPE.
3. BENDS AND VALVES: SHALL BE RESTRAINED ON EACH SIDE OF FITTING.
4. VERTICAL OFFSETS: ARE APPROX. 3 FEET COVER ON TOP AND APPROX. 8 FEET COVER ON BOTTOM. PER THE DETAILS, L_u IS THE RESTRAINED LENGTH FOR THE UPPER (TOP) LEVEL. L_i IS THE RESTRAINED LENGTH FOR THE LOWER (DEEPER) LEVEL. ASSUME 45 DEGREE BENDS.
5. TEES: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE ABOVE FOR RESTRAINT LENGTH ON TEE "BRANCH" LINE.
6. HDPE TO D.I.P. TRANSITIONS: THE D.I.P. PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).

LENGTH (L) TO BE RESTRAINED

NOMINAL PIPE SIZE (IN.)	HORIZONTAL BENDS				VERTICAL OFFSETS 45° BENDS (SEE NOTE 4)		VALVES OR DEAD ENDS
	90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	UPPER L (FT.)	LOWER L (FT.)	
4	17	7	4	2	11	3	30
6	24	15	5	3	15	4	42
8	31	13	6	3	20	5	55
10	36	15	8	4	23	6	65
12	42	18	9	5	27	7	77
14	48	20	10	5	31	7	87
16	53	22	11	6	35	8	97
18	58	24	12	6	39	9	107
20	63	27	13	6	42	10	118
24	63	27	13	7	49	12	118
30	75	31	15	8	59	14	141
36	86	36	17	9	68	17	163
42	95	40	19	10	76	19	183
48	117	43	21	11	84	21	203

(SEE PLATE Nos. 38C & 38D FOR ADDITIONAL DETAILS)

REDUCERS	
SIZE (IN.)	L (FT.)
6x4	22
8x6	23
8x4	39
10x8	22
10x6	40
12x10	23
12x8	41
16x12	42
16x10	58
20x18	22
20x16	42
20x12	74
24x20	36
24x18	51
24x16	64
30x24	50
30x20	77
36x30	50
36x24	89
42x36	48
42x30	89
48x42	48
48x36	88

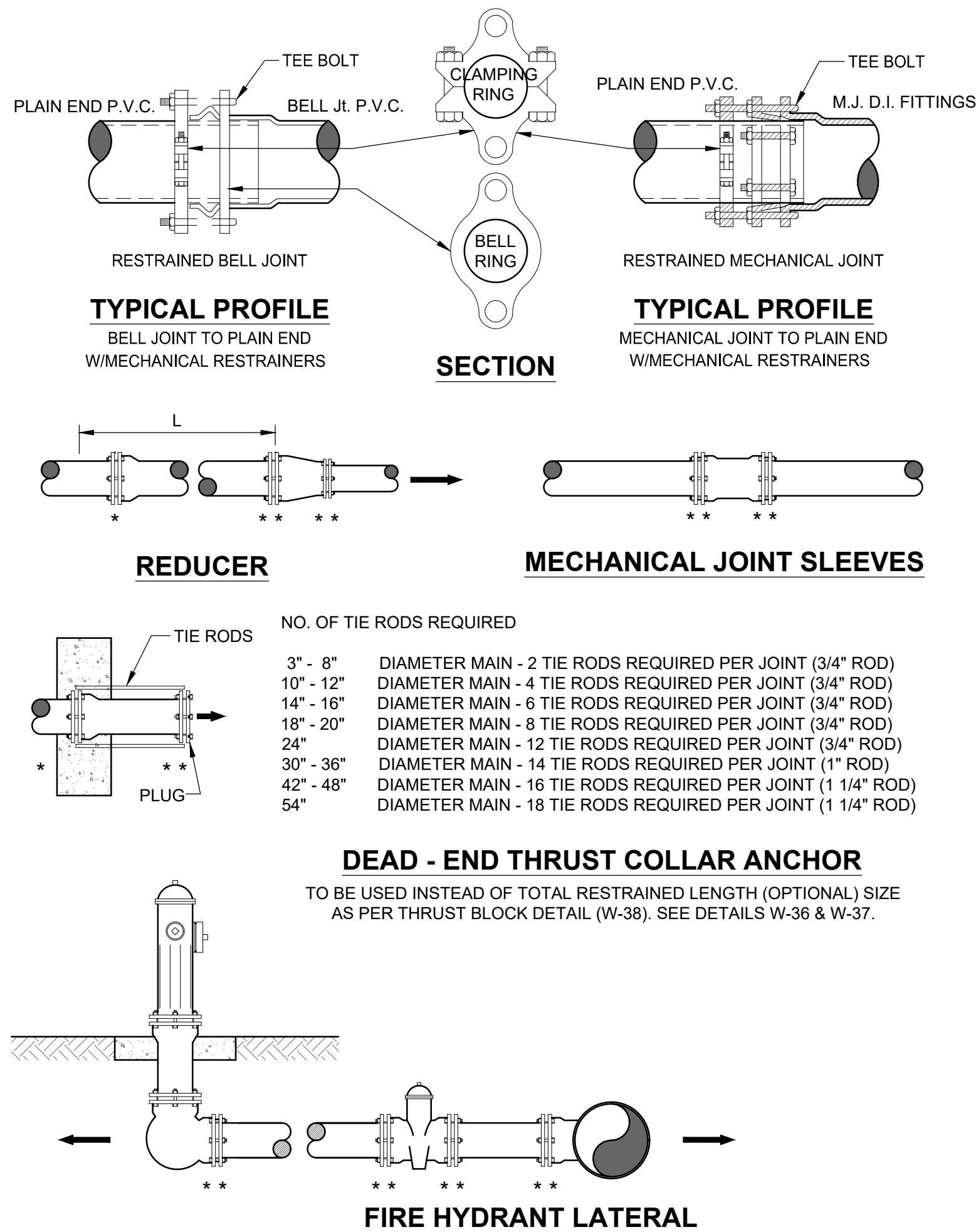
TEE SEE NOTE 5		
RUN SIZE (IN.)	BRANCH SIZE (IN.)	L (FT.)
4	4	F.O.
6	6	6
8	4 < LESS	F.O.
8	8	19
10	6 < LESS	F.O.
10	10	29
12	8	9
12	6 < LESS	F.O.
12	12	40
16	10	21
16	8 < LESS	F.O.
16	16	60
20	12	25
20	10	3
20	8 < LESS	F.O.
20	20	79
24	16	48
24	12	9
24	10 < LESS	F.O.
24	24	79
30	20	54
30	16	23
30	12 < LESS	F.O.
30	30	101
36	24	66
36	20	38
36	16	4
36	12 < LESS	F.O.
36	36	122
42	30	90
42	24	53
42	20	21
42	16	1
42	12 < LESS	F.O.
42	42	141
48	36	113
48	30	79
48	24	38
48	20	3
48	16	1
48	12 < LESS	F.O.
48	48	160
48	42	133
48	36	103
48	30	66
48	24	22
48	20 < LESS	F.O.

F.O. = FITTING ONLY

PVC PIPE RESTRAINT JOINT SCHEDULE

JANUARY 2020

PLATE W-31A



GENERAL NOTE:

1. PAY ITEM *** DENOTES A RESTRAINT WHICH IS PAID FOR ON A PER EACH BASIS.
2. PAY ITEM **** DENOTES A RESTRAINT WHICH IS INCLUDED IN THE UNIT PRICE BID FOR FITTING OR VALVE.
3. → INDICATES DIRECTION OF THRUST FORCE.

MECHANICAL RESTRAINT DETAILS - I

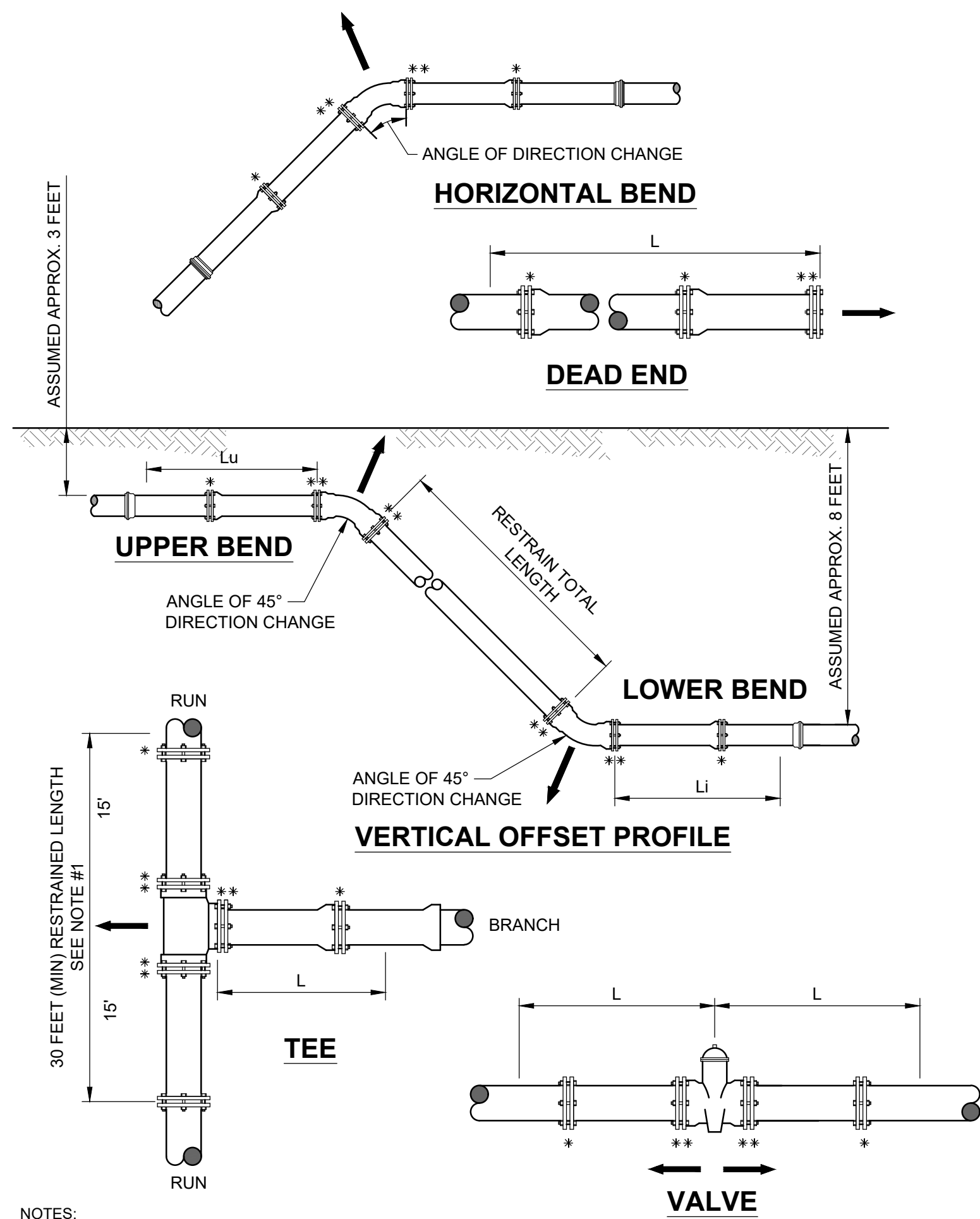
JANUARY 2020

PLATE W-31C

DUCTILE IRON PIPE RESTRAINT JOINT SCHEDULE

JANUARY 2020

PLATE W -31B



NOTES:

1. TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN.).
2. PAY ITEM *** DENOTES A RESTRAINT WHICH IS PAID FOR ON A PER EACH BASIC.
3. PAY ITEM **** DENOTES A RESTRAINT WHICH IS INCLUDED IN THE UNIT PRICE BID FOR FITTING OR VALVE.

MECHANICAL RESTRAINT DETAILS - II

JANUARY 2020

PLATE W-31D

DOMINION ENGINEERING GROUP, INC.
4348 SOUTHPOINT BLVD., SUITE 201
JACKSONVILLE, FLORIDA 32216
904-854-4500

REVISIONS

NO.	BY	DATE
1		
2		
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5		

DESIGNER: M.E. SCHAEFER
DRAWN BY: C19
DATE: 01/02/2020
CHECKED BY: M. SCHAEFER
DATE: 01/02/2020

PROJ. NO.
DATE: JANUARY 2014
SCALE: AS NOTED

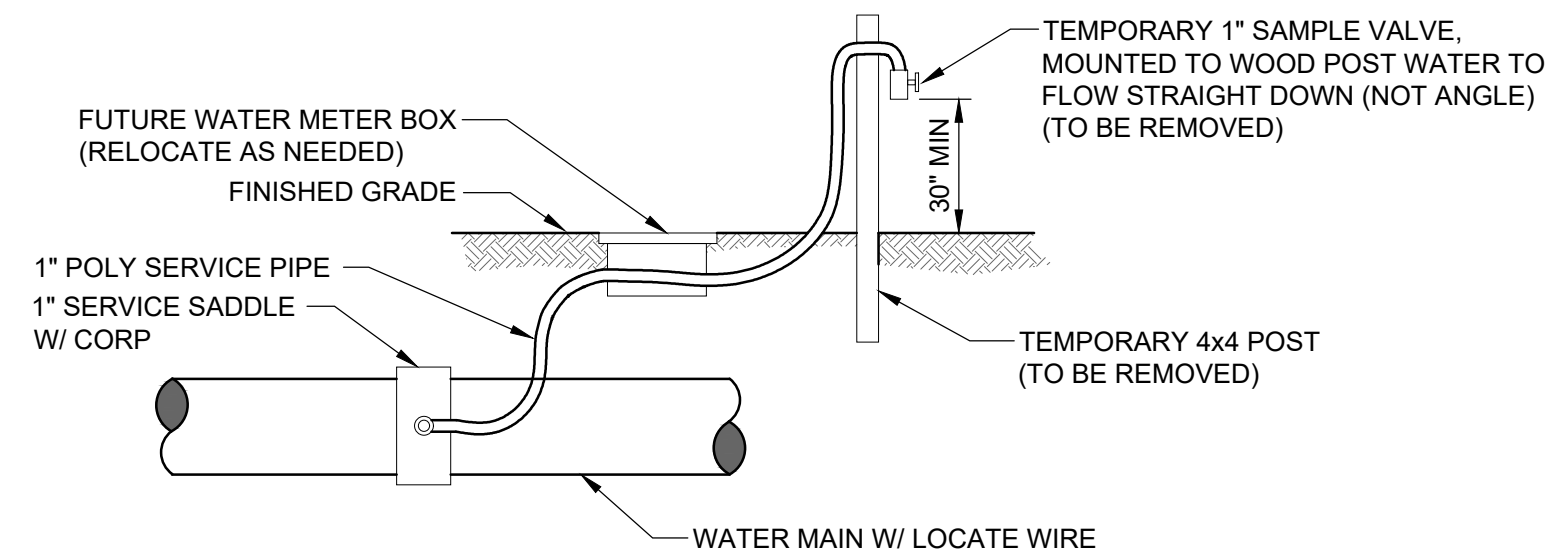
NO. SHEETS
1

SHEET NO.
C19

DRAWING NO.
S-STD-1

JEABuilding Community

JEASTANDARD
WATER AND RECLAIM DETAILS



TEMPORARY SAMPLE TAP UTILIZING A NEW 1" WATER SERVICE

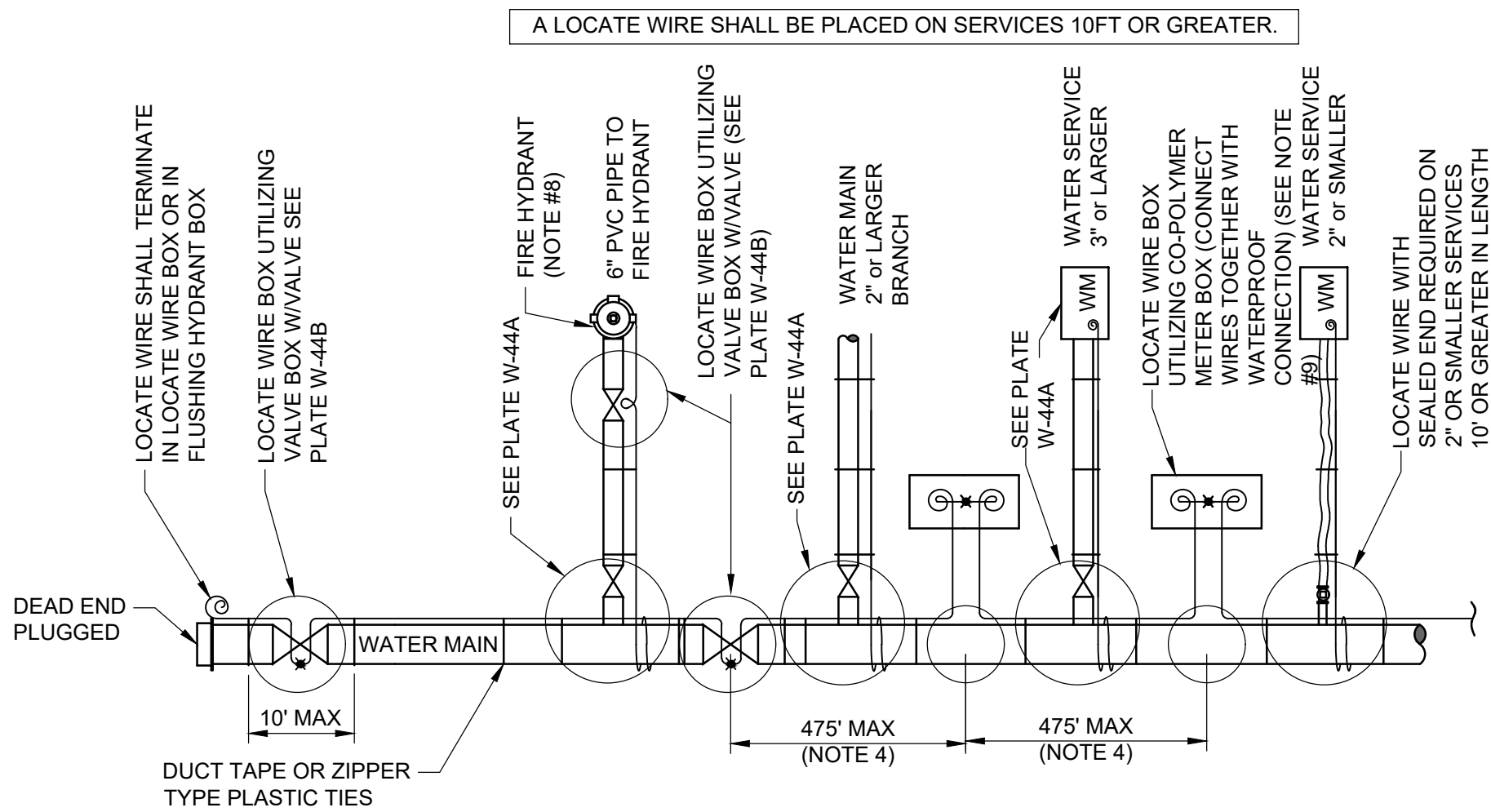
NOTES::

1. LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN THE ROADWAY BUT ROUTED TO THE ROAD SHOULDERS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY PIPING & FITTINGS (AS NOTED) AFTER BACTERIOLOGICAL CLEARANCE IS RECEIVED.
3. THE CONTRACTOR SHALL UTILIZE THE ABOVE ALTERNATIVE METHODS FOR CONSTRUCTION OF TEMPORARY SAMPLE POINTS IN ALL AREAS, WHERE POSSIBLE.
4. THE CONTRACTOR SHALL COMPLY WITH ALL JEA RULES AND POLICIES AS OUTLINED BY THE JEA'S ENVIRONMENTAL RESPONSE COORDINATOR (ERC) AND OTHER ASSOCIATED JEA STANDARDS.

TEMPORARY SAMPLE TAP ALTERNATIVE METHOD A

JANUARY 2020

PLATE W-24



LOCATE WIRE SYSTEM

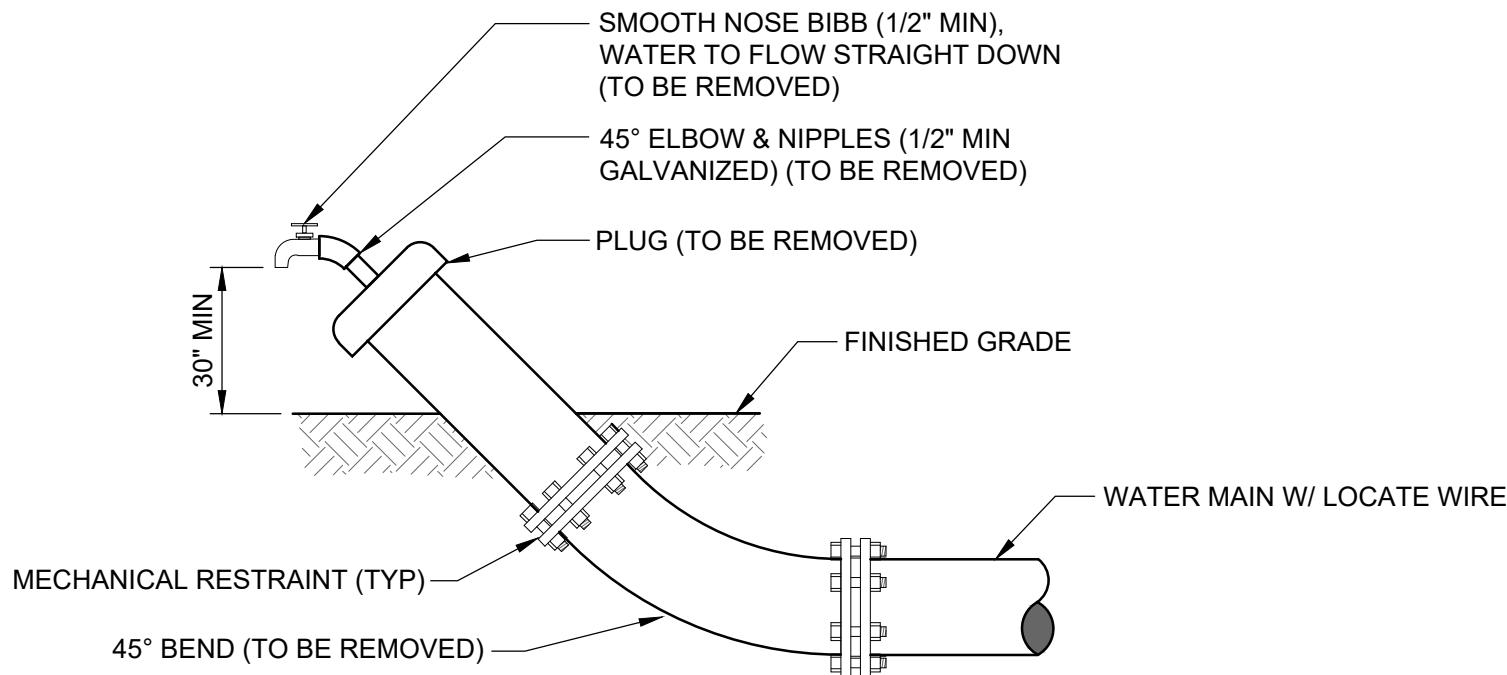
NOTES:

1. LOCATING WIRE TO BE INSTALLED IN EITHER THE ONE OR ELEVEN O'CLOCK POSITION ON ALL DUCTILE IRON OR PVC (PRESSURE MAINS). LOCATE WIRE SHALL ALSO BE INSTALLED ON ALL (HDPE) POLY MAIN PIPING (1:00 OR 11:00 POSITION, IF POSSIBLE).
2. SECURE LOCATING WIRE TO PVC & D.I.P. WATER MAIN BY USE OF DUCT TAPE OR ZIPPER TYPE PLASTIC TIE STRAPS SPACED AT A MAXIMUM DISTANCE OF TEN (10') AND AT EACH SIDE OF BELL JOINT OR FITTING.
3. THE ENTIRE LOCATING SYSTEM SHALL BE SUBJECTED TO TESTING TO DETERMINE ITS RELIABILITY. WHERE INSTALLED UNDER PAVEMENT AREAS, TESTING SHALL BE DONE PRIOR TO THE PLACEMENT OF PAVEMENT, UNLESS APPROVED OTHERWISE BY JEA.
4. LOCATING WIRE SHALL TERMINATE WITHIN AN ACTIVE VALVE BOX (WITH A VALVE) OR A METER BOX (IF NO VALVE) AT 475' INTERVALS. SEE DETAIL PLATE W-44B. WIRE CONNECTIONS BELOW GROUND (OUTSIDE OF A BOX) SHALL BE AVOIDED.
5. REFER TO SECTION 350 FOR LOCATE WIRE SPECIFICATIONS.
6. "■" INDICATES THAT THE WIRES ARE CONNECTED TOGETHER WITH A WATERPROOF CONNECTION. (SEE DETAIL W-44B)
7. "⊙" INDICATES A WIRE PIG-TAIL (4' LONG)
8. FOR FIRE HYDRANT LOCATE WIRE REQUIREMENTS AND EXCLUSIONS, SEE PLATES W-12,13 AND 14.
9. AN "LW" CUT SHALL BE CARVED IN THE CONCRETE CURB AND PAINTED AT ALL LOCATE WIRE BOXES.
10. FOUR LANES OF TRAFFIC (HAVING TWO LANES OF TRAFFIC IN EACH DIRECTION) OR GREATER THE LOCATE WIRE AND VALVE BOX SHALL BE OFF-SET TO THE RIGHT-OF-WAY.

LOCATE WIRE CONSTRUCTION FOR WATER MAINS

JANUARY 2020

PLATE W-44



TEMPORARY SAMPLE TAP UTILIZING PLUG AT FLUSHING LOCATION

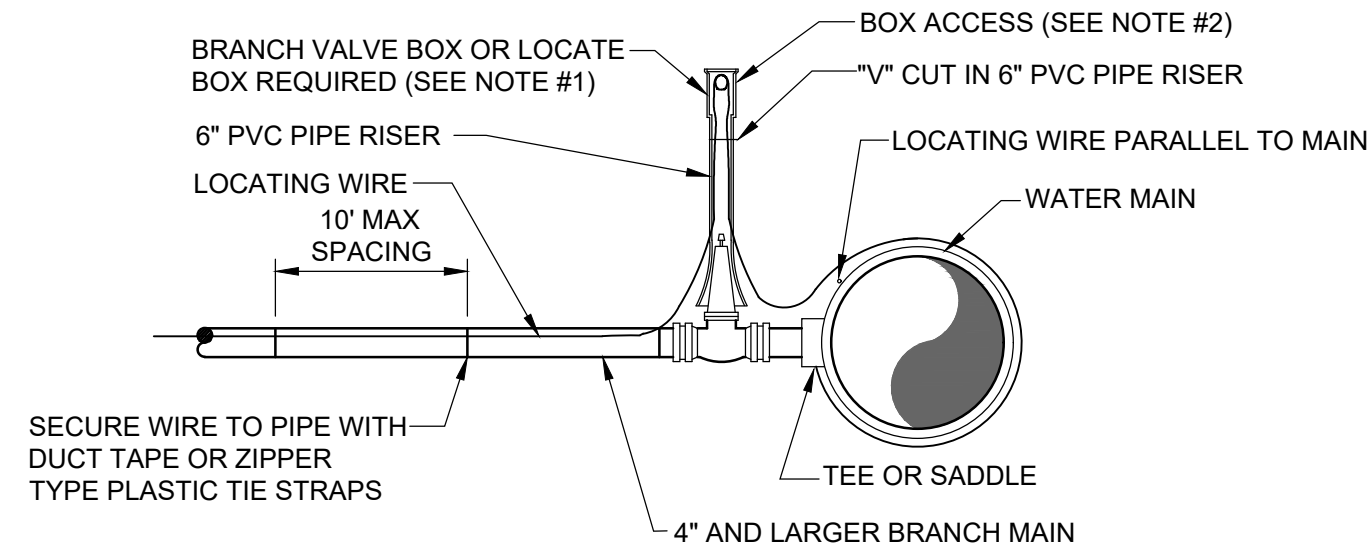
NOTES::

1. LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN THE ROADWAY BUT ROUTED TO THE ROAD SHOULDERS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY PIPING & FITTINGS (AS NOTED) AFTER BACTERIOLOGICAL CLEARANCE IS RECEIVED.
3. THE CONTRACTOR SHALL UTILIZE THE ABOVE ALTERNATIVE METHODS FOR CONSTRUCTION OF TEMPORARY SAMPLE POINTS IN ALL AREAS, WHERE POSSIBLE.
4. THE CONTRACTOR SHALL COMPLY WITH ALL JEA RULES AND POLICIES AS OUTLINED BY THE JEA'S ENVIRONMENTAL RESPONSE COORDINATOR (ERC) AND OTHER ASSOCIATED JEA STANDARDS.

TEMPORARY SAMPLE TAP ALTERNATIVE METHOD B

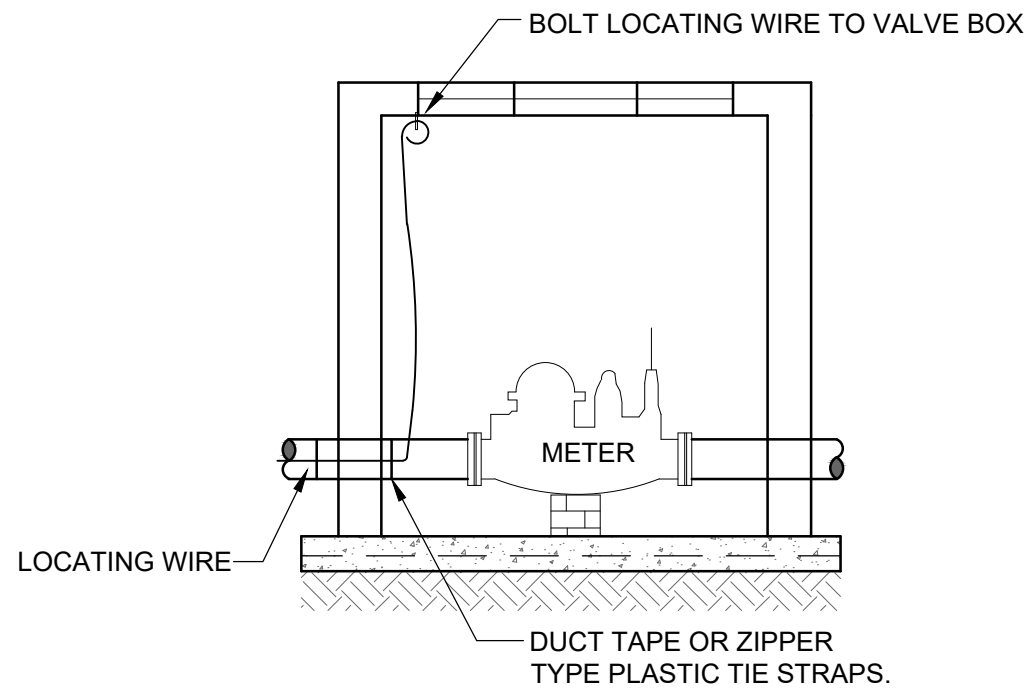
JANUARY 2020

PLATE W-24A



BRANCH FORCE MAIN

(2" AND LARGER WATER MAIN OR 3" AND LARGER WATER SERVICE PIPE)



CONNECTION AT LARGE METER BOX

(3" OR LARGER SERVICE)

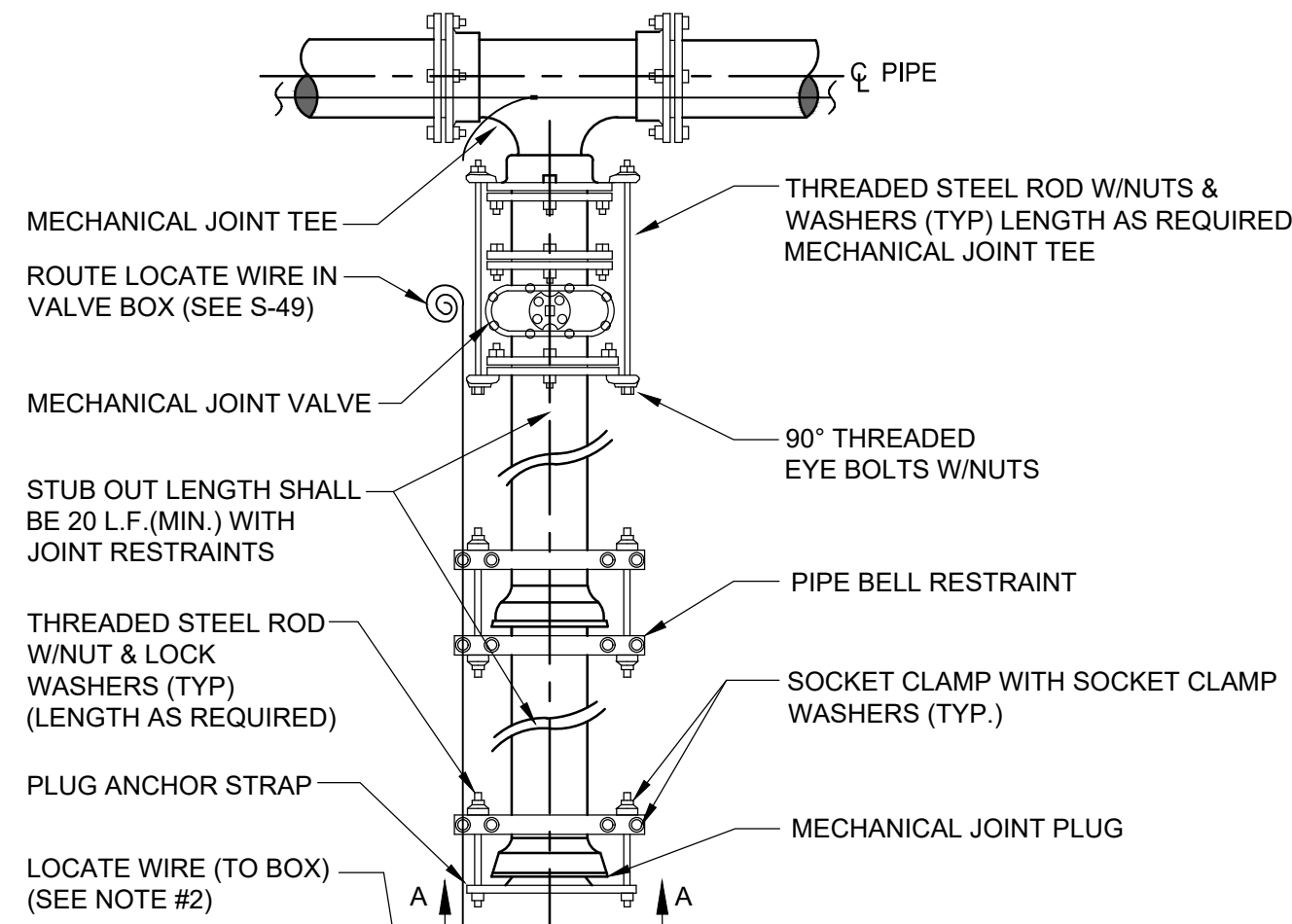
NOTES:

1. NOTE THAT THE BRANCH WIRE IS NOT CONNECTED TO THE MAIN WIRE.
2. LOCATE WIRE SHALL ENTER THE VALVE BOX THROUGH A "V" CUT IN THE 6" PVC RISER PIPE SECTION (SEE W-18).
3. LOCATE WIRE SHALL HAVE ENOUGH SLACK TO REACH 4' ABOVE FINAL GRADE AND LOCATE POINTS.

LOCATE WIRE FOR BRANCH MAIN

JANUARY 2020

PLATE W-44A



PLAN

SECTION "A-A"

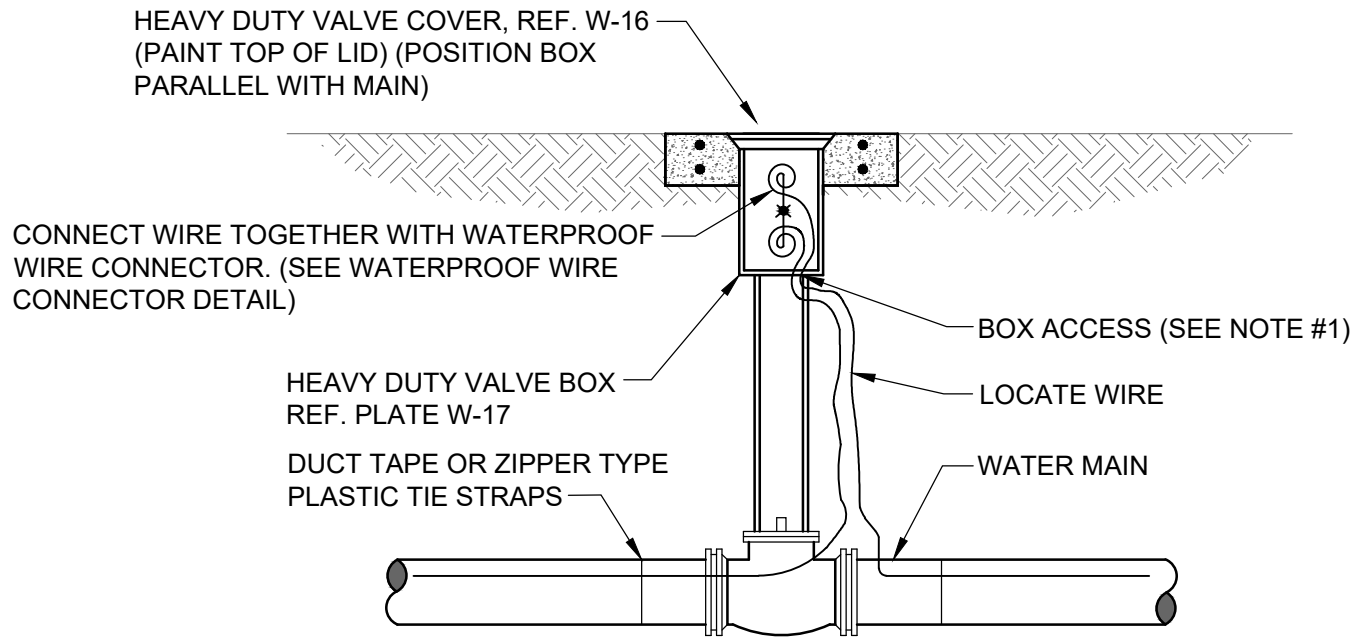
NOTES:

1. IN LIEU OF BELL/ROD RESTRAINTS, MECHANICAL JOINT RESTRAINTS MAY BE USED.
2. LOCATING WIRE REQUIRED, UTILIZING A LOCATE WIRE BOX INSTALLED AT PLUG LOCATION.
3. NUMBER OF TIE RODS REQUIRED IS AS FOLLOWS:
3" - 8" DIAMETER MAIN - 2 TIE RODS REQUIRED PER JOINT (3/4" ROD)
10" - 12" DIAMETER MAIN - 4 TIE RODS REQUIRED PER JOINT (3/4" ROD)
14" - 16" DIAMETER MAIN - 6 TIE RODS REQUIRED PER JOINT (3/4" ROD)
18" - 20" DIAMETER MAIN - 8 TIE RODS REQUIRED PER JOINT (3/4" ROD)
24" DIAMETER MAIN - 12 TIE RODS REQUIRED PER JOINT (3/4" ROD)
30" - 36" DIAMETER MAIN - 14 TIE RODS REQUIRED PER JOINT (1" ROD)
42" - 48" DIAMETER MAIN - 16 TIE RODS REQUIRED PER JOINT (1 1/4" ROD)
54" DIAMETER MAIN - 18 TIE RODS REQUIRED PER JOINT (1 1/4" ROD)
4. THE LOCATION OF THE DEAD END PLUG SHALL NOT BE UNDER PAVEMENT, IF POSSIBLE. THE STUB OUT SHALL EXTEND BEYOND THE INTERSECTION AREAS OR ROAD CROSSING BY 10 FEET (MIN.) WHERE POSSIBLE.

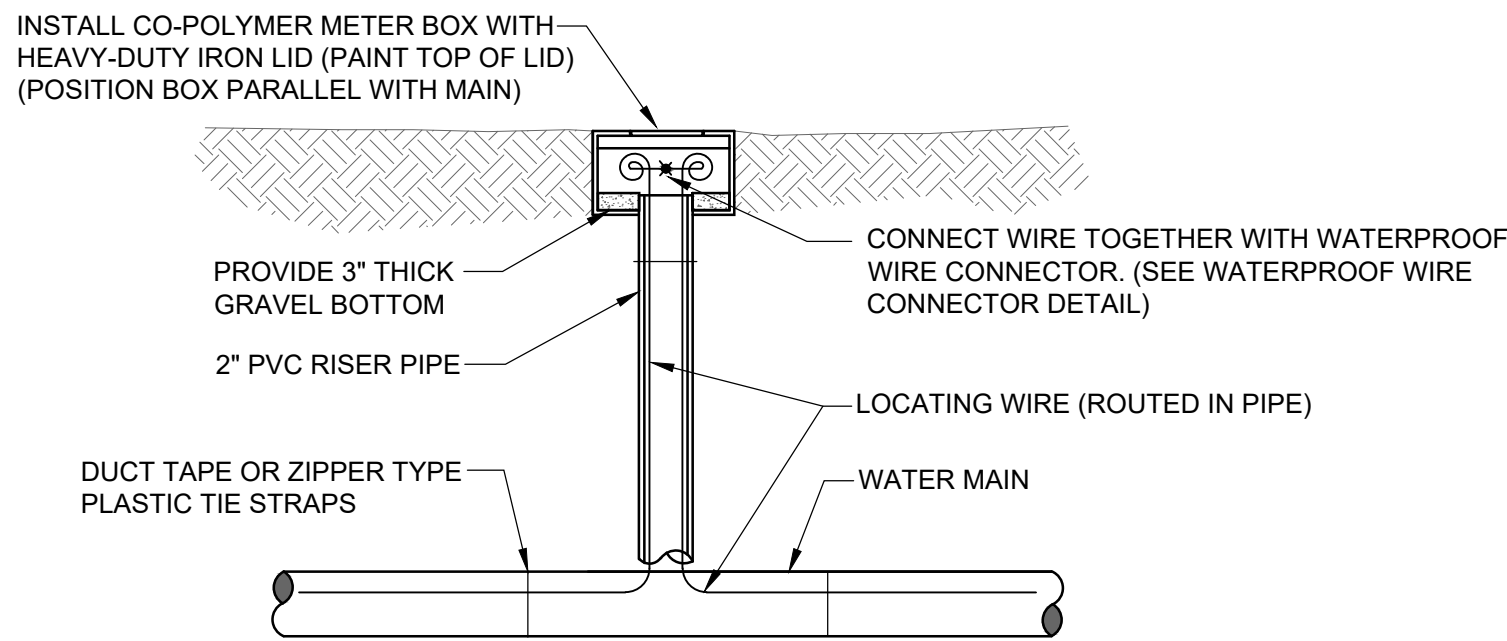
PLUGGED DEAD END USING MECHANICAL RESTRAINTS

JANUARY 2020

PLATE W-37



LOCATE WIRE BOX UTILIZING VALVE BOX



LOCATE WIRE BOX UTILIZING METER BOX

LOCATE WIRE BOX

JANUARY 2020

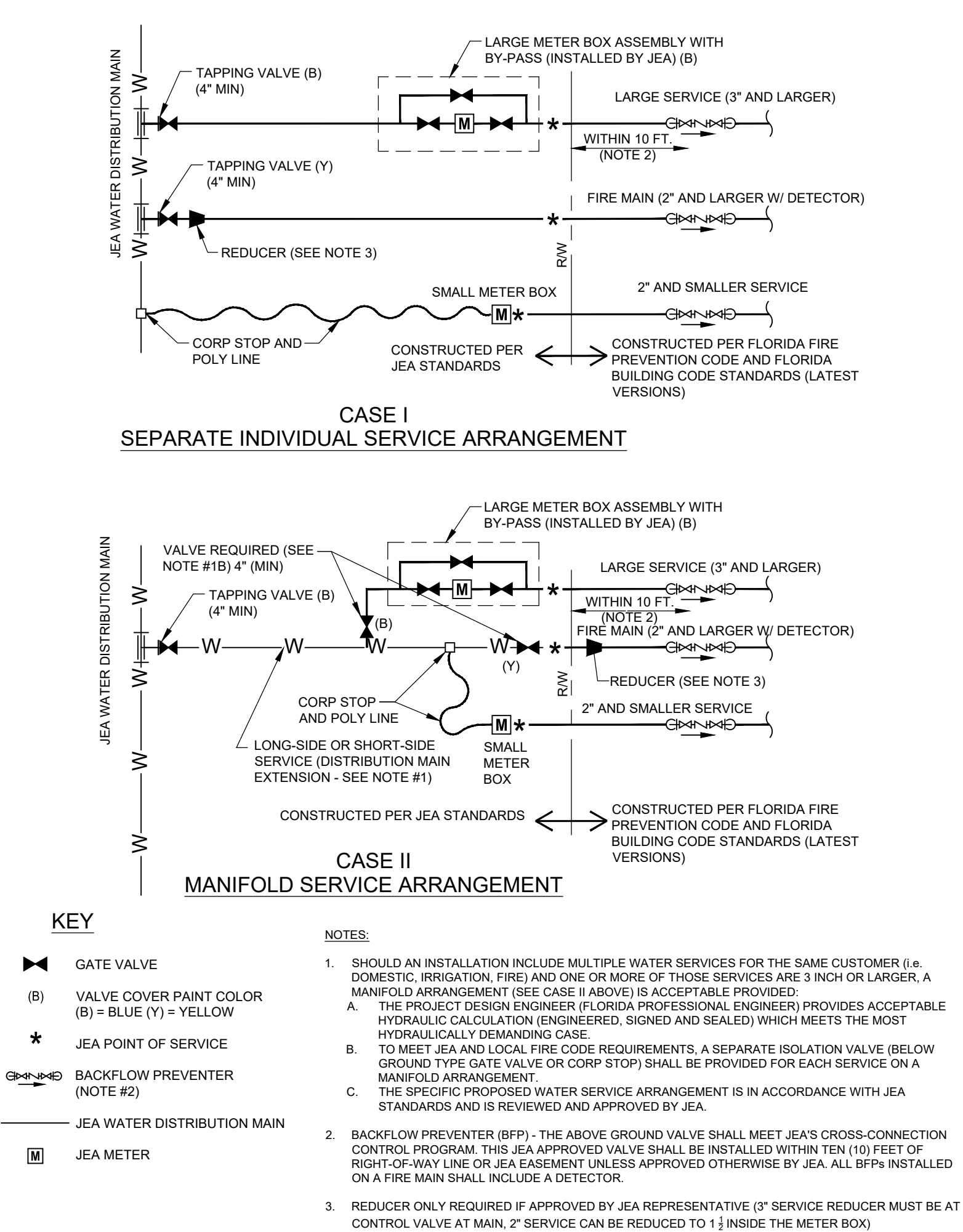
PLATE W-44B

DOMINION ENGINEERING GROUP, INC. 4348 SOUTHPOINT BLVD., SUITE 201 JACKSONVILLE, FLORIDA 32216 904-854-4500	
REVISIONS	
NO.	BY
1.	
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DATE	
DESIGNER: M.E. SCHAEFER	
DRAWN BY: M.E. SCHAEFER	
CHECKED BY: M.E. SCHAEFER	
DATE: 04/12/2022	
DATE: 04/12/2022	
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JEA STANDARD
WATER AND RECLAIM DETAILS

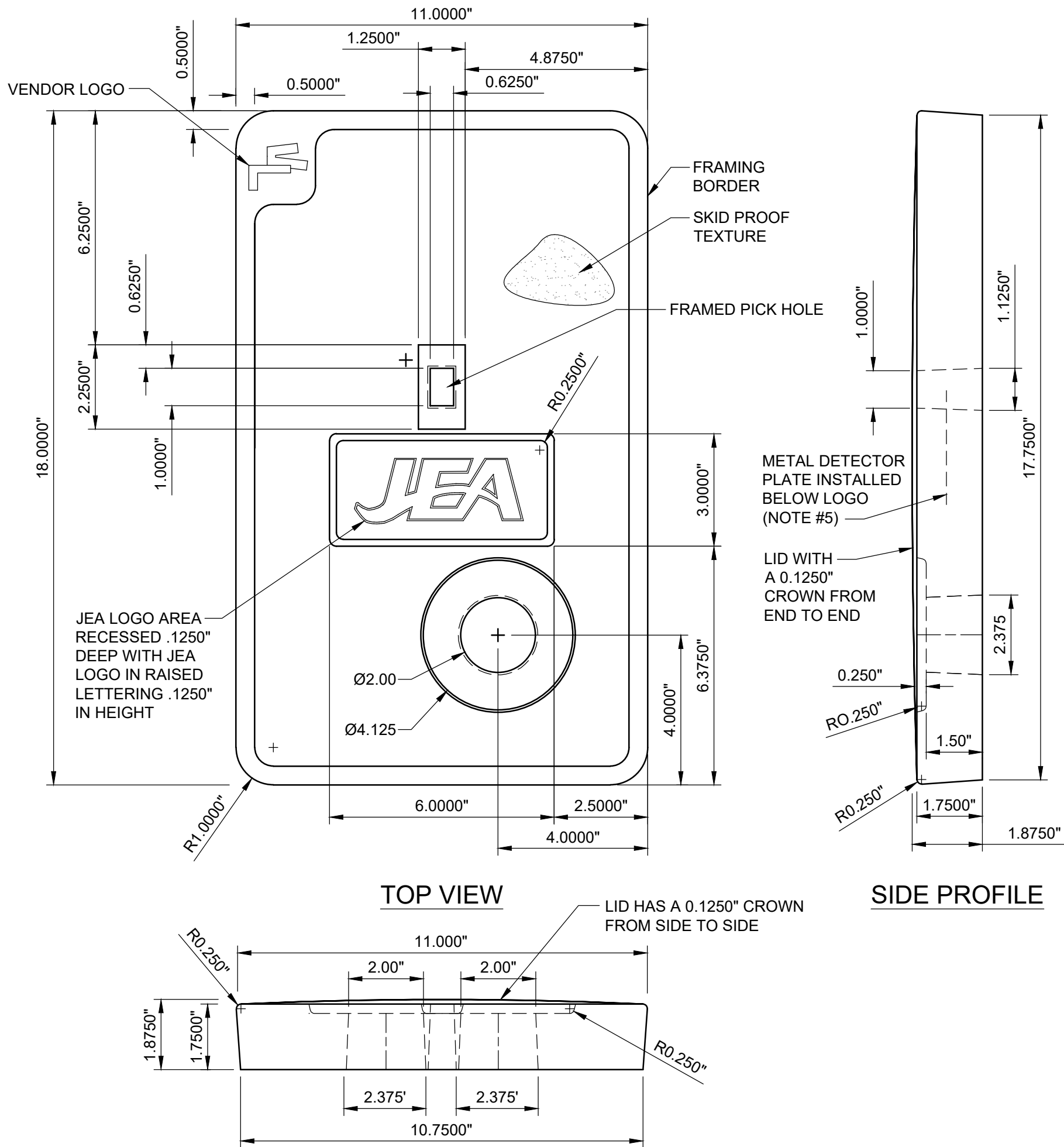
NO. SHEETS	PROJ. NO.
1	
SHEET NO.	DATE: JANUARY 2014
C20	AS NOTED
DRAWING NO.	SCALE:
S-STD-1	



WATER SERVICE MANIFOLD ARRANGEMENT

JANUARY 2020

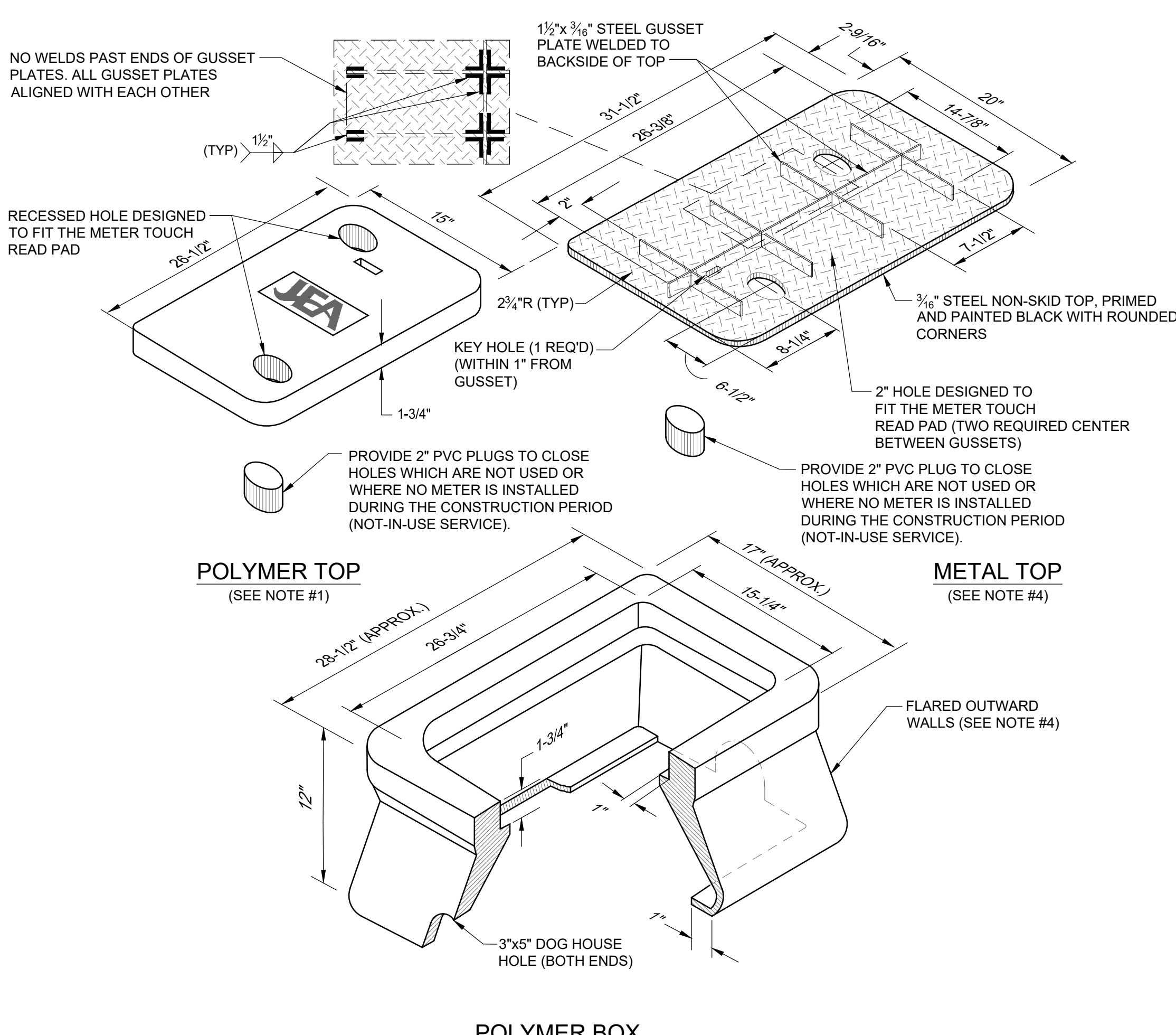
PLATE W-9



WATER METER BOX POLYMER COVER
MODEL No. 37 - ONE HOLE

JANUARY 2020

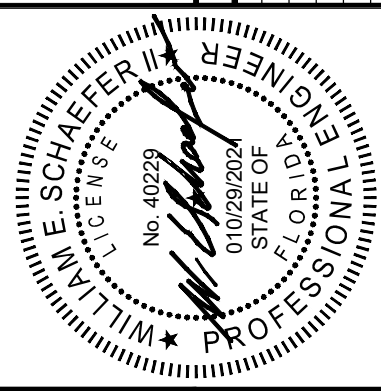
PLATE W-3B



WATER METER BOX & COVER FOR
1-1/2" AND 2" METERS

JANUARY 2020

PLATE W-4

DOMINION ENGINEERING GROUP, INC. 4348 SOUTHPOINT BLVD., SUITE 201 JACKSONVILLE, FLORIDA 32216 904-854-4500		REVISIONS	
		NO.	BY
		DATE	
		NO.	BY
		DATE	
		NO.	BY
		DATE	
DESIGNER: 		DATE: 01/02/2024	
DRAWN BY: 		DATE: 01/02/2024	
CHECKED BY: 		DATE: 01/02/2024	
DATE: 01/02/2024		DATE: 01/02/2024	
JEA STANDARD WATER AND RECLAIM DETAILS		PROJ. NO. DATE: JANUARY 2014 SCALE: AS NOTED	
NO. SHEETS 1		SHEET NO. C21	
DRAWING NO. S-STD-1			

PERMIT SET
NOVEMBER 11, 2021

LAKEVIEW
at TRIBUTARY
NASSAU COUNTY, FL

AMENITY - LANDSCAPE

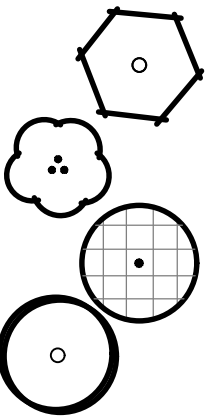
COUNTY RESPONSE #1
04.08.2022

SCHEDULE OF
SHEETS

L0.1	COVER SHEET
L1.0	OVERALL PLAN
L1.1	PLANTING PLAN
L2.1	SCHEDULE & NOTES
L2.2	NOTES & SPECIFICATIONS

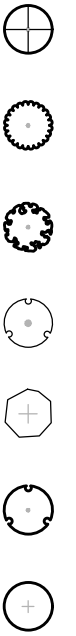
PLANT SCHEDULE AMENITY

CODE PLAN TREES



C-JV4	Eastern Red Cedar
C-LIM4	Lavender Crape Myrtle Multi-Trunk
C-MG6	Bracken's Southern Magnolia
C-QV4	Live Oak

SHRUBS



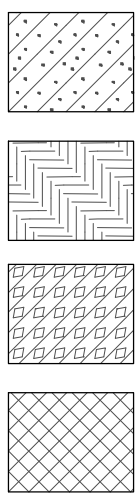
CODE	COMMON NAME
AIF	Formosa Azalea
AXF	Fashion Azalea
LSS	Sunshine Ligustrum
PM	Japanese yew
RIH	Indian Hawthorn
VOS2	Sweet Viburnum
VOS5	Sweet Viburnum

SHRUB AREAS



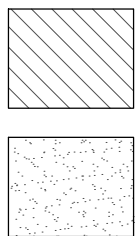
CODE	COMMON NAME
DV	African Iris
MC	Pink Muhly
PA2	White Fountain Grass
RSD2	Red Drift Rose
VOMS	Schillers Dwf Walters

GROUND COVERS



CODE	COMMON NAME
JCBP	Blue Pacific Juniper
LM	Big Blue Lilyturf
SA	Annuals
TS2	Snow N Summer Asiatic Jasmine

SOD/SEED



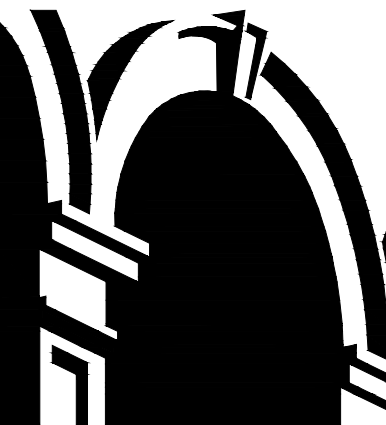
CODE	COMMON NAME
TB	BERMUDA LAWN
TS	ST. AUGUSTINE

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	1.21.2022	RESPONSE	MJR
2	4.8.2022	RESPONSE	MJR

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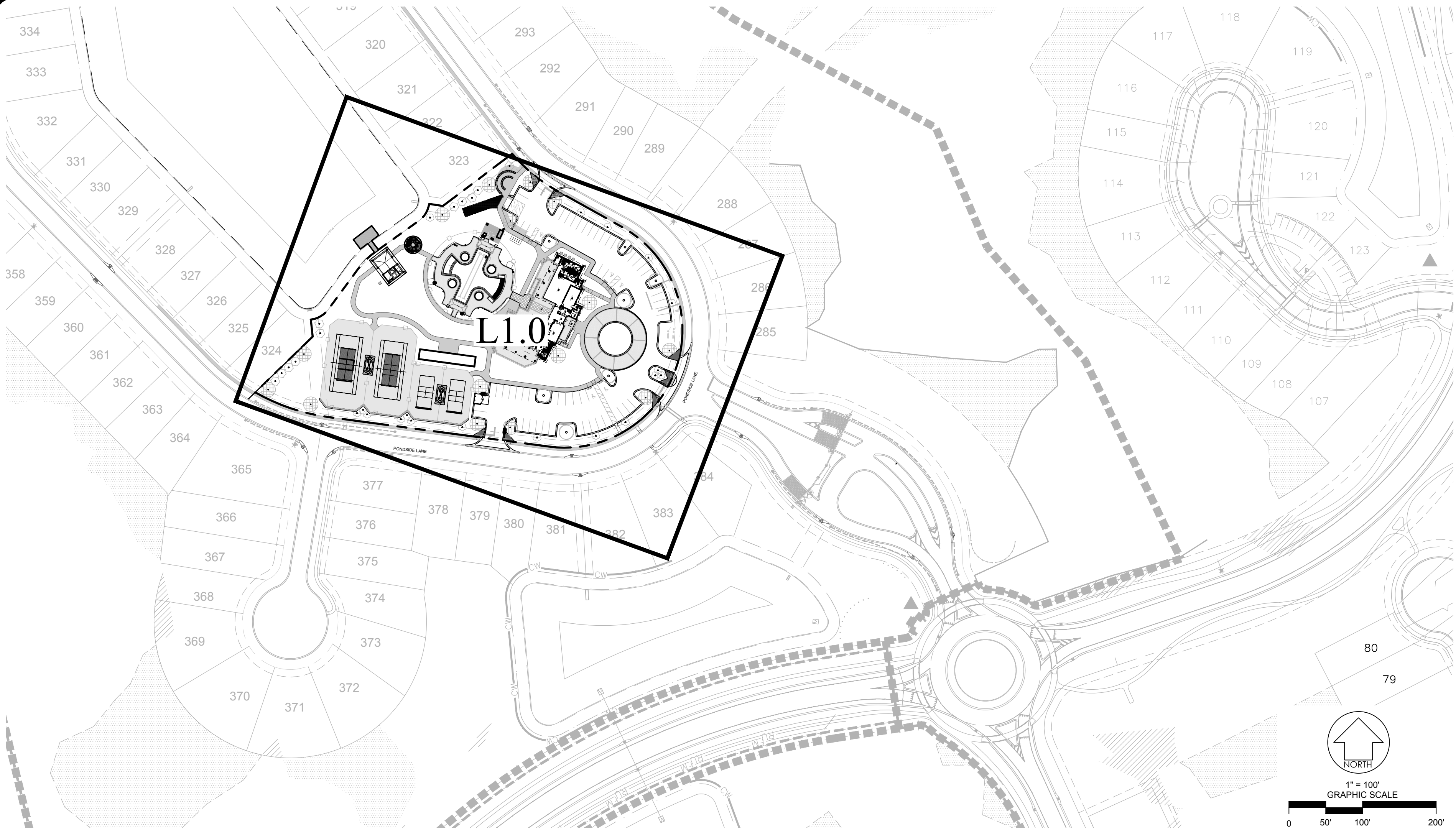
LAKEVIEW AMENITY
at Tributary - Nassau Co., FL
LANDSCAPE
COVER SHEET

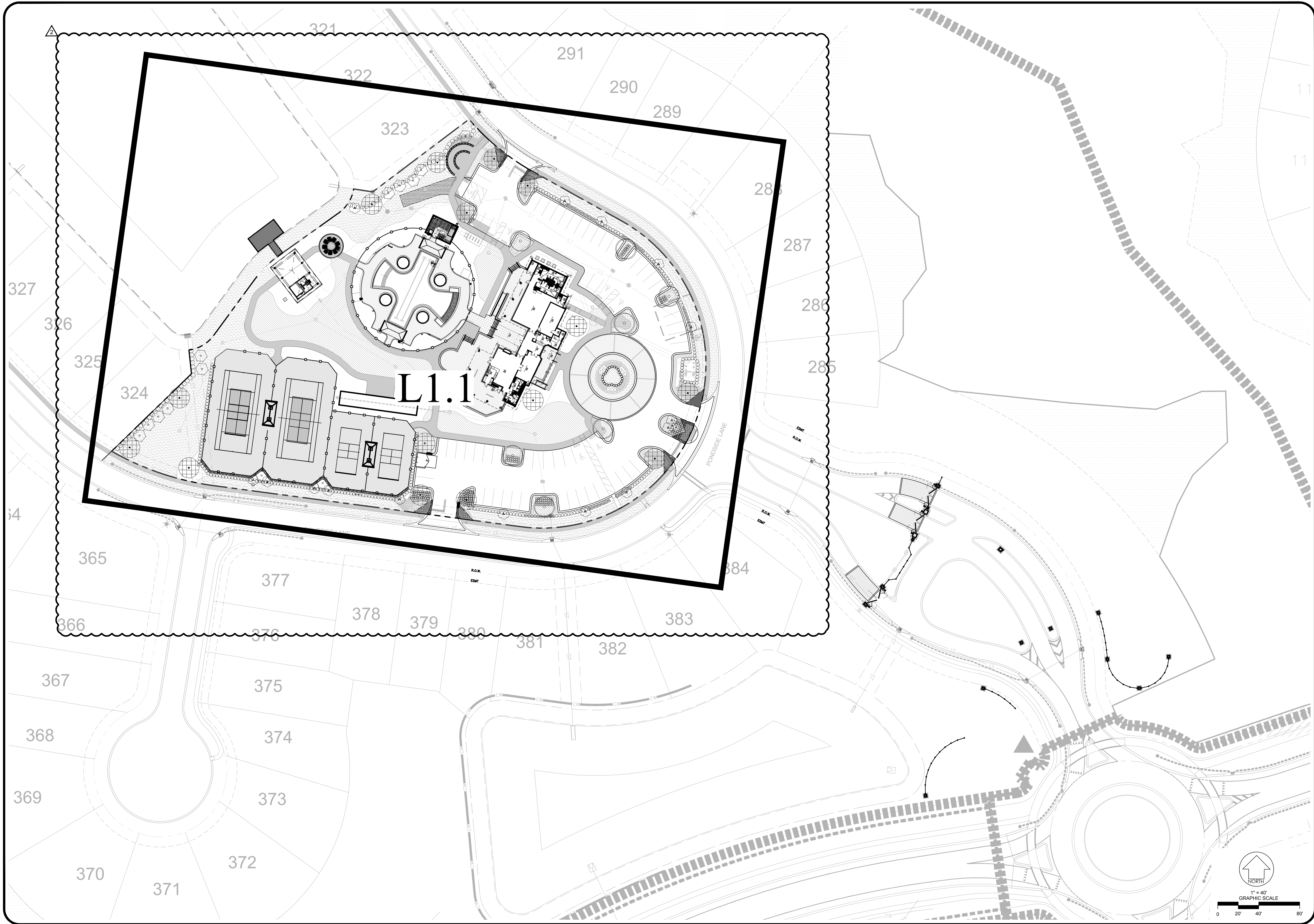


BASHAM
& LUCAS
DESIGN GROUP, INC.
7645 GATE PARKWAY SUITE 101
JACKSONVILLE, FLORIDA 32256
(904) 731-2323 • bashamlucas.com
LN: AA26000586 | LA6666906

DRAWN BY	MJR
CHECKED BY	WWW
DATE	11-11-2021
JOB NO.	20-69

LC0.1
PERMIT SET



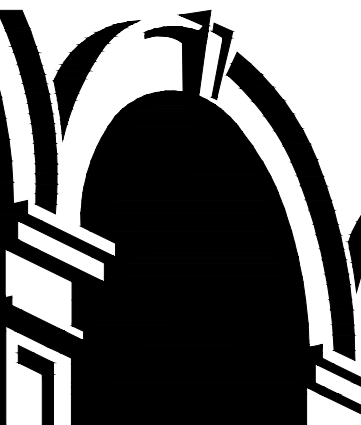


REVISIONS

NO.	DATE	DESCRIPTION	BY
1	1.21.2022	RESPONSE	MJR
2	4.8.2022	RESPONSE	MJR

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LAKEVIEW AMENITY at Tributary - Nassau Co., FL LANDSCAPE OVERALL PLAN



**BASHAM
& LUCAS**
DESIGN GROUP, INC.
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(904) 731-2323 • bashamlucas.com
LN: AA26000586 | LA6666906

DRAWN BY	MJR
CHECKED BY	WWW
DATE	11-11-2021
JOB NO.	20-69

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PERMIT SET

CODE	PLAN	TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CALIPER	REMARKS	NATIVE
			C-JV4	13	Juniperus virginiana	Eastern Red Cedar	MIN. 18' HT x 9' SPD	4" Cal	FULL TO GROUND	NATIVE
			C-LIM4	16	Lagerstroemia x 'Muskogee'	Lavender Crape Myrtle Multi-Trunk	MIN. 14' HT x 7' SPD	4" Cal	MULTI-TRUNK, 3-5 STEMS	NON-NATIVE
			C-MG6	15	Magnolia grandiflora	Bracken's Southern Magnolia	MIN. 16' HT x 8' SPD	6" Cal	FULL TO GROUND	NATIVE
			C-QV4	7	Quercus virginiana	Live Oak	MIN. 18' HT x 9' SPD	4" Cal	STRONG CENTRAL LEADER	NATIVE

SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	NATIVE	SPACING
	AIF	55	Azalea indica 'Formosa'	Formosa Azalea	MIN. 24" HT x 24" SPD	FL FRIENDLY	36" o.c.
	AXF	14	Azalea x 'Fashion'	Fashion Azalea	MIN. 18" HT x 18" SPD	NON-NATIVE	36" o.c.
	LSS	25	Ligustrum sinense 'Sunshine'	Sunshine Ligustrum	MIN. 18" HT x 18" SPD	NON-NATIVE	30" o.c.
	PM	3	Podocarpus macrophyllus	Japanese yew	4" HT., 24" SPRD, MATCHING SPEC	NON-NATIVE	30" o.c.
	RIH	213	Rhapiolepis indica	Indian Hawthorn	MIN. 18" HT x 18" SPD	NON-NATIVE	24" o.c.
	VOS2	229	Viburnum odoratissimum	Sweet Viburnum	MIN. 24" HT x 24" SPD	NON-NATIVE	36" o.c.
	VOS5	72	Viburnum odoratissimum	Sweet Viburnum	MIN. 48" HT x 36" SPD.	NON-NATIVE	48" o.c.

SHRUB AREAS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	NATIVE	SPACING
	DV	65	Diets vegeta	African Iris	MIN. 18" HT x 18" SPD	NON-NATIVE	24" o.c.
	MC	78	Muhlenbergia capillaris	Pink Muhly	MIN. 18" HT x 18" SPD	NATIVE	36" o.c.
	PA2	17	Pennisetum alopecuroides	White Fountain Grass	MIN. 15" HT x 18" SPD	NATIVE	36" o.c.
	RSD2	362	Rosa x 'Red Drift'	Red Drift Rose	MIN. 18" HT x 18" SPD	NON-NATIVE	24" o.c.
	VOMS	91	Viburnum obovatum 'Mrs. Schillers'	Schillers Dwf Walters	MIN. 15" HT x 18" SPD	NATIVE	24" o.c.

GROUND COVERS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	NATIVE	SPACING
	JCBP	376	Juniperus conferta 'Blue Pacific' Blue Pacific Juniper	MIN. 15" HT x 18" SPD	NON-NATIVE	18" o.c.
	LM	566	Liriope muscari 'Big Blue' Big Blue Lilyturf	MIN. 8" HT x 10" SPD	NON-NATIVE	15" o.c.
	SA	547	Seasonal annuals MIX Annuals	4" POT 10" O.C.		10" o.c.
	TS2	126	Trachelospermum asiaticum 'Snow N Summer' TM Snow N Summer Asiatic Jasmine	MIN. 12" HT x 15" SPD	NON-NATIVE	12" o.c.
SOD/SEED	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	NATIVE	SPACING
	TB	11,306 sf	TURF BERMUDA BERMUDA LAWN	-		
	TS	27,463 sf	TURF ST. AUG ST. AUGUSTINE	-		

		SQUARE FEET	ACRES	PERCENTAGE	
TOTAL GROSS AREA		141,160	3.31	100%	
TOTAL IMPERVIOUS SURFACE CALCULATIONS	TOTAL BLDG. AREA	5,434		3.8%	
	TOTAL PAVED AREA	54,725		39%	
	TOTAL IMPERVIOUS SURFACE	60,159		42.8%	
AREA OF PERIMETER LANDSCAPE STRIP (37.05.D)		LENGTH	AVERAGE WIDTH	SQUARE FEET	
	LOCAL ROAD - 10' WIDTH	921.3 LINEAR FT.	10 FT.	9,213	
	TOTAL PERIMETER STRIP AREA			9,213	
OPEN SPACE CALCULATIONS (37.05.C)			SQUARE FEET	REQUIRED OPEN SPACE TREES	PROVIDED OPEN SPACE TREES
	GROSS SITE AREA		141,160		
	SITE AREA LESS PERIMETER STRIP		131,877		
	REQUIRED OPEN SPACE (10%)		13,187.7	26	27
	PROVIDED OPEN SPACE		45,191	26	
SEC 37.06 BUFFER REQUIREMENTS		WIDTH (FT)	AREA (SQFT)	TREES REQUIRED	SCREENING REQUIRED
	HIGH DENSITY	25		NOT REQUIRED	NO SCREENING REQ.
	MEDIUM DENSITY	15		NOT REQUIRED	NO SCREENING REQ.
	LOW DENSITY	10		NOT REQUIRED	NO SCREENING REQ.

PLANT MATERIAL STANDARDS

ALL PLANT MATERIAL USED ON THIS PROJECT SHALL EXCEED THE CLASSIFICATION OF "FLORIDA NO. 1" AS DESCRIBED IN THE LATEST EDITION OF "GRADES AND STANDARDS FOR NURSERY PLANTS", PARTS I AND II, BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES. REFER TO DETAILS FOR FURTHER QUALITY SPECIFICATIONS. ALL QUESTIONS CONCERNING THIS PLAN SET AND/OR SPECIFICATIONS SHALL BE DIRECTED TO THE LANDSCAPE ARCHITECT.

ALL PLANT MATERIAL SHALL MEET OR EXCEED SIZE SPECIFICATIONS DEFINED HEREIN. ANY MATERIAL NOT MEETING SPECIFICATIONS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

THE LANDSCAPE ARCHITECT/OWNER WILL APPROVE THE STAKED LOCATION OF ALL PLANT MATERIAL PRIOR TO INSTALLATION.

PLANT MATERIAL IS SUBJECT TO APPROVAL BY LANDSCAPE ARCHITECT AND OWNER, BEFORE, DURING AND AFTER INSTALLATION, AS PER SPECIFICATIONS.

ALL SOD SHALL BE 100% SOLID SOD, 99% FREE OF NOXIOUS WEEDS, WITH A TWO (2) INCH THICKNESS OF ROOTS CAPABLE OF HOLDING SAND. SOD SHALL BE FRESHLY CUT WITHIN TWENTY-FOUR (24) HOURS OF LAYING, Laid with TIGHTLY-BUTTED JOINTS AND ROLLED. HAND RAKING SHALL BE DONE AS NECESSARY TO ENSURE PROPER EVEN GRADES AND SMOOTH SURFACES FOR SOD.

ALL SINGLE-TRUNK TREES SHALL BE STRAIGHT TRUNKED WITH ONE CENTRAL LEADER AND FULLY CROWNED.

ALL TREES SHALL BE FREE OF OPEN WOUNDS AND WOUND SCARS IN THE CLEAR TRUNK AREA.

ALL TREES SHALL HAVE A MINIMUM HEIGHT OF EIGHT (8) TO TEN (10) FEET AND TWO (2) INCHES OF CALIPER.

B. GRADING OF PLANTING BEDS

THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR HOLDING FINE GRADING OF PLANTING AREAS TO INSURE AT LEAST 3% POSITIVE DRAINAGE AWAY FROM BUILDINGS AND INTO TURF AREAS, PONDS, STREETS OR OTHER DRAINAGE WAYS. IN ADDITION, THE FINISH MULCH ELEVATION AT THE BUILDINGS SHALL BE AT LEAST 6" BELOW FINISH FLOOR OF THE ADJACENT BUILDINGS. VERIFY THIS CONDITION WITH GENERAL CONTRACTOR PRIOR TO BEGINNING WORK. PARKING LOT ISLANDS SHALL SLOPE AT 2" FROM CENTER OF ISLAND TO CURB. TURF AND PLANTING BEDS SHALL MEET SIDEWALKS AND FLATWORK AT 3" BELOW THE FLATWORK.

THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ALL FINAL GRADING OF BERMS, BED AREAS AND SOD AREAS UNTIL FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT, BOTH BEFORE AND AFTER LANDSCAPE INSTALLATION HAS BEGUN.

C. BED PREPARATION AND PLANTING

LOOSEN SOIL TO A MINIMUM DEPTH OF FOUR (4) INCHES AND REMOVE ALL DEBRIS. REGRADE THE BED TO ITS PRE-PLANTING SUBGRADE. FILL PLANT PIT WITH 50% EXISTING SOIL AND 50% TOPSOIL (SEE BELOW) AND COMPACT SO THAT THE TOP OF ROOT BALL WILL SETTLE 1/8" DEPTH OF ROOT BALL ABOVE FINISH GRADE. SET PLANT AND FILL REMAINDER OF HOLE WITH PLANTING MIX. FERTILIZE EACH PLANT AS RECOMMENDED BY SOIL ANALYSIS. THE LANDSCAPE CONTRACTOR SHALL PROVIDE OWNER WITH A YEARLY FERTILIZATION PROGRAM AS DEFINED BY THE SOIL ANALYSIS. WATER IN THOROUGHLY. RESET ANY PLANTS THAT SETTLE TOO DEEP. REMOVE SPOIL DIRT AND RAKE THE BED TO ITS FINISH GRADING. COVER ALL BED AREAS WITH A 3" DEPTH OF MULCH (SEE PLANT LIST). REMOVE ALL DEBRIS FROM MULCH.

NON-CANOPY TREES SHALL NOT BE PLANTED CLOSER THAN TEN (10) FEET FROM OTHER TREES AND CANOPY TREES SHALL NOT BE PLANTED CLOSER THAN 20 - 30 FEET, DEPENDING UPON SPECIES OR UNLESS APPROVED BY THE COUNTY ADMINISTRATOR AND/OR LANDSCAPE ARCHITECT.

PLANT MATERIAL THAT EXCEEDS TWENTY-FIVE (25) FEET IN HEIGHT AT MATURITY SHOULD NOT BE PLANTED CLOSER THAN FIFTEEN (15) FEET OF THE VERTICAL PLANE OF AN EXISTING POWER LINE, EXCLUDING SERVICE WIRES.

TREES SHALL NOT BE PLANTED CLOSER THAN SEVEN AND ONE HALF (7.5) FEET FROM THE CENTERLINE OF UNDERGROUND UTILITIES.

BALLED AND BURLAPPED STRAPPING WIRE AND ANY SYNTHETIC MATERIAL SHALL BE REMOVED PRIOR TO FINAL INSPECTION. WIRE BASKETS SHOULD BE CUT AWAY FROM THE TOP 1/3 OF THE ROOTBALL.

MULCH SHALL BE PROVIDED A MINIMUM OF THREE (3) INCHES IN DEPTH AROUND ALL NEWLY PLANTED LANDSCAPE (CYPRESS MULCH IS NOT ALLOWED). SEE PLANT SCHEDULE FOR TYPE OF MULCH.

A MULCH RING FOR ALL NEWLY PLANTED TREES SHALL BE PROVIDED AT LEAST FIVE (5) FEET IN DIAMETER. DO NOT MULCH WITHIN SIX (6) INCHES FROM THE TREE TRUNK.

PLANT INSTALLATION SHALL NOT PROCEED PRIOR TO THE INSTALLATION AND OPERATION OF THE LANDSCAPE IRRIGATION SYSTEM. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO PLANT MATERIAL CAUSED BY INSUFFICIENT WATER.

ALL PLANTINGS AND BED LAYOUTS SHALL BE SET AND APPROVED BY OWNER/LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. IF PLANT MATERIAL IS INSTALLED PRIOR TO OWNER/LANDSCAPE ARCHITECT'S APPROVAL, CONTRACTOR WILL BE SUBJECT TO RELOCATING THE MATERIAL AT THE OWNER'S REQUEST AND THE CONTRACTOR'S OWN EXPENSE.

ALL DISTURBED AREAS OUTSIDE OF THIS SCOPE TO BE SODDED; REFER TO CIVIL ENGINEERING PLANS FOR DETAILS AND SPECIFICATIONS.

D. TOPSOIL

TOPSOIL SHALL BE A NATURAL FRIABLE, FERTILE, FINE LOAM SOIL. IT SHALL BE CERTIFIED (BY TESTING) TO BE FREE OF WEED SEEDS AND PATHOGENS. IT SHALL ALSO BE FREE OF LITTER, SOD, CLAY, STONES, ROOTS AND STUMPS. IT SHALL BEAR A PH OF BETWEEN 5.5 AND 7.5.

SOIL IN TREE ISLANDS SHALL HAVE AT LEAST TWELVE (12) INCHES OF SUITABLE SOIL FOR TREE PLANTINGS AND BE VOID OF ANY CONSTRUCTION DEBRIS OR UNSUITABLE MATERIALS.

THE GENERAL CONTRACTOR SHALL ENSURE THAT ALL PLANTING ISLANDS, PARKING LOT ISLANDS OR PLANTING AREAS SHALL BE CLEAN OF ALL TRASH, DEBRIS OR OTHER NON-INDIGENOUS MATERIALS TO A DEPTH OF 36" PRIOR TO ANY LANDSCAPE INSTALLATION.

FILL FOR ALL PARKING LOT ISLANDS SHALL BE A MIN. OF 3" BELOW TOP OF CURBING AND BE CROWNED TO A MIN. OF 6" ABOVE CURBING AT THE CENTER OF EACH ISLAND.

E. EDGING

ALL EDGING SHALL BE AS DESCRIBED IN THE PLANTING DETAILS.

MULCHING AND EDGING SHALL BE PER APPROPRIATE NOTES & SPECIFICATIONS.

F. TREE STAKING

ALL TREES TO BE STAKED AND GUYED AS SHOWN IN THE DETAILS UNLESS OTHERWISE NOTED.

ALL TREES, INCLUDING PALMS, SHALL BE SET VERTICALLY TO THE GROUND OR IF ON SLOPES OR BERMS, SHALL BE SET VERTICALLY TO THE SURROUNDING FLAT TERRAIN.

G. WARRANTY

ALL PLANT MATERIAL SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE BY THE OWNER AND/OR LANDSCAPE ARCHITECT. UNTIL FINAL ACCEPTANCE BY THE OWNER AND/OR LANDSCAPE ARCHITECT, ALL PLANT MATERIAL MUST BE MAINTAINED IN GOOD, LIVING CONDITION. THIS INCLUDES KEEPING BEDS FREE OF DEBRIS AND WEEDS, ALL MECHANICAL MAINTENANCE, FERTILIZATION, CHEMICAL TREATMENTS FOR REPLACEMENT OR INFESTATION AND WATERING. THE LANDSCAPE CONTRACTOR SHALL PROMPTLY MAKE ALL DISAPPEARS BEFORE OR AT THE END OF THE GUARANTEE PERIOD (AS DIRECTED BY OWNER).

THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE ANY AND ALL NECESSARY REPAIRS TO DAMAGE CAUSED BY HIS WORK AT NO ADDITIONAL COST TO THE OWNER OR LANDSCAPE ARCHITECT.

CONTRACTOR SHALL BE RESPONSIBLE FOR WARRANTY OF HEALTH OF PLANTS IN ON-SITE SOILS. IF DURING DIGGING, CONTRACTOR DISCOVERS WATER-LOGGED, CLAYEY, COMPACTED OR SIMILARLY POORLY DRAINED SOILS, IT SHOULD BE BROUGHT TO THE ATTENTION OF OWNER/LANDSCAPE ARCHITECT FOR REMEDIAL ACTION.

ANY PLANT MATERIAL WHICH DIES, TURNS BROWN OR DEFOLIATES (PRIOR TO TOTAL ACCEPTANCE OF THE WORK) SHALL BE PROMPTLY REMOVED FROM THE SITE & REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, SIZE AND MEETING ALL PLANT LIST SPECIFICATIONS.

- (1) ALL PLANTS WILL BE FULLY IRRIGATED AS PER 37.05 (G)(1)
- (2) ALL TREES PLANTED WILL BE STAKED OR GUYED FOR A PERIOD OF AT LEAST 6 MONTHS AS PER 37.05 (B)(2).
- (3) THE PROPERTY OWNER IS RESPONSIBLE FOR THE MAINTENANCE OF ALL LANDSCAPE AREAS, INCLUDING IRRIGATION, MOWING, TRIMMING, FERTILIZING, & CARRYING OUT THE ACTIVITIES TO KEEP THE PLANT MATERIAL IN A HEALTHY AND GROWING CONDITION, MAINTAIN VISUAL CLEARANCE, & ALLOW PASSAGE OF VEHICLES & PEDESTRIANS ON PUBLIC ROADS & NON-EXCLUSIVE EASEMENTS AS PER 37.05 (J).

1. THE LANDSCAPE CONTRACTOR SHALL REVIEW ALL LANDSCAPE PLANS AND SPECIFICATIONS AND PERFORM AN ANALYSIS OF SITE CONDITIONS RELATIVE TO THE PLANS AND SPECIFICATIONS PRIOR TO CONSTRUCTION AS WELL AS BECOMING FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES, STRUCTURES AND LINE RUNS PRIOR TO CONSTRUCTION. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY & ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCUR AS A RESULT OF THE LANDSCAPE CONSTRUCTION.
2. REPORT ALL DISCREPANCIES IN SITE CONDITIONS OR NON-CONFORMANCE TO SPECIFICATIONS (SUCH AS GRADING, BACKFILLING, REMOVAL OF DEBRIS, GRUBBING, ETC) TO LANDSCAPE ARCHITECT PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR AND WARRANTY THE HEALTH OF PLANTS IN ON-SITE SOILS. IF, DURING DIGGING, THE CONTRACTOR DISCOVERS WATER-LOGGED, CLAYEY, COMPACTED OR SIMILARLY POORLY DRAINED SOILS, IT SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER FOR IMMEDIATE REMEDIAL ACTION. CONTRACTOR SHALL ALSO TAKE ALL NECESSARY MEASURES TO ENSURE THE VIABILITY AND SURVIVABILITY OF ITALIAN CYPRESS IN THIS SCOPE OF WORK.
4. TO INSURE A TIMELY FLOW OF WORK, THE LANDSCAPE CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES OR PROFESSIONALS ON THE SITE WHOSE WORK MAY OVERLAP OR INTERFERE WITH THE WORK SET FORTH IN THE PLAN SET OR WRITTEN SPECIFICATIONS.
5. THE PLANT QUANTITIES WITHIN THE PLANT LIST ARE PROVIDED FOR CONVENIENCE PURPOSES. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL PLANT MATERIAL QUANTITIES AND ALL QUANTITIES FOR SOD, MULCH, ROCK MULCH, FINISH GRADE/BERMING AND PLANTING SOIL, PRIOR TO BIDDING. WHERE CONFLICTS OCCUR BETWEEN PLAN DRAWINGS AND PLANT LIST, THE PLAN DRAWINGS SHALL PREVAIL.
6. CONTRACTOR SHALL SUBMIT UNIT PRICES FOR ALL BID ITEMS.
7. DISCREPANCIES IN DOCUMENTS OR SITE CONDITIONS SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT IN WRITING AT TIME OF BIDDING OR PRIOR TO CONSTRUCTION. NO ACCOUNT SHALL BE MADE AFTER CONTRACT COMPLETION FOR FAILURE TO REPORT SUCH CONDITION OR FOR ERRORS ON THE PART OF THE LANDSCAPE CONTRACTOR AT TIME OF BIDDING (ONLY EXTREMELY PECULIAR AND UNUSUAL CONDITIONS WILL BE CONSIDERED FOR NEGOTIATION).
8. ALL QUESTIONS CONCERNING THIS PLAN SET OR SPECIFICATIONS SHALL BE DIRECTED TO THE LANDSCAPE ARCHITECT.
9. PLANT MATERIALS ARE TO BE BID AS SPECIFIED UNLESS UNAVAILABLE, AT WHICH TIME THE LANDSCAPE ARCHITECT WILL BE NOTIFIED BY TELEPHONE AND IN WRITING OF THE INTENDED CHANGES. THERE SHALL BE NO ADDITIONS, DELETIONS OR SUBSTITUTIONS WITHOUT THE WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT. CONTRACTOR SHALL SUBMIT UNIT PRICES FOR ALL BID ITEMS.
10. IF ISSUED, WRITTEN SPECIFICATIONS SHALL BE AN INTEGRAL PART OF THIS PLAN SET.

1. IT IS THE INTENT OF THE OWNER TO HAVE AN AUTOMATIC, UNDERGROUND IRRIGATION SYSTEM FOR THIS PROJECT. THE SYSTEM IS TO BE EXECUTED THROUGH A QUALIFIED CONTRACTOR AS A DESIGN/BUILD SCOPE OF WORK. THE DESIGN OF THIS SYSTEM MUST, AT A MINIMUM, COMPLY WITH THE FOLLOWING CRITERIA.
1. SYSTEM SHOULD PROVIDE FOR 100% COVERAGE OF ALL PLANTING AREAS WITH HEAD TO HEAD COVERAGE.
2. SYSTEM SHOULD BE DESIGNED FOR MOST EFFICIENT USE OF WATER USING BEST MANAGEMENT PRACTICES FOR THE PROTECTION OF WATER RESOURCES. FLORIDA DEVELOPED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, DEPARTMENT OF COMMUNITY AFFAIRS, WATER MANAGEMENT DISTRICTS, THE UNIVERSITY OF FLORIDA.
3. ALL PROPOSED TREES SHALL EACH HAVE CORRESPONDING BUBBLERS ASSOCIATED WITH IT AS A PART OF THE DESIGN OF THE IRRIGATION SYSTEM.
4. IF WATER SOURCE IS FROM THE REUSE OF RECLAIMED WATER; SYSTEM SHOULD BE DESIGNED TO MEET ALL REQUIREMENTS FOR AS SET FORTH BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE FLORIDA DEPARTMENT OF HEALTH, PLUS ANY ADDITIONAL REQUIREMENTS FOR STATE AND LOCAL MUNICIPALITIES AND ANY WATER MANAGEMENT DISTRICTS.
5. SYSTEM SHOULD BE DESIGNED TO ISOLATE TURF AREAS FROM SHRUB AREAS.
6. SYSTEM SHOULD BE DESIGNED TO ALLOW IRRIGATION TO BE ACCOMPLISHED IN A SIX HOUR PERIOD.
7. SYSTEM SHOULD BE DESIGNED TO MINIMIZE OVERSPRAY ONTO PAVED SURFACES.
8. SYSTEM SHOULD BE DESIGNED TO BE METERED AS STAND ALONE WATER SERVICE.
9. SYSTEM SHOULD BE DESIGNED TO INCLUDE A RAIN SENSOR.
10. SYSTEM SHOULD BE DESIGNED TO INCORPORATE QUICK COUPLER VALVES AT NO MORE THAN 200 FEET ON CENTER.
11. OWNER RESERVES THE RIGHT TO REVIEW THE DESIGN PLACEMENT OF ALL BACKFLOW PREVENTORS, CONTROLLERS AND VALVE BOXES.
12. IRRIGATION PLANS SHOULD BE PREPARED AT A SCALE NO SMALLER THAN 1 INCH = 20 FEET AND SHOULD ACCURATELY, AND CLEARLY, DEPICT THE LOCATION OF ALL POINTS OF CONNECTION, BACKFLOW PREVENTORS, CONTROLLERS, VALVE BOXES, SLEEVES, MAIN LINE (INCLUDING DIA.), LATERAL LINES (INCLUDING DIA.), TURF ROTORS, SPRAY HEADS, DRIP EMITTERS, QUICK COUPLERS AND NOZZLES.

PINE BARK MINI NUGGETS SHALL BE PROVIDED FOR ALL AREAS WITHIN THE LIMITS OF WORK DESIGNATED TO RECEIVE NEW TREES OR SHRUBS; SEE LANDSCAPE PLANS FOR MORE DETAILS. MULCH SHALL BE PROVIDED TO A CONSISTENT DEPTH OF 3 INCHES THROUGHOUT.

ALL AREAS WITHIN THE LIMITS OF WORK NOT DESIGNATED TO RECEIVE TREES OR SHRUBS; OR NOT OTHERWISE DESIGNATED WITH A SPECIFIC TURF GRASS; SHALL BE SODDED TO MATCH ADJACENT SODDED AREAS. SEE LANDSCAPE PLANS FOR MORE DETAILS.

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DRAWN BY	MJR
CHECKED BY	WWW
DATE	11-11-2021
JOB NO.	20-69

SECTION 02950 TREES, SHRUBS, AND GROUND COVER

PART 1 GENERAL

1.01 WORK INCLUDED

A. Trees, shrubs, vines and ground cover as applicable.

B. Topsoil backfill.

C. Staking and guying.

D. Maintenance service.

E. Annuals and perennials planting.

1.02 RELATED WORK

A. Section 02811 – Underground Sprinkler System.

B. Section 02938 – Sodding.

1.03 REFERENCES

A. Standardized Plant Names, 1942 edition, American Joint Committee on Horticulture Nomenclature.

B. American Standard for Nursery Stock (ANSI Z60), latest edition, American Association of Nurserymen.

C. FS O–F–241 – Fertilizer, Mixed, Commercial.

1.04 QUALITY ASSURANCE

A. Perform work with personnel experienced in the work required of this Section under direction of a skilled foreman.

B. Submit sources of plant materials. All materials to have name tags attached. Submit invoice with plant names if required.

C. Contractor shall locate all materials and be responsible for conformance with requirements of this Section. All plants not meeting requirements to be rejected.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Move B&B plant materials with solid balls wrapped in burlap. Plants to be lifted only by ball or container.

B. Deliver plant materials immediately prior to placement. Keep plant materials not immediately installed moist and protect from freezing by covering ball or container with mulch.

C. Reject plants when ball or container of earth surrounding roots has been cracked, broken or frozen preparatory to or during process of planting.

1.06 WARRANTY

A. Warrant all plants to be living, healthy specimens for a period of one year commencing upon date of final acceptance. Warranty period shall terminate only if plants have been in full leaf for 30 days at end of warranty period. Termination of warranty period shall be extended as necessary to comply. All materials to be in vigorous condition at end of warranty period.

B. Immediately remove dead plants and plants not in a vigorous condition and replace as soon as weather conditions permit. Each replacement shall be covered with one year warranty commencing at time of planting.

C. Replacements: Match with adjacent plants of the same species in size and form.

1.07 MAINTENANCE SERVICE

A. Begin maintenance of plant materials immediately after planting and continue until date of final project acceptance.

B. Maintenance shall include measures necessary to establish and maintain plants in a vigorous and healthy growing condition. Include the following:

1. Cultivation and weeding of plant beds and tree pits. When herbicides are used for weed control, apply in accordance with manufacturer's instructions. Remedy damage resulting from use of herbicides.
2. Watering sufficient to maintain optimum moisture level.
3. Pruning, including removal of dead or broken branches, and treatment of prune wounds.
4. Disease and insect control.
5. Maintaining plants in an upright, plumb position, and repair of settling.
6. Maintenance of wrappings, guys, turnbuckles and stakes. Adjust turnbuckles or otherwise keep guy wires tight. Repair or replace accessories when required.

PART 2 PRODUCTS

2.01 MATERIALS

A. Trees, Shrubs, Vines, and Ground Cover: Species and size identified in plant list. Plant materials shall be true to name, in good health, free of disease and insects, excellent in form and in complete conformance with ANSI Z60. All materials to be nursery grown.

B. Topsoil: Friable loam, typical of cultivated topsoils locally, containing at least 2% of decayed organic matter (humus) secured from a well drained, arable site, reasonably free of subsoil, stones, earth clods, sticks, roots or other objectionable extraneous matter or debris and containing no toxic materials. Topsoil to have acidity range of 6.0 to 7.0.

C. Mulch: See Plant Schedule. Cypress products are prohibited.

D. Fertilizer: Osmocote 18–6–12. Or Approved Equal.

E. Organic Compost: Supplied by Wild Earth Products – State Line Bark & Mulch Inc. Rte. 4 Box 630, Old Dixie Hwy. 121 Folkston, GA 31537 ph. 912–496–2999 fx. 912–496–2998 wildearth1@yahoo.com – Or Approved Equal.

2.02 ACCESSORIES

A. Wrapping Materials: Heavy paper manufactured for tree wrapping purpose.

B. Stakes: Metal Fence posts (Painted Brown) – 6

foot height. Wood (Painted Brown) – All sizes decay resistant.

C. Hardware (cables, wire, eye bolts, and turnbuckles): Noncorrosive; of sufficient strength to withstand wind pressure.

D. Tie straps: Soft polypropylene material equal to ArborTie, by Deep Root Partners, LP, 31 Langston St., Suite 4, San Francisco, CA, 94103, 1–800–277–7668.

PART 3 EXECUTION

3.01 PREPARATION

A. Verify topsoil is ready to receive the work of this Section. All areas to be planted with shrub or ground cover masses to have minimum 6 inch depth of topsoil.

B. Remove all weeds and grasses from planting beds. Bermuda grass, if present, to be exterminated by approved means or all soil removed to 6 inch depth and replaced with topsoil free of bermuda grass.

C. Stake tree locations and place shrubs, vines, and ground covers for review and final orientation by Owner's Representative prior to installation.

D. Outline bed edges for approval prior to installation.

E. Prepare topsoil for shrub and ground cover beds, after removing any vegetation with approved procedure, by tilling 2 inch layer (165 CF per 1000 sq. ft.) of compost into the upper 6 inches of soil.

3.02 INSTALLATION

A. Excavate for plant materials. Tree pits shall be 24 inches greater in diameter than root ball. Circle to be centered on tree and true in form. Slope cut edge to 6" depth and bottom of pit to depth required to accommodate tree rootball. Shrub pits shall be 12 inches greater in diameter than root ball. Topsoil from excavation may be retained for backfill if it is friable and free of rock and clods greater than 2" in dia. Remove all subsoil, rock, and debris from site.

B. Set trees with top of root ball 3 inches above surrounding grade, and other plant materials 2 inches above surrounding grade, after settlement.

C. Remove containers from container–grown stock. Set plants in center of pits and backfill with topsoil in 6 inch layers. Pull away ropes, wires, etc. from the top of the ball.

D. Final 6 inch layer of backfill around trees to consist of 1:1 mixture of organic compost and topsoil.

E. Thoroughly water soil when the hole is half full, and again when full.

F. Apply 1/2 pound fertilizer evenly over cultivated area around each tree and 1 pound per 100 square feet to shrub and ground cover plantings.

G. Evenly spread a 3 inch layer of mulch over tree pits and planting beds. For trees, avoid placing mulch within 6" of tree trunk. For shrubs, avoid placing mulch within 3" of plants main stem.

H. Prune trees and shrubs after planting to improve form and to remove dead and broken branches.

I. Circular area around roots to be mulched and free of vegetation. For trees 2 inch and greater in caliper, area to be 6 feet in diameter. For trees less than 2 inch caliper, area to be 4 feet in diameter. Circle to be centered on tree and true in form.

J. After planting trees, form a 3' diameter ridge of topsoil around edge of excavation to retain water.

3.03 PLANT SUPPORT

A. Brace plants upright and plumb in position by staking and guying as detailed. Guys to be secured to tree with loops as detailed.

3.04 SPECIAL PLANTING

A. Annuals, Seasonal Planting: Prepare soil per requirements for shrubs and ground cover as described in Article 3.01. Refresh annually by incorporating 2 inch layer (165 CF per 1000 SF) of organic compost.

1. Spring Planting should be installed between March and April.
2. Fall Planting should be installed between October and November.
3. Spring or Fall planting time is contingent upon current weather patterns and temperature.

END OF SECTION 02950

SECTION 02938 SODDING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Preparation of planting surface.

B. Fertilizing.

C. Sod installation.

D. Maintenance service.

1.02 RELATED WORK

A. Section 02950 – Trees, Shrubs and Ground Cover.

B. Section 02811 – Underground Sprinkler System.

1.03 REFERENCES

A. Standardized Plant Names, 1942 Edition, American Joint Committee on Horticulture Nomenclature.

B. ASPA (American Sod Producers Association) – Guideline Specifications to Sodding.

C. FSO–F–241 – Fertilizers, Mixed, Commercial.

1.04 DEFINITIONS

A. Weeds: Includes Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel and Bromo Grass.

1.05 QUALITY ASSURANCE

A. Sod Producer: Company specializing in sod production and harvesting with a minimum of 5 years experience.

B. Sod: Root development that will support its own weight, without tearing, when suspended vertically by holding the upper two corners.

1.06 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.07 TESTS

A. None required.

1.08 MAINTENANCE DATA

A. Submit recommended maintenance procedures to be followed by Owner.

B. Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Deliver sod on pallets. Protect exposed roots from dehydration.

B. Do not deliver more sod than can be laid within 24 hours.

1.010 COORDINATION

A. Coordinate the work of this Section with installation of underground sprinkler system and plant material as applicable.

1.011 MAINTENANCE SERVICE

A. Maintain sod from installation through to date of final acceptance.

PART 2 PRODUCTS

2.01 MATERIALS

A. Sod: Cultivated grass sod; type indicated on Drawings; with strong fibrous root system, free of stones, burned or bare spots, and weeds.

B. Fertilizer: Type recommended for grass; of proportions necessary to eliminate any deficiencies of topsoil as indicated in soils test or otherwise approved.

C. Soil Amendments: Lime, sulphur, or other material recommended by soil test.

D. Water: Clean, fresh, and free of substances or matter which could inhibit vigorous growth of grass.

2.02 HARVESTING

A. Machine cut sod and load on pallets in accordance with ASPA guidelines.

B. Cut sod with minimum 1/2 inch and maximum one inch topsoil base.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that prepared soil base is ready to receive the work of this Section.

B. Beginning of installation means acceptance of existing site conditions.

3.02 PREPARATION

A. Finish grade areas to be sodded so that the surface is smooth and is approximately 1 inch below adjoining sidewalks and other paved surfaces.

B. Remove all weeds and grasses from areas to be sodded

C. Planting surface shall be made friable by approved method of scarification. Prepared surface shall be floated smooth and free of bumps and depressions. Remove stones and foreign matter over 2 inches in diameter from top 2 inches of sod bed. Plant immediately thereafter, provided the bed has remained in a friable condition and has not become muddy or hard. If it has become hard, till to a friable condition again.

D. Apply fertilizer at the rate of one pound actual Nitrogen per 1000 square feet. Apply fertilizer prior to installation of sod. Apply fertilizer no more than 48 hrs before laying sod.

E. Lightly water to aid the dissipation of fertilizer.

3.03 LAYING SOD

A. Moist prepared surface immediately prior to laying sod.

B. Lay sod within 24 hours after harvesting to prevent deterioration.

C. Lay sod tight with no open joints visible and no overlapping; stagger end joints 12 inches minimum. Do not stretch or overlap sod pieces.

D. Finished sodding to be smooth and free of bumps and depression. Surface to be flush with adjoining grass areas if any. Place top elevation of sod approximately 1/2 inch below adjoining edging, paving and curbs. Place planting surface as necessary to accomplish above.

E. Water sodded areas deeply immediately after installation.

3.04 WARRANTY

A. Sodded areas to be vigorously growing at time of final acceptance or if installation occurs during dormancy warranty to extend through first month of following growing season. At conclusion of initial warranty period replace dead or unhealthy sod.

3.05 MAINTENANCE

A. Mow grass at regular intervals to maintain at a maximum height of 3 inches for St. Augustine Grass. Do not cut more than 1/3 of grass blade at any one mowing.

B. Neatly trim edges and hand clip where necessary.

C. Immediately remove clippings after mowing and trimming.

D. Water sufficiently to insure establishment and maintain vigorous appearance.

E. Roll and/or topdress surface as needed to remove minor depressions or irregularities.

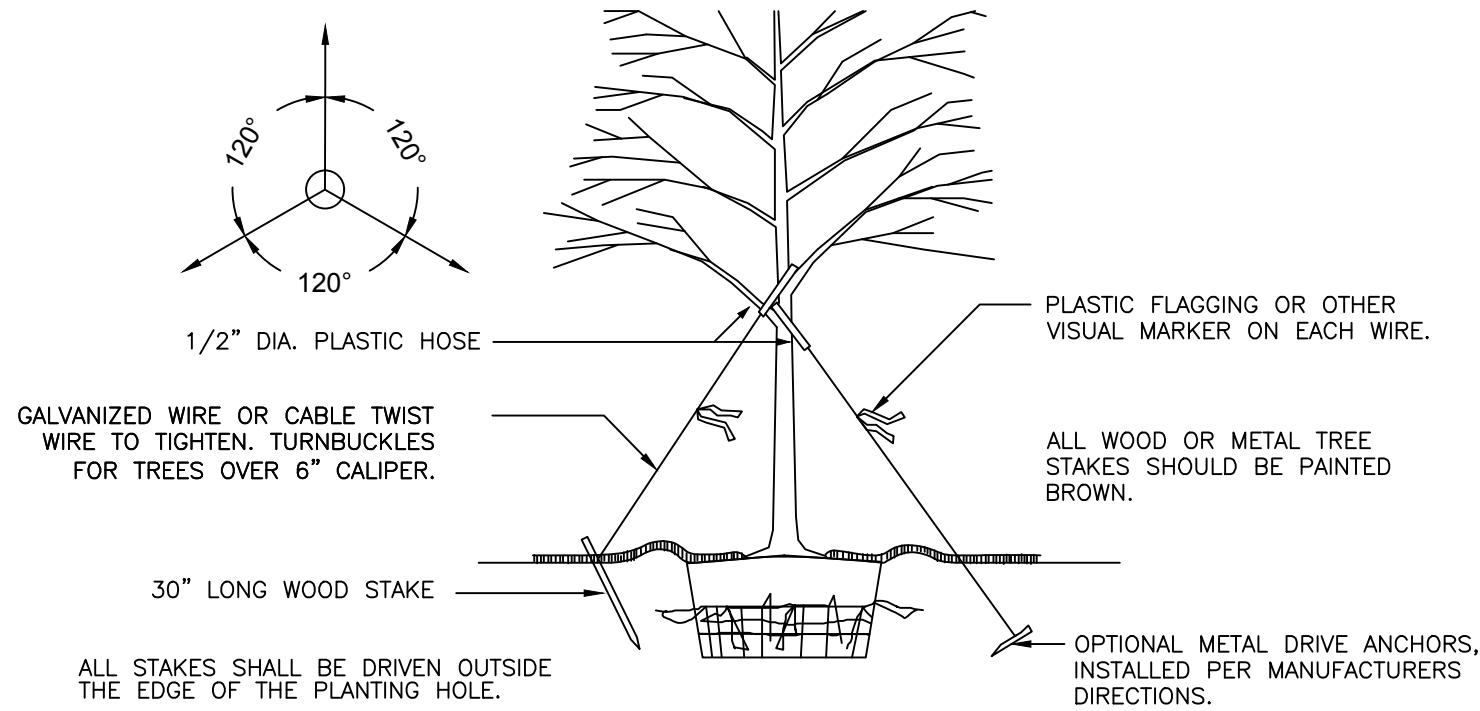
F. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.

G. Immediately replace sod in areas which show deterioration or bare spots. Any areas that have had topsoil washed away shall be filled to match specified grade with topsoil before resodding.

H. Protect sodded areas with warning signs during maintenance period.

END OF SECTION 02938

TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED. INSTALL THREE GUY WIRES PER TREE, SPACED EVENLY AROUND THE TRUNK.

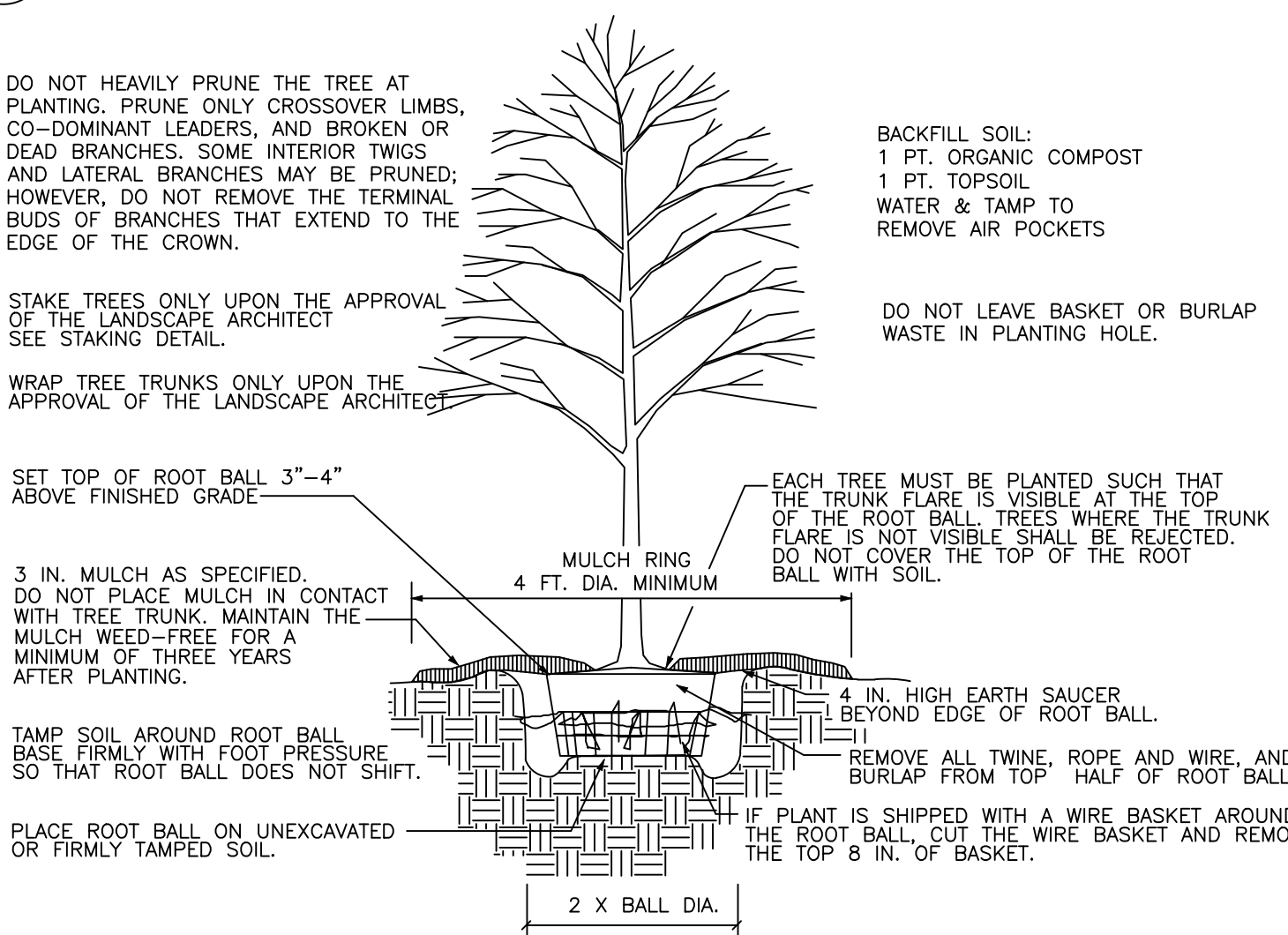


REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING.

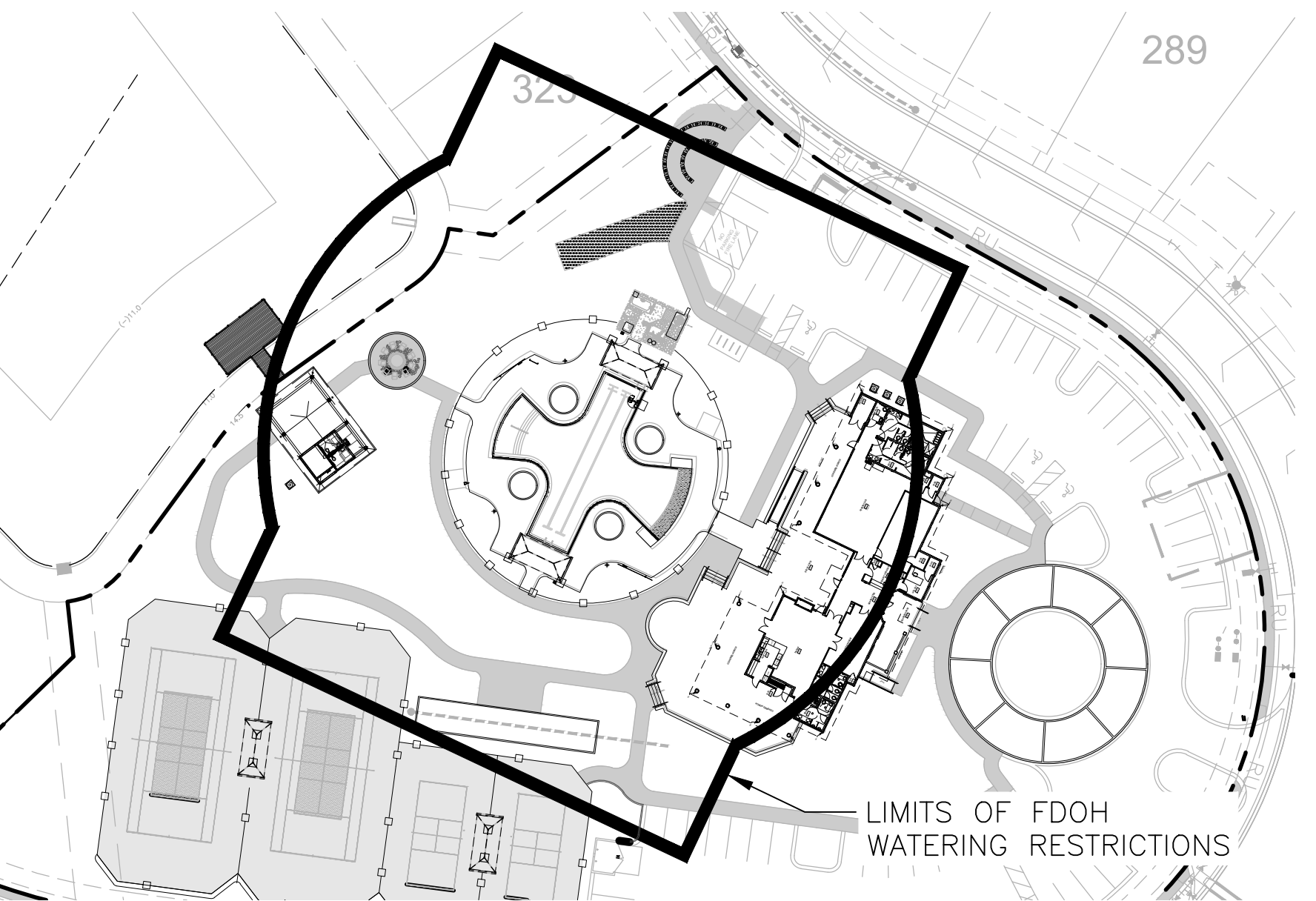
ALL TREES SHOULD BE STAKED ACCORDING TO THE DETAILS PROVIDED IN THESE DRAWINGS UNLESS STATED OTHERWISE BY THE LANDSCAPE ARCHITECT. THE FOLLOWING ARE REASONS WHY TREES DO NOT REMAIN STRAIGHT:

- o TREES WITH POOR-QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE.
- o TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE.
- o PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND THE ROOT BALL. CORRECT THE PLANTING PROCEDURE.
- o ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
- o ROOT BALLS WITH VERY SANDY SOIL OR VERY WET CLAY SOIL. STAKING ADVISABLE.
- o TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.

LARGE TREE STAKING DETAIL (3" CAL. OR LARGER)



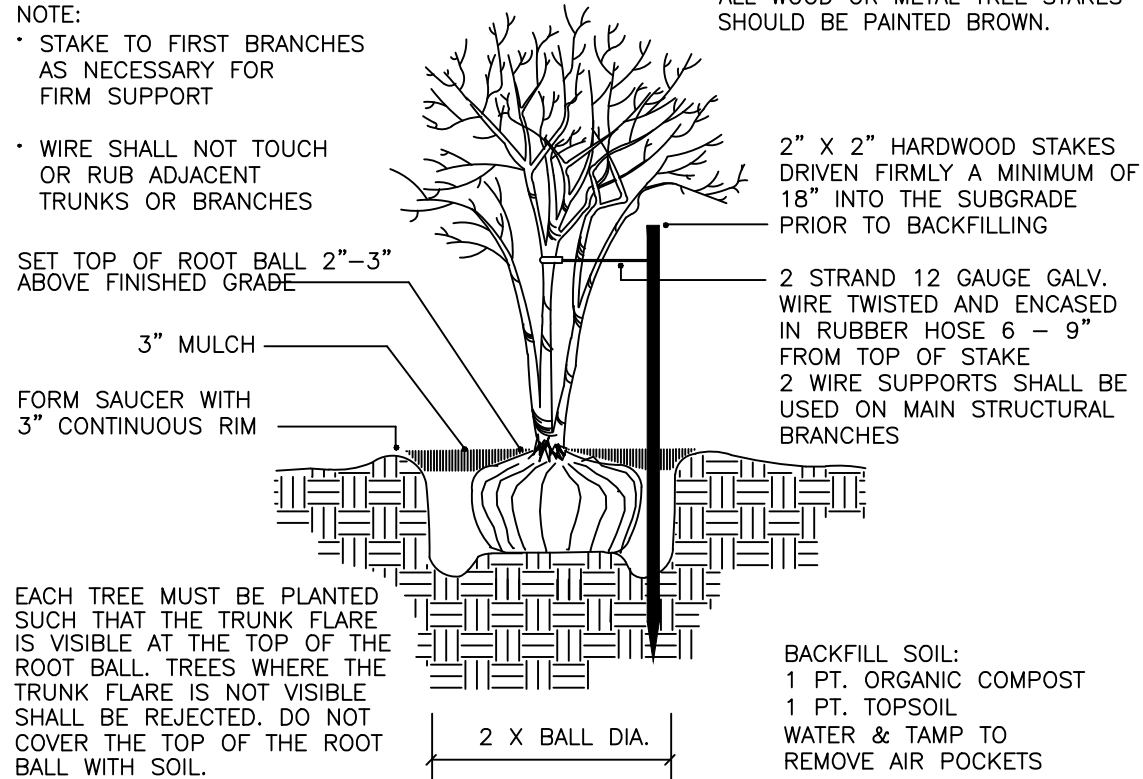
LARGE TREE PLANTING DETAIL (3" CAL. OR LARGER)



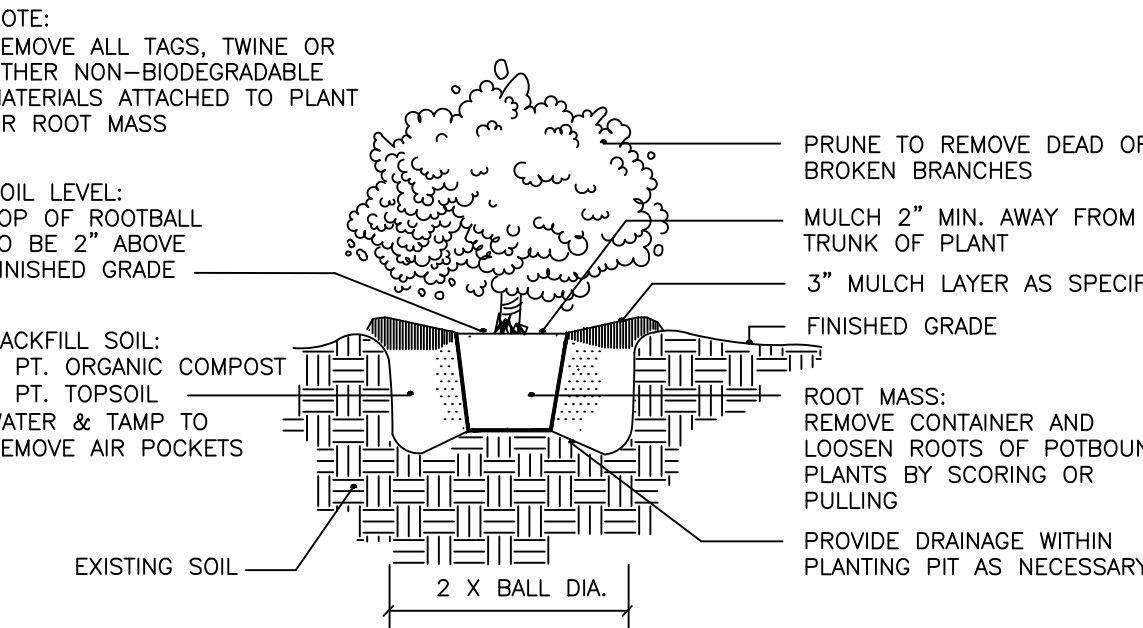
FLORIDA DEPARTMENT OF HEALTH

64E–9.004 OPERATIONAL REQUIREMENTS

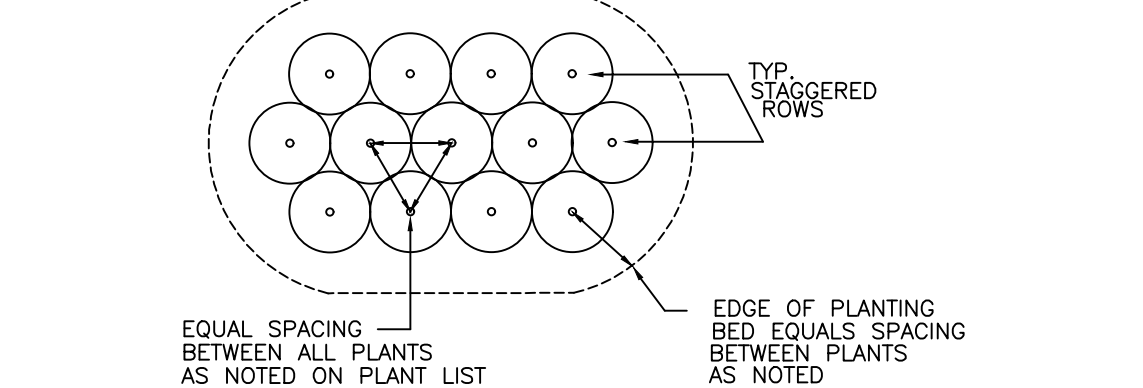
(1)(E) LANDSCAPE IRRIGATION WATER THAT WETS THE WET DECK AREA OF THE POOL, THE POOL ITSELF, ENTERS THE COLLECTOR TANK, OR WETS AN INTERACTIVE WATER FEATURE MUST BE POTABLE WATER FROM A PUBLIC WATER SYSTEM OR SHALL MEET THE BACTERIOLOGICAL QUALITY OF POTABLE WATER AS EVIDENCED BY ANNUAL LABORATORY ANALYSIS SUBMITTED TO THE DEPARTMENT. RECLAIMED WATER MAY NOT BE USED IN THESE AREAS. IF RECLAIMED WATER IS USED IN THE VICINITY OF THE POOL (INSIDE OF THE POOL FENCE OR WITHIN 100 FEET OF THE POOL WATER'S EDGE) IT MUST EMPLOY DRIP IRRIGATION OR SOAKER HOSES. SIGNS SHALL BE POSTED NOTIFYING POOL PATRONS THAT RECLAIMED WATER IS IN USE, AND IS NOT TO BE CONSUMED.



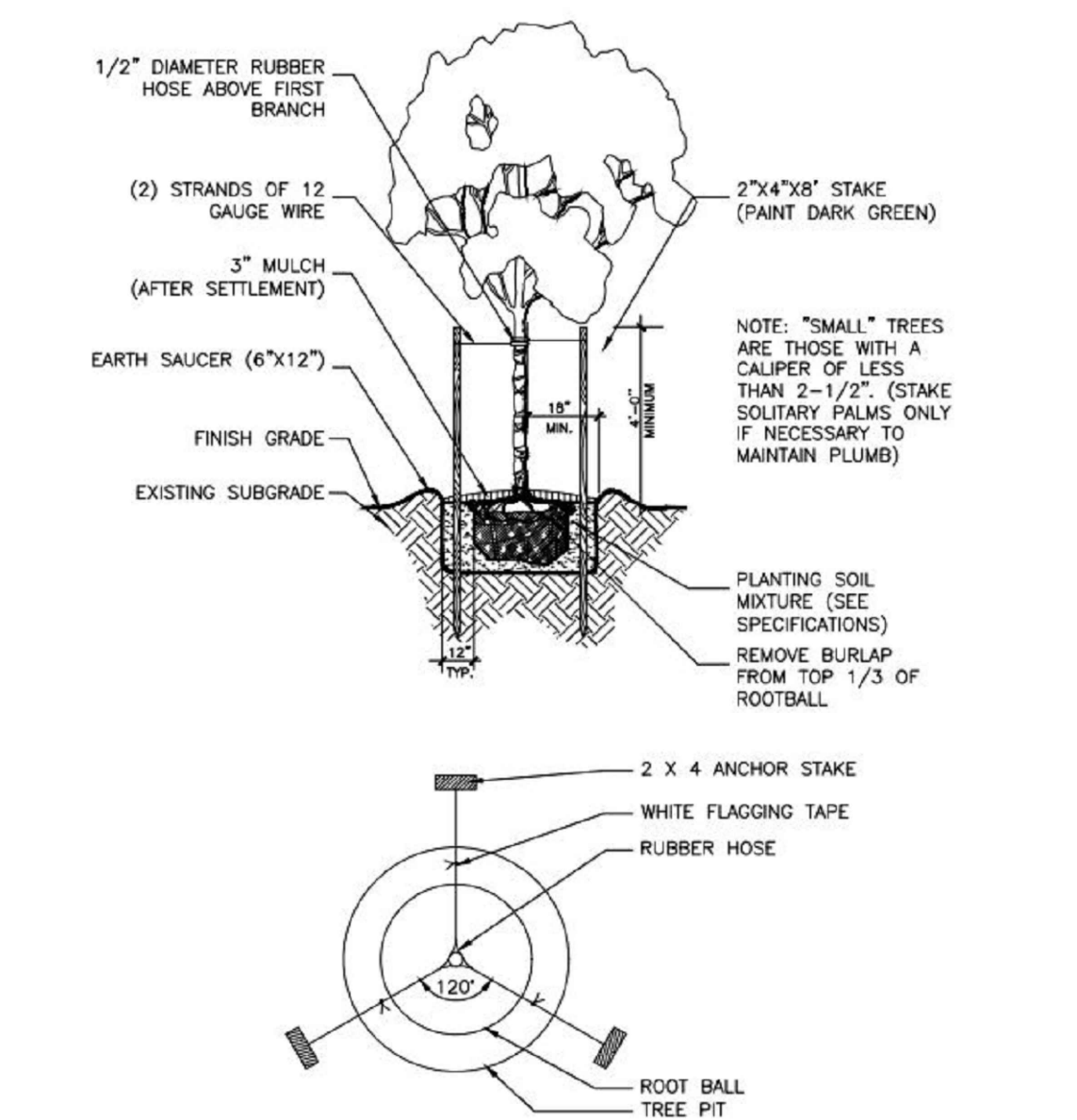
MULTI-TRUNK OR SMALL TREE PLANTING DETAIL



SHRUB PLANTING DETAIL



SHRUB MASS PLANTING LAYOUT



NASSAU COUNTY TREE PLANTING DETAIL

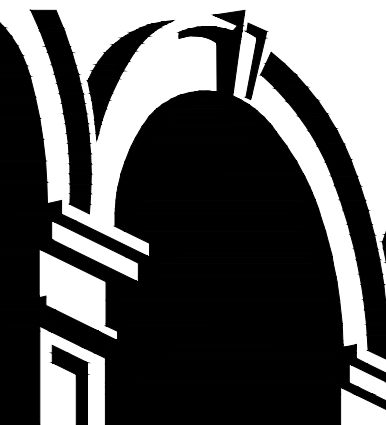
SCALE: NTS

REVISIONS

NO.	DATE	DESCRIPTION	BY

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LAKEVIEW AMENITY
at Tributary - Nassau Co., FL
LANDSCAPE
NOTES & SPECIFICATIONS



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