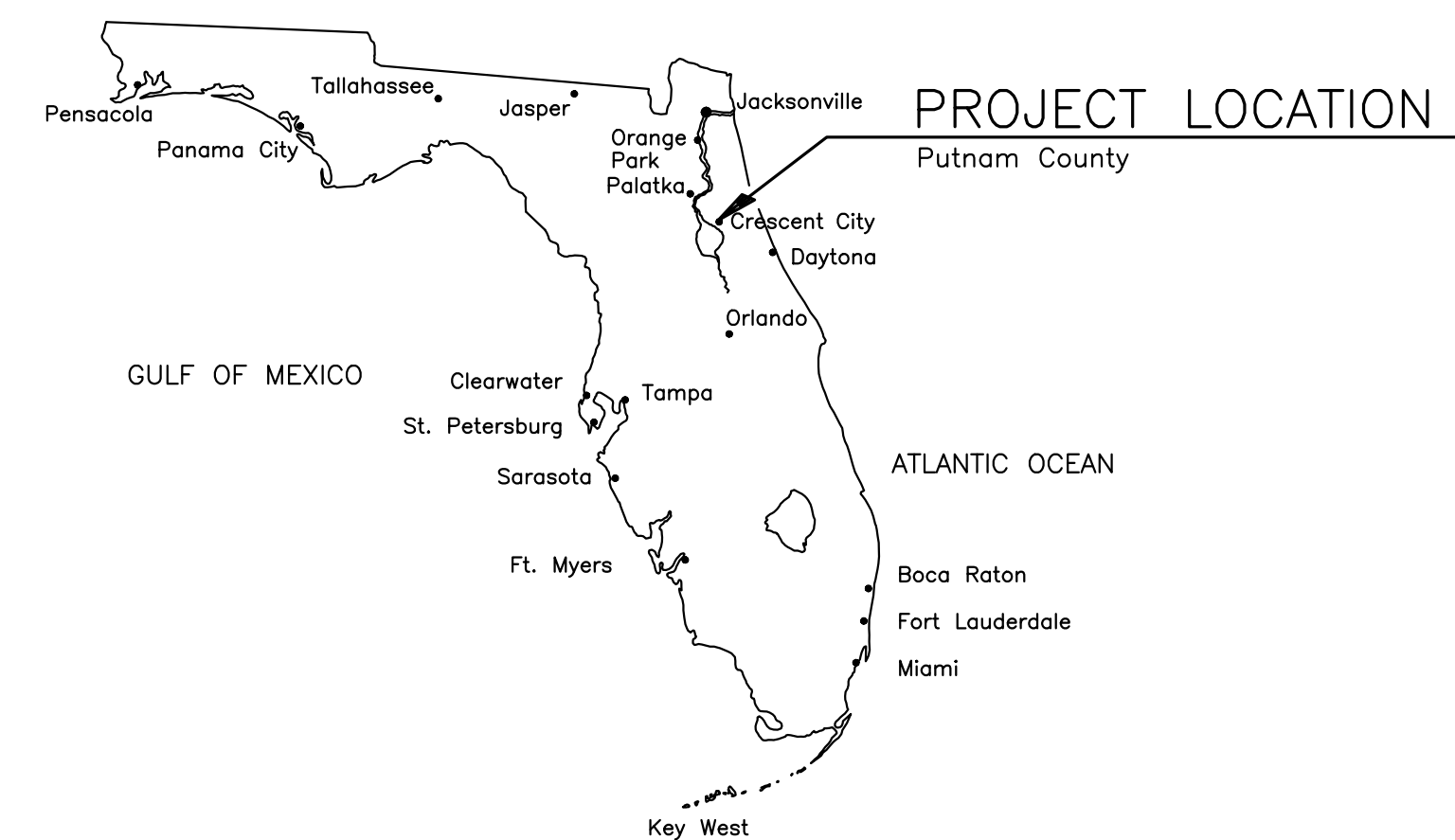


CDBG 23 NR MAIN ST. WM REPLACEMENT & LIFT STATION GENERATOR

FOR

CITY OF CRESCENT CITY, FLORIDA

CDBG Contract No. 23DB-N13
M & A Project No. 9318-61-1



MICHELE MYERS
MAYOR

H. HARRY BANKS
VICE MAYOR

LISA KANE DeVITTO
COMMISSIONER

CHRISTOPHER BAILEY
COMMISSIONER

CYNTHIA BURTON
COMMISSIONER

CHARLES RUDD
CITY MANAGER

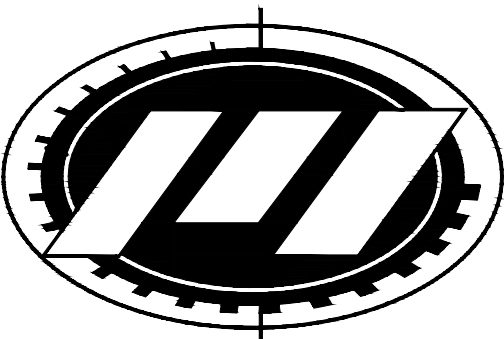
ROBERT PICKENS
CITY ATTORNEY

DRAWING INDEX

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES, ABBREVIATIONS & LEGEND
3	KEY MAP
4	OVERALL WATER MAIN MAP
5	CENTRAL AVE TO EUCALYPTUS AVE - PLAN
6	EDGEWOOD AVE TO PALMETTO AVE - PLAN
7	MAGNOLIA AVE TO VERNON AVE - PLAN
8	LIFT STATION GENERATOR - PLAN
9	TYPICAL DETAILS
10	TYPICAL DETAILS
11	TYPICAL DETAILS
12	TYPICAL DETAILS
13	MAINTENANCE OF TRAFFIC
14	ELECTRICAL LEGEND AND NOTES
15	ELECTRICAL LEGEND AND NOTES
16	ELECTRICAL SITE PLAN AND DETAILS
17	ELECTRICAL DETAILS



VICINITY MAP



MITTAUER
& ASSOCIATES, INC.
CONSULTING ENGINEERS

580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
TEL. (904) 278-0030 FAX. (904) 278-0840 FLORIDA LICENSE RY-6569

REVIEW SET

10/03/23

GENERAL NOTES

A. GENERAL CONSTRUCTION NOTES

1. Existing underground utilities have been shown from the best available information. The Contractor shall notify the proper Utility Representative prior to commencing excavation near the utility. The Contractor is responsible for locating all utilities in the path of construction. Contractor shall field determine the location, size, and depth of all existing piping. The Contractor shall call the Sunshine State One center (1-800-432-4770).
2. It shall be the sole responsibility of the Contractor to locate and avoid all utilities, structures, and obstructions both above and below the ground surface. All damages resulting from the Contractor's failure to comply with this requirement shall be repaired at the Contractor's expense.
3. Contractor is responsible for supporting/protecting & maintaining all existing improvements (i.e., utilities, utility poles, structures, pavement, sidewalks, monitoring wells, foundations, etc.) which may be damaged/undermined or interrupted as a result of his operations. The Contractor shall immediately notify the Engineer of any such occurrences. The Contractor may be required to shore, sheet, brace, or support work to protect existing improvements. The Contractor shall maintain a minimum of 5 feet of undisturbed soil around all power poles. Where edge of utility trench would be closer than 5 feet from poles, Contractor shall be required to sheet around pole to maintain 5 feet of undisturbed soil. Where 5 feet of undisturbed soil cannot be maintained, Contractor shall make arrangements with power company to have poles held/braced. All costs associated with supporting/protecting existing improvements shall be borne by the Contractor.
4. All existing facilities (e.g., pipes, roadways, sidewalks, landscaping, structure, etc.) not indicated to be disturbed/restored which are disturbed/damaged as a result of the Contractor's operations shall be restored to a condition equal to or better than that which existed prior to construction, at Contractor's expense.
5. Horizontal and vertical controls are subject to adjustments in the field if necessary to avoid utility conflicts upon approval of the Engineer or his representative. Contractor shall not adjust location of pipe or other facilities (either vertically or horizontally) without approval of the Engineer or his representative.
6. Contractor shall provide constant slope between indicated pipe invert elevations, unless otherwise directed by Engineer.
7. Contractor shall not remove any trees of 4-inch diameter or larger without Engineer's approval. Adjustment of pipe location to avoid trees shall be subject to approval of the Engineer. The Engineer makes no claim that any tree will survive construction of the proposed project.
8. The Contractor shall at all times conduct his operations so as to interfere as little as possible with the existing facilities. The Contractor shall develop a program in cooperation with the Owner's operating staff which shall provide for the construction of an putting into service the proposed work in the most orderly manner possible. All work of connection with, cutting into and reconstruction of existing facilities shall be planned so as not to interfere with the existing facility.
9. Contractor shall apply for and obtain FDEP Generic Permit for Large and Small Construction Activities (CGP). The Contractor shall act as the Operator of all temporary construction phase pollution prevention improvements and be responsible for their design, selection, and implementation. Schematic erosion control measures are provided in these documents and shall be the basis of the Contractor's design.
10. During any construction activity, including stabilization and revegetation of disturbed surfaces, the Contractor is responsible for the design, selection, permitting, implementation, and operation of all temporary construction phase erosion and sediment control measures required to retain on-site sediment and prevent violations of the State of Florida water quality standards. The Contractor shall use appropriate best management practices described in the State of Florida Erosion and Sediment Control Designer and Reviewer Manual, July 2013, with revisions. All turbidity/silt barriers must be in place downgradient from the construction zone prior to the start of any construction activity in general accordance with the plans and details provided in these documents. The barriers shall remain in place until all the disturbed areas have been properly stabilized.
11. Unsuitable materials exposed during construction under utility pipes or structures shall be removed and replaced with selected backfill, properly compacted, in accordance with specifications.
12. Where existing culverts must be removed to construct the project, the Contractor shall reinstall the culverts as soon as practical. If the culverts are not suitable for reuse, the Contractor shall, at his expense, extend/replace the culverts as required with similar materials to accommodate the work while maintaining existing invert elevations for all extended/replaced culverts. Provide all required excavation and fill necessary to extend/replace the culvert. The Contractor shall ensure, at his expense, temporary measures are provided to maintain existing drainage patterns.
13. The Contractor shall temporarily relocate the postal mail boxes and clusters as required for the construction of the project and reinstall them in their original locations upon completion of the construction. All work associated with the mail boxes or clusters shall be in accordance with the requirements of the U.S. Post Masters Office.
14. Only that excavation that can be backfilled by the end of the work day will be excavated. No open trench will be allowed to remain after work ends for the day, unless approved by Engineer or governing authority.
15. All areas disturbed by construction shall be regraded and sodded.
16. Until final acceptance of the work by the Owner, it shall be under the charge and custody of the Contractor and he shall take every precaution against injury or damage to the work by the action of the elements or from any other cause whatsoever, arising either from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore and make good without any additional compensation, all injury or damage to any portion of the work occasioned by any of the above causes before its completion and acceptance.
17. The Contractor shall employ the services of a Florida licensed surveyor who shall be responsible for laying out the work and for establishing the following: project temporary benchmarks; elevation lines and grades; and right-of-way and easement limits for construction. Contractor shall also employ the services of a Florida licensed surveyor to obtain the required record drawing information.
18. The Contractor shall employ a land surveyor, registered in the State of Florida, to reference property and restore property corners and land markers which may be disturbed as a result of Contractor's operations.
19. Project Benchmark: Project Benchmark: All elevations on these plans are relative to the North American Vertical Datum of 1988 (NAVD 88) based on National Geodetic Survey Benchmark PID A16986 having an elevation of 2.99 feet. See Sheet No. 3 for location and description of Benchmark.
20. Topographic information based on a survey by Mittauer & Associates, Inc., performed on 09/12/22, job no. 9318-61-1.
21. Horizontal control for features on the plans are relative to the NAD83 Florida State Planes, East Zone, US Foot coordinate system.

B. GENERAL WATER SYSTEM NOTES

1. All water line work shall be in accordance with FAC 62-555, Permitting and Construction of Public Water Systems. All materials that come in contact with drinking water shall be in conformance with ANSI/NSF International Standard 61 and shall be installed in accordance with applicable AWWA Standards and/or the manufacturer's recommendations.
2. The Contractor shall coordinate the construction of the water facilities with all other construction. The Contractor shall verify the location and elevation of the proposed water main connection(s) prior to commencing work. It shall be the Contractor's responsibility to notify the Owner and the Engineer of any discrepancies.
3. Water lines are designed to finished grade and shall be protected until finished work is complete.
4. All workmanship and materials associated with water mains shall conform to the latest standards and specifications of the local utility company.
5. Refer to specifications and FDEP rules for separation requirements between potable water mains and other utilities.
6. All existing water main valves which are made inactive as the result of this project shall have their valve boxes removed and the disturbed roadway or grassed area restored. Valve boxes which are in paved areas shall have the cover removed and the section shall be filled with asphalt or flowable fill with the surface painted to match the surrounding pavement.
7. The location of water services on the plans are approximate. Actual location of services shall be determined in the field by location of existing water lines and as directed by the Engineer and the Owner.
8. No connection to the existing potable water system shall be allowed until all proposed water lines have been pressure tested, disinfected and cleared for service. Pressure testing shall be in accordance with AWWA C600 for DI mains or AWWA C605 for PVC mains. All water lines shall be disinfected in accordance with AWWA C651 and DEP requirements. As a minimum, successful bacteriological test shall be performed on two consecutive days at the point of tie-in, at junctions, along the water line route at 1,200' spacing, and at the terminal end of the line extension.
9. Existing Water Meters shall be disconnected from the existing water system and reconnected to the newly installed serviced lines after the new water system is cleared for service. The Contractor is responsible for locating and connecting all existing water services to the new main.

C. PAVEMENT STRIPING AND SIGNAGE NOTES

1. Unless otherwise noted on the drawings, all existing signs removed by the construction activity, shall be restored to their original position prior to completion of the project. Any signs damaged during construction shall be replaced at the Contractor's expense.
2. All signs and pavement markings shall conform to the Manual on Uniform Traffic Control Devices (MUTCD) and the Florida Department of Transportation Roadway and Traffic Design Standards, latest editions.
3. Sign assembly locations, shown on the plans, which are in conflict with lighting, utilities etc. may be adjusted slightly as directed by the Engineer.
4. Existing signs to be permanently removed shall become the property of the Contractor and disposed of at his expense unless claimed by Owner or governing authority.
5. All pavement striping within Right-of-Way or easements, as well as all stop bars, crosswalks, messages and directional arrows (regardless of location) shall be lead free, thermoplastic pavement markings (FDOT spec. section 711). All other striping shall be reflective paint (FDOT spec. section 710) unless noted otherwise on the drawings or in the project specifications.
6. The aluminum column (post) & connection design shall adhere to FDOT Index 700-010 and the following criteria:
a. mounting height = 8' maximum
b. sign(s) area = 25 sq. ft. maximum
c. sign(s) width: single = 36" maximum
d. dual = 48" maximum
e. driven post only
7. All posts shall be installed plumb.
8. All hardware shall be stainless steel (ASTM F593, ASTM F594, Alloy Group 2, Condition A, CW2 or SH4).
9. All signs furnished under this contract shall be permanently affixed with the date they were fabricated.

D. MAINTENANCE OF TRAFFIC NOTES

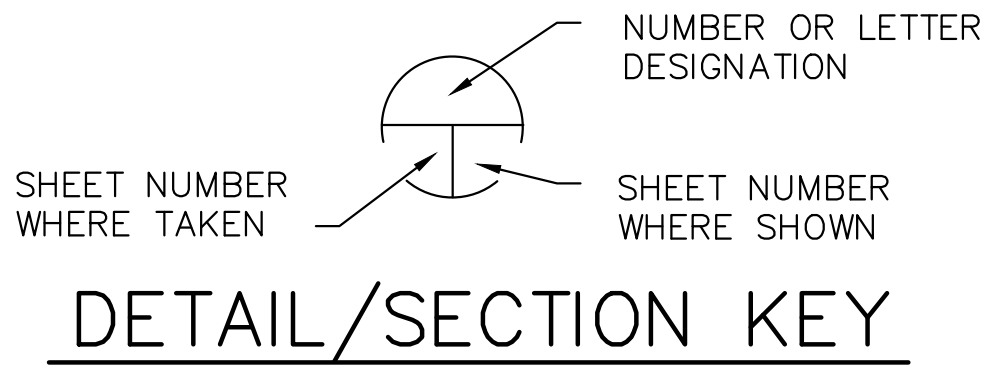
1. Contractor shall provide all Maintenance of Traffic (MOT) plans and/or schematics as required per the MUTCD, FDOT, and/or local jurisdiction to obtain R/W permit(s). Standard Index Drawings are provided for reference purposes only. Final MOT plans are the Contractor's responsibility per their construction approval and shall be implemented at their expense.
2. Contractor shall maintain vehicular access to all residences at the end of each workday. No roadway/driveway shall be blocked to vehicular traffic for more than a two (2) hour period.
3. Contractor shall maintain single lane access, at a minimum, at all times. Contractor shall provide detours and/or temporary roadway as necessary. Contractor shall provide all necessary flagging.
4. Contractor shall confine his active work area to no more than 100 feet at a time.
5. The roadway shall be restored to at least a limerock surface before it is reopened to traffic, and before the Contractor moves on to the next construction zone.
6. Dust control measures shall be implemented on all unpaved surfaces until paved.

LEGEND

PROPOSED	EXISTING	
	-- 8" SAN --	SANITARY SEWER
	-- 4" FM --	SANITARY FORCE MAIN
MH	MH	MANHOLE
		VALVE
	-- 6" W --	WATER MAIN (CONSTRUCTED)
	-- 6" W --	WATER MAIN (DIRECTIONAL DRILL)
		FIRE HYDRANT
		WATER SERVICE (BASE)
		WATER SERVICE (ADDITIVE ALTERNATE)
		TEMPORARY SAMPLE POINT
		TELEPHONE PEDESTAL
		MAIL BOX
18" RCP	-- 18" RCP --	STORM DRAIN PIPE
		STORM DRAIN STRUCTURE
84.0	84	GRADE CONTOURS
63.00		SPOT ELEVATIONS
		POWER POLE/ W/ANCHOR
		UTILITY POLE, LIGHT POLE
	-- BT --	BURIED TELEPHONE
	-- FO --	FIBER OPTIC CABLE
	CTV	CABLE TELEVISION
	-- GAS --	GAS LINE
	-- SWALE --	SWALE
		RIGHT-OF-WAY
	X-X	FENCING
		ASPHALT PAVEMENT OR IMPROVEMENT
		CONCRETE PAVEMENT OR SIDEWALK
		LIMITS OF MILLING AND OVERLAY
		STABILIZED ROADWAY OR DRIVEWAY
		LIMITS OF REMOVAL
		OVERLAND FLOW DIRECTION
		TEMPORARY SILT FENCE
		LIMITS OF WOODS
		TREE
		TREE TO BE REMOVED

ABBREVIATIONS

ABBREVIATION	DESCRIPTION	
ABS	ACRYLONITRILE BUTADIENE STYRENE	MAINT
ABV	ABOVE	MAN
ACP	ASBESTOS CEMENT PIPE	MAX
AFF	ABOVE FINISH FLOOR (REF. ELEV.)	MES
AFS	ABOVE FINISH GRADE (REF. ELEV.)	MECH
ALUM	ALUMINUM	MFR
ALTE	ALTERATE	MG
APRX	APPROXIMATE(LY)	MGD
ARCH	ARCHITECT(URAL)	MH
ARCH	AIR RELEASE VALVE	MN
ASPH	ASPHALT	MISC
ASSY	ASSEMBLY	MJ
BUR	BURIED ELECTRIC	MON
BF	BOTTOM FACE	MPH
BFO	BURIED FIBER OPTIC	MPT
BT	BUTTERFLY VALVE	MTD
BITUM	BITUMINOUS OR BITUMASTIC	N
B	BUILDING	NE
BLOG	BLOCK	NIC
BLK	BLOCK	NOM
BOT	BOTTOM	No
BT	BURIED TELEPHONE-CABLE	NPT
BV	BALL VALVE	NPS
C, CND	CONDUIT	NW
CATV	CABLE TELEVISION	N/A
CI	CAST IRON	OC
CP	CAST IRON PIPE, CAST-IN-PLACE	OD
E	CENTERLINE	OF
CLF	CHAIN LINK FENCE	OH
CL	CLEAR OR CLEARANCE	OHE
CMP	CONCRETE MONUMENT	PC
CMU	CORRODED METAL PIPE	PC
CNR	CORNER	PI
CNC	CONCRETE	PL
CONT	CONTINUOUS	PLF
COORD	COORDINATE	POB
CPVC	CHLORINATED POLYVINYL CHLORIDE	PP
CUL	CULVERT	PPM
CY	CUBIC YARD	PSF
C/C	CENTER TO CENTER	PSI
DBL	DOUBLE	PVC
DI	DUCTILE IRON	PW
DM	DIMENSION	QTY
DIM	DIMENSION	R, RAD
DIP	DUCTILE IRON PIPE	RCP
RD	DEPARTMENT OF TRANSPORTATION	RD
DWG	DRAWING	RED
E	EAST	REBAR
EA	EACH	REF
EF	EACH FACE	REIN
ELL	ELEVATION	REQD
ELC	ELECTRIC(AL)	R
EP	EDGE OF PAVEMENT	RT
ERCP	ELLIPTICAL REINFORCED CONCRETE PIPE	S
ESMT	EASEMENT	S/W
EW	EACH WAY	SAN
EXP	EXPANSION	SCHD
EX, EXIST	EXISTING	SE
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION	SF
FH	FIRE HYDRANT	SHT
FIG	FIGURE	SQ
FIN	FINISH(ED)	SR
FIN GR	FINISH GRADE	SANTAS
FL	FLANGED JOINT	ST
FLNG	FLANGED	STA
FM	FORCE MAIN	STD
FRP	FIBERGLASS REINFORCED PLASTIC	STL
FT	FOOT OR FEET	STRUCT
F/F	FACE TO FACE	SW
G	GALLON(S)	SW
GAL	GALLON(S)	TBM
GALV	GALVANIZED	TC, TC
GR	GRADE	TEL, TELE
GS	GALVANIZED STEEL	TEMP
GSP	GALVANIZED STEEL PIPE	TF
GV	GATE VALVE	THD
HB	HOSE BIBB	THK
HDPE	HIGH-DENSITY POLYETHYLENE	TOB
HGT	HEIGHT	TOE
HORIZ	HORIZONTAL	TOS
HWL	HIGH WATER LEVEL	TP
HWY	HIGHWAY	TYP
ID	INSIDE DIAMETER	UG
IF	INSIDE FACE	UOE
IN	INCH(ES)	VCP
INF	INFILL	VERT
INT	INTERSECTION	VOL
INV	INVERT	W
IP	IRON PIPE	WM
IPS	INTERNATIONAL PIPE STANDARD; IRON PIPE SIZE	WS
LF	LINEAR FEET	WWF
LP	LIGHT POLE	WWM
LR	LONG RADIUS	W/
LWL	LOW WATER LEVEL	W/O
		YD
		YD(S)



PROJECT CONTACTS

TYPE	ORGANIZATION	ADDRESS	TELEPHONE	CONTACT PERSON
LINE LOCATIONS	SUNSHINE STATE ONE-CALL OF FLORIDA, INC.	7797 N. UNIVERSITY DR., SUITE 204 FT. LAUDERDALE, FL. 33321	(800) 432-4770	CALL 48 HRS BEFORE DIGGING
TELEPHONE	WINDSTREAM FLORIDA, INC.	206 WHITE AVENUE S.E. ALACHUA, FL 32064	(386) 462-6530	GARY CARY
ELECTRIC	FPL	2900 CATHERINE ST. PALATKA, FL 32177	(800) 868-9554	TRACY STERN
INTERNET/TELEPHONE	WINDSTREAM FLORIDA, INC.	206 WHITE AVE. S.E. ALACHUA, FL 32064	(386) 462-6530	GARY CARY
CABLE T.V.	COMCAST	5934 RICHARD ST JACKSONVILLE, FL 32216	(904) 380-7574	LARRY WINBURN
GAS	CITY OF CRESCENT CITY	3 NORTH SUMMIT STREET CRESCENT CITY, FL 32112	(386) 698-2525 EXT. 223	JOHN TURNERY OPERATIONS/DISTRIBUTION
WATER & SEWER	CITY OF CRESCENT CITY	3 NORTH SUMMIT STREET CRESCENT CITY, FL 32112	(386) 698-2525	KEITH HARRIS PUBLIC WORKS DIRECTOR
OWNER	CITY OF CRESCENT CITY	3 NORTH SUMMIT STREET CRESCENT CITY, FL 32112	(386) 698-2525	CHARLES RUDD CITY MANAGER
DESIGN ENGINEER	MITTAUER & ASSOCIATES, INC.	580-1 WELLS ROAD ORANGE PARK, FL 32073	(904) 278-0030	JASON R. SHEPLER, P.E.

DESG MAR DRWN DHS JRS PROJ MOR DATE 10/03/23

1 INCH

NO

DATE

BY

REVISION DESCRIPTION

MITTAUER & ASSOCIATES, INC. CONSULTING ENGINEERS

580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073 TEL. (904) 278-0030 FAX. (904) 278-0840 FLORIDA RY NO. 6569

CITY OF CRESCENT CITY

0806 23 NR Main St. WW Replacement & Lift Station Generator

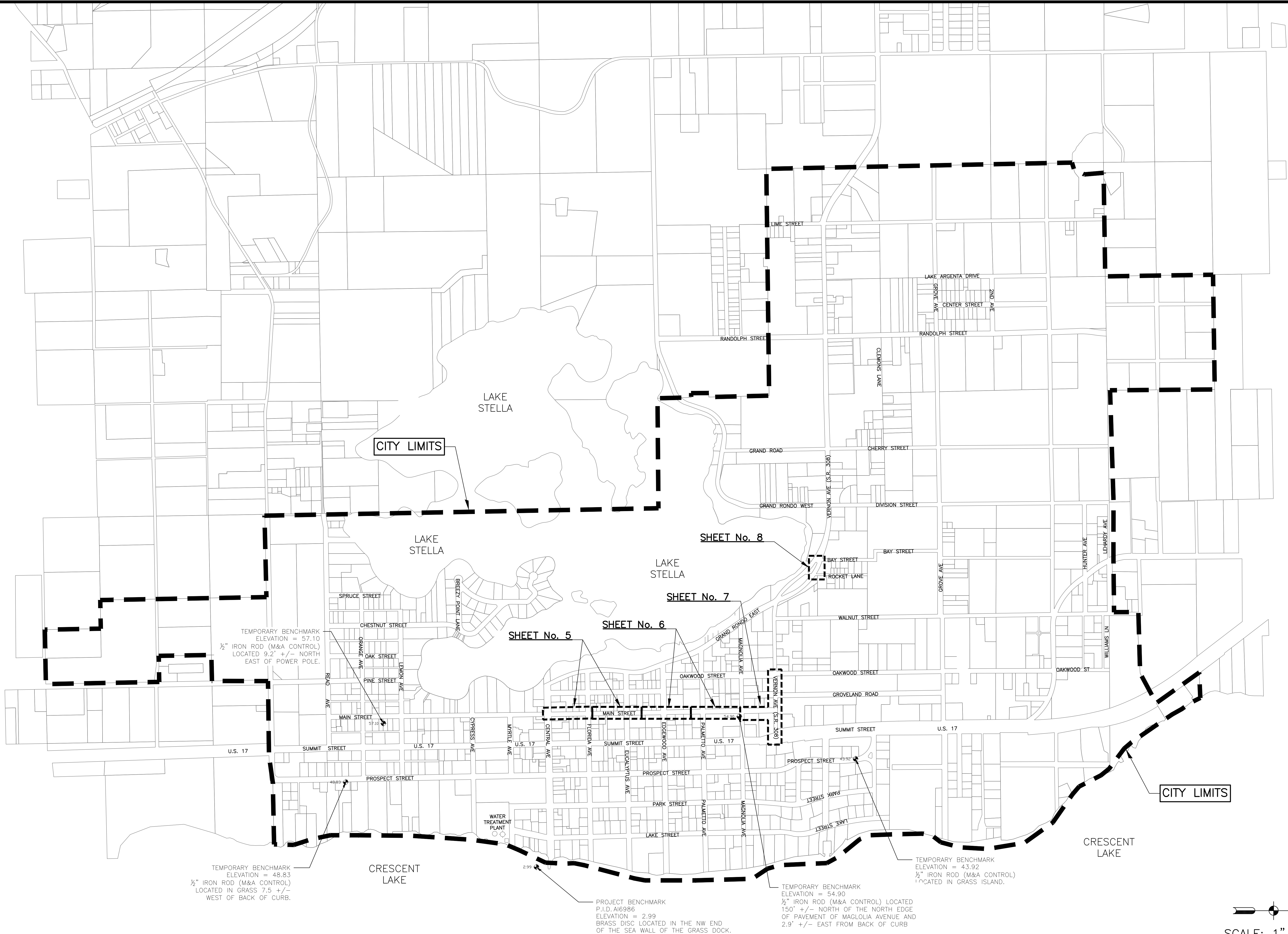
General Notes, Abbreviations & Legend

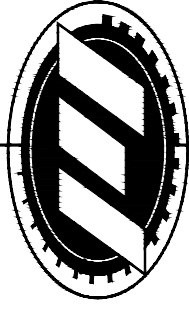
Putnam County, Florida

JOB NO. 9318-61-1

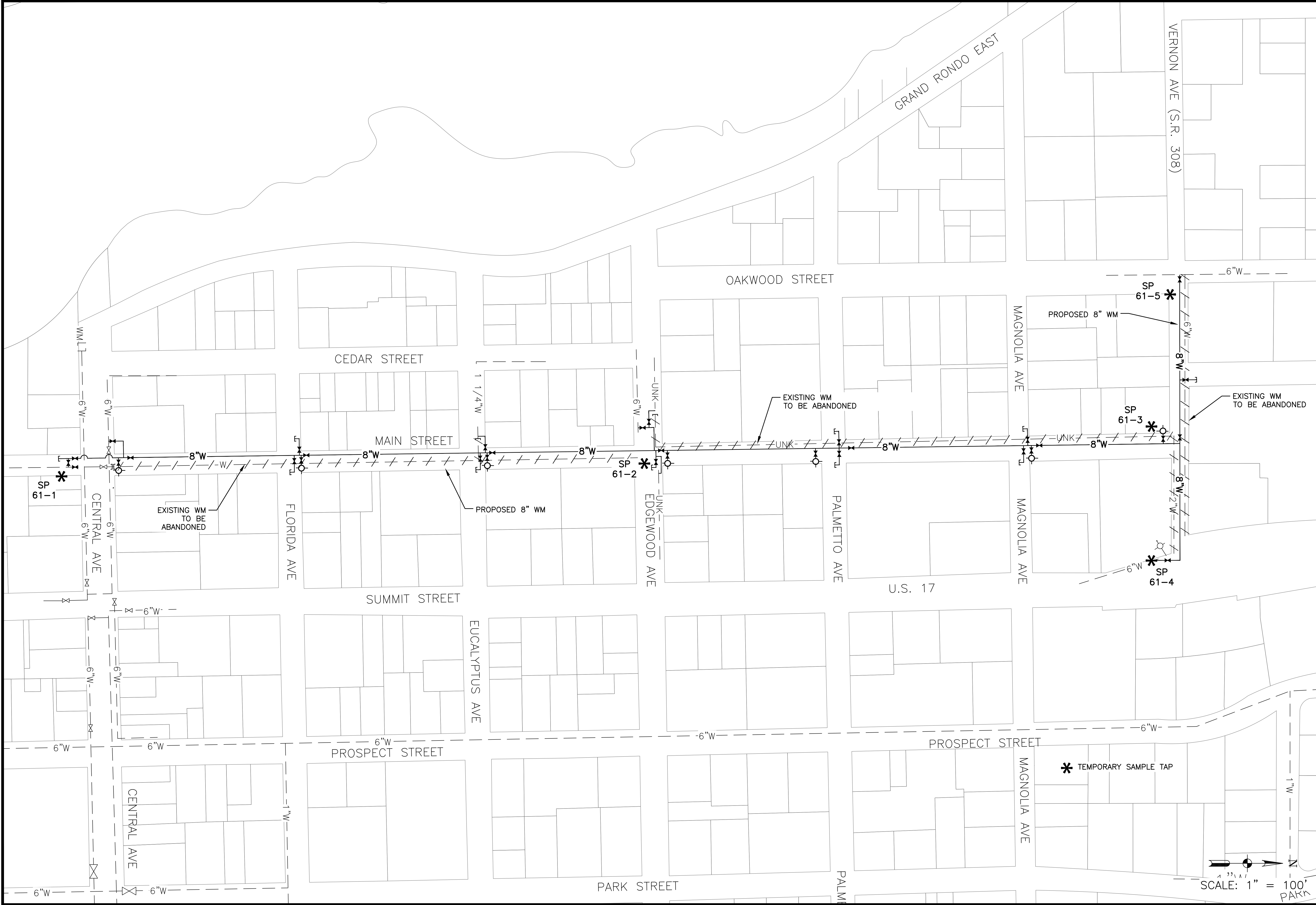
SHEET NO. 2

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CITY OF CRESCENT CITY CDBG 23 NR Main St. WM Replacement & Lift Station Generator Key Map Putnam County, Florida		 MITTAUER & ASSOCIATES, INC. CONSULTING ENGINEERS 580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073 TEL. (904) 278-0030 FAX. (904) 278-0840		DESIG. MAR. DRWN. DHS. PROJ. MGR. JRS. DATE 10/03/23		NO. DATE BY		REVISION DESCRIPTION	
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CITY OF CRESCENT CITY CDBG 23 NR Main St. WM Replacement & Lift Station Generator Overall Water Main Map Putnam County, Florida		JOB NO. 9318-61-1 SHEET NO. 4		

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MATCH LINE 'D' CONT'D ON SHEET 6

MATCH LINE 'E' CONT'D ON BOTTOM RIGHT

SCALE: 1" = 20'

EXISTING 1½" OR 2" WATER MAIN TO BE ABANDONED, LOCATION IS APPROXIMATE

ADDITIVE ALTERNATE 1" LONG SIDE SERVICE, (TYP.) (SEE NOTE 2)

BRANCHED CONNECTION C, INSTALL METER BOX

FURNISH & INSTALL
(1) 8"x6" D.I. TEE, MJ
(1) 8" D.I. GATE VALVE, MJ
(1) 6" D.I. GATE VALVE, MJ
(1) 6" D.I. RESTRAINED PLUGGED DEAD END, MJ
36 L.F. OF 6" PVC WM

FURNISH & INSTALL
(2) 8" D.I. 90° BENDS, MJ
27 L.F. OF 8" PVC WATER MAIN

1" SHORT SIDE WATER SERVICE, (TYP.)

INSTALL NEW WATER SERVICE.
REMOVE/CAP OLD WATER SERVICE.
CONNECT TO EXISTING SERVICE
PIPING AT R.O.W. LINE (TYP.)

FURNISH & INSTALL
(1) 8"x8" D.I. TEE, MJ
(1) 8" D.I. GATE VALVE, MJ
UTILITY CROSSING

CONSTRUCT 85 L.F. OF
8" PVC WATER MAIN

FURNISH & INSTALL
(1) 6"x6" S.S. TAPPING SLEEVE & VALVE
(1) 8"x6" D.I. REDUCER, MJ

CONSTRUCT 118 L.F. OF
8" PVC WATER MAIN

CONSTRUCT 20 L.F. OF
8" PVC WATER MAIN

FURNISH & INSTALL
(1) LIMITED SPACE FIRE
HYDRANT ASSEMBLY

FURNISH & INSTALL
(1) 8"x6" D.I. TEE, MJ
(1) 6" D.I. GATE VALVE, MJ
(1) 6" D.I. PLUG, MJ

CONSTRUCT 43 L.F. OF
8" PVC WATER MAIN

CONSTRUCT 213 L.F. OF
8" PVC WATER MAIN

LIMITS OF ASPHALT ROADWAY
RESTORATION (TYP.)

MILL &
OVERLAY LIMITS

ADDITIVE ALTERNATE
1" SHORT SIDE SERVICE, (TYP.)
(SEE NOTE 2)

FURNISH & INSTALL
(1) EXTENDED FIRE
HYDRANT ASSEMBLY

CONSTRUCT 17 L.F. OF
8" PVC WATER MAIN

CONSTRUCT 318 L.F. OF
8" PVC WATER MAIN

EXISTING 2" WATER MAIN
TO BE ABANDONED,
LOCATION IS APPROXIMATE

EXISTING 6" WATER MAIN
TO BE ABANDONED,
LOCATION IS APPROXIMATE

INSTALL NEW WATER SERVICE.
REMOVE/CAP OLD WATER SERVICE.
CONNECT TO EXISTING SERVICE
PIPING AT R.O.W. LINE (TYP.)

SEE NOTE 1

1" SHORT SIDE WATER
SERVICE, (TYP.)

FURNISH & INSTALL
(1) 8"x8" D.I. TEE, MJ
(1) 8" D.I. GATE VALVE, MJ
(1) 8" D.I. RESTRAINED
PLUGGED DEAD END, MJ
37 L.F. OF 8" PVC WM

FURNISH & INSTALL
(1) 8" D.I. 45° BEND, MJ
(1) 8" D.I. 22.5° BEND, MJ
40 L.F. OF 8" PVC WM

NOTES:

- CONTRACTOR SHALL LOCATE THE EXISTING WATER METER AT 519 VERNON AVENUE. NEW SERVICE SHALL BE RELOCATED NEXT TO EXISTING SERVICE.
- THE CONTRACT INCLUDES ADDITIVE ALTERNATE WATER SERVICES TO EXTEND WATER TO VACANT PARCELS FOR FUTURE CONNECTION/USE. THE OWNER WILL DIRECT WHICH SERVICES TO COMPLETE.

STRIPMALL W/ K GAS STATION,
SUBWAY AND DOMINOES PIZZA

CONSTRUCT 50 L.F. OF
8" PVC WATER MAIN

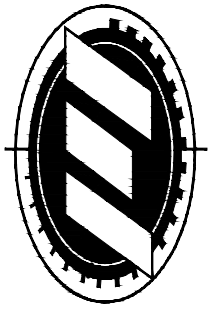
SAMPLE POINT
No. 61-4

FURNISH & INSTALL
(1) 6"x6" S.S. TAPPING SLEEVE & VALVE
(1) 6"x8" D.I. REDUCER, MJ
(1) 8" D.I. 90° BEND, MJ
10 L.F. OF 8" PVC WM

MATCH LINE 'E' CONT'D ON UPPER LEFT

DESIGN
DRAWN
PROJ. MGR.
DATE
10/03/23

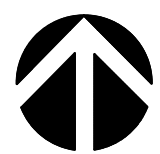
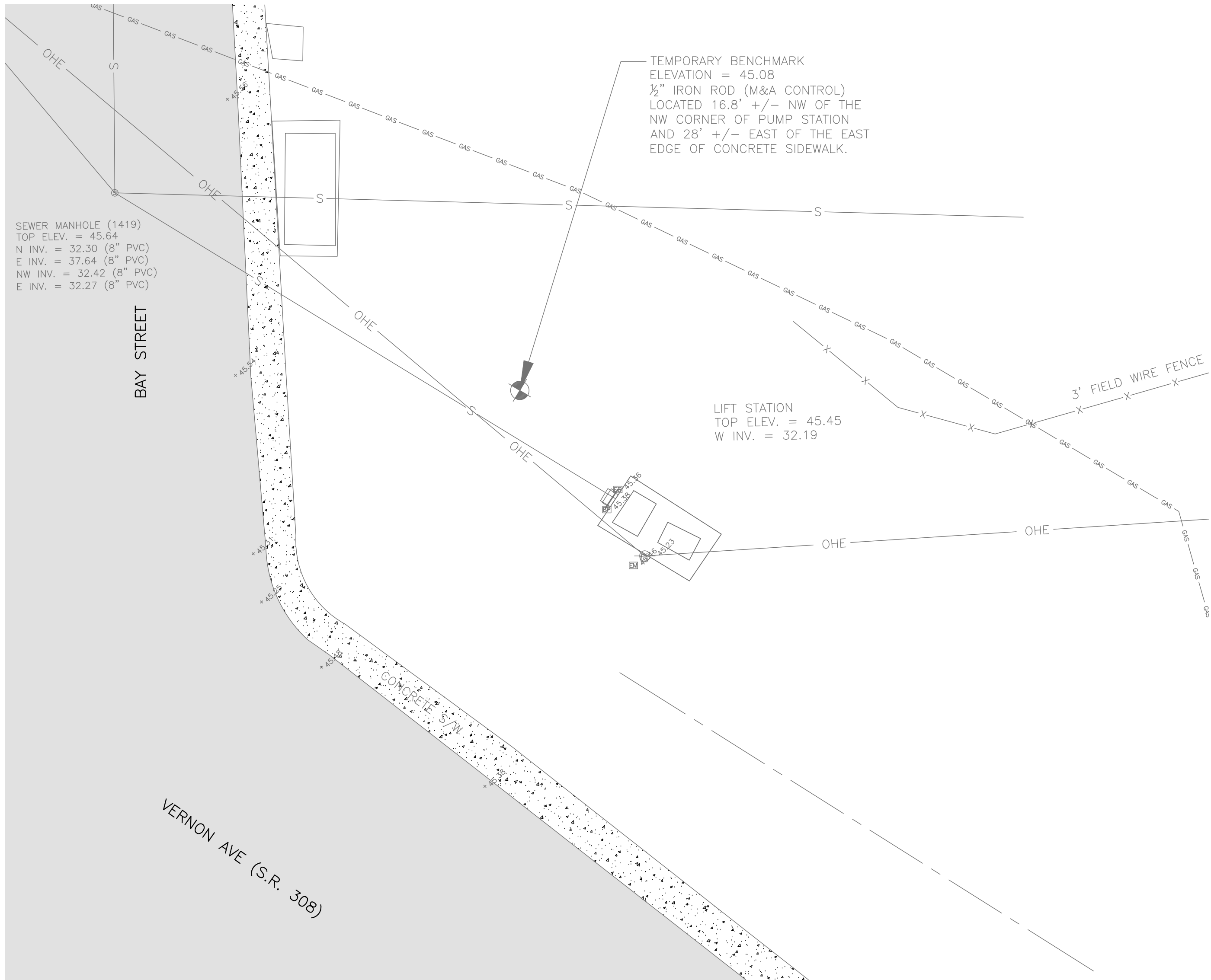
MITTALDER
& ASSOCIATES, INC.
CONSULTING ENGINEERS
580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
TEL. (904) 278-0030 FAX. (904) 278-0840



CITY OF CRESCENT CITY
CDBG 23 NR Main St. WM Replacement & Lift Station Generator
Magnolia Ave to Vernon Ave - Plan
Putnam County, Florida

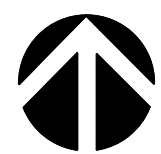
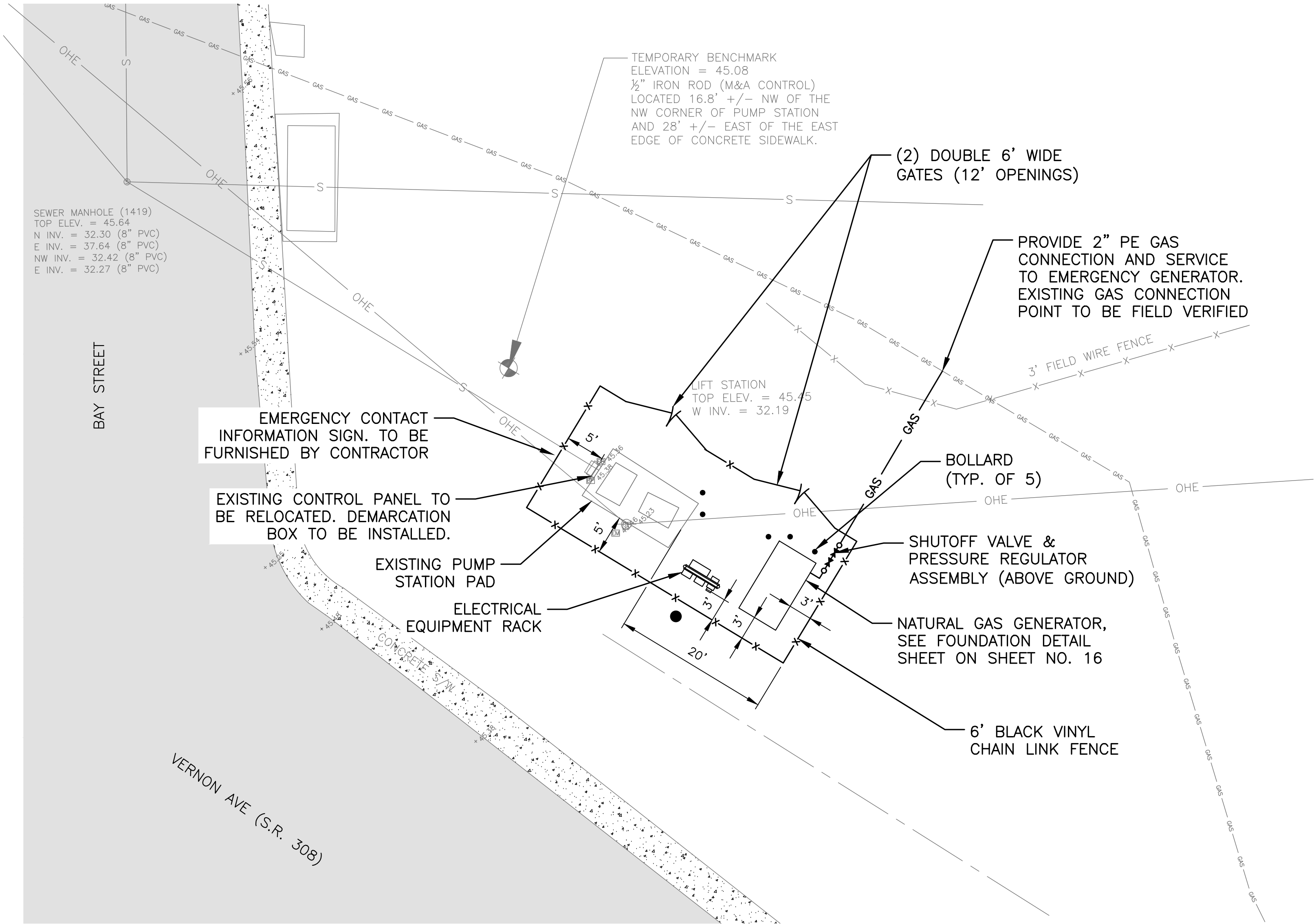
JOB NO.
9318-61-1
SHEET NO.

m:\cad files\crescent city\9318611 odbg 23 nr main st. water main replacement and lift station generator\Design\SH15-8.dwg, 11/3/2023 4:30:45 PM



LIFT STATION GENERATOR – DEMOLITION

1" = 10'



LIFT STATION GENERATOR – IMPROVEMENTS

1" = 10'

NOTES:

1. THE CONTRACTOR SHALL CONSTRUCT THE MAXIMUM AMOUNT OF ELECTRICAL IMPROVEMENTS WHILE THE EXISTING PUMP STATION IS IN OPERATION.
2. THE CONTRACTOR SHALL BYPASS THE EXISTING STATION TO COMPLETE THE NECESSARY ELECTRICAL MODIFICATIONS.
3. ALL FENCING IMPROVEMENTS SHALL BE COMPLETED AFTER PUMP STATION ELECTRICAL WORK IS COMPLETE AND OPERATIONAL.

CITY OF CRESCENT CITY
0066 23 NR Main St. WW Replacement & Lift Station Generator
Lift Station Generator – Plan
Putnam County, Florida

JOB NO.
9318-61-1
SHEET NO.

08



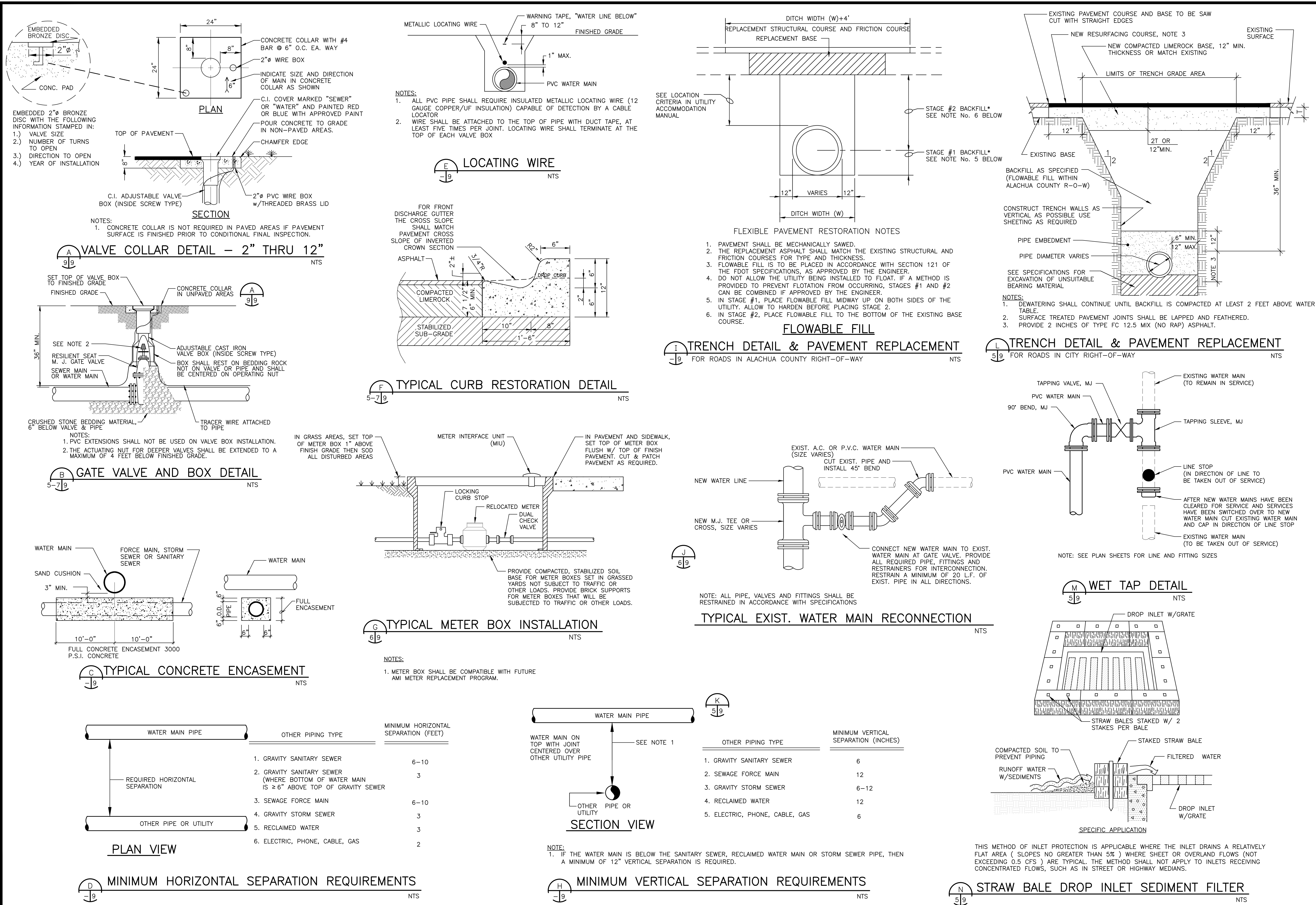
MITTAUER
& ASSOCIATES, INC.
CONSULTING ENGINEERS
580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
TEL. (904) 278-0030 FAX. (904) 278-0840

DESIG. MAR
DRWN. DHS
PROJ. JRS
MGR. DATE 10/03/23

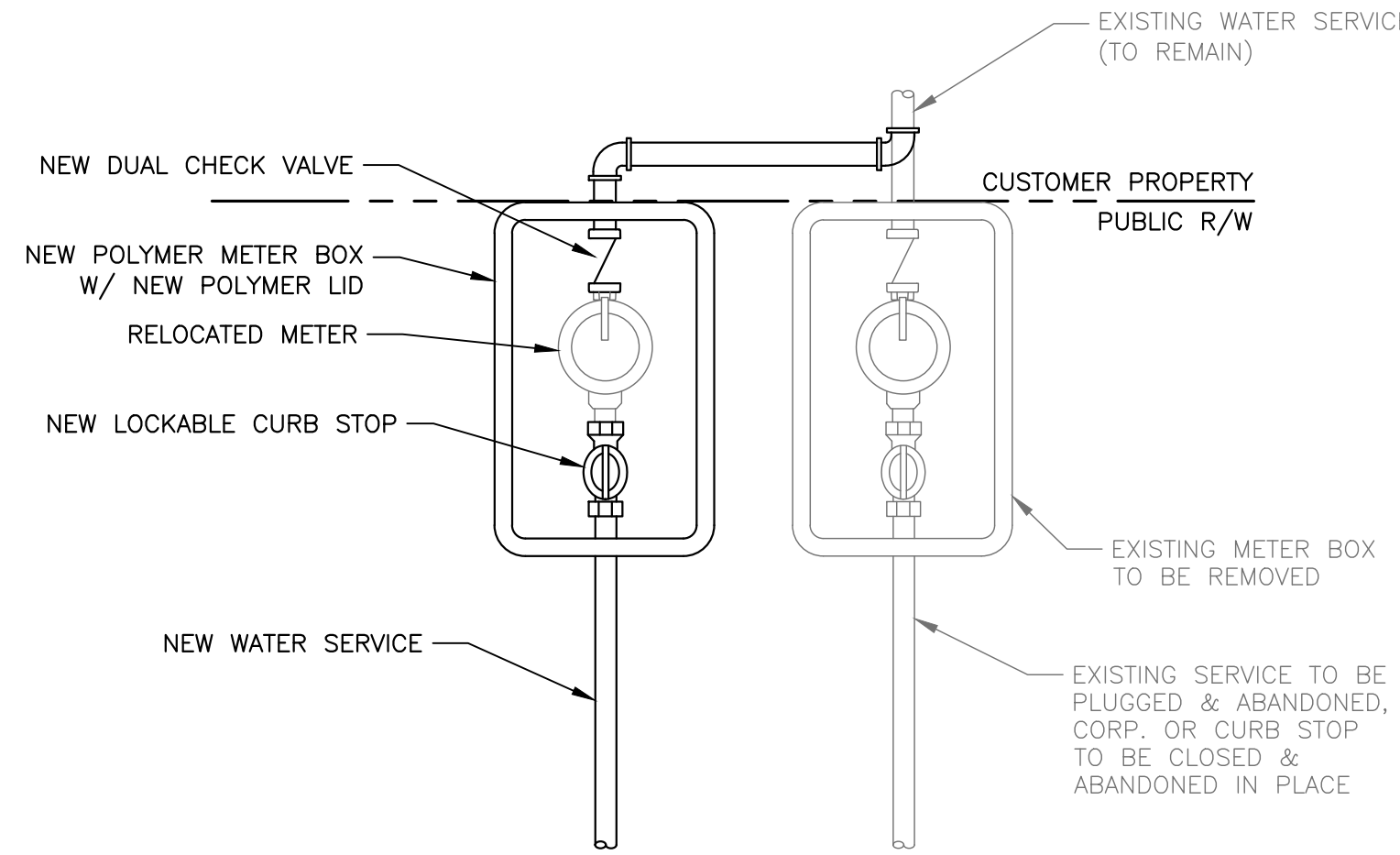
NO. DATE BY

REVISION DESCRIPTION

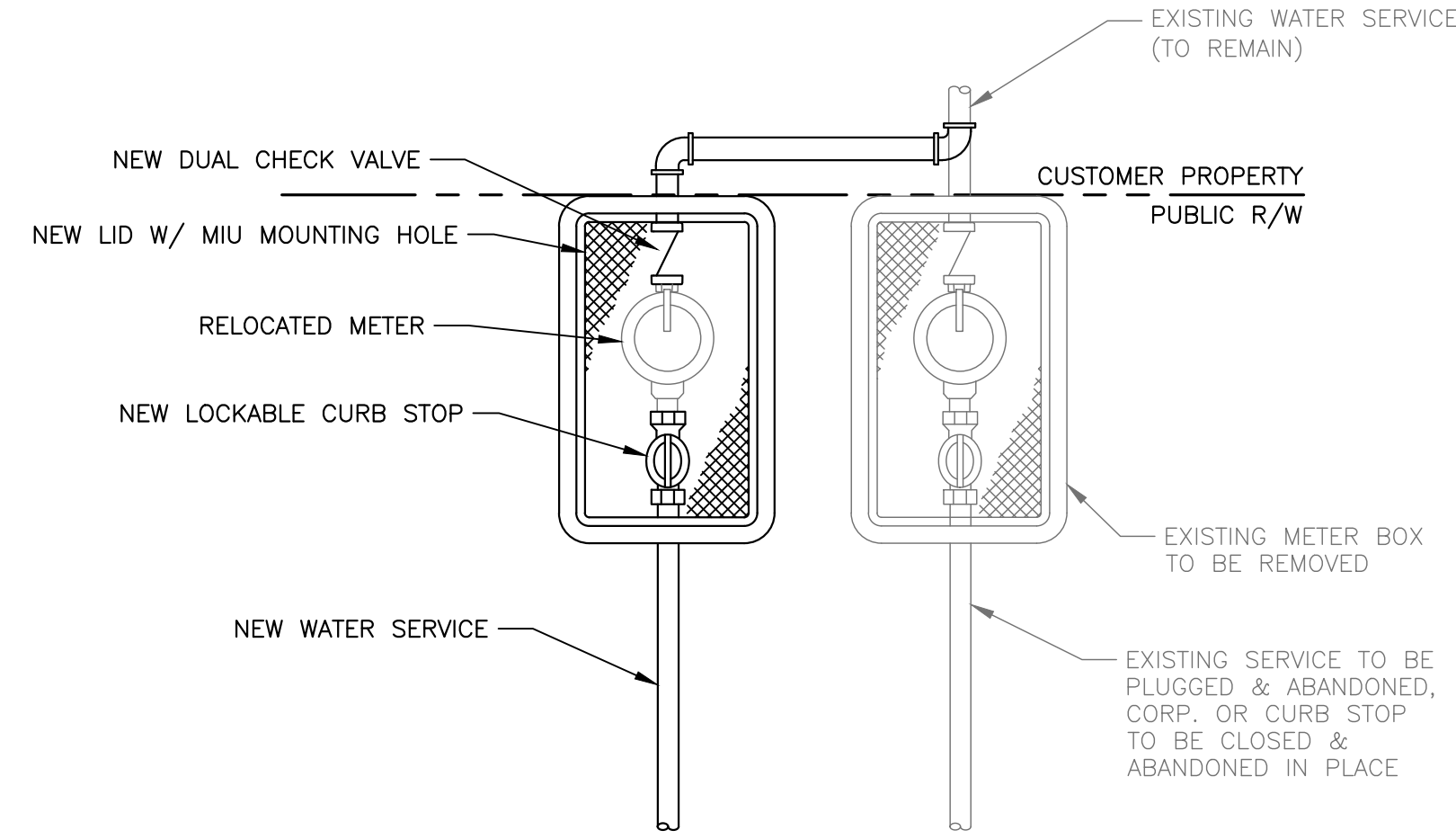
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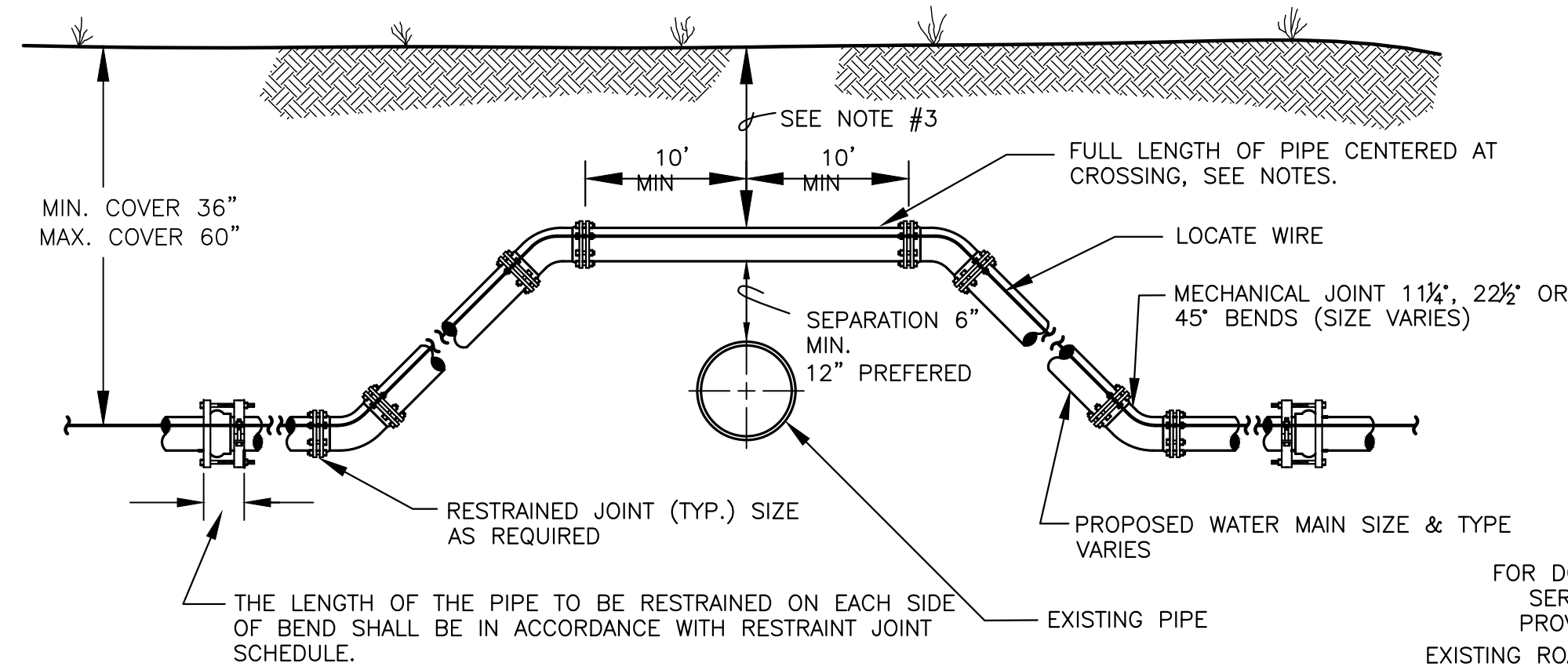
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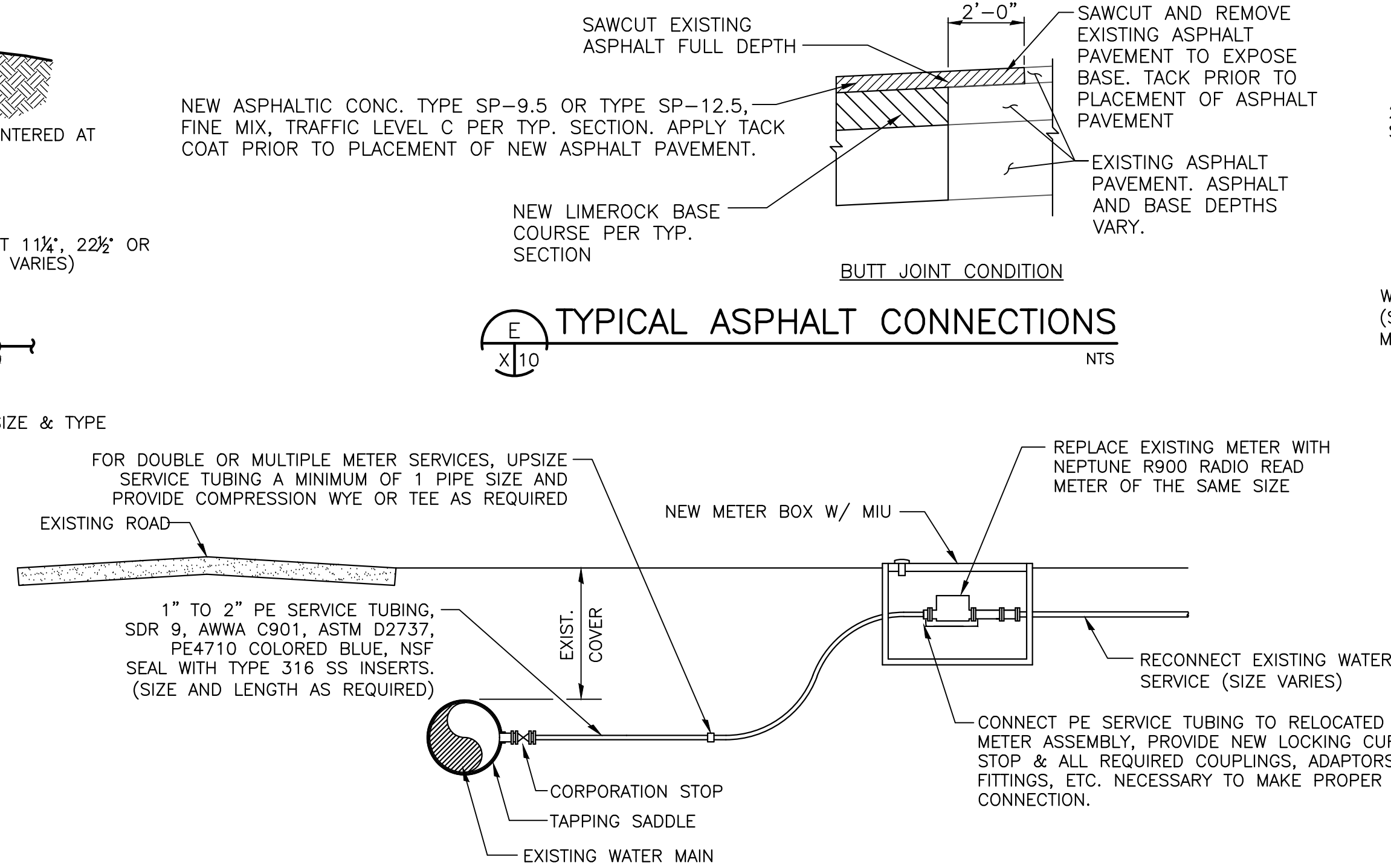
WATER METER REPLACEMENT DETAIL
(ALL 3/4" METERS)
(1" RESIDENTIAL METERS)



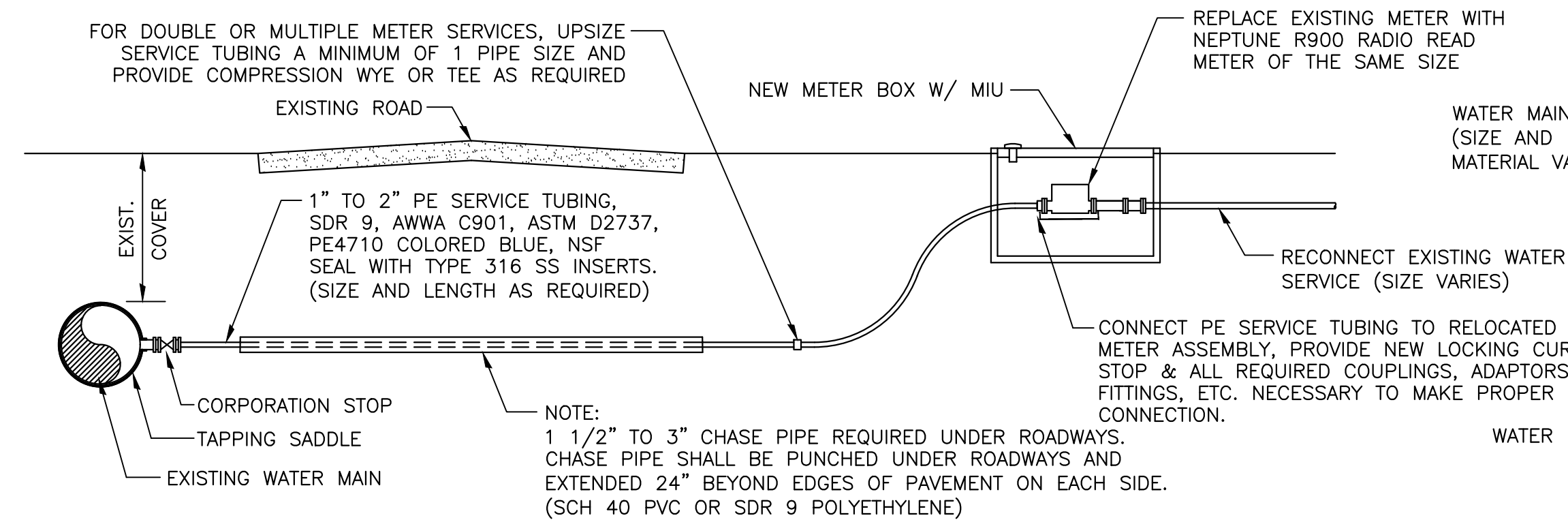
WATER METER REPLACEMENT DETAIL
(3/4" & 1" IN CONCRETE PAVEMENT)



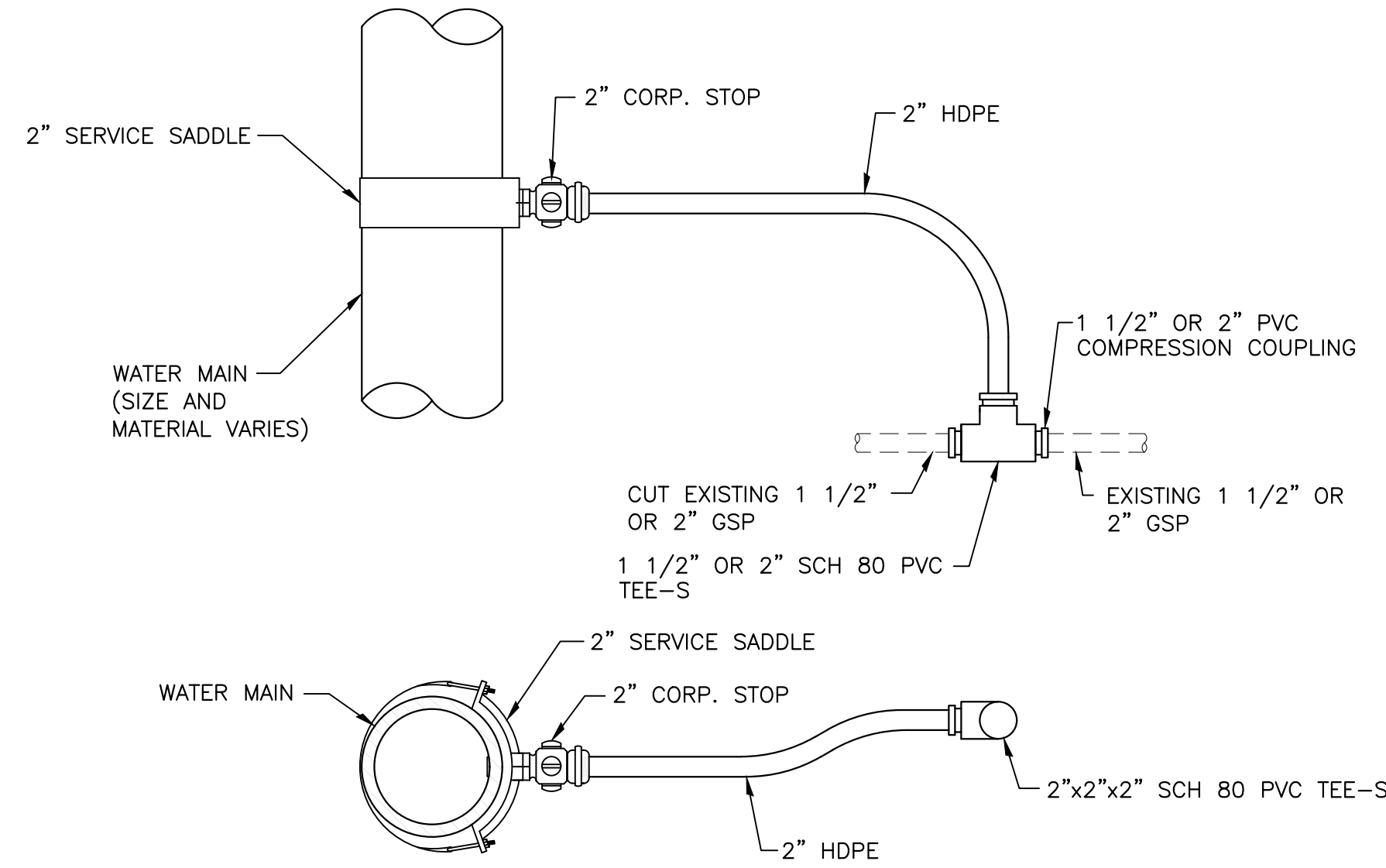
TYPICAL ASPHALT CONNECTIONS



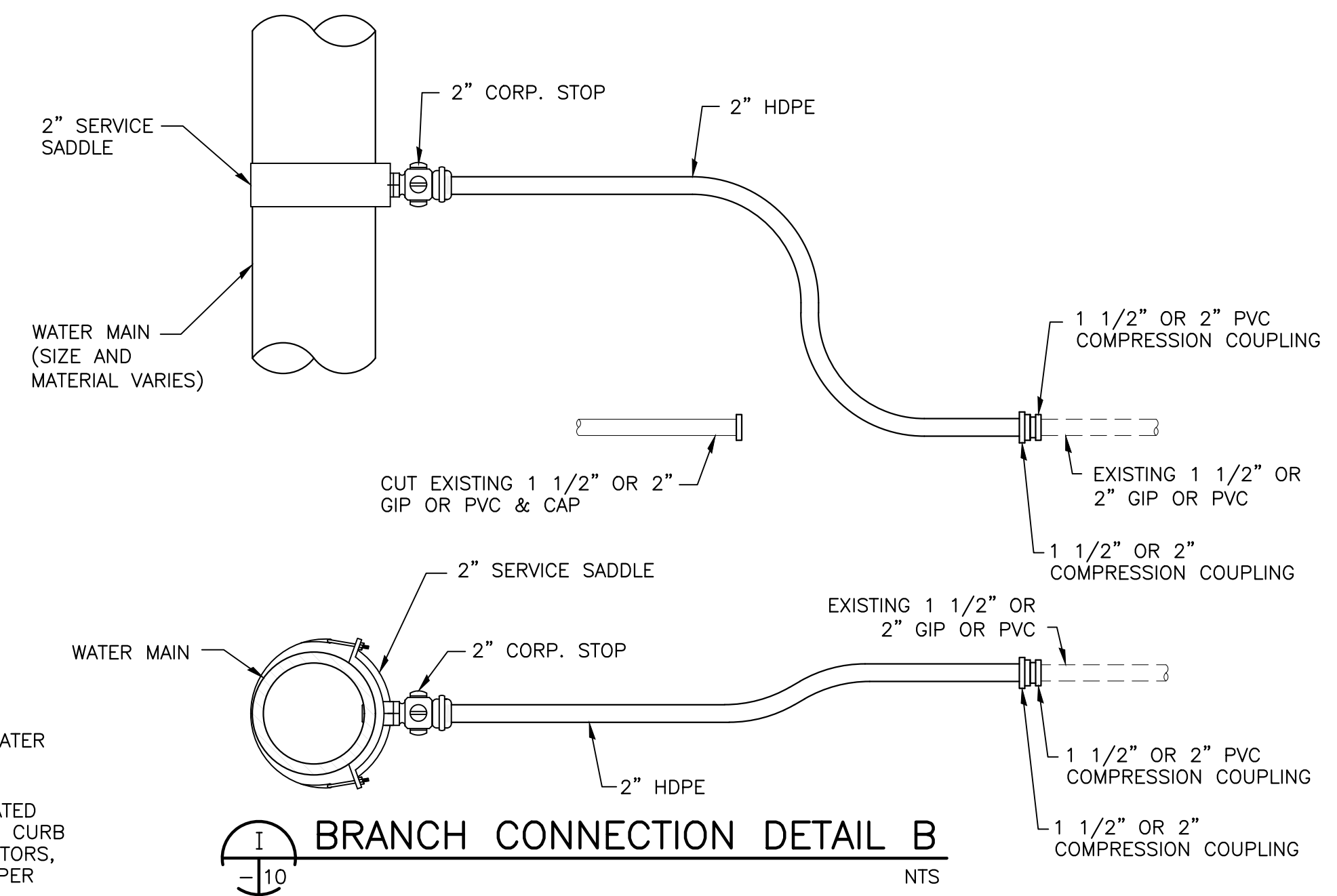
WATER SERVICE REPLACEMENT DETAIL - SHORT SIDE OF ROAD



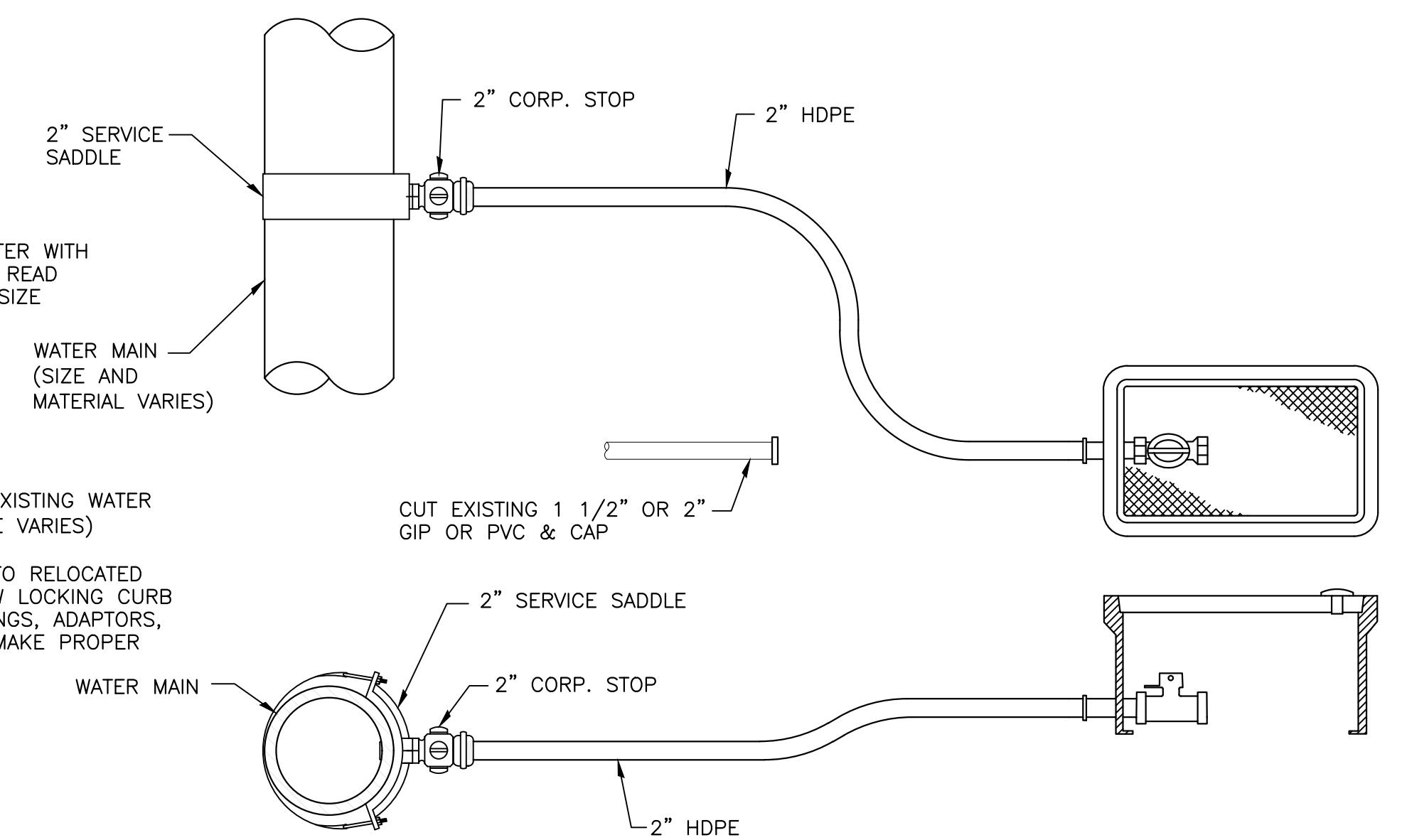
WATER SERVICE REPLACEMENT DETAIL - LONG SIDE OF ROAD



BRANCH CONNECTION DETAIL A



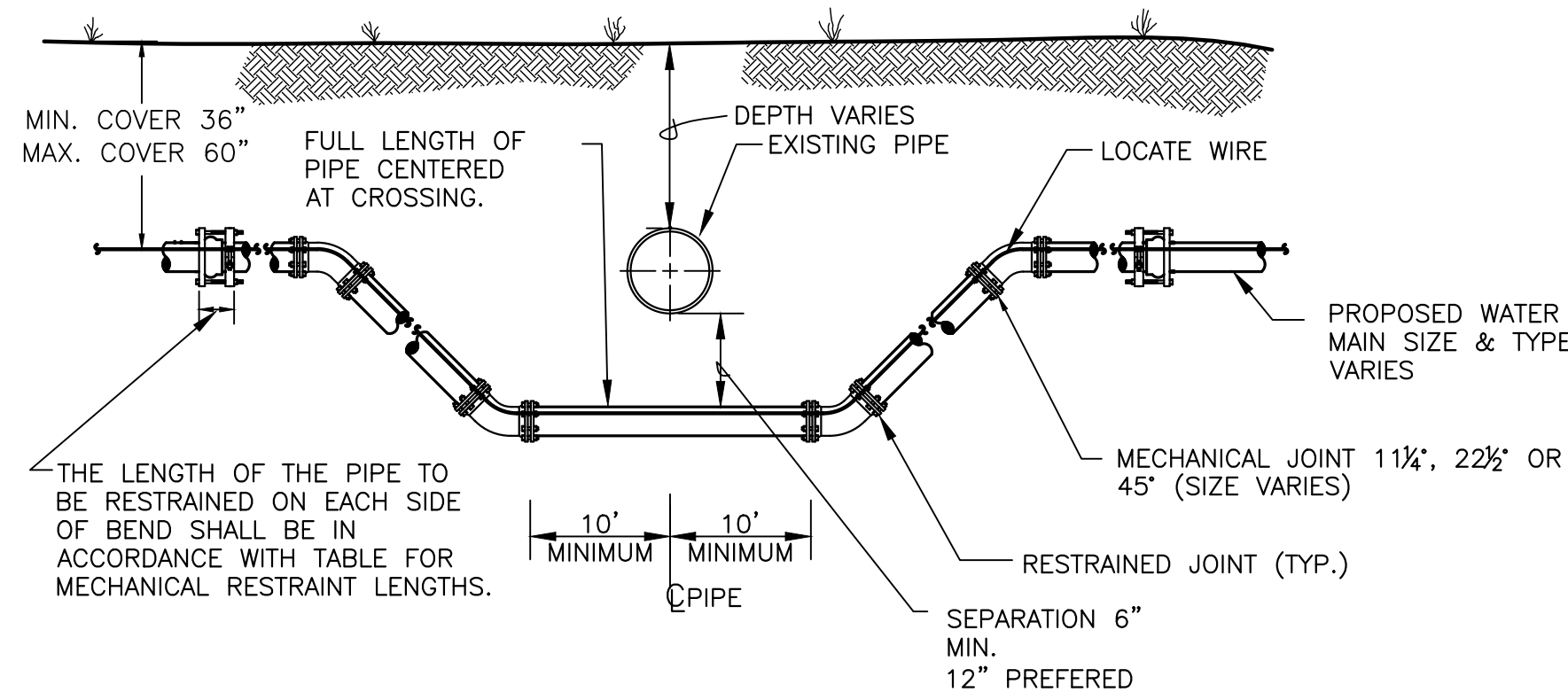
BRANCH CONNECTION DETAIL B



BRANCH CONNECTION DETAIL C

- NOTES:
1. THE SOILS BETWEEN THE NEW MAIN AND THE EXISTING PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D 1557.
 2. MINIMUM VERTICAL SEPARATION REQUIREMENTS MUST BE ACHIEVED.
 3. IF UTILITY CONFLICT IS LOCATED IN A NON-TRAFFIC AREA (NO TRAFFIC LOADS) AND THE NEW PIPE IS D.I.P., THEN THE MINIMUM COVER MAY BE REDUCED TO 24 INCHES (ONLY IN THE AREA OF THE CONFLICT).

TYPE "A" CROSSING

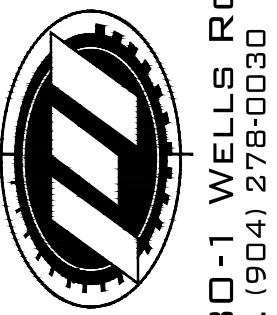


- NOTES:
1. THE SOILS BETWEEN THE NEW MAIN AND THE EXISTING PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D 1557
 2. MINIMUM VERTICAL SEPARATION REQUIREMENTS MUST BE ACHIEVED.

TYPE "B" CROSSING

DESIGN: MAR
DRAWN: DHS
PROJ. MGR: JRS
DATE: 10/03/23
1 INCH

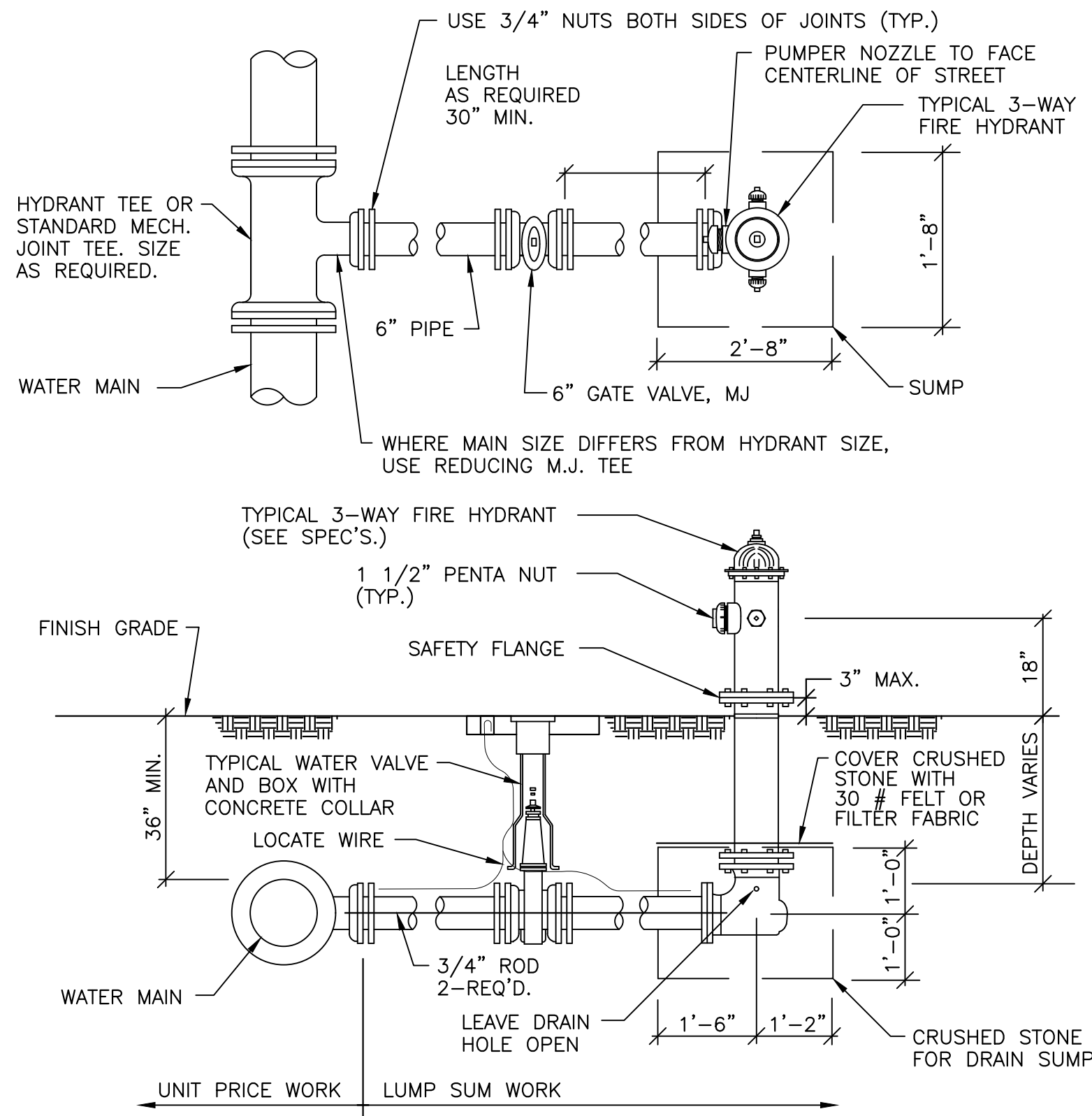
MITTAUER
& ASSOCIATES, INC.
CONSULTING ENGINEERS
580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
TEL. (904) 278-0030 FAX. (904) 278-0840
FLORIDA RY NO. 6569



CITY OF CRESCENT CITY
086 23 NR Main St. WM Replacement & Lift Station Generator
Typical Details
Putnam County, Florida

JOB NO.
9318-61-1
SHEET NO.

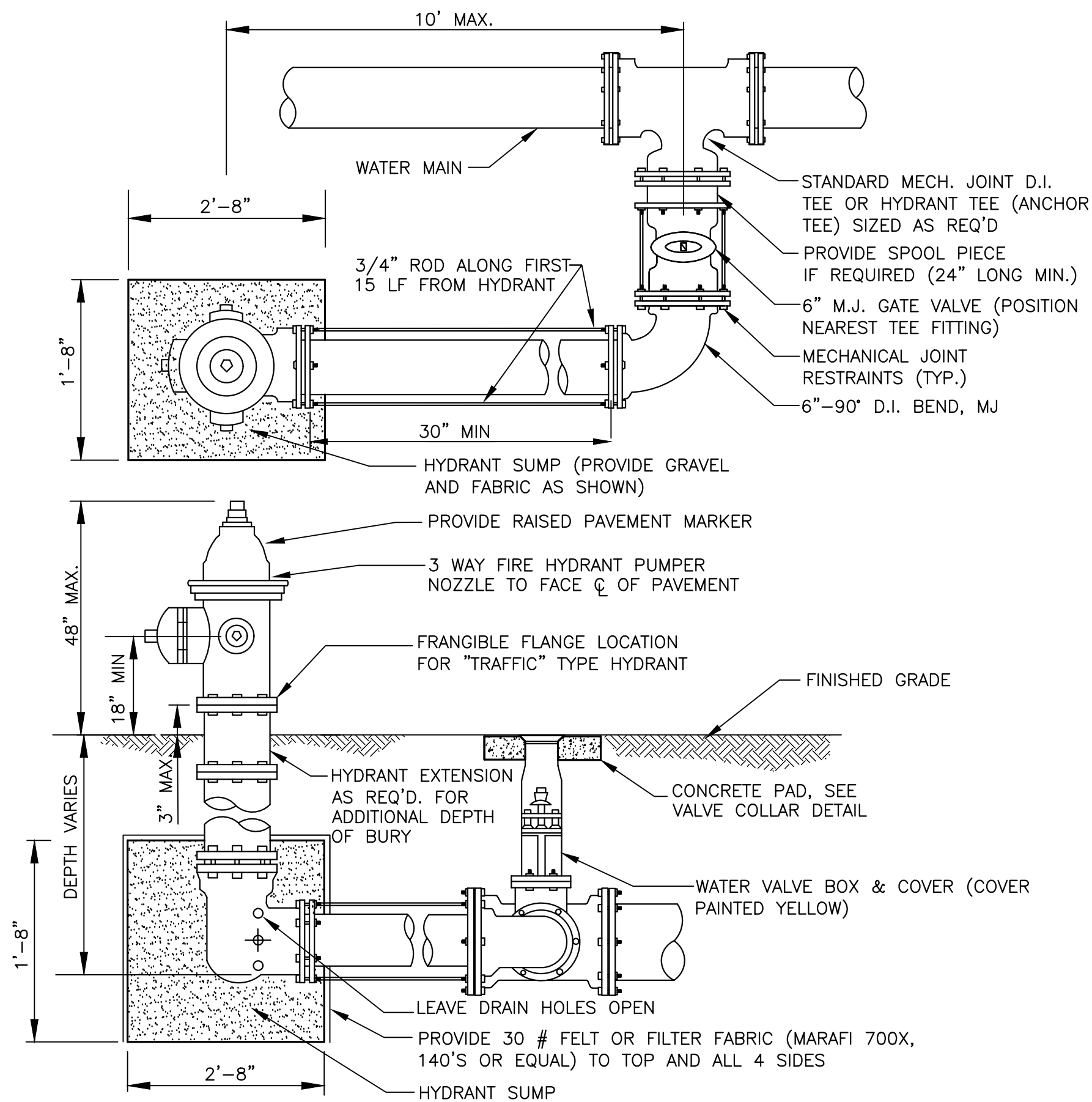
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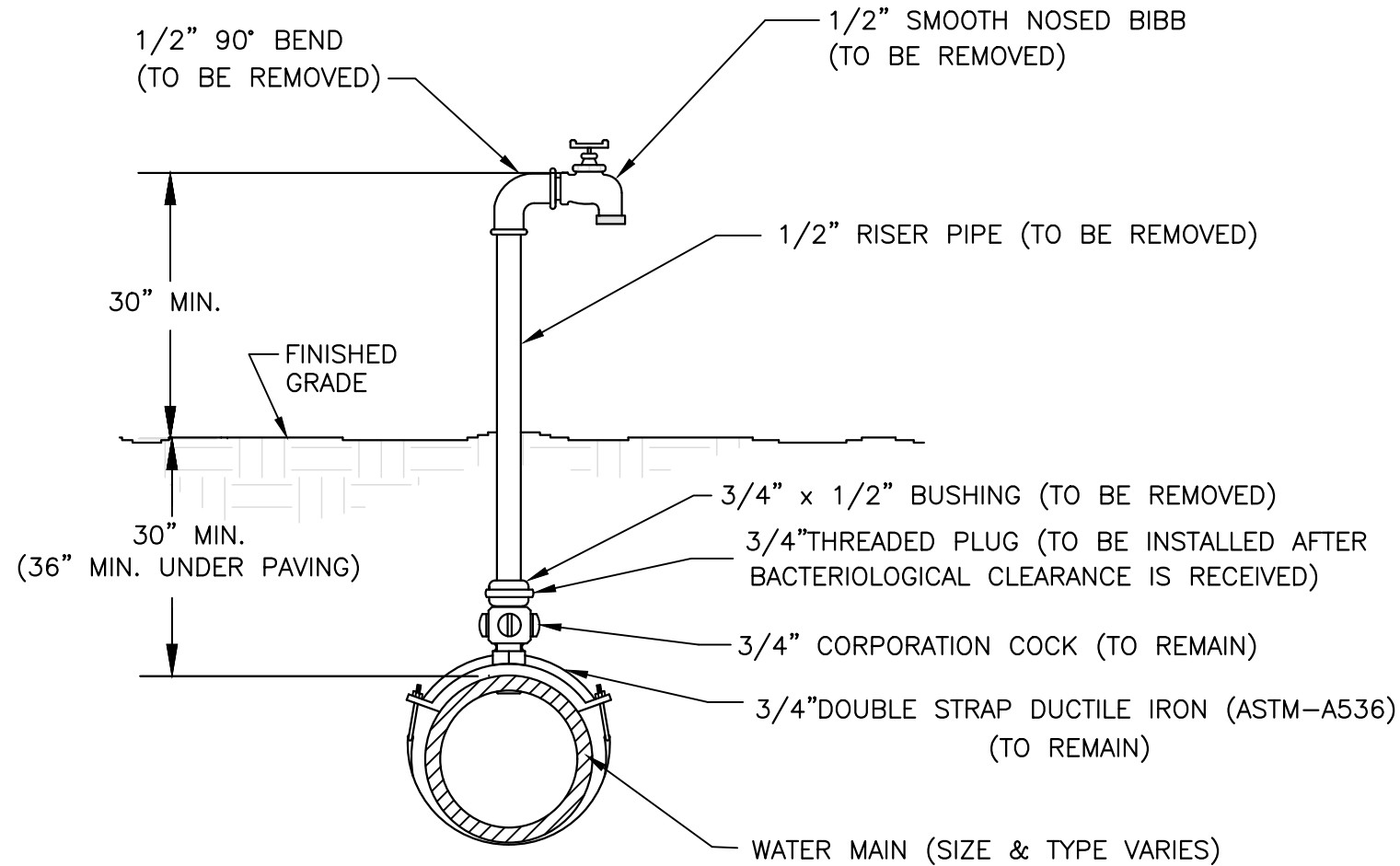
NOTES:

1. TIE RODS, NUTS, WASHERS AND OTHER FASTENERS SHALL BE ASTM A 246 CORROSION RESISTANT STEEL, OR TYPE 316 STAINLESS STEEL.
2. ALL PIPE, VALVES AND FITTINGS OF HYDRANT SHALL BE RESTRAINED.
3. CONTRACTOR SHALL NOT PRE-ORDER THE FIRE HYDRANTS ASSEMBLIES WITH THE SAME LENGTH BARREL. THEY SHALL BE ORDERED AFTER THE CONTRACTOR HAS PREPARED AN INVENTORY OF LENGTHS REQUIRED TO ENSURE PROPER BURY DEPTH TO MEET ACTUAL FIELD CONDITIONS.
4. COLOR OF HYDRANT SHALL BE MANUFACTURER'S STANDARD INDUSTRIAL FINISH. OWNER SHALL CHANGE COLOR AND PROVIDE BLUE REFLECTIVE MARKER IF DESIRED.

TYPICAL FIRE HYDRANT INSTALLATION
NTS



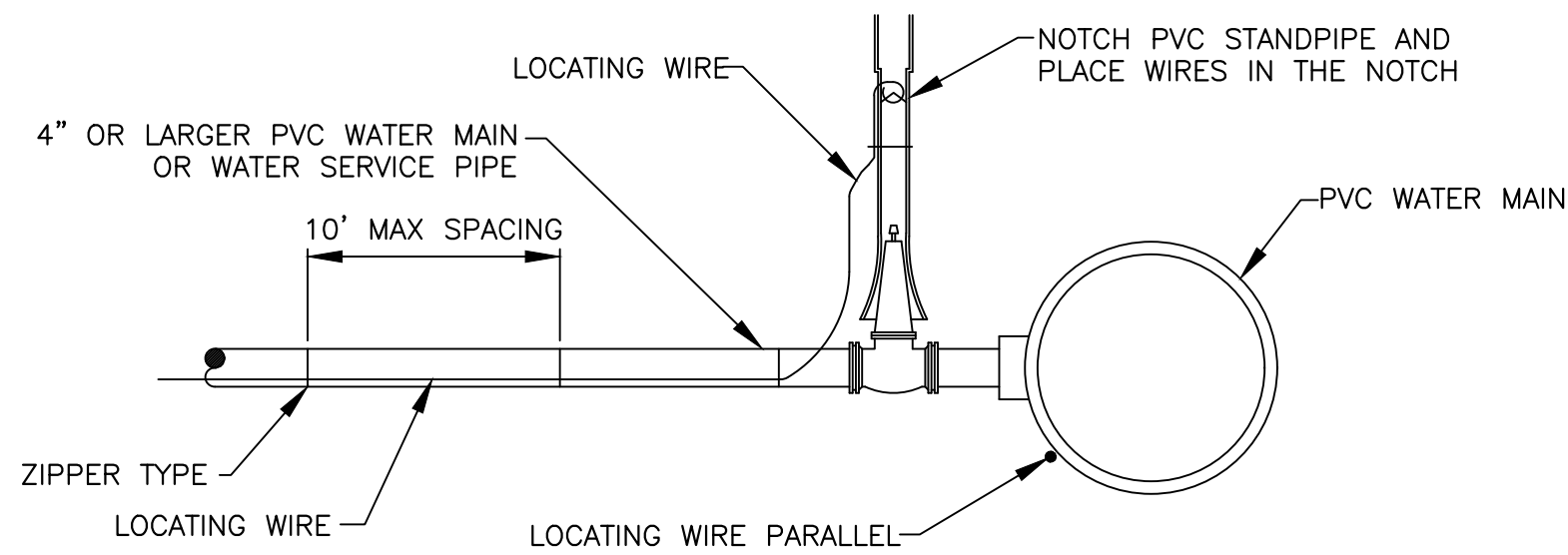
TYPICAL FIRE HYDRANT LIMITED SPACE INSTALLATION
NTS



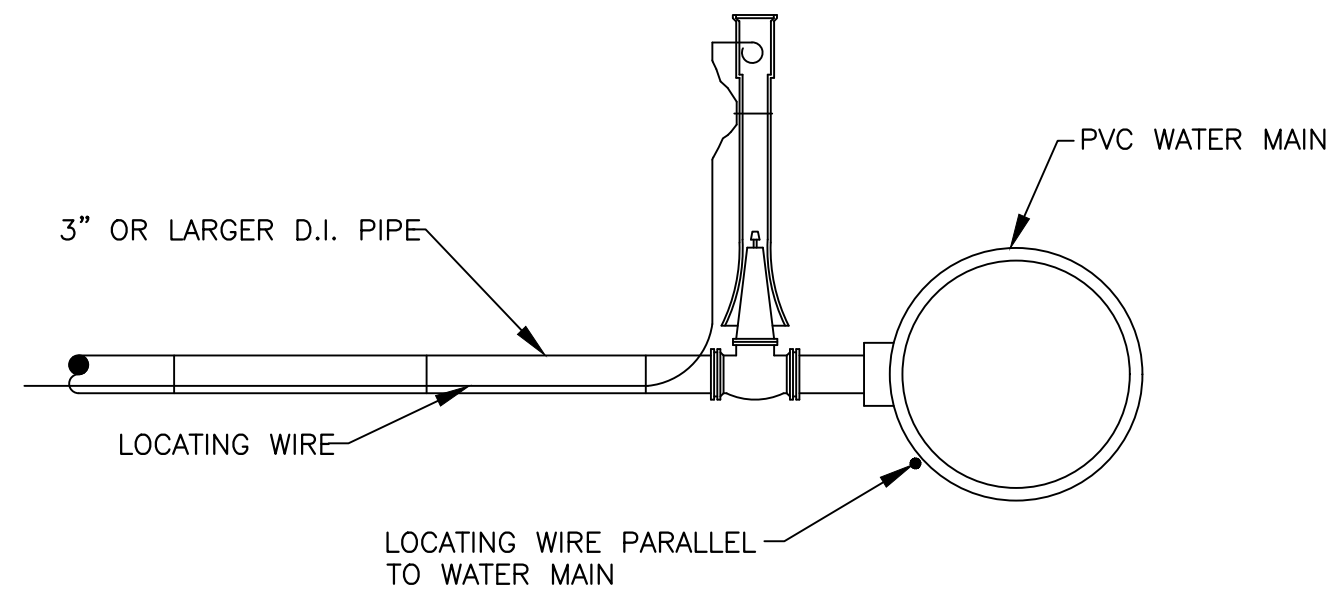
NOTE:

- 1) LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN THE ROADWAY BUT ROUTED TO THE ROADWAY SHOULDERS (NON-TRAFFIC AREAS) OF THE ROAD (WHERE APPLICABLE)
- 2) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL PIPING & FITTINGS NOTED AFTER BACTERIOLOGICAL CLEARANCE FROM THE HEALTH DEPARTMENT.

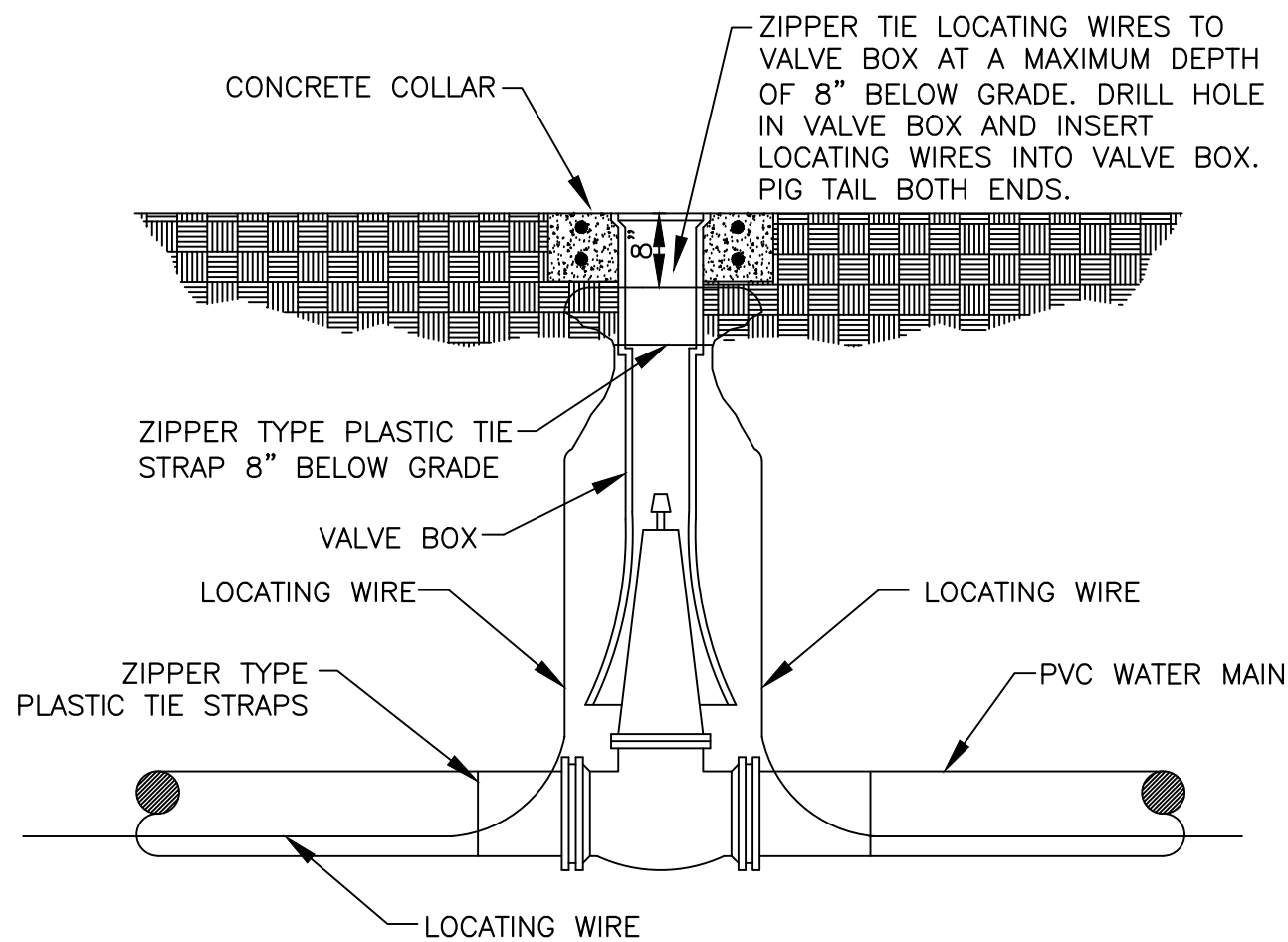
1/2" TEMPORARY SAMPLE TAP
NTS



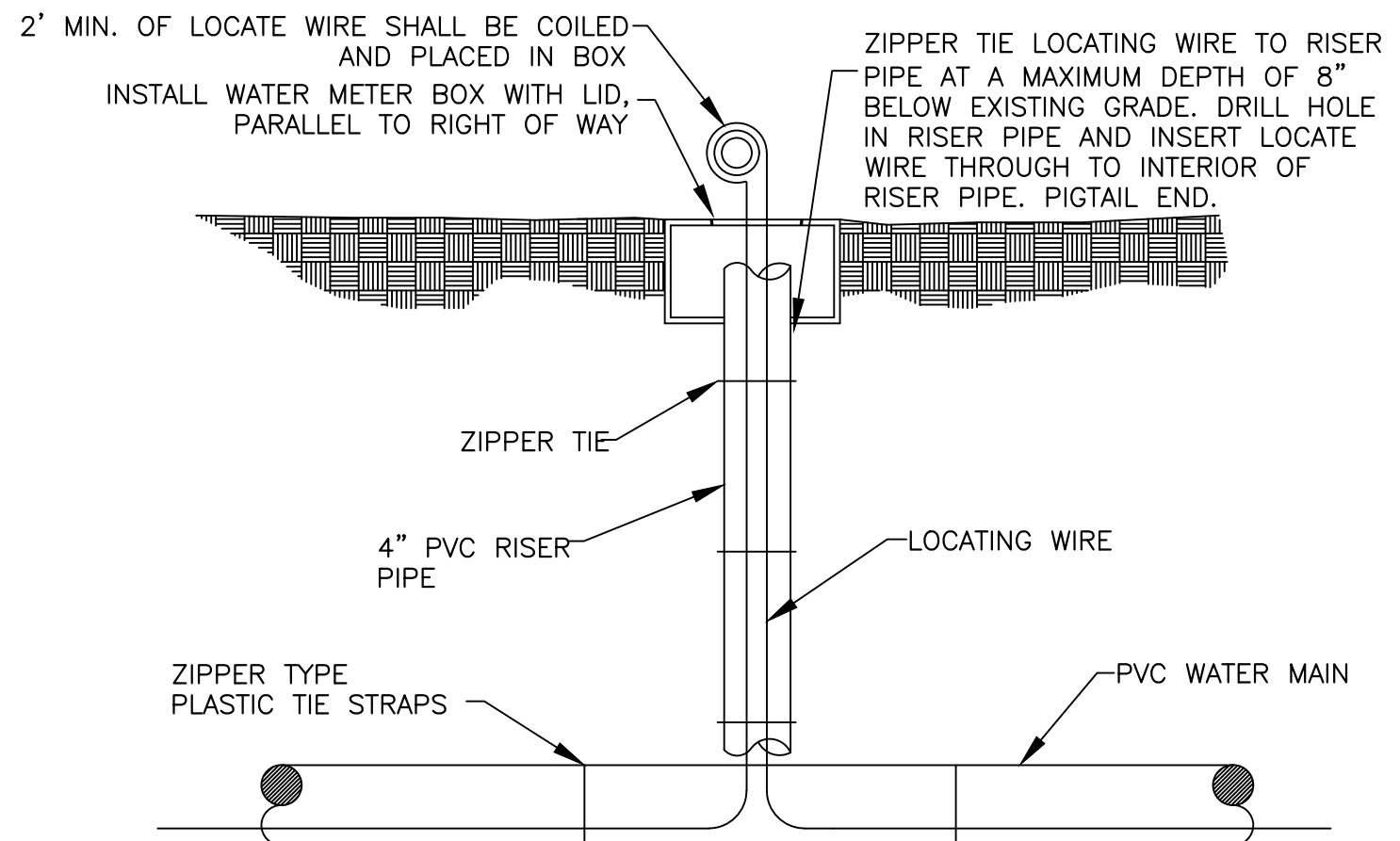
CONNECTION TO PVC MAINS
DETAIL - A



CONNECTION TO PVC MAINS
DETAIL - B



IN LINE LOCATING STATION- PVC PIPE
VALVE BOX WITH VALVE

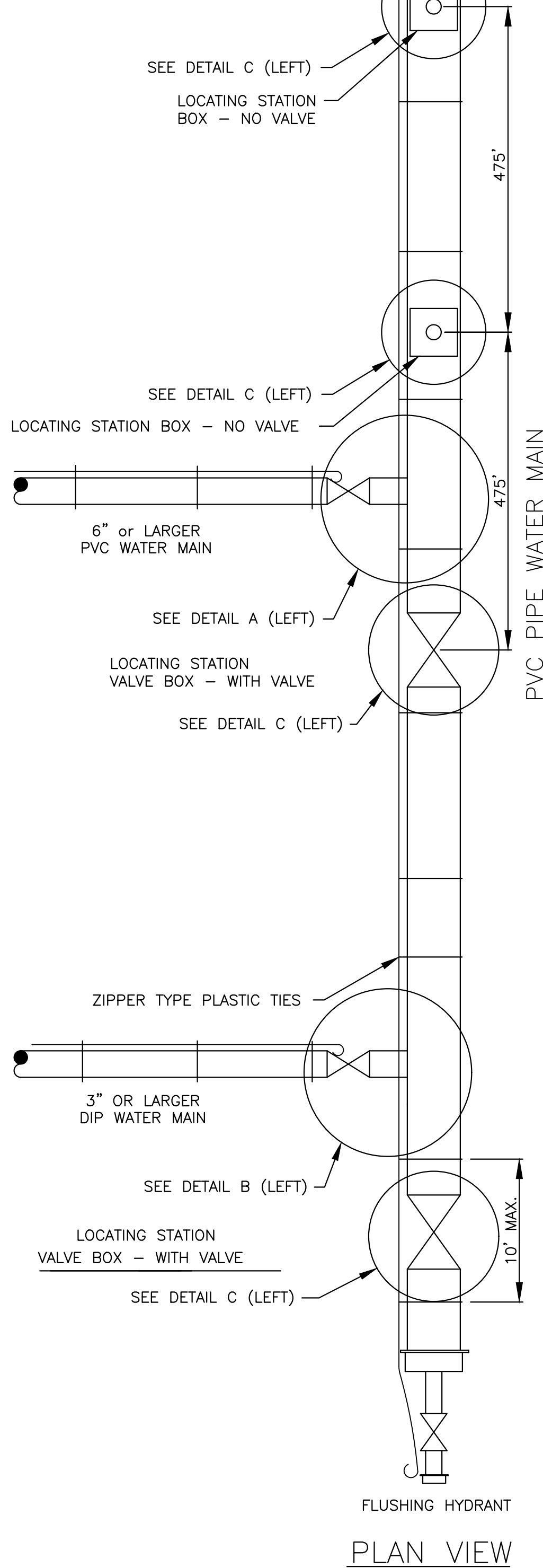


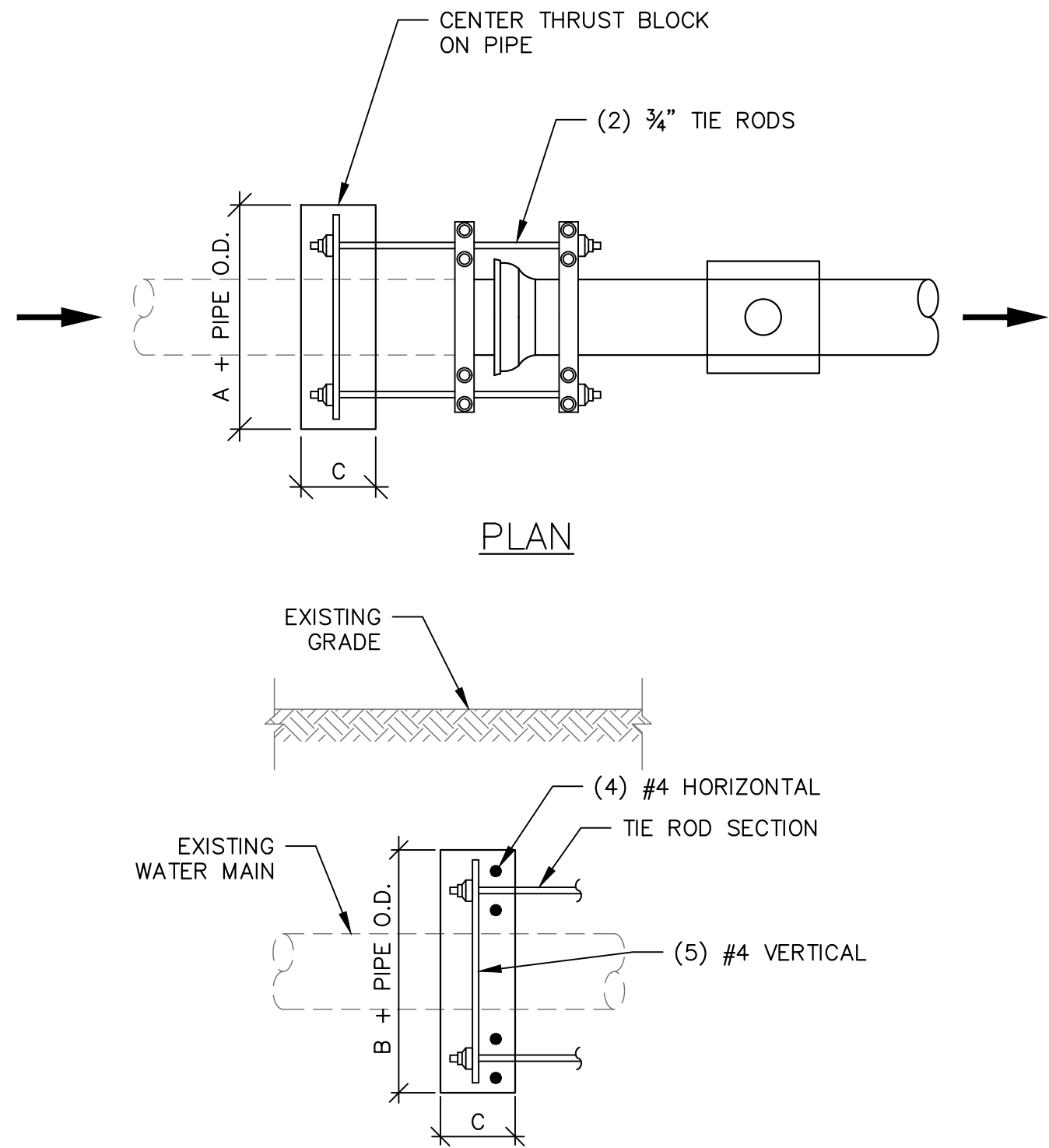
IN LINE LOCATING STATION - PVC PIPE
METER BOX

NOTES:

1. LOCATING WIRE, SEE SPECIFICATION 02513 FOR REQUIREMENTS.
2. BOXES SHALL NOT BE LOCATED IN SIDEWALKS OR DRIVEWAYS. LOCATE BOXES SPACING SHALL NOT EXCEED 500 FEET.
3. WHERE IT IS NOT POSSIBLE TO LOCATE THE BOX OUTSIDE OF A PAVED STREET OR PARKING LOT THE LOCATE WIRE SHALL BE PLACED IN A VALVE BOX INSTEAD OF A ROME BOX. VALVE BOX LID SHALL BE MARKED ACCORDING TO THE TYPE OF PIPE SERVED.

TYPICAL LOCATOR WIRING INSTALLATION DETAILS
NTS





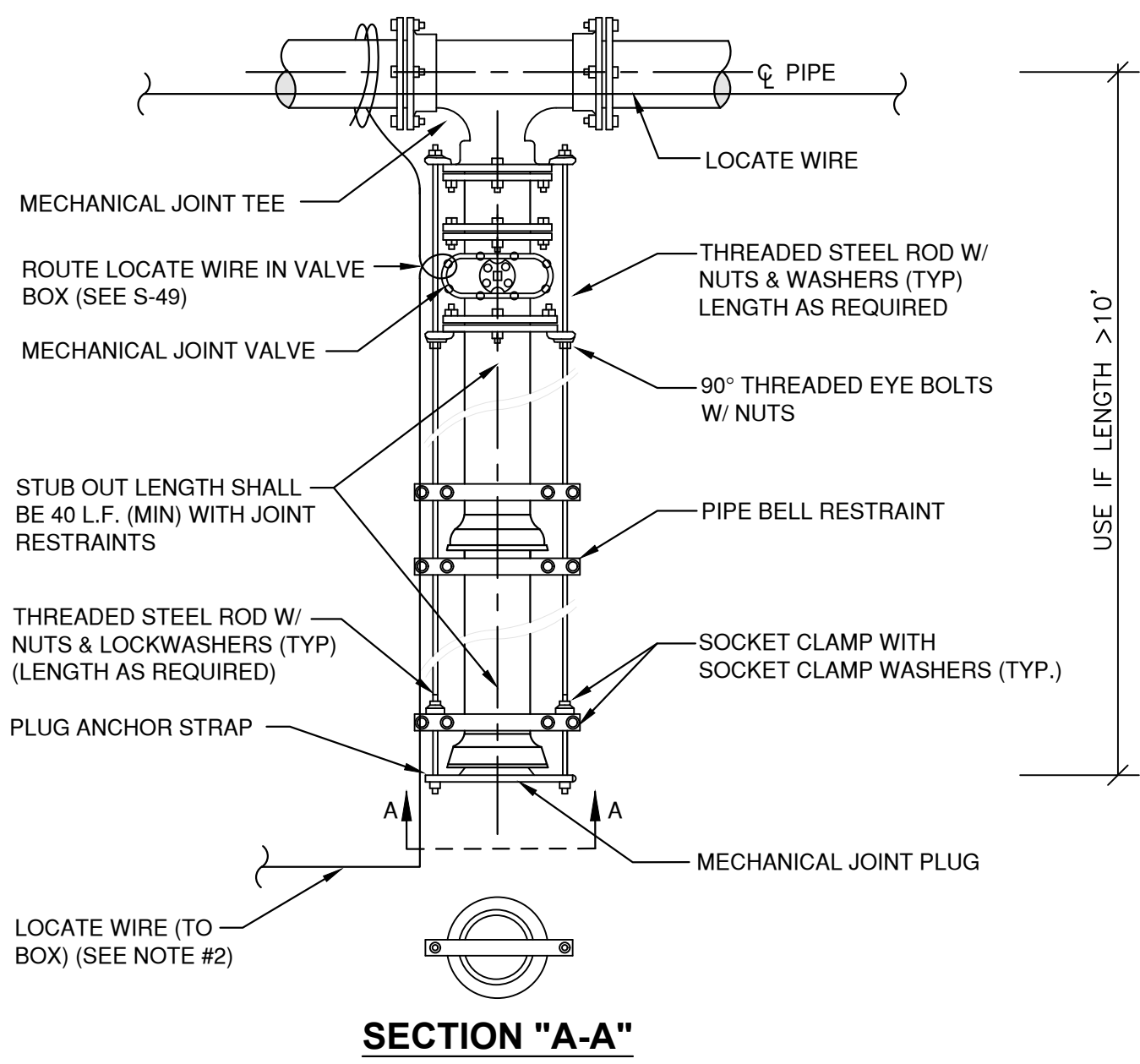
PVC O.D. (SCH 40)

6" - 6.625"
8" - 8.625"

THRUST BLOCK FOR TEES & PLUGS				
SIZE	90° BEND			S.F. BEARING SURFACE
	A	B	C	
6"	20"	24"	18"	3.33
8"	26"	32"	18"	5.78

RESTRAINED LINE STOP DETAIL

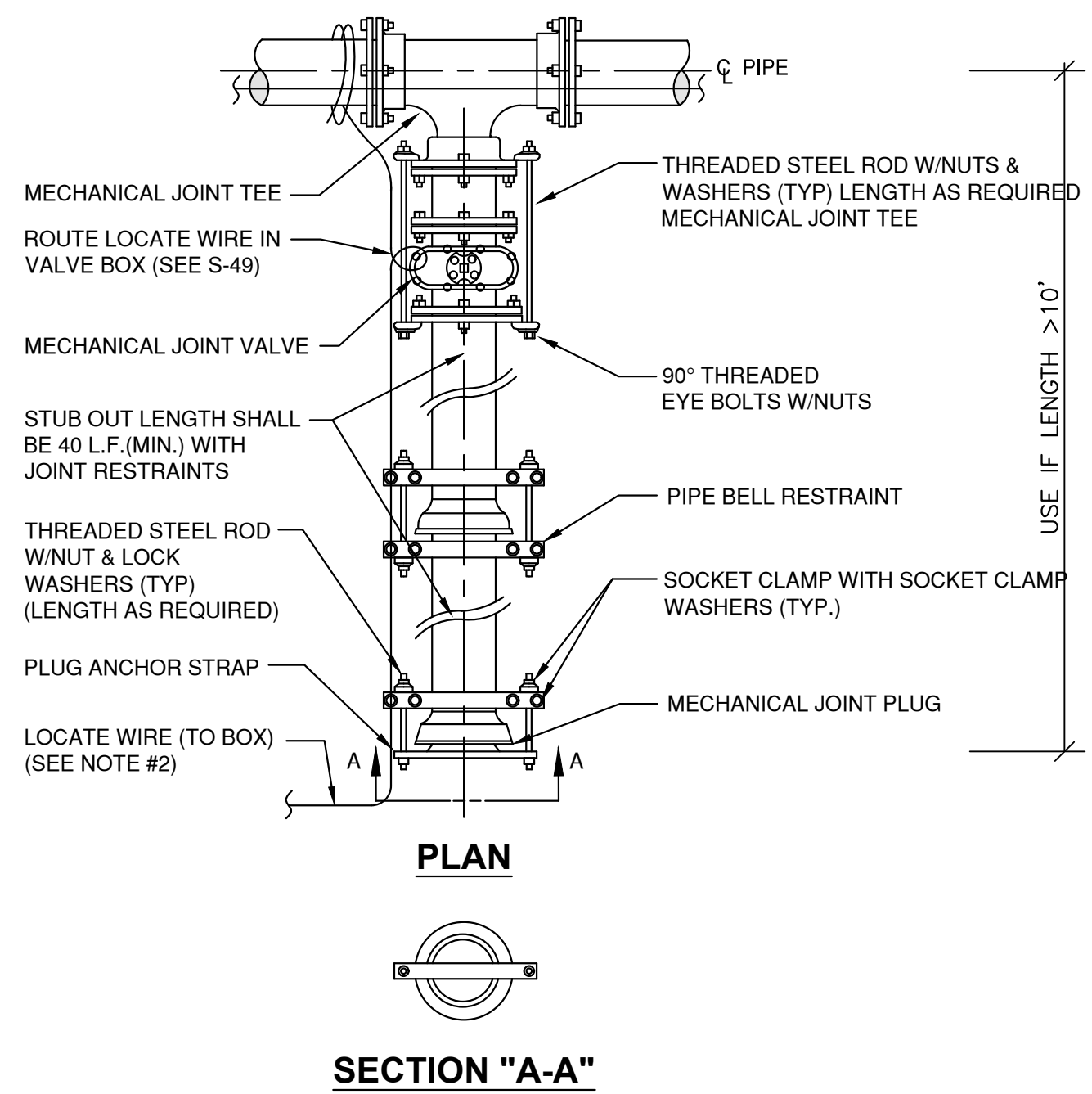
NTS



- NOTES:
- IN LIEU OF BELL/ROD RESTRAINTS, MECHANICAL JOINT RESTRAINTS MAY BE USED.
 - LOCATING WIRE REQUIRED, UTILIZING A LOCATE WIRE BOX INSTALLED AT PLUG LOCATION.
 - NUMBER OF TIE RODS REQUIRED IS AS FOLLOWS:
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)
 - 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 TIE RODS

NTS



- NOTES:
- IN LIEU OF BELL/ROD RESTRAINTS, MECHANICAL JOINT RESTRAINTS MAY BE USED.
 - LOCATING WIRE REQUIRED, UTILIZING A LOCATE WIRE BOX INSTALLED AT PLUG LOCATION.
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54" DIAMETER MAIN - 18 TIE RODS REQUIRED PER JOINT (1 1/4" ROD)
 - 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

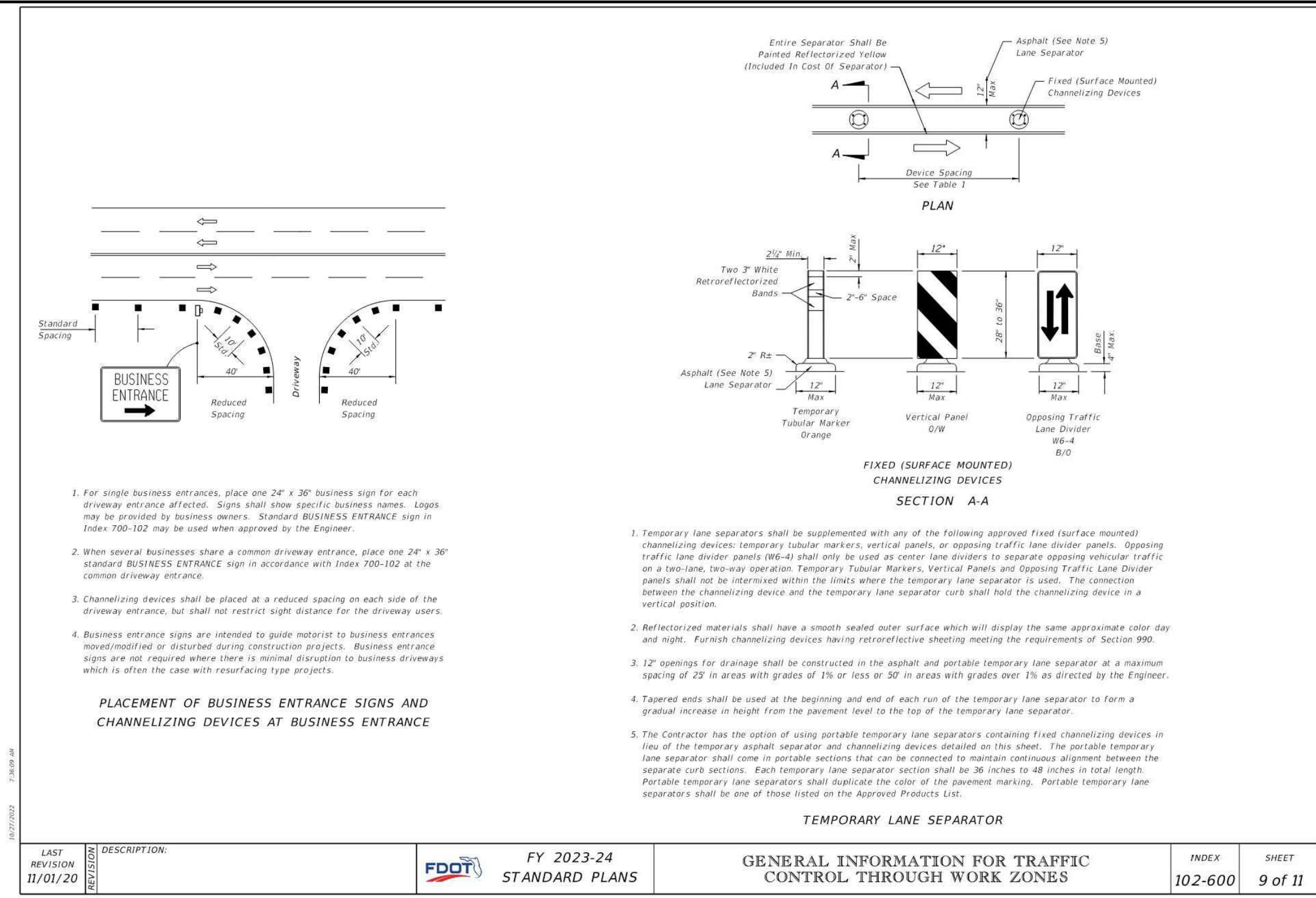
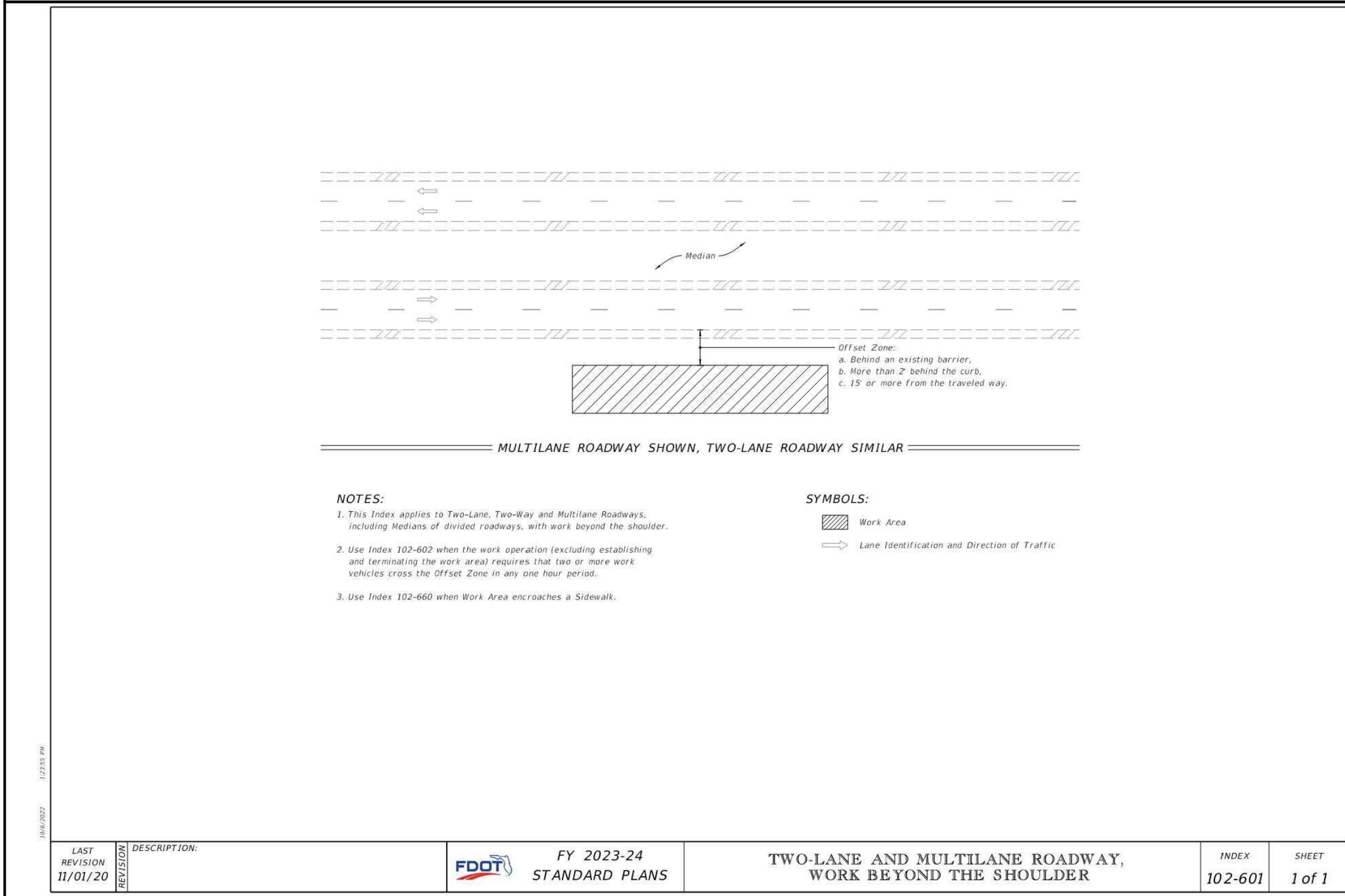
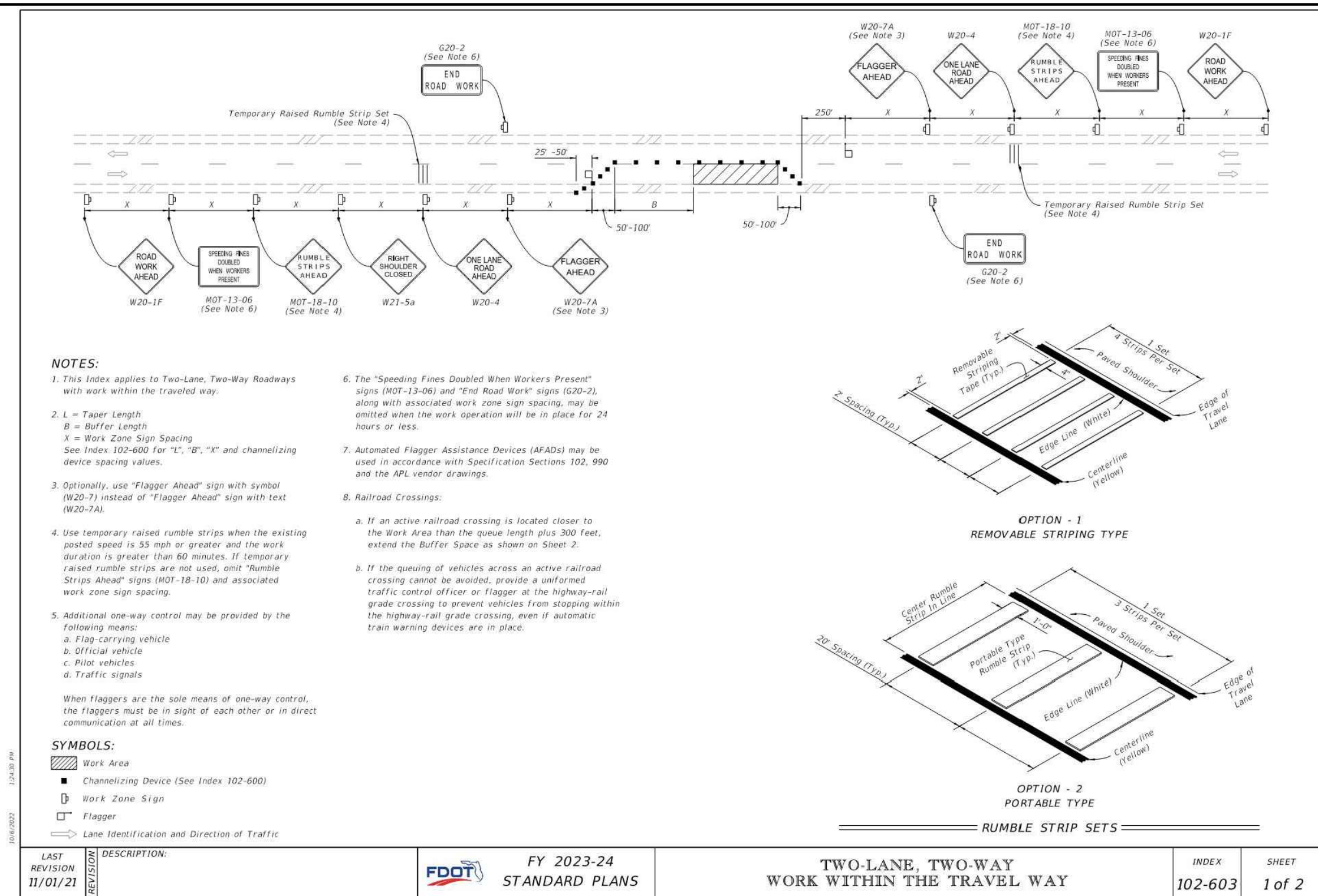
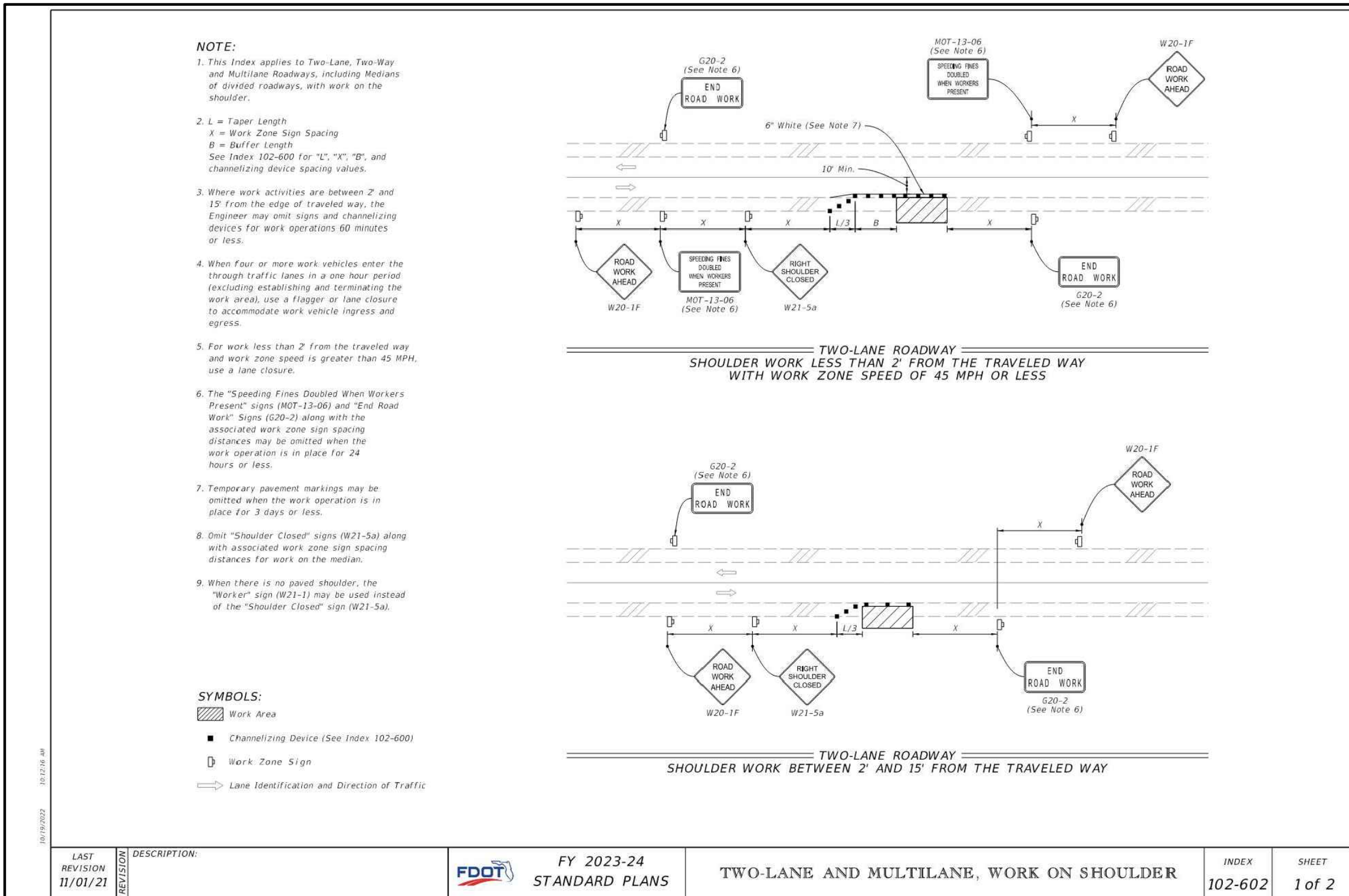
NTS

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TRAFFIC CONTROL GENERAL NOTES

1. THE EXISTING POSTED SPEED SHALL BE MAINTAINED FOR THE DURATION OF CONSTRUCTION. WORK ZONE SPEED SHALL NOT BE LESS THAN POSTED SPEED.
2. ARROWS DENOTE DIRECTION OF TRAFFIC ONLY AND DO NOT REFLECT PAVEMENT MARKINGS, UNLESS OTHERWISE NOTED.
3. THE CONTRACTOR IS TO MAINTAIN AND KEEP STREET NAME IDENTIFICATION SIGNS VISIBLE DURING CONSTRUCTION OPERATIONS TO FACILITATE EMERGENCY VEHICLE TRAFFIC.
4. PLACE BUSINESS ENTRANCE SIGNS IN ACCORDANCE WITH FDOT INDEX 102-600, SHEET 9.
5. EXISTING GUIDE SIGNS AND APPLICABLE WARNING SIGNS ARE TO BE RELOCATED DURING CONSTRUCTION TO ALIGN WITH ALL PHASE TRAFFIC PATTERNS.
6. THE CONTRACTOR SHALL CONTACT TRANSIT AND SCHOOL AUTHORITIES FOR THEIR BUS STOP LOCATIONS AND SCHEDULES TO MAINTAIN SAFE ACCESS TO THE RIDERS AT ALL TIMES.
7. ALL LANE CLOSURES SHALL BE COORDINATED WITH LOCAL EMERGENCY SERVICES. A MINIMUM OF 24 HOURS NOTICE SHALL BE PROVIDED FOR ANY SCHEDULED WORK REQUIRING LANE CLOSURES OR DETOURS.



DESIGN: JPP
DRAWN: DHS
PROJECT MGR: JRS
DATE: 10/03/23
SCALE: 1" = 10'



CITY OF CRESCENT CITY
CDBQ 23 NR Main St. WW Replacement & Lift Station Generator
Maintenance of Traffic
Putnam County, Florida

JOB NO. 9318-61-1
SHEET NO. 13

REVISION DESCRIPTION

BY

DATE

NO

1" INCH

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GENERAL NOTES

1.

THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRIC SAFETY CODE, NECA STANDARD OF INSTALLATION (EDITIONS ADOPTED BY THE AHJ), AND ANSINEMA STANDARDS SHALL ESTABLISH THE MINIMUM REQUIREMENTS FOR INSTALLATION, BUT IN ADDITION, ALL WORK SHALL ALSO COMPLY WITH OWNER, OSHA, STATE, COUNTY, LOCAL OR MUNICIPAL CODE REQUIREMENTS AND THE RULES OF THE LOCAL ELECTRIC UTILITY. IN CASE OF CONFLICTS, CONFORM TO THE MORE STRINGENT REQUIREMENTS.
2.

TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THESE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES AS DETERMINED BY THE LOCAL AUTHORITY IN ACCORDANCE WITH CHAPTER 553 AND 633 OF THE FLORIDA STATUTES. IN CASES OF CONFLICTS BETWEEN THESE DESIGN DOCUMENTS AND REQUIREMENTS OF ANY OF THE ABOVE CRITERIA, CONTACT THE ENGINEER BEFORE PROCEEDING.
3.

THE CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INTEND TO CONVEY ELECTRICAL SCOPE OF WORK ONLY. NOT EVERY ELECTRICAL DETAIL, WIRE, OR CONDUIT IS SHOWN. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO PROCUREMENT AND CONSTRUCTION ACTIVITIES.
4.

FIRE PROTECTION, LIFE SAFETY, AND FIRE ALARM GENERAL REQUIREMENTS IF SHOWN ON THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND DESIGN IS DELEGATED IN ACCORDANCE WITH F.A.C. 61G15 OF THE FLORIDA ADMINISTRATIVE CODE TO A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF FLORIDA TO PROVIDE FIRE PROTECTION ENGINEERING AND DESIGN IN ACCORDANCE WITH APPLICABLE AND RELEVANT STANDARDS.
5.

DEVIATIONS FROM THE INTENT OF THE CONTRACT DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND/OR OWNER PRIOR TO PROCEEDING WITH CONSTRUCTION.
6.

TO "PROVIDE" MEANS TO PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION, AND SUPERVISION REQUIRED TO FURNISH AND INSTALL.
7.

CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY COMPONENTS, EQUIPMENT, AND INCIDENTALS REQUIRED FOR A FULLY FUNCTIONAL AND OPERATIONAL ELECTRICAL SYSTEM AS DESCRIBED BY THE INTENT OF THE CONTRACT DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL APPLY FOR, OBTAIN, AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION CERTIFICATES, AND PAY FOR ALL FEES ASSOCIATED WITH THE PROJECT.
8.

EQUIPMENT AND MATERIALS PROVIDED SHALL BEAR LISTING AND LABELING BY A NATIONALLY RECOGNIZED TESTING AGENCY WHERE SUCH STANDARD HAS BEEN ESTABLISHED FOR THAT TYPE OF EQUIPMENT / MATERIAL.
9.

ALL SUBMITTALS SHALL BE REVIEWED BY THE PROJECT ENGINEER BEFORE INSTALLATION. SUBMIT SHOP DRAWINGS, CATALOG SHEETS, OR OTHER DESCRIPTIVE DATA WITH SUFFICIENT INFORMATION TO ESTABLISH DESIGN, QUALITY, AND PERFORMANCE.
10.

PROVIDE EQUIPMENT NAMEPLATES FOR ALL EQUIPMENT. NAMEPLATES SHALL BE ENGRAVED THREE-LAYER LAMINATED PLASTIC, BLACK LETTERS ON WHITE BACKGROUND. USE MINIMUM 1/8 INCH LETTERS FOR IDENTIFYING INDIVIDUAL EQUIPMENT AND LOADS AND 1/4 INCH LETTERS FOR GROUPED EQUIPMENT AND LOADS. PROVIDE ARC FLASH AND SHOCK HAZARD WARNING LABELS FOR ELECTRICAL EQUIPMENT PER NEC 110.16 AND OTHER ELECTRICAL LABELS AS REQUIRED BY OSHA AND NEC.
11.

USE ONLY COPPER BUILDING WIRE WITH TYPE THWN/THHN (DUAL RATED) OR XHHW INSULATION (GROUND WIRES MAY BE TYPE TW FOR CIRCUITS RATED 100A OR LESS OR TYPE THW FOR CIRCUITS OVER 100A). WIRE SHALL BE SIZED AND COLOR CODED PER THE NEC. CONDUCTORS FOR POWER AND LIGHTING CIRCUITS SMALLER THAN #12 AWG ARE NOT PERMITTED.
12.

ALL CIRCUITS SHALL BE RUN IN CONDUIT AND SHALL CONTAIN SEPARATE GROUNDING CONDUCTOR SIZED PER NEC TABLE 250.122. ALL CONDUIT SHALL BE SCHEDULE 80 PVC UNLESS OTHERWISE NOTED. FINAL CONNECTIONS (LESS THAN 6 FEET) TO ALL MOTORS AND OTHER VIBRATING EQUIPMENT SHALL BE MADE WITH LIQUID-TIGHT FLEXIBLE METAL CONDUIT (WITH GROUNDING CONDUCTOR). NONMETALLIC FLEX CONDUIT OR TUBING SHALL NOT BE USED. MINIMUM SIZE FOR CONDUIT SHALL BE 3/4". PROVIDE PULLWIRE FOR ALL EMPTY CONDUITS.
13.

NO MORE THAN THREE (3) CURRENT CARRYING CONDUCTORS (ON ALTERNATING PHASES) SHALL BE COMBINED IN ONE CONDUIT. PROVIDE A DEDICATED NEUTRAL FOR ALL CIRCUITS REQUIRING A NEUTRAL.
14.

CONTRACTOR SHALL CONFORM WITH ALL OSHA AND NFPA 70E, STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE, REQUIREMENTS FOR ELECTRICAL SAFETY, INCLUDING PROPER LOCK-OUT / TAG-OUT PROCEDURES AND WEARING APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE). CONTRACTOR'S EMPLOYEES SHALL HAVE RECEIVED NFPA 70E ARC FLASH TRAINING.
15.

CONTRACTOR SHALL PROVIDE SHORT CIRCUIT, PROTECTIVE DEVICE COORDINATION, AND ARC FLASH HAZARD ANALYSIS OF THE PROPOSED ELECTRICAL SYSTEM TO THE ENGINEER FOR REVIEW AND APPROVAL. AFFIX APPROVED ARC FLASH HAZARD LABELS TO ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH OSHA, NFPA 70E, AND IEEE 1584 INCLUDING SUCH INFORMATION AS INCIDENT ENERGY LEVELS, SYSTEM DATA, EQUIPMENT IDENTIFICATION, DATES, APPROACH BOUNDARIES, AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS.

ABBREVIATIONS

A OR AMP	AMPERES
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
ARC	ALUMINUM RIGID CONDUIT
AT	AMP TRIP
ATC	AUTOMATIC TRANSFER CONTROLLER
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
/C	CONDUCTOR
CB	CIRCUIT BREAKER
CT	CURRENT TRANSFORMER
CBL	CABLE
DS	DISCONNECT SWITCH
ESTOP	EMERGENCY STOP
EX	EXISTING
EP	EXPLOSION PROOF
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EGC	EQUIPMENT GROUND CONDUCTOR
F	FUSE
G OR GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GF	GROUND FAULT
GFCI	GROUND FAULT CIRCUIT INTERRUPT
GFI	GROUND FAULT INTERRUPTING
H-O-A	HAND-OFF-AUTO
HP	HORSEPOWER
JB	JUNCTION BOX
kVA	KILOVOLT - AMPS
kW	KILOWATTS
kWH	KILOWATT-HOUR
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
ME	MOISTURE ELEMENT
MLO	MAIN LUGS ONLY
MSH	MOTOR SPACE HEATER
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OHE	OVERHEAD ELECTRICAL
PH, Ø	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PM	POWER MONITOR
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
SS	STAINLESS STEEL
SPD	SURGE PROTECTION DEVICE
SWBD	SWITCHBOARD
TE	TEMPERATURE ELEMENT
TSH	TEMPERATURE SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITER'S LABORATORIES
V	VOLTS
VA	VOLT AMPS
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
WH	WEATHERHEAD
WP	WEATHER PROOF
XFMR	TRANSFORMER

FIRE ALARM AND HVAC

FACP	FIRE ALARM CONTROL PANEL
F	MANUAL PULL STATION WALL MOUNTED AT 46 INCHES
S	SMOKE DETECTOR CEILING MOUNTED
SD	DUCT SMOKE DETECTOR
F	AUDIO/STROBE LIGHT COMBINATION WALL MOUNTED AT 80 INCHES
H	AUDIO UNIT WALL MOUNTED AT 80 INCHES
T	THERMOSTAT
R	FIRE ALARM RELAY
FE	FIRE EXTINGUISHER
FS	FLOW SWITCH
PS	LOW PRESSURE SWITCH
TS	TAMPER SWITCH

ELECTRICAL LEGEND

	UTILITY CONNECTION (VOLTAGE AND PHASES AS INDICATED)
	UTILITY METER
	TWO WINDING TRANSFORMER (VOLTAGE, RATING, IMPEDANCE, CONNECTION CONFIGURATION AS INDICATED) (ANSI STANDARD IMPEDANCE IF NOT SPECIFIED)
	LOW VOLTAGE MOLDED CASE CIRCUIT BREAKER ("LSIG", "MCP", "GFI", "BLANK" THERMAL MAGNETIC) (AMP RATING AND NUMBER OF POLES AS INDICATED)
	FUSE (FUSE RATING AND CLASSIFICATION AS INDICATED)
	TRANSFER SWITCH ("A" AUTOMATIC, "M" MANUAL) (CURRENT RATING, POLES, BYPASS AS INDICATED)
	EARTH GROUND
	LIMITS OF DEMOLITION
	MISCELLANEOUS ELECTRICAL EQUIPMENT (AS INDICATED ON DRAWINGS)
	SWITCH (AMP RATING AND POLES AS INDICATED)
	INDUCTION MOTOR (HORSEPOWER RATING AS INDICATED)
	GENERATOR (RATING AND VOLTAGE AS INDICATED)
	CURRENT TRANSFORMER (CT) (RATIO AND QUANTITY AS INDICATED)
	POTENTIAL TRANSFORMER (PT) (RATIO AND QUANTITY AS INDICATED)
	EXPOSED CONDUIT RUN MINIMUM SIZE 3/4-INCH
	CONCEALED CONDUIT RUN MINIMUM SIZE 1-INCH
	HOMERUN CIRCUIT WITH TERMINATION LOCATION AS DESIGNATED
	FLEXIBLE CONDUIT MINIMUM SIZE 3/4-INCH
	DISCONNECT SWITCH (RATING AND POLES AS INDICATED)
	FUSED DISCONNECT SWITCH (RATING, FUSE SIZE, AND POLES AS INDICATED)
	MOTOR STARTER (RATING AND POLES AS INDICATED)
	"HH" HAND HOLE, "MH" MANHOLE "PB" PULL BOX, "JB" JUNCTION BOX
	CABLE/CONDUIT TAG ("P" POWER, "C" CONTROL, "I" INSTRUMENTATION) ("ATS" EQUIPMENT REFERENCE ("1" SEQUENCE NO.)
	MOTOR TEMPERATURE SWITCH
	MOTOR SPACE HEATER
	MOTOR TEMPERATURE ELEMENT
	MOTOR MOISTURE ELEMENT
	SHUNT TRIP
	SURGE PROTECTIVE DEVICE
	KIRK KEY INTERLOCK

GROUNDING & LIGHTNING PROTECTION

	CONNECTION TO GROUND GRID. (MECHANICAL / CADWELD PER SPECIFICATIONS)
	GROUND ROD
	GROUND TEST STATION
	GROUNDING GRID OR COUNTERPOISE SYSTEM CONDUCTOR
	LIGHTNING PROTECTION AIR TERMINAL
	LIGHTNING PROTECTION DISSIPATION AIR TERMINAL
	LIGHTNING PROTECTION SYSTEM CONDUCTOR
	LIGHTNING PROTECTION SYSTEM DOWN CONDUCTOR

OUTLETS AND RECEPTACLES

LP1-12	DUPLEX RECEPTACLE, 20A, 120V, MOUNTED AT 18 INCHES U.N.O. (CIRCUIT AS INDICATED)
LP1-12	QUADPLEX RECEPTACLE, 20A, 120V, MOUNTED AT 18 INCHES U.N.O. (CIRCUIT AS INDICATED)
LP1-12	DUPLEX RECEPTACLE, GFI, 20A, 120V, MOUNTED AT 18 INCHES U.N.O. (CIRCUIT AS INDICATED)
LP1-12	SPECIAL PURPOSE RECEPTACLE MOUNTED AT 18 INCHES U.N.O. (SEE PLANS FOR DETAILS)
LP1-12	FLOOR MOUNTED DUPLEX RECEPTACLE, 20A, 120V (CIRCUIT AS INDICATED)
	JUNCTION BOX
	DATA OUTLET MOUNTED AT 18 INCHES U.N.O. (SEE PLANS FOR DETAILS)
	TELEPHONE OUTLET MOUNTED AT 18 INCHES U.N.O. (SEE PLANS FOR DETAILS)
	TELEPHONE / DATA COMBINATION OUTLET MOUNTED AT 18 INCHES U.N.O. (SEE PLANS FOR DETAILS)

LIGHTING

	CEILING MOUNTED FIXTURE (FIXTURE TYPE AND CIRCUIT AS INDICATED)
	CEILING MOUNTED FIXTURE WITH 90 MIN BATTERY BACKUP (FIXTURE TYPE AND CIRCUIT AS INDICATED)
	CEILING MOUNTED DOWN-LIGHT FIXTURE (FIXTURE TYPE AND CIRCUIT AS INDICATED)
	CEILING MOUNTED DOWN-LIGHT FIXTURE W/ 90 MIN BATTERY BACKUP (FIXTURE TYPE AND CIRCUIT AS INDICATED)
	SURFACE MOUNTED OR SUSPENDED INDUSTRIAL STRIP FIXTURE (FIXTURE TYPE AND CIRCUIT AS INDICATED)
	WALL MOUNTED FIXTURE (FIXTURE TYPE AND CIRCUIT AS INDICATED)
	TWIN HEAD FLOOD FIXTURE WITH BATTERY BACKUP (FIXTURE TYPE AND CIRCUIT AS INDICATED)
	EXIT SIGN FIXTURE, DO NOT SWITCH, PROVIDE ARROWS AS INDICATED. SHADING DENOTES FACE OPERATION (FIXTURE TYPE AND CIRCUIT AS INDICATED)
	POLE MOUNTED LIGHT FIXTURE (FIXTURE TYPE AND CIRCUIT AS INDICATED)
	WALL SWITCH WALL MOUNTED AT 46 INCHES, 20A, 120/277V ("3" THREE WAY, "4" FOUR WAY, "D" DIMMER, "M" MOTOR RATED, "OS" INTEGRAL OCCUPANCY SENSOR)
	LIGHTING CONTROL SENSOR (TYPE AS INDICATED)
	PHOTOCELL

ALL DEVICES/PLATES TO BE IN OWNERS CHOICE OF COLORS.

ELEMENTARY WIRING SCHEMATICS

	PRESSURE SWITCH - NORMALLY OPEN
	PRESSURE SWITCH - NORMALLY CLOSED
	DIFFERENTIAL PRESSURE SWITCH - NORMALLY OPEN
	DIFFERENTIAL PRESSURE SWITCH - NORMALLY CLOSED
	TIME DELAY SWITCH - TIMER ON DELAY (CLOSES AFTER TIMER EXPIRES)
	TIMER DELAY SWITCH - TIMER OFF DELAY (OPENS AFTER TIMER EXPIRES)
	VIBRATION SWITCH - NORMALLY OPEN
	VIBRATION SWITCH - NORMALLY CLOSED
	COIL CONTACTS ("C" CONTROL RELAY, "LC" LIGHTING CONTACTOR, "M" MOTOR RELAY, "TD" TIME DELAY)
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	LIMIT SWITCH - NORMALLY OPEN
	LIMIT SWITCH - NORMALLY CLOSED
	LIQUID LEVEL (FLOAT) SWITCH - NORMALLY OPEN
	LIQUID LEVEL (FLOAT) SWITCH - NORMALLY CLOSED
	TEMPERATURE SWITCH - NORMALLY OPEN
	TEMPERATURE SWITCH - NORMALLY CLOSED
	FLOW SWITCH - NORMALLY OPEN
	FLOW SWITCH - NORMALLY CLOSED
	TERMINAL BLOCK (TERMINAL NO. AND TERMINAL BLOCK AS INDICATED)
	EXTERNALLY MOUNTED DEVICE (DASHED LINE INDICATES WIRING EXTERNAL TO PANEL)
	SELECTOR SWITCH ("X" INDICATES SWITCH POSITION AND QUANTITY AS INDICATED)
	MOMENTARY PUSH BUTTON - NORMALLY OPEN
	MOMENTARY PUSH BUTTON - NORMALLY CLOSED
	REMOTE SHUTDOWN/STOP - NORMALLY CLOSED
	SOLENOID VALVE
	RUN TIME METER
	HORN ELEMENT
	EXTERNALLY MOUNTED ALARM LIGHT
	PHOTOCELL
	PUSH TO TEST TYPE PANEL MOUNTED INDICATOR LIGHT ("A" AMBER, "G" GREEN, "R" RED, "W" WHITE, "B" BLUE)

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with Quality and Value

FRANK E. WELLS, PE – 904.509.7784 – FRANK.WELLS@EVANLILYENGINEERING.COM

DESIGN	JPP
DRAWN	DHS
PROJ. MGR.	JRS
DATE	10/03/23
1 INCH	

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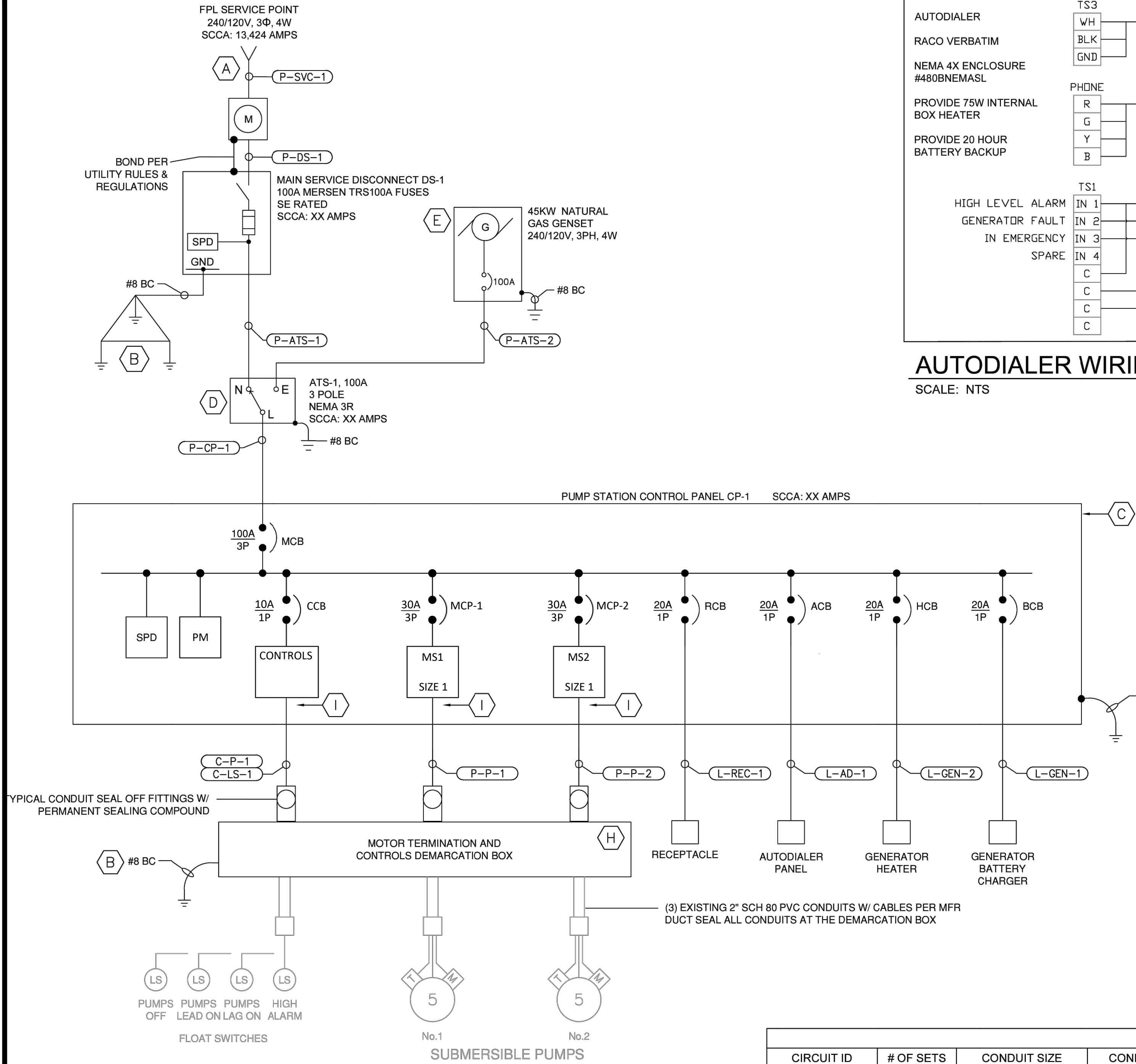
CONSULTING ENGINEERS

580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
TEL. (904) 278-0030 FAX. (904) 278-0840 FLORIDA RY NO. 6569

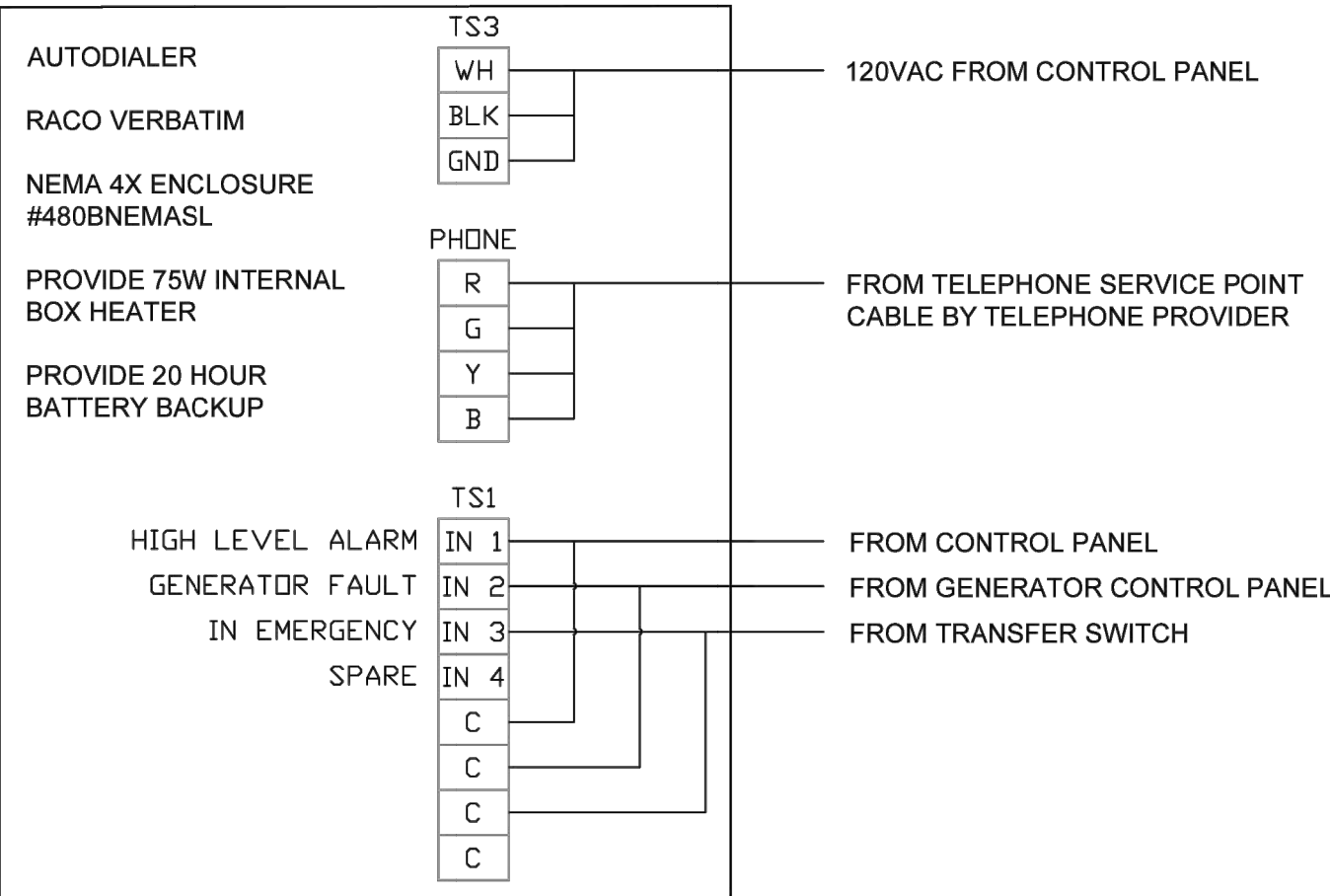
CITY OF CRESCENT CITY
0806 23 NR Main St. WW Replacement & Lift Station Generator
Electrical Legend and Notes
Putnam County, Florida

JOB NO.	9318-61-1
SHEET NO.	

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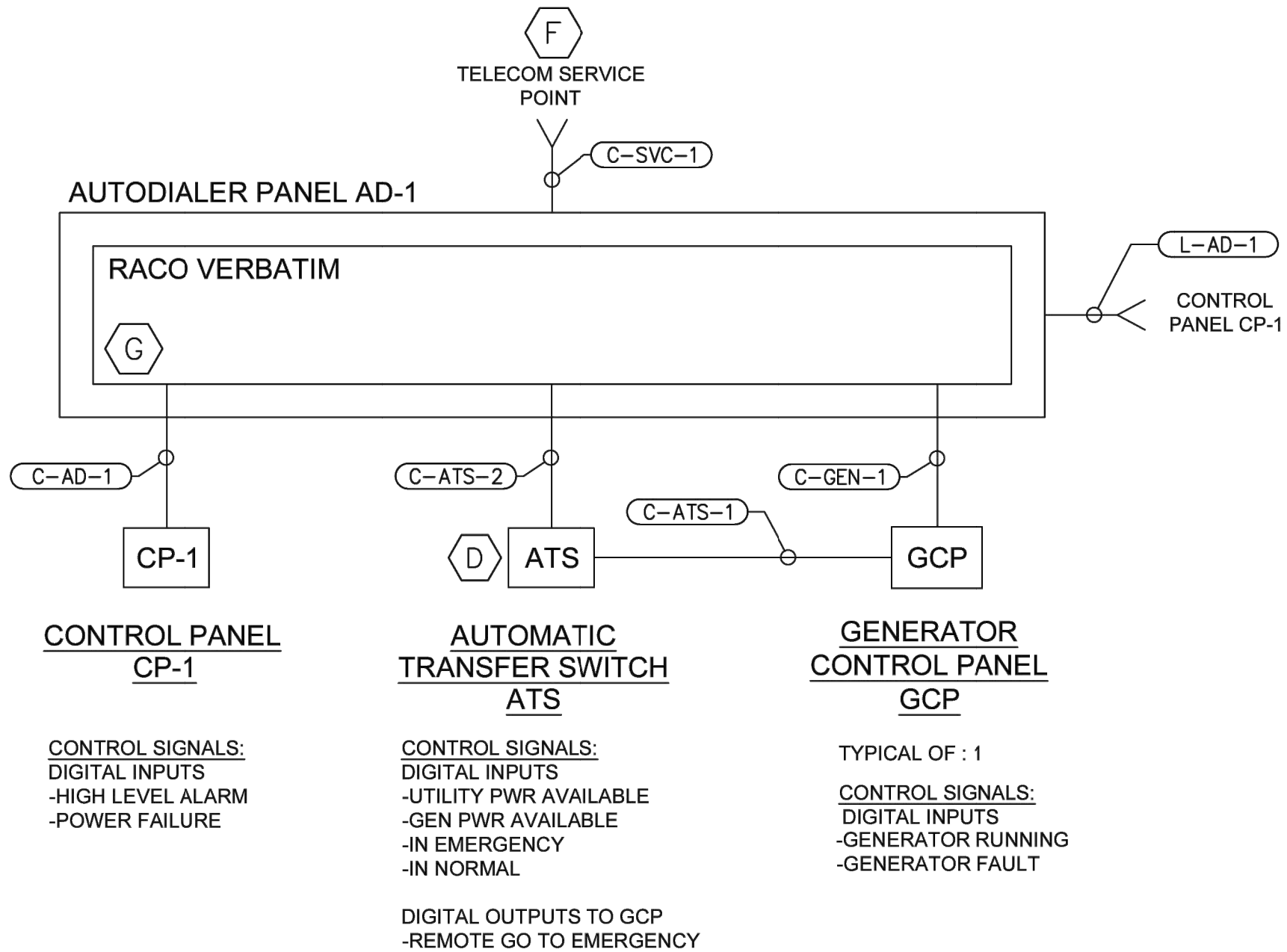
ELECTRICAL ONE-LINE DIAGRAM
SCALE: NTS



AUTODIALER WIRING DIAGRAM
SCALE: NTS

ELECTRICAL LOAD CALCULATIONS		
DESCRIPTION	SIZE	AMPS
PUMP NO. 1	5 HP	16
PUMP NO. 2	5 HP	16
CP-1 POWER & CONTROLS	15 KVA	36
CONNECTED LOAD		68
NON COINCIDENT LOAD		0
PEAK DEMAND LOAD		68
.25 X LARGEST MOTOR		4
MIN SERVICE AMPACITY		72
MIN MAIN BREAKER SIZE		90
ELECTRICAL SERVICE REQUIRED:		
100A, 240/120V, 3 PHASE, 4 WIRE		

LOAD CALCULATION
SCALE: NTS



AUTODIALER BLOCK DIAGRAM
SCALE: NTS

CONDUIT AND CONDUCTOR SCHEDULE						
CIRCUIT ID	# OF SETS	CONDUIT SIZE	CONDUCTOR IN EACH SET	FROM	TO	NOTES
C-AD-1	1	3/4"	4#14, 1#14G	AUTODIALER AD-1	CONTROL PANEL CP-1	
C-ATS-1	1	1"	4#14, 1#14G	AUTO TRANSFER SWITCH ATS-1	GENERATOR CONTROL PANEL	
C-ATS-2	1	3/4"	10#14, 1#14G	AUTO TRANSFER SWITCH ATS-1	AUTODIALER AD-1	
C-GEN-1	1	1"	4#14, 1#14G	GENERATOR CONTROL PANEL	AUTODIALER AD-1	
C-LS-1	1	1"	8#14, 1#14G	CONTROL PANEL CP-1	WETWELL FLOATS	VIA DEMARC BOX
C-P-1	1	1"	8#14, 1#14G	DEMARCATION BOX	CONTROL PANEL CP-1	
C-SVC-1	1	2"	PULLSTRING	AUTODIALER AD-1	TELECOM SERVICE POINT	
L-AD-1	1	3/4"	1#12, 1#12N, 1#12G	CONTROL PANEL CP-1	AUTODIALER AD-1	
L-GEN-1	1	1"	1#12, 1#12N, 1#12G	CONTROL PANEL CP-1	GENERATOR BATTERY CHARGER	
L-GEN-2	1	1"	1#12, 1#12N, 1#12G	CONTROL PANEL CP-1	GENERATOR HEATER	
L-REC-1	1	3/4"	1#12, 1#12N, 1#12G	CONTROL PANEL CP-1	GENERAL PURPOSE RECEP	
P-ATS-1	1	2"	3#2, 1#2N, 1#2G	SERVICE DISCONNECT DS-1	AUTO TRANSFER SWITCH ATS-1	
P-ATS-2	1	2"	3#2, 1#2N, 1#2G	GENERATOR	AUTO TRANSFER SWITCH ATS-1	
P-CP-1	1	2"	3#2, 1#2N, 1#2G	SERVICE DISCONNECT DS-1	CONTROL PANEL CP-1	
P-DS-1	1	2"	3#2, 1#2N	SERVICE POINT	SERVICE DISCONNECT DS-1	
P-P-1	1	1-1/2"	3#8, 1#8G	CONTROL PANEL CP-1	PUMP 1	VIA DEMARC BOX
P-P-2	1	1-1/2"	3#8, 1#8G	CONTROL PANEL CP-1	PUMP 2	VIA DEMARC BOX
P-SVC-1	1	3"	3#2, 1#2N	FPL SERVICE POINT	SERVICE POINT	

CONDUIT AND CABLE LIST
SCALE: NTS

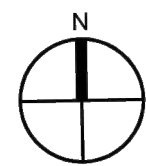
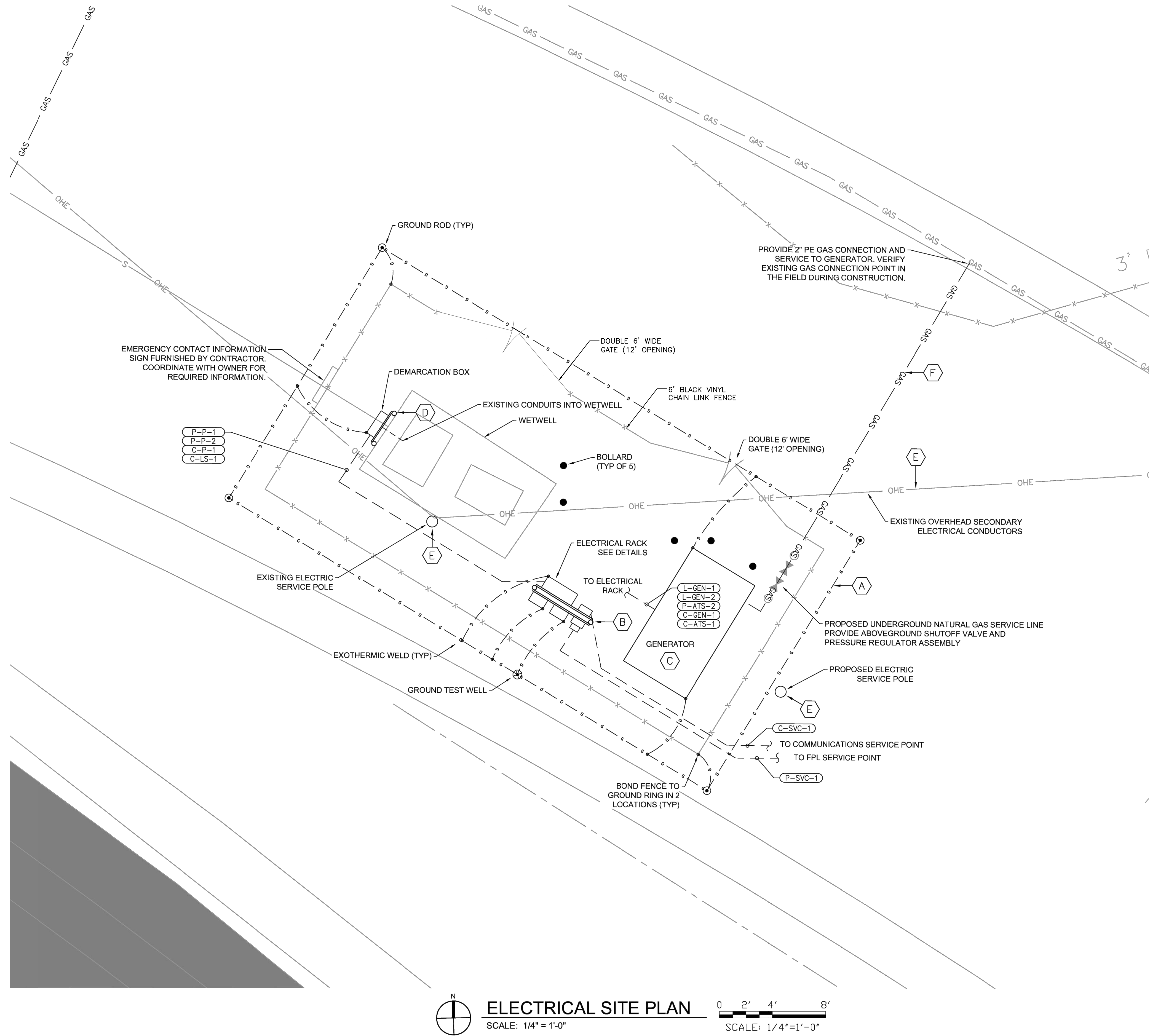
GENERAL NOTES

- CONTRACTOR SHALL COORDINATE ELECTRIC SERVICE INSTALLATION WITH FPL. CONTRACTOR WILL FURNISH AND INSTALL ALL RACEWAYS, SERVICE CONDUCTORS, SERVICE EQUIPMENT, WIREWAYS, LOAD CENTERS, AND FEEDERS AS REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION.
- MAXIMUM AVAILABLE FAULT CURRENT FROM THE UTILITY AT THE SECONDARY SIDE OF THE FPL SERVICE TRANSFORMER IS ESTIMATED AT 13,424 AMPS AND SHALL BE CONFIRMED IN THE FIELD DURING CONSTRUCTION. ALL DOWNSTREAM EQUIPMENT SHALL BE SUFFICIENTLY RATED TO WITHSTAND MAXIMUM AVAILABLE FAULT CURRENTS.
- CONTRACTOR SHALL PROVIDE ARC FLASH HAZARD ANALYSIS, PROTECTIVE DEVICE COORDINATION, AND SHORT CIRCUIT STUDY OF THE PROPOSED ELECTRICAL SYSTEM, INCLUDING ALL ELECTRICAL EQUIPMENT SUCH AS PANELBOARDS, CONTROL PANELS, DISCONNECT SWITCHES, AND MOTOR STARTERS. EQUIPMENT SHALL BE LABELED WITH SUCH THINGS AS APPROACH BOUNDARIES, INCIDENT ENERGY LEVELS, AND ACCEPTABLE PPE IN ACCORDANCE WITH OSHA 29 CFR, PART 1910, NEC, NFPA 70E, AND IEEE 1584 CURRENT EDITIONS.
- GROUNDING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH NEC AND AHJ REQUIREMENTS INTERCONNECTING ALL ELECTRICAL EQUIPMENT, EQUIPMENT RACKS, METAL PIPING, AND FOUNDATION REBAR. GROUND LOOP SHALL CONSIST OF 3/4" x 10' COPPER CLAD GROUND RODS WITH #2/0 AWG BARE COPPER GROUND CONDUCTOR AND GREEN INSULATED GEC CONDUCTOR SIZED PER NEC 250.86. GRID SHALL BE TESTED TO A MAXIMUM RESISTANCE OF 10 OHMS. DRIVE ADDITIONAL GROUND RODS AS REQUIRED TO MEET MAXIMUM RESISTANCE REQUIREMENTS.
- DUCT SEAL ALL CONDUIT CONNECTIONS INTO AND OUT OF THE PUMP CONTROL PANEL AND DEMARCATION BOXES.

KEY NOTES

- THE CONTRACTOR SHALL EXTEND THE UNDERGROUND SERVICE CONDUITS TO THE SERVICE POINT OF CONNECTION AS DESIGNATED BY FPL AND TERMINATE IN ACCORDANCE WITH FPL REQUIREMENTS.
- CONTRACTOR SHALL GROUND AND BOND ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH NFPA 70, ARTICLE 250 AND LOCAL AUTHORITY HAVING JURISDICTION REQUIREMENTS. BOND GROUND WITH ADJACENT WATER PIPING, STRUCTURAL SUPPORTS AND FOUNDATION REBAR.
- EXISTING CONTROL PANEL TO BE DISCONNECTED AND RELOCATED TO THE NEW ELECTRICAL RACK. DISCONNECT AND REMOVE INCOMING AND OUTGOING CONTROL PANEL POWER AND CONTROL CONDUCTORS. CONTROL PANEL MODIFICATIONS REQUIRED: REMOVE PORTABLE GENERATOR BREAKER AND GENERATOR RECEPTACLE. REPLACE EXISTING 60A MAIN BREAKER AND ASSOCIATED CONDUCTORS WITH A NEW 100A BREAKER AND CONDUCTORS PER NEC. INSTALL (4) BRANCH CIRCUIT BREAKERS FOR STANDBY GENERATOR ACCESSORIES, AUTODIALER PANEL, AND ELECTRICAL RACK RECEPTACLE. INSTALL EATON D7PR2A RELAY IN THE FS4 WETWELL HIGH LEVEL CIRCUIT AND SEND SIGNAL TO AUTODIALER PANEL FOR MONITORING. SEND POWER FAILURE SIGNAL TO AUTODIALER FOR MONITORING. INSTALL A NEW UL 1449, 100KA, 240V, 3 PHASE, 4 WIRE SPD WITH INTEGRAL OVERCURRENT DEVICE IN PANEL PER SPECIFICATION REQUIREMENTS.
- AUTOMATIC TRANSFER SWITCH SHALL BE ASCO 300 SERIES, 240V, 100A, 3 POLE, NEMA 3R, OPEN TRANSITION, WITH SOLID NEUTRAL. ASCO PART NUMBER A300A100CS-17 OR ENGINEER APPROVED EQUAL.
- CUMMINS C45N6 NATURAL GAS GENERATOR USED AS THE BASIS OF DESIGN. REVISE DESIGN AS REQUIRED TO ACCOMMODATE GENERATORS FROM OTHER MANUFACTURERS. NATURAL GAS FUEL SUPPLY SHALL BE BETWEEN 1.5 AND 3.2 KPA. COORDINATE WITH THE GAS SUPPLIER AS REQUIRED.
- COORDINATE WITH PROVIDER IN THE FIELD DURING CONSTRUCTION AND PROVIDE 2-INCH TELECOMMUNICATIONS SERVICE CONDUIT TO TELECOMMUNICATIONS SERVICE POINT.
- AUTODIALER PANEL AD-1 WITH RACO VERBATIM AUTODIALER. CONTRACTOR SHALL COORDINATE WITH OWNER IN THE FIELD DURING CONSTRUCTION FOR SIGNALS TO BE MONITORED VIA THE AUTODIALER.
- INSTALL DEMARCATION BOX IN THE LOCATION OF THE EXISTING CONTROL PANEL. PULL IN EXISTING CONDUCTORS FROM WETWELL AND TERMINATE ON TERMINAL BLOCKS IN ACCORDANCE WITH DETAILS. ROUTE NEW CONDUCTORS BETWEEN THE DEMARCATION BOX AND THE RELOCATED CONTROL PANEL.
- TERMINATE PROPOSED CONDUCTORS IN RELOCATED CONTROL PANEL IN ACCORDANCE WITH THE ORIGINAL CONTROL PANEL DRAWINGS.

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ELECTRICAL SITE PLAN
SCALE: 1/4" = 1'-0"

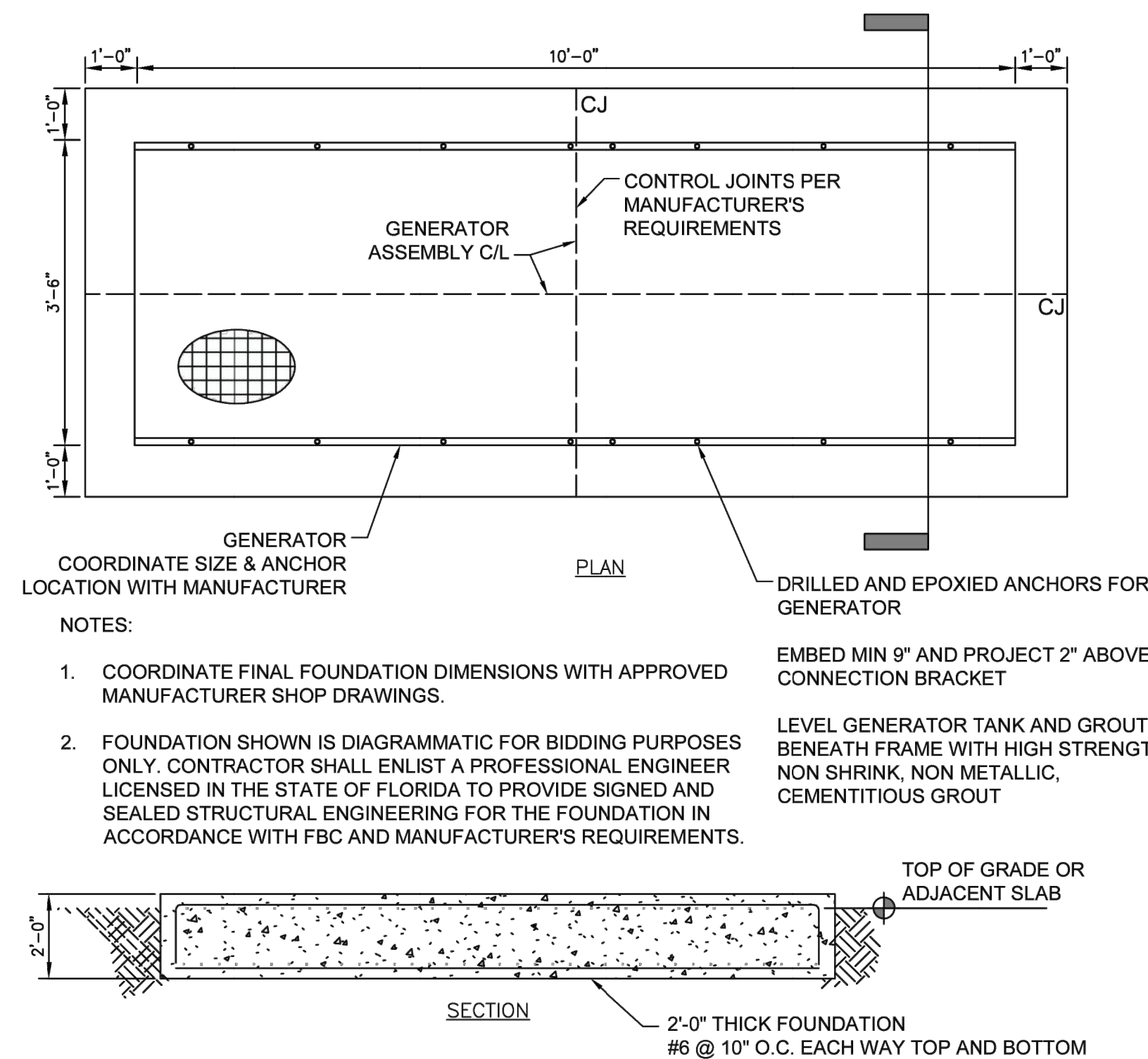


GENERAL NOTES

1. THE CONTRACTOR SHALL COORDINATE ALL ELECTRICAL AND COMMUNICATIONS SERVICES WITH PROVIDER REPRESENTATIVES IN THE FIELD DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE ALL RACEWAYS, CONDUCTORS, EQUIPMENT, AND OTHER ASSOCIATED COMPONENTS FOR A COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH THESE DRAWINGS AND THE PROVIDERS STANDARDS AND REQUIREMENTS.
2. ELECTRICAL CONTRACTOR SHALL COORDINATE AND COMPLETE ALL WORK IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS REQUIREMENTS AND APPROVED SHOP DRAWINGS.

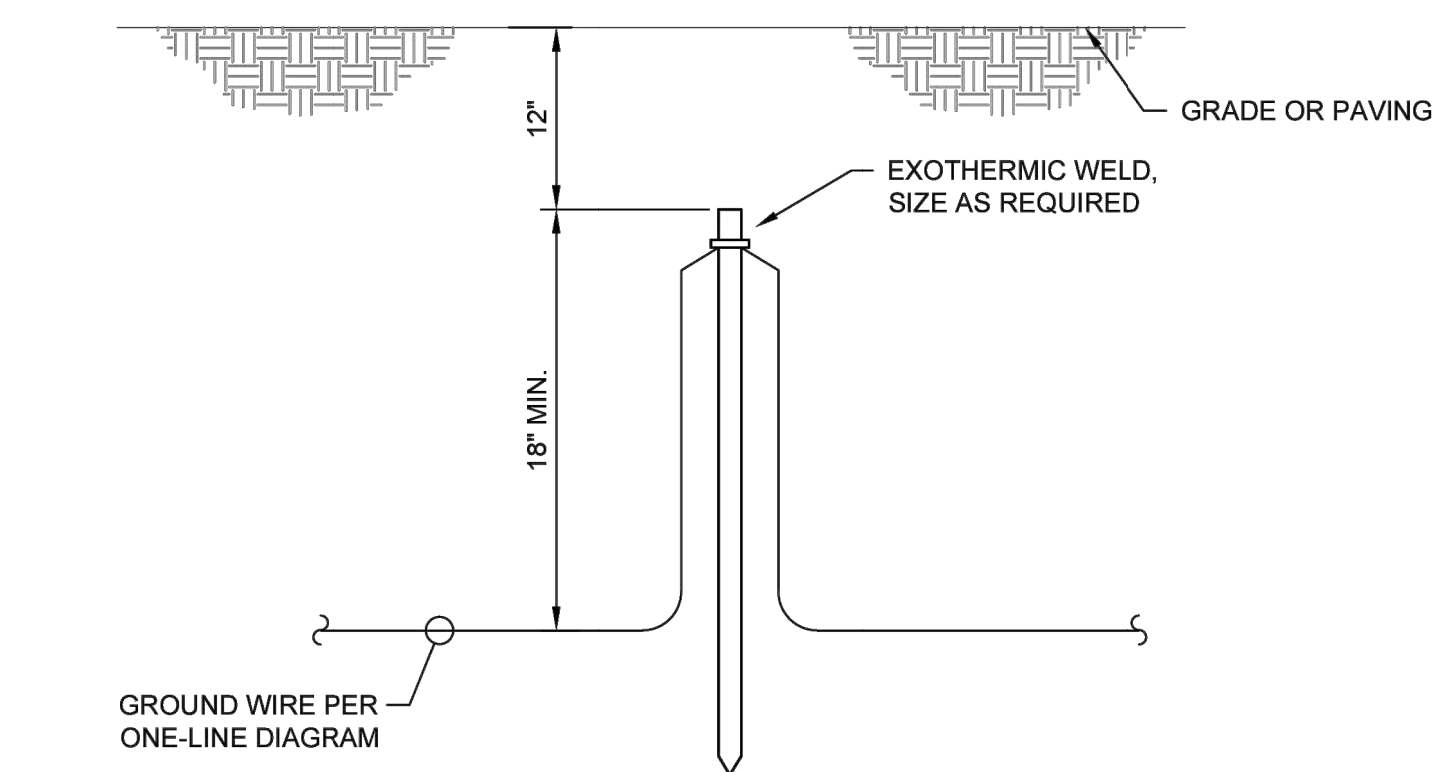
KEY NOTES

- A. GROUND GRID CONDUCTOR SHALL BE #2/0 AWG BARE COPPER BURIED 30-INCHES DEEP 24-INCHES OUTSIDE LIFT STATION FENCE LINE. BOND TO FENCE IN TWO CORNERS WITH #6 BARE COPPER JUMPERS. BOND ALL LIFT STATION ELECTRICAL EQUIPMENT AND RACKS AS SHOWN IN SINGLE LINE DIAGRAM.
- B. ELECTRICAL RACKS AND ELECTRICAL EQUIPMENT MAXIMUM HEIGHT SHALL BE 6-INCHES LOWER THAN TOP OF SITE FENCE ELEVATION.
- C. CUMMINS C45N6 GENERATOR USED AS BASIS OF DESIGN. COORDINATE FOUNDATION REQUIREMENTS AND ELECTRICAL CONDUIT STUB UP LOCATIONS WITH APPROVED MANUFACTURER SHOP DRAWINGS. BOND GENERATOR TO GROUND GRID IN TWO LOCATIONS IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS. MAINTAIN 3' CLEAR SPACE AROUND GENERATOR FOUNDATION.
- D. RELOCATE EXISTING PUMP CONTROL PANEL TO NEW ELECTRICAL RACK. INSTALL DEMARCATION BOX IN LOCATION OF EXISTING CONTROL PANEL. REROUTE CONDUITS AND CONDUCTORS FROM WETWELL INTO PROPOSED DEMARCATION BOX AND TERMINATE ON TERMINAL BLOCKS. ROUTE NEW CONDUITS AND CONDUCTORS FROM PROPOSED DEMARCATION BOX TO RELOCATED PUMP CONTROL PANEL.
- E. COORDINATE WITH FPL TO INSTALL A NEW SECONDARY ELECTRIC SERVICE POLE OUTSIDE PUMP STATION FENCE AS SHOWN AND RELOCATE OVERHEAD SECONDARY ELECTRIC CONDUCTORS TO NEW SERVICE POLE LOCATION. DEMOLISH EXISTING SECONDARY ELECTRIC SERVICE POLE WITHIN PUMP STATION FENCE.
- F. COORDINATE WITH NATURAL GAS SUPPLIER TO PROVIDE 2" PE TAP AND NEW SERVICE LINE TO PROPOSED GENERATOR WITH SHUTOFF VALVE AND PRESSURE REGULATOR ASSEMBLY. SERVICE SHALL BE RATED BETWEEN 1.5 AND 3.2 kPA.



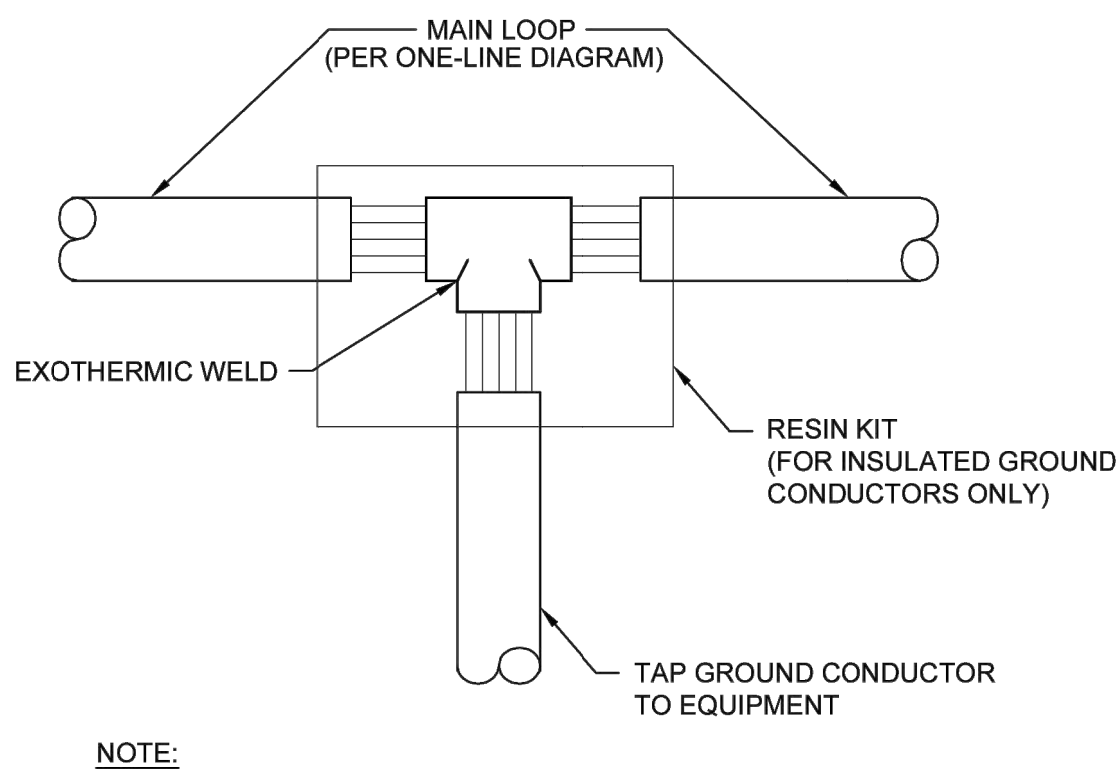
GENERATOR FOUNDATION DETAIL
SCALE: NTS

- NOTES:
1. COORDINATE FINAL FOUNDATION DIMENSIONS WITH APPROVED MANUFACTURER SHOP DRAWINGS.
 2. FOUNDATION SHOWN IS DIAGRAMMATIC FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL ENLIST A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF FLORIDA TO PROVIDE SIGNED AND SEALED STRUCTURAL ENGINEERING FOR THE FOUNDATION IN ACCORDANCE WITH FBC AND MANUFACTURER'S REQUIREMENTS.
- EMBED MIN 9" AND PROJECT 2" ABOVE CONNECTION BRACKET
- LEVEL GENERATOR TANK AND GROUT BENEATH FRAME WITH HIGH STRENGTH, NON SHRINK, NON METALLIC, CEMENTITIOUS GROUT



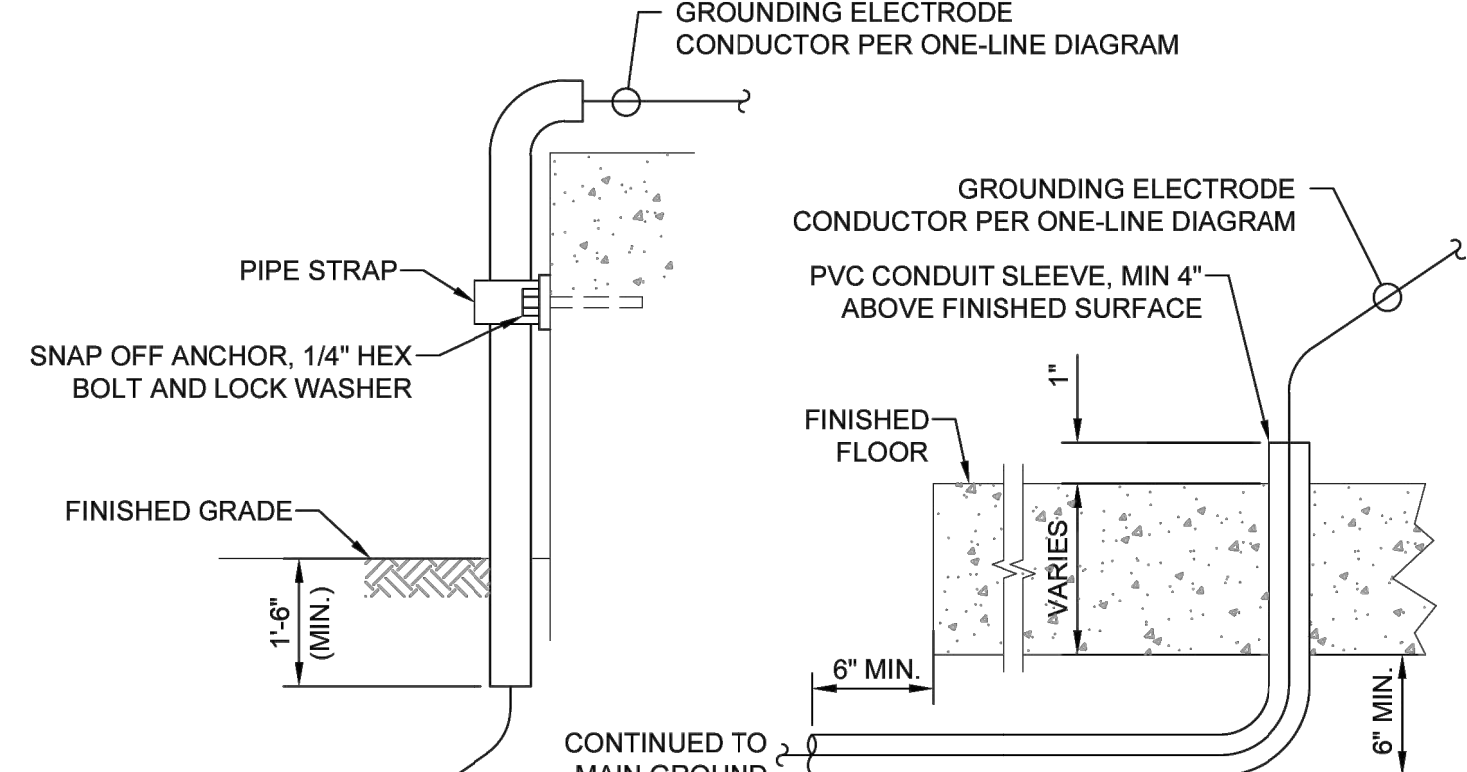
GROUND ROD ASSEMBLY

NOT TO SCALE



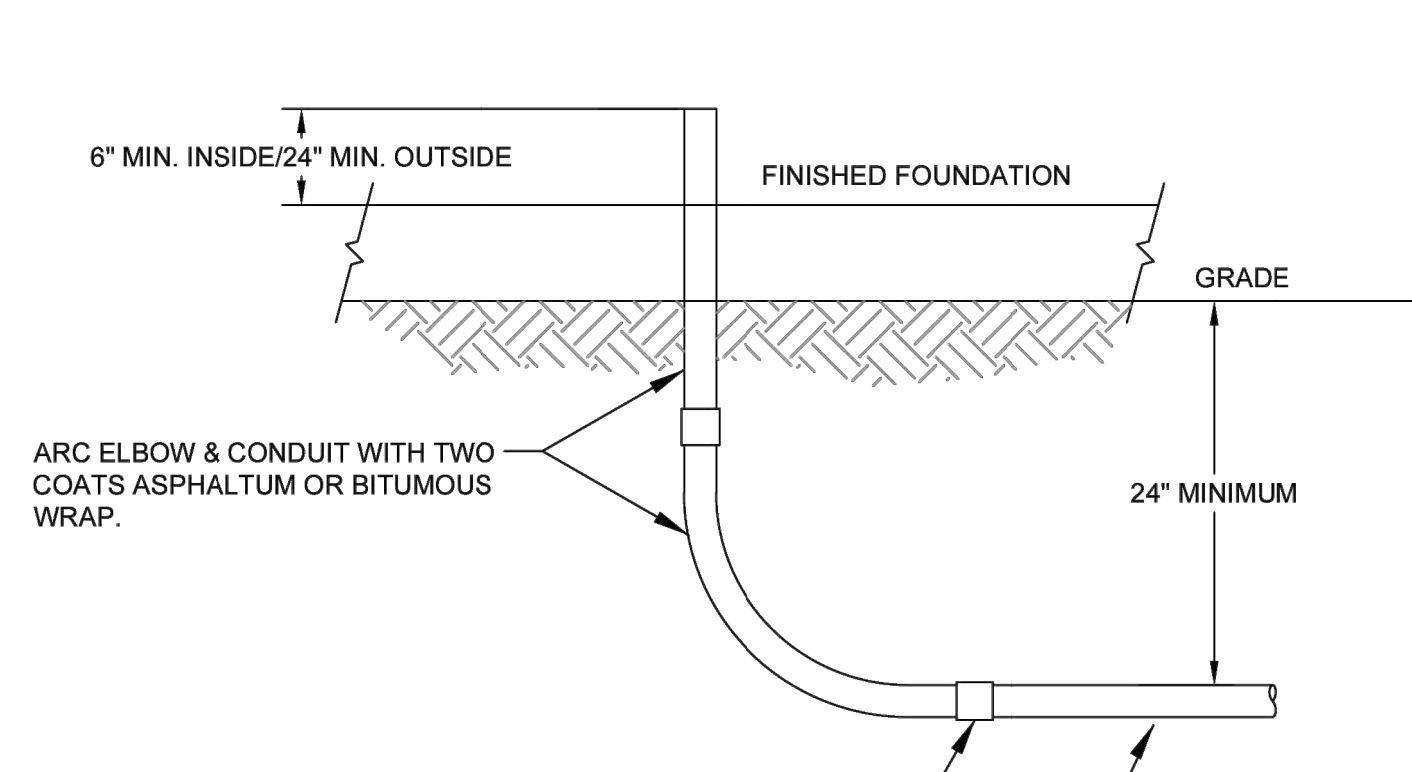
GROUND CONNECTIONS - CADWELD

NOT TO SCALE



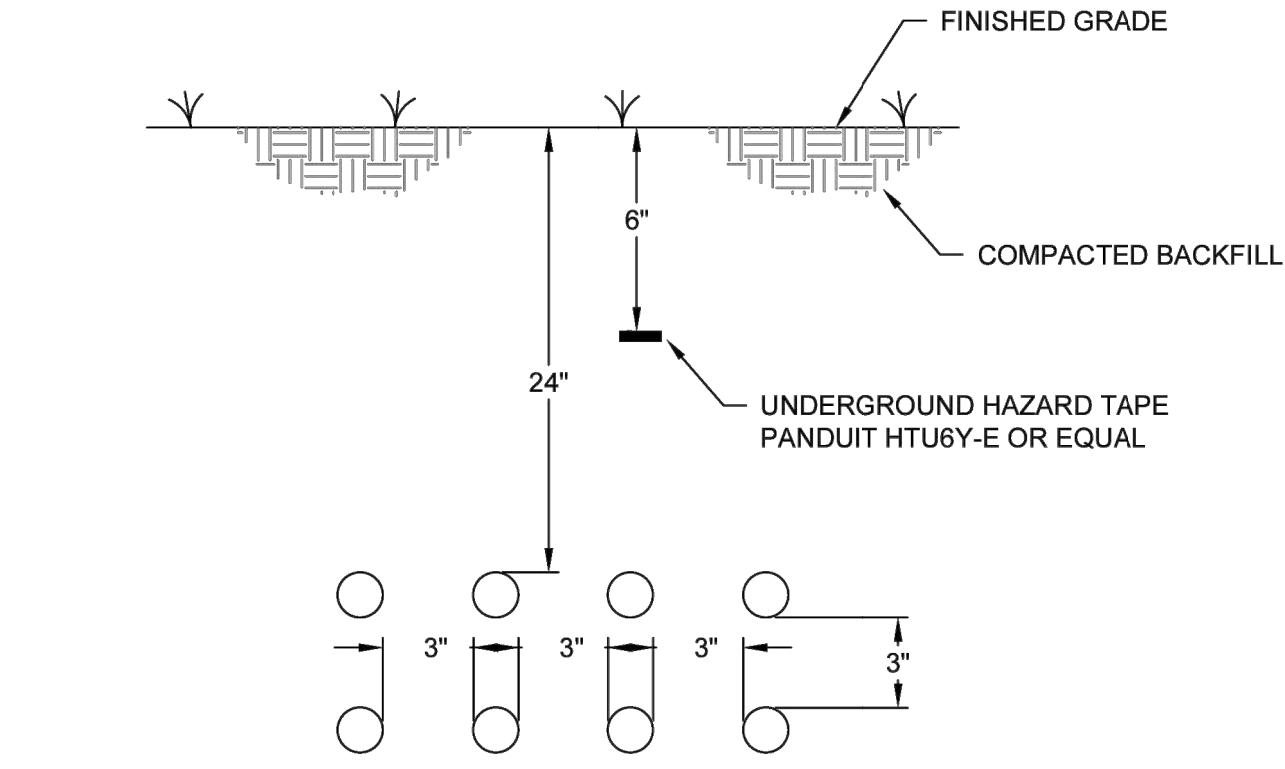
GROUND STUB UP INSTALLATION DETAIL

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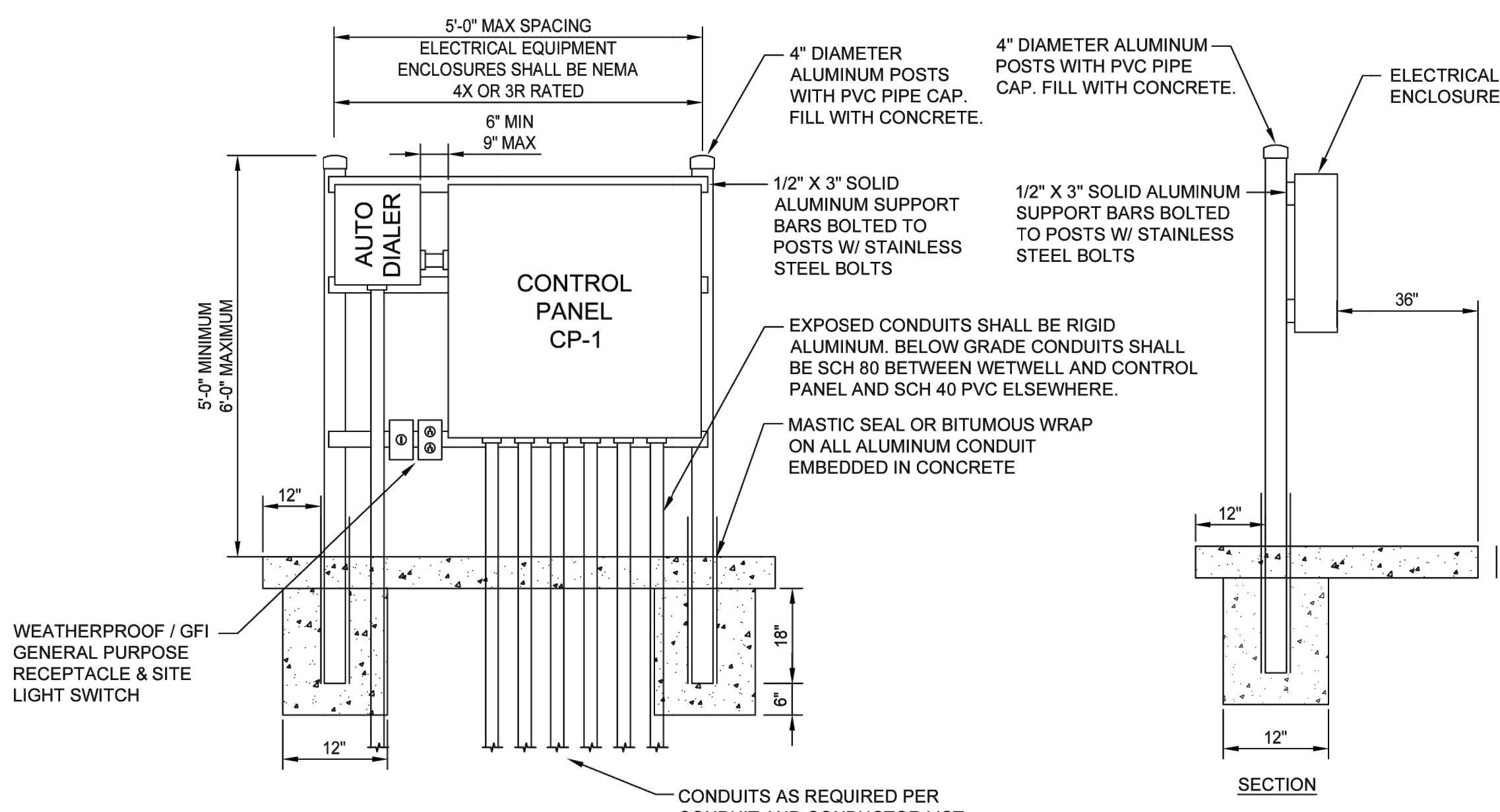
U/G PVC CONDUIT INSTALLATION DETAIL

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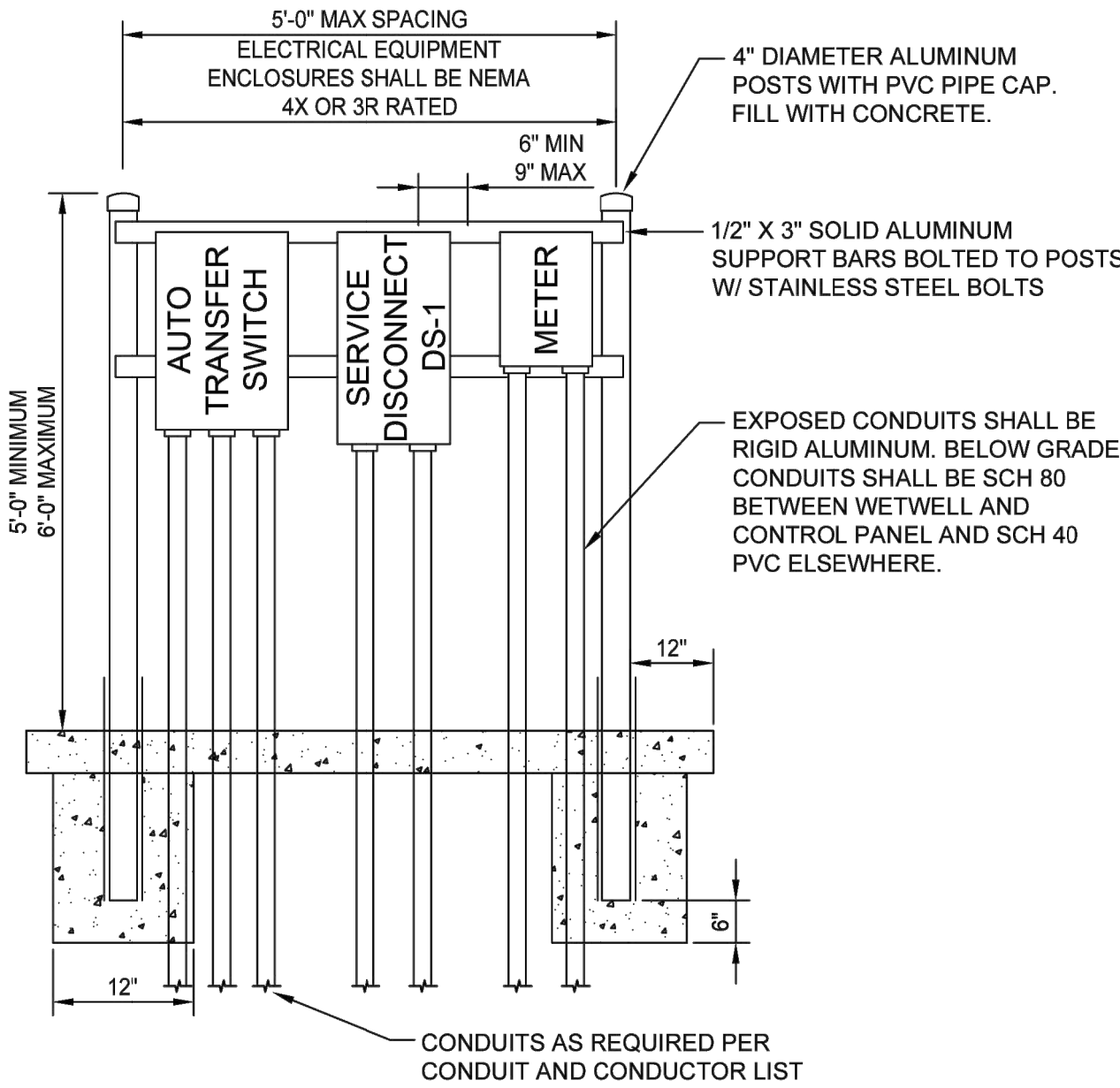
UNDERGROUND DIRECT BURIED CONDUIT DETAIL

NOT TO SCALE



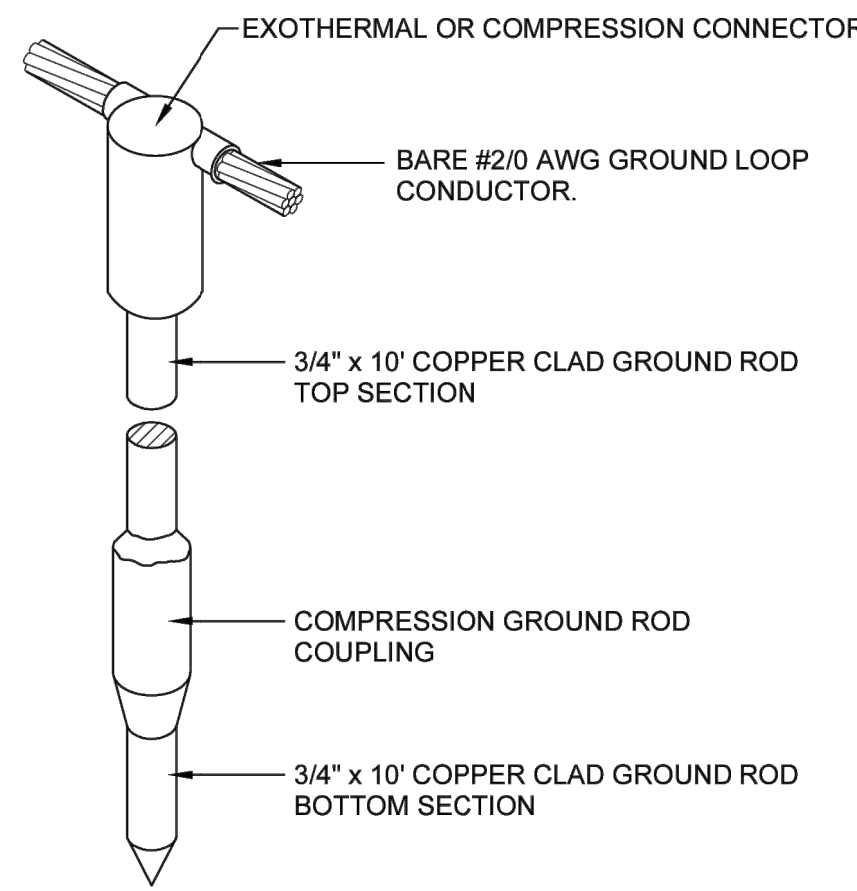
ELECTRICAL EQUIPMENT RACK FRONT DETAIL

NOT TO SCALE



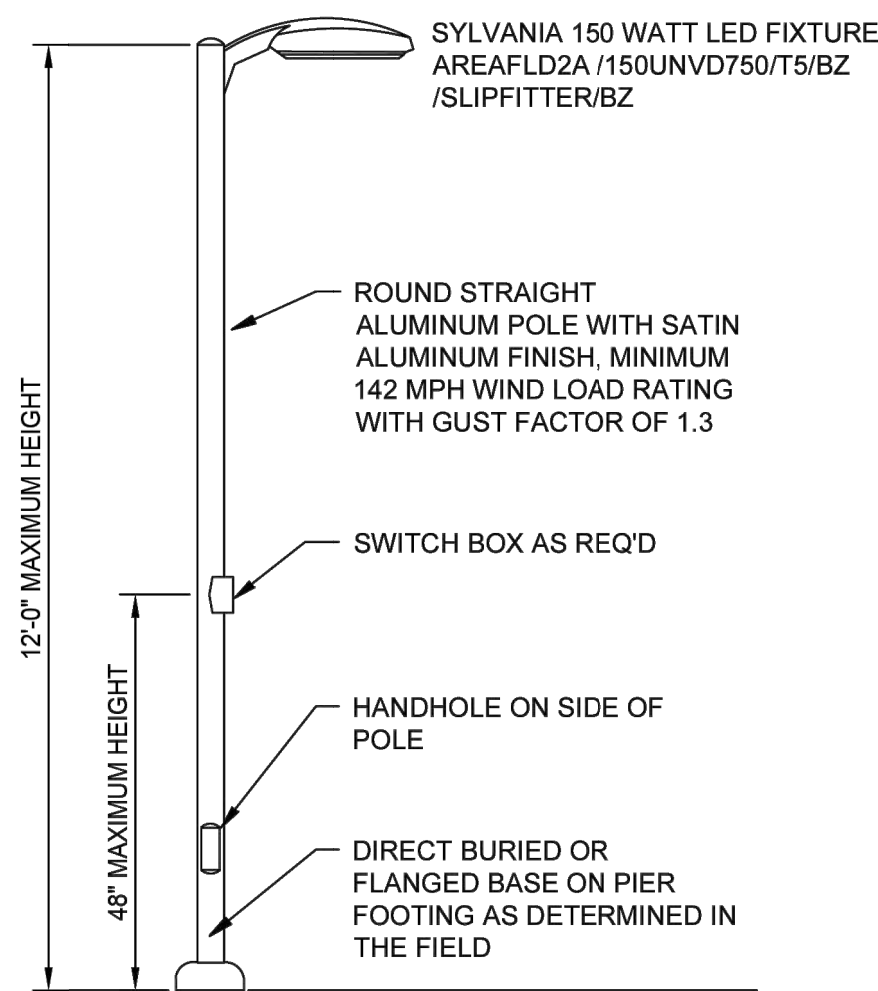
ELECTRICAL EQUIPMENT RACK BACK DETAIL

NOT TO SCALE



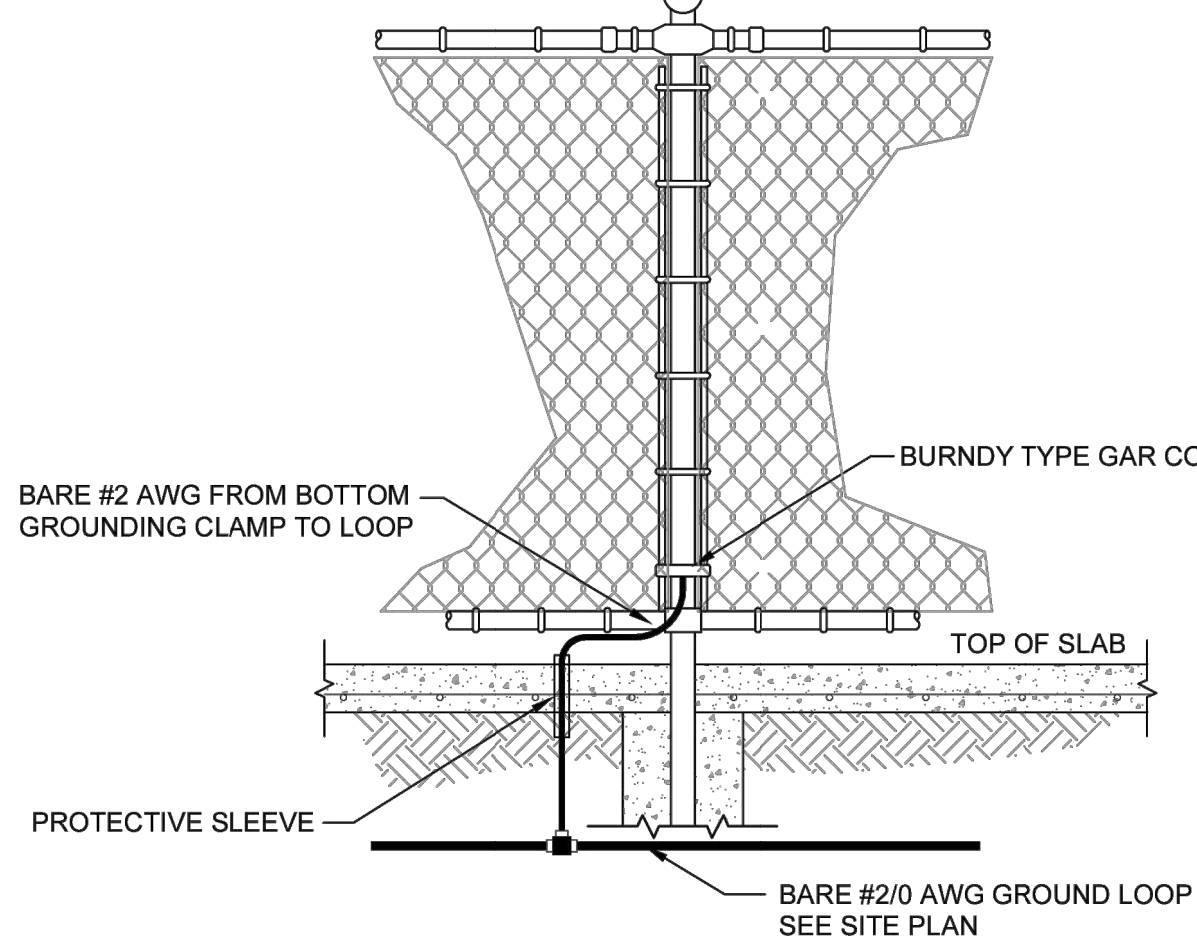
TYPICAL GROUND ROD DETAIL

NOT TO SCALE



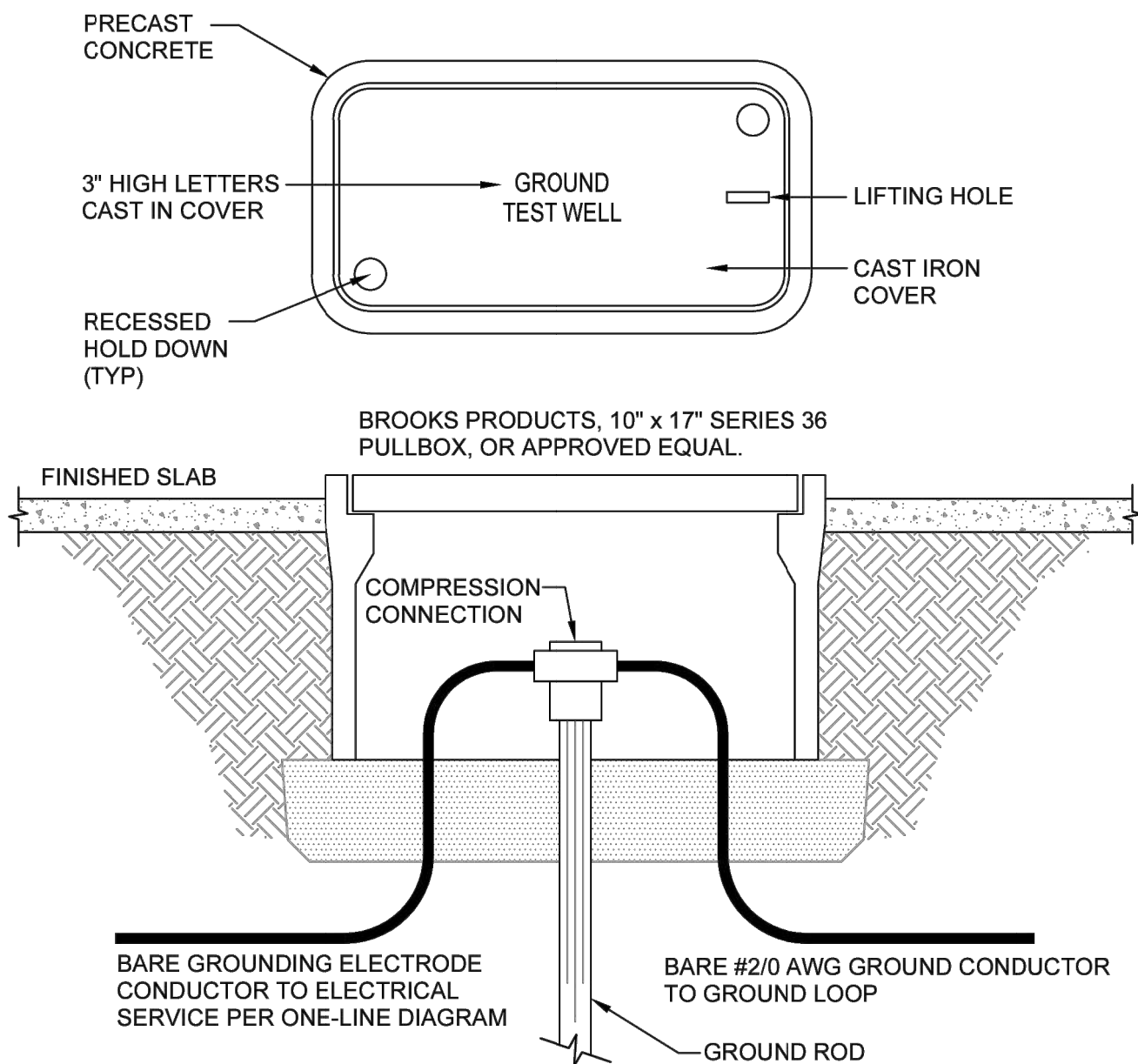
AREA LIGHT DETAIL

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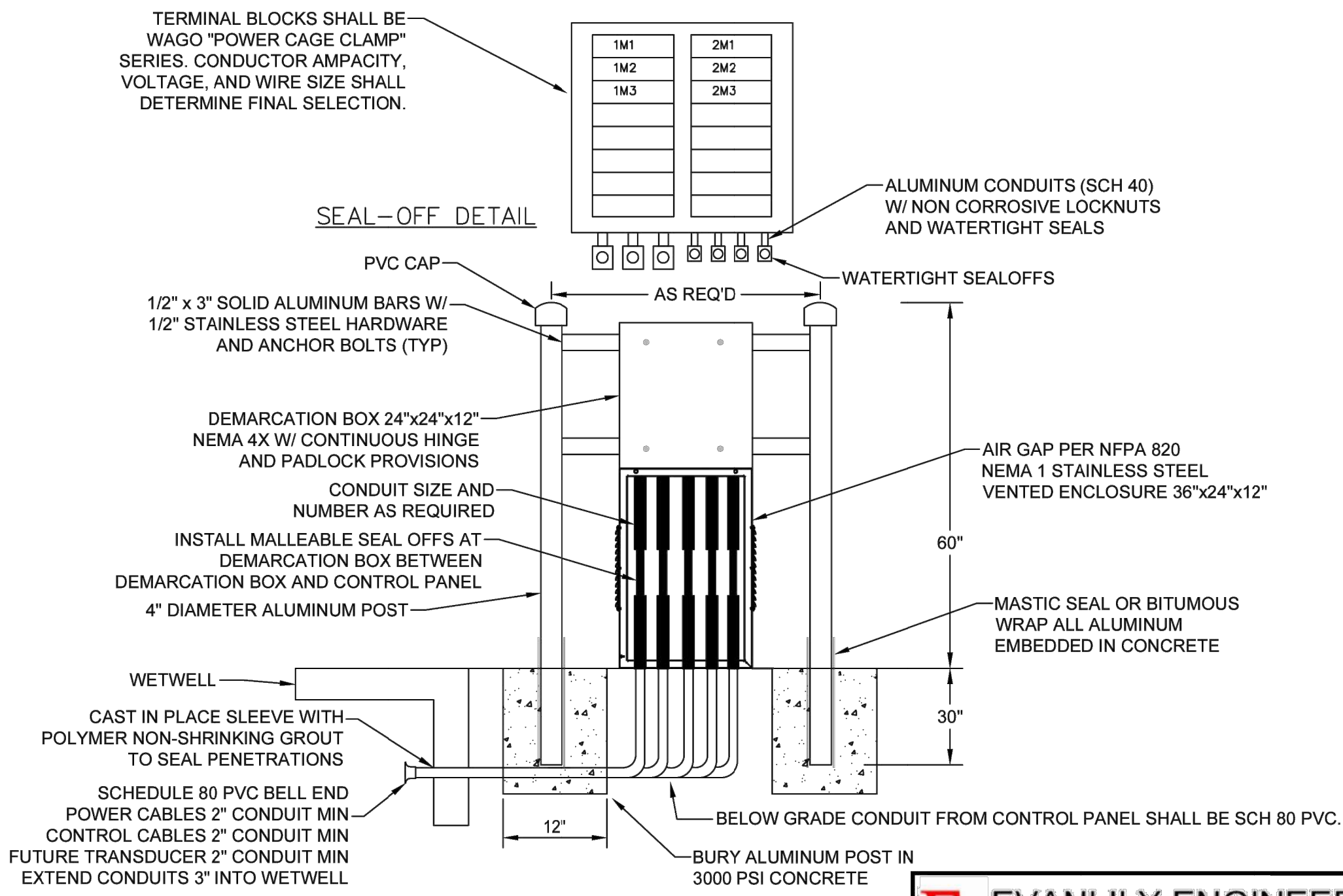
FENCE GROUNDING CORNER POST DETAIL

NOT TO SCALE



GROUND SYSTEM TEST WELL DETAIL

NOT TO SCALE



DEMARICATION BOX DETAIL

NOT TO SCALE

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DESIGN	JPP	DWS	JRS
DRAWN			
PROJ. MGR.			
DATE	10/03/23		

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580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
TEL: (904) 278-0030 FAX: (904) 278-0840
FLORIDA RY NO. 6569

CITY OF CRESCENT CITY
006 23 NR Main St. WW Replacement & Lift Station Generator
Electrical Details
Putnam County, Florida

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with Quality and Value
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