

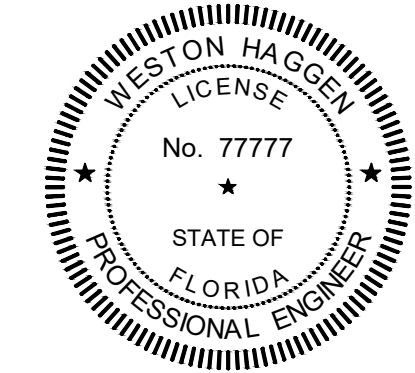
# SHEET INDEX

SHEET #	SHEET DESCRIPTION
01	COVER SHEET, SHEET INDEX, AND PROJECT LOCATION
02	GENERAL NOTES AND ABBREVIATIONS
03	LEGEND, UTILITY OWNERS, AND QUANTITIES
04	TEST HOLE INFORMATION TABLES
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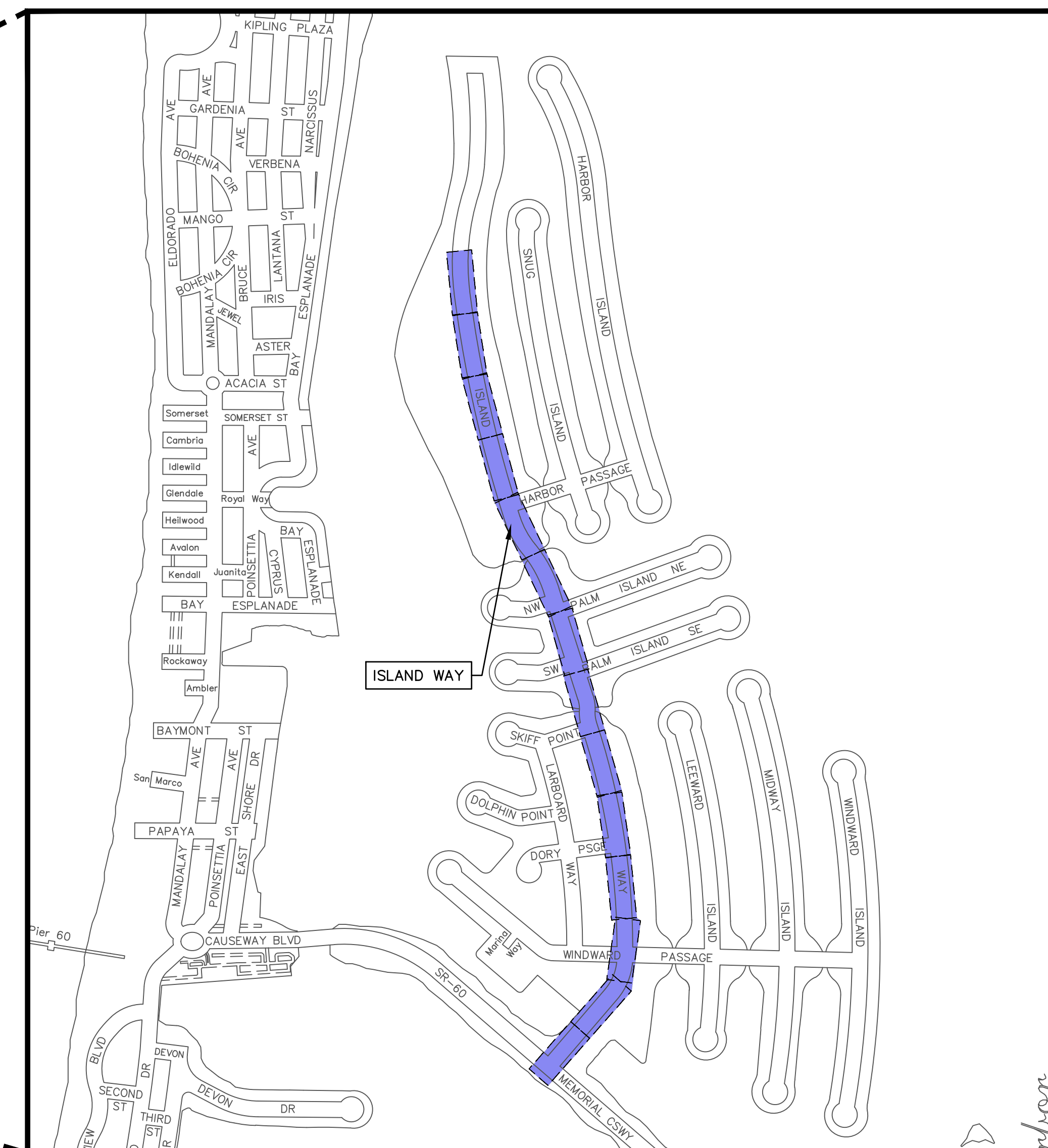
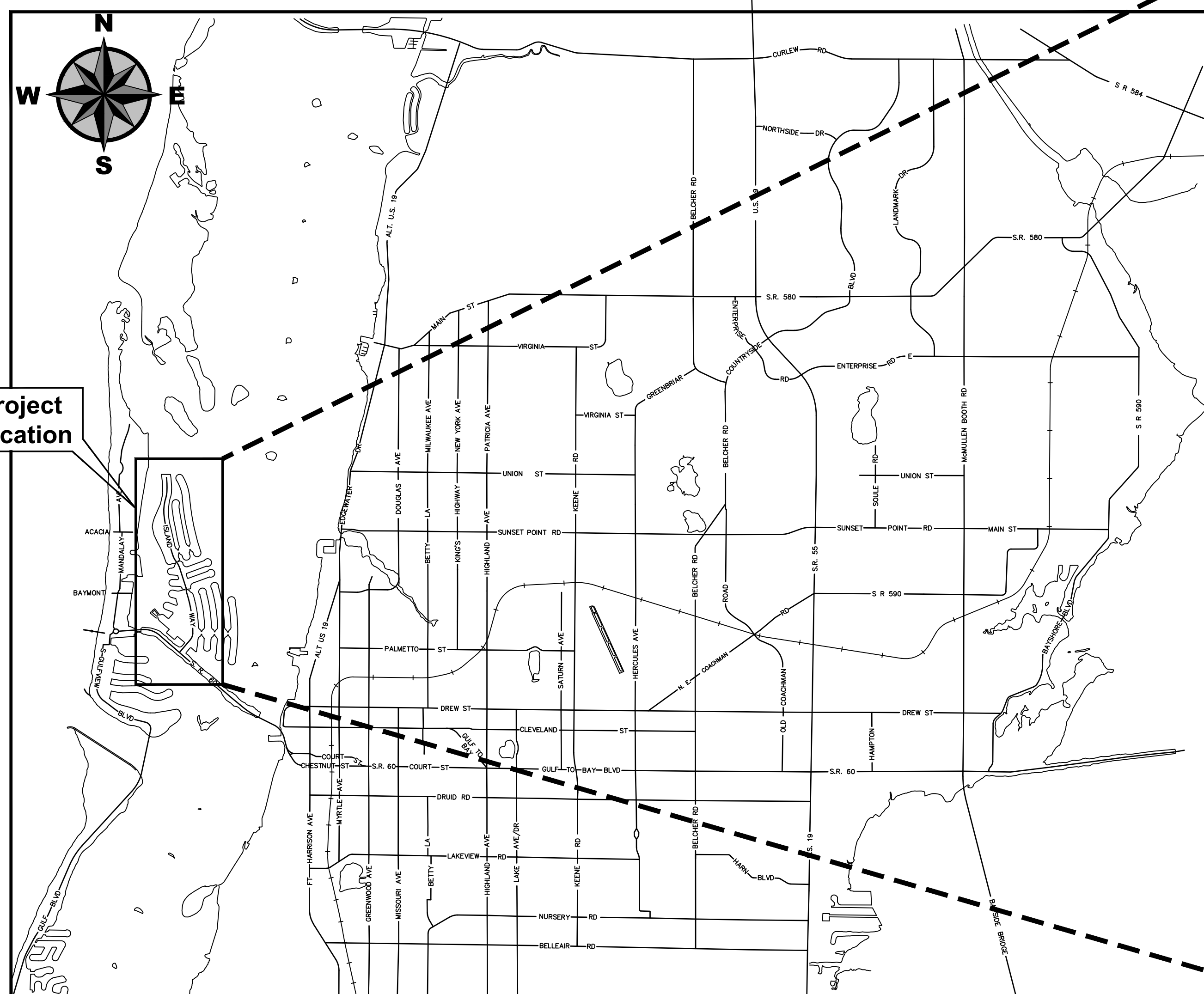
**CLEARWATER**  
BRIGHT AND BEAUTIFUL · BAY TO BEACH

# ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT



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## CITY OFFICIALS

*Brian Aungst Sr.*  
*Mark Bunker*  
*Kathleen Beckman*  
*David Allbritton*  
*Lina Teixeira*  
*Jennifer Poirrier*

*Mayor*  
*Councilmember*  
*Councilmember*  
*Councilmember*  
*City Manager*

**Tara L. Kivett, P.E.**  
*City Engineer*

**Approved For Construction**

CITY ENGINEER Tara L. Kivett, P.E. #86611

**Date Approved**

**ISSUED FOR BID**

**City Project No. 23-0056-UT**  
**City Plan Set No. 2020027**

GENERAL NOTES

- 1. All work performed shall comply with the regulations and ordinances of the various governmental agencies having jurisdiction over the work.
2. All workmanship and materials used in the construction of this project shall conform to the latest City of Clearwater standards, contract documents and specifications unless otherwise noted.
3. Specific requirements of the Florida Department of Transportation (FDOT) "Design Standards" and "Standard Specifications for Road and Bridge Construction", most current editions, are incorporated into the contract documents by reference.
4. The Contractor shall obtain all required permits prior to construction.
5. The Contractor shall notify all utility companies at least forty eight (48) hours prior to start of construction, demolition and/or excavation in accordance with Florida Statutes.
6. The Contractor shall call Sunshine 811, previously known as Sunshine State One Call of Florida, at 1-800-432-4770 or 811, a minimum of two (2) days and a maximum of five (5) days prior to start of construction.
7. Locations, elevations and dimensions of existing utilities, structures and other features are shown according to the best information available at the time of the preparation of these plans, but do not purport to be absolutely correct. The Contractor shall verify the location, elevations and dimensions of all existing utilities, structures and other features affecting the work prior to construction.
8. The Contractor shall be responsible to review the site to determine existing conditions. Anything not shown on these plans shall be brought to the attention of the City's Engineering Representative and shall not constitute additional scope of work approved by the Engineer.
9. The Contractor shall contact the City's Engineering Representative immediately concerning any conflicts arising during construction.
10. All construction activities must conform to the local noise ordinance.
11. Hours of work shall be between 7AM and 6PM Monday - Saturday in accordance with contract documents. Any work outside these hours shall be requested and coordinated with the City. The Contractor shall additionally coordinate with the City any restricted working hours associated with specific areas or neighborhoods.
12. These drawings do not include necessary components for construction safety. The Contractor is solely responsible for construction safety. Special precautions may be required in the vicinity of power lines and other utilities.
13. The Contractor shall furnish, erect and maintain all necessary traffic control and safety devices in accordance with the U.S. Department of Transportation, "Manual on Uniform Traffic Control Devices" and the latest Florida Department of Transportation "Design Standards".
14. The Contractor shall provide, erect and maintain effective barricades, danger signals, signs and pedestrian detours in all areas where required for the protection of the work and the safety of the public.
15. Maintenance of Traffic (MOT): If it becomes necessary for the Contractor to close any street to through traffic within the limits of construction, access for local traffic with destination within the project limits of construction shall be maintained. If during construction, access for local traffic is changed, the property owners affected shall be given at least three (3) days advance notice. The Contractor shall submit to the City's Engineering Representative the Traffic Control Plan for approval prior to implementation.
16. A registered Land Surveyor, at the Contractor's expense, shall reset all section corners or property corners dislocated or disturbed by any construction related activities.
17. Any National Geodetic Survey (NGS) Monument within the limits of construction is to be protected. If in danger of damage, contractor shall notify the city's field representative immediately and contact the National Geodetic Survey information center.
18. Unless noted on the plans, final grade is to generally be the same as existing grade. Restore uniformly and for proper yard drainage grade toward roadway.
19. All new utilities shall be installed with the minimum thirty six (36) inches of cover.
20. Where utilities cross the lowest pipe shall be installed first, separation shall be in accordance with 62-555.314 FAC and as detailed in City Standard Detail 402 on drawing CD01.
21. The Contractor shall be responsible for testing of all newly constructed utilities in accordance with current standards of local jurisdiction. The Contractor shall notify the local jurisdiction and the Owner or an authorized representative at least forty eight (48) hours in advance of performing tests.
22. The Contractor shall provide all sheeting, shoring and bracing required to protect adjacent structures or to minimize trench width. Where a separate pay item is not provided, the cost of all sheeting and bracing required shall be included in the contract price for the item of work for which sheeting, shoring and bracing is anticipated to be required in accordance with local, state, or federal regulations for construction.
23. All concrete shall have a minimum compressive strength of 3,000 psi (28-day strength), unless otherwise noted on drawings.
24. No surfacing material is to be applied to any manhole covers, frames, valve boxes, gas drops, etc. All existing and proposed utility and storm sewer structures whose tops will be exposed within any paved area shall be adjusted so that the top surface of covers or frames shall be flush with the pavement surface.
25. Materials interfering with construction shall be disposed of as directed by the City's Engineering Representative, unless otherwise noted on plans.
26. All excess soil resulting from construction activities that is not claimed by the Owner shall become the property of the Contractor and disposed of by the Contractor.
27. All disturbed landscaped and/or grassed areas shall be restored uniformly and be generally at the same elevation as existing grades.
28. All disturbed areas shall be replaced within fifteen (15) days to a condition equal to or better than existing conditions.
29. All voids after placement of sod shall be filled with prepared soil mix. The sod shall be rolled to meet the proposed grades. Sod placed on slopes 3:1 or steeper shall be pegged.
30. Areas of exposed earth resulting from construction shall be sodded in kind as directed by the City's Engineering Representative unless otherwise noted on plans.
31. The Contractor shall maintain an accurate set of marked-up drawings (As-Builts) at the construction site. Said drawings shall be made available to City staff (or City's designated representative) upon request. Maintaining As-Built drawings shall be considered a condition precedent to payment.
32. The bottom trench width in an unsupported trench shall be limited to the minimum practicable width allowing working space to place and compact the haunching material. The use of trench boxes and movable sheeting shall be performed in such a manner that removal, backfill and compaction will not disturb compacted haunching material or pipe alignment. Dewatering of the trench bottom shall be accomplished using adequate means to allow preparation of bedding, placement of the haunching material and pipe in the trench without standing water. Dewatering shall continue until sufficient backfill is placed above the pipe to prevent flotation or misalignment.
33. The Contractor shall dispose of all unsuitable materials, construction debris, and other waste materials offsite in accordance with applicable regulatory agency requirements at the Contractor's expense. All backfill shall be free of unsuitable materials.
34. The Contractor shall be responsible for providing a Hurricane Preparation Plan to the City's Engineering Representative for review and approval prior to commencing construction activities.
35. Any damage to city, county, or state roads caused by the Contractor shall be repaired by the Contractor in a timely manner and to the satisfaction of the City's Engineering Representative. Payment shall not be made for this work.
36. The Contractor shall protect private property.
37. Placement of service meter boxes shall be in accordance with City Standard Detail 405 on drawing 20.
38. The Contractor shall protect private property.
39. The Contractor shall provide the City 60 days notice prior to starting any service line connections.

- 40. Contractor to confirm location and placement of service meter boxes with City Inspector and/or City's Representative.
41. All lane closures and work affecting traffic shall be scheduled, coordinated, and approved by the City.
42. Contractor shall be responsible for ensuring all existing infrastructure is properly restrained prior to valve closures, installation of line stops, or tie ins.
43. Contractor shall coordinate with the City any activities associated with bringing new mains into service. New mains shall not be incorporated into the distribution system until the main has been pressure tested, bacteriological testing, and cleared for service in accordance with FDEP requirements.

SURVEY NOTES

- 1. The City of Clearwater Control Network's Horizontal Datum is: North American Datum (N.A.D.), Florida State Plane Coordinates, Florida West Zone 83(1999).
2. The City of Clearwater Control Network's Vertical Datum is: North American Vertical Datum (N.A.V.D.) 1988.
3. The survey was provided by ECHO UES, INC.
4. The survey Horizontal Datum is in the Florida State Plane Coordinate System, West Zone (902), North American Datum Of 1983, 2011 Adjustment (NAD 83/11) relative to the Florida Department of Transportation's (FDOT) Florida Permanent Reference Network (FPRN), a Real Time Kinematic (RTK) Global Positioning System (GPS).
5. The survey Vertical Datum is Based on North American Vertical Datum of 1988 (NAVD 88).

TREE PROTECTION

- 1. The Contractor will be responsible for adhering to all Tree Protection measures required by the City of Clearwater codes, ordinances and Standard Specifications. This will include all tree barricades, root pruning and tree trimming/pruning activities. These requirements will apply within the specified "limits of work" and will also be applicable in all areas where the Contractor and/or his subcontractors stage, store or park vehicles, equipment, materials and debris.
2. All tree pruning and/or root pruning on existing trees to be preserved will only be performed by or under the direct supervision of an International Society of Arboriculture (ISA) Certified Arborist. Furthermore, all tree work shall conform to the American National Standards Institute (ANSI) 2001, American National Standard for Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance - Standard Practices (Pruning) ANSI A-300.
3. Where called for on the plans, install tree barricades, erosion control/silt fencing or other approved protective barriers around all trees to be preserved, per City Standard Detail. Where applicable, and specifically approved by the City's Engineering Representative protective barriers may be placed in root prune trenches.
4. Prior to any field changes taking place, it will be the Contractor's responsibility to review the potential impacts to existing trees with his Certified Arborist, and include any and all recommended tree protection measures in his proposal to modify the approved design. The City's Engineering Representative must approve, in writing, any changes to the approved design prior to implementation of said change.
5. The Contractor will avoid any open excavations, fill or other construction activities whenever possible within the "critical root zone" of any existing tree (i.e., under the drip line/canopy).
6. No vehicles, equipment or materials shall be parked or stored under/within the drip line/protective barrier area of any tree.
7. Where construction activities are anticipated to last for an extended period of time near existing trees, the Contractor shall install and maintain City approved tree barricades as shown in the Standard Details and as approved by the City's Engineering Representative.
8. Woodchips, mulch or another cushioning surface material approved by the City's Engineering Representative shall be placed to a minimum depth of ten (10) inches over areas where roots are present and construction traffic occurs.
9. All tree protection measures shall remain in place at all times during construction until the City's Engineering Representative authorizes removal.
10. The Contractor will coordinate with the City's Engineering Representative, Catherine Corcoran, at (727) 532-4749, to obtain approval in advance of any and all work within the critical root zone of any existing tree.

SEDIMENT & EROSION CONTROL

- 1. It is the responsibility of the Contractor to control and prevent erosion and the transportation of sediment to surface drains and outfalls.
2. The Contractor shall prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) in accordance with Florida Department of Environmental Protection (FDEP) Criteria for a National Pollution Discharge Elimination System (NPDES) Activities Permit.
3. The Contractor must obtain a FDEP Generic Permit for The Discharge of Produced Ground Water, if dewatering with offsite discharge will be required. The Contractor is responsible for all required preliminary water samples to satisfy the FDEP Generic Permit for the Discharge of Produced Ground Water. Sampling shall occur thirty (30) days prior to the start of dewatering.
4. Construction operations shall be carried out in such a manner that erosion and pollution shall be minimized. The submitted SWPPP shall be complied with. All applicable federal, state, and local laws shall be complied with at all times. Please note that no hay bales are allowed on City of Clearwater projects.

ROOT PRUNING

- 1. Root pruning shall only be performed by or under the direct supervision of an International Society of Arboriculture (ISA) Certified Arborist.
2. Any proposed root pruning trenches shall be identified (i.e., staked or painted) on site, inspected and approved by the City's Engineering Representative prior to actual root pruning.
3. Root pruning shall be performed as far in advance of other construction activities as is feasible, but at a minimum shall be performed prior to any impacts to the soil. Associated tree protection measures should be implemented upon completion of said root pruning.
4. If there is a likelihood of excessive wind and/or rain, an exceptional care shall be taken on any root pruning activities.
5. Root pruning shall be limited to a minimum of twelve inches per one inch trunk diameter from the tree base. Any exception must be approved by the City's Engineering Representative prior to said root pruning.
6. Roots shall be cut cleanly, as far from the trunk of the tree as possible. Root pruning shall be done to a minimum depth of eighteen (18) inches from existing grade, or to the depth of the disturbance if less than eighteen (18) inches.
7. Root pruning shall be performed using a root cutting machine designed specifically for this purpose. Alternate equipment or techniques must be approved by the City's Engineering Representative, prior to any work adjacent to trees to be preserved.
8. Root pruning shall be completed, inspected and accepted prior to the commencement of any excavation or other impacts to the critical root zones of trees to be protected.
9. Excavations in an area where root are present shall not cause the tearing or ripping of tree roots. Roots must first be cleanly severed prior to continuing with the excavation, or tunneled around to prevent damage to the root.
10. Tree roots shall not be exposed to drying out. Root ends shall be covered with native soil or burlap and kept moist until final backfill or final grades have been established.
11. When deemed appropriate (e.g. during periods of drought) the city representative may require a temporary irrigation system be utilized in the remaining critical root zones of root pruned trees.

ABBREVIATIONS

Table with 4 columns: Abbreviation, Full Name, Abbreviation, Full Name. Includes entries like ABAN (ABANDON(ED)), FLEX (FLEXIBLE), QTY (QUANTITY), RCP (REINFORCED CONCRETE PIPE), etc.

NOTE: THESE ABBREVIATIONS ARE FOR GENERAL REFERENCE. NOT ALL ABBREVIATIONS MAY BE USED IN THIS DESIGN, NOR IS THIS LIST COMPREHENSIVE. REFER TO INDIVIDUAL DRAWINGS, IF ABBREVIATIONS ARE NOT LISTED.

Parent Sheet: 1.112\_2.112\_Island Estates Cast Iron Water Main Replacement.dwg Rev on: 12/12/2023 3:03 PM Individual File Path: 002.dwg

RECORD DRAWINGS table with columns: SURVEYED BY, DRAWN BY, DATE, PROJECT ENGINEER, DATE, REVISION, BY, DATE.

CITY OF CLEARWATER, FLORIDA PUBLIC WORKS DEPARTMENT - ENGINEERING 100 S. MYRTLE AVE. CLEARWATER, FL 33756

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CITY OF CLEARWATER ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT

GENERAL NOTES AND ABBREVIATIONS

Table with columns: DWG NAME, FIELD BOOK, SURVEYED BY, SCALE, CONTRACT NO., DATE DRAWN, DRAWN BY, HORIZ. AS NOTED, JOB NO., DESIGNED BY, CHECKED BY, SHEET NO., SHEET TOTAL.

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**CIVIL SYMBOLS LEGEND**

EXISTING	PROPOSED	
		SINGLE-LINE PIPE
		REMOVE EXISTING PIPE
		ABANDON AND GROUT FILL EXISTING PIPE
		DOUBLE-LINE/3D PIPE
		FLOW DIRECTION
		FITTINGS
		VALVE
		FIRE HYDRANT ASSEMBLY (INCLUDES VALVE)
		AIR RELEASE VALVE ASSEMBLY
		BENCHMARK
		CONTOURS
		SPOT ELEVATIONS
		WATER/SURFACE WATER FLOW
		LIMITS OF DISTURBANCE ASSOCIATED WITH UTILITY INSTALLATION AND RESTORATION OF ROADWAY (ROAD BASE, TEMPORARY DRIVING SURFACE, ETC.)
		LIMITS OF MILLING AND RESURFACING OF ENTIRE ROADWAY, INCLUDING RESTORATION OF STRIPING, SIGNAGE, REFLECTORS, AND OTHER SURFACE FEATURES
		REMOVE AND REPLACE CONCRETE DRIVEWAY
		REMOVE AND REPLACE CONCRETE SIDEWALK
		REMOVE AND REPLACE CONCRETE CURB AND GUTTER

**UTILITY OWNERS**

- Spectrum**  
Attention: Mr. Ted Bingham  
700 Carillon Parkway, Suite 6  
St. Petersburg, Florida 3716-1123  
Phone: (727) 329-2847
- Frontier Communications, Inc.**  
Attention: Mr. Chris Blauvelt  
MC: FLCW5033  
1280 Cleveland Street  
Clearwater, Florida 33782  
Phone: (727) 562-1130
- Wide Open West (WOW)**  
FLSP2144  
Attention: Mr. James Sandman  
Construction Project Coordinator  
3001 Gandy Boulevard North  
Pinellas Park, Florida 33782  
Phone: (727) 239-0224 Office
- Duke Energy**  
Attention: Mr. Rico Ashley  
2166 Palmetto Street, Bldg. F  
Clearwater, Florida 33765  
Phone: (727) 562-5767
- Clearwater Gas System**  
Attention: Mr. Robert Jaeger  
401 North Myrtle Avenue  
Clearwater, Florida 33755  
Phone: (727) 562-4900 Ext. 7438
- City of Clearwater**  
Engineering Department  
Traffic Division  
Attention:  
100 South Myrtle Avenue, Room 220  
Clearwater, Florida 33756-4748  
Phone: (727) 562-4794
- City of Clearwater**  
Engineering Department  
Survey Division  
Attention: Mr. Tom Mahony  
100 South Myrtle Avenue, Room 220  
Clearwater, Florida 33756-4748  
Phone: (727) 562-4762
- City of Clearwater**  
Engineering Department  
Construction Management  
Attention: Mr. Tim Kurtz  
100 South Myrtle Avenue, Room 220  
Clearwater, Florida 33756  
Phone: (727) 562-4737
- City of Clearwater**  
Engineering Department - Public  
Utilities - Potable, Wastewater,  
and Reclaimed  
Attention: Fred Hemerick  
1650 North Arcturas Avenue  
Clearwater, Florida 33755  
Phone: (727) 562-4960 Ext. 7249

**CAUTIONARY SYMBOLS LEGEND**

**CONTRACTOR SHALL EXERCISE CAUTION IN VICINITY OF EXISTING GAS MAIN**

ITEM	UNIT	AMOUNT
REMOVE EXISTING PIPE	LF	8917
GROUT AND ABANDON PIPE	LF	754
REMOVE AND REPLACE CONCRETE SIDEWALK	SY	685
REMOVE AND REPLACE CONCRETE DRIVEWAY	SY	591
REMOVE AND REPLACE ASPHALT PAVEMENT	SY	4910
REMOVE AND REPLACE CONC CURB & GUTTER	LF	339

**FITTINGS AND VALVES (DOUBLE-LINE)**

	FLG FITTINGS		AIR RELEASE VALVE
	MJ BENDS		FLG FLOW CONTROL VALVE
	MJ CAP		FLG GATE VALVE
	MJ CROSS		MJ GATE VALVE
	MJ PLUG		MJ PLUG VALVE
	MJ REDUCER		FIRE HYDRANT
	MJ SLEEVES		
	MJ TEE		

**SURVEY LEGEND**

- ASPH. = ASPHALT
- BE = BURIED ELECTRIC
- BFOC = BURIED FIBER OPTIC CABLE
- BTV = BURIED TV CABLE
- CONC. = CONC.
- DIA. = DIAMETER
- DIP = DUCTILE IRON PIPE
- E = EAST OR EASTING
- ELEC. = ELECTRIC
- ELEV. = ELEVATION
- E.P. = EDGE OF PAVEMENT
- F.O. = FIBER OPTIC
- G = GAS
- ID. = IDENTIFICATION
- INV. = INVERT
- MKR. = MARKER
- N = NORTH OR NORTHING
- NPW = NON-POTABLE WATER
- PEDS. = PEDESTRIANS
- PVC = POLYVINYL CHLORIDE
- RCW = RECLAIMED WATER
- S = SANITARY
- SAN = SANITARY
- SRVC. = SERVICE
- S/L = STREET LIGHTING
- SWK. = SIDEWALK
- T/S = TRAFFIC SIGNAL
- W = WATER
- W/ = WITH
- W.U.P. = WOOD UTILITY POLE

NOTE: THESE LEGENDS ARE FOR GENERAL REFERENCE. NOT ALL ABBREVIATIONS, SYMBOLS, PROCESSES, MATERIALS, OR FITTINGS MAY BE USED IN THIS DESIGN, NOR IS THIS LEGEND COMPREHENSIVE. REFER TO INDIVIDUAL DRAWING LEGEND(S), IF ABBREVIATIONS ARE NOT LISTED. INDIVIDUAL DISCIPLINE STANDARD LEGENDS SUPERCEDE THIS GENERAL LEGEND, IF PROVIDED.

**CHA CONSULTING, INC.**  
3507 EAST FRONTAGE ROAD SUITE 100  
TAMPA, FL 33607  
TEL: (813) 549-8919  
CERTIFICATE OF AUTHORIZATION #28386

Parent Sheet Set: 1.112\_2.112\_Island Estates\Bids\Bids\041775\_clearwater\_small\_projects\1.112\_2.112\_cip\_17&19 - island estates\cad\_files\003

RECORD DRAWINGS		REVISION	
SURVEYED BY:	DRAWN BY:	D: ISSUED FOR BID	PFH 12/2023
REVIEWED BY:	PROJECT ENGINEER	C: 100% PLANS	PFH 10/2023
APPROVED BY:	DATE	B: 90% PRELIMINARY DRAWINGS	PFH 07/2023
		A: 60% PRELIMINARY PLANS	PFH 05/2023

**CITY OF CLEARWATER, FLORIDA**  
**PUBLIC WORKS DEPARTMENT - ENGINEERING**  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756

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ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
LEGEND, UTILITY OWNERS, AND QUANTITIES

DWG NAME:	FIELD BOOK:	SURVEYED BY:	SCALE:
G03	N/A	ECHO UES	VERT. AS NOTED
CONTRACT NO.:	DATE DRAWN:	DRAWN BY:	HORIZ. AS NOTED
23-0056-UT	12/2023	VVV/PPH	
JOB NO.:	DESIGNED BY:	CHECKED BY:	SHEET NO.:
041775	WTH/BSW	SC	03 OF 27

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TEST HOLE DATA

Table with 13 columns: Test Hole, Utility Type, Utility Material, Utility Size Outside Diameter (Inches), Utility Manual Depth (Feet), Identified By, Surface Type, Surface Thickness Inches, Utility Owner, Northing, Easting, Ground Elevation, Utility Elevation. Rows include data for various test holes like 1-1A, 1-2A, 1-4A, etc.

TEST HOLE DATA

Table with 13 columns: Test Hole, Utility Type, Utility Material, Utility Size Outside Diameter (Inches), Utility Manual Depth (Feet), Identified By, Surface Type, Surface Thickness Inches, Utility Owner, Northing, Easting, Ground Elevation, Utility Elevation. Rows include data for various test holes like 1-84, 1-85, 1-86, etc.

Parent Sheet: 1.112\_2.112\_Island Estates Cast Iron Water Main Replacement - PHH123456789 - 12/14/2023 11:00 AM Individual File Path: C:\Dropbox\Work\FL\Jobs\cha\_engineering\041775\_clearwater\_small\_projects\1.112\_2.112\_cip\_17&19 - island\_estates\cad\_files\G04

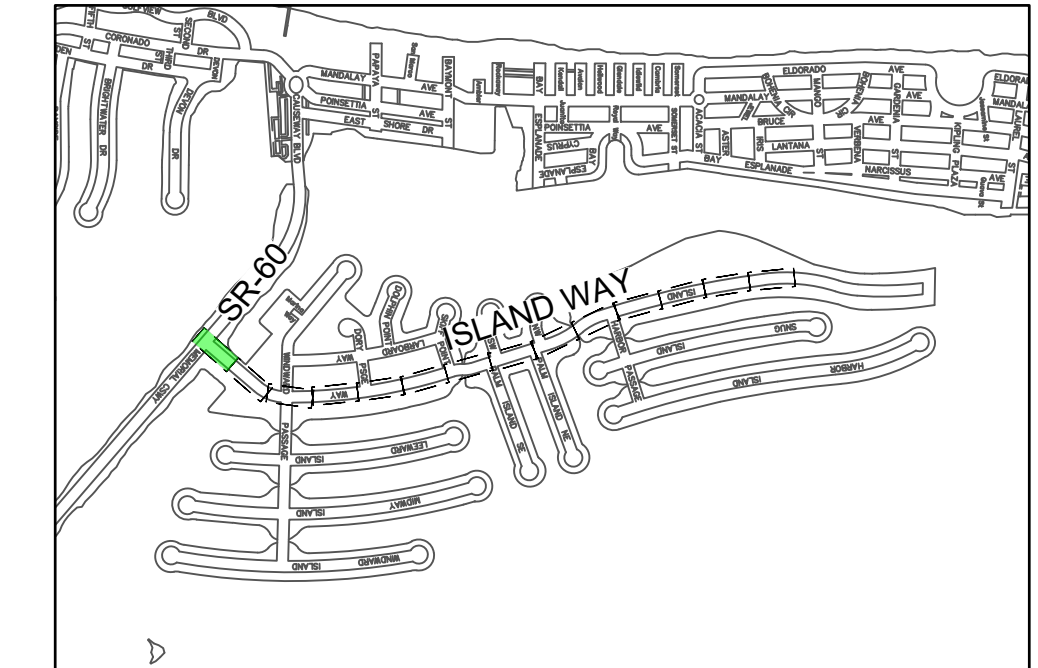
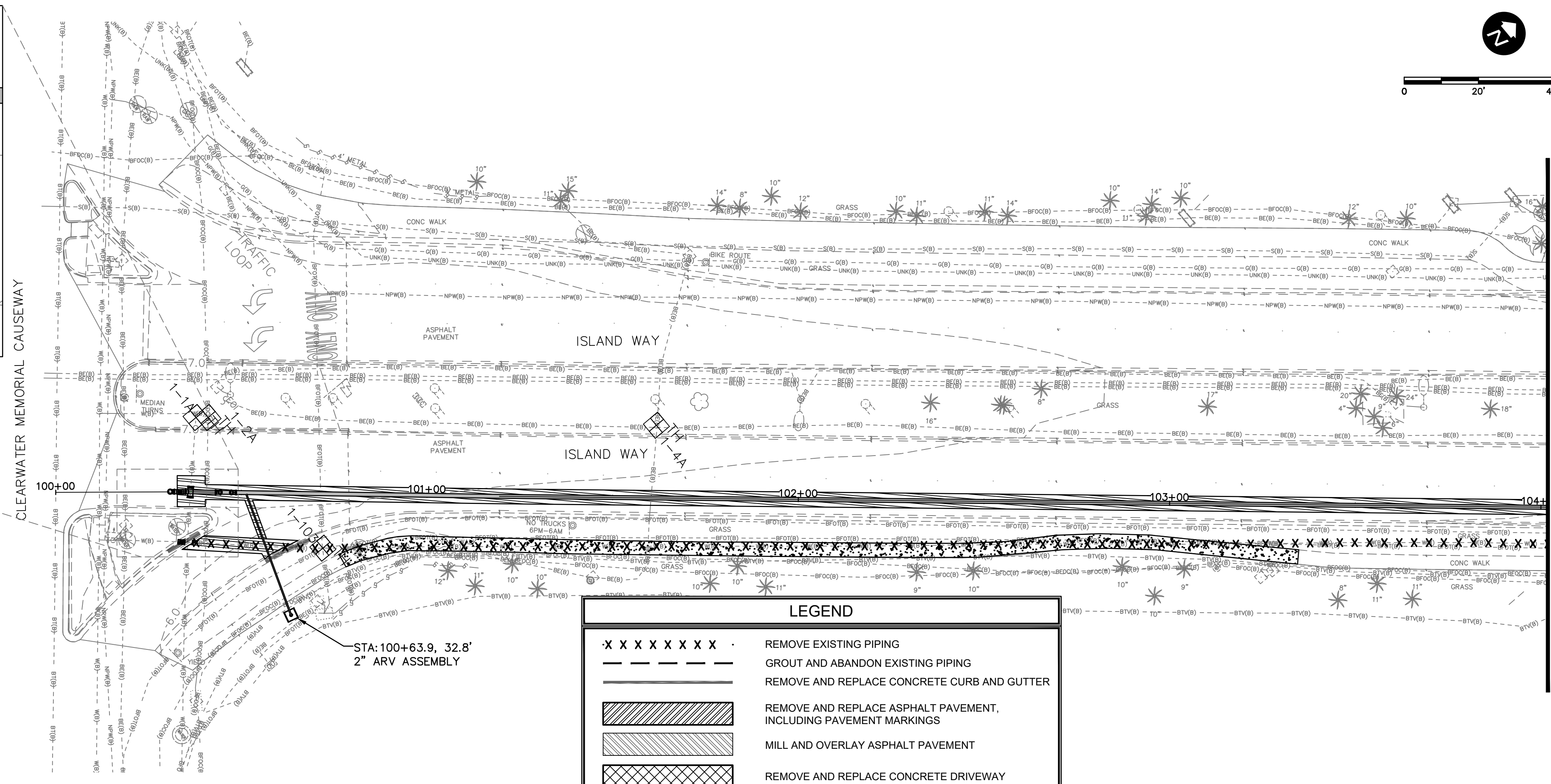
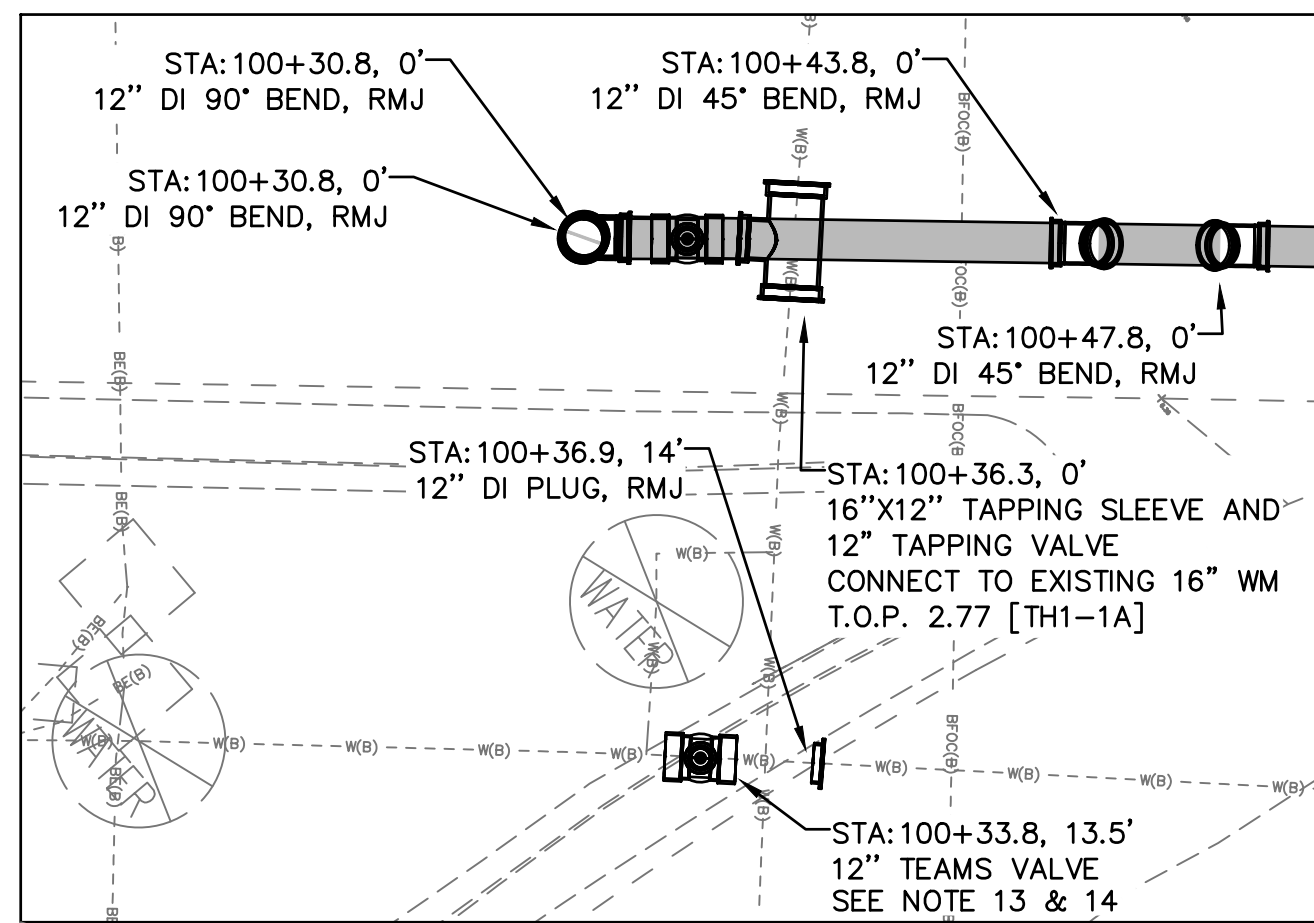
RECORD DRAWINGS table with columns: SURVEYED BY, DRAWN BY, REVIEWED BY, PROJECT ENGINEER, DATE, APPROVED BY, DATE. Includes revision table with columns: REVISION, BY, DATE.

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CITY OF CLEARWATER ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT TEST HOLE INFORMATION TABLES

Table with columns: DWG NAME, FIELD BOOK, SURVEYED BY, SCALE, CONTRACT NO., DATE DRAWN, DRAWN BY, HORIZ. AS NOTED, JOB NO., DESIGNED BY, CHECKED BY, SHEET NO. Includes CHA CONSULTING, INC. logo.

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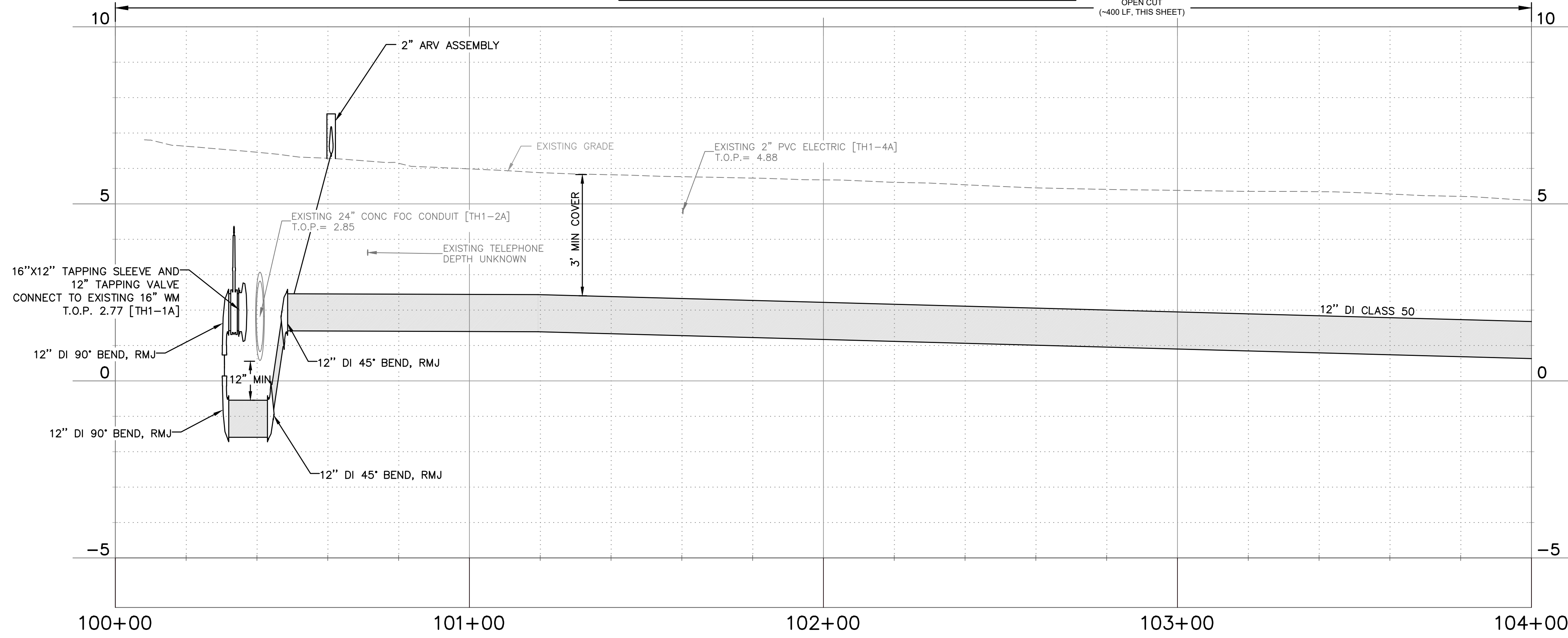
KEY MAP  
N.T.S.

LEGEND	
XXXXXX	REMOVE EXISTING PIPING
---	GROUT AND ABANDON EXISTING PIPING
---	REMOVE AND REPLACE CONCRETE CURB AND GUTTER
[Hatched Pattern]	REMOVE AND REPLACE ASPHALT PAVEMENT, INCLUDING PAVEMENT MARKINGS
[Hatched Pattern]	MILL AND OVERLAY ASPHALT PAVEMENT
[Hatched Pattern]	REMOVE AND REPLACE CONCRETE DRIVEWAY
[Hatched Pattern]	REMOVE AND REPLACE CONCRETE SIDEWALK

NOTE: PATTERN ROTATIONS MAY DIFFER FROM LEGEND IN PLAN VIEW. PLEASE SEE QUANTITY TAKEOFF TABLE IN GENERAL DRAWINGS.

MATCHLINE SEE DRAWING 06

- GENERAL NOTES**
- MINIMUM SEPARATION BETWEEN PROPOSED WATER MAIN AND EXISTING GAS MAIN SHALL BE 3-FEET. CONTRACTOR TO COORDINATE WITH GAS UTILITY OWNER FOR ANY NECESSARY REQUIREMENTS DURING CONSTRUCTION.
  - DEFLECT PIPE AT JOINTS MAXIMUM 75% OF MANUFACTURERS ALLOWABLE DEFLECTION.
  - CONTRACTOR SHALL TEMPORARILY INSTALL AND MAINTAIN A TEMPORARY DRIVING SURFACE (ASPHALT MILLINGS, ETC.) WHEN REMOVING ANY DRIVEWAYS UNTIL THE DRIVEWAYS ARE PERMANENTLY RESTORED.
  - CONTRACTOR SHALL MAINTAIN ROADWAY ACCESS AT ALL TIMES.
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VERTICAL SCALE: 1"=2'

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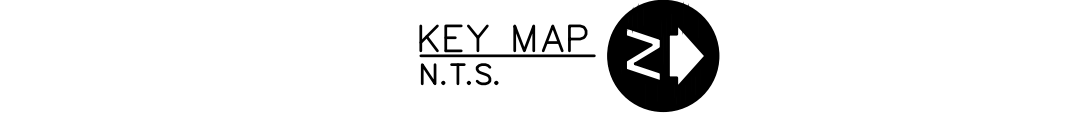
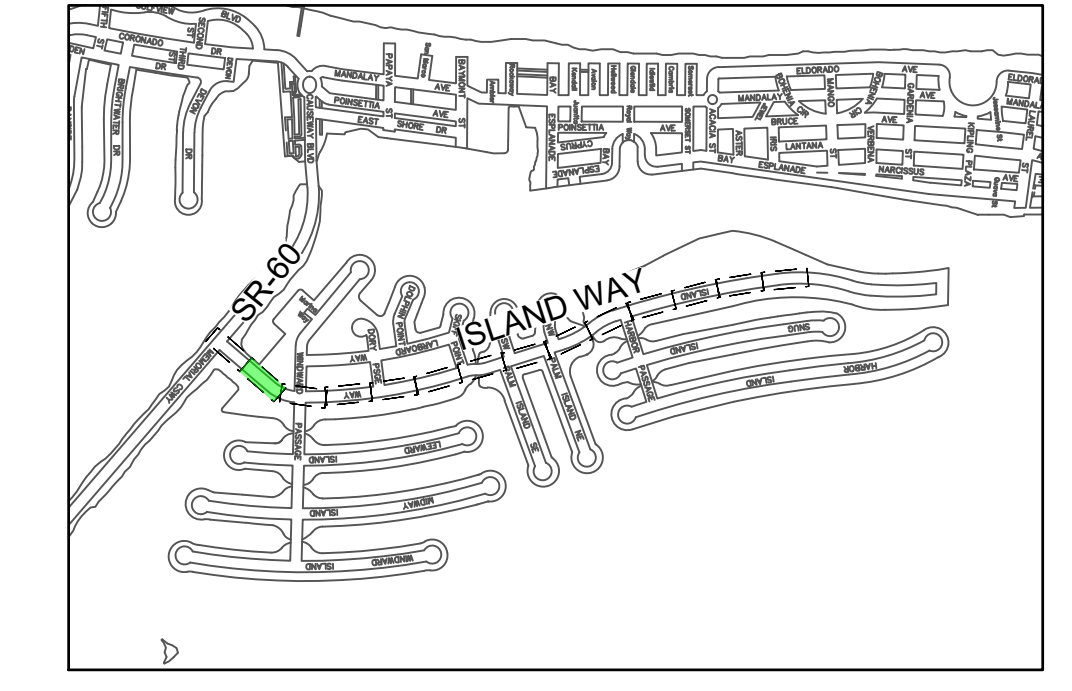
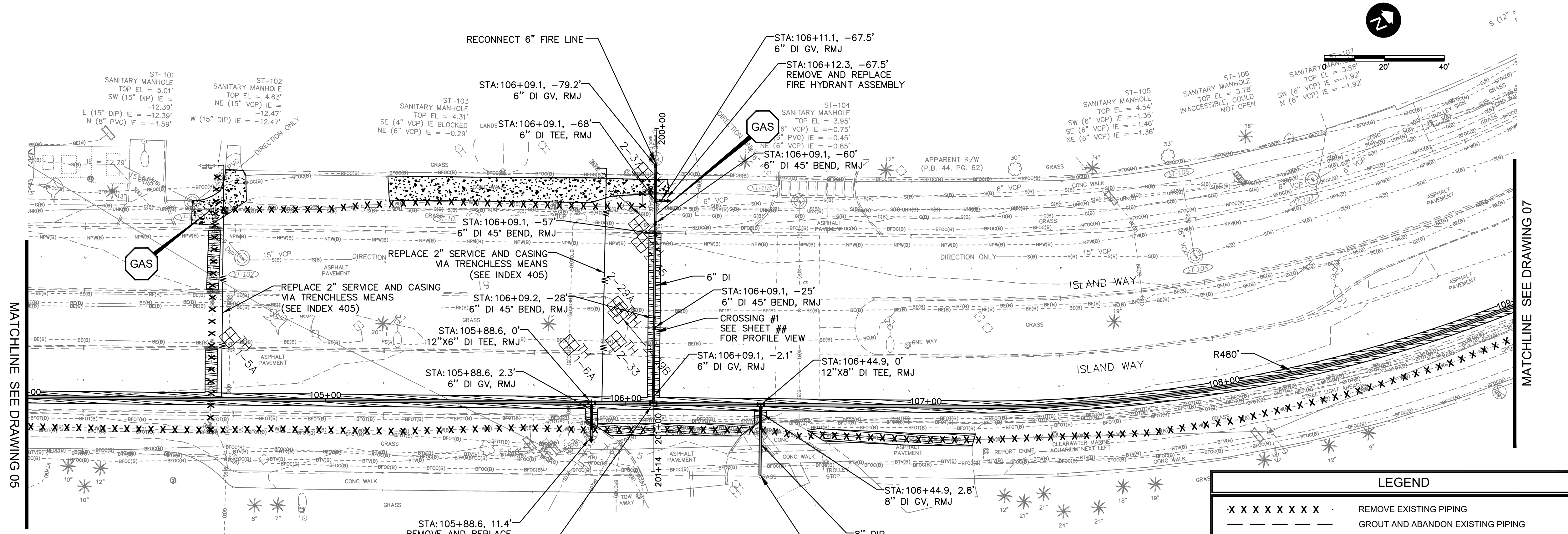


CITY OF CLEARWATER  
 ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
 ISLAND WAY  
 PLAN AND PROFILE

DWG NAME:	C01	FIELD BOOK:	N/A	SURVEYED BY:	ECHO UES	SCALE:	VERT. AS NOTED
CONTRACT NO.:	23-0056-UT	DATE DRAWN:	12/2023	DRAWN BY:	VVV/PPH	HORIZ. AS NOTED	
JOB NO.:	041775	DESIGNED BY:	WTH/BSW	CHECKED BY:	SC	SHEET NO.:	05 OF 27

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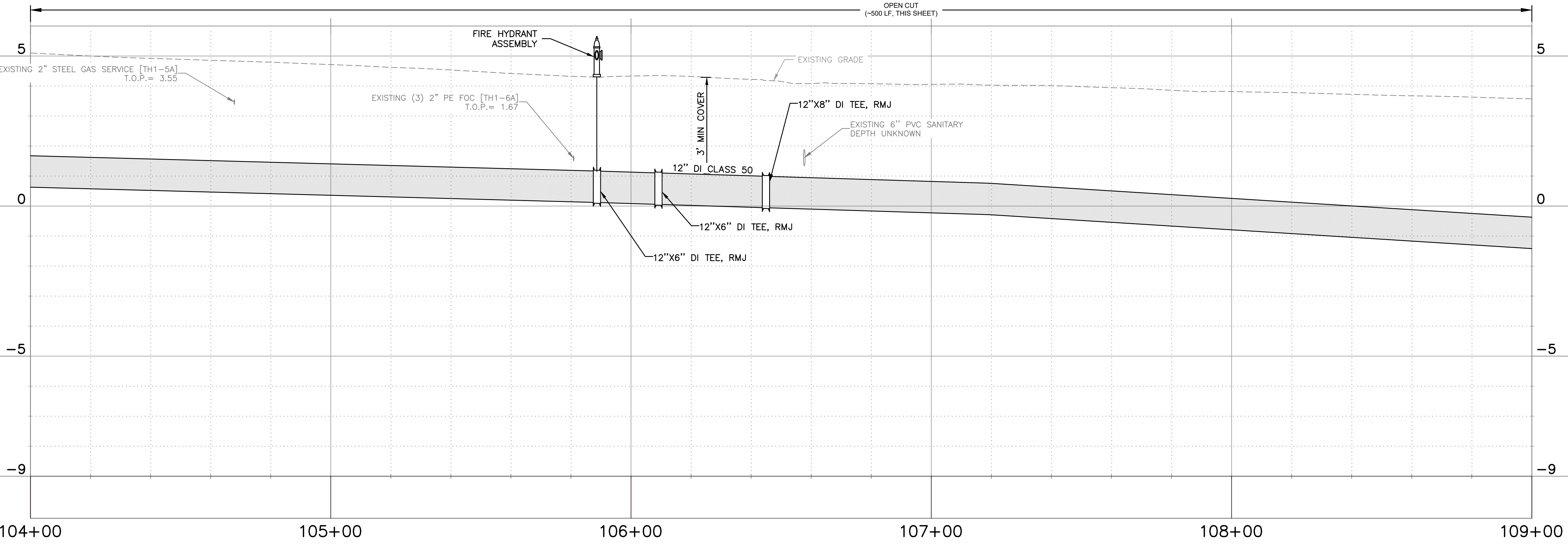
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- X X X X X X X X REMOVE EXISTING PIPING
- — — — — GROUT AND ABANDON EXISTING PIPING
- — — — — REMOVE AND REPLACE CONCRETE CURB AND GUTTER
- ▨▨▨▨▨▨▨▨ REMOVE AND REPLACE ASPHALT PAVEMENT, INCLUDING PAVEMENT MARKINGS
- ▨▨▨▨▨▨▨▨ MILL AND OVERLAY ASPHALT PAVEMENT
- ▨▨▨▨▨▨▨▨ REMOVE AND REPLACE CONCRETE DRIVEWAY
- ▨▨▨▨▨▨▨▨ REMOVE AND REPLACE CONCRETE SIDEWALK

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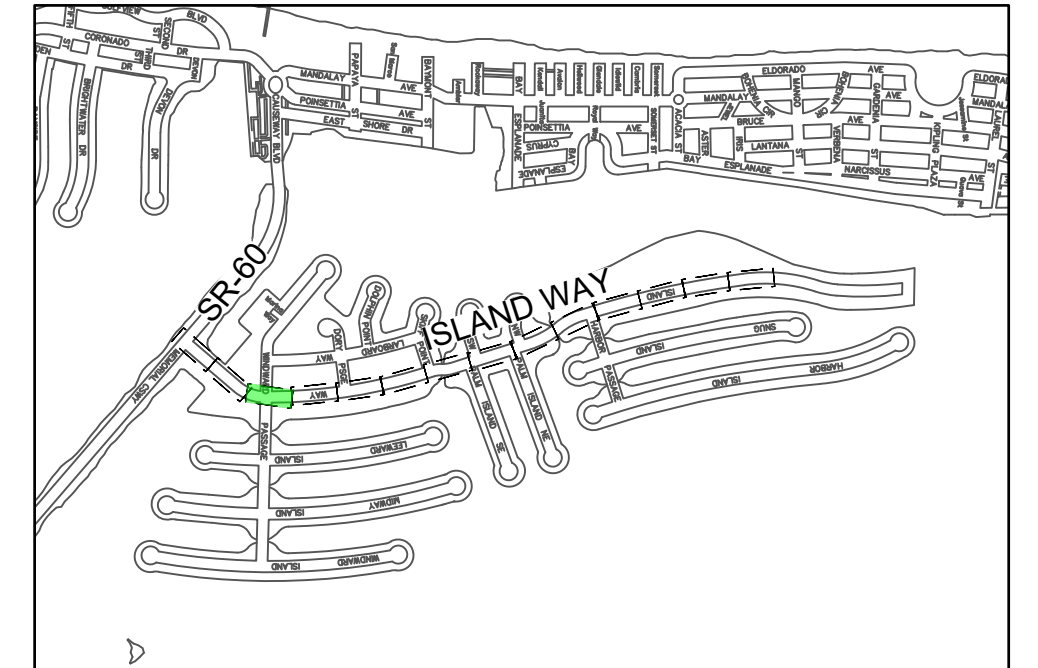
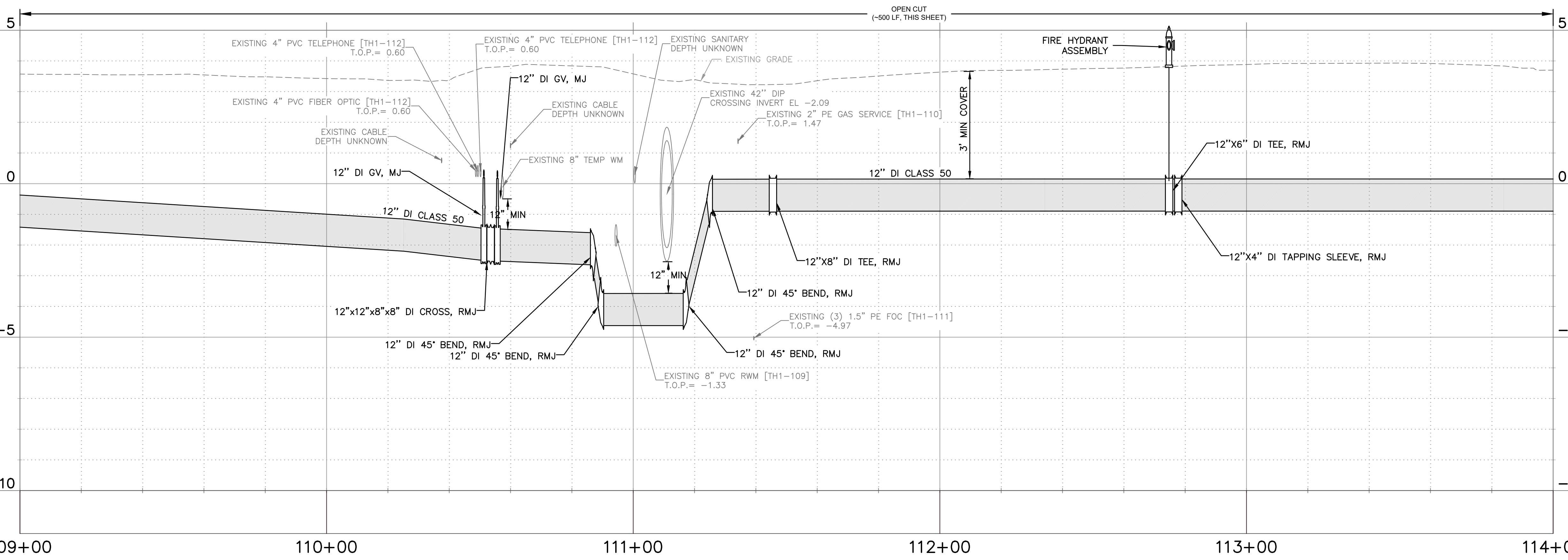
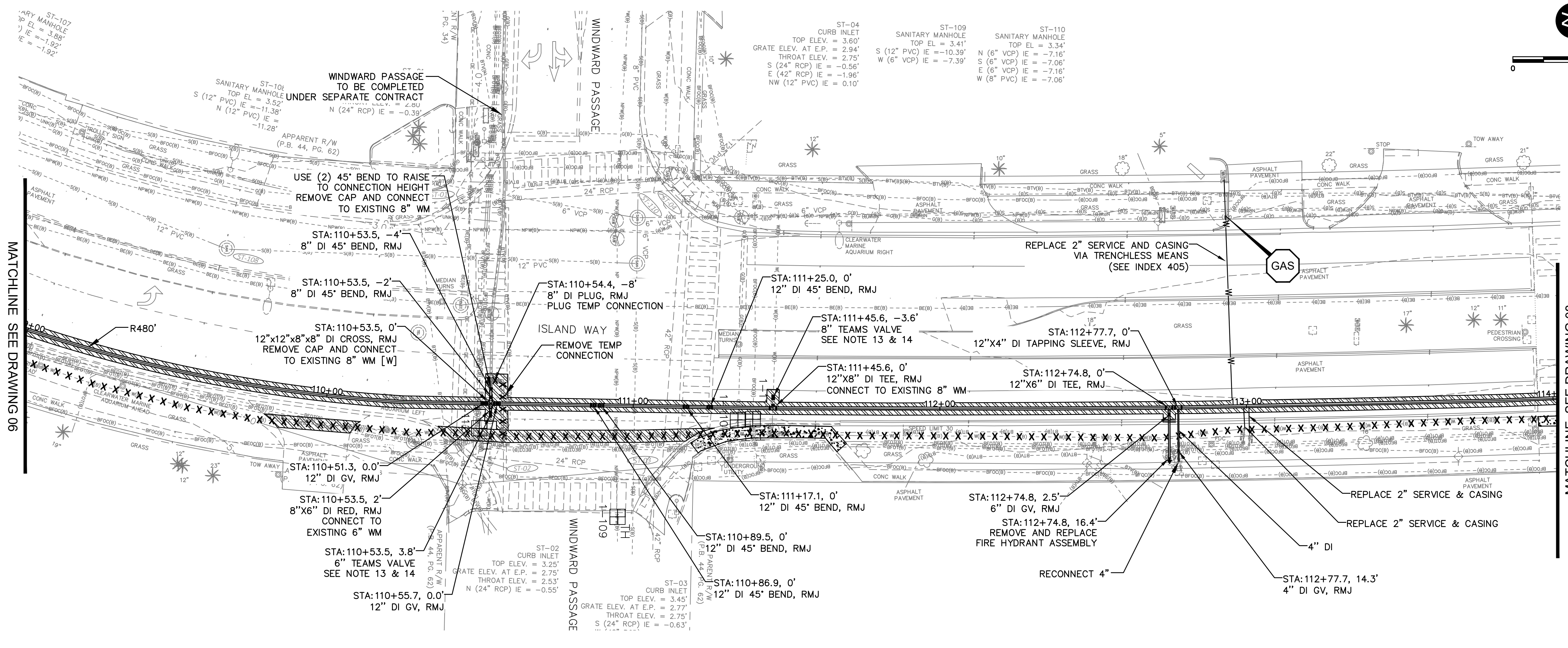
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**CITY OF CLEARWATER**  
 ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
 ISLAND WAY  
 PLAN AND PROFILE

DWG NO:	C02	FIELD BOOK:	N/A	SURVEYED BY:	ECHO UBS	SCALE:	VERT. AS NOTED
CONTRACT NO.:	23-0056-UT	DATE DRAWN:	12/2023	DRAWN BY:	VVV/PPH	HORIZ. AS NOTED	
JOB NO.:	041775	DESIGNED BY:	WTH/BSW	CHECKED BY:	SC	SHEET NO.:	06 OF 27

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 TEL: (813) 549-8919  
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KEY MAP  
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- - - - -	GROUT AND ABANDON EXISTING PIPING
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[Hatched Pattern]	REMOVE AND REPLACE ASPHALT PAVEMENT, INCLUDING PAVEMENT MARKINGS
[Diagonal Line Pattern]	MILL AND OVERLAY ASPHALT PAVEMENT
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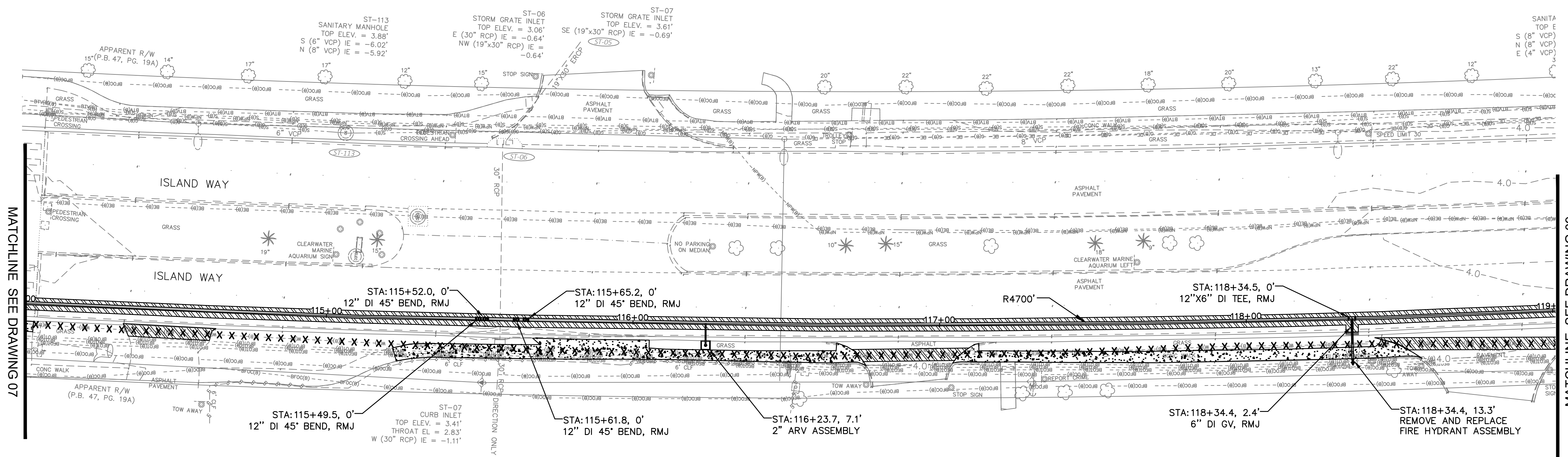
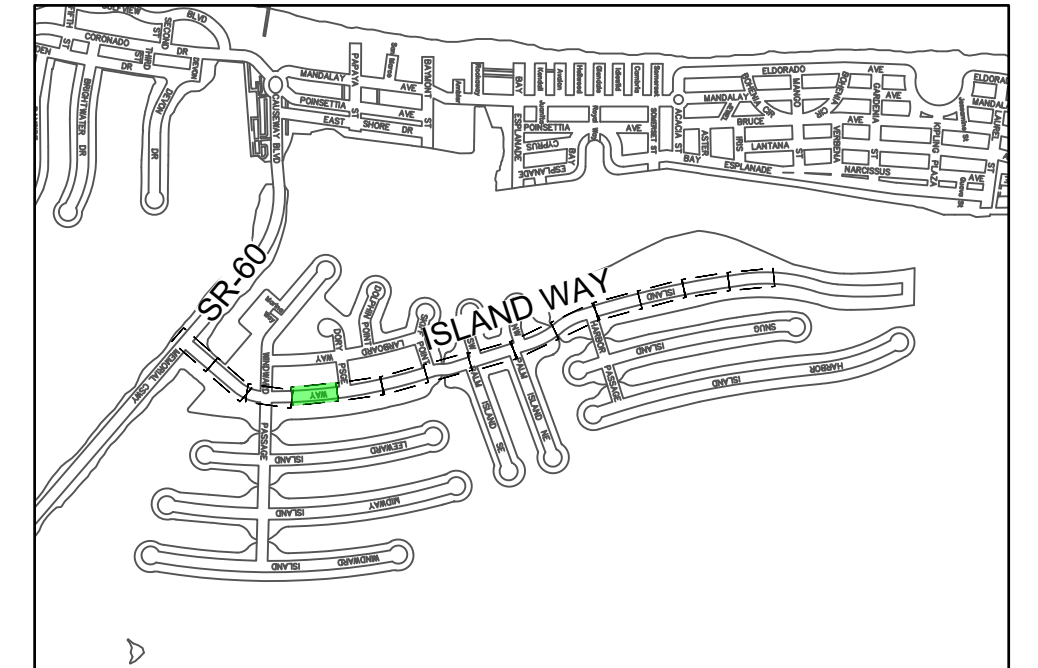
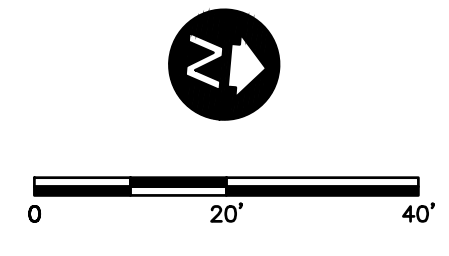
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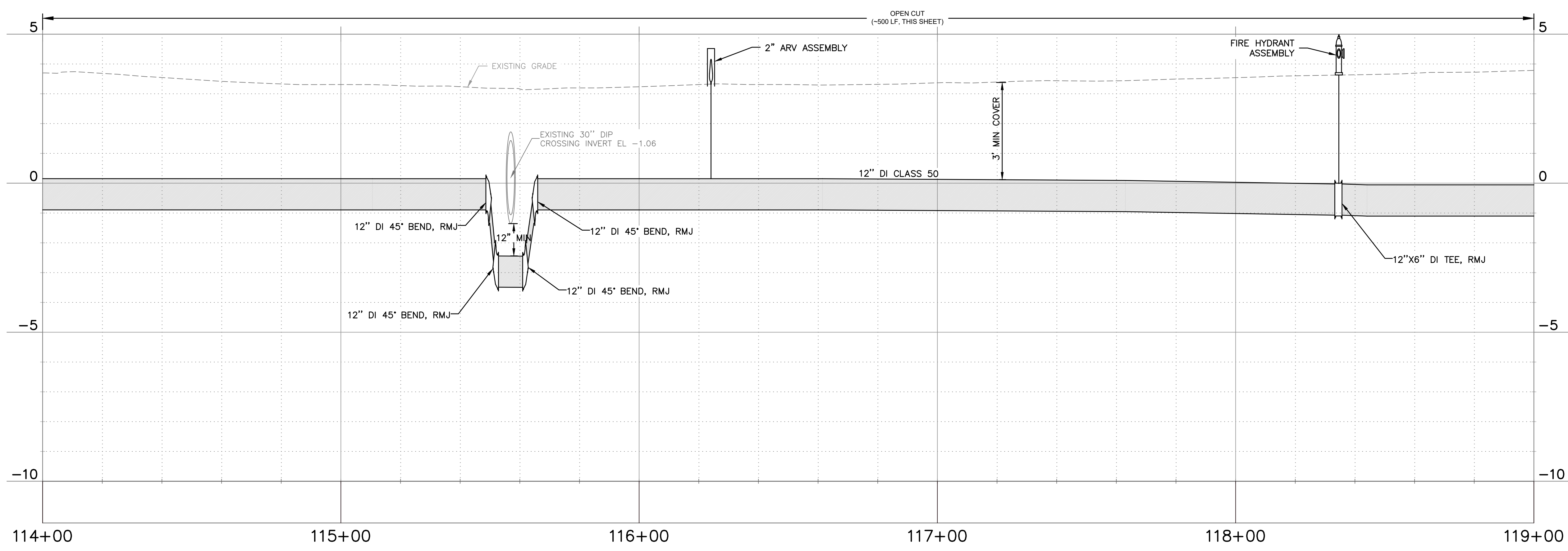
**CITY OF CLEARWATER  
ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT**  
ISLAND WAY  
PLAN AND PROFILE

DWG NAME:	C03	FIELD BOOK:	N/A	SURVEYED BY:	ECHO UBS	SCALE:	VERT. AS NOTED
CONTRACT NO.:	23-0056-UT	DATE DRAWN:	12/2023	DRAWN BY:	VVV/PPH	HORIZ. AS NOTED	
JOB NO.:	041775	DESIGNED BY:	WTH/BSW	CHECKED BY:	SC	SHEET NO.:	07 OF 27

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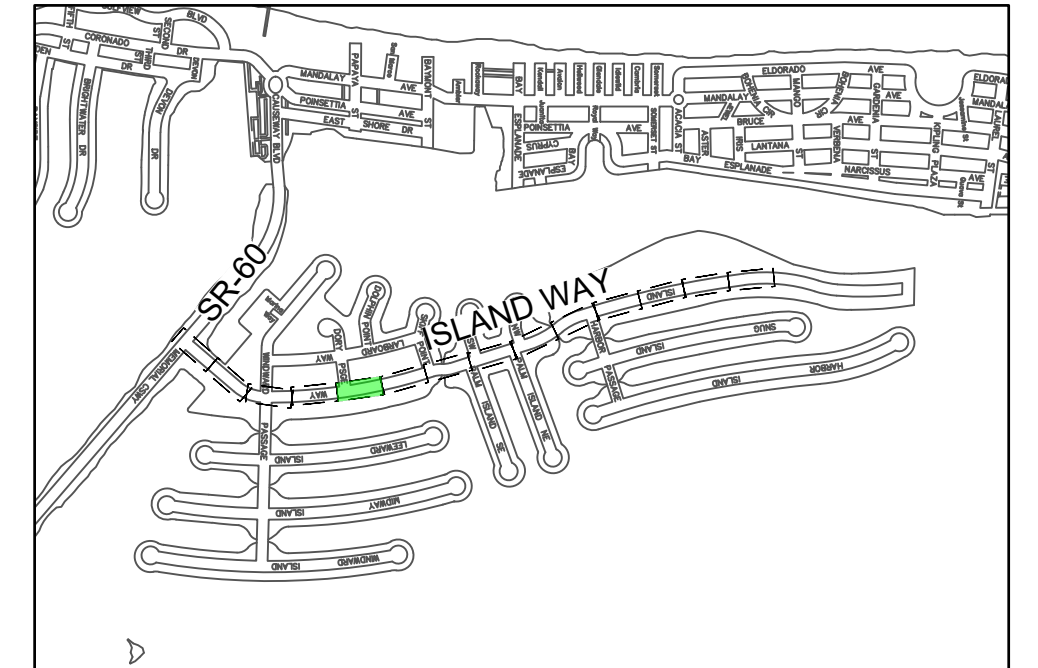
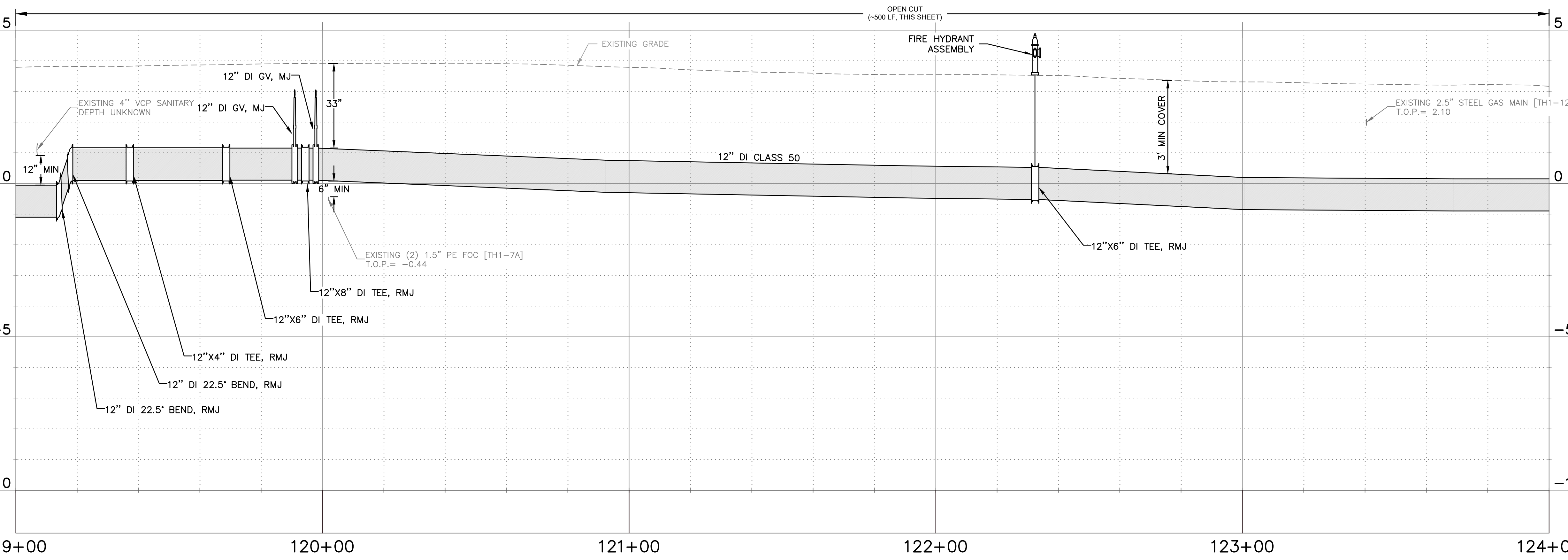
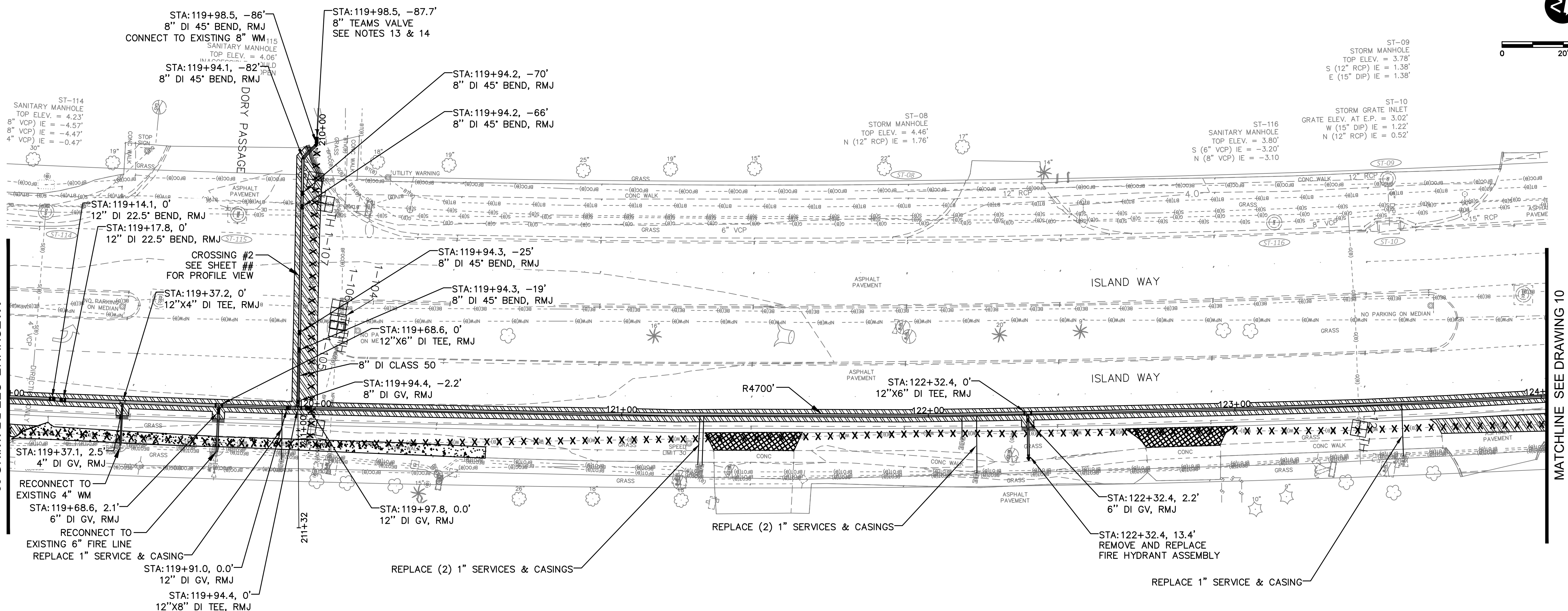


**CITY OF CLEARWATER**  
 ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
 ISLAND WAY  
 PLAN AND PROFILE

DWG NAME: C04	FIELD BOOK: N/A	SURVEYED BY: ECHO UBS	SCALE: VERT. AS NOTED
CONTRACT NO.: 23-0056-UT	DATE DRAWN: 12/2023	DRAWN BY: VVV/PPH	HORIZ. AS NOTED
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  13. CONTRACTOR SHALL RESTRAIN EXISTING MAINS AS NECESSARY IN ACCORDANCE WITH CITY STANDARD DETAIL 407. WHERE INSTALLATION OF RESTRAINTS MAY REQUIRE EXCAVATION OF THE ROADWAY, CONTRACTOR SHALL COORDINATE WITH CITY AND CITY'S REPRESENTATIVE TO CONFIRM RESTRAINING PRIOR TO INSTALLATION.
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  15. FOR ALL WATER SERVICE REPLACEMENTS/CONNECTIONS, ANY SIDEWALK OR PAVEMENT IMPACTED SHALL BE REMOVED AND REPLACED.
  16. CONTRACTOR SHALL COMPLETE ALL FINAL SERVICE TIE INS TO CUSTOMER WATER METERS AND FIRE SERVICE LINES AFTER FDEP CLEARANCE IS RECEIVED.

LEGEND	
- X X X X X X X X -	REMOVE EXISTING PIPING
- - - - -	GROUT AND ABANDON EXISTING PIPING
- - - - -	REMOVE AND REPLACE CONCRETE CURB AND GUTTER
[Hatched Pattern]	REMOVE AND REPLACE ASPHALT PAVEMENT, INCLUDING PAVEMENT MARKINGS
[Diagonal Line Pattern]	MILL AND OVERLAY ASPHALT PAVEMENT
[Cross-hatch Pattern]	REMOVE AND REPLACE CONCRETE DRIVEWAY
[Stippled Pattern]	REMOVE AND REPLACE CONCRETE SIDEWALK

NOTE: PATTERN ROTATIONS MAY DIFFER FROM LEGEND IN PLAN VIEW. PLEASE SEE QUANTITY TAKEOFF TABLE IN GENERAL DRAWINGS.

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SURVEYED BY:	DRAWN BY:	D: ISSUED FOR BID	PFH 12/2023
REVIEWED BY:	PROJECT ENGINEER	C: 100% PLANS	PFH 10/2023
APPROVED BY:	DATE	B: 90% PRELIMINARY DRAWINGS	PFH 07/2023
		A: 60% PRELIMINARY PLANS	PFH 05/2023

**CITY OF CLEARWATER, FLORIDA**  
PUBLIC WORKS DEPARTMENT -  
**ENGINEERING**  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756

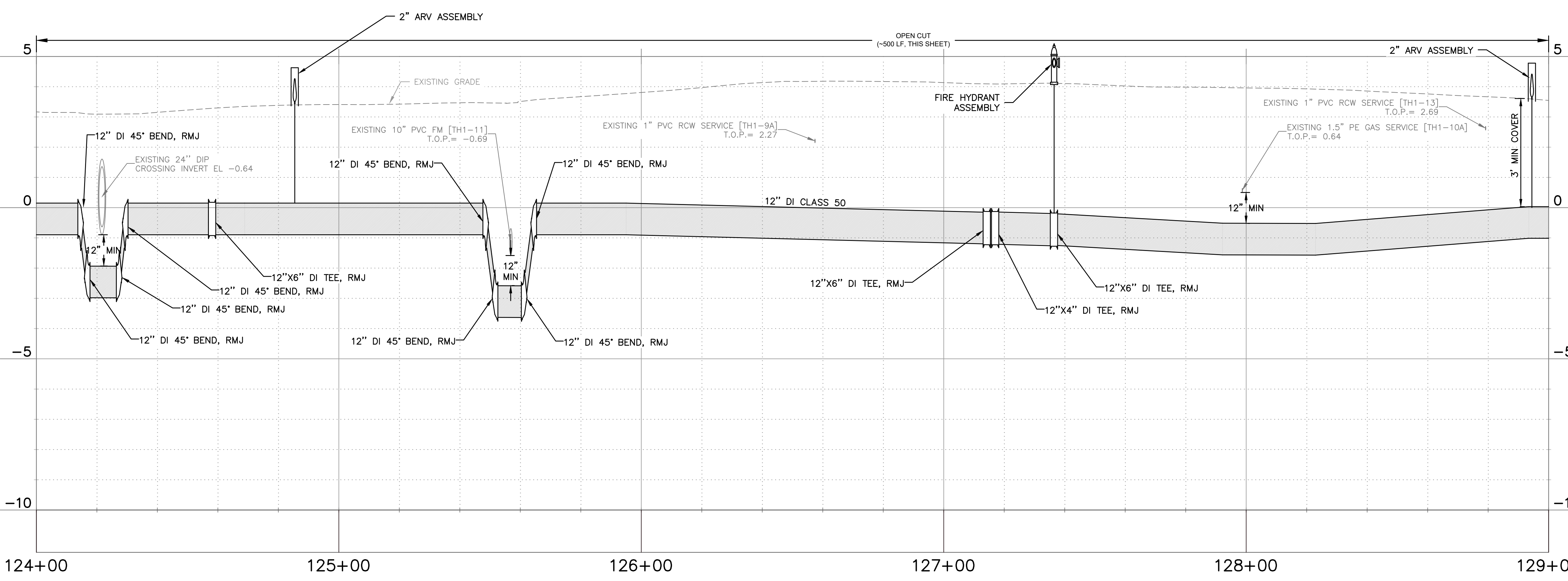
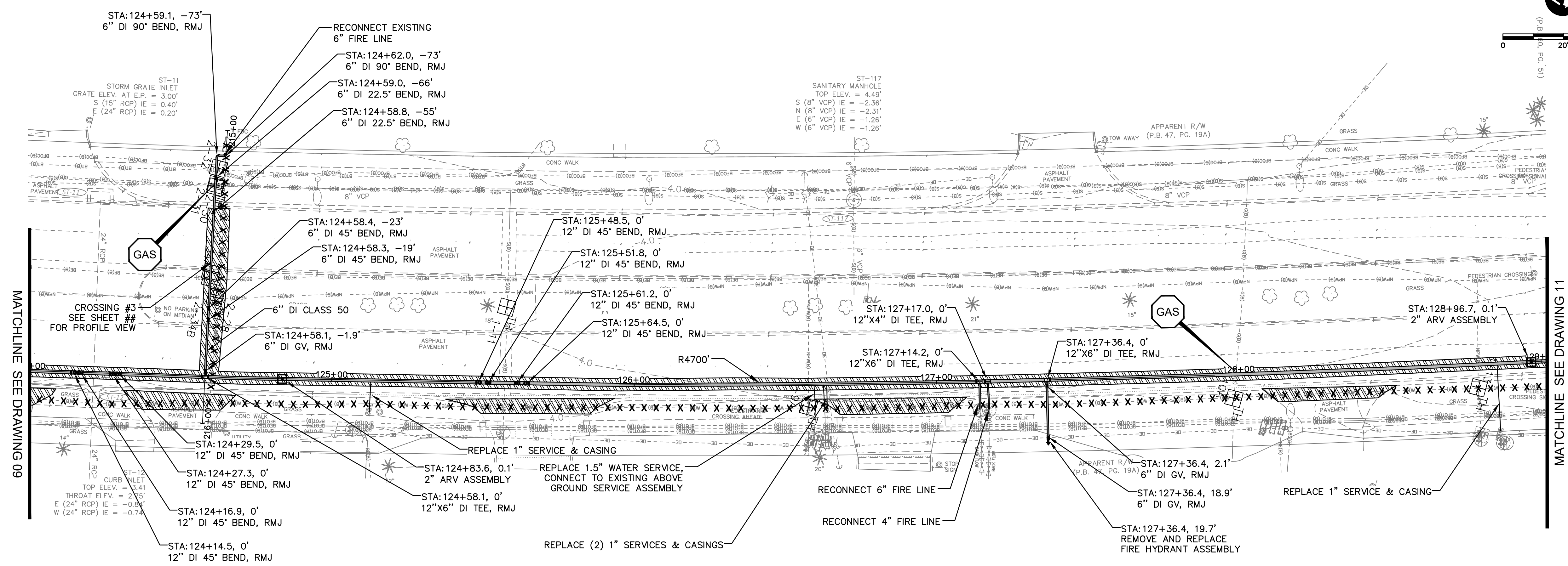
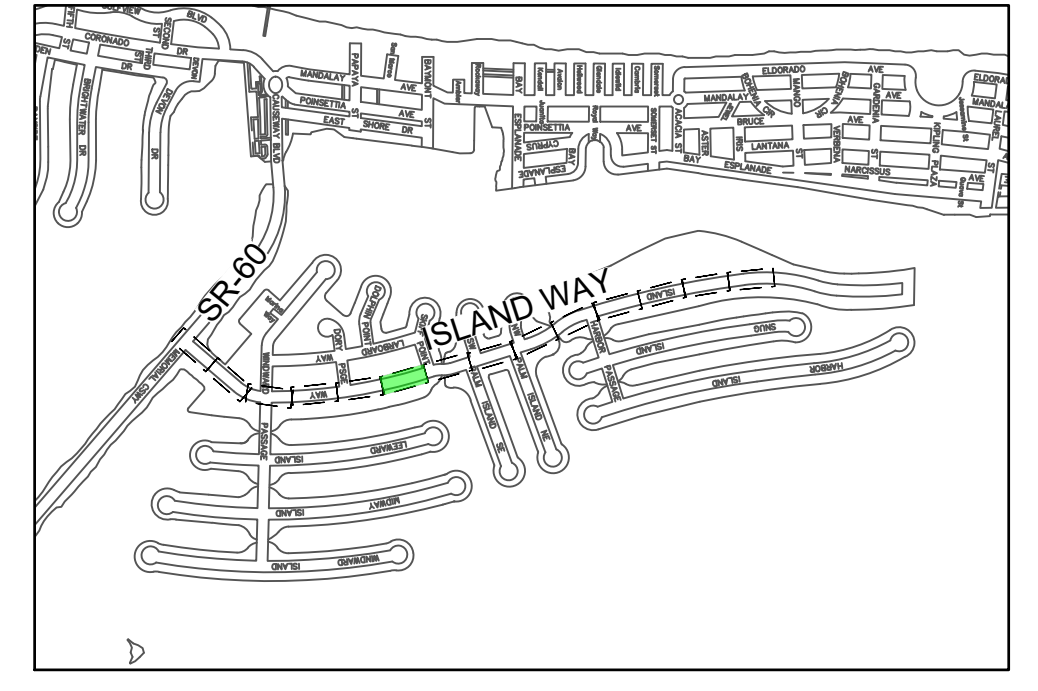
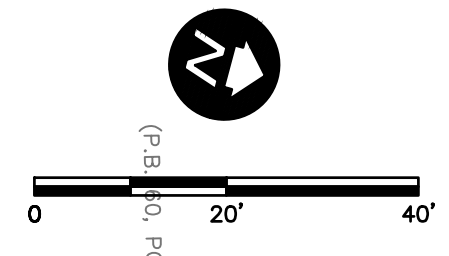


**CITY OF CLEARWATER**  
ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
ISLAND WAY  
PLAN AND PROFILE

DWG NAME:	FIELD BOOK:	SURVEYED BY:	SCALE:
C05	N/A	ECHO UBS	VERT. AS NOTED
CONTRACT NO.:	DATE DRAWN:	DRAWN BY:	HORIZ. AS NOTED
23-0056-UT	12/2023	VVV/PPH	09 OF 27
JOB NO.:	DESIGNED BY:	CHECKED BY:	SHEET NO.:
041775	WTH/BSW	SC	09 OF 27

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- GENERAL NOTES**
1. MINIMUM SEPARATION BETWEEN PROPOSED WATER MAIN AND EXISTING GAS MAIN SHALL BE 3- FEET. CONTRACTOR TO COORDINATE WITH GAS UTILITY OWNER FOR ANY NECESSARY REQUIREMENTS DURING CONSTRUCTION.
  2. DEFLECT PIPE AT JOINTS MAXIMUM 75% OF MANUFACTURERS ALLOWABLE DEFLECTION.
  3. CONTRACTOR SHALL TEMPORARILY INSTALL AND MAINTAIN A TEMPORARY DRIVING SURFACE (ASPHALT MILLINGS, ETC.) WHEN REMOVING ANY DRIVEWAYS UNTIL THE DRIVEWAYS ARE PERMANENTLY RESTORED.
  4. CONTRACTOR SHALL MAINTAIN ROADWAY ACCESS AT ALL TIMES.
  5. INSTALL 1-INCH RESIDENTIAL OR 2-INCH COMMERCIAL SERVICE LINE AND POTABLE WATER METER BOX ADJACENT TO EACH EXISTING WATER METER/PARCEL (5- FEET MIN SEPARATION), ON BOTH SIDES OF ROW WITH SHORT SERVICES AND LONG SERVICES WITH CASINGS (SERVICE AND CASING TO BE ONE CONTINUOUS PIPE), IN ACCORDANCE WITH CITY INDEX DETAILS. CONNECT NEW SERVICE LINE TO EXISTING POTABLE WATER METER FOLLOWING FDEP CLEARANCE.
  6. CONTRACTOR SHALL VERIFY LOCATION, MATERIAL, AND DEPTH OF EXISTING INFRASTRUCTURE PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITY INFRASTRUCTURE.
  7. CONTRACTOR SHALL MAINTAIN WATER SERVICE AT ALL TIMES TO CUSTOMERS. ANY INTERRUPTIONS SHALL BE COORDINATED WITH THE CITY WITH MINIMUM 10 DAY NOTICE.
  8. ONLY THE CITY MAY TURN EXISTING VALVES. IF POTABLE WATER MAIN ISOLATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE CITY AND RPR INSPECTOR.
  9. CONTRACTOR TO INSTALL TREE PROTECTION AS NECESSARY IN ACCORDANCE WITH CITY STANDARD DETAIL INDEX 909. SEE CITY WEBSITE: <https://www.myclearwater.com/government/city-departments/engineering/documents-publications/construction-standards>
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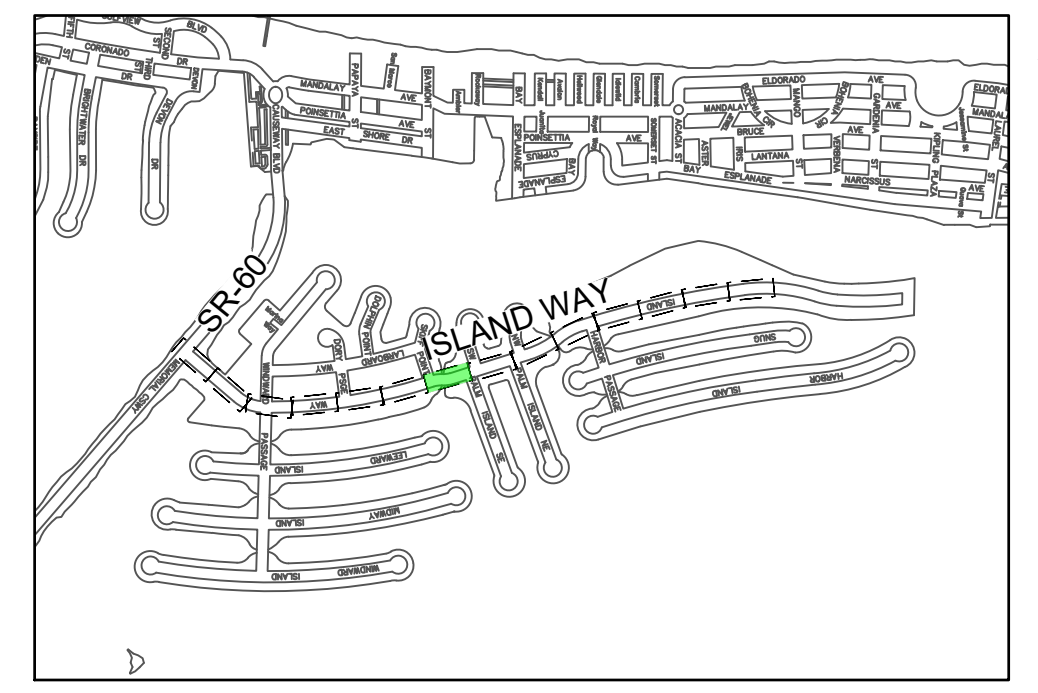
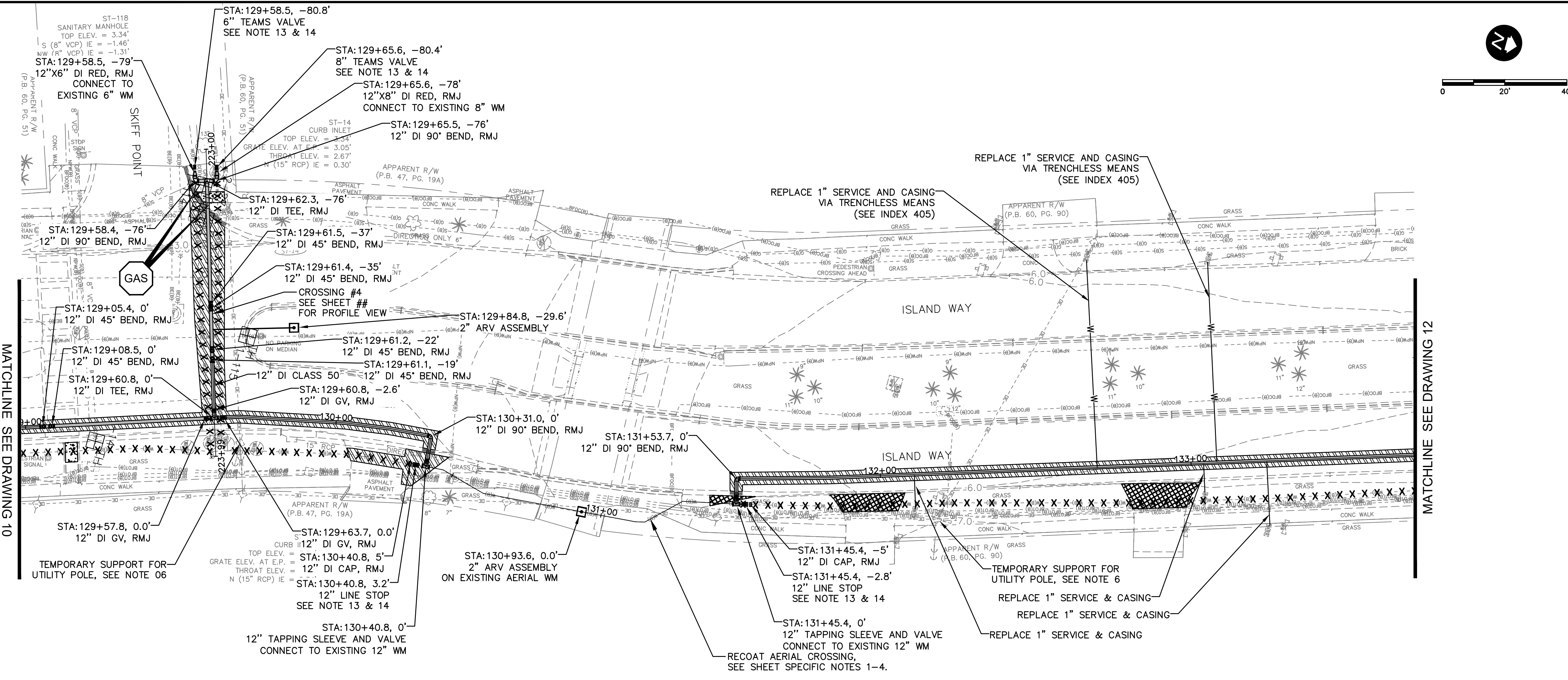


**CITY OF CLEARWATER**  
 ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
 ISLAND WAY  
 PLAN AND PROFILE

DWG NAME:	C06	FIELD BOOK:	N/A	SURVEYED BY:	ECHO UBS	SCALE:	VERT. AS NOTED
CONTRACT NO.:	23-0056-UT	DATE DRAWN:	12/2023	DRAWN BY:	VVV/PPH	HORIZ. AS NOTED	
JOB NO.:	041775	DESIGNED BY:	WTH/BSW	CHECKED BY:	SC	SHEET NO.:	10 OF 27

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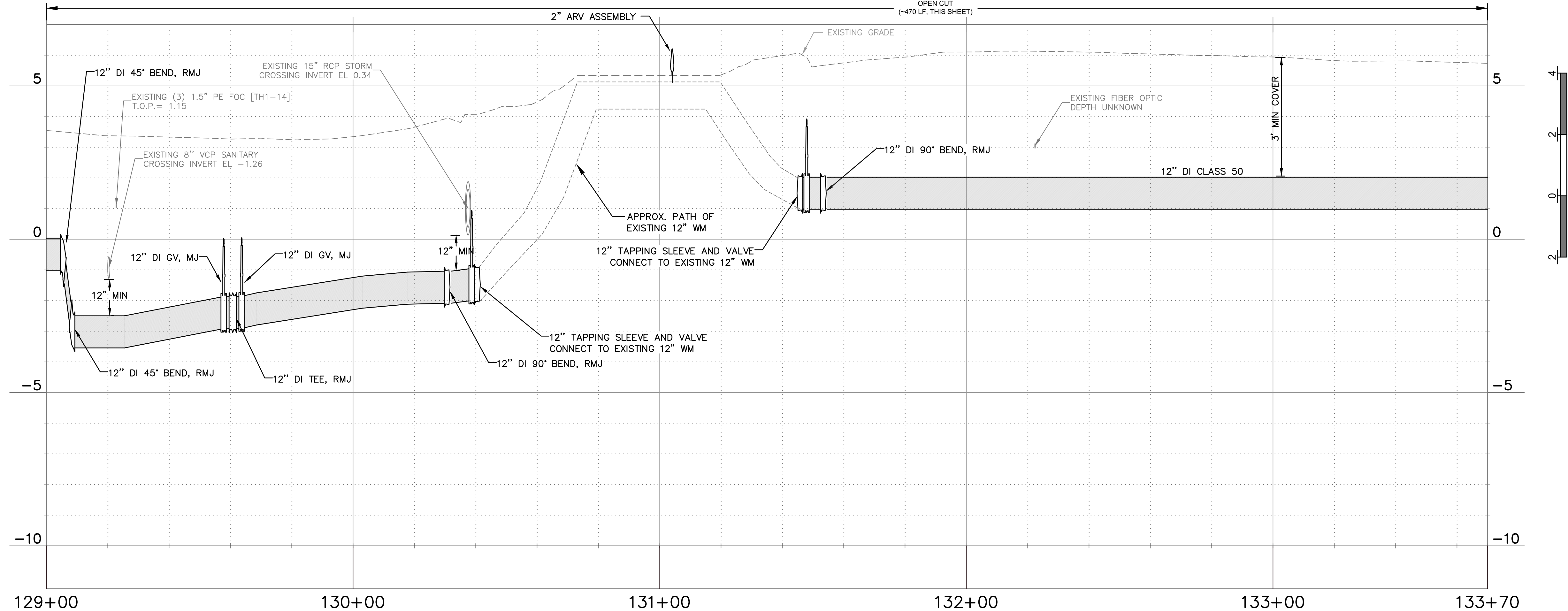
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**SHEET SPECIFIC NOTES**

- EXPOSED PIPING SHALL BE PREPARED BY UNIFORMLY ABRASIVE BLASTING USING ANGULAR ABRASIVE TO A NAF500-03-04 OR IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
- CONTRACTOR SHALL PROPERLY CONTAIN, COLLECT, AND DISPOSE OF FLUIDS AND DEBRIS GENERATED DURING SURFACE PREPARATION.
- SURFACE COATING SHALL BE A BASE ZINC COAT, EPOXY SECOND COAT, AND FLUOROPOLYMER COATING SYSTEM WITH RESISTANCE TO ULTRAVIOLET LIGHT, DEGRADATION, ABRASION, AND CHALKING. CONTRACTOR SHALL SUBMIT THE COATING SYSTEM AND THICKNESS FOR APPROVAL PRIOR TO APPLICATION.
- REFER TO SPECIFICATIONS DIVISION 9 FOR ADDITIONAL REQUIREMENTS FOR COATING SYSTEM.



**LEGEND**

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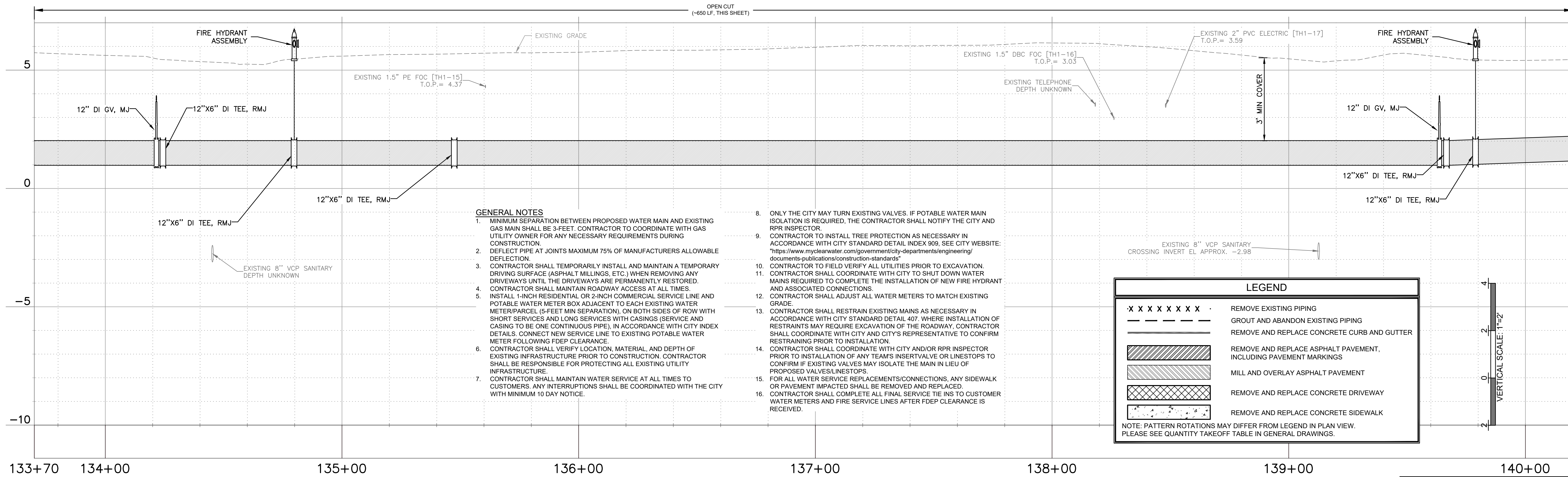
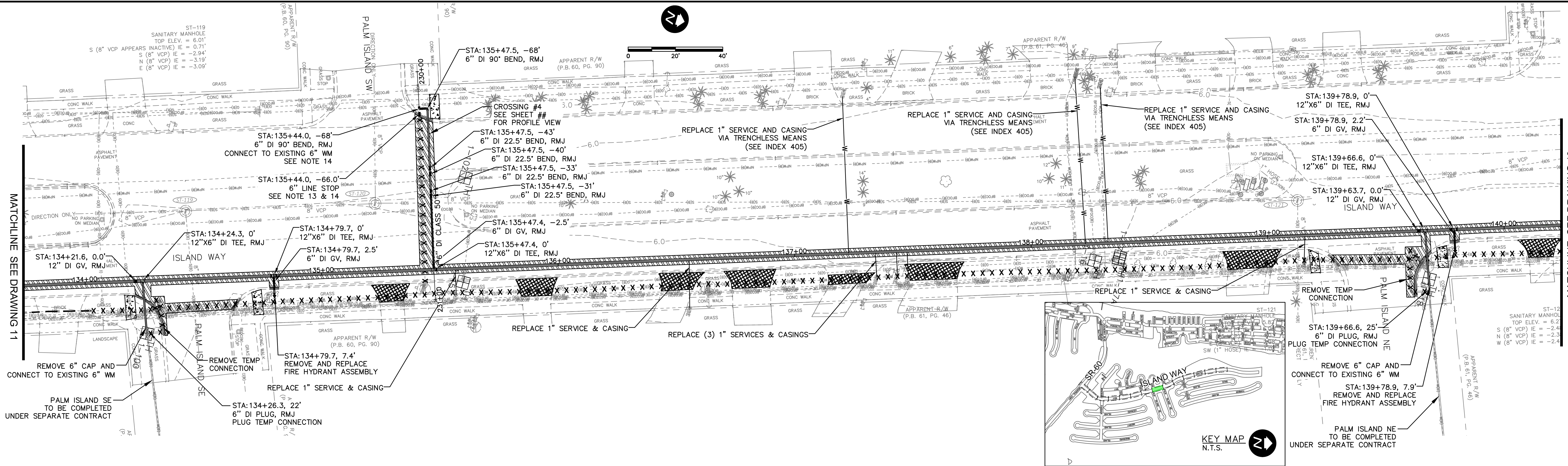
**CITY OF CLEARWATER, FLORIDA  
PUBLIC WORKS DEPARTMENT -  
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100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



**CITY OF CLEARWATER  
ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
ISLAND WAY  
PLAN AND PROFILE**

DWG NO:	C07	FIELD BOOK:	N/A	SURVEYED BY:	ECHO UBS	SCALE:	VERT. AS NOTED
CONTRACT NO.:	23-0056-UT	DATE DRAWN:	12/2023	DRAWN BY:	VVV/PPH	HORIZ. AS NOTED	
JOB NO.:	041775	DESIGNED BY:	WTH/BSW	CHECKED BY:	SC	SHEET NO.:	11 OF 27

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REVIEWED BY:	PROJECT ENGINEER
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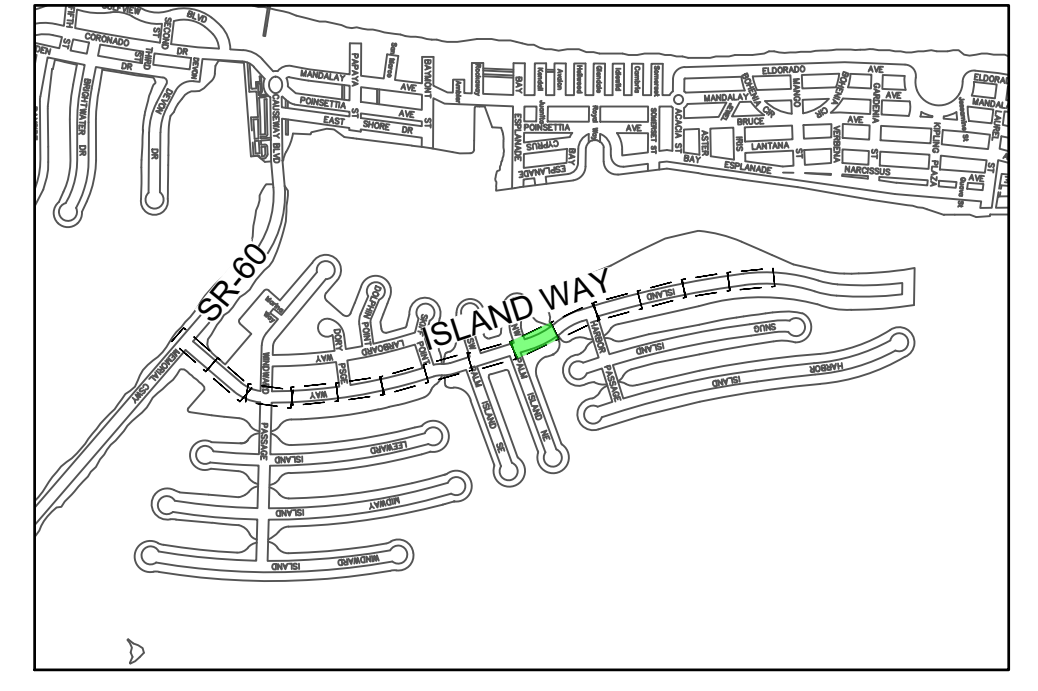
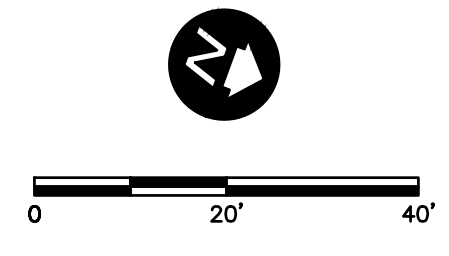
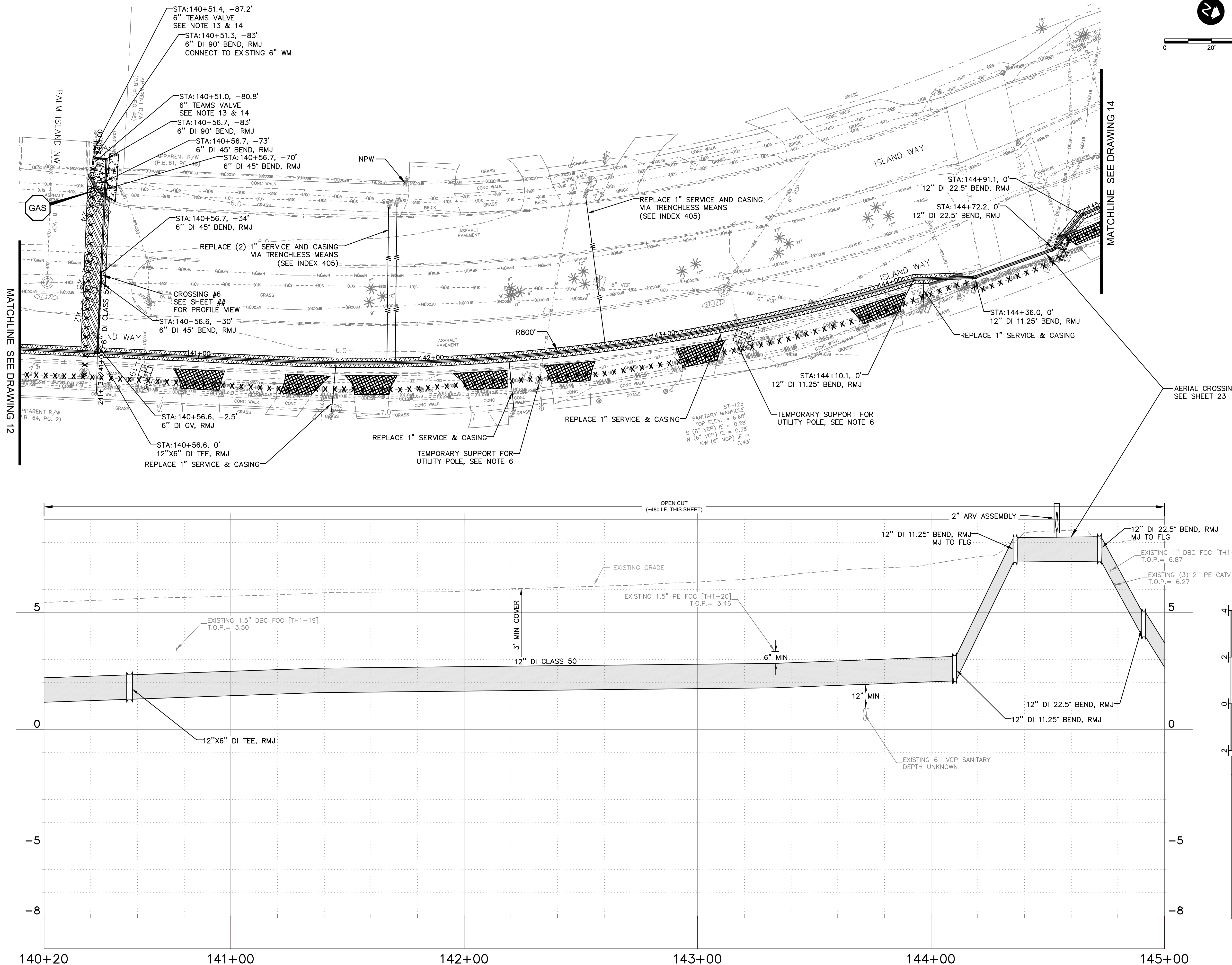


**CITY OF CLEARWATER**  
**ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT**  
 ISLAND WAY  
 PLAN AND PROFILE

DWG NAME:	FIELD BOOK:	SURVEYED BY:	SCALE:
C08	N/A	ECHO UBS	VERT. AS NOTED
CONTRACT NO.:	DATE DRAWN:	DRAWN BY:	HORIZ. AS NOTED
23-0056-UT	12/2023	VVV/PPH	12 OF 27
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N.T.S.

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		A: 60% PRELIMINARY PLANS	PFH 05/2023

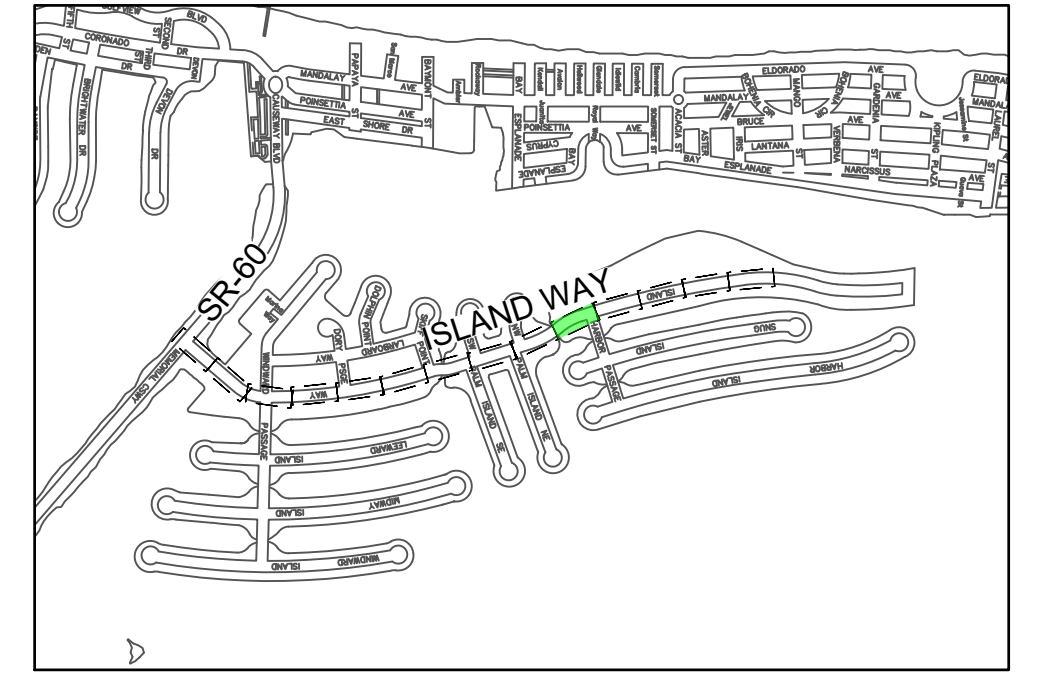
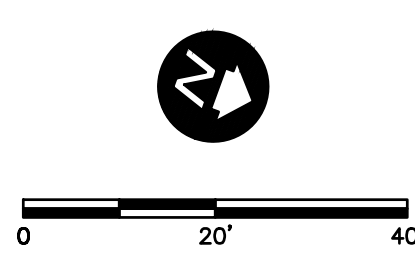
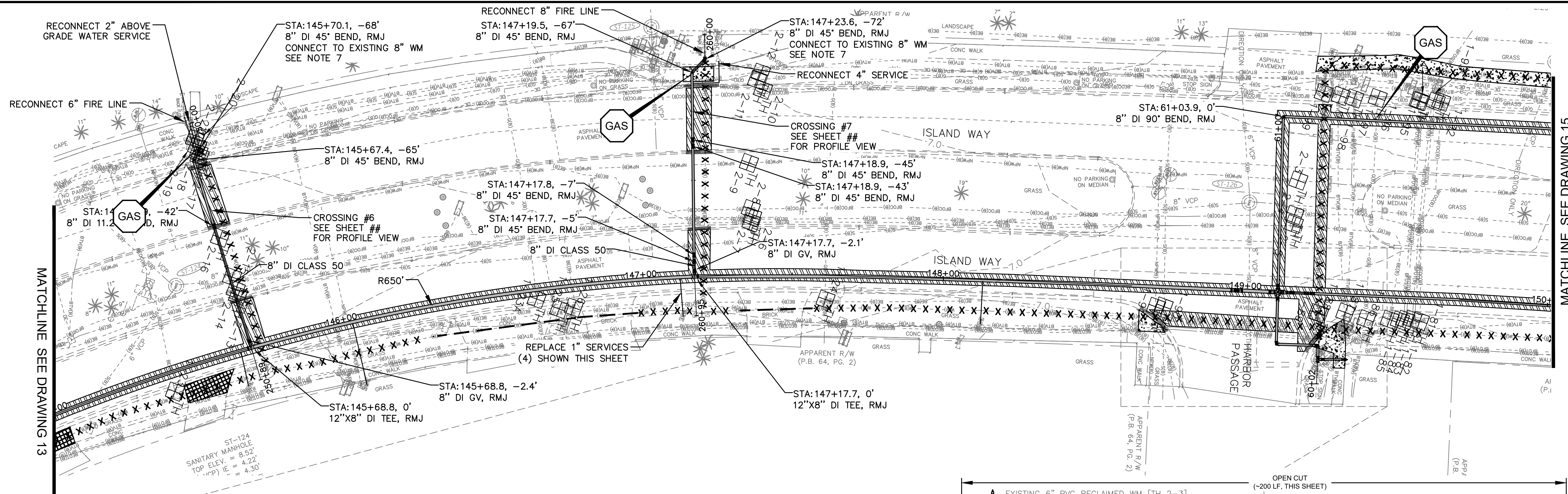
**CITY OF CLEARWATER, FLORIDA**  
**PUBLIC WORKS DEPARTMENT - ENGINEERING**  
 100 S. MYRTLE AVE.  
 CLEARWATER, FL 33756



**CITY OF CLEARWATER**  
 ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
 ISLAND WAY  
 PLAN AND PROFILE

DWG NO:	C09	FIELD BOOK:	N/A	SURVEYED BY:	ECHO UBS	SCALE:	VERT. AS NOTED
CONTRACT NO.:	23-0056-UT	DATE DRAWN:	12/2023	DRAWN BY:	VVV/PPH	HORIZ. AS NOTED	
JOB NO.:	041775	DESIGNED BY:	WTH/BSW	CHECKED BY:	SC	SHEET NO.:	13 OF 27

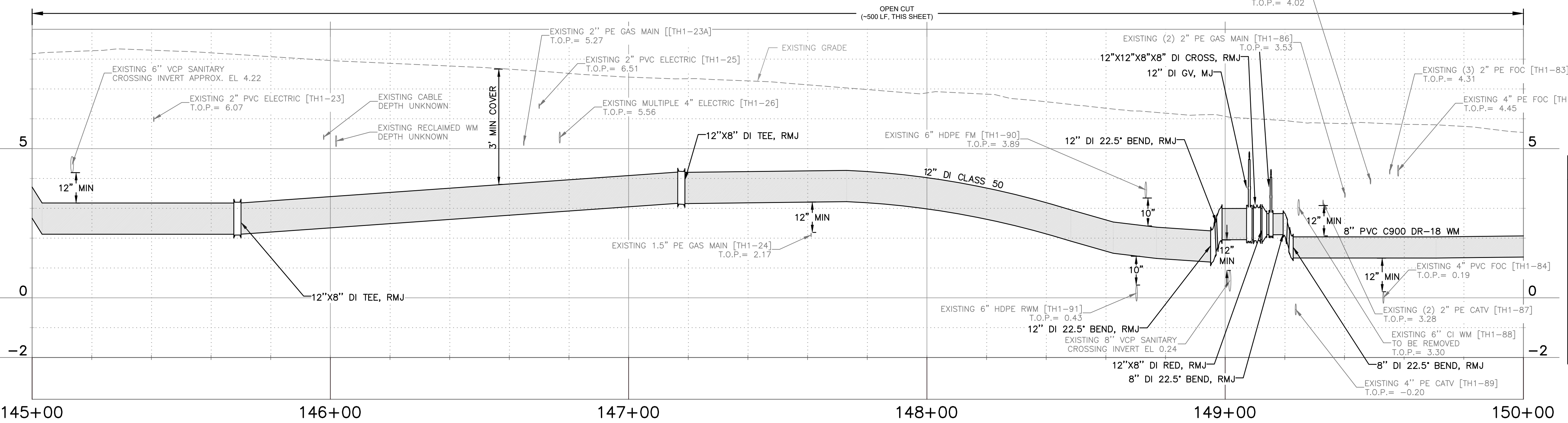
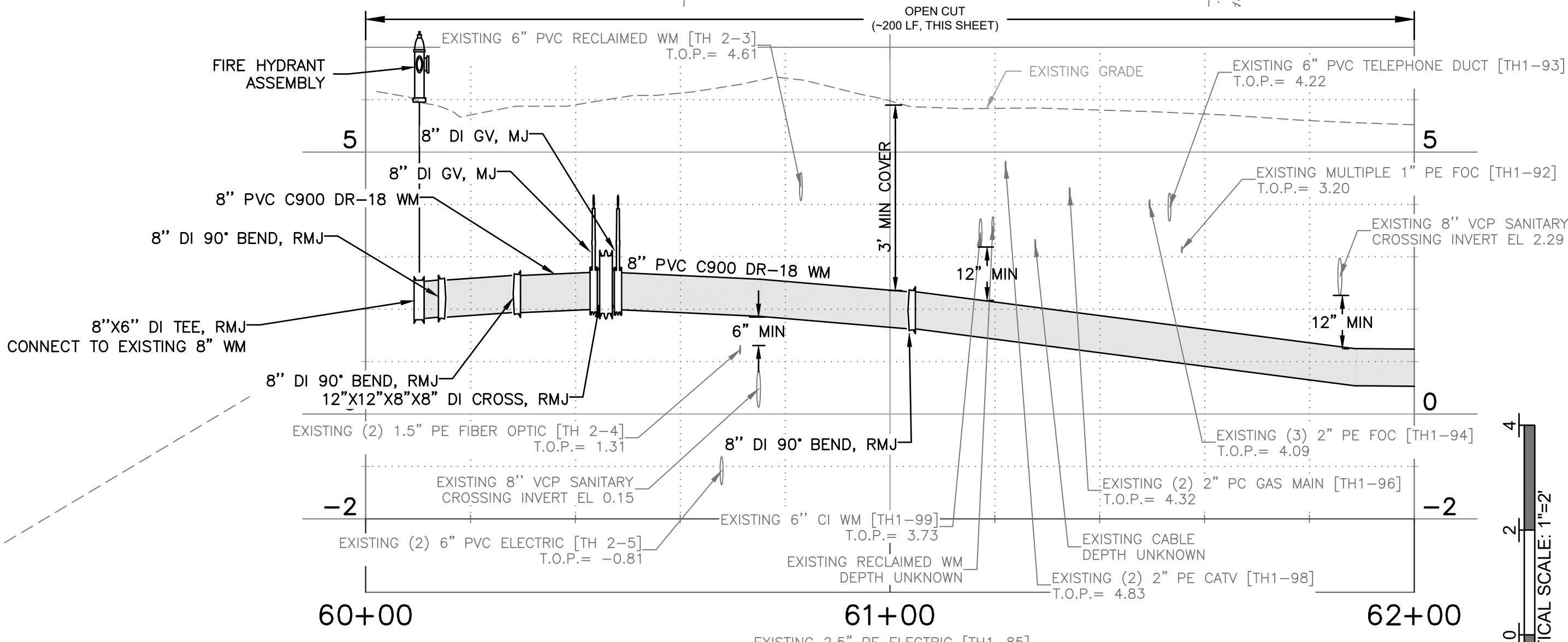
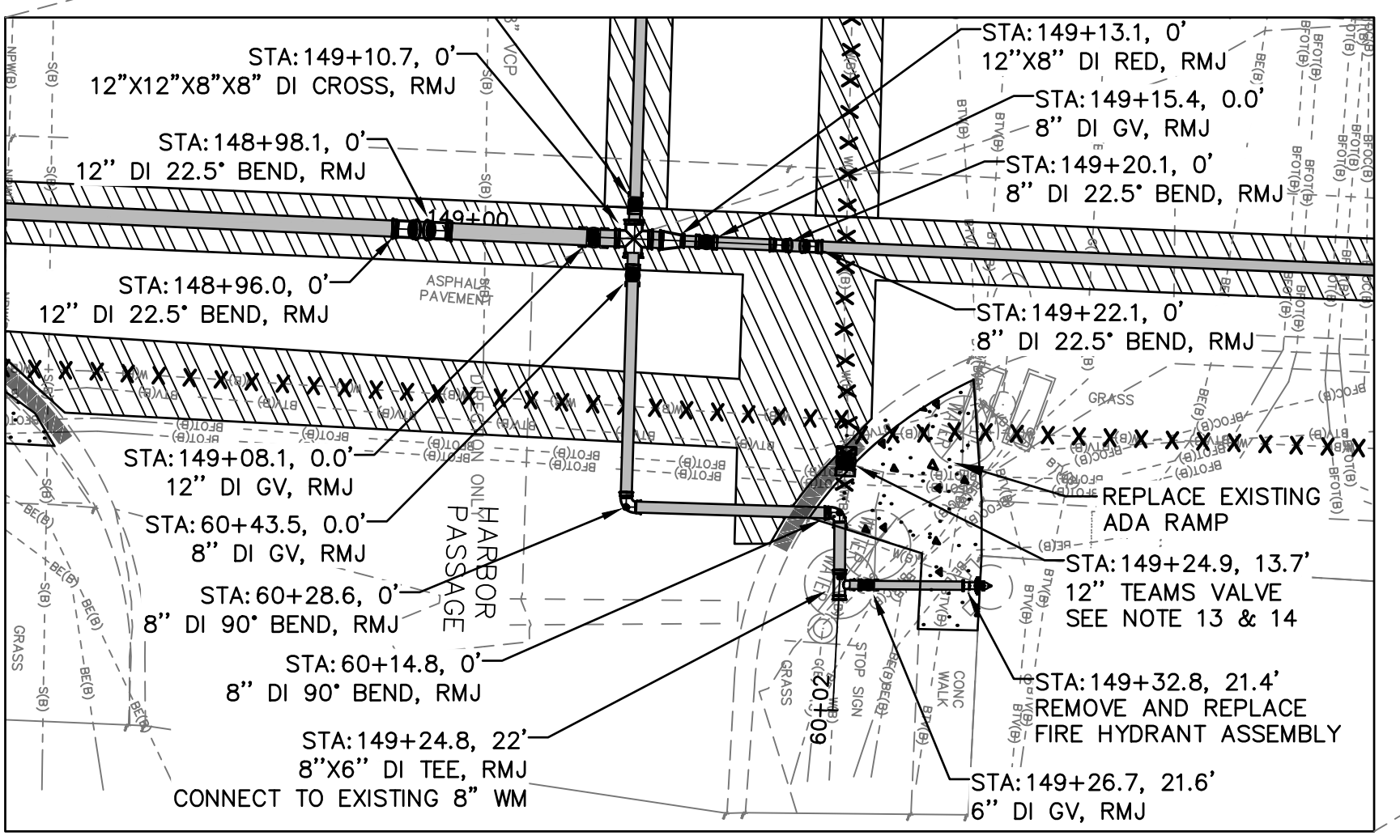
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KEY MAP  
N.T.S.

**GENERAL NOTES**

- MINIMUM SEPARATION BETWEEN PROPOSED WATER MAIN AND EXISTING GAS MAIN SHALL BE 3- FEET. CONTRACTOR TO COORDINATE WITH GAS UTILITY OWNER FOR ANY NECESSARY REQUIREMENTS DURING CONSTRUCTION.
- DEFLECT PIPE AT JOINTS MAXIMUM 75% OF MANUFACTURERS ALLOWABLE DEFLECTION.
- CONTRACTOR SHALL TEMPORARILY INSTALL AND MAINTAIN A TEMPORARY DRIVING SURFACE (ASPHALT MILLINGS, ETC.) WHEN REMOVING ANY DRIVEWAYS UNTIL THE DRIVEWAYS ARE PERMANENTLY RESTORED.
- CONTRACTOR SHALL MAINTAIN ROADWAY ACCESS AT ALL TIMES.
- INSTALL 1-INCH RESIDENTIAL OR 2-INCH COMMERCIAL SERVICE LINE AND POTABLE WATER METER BOX ADJACENT TO EACH EXISTING WATER METER/PARCEL (5- FEET MIN SEPARATION), ON BOTH SIDES OF ROW WITH SHORT SERVICES AND LONG SERVICES WITH CASINGS (SERVICE AND CASING TO BE ONE CONTINUOUS PIPE), IN ACCORDANCE WITH CITY INDEX DETAILS. CONNECT NEW SERVICE LINE TO EXISTING POTABLE WATER METER FOLLOWING FDEP CLEARANCE.
- CONTRACTOR SHALL VERIFY LOCATION, MATERIAL, AND DEPTH OF EXISTING INFRASTRUCTURE PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITY INFRASTRUCTURE.
- CONTRACTOR SHALL MAINTAIN WATER SERVICE AT ALL TIMES TO CUSTOMERS. ANY INTERRUPTIONS SHALL BE COORDINATED WITH THE CITY WITH MINIMUM 10 DAY NOTICE.
- ONLY THE CITY MAY TURN EXISTING VALVES. IF POTABLE WATER MAIN ISOLATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE CITY AND RPR INSPECTOR.
- CONTRACTOR TO INSTALL TREE PROTECTION AS NECESSARY IN ACCORDANCE WITH CITY STANDARD DETAIL INDEX 909. SEE CITY WEBSITE: <https://www.myclearwater.com/government/city-departments/engineering/documents-publications/construction-standards/>
- CONTRACTOR TO FIELD VERIFY ALL UTILITIES PRIOR TO EXCAVATION.
- CONTRACTOR SHALL COORDINATE WITH CITY TO SHUT DOWN WATER MAINS REQUIRED TO COMPLETE THE INSTALLATION OF NEW FIRE HYDRANT AND ASSOCIATED CONNECTIONS.
- CONTRACTOR SHALL ADJUST ALL WATER METERS TO MATCH EXISTING GRADE.
- CONTRACTOR SHALL RESTRAIN EXISTING MAINS AS NECESSARY IN ACCORDANCE WITH CITY STANDARD DETAIL 407. WHERE INSTALLATION OF RESTRAINTS MAY REQUIRE EXCAVATION OF THE ROADWAY, CONTRACTOR SHALL COORDINATE WITH CITY AND CITY'S REPRESENTATIVE TO CONFIRM RESTRAINING PRIOR TO INSTALLATION.
- CONTRACTOR SHALL COORDINATE WITH CITY AND/OR RPR INSPECTOR PRIOR TO INSTALLATION OF ANY TEAMS INSERT VALVE OR LINESSTOP TO CONFIRM IF EXISTING VALVES MAY ISOLATE THE MAIN IN LIEU OF PROPOSED VALVES/LINESSTOPS.
- FOR ALL WATER SERVICE REPLACEMENTS/CONNECTIONS, ANY SIDEWALK OR PAVEMENT IMPACTED SHALL BE REMOVED AND REPLACED.
- CONTRACTOR SHALL COMPLETE ALL FINAL SERVICE TIE INS TO CUSTOMER WATER METERS AND FIRE SERVICE LINES AFTER FDEP CLEARANCE IS RECEIVED.



**LEGEND**

- X X X X X X X -	REMOVE EXISTING PIPING
- - - - -	GROUT AND ABANDON EXISTING PIPING
- - - - -	REMOVE AND REPLACE CONCRETE CURB AND GUTTER
	REMOVE AND REPLACE ASPHALT PAVEMENT, INCLUDING PAVEMENT MARKINGS
	MILL AND OVERLAY ASPHALT PAVEMENT
	REMOVE AND REPLACE CONCRETE DRIVEWAY
	REMOVE AND REPLACE CONCRETE SIDEWALK

NOTE: PATTERN ROTATIONS MAY DIFFER FROM LEGEND IN PLAN VIEW. PLEASE SEE QUANTITY TAKEOFF TABLE IN GENERAL DRAWINGS.

Parent Sheet Set: 1.112\_2.112 Island Estates Cast Iron Water Main Replacement  
Rev on: 12/14/2023 10:59 AM Individual File Path: 1.112\_2.112 Island Estates\_C3D Sheets.dwg  
Rev on: 12/14/2023 10:59 AM Individual File Path: 1.112\_2.112 Island Estates\_C3D Sheets.dwg

**RECORD DRAWINGS**

SURVEYED BY:	DRAWN BY:
REVIEWED BY:	PROJECT ENGINEER
APPROVED BY:	DATE

**REVISION**

D: ISSUED FOR BID	PFH	12/2023
C: 100% PLANS	PFH	10/2023
B: 90% PRELIMINARY DRAWINGS	PFH	07/2023
A: 60% PRELIMINARY PLANS	PFH	05/2023

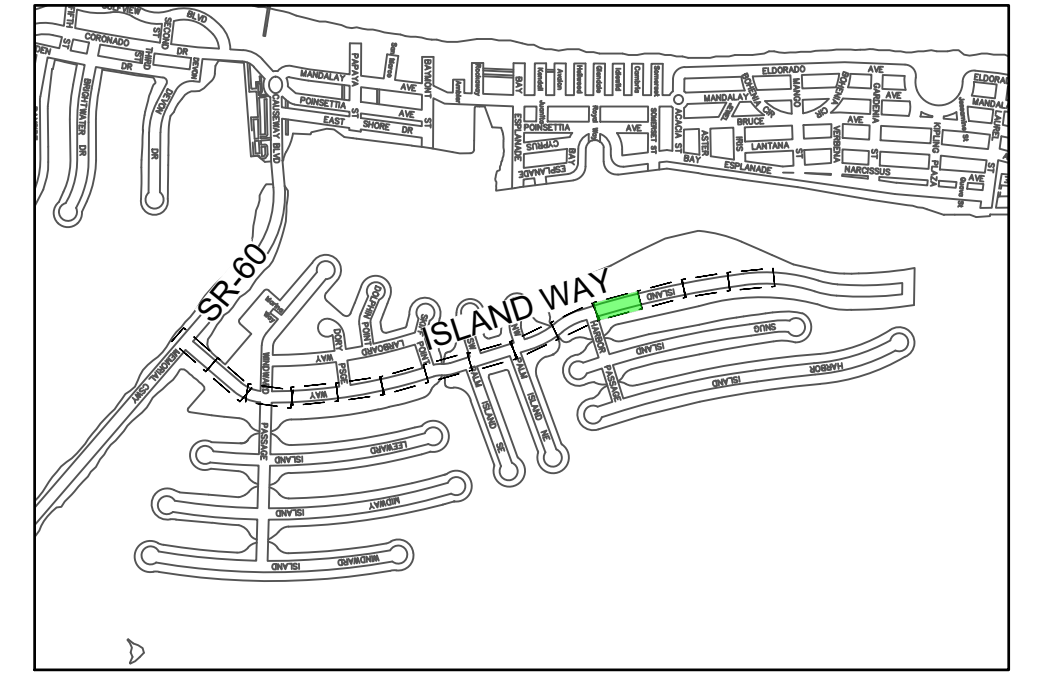
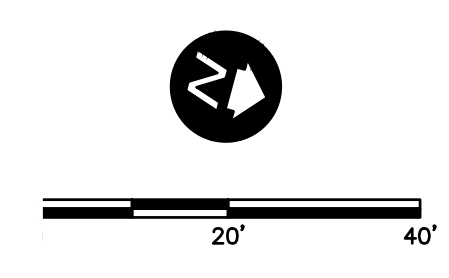
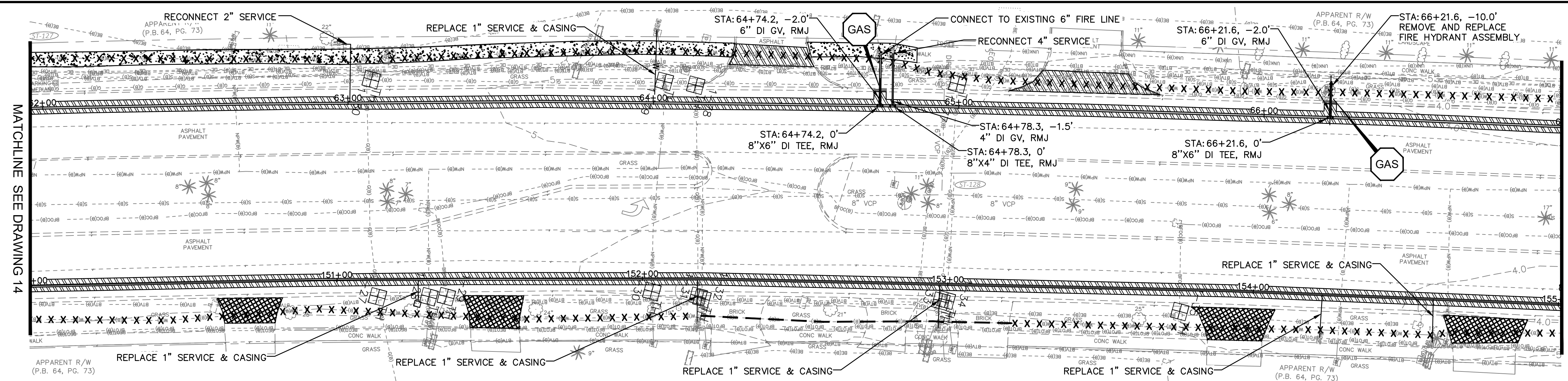
**CITY OF CLEARWATER, FLORIDA**  
PUBLIC WORKS DEPARTMENT -  
**ENGINEERING**  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



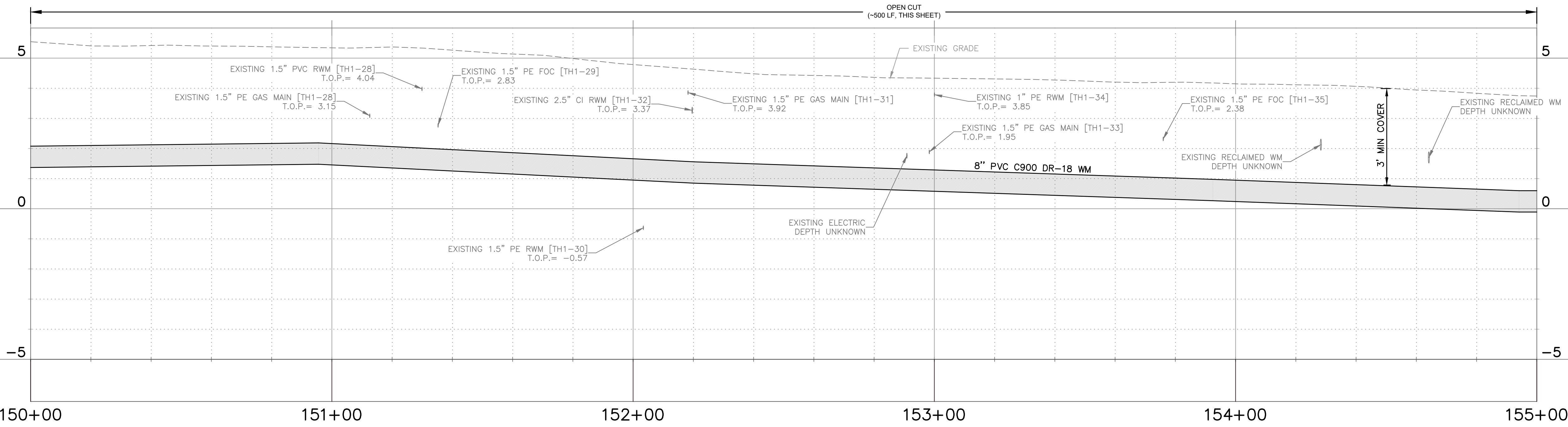
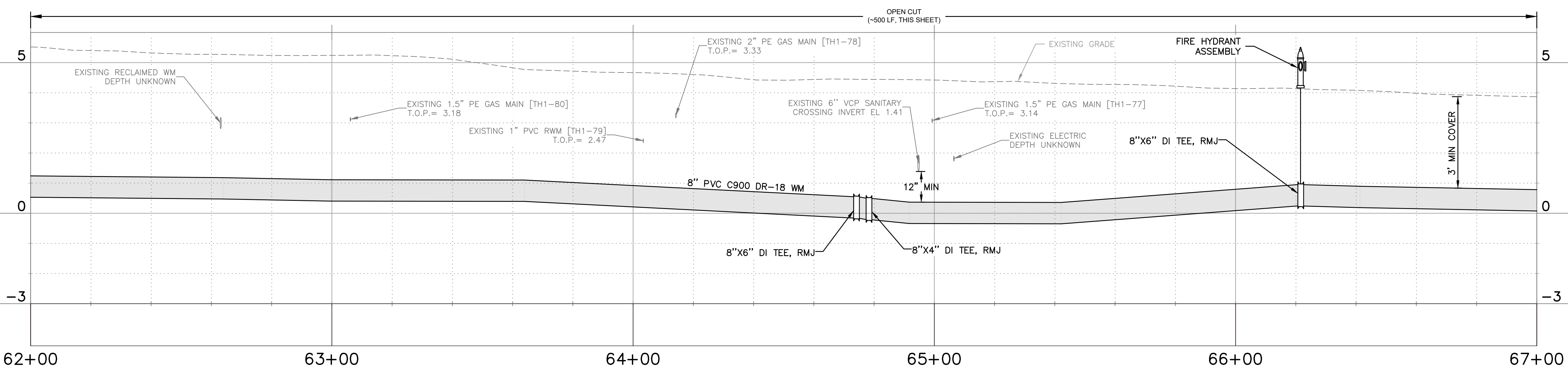
**CITY OF CLEARWATER**  
ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
ISLAND WAY  
PLAN AND PROFILE

DWG NAME: C10	FIELD BOOK: N/A	SURVEYED BY: ECHO UBS	SCALE: VERT. AS NOTED
CONTRACT NO.: 23-0056-UT	DATE DRAWN: 12/2023	DRAWN BY: VVV/PPH	HORIZ. AS NOTED
JOB NO.: 041775	DESIGNED BY: WTH/BSW	CHECKED BY: SC	SHEET NO.: 14 OF 27

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KEY MAP  
N.T.S.



- GENERAL NOTES**
- MINIMUM SEPARATION BETWEEN PROPOSED WATER MAIN AND EXISTING GAS MAIN SHALL BE 3-FOOT. CONTRACTOR TO COORDINATE WITH GAS UTILITY OWNER FOR ANY NECESSARY REQUIREMENTS DURING CONSTRUCTION.
  - DEFLECT PIPE AT JOINTS MAXIMUM 75% OF MANUFACTURERS ALLOWABLE DEFLECTION.
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**LEGEND**

- X X X X X X X X -	REMOVE EXISTING PIPING
- - - - -	GROUT AND ABANDON EXISTING PIPING
- - - - -	REMOVE AND REPLACE CONCRETE CURB AND GUTTER
[Hatched Pattern]	REMOVE AND REPLACE ASPHALT PAVEMENT, INCLUDING PAVEMENT MARKINGS
[Diagonal Line Pattern]	MILL AND OVERLAY ASPHALT PAVEMENT
[Cross-hatch Pattern]	REMOVE AND REPLACE CONCRETE DRIVEWAY
[Dotted Pattern]	REMOVE AND REPLACE CONCRETE SIDEWALK

NOTE: PATTERN ROTATIONS MAY DIFFER FROM LEGEND IN PLAN VIEW. PLEASE SEE QUANTITY TAKEOFF TABLE IN GENERAL DRAWINGS.

Parent Sheet Set: 1.112.2.112 Island Estates\_C3D Sheets.dwg Rev on: 12/14/2023 10:59 AM Individual File Path: 1.112.2.112 Island Estates\_C3D Sheets.dwg

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REVIEWED BY:	PROJECT ENGINEER	C: 100% PLANS	PFH 10/2023
APPROVED BY:	DATE	B: 90% PRELIMINARY DRAWINGS	PFH 07/2023
		A: 60% PRELIMINARY PLANS	PFH 05/2023

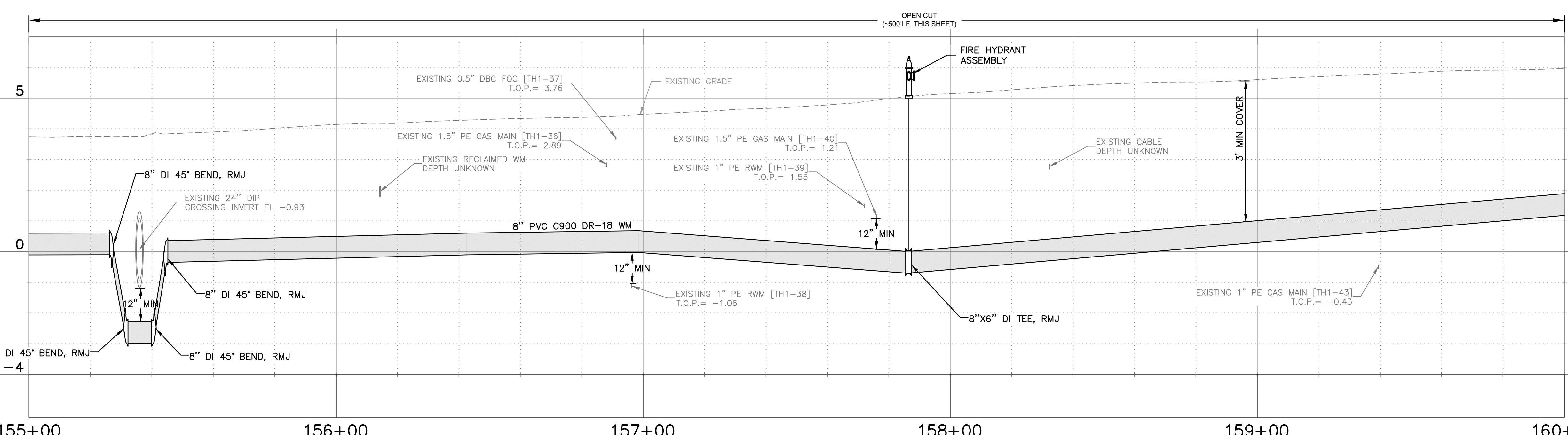
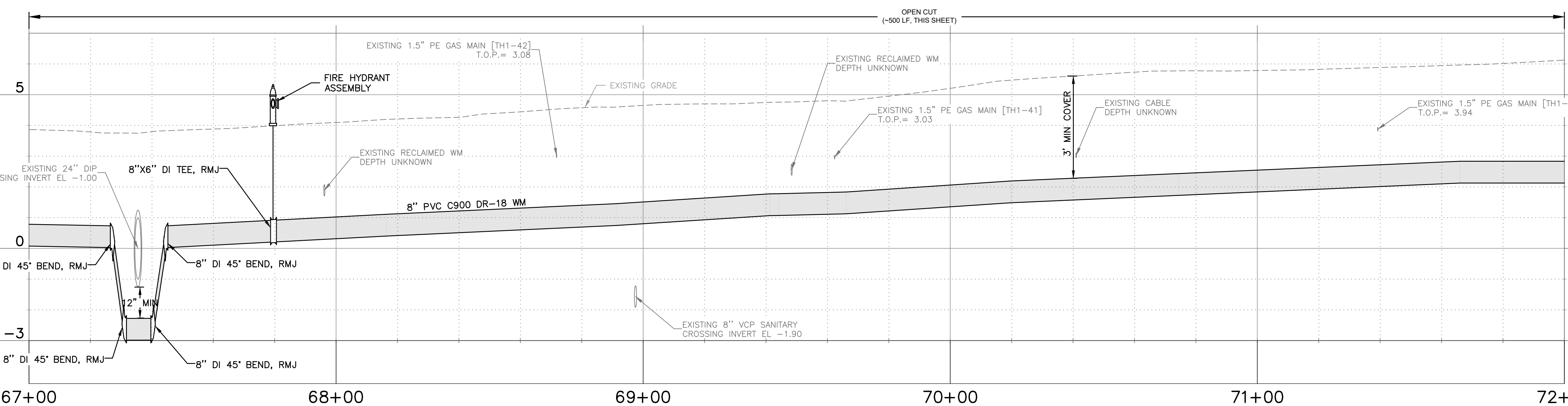
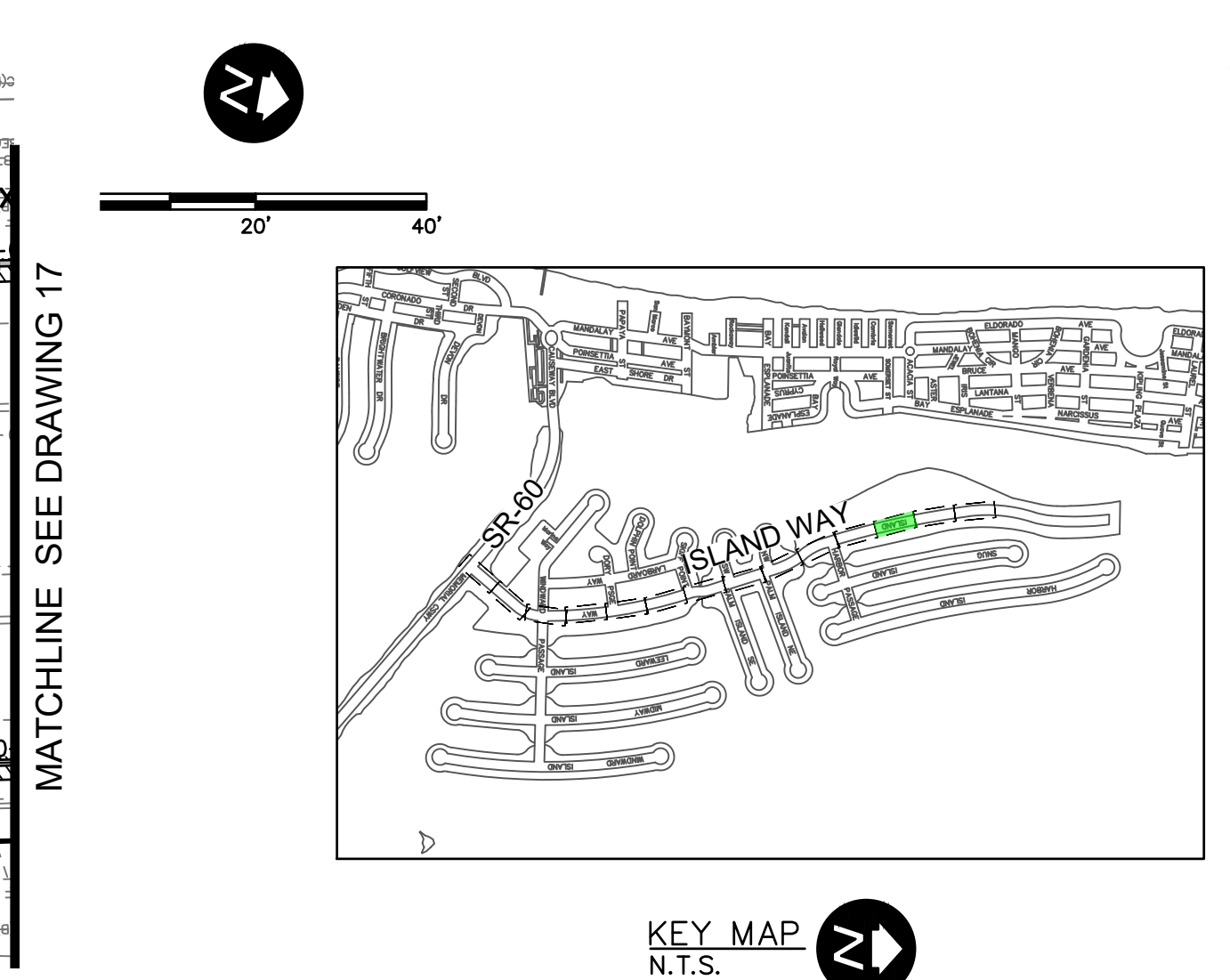
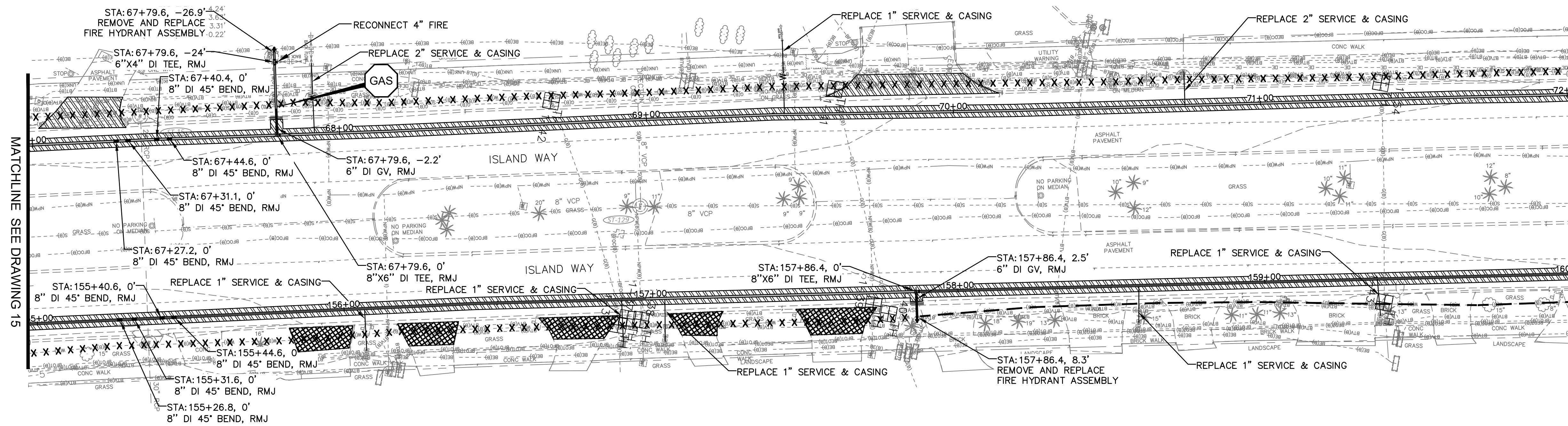
**CITY OF CLEARWATER, FLORIDA**  
**PUBLIC WORKS DEPARTMENT -**  
**ENGINEERING**  
 100 S. MYRTLE AVE.  
 CLEARWATER, FL 33756



**CITY OF CLEARWATER**  
 ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
 ISLAND WAY  
 PLAN AND PROFILE

DWG NAME: C11	FIELD BOOK: N/A	SURVEYED BY: ECHO UBS	SCALE: VERT. AS NOTED
CONTRACT NO.: 23-0056-UT	DATE DRAWN: 12/2023	DRAWN BY: VVV/PPH	HORIZ. AS NOTED
JOB NO.: 041775	DESIGNED BY: WTH/BSW	CHECKED BY: SC	SHEET NO.: 15 OF 27

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**LEGEND**

- X X X X X X X X -	REMOVE EXISTING PIPING
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[Hatched Pattern]	REMOVE AND REPLACE ASPHALT PAVEMENT, INCLUDING PAVEMENT MARKINGS
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Parent Sheet Set: 1.112.2.112 Island Estates Cast Iron Water Main Replacement PHH&K&ER Rev on: 12/14/2023 10:59 AM Individual File Path: 1.112.2.112 Island Estates\_C3D Sheets.dwg

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SURVEYED BY:	DRAWN BY:	BY	DATE
		PFH	12/2023
		PFH	10/2023
		PFH	07/2023
		PFH	05/2023

**CITY OF CLEARWATER, FLORIDA**  
**PUBLIC WORKS DEPARTMENT -**  
**ENGINEERING**  
 100 S. MYRTLE AVE.  
 CLEARWATER, FL 33756



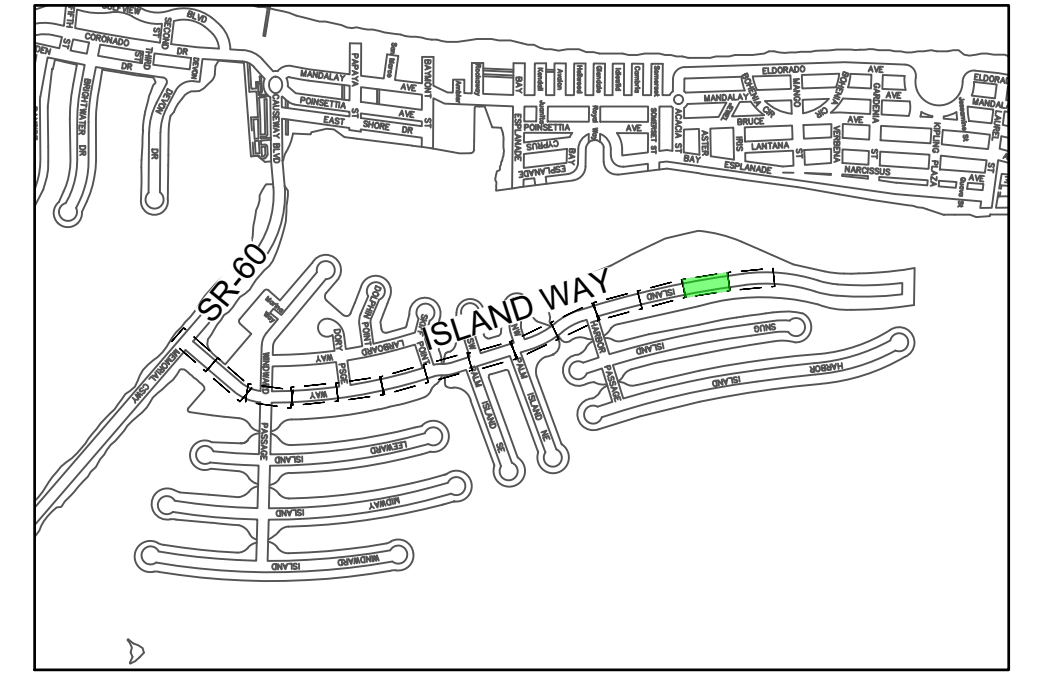
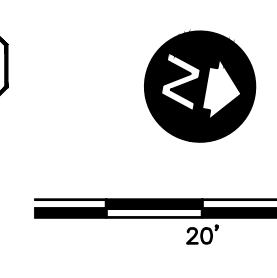
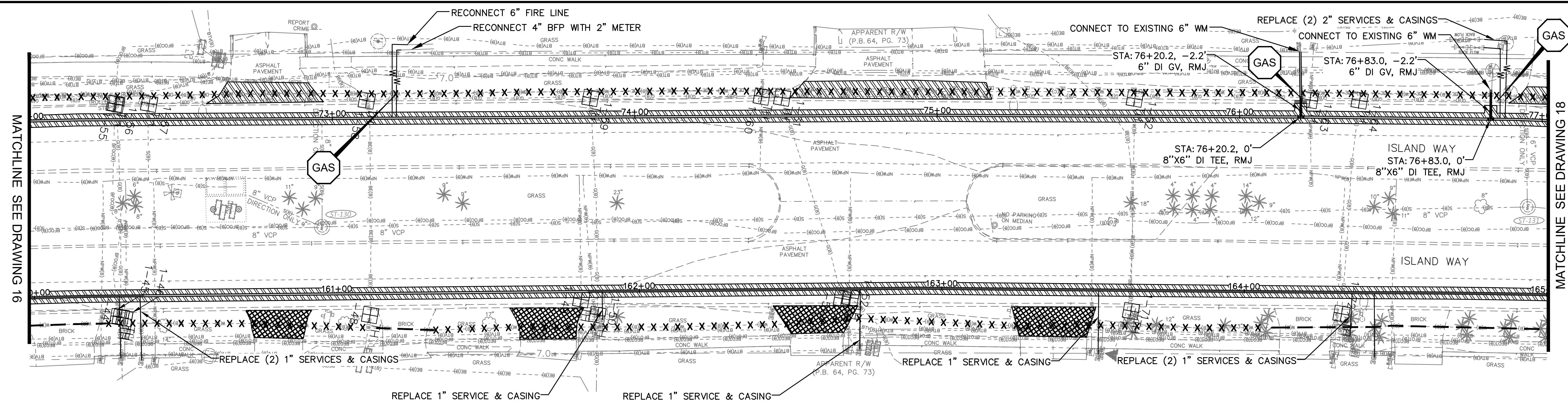
**CITY OF CLEARWATER**  
 ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
 ISLAND WAY  
 PLAN AND PROFILE

DWG NAME: C12	FIELD BOOK: N/A	SURVEYED BY: ECHO UBS	SCALE: VERT. AS NOTED
CONTRACT NO.: 23-0056-UT	DATE DRAWN: 12/2023	DRAWN BY: VVV/PPH	HORIZ. AS NOTED
JOB NO.: 041775	DESIGNED BY: WTH/BSW	CHECKED BY: SC	SHEET NO.: 16 OF 27

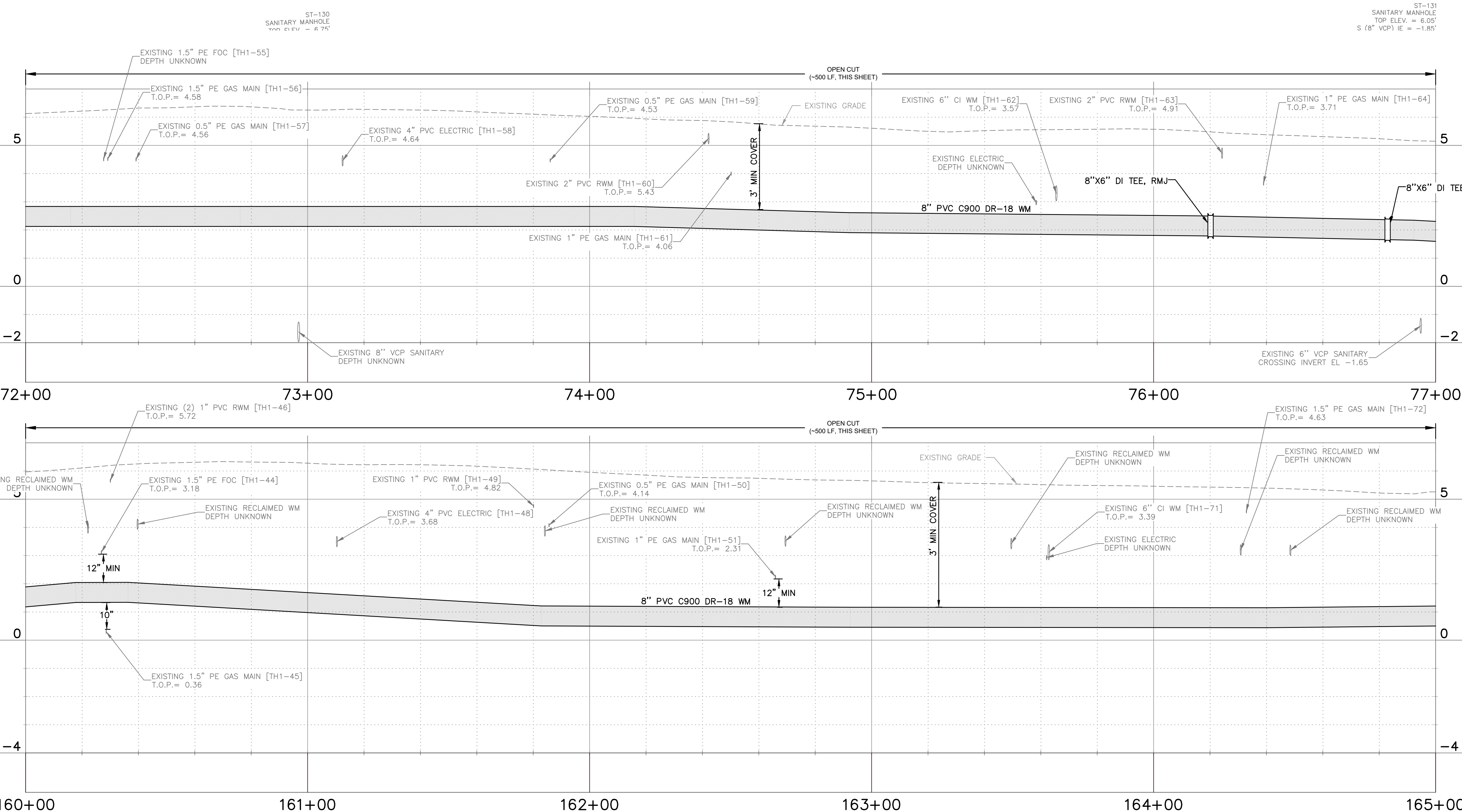
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KEY MAP  
N.T.S.



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**LEGEND**

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- - - - -	GROUT AND ABANDON EXISTING PIPING
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NOTE: PATTERN ROTATIONS MAY DIFFER FROM LEGEND IN PLAN VIEW. PLEASE SEE QUANTITY TAKEOFF TABLE IN GENERAL DRAWINGS.

Parent Sheet: 1.112\_2.112\_Island Estates\_Cast Iron Water Main Replacement.dwg  
Rev on: 12/14/2023 10:59 AM  
Individual File Path: 1.112\_2.112\_Island Estates\_Cast Iron Water Main Replacement.dwg  
PHH/klf/rl

**RECORD DRAWINGS**

SURVEYED BY:	DRAWN BY:
REVIEWED BY:	PROJECT ENGINEER
APPROVED BY:	DATE

**REVISION**

D: ISSUED FOR BID	PFH	12/2023
C: 100% PLANS	PFH	10/2023
B: 90% PRELIMINARY DRAWINGS	PFH	07/2023
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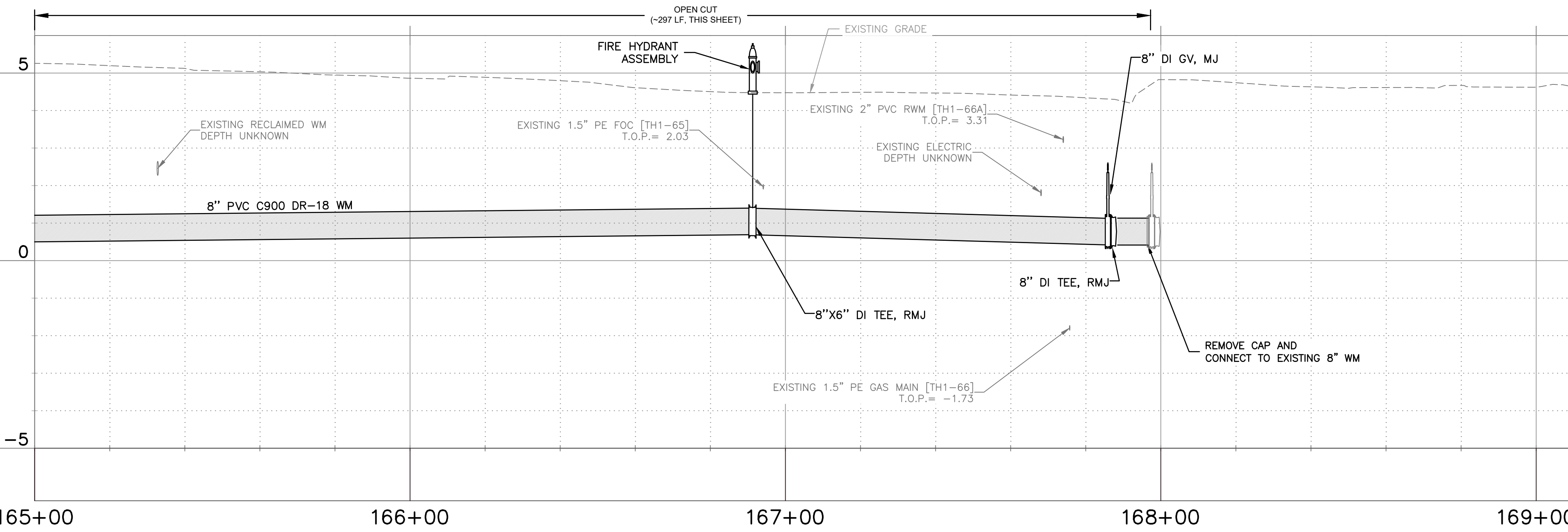
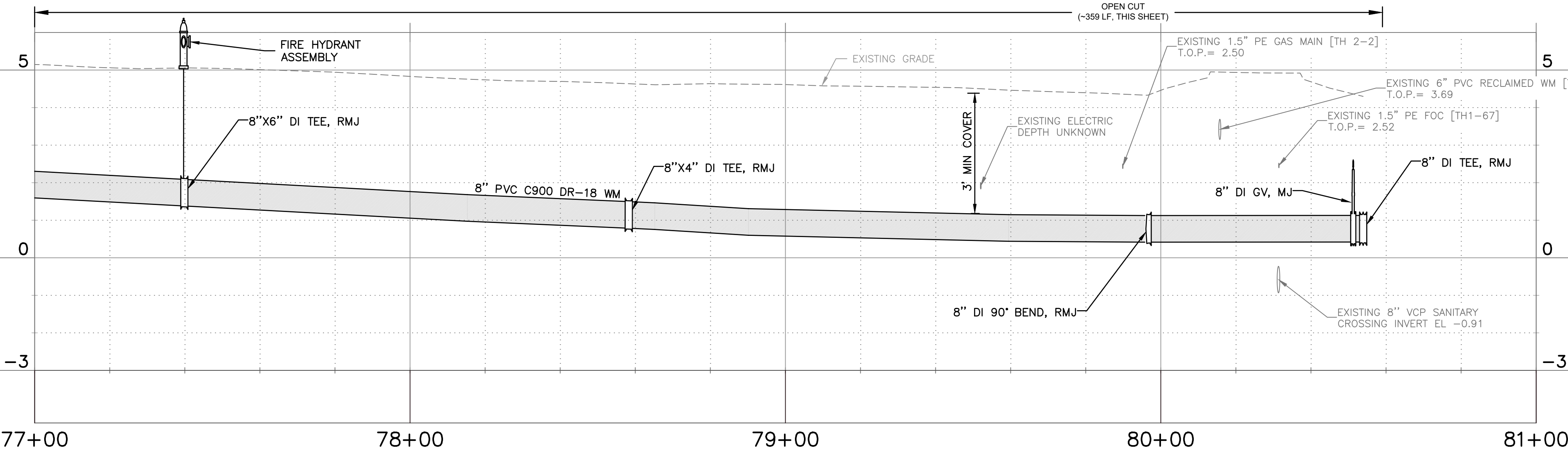
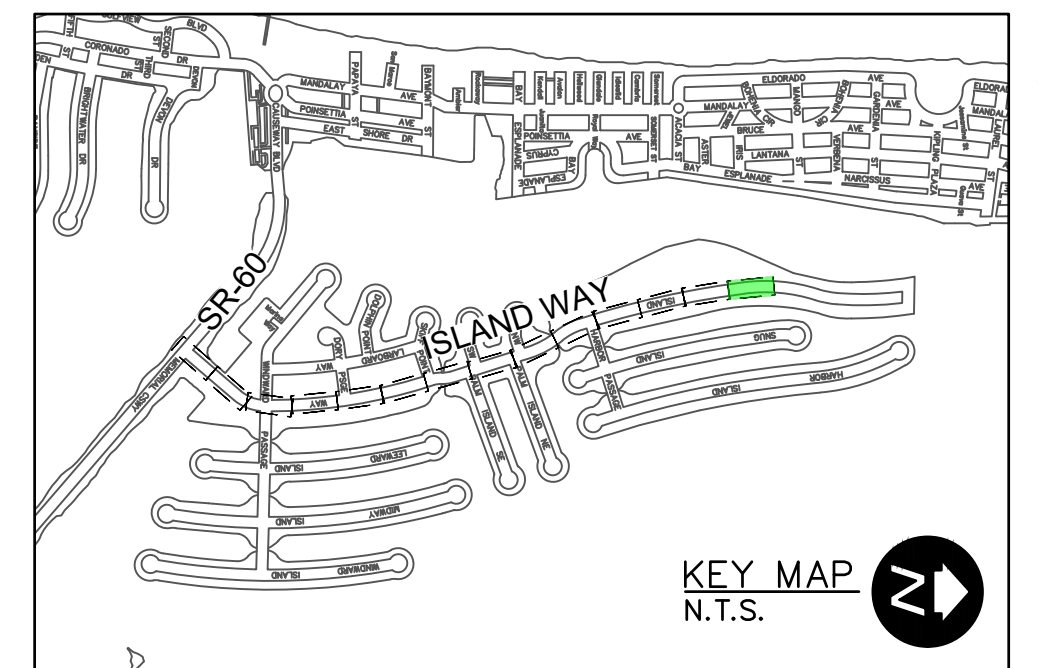
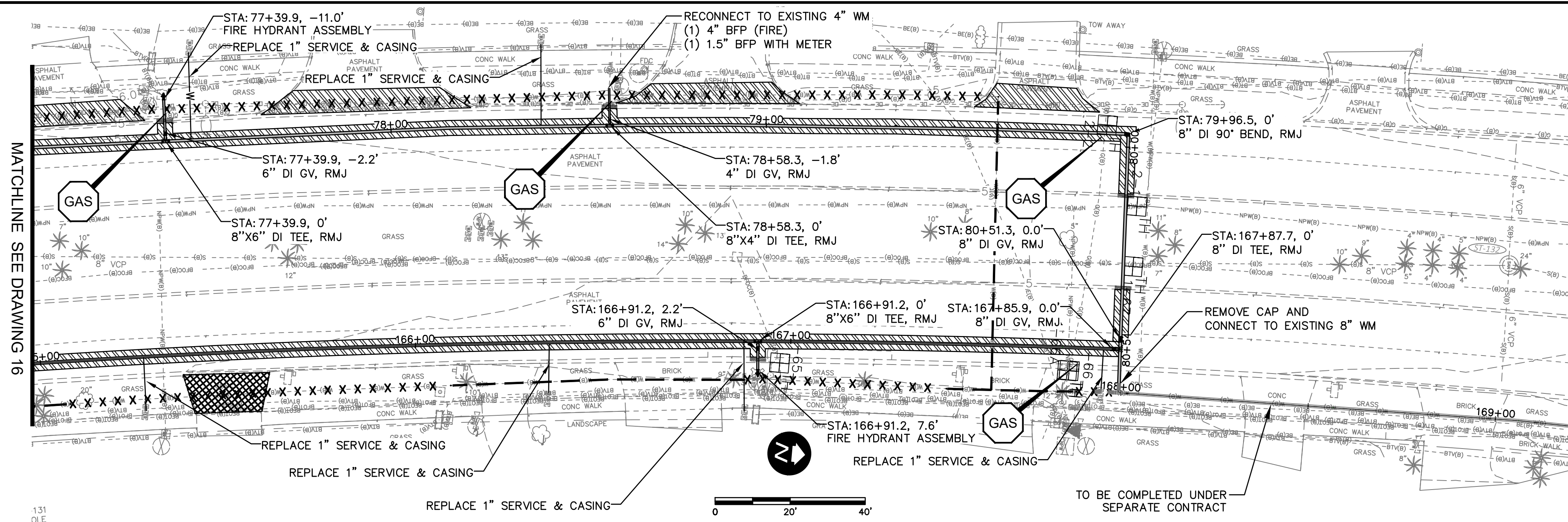
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PUBLIC WORKS DEPARTMENT -  
**ENGINEERING**  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



**CITY OF CLEARWATER**  
ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
ISLAND WAY  
PLAN AND PROFILE

DWG NO:	C13	FIELD BOOK:	N/A	SURVEYED BY:	ECHO UBS	SCALE:	VERT. AS NOTED
CONTRACT NO.:	23-0056-UT	DATE DRAWN:	12/2023	DRAWN BY:	VVV/PPH	HORIZ. AS NOTED	
JOB NO.:	041775	DESIGNED BY:	WTH/BSW	CHECKED BY:	SC	SHEET NO.:	17 OF 27

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- GENERAL NOTES**
- MINIMUM SEPARATION BETWEEN PROPOSED WATER MAIN AND EXISTING GAS MAIN SHALL BE 3-FEET. CONTRACTOR TO COORDINATE WITH GAS UTILITY OWNER FOR ANY NECESSARY REQUIREMENTS DURING CONSTRUCTION.
  - DEFLECT PIPE AT JOINTS MAXIMUM 75% OF MANUFACTURERS ALLOWABLE DEFLECTION.
  - CONTRACTOR SHALL TEMPORARILY INSTALL AND MAINTAIN A TEMPORARY DRIVING SURFACE (ASPHALT MILLINGS, ETC.) WHEN REMOVING ANY DRIVEWAYS UNTIL THE DRIVEWAYS ARE PERMANENTLY RESTORED.
  - CONTRACTOR SHALL MAINTAIN ROADWAY ACCESS AT ALL TIMES.
  - INSTALL 1-INCH RESIDENTIAL OR 2-INCH COMMERCIAL SERVICE LINE AND POTABLE WATER METER BOX ADJACENT TO EACH EXISTING WATER METER/PARCEL (5-FEET MIN SEPARATION), ON BOTH SIDES OF ROW WITH SHORT SERVICES AND LONG SERVICES WITH CASINGS (SERVICE AND CASING TO BE ONE CONTINUOUS PIPE), IN ACCORDANCE WITH CITY INDEX DETAILS. CONNECT NEW SERVICE LINE TO EXISTING POTABLE WATER METER FOLLOWING FDEP CLEARANCE.
  - CONTRACTOR SHALL VERIFY LOCATION, MATERIAL, AND DEPTH OF EXISTING INFRASTRUCTURE PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITY INFRASTRUCTURE.
  - CONTRACTOR SHALL MAINTAIN WATER SERVICE AT ALL TIMES TO CUSTOMERS. ANY INTERRUPTIONS SHALL BE COORDINATED WITH THE CITY WITH MINIMUM 10 DAY NOTICE.
  - ONLY THE CITY MAY TURN EXISTING VALVES. IF POTABLE WATER MAIN ISOLATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE CITY AND RPR INSPECTOR.
  - CONTRACTOR TO INSTALL TREE PROTECTION AS NECESSARY IN ACCORDANCE WITH CITY STANDARD DETAIL INDEX 909. SEE CITY WEBSITE: <https://www.myclearwater.com/government/city-departments/engineering/documents-publications/construction-standards/>
  - CONTRACTOR TO FIELD VERIFY ALL UTILITIES PRIOR TO EXCAVATION.
  - CONTRACTOR SHALL COORDINATE WITH CITY TO SHUT DOWN WATER MAINS REQUIRED TO COMPLETE THE INSTALLATION OF NEW FIRE HYDRANT AND ASSOCIATED CONNECTIONS.
  - CONTRACTOR SHALL ADJUST ALL WATER METERS TO MATCH EXISTING GRADE.
  - CONTRACTOR SHALL RESTRAIN EXISTING MAINS AS NECESSARY IN ACCORDANCE WITH CITY STANDARD DETAIL 407. WHERE INSTALLATION OF RESTRAINTS MAY REQUIRE EXCAVATION OF THE ROADWAY, CONTRACTOR SHALL COORDINATE WITH CITY AND CITY'S REPRESENTATIVE TO CONFIRM RESTRAINING PRIOR TO INSTALLATION.
  - CONTRACTOR SHALL COORDINATE WITH CITY AND/OR RPR INSPECTOR PRIOR TO INSTALLATION OF ANY TEAMS INSERT VALVE OR LINESTOPS TO CONFIRM IF EXISTING VALVES MAY ISOLATE THE MAIN IN LIEU OF PROPOSED VALVES/LINESTOPS.
  - FOR ALL WATER SERVICE REPLACEMENTS/CONNECTIONS, ANY SIDEWALK OR PAVEMENT IMPACTED SHALL BE REMOVED AND REPLACED.
  - CONTRACTOR SHALL COMPLETE ALL FINAL SERVICE TIE INS TO CUSTOMER WATER METERS AND FIRE SERVICE LINES AFTER FDEP CLEARANCE IS RECEIVED.

- SHEET SPECIFIC NOTES**
- THE PIPELINE SHALL BE INSTALLED AS A CONTINUOUS OPERATION WHERE THE EXISTING WATER MAIN IS REMOVED AND REPLACED IN THE SAME LOCATION. WATER SERVICE SHALL BE MAINTAINED AT ALL TIMES TO CUSTOMERS VIA TEMPORARY BYPASSING.
  - THE CONTRACTOR SHALL SUBMIT A TEMPORARY BYPASSING PLAN IDENTIFYING THE PROPOSED LOCATIONS OF TEMPORARY TAPS FOR BYPASSING, VALVING, PLACEMENT OF BYPASSING DRIVEWAY SURFACES, AND CUSTOMER CONNECTIONS. TEMPORARY BYPASSING SHALL CONSIST OF A MINIMUM OF A 2-INCH DIAMETER WATER MAIN CONNECTED TO THE CITY'S EXISTING WATER MAIN VIA A 2-INCH CONNECTION THAT MEETS THE REQUIREMENTS OF THE CITY'S STANDARD DETAIL FOR WATER SERVICE CONNECTION INCLUDING BUT NOT LIMITED TO CORP STOP AND TAPPING SADDLE.
  - TEMPORARY BYPASSING FOR SERVICE CONNECTIONS SHALL BE LIMITED TO A PERIOD OF EIGHT (8) HOURS. EXCEEDANCE OF THE EIGHT (8) HOUR PERIOD SHALL BE SPECIFICALLY IDENTIFIED AND APPROVED BY THE CITY.
  - CONNECTIONS TO EXISTING WATER MAINS SHALL BE DONE IN A TIMELY MANNER. AT NO TIME SHALL THE FLOW OF WATER RUNNING THE LENGTH OF THE PROJECT BE STOPPED EXCEPT TO RECONNECT TO WATER MAINS THAT HAVE BEEN TESTED AND CLEARED FOR POTABLE WATER USE. THE CONTRACTOR SHALL FACILITATE THE CONNECTION OF THE NEW SERVICE LINES TO THE EXISTING METERS UNDER SUPERVISION OF THE CITY CONSTRUCTION INSPECTOR.
  - THE CONTRACTOR SHALL MAINTAIN WATER QUALITY THROUGHOUT BYPASSING TO MAINTAIN WATER QUALITY. THE CONTRACTOR MAY BE REQUIRED TO PROVIDE FLUSHING HYDRANTS AT EACH DEAD-END AND FLUSH THE MAIN AT THREE-DAY INTERVALS AS REQUIRED TO SATISFY FDEP REQUIREMENTS. THE WATER MAIN SHALL BE FLUSHED FOR THE DURATION REQUIRED TO REMOVE TWO VOLUMES OF WATER FROM THE DEAD END SECTION. THE CONTRACTOR SHALL OBTAIN WATER SAMPLES AS REQUIRED TO COMPLETE FDEP SHUTDOWN REQUIREMENTS. ALL COSTS FOR TEMPORARY CUTTING, REQUIRED TESTING, AND PLUGGING WATER MAINS, AND MAINTAINING WATER QUALITY SHALL BE AT THE EXPENSE OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE CITY. FOR THE INS WHERE SERVICE MAY BE TEMPORARILY INTERRUPTED, THE CONTRACTOR MUST HAVE PRE-ASSEMBLED ALL NEW PIPING EXCEPT AT THE POINT OF THE TIE-IN INCLUDING SERVICE LINES BEING TRANSFERRED TO THE NEW MAIN. THE ENTIRE PRE-ASSEMBLY SHALL BE SUCCESSFULLY PRESSURE TESTED AND BACTERIOLOGICAL TESTED PRIOR TO THE SHUTDOWN. THE CONTRACTOR SHALL HAVE SUFFICIENT CREWS ON SITE TO ACCOMPLISH THE SHUTDOWN IN LESS THAN FOUR (4) HOURS.
  - THE CONTRACTOR SHALL PROVIDE REQUIRED SAMPLING IMMEDIATELY FOLLOWING PLACING THE WATER MAIN BACK IN SERVICE. ALL SAMPLES MUST PASS TWO (2) CONSECUTIVE DAYS OF SAMPLING TO BE APPROVED. IN ORDER TO ISSUE RESCIND BOIL WATER NOTICES, THE CITY MUST BE NOTIFIED IMMEDIATELY OF PASSED SAMPLE RESULTS. FINAL TESTING RESULTS SHALL BE KEPT IN THE JOB FILE AND MADE AVAILABLE UPON REQUEST TO FDEP.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE CITY FIRE DEPARTMENT OF BYPASSING OPERATIONS WHERE FIRE FLOW MAY BE LIMITED.
  - THE INFORMATION SHOWN IS BASED ON CITY GIS INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL UTILITIES.
  - THROUGHOUT DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING AND PROTECTING THE INTEGRITY OF THE SEA WALL AND ALL EXISTING STRUCTURES.
  - CONTRACTOR MAY FIELD LOCATE ADDITIONAL PITS AS NECESSARY FOR PIPE BURSTING SECTIONS. CONTRACTOR SHALL SUBMIT FOR APPROVAL PLACEMENT OF PITS WITH CITY AND/OR CITY REPRESENTATIVE.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND RESTORING ANY HEAVING RESULTING FROM PIPE BURSTING OPERATIONS.

**LEGEND**

	REMOVE EXISTING PIPING
	GROUT AND ABANDON EXISTING PIPING
	REMOVE AND REPLACE CONCRETE CURB AND GUTTER
	REMOVE AND REPLACE ASPHALT PAVEMENT, INCLUDING PAVEMENT MARKINGS
	MILL AND OVERLAY ASPHALT PAVEMENT
	REMOVE AND REPLACE CONCRETE DRIVEWAY
	REMOVE AND REPLACE CONCRETE SIDEWALK

NOTE: PATTERN ROTATIONS MAY DIFFER FROM LEGEND IN PLAN VIEW. PLEASE SEE QUANTITY TAKEOFF TABLE IN GENERAL DRAWINGS.

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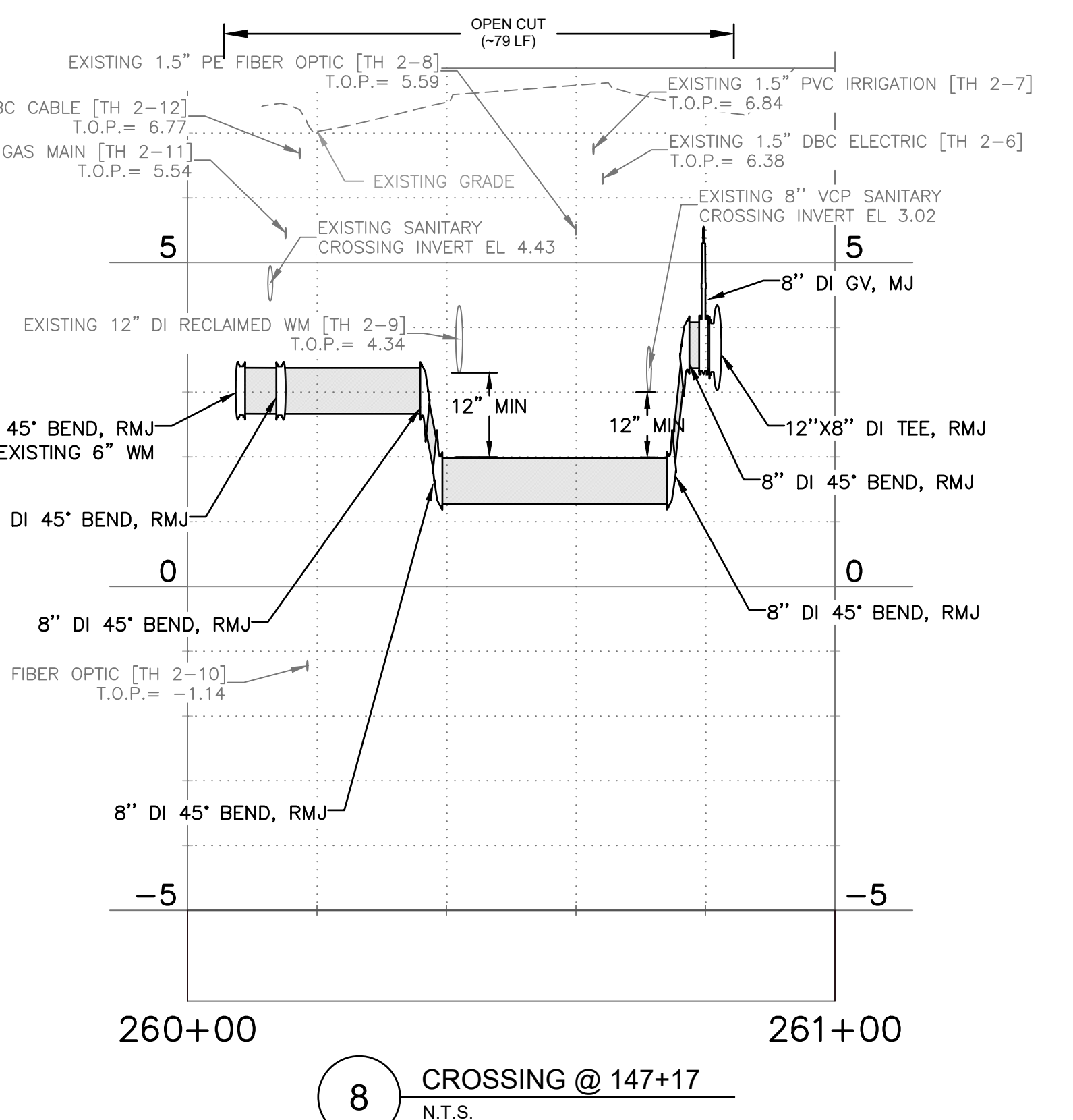
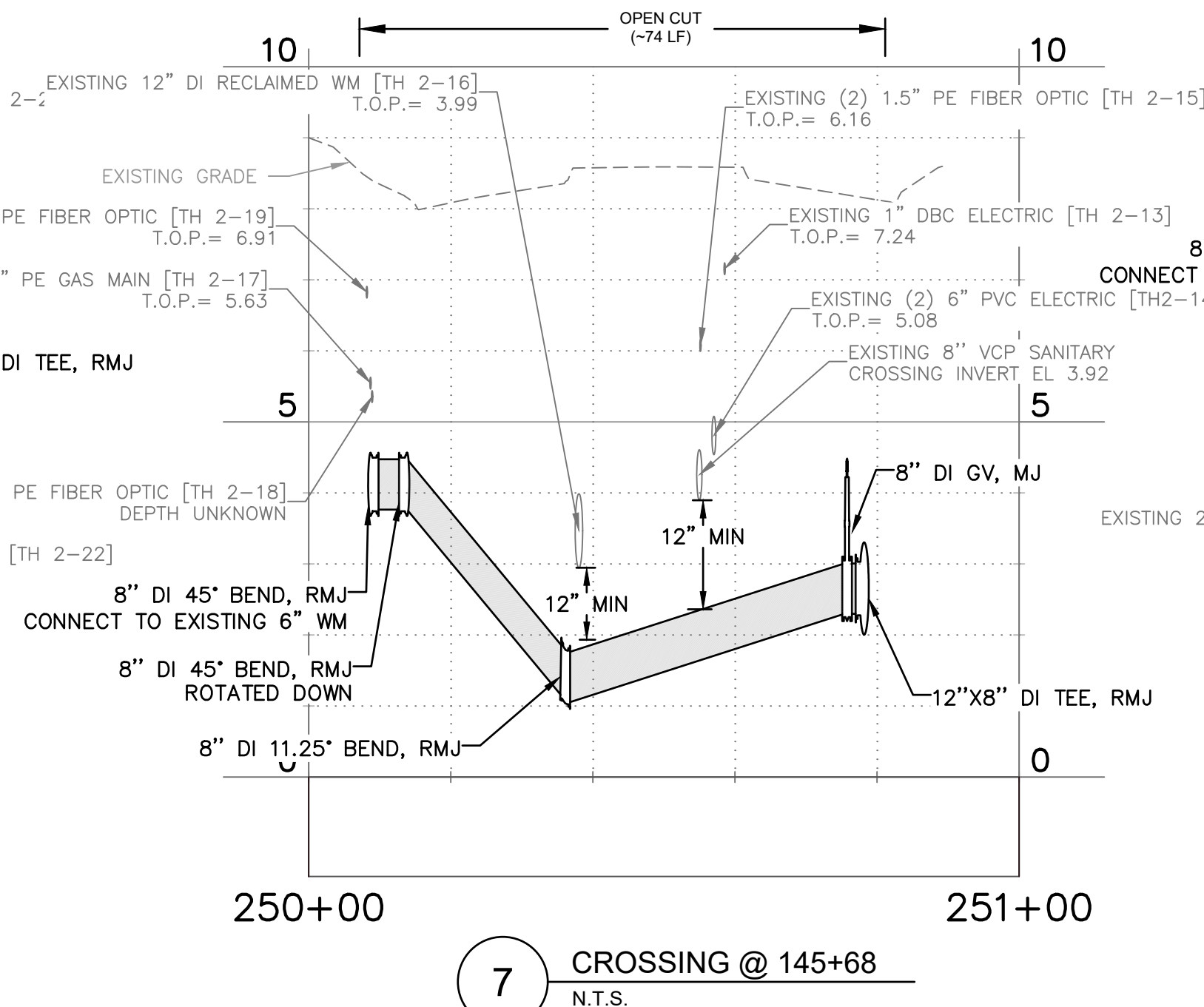
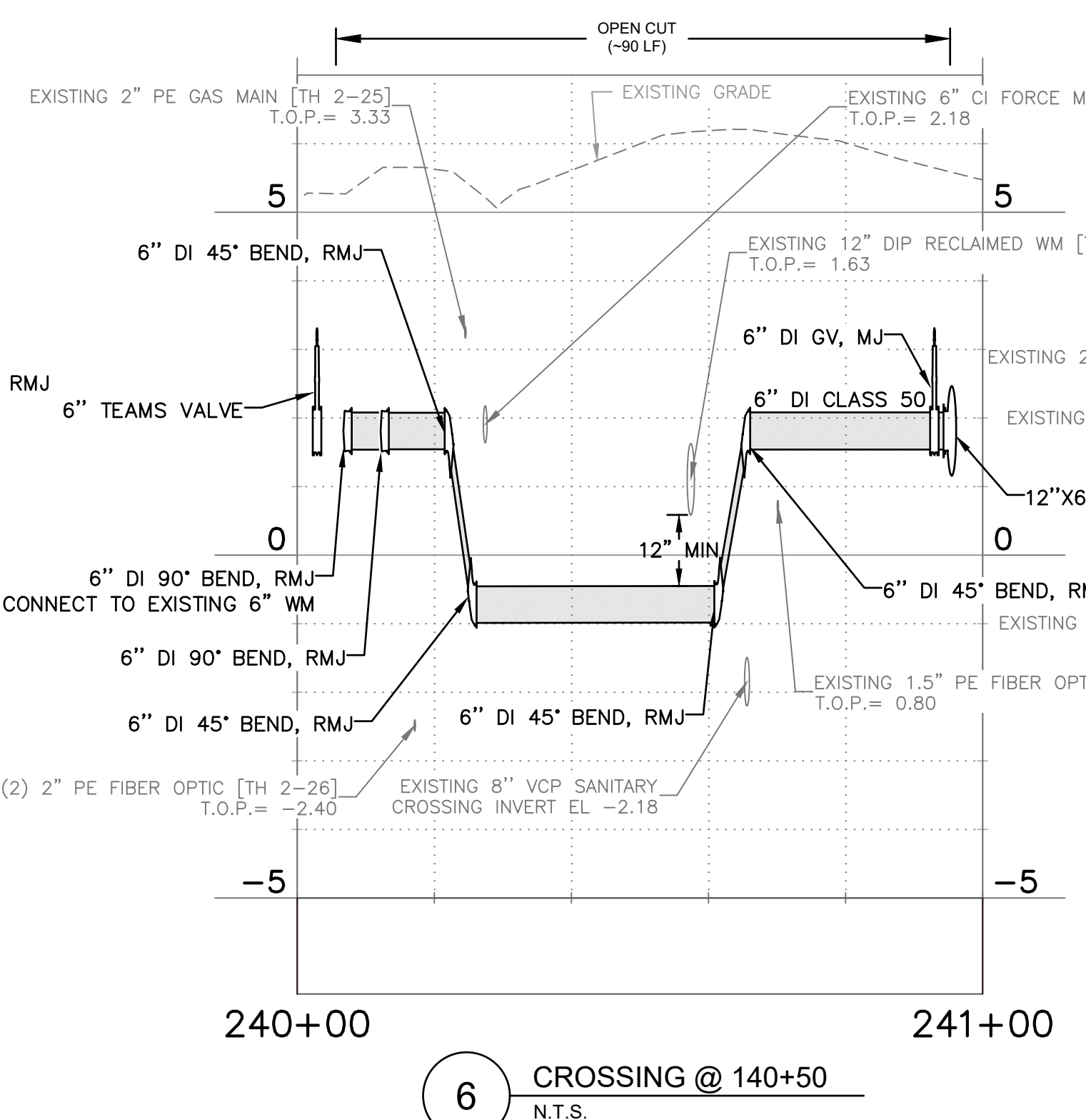
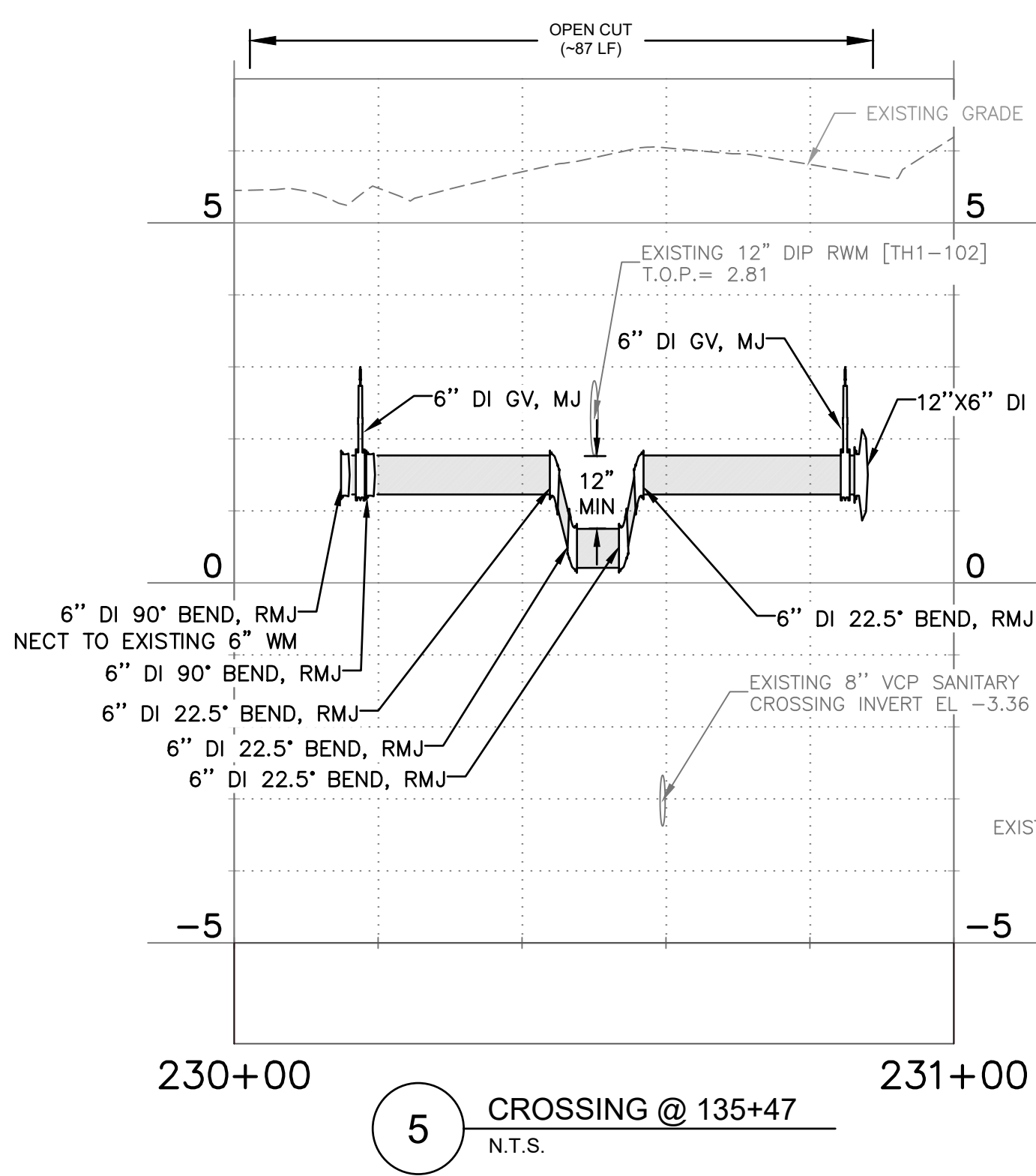
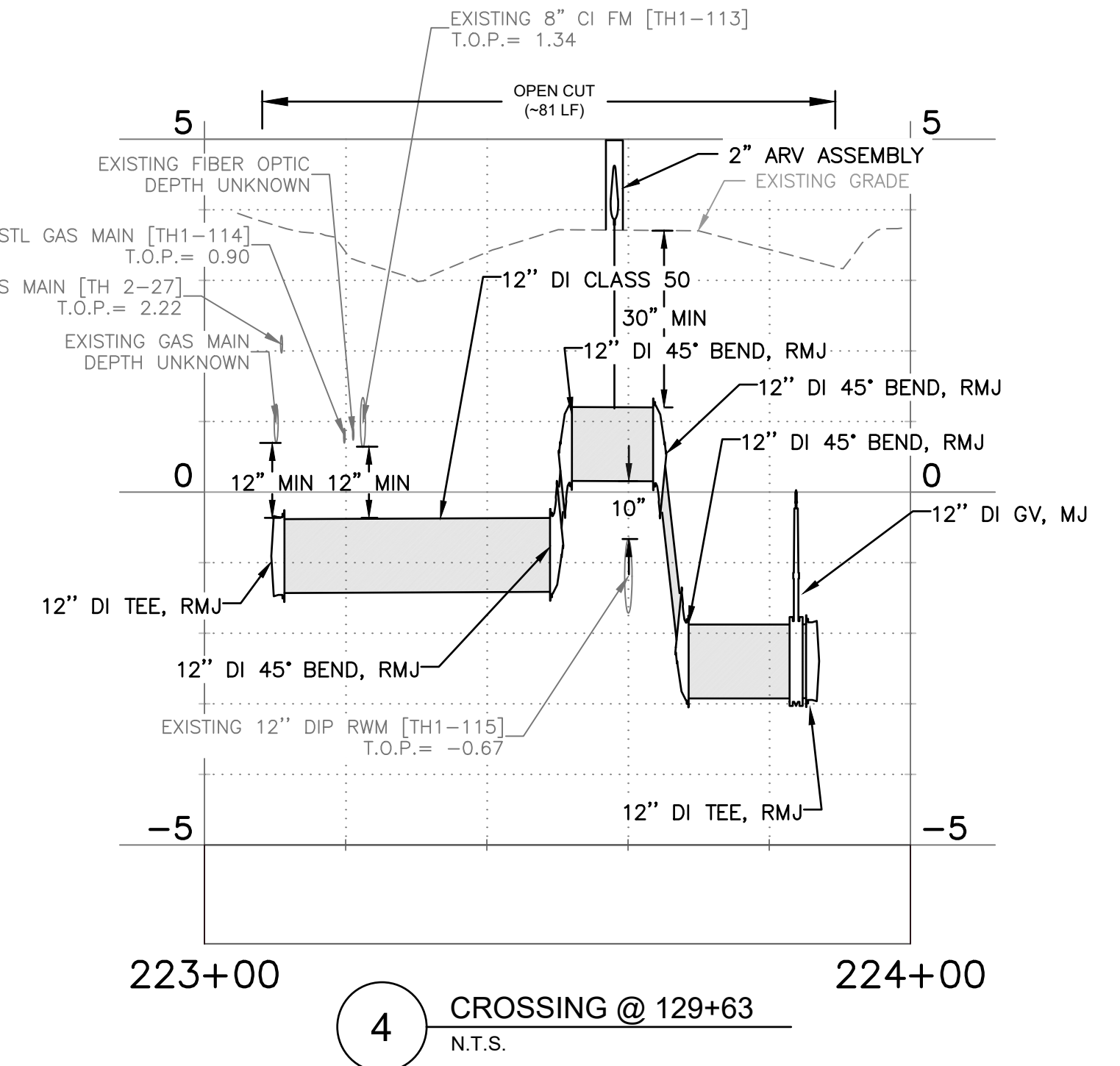
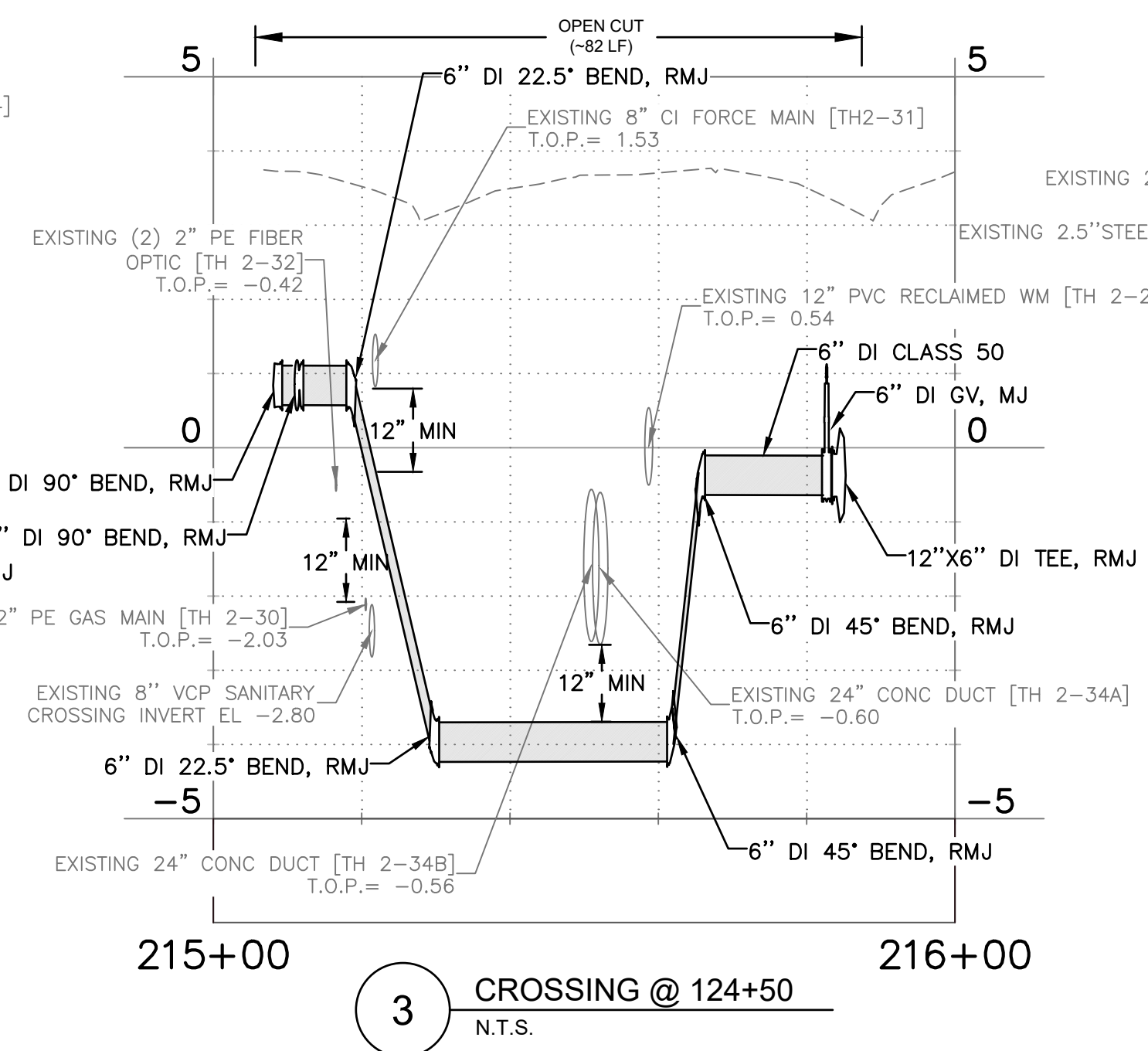
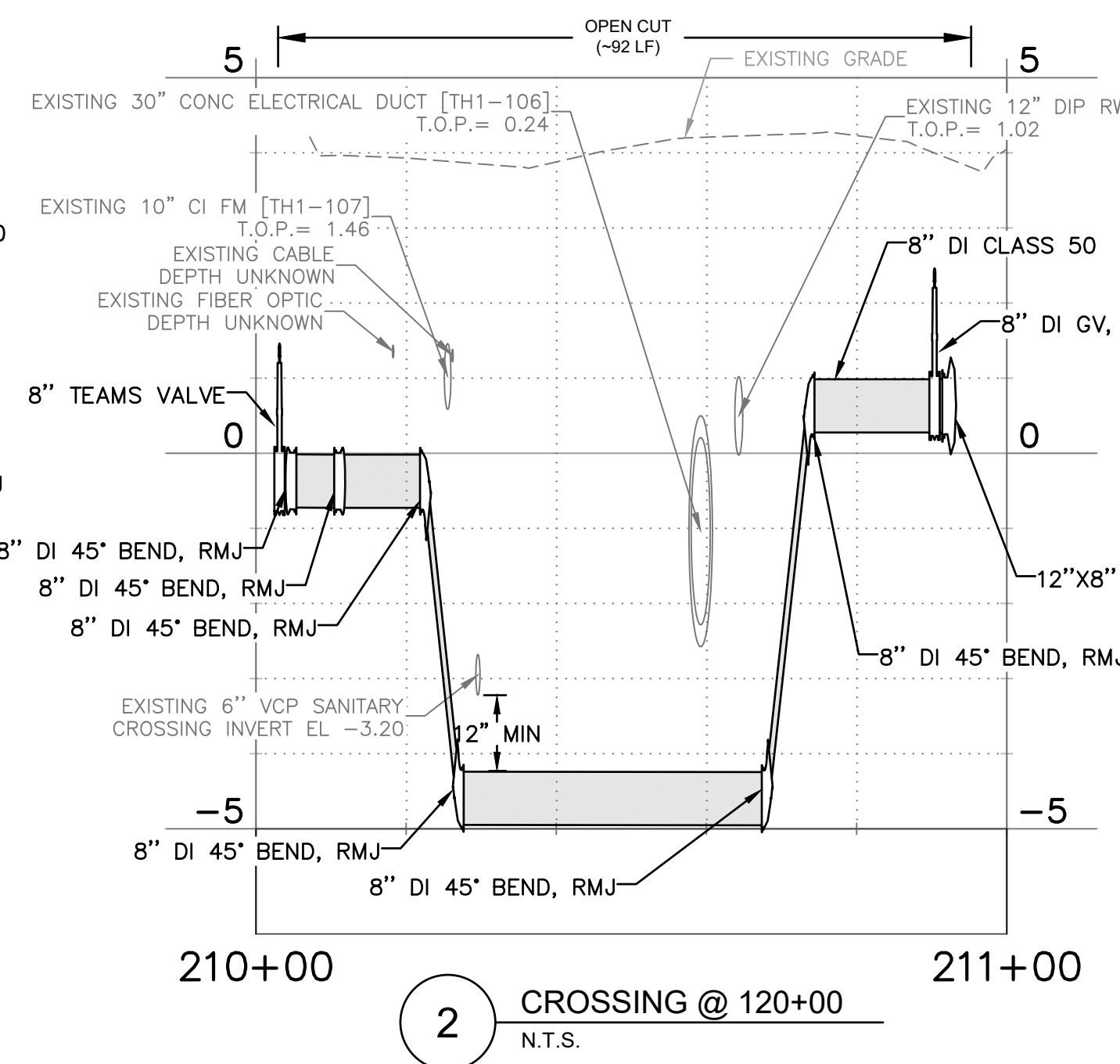
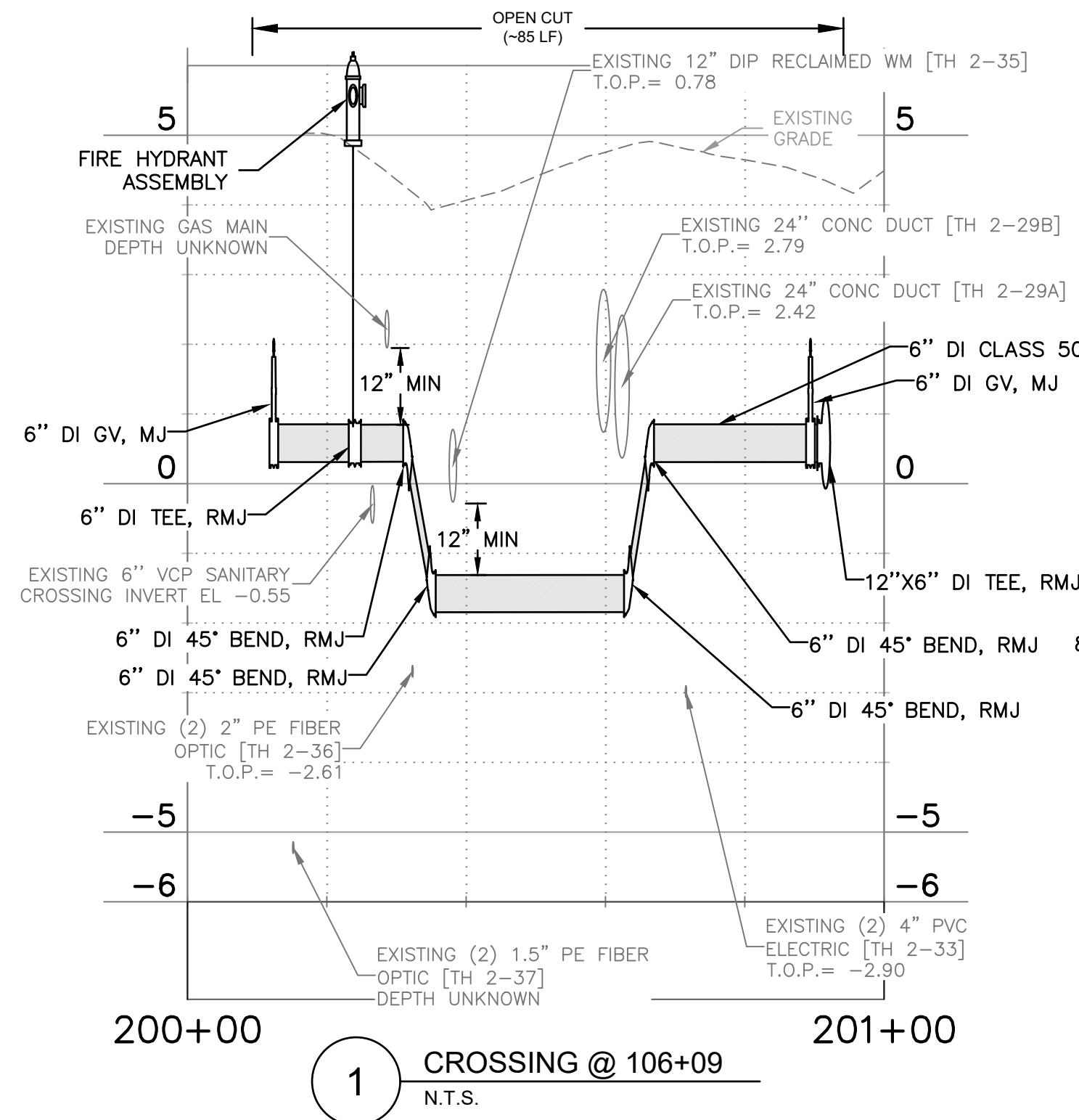
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**CITY OF CLEARWATER**  
 ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
 ISLAND WAY  
 PLAN AND PROFILE

DWG NO:	C14	FIELD BOOK:	N/A	SURVEYED BY:	ECHO UES	SCALE:	VERT. AS NOTED
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JOB NO.:	041775	DESIGNED BY:	WTH/BSW	CHECKED BY:	SC	SHEET NO.:	18 OF 27

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VERTICAL SCALE: 1"=2'

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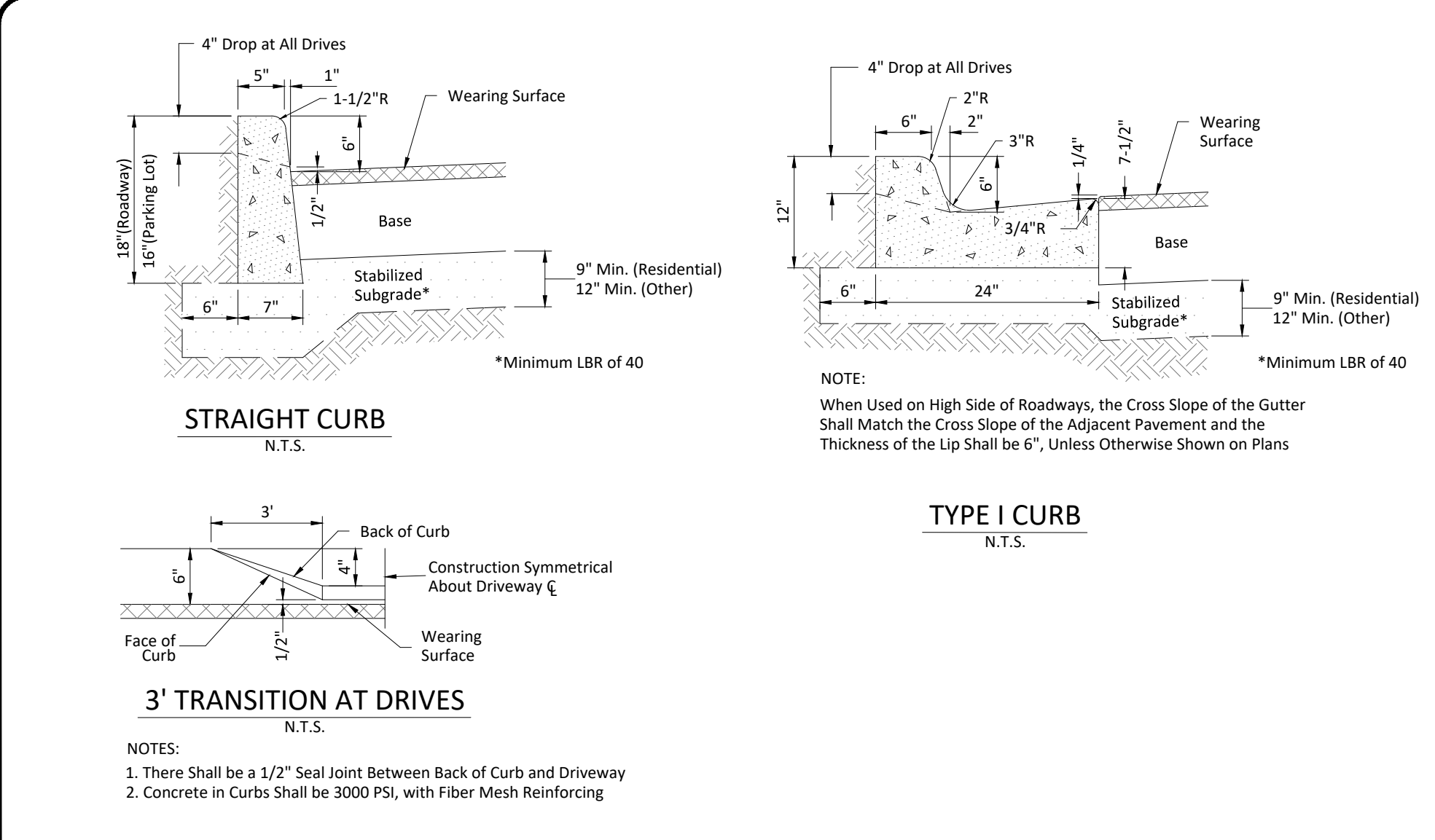
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**ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT**  
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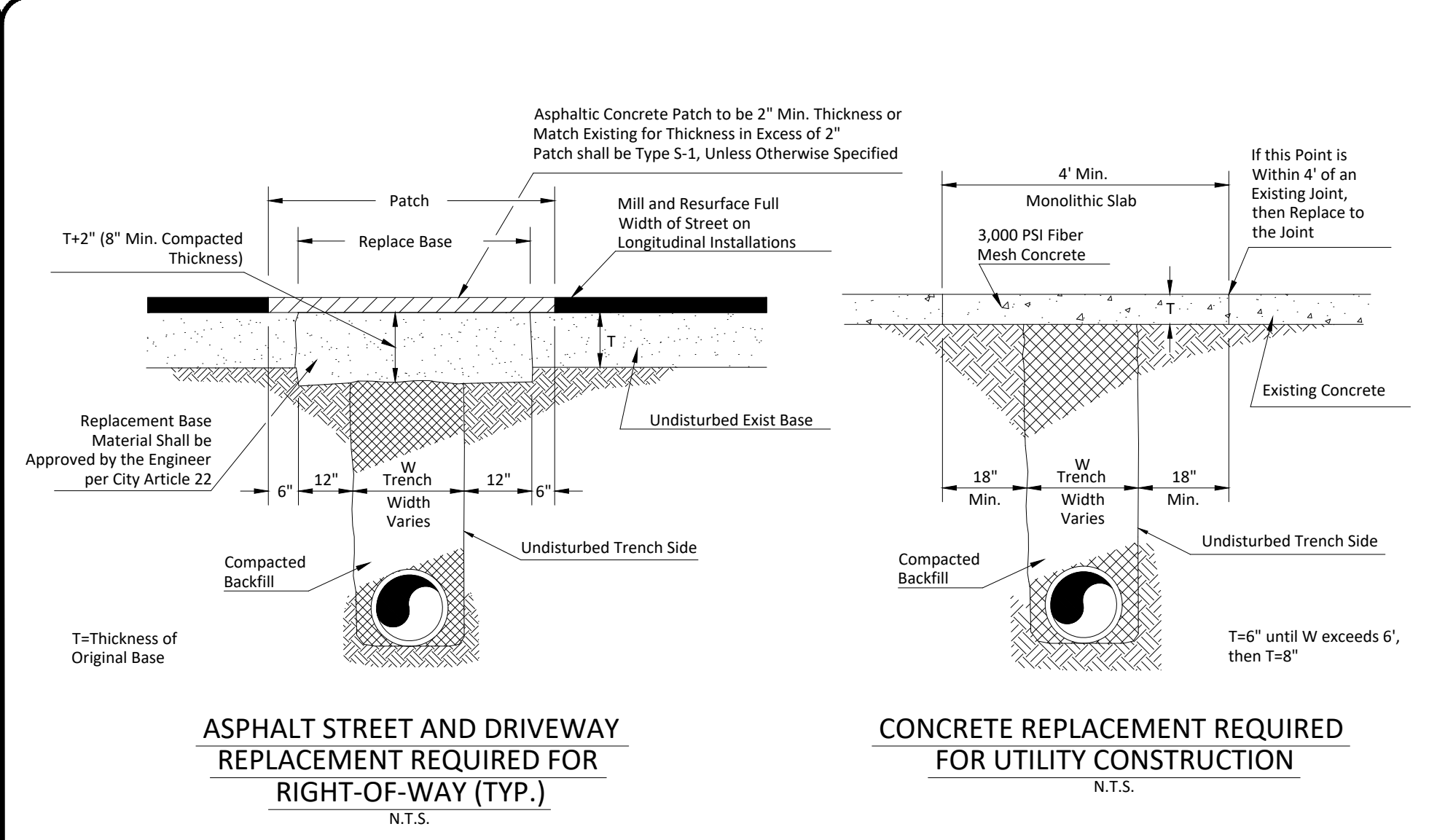
CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS

100 SERIES: STREET SECTIONS AND DETAILS

TYPICAL CURB CROSS SECTIONS

INDEX NO. 101 LATEST REVISION 2/27/17

PAGE NO. 1 OF 2



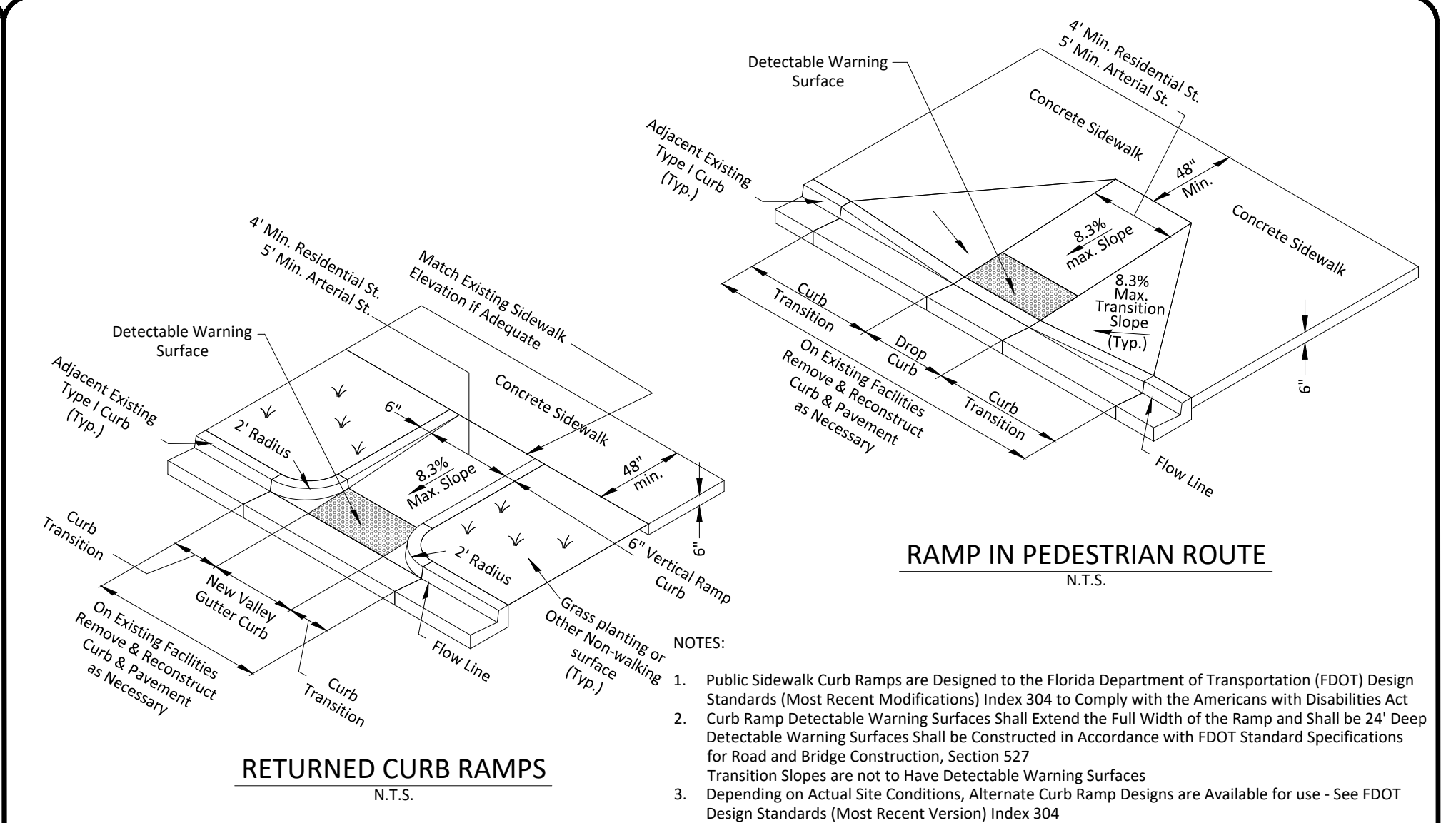
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100 SERIES: STREET SECTIONS AND DETAILS

STREET AND DRIVEWAY REPLACEMENT FOR CONCRETE AND ASPHALTIC CONCRETE SURFACES

INDEX NO. 104 LATEST REVISION 2/22/2016

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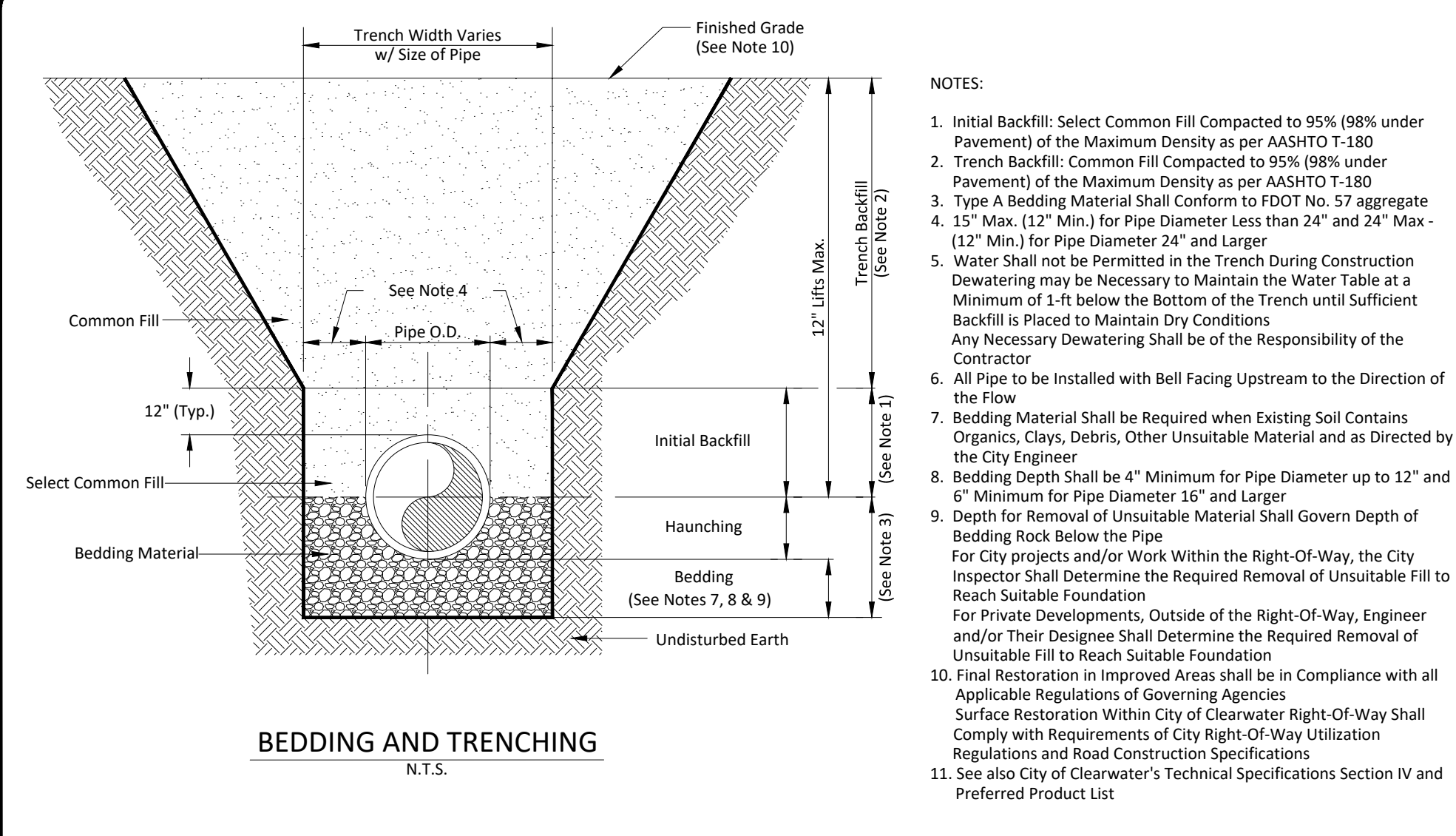
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100 SERIES: STREET SECTIONS AND DETAILS

TYPICAL SIDEWALK CURB RAMPS

INDEX NO. 109 LATEST REVISION 3/14/2023

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CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS

400 SERIES: POTABLE WATER DETAILS

BEDDING AND TRENCHING

INDEX NO. 411 LATEST REVISION 3/2022

PAGE NO. 1 OF 1

**HORIZONTAL AND VERTICAL UTILITY SEPARATION REQUIREMENTS**

PROPOSED UTILITY	POTABLE WATER		RECLAIMED WATER		WASTEWATER FORCEMAIN		SANITARY SEWER		STORM SEWER		STRUCTURAL FOUNDATION, WALLS, ETC		ROADWAY RIGHTS-OF-WAY	
	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT
POTABLE WATER MAIN	4 FEET	12"	4 FEET	12"	6 FEET	12" / 18"	6 FEET	12" / 18"	4 FEET	12" / 18"	15 FEET	5 FEET	5 FEET	5 FEET
RECLAIMED WATER MAIN	4 FEET	12"	4 FEET	12"	4 FEET	12"	4 FEET	12"	4 FEET	12" / 18"	15 FEET	5 FEET	5 FEET	5 FEET
WASTEWATER FORCE MAIN	6 FEET	12" / 18"	4 FEET	12"	4 FEET	12"	4 FEET	12"	4 FEET	12" / 18"	15 FEET	5 FEET	5 FEET	5 FEET
SANITARY SEWER	6 FEET	12" / 18"	4 FEET	12"	4 FEET	12"	4 FEET	12"	4 FEET	12" / 18"	VARIES PER DEPTH	5 FEET	5 FEET	5 FEET

NOTES:  
1. Distances Given are from Outside of Pipe to Outside of Pipe  
2. (a) This Separation Requirement is to Provide Accessibility for Construction and Maintenance (b) 4' Horizontal Separation for Utility Pipelines is the Minimum for Pipes with 3' of Cover For Pipes Installed at Greater Depths, Provide an Additional Foot of Horizontal Separation for each Additional Foot of Depth  
3. The 18" Separation Requirement Applies when the Wastewater Force Main, Sanitary Sewer or Storm Sewer Crosses Above the Utility Main and when the Storm Sewer Pipe has a Diameter Equal to or Greater than 24" - Otherwise the Required Separation is 12"  
4. This Separation Requirement Complies with the Minimum FDEP Separation Requirements Outlined in Chapter 62-555.314, FAC.  
5. Variances from the FDEP Requirements must Comply with Chapter 62-555.314(5), FAC and must be Approved Individually by both FDEP and the City Utility Engineering Department  
6. No Water Pipe Shall Pass Through or come in Contact with any Part of Sanitary Sewer or Storm Sewer Manhole or Structure  
7. Separation of Pressure Utility Mains may be Reduced to 10' of Separation from Structural Foundations, Walls, etc. if the Cover of the Utility Main is 4' or less and all Joints of the Utility are Restrained for a Minimum of 25' Outside the Structure Limits  
8. See also City of Clearwater's Technical Specification Section IV and Preferred Product List

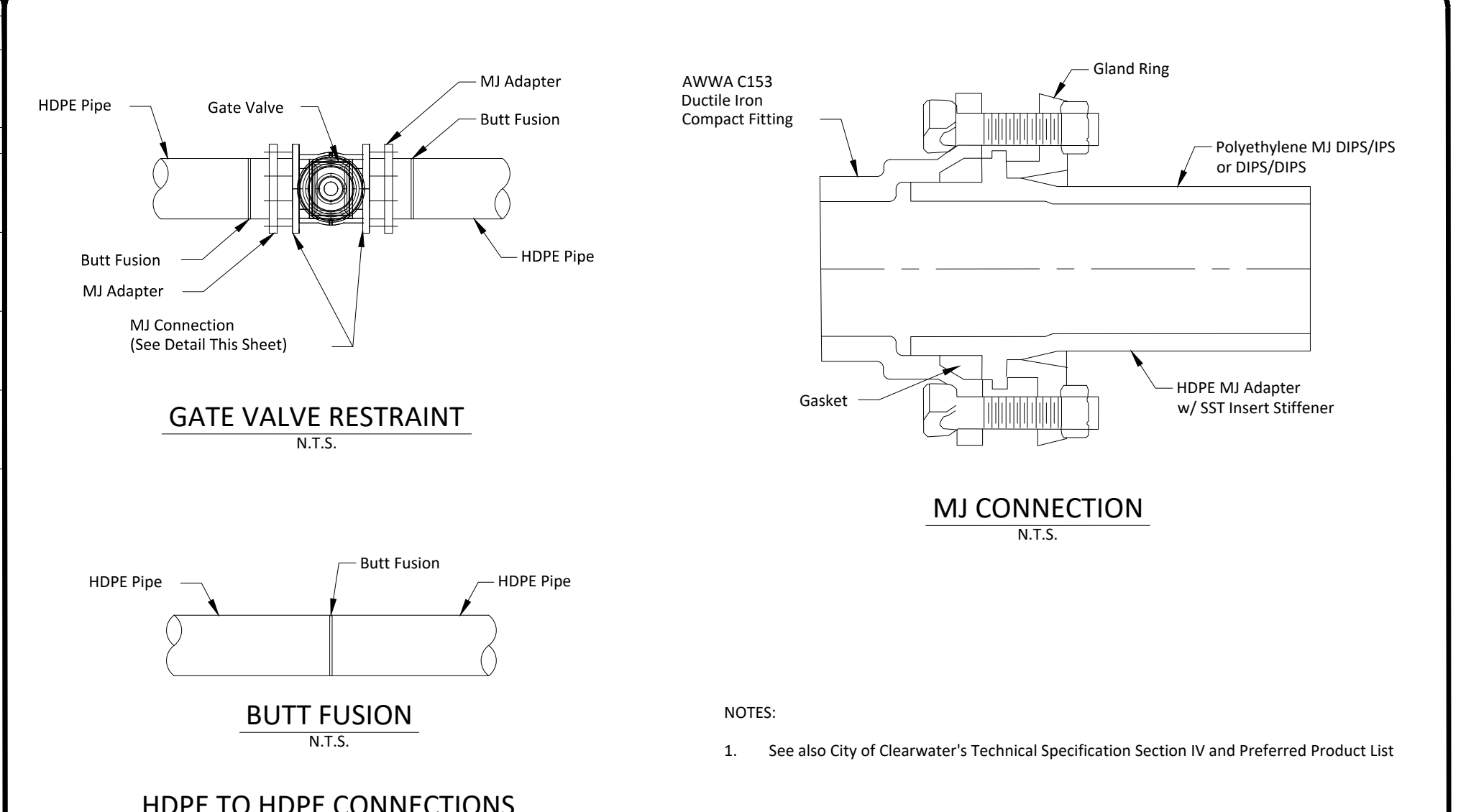
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400 SERIES: POTABLE WATER DETAILS

HORIZONTAL AND VERTICAL UTILITY SEPARATION REQUIREMENTS

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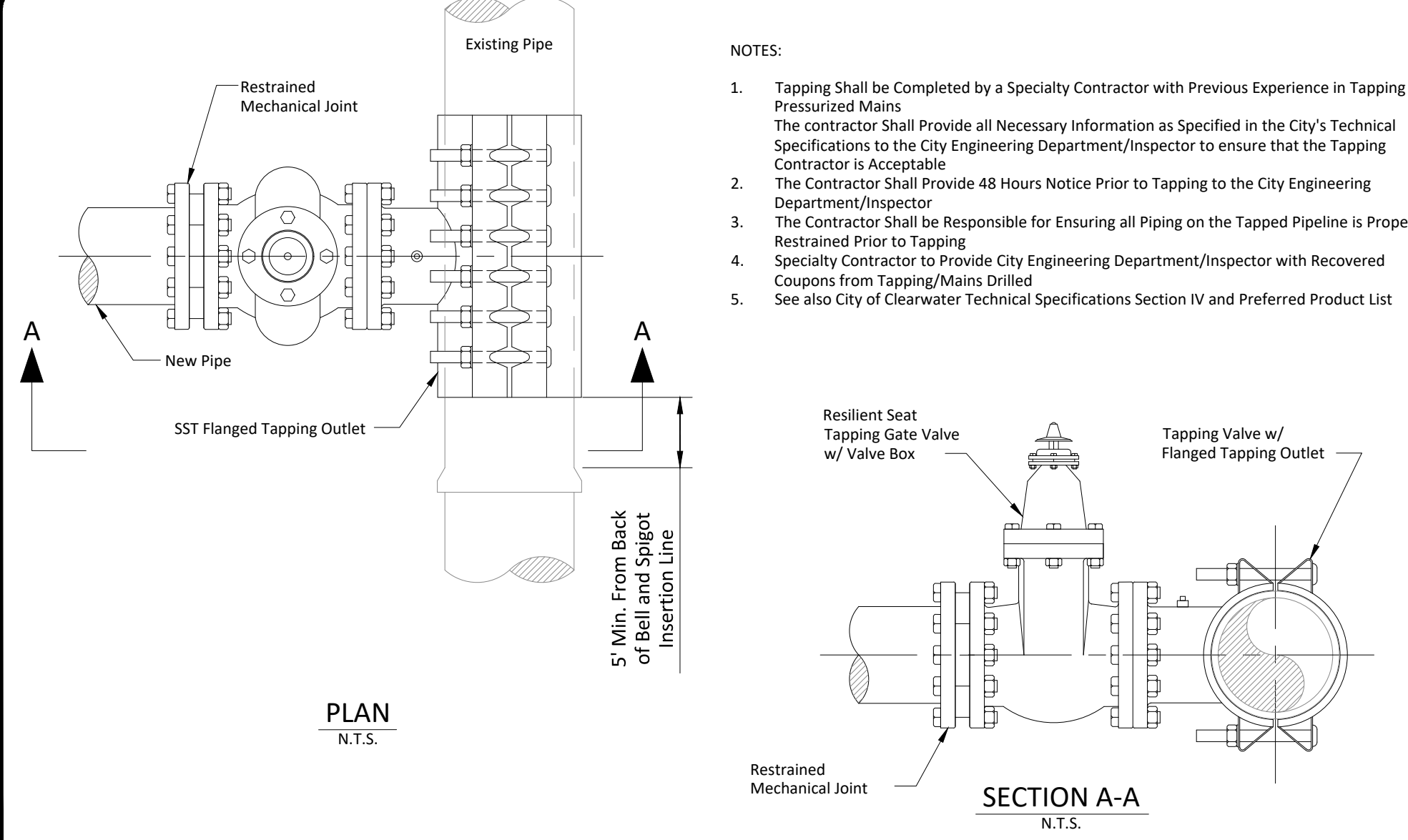
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400 SERIES: POTABLE WATER DETAILS

HDPE PIPE CONNECTIONS

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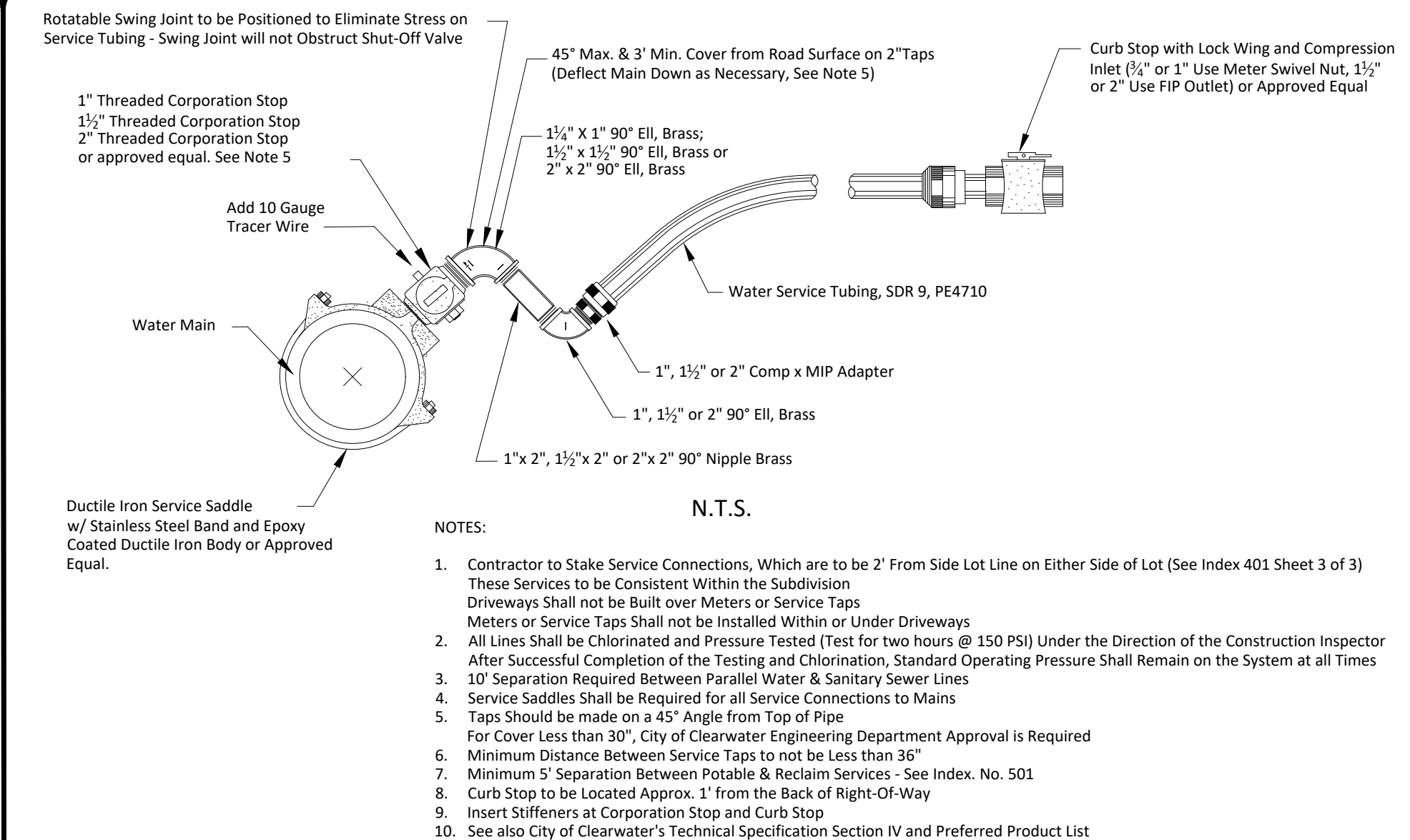
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400 SERIES: POTABLE WATER DETAILS

TAPPING SLEEVE AND GATE VALVE ASSEMBLY FOR WATER

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CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS

400 SERIES: POTABLE WATER DETAILS

POTABLE WATER MAIN SERVICE CONNECTION

INDEX NO. 401 LATEST REVISION 3/2022

PAGE NO. 1 OF 3

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REVIEWED BY:	PROJECT ENGINEER	DATE
APPROVED BY:		DATE

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BY	DATE	REVISION
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CITY OF CLEARWATER DETAILS

**CHA CONSULTING, INC.**  
3507 EAST FRONTAGE ROAD SUITE 100  
TAMPA, FL 33607  
TEL: (813) 549-0919  
CERTIFICATE OF AUTHORIZATION #28386

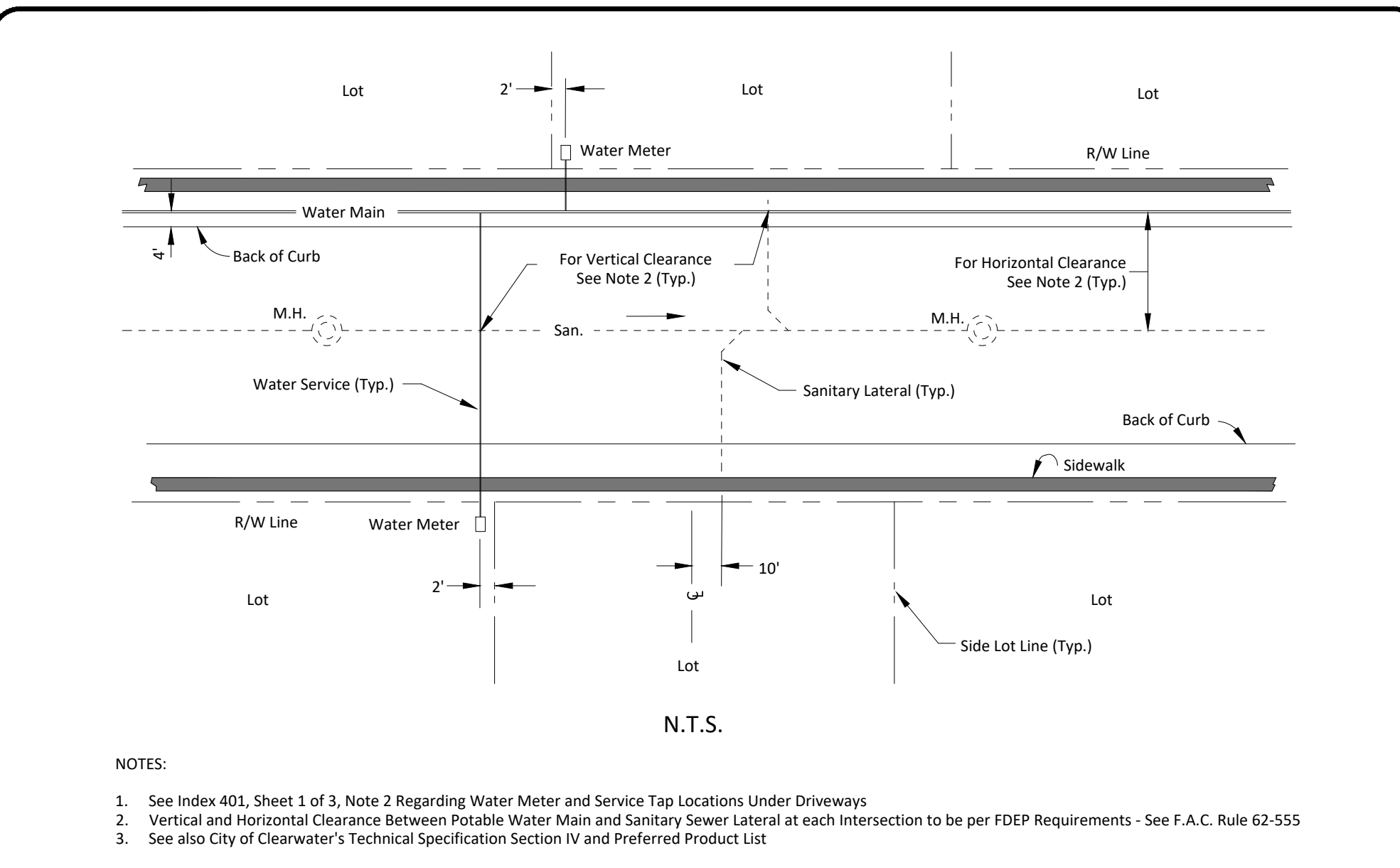
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FIELD BOOK: N/A  
CONTRACT NO.: 23-0056-UT  
JOB NO.: 041775

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DESIGNED BY: WTH/BSW

SURVEYED BY: ECHO UES  
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CHECKED BY: SC

SCALE: VERT. AS NOTED  
HORIZ. AS NOTED  
SHEET NO.: 20 OF 27

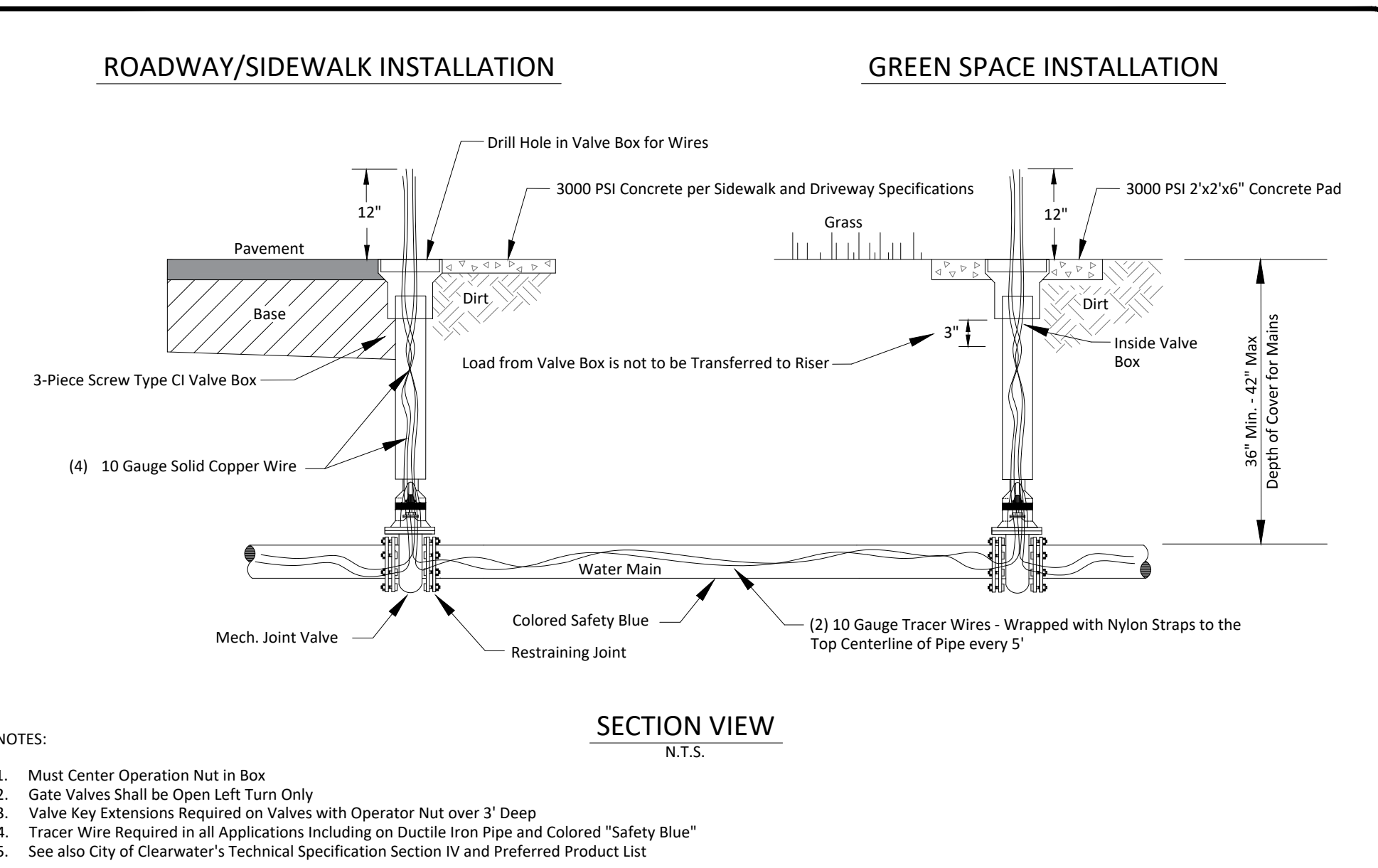
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NOTES:

1. See Index 401, Sheet 1 of 3, Note 2 Regarding Water Meter and Service Tap Locations Under Driveways
2. Vertical and Horizontal Clearance Between Potable Water Main and Sanitary Sewer Lateral at each Intersection to be per FDEP Requirements - See F.A.C. Rule 62-555
3. See also City of Clearwater's Technical Specification Section IV and Preferred Product List

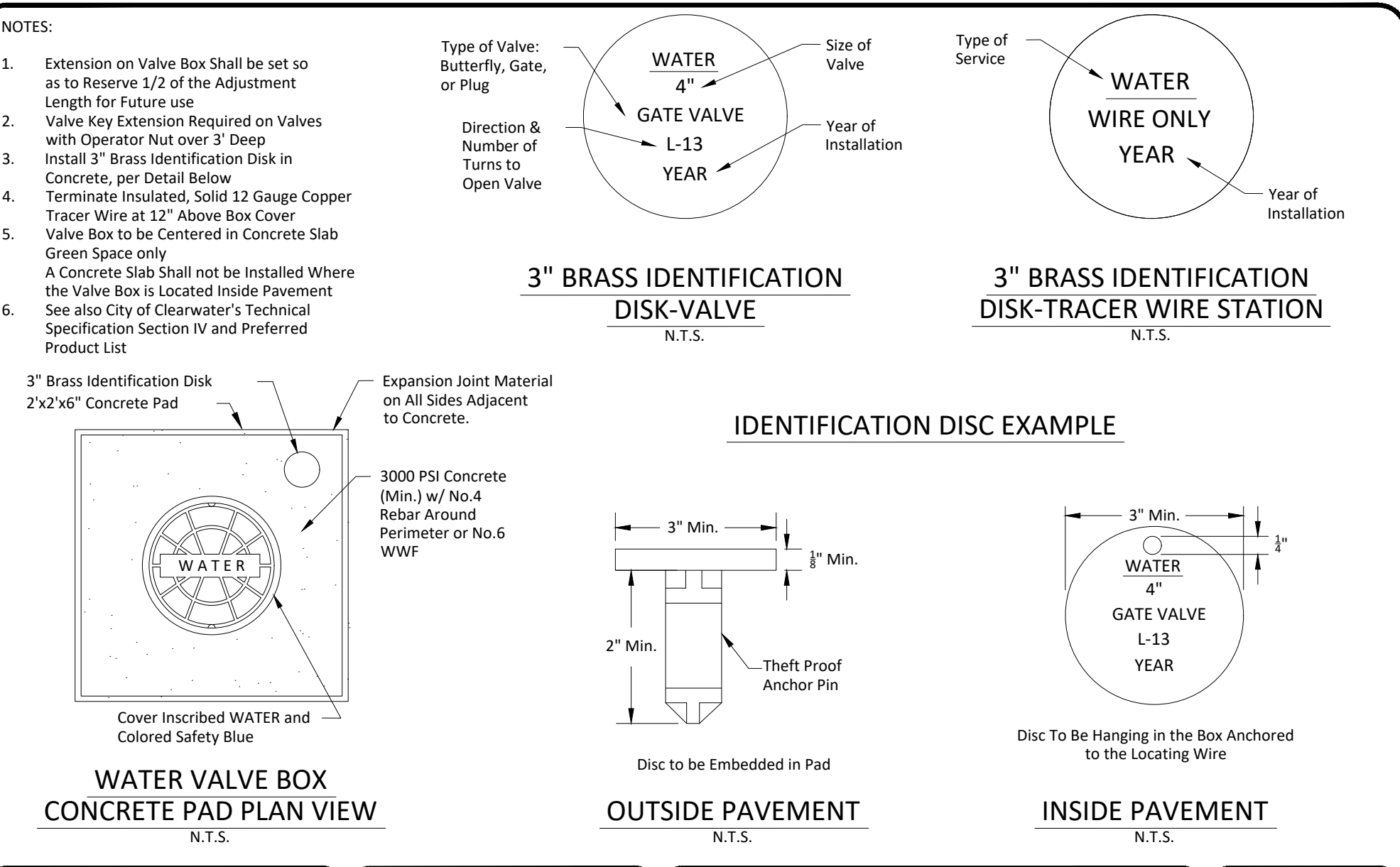
CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS	400 SERIES: POTABLE WATER DETAILS	WATER METER AND SERVICE LOCATIONS PLAN VIEW	INDEX NO. <b>401</b> LATEST REVISION 3/2022	PAGE NO. <b>3</b> OF <b>3</b>
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NOTES:

1. Must Center Operation Nut in Box
2. Gate Valves Shall be Open Left Turn Only
3. Valve Key Extensions Required on Valves with Operator Nut over 3' Deep
4. Tracer Wire Required in all Applications Including on Ductile Iron Pipe and Colored "Safety Blue"
5. See also City of Clearwater's Technical Specification Section IV and Preferred Product List

CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS	400 SERIES: POTABLE WATER DETAILS	TYPICAL VALVE AND BOX SETTING	INDEX NO. <b>402</b> LATEST REVISION 3/2022	PAGE NO. <b>1</b> OF <b>2</b>
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NOTES:

1. Extension on Valve Box Shall be set so as to Reserve 1/2 of the Adjustment Length for Future use
2. Valve Key Extension Required on Valves with Operator Nut over 3' Deep
3. Install 3" Brass Identification Disk in Concrete, per Detail Below
4. Terminate Insulated, Solid 12 Gauge Copper Tracer Wire at 12" Above Box Cover
5. Valve Box to be Centered in Concrete Slab Green Space only
6. A Concrete Slab Shall not be Installed Where the Valve Box is Located Inside Pavement

See also City of Clearwater's Technical Specification Section IV and Preferred Product List

CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS	400 SERIES: POTABLE WATER DETAILS	POTABLE WATER VALVE BOX CONCRETE PAD PLAN VIEW	INDEX NO. <b>402</b> LATEST REVISION 3/2022	PAGE NO. <b>2</b> OF <b>2</b>
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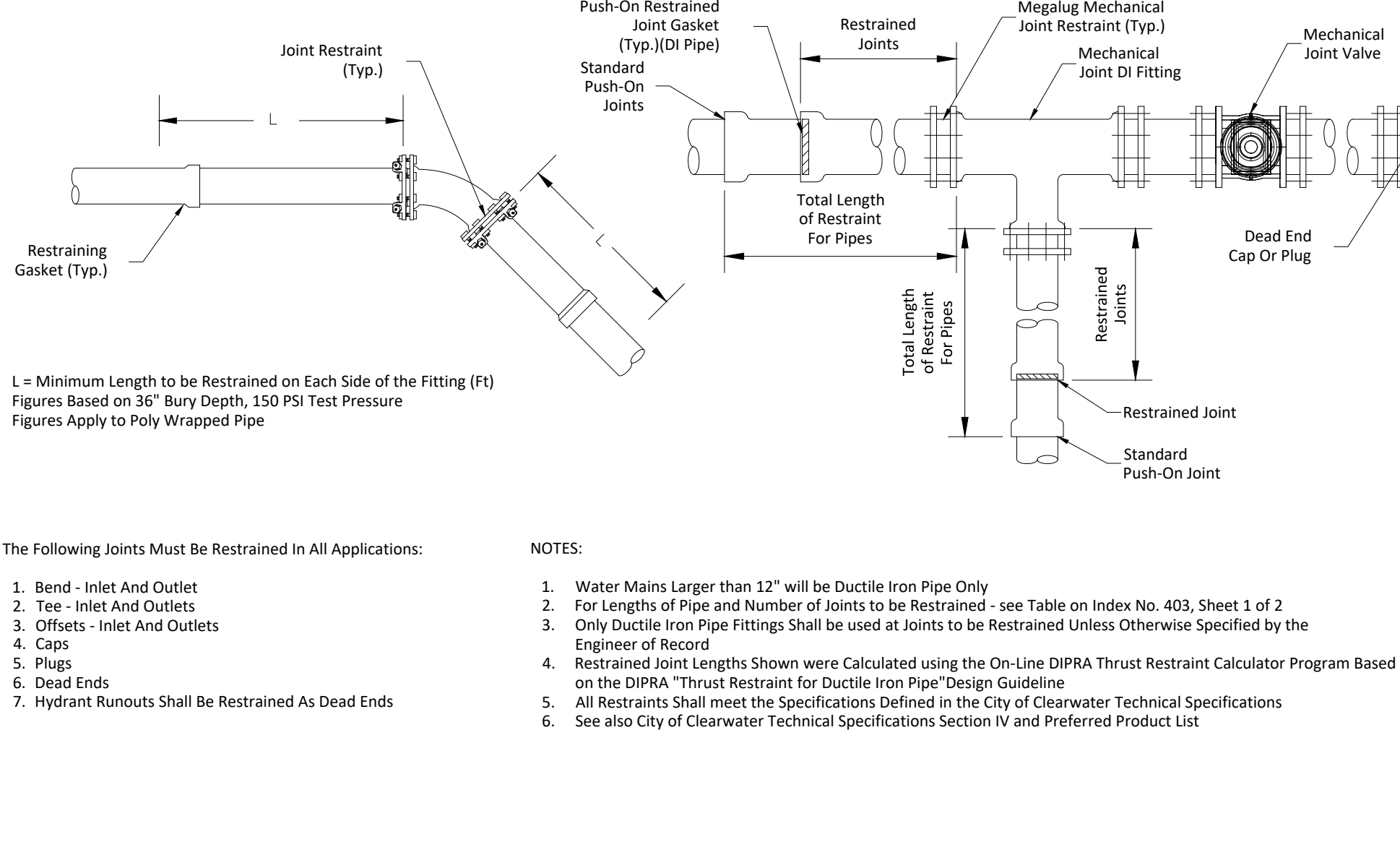
PVC PIPE, FEET		DUCTILE IRON PIPE, FEET																			
PIPE SIZE	PIPE SIZE										PIPE SIZE	PIPE SIZE									
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11.25"	H-B	3	4	5	6	6	8	9	11	H-B	2	3	4	5	6	7	8	9			
	VU-B	3	4	5	6	6	8	9	11	VU-B	2	3	4	5	6	7	8	9			
	VD-B	6	9	11	13	16	20	24	28	VD-B	5	6	8	10	11	14	17	20			
22.5"	H-B	5	7	9	11	12	16	18	21	H-B	5	6	8	9	11	13	16	18			
	VU-B	5	7	9	11	12	16	18	21	VU-B	5	6	8	9	11	13	16	18			
	VD-B	12	17	22	27	31	40	48	56	VD-B	9	12	16	19	22	28	34	39			
45"	H-B	10	14	18	22	25	32	38	43	H-B	9	12	16	19	22	27	33	37			
	VU-B	10	14	18	22	25	32	38	43	VU-B	9	12	16	19	22	27	33	37			
	VD-B	25	35	46	55	65	82	99	115	VD-B	18	25	32	39	45	58	69	81			
90"	H-B	24	33	44	52	60	76	91	104	H-B	21	29	37	44	52	65	78	90			
	VU-B	24	33	44	52	60	76	91	104	VU-B	21	29	37	44	52	65	78	90			
	VD-B	61	85	111	132	155	198	238	277	VD-B	43	59	78	93	109	139	167	194			
DEAD END PLUG & VALVE	61	85	111	132	155	198	238	277	DEAD END PLUG & VALVE	43	59	78	93	109	139	167	194				
TEE	61	85	111	132	155	198	238	277	TEE	43	59	78	93	109	139	167	194				

MINIMUM DESIGN CRITERIA  
Bedding Type: 3  
Design Pressure: 150 PSI  
Safety Factor: 1.5  
Depth Of Cover: 3.0 FT  
Soil Designation: SM (Sand-Silt)

MINIMUM FOOTAGE OF PIPE RESTRAINT  
H-B: Horizontal Bend  
VU-B: Vertical-Up Bend  
VD-B: Vertical-Down Bend

NOTES:  
1. The Restrained Joint Pipeline Lengths Shown in these Tables are Calculated for a Single Fitting only. Restrained Joint Pipeline Lengths Required for Combinations of Fittings Shall be Determined on a Case by Case Basis by the Engineer of Record. Combinations of Fittings Would Include Vertical Offsets, Combined Vertical Offsets, Horizontal Offsets and Combined Horizontal Offsets as defined in the DIPRA Design Guideline, "Thrust Restraints Design for Ductile Iron Pipe"

CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS	400 SERIES: POTABLE WATER DETAILS	RESTRAINED JOINT DETAIL PVC AND DUCTILE IRON MAINS	INDEX NO. <b>403</b> LATEST REVISION 3/2022	PAGE NO. <b>1</b> OF <b>2</b>
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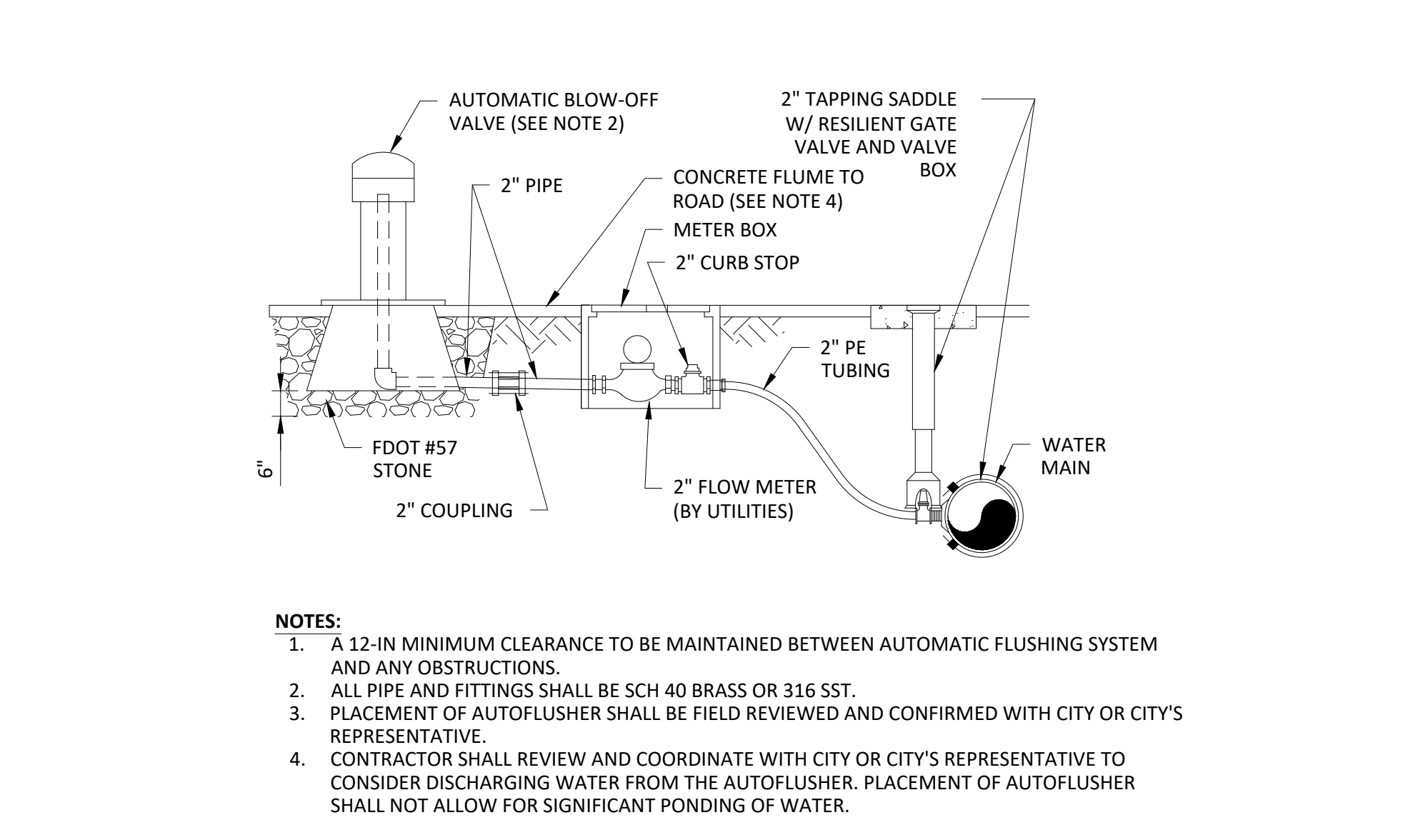
The Following Joints Must Be Restrained in All Applications:

1. Bend - Inlet And Outlet
2. Tee - Inlet And Outlets
3. Offsets - Inlet And Outlets
4. Caps
5. Plugs
6. Dead Ends
7. Hydrant Runouts Shall be Restrained As Dead Ends

NOTES:

1. Water Mains Larger than 12" will be Ductile Iron Pipe Only
2. For Lengths of Pipe and Number of Joints to be Restrained - see Table on Index No. 403, Sheet 1 of 2
3. Only Ductile Iron Fittings Shall be used at Joints to be Restrained Unless Otherwise Specified by the Engineer of Record
4. Restrained Joint Lengths Shown were Calculated using the On-Line DIPRA Thrust Restraint Calculator Program Based on the DIPRA "Thrust Restraint for Ductile Iron Pipe" Design Guideline
5. All Restraints Shall meet the Specifications Defined in the City of Clearwater Technical Specifications
6. See also City of Clearwater Technical Specifications Section IV and Preferred Product List

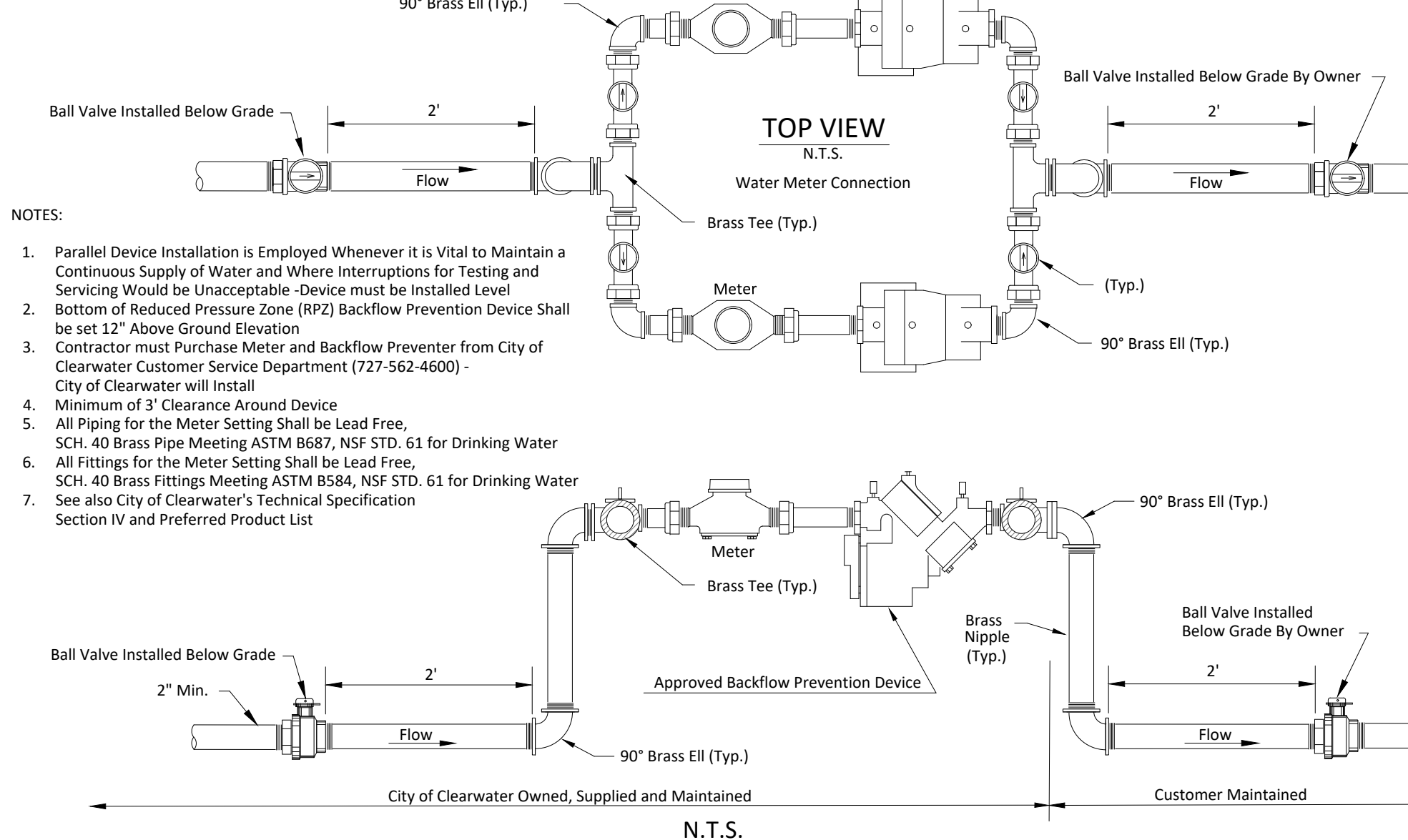
CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS	400 SERIES: POTABLE WATER DETAILS	RESTRAINED JOINT DETAIL PVC AND DUCTILE IRON MAINS	INDEX NO. <b>403</b> LATEST REVISION 3/2022	PAGE NO. <b>2</b> OF <b>2</b>
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NOTES:

1. A 12-IN MINIMUM CLEARANCE TO BE MAINTAINED BETWEEN AUTOMATIC FLUSHING SYSTEM AND ANY OBSTRUCTIONS.
2. ALL PIPE AND FITTINGS SHALL BE SCH 40 BRASS OR 316 SST.
3. PLACEMENT OF AUTOFLUSHER SHALL BE FIELD REVIEWED AND CONFIRMED WITH CITY OR CITY'S REPRESENTATIVE.
4. CONTRACTOR SHALL REVIEW AND COORDINATE WITH CITY OR CITY'S REPRESENTATIVE TO CONSIDER DISCHARGING WATER FROM THE AUTOFLUSHER. PLACEMENT OF AUTOFLUSHER SHALL NOT ALLOW FOR SIGNIFICANT PONDING OF WATER.

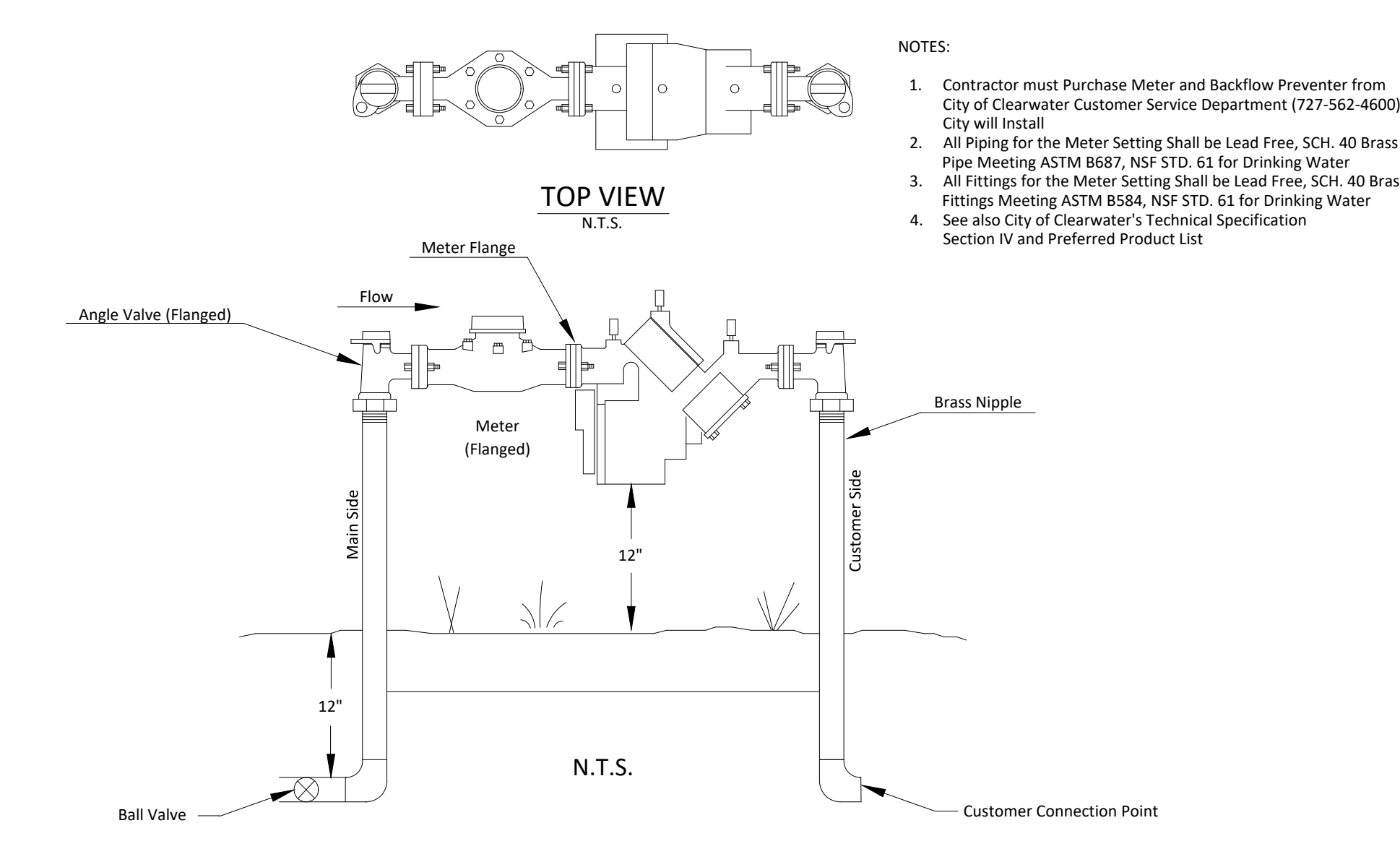
CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS	400 SERIES: POTABLE WATER DETAILS	POTABLE WATER AUTOFLUSHER	INDEX NO. <b>419</b> LATEST REVISION 5/2023	PAGE NO. <b>1</b> OF <b>1</b>
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NOTES:

1. Parallel Device Installation is Employed Whenever it is Vital to Maintain a Continuous Supply of Water and Where Interruptions for Testing and Servicing Would be Unacceptable - Device must be Installed Level
2. Bottom of Reduced Pressure Zone (RPZ) Backflow Prevention Device shall be set 12" Above Ground Elevation
3. Contractor must Purchase Meter and Backflow Preventer from City of Clearwater Customer Service Department (727-562-4600) - City of Clearwater will Install
4. Minimum of 3' Clearance Around Device
5. All Piping for the Meter Setting shall be Lead Free, SCH. 40 Brass Pipe Meeting ASTM B687, NSF STD. 61 for Drinking Water
6. All Fittings for the Meter Setting shall be Lead Free, SCH. 40 Brass Fittings Meeting ASTM B584, NSF STD. 61 for Drinking Water
7. See also City of Clearwater's Technical Specification Section IV and Preferred Product List

CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS	400 SERIES: POTABLE WATER DETAILS	TYPICAL DUAL PARALLEL METER SET 1" to 2" MODELS	INDEX NO. <b>405</b> LATEST REVISION 3/2022	PAGE NO. <b>1</b> OF <b>2</b>
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NOTES:

1. Contractor must Purchase Meter and Backflow Preventer from City of Clearwater Customer Service Department (727-562-4600) - City will Install
2. All Piping for the Meter Setting shall be Lead Free, SCH. 40 Brass Pipe Meeting ASTM B687, NSF STD. 61 for Drinking Water
3. All Fittings for the Meter Setting shall be Lead Free, SCH. 40 Brass Fittings Meeting ASTM B584, NSF STD. 61 for Drinking Water
4. See also City of Clearwater's Technical Specification Section IV and Preferred Product List

CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS	400 SERIES: POTABLE WATER DETAILS	TYPICAL METER SETS W/BACKFLOW PREVENTERS 1-1/2" & 2" MODELS	INDEX NO. <b>405</b> LATEST REVISION 3/2022	PAGE NO. <b>2</b> OF <b>2</b>
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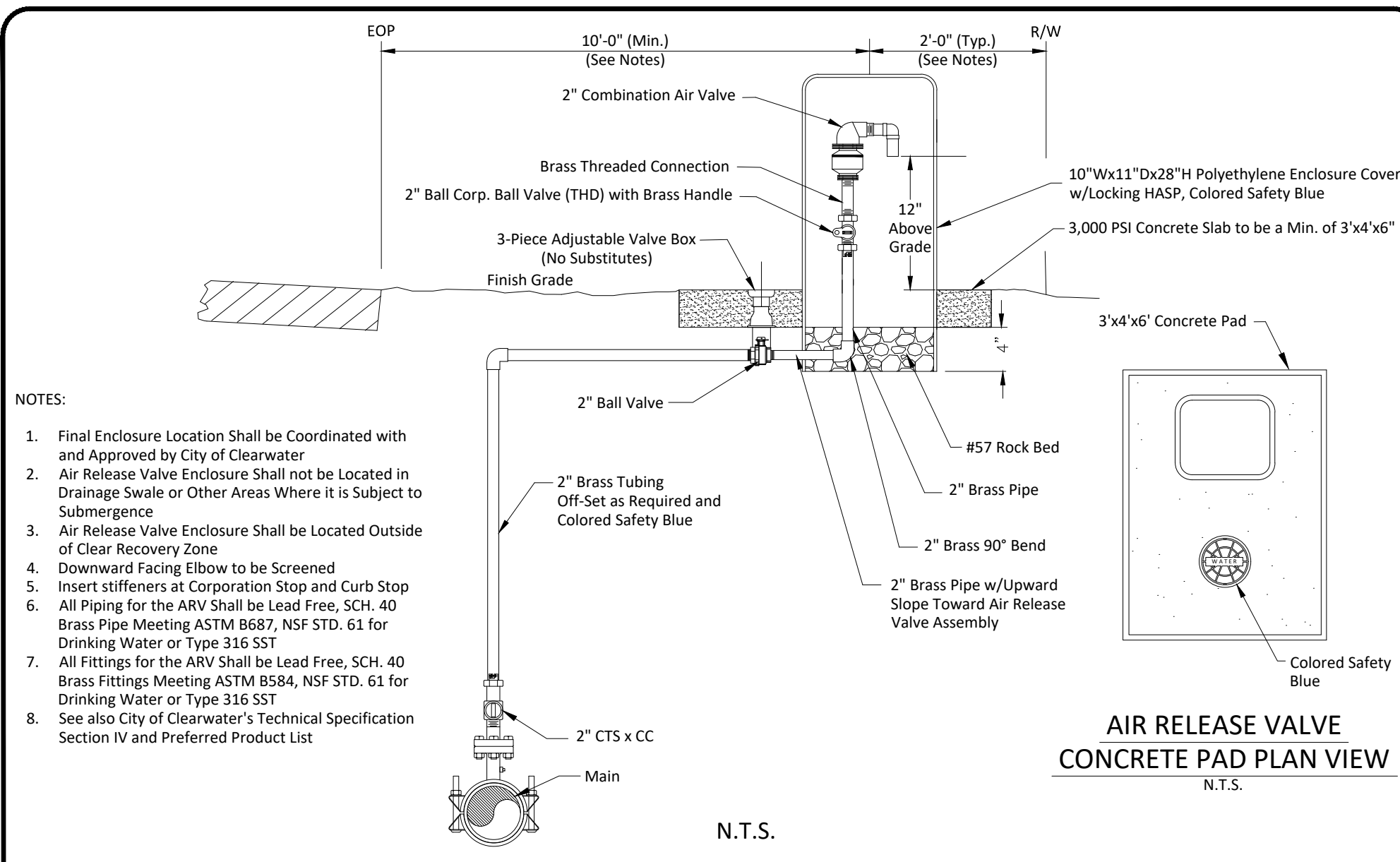
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DWG NAME:	CD02	FIELD BOOK:	N/A	SURVEYED BY:	ECHO UES	SCALE:	VERT. AS NOTED
CONTRACT NO.:	23-0056-UT	DATE DRAWN:	12/2023	DRAWN BY:	VVV/PPH	HORIZ. AS NOTED	
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TEL: (813) 549-0919  
CERTIFICATE OF AUTHORIZATION #28386



- NOTES:
- Final Enclosure Location Shall be Coordinated with and Approved by City of Clearwater
  - Air Release Valve Enclosure Shall not be Located in Drainage Swale or Other Areas Where it is Subject to Submergence
  - Air Release Valve Enclosure Shall be Located Outside of Clear Recovery Zone
  - Downward Facing Elbow to be Screened
  - Insert stiffeners at Corporation Stop and Curb Stop
  - All Piping for the ARV Shall be Lead Free, SCH. 40 Brass Pipe Meeting ASTM B687, NSF STD. 61 for Drinking Water or Type 316 SST
  - All Fittings for the ARV Shall be Lead Free, SCH. 40 Brass Fittings Meeting ASTM B584, NSF STD. 61 for Drinking Water or Type 316 SST
  - See also City of Clearwater's Technical Specification Section IV and Preferred Product List

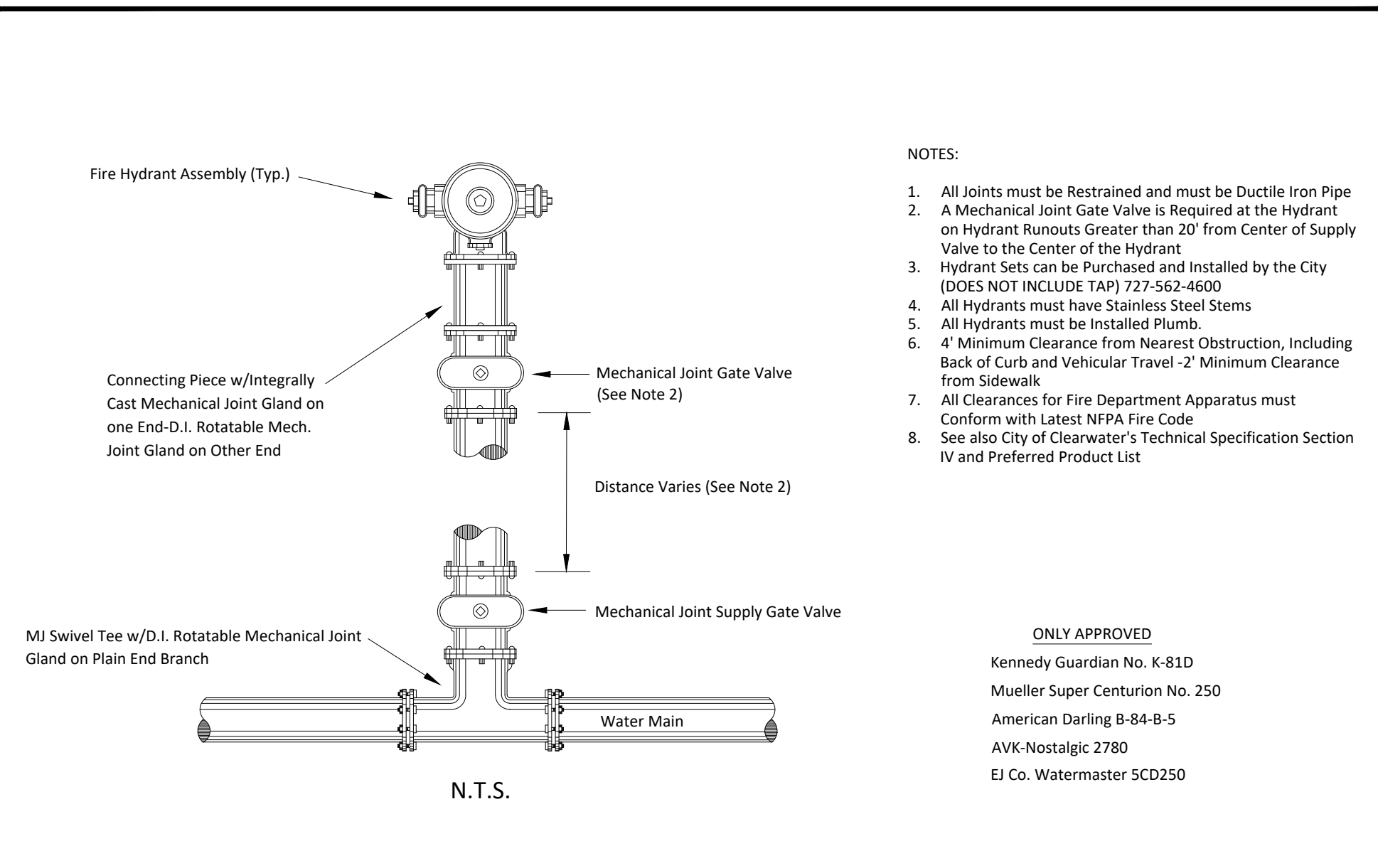
CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS

400 SERIES: POTABLE WATER DETAILS

TYPICAL AIR RELEASE VALVE POTABLE WATER APPLICATION

INDEX NO. 406 PAGE NO. 1 OF 1

LATEST REVISION 3/2022



- NOTES:
- All Joints must be Restrained and must be Ductile Iron Pipe
  - A Mechanical Joint Gate Valve is Required at the Hydrant on Hydrant Runouts Greater than 20' from Center of Supply Valve to the Center of the Hydrant (DOES NOT INCLUDE TAP) 727-562-4600
  - All Hydrants must be Installed Plumb
  - All Hydrants must be Stainless Steel Stems
  - 4" Minimum Clearance from Nearest Obstruction, Including Back of Curb and Vehicular Travel - 2" Minimum Clearance from Sidewalk
  - All Clearances for Fire Department Apparatus must Conform with Latest NFPA Fire Code
  - See also City of Clearwater's Technical Specification Section IV and Preferred Product List

ONLY APPROVED  
Kennedy Guardian No. K-81D  
Mueller Super Centurion No. 250  
American Darling B-84 B-5  
AVK Nostalgic 2780  
El Co. Watermaster 5CD250

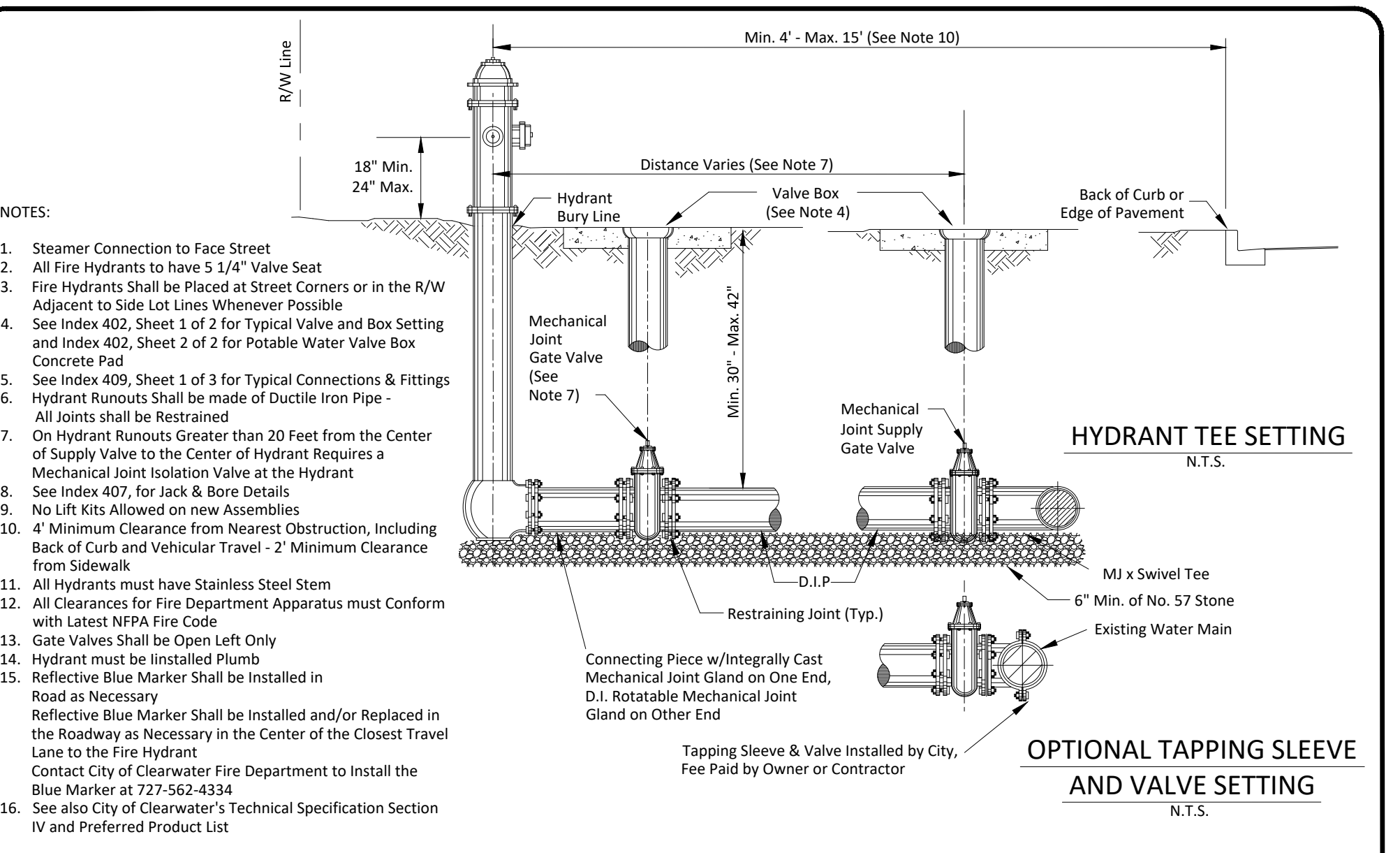
CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS

400 SERIES: POTABLE WATER DETAILS

TYPICAL FIRE HYDRANT SETTING - PLAN VIEW

INDEX NO. 409 PAGE NO. 1 OF 3

LATEST REVISION 3/2022



- NOTES:
- Steamer Connection to Face Street
  - All Fire Hydrants to have 5 1/4" Valve Seat
  - Fire Hydrants Shall be Placed at Street Corners or in the R/W Adjacent to Side Lot Lines Whenever Possible
  - See Index 402, Sheet 1 of 2 for Typical Valve and Box Setting and Index 402, Sheet 2 of 2 for Potable Water Valve Box Concrete Pad
  - See Index 409, Sheet 1 of 3 for Typical Connections & Fittings
  - Hydrant Runouts Shall be made of Ductile Iron Pipe - All Joints shall be Restrained
  - On Hydrant Runouts Greater than 20 Feet from the Center of Supply Valve to the Center of Hydrant Requires a Mechanical Joint Isolation Valve at the Hydrant
  - See Index 407, for Jack & Bore Details
  - No Lift Kits Allowed on new Assemblies
  - 4" Minimum Clearance from Nearest Obstruction, Including Back of Curb and Vehicular Travel - 2" Minimum Clearance from Sidewalk
  - All Hydrants must have Stainless Steel Stem
  - All Clearances for Fire Department Apparatus must Conform with Latest NFPA Fire Code
  - Gate Valves Shall be Open Left Only
  - Hydrant must be Installed Plumb
  - Reflective Blue Marker Shall be Installed in Road as Necessary
  - Reflective Blue Marker Shall be Installed and/or Replaced in the Roadway as Necessary in the Center of the Closest Travel Lane to the Fire Hydrant
  - Contact City of Clearwater Fire Department to Install the Blue Marker at 727-562-4334
  - See also City of Clearwater's Technical Specification Section IV and Preferred Product List

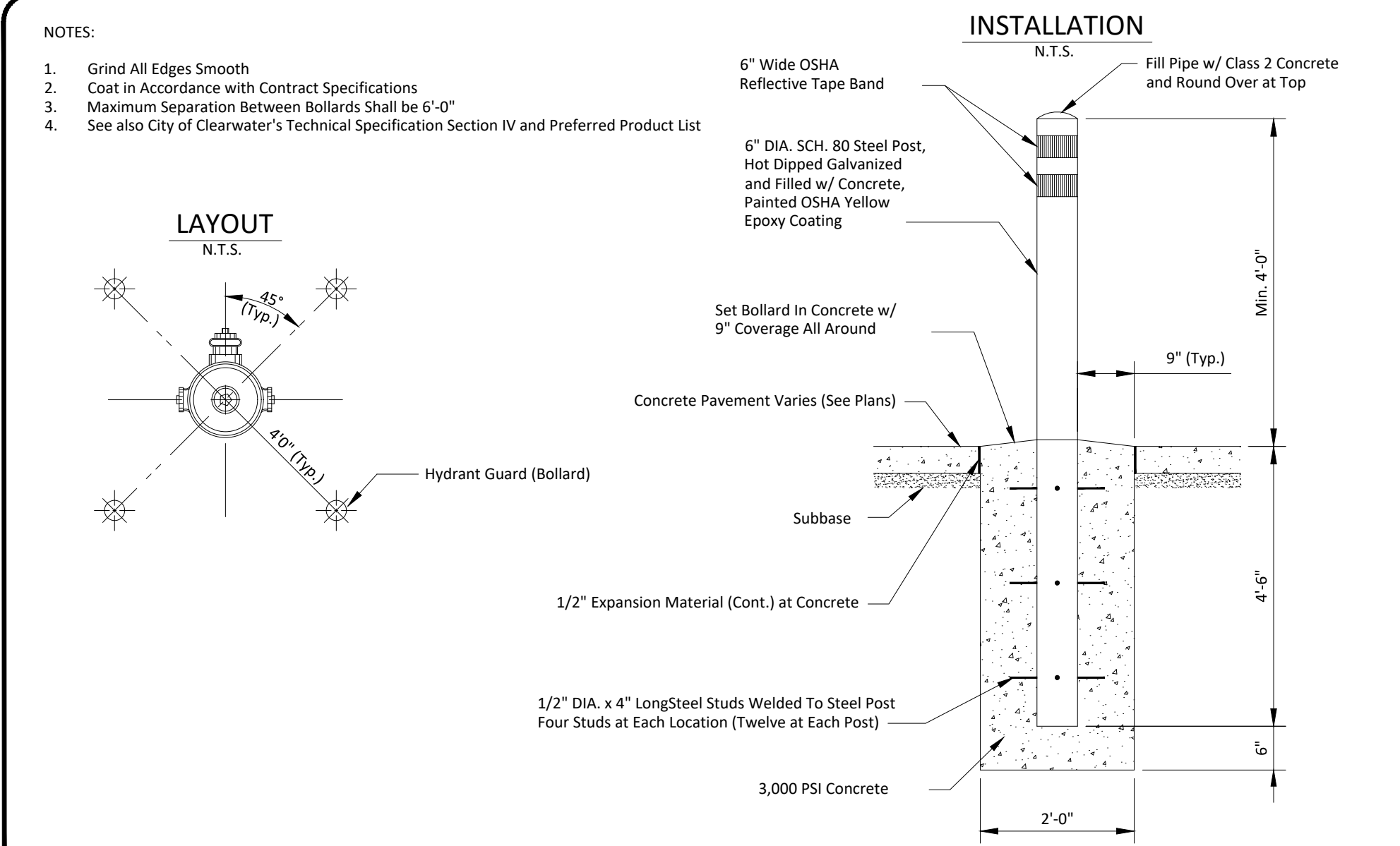
CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS

400 SERIES: POTABLE WATER DETAILS

TYPICAL FIRE HYDRANT SETTING - SECTION VIEW

INDEX NO. 409 PAGE NO. 2 OF 3

LATEST REVISION 3/2022



- NOTES:
- Grind All Edges Smooth
  - Coat in Accordance with Contract Specifications
  - Maximum Separation Between Bollards Shall be 6' 0"
  - See also City of Clearwater's Technical Specification Section IV and Preferred Product List

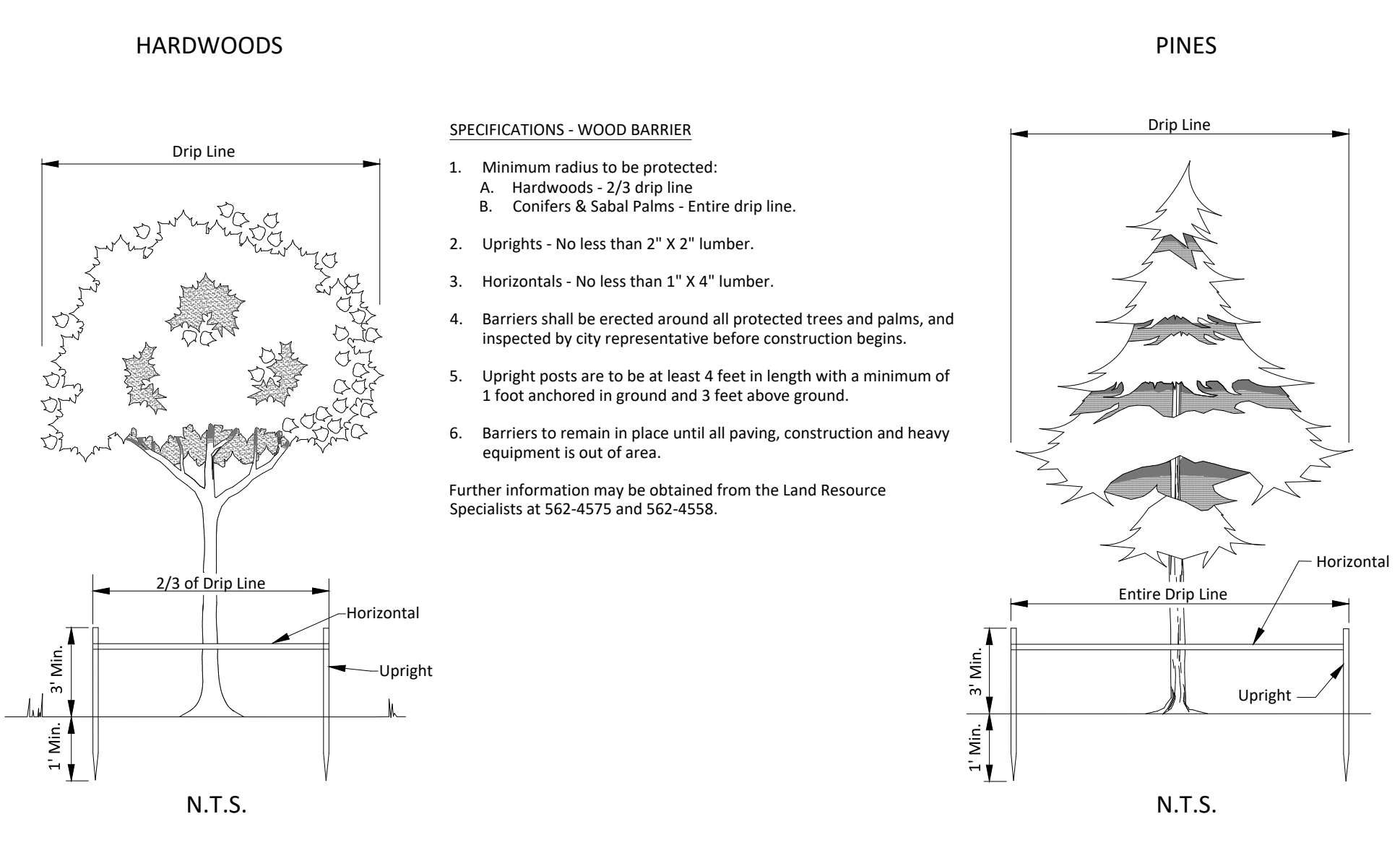
CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS

400 SERIES: POTABLE WATER DETAILS

FIRE HYDRANT PROTECTION BOLLARD

INDEX NO. 409 PAGE NO. 3 OF 3

LATEST REVISION 3/2022



- SPECIFICATIONS - WOOD BARRIER
- Minimum radius to be protected:
    - Hardwoods - 2/3 drip line
    - Confers & Sabal Palms - Entire drip line.
  - Uprights - No less than 2" x 2" lumber.
  - Horizontals - No less than 1" x 4" lumber.
  - Barriers shall be erected around all protected trees and palms, and inspected by city representative before construction begins.
  - Upright posts are to be at least 4 feet in length with a minimum of 1 foot anchored in ground and 3 feet above ground.
  - Barriers to remain in place until all paving, construction and heavy equipment is out of area.
- Further information may be obtained from the Land Resource Specialists at 562-4575 and 562-4558.

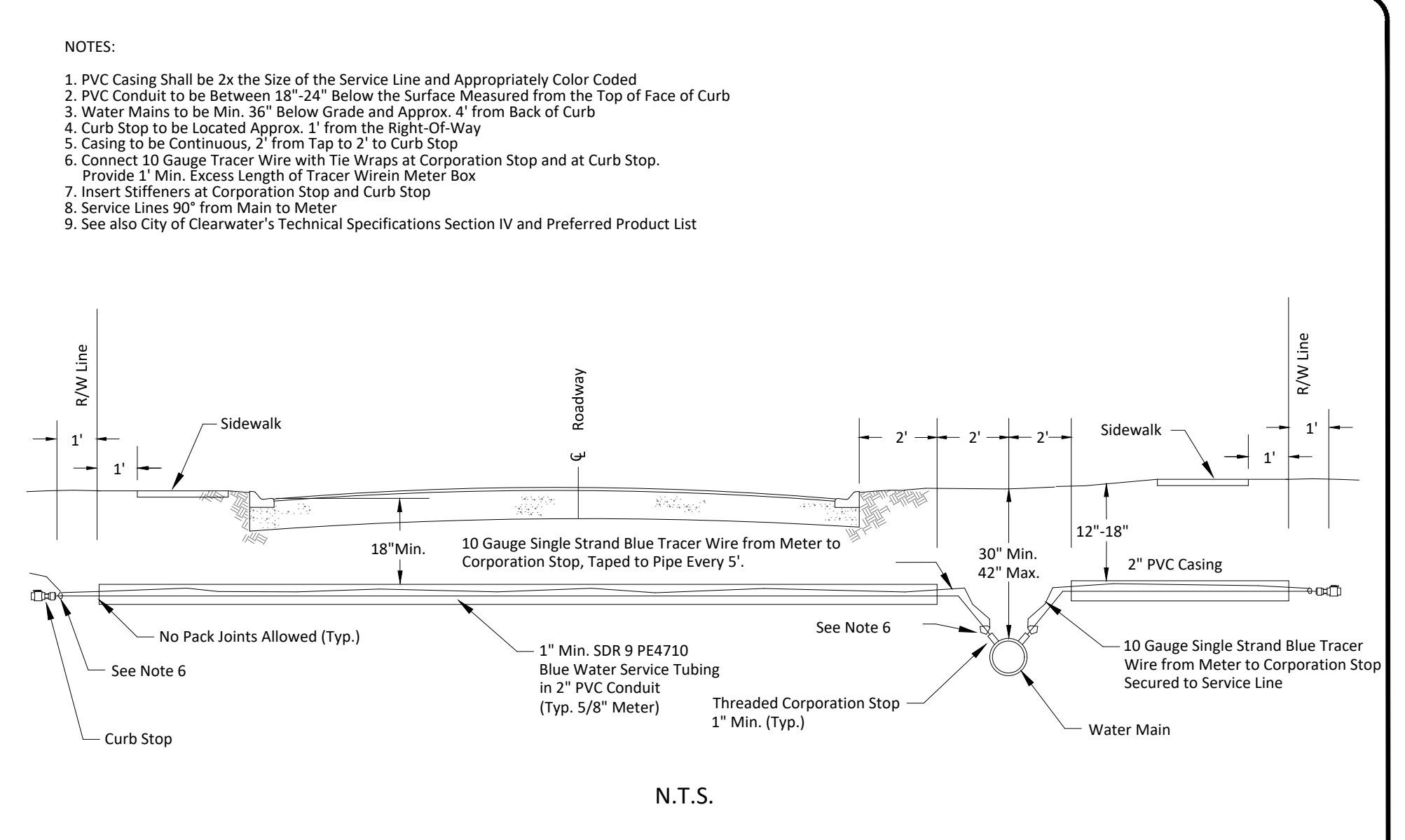
CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS

900 SERIES: LANDSCAPE DETAILS

TREE BARRICADES

INDEX NO. 909 PAGE NO. 1 OF 1

LATEST REVISION 10/22/18



- NOTES:
- PVC Casing Shall be 2x the Size of the Service Line and Appropriately Color Coded
  - PVC Conduit to be Between 18" - 24" Below the Surface Measured from the Top of Face of Curb
  - Water Mains to be Min. 36" Below Grade and Approx. 4' from Back of Curb
  - Curb Stop to be Located Approx. 1' from the Right-Of-Way
  - Casing to be Continuous, 2' from Tap to 2' to Curb Stop
  - Connect 10 Gauge Tracer Wire with Tie Wraps at Corporation Stop and at Curb Stop. Provide 1' Min. Excess Length of Tracer Wire in Meter Box
  - Insert Stiffeners at Corporation Stop and Curb Stop
  - Service Lines 90' from Main to Meter
  - See also City of Clearwater's Technical Specifications Section IV and Preferred Product List

CITY OF CLEARWATER PUBLIC WORKS - ENGINEERING 2022 DESIGN STANDARDS

400 SERIES: POTABLE WATER DETAILS

1" - 2" WATER MAIN SERVICE LINE - TYPICAL SECTION

INDEX NO. 401 PAGE NO. 2 OF 3

LATEST REVISION 3/2022

Parent Sheet Set: 1.112...2.112...3.115 PM Individual File Path: C:\Dropbox\Work\VL\Jobs\cha\_engineering\041775\_clearwater\_small\_projects\1.112...2.112...3.115 PM - Island Estates\cod\_files\CivilDetailSheets

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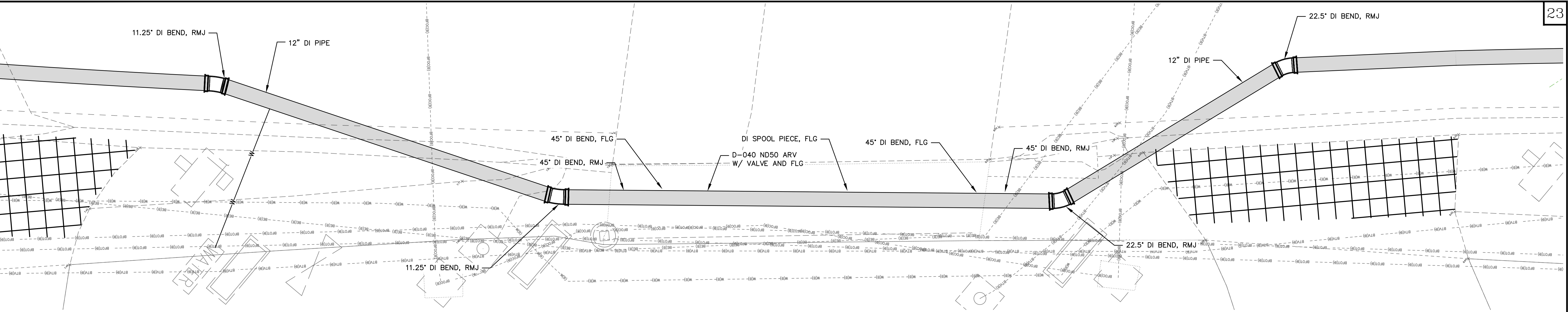
CITY OF CLEARWATER  
ISLAND ESTATES CAST IRON WATER MAIN REPLACEMENT  
CITY OF CLEARWATER DETAILS

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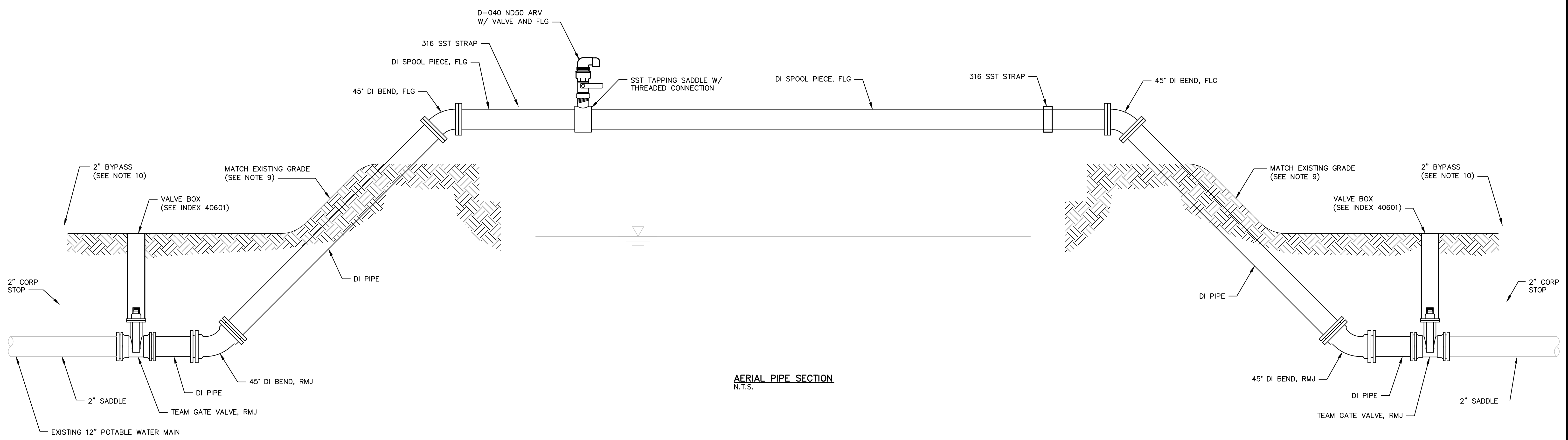
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**AERIAL PIPE PLAN**  
1"=40'



**AERIAL PIPE SECTION**  
N.T.S.

**NOTES**

1. ALL PIPING SHALL BE DUCTILE IRON WITH 316 STAINLESS STEEL HARDWARE.
2. PIPE CLAMPS SHALL BE 316 STAINLESS STEEL WITH 316 STAINLESS STEEL HARDWARE.
3. ALL EXPOSED PIPING SHALL BE PREPARED BY UNIFORMLY ABRASIVE BLASTING USING ANGULAR ABRASIVE TO A NAP500-03-04 OR IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
4. CONTRACTOR SHALL PROPERLY CONTAIN, COLLECT, AND DISPOSE OF THE FLUIDS AND DEBRIS GENERATED IN THE SURFACE PREPARATION PROCESS IN COMPLIANCE WITH EXISTING REGULATIONS.
5. SURFACE COATING SHALL BE A BASE ZINC COAT, EPOXY SECOND COAT, AND FLUOROPOLYMER COATING SYSTEM WITH RESISTANCE TO ULTRA-VIOLET LIGHT DEGRADATION, ABRASION, AND CHALKING. CONTRACTOR SHALL SUBMIT THE COATING SYSTEM AND THICKNESS FOR APPROVAL PRIOR TO APPLICATION.
6. CONTRACTOR SHALL NOT COAT STAINLESS STEEL OR CONCRETE.
7. WASH PIPING BETWEEN COATS TO REMOVE CHLORIDE CONTAMINATION.
8. BURIED PIPING THAT IS EXPOSED DURING THE COURSE OF THE WORK SHALL BE INSPECTED FOR THE PRESENCE OF POLY-WRAP. IF ABSENT, CONTRACTOR SHALL INSTALL POLY-WRAP WITHIN LIMITS OF EXCAVATION.
9. RESTORE GRADE TO MATCH EXISTING GRADE AND SOD ALL DISTURBED AREAS TO MATCH EXISTING SOD.
10. BYPASSING SHALL BE LIMITED TO A PERIOD OF ONE DAY. CONTRACTOR SHALL NOTIFY ALL NECESSARY PARTIES INCLUDING, BUT NOT LIMITED TO, CITY FIRE DEPARTMENT AND COMPLETE ANY NECESSARY NOTIFICATION REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING BYPASSING INFRASTRUCTURE THROUGHOUT DURATION OF OPERATION TO ENSURE WATER SERVICE IS MAINTAINED.
11. CONTRACTOR SHALL RESTRAIN BELL JOINTS PRIOR TO INSTALLATION OF TEAMS VALVE.

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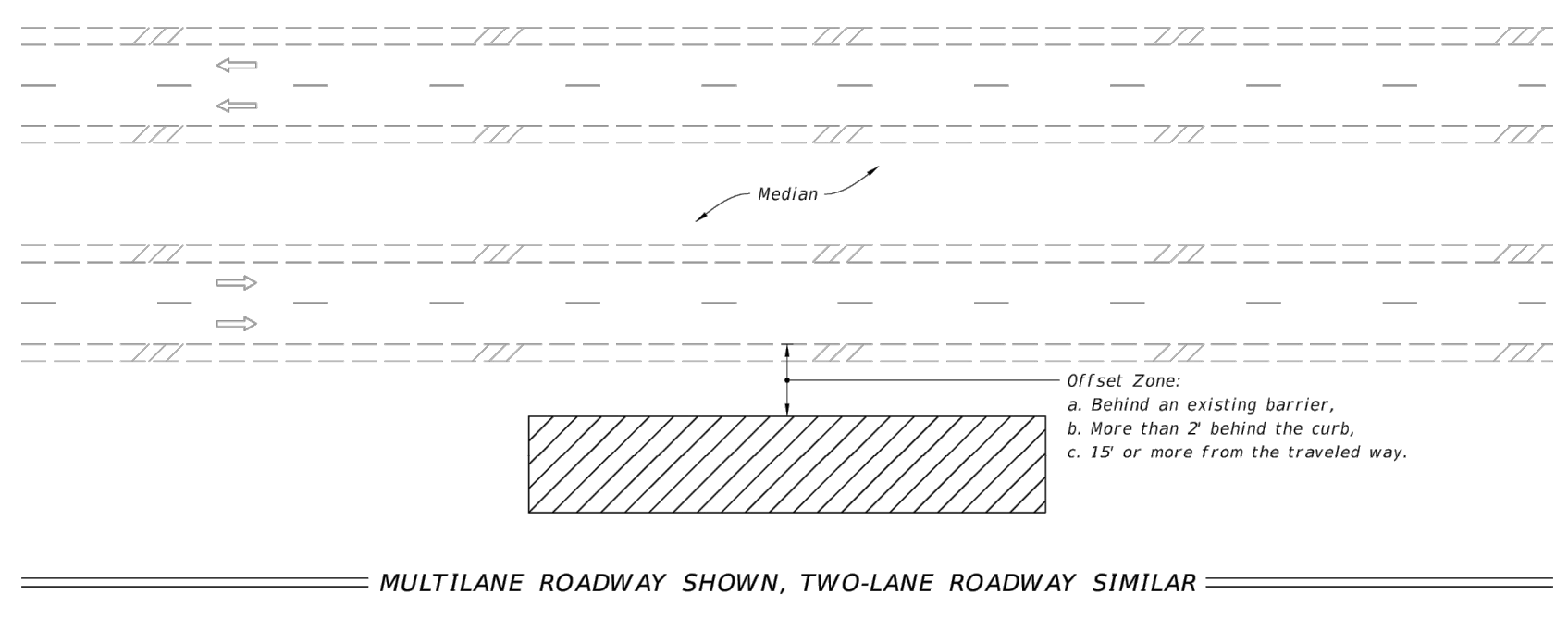
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**NOTE**  
 FDOT STANDARD TTC/MOT DETAILS ARE PROVIDED AS A REFERENCE TO THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MOT PLANS NECESSARY TO COMPLETE THE WORK EFFORT(S) IN COMPLIANCE WITH OWNER'S STANDARDS FOR EACH PROJECT WORK AREA.

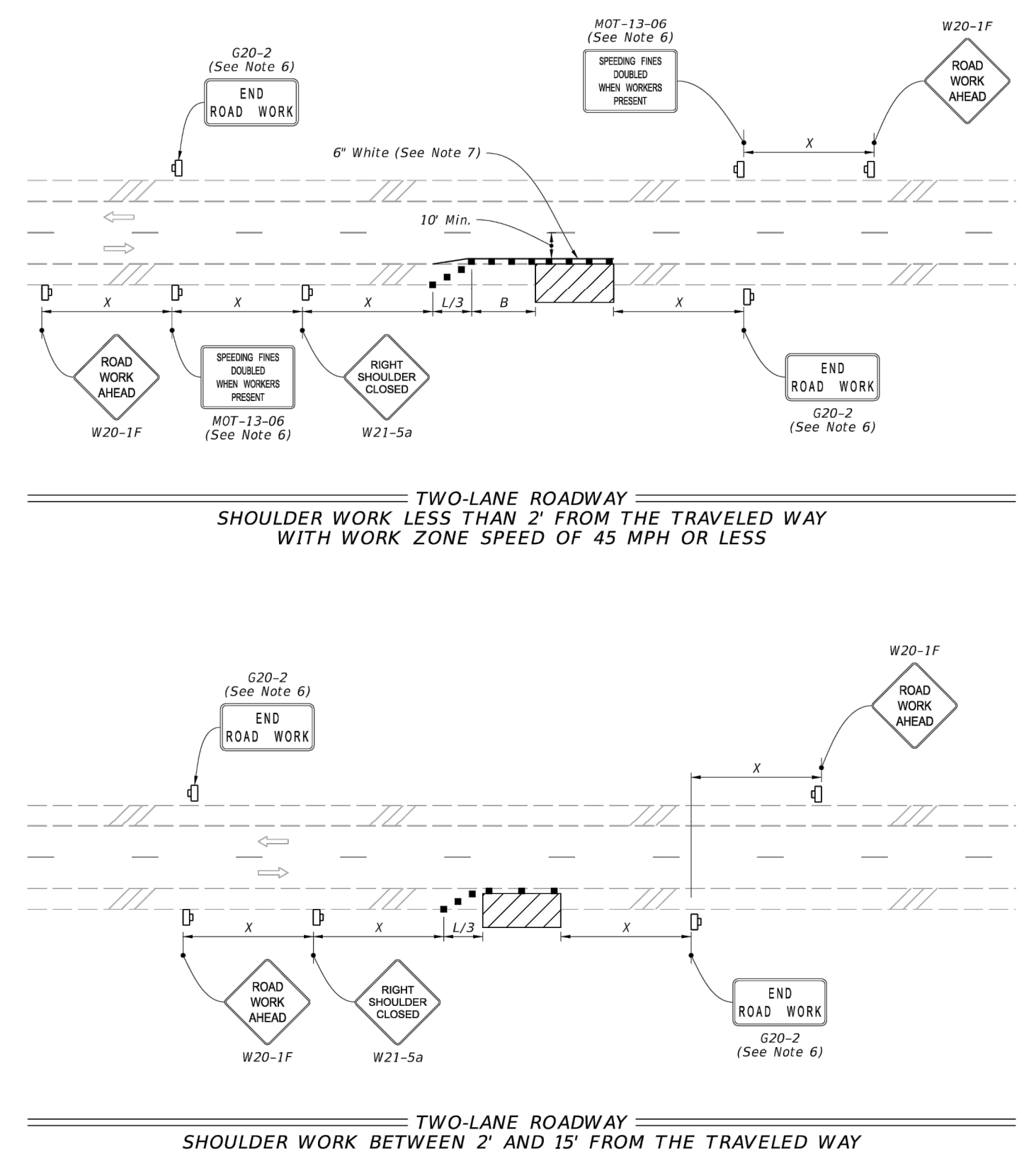


**NOTES:**  
 1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work beyond the shoulder.  
 2. Use Index 102-602 when the work operation (excluding establishing and terminating the work area) requires that two or more work vehicles cross the Offset Zone in any one hour period.  
 3. Use Index 102-660 when Work Area encroaches a Sidewalk.

**SYMBOLS:**  
 Work Area  
 Lane Identification and Direction of Traffic

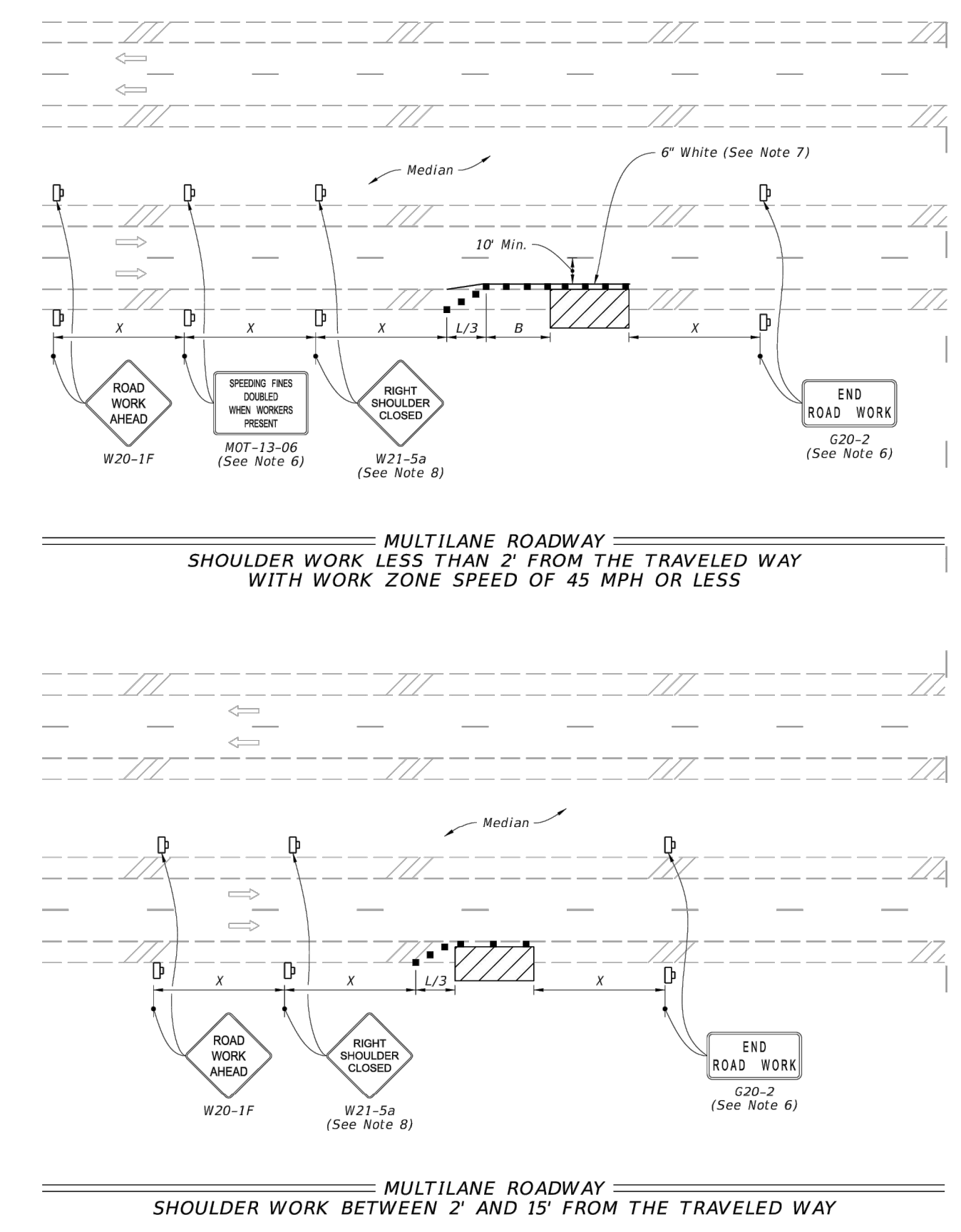
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**NOTE:**  
 1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.  
 2. L = Taper Length  
 X = Work Zone Sign Spacing  
 B = Buffer Length  
 See Index 102-600 for "L", "X", "B", and channelizing device spacing values.  
 3. Where work activities are between 2' and 15' from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less.  
 4. When four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), use a flagger or lane closure to accommodate work vehicle ingress and egress.  
 5. For work less than 2' from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.  
 6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" Signs (G20-2) along with the associated work zone sign spacing distances may be omitted when the work operation is in place for 24 hours or less.  
 7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.  
 8. Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.  
 9. When there is no paved shoulder, the "Worker" sign (W21-1) may be used instead of the "Shoulder Closed" sign (W21-5a).



**SYMBOLS:**  
 Work Area  
 Channelizing Device (See Index 102-600)  
 Work Zone Sign  
 Lane Identification and Direction of Traffic

LAST REVISION 11/01/21	DESCRIPTION:	FDOT	FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 1 of 2
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**SYMBOLS:**  
 Work Area  
 Channelizing Device (See Index 102-600)  
 Work Zone Sign  
 Lane Identification and Direction of Traffic

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 2 of 2
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DATE		<b>BY</b>		
DATE		<b>DATE</b>		

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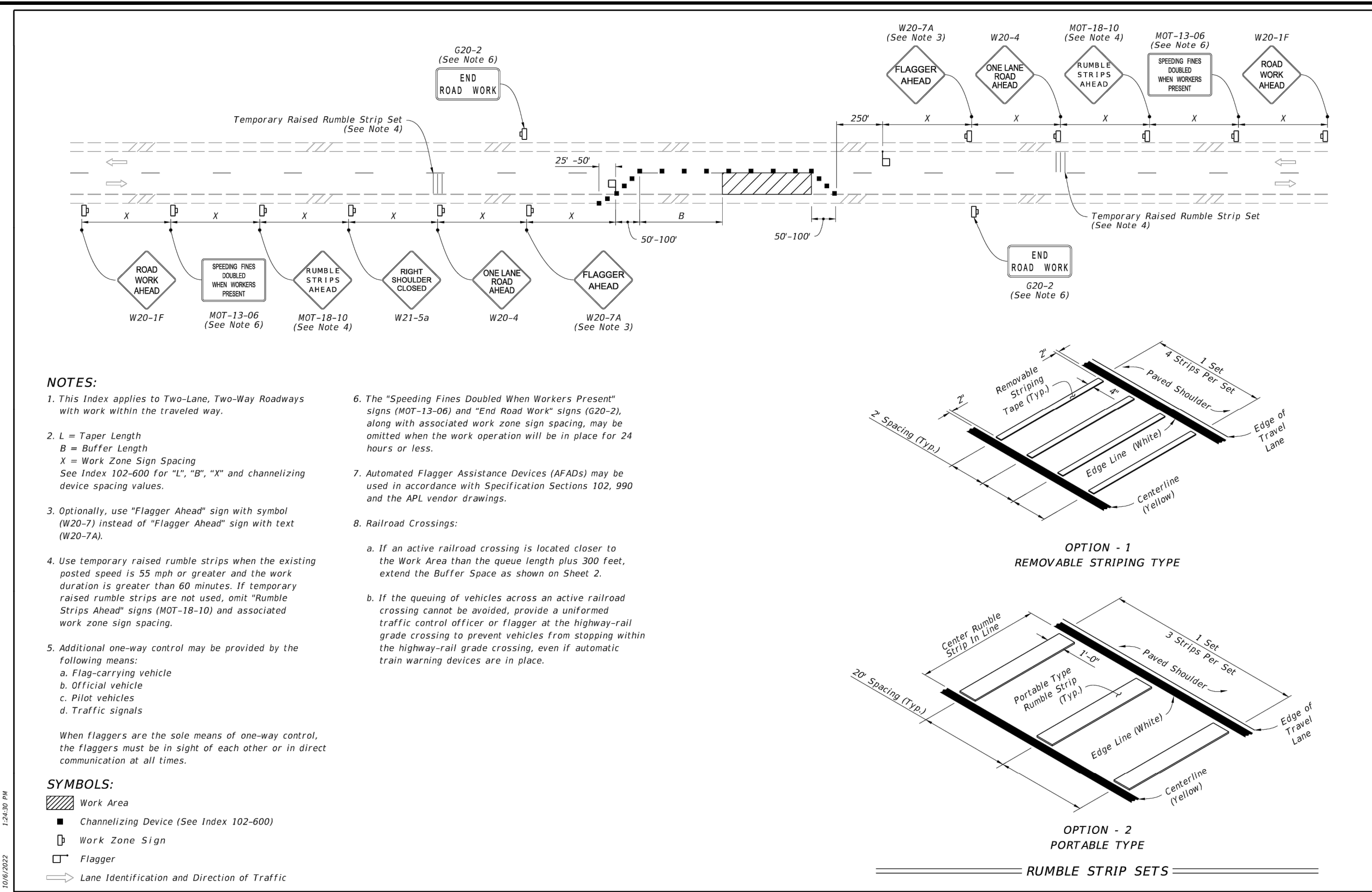
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CONTRACT NO.: 23-0056-UT	DATE DRAWN: 12/2023	DRAWN BY:	HORIZ. AS NOTED
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 CERTIFICATE OF AUTHORIZATION #28386

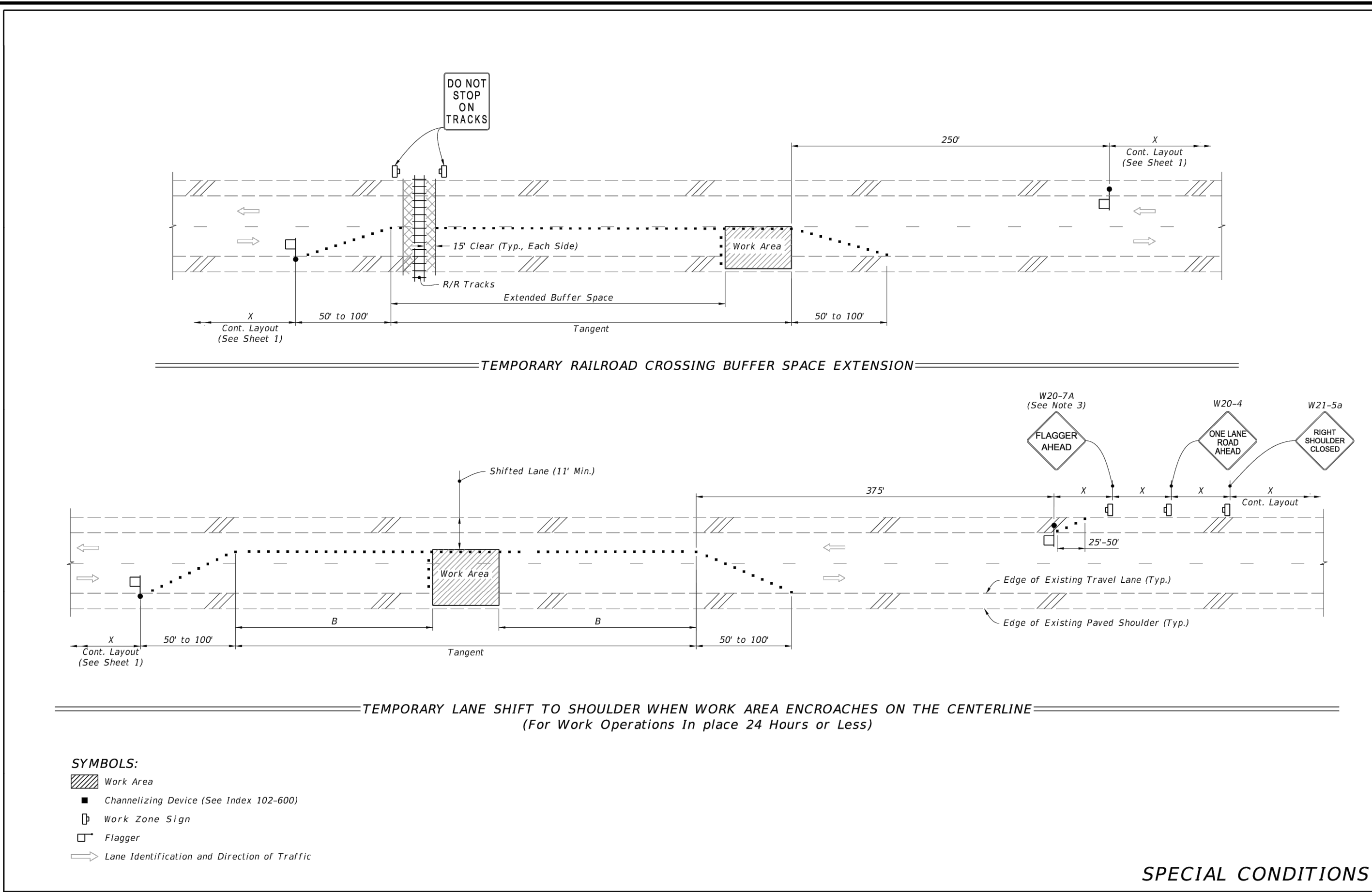


**NOTE**  
 FDOT STANDARD TTC/MOT DETAILS ARE PROVIDED AS A REFERENCE TO THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MOT PLANS NECESSARY TO COMPLETE THE WORK EFFORT(S) IN COMPLIANCE WITH OWNER'S STANDARDS FOR EACH PROJECT WORK AREA.



- NOTES:**
- This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
  - L = Taper Length  
 B = Buffer Length  
 X = Work Zone Sign Spacing  
 See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
  - Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
  - Use temporary raised rumble strips when the existing posted speed is 55 mph or greater and the work duration is greater than 60 minutes. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign spacing.
  - Additional one-way control may be provided by the following means:
    - Flag-carrying vehicle
    - Official vehicle
    - Pilot vehicles
    - Traffic signals
 When flaggers are the safe means of one-way control, the flaggers must be in sight of each other or in direct communication at all times.
  - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign spacing, may be omitted when the work operation will be in place for 24 hours or less.
  - Automated Flagger Assistance Devices (AFADs) may be used in accordance with Specification Sections 102, 990 and the APL vendor drawings.
  - Railroad Crossings:
    - If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.
    - If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.
- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Flagger
  - Lane Identification and Direction of Traffic

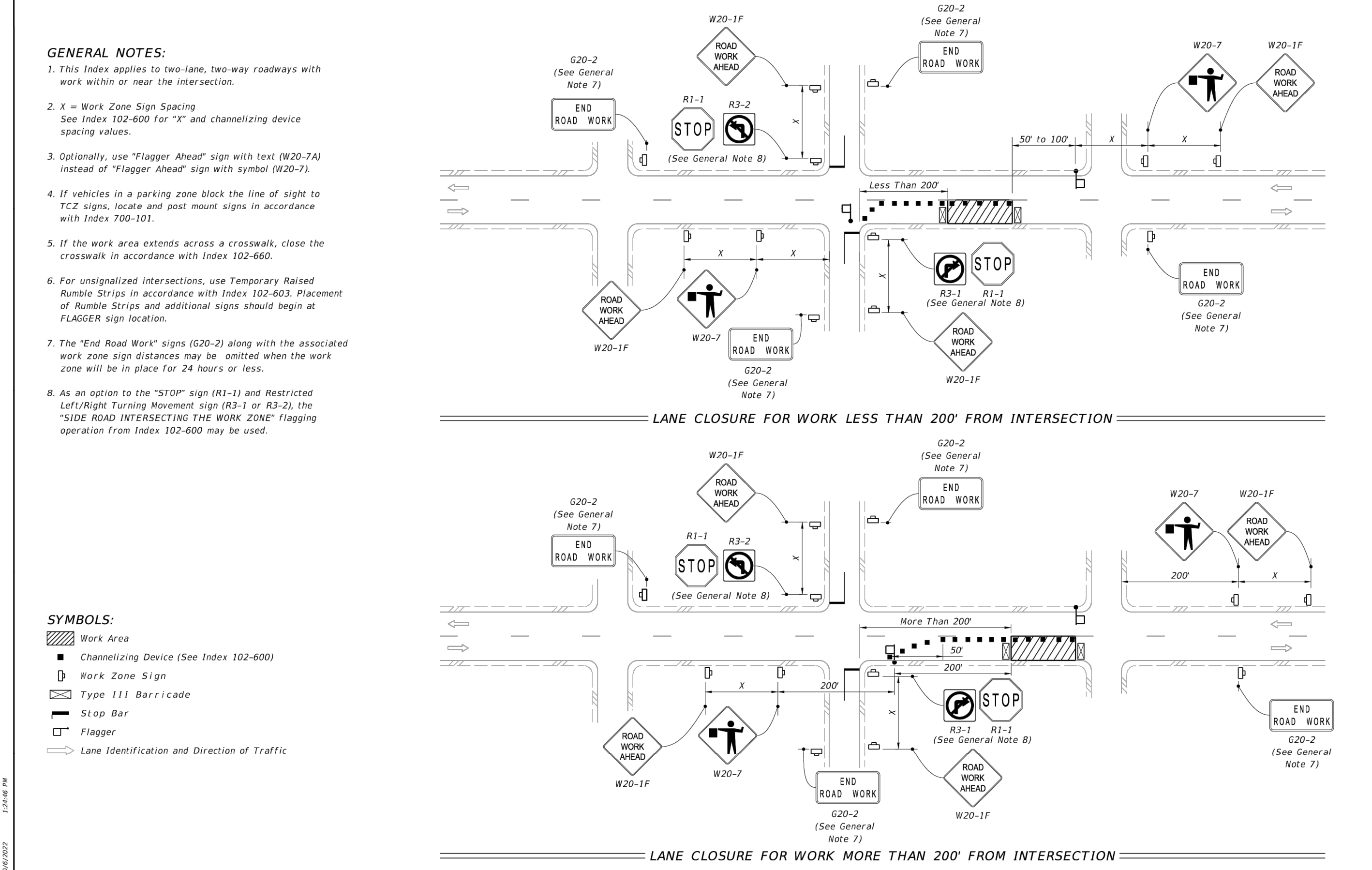
LAST REVISION 11/01/21	DESCRIPTION:	FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 1 of 2
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- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Flagger
  - Lane Identification and Direction of Traffic

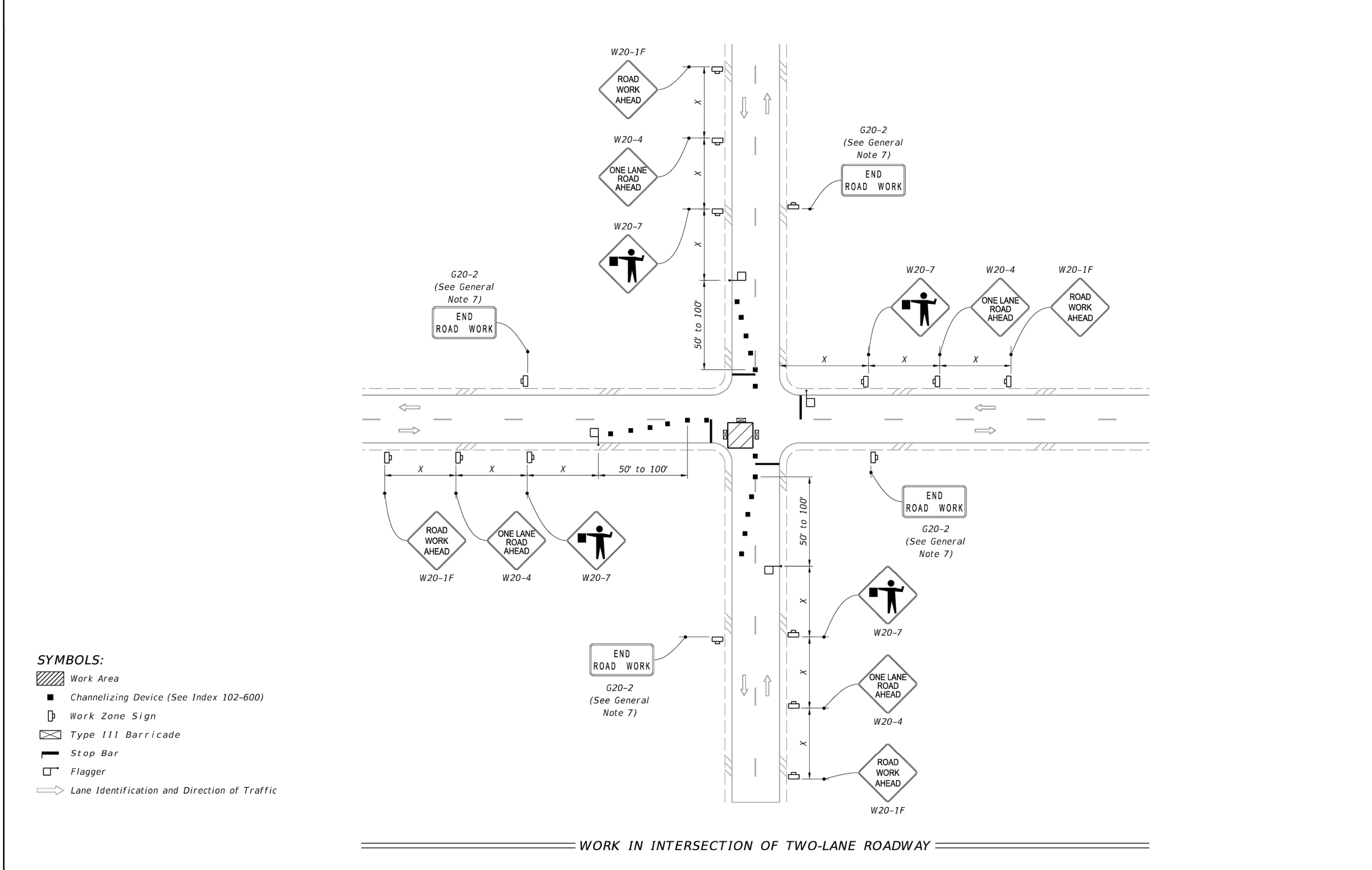
LAST REVISION 11/01/21	DESCRIPTION:	FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 2 of 2
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**SPECIAL CONDITIONS**



- GENERAL NOTES:**
- This Index applies to two-lane, two-way roadways with work within or near the intersection.
  - X = Work Zone Sign Spacing  
 See Index 102-600 for "X" and channelizing device spacing values.
  - Optionally, use "Flagger Ahead" sign with text (W20-7A) instead of "Flagger Ahead" sign with symbol (W20-7).
  - If vehicles in a parking zone block the line of sight to TCZ signs, locate and post mount signs in accordance with Index 700-101.
  - If the work area extends across a crosswalk, close the crosswalk in accordance with Index 102-650.
  - For unsignalized intersections, use Temporary Raised Rumble Strips in accordance with Index 102-603. Placement of Rumble Strips and additional signs should begin at FLAGGER sign location.
  - The "End Road Work" signs (G20-2) along with the associated work zone sign distances may be omitted when the work zone will be in place for 24 hours or less.
  - As an option to the "STOP" sign (R3-1) and Restricted Left/Right Turning Movement sign (R3-2), the "SIDE ROAD INTERSECTING THE WORK ZONE" flagging operation from Index 102-600 may be used.
- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Type III Barricade
  - Stop Bar
  - Flagger
  - Lane Identification and Direction of Traffic

LAST REVISION 11/01/22	DESCRIPTION:	FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 1 of 2
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- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Type III Barricade
  - Stop Bar
  - Flagger
  - Lane Identification and Direction of Traffic

LAST REVISION 11/01/22	DESCRIPTION:	FY 2023-24 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 2 of 2
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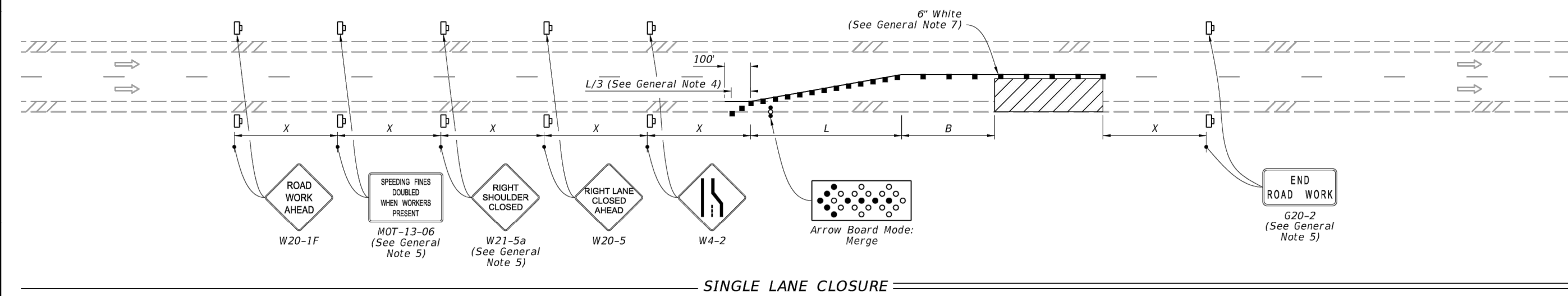


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SINGLE LANE CLOSURE

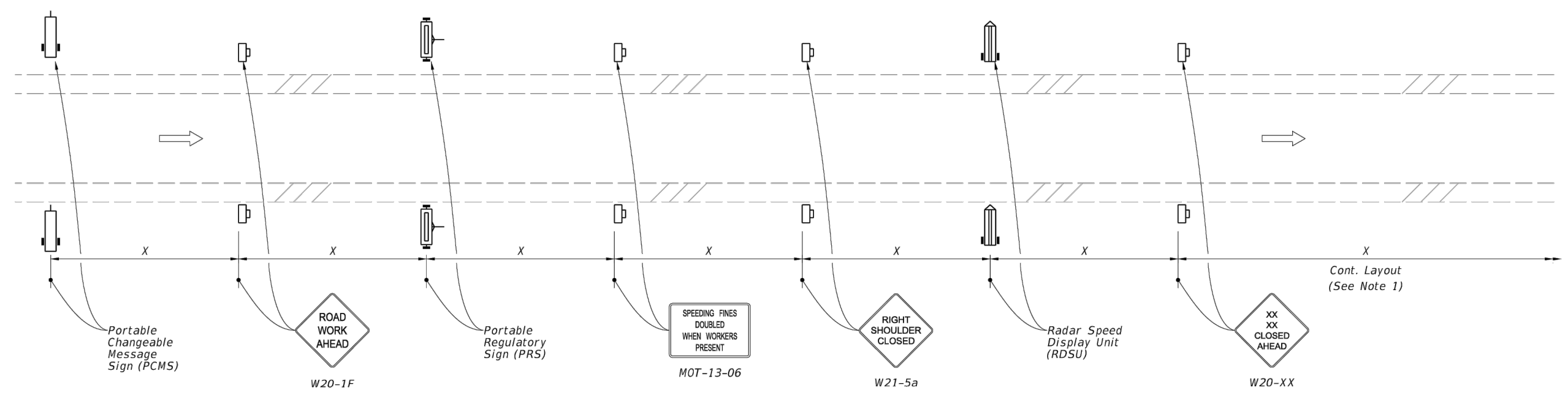
**SYMBOLS:**

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Arrow Board
- Lane Identification and Direction of Traffic

**GENERAL NOTE:**

1. L = Taper Length  
B = Buffer Length  
X = Work Zone Sign Distance  
See Index 102-600 for "L", "B", "X", and channelizing device spacing values.
2. On undivided highways the median signs as shown are to be omitted.
3. On limited access facilities, omit "Right Shoulder Closed" signs (W21-5a) and associated work zone sign spacing distances.
4. If the paved shoulder is less than 4' in width, omit the taper and channelizing devices from the paved shoulder.
5. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (W20-2) and "Right Shoulder Closed" (W21-5a), along with associated work zone sign distances, may be omitted when the work operation will be in place for 24 hours or less. For Single Lane Closures, arrow boards and buffer (B) may also be omitted when the work operation will be in place for 60 minutes or less and the speed limit is 45 mph or less.
6. Use inverted plan of the illustrations for work on left side of roadways.
7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.

**NOTE**  
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MOTORIST AWARENESS SYSTEM

**SYMBOLS:**

- Work Zone Sign
- (1) PCMS= Portable Changeable (Variable) Message Sign
- (2) PRS= Portable Regulatory Sign-Speed Limit When Flashing
- (2) RDSU= Radar Speed Display Unit
- Lane Identification and Direction of Traffic

**NOTES:**

1. Use the Motorist Awareness System (MAS) for lane closures of at least 5 days (consecutive or not) on multilane divided facilities with a posted speed of 55 or greater when workers are present and not protected by a barrier.
2. Locate the Motorist MAS devices (i.e., PCMS, PRS, and RDSU) within the advance warning signs as shown. Continue with the remainder of the work zone signs and devices in accordance with the Plans or Standard Plans after the appropriate "Lane Closed Ahead" (W20-XX) sign.
3. For a posted speed of 65 mph or greater, display speed with a ten mph reduction. For a posted speed of 60 mph, display a reduced speed of 55 mph. For areas outside of the lane closure, use the posted speed as the work zone speed.
4. Omit the PCMS in the median for roadways with three lanes or less in the same direction of traffic.

**TYPICAL PCMS DISPLAY:**

With speed reduction:  
Message 1: WORKERS PRESENT AHEAD  
Message 2: SPEED REDUCED NEXT XMI

Without speed reduction:  
Message 1: WORKERS PRESENT AHEAD  
Message 2: NEXT XX MILES

LAST REVISION 11/01/21	DESCRIPTION:	<b>FY 2023-24 STANDARD PLANS</b>	<b>MULTILANE ROADWAY, LANE CLOSURES</b>	INDEX 102-613	SHEET 1 of 5
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LAST REVISION 11/01/21	DESCRIPTION:	<b>FY 2023-24 STANDARD PLANS</b>	<b>MULTILANE ROADWAY, LANE CLOSURES</b>	INDEX 102-613	SHEET 5 of 5
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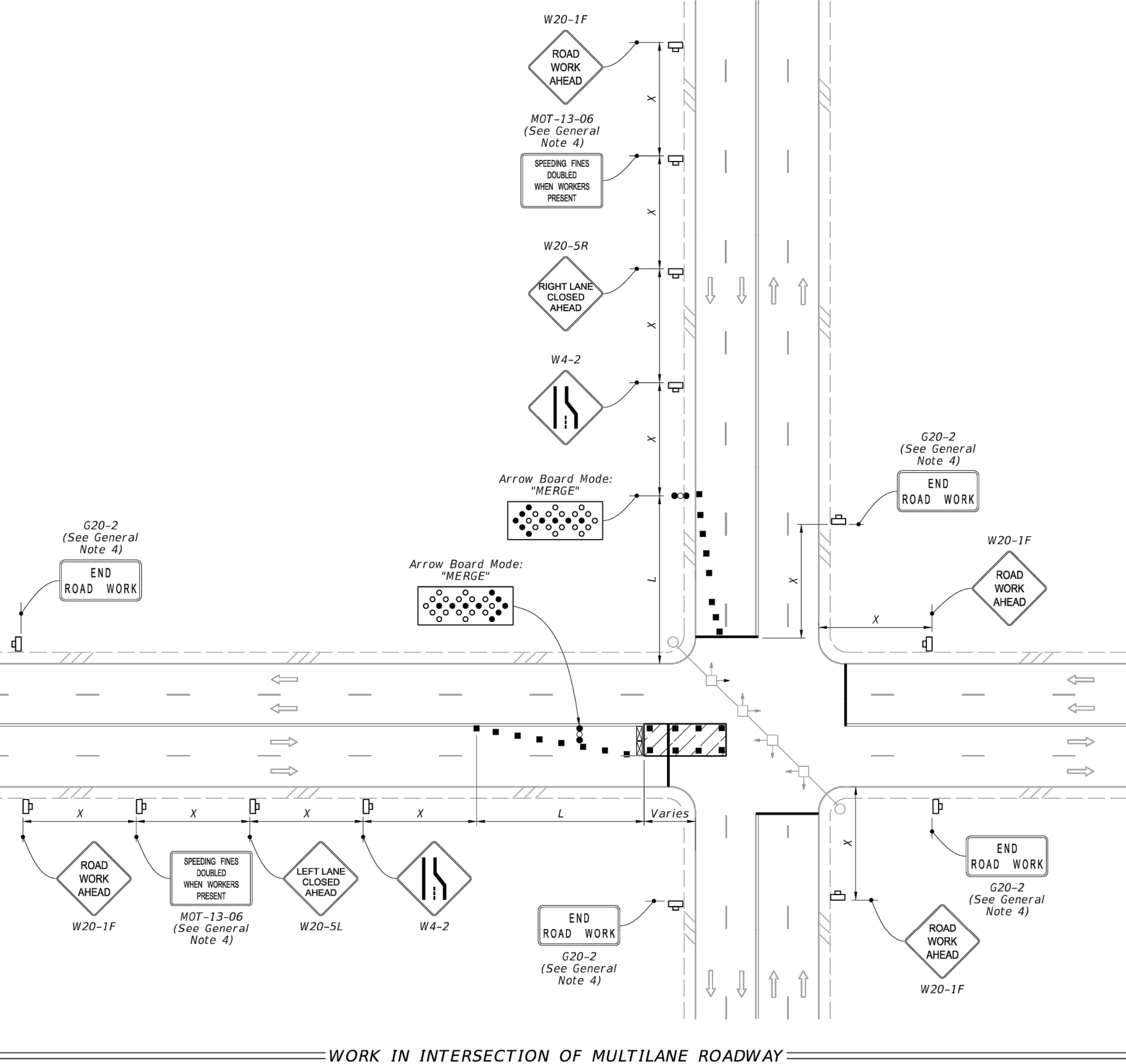
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- GENERAL NOTES:**
- L = Taper Length  
B = Buffer Length  
X = Work Zone Sign Distance  
See Index 102-600 for "L", "B", "X", and channelizing device spacing values.
  - If vehicles in a parking zone block the line of sight to TCZ signs, locate and post mount signs in accordance with Index 700-101.
  - Use temporary "STOP" sign (R1-1) where the existing stop bar is more than 30' from the taper, remove or cover existing sign.
  - The "Speeding Fines Doubled When Workers Present" sign (MOT-13-06) and "End Road Work" Sign (G20-2), along with associated Work Zone Sign Distances, may be omitted when the work operation will be in place for 24 hours or less. Additionally, arrow boards may be omitted when the work operation will be in place for 60 minutes or less and the speed limit is 45 mph or less.
  - If the work area extends across a crosswalk, close the crosswalk in accordance with Index 102-660.
  - Dual signs are required for divided roadways.

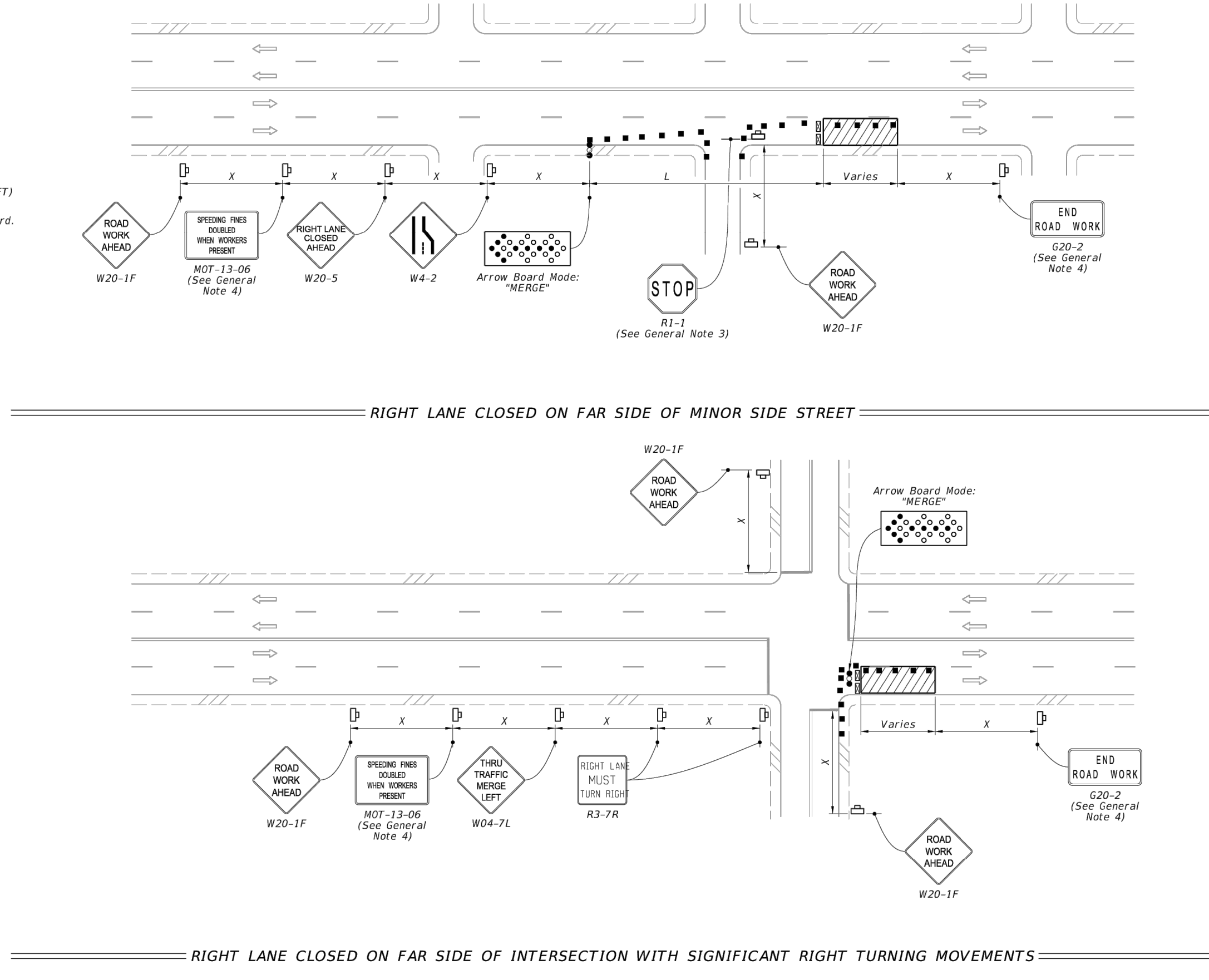
- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Type III Barricade
  - Arrow Board
  - Stop Bar
  - Lane Identification and Direction of Traffic



**NOTE:**  
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- NOTE:**  
Confine work operations to the following lane or lane combinations:
- Outside travel lane
  - Outside auxiliary lane
  - Outside travel lane and adjoining auxiliary lane
  - Inside travel lane
  - Inside auxiliary lane
  - Inside travel lane and adjoining auxiliary lane
- If the work area is confined to an auxiliary lane, the work area must be barricaded. Replace the RIGHT (LEFT) LANE CLOSED AHEAD signs with ROAD WORK AHEAD signs, and omit the merge symbol signs and arrow board.

- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Type III Barricade
  - Arrow Board
  - Stop Bar
  - Lane Identification and Direction of Traffic



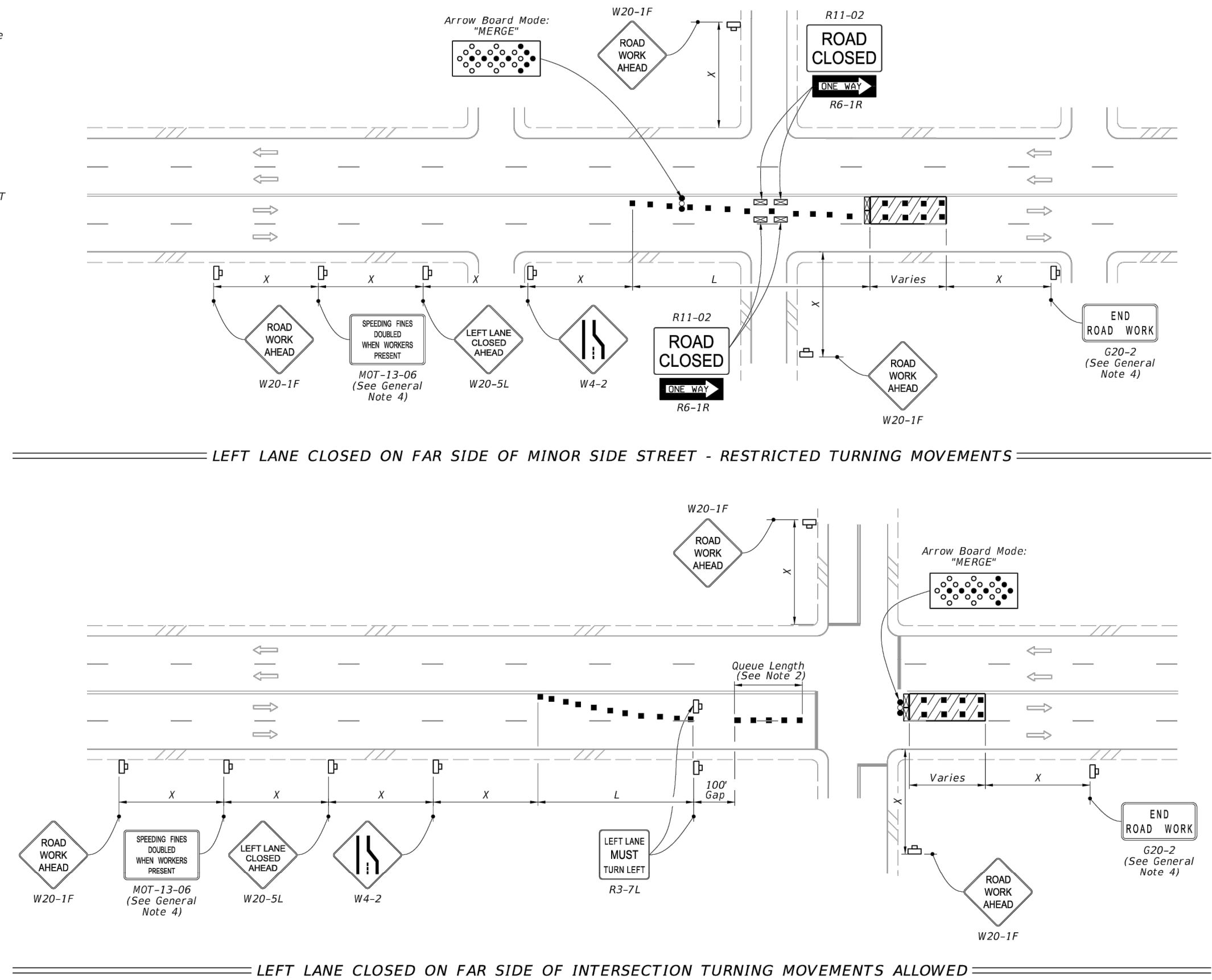
LAST REVISION: 11/01/22	DESCRIPTION: FY 2023-24 STANDARD PLANS	FY 2023-24 STANDARD PLANS	MULTILANE ROADWAY, INTERSECTION WORK	INDEX: 102-615	SHEET: 1 of 5
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LAST REVISION: 11/01/22	DESCRIPTION: FY 2023-24 STANDARD PLANS	FY 2023-24 STANDARD PLANS	MULTILANE ROADWAY, INTERSECTION WORK	INDEX: 102-615	SHEET: 2 of 5
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- NOTES:**
- Confine work operations to the following lane or lane combinations:
    - Outside travel lane
    - Outside auxiliary lane
    - Outside travel lane and adjoining auxiliary lane
    - Inside travel lane
    - Inside auxiliary lane
    - Inside travel lane and adjoining auxiliary lane

If the work area is confined to an auxiliary lane, the work area must be barricaded. Replace the RIGHT (LEFT) LANE CLOSED AHEAD signs with ROAD WORK AHEAD signs, and omit the merge symbol signs and arrow board.
  - Provide sufficient queue length so that left-turning vehicles do not block through lanes.

- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Type III Barricade
  - Arrow Board
  - Stop Bar
  - Lane Identification and Direction of Traffic



LAST REVISION: 11/01/22	DESCRIPTION: FY 2023-24 STANDARD PLANS	FY 2023-24 STANDARD PLANS	MULTILANE ROADWAY, INTERSECTION WORK	INDEX: 102-615	SHEET: 3 of 5
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