

APPENDIX

FORMS AND OTHER PROJECT DOCUMENTATION

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VERIFICATION OF EMPLOYMENT ELIGIBILITY FORM

PER FLORIDA STATUTE 448.095, CONTRACTORS AND SUBCONTRACTORS MUST REGISTER WITH AND USE THE E-VERIFY SYSTEM TO VERIFY THE WORK AUTHORIZATION STATUS OF ALL NEWLY HIRED EMPLOYEES.

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH THE BID/PROPOSAL. FAILURE TO SUBMIT THIS FORM AS REQUIRED MAY DEEM YOUR SUBMITTAL NONRESPONSIVE.

The affiant, by virtue of the signature below, certifies that:

1. The Contractor and its Subcontractors are aware of the requirements of Florida Statute 448.095.
2. The Contractor and its Subcontractors are registered with and using the E-Verify system to verify the work authorization status of newly hired employees.
3. The Contractor will not enter into a contract with any Subcontractor unless each party to the contract registers with and uses the E-Verify system.
4. The Subcontractor will provide the Contractor with an affidavit stating that the Subcontractor does not employ, contract with, or subcontract with unauthorized alien.
5. The Contractor must maintain a copy of such affidavit.
6. The City may terminate this Contract on the good faith belief that the Contractor or its Subcontractors knowingly violated Florida Statutes 448.09(1) or 448.095(2)(c).
7. If this Contract is terminated pursuant to Florida Statute 448.095(2)(c), the Contractor may not be awarded a public contract for at least 1 year after the date on which this Contract was terminated.
8. The Contractor is liable for any additional cost incurred by the City as a result of the termination of this Contract.

Authorized Signature

Printed Name

Title

Name of Entity/Corporation

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me by means of physical presence or online notarization on, this ____ day of _____, 20____, by _____ (name of person whose signature is being notarized) as the _____ (title) of _____ (name of corporation/entity), personally known _____, or produced _____ (type of identification) as identification, and who did/did not take an oath.

Notary Public

Printed Name

My Commission Expires: _____

NOTARY SEAL ABOVE

PROJECT PERMITS

UTILITY PERMIT

PERMIT NO: 2021-H-799-00456

STATE ROAD INFORMATION

County: Pinellas	Section: 15220000	State Road No: SR 60	Beginning Mile Post: 1.196	Ending Mile Post: 0.299
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APPLICANT INFORMATION

The Utility Agency Owner (UAO) shall be identified in this Applicant Information Box. When the UAO is a City or County and desires to have the Utility Builder make a joint permit applicant, as prescribed in Section 2.1(4) of the 2017 Utility Accommodation Manual (UAM), the Utility Builder shall also be identified in this Applicant Information Box. A Utility Builder alone cannot apply for a utility permit without the City or County adding them as a joint applicant.

Utility Agency/Owner (UAO)		Utility Builder (only applicable when the UAO is a City or County)	
Name:	<u>City of Clearwater Utilities</u>	Name:	_____
Contact Person:	<u>City of Clearwater Utilities</u>	Contact Person:	_____
Address:	<u>100 South Myrtle Ave.</u>	Address:	_____
City:	<u>Clearwater</u>	City:	_____
State:	<u>Florida</u>	State:	_____
Zip:	<u>33756</u>	Zip:	_____
Telephone:	<u>7275624815</u>	Telephone:	_____
Email:	<u>todd.kuhnel@myclearwater.com</u>	Email:	_____

WORK DESCRIPTION

The Applicant(s) requests permission from the Florida Department of Transportation (FDOT) to construct, operate, and maintain the utilities as described below and as depicted in the incorporated documentation.
Abandon 8" Main and install 2" PE4710 in 4" PVC or HDPE casing via Horizontal Directional Drill. See attached plans.

Utility Work No: _____

Additional sheets are attached and are incorporated into this permit Yes No

For FDEP certification, the FDOT agency report is attached in accordance with UAM Section 2.4.1 (13) Yes No

TRAFFIC CONTROL (TCP)

The TCP will comply with the following 600 series index(es) 600, 612, 613, 660

A TCP has been attached and incorporated into this permit application in compliance with UAM Section 2.4.2.

MOT Technician's contact information (may be supplied at the two (2) business day notification to FDOT):

Name: _____ Telephone: _____ Email: _____

COMMENCEMENT OF WORK

The UAO and/or Utility Builder shall commence actual construction in good faith within sixty (60) calendar days after approval of the permit application. If the beginning date is more than sixty (60) calendar days from the date of approval, the UAO and/or Utility Builder must review the permit with the FDOT Approving Engineer listed to make sure no changes have occurred to the transportation facility that would affect the permit's continued approval. The UAO and/or Utility Builder shall make good faith efforts to expedite the work and complete the work within the calendar days indicated.

Anticipated Start Date: 3/1/2022

Calendar days needed to completed: 365

Approved
 2021-H-799-00456
 Chris Gregory
 10/25/2021

Florida Department of Transportation
UTILITY PERMIT

PERMIT NO: 2021-H-799-00456

APPLICANT SIGNATURE

By the below signature(s) the UAO and/or Utility Builder agree(s) to construct, operate, and maintain the work as noted in the above Work Description, shown in plans and incorporated documents, in compliance with the UAM, all instructions noted in the FDOT Special Instructions Box, and special instructions incorporated into this permit. The UAO and/or Utility Builder declares, the location of all existing utilities that it owns or has an interest in, both aerial and underground, are accurately shown on the plans of the work areas. In accordance with UAM Section 2.8, the UAO and/or Utility Builder further declares that a letter of notification was delivered to the owners of other facilities within the work areas and that those listed below are the only facility owners known to be involved or potentially impacted by the proposed work.

Date Notified:	Name of other facility owners (attach additional sheets if necessary).
<u>8/20/2021</u>	<u>Charter Communication</u>
<u>8/20/2021</u>	<u>Duke Energy</u>
<u>8/20/2021</u>	<u>Frontier Communications</u>
<u>8/20/2021</u>	<u>Knology dba WOW</u>
<u>8/20/2021</u>	<u>MCI Verizon</u>

Utility Agency/Owner

Utility Builder (when applicable)

Signature: TODD KUHNEL (digital signature) Date: 9/29/2021
 Name (printed): TODD KUHNEL
 Title: _____

Signature: _____ Date: _____
 Name (printed): _____
 Title: _____

FDOT PROJECT INFORMATION

Pursuant to UAM Section 2.1(10), the utility work is within FDOT projects listed below and must have a Utility Work Schedule for each project approved prior to commencement of work within the FDOT project limits:

**There are NO FDOT constructions (proposed or underway).
This work is NOT related to an approved utility work Schedule.**

FDOT SPECIAL INSTRUCTIONS

In accordance with UAM Section 2.7, FDOT incorporates the below and attached special instructions into this permit.
Permittee is to contact local maintaining agency, FERROVIAL SERVICES at 727-573-7672, for roadway lighting locates prior to beginning work in State right-of-way. work and inspections must be scheduled with FERROVIAL before beginning work. Permittee shall notify FDOT RTMC at 813-615-8657 of the exact time any lane closure begins and a second notification when lane closure is removed.

Additional FDOT Special Instructions are attached and incorporated into this permit. Yes No

PERMIT APPROVAL

By signature below, FDOT gives permission to the UAO and /or Utility Builder to construct, operate, and maintain the utilities indicated in this Utility Permit in compliance with the UAM, all incorporated documents, and special instructions. Any changes to the approved work must be approved by the FDOT's Approving Engineer and attached and incorporated into this permit in accordance with UAM Section 2.11.

Approving Engineer: Chris Gregory (digital signature) Date: 10/25/2021
 Name: Chris Gregory
 Title: MAINTENANCE MANAGER/PERMITS

Notification of Utility Work to be provided to: Telephone (727) 575-8300 ext. _____ or Email: Chris.Gregory@dot.state.fl.us

An FDOT Representative is required to be present on the worksite prior to commencement of work. Yes No
 Rep. Name: Lisa Gallman Telephone 7275737672 Email: lisa.gallman@ferrovialservices.com

Approved
2021-H-799-00456
Chris Gregory
10/25/2021

Florida Department of Transportation
UTILITY PERMIT

PERMIT NO: 2021-H-799-00456

CERTIFICATION

I, the undersigned UAO and/or Utility Builder, hereby CERTIFY that the utilities were constructed and inspected in compliance with the UAM all incorporated documents, and special instructions. Pursuant to UAM Section 2.11, all changes have been approved by the FDOT's Approving Engineer and incorporated into this permit along with all other material certifications, test results, bore logs, approved plans changes, as-built plans or other required documentation.

I also CERTIFY that work began on _____ and was completed on _____ and that the area was left in as good or better condition than when the work began.

Utility Agency/Owner

Utility Builder (when applicable)

Signature: _____ Date _____

Signature: _____ Date _____

Name (printed): _____

Name (printed): _____

Title: _____

Title: _____

FINAL INSPECTION OF WORK

The work was inspected and found to be in non-compliance as noted below:

All issues of non-compliance listed above have been brought into compliance and/or FDOT has no outstanding issues that need to be addressed by the UAO and/or Utility Builder. However, this final inspection does not release the UAO and/or Utility Builder of their continuing responsibilities pursuant to Rule 14-46.001, the UAM, all incorporated documents, and special instructions.

FDOT Inspector: _____ Date: _____

Name: _____

Title: _____

Approved
2021-H-799-00456
Chris Gregory
10/25/2021

PERMIT NO.: 2021-H-799-00456

STATE ROAD INFORMATION:

NAME OF OTHER FACILITY OWNERS / DATE NOTIFIED:

Facility Name: Uniti Fiber LLC, Date Notified: 8/20/2021, Facility Name: Zayo Group, Date Notified: 8/20/2021

FDOT PROJECT INFORMATION:

There are NO FDOT constructions (proposed or underway).
This work is NOT related to an approved Utility Work Schedule.

THE WORK WAS INSPECTED AND FOUND TO BE IN NON-COMPLIANCE AS NOTED BELOW:

Approved
2021-H-799-00456
Chris Gregory
10/25/2021



REQUIRED NOTIFICATIONS

TWO (2) BUSINESS DAYS BEFORE STARTING WORK:

PERMIT TYPE	WHO TO CONTACT	WHAT TO DO
All Permits and Agreements	FDOT One-Stop Permitting (OSP)	<ul style="list-style-type: none"> • Enter MOT Technician Information. • Click on either “48 Hour Request to Begin Work” or “2 Business Day Notice”.
	FDOT Pinellas Operations Permits Asset Contractor	<ul style="list-style-type: none"> • Call Ferrovial Services at 727-573-7672 for inspections.
	Sunshine 811	<ul style="list-style-type: none"> • Call Sunshine 811 for locates (other than roadway lighting).
	FDOT Regional Traffic Management Center (RTMC)	<ul style="list-style-type: none"> • Call FDOT Regional Traffic Management Center at 813-615-8657 of the Exact Time Any Lane Closure Begins and a Second Notification When Lane Closure is Removed.
Utility Permits	Highway Lighting and ATMS Locates	<ul style="list-style-type: none"> • Highway Lighting and ATMS are not part of the Sunshine 811 Locate System. Permittee is to Contact the Maintaining Agency/Organization for Highway Lighting and ATMS Locates.
As-Needed	FDOT Advanced Dynamic Message Sign (ADMS) Arterial Locates	<ul style="list-style-type: none"> • Call FDOT SunGuide at 813-615-8613 (prefer email to Romona.Burke@dot.state.fl.us).
Permits in Active FDOT Construction Project	FDOT Construction Office	<ul style="list-style-type: none"> • Call Sherrele Darroch at 813-220-1872 to Coordinate MOT and Work.

Approved
2021-H-799-00456
Chris Gregory
10/25/2021

**THIS FDOT PERMIT COVERS
ACCESS TO FDOT RIGHT-OF-WAY
FOR PROPOSED WORK.**

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- **PERMITTEE/UAO/CONTRACTOR IS RESPONSIBLE FOR SECURING AUTHORIZATION FROM ANY PROPERTIES OUTSIDE OF THE FDOT RIGHT-OF-WAY THAT MAY BE UTILIZED FOR THE PROPOSED WORK.**
- **WORKDAYS AND TIMES ARE MONDAY THRU FRIDAY, 7:00 AM TO 5:30 PM.**

Approved
2021-H-799-00456
Chris Gregory
10/25/2021

Parent Sheet Set: 102031_RCW Imp Rev/Plot by: VANATTA, VIOLET Rev on: 8/27/2021 12:48 PM Individual File Path: V:\Projects\WSFL112\102000 Clearwater\00_Projects\04_Design\04_Drawings\01_CAD\001.dwg

SHEET INDEX

SHEET #	SHEET DESCRIPTION
01	COVER SHEET, SHEET INDEX, AND PROJECT LOCATION
02	GENERAL NOTES AND ABBREVIATIONS
03	LEGENDS AND TEST HOLE TABLE
04-08	DRUID RD (AREA A) - PLAN AND PROFILES
09-11	N MARTIN LUTHER KING JR AVE (AREA B) - PLAN AND PROFILES
12-13	FAIRMONT ST (AREA C) - PLAN AND PROFILES
14-15	FAIRMONT ST - SANITARY SEWER REPLACEMENT - PLAN AND PROFILES
16-20	MEMORIAL CAUSEWAY (AREA D) - RECONNECTIONS
21-22	CITY OF CLEARWATER STANDARD DETAILS
23-24	FDOT FY 2021-22 STANDARD PLANS DETAILS
---	AREA E, AREA F, AND AREA G - SEE SUPPLEMENTAL ATTACHMENT



CLEARWATER
BRIGHT AND BEAUTIFUL · BAY TO BEACH



RECLAIMED WATER PIPING IMPROVEMENTS AREA D

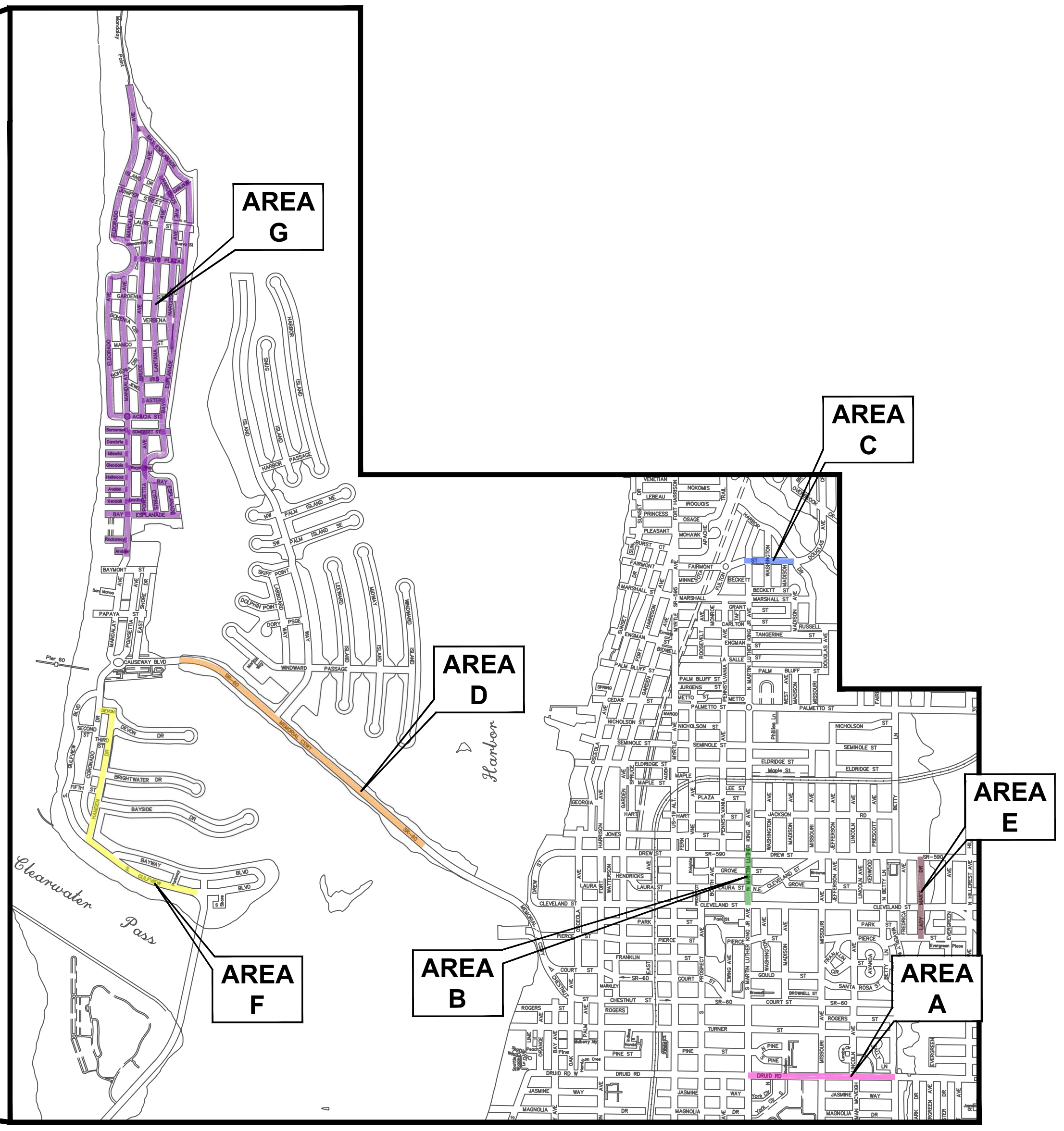
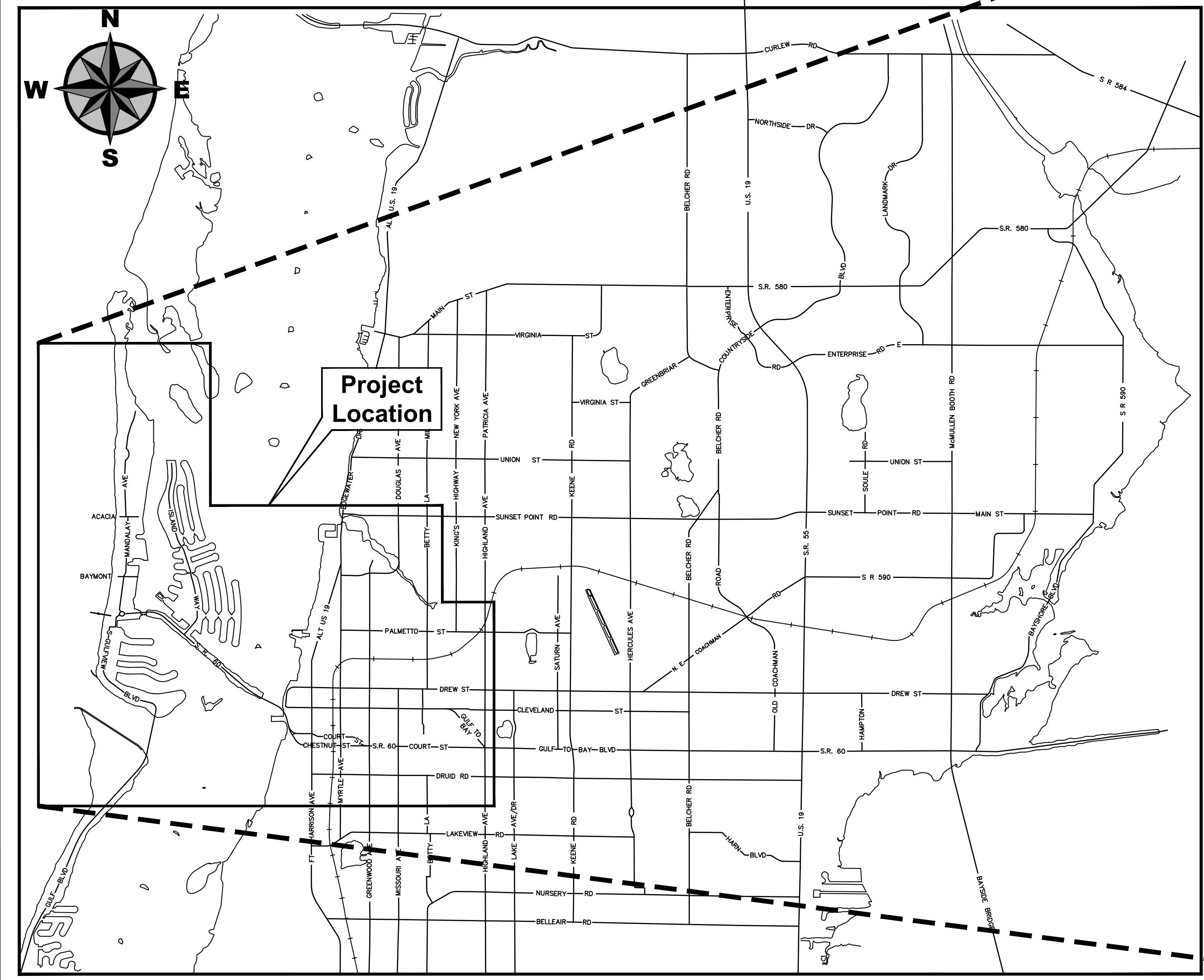
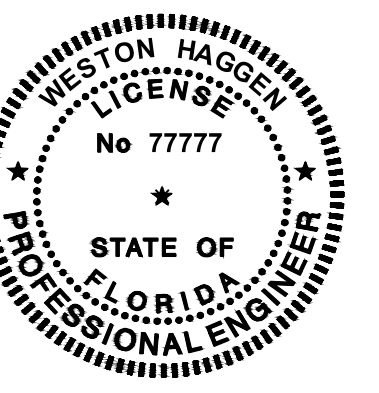


3507 EAST FRONTAGE ROAD SUITE 180
TAMPA, FL 33607
TEL: (813) 549-0919
CHA CONSULTING, INC.
CERTIFICATE OF AUTHORIZATION #28386

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY WESTON T. HAGGEN ON THE DATE ADJACENT TO THE SEAL.

Weston T. Haggen
2021.10.25 06:07:26-04'00'

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



CITY OFFICIALS

- | | |
|----------------------------|----------------------|
| <i>Frank Hibbard</i> | <i>Mayor</i> |
| <i>Mark Bunker</i> | <i>Councilmember</i> |
| <i>Kathleen Beckman</i> | <i>Councilmember</i> |
| <i>David Allbritton</i> | <i>Councilmember</i> |
| <i>Hoyt Hamilton</i> | <i>Councilmember</i> |
| <i>William B. Horne II</i> | <i>City Manager</i> |

Tara L. Kivett, P.E.
City Engineer

Approved For Construction

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

Date Approved

100% PLANS PRELIMINARY
City Project No. 18-0040-UT Task 9
City Plan Set No. 2020027

Approved
Chris Gregory
10/25/2021

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 in accordance with the local governmental agency.
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.
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.
32. A CCTV inspection of the new sewer system in digital format utilizing the industry standard Pipeline Assessment and Certification Program (PACP) coding system shall be provided to the City. The video shall be taken prior to placing the new sewer system into service. Data will be collected utilizing CUES Granite software.
33. Installation of gravity sewer pipe shall be in conformance with recommended practices contained in Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications ASTM D2321. Connections to manholes with sanitary pipe shall use a joint two (2) feet in length and shall use an approved water stop around pipe joint entry.
34. The bottom trench width in an unsupported trench shall be limited to the minimum practicable width allowing working space to place and compact the hunching 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.
35. 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.
36. 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.
37. 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.
38. The Contractor shall protect private property.

- 39. All RCW water service lines and meter boxes shall be installed with a minimum five (5) foot separation from existing potable water meter boxes and service lines, however separation may be reduced to three (3) foot where space is limited as approved by City's Engineering Representative.
40. The Contractor shall provide the City 60 days notice prior to starting any service line connections.
41. City of Clearwater to provide RCW service meter box location sheets to City's Engineering Representative directing location of RCW meter boxes to be installed.
42. All lane closures and work affecting traffic shall be scheduled, coordinated, and approved by the City. No lane closures on Memorial Causeway (SR60) will be allowed during Spring Break.

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. The last date of field survey is 03-03-2021.

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, Description, Abbreviation, Description. Includes entries like ABAN (ABANDON(ED)), FLEX (FLEXIBLE), QTY (QUANTITY), 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.

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

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

CALL 811 SUNSHINE STATE ONE CALL OF FLORIDA www.call811sunshine.com (800) 432-4770 MIN. 48 HOURS BEFORE YOU EXCAVATE

CITY OF CLEARWATER RECLAIMED WATER PIPING IMPROVEMENTS 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., APPROVED BY.

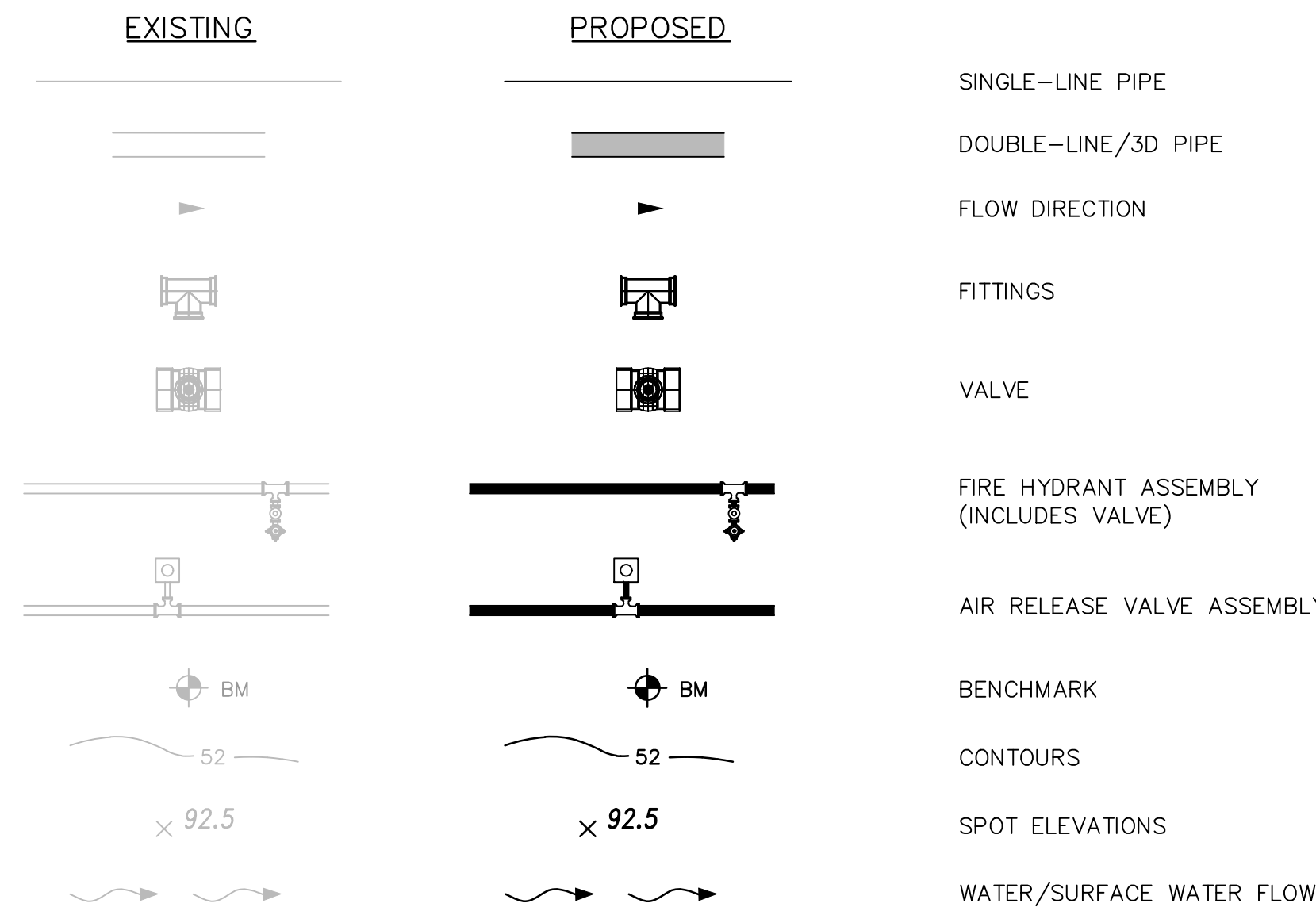
CHA CONSULTING, INC. 3507 EAST FRONTAGE ROAD SUITE 100 TAMPA, FL 33607 TEL: (813) 549-8919 CERTIFICATE OF AUTHORIZATION #28386

Parent Sheet Set: 102031 - RCW Imp. Rev/PLOT by: VANATTA, WOLET Rev on: 8/9/2021 9:19 AM Individual File Path: V:\Projects\MSFL112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\02

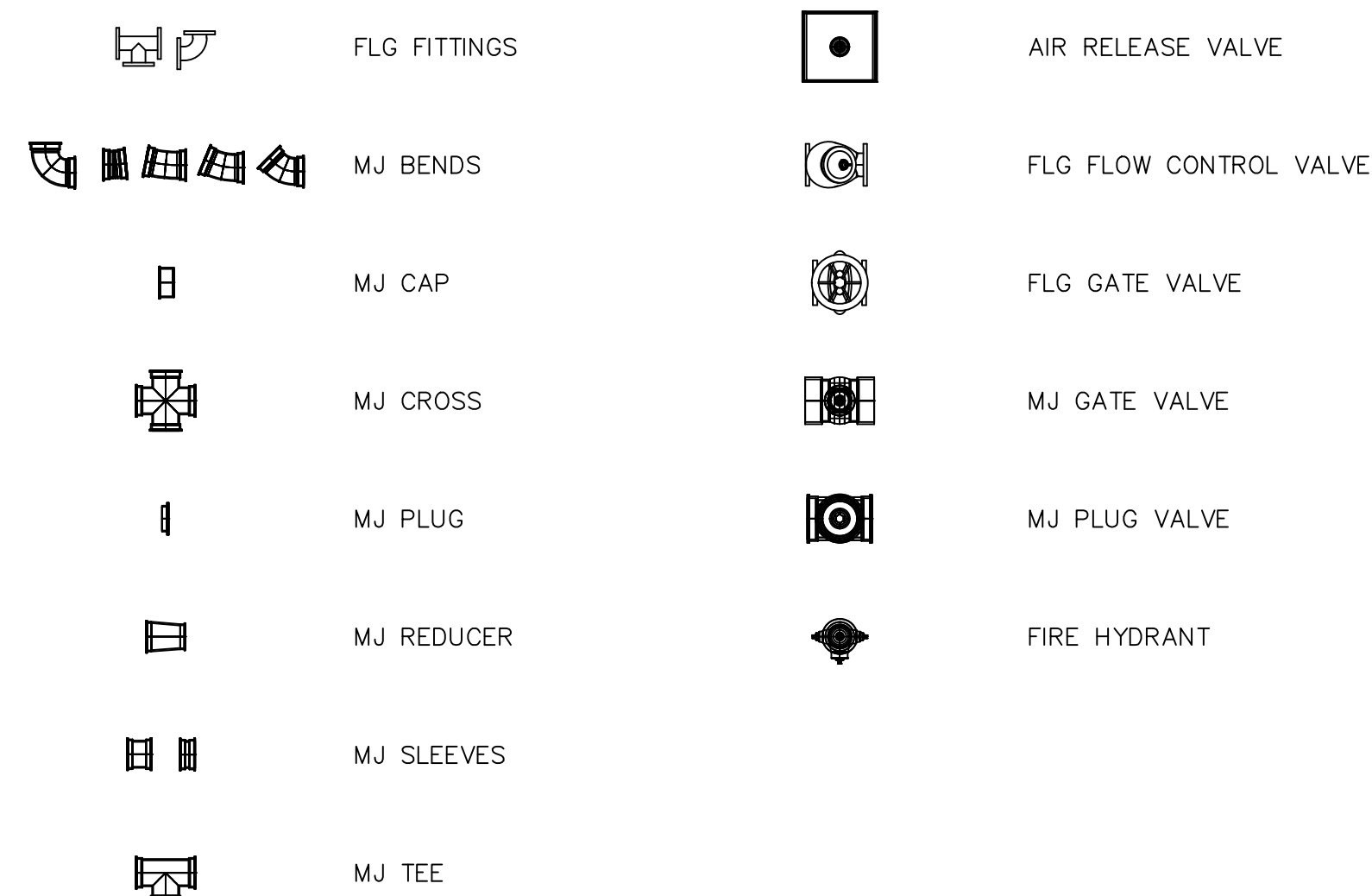
Approved 2021-11-799-00456 DATE 10/25/2021

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CIVIL SYMBOLS LEGEND



FITTINGS AND VALVES (DOUBLE-LINE/3D)



SURVEY LEGEND

ASPH. = ASPHALT
 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
 ID. = IDENTIFICATION
 INV. = INVERT
 MKR. = MARKER
 N = NORTH OR NORTHING
 PEDS. = PEDESTRIANS
 PVC = POLYVINYL CHLORIDE
 RCW = RECLAIMED WATER
 SRVC. = SERVICE
 S/L = STREET LIGHTING
 SWK. = SIDEWALK
 T/S = TRAFFIC SIGNAL
 W/ = WITH
 W.U.P. = WOOD UTILITY POLE

UTILITY OWNERS

Spectrum
 Attention: Mr. Ted Bingham
 700 Carillon Parkway, Suite 6
 St. Petersburg, Florida 3716-1123
 Phone: (727) 562-2847

Frontier Communications, Inc.
 Attention: Mr. Chris Blauvelt
 MC, FLCW5933
 1280 Cleveland Street
 Clearwater, Florida 33782
 Phone: (727) 562-1130

Wide Open West (WOWI)
 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

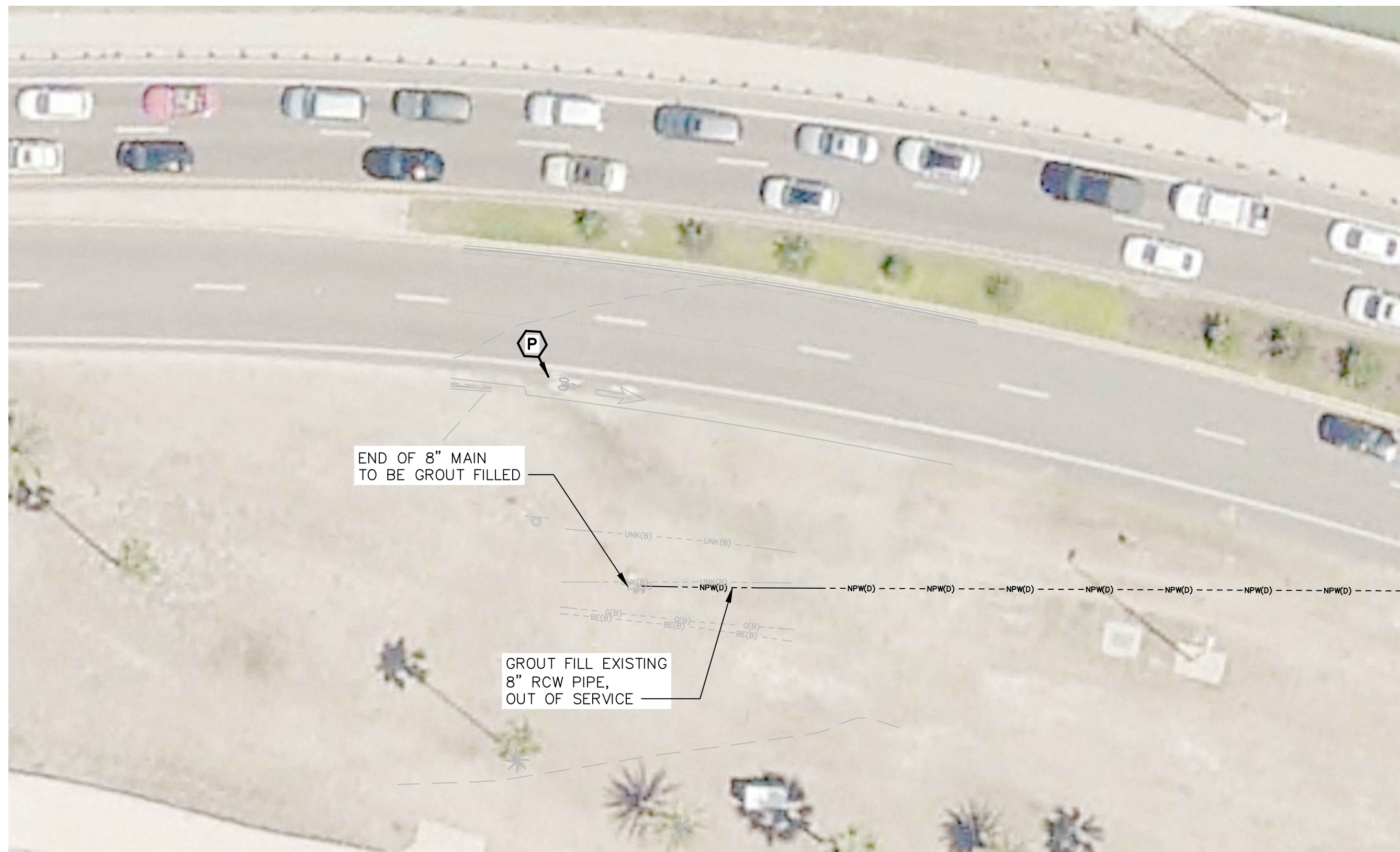
City of Clearwater
 Engineering Department - Traffic Division
 Attention:
 100 South Myrtle Avenue, Room 220
 Clearwater, Florida 33756-4748
 Phone: (727) 562-4794

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: Mr. Glenn Daniel
 1650 North Arcturus Avenue
 Clearwater, Florida 33755
 Phone: (727) 562-4960 Ext. 7248

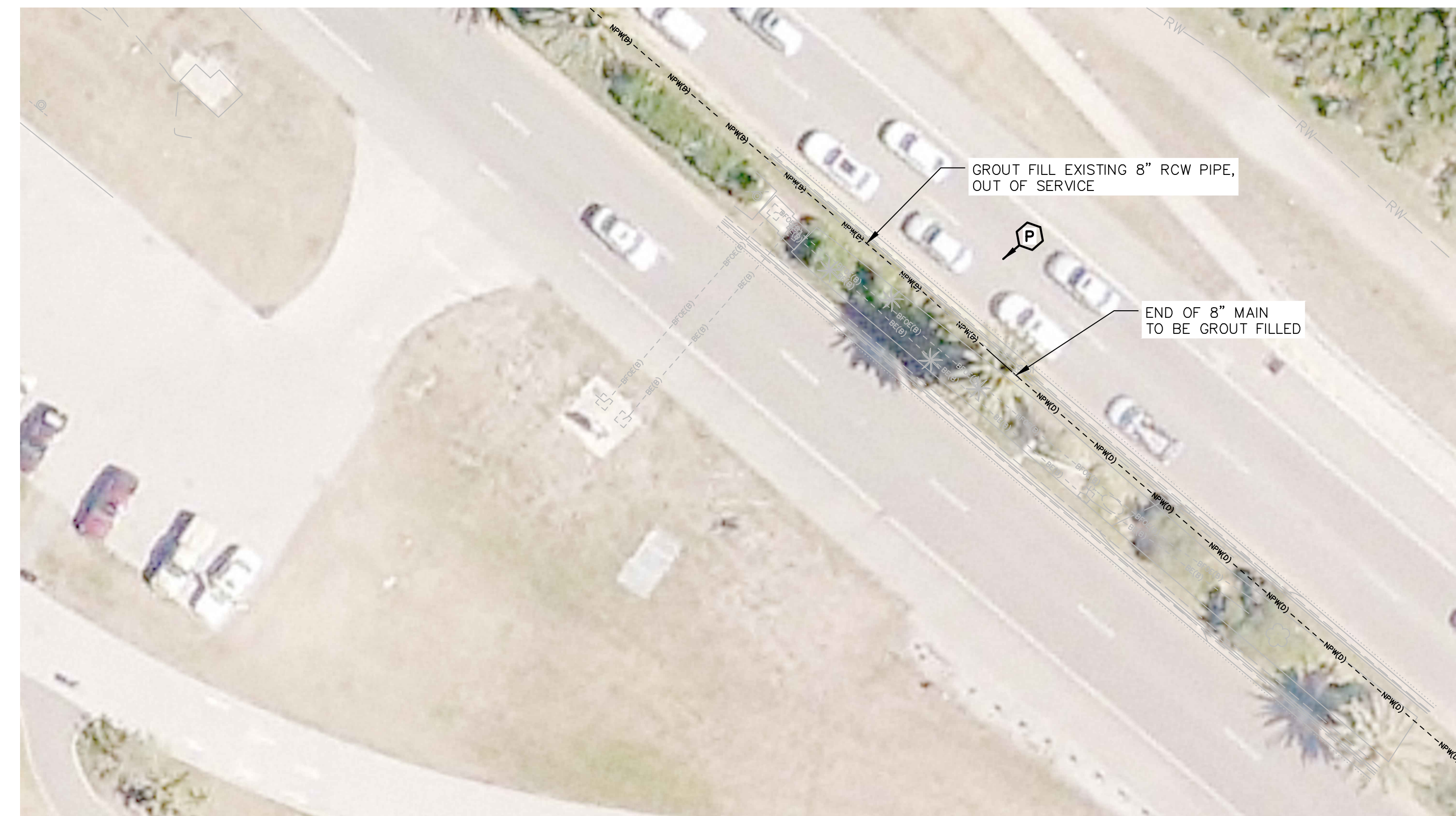
Test Hole	Utility Type	Utility Material	Utility Size Outside Diameter	Utility Manual Depth	Identified By	Surface Type	Surface Thickness inches	Apparent Utility Owner	Northing	Easting	Ground Elevation	Utility Elevation
AREA "A" - DRUID RD.												
1-1	RCW	PVC	4"	2.32'	IRC	NG	N/A	CITY OF CLEARWATER	1317946.76'	400640.40'	45.12'	42.80'
1-2	RCW	PVC	4"	3.16'	IRC	NG	N/A	CITY OF CLEARWATER	1317955.87'	400977.33'	39.87'	36.71'
1-3	WS	PVC	1.5"	1.42'	IRC	NG	N/A	CITY OF CLEARWATER	1317946.94'	401353.13'	31.34'	29.92'
1-4	WM	CI	8"	2.20'	IRC	NG	N/A	CITY OF CLEARWATER	1317937.42'	401582.19'	27.88'	25.68'
1-5	GM	PE	2"	2.74'	IRC	NG	N/A	CLEARWATER GAS	1317928.61'	401708.14'	28.95'	26.21'
1-6	GM	PE	2"	3.26'	IRC	NG	N/A	CLEARWATER GAS	1317922.57'	402455.12'	30.48'	27.22'
1-7	BT	DBC	1.5"	2.92'	IRC	NG	N/A	CITY OF CLEARWATER	1317914.56'	402516.14'	29.68'	26.76'
1-8	GM	PE	2"	2.22'	IRC	NG	N/A	CLEARWATER GAS	1317915.38'	402520.48'	29.37'	27.15'
1-9	WM	DIP	6"	3.48'	IRC	NG	N/A	CITY OF CLEARWATER	1317914.15'	402558.85'	28.98'	25.50'
1-10	GM	PE	2"	2.66'	IRC	NG	N/A	CLEARWATER GAS	1317929.18'	402784.10'	25.02'	22.36'
1-11	BE	PE	1"	2.50'	IRC	NG	N/A	TECO	1317936.80'	402849.32'	24.15'	21.65'
1-12	UNK	CI	1"	1.68'	IRC	NG	N/A	UNKNOWN	1317936.66'	402848.56'	24.14'	22.46'
1-13	GM	PE	2"	3.18'	IRC	NG	N/A	CLEARWATER GAS	1317928.03'	402900.11'	23.86'	20.68'
1-14	TS	PVC	2-2"	2.12'	NL	ASPH	6"	CITY OF CLEARWATER	1317941.13'	401857.31'	32.38'	30.26'
1-15	WM	CI	10"	3.02'	NL	ASPH	6"	CITY OF CLEARWATER	1317915.10'	401953.23'	34.85'	31.83'
1-16	FOC	PE	2-1.5"	5.56'	NL	ASPH	6"	UNKNOWN	1317914.35'	401959.16'	34.74'	29.18'
1-17	FOC	PE	2" & 2-1.5"	5.56'	NL	ASPH	6"	UNKNOWN	1317914.67'	401959.94'	34.70'	29.14'
1-18	FOC	PE	2"	4.26'	NL	ASPH	6"	FRONTIER	1317941.19'	401856.48'	32.36'	28.10'
1-19	FOC/BT DUCT	DBC/AC	28"	3.74'	NL	ASPH	3"	FRONTIER	1317891.18'	401890.08'	35.43'	31.69'
1-20	FOC/BT DUCT	DBC/AC	28"	3.74'	NL	ASPH	3"	FRONTIER	1317890.95'	401892.83'	35.54'	31.80'
1-21	UNK	PVC	2-2"	5.44'	NL	ASPH	6"	CITY OF CLEARWATER	1317925.94'	401971.15'	34.45'	29.01'
AREA "B" - N. MARTIN LUTHER KING AVE.												
2-1	GM	PE	4"	3.56'	IRC	NG	N/A	CLEARWATER GAS	1321322.72'	400571.80'	35.41'	31.85'
2-2	FOC	PE	2"	2.64'	IRC	NG	N/A	MCI	1321323.53'	400571.61'	35.42'	32.78'
2-3	BT	PVC & DBC	2-4" & 1"	2.90' & 3.12'	IRC	NG	N/A	FRONTIER	1321910.69'	400569.05'	32.25'	29.35' & 29.13'
2-4	TS	PVC	2-2"	4.88'	IRC	NG	N/A	CITY OF CLEARWATER	1321992.51'	400572.00'	30.88'	26.00'
2-5	GM	STL	2"	2.00'	IRC	NG	N/A	CLEARWATER GAS	1321979.84'	400563.77'	31.05'	29.05'
2-6	FOC/BT	PVC	MULT. 4"	4.70'	IRC	NG	N/A	FRONTIER	1321982.21'	400567.00'	30.84'	26.14'
2-7	FOC/BT	PVC	MULT. 4"	4.82'	IRC	NG	N/A	FRONTIER	1321980.20'	400565.83'	30.90'	26.08'
2-11	BE	PVC	3-2"	2.26'	NL	ASPH	3"	TECO	1321071.75'	400565.87'	33.11'	30.85'
2-12	BE	PVC	2-2"	2.14'	NL	ASPH	3"	TECO	1321086.82'	400570.05'	33.37'	31.23'
2-13	BE	CONC CAP	30"	2.68'	NL	ASPH	6"	TECO	1321356.91'	400561.50'	35.55'	32.87'
2-14	BE	CONC CAP	30"	2.68'	NL	ASPH	6"	TECO	1321354.49'	400561.51'	35.57'	32.89'
2-15	WM	DIP	6"	2.02'	NL	ASPH	6"	CITY OF CLEARWATER	1321372.42'	400571.64'	35.44'	33.42'
2-16	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 14"				X	CONC	9"	FRONTIER	1321067.54'	400564.59'	32.97'	N/A
2-17	WS	CI	2.5"	1.26'	NL	ASPH	6"	CITY OF CLEARWATER	1321679.96'	400571.84'	33.80'	32.54'
2-18	FOC	PE	1.5"	6.64'	NL	ASPH	6"	FRONTIER	1321635.19'	400574.17'	34.43'	27.79'
2-19	WM	PVC	4"	2.38'	NL	ASPH	6"	CITY OF CLEARWATER	1321930.78'	400568.53'	31.46'	29.08'
2-20	FOC	PE	2-1.5"	4.38'	IRC	NG	N/A	FRONTIER	1321922.33'	400566.52'	32.04'	27.66'
2-21	RCW	PVC	4"	2.58'	IRC	NG	N/A	CITY OF CLEARWATER	1321203.93'	400571.35'	30.50'	27.92'
2-22	WM	PVC	18"	3.42'	NL	ASPH	3"	CITY OF CLEARWATER	1321017.44'	400563.20'	33.07'	29.65'
2-23	RCW	PVC	6"	3.50'	NL	ASPH	3"	CITY OF CLEARWATER	1321027.00'	400565.19'	33.37'	29.87'
2-24	WM	PVC	8"	3.12'	NL	ASPH	3"	CITY OF CLEARWATER	1321043.85'	400554.72'	33.13'	30.01'
2-25	FOC/BT	AC	3-4"	3.76'	NL	ASPH	3"	FRONTIER	1321965.36'	400568.93'	31.43'	27.67'
2-26	WM	CI	6"	1.80'	NL	ASPH	3"	CITY OF CLEARWATER	1321968.85'	400569.17'	31.30'	29.50'
AREA "C" - FAIRMONT ST.												
3-1	WM	CI	12"	2.34'	IRC	NG	N/A	CITY OF CLEARWATER	1327229.91'	400617.82'	12.96'	10.62'
3-2	GM	CI	2"	2.26'	IRC	NG	N/A	CLEARWATER GAS	1327227.13'	400617.29'	13.02'	10.76'
3-3	GM	PE	2"	1.80'	IRC	NG	N/A	CLEARWATER GAS	1327224.17'	400616.07'	12.99'	11.19'
3-4	FOC	PVC	3"	6.20'	NL	ASPH	N/A	FRONTIER	1327238.26'	400615.35'	12.43'	6.23'
3-5	RCW	PVC	4"	3.70'	X	NG	N/A	CITY OF CLEARWATER	1327218.09'	400584.22'	12.99'	9.29'
3-6	GM	PE	2"	2.46'	IRC	NG	N/A	CLEARWATER GAS	1327214.90'	400583.85'	13.05'	10.59'
3-7	WM	PVC	6"	2.10'	IRC	NG	N/A	CITY OF CLEARWATER	1327224.02'	400959.76'	11.37'	9.27'
3-8	GM	PE	2"	2.40'	IRC	NG	N/A	CLEARWATER GAS	1327211.95'	400918.60'	11.79'	9.39'
3-9	GM	STL	2"	2.76'	IRC	NG	N/A	CLEARWATER GAS	1327221.56'	400917.16'	11.66'	8.90'
3-10	GM	PE	2"	2.62'	IRC	NG	N/A	CLEARWATER GAS	1327223.63'	401265.69'	9.22'	6.60'
3-11	WM	CI	2"	2.06'	IRC	NG	N/A	CITY OF CLEARWATER	1327223.60'	401266.90'	9.35'	7.29'
3-12	WM	CI	6"	2.50'	NL	ASPH	2"	CITY OF CLEARWATER	1327229.80'	401415.72'	8.03'	5.53'
3-13	RCW	DIP	12"	4.62'	NL	ASPH	2"	CITY OF CLEARWATER	1327229.79'	401428.37'	8.07'	3.45'
AREA "D" - CLEARWATER MEMORIAL CAUSEWAY												
4-1	RCW	DIP	16"	2.44'	IRC	NG	N/A	CITY OF CLEARWATER	1325053.03'	391222.18'	6.19'	3.75'
4-2	FOC	HDPE	3"	2.18'	IRC	NG	N/A	FRONTIER	1325053.39'	391226.83'	6.36'	4.18'
4-3	BE	PVC	1.5"	1.20'	NL	ASPH	3"	TECO	1325067.09'	391239.23'	7.08'	5.88'
4-4	BED	CONC CAP	24"	2.76'	NL	ASPH	3"	TECO	1325067.54'	391239.47'	7.10'	4.34'
4-5	BED	CONC CAP	24"	2.76'	NL	ASPH	3"	TECO	1325067.85'	391239.79'	7.13'	4.37'
4-6	BE	PVC	1.5"	1.14'	NL	ASPH	3"	TECO	1325069.20'	391240.80'	7.24'	6.10'
4-7	BED	CONC CAP	24"	2.84'	NL	ASPH	3"	TECO	1324642.25'	391738.99'	6.87'	4.03'
4-8	BED	CONC CAP	24"	2.70'	NL	ASPH	3"	TECO	1324640.59'	391737.67'	6.79'	4.09'
4-9	BE	PVC	1.5"	0.98'	NL	ASPH	N/A	TECO	1324641.04'	391738.14'	6.82'	5.84'
4-10	RCW/FOC	PVC & HDPE	1.5" & 3"	0.82' & 1.92'	IRC	NG	N/A	CLEARWATER & FRONTIER	1324629.40'	391727.46'	6.26'	5.44' & 4.34'
4-11	RCW	DIP	16"	2.34'	IRC	NG	N/A	CITY OF CLEARWATER	1324628.16'	391726.85'	6.17'	3.83'
4-12	RCW	DIP	16"	2.68'	IRC	NG	N/A	CITY OF CLEARWATER	1323655.26'	393039.65'	4.14'	1.46'
4-13	BT	DBC	1" & 2"	1.42'	NL	ASPH	3"	FRONTIER	1323653.82'	392993.80'	6.82'	5.40'
4-14	WS/RCW	PVC	2" & 3"	1.00'	IRC	NG	N/A	CITY OF CLEARWATER	1323629.72'	392975.51'	8.20'	7.20'
4-15	WS	PVC	2"	1.60'	IRC	NG	N/A	CITY OF CLEARWATER	1325096.09'	391265.05'	8.48'	6.88'
4-16	RCW	PVC	16"	2.86'	IRC	NG	N/A	CITY OF CLEARWATER	1322876.73'	393938.09'	4.55'	1.69'
4-17	BT	DBC	1"	1.92'	NL	ASPH	3"	FRONTIER	1322860.00'	393918.80'	6.51'	4.59'
4-18	BT	DBC	2"	1.46'	NL	ASPH	3"	FRONTIER	1322859.13'	393918.16'	6.00'	5.14'
4-19	RCW	PVC	4"	2.14'	IRC	NG	N/A	CITY OF CLEARWATER	1322835.04'	393903.04'	7.74'	5.60'
4-20	RCW	DIP	16"	3.20'	IRC	NG	N/A	CITY OF CLEARWATER	1323215.29'	393535.40'	5.06'	1.86'
4-21	BT	DBC	1"	1.34'	NL	ASPH	3"	FRONTIER	1323201.13'	393522.29'	6.63'	5.29'
4-22	BT	DBC	2"	1.50'	NL	ASPH	3"	FRONTIER	1323200.56'	393521.82'	6.66'	5.16'
4-23	WS	PVC	1.5"	1.06'	IRC	NG	N/A	CITY OF CLEARWATER	1323179.19'			



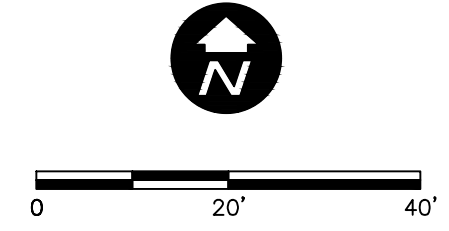
D1 – GROUT FILL TERMINATION POINT – PLAN



D4 – INSTALL CAP AND PLUG VALVE – PLAN



D8 – GROUT FILL TERMINATION POINT – PLAN



LEGEND
 PHOTO LOCATION AND DIRECTION

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RECORD DRAWINGS		DATE	BY
SURVEYED BY: N/A	DRAWN BY: VVV		
REVIEWED BY:		08/2021	VVV
		06/2021	VVV
		04/2021	VVV
APPROVED BY:			

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



CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 MEMORIAL CAUSEWAY (AREA D) RECONNECTIONS – D1, D4 AND D8
 PLANS

DWG NAME: C14	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 21-0029-UT	DATE DRAWN: 10/2021	DRAWN BY: VVV	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY: WTH	CHECKED BY: SC/MKW	SHEET NO. 17 OF 24
APPROVED BY:			

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

Approved
 2021-H-799-00456
 DATE: 10/25/2021

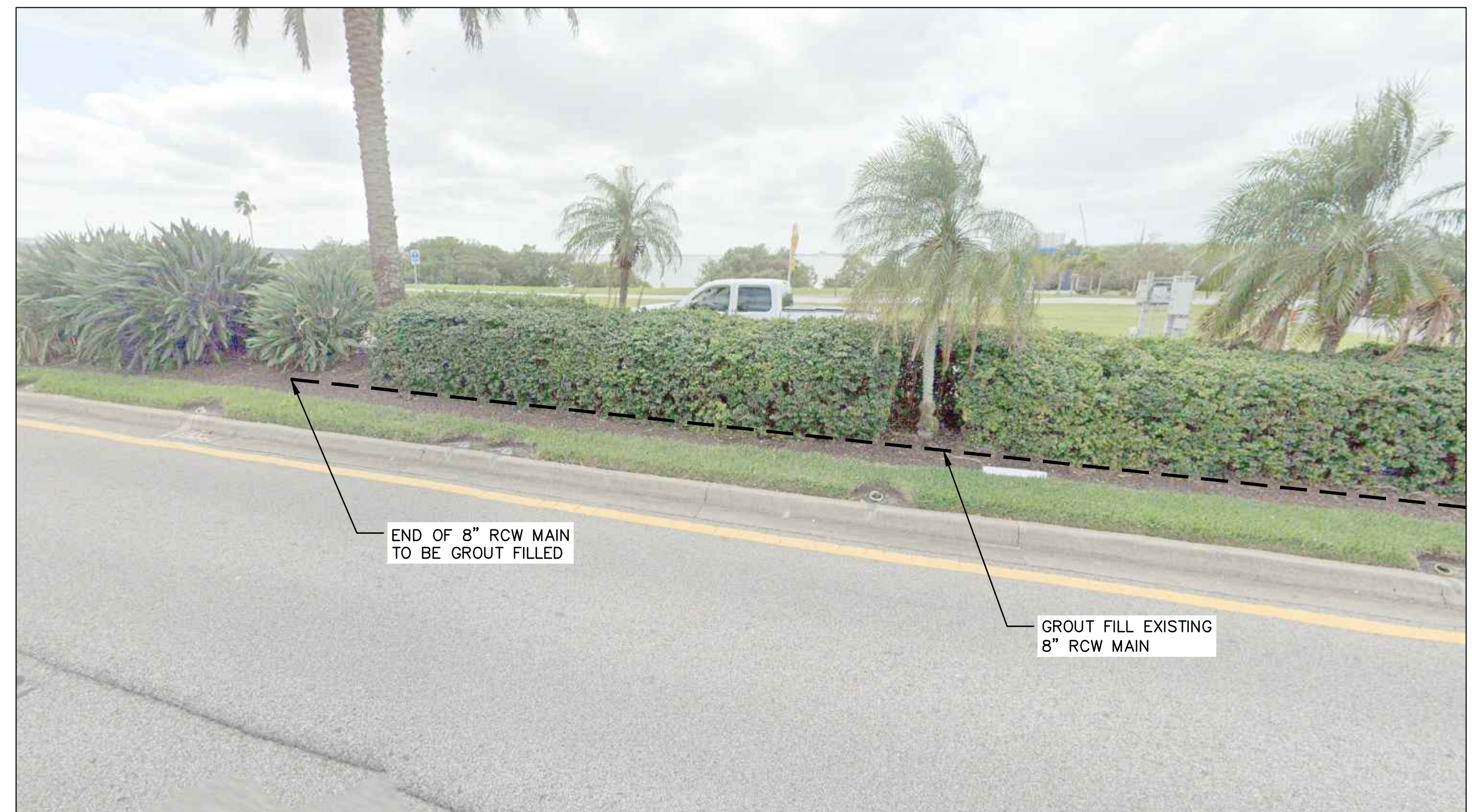
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LOCATION D1



LOCATION D4



LOCATION D8

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

RECORD DRAWINGS		DATE	BY
SURVEYED BY: N/A	DRAWN BY: VVV		
REVIEWED BY:	PROJECT ENGINEER	DATE	
APPROVED BY:		DATE	

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

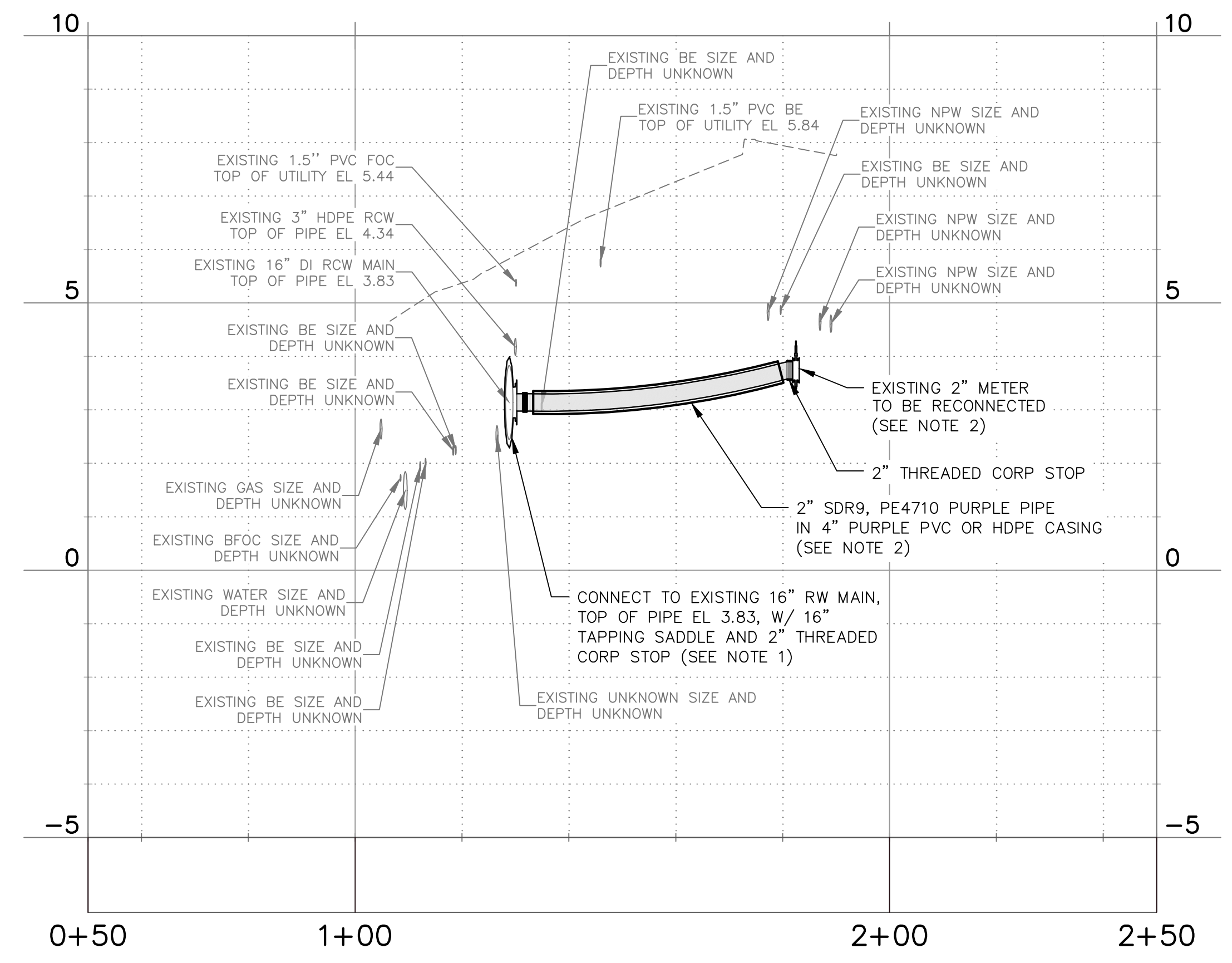
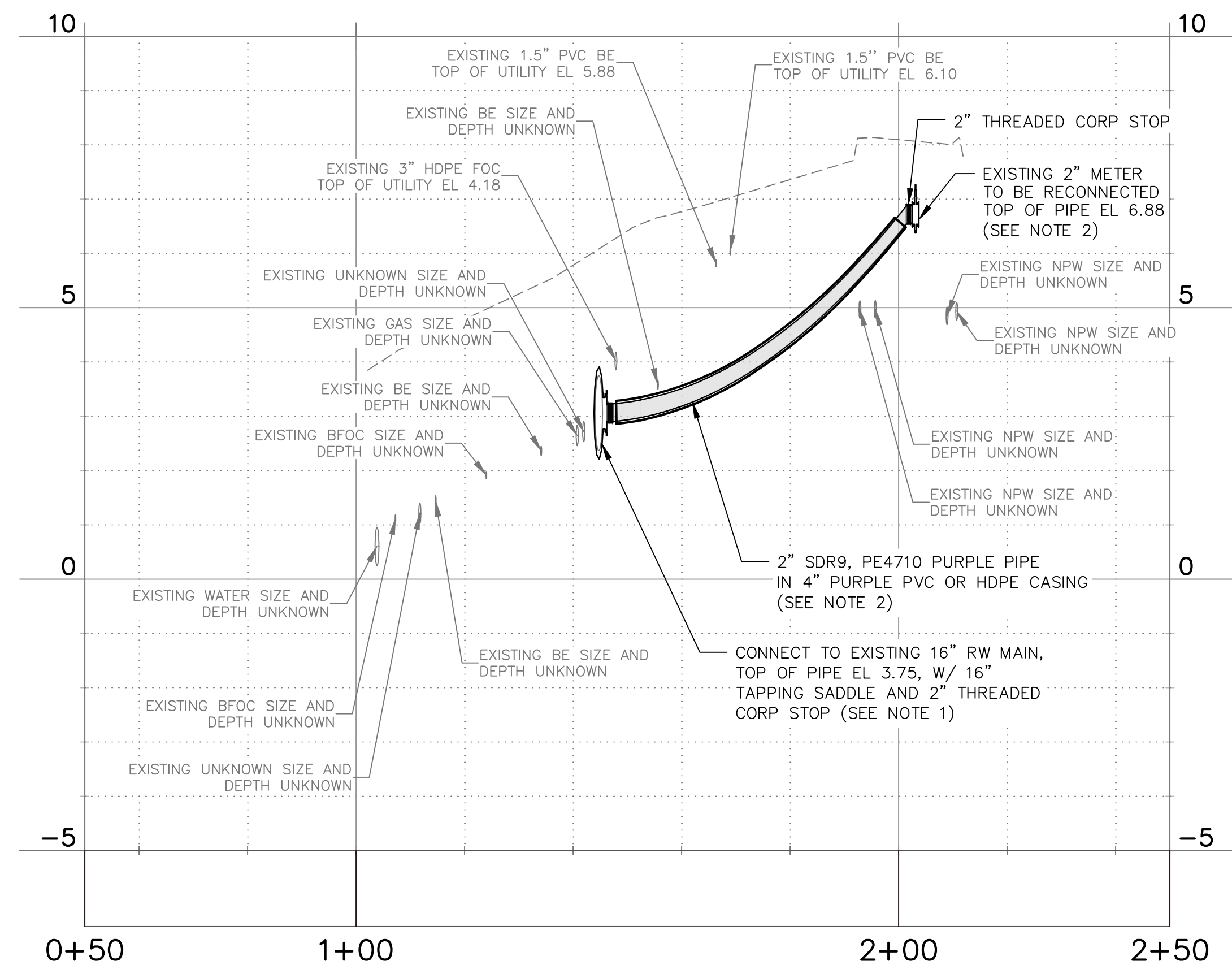
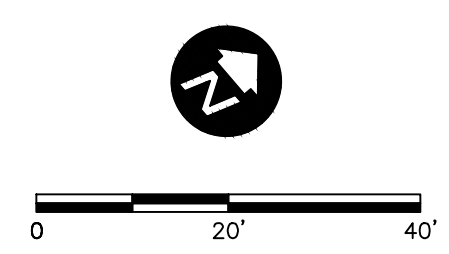
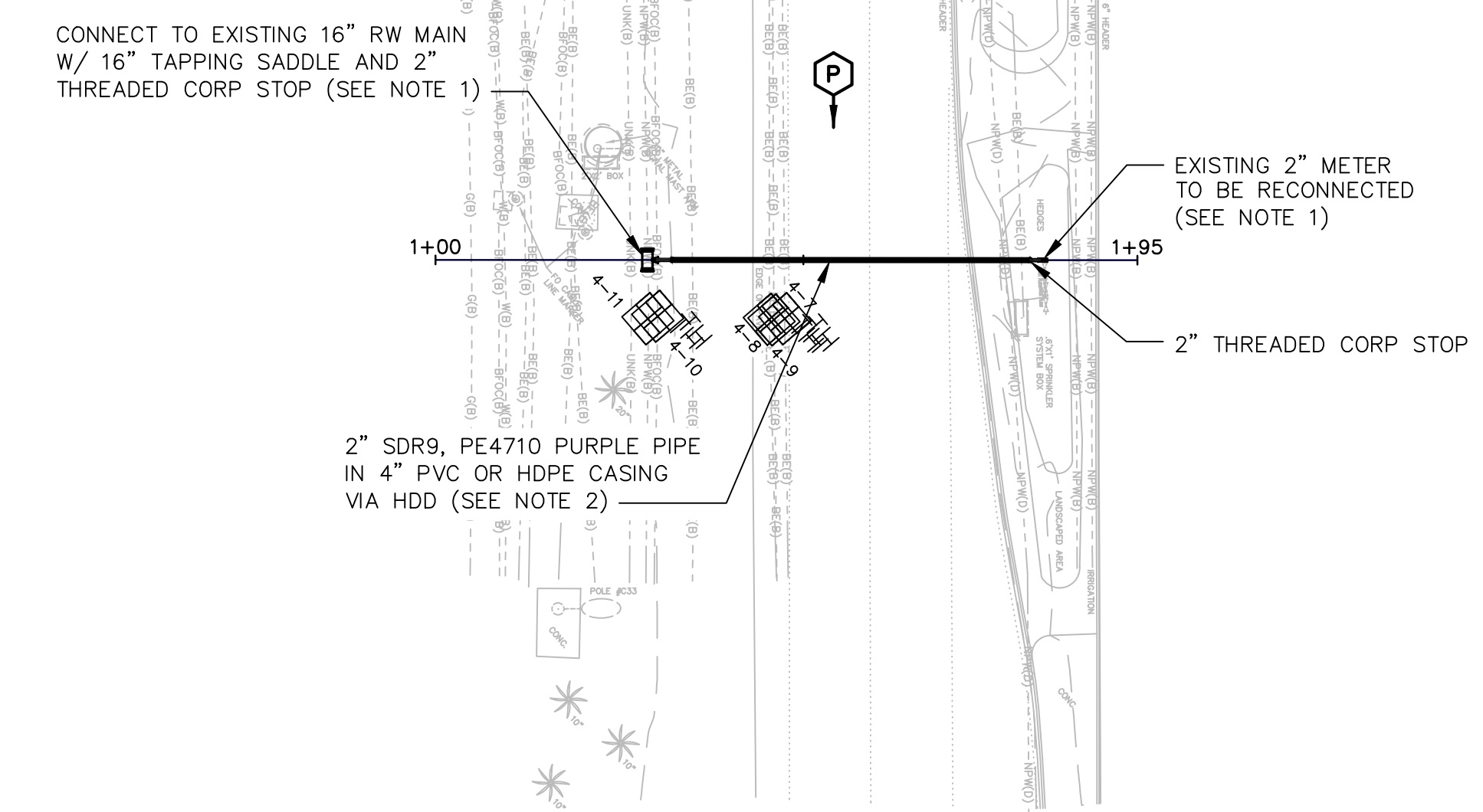
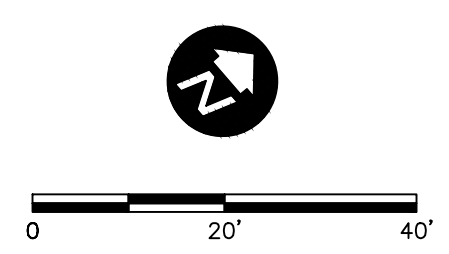
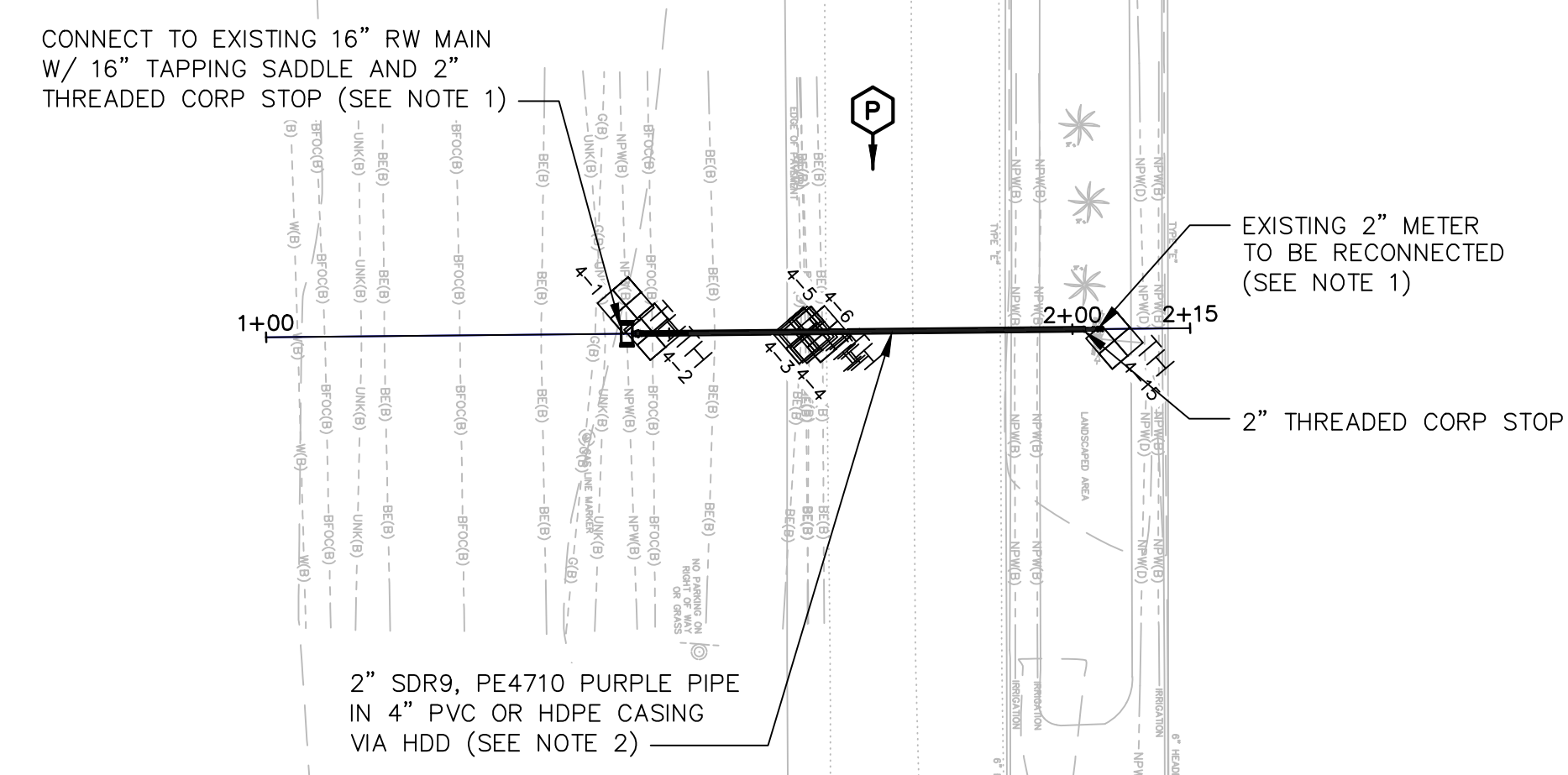
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 BEFORE YOU EXCAVATE

CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 AREA D - MEMORIAL CAUSEWAY
 LOCATIONS D1, D4 AND D8

DWG NAME: C14A	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 21-0029-UT	DATE DRAWN: 10/2021	DRAWN BY: VVV	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY: WTH	CHECKED BY: SC/MKW	SHEET NO.: 24 OF 24
APPROVED BY: _____			

Approved
 2021-11-799-00456
 DATE: 10/25/2021

Parent Sheet Set: 102031 - RCW Imp. Rev/Plot by: VANATTA, VIOLET Rev on: 10/20/2021 1:26 PM Individual File Path: V:\Projects\WSF112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\102031-D_REI_C3D_CivilSheets



D2 - METER RECONNECTION - PLAN & PROFILE

D3 - METER RECONNECTION - PLAN & PROFILE

NOTES

1. SEE INDEX NUMBERS 504, 505 PAGE 1 OF 3, 505 PAGE 2 OF 3 ON DRAWING C16, AND INDEX NUMBER 505 PAGE 3 OF 3 ON DRAWING C17 FOR DETAILS.
2. CONTRACTOR SHALL MAINTAIN AT LEAST 12" MINIMUM SEPARATION BETWEEN RCW RECONNECTION PIPING AND EXISTING UTILITIES.
3. CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES AND DETERMINE ACTUAL ELEVATIONS PRIOR TO INSTALLATION OF NEW CASING PIPE.

LEGEND



RECORD DRAWINGS		REVISION	
SURVEYED BY: N/A	DRAWN BY: VVV	C:100% PLANS PRELIMINARY	VVV 08/2021
REVIEWED BY:	PROJECT ENGINEER DATE	B:90% PLANS PRELIMINARY	VVV 06/2021
APPROVED BY:	DATE	A:60% PLANS PRELIMINARY	VVV 04/2021
			BY DATE

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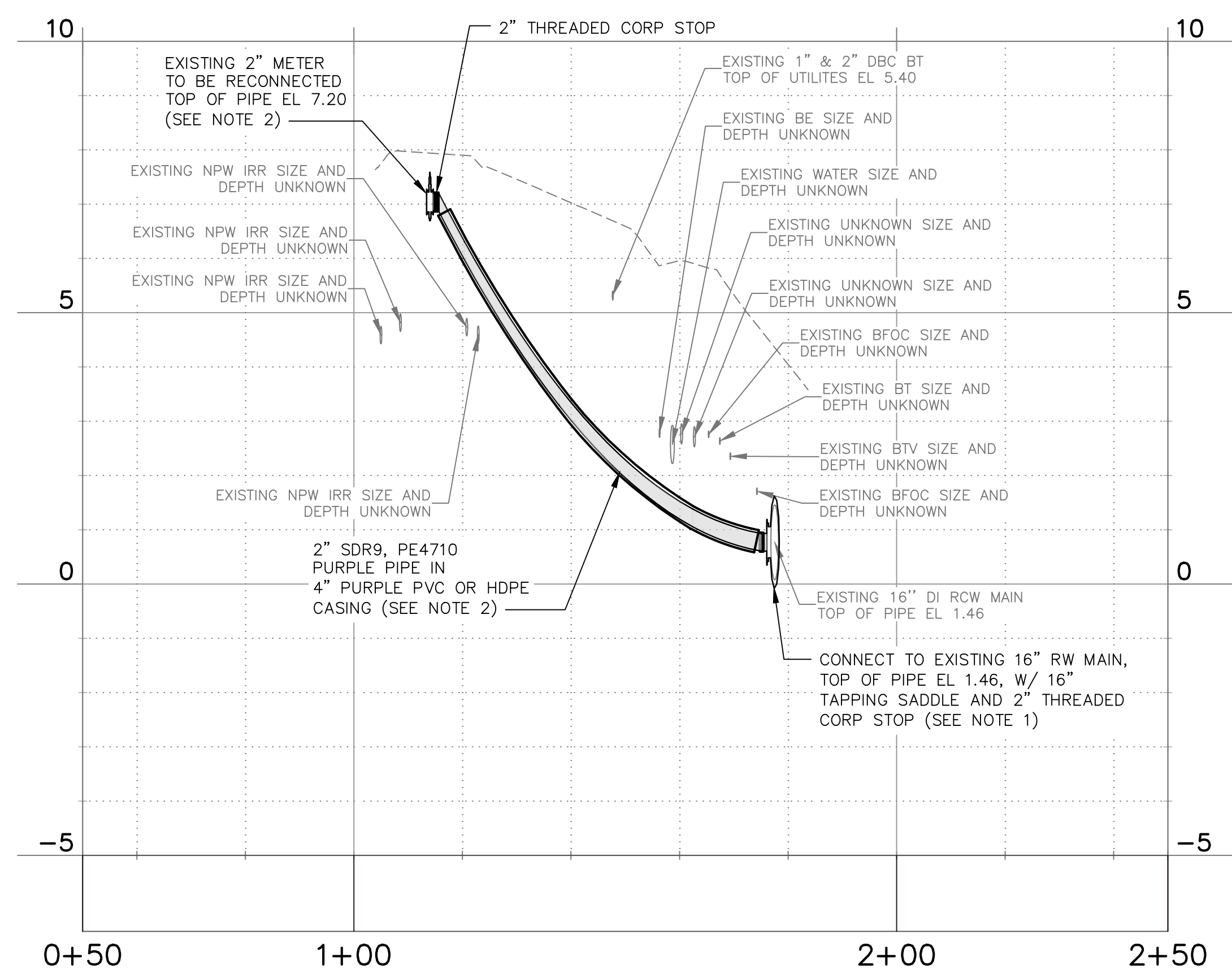
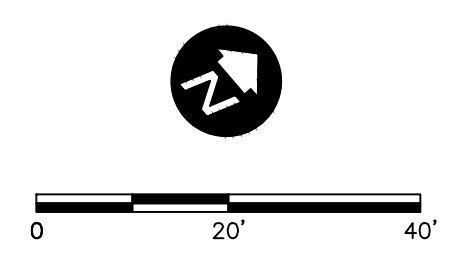
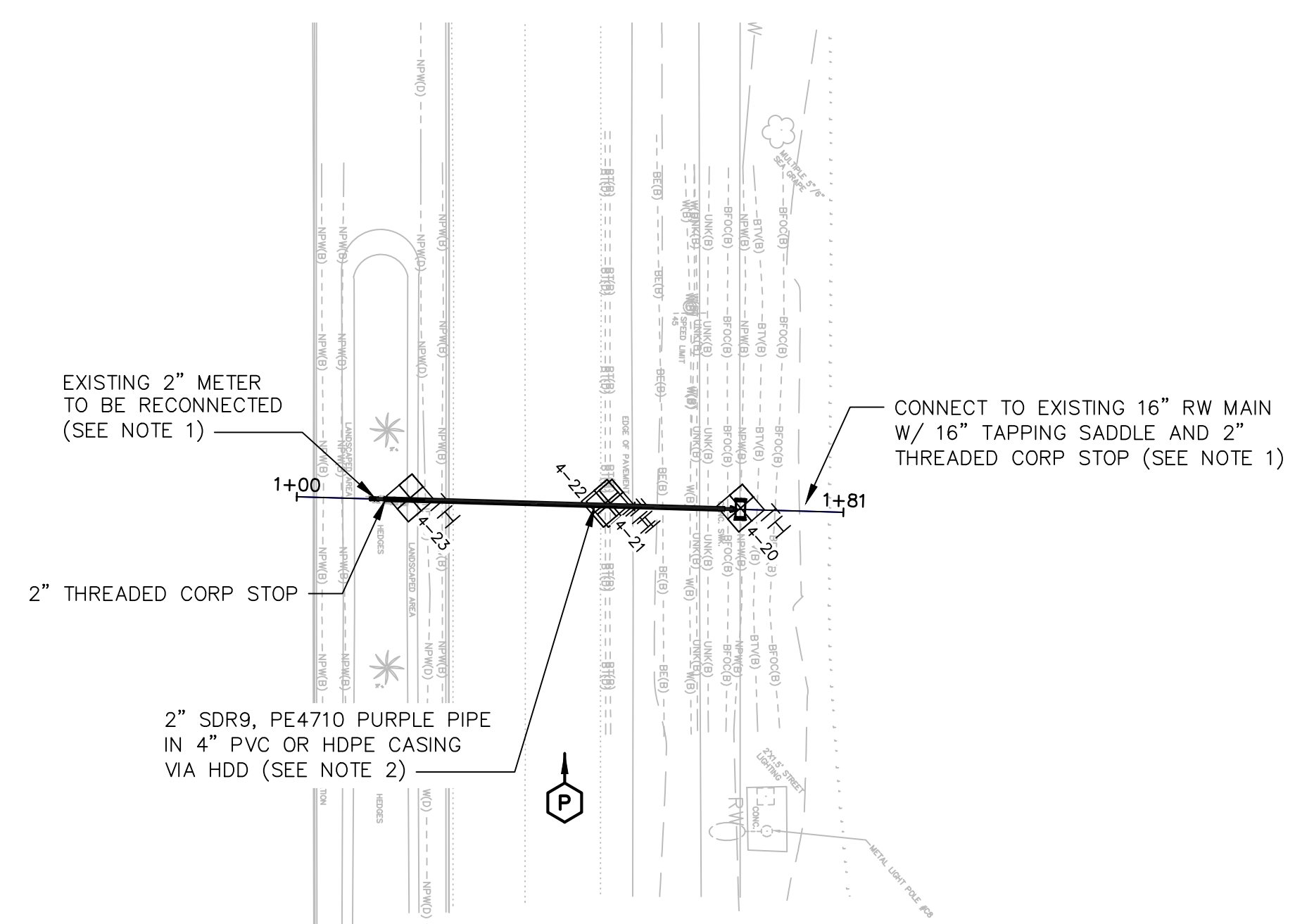
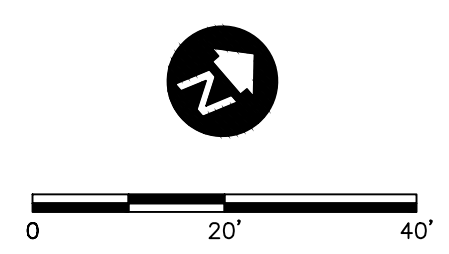
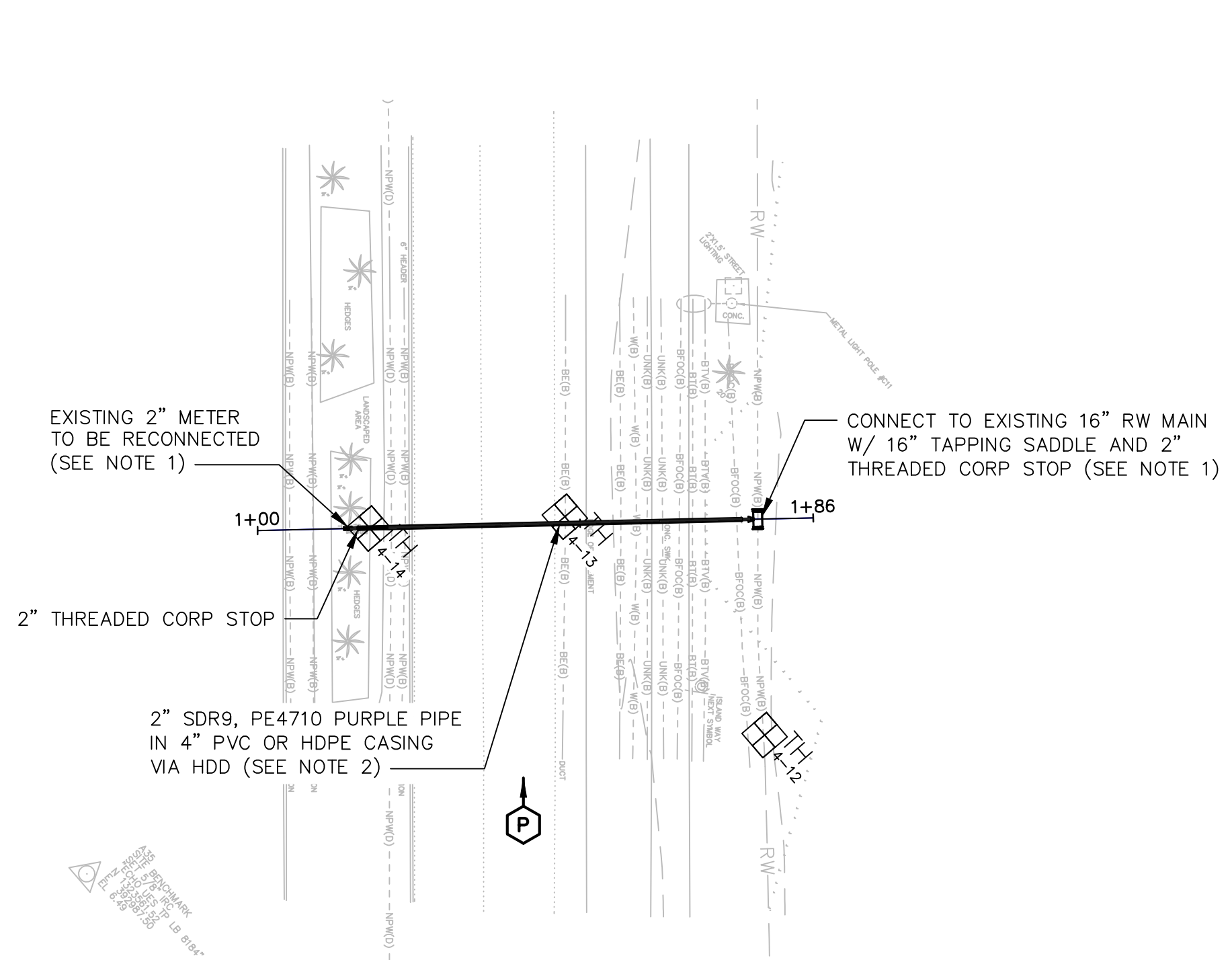
CITY OF CLEARWATER
RECLAIMED WATER PIPING IMPROVEMENTS
 MEMORIAL CAUSEWAY (AREA D) RECONNECTINOS - D2 AND D3
 PLAN & PROFILES

DWG NAME: C15	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 21-0029-UT	DATE DRAWN: 10/2021	DRAWN BY: VVV	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY: WTH	CHECKED BY: SC/MKW	SHEET NO. 18 OF 24
APPROVED BY:			DATE: 10/25/2021

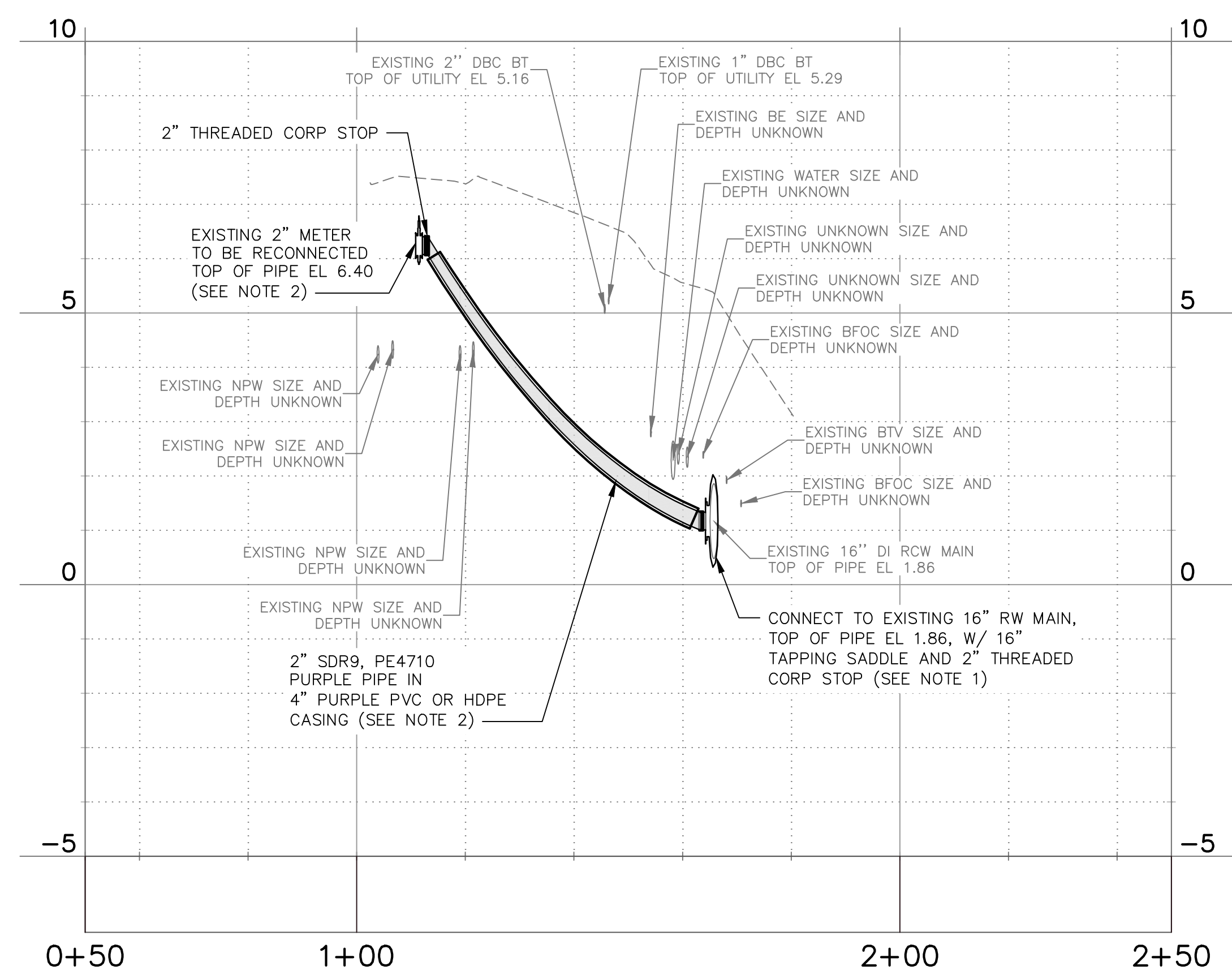
CHA CONSULTING, INC.
 3507 EAST FRONTAGE ROAD SUITE 100
 TAMPA, FL 33607
 TEL: (813) 549-0919
 CERTIFICATE OF AUTHORIZATION #28386

Approved
 2021-H-799-00456
 DATE: 10/25/2021

Parent Sheet Set: 102031 - RCW Imp. Rev/Plot by: VANATTA, VIOLET Rev on: 10/20/2021 1:32 PM Individual File Path: V:\Projects\WSFL112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\102031-D_REI_C3D_CivilSheets

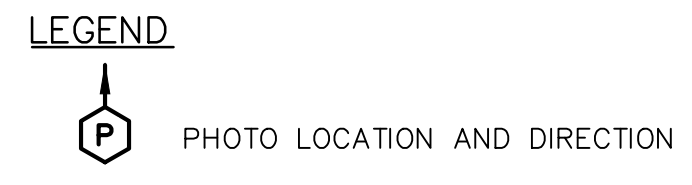


D5 - METER RECONNECTION - PLAN & PROFILE



D6 - METER RECONNECTION - PLAN & PROFILE

- NOTES**
- SEE INDEX NUMBERS 504, 505 PAGE 1 OF 3, 505 PAGE 2 OF 3 ON DRAWING C16, AND INDEX NUMBER 505 PAGE 3 OF 3 ON DRAWING C17 FOR DETAILS.
 - CONTRACTOR SHALL MAINTAIN AT LEAST 12" MINIMUM SEPARATION BETWEEN RCW RECONNECTION PIPING AND EXISTING UTILITIES.
 - CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES AND DETERMINE ACTUAL ELEVATIONS PRIOR TO INSTALLATION OF NEW CASING PIPE.



RECORD DRAWINGS	
SURVEYED BY: N/A	DRAWN BY: VVV
REVIEWED BY:	DATE:
PROJECT ENGINEER:	DATE:
APPROVED BY:	DATE:

REVISION	BY	DATE
C:100% PLANS PRELIMINARY	VVV	08/2021
B:90% PLANS PRELIMINARY	VVV	06/2021
A:60% PLANS PRELIMINARY	VVV	04/2021

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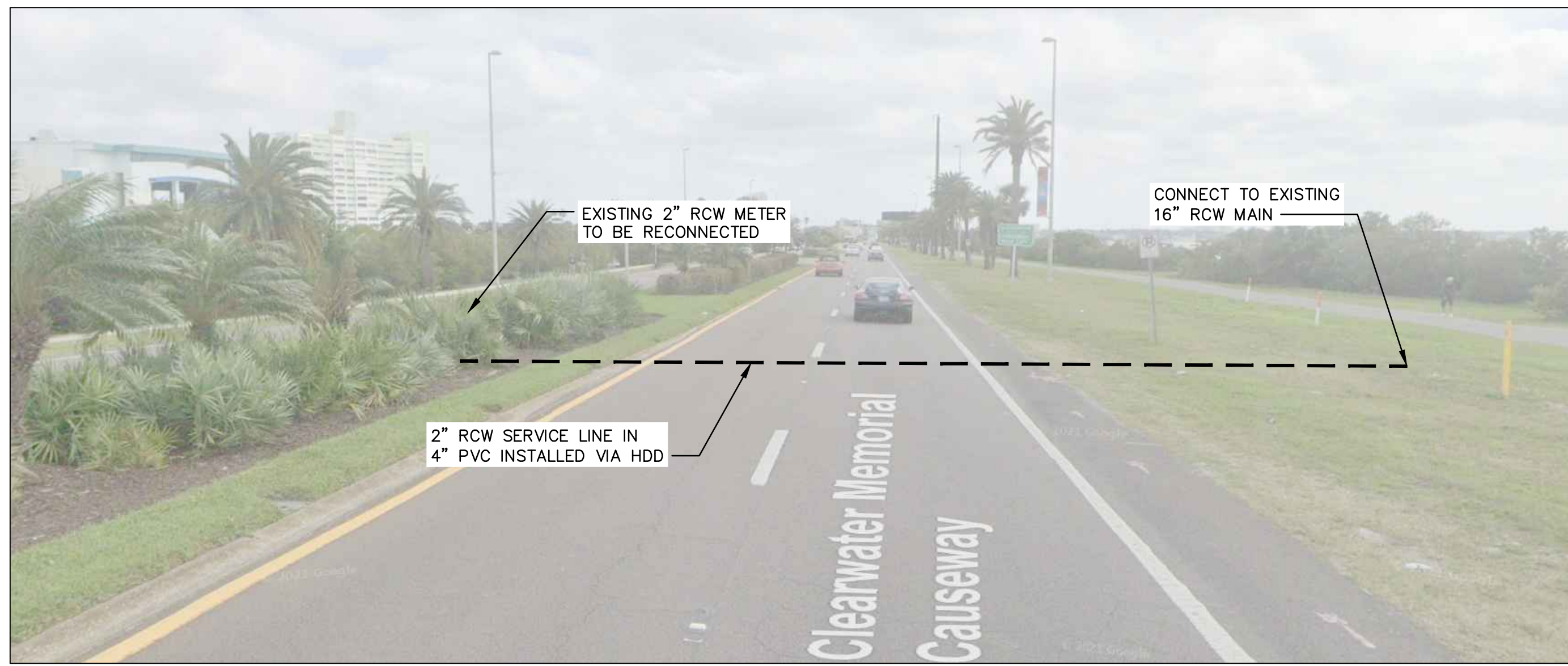
CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 MEMORIAL CAUSEWAY (AREA D) RECONNECTINOS - D5 AND D6
 PLAN & PROFILES

DWG NAME: C16	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 21-0029-UT	DATE DRAWN: 10/2021	DRAWN BY: VVV	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY: WTH	CHECKED BY: SC/MKW	SHEET NO. 19 OF 24
APPROVED BY:			DATE: 10/25/2021

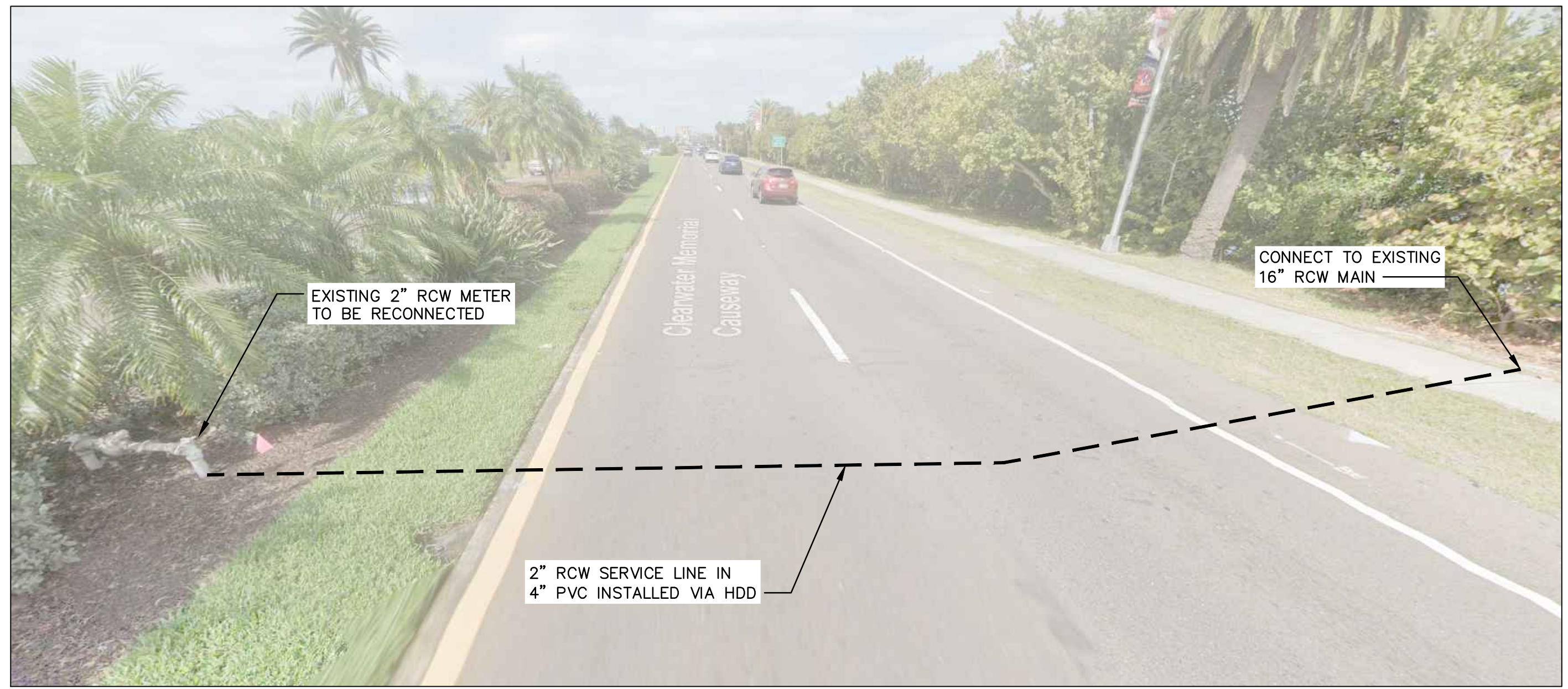
CHA CONSULTING, INC.
 3507 EAST FRONTAGE ROAD SUITE 100
 TAMPA, FL 33607
 TEL: (813) 549-0919
 CERTIFICATE OF AUTHORIZATION #28386

Approved
 2021-H-799-00456
 DATE: 10/25/2021

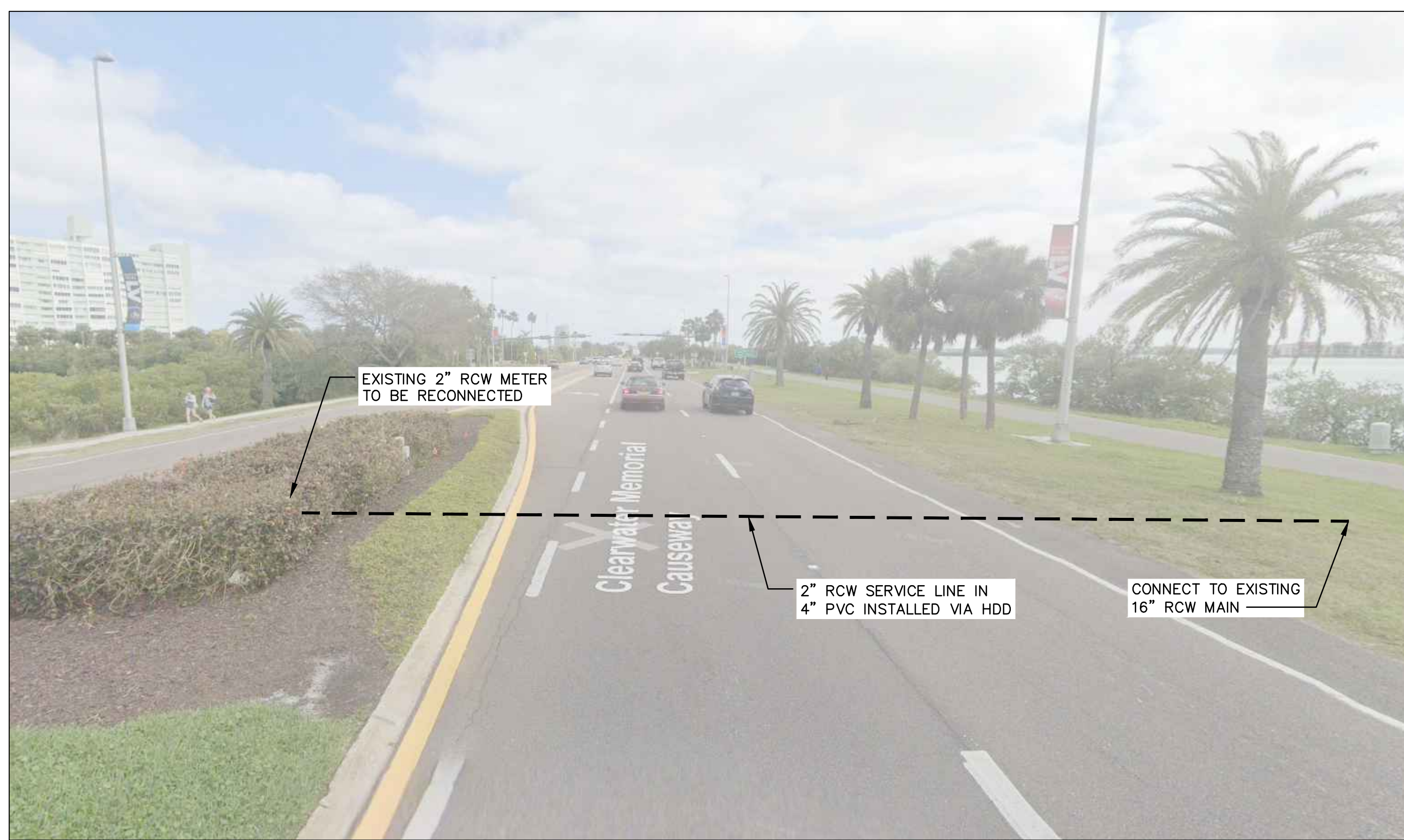
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LOCATION D2



LOCATION D5



LOCATION D3



LOCATION D6

RECORD DRAWINGS	
SURVEYED BY: N/A	DRAWN BY: VVV
REVIEWED BY:	DATE:
PROJECT ENGINEER:	DATE:
APPROVED BY:	DATE:
REVISION	BY DATE

CITY OF CLEARWATER, FLORIDA
 ENGINEERING DEPARTMENT
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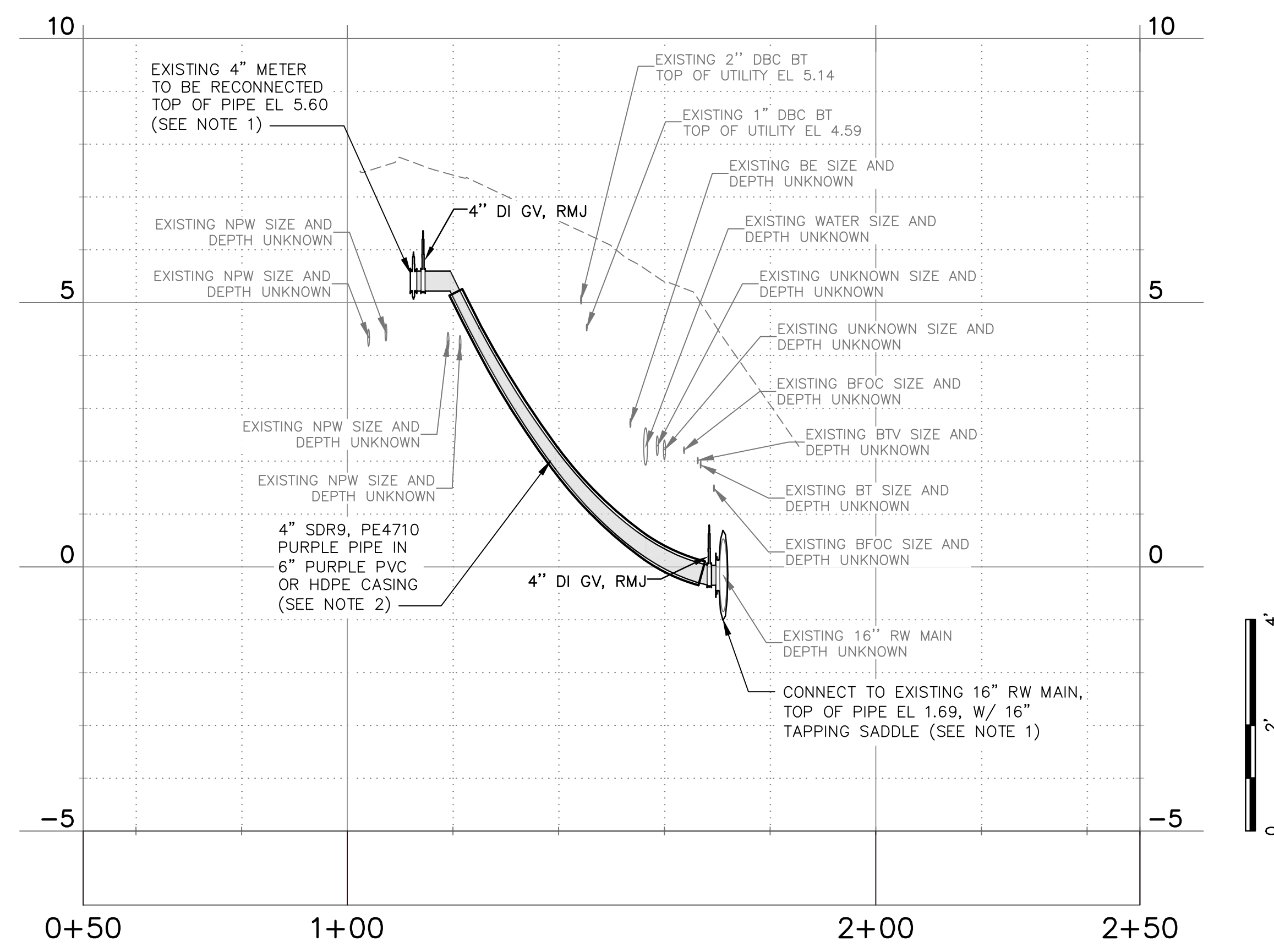
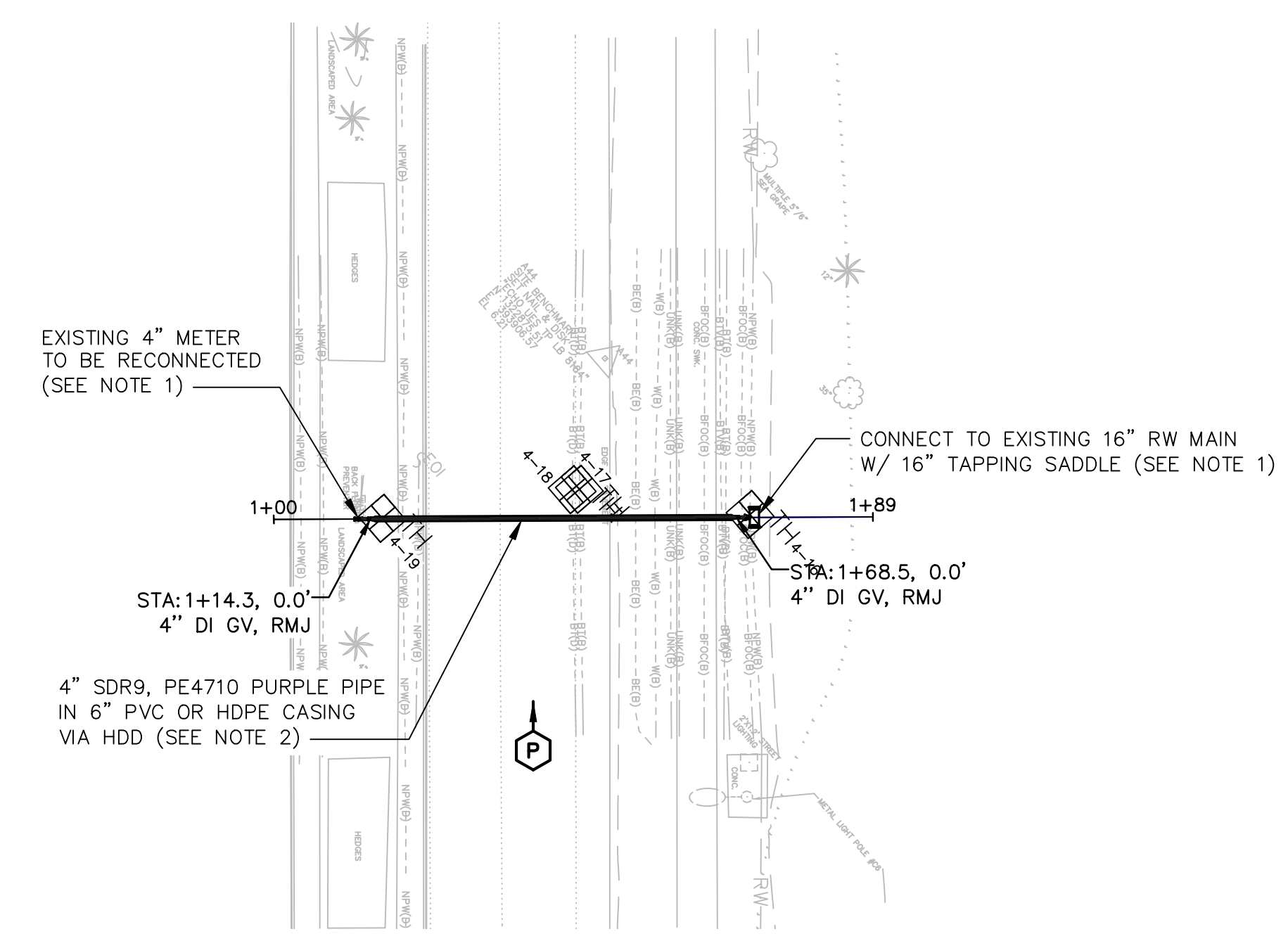
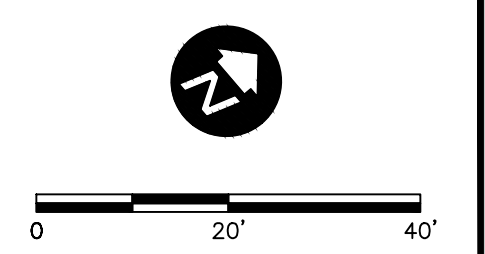
CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 AREA D - MEMORIAL CAUSEWAY
 LOCATIONS D2, D3, D5 AND D6



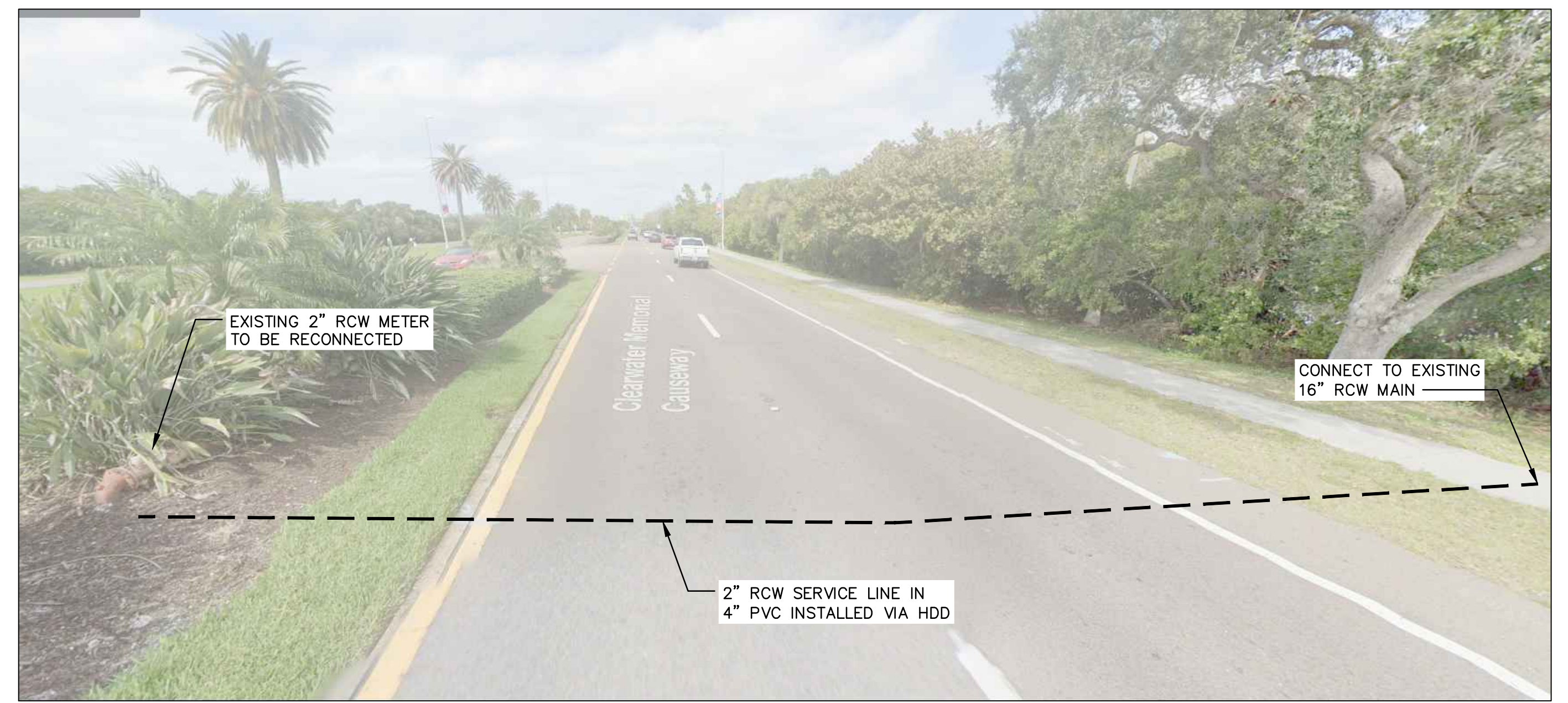
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CONTRACT NO.: 21-0029-UT	DATE DRAWN: 10/2021	DRAWN BY: VVV	HORIZ: AS NOTED
JOB NO.: 102031	DESIGNED BY: WTH	CHECKED BY: SC/MKW	SHEET NO.: 24 OF 24
APPROVED BY: _____			

Approved
 2021-H-799-00456
 DATE: 10/25/2021

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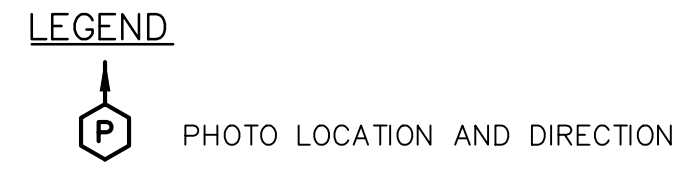


D7 - METER RECONNECTION - PLAN & PROFILE



LOCATION D7

- NOTES**
- SEE INDEX NUMBERS 504, 505 PAGE 1 OF 3, 505 PAGE 2 OF 3 ON DRAWING C16, AND INDEX NUMBER 505 PAGE 3 OF 3 ON DRAWING C17 FOR DETAILS.
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RECORD DRAWINGS		REVISION	
SURVEYED BY: N/A	DRAWN BY: VVV	C:100% PLANS PRELIMINARY	VVV 08/2021
REVIEWED BY:	PROJECT ENGINEER DATE	B:90% PLANS PRELIMINARY	VVV 06/2021
APPROVED BY:	DATE	A:60% PLANS PRELIMINARY	VVV 04/2021
			BY DATE

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 ENGINEERING DEPARTMENT
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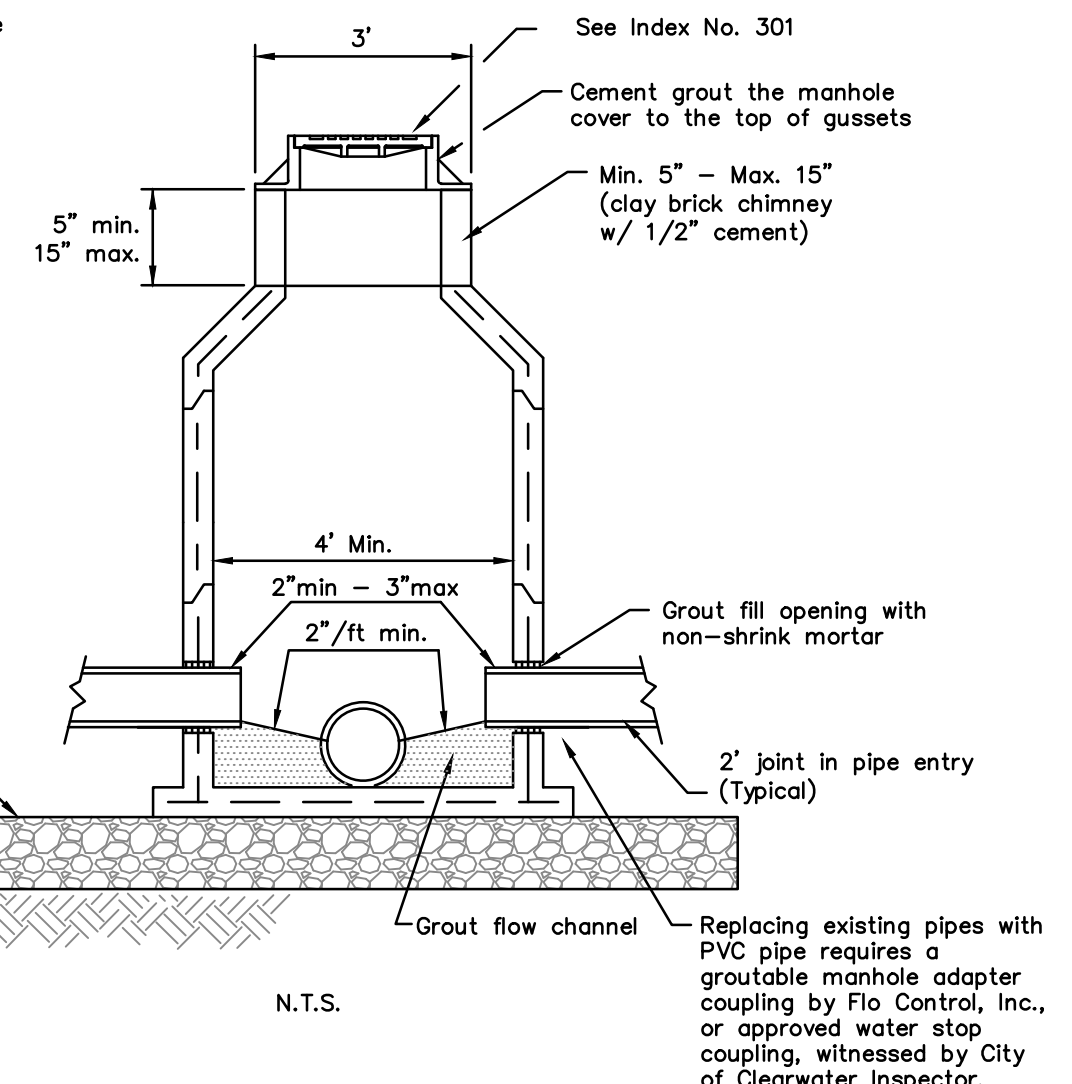
CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 MEMORIAL CAUSEWAY (AREA D) RECONNECTINOS - D7
 PLAN & PROFILE

DWG NAME: C17	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 21-0029-UT	DATE DRAWN: 10/2021	DRAWN BY: VVV	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY: WTH	CHECKED BY: SC/MKW	SHEET NO. 20 OF 24
APPROVED BY: _____			

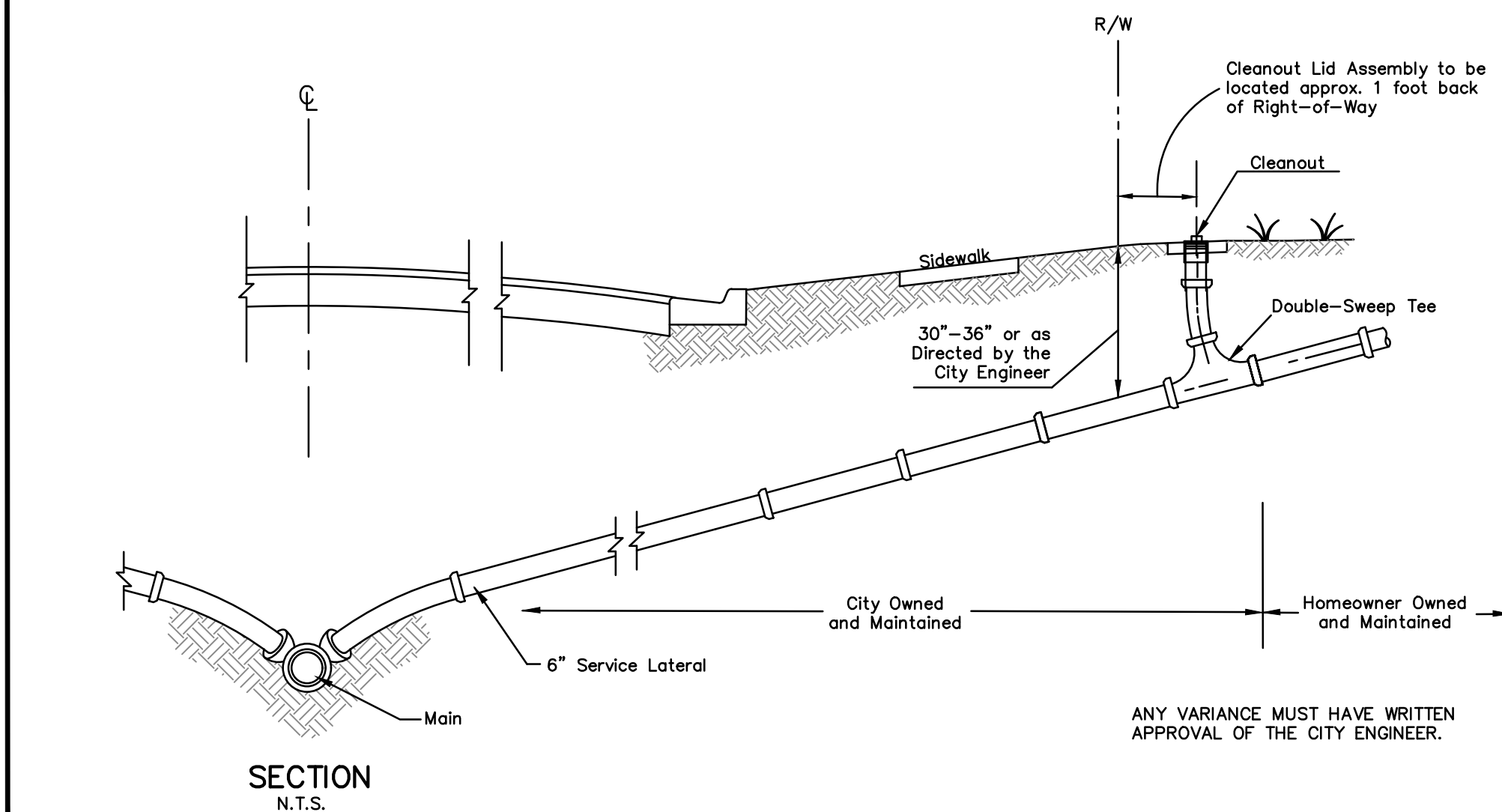


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 DATE: 10/25/2021

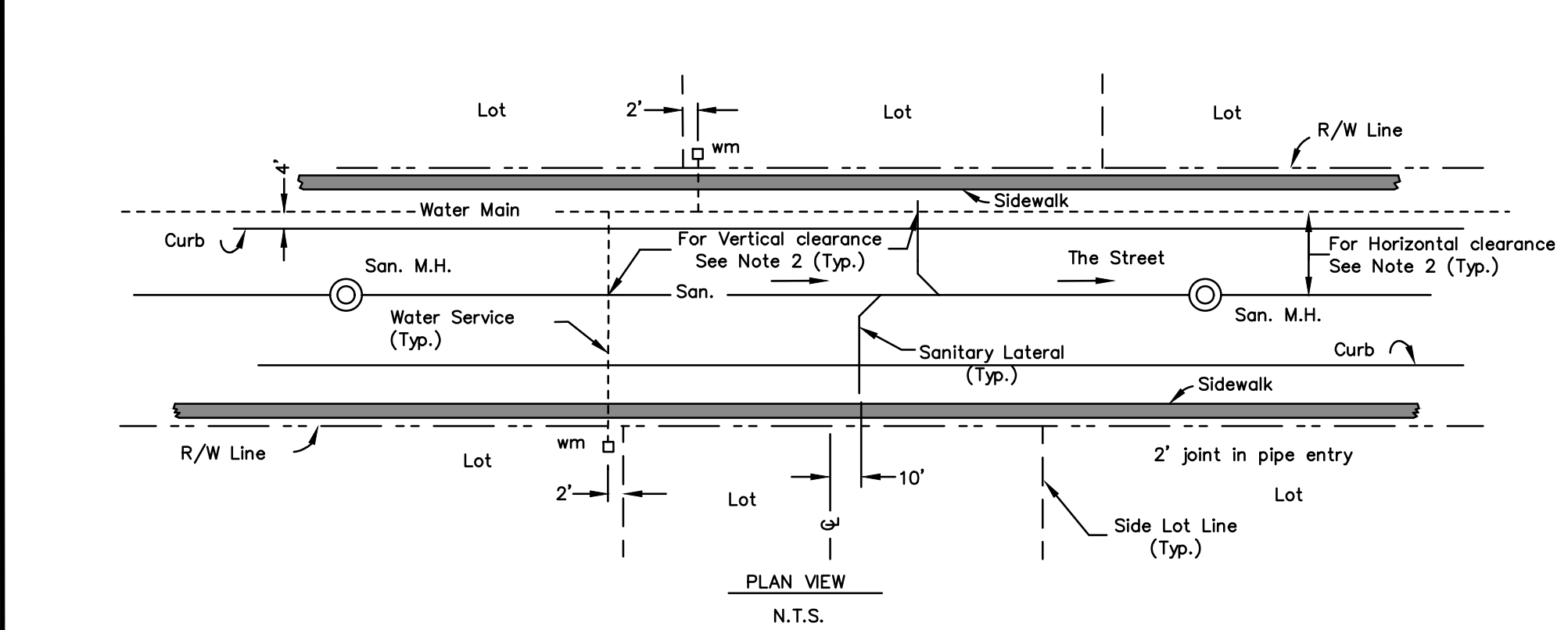
- NOTES:
- Any new manhole cores/connections may require a new coating. The new coating will be determined by City of Clearwater Inspector. See Note 2.
 - Interior shall be Strong Seal MS 2C, Raven 405 or Spraywall by Sprayco.
 - All pipe penetrations into manhole shall be precast or core drilled with a flexible Kor-N-Seal rubber boot or approved equal, installed.
 - All pipes must be color coded "Safety Green".
 - All connections to manhole shall be water tight.
 - All manhole coring must be witnessed by City Inspector.
 - Install 18 gauge 304 stainless steel manhole storm water inflow abatement insert (dish/pan).
 - Contractor to replace ring & cover if existing is in poor condition which will be determined by City of Clearwater Inspector.
 - See also City of Clearwater's Technical Specification Section IV.



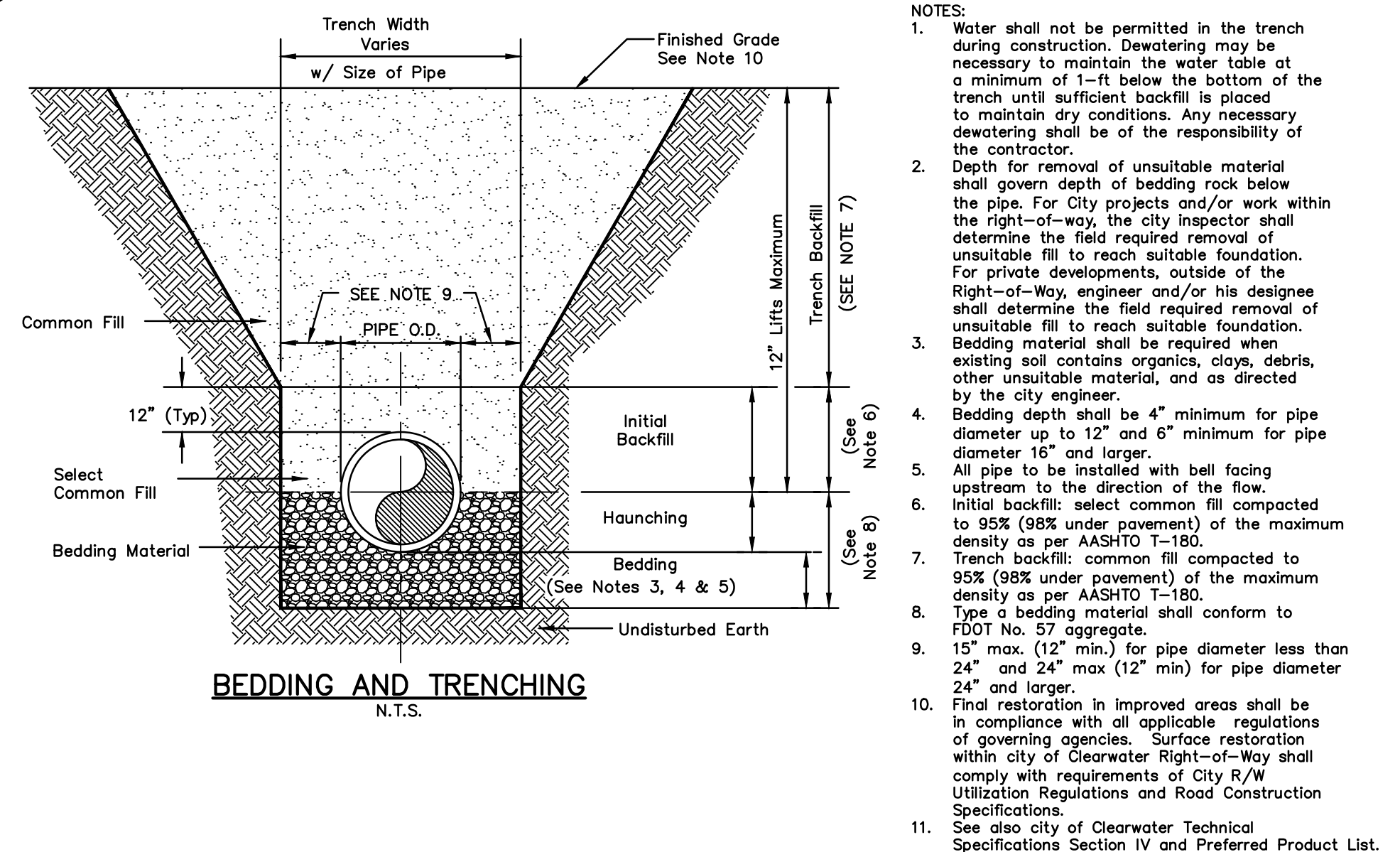
CITY OF CLEARWATER ENGINEERING DEPARTMENT SANITARY SEWER DETAILS
EXISTING SANITARY MANHOLE DETAIL
 INDEX NO. 302 PAGE NO. 3 OF 3
 LATEST REVISION 10/21/2019



CITY OF CLEARWATER ENGINEERING DEPARTMENT SANITARY SEWER DETAILS
STREET LATERAL DETAIL
 INDEX NO. 305 PAGE NO. 1 OF 3
 LATEST REVISION 2/22/2016



CITY OF CLEARWATER ENGINEERING DEPARTMENT SANITARY SEWER DETAILS
SANITARY LATERAL LOCATIONS
 INDEX NO. 305 PAGE NO. 3 OF 3
 LATEST REVISION 2/22/2016



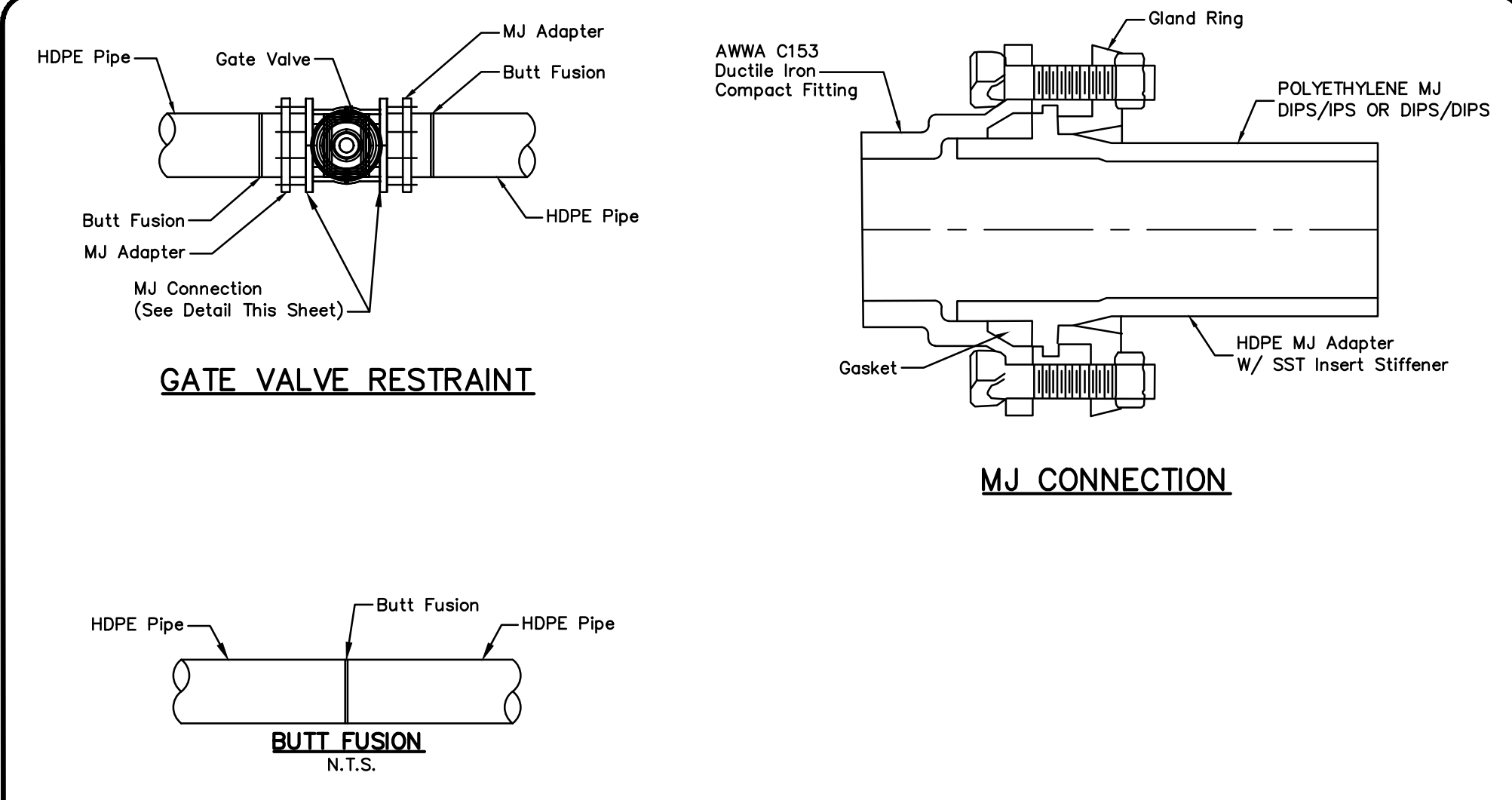
CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
BEDDING AND TRENCHING
 INDEX NO. 501 PAGE NO. 1 OF 1
 LATEST REVISION 7/2021

HORIZONTAL AND VERTICAL UTILITY SEPARATION REQUIREMENTS

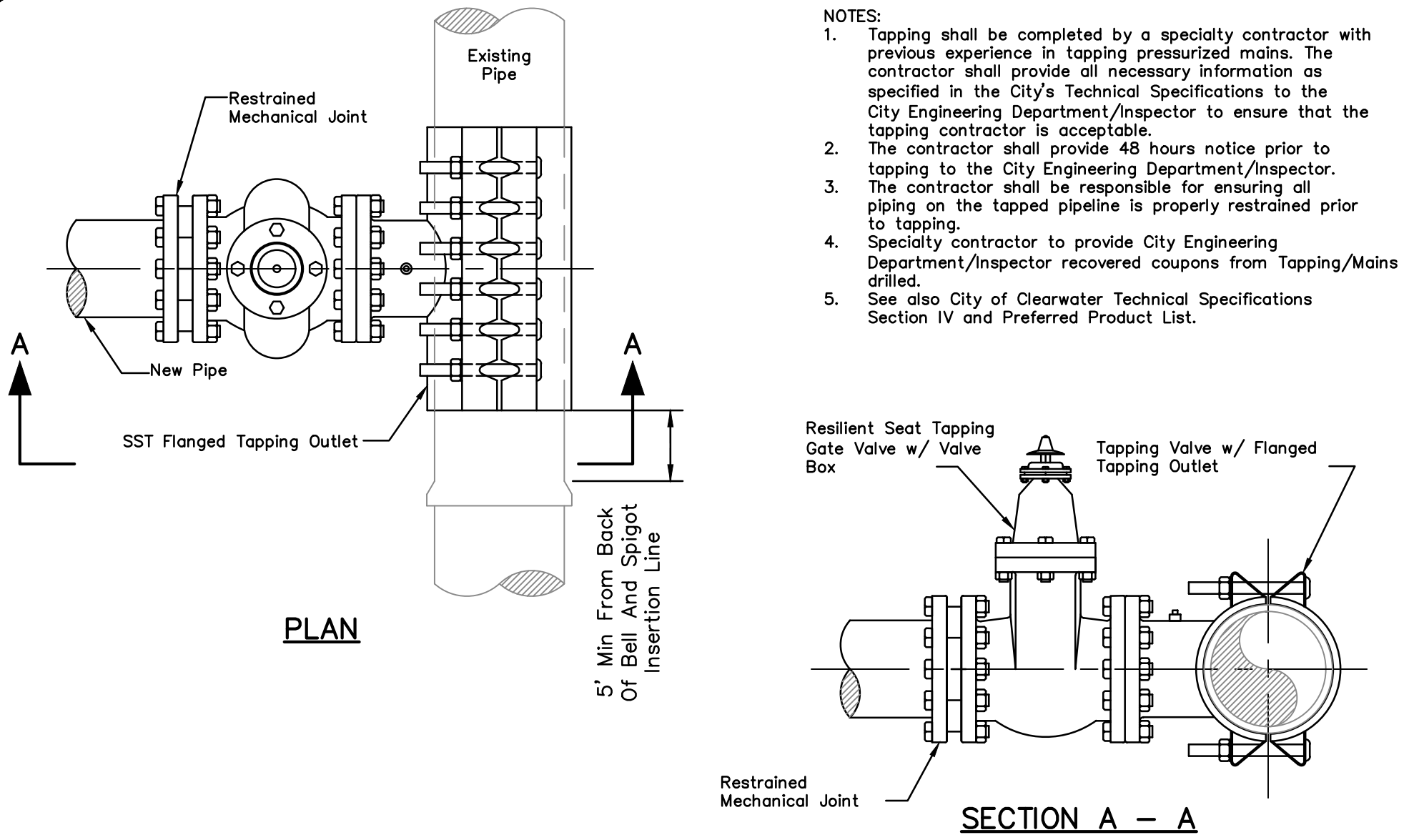
PROPOSED UTILITY	POTABLE WATER		RECLAIMED WATER		WASTEWATER FORCE MAIN		SANITARY SEWER		STORM SEWER		STRUCTURAL FOUNDATION, WALLS, ETC	ROADWAY RIGHTS-OF-WAY
	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT		
POTABLE WATER MAIN	4 FEET NOTE: 2	12"	4 FEET NOTE: 2 & 4	12" NOTE: 4	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	4 FEET NOTE: 2 & 4	12" / 18" NOTE: 3 & 4	15 FEET NOTE: 6	5 FEET NOTE: 2A
RECLAIMED WATER MAIN	4 FEET NOTE: 2 & 4	12" NOTE: 4	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" / 18" NOTE: 3	15 FEET NOTE: 6	5 FEET NOTE: 2A
WASTEWATER FORCE MAIN	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" / 18" NOTE: 3	15 FEET NOTE: 6	5 FEET NOTE: 2A
SANITARY SEWER	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" / 18" NOTE: 3	VARIES PER DEPTH	5 FEET NOTE: 2A

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) Four feet horizontal separation for utility pipelines is the minimum for pipes with three feet of cover. For pipes installed at greater depths, provide an additional foot of horizontal separation for each additional foot of depth.
 3. The 18-inch 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-inches. Otherwise the required separation is 12-inches.
 4. This separation requirement complies with the minimum FEP separation requirements outlined in chapter 62-555.314, FAC. 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.
 5. No water pipe shall pass through or come in contact with any part of sanitary sewer or a storm sewer manhole or structure.
 6. Separation of pressure utility mains may be reduced to 10-feet of separation from structural foundations, walls, etc if the cover of the utility main is 4-feet or less and all joints of the utility are restrained for a minimum of 25-feet outside the structure limits.
 7. See also City of Clearwater Technical Specifications Section IV and Preferred Product List.

CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
HORIZONTAL AND VERTICAL UTILITY SEPARATION REQUIREMENTS
 INDEX NO. 502 PAGE NO. 1 OF 1
 LATEST REVISION 7/2021



CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
HDPE PIPE CONNECTIONS
 INDEX NO. 503 PAGE NO. 1 OF 1
 LATEST REVISION 7/2021



CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
TAPPING SLEEVE AND GATE VALVE ASSEMBLY FOR RECLAIMED WATER
 INDEX NO. 504 PAGE NO. 1 OF 1
 LATEST REVISION 7/2021

Parent Sheet: 102031_RCW Imp. Rev on: 8/26/2021 11:31 AM Individual File Path: V:\Projects\WSEFL112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C18

RECORD DRAWINGS

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

C:100% PLANS PRELIMINARY	VVV	08/2021
B:90% PLANS PRELIMINARY	VVV	06/2021
A:60% PLANS PRELIMINARY	VVV	04/2021
REVISION	BY	DATE

CITY OF CLEARWATER, FLORIDA
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 CLEARWATER, FL 33756

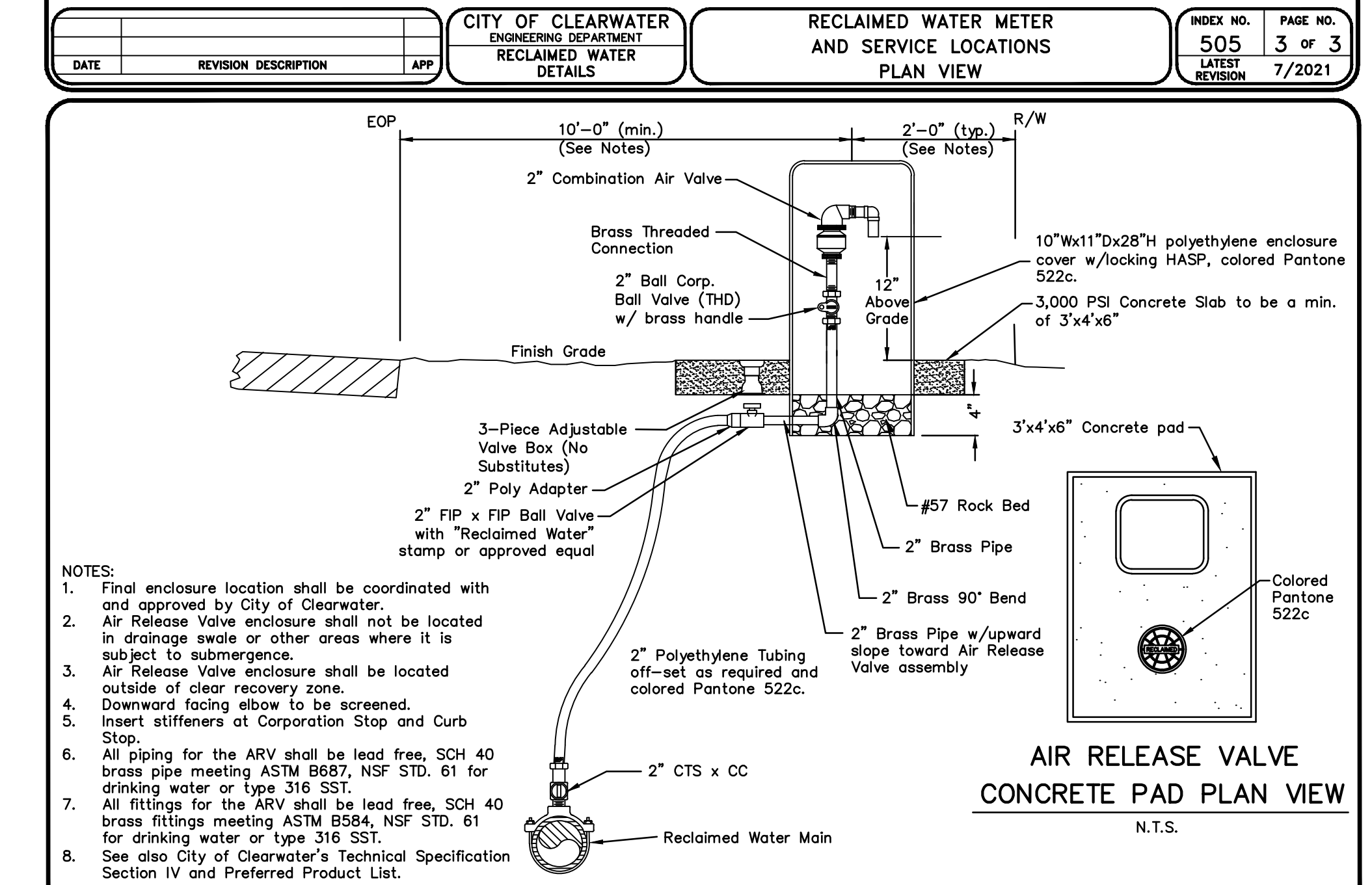
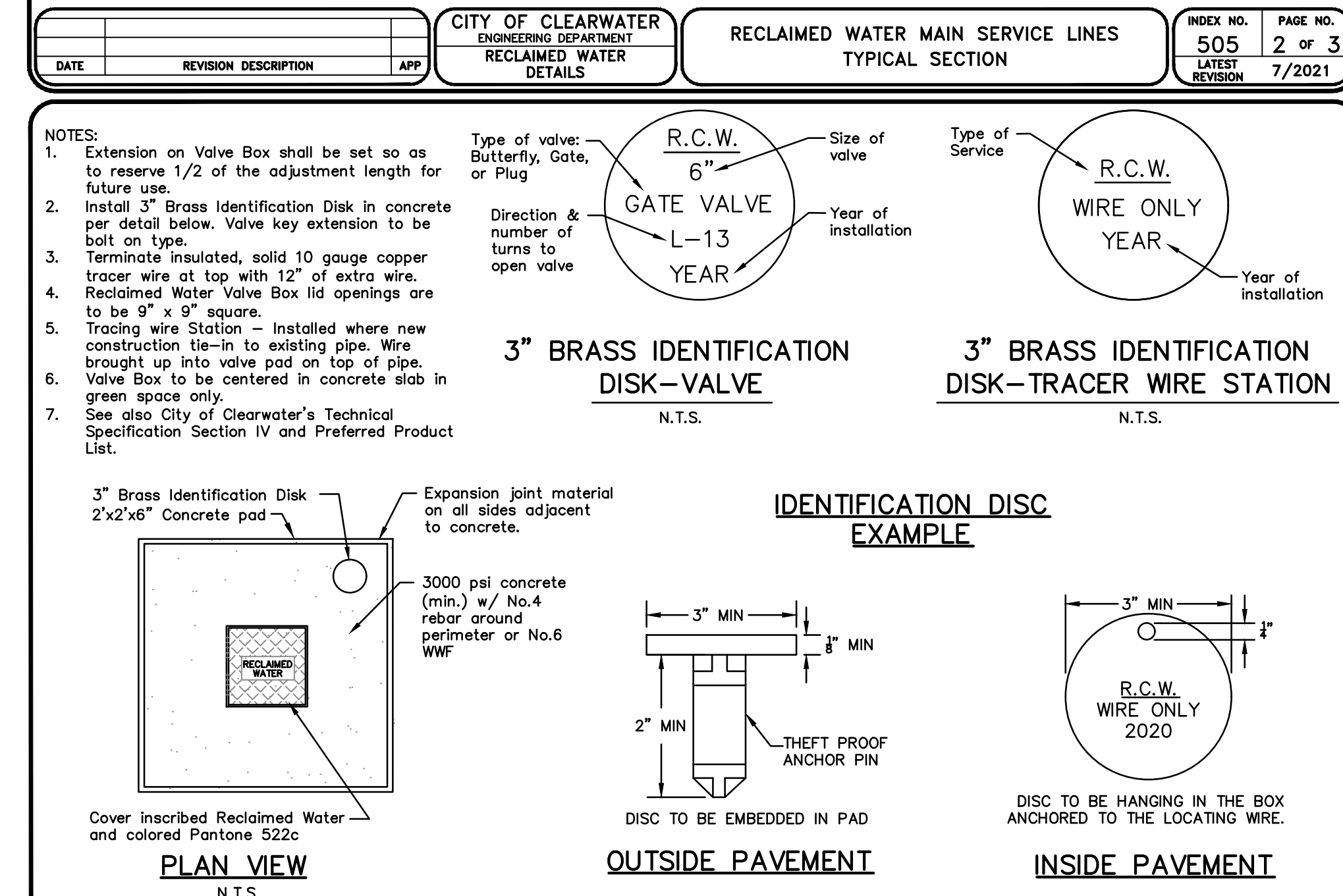
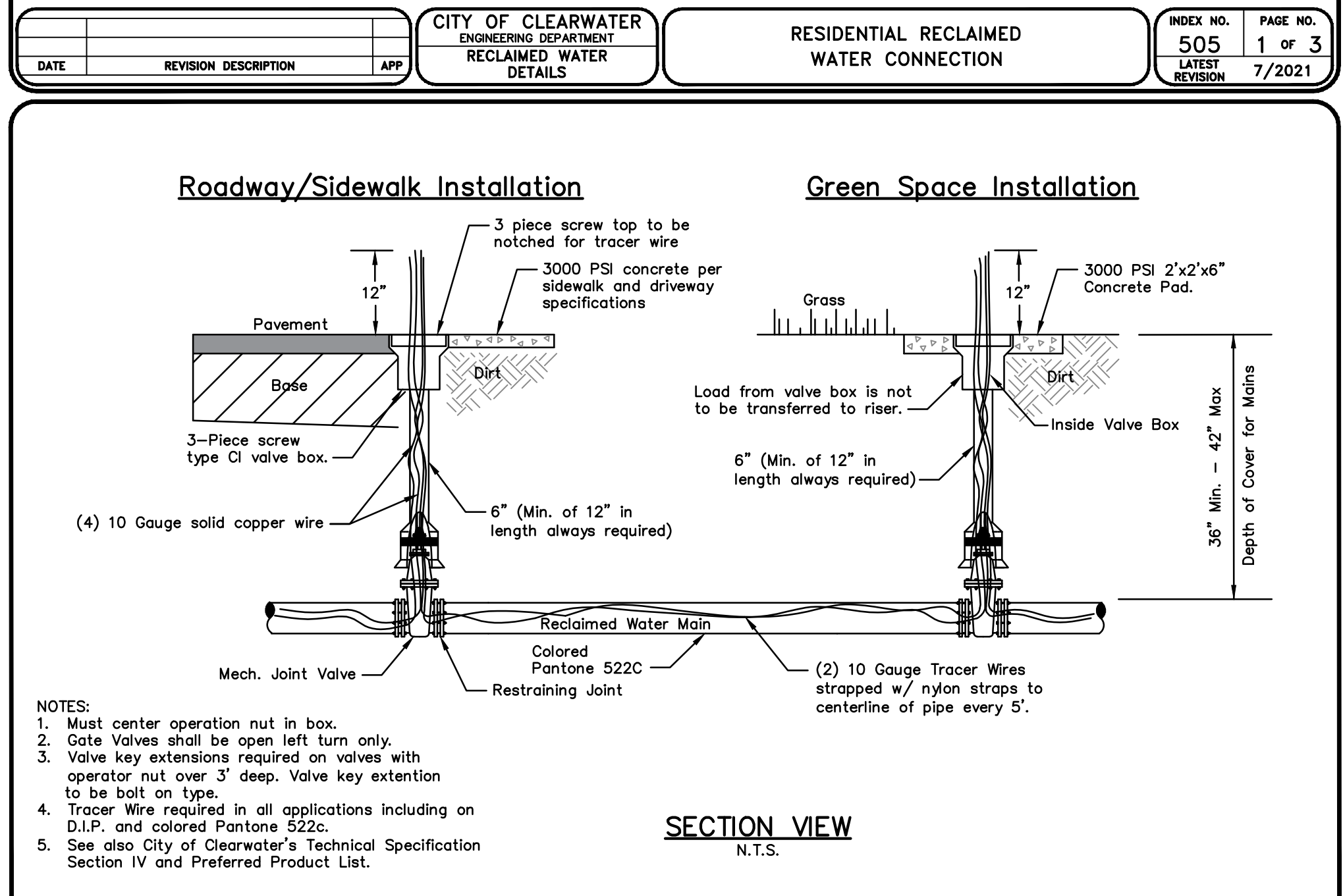
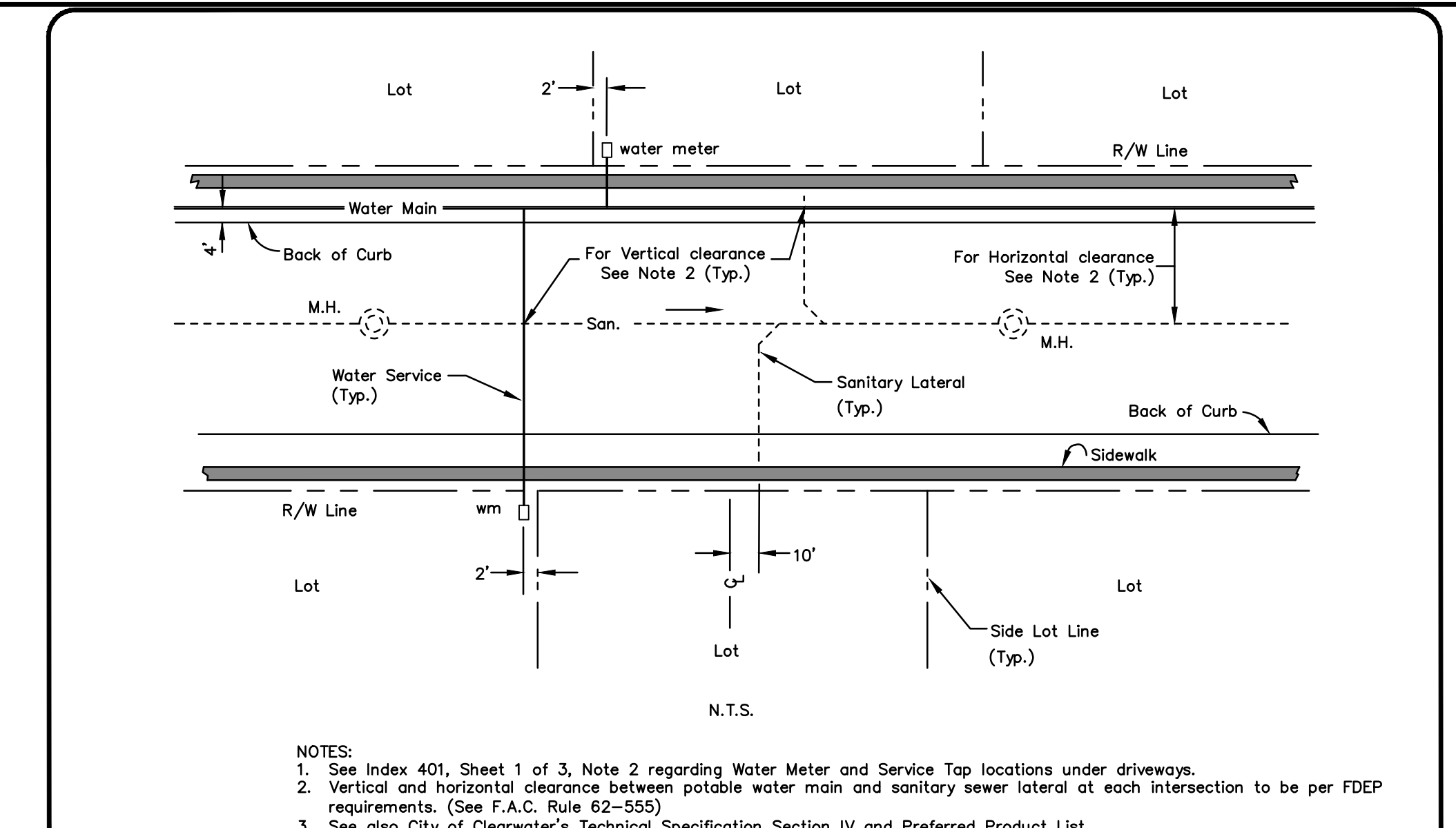
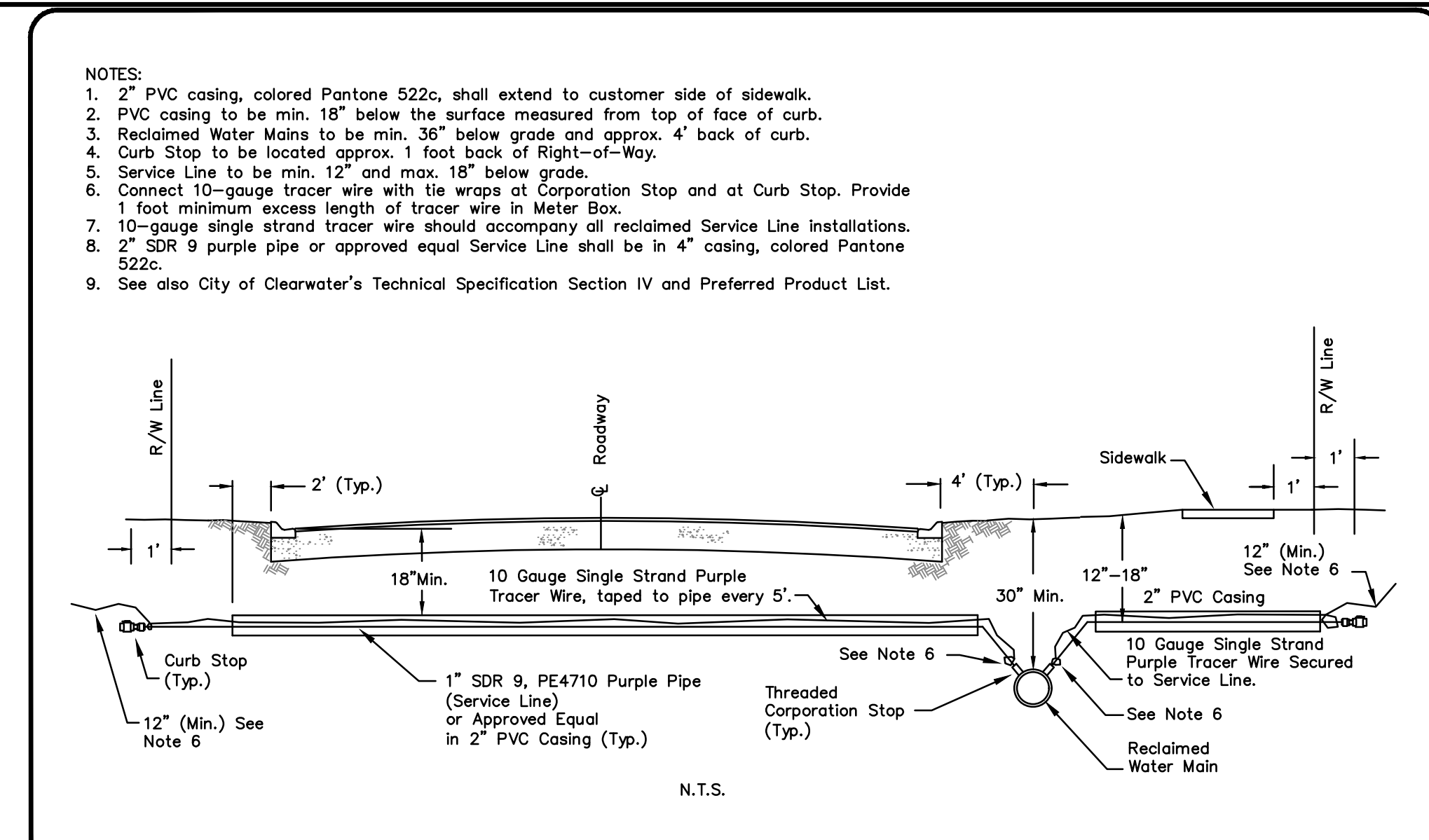
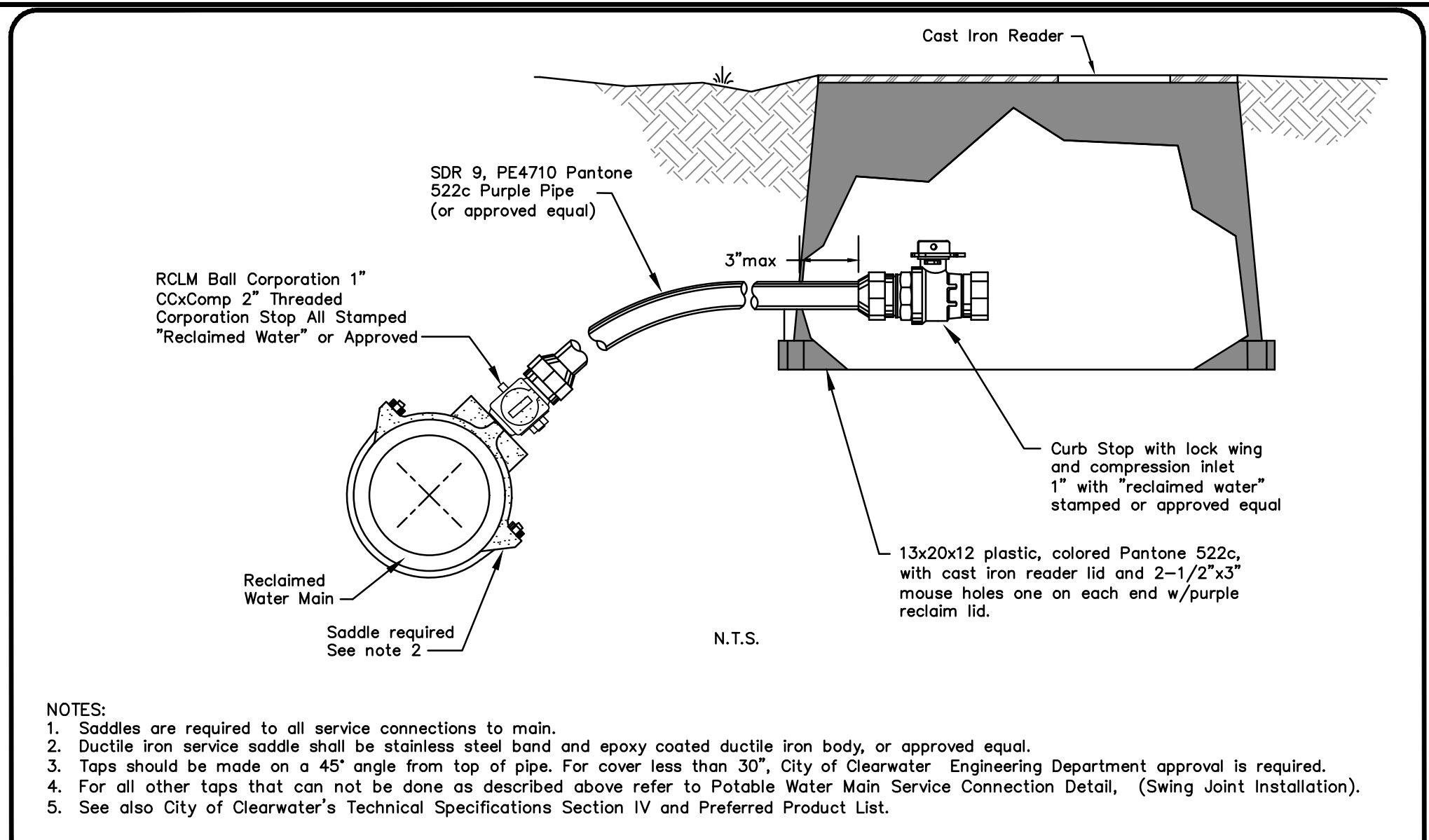
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CITY OF CLEARWATER
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 CITY OF CLEARWATER STANDARD DETAILS
 SANITARY SEWER AND RECLAIMED WATER

DWG NAME: C18	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 21 OF 24
APPROVED BY:			DATE: 10/25/2021

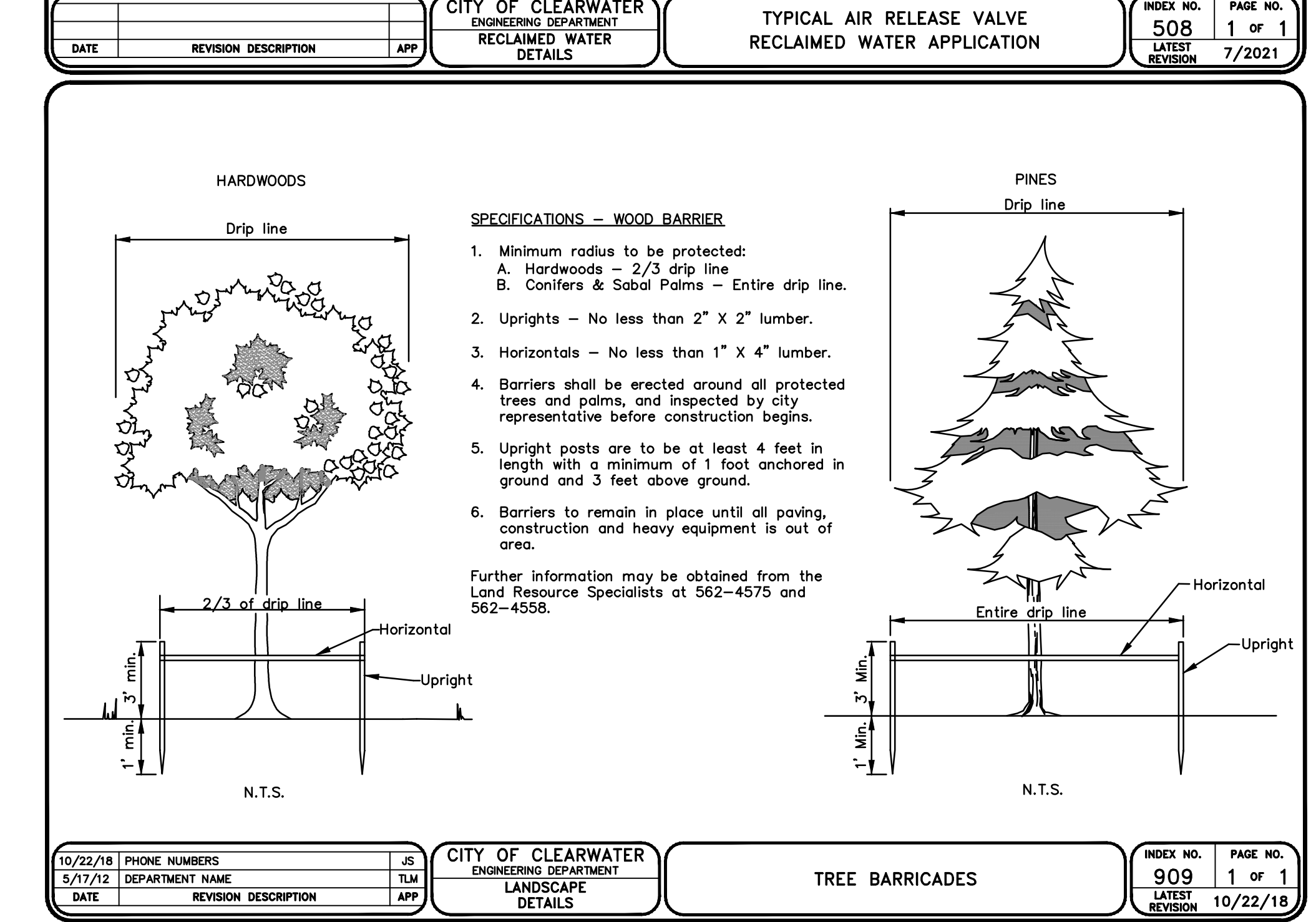
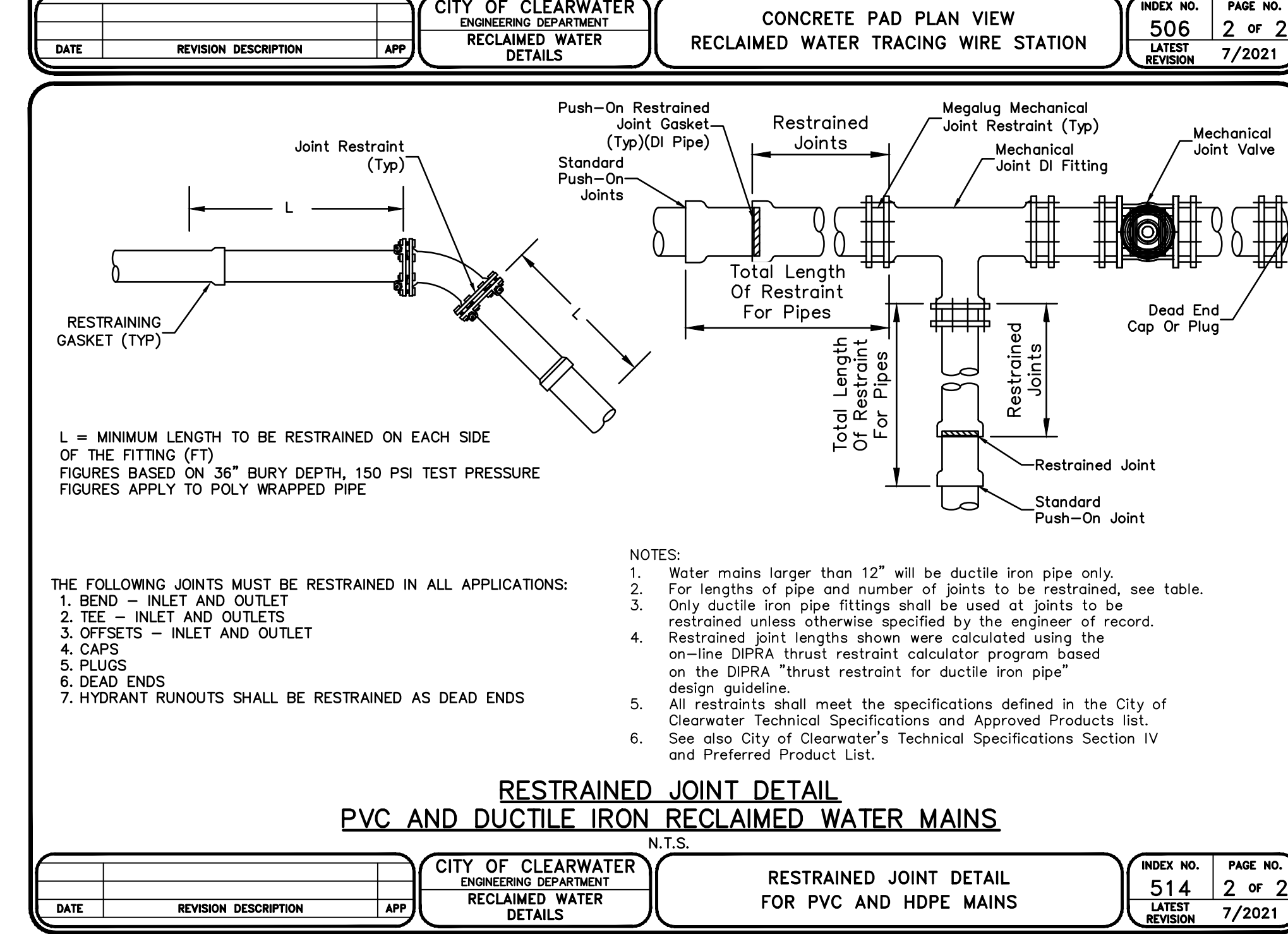
Approved
 2021-H-799-00456
 DATE: 10/25/2021

Individual File Path: V:\Projects\WSE\112\1\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C19



PVC PIPE, FEET									
PIPE SIZE	PIPE SIZE								
	4"	6"	8"	10"	12"	16"	20"	24"	
11.25'	H-B	3	4	5	6	6	8	9	11
	VU-B	3	4	5	6	6	8	9	11
	VD-B	6	9	11	13	16	20	24	28
	H-B	5	7	9	11	12	16	18	21
22.5'	VU-B	5	7	9	11	12	16	18	21
	VD-B	12	17	22	27	31	40	48	56
	H-B	10	14	18	22	25	32	38	43
45'	VU-B	10	14	18	22	25	32	38	43
	VD-B	25	35	46	55	65	82	99	115
	H-B	24	33	44	52	60	76	91	104
90'	VU-B	24	33	44	52	60	76	91	104
	VD-B	61	85	111	132	155	198	238	277
	DEAD END PLUG & VALVE	61	85	111	132	155	198	238	277
	TEE	61	85	111	132	155	198	238	277

DUCTILE IRON PIPE, FEET									
PIPE SIZE	PIPE SIZE								
	4"	6"	8"	10"	12"	16"	20"	24"	
11.25'	H-B	2	3	4	5	6	7	8	9
	VU-B	2	3	4	5	6	7	8	9
	VD-B	5	6	8	10	11	14	17	20
	H-B	5	6	8	9	11	13	16	18
22.5'	VU-B	5	6	8	9	11	13	16	18
	VD-B	9	12	16	19	22	28	34	39
	H-B	9	12	16	19	22	27	33	37
45'	VU-B	9	12	16	19	22	27	33	37
	VD-B	18	25	32	39	45	58	69	81
	H-B	21	29	37	44	52	65	78	90
90'	VU-B	21	29	37	44	52	65	78	90
	VD-B	43	59	78	93	109	139	167	194
	DEAD END PLUG & VALVE	43	59	78	93	109	139	167	194
	TEE	43	59	78	93	109	139	167	194



REVISION	DESCRIPTION	DATE	BY	DATE
C:100% PLANS PRELIMINARY			VVV	08/2021
B:90% PLANS PRELIMINARY			VVV	06/2021
A:60% PLANS PRELIMINARY			VVV	04/2021

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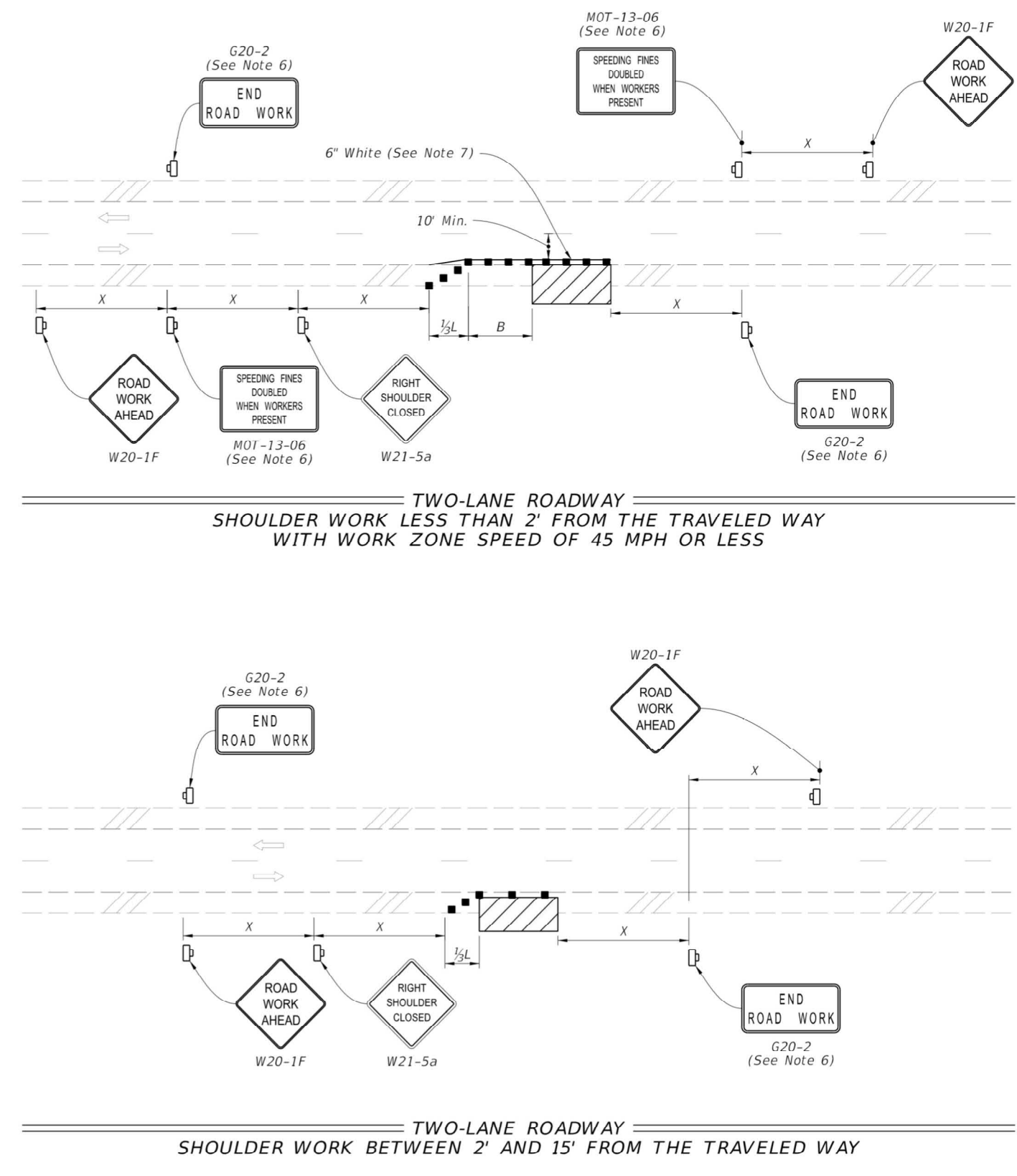
CITY OF CLEARWATER
RECLAIMED WATER PIPING IMPROVEMENTS
CITY OF CLEARWATER STANDARD DETAILS
RECLAIMED WATER AND LANDSCAPE

DWG NAME: C19	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 22 of 24
APPROVED BY:			DATE: 10/25/2021

Parent Sheet Set: 102031 - RCW Imp. Rev/PLOT by VANATTA, WOLET Rev on: 8/27/2021 12:05 PM Individual File Path: V:\Projects\WSFL112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C20

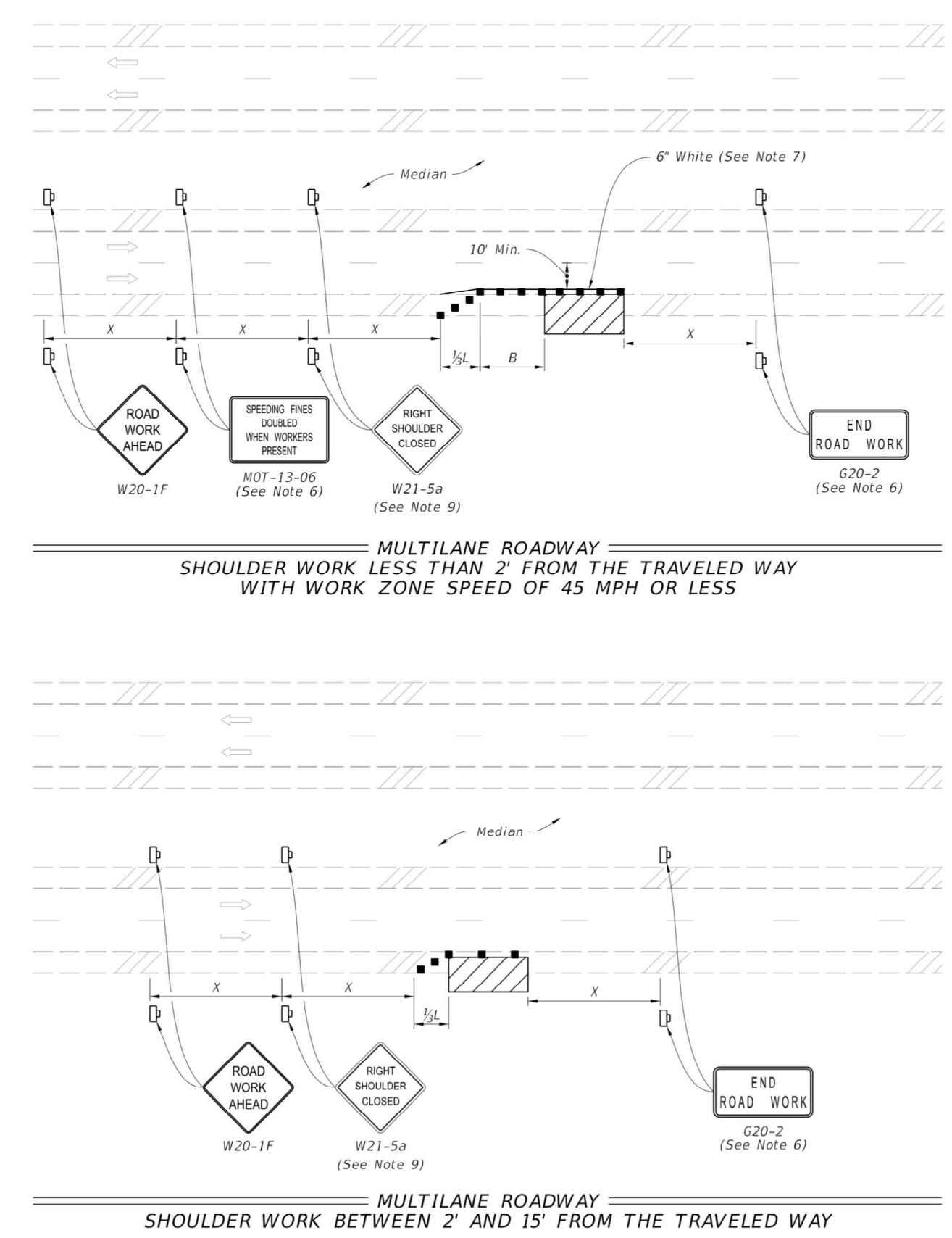
- NOTES:**
- This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
 - L = Taper Length
X = Work Zone Sign Spacing
B = Buffer Length
See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
 - For incidental work (e.g. mowing or litter removal), only the Road Work Ahead sign is required.
 - 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.
 - For work less than two feet from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
 - 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 temporary condition is in place for 24 hours or less.
 - Temporary pavement markings may be omitted when the work zone is in place for 3 days or less.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.
 - Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.

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



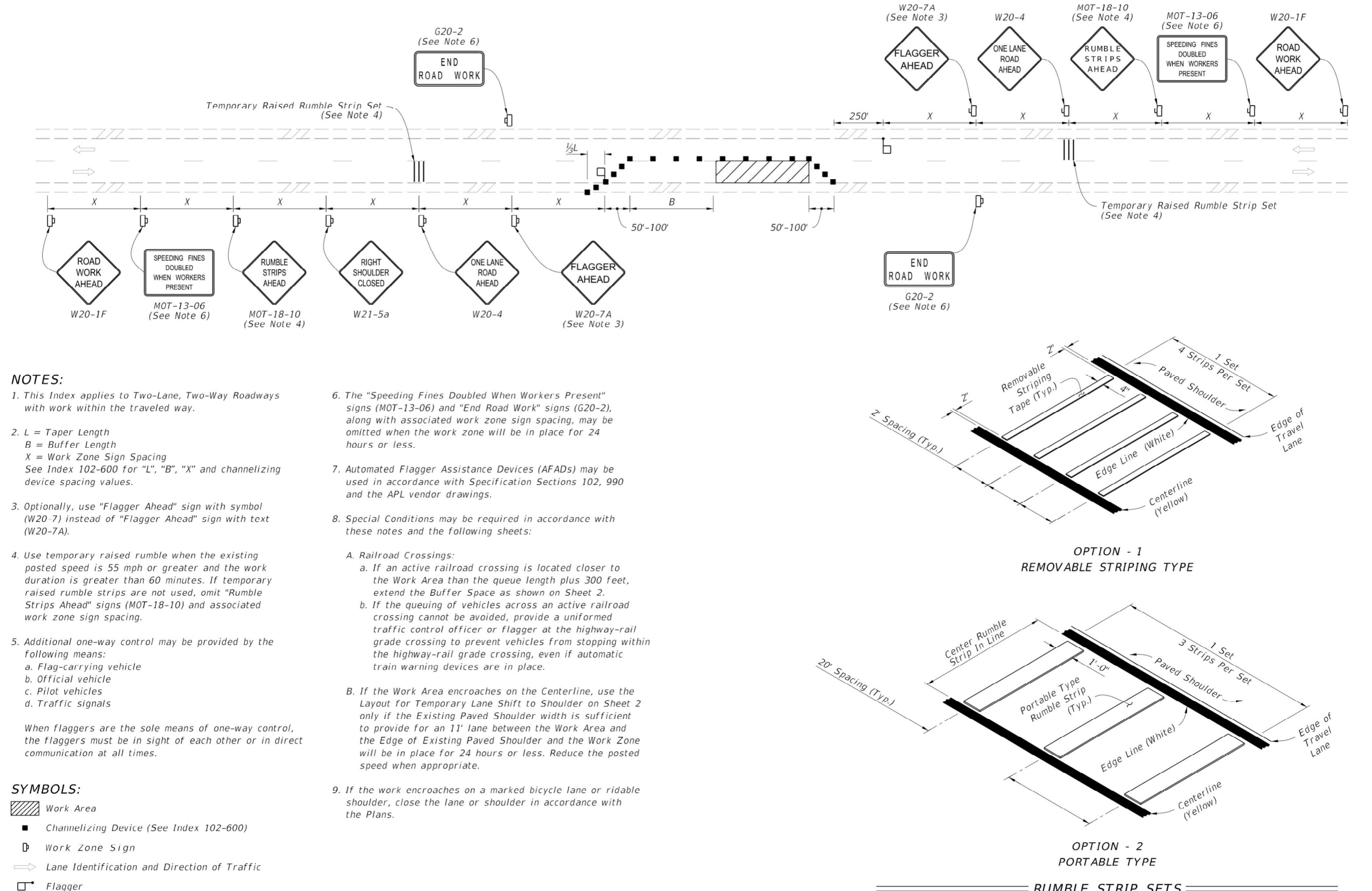
NOTE:
 FDOT STANDARD TTC/MOT DETAILS ARE PROVIDED AS A REFERENCE TO THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MOT PLANS NECESSARY TO COMPLETE THE WORK EFFORT(S) IN COMPLIANCE WITH OWNER'S STANDARDS FOR EACH PROJECT WORK AREA.

- 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 2021-22 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 1 of 2
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LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 2 of 2
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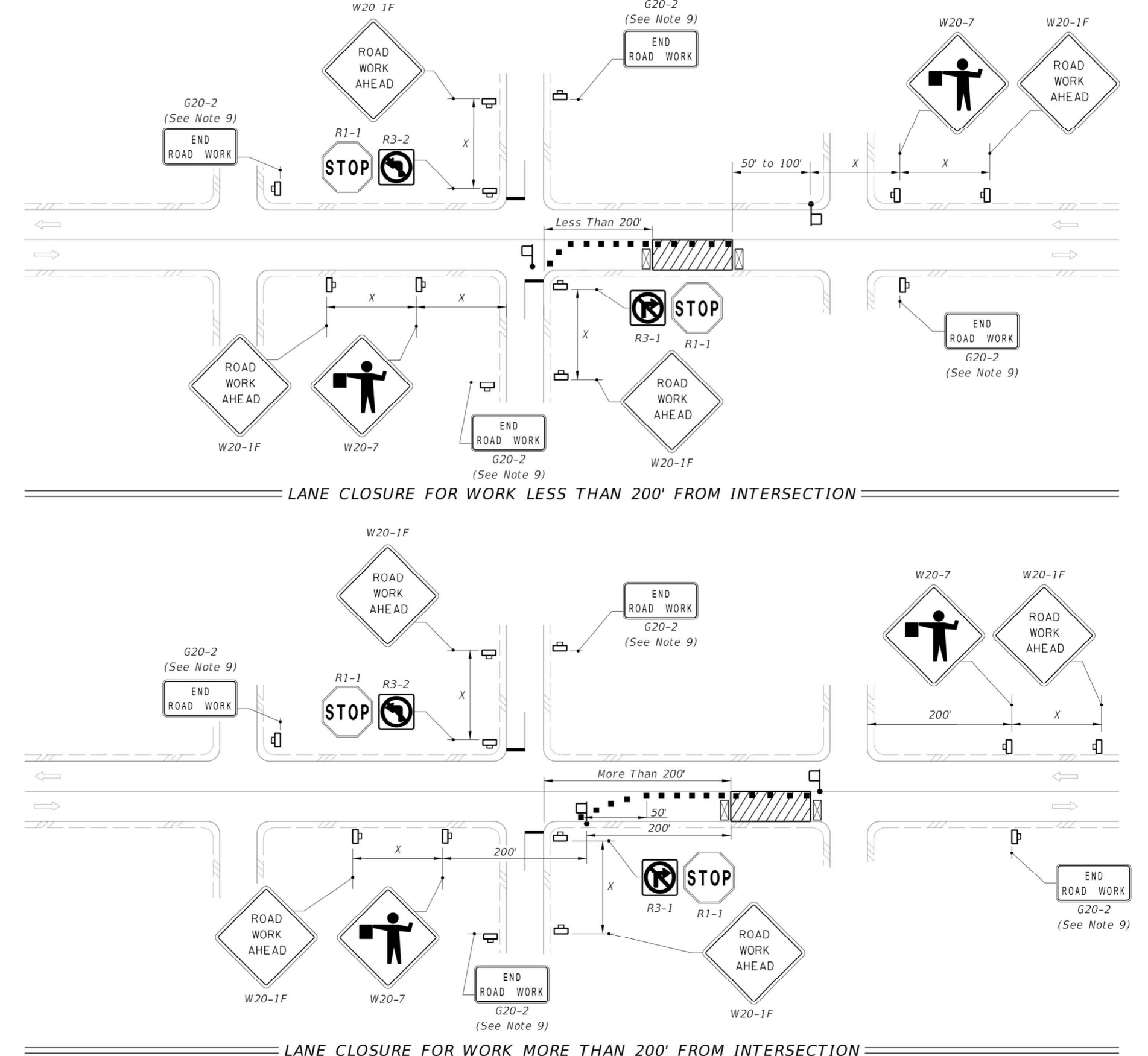


- NOTES:**
- This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
 - L = Taper Length
B = Buffer Length
X = Work Zone Sign Spacing
See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
 - Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
 - Use temporary raised rumble 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:
 a. Flag-carrying vehicle
 b. Official vehicle
 c. Pilot vehicles
 d. Traffic signals
 - When flaggers are the sole 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 zone 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.
 - Special Conditions may be required in accordance with these notes and the following sheets:
 A. Railroad Crossings:
 a. 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.
 b. 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.
 B. If the Work Area encroaches on the Centerline, use the Layout for Temporary Lane Shift to Shoulder on Sheet 2 only if the Existing Paved Shoulder width is sufficient to provide for an 11' lane between the Work Area and the Edge of Existing Paved Shoulder and the Work Zone will be in place for 24 hours or less. Reduce the posted speed when appropriate.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 1 of 2
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- 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 102-660.
 - District Traffic Operations Engineer must approve temporary signal phasing modifications prior to beginning of work.
 - 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 spacing may be omitted when the work zone will be in place for 24 hours or less.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.

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



LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 1 of 2
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RECORD DRAWINGS		DATE	BY
SURVEYED BY:	DRAWN BY:		
REVIEWED BY:	PROJECT ENGINEER:	DATE	BY
APPROVED BY:		DATE	

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

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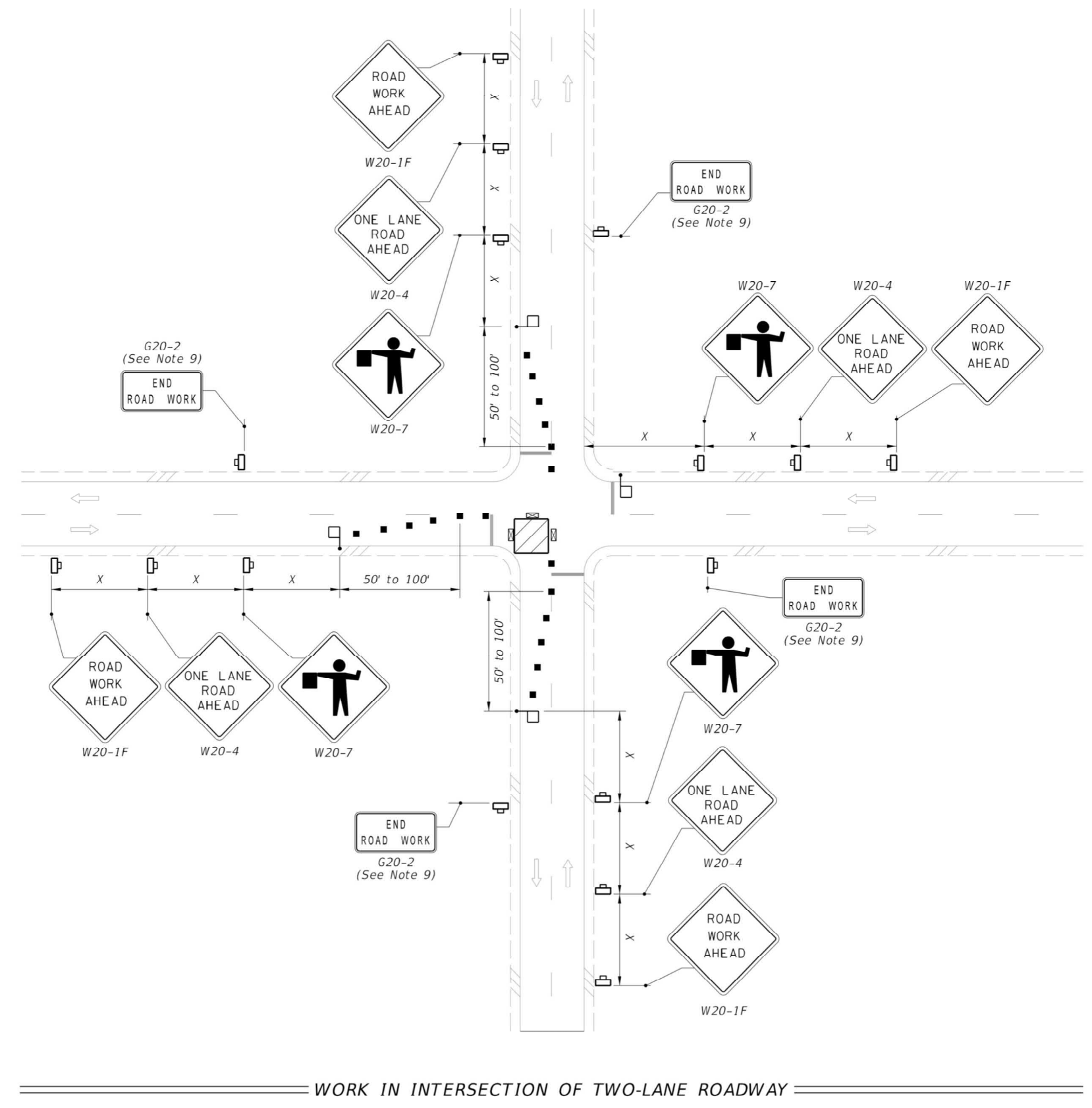
CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 FDOT FY 2021-22 STANDARD PLANS DETAILS

DWG NAME: C20	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 23 OF 22
APPROVED BY:			DATE: 10/25/2021

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

Parent Sheet Set: 102031-RCW Imp. Rev/Plot by: VANATTA, VIOLET Rev on: 8/27/2021 12:20 PM Individual File Path: V:\Projects\WSFL112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C21

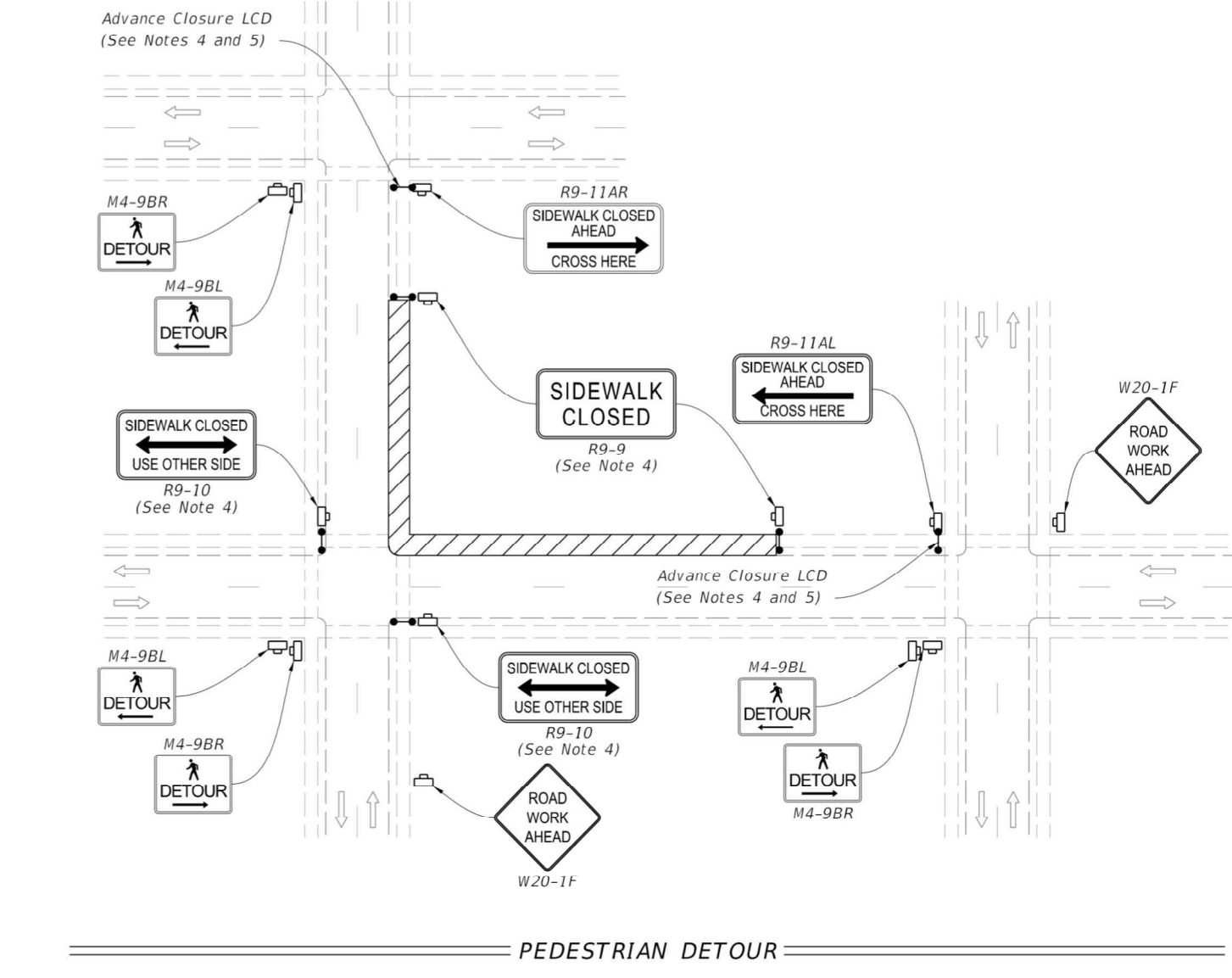
- SYMBOLS:**
- Work Area
 - Channelizing Device (See Index 102-000)
 - Type III Barricade
 - Work Zone Sign
 - Stop Bar
 - Lane Identification and Direction of Traffic
 - Flagger or Traffic Control Officer (TCO)



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.

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 2 of 2
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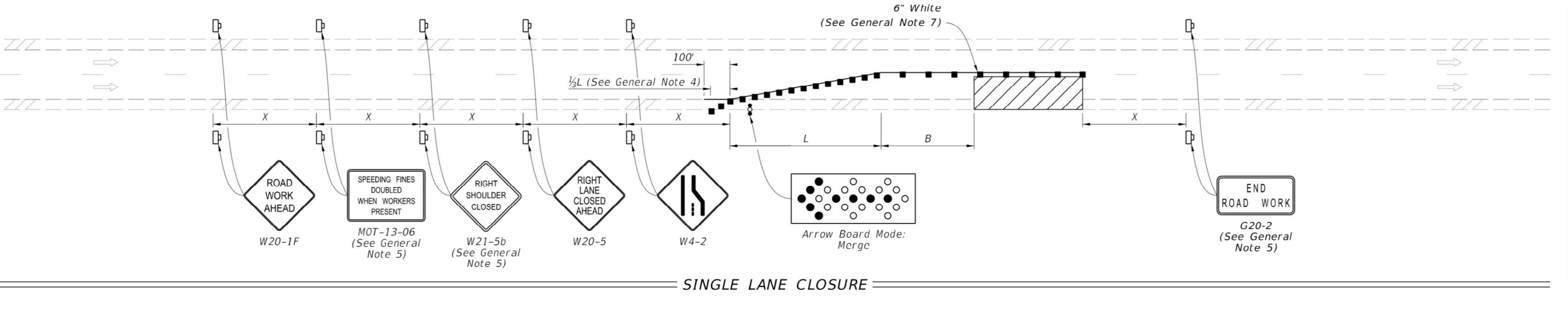
- NOTES:**
- Cover or deactivate pedestrian traffic signal displays controlling closed crosswalks.
 - Place pedestrian LCDs across the full width of the closed sidewalk.
 - For post mounted signs located near or adjacent to a sidewalk, maintain a minimum 7' clearance from the bottom of the sign panel to the surface of the sidewalk.
 - "Sidewalk Closed" signs (R9-XX) may be mounted on pedestrian LCDs in accordance with the manufacturer's instructions.
 - Omit the Advance Closure LCD if it blocks access to other pedestrian facilities (e.g., transit stops, residences, or business entrances).



- SYMBOLS:**
- Work Area
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Pedestrian Longitudinal Channelizing Device (LCD)

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 1 of 2
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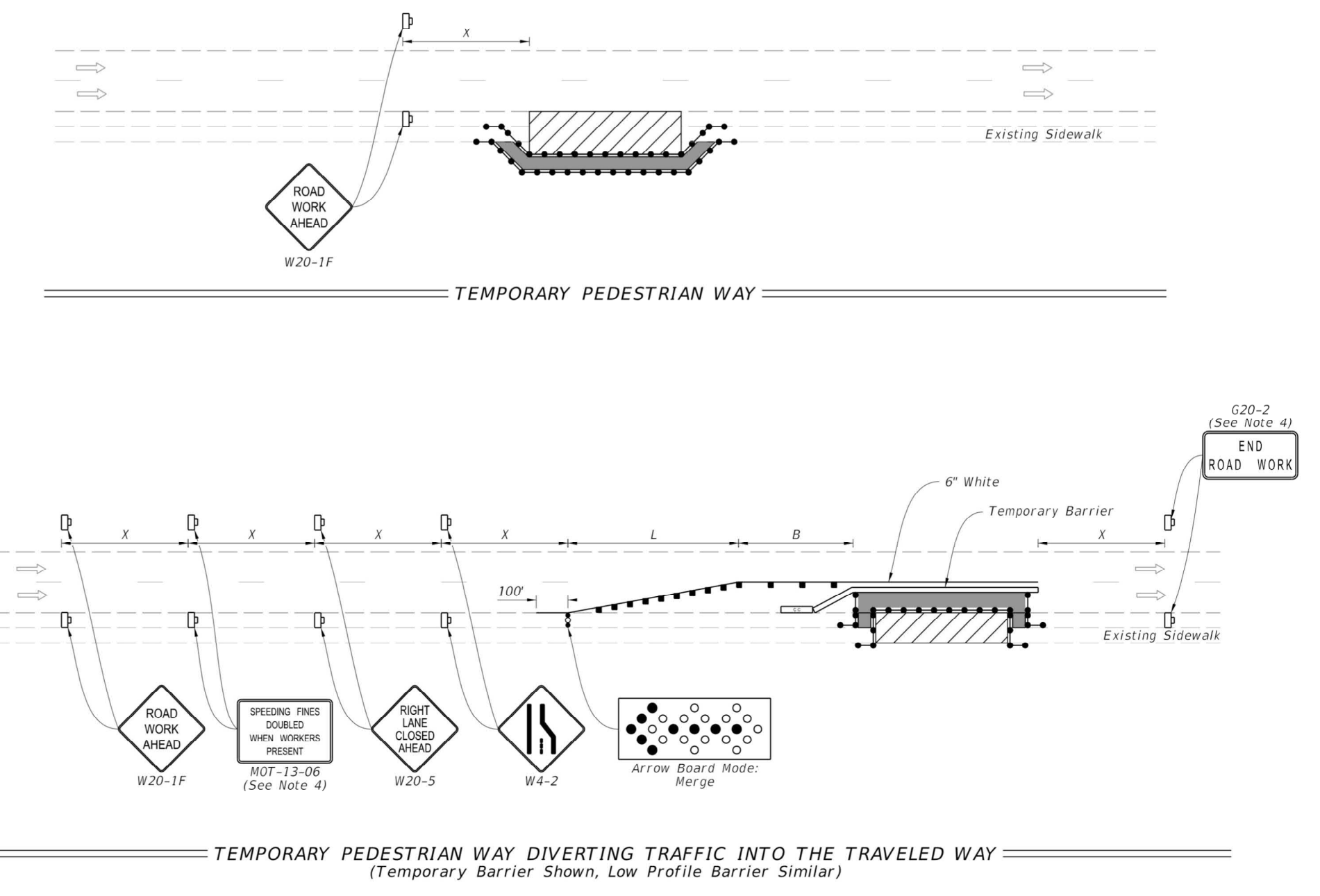
- SYMBOLS:**
- Work Area
 - Channelizing Device (See Index 102-600)
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Arrow Board



- 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.
 - On undivided highways the median signs as shown are to be omitted.
 - On limited access facilities, omit "Shoulder Closed Ahead" signs (W21-5b) and associated work zone sign spacing distances.
 - If the paved shoulder is less than 4' in width, omit the taper and channelizing devices from the paved shoulder.
 - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2) and "Shoulder Closed Ahead" (W21-5b), along with associated work zone sign distances, may be omitted when the work zone 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 zone will be in place for 60 minutes or less and the speed limit is 45 mph or less.
 - Use inverted plan of the illustrations for work on left side of roadways.
 - Temporary pavement markings may be omitted when the work zone is in place for 3 days or less.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX 102-613	SHEET 1 of 5
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- NOTES:**
- L=Taper Length
B=Buffer Length
X=Work Zone Sign Distance
See Index 102-600 for "L", "B", "X", channelizing device spacing values.
 - Provide a 5' wide temporary pedestrian way with a maximum cross-slope of 0.02, except where space restrictions warrant a minimum width of 4". Provide a 5' x 5' passing space for temporary pedestrian ways less than 5' in width at intervals not to exceed 200'.
 - When temporary pedestrian ways require curb ramps, meet the requirements of Index 522-002. Detectable warnings are not required for curb ramps diverting pedestrian traffic into a closed lane.
 - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone will be in place for 24 hours or less.



- SYMBOLS:**
- Work Area
 - Temporary Pedestrian Way
 - Channelizing Device (See Index 102-000)
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Pedestrian Longitudinal Channelizing Device (LCD)
 - Arrow Board
 - Crash Cushion

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 2 of 2
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RECORD DRAWINGS		REVISION	
SURVEYED BY:	DRAWN BY:	BY	DATE
		VVV	08/2021
		VVV	06/2021
		VVV	04/2021

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

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CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 FDOT FY 2021-22 STANDARD PLANS DETAILS

DWG NAME: C21	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 24 OF 24
APPROVED BY: _____			

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

Approved
 2021-H-799-00456
 DATE: 10/25/2021

UTILITY PERMIT

PERMIT NO: 2021-H-799-00457

STATE ROAD INFORMATION

County: Pinellas	Section: 15007000	State Road No: SR 595	Beginning Mile Post: 3.041	Ending Mile Post: 3.041
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APPLICANT INFORMATION

The Utility Agency Owner (UAO) shall be identified in this Applicant Information Box. When the UAO is a City or County and desires to have the Utility Builder make a joint permit applicant, as prescribed in Section 2.1(4) of the 2017 Utility Accommodation Manual (UAM), the Utility Builder shall also be identified in this Applicant Information Box. A Utility Builder alone cannot apply for a utility permit without the City or County adding them as a joint applicant.

Utility Agency/Owner (UAO)		Utility Builder (only applicable when the UAO is a City or County)	
Name:	<u>City of Clearwater Utilities</u>	Name:	_____
Contact Person:	<u>City of Clearwater Utilities</u>	Contact Person:	_____
Address:	<u>100 South Myrtle Ave.</u>	Address:	_____
City:	<u>Clearwater</u>	City:	_____
State:	<u>Florida</u>	State:	_____
Zip:	<u>33756</u>	Zip:	_____
Telephone:	<u>7275624815</u>	Telephone:	_____
Email:	<u>todd.kuhnel@myclearwater.com</u>	Email:	_____

WORK DESCRIPTION

The Applicant(s) requests permission from the Florida Department of Transportation (FDOT) to construct, operate, and maintain the utilities as described below and as depicted in the incorporated documentation.
8-inch HDPE reclaimed water (RCW) main via horizontal directional drill (HDD) along the south side of Druid Road crossing FDOT right of way, SR651 (S Missouri Avenue). See attached plans.

Utility Work No: _____

Additional sheets are attached and are incorporated into this permit Yes No

For FDEP certification, the FDOT agency report is attached in accordance with UAM Section 2.4.1 (13) Yes No

TRAFFIC CONTROL (TCP)

The TCP will comply with the following 600 series index(es) 600, 612

A TCP has been attached and incorporated into this permit application in compliance with UAM Section 2.4.2.

MOT Technician's contact information (may be supplied at the two (2) business day notification to FDOT):

Name: _____ Telephone: _____ Email: _____

COMMENCEMENT OF WORK

The UAO and/or Utility Builder shall commence actual construction in good faith within sixty (60) calendar days after approval of the permit application. If the beginning date is more than sixty (60) calendar days from the date of approval, the UAO and/or Utility Builder must review the permit with the FDOT Approving Engineer listed to make sure no changes have occurred to the transportation facility that would affect the permit's continued approval. The UAO and/or Utility Builder shall make good faith efforts to expedite the work and complete the work within the calendar days indicated.

Anticipated Start Date: 3/1/2022

Calendar days needed to completed: 365

Approved
 2021-H-799-00457
 Chris Gregory
 10/25/2021

Florida Department of Transportation
UTILITY PERMIT

PERMIT NO: 2021-H-799-00457

APPLICANT SIGNATURE

By the below signature(s) the UAO and/or Utility Builder agree(s) to construct, operate, and maintain the work as noted in the above Work Description, shown in plans and incorporated documents, in compliance with the UAM, all instructions noted in the FDOT Special Instructions Box, and special instructions incorporated into this permit. The UAO and/or Utility Builder declares, the location of all existing utilities that it owns or has an interest in, both aerial and underground, are accurately shown on the plans of the work areas. In accordance with UAM Section 2.8, the UAO and/or Utility Builder further declares that a letter of notification was delivered to the owners of other facilities within the work areas and that those listed below are the only facility owners known to be involved or potentially impacted by the proposed work.

Date Notified: <u>8/23/2021</u>	Name of other facility owners (attach additional sheets if necessary). <u>AT&T</u>
<u>8/23/2021</u>	<u>Charter Communication</u>
<u>8/23/2021</u>	<u>Crown Castle NG</u>
<u>8/23/2021</u>	<u>Duke Energy</u>
<u>8/23/2021</u>	<u>Fiberlight LLC</u>

Utility Agency/Owner

Utility Builder (when applicable)

Signature: TODD KUHNEL (digital signature) Date: 9/29/2021
 Name (printed): TODD KUHNEL
 Title: _____

Signature: _____ Date: _____
 Name (printed): _____
 Title: _____

FDOT PROJECT INFORMATION

Pursuant to UAM Section 2.1(10), the utility work is within FDOT projects listed below and must have a Utility Work Schedule for each project approved prior to commencement of work within the FDOT project limits:

**There are NO FDOT constructions (proposed or underway).
This work is NOT related to an approved utility work Schedule.**

FDOT SPECIAL INSTRUCTIONS

In accordance with UAM Section 2.7, FDOT incorporates the below and attached special instructions into this permit.
Permittee is to contact local maintaining agency, FERROVIAL SERVICES at 727-573-7672, for roadway lighting locates prior to beginning work in State right-of-way. work and inspections must be scheduled with FERROVIAL before beginning work. Permittee shall notify FDOT RTMC at 813-615-8657 of the exact time any lane closure begins and a second notification when lane closure is removed.

Additional FDOT Special Instructions are attached and incorporated into this permit. Yes No

PERMIT APPROVAL

By signature below, FDOT gives permission to the UAO and /or Utility Builder to construct, operate, and maintain the utilities indicated in this Utility Permit in compliance with the UAM, all incorporated documents, and special instructions. Any changes to the approved work must be approved by the FDOT's Approving Engineer and attached and incorporated into this permit in accordance with UAM Section 2.11.

Approving Engineer: Chris Gregory (digital signature) Date: 10/25/2021
 Name: Chris Gregory
 Title: MAINTENANCE MANAGER/PERMITS

Notification of Utility Work to be provided to: Telephone (727) 575-8300 ext. _____ or Email: Chris.Gregory@dot.state.fl.us

An FDOT Representative is required to be present on the worksite prior to commencement of work. Yes No
 Rep. Name: Lisa Gallman Telephone 7275737672 Email: lisa.gallman@ferrovialservices.com

Approved
2021-H-799-00457
Chris Gregory
10/25/2021

Florida Department of Transportation
UTILITY PERMIT

PERMIT NO: 2021-H-799-00457

CERTIFICATION

I, the undersigned UAO and/or Utility Builder, hereby CERTIFY that the utilities were constructed and inspected in compliance with the UAM all incorporated documents, and special instructions. Pursuant to UAM Section 2.11, all changes have been approved by the FDOT's Approving Engineer and incorporated into this permit along with all other material certifications, test results, bore logs, approved plans changes, as-built plans or other required documentation.

I also CERTIFY that work began on _____ and was completed on _____ and that the area was left in as good or better condition than when the work began.

Utility Agency/Owner

Utility Builder (when applicable)

Signature: _____ Date _____

Signature: _____ Date _____

Name (printed): _____

Name (printed): _____

Title: _____

Title: _____

FINAL INSPECTION OF WORK

The work was inspected and found to be in non-compliance as noted below:

All issues of non-compliance listed above have been brought into compliance and/or FDOT has no outstanding issues that need to be addressed by the UAO and/or Utility Builder. However, this final inspection does not release the UAO and/or Utility Builder of their continuing responsibilities pursuant to Rule 14-46.001, the UAM, all incorporated documents, and special instructions.

FDOT Inspector: _____ Date: _____

Name: _____

Title: _____

Approved
2021-H-799-00457
Chris Gregory
10/25/2021

PERMIT NO.: 2021-H-799-00457

STATE ROAD INFORMATION:

NAME OF OTHER FACILITY OWNERS / DATE NOTIFIED:

Facility Name: Knology, Date Notified: 8/23/2021, Facility Name: MCI Verizon, Date Notified: 8/23/2021, Facility Name: Uniti Fiber, Date Notified: 8/23/2021, Facility Name: Zayo Group, Date Notified: 8/23/2021

FDOT PROJECT INFORMATION:

There are NO FDOT constructions (proposed or underway).
This work is NOT related to an approved Utility Work Schedule.

THE WORK WAS INSPECTED AND FOUND TO BE IN NON-COMPLIANCE AS NOTED BELOW:

Approved
2021-H-799-00457
Chris Gregory
10/25/2021



REQUIRED NOTIFICATIONS

TWO (2) BUSINESS DAYS BEFORE STARTING WORK:

PERMIT TYPE	WHO TO CONTACT	WHAT TO DO
All Permits and Agreements	FDOT One-Stop Permitting (OSP)	<ul style="list-style-type: none"> • Enter MOT Technician Information. • Click on either “48 Hour Request to Begin Work” or “2 Business Day Notice”.
	FDOT Pinellas Operations Permits Asset Contractor	<ul style="list-style-type: none"> • Call Ferrovial Services at 727-573-7672 for inspections.
	Sunshine 811	<ul style="list-style-type: none"> • Call Sunshine 811 for locates (other than roadway lighting).
	FDOT Regional Traffic Management Center (RTMC)	<ul style="list-style-type: none"> • Call FDOT Regional Traffic Management Center at 813-615-8657 of the Exact Time Any Lane Closure Begins and a Second Notification When Lane Closure is Removed.
Utility Permits	Highway Lighting and ATMS Locates	<ul style="list-style-type: none"> • Highway Lighting and ATMS are not part of the Sunshine 811 Locate System. Permittee is to Contact the Maintaining Agency/Organization for Highway Lighting and ATMS Locates.
As-Needed	FDOT Advanced Dynamic Message Sign (ADMS) Arterial Locates	<ul style="list-style-type: none"> • Call FDOT SunGuide at 813-615-8613 (prefer email to Romona.Burke@dot.state.fl.us).
Permits in Active FDOT Construction Project	FDOT Construction Office	<ul style="list-style-type: none"> • Call Sherrele Darroch at 813-220-1872 to Coordinate MOT and Work.

Approved
2021-H-799-00457
Chris Gregory
10/25/2021

**THIS FDOT PERMIT COVERS
ACCESS TO FDOT RIGHT-OF-WAY
FOR PROPOSED WORK.**

.....

- **PERMITTEE/UAO/CONTRACTOR IS RESPONSIBLE FOR SECURING AUTHORIZATION FROM ANY PROPERTIES OUTSIDE OF THE FDOT RIGHT-OF-WAY THAT MAY BE UTILIZED FOR THE PROPOSED WORK.**
- **WORKDAYS AND TIMES ARE MONDAY THRU FRIDAY, 7:00 AM TO 5:30 PM.**

Approved
2021-H-799-00457
Chris Gregory
10/25/2021

MEMORANDUM
FLORIDA DEPARTMENT OF TRANSPORTATION
District Utilities MS 7-820

DATE: September 30, 2021

TO: Michael Lenhart, Operations Program Engineer, Pinellas Operations

FROM: Sherelle Darroch, Utility Construction Coordinator

COPIES: Julie Ostoski, Pinellas Operations Engineer
Dan Hunter, District Utility Administrator
Project File

SUBJECT: FPID: 439829-8-52-01 / Pinellas County / Intersection Lighting various locations
Permit No: 2021-H-799-0457 / **City of Clearwater**

Please find the attached Utility Permit on the above referenced project from **City of Clearwater**.

This installation is involved with a highway improvement project.

The installation has been reviewed by the Pinellas Operations Construction Office and has no comments to add.

Upon final execution of this permit, please forward the District Utilities' copy to the Construction office indicated above with a copy of this memo attached.

Attachment
Form#59

Approved
2021-H-799-00457
Chris Gregory
10/25/2021

SHEET INDEX

SHEET #	SHEET DESCRIPTION
01	COVER SHEET, SHEET INDEX, AND PROJECT LOCATION
02	GENERAL NOTES AND ABBREVIATIONS
03	LEGENDS AND TEST HOLE TABLE
04-08	DRUID RD (AREA A) - PLAN AND PROFILES
09-11	N MARTIN LUTHER KING JR AVE (AREA B) - PLAN AND PROFILES
12-13	FAIRMONT ST (AREA C) - PLAN AND PROFILES
14-15	FAIRMONT ST - SANITARY SEWER REPLACEMENT - PLAN AND PROFILES
16-20	MEMORIAL CAUSEWAY (AREA D) - RECONNECTIONS
21-22	CITY OF CLEARWATER STANDARD DETAILS
23-24	FDOT FY 2021-22 STANDARD PLANS DETAILS
---	AREA E, AREA F, AND AREA G - SEE SUPPLEMENTAL ATTACHMENT



CLEARWATER
BRIGHT AND BEAUTIFUL · BAY TO BEACH

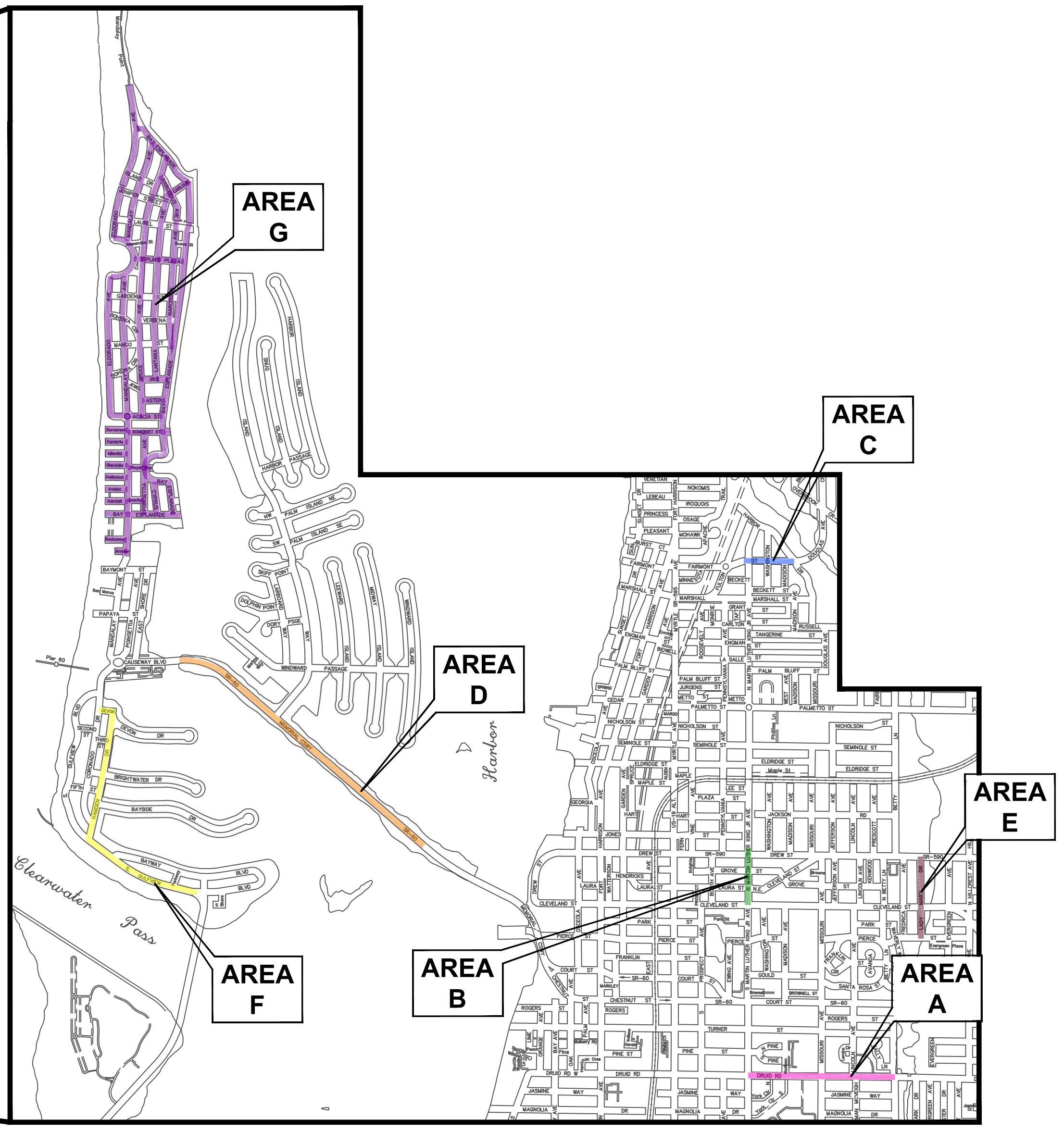
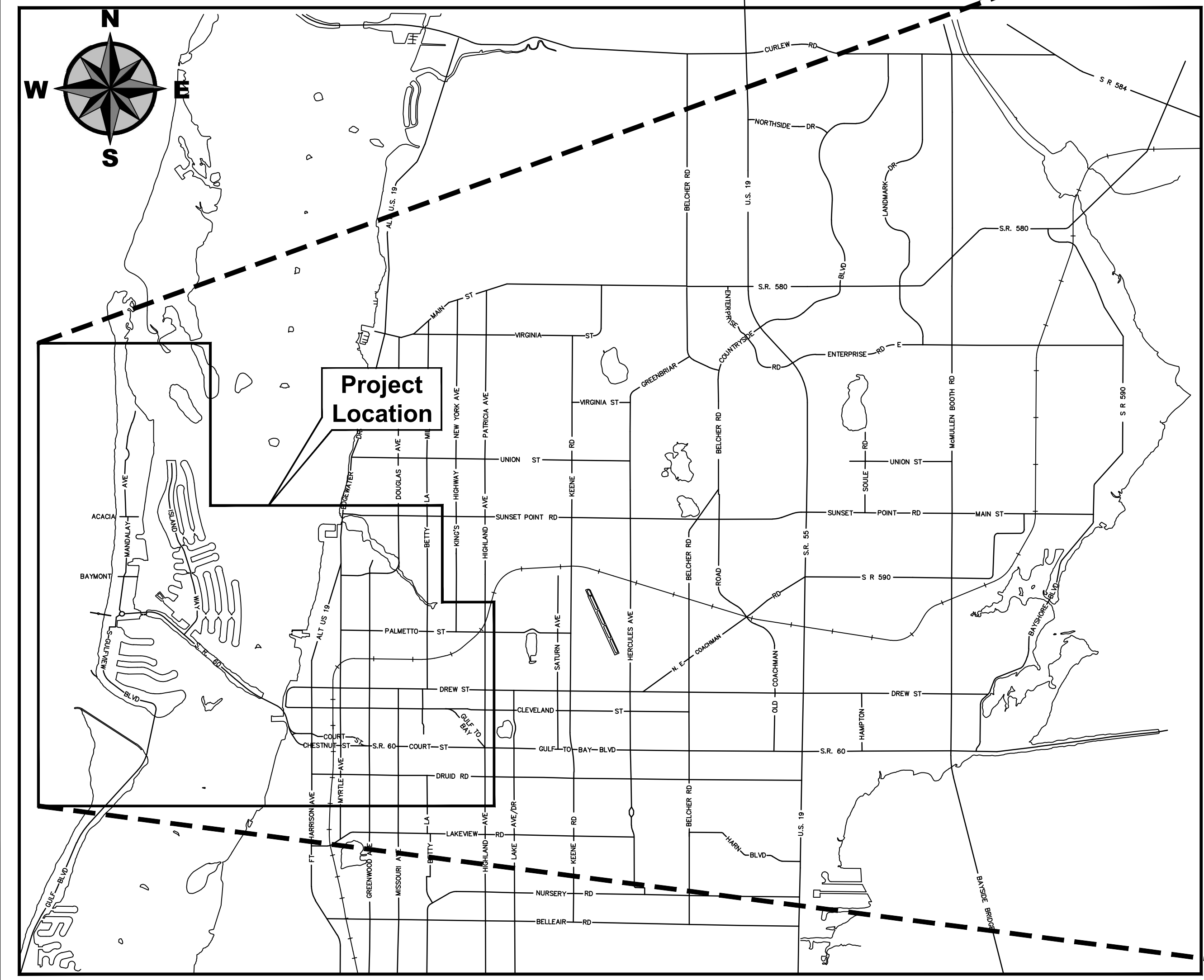


RECLAIMED WATER PIPING IMPROVEMENTS AREA A



3507 EAST FRONTAGE ROAD SUITE 180
TAMPA, FL 33607
TEL: (813) 549-0919
CHA CONSULTING, INC.
CERTIFICATE OF AUTHORIZATION #28386

THIS ITEM HAS BEEN DIGITALLY SIGNED
AND SEALED BY WESTON T. HAGGEN ON
THE DATE ADJACENT TO THE SEAL.
Weston T. Haggen
2021.10.25 06:13:06-04'00'
PRINTED COPIES OF THIS DOCUMENT
ARE NOT CONSIDERED SIGNED AND SEALED
AND THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES.



CITY OFFICIALS

- | | |
|----------------------------|----------------------|
| <i>Frank Hibbard</i> | <i>Mayor</i> |
| <i>Mark Bunker</i> | <i>Councilmember</i> |
| <i>Kathleen Beckman</i> | <i>Councilmember</i> |
| <i>David Allbritton</i> | <i>Councilmember</i> |
| <i>Hoyt Hamilton</i> | <i>Councilmember</i> |
| <i>William B. Horne II</i> | <i>City Manager</i> |

Tara L. Kivett, P.E.
City Engineer

**Approved For
Construction**

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

Date Approved

100% PLANS PRELIMINARY
City Project No. 18-0040-UT Task 9
City Plan Set No. 2020027

Parent Sheet Set: 102031_RCW Imp Rev/Plot by: VANATTA, VIOLET Rev on: 8/27/2021 12:48 PM Individual File Path: V:\Projects\WSFL112\1020000 Clearwater\00_Projects\04_Design\01_CAD\001.dwg - Reclaimed Water Pipe Improvements\60_Design\04_Design\01_CAD\001.dwg

Approved
2021-11-799-00457
Chris Gregory
10/25/2021

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 in accordance with the local governmental agency.
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.
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.
32. A CCTV inspection of the new sewer system in digital format utilizing the industry standard Pipeline Assessment and Certification Program (PACP) coding system shall be provided to the City. The video shall be taken prior to placing the new sewer system into service. Data will be collected utilizing CUES Granite software.
33. Installation of gravity sewer pipe shall be in conformance with recommended practices contained in Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications ASTM D2321. Connections to manholes with sanitary pipe shall use a joint two (2) feet in length and shall use an approved water stop around pipe joint entry.
34. The bottom trench width in an unsupported trench shall be limited to the minimum practicable width allowing working space to place and compact the hunching 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.
35. 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.
36. 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.
37. 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.
38. The Contractor shall protect private property.

- 39. All RCW water service lines and meter boxes shall be installed with a minimum five (5) foot separation from existing potable water meter boxes and service lines, however separation may be reduced to three (3) foot where space is limited as approved by City's Engineering Representative.
40. The Contractor shall provide the City 60 days notice prior to starting any service line connections.
41. City of Clearwater to provide RCW service meter box location sheets to City's Engineering Representative directing location of RCW meter boxes to be installed.
42. All lane closures and work affecting traffic shall be scheduled, coordinated, and approved by the City. No lane closures on Memorial Causeway (SR60) will be allowed during Spring Break.

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. The last date of field survey is 03-03-2021.

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, Description, Abbreviation, Description. Includes terms like ABAN (ABANDON(ED)), FLEX (FLEXIBLE), QTY (QUANTITY), 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.

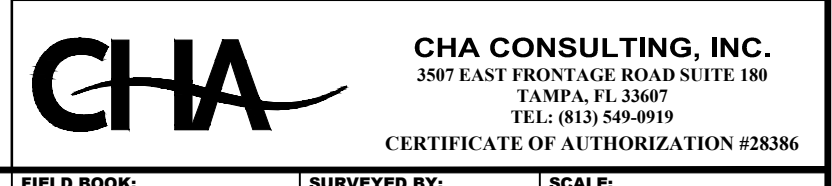
RECORD DRAWINGS table with columns: SURVEYED BY, DRAWN BY, REVIEWED BY, PROJECT ENGINEER, DATE, APPROVED BY, DATE.

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



CITY OF CLEARWATER
RECLAIMED WATER PIPING IMPROVEMENTS
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., APPROVED BY.

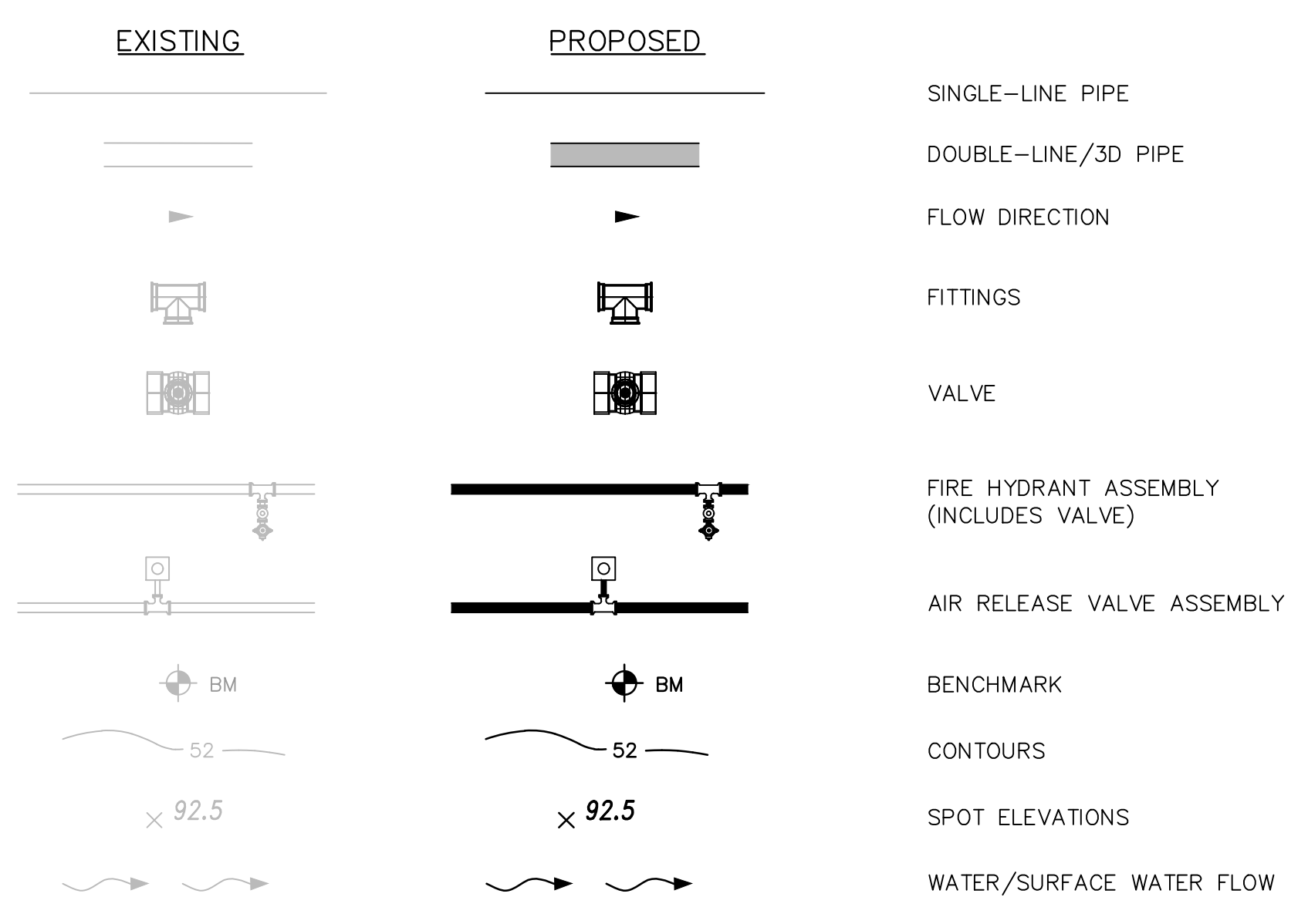


Approved
2021-H-799-00457
10/25/2021

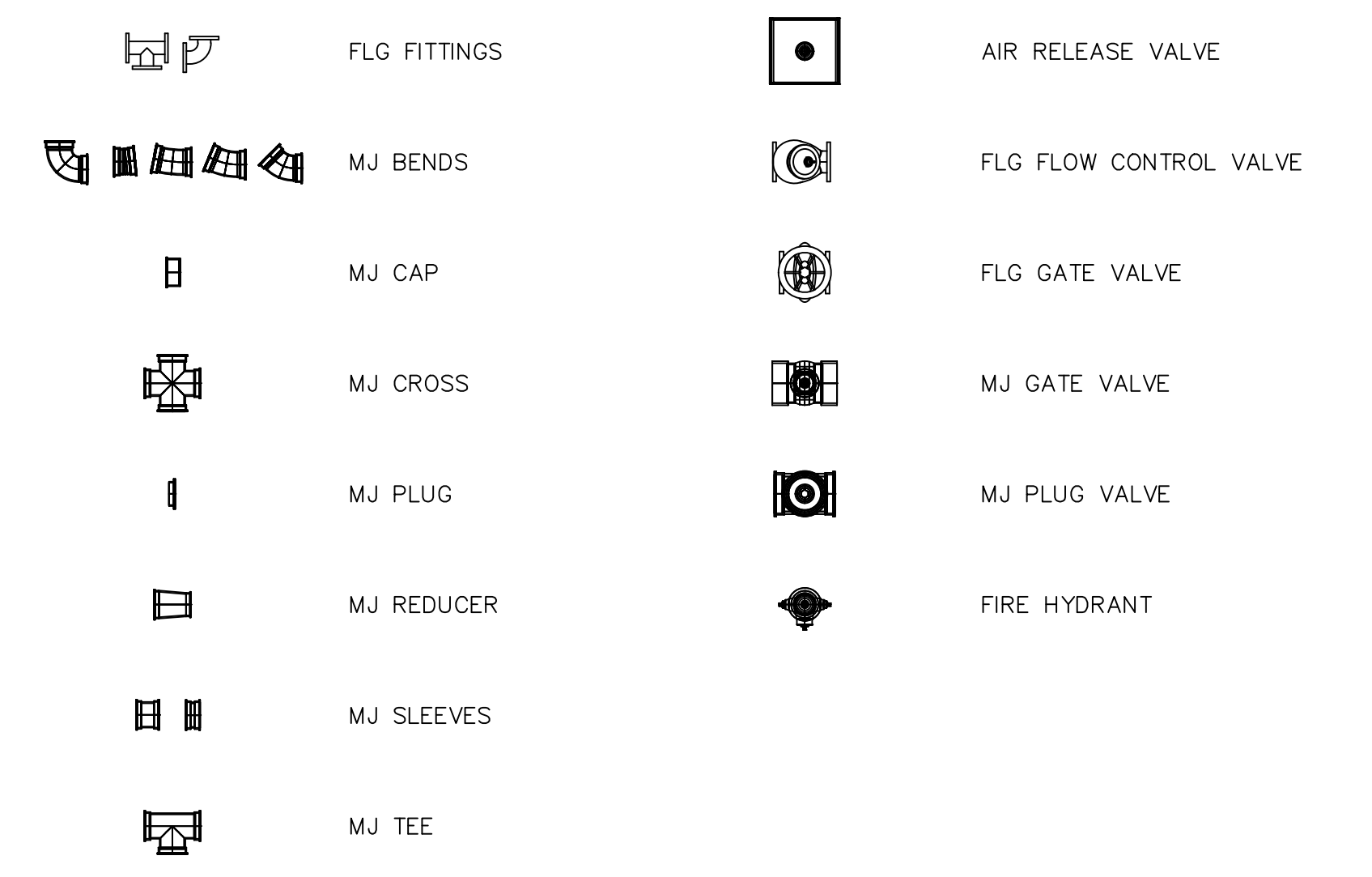
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CIVIL SYMBOLS LEGEND



FITTINGS AND VALVES (DOUBLE-LINE/3D)



SURVEY LEGEND

ASPH. = ASPHALT
 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
 ID. = IDENTIFICATION
 INV. = INVERT
 MKR. = MARKER
 N = NORTH OR NORTHING
 PEDS. = PEDESTRIANS
 PVC = POLYVINYL CHLORIDE
 RCW = RECLAIMED WATER
 SRVC. = SERVICE
 S/L = STREET LIGHTING
 SWK. = SIDEWALK
 T/S = TRAFFIC SIGNAL
 W/ = WITH
 W.U.P. = WOOD UTILITY POLE

UTILITY OWNERS

Spectrum
 Attention: Mr. Ted Bingham
 700 Carillon Parkway, Suite 6
 St. Petersburg, Florida 3716-1123
 Phone: (727) 562-2847

Frontier Communications, Inc.
 Attention: Mr. Chris Blauvelt
 MC: FLCW5933
 1280 Cleveland Street
 Clearwater, Florida 33782
 Phone: (727) 562-1130

Wide Open West (WOWI)
 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

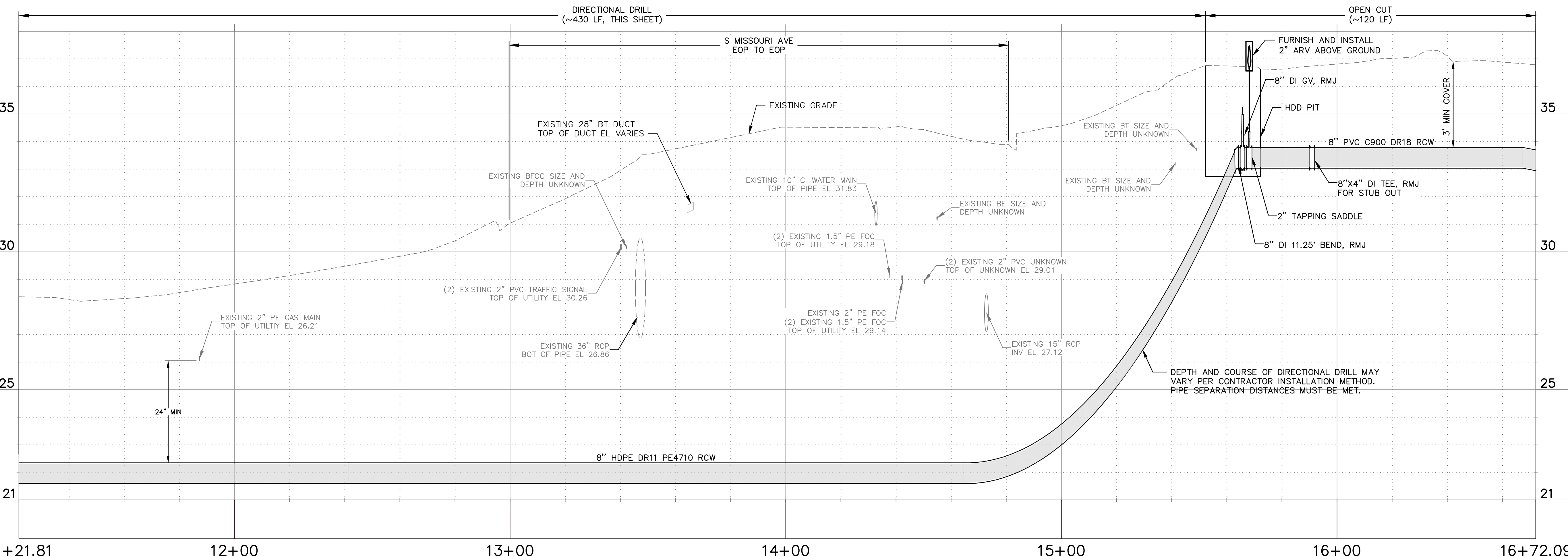
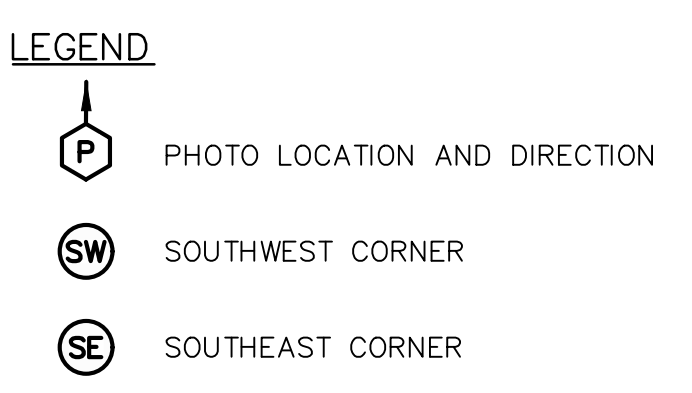
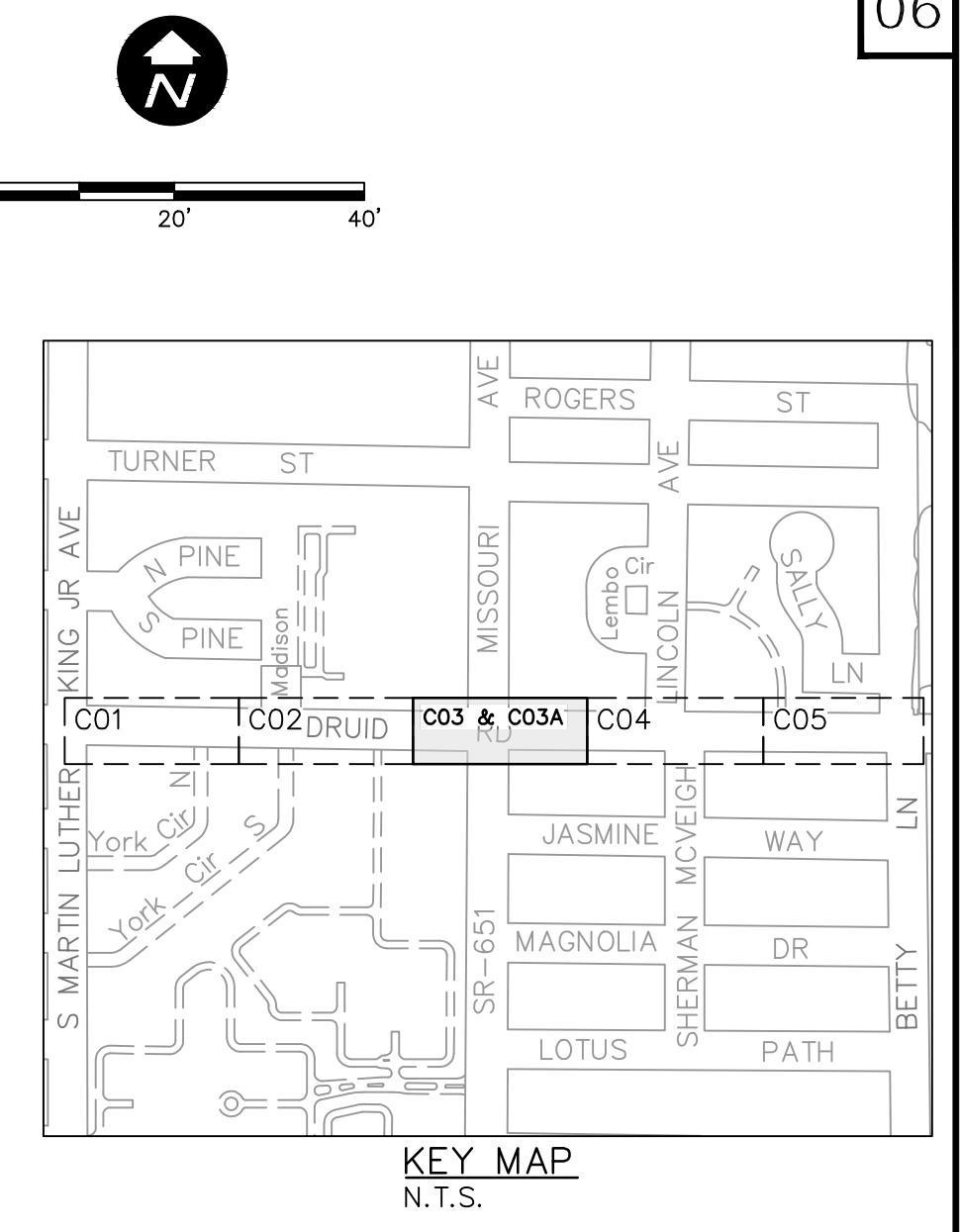
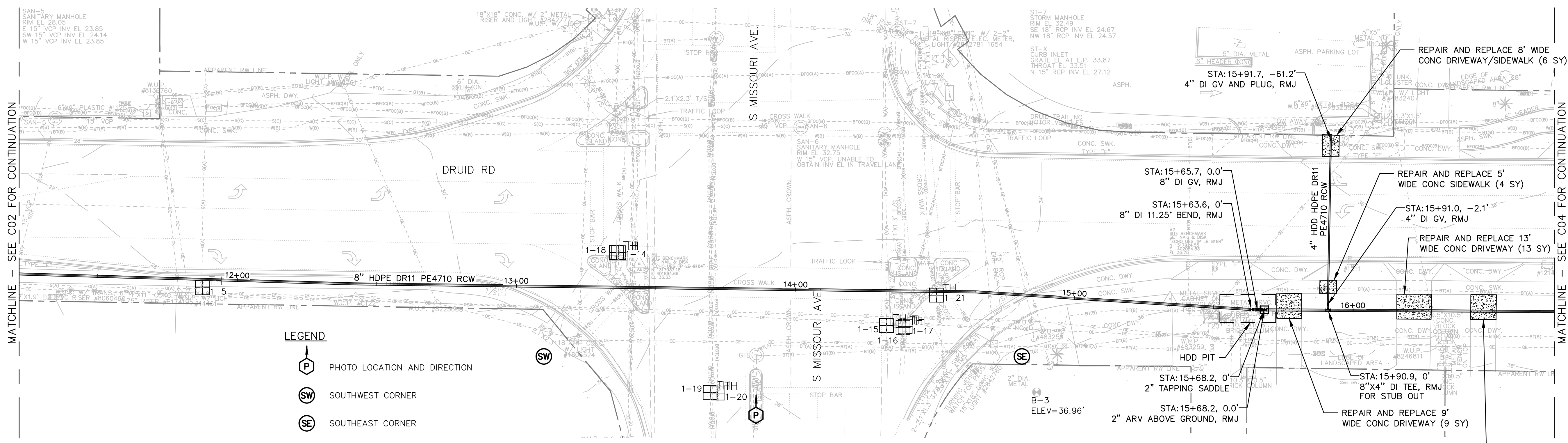
City of Clearwater
 Engineering Department - Public Utilities - Potable, Wastewater, and Reclaimed
 Attention: Mr. Glenn Daniel
 1650 North Arcturus Avenue
 Clearwater, Florida 33755
 Phone: (727) 562-4960 Ext. 7248

Test Hole	Utility Type	Utility Material	Utility Size Outside Diameter	Utility Manual Depth	Identified By	Surface Type	Surface Thickness inches	Apparent Utility Owner	Northing	Easting	Ground Elevation	Utility Elevation
AREA "A" - DRUID RD.												
1-1	RCW	PVC	4"	2.32'	IRC	NG	N/A	CITY OF CLEARWATER	1317946.76'	400640.40'	45.12'	42.80'
1-2	RCW	PVC	4"	3.16'	IRC	NG	N/A	CITY OF CLEARWATER	1317955.87'	400977.33'	39.87'	36.71'
1-3	WS	PVC	1.5"	1.42'	IRC	NG	N/A	CITY OF CLEARWATER	1317946.94'	401353.13'	31.34'	29.92'
1-4	WM	CI	8"	2.20'	IRC	NG	N/A	CITY OF CLEARWATER	1317937.42'	401582.19'	27.88'	25.68'
1-5	GM	PE	2"	2.74'	IRC	NG	N/A	CLEARWATER GAS	1317928.61'	401708.14'	28.95'	26.21'
1-6	GM	PE	2"	3.26'	IRC	NG	N/A	CLEARWATER GAS	1317922.57'	402455.12'	30.48'	27.22'
1-7	BT	DBC	1.5"	2.92'	IRC	NG	N/A	CITY OF CLEARWATER	1317914.56'	402516.14'	29.68'	26.76'
1-8	GM	PE	2"	2.22'	IRC	NG	N/A	CLEARWATER GAS	1317915.38'	402520.48'	29.37'	27.15'
1-9	WM	DIP	6"	3.48'	IRC	NG	N/A	CITY OF CLEARWATER	1317914.15'	402558.85'	28.98'	25.50'
1-10	GM	PE	2"	2.66'	IRC	NG	N/A	CLEARWATER GAS	1317929.18'	402784.10'	25.02'	22.36'
1-11	BE	PE	1"	2.50'	IRC	NG	N/A	TECO	1317936.80'	402849.32'	24.15'	21.65'
1-12	UNK	CI	1"	1.68'	IRC	NG	N/A	UNKNOWN	1317936.66'	402848.56'	24.14'	22.46'
1-13	GM	PE	2"	3.18'	IRC	NG	N/A	CLEARWATER GAS	1317928.03'	402900.11'	23.86'	20.68'
1-14	TS	PVC	2-2"	2.12'	NL	ASPH	6"	CITY OF CLEARWATER	1317941.13'	401857.31'	32.38'	30.26'
1-15	WM	CI	10"	3.02'	NL	ASPH	6"	CITY OF CLEARWATER	1317915.10'	401953.23'	34.85'	31.83'
1-16	FOC	PE	2-1.5"	5.56'	NL	ASPH	6"	UNKNOWN	1317914.35'	401959.16'	34.74'	29.18'
1-17	FOC	PE	2" & 2-1.5"	5.56'	NL	ASPH	6"	UNKNOWN	1317914.67'	401959.94'	34.70'	29.14'
1-18	FOC	PE	2"	4.26'	NL	ASPH	6"	FRONTIER	1317941.19'	401856.48'	32.36'	28.10'
1-19	FOC/BT DUCT	DBC/AC	28"	3.74'	NL	ASPH	3"	FRONTIER	1317891.18'	401890.08'	35.43'	31.69'
1-20	FOC/BT DUCT	DBC/AC	28"	3.74'	NL	ASPH	3"	FRONTIER	1317890.95'	401892.83'	35.54'	31.80'
1-21	UNK	PVC	2-2"	5.44'	NL	ASPH	6"	CITY OF CLEARWATER	1317925.94'	401971.15'	34.45'	29.01'
AREA "B" - N. MARTIN LUTHER KING AVE.												
2-1	GM	PE	4"	3.56'	IRC	NG	N/A	CLEARWATER GAS	1321322.72'	400571.80'	35.41'	31.85'
2-2	FOC	PE	2"	2.64'	IRC	NG	N/A	MCI	1321323.53'	400571.61'	35.42'	32.78'
2-3	BT	PVC & DBC	2-4" & 1"	2.90' & 3.12'	IRC	NG	N/A	FRONTIER	1321910.69'	400569.05'	32.25'	29.35' & 29.13'
2-4	TS	PVC	2-2"	4.88'	IRC	NG	N/A	CITY OF CLEARWATER	1321992.51'	400572.00'	30.88'	26.00'
2-5	GM	STL	2"	2.00'	IRC	NG	N/A	CLEARWATER GAS	1321979.84'	400563.77'	31.05'	29.05'
2-6	FOC/BT	PVC	MULT. 4"	4.70'	IRC	NG	N/A	FRONTIER	1321982.21'	400567.00'	30.84'	26.14'
2-7	FOC/BT	PVC	MULT. 4"	4.82'	IRC	NG	N/A	FRONTIER	1321980.20'	400565.83'	30.90'	26.08'
2-11	BE	PVC	3-2"	2.26'	NL	ASPH	3"	TECO	1321071.75'	400565.87'	33.11'	30.85'
2-12	BE	PVC	2-2"	2.14'	NL	ASPH	3"	TECO	1321086.82'	400570.05'	33.37'	31.23'
2-13	BE	CONC CAP	30"	2.68'	NL	ASPH	6"	TECO	1321356.91'	400561.50'	35.55'	32.87'
2-14	BE	CONC CAP	30"	2.68'	NL	ASPH	6"	TECO	1321354.49'	400561.51'	35.57'	32.89'
2-15	WM	DIP	6"	2.02'	NL	ASPH	6"	CITY OF CLEARWATER	1321372.42'	400571.64'	35.44'	33.42'
2-16	EXPLORATORY - NO UTILITIES FOUND - CLEARED TO 14"				X	CONC	9"	FRONTIER	1321067.54'	400564.59'	32.97'	N/A
2-17	WS	CI	2.5"	1.26'	NL	ASPH	6"	CITY OF CLEARWATER	1321679.96'	400571.84'	33.80'	32.54'
2-18	FOC	PE	1.5"	6.64'	NL	ASPH	6"	FRONTIER	1321635.19'	400574.17'	34.43'	27.79'
2-19	WM	PVC	4"	2.38'	NL	ASPH	6"	CITY OF CLEARWATER	1321930.78'	400568.53'	31.46'	29.08'
2-20	FOC	PE	2-1.5"	4.38'	IRC	NG	N/A	FRONTIER	1321922.33'	400566.52'	32.04'	27.66'
2-21	RCW	PVC	4"	2.58'	IRC	NG	N/A	CITY OF CLEARWATER	1321203.193'	400571.35'	30.50'	27.92'
2-22	WM	PVC	18"	3.42'	NL	ASPH	3"	CITY OF CLEARWATER	1321017.44'	400563.20'	33.07'	29.65'
2-23	RCW	PVC	6"	3.50'	NL	ASPH	3"	CITY OF CLEARWATER	1321027.00'	400565.19'	33.37'	29.87'
2-24	WM	PVC	8"	3.12'	NL	ASPH	3"	CITY OF CLEARWATER	1321043.85'	400554.72'	33.13'	30.01'
2-25	FOC/BT	AC	3-4"	3.76'	NL	ASPH	3"	FRONTIER	1321965.36'	400568.93'	31.43'	27.67'
2-26	WM	CI	6"	1.80'	NL	ASPH	3"	CITY OF CLEARWATER	1321968.85'	400569.17'	31.30'	29.50'
AREA "C" - FAIRMONT ST.												
3-1	WM	CI	12"	2.34'	IRC	NG	N/A	CITY OF CLEARWATER	1327229.91'	400617.82'	12.96'	10.62'
3-2	GM	CI	2"	2.26'	IRC	NG	N/A	CLEARWATER GAS	1327227.13'	400617.29'	13.02'	10.76'
3-3	GM	PE	2"	1.80'	IRC	NG	N/A	CLEARWATER GAS	1327224.17'	400616.07'	12.99'	11.19'
3-4	FOC	PVC	3"	6.20'	NL	ASPH	N/A	FRONTIER	1327238.26'	400615.35'	12.43'	6.23'
3-5	RCW	PVC	4"	3.70'	X	NG	N/A	CITY OF CLEARWATER	1327218.09'	400584.22'	12.99'	9.29'
3-6	GM	PE	2"	2.46'	IRC	NG	N/A	CLEARWATER GAS	1327214.90'	400583.85'	13.05'	10.59'
3-7	WM	PVC	6"	2.10'	IRC	NG	N/A	CITY OF CLEARWATER	1327224.02'	400959.76'	11.37'	9.27'
3-8	GM	PE	2"	2.40'	IRC	NG	N/A	CLEARWATER GAS	1327211.95'	400918.60'	11.79'	9.39'
3-9	GM	STL	2"	2.76'	IRC	NG	N/A	CLEARWATER GAS	1327221.56'	400917.16'	11.66'	8.90'
3-10	GM	PE	2"	2.62'	IRC	NG	N/A	CLEARWATER GAS	1327223.63'	401265.69'	9.22'	6.60'
3-11	WM	CI	2"	2.06'	IRC	NG	N/A	CITY OF CLEARWATER	1327223.60'	401266.90'	9.35'	7.29'
3-12	WM	CI	6"	2.50'	NL	ASPH	2"	CITY OF CLEARWATER	1327229.80'	401415.72'	8.03'	5.53'
3-13	RCW	DIP	12"	4.62'	NL	ASPH	2"	CITY OF CLEARWATER	1327229.79'	401428.37'	8.07'	3.45'
AREA "D" - CLEARWATER MEMORIAL CAUSEWAY												
4-1	RCW	DIP	16"	2.44'	IRC	NG	N/A	CITY OF CLEARWATER	1325053.03'	391222.18'	6.19'	3.75'
4-2	FOC	HDPE	3"	2.18'	IRC	NG	N/A	FRONTIER	1325053.39'	391226.83'	6.36'	4.18'
4-3	BE	PVC	1.5"	1.20'	NL	ASPH	3"	TECO	1325067.09'	391239.23'	7.08'	5.88'
4-4	BED	CONC CAP	24"	2.76'	NL	ASPH	3"	TECO	1325067.54'	391239.47'	7.10'	4.34'
4-5	BED	CONC CAP	24"	2.76'	NL	ASPH	3"	TECO	1325067.85'	391239.79'	7.13'	4.37'
4-6	BE	PVC	1.5"	1.14'	NL	ASPH	3"	TECO	1325069.20'	391240.80'	7.24'	6.10'
4-7	BED	CONC CAP	24"	2.84'	NL	ASPH	3"	TECO	1324642.25'	391738.99'	6.87'	4.03'
4-8	BED	CONC CAP	24"	2.70'	NL	ASPH	3"	TECO	1324640.59'	391737.67'	6.79'	4.09'
4-9	BE	PVC	1.5"	0.98'	NL	ASPH	N/A	TECO	1324641.04'	391738.14'	6.82'	5.84'
4-10	RCW/FOC	PVC & HDPE	1.5" & 3"	0.82' & 1.92'	IRC	NG	N/A	CLEARWATER & FRONTIER	1324629.40'	391727.46'	6.26'	5.44' & 4.34'
4-11	RCW	DIP	16"	2.34'	IRC	NG	N/A	CITY OF CLEARWATER	1324628.16'	391726.85'	6.17'	3.83'
4-12	RCW	DIP	16"	2.68'	IRC	NG	N/A	CITY OF CLEARWATER	1323655.26'	393039.65'	4.14'	1.46'
4-13	BT	DBC	1" & 2"	1.42'	NL	ASPH	3"	FRONTIER	1323653.82'	392993.80'	6.82'	5.40'
4-14	WS/RCW	PVC	2" & 3"	1.00'	IRC	NG	N/A	CITY OF CLEARWATER	1323629.72'	392975.51'	8.20'	7.20'
4-15	WS	PVC	2"	1.60'	IRC	NG	N/A	CITY OF CLEARWATER	1325096.09'	391265.05'	8.48'	6.88'
4-16	RCW	PVC	16"	2.86'	IRC	NG	N/A	CITY OF CLEARWATER	1322876.73'	393938.09'	4.55'	1.69'
4-17	BT	DBC	1"	1.92'	NL	ASPH	3"	FRONTIER	1322860.00'	393918.80'	6.51'	4.59'
4-18	BT	DBC	2"	1.46'	NL	ASPH	3"	FRONTIER	1322859.13'	393918.16'	6.00'	5.14'
4-19	RCW	PVC	4"	2.14'	IRC	NG	N/A	CITY OF CLEARWATER	1322835.04'	393903.04'	7.74'	5.60'
4-20	RCW	DIP	16"	3.20'	IRC	NG	N/A	CITY OF CLEARWATER	1323215.29'	393535.40'	5.06'	1.86'
4-21	BT	DBC	1"	1.34'	NL	ASPH	3"	FRONTIER	1323201.13'	393522.29'	6.63'	5.29'
4-22	BT	DBC	2"	1.50'	NL	ASPH	3"	FRONTIER	1323200.56'	393521.82'	6.66'	5.16'
4-23	WS	PVC	1.5"	1.06'	IRC	NG	N/A	CITY OF CLEARWATER	1323179.19'	393502.40'	7.46'	6.40'

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.

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11+21.81 12+00 13+00 14+00 15+00 16+00 16+72.09

- NOTES**
- DEFLECT PIPE AT JOINTS MAXIMUM 75% OF MANUFACTURERS DEFLECTION.
 - CONTRACTOR SHALL TEMPORARILY INSTALL AND MAINTAIN MILLINGS WHEN REMOVING ANY DRIVEWAYS UNTIL THE DRIVEWAYS ARE PERMANENTLY RESTORED.
 - INSTALL 1" RESIDENTIAL OR 2" COMMERCIAL SERVICE LINE AND RCW METER BOX ADJACENT TO EACH EXISTING WATER METER/PARCEL (5' MIN SEPARATION), ON BOTH SIDES OF ROW WITH SHORT SERVICES AND LONG SERVICES WITH CASINGS, IN ACCORDANCE WITH CITY INDEX 505 DETAILS. LOCATION TO BE DETERMINED BY CITY INSPECTOR.

CHA CONSULTING, INC.
 3507 EAST FRONTAGE ROAD SUITE 100
 TAMPA, FL 33607
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 CERTIFICATE OF AUTHORIZATION #28386

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

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 RECLAIMED WATER PIPING IMPROVEMENTS
 DRUID RD (AREA A) - STA 11+21.81 TO STA 16+72.09
 PLAN & PROFILE

DWG NAME:	C03	FIELD BOOK:	N/A	SURVEYED BY:	N/A	SCALE:	VERT. AS NOTED
CONTRACT NO.:	21-0029-UT	DATE DRAWN:	10/2021	DRAWN BY:	VVV	HORIZ.	AS NOTED
JOB NO.:	102031	DESIGNED BY:	WTH	CHECKED BY:	SC/MKW	SHEET NO.:	06 OF 24
APPROVED BY:							

2021-H-799-00457
 10/25/2021

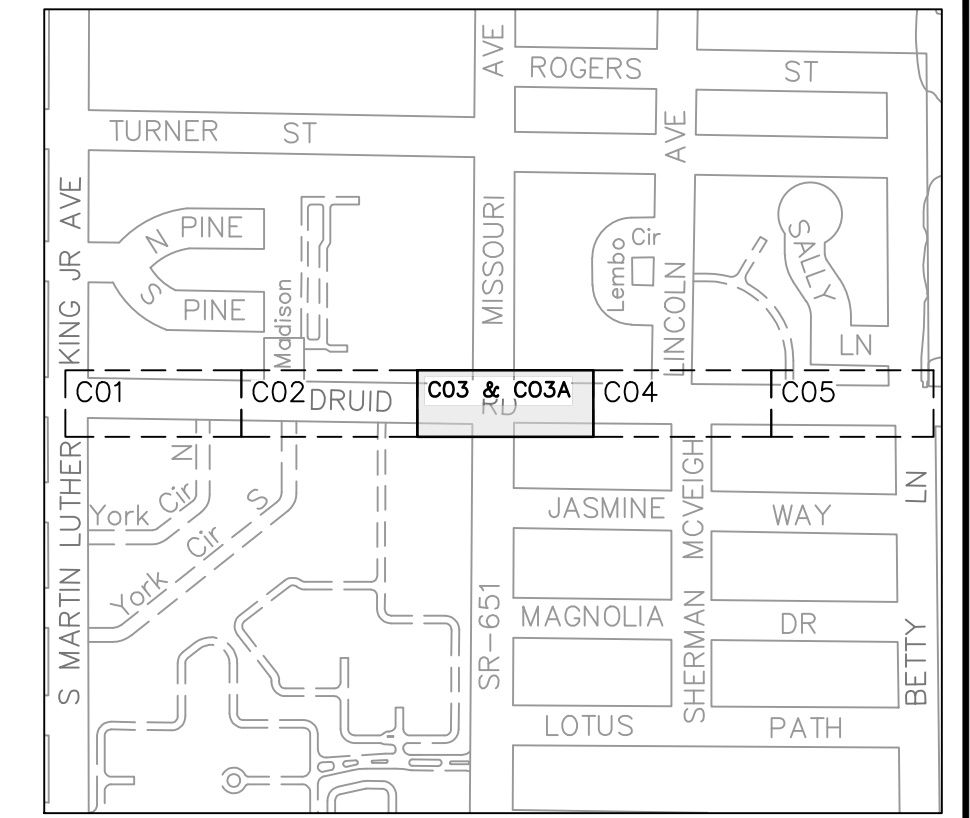
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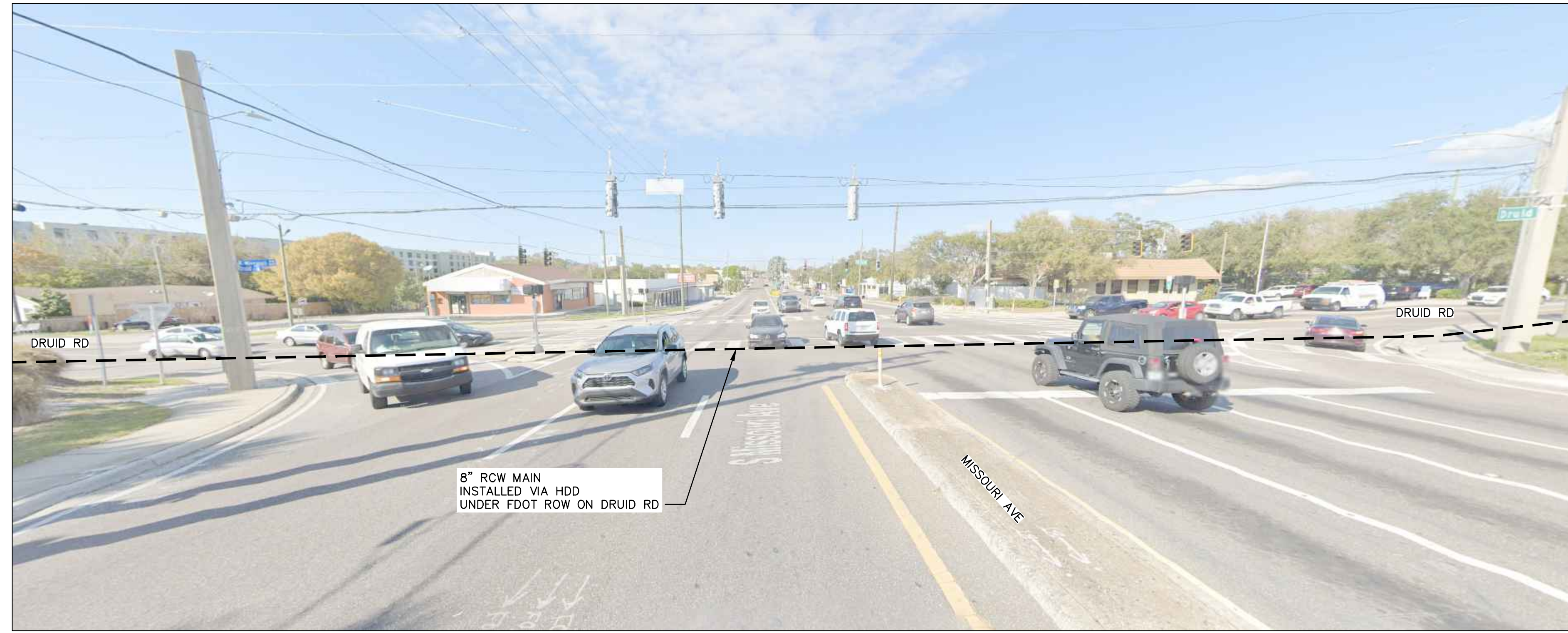
SOUTHWEST CORNER OF MISSOURI AVE AND DRUID RD



SOUTHEAST CORNER OF MISSOURI AVE AND DRUID RD



KEY MAP
N.T.S.



INTERSECTION OF MISSOURI AVE AND DRUID RD

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

C:100% PLANS PRELIMINARY	VVV	08/2021
B:90% PLANS PRELIMINARY	VVV	06/2021
A:60% PLANS PRELIMINARY	VVV	04/2021
REVISION	BY	DATE

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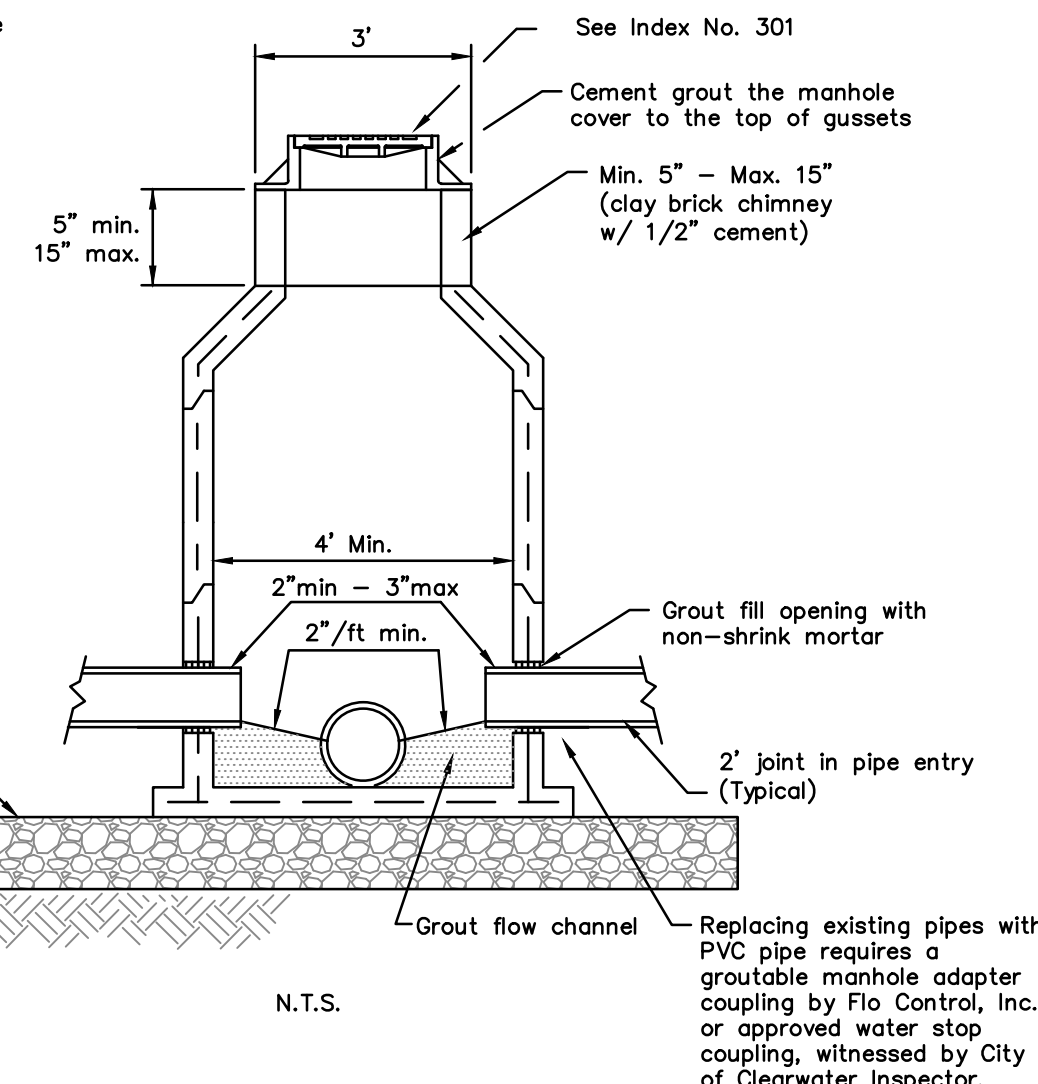
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CITY OF CLEARWATER
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 AREA A - INTERSECTION OF
 MISSOURI AVENUE AND DRUID ROAD

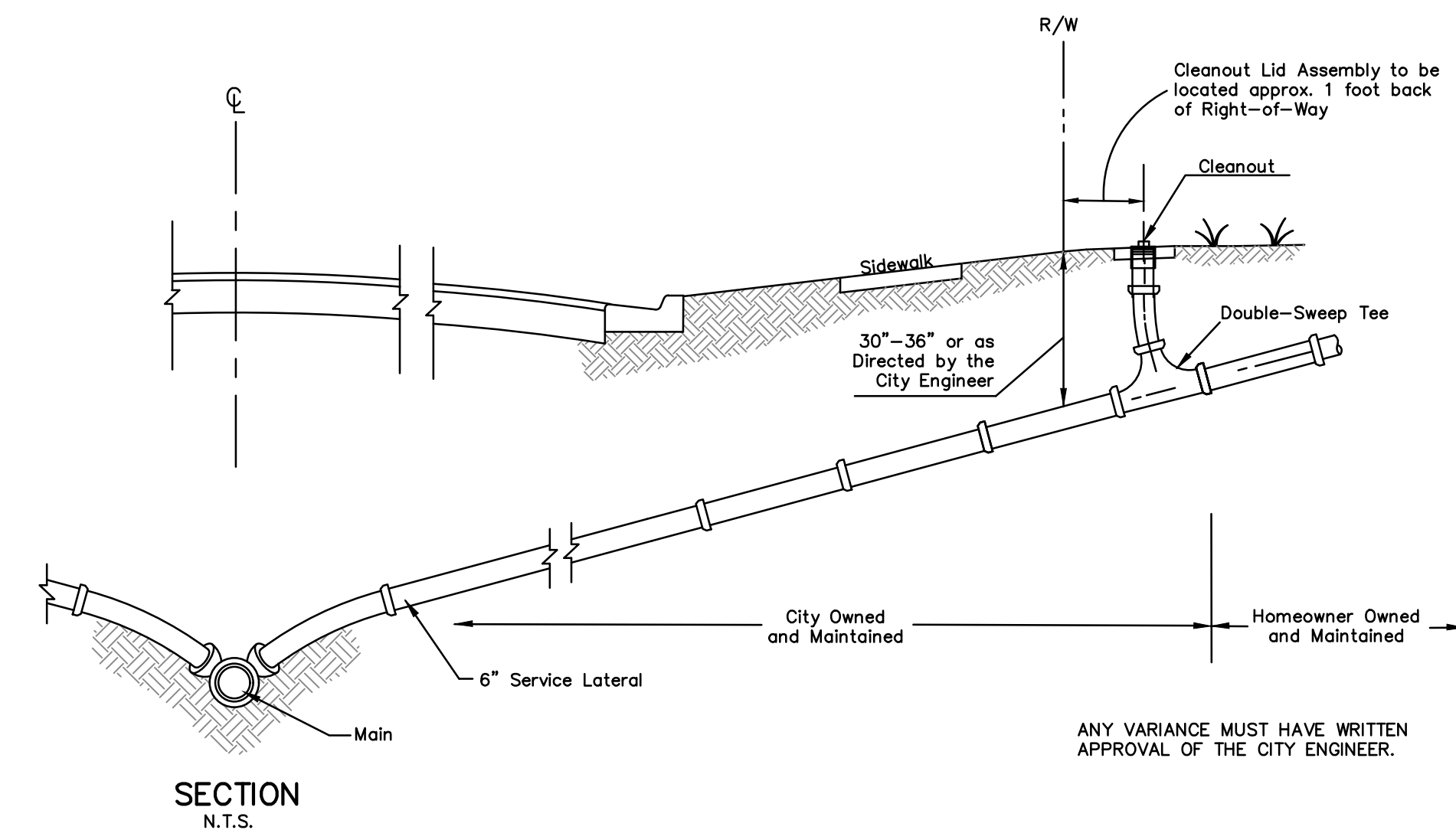
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JOB NO.: 102031	DESIGNED BY: WTH	CHECKED BY: SC/MKW	SHEET NO. OF 24
APPROVED BY: _____			

2021-H-799-00457
 DATE: 10/25/2021

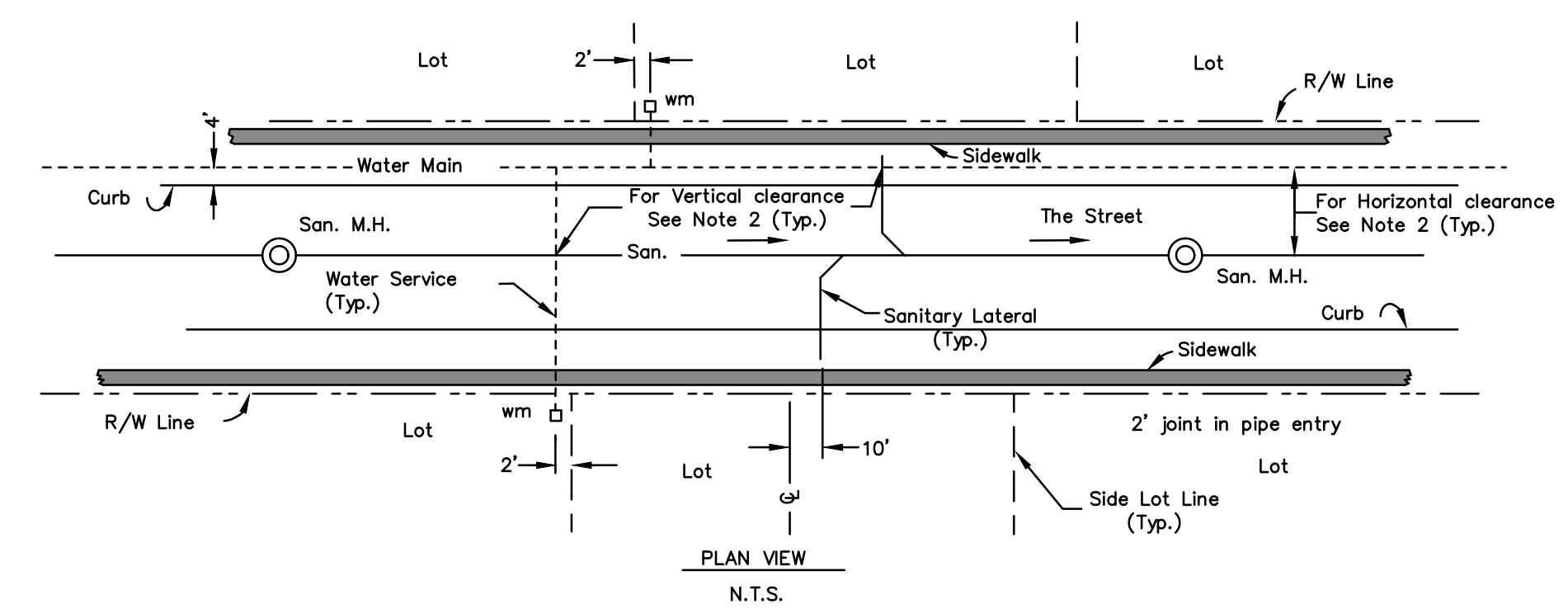
- NOTES:
- Any new manhole cores/connections may require a new coating. The new coating will be determined by City of Clearwater Inspector. See Note 2.
 - Interior shall be Strong Seal MS 2C, Raven 405 or Spraywall by Sprayco.
 - All pipe penetrations into manhole shall be precast or core drilled with a flexible Kor-N-Seal rubber boot or approved equal, installed.
 - All pipes must be color coded "Safety Green".
 - All connections to manhole shall be water tight.
 - All manhole coring must be witnessed by City Inspector.
 - Install 18 gauge 304 stainless steel manhole storm water inflow abatement insert (dish/pan).
 - Contractor to replace ring & cover if existing is in poor condition which will be determined by City of Clearwater Inspector.
 - See also City of Clearwater's Technical Specification Section IV.



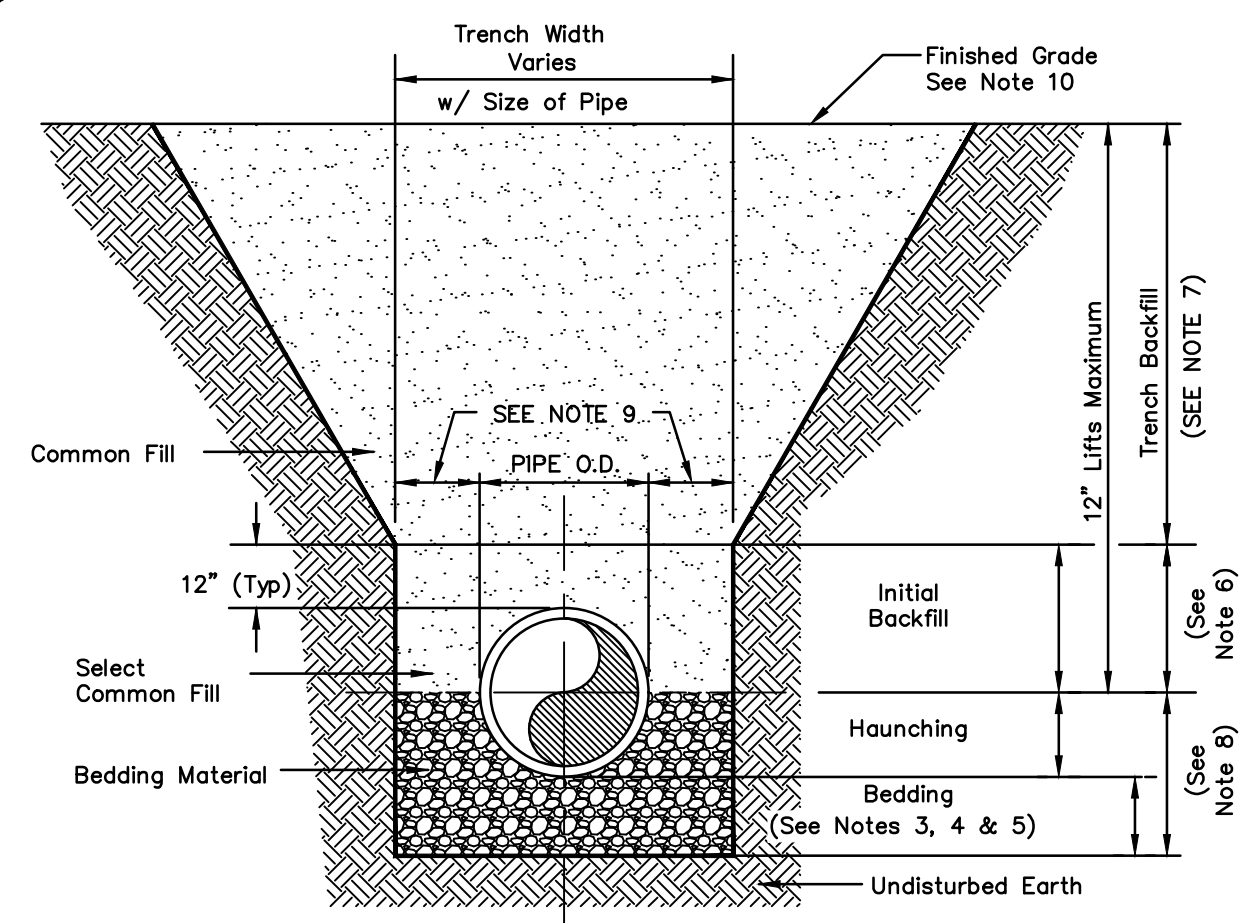
CITY OF CLEARWATER ENGINEERING DEPARTMENT SANITARY SEWER DETAILS
EXISTING SANITARY MANHOLE DETAIL
 INDEX NO. 302 PAGE NO. 3 of 3
 LATEST REVISION 10/21/2019



CITY OF CLEARWATER ENGINEERING DEPARTMENT SANITARY SEWER DETAILS
STREET LATERAL DETAIL
 INDEX NO. 305 PAGE NO. 1 of 3
 LATEST REVISION 2/22/2016



CITY OF CLEARWATER ENGINEERING DEPARTMENT SANITARY SEWER DETAILS
SANITARY LATERAL LOCATIONS
 INDEX NO. 305 PAGE NO. 3 of 3
 LATEST REVISION 2/22/2016



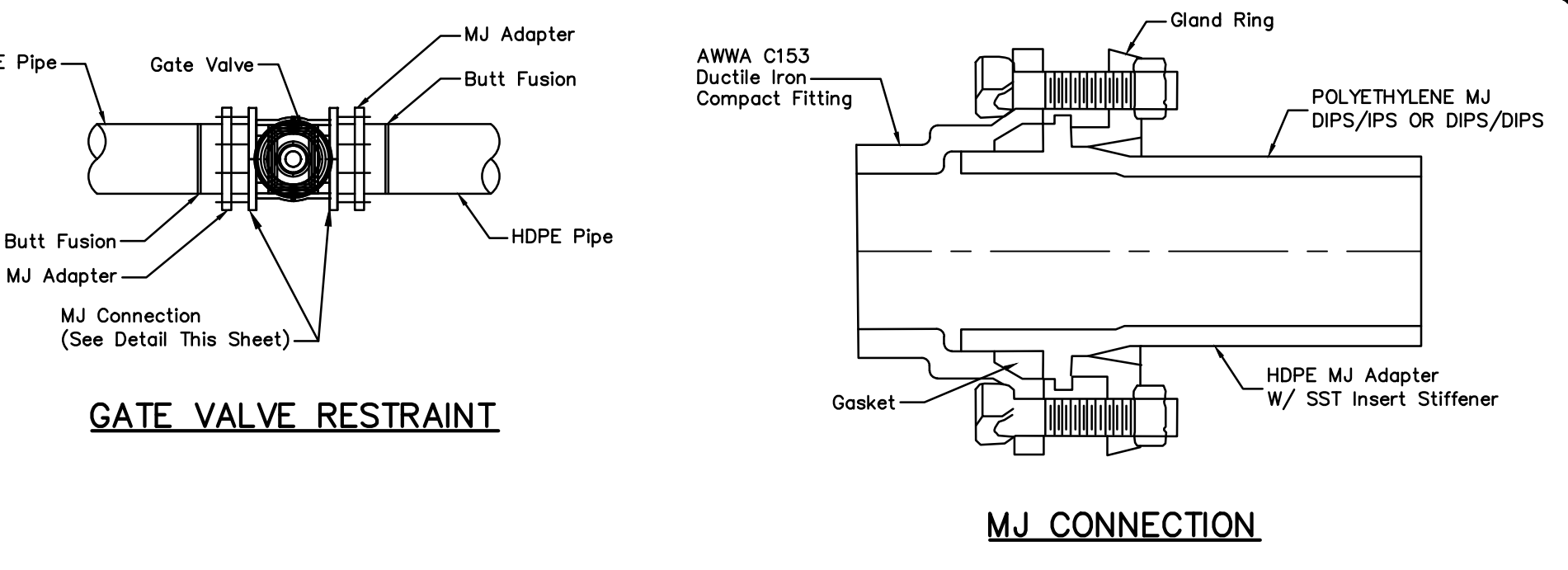
- NOTES:
- Water shall not be permitted in the trench during construction. Dewatering may be necessary to maintain the water table at a minimum of 1-ft below the bottom of the trench until sufficient backfill is placed to maintain dry conditions. Any necessary dewatering shall be of the responsibility of the contractor.
 - Depth for removal of unsuitable material shall govern depth of bedding rock below the pipe. For City projects and/or work within the right-of-way, the city inspector shall determine the field required removal of unsuitable fill to reach suitable foundation. For private developments, outside of the Right-of-Way, engineer and/or his designee shall determine the field required removal of unsuitable fill to reach suitable foundation. Bedding material shall be required when existing soil contains organics, clays, debris, other unsuitable material, and as directed by the city engineer.
 - Bedding depth shall be 4" minimum for pipe diameter up to 12" and 6" minimum for pipe diameter 16" and larger.
 - All pipe to be installed with bell facing upstream to the direction of the flow.
 - Initial backfill: select common fill compacted to 95% (98% under pavement) of the maximum density as per AASHTO T-180.
 - Trench backfill: common fill compacted to 95% (98% under pavement) of the maximum density as per AASHTO T-180.
 - Type a bedding material shall conform to FDOT No. 57 aggregate.
 - 15" and 24" max (12" min) for pipe diameter less than 24" and 24" max (12" min) for pipe diameter 24" and larger.
 - Final restoration in improved areas shall be in compliance with all applicable regulations of governing agencies. Surface restoration within city of Clearwater Right-of-Way shall comply with requirements of City R/W Utilization Regulations and Road Construction Specifications.
 - See also city of Clearwater Technical Specifications Section IV and Preferred Product List.

CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
BEDDING AND TRENCHING
 INDEX NO. 501 PAGE NO. 1 of 1
 LATEST REVISION 7/2021

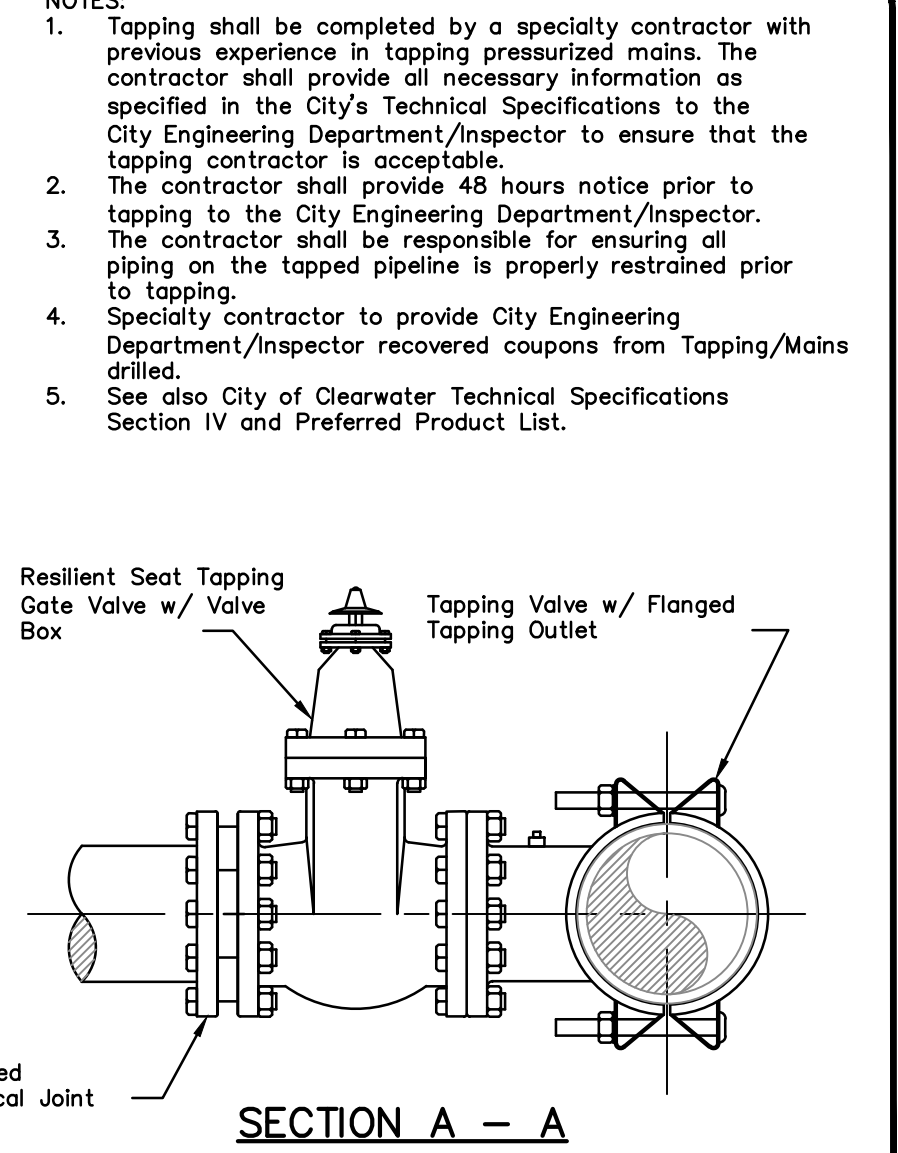
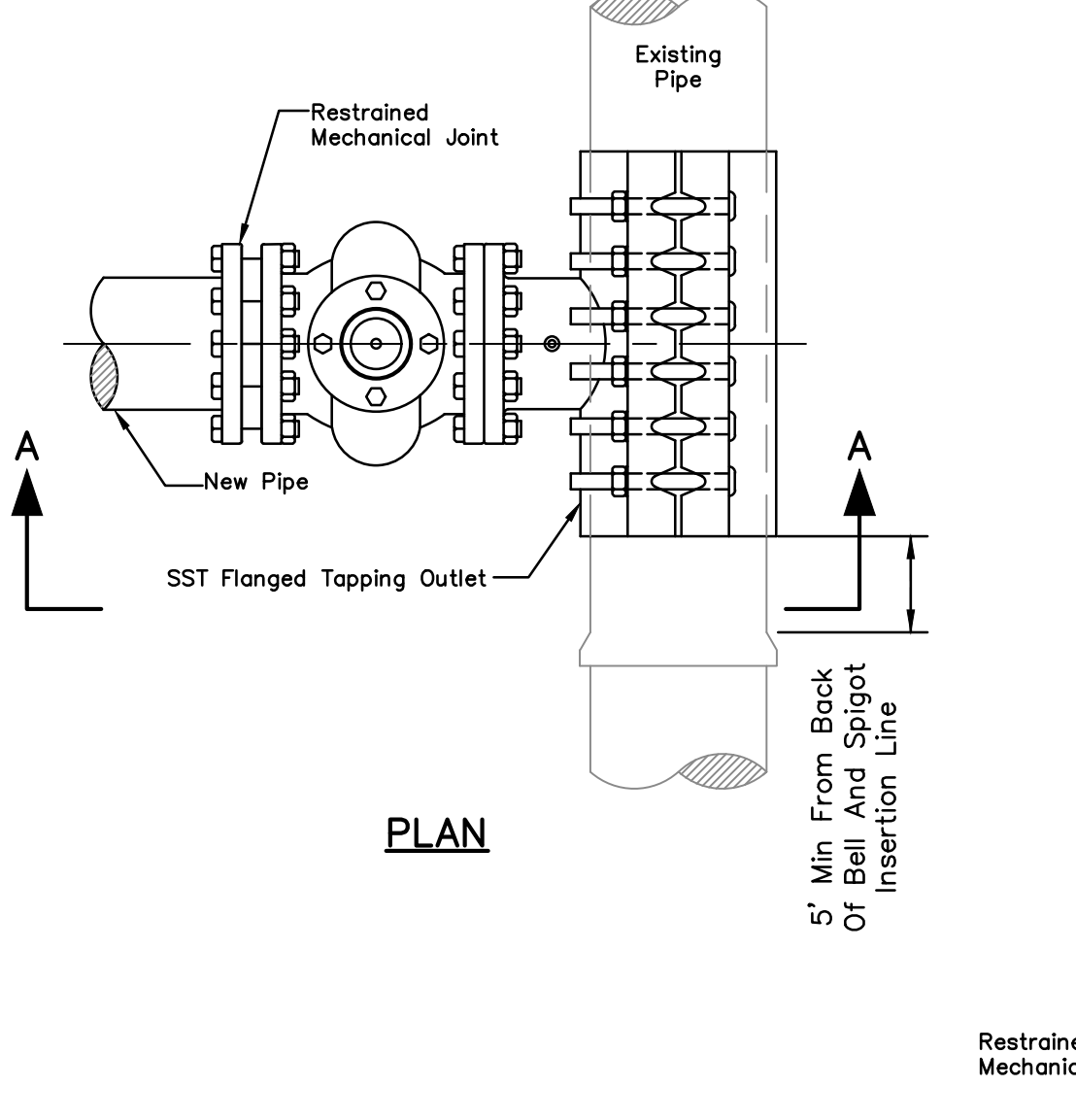
HORIZONTAL AND VERTICAL UTILITY SEPARATION REQUIREMENTS

PROPOSED UTILITY	POTABLE WATER		RECLAIMED WATER		WASTEWATER FORCE MAIN		SANITARY SEWER		STORM SEWER		STRUCTURAL FOUNDATION, WALLS, ETC	ROADWAY RIGHTS-OF-WAY
	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT		
POTABLE WATER MAIN	4 FEET NOTE: 2	12"	4 FEET NOTE: 2 & 4	12" NOTE: 4	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	4 FEET NOTE: 2 & 4	12" / 18" NOTE: 3 & 4	15 FEET NOTE: 6	5 FEET NOTE: 2A
RECLAIMED WATER MAIN	4 FEET NOTE: 2 & 4	12" NOTE: 4	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" / 18" NOTE: 3	15 FEET NOTE: 6	5 FEET NOTE: 2A
WASTEWATER FORCE MAIN	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" / 18" NOTE: 3	15 FEET NOTE: 6	5 FEET NOTE: 2A
SANITARY SEWER	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" / 18" NOTE: 3	VARIES PER DEPTH	5 FEET NOTE: 2A

CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
HORIZONTAL AND VERTICAL UTILITY SEPARATION REQUIREMENTS
 INDEX NO. 502 PAGE NO. 1 of 1
 LATEST REVISION 7/2021



CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
HDPE PIPE CONNECTIONS
 INDEX NO. 503 PAGE NO. 1 of 1
 LATEST REVISION 7/2021



CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
TAPPING SLEEVE AND GATE VALVE ASSEMBLY FOR RECLAIMED WATER
 INDEX NO. 504 PAGE NO. 1 of 1
 LATEST REVISION 7/2021

Parent Sheet: 102031_RCW Imp. Rev on: 8/26/2021 11:31 AM Individual File Path: V:\Projects\WSEFL112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C18

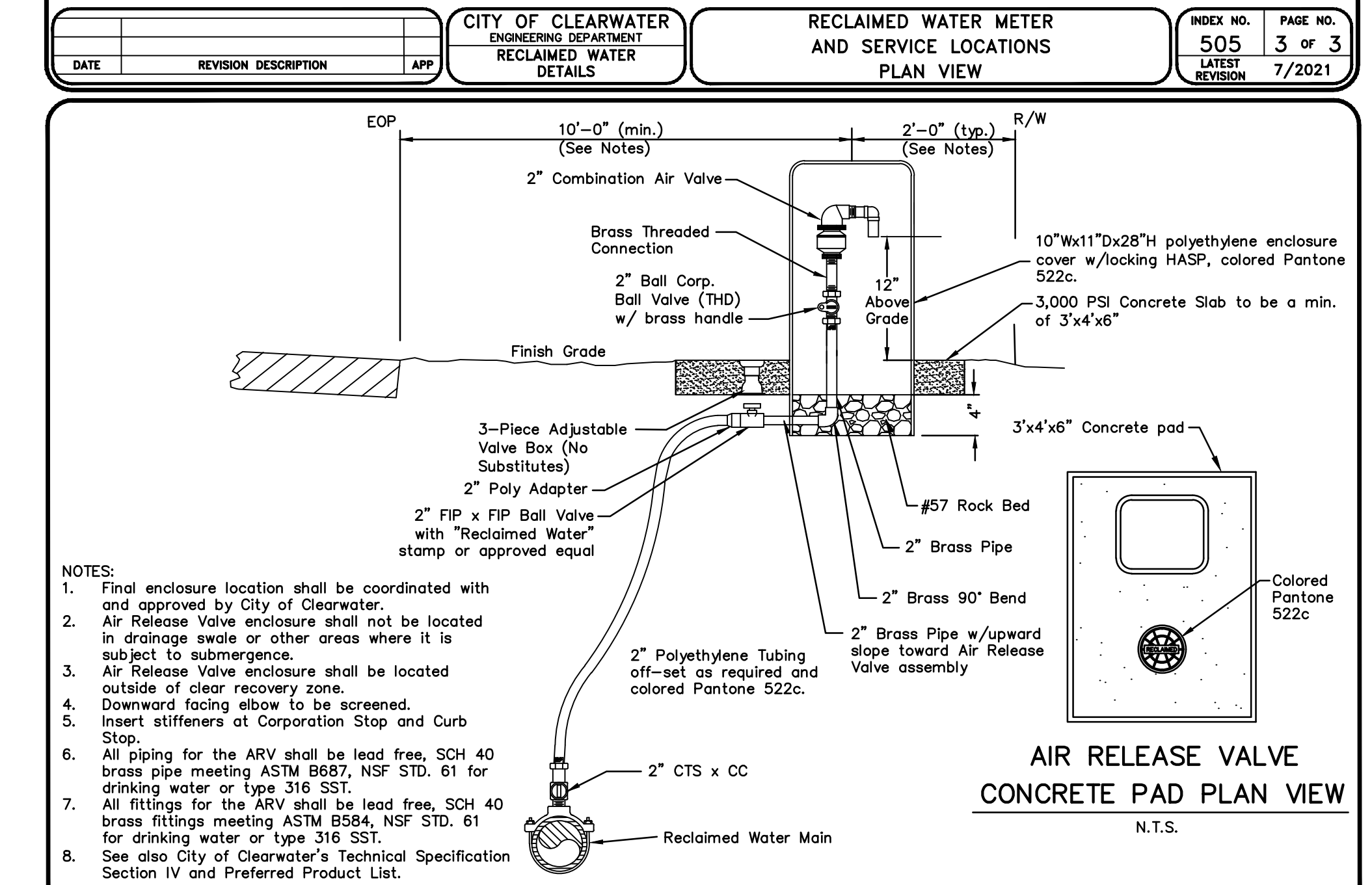
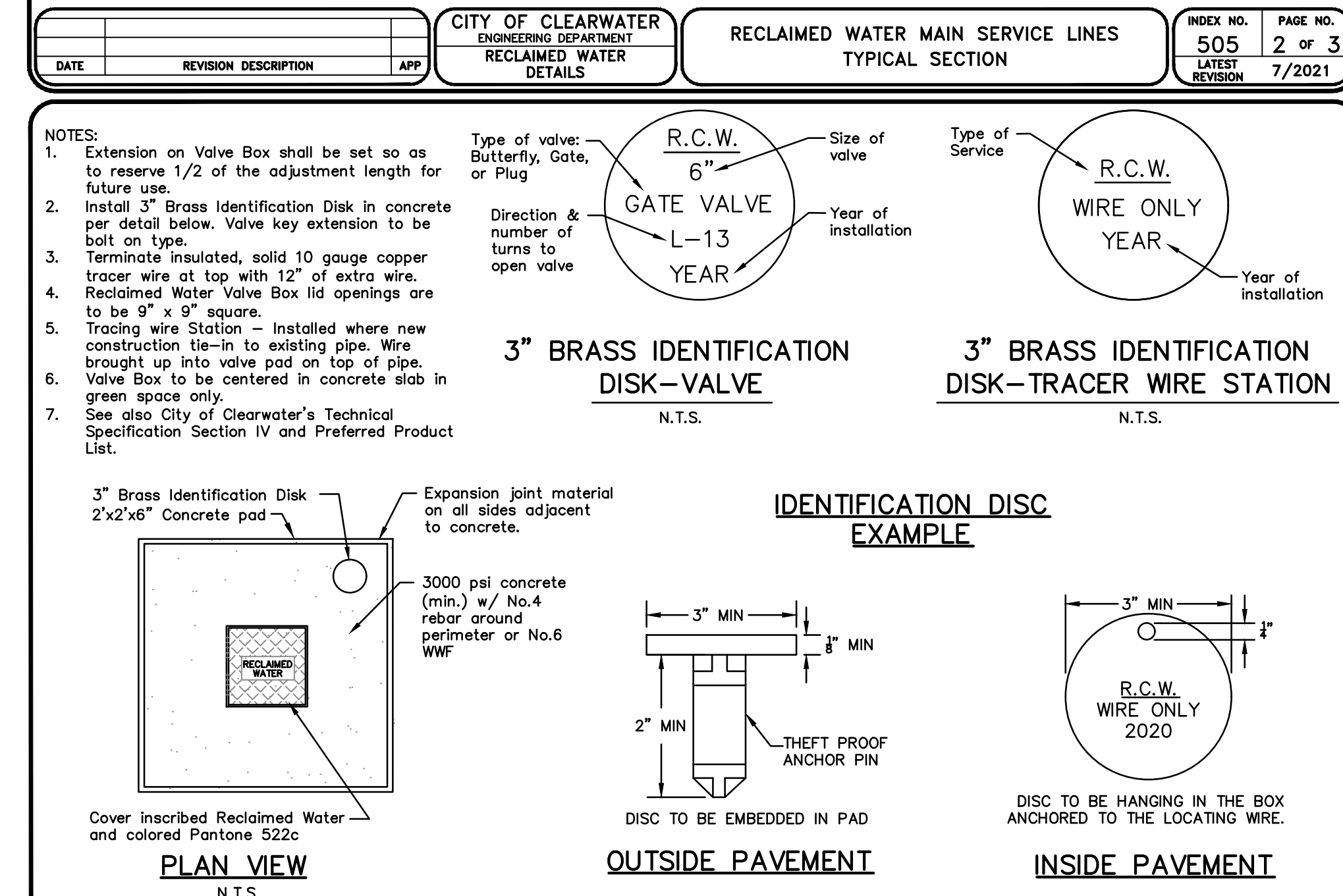
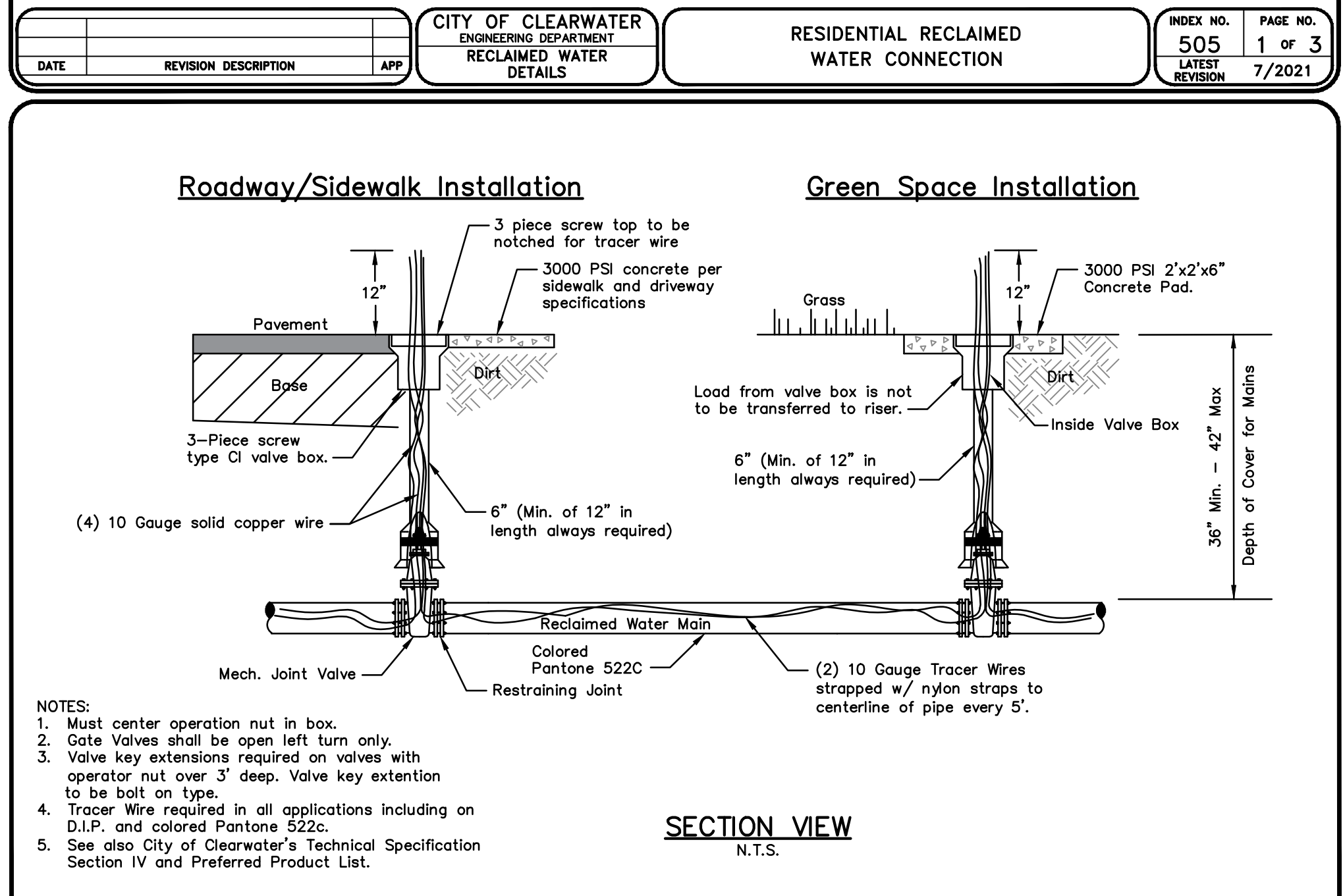
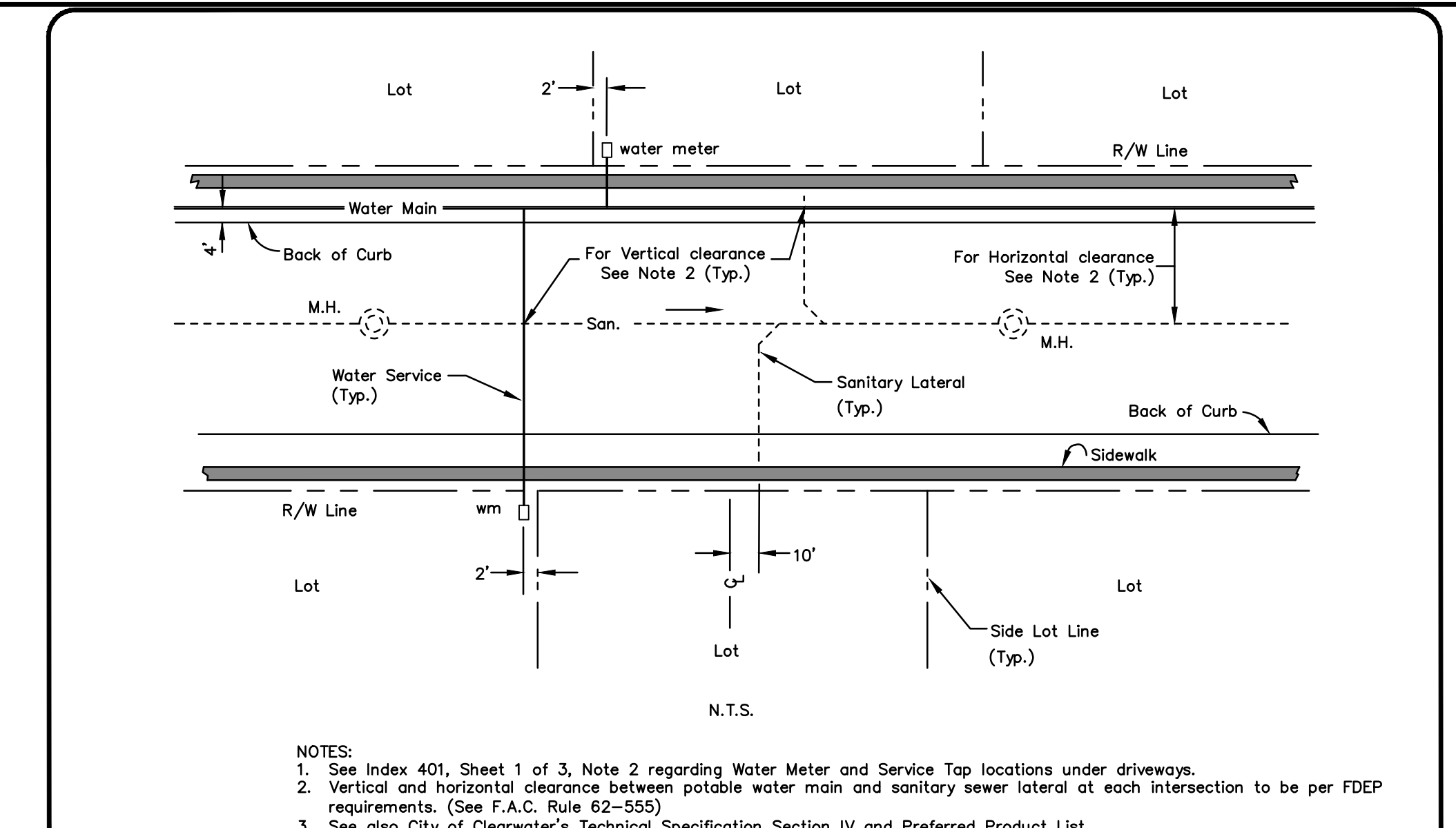
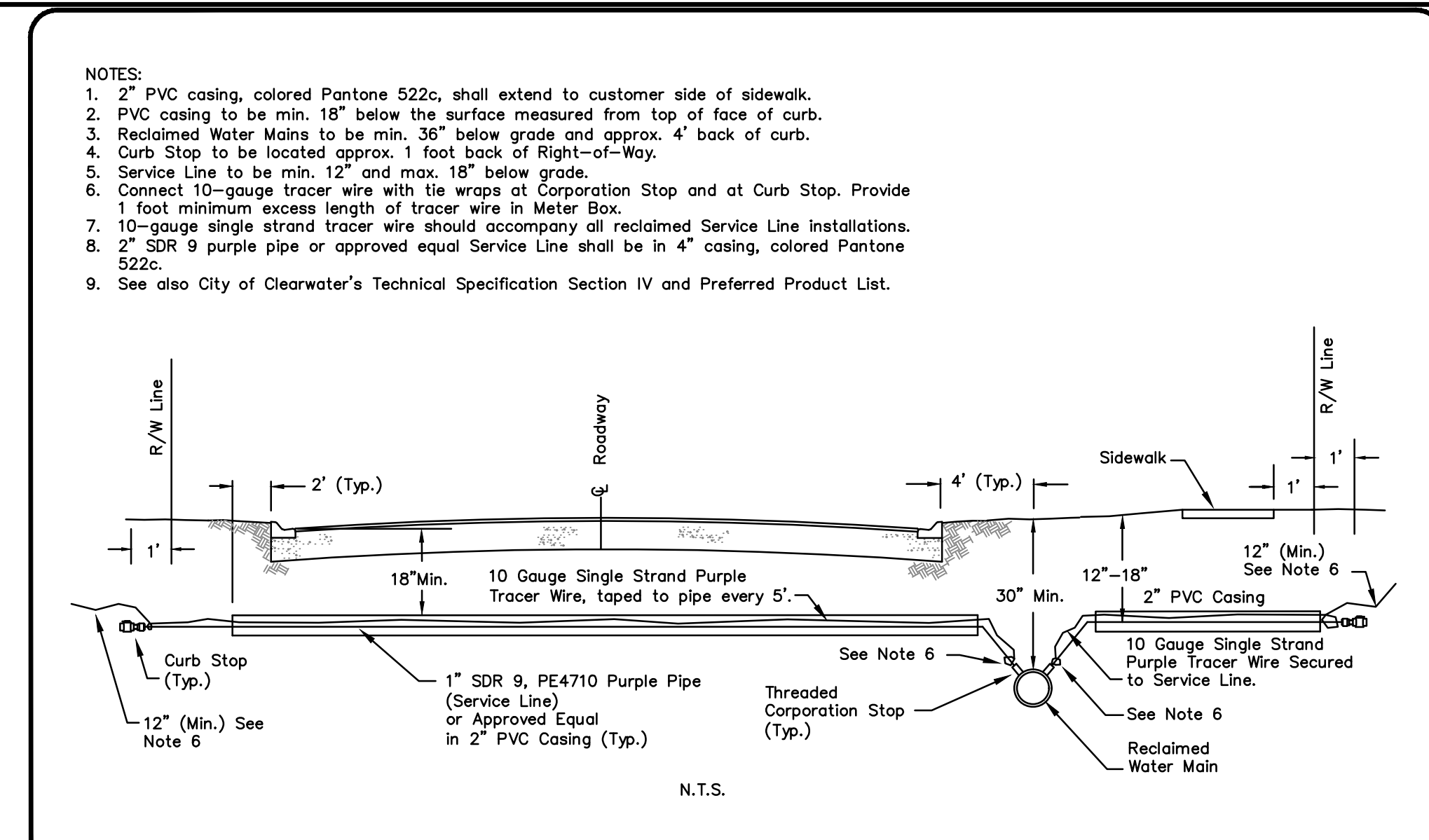
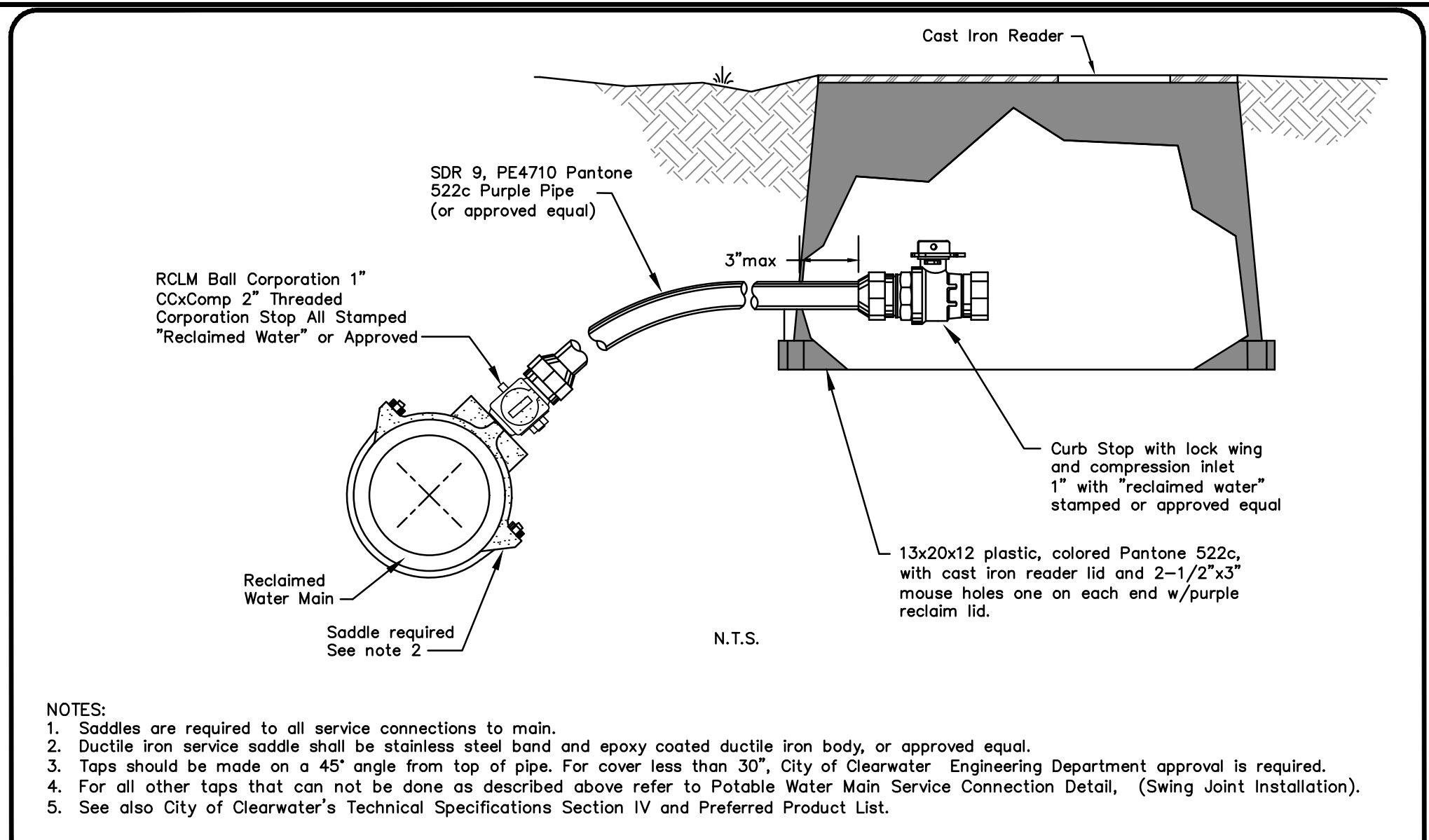
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 CITY OF CLEARWATER STANDARD DETAILS
 SANITARY SEWER AND RECLAIMED WATER

DWG NAME: C18	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 21 OF 24
APPROVED BY:			DATE: 10/25/2021

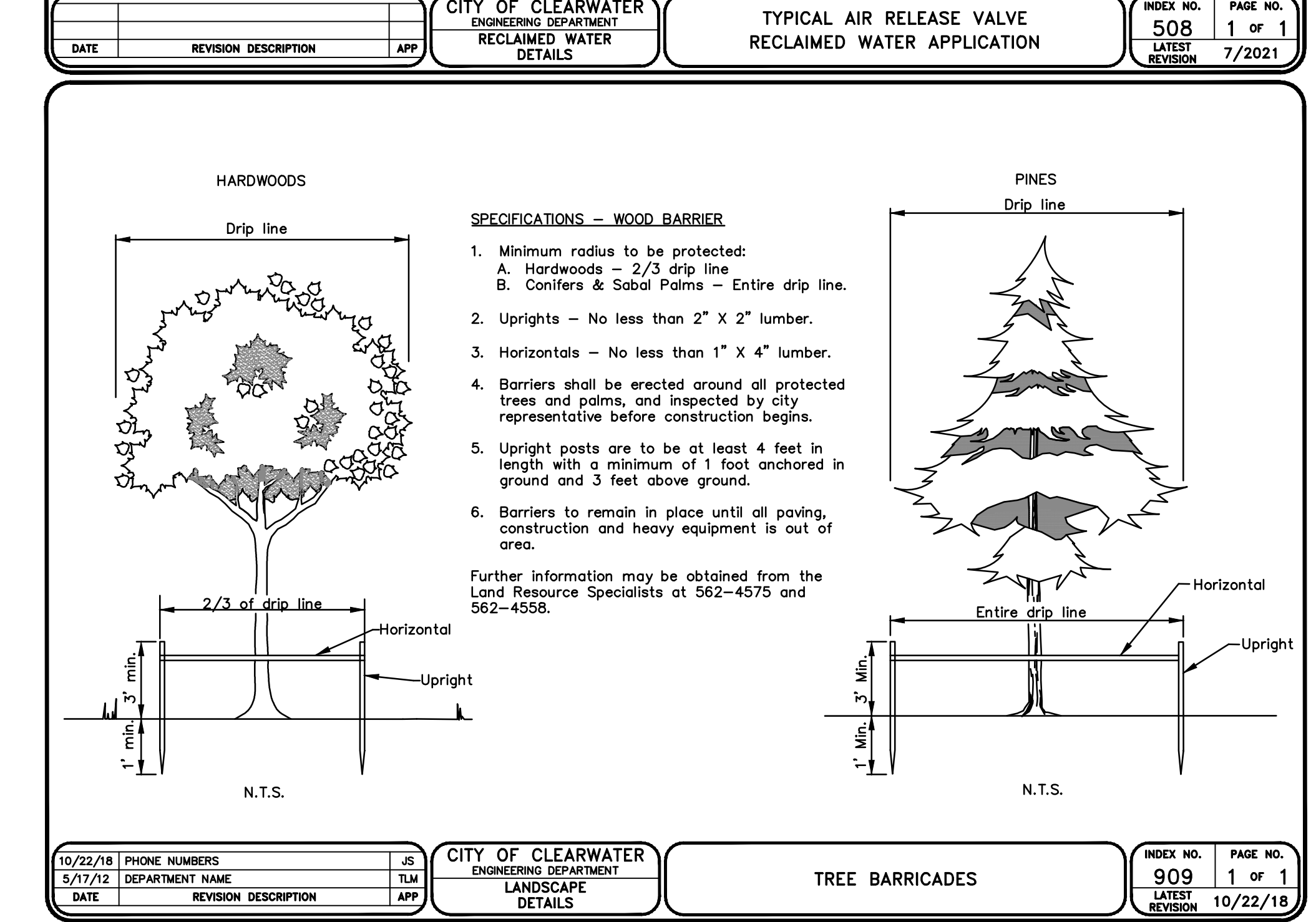
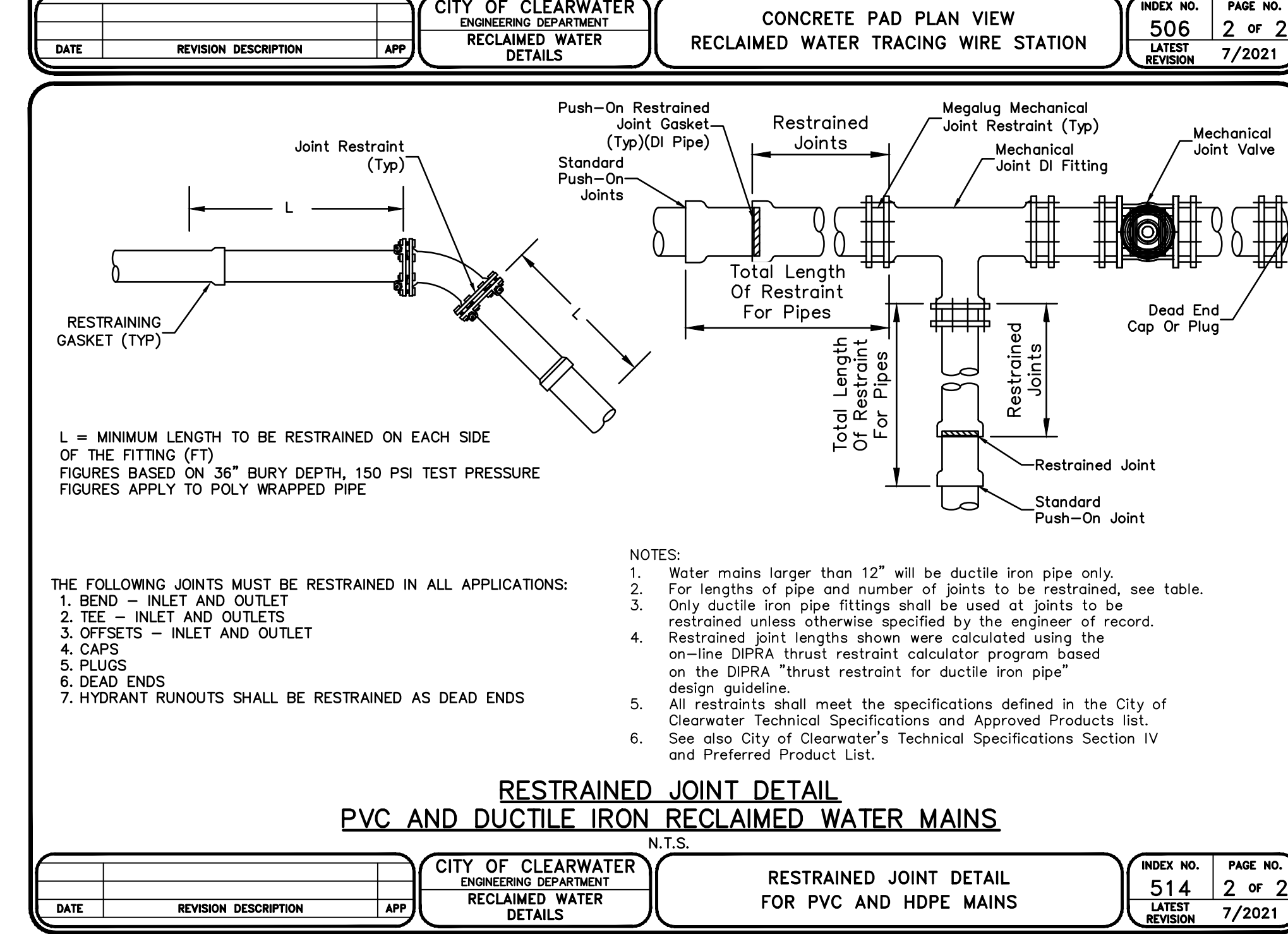
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PVC PIPE, FEET		DUCTILE IRON PIPE, FEET	
PIPE SIZE		PIPE SIZE	
11.25"	H-B 3 4 5 6 6 8 9 11 VU-B 3 4 5 6 6 8 9 11 VD-B 6 9 11 13 16 20 24 28 H-B 5 7 9 11 12 16 18 21 VU-B 5 7 9 11 12 16 18 21 VD-B 12 17 22 27 31 40 48 56 H-B 10 14 18 22 25 32 38 43 VU-B 10 14 18 22 25 32 38 43 VD-B 25 35 46 55 65 82 99 115 H-B 24 33 44 52 60 76 91 104 VU-B 24 33 44 52 60 76 91 104 VD-B 61 85 111 132 155 198 238 277 DEAD END PLUG & VALVE 61 85 111 132 155 198 238 277 TEE 61 85 111 132 155 198 238 277	11.25"	H-B 2 3 4 5 6 7 8 9 VU-B 2 3 4 5 6 7 8 9 VD-B 5 6 8 10 11 14 17 20 H-B 5 6 8 9 11 13 16 18 VU-B 5 6 8 9 11 13 16 18 VD-B 9 12 16 19 22 28 34 39 H-B 9 12 16 19 22 27 33 37 VU-B 9 12 16 19 22 27 33 37 VD-B 18 25 32 39 45 58 69 81 H-B 21 29 37 44 52 65 78 90 VU-B 21 29 37 44 52 65 78 90 VD-B 43 59 78 93 109 139 167 194 DEAD END PLUG & VALVE 43 59 78 93 109 139 167 194 TEE 43 59 78 93 109 139 167 194

RESTRAINED JOINT DETAIL PVC AND DUCTILE IRON RECLAIMED WATER MAINS

INDEX NO. 514, PAGE NO. 1 of 2, LATEST REVISION 7/2021



REVISION	BY	DATE
C:100% PLANS PRELIMINARY	VVV	08/2021
B:90% PLANS PRELIMINARY	VVV	06/2021
A:60% PLANS PRELIMINARY	VVV	04/2021

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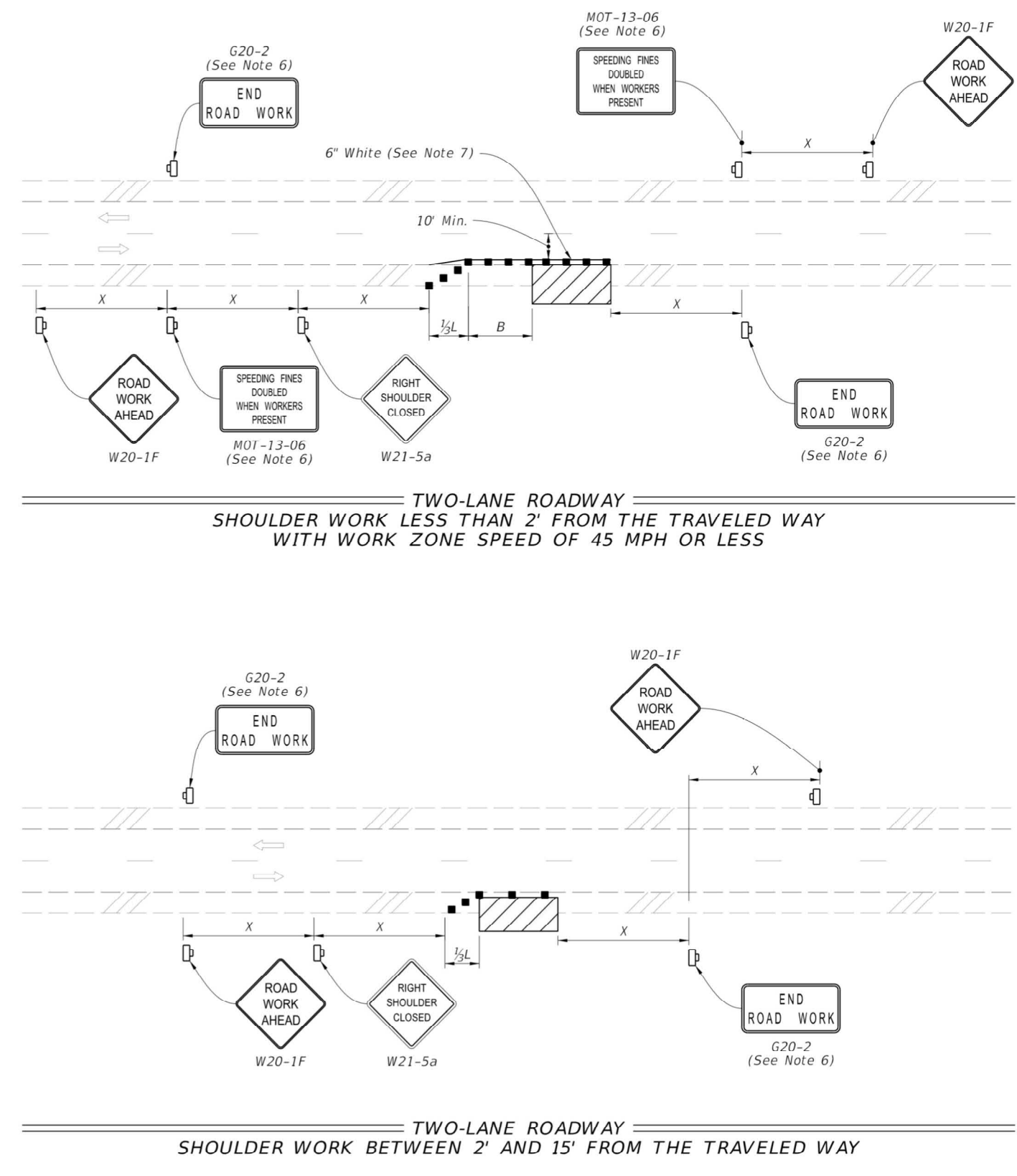
CITY OF CLEARWATER
RECLAIMED WATER PIPING IMPROVEMENTS
CITY OF CLEARWATER STANDARD DETAILS
RECLAIMED WATER AND LANDSCAPE

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CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO. 22 OF 24
APPROVED BY:			DATE: 10/25/2021

Parent Sheet: 102031 - RCW Imp. Rev/PLOT by VANATTA, WOLET Rev on: 8/27/2021 12:05 PM Individual File Path: V:\Projects\WSFL112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C20

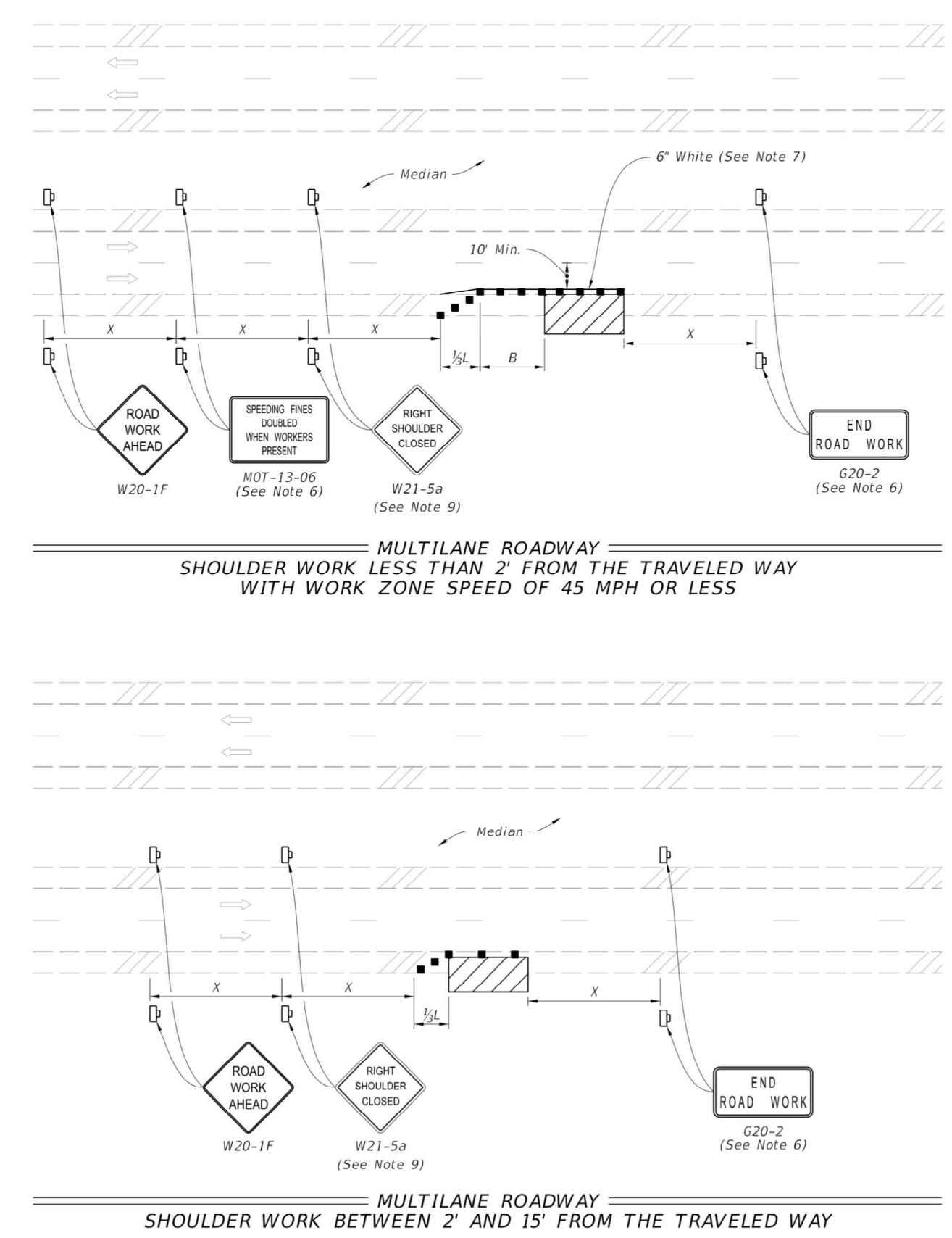
- NOTES:**
- This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
 - L = Taper Length
X = Work Zone Sign Spacing
B = Buffer Length
See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
 - For incidental work (e.g. mowing or litter removal), only the Road Work Ahead sign is required.
 - 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.
 - For work less than two feet from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
 - 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 temporary condition is in place for 24 hours or less.
 - Temporary pavement markings may be omitted when the work zone is in place for 3 days or less.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.
 - Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.

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



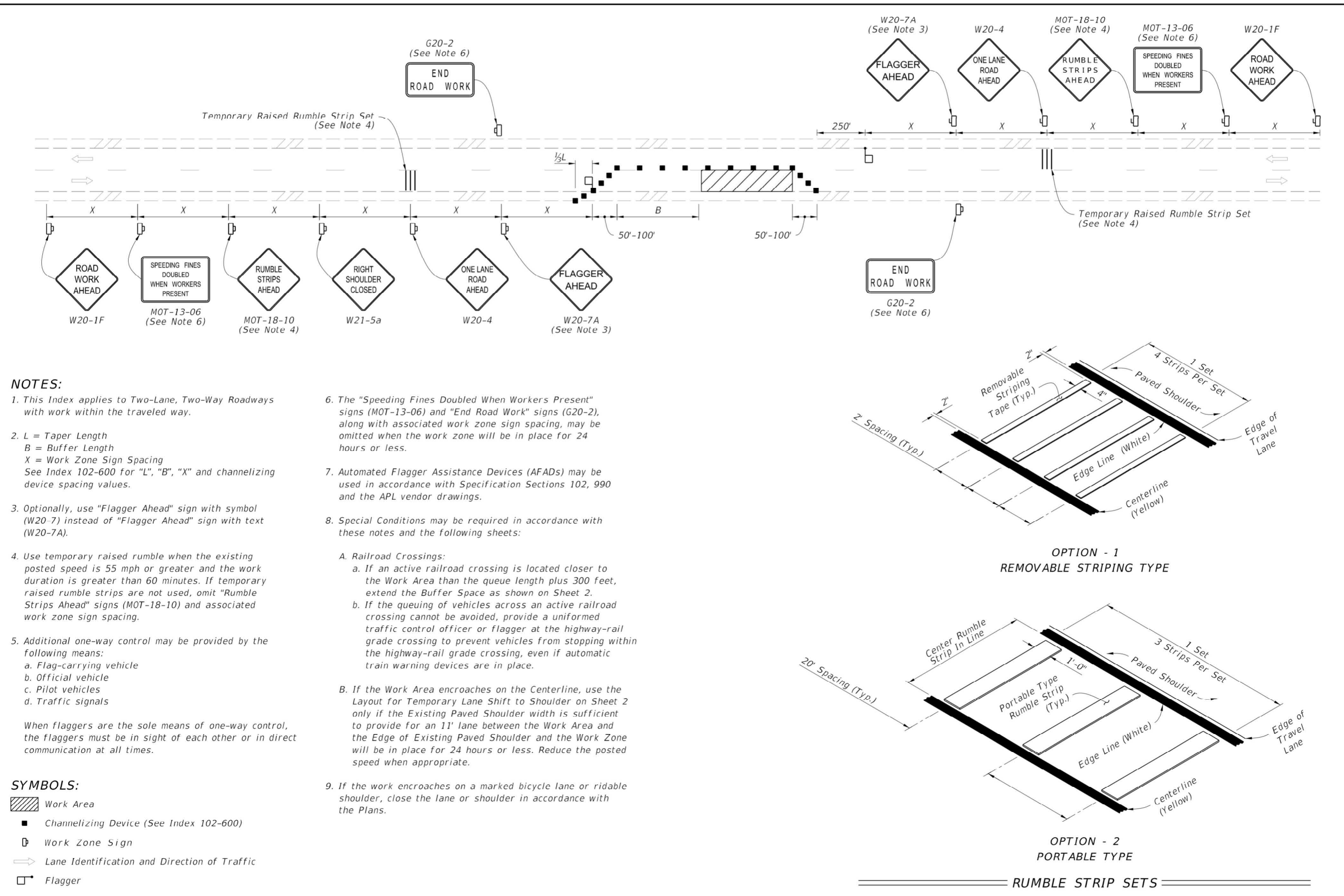
NOTE:
 FDOT STANDARD TTC/MOT DETAILS ARE PROVIDED AS A REFERENCE TO THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MOT PLANS NECESSARY TO COMPLETE THE WORK EFFORT(S) IN COMPLIANCE WITH OWNER'S STANDARDS FOR EACH PROJECT WORK AREA.

- 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 2021-22 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 1 of 2
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LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 2 of 2
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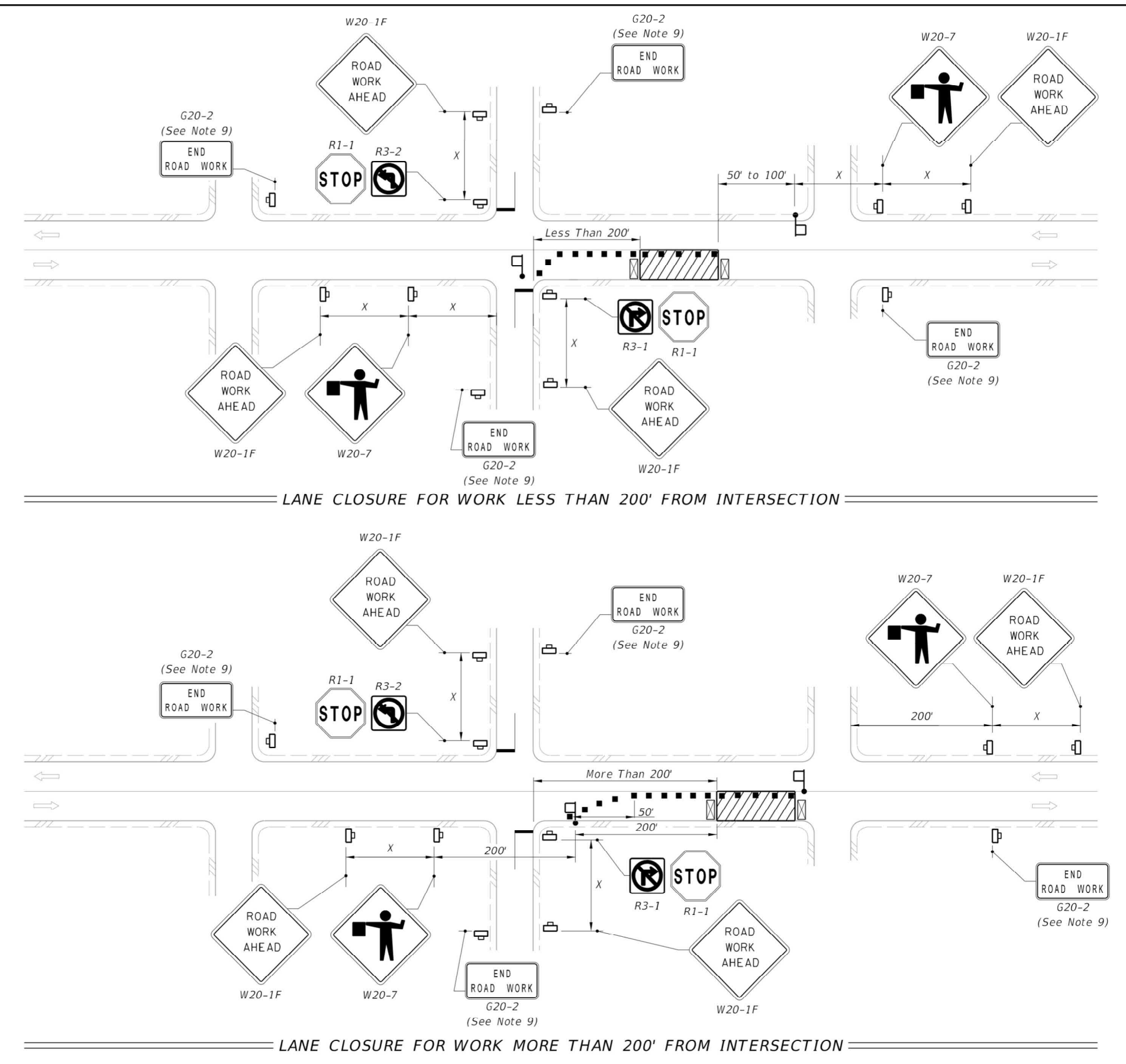
- NOTES:**
- This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
 - L = Taper Length
B = Buffer Length
X = Work Zone Sign Spacing
See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
 - Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
 - Use temporary raised rumble 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:
 a. Flag-carrying vehicle
 b. Official vehicle
 c. Pilot vehicles
 d. Traffic signals
 - When flaggers are the sole 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 zone 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.
 - Special Conditions may be required in accordance with these notes and the following sheets:
 A. Railroad Crossings:
 a. 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.
 b. 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.
 B. If the Work Area encroaches on the Centerline, use the Layout for Temporary Lane Shift to Shoulder on Sheet 2 only if the Existing Paved Shoulder width is sufficient to provide for an 11' lane between the Work Area and the Edge of Existing Paved Shoulder and the Work Zone will be in place for 24 hours or less. Reduce the posted speed when appropriate.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.

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

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 1 of 2
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- 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 102-660.
 - District Traffic Operations Engineer must approve temporary signal phasing modifications prior to beginning of work.
 - 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 spacing may be omitted when the work zone will be in place for 24 hours or less.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.

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



LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 1 of 2
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RECORD DRAWINGS		DATE	BY
SURVEYED BY:	DRAWN BY:		
REVIEWED BY:	PROJECT ENGINEER	DATE	BY
APPROVED BY:		DATE	

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

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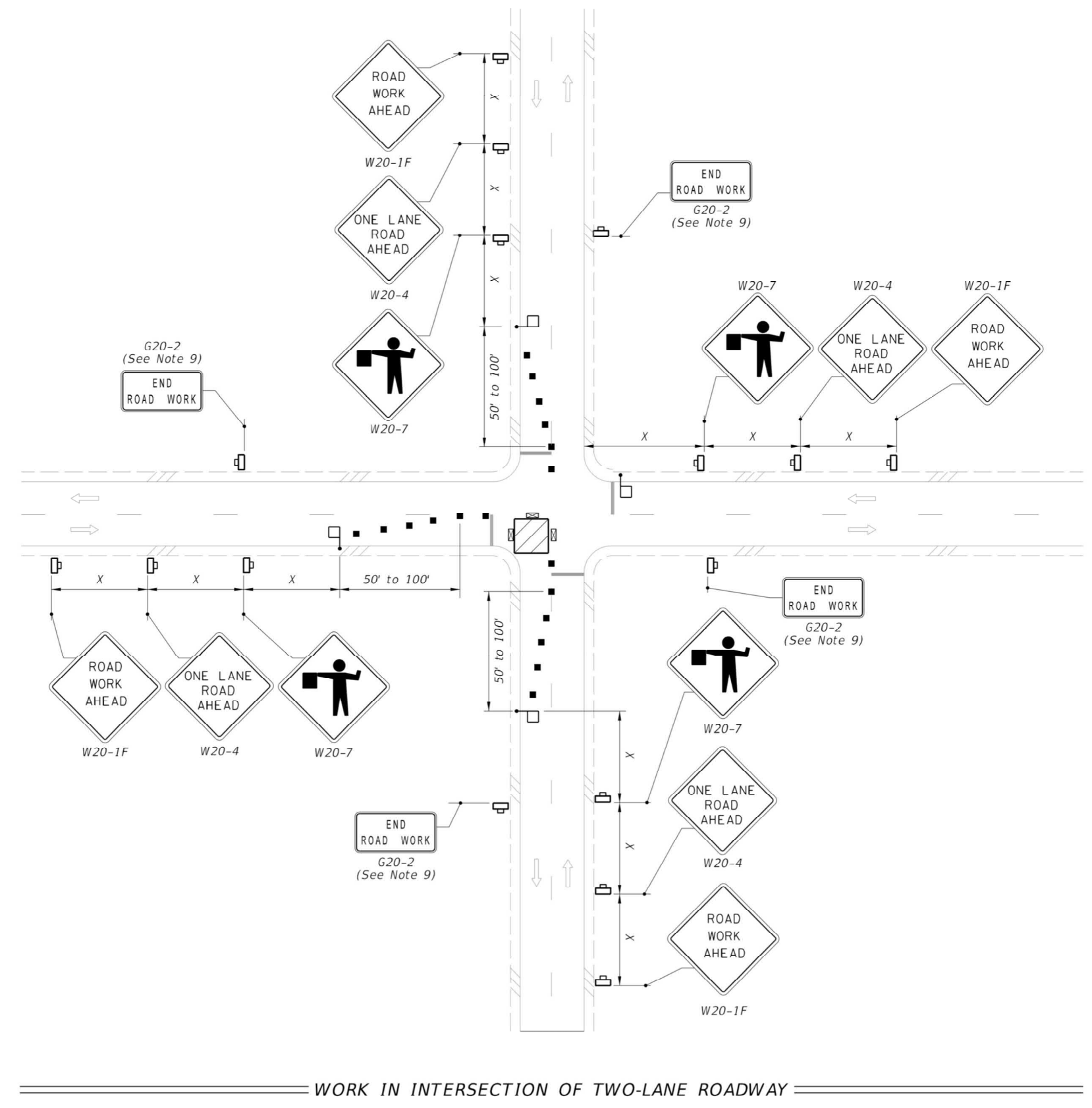
CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 FDOT FY 2021-22 STANDARD PLANS DETAILS

DWG NAME: C20	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 23 OF 22
APPROVED BY:			DATE: 10/25/2021

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

Parent Sheet Set: 102031-RCW Imp. Rev/Plot by: VANATTA, VIOLET Rev on: 8/27/2021 12:20 PM Individual File Path: V:\Projects\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C21

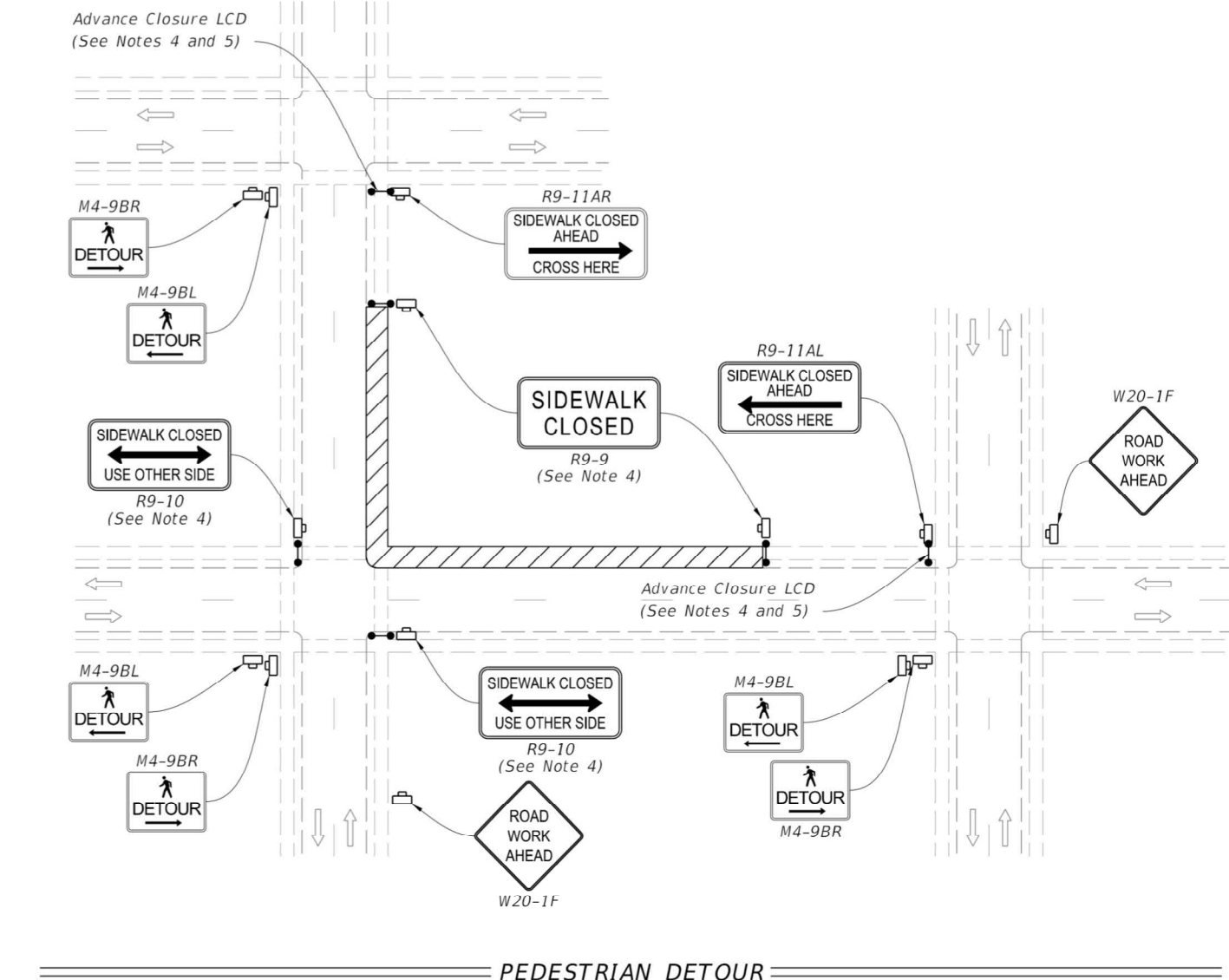
- SYMBOLS:**
- Work Area
 - Channelizing Device (See Index 102-000)
 - Type III Barricade
 - Work Zone Sign
 - Stop Bar
 - Lane Identification and Direction of Traffic
 - Flagger or Traffic Control Officer (TCO)



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.

LAST REVISION 11/01/20	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 2 of 2
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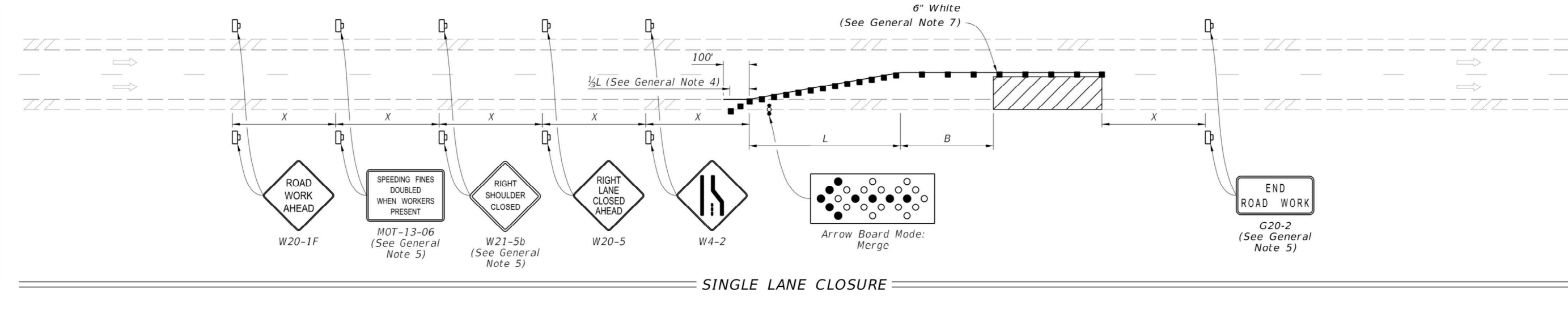
- NOTES:**
- Cover or deactivate pedestrian traffic signal displays controlling closed crosswalks.
 - Place pedestrian LCDs across the full width of the closed sidewalk.
 - For post mounted signs located near or adjacent to a sidewalk, maintain a minimum 7' clearance from the bottom of the sign panel to the surface of the sidewalk.
 - 'Sidewalk Closed' signs (R9-XX) may be mounted on pedestrian LCDs in accordance with the manufacturer's instructions.
 - Omit the Advance Closure LCD if it blocks access to other pedestrian facilities (e.g., transit stops, residences, or business entrances).



- SYMBOLS:**
- Work Area
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Pedestrian Longitudinal Channelizing Device (LCD)

LAST REVISION 11/01/20	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 1 of 2
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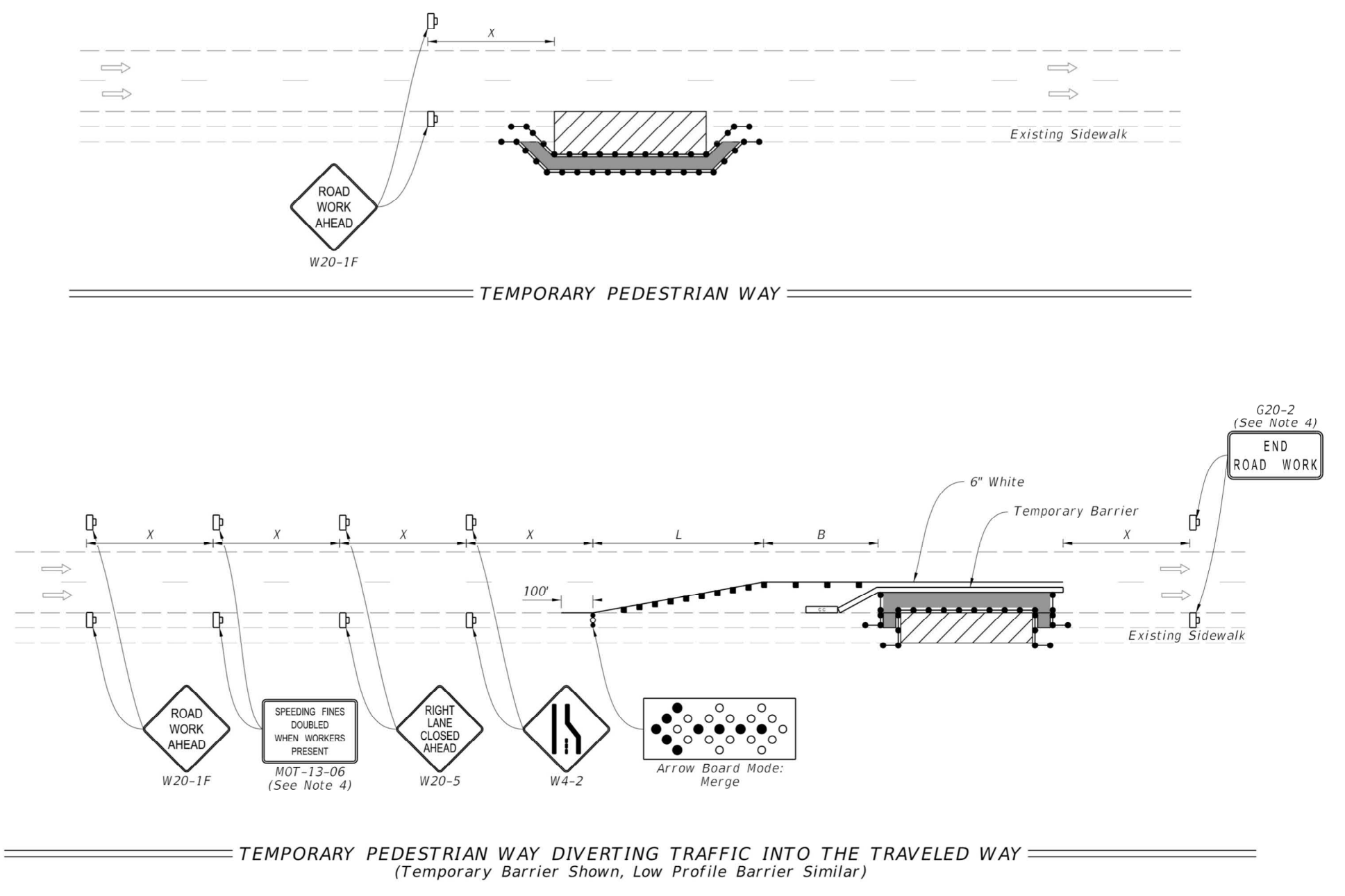
- SYMBOLS:**
- Work Area
 - Channelizing Device (See Index 102-600)
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Arrow Board



- 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.
 - On undivided highways the median signs as shown are to be omitted.
 - On limited access facilities, omit "Shoulder Closed Ahead" signs (W21-5b) and associated work zone sign spacing distances.
 - If the paved shoulder is less than 4' in width, omit the taper and channelizing devices from the paved shoulder.
 - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2) and "Shoulder Closed Ahead" (W21-5b), along with associated work zone sign distances, may be omitted when the work zone 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 zone will be in place for 60 minutes or less and the speed limit is 45 mph or less.
 - Use inverted plan of the illustrations for work on left side of roadways.
 - Temporary pavement markings may be omitted when the work zone is in place for 3 days or less.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.

LAST REVISION 11/01/20	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX 102-613	SHEET 1 of 5
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- NOTES:**
- L=Taper Length
B=Buffer Length
X=Work Zone Sign Distance
See Index 102-600 for "L", "B", "X", channelizing device spacing values.
 - Provide a 5' wide temporary pedestrian way with a maximum cross-slope of 0.02, except where space restrictions warrant a minimum width of 4". Provide a 5' x 5' passing space for temporary pedestrian ways less than 5' in width at intervals not to exceed 200'.
 - When temporary pedestrian ways require curb ramps, meet the requirements of Index 522-002. Detectable warnings are not required for curb ramps diverting pedestrian traffic into a closed lane.
 - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone will be in place for 24 hours or less.



- SYMBOLS:**
- Work Area
 - Temporary Pedestrian Way
 - Channelizing Device (See Index 102-000)
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Pedestrian Longitudinal Channelizing Device (LCD)
 - Arrow Board
 - Crash Cushion

LAST REVISION 11/01/20	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 2 of 2
---------------------------	--------------	--------------------------------------	------------------	------------------	-----------------

RECORD DRAWINGS					
SURVEYED BY:	DRAWN BY:	C:100% PLANS PRELIMINARY	VVV	08/2021	
REVIEWED BY:		B:90% PLANS PRELIMINARY	VVV	06/2021	
APPROVED BY:		A:60% PLANS PRELIMINARY	VVV	04/2021	
		REVISION	BY	DATE	

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

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CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 FDOT FY 2021-22 STANDARD PLANS DETAILS

DWG NAME: C21	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 24 OF 24
APPROVED BY:			

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

Approved
 2021-H-799-00457
 DATE: 10/25/2021

UTILITY PERMIT

PERMIT NO: 2021-H-799-00458

STATE ROAD INFORMATION

County: Pinellas	Section: 15050003	State Road No: SR 590	Beginning Mile Post: 0.678	Ending Mile Post: 0.678
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APPLICANT INFORMATION

The Utility Agency Owner (UAO) shall be identified in this Applicant Information Box. When the UAO is a City or County and desires to have the Utility Builder make a joint permit applicant, as prescribed in Section 2.1(4) of the 2017 Utility Accommodation Manual (UAM), the Utility Builder shall also be identified in this Applicant Information Box. A Utility Builder alone cannot apply for a utility permit without the City or County adding them as a joint applicant.

Utility Agency/Owner (UAO)		Utility Builder (only applicable when the UAO is a City or County)	
Name:	<u>City of Clearwater Utilities</u>	Name:	_____
Contact Person:	<u>City of Clearwater Utilities</u>	Contact Person:	_____
Address:	<u>100 South Myrtle Ave.</u>	Address:	_____
City:	<u>Clearwater</u>	City:	_____
State:	<u>Florida</u>	State:	_____
Zip:	<u>33756</u>	Zip:	_____
Telephone:	<u>7275624815</u>	Telephone:	_____
Email:	<u>todd.kuhnel@myclearwater.com</u>	Email:	_____

WORK DESCRIPTION

The Applicant(s) requests permission from the Florida Department of Transportation (FDOT) to construct, operate, and maintain the utilities as described below and as depicted in the incorporated documentation.
4-inch HDPE reclaimed water (RCW) main via horizontal directional drill (HDD) starting north of Drew Street on N Martin Luther King Jr Ave and crossing FDOT right of way, SR590 (Drew Street). See attached plans.

Utility Work No: _____

Additional sheets are attached and are incorporated into this permit Yes No

For FDEP certification, the FDOT agency report is attached in accordance with UAM Section 2.4.1 (13) Yes No

TRAFFIC CONTROL (TCP)

The TCP will comply with the following 600 series index(es) 600, 603, 660

A TCP has been attached and incorporated into this permit application in compliance with UAM Section 2.4.2.

MOT Technician's contact information (may be supplied at the two (2) business day notification to FDOT):

Name: _____ Telephone: _____ Email: _____

COMMENCEMENT OF WORK

The UAO and/or Utility Builder shall commence actual construction in good faith within sixty (60) calendar days after approval of the permit application. If the beginning date is more than sixty (60) calendar days from the date of approval, the UAO and/or Utility Builder must review the permit with the FDOT Approving Engineer listed to make sure no changes have occurred to the transportation facility that would affect the permit's continued approval. The UAO and/or Utility Builder shall make good faith efforts to expedite the work and complete the work within the calendar days indicated.

Anticipated Start Date: 3/1/2022

Calendar days needed to completed: 365

Approved
 2021-H-799-00458
 Chris Gregory
 10/25/2021

Florida Department of Transportation
UTILITY PERMIT

PERMIT NO: 2021-H-799-00458

APPLICANT SIGNATURE

By the below signature(s) the UAO and/or Utility Builder agree(s) to construct, operate, and maintain the work as noted in the above Work Description, shown in plans and incorporated documents, in compliance with the UAM, all instructions noted in the FDOT Special Instructions Box, and special instructions incorporated into this permit. The UAO and/or Utility Builder declares, the location of all existing utilities that it owns or has an interest in, both aerial and underground, are accurately shown on the plans of the work areas. In accordance with UAM Section 2.8, the UAO and/or Utility Builder further declares that a letter of notification was delivered to the owners of other facilities within the work areas and that those listed below are the only facility owners known to be involved or potentially impacted by the proposed work.

Date Notified:	Name of other facility owners (attach additional sheets if necessary).
<u>8/23/2021</u>	<u>AT&T</u>
<u>8/23/2021</u>	<u>Church of Scientology</u>
<u>8/23/2021</u>	<u>Crown Castle</u>
<u>8/23/2021</u>	<u>Duke Energy</u>
<u>8/23/2021</u>	<u>Fiberlight</u>

Utility Agency/Owner

Utility Builder (when applicable)

Signature: TODD KUHNEL (digital signature) Date: 9/29/2021
 Name (printed): TODD KUHNEL
 Title: _____

Signature: _____ Date: _____
 Name (printed): _____
 Title: _____

FDOT PROJECT INFORMATION

Pursuant to UAM Section 2.1(10), the utility work is within FDOT projects listed below and must have a Utility Work Schedule for each project approved prior to commencement of work within the FDOT project limits:

**There are NO FDOT constructions (proposed or underway).
This work is NOT related to an approved utility work Schedule.**

FDOT SPECIAL INSTRUCTIONS

In accordance with UAM Section 2.7, FDOT incorporates the below and attached special instructions into this permit.
Permittee is to contact local maintaining agency, FERROVIAL SERVICES at 727-573-7672, for roadway lighting locates prior to beginning work in State right-of-way. work and inspections must be scheduled with FERROVIAL before beginning work. Permittee shall notify FDOT RTMC at 813-615-8657 of the exact time any lane closure begins and a second notification when lane closure is removed.

Additional FDOT Special Instructions are attached and incorporated into this permit. Yes No

PERMIT APPROVAL

By signature below, FDOT gives permission to the UAO and /or Utility Builder to construct, operate, and maintain the utilities indicated in this Utility Permit in compliance with the UAM, all incorporated documents, and special instructions. Any changes to the approved work must be approved by the FDOT's Approving Engineer and attached and incorporated into this permit in accordance with UAM Section 2.11.

Approving Engineer: Chris Gregory (digital signature) Date: 10/25/2021
 Name: Chris Gregory
 Title: MAINTENANCE MANAGER/PERMITS

Notification of Utility Work to be provided to: Telephone (727) 575-8300 ext. _____ or Email: Chris.Gregory@dot.state.fl.us

An FDOT Representative is required to be present on the worksite prior to commencement of work. Yes No
 Rep. Name: Lisa Gallman Telephone 7275737672 Email: lisa.gallman@ferrovialservices.com

Approved
2021-H-799-00458
Chris Gregory
10/25/2021

Florida Department of Transportation
UTILITY PERMIT

PERMIT NO: 2021-H-799-00458

CERTIFICATION

I, the undersigned UAO and/or Utility Builder, hereby CERTIFY that the utilities were constructed and inspected in compliance with the UAM all incorporated documents, and special instructions. Pursuant to UAM Section 2.11, all changes have been approved by the FDOT's Approving Engineer and incorporated into this permit along with all other material certifications, test results, bore logs, approved plans changes, as-built plans or other required documentation.

I also CERTIFY that work began on _____ and was completed on _____ and that the area was left in as good or better condition than when the work began.

Utility Agency/Owner

Utility Builder (when applicable)

Signature: _____ Date _____

Signature: _____ Date _____

Name (printed): _____

Name (printed): _____

Title: _____

Title: _____

FINAL INSPECTION OF WORK

The work was inspected and found to be in non-compliance as noted below:

All issues of non-compliance listed above have been brought into compliance and/or FDOT has no outstanding issues that need to be addressed by the UAO and/or Utility Builder. However, this final inspection does not release the UAO and/or Utility Builder of their continuing responsibilities pursuant to Rule 14-46.001, the UAM, all incorporated documents, and special instructions.

FDOT Inspector: _____ Date: _____

Name: _____

Title: _____

Approved
2021-H-799-00458
Chris Gregory
10/25/2021

PERMIT NO.: 2021-H-799-00458

STATE ROAD INFORMATION:

NAME OF OTHER FACILITY OWNERS / DATE NOTIFIED:

Facility Name: Frontier, Date Notified: 8/23/2021, Facility Name: Uniti Fiber, Date Notified: 8/23/2021, Facility Name: Zayo Group, Date Notified: 8/23/2021

FDOT PROJECT INFORMATION:

There are NO FDOT constructions (proposed or underway).
This work is NOT related to an approved Utility Work Schedule.

THE WORK WAS INSPECTED AND FOUND TO BE IN NON-COMPLIANCE AS NOTED BELOW:

Approved
2021-H-799-00458
Chris Gregory
10/25/2021



REQUIRED NOTIFICATIONS

TWO (2) BUSINESS DAYS BEFORE STARTING WORK:

PERMIT TYPE	WHO TO CONTACT	WHAT TO DO
All Permits and Agreements	FDOT One-Stop Permitting (OSP)	<ul style="list-style-type: none"> • Enter MOT Technician Information. • Click on either “48 Hour Request to Begin Work” or “2 Business Day Notice”.
	FDOT Pinellas Operations Permits Asset Contractor	<ul style="list-style-type: none"> • Call Ferrovial Services at 727-573-7672 for inspections.
	Sunshine 811	<ul style="list-style-type: none"> • Call Sunshine 811 for locates (other than roadway lighting).
	FDOT Regional Traffic Management Center (RTMC)	<ul style="list-style-type: none"> • Call FDOT Regional Traffic Management Center at 813-615-8657 of the Exact Time Any Lane Closure Begins and a Second Notification When Lane Closure is Removed.
Utility Permits	Highway Lighting and ATMS Locates	<ul style="list-style-type: none"> • Highway Lighting and ATMS are not part of the Sunshine 811 Locate System. Permittee is to Contact the Maintaining Agency/Organization for Highway Lighting and ATMS Locates.
As-Needed	FDOT Advanced Dynamic Message Sign (ADMS) Arterial Locates	<ul style="list-style-type: none"> • Call FDOT SunGuide at 813-615-8613 (prefer email to Romona.Burke@dot.state.fl.us).
Permits in Active FDOT Construction Project	FDOT Construction Office	<ul style="list-style-type: none"> • Call Sherrele Darroch at 813-220-1872 to Coordinate MOT and Work.

Approved
2021-H-799-00458
Chris Gregory
10/25/2021

**THIS FDOT PERMIT COVERS
ACCESS TO FDOT RIGHT-OF-WAY
FOR PROPOSED WORK.**

.....

- **PERMITTEE/UAO/CONTRACTOR IS RESPONSIBLE FOR SECURING AUTHORIZATION FROM ANY PROPERTIES OUTSIDE OF THE FDOT RIGHT-OF-WAY THAT MAY BE UTILIZED FOR THE PROPOSED WORK.**
- **WORKDAYS AND TIMES ARE MONDAY THRU FRIDAY, 7:00 AM TO 5:30 PM.**

Approved
2021-H-799-00458
Chris Gregory
10/25/2021

M E M O R A N D U M
FLORIDA DEPARTMENT OF TRANSPORTATION
District Utilities MS 7-820

DATE: September 30, 2021

TO: Michael Lenhart, Operations Program Engineer, Pinellas Operations

FROM: Sherelle Darroch, Utility Construction Coordinator

COPIES: Julie Ostoski, Pinellas Operations Engineer
Dan Hunter, District Utility Administrator
Project File

SUBJECT: FPID: 448511-1-52-01 / Pinellas County / SR 590/Drew St from Ft Harrison Ave
to US 19/SR 55
Permit No: 2021-H-799-0458 / **City of Clearwater**

Please find the attached Utility Permit on the above referenced project from **City of Clearwater**.

This installation is involved with a highway improvement project.

The installation has been reviewed by the Pinellas Operations Construction Office and has no comments to add.

Upon final execution of this permit, please forward the District Utilities' copy to the Construction office indicated above with a copy of this memo attached.

Attachment
Form#59

Approved
2021-H-799-00458
Chris Gregory
10/25/2021

SHEET INDEX

SHEET #	SHEET DESCRIPTION
01	COVER SHEET, SHEET INDEX, AND PROJECT LOCATION
02	GENERAL NOTES AND ABBREVIATIONS
03	LEGENDS AND TEST HOLE TABLE
04-08	DRUID RD (AREA A) - PLAN AND PROFILES
09-11	N MARTIN LUTHER KING JR AVE (AREA B) - PLAN AND PROFILES
12-13	FAIRMONT ST (AREA C) - PLAN AND PROFILES
14-15	FAIRMONT ST - SANITARY SEWER REPLACEMENT - PLAN AND PROFILES
16-20	MEMORIAL CAUSEWAY (AREA D) - RECONNECTIONS
21-22	CITY OF CLEARWATER STANDARD DETAILS
23-24	FDOT FY 2021-22 STANDARD PLANS DETAILS
---	AREA E, AREA F, AND AREA G - SEE SUPPLEMENTAL ATTACHMENT



CLEARWATER
BRIGHT AND BEAUTIFUL · BAY TO BEACH



RECLAIMED WATER PIPING IMPROVEMENTS AREA B

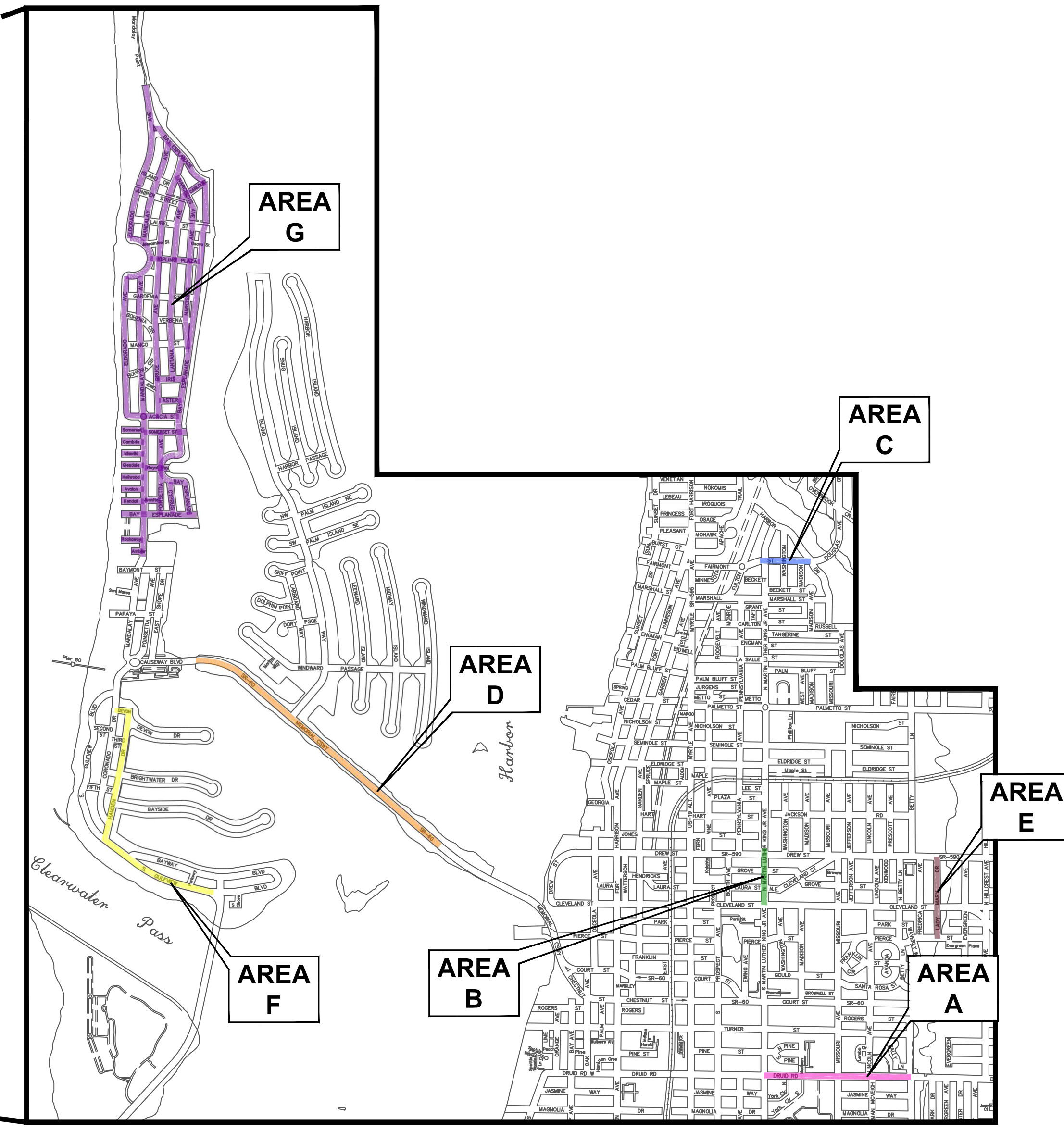
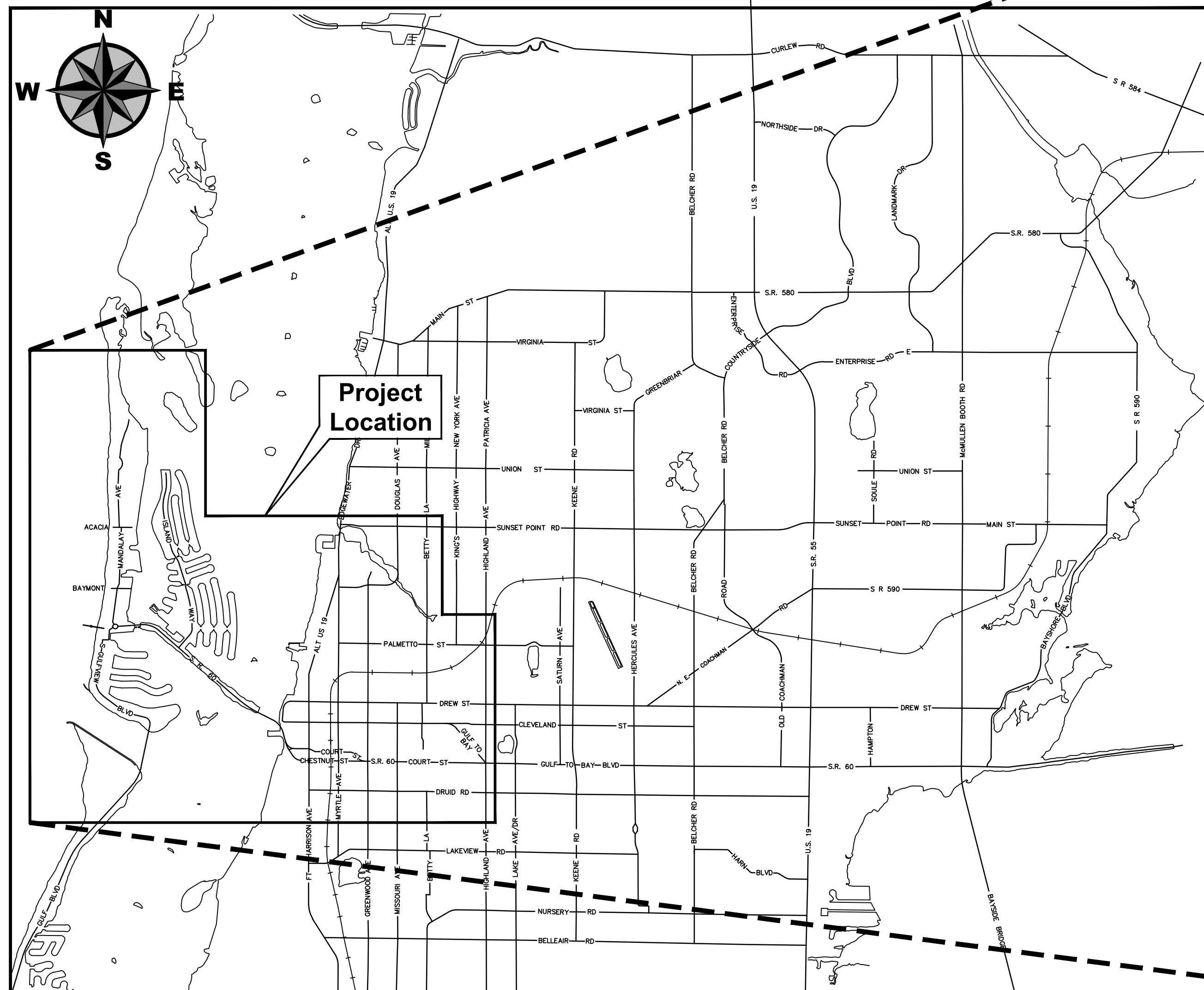
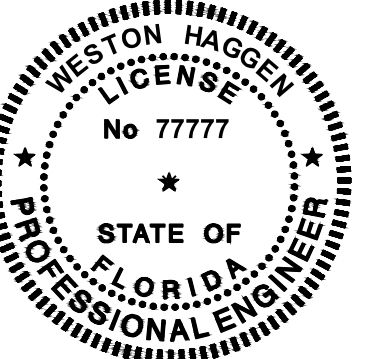


3507 EAST FRONTAGE ROAD SUITE 180
TAMPA, FL 33607
TEL: (813) 549-0919
CHA CONSULTING, INC.
CERTIFICATE OF AUTHORIZATION #28386

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY WESTON T. HAGGEN ON THE DATE ADJACENT TO THE SEAL.

Weston T. Haggen
2021.10.25 06:10:16-04'00'

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



CITY OFFICIALS

- | | |
|----------------------------|----------------------|
| <i>Frank Hibbard</i> | <i>Mayor</i> |
| <i>Mark Bunker</i> | <i>Councilmember</i> |
| <i>Kathleen Beckman</i> | <i>Councilmember</i> |
| <i>David Allbritton</i> | <i>Councilmember</i> |
| <i>Hoyt Hamilton</i> | <i>Councilmember</i> |
| <i>William B. Horne II</i> | <i>City Manager</i> |

Tara L. Kivett, P.E.
City Engineer

Approved For Construction

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

Date Approved

100% PLANS PRELIMINARY

City Project No. 18-0040-UT Task 9
City Plan Set No. 2020027

Parent Sheet Set: 102031_RCW Imp Rev/Plot by: VANATTA, VIOLET Rev on: 8/27/2021 12:48 PM Individual File Path: V:\Projects\WSFL112\1020000 Clearwater\00_Projects\04_Design\01_CAD\001.dwg Reclaimed Water Pipe Improvements\60_Design\04_Design\01_CAD\001.dwg

Approved
Chris Gregory
10/25/2021

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 in accordance with the local governmental agency.
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.
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.
32. A CCTV inspection of the new sewer system in digital format utilizing the industry standard Pipeline Assessment and Certification Program (PACP) coding system shall be provided to the City. The video shall be taken prior to placing the new sewer system into service. Data will be collected utilizing CUES Granite software.
33. Installation of gravity sewer pipe shall be in conformance with recommended practices contained in Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications ASTM D2321. Connections to manholes with sanitary pipe shall use a joint two (2) feet in length and shall use an approved water stop around pipe joint entry.
34. The bottom trench width in an unsupported trench shall be limited to the minimum practicable width allowing working space to place and compact the hunching 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.
35. 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.
36. 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.
37. 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.
38. The Contractor shall protect private property.

- 39. All RCW water service lines and meter boxes shall be installed with a minimum five (5) foot separation from existing potable water meter boxes and service lines, however separation may be reduced to three (3) foot where space is limited as approved by City's Engineering Representative.
40. The Contractor shall provide the City 60 days notice prior to starting any service line connections.
41. City of Clearwater to provide RCW service meter box location sheets to City's Engineering Representative directing location of RCW meter boxes to be installed.
42. All lane closures and work affecting traffic shall be scheduled, coordinated, and approved by the City. No lane closures on Memorial Causeway (SR60) will be allowed during Spring Break.

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. The last date of field survey is 03-03-2021.

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), 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.

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

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



CITY OF CLEARWATER
RECLAIMED WATER PIPING IMPROVEMENTS
GENERAL NOTES AND ABBREVIATIONS

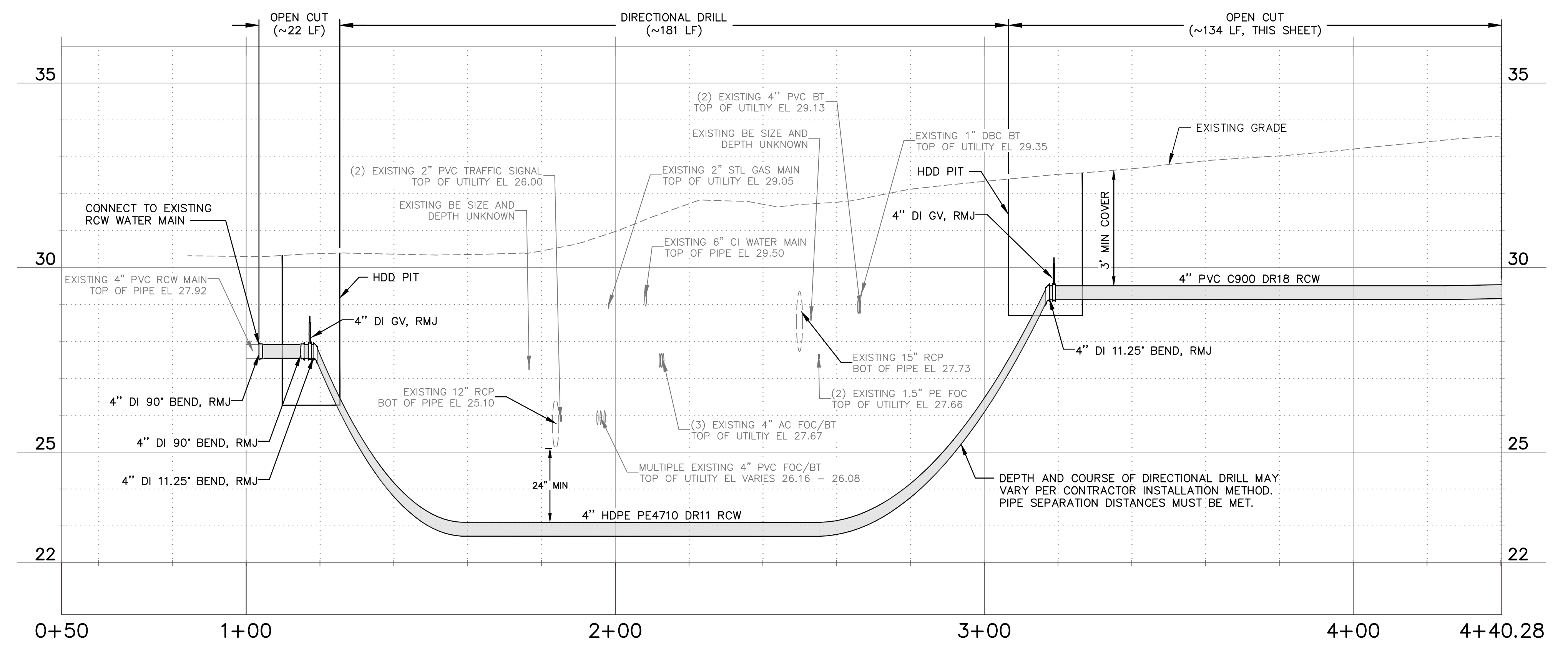
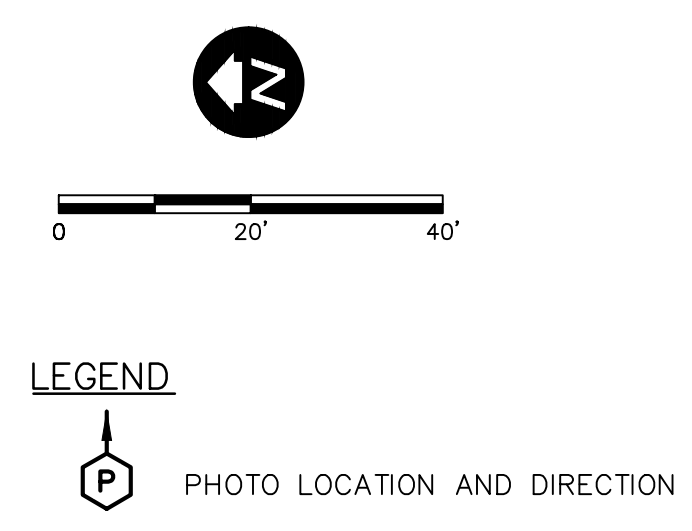
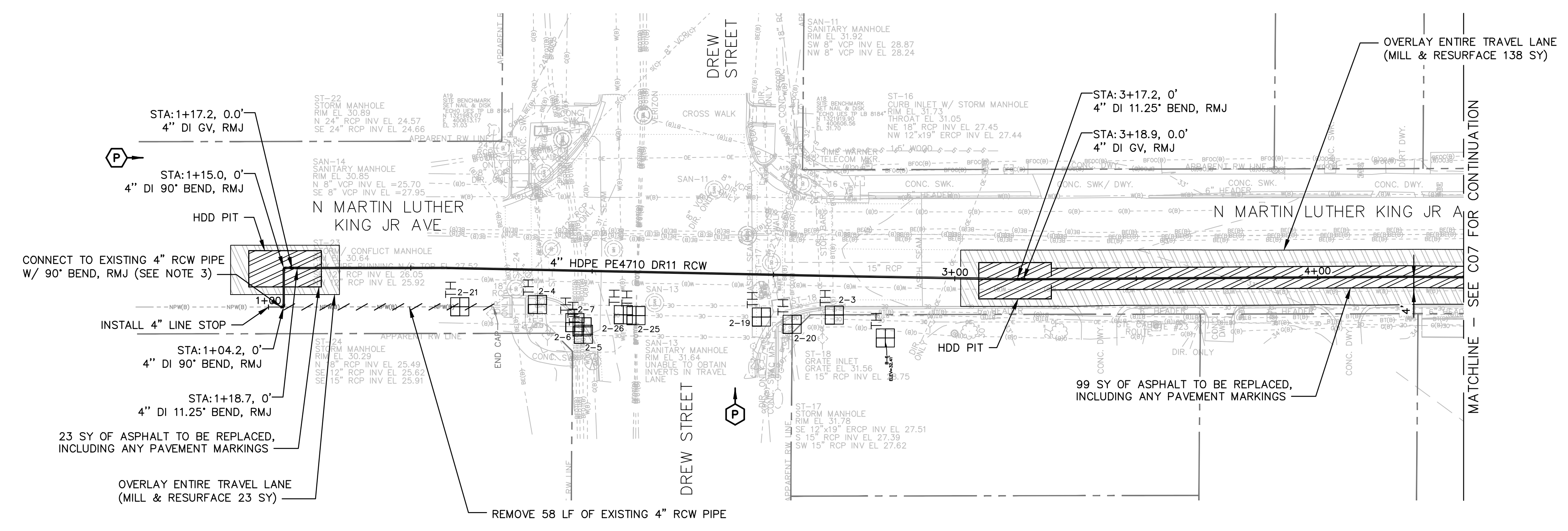
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Approved
2021-11-799-00458
10/25/2021

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- NOTES**
1. MINIMUM SEPARATION BETWEEN PROPOSED 4" RECLAIMED WATER MAIN AND EXISTING WATER MAIN SHALL BE 4'.
 2. DEFLECT PIPE AT JOINTS MAXIMUM 75% OF MANUFACTURERS DEFLECTION.
 3. ONLY THE CITY MAY TURN EXISTING VALVES. IF RCW MAIN ISOLATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE CITY. ISOLATION VALVE IS APPROXIMATELY 1400 LF NORTH WEST AT THE INTERSECTION OF PLAZA STREET AND PENNSYLVANIA AVENUE NORTH.
 4. INSTALL 1" RESIDENTIAL OR 2" COMMERCIAL SERVICE LINE AND RCW METER BOX ADJACENT TO EACH EXISTING WATER METER/PARCEL (5' MIN SEPARATION), ON BOTH SIDES OF ROW WITH SHORT SERVICES AND LONG SERVICES WITH CASINGS, IN ACCORDANCE WITH CITY INDEX 505 DETAILS. LOCATION TO BE DETERMINED BY CITY INSPECTOR.

RECORD DRAWINGS	
SURVEYED BY: N/A	DRAWN BY: VVV
REVIEWED BY:	DATE:
PROJECT ENGINEER:	DATE:
APPROVED BY:	DATE:

C:100% PLANS PRELIMINARY	VVV	08/2021
B:90% PLANS PRELIMINARY	VVV	06/2021
A:60% PLANS PRELIMINARY	VVV	04/2021
REVISION	BY	DATE

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

CALL 811
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 OF FLORIDA
 www.call811sunshine.com
 (800) 432-4770
 MIN. 48 HOURS
 BEFORE YOU EXCAVATE

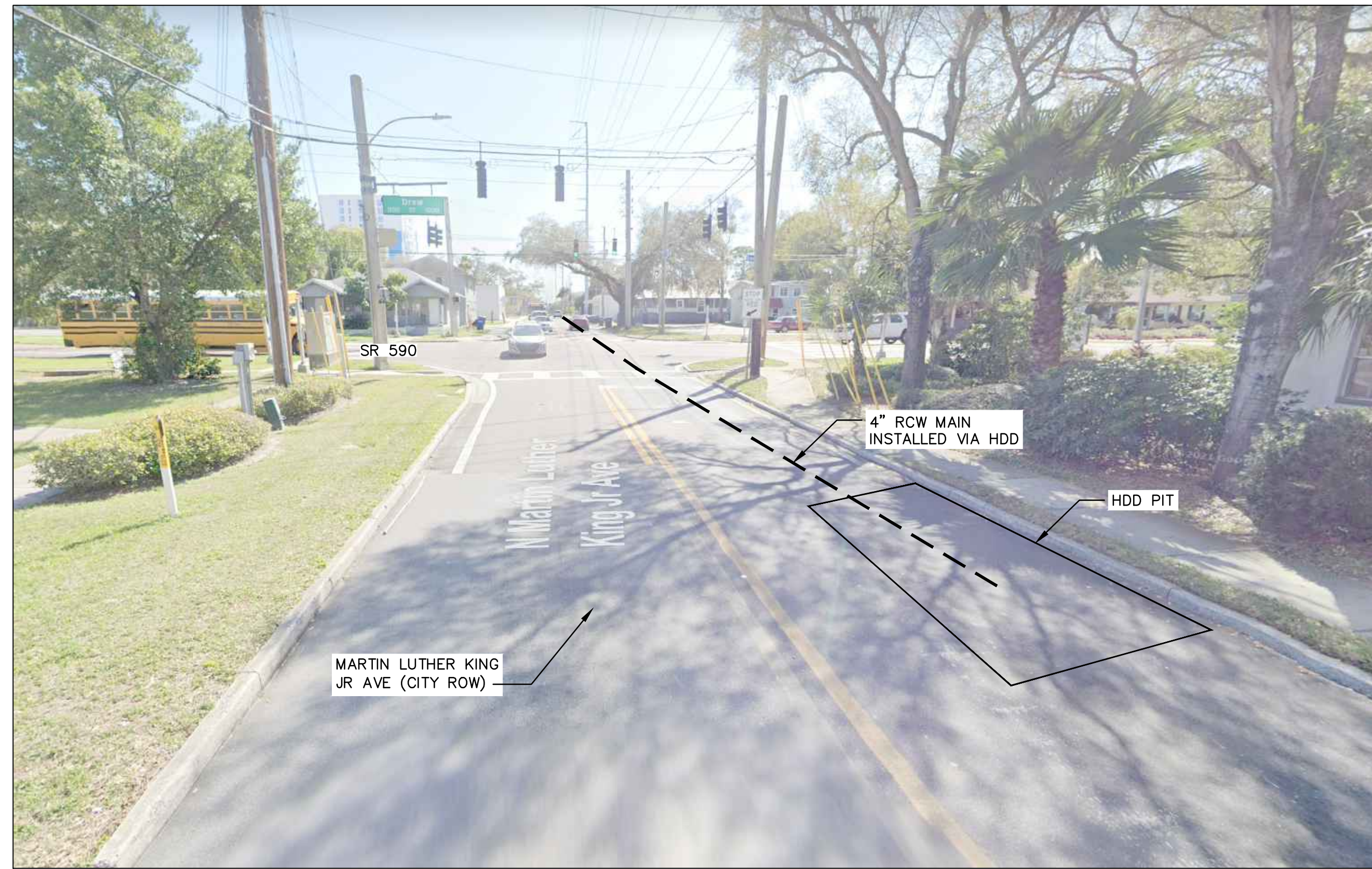
CITY OF CLEARWATER
RECLAIMED WATER PIPING IMPROVEMENTS
 N MARTIN LUTHER KING JR AVE (AREA B) - STA 0+50 TO STA 4+40.28
 PLAN & PROFILE

DWG NAME: C06	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO: 21-0029-UT	DATE DRAWN: 10/2021	DRAWN BY: VVV	HORIZ. AS NOTED
JOB NO: 102031	DESIGNED BY: WTH	CHECKED BY: SC/MKW	SHEET NO: 09 of 24
APPROVED BY:			DATE: 10/25/2021

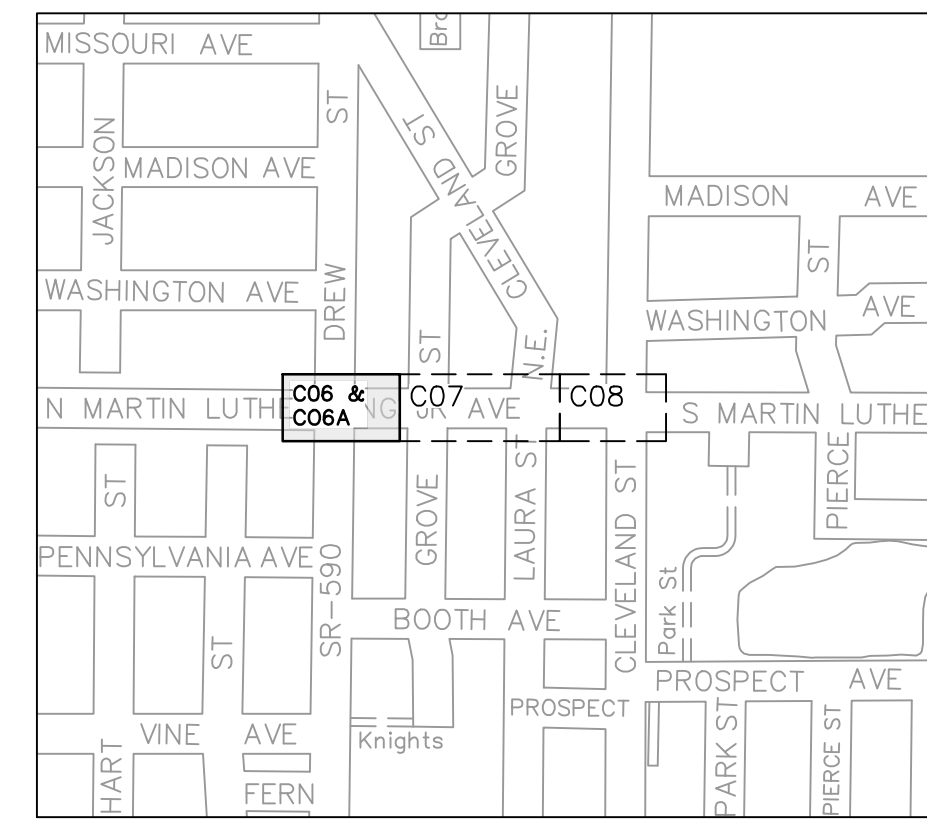
CHA CONSULTING, INC.
 3507 EAST FRONTAGE ROAD SUITE 100
 TAMPA, FL 33607
 TEL: (813) 549-0919
 CERTIFICATE OF AUTHORIZATION #28386

Approved
 2021-H-799-00458
 DATE: 10/25/2021

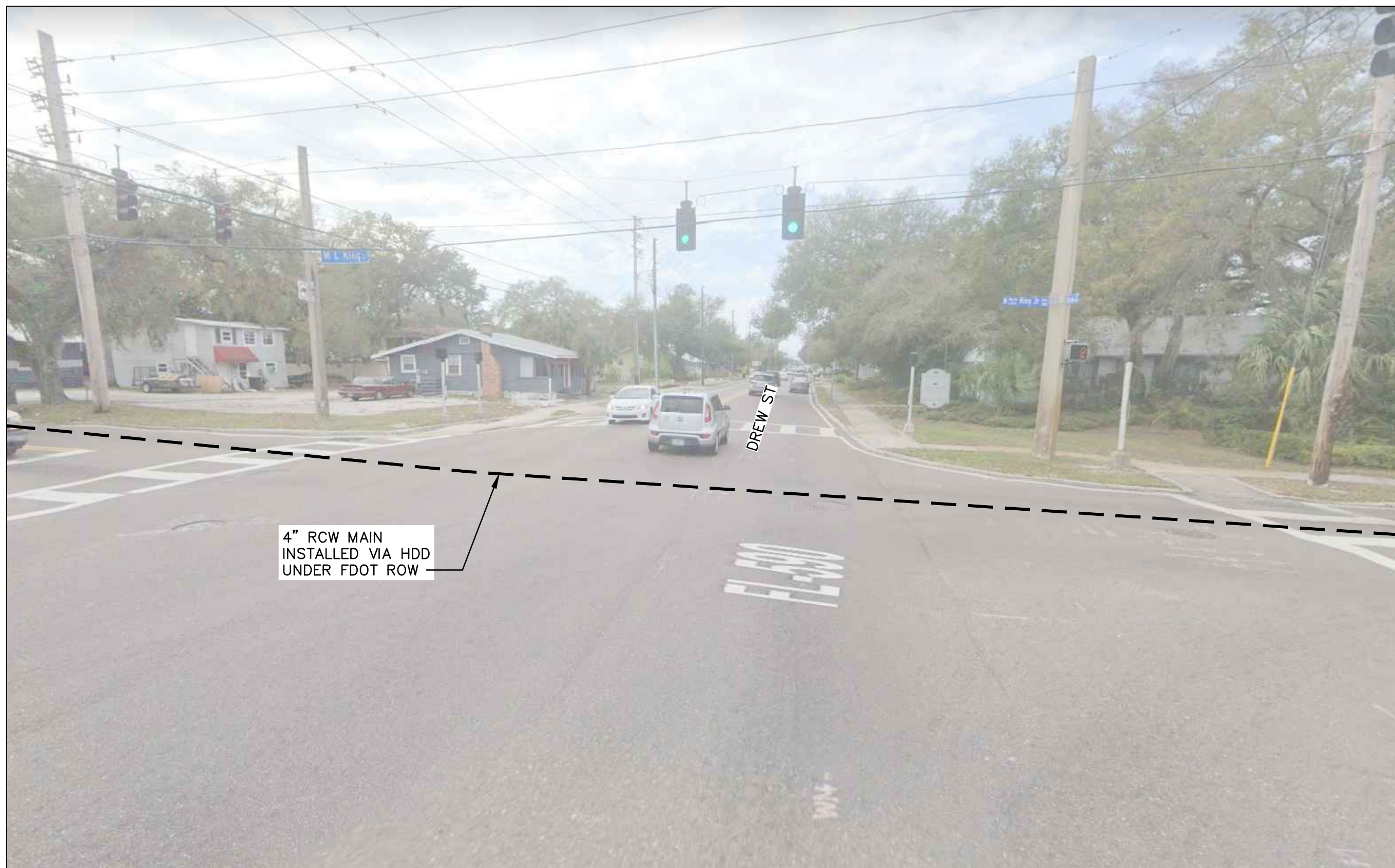
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N MARTIN LUTHER KING JR AVE HDD



KEY MAP
N.T.S.



INTERSECTION OF DREW ST AND N MARTIN LUTHER KING JR AVE

RECORD DRAWINGS		BY	DATE
SURVEYED BY: N/A	DRAWN BY: VVV		
REVIEWED BY:	PROJECT ENGINEER		DATE
APPROVED BY:			DATE
	REVISION	BY	DATE

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



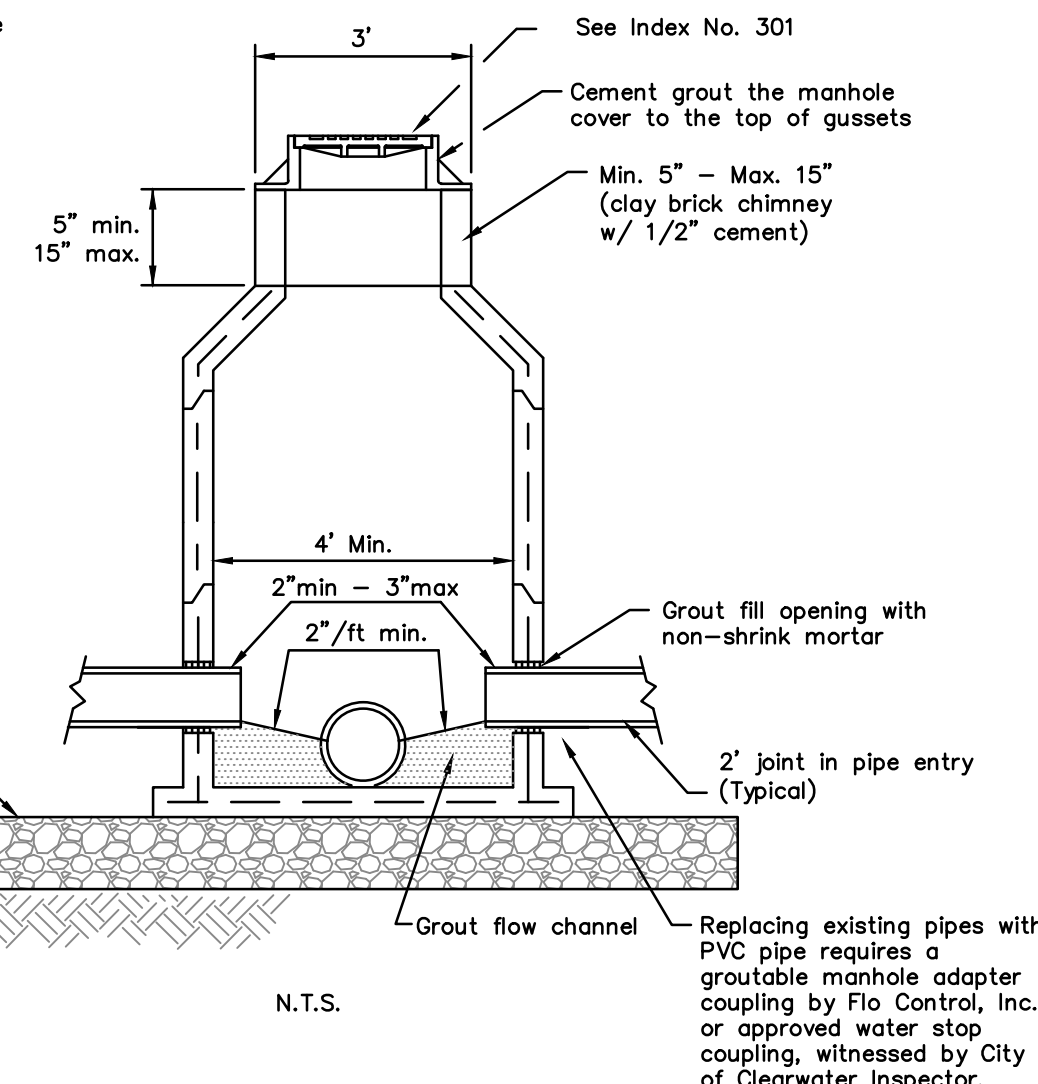
CITY OF CLEARWATER
 RECLAIMED WATER PIPING IMPROVEMENTS
 AREA B - INTERSECTION OF N MARTIN LUTHER KING JR AVE
 AND DREW STREET

DWG NAME: C06A	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 21-0029-UT	DATE DRAWN: 10/2021	DRAWN BY: VVV	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY: WTH	CHECKED BY: SC/MKW	SHEET NO.: 24 OF 24
APPROVED BY: _____			

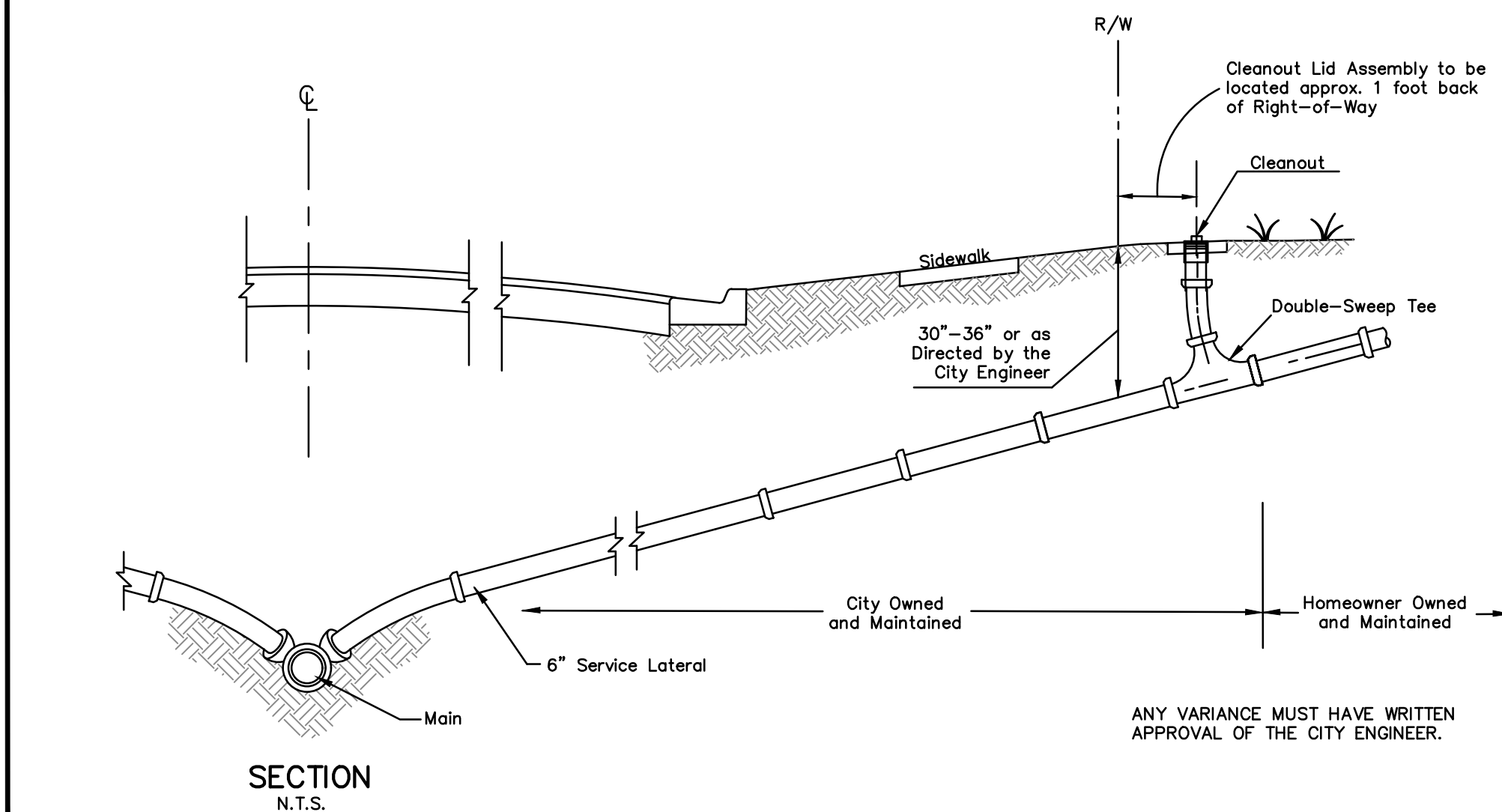


Approved
 2021-H-799-00458
 DATE: 10/25/2021

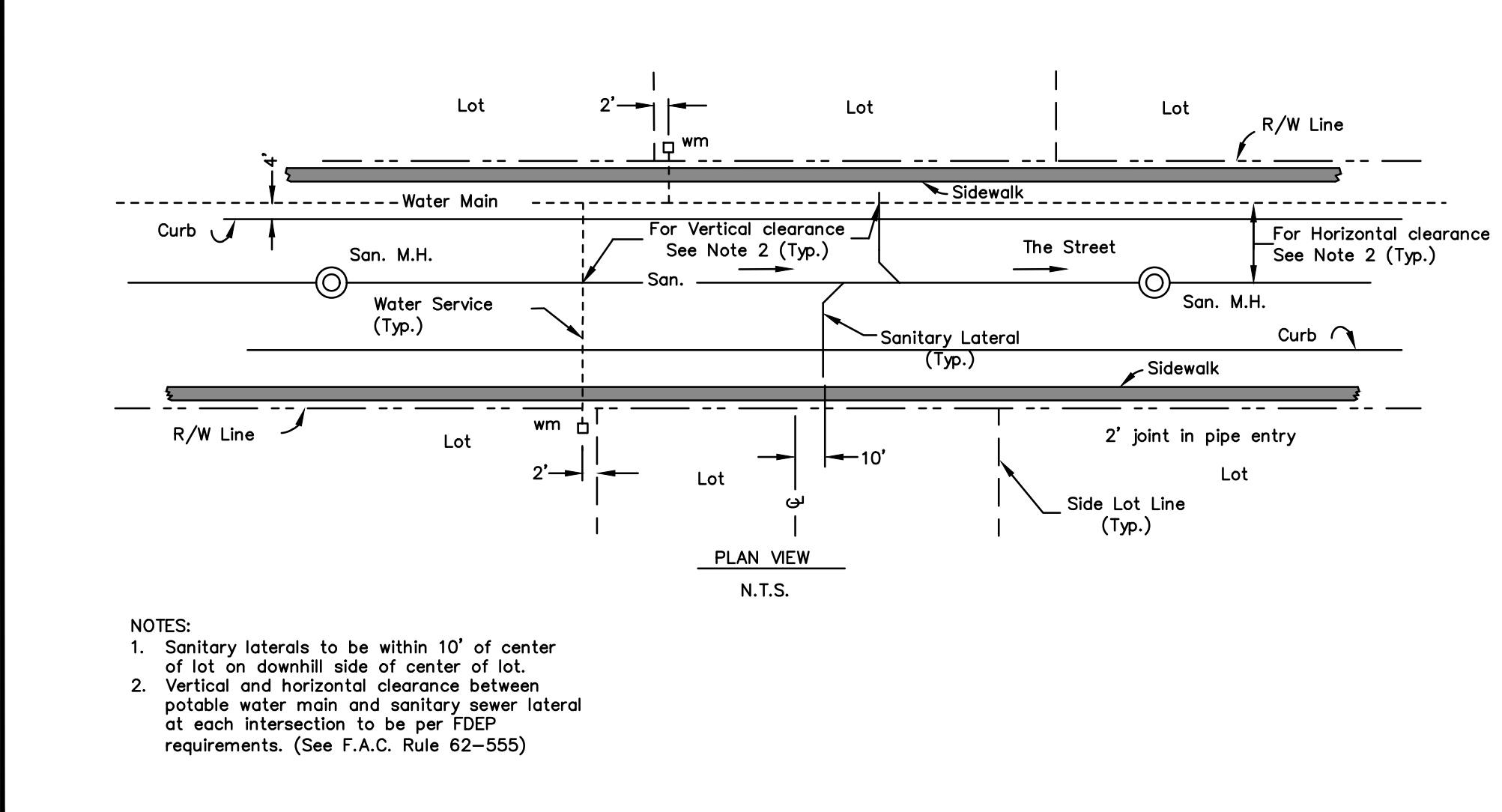
- NOTES:
- Any new manhole cores/connections may require a new coating. The new coating will be determined by City of Clearwater Inspector. See Note 2.
 - Interior shall be Strong Seal MS 2C, Raven 405 or Spraywall by Sprayco.
 - All pipe penetrations into manhole shall be precast or core drilled with a flexible Kor-N-Seal rubber boot or approved equal, installed.
 - All pipes must be color coded "Safety Green".
 - All connections to manhole shall be water tight.
 - All manhole coring must be witnessed by City Inspector.
 - Install 18 gauge 304 stainless steel manhole storm water inflow abatement insert (dish/pan).
 - Contractor to replace ring & cover if existing is in poor condition which will be determined by City of Clearwater Inspector.
 - See also City of Clearwater's Technical Specification Section IV.



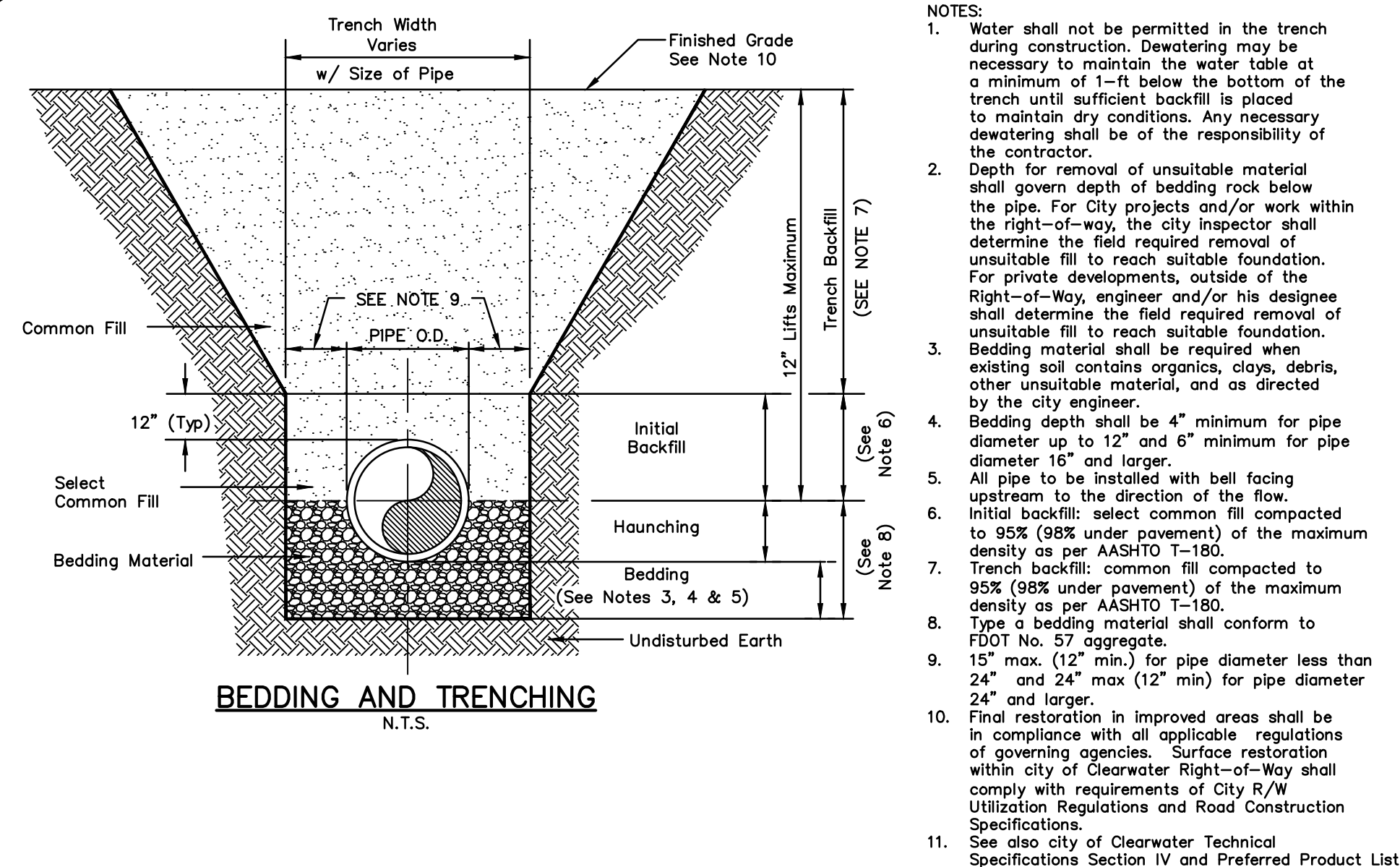
CITY OF CLEARWATER ENGINEERING DEPARTMENT SANITARY SEWER DETAILS
EXISTING SANITARY MANHOLE DETAIL
 INDEX NO. 302 PAGE NO. 3 OF 3
 LATEST REVISION 10/21/2019



CITY OF CLEARWATER ENGINEERING DEPARTMENT SANITARY SEWER DETAILS
STREET LATERAL DETAIL
 INDEX NO. 305 PAGE NO. 1 OF 3
 LATEST REVISION 2/22/2016



CITY OF CLEARWATER ENGINEERING DEPARTMENT SANITARY SEWER DETAILS
SANITARY LATERAL LOCATIONS
 INDEX NO. 305 PAGE NO. 3 OF 3
 LATEST REVISION 2/22/2016



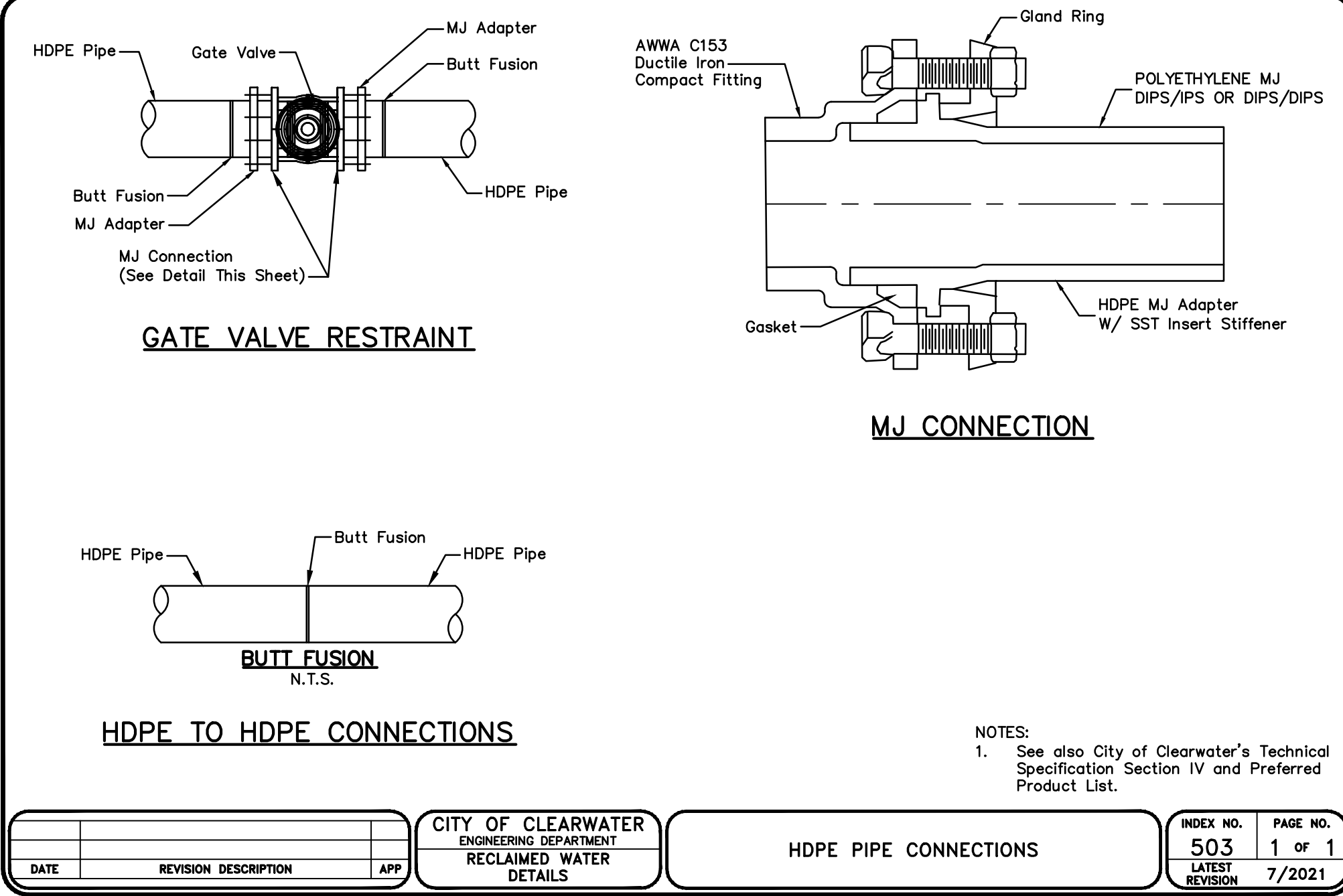
CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
BEDDING AND TRENCHING
 INDEX NO. 501 PAGE NO. 1 OF 1
 LATEST REVISION 7/2021

HORIZONTAL AND VERTICAL UTILITY SEPARATION REQUIREMENTS

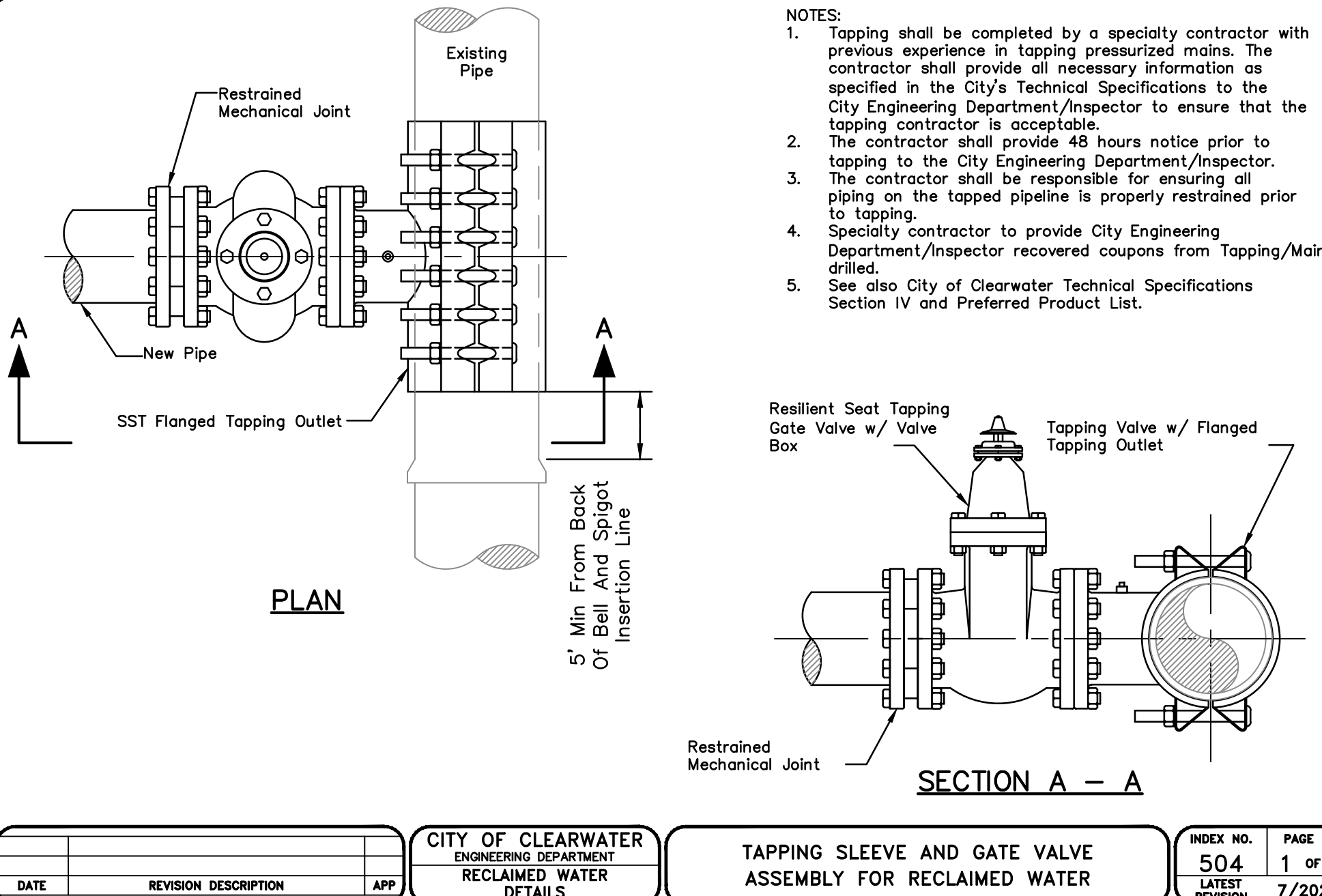
PROPOSED UTILITY	POTABLE WATER		RECLAIMED WATER		WASTEWATER FORCE MAIN		SANITARY SEWER		STORM SEWER		STRUCTURAL FOUNDATION, WALLS, ETC	ROADWAY RIGHTS-OF-WAY
	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT		
POTABLE WATER MAIN	4 FEET NOTE: 2	12"	4 FEET NOTE: 2 & 4	12" NOTE: 4	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	4 FEET NOTE: 2 & 4	12" / 18" NOTE: 3 & 4	15 FEET NOTE: 6	5 FEET NOTE: 2A
RECLAIMED WATER MAIN	4 FEET NOTE: 2 & 4	12" NOTE: 4	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" / 18" NOTE: 3	15 FEET NOTE: 6	5 FEET NOTE: 2A
WASTEWATER FORCE MAIN	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" / 18" NOTE: 3	15 FEET NOTE: 6	5 FEET NOTE: 2A
SANITARY SEWER	6 FEET NOTE: 4	12" / 18" NOTE: 3 & 4	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" NOTE: 2	4 FEET NOTE: 2	12" / 18" NOTE: 3	VARIES PER DEPTH	5 FEET NOTE: 2A

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) Four feet horizontal separation for utility pipelines is the minimum for pipes with three feet of cover. For pipes installed at greater depths, provide an additional foot of horizontal separation for each additional foot of depth.
 3. The 18-inch 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-inches. Otherwise the required separation is 12-inches.
 4. This separation requirement complies with the minimum FEP separation requirements outlined in chapter 62-555.314, FAC. 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.
 5. No water pipe shall pass through or come in contact with any part of sanitary sewer or a storm sewer manhole or structure.
 6. Separation of pressure utility mains may be reduced to 10-feet of separation from structural foundations, walls, etc if the cover of the utility main is 4-feet or less and all joints of the utility are restrained for a minimum of 25-feet outside the structure limits.
 7. See also City of Clearwater Technical Specifications Section IV and Preferred Product List.

CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
HORIZONTAL AND VERTICAL UTILITY SEPARATION REQUIREMENTS
 INDEX NO. 502 PAGE NO. 1 OF 1
 LATEST REVISION 7/2021



CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
HDPE PIPE CONNECTIONS
 INDEX NO. 503 PAGE NO. 1 OF 1
 LATEST REVISION 7/2021



CITY OF CLEARWATER ENGINEERING DEPARTMENT RECLAIMED WATER DETAILS
TAPPING SLEEVE AND GATE VALVE ASSEMBLY FOR RECLAIMED WATER
 INDEX NO. 504 PAGE NO. 1 OF 1
 LATEST REVISION 7/2021

Parent Sheet: 102031_RCW Imp. Rev on: 8/26/2021 11:31 AM Individual File Path: V:\Projects\WSEFL112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C18

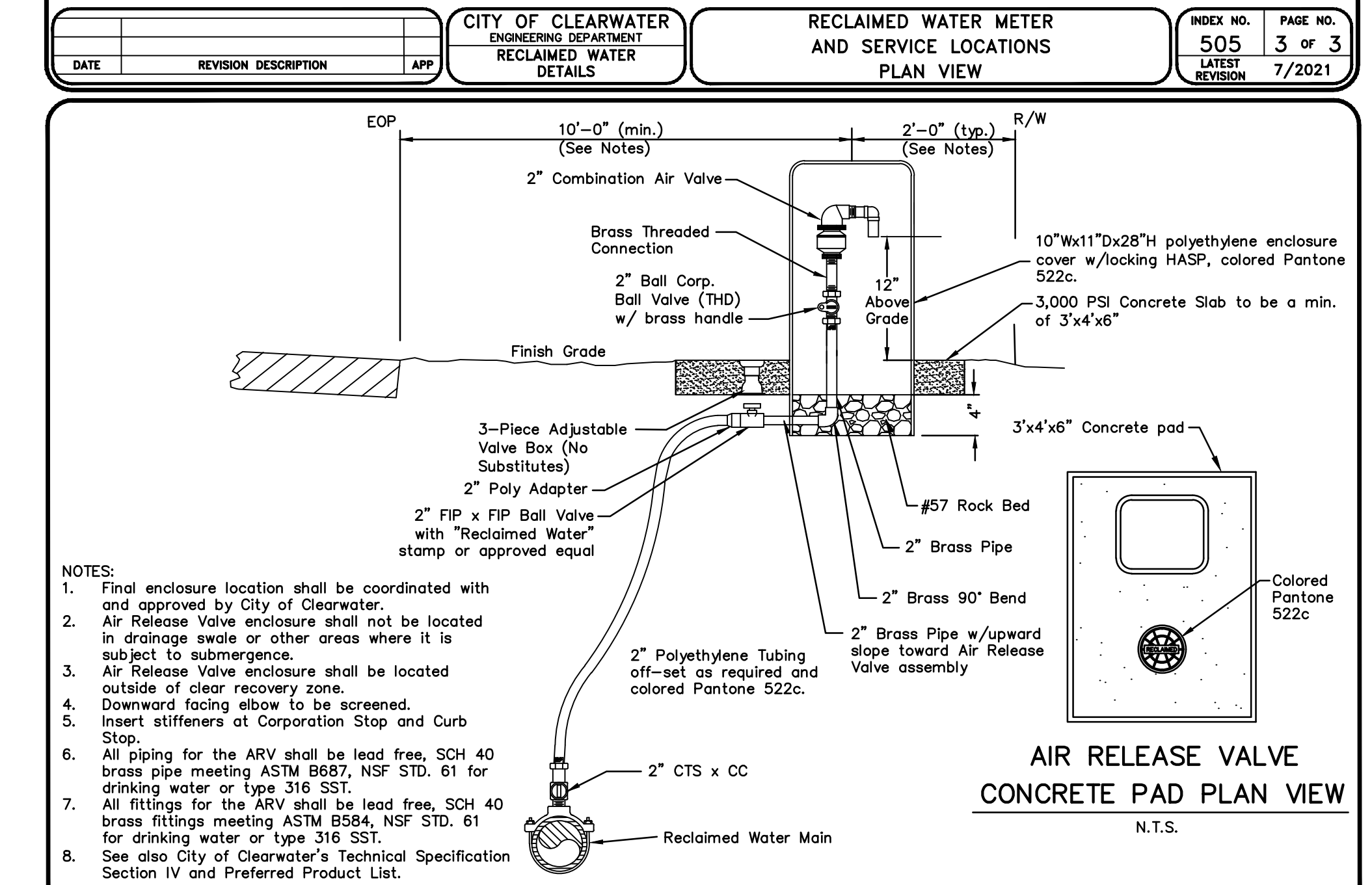
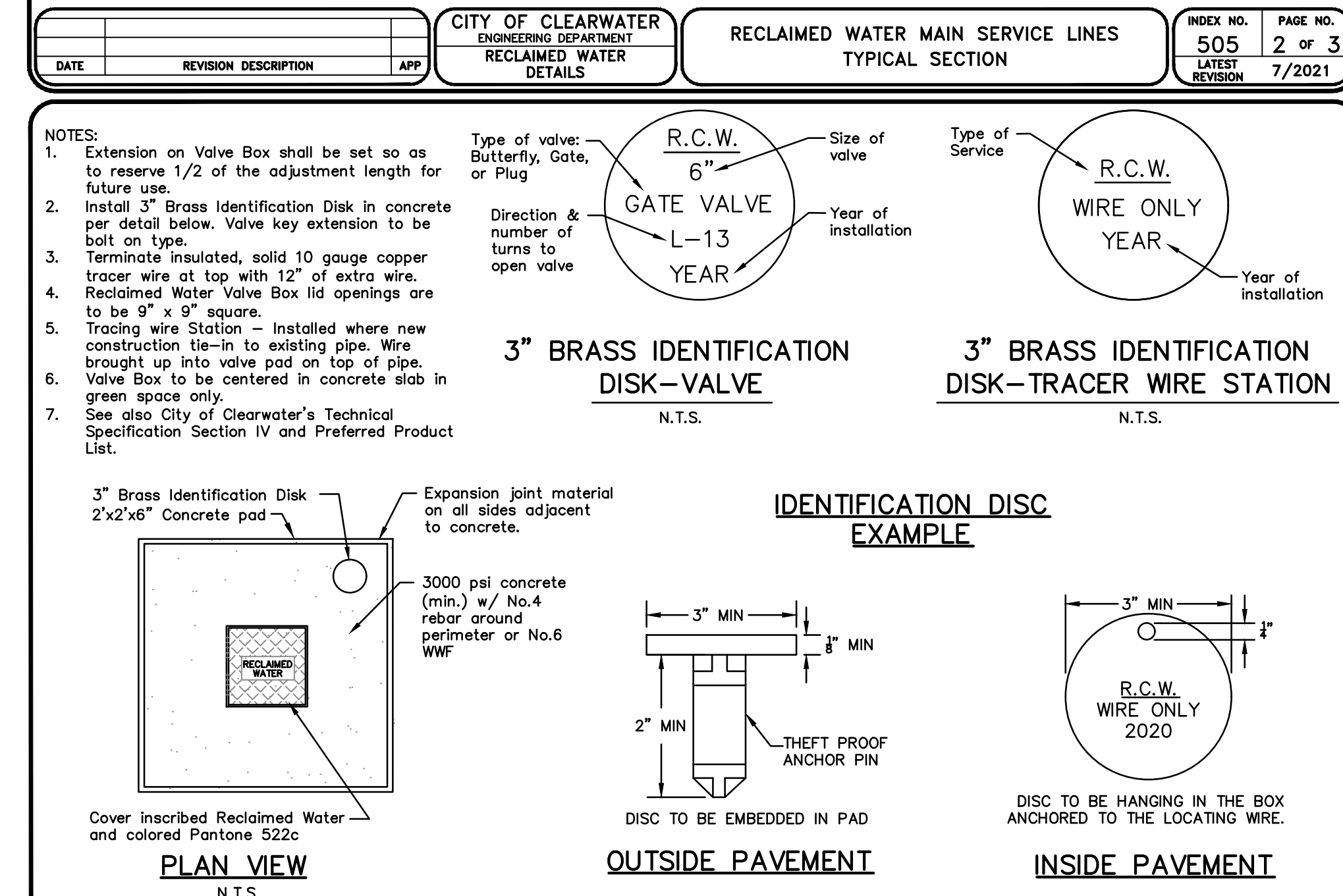
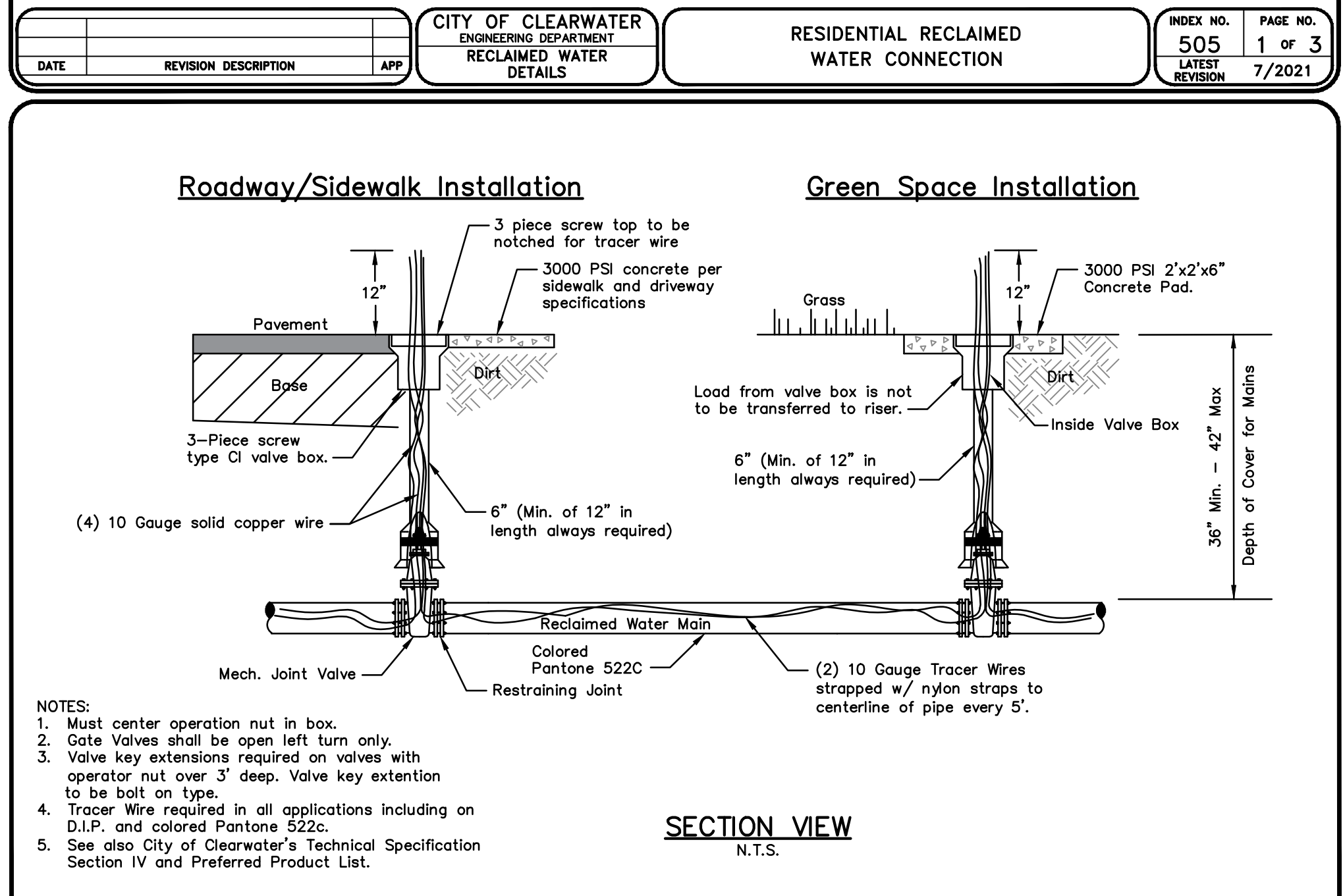
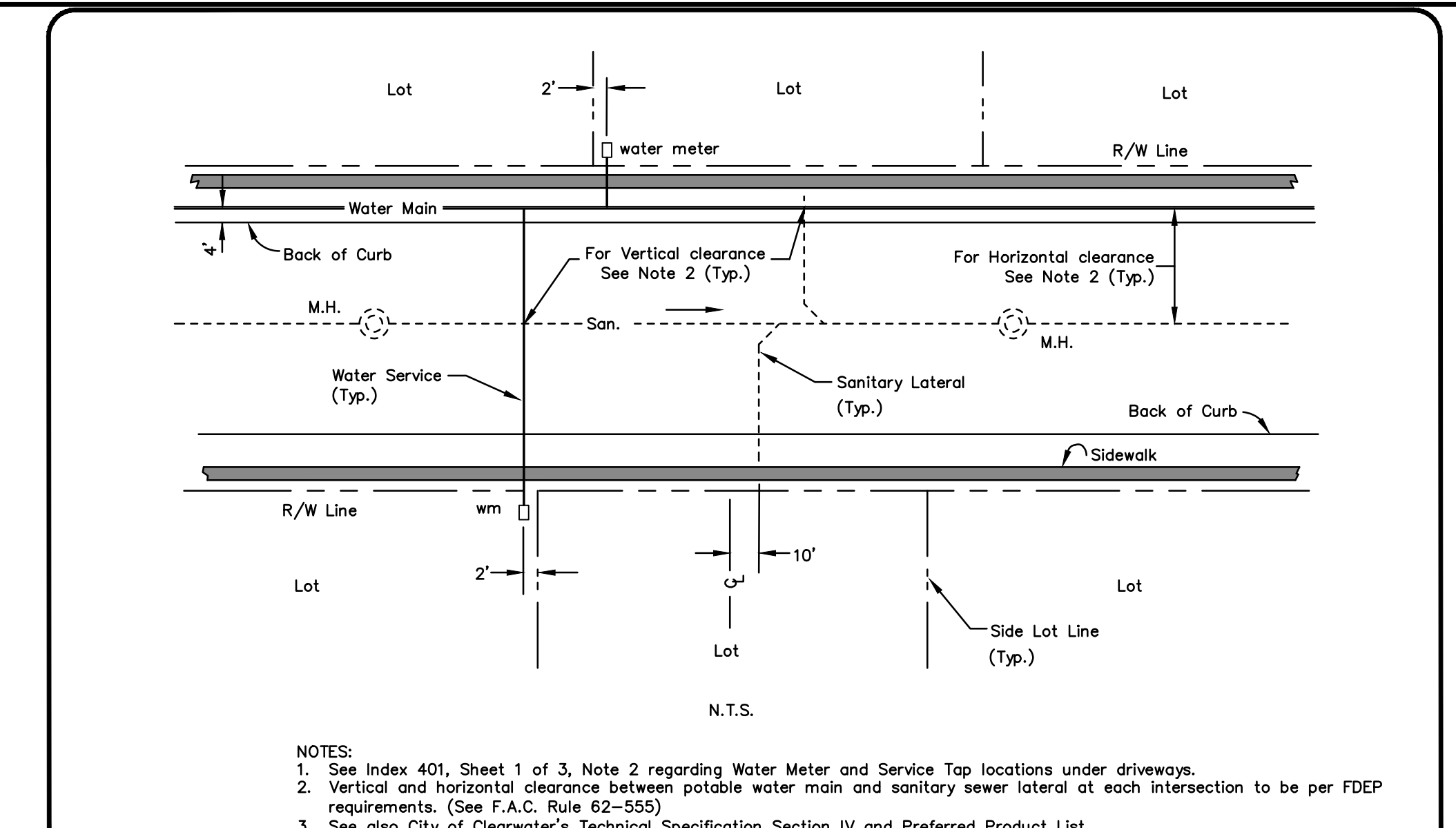
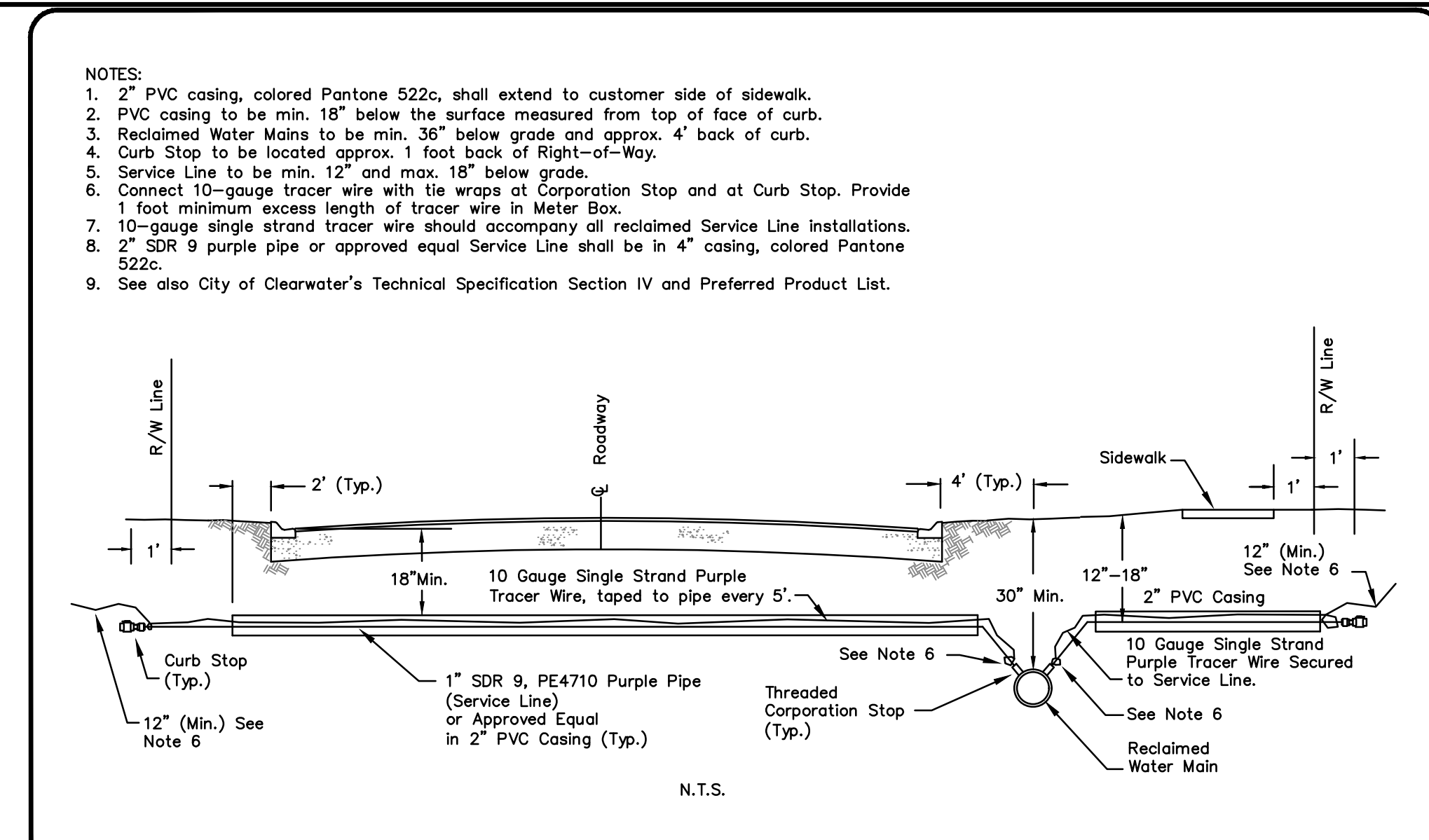
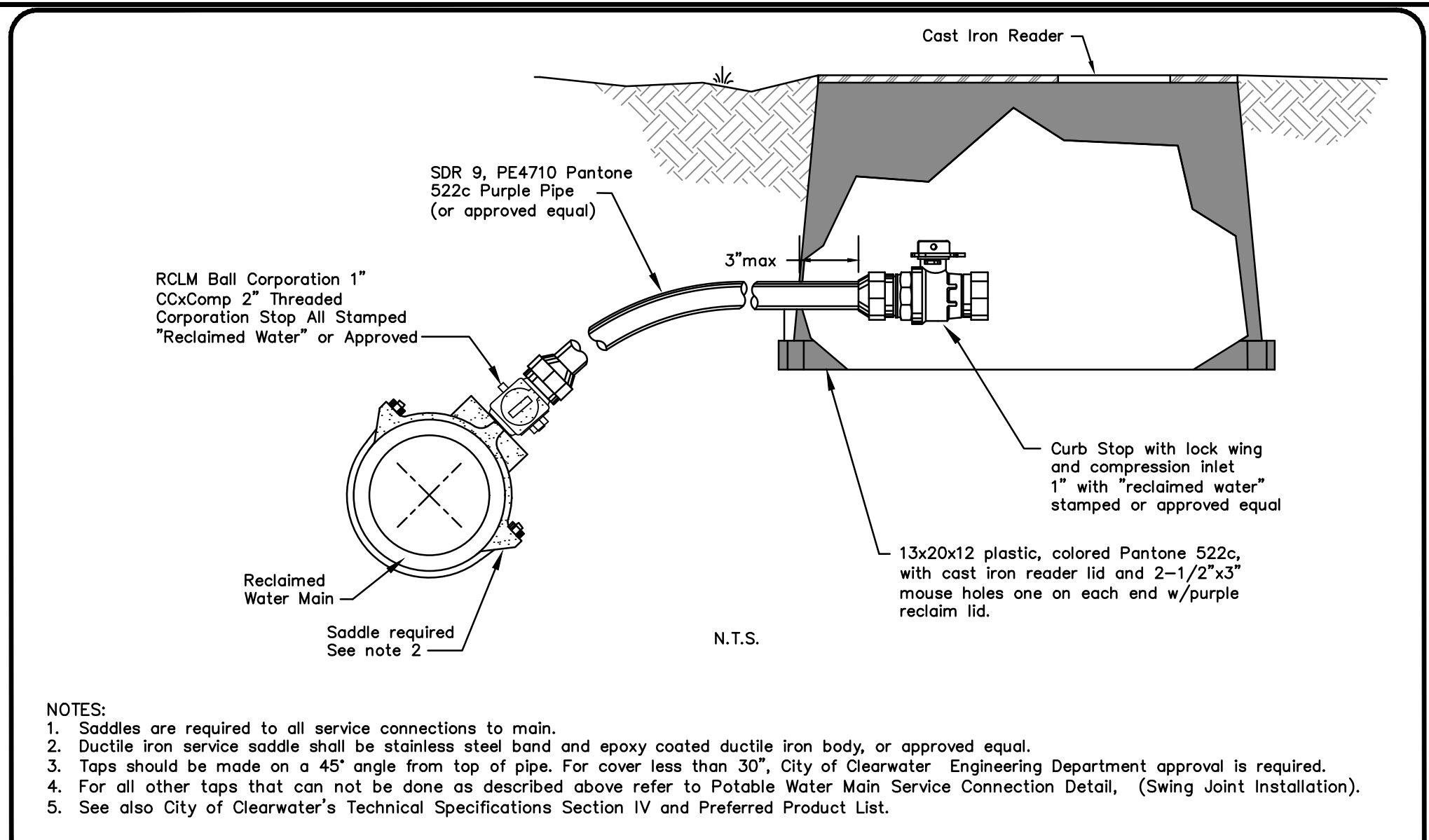
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 CITY OF CLEARWATER STANDARD DETAILS
 SANITARY SEWER AND RECLAIMED WATER

DWG NAME: C18 FIELD BOOK: N/A SURVEYED BY: N/A SCALE: VERT. AS NOTED
 CONTRACT NO.: 18-0040-UT Task 9 DATE DRAWN: 08/2021 DRAWN BY: HORIZ. AS NOTED
 JOB NO.: 102031 DESIGNED BY: CHECKED BY: SHEET NO.: 21 OF 24
 APPROVED BY: _____ DATE: 10/25/2021

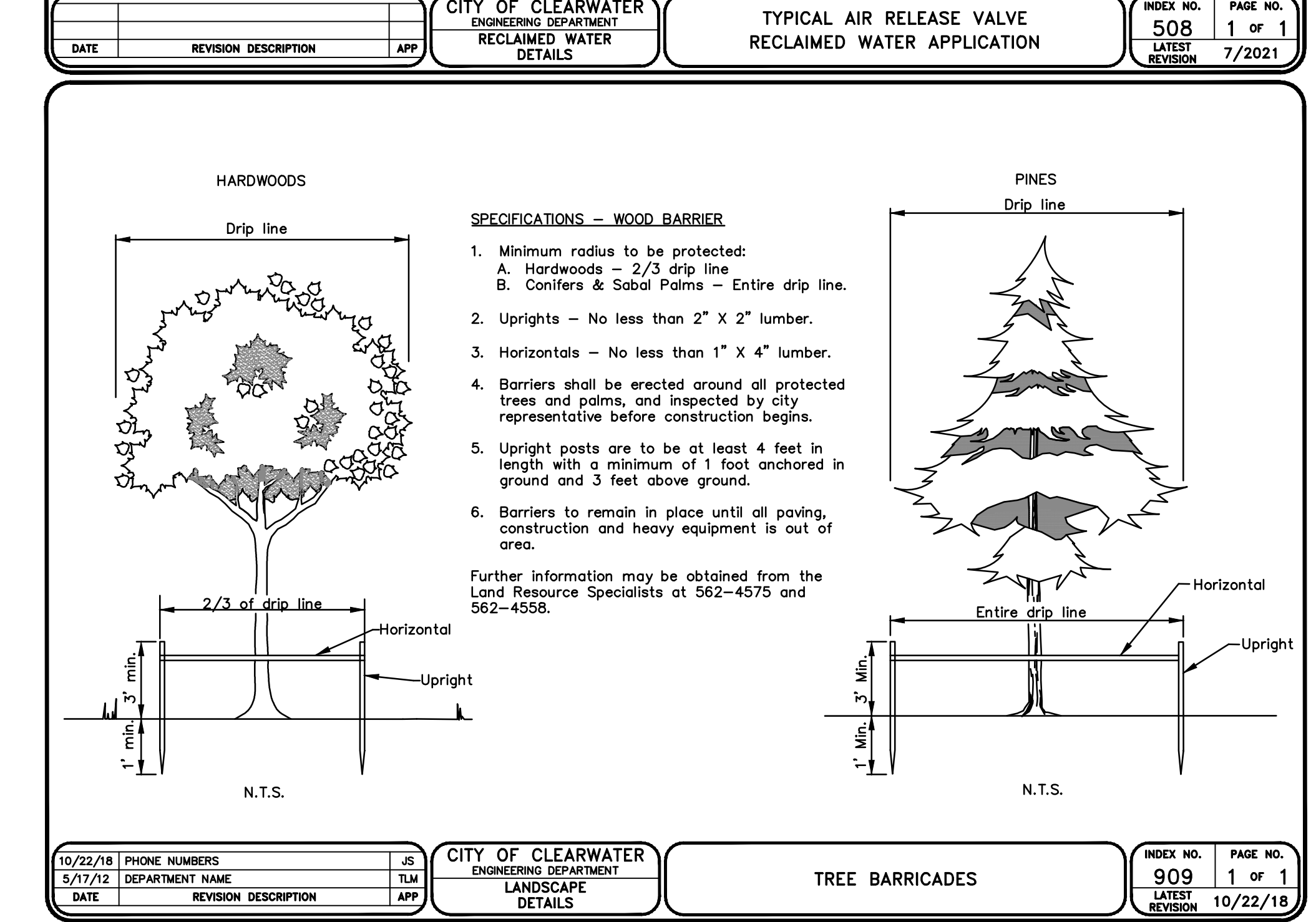
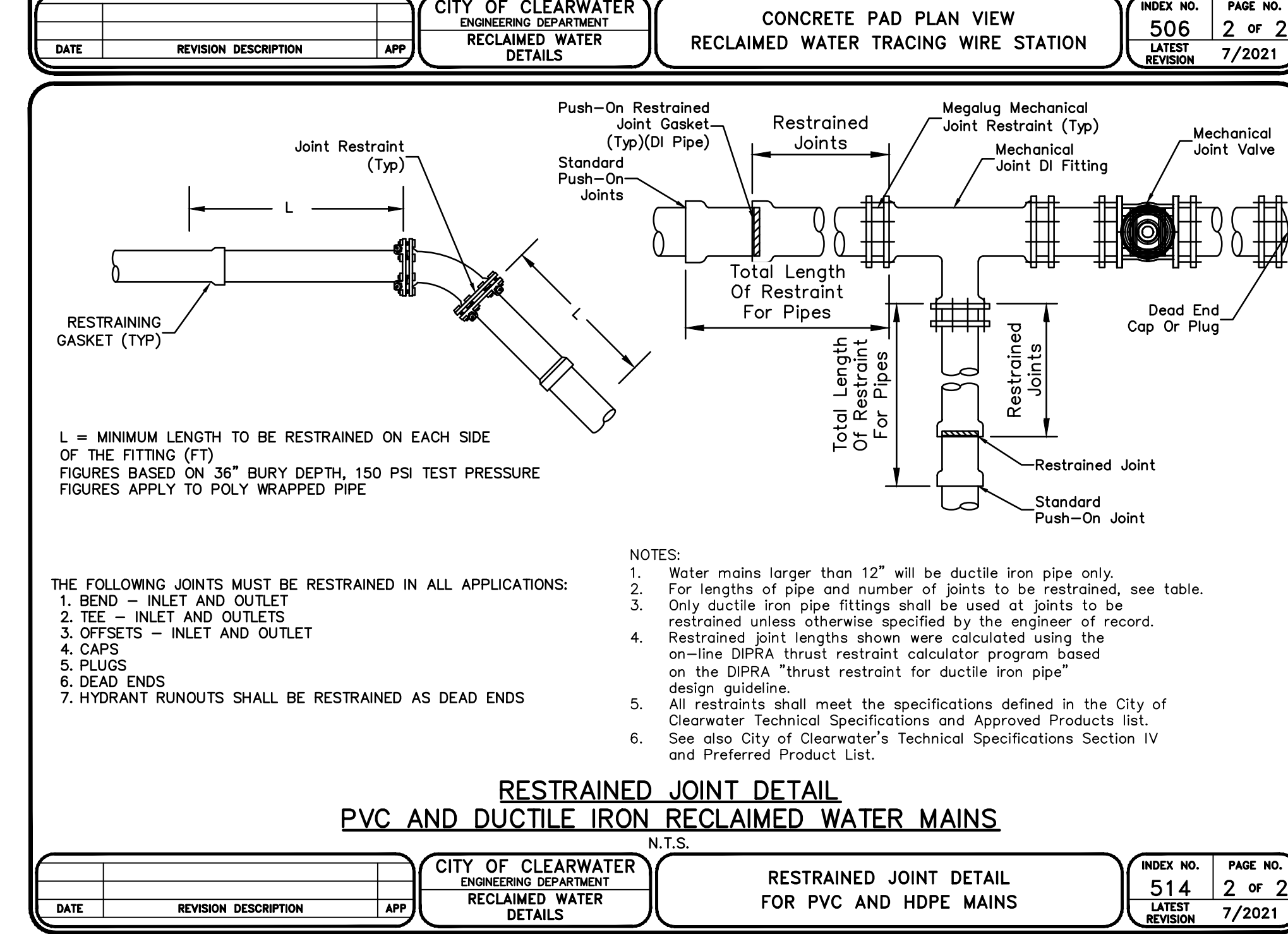
Individual File Path: V:\Projects\WSEFL112\11202000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C19



PVC PIPE, FEET		DUCTILE IRON PIPE, FEET	
PIPE SIZE		PIPE SIZE	
	4" 6" 8" 10" 12" 16" 20" 24"		4" 6" 8" 10" 12" 16" 20" 24"
11.25'	H-B 3 4 5 6 6 8 9 11 VU-B 3 4 5 6 6 8 9 11 VD-B 6 9 11 13 16 20 24 28 H-B 5 7 9 11 12 16 18 21	11.25'	H-B 2 3 4 5 6 7 8 9 VU-B 2 3 4 5 6 7 8 9 VD-B 5 6 8 10 11 14 17 20 H-B 5 6 8 9 11 13 16 18
22.5'	VU-B 5 7 9 11 12 16 18 21 VD-B 12 17 22 27 31 40 48 56 H-B 10 14 18 22 25 32 38 43	22.5'	VU-B 5 6 8 9 11 13 16 18 VD-B 9 12 16 19 22 28 34 39 H-B 9 12 16 19 22 27 33 37
45'	VU-B 10 14 18 22 25 32 38 43 VD-B 25 35 46 55 65 82 99 115 H-B 24 33 44 52 60 76 91 104	45'	VU-B 9 12 16 19 22 27 33 37 VD-B 18 25 32 39 45 58 69 81 H-B 21 29 37 44 52 65 78 90
90'	VU-B 24 33 44 52 60 76 91 104 VD-B 61 85 111 132 155 198 238 277 DEAD END PLUG & VALVE 61 85 111 132 155 198 238 277 TEE 61 85 111 132 155 198 238 277	90'	VU-B 21 29 37 44 52 65 78 90 VD-B 43 59 78 93 109 139 167 194 DEAD END PLUG & VALVE 43 59 78 93 109 139 167 194 TEE 43 59 78 93 109 139 167 194

RESTRAINED JOINT DETAIL PVC AND DUCTILE IRON RECLAIMED WATER MAINS

INDEX NO. 514, PAGE NO. 1 of 2, LATEST REVISION 7/2021



REVISION	DESCRIPTION	DATE	BY	DATE
C:100% PLANS PRELIMINARY		08/2021	VVV	
B:90% PLANS PRELIMINARY		06/2021	VVV	
A:60% PLANS PRELIMINARY		04/2021	VVV	

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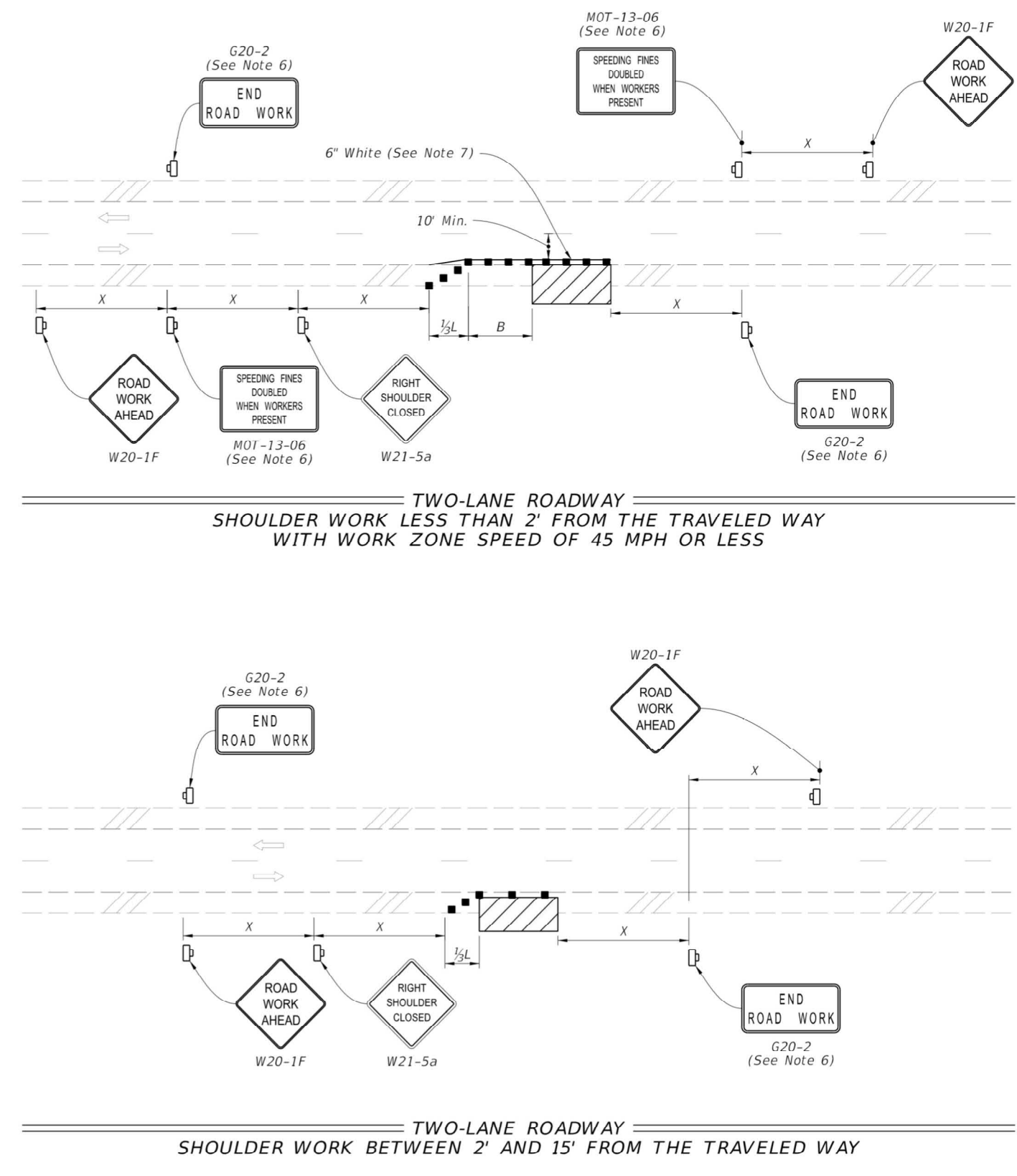
CITY OF CLEARWATER
RECLAIMED WATER PIPING IMPROVEMENTS
CITY OF CLEARWATER STANDARD DETAILS
RECLAIMED WATER AND LANDSCAPE

DWG NAME: C19	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 22 of 24
APPROVED BY:			DATE: 10/25/2021

Parent Sheet Set: 102031 - RCW Imp. Rev/PLOT by VANATTA, WOLET Rev on: 8/27/2021 12:05 PM Individual File Path: V:\Projects\WSFL112\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C20

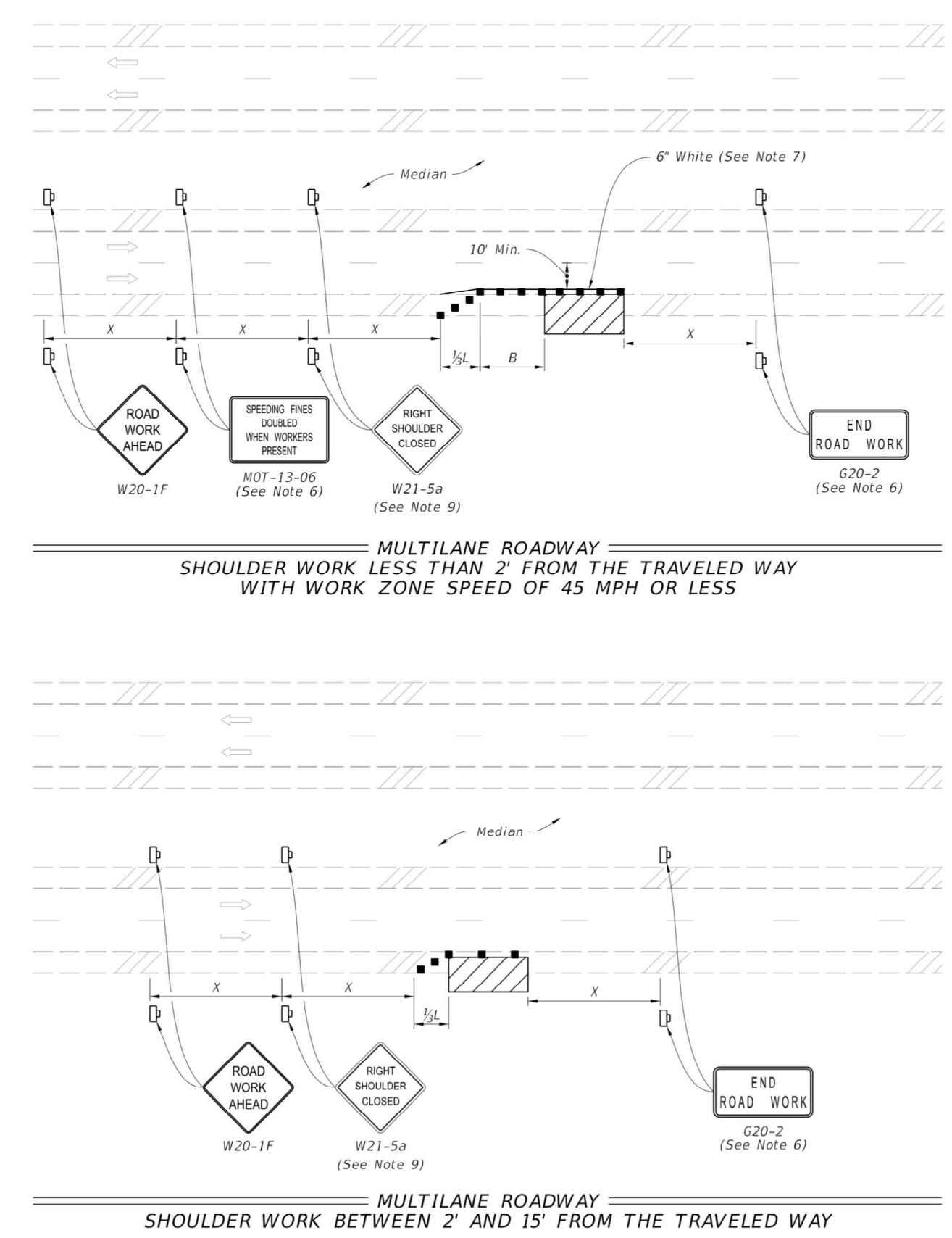
- NOTES:**
- This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
 - L = Taper Length
X = Work Zone Sign Spacing
B = Buffer Length
See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
 - For incidental work (e.g. mowing or litter removal), only the Road Work Ahead sign is required.
 - 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.
 - For work less than two feet from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
 - 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 temporary condition is in place for 24 hours or less.
 - Temporary pavement markings may be omitted when the work zone is in place for 3 days or less.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.
 - Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.

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



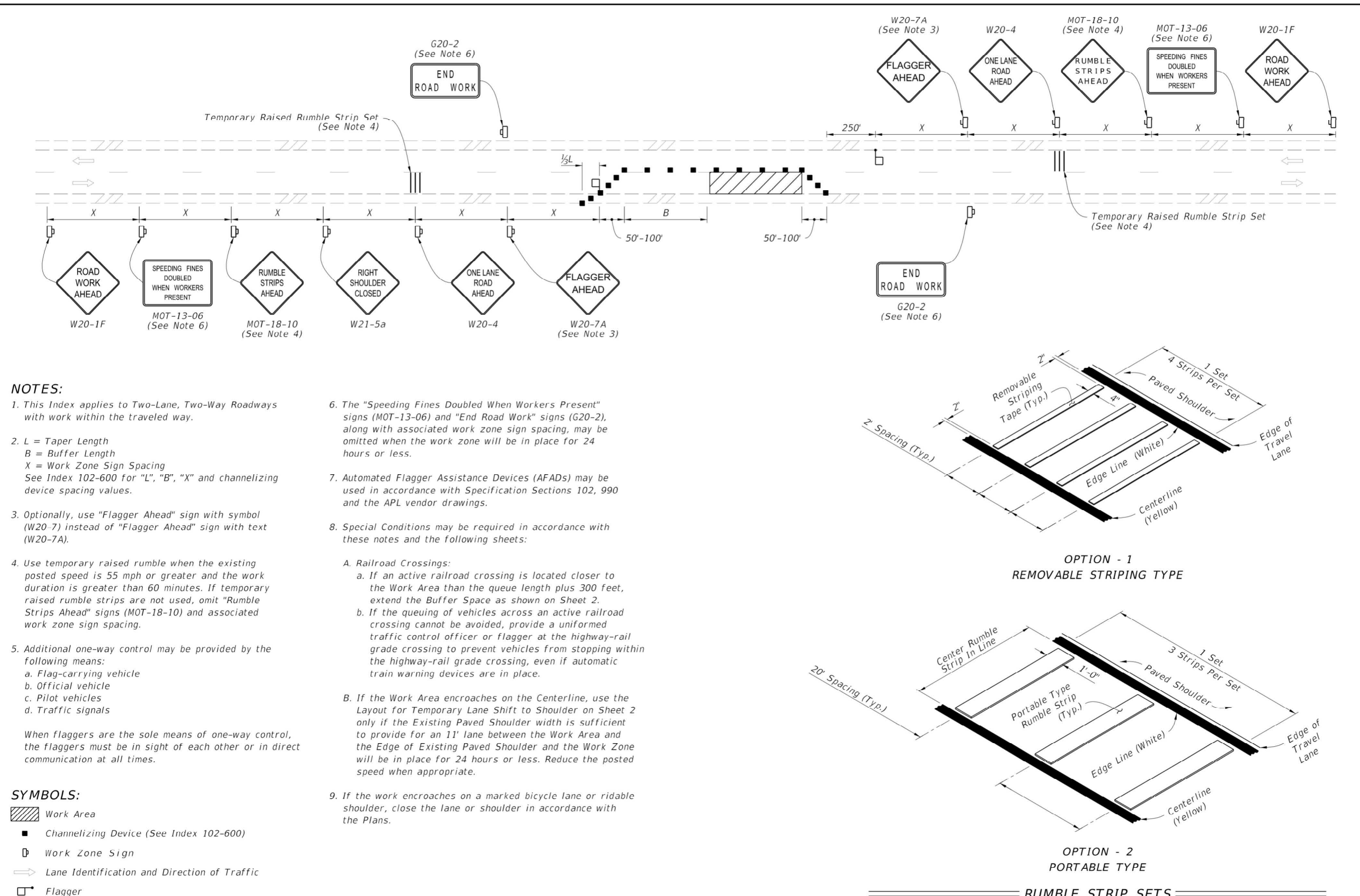
NOTE:
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- SYMBOLS:**
- Work Area
 - Channelizing Device (See Index 102-600)
 - Work Zone Sign
 - Lane Identification and Direction of Traffic



LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 1 of 2
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LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 2 of 2
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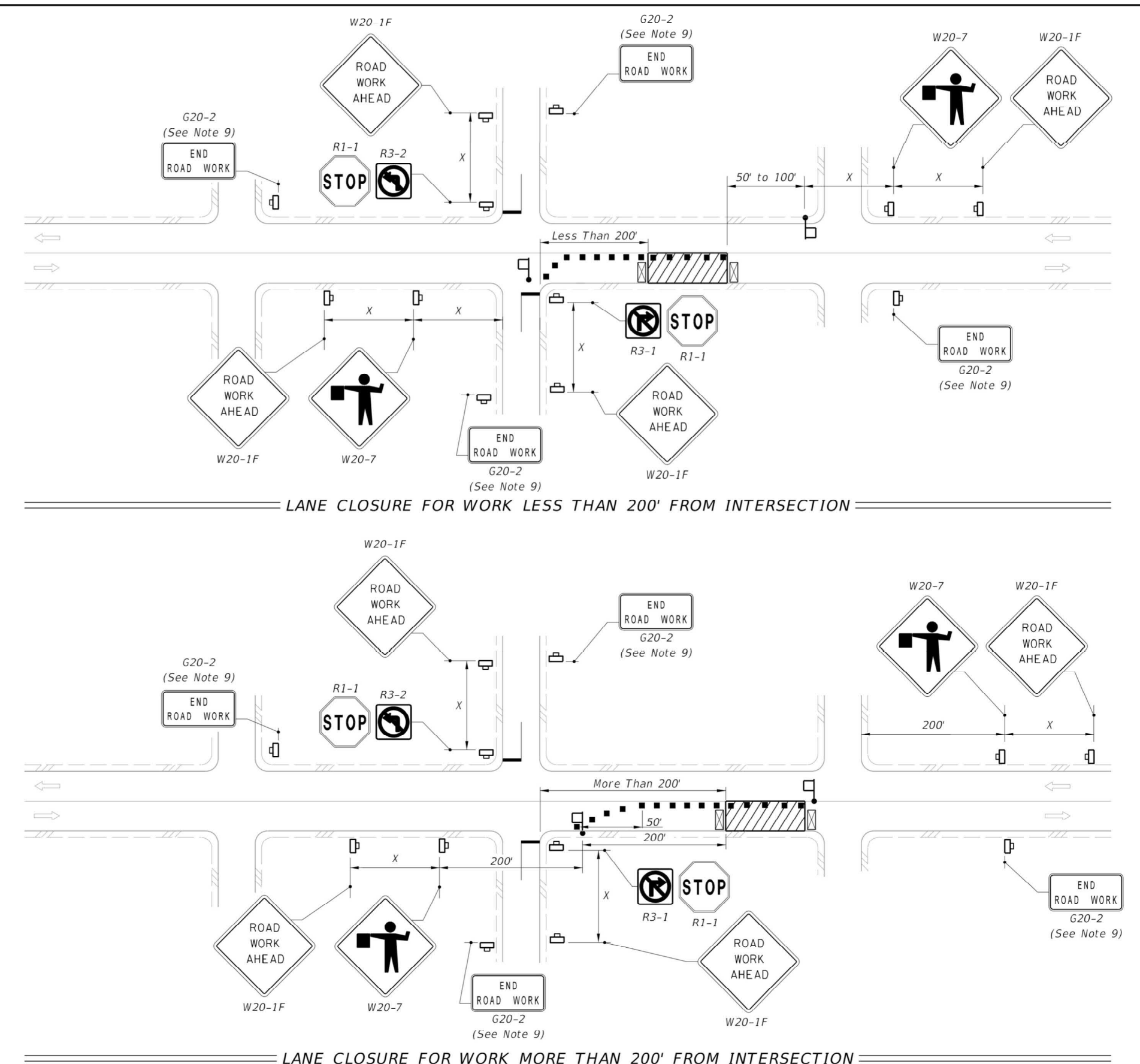


- NOTES:**
- This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
 - L = Taper Length
B = Buffer Length
X = Work Zone Sign Spacing
See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
 - Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
 - Use temporary raised rumble 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:
 a. Flag-carrying vehicle
 b. Official vehicle
 c. Pilot vehicles
 d. Traffic signals
 - When flaggers are the sole 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 zone 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.
 - Special Conditions may be required in accordance with these notes and the following sheets:
 A. Railroad Crossings:
 a. 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.
 b. 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.
 B. If the Work Area encroaches on the Centerline, use the Layout for Temporary Lane Shift to Shoulder on Sheet 2 only if the Existing Paved Shoulder width is sufficient to provide for an 11' lane between the Work Area and the Edge of Existing Paved Shoulder and the Work Zone will be in place for 24 hours or less. Reduce the posted speed when appropriate.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY WORK WITHIN THE TRAVEL WAY	INDEX 102-603	SHEET 1 of 2
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- 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 102-660.
 - District Traffic Operations Engineer must approve temporary signal phasing modifications prior to beginning of work.
 - 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 spacing may be omitted when the work zone will be in place for 24 hours or less.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.

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



LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 1 of 2
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RECORD DRAWINGS		REVISION	
SURVEYED BY:	DRAWN BY:	BY	DATE
		VVV	08/2021
		VVV	06/2021
		VVV	04/2021

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 FDOT FY 2021-22 STANDARD PLANS DETAILS

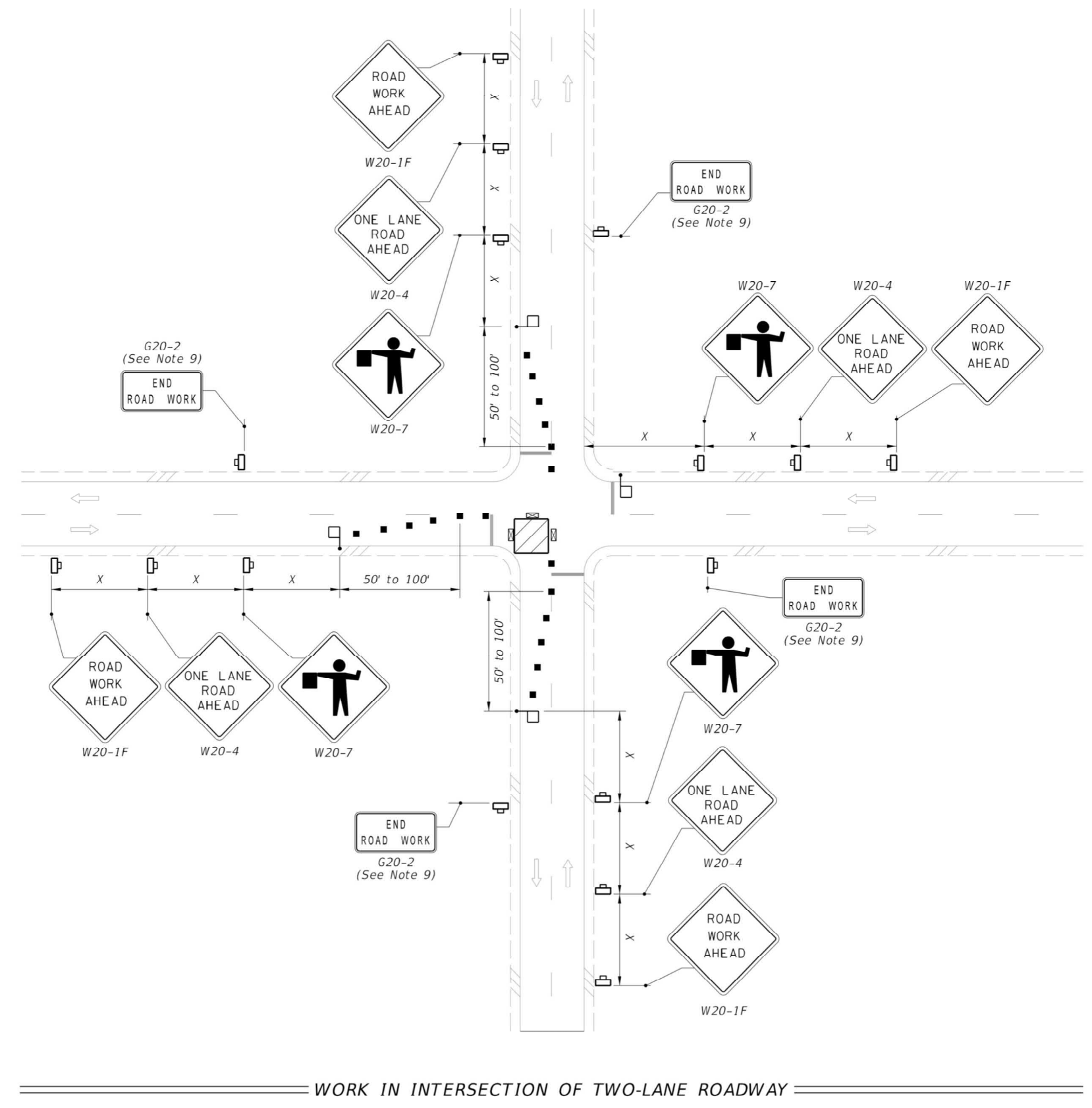
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CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 23 OF 22
APPROVED BY:			

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 3507 EAST FRONTAGE ROAD SUITE 100
 TAMPA, FL 33607
 TEL: (813) 549-8919
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2021-H-799-00458
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Parent Sheet Set: 102031-RCW Imp. Rev/Plot by: VANATTA, WOLET Rev on: 8/27/2021 12:20 PM Individual File Path: V:\Projects\102000 Clearwater\00_Projects\102031 - Reclaimed Water Pipe Improvements\60_Design\04_Drawings\01_CAD\C21

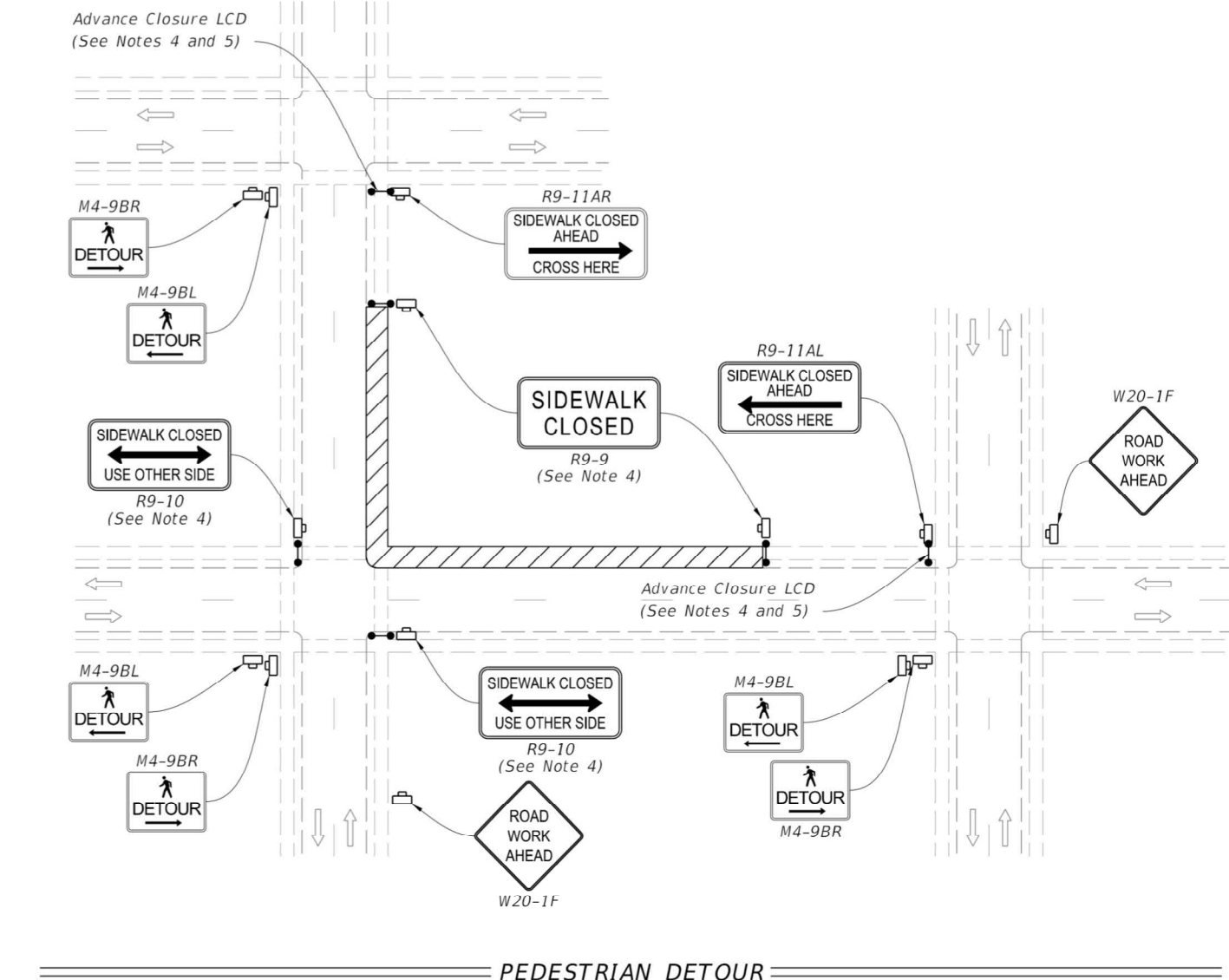
- SYMBOLS:**
- Work Area
 - Channelizing Device (See Index 102-000)
 - Type III Barricade
 - Work Zone Sign
 - Stop Bar
 - Lane Identification and Direction of Traffic
 - Flagger or Traffic Control Officer (TCO)



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.

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 2 of 2
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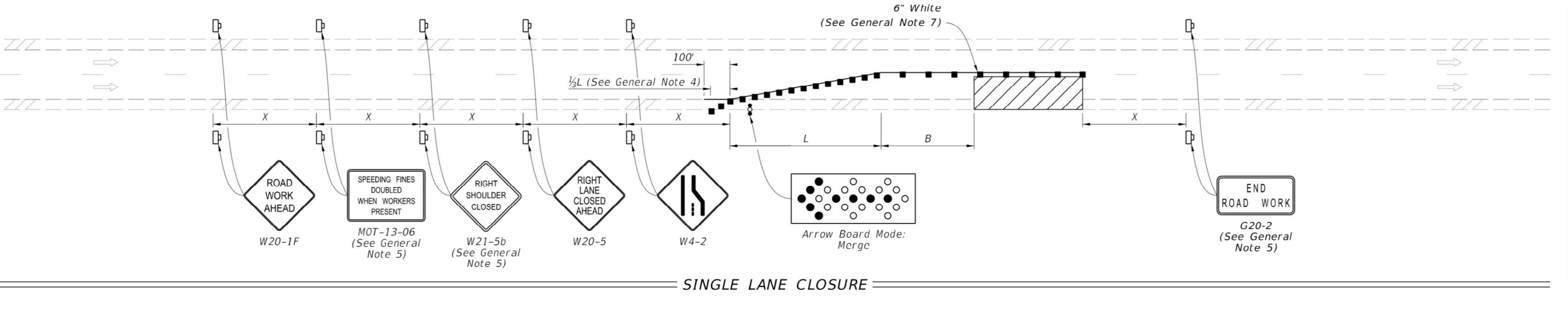
- NOTES:**
- Cover or deactivate pedestrian traffic signal displays controlling closed crosswalks.
 - Place pedestrian LCDs across the full width of the closed sidewalk.
 - For post mounted signs located near or adjacent to a sidewalk, maintain a minimum 7' clearance from the bottom of the sign panel to the surface of the sidewalk.
 - "Sidewalk Closed" signs (R9-XX) may be mounted on pedestrian LCDs in accordance with the manufacturer's instructions.
 - Omit the Advance Closure LCD if it blocks access to other pedestrian facilities (e.g., transit stops, residences, or business entrances).



- SYMBOLS:**
- Work Area
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Pedestrian Longitudinal Channelizing Device (LCD)

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 1 of 2
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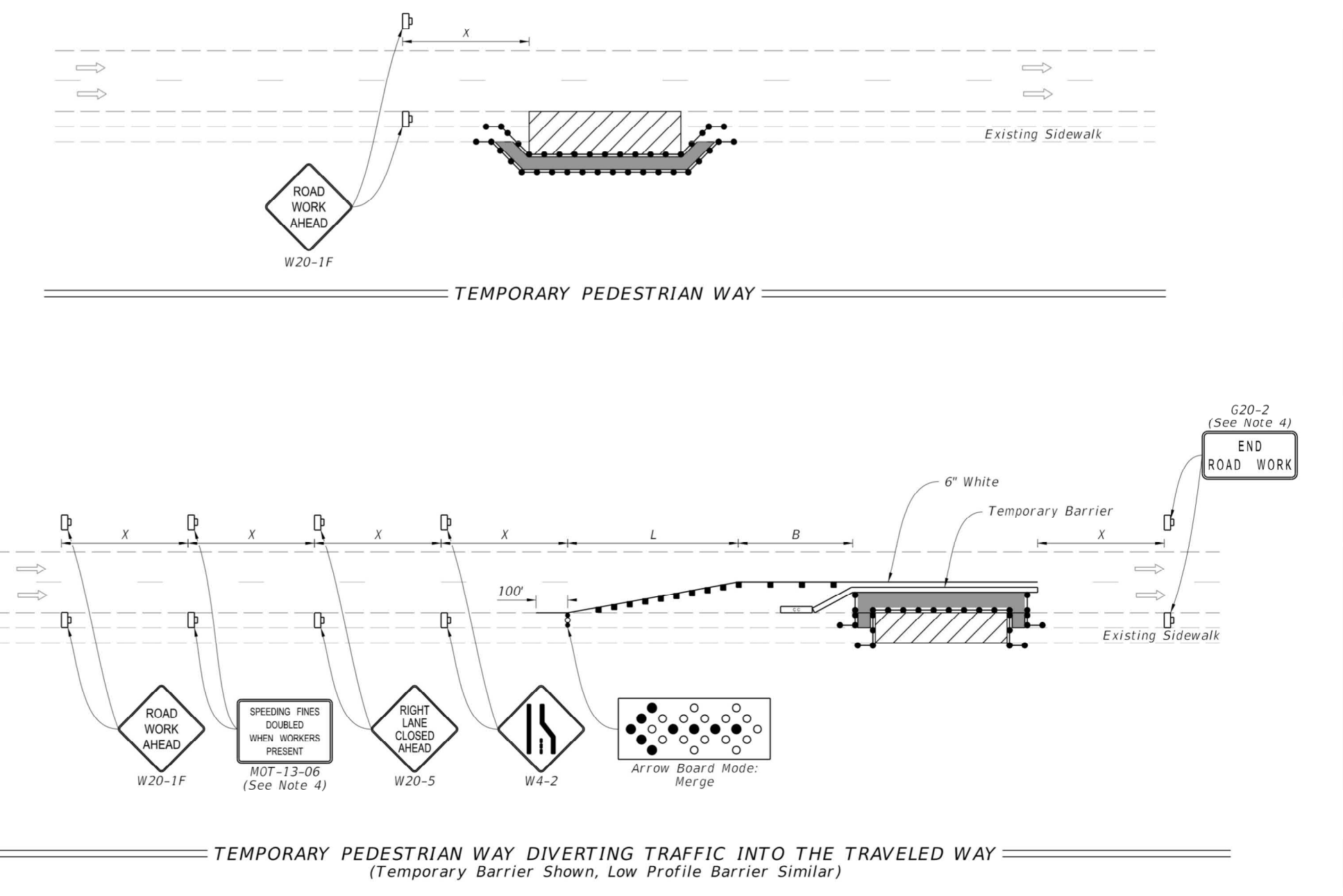
- SYMBOLS:**
- Work Area
 - Channelizing Device (See Index 102-600)
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Arrow Board



- 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.
 - On undivided highways the median signs as shown are to be omitted.
 - On limited access facilities, omit "Shoulder Closed Ahead" signs (W21-5b) and associated work zone sign spacing distances.
 - If the paved shoulder is less than 4' in width, omit the taper and channelizing devices from the paved shoulder.
 - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2) and "Shoulder Closed Ahead" (W21-5b), along with associated work zone sign distances, may be omitted when the work zone 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 zone will be in place for 60 minutes or less and the speed limit is 45 mph or less.
 - Use inverted plan of the illustrations for work on left side of roadways.
 - Temporary pavement markings may be omitted when the work zone is in place for 3 days or less.
 - If the work encroaches on a marked bicycle lane or rideable shoulder, close the lane or shoulder in accordance with the Plans.

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX 102-613	SHEET 1 of 5
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- NOTES:**
- L=Taper Length
B=Buffer Length
X=Work Zone Sign Distance
See Index 102-600 for "L", "B", "X", channelizing device spacing values.
 - Provide a 5' wide temporary pedestrian way with a maximum cross-slope of 0.02, except where space restrictions warrant a minimum width of 4". Provide a 5' x 5' passing space for temporary pedestrian ways less than 5' in width at intervals not to exceed 200'.
 - When temporary pedestrian ways require curb ramps, meet the requirements of Index 522-002. Detectable warnings are not required for curb ramps diverting pedestrian traffic into a closed lane.
 - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone will be in place for 24 hours or less.



- SYMBOLS:**
- Work Area
 - Temporary Pedestrian Way
 - Channelizing Device (See Index 102-000)
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Pedestrian Longitudinal Channelizing Device (LCD)
 - Arrow Board
 - Crash Cushion

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 2 of 2
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RECORD DRAWINGS

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

C:100% PLANS PRELIMINARY	VVV	08/2021
B:90% PLANS PRELIMINARY	VVV	06/2021
A:60% PLANS PRELIMINARY	VVV	04/2021
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DWG NAME: C21	FIELD BOOK: N/A	SURVEYED BY: N/A	SCALE: VERT. AS NOTED
CONTRACT NO.: 18-0040-UT Task 9	DATE DRAWN: 08/2021	DRAWN BY:	HORIZ. AS NOTED
JOB NO.: 102031	DESIGNED BY:	CHECKED BY:	SHEET NO.: 24 OF 24
APPROVED BY: _____			

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 CERTIFICATE OF AUTHORIZATION #28386

Approved
 2021-H-799-00458
 DATE: 10/25/2021

GEOTECHNICAL SOIL REPORT

**REPORT OF THE
GEOTECHNICAL INVESTIGATION**

**RECLAIMED WATER PIPING IMPROVEMENTS
LOOPING PROJECT
CLEARWATER, FLORIDA**

June 28, 2021

CHA Consulting, Inc.
3507 E. Frontage Road
Suite 180
Tampa, Florida 33607

Attention: Mr. Weston Haggen, P.E.

**RE: Report of the Geotechnical Investigation
Reclaimed Water Piping Improvements
Looping Project
Clearwater, Florida
Our File: DES 218741**

Dear Mr. Haggen:

In accordance with your authorization, **DRIGGERS ENGINEERING SERVICES, INC.** has conducted an investigation of subsurface conditions along the alignments of the proposed piping. The results of our field and laboratory studies are included herein together with a discussion of our findings and associated geotechnical design and construction considerations.

FIELD INVESTIGATION PROGRAM

There are three (3) separate sections of new piping. The first area is along Druid Road (Area A) where five (5) borings were conducted. The second area is along N. Martin Luther King Jr. Ave (Area B) where two (2) borings were performed. The last area is a portion of Fairmont St. (Area C) where two (2) borings were also completed. The requested locations for all the borings were depicted on the plans provided for our use. Please refer to Plates I-A through I-I of the attachments for the approximate boring locations. Some minor offsets from the requested locations were also necessary. The borings were advanced to a nominal depth of 20 feet below grade. The approximate elevation at each test boring location was estimated based on the general ground surface elevation information provided on the 60% plans.

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Clearwater

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clwoffice@driggers-eng.com

Spring Hill

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Fax: 727.471.6653
sphilloffice@driggers-eng.com

The Standard Penetration Test borings were performed in general accordance with ASTM D-1586. Please note that the upper 6 feet of the soil profile at each location was hand augered to minimize the potential for any damage to utilities that may not have been identified by the utility locate service or identified on the preliminary plan set provided for our use. The classification borings also had the advantage of providing a virtually continuous log of subsurface conditions within the upper 6 feet. Hand cone soundings were conducted within the upper hand augered portion at each location.

Individual logs of the Standard Penetration Test borings are included in the report attachments reflecting visual together with estimated Unified Soil Classification (USCS) and AASHTO Soil Classification. The test boring logs also present tabulated and graphically plotted Standard Penetration resistance values corresponding to each sample interval. Please note that the graphical plotting of penetration resistance values is for the purpose of providing a visual aid for reviewing the test boring results. The lines connecting the data points are for ease of interpretation and do not imply a linear variation in soil properties. A brief description of the Standard Penetration Test method of sampling is appended for the interested reader. Following completion of the Standard Penetration Test borings the boreholes were grouted to provide protection against any future subsidence.

LABORATORY INVESTIGATION

A laboratory classification testing program was undertaken to aid in characterizing the engineering properties of the subsurface soils. Our laboratory tests included seven (7) grainsize analyses, two (2) organic content tests and six (6) Atterberg Limits determinations. The total combined silt and clay fraction (percent finer than No 200 sieve) was also determined for the Atterberg Limits samples. The results of our laboratory tests are included in the report attachments. Also provided in the attachments are the graphical representations of the individual grainsize analyses.

GENERALIZED SURFACE AND SUBSURFACE CONDITIONS

SITE TOPOGRAPHY - The surface topography of the proposed alignment varies somewhat throughout the length of the segment. Based on the information provided, moderate topographic relief occurs along Druid Rd. from a high elevation of about EL +45± feet (NAVD) at the western end of the project to a low of about EL +22± feet at the eastern end of the project limits. Throughout the limits of the improvements along Dr. Martin Luther King Jr. Ave., the ground

elevations range from about EL +30± feet at the northern end to about EL +35± feet at the southern end. The ground surface elevations along the limited stretch of improvements on Fairmont St. range from about EL +12± feet at the western end to EL +8± feet at the eastern end.

SOIL CONDITIONS - The borings were conducted within the grassed right of way off the edge of pavement. The soil types varied throughout the investigation areas. The borings along the Druid Ave portion (B-1 through B-5) identified fine sands with trace silt fines content within the upper 6 to 14 feet below grade. These soils typically comprised the SP to SP-SM Unified Soil Classification System designation or the A-3 AASHTO Soil Classification. You will note that a dark gray highly organic zone was noted from about 4 to 6 feet at boring B-5. Below these depths the borings along this alignment encountered low to moderate plasticity silty and clayey sands representing the SM or A-2-4 to SC or A-2-6 designations with layers of high plasticity clays representing the CH or A-7-6 designation.

The two (2) borings along N Martin Luther King Jr. Ave (B-6 and B-7) encountered primarily fine sands (SP or A-3) to slightly silty fine sands (SP-SM or A-3) below the surficial vegetation and near surface organic soils with some cementation likely in B-6 to depths of about 12 to 14 feet. The upper sands were underlain by soils with increased silt and clay fines representing the SM to SC or A-2-4 to A-2-6 designations.

The borings conducted along Fairmont St (B-8 and B-9) identified fine sands (SP or A-3) to silty fine sands (SM to A-2-4) to depths of 6 to 14 feet. At boring B-9, a transitional clayey sand layer (SC or A-2-6 to A-7-6) was noted in the interval from about 6 to 10 feet followed by clay (CH or A-7-6) to the completion depth of the boring. At boring B-8, a sandy clay (CH or A-7-6) was sampled below the sands to the completion depth of the boring.

Hand cone and Standard Penetration resistance data throughout all the borings indicates primarily a loose to medium dense relative density throughout the sands and silty to clayey sands within the boring profiles. Very dense and potentially cemented soils were noted from 8 to 12 feet in boring B-6. The predominantly clay soils exhibited a stiff to hard consistency.

GROUNDWATER CONDITIONS - Groundwater was encountered during the course of our investigation at depths ranging from 3.7 to 11.8 feet below grade. The differences in the depth to groundwater are somewhat attributable to the variability in surface topography. You will also note that our groundwater observations were generally obtained during a period of minimal rainfall in the latter part of the typical dry season. Groundwater levels are influenced throughout the year in response to rainfall intensity.

The soils throughout the investigation areas vary somewhat based on our review of the USDA Natural Resources Conservation Service (NRCS) maps. Soil series depicted range from Myakka soils which are characterized by seasonal high groundwater levels between 6 and 18 inches to Astatula soils with depth to groundwater greater than 7 feet below grade. All the soil types noted also have an urban land designation, as might be expected given the developed nature of the sites. Urban land soils are generally not characterized with specific seasonal high groundwater levels because of the variability in subsurface soils due to historic cutting, filling and backfilling. Therefore, they do not lend themselves to a typical soil profile.

The following table depicts our estimates of the normal seasonal high groundwater elevations at each boring location along the alignment. However, groundwater could certainly temporarily rise above these predicted normal seasonal high groundwater levels following very heavy rainfall during the summer wet season months as well as following major storm events.

SUMMARY OF GROUNDWATER OBSERVATIONS

Test Location	Approximate Ground Elevation (ft - NAVD)	Depth to Groundwater (ft)	Approximate Current Groundwater Elevation (ft - NAVD)	Estimated Normal Seasonal High Groundwater Elevation (ft - NAVD)
B-1	41.6±	11.0	30.6±	+34.0
B-2	31.3±	11.8	19.5±	+24.5
B-3	34.6±	8.0	26.6±	+30.0
B-4	31.1±	5.3	25.8±	+29.5
B-5	22.5±	4.5	18.0±	+24.0
B-6	31.8±	6.2	25.6±	+29.5
B-7	34.7±	7.5	27.2±	+31.0
B-8	11.4±	5.7	5.7±	+9.5
B-9	8.7±	3.7	5.0±	+7.5

GEOTECHNICAL EVALUATION AND RECOMMENDATIONS

PLANNED IMPROVEMENTS - The three (3) work areas along Druid, MLK and Fairmont will consist of construction of 8-inch to 4-inch PVC Reclaimed Water Mains. In general, it is expected that the pipes will be installed by open cut direct embedment with a nominal 3 to 4 feet

of cover as well as by horizontal directional drilling (HDD) methods. However, pipe invert depths on the order of 6 feet are also expected along the alignment so as to avoid existing utilities.

PIPE SUBGRADE CONDITIONS - In general, our geotechnical investigation indicates that the subgrade soils within the depths contemplated for water main construction consist predominantly of sandy soils comprising the SP to SP-SM Unified Soil Classification and the AASHTO A-3 classification. These soils should generally provide suitable subgrade support with routine subgrade preparation in accordance with applicable City specifications. Moisture contents should be controlled to within $\pm 2\%$ of optimum to facilitate stability and compaction. Pipe settlement is expected to be limited to less than 1 inch and the settlement should occur quickly following backfill placement. Subgrade conditions within portions of the alignment may occur within moderate to increased plasticity clayey sands and sandy clays representing the A-7-6 AASHTO designation. In these areas, it is our recommendation that the clayey soils be undercut a minimum of 12 inches followed by placement of a compacted gravel. Where gravel may be incorporated, we recommend that the gravel consist of an FDOT No. 57 gravel. The gravel shall be completely wrapped (bottom, sides and top) with a geotextile fabric corresponding to a Tencate (Mirafi) 140N, or equivalent. This fabric should be overlapped a minimum of 24 inches. This gravel bedding would also provide a drainage blanket to assist in the collection of groundwater and surface water during and after construction.

Your attention is also directed to boring B-5 that identified a highly organic layer near the approximate invert elevation of the proposed pipe. This layer could be very isolated. However, where highly organic soils occur at or below the bottom of the excavation, the materials should be removed to the full vertical extent plus a margin of at least 2 feet outside the perimeter of the pipe.

SUITABILITY OF EXCAVATED SOILS FOR USE AS BACKFILL - In general, the soils excavated for pipe embedment would be suitable from a geotechnical perspective for re-use as compacted backfill with proper moisture control and compaction. Commonly, these soils consisted of fine sands and slightly silty sands with small amounts of organic fines representing the SP to SP-SM or A-3 designations. The silty (A-2-4) soils which have more than about 12 percent and less than 35 percent fines would also be considered suitable from a geotechnical perspective. However, specification requirements may be more stringent and these soils may not be considered acceptable. Where permissible to utilize, it should be recognized these A-2-4 materials will likely occur in an elevated moisture content which may require aeration and processing to bring the moisture content of the soils to levels suitable for compaction. These types of soil may require some spreading and mechanical aeration as they commonly do not effectively

drain and dry efficiently within a stockpile. In this regard, it is recommended that the moisture contents be controlled to within $\pm 2\%$ of optimum moisture as established by the Modified Proctor moisture-density relationship.

Soils containing even trace amounts of organic fines also tend to be moisture sensitive and thus, will require appropriate earthwork management to control moisture contents to levels suitable for placement and compaction. Highly organic materials and moderate to high plasticity clayey soils representing the A-2-6 and A-7-6 designations would not be considered suitable as backfill placement.

GEOTECHNICAL CONSTRUCTION CONSIDERATIONS - We would expect open excavations will be utilized over most of the shallow pipeline alignment portion. Where open excavations are contemplated, the contractor should comply with all the applicable City Standards for pipe construction. However, based on the soil types encountered, we would recommend construction side slopes no steeper than 1.5 horizontal to 1 vertical provided that effective dewatering is developed and maintained during the excavation and backfilling operations. Naturally, the contractor must also comply with applicable OSHA trench safety requirements. Considering the location of the alignment will occur within or within close proximity to the actual roadway, it is likely that trench box methodologies may be utilized for areas requiring deeper direct embedment. Where implemented, techniques should be utilized so as to minimize any vibrations and disturbance of previously placed piping, back fill and existing utilities during installation and advancement of the trench box.

Depending on the time of year of construction and rainfall, groundwater is expected to occur within the planned excavation depths along at least some of the alignment and will necessitate proper control and management during construction. We recommend that groundwater be lowered to a depth of no less than 12 inches below the excavation bottom. We would anticipate that wellpoints would generally be appropriate throughout the majority of the direct embedded pipe alignment provided that the wellpoints are properly designed and installed with appropriate filter media to facilitate dewatering. The utilization of fully slotted wellpoint screens and drawdown tubes is often beneficial when pre-draining stratified soils. Considering the potential stratified nature of these subsurface soils, we would strongly recommend the contractor retain a qualified dewatering consultant to assist in developing an effective dewatering plan which would likely incorporate well points on both sides of the excavation. We would also recommend the installation of shallow piezometers along the dewatered portions to check that groundwater is being sufficiently lowered.

Depending upon the ways and means of construction, portions of the pipeline alignment may occur in close proximity to existing utilities. The contractor must, therefore, exercise due care in the protection of these facilities so as to avoid any deformation or damage. We would certainly recommend that elevations be established on the existing utilities and that elevations be carefully monitored during all excavation and construction activities to detect any movements that might signal a need for a modification in the ways and means of construction. Clearly, techniques that would involve significant vibration such as vibratory sheeting installation and extraction or heavy vibratory compaction equipment should be avoided. Compaction of backfill in such areas should be performed utilizing relatively light hand-guided vibratory compaction equipment in thin lifts not in excess of 6 inches so as to achieve uniform compaction consistent with the equipment selected for compaction.

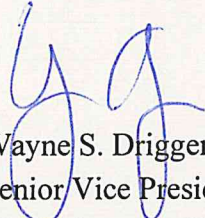
In view of the generally widely spaced pattern of test borings, careful geotechnical inspection will be critical during the construction stage. Accordingly, it is our recommendation that a representative of the project geotechnical engineer be retained to monitor the pipeline construction activity to detect areas that may warrant special treatment or remediation. Appropriate compaction tests should also be performed as required by project specification requirements that should comply with applicable City specifications.

HORIZONTAL DIRECTIONAL DRILL (HDD) - The maximum depth of the HDD portions are to be about 10 to 15 feet below surrounding grade. This will put the HDD generally within sands and clayey sands. During the horizontal directional drilling operations, the contractor should exercise appropriate ways and means to minimize any potential for an escape of drilling fluids to the surface (fracking) or the development of excessive fluid pressures that could result in damage or displacement of structures and utilities, and yet maintain a stable borehole to prevent collapse of overburden soils.


LIMITATIONS - Our geotechnical investigation was conducted for the purpose of investigating generalized subsurface conditions to assist in the design of the planned pipeline and to provide general information for use in construction. Our investigation may not have included development of all subsurface soils information that may be needed by the perspective contractor in the development of his construction procedures. The contractor is certainly encouraged to conduct such additional investigation as they may deem necessary to qualify their bid proposal.

DRIGGERS ENGINEERING SERVICES, INC. appreciates the opportunity to be of service to you on this project. Should you have any questions or require further assistance at this time, please do not hesitate to contact the undersigned at your convenience.

Respectfully submitted,
DRIGGERS ENGINEERING SERVICES, INC.


Wayne S. Driggers, P.E.
Senior Vice President
FL Registration No. 58013




F. Jaime Driggers, P.E.
President
FL Registration No. 16989

WSD-REP\218741
Copies submitted: (1)

APPENDIX

PLATE I-A THROUGH I-I – BORING LOCATION PLAN

STANDARD PENETRATION TEST BORINGS

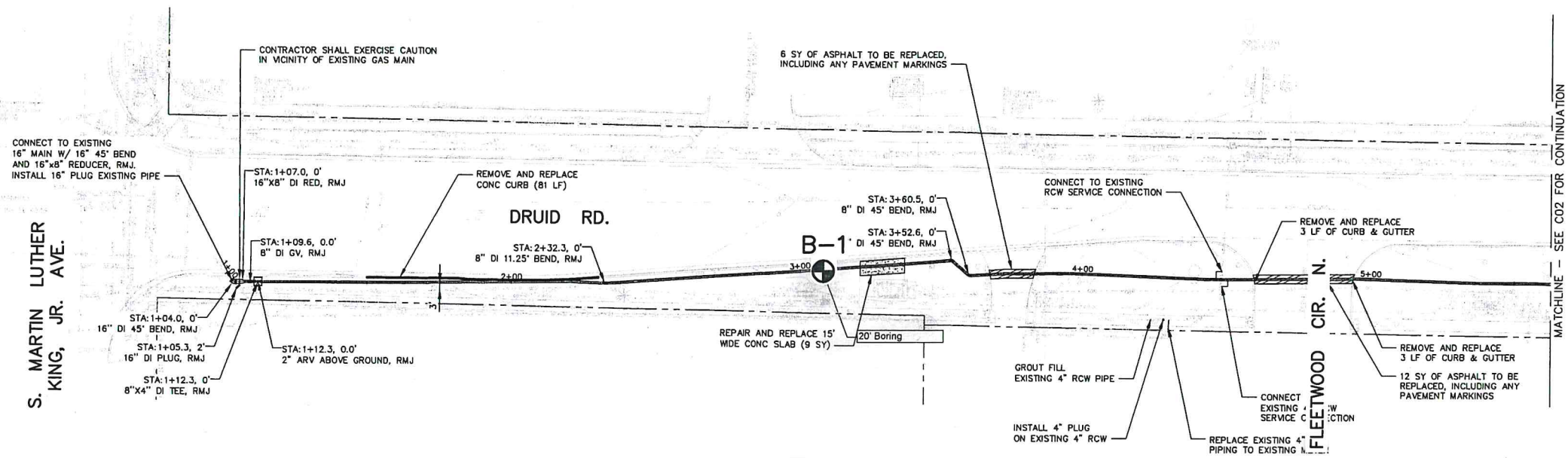
HAND AUGER BORING / HAND CONE SOUNDING LOGS

SUMMARY OF LABORATORY TEST RESULTS

GRAINSIZE ANALYSES

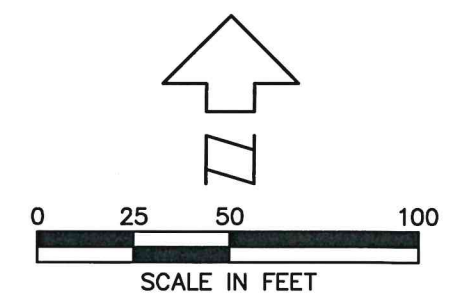
METHOD OF TESTING


PLATE I-A THROUGH I-I – BORING LOCATION PLAN

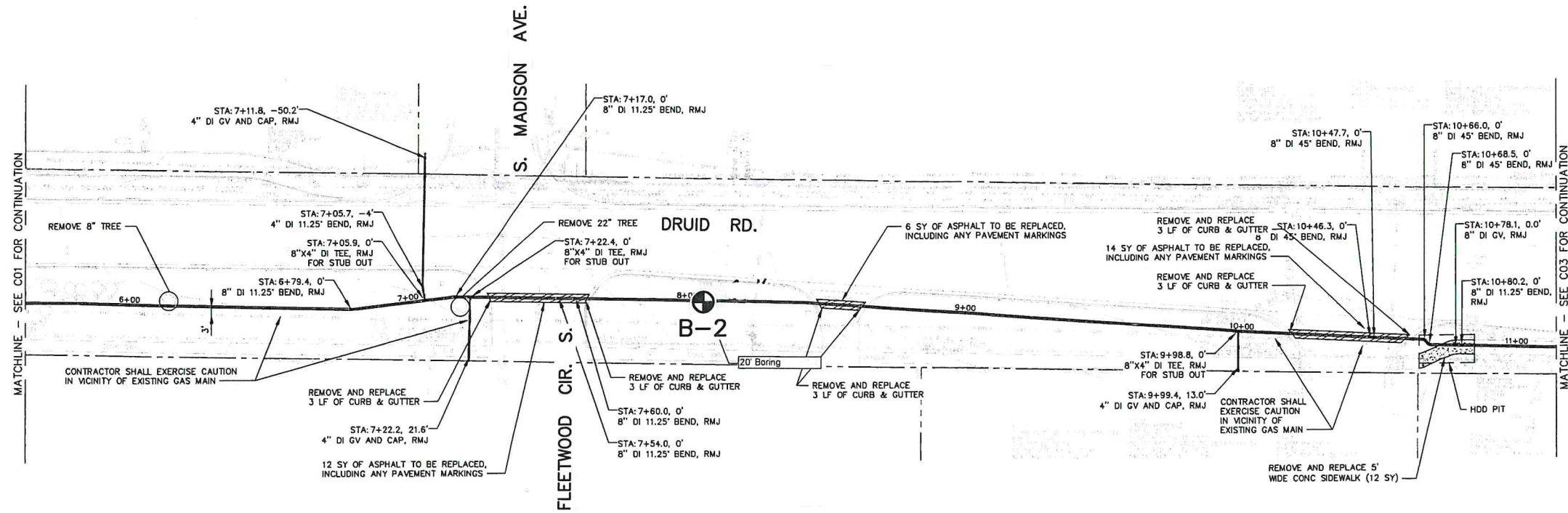


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HAND CONE SOUNDING LOCATION

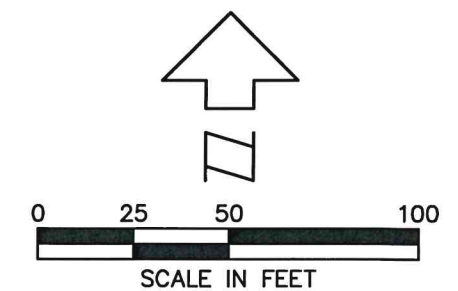



CAD / ENGINEER	SHEET TITLE	PROJECT NO.	DATE
R.D.B. / W.S.D.	BORING LOCATION PLAN	DES 218741	4/27/21
PREPARED BY	PROJECT NAME	SCALE	SHEET NO.
 DRIGGERS ENGINEERING SERVICES, INCORPORATED	RECLAIMED WATER PIPING IMPROVEMENTS LOOPING PROJECT CLEARWATER, FLORIDA	AS SHOWN	PLATE 1-A

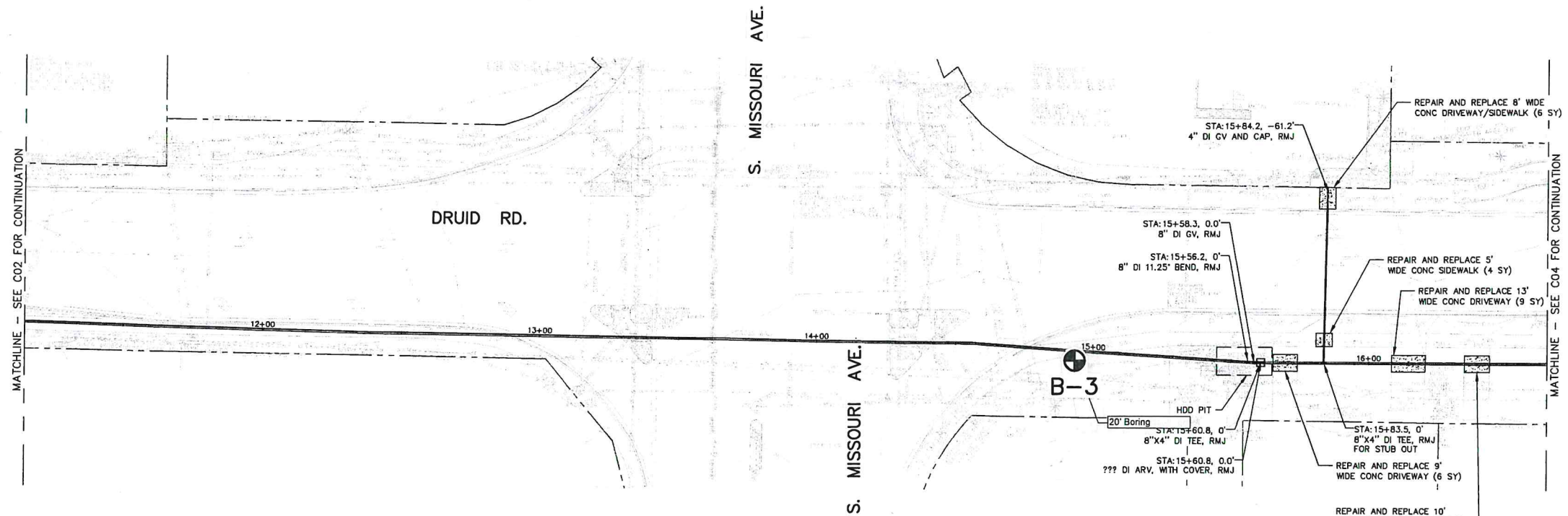


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HAND CONE SOUNDING LOCATION

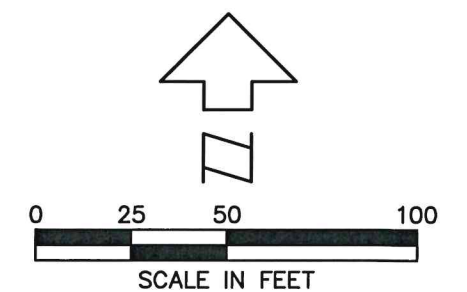



CAD / ENGINEER	SHEET TITLE	PROJECT NO.	DATE
R.D.B. / W.S.D.	BORING LOCATION PLAN	DES 218741	4/27/21
PREPARED BY	PROJECT NAME	SCALE	SHEET NO.
 DRIGGERS ENGINEERING SERVICES, INCORPORATED	RECLAIMED WATER PIPING IMPROVEMENTS LOOPING PROJECT CLEARWATER, FLORIDA	AS SHOWN	PLATE I-B

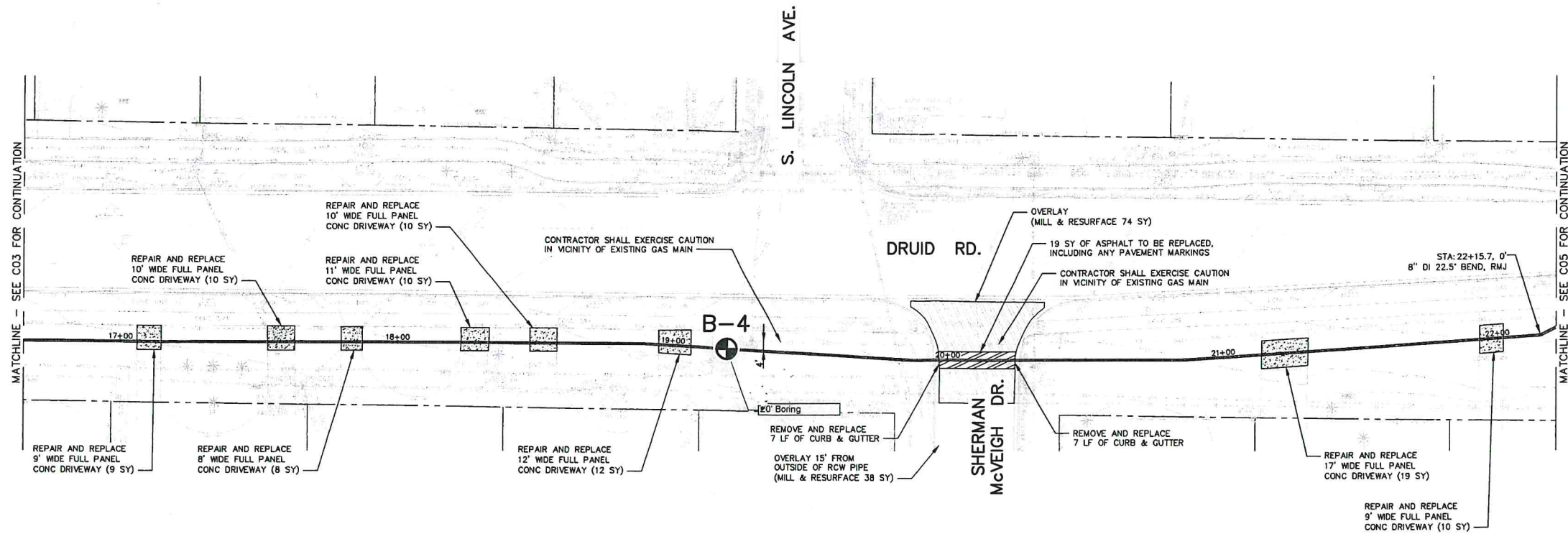


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HAND CONE SOUNDING LOCATION

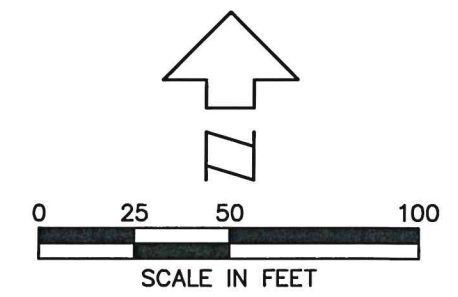



CAD / ENGINEER	SHEET TITLE	PROJECT NO.	DATE
R.D.B. / W.S.D.	BORING LOCATION PLAN	DES 218741	4/27/21
PREPARED BY	PROJECT NAME	SCALE	SHEET NO.
 DRIGGERS ENGINEERING SERVICES, INCORPORATED	RECLAIMED WATER PIPING IMPROVEMENTS LOOPING PROJECT CLEARWATER, FLORIDA	AS SHOWN	PLATE 1-C

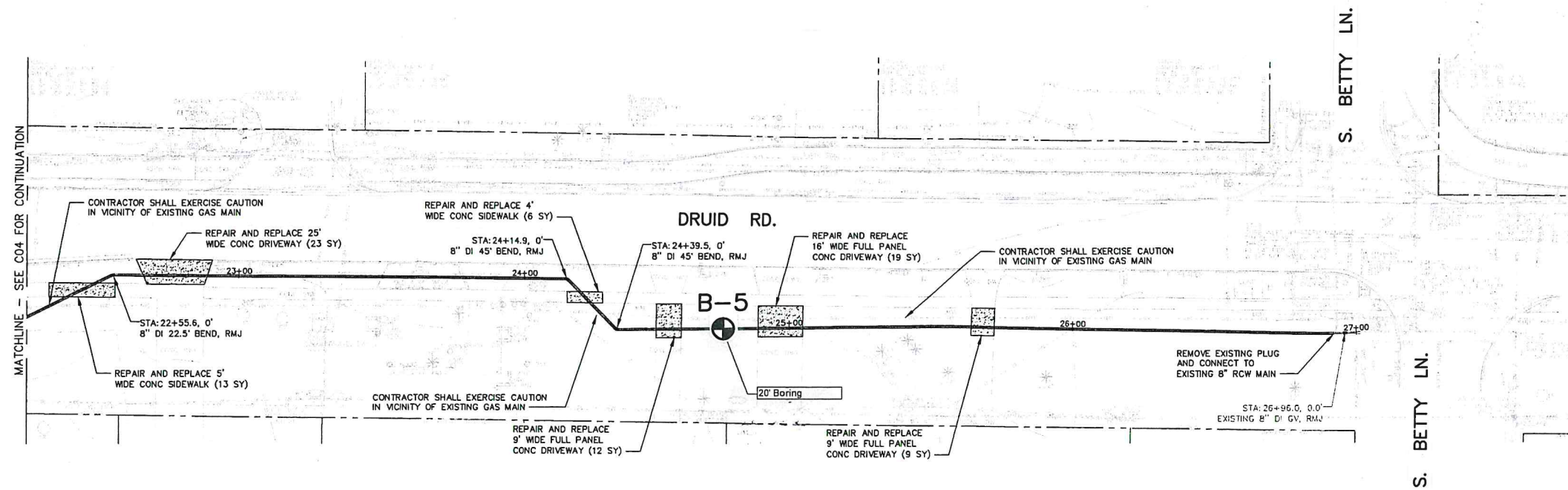


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HAND CONE SOUNDING LOCATION

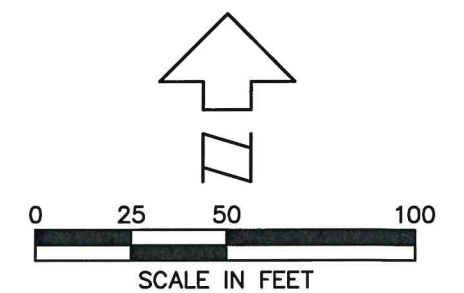



CAD / ENGINEER	SHEET TITLE	PROJECT NO.	DATE
R.D.B. / W.S.D.	BORING LOCATION PLAN	DES 218741	4/27/21
PREPARED BY	PROJECT NAME	SCALE	SHEET NO.
 DRIGGERS ENGINEERING SERVICES, INCORPORATED	RECLAIMED WATER PIPING IMPROVEMENTS LOOPING PROJECT CLEARWATER, FLORIDA	AS SHOWN	PLATE I-D

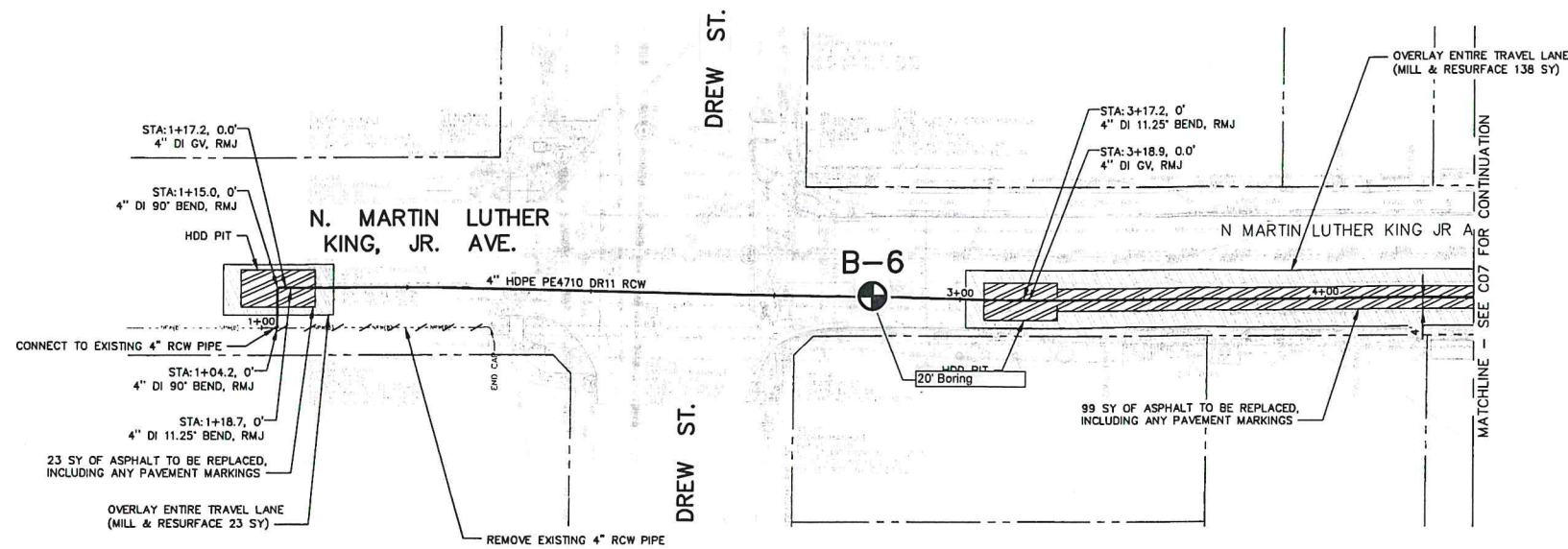


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HAND CONE SOUNDING LOCATION

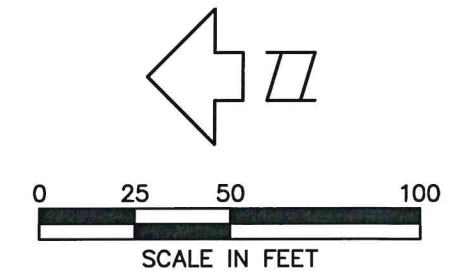



CAD / ENGINEER	SHEET TITLE	PROJECT NO.	DATE
R.D.B. / W.S.D.	BORING LOCATION PLAN	DES 218741	4/27/21
PREPARED BY	PROJECT NAME	SCALE	SHEET NO.
 DRIGGERS ENGINEERING SERVICES, INCORPORATED	RECLAIMED WATER PIPING IMPROVEMENTS LOOPING PROJECT CLEARWATER, FLORIDA	AS SHOWN	PLATE I-E

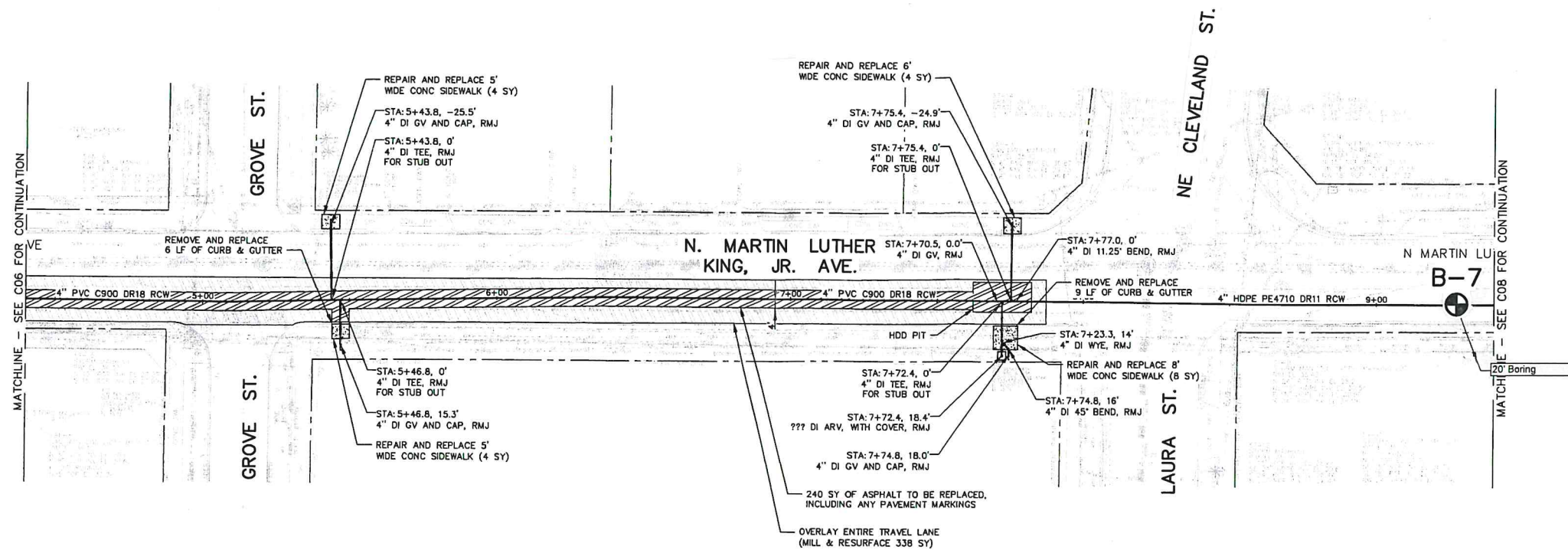


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HAND CONE SOUNDING LOCATION

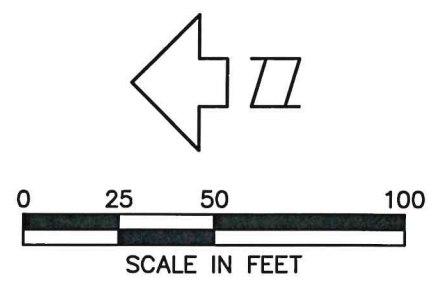



CAD / ENGINEER	SHEET TITLE	PROJECT NO.	DATE
R.D.B. / W.S.D.	BORING LOCATION PLAN	DES 218741	4/27/21
PREPARED BY	PROJECT NAME	SCALE	SHEET NO.
 DRIGGERS ENGINEERING SERVICES, INCORPORATED	RECLAIMED WATER PIPING IMPROVEMENTS LOOPING PROJECT CLEARWATER, FLORIDA	AS SHOWN	PLATE I-F

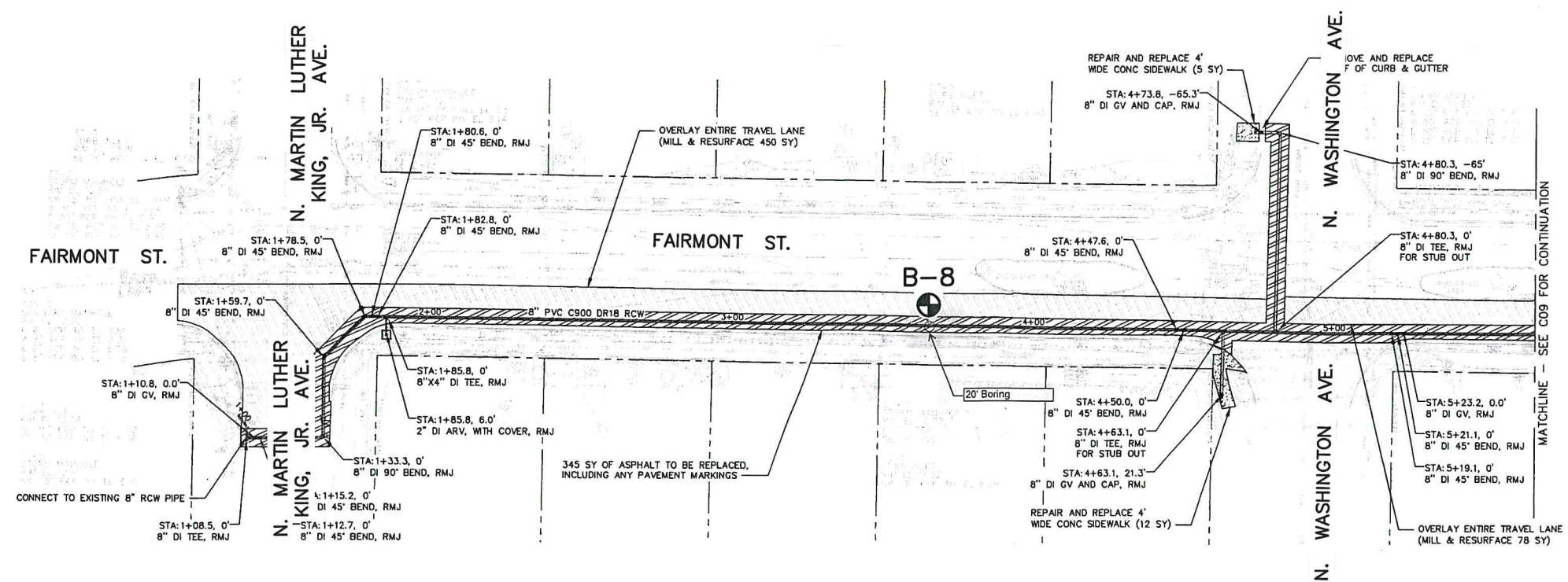


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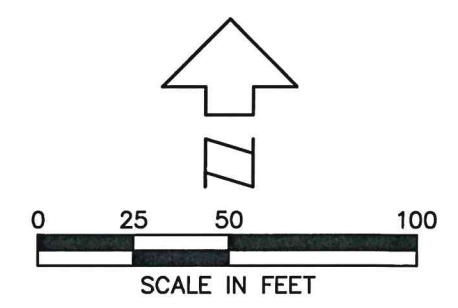



CAD / ENGINEER	SHEET TITLE	PROJECT NO.	DATE
R.D.B. / W.S.D.	BORING LOCATION PLAN	DES 218741	4/27/21
PREPARED BY	PROJECT NAME	SCALE	SHEET NO.
 DRIGGERS ENGINEERING SERVICES, INCORPORATED	RECLAIMED WATER PIPING IMPROVEMENTS LOOPING PROJECT CLEARWATER, FLORIDA	AS SHOWN	PLATE I-G

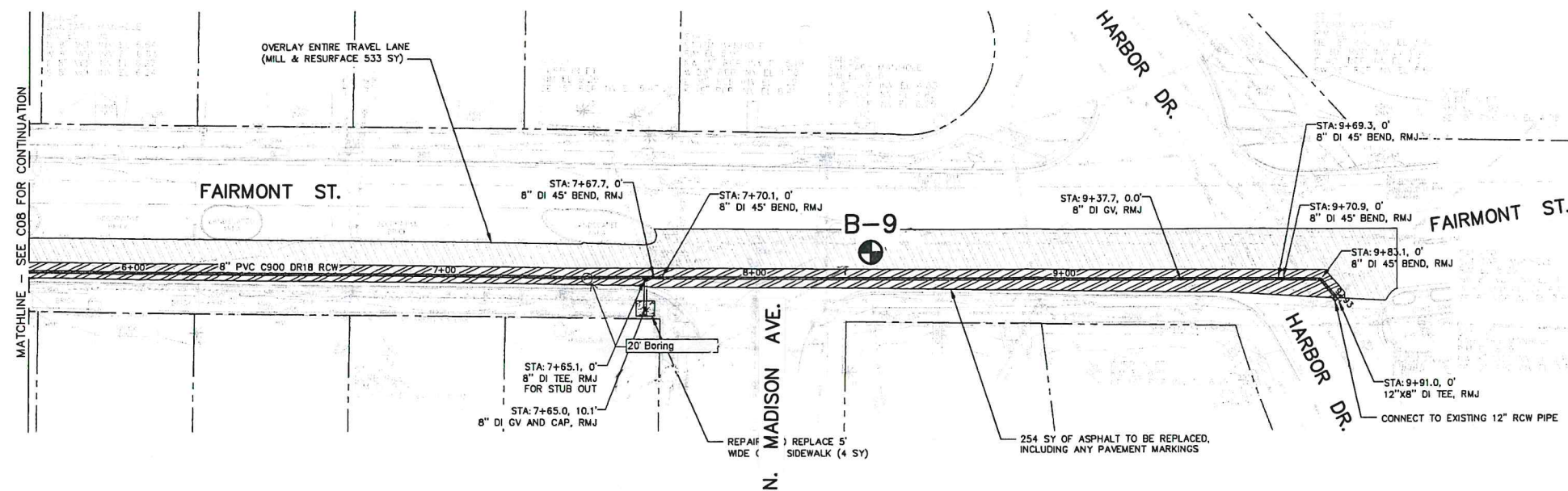


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HAND CONE SOUNDING LOCATION

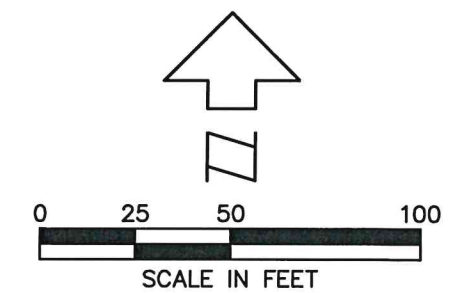



CAD / ENGINEER	SHEET TITLE	PROJECT NO.	DATE
R.D.B. / W.S.D.	BORING LOCATION PLAN	DES 218741	4/27/21
PREPARED BY	PROJECT NAME	SCALE	SHEET NO.
 DRIGGERS ENGINEERING SERVICES, INCORPORATED	RECLAIMED WATER PIPING IMPROVEMENTS LOOPING PROJECT CLEARWATER, FLORIDA	AS SHOWN	PLATE I-H



LEGEND:

⊕ STANDARD PENETRATION TEST BORING/
HAND CONE SOUNDING LOCATION



CAD / ENGINEER	SHEET TITLE	PROJECT NO.	DATE
R.D.B. / W.S.D.	BORING LOCATION PLAN	DES 218741	4/27/21
PREPARED BY	PROJECT NAME	SCALE	SHEET NO.
 DRIGGERS ENGINEERING SERVICES, INCORPORATED	RECLAIMED WATER PIPING IMPROVEMENTS LOOPING PROJECT CLEARWATER, FLORIDA	AS SHOWN	PLATE 1-1

STANDARD PENETRATION TEST BORINGS



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 218741 **BORING NO. B-1**
 Project Reclaimed Water Piping Improvements Looping Project, Clearwater, Florida
 Location See Plate I-I Foreman N.P.
 Completion Date 4/22/21 Depth To Water 11.0' Time _____ Date 4/22/21

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +41.6+/-'							
0			1" Grass Mat							
			Light brown Fine SAND with roots (SP) (A-3)							
			Light gray Fine SAND (SP) (A-3)							
			Medium dense tan Fine SAND (SP) (A-3)							
5				4/5/7						
			Medium dense light brown Fine SAND (SP) (A-3)							
			Medium dense brown Fine SAND (SP) (A-3)							
10				3/5/7						
				5/5/7						
				4/6/8						
15			Medium dense dark brown silty Fine SAND with finely divided organic material (SM) (A-2-4)							
				5/8/9						
			Medium dense dark brown silty Fine SAND (SM) (A-2-4)							
20				5/7/10						
25										
30										

Remarks Borehole Grouted Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 218741 **BORING NO. B-2**
 Project Reclaimed Water Piping Improvements Looping Project, Clearwater, Florida
 Location See Plate I-B Foreman N.P.
 Completion Depth 21.5' Date 4/22/21 Depth To Water 11.8' Time _____ Date 4/22/21

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
SURF. EL: +31.3+/-'										
0			1" Grass Mat							
			Dark brown organic Fine SAND (SP-SM/Pt) (A-8)							
			Dark brownish-gray Fine SAND (SP) (A-3)							
			Dark brown Fine SAND with large root (SP) (A-3)							
5			Tan Fine SAND (SP) (A-3)							
			Loose brown to dark brown Fine SAND (SP) (A-3)	3/4/6						
				3/3/4						
10			Loose to medium dense dark brown slightly silty Fine SAND (SP-SM) (A-3)	3/4/5						
				4/6/9						
15			Medium dense light brown silty Fine SAND (SM) (A-2-4)	5/7/10						
			Medium dense light brown silty, slightly clayey Fine SAND (SM) (A-2-4)	5/8/11						
20										
25										
30										

Remarks Borehole Grouted Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 218741 **BORING NO. B-4**
 Project Reclaimed Water Piping Improvements Looping Project, Clearwater, Florida
 Location See Plate I-D Foreman N.P.
 Completion Date 4/21/21 Depth To Water 5.3' Time _____ Date 4/21/21

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +31.1+/-'									
0			Dark gray Fine SAND (SP) (A-3)						
			Light gray Fine SAND (SP) (A-3)						
5			Dark brown slightly silty Fine SAND (SP-SM) (A-3)						
			Stiff light brownish-gray sandy CLAY (CH) (A-7-6)	2/3/7					
			Hard light greenish-gray CLAY (CL) (A-7-6)	14/15/22					
10				15/15/21					
			Medium dense light brownish-gray clayey Fine SAND to very stiff light brownish-gray sandy CLAY (SC) to (CH) (A-2-6) to (A-7-6)	5/8/8					
15			Medium dense light grayish-brown silty Fine SAND (SM) (A-2-4)	5/10/11					
			Medium dense light grayish-brown silty, clayey Fine SAND (SM-SC) (A-2-6)						
20				4/4/7					
25									
30									

Remarks Borehole Grouted Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 218741 **BORING NO. B-5**
 Project Reclaimed Water Piping Improvements Looping Project, Clearwater, Florida
 Location See Plate I-E Foreman N.P.
 Completion Depth 21.5' Date 4/21/21 Depth To Water 4.5' Time _____ Date 4/21/21

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
			SURF. EL: +22.5+/-'							
0			Dark gray organic Fine SAND with roots (SP-SM/Pt) (A-8)							
			Dark brown Fine SAND with trace of limestone fragments (SP) (A-3)							
5			Dark gray highly organic, silty Fine SAND with roots (Pt) (A-8)							
			Medium dense dark brown Fine SAND (SP) (A-3)	6/6/7						
			Medium dense dark brown slightly silty Fine SAND with finely divided organic material (SP-SM) (A-3)	4/8/12						
10			Medium dense dark brown Fine SAND (SP) (A-3)	6/7/6						
			Medium dense light gray clayey Fine SAND (SC) (A-2-6)	4/7/15						
15			Hard light green CLAY (CL) (A-7-6)	16/16/19						
			Very stiff light greenish-gray CLAY (CH) (A-7-6)	4/7/11						
20										
25										
30										

Remarks Borehole Grouted Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 218741 **BORING NO. B-6**
 Project Reclaimed Water Piping Improvements Looping Project, Clearwater, Florida
 Location See Plate I-F Foreman N.P.
 Completion Depth 21.5' Date 4/22/21 Depth To Water 6.2' Time _____ Date 4/22/21

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP				
					10	20	40	60	80
SURF. EL: +31.8+/-'									
0			1" Grass Mat						
			Dark brown organic Fine SAND with roots (SP-SM/Pt) (A-8)						
			Dark brownish-gray Fine SAND (SP) (A-3)						
			Light grayish-brown Fine SAND (SP) (A-3)						
5			Light brown Fine SAND (SP) (A-3)						
			Brown Fine SAND (SP) (A-3)	2/2/2					
			Very loose dark brown slightly silty Fine SAND (SP-SM) (A-3)						
			Very dense dark brown Fine SAND (SP) (A-3)	5/20/40					
10				4/17/36					
			Medium dense light brown silty Fine SAND (SM) (A-2-4)	5/7/10					
15				5/9/11					
			Medium dense light gray clayey Fine SAND (SC) (A-2-6)						
20				4/9/10					
25									
30									

Remarks Borehole Grouted Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 218741 **BORING NO. B-7**
 Project Reclaimed Water Piping Improvements Looping Project, Clearwater, Florida
 Location See Plate I-G Foreman N.P.
 Completion Date 4/22/21 Depth To Water 7.5' Time _____ Date 4/22/21

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
SURF. EL: +34.7+/-'										
0			1" Grass Mat							
			Brownish-gray Fine SAND with roots (SP) (A-3)							
			Light brown Fine SAND (SP) (A-3)							
5			Tan Fine SAND (SP) (A-3)							
			Medium dense light brown Fine SAND (SP) (A-3)	6/9/8						
10			Loose to medium dense grayish-brown to brown Fine SAND (SP) (A-3)	2/3/7						
				3/6/6						
			Medium dense light brown slightly silty Fine SAND (SP-SM) (A-3)	4/6/7						
15			Medium dense brownish-gray clayey Fine SAND (SC) (A-2-6)	5/8/12						
			Medium dense brownish-gray clayey Fine SAND (SC) (A-2-6)	6/10/13						
20										
25										
30										

Remarks Borehole Grouted Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 218741 **BORING NO. B-8**
 Project Reclaimed Water Piping Improvements Looping Project, Clearwater, Florida
 Location See Plate I-H Foreman N.P.
 Completion Date 4/23/21 Depth To Water 5.7' Time _____ Date 4/23/21

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
SURF. EL: +11.4+/-'										
0			Light brown Fine SAND (SP) (A-3)							
			Grayish-brown Fine SAND with trace of limestone fragments (SP) (A-3)							
			Light brown slightly silty Fine SAND with trace of limestone fragments (SP-SM) (A-3)							
5			Tan Fine SAND (SP) (A-3)							
			Loose to medium dense light brown Fine SAND (SP) (A-3)	3/4/6						
10				3/3/4						
				7/7/8						
				6/8/12						
15			Very stiff light greenish-gray sandy CLAY (CH) (A-7-6)	7/9/15						
20				6/11/16						
25										
30										

Remarks Borehole Grouted Casing Length _____



DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 218741 **BORING NO. B-9**
 Project Reclaimed Water Piping Improvements Looping Project, Clearwater, Florida
 Location See Plate I-I Foreman N.P.
 Completion Depth 21.5' Date 4/23/21 Depth To Water 3.7' Time _____ Date 4/23/21

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP					
					10	20	40	60	80	
SURF. EL: +8.7+/-'										
0			1" Grass Mat							
			Dark gray Fine SAND with roots (SP) (A-3)							
			Dark grayish-brown Fine SAND (SP) (A-3)							
			Light grayish-brown Fine SAND (SP) (A-3)							
5			Light grayish-brown silty Fine SAND (SM) (A-2-4)							
			Medium dense to loose light grayish-brown clayey Fine SAND (SC) (A-2-6)	7/8/12						
10			Stiff to very stiff light green to light greenish-gray CLAY (CH) (A-7-6)	3/4/6						
				4/5/6						
				5/5/5						
15				6/7/11						
20				5/7/12						
25										
30										

Remarks Borehole Grouted Casing Length _____

HAND AUGER BORING / HAND CONE SOUNDING LOGS



DRIGGERS ENGINEERING SERVICES INCORPORATED

HAND AUGER BORING/HAND CONE SOUNDING LOG										
PROJECT: Reclaimed Water Piping Improvements Looping Project Clearwater, Florida Project No.: DES 218741					CLIENT: Reiss Engineering, Inc.					
TECHNICIAN: N.P./M.P.					WATER TABLE: See "Note"			DATE: 4/21/21		
LOCATION: See Plate I-C					DATE: 4/21/21		COMPLETION DEPTH: 6.0'			
					TEST NUMBER: B-3					
ELEV. (FT)	DESCRIPTION	DEPTH (FT)	SYMBOL	HAND CONE TIP RESISTANCE (TSF)						
				0	10	20	30	40	50	60
34	Dark gray Fine SAND with surficial roots (SP) (A-3)	0	[Symbol: Dotted pattern]						• †	
	Brown Fine SAND with roots (SP) (A-3)								• †	
32	Tan Fine SAND (SP) (A-3)	2	[Symbol: Dotted pattern]						• †	
									• †	
									• †	
									• †	
30		4	[Symbol: Dotted pattern]						• †	
									• †	
									• †	
									• †	
28	Surface Elevation: +34.6+/-' Note: Water Table not encountered within depth of 6.0'.	6	[Symbol: Dotted pattern]						• †	
26		8								
24		10								
22	<u>LEGEND:</u> • + Denotes Penetration Resistance in excess of 50 TSF	12								
		14								



DRIGGERS ENGINEERING SERVICES INCORPORATED

HAND AUGER BORING/HAND CONE SOUNDING LOG											
PROJECT: Reclaimed Water Piping Improvements Looping Project Clearwater, Florida Project No.: DES 218741					CLIENT: Reiss Engineering, Inc.						
TECHNICIAN: N.P./M.P.					WATER TABLE: 4.5'			DATE: 4/21/21			
LOCATION: See Plate I-E					DATE: 4/21/21		COMPLETION DEPTH: 6.0'				
					TEST NUMBER: B-5						
ELEV. (FT)	DESCRIPTION	DEPTH (FT)	SYMBOL	HAND CONE TIP RESISTANCE (TSF)							
				0	10	20	30	40	50	60	70
22	Dark gray organic Fine SAND with roots (SP-SM/Pt) (A-8)	0									
20	Dark brown Fine SAND with trace of limestone fragments (SP) (A-3)	2									
18	Dark gray highly organic, silty Fine SAND with roots (Pt) (A-8)	4									
16	Surface Elevation: +22.5+/-'	6									
14		8									
12		10									
10		12									
		14									

LEGEND:
 • + Denotes Penetration Resistance in excess of 50 TSF



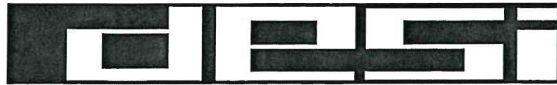
DRIGGERS ENGINEERING SERVICES INCORPORATED

HAND AUGER BORING/HAND CONE SOUNDING LOG

PROJECT: Reclaimed Water Piping Improvements Looping Project Clearwater, Florida Project No.: DES 218741		CLIENT: Reiss Engineering, Inc.	
TECHNICIAN: N.P./E.H.		WATER TABLE: 5.7'	DATE: 4/23/21
LOCATION: See Plate I-H		DATE: 4/23/21	COMPLETION DEPTH: 6.0'
		TEST NUMBER: B-8	

ELEV. (FT)	DESCRIPTION	DEPTH (FT)	SYMBOL	HAND CONE TIP RESISTANCE (TSF)														
				0	10	20	30	40	50	60	70							
	Light brown Fine SAND (SP) (A-3)	0	[Symbol: Fine Sand]				30											
10	Grayish-brown Fine SAND with trace of limestone fragments (SP) (A-3)	2						35										
8	Light brown slightly silty Fine SAND with trace of limestone fragments (SP-SM) (A-3)	4	[Symbol: Silty Sand]															
6	Tan Fine SAND (SP) (A-3)	6																
6		6																
4	Surface Elevation: +11.4+/-'																	
		8																
		10																
		12																
		14																

LEGEND:
 • + Denotes Penetration Resistance in excess of 50 TSF



DRIGGERS ENGINEERING SERVICES INCORPORATED

HAND AUGER BORING/HAND CONE SOUNDING LOG

PROJECT: Reclaimed Water Piping Improvements Looping Project Clearwater, Florida Project No.: DES 218741		CLIENT: Reiss Engineering, Inc.	
TECHNICIAN: N.P./E.H.		WATER TABLE: 3.7'	DATE: 4/23/21
LOCATION: See Plate I-I		DATE: 4/23/21	COMPLETION DEPTH: 6.0'
		TEST NUMBER: B-9	

ELEV. (FT)	DESCRIPTION	DEPTH (FT)	SYMBOL	HAND CONE TIP RESISTANCE (TSF)														
				0	10	20	30	40	50	60	70							
8	1" Grass Mat	0	[Symbol: Dotted pattern]															
	Dark gray Fine SAND with roots (SP) (A-3)																	
	Dark grayish-brown Fine SAND (SP) (A-3)	2																
6	Light grayish-brown Fine SAND (SP) (A-3)																	
	Light grayish-brown silty Fine SAND (SM) (A-2-4)	4		[Symbol: Vertical lines]														
4																		
2	Surface Elevation: +8.7+/-'	6																
		8																
0																		
-2		10																
-4		12																
		14																

LEGEND:
 ●+ Denotes Penetration Resistance in excess of 50 TSF

SUMMARY OF LABORATORY TEST RESULTS

SUMMARY OF LABORATORY TEST RESULTS

BORING NO.	DEPTH (ft)	DESCRIPTION	W %	Y _d (pcf)	G _s	ATTERBERG LIMITS			P.P. (tsf)	U.C.	CON.	G.S.	ORG. (%)	pH	Cl (ppm)	SO ₄ (ppm)	RES. (ohm-cm)
						LL	PL	PI									
B-1	3.5-6.0	Tan Fine SAND										*					
B-2	1.0-3.0	Dark brownish-gray Fine SAND										*					
B-2	4.0-6.0	Tan Fine SAND										*					
B-3	10.0-11.5	Light grayish-brown clayey Fine SAND	19.5			42	20	22				**					
B-3	12.0-13.5	Light grayish-brown clayey Fine SAND	25.8			63	22	41				**					
B-4	6.0-7.5	Light brownish-gray sandy CLAY	25.1			66	16	50				**					
B-5	4.0-6.0	Dark gray highly organic, silty Fine SAND with roots											11.8				
B-5	6.0-7.5	Dark brown Fine SAND										*					
B-6	0.1-1.3	Dark brown organic Fine SAND with roots											5.5				
B-6	5.8-6.0	Brown Fine SAND										*					
B-7	15.0-16.5	Brown clayey Fine SAND	19.6			41	20	21				**					
B-8	3.0-4.0	Light brown slightly silty Fine SAND										*					
B-9	3.7-6.0	Light grayish-brown silty Fine SAND										*					
B-9	6.0-7.5	Light grayish-brown clayey Fine SAND	21.8			72	21	51				**					
B-9	8.0-9.5	Light grayish-brown clayey Fine SAND	20.1			49	21	28				**					

W % = Water Content	Con. = Consolidation Test	
Y _d (pcf) = Dry Density	G.S. (+1) = Grainsize Analysis (Hydrometer)	
G _s = Specific Gravity	ORG. (%) = Organic Content	
LL = Liquid Limit	Cl. (ppm) = Total Chloride	
PL = Plastic Limit	SO ₄ (ppm) = Total Sulfate	
PI = Plasticity Index	RES. (ohm-cm) = Lab Resistivity	
P.P. (tsf) = Pocket Penetrometer	* = See Test Curves	
U.C. = Unconfined Compression	** = Percent Passing No. 200 Sieve	

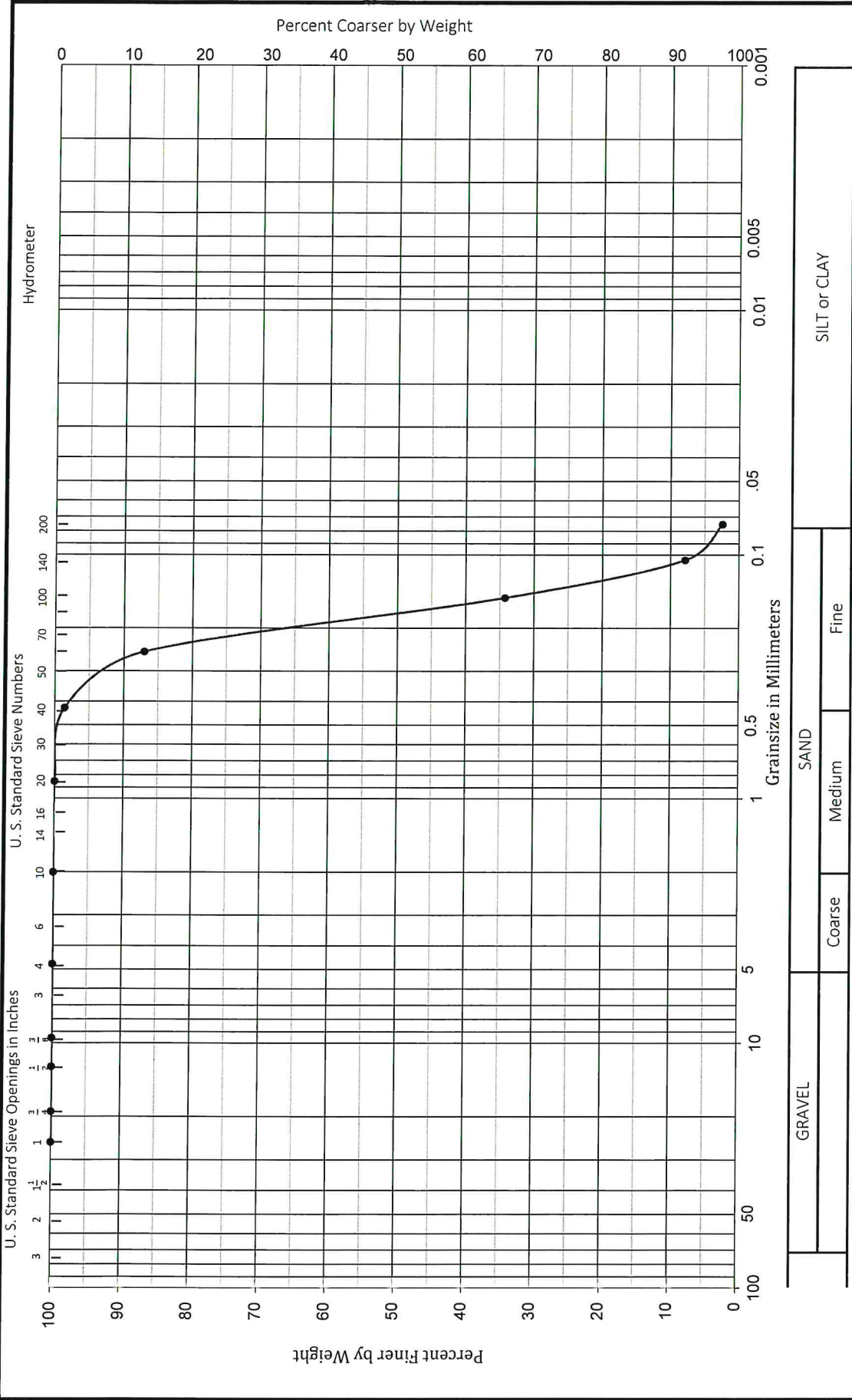
CLIENT: Reiss Engineering, Inc.

PROJECT: Reclaimed Water Piping Improvements
Looping Project, Clearwater, Florida

FILE: DES 218741

GRAINSIZE ANALYSES

DRIGGERS ENGINEERING SERVICES, INC.

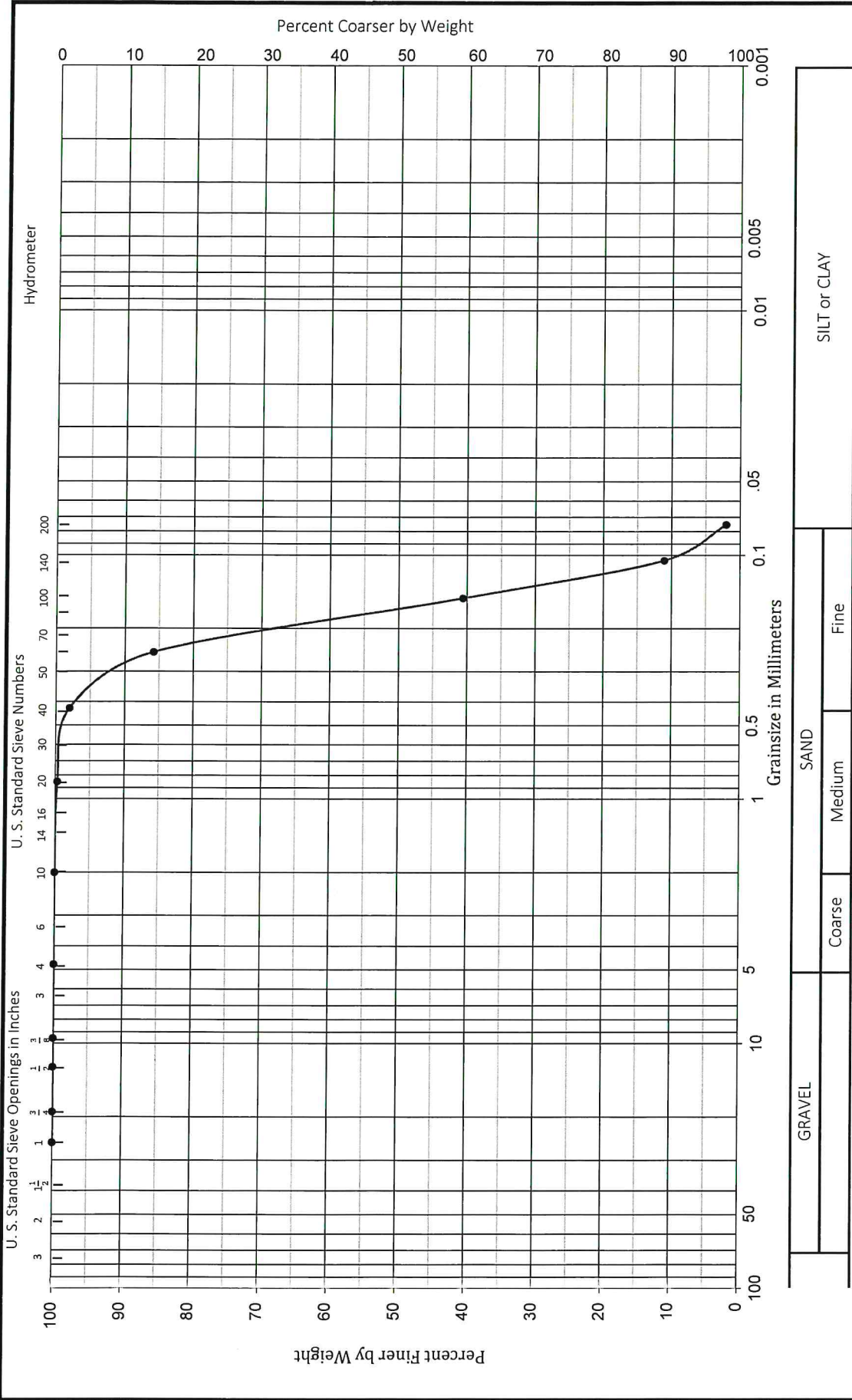


Number	Depth	Moisture	L.L.	P.L.	P.I.	Classification
B-1	3.5'-6.0'					Tan Fine SAND

GRAVEL	SAND	SILT or CLAY
Coarse	Medium	Fine

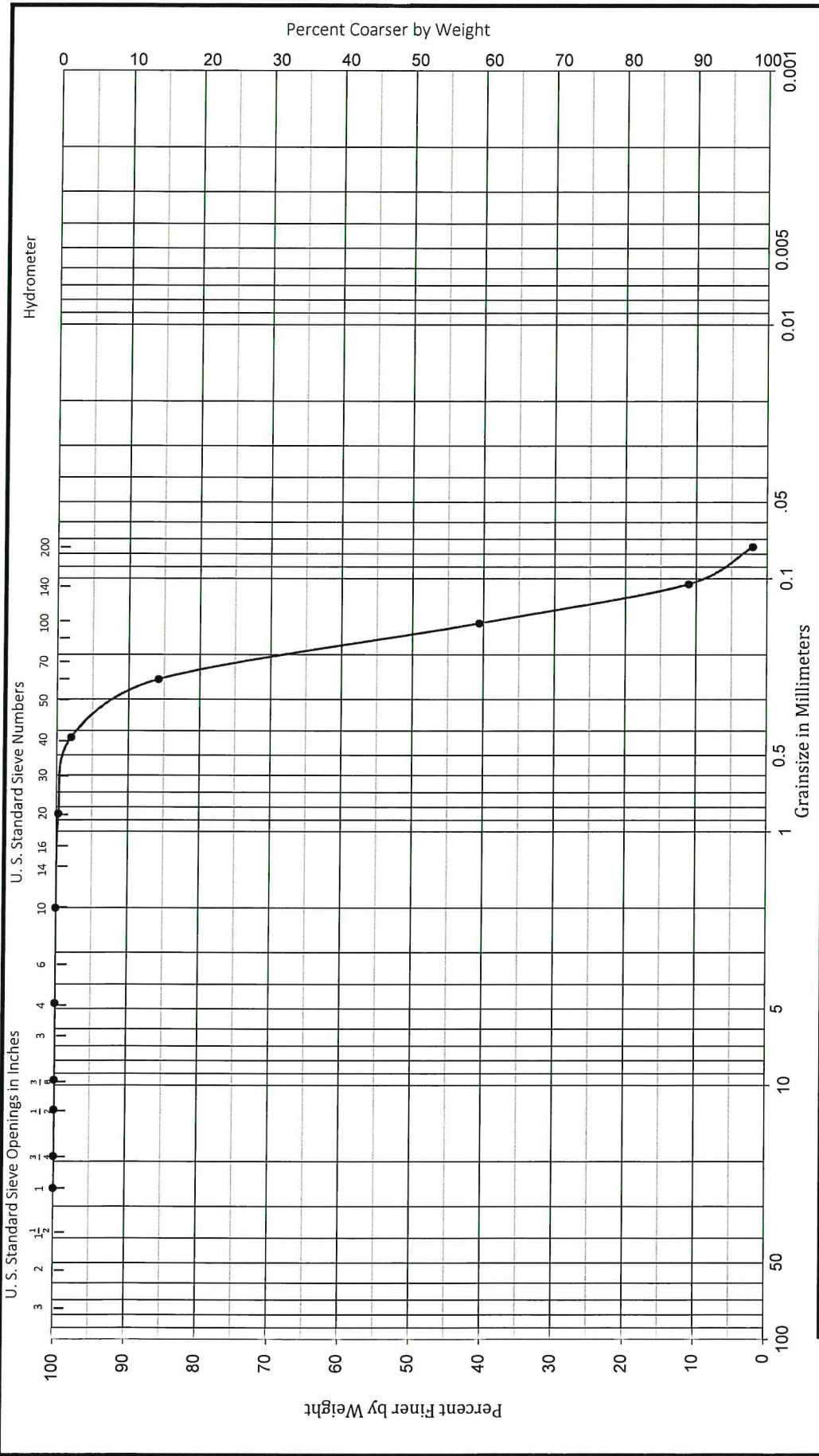
CLIENT:	Reiss Engineering, Inc.
PROJECT:	Reclaimed Water Looping Project, Clearwater, Florida
FILE:	DES 218741

DRIGGERS ENGINEERING SERVICES, INC.



Number	Depth	Moisture	L.L.	P.L.	P.I.	Classification	CLIENT:
B-2	1.0'-3.0'					Dark brownish-gray Fine SAND	Reiss Engineering, Inc.
							Reclaimed Water Looping Project,
							Clearwater, Florida
							FILE: DES 218741

DRIGGERS ENGINEERING SERVICES, INC.

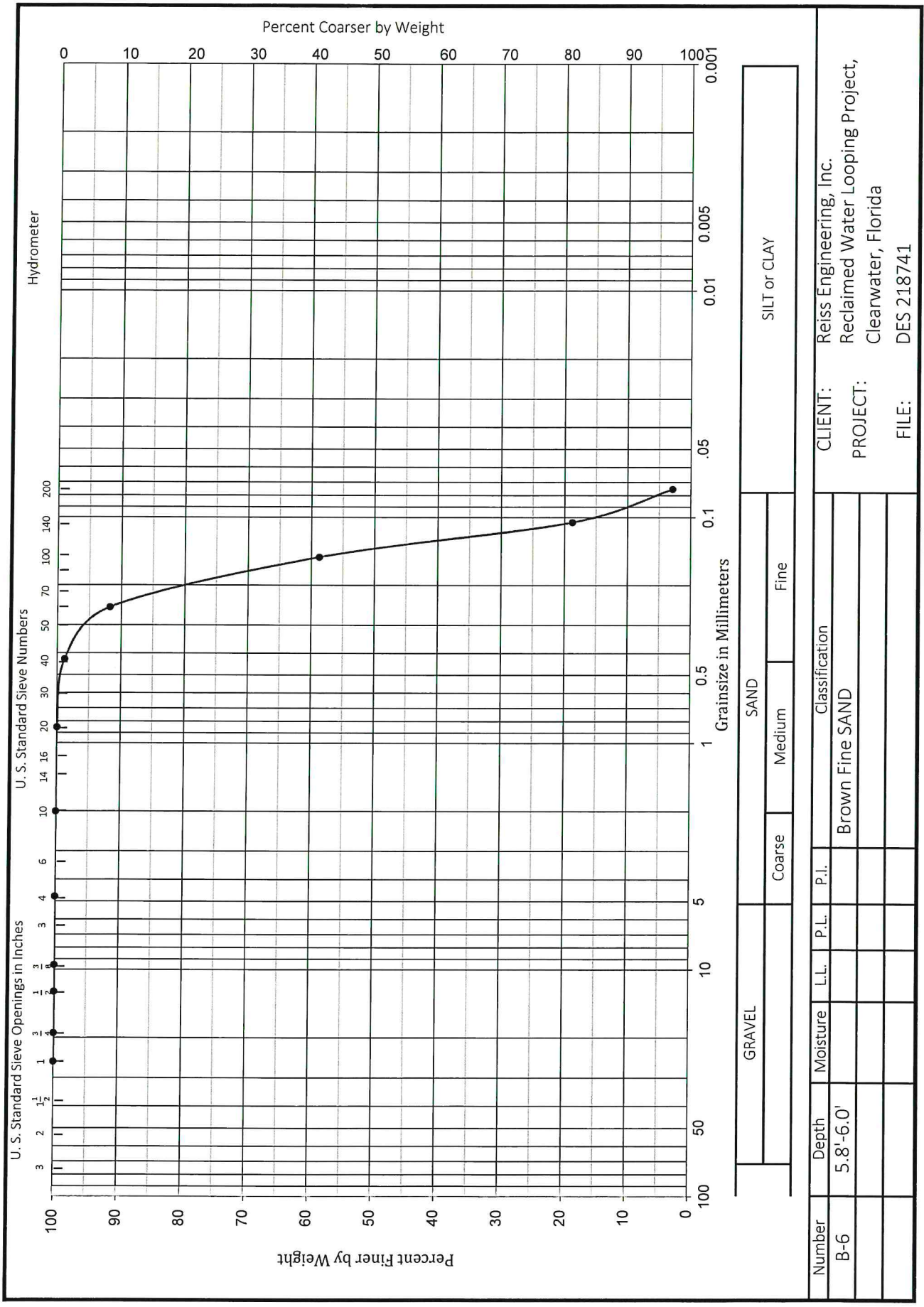


GRAVEL	SAND		SILT or CLAY
	Coarse	Medium	

Number	Depth	Moisture	L.L.	P.L.	P.I.	Classification
B-2	4.0'-6.0'					Tan Fine SAND

CLIENT: Reiss Engineering, Inc.
 PROJECT: Reclaimed Water Looping Project, Clearwater, Florida
 FILE: DES 218741

DRIGGERS ENGINEERING SERVICES, INC.



METHOD OF TESTING

STANDARD PENETRATION TEST AND SOIL CLASSIFICATION

STANDARD PENETRATION TEST (ASTM D-1586)

In the Standard Penetration Test borings, a rotary drilling rig is used to advance the borehole to the desired test depth. A viscous drilling fluid is circulated through the drill rods and bit to stabilize the borehole and to assist in removal of soil and rock cuttings up and out of the borehole.

Upon reaching the desired test depth, the 2 inch O.D. split-barrel sampler or "split-spoon", as it is sometimes called, is attached to an N-size drill rod and lowered to the bottom of the borehole. A 140 pound hammer, attached to the drill string at the ground surface, is then used to drive the sampler into the formation. The hammer is successively raised and dropped for a distance of 30 inches using a rope and "cathead" assembly. The number of blows is recorded for each 6 inch interval of penetration or until virtual refusal is achieved. In the above manner, the samples are ideally advanced a total of 18 inches. The sum of the blows required to effect the final 12 inches of penetration is called the blowcount, penetration resistance or "N" value of the particular material at the sample depth.

After penetration, the rods and sampler are retracted to the ground surface where the core sample is removed, sealed in a glass jar and transported to the laboratory for verification of field classification and storage.

SOIL SYMBOLS AND CLASSIFICATION

Soil and rock samples secured in the field sampling operation were visually classified as to texture, color and consistency. The Unified Soil Classification was assigned to each soil stratum per ASTM D-2487. Soil classifications are presented descriptively and symbolically for ease of interpretation. The stratum identification lines represent the approximate boundary between soil types. In many cases, this transition may be gradual.

Consistency of the soil as to relative density or undrained shear strength, unless otherwise noted, is based upon Standard Penetration resistance values of "N" values and industry-accepted standards. "N" values, or blowcounts, are presented in both tabular and graphical form on each respective boring log at each sample interval. The graphical plot of blowcount versus depth is for illustration purposes only and does not warrant continuity in soil consistency or linear variation between sample intervals.

The borings represent subsurface conditions at respective boring locations and sample intervals only. Variations in subsurface conditions may occur between boring locations. Groundwater depths shown represent water depths at the dates and time shown only. The absence of water table information does not necessarily imply that groundwater was not encountered.

APPROVED PRODUCT LIST

City of Clearwater Preferred Product List

The list of preferred products shall be used for the construction of water and reclaimed water utilities for the City of Clearwater. This list does not relieve the Contractor from their responsibility to conform to the City's Technical Specifications. Products submitted for use on City projects which are not included in the list below shall be subject to the review and approval by the City.

Cat.	Description	Manufacturer	Potable Water		Reclaimed Water		
			Model	Comments	Model	Comments	
Air Release Valve	ARV Enclosure	Water Plus Polyethelene Enclosure	H-20	Blue 28" Tall	H-20	Pantone 28" Tall	
			H-30	Blue 44" Tall	H-30	Pantone 44" Tall	
			H-40	Blue 30" Tall	H-40	Pantone 30" Tall	
	Air Release Valve	DFW Plastics		Blue		Purple	
			ARI	D-040 SS or Nylon	Combination	D-041SS	Combination
			H-TEC	SS 993		SS993	
		Vent-o-Mat	Series RBX DN50		Series RBX DN50		
Casing Seals/Spacers	Casing Seals	Advance Products	Model AC and AW		Model AC and AW		
		BWM Company	Model WR and PO		Model WR and PO		
		Cascade Water Works	Model CCES		Model CCES		
		CCI Pipeline	Model ESW and ESC		Model ESW and ESC		
		Pipeline Seal & Insulator	Model C and W		Model C and W		
		Power Seal	Model 4810ES		Model 4810ES		
	Casing Spacer	Advance Products	SS18/SS112		SS18/SS112		
		BWM Company	BWM-SS8/SS-12		BWM-SS8/SS-12		
		Cascade Water Works	Series CCS		Series CCS		
		CCI Pipeline	Model CCS8		Model CCS8		
		Pipeline Seal & Insulator	Series S8G/S12G-2		Series S8G/S12G-2		
Coatings	Exterior Coating for Exposed Metal Assets	Zinc/ Urethane/ Fluoropolymer system for above ground piping					
		Carboline	Primer: Carbozinc 621	3.0-8.0 mils	Primer: Carbozinc 621	3.0-8.0 mils	
			1st Coat: Carbothane 133 HB	3.0-5.0 mils	1st Coat: Carbothane 133 HB	3.0-5.0 mils	
			2nd Coat: Carboxane 950	2.0-3.0 mils	2nd Coat: Carboxane 950	2.0-3.0 mils	
		Tnemec	Primer: Series 90-97 Tnemec-Zinc	2.5-3.5 mils	Primer: Series 90-97 Tnemec-Zinc	2.5-3.5 mils	
			1st Coat: Series 66 Hi-Build Epoxoline	2.0-6.0 mils	1st Coat: Series 66 Hi-Build Epoxoline	2.0-6.0 mils	
			2nd Coat: Series 700 Hydroflon	2.0-3.0 mils	2nd Coat: Series 700 Hydroflon	2.0-3.0 mils	
		Zinc/Epoxy/Urethane system for above ground piping					
		Carboline	Carbozinc 621	3.0-8.0 mils	Carbozinc 621	3.0-8.0 mils	
			Carboguard 60	4.0-6.0 mils	Carboguard 60	4.0-6.0 mils	
			Carboxane 950	2.0-3.0 mils	Carboxane 950	2.0-3.0 mils	
		Tnemec	Series 90-97 Tnemec-Zinc	2.5-3.5 mils	Series 90-97 Tnemec-Zinc	2.5-3.5 mils	
			Series 66 Hi-Build Epoxoline	2.0-6.0 mils	Series 66 Hi-Build Epoxoline	2.0-6.0 mils	
			Series 1095 Urethane	4.0-10.0 mils	Series 1095 Urethane	4.0-10.0 mils	
		Polyamide Epoxy- Coal Tar for Burried Pipes					
		Tnemec	1st Coat: Series 46H-413 Hi-Build Tneme Tar	8-10.0 Mils	1st Coat: Series 46H-413 Hi-Build Tneme Tar	8-10.0 Mils	
			2nd Coat: Series 46H-413 Hi-Build Tneme Tar	8-10.0 Mils	2nd Coat: Series 46H-413 Hi-Build Tneme Tar	8-10.0 Mils	
		Fittings	Ductile Iron Fittings	American		Cement or FBE Lined	Cement or FBE Lined
				Sigma		Cement or FBE Lined	Cement or FBE Lined
				Star		Cement or FBE Lined	Cement or FBE Lined
Tyler Union				Cement or FBE Lined	Cement or FBE Lined		
Hydrants	Hydrants	American Flow Control	Darling B-84-B-5		Hydrants are not acceptable for Reclaimed Water Applicatons.		
		AVK	Nostalgic 2780				
		EJ Co.	Watermaster 5CD250				
		Kennedy	Guardian No. K-81D				
		Mueller	Super Centurion No 250				

City of Clearwater Preferred Product List

The list of preferred products shall be used for the construction of water and reclaimed water utilities for the City of Clearwater. This list does not relieve the Contractor from their responsibility to conform to the City's Technical Specifications. Products submitted for use on City projects which are not included in the list below shall be subject to the review and approval by the City.

Cat.	Description	Manufacturer	Potable Water		Reclaimed Water	
			Model	Comments	Model	Comments
Joint Restraints	Ductile Iron Pipe MJ Restraint	EBAA Iron	Megalug Series 1100		Megalug Series 1100	
		Ford/Uniflange	UFR-1400		UFR-1400	
		Sigma	OneLok Series SLD/SLDE		OneLok Series SLD/SLDE	
		Smith Blair	Camlock Series 111		Camlock Series 111	
		Star	Star Grip Series 3000		Star Grip Series 3000	
		Tyler Union	TufGrip Series TLD		TufGrip Series TLD	
	Ductile Iron Pipe Bell Joint Restraints (4-12")	EBAA Iron	Tru-Dual Series 1500 TD		Tru-Dual Series 1500 TD	
		Ford/Uniflange	Uni-Flange Series 1390C		Uni-Flange Series 1390C	
		Sigma	PV-Lok Series PWP-C		PV-Lok Series PWP-C	
		Smith Blair	Bell-Lock Series 165		Bell-Lock Series 165	
		Star	StarGrip Series 3100S		StarGrip Series 3100S	
		Tyler Union	TufGrip-Series 300C		TufGrip-Series 300C	
	Ductile Iron Pipe Bell Joint Restraints (>16")	EBAA Iron	Series 1100HD		Series 1100HD	
		Sigma	Series SSLDH		Series SSLDH	
		Star	Series 3100S		Series 3100S	
	Ductile Iron Pipe Joint Restraint Gaskets and Locking Bell	American	Fast Grip Gasket	Gasket	Fast Grip Gasket	Gasket
			Flex Ring Joint	Bell Lock	Flex Ring Joint	Bell Lock
			Lok Ring Joint	Bell Lock	Lok Ring Joint	Bell Lock
		McWane	Sure Stop 350 Gasket	Gasket	Sure Stop 350 Gasket	Gasket
			Thrust Lock	Bell Lock	Thrust Lock	Bell Lock
			TR- Flex	Bell Lock	TR- Flex	Bell Lock
		US Pipe	Field Lok 350 Gasket	Gasket	Field Lok 350 Gasket	Gasket
			Field Lok Gasket	Gasket	Field Lok Gasket	Gasket
			TR-Flex	Bell Lock	TR-Flex	Bell Lock
			HP Lok Restraint Joint	Bell Lock	HP Lok Restraint Joint	Bell Lock
	PVC Pipe MJ Restraint	EBAA Iron	Megalug Series 2000PV		Megalug Series 2000PV	
		Ford/Uniflange	UFR 1500 Series		UFR 1500 Series	
		Sigma	One Lok Series SLC/SLE		One Lok Series SLC/SLE	
		Smith Blair	Cam Lok Series 120		Cam Lok Series 120	
		Star	Star Grip Series 4000		Star Grip Series 4000	
Tyler Union		TufGrip Series TLP		TufGrip Series TLP		
PVC Bell Joint Restraint (4"-12") (New and Existing)	EBAA Iron	Series 1600		Series 1600		
	Ford/Uniflange	Uni-Flange Series 1390		Uni-Flange Series 1390		
	Sigma	PV-Lok Series PWP		PV-Lok Series PWP		
	Smith Blair	Bell-Lock Series 165		Bell-Lock Series 165		
	Star	Series 1100C		Series 1100C		
	Tyler Union	TufGrip 300C		TufGrip 300C		
Locator Wire	Copperhead Industries	1045B-EHS	Open Cut or Directional Drill	1045P-EHS	Open Cut or Directional Drill	
		3/16B-PB	Pipe Bursting	3/16P-PB	Pipe Bursting	
	Protrace	HDD-CCS PE45	Open Cut or Directional Drill	HDD-CCS PE45	Open Cut or Directional Drill	
	Agave	BT-1001	Open Cut or Directional Drill	BT-1001	Open Cut or Directional Drill	
		BT-3/16SS	Pipe Bursting	BT-3/16SS	Pipe Bursting	
Pipe	PVC C900 DR 18 Bell and Spigot (Up to 12")	Diamond Plastics Corp	C-900	Blue	C-900	Pantone Purple
		JM Eagle	C-900	Blue	C-900	Pantone Purple
		National Pipe & Plastics	C-900	Blue	C-900	Pantone Purple
		North American Pipe Corp	C-900	Blue	C-900	Pantone Purple
	Restrained Joint PVC Pipe for Directional Drilling	CertainTeed	Certa-Lok-C900		Certa-Lok-C900	
		JM Eagle	Eagle Loc 900		Eagle Loc 900	
	HDPE C906 DR 11	JM Eagle		DR-11 Blue		DR-11 Pantone Purple
		Performance Pipe (Chevron)		DR-11 Blue		DR-11 Pantone Purple
		Poly Pipe		DR-11 Blue		DR-11 Pantone Purple
	Ductile Iron Pipe	American	Cement Lined		Cement Lined	
		Griffin	Cement Lined		Cement Lined	
		McWane	Cement Lined		Cement Lined	
US Pipe		Cement Lined		Cement Lined		

City of Clearwater Preferred Product List

The list of preferred products shall be used for the construction of water and reclaimed water utilities for the City of Clearwater. This list does not relieve the Contractor from their responsibility to conform to the City's Technical Specifications. Products submitted for use on City projects which are not included in the list below shall be subject to the review and approval by the City.

Cat.	Description	Manufacturer	Potable Water		Reclaimed Water	
			Model	Comments	Model	Comments
Polywrap	Polywrap	American		Blue		Pantone Purple
		Christys		Blue		Pantone Purple
		Trumbull		Blue		Pantone Purple
		US Pipe		Blue		Pantone Purple
Repair Clamp	Repair Clamp	JCM	JCM 118		JCM 118	
		Romac	SS2 or SS3		SS2 or SS3	
Services	Ductile Iron Service Saddle	Ford	FC202		FC202	
		JCM	Series 406		Series 406	
		Mueller	DR2S Series		DR2S Series	
		Romac	202N Series		202N Series	
		Smith Blair	397, 317 Series		397, 317 Series	
	Service Saddle for HDPE Pipe	Ford	FCP-202 Series	With Spring Washers	FCP-202 Series	With Spring Washers
		JCM	Series 406	With Spring Washers	Series 406	With Spring Washers
		Romac	202N-H Series	With Spring Washers	202N-H Series	With Spring Washers
		Smith Blair	317 Series	With Spring Washers	317 Series	With Spring Washers
	Corporation Stop- Threaded	Ford	FB400-6	1 1/2"	FBRW1000-4Q	1" shall be ball corporation stop. 2" shall be threaded corporation stop.
			FB400-7	2"		
		Mueller	H-10003N	1"	B-25008-20	
			B-2996N	1 1/2"		
	Curb Stops	Ford	B43-332 WQ	with Lock Wing and Compression Inlet	BRW 43-444W-Q BRW 41-777W-Q	Reclaimed Water shall be stamped on curb stops
			Mueller	Mueller H24350	B24353 N-20 B25170 N-20	
		Mueller				
	Polyethylene Tubing	Charter				
		Endot				
		JM Eagle				
	Meter Boxes	Amorcast Product				
Carson						
Hubbell						
Tapping Sleeves and Valves	Line Stops	JCM	JCM 442		JCM 442	
		Smith Blair	680		680	
	Tapping Sleeves	JCM	JCM 412		JCM 412	
			JCM 452		JCM 452	
	Tapping Valve	American	Series 2500		Series 2500	
		Clow	Series F-6114		Series F-6114	
Mueller		Series T2361		Series T2361		
Valves	Butterfly Valve	Clow	#1450	24" and above	#1450	24" and above
		Dezurik	BAW	24" and above	BAW	24" and above
		Pratt		24" and above		24" and above
	Gate Valve	American	Series 2500 NRS		Series 2500 NRS	
		Clow	Series F-6100		Series F-6100	
		Mueller	Series A-2360		Series A-2360	
	OS&Y Valves	American	Series 2500 OS&Y		Series 2500 OS&Y	
Clow		2638, 2639, or 2640		2638, 2639, or 2640		
Valve Box	Sigma					
	Star					
	Tyler Union					