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Solicitation Addendum

Addendum No.:	6
Solicitation No.:	23-TA004807DJ
Project No.:	6110580
Solicitation Title:	Force Main 32A Replacement
Addendum Date:	November 15, 2023
Procurement Contact:	Dave Janney, Procurement Agent III

IFBC 23-TA004807DJ is amended as set forth herein. Responses to questions posed by prospective bidders are provided below. This Addendum is hereby incorporated in and made a part of IFBC 23-TA004807DJ.

The deadline to submit all inquiries concerning interpretation, clarification or additional information pertaining to this IFBC was November 10, 2023.

REPLACE:

BID ATTACHMENT 3 – PLANS

Replace Bid Attachment 3 - Plans, Sheets C-3 and C-4 in its entirety with the attached Revised Bid Attachment 3 - Plans, Sheets C-3 and C-4 issued with this Addendum No. 6 and available for download as a separate attachment.

REPLACE:

SECTION C, BID ATTACHMENTS, BID ATTACHMENT 2, TECHNICAL SPECIFICATIONS, SECTION 01150 MEASURE AND PAYMENT

Replace Bid Attachment 2, Technical Specifications, Section 01150, Measure and Payment, in its entirety with attached Revised Section 01150, Measure and Payment issued with Addendum No. 6, hereby incorporated into this IFBC.

REPLACE:

SECTION B, BID FORMS, APPENDIX L, BID PRICING FORM

Replace Appendix L Bid Pricing Form, with Appendix L Bid Pricing Form (Revision 2) issued with Addendum 3, hereby incorporated into this IFBC.

QUESTIONS AND RESPONSES:

Q1. Is there a geotechnical soils report for this project?

R1. See attached Geotechnical Report.

Q2. Does the County have the FDOT Permit for this job?

R2. See attached FDOT Approved Utility Permit.

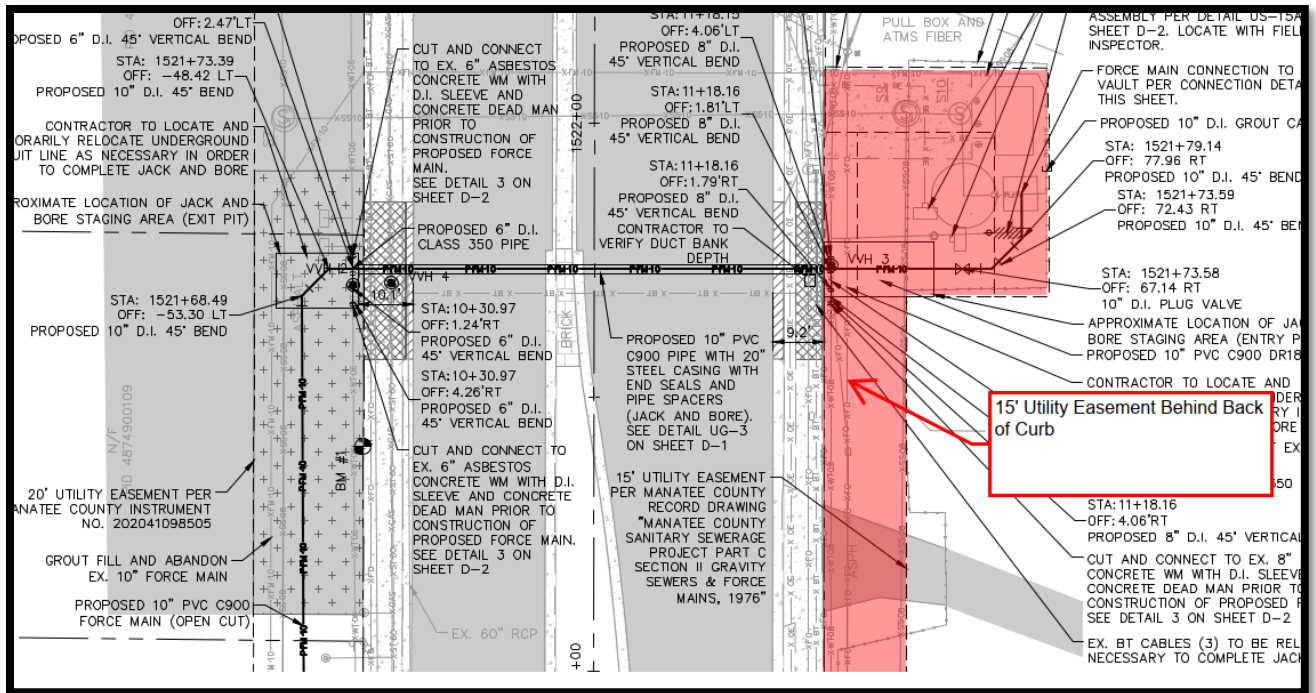
Q3. Reference Addendum No. 3, QUESTIONS AND RESPONSES, response R-1 does not correctly address the issue presented in Q-1 regarding not being able to quantify the costs associated with utility adjustments at this time, during the bidding process. The Contractor should not be expected to commit costs to make the necessary fiber optic utility adjustment until the utilities are field located and vertical elevations are determined. These utilities are owned by others, and we do not know what the utility companies costs will be to make a vertical adjustment to their facility. The language in the specifications and the note on the drawing that requires the Contractor to include utility adjustment costs needs to be removed. Fiber optic adjustment costs, once determined, can be compensated to the Contractor through the Contingency fund.

R3. A \$50,000 allowance has been added to the bid form to accommodate unknown utility relocations for the jack and bore such as fiber optic lines and County ATMS fiber. The locations and elevations of most utilities in the right-of-way are unknown and were not verified during the design process. If unknown utility relocations exceed the \$50,000 allowance, funds will be taken from project contingency.

Q4. Reference Addendum No. 3, QUESTIONS AND RESPONSES, response R-2, this response side stepped the issue presented in Q-2, the issue in Q-2 was not directed at the County's ATMS fiber optic lines, but the response still requires the Contractor to include costs for adjusting fiber optic lines and costs for that work cannot be quantified at this time. This is wrong, the County needs to work with the Contractor to recover costs associated with fiber optic utility adjustment.

R4. See Response to Q3.

- Q5. Reference Addendum No. 3, QUESTIONS AND RESPONSES, response R-3, this response does not answer the issue presented in Q-3, please provide an acceptable response.**
- R5. See Response to Q3.
- Q6. Reference Addendum No. 3, QUESTIONS AND RESPOSES, response R-23, contrary to this response, there will be work to be performed in the roadway for Bid Item 32 that will require excavating down to the existing jack and bore casing at the west side of the roadway and will require a lane closure to do so, signal timing modifications may be necessary, please provide traffic count data as requested.**
- R6. There will be no required work under 14th Street. The FDOT permit requirement is that the contractor is to verify the existing pipe to be placed out of service. This will include elevations of the pipe or casing crossing and the location of the existing crossing. If the casing ends under 14th Street, the contractor will need to obtain an elevation of the existing force main instead. The intent is to use SUE vacuum excavation to locate the existing force main.
- Q7. Reference Addendum No. 3, QUESTIONS AND RESPONSES, response R-25, once again, the Contractor cannot commit to including any costs for fiber optic utility adjustment at this time as costs for this work cannot be determined during the bidding process, please remove the language that speaks to including utility adjustment costs as requested in Q-25.**
- R7. See Response to Q3.
- Q8. Reference Addendum No. 3, QUESTIONS AND RESPONSES, responses R-29 and R-32, adding a bid item for removal/replacement of the County owned fence is fine, but there is still not enough room to construct the design improvements without encroaching on the adjacent private property, the County needs to have temporary construction easements in place at the east and south sides of the lift station site. The private property bordering the lift station site has a chain link fence that will also need to be removed, someone from the County needs to revisit the site.**
- R8. The contractor has a 15' utility easement boarding the right-of-way in addition to the room on the lift station property to complete the jack and bore highlighted below in red. The engineer and County believe this is enough space to complete the jack and bore.



- Q9. Reference plan sheet C-4, the profile view that shows the existing casing for 10” CIP force main, it appears the west end of the existing casing will be under the asphalt at 14th Street West and will require asphalt pavement, base and sub-grade work to be performed after completion of the work for Bid Item 32, please provide an FDOT pavement replacement section for this work.**
- R9. The FDOT permit requirement is that the contractor is to verify the existing pipe to be placed out of service. This will include elevations of the pipe or casing crossing and the location of the existing crossing. The intent is to no impact FDOT roadway. If the casing is under 14th Street, the contractor will need to obtain an elevation of the existing force main instead.
- Q10. Reference plan sheet C-4, the plan view of the existing 10” CIP force main at the east side of 14th Street West appears to be under the concrete slab at the lift station, and the profile view of the 10” CIP force main shows the pipe to be fourteen (14) feet deep, excavating down fourteen (14) feet deep and restoration to the impacted surface area just to confirm casing size and elevation is going to be very expensive, does the County really need this information?**
- R10. FDOT is requiring an elevation on the existing force main casing or existing force main on both sides of the street to close the permit out after construction. The intent is to use SUE vacuum excavation to locate the existing force main.
- Q11. We have reached out to the Owner of the private property adjacent to the lift station site and have been unsuccessful negotiating access to the property for use during construction, will the County intervene with the Owner of the property for access?**

R11. The County project manager has reached out to the County real-estate division to begin conversations with the property owner if additional space for the jack and bore is needed. For the purpose of this bid the contractor is to assume no temporary construction easements.

Q12. Will Manatee County accept the Tnemec/Epoxytec CPP for this project?

R12. The County is not prepared to modify the product list at this time.

Q13. Reference plan sheet C-2, the Note that reads “PROPOSED 12” HDPE DR-11 FORCE MAIN, BUTT FUSED (A SLEEVE CAN NOT BE USED FOR THIS CONNECTION)”, butt fusing the two pipes together cannot be done because one of the pipes has to be pulled back and then pulled forward to make the fuse weld and pulling the pipe back and forward cannot be done. What should be done, since this will be a high point in the line, is fuse weld MJ adapters on each end of each HDPE pipe, install a length of PVC C-900, DR-18 pipe between the two MJ adapters and install an air release valve on the PVC pipe. An MJ sleeve will be required to make closure and would be installed on the PVC pipe. Locations of MJ adapters, MJ sleeve and air release would be properly noted on the certified as-built drawings.

R13. The Contractor will be required to butt fuse the two drills together down in the pit to produce one single continuous run of HDPE pipe. This will require digging down on the pipe and connecting them together. No MJ sleeves will be allowed, no high point can be created, and no ARV will be installed. This is a standard practice for Manatee County Utilities.

NOTE:

Deleted items will be ~~struck through~~, added or modified items will be underlined. All other terms and conditions remain as stated in the IFBC.

INSTRUCTIONS:

Receipt of this Addendum must be acknowledged as instructed in the solicitation document. Failure to acknowledge receipt of this Addendum may result in the response being deemed non-responsive.

END OF ADDENDUM

AUTHORIZED FOR RELEASE

SECTION 01150 MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE

- A. The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item.
- B. All contract prices included in the Bid Form section will be full compensation for all shop drawings, working drawings, labor, materials, tools, equipment and incidentals necessary to complete the construction as shown on the Drawings and/or as specified in the Contract Documents to be performed under this Contract. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the Specifications. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Contract.

1.02 ESTIMATED QUANTITIES

The quantities shown are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. The County does not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding because of such estimate of quantities. Final payment will be made only for satisfactorily completed quantity of each item.

1.03 WORK OUTSIDE AUTHORIZED LIMITS

No payment will be made for work constructed outside the authorized limits of work.

1.04 MEASUREMENT STANDARDS

Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally or vertically.

1.05 AREA MEASUREMENTS

In the measurement of items to be paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the final dimensions measured along the surface of the completed work within the neat lines shown or designated.

1.06 LUMP SUM ITEMS

Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum items. Lump sum contracts shall be complete, tested and fully operable prior to request for final payment. Contractor may be required to provide a break-down of the lump sum

totals.

1.07

UNIT PRICE ITEM

Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work shall be considered to be included in the scope of the appropriate listed work items.

No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the County until as-built (record) drawings have been submitted and approved by the County.

1. Project signs and photographs.
2. Removal, repair, replacement or relocation of all signs, walls, private irrigation systems and related items.
3. Rubbish and spoil removal.
4. Shop Drawings, Working Drawings.
5. Clearing, grubbing and grading except as hereinafter specified.
6. Trench excavation, including necessary pavement removal and rock removal, except as otherwise specified.
7. Dewatering and disposal of surplus water.
8. Structural fill, backfill, and grading.
9. Replacement of unpaved roadways, and shrubbery plots.
10. Cleanup & miscellaneous work.
11. Foundation and borrow materials, except as hereinafter specified.
12. Testing and placing system in operation.
13. Any material and equipment required to be installed and utilized for the tests.
14. Pipe, structures, pavement replacement, asphalt and shell driveways and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
15. Maintaining the existing quality of service during construction.
16. Appurtenant work as required for a complete and operable system.
17. Seeding and hydromulching.

BID ITEM NO. 1 - MOBILIZATION

Measurement and payment for this Bid Item shall include full compensation for the required 100 percent (100%) Performance Bond, 100 Percent (100%) Payment Bond, all required insurance for the project and the Contractor's mobilization and demobilization costs as shown in the Bid Form. Mobilization includes, but it not limited to: preparation and movement of personnel, equipment, supplies and incidentals such as safety and sanitary supplies/ facilities.

Payment for mobilization shall not exceed 10 percent (10%) of the total Contract cost unless the Contractor can prove to the County that his actual mobilization cost exceeds 10 percent (10%).

Partial payments for this Bid Item will be made in accordance with the following schedule:

Percent of Original Contract Amount:	Percent Allowable Payment of Mobilization/Demobilization Bid Item Price:
5	25
10	35
25	45
50	50
75	75
100	100

These payments will be subject to the standard retainage provided in the Contract. Payment of the retainage will be made after completion of the work and demobilization.

BID ITEM NO. 2 - MAINTENANCE OF TRAFFIC

Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with the lump sum price bid for all maintenance of traffic including all local agencies and municipalities, and all equipment and manpower necessary to comply with the FDOT Design Standards 102 - 600 Series.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM NO. 3 - PRECONSTRUCTION VIDEO

Payment for all work included in this Bid Item will be made at the applicable Contract lump sum bid for the preconstruction video of the existing site conditions. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work, ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance

with the Contract Documents.

BID ITEM NO. 4 - EROSION AND SEDIMENT CONTROL

Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with the lump sum price bid for erosion and sediment control, including inlet protection, silt fence, permitting if required, coordination with federal, state and local agencies and all equipment and manpower necessary to comply with necessary agencies.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM NO. 5 - CLEARING AND GRUBBING

Payment for all work included under this Bid Item shall be quantified by the Contractor as a lump sum amount for all of the areas that will require clearing and grubbing for the pipe installation and in accordance with the plans and specifications. Clearing and grubbing shall include the removal and disposal of vegetation, trees, tree roots, rock, abandoned pipe and other features not part of the proposed improvements. The Contractor shall include the cost of any and all permitting required for the burning or disposal of removed trees and vegetation.

Unless otherwise indicated herein these documents or in the construction plans, clearing and grubbing includes a ten (10) foot strip along the pipeline route. The contractor will be responsible for making their own determination as to the acreage and quantity of clearing and grubbing.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 6 - PROJECT SIGNS

Payment for all work included in this Bid Item will be made at the applicable Contract lump sum bid for the necessary signage required during construction. At least two (2) project signs should be used per project. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work, ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 7 - BYPASS PUMPING

Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with the lump sum price bid for any bypassing required to make connections to existing force mains, proposed force mains, manhole rehabilitation, existing manholes, and/or lift stations. Payment for all work included, but is not limited to, under this Bid Item shall also represent full compensation in

accordance with the lump sum price bid for all labor, fittings and appurtenances, excavation, dewatering, bedding, backfill, compaction, testing, equipment, line stops, necessary septage trucks, and the bypassing of the existing lift stations and manholes in order to complete the proposed improvements. Information on lift station 32A connected to the existing 10-inch force main are shown below for informational purpose only:

Lift Station #32A - RTU #303 - 3011 14ST.W. - 525 GPM at 31-ft TDH

Coordinate with Erik Gibson (Lift Station Superintendent) with Manatee County for shutdown of Lift Stations. At least five days' notice needs to be provided to Erik to coordinate shutdown. Phone Number: 941-792-8811 EXT 5377. Connection must also be made outside of peak hours between 9PM and 5AM. Contractor shall make provisions to have an adequate number of septage trucks available to bypass Lift Station 32A.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM NO. 8 - RECORD DRAWINGS

Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with the lump sum price bid for as-built record drawings per specification section 01720 and the latest edition of the Manatee County Public Works Standards Manual. Also included is any other record drawing requirements for certifications to put proposed project into service. All items are subject to approval by the Engineer and the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents..

BID ITEM NO. 9 - PIPELINE TESTING

Payment for all work included in this Bid Item will be made at the applicable Contract lump sum bid for test pigging, pressure testing, Bacteriological sampling, chlorination, and testing the proposed water main and force main, and coordination with the Engineer/FDEP for pipeline clearances per specification section 02617 and the latest edition of the Manatee County Public Works Standards Manual. Payment shall represent full compensation for all labor, chlorination and Bacteriological sampling ports, fittings, blow off assemblies, materials, chemicals, pumps, necessary equipment, and incidentals necessary to complete the work, ready for approval and acceptance by the County. No additional payment will be made for additional testing due to faulty work by the Contractor.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 10 - 12" HDPE DR11 PIPE (HDD)

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per linear foot for furnishing and installing the 12" diameter HDPE DR 11 pipe by directional drill and associated connection pipe sections as shown on the Contract Drawings and listed on the Bid Form. As part of the testing methods for the HDPE pipe installation, the Contractor shall televise or pull a mandrel through the installed HDPE pipe to verify sound installation based on the County inspectors direction.

Measurement and Payment shall be made for the actual length of the 12" diameter pipe directional drilled and installed, and will represent full compensation for all labor, materials, excavation, including rock, dewatering, bedding, backfill, compaction, testing, pipe restraints (including MJ adapter with ductile iron gland and blue fluoropolymer coated high-strength low alloy steel conforming to AWWA C111 or 316 stainless steel hardware), dual tracer wires, mud trailer, removal of drilling mud, and equipment required to complete this Bid Item. Payment shall also include locating of existing utilities and restoration in the project area. Included in these bid items are the removal and replacement of existing roadway signs, traffic signalization loops, and irrigation systems required to construct the pipeline. Payment shall also include removal of existing abandoned pipelines and protecting and supporting power/light poles that may be in conflict with the pipeline construction. No additional compensation shall be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill material, or for repair of any trench settlement.

BID ITEM NO. 11 - 10" PVC C900 DR 18 PIPE (OPEN-CUT)

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per linear foot for furnishing and installing the 10-inch diameter PVC force main (AWWA C900-16 DR 18) pipe as shown on the Contract Drawings and listed on the Bid Form. Measurement and Payment shall be made for the actual length of the listed diameter pipe and installed and will represent full compensation for all labor, materials including pipe bell joint restraints, blue fluoropolymer coated high-strength low alloy steel or 316 stainless steel hardware, tracer wire, marking tape, excavation, including rock, dewatering, bedding, backfill, compaction, and equipment required to complete these Bid Items, including removal of existing abandoned pipelines as necessary and protecting and supporting power/light poles that may be in conflict with the pipeline construction. Payment shall also include locating of existing utilities in the project area. Included in these bid items are the removal and replacement of existing roadway signs, traffic signalization loops, and irrigation systems required to construct the pipeline. No additional compensation shall be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill material, or for repair of any trench settlement.

BID ITEM NO. 12 - 20" STEEL CASING WITH 10" CARRIER PIPE (JACK AND BORE)

Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with the unit price bid per linear foot of jack and boring including furnishing and installing 0.250-inch thick steel casing, 10-inch PVC C900 DR18 carrier pipe, pipe joint bell restraints, centered and restrained casing spacers, end seals with 316 stainless steel clamps, and 316 stainless steel hardware

furnished, installed as shown in the Contract Drawings, and accepted by the County. Pay Item also represent full compensation for all labor, materials, end seals, casing spacers, tracer wire, grout, excavation, including rock, dewatering, bedding, backfill, shoring, compaction, locating existing utilities, relocating existing utilities in conflict, testing and equipment required to complete these Bid Items. No additional compensation shall be made for excavation below the bottom of the casing pipe, for rock removal or bedding and backfill material, or for repair of any trench settlement. Payment shall represent full compensation for all labor, materials, equipment, restoration and incidental items necessary to complete.

Measurement for the steel casing and carrier pipe shall be per length foot as shown on the Plans. Excavation, including rock as necessary, bedding, backfill, dewatering, sheeting, testing and any and all other items necessary for a completed system in accordance with the Plans shall be included. Payment shall represent full compensation for all labor, materials, equipment, restoration, and incidental items necessary to complete.

BID ITEM - DUCTILE IRON FITTINGS

Payment for all work included in these Bid Items will be made at the applicable Contract unit price bid for furnishing and installing each listed ductile iron fitting (Holiday-Free Permox CTF or Tnemec Series 431 Perma-Shield PL epoxy lined) as shown on the Contract Drawings and listed on the Bid Form. Payment will be made for each fitting installed and will represent full compensation for all labor, material, excavation, blue fluoropolymer coated high-strength low alloy steel or uncoated 316 stainless steel hardware, mechanical joint restraint, including rock, bedding, backfill, compaction, polyethylene wrapping, testing and equipment required to complete these Bid Items.

BID ITEM	DESCRIPTION	UNITS
13	12" DI Fitting - 11.25 Degree Bend	EA
14	12" x 10" DI Fitting - Reducer	EA
15	10" DI Fitting - 45 Degree Bend	EA
16	10" x 4" DI Fitting - Reducer	EA
17	4" DI Fitting - Tee	EA

BID ITEM NO. 18 - 10" D.I. PLUG VALVE

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per each valve for furnishing and installing each plug valve, box, cover, concrete pad, and tracer wire test station box, as shown on the Contract Drawings and listed on the Bid Form. Payment shall represent full compensation for all labor, material, excavation, including rock as necessary, bedding, backfill, compaction, polyethylene wrapping all valves, testing, and equipment required to complete these Bid Items. All materials shall conform to the most updated version of the Manatee County Approved Product List and the latest edition of the Manatee County Public Works Standards Manual.

BID ITEM NO. 19 - AC WATER MAIN RELOCATIONS

Payment for all work included in these Pay Item shall be made at the applicable Contract lump sum bid for relocating and replacing existing asbestos concrete water mains with ductile iron class 350 pipe and ductile iron fittings to maintain existing utility service connections in areas of work. This includes, but is not limited to, procurement, modification, and installation of all 6" and 8" water main pipe, 6" and 8" fittings, tracer wire, reconnection to existing water mains, and all other associated appurtenances needed to maintain the existing water main connection. Pay Items also represent full compensation for all labor, materials, excavation, including dewatering, bedding, backfill, compaction, testing, disinfection, and equipment required to complete these Pay Items. All materials shall conform to the most updated version of the Manatee County Approved Product List. Payment shall include cutting and disposal of asbestos concrete pipe which must be performed by a Florida-licensed Asbestos Abatement Contractor. Contractor must furnish all permits, labor, material, services, insurance, tools, equipment, and notifications in accordance with EPA, OSHA, State, and all other applicable agencies to handle and remove asbestos material. Specifically, refer to EPA 40 CFR Part 61. No additional compensation shall be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill material, or for repair of any trench settlement. No additional compensation shall be made for extensive dewatering or any water treatment services or equipment that may be required for contaminated groundwater.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 20 - 2" ABOVE GROUND AIR RELEASE VALVE

Payment for all work included in this Bid Item shall be at the applicable Contract unit price bid per each air release valve for furnishing and installing the listed diameter air release valve, 316 stainless steel backflush attachments, bollards, piping, fittings, box, cover, enclosure, and concrete pad as shown on the details in the Contract Drawings and listed on the Bid Form. Payment shall represent full compensation for all labor, material, excavation, including rock as necessary, bedding, backfill, compaction testing, and equipment required to complete these Bid Items.

BID ITEM NO. 21 - MANHOLE REHABILITATION

Payment for work under this Bid Item shall be made at the Contract unit price bid for each manhole rehabilitation including removing the existing liner if applicable, pressure washing, injection grouting to stop any infiltration, concrete restoration to ensure a smooth surface for coating, applying a primer and protective liner per specification section 02064 and as shown on the Contract Drawings, repairing dilapidated bench work and inverts, installing a rainwater dish, and replacing manhole frame and cover with County approved products as shown on the Contract Drawings. The proposed manhole frame and cover shall be made of heavy duty composite materials with min. three (3) 316 stainless steel bolts and associated hardware. Payment shall represent full compensation for all labor, materials, fittings, necessary equipment, and incidental items necessary to complete each manhole rehabilitation, ready for approval and service by the County.

This pay item shall also include any restoration associated with the manhole rehabilitation, including but not limited to sidewalk, grass, and miscellaneous

concrete, in accordance with the Contract Documents shall be included. No additional compensation will be made by the County for any damage to manhole structures due to liner installation. It shall be the responsibility of the Contractor to repair the manhole structure. Repair work shall ensure manhole structure is structurally rigid and leakproof. Sealants used shall be flexible and withstand horizontal and vertical movement due to traffic loading and shall be approved by the County.

BID ITEM NO. 22 - LIFT STATION 32A FORCE MAIN CONNECTION

Payment for all work included, but is not limited to, under these Bid Items shall be made at the applicable Contract lump sum bid for force main connection. Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with unit price bid for all labor, 4" ductile iron class 350 spool pieces, additional necessary fittings not shown on the Contract Drawings (Holiday-Free Permax CTF or Tnemec Series 431 Perma-Shield PL epoxy lined), polyethylene wrapped fittings and restraints, grout, excavation, dewatering, bedding, backfill, compaction, testing, equipment, and thrust blocks for the force main connection. Contractor shall make provisions to have an adequate number of septage trucks available to make the necessary force main connections.

Coordinate with Erik Gibson (Lift Station Superintendent) with Manatee County for shutdown of Lift Stations. At least five days' notice needs to be provided to Erik to coordinate shutdown. Phone Number: 941-792-8811 EXT 5377. Connection must also be made outside of peak hours between 9PM and 5AM.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 23 - MH-S1 FORCE MAIN CONNECTION

Payment for all work included, but is not limited to, under these Bid Items shall be made at the applicable Contract lump sum bid for force main connection. Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with unit price bid for all labor, removal and disconnection of the existing force main from MH-S1 and all required labor and materials necessary, installation and connection of the proposed force main to MH-S1, cast-in resilient boot or seal connectors in accordance with ATM C923, 316 stainless steel hardware and connector bands, polyethylene wrapped fittings and restraints, removal of any additional pipe necessary, repairing manhole internal coating, replacing the manhole bench, grouting, excavation, dewatering, bedding, backfill, compaction, testing, equipment, and thrust blocks for the force main connection to MH-S1. Cost for manhole rehabilitation is included in bid item #21. Contractor shall make provisions to have an adequate number of septage trucks available to make the necessary force main connections.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 24 - LIFT STATION WATER SERVICE MODIFICATION

Payment for all work included in this Bid Item will be made at the applicable Contract lump sum bid for upgrading the existing water service to a 2-inch water service at Lift Station #32A. Included in this bid item is all work required for removing the existing service saddle and replacing with a new saddle and threaded plug, furnishing a new service saddle, 2" polyethylene tubing, removing and replacing the existing backflow prevention assembly and concrete pad with a 2" backflow prevention & meter assembly per detail US-15A, and furnishing and installing the hose bib & camlock connection assembly, as shown on the plans. Payment shall represent full compensation for all labor, materials, fittings, appurtenances, piping, concrete, necessary equipment, restoration, and incidentals necessary to complete the work, ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 25 - SIDEWALK RESTORATION

Payment for all work included under this Bid Item will be made at the Contract unit price bid per square yard of concrete sidewalk installed as shown in the Contract Drawings and as listed on the Bid Form. Measurement will be based on the actual number of square yards of concrete sidewalk installed, tested, completed and approved. No payment for restoration of a private driveway within or outside the right-of-way shall be made under this Bid Item. Sidewalks shall meet the requirements of the Manatee County Transportation Design Standards if in Manatee County right-of-way or FDOT sidewalk standards if in FDOT right-of-way and the Specifications herein.

BID ITEM NO. 26 - ASPHALT DRIVEWAY RESTORATION

Payment for all work included in this Bid Item will be made at the applicable Contract unit price bid per square yard of asphalt driveway restoration as listed on the Bid Form. Measurement of asphalt driveway restoration will be per the actual number of square yards of asphalt driveway repaired. Payment shall represent full compensation for all labor, materials and equipment for cutting the edges of existing driveways, compacting subgrade, furnishing and installing the asphalt, including all incidentals necessary to complete the driveway restoration as shown on the Contract Drawings and included in the Specifications, all ready for approval and acceptance by the County. Driveways shall be repaired to match existing thicknesses or thicknesses specified in the Contract documents, whichever is greater.

BID ITEM NO. 27 - SODDING

Payment for all work included in this Bid Item will be made at the applicable Contract unit price bid per square yard for furnishing and installing sodding to restore areas to preconstruction conditions, as listed on the Bid Form. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work, ready for approval and acceptance by the County.

BID ITEM NO. 28 - LANDSCAPING/IRRIGATION RESTORATION

Payment for all work included in this Bid Item will be made at the applicable Contract lump sum price for furnishing and installing all landscape disturbed during construction including all plants, trees, piping, valves, ~~fencing, brick and concrete fence pillars~~, irrigation, and all associated equipment and materials as shown on the Contract Drawings. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work, ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 29 - REMOVE AND REPLACE CURB

Payment for all work included in this Bid Item will be made at the applicable Contract unit price bid per linear foot for removal of existing curbing and for furnishing and placing the same type of curb with expansion joints. Measurement will be per actual number of linear feet of curbing installed. Payment shall represent full compensation for removal of existing curb and all labor, material and equipment for compacting subgrade, forming, furnishing, placing the concrete, installing expansion joints, saw cutting, and finishing as specified and all incidentals necessary for completion of this Bid Item, ready for approval and acceptance by the County.

BID ITEM NO. 30 - GROUT FILL & ABANDON EXISTING PIPELINES

Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with the unit price bid per cubic yard of grout fill that is required to abandon all of the existing pipelines to be deactivated; wasted/spilled grout will not be paid for, only the required amount of grout in the abandoned pipe. Payment will include all equipment, labor, fittings including plugs and caps whether shown on the plans or not, decommissioning valves, removal of valve boxes, restraints, concrete blocks, temporary connections, flushing of existing pipelines, and appurtenances required to abandon the existing mains in accordance with County standards.

The existing pipelines that are being grouted and abandoned must be cut and capped at a maximum distance of 2,000 linear foot segments. The caps must have offset grout port on the top side of the cap. The County preferred grout mix in the contract specifications must be used.

BID ITEM NO. 31 - JACK AND BORE EXISTING UTILITY DEPTH AND LOCATION VERIFICATION

Payment for all work included in this Bid Item will be made at the applicable Contract lump sum price for existing utility elevation and location verification at the jack and bore location (east and west side of 14th Street West). Payment shall represent full compensation for all labor, materials and equipment for cutting edges of existing curb/sidewalk, curb/sidewalk restoration, sod restoration, excavating and dewatering to locate the existing utilities within the specified area on the Contract Drawings and included in the Specifications, all ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance

with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 32 - SUE LOCATES FOR THE EXISTING FORCE MAIN

Payment for all work included in this Bid Item will be made at the applicable Contract lump sum price for the subsurface utility exploration (SUE) and restoration to verify the existing depth and elevation of the existing force main/casing on both sides of 14th Street West and update the record drawings with this information. Payment shall represent full compensation for all labor, materials and equipment for SUE exploration, restoration, excavating and dewatering to locate the existing force main within the specified area on the Contract Drawings and included in the Specifications, all ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 33 - SITE FENCE RESTORATION

Payment for all work included in this Bid Item will be made at the applicable Contract lump sum price for the removal and replacement of the site fence as necessary to complete the proposed directional drill and jack and bore construction. Payment shall represent full compensation for all labor, materials, to replace the concrete fencing and lift station site fence, brick and concrete fence pillars, chain link fence, and all associated equipment and materials as shown on the Contract Drawings. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work, ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 34 - ALLOWANCE - BURIED UTILITY RELOCATION

The County is allowing for a buried utility relocation allowance of \$50,000. Contractor shall include this allowance in his bid. Payment will only be made for the actual buried utility relocations made. Contractor shall provide justification for payment at time of billing.

BID ITEM NO. 35 - CONTRACT CONTINGENCY

Payment for all work under this Bid Item shall be made only at the County's discretion. This Bid Item shall not exceed 10% of the Bidders Total Base Bid. The Bidder shall calculate and enter a dollar amount for this Bid Item.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

APPENDIX L BID PRICING FORM REVISION 2
23-TA004807DJ FORCE MAIN 32A FORCE MAIN REPLACEMENT
PROJECT #6110580

Bidders must provide prices for each available line item on each tab for their bid to be considered responsive.

*To be considered responsive, it is the sole responsibility of the bidder to correctly calculate and manually enter all sub-total, contingency, and total bid price fields.

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
				<u>BID A</u> <u>150 CALENDAR DAYS</u>	<u>BID A</u> <u>150 CALENDAR DAY</u>	<u>BID B</u> <u>240 CALENDAR DAYS</u>	<u>BID B</u> <u>240 CALENDAR DAY</u>
I. MISCELLANEOUS							
1	Mobilization (10%)	1	LS				
2	Maintenance of Traffic	1	LS				
3	Preconstruction Video	1	LS				
4	Erosion and Sediment Control	1	LS				
5	Clearing and Grubbing	1	LS				
6	Project Signs	1	LS				
7	Bypass Pumping	1	LS				
8	Record Drawings	1	LS				
9	Pipeline Testing	1	LS				
SUBTOTAL							
II. PROPOSED UTILITY RELOCATIONS							
10	12" HDPE DR11 Pipe (HDD)	1,110	LF				
11	10" PVC C900 Pipe (Open-Cut)	280	LF				
12	20" Steel Casing with 10" Carrier Pipe (Jack and Bore)	90	LF				
13	12" DI Fitting- 11.25 deg	2	EA				
14	12"x10" DI Fitting- Reducer	2	EA				
15	10" DI Fitting - 45 deg	5	EA				
16	10"x4" DI Fitting - Reducer	1	EA				
17	4" DI Fitting - Tee	2	EA				
18	10" DI Plug Valve	1	EA				
19	AC Water Main Relocations	1	LS				
20	2" Above Ground Air Release Valve	1	EA				
21	Manhole Rehabilitation	3	EA				
22	Lift Station 32A Force Main Connection	1	LS				
23	MH-S1 Force Main Connection	1	LS				
24	Lift Station Water Service Modifications	1	LS				
25	Sidewalk Restoration Repair	45	SY				
26	Asphalt Driveway Repair	180	SY				
27	Sodding	750	SY				
28	Landscaping/Irrigation Restoration	1	LS				
29	Remove and Replace Curb	60	LF				
30	Grout Fill and Abandon Existing Pipelines	30	CY				
31	Jack and Bore Utility Depth and Location Verification	1	LS				
32	SUE Locates for the Existing Force Main	1	LS				
33	Site Fence Restoration	1	LS				
34	Buried Utility Relocation Allowance	1	LS		\$50,000.00		\$50,000.00
SUBTOTAL							
TOTAL SECTIONS I AND II							
34 35	Contingency (10%)	10%	LS				
GRAND TOTAL							

Added Line item

Updated Line Item

BIDDER NAME _____

BIDDER SIGNATURE _____

Bidders must provide prices for each available line item on each tab for their bid to be considered responsive.

*To be considered responsive, it is the sole responsibility of the bidder to correctly calculate and manually enter all sub-total, contingency and total bid price fields.

**Subsurface Exploration and
Geotechnical Engineering Evaluation
Force Main 32A Replacement
14th Street West (Business 41)
Bradenton, Manatee County, Florida**



Ardaman & Associates, Inc.

CORPORATE HEADQUARTERS

8008 S. Orange Avenue, Orlando, FL 32809 - Phone: (407) 855-3860

Branch Office Locations

Florida: Bartow, Cocoa, Fort Myers, Miami, Orlando, Port St. Lucie, Sarasota, Tallahassee, Tampa, West Palm Beach
Louisiana: Baton Rouge, New Orleans, Shreveport

MEMBERS:

ASTM International
American Concrete Institute
Geoprofessional Business Association
Society of American Military Engineers
American Council of Engineering Companies



Kimley-Horn & Associates, Inc.
100 2nd Avenue South, Suite 105N
St. Petersburg, FL 33701

Attention: Mike Semago, P.E.

Subject: Subsurface Exploration and
Geotechnical Engineering Evaluation
Force Main 32A Replacement
14th Street West (Business 41)
Bradenton, Manatee County, Florida

Dear Mr. Semago:

As requested and authorized, we have completed a subsurface exploration and geotechnical engineering evaluation for the subject project. The purposes of performing this exploration were to evaluate the general subsurface conditions at selected locations and provide soil parameters to use by others in design. This report documents our findings and presents our engineering recommendations.

SITE LOCATION AND SITE DESCRIPTION

The proposed 10-inch force main replacement extends from the existing Manatee County 303 lift station on the east side of 14th Street West near the intersection with 30th Avenue West and extends approximately 0.1 miles south along 14th Street West in Bradenton, Manatee County, Florida (Section 2, Township 35 South, Range 17 East). The general site location is shown superimposed on the Bradenton, Florida U.S.G.S. quadrangle map presented on Figure 1.

PROPOSED CONSTRUCTION AND GRADING

It is our understanding that the proposed development includes a 10-inch force main replacement along 14th Street West (Business 41) in between 30th Avenue West and 33rd Avenue West, and that it will be installed using a combination of cut and cover and directional drill construction techniques.

REVIEW OF SOIL SURVEY MAPS

Based on information obtained online from the Web Soil Survey as operated by the U.S. Department of Agriculture, Natural Resources Conservation Services, the site is located in an area mapped as the "Wabasso Variant fine sand" soil series. The "Wabasso Variant fine sand" soil series consists of nearly level, sandy soil on stream terraces well above normal overflow. The internal drainage of the "Wabasso Variant fine sand" is described as poor. The soil permeability is described as rapid in the surface and subsurface layers, in the layer between the two parts of

the subsoil , and in the substratum. According to the Soil Survey, the seasonal high water table for the “Wabasso Variant fine sand” soil series is typically within 10 to 40 inches of the natural ground surface.

FIELD EXPLORATION PROGRAM

SPT Borings

The field exploration program included performing three (3) Standard Penetration Test (SPT) borings at requested locations. The SPT borings were advanced to a depth of 20 feet below the existing ground surface, generally using the methodology outlined in ASTM D-1586. A summary of this field procedure is included in the Appendix.

Soil samples recovered during performance of the borings were visually classified in the field and representative portions of the samples were transported to our laboratory in sealed sample jars.

The groundwater level at each of the boring locations was measured during drilling. The borings were backfilled with cement grout upon completion.

Test Locations

The approximate locations of the borings are schematically illustrated on an aerial photograph shown on Figure 3. These locations were determined in the field by tape measuring/estimating distances from existing site features and should be considered accurate only to the degree implied by the method of measurement used.

LABORATORY PROGRAM

Representative soil samples obtained during our field sampling operation were packaged and transferred to our laboratory for further visual examination and classification. The soil samples were classified using visual-manual procedures in general accordance with the Unified Soil Classification System (ASTM D-2488). The resulting soil descriptions are shown on the soil boring profiles presented on Figure 3.

GENERAL SUBSURFACE CONDITIONS

General Soil Profile

The field exploration results are graphically summarized on the soil boring profiles presented in Figure 3. The stratification of the boring profiles represents our interpretation of the field boring logs and the results of laboratory examinations of the recovered samples. The stratification lines represent the approximate boundary between soil types. The actual transitions may be more gradual than implied.

The results of the borings indicate the following general soil profile:

Depth Below Ground Surface (feet)		Description
From	To	
0	4½	Asphaltic concrete and limerock base underlain by fine sand (SP), fine sand with silt (SP-SM) and clayey fine sand (SC)
4½	12½	Loose to medium dense fine sand (SP) and clayey fine sand (SC)
12½	20	Very soft or very stiff clay (CH), very loose fine sand with silt (SP-SM), or hard cemented silt (ML/MH)

The above soil profile is outlined in general terms only. Please refer to Figure 3 for soil profile details.

Groundwater Level

The groundwater level was measured in the boreholes during drilling. As shown on Figure 3, groundwater was encountered at depths ranging from 4 to 6.6 feet below the existing ground surface on the date indicated. Fluctuation in groundwater levels should be anticipated throughout the year, primarily due to seasonal variations in rainfall and other factors that may vary from the time the borings were conducted.

NORMAL SEASONAL HIGH GROUNDWATER LEVEL

The groundwater level is affected by a number of factors. The amount of rainfall and the drainage characteristics of the soils, the land surface elevation, relief points such as drainage ditches, lakes, rivers, swamp areas, etc., and distance to relief points are some of the more important factors influencing the groundwater level.

The normal seasonal high groundwater level each year is the level in the August-September period at the end of the rainy season during a year of normal (average) rainfall. The water table elevations associated with a higher than normal rainfall and in the extreme case, flood, would be higher to much higher than the normal seasonal high groundwater level, and could occur at times outside of the August-September period. The normal high water levels would more approximate the normal seasonal high groundwater levels.

Based on our interpretation of the site conditions using our boring logs, we estimate the normal seasonal high groundwater level at the boring locations to be approximately 1 to 2 feet above the groundwater levels measured at the time of our field exploration.

ENGINEERING EVALUATION AND RECOMMENDATIONS

General

The results of this exploration indicate that the existing soils, as encountered in the borings, are suitable for supporting the proposed water main replacement. Organic soils (muck) were not encountered at the boring locations, but may be present at unexplored locations.

Cemented silts were encountered at depths greater than approximately 17½ feet below the existing ground surface at the boring locations. These soils may be difficult to excavate and should be given consideration if the excavation depths for the cut-and-cover portion of the installation or the directional drill entry/exits pits will be shallower than 17½ feet.

Clayey fine sand and clay (Strata 3 and 5 as shown on Figure 3) were encountered. Because these soils are difficult to moisture condition and compact, the Contractor may elect to over-excavate these soils approximately one to two feet below the proposed pipelines and backfill the excavation with compacted "clean" sand (USCS Classification SP, SP-SM or AASHTO Classification A-3), rather than going to the additional effort of compacting the clayey soils. Also, because the clayey fine sand and sandy clay to clay are difficult to moisture condition and compact, this soil is generally considered poor quality for use as compacted backfill in excavations. Import fill soils may be needed for portions of this project.

The following are our recommendations for overall site preparation and foundation support which we feel are best suited for the proposed pipeline and associated structures relative to the soil conditions encountered in the borings performed to-date. The recommendations are made as a guide for the design engineer, parts of which should be incorporated into the project's specifications.

Pipelines and Associated Structures

Excavation

Based on the conditions encountered during the field exploration, we anticipate that the soils encountered from the ground surface to a depth of approximately 14 to 17½ feet can generally be excavated with standard earth moving equipment (i.e., front-end loaders, backhoes and excavators).

The soils below the bottom of the excavations should not be disturbed by the excavation process. If soils become disturbed and difficult to compact, they should be over-excavated below the pipeline and other structures to a depth necessary to remove all disturbed soils. Over-excavated areas should be replaced with compacted backfill meeting the "Backfill Requirements" presented in a subsequent section of this report.

The excavations should be safely braced or sloped to prevent injury to personnel or damage to equipment. Temporary safe slopes in dewatered soils should be cut no steeper than 1.5 horizontal (H) to 1 vertical (V), in accordance with OSHA, 29 CFR Part 1926 Subpart P. Flatter slopes should be used if deemed necessary, based on actual conditions encountered. Surcharge loads should be kept at least 5 feet from excavations. Spoil banks adjacent to excavations should be sloped no steeper than 2.0H to 1.0V. Provisions for maintaining workers' safety within and adjacent to excavations is the sole responsibility of the Contractor.

Dewatering

The control of the groundwater may be required to achieve the necessary depths of excavation and subsequent construction, backfilling and compaction requirements presented in the following sections. The actual method(s) of dewatering should be determined by the Contractor. However, regardless of the method(s) used, we suggest drawing down the groundwater table sufficiently (i.e., 2 to 3 feet) below the bottom of the excavation(s) to preclude "pumping" and/or compaction-related problems with the foundation soils. We recommend that the dewatering be accomplished in advance of the excavation.

The contractor should be aware that cuts may expose confined aquifers where relatively permeable sandy soils underlie less permeable zones of clayey soils. These relatively permeable zones may require dewatering efforts to include relatively deep full aquifer penetrating wells, airlift of water from wells, trench drains, seepage barriers, etc.

Pipeline Bedding

Pipe bedding material should be compacted to achieve a density equivalent to 95 percent of the maximum dry density, as determined by the Modified Proctor (ASTM D-1557), to a minimum depth

of 6 inches below the bottom of the pipe. Compact deeper if recommended by the pipe manufacturer.

We recommend that the bedding for the pipe be preshaped by means of a template prior to placement of the pipe to ensure that the upward reaction on the bottom of the pipe will be well distributed over the width of the bedding contact. Based on the cost involved with preshaping the bedding material and the construction time requirements, an alternative procedure may be to utilize a level bed for the pipe and require a higher pipe strength class that will adequately carry the load on a lower class of bedding. It would be prudent to perform an economic analysis of the two alternatives, or specify both design conditions within the contract documents and allow the Contractor to decide the most efficient method.

If level bedding is utilized, it will be necessary to place and compact the haunching backfill (backfill between the bedding and the springline of the pipe) to the springline of the pipe. This material should be placed in simultaneous layers on each side of the pipe and must be compacted in such a manner as to ensure an intimate contact with the sides of the pipe. Do not use blocking under the pipe to raise the pipe to grade.

Backfill Requirements

As a general guide to aid the Contractor regarding materials to use for fill in the excavations, we recommend using fine sand (SP) to fine sand with silt (SP-SM) that contains less than 1 percent organic matter and no greater than 12 percent by dry weight of material passing the U.S. Standard No. 200 sieve size. Soils with more than 12 percent passing the No. 200 sieve will be more difficult to compact due to their inherent nature to retain soil moisture.

Based on the soil samples obtained during our subsurface investigation, the on-site fine sand and fine sand with silt (Strata 1 and 2 on Figure 3) without roots and/or organic matter appear suitable for use as structural backfill for the pipe. Material removed from below the groundwater table will be wet and will require time to dry sufficiently.

The clayey fine sand (Stratum 3 on Figure 3) could be used in some applications as structural backfill, but will be more difficult to moisture condition and compact due to its inherent nature to retain moisture. These soils will be difficult to compact because of their relatively high fines content. They may be used as backfill if it is possible to achieve the required degree of compaction. However, extensive moisture conditioning would likely be required. The contractor may elect at their discretion to import fill with less than 12 percent passing the No. 200 sieve rather than going to additional efforts to moisture condition and compact the clayey soils. Weather conditions during construction may also affect this decision.

The clay and silt soils (Strata 4 and 5 on Figure 3) are generally considered poor quality for use as structural backfill because of the extreme difficulty in moisture conditioning and compacting these soils.

Some import soils should be anticipated for this project.

The final backfill above the haunching or springline of the pipe must extend all the way to the trench walls and should be placed in level lifts not exceeding 12 inches. Each lift should be compacted to at least 95 percent of the maximum dry density, as determined by the Modified Proctor (ASTM D-1557). Care should be taken not to damage the pipe or deflect it by compacting directly above the pipe where there is insufficient cover material present. Minimum cover criteria should be in accordance with the pipe manufacturer's recommendations.

Where the utility line will traverse roadways and/or other permanent structures such as sidewalks, all backfill should be compacted to 95 percent of maximum dry density, as determined by the Modified Proctor (ASTM D-1557), from the top of the pipe to the ground surface. The design engineer may wish to specify greater compaction for the pavement subgrade, to be consistent with the pavement design requirements.

A geotechnical engineer or a designated representative from Ardaman & Associates, Inc. should observe and test all prepared and compacted areas to verify that all bedding, haunching and final backfill are prepared and compacted in accordance with the aforementioned specifications.

Foundation Support and Estimated Settlements

The permanent structures such as anchor blocks, thrust blocks, air release valves, blow offs, etc., bearing at least 18 inches below adjacent grade and at least 18 inches wide can be designed for the following maximum vertical bearing capacities:

- 1,500 psf on undisturbed natural granular soils.
- 2,000 psf on compacted natural or backfilled subgrade; this value assumes compaction of at least 95 percent of the Modified Proctor maximum density (ASTM D-1557, AASHTO T-180) to a depth of 1 foot below the structure.

Pipe settlement during and after construction should be negligible (less than ½-inch) provided the bedding and backfilling criteria in the above sections are satisfied. The volume of soil displaced by the pipe, compared to the weight of the pipe when full, will result in little if any net increase in bearing stress to the subsurface soils.

Resistance to Horizontal Forces on Pipeline Structures

Horizontal forces which act on structures such as thrust blocks or anchor blocks can be resisted to some extent by the earth pressures that develop in contact with the buried vertical face (buried vertical face is perpendicular and in front of the applied horizontal load) of the block structures

and by shearing resistance mobilized along the base of the block structures and soil subgrade interface.

Allowable earth pressure resistance may be determined using an equivalent fluid density of 110 pounds per cubic foot (pcf) for moist soil above the water table and 70 pcf for submerged soils below the water table¹. The passive earth pressures are developed from ground surface² to the bottom of the block structure.

The values presented above presume that the block structures are surrounded by well compacted sand backfill extending at least 5 feet horizontally beyond the vertical buried face. In addition, it is presumed that the block structures can withstand horizontal movements on the order of one-quarter (1/4) to three-eighths (3/8) inch before mobilizing full passive resistance. The factors of safety assumed in the above recommendations are 2.5 for passive pressure with submerged conditions, and 3.0 for passive pressure without submerged conditions.

The sliding shearing resistance mobilized along the base of the block structure may be determined by the following formula:

$$\text{Allowable Shearing Resisting Force, } P = V \tan(2/3 \phi) / \text{S.F.}$$

Where:

P = Shearing Resistance Force (pounds)

V = Net Vertical Force (total weight of block and soil overlying the structure minus uplift forces including buoyancy forces) (pounds)

ϕ = Angle of Internal Friction of Soil = 30 degrees

S.F. = Safety Factor = 1.5

The vertical earth pressures developed by the overburden weight of soil can be calculated using the following unit weights:

- Compacted moist soil = 110 pcf
- Saturated soil = 120 pcf (buoyant unit weight of saturated soil = 58 pcf)

-
- 1 Equivalent fluid density (moist soil) = $K_p \gamma_m / \text{S.F.} = 110 \text{ pcf}$
Equivalent fluid density (submerged soil) = $K_p (\gamma_s - \gamma_w) / \text{S.F.} = 70 \text{ pcf}$

Where: K_p = effective coefficient of passive earth pressure = 3.0

S.F. = safety factor = (values given above)

γ_m = unit weight of moist soil = 110 pcf

γ_s = unit weight of saturated soils = 120 pcf

γ_w = unit weight of water = 62.4 pcf

- 2 Assuming there is no excavation in the vicinity of the block structure that would reduce the available passive pressure.

Vertical pressure distributions in accordance with the above do not take into account vertical forces from construction equipment, wheel loads or other surcharge loads.

Uplift Resistance

Permanent structures submerged below the groundwater table will be subjected to uplift forces caused by buoyancy. The components resisting this buoyancy include: 1) the total weight of the pipe or structure divided by an appropriate factor of safety; 2) the buoyant weight of soil overlying the pipe or structure; and 3) the shearing forces that act on shear planes that radiate vertically upward from the perimeter of the pipe or the edges of the structure to the ground surface. The allowable unit shearing resistance may be determined by the following formula:

Allowable Shearing Resistance, $F=K_o\gamma_m h(2/3 \tan\phi)/S.F.$ (above water table)

Allowable Shearing Resistance, $F=K_o[\gamma_m h_w + \gamma_b(h-h_w)](2/3 \tan\phi)/S.F.$ (below water table)

Where:

F = unit shearing resistance (psf)

K_o = coefficient of earth pressure at rest = 0.5

γ_m = unit weight of moist soil = 110 pcf

γ_b = buoyant unit weight of soil = 58 pcf

h = vertical depth (feet) below grade at which shearing resistance is determined

h_w = vertical depth (feet) below grade to groundwater table

ϕ = angle of internal friction of the soil = 30 degrees

S.F. = safety factor = 2

The values given for the above parameters assume that the permanent structures are covered by clean, well-compacted, granular backfill that extends horizontally at least 2 feet beyond the structures.

Earth Pressure on Shoring and Bracing

If temporary shoring and bracing are required for any excavations, the system should be designed to resist lateral earth pressure. The design earth pressure will be a function of the flexibility of the shoring and bracing system. For a flexible system restrained laterally by braces placed as the excavation proceeds, the design earth pressure for shoring and bracing can be computed using a uniform earth pressure distribution with depth. It is recommended that soils be dewatered around the excavations. For such dewatered excavations, we recommended using the following uniform pressure distribution over the full braced height as follows:

Uniform Soil Pressure Distribution, $p = 0.65 K_a \gamma_s H$

Where:

p = uniform pressure distribution for design of braced excavation

K_a = coefficient of active earth pressure = 0.33

γ_s = unit weight of saturated soils = 120 pcf

H = depth of excavation

An appropriate factor of safety should be applied for the design of the braced excavations.

Lateral pressure distributions determined in accordance with the above do not take hydrostatic pressures or surcharge loads into account. To the extent that such pressures and forces may act on the walls, they should be included in the design.

Construction equipment and excavated fill should be kept a minimum distance of 5 feet from the edge of the braced or shored excavation. Backfill material placed adjacent to (maintaining a minimum 5-foot horizontal clearance) the braced or shored excavation should have a minimum slope of 2.0H to 1.0V or flatter, if required by site specific conditions and/or to meet OSHA requirements.

Means and methods of excavation and bracing should be the responsibility of the Contractor; however, excavation and/or bracing should, at a minimum, comply with the requirements of the Occupational Safety Health Administration (OSHA).

Lateral Earth Pressures

Lateral loads acting on the embedded structure will include at-rest earth pressures as well as hydrostatic pressures and surcharge loads. The lateral earth pressure will be a function of both the depth below ground surface and the soil unit weight (submerged or moist) plus hydrostatic pressure (if applicable). The following equations can be used to determine the lateral at-rest earth pressure:

$$\sigma_h = K_o \gamma_m h \text{ (above water table)}$$

$$\sigma_h = K_o [\gamma_m h_w + \gamma_b (h - h_w)] \text{ (below water table)}$$

Where:

σ_h = lateral earth pressure (psf)

K_o = coefficient of at rest earth pressure (0.5) (this value assumes that the backfill is lightly compacted yet not over-compacted)

γ_m = moist unit weight of soil = 110 pcf for compacted moist soil above the water table.

γ_b = buoyant unit weight of soil = 58 pcf for compacted saturated soil below the water table.

h = vertical depth (feet) below grade at which lateral earth pressure is determined.

h_w = vertical depth (feet) below grade to groundwater table

For design, an appropriate factor of safety should be applied to the lateral earth pressure calculated using the above equation. Lateral pressure distributions determined in accordance with the above do not include hydrostatic pressures or surcharge loads. Where applicable, they should be incorporated in the design.

Soil Parameters for Directional Drill

This section includes recommended soil parameters for use by others in the design of the utility crossings. This data is provided for informational purposes only since directional drill construction methods are typically proprietary in nature. Based upon the soil classifications and SPT “N” values, the internal friction angle, cohesion, unit weights, and lateral soil modulus have been estimated for the soils encountered at selected boring locations. These are listed in the following tables.

Summary of Soil Parameters						
Boring No	(see Note 1)	Soil Classification	Internal Friction Angle (degrees)	Saturated Soil Weight (pcf)	(see Note 2)	(see Note 3)
	Depth Range (ft)				Moist Soil Weight (pcf)	Cohesion (psf)
32A-1	0-5	SP-SM, SP-SC	28	103	95	---
	5-9	SP, SC	33	120	112	---
	9-14	SP, SC	30	110	---	---
	14-17.5	CH	--	117	---	2000
	17.5-20	Cemented ML/MH	--	135	---	8000
32A-2	0-5	SP, SP-SM	28	103	95	---
	5-12.5	SP, SP-SM	31	113	---	---
	12.5-17.5	SP-SM	28	103	---	---
	17.5-20	Cemented ML/MH	---	135	---	8000
32A-3	0-5	SP, SP-SM, SC	28	103	95	---
	5-12.5	SP, SC	32	115	---	---
	12.5-17.5	CH	--	105	--	250
	17.5-20	CH	--	117	--	8000

Notes: pcf = pounds per cubic foot psf = pounds per square foot

- (1) Disregarding pavement (asphalt and base), where present.
- (2) Estimates for a drained soil above the groundwater table.
- (3) -- indicates a soil that is generally considered cohesionless.
- (4) The values listed above are based upon empirical correlations with the average soil conditions encountered. Appropriate safety factors should be used with these values.
- (5) The soil layers presented above are generalized and should be used for design purposes only. The above values should not be used to assess constructability of the proposed pipeline.

QUALITY CONTROL

We recommend establishing a comprehensive quality control program to verify that all excavation, bedding, and backfilling is conducted in accordance with the appropriate plans and specifications. Materials testing and inspection services should be provided by Ardaman & Associates, Inc. In-situ density tests should be conducted during bedding and backfilling activities to verify that the required densities are achieved.

Backfill for the proposed pipeline should be tested at a minimum frequency of one in-place density test for each lift for each 200 lineal feet of pipe. Additional tests should be performed beneath foundations and in backfill for other associated structures. In-situ density values should be compared to laboratory Proctor moisture-density results for each of the different natural and fill soils encountered.

CLOSURE

The analyses and recommendations submitted herein are based on the data obtained from the soil borings presented on Figure 3. This report does not reflect any variations which may occur adjacent to or between the borings. The nature and extent of the variations between the borings may not become evident until during construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations presented in this report after performing on-site observations during the construction period and noting the characteristics of the variations.

In the event any changes occur in the design, nature, or location of the proposed facility, we should review the applicability of conclusions and recommendations in this report. We recommend a general review of final design and specifications by our office to verify that earthwork and foundation recommendations are properly interpreted and implemented in the design specifications. Ardaman & Associates should attend the pre-bid and preconstruction meetings to verify that the bidders/contractor understand the recommendations contained in this report.

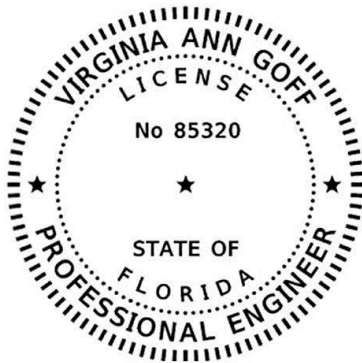
Because of Ardaman & Associates' familiarity with this site and the proposed development gained through performing the subsurface soil exploration and geotechnical engineering evaluation as presented in this report, Ardaman & Associates is best suited to provide monitoring and testing services during earthwork, and to provide continued evaluation and guidance during construction should variations in the soil conditions be encountered.

This study is based on a relatively shallow exploration and is not intended to be an evaluation for sinkhole potential. This study does not include an evaluation of the environmental (ecological or hazardous/toxic material related) condition of the site and subsurface.

This report has been prepared for the exclusive use of Kimley-Horn & Associates, Inc. in accordance with generally accepted geotechnical engineering practices for the purpose of the subject project. No other warranty, expressed or implied, is made.

We are pleased to be of assistance to you on this phase of the project. When we may be of further service to you or should you have any questions, please contact us.

Very truly yours,
ARDAMAN & ASSOCIATES, INC.
Florida Registry 5950



THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

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

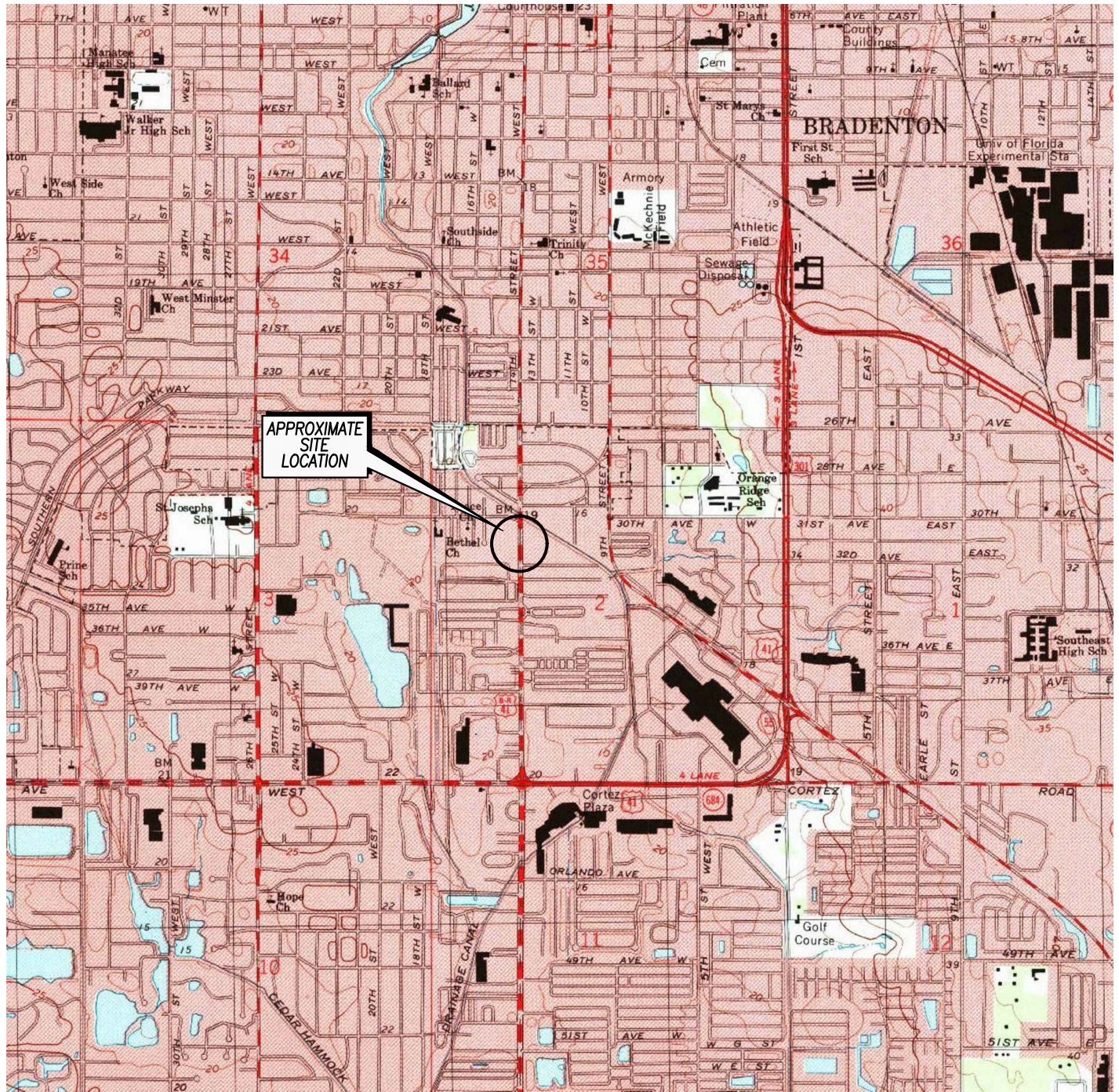
A handwritten signature in blue ink, appearing to read "Jerry H. Kuehn".

Virginia Goff, P.E.
Branch Manager
Fl. License No. 85320

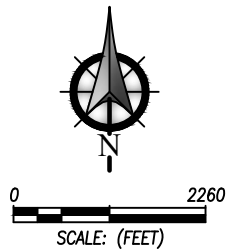
Jerry H. Kuehn, P.E.
Senior Project Engineer
Fl. License No. 35557


VG/JHK

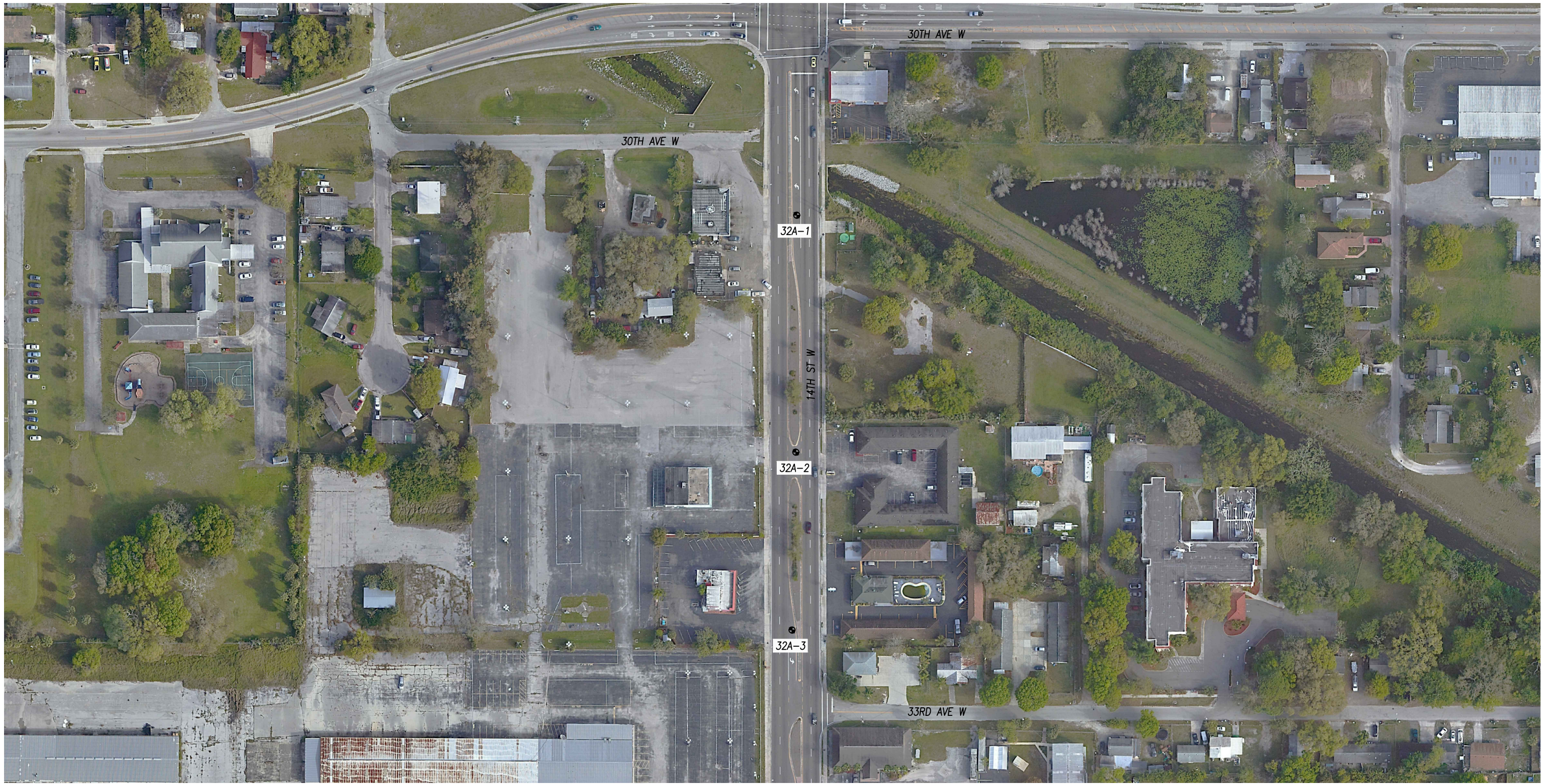
21-7305 Force Main 32A Replacement Bradenton FL.docx (Geo 2022)



SECTION 2
 TOWNSHIP 35 SOUTH
 RANGE 17 EAST
 OBTAINED FROM U.S.G.S. QUAD MAP: BRADENTON, MANATEE COUNTY, FLORIDA 1964



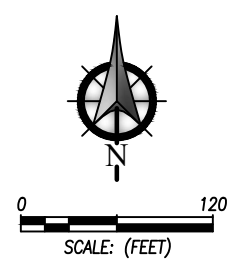
SITE LOCATION MAP		
 Ardaman & Associates, Inc. Geotechnical, Environmental and Materials Consultants		
SUBSURFACE SOIL EXPLORATION FORCE MAIN 32A REPLACEMENT BRADENTON, MANATEE COUNTY, FLORIDA		
DRAWN BY: <i>AUR</i>	CHECKED BY: <i>VG</i>	DATE: 12/15/22
FILE NO. 21-36-7305	APPROVED BY: <i>VG</i>	FIGURE: 1



LEGEND

⊕ TH STANDARD PENETRATION TEST (SPT) BORING LOCATION

NOTE: THE AERIAL PHOTOGRAPH FOR THE BORING LOCATION PLAN WAS OBTAINED FROM GOOGLE EARTH PRO, DATED JANUARY 2019

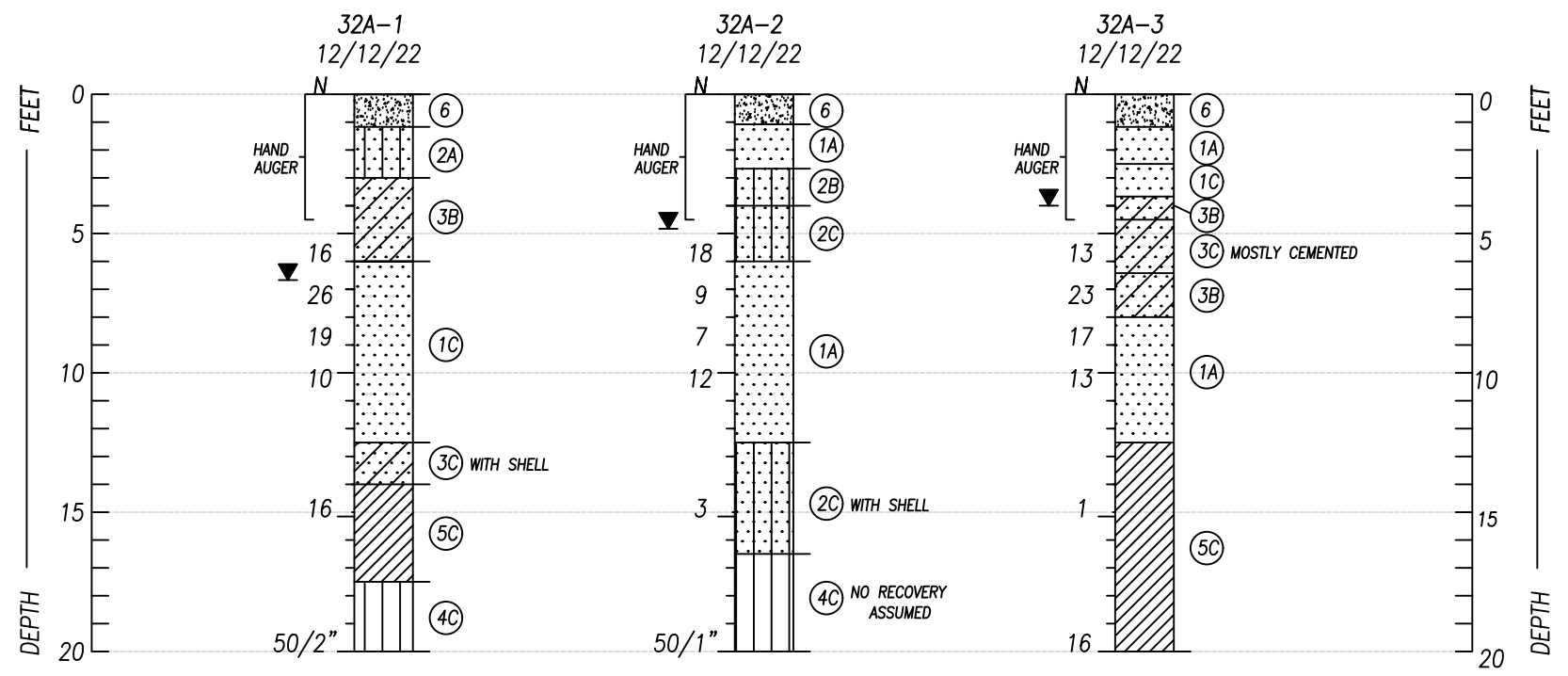


BORING LOCATION PLAN

Ardaman & Associates, Inc.
Geotechnical, Environmental and
Materials Consultants

SUBSURFACE SOIL EXPLORATION
FORCE MAIN 32A REPLACEMENT
BRADENTON, MANATEE COUNTY, FLORIDA

DRAWN BY: <i>AUR</i>	CHECKED BY: <i>VG</i>	DATE: 12/15/22
FILE NO. 21-36-7305	APPROVED BY: <i>VG</i>	FIGURE: 2



LEGEND

SOIL DISCRIPTIONS

- ① FINE SAND (SP)
- ② FINE SAND WITH SILT (SP-SM)
- ③ CLAYEY FINE SAND (SC)
- ④ CEMENTED SILT (ML/MH)
- ⑤ CLAY (CH)
- ⑥ ASPHALTIC CONCRETE AND LIMEROCK BASE

- TH STANDARD PENETRATION TEST (SPT) BORING
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
- ▼ GROUNDWATER LEVEL MEASURED ON DATE DRILLED

COLORS

- (A) LIGHT BROWN TO BROWN
- (B) ORANGE BROWN
- (C) LIGHT GRAY TO GRAY

SP,SP-SM UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)
SM,SC,CH

- NOTE: 1. UPON COMPLETION OF EACH SPT BORING, THE BOREHOLE WAS BACKFILLED WITH SOIL CUTTINGS.
- NOTE: 2. ALL SPT BORINGS WERE PERFORMED USING AN AUTOMATIC HAMMER TO THE BORING TERMINATION DEPTH. AUTOMATIC HAMMER N-VALUES MAY BE CONVERTED TO EQUIVALENT SAFETY HAMMER N-VALUES BY MULTIPLYING BY 1.24.

**ENGINEERING CLASSIFICATION
I COHESIONLESS SOILS**

DESCRIPTION	BLOWS COUNT "N"
VERY LOOSE	< 4
LOOSE	4 TO 10
MEDIUM DENSE	10 TO 30
DENSE	30 TO 50
VERY DENSE	> 50

II COHESIONLESS SOILS

DESCRIPTION	UNCONFINED COMPRESSIVE STRENGTH, QU, TSF	BLOWS COUNT "N"
VERY SOFT	< 1/4	< 2
SOFT	1/4 TO 1/2	2 TO 4
MEDIUM STIFF	1/2 TO 1	4 TO 8
STIFF	1 TO 2	8 TO 15
VERY STIFF	2 TO 4	15 TO 30
HARD	> 4	> 30

WHILE THE BORINGS ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THEIR RESPECTIVE LOCATIONS AND FOR THEIR RESPECTIVE VERTICAL REACHES, LOCAL VARIATIONS CHARACTERISTICS OF THE SUBSURFACE MATERIALS OF THE REGION ARE ANTICIPATED AND MAY BE ENCOUNTERED. THE BORING LOGS AND RELATED INFORMATION ARE BASED ON THE DRILLER'S LOGS AND VISUAL EXAMINATION OF SELECTED SAMPLES IN THE LABORATORY. THE DELINEATION BETWEEN SOIL TYPES SHOWN ON THE LOGS IS APPROXIMATE AND THE DESCRIPTION REPRESENTS OUR INTERPRETATION OF SUBSURFACE CONDITIONS AT THE DESIGNATED BORING LOCATIONS ON THE PARTICULAR DATE DRILLED.

GROUNDWATER DEPTHS SHOWN ON THE BORING LOGS REPRESENT GROUNDWATER SURFACES ENCOUNTERED ON THE DATES SHOWN. FLUCTUATIONS IN WATER TABLE LEVELS SHOULD BE ANTICIPATED THROUGHOUT THE YEAR.

SOIL BORING PROFILES



SUBSURFACE SOIL EXPLORATION
FORCE MAIN 32A REPLACEMENT
BRADENTON, MANATEE COUNTY, FLORIDA

DRAWN BY: AUR	CHECKED BY: VG	DATE: 12/15/22
FILE NO. 21-36-7305	APPROVED BY: VG	FIGURE: 3

APPENDIX

Standard Penetration Test Procedure

STANDARD PENETRATION TEST

The standard penetration test is a widely accepted test method of *in situ* testing of soils (ASTM D 1586), and Ardaman & Associates generally follows this test method. A 2-foot long, 2-inch O.D. split-barrel sampler attached to the end of a string of drilling rods is driven 18 or 24 inches into the ground by successive blows of a 140-pound hammer freely dropping 30 inches. The number of blows needed for each 6 inches of penetration is recorded. The sum of the blows required for penetration of the second and third 6-inch increments of penetration constitutes the test result or N-value. After the test, the sampler is extracted from the ground and opened to allow visual examination and classification of the retained soil sample. The N-value has been empirically correlated with various soil properties.

The tests are usually performed at 5-foot intervals. The test holes are advanced to the test elevations by rotary drilling with a cutting bit, using circulating fluid to remove the cuttings and hold the fine grains in suspension. The circulating fluid, which is a bentonitic drilling mud, is also used to keep the hole open below the water table by maintaining an excess hydrostatic pressure inside the hole. In some soil deposits, particularly highly pervious ones, flush-coupled casing must be driven to just above the testing depth to keep the hole open and/or prevent the loss of circulating fluid.

Representative split-spoon samples from the soils are brought to our laboratory in air-tight jars for further evaluation and testing, if necessary.

UTILITY PERMIT

PERMIT NO: 2023-H-194-00027

STATE ROAD INFORMATION

County: Manatee	Section: 13010000	State Road No: SR 45	Beginning Mile Post: 6.086	Ending Mile Post: 6.086
---------------------------	-----------------------------	--------------------------------	--------------------------------------	-----------------------------------

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>Manatee County</u>	Name:	_____
Contact Person:	<u>Manatee County</u>	Contact Person:	_____
Address:	<u>1022 26th Avenue East</u>	Address:	_____
City:	<u>Bradenton</u>	City:	_____
State:	<u>Florida</u>	State:	_____
Zip:	<u>34208</u>	Zip:	_____
Telephone:	<u>(941) 708-7450 ext. _____</u>	Telephone:	_____
Email:	<u>scott.may@mymanatee.org</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.
The one (1) 120 LF Jack and Bore of 10" PVC C900 force main within a 20" Steel Casing.

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, 611, 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: 5/1/2023

Calendar days needed to completed: 365

Approved
 2023-H-194-00027
 Curtis Vilt
 3/7/2023

Florida Department of Transportation
UTILITY PERMIT

PERMIT NO: 2023-H-194-00027

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>6/7/2022</u>	<u>Charter Communications</u>
<u>6/7/2022</u>	<u>City of Bradenton</u>
<u>6/7/2022</u>	<u>Comcast</u>
<u>6/7/2022</u>	<u>Crown Castle, Inc.</u>
<u>6/7/2022</u>	<u>Florida Power and Light</u>

Utility Agency/Owner

Utility Builder (when applicable)

Signature: SCOTT MAY (digital signature) Date: 1/19/2023
 Name (printed): SCOTT MAY
 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:

FDOT construction is proposed or underway. Refer to Financial Project Id: 412673-1
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.

1. Your project falls within the limits of the Manatee County Advanced Traffic Management System (ATMS). The Manatee County ATMS is owned and operated by the FDOT while the County maintains the system as part of the Traffic Signal Maintenance and Compensation Agreement. The ATMS infrastructure within this project's limits includes underground fiber optic communication infrastructure along Business US 41. The PDF file attached to this comment shows the ap ... (see special instructions cont. page)

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: Curtis Vilt (digital signature) Date: 3/7/2023
 Name: Curtis Vilt
 Title: MAINTENANCE MANAGER/PERMITS

Notification of Utility Work to be provided to: Telephone (941) 708-4400 ext. _____ or Email: curtis.vilt@dot.state.fl.us

An FDOT Representative is required to be present on the worksite prior to commencement of work. Yes No

Rep. Name: _____ Telephone _____ Email: _____

Approved
2023-H-194-00027
Curtis Vilt
3/7/2023

Florida Department of Transportation
UTILITY PERMIT

PERMIT NO: 2023-H-194-00027

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
2023-H-194-00027
Curtis Vilt
3/7/2023

PERMIT NO.: 2023-H-194-00027

STATE ROAD INFORMATION:

NAME OF OTHER FACILITY OWNERS / DATE NOTIFIED:

Facility Name: Tampa Electric Company (TECO), Date Notified: 6/7/2022, Facility Name: Uniti Fiber LLC, Date Notified: 6/7/2022

FDOT PROJECT INFORMATION:

FDOT construction is proposed or underway. Refer to Financial Project Id: 412673-1
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
2023-H-194-00027
Curtis Vilt
3/7/2023

The complete special instructions could not fit in the space allotted on Page 2 of the Utility Permit so they are displayed below.

Special FDOT Instructions

1. Your project falls within the limits of the Manatee County Advanced Traffic Management System (ATMS). The Manatee County ATMS is owned and operated by the FDOT while the County maintains the system as part of the Traffic Signal Maintenance and Compensation Agreement. The ATMS infrastructure within this project's limits includes underground fiber optic communication infrastructure along Business US 41. The PDF file attached to this comment shows the approximate location of the existing ATMS underground infrastructure.
2. Based on the permit plans, it appears this project will be installing underground infrastructure near the existing ATMS infrastructure. It is the responsibility of this project's contractor to avoid conflicts with the existing underground ATMS infrastructure by, at minimum, locating the facilities prior to installing the new underground infrastructure. Any impacts to the existing ATMS infrastructure that were not identified in this review are the responsibility of the permittee to resolve within this project.
3. Contractor to verify existing Pipe to be placed OUT-OF-SERVICE Location, existing Casing Size, Material, Location and Update Record Drawings with Existing Pipe and Casing Information, including Elevations prior to FDOT PERMIT CLOSEOUT.
4. Permit shall be rendered void if the Manatee Ops Permits Office is not notified (i.e. Phone and/or Email) a minimum of TWO (2) BUSINESS DAYS PRIOR TO STARTING WORK, that NO LANE CLOSURES ARE REQUIRED and again immediately upon COMPLETION OF WORK. Phone No: 941-708-4400, Email: curtis.vilt@dot.state.fl.us. (Upon notifying provide: Permit Number, Contact Information, Location, General Scope and Timeframe of the Work)
5. If LANE CLOSURE(S) for this Permit are required, the Permittee MUST notify the Department (Valerie Everts, Phone No: 941-708-4433, Email: valerie.everts@dot.state.fl.us) two (2) weeks prior to starting the LANE CLOSURE(S) to inform the motoring public. FAILURE TO COMPLY WILL RESULT IN DELAY TO START WORK.
6. If Permit work is being proposed during a FDOT Construction project, it will be the RESPONSIBILITY OF THE PERMITTEE TO COORDINATE with the FDOT's contractor.
7. All portions of disturbed ROW shall be restored with sod within seventy-two (72) hours of completion of work.

Approved
2023-H-194-00027
Curtis Vilt
3/7/2023

Manatee County ATMS Infrastructure



Google Earth

Approved
2023-H-194-00027
Curtis Vilt
3/7/2023
100 ft

CONSTRUCTION PLANS FOR FORCE MAIN 32A REPLACEMENT

MANATEE COUNTY, FLORIDA

FEBRUARY 2023

MANATEE COUNTY PROJECT #6110580



PROJECT TEAM:

OWNER:
MANATEE COUNTY
1022 26TH AVE. E.
BRADENTON, FL 34208
CONTACT: TOM GREENE, P.E.
941-708-7450 EXT. 7412

SURVEYOR:
HYATT SURVEY SERVICES, INC.
11007 8TH AVENUE EAST,
BRADENTON, FL 34212
CONTACT: RUSSELL P. HYATT, PSM
941-748-4693

ENGINEER:
KIMLEY-HORN AND ASSOCIATES, INC.
200 CENTRAL AVENUE, SUITE 600
ST. PETERSBURG, FL 33701
CONTACT: MICHAEL A. SEMAGO, P.E.
727-498-3633

GEOTECHNICAL ENGINEER:
ARDAMAN & ASSOCIATES, INC.
1724 BARBER ROAD,
SARASOTA, FL, 34240
CONTACT: JERRY H. KUEHN, P.E.
941-922-3526

UTILITY CONTACTS:

CHARTER COMMUNICATIONS
MICHAEL DECROIX
4145 S FALKENBURG RD.
RIVERVIEW, FL, 33578
727-329-2951

MANATEE COUNTY UTILITY OPERATIONS
KATHY MCMAHON
4422-C 66TH ST. W.
BRADENTON, FL, 34210
941-792-8811

COMCAST
JOSH DAVIS
12800 WESTLINKS DR
FORT MYERS, FL, 33913
239-253-7642

CROWN CASTLE NG FIBERDIG TEAM
1500 CORPORATE DR.
CANONSBURG, PA 15317
888-632-0931

FLORIDA POWER AND LIGHT
JOEL BRAY
386-586-6403

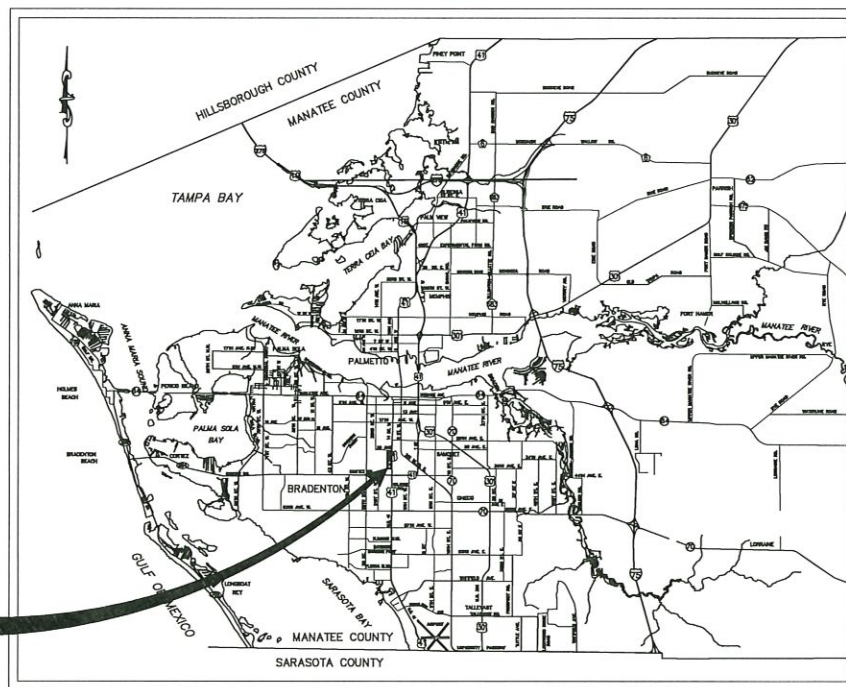
TECO PEOPLE'S GAS
JOAN DOMNING
8416 PALM RIVER RD.
TAMPA, FL 33619
813-275-3783

FRONTIER COMMUNICATIONS
TONI CANNON
3712 W WALNUT ST.
TAMPA, FL 33607
813-875-1014

UNITI FIBER LLC
BOB MENSCHING
200 CUMBERLAND DR.
ST. AUGUSTINE, FL 32095
904-718-8152

MANATEE COUNTY TRANSPORTATION DEPARTMENT
KATHY MCMAHON
4422-C 66TH ST. W.
BRADENTON, FL 34210
941-792-8811

SITE LOCATION

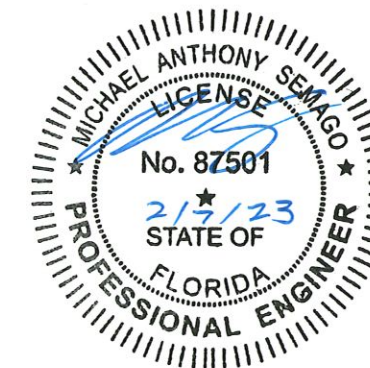


PROJECT VICINITY MAP

N.T.S.

FDOT PERMIT PLANS SUBMITTAL

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
G-1	COVER SHEET
G-2	GENERAL NOTES
G-3	SURVEY AND SUE NOTES
G-4	KEY SHEET
C-1	PLAN SHEET
C-2	PLAN SHEET
C-3	PLAN SHEET
C-4	PLAN SHEET
D-1	DETAILS
D-2	DETAILS



THE SITE CONSTRUCTION STAKEOUT SHALL BE PERFORMED UNDER THE DIRECTION OF A FLORIDA REGISTERED SURVEYOR. AUTOCAD FILES WILL BE FURNISHED TO AID IN THE SITE CONSTRUCTION STAKEOUT. ANY DISCREPANCIES FOUND BETWEEN AUTOCAD FILES AND SITE CONSTRUCTION PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR CLARIFICATION PRIOR TO THAT STAKEOUT.

FDOT PERMIT # 2023-H-194-00027
SECTION # 13010000, SR-45
MILE POSTS 6.018 - 6.025

PREPARED BY
Kimley»Horn

© 2023 KIMLEY-HORN AND ASSOCIATES, INC.
200 CENTRAL AVENUE, SUITE 600
ST. PETERSBURG, FL 33701
PHONE: (727) 541-3999
WWW.KIMLEY-HORN.COM Registry No. 35106

No.	REVISIONS	DATE	BY

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MICHAEL A. SEMAGO, P.E.
FLORIDA LICENSE NUMBER: 87501

DATE:

DATE: FEB 2023
PROJECT NO. 148400099
SHEET NUMBER 23G-1

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of any portion of this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

GENERAL NOTES

1. THE FOLLOWING MANATEE COUNTY VERTICAL CONTROL MONUMENT WAS RECOVERED AND UTILIZED FOR THE ELEVATIONS INDICATED HEREIN: "2014 BELL" NAVD 1988 ELEVATION 16.16'.
2. THIS SURVEY IS REFERENCED TO A GRID PROJECTION OF THE FLORIDA STATE PLANE COORDINATE SYSTEM (WEST ZONE NAD 1983/2011 ADJUSTMENT).
3. THIS IS NOT A BOUNDARY SURVEY. TITLE WORK WAS NOT PROVIDED.
4. THIS SURVEY IS SUBJECT TO PERTINENT EASEMENTS, RIGHTS-OF-WAY AND RESTRICTIONS OF RECORD, IF ANY.
5. THIS SURVEY DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF THE PARTY OR PARTIES CERTIFIED TO BELOW FOR THE EXPRESS PURPOSE STATED HEREON AND/OR CONTAINED IN THE CONTRACT BETWEEN HYATT SURVEY SERVICES, INC. AND THE CLIENT FOR THIS PROJECT. COPYING, DISTRIBUTING AND/OR USING THIS DRAWING, IN WHOLE OR IN PART FOR ANY PURPOSE OTHER THAN ORIGINALLY INTENDED WITHOUT WRITTEN CONSENT FROM HYATT SURVEY SERVICES, INC. IS STRICTLY PROHIBITED AND RENDERS THE SURVEYOR'S CERTIFICATION, SIGNATURE AND SEAL NULL AND VOID. ANY QUESTIONS CONCERNING THE CONTENT OR PURPOSE OF THIS DRAWING SHOULD BE DIRECTED TO HYATT SURVEY SERVICES, INC.

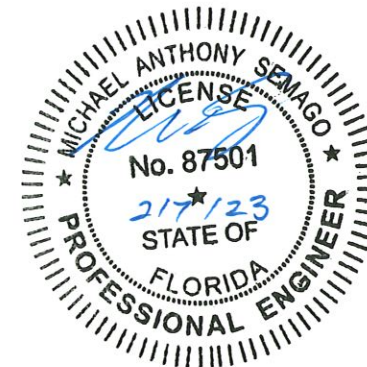
LEGEND	
● SITE CONTROL POINT	△ SIGN
○ IRON ROD FOUND	□ WATER METER
○ IRON PIPE FOUND	~ WATER VALVE
R/W RIGHT-OF WAY	~ BACKFLOW PREVENTER
BM BENCHMARK	⊙ SANITARY MANHOLE
ND NAIL W/ DISC	⊙ STORM MANHOLE
PID PARCEL IDENTIFICATION	■ GRATE INLET
N/F NOW OR FORMERLY	• CLEANOUT
(TYP) TYPICAL	◁ WOOD UTILITY POLE
CONC CONCRETE	• GUY WIRE
RCP REINFORCED CONCRETE PIPE	• UTILITY RISER
VCP VITRIFIED CLAY PIPE	□ MAILBOX
CMP CORRUGATED METAL PIPE	⊙ ELECTRICAL MANHOLE
	⊙ GAS WITNESS
	✎ PALM
	✎ PINE
	○ OAK
	✎ TREE

DESIGNATION	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM #1	1141535.940	469568.637	15.42'	ND LB 7203
BM #2	1141242.664	469654.962	16.13'	IR LB 7203
BM #3	1140883.647	469559.697	17.35'	IR LB 7203
BM #4	1140345.716	469605.463	17.84'	IR LB 7203

SEWER STRUCTURES		
S1 RIM 16.91' N 10° 11.52' S 15° 11.31'	S2 RIM 16.50' E 8° 5.68' S 8° 5.23' N 8° 5.00'	S3 RIM 15.68' S 8° 4.31' E 8° 4.27'
S4 RIM 15.92' N 8° 1.36' E 8° 1.35'	S5 RIM 18.34' S 8° 6.89' N 8° 6.83'	S6 RIM 15.79' N 8° 0.02' S 8° -0.04'
S7 RIM 15.44' S 8° 5.83' S 8° 2.75' E 8° 2.63' N 8° 2.39'	S8 RIM 15.22' S 8° 2.92' NW 8° 2.73'	S9 RIM 15.17' S 8° -0.74' W 8° -1.03' E 8° -1.14'
S10 RIM 15.14' W 8° -1.19' NE 8° -1.19' S 12° -1.24'	S11 RIM 18.07' E 8° 8.12' S 8° 8.12' N 8° 8.02'	

STORM STRUCTURES		
ST1 N 60° RCP 6.39' S 60° RCP 6.26'	ST2 N 15° RCP 11.40' NW 15° RCP 11.38'	ST3 S 60° RCP 5.62' N 60° RCP 5.58'
ST4 N 60° RCP 5.12' S 60° RCP 5.06'	ST5 S 15° RCP 11.86'	ST6 W 18° RCP 14.24' N 60° RCP 5.15' S 60° RCP 4.98'
ST7 N 60° RCP 3.91' S 60° RCP 3.89'	ST8 W 15° RCP 11.71'	

SUE LOCATES							
	TYPE OF UTILITY	PIPE DIAMETER	MATERIAL	NORTHING	EASTING	GROUND ELEVATION	DEPTH OF UTILITY
VH #1	GAS MAIN	1.5"	POLY	469565.8580'	1141054.8910'	16.590'	3.42'
VH #2	WATER MAIN	6"	ASBESTOS CONCRETE	469566.9020'	1141565.4280'	15.442'	3.43'
VH #3	WATER MAIN	8"	ASBESTOS CONCRETE	469654.0090'	1141569.0000'	15.515'	2.99'
VH #4	STORM PIPE	UNK.	RCP	469573.8490'	1141565.7930'	15.205'	6.25'



No.	REVISIONS	DATE	BY

Kimley»Horn

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PHONE: 727-547-3999
WWW.KIMLEY-HORN.COM REGISTRY NO. 35106

KHA PROJECT 148400099
DATE FEB 2023
SCALE AS SHOWN
DESIGNED BY MAS
DRAWN BY GMB
CHECKED BY JWW

Manatee County

FORCE MAIN 32A REPLACEMENT

MANATEE COUNTY

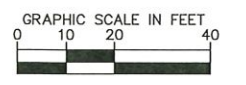
LICENSED PROFESSIONAL MICHAEL A. SEMAGO, P.E.
FL LICENSE NUMBER 87501
FL DATE:

Approved
2023-H-194-00027
Curtis Vilt
3/7/2023

SHEET NUMBER
G-3

SURVEY AND SUE NOTES

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Review of and improper reliance on this document without written authorization and approval by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

LEGEND

- OPEN CUT
- HDD
- SIDEWALK/CONCRETE DRIVEWAY RESTORATION
- ASPHALT DRIVEWAY RESTORATION
- CURB RESTORATION

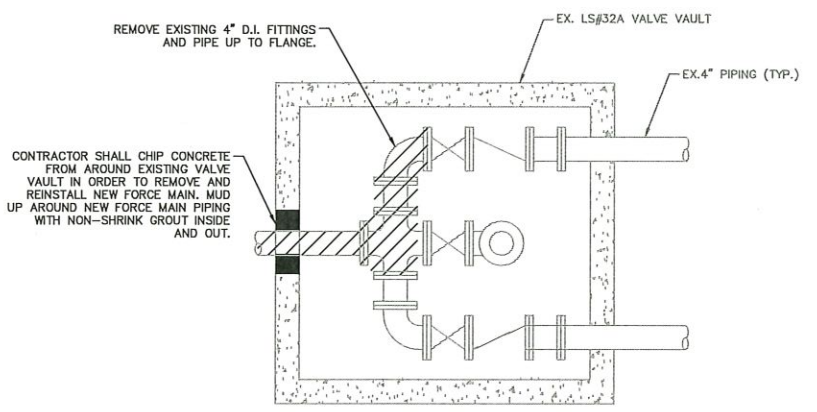
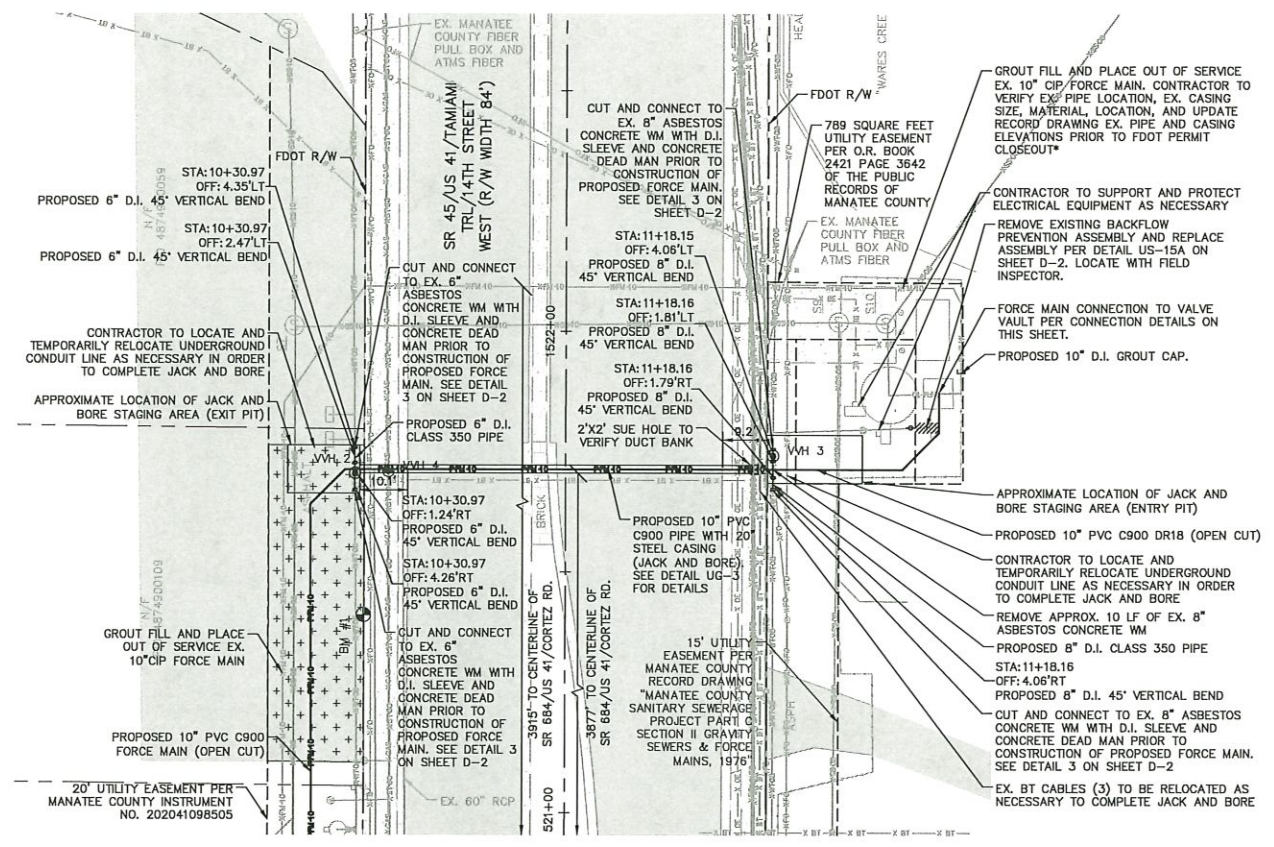
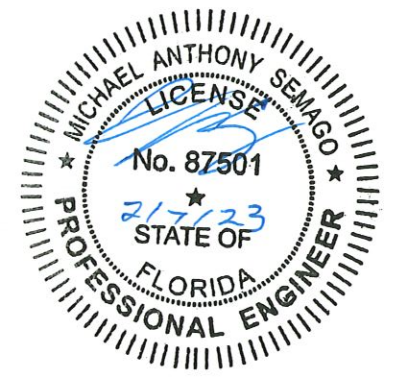
NOTES:

1. CONTRACTOR SHALL RESTRAIN PIPE PER RESTRAIN LENGTHS TABLE ON DETAIL SHEET
2. CONSTRUCTION DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO CHAPTERS 62-821.300 AND 62-820 OF THE FLORIDA ADMINISTRATIVE CODE (FAC)
4. EXISTING GAS LINE AND BURIED ELECTRIC TO BE FIELD LOCATED WHERE NECESSARY PRIOR TO CONSTRUCTION
5. CUTTING AND DISPOSAL OF ASBESTOS CONCRETE PIPE MUST BE PERFORMED BY A FLORIDA-LICENSED ASBESTOS ABATEMENT CONTRACTOR. CONTRACTOR MUST FURNISH ALL PERMITS, LABOR, MATERIAL, SERVICES, INSURANCE, TOOLS, EQUIPMENT, AND NOTIFICATIONS IN ACCORDANCE WITH EPA, OSHA, STATE, AND ALL OTHER APPLICABLE AGENCIES TO HANDLE AND REMOVE ASBESTOS MATERIAL. SPECIFICALLY, REFER TO EPA 40 CFR PART 61 FOR ADDITIONAL REQUIREMENTS.

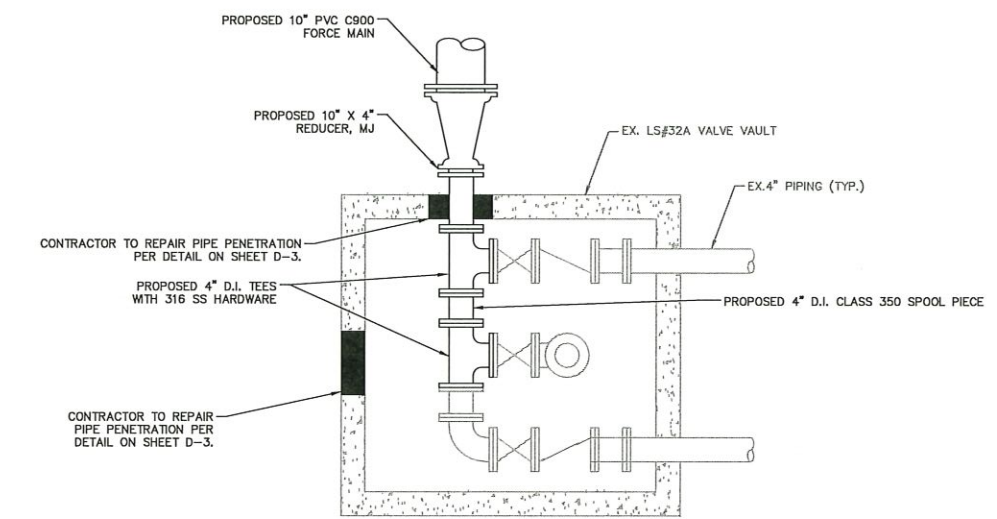
*NOTES:
THE ELEVATIONS OF THE UTILITIES MARKED WITH AN ASTERISK (*) HAVE BEEN ASSUMED ON THE BASIS OF TYPICAL ANTICIPATED SOIL COVERAGE. CONTRACTOR SHALL NOT RELY ON THIS INFORMATION FOR CONSTRUCTION, BUT SHALL BE RESPONSIBLE FOR FIELD LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL UTILITIES CROSSING THE PROPOSED FORCE MAIN. CONTRACTOR SHALL INCLUDE IN THE UNIT COST OF THE SUBJECT FORCE MAIN CONSTRUCTION, THE COST OF UTILITY ADJUSTMENTS NECESSARY TO ATTAIN DESIGN MINIMUM SEPARATION FOR UTILITIES CONFLICTING WITH THE CONSTRUCTION OF THE PROPOSED FORCE MAIN. INTERRUPTIONS OF ANY EXISTING UTILITY SERVICES SHALL BE NOTICED TO EFFECTED CUSTOMERS A MINIMUM OF 48 HOURS IN ADVANCE AND SHALL NOT EXCEED 4 HOURS IN DURATION.

WHERE CONCRETE REPAIRS ARE NECESSARY AND EXPANSION JOINTS ARE PRESENT, CONTRACTOR TO REMOVE AND REPLACE CONCRETE UP TO THE NEXT EXPANSION JOINT; OTHERWISE, REPLACE CONCRETE AS NECESSARY.

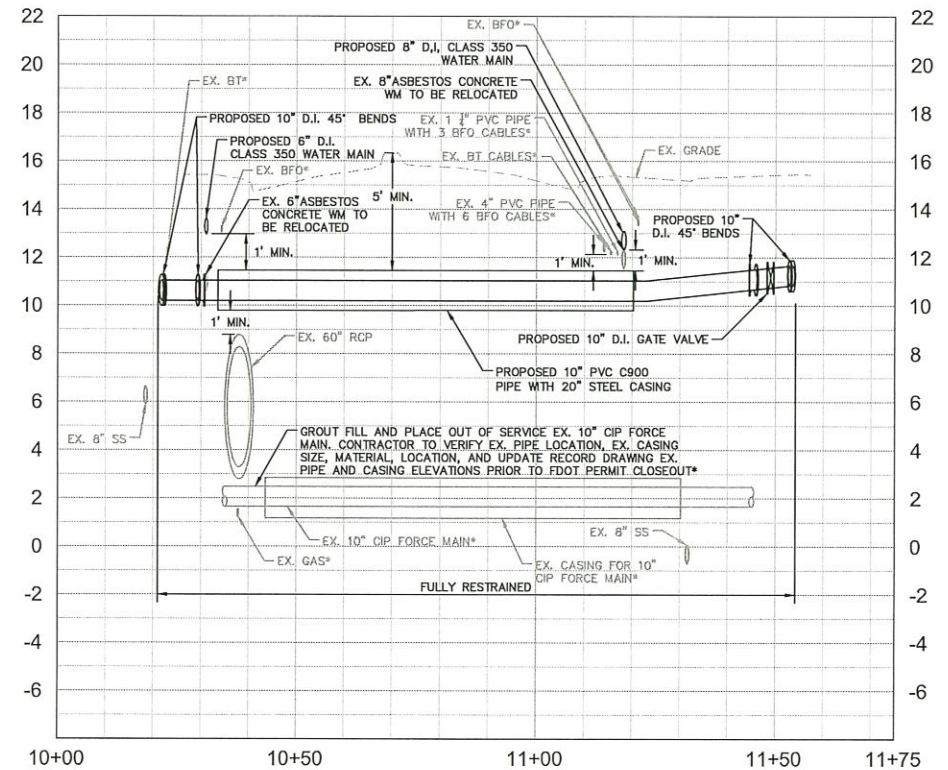
GROUNDWATER / DEWATERING NOTE:
THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR THIS ISSUE. WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.



LIFT STATION #32A EXISTING CONNECTION DEMO
SCALE: NTS



LIFT STATION #32A PROPOSED CONNECTION DETAIL
SCALE: NTS



No.	REVISIONS	DATE	BY

Kimley»Horn
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KHA PROJECT 148400099
DATE FEB 2023
SCALE AS SHOWN
DESIGNED BY MAS
DRAWN BY GMB
CHECKED BY JWW

Manatee County
FORCE MAIN 32A REPLACEMENT
MANATEE COUNTY

LICENSED PROFESSIONAL
MICHAEL A. SEMAGO, P.E.
FL LICENSE NUMBER
87501
FL DATE:

2023-H-194-00027
PLAN SHEET
SHEET NUMBER
C-4
Curtis Vilt
3/7/2023

SHEET	TABLE OF CONTENTS
1	General Notes, TTC Tables
2	Definitions
	Temporary Traffic Control Devices
	Overhead Work
	Railroads
3	Sight Distance
	Above Ground Hazard
	Clear Zone Widths For Work Zones
	Superelevation
	Length Of Lane Closures
4	Overweight/Oversize Vehicles
	Lane Widths
	High-Visibility Safety Apparel
	Speed Reduction Signing
	Flagger Control
5	Survey Work Zones
	Signs
6	Work Zone Sign Supports
7	Commonly Used Warning and Regulatory Signs In Work Zones
8	Manholes/Crosswalks/Joints
	Truck Mounted Attenuators
	Signals
	Channelizing Devices
9	Channelizing Devices Consistency
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	Drop-Offs In Work Zones
10	Business Entrance
	Temporary Asphalt Separator
11	Channelizing Devices Notes
	Temporary Barrier Notes
12	Pavement Markings

GENERAL NOTES:

- This Index contains information specific to the Federal and State guidelines and standards for the preparation of traffic control plans and for the execution of traffic control in work zones, for construction and maintenance operations and utility work on highways, roads and streets on the State Highway System. Certain requirements in this Index are based on the high volume nature of State Highways. For highways, roads and streets off the State Highway System, the local agency (City/County) having jurisdiction may adopt requirements based on the minimum requirements provided in the MUTCD.
- Use this Index in accordance with the Plans and Indexes 102-601 through 102-680. Indexes 102-601 through 102-680 are Department-specific typical applications of commonly encountered situations. Adjust device location or number thereof as recommended by the Worksite Traffic Supervisor and approved by the Engineer. Devices include, but are not limited to, flaggers, portable temporary signals, signs, pavement markings, and channelizing devices. Comply with MUTCD or applicable Department criteria for any changes and document the reason for the change.
- Except for emergencies, any road closure on State Highway System must comply with Section 335.15, F.S.

**TABLE 1
CHANNELIZING DEVICE SPACING**

Work Zone Speed (mph)	Max. Spacing (feet)			
	Cones or Temporary Tubular Markers		Type I Barricades, Type II Barricades, Vertical Panels, or Drums	
	Taper	Tangent	Taper	Tangent
≤ 45	25	50	25	50
≥ 50	25	50	50	100

**TABLE 2
TAPER LENGTH "L"**

Work Zone Speed (mph)	Min. Length (feet)
≤ 40	$L = \frac{WS^2}{60}$
≥ 45	L = WS

Where: W = width of offset in feet
S = speed in mph

**TABLE 3
WORK ZONE SIGN SPACING "X"**

Road Type	Min. Spacing (feet)
Arterials and Collectors with Work Zone Speed ≤ 40 mph	200
Arterials and Collectors with Work Zone Speed ≥ 45 mph	500
Limited Access Roadways *	1,500

* For limited access roadways with work zone speed ≤ 55 mph, the minimum spacing may be reduced in accordance with the MUTCD and as approved by the Engineer.

**TABLE 4
BUFFER LENGTH "B"**

Work Zone Speed (mph)	Min. Length (feet)
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

Note: When Buffer Length "B" cannot be attained due to geometric constraints, use the greatest length possible, but not less than 155 feet.

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 Curtis Vilt
 3/7/2023

DEFINITIONS:

Regulatory Speed (In Work Zones)

The maximum permitted travel speed posted for the work zone is indicated by the regulatory speed limit signs. The work zone speed must be shown or noted in the plans. This speed should be used as the minimum design speed to determine runout lengths, departure rates, flare rates, lengths of need, clear zone widths, taper lengths, crash cushion requirements, marker spacings, superelevation and other similar features.

Advisory Speed

The maximum recommended travel speed through a curve or a hazardous area.

Travel Way

The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel way may include the temporary use of shoulders and any other permanent or temporary surface intended for use as a lane for the movement of vehicular traffic.

- a. **Travel Lane:** The designated widths of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other traffic lanes.
- b. **Auxiliary Lane:** The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through traffic.

Detour, Lane Shift, and Diversion

A detour is the redirection of traffic onto another roadway to bypass the temporary traffic control zone. A lane shift is the redirection of traffic onto a different section of the permanent pavement. A diversion is the redirection of traffic onto a temporary roadway, usually adjacent to the permanent roadway and within the limits of the right of way.

Aboveground Hazard

An aboveground hazard is any object, material or equipment other than traffic control devices that encroaches upon the travel way or that is located within the clear zone which does not meet the Department's safety criteria, i.e., anything that is greater than 4" in height and is firm and unyielding or doesn't meet breakaway requirements.

TEMPORARY TRAFFIC CONTROL DEVICES:

1. All temporary traffic control devices shall be ON the Department's Approved Products List (APL). Ensure the appropriate APL number is permanently marked on the device in a readily visible location.
2. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered. Do not store temporary traffic control devices on the shoulder, sidewalk, or other roadway facility not affected by the work when work is suspended.
3. Arrow Boards, Portable Changeable Message Signs, Radar Speed Display Trailer, Portable Regulatory Signs, and any other trailer mounted device shall be delineated with a channelizing device placed at each corner when in use and shall be moved outside the travel way and clear zone or be shielded by a barrier or crash cushion when not in use.

OVERHEAD WORK:

Work is only allowed over a traffic lane when one of the following options is used:

OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)

Overhead work using a modified lane closure is allowed if all of the following conditions are met:

- a. Work operation is located in a signalized intersection and limited to signals, signs, lighting and utilities.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- e. Aerial lift equipment is placed directly below the work area to close the lane.
- f. Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- g. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)

Overhead work above an open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of travel way and 18 feet high.
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

OPTION 3 (OVERHEAD WORK ADJACENT TO AN OPEN TRAFFIC LANE)

Overhead work adjacent to an open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 1 day or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within 2 foot from the edge of travel way up to 18' height. Above 18' in height, no encroachment by any part of the work activities and equipment over the open traffic lane (except as allowed in Option 2 for work operations of 60 minutes or less).
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

OVERHEAD WORK: (Cont.)

OPTION 4 (OVERHEAD WORK MAINTAINING TRAFFIC WITH NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA)

Traffic shall be detoured, shifted, diverted or paced as to not encroach in the area directly below the overhead work operations in accordance with the appropriate index drawing or detailed in the plans. This option applies to, but not limited to, the following construction activities:

- a. Beam, girder, segment, and bent/pier cap placement.
- b. Form and falsework placement and removal.
- c. Concrete placement.
- d. Railing construction located at edge of deck.
- e. Structure demolition.

OPTION 5 (CONDUCTOR/CABLE PULLING ABOVE AN OPEN TRAFFIC LANE)

Overhead cable and/or de-energized conductor installations initial pull to proper tension shall be done in accordance with the appropriate Index or temporary traffic control plan.

Continuous pulling operations of secured cable and/or conductors are allowed over open lane(s) of traffic with no encroachment by any part of the work activities, materials or equipment within the minimal vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables at no time fall below the minimum vertical clearance.

On Limited Access facilities, a site specific temporary traffic control plan is required. The temporary traffic control plan shall include:

- a. The temporary traffic control set up for the initial pulling of the pull rope across the roadway.
- b. During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights flashing during the pulling operation.

RAILROADS:

Railroad crossings affected by a construction project should be evaluated for traffic controls to reduce queuing on the tracks. The evaluation should include as a minimum: traffic volumes, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.


SIGHT DISTANCE:

1. Tapers: Transition tapers should be obvious to drivers. If restricted sight distance is a problem (e.g., a sharp vertical or horizontal curve), the taper should begin well in advance of the view obstruction. The beginning of tapers should not be hidden behind curves.
2. Intersections: Traffic control devices at intersections must provide sight distances for the road user to perceive potential conflicts and to traverse the intersection safely. Construction equipment and materials shall not restrict intersection sight distance.

ABOVEGROUND HAZARD:

1. Aboveground hazards (see definitions) are to be considered work areas during working hours and treated with appropriate work zone traffic control procedures. During nonworking hours, all objects, materials and equipment that constitute an aboveground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.
2. For aboveground hazards within a work zone the clear zone required should be based on the regulatory speed posted during construction.

10/27/2022 7:36:00 AM

LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2023-24 STANDARD PLANS	GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES	INDEX 102-600	SHEET 2 of 11
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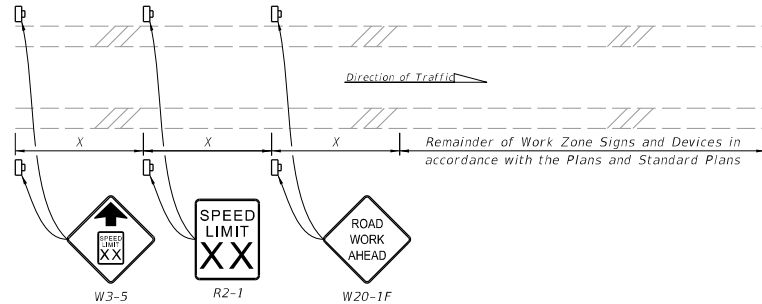
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 2023-H-194-00027
 Curtis Vilt
 3/7/2023

CLEAR ZONE WIDTHS FOR WORK ZONES:

The term 'clear zone' describes the unobstructed relatively flat area, impacted by construction, extending outward from the edge of the traffic lane. The table below gives clear zone widths in work zones for medians and roadside conditions other than for roadside canals; where roadside canals are present, clear zone widths are to conform with the distances to canals as described in the *FDOT Design Manual 215.2*.

WORK ZONE SPEED (MPH)	TRAVEL LANES & MULTILANE RAMPS (feet)	AUXILIARY LANES & SINGLE LANE RAMPS (feet)
60-70	30	18
55	24	14
45-50	18	10
30-40	14	10
ALL SPEEDS CURB & GUTTER	4' BEHIND FACE OF CURB	4' BEHIND FACE OF CURB

NOTE: For temporary conditions where existing curb has been removed but not reconstructed, curb and gutter values may be used.



NOTES:

1. X = Work Zone Sign Spacing
2. When called for in the Plans, use this detail in accordance with the Plans and Standard Plans. Place the speed reduction signs (W3-5 and R2-1) in advance of the "Road Work Ahead" sign (W20-1F) as shown.
3. Do not use this detail in conjunction with the Motorist Awareness System.
4. For speed reductions greater than 10 MPH, reduce the speed in 10 MPH increments of 'X' distance. Do not reduce the speed below the minimum statutory speed for the class of facility.
5. Place additional "Speed Limit" signs (R2-1) at intervals of no more than one mile for rural conditions and 1,000 feet for urban conditions.
6. For undivided roadways, omit the signs shown in the median.
7. Remove temporary regulatory speed signs as soon as the conditions requiring the reduced speed no longer exist. Once the work zone regulatory speeds are removed, the regulatory speed existing prior to construction will automatically go back into effect.

SPEED REDUCTION SIGNING

SUPERELEVATION:

Horizontal curves constructed in conjunction with work zone traffic control should have the required superelevation applied to the design radii. Under conditions where normal crown controls curvature, the minimum radii that can be applied are listed in the table below.

WORK ZONE POSTED SPEED MPH	MINIMUM RADIUS Feet
70	4090
65	3130
60	2400
55	1840
50	1390
45	1080
40	820
35	610
30	430
Superelevate When Smaller Radii is Used	

OVERWEIGHT/OVERSIZE VEHICLES:

Restrictions to Lane Widths, Heights or Load Capacity can greatly impact the movement of over dimensioned loads. The Contractor shall notify the Engineer who in turn shall notify the State Permits Office, phone no. (850) 410-5777, at least seven calendar days in advance of implementing a maintenance of traffic plan which will impact the flow of overweight/oversized vehicles. Information provided shall include location, type of restriction (height, width or weight) and restriction time frames. When the roadway is restored to normal service the State Permits Office shall be notified immediately.

LANE WIDTHS:

Lane widths of through roadways should be maintained through work zone travel ways wherever practical. Provide minimum widths for work zone travel lanes as follows: 11' for Interstate with at least one 12' lane provided in each direction, unless formally excepted by the Federal Highway Administration; 11' for all other limited access roadways; and 10' for all other facilities.

HIGH-VISIBILITY SAFETY APPAREL:

All high-visibility safety apparel shall meet the requirements of the International Safety Equipment Association (ISEA) and the American National Standards Institute (ANSI) for "High-Visibility Safety Apparel", and labeled as ANSI/ISEA 107-2004 or newer. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined by the standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. Class 3 apparel may be substituted for Class 2 apparel. Replace apparel that is not visible at 1,000 feet.

WORKERS: All workers within the right-of-way shall wear ANSI/ISEA Class 2 apparel. Workers operating machinery or equipment in which loose clothing could become entangled during operation shall wear fitted high-visibility safety apparel. Workers inside the bucket of a bucket truck are not required to wear high-visibility safety apparel.

UTILITIES: When other industry apparel safety standards require utility workers to wear apparel that is inconsistent with FDOT requirements such as NFPA, OSHA, ANSI, etc., the other standards for apparel may prevail.

FLAGGERS: For daytime activities, Flagger shall wear ANSI/ISEA Class 2 apparel. For nighttime activities, Flagger shall wear ANSI/ISEA Class 3 apparel.

LENGTH OF LANE CLOSURES:

For interstates and state highways with a posted speed of 55MPH or greater, lane closures must not exceed 3 miles (includes taper, buffer, and work zone) in any given direction and must not close two consecutive interchanges.

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LAST REVISION 11/01/20	DESCRIPTION:		FY 2023-24 STANDARD PLANS	GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES	INDEX 102-600	SHEET 3 of 11
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Approved
2023-H-194-00027
Curtis Vilt
3/7/2023

FLAGGER CONTROL:

Regulatory Speed (In Work Zones)

Where flaggers are used, a FLAGGER symbol or legend sign must replace the WORKERS symbol or legend sign.

The flagger must be clearly visible to approaching traffic for a distance sufficient to permit proper response by the motorist to the flagging instructions, and to permit traffic to reduce speed or to stop as required before entering the work site. Flaggers shall be positioned to maintain maximum color contrast between the Flagger's high-visibility safety apparel and equipment and the work area background.

Hand-Signaling Devices

STOP/SLOW paddles are the primary hand-signaling device. The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. If the STOP/SLOW paddle is placed on a rigid staff, the minimum length of the staff, measured from the bottom of the paddle to the end of the staff that rests on the ground, must not be less than 6 ft. STOP/SLOW paddles shall be at least 24 inches wide with letters at least 6 inches high and should be fabricated from light semirigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW face shall be orange with black letters and border. When used at night-time, the STOP/SLOW paddle shall be retroreflectorized.

Flag use is limited to immediate emergencies, intersections, and when working on the centerline or shared left turn lanes where two (2) flaggers are required and there is opposing traffic in the adjacent lanes. Flags, when used, shall be a minimum of 24 inches square, made of a good grade of red material, and securely fastened to a staff that is approximately 36 inches in length. When used at nighttime, flags shall be retroreflectorized red.

Flashlight, lantern or other lighted signal that will display a red warning light shall be used at night.

Flagger Stations

Flagger stations shall be located far enough in advance of the work area so that approaching road users will have sufficient distance to stop before entering the work area. When used at nighttime, the flagger station shall be illuminated.

SURVEY WORK ZONES:

The SURVEY CREW AHEAD symbol or legend sign shall be the principal Advance Warning Sign used for Traffic Control Through Survey Work Zones and may replace the ROAD WORK AHEAD sign when lane closures occur, at the discretion of the Party Chief.

When Traffic Control Through Work Zones is being used for survey purposes only, the END ROAD WORK sign as called for on certain 102 Series of Indexes should be omitted.

Survey Between Active Traffic Lanes or Shared Left Turn Lanes

The following provisions apply to Main Roadway Traffic Control Work Zones. These provisions must be adjusted by the Party Chief to fit roadway and traffic conditions when the Survey Work Zone includes intersections.

(A) A STAY IN YOUR LANE (MOT-1-06) sign shall be added to the Advance Warning Sign sequence as the second most immediate sign from the work area.

(B) Elevation Surveys-Cones may be used at the discretion of the Party Chief to protect prism holder and flagger(s). Cones, if used, may be placed at up to 50' intervals along the break line throughout the work zone.

SURVEY WORK ZONES: (Cont.)

(C) Horizontal Control-With traffic flow in the same direction, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' towards the flow of traffic.

(D) Horizontal Control-With traffic flow in opposite directions, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' in both directions towards the flow of traffic.

SIGNS:

SIGN MATERIALS

Mesh signs and non-retroreflective vinyl signs may only be used for daylight operations. Non-retroreflective vinyl signs must meet the requirements of Specifications Section 994.

Retroreflective vinyl signs meeting the requirements of Specification Section 994 may be used for daylight or night operations not to exceed 1 day except as noted in the Indexes.

Rigid or Lightweight sign panels may be used in accordance with the vendor APL drawing for the sign stand to which they are attached.

INTERSECTING ROAD SIGNING

Signing for the control of traffic entering and leaving work zones by way of intersecting crossroads shall be adequate to make drivers aware of work zone conditions. When Work operations exceed 60 minutes, place the ROAD WORK AHEAD sign on the side street entering the work zone.

ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING

Adjoining work zones may not have sufficient spacing for standard placement of signs and other traffic control devices in their advance warning areas or in some cases other areas within their traffic control zones. Where such restraints or conflicts occur or are likely to occur, one of the following methods will be employed to avoid conflicts and prevent conditions that could lead to misunderstanding on the part of the traveling public as to the intended travel way by the traffic control procedure applied:

(A) For scheduled projects the engineer in responsible charge of project design will resolve anticipated work zone conflicts during the development of the project traffic control plan. This may entail revision of plans on preceding projects and coordination of plans on concurrent projects.

(B) Unanticipated conflicts arising between adjoining in progress highway construction projects will be resolved by the Resident Engineer for projects under his residency, and, by the District Construction Engineer for in progress projects under adjoining residencies.

(C) The District Maintenance Engineer will resolve anticipated and occurring conflicts within scheduled maintenance operations.

(D) The Unit Maintenance Engineer will resolve conflicts that occur within routine maintenance works; between routine maintenance work, unscheduled work and/or permitted work; and, between unit controlled maintenance works and highway construction projects.

SIGNS: (Cont.)

SIGN COVERING AND INTERMITTENT WORK STOPPAGE SIGNING
Existing or temporary traffic control signs that are no longer applicable or are inconsistent with intended travel paths shall be removed or fully covered.

Sign blanks or other available coverings must completely cover the existing sign. Rigid sign coverings shall be the same size as the sign it is covering, and bolted in a manner to prevent movement.

Sign covers are incidental to work operations and are not paid for separately.

SIGNING FOR DETOURS, LANE SHIFTS AND DIVERSIONS

Detours should be signed clearly over their entire length so that motorists can easily determine how to return to the original roadway. The reverse curve (W1-4) warning sign should be used for the advanced warning for a lane shift. A diversion should be signed as a lane shift.

EXTENDED DISTANCE ADVANCE WARNING SIGN

Advance Warning Signs shall be used at extended distance of one-half mile or more when limited sight distance or the nature of the obstruction may require a motorist to bring their vehicle to a stop. Extended distance Advanced Warning Signs may be required on any type roadway, but particularly be considered on multilane divided highways where vehicle speed is generally in the higher range (45 MPH or more).

UTILITY WORK AHEAD SIGN

The UTILITY WORK AHEAD (W21-7) sign may be used as an alternate to the ROAD WORK AHEAD or the ROAD WORK XX FT (W20-1) sign for utility operations on or adjacent to a highway.

LENGTH OF ROAD WORK SIGN

The length of road work sign (G20-1) bearing the legend ROAD WORK NEXT-----MILES is required for all projects of more than 2 miles in length. The number of miles entered should be rounded up to the nearest mile. The sign shall be located at begin construction points.


GROOVED PAVEMENT AHEAD SIGN

The GROOVED PAVEMENT AHEAD sign is required 500 feet in advance of a milled or grooved surface open to traffic. The W8-15P placard shall be used in conjunction with the GROOVED PAVEMENT AHEAD sign.

END ROAD WORK SIGN

The END ROAD WORK sign (G20-2) should be installed on all projects, but may be omitted where the work operation is less than 1 day. The sign should be placed approximately 500 feet beyond the end of a construction or maintenance project unless other distance is called for in the plans. When other Construction or Maintenance Operations occur within 1 mile this sign should be omitted and signing coordinated in accordance with Index 102-600, ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING.

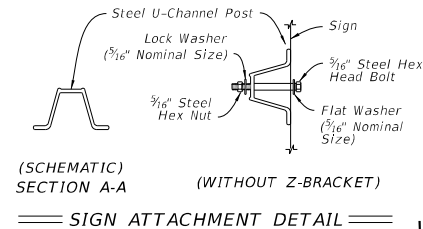
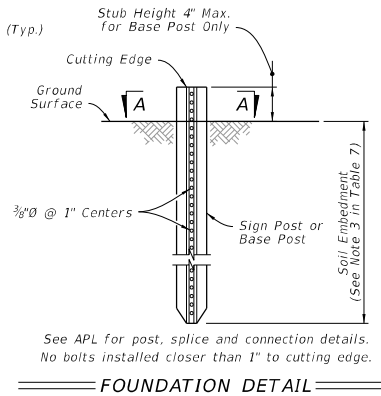
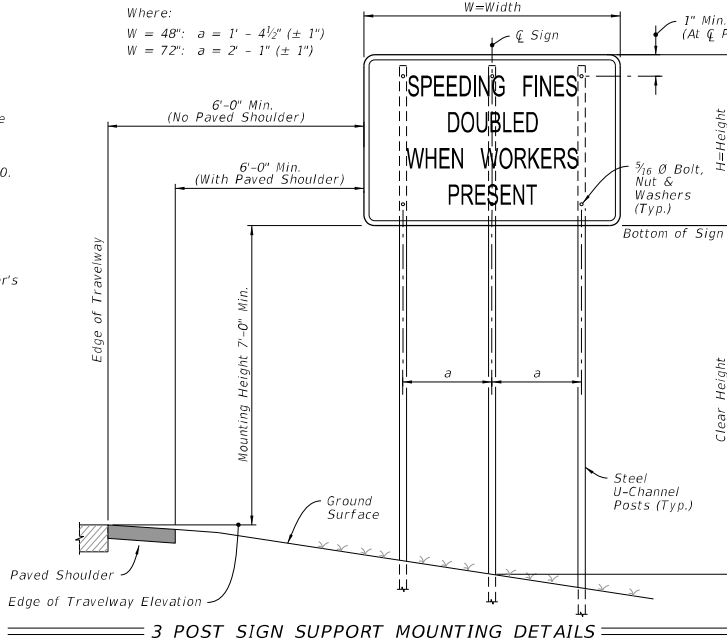
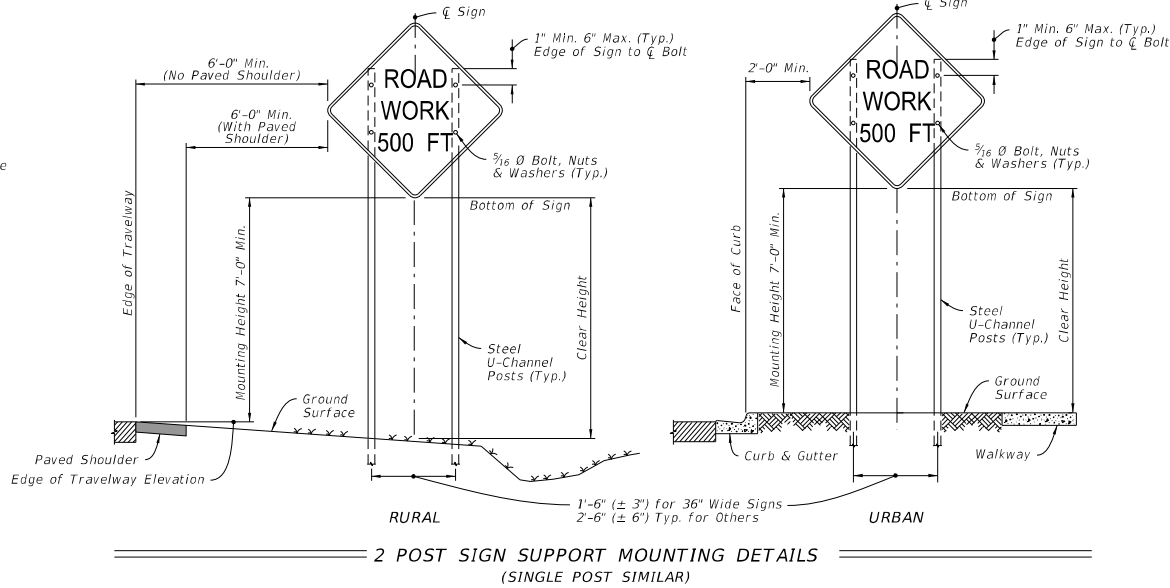
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 Curtis Vilt
 3/7/2023

NOTES:

- All signs shall be post mounted when work operations exceed one day except for:
 - Road closure signs mounted in accordance with the vendor drawing for the Type III Barricade shown on the APL.
 - Pedestrian and bicycle advanced warning or pedestrian regulatory signs mounted on sign supports in accordance with the vendor drawing shown on the APL.
 - Median barrier mounted signs per Index 700-013.
 - Bridge mounted signs per Index 700-012.
- Unless shielded with barrier or outside of the Clear Zone, signs mounted on temporary supports or barricades, and barricade/sign combination must be crashworthy in accordance with NCHRP 350 requirements and included on the Approved Products List (APL).
- Use only approved systems listed on the Department's Approved Products List (APL).
- Manufacturers seeking approval of U-Channel and steel square tube sign support assemblies for inclusion on the Approved Products List (APL) must submit a APL application, design calculations (for square tube only), and detailed drawings showing the product meets all the requirements of this Index.
- Provide 3 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.43 in³ for 60 ksi steel, a minimum section modulus of 0.37 in³ for 70 ksi steel, or a minimum section modulus of 0.34 in³ for 80 ksi steel.
- Provide 4 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.56 in³ for 60 ksi steel, or a minimum section modulus of 0.47 in³ for 70 ksi or 80 ksi steel.
- U-channel posts shall conform with ASTM A 499, Grade 60, or ASTM A 576, Grade 1080 (with a minimum yield strength of 60 ksi). Square tube posts shall conform with ASTM A 653, Grade 50, or ASTM A 1011, Grade 50.
- Sign attachment bolts, washers, nuts, and spacers shall conform with ASTM A307 or A 36.
- Install 4 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
- The contractor may install 3 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
- Install all posts plumb.
- The contractor may set posts in preformed holes to the specified depth with suitable backfill tamped securely on all sides, or drive 3 lb/ft sign posts and any size base post in accordance with the manufacturer's detail shown on the APL.



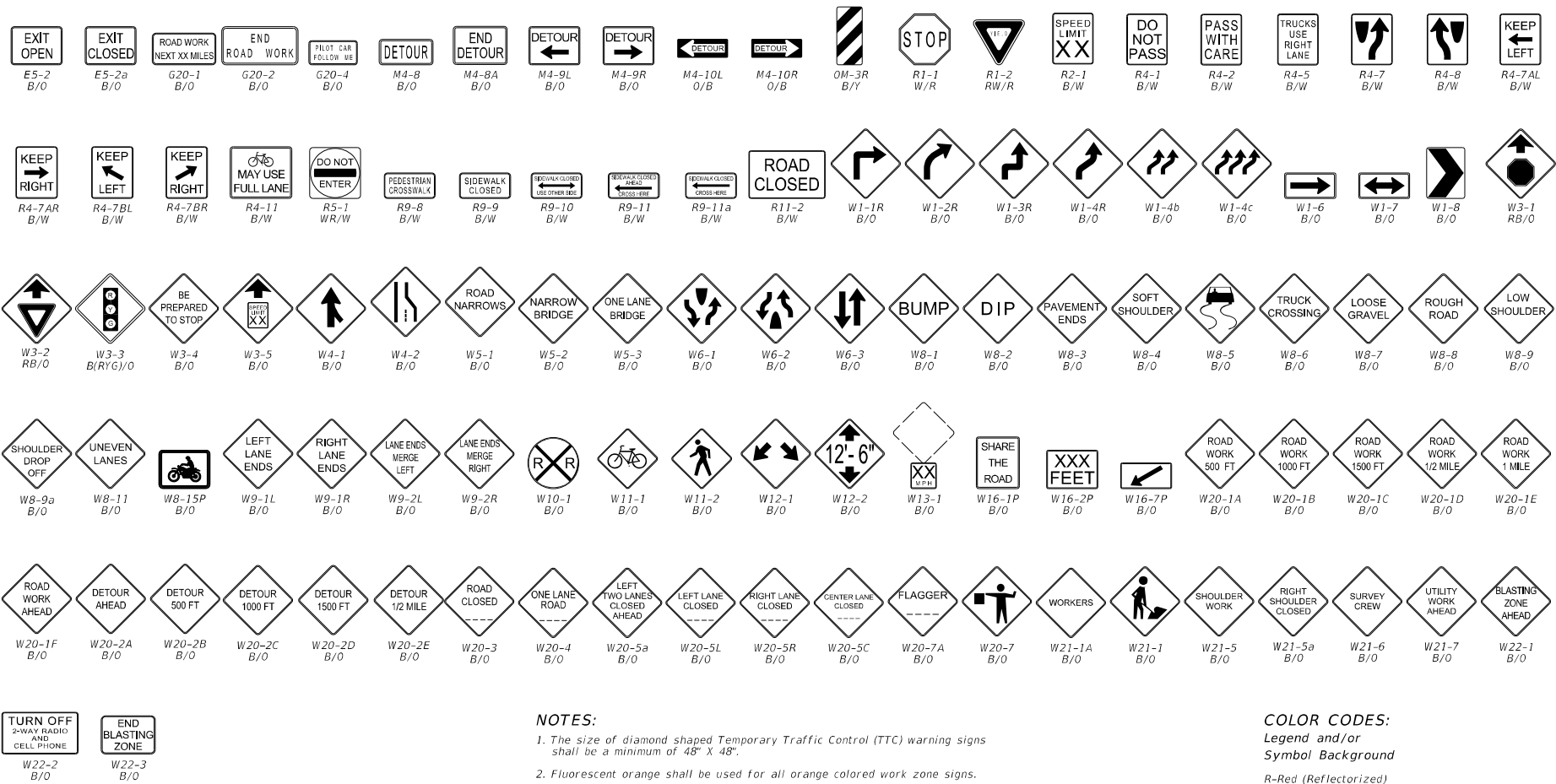
**TABLE 7
POST AND FOUNDATION
TABLE FOR
WORK ZONE SIGNS**

SIGN SHAPE	SIGN SIZE (inches)	NUMBER OF STEEL U CHANNEL POSTS
Octagon	30x30	1
	36x36x36	1
	48x48x48	1
Triangle	60x60x60	2
	24x18	1
	24x30	1
Rectangle (W x H)	30x24	1
	36x18	1
	36x24	1
	48x18	1
	48x24	1
	36x48	2
	48x30	2
	48x36	2
	54x36	2
	48x60	3
Square	72x48	3
	30x30	1
	36x36	2
	48x48	2
Diamond	48x48	2
Circle	360	2

- Notes For Table:**
- Use 3 lb/ft posts for Clear Height up to 10' and 4 lb/ft posts for Clear Height up to 12'.
 - Minimum foundation depth is 4.0' for 3 lb/ft posts and 4.5' for 4 lb/ft posts.
 - For both 3 lb/ft and 4 lb/ft base or sign posts installed in rock, a minimum cumulative depth of 2' of rock layer is required.
 - The soil plate as shown on the APL vendor drawing is not required for base posts or sign posts installed in existing rock (as defined in Note 3), asphalt roadway, shoulder pavement or soil under sidewalk.
 - For diamond warning signs with supplement plaque (up to 5 ft² in area), use 4 lb/ft posts for up to 10 ft Clear Height (measure to the bottom of diamond warning sign).

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Curtis Vilt
3/7/2023



NOTES:

1. The size of diamond shaped Temporary Traffic Control (TTC) warning signs shall be a minimum of 48" X 48".
2. Fluorescent orange shall be used for all orange colored work zone signs.
3. The sign shields, symbols and messages contained on this sheet are provided for ready reference to those signs used in the development of the 102 Series of Indexes and are commonly used in the development of traffic control plans. For additional signs and sign detail information refer to the STANDARD HIGHWAY SIGNS MANUAL as specified in the MUTCD. Special signs for traffic control plans will be as approved by the State Traffic Plans Engineer.

The sign codes shown on this sheet are for the purpose of identifying cell names found in the Traffic Control Cell Library (TCZ.Cel).

The STANDARD HIGHWAY SIGNS MANUAL should be referenced for the official sign codes for use in the development of traffic control plans.


See Index 700-102 for MOT sign details.

COLOR CODES:

Legend and/or Symbol Background

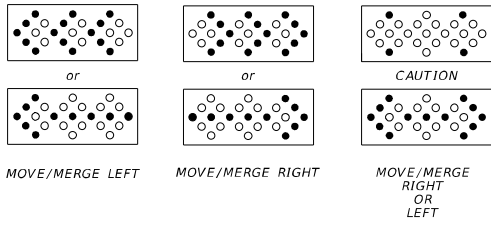
- R-Red (Reflectorized)
- Y-Yellow (Reflectorized)
- G-Green (Reflectorized)
- O-Orange (Reflectorized)
- B-Black (Non-Reflectorized)
- W-White (Reflectorized)

COMMONLY USED WARNING AND REGULATORY SIGNS IN WORK ZONES

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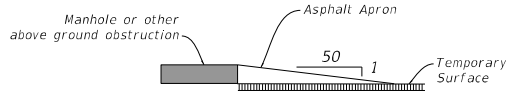


● Minimum Required Lamps
○ Additional Lamps Allowed

MODES

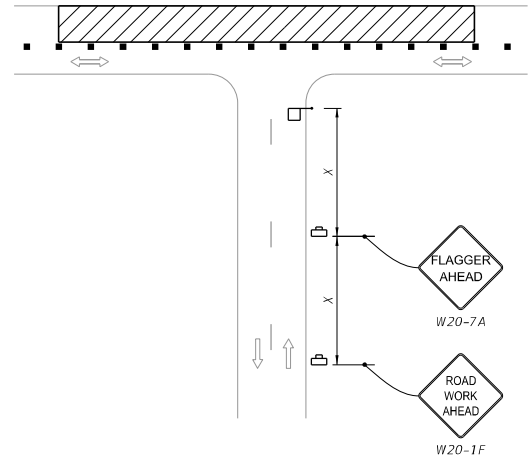
NOTES:
An arrow board in the arrow or chevron mode shall be used only for stationary or moving lane closures on multilane roadways.
For shoulder work, blocking the shoulder, for roadside work near the shoulder, or for temporarily closing one lane on a two-lane, two-way roadway, an arrow board shall be used only in the caution mode.
A single arrow board shall not be used to merge traffic laterally more than one lane. When arrow boards are used to close multiple lanes, a single board shall be used at the merging taper for each closed lane.
When Advance Warning Arrow Boards are used at night, the intensity of the flashers shall be reduced during darkness when lower intensities are desirable.

ADVANCE WARNING ARROW BOARDS



NOTES:
Manholes extending 1" or more above the travel lane and crosswalks having an uneven surface greater than 1/4" shall have a temporary asphalt apron constructed as shown above.
All transverse joints that have a difference in elevation of 1" or more shall have a temporary asphalt apron constructed as shown above.
The apron is to be removed prior to constructing the next lift of asphalt. The cost of the temporary asphalt shall be included in the contract unit price for Maintenance of Traffic, LS.

MANHOLES/CROSSWALKS/JOINTS



NOTE:
Optionally, use "Flagger Ahead" sign with text (W20-7A) instead of "Flagger Ahead" sign with symbol (W20-7).

SIDE ROAD INTERSECTING THE WORK ZONE

SIGNALS:
Existing traffic signal operations that require modification in order to carry out work zone traffic control shall be included in the Plans and be approved by the District Traffic Operations Engineer.

Refer to Specification 102-9 for additional information.

CHANNELIZING DEVICES:
Channelizing devices for work zone traffic control shall be as prescribed in Part VI of the MUTCD, subject to supplemental revisions provided in the contract documents and the 102 Series of Indexes. Lighting Devices must not be used to supplement channelization. Omit tapers and channelizing devices for paved shoulders less than 4' in width.

CHANNELIZING DEVICE CONSISTENCY:
Barricades, vertical panels, cones, tubular markers and drums shall not be intermixed within either the lateral transition or within the tangent alignment.

TRUCK/TRAILER-MOUNTED ATTENUATORS:
Truck/Trailer-mounted attenuators (TMA) can be used for moving operations and short-term stationary operations. For moving operations, see Index 102-607. For short-term, stationary operations, see Part VI of the MUTCD.

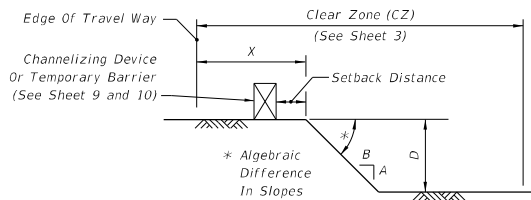
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DROP-OFF CONDITION NOTES

1. These conditions and treatments can be applied only in work areas that fall within a properly signed work zone.
2. When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 8). A drop-off is defined as a drop in elevation, parallel to the adjacent travel lanes, greater than 3" with slope (A:B) steeper than 1:4. In superelevated sections, the algebraic difference in slopes should not exceed 0.25 (See Drop-off Condition Detail).
3. Drop-offs may be mitigated by placement of slopes with optional base material per Specifications Section 285. Slopes shallower than 1:4 may be required to avoid algebraic difference in slopes greater than 0.25. Include the cost for the placement and removal of the material in Maintenance of Traffic, LS. Use of this treatment in lieu of a temporary barrier is not eligible for CSIP consideration. Conduct daily inspections for deficiencies related to erosion, excessive slopes, rutting or other adverse conditions. Repair any deficiencies immediately.
4. For Setback Distance, refer to the Index or Approved Products List (APL) drawing of the selected barrier.
5. For Conditions 1 and 3 provided in Table 8, any drop-off condition that is created and restored within the same work period will not be subject to use of temporary barriers; however, channelizing devices will be required.
6. When permanent curb heights are $\geq 6"$, no channelizing device will be required. For curb heights $< 6"$, see Table 8.



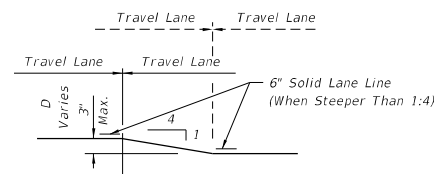
DROP-OFF CONDITION DETAIL

**Table 8
Drop-off Protection Requirements**

Condition	X (ft)	D (in.)	Device Required
1	0-12	> 3	Temporary Barrier
2	> 12-CZ	> 3 to ≤ 5	Channelizing Device
3	0-CZ	> 5	Temporary Barrier
4	Removal of Bridge or Retaining Wall Barrier		Temporary Barrier
5	Removal of portions of Bridge Deck		Temporary Barrier

TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING NOTES

1. This treatment applies to resurfacing or milling operations between adjacent travel lanes.
2. Whenever there is a difference in elevation between adjacent travel lanes, the W8-11 sign with "UNEVEN LANES" is required at intervals of 1/2 mile maximum.
3. If D is 1 1/2" or less, no treatment is required.
4. Treatment allowed only when D is 3" or less.
5. If the slope is steeper than 1:4 (not to be steeper than 1:1), the R4-1 and MOT-1-06 signs shall be used as a supplement to the W8-11; this condition should never exceed 3 miles in length.




TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING DETAIL

PEDESTRIAN WAY DROP-OFF CONDITION NOTES

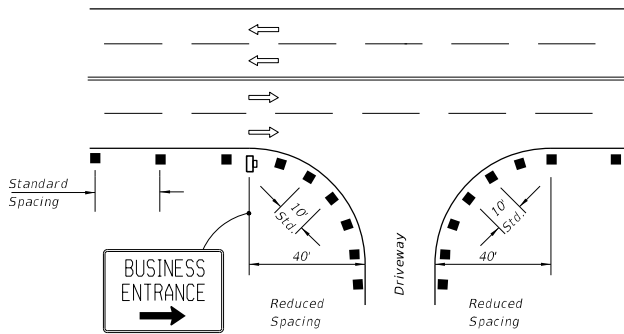
1. A pedestrian way drop-off is defined as:
 - a. a drop in elevation greater than 10" that is closer than 2' from the edge of the pedestrian way
 - b. a slope steeper than 1:2 that begins closer than 2' from the edge of the pedestrian way when the total drop-off is greater than 60"
2. Protect any drop-off adjacent to a pedestrian way with pedestrian longitudinal channelizing devices, temporary barrier wall, or approved handrail.

DROP-OFFS IN WORK ZONES

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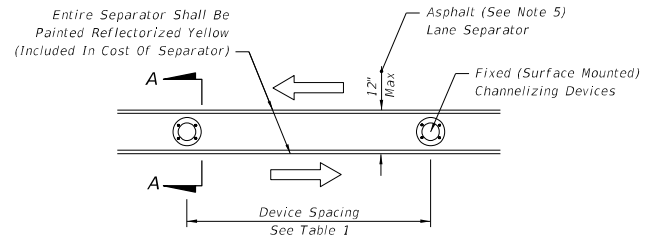
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3/7/2023

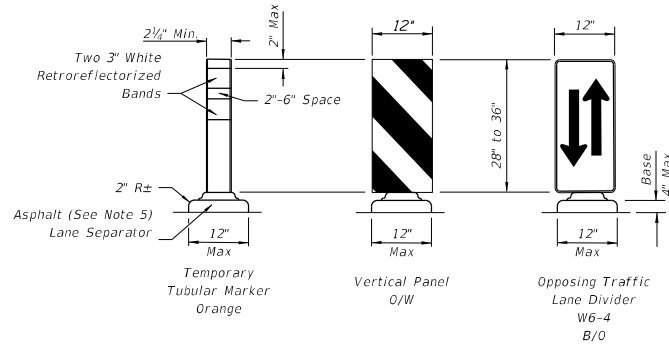


1. For single business entrances, place one 24" x 36" business sign for each driveway entrance affected. Signs shall show specific business names. Logos may be provided by business owners. Standard BUSINESS ENTRANCE sign in Index 700-102 may be used when approved by the Engineer.
2. When several businesses share a common driveway entrance, place one 24" x 36" standard BUSINESS ENTRANCE sign in accordance with Index 700-102 at the common driveway entrance.
3. Channelizing devices shall be placed at a reduced spacing on each side of the driveway entrance, but shall not restrict sight distance for the driveway users.
4. Business entrance signs are intended to guide motorist to business entrances moved/modified or disturbed during construction projects. Business entrance signs are not required where there is minimal disruption to business driveways which is often the case with resurfacing type projects.

PLACEMENT OF BUSINESS ENTRANCE SIGNS AND CHANNELIZING DEVICES AT BUSINESS ENTRANCE



PLAN




**FIXED (SURFACE MOUNTED)
CHANNELIZING DEVICES
SECTION A-A**

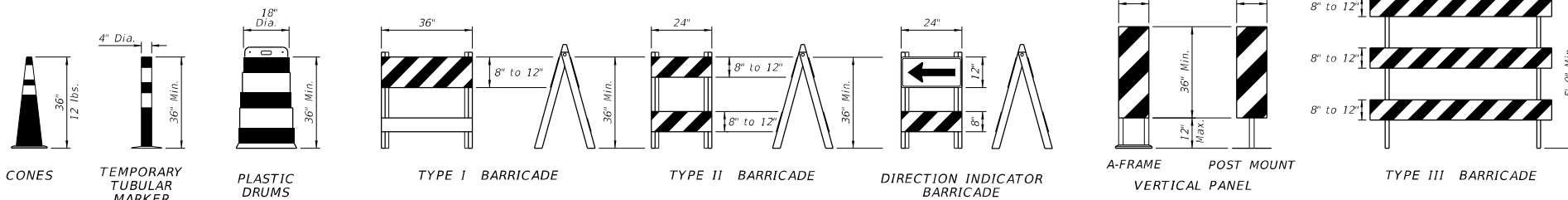
1. Temporary lane separators shall be supplemented with any of the following approved fixed (surface mounted) channelizing devices: temporary tubular markers, vertical panels, or opposing traffic lane divider panels. Opposing traffic lane divider panels (W6-4) shall only be used as center lane dividers to separate opposing vehicular traffic on a two-lane, two-way operation. Temporary Tubular Markers, Vertical Panels and Opposing Traffic Lane Divider panels shall not be intermixed within the limits where the temporary lane separator is used. The connection between the channelizing device and the temporary lane separator curb shall hold the channelizing device in a vertical position.
2. Reflectorized materials shall have a smooth sealed outer surface which will display the same approximate color day and night. Furnish channelizing devices having retroreflective sheeting meeting the requirements of Section 990.
3. 12" openings for drainage shall be constructed in the asphalt and portable temporary lane separator at a maximum spacing of 25' in areas with grades of 1% or less or 50' in areas with grades over 1% as directed by the Engineer.
4. Tapered ends shall be used at the beginning and end of each run of the temporary lane separator to form a gradual increase in height from the pavement level to the top of the temporary lane separator.
5. The Contractor has the option of using portable temporary lane separators containing fixed channelizing devices in lieu of the temporary asphalt separator and channelizing devices detailed on this sheet. The portable temporary lane separator shall come in portable sections that can be connected to maintain continuous alignment between the separate curb sections. Each temporary lane separator section shall be 36 inches to 48 inches in total length. Portable temporary lane separators shall duplicate the color of the pavement marking. Portable temporary lane separators shall be one of those listed on the Approved Products List.

TEMPORARY LANE SEPARATOR

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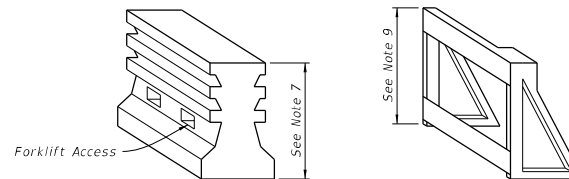
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 Curtis Vilt
 3/7/2023



CHANNELIZING DEVICES

CHANNELIZING DEVICE NOTES:

1. The details shown on this sheet are for the following purposes:
 - a. For ease of identification and
 - b. To provide information that supplements or supersedes that provided by the MUTCD.
2. The Type III Barricade shall have a unit length of 6'-0" only. When barricades of greater lengths are required those lengths shall be in multiples of the 6'-0" unit.
3. No sign panel should be mounted on any channelizing device unless the channelizing device/sign combination was found to be crashworthy and the sign panel is mounted in accordance with the vendor drawing for the channelizing device shown on the Approved Products List (APL).
4. Ballast shall not be placed on top rails or any striped rails or higher than 13" above the driving surface.
5. The direction indicator barricade may be used in tapers and transitions where specific directional guidance to drivers is necessary. If used, direction indicator barricades shall be used in series to direct the driver through the transition and into the intended travel lane.
6. The splicing of sheeting is not permitted on channelizing devices or MOT signs.
7. For rails less than 3'-0" long, 4" stripes shall be used.
8. Cones shall:
 - a. Be used only in active work zones where workers are present.
 - b. Be reflectorized as per the MUTCD with Department-approved reflective collars when used at night.
9. For pedestrian longitudinal channelizing devices, the device shall have a minimum of 8" continuous detectable edging above the walkway. A gap not exceeding a height of 2" is allowed to facilitate drainage. The top surface of the device shall be a minimum height of 32" and have a 1/8" or less difference in any plane at all connection points between the devices to facilitate hand trailing. The bottom and the top surface of the device shall be in the same vertical plane. If pedestrian drop-off protection is required, the device shall have a footprint or offset of at least 2', otherwise the device must be at least 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb lateral point load at the top of the device.



PEDESTRIAN LONGITUDINAL CHANNELIZING DEVICES

TEMPORARY BARRIER NOTES:

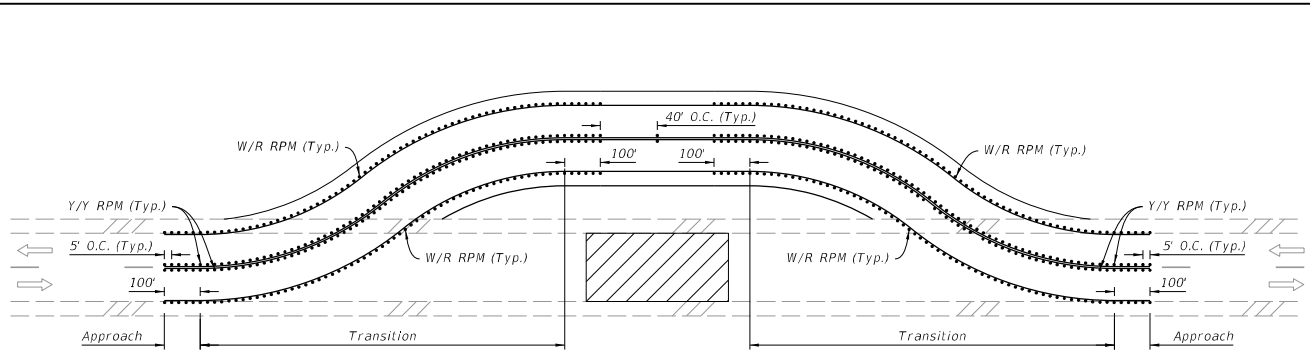
1. Where a barrier is specified, any of the types below may be used in accordance with the applicable Index:

Index	Description
102-100	Temporary Barrier
102-120	Low Profile Barrier
536-001	Guardrail
2. Trailer Mounted Barriers may be used to provide positive protection for workers within the work areas. APL drawings may be used as a guide to develop project specific Temporary Traffic Control Plans that are signed and sealed by the Contractor's Engineer.

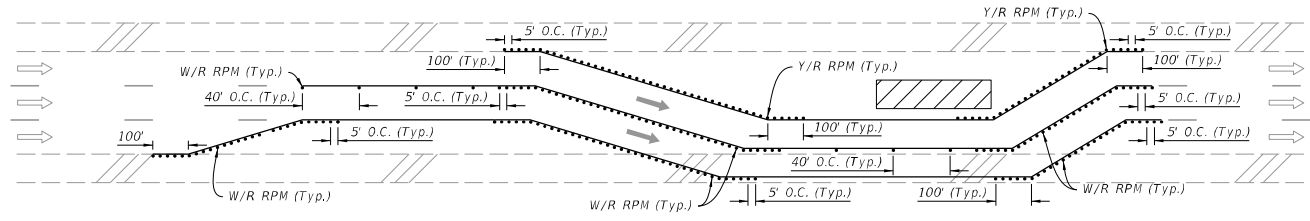
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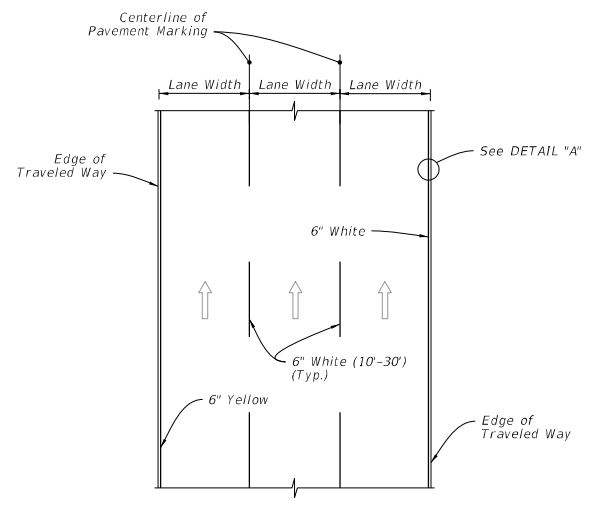
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RPM PLACEMENT ON TWO-LANE ROADWAYS



RPM PLACEMENT ON MULTILANE ROADWAYS
(Lane Shift Shown, Other Multilane Typical Applications Similar)



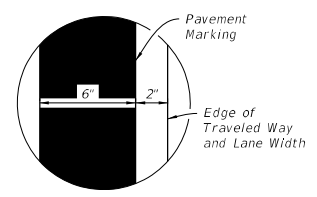
PLAN VIEW

NOTES:

1. Install RPMs as a supplement to:
 - a. All lane lines
 - b. Edge lines in transitions (e.g., merges, diversions, lane shifts)
 - c. Edge lines of gore areas
2. Extend pavement marking and 5' RPM spacing by 100' in each direction for all transitions regardless of the line type.
3. Place RPMs in accordance with this detail and Index 706-001.

SYMBOLS:

- Work Area
- Lane Identification and Direction of Traffic



DETAIL "A"

RPM PLACEMENT IN WORK ZONES

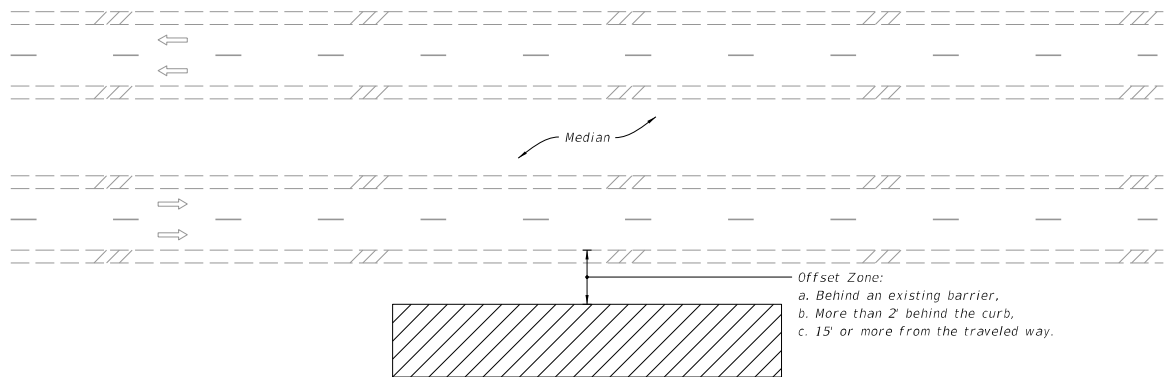
PAVEMENT MARKINGS PLACEMENT

WORK ZONE PAVEMENT MARKINGS

LAST REVISION 11/01/20	DESCRIPTION:	FY 2023-24 STANDARD PLANS	GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES	INDEX 102-600	SHEET 11 of 11
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 Curtis Vilt
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=====**MULTILANE ROADWAY SHOWN, TWO-LANE ROADWAY SIMILAR**=====

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

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

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LAST REVISION 11/01/20	REVISION	DESCRIPTION:		FY 2023-24 STANDARD PLANS	TWO-LANE AND MULTILANE ROADWAY, WORK BEYOND THE SHOULDER	INDEX 102-601	SHEET 1 of 1
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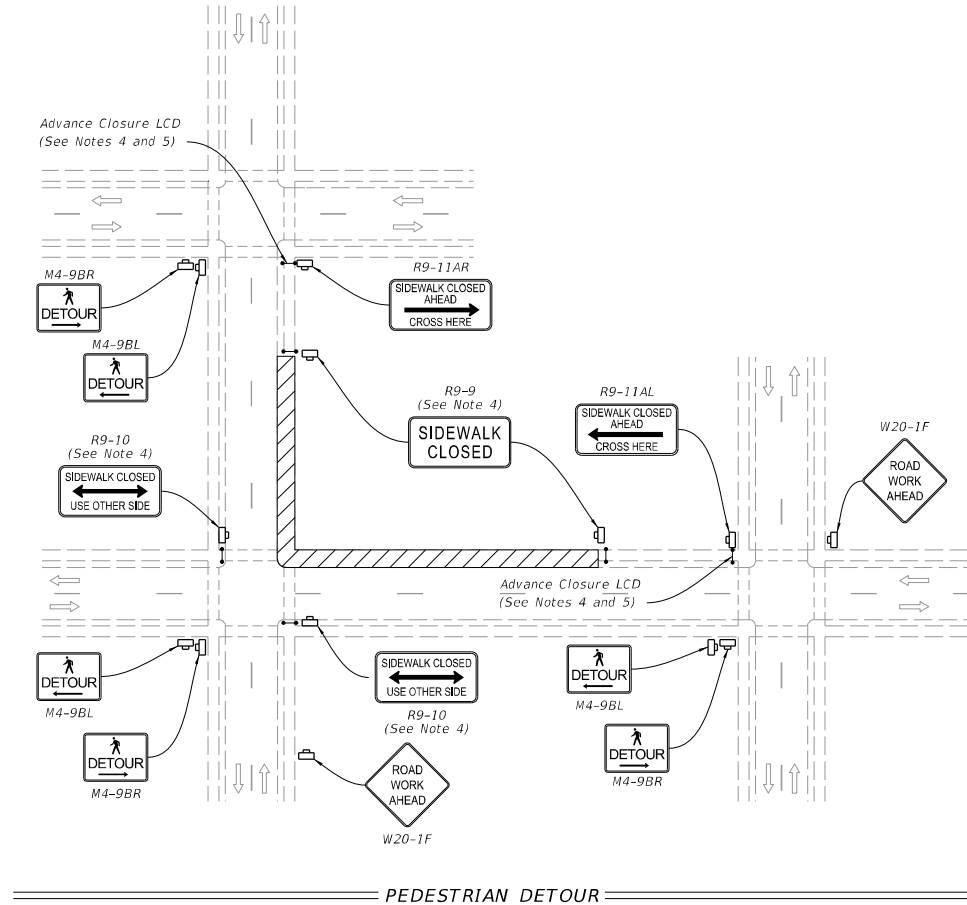
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NOTES:


1. Cover or deactivate pedestrian traffic signal display(s) controlling closed crosswalks.
2. Place pedestrian LCDs across the full width of the closed sidewalk.
3. 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.
4. "Sidewalk Closed" signs (R9-XX) may be mounted on pedestrian LCDs in accordance with the manufacturer's instructions.
5. 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
-  Pedestrian Longitudinal Channelizing Device (LCD)
-  Lane Identification and Direction of Traffic



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LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2023-24 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 1 of 2
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

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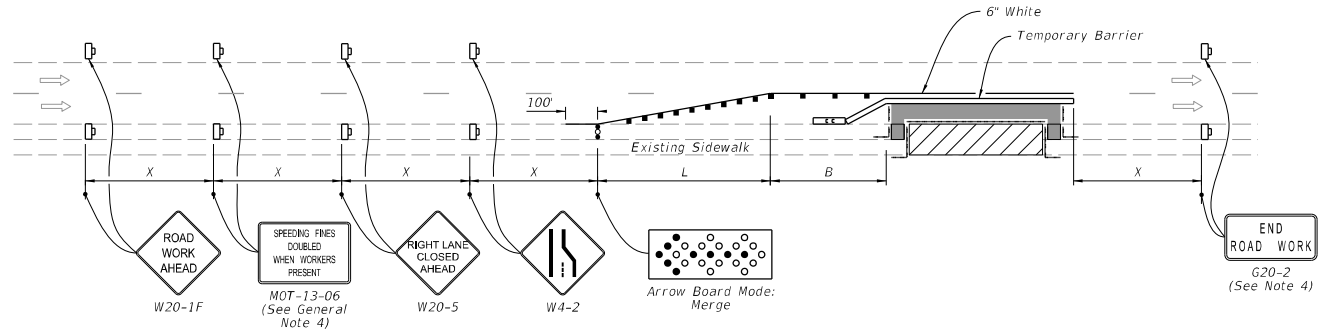
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NOTES:

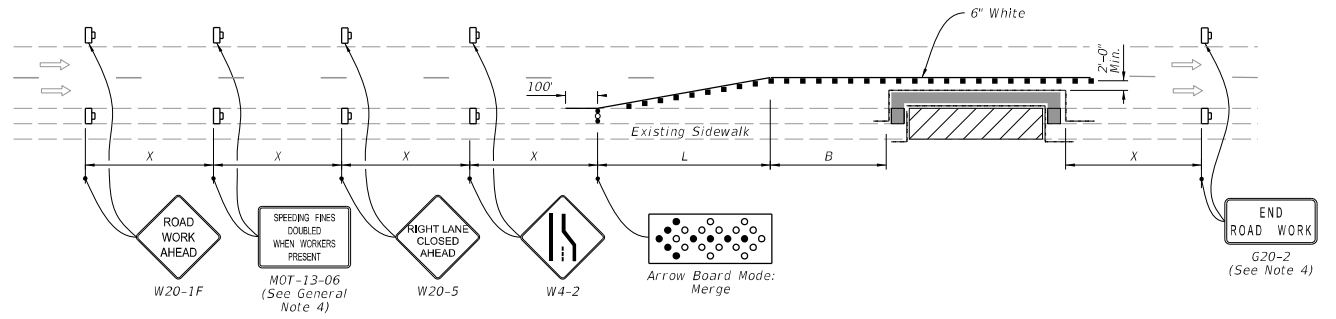
1. L = Taper Length
B = Buffer Length
X = Work Zone Sign Distance
See Index 102-600 for "L", "B", "K", channelizing device spacing values.
2. Provide a 5' wide temporary pedestrian way with a maximum cross-slope of 0.02, except where space restrictions warrant a minimum width of 4'. Provide a 5' x 5' passing space for temporary pedestrian ways less than 5' in width at intervals not to exceed 200'.
3. 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.
4. 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 operation will be in place for 24 hours or less.
5. Pedestrian Diversion Option 2 may only be used when called for in the Plans or as approved by an Engineer.

SYMBOLS:

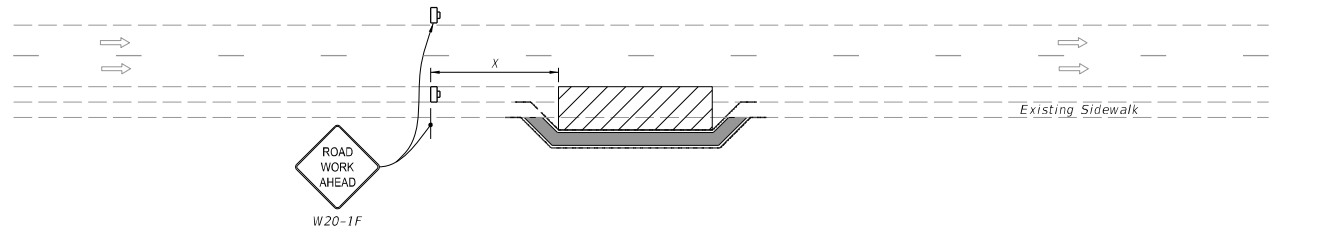
-  Work Area
-  Temporary Pedestrian Way
-  Channelizing Device (See Index 102-600)
-  Pedestrian Longitudinal Channelizing Device (LCD)
-  Work Zone Sign
-  Arrow Board
-  Crash Cushion
-  Lane Identification and Direction of Traffic




PEDESTRIAN DIVERSION - OPTION 1
(Temporary Barrier Shown, Low Profile Barrier Similar)



PEDESTRIAN DIVERSION - OPTION 2
(Work Zone Speed 35 mph or Less)



PEDESTRIAN SPECIAL DETOUR

LAST REVISION 11/01/21	DESCRIPTION:	 FY 2023-24 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 2 of 2
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 3/7/2023

GENERAL COMMENT STAMPS

THE FDOT MUST BE NOTIFIED TWO (2) BUSINESS DAYS IN ADVANCE OF STARTING WORK AND THAT NO LANE CLOSURES ARE REQUIRED BY CONTACTING (941)708-4400. FAILURE TO CALL MAY RESULT IN A DELAY TO BEGIN WORK.

IF A LANE CLOSURE IS WITHIN THE PROJECT LIMITS, THE PERMITTEE MUST NOTIFY THE FDOT TWO (2) WEEKS PRIOR TO A LANE CLOSURE TO ALLOW THE FDOT TO INFORM THE MOTORING PUBLIC. FAILURE TO CALL MAY RESULT IN A DELAY TO BEGIN WORK.

LANE CLOSURES AND/OR WORK ACTIVITIES MAY BE RESTRICTED BY THE FDOT DUE TO HEAVY TRAFFIC AND THE POTENTIAL FOR BACKUPS CAUSED BY THESE ACTIVITIES. NIGHT WORK WILL BE REQUIRED AS THE ALTERNATE TIME FOR THESE ACTIVITIES.

THE PERMITTEE IS RESPONSIBLE FOR NOTIFYING OWNERS OF ALL EXISTING AERIAL AND UNDERGROUND UTILITIES OF A PROPOSED DRIVEWAY AND RESOLVING ANY CONFLICTS BEFORE CONSTRUCTION BEGINS.

IN ACCORDANCE WITH FL STATUTE 335.18, THE PERMITTEE SHALL BE REQUIRED TO BEAR THE COST OF FUTURE ACCESS MODIFICATIONS, TRAFFIC CONTROL DEVICES OR OTHER IMPROVEMENTS, WHEN DETERMINED BY THE FDOT TO BE IN CONJUNCTION WITH ACCEPTED ENGINEERING PRACTICES.

ALL LANE CLOSURES, CONSTRUCTION AND MAINTENANCE ACTIVITIES IN FDOT'S RIGHT-OF-WAY SHALL CONFORM TO THE CURRENT FHWA'S MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE CURRENT FDOT'S STANDARD PLANS FOR ROAD CONSTRUCTION.

THE PERMITTEE MUST WAIT FOURTEEN (14) DAYS TO ALLOW ASPHALT FRICTION COURSE TO CURE BEFORE PLACING THERMOPLASTIC PAVEMENT MARKINGS.

ALL CONTRACTORS/SUBCONTRACTORS OF THE PERMITTEE SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE PERMITTED M.O.T. PLAN.

ALL PORTIONS OF DISTURBED RIGHT-OF-WAY WILL BE SODDED WITHIN SEVENTY-TWO (72) HOURS OF COMPLETION OF WORK.

ALL ABOVE GROUND APPURTENANCES ARE TO BE LOCATED AT FDOT'S RIGHT-OF-WAY LINE.

COMPACTION, DENSITY TESTING AND THEIR REPORTS ARE TO BE COMPLETED, SUBMITTED AND APPROVED BY THE EOR PRIOR TO THE PLACEMENT OF ANY PAVEMENT.

PRIOR TO EXCAVATING, CONTACT THE CLERK OF THE CIRCUIT COURT FOR POSSIBLE GASOLINE CONFLICTS.

THE APPLICANT SHALL NOT, DURING AND AFTER COMPLETION OF PERMITTED CONSTRUCTION, INTRODUCE ANY FORM OR METHOD OF SITE DRAINAGE DISCHARGE INTO THE DRAINAGE FACILITIES ON THE FDOT'S RIGHT-OF-WAY OR EASEMENT. ANY DISCHARGE SHALL BE IN VIOLATION OF THIS PERMIT.

THE PERMITTEE IS CAUTIONED THAT UTILITIES MAY BE LOCATED WITHIN THE CONSTRUCTION AREA.

IT IS THE RESPONSIBILITY OF THE PERMITTEE TO DETERMINE AND COMPLY, IN ADDITION TO FDOT REQUIREMENTS, WITH ALL COUNTY AND MUNICIPAL ORDINANCES THAT ARE RELATIVE TO THE ACTIVITIES DESCRIBED ON THIS PERMIT.

N.P.D.E.S. REQUIRES THAT STORM WATER CONTROL MEASURES BE IMPLEMENTED ON ANY PROJECT ON PUBLIC TRANSPORTATION FACILITY RIGHTS-OF-WAY INCLUDING, BUT NOT LIMITED TO MEASURES DESCRIBED IN THE CURRENT FDOT STANDARD PLANS FOR ROAD CONSTRUCTION.

IF A CONSTRUCTION, RECONSTRUCTION, REPAIR OR MAINTENANCE ACTIVITY NECESSITATES THE CLOSING OF ONE (1) OR MORE TRAVEL LANES OF ANY ROAD ON THE STATE, COUNTY OR CITY ROAD SYSTEMS, FOR A PERIOD OF TIME EXCEEDING TWO (2) HOURS, THE PERMITTEE PERFORMING SUCH WORK WILL BE RESPONSIBLE TO GIVE NOTICE TO THE APPROPRIATE LOCAL LAW ENFORCEMENT AGENCY WITH JURISDICTION OVER SAID ROAD PRIOR TO COMMENCING WORK ON THIS PROJECT.

ADHERE TO ALL INSTRUCTIONS/REQUIREMENTS IN THE CURRENT UTILITY ACCOMODATIONS MANUAL.



FLORIDA DEPARTMENT OF TRANSPORTATION STORMWATER POLLUTION PREVENTION



The Law

The Federal Clean Water Act was established in 1972 to protect our waterways. As a result, the National Pollutant Discharge Elimination System (NPDES) program was developed. The NPDES permit program addresses water pollution by regulating point sources that discharge pollutants to surface waters. The Florida Department of Environmental Protection (FDEP) administers the NPDES program for Municipal Separate Storm Sewer Systems (MS4) and Construction activities.

CONSTRUCTION ACTIVITIES

➤ **Is your construction site regulated?**

Yes, if your construction activity will ultimately disturb one acre or more and has the potential to discharge stormwater to surface waters or into a MS4. Disturbance includes clearing, grading, excavation, and demolition.

➤ **What are you required to do?**

- ✓ Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP)
- ✓ Submit a Notice of Intent (NOI or application) and the appropriate fee to FDEP
- ✓ Submit a Notice of Termination (NOT) to FDEP and to the local MS4 once the site meets the eligibility requirements for termination

For more information on NPDES Stormwater Construction Activities, contact FDEP for more information at (866) 336-6312 or visit <http://www.dep.state.fl.us/water/stormwater/index.htm>.

HOW CAN YOU HELP STOP STORMWATER POLLUTION?

- ✓ Do not pour oil or any chemicals down any storm drain or in the street
- ✓ Use fertilizers and herbicides carefully and only use the recommended amount*
- ✓ Report illicit discharges**
- ✓ Recycle used oil and dispose of chemicals properly. For more information on the proper disposal of wastes contact FDEP at (850) 245-8707 or visit: <http://www.dep.state.fl.us/waste/categories/hwRegulation/>
- ✓ Maintain proper sediment and erosion controls on your construction site



*Contact your County Agricultural Extension Office for answers to your pest and weed problems.				** Illicit Discharges: Report any material other than stormwater being discharged into a storm drain or into the street.	
County Agricultural Extension Office				County / FDOT Environmental Contacts	
Charlotte Co.	(941) 764-4340	Highlands Co.	(863) 402-6540	Charlotte Co.	(941) 575-3632
Collier Co.	(239) 252-4800	Lee Co.	(239) 533-7505	Highlands Co.	(863) 402-6500
DeSoto Co.	(863) 993-4846	Manatee Co.	(941) 722-4524	Lee County	(239) 533-9400
Glades Co.	(863) 946-0244	Okeechobee Co.	(863) 763-6469	Manatee County	(941) 748-4501
Hardee Co.	(863) 773-2164	Polk Co.	(863) 519-8677	Polk County	(863) 534-7377
Hendry Co.	(863) 674-4092	Sarasota Co.	(941) 861-9900	Sarasota County	(941) 861-5000
				FDOT Right of Way	(863) 519-2762
FDOT MAINTENANCE YARDS			SPILL REPORTING	State Watch Office (Spill Report Hotline typically 25 gallons or more)	(800) 320-0519
Arcadia Operations		(863) 993-4634			
Bartow Operations		(863) 519-4100			
Fort Myers Operations		(239) 985-7800			
Labelle Operations		(863) 674-4027			
Manatee Operations		(941) 708-4400			
Sebring Operations		(863) 386-6104			
For more information on NPDES stormwater regulations, please contact, FDOT District Maintenance, at (863) 519-2762					