MANATEE COUNTY
FLORIDA

August 6, 2009

TO: All Interested Bidders

SUBJECT: **Invitation for Bid # 09-2568-OV**
Buffalo Road Re-Alignment (North of Erie Road) and Waterline Relocation Project, Palmetto, FL
(Project No. 307.6062260)

ADDENDUM # 1

Bidders are hereby notified that this Addendum shall be acknowledged on pages 00300-1 of the Bid Form and made a part of the above named bidding and contract documents. Please note that this Addendum includes revisions to the Bid Form pages.

The following items are issued to add to, modify, and clarify the bid and contract documents. These items shall have the same force and effect as the original bidding and contract documents, and cost involved shall be included in the bid prices. Bids to be submitted on the specified bid date, shall conform to the additions and revisions listed herein.

The deadline for clarification of questions is **August 13, 2009 at 2:00 PM.** This deadline has been established to maintain fair treatment of all potential bidders, while maintaining the expedited nature of the Economic Stimulus that the contracting of this work may achieve.

The followings answers to the questions have been provided by Mr. Eliode Joseph, P.E., Project Engineer, Manatee County Government Public Works Department, Engineering Services, Mr. Wayne Troxler, P.E., Engineer of Record for the Utility Relocation Portion, Manatee County Government Public Works Department, Infrastructure Engineering Division and Mr. Paul Schamell, Project Manager, Manatee County Government, Project Management Division.

Bidders: See attached revised Bid Forms (Pages 00300-2 through 00300-13), Bid "A" and Bid "B"). These revised Bid Forms shall be used in submitting your Bid.

A public records request was made for the **Engineer's Estimate** for this project. It is important to note that Manatee County Government is currently receiving competitive bids which are up to 50% lower than Engineers' Estimates.

Finance Management Department
Mailing Address: Purchasing Division: 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205
PHONE: 941-708-7527 * FAX: 941-708-7544
www.mymanatee.org

1. Attachment: Engineer's Construction Costs Estimate for the Buffalo Road Realignment Project dated August 4, 2009, (1) one total page.

2. Attachment: Engineer's Construction Costs Estimate for the Construction Costs Estimate for the Buffalo Road Realignment Project, Utilities Portion dated August 4, 2009, (1) one total page.

3. Attachment: Manatee County Memorandum dated August 4, 2009 from Eliode Joseph, Project Engineer detailing the responses to questions regarding Road Re-Alignment submitted by the Contractors. Eight (8) total pages.

4. Attachment: Manatee County Memorandum dated August 4, 2009 from Wayne Troxler, Project Engineer detailing / clarifying the responses to questions submitted by the Contractors regarding the Utility Work. Two (2) total pages.

5. PDF Attachment Drawings: (24 Total drawings)

    1. Revision 1 dated 08/04/09 – Water Line Relocation (1 total page)
    2. Signing, Pavement Markings & Signalization Plans (SP 1 – SP 9) (9 total pages)
    3. Revised Sheet 6 of 40, Plan and Profile drawing
    4. Revised Sheet 7 of 40, Plan and Profile drawing
    5. Revised Sheet 8 of 40, Plan and Profile drawing
    6. Revised Sheet 13 of 40, Cross Sections drawing
    7. Revised Sheet 14 of 40, Cross Sections drawing
    8. Revised Sheet 15 of 40, Cross Sections drawing
    9. Revised Sheet 16 of 40, Cross Sections drawing
    10. Revised Sheet 17 of 40, Cross Sections drawing
    11. Revised Sheet 18 of 40, Cross Sections drawing
    12. Revised Sheet 19 of 40, Cross Sections drawing
    13. Revised Sheet 31 of 40, Floodplain Compensation, Cross Sections drawing
    14. Revised Sheet 32 of 40, Floodplain Compensation, Cross Sections drawing
    15. Revised Sheet 33 of 40, Floodplain Compensation, Cross Sections drawing
    16. Revised Sheet 33A of 40, Floodplain Compensation, Cross Sections drawing

Revised drawings may also be obtained by contacting Public Works Department, Project Management Division at 941-708-7450, Extension 7349.

6. Attachment: Contract Documents/Specifications for Buffalo Road Realignment Project / Utilities Portion revised 8/4/2009. Twenty-Four (24) total pages.

7. Attachment: Revised Bid forms (12 total pages, 00300-2 through 00300-13) for Bid "A" based on 330 Calendar Days Completion Time and Bid "B" based on 420 Calendar Days Completion time.

Bidders: The Bid Forms attached to this Addendum #1, Pages 00300-2 through 00300-13, supersede all other Bid Forms issued for this solicitation and must be used in submission of your bid in response to this Invitation for Bid.

If you have submitted a bid prior to receiving this addendum, you may request in writing that your original, sealed bid be returned to your firm. All sealed bids received will be opened on the date stated.

Bid Opening Date Revised:

Revised Bid Opening Date: August 24, 2009 @ 2:00 PM

(Was: August 13, 2009 @ 2:00 PM)

END OF ADDENDUM # 1

The deadline for submitting sealed Bids at the Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, Florida 34205 is until 2:00 P.M. on August 24, 2009.

Sincerely,

for RC

R. C. "Rob" Cuthbert, CPM, CPPO
Purchasing Division Manager

OV (72 Total Pages Attached)

MEMORANDUM

MANATEE COUNTY
FLORIDA

Attachment 1
Engineer's Construction Cost Estimate for the Buffalo Road Realignment Project
(1) Total Page

Date: August 4, 2009

To: All Bidders:

Subject: Buffalo Road Realignment Project, Project #307.6062260

Engineer's Estimate:

The "construction cost estimate" for Buffalo Road Realignment is $2,563,796.67 (two million five hundred sixty-three thousand seven hundred ninety-six dollars and sixty-seven cents).

This construction cost estimate was determined on October 28, 2008 and revised on July 27, 2009. The construction cost estimate is based on the original and revised specifications and drawings issued.

Sincerely,

Eliode Joseph, P.E., Project Engineer
Engineer of Record

MANATEE COUNTY
FLORIDA

Attachment 2
Engineer's Construction Cost Estimate for the Utilities Portion of the Road Realignment
(1) Total Page

Date: August 4, 2009

To: All Bidders

Subject: Buffalo Road Realignment, Utilities Portion, Project # 307.6062260

This estimate is for:

A) Lowering a portion of the existing 12" waterline under the existing/new road alignment to clear a storm pipe/structure. Approximately 150' of line will need to be lowered.

B) Relocating a portion of the existing 12" waterline under the existing alignment west of the existing pond so the compensation area may be excavated. Approximately 500' of line will be relocated. The abandoned line is to be either removed or grout filled.

C) Replacing approximately 140' of existing 16" waterline with steel encased water line under the proposed alignment.

This construction cost estimate for this portion of the project is $162,256, one hundred sixty two thousand, two hundred fifty six dollars, and was determined on August 4, 2009. The construction cost estimate is based on the original specifications and drawings issued. Changes to the specifications subsequent to the original documents by addenda to this bid may not be accounted in this construction cost estimate.

Sincerely,

Wayne R. Troxler, PE, Project Engineer Supervisor
Engineer of Record for the Waterline Relocation

P:\~ WATER LINE Projects\Buffalo Road WL Relocation\DOC\Ltr to Bidders rev 8.4.09.docx

4422-B 66th Street West * PHONE: (941) 792-8811 * FAX: (941) 795-3467
*Manatee County Public Works Department/Infrastructure Engineering Division * www.mymanatee.org*

MEMORANDUM

Public Works Department
Engineering Services
1022 26th Avenue East
Bradenton, FL 34208

MANATEE COUNTY
FLORIDA

Phone: 941.708.7462
Fax: 941.708.7475
www.mymanatee.org

Attachment 3
Engineer's Response to Questions and Answers
Road Realignment
(8) Total Pages

To: Paul Schamell, Project Manager
From: Eliode Joseph, Project Engineer
Date: 08/04/2009
Subject: Buffalo Road Realignment – Project No. 307.6062260

Mr. Schamell:

Below are responses to comments received from different contractors during the information conference of July 21st 2009 and through e-mails.

Superior Asphalt

Q-1: Have we received Right of Way Permits?

Ans: All Right of Way permits have been obtained, except for the northeast corner clip at the intersection of the Proposed Buffalo Road & Erie Road that is still being processed. Contractor should follow details on sheet 5A that describes how contractor should proceed with construction.

Q-2: No MOT requirements?

Ans: Yes, MOT is required. FDOT Item Number 102- 1- calls for a Lump Sum. The contractor shall provide a Traffic Control Plan (TCP) to be signed and sealed by the Engineer of Record. The TCP shall be based on FDOT Index No. 600 and Standard Specifications for Road and Bridge Construction, Section 102.

Russell Engineering

Q-3: The plans indicate fills but no item is included for embankment.

Ans: Bid Item 10, FDOT Item No. 120- 6 has been added for a total of 10,857 cubic yard of embankment.

Q-4: The earthwork quantities appear to be incorrectly calculated.

Ans: The earthwork quantities have been reviewed using the end area method; Bid Forms have been updated to reflect this change. The earthwork has been divided into the following items:

Bid Items	FDOT Items		
7	0120- 1	Regular Excavation	8,433 cy
8	0120- 2	Borrow Material needed	2,424 cy
9	0120- 4	Obliteration (Old Buffalo Road)	6,150 cy
10	0120- 6	Embankment	10,857 cy

Q-5: Side Street cross-section show cuts and fills but no calculations for earthwork quantities.

Ans: Earthwork quantity for the side street (70th Street East) is included in the overall calculation for embankment (Bid Item 10, FDOT Item 0120- 6).

Lovin Construction

Q-6: Please verify bid quantity. It appears that the bid quantity is substantially higher than the lineal footage and the height of the wall shown derive if you are following FDOT standards. Also, it appears that the horizontal scale for the widths of the Gravity Wall do not coincide with FDOT 520 Index.

All references to Gravity Wall are for FDOT Index 520. FDOT Index 520 allows for Gravity Wall to be at most 6 ft. tall, 5 ft of wall exposed. The following Stations show the gravity wall 7 ft - 9 ft overall, Sta. 204+00, 206+00, and 220+00. Please advise us as to how this deviation from FDOT standards will be handled and engineered.

Ans: The bid quantity has been modified to 700 cubic yards instead of 998 cubic yards (Bid Item 18, FDOT Item 0400- 1- 11). For these specific locations mentioned in the question, the wall heights are about 6 feet and the toe depths vary because of slope or swale adjacent to the wall. Per the FDOT standard, the toe depth varies (see Index 520); therefore, the wall can be higher than 6 feet. The wall should be engineered from top to bottom, so the top would match all distance requirements.

Q-7: " Bid Item No. 13: FDOT No. Item 0400-1-1
Description: Culvert
QTY: 350 LF.

Is a Cast-In-Place box culvert allowable in lieu of a Precast Box Culvert?

Ans: Yes. A Cast-In-Place box culvert is allowable with design provided by the contractor and approved by the engineer.

Woodruff & Sons, Inc.

Q-8: The number of curb inlets on the plans seems to differ from the amount listed on the bid form. Also the bid form describes the type of curb inlets where as the plans do not. May it be known which curb inlets on the plans are P-5 and which are P-6.

Ans: The following curb inlets shall be P-5: PRN 1, PRN 2, PRN 3, PRN 4, PRN 5, PRN 6, PRN 9A, PRN 13, PRN 16, PRN 17, PRN 18, PRN 19, PRN 20.
The following curb inlets shall be P-6: PRN 7, PRN 8, PRN 9, PRN 10, PRN 11, PRN 12, PRN 14, PRN 15.

Q-9: Within the plans I did not see any details for the signalization scope of work. May this be provided?

Ans: Scope of work for signalization is provided with the design plans in Addendum 1, see sheet SP-9 (Signalization Plan).

Q-10: What is the size of the culvert and mitered end that is located on sheet 11A, by the southwest corner of the existing pond?

Ans: Please see detail for Type D Ditch Bottom Inlet, plan sheet 35.

Q-11: Sheet 12 of the plans indicates 210 lf of French Drain while the bid form only states 80 lf. Please clarify?

Ans: The Bid Form has been modified to reflect plan sheet 12, please refer to Bid Item 38 FDOT Item No. 0443- 70- 6 for a quantity of 210 linear feet.

Q-12: Attachment "A" Special Provisions states that a construction schedule is to be submitted with our bids. May we get a reprieve from submitting this document during the bidding process?

Ans: No, a special provision schedule shall be included during the bidding process.

Q-13: Please reiterate the scope of work the county will perform in respect to demolishing the existing house. Is the county demolishing the separate garage?

Ans: Manatee County is responsible for the demolition and disposal of the house. Yes, Manatee County will demolish the separate garage.

Q-14: May crushed concrete be used as an alternate for road base?

Ans: Yes, crushed concrete may be used if it meets FDOT Base Group 9 specification.

Q-15: May a detail of the proposed sidewalk be provided?

Ans: Please refer to Manatee County Transportation Department Highway, Traffic & Stormwater Standards 2007, Section 300 for sidewalk details.

Q-16: The bid form states all concrete culvert pipe is to be class I, is this correct? Please verify.

Ans: This is not correct. All concrete pipes are to be class III.

Q-17: What type of handrail is the county requiring?

Ans: The County requires Picket Railing; refer to FDOT Index 800 series.

Peter A. Basile Sons, Inc.

Q-18: Does the County or the Engineer anticipate anyneed for imprted fill for this project? Is there enough suitable excavatable on-site embankment to satisfy the project needs?

Ans: Yes, Manatee County anticipates imported fill. No, there is not enough suitable excavated material on site to satisfy the project. Please see response to Russell Engineering question number 4 (Q-4) above for total material needed.

Q-19: Who will be responsible for the demolition and disposal of the existing structure (s) in the new roadway track?

Ans: Please see response to Q-14.

Q-20: The bid schedule shows one driveway, but the Erie Road plans show two to be built. How many?

Ans: Acknowledge. There are two driveways to be built. Bid Item 15 (FDOT Item No. 350- 2- 1) has be updated to 2 driveways.

Q-21: Bid schedule shows Class I endwalls at 11 CY. FDOT Standard shows 8.38 CY per single 48" endwall (Index 250)

Ans: Calculations show 11 CY. Please use FDOT Standard Index 250, Sheet 1 of 2 titled "Straight Concrete and Walls, Single and Multi Pipe".

Q-22: Will the box culvert headwalls be included in the box culvert line item? What is the top elevation of the box culvert headwalls? The headwalls look to be nontypical, are they standard? Are the FDOT.

Ans: Yes, the headwalls are included in the box culvert line item. Please refer to cross-sections on sheets 19 and 20 of 40 for elevations. All headwalls are FDOT standard.

Q-23: The existing sidewalk from sta. 207+00+ to sta. 218+00+ says restore sidewalk in a area where new storm drain is to be installed. Is this cost to be included in the storm for removal and replacement or is the replacement of the sidewalks to be included in the sidewalk bid schedule line?

Ans: Yes, the cost is to be included in the storm drain for removal and replacement.

Q-24: What is the excavation quantities for the Flood Plan Mitigation Area at the existing Buffalo Road? What are the embankment needs of the new roadway? What are the regular excavation quantities from the new roadway? Are the pavement thickness and base rock volumes included or in these quantities?

Ans: Please see response to **Russell Engineering** Q-4.

WESTRA

Q-25: Please clarify the drainage items as it relates to the wet pond and effluent exfiltration ponds. The plans do not identify which is which. This would relate to the DBI items as they are not identified which are Type C and Type D.

Q-26: Please identify which curb inlets are Type P-5 and P-6.

Ans: See response to **Woodruff & Sons, Inc,** Q-8 above

Q-27: My takeoff quantity for 15" RCP is 909 LF vs. Bid Qty. of 830 LF.

Ans: Acknowledged. The quantity has been adjusted to 909 LF. Please refer to Bid Item 25, FDOT Item No. 0430- 171-101.

Q-28: Plan sheet 12 of 40 shows a run of pipe, a MES and Control Structure to be installed in the existing pond but no sizes or identification is given. Are these items to be installed? If so, the quantities need to be adjusted accordingly.

Ans: Yes, these items are to be installed, and they have been accounted for in the Pay Item Quantities: Bid Item 22 (FDOT Item No. 0425- 1 -543), Bid Item 28 (FDOT Item No. 0430-171-102), Bid Item 34 (FDOT Item No. 0430-984-133). See plan sheets 6 and 35 for detail (sizes or identification)

Q-29: Also, as discussed in the pre-bid meeting, the excavation quantities need to be adjusted as well.

Ans: Please see response to **Russell Engineering,** Q-4 above

Q-30: There is a pay item for 4 EA: Underdrain Inspection Box. Are these a typical cleanout or some type of a special box. There is no detail for this item. Please clarify and furnish an appropriate detail.

Ans: Underdrain Inspection Box, Bid Item 37, is not needed in this project and this item has been removed

Q-31: Will a pay item be added for milling the existing asphalt on Erie Road?

Ans: Yes. A pay item has been added for milling of the existing asphalt on Erie Road, See Bid Item 45 (FDOT Item No. 327- 70- 1).

Sincerely,

Eliode Joseph, P.E.
Project Engineer, Public Works Dept.

ej/ej

Attachment: Spreadsheet for earthwork calculations, revised plan sheets

Cc: Cyrous Zomorodi, Engineering Manager
Paul Schamell, Project Manager
Olga Valcich, Construction Buyer

EARTHWORK CALCULATION

Buffalo Road

Station	Cut Area sf	Volume Cu. Yard	fill Area sf	Volume Cu. Yard
200+18.06	0		0	
		2.2		109.0
201+00	1.21		58.85	
		5.3		236.9
202+00	1.64		69.08	
		19.6		297.4
203+00	8.94		91.53	
		50.3		343.4
204+00	18.24		93.88	
		99.5		348.8
205+00	35.49		94.49	
		85.0		513.8
206+00	10.41		182.98	
		75.0		657.7
207+00	30.1		172.2	
		55.7		612.7
208+00	0		158.64	
		16.6		338.9
209+00	8.98		24.35	
		41.3		170.6
210+00	13.32		67.76	
		56.0		275.1
211+00	16.9		80.8	
		43.3		329.8
212+00	6.5		97.31	
		35.5		320.0
213+00	12.69		75.49	
		52.3		270.7
214+00	15.56		70.68	
		56.9		247.3
215+00	15.16		62.86	
		36.1		418.6
216+00	4.35		163.18	
		8.4		994.1
217+00	0.19		373.61	
		0.4		1295.4
218+00	0		325.88	
		11.1		1012.9
219+00	6.02		221.1	
		21.5		541.4
220+00	5.6		71.26	
		22.2		143.4
221+00	6.39		6.19	
		11.8		11.5
222+00	0		0	
TOTAL		806.3		9489.3

EARTHWORK CALCULATION

Erie Road

Station	Cut Area sf	Volume Cu. Yard	fill Area sf	Volume Cu. Yard
27+00	0		0	
		10.8		31.9
28+00	5.82		17.2	
		26.1		74.1
29+00	8.25		22.81	
		62.5		93.7
30+00	25.5		27.78	
		80.3		51.4
31+00	17.85		0	
		58.4		0.0
32+00	13.69		0	
		29.5		46.2
33+00	2.24		24.95	
		20.4		60.8
34+00	8.8		7.9	
		22.2		22.2
35+00	3.2		4.1	
		8.1		11.3
36+00	1.2		2	
TOTAL		318.3		391.6

70th Street E

Station	Cut Area sf	Volume Cu. Yard	fill Area sf	Volume Cu. Yard
2+00	0		140	
		0.0		518.5
2+50	0		140	
		0.0		358.4
3+00	0		53.52	
		0.0		99.1
3+48	0		0	
TOTAL		0.0		976.0

Mitigation Area

SECTION	Cut Area sf	Volume Cu. Yard	fill Area sf	Volume Cu. Yard
H	495.92		0	
		1828.2		0.0
I	491.32		0	
		1526.9		0.0
J	333.22		0	
		1542.3		0.0
K	499.64		0	
TOTAL		4897.5		0.0

EARTHWORK CALCULATION

Dry Pond

SECTION	Cut Area sf	Volume Cu. Yard	fill Area sf	Volume Cu. Yard
L	186	2411.1	0	0

SUMMARY

TOTAL CUT	8433.2
TOTAL FILL	10857.0
BORROW MATERIAL	2423.8

Old Buffalo Road

SECTION	Cut Area sf	Volume Cu. Yard	fill Area sf	Volume Cu. Yard
A	36.5		0	
		394.0		0.0
B	176.26		0	
		820.6		0.0
C	266.88		0	
		1059.7		0.0
D	305.36		0	
		1265.1		0.0
E	377.82		0	
		1310.2		0.0
F	329.67		0	
		1199.9		0.0
G	318.28		0	
TOTAL		6049.6		0.0

MEMORANDUM

Public Works Department
Engineering Division
4422B 66th Street W
Bradenton, FL 34210

MANATEE COUNTY
FLORIDA

Phone: 941.792.8811
Fax: 941.795.3467
www.mymanatee.org

To: Paul Schamell, Project Manager
From: Wayne R. Troxler, Project Engineer
Date: August 4, 2009
Subject: Buffalo Road Realignment – Utility Portion

Attachment 4
Engineer's Response to Questions and Answers, Utilities Portion
(2) Total Page

Bidder Questions, email dated 7/27/09 from Woodruff:

Ques 3 - May line items be added for the work associated with the water main on plan sheet 6?
Ans: Line items have been added to the bid form to address this work, see bid line item 86 for the connections, line item 88 for removal and disposal of the existing 16" line, line item 89 for the valves, line item 90 for the new 16" carrier pipe inside the encasement, and line item 91 for the 30" encasement.

Bidder Questions, email dated 7/29/09 from Westra:

Ques 1 - Please clarify the intent and work regarding the watermain on page 6/40:
Ans: There is an existing 16" water line that the new road will be crossing. The intent and work involved is to encase the water line in a 30" steel encasement and install new butterfly valves at each end of the encasement.

Ques 2 - There are no pay items associated with this work:
Ans: Line items have been added to the bid form to address this, see bid line item 86 for the connections, line item 88 for removal and disposal of the existing 16" line, line item 89 for the valves, line item 90 for the new 16" carrier pipe inside the encasement, and line item 91 for the 30" encasement.

Ques 3 - Is the steel casing existing or are we to install this casing?
Ans: The pipe currently has no casing, bid line item 91 is to furnish and install new casing.

Ques 4 - Is this to be a split casing or are we to remove and replace the existing watermain?
Ans: This is to be a full pipe casing with new carrier pipe inside.

Ques 5 - There are no pay items associated with this work:
Ans: The encasement item is in the revised bid tab, see line item 88 for removal and disposal of the existing 16" line, line item 89 for the valves, line item 90 for the new 16" carrier pipe inside the encasement, and line item 91 for the 30" encasement.

Bidder Questions, email dated 7/31/09 from Westra:

Ques 1 - At Sta 218+00 on page 8 we are to lower the existing 12" watermain. There is no pay item for this scope of work:
Ans: Line items have been added to the bid form to address this, see bid line items 77 for the pipe work, 79 for the DI fittings, 82 for the disposal of the old pipe, 85 for the connections, and 87 for the ARV assembly and enclosure.

Bidder Questions, email dated 8/3/09 from Woodruff:

Ques 4 - For the 30" steel casing on plan sheet 6, what is the thickness of the casing?:
Ans: The casing is fully bituminous coated standard size steel pipe with a thickness of 0.375". See bid line item 91 for this work.

CONTRACT DOCUMENTS

FOR

BUFFALO ROAD RE-ALIGNMENT PROJECT
UTILITY PORTION

NEW ALIGNMENT:
LOWER 12" WATERLINE STA 220 TO STA 217
ENCASE 16" WATERLINE STA 206+10 TO 207+7
EXISTING ALIGNMENT:
RELOCATE & ABANDON / REMOVE 12" WATERLINE IN COMPENSATION AREA

PROJECT # 307.6062260

AUGUST 2009

Attachment 6
Revised Contract Doc/Specifications
for Utilities Portion dated 8/4/2009
(24) Total Page

PROJECT OWNER:

County of Manatee, Florida
c/o Manatee County Purchasing Division
1112 Manatee Avenue West
Bradenton, Florida 34205
(941) 748-4501

PREPARED BY:

Engineering Division
Manatee County Public Works Department
4422-B 66th Street West
Bradenton, Florida 34210
(941) 792-8811

INFRASTRUCTURE ENGINEERING STANDARD SPECIFICATIONS

This specification includes by reference the Manatee County utility Standards (and Details) approved March, 2009.

SCOPE: This specification is for the utility portion of the project:

1- Lower a 150' +/- portion of the 12" PVC potable water line at the north end of the project. See plan sheet 8 of 40, approximate stationing limits are 220 to 217. Contractor to avoid damage to the existing connection to the 8" line on 72nd Street East.

2 - Relocate and remove or abandon / grout fill 505' +/- of the existing 12" PVC potable waterline under part of the existing alignment that is to be cut down for a new compensation area. See plan sheet 1 of 1, approximate stationing 211+42, 314' LT to 214+92, 50' LT

3 - Encase a 137' portion of the existing 16" DI potable water line, including removal & disposal of the existing line, installation of two 16" butterfly valves, and new 16" carrier pipe. See plan sheet 6 of 40, approximate stationing 206+8.5, 54.36 RT to 207+10.7, 55.9' LT.

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. 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 Owner/Engineer 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 MEASUREMENT STANDARDS

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

1.04 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 Owner until as-built (record) drawings have been submitted and approved by the Engineer.

1. Shop Drawings, Working Drawings.
2. Clearing, grubbing and grading except as hereinafter specified.
3. Trench excavation, including necessary pavement removal and rock removal, except as otherwise specified.
4. Dewatering and disposal of surplus water.
5. Structural fill, backfill, and grading.
6. Cleanup and miscellaneous work..
7. Testing and placing system in operation.
8. Any material and equipment required to be installed and utilized for the tests.

9. As-built Record Drawings.

BID ITEM # 77 - 12" WATERLINE LOWERED

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per the schedule of prices for lowering the existing PVC water line below the conflicting storm lines as shown on the Contract Drawings and listed in the Bid Form. Measurement and Payment shall be made for the actual length of new PVC pipe installed as part of the lowering process, and will represent full compensation for all labor, materials, fittings, excavation, including rock, dewatering, bedding, backfill, compaction, testing and disinfection and equipment required to complete this Bid Item. No additional compensation will be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill materials, or for repair of any trench settlement.

BID ITEM # 78 - HDPE (AWWA C906) WATER MAINS

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per the schedule of prices for furnishing and installing the listed diameter water main (AWWA C-906, CL-160, DR-11) pipe and fittings as shown on the Contract Drawings and listed in the Bid Form. Measurement and Payment shall be made for the actual length of the listed diameter pipe installed and will represent full compensation for all labor, materials, excavation, including rock, dewatering, bedding, backfill, compaction, testing and disinfection and equipment required to complete this Bid Item. No additional compensation will be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill materials, or for repair of any trench settlement.

BID ITEM # 79 - DI FITTINGS

Payment for all work included in these Bid Items shall be at the applicable Contract unit price bid per weight of each fitting furnished and installed for the work shown on the Contract Drawings to lower the 12" waterline (4 ea 45* fittings) at one location and to relocate it (1 ea 22 ½* fitting) at another location. Payment shall represent full compensation for all labor, material, fittings, restraints, excavation, including rock as necessary, bedding, backfill, compaction testing, disinfection and equipment required to complete this Bid Item.

BID ITEM # 80 - CUT IN 16" x 12" DI TEE

Payment for all work included in this Bid Item shall be at the applicable Contract unit price bid per each fitting for furnished and installed as shown on the Contract Drawings and listed on the Bid Form. Payment shall represent full compensation for all labor, material, fittings, restraints, excavation, including rock as necessary, bedding, backfill, compaction testing, disinfection and equipment required to complete this Bid Item.

BID ITEM # 81 - GATE VALVES

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 the listed diameter valve, box, cover and concrete pad 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, testing and disinfection and equipment required to complete this Bid Item.

BID ITEMS # 82, 88 - REMOVE / DISPOSE OF EXISTING WATERLINE

Payment for all work included in this Bid Item will be made at the applicable Contract unit price bid for removing and disposing of the existing waterline as shown on the Contract Drawings and listed on the Bid Form. Payment shall represent full compensation for all labor, equipment, excavation, hauling, and dump fees required to complete this Bid Item.

BID ITEM # 83 - CUT OFF AND CAP EXISTING WATERLINE

Payment for all work included in this Bid Item will be made at the applicable Contract unit price bid to cut off, cap, and install required restraints on the existing 12" waterline at the existing connection point to the 16" waterline that is to be abandoned as shown on the Contract Drawings and listed on the Bid Form. Payment shall represent full compensation for all labor, material, equipment, and excavation, required to complete this Bid Item.

BID ITEM # 84 - GROUT FILL & ABANDON EXISTING WATERLINE

Payment for all work included in this Bid Item will be made at the applicable Contract unit price bid for furnishing and pumping/placing grout fill in the abandoned pipe as shown on the Contract Drawings and listed on the Bid Form. Payment shall represent full compensation for all labor, material, equipment, and excavation, required to complete this Bid Item.

BID ITEM # 85, 86 - CONNECT TO EXISTING WATERLINE

Payment for all work included in these Bid Items shall be made at the applicable Contract unit price bid per the schedule of prices for the connections to the existing potable water mains as shown on the Contract Drawings and listed in the Bid Form. Measurement and Payment shall be made for the actual connections and will represent full compensation for all labor, materials, fittings, gaskets, excavation, including rock, dewatering, bedding, backfill, compaction, testing and disinfection and equipment required to complete this Bid Item. No additional compensation will be made for fittings, sleeves, gaskets, etc.

BID ITEM # 87 - AIR RELEASE VALVES

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per the schedule of prices for furnishing and installing the air release valve, fittings, and enclosure as shown on the Contract Drawings and listed in the Bid Form. Measurement and Payment shall be made for the actual number of air release assemblies installed and will represent full compensation for all labor, materials, excavation, including rock, dewatering, bedding, backfill, compaction, testing and disinfection and equipment required to complete this Bid Item. No additional compensation will be made for excavation below the bottom of the assembly, for rock removal or bedding and backfill materials, or for repair of any trench settlement.

BID ITEM # 89 - 16" BUTTERFLY VALVES

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per the schedule of prices for furnishing and installing the butterfly valves at each end of the waterline encasement as shown on the Contract Drawings and listed in the Bid Form. Measurement and Payment shall be made for the actual number of valves installed and will represent full compensation for all labor, fittings, gaskets, materials, excavation, including rock, dewatering, bedding, backfill, compaction, testing and disinfection and equipment required to complete this Bid Item.

BID ITEM # 90 - DIP PIPE

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per the schedule of prices for furnishing and installing the listed diameter pipe and fittings as shown on the Contract Drawings and listed in the Bid Form. Measurement and Payment shall be made for the actual length of the listed diameter pipe installed and will represent full compensation for all labor, materials, excavation, including rock, dewatering, bedding, backfill, compaction, testing and disinfection and equipment required to complete this Bid Item. No additional compensation will be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill materials, or for repair of any trench settlement.

BID ITEM # 91 - 30" STEEL PIPE ENCASEMENT

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per the schedule of prices for furnishing and installing the listed fully bituminous coated standard steel pipe (30" OD x 0.375 wall thickness) as shown on the Contract Drawings and listed in the Bid Form. Measurement and Payment shall be made for the actual length of the listed diameter pipe installed and will represent full compensation for all labor, materials, excavation, including rock, dewatering, bedding, backfill, compaction, testing and disinfection and equipment required to complete this Bid Item. No additional compensation will be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill materials, or for repair of any trench settlement.

END OF SECTION

SECTION 02221 TRENCHING, BEDDING AND BACKFILL FOR PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish all labor, materials, equipment and incidentals necessary to perform all excavation, backfill, fill, grading, trench protection or other related work required to complete the piping work shown on the Drawings and specified herein. The work shall include, but not be limited to: vaults; duct conduit; pipe; roadways and paving; backfilling; required fill or borrow operations; grading; disposal of surplus and unsuitable materials; and all related work such as sheeting, bracing and dewatering.

B. Prior to commencing work, the Contractor shall examine the site and review test borings if available, or undertake his own subsurface investigations and take into consideration all conditions that may affect his work.

1.02 PROTECTION

A. Sheeting and Bracing in Excavations:

1. In connection with construction of underground structures, the Contractor shall properly construct and maintain cofferdams. These shall consist of: sheeting and bracing as required to support the sides of excavations, to prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction and to protect adjacent structures, existing yard pipe and/or foundation material from disturbance, undermining, or other damage. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.
2. Trench sheeting for pipes: no sheeting is to be withdrawn if driven below, mid-diameter of any pipe and no wood sheeting shall be cut off at a level lower than one foot above the top of any pipe unless otherwise directed by the Engineer. During the progress of the work, the Engineer may direct the Contractor in writing to leave additional wood sheeting in place. If steel sheeting is used for trench sheeting, removal shall be as specified above, unless written approval is given for an alternate method of removal.
3. All sheeting and bracing not left in place shall be carefully removed in such a manner as not to endanger the construction or other structures, utilities, existing piping, or property. Unless otherwise approved or indicated on the Drawings or in the Specification, all sheeting and bracing shall be removed after completion of the piping or structure, care being taken not to disturb or otherwise injure the pipeline or finished masonry. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools specifically made for that purpose, by watering, or as may otherwise be directed.
4. The Contractor shall construct, to the extent he deems it desirable for his method of operation, the cofferdams and sheeting outside the neat lines of the pipeline trench or foundation unless otherwise indicated on the Drawings or directed by the Owner/Engineer. Sheeting shall be plumb and securely braced and tied in position. Sheeting, bracing and cofferdams shall be adequate to withstand all pressures to which the pipeline or structure will be subjected. Pumping, bracing and other work within the cofferdam shall be done in a manner to avoid disturbing

any construction of the pipeline or the enclosed masonry. Any movement or bulging which may occur shall be corrected by the Contractor at his own expense so as to provide the necessary clearances and dimensions.

5. Drawings of the cofferdams and design computations shall be submitted to the Engineer and approved prior to any construction. However, approval of these drawings shall not relieve the Contractor of the responsibility for the cofferdams. The drawings and computations shall be prepared and stamped by a Registered Professional Engineer in the State of Florida and shall be in sufficient detail to disclose the method of operation for each of the various stages of construction, if required, for the completion of the pipeline and substructures.

B. Dewatering, Drainage and Flotation

1. The Contractor shall construct and place all pipelines, concrete work, structural fill, bedding rock and limerock base course, in-the-dry. In addition, the Contractor shall make the final 24" of excavation for this work in-the-dry and not until the water level is a minimum of 6" below proposed bottom of excavation.
2. The Contractor shall, at all times during construction, provide and maintain proper equipment and facilities to remove promptly and dispose of properly all water entering excavation and keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition until the fill, structure, or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.
3. Dewatering shall at all times be conducted in such a manner as to preserve the natural undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.
4. Wellpoints may be required for dewatering the soil prior to final excavation for deeper in-ground structures or piping and for maintaining the lowered groundwater level until construction has been completed to avoid the structure, pipeline, or fill from becoming floated or otherwise damaged. Wellpoints shall be surrounded by suitable filter sand and no fines shall be removed by pumping. Pumping from wellpoints shall be continuous and standby pumps shall be provided.
5. The Contractor shall furnish all materials and equipment to perform all work required to install and maintain the proposed drainage systems for handling groundwater and surface water encountered during construction of structures, pipelines and compacted fills.
6. Where required, the Contractor shall provide a minimum of two operating groundwater observation wells at each structure to determine the water level during construction of the pipeline or structure. Locations of the observation wells shall be at structures and along pipelines as approved by the Engineer prior to their installation. The observation wells shall be extended to 6 inches above finished grade, capped with screw-on caps protected by 24" x 24" wide concrete base and left in place at the completion of this Project.
7. Prior to excavation, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions to the Engineer for approval. Such approval shall not relieve the Contractor of the responsibility for the satisfactory performance of the system. The Contractor shall be responsible for correcting any disturbance of natural bearing soils for damage to pipeline or structures caused by an inadequate dewatering system or by interruption of the continuous operation of the system as specified.
8. As part of his request for approval of a dewatering system, the Contractor shall demonstrate the adequacy of the proposed system and wellpoint filter sand by means of a test installation. Discharge water shall be clear, with no visible soil

particles in a one quart sample. Discharge water shall not flow directly into wetlands or Waters of the State as defined by FDEP and SWFWMD.

9. During backfilling and construction, water levels shall be measured in observation wells located as directed by the Engineer.
10. Continuous pumping will be required as long as water levels are required to be below natural levels.

PART 2 PRODUCTS

2.01 MATERIALS

A. General

1. Materials for use as fill and backfill shall be described below. For each material, the Contractor shall notify the Engineer of the source of the material and shall furnish the Engineer, for approval, a representative sample weighing approximately 50 pounds, at least ten calendar days prior to the date of anticipated use of such material.
2. Additional materials shall be furnished as required from off-site sources and hauled to the site.

B. Structural Fill

1. Structural fill in trenches shall be used below spread footing foundations, slab-on-grade floors and other structures as backfill within three feet of the below grade portions of structures.
2. Structural fill material shall be a minimum of 60 percent clean sand, free of organic, deleterious and/or compressible material. Minimum acceptable density shall be 98 percent of the maximum density as determined by AASHTO T-180. Rock in excess of 2-1/2" in diameter shall not be used in the fill material. If the moisture content is improper for attaining the specified density, either water shall be added or material shall be permitted to dry until the proper moisture content for compaction is reached.

C. Common Fill

1. Common fill material shall be free from organic matter, muck or marl and rock exceeding 2-1/2" in diameter. Common fill shall not contain broken concrete, masonry, rubble or other similar materials. Existing soil may be used to adjust grades over the site with the exception of the construction area.
2. Material falling within the above specification, encountered during the excavation, may be stored in segregated stockpiles for reuse. All material which, in the opinion of the Engineer, is not suitable for reuse shall be spoiled as specified herein for disposal of unsuitable materials by the Contractor.

D. Crushed Stone

1. Crushed stone may be used for pipe bedding, manhole bases, as a drainage layer below structures with underdrains and at other locations indicated on the Drawings.
2. Crushed stone shall be size No. 57 with gradation as noted in Table 1 of Section 901 of Florida Department of Transportation, Construction of Roads and Bridges.

PART 3 EXECUTION

3.01 TRENCH EXCAVATION AND BACKFILLING

A. Excavation for all trenches required for the installation of pipes and electrical ducts shall be made to the depths indicated on the Drawings and in such manner and to such widths as will give suitable room for laying the pipe or installing the ducts within the trenches.

B. Rock shall be removed to a minimum 6" clearance around the bottom and sides of all the pipe or ducts being laid.

C. Where pipes or ducts are to be laid in limerock bedding or encased in concrete, the trench may be excavated by machinery to or just below the designated subgrade provided that the material remaining in the bottom of the trench is no more than slightly disturbed.

D. Where the pipes or ducts are to be laid directly on the trench bottom, the lower part of the trenches shall not be excavated to grade by machinery. The last of the material being excavated manually, shall be done in such a manner that will give a flat bottom true to grade so that pipe or duct can be evenly supported on undisturbed material. Bell holes shall be made as required.

E. Backfilling over pipes shall begin as soon as practicable after the pipe has been laid, jointed and inspected and the trench filled with suitable compacted material to the mid-diameter of the pipe.

F. Backfilling over ducts shall begin not less than three days after placing concrete encasement.

G. All backfilling shall be prosecuted expeditiously and as detailed on the Drawings.

H. Any space remaining between the pipe and sides of the trench shall be packed full by hand shovel with selected earth, free from stones having a diameter greater than 2" and thoroughly compacted with a tamper as fast as placed, up to a level of one foot above the top of the pipe.

I. The filling shall be carried up evenly on both sides with at least one man tamping for each man shoveling material into the trench.

J. The remainder of the trench above the compacted backfill, as just described above, shall be filled and thoroughly compacted by rolling, ramming, or puddling, as the Engineer may direct, sufficiently to prevent subsequent settling.

END OF SECTION

SECTION 02615 DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish all labor, materials, equipment and incidentals required to install ductile iron pipe and restrained joint ductile iron pipe and cast iron or ductile iron restrained joint fittings, complete, as shown on the Drawings and specified in these Standards.

B. Fittings are noted on the drawings for the Contractor's convenience and do not relieve him from laying and jointing different or additional items where required.

1.02 SUBMITTALS

A. The Contractor shall submit to the Engineer, a list of materials to be furnished, the names of the suppliers and the appropriate shop drawings for all ductile iron pipe and fittings.

B. The Contractor shall submit the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.

PART 2 PRODUCTS

2.01 MATERIALS

A. All fittings shall be pressure rated for 350 psi and meet the requirement of AWWA C110 or AWWA C153. Rubber gaskets shall conform to ANSI A21.11 for mechanical and push-on type joints for diameters up to 14" diameter. Gaskets for 16" diameter and larger pipe shall be EPDM (Ethylene-Propylene Dine Monomer) such as the "Fastite Gasket" of American Ductile Iron Pipe Co., or approved equal.

B. Water Mains: All ductile iron pipe and fittings shall have a standard thickness cement lining on the inside in accordance with AWWA/ANSI C104/A21.4 and a coal tar enamel coating on the outside. The coal tar enamel shall be in accordance with ANSI A21.4. All interior linings shall be EPA/NSF approved.

2.02 IDENTIFICATION

A. Each length of pipe and each fitting shall be marked with the name of the manufacturer, size and class and shall be clearly identified as ductile iron pipe. All gaskets shall be marked with the name of the manufacturer, size and proper insertion direction.

B. Pipe shall be poly wrapped blue for potable water mains, purple for reclaimed water mains and green for sewage force mains. All potable water pipe shall be NSF certified and copies of lab certification shall be submitted to the Engineer.

END OF SECTION

SECTION 02616 DISINFECTING POTABLE WATER PIPE LINES

PART 1 GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment and incidentals required to clean and disinfect portable water pipe lines. This work is required to place all types of pipe into service as potable water lines.

1.02 CLEANING WATER MAINS

At the conclusion of the work, the Contractor shall thoroughly clean all of the new pipes to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period per Section 02618.

1.03 DISINFECTING POTABLE WATER PIPE LINES

A. All record drawing requirements must be submitted to the Owner/Engineer prior to starting the bacteriological testing of the water lines.

B. Prior to being placed in service, all potable water pipe lines shall be chlorinated in accordance with AWWA 651, "Standard Procedure for Disinfecting Water Main". The procedure shall meet Health Department requirements. The location of the chlorination and sampling points shall be determined by the Engineer. Taps for chlorination and sampling shall be uncovered and backfilled by the Contractor as required.

A. The general procedure for chlorination shall be to flush all dirty or discolored water from the lines, then introduce chlorine in approved dosages through a tap at one end while water is being withdrawn at the other end of the line. The chlorine solution shall remain in the pipe line for 24 hours.

Water for flushing, filling and disinfecting the new lines must be obtained without contaminating existing pipe lines. Water obtained from existing pipe lines for this purpose shall pass through an approved air gap or backflow prevention device.

B. Following the chlorination period, all treated water shall be flushed from the lines at their extremities and replaced with water from the distribution system. Bacteriological sampling and analysis of the replacement water shall then be made by an approved laboratory or the Health Department in full accordance with the AWWA Manual C651. The line shall not be placed in service until the requirements of the State and County Public Health Department are met. Results of the bacteriological tests together with certified record drawings must be submitted to the Health Department (FDEP) within 30 days of the tests.

C. Special disinfecting procedures when approved by the County, may be used where the method outlined above is not practical.

END OF SECTION

SECTION 02617 INSTALLATION AND TESTING OF PRESSURE PIPE

PART 1 GENERAL

1.01 INSTALLING PIPE AND FITTINGS

A. The Contractor shall install all pipe in accordance with the recommendations of the pipe manufacturer and as specified herein.

B. The Contractor shall take care in handling, storage and installation of pipe and fittings to prevent injury to the pipe or coatings. All pipe and fittings shall be examined before installation and pipe which is deemed to be defective by the Owner/Engineer shall not be installed.

C. The Contractor shall thoroughly clean and keep thoroughly clean, all pipe and fittings prior to during and after installation.

D. The Contractor shall lay the pipe to the lines and grades shown on the Contract Drawings with bedding and backfill as shown on the Drawings or called out in the Contract Documents. Blocking under the pipe shall not be permitted except through casing sleeves.

E. The Contractor shall keep the open ends of all pipe closed with a tightly fitting plug when installation is not in progress or the potential exists for dirt or debris to enter the pipe.

F. The pipe or accessories shall not be dropped into the trench under any circumstances.

G. The Contractor shall construct all water mains pursuant to the provisions of "Recommended Standards for Water Works", Part 8, incorporated by reference in Rule 17-555.330(3), F.A.C.

1.02 PROCEDURE FOR TESTING WATER LINES, FORCE MAINS AND RECLAIMED WATER LINES

A. A 48-hour notice is needed prior to testing. A letter stating the reasons testing should be scheduled ahead of other jobs must accompany all emergency testing requests.

B. Engineer and Contractor must be present for all testing, except for testing tapping valves and sleeves.

C. All pressure pipe lines shall remain undisturbed for 24 hours to develop complete strength at all joints. All pipe lines shall be subjected to a hydrostatic pressure test for two (2) hours at full working pressure, but not less than 180 psi for water/reclaimed (150 psi for force main). Maximum length of pipe to be tested at one time is 2,600 feet. If line is longer than 2,600 feet and cannot be sectioned in 2,600 feet (max.) lengths, the allowable leakage will be figured at 2,600 feet.

D. Allowable leakage shall be determined by AWWA C600 table for hydrostatic tests. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof; to maintain the test pressure after the air in the pipe line has been expelled and the pipe has been filled with water.

E. All digging on the job site in the right-of-way must be completed before any testing of

water or sewer. Any digging or boring across water or sewer lines after they have been tested may result in a retest of the lines at the County's request.

F. If any revisions or changes are made after initial testing, lines will be re-tested at the County's request.

G. Disconnect water supply during test.

H. All visible leaks are to be repaired, regardless of the amount of leakage.

I. Check gauge pressure periodically during test. If test pressure drops to 175 psi for water/reclaimed lines or to 145 psi for force mains during test, the line must be repumped back to 180 psi for water/reclaimed (150 psi force mains) and the amount of leakage measured. The test will continue on with the remaining time left. At the end of the test, the line must be repumped again back to 180 psi (150 psi for force main) and the amount of leakage measured and added to any previous leakage determined earlier in the test.

J. After the line passes the test, the pressure will be blown off from the opposite end of line from the gauge location. Fire hydrants, services and end-of-line blow offs will be opened to demonstrate they were on line during the test.

K. At end of test, the test gauge must return to zero. The pressure gauge must read 0 psi to a maximum of 300 psi in 5 psi increments.

L. The section of line being tested must be identified on the charge sheet. The length and size of pipe, the exact area being tested and the valves being tested against, must be identified. Use Station numbers if available. A copy of the charge sheet will be given to the Engineer and the Contractor at the end of the test.

M. A punch list must be made at the end of all tests.

END OF SECTION

SECTION 02618 PIPELINE CLEANING

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish all labor, materials, equipment and incidentals required to clean all new lines 4" and larger, and existing pipelines as specified in this specification and as indicated on the Drawings.

B. This work shall include the furnishing and installation of all pig launching and retrieval devices and the appropriate pigs for the cleaning procedure, and all necessary excavations, shutdowns, fittings and valves required.

1.02 RELATED WORK

A. The contractor is responsible for all necessary supply water.

B. The contractor is responsible for all necessary bypass pumping.

C. The contractor is responsible for the proper disposal of any materials removed from the pipe lines as a result of the cleaning procedure.

1.03 SUBMITTALS

A. The Contractor shall submit prior to construction, a cleaning plan, Shop Drawings, and layout diagram for approval to the Engineer.

B. The Contractor shall submit to the Engineer a list of materials to be furnished, and the names of suppliers.

1.04 QUALIFICATIONS

A. The Contractor performing this work shall be fully qualified, experienced and equipped to complete this work expeditiously and in a satisfactory manner.

B. The Contractor shall also be capable of providing crews as needed to complete this work without undue delay.

C. The Owner reserves the right to approve or disapprove the Contractor, based on the submitted qualifications.

PART 2 PRODUCTS

2.01 GENERAL

A. The contractor shall be responsible for furnishing pigs in sufficient numbers and sizes, of appropriate densities, coatings and configurations to properly clean the piping systems.

B. All pigs used for the cleaning of sewer or reclaimed water lines shall not be used in the cleaning of potable water lines.

2.02 MATERIALS

A. The pig launching and retrieval equipment shall be of the latest design and construction and shall include the means to maintain constant monitoring of the in-line flows and pressures of the system being cleaned and the constant location of the cleaning pigs in the system. Launching and retrieval systems shall be fabricated, designed and manufactured according to ANSI standards and capable of withstanding working pressures of 150 psi. Launching and receiving devices shall be sized one diameter larger than the system to which it will be attached with a minimum length of 2.5 times the diameter.

B. The contractor shall have available for immediate use an electronic pig detector for use in the system being cleaned to provide a means of tracking the passage of the pig in the system to locate areas of potential or suspected blockage and other disparities in the system.

C. The pig shall be constructed of elastomer polyurethane with an open cell construction and a density equal to or suitable for use in the piping system being cleaned. Pig configuration shall consist of a parabolic nose with a concave base and coated with a resilient surface material that will maintain a peripheral seal and will effectively clean the piping system without over abrading the interior pipe wall. Pig characteristics shall include the ability to navigate through 90 degree bends, 180 degree turns, bi-directional fittings, full port valves, reduce its cross sectional area and return to its original design configuration and be propelled by hydraulic pressure.

PART 3 EXECUTION

3.01 PIPELINE CLEANING

A. The cleaning of the pipe line shall be done by the controlled and pressurized passage of a polyurethane pig of varying dimensions, coatings and densities as determined by the Engineer through the piping system.

B. A series of pigs shall be entered into the system at a point as near to the beginning as is logistically and mechanically feasible.

C. A launching assembly shall be used as the entrance point for the pig. This assembly shall allow for the following:

1. The entering of pigs into the system by providing the means to induce flow from an external source, independent of the flows and pressures immediately available from the system, on the back of the pig to develop sufficient pressure to force the pig through the system.
2. A means to control and regulate the flow.
3. A means to monitor the flows and pressures.
4. A means to connect and disconnect from the system without any disruption to the operation of the system.

D. The pig shall be removed or discharged from the system at a point as near to the end as is logistically and mechanically feasible.

E. The contractor shall be responsible for the retrieval of the pig at the discharge point. This may include setting a trap that will not disrupt normal flow and operations but will capture

the pig and any debris. A retrieval assembly may also be used but said assembly shall be able to connect and disconnect from the system without any disruption to the operation of the system.

F. Alternative launching and retrieval methods shall be done with the prior approval of the Engineer.

G. Any pig that cannot progress through the piping system shall be located by the contractor and removed by excavation of the pipe in order to remove the blockage. All pipe repairs shall be the responsibility of the contractor and shall be performed with as little disruption to the system as possible.

H. Any increase in pressure that cannot be accounted for, i.e. fittings or valves or additional cleaning runs, shall be investigated, per the Engineers' approval, by locating the pig at the beginning of the increased pressure and excavating to determine the cause of the pressure increase. All pipe repairs shall be the responsibility of the contractor and shall be performed with as little disruption to the system as possible.

I. Final flushing of the cleansed lines shall be performed after the last successful run of the pig as determined by the Engineer. The contractor shall be responsible for all applicable flushing and disinfection requirements for potable water lines.

3.02 ACCEPTANCE

A. The contractor shall maintain and provide a report at the end of the cleaning procedure containing the following:

1. The pressures in the pipe during the pigging procedure.
2. Any inline problems encountered during the procedure including all excavations with detailed locations, reason for the excavation and any corrective measures taken to the pipeline.
3. A record of the pigs used, their sizes, styles and other pertinent information regarding what materials were used during the cleaning.
4. An analysis of the condition of the pipeline before and after the cleaning procedure.

END OF SECTION

SECTION 02619 HORIZONTAL DIRECTIONAL DRILLING

PART 1 GENERAL

1.01 SCOPE

The Contractor shall furnish all labor, materials, equipment and incidentals required to install all pipe, fittings and appurtenances as shown on the Drawings and specified in the Contract Documents by Horizontal Directional Drilling (HDD).

1.02 GENERAL

A. All existing structures, water lines, storm drains, utilities, driveways, sidewalks, signs, trees, landscaping, and any other improvement or facility in the construction area that the Contractor disturbs for his own construction purposes shall be replaced to original condition at no additional cost to the County.

1.03 TESTING

A. In place soil compaction tests shall be performed by a qualified testing laboratory.

B. Compaction tests shall be taken at every excavation, except in the road crossings or road shoulders; tests are to be taken according to current FDOT Standards.

C. All pipe shall be tested in accordance with the appropriate material specifications.

D. Reference Standards: American Society for Testing and Materials (ASTM), D1557, Moisture-Density Relations of Soils Using 10-lb. Rammer and 18-in. Drop.

E. The density of soil in place shall be a minimum of 95 percent in accordance with ASTM test 1557-70T, Method A or C.

1.04 QUALIFICATIONS

A. Pipe Manufacture: All pipe and fittings shall be furnished by a single manufacturer who is fully experienced, reputable and qualified in the manufacture of the items to be furnished.

B. Drilling Supervisor: The Contractor shall provide a competent boring specialist who shall remain on the project site during the entirety of the directional boring operation. This includes, but is not limited to, drilling fluid preparation, seaming, boring and pulling. The boring specialist shall have a minimum of five years experience in supervising directional bores of similar nature, diameter, materials and lengths.

C. Pipe Fusion: All boring and fusing equipment shall be certified for operation. The Contractor responsible for thermal butt fusing pipe and fittings shall have manufacturer certification for performing such work or a minimum of five years experience performing this type of work. If no certification is available, written documentation of the required work experience shall be submitted for approval.

D. Drilling Fluid Specialist: The personnel responsible for supervising the supply, mixing, monitoring fluid quality, pumping and re-circulation system proposed for the drilling fluid

shall have a written certification issued by the Drilling Fluid manufacturer for performing such work or a minimum of five years experience performing this type of work. If no certification is available, written documentation of the required work experience for the proposed personnel shall be submitted for review and approval.

1.05 SUBMITTALS

A. Detailed description including specifications and catalog cuts for:

1. Shop drawings and catalog data for all HDD equipment.
2. The pipe manufacturer's maximum degree of radial bending allowed for the pipe when full and when empty and pullback force recommended setting.
3. Steering and tracking devices including specific tracer wire.
4. Drilling fluids; the drilling fluid submittal shall include the ratio of mixture to water, including any additives, based on the Contractor's field observations prior to construction, knowledge and experience with drilling in similar conditions, and any soil data provided in the Contract Documents, which shall be verified by the fluid specialist.
5. Shop drawings for the breakaway swivel, including the method of setting the swivels' break point and set point to be used.
6. Pipe assembly procedure, details of support devices, and staging area layout including methods to avoid interference with local streets, driveways, and sidewalks.

B. Bore Plan: the Contractor shall submit a Bore Plan that includes the following:

1. Contact information and experience for the drilling fluid specialist.
2. The number of passes the bore will include to get the product pipe installed.
3. The pilot bore and all reaming bore sizes including the final pullback with the product pipe.
4. Drilling rod length in feet.
5. The pilot bore, pre-ream bores (if any) and pullback production rate in minutes per (drilling) rod to maintain adequate mud flow.
6. Details of the entry and exit pit locations along with entry and exit angles for the bore, drawn to scale, depicting the position of all required equipment, access points, existing facilities to remain in place, and storage sites.
7. The method of fusing or joining pipe of adjacent bores to ensure that the joint is on grade with the installed pipe.

C. Furnish a Bore Path Report to the Engineer within seven days of the completion of each bore path. Data collected by the County Representative does not relieve the Contractor from the responsibility of recording his own data. Include the following in the report:

1. Location of project, project name and number
2. Name of person collecting data, including title, position and company name
3. Investigation site location (Contract plans station number or reference to a permanent structure within the project right-of-way)
4. Driller's Log & identification of the detection method used
5. Elevations and offset dimensions of installed pipe as referenced to the drawings
6. Data log of pullback force during product pipe installation
7. All failed bores. Include length of pipe left in place and explanation of failed installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Incidental materials that may or may not be used to install the product depending on field requirements are not paid for separately and will be included in the cost of the installed product.

B. Drilling Fluids shall use a mixture of bentonite clay or other approved stabilizing agent mixed with potable water with a pH of 8.5 to 10.0 to create the drilling fluid for lubrication and soil stabilization. Vary the fluid viscosity to best fit the soil conditions encountered. Contractor shall have appropriate additives for drilling fluid available for different soil conditions that may be encountered. Do not use any other chemicals or polymer surfactants in the drilling fluid without written consent from the Engineer. Certify to the Engineer in writing that any chemicals to be added are environmentally safe and not harmful or corrosive to the product pipe.

C. Identify the source of water for mixing the drilling fluid. Approvals and permits are required for obtaining water from such sources as streams, rivers, ponds or fire hydrants. Any water source used other than potable water may require a pH test.

D. The tracer wire to be used for all directional drills shall be a solid, 10 gauge, high strength, copper clad steel wire with a polyethylene jacket of appropriate color manufactured by Copperhead Industries or Manatee County approved equal.

E. Breakaway connectors shall be supplied by DCD Design & Manufacturing, Condux International, Inc. or approved equal.

PART 3 EXECUTION

3.01 SITE CONDITIONS

A. Carry out excavation for entry, exit, recovery pits, slurry sump pits, or any other excavation as specified in the Contract documents. Sump pits are required to contain drilling fluids if vacuum devices are not operated throughout the drilling operation.

B. Within 48 hours of completing installation of the boring product, clean the work site of all excess slurry or spoils.

C. Exposure of product pipe to sunlight shall be limited to 14 consecutive days unless approved by the Engineer.

D. The pipe shall be supported at intervals along its length with rollers or Teflon pads to minimize frictional forces when being pulled, and to hold the pipe above the ground. Surface cuts or scratches greater than or equal to the maximum defect depth in 3.08 E are not acceptable.

3.02 DAMAGE RESTORATION & REMEDIATION

A. The Contractor shall take responsibility for restoration for any damage caused by heaving, settlement, separation of pavement, escaping drilling fluid (frac-out), or the directional drilling operation, at no cost to the County.

3.03 QUALIFICATIONS FOR REJECTION OF DIRECTIONAL BORE

A. The Engineer may reject any portion of the work that is deemed to be non-responsive to the Contract requirements or not in conformance with approved plans and submittals, and for other factors including the following:

1. Failed Bore: When there is any indication that the installed product has sustained damage, stop all work, notify the County and investigate damage. The County may require a pressure and / or mandrel test at no additional cost to the County and shall have a County representative present during the test. Perform all testing within 24 hours unless otherwise approved by the Engineer. Furnish a copy of the test results and all bore logs to the Engineer for review and approval. The Engineer is allowed up to 5 working days to approve or determine if the product installation is not in compliance with the specifications.
2. Obstructions: If an obstruction is encountered during boring which prevents completion of the installation in accordance with the design location and specification, the pipe may be taken out of service and left in place at the discretion of the Engineer.
3. Pull-back Failure: If the installed breakaway device should fail during pull back.
4. Loss of Drilling Fluids: If the drilling fluid is "lost" during the pull back of the product and can not be regained within the required timeframe of the manufacturer or if more than a reasonable amount of fluid is used to fill an unknown void and flow can not be regained. No pipe shall be pulled without visible flow of drilling fluid.
5. Test Failure: If the pipe shall fail a hydraulic pressure test as specified by the County.
6. Damaged Pipe: If at any time when the product is pulled back and any exposed areas have a greater than allowable "gouging" or visible marring of the pipe per the table in 3.08 E.
7. Alignment Tolerance Exceeded: If the vertical and horizontal limits are not within tolerances.
8. Defective Material: Any other defect in material or workmanship which would affect the quality, performance, or installation life of the installed pipeline.

B. Remediation: All rejected bores shall be at the Contractors expense to correct and provide a satisfactory installed product. The Contractor shall submit to the Engineer a revised installation plan and procedure for approval before resuming work. The Engineer may require non-compliant installations to be filled with excavatable flowable fill or to be completely removed at no additional cost to the County.

3.04 PRODUCT LOCATING AND TRACKING

A. The County recognizes walkover, wire line, and wire line with surface grid verification, or any other system as approved by the Engineer, as the accepted methods of tracking directional bores. Use a locating and tracking system capable of ensuring that the proposed installation is installed as intended. The locating and tracking system must provide information on:

1. Clock and pitch information
2. Depth
3. Transmitter temperature
4. Battery status
5. Position (x,y)

B. Ensure proper calibration of all equipment before commencing directional drilling operation.

C. Prepare the Driller's Log. Take and record alignment readings or plot points such that elevations on top of and offset dimensions from the center of the product to a permanent fixed feature are provided. Such permanent fixed feature must have prior approval of the Engineer. Provide elevations and dimensions at all bore alignment corrections (vertical and horizontal) with a minimum distance between points of 10 feet. Provide a sufficient number of elevations and offset distances to accurately plot the vertical and horizontal alignment of the installed product.

D. Installation Location Tolerances: The location of the initial bored hole shall be deemed acceptable by the Engineer if the deviations of the bore from the design alignment or approved adjustments do not exceed the following tolerances:

1. Profile:
   a. 2.0 feet within a length of 100 feet
   b. No reverse curvature within 200 feet
   c. Total deviation not to exceed 5 feet
2. Alignment:
   a. 3.0 feet within a length of 200 feet
   b. No reverse curvature
   c. Total deviation not to exceed 7.0 feet

3.05 PRODUCT BORE HOLE DIAMETER

Minimize potential damage from soil displacement/settlement by limiting the ratio of the bore hole to the product size. The size of the back reamer bit or pilot bit, if no back reaming is required, will be limited relative to the product diameter to be installed as follows:

Maximum Pilot or Back-Reamer Bit Diameter When Rotated 360 Degrees	
Nominal Inside Pipe Diameter Inches	Bit Diameter Inches
12 and greater	Maximum Product OD plus 6

3.06 EQUIPMENT REQUIREMENTS

A. The HDD equipment selected by the Contractor shall be capable of drilling, steering, tracking, reaming and installing the pipeline through all the subsurface conditions that may be present at the site.

B. Match equipment to the size of pipe being installed. Obtain the Engineer's approval for installations differing from the above chart. Ensure that the drill rod can meet the bend radius required for the proposed installation.

C. All HDD equipment shall have a data logger to record pull back force during all pipe installations.

D. All HDD equipment that has the capability to exceed the maximum recommended pulling force shall have a breakaway swivel properly attached to the product pipe that will release if the pullback force exceeds the pipe manufacturers recommended pulling force.

3.07 THRUST / PULLBACK REQUIREMENTS

The Contractor shall provide as part of the required working drawings submittal complete data regarding the operational and maximum thrust or pulling forces to be used for the initial drill head and back-reamer installations, and the final pull-back of the pipe. Gages or other measurement tools shall be used to monitor the forces being used.

3.08 INSTALLATION PROCESS

A. Ensure adequate removal of soil cuttings and stability of the bore hole by monitoring the drilling fluids such as the pumping rate, pressures, viscosity and density during the pilot bore, back reaming and pipe installation. Relief holes can be used as necessary to relieve excess pressure down hole. Obtain the Engineer's approval of the location and all conditions necessary to construct relief holes to ensure the proper disposition of drilling fluids is maintained and unnecessary inconvenience is minimized to other facility users.

B. The Contractor shall determine the pull-back rate in order to allow the removal of soil cuttings without building excess down-hole pressure and to avoid local heaving, or spills. Contain excess drilling fluids at entry and exit points until they are recycled and separated from excavated materials, or removed from the site or vacuumed during drilling operations. Ensure that entry and exit pits and storage tanks are of sufficient size to contain the expected return of drilling fluids and soil cuttings. The bored hole shall always be maintained full of drilling fluids for support of surfaces, and the fluid re-circulation equipment shall operate continuously until the pipe installation is completed and accepted by the Engineer.

C. Ensure that all drilling fluids are disposed of or recycled in a manner acceptable to the appropriate local, state, or federal regulatory agencies. When drilling in suspected contaminated ground, test the drilling fluid for contamination and appropriately dispose of it. Remove any excess material upon completion of the bore. If in the drilling process it becomes evident that the soil is contaminated, contact the Engineer immediately. Do not continue drilling without the Engineer's approval.

D. The timing of all boring processes is critical. Install a product into a bore hole within the same day that the pre-bore is completed to ensure necessary support exists. Once pullback operations have commenced, the operation shall continue without interruption until the pipe is completely pulled into the borehole.

E. All prepared pipe that is being used for installation shall be adequately supported off the ground along the entire length to avoid damaging of the material during pullback due to ground surface conditions. Surface cuts or scratches greater than or equal to ¼ inch depth are not acceptable.

F. The drilling fluid specialist shall remain on the project site during the entirety of the directional boring operation to ensure proper mixture and production of drilling fluids needed for the bore.

G. Upon successful completion of the pilot hole, the borehole shall be reamed to a minimum of 25 percent greater than the outside diameter of the pipe being installed.

H. For bores with more than two radii of curvature (entrance and exit), the borehole should be reamed up to 50 percent larger than the outside diameter of the carrier pipe. Prereaming may be necessary dependent on size of material to be pulled.

I. Additional passes for prereaming may be required for larger pipe. Incremental increases shall be used as needed until appropriate bore hole size has been achieved.

J. Prereaming must be accomplished with no product attached to the reamer head on all bore pipe 6" and larger. The bore product maybe pulled back on final pass of prereaming upon prior approval from the Engineer.

K. After reaming the borehole to the required diameter, the pipe shall be pulled through the hole. In front of the pipe shall be a breakaway swivel and barrel reamer to compact the borehole walls.

L. The Contractor shall not attempt to ream at a rate greater than the drilling equipment and drilling fluid system are designed to safely handle.

M. Install all piping such that their location can be readily determined by electronic designation after installation. For non-conductive installations, externally attach two (2) tracer wires; see Section 2.01 - Materials, Part I. above, to the product pipe. Connect any break in the conductor line before construction with an electrical clamp, or solder, and coat the connection with a rubber or plastic insulator to maintain the integrity of the connection from corrosion. Clamp connections must be made of brass or copper and of the butt end type with wires secured by compression. Soldered connections must be made by tight spiral winding of each wire around the other with a finished length minimum of 3 inches overlap. Tracking conductors must extend 2 feet beyond bore termini. Test conductors for continuity. Each conductor that passes must be identified as such by removing the last 6 inches of the sheath. No deductions are allowed for failed tracking conductors. Upon completion of the directional bore, the Contractor shall demonstrate to the County that the wire is continuous and unbroken through the entire run of the pipe by providing full signal conductivity (including splices) when energizing for the entire run in the presence of the County Representative. If the wire is broken, the Contractor shall repair or replace it at no additional cost to the County.

END OF SECTION

Attachment 7
Revised Bid Forms
(12) Total Pages

BID FORM
(Submit in Triplicate)
Section 00300
ADDENDUM NO. 1

BID "A"

IFB 09-2568-OV - BUFFALO ROAD REALIGNMENT - NORTH OF ERIE ROAD
BID "A" Based on Completion time of 330 Calendar Days (Project No. 307-6062260)

ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
		ROADWAY & BRIDGE				
1	0101-1	MOBILIZATION	LS	1	$	$
2	0102-1	MAINTENANCE OF TRAFFIC	LS	1	$	$
3	0104-12	TURBIDITY BARRIER STAKED	LF	140	$	$
4	0104-13-1	SILT FENCE STAKED (TYPE III)	LF	2635	$	$
5	0110-1-1	CLEARING & GRUBBING	AC	7.04	$	$
6	0110-4	SIDEWALK CONC REMOVAL	SY	182	$	$
7	**0120-1**	**REGULAR EXCAVATION (Addendum #1)**	**CY**	**8,433**	**$**	**$**
8	**0120-2**	**BORROW EXCAVATION (Addendum #1)**	**CY**	**2,424**	**$**	**$**
9	**0120-4**	**REMOVE OLD BUFFALO ROAD (Addendum #1)**	**CY**	**6,150**	**$**	**$**
10	**0120-6**	**EMBANKMENT(Addendum #1)**	**CY**	**10,857**	**$**	**$**
11	160-6	STABILIZED SUB-BASE	SY	10, 764	$	$
12	0285-709	BASE OPTIONAL (BASE GROUP 09)	SY	9,662	$	$
13	0334-1	TYPE S ASPHALT CONC.	TN	1,064	$	$
14	0337-7-7	ASPHALT CONC FRICTION COURSE	TN	682	$	$
15	**0350-2-1**	**CONCRETE DRIVEWAY 6" (Addendum #1)**	**EA**	**2**	**$**	**$**
16	**0400-1-1**	**BOX CULVERT OR EQUAL (Cast in Place) - (Addendum #1)**	**LF**	**350**	**$**	**$**
17	0400-1-2	CONC CLASS I (END WALLS)	CY	11	$	$
18	**0400-1-11**	**CONC CLASS I (RETAINING WALLS, GRAVITY WALL) - (Addendum #1)**	**CY**	**700**	**$**	**$**
19	0425-1-351	INLETS (CURB) (TYPE P-5)	EA	13	$	$
20	0425-1-361	INLETS (CURB) (TYPE P-6) (<10')	EA	8	$	$

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ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
21	0425-1-521	INLETS (DITCH BOTTOM TYPE C)	EA	2	$	$
22	0425-1-543	INLET (DITCH BOTTOM TYPE D)	EA	1	$	$
23	0425-2-41	MANHOLES (P-7) (<10')	EA	2	$	$
24	0425-3-81	CONFLICT BOXES	EA	2	$	$
25	**0430-171-101**	**PIPE CONC CULV (CLASS III) (15" SS) (SS = Storm Sewer) (Addendum #1)**	**LF**	**909**	**$**	**$**
26	**0430-171-101**	**PIPE CONC CULV (CLASS III) (18" SS) (Addendum #1)**	**LF**	**480**	**$**	**$**
27	**0430-171-101**	**PIPE CONC CULV (CLASS III) (24" SS) (Addendum #1)**	**LF**	**260**	**$**	**$**
28	**0430-171-102**	**PIPE CONC CULV (CLASS III) (30" SS) (Addendum #1)**	**LF**	**940**	**$**	**$**
29	**0430-171-102**	**PIPE CONC CULV (CLASS III) (36" SS) (Addendum #1)**	**LF**	**54**	**$**	**$**
30	**0430-171-103**	**PIPE CONC CULV (CLASS III) (48" SS) (Addendum #1)**	**LF**	**132**	**$**	**$**
31	**0430-171-201**	**PIPE ELLIP CONC CULV (CLASS III) (12" X 18" SS) (Addendum #1)**	**LF**	**148**	**$**	**$**
32	0430-982-123	MITERED END SECTION (15")	EA	2	$	$
33	0430-982-125	MITERED END SECTION (BASIN OUTLET (18")	EA	2	$	$
34	0430-984-133	MITERED END SECTION (BASIN OUTLET (30")	EA	3	$	$
35	0430-984-138	MITERED END SECTION (BASIN OUTLET (12" X 18")	EA	2	$	$
36	0440-1	UNDERDRAIN	LF	350	$	$
37	**0440-70**	**UNDERDRAIN INSPECTION BOX (Item Deleted- Addendum # 1)**				

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ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
38	**0443-70-6**	**FRENCH DRAIN (Addendum # 1)**	**LF**	**210**	**$**	**$**
39	0515-1-2	PIPE HANDRAIL (ALUMINUM)	LF	1,171	$	$
40	0520-1-7	CURB & GUTTER CONC (TYPE E)	LF	104	$	$
41	0520-1-10	CURB & GUTTER CONC (TYPE F)	LF	5,051	$	$
42	0522-1	SIDEWALK CONC (4" THICK)	SY	2,030	$	$
43	0530-3-4	RIPRAP (RUBBLE) (F & I) (DITCH LINING	TN	6	$	$
44	0570-1	PERFORMANCE TURF	SY	20,177	$	$
45	**327-70-1**	**MILLING EXISTING ASPHALT (Addendum #1)**	**SY**	**2,754**	$	$
	SUB-TOTAL ROADWAY & BRIDGE					$
	TRAFFIC OPERATIONS					
46	0630-1-12	CONDUIT (UNDERGROUND)	LF	75	$	$
47	0630-1-13	CONDUIT (UNDER PAVEMENT)	LF	165	$	$
48	**0632-7-1**	**CABLE (SIGNAL) (FURNISH & INSTALL) (Addendum #1)**	**PI**	**1**	**$**	**$**
49	**634-4-112**	**SPAN WIRE ASSEMBLY (Addendum #1)**	**PI**	**1**	**$**	**$**
50	0635-1-11	PULL & JUNCTION BOXES (F & I) (PULL BOX)	EA	4	$	$
51	0639-1-11	ELECTRICAL POWER SERVICE (OVERHEAD)	AS	1	$	$
52	0639-2-1	ELECTRICAL SERVICE WIRE	LF	80	$	$
53	0641-2-16	PREST CONC POLE (F & I)	EA	2	$	$
54	0650-51-311	SIGNAL TRAFFIC (F&I) (3 SECT 1 WAY) (STD)	AS	2	$	$

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ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
55	0650-51-321	SIGNAL TRAFFIC (F& I) (3 SECT 2 WAY) (STD)	AS	2	$	$
56	653-181	PEDESTRIAN SIGNAL (1 WAY (LED)	AS	2	$	$
57	659-107	ALUMINUM PEDESTAL	EA	1	$	$
58	0660-1-103	LOOP AMPLIFIER	EA	2	$	$
59	0660-1-104	LOOP AMPLIFIER	EA	1	$	$
60	0660-2-102	LOOP ASSEMBLY (F&I) (TYPE B) (6 X 6)	AS	2	$	$
61	0660-2-106	LOOP ASSEMBLY (F&I) (TYPE F) (6 X 40 QUAD)	AS	2	$	$
62	0665-11	DETECTOR PEDEST (F&I) (DET STA POLE OR CABINET MTD)	EA	2	$	$
63	0670-5-410	CNTRL ASSEM (POLE MOUNTED)	LS	1	$	$
64	07200-20-11	SINGLE POST SIGN	AS	1	$	$
65	0700-48-18	STREET NAME SIGN (1 DOUBLE FACED)	EA	1	$	$
66	0706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	EA	116	$	$
67	0711-11-160	MESSAGE (WHITE)	EA	8	$	$
68	0711-11-170	TRAFFIC ARROW (WHITE)	EA	1	$	$
69	0711-11-121	6" SOLID TRAFFIC STRIPE (WHITE)	LF	5,900	$	$
70	0711-11-123	12" SOLID TRAFFIC STRIPE (WHITE)	LF	300	$	$
71	0711-11-125	24" SOLID TRAFFIC STRIPE (WHITE)	LF	110	$	$
72	0711-11-151	6" DOTTED TRAFFIC STRIPE (WHITE)	LF	150	$	$
73	0711-11-221	6" SOLID TRAFFIC STRIPE (YELLOW)	LF	7,000	$	$

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BID "A"

IFB 09-2568-OV - BUFFALO ROAD REALIGNMENT - NORTH OF ERIE ROAD
BID "A" Based on Completion time of 330 Calendar Days (Project No. 307-6062260)

ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
74	0711-11-224	18" SOLID TRAFFIC STRIPE (YELLOW)	LF	490	$	$
75	0711-11-251	6" DOTTED TRAFFIC STRIPE (YELLOW)	LF	150	$	$
		SUB-TOTAL TRAFFIC OPERATIONS				$
76		DISCRETIONARY WORK	LS	1		$200,000.00
		UTILITIES PORTION				
77		**12" PVC WATERLINE LOWERED (Addendum #1)**	LF	150	$	$
78		**12" HDPE Waterline (Addendum#1)**	LF	505	$	$
79		**DI FITTINGS, 12" (Addendum #1)**	LB	1,080	$	$
80		**16 x 12 DIP "TEE" (Addendum #1)**	EA	1	$	$
81		**12" GATE VALVE WITH BOX (Addendum #1)**	EA	1	$	$
82		**REMOVE & DISPOSE OF EXISTING 12" PVC WATERLINE (Addendum #1)**	LF	200	$	$
83		**CUT-OFF AND CAP EXISTING 12" WATERLINE (Addendum #1)**	EA	1	$	$
84		**GROUT FILL & ABANDON EXISTING 12" PIPE (Addendum #1)**	CF	250	$	$
85		**CONNECT TO EXISTING 12" WATERLINE, INCLUDING ALL FITTINGS (Addendum #1)**	EA	4	$	$
86		**CONNECT TO EXISTING 16" WATERLINE, INCLUDING ALL FITTINGS (Addendum #1)**	EA	2	$	$
87		**2" ARV, INCLUDING TAP, VALVE AND ENCLOSURE (Addendum #1)**	EA	1	$	$

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BID "A"

IFB 09-2568-OV - BUFFALO ROAD REALIGNMENT - NORTH OF ERIE ROAD

BID "A" Based on Completion time of 330 Calendar Days (Project No. 307-6062260)

ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
88		REMOVAL AND DISPOSAL OF EXISTING 16" DIP PIPE (Addendum #1)	LF	142	$	$
89		16" BUTTERFLY VALVE W/BOX (Addendum #1)	EA	2	$	$
90		16" DIP WATERLINE INSIDE STEEL CASING (Addendum #1)	LF	142	$	$
91		30" STEEL PIPE ENCASEMENT (Addendum #1)	LF	138	$	$
		SUBTOTAL UTILITY WORK				$
92		DISCRETIONARY - UTILITIES PORTION WORK (Addendum #1)	LS	1		$15,000.00
		TOTAL BID PRICE "A"- Based On Completion Time of 330 Calendar Days				$

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BID "B"

IFB 09-2568-OV - BUFFALO ROAD REALIGNMENT - NORTH OF ERIE ROAD

BID "B" Based on Completion time of 420 Calendar Days (Project No. 307-6062260)

ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
		ROADWAY & BRIDGE				
1	0101-1	MOBILIZATION	LS	1	$	$
2	0102-1	MAINTENANCE OF TRAFFIC	LS	1	$	$
3	0104-12	TURBIDITY BARRIER STAKED	LF	140	$	$
4	0104-13-1	SILT FENCE STAKED (TYPE III)	LF	2635	$	$
5	0110-1-1	CLEARING & GRUBBING	AC	7.04	$	$
6	0110-4	SIDEWALK CONC REMOVAL	SY	182	$	$
7	**0120-1**	**REGULAR EXCAVATION (Addendum #1)**	**CY**	**8,433**	**$**	**$**
8	**0120-2**	**BORROW EXCAVATION (Addendum #1)**	**CY**	**2,424**	**$**	**$**
9	**0120-4**	**REMOVE OLD BUFFALO ROAD (Addendum #1)**	**CY**	**6,150**	**$**	**$**
10	**0120-6**	**EMBANKMENT(Addendum #1)**	**CY**	**10,857**	**$**	**$**
11	160-6	STABILIZED SUB-BASE	SY	10, 764	$	$
12	0285-709	BASE OPTIONAL (BASE GROUP 09)	SY	9,662	$	$
13	0334-1	TYPE S ASPHALT CONC.	TN	1,064	$	$
14	0337-7-7	ASPHALT CONC FRICTION COURSE	TN	682	$	$
15	**0350-2-1**	**CONCRETE DRIVEWAY 6" (Addendum #1)**	**EA**	**2**	**$**	**$**
16	**0400-1-1**	**BOX CULVERT OR EQUAL (Cast in Place) - (Addendum #1)**	**LF**	**350**	**$**	**$**
17	0400-1-2	CONC CLASS I (END WALLS)	CY	11	$	$
18	**0400-1-11**	**CONC CLASS I (RETAINING WALLS, GRAVITY WALL) - (Addendum #1)**	**CY**	**700**	**$**	**$**
19	0425-1-351	INLETS (CURB) (TYPE P-5)	EA	13	$	$
20	0425-1-361	INLETS (CURB) (TYPE P-6) (<10')	EA	8	$	$

BID FORM
(Submit in Triplicate)
Section 00300
ADDENDUM NO. 1

BID "B"

IFB 09-2568-OV - BUFFALO ROAD REALIGNMENT - NORTH OF ERIE ROAD
BID "B" Based on Completion time of 420 Calendar Days (Project No. 307-6062260)

ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
21	0425-1-521	INLETS (DITCH BOTTOM TYPE C)	EA	2	$	$
22	0425-1-543	INLET (DITCH BOTTOM TYPE D)	EA	1	$	$
23	0425-2-41	MANHOLES (P-7) (<10')	EA	2	$	$
24	0425-3-81	CONFLICT BOXES	EA	2	$	$
25	**0430-171-101**	**PIPE CONC CULV (CLASS III) (15" SS) (SS = Storm Sewer) (Addendum #1)**	**LF**	**909**	**$**	**$**
26	**0430-171-101**	**PIPE CONC CULV (CLASS III) (18" SS) (Addendum #1)**	**LF**	**480**	**$**	**$**
27	**0430-171-101**	**PIPE CONC CULV (CLASS III) (24" SS) (Addendum #1)**	**LF**	**260**	**$**	**$**
28	**0430-171-102**	**PIPE CONC CULV (CLASS III) (30" SS) (Addendum #1)**	**LF**	**940**	**$**	**$**
29	**0430-171-102**	**PIPE CONC CULV (CLASS III) (36" SS) (Addendum #1)**	**LF**	**54**	**$**	**$**
30	**0430-171-103**	**PIPE CONC CULV (CLASS III) (48" SS) (Addendum #1)**	**LF**	**132**	**$**	**$**
31	**0430-171-201**	**PIPE ELLIP CONC CULV (CLASS III) (12" X 18" SS) (Addendum #1)**	**LF**	**148**	**$**	**$**
32	0430-982-123	MITERED END SECTION (15")	EA	2	$	$
33	0430-982-125	MITERED END SECTION (BASIN OUTLET (18")	EA	2	$	$
34	0430-984-133	MITERED END SECTION (BASIN OUTLET (30")	EA	3	$	$
35	0430-984-138	MITERED END SECTION (BASIN OUTLET (12" X 18")	EA	2	$	$
36	0440-1	UNDERDRAIN	LF	350	$	$
37	**0440-70**	**UNDERDRAIN INSPECTION BOX (Item Deleted- Addendum # 1)**				

BID FORM
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ADDENDUM NO. 1 **BID "B"**

IFB 09-2568-OV - BUFFALO ROAD REALIGNMENT - NORTH OF ERIE ROAD
BID "B" Based on Completion time of 420 Calendar Days (Project No. 307-6062260)

ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
38	**0443-70-6**	**FRENCH DRAIN (Addendum # 1)**	**LF**	**210**	**$**	**$**
39	0515-1-2	PIPE HANDRAIL (ALUMINUM)	LF	1,171	$	$
40	0520-1-7	CURB & GUTTER CONC (TYPE E)	LF	104	$	$
41	0520-1-10	CURB & GUTTER CONC (TYPE F)	LF	5,051	$	$
42	0522-1	SIDEWALK CONC (4" THICK)	SY	2,030	$	$
43	0530-3-4	RIPRAP (RUBBLE) (F & I) (DITCH LINING	TN	6	$	$
44	0570-1	PERFORMANCE TURF	SY	20,177	$	$
45	**327-70-1**	**MILLING EXISTING ASPHALT (Addendum #1)**	**SY**	**2,754**	$	$
		SUB-TOTAL ROADWAY & BRIDGE				$
		TRAFFIC OPERATIONS				
46	0630-1-12	CONDUIT (UNDERGROUND)	LF	75	$	$
47	0630-1-13	CONDUIT (UNDER PAVEMENT)	LF	165	$	$
48	**0632-7-1**	**CABLE (SIGNAL) (FURNISH & INSTALL) (Addendum #1)**	**PI**	**1**	**$**	**$**
49	**634-4-112**	**SPAN WIRE ASSEMBLY (Addendum #1)**	**PI**	**1**	**$**	**$**
50	0635-1-11	PULL & JUNCTION BOXES (F & I) (PULL BOX)	EA	4	$	$
51	0639-1-11	ELECTRICAL POWER SERVICE (OVERHEAD)	AS	1	$	$
52	0639-2-1	ELECTRICAL SERVICE WIRE	LF	80	$	$
53	0641-2-16	PREST CONC POLE (F & I)	EA	2	$	$
54	0650-51-311	SIGNAL TRAFFIC (F&I) (3 SECT 1 WAY) (STD)	AS	2	$	$

BID FORM
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ADDENDUM NO. 1 **BID "B"**

IFB 09-2568-OV - BUFFALO ROAD REALIGNMENT - NORTH OF ERIE ROAD
BID "B" Based on Completion time of 420 Calendar Days (Project No. 307-6062260)

ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
55	0650-51-321	SIGNAL TRAFFIC (F& I) (3 SECT 2 WAY) (STD)	AS	2	$	$
56	653-181	PEDESTRIAN SIGNAL (1 WAY (LED)	AS	2	$	$
57	659-107	ALUMINUM PEDESTAL	EA	1	$	$
58	0660-1-103	LOOP AMPLIFIER	EA	2	$	$
59	0660-1-104	LOOP AMPLIFIER	EA	1	$	$
60	0660-2-102	LOOP ASSEMBLY (F&I) (TYPE B) (6 X 6)	AS	2	$	$
61	0660-2-106	LOOP ASSEMBLY (F&I) (TYPE F) (6 X 40 QUAD)	AS	2	$	$
62	0665-11	DETECTOR PEDEST (F&I) (DET STA POLE OR CABINET MTD)	EA	2	$	$
63	0670-5-410	CNTRL ASSEM (POLE MOUNTED)	LS	1	$	$
64	07200-20-11	SINGLE POST SIGN	AS	1	$	$
65	0700-48-18	STREET NAME SIGN (1 DOUBLE FACED)	EA	1	$	$
66	0706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	EA	116	$	$
67	0711-11-160	MESSAGE (WHITE)	EA	8	$	$
68	0711-11-170	TRAFFIC ARROW (WHITE)	EA	1	$	$
69	0711-11-121	6" SOLID TRAFFIC STRIPE (WHITE)	LF	5,900	$	$
70	0711-11-123	12" SOLID TRAFFIC STRIPE (WHITE)	LF	300	$	$
71	0711-11-125	24" SOLID TRAFFIC STRIPE (WHITE)	LF	110	$	$
72	0711-11-151	6" DOTTED TRAFFIC STRIPE (WHITE)	LF	150	$	$
73	0711-11-221	6" SOLID TRAFFIC STRIPE (YELLOW)	LF	7,000	$	$

BID FORM
(Submit in Triplicate)
Section 00300
ADDENDUM NO. 1 BID "B"

IFB 09-2568-OV - BUFFALO ROAD REALIGNMENT - NORTH OF ERIE ROAD
BID "B" Based on Completion time of 420 Calendar Days (Project No. 307-6062260)

ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
74	0711-11-224	18" SOLID TRAFFIC STRIPE (YELLOW)	LF	490	$	$
75	0711-11-251	6" DOTTED TRAFFIC STRIPE (YELLOW)	LF	150	$	$
		SUB-TOTAL TRAFFIC OPERATIONS				$
76		DISCRETIONARY WORK	LS	1		$200,000.00
		UTILITIES PORTION				
77		**12" PVC WATERLINE LOWERED (Addendum #1)**	**LF**	**150**	**$**	**$**
78		**12" HDPE Waterline (Addendum#1)**	**LF**	**505**	**$**	**$**
79		**DI FITTINGS, 12" (Addendum #1)**	**LB**	**1,080**	**$**	**$**
80		**16 x 12 DIP "TEE" (Addendum #1)**	**EA**	**1**	**$**	**$**
81		**12" GATE VALVE WITH BOX (Addendum #1)**	**EA**	**1**	**$**	**$**
82		**REMOVE & DISPOSE OF EXISTING 12" PVC WATERLINE (Addendum #1)**	**LF**	**200**	**$**	**$**
83		**CUT-OFF AND CAP EXISTING 12" WATERLINE (Addendum #1)**	**EA**	**1**	**$**	**$**
84		**GROUT FILL & ABANDON EXISTING 12" PIPE (Addendum #1)**	**CF**	**250**	**$**	**$**
85		**CONNECT TO EXISTING 12" WATERLINE, INCLUDING ALL FITTINGS (Addendum #1)**	**EA**	**4**	**$**	**$**
86		**CONNECT TO EXISTING 16" WATERLINE, INCLUDING ALL FITTINGS (Addendum #1)**	**EA**	**2**	**$**	**$**
87		**2" ARV, INCLUDING TAP, VALVE AND ENCLOSURE (Addendum #1)**	**EA**	**1**	**$**	**$**

BID FORM
(Submit in Triplicate)
Section 00300
ADDENDUM NO. 1

BID "B"

IFB 09-2568-OV - BUFFALO ROAD REALIGNMENT - NORTH OF ERIE ROAD

BID "B" Based on Completion time of 420 Calendar Days (Project No. 307-6062260)

ITEM #	FDOT ITEM	DESCRIPTION	U/M	QTY.	BID PRICE PER UNIT	TOTAL BID PRICE
88		REMOVAL AND DISPOSAL OF EXISTING 16" DIP PIPE (Addendum #1)	LF	142	$	$
89		16" BUTTERFLY VALVE W/BOX (Addendum #1)	EA	2	$	$
90		16" DIP WATERLINE INSIDE STEEL CASING (Addendum #1)	LF	142	$	$
91		30" STEEL PIPE ENCASEMENT (Addendum #1)	LF	138	$	$
		SUBTOTAL UTILITIES PORTION				$
92		DISCRETIONARY - UTILITIES PORTION (Addendum #1)	LS	1		$15,000.00
		TOTAL BID PRICE "B"- Based On Completion Time of 420 Calendar Days				$

BUFFALO ROAD REALIGNMENT
WATER LINE RELOCATION

MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

SHEET 1 OF 1

DATE

MANNIE TROXLER, P.E.
FLORIDA P.E. # 62264
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL 34208

APPROVED BY

SEAL

SCALE: 1:20

CHECKED		
DRAWN	BLR	06/09
DESIGNED	WRT	06/09
SURVEYED		
	BY	DATE

REVISION	DATE
REV. 1, EDTS	08/04/09

PROFILE OF 16" WM
UNDER EX. BUFFALO ROAD

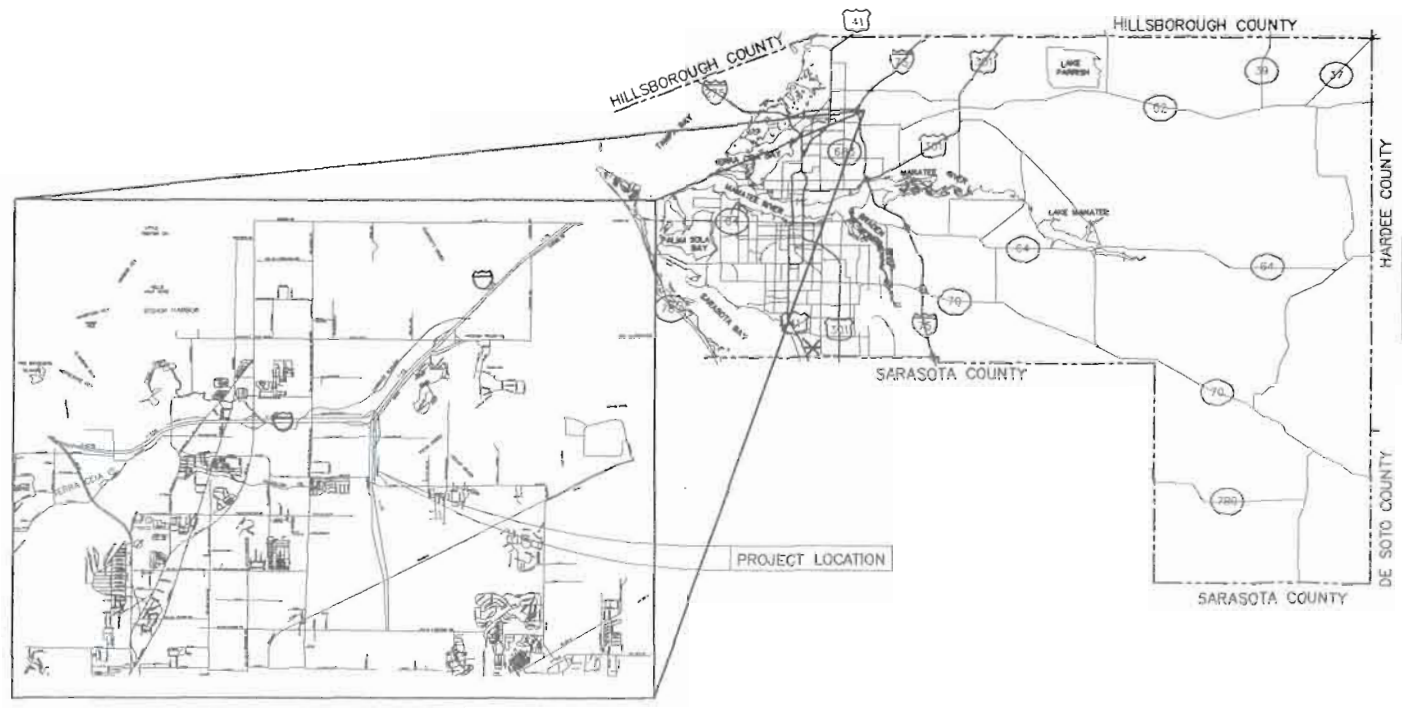
PROPOSED NEW 12" WM CONNECTION
EXIST. 16" W.M.
EXIST. 12" W.M.
BUFFALO RD.
PROPOSED GRADE
EXIST. GRADE
EXIST. ASPH.
MITIGATION AREA OVER PIPE
ACCESS AREA

INSTALL 505 LF 12" HDPE (DR-11) WL
CONNECT TO EXISTING 16" WM
INSTALL: 1-16"x12" TEE
1-12" GATE VALVE
1-MJ ADAPTER
REMOVE IF EXPOSED, GROUT FILL AND ABANDON IN PLACE REMAINDER
EXIST. 12" W.M.
INSTALL 1-22.5° BEND AND 1-MJ ADAPTER, CONNECT TO EXISTING 12" WM
EXIST. GRADE OVER PROPOSED PIPE IN PROPOSED ACCESS AREA
GV

NEW BUFFALO ROAD
EXISTING SIDEWALK
PROJECT B
AVOID NEW POWER POLE
EXISTING BUFFALO ROAD
SCALE: 1"=20'
POND
PROPOSED ACCESS AREA
UTILITY EASEMENT PER ORB 9068, PG 7489(P)
STA. 211+42, 31'LT. CONNECT TO EXISTING 16" WM INSTALL: 1-16"x12" TEE 1-12" GATE VALVE 1-MJ ADAPTER
CUT OFF & CAP
PROPOSED COMPENSATION AREA
STA. 214+92, 50'LT. INSTALL 1-22.5° BEND AND 1-MJ ADAPTER, CONNECT TO EXISTING 12" WM
GRADE BREAK
DITCH
SECTION A
SECTION B
SECTION C
SECTION D
SECTION E
SECTION F

MANATEE COUNTY, FLORIDA
BUFFALO ROAD REALIGNMENT
NORTH OF ERIE ROAD

DESIGN SPEED 35 MPH
SIGNING, PAVEMENT MARKINGS, & SIGNALIZATION PLANS



INDEX TO DRAWINGS	
SHT. NO.	DESCRIPTION
SP-1	COVER SHEET
SP-2 THRU SP-8	SIGNING AND PAVEMENT MARKING PLANS
SP-9	SIGNALIZATION PLAN

APPROVED BY:

E.J. CHILDS JR. P.E.
FL. P.E. NO. 30342
MANATEE COUNTY DEPARTMENT
OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
2101 47th TERRACE EAST
BRADENTON, FL. 34203

DATE

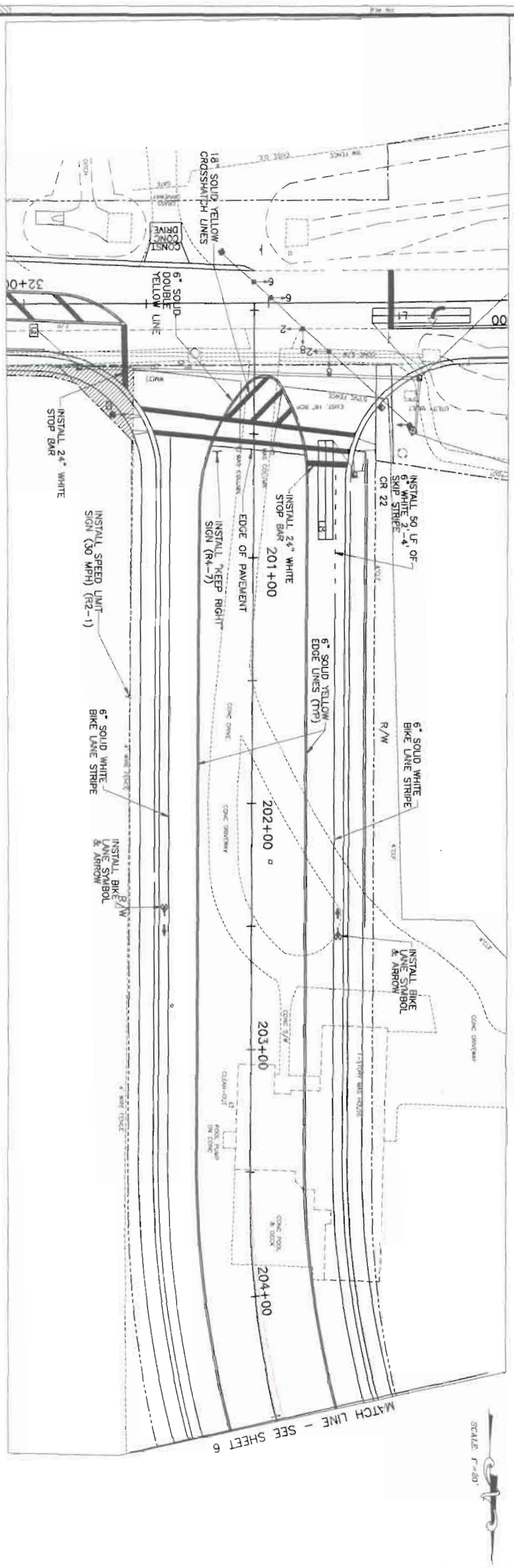
SP-1

8-4-09 - ADD #1

File No:

Sheet Title:

Sheet Number:



BUFFALO ROAD REALIGNMENT
SIGNING, AND PAVEMENT MARKINGS

SHEET SP-2

SEAL
APPROVED BY:

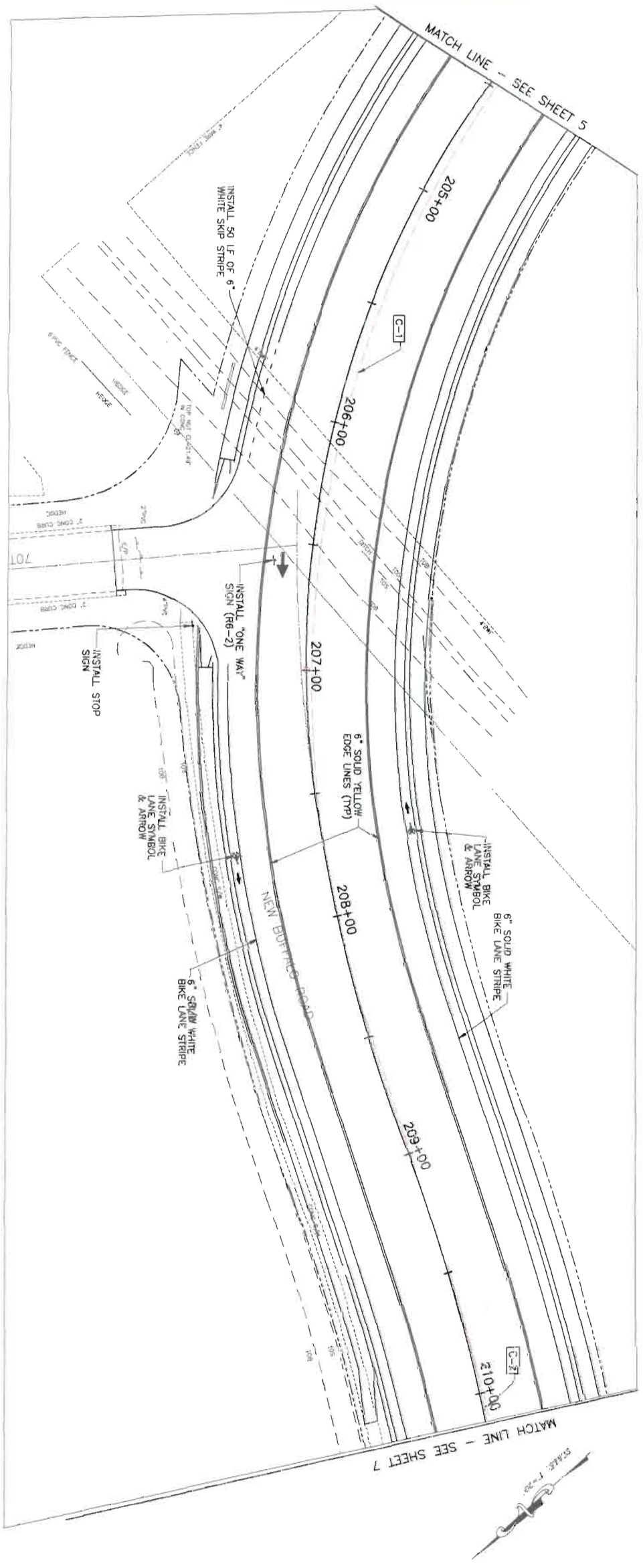
T.J. CHILCOT, JR., P.E.
FL. P.E. NO. 30347
MANATEE COUNTY DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
2101 47TH TERRACE EAST
BRADENTON, FL 34203

DATE

REVISION	DATE	BY	DATE
		SURVEYED	
		DESIGNED	
		DRAWN	
		CHECKED	
		SCALE:	

MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

8-4-09 - ADD #1



BUFFALO ROAD REALIGNMENT
SIGNING, AND PAVEMENT MARKINGS

MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

REVISION | BY | DATE

SURVEYED
DESIGNED
DRAWN
CHECKED
SCALE

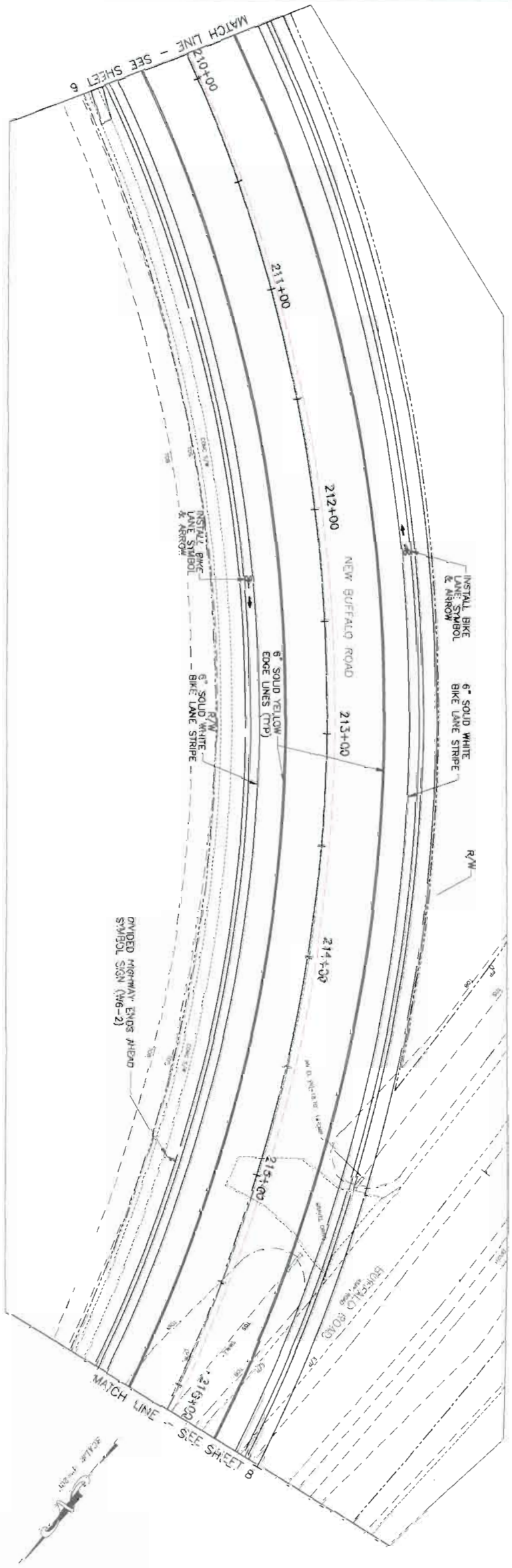
SEAL
APPROVED BY

E.A. CHILDS, JR., P.E.
PROJECT MANAGER
MANATEE COUNTY DEPARTMENT
OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
2101 47th TERRACE EAST
BRADENTON, FL 34203

DATE

SHEET SP-3

8-4-09 - Add # 4



BUFFALO ROAD REALIGNMENT
SIGNING, AND PAVEMENT MARKINGS

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISION	DATE	BY	DATE
		SURVEYED	
		DESIGNED	
		DRAWN	
		CHECKED	
		SCALE:	

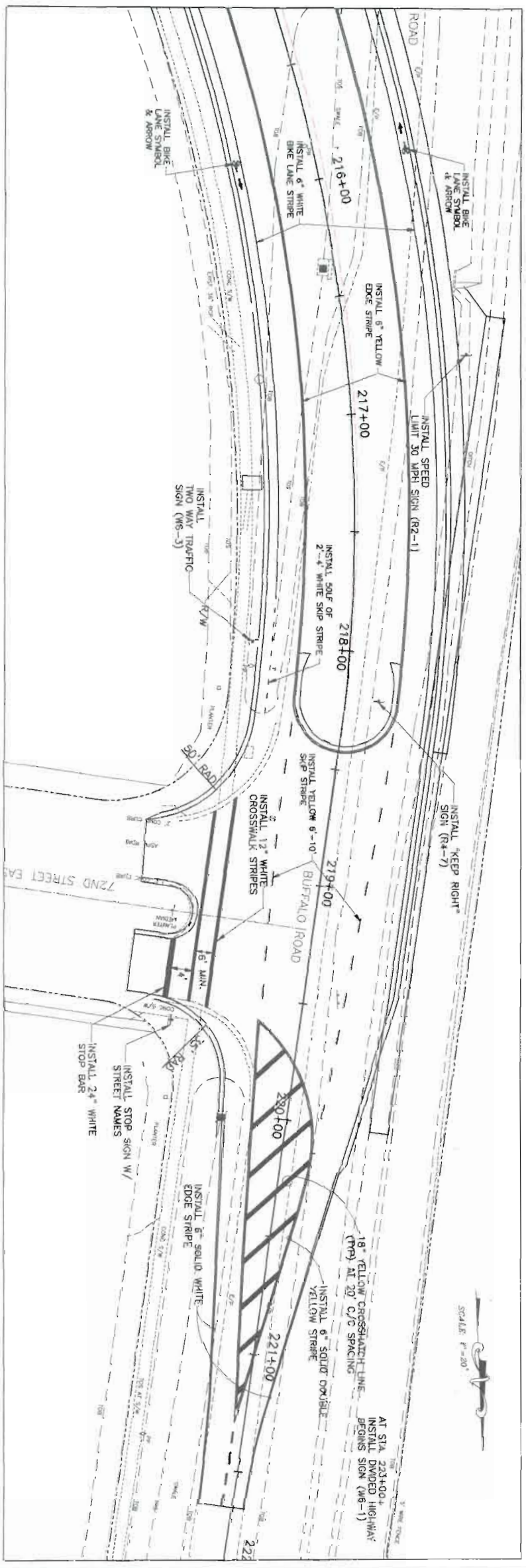
SEAL

E.J. DAVIS, JR., P.E.
MANATEE COUNTY DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
2101 47th TERRACE EAST
BRADENTON, FL. 34203

DATE

SHEET SP-4

8-4-09 - Add #1



BUFFALO ROAD REALIGNMENT
SIGNING, AND PAVEMENT MARKINGS

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISION	DATE	BY	DATE
		SURVEYED	
		DESIGNED	
		DRAWN	
		CHECKED	
		SCALE	

SEAL

APPROVED BY

E.J. DAVIS, P.E. #41547
MANATEE COUNTY DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
2101 47th TERRACE EAST
BRADENTON FL. 34203

DATE

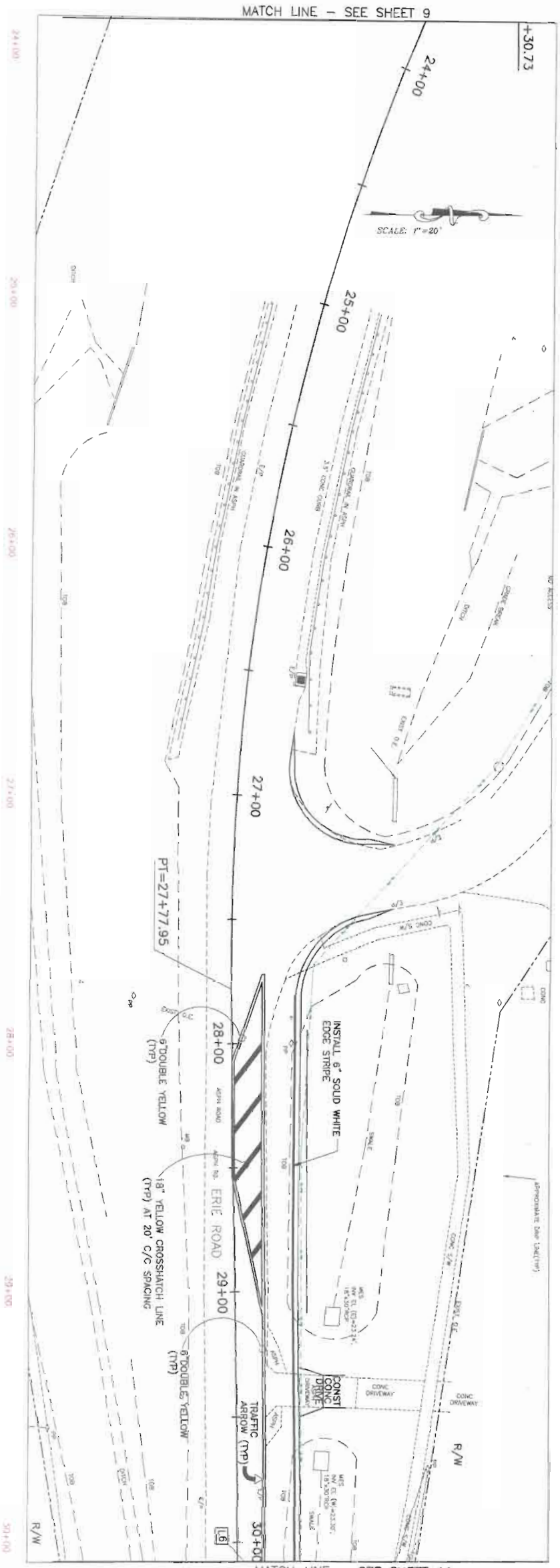
SHEET SP-5

8-4-09 - Add # 1

File No.

Sheet Title

Sheet Number



ERIE ROAD
SIGNING, AND PAVEMENT MARKINGS

MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

SHEET SP-6

SURVEYED
DESIGNED
DRAWN
CHECKED
SCALE

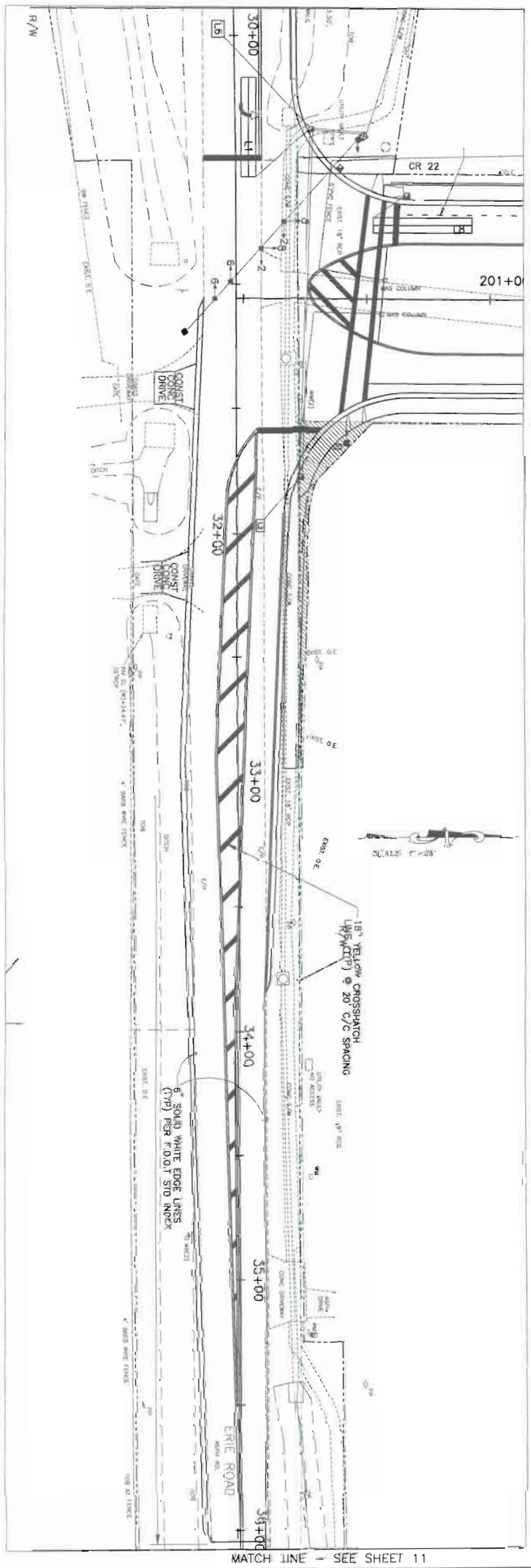
SEAL
APPROVED BY:

E.J. GIBBS JR. P.E.
DIRECTOR OF PUBLIC WORKS
MANATEE COUNTY DEPARTMENT
OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
2101 47th TERRACE EAST
BRADENTON, FL 34203

DATE

REVISION | BY | DATE

8-4-09 - Add #1



ERIE ROAD
SIGNING, AND PAVEMENT MARKINGS

MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

SHEET SP-7

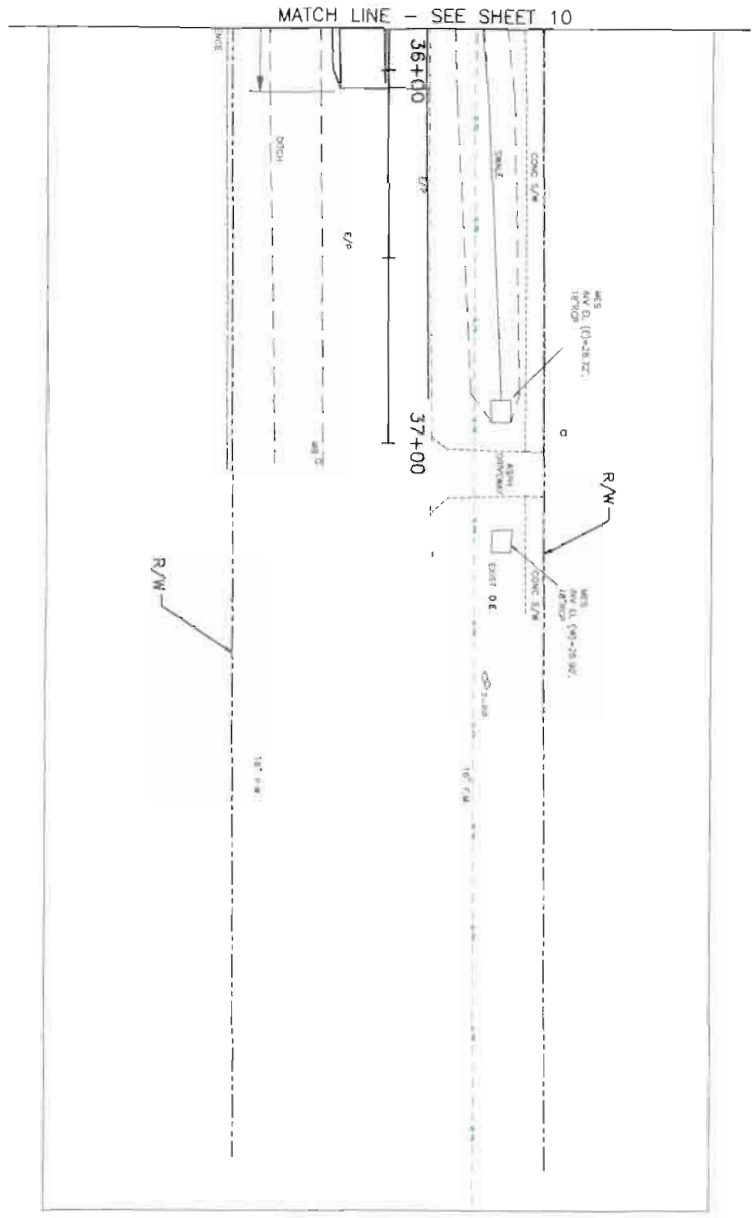
SURVEYED BY DATE
DESIGNED
DRAWN
CHECKED
SCALE:

REVISION DATE

E.J. KRUTS JR., P.E.
FL. P.E. NO. 30347
MANATEE COUNTY DEPARTMENT
OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
2101 47th TERRACE EAST
BRADENTON, FL 34203

SEAL
APPROVED BY:
DATE

8-4-09 – Add #1



ERIE ROAD
SIGNING, AND PAVEMENT MARKINGS

MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

SHEET SP-8

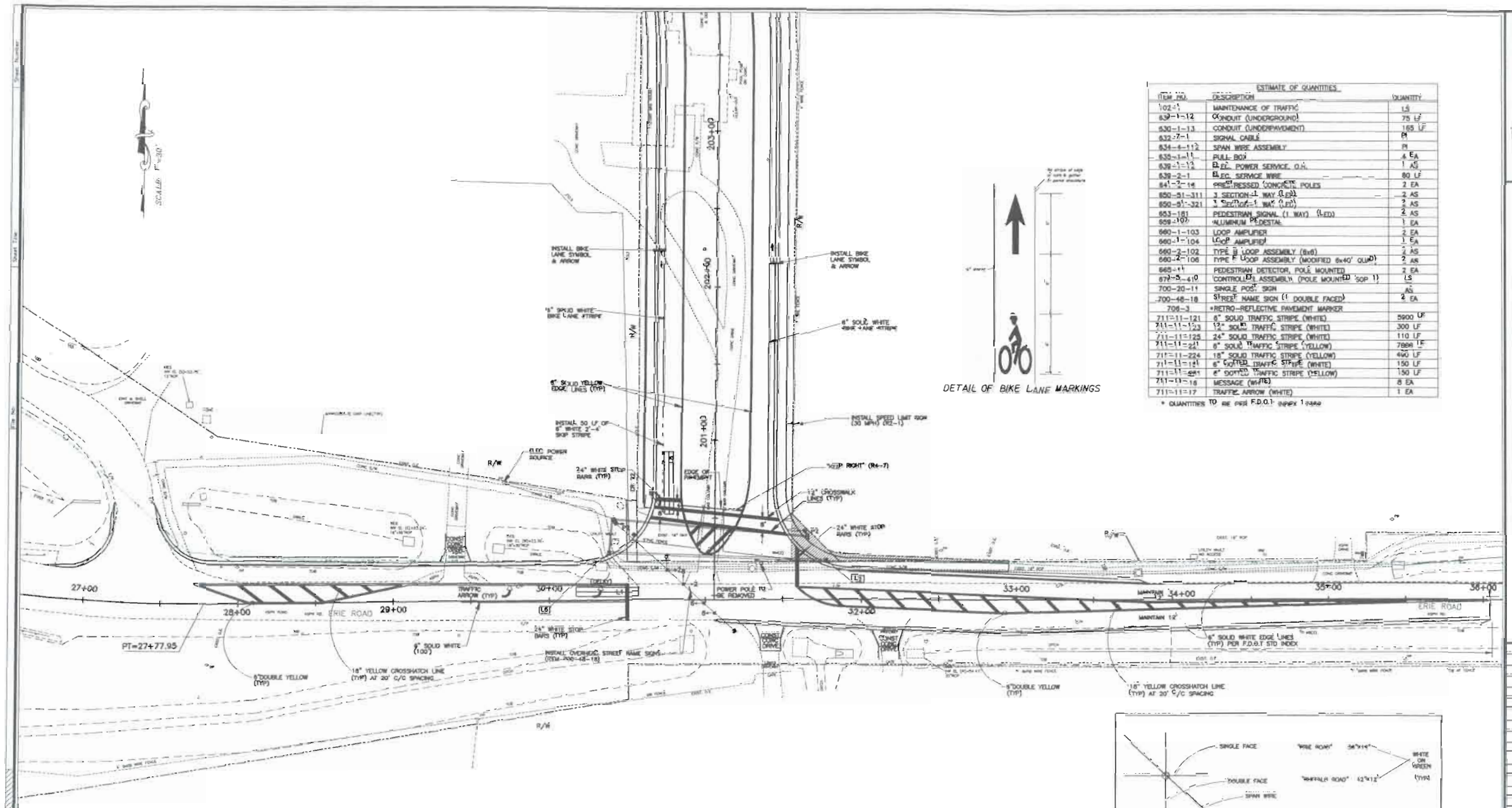
E.J. DIAZ, JR. P.E.
FL. P.E. NO. 30134
MANATEE COUNTY DEPARTMENT
OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
2301 47TH TERRACE EAST
BRADENTON, FL. 34203

SEAL
APPROVED BY:

SCALE:
CHECKED
DRAWN
DESIGNED
SURVEYED
BY
DATE

REVISION
DATE

8-4-09 - Add #1

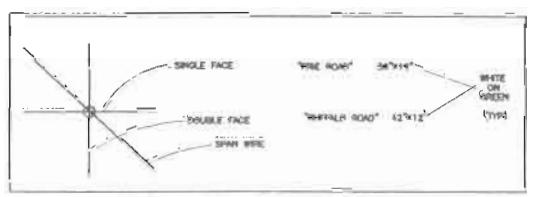


DETAIL OF BIKE LANE MARKINGS

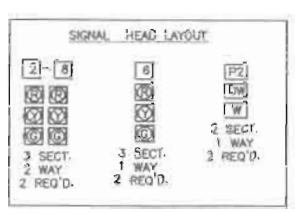
ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY
102-1	MAINTENANCE OF TRAFFIC	LS
639-1-12	CONDUIT (UNDERGROUND)	75 LF
630-1-13	CONDUIT (UNDERPAVEMENT)	165 LF
632-7-1	SIGNAL CABLE	PI
634-4-112	SPAN WIRE ASSEMBLY	PI
635-1-11	PULL BOX	4 EA
639-1-12	ELEC. POWER SERVICE, O.H.	1 AS
639-2-1	ELEC. SERVICE WIRE	80 LF
641-2-14	PRESTRESSED CONCRETE POLES	2 EA
650-51-311	1 SECTION-1 WAY (LED)	2 AS
650-91-321	1 SECTION-1 WAY (LED)	2 AS
653-181	PEDESTRIAN SIGNAL (1 WAY) (LED)	2 AS
659-107	ALUMINUM PEDESTAL	1 EA
660-1-103	LOOP AMPLIFIER	2 EA
660-1-104	LOOP AMPLIFIER	1 EA
660-2-102	TYPE B LOOP ASSEMBLY (6x6)	4 AS
660-2-106	TYPE F LOOP ASSEMBLY (MODIFIED 6x40' QUAD)	2 AR
665-11	PEDESTRIAN DETECTOR, POLE MOUNTED	2 EA
671-5-410	CONTROLLER ASSEMBLY (POLE MOUNTED) SDP 1)	LS
700-20-11	SINGLE POST SIGN	AS
700-48-18	STREET NAME SIGN (1' DOUBLE FACED)	2 EA
706-3	*RETRO-REFLECTIVE PAVEMENT MARKER	
711-11-121	6" SOLID TRAFFIC STRIPE (WHITE)	5900 LF
711-11-123	12" SOLID TRAFFIC STRIPE (WHITE)	300 LF
711-11-125	24" SOLID TRAFFIC STRIPE (WHITE)	110 LF
711-11-241	6" SOLID TRAFFIC STRIPE (YELLOW)	7888 LF
711-11-224	18" SOLID TRAFFIC STRIPE (YELLOW)	490 LF
711-11-181	6" DOTTED TRAFFIC STRIPE (WHITE)	150 LF
711-11-681	6" DOTTED TRAFFIC STRIPE (YELLOW)	150 LF
711-11-16	MESSAGE (WHITE)	8 EA
711-11-17	TRAFFIC ARROW (WHITE)	1 EA

* QUANTITIES TO BE PER F.D.O.T. INDEX 17346



SIGNAL HEAD LAYOUT



SIGNAL TIMING

* ALL DETECTORS ARE NON-LOCK
** EB LEFT TURN DETECTOR

CONTROLLER PHASING (SIGNAL FUNCTION NUMBER)	1	2	3	4	5	6	7	8
INDICATION/MOVEMENT		2,6		8				
DIRECTION		E/W		SB				
MINIMUM GREEN		15		6				
EXTENSION		3.0		2.5				
MAXIMUM GREEN 1		40		30				
MAXIMUM GREEN 2								
YELLOW CLEARANCE		4.6		4.3				
ALL-RED CLEARANCE		1.9		1.0				
RECALL		MIN.		OFF				
DETECTOR DELAY **		** @ 6 SEC						
PEDESTRIAN WALK		*						
PEDESTRIAN CLEARANCE		28						
PERMISSIVE								
FLASH OPERATION		Y		R				

LOOP DETECTOR ASSIGNMENT

DETECTOR UNIT #	DETECTOR OPERATION	ASSIGNED TO MOVEMENT	CONNECTED TO TIMING FUNCTION
1	STANDARD	2,6	2
2	STANDBY/DELAY	1	2
4	STANDARD	8	4

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

ERIE ROAD
SIGNALIZATION PLAN

REVISION	BY	DATE
SURVEYED		
DESIGNED		
DRAWN		
CHECKED		
SCALE:		

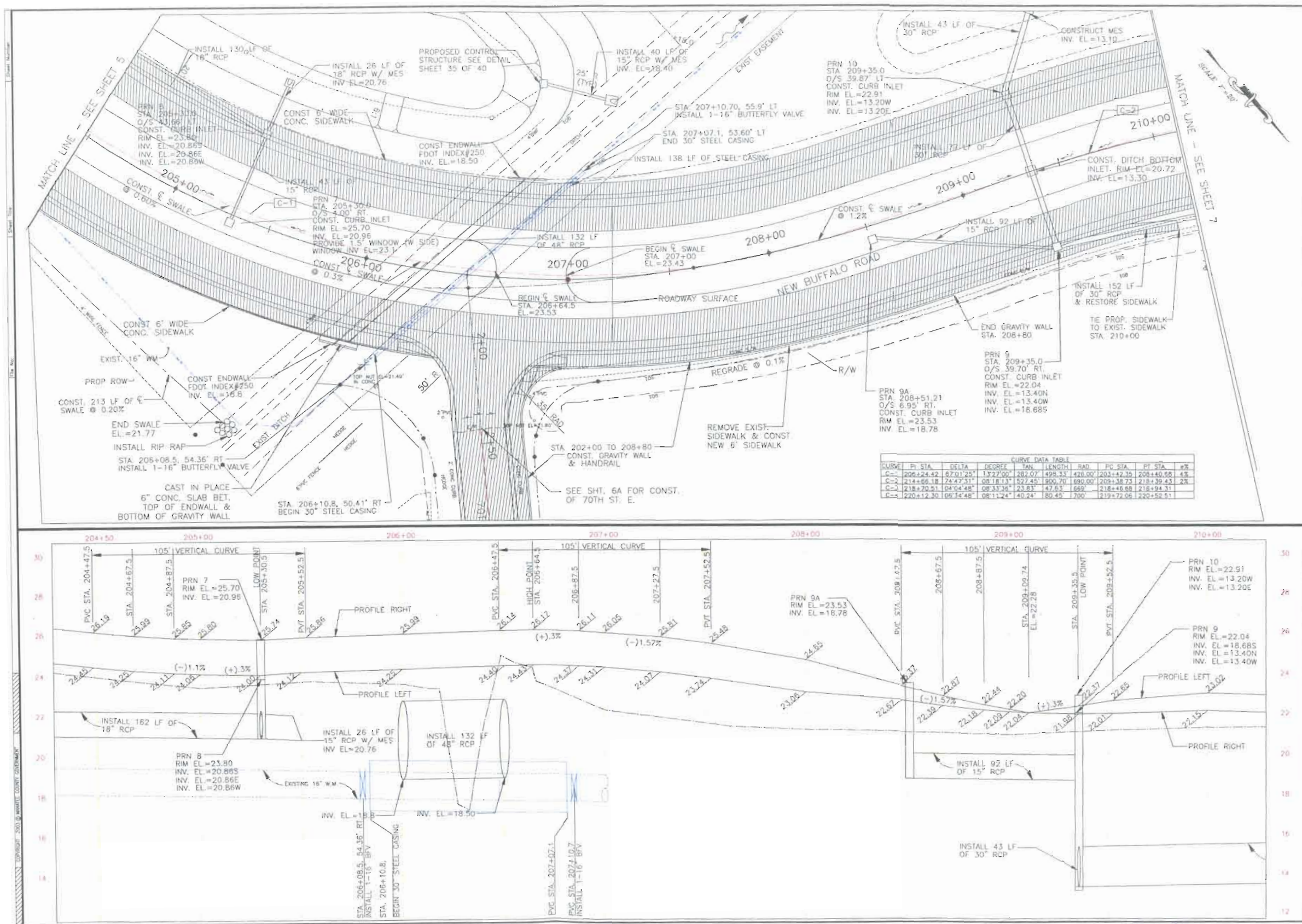
SEAL
APPROVED BY:

E.J. CHILDS JR. P.E.
FL. P.E. NO. 30347
MANATEE COUNTY DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
2101 47th TERRACE EAST
BRADENTON, FL 34203

DATE

SHEET SP-9

B-4-09-App #47



CURVE DATA TABLE

CURVE	PI STA.	DELTA	DEGREE	TAN.	LENGTH	RAD.	PC STA.	PT STA.	e%
C-1	206+24.42	67°01'25"	13°27'00"	282.07'	495.33'	426.00'	203+42.35	208+40.68	4%
C-2	214+66.18	74°47'31"	08°18'13"	527.45'	900.70'	690.00'	209+38.73	218+39.43	2%
C-3	218+70.51	04°04'48"	08°33'36"	23.83'	47.63'	669'	218+46.68	218+94.31	
C-4	220+12.30	06°34'48"	08°11'24"	40.24'	80.45'	700'	219+72.06	220+52.51	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

BUFFALO ROAD REALIGNMENT
PLAN AND PROFILE

REVISION	BY	DATE

	BY	DATE
SURVEYED		
DESIGNED		
DRAWN		
CHECKED		

SCALE:

SEAL

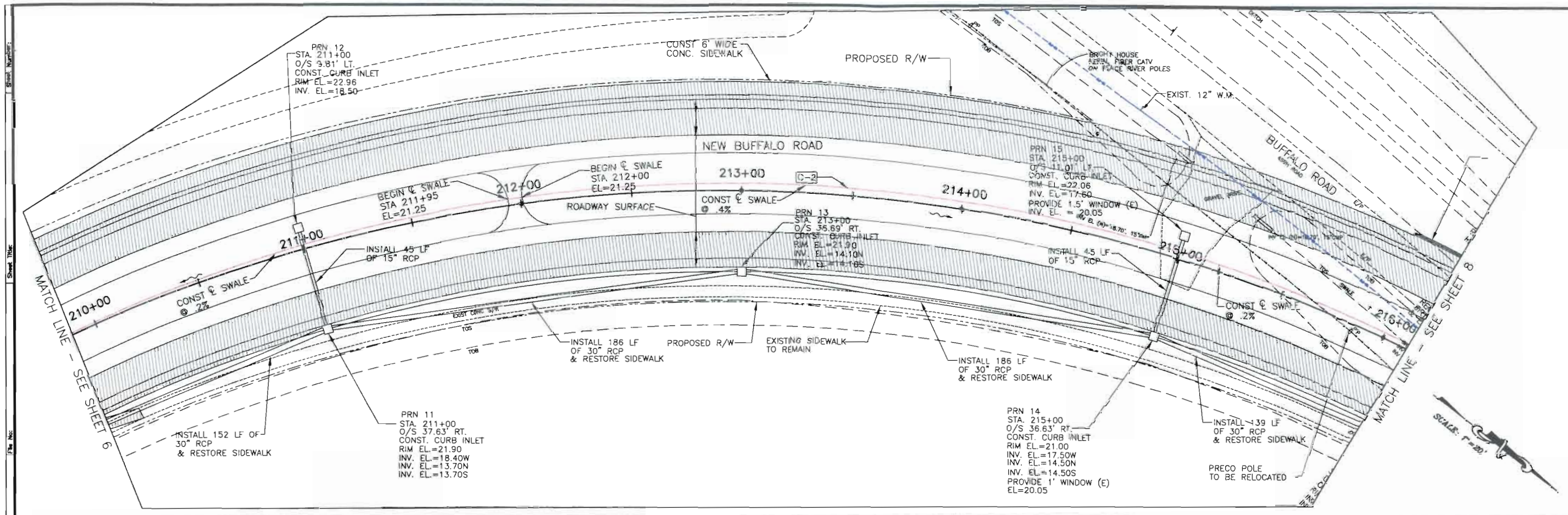
APPROVED BY

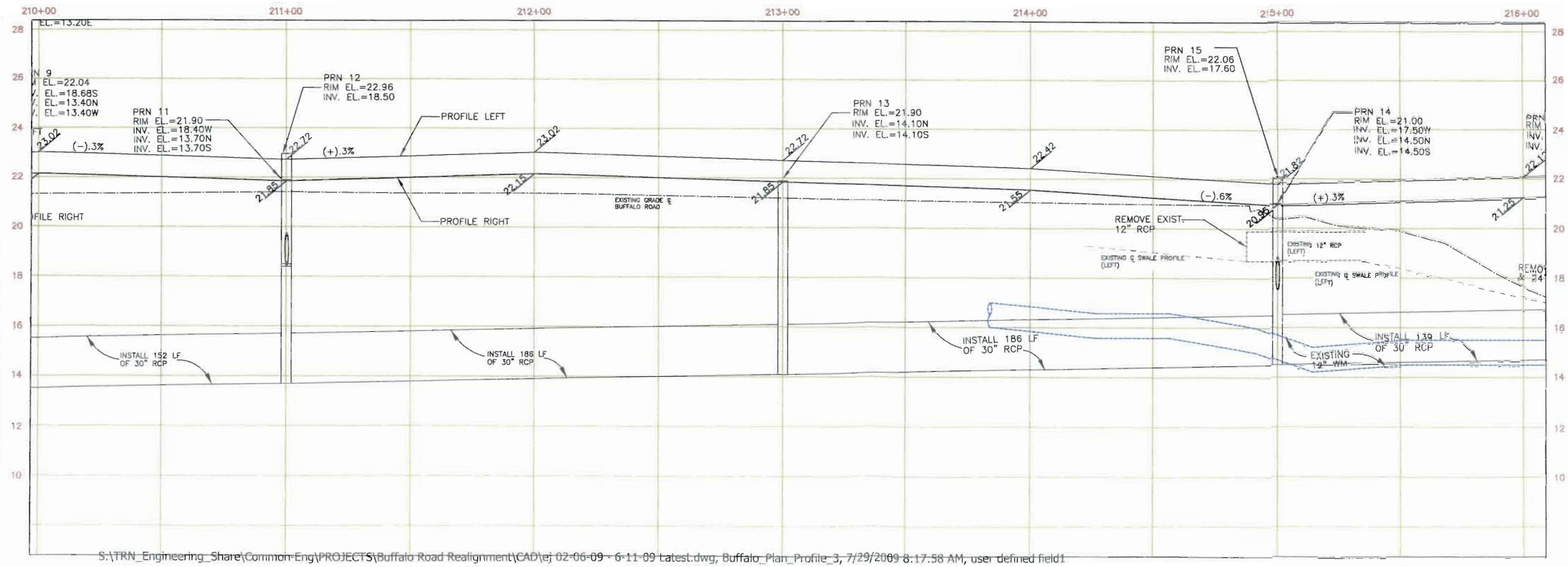
ELODE JOSEPH
FLORIDA P.E. # 69005
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL 34208

DATE

SHEET 6 of 40

8-4-09
ADD #1





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MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

BUFFALO ROAD REALIGNMENT
PLAN AND PROFILE

REVISION	BY	DATE

	BY	DATE
SURVEYED		
DESIGNED		
DRAWN		
CHECKED		

SCALE:

SEAL

APPROVED BY:

KLIODE JOSEPH
FLORIDA P.E. # 69005
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL. 34208

DATE

SHEET 7 OF 40

8-4-09- ADD#1

File No:

Sheet Title:

Sheet Number:

BUFFALO ROAD REALIGNMENT
PLAN AND PROFILE

MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

REVISION	BY	DATE

SURVEYED
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DRAWN
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SCALE:

SEAL

APPROVED BY:

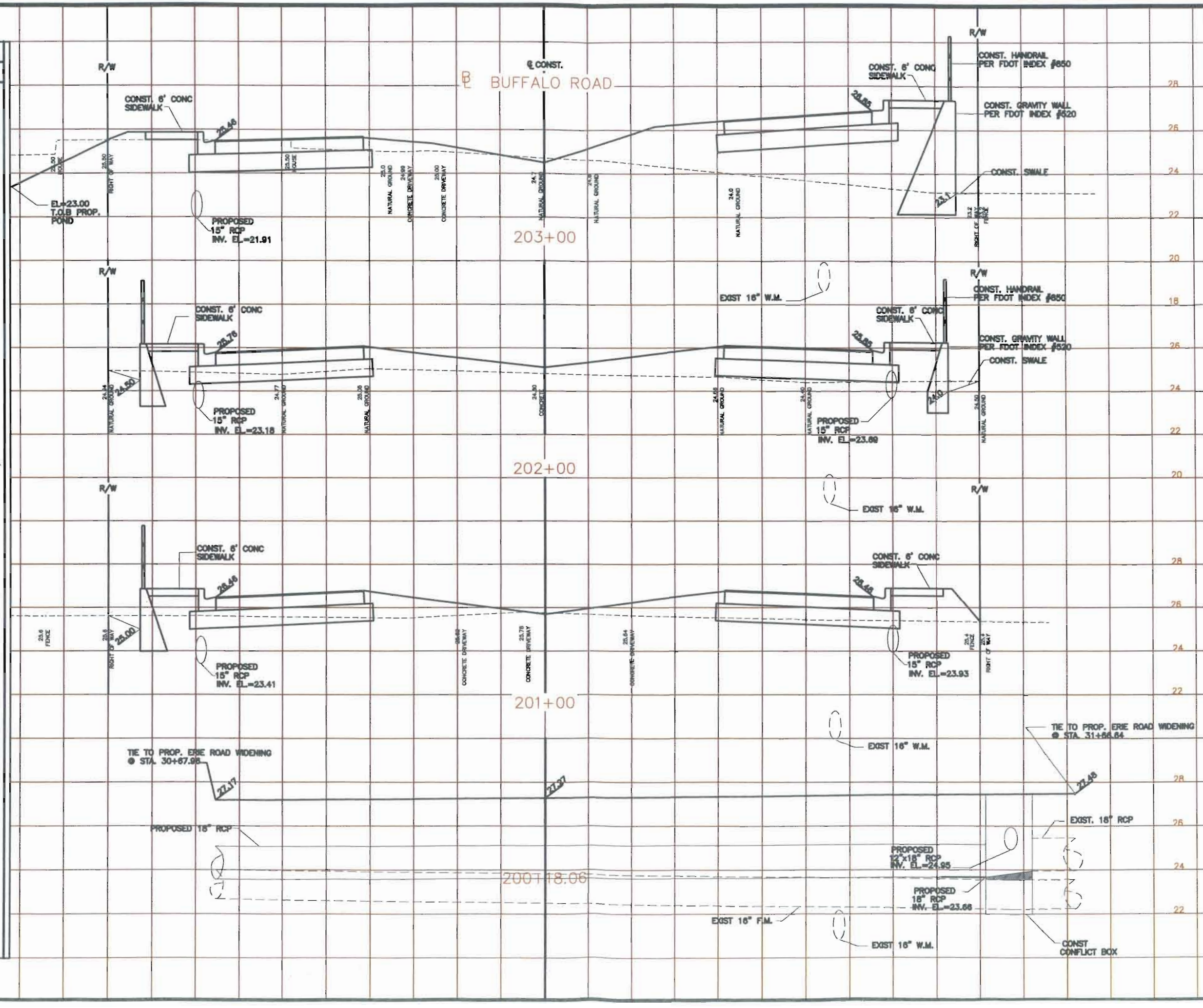
EUDOXE JOSEPH
FLORIDA P.E. # 53003
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL 34208

DATE

SHEET 8 OF 40

8-4-09 ADD # 1

CUT		FILL	
A	V	A	V
8.9		91.5	
	19.6		297.4
1.6		69.1	
	5.3		236.4
1.2		58.9	
	2.2		109.0
0.0		0.0	



MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

BUFFALO ROAD REALIGNMENT
CROSS SECTIONS

REVISION	BY	DATE
		DATE
SURVEYED		
DESIGNED		
DRAWN		
CHECKED		

SCALE: 1"=5' H : 1"=2' V

SEAL
APPROVED BY:

ELIODE JOSEPH
FLORIDA P.E. # 69005
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL. 34208

DATE

SHEET 13 OF 40

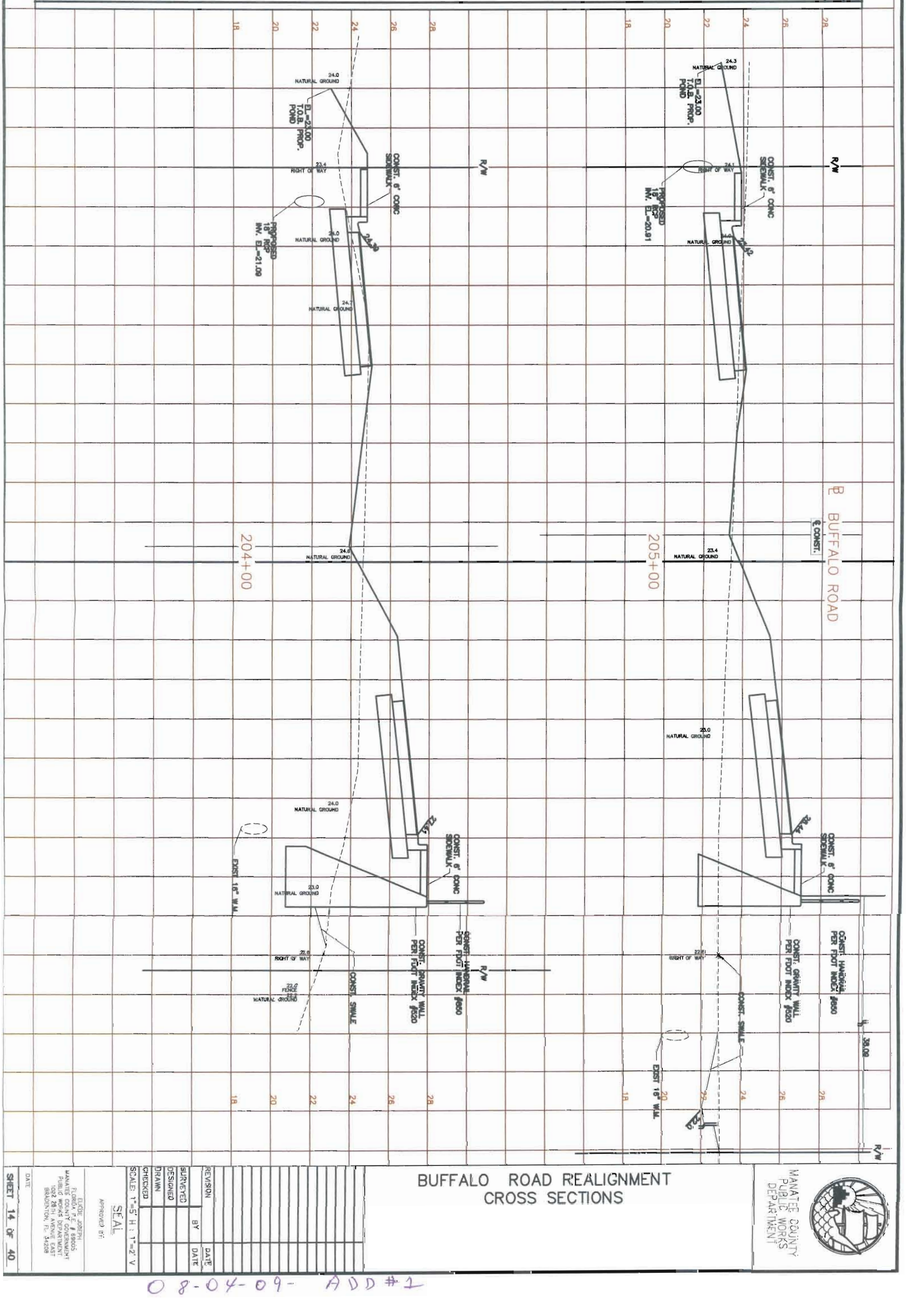
8-4-09 - ADD #4

File No:

Sheet Title:

Sheet Number:7

CUT	FILL
V	V
A	A
V	V
50.1	93.9
343.4	348.8
99.5	94.5



BUFFALO ROAD REALIGNMENT
CROSS SECTIONS

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISION	BY	DATE

SURVEYED
DESIGNED
DRAWN
CHECKED

SCALE: 1"=5' H ; 1"=2' V

SEAL

APPROVED BY:

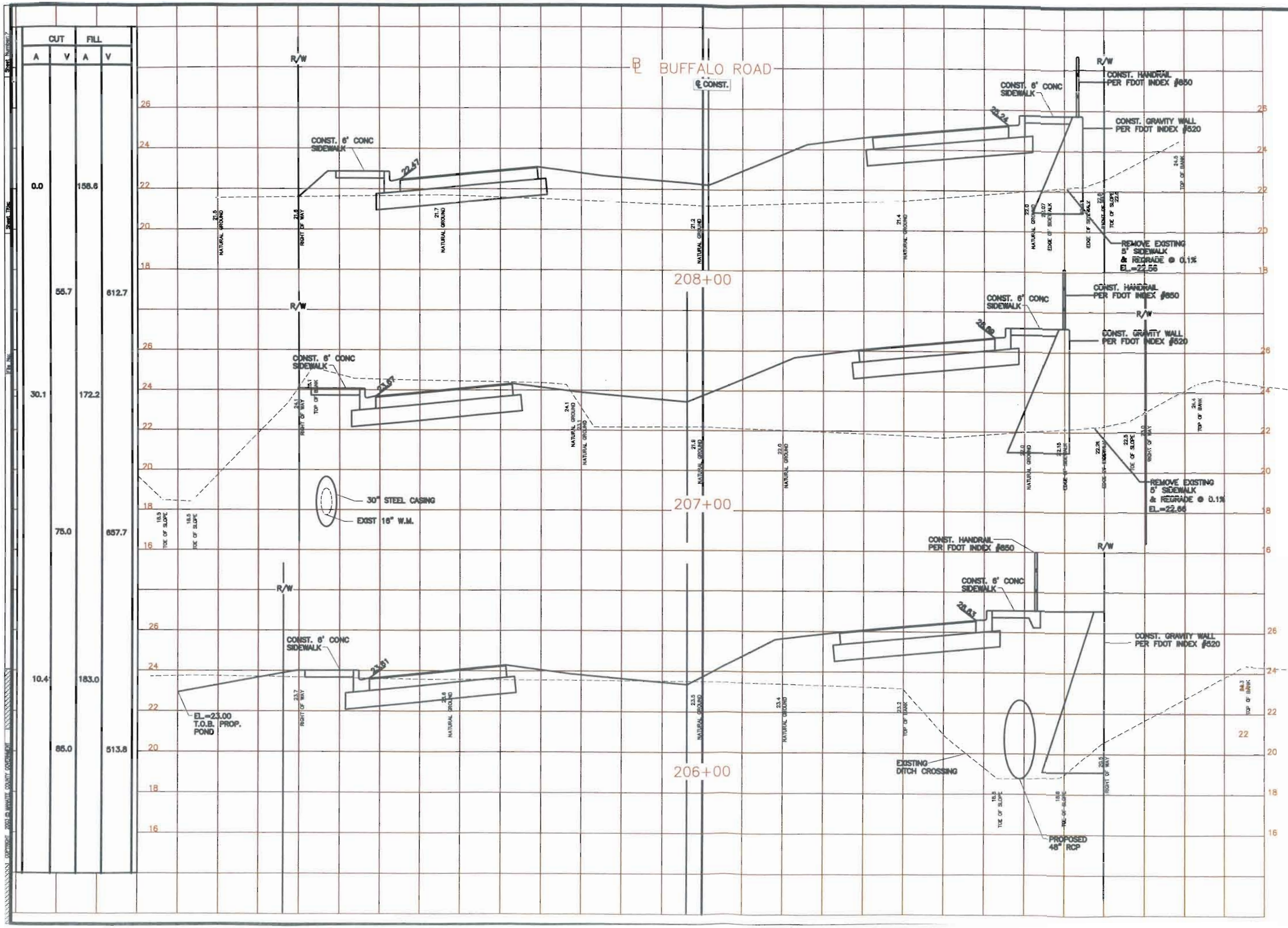
ELODIE JOSEPH
FLORIDA P.E. # 68005
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL. 34208

DATE

SHEET 14 OF 40

08-04-09- ADD #1

CUT		FILL	
A	V	A	V
0.0		158.6	
	55.7		612.7
30.1		172.2	
	75.0		657.7
10.4		183.0	
	85.0		513.8



MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

BUFFALO ROAD REALIGNMENT
CROSS SECTIONS

REVISION	BY	DATE
SURVEYED		
DESIGNED		
DRAWN		
CHECKED		

SCALE: 1"=5' H : 1"=2' V

SEAL

APPROVED BY:

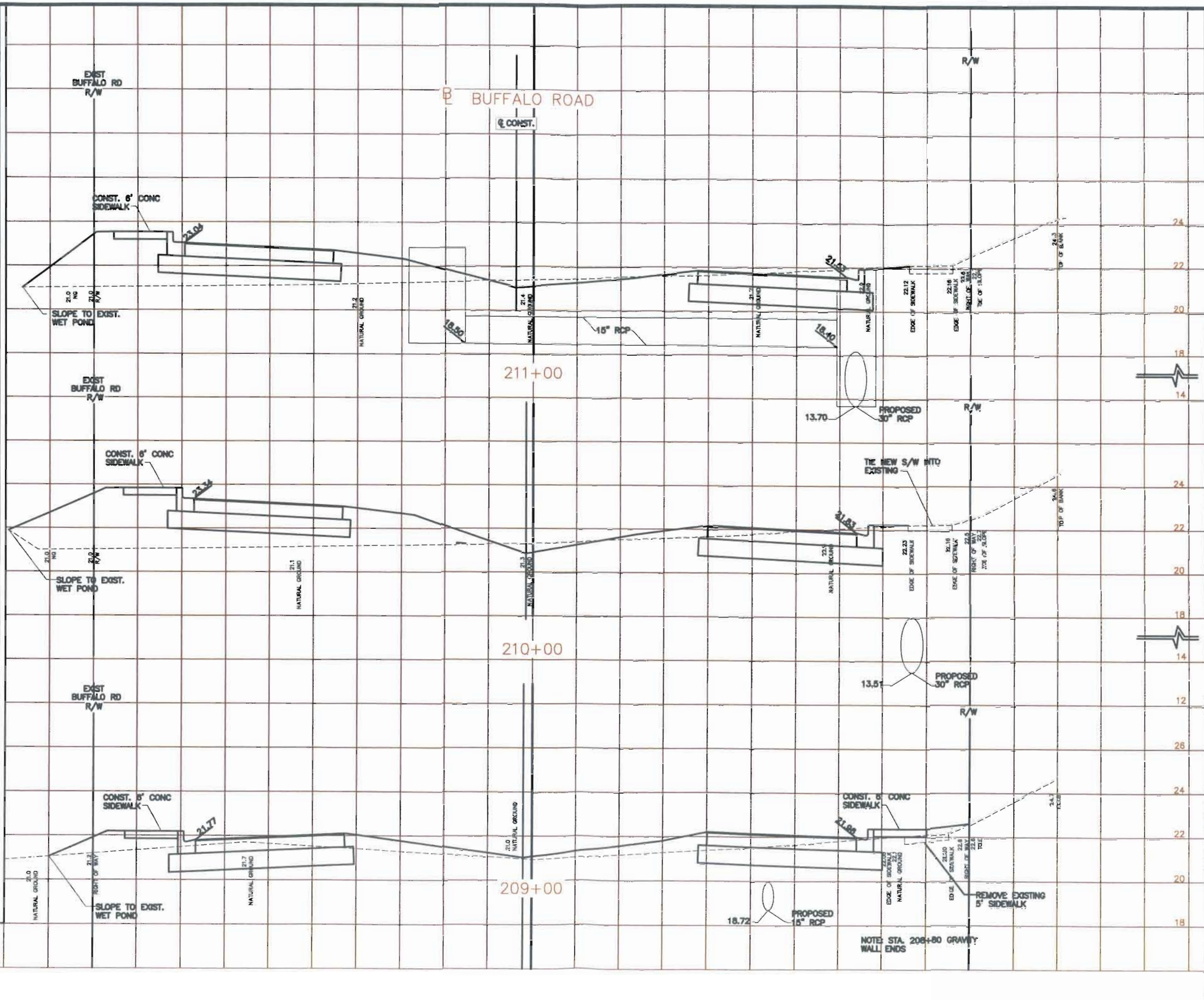
ELIODE JOSEPH
FLORIDA P.E. # 69006
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL. 34208

DATE

SHEET 15 OF 40

8-4-09-ADD #1

CUT		FILL	
A	V	A	V
16.9		80.8	
	56.0		275.1
13.3		67.8	
	41.3		170.6
9.0		24.4	
	16.6		338.9



MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

BUFFALO ROAD REALIGNMENT
CROSS SECTIONS

REVISION	BY	DATE
SURVEYED		
DESIGNED		
DRAWN		
CHECKED		

SCALES 1"=5' H ; 1"=2' V

SEAL
APPROVED BY:

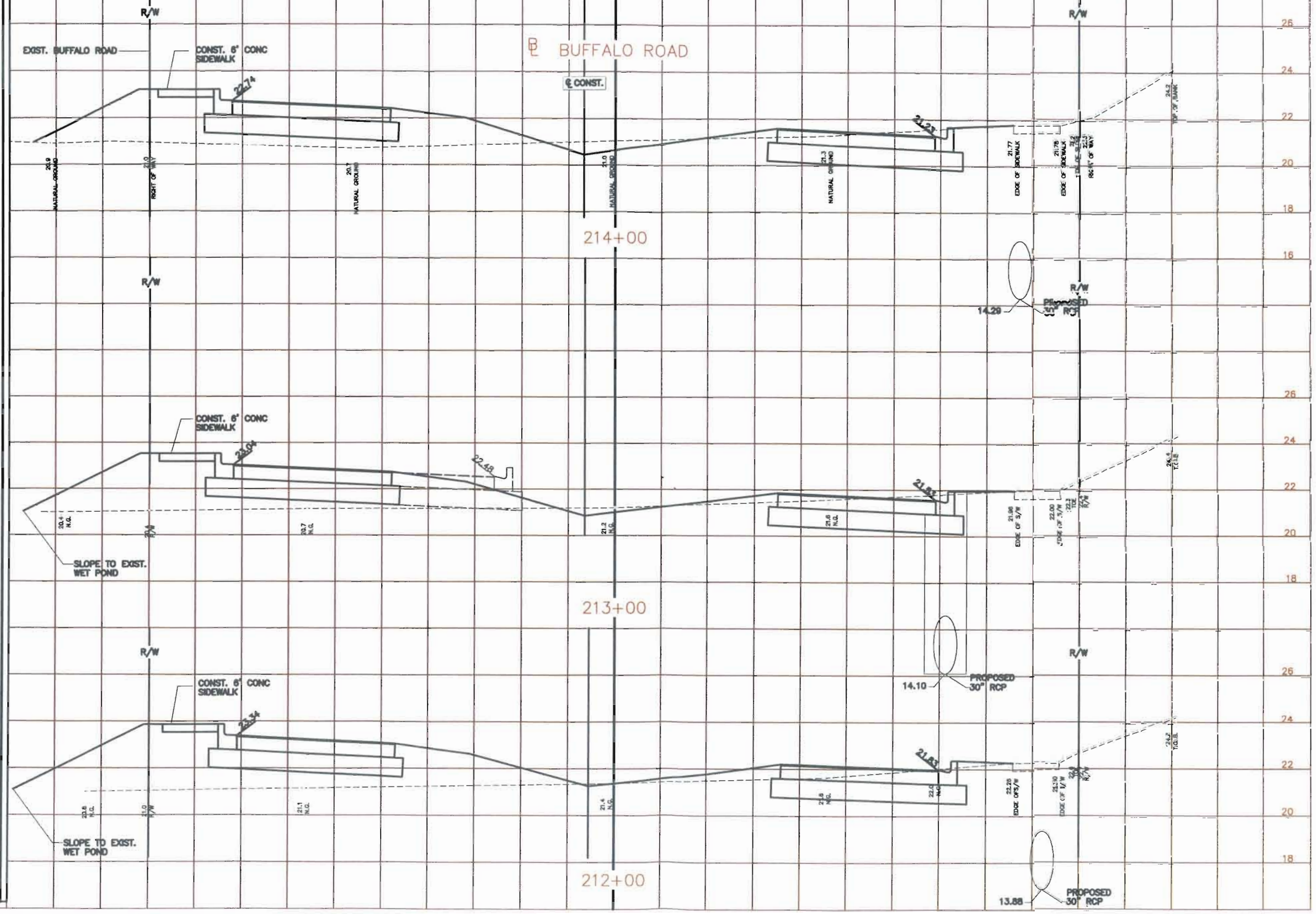
ELIODE JOSEPH
FLORIDA P.E. # 69005
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL 34208

DATE

SHEET 16 OF 40

8-04-09- ADD #1

	CUT		FILL	
	A	V	A	V
214+00	15.6		70.7	
		52.3		270.7
213+00	12.7		75.5	
		35.5		320.0
212+00	6.5		97.3	
		43.3		329.8



MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

BUFFALO ROAD REALIGNMENT
CROSS SECTIONS

REVISION	BY	DATE
SURVEYED		
DESIGNED		
DRAWN		
CHECKED		

SCALE: 1"=5' H ; 1"=2' V

SEAL

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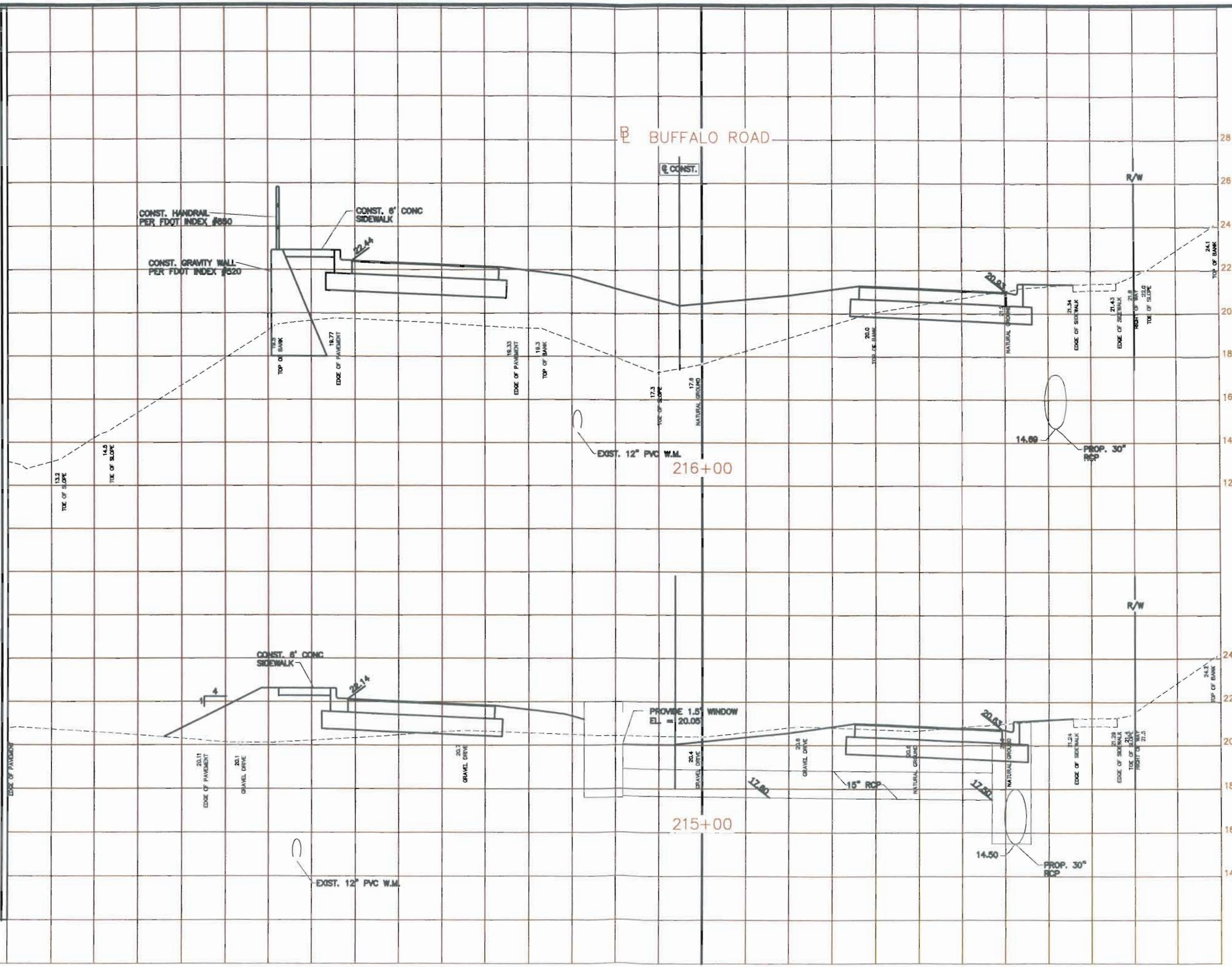
ELIODE JOSEPH
FLORIDA P.E. # 69005
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL. 34208

DATE

SHEET 17 OF 40

8-4-09- ADD #1

CUT		FILL	
A	V	A	V
4.4		163.2	
	38.1		418.6
15.2		62.9	
	56.9		247.3



MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

BUFFALO ROAD REALIGNMENT
CROSS SECTIONS

REVISION	BY	DATE
SURVEYED		
DESIGNED		
DRAWN		
CHECKED		

SCALE: 1"=5' H : 1"=2' V

SEAL

APPROVED BY:

ELIODE JOSEPH
FLORIDA P.E. # 69005
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL. 34208

DATE:

SHEET 18 OF 40

8-4-09- ADD #1

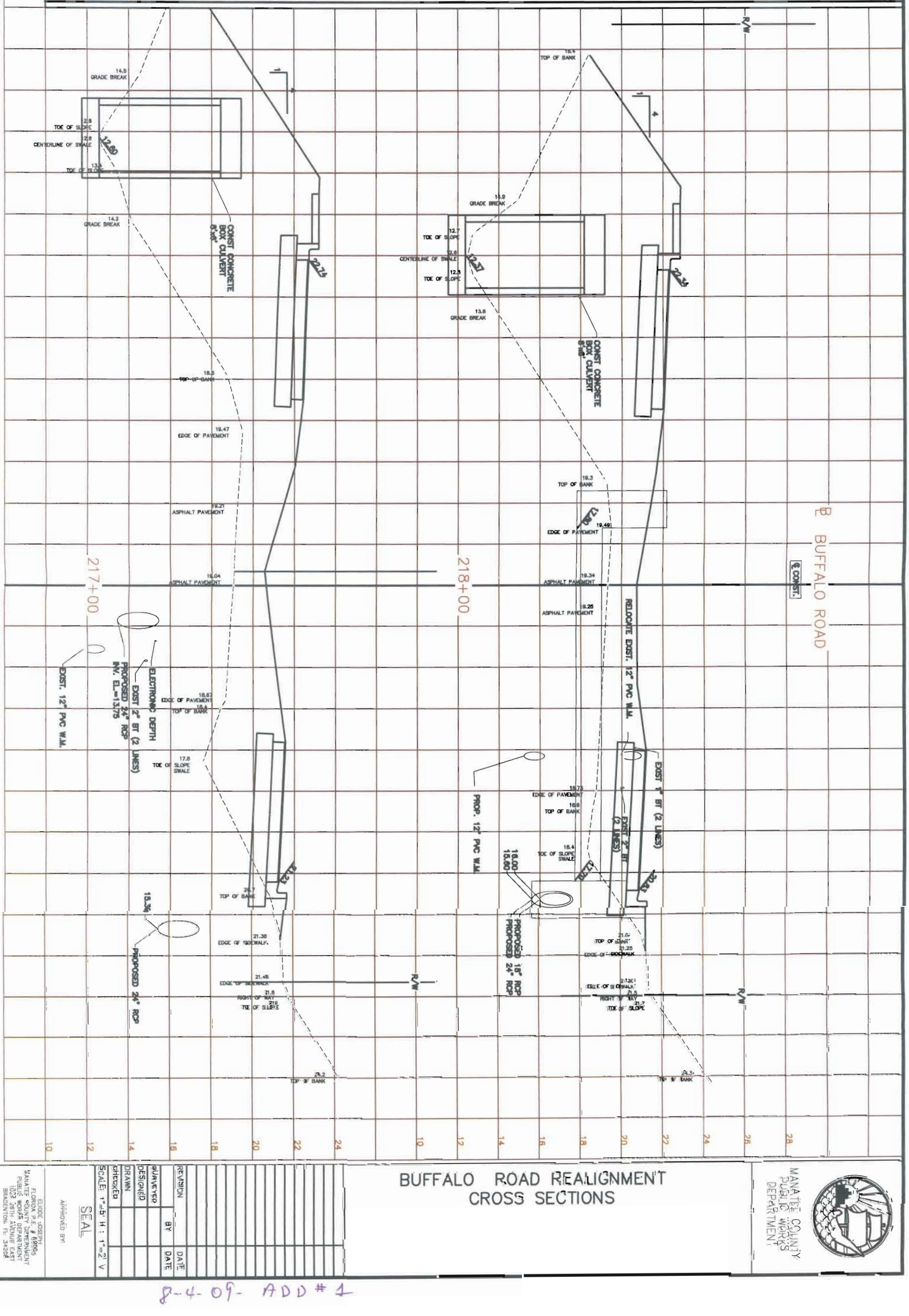
File No:

Sheet Title:

Sheet Number: 7

	A	CUT
0.19		
8.3	V	
373.6	A	FILL
1063.0	V	

	A	CUT
0.0		
0.4	V	
325.8	A	FILL
1343.1	V	



BUFFALO ROAD REALIGNMENT
CROSS SECTIONS

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISION	BY	DATE
		DATE

SURVEYED
DESIGNED
DRAWN
CHECKED
SCALE: 1"=5' H : 1"=2' V

SEAL

APPROVED BY:

DATE

ELIODE JOSEPH
FLORIDA P.E. # 69905
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL. 34208

SHEET 19 OF 40

8-4-09- ADD #1

File No:

Sheet Title:

Sheet Number:7

CUT		FILL	
A	V	A	V
36.5	1,059.7		
176.3	320.6		
266.9	394.0		

BUFFALO ROAD REALIGNMENT
FLOODPLAIN COMPENSATION

CROSS SECTIONS

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISION	BY	DATE

SURVEYED
DESIGNED
DRAWN
CHECKED
SCALE: 1"=5' H ; 1"=2' V

SEAL

APPROVED BY:

DATE

ELJODE JOSEPH
FLORIDA P.E. # 69065
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL 34208

SHEET 31 OF 40

8-4-09- ADD #1

	CUT		FILL	
	A	V	A	V
1,199.9	529.7	1,310.2	977.8	1,265.1	905.4	

TOE OF SLOPE
15.0
18.8
19.0
20.0
24.9
EXISTING DITCH
T.O.B.
24.56
EXIST. E/P
24.57
24.28
EXIST. E/P
SECTION F
PROPOSED GROUND
EXISTING GROUND
19.4
EXIST. R/W
21.7
12' ACCESS
Exist. Pond

15.7
TOE OF SLOPE
17.3
18.0
20.0
23.5
EXISTING DITCH
T.O.B.
23.94
EXIST. E/P
24.17
EXIST. E/P
23.91
SECTION E
PROPOSED GROUND
EXISTING GROUND
18.4
EXIST. R/W
22.1
12' ACCESS
Exist. Pond

14.3
TOE OF SLOPE
15.8
18.0
20.0
22.9
EXISTING DITCH
T.O.B.
23.05
EXIS
23.19
EXIST
22.91
SECTION D
PROPOSED GROUND
EXISTING GROUND
EXIST. R/W
21.4
12' ACCESS
Exist. Pond

B BUFFALO ROAD

12 14 16 18 20 22 12 14 16 18 20 22 12 14 16 18 20 22

BUFFALO ROAD REALIGNMENT
FLOODPLAIN COMPENSATION

CROSS SECTIONS

MANATEE COUNTY PUBLIC WORKS DEPARTMENT

REVISION	BY	DATE
SURVEYED		
DESIGNED		
DRAWN		
CHECKED		

SCALE: 1"=5' H : 1"=2' V

SEAL

APPROVED BY:

ELIODE JOSEPH
FLORIDA P.E. # 58868
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL. 34208

DATE

SHEET 32 OF 40

8-4-09 ADD #1

File No. | Sheet Title | Sheet Number

	CUT	FILL
A	318.3	
V		1,823.2
A		405.9
V	401.3	

SECTION I

19.0'
18.78'
20.0'
PROPOSED GROUND
19.2'
23.0'
12' ACCESS ROAD

SECTION H

19.0'
18.98'
20.0'
PROPOSED GROUND
19.2
20.0
23.0'
12' ACCESS ROAD

SECTION G

19.0
TOE OF SLOPE
19.5
PROPOSED GROUND
19.9
20.0
22.3
EXIST. R/W

B BUFFALO ROAD

24.5 EXISTING DITCH T.O.B.
EXIST. E/P
25.06
25.07
24.78
EXIST. E/P
EXISTING GROUND

BUFFALO ROAD REALIGNMENT
FLOODPLAIN COMPENSATION

CROSS SECTIONS

MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

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SCALE: 1"=5' H : 1"=2' V

ELIODE JOSEPH
FLORIDA P.E. # 59055
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL 34208

SEAL

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DATE

SHEET 33 OF 40

08-4-09- ADD#1

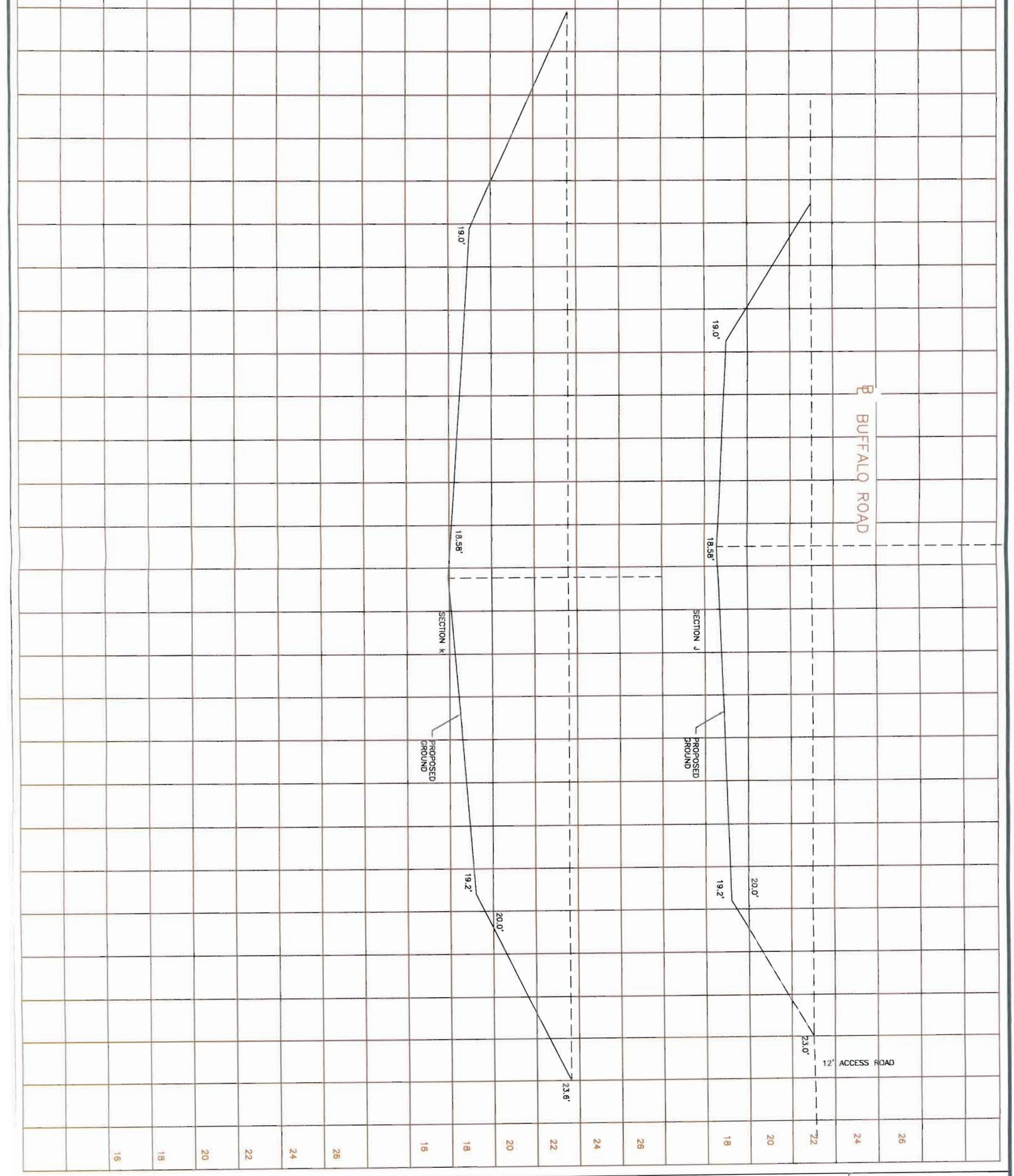
File No:

Sheet Title:

Sheet Number: 7

	CUT		FILL	
	A	V	A	V
		1,526.9		
		333.2		
		542.3		
		499.5		

16 18 20 22 24 26 16 18 20 22 24 26 16 18 20 22 24 26



16 18 20 22 24 26 16 18 20 22 24 26

BUFFALO ROAD REALIGNMENT
FLOODPLAIN COMPENSATION

CROSS SECTIONS

MANATEE COUNTY
PUBLIC WORKS
DEPARTMENT

REVISION	BY	DATE

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SCALE: 1"=5' H : 1"=2' V

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APPROVED BY:

ELIJOE JOSEPH
FLORIDA P.E. # 69005
MANATEE COUNTY GOVERNMENT
PUBLIC WORKS DEPARTMENT
1022 26TH AVENUE EAST
BRADENTON, FL. 34208

DATE

SHEET 33A OF 40

8-4-09 ADD #1