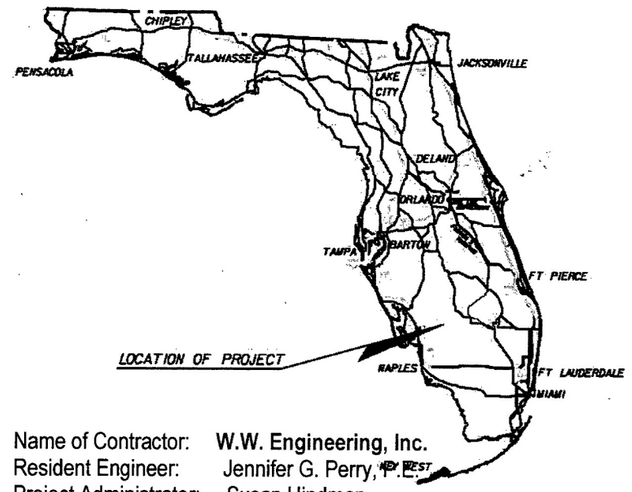
CONSTRUCTION CONTRACT NO. E1L20

COMPONENTS OF CONTRACT PLANS SET
ROADWAY PLANS

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

FINAL AS-BUILT PLANS

FINANCIAL PROJECT ID 431394-1-52-01
GLADES COUNTY (05090)
STATE ROAD NO. 29



A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

INDEX OF ROADWAY PLANS

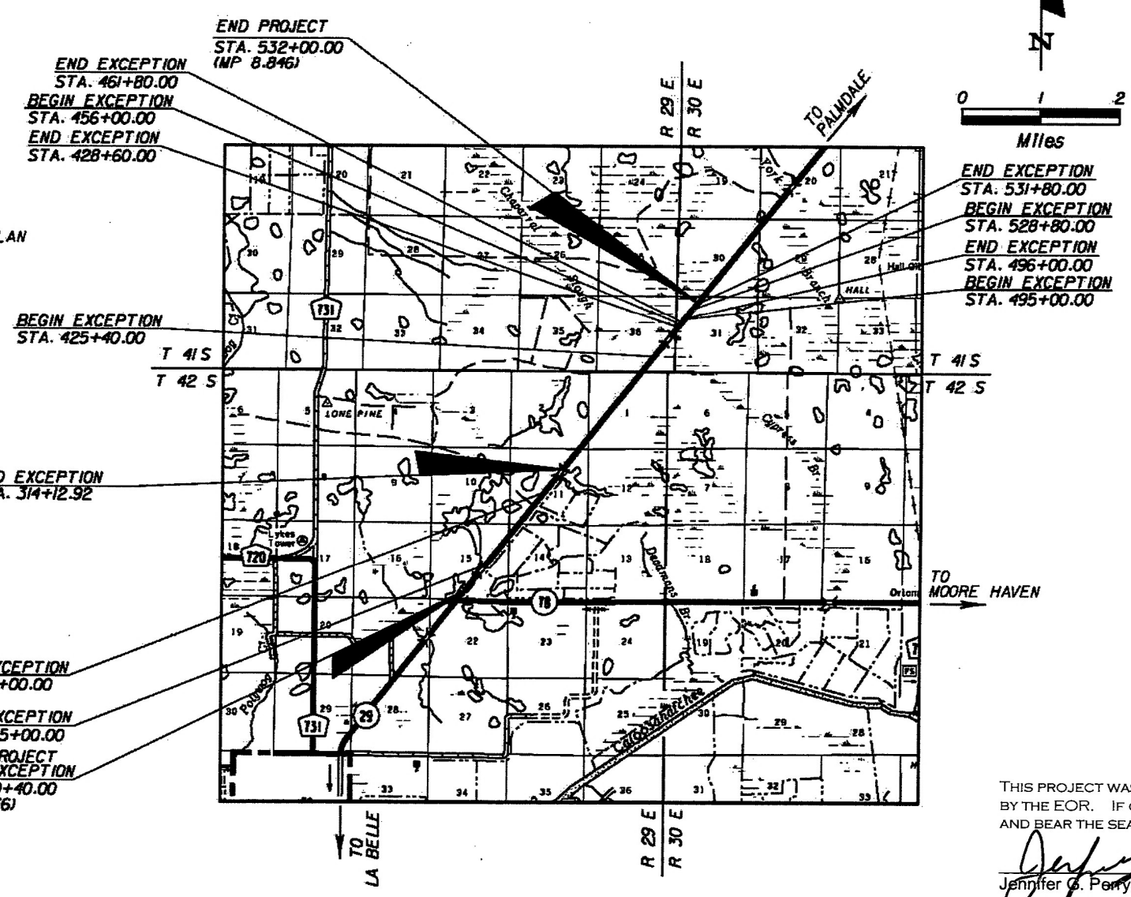
SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SUMMARY OF PAY ITEMS
3	TYPICAL SECTION
4-5	SUMMARY OF QUANTITIES
6	SUMMARY OF DRAINAGE STRUCTURES
7	OPTIONAL MATERIALS TABULATION
8	GENERAL NOTES
9-32	ROADWAY PLANS
33-34	DRAINAGE STRUCTURES
35-76	CROSS SECTIONS
77-80	STORMWATER POLLUTION PREVENTION PLAN
81	TRAFFIC CONTROL PLAN

INDEX OF FINAL PLANS
Computation Book
Time File
Materials Certification Package
SHOP DRAWINGS - PLAN SHEET 82-85

GOVERNING STANDARDS AND SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION,
DESIGN STANDARDS DATED 2010,
AND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 2010,
AS AMENDED BY CONTRACT DOCUMENTS.

APPLICABLE DESIGN STANDARDS MODIFICATIONS: 01-01-12

For Design Standards Modifications click on "Design Standards" at the following web site:
http://www.dot.state.fl.us/rddesign/



Name of Contractor:	W.W. Engineering, Inc.
Resident Engineer:	Jennifer G. Perry, P.E.
Project Administrator:	Susan Hindman
District Secretary:	Billy L Hattaway, P.E.
Date Work Started:	January 30, 2013
Date Work Final Accepted:	May 30, 2013

ROADWAY SHOP DRAWINGS
TO BE SUBMITTED TO:
AIM ENGINEERING & SURVEYING, INC.
5802 BRECKENRIDGE PARKWAY, SUITE 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
ATTN: DAWN M. RATICAN, PE NO. 60226

PLANS PREPARED BY:
AIM ENGINEERING & SURVEYING, INC.
5802 BRECKENRIDGE PARKWAY, SUITE 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
Certificate of Authorization No. 3114
Contract No. C8A78
Vendor No. F650197775003

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

NOTE: THIS IS A LUMP SUM PROJECT

THIS PROJECT WAS CONSTRUCTED IN SUBSTANTIAL COMPLIANCE WITH THESE PLANS AS PROVIDED BY THE EOR. IF CHANGES WERE MADE, THESE CHANGES ARE INDICATED BY BLACK INK REVISION AND BEAR THE SEAL AND SIGNATURE OF THE RESPONSIBLE PROFESSIONAL ENGINEER.

Jennifer G. Perry, P.E. Date: 5/16/2013

JENNIFER GAYLE PERRY
No. 59456
STATE OF FLORIDA
PROFESSIONAL ENGINEER

LENGTH OF PROJECT		
	LINEAR FEET	MILES
ROADWAY	29,787.08	5.642
BRIDGES	0.00	0.000
NET LENGTH OF PROJECT	29,787.08	5.642
EXCEPTIONS	2,472.92	0.468
GROSS LENGTH OF PROJECT	32,260.00	6.110

FDOT PROJECT MANAGER: KARINA DELLA-SERA

KEY SHEET REVISIONS	
DATE	DESCRIPTION

ROADWAY PLANS
ENGINEER OF RECORD: DAWN M. RATICAN, PE
P.E. NO.: 60226

REVISIONS:
1 ROADWAY SHEETS 5 & 10 (REVISED 3-04-13)
2 ROADWAY SHEETS 19, 22 & 32 (REVISED 5-20-13)
3 DRAINAGE STRUCTURES SHEETS 33 & 34 (REVISED 5-20-13)

FISCAL YEAR	SHEET NO.
12	1

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSAL SUMMARY OF PAY ITEMS

DATE: 03/20/12 PAGE: 1 A0001

PROPOSAL : E1L20 LEAD PROJECT : 43139415201 COUNTY : GLADES MANDIST: 01
PROJECT(S): 43139415201 COUNTY/SECTION: 05090000

0001 SUMMARY OF ROADWAY

SPC	ALT	ITEM NUMBER	ITEM DESCRIPTION	UNIT	43139415201		QUANTITY TOTAL
		0999- 2-	LUMP SUM CONTRACT, ALTERNATIVE BIDDING (43139415201)	LS	1.000		1.000
		0999- 25-	INITIAL CONTINGENCY AMOUNT, DO NOT BID (43139415201)	LS	1.000		1.000

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REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

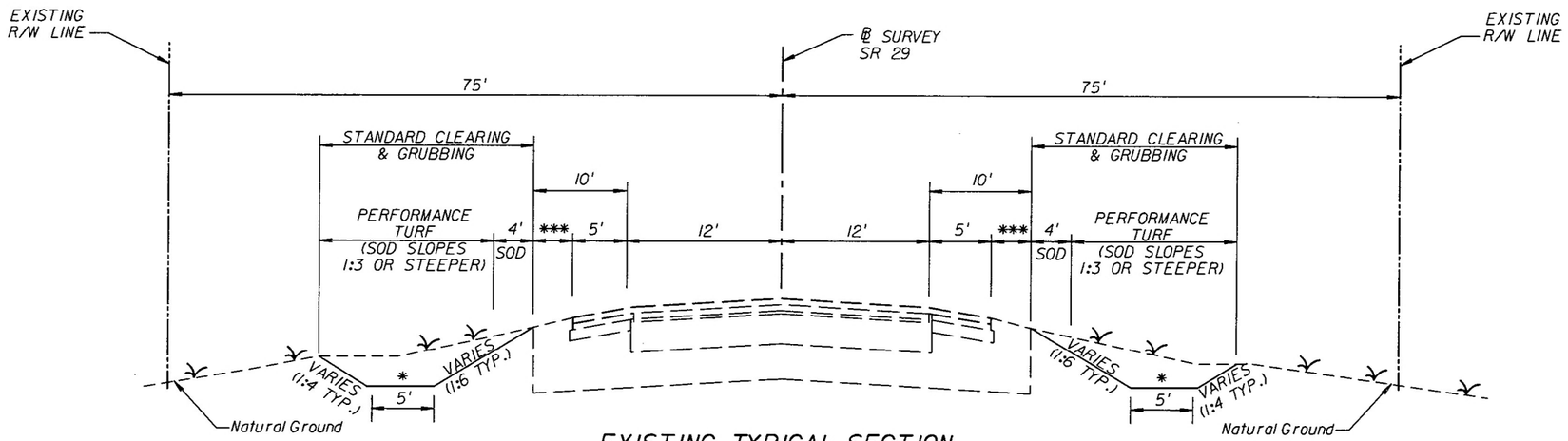
AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
CERTIFICATE OF AUTHORIZATION NO. 3114
E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

SUMMARY OF PAY ITEMS

SHEET NO. 2



EXISTING TYPICAL SECTION
SR 29
STA. 209+40.00 TO STA. 532+00.00 **
RE-GRADE ROADSIDE DITCHES

* DEPTH VARIES (SEE CROSS SECTIONS)

** SEE ROADWAY PLAN SHEETS FOR LIMITS OF RE-GRADE ROADSIDE DITCHES

*** ALL AREAS OUTSIDE THE LIMITS OF CLEARING & GRUBBING THAT ARE DISTURBED BY THE CONTRACTOR ARE TO BE SODDED (SAME TYPE AS EXISTING) AT THE CONTRACTOR'S EXPENSE.

POSTED SPEED = 55 MPH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
CERTIFICATE OF AUTHORIZATION NO. 3114
E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

TYPICAL SECTION

SHEET NO. 3

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NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

QUANTITIES ARE APPROXIMATE.

SUMMARY OF PERFORMANCE TURF, SOD

LOCATION STA. TO STA.	SIDE	P L	P W	P SY	F L	F W	F SY	FIELD BOOK REFERENCE
217+00.00 TO 279+32.00	LT.	6232.0'	4' (AVG.)	2769.8				
279+59.70 TO 308+00.00	LT.	2840.3'	4' (AVG.)	1262.4				
325+80.00 TO 355+00.00	LT.	2920.0'	4' (AVG.)	1297.8				
357+00.00 TO 386+86.80	LT.	2986.8'	4' (AVG.)	1327.5				
387+19.30 TO 425+40.00	LT.	3820.7'	4' (AVG.)	1698.1				
435+28.00 TO 456+00.00	LT.	2072.0'	4' (AVG.)	920.9				
467+80.00 TO 483+55.00	LT.	1575.0'	4' (AVG.)	700.0				
483+88.00 TO 495+00.00	LT.	1112.0'	4' (AVG.)	494.2				
496+20.00 TO 528+60.00	LT.	3240.0'	4' (AVG.)	1440.0				
215+00.00 TO 265+18.80	RT.	5018.8'	4' (AVG.)	2230.6				
265+38.20 TO 279+80.00	RT.	1441.8'	4' (AVG.)	640.8				
280+00.00 TO 308+00.00	RT.	2800.0'	4' (AVG.)	1244.4				
314+12.92 TO 335+40.10	RT.	2127.2'	4' (AVG.)	945.4				
335+60.40 TO 353+00.00	RT.	1739.6'	4' (AVG.)	773.2				
359+80.00 TO 400+06.60	RT.	4029.6'	4' (AVG.)	1790.9				
400+28.80 TO 425+40.00	RT.	2511.2'	4' (AVG.)	1116.1				
428+60.00 TO 456+00.00	RT.	2740.0'	4' (AVG.)	1217.8				
461+80.00 TO 484+55.00	RT.	2275.0'	4' (AVG.)	1011.1				
485+00.00 TO 495+00.00	RT.	1000.0'	4' (AVG.)	444.4				
496+00.00 TO 528+60.00	RT.	3260.0'	4' (AVG.)	1448.9				
SIDE DRAINS	LT./RT.			162				
DRAINAGE STRUCTURES	LT./RT.			560				

SUMMARY OF PERFORMANCE TURF

LOCATION STA. TO STA.	SIDE	P L	P W	P SY	F L	F W	F SY	FIELD BOOK REFERENCE
217+00.00 TO 279+32.00	LT.	6232.0'	VAR.	20107.8				
279+59.70 TO 308+00.00	LT.	2840.3'	VAR.	9279.2				
325+80.00 TO 355+00.00	LT.	2920.0'	VAR.	9198.2				
357+00.00 TO 386+86.80	LT.	2986.8'	VAR.	9684.3				
387+19.30 TO 425+40.00	LT.	3820.7'	VAR.	12081.8				
435+28.00 TO 456+00.00	LT.	2072.0'	VAR.	6788.3				
467+80.00 TO 483+55.00	LT.	1575.0'	VAR.	3576.4				
483+88.00 TO 495+00.00	LT.	1112.0'	VAR.	2234.7				
496+20.00 TO 528+60.00	LT.	3240.0'	VAR.	7780.9				
215+00.00 TO 265+18.80	RT.	5018.8'	VAR.	18099.3				
265+38.20 TO 279+80.00	RT.	1441.8'	VAR.	3144.3				
280+00.00 TO 308+00.00	RT.	2800.0'	VAR.	9137.8				
314+12.92 TO 335+40.10	RT.	2127.2'	VAR.	7599.9				
335+60.40 TO 353+00.00	RT.	1739.6'	VAR.	5424.5				
359+80.00 TO 400+06.60	RT.	4029.6'	VAR.	13927.5				
400+28.80 TO 425+40.00	RT.	2511.2'	VAR.	6238.7				
428+60.00 TO 456+00.00	RT.	2740.0'	VAR.	7223.7				
461+80.00 TO 484+55.00	RT.	2275.0'	VAR.	4639.0				
485+00.00 TO 495+00.00	RT.	1000.0'	VAR.	1700.3				
496+00.00 TO 528+60.00	RT.	3260.0'	VAR.	7163.7				

SUMMARY OF EARTHWORK

DESCRIPTION	CY P	CY F
REGULAR EXCAVATION	54588	
EMBANKMENT	619	

SUMMARY OF LITTER REMOVAL AND MOWING

CONST. PHASE	DURATION (DAYS)	FREQUENCY (DAYS)	LITTER REMOVAL CYCLES	LITTER REMOVAL AREA AC/CYCLE	LITTER REMOVAL AREA TOTAL (AC)	MOWING CYCLES	MOWING AREA AC/CYCLE	MOWING AREA TOTAL (AC)	REMARKS
1	80	30	4	74.5	298.0	4	74.5	298.0	
			TOTAL P		298.0	TOTAL P		298.0	
			TOTAL F			TOTAL F			

NOTE: THE ABOVE QUANTITIES INCLUDE ONE LITTER REMOVAL AND MOWING DURING THE FIVE DAY PERIOD PRECEDING THE FINAL ACCEPTANCE DATE. THE ENGINEER MAY WAIVE THE REQUIREMENT FOR THIS FINAL LITTER REMOVAL AND MOWING.

SUMMARY OF PIPE DESILTING

LOCATION STATION - STATION	SIDE	PIPE LENGTH (LF) 37" TO 48" P	F
319+89.56 TO 320+37.51	LT.	96	

REVISIONS DATE	DESCRIPTION	DATE	DESCRIPTION

AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
CERTIFICATE OF AUTHORIZATION NO. 3114
E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

SUMMARY OF QUANTITIES

SHEET NO. 4

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QUANTITIES ARE APPROXIMATE.

SUMMARY OF SEDIMENT BARRIER

LOCATION STA. TO STA.	SIDE	LENGTH (FT.) P	LENGTH (FT.) F	REMARKS	FIELD BOOK REFERENCE
215+00.00 TO 265+20.00	RT.	5020			
217+00.00 TO 279+32.00	LT.	6232			
221+13.00 TO 221+13.00	RT.	20			
221+75.00 TO 221+75.00	RT.	20			
265+38.00 TO 279+80.00	RT.	1442			
279+10.00 TO 279+10.00	LT.	20			
279+60.00 TO 279+60.00	RT.	20			
279+59.70 TO 308+00.00	LT.	2841			
279+60.00 TO 279+60.00	LT.	20			
279+75.00 TO 279+75.00	RT.	20			
280+00.00 TO 308+00.00	RT.	2800			
280+25.00 TO 280+25.00	RT.	20			
314+12.92 TO 335+40.10	RT.	2128			
319+80.00 TO 319+80.00	LT.	20			
325+80.00 TO 355+00.00	LT.	2920			
320+50.00 TO 320+50.00	LT.	20			
335+60.40 TO 353+00.00	RT.	1740			
357+00.00 TO 386+86.80	LT.	2987			
359+80.00 TO 400+06.60	RT.	4027			
386+70.00 TO 386+70.00	LT.	20			
387+19.30 TO 425+40.00	LT.	3821			
387+40.00 TO 387+40.00	LT.	20			
400+28.80 TO 425+40.00	RT.	2512			
399+90.00 TO 399+90.00	RT.	20			
400+50.00 TO 400+50.00	RT.	20			
428+60.00 TO 456+00.00	RT.	2740			
435+28.00 TO 456+00.00	LT.	2072			
461+80.00 TO 484+55.00	RT.	2275			
467+80.00 TO 483+55.00	LT.	1575			
483+40.00 TO 483+40.00	LT.	20			
484+10.00 TO 484+10.00	LT.	20			
484+20.00 TO 484+20.00	RT.	20			
485+10.00 TO 485+10.00	RT.	20			
483+88.00 TO 495+00.00	LT.	1112			
485+00.00 TO 495+00.00	RT.	1000			
496+20.00 TO 528+60.00	LT.	3240			
496+00.00 TO 528+60.00	RT.	3260			

SUMMARY OF STAKED TURBIDITY BARRIERS

LOCATION STA. TO STA.	QUANTITY (LF) SIDE	P	F	REMARKS
211+65.00 TO 212+25.00	LT.	40		
211+80.00 TO 212+10.00	RT.	30		
213+70.00 TO 213+80.00	LT.	10		
213+90.00 TO 214+00.00	RT.	10		
312+95.00 TO 313+10.00	LT.	15		
312+95.00 TO 313+05.00	RT.	10		
313+90.00 TO 313+95.00	LT.	5		
314+00.00 TO 314+05.00	RT.	5		
355+55.00 TO 355+75.00	RT.	20		
355+70.00 TO 355+80.00	LT.	10		
356+25.00 TO 356+40.00	RT.	15		
356+25.00 TO 356+40.00	LT.	15		
394+20.00 TO 394+75.00	RT.	55		
394+20.00 TO 394+75.00	LT.	55		
395+40.00 TO 395+70.00	LT.	30		
395+50.00 TO 395+90.00	RT.	40		
531+90.00 TO 532+20.00	LT.	30		
531+90.00 TO 532+20.00	RT.	30		

SUMMARY OF FLOATING TURBIDITY BARRIERS

LOCATION STA. TO STA.	QUANTITY (LF) SIDE	P	F	REMARKS
212+25.00 TO 213+75.00	LT.	150		
213+10.00 TO 213+85.00	RT.	75		
313+10.00 TO 313+95.00	LT.	85		
313+05.00 TO 314+00.00	RT.	95		
355+80.00 TO 356+30.00	LT.	50		
355+80.00 TO 356+25.00	RT.	45		
394+70.00 TO 395+40.00	LT.	70		
394+70.00 TO 395+50.00	RT.	80		
426+20.00 TO 427+70.00	LT.	150		
426+30.00 TO 427+60.00	RT.	130		

SUMMARY OF SIDEDRAIN & MITERED END SECTIONS

	LOCATION STA. TO STA.	SIDE	BACK OFFSET	BACK F.L.	AHEAD OFFSET	AHEAD F.L.	PIPE LENGTH (LF) ROUND 18"	PIPE LENGTH (LF) OTHER 18"	MES (EA) ROUND 18"	MES (EA) OTHER 18"	SOD (SY)	REMARKS
P	221+22.00 TO 221+69.00	RT.	49.70	31.9	49.70	32.0	40		2		18	SD-1
F												
P	221+93.75 TO 222+33.70	LT.	54.90	32.0	54.90	32.1	32		2		18	SD-2
F												
P	230+39.00 TO 230+79.00	LT.	51.30	33.8	51.50	33.9	32		2		18	SD-2A
F												
P	279+20.50 TO 279+68.00	LT.	41.60	35.5	34.70	35.4	40		2		18	SD-3
F												
P	279+66.40 TO 280+19.00	RT.	38.90	35.5	38.90	35.4		48		2	18	SD-4
F												
P	386+80.20 TO 387+28.20	LT.	49.00	31.1	49.00	31.0	40		2		18	SD-5
F												
P	399+97.25 TO 400+45.25	RT.	51.20	31.6	51.20	31.7	40		2		18	SD-6
F												
P	435+04.00 TO 435+35.60	LT.	38.70	33.0	38.70	33.1	24		2		18	SD-7
F												
P	483+47.15 TO 483+95.00	LT.	37.70	37.9	38.20	38.0	40		2		18	SD-8
F												
P	484+51.00 TO 484+99.00	RT.	37.80	37.9	37.80	38.0	40		2		18	SD-9
F												

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REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION
03/04/13	⚠ PROPOSED REPLACEMENT OF EXIST. SIDE DRAIN		

AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
CERTIFICATE OF AUTHORIZATION NO. 3114
E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

SUMMARY OF QUANTITIES

SHEET NO. 5

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QUANTITIES ARE APPROXIMATE.

SUMMARY OF SEDIMENT BARRIER

LOCATION STA. TO STA.	SIDE	LENGTH (FT.) P	LENGTH (FT.) F	REMARKS	FIELD BOOK REFERENCE
215+00.00 TO 265+20.00	RT.	5020			
217+00.00 TO 279+32.00	LT.	6232			
221+13.00 TO 221+13.00	RT.	20			
221+75.00 TO 221+75.00	RT.	20			
265+38.00 TO 279+80.00	RT.	1442			
279+10.00 TO 279+10.00	LT.	20			
279+60.00 TO 279+60.00	RT.	20			
279+59.70 TO 308+00.00	LT.	2841			
279+60.00 TO 279+60.00	LT.	20			
279+75.00 TO 279+75.00	RT.	20			
280+00.00 TO 308+00.00	RT.	2800			
280+25.00 TO 280+25.00	RT.	20			
314+12.92 TO 335+40.10	RT.	2128			
319+80.00 TO 319+80.00	LT.	20			
325+80.00 TO 355+00.00	LT.	2920			
320+50.00 TO 320+50.00	LT.	20			
335+60.40 TO 353+00.00	RT.	1740			
357+00.00 TO 386+86.80	LT.	2987			
359+80.00 TO 400+06.60	RT.	4027			
386+70.00 TO 386+70.00	LT.	20			
387+19.30 TO 425+40.00	LT.	3821			
387+40.00 TO 387+40.00	LT.	20			
400+28.80 TO 425+40.00	RT.	2512			
399+90.00 TO 399+90.00	RT.	20			
400+50.00 TO 400+50.00	RT.	20			
428+60.00 TO 456+00.00	RT.	2740			
435+28.00 TO 456+00.00	LT.	2072			
461+80.00 TO 484+55.00	RT.	2275			
467+80.00 TO 483+55.00	LT.	1575			
483+40.00 TO 483+40.00	LT.	20			
484+10.00 TO 484+10.00	LT.	20			
484+20.00 TO 484+20.00	RT.	20			
485+10.00 TO 485+10.00	RT.	20			
483+88.00 TO 495+00.00	LT.	1112			
485+00.00 TO 495+00.00	RT.	1000			
496+20.00 TO 528+60.00	LT.	3240			
496+00.00 TO 528+60.00	RT.	3260			

SUMMARY OF STAKED TURBIDITY BARRIERS

LOCATION STA. TO STA.	SIDE	QUANTITY (LF) P	QUANTITY (LF) F	REMARKS
211+65.00 TO 212+25.00	LT.	40		
211+80.00 TO 212+10.00	RT.	30		
213+70.00 TO 213+80.00	LT.	10		
213+90.00 TO 214+00.00	RT.	10		
312+95.00 TO 313+10.00	LT.	15		
312+95.00 TO 313+05.00	RT.	10		
313+90.00 TO 313+95.00	LT.	5		
314+00.00 TO 314+05.00	RT.	5		
355+55.00 TO 355+75.00	RT.	20		
355+70.00 TO 355+80.00	LT.	10		
356+25.00 TO 356+40.00	RT.	15		
356+25.00 TO 356+40.00	LT.	15		
394+20.00 TO 394+75.00	RT.	55		
394+20.00 TO 394+75.00	LT.	55		
395+40.00 TO 395+70.00	LT.	30		
395+50.00 TO 395+90.00	RT.	40		
5[illegible]		[illegible]		

VOID

SUMMARY OF FLOATING TURBIDITY BARRIERS

LOCATION STA. TO STA.	SIDE	QUANTITY (LF) P	QUANTITY (LF) F	REMARKS
212+25.00 TO 213+75.00	LT.	150		
213+10.00 TO 213+85.00	RT.	75		
313+10.00 TO 313+95.00	LT.	85		
313+05.00 TO 314+00.00	RT.	95		
355+80.00 TO 356+30.00	LT.	50		
355+80.00 TO 356+25.00	RT.	45		
394+70.00 TO 395+40.00	LT.	70		
394+70.00 TO 395+50.00	RT.	80		
426+20.00 TO 427+70.00	LT.	150		
426+30.00 TO 427+60.00	RT.	130		

SUMMARY OF [illegible] DRAIN & MITERED END SECTIONS

	STA. TO STA.	SIDE	BACK OFFSET	BACK F.L.	AHEAD OFFSET	AHEAD F.L.	PIPE LENGTH (LF) ROUND 18"	PIPE LENGTH (LF) OTHER 18"	MES (EA) ROUND 18"	MES (EA) OTHER 18"	SOD (SY)	REMARKS
P	221+22.00 TO 221+69.00	RT.	49.70	[illegible]	49.70	32.0	40		2		18	SD-1
F												
P	221+93.75 TO 222+33.70	LT.	54.90	32.0	54.90	32.1	32		2		18	SD-2
F												
P	279+20.50 TO 279+68.00	LT.	41.60	35.5	34.70	35.4	40		2		18	SD-3
F												
P	279+66.40 TO 280+19.00	RT.	38.90	35.5	38.90	35.4		48		2	18	SD-4
F												
P	386+80.20 TO 387+28.20	LT.	49.00	31.1	49.00	31.0	40		2		18	SD-5
F												
P	399+97.25 TO 400+45.25	RT.	51.20	31.6	51.20	31.7	40		2		18	SD-6
F												
P	435+04.00 TO 435+35.60	LT.	38.70	33.0	38.70	33.1	24		2		18	SD-7
F												
P	483+47.15 TO 483+95.00	LT.	37.70	37.9	38.20	38.0	40		2		18	SD-8
F												
P	484+51.00 TO 484+99.00	RT.	37.80	37.9	37.80	38.0	40		2		18	SD-9
F												

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TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
CERTIFICATE OF AUTHORIZATION NO. 3114
E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

SUMMARY OF QUANTITIES

SHEET NO. 5

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QUANTITIES SHOWN ARE APPROXIMATE.

QUANTITY	STR. NO.	STATION	SIDE	DESCRIPTION	BARRELS	STORM AND CROSS DRAIN OPTIONAL TYPE ROUND SHAPE 24"	30"	36"		PERFORMANCE TURF (SOD) SY	CLASS I CONC. (ENDWALLS) CY	REMARKS
P	S-1	356+00.00	LT./RT.	EW, PIPE, EW	3		288'			170	9.96	
F							O					
P	S-2	395+00.00	LT./RT.	EW, PIPE, EW	3			288'		214	13.84	
F								O				
P	S-3	531+93.73	LT./RT.	EW, PIPE, EW	4	352'				176	7.94	
F						O						
P												
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DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

SUMMARY OF DRAINAGE STRUCTURES

SHEET NO. 6

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GENERAL NOTES

1. The Contractor may use any of the optional pipe materials tabulated for a given structure. Only the material options tabulated for a given structure can be used.

2. Adjustment to the bid quantities, prices and payment will not be allowed due to increase or decrease in structure size, shape, length, width, depth or accessory construction necessary to accommodate the use of an optional pipe material other than the "plotted" option; likewise there will be no added or reduced compensation for structure alterations required to relieve utility conflicts which arise from the use of an optional material other than the "plotted" option.

3. Adjustment to the bid quantities, prices and payment will not be allowed due to increased or decreased excavation, bedding, borrow, backfilling, compaction, special installation requirements or disposal of excess materials due to use of any of the pipe optional materials. Likewise, adjustment in the quantities, prices and payment will not be allowed due to differences in end treatment size or types, pipe length, alternate jointing and connecting materials, saddles, cradles, filter fabrics, shoring or similar features due to the use of an optional material other than the "plotted" option.

4. If adjustments are required due to plan errors or omissions or authorized field changes, the "plotted" material and not the material elected by the Contractor would be used to establish new pay quantities.

5. The Contractor shall notify the Department in writing as to which optional pipe material he chooses to use at the preconstruction conference. Once identified the contactor may not change pipe material selected without the approval of the Engineer.

6. Pipe shapes other than round (Ellipitical/Arch) are summarized and paid for using equivalent round pipe diameter.

OPTIONAL MATERIALS SYSTEMS

STRUCTURE	SIZE (")	MATERIAL	PLOTTED	AS BUILT	REMARKS
SD-1 SD-2 SD-3	18"	RCP (CLASS I)	X		
SD-4 SD-5 SD-6					
SD-7 SD-8 SD-9					
S-3	24"	RCP (CLASS I)	X		
S-1	30"	RCP (CLASS I)	X		
S-2	36"	RCP (CLASS I)	X		

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

OPTIONAL MATERIALS TABULATION

SHEET NO. 7

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GENERAL NOTES

1. THE BENCH MARK DATUM IN PLANS IS BASED ON NGVD 1929.
2. EXISTING DRAINAGE STRUCTURES WITHIN CONSTRUCTION LIMITS SHALL REMAIN, UNLESS OTHERWISE NOTED.
3. WHEN APPROACHING EXISTING DRIVEWAYS, ALL PROPOSED DITCHES SHALL TIE INTO EXISTING SIDE DRAINS UNLESS SHOWN OTHERWISE IN PLANS.
4. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE ENGINEER SHOULD NOTIFY THE DISTRICT LOCATION SURVEYOR, JOSEPH BRANDENBURG, WITHOUT DELAY, BY TELEPHONE AT 863-519-2290.
5. EXISTING UTILITIES SHALL REMAIN UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL NOTIFY UTILITY OWNERS OF ANY EXCAVATION OR DEMOLITION ACTIVITY THROUGH SUNSHINE ONE CALL OF FLORIDA INC. (1-800-432-4770) or (811) AND SHALL ALSO NOTIFY THOSE UTILITY OWNERS LISTED WITHIN THESE PLANS, NOT LESS THAN TWO (2) FULL BUSINESS DAYS IN ADVANCE OF THE BEGINNING OF CONSTRUCTION ON THE JOB SITE.
7. THE LOCATION(S) OF THE UTILITIES SHOWN IN THE PLANS (INCLUDING THOSE DESIGNATED V_V, V_H AND V_{VH}) ARE BASED ON LIMITED INVESTIGATION TECHNIQUES AND SHOULD BE CONSIDERED APPROXIMATE ONLY. THE VERIFIED LOCATIONS/ELEVATIONS APPLY ONLY AT THE POINTS SHOWN. INTERPOLATIONS BETWEEN THESE POINTS HAVE NOT BEEN VERIFIED.
8. EXISTING TREES WITHIN THE CONSTRUCTION LIMITS SHALL REMAIN UNLESS OTHERWISE NOTED. CONTRACTOR SHALL TAKE DUE CARE TO NOT IMPACT TREES OR ROOTS. GRADING SHALL BE ADJUSTED TO MEET FIELD CONDITIONS.
9. DITCH OFFSETS ARE APPROXIMATE. CONTRACTOR SHALL ADJUST TO MEET FIELD CONDITIONS.
10. ANY EXISTING SIGN TO REMAIN THAT IS DISTURBED DURING CONSTRUCTION OR RELOCATED SHALL BE RESET TO CURRENT STANDARDS FOR HEIGHT, OFFSET AND METHOD OF INSTALLATION.

UTILITY OWNERS / AGENCIES:

COMPANY	CONTACT PERSON	PHONE NUMBER
FLORIDA POWER & LIGHT DISTRIBUTION	GREG COKER	941-723-4430
FLORIDA POWER & LIGHT TRANSMISSION	PETER WASHIO	561-904-3693
GLADES ELECTRIC COOPERATIVE	TIM LOWMAN	1-800-226-4025
CENTURYLINK	JAN GLOCKENGEISER	941-380-2726

SUMMARY OF FLOOD DATA

STRUCTURE NO.	STATION	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD				GREATEST FLOOD			
		2% PROB.	50 YR.FREQ.	1% PROB.	100 YR.FREQ.								
		DISCHARGE	STAGE	DISCHARGE	STAGE	DISCHARGE	STAGE	PROB. %	FREQ. YR.	DISCHARGE	STAGE	PROB. %	FREQ. YR.
S-1	356+00.00	100.14	33.30	123.70	34.24	N/A	N/A	N/A	N/A	210.29	36.22	0.02	500
S-2	395+00.00	144.20	34.73	178.13	35.50	N/A	N/A	N/A	N/A	302.82	37.33	0.02	500
S-3	531+93.73	85.45	37.97	105.56	38.92	133.59	40.62	0.39	258	179.45	41.33	0.02	500

NOTE: THE HYDRAULIC DATA IS SHOWN FOR INFORMATIONAL PURPOSES ONLY, TO INDICATE THE FLOOD DISCHARGES AND WATER SURFACE ELEVATIONS WHICH MAY BE ANTICIPATED IN ANY GIVEN YEAR. THIS DATA WAS GENERATED USING HIGHLY VARIABLE FACTORS DETERMINED BY A STUDY OF THE WATERSHED. MANY JUDGEMENTS AND ASSUMPTIONS ARE REQUIRED TO ESTABLISH THESE FACTORS. THE RESULTANT HYDRAULIC DATA IS SENSITIVE TO CHANGES, PARTICULARLY OF ANTECEDENT CONDITIONS, URBANIZATION, CHANNELIZATION, AND LAND USE. USERS OF THIS DATA ARE CAUTIONED AGAINST THE ASSUMPTION OF PRECISION WHICH CAN NOT BE ATTAINED. DISCHARGES ARE IN CUBIC FEET PER SECOND AND STAGES ARE IN FEET, NAVD, 1929.

DEFINITIONS:

DESIGN FLOOD: THE FLOOD SELECTED BY F.D.O.T. TO BE UTILIZED TO ASSURE A STANDARD LEVEL OF HYDRAULIC PERFORMANCE.

BASE FLOOD: THE FLOOD HAVING A 1% CHANCE OF BEING EXCEEDED IN ANY YEAR. (100 YR. FREQUENCY)

OVERTOPPING FLOOD: THE FLOOD WHERE FLOW OCCURS (A) OVER THE HIGHWAY (B) OVER A WATERSHED DIVIDE OR (C) THRU EMERGENCY RELIEF STRUCTURES.

GREATEST FLOOD: THE MOST SEVERE FLOOD WHICH CAN BE PREDICTED WHERE OVERTOPPING IS NOT PRACTICABLE, NORMALLY ONE WITH A 0.2% CHANCE OF BEING EXCEEDED IN ANY YEAR. (500 YR. FREQUENCY)

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

GENERAL NOTES

SHEET NO. 8

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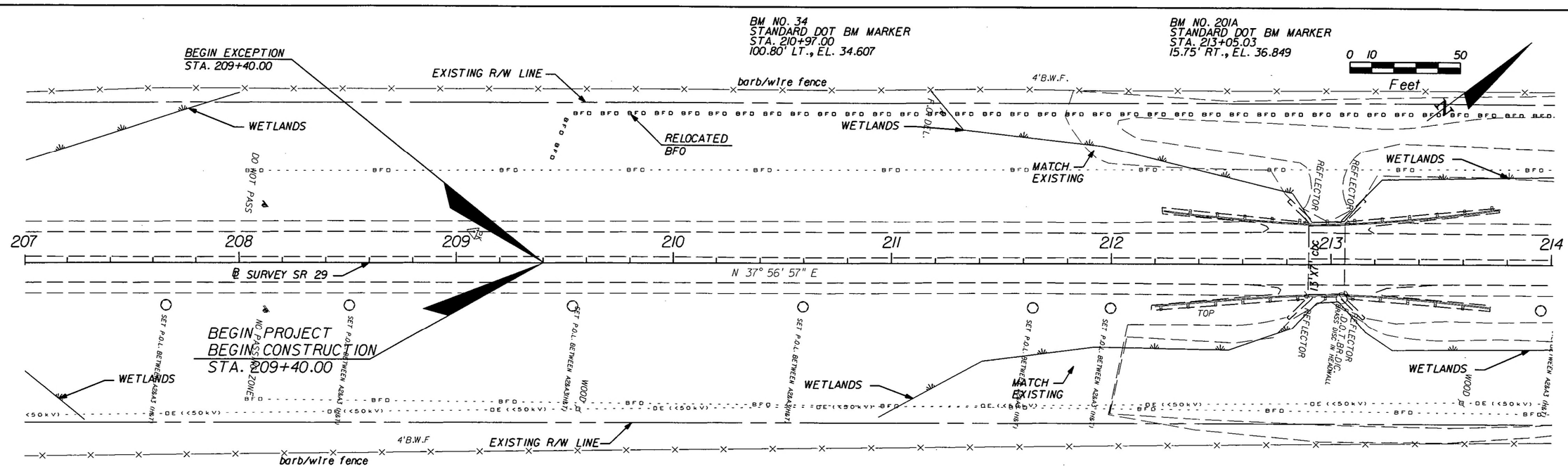

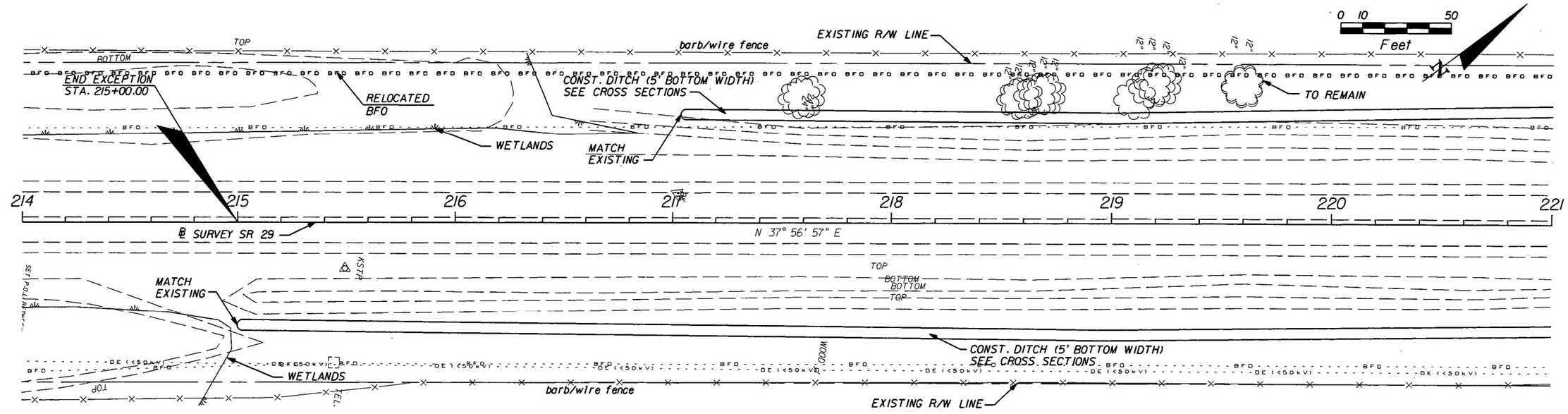

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (1)

SHEET NO. 9

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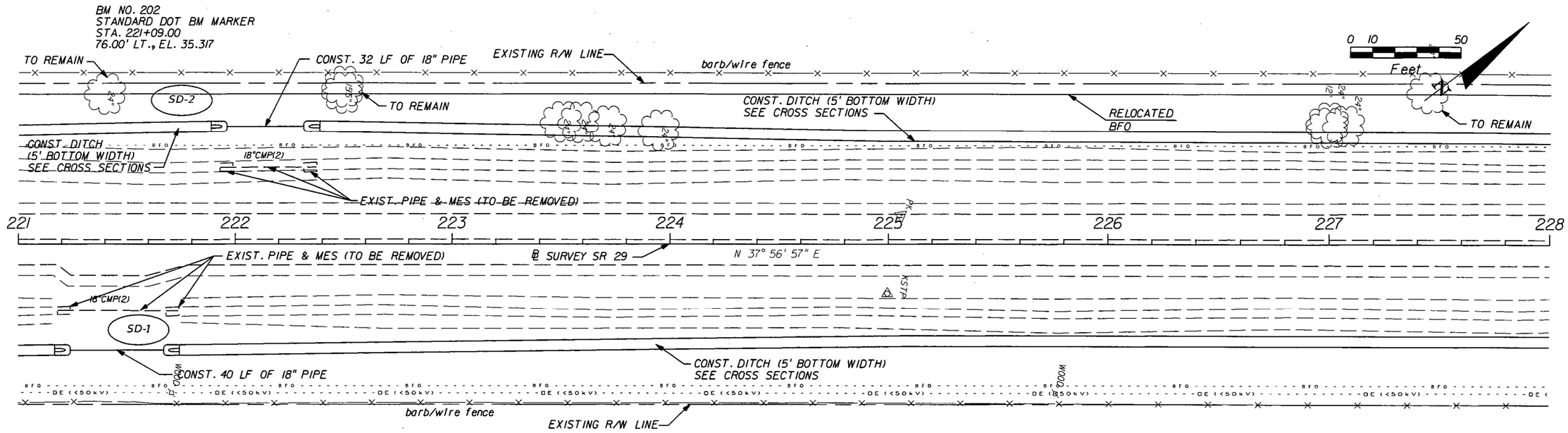

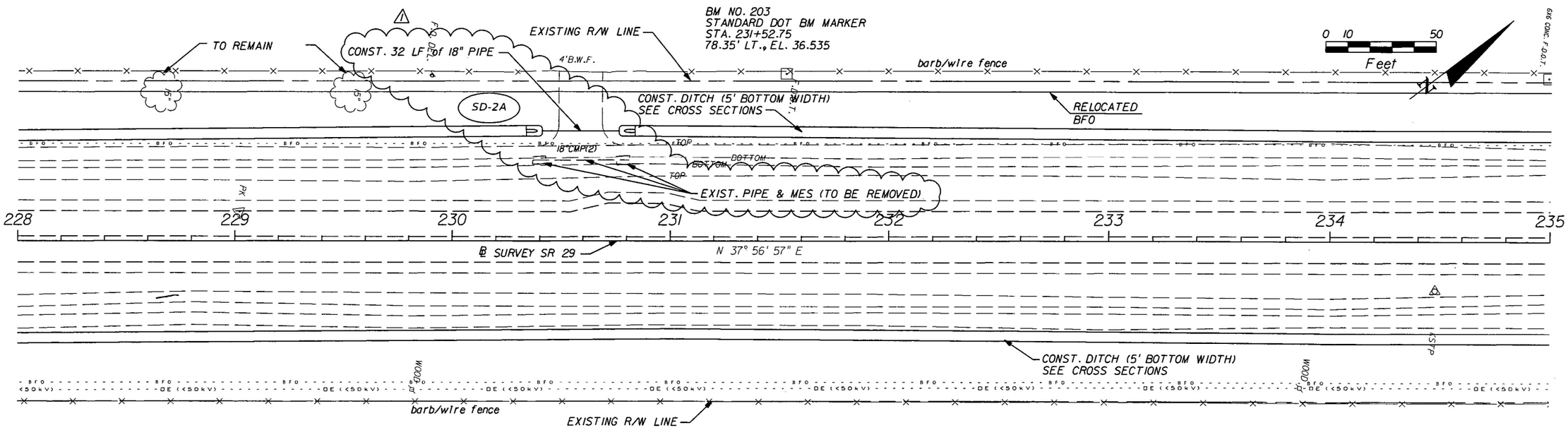

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DATE	DESCRIPTION	DATE	DESCRIPTION
03/04/13	⚠ PROPOSED REPLACEMENT OF EXIST. SIDE DRAIN		

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DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (2)

SHEET NO. 10

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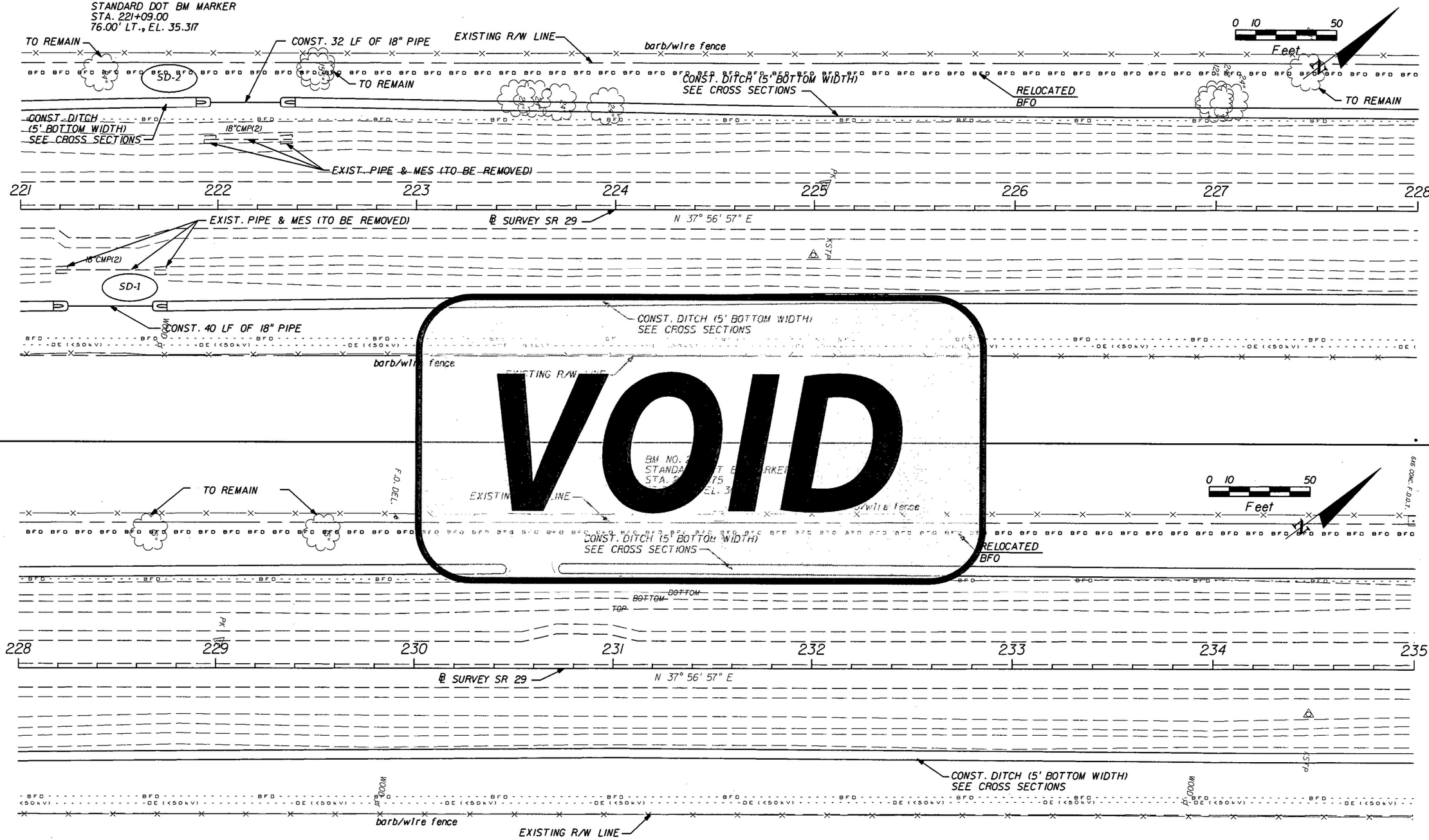

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29	GLADES	431394-1-52-01

ROADWAY PLAN (2)

SHEET NO. 10

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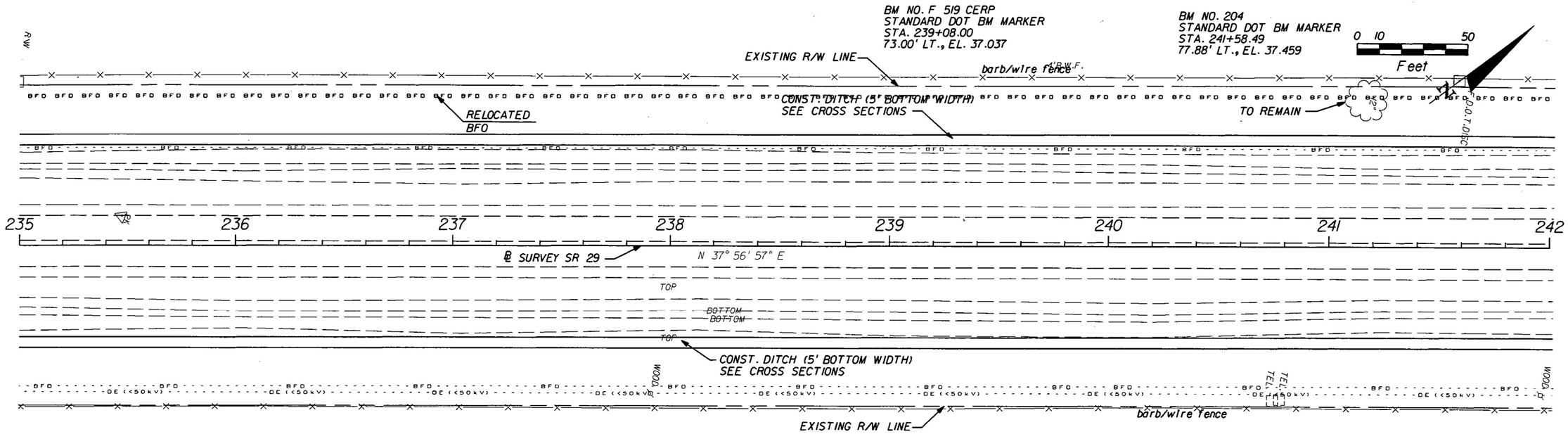

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29	GLADES	431394-1-52-01

ROADWAY PLAN (3)

SHEET NO. 11

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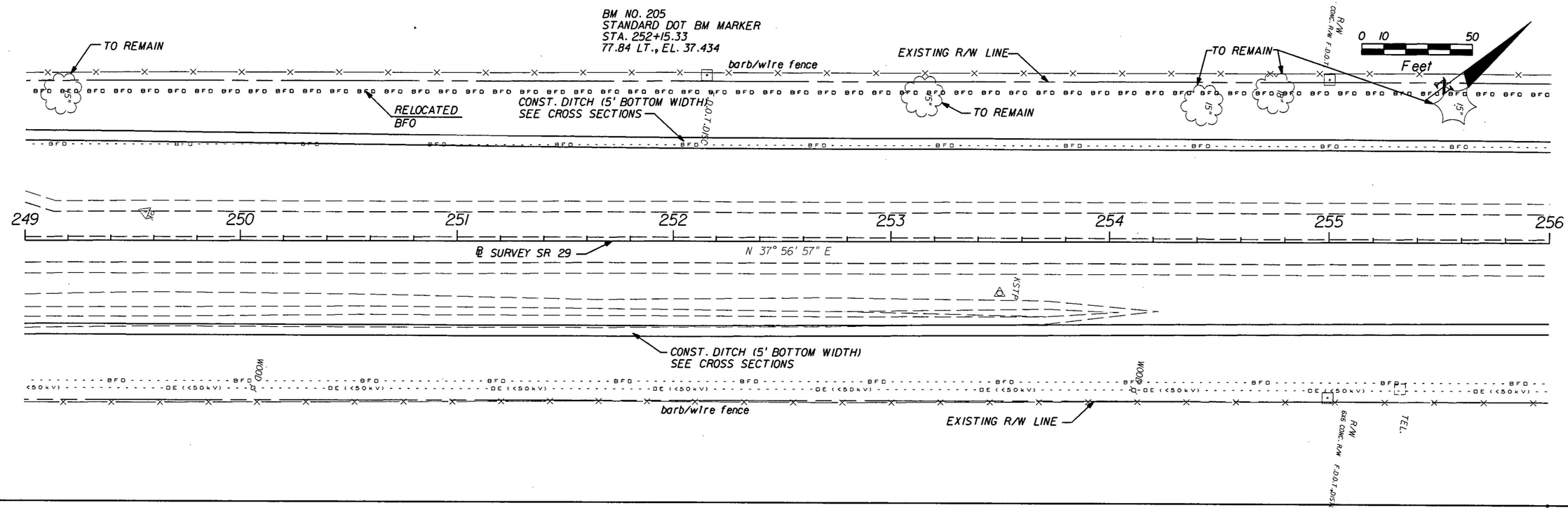

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (4)

SHEET NO. 12

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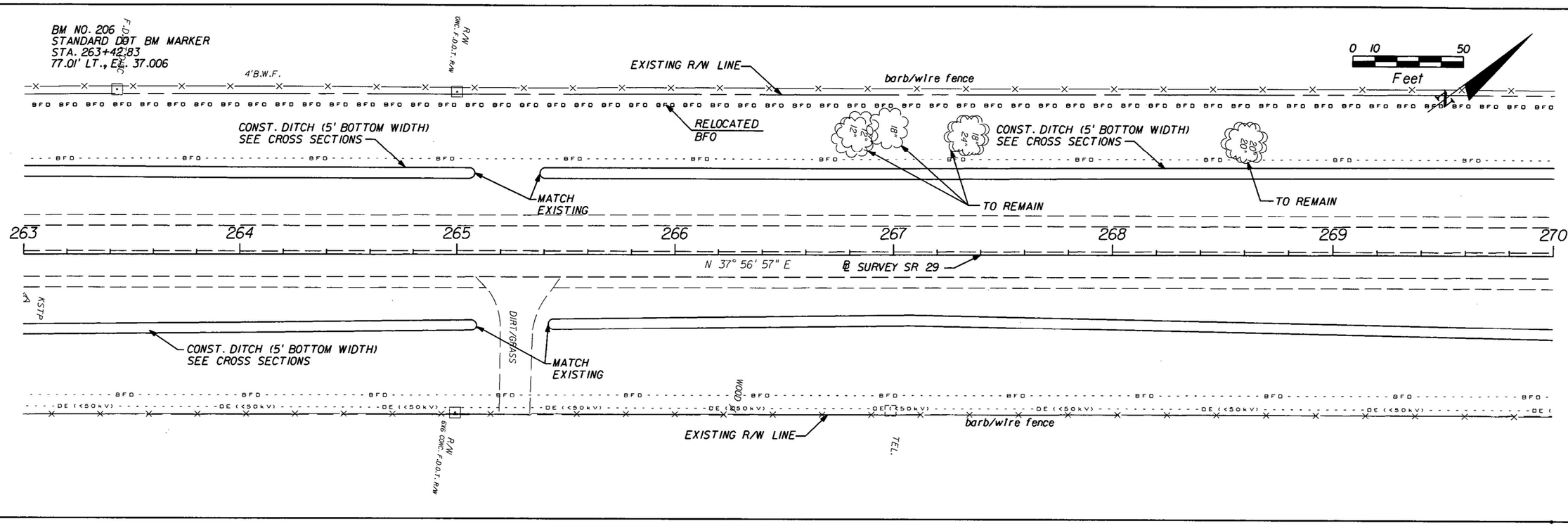

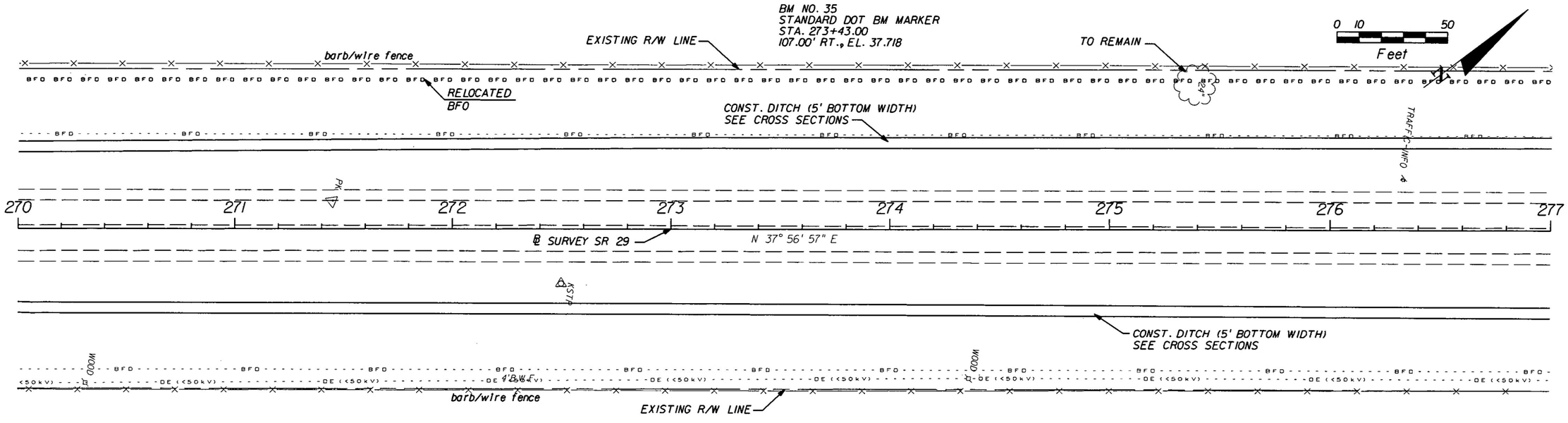

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29	GLADES	431394-1-52-01

ROADWAY PLAN (5)

SHEET NO. 13

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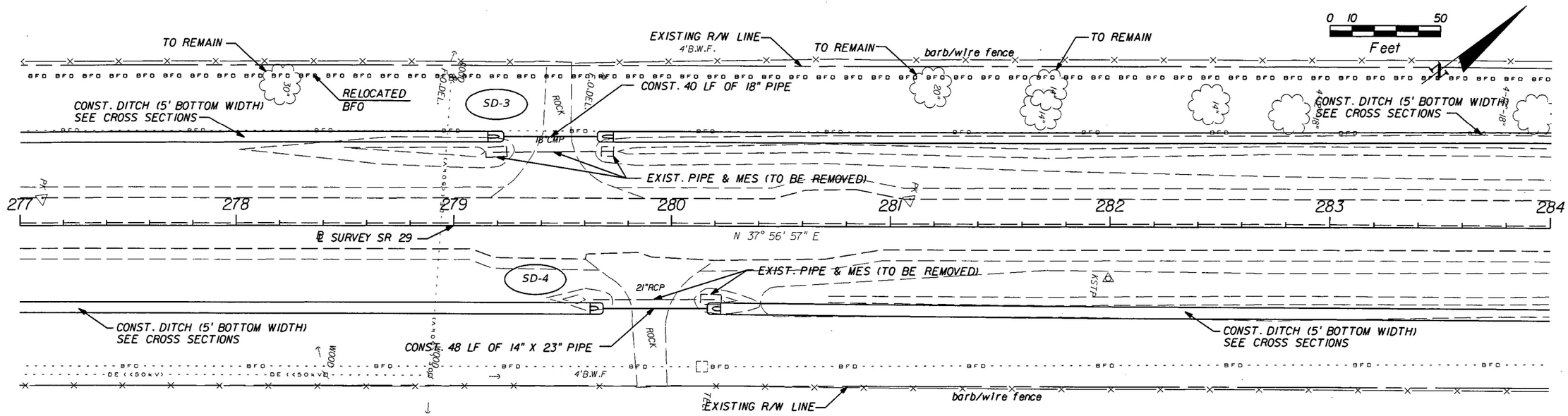

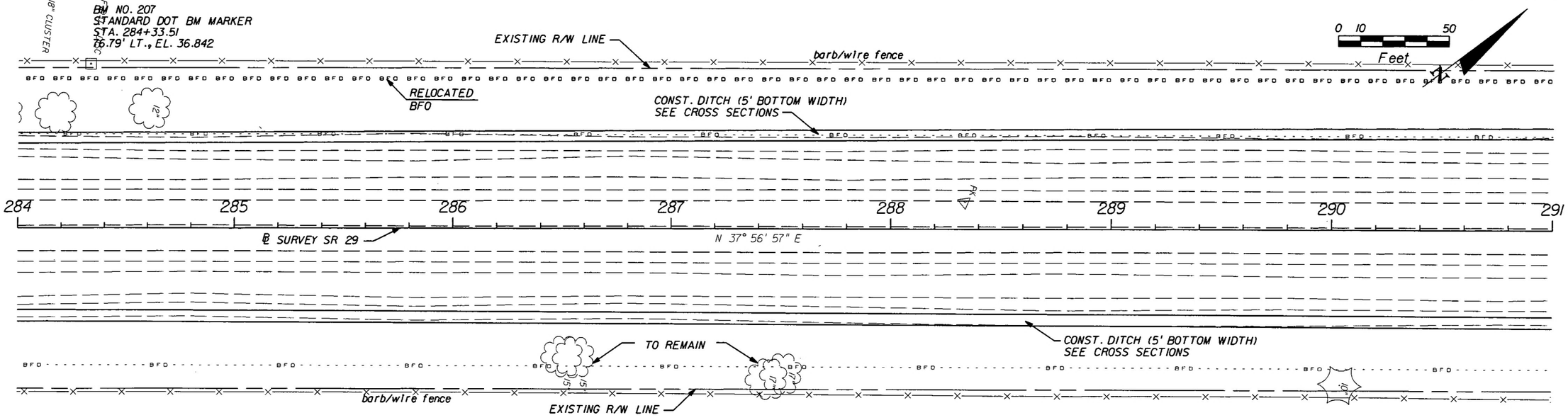

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ROADWAY PLAN (6)

SHEET NO. 14

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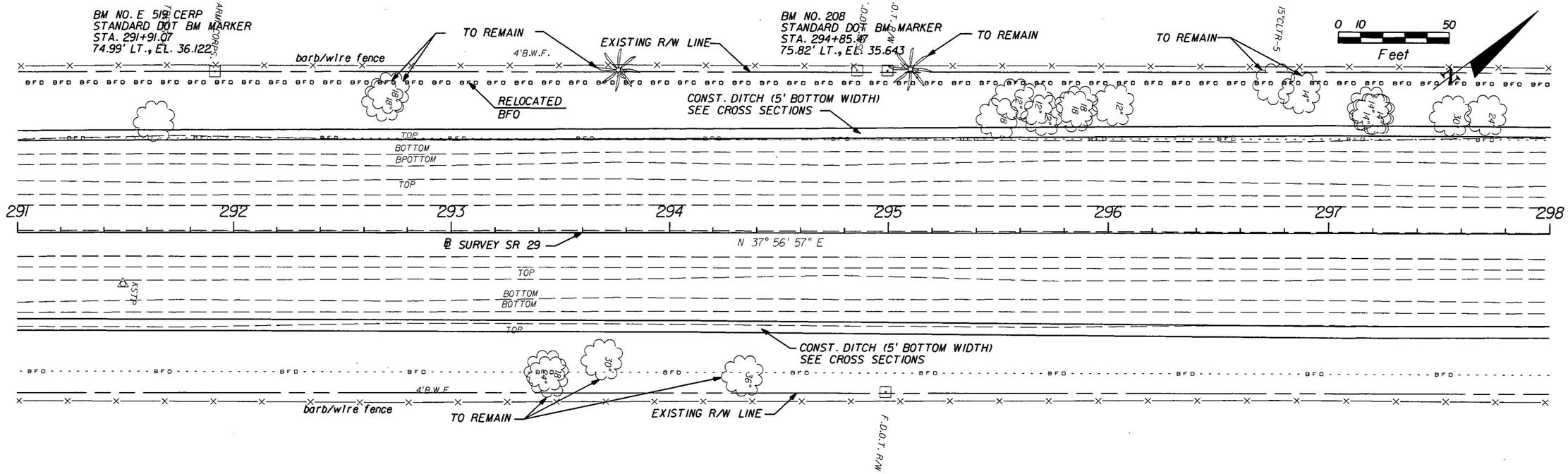

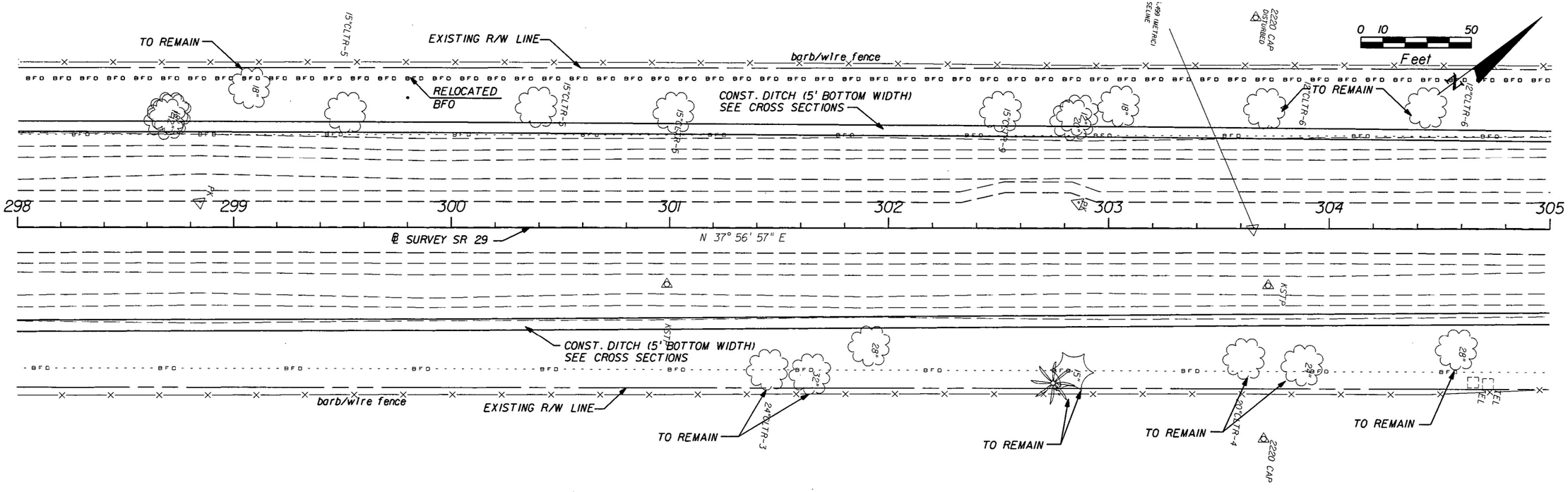

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AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
CERTIFICATE OF AUTHORIZATION NO. 3114
E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (7)

SHEET NO. 15

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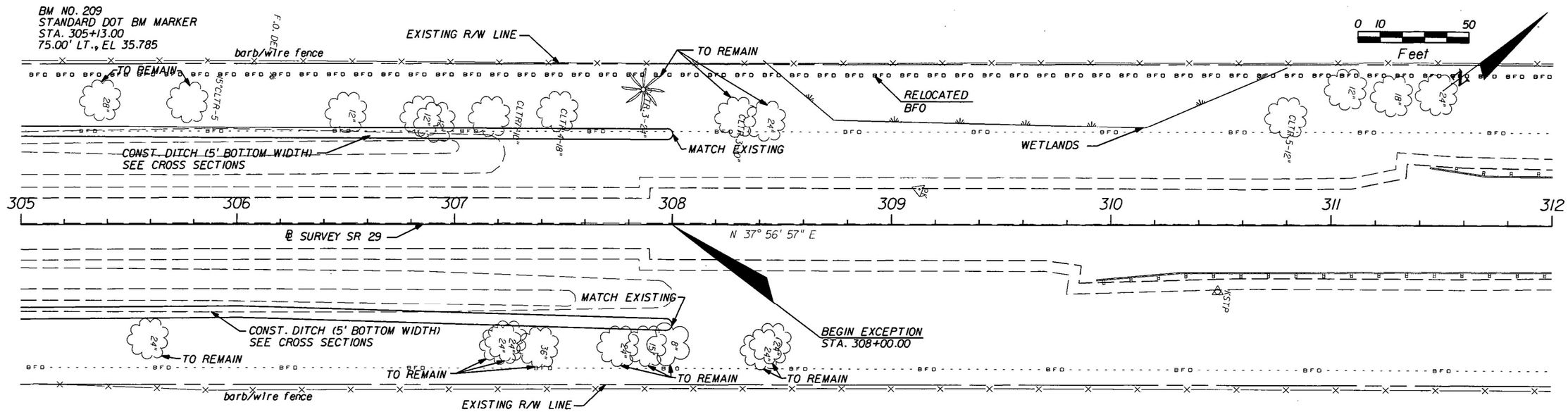

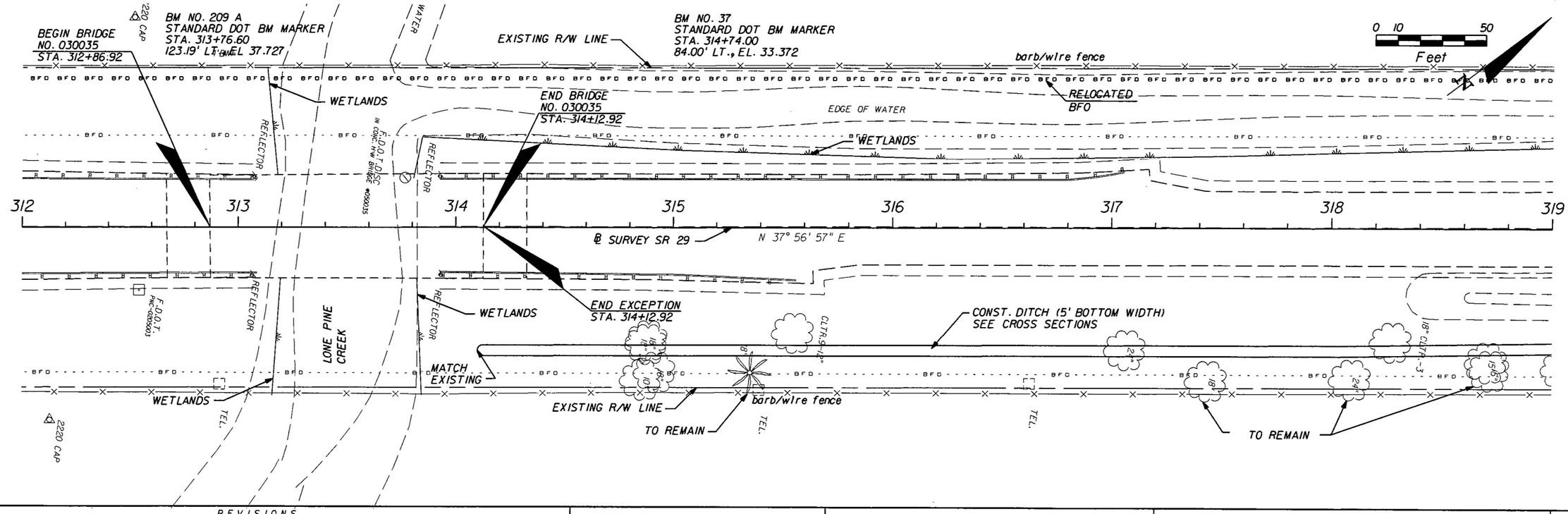

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (8)

SHEET NO. 16

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DESILT PIPE
EXISTING R/W LINE
barb/wire fence
TURBED
BM NO. 210
STANDARD DOT BM MARKER
STA. 325+49.00
76.00' LT., EL. 32.662
0 10 50
Feet
TOP
RELOCATED BFO
EDGE OF WATER
EDGE OF WATER
WETLANDS
48"CMP(2)
ROCK
RIP-RAP
WETLANDS
MATCH EXISTING
CONST. DITCH (5' BOTTOM WIDTH) SEE CROSS SECTIONS
319 320 321 322 323 324 325 326
℄ SURVEY SR 29
N 37° 56' 57" E
TOP
BOTTOM
TOP
KSTP
CONST. DITCH (5' BOTTOM WIDTH) SEE CROSS SECTIONS
4'BWF
SET P.O.L. BETWEEN A148/A15. (IRC)
14"CLTR-4
21"CLTR-4
TO REMAIN
TO REMAIN
EXISTING R/W LINE
barb/wire fence
TO REMAIN
TO REMAIN
FND REFERENCE

EXISTING R/W LINE
TO REMAIN
TO REMAIN
TO REMAIN
barb/wire fence
0 10 50
Feet
RELOCATED BFO
CONST. DITCH (5' BOTTOM WIDTH) SEE CROSS SECTIONS
30"CLTR-3
TO REMAIN
326 327 328 329 330 331 332 333
℄ SURVEY SR 29
N 37° 56' 57" E
TOP
KSTP
BOTTOM
CONST. DITCH (5' BOTTOM WIDTH) SEE CROSS SECTIONS
barb/wire fence
EXISTING R/W LINE
TO REMAIN
TO REMAIN

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (9)

SHEET NO. 17

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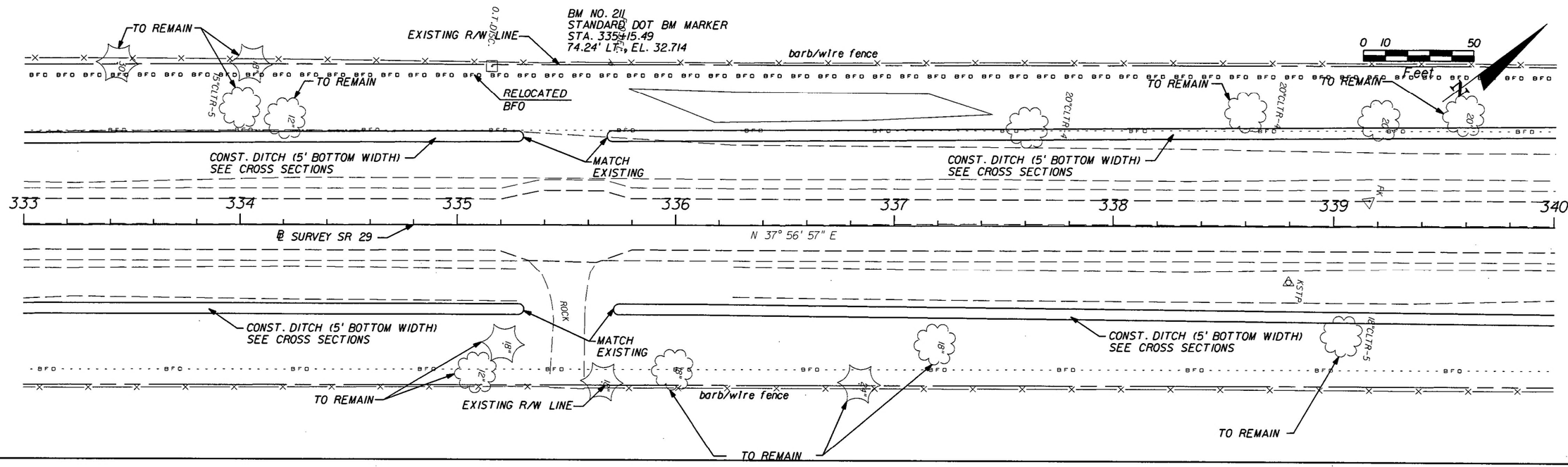

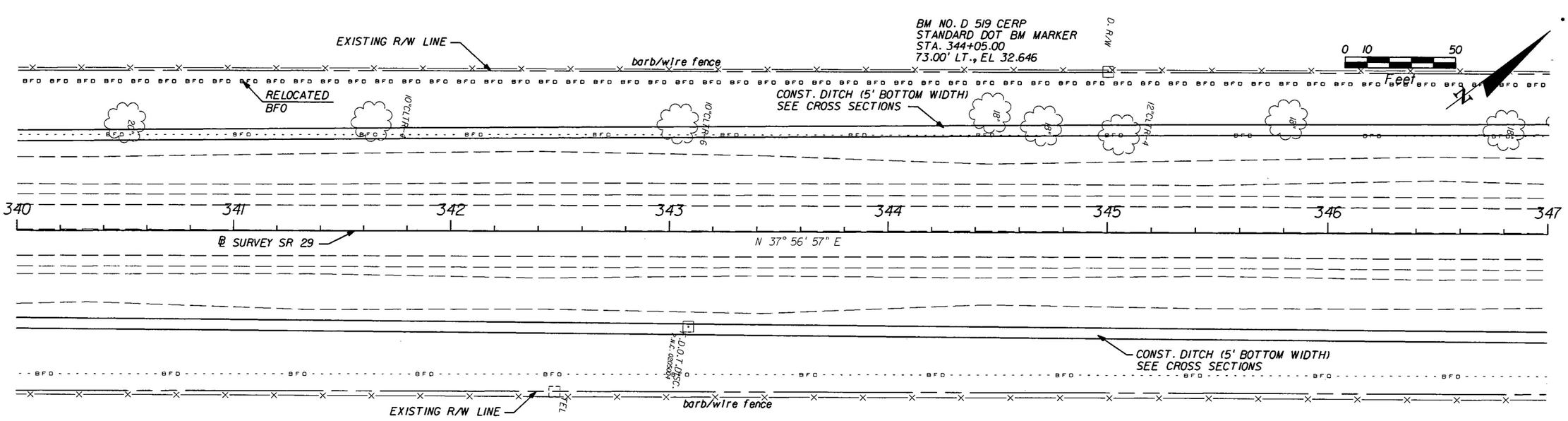

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (10)

SHEET NO. 18

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BM NO. 212
STANDARD DOT BM MARKER
STA. 347+65.16
74.51' LT., EL. 31.972

TO REMAIN

barb/wire fence

EXISTING R/W LINE

RELOCATED BFO

CONST. DITCH (5' BOTTOM WIDTH)
SEE CROSS SECTIONS

TO REMAIN

0 10 50
Feet

347 348 349 350 351 352 353 354

℄ SURVEY SR 29

N 37° 56' 57" E

KSTP

MATCH EXISTING

WETLANDS

CONST. DITCH (5' BOTTOM WIDTH)
SEE CROSS SECTIONS

barb/wire fence

EXISTING R/W LINE

SET P.K. NAIL BEHIND KRM INS.

JENNIFER GAUSE PERRY
LICENSE
No. 58456
STATE OF FLORIDA
PROFESSIONAL ENGINEER

2 INSTALLED 96 LF OF PIPE LINER
IN LIEU OF 30" PIPE

BM NO. 212 A
STANDARD DOT BM MARKER
STA. 356+00.31
47.20' RT., EL 33.554

BM NO. 213
STANDARD DOT BM MARKER
STA. 358+30.64
73.92' LT., EL 31.929

EXISTING R/W LINE

EXIST. ENDWALL (TO BE REMOVED)

WETLANDS

MATCH EXISTING

barb/wire fence

RELOCATED BFO

0 10 50
Feet

CONST. DITCH (5' BOTTOM WIDTH)
SEE CROSS SECTIONS

BOTTOM

MATCH EXISTING

CONST. DITCH (5' BOTTOM WIDTH)
SEE CROSS SECTIONS

CONST. 96 LF OF (3) 30" PIPE
EXIST. (3) 30" PIPE (TO BE REMOVED)

S-1

354 355 356 357 358 359 360 361

℄ SURVEY SR 29

N 37° 56' 57" E

KSTP

MATCH EXISTING

CONST. DITCH (5' BOTTOM WIDTH)
SEE CROSS SECTIONS

WETLANDS

WETLANDS

EXIST. ENDWALL (TO BE REMOVED)

WETLANDS

EXISTING R/W LINE

barb/wire fence

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
	2 ROADWAY SHEETS 19, 22 & 32 (REVISED 5-20-13)		

AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
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E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (11)

SHEET NO. 19

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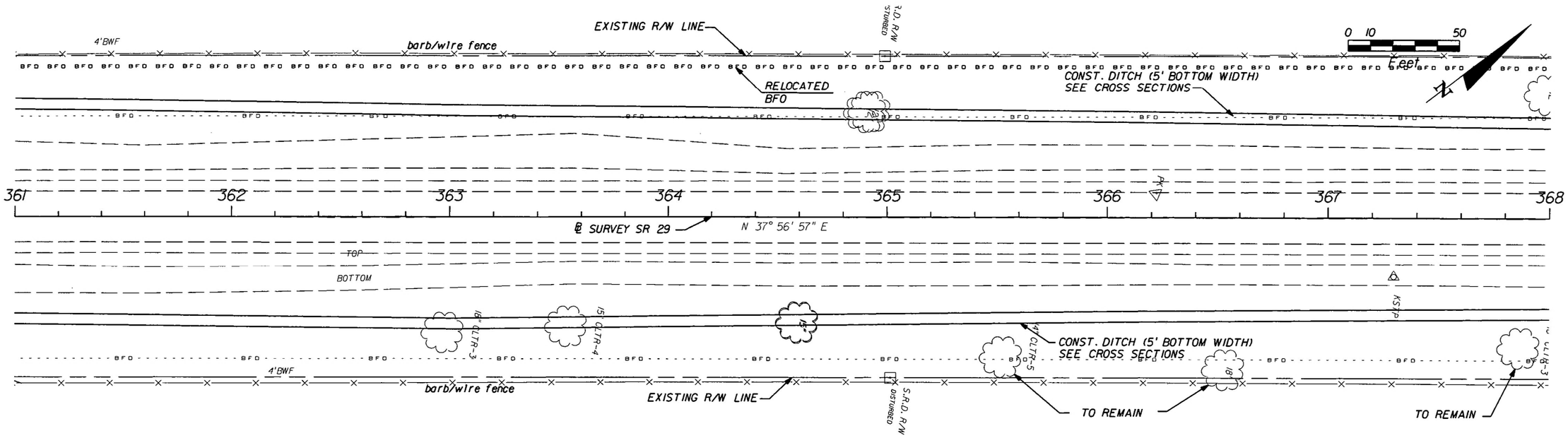

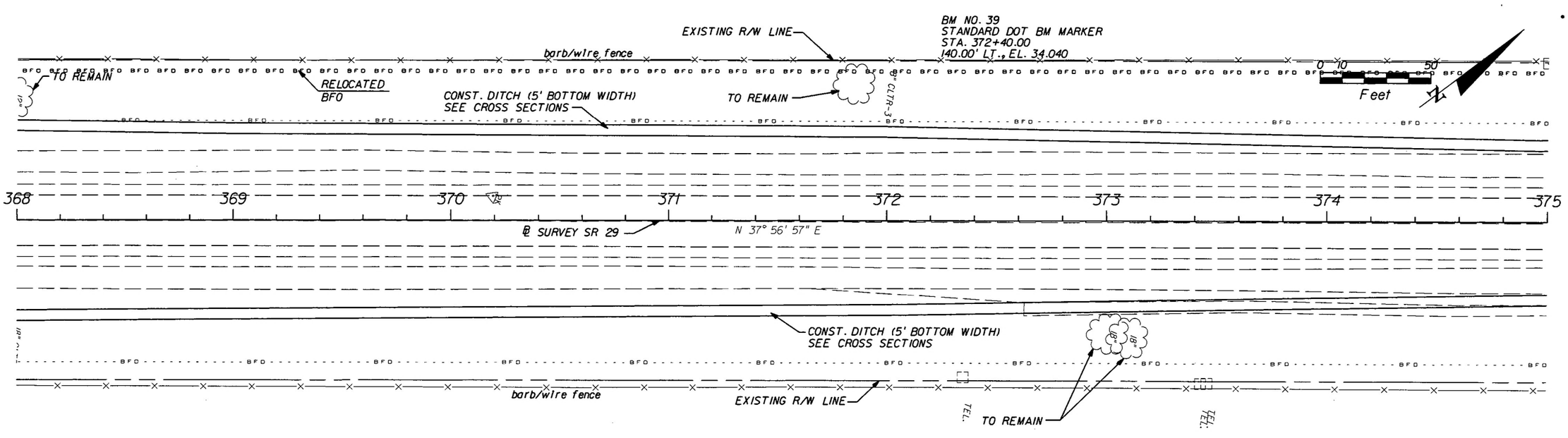

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (12)

SHEET NO. 20

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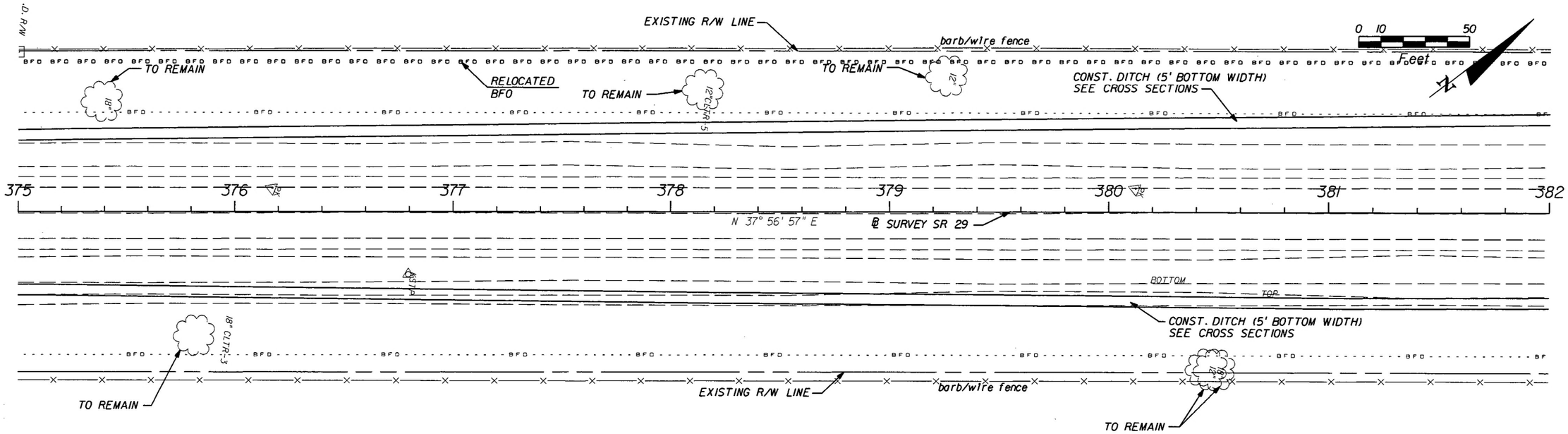

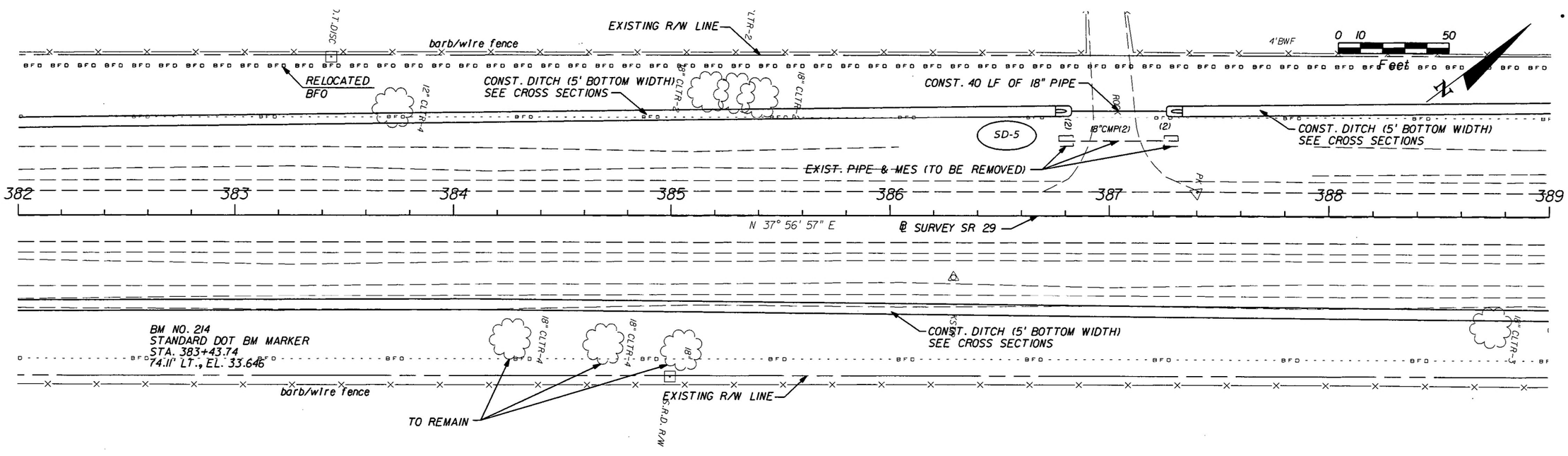

REVISIONS			
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STATE OF FLORIDA
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29	GLADES	431394-1-52-01

ROADWAY PLAN (13)

SHEET NO. 21

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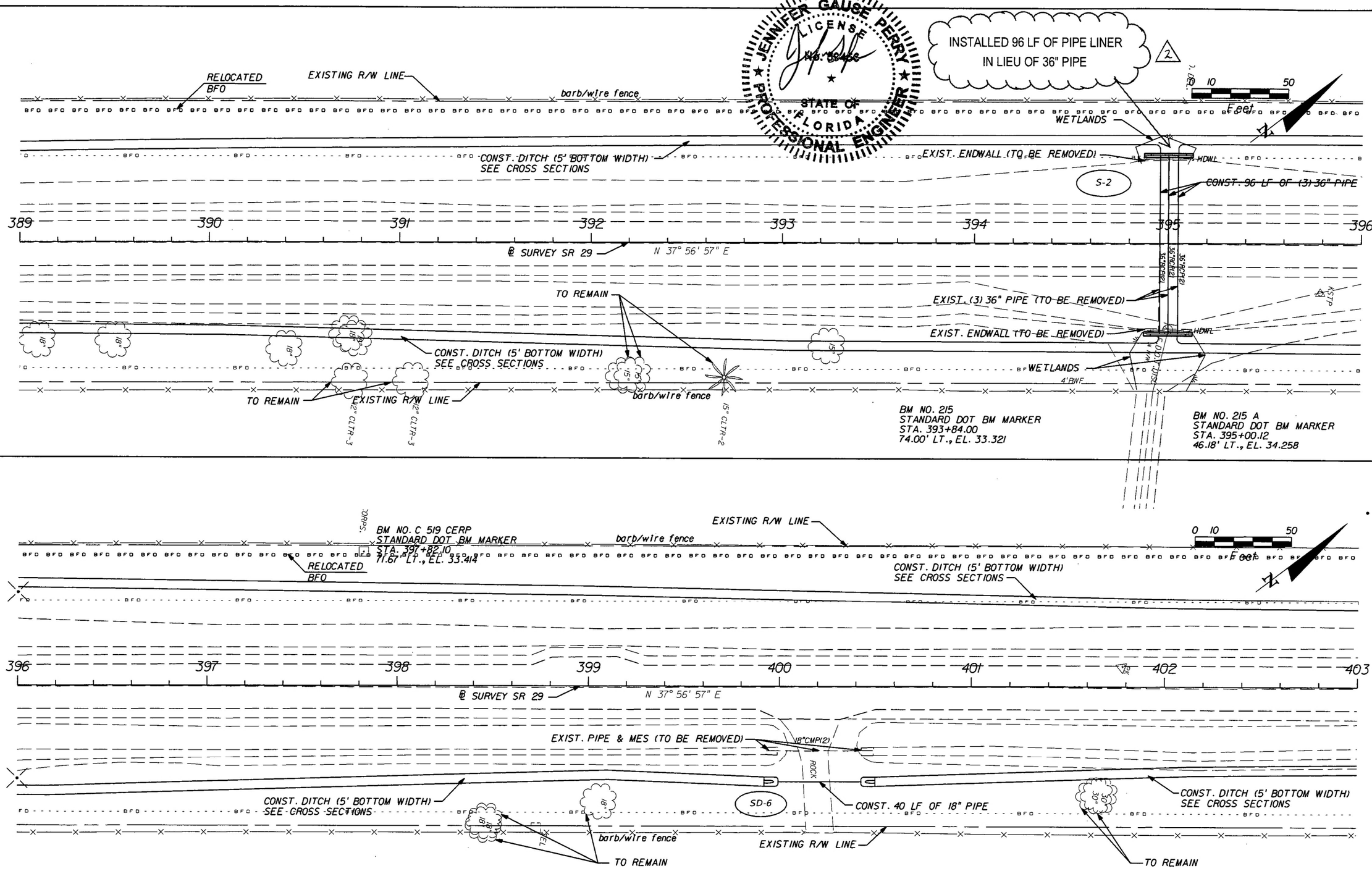

JENNIFER GAUSE PERRY
LICENSE
No. 60226
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
	2 ROADWAY SHEETS 19, 22 & 32 (REVISED 5-20-13)		

AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
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CERTIFICATE OF AUTHORIZATION NO. 3114
E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (14)

SHEET NO. 22

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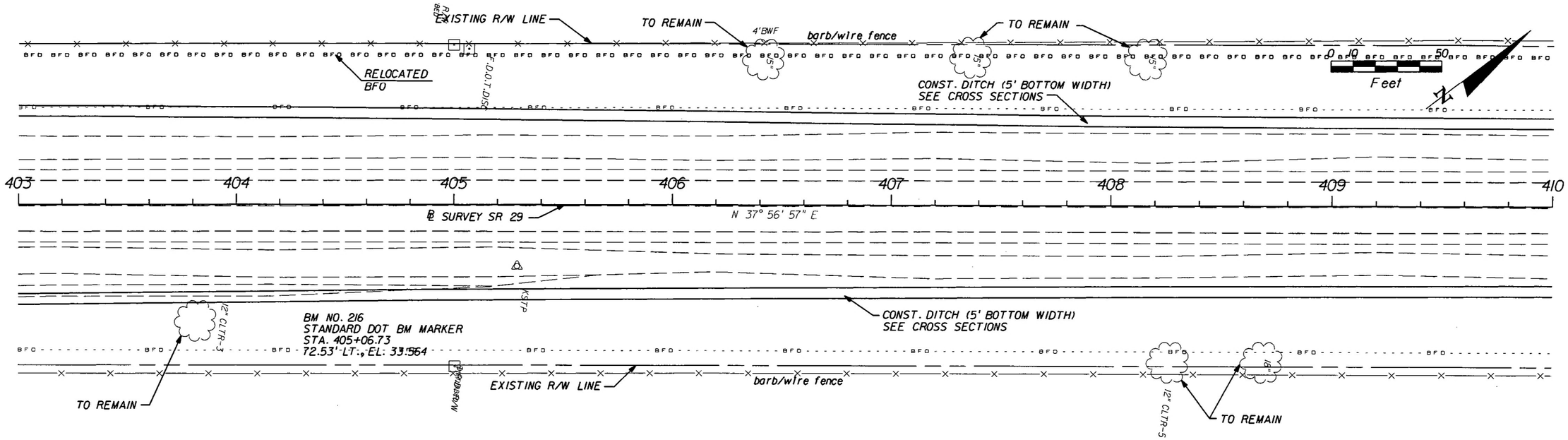

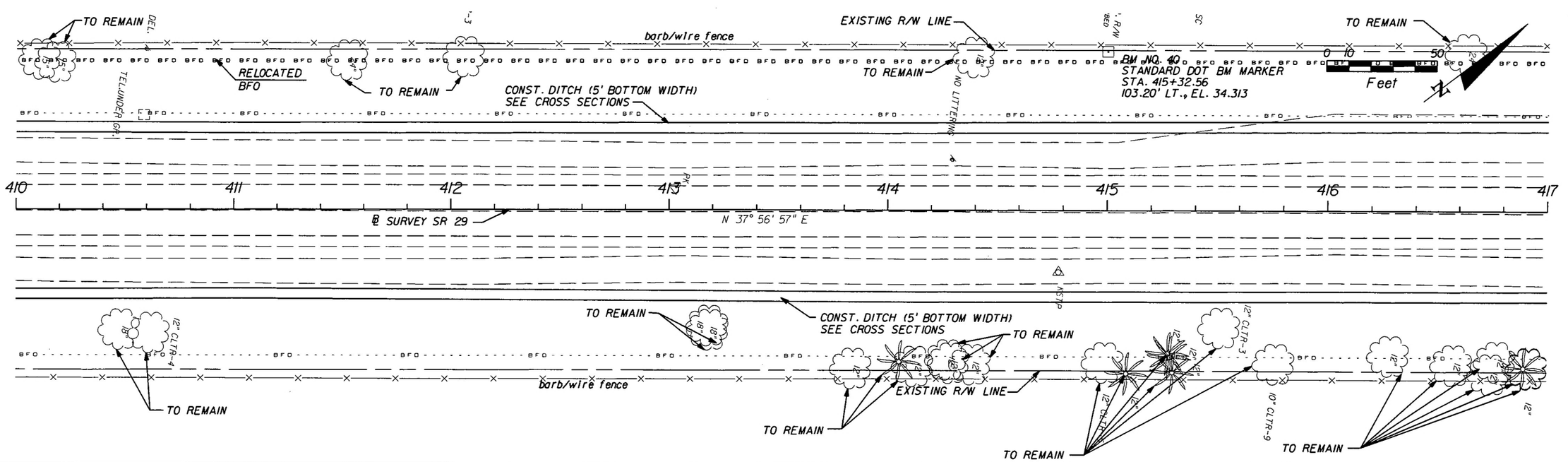

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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29	GLADES	431394-1-52-01

ROADWAY PLAN (15)

SHEET NO. 23

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EXISTING R/W LINE
barb/wire fence
TO REMAIN
RELOCATED BFO
CONST. DITCH (5' BOTTOM WIDTH) SEE CROSS SECTIONS
0 10 50
Feet
417 418 419 420 421 422 423 424
N 37° 56' 57" E
℄ SURVEY SR 29
4'BWF
EXISTING R/W LINE
barb/wire fence

RELOCATED BFO
WETLANDS
BEGIN EXCEPTION STA. 425+40.00
MATCH EXISTING
CONST. DITCH (5' BOTTOM WIDTH) SEE CROSS SECTIONS
REFLECTOR
CHAPARRAL SLOUGH
32"CONC. WALL
BRIDGE NO. 030033
424 425 426 427 428 429 430 431
N 37° 56' 57" E
℄ SURVEY SR 29
EXISTING R/W LINE
BM NO. 216 A
STANDARD DOT BM MARKER
STA. 426+16.24
24.31' RT., EL. 38.977
END EXCEPTION STA. 428+60.00
RELOCATED BFO
WETLANDS
MULTI-TRAFFIC LOOP DIRECTIONS FOR TURNING SCHOOL BUS
BEGIN BRIDGE NO. 030033 STA. 426+04.93
WETLANDS
P.O.L. BETWEEN A
F.D.O.T. DISC IN
CYPRESS BRANCH
END BRIDGE NO. 030033 STA. 427+95.43

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29	GLADES	431394-1-52-01

ROADWAY PLAN (16)

SHEET NO. 24

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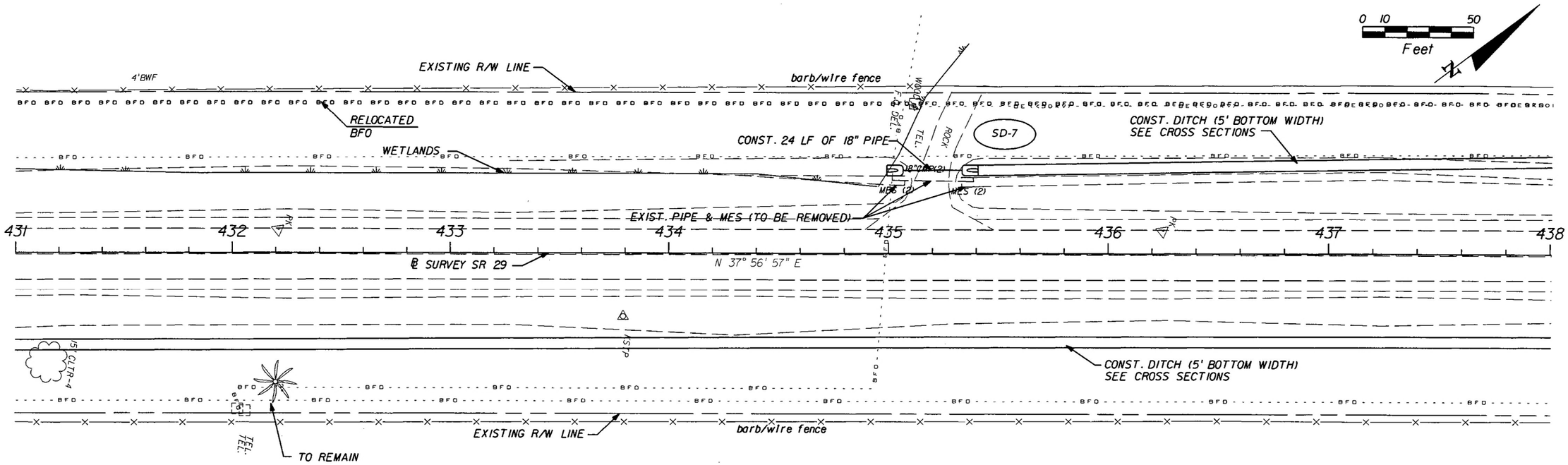

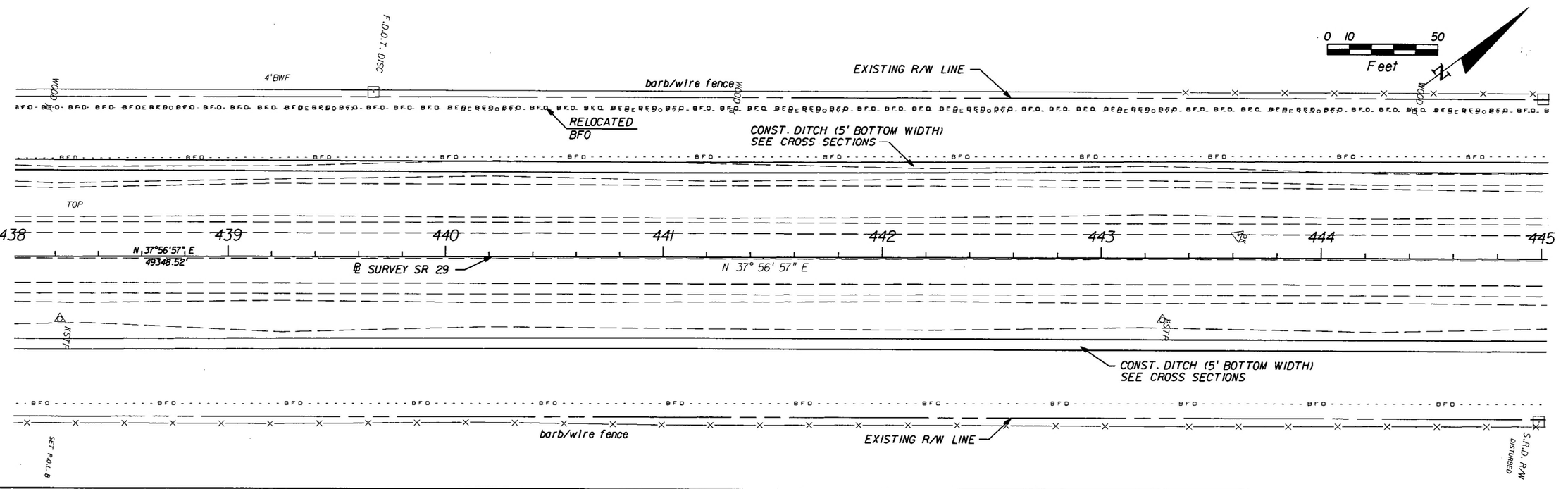

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29	GLADES	431394-1-52-01

ROADWAY PLAN (17)

SHEET NO. 25

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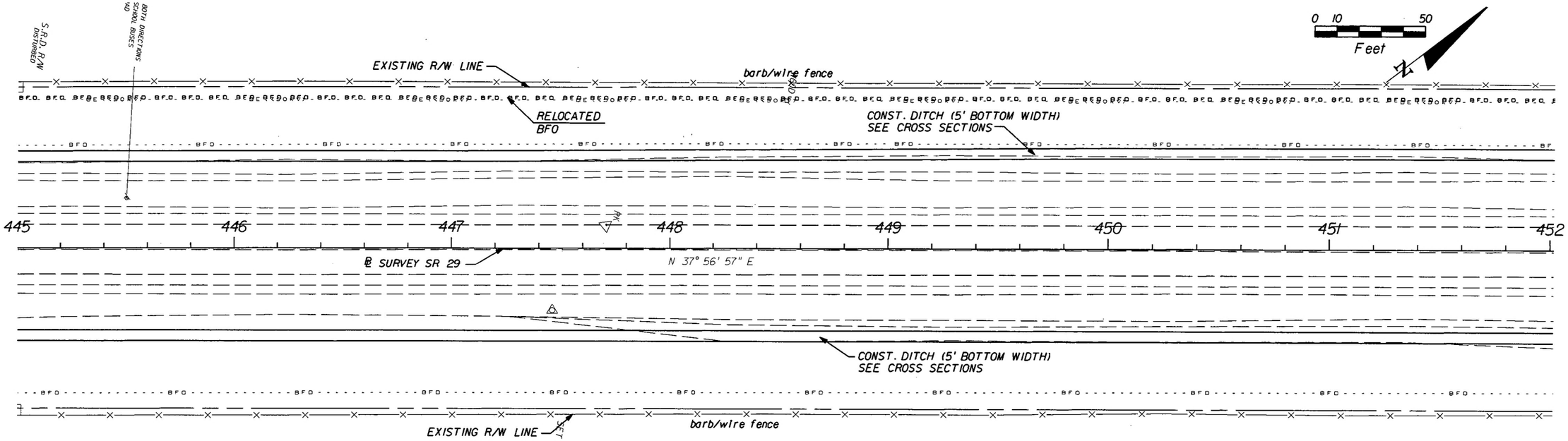

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ROADWAY PLAN (18)

SHEET NO. 26

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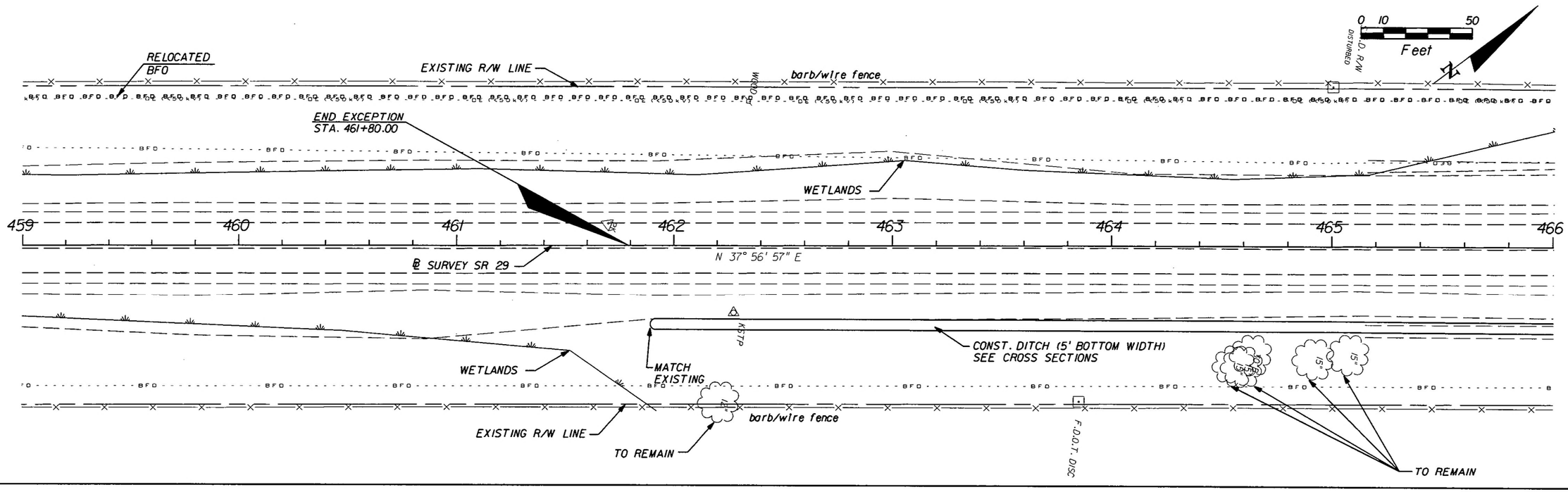

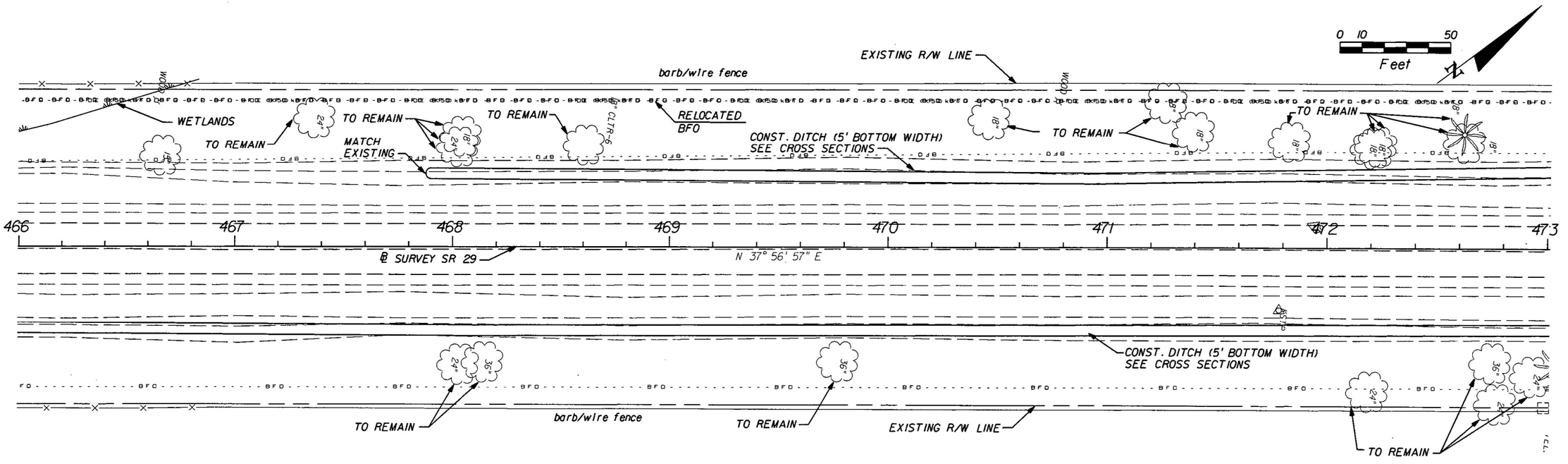

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ROADWAY PLAN (19)

SHEET NO. 27

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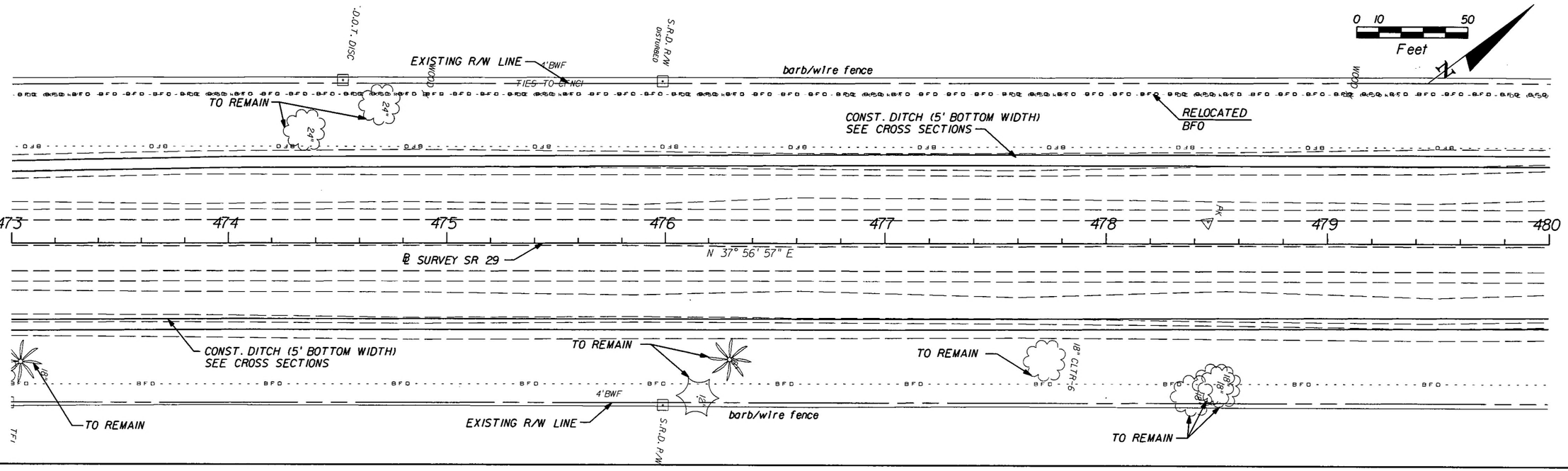

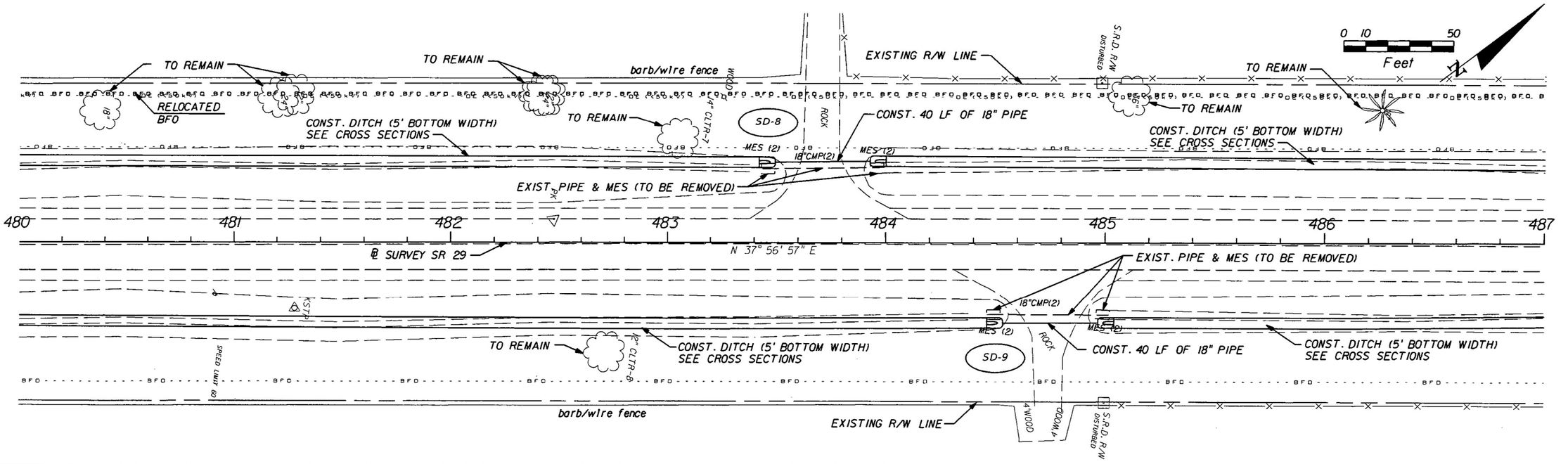

REVISIONS			
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AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
CERTIFICATE OF AUTHORIZATION NO. 3114
E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (20)

SHEET NO. 28

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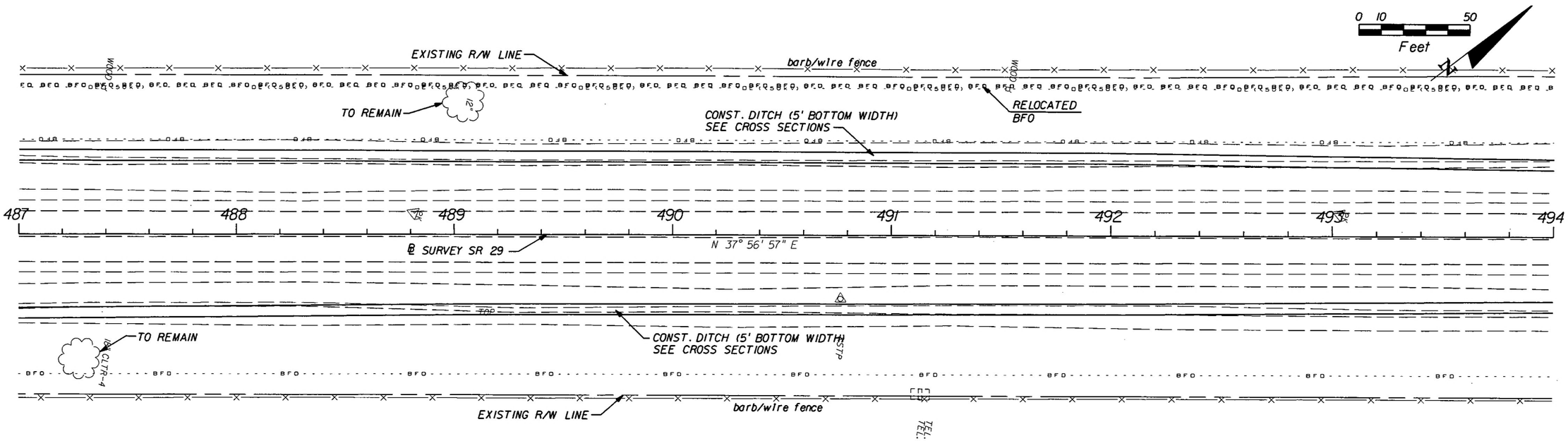

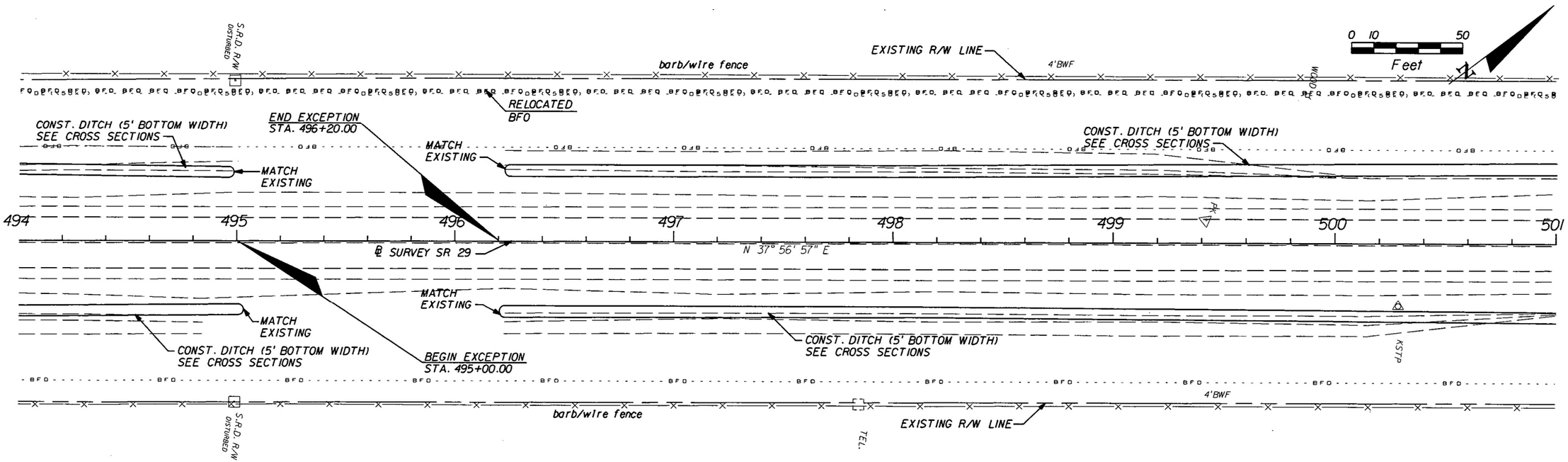

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (21)

SHEET NO. 29

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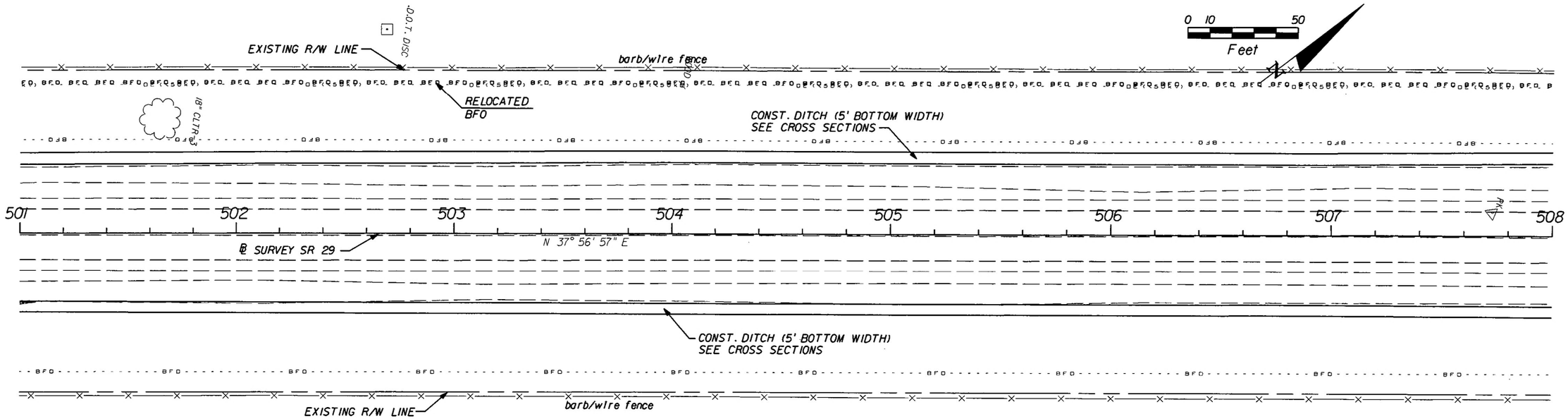

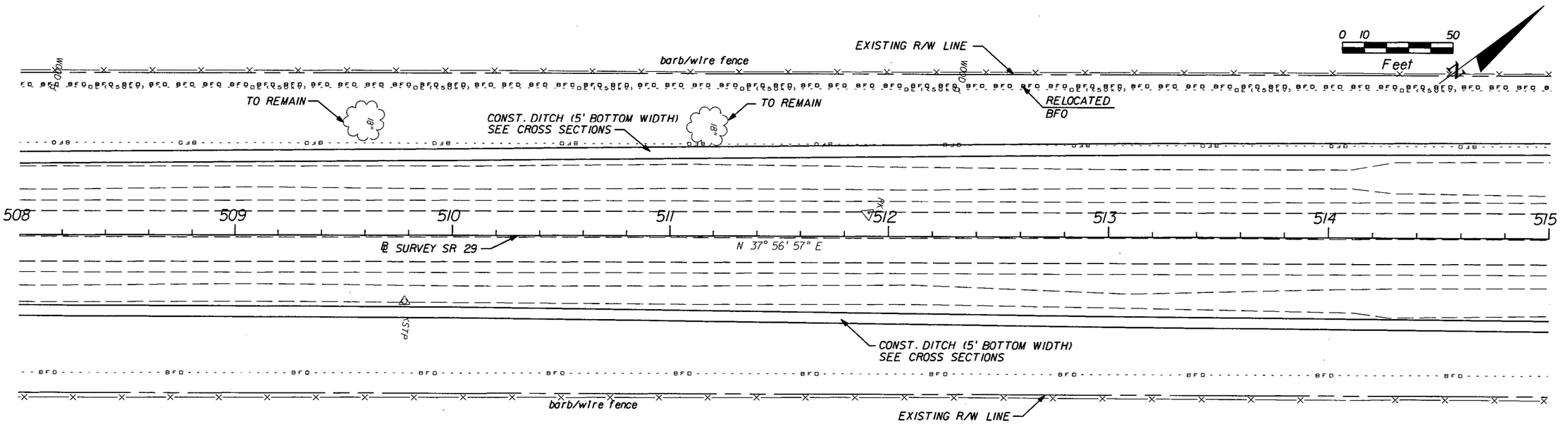

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (22)

SHEET NO. 30

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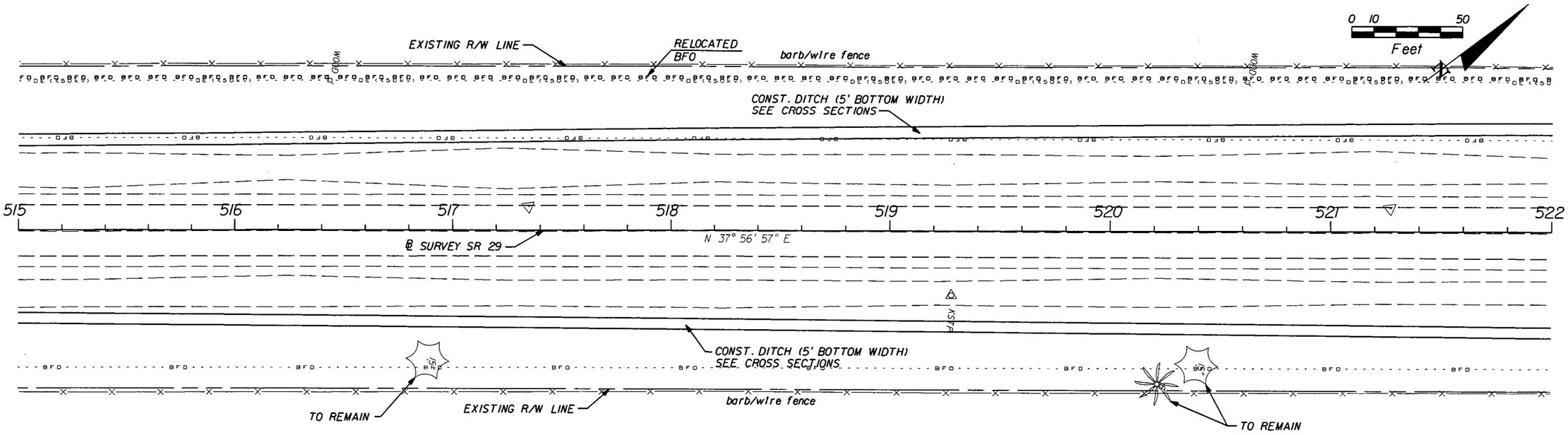

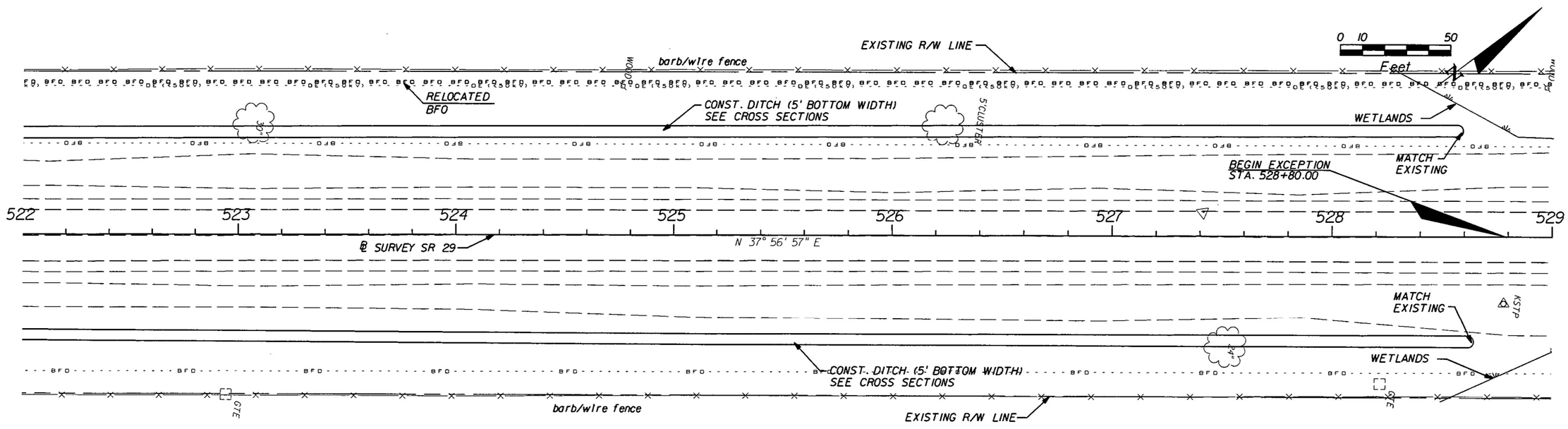

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (23)

SHEET NO. 31

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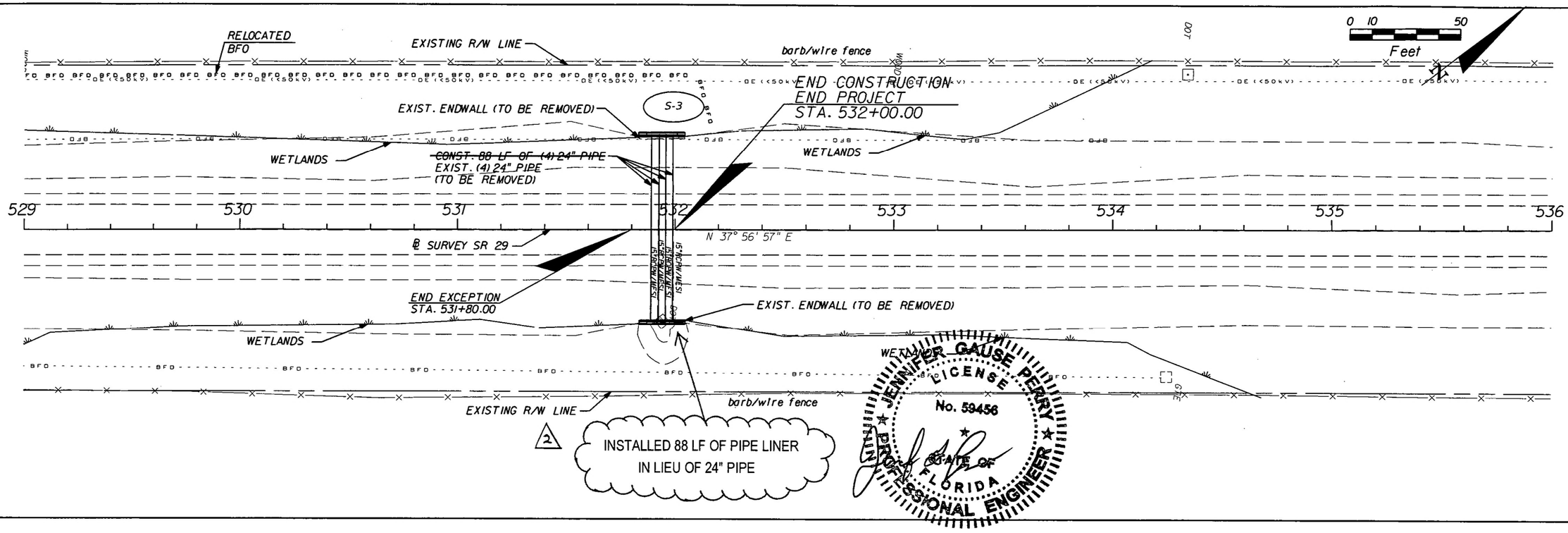

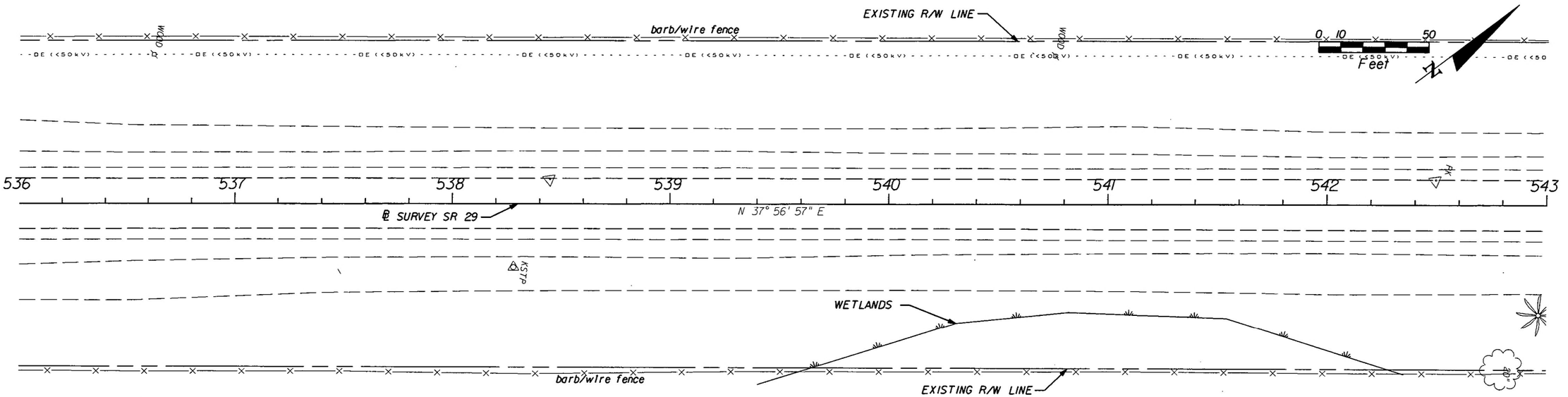

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
	2 ROADWAY SHEETS 19, 22 & 32 (REVISED 5-20-13)		

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

ROADWAY PLAN (24)

SHEET NO. 32

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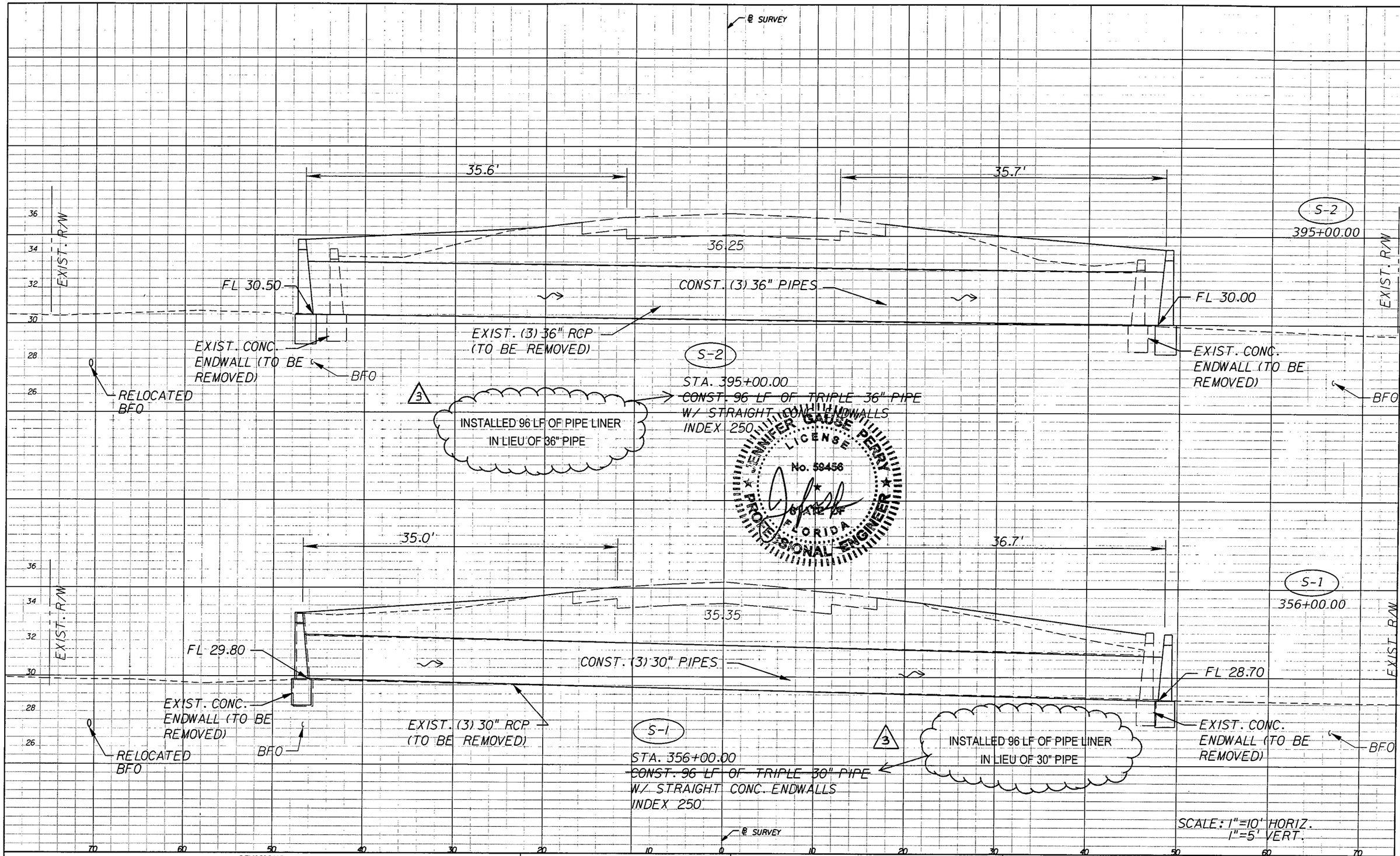

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JENNIFER GAUSE PERRY
LICENSE
No. 59456
STATE OF FLORIDA
PROFESSIONAL ENGINEER

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION
	3 DRAINAGE STRUCTURES SHEETS 33 & 34 (REVISED 5-20-13)		

AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
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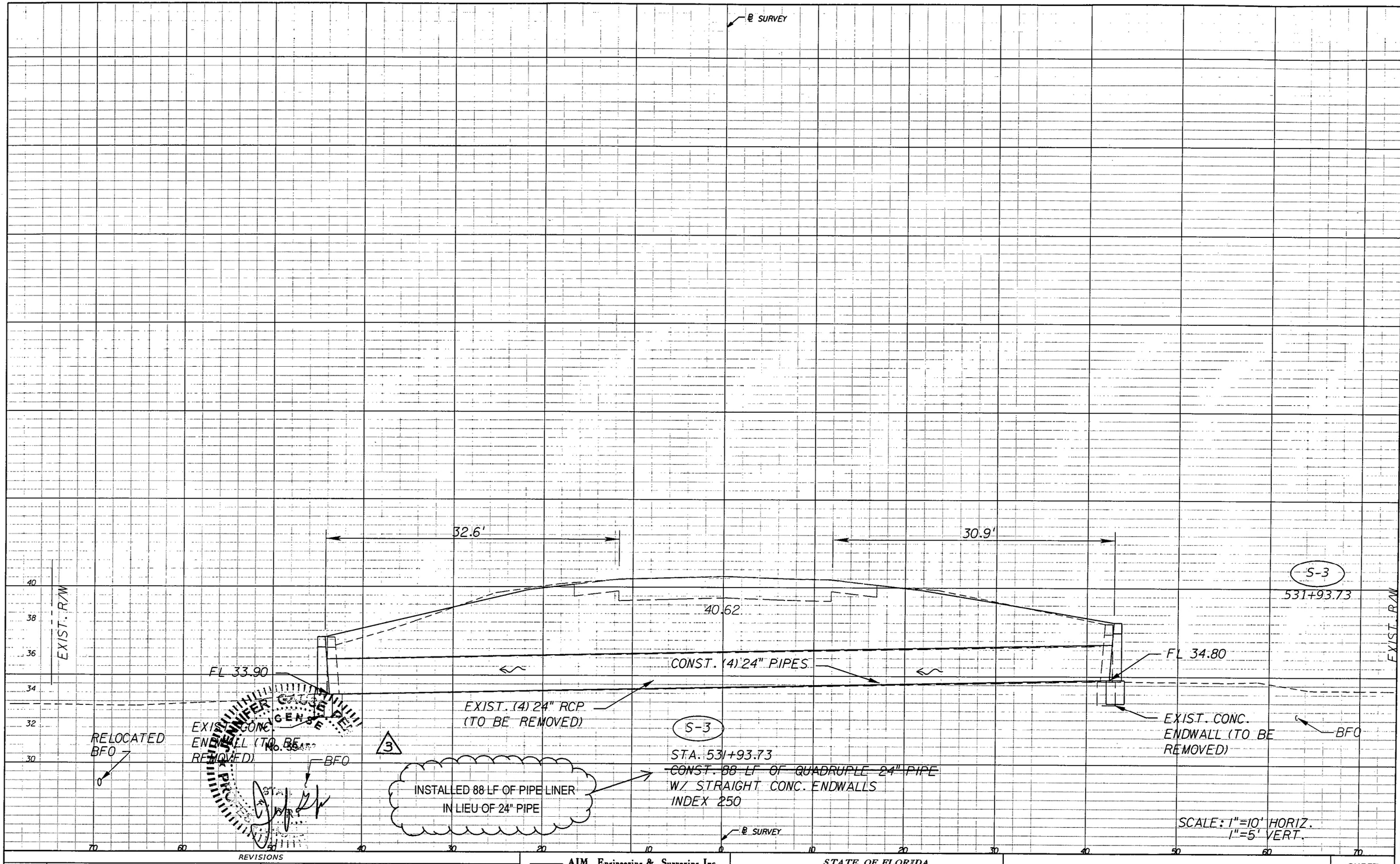
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

DRAINAGE STRUCTURES

SHEET NO. 33



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DATE	DESCRIPTION	DATE	DESCRIPTION
	3 DRAINAGE STRUCTURES SHEETS 33 & 34 (REVISED 5-20-13)		

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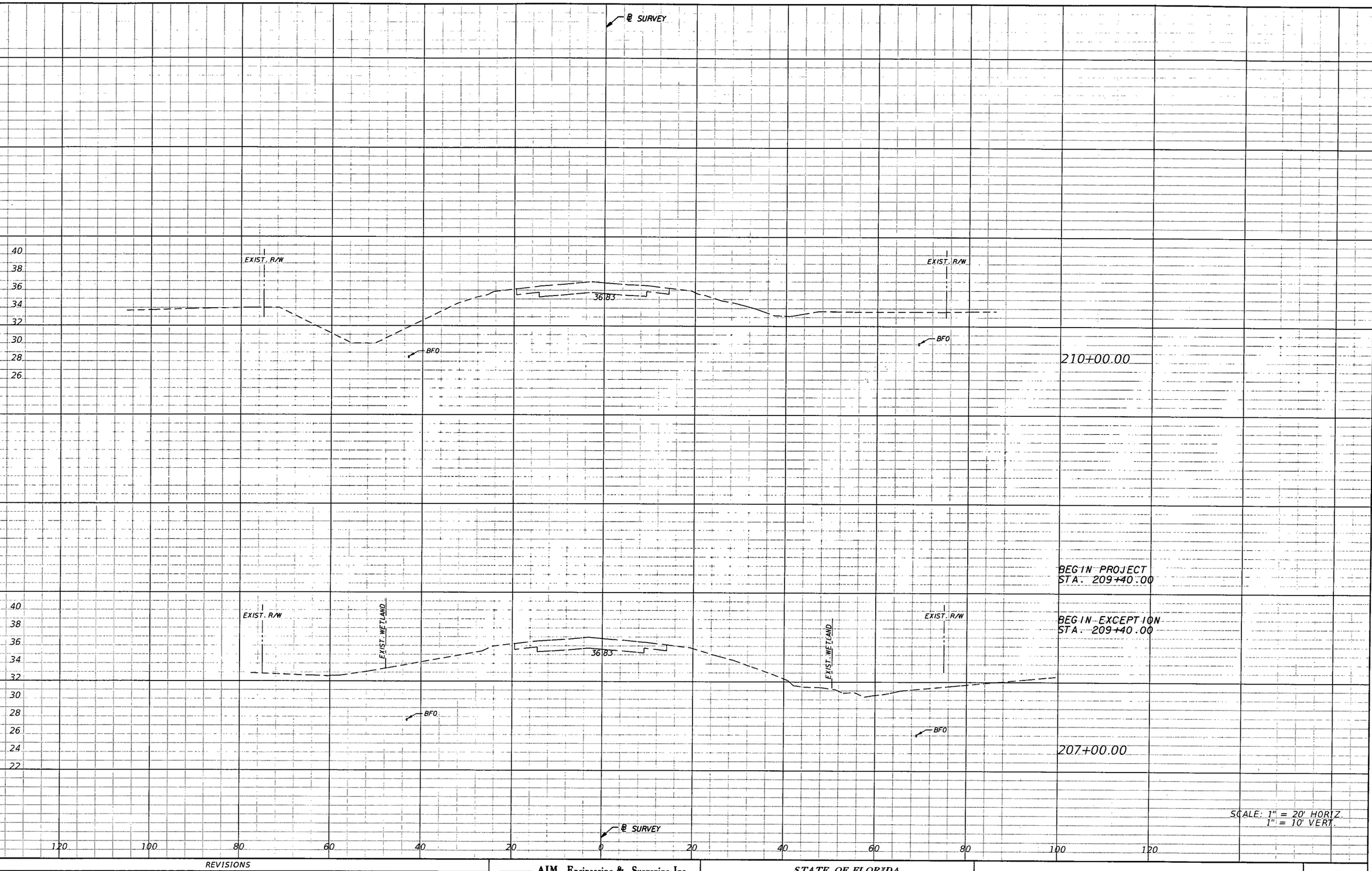
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

DRAINAGE STRUCTURES

SHEET NO. 34



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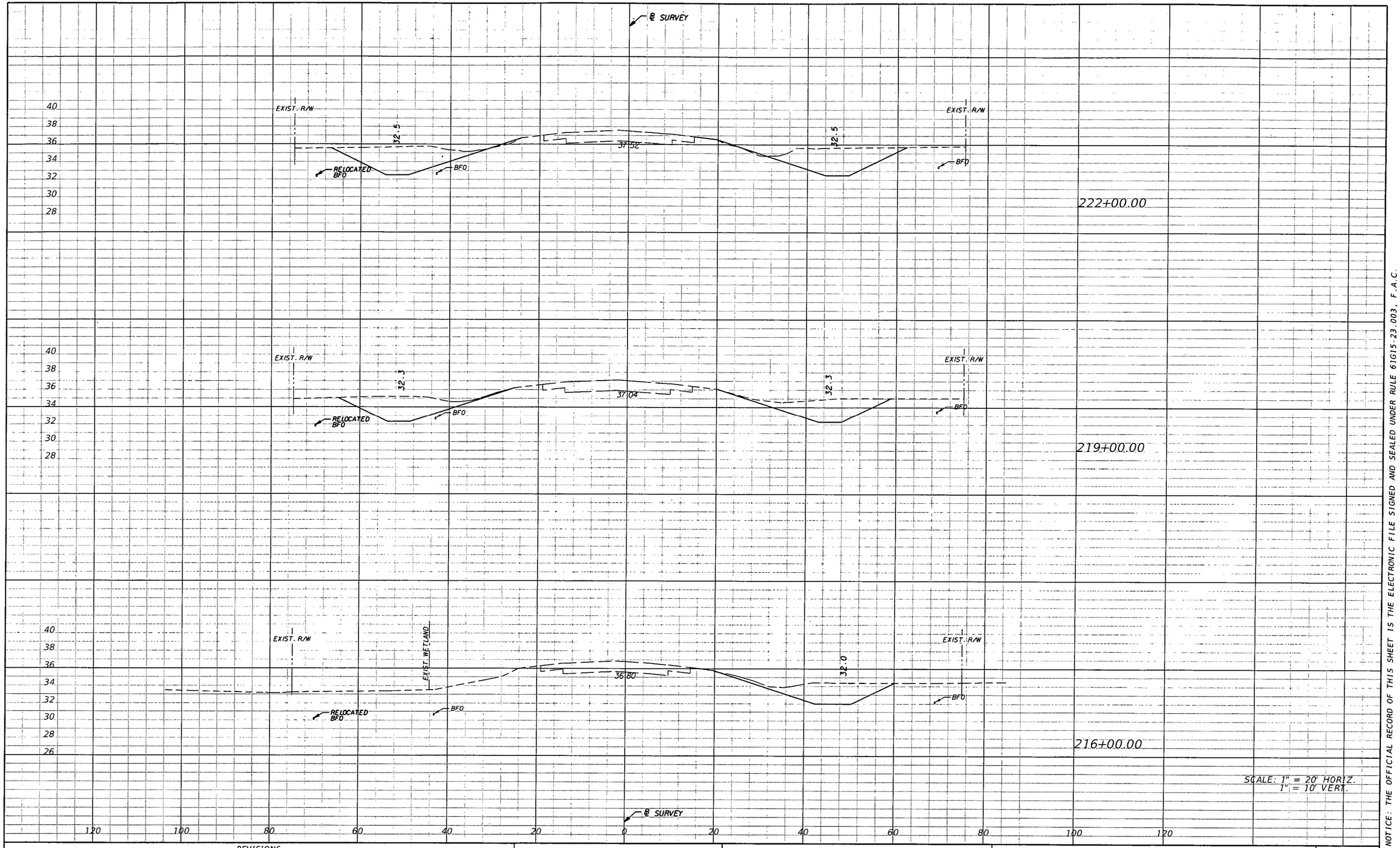
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 35



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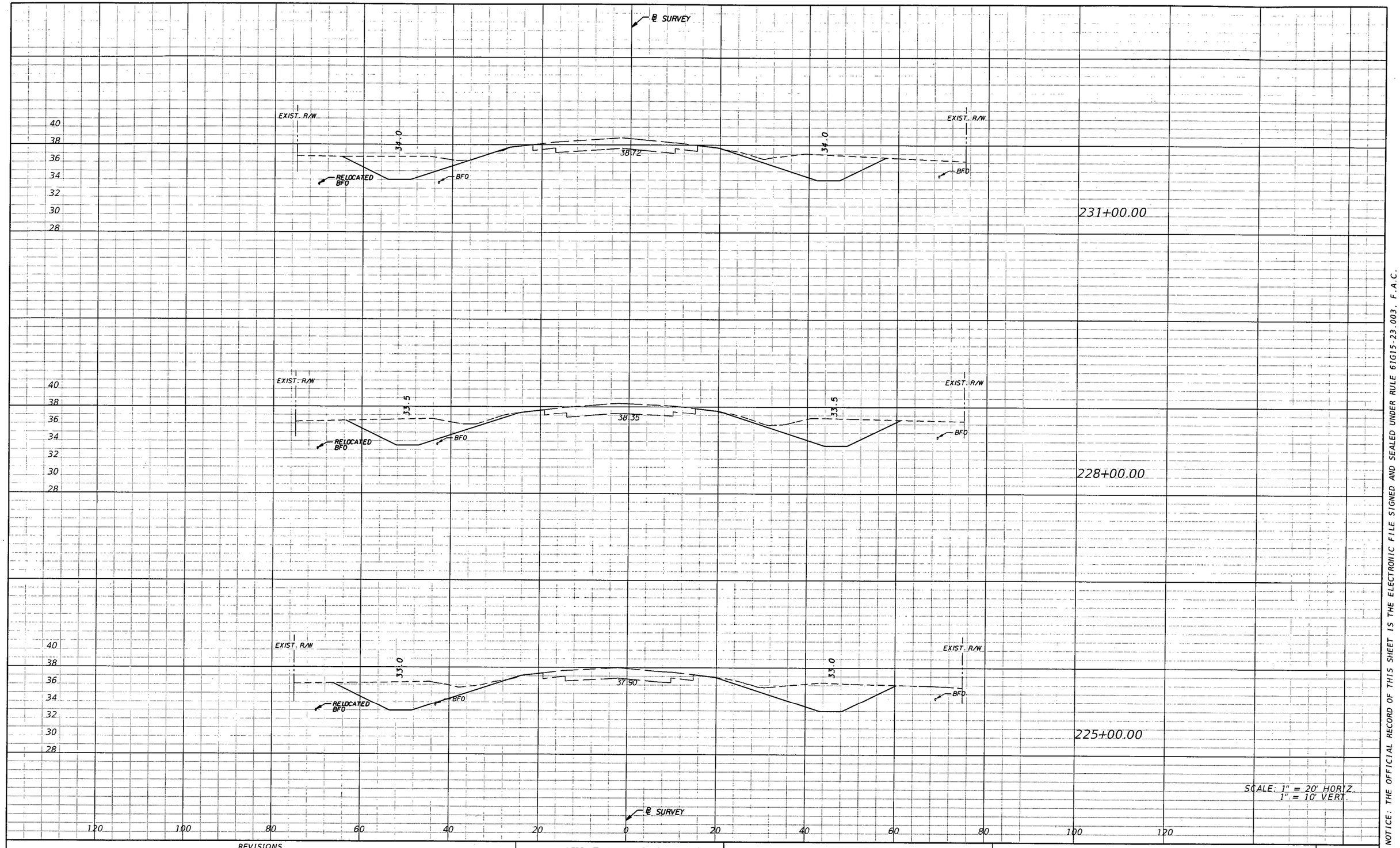
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 36



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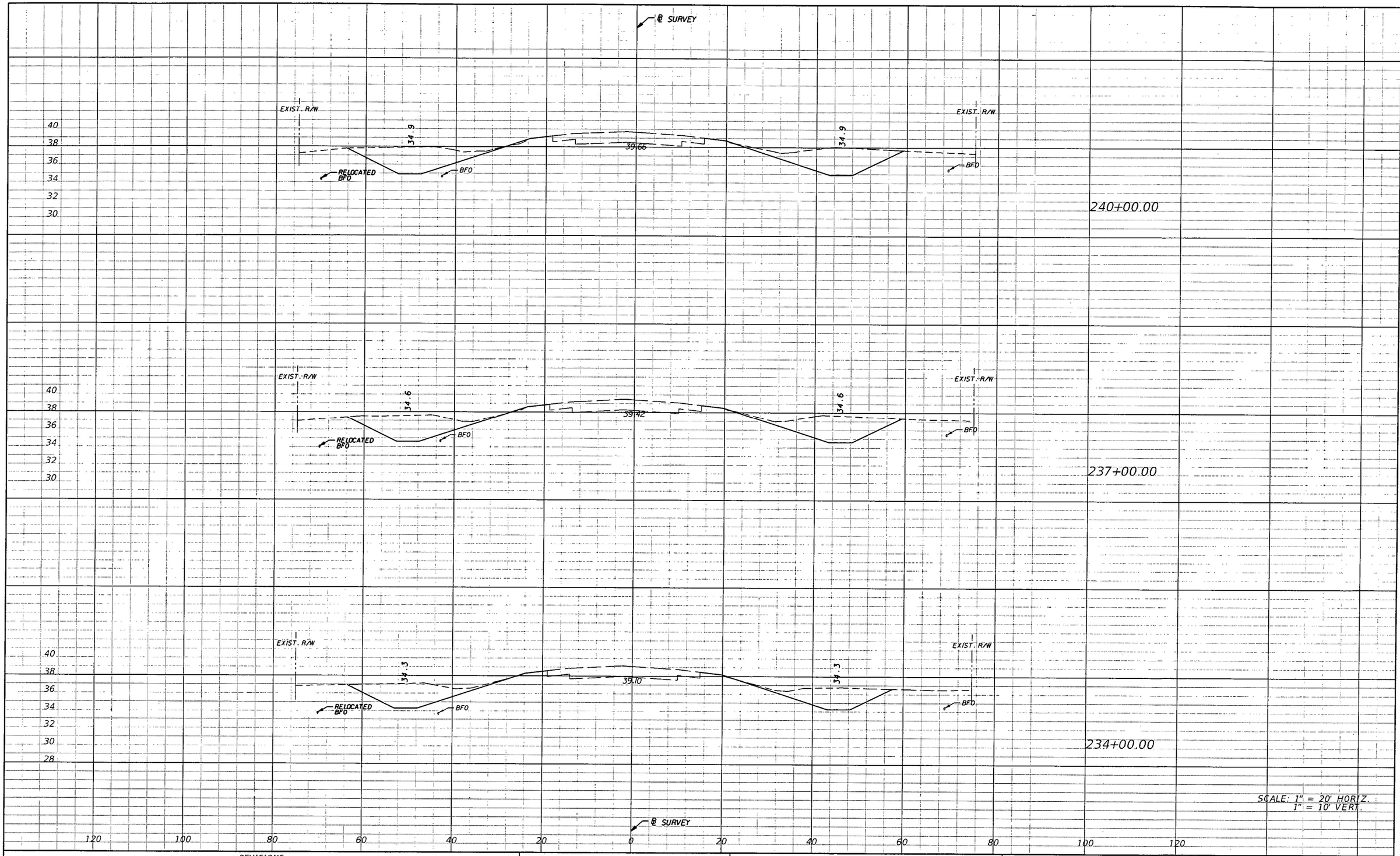
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 37



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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 38

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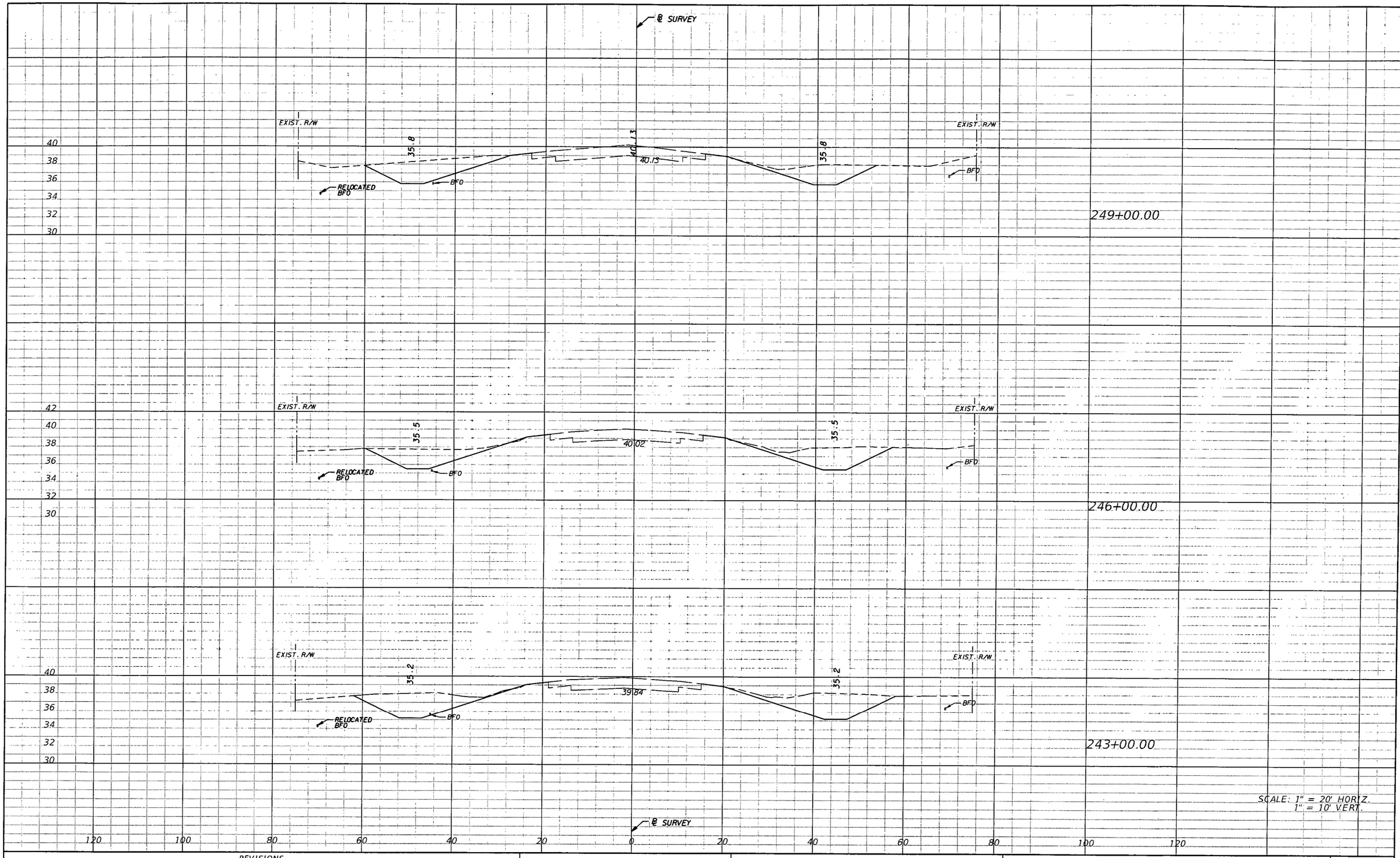

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

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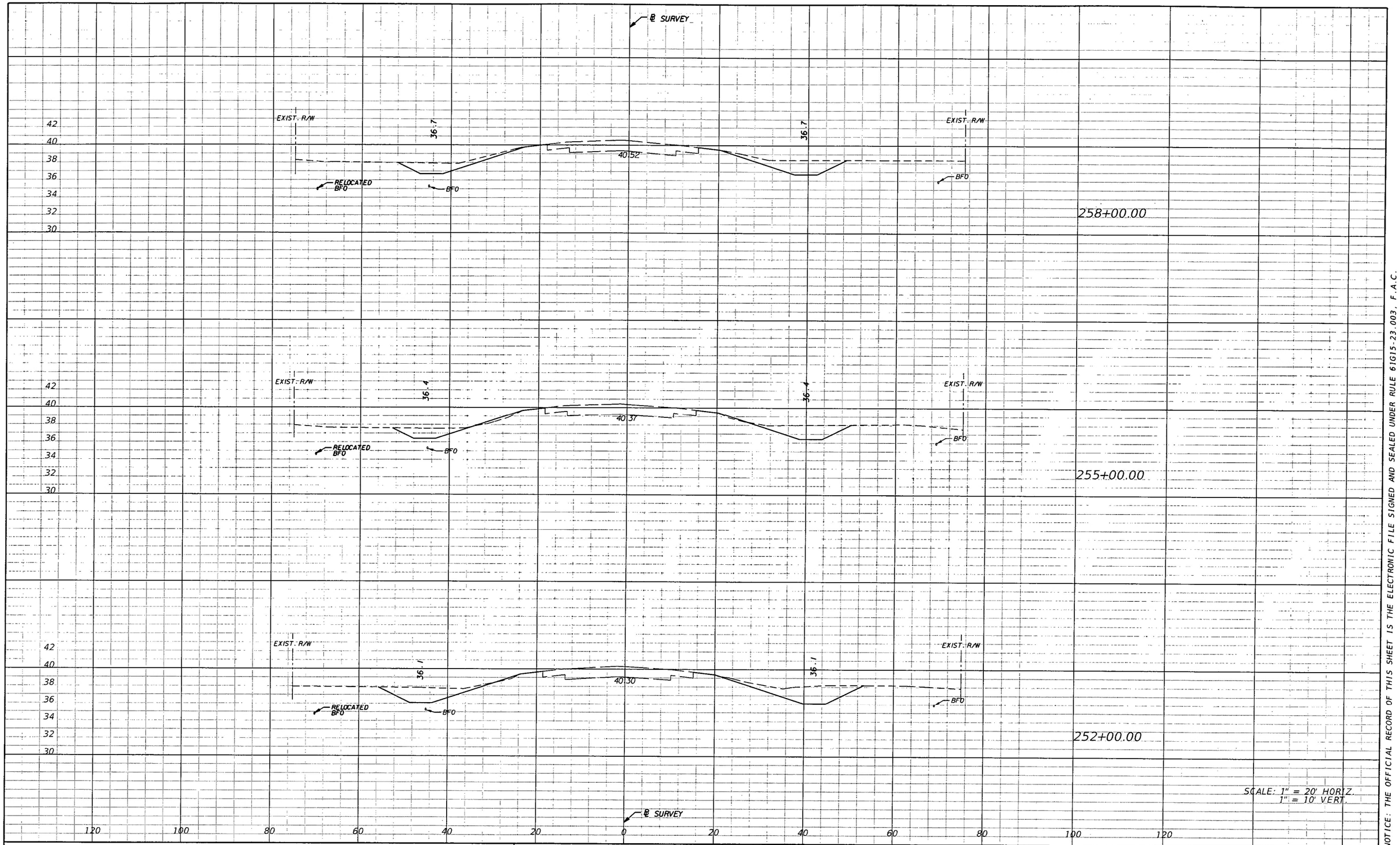

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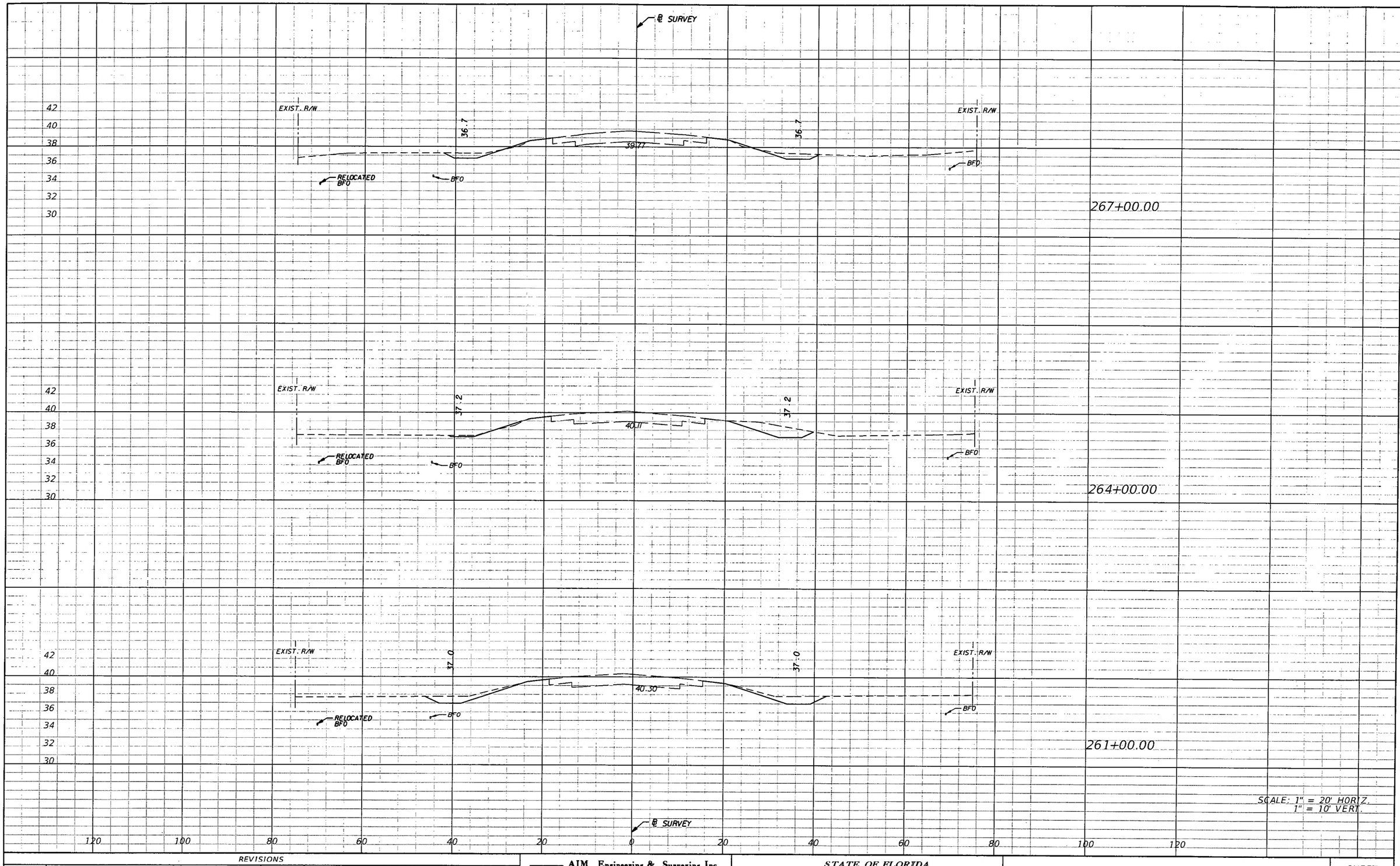
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 40



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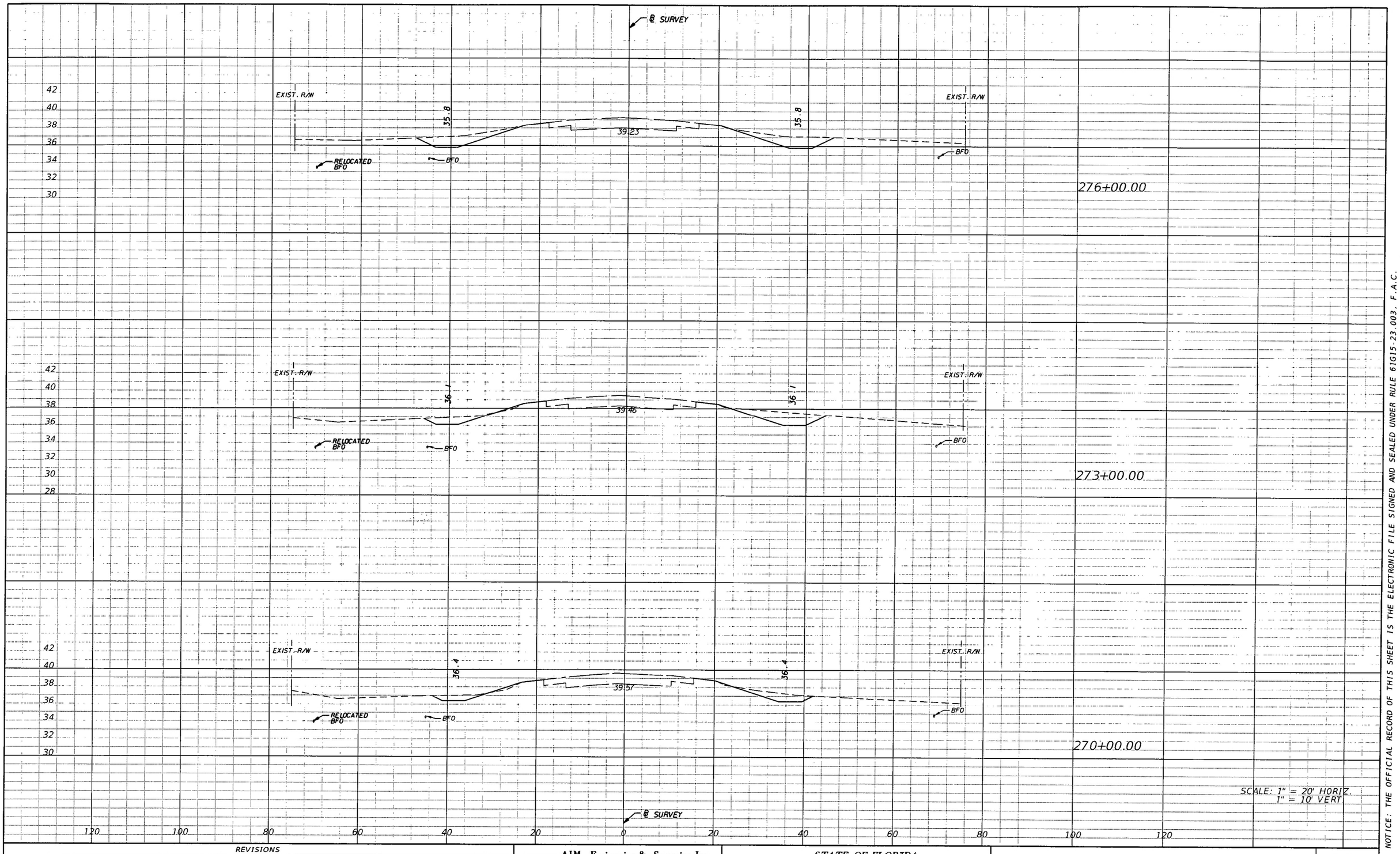
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 41



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STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

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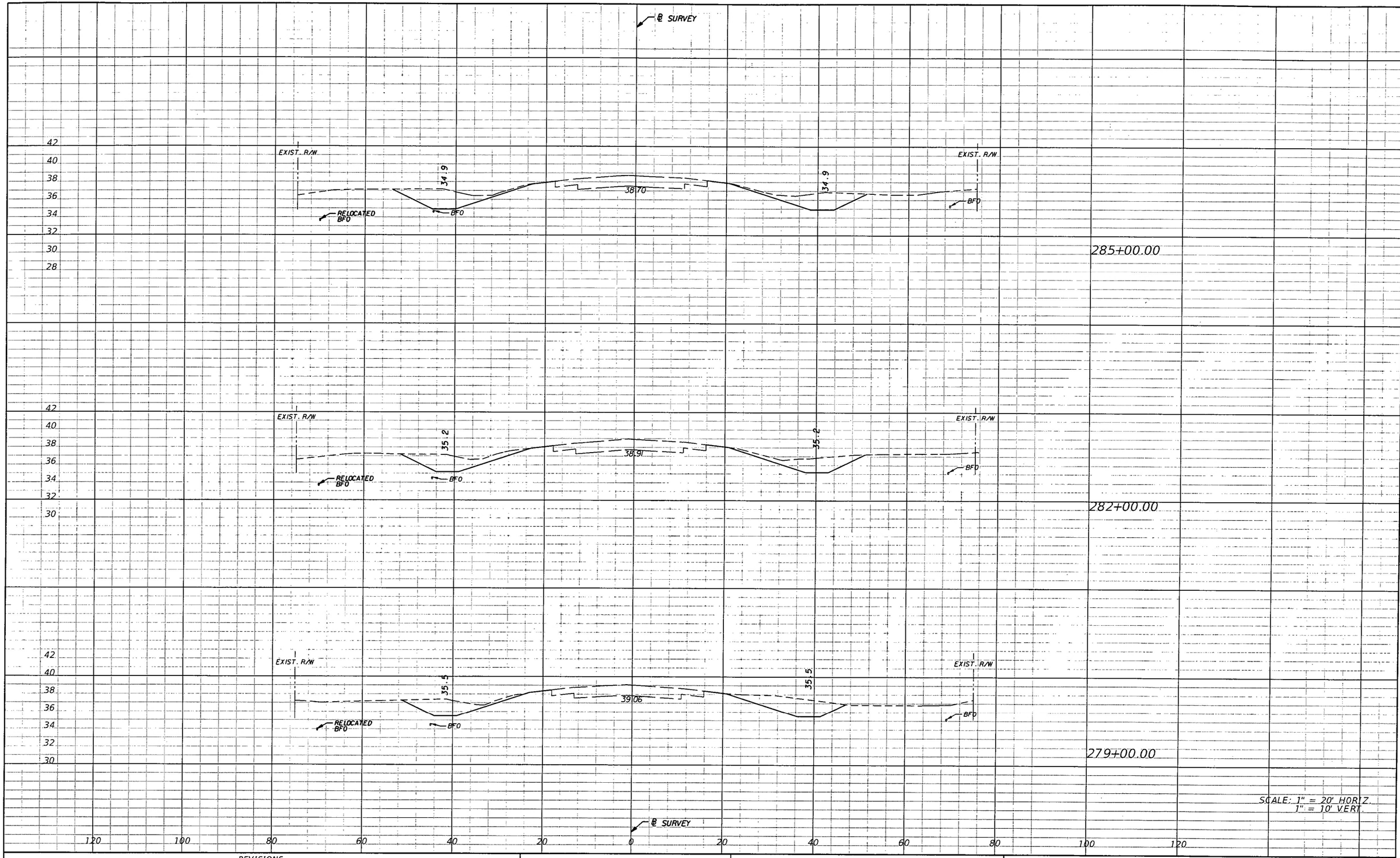

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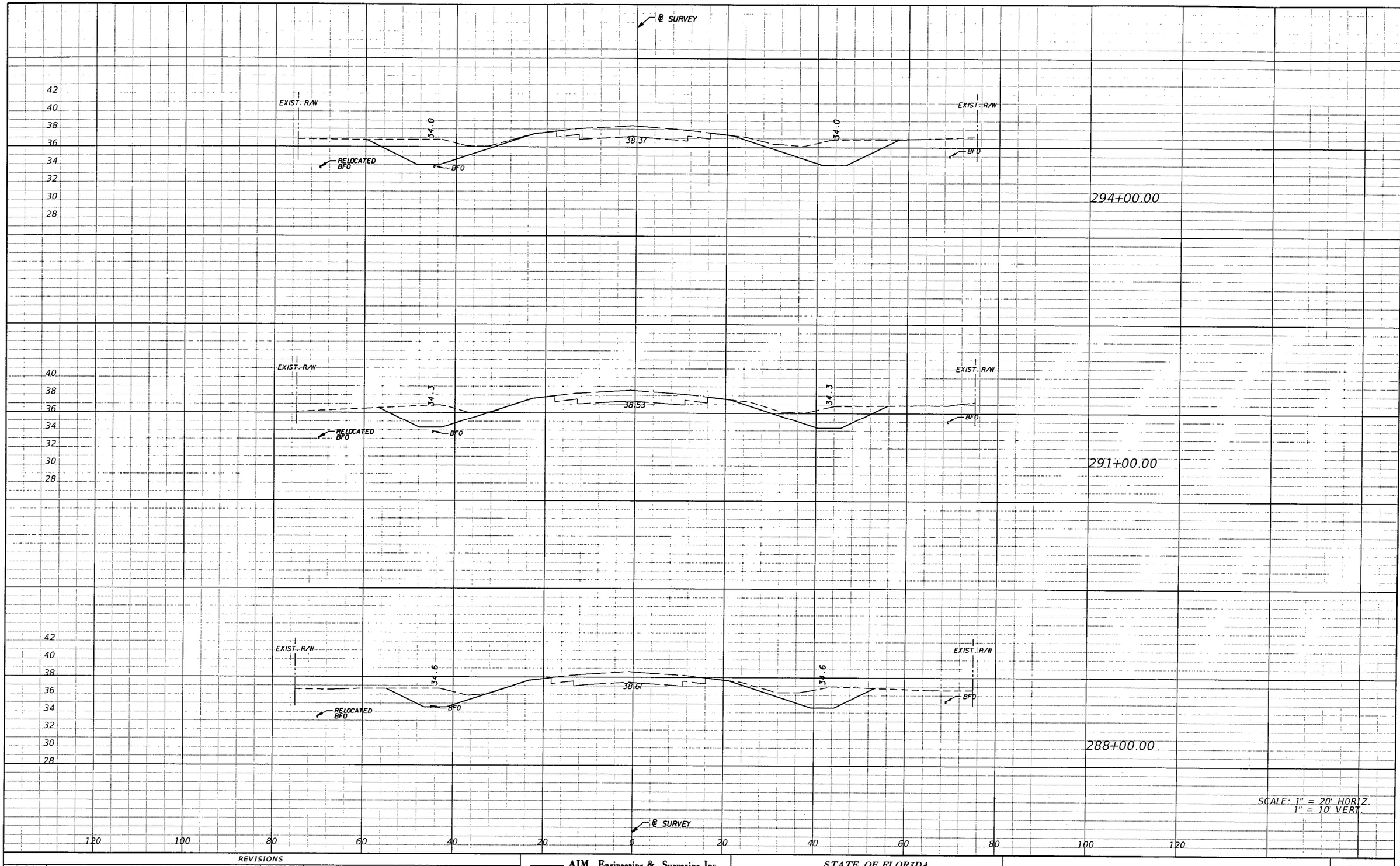
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 43



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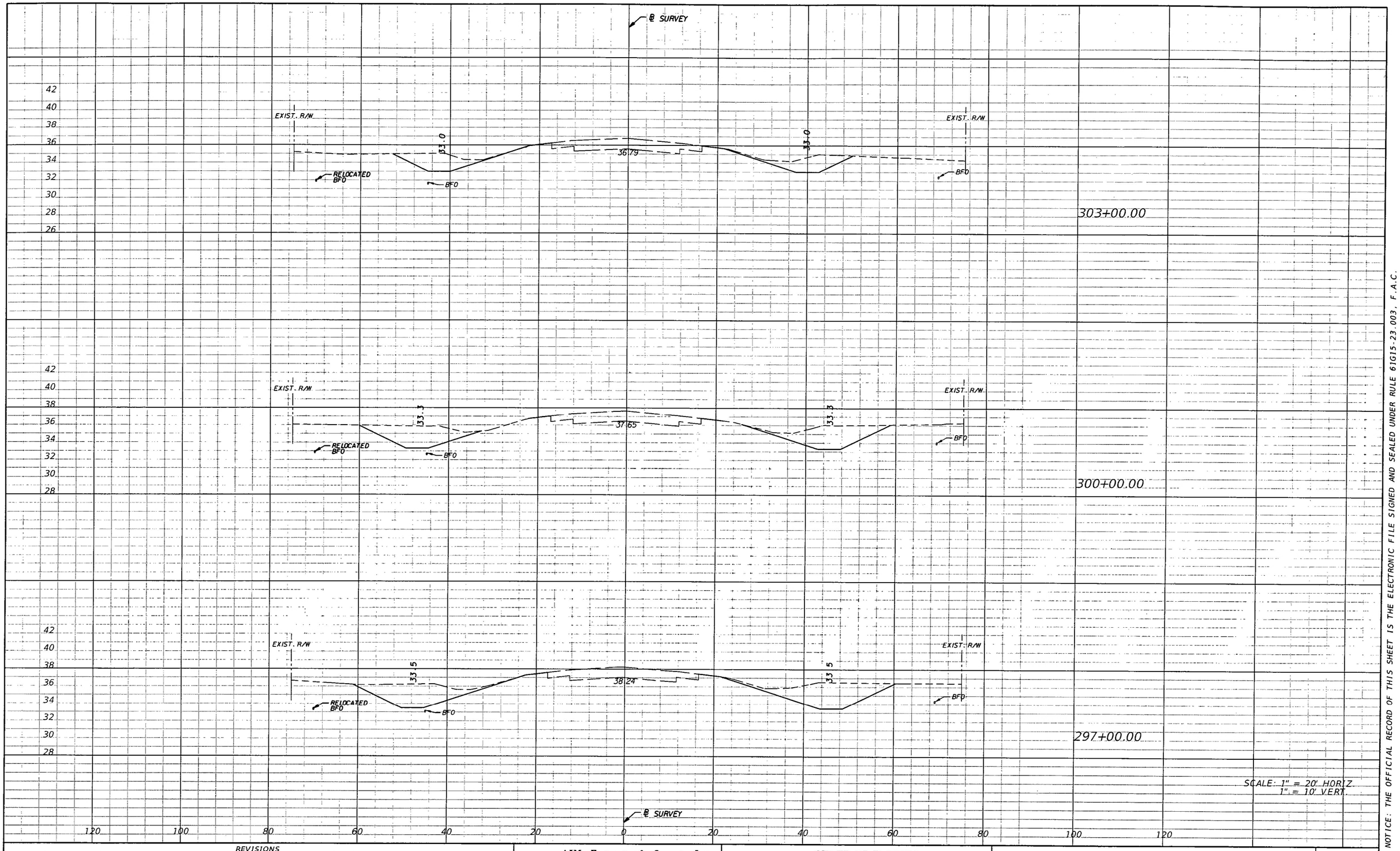
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 44



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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 45

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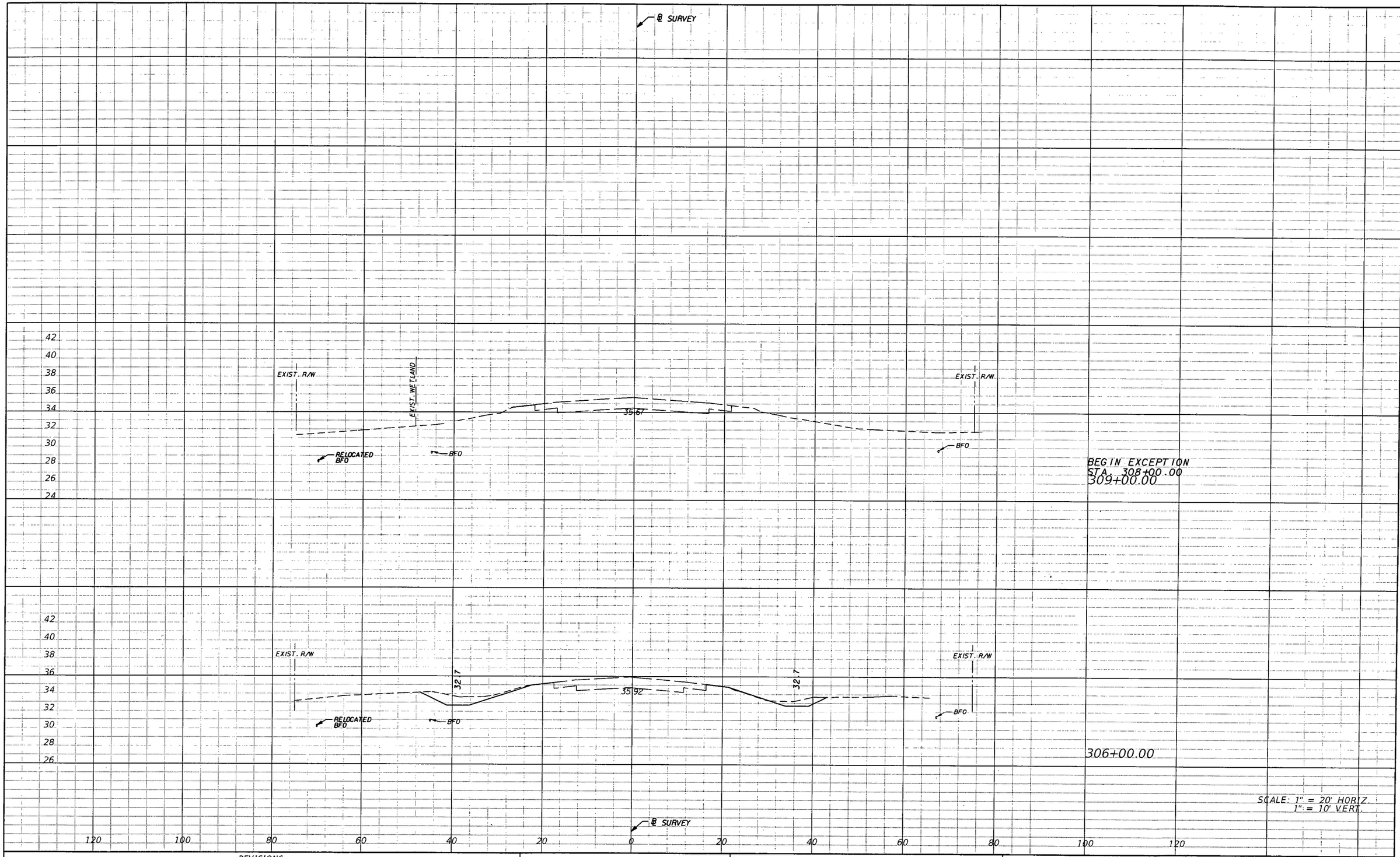

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DATE	DESCRIPTION	DATE	DESCRIPTION

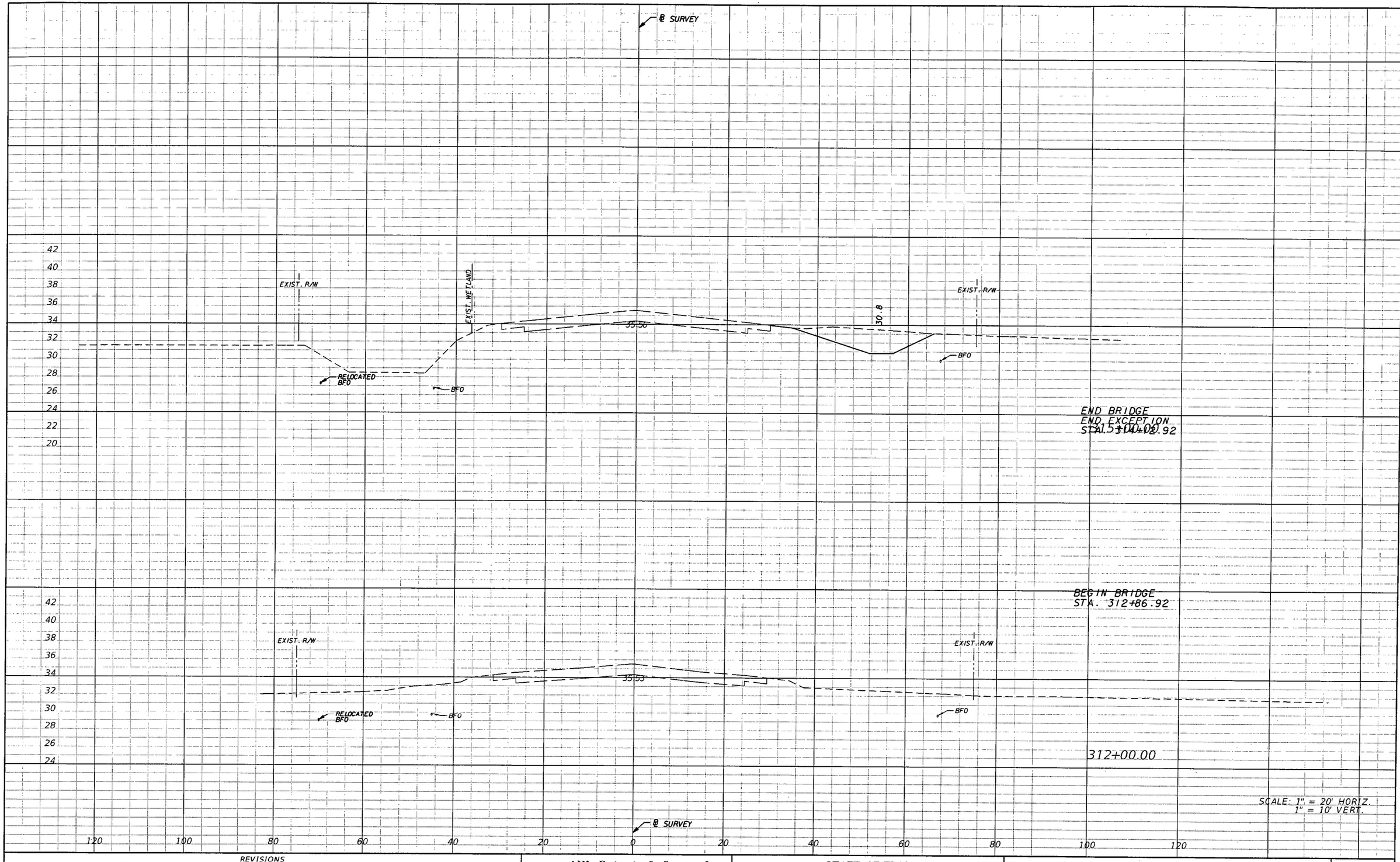
AIM Engineering & Surveying, Inc.
5802 BRECKENRIDGE PARKWAY STE. 100
TAMPA, FLORIDA 33610
TELEPHONE (888) 627-4144
FAX (813) 664-1899
CERTIFICATE OF AUTHORIZATION NO. 3114
E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 46



SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

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DEPARTMENT OF TRANSPORTATION

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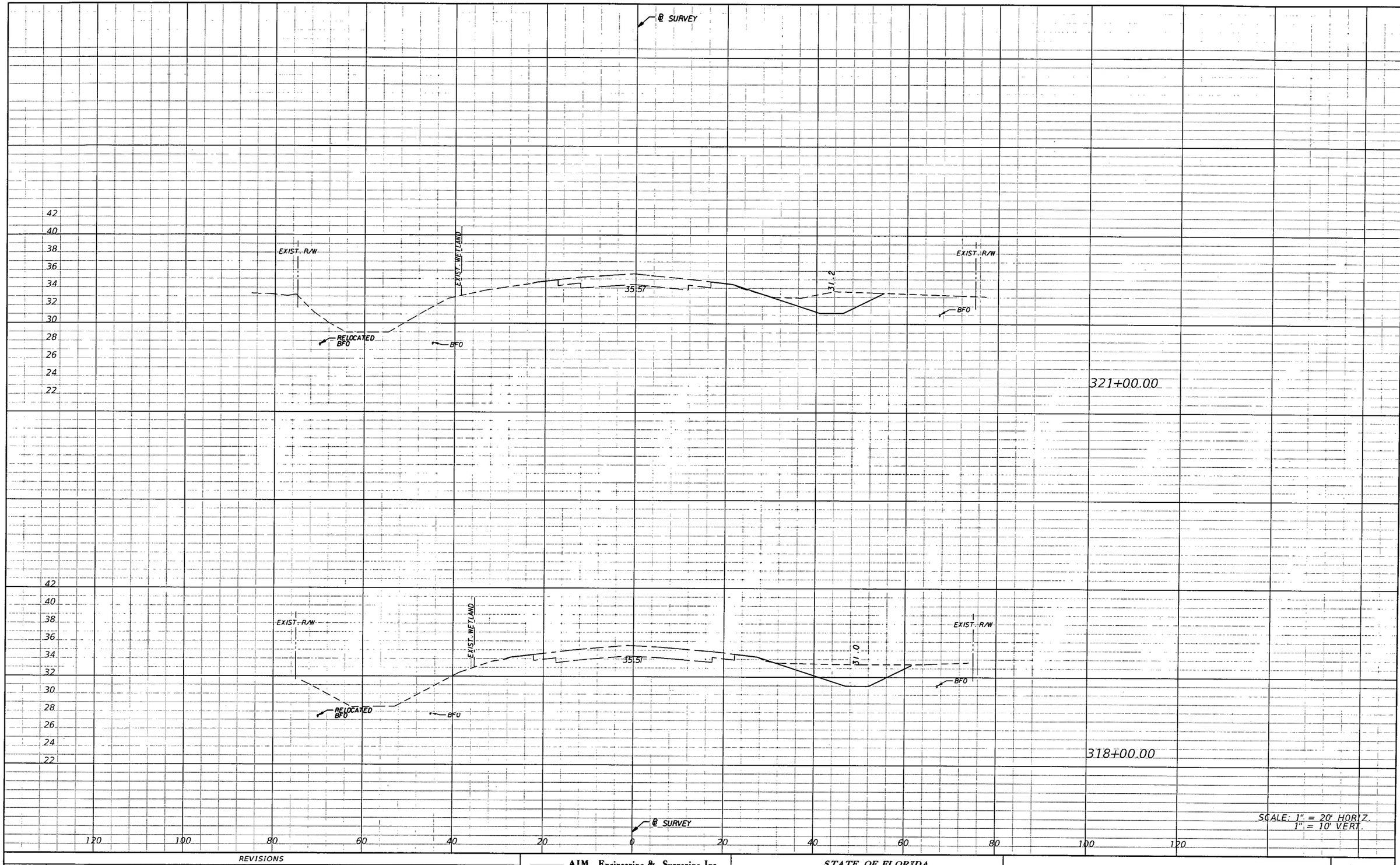
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 47



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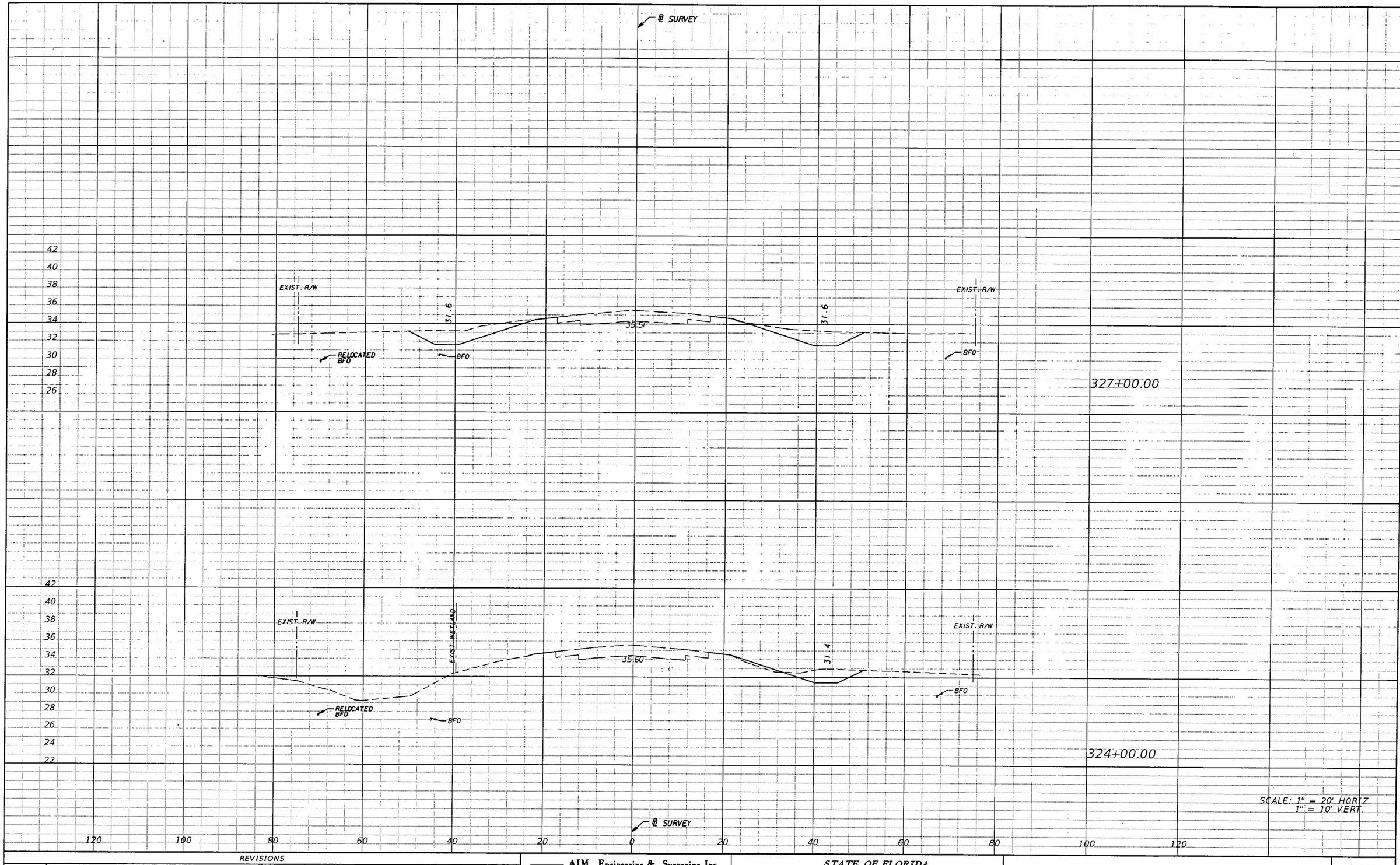
CROSS SECTIONS

SHEET NO. 48



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CROSS SECTIONS

SHEET NO. 49

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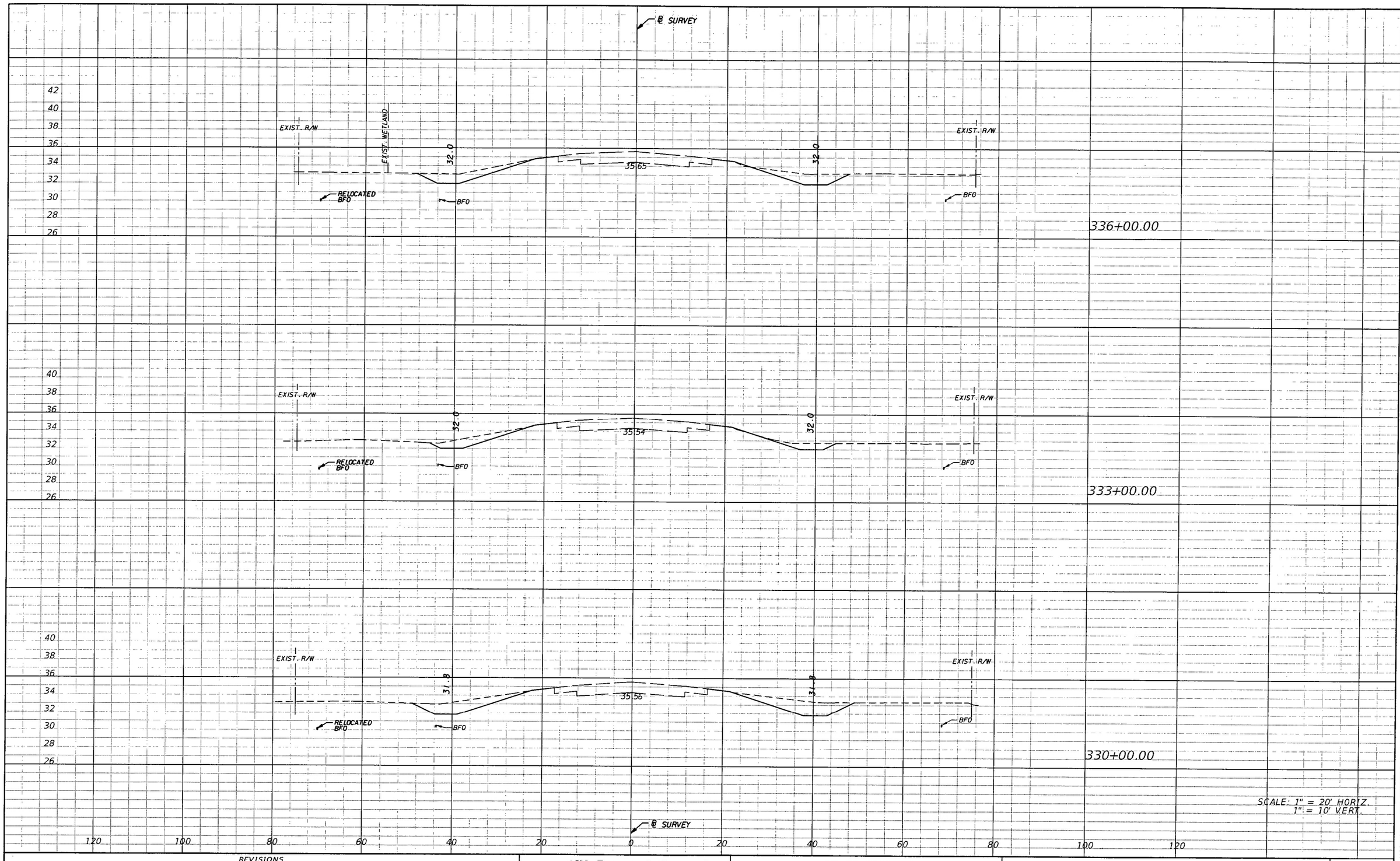

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CROSS SECTIONS

SHEET NO. 50

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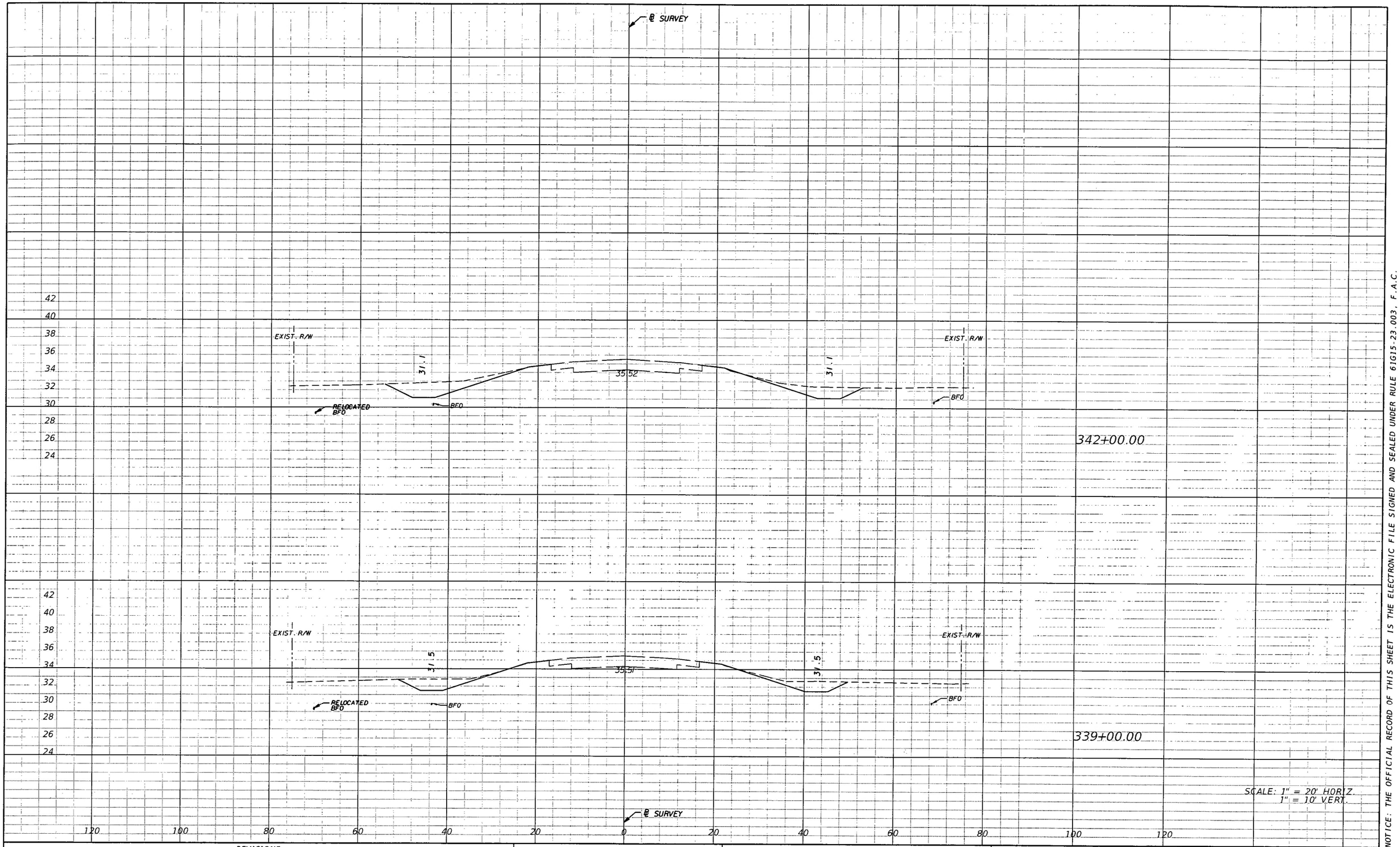

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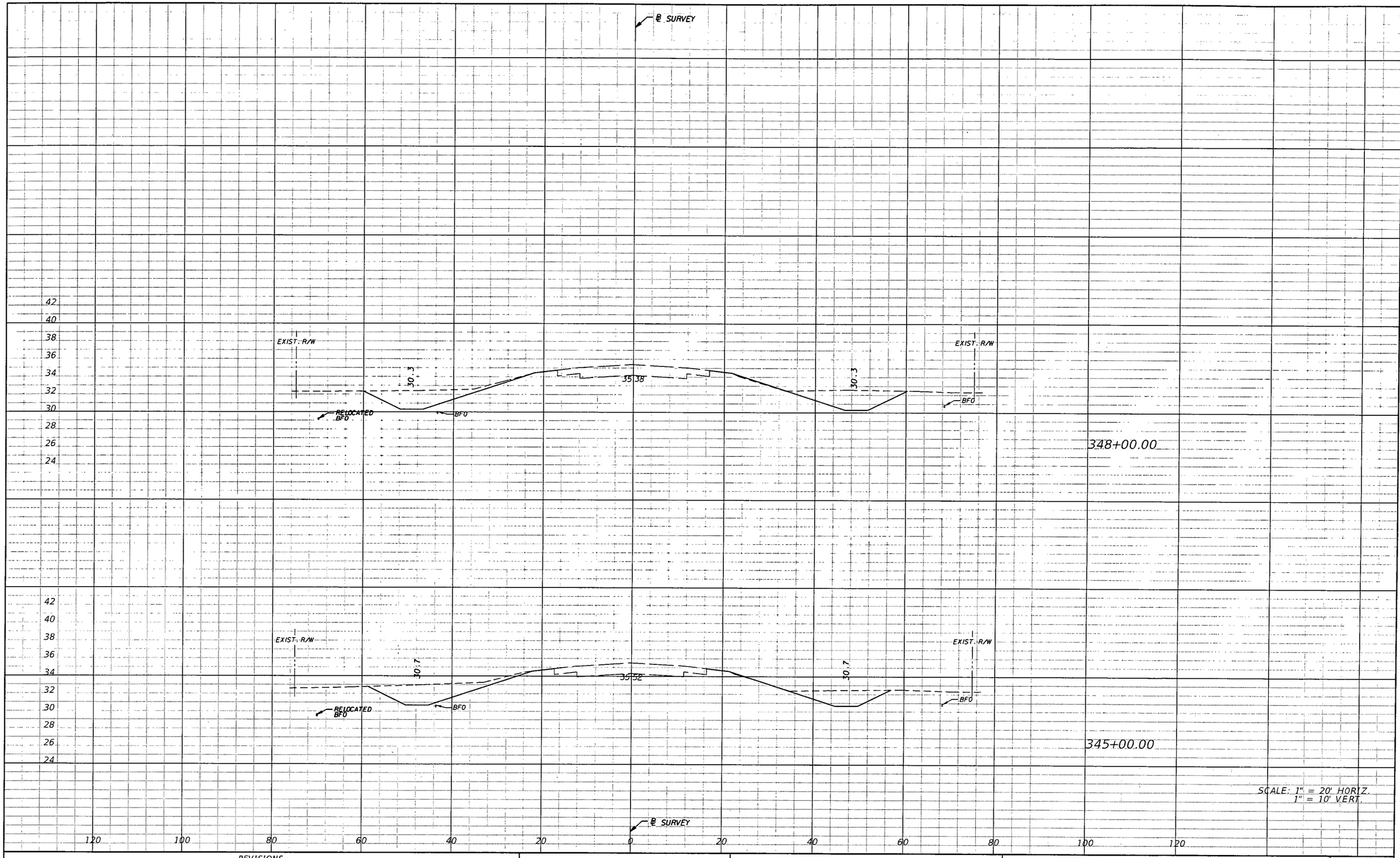
CROSS SECTIONS

SHEET NO. 51



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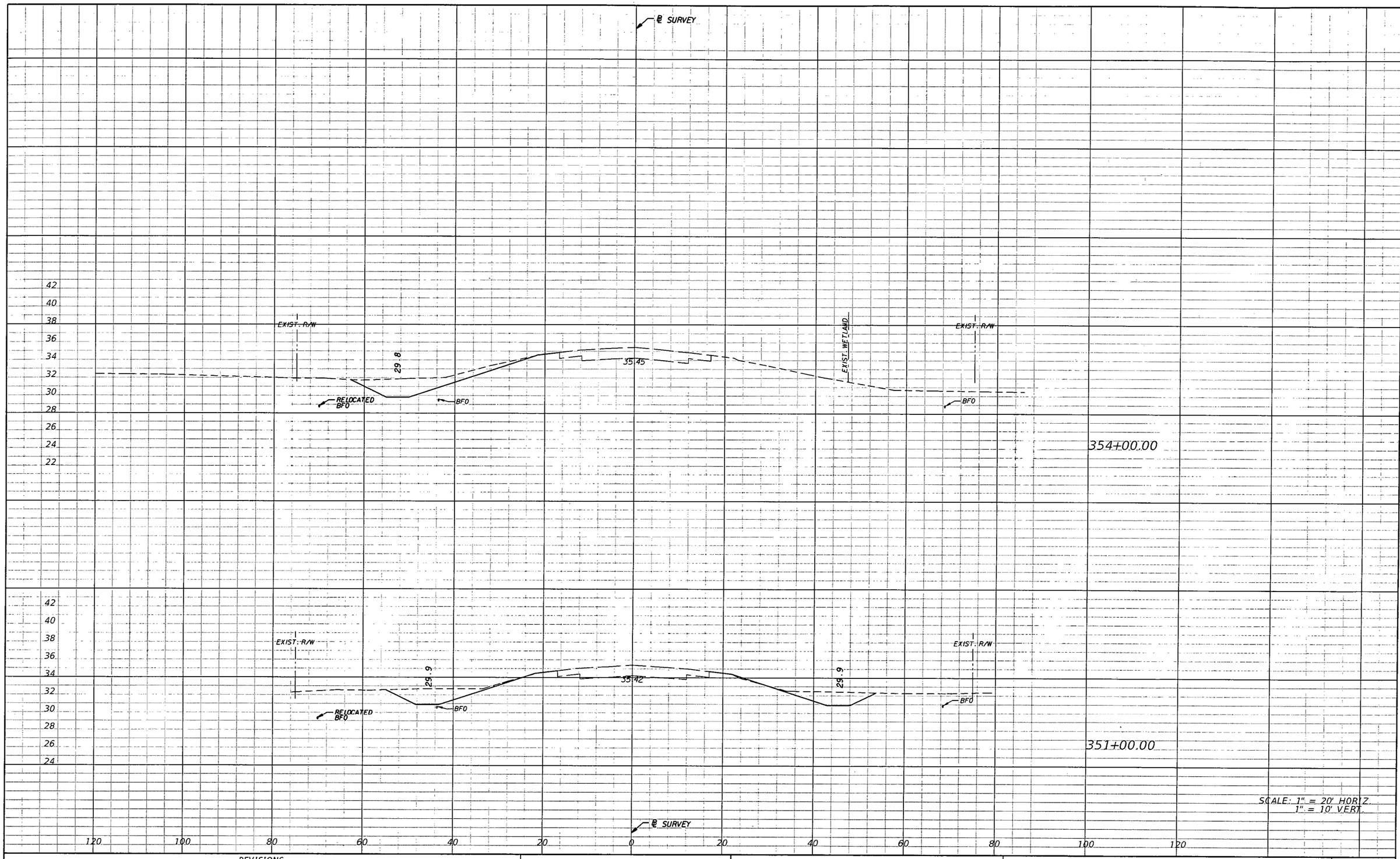
CROSS SECTIONS

SHEET NO. 52



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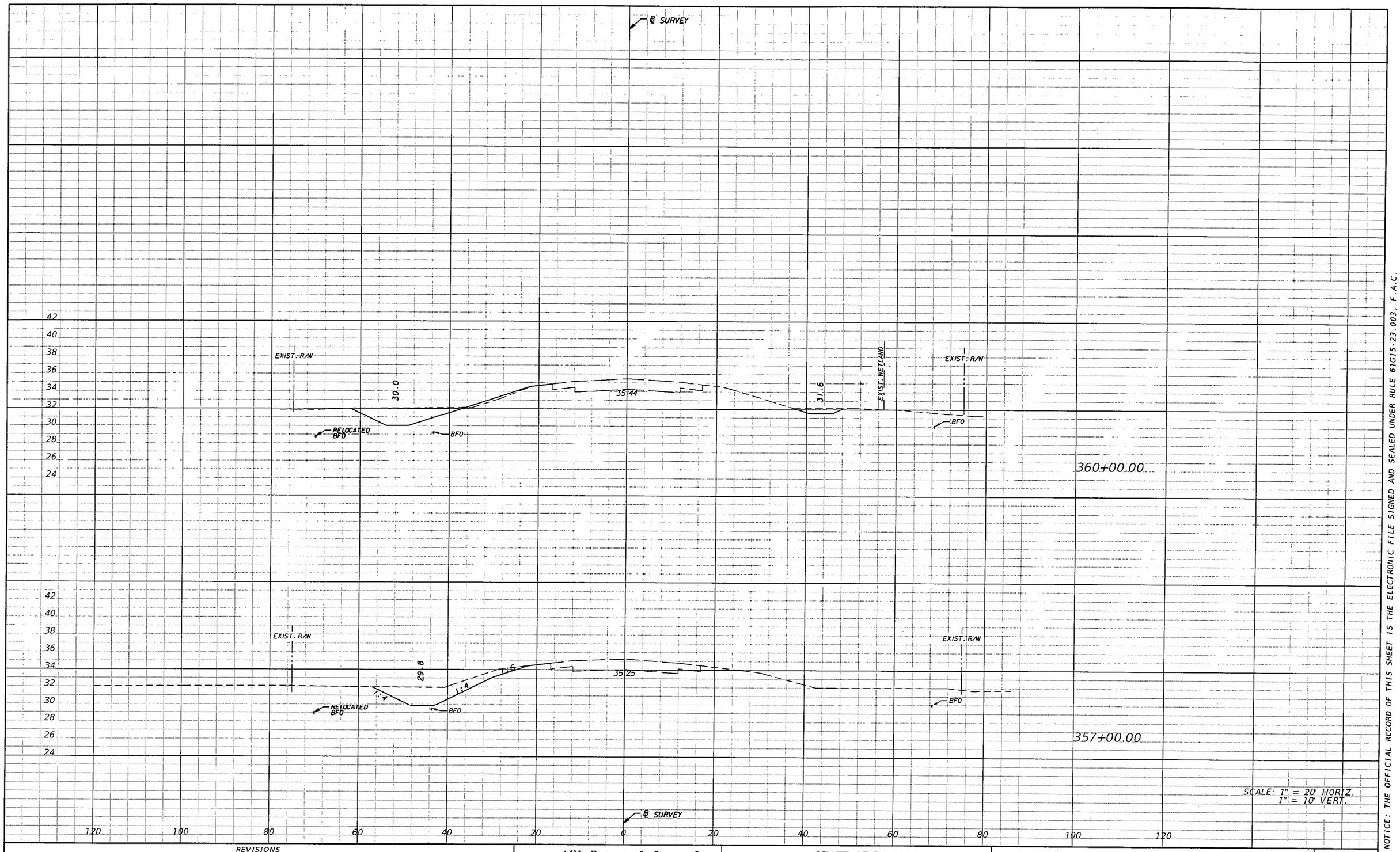
CROSS SECTIONS

SHEET NO. 53



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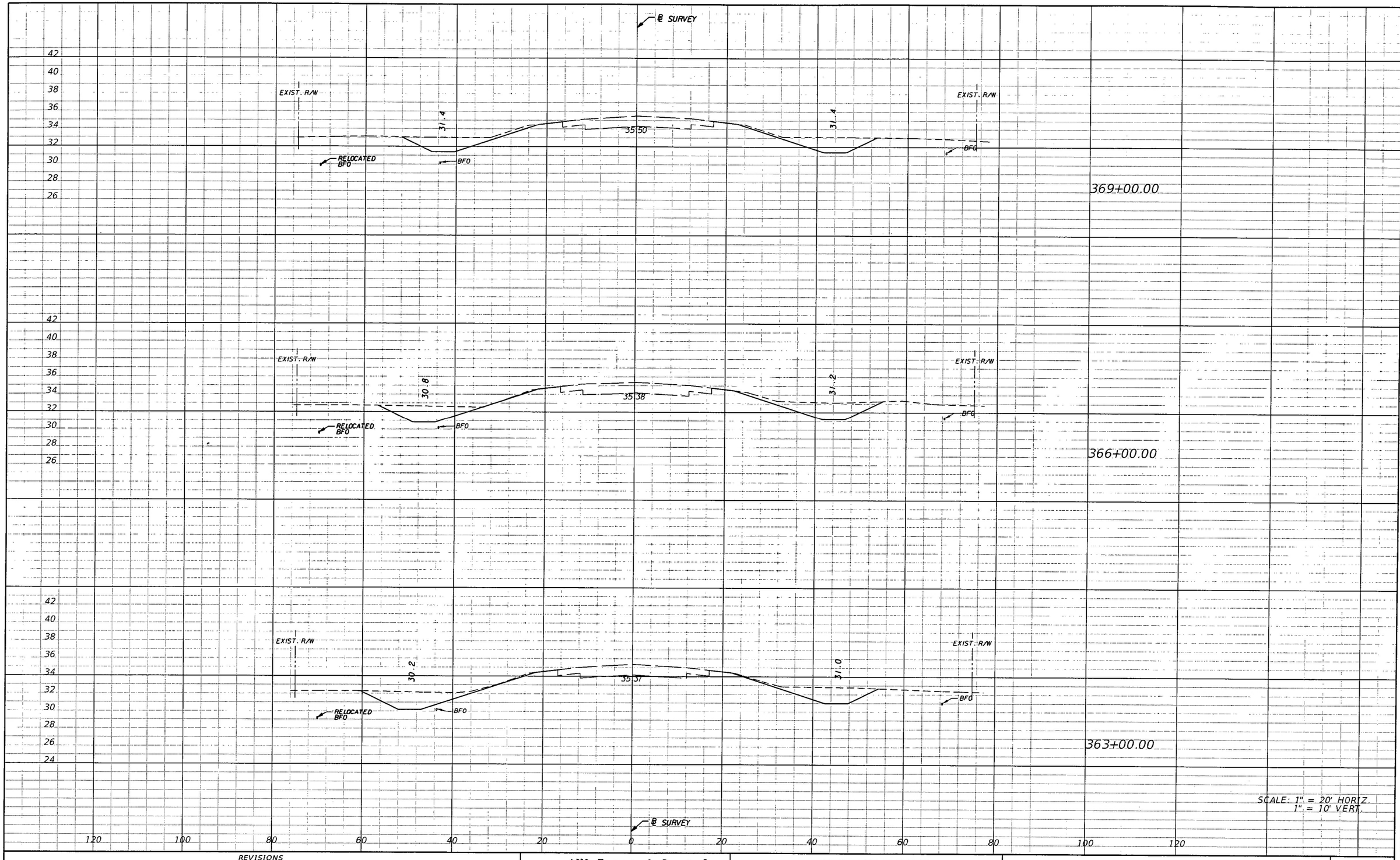
CROSS SECTIONS

SHEET NO. 54



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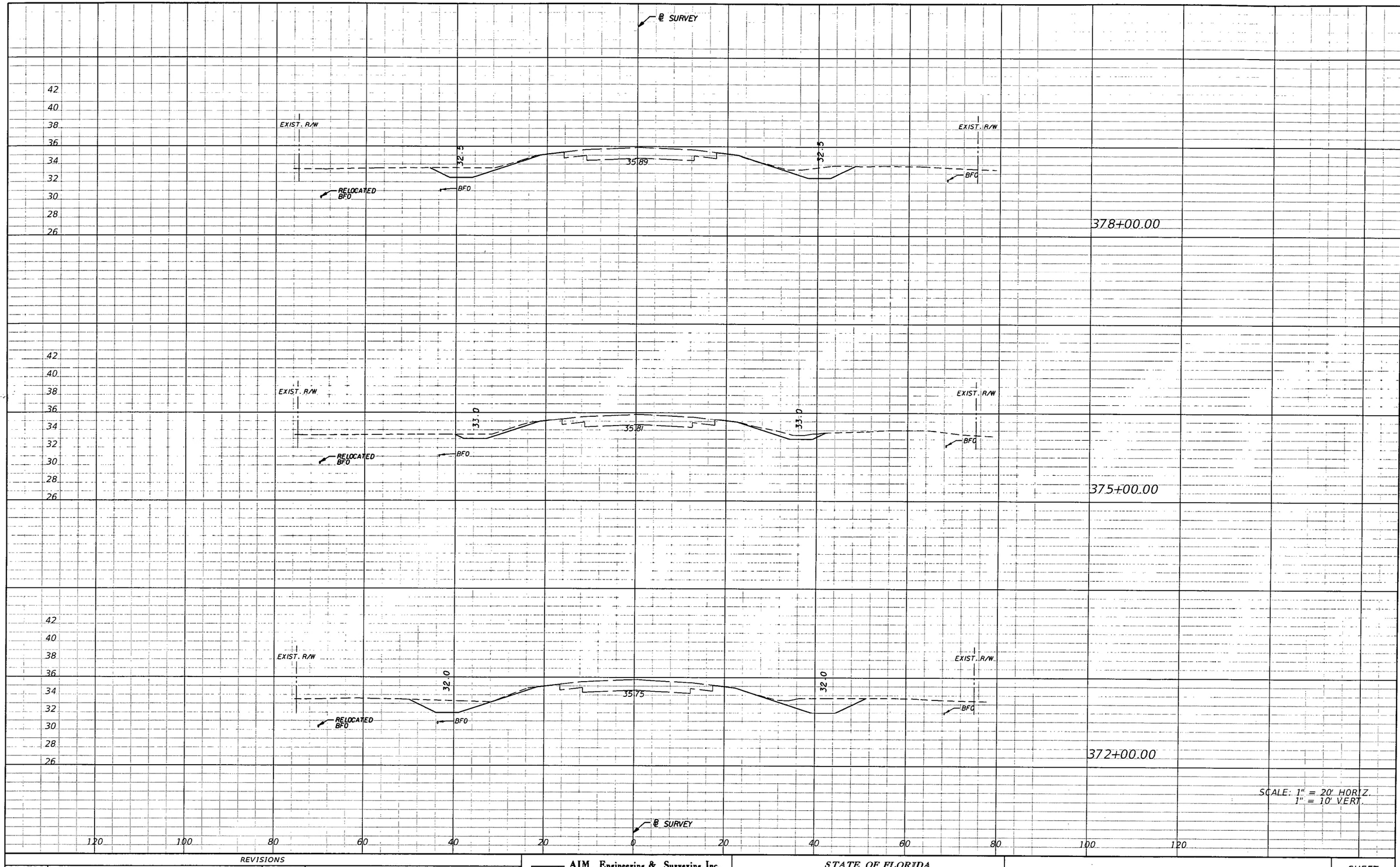
CROSS SECTIONS

SHEET NO. 55



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SHEET NO. 56

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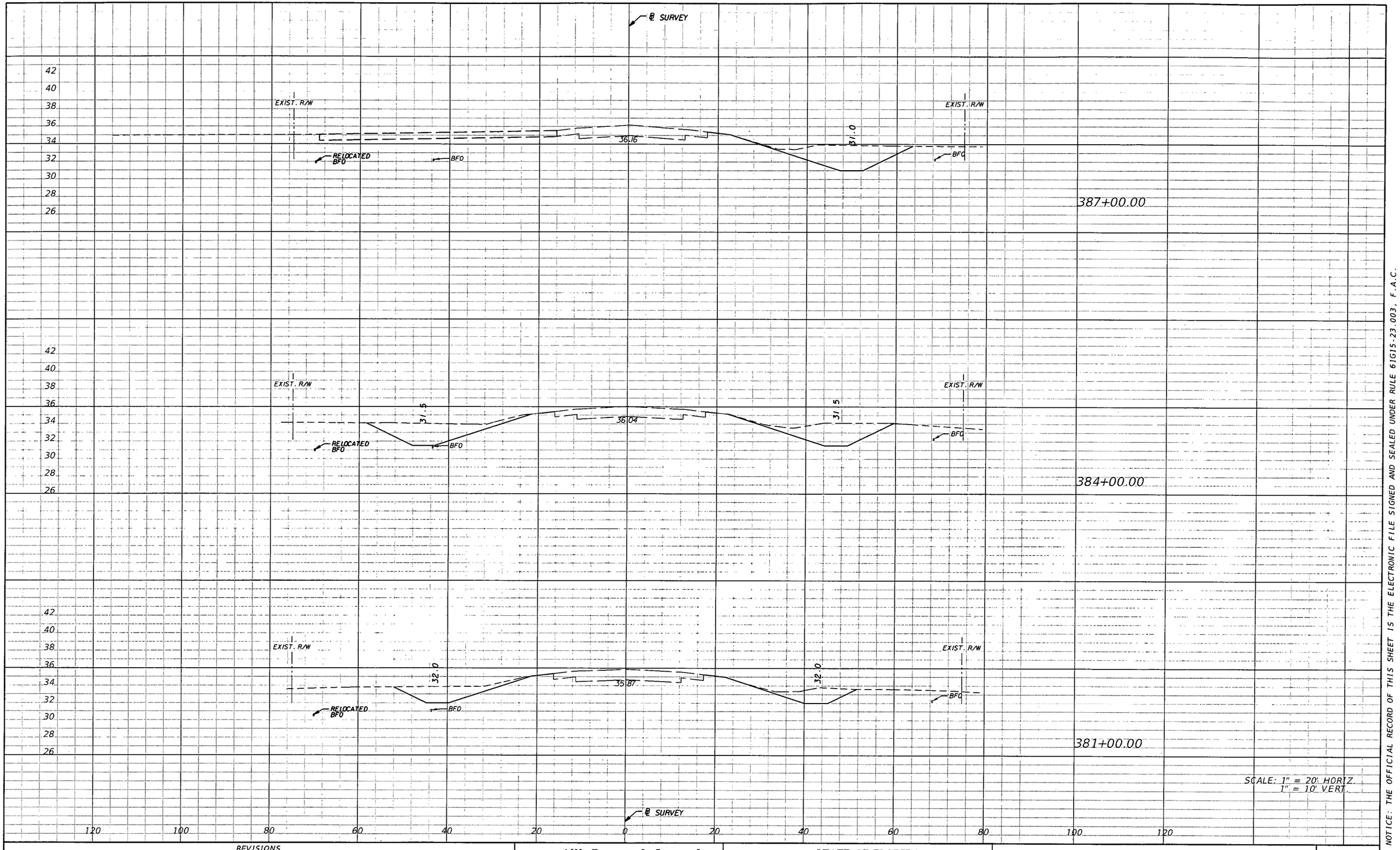

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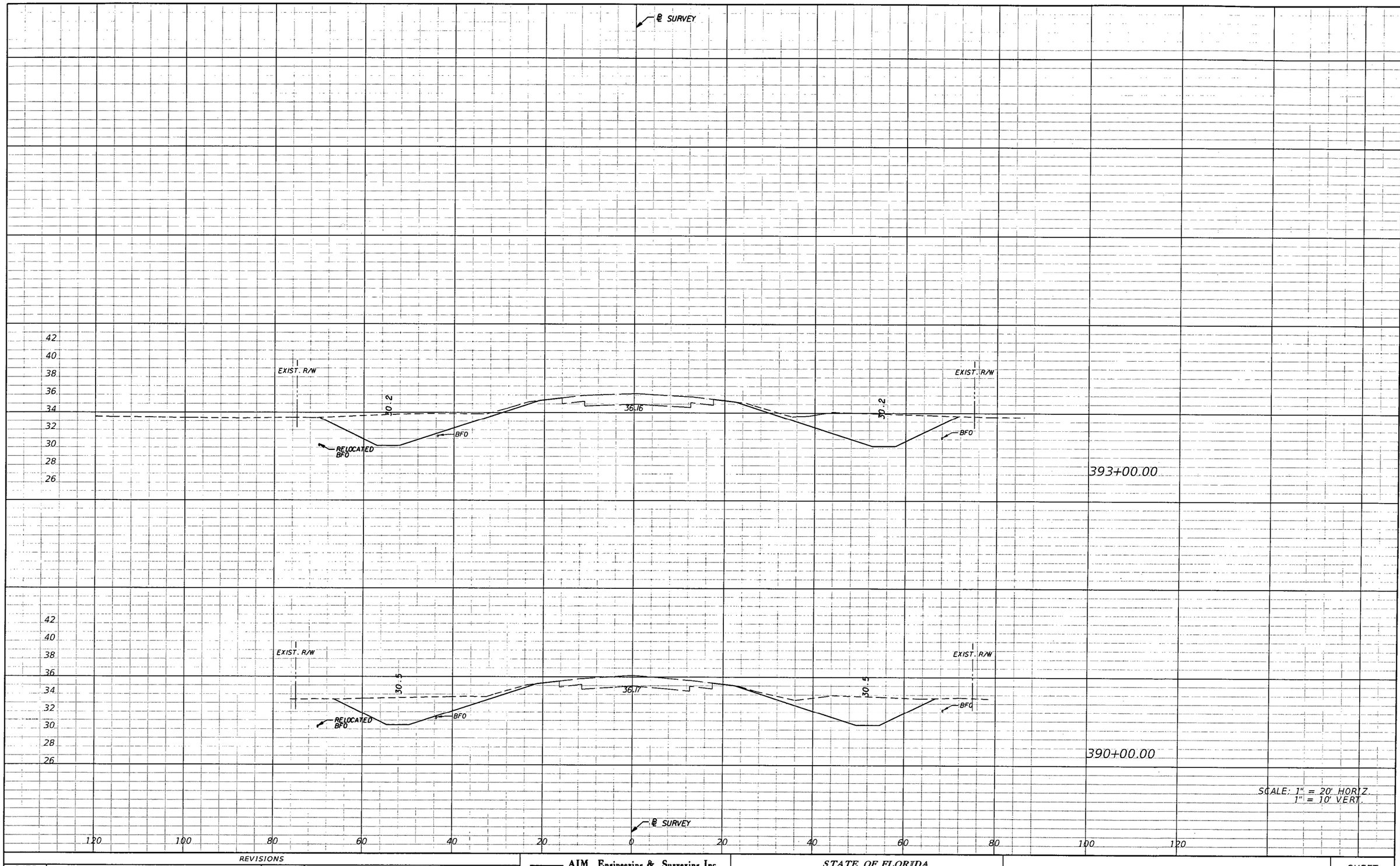
CROSS SECTIONS

SHEET NO. 57



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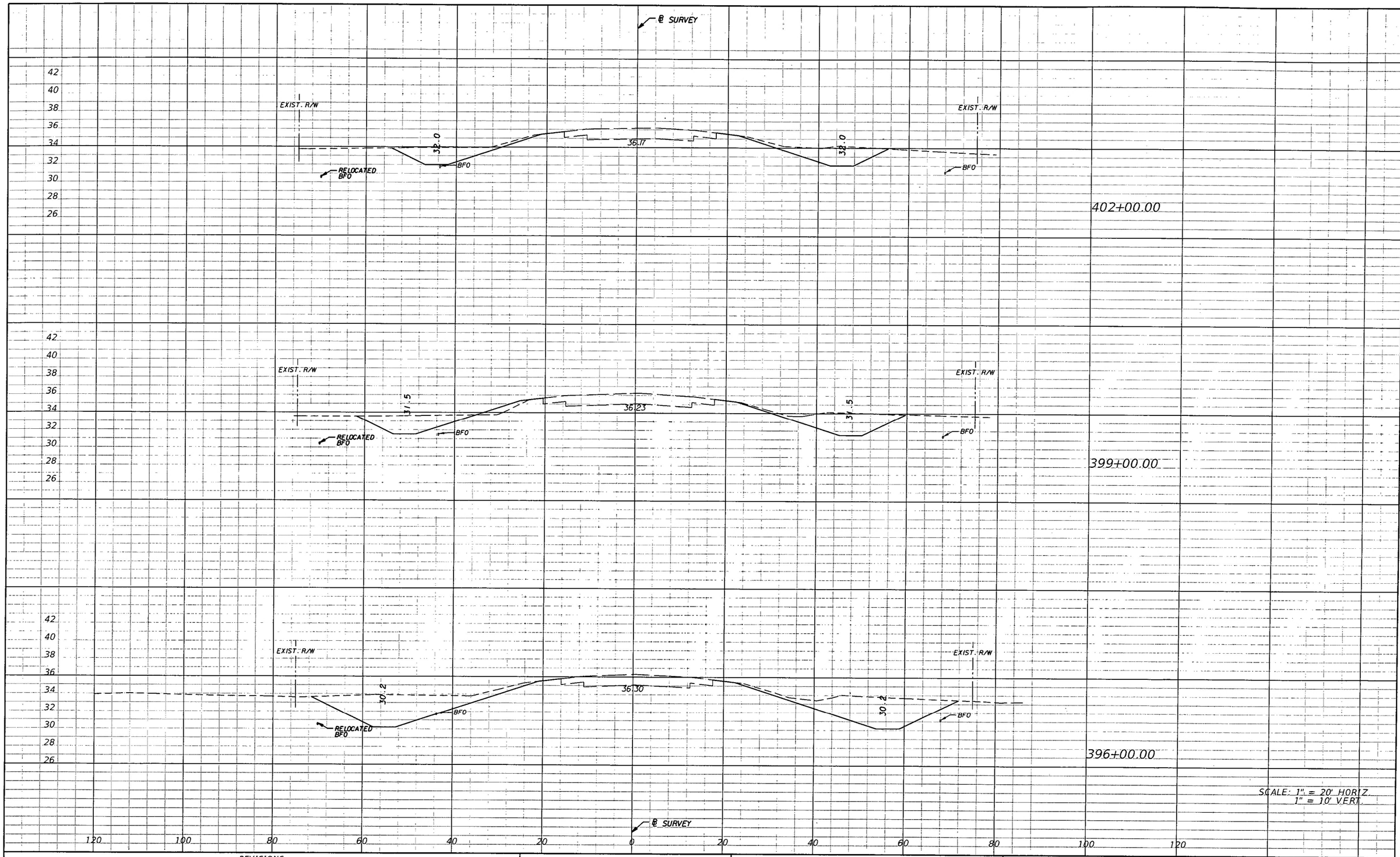
CROSS SECTIONS

SHEET NO. 58



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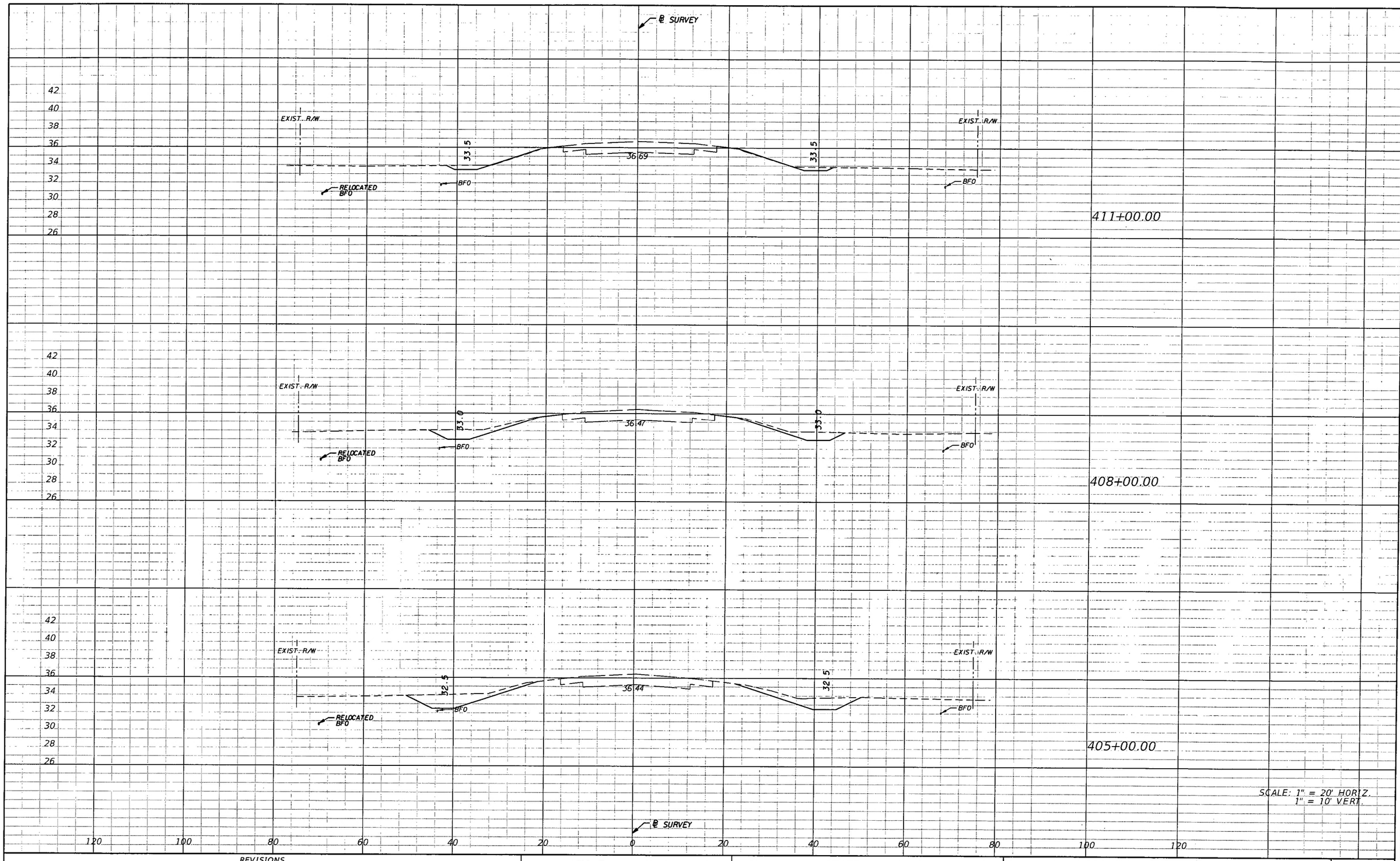
CROSS SECTIONS

SHEET NO. 59



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CROSS SECTIONS

SHEET NO. 60

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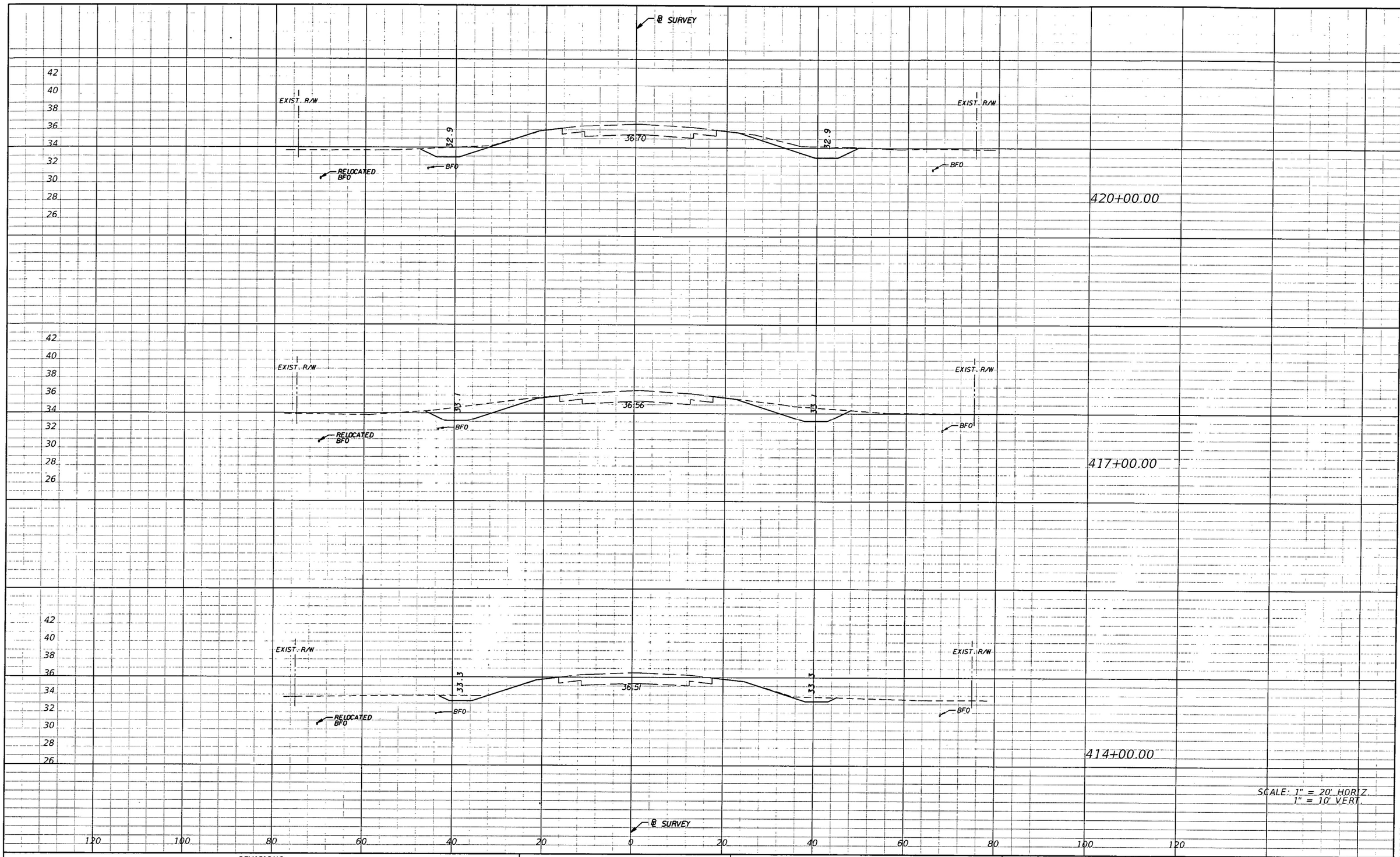

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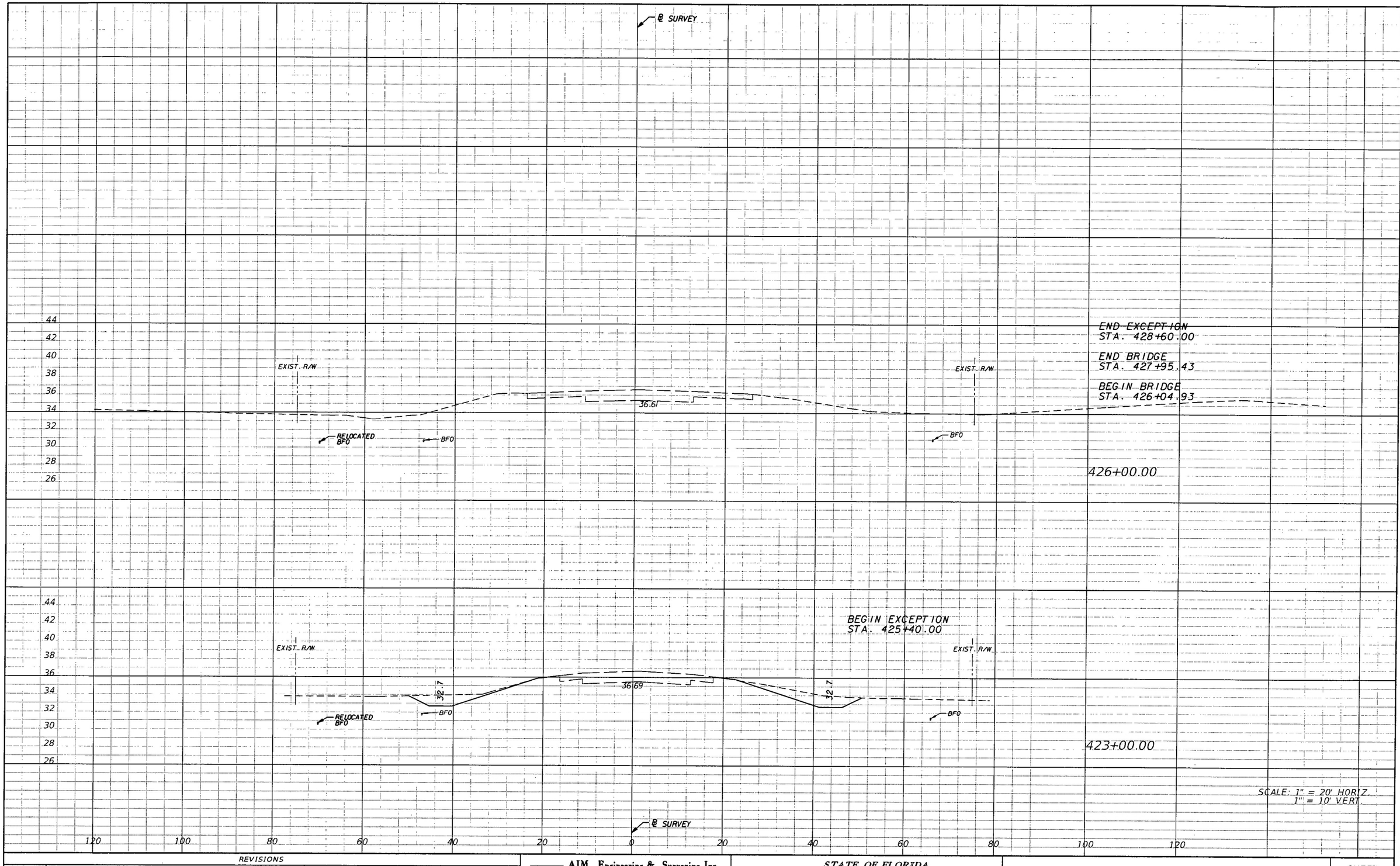
CROSS SECTIONS

SHEET NO. 61



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CROSS SECTIONS

SHEET NO. 62

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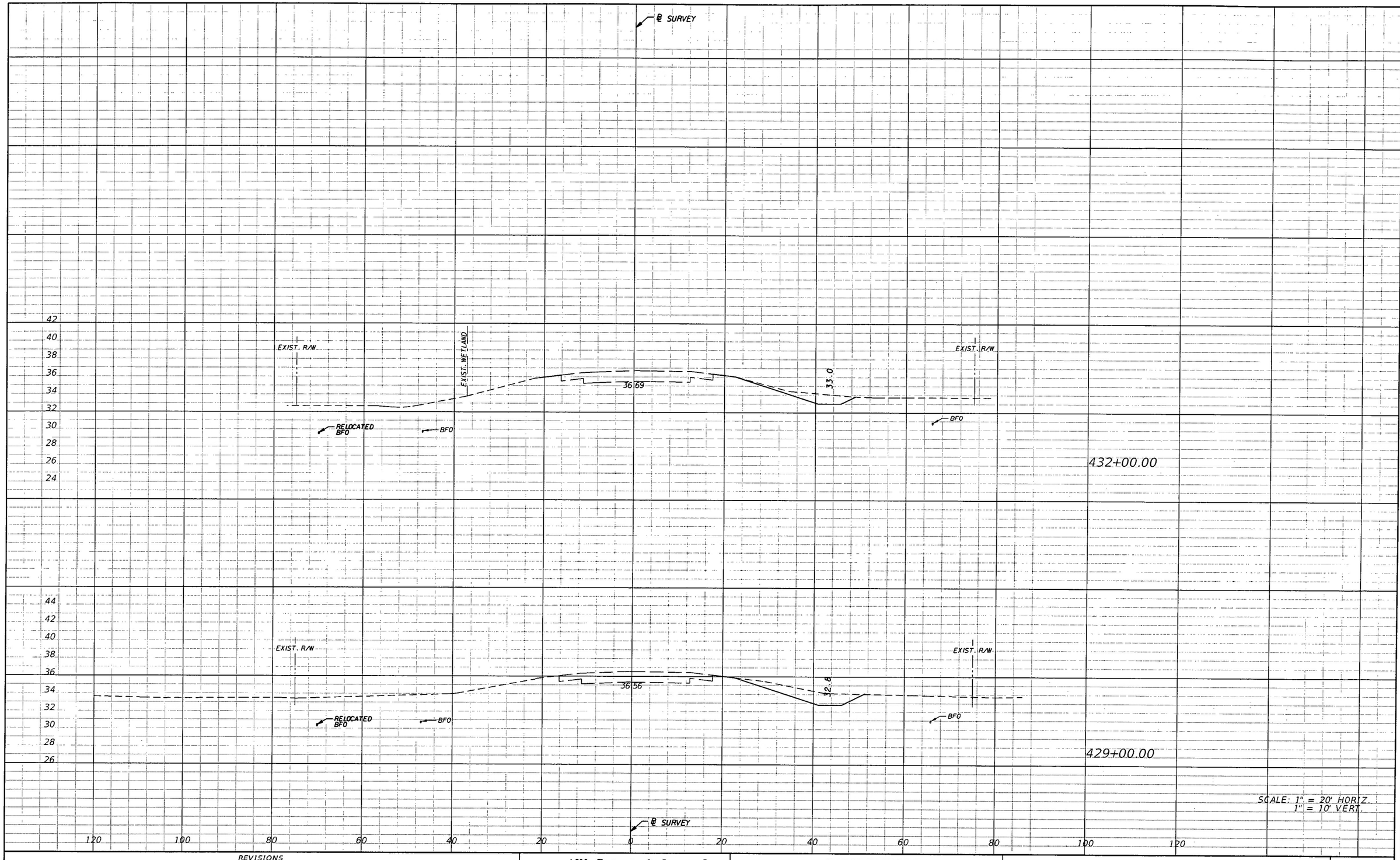

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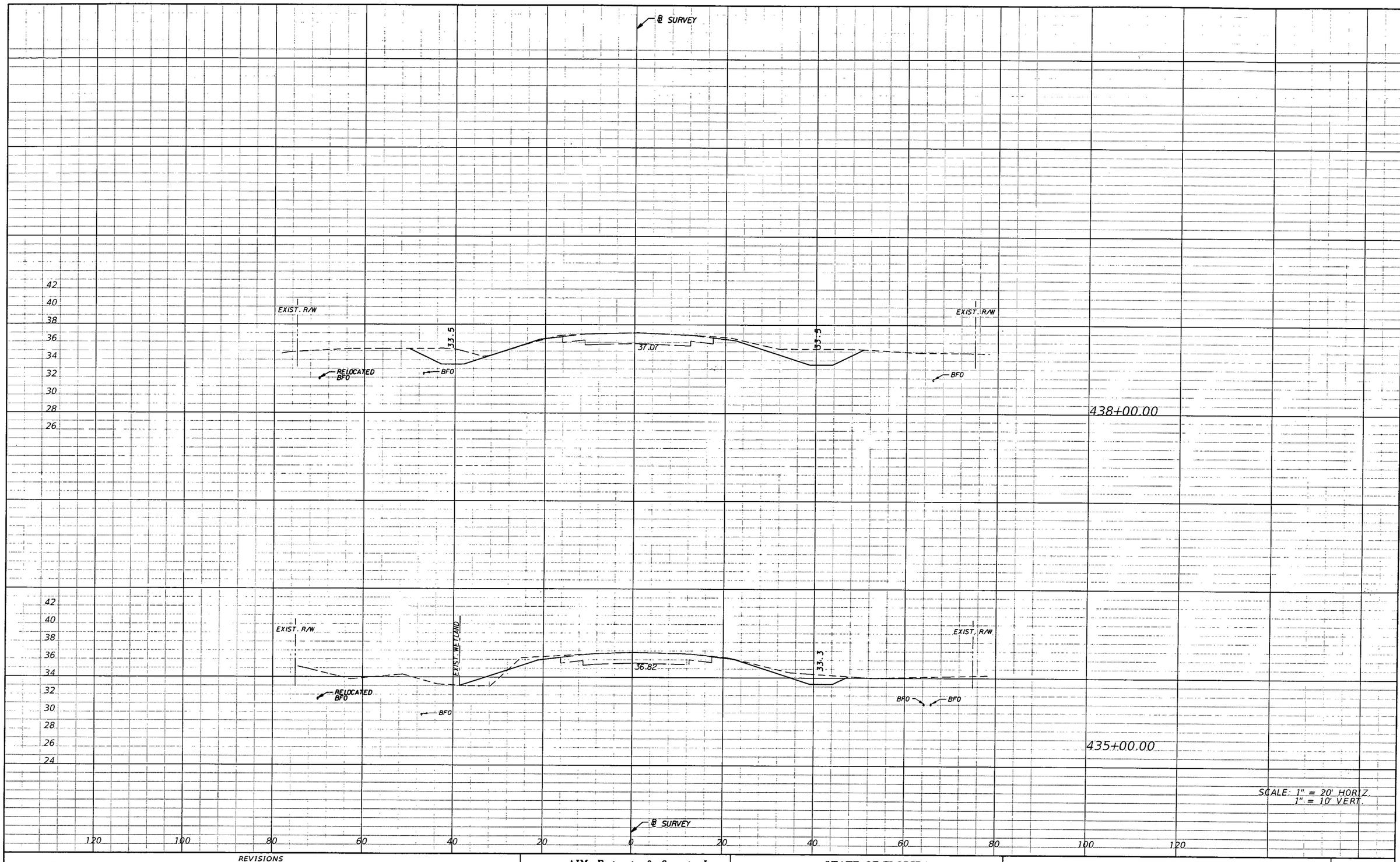
CROSS SECTIONS

SHEET NO. 63



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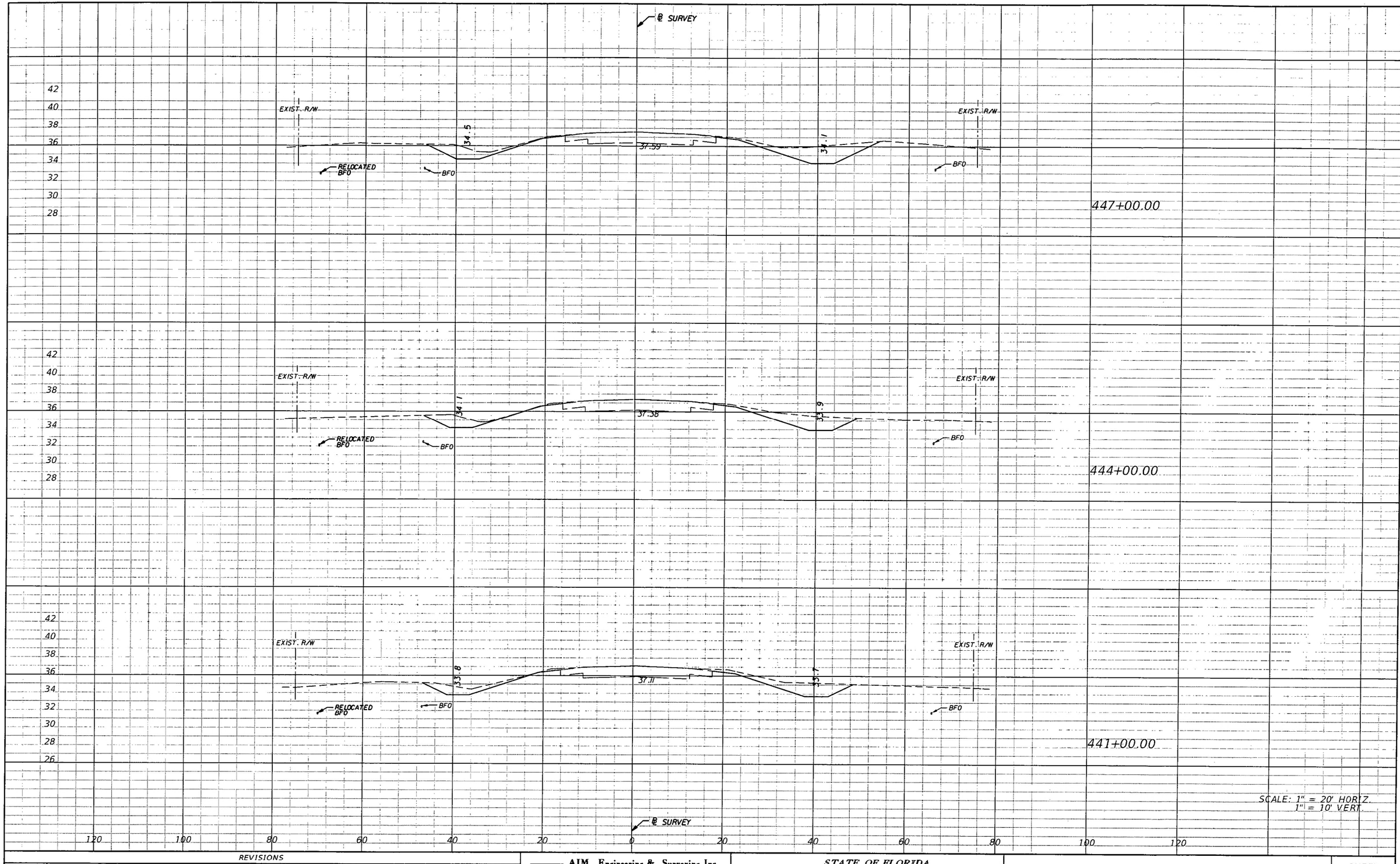
SHEET NO. 64



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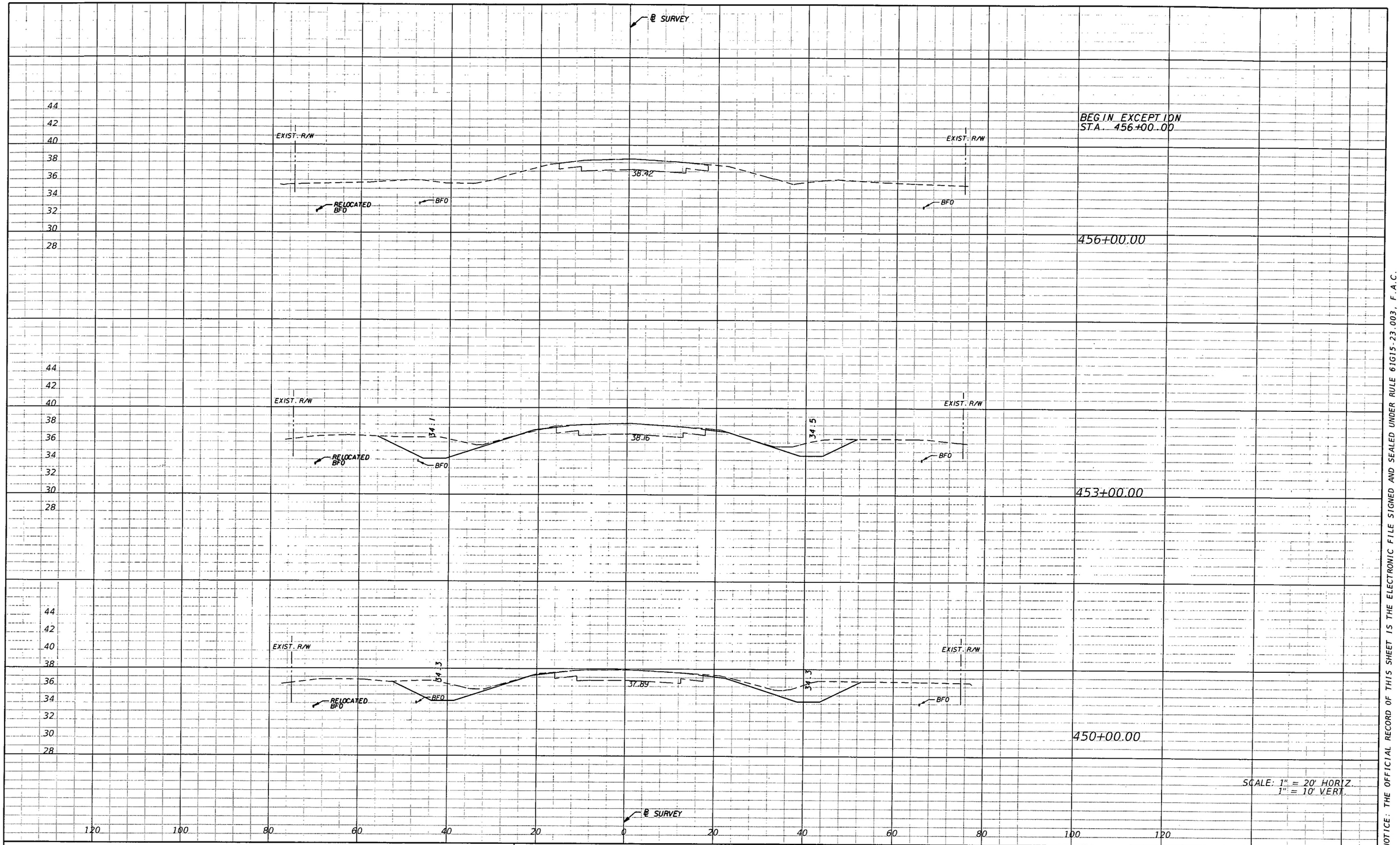
SHEET NO. 65



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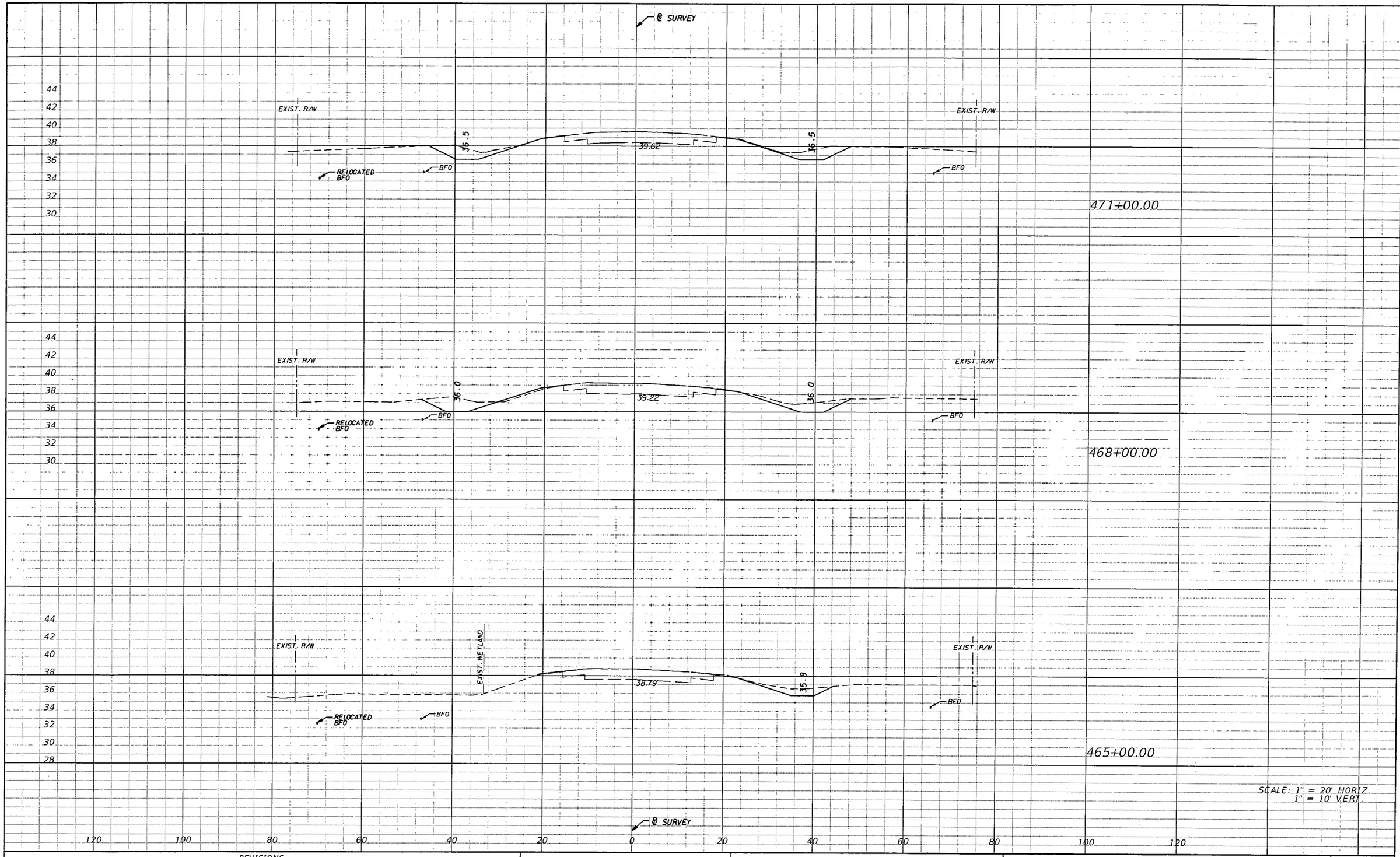
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 67



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E.O.R. DAWN M. RATICAN, P.E. NO. 60226

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 68

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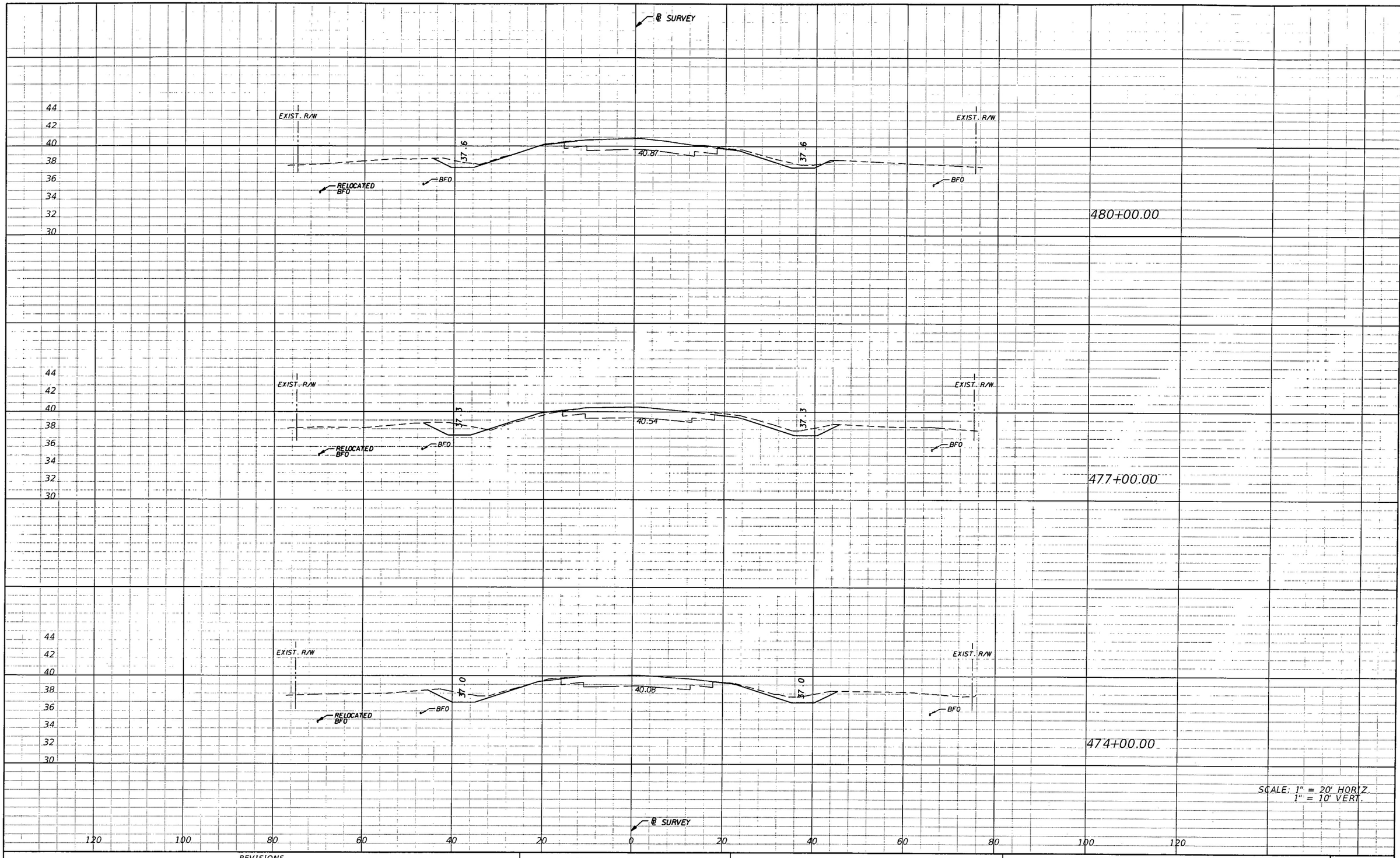

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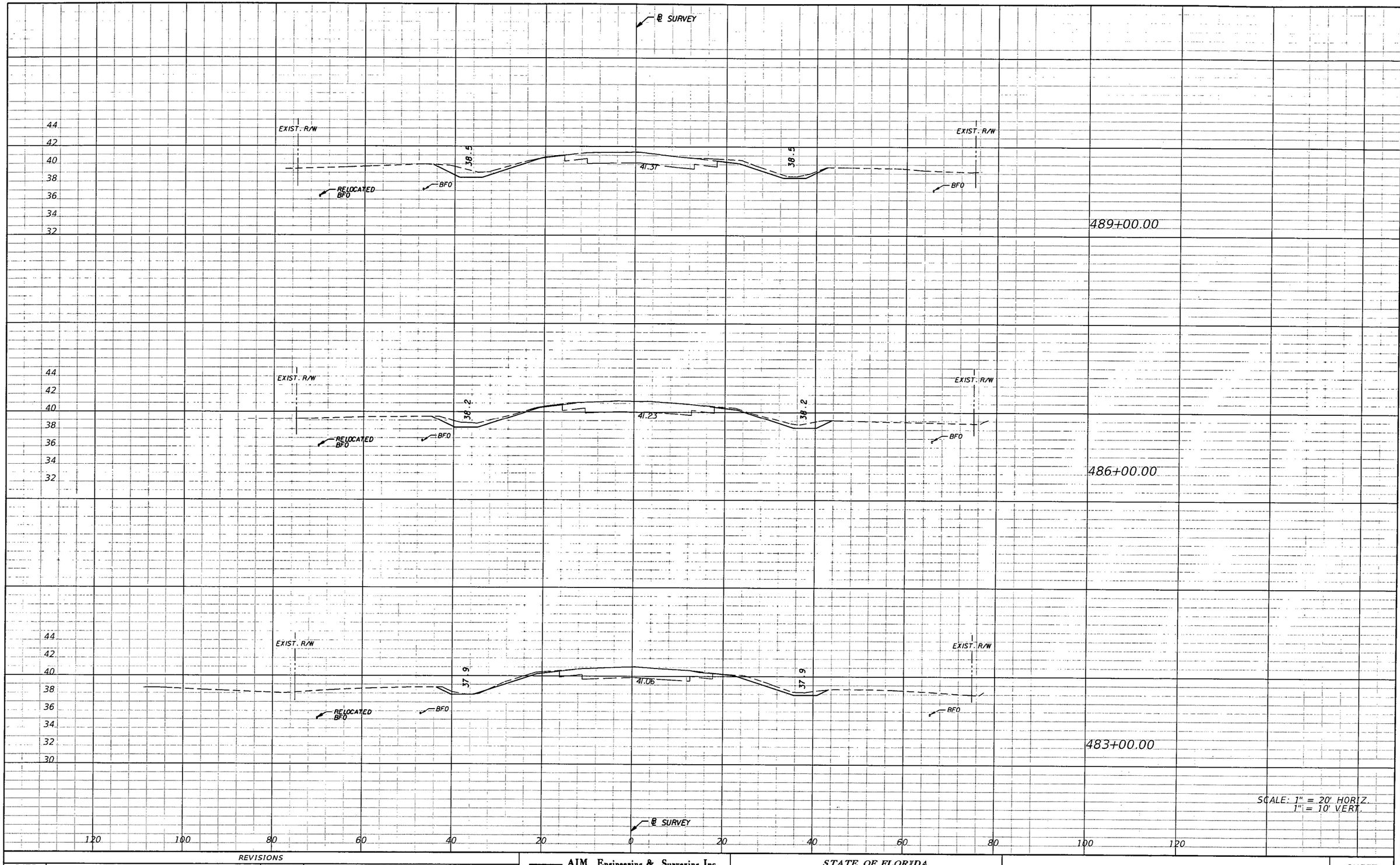
CROSS SECTIONS

SHEET NO. 69



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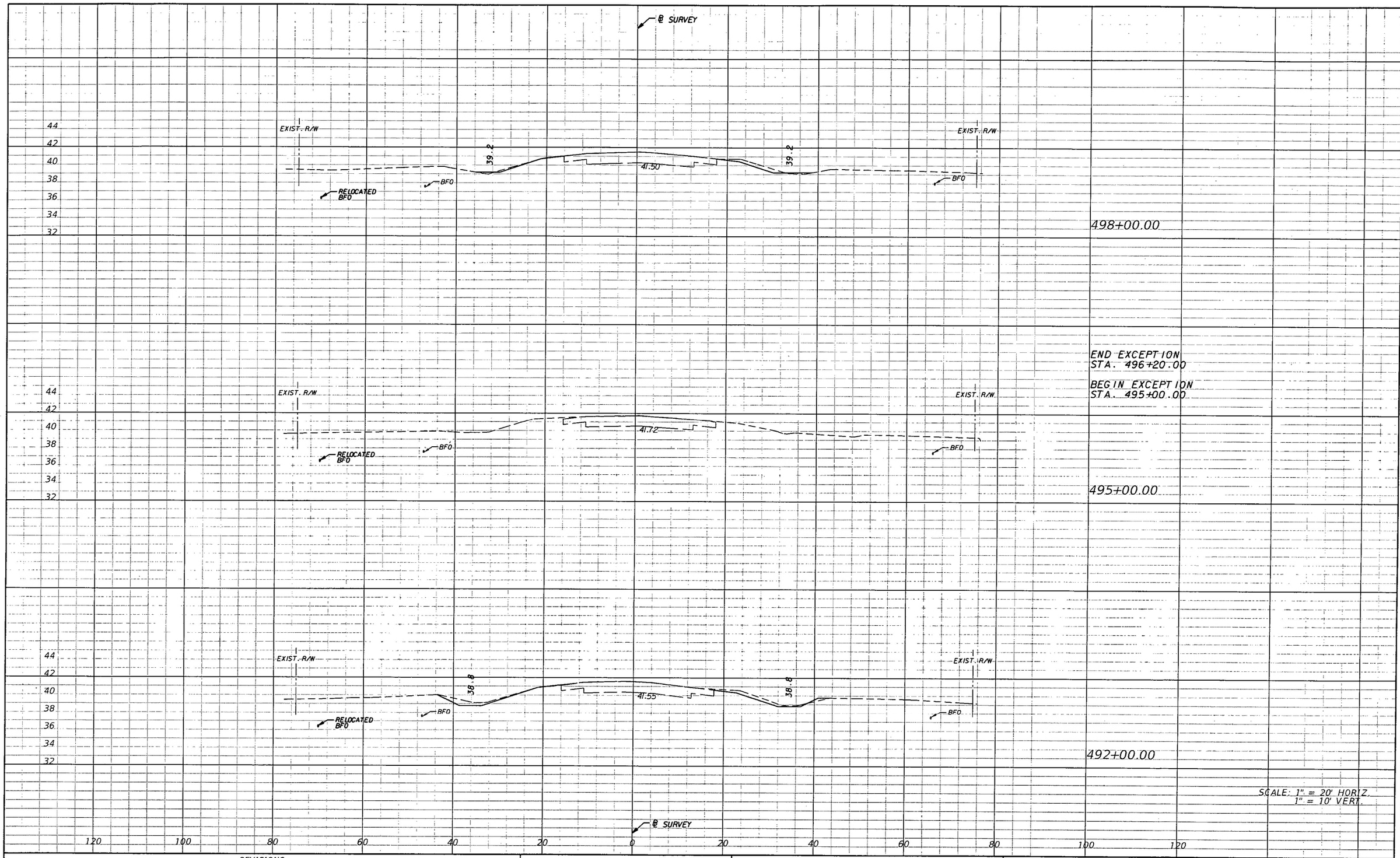
CROSS SECTIONS

SHEET NO. 70



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29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 71

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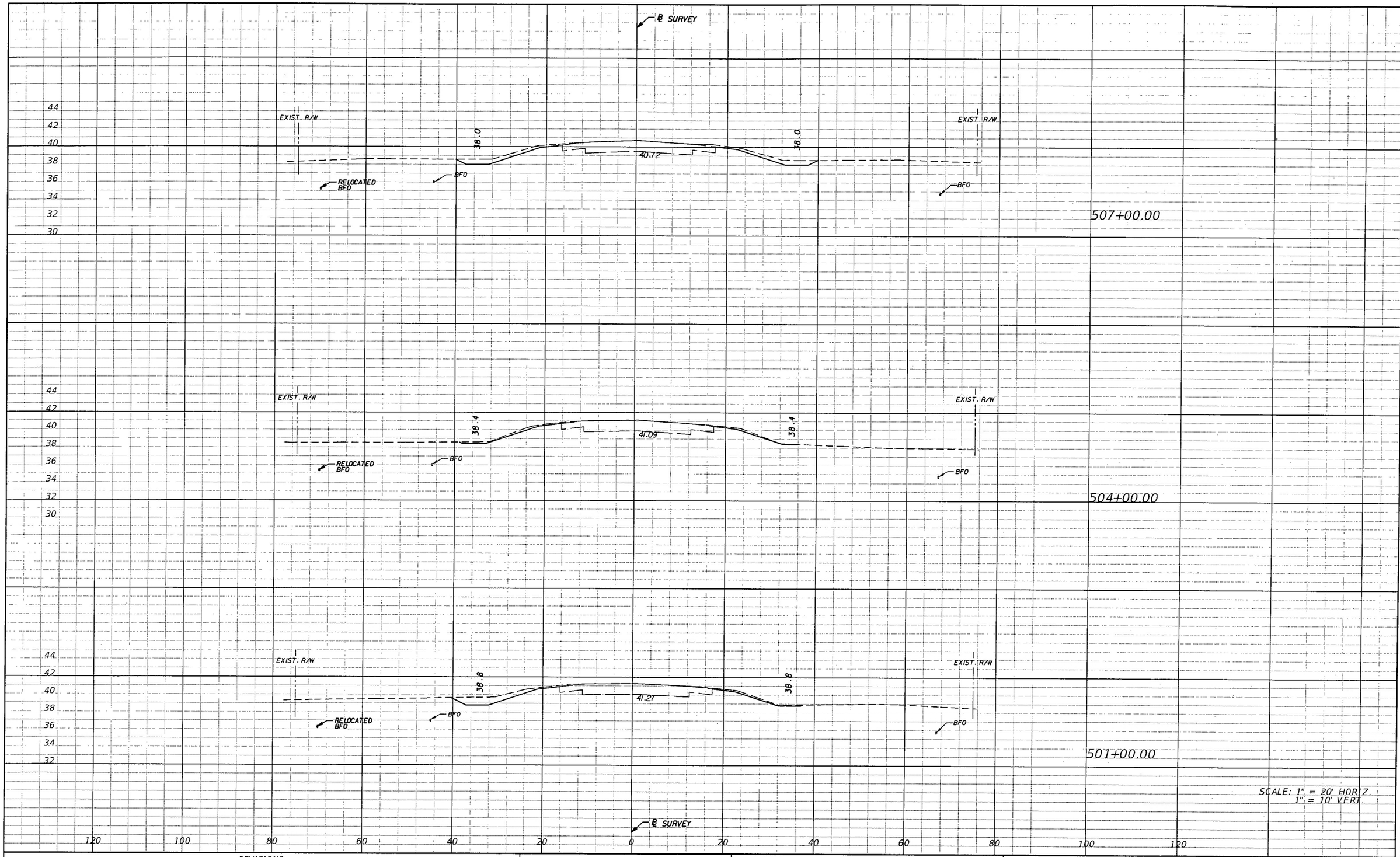

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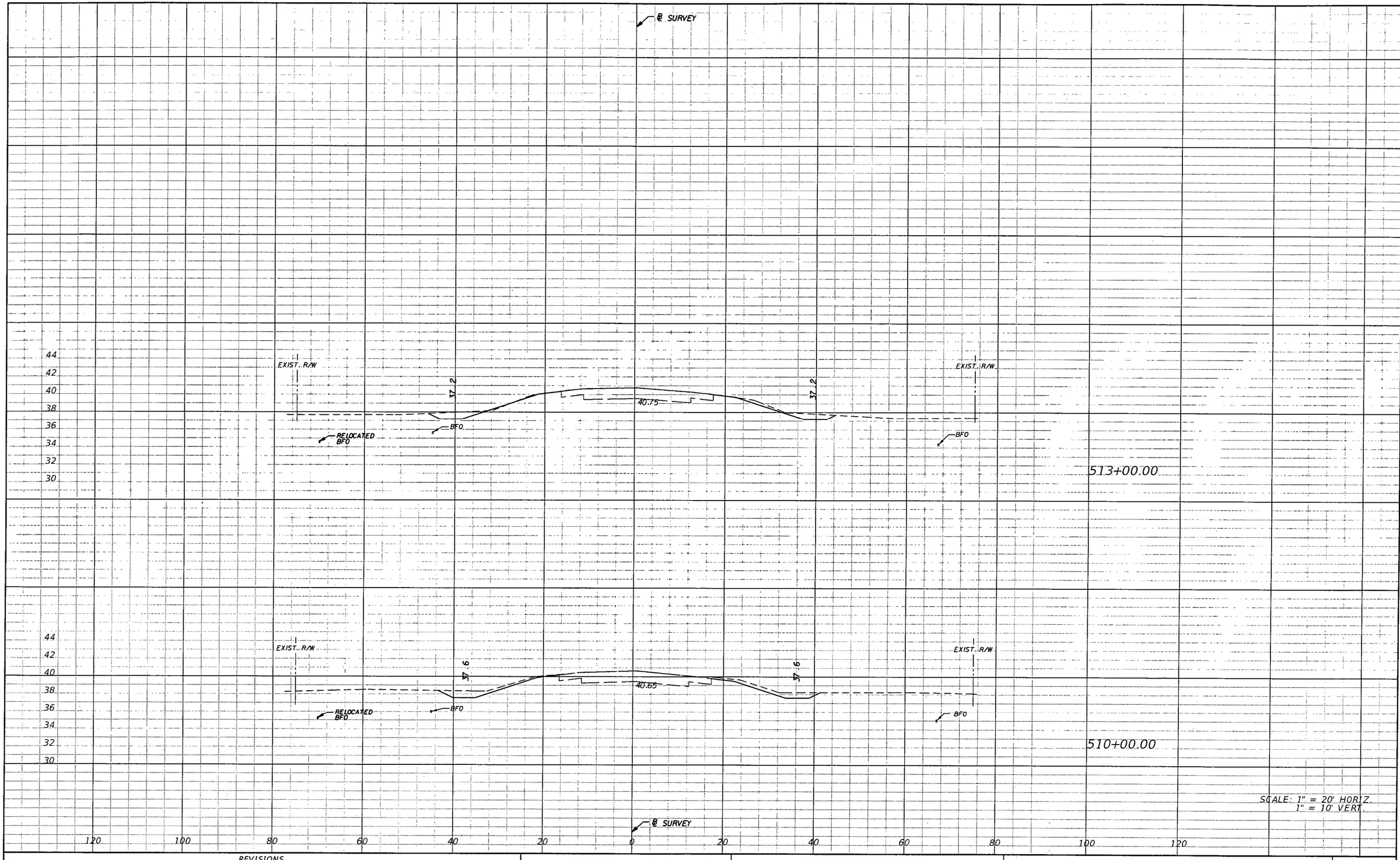
CROSS SECTIONS

SHEET NO. 72



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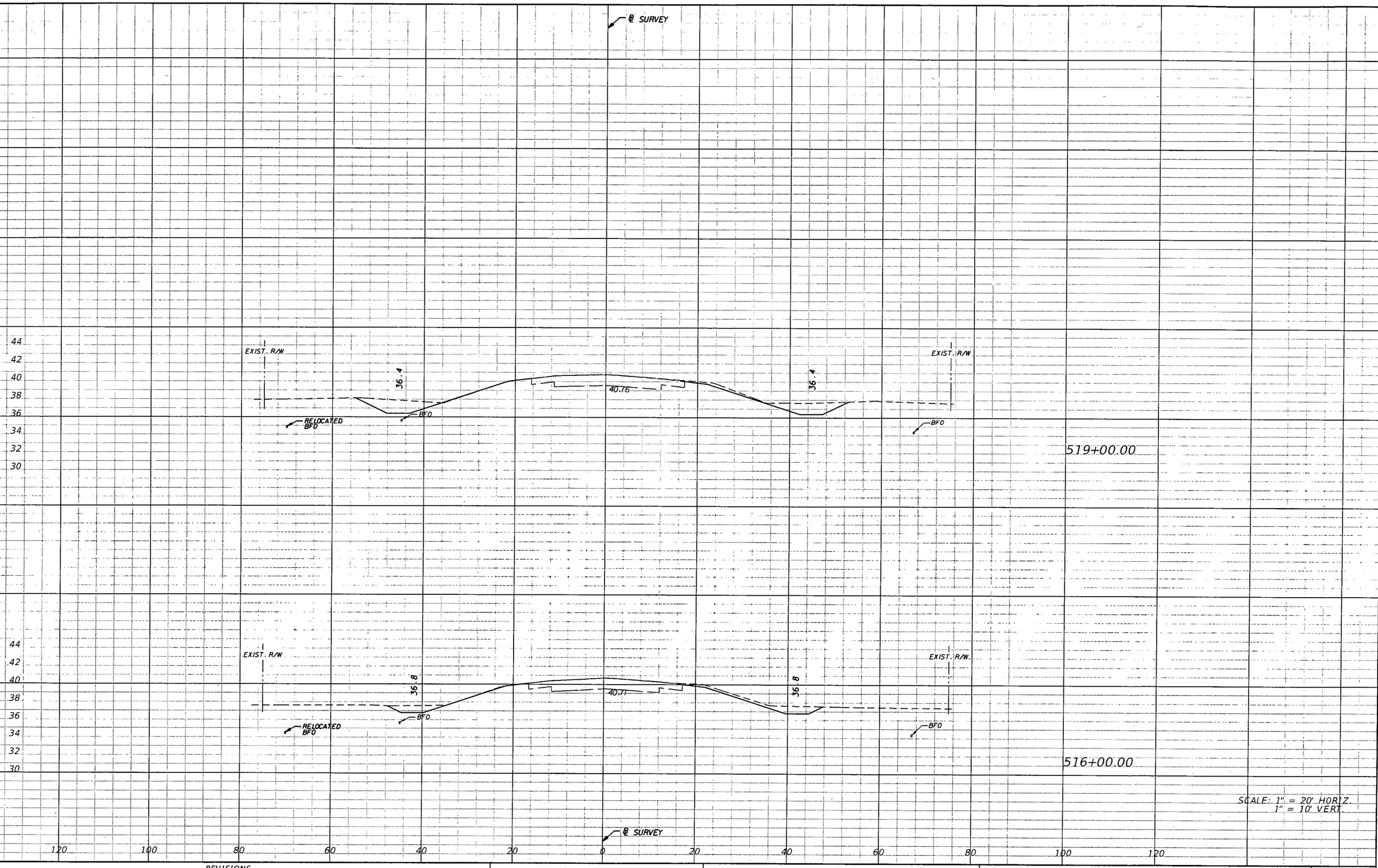

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CROSS SECTIONS

SHEET NO. 74

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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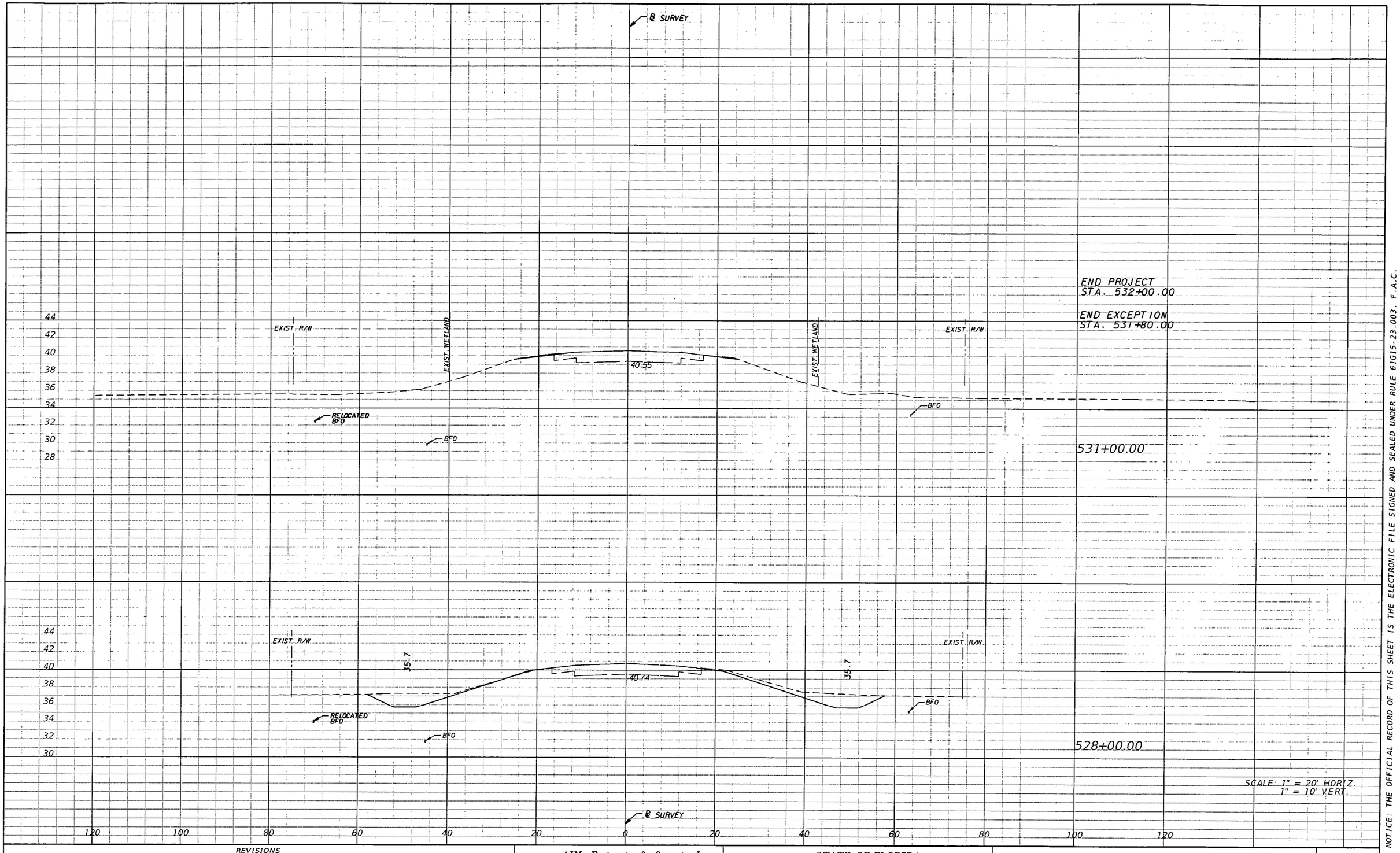
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 75



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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

CROSS SECTIONS

SHEET NO. 76

STORM WATER POLLUTION PREVENTION PLAN
SR 29 FROM NORTH OF SR78 TO SOUTH OF YORK BRANCH
FINANCIAL PROJECT ID.: 431394-1-52-01, GLADES COUNTY.

1. SITE DESCRIPTION:

(1) NATURE OF CONSTRUCTION ACTIVITY

THE PROPOSED IMPROVEMENTS TO SR 29 INCLUDE DITCH REGRADING AND REPLACEMENT OF EXISTING CROSS DRAINS AND SIDE DRAINS TO REDUCE FLOODING ALONG THE ROADWAY.

THE PROJECT IS LOCATED IN GLADES COUNTY. THE PROPOSED PROJECT IS APPROXIMATELY 6.1 MILES LONG.

(2) SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES:

(a) THE CONTRACTOR SHALL BE REQUIRED TO PREPARE A SITE SPECIFIC EROSION AND SEDIMENT CONTROL PLAN ALONG WITH A DETAILED CONSTRUCTION SCHEDULE TO INDICATE DATES OF MAJOR GRADING ACTIVITIES AND DETERMINE SEQUENCES OF TEMPORARY AND PERMANENT SOIL DISTURBING ACTIVITIES ON ALL PORTIONS OF THE PROJECT.

(b) THE CONTRACTOR WILL BE REQUIRED TO MODIFY THE PLAN OR MATERIALS TO ADAPT TO SEASONAL VARIATIONS, CONSTRUCTION ACTIVITY VARIATIONS, OR AS DIRECTED BY THE ENGINEER.

(c) APPLICABLE EROSION AND SEDIMENT CONTROL DEVICES AND IMPLEMENTATION PROCEDURES ARE SUPPLIED IN THE FDOT STANDARD INDEXES AND THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEW MANUAL (E&SC MANUAL).

(d) THE ENGINEER IS RESPONSIBLE FOR DETERMINING IF ANY MODIFICATIONS OR ADDITIONAL CONTROLS ARE REQUIRED AND TO OBTAIN DEPLOYMENT SCHEDULES FOR THE IMPLEMENTATION OF ALL ADDITIONAL EROSION AND SEDIMENT CONTROL DEVICES FROM THE CONTRACTOR.

(3) GENERAL NOTES:

(a) ALL EROSION AND SEDIMENT CONTROL DEVICES FOR EACH PHASE OF WORK ARE TO BE INSTALLED PRIOR TO BEGINNING WORK ON THAT PHASE.

(b) INSTALL EROSION AND SEDIMENT CONTROL DEVICES WHERE LISTED IN THE CONTRACTOR'S APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR PERIMETER CONTROLS BEFORE THE LAND IS DISTURBED.

(c) PROVIDE SEDIMENT BARRIERS WHERE LISTED IN THE CONTRACTOR'S APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR DITCH/SWALE CHECK DAMS DURING CONSTRUCTION.

(d) PROVIDE SEDIMENT BARRIERS AT PIPE CROSSINGS.

(e) COVER OR STABILIZE DISTURBED AREAS AS SOON AS POSSIBLE.

(f) DO NOT DISTURB AN AREA UNTIL IT IS NECESSARY FOR CONSTRUCTION TO PROCEED.

(g) TIME CONSTRUCTION ACTIVITIES TO LIMIT IMPACT FROM SEASONAL CLIMATE CHANGES OR WEATHER EVENTS.

(h) DO NOT REMOVE PERIMETER CONTROLS UNTIL ALL UPSTREAM AREAS ARE FULLY STABILIZED AND PERMANENT VEGETATION IS ESTABLISHED.

(4) PROJECT AREAS:

THE ESTIMATED TOTAL PROJECT AREA IS 111.6 ACRES. THE ESTIMATED AREA TO BE DISTURBED DURING CONSTRUCTION ACTIVITIES IS 49.2 ACRES.

(5) RUNOFF COEFFICIENTS BEFORE Cw (B), DURING Cw (D) AND AFTER Cw (A) CONSTRUCTION:

RUNOFF COEFFICIENT FOR: GRASSED SHOULDERS ADJACENT TO ROADWAY: C=0.35
IMPERVIOUS ROADWAYS AND PAVED SHOULDER: C=0.95
DISTURBED AREAS, EXPOSED SOIL, ETC., DURING CONSTRUCTION: C=0.40

WEIGHTED RUNOFF COEFFICIENT:
BEFORE: C_W (B) = 0.49 DURING: C_W (D) = 0.51 AFTER: C_W (A) = 0.49

THE RUNOFF COEFFICIENT DURING CONSTRUCTION, Cw (D), IS CALCULATED ASSUMING THAT THE MAXIMUM ALLOWABLE AREA OF SOIL IS DISTURBED DURING CONSTRUCTION AND THE REMAINING AMOUNT IS THE EXISTING IMPERVIOUS AND GRASSED SHOULDER AREAS.

(6) DESCRIPTION OF SOIL OR QUALITY OF DISCHARGE:

THE SOIL WITHIN THE PROJECT AREA IS HIGHLY CORROSIVE. THE SOILS THAT EXIST WITHIN THE PROJECT LIMITS ARE LISTED IN THE TABLE BELOW. ALL INFORMATION IS TAKEN FROM THE NRCS SOIL SURVEY OF GLADES COUNTY.

MAP UNIT SYMBOL	MAP UNIT NAME	RATING
5	SMYRNA FINE SAND	A/D
6	MALABAR FINE SAND	A/D
7	POPLE FINE SAND	C/D
8	GATOR MUCK, DEPRESSIONAL	C/D
14	BASINGER FINE SAND	A/D
15	PINEDA FINE SAND	C/D
16	FLORIDANA FINE SAND, DEPRESSIONAL	C/D
23	OLDSMAR SAND	C/D
26	IMMOKALEE SAND	B/D
29	MYAKKA FINE SAND	B/D
32	FLORIDANA, ASTOR, AND FELDA SOILS, FREQUENTLY FLOODED	A/D
34	BASINGER FINE SAND, DEPRESSIONAL	A/D
36	MALABAR FINE SAND, HIGH	A/D

(7) ESTIMATED DRAINAGE FLOW DIRECTION AND AVERAGE SLOPE OF DRAINAGE AREA FOR EACH OUTFALL:
(a) SITE MAP: SEE STROMWATER POLLUTION PREVENTION PLAN (4)
(b) DRAINAGE MAPS OR MAPS WITH APPROPRIATE CONTOURS: SEE STORMWATER POLLUTION PREVENTION PLAN (4)

(8) RECEIVING WATERS:

LONE PINE CREEK, CYPRESS BRANCH, CHAPARRAL SLOUGH

(9) THE OUTFALLS ARE NOT 303(d) LISTED, IMPAIRED WATERS FOR PARAMETERS SUCH AS TOTAL SUSPENDED SOLIDS (TSS), TURBIDITY, NUTRIENTS, DISSOLVED OXYGEN, FECAL COLIFORM, ETC.

(10) OUTFALL LOCATIONS:

No.	CHANNEL	CROSS DRAIN	LATITUDE	LONGITUDE
1	LONE PINE CREEK	3 SPAN CONC. BRIDGE	26° 50' 15" N	81° 23' 30" W
2	RELIEF	(3) 30" PIPES	26° 50' 45" N	81° 23' 00" W
3	CYPRESS BRANCH	(3) 36" PIPES	26° 51' 15" N	81° 22' 30" W
4	CHAPARRAL SLOUGH	10 SPAN CONC. BRIDGE	26° 51' 45" N	81° 22' 15" W
5	RELIEF	(4) 24" PIPES	26° 50'45" N	81° 23'00" W

(11) ANY WETLAND OR SURFACE WATER IMPACTS ASSOCIATED WITH THE PROPOSED MAINTENANCE IMPROVEMENT OF RESTORING THE HISTORICAL DITCHES HAVE BEEN MINIMIZED.

(12) DESCRIPTION OF STORMWATER MANAGEMENT:

(a) EXISTING DRAINAGE FLOWS ARE TYPICALLY FROM THE WEST TO THE EAST THROUGH SEVERAL CROSS DRAINS. RUNOFF EVENTUALLY FLOWS TO THE CALOOSAHATCHEE RIVER. THE PROPOSED DRAINAGE FLOWS WILL REMAIN THE SAME.

(b) OFF-SITE RUNOFF SHOULD BE DIVERTED AWAY OR THROUGH THE CONSTRUCTION AREA, IF POSSIBLE. THIS ADDITIONAL FLOW, IF NOT DIVERTED, CAN ADD VOLUME AND SIZE TO STRUCTURAL PRACTICES, REQUIRING MORE FREQUENT MAINTENANCE AND LIMITING EFFECTIVENESS OF EROSION AND SEDIMENT CONTROLS.

(c) THE CONTRACTOR WILL PROVIDE POLLUTION CONTROL BY IMPLEMENTING DUST CONTROL DURING ALL PHASES OF CONSTRUCTION. SEDIMENT CONTROL WILL BE ACCOMPLISHED BY USING STREET OR VACUUM SWEEPERS.

(d) THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT UNAUTHORIZED MATERIALS FROM ENTERING WETLANDS, WATERWAYS, OTHER SURFACE WATERS OR WATERS OF THE U.S.

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

STORMWATER POLLUTION PREVENTION PLAN (1)

SHEET NO. 77

II. CONTROLS:

SEDIMENT AND EROSION CONTROLS

(1) WATER QUALITY MONITORING:

(a) WATER QUALITY MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH THE SPECIAL CONDITIONS OF ANY ENVIRONMENTAL PERMIT OR BY THE CONTRACTOR UPON THE OBSERVATION THAT WATER QUALITY STANDARDS MAY BE VIOLATED BY THE CONTRACTOR'S ACTIVITIES. MONITORING LOCATIONS MAY BE SPECIFIED IN THE ENVIRONMENTAL PERMIT OR MAY BE DESIGNATED BY THE CONTRACTOR AND APPROVED BY THE PROJECT ADMINISTRATOR.

(b) THE PROJECT ADMINISTRATOR WILL BE RESPONSIBLE FOR MONITORING ANY ACTIVITIES FOR VIOLATION OF WATER QUALITY STANDARDS AS THEY RELATE TO TURBIDITY (NO GREATER THAN 29 NTU'S ABOVE BACKGROUND OR GREATER THAN 0 NTU'S ABOVE BACKGROUND FOR DIRECT DISCHARGES TO OFW'S).

(c) IF WATER QUALITY STANDARDS ARE VIOLATED, CONSTRUCTION SHALL BE STOPPED IMMEDIATELY, THE ENVIROMENTAL PERMIT CONDITIONS FOLLOWED AND EROSION AND SEDIMENT CONTROL DEVICES REEVALUATED AND APPROVED BY THE ENGINEER PRIOR TO ANY CONTINUATION OF ACTIVITY. MONITORING ACTIVITIES AND TURBIDITY READINGS SHALL BE RECORDED ON THE CONSTRUCTION INSPECTION REPORT AND CONTINUED UNTIL TURBIDITY READINGS FALL BELOW AN ACCEPTABLE LEVEL (LESS THAN 29 NTU'S ABOVE BACKGROUND OR LESS THAN 0 NTU'S ABOVE BACKGROUND FOR DIRECT DISCHARGES TO OFW'S).

(d) WATER QUALITY MONITORING MAY BE CONDUCTED DURING ANY PHASE OF CONSTRUCTION AS DIRECTED BY THE PROJECT ENGINEER.

(2) STABILIZATION PRACTICES:

(a) STABILIZATION MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO MAINTAINING, ESTABLISHING AND USING VEGETATION, APPLYING MULCHES, SODDING, SEEDING, BMP'S AND THE USE OF ROLLED EROSION CONTROLLED PRODUCTS. WHEN CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, SIDE SLOPES SHALL BE STABILIZED WITH PERFORMANCE SODDING OR SEEDING OR ANY OTHER APPROVED METHOD OF STABILIZATION INCLUDED IN THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEW MANUAL (E&SC MANUAL).

(b) STABILIZATION SHALL TAKE PLACE AS SOON AS PRACTICAL IN PORTIONS OF THE PROJECT WHERE CONSTRUCTION ACTIVITIES HAVE CEASED, BUT NO LATER THAN 7 DAYS AFTER ANY CONSTRUCTION ACTIVITY CEASES EITHER TEMPORARILY OR PERMANENTLY.

(c) ALL EROSION CONTROL DEVICES SHALL BE INSTALLED ACCORDING TO THE CONTRACT DOCUMENTS, AND THE CONTRACTOR'S APPROVED EROSION CONTROL PLAN.

(d) ANY TEMPORARY MATERIAL USED FOR POLLUTION OR EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION SHALL BE REMOVED AT THE COMPLETION OF THE PROJECT AND FINAL STABILIZATION OF THE PROJECT HAS BEEN ACHIEVED.

(e) SEDIMENT BARRIERS SHOULD BE USED ALONG THE LENGTH OF THE PROJECT WHERE THE GROUND SLOPES AWAY FROM THE RIGHT OF WAY OR WHERE THERE IS POTENTIAL FOR SEDIMENT TO BE DIRECTED OFF-SITE. PARTICULAR CARE SHOULD BE USED WHEN THERE ARE WETLANDS OR WATERS OF THE U.S. ARE INVOLVED. SEDIMENT BARRIERS SHOULD BE USED AROUND THE PERIMETER OF STOCKPILE AREAS.

(f) SPACING OF SEDIMENT BARRIERS USED AS DITCH OR SWALE CHECKS/DAMS SHOULD BE BASED UPON THE HEIGHT OF THE BARRIER AND THE SLOPE OF THE DITCH OR SWALE.

(g) THE CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING SOIL TRACKING PREVENTION SYSTEMS OR PROCEDURES AS NEEDED.

(3) STRUCTURAL PRACTICES FOR EROSION AND SEDIMENT CONTROL

(a) ROLLED EROSION CONTROL PRODUCTS (ARTIFICIAL COVERINGS)

PURPOSE: TO PROTECT DISTURBED SLOPE SURFACES AGAINST EROSION DUE TO RAINFALL OR FLOWING WATER.

(1) USED FOR PAUSES IN CONSTRUCTION DUE TO INCLEMENT WEATHER OR OTHER CIRCUMSTANCES. COULD INCLUDE NATURAL OR SYNTHETIC FIBER MATS, PLASTIC SHEETING OR NETS.
(2) USED FOR EROSION CONTROL THAT FACILITATES PLANT GROWTH WHILE PERMANENT GRASS IS ESTABLISHED. COULD INCLUDE BIODEGRADABLE EROSION CONTROL BLANKETS INSTALLED ON A SEEDED AREA, ON FILL SLOPES OR IN DITCHES.
(3) USED TO STABILIZE DRAINAGE CHANNELS. CONSULT E&SC MANUAL TO DETERMINE CORRECT PRODUCT TYPE FOR CHANNEL STABILIZATION.

(b) RUNOFF CONTROL STRUCTURE (TEMPORARY SLOPE DRAIN)

PURPOSE: TO PROTECT HILLSIDE SURFACES AGAINST EROSION DUE TO CONCENTRATED FLOW OF RUNOFF WATER.

(1) USED ON FILL SLOPES AND CUT SLOPES TO REDUCE SEDIMENT TRANSPORT AND COULD INCLUDE TEMPORARY SLOPE DRAINS, GRASS-LINED CHANNELS, ROCK-LINED CHANNELS AND CHECK DAMS.
(2) RUNOFF CONTROL STRUCTURES TYPICALLY DISCHARGE TO A SEDIMENT BASIN.

(c) SEDIMENT BASIN (CONTAINMENT SYSTEM)

PURPOSE: A CONTAINMENT SYSTEM IS DESIGNED TO DETAIN AN ADEQUATE VOLUME OF RUNOFF, REDUCE THE VELOCITY OF FLOW THROUGH THE SYSTEM, ALLOW FOR SETTLEMENT OF SUSPENDED SOLIDS AND REGULATE THE DISCHARGE RATE FROM THE SEDIMENT BASIN.

(1) SEDIMENT BASINS MUST BE PLACED IN STRATEGIC LOCATIONS WITHIN THE ACTIVE AREAS OF CONSTRUCTION. CONTRIBUTING AREA AND SIZE OF TARGET SOIL PARTICLE WILL DICTATE WHETHER THE SEDIMENT BASIN WILL BE TYPE 1, TYPE 2 OR TYPE 3 SYSTEM.
(2) THE USE OF SMALLER PRE-SEDIMENTATION BASINS USED IN CONJUNCTION WITH LARGER PERMANENT RETENTION/DETENTION PONDS ARE EFFECTIVE IN CAPTURING LARGER VOLUMES OF SEDIMENTS. THIS TECHNIQUE REQUIRES PERIODICALLY SCHEDULED REMOVAL OF THE ACCUMULATED SEDIMENTS.

(d) SEDIMENT BARRIERS (TEMPORARY CONSTRUCTION SITE BMP'S)

PURPOSE: SEDIMENT BARRIERS EITHER OBSTRUCT FLOW OR PREVENT THE PASSAGE OF WATER WHILE CONSTRUCTION ACTIVITIES OCCUR. SMALLER SEDIMENT BARRIERS MAY FUNCTION AS A SMALL SEDIMENT CONTAINMENT SYSTEM OR AS A METHOD TO REDUCE FLOW VELOCITY.

(1) THESE CONSTUCTION BMP'S CAN INCLUDE SYNTHETIC BALES, STAKED SILT FENCE, TURBIDITY BARRIER, STORM SEWER INLET BARRIERS, ROCK BARRIERS, GEOSYNTHETIC BARRIERS, ETC.
(2) APPROPRIATE LOCATIONS INCLUDE SITE PERIMETER, BELOW DISTURBED AREAS SUBJECT TO SHEET AND RILL EROSION, BELOW THE TOE OF EXPOSED AND ERODIBLE SLOPES, ALONG THE TOE OF STREAM AND CHANNEL BANKS, AROUND DRAINS AND INLETS LOCATED IN LOWPOINTS OR THE DOWNSTREAM EDGE OF AREAS UNDERGOING VERTICAL OR BOX CULVERT CONSTRUCTION ACTIVITIES.
(3) INAPPROPRIATE LOCATIONS FOR THESE SAME MEASURES INCLUDE PARALLEL TO A HILLSIDE CONTOUR, IN CHANNELS WITH CONCENTRATED FLOW (UNLESS PROPERLY REINFORCED), UPSTREAM OR DOWNSTREAM OF CULVERTS WITH CONCENTRATED FLOW, IN FRONT OF OR AROUND INLETS ON A GRADE WITH CONCENTRATED FLOW OR IN FLOWING STREAMS.

(e) FLOATING TURBIDITY BARRIER

PURPOSE: USED IN PERMANENT BODIES OF WATER TO RETAIN SEDIMENT AND FLOATING DEBRIS FROM A CONSTRUCTION AREA SO THAT REMOVAL OR CONTAINMENT OF THE MATERIAL IS POSSIBLE. THEY ARE ALSO USED TO CONTROL MIGRATION OF SUSPENDED SEDIMENTS.

(1) TYPE I, LIGHT DUTY, IS USED WHERE THERE IS LITTLE OR NO CURRENT, NO WIND AND NO WAVE ACTION.
(2) TYPE II, MODERATE DUTY, IS USED WITH SOME CURRENT (<3.5 FT. PER SECOND) AND SOME EXPOSURE TO WIND.
(3) TYPE III, HEAVY DUTY, IS USED WITH GREATER CURRENT (3.5-5.0 FT. PER SECOND), MODERATE WIND AND WAVE ACTION
(4) BARRIER MUST BE ATTACHED AT BOTH ENDS AND WEIGHTED ON THE BOTTOM.
(5) MULTIPLE LINES OF BARRIER MAY BE USED IN SOME CIRCUMSTANCES FOR ADDITIONAL PROTECTION.
(6) STANDARD PANELS FOR WATER DEPTHS ARE 5.0'. ADDITIONAL PANELS CAN BE USED FOR WATER DEPTHS > 5.0'.

(f) STAKED TURBIDITY BARRIER

PURPOSE: THIS ITEM IS COMMONLY USED IN AREAS WHERE CONTINUOUS CONSTRUCTION ACTIVITIES CHANGE THE NATURAL CONTOURS AND DRAINAGE RUNOFF PATTERNS.

(1) COMMONLY USED IN LAKES AND STREAMS AS A SEDIMENT CONTAINMENT SYSTEM. SHOULD NOT BE USED WHERE WATER CURRENTS MOVE THE CURTAIN AND DISLODGE COLLECTED SEDIMENTS.
(2) MAXIMUM DEPTH OF PANEL IS 3'-8''.
(3) POST MUST BE A MINIMUM LENGTH OF 5.0' AND A MINIMUM OF 10" OF FABRIC MUST BE IMBEDDED IN THE GROUND.

(g) INLET PROTECTION SYSTEM

PURPOSE: ANY OF A NUMBER OF SEDIMENT BARRIERS THAT EITHER PREVENT SEDIMENT FROM ENTERING AN INLET OR TRAP THE SEDIMENTS ONCE THEY ENTER THE INLET.

(1) TYPICAL APPLICATIONS INCLUDE ROCK BARRIERS, FRAME AND FILTER BARRIERS, CURB INLET "SUMP" BARRIER, CURB INLET DIVERSION BERM, CURB AND GUTTER SEDIMENT CONTAINMENT SYSTEM OR CURB INLET INSET.
(2) SHOULD BE INSTALLED ONLY WHEN CONSTRUCTION ACTIVITIES ARE ON-GOING AND ONLY WHERE SUMP CONDITIONS EXIST.
(3) SHOULD NOT BE USED WHEN CONSTRUCTION IS COMPLETE AND SHOULD NOT BE USED IN AREAS WHERE FLOODING COULD ENCROACH INTO THE TRAVEL LANES.

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

STORMWATER POLLUTION PREVENTION PLAN (2)

SHEET NO. 78

(h) SOIL TRACKING PREVENTION DEVICE

PURPOSE: TEMPORARY STRUCTURES TO ASSIST WITH THE REMOVAL OF SOIL MATERIAL CAPTURED ON VEHICLE TIRES BEFORE THE VEHICLES ENTER THE ROADWAY.

(1) USE ONE DEVICE PER MILE WITH A MINIMUM OF TWO PER PROJECT.
(2) USE ADDITIONAL DEVICES FOR CONSRUCTION AREAS THAT ARE NOT ADJACENT TO THE ROAD RIGHT OF WAY AND NO ACCESS IS PROVIDED THROUGH A SOIL TRACKING PREVENTION DEVICE.
(3) RRR PROJECTS SHOULD BE HANDLED ON A CASE BY CASE BASIS.

(4) CHEMICAL TREATMENTS FOR EROSION AND SEDIMENT CONTROL

(a) CHEMICAL TREATMENT - POLYACRYLAMIDES (PAM AND PAM BLENDS)

PURPOSE: REDUCE SOIL EROSION THROUGH SOIL BINDING, USED AS A WATER TREATMENT ADDITIVE TO REMOVE SUSPENDED SOLIDS FROM RUNOFF, PROVIDES APPROPRIATE MEDIUM FOR GROWTH OF VEGETATION FOR STABILIZATION AND INCREASES INFILTRATION BY INCREASING SIZE OF SOIL PARTICLE.

(1) CAN BE USED ON DISTURBED SOILS. CAN BE USED IN CONJUNCTION WITH OTHER BMP'S TO ENHANCE PERFORMANCE. CAN BE APPLIED IN DISSOLVED FORM WITH WATER, CAN BE USED AS A DRY POWDER, CAN BE USED IN GRANULAR FORM OR MAY BE USED IN THE FORM OF FLOC LOGS.
(2) HIGHER CONCENTRATIONS OF PAM'S DO NOT INCREASE THE EFFECTIVENESS OF THE PRODUCT.
(3) ACTIVELY WORKED AREAS WILL REQUIRE REAPPLICATION TO REMAIN EFFECTIVE.
(4) PAM SHOULD NOT BE USED WHERE THE IS A POTENTIAL FOR EQUIPMENT CLOGGING OR TOXICITY IS A CONCERN.

(b) CHEMICAL TREATMENT - ALUM

PURPOSE: REMOVE SUSPENDED SOLIDS AND POLLUTANTS BY ENMESHMENT AND ABSORPTION INTO ALUM. COLLECT FLOCS OF SUSPENDED SEDIMENTS IN RUNOFF AND STORE THEM IN SEDIMENT BASINS OR STORMWATER MANAGEMENT FACILITIES.

(1) ALUM IS INJECTED INTO THE FLOW STREAM CONTAINING TURBID WATER. INJECTION IS CONTROLLED BY VARIABLE SPEED CHEMICAL PUMP TO FEED ALUM AT MULTIPLE TREATMENT POINTS. ALUM TREATMENT IS EFFECTIVE IN TREATMENT OF RUNOFF THAT CONTAINS LIMEROCK FROM UNPAVED SURFACES.
(2) ALUM TREATMENT REQUIRES CLOSE MONITORING OF DOSAGE. COMBINATION WITH OTHER COMPOUNDS MAY VIOLATE TOXICITY REQUIREMENTS AND THE USE OF ALUM MAY LOWER Ph LEVELS.

NOTE: THIS PAY ITEM IS CONSIDERED A CONTRACTOR'S OPTION FOR SEDIMENT CONTROL ISSUES THAT ARE PROJECT/SITE SPECIFIC. NOT TO BE USED IN THE DESIGN PROCESS WITHOUT CONTACTING LARRY RITCHIE IN THE STATE CONSTRUCTION OFFICE.

(5) DEWATERING OPERATIONS (OPTIONAL - BASED ON PROJECT APPLICABILITY)

DESCRIPTION: DEWATERING OPERATIONS ARE PRACTICES THAT MANAGE THE DISCHARGE OF TURBID WATER WHEN WATERS OTHER THAN STORMWATER AND ACCUMULATED SURFACE WATERS MUST BE REMOVED FROM A LOCATION SO THAT CONSTRUCTION WORK MAY BE ACCOMPLISHED. THESE WATERS CAN INCLUDE GROUNDWATER, WATER FROM COFFERDAMS, WATER DIVERSIONS AND WATERS USED DURING CONSTRUCTION THAT MUST BE REMOVED FROM A WORK AREA.

(a) ENVIRONMENTAL AGENCIES ARE ESPECIALLY CONCERNED WITH THE PROTECTION OF WETLANDS FROM DRAWDOWN EFFECTS, PROTECTING RECEIVING BODIES FROM SEDIMENTATION AND POSSIBLE CAPACITY LIMITATIONS.
(b) THREE PRIMARY METHODS OF DEWATERING COMMONLY USED IN FLORIDA ARE RIM-DITCHING, SOCK/PIPE/HORIZONTAL WELLS AND WELL-POINT SYSTEMS.
(c) METHODS FOR CONTAINING SEDIMENTATION CAN INCLUDE A COMBINATION OF BMP'S AND SEDIMENT TRAPS, SEDIMENT BASINS, GRAVITY BAG FILTERS, WEIR TANKS, DEWATERING TANKS, SAND MEDIA/PRESSURIZED BAGS AND CHEMICAL TREATMENTS.

(6) COASTAL OPERATIONS (OPTIONAL - BASED UPON PROJECT LOCATION):

DESCRIPTION: CONSTRUCTION SITES IN COASTAL AREAS PRESENT UNIQUE CHALLENGES DUE TO HIGHER WIND SPEEDS, SALINE LADEN AIR MOISTURE AND WAVE ACTION THAT REQUIRE USING APPROPRIATE EROSION CONTROL TECHNIQUES THAT CAN WITHSTAND THESE ELEMENTS.

(a) PARTICULAR CONCERNS DURING THE DEVELOPMENT OF EROSION CONTROL PLANS IN COASTAL OPERATIONS CAN INCLUDE THE RESISTANCE OF EROSION CONTROL MATERIALS TO SALT WATER, HIGH WATER TABLES, SOIL COMPACTION AND SITE DEVELOPMENT DUE TO THE TYPICAL SANDY SOILS LOCATED IN THESE AREAS AND SOIL STABILIZING VEGETATION MUST BE SALT TOLERANT.
(b) HIGH ENERGY ENVIRONMENT SHOULD BE CONSIDERED WHEN SELECTING EROSION CONTROL DEVICES. FREQUENT MAINTENANCE IS NORMALLY REQUIRED FOR EROSION CONTROL DEVICES AND TIDAL FLUCTUATIONS MUST BE CONSIDERED WHEN SELECTING THE METHODS OF EROSION CONTROL.
(c) TEMPORARY CONTROL TECHNOLOGIES FOR THE COASTAL ENVIRONMENT COULD INCLUDE THE USE OF COMPOST/WOOD MULCHING, HYDRAULIC MULCHING, SOIL BINDERS AND TEMPORARY HYDROSEEDING.
(d) PERMANENT CONTROLS COULD INCLUDE THE USE OF POLYMER-ENHANCED ARMORING, PRESERVING EXISTING VEGETATION WHEN POSSIBLE, ESTABLISHING PERMANENT SALT-TOLERANT VEGETATION, CONSTRUCTION SITE BARRIERS (SHEET PILES/CONCRETE WALLS/EARTHERN BERMS), NATURAL /SYNTHETIC GEOTEXTILES, MATS, OR GEOGRIDS.

III. OTHER CONTROLS:

(1) WASTE DISPOSAL

(a) THE CONTRACTOR WILL PROVIDE LITTER CONTROL AND COLLECTION WITHIN THE PROJECT BOUNDARIES DURING CONSTRUCTION ACTIVITIES.
(b) ALL FERTILIZER AND CHEMICAL CONTAINERS SHALL BE DISPOSED OF BY THE CONTRACTOR ACCORDING TO EPA'S STANDARD PRACTICES AS DETAILED BY THE MANUFACTURER.
(c) NO SOLID MATERIALS, INCLUDING BUILDING AND CONSTRUCTION MATERIALS, SHALL BE DISCHARGED TO WETLANDS OR BURIED ON SITE.
(d) ALL SANITARY WASTE WILL BE COLLECTED FROM PORTABLE UNITS BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR AS REQUIRED BY STATE REGULATIONS.

(2) OFFSITE VEHICLE TRACKING - WILL BE CONTROLLED BY THE FOLLOWING METHODS:

(a) LOADED HAUL TRUCKS ARE TO BE COVERED BY A TARPAULIN AT ALL TIMES.
(b) EXCESS DIRT ON ROAD WILL BE REMOVED DAILY.

(3) STATE AND FEDERAL REGULATIONS: PERMITS WILL BE REQUIRED FROM THE FOLLOWING AGENCIES: FDEP (NPDES).

(4) NON-STORMWATER (INCLUDING SPILL REPORTING)
THE CONTRACTOR WILL PROVIDE THE FDOT WITH AN EROSION AND SEDIMENT CONTROL PLAN THAT WILL INCLUDE SPILL CONTAINMENT, REPORTING, AND RESPONSES. THE PLAN SHALL SPECIFY WHAT MANAGEMENT PRACTICES AND CONTAINMENT METHODS WILL BE USED TO PREVENT POTENTIAL POLLUTANTS (FUEL, LUBRICANTS, HERBICIDES, ETC.) FROM SPILLING ONTO THE SOIL OR INTO THE SURFACE WATERS. IF A SPILL DOES OCCUR, OR IF CONTAMINATED SOIL OR GROUNDWATER IS ENCOUNTERED, CONTACT RAY NOTTINGHAM, DISTRICT CONTAMINATION IMPACT COORDINATOR AT (863) 519-2515.

IV. MAINTENANCE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIRS OF ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVAL OF EROSION AND SEDIMENT CONTROL DEVICES WHEN NOTICE OF TERMINATION IS MAILED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND PROPER DISPOSAL OF SEDIMENT BUILDUP THROUGH THE LIFE OF THE INSTALLED EROSION AND SEDIMENT CONTROL DEVICES.

(1) ALL CONTROL MEASURES WILL BE MAINTAINED DAILY BY THE CONTRACTOR AND ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT WILL BE INITIATED WITHIN 24 HOURS OF NOTICE.
(2) SODDING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
(3) SYNTHETIC BALES SHALL BE MAINTAINED TO ENSURE THEIR USEFULNESS AND NOT BLOCK OR IMPEDE STORMWATER FLOW OR DRAINAGE.
(4) STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED TO PREVENT CLOGGING OF ROCK BEDDING WHICH MAY IMPEDE THE USEFULNESS OF THE STRUCTURE.

V. INSPECTION:

(1) THE CONTRACTOR SHALL INSTALL AND MAINTAIN RAIN GAUGES ON THE PROJECT SITE AND RECORD WEEKLY RAINFALL IN ACCORDANCE WITH THE NPDES PERMIT.
(2) ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED DAILY BY CONTRACTOR'S PERSONNEL WHO ARE F.D.E.P. CERTIFIED STORMWATER MANAGEMENT INSPECTORS.
(3) THE CONTRACTOR SHALL COMPLETE ALL SWPPP INSPECTION REPORT FORMS REQUIRED FOR THE NPDES PERMIT.

VI. TRACKING AND REPORTING:

(1) THE CONTRACTOR SHALL SUBMIT A WEEKLY REPORT TO THE DEPARTMENT DOCUMENTING THE DAILY INSPECTIONS AND MAINTENANCE OR REPAIRS TO THE EROSION AND SEDIMENT CONTROL DEVICES. THE CONTRACTOR SHALL MAINTAIN ALL REQUIRED REPORTS AND COMPLETE ALL SWPPP INSPECTION FORMS.
(2) PREPARATION OF ALL THE CONTRACTOR'S REPORTS OF INSPECTION, MAINTENANCE AND REPAIRS REQUIRED FOR THE CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION, SHALL BE INCLUDED IN THE INDIVIDUAL COSTS OF THE EROSION AND SEDIMENT CONTROL DEVICES OR LUMP SUM COST OF THE PROJECT.
(3) THE CONTRACTOR SHALL USE THE SWPPP CONSTRUCTION INSPECTION REPORT FORM # 650-040-03, FOR DAILY INSPECTIONS.

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REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

STORMWATER POLLUTION PREVENTION PLAN (3)

SHEET NO. 79

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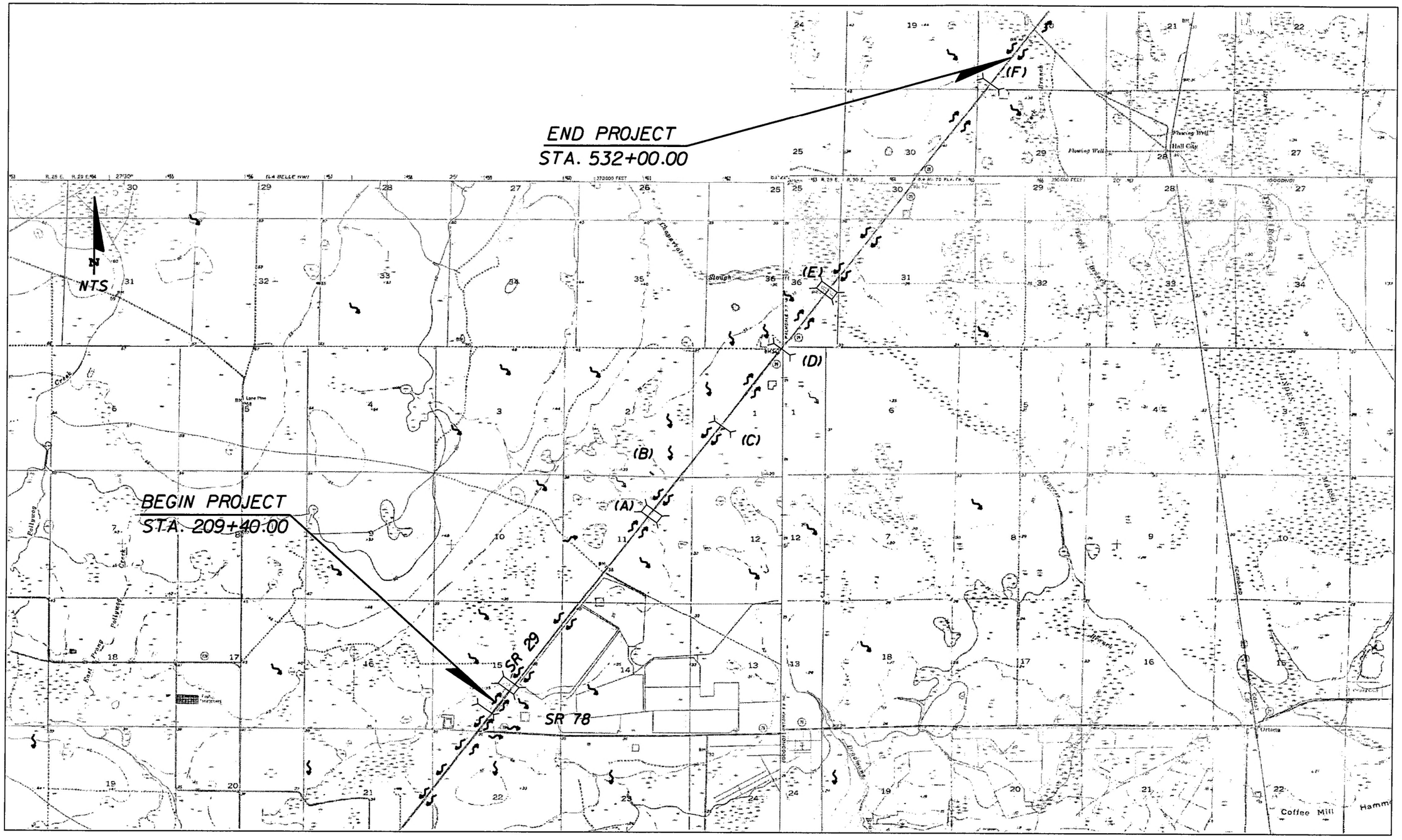

(A) LONE PINE CREEK BRIDGE (NO. 030035)
(B) DOUBLE 54" SIDE DRAIN PIPES
(C) TRIPLE 30" CROSS DRAIN PIPES
(D) TRIPLE 36" CROSS DRAIN PIPES
(E) CYPRESS BRANCH BRIDGE (NO. 030033)
(F) QUADRUPLE 24" CROSS DRAIN PIPES

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

STORMWATER POLLUTION PREVENTION PLAN (4)

SHEET NO. 80

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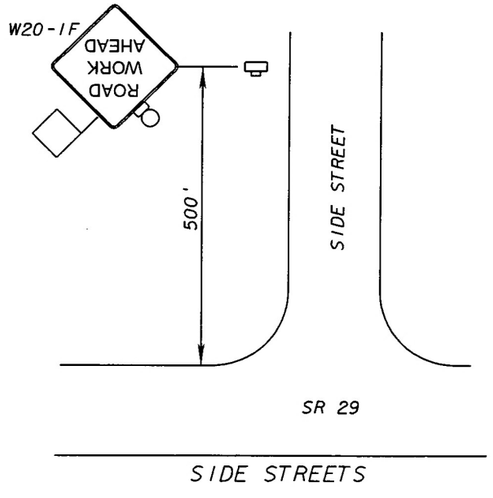
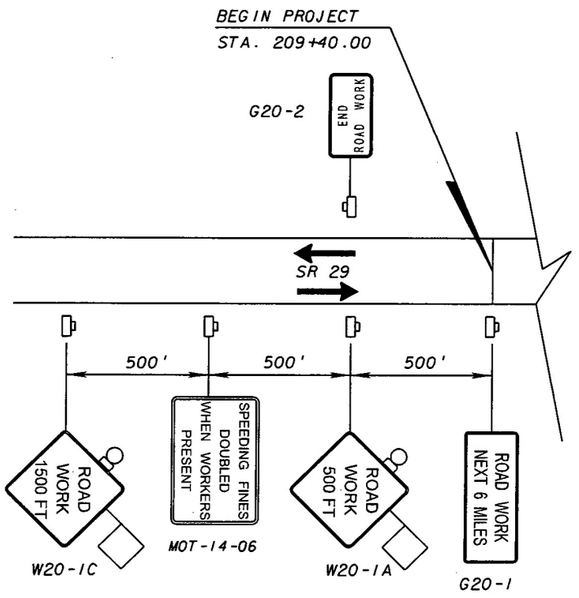
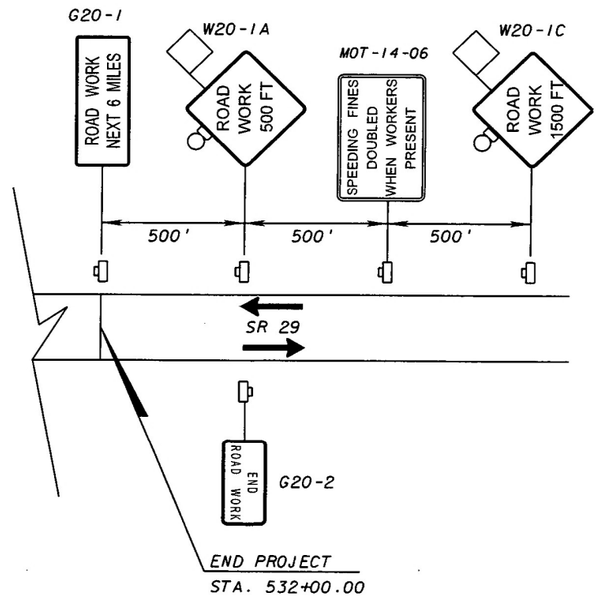
TRAFFIC CONTROL GENERAL NOTES

GENERAL:

1. TRAFFIC CONTROLS SHALL BE IN ACCORDANCE WITH DESIGN STANDARDS INDEX 600 SERIES. UTILIZE DESIGN STANDARD INDICES 602 & 603.
2. THE CONTRACTOR SHALL, AT THE DISCRETION OF THE ENGINEER, OPEN ANY TEMPORARY LANE CLOSURE CAUSING A DRIVER DELAY GREATER THAN 20 MINUTES OR IN CASE OF AN EMERGENCY.
3. THE TRAVEL LANES SHALL NOT BE ALTERED BY THE CONTRACTOR TO CREATE A WORK ZONE UNTIL ALL LABOR AND MATERIAL IS AVAILABLE FOR THE CONSTRUCTION IN THAT AREA.
4. THERE WILL BE NO LANE CLOSURE RESTRICTIONS FOR THIS PROJECT.
5. MAINTAIN POSTED REGULATORY SPEED OF 55 MPH ON THIS PROJECT.







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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
29	GLADES	431394-1-52-01

TRAFFIC CONTROL PLAN

SHEET NO. 81

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FDOT HEADWALL MODIFICATIONS

FOR

SR 29

BY

BUEME ENGINEERING, INC.
MICHAEL J. BUEME, P.E.
975 ARTHUR MOORE DRIVE
GREEN COVE SPRINGS, FL 32043
PHONE (904) 710-3121 FAX (904) 406-9440
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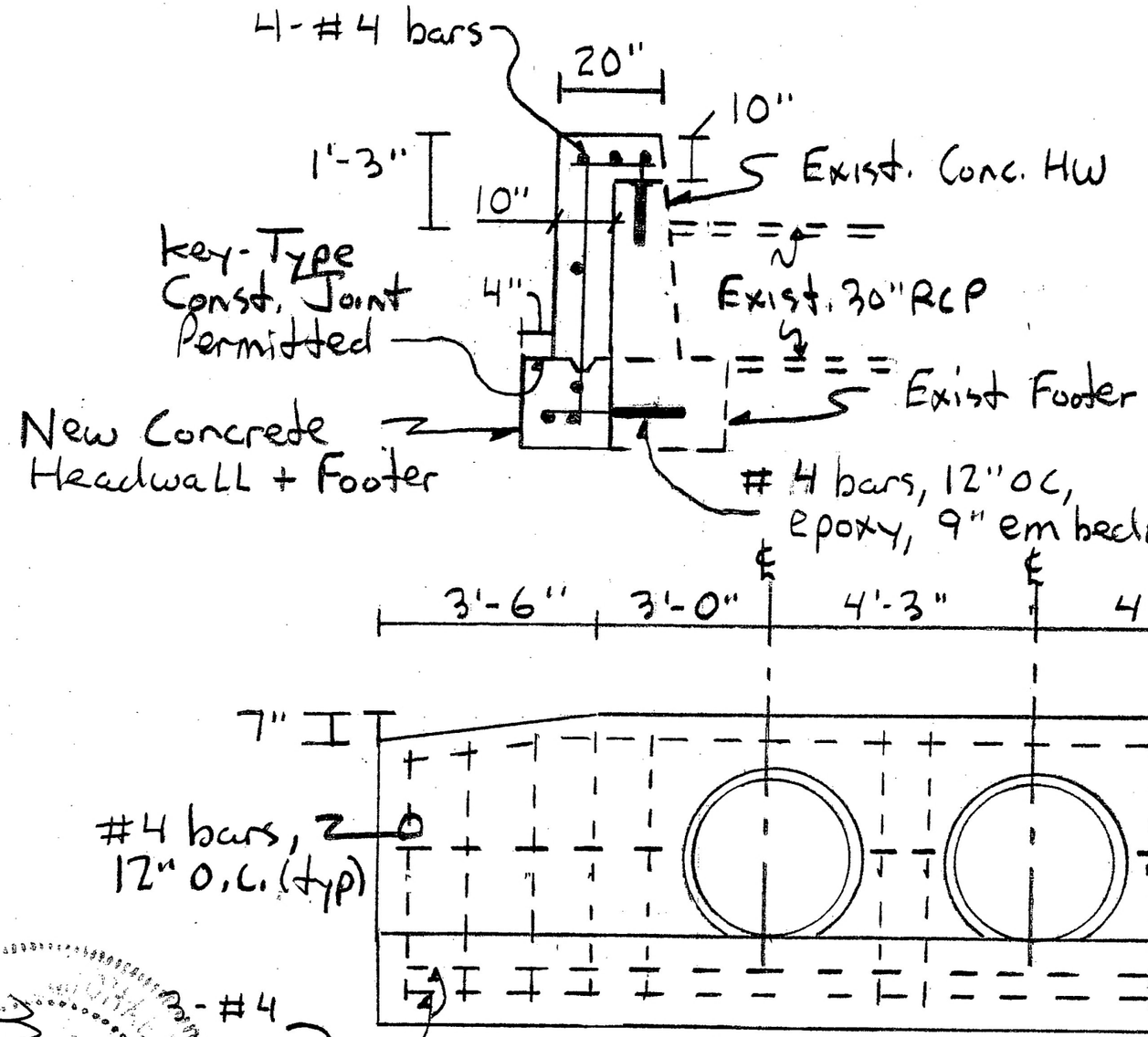
APRIL , 2013

Notes:

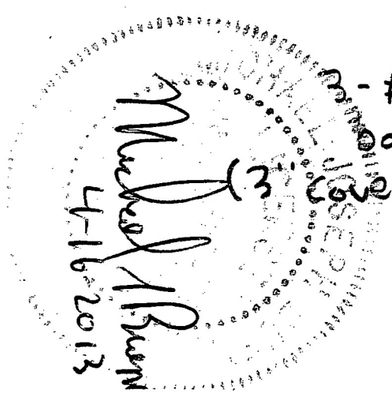
① All Construction to be in accordance w/ FDOT Standards + Specifications for Road + Bridge Const. (2010) AND FDOT Index 250 (Attached)

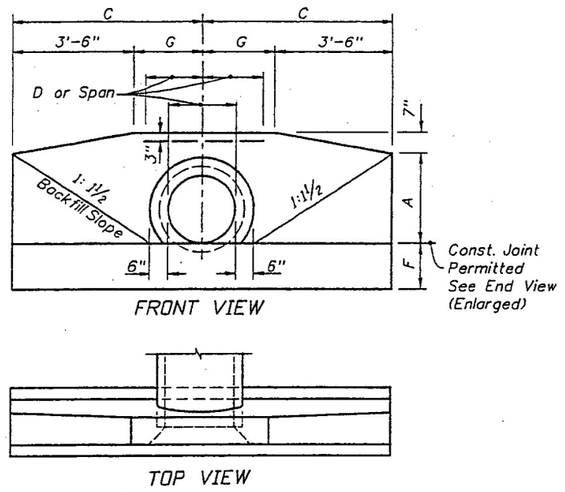
② Saw Cut 10" from Top of Exist. Headwall for new Cap



Triple 30" RCP Headwall

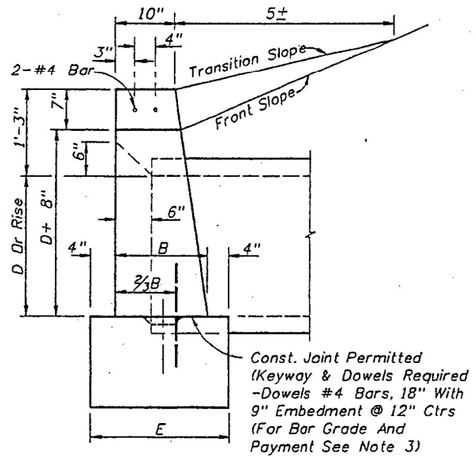
Scale: 1" = 3'





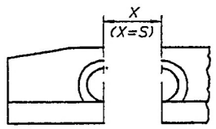
FRONT VIEW

TOP VIEW

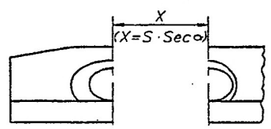


END VIEW. (ENLARGED)

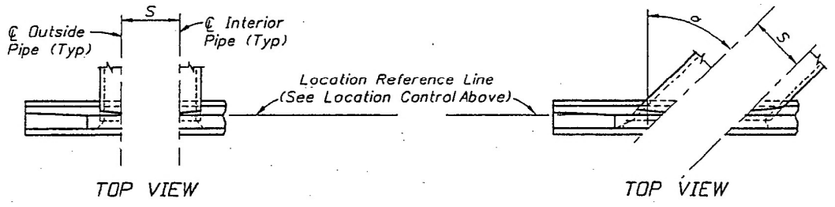
ENDWALL DIMENSIONS (EXCLUSIVE OF MULTIPLE PIPE SPACING)



FRONT VIEW



FRONT VIEW



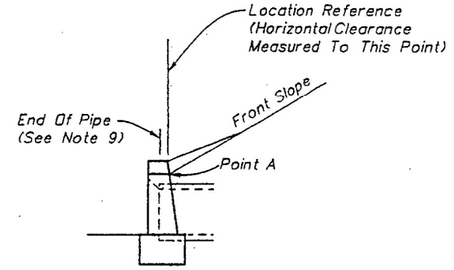
TOP VIEW — NORMAL PIPE

TOP VIEW — SKEWED PIPE

LEGEND

o Pipe Skew
S Center To Center Pipe Spacing
X Centerline To Centerline Dimension At Face Of Headwall

ENDWALL POSITIONS FOR SINGLE AND MULTIPLE PIPE AND SPACING FOR MULTIPLE PIPE



END VIEW

1. Position is set by the intersection of the front slope and Point A where this intersection falls outside the clear zone.
2. Where the front slope and Point A intersects inside the clear zone, the endwall is positioned so the location reference point is at the clear zone limit. The front slope is transitioned to the endwall as shown in Index No. 280.

STANDARD LOCATION CONTROL

GENERAL NOTES

1. Endwall dimensions, locations and positions are for round and elliptical concrete pipe and for round and pipe-arch corrugated metal pipe. Round concrete pipe shown.
2. Front slope and ditch transitions shall be in accordance with Index No. 280.
3. Endwalls may be cast in place or precast concrete. Reinforcing steel shall be Grades 40 or 60. Additional reinforcement necessary for handling precast units shall be determined by the Contractor or the supplier. Cost of reinforcement shall be included in the contract unit price for Concrete, (Endwalls).
4. All exposed corners and edges of concrete are to be chamfered ¾".
5. Concrete shall be Class I, except ASTM C478 (4000 psi) concrete may be substituted for precast items manufactured in plants meeting the requirements of Section 449 of the Specifications.
6. On outfall ditches with side slopes flatter than 1:1½ provide 20' transitions from the endwall to the flatter side slopes, right of way permitting.
7. For sodding around endwalls see Index No. 281.
8. Payment for concrete quantities for endwalls skewed to the pipe shall be made on the following basis:

Endwall Skew to Pipe	Use Tabulated Value
0° to 5°	0°
6°	15°
16°	30°
31° or over	45°

9. Pipe length plan quantities shall be based on the pipe end locations shown in the standard location control end view, or lengths based on special endwall locations called for in the plans.
10. Payment for pipe in pipe culverts shall be based on plan quantities, adjusted for endwall locations subsequently established by the Engineer.
11. Endwalls to be paid for under the contract unit price for Class I Concrete (Endwalls), CY.

	2010 FDOT Design Standards	Last Revision	Shee
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	STRAIGHT CONCRETE ENDWALLS SINGLE AND MULTIPLE PIPE	07/01/09	1 c
		Index No.	250

DATA AND ESTIMATED QUANTITIES FOR ONE ENDWALL

ROUND CONCRETE AND CORRUGATED METAL PIPE

D	Opening Area (SF) Number Of Pipes 1	2	3	4	Dimensions A	B	C	E	F	G	S	X 0°	15°	30°	45°	Class I Concrete (CY) Number And Type Of Pipe And Skew Angle Of Pipe — Single Conc	Single Metal	Double Concrete 0°	15°	30°	45°	Double Metal 0°	15°	30°	45°	Triple Concrete 0°	15°	30°	45°	Triple Metal 0°	15°	30°	45°	Quadruple Concrete 0°	15°	30°	45°	Quadruple Metal 0°	15°	30°	45°	D
15"	1.23	2.46	3.69	4.92	1'-11"	1'-2"	4'-0"	1'-10"	1'-2"	0'-6"	2'-7"	2'-7"	2'-8"	3'-0"	3'-8"	1.23	1.24	1.59	1.60	1.65	1.74	1.62	1.63	1.68	1.78	1.94	1.96	2.05	2.23	1.99	2.02	2.11	2.30	2.30	2.34	2.47	2.74	2.37	2.41	2.75	2.84	15"
18"	1.77	3.54	5.31	7.08	2'-2"	1'-3"	4'-6"	1'-11"	1'-3"	1'-0"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.56	1.59	1.99	2.01	2.06	2.17	2.04	2.06	2.11	2.23	2.43	2.46	2.56	2.79	2.51	2.54	2.65	2.89	2.86	2.91	3.06	3.40	2.96	3.01	3.17	3.53	18"
21"	2.41	4.82	7.23	9.64	2'-5"	1'-4"	5'-0"	2'-0"	1'-4"	1'-6"	3'-2"	3'-2"	3'-3"	3'-8"	4'-6"	1.97																										21"
24"	3.14	6.28	9.42	12.56	2'-8"	1'-4"	5'-6"	2'-0"	1'-4"	2'-0"	3'-5"	3'-5"	3'-6"	3'-11"	4'-10"	2.24	2.29	2.82	2.84	2.91	3.06	2.91	2.93	3.01	3.17	3.39	3.43	3.57	3.87	3.52	3.56	3.71	4.03	3.97	4.03	4.24	4.69	4.14	4.20	4.43	4.91	24"
27"	3.98	7.96	11.94	15.92	2'-11"	1'-5"	6'-0"	2'-1"	1'-5"	2'-6"	3'-10"	3'-10"	4'-0"	4'-5"	5'-5"	2.73																										27"
30"	4.91	9.82	14.73	19.64	3'-2"	1'-6"	6'-6"	2'-2"	1'-6"	3'-0"	4'-3"	4'-3"	4'-5"	4'-11"	6'-0"	3.26	3.34	4.13	4.16	4.26	4.49	4.28	4.31	4.43	4.67	4.98	5.04	5.25	5.69	5.20	5.27	5.49	5.97	5.84	5.93	6.24	6.91	6.13	6.23	6.56	7.29	30"
36"	7.07	14.14	21.21	28.28	3'-8"	1'-8"	7'-6"	2'-4"	1'-8"	4'-0"	5'-1"	5'-1"	5'-3"	5'-10"	7'-2"	4.53	4.64	5.73	5.77	5.92	6.23	5.95	6.00	6.15	6.49	6.92	7.00	7.29	7.91	7.25	7.34	7.65	8.33	8.13	8.26	8.69	9.62	8.57	8.71	9.18	10.20	36"
42"	9.62	19.24	28.86	38.48	4'-2"	1'-10"	8'-6"	2'-6"	2'-0"	5'-0"	6'-0"	6'-0"	6'-3"	6'-11"	8'-6"	6.33	6.49	8.11	8.17	8.39	8.85	8.43	8.50	8.73	9.23	9.90	10.02	10.45	11.38	10.38	10.52	10.98	11.99	11.68	11.87	12.51	13.89	12.32	12.52	13.22	14.73	42"
48"	12.57	25.14	37.71	50.28	4'-8"	2'-1"	9'-6"	2'-9"	2'-0"	6'-0"	6'-9"	6'-9"	7'-0"	7'-10"	9'-7"	8.15	8.38	10.40	10.48	10.75	11.33	10.85	10.94	11.23	11.87	12.64	12.80	13.34	14.50	13.34	13.51	14.11	15.39	14.89	15.13	15.93	17.68	15.82	16.08	16.97	18.90	48"
54"	15.90	31.80	47.70	63.60	5'-2"	2'-6"	10'-6"	3'-2"	2'-3"	7'-0"	7'-8"	7'-8"	7'-11"	8'-10"	10'-10"	11.71	11.77	15.23	15.35	15.78	16.69	15.35	15.48	15.90	16.83	18.77	19.02	19.86	21.69	18.93	19.18	20.04	21.89	22.29	22.66	23.93	26.67	22.51	22.89	24.17	26.96	54"

CORRUGATED METAL PIPE ARCH

Span	Rise	Opening Area (SF) Number Of Pipes 1	2	3	4	Dimensions A	B	C	E	F	G	S	X 0°	15°	30°	45°	Class I Concrete (CY) Number Of Pipe And Skew Angle Of Pipe — Single	Double 0°	15°	30°	45°	Triple 0°	15°	30°	45°	Quadruple 0°	15°	30°	45°	Span	Rise	Approx. Equiv. Round Pipe
17"	13"	1.1	2.2	3.3	4.4	1'-9"	1'-2"	3'-10"	1'-10"	1'-2"	0'-4"	2'-6"	2'-6"	2'-7"	2'-11"	3'-6"	1.16	1.47	1.48	1.52	1.60	1.78	1.80	1.88	2.04	2.09	2.12	2.23	2.48	17"	13"	15"
21"	15"	1.6	3.2	4.8	6.4	1'-11"	1'-2"	4'-3"	1'-10"	1'-2"	0'-9"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.33	1.69	1.70	1.75	1.84	2.04	2.06	2.15	2.33	2.40	2.44	2.57	2.84	21"	15"	18"
28"	20"	2.8	5.6	8.4	11.2	2'-4"	1'-3"	5'-2"	1'-11"	1'-3"	1'-8"	3'-5"	3'-5"	3'-6"	3'-11"	4'-10"	1.78	2.31	2.33	2.39	2.53	2.83	2.87	2.99	3.26	3.36	3.42	3.60	4.01	28"	20"	24"
35"	24"	4.3	8.6	12.9	17.2	2'-8"	1'-4"	5'-11½"	2'-0"	1'-4"	2'-5½"	4'-0"	4'-0"	4'-2"	4'-7"	5'-8"	2.34	3.03	3.05	3.14	3.32	3.72	3.77	3.93	4.29	4.40	4.47	4.72	5.25	35"	24"	30"
42"	29"	5.9	11.8	17.7	23.6	3'-1"	1'-5"	6'-10½"	2'-1"	1'-5"	3'-4½"	4'-9"	4'-9"	4'-11"	5'-6"	6'-9"	3.13	4.06	4.09	4.20	4.45	4.99	5.06	5.28	5.76	5.93	6.03	6.36	7.09	42"	29"	36"
49"	33"	8.4	16.8	25.2	33.6	3'-5"	1'-6"	7'-8"	2'-2"	1'-6"	4'-2"	5'-6"	5'-6"	5'-8"	6'-4"	7'-9"	3.83	5.00	5.04	5.18	5.48	6.16	6.24	6.52	7.12	7.32	7.44	7.86	8.76	49"	33"	42"
57"	38"	10.6	21.2	31.8	42.4	3'-10"	1'-7"	8'-7½"	2'-3"	1'-7"	5'-1½"	6'-4"	6'-4"	6'-7"	7'-4"	8'-11"	4.87	6.31	6.36	6.53	6.91	7.74	7.84	8.18	8.93	9.18	9.33	9.85	10.96	57"	38"	48"
64"	43"	13.2	26.4	39.6	52.8	4'-3"	1'-8"	9'-6½"	2'-4"	1'-8"	6'-0½"	7'-1"	7'-1"	7'-4"	8'-2"	10'-0"	5.88	7.64	7.70	7.91	8.37	9.40	9.52	9.94	10.86	11.15	11.33	11.97	13.33	64"	43"	54"
71"	47"	16.9	33.8	50.7	67.6	4'-7"	1'-10"	10'-4"	2'-6"	2'-0"	6'-10"	7'-10"	7'-10"	8'-1"	9'-1"	11'-1"	7.80	10.15	10.23	10.51	11.12	12.49	12.65	13.22	14.43	14.85	15.10	15.94	17.77	71"	47"	

Note: Use the guidelines of General Note No. 8 for selecting tabular quantities.

CONCRETE ELLIPTICAL PIPE

Rise	Span	Opening Area (SF) Number Of Pipes 1	2	3	4	Dimensions A	B	C	E	F	G	S	X 0°	15°	30°	45°	Class I Concrete (CY) Number Of Pipe And Skew Angle Of Pipe — Single	Double 0°	15°	30°	45°	Triple 0°	15°	30°	45°	Quadruple 0°	15°	30°	45°	Rise	Span	Approx. Equiv. Round Pipe
12"	18"	1.3	2.6	3.9	5.2	1'-8"	1'-2"	3'-9"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.09	1.45	1.46	1.51	1.60	1.80	1.82	1.91	2.09	2.16	2.20	2.33	2.60	12"	18"	15"
14"	23"	1.8	3.6	5.4	7.2	1'-10"	1'-3"	4'-2½"	1'-11"	1'-3"	8½"	3'-5"	3'-5"	3'-6"	3'-11"	4'-10"	1.36	1.82	1.84	1.89	2.01	2.29	2.32	2.43	2.68	2.75	2.80	2.97	3.33	14"	23"	18"
19"	30"	3.3	6.6	9.9	13.2	2'-3"	1'-4"	5'-1½"	2'-0"	1'-4"	1'-7½"	4'-2"	4'-2"	4'-4"	4'-10"	5'-11"	1.89	2.55	2.57	2.65	2.82	3.22	3.27	3.43	3.77	3.88	3.95	4.19	4.70	19"	30"	24"
24"	38"	5.1	10.2	15.3	20.4	2'-8"	1'-5"	6'-3"	2'-1"	1'-5"	2'-9"	5'-2"	5'-2"	5'-4"	6'-0"	7'-4"	2.64	3.55	3.58	3.69	3.93	4.48	4.54	4.77	5.24	5.39	5.49	5.82	6.53	24"	38"	30"
29"	45"	7.4	14.8	22.2	29.6	3'-1"	1'-6"	7'-0"	2'-2"	1'-6"	3'-6"	6'-0"	6'-0"	6'-3"	6'-11"	8'-6"	3.32	4.48	4.52	4.66	4.96	5.64	5.72	6.00	6.60	6.80	6.92	7.34	8.24	29"	45"	36"
34"	53"	10.2	20.4	30.6	40.8	3'-6"	1'-7"	7'-11½"	2'-3"	1'-7"	4'-5½"	7'-1"	7'-1"	7'-4"	8'-2"	10'-0"	4.24	5.76	5.81	6.00	6.39	7.29	7.40	7.76	8.55	8.81	8.97	9.52	10.70	34"	53"	42"
38"	60"	12.9	25.8	38.7	51.6	3'-10"	1'-8"	8'-9"	2'-4"	1'-8"	5'-3"	7'-11"	7'-11"	8'-2"	9'-2"	11'-2"	5.22	7.16	7.23	7.46	7.96	9.10	9.24	9.70	10.71	11.05	11.25	11.95	13.46	38"	60"	48"
43"	68"	16.6	33.2	49.8	66.4	4'-3"	1'-10"	9'-8½"	2'-6"	1'-10"	6'-2½"	8'-10"	8'-10"	9'-2"	10'-2"	12'-6"	6.63	9.01	9.09	9.38	10.00	11.39	11.56	12.13	13.36	13.77	14.02	14.88	16.73	43"	68"	54"
48"	76"	20.5	41.0	61.5	82.0	4'-8"	2'-1"	10'-8"	2'-9"	2'-0"	7'-2"	9'-9"	9'-9"	10'-1"	11'-3"	13'-9"	8.66	11.74	11.85	12.22	13.02	14.82	15.04	15.77	17.37	17.91	18.23	19.34	21.74	48"	76"	60"
53"	83"	24.8	49.6	74.4	99.2	5'-1"	2'-6"	11'-7"	3'-2"	2'-6"	8'-1"	10'-7"	10'-7"	10'-11"	12'-3"	15'-0"	12.50	16.98	16.98	17.67	18.83	21.47	21.78	22.86	25.18	25.97	26.44	28.06	31.55	53"	83"	66"
58"	91"	29.5	59.0	88.5	118.0	5'-6"	2'-10"	12'-6½"	3'-6"	2'-10"	9'-0½"	11'-4"	11'-4"	11'-9"	13'-1"	16'-0"	16.46	22.26	22.46	23.16	24.66	28.05	28.46	29.85	32.85	33.85	34.46	36.55	41.05	58"	91"	72"

2010 FDOT Design Standards

STRAIGHT CONCRETE ENDWALLS
SINGLE AND MULTIPLE PIPE

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