

# LITTLE BEAVER CREEK STREAM RESTORATION WAKE COUNTY (CONSTRUCTION PLANS)

Clearing, grading, erosion control, stream restoration, wetland restoration and enhancement, drainage, debris removal, landscaping, and other improvements as noted on the plans. This work will include all items necessary to construct the stream, the wetlands, and associated structures with the associated landscaping, plantings, seeding and live staking.

STATE CONSTRUCTION OFFICE ID# 0005299-0 1A  
**06/26/07 AS BUILT DRAWINGS**

### INDEX OF SHEETS

C-1	TITLE SHEET
C-2 THRU C-3	ALIGNMENT DATA SHEETS
C-4 THRU C-5	TYPICAL SECTIONS
C-6 THRU C-8	SITE PLAN, GRADING, DRAINAGE AND EROSION CONTROL
C-9 THRU C-11	PROFILE SHEETS
C-12 THRU C-17	GENERAL DETAILS
L-1 THRU L-3	VEGETATION PLANS
L-4 THRU L-5	VEGETATION DETAILS
X-01 THRU X-40	CROSS SECTIONS



### GENERAL NOTES

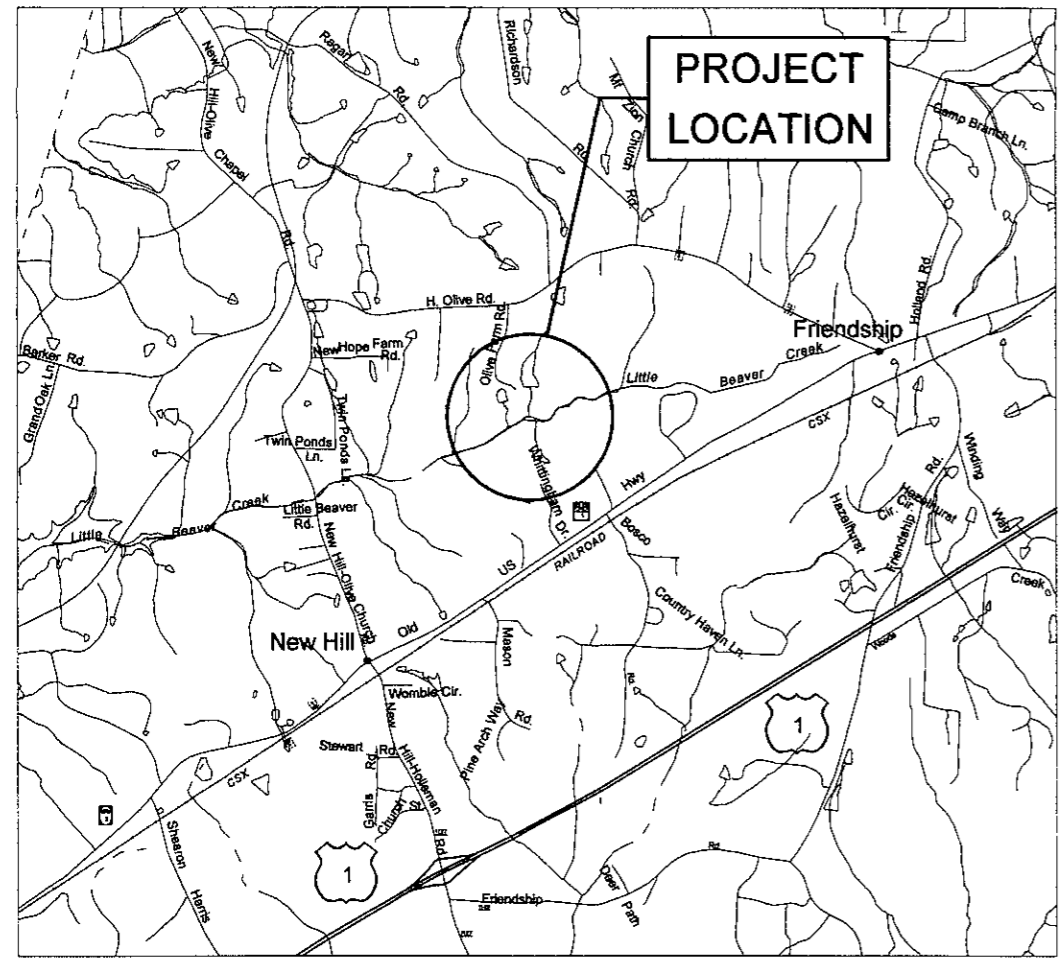
1. SURVEY INFORMATION PROVIDED BY CHAS. H. SELLS, INC.
2. CONTRACTOR SHALL CONDUCT HIS/HER OWN UNDERGROUND UTILITIES INVESTIGATIONS BEFORE COMMENCEMENT OF CONSTRUCTION.

### WETLAND DATA

TYPE	ACREAGE	WETLAND COMMUNITY
RESTORATION	4.753	PIEDMONT ALLUVIAL FOREST
ENHANCEMENT	0.968	PIEDMONT ALLUVIAL FOREST

### EARTHWORK

REACH	UNCLASSIFIED EXCAVATION (CY)	UNDERCUT (CY)	EMBANKMENT (CY)	BORROW (CY)	WASTE (CY)
-SREV-	16 180	0	5 228	0	10 952
TRIBUTARIES	1 404	0	434	0	970
PONDS	2 151	0	0	0	2 151
TOTAL	19 735	0	5 662	0	14 073



VICINITY MAP  
(Not to Scale)

### SITE DATA

Project: LITTLE BEAVER CREEK STREAM RESTORATION  
 Owner: NORTH CAROLINA ECOSYSTEM ENHANCEMENT PROGRAM  
 Design Manager Contact: JEFF JUREK Phone # 919-715-1157  
 Address: 1652 MAIL SERVICE CENTER; RALEIGH, NC 27699-1652  
 Disturbed Area: 32.4 ACRES

### STREAM DATA

STREAM REACH	EXISTING LENGTH (FT)	PROP. CENTERLINE LENGTH (FT)	PROP. THALWEG LENGTH (FT)	PROPOSED STREAM CLASSIFICATION	AS BUILT THALWEG
-SREV-	5 361	4 616	4 829	C	3 030
TRIBUTARY 1	356	382	403	C	343
TRIBUTARY 2	374	207	213	C	169
TRIBUTARY 3	227	93	98	C	98
TOTAL	6 318	5 298	5 543		3 640*

\* DUE TO THE LARGE AMOUNT OF BEDROCK THAT WAS ENCOUNTERED, PROJECT LENGTH WAS SHORTENED

6/26/2007  
Russell Bourbour  
KAS:JES:CV:Const Admin:Phil DuBose, SCODAs, Built Drawings 53257, T SHLDGN 12:35:49 PM

02/11/2005  
ISSUED FOR BIDS  
NO  
REV. NO  
DRN  
CHK  
DATE

EARTHTECH  
701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
WAKE COUNTY  
ECOSYSTEM ENHANCEMENT PROGRAM

TITLE SHEET

DATE 02/11/2005  
PROJECT NO 53257  
SCO ID# 0005299-01A  
FILENAME  
SHEET NO C-1  
DRAWN BY CRB



ALIGNMENT DATA

REACH III

SREV REACH 3

Table with columns for SREV C-46 to SREV C-88. Each column contains PI Sta, PCSta, PTSta, Δ, D, L, T, and R values for each station.

Table with columns for LINE, BEARING, LENGTH (FT), and CURVE. Lists line segments from L-46 to L-89 with their respective bearings, lengths, and curve data.

TRIBUTARY I

Table with columns for TRIB I T-1 to TRIB I T-14. Each column contains PI Sta, PCSta, PTSta, Δ, D, L, T, and R values.

TRIBUTARY II

Table with columns for TRIB II T-15 to TRIB II T-20. Each column contains PI Sta, PCSta, PTSta, Δ, D, L, T, and R values.

TRIBUTARY I

Table with columns for LINE, BEARING, LENGTH (FT), and CURVE. Lists line segments from L-91 to L-105.

TRIBUTARY III

Table with columns for TRIB III T-21 to TRIB III T-23. Each column contains PI Sta, PCSta, PTSta, Δ, D, L, T, and R values.

TRIBUTARY II

Table with columns for LINE, BEARING, LENGTH (FT), and CURVE. Lists line segments from L-106 to L-111.

TRIBUTARY III

Table with columns for LINE, BEARING, LENGTH (FT), and CURVE. Lists line segments from L-112 to L-115.

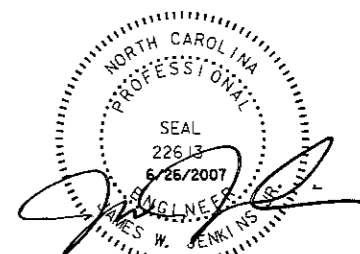
06/26/07 AS BUILT DRAWING

NOT BUILT DUE TO HEAVY INTRUSION OF BEDROCK

Table for REVISIONS with columns for NO, DATE, and DESCRIPTION.

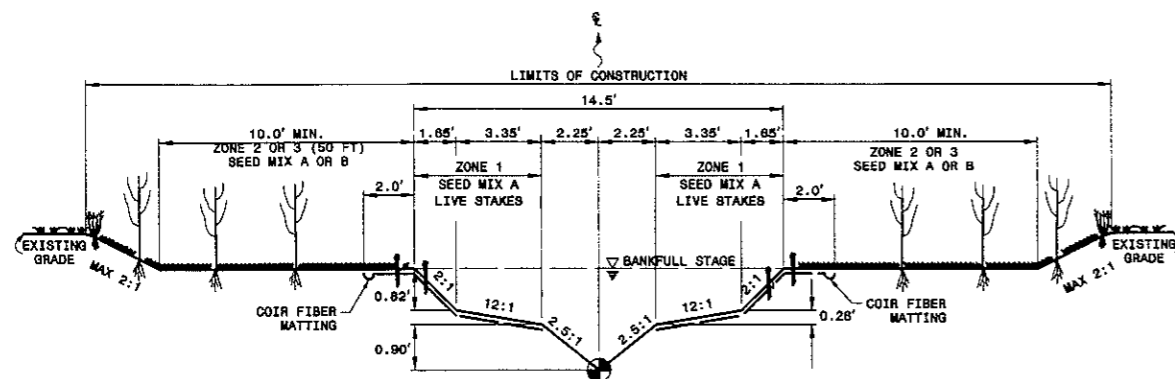
EARTHTECH logo and contact information: 701 Corporate Center Drive, Suite 475, Raleigh, NC 27607. Phone: (919) 854-6200. Fax: (919) 854-6259.

ALIGNMENT DATA, PROJECT NO 53257, SCO ID# 0005239-01A, SHEET NO C-3, DRAWN BY CRB.



6/26/2007 Russel Bourque KS3257 Const Admin/Phil DiBose, SC00 As-Built Drawings 53257 alignment.dwg 21:06 PM

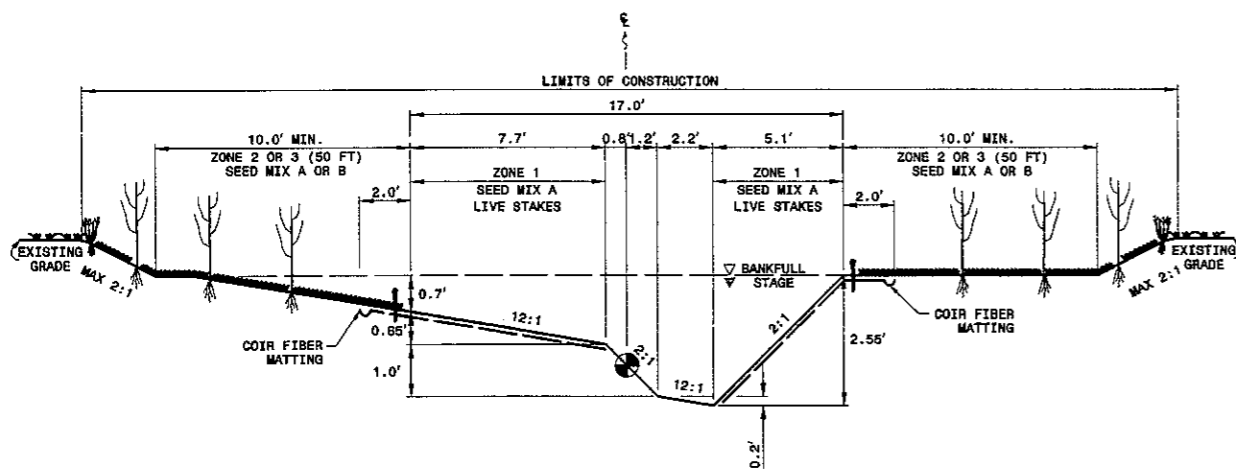
**TYPICAL SECTION - RIFFLE**  
-SREV- REACH 1



THALWEG (DEEPEST POINT IN CROSS SECTION) IS LOCATED IN CENTER OF CHANNEL IN A RIFFLE.

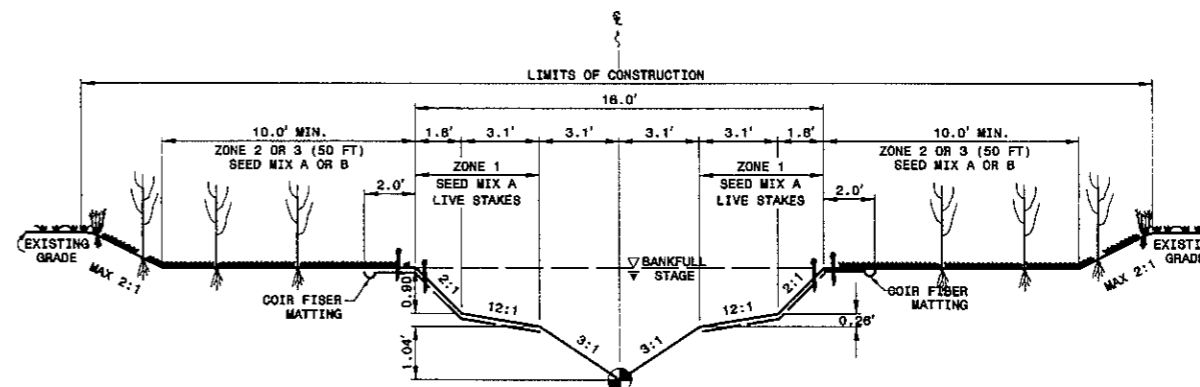
SCALE: NTS

**TYPICAL SECTION - POOL RIGHT**  
(REVERSE FOR POOL LEFT)  
-SREV- REACH 1



THALWEG (DEEPEST POINT IN CROSS SECTION) IS LOCATED IN CENTER OF CHANNEL IN A RIFFLE.  
POOL BANK - TO - BANK SPACING IS ADJUSTED THROUGHOUT THE CURVE.  
BANK - TO - BANK DIMENSIONS SHOWN ARE AT THE CENTER OF THE CURVE.  
SCALE: NTS

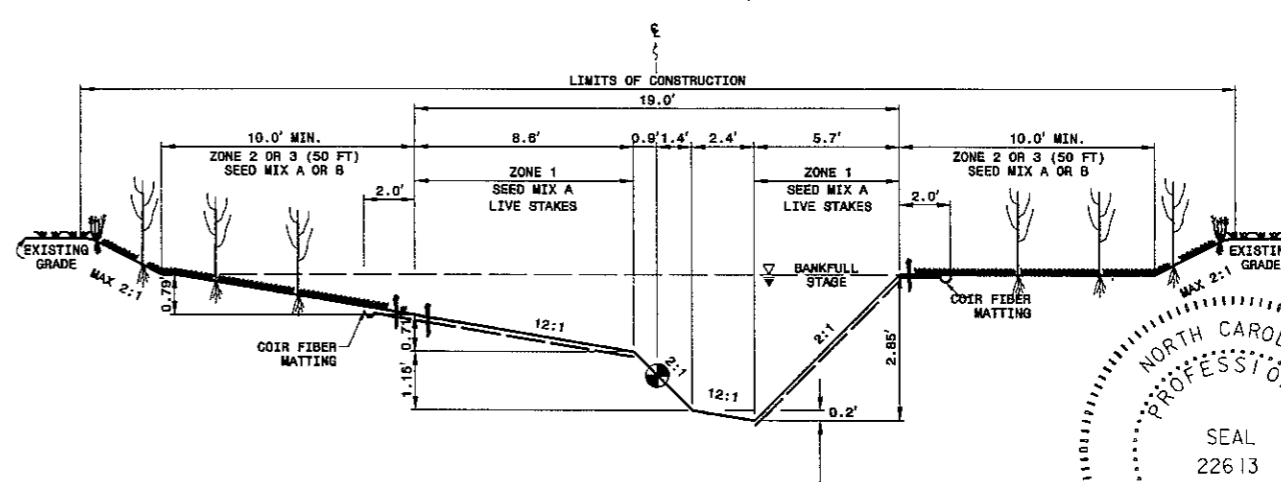
**TYPICAL SECTION - RIFFLE**  
-SREV- REACH 2



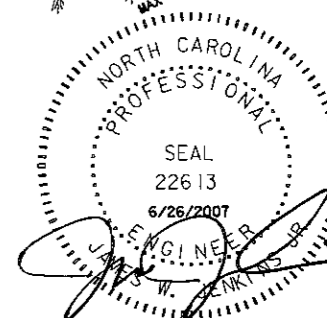
THALWEG (DEEPEST POINT IN CROSS SECTION) IS LOCATED IN CENTER OF CHANNEL IN A RIFFLE.

SCALE: NTS

**TYPICAL SECTION - POOL RIGHT**  
(REVERSE FOR POOL LEFT)  
-SREV- REACH 2



THALWEG (DEEPEST POINT IN CROSS SECTION) IS LOCATED IN CENTER OF CHANNEL IN A RIFFLE.  
POOL BANK - TO - BANK SPACING IS ADJUSTED THROUGHOUT THE CURVE.  
BANK - TO - BANK DIMENSIONS SHOWN ARE AT THE CENTER OF THE CURVE.  
SCALE: NTS



**06/26/07 AS BUILT DRAWINGS**

NOTE: 2:1 SLOPES MAY BE FLATTENED AT THE DIRECTION OF THE DESIGNER

Russell Barbour  
ASSET Const. Admin./Pill. Dir./Bus. SCD As. Bldg. Drawings/53257 TYP.dwg 12-21-07 PM

ISSUED FOR BIDS	02/11/2005	DATE
NO		NO
REVISIONS		CHK
		DRN
		DATE

**EARTHTECH**

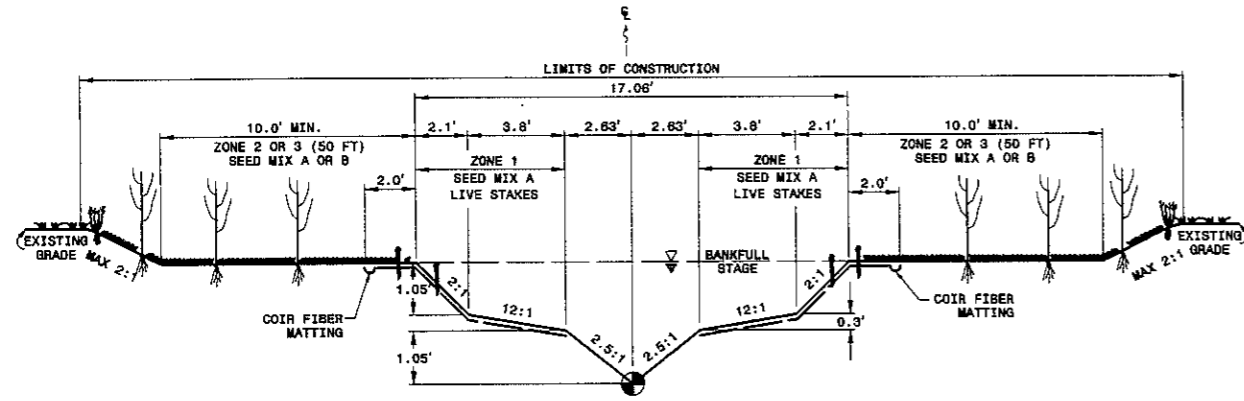
701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
WAKE COUNTY  
ECOSYSTEM ENHANCEMENT PROGRAM

**TYPICAL SECTIONS**

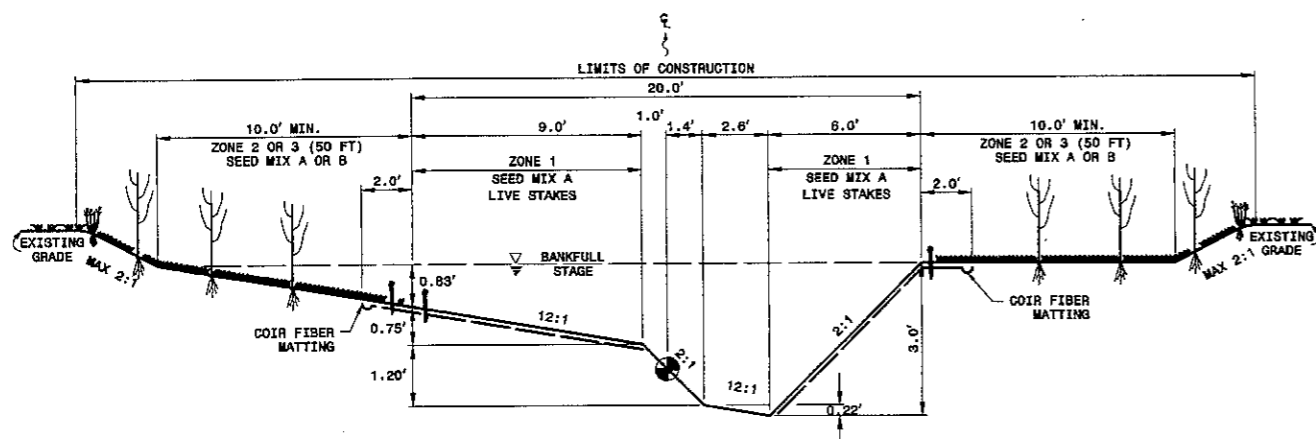
DATE	02/11/2005
PROJECT NO	53257
SCO ID#	0005299-01A
FILENAME	
SHEET NO	C-4
DRAWN BY	CRB

**TYPICAL SECTION - RIFFLE**  
-SREV- REACH 3



THALWEG (DEEPEST POINT IN CROSS SECTION) IS LOCATED IN CENTER OF CHANNEL IN A RIFFLE  
SCALE: NTS

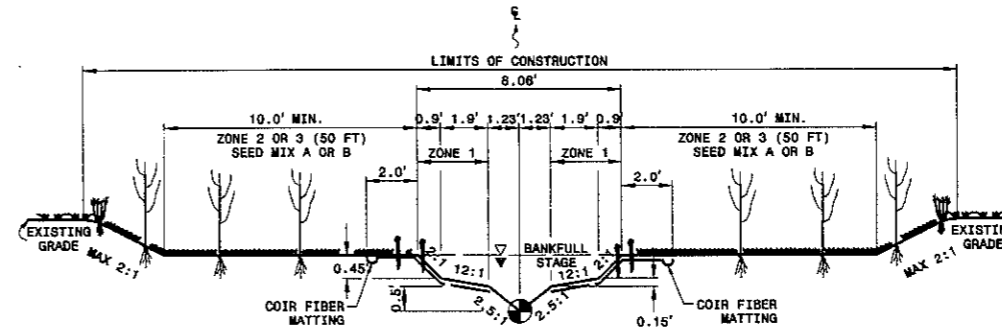
**TYPICAL SECTION - POOL RIGHT**  
(REVERSE FOR POOL LEFT)  
-SREV- REACH 3



THALWEG (DEEPEST POINT IN CROSS SECTION) IS LOCATED IN CENTER OF CHANNEL IN A RIFFLE.  
POOL BANK - TO - BANK SPACING IS ADJUSTED THROUGHOUT THE CURVE.  
BANK - TO - BANK DIMENSIONS SHOWN ARE AT THE CENTER OF THE CURVE.  
SCALE: NTS

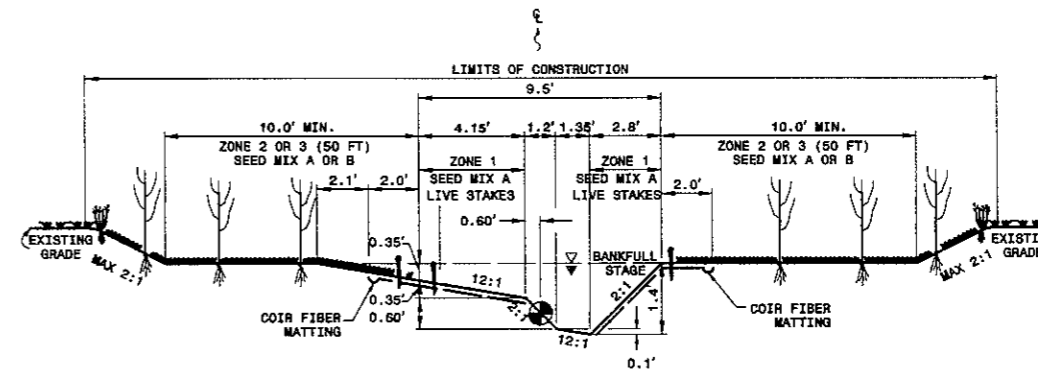
NOTE: 2:1 SLOPES MAY BE FLATTENED AT THE DIRECTION OF THE DESIGNER

**TYPICAL SECTION - RIFFLE**  
TRIBUTARY 1,2,& 3

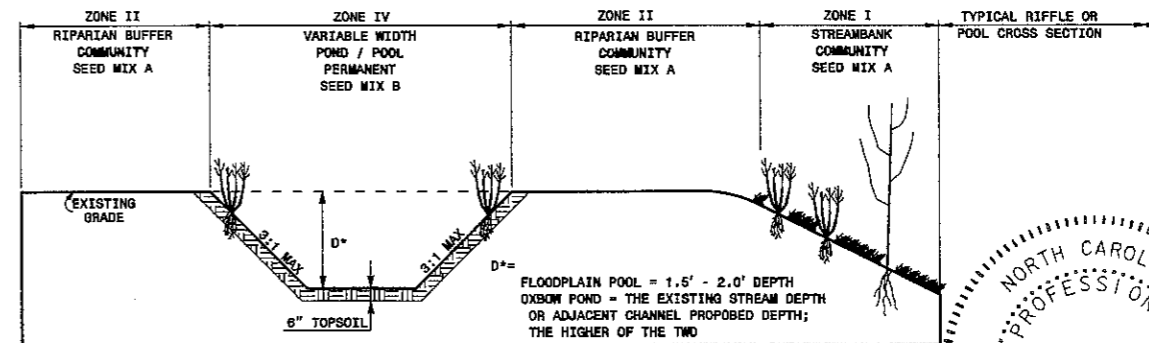


THALWEG (DEEPEST POINT IN CROSS SECTION) IS LOCATED IN CENTER OF CHANNEL IN A RIFFLE  
SCALE: NTS

**TYPICAL SECTION - POOL RIGHT**  
TRIBUTARY 1, 2, & 3 (REVERSE FOR POOL LEFT)



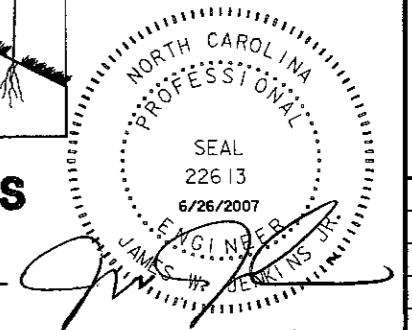
THALWEG (DEEPEST POINT IN CROSS SECTION) IS LOCATED IN CENTER OF CHANNEL IN A RIFFLE.  
POOL BANK - TO - BANK SPACING IS ADJUSTED THROUGHOUT THE CURVE.  
BANK - TO - BANK DIMENSIONS SHOWN ARE AT THE CENTER OF THE CURVE.  
SCALE: NTS



**06/26/07 AS BUILT DRAWINGS**

**OXBOW POND AND FLOODPLAIN POOL DETAIL**

SCALE: NTS



USER: russelbarbour DATE: 6/26/2007  
DWN: KAS3257 Const Admin\ENH D:\Data\_SCO\As Built Drawings\53257\_TIP\06-12-4157.dwg

02/11/2005	ISSUED FOR BIDS	NO
	REVISIONS	
	DN	DK
		DATE

**EARTHTECH**  
701 Corporate Center Drive, Suite #475, Raleigh, NC 27607  
Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
WAKE COUNTY  
ECOSYSTEM ENHANCEMENT PROGRAM  
**TYPICAL SECTIONS**

DATE	02/11/2005
PROJECT NO.	53257
SCO ID#	0005299-01A
FILENAME	
SHEET NO.	C-5
DRAWN BY	CRB

LEGEND	
CROSS VANE*	
* See General Details	
DOUBLE DROP CROSS VANE*	
* See General Details	
ROOT WAD*	
* See General Details	
J-HOOK VANE*	
* See General Details	
ROCK SILL*	
* See General Details	
CHANNEL PLUG*	
* See General Details	

NOTE: Structure placement on Plan Sheets are for location only. Actual placement shall be directed by Engineer.

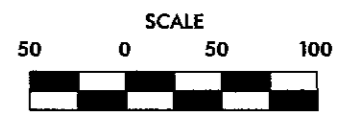
DARLENE H. COATS  
D.B. 3524, PG. 74  
D.B. 3730, PG. 367  
B.M. 1985, PG. 1275  
B.M. 1986, PG. T69

WILLIAM G. HENDRIX, ET AL.  
D.B. 2715, PG. 382  
B.M. 1924, PG. 36  
B.M. 1985, PG. 1344

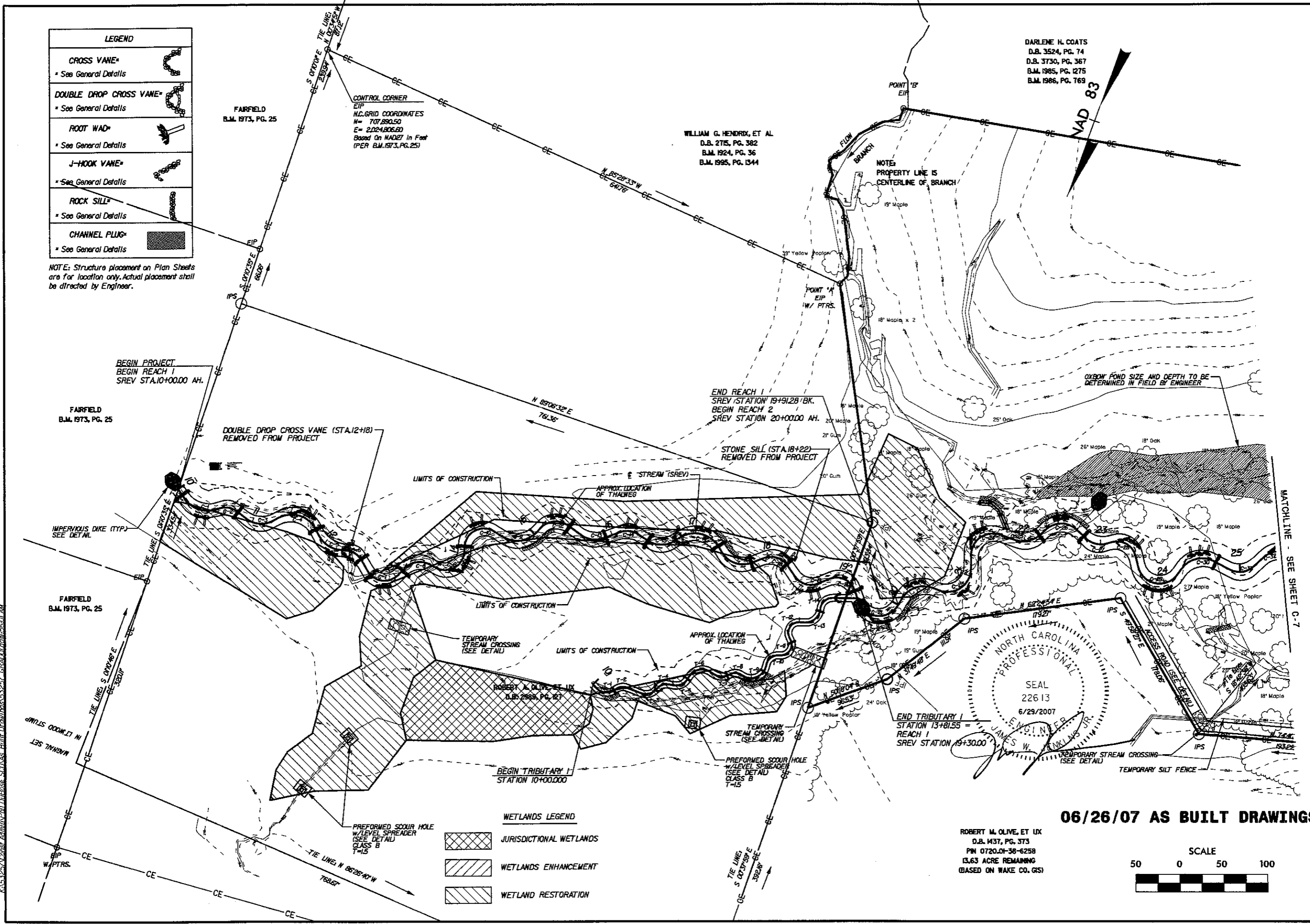
NORTH CAROLINA  
PROFESSIONAL  
SEAL  
22613  
6/29/2007  
JAMES W. HANKINS JR.  
ENGINEER

ROBERT M. OLIVE, ET UX  
D.B. 1437, PG. 373  
P.N. 0720.01-38-6258  
13.63 ACRE REMAINING  
(BASED ON WAKE CO. GS)

06/26/07 AS BUILT DRAWINGS



WETLANDS LEGEND	
	JURISDICTIONAL WETLANDS
	WETLANDS ENHANCEMENT
	WETLAND RESTORATION



6/29/2007  
 13.63 ACRE REMAINING  
 (BASED ON WAKE CO. GS)  
 ADMIN/PHI/Dr/Boss/SC04s/Build/Drawings/53257/06A001.dwg/15661.dwg

NO.	REVISIONS	DRN.	CHK.	DATE
1	ISSUED FOR BIDS			02/11/2005

**EARTHTECH**

701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
WAKE COUNTY  
ECOSYSTEM ENHANCEMENT PROGRAM

**SITE PLAN, GRADING,  
DRAINAGE & EROSION CONTROL**

DATE	02/11/2005
PROJECT NO	53257
SCO ID#	0005299-01A
FILENAME	
SHEET NO	C-6
DRAWN BY	CRB

DARLENE H. COATS  
D.B. 3524, PG. 74  
D.B. 3730, PG. 367  
B.M. 1985, PG. 1275  
B.M. 1986, PG. 769

BILLY E. HINSLEY  
D.B. 4422, PG. 07  
B.M. 1989, PG. 18

LEGEND	
CROSS VANE*	
* See General Details	
DOUBLE DROP CROSS VANE*	
* See General Details	
ROOT WAD*	
* See General Details	
J-HOOK VANE*	
* See General Details	
ROCK SILL*	
* See General Details	
CHANNEL PLUG*	
* See General Details	

NOTE: Structure placement on Plan Sheets are for location only. Actual placement shall be directed by Engineer.

ROBERT M. OLIVE, ET UX  
D.B. 151, PG. 232  
PIN 0720.01-28-4136



NO.	REVISIONS	DATE

ISSUED FOR BIDS 02/11/2005

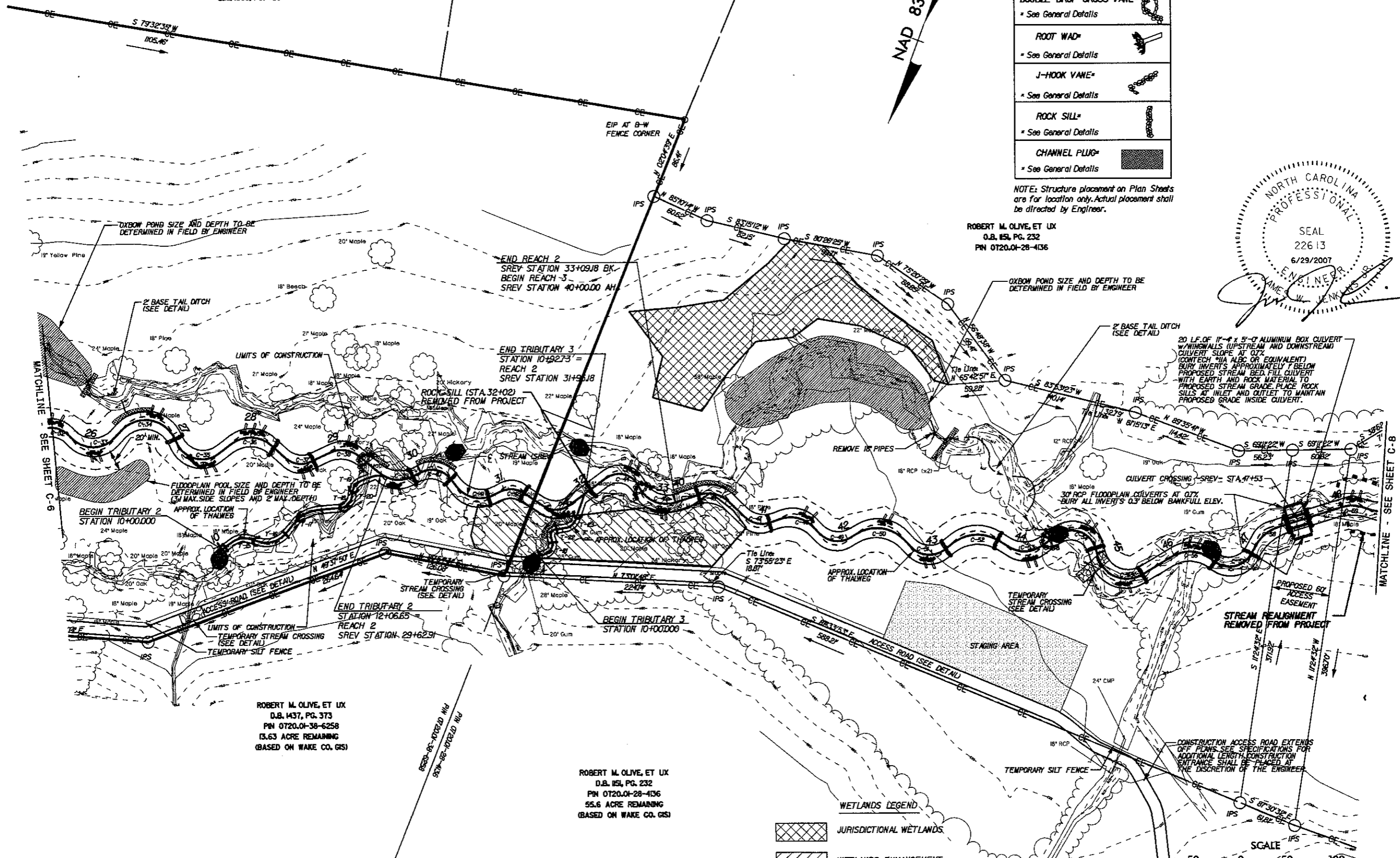
**EARTHTECH**

701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
WAKE COUNTY  
ECOSYSTEM ENHANCEMENT PROGRAM

**SITE PLAN, GRADING,  
DRAINAGE & EROSION CONTROL**

DATE: 02/11/2005  
PROJECT NO: 53257  
SCO ID: 0005299-01A  
FILENAME:  
SHEET NO: C-7  
DRAWN BY: CRB



NOTES:  
1. REALIGNMENT OF STREAM ENDED AT STA. 48+00 +/- DUE TO HIGH OCCURENCE OF BEDROCK PER EEP DIRECTION.

ROBERT M. OLIVE, ET UX  
D.B. 1437, PG. 373  
PIN 0720.01-38-6258  
13.63 ACRE REMAINING  
(BASED ON WAKE CO. GIS)

ROBERT M. OLIVE, ET UX  
D.B. 151, PG. 232  
PIN 0720.01-28-4136  
55.6 ACRE REMAINING  
(BASED ON WAKE CO. GIS)

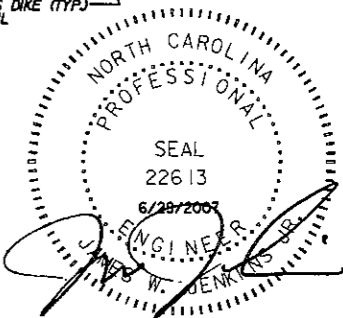
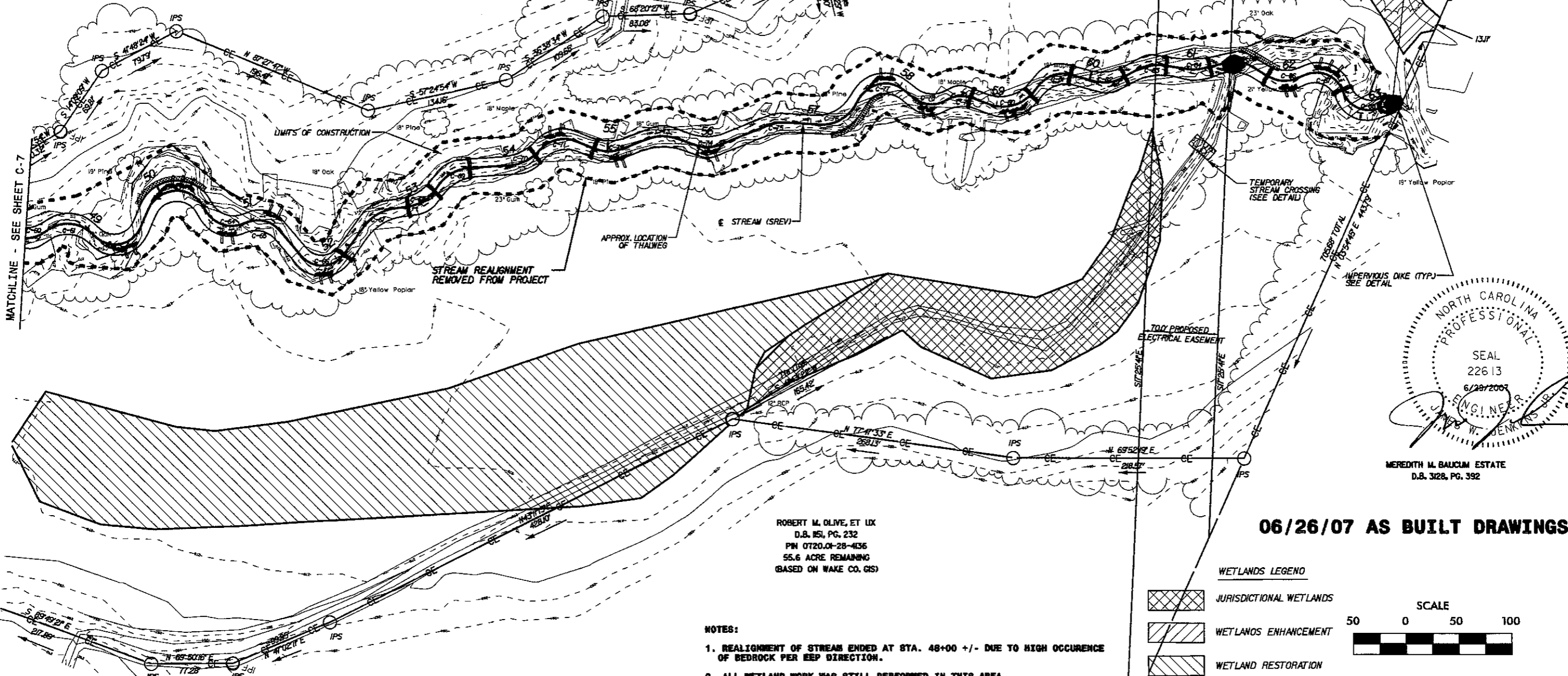
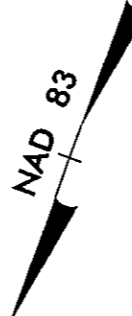
6/29/2007  
Russell Harbour  
C:\S:\2007\Consent Admin\PHU\Drawings\53257\_GRA002.dwg 5:45 AM

06/26/07 AS BUILT DRAWINGS

LEGEND	
CROSS VANE*	
* See General Details	
DOUBLE DROP CROSS VANE*	
* See General Details	
ROOT WAD*	
* See General Details	
J-HOOK VANE*	
* See General Details	
ROCK SILL*	
* See General Details	
CHANNEL PLUG*	
* See General Details	

NOTE: Structure placement on Plan Sheets are for location only. Actual placement shall be directed by Engineer.

ROBERT M. OLIVE, ET UX  
D.B. 85L, PG. 232  
PIN 0720.01-28-4136

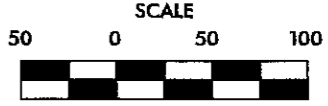
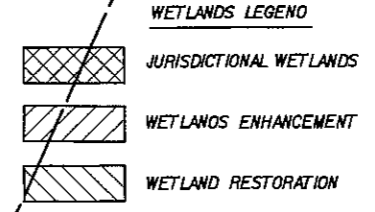


MEREDITH M. BAUCUM ESTATE  
D.B. 3128, PG. 392

**06/26/07 AS BUILT DRAWINGS**

ROBERT M. OLIVE, ET UX  
D.B. 85L, PG. 232  
PIN 0720.01-28-4136  
55.6 ACRE REMAINING  
(BASED ON WAKE CO. GIS)

- NOTES:
1. REALIGNMENT OF STREAM ENDED AT STA. 48+00 +/- DUE TO HIGH OCCURENCE OF BEDROCK PER BEP DIRECTION.
  2. ALL WETLAND WORK WAS STILL PERFORMED IN THIS AREA.



6/29/2007  
6:29 AM  
C:\Users\barbour\Documents\PHI DuBose\_SCO\As\_Built\_Drawings\53257\_66A0003.dwg  
66A0003.dwg  
66A0003.dwg  
66A0003.dwg

MATCHLINE - SEE SHEET C-7

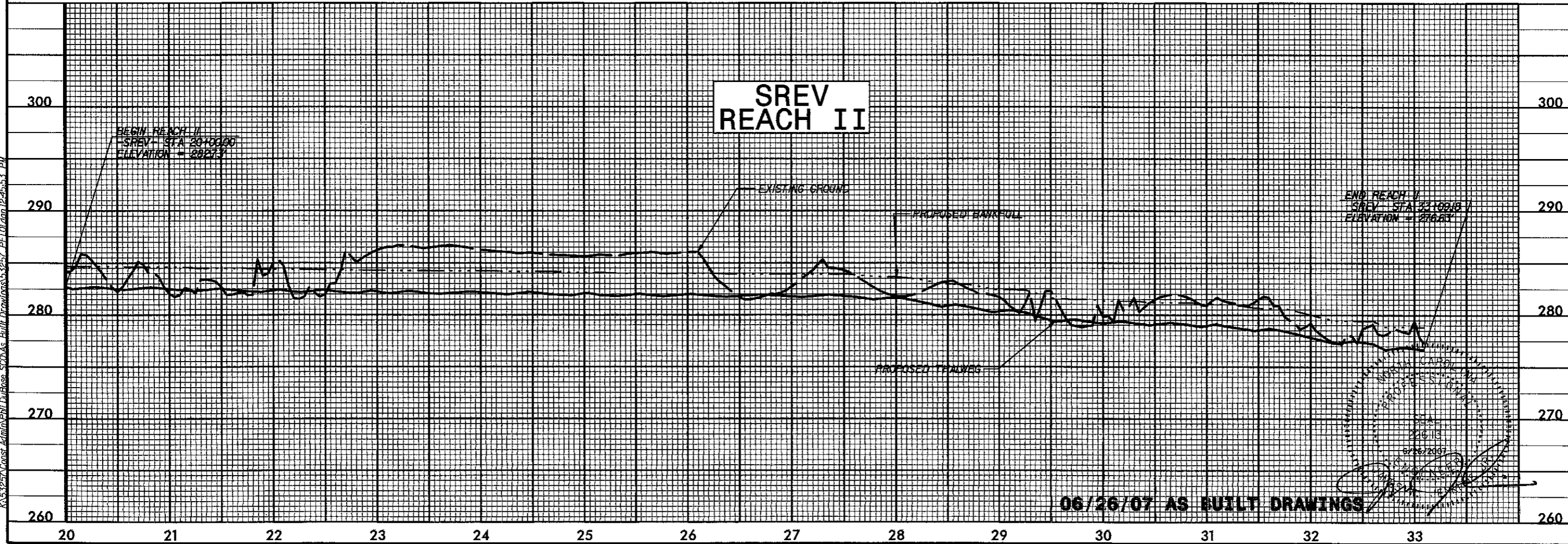
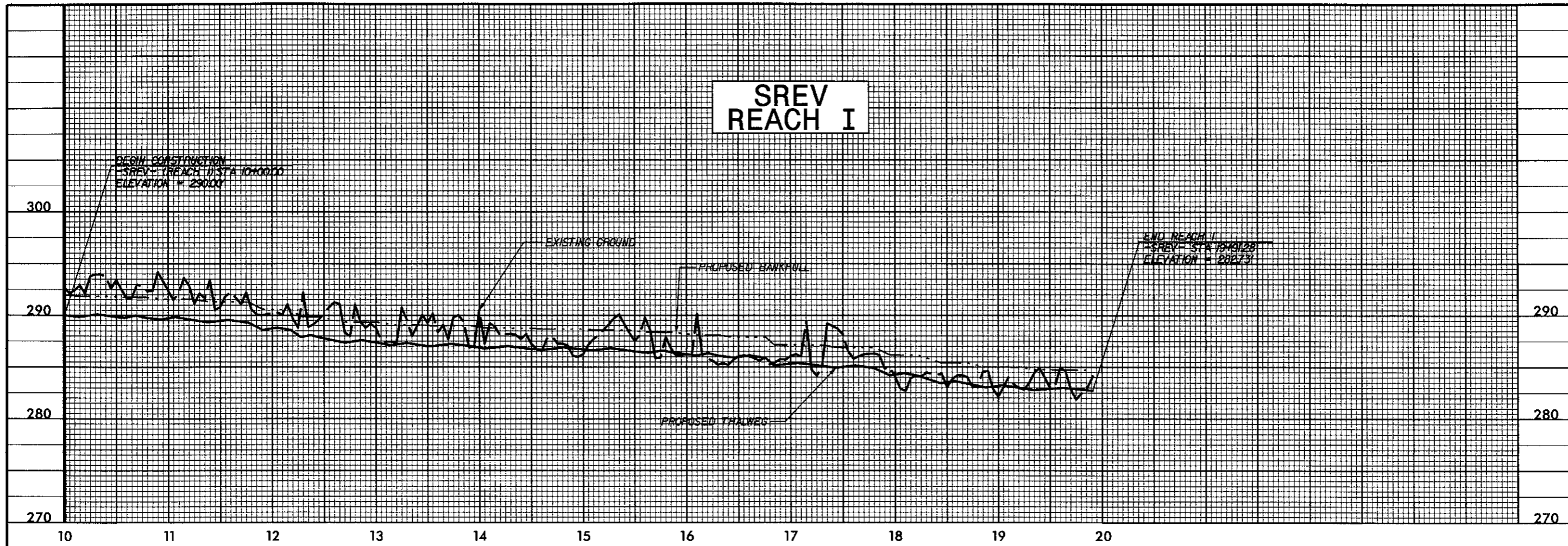
DATE	02/11/2005
PROJECT NO	53257
SCO ID#	0005299-01A
FILENAME	
SHEET NO	C-8
DRAWN BY	CRB
ISSUED FOR BIDS	
NO.	
REVISED	
CHK.	
DATE	

**EARTHTECH**  
701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
WAKE COUNTY  
ECOSYSTEM ENHANCEMENT PROGRAM  
**SITE PLAN, GRADING,  
DRAINAGE & EROSION CONTROL**



6/26/07  
AS BUILT DRAWINGS  
PROJECT NO 53257  
SCO ID# 0005299-01A  
FILENAME  
SHEET NO C-9  
DRAWN BY CRB



06/26/07 AS BUILT DRAWINGS

DATE 02/11/2005  
PROJECT NO 53257  
SCO ID# 0005299-01A  
FILENAME  
SHEET NO C-9  
DRAWN BY CRB

02/11/2005

ISSUED FOR BIDS

NO

REV. NO.

CHK.

DATE

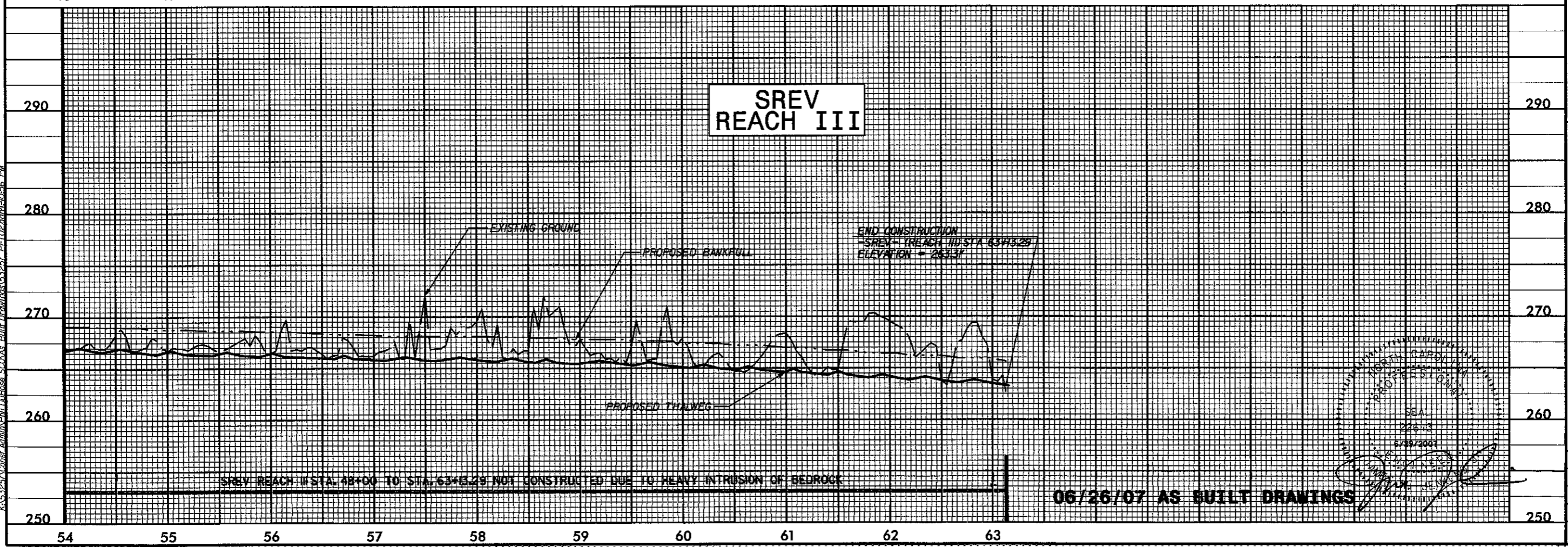
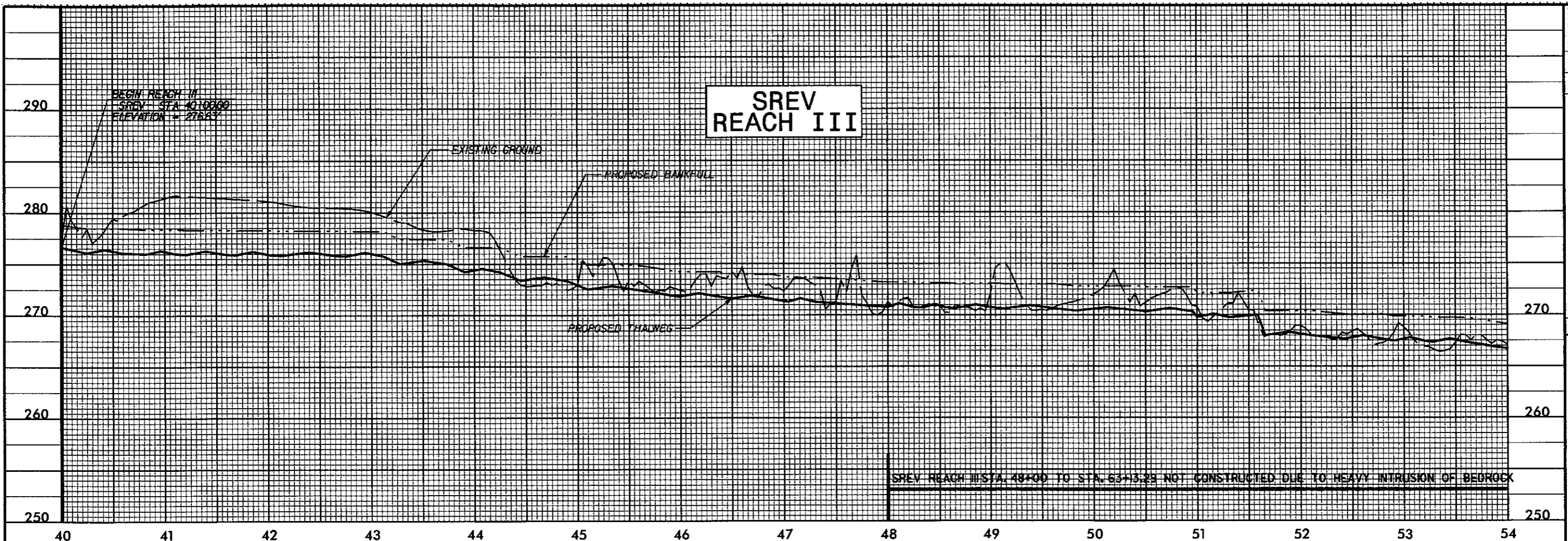
**EARTH TECH**

701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
WAKE COUNTY  
ECOSYSTEM ENHANCEMENT PROGRAM

**SREV PROFILE**

6/29/2007  
 Russell Barbour  
 605.327.1000  
 Const Admin\PHI DuRose\_SCOAs\Bilt Drawings\53257\_PEL02.dwg-40.56 PM



**06/26/07 AS BUILT DRAWINGS**

6/29/2007  
 Russell Barbour  
 605.327.1000  
 Const Admin\PHI DuRose\_SCOAs\Bilt Drawings\53257\_PEL02.dwg-40.56 PM

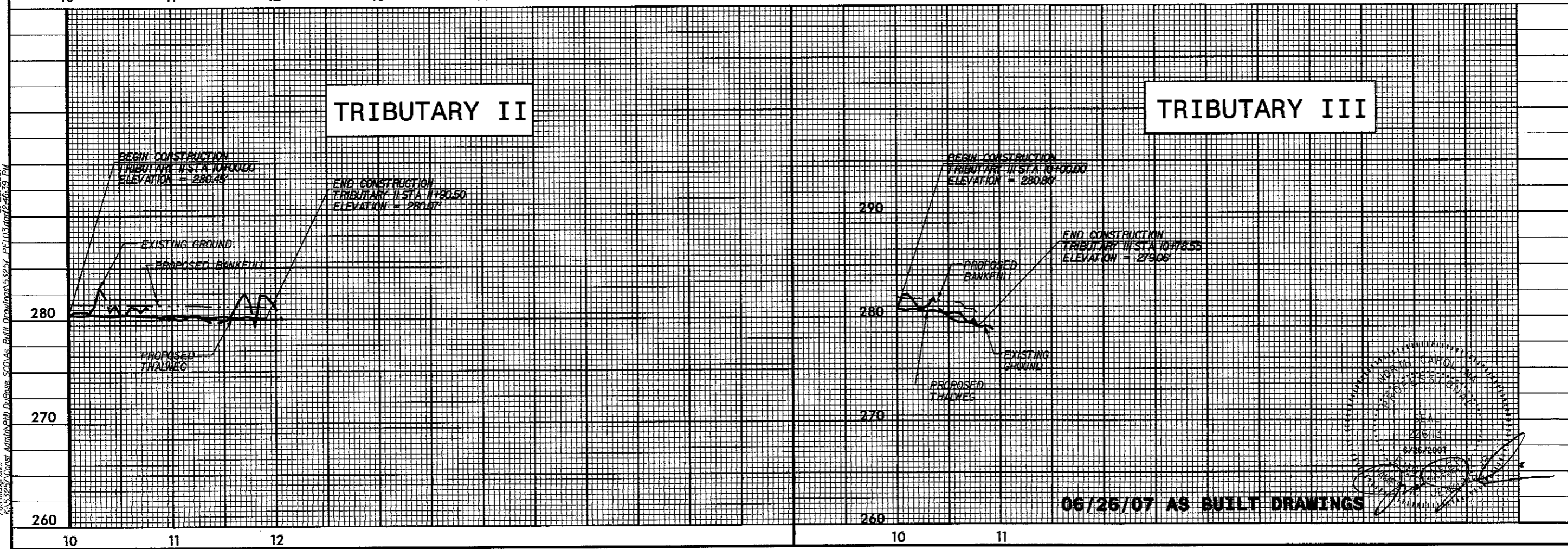
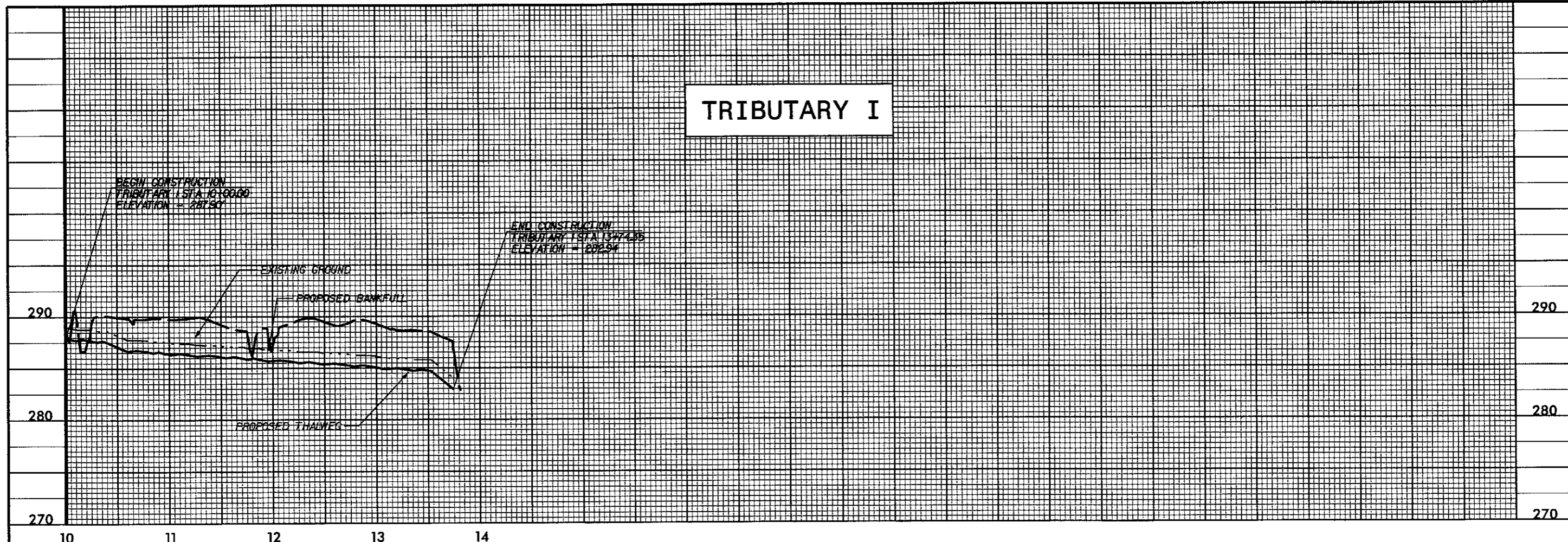
DATE	02/11/2005
PROJECT NO	53257
SCO ID#	0005299-01A
FILENAME	
SHEET NO	C-10
DRAWN BY	CRB
ISSUED FOR BIDS	NO
REVISIONS	
DRN	CHK
DATE	

**EARTH TECH**

701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
 WAKE COUNTY  
 ECOSYSTEM ENHANCEMENT PROGRAM  
**SREV PROFILE**

6/26/2007  
 6:52:27 PM  
 C:\Users\jacobr\Documents\53257\_PFL03.dwg



**06/26/07 AS BUILT DRAWINGS**

6/26/2007  
 [Signature]  
 [Stamp: PROFESSIONAL ENGINEER, STATE OF NORTH CAROLINA, No. 35257, JACOB R. BOURGAIN]

DATE		02/11/2005
PROJECT NO		53257
SCO ID#		0005299-01A
FILENAME		
SHEET NO		C-II
DRAWN BY		CRB
ISSUED FOR BIDS		NO
REVISIONS		
DRN	CHK	DATE

  
**EARTH TECH**  
 701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
 WAKE COUNTY  
 ECOSYSTEM ENHANCEMENT PROGRAM  
**TRIBUTARY PROFILES**

REACH I

REACH II

Table with 5 columns: REACH 1 STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 10+00.00 to 14+61.00.

Table with 5 columns: REACH 1 STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 14+61.50 to 19+91.00.

Table with 5 columns: REACH 2 STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 20+00.00 to 25+33.00.

Table with 5 columns: REACH 2 STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 25+53.50 to 31+22.00.

Table with 5 columns: REACH 2 STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 31+47.00 to 33+09.00.

REACH III

TRIBUTARY I

TRIBUTARY II

TRIBUTARY III

Table with 5 columns: REACH 3 STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 40+00.00 to 45+98.00.

Table with 5 columns: REACH 3 STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 46+18.00 to 51+88.00.

Table with 5 columns: TRIB I STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 10+00.00 to 12+49.00.

Table with 5 columns: TRIB II STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 10+00.00 to 11+80.50.

Table with 5 columns: TRIB III STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 10+00.00 to 10+78.55.

Table with 5 columns: REACH 3 STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 52+10.00 to 58+07.00.

Table with 5 columns: REACH 3 STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 58+20.00 to 63+13.00.

Table with 5 columns: TRIB I STATION, TYPE, BANKFULL ELEVATION, THALWEG ELEVATION, CENTERLINE ELEVATION. Rows 12+59.50 to 13+74.35.

STREAM NOT REALIGNED IN THIS AREA DUE TO HEAVY INTRUSION OF BEDROCK

STREAM FEATURES TABLE

06/26/07 AS BUILT DRAWINGS

6/28/2007 4:16:29 PM... 6/29/2007 4:16:29 PM

Vertical sidebar containing: DATE (02/11/2005), ISSUED FOR BIDS, REVISIONS, EARTH TECH logo, PROJECT NO (53257), SHEET NO (C-12), DRAWN BY (CRB), and a circular professional seal for James W. Jenkins, Jr., North Carolina Professional Engineer.

DOUBLE DROP CROSS VANE REMOVED FROM PROJECT

REACH I			REACH II			REACH III		
STATION	CROSS ELEVATION	CROSS VANE TYPE	STATION	CROSS ELEVATION	CROSS VANE TYPE	STATION	CROSS ELEVATION	CROSS VANE TYPE
12+10	289.97	DOUBLE DROP	29+28	280.21	DOUBLE DROP	44+25	274.20	DOUBLE DROP
16+76	285.88	DOUBLE DROP	32+60	277.25	DOUBLE DROP	42+89	263.58	SINGLE DROP

TRIBUTARY I			TRIBUTARY II			TRIBUTARY III		
STATION	CROSS ELEVATION	CROSS VANE TYPE	STATION	CROSS ELEVATION	CROSS VANE TYPE	STATION	CROSS ELEVATION	CROSS VANE TYPE
10+76	286.63	SINGLE DROP	10+32	280.39	SINGLE DROP	10+66	279.70	SINGLE DROP
13+63	284.70	SINGLE DROP	10+87	280.27	SINGLE DROP			
			11+40	280.16	SINGLE DROP			
			11+58	280.16	SINGLE DROP			

	REACH I	REACH II	REACH III	TRIBS 1-3
WING LENGTH	21'	23'	25'	10'
CROSS WIDTH	3'	3'	3'	2'
WING ANGLE	20	20	20	20
WING SLOPE	7%	7%	7%	7%
WING RISE	1.5'	1.7'	1.9'	0.8'
INTERIOR TO INTERIOR @ WING END	17'	19'	20'	9.5'

### ROCK CROSS VANE DESIGN DATA

\* STATION INDICATES THE CENTER OF THE CROSS ROCK IN EACH STRUCTURE.

REACH I		REACH III	
STATION	SILL ELEVATION	STATION	SILL ELEVATION
10+06	289.83	40+25	276.10
10+79	289.76	41+11	275.99
11+77	289.30	43+12	275.79
12+46	287.54	43+74	274.99
12+70	287.38	44+90	273.33
13+09	287.22	45+58	272.47
14+05	286.80	46+44	271.89
15+44	286.58	46+88	271.58
15+90	286.35	47+38	culvert elev
16+45	285.90	47+59	culvert elev
17+29	285.14	52+10	285.40
17+90	284.90	52+91	287.48
18+22	284.18	53+21	287.43
19+21	282.99	53+62	287.31
		54+21	286.89
		54+89	286.38
		58+72	285.70
		59+42	285.40
		59+84	285.25
		60+34	284.99
		60+78	284.82
		61+15	284.59
		61+79	284.06
		62+50	283.81

REACH II	
STATION	SILL ELEVATION
22+18	282.28
22+82	282.10
24+88	281.98
27+05	281.73
27+82	281.71
28+24	281.24
28+71	280.74
29+80	279.31
30+35	279.13
30+85	278.00
31+22	278.85
32+02	277.79

TRIBUTARY I		TRIBUTARY II	
STATION	SILL ELEVATION	STATION	SILL ELEVATION
10+24	287.69	10+00	280.45
11+19	286.31	10+73	280.34
11+70	285.98		
12+18	285.84		
12+70	285.31		
13+28	284.84		

### STONE SILL DESIGN DATA

\* STATION INDICATES THE CENTER OF THE CROSS ROCK IN EACH STRUCTURE.

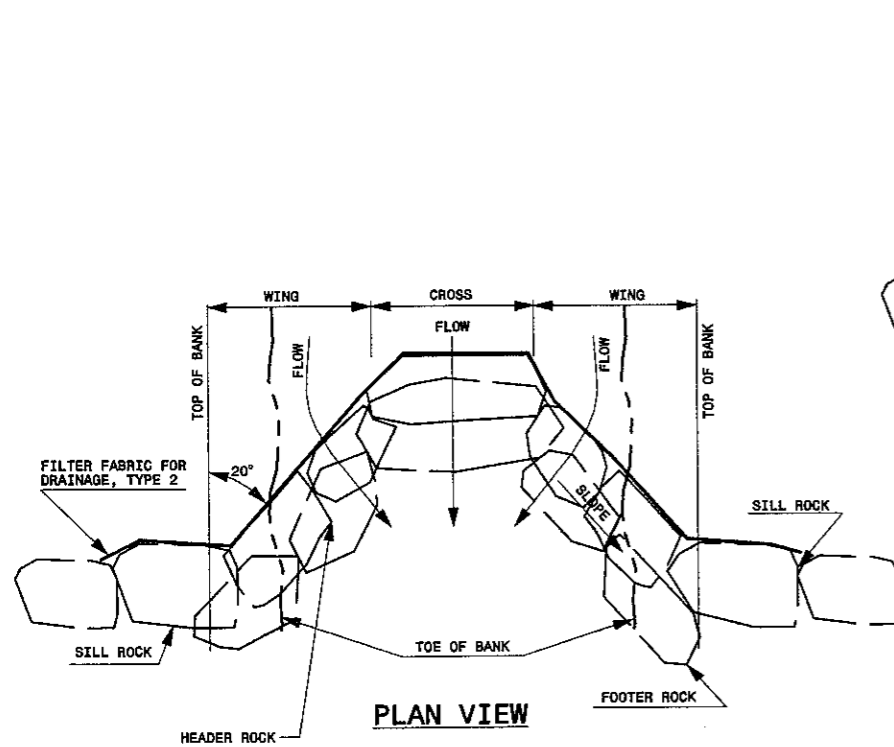
STRUCTURES REMOVED FROM PROJECT

REACH I		REACH III	
STATION	CROSS ELEVATION	STATION	CROSS ELEVATION
11+46	289.43	48+23	276.73
13+68	287.19	48+93	270.52
19+52	282.92	57+67	285.81

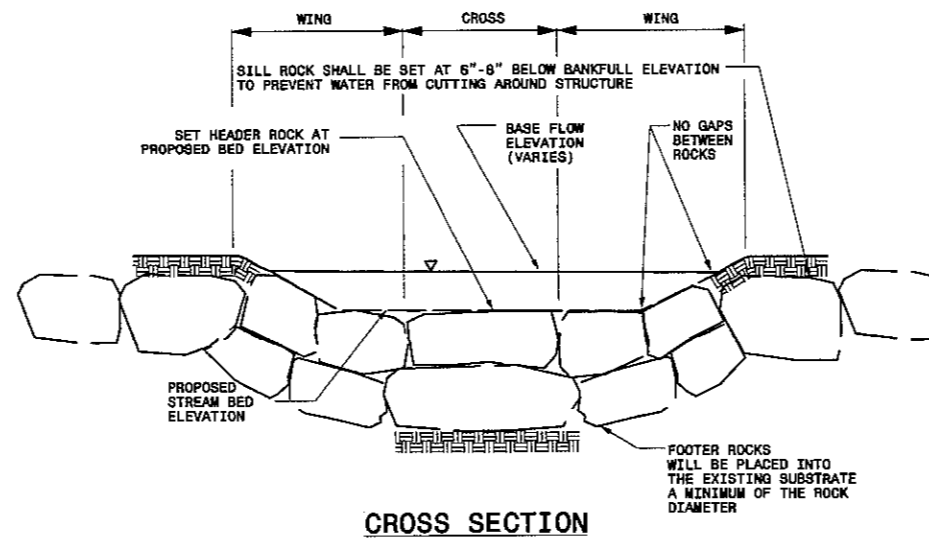
	REACH I	REACH II	REACH III
WING LENGTH	21'	23'	25'
CROSS WIDTH	3'	3'	3'
WING ANGLE	20	20	20
WING SLOPE	7%	7%	7%
WING RISE	1.5'	1.7'	1.9'

### ROCK J-HOOK VANE DESIGN DATA

\* STATION INDICATES THE CENTER OF THE CROSS ROCK IN EACH STRUCTURE.



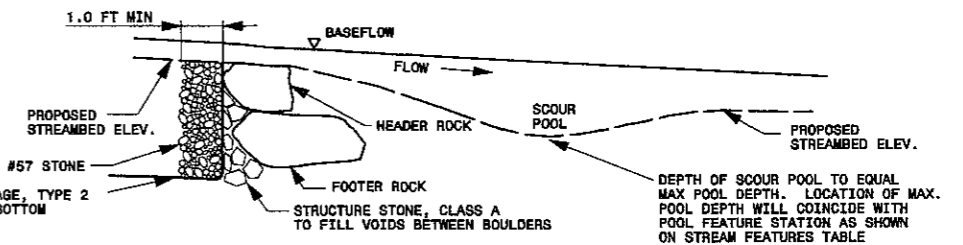
PLAN VIEW



CROSS SECTION

### ROCK CROSS VANE

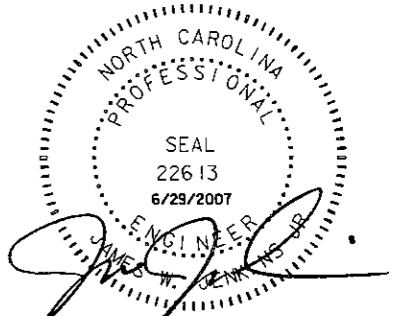
SCALE: NTS



PROFILE VIEW

NOTES:

- SCOUR POOL TO BE LOCATED PER STREAM FEATURES TABLE.
- HEADER, FOOTER, AND SILL ROCKS TO BE STRUCTURE STONE, CLASS BOULDER.



06/26/07 AS BUILT DRAWINGS

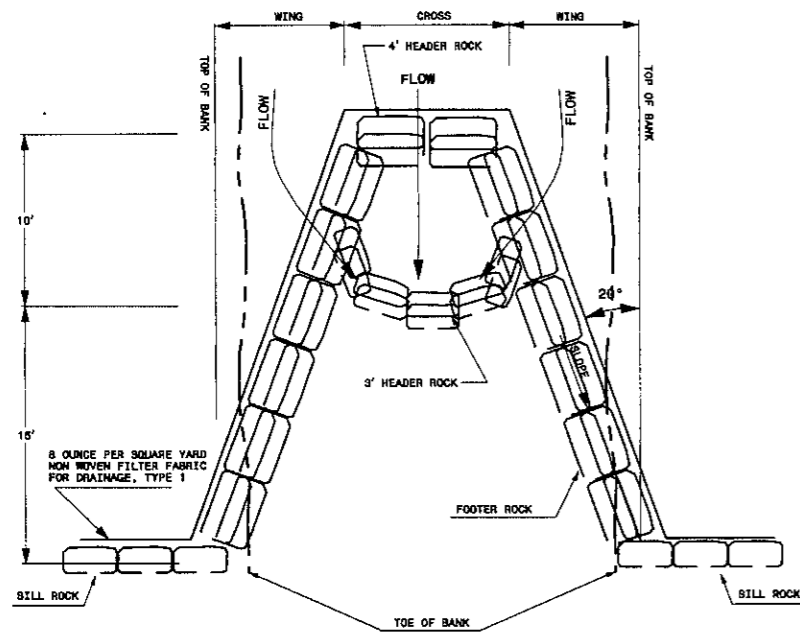
6/29/2007  
 13:53:25  
 C:\Users\jacob\Documents\53257.DTL.dwg  
 jacob

NO.	REVISIONS	DATE
1	ISSUED FOR BIDS	02/11/2005

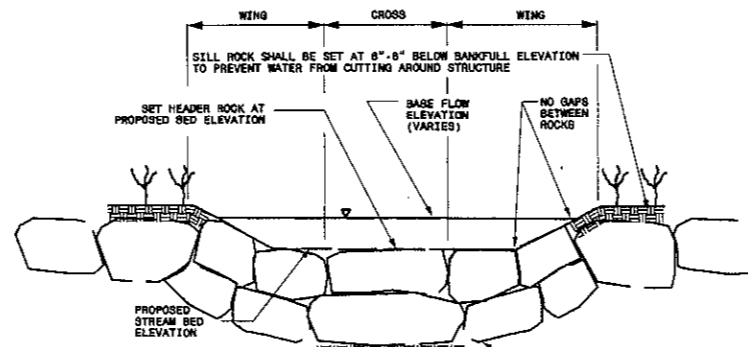
**EARTHTECH**  
 701 Corporate Center Drive, Suite 405, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
 WAKE COUNTY  
 ECOSYSTEM ENHANCEMENT PROGRAM  
**GENERAL DETAILS**

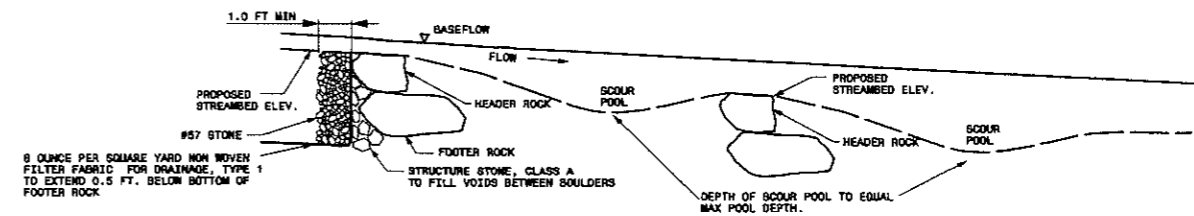
DATE	02/11/2005
PROJECT NO	53257
SCO ID#	0005299-01A
FILENAME	
SHEET NO	C-13
DRAWN BY	CRB



PLAN VIEW



CROSS SECTION

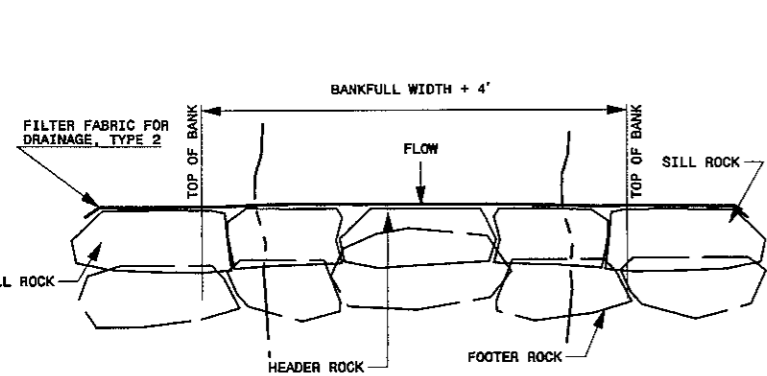


PROFILE VIEW

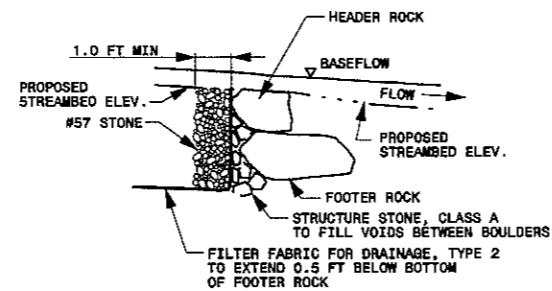
NOTE  
HEADER, FOOTER, AND SILL ROCKS TO BE  
STRUCTURE STONE, CLASS BOULDER.

DOUBLE DROP ROCK CROSS VANE

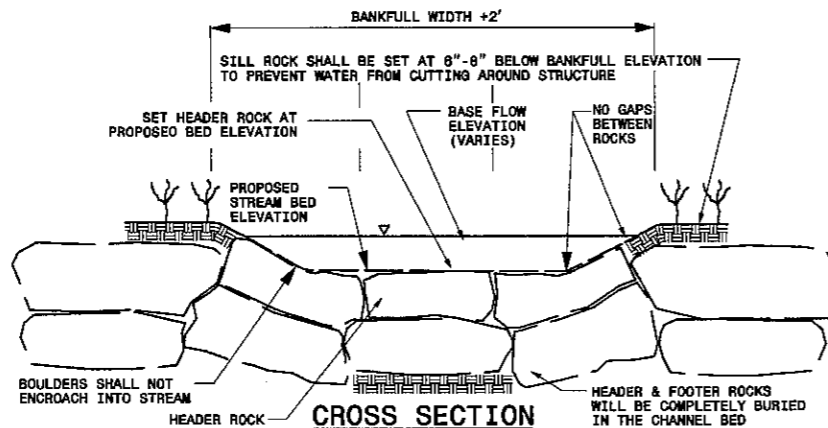
SCALE: NTS



PLAN VIEW



PROFILE VIEW



CROSS SECTION

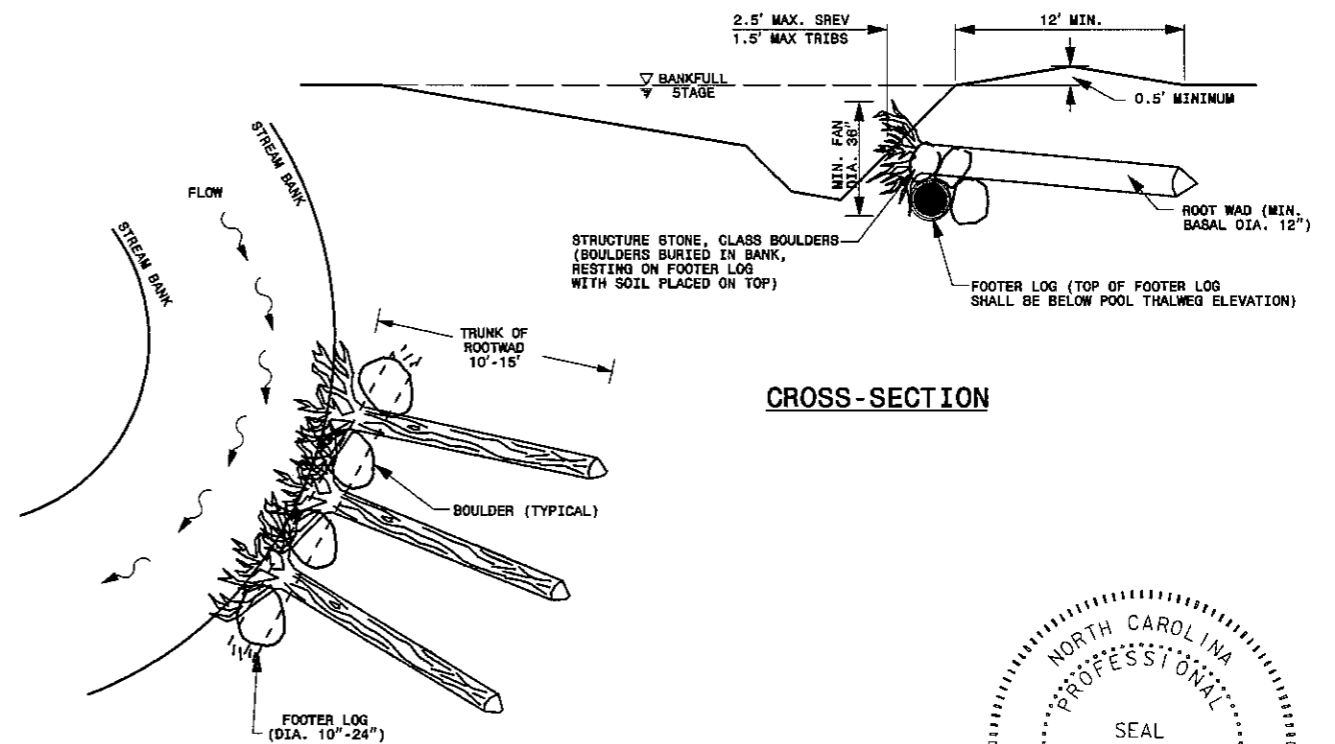
NOTES:  
HEADER, FOOTER, AND SILL ROCKS TO BE  
STRUCTURE STONE, CLASS BOULDER

BOULDERS SHALL NOT  
ENCROACH INTO STREAM

HEADER & FOOTER ROCKS  
WILL BE COMPLETELY BURIED  
IN THE CHANNEL BED

ROCK SILL

SCALE: NTS



CROSS-SECTION

PLAN

ROOT WAD

SCALE: NTS



6/26/2007  
 Russel Barbour  
 ASCE 709  
 Admin/ENR/Dr/Boss\_SCO/As-Built/Drawings/53257-DTL.dwg  
 12:53:16 PM

ISSUED FOR BIDS	NO
REVISIONS	
DRN	CHK
DATE	

EARTHTECH

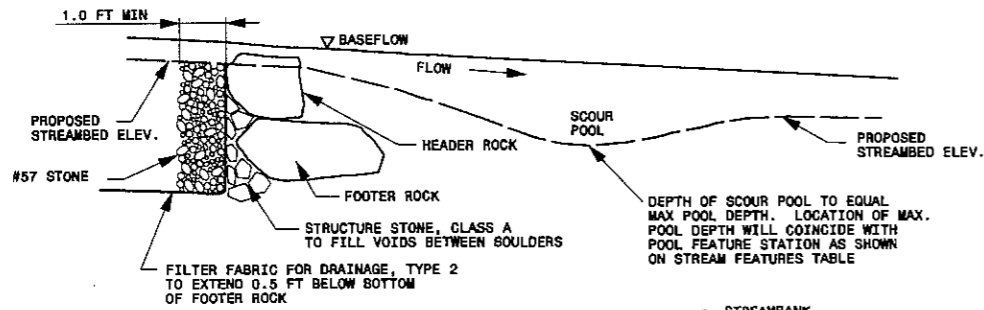
701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
 WAKE COUNTY  
 ECOSYSTEM ENHANCEMENT PROGRAM

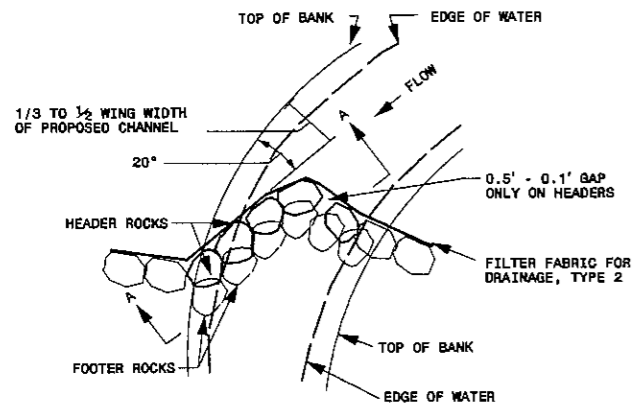
GENERAL DETAILS

DATE	02/11/2005
PROJECT NO	53257
SCO ID#	0005299-01A
FILENAME	
SHEET NO	C-14
DRAWN BY	CRB

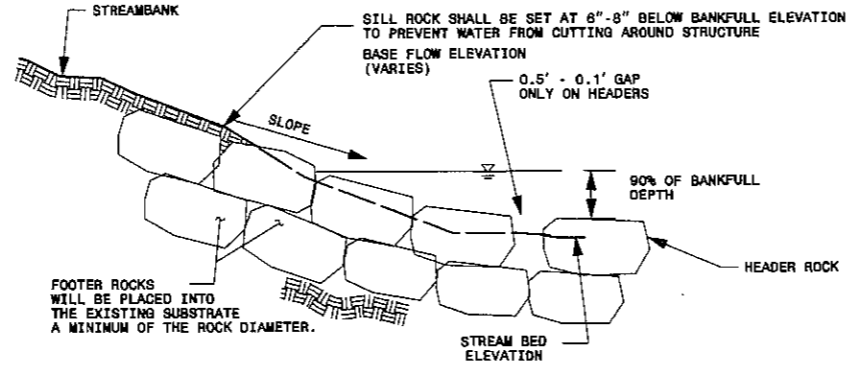
06/26/07 AS BUILT DRAWINGS



**PROFILE VIEW**



**PLAN VIEW**



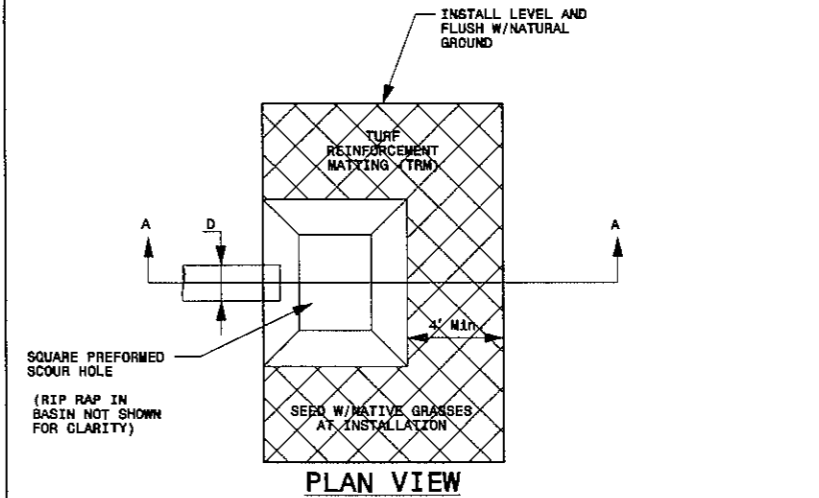
**SECTION A-A**

**ROCK J-HOOK VANE**

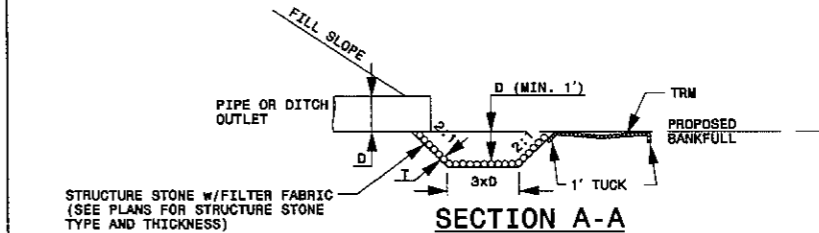
SCALE: NTS

**NOTES:**

1. SCOUR POOL TO BE LOCATED PER STREAM FEATURES TABLE.
2. HEADER, FOOTER, AND SILL ROCKS TO BE STRUCTURE STONE, CLASS BOULDER.



**PLAN VIEW**



**SECTION A-A**

**PREFORMED SCOUR HOLE WITH LEVEL SPREADER**

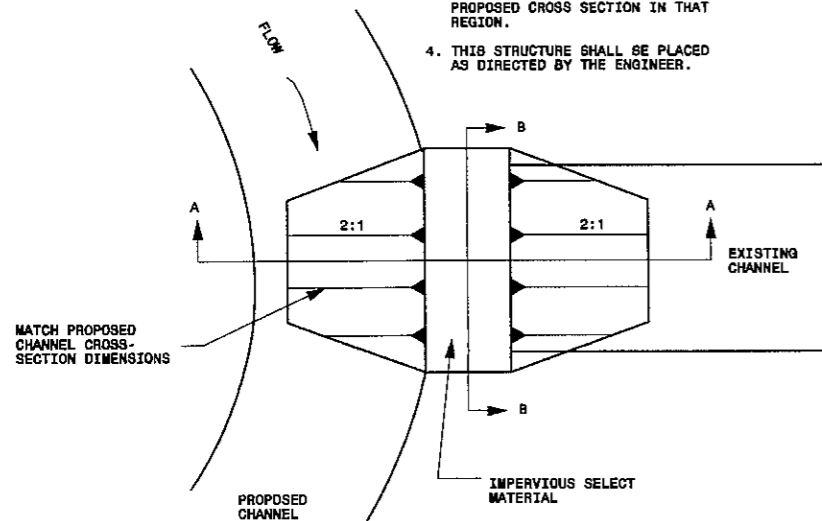
SCALE: NTS

**NOTE:**

LEVEL SPREADER MAINTAINS SAME ELEVATION AROUND PREFORMED SCOUR HOLE

**NOTES:**

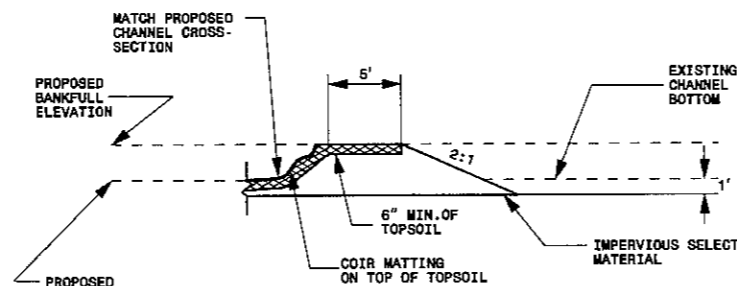
1. CHANNEL PLUGS TO BE LOCATED AS SHOWN ON THE PLANS AND AT OTHER LOCATIONS AS DIRECTED BY THE ENGINEER.
2. 90% COMPACTION RATE IS REQUIRED ON CHANNEL PLUG OR AS APPROVED BY THE ENGINEER.
3. SIDE SLOPE THAT IS ADJACENT TO PROPOSED STREAM NEEDS TO MATCH PROPOSED CROSS SECTION IN THAT REGION.
4. THIS STRUCTURE SHALL BE PLACED AS DIRECTED BY THE ENGINEER.



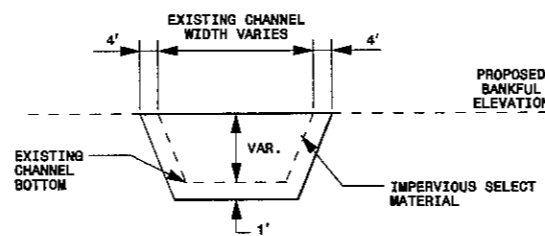
**PLAN VIEW OF EXISTING CHANNEL WITH CHANNEL PLUG**

**CHANNEL PLUG**

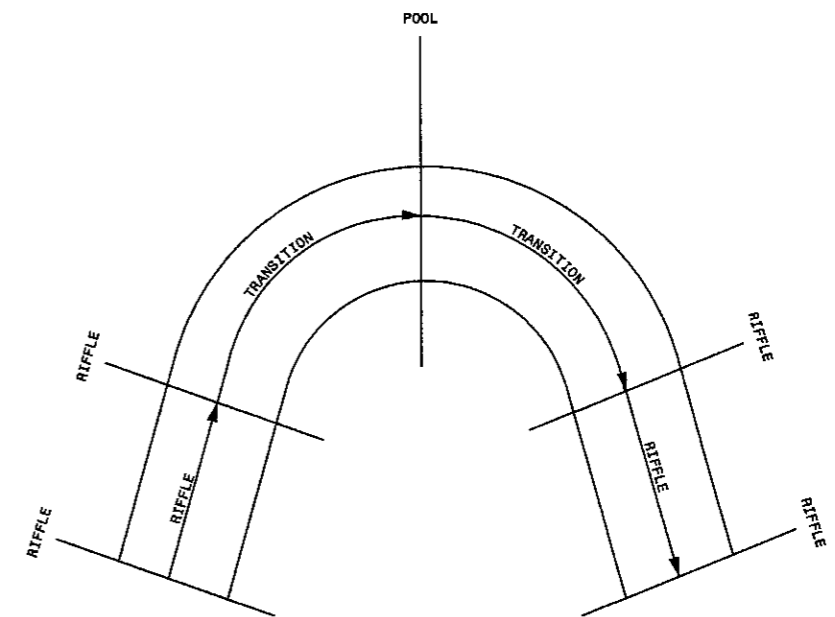
SCALE: NTS



**SECTION A-A**



**SECTION B-B**



**NOTES:**

1. AREAS IN BETWEEN LABELED FEATURES ARE TRANSITION AREAS.
2. SEE TYPICALS AND STATIONING FOR MORE DETAIL.
3. THE AREA BETWEEN THE CONCURRENT RIFFLE CROSS-SECTIONS ARE CONSIDERED THE RIFFLE SECTION.
4. THE AREA BETWEEN THE DOWNSTREAM RIFFLE AND RUN CROSS-SECTION IS CONSIDERED THE RUN SECTION.
5. THE AREA BETWEEN THE RUN AND GLIDE CROSS-SECTION IS CONSIDERED THE POOL SECTION.
6. THE AREA BETWEEN THE GLIDE AND THE UPSTREAM RIFFLE CROSS-SECTION IS CONSIDERED THE GLIDE SECTION.

**CROSS SECTION TRANSITION LOCATIONS**

SCALE: NTS

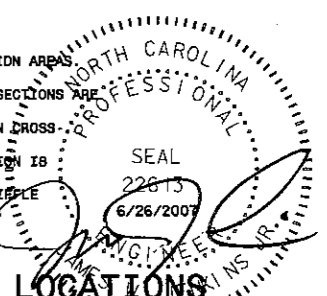
**06/26/07 AS BUILT DRAWINGS**

6/26/2007 12:53:40 PM C:\Users\barbour\Documents\53257\_DTL.dwg

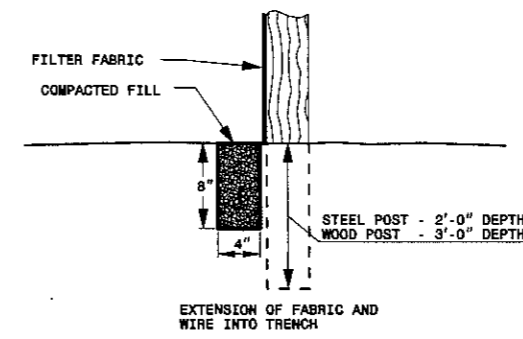
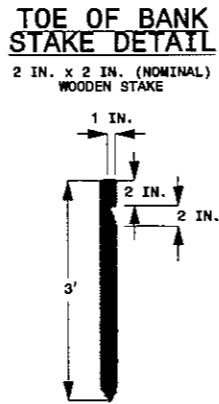
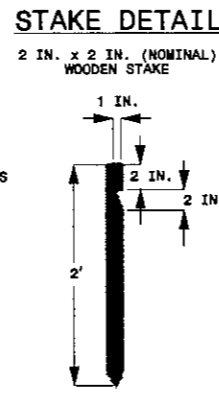
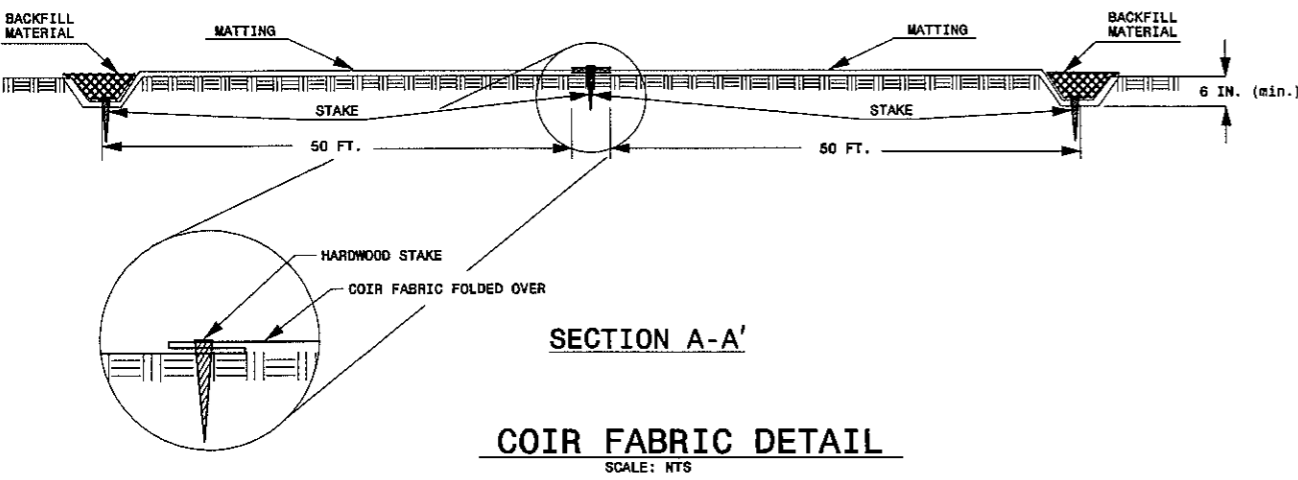
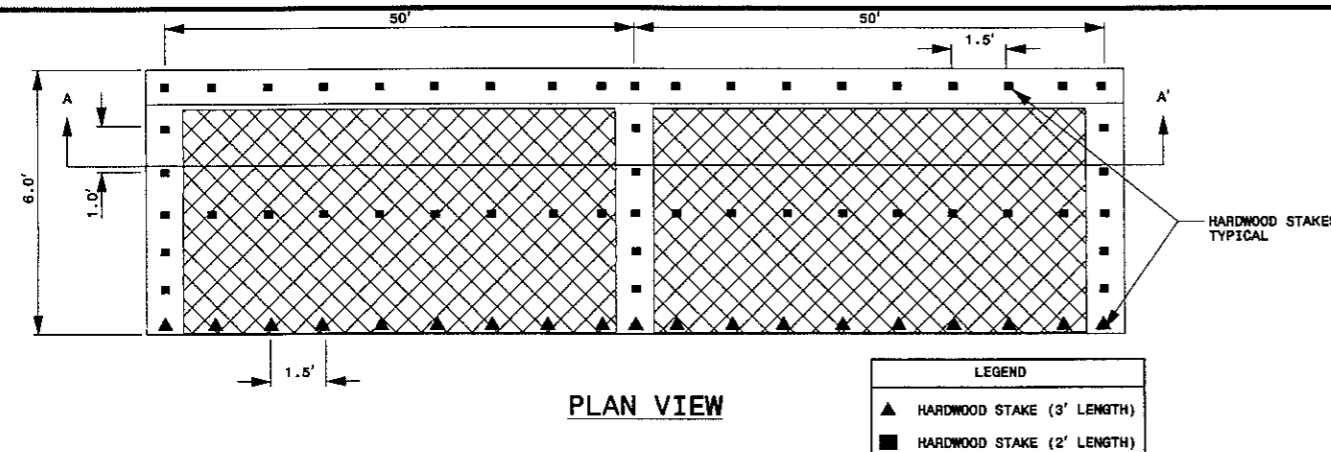
NO.	REVISIONS	CHK.	DATE
1	ISSUED FOR BIDS		02/11/2005

**EARTHTECH**  
 701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

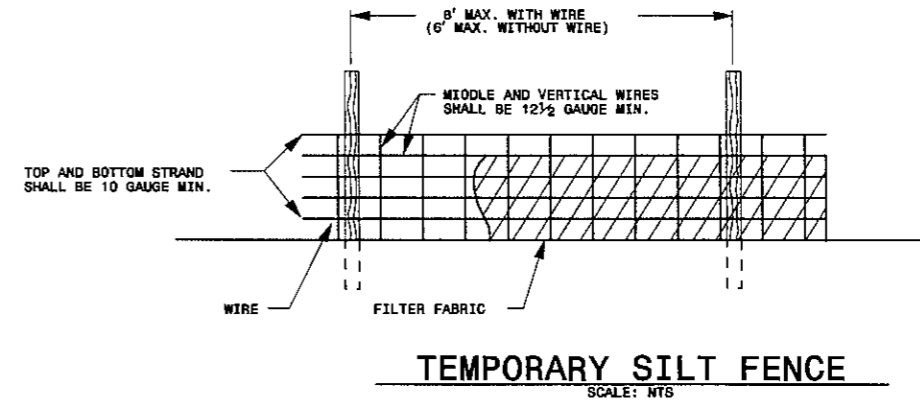
**GENERAL DETAILS**  
 LITTLE BEAVER CREEK STREAM RESTORATION  
 WAKE COUNTY  
 ECOSYSTEM ENHANCEMENT PROGRAM



DATE	02/11/2005
PROJECT NO	53257
SCO_ID#	0005299-01A
FILENAME	
SHEET NO	C-15
DRAWN BY	CRB

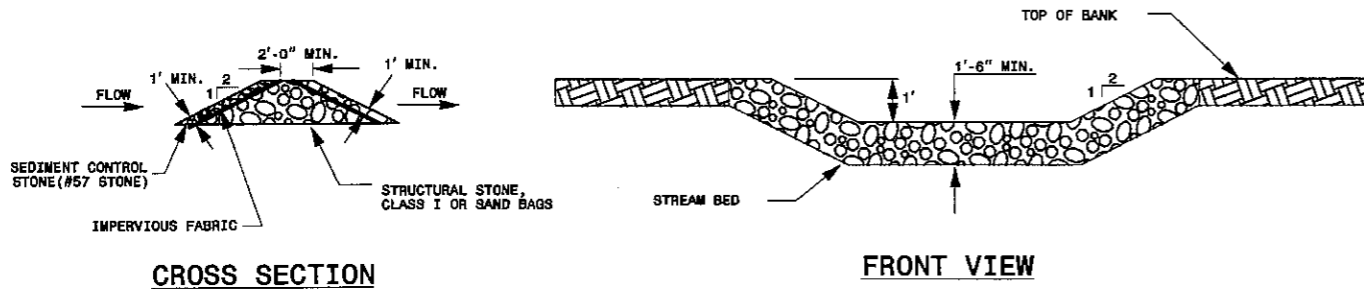
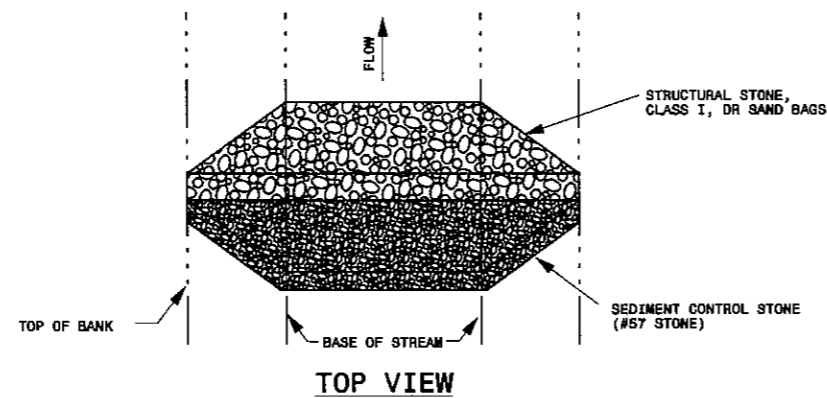


- NOTES:
1. WIRE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
  2. FILTER FABRIC SHALL BE A MINIMUM OF 36" IN WIDTH AND SHALL BE FASTENED ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.
  3. STEEL POSTS SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
  4. WOOD POST SHALL BE 6'-0" IN HEIGHT AND 3" IN DIAMETER.

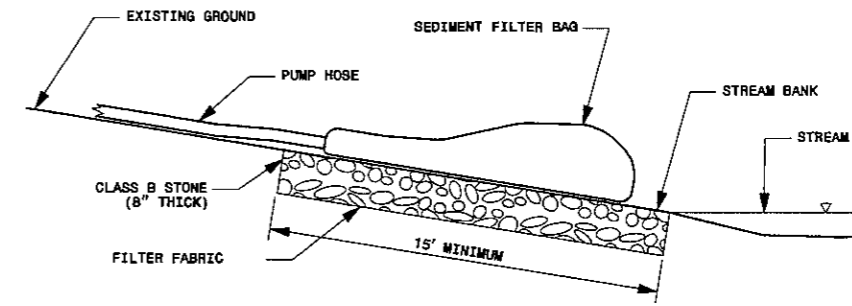


NOTES:

1. REMOVE SEDIMENT WHEN THE SEDIMENT LEVEL REACHES 1/2 THE DEPTH BEHIND THE STRUCTURE.
2. WHEN THE STRUCTURE SERVES AS AN IMPERVIOUS DIKE IT SHALL BE USED FOR PUMPING ONLY. THE STRUCTURE SHALL BE RELOCATED OR REMOVED ONCE PUMPING IS COMPLETE.
3. THE IMPERVIOUS DIKE MAY SERVE AS A ROCK SILT SCREEN IF THE IMPERVIOUS FABRIC IS REMOVED.

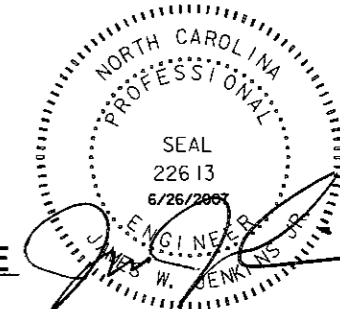


**IMPERVIOUS DIKE/ROCK SILT SCREEN**  
 SCALE: NTS



NOTES:

- AT THE ENGINEER'S DISCRETION, ALTERNATE DEWATERING STRUCTURES MAY BE USED (I.E. SEDIMENT TANKS, FILTER BOX, STRAW BALE/SILT FENCE PIT). HOWEVER, REGARDLESS OF THE DEWATERING STRUCTURE USED, ALL MUST BE SIZED AND OPERATED TO ALLOW ALL PUMPED WATER TO BE FILTERED TO PREVENT SEDIMENTS FROM ERODING AND MOVING OFF SITE.



**DEWATERING STRUCTURE**  
 SCALE: NTS

**06/26/07 AS BUILT DRAWINGS**

02/11/2005	DATE	02/11/2005
	PROJECT NO	53257
ISSUED FOR BIDS	SCO ID	0005299-0A
	FILENAME	
NO	SHEET NO	C-16
	DRAWN BY	CRB
REVISIONS	DRN	CHK
	DATE	

**EARTH TECH**

701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

**GENERAL DETAILS**

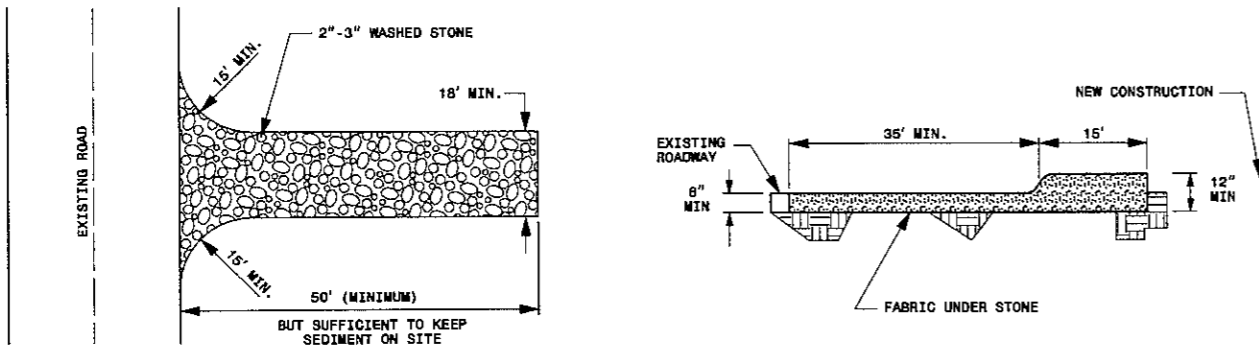
LITTLE BEAVER CREEK STREAM RESTORATION  
 WAKE COUNTY  
 ECOSYSTEM ENHANCEMENT PROGRAM

6/26/2007  
 Russell Barber  
 6:53:52 AM  
 D:\Projects\53257 DTL.dwg  
 12:53:24 PM



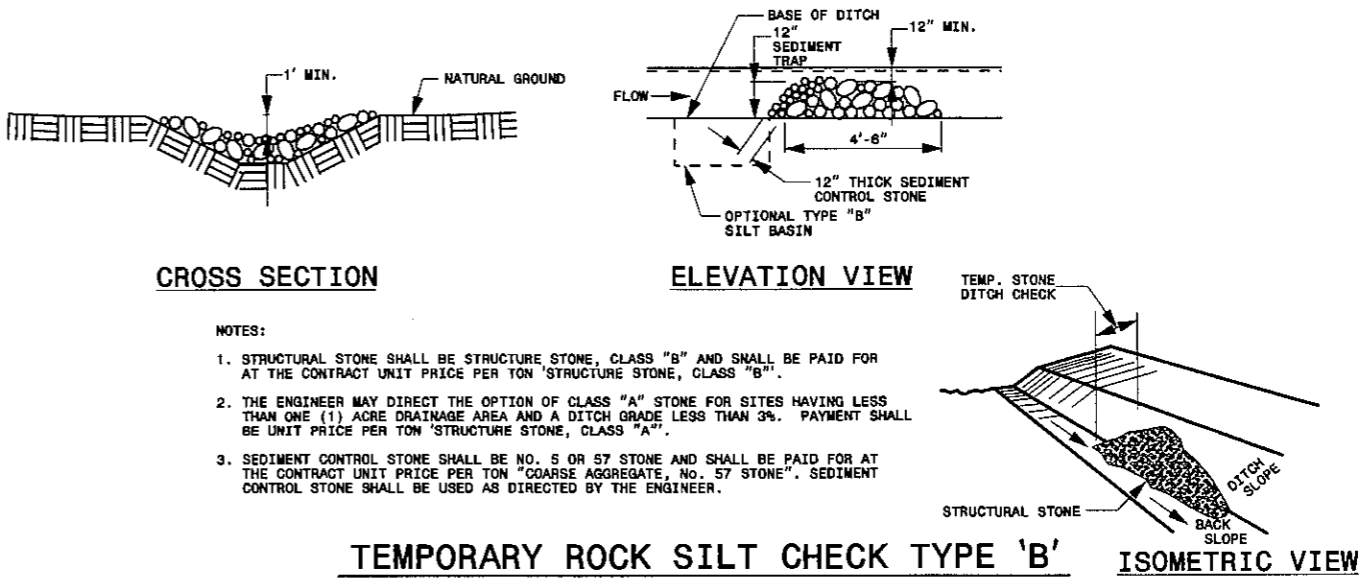
**NOTES:**

1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED
2. A 6" TO 12" MINIMUM STABILIZED PAD OF WASHED STONE SHALL BE LOCATED WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE TO OR FROM A PUBLIC STREET. THE STONE SHALL BE PLACED ON TOP OF FILTER FABRIC FOR A DISTANCE OF 50 FEET MINIMUM.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OR EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
4. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC STREETS MUST BE REMOVED IMMEDIATELY.
5. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN.
6. ADDITIONAL GRADING SHALL BE REQUIRED TO CONNECT THE STONE ENTRANCE TO THE EXISTING GROUND. UPON COMPLETION OF THE PROJECT, THE ROAD SHALL BE RETURNED TO A CONDITION THAT MEETS OR EXCEEDS THE PRE-EXISTING CONDITIONS.



**TEMPORARY CONSTRUCTION ENTRANCE**

SCALE: NTS



**CROSS SECTION**

**ELEVATION VIEW**

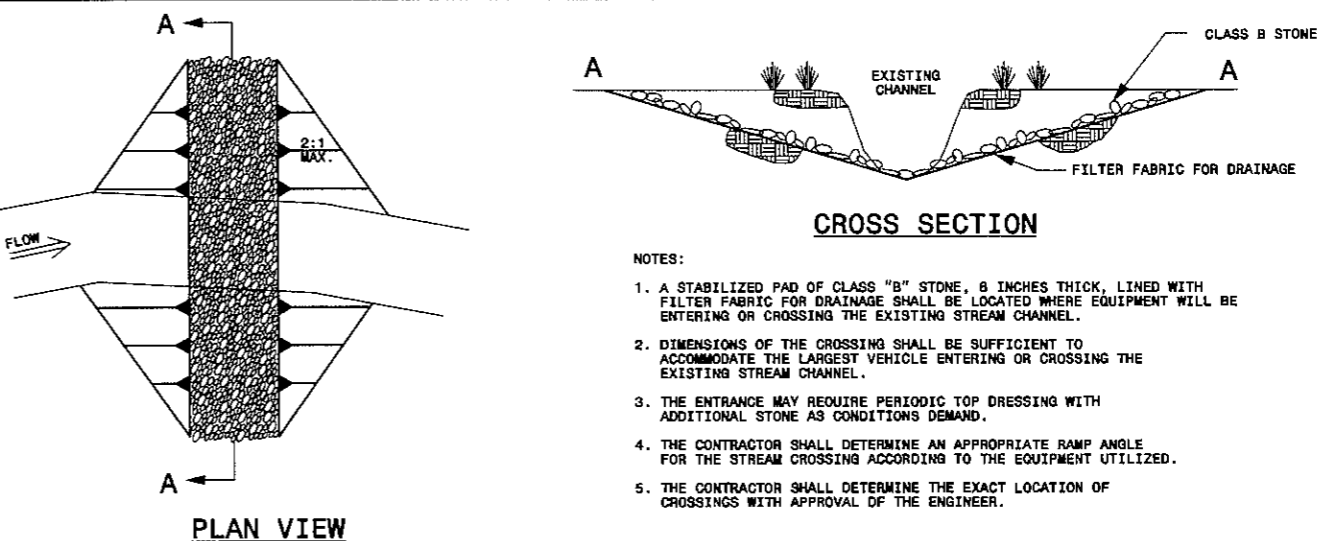
**ISOMETRIC VIEW**

**NOTES:**

1. STRUCTURAL STONE SHALL BE STRUCTURE STONE, CLASS "B" AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON 'STRUCTURE STONE, CLASS "B"'. THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%. PAYMENT SHALL BE UNIT PRICE PER TON 'STRUCTURE STONE, CLASS "A"'. SEDIMENT CONTROL STONE SHALL BE NO. 5 OR S7 STONE AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON 'COARSE AGGREGATE, NO. 57 STONE'. SEDIMENT CONTROL STONE SHALL BE USED AS DIRECTED BY THE ENGINEER.

**TEMPORARY ROCK SILT CHECK TYPE 'B'**

SCALE: NTS



**PLAN VIEW**

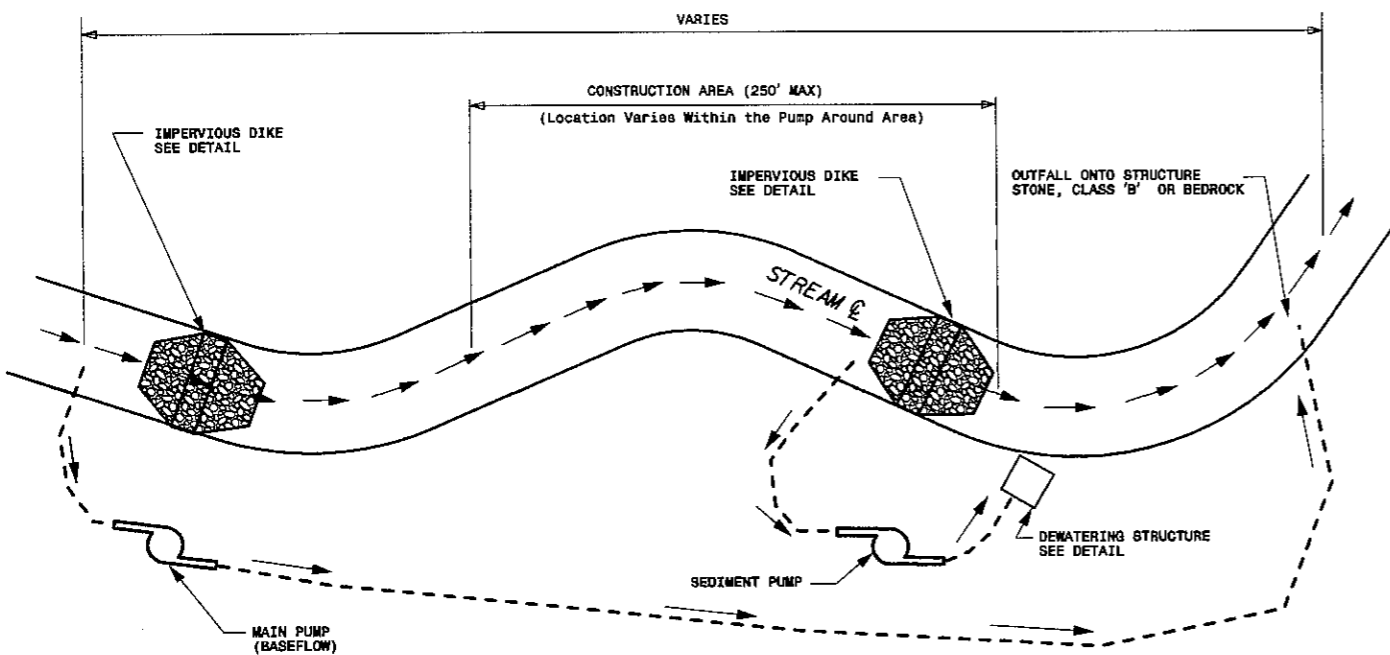
**CROSS SECTION**

**NOTES:**

1. A STABILIZED PAD OF CLASS "B" STONE, 8 INCHES THICK, LINED WITH FILTER FABRIC FOR DRAINAGE SHALL BE LOCATED WHERE EQUIPMENT WILL BE ENTERING OR CROSSING THE EXISTING STREAM CHANNEL.
2. DIMENSIONS OF THE CROSSING SHALL BE SUFFICIENT TO ACCOMMODATE THE LARGEST VEHICLE ENTERING OR CROSSING THE EXISTING STREAM CHANNEL.
3. THE ENTRANCE MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND.
4. THE CONTRACTOR SHALL DETERMINE AN APPROPRIATE RAMP ANGLE FOR THE STREAM CROSSING ACCORDING TO THE EQUIPMENT UTILIZED.
5. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF CROSSINGS WITH APPROVAL OF THE ENGINEER.

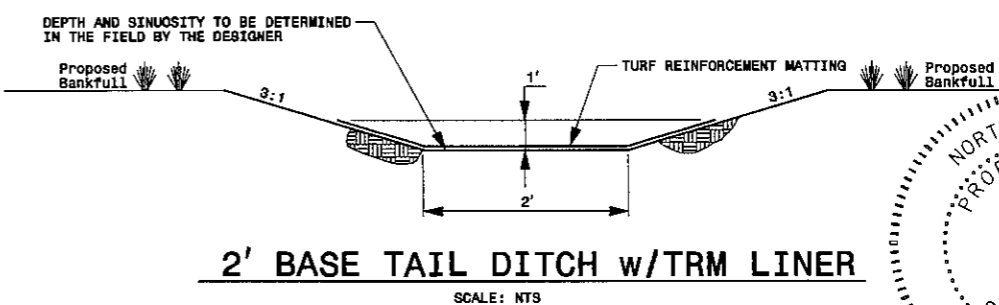
**TEMPORARY STREAM CROSSING**

SCALE: NTS



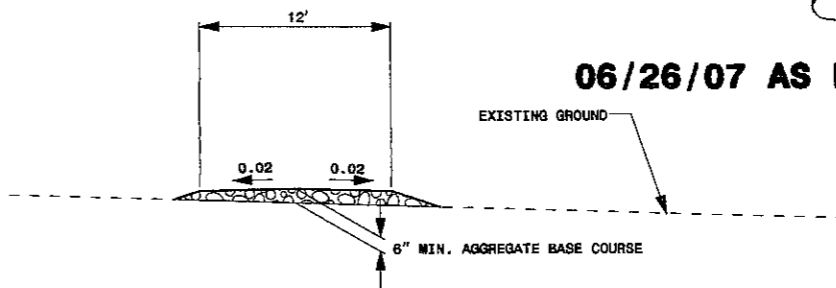
**PROPOSED PUMP AROUND**

(Not to Scale)



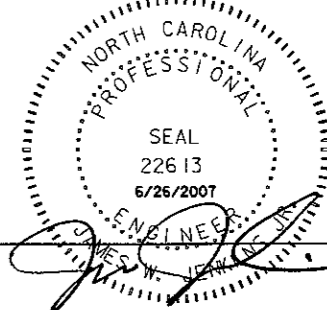
**2' BASE TAIL DITCH w/TRM LINER**

SCALE: NTS



**PROPOSED CONSTRUCTION ACCESS ROAD - TYPICAL SECTION**

SCALE: NTS



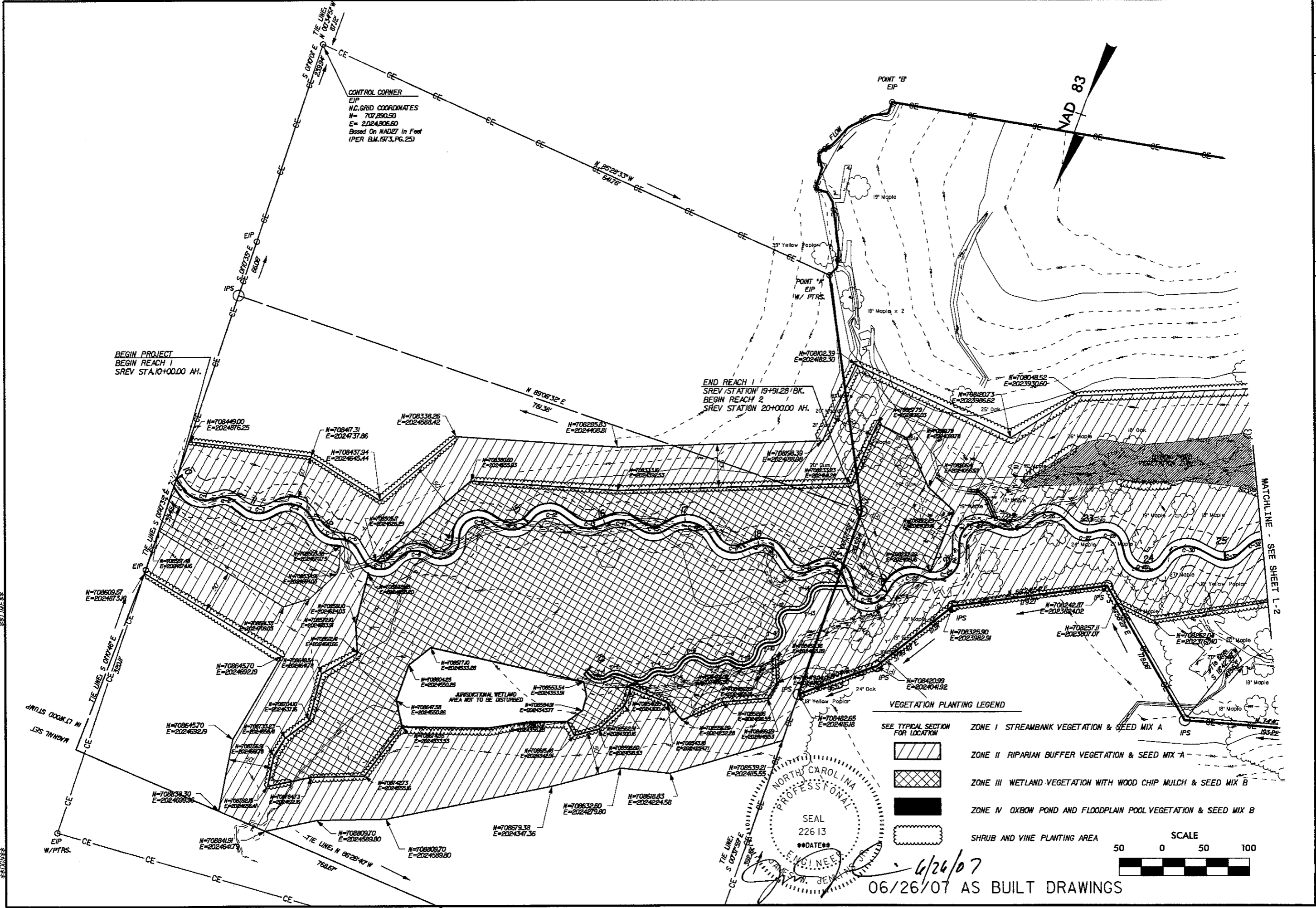
**06/26/07 AS BUILT DRAWINGS**

6/26/2007  
 Russell Johnson  
 6535 2nd Street  
 Raleigh, NC 27607  
 919.854.6200

DATE	02/11/2005
PROJECT NO	53257
SCO ID#	0005299-01A
FILENAME	
SHEET NO	C-7
DRAWN BY	CRB
ISSUED FOR BIDS	
REVISIONS	
NO	
DATE	
CHK	
DATE	

**EARTHTECH**  
 701 Corporate Center Drive, Suite #475, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

**GENERAL DETAILS**  
 LITTLE BEAVER CREEK STREAM RESTORATION  
 WAKE COUNTY  
 ECOSYSTEM ENHANCEMENT PROGRAM



ISSUED FOR BIDS	NO
REVISIONS	NO
DATE	02/11/2005

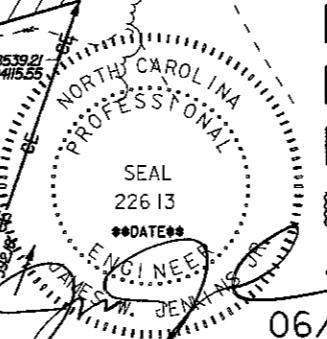
**EARTHTECH**

701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

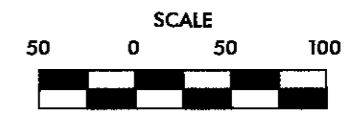
**VEGETATION PLAN**

LITTLE BEAVER CREEK STREAM RESTORATION  
 WAKE COUNTY  
 ECOSYSTEM ENHANCEMENT PROGRAM

DATE: 02/11/2005  
 PROJECT NO: 53257  
 SCO ID: 0005299-01A  
 FILENAME:  
 SHEET NO: L-1  
 DRAWN BY: CRB

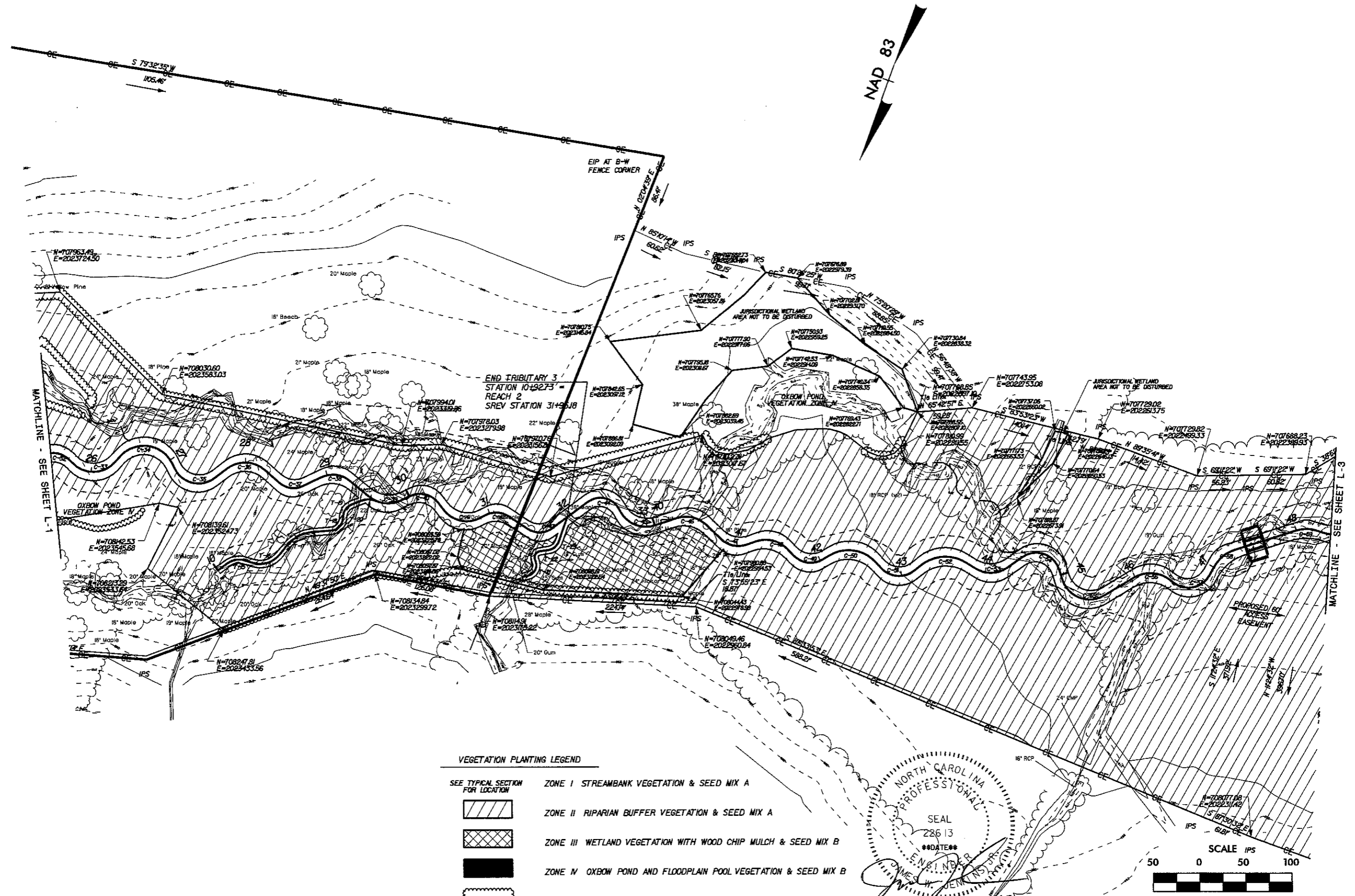


- VEGETATION PLANTING LEGEND**
- SEE TYPICAL SECTION FOR LOCATION
- ZONE I STREAMBANK VEGETATION & SEED MIX A
  - ZONE II RIPARIAN BUFFER VEGETATION & SEED MIX A
  - ZONE III WETLAND VEGETATION WITH WOOD CHIP MULCH & SEED MIX B
  - ZONE IV OXBOW POND AND FLOODPLAIN POOL VEGETATION & SEED MIX B
  - SHRUB AND VINE PLANTING AREA



6/26/07  
 06/26/07 AS BUILT DRAWINGS

DATE: 02/11/2005  
PROJECT NO: 53257  
SCO ID: 0005299-01A  
FILENAME: L-2  
DRAWN BY: CRB



**VEGETATION PLANTING LEGEND**

SEE TYPICAL SECTION FOR LOCATION		ZONE I STREAMBANK VEGETATION & SEED MIX A
		ZONE II RIPARIAN BUFFER VEGETATION & SEED MIX A
		ZONE III WETLAND VEGETATION WITH WOOD CHIP MULCH & SEED MIX B
		ZONE IV OXBOW POND AND FLOODPLAIN POOL VEGETATION & SEED MIX B
		SHRUB AND VINE PLANTING AREA

ISSUED FOR BIDS					
NO.				REVISED	DATE

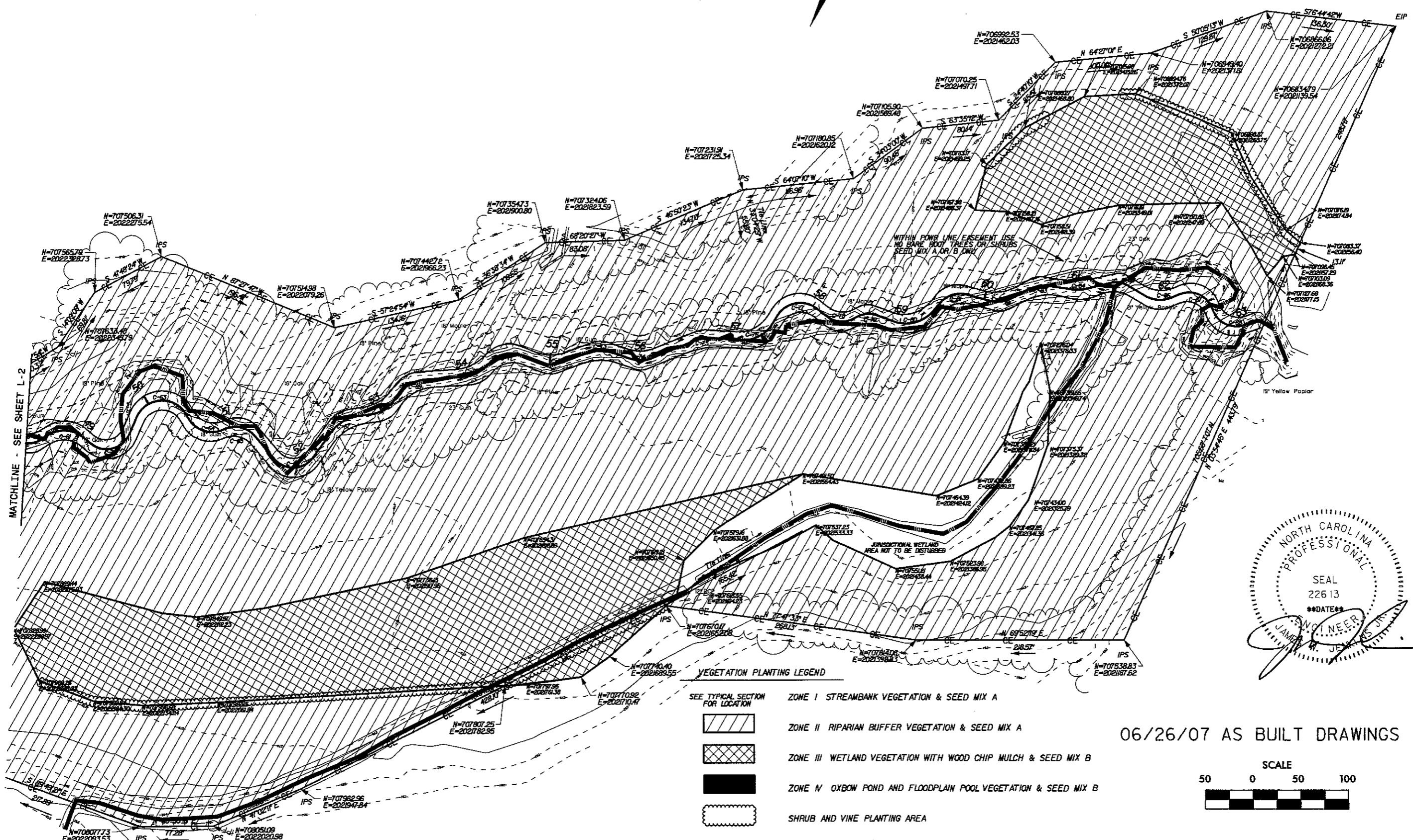
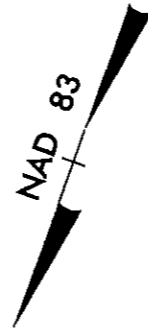
**EARTHTECH**

701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
WAKE COUNTY  
ECOSYSTEM ENHANCEMENT PROGRAM

**VEGETATION PLAN**

DATE	02/11/2005
PROJECT NO	53257
SCO ID	0005299-01A
FILENAME	
SHEET NO	L-2
DRAWN BY	CRB



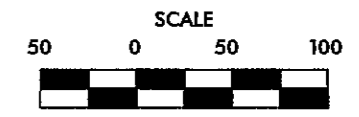
MATCHLINE - SEE SHEET L-2

DATE: 06/26/07

DATE: 06/26/07



06/26/07 AS BUILT DRAWINGS



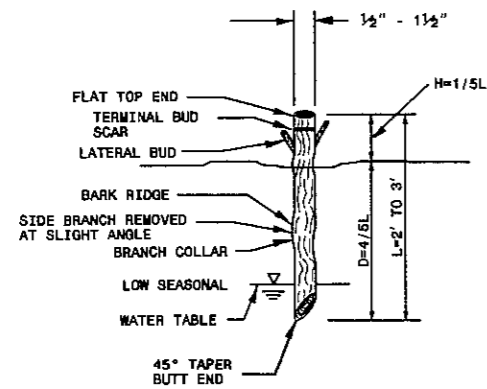
ISSUED FOR BIDS	NO
REVISIONS	
DATE	
CHK	
CRB	

**EARTHTECH**  
 701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

LITTLE BEAVER CREEK STREAM RESTORATION  
 WAKE COUNTY  
 ECOSYSTEM ENHANCEMENT PROGRAM

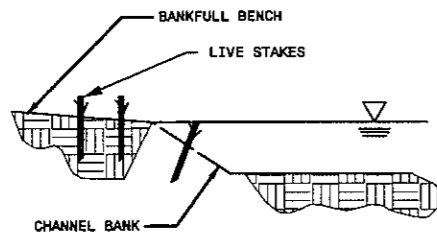
**VEGETATION PLAN**

DATE: 02/11/2005  
 PROJECT NO: 53257  
 SCO ID: 0005299-01A  
 FILENAME:  
 SHEET NO: L-3  
 DRAWN BY: CRB



**NOTES:**

1. ALL LATERAL BRANCHES SHALL BE TRIMMED TO AVOID DAMAGE TO THE BARK RIDGE AND BRANCH COLLAR.
2. A MINIMUM OF TWO BUDS (ONE LATERAL PLUS ONE TERMINAL OR TWO TERMINAL) SHALL BE ABOVE THE PLANTING DEPTH.

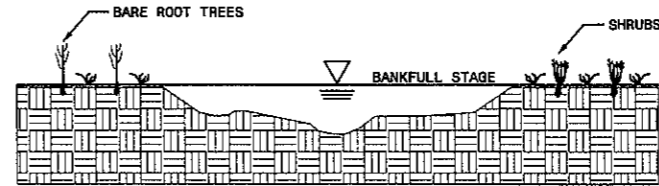


**LIVE STAKE**

SCALE: NTS

**NOTES:**

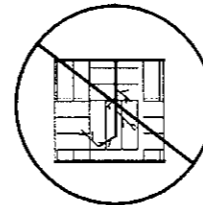
1. HOLE MUST BE LARGE ENOUGH SO THAT J-ROOTING DOES NOT OCCUR.
2. TREES AND SHRUBS WILL BE INSTALLED ABOVE BANKFULL ELEVATION.



**INSTALLATION OF BARE ROOT TREES AND SHRUBS**

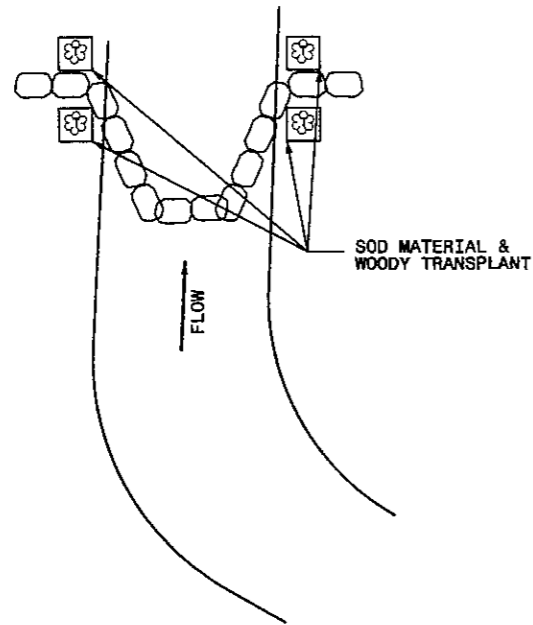
BARE ROOT TREES AND SHRUBS SHALL BE INSTALLED IN DESIGNATED AREAS ALONG THE STREAMBANK AS DIRECTED BY THE SPECIFICATIONS. SOIL IN THE AREA OF SHRUB AND TREE PLANTINGS SHALL BE LOOSENEED TO A DEPTH OF AT LEAST 5 INCHES. THIS IS NECESSARY ONLY ON COMPACTED SOIL. BARE ROOT VEGETATION MAY BE PLANTED IN HOLES MADE BY A SHOVEL, AUGER, OR OTHER MEANS APPROVED BY THE DESIGNER. ROOT STOCK SHALL BE PLANTED IN A VERTICAL POSITION WITH THE ROOT COLLAR APPROXIMATELY 0.5 INCHES BELOW THE SOIL SURFACE. THE PLANTING TRENCH OR HOLE SHALL BE DEEP AND WIDE ENOUGH TO PERMIT THE ROOTS TO SPREAD OUT AND DOWN WITHOUT J-ROOTING. THE PLANT STEM SHALL REMAIN UPRIGHT. SOIL SHALL BE REPLACED AROUND THE TRANSPLANTED VEGETATION AND TAMPED AROUND THE SHRUB OR TREE FIRMLY TO ELIMINATE AIR POCKETS.

**NO J-ROOTING**

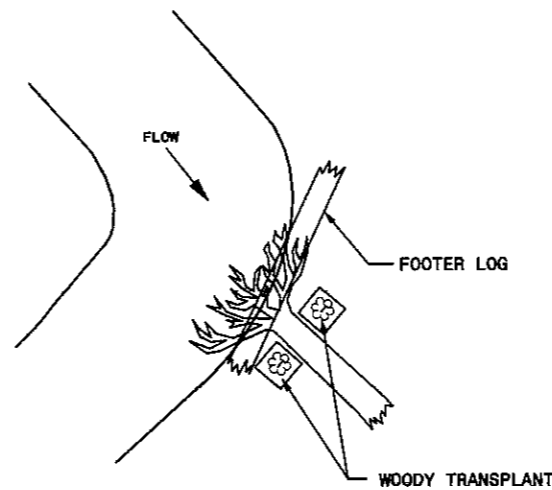


**BARE ROOT TREE AND SHRUB VEGETATION**

SCALE: NTS



**ROCK & LOG CROSS VANE**  
NTS



**ROOT WAD**  
NTS

**INSTRUCTIONS**

SHRUB TRANSPLANTS OR LIVE STAKES SHALL BE INSTALLED WHEREVER A STONE OR LOG STABILIZING STRUCTURE INTERSECTS THE STREAMBANK.

WOODY TRANSPLANTS MAY BE INSTALLED IN PLACE OF LIVE STAKES AS AVAILABLE ON THE ROCK SILLS JUST ABOVE BANKFULL ELEVATION. TRANSPLANTS SHALL BE EXCAVATED AS A SINGLE UNIT.

SHRUB TRANSPLANTS SUBSTITUTE FOR BARE ROOT, CONTAINER SHRUB AND LIVE STAKE INSTALLATION IN AREAS WHERE THEY ARE INSTALLED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO SALVAGE TRANSPLANTS.

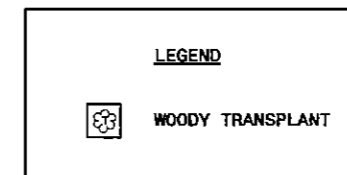
ONLY NATIVE MATERIALS SHALL BE USED FOR TRANSPLANTS.

PRIOR TO PLANTING TREE AND SHRUB TRANSPLANTS IN AREAS OF COMPACTED SUBSTRATE, THE SOIL SHALL BE LOOSENEED TO A DEPTH OF AT LEAST 1 FOOT. TRANSPLANTS SHALL BE TO THE SAME DEPTH THEY WERE ORIGINALLY GROWN. THE PLANTING TRENCH OR HOLE SHALL BE DEEP AND WIDE ENOUGH TO PERMIT THE ROOTS TO SPREAD OUT AND DOWN WITHOUT J-ROOTING.

06/26/07 AS BUILT DRAWINGS

**TRANSPLANT PLACEMENT BY STRUCTURE TYPE**

SCALE: NTS



6/26/2007  
 P:\Users\jrbour\My Documents\Drawings\53257-VEG-DTL\062607.DWG  
 53257-VEG-DTL\062607.DWG

DATE	02/11/2005
PROJECT NO	53257
SCO ID#	0005299-DIA
FILENAME	
SHEET NO	L-4
DRAWN BY	CRB

ISSUED FOR BIDS	NO
REVISIONS	
DATE	
CHK	

<b>EARTHTECH</b>	
701 Corporate Center Drive, Suite #475, Raleigh, NC 27607	
Phone: (919) 854-6200 Fax: (919) 854-6259	

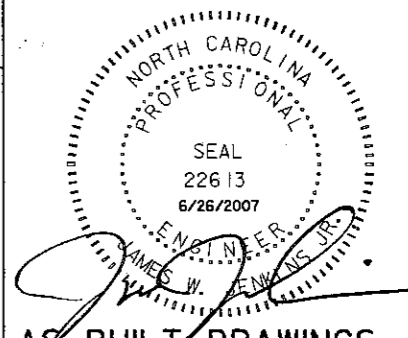
  

LITTLE BEAVER CREEK STREAM RESTORATION	
WAKE COUNTY ECOSYSTEM ENHANCEMENT PROGRAM	
VEGETATION DETAILS	

PLANTING SCHEDULE

		KEY	SCIENTIFIC NAME	COMMON NAME	LIVE STAKE	BARE ROOT	CONTAINER	SEED %	REMARKS	
ZONE I	STREAMBANK VEGETATION	LIVE STAKES	SC	<i>Sambucus canadensis</i>	Elderberry	1420			One stake per 3 linear feet in two offset rows spaced one foot apart. Also upstream and downstream of rootwads and rock structures.	
			CA	<i>Cornus amomum</i>	Silky dogwood	1420				
			SN	<i>Salix nigra</i>	Black Willow	710				
ZONE II	RIPARIAN BUFFER	TREES	FPE	<i>Fraxinus pennsylvanica</i>	Green ash		548		Bare-root seedlings randomly placed on 10-foot centers. Use polymer-based root dip prior to planting.	
			QN	<i>Quercus nigra</i>	Water oak		550			
			QP	<i>Quercus phellos</i>	Willow oak		550			
			QRA	<i>Quercus rubra</i>	Northern red oak		548			
			ABB	<i>Acer barbatum</i>	Southern sugar maple		548			
			JGN	<i>Juglans nigra</i>	Black walnut		548			
			NYS	<i>Nyssa sylvatica</i>	Blackgum		548			
			CCL	<i>Carpinus caroliniana</i>	Ironwood		1152			
			HTT	<i>Halesia tetraptera</i>	Silverbell		1152			
			HVI	<i>Hamamelis virginiana</i>	Witch hazel		1152			
			CFL	<i>Cornus florida</i>	Flowering dogwood		1152			
			CGL	<i>Carya glabra</i>	Pignut hickory		1152			
			ASY	<i>Aesculus sylvatica</i>	Buckeye			250		Place in non-linear arrangement between bare-root trees in same species groups of 3, 5, or 7 on 3-foot centers. Place only along outer edge of Zone II as shown on plans.
			CYA	<i>Corylus americana</i>	Hazelnut			250		
EYA	<i>Euonymus americana</i>	Strawberry bush			250					
LSP	<i>Lonicera sempervirens</i>	Coral honeysuckle			250					
ZONE III	WETLANDS	TREES	QM	<i>Quercus michauxii</i>	Swamp chestnut oak		220		Bare-root seedlings randomly placed on 10-foot centers. Use polymer-based root dip prior to planting.	
			QL	<i>Quercus lyrata</i>	Overcup oak		220			
			QN	<i>Quercus nigra</i>	Water oak		220			
			QP	<i>Quercus phellos</i>	Willow oak		220			
			FPE	<i>Fraxinus pennsylvanica</i>	Green ash		440			
			CC	<i>Carpinus caroliniana</i>	Ironwood		440			
		AT	<i>Asimina triloba</i>	Paw-paw		440				
		LB	<i>Lindera benzoin</i>	Spicebush			215	Place between bare-root trees in same species groups of 3, 5, or 7 on 3-foot centers. Place only along outer edge of Zone III as shown on plans.		
		GS	<i>Gelsemium sempervirens</i>	Yellow jasmine			215			
		VN	<i>Viburnum nudum</i>	Wild raisin			215			
IV	<i>Ilex verticillata</i>	Winterberry			215					
ZONE IV	OXBOW FLOODPLAIN POOLS	SHRUBS	CCC	<i>Cephalanthus occidentalis</i>	Buttonbush			100	Place along outer edge of floodplain pools in same species groups of 3, 5, or 7 on 3-foot centers as shown on plans.	
			CA	<i>Cornus amomum</i>	Silky dogwood			100		
ZONE I & II	SEED MIX A	CCR	<i>Carex crinita</i>	Fringed sedge				20	Apply at 15 lbs/acre in Zones I and II.	
		CL	<i>Carex lurida</i>	Hop sedge				15		
		CLA	<i>Chasmanthium latifolium</i>	River oats				15		
		CSS	<i>Chasmanthium sessiliflorum</i>	Longleaf spikegrass				15		
		JE	<i>Juncus effusus</i>	Soft rush				20		
		LE	<i>Luzula echinata</i>	Wood rush				15		
ZONES III & IV	SEED MIX B	CD	<i>Carex debilis</i>	White-edge sedge				11	Apply at 15 lbs/acre in Zones III and IV.	
		CCR	<i>Carex crinita</i>	Fringed sedge				11		
		CL	<i>Carex lurida</i>	Hop sedge				11		
		CI	<i>Carex intumescens</i>	Bladder sedge				11		
		CS	<i>Carex squarrosa</i>	Sedge				11		
		DAD	<i>Dulichium arundinaceum</i>	Three-way sedge				11		
		JE	<i>Juncus effusus</i>	Soft rush				12		
		JC	<i>Juncus coriaceous</i>	Rush				11		
		SC	<i>Saururus cernuus</i>	Lizard's Tail				11		
		ZONE I & II	ADDITIONAL SPECIES FOR SALVAGE		<i>Arisaema triphyllum</i>	Jack-in-the-pulpit				
	<i>Trillium cuneatum</i>			Trillium						
	<i>Asplenium platyneuron</i>			Ebony spleenwort						
	<i>Botrychium virginianum</i>			Rattlesnake fern						
	<i>Polystichum acrostichoides</i>			Christmas fern						
	<i>Scutellaria integrifolia</i>			Skullcap						
	<i>Woodwardia areolata</i>			Netted chain-fern						
	<i>Onoclea sensibilis</i>			Sensitive fern						
	<i>Osmunda regalis</i>			Royal fern						
	<i>Osmunda cinnamomea</i>			Cinnamon fern						

06/26/07 AS BUILT DRAWINGS



6/26/2007  
 6:25:27 AM  
 C:\Users\pbrbour\Documents\Projects\53257\_VEG\_DET.dwg  
 35 24

DATE	02/11/2005
PROJECT NO	53257
SCO ID	0005299-01A
FILENAME	
SHEET NO	L-5
DRAWN BY	CRB

ISSUED FOR BIDS

REVISIONS

NO

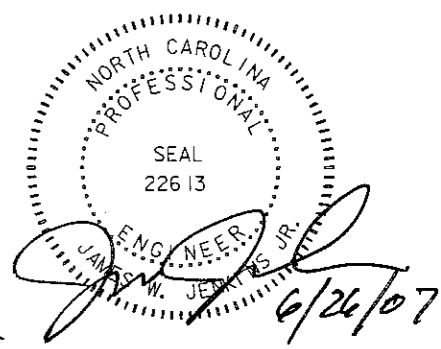
701 Corporate Center Drive, Suite 475, Raleigh, NC 27607  
 Phone: (919) 854-6200 Fax: (919) 854-6259

VEGETATION DETAILS

INDEX OF CROSS SECTIONS

SREV (REACH 1)	X-02 THRU X-08
SREV (REACH 2)	X-09 THRU X-16
SREV (REACH 3)	X-17 THRU X-32
TRIBUTARY 1	X-33 THRU X-36
TRIBUTARY 2	X-37 THRU X-38
TRIBUTARY 3	X-39 THRU X-40

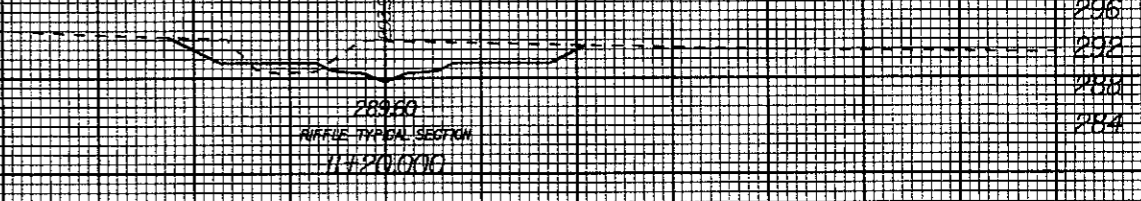
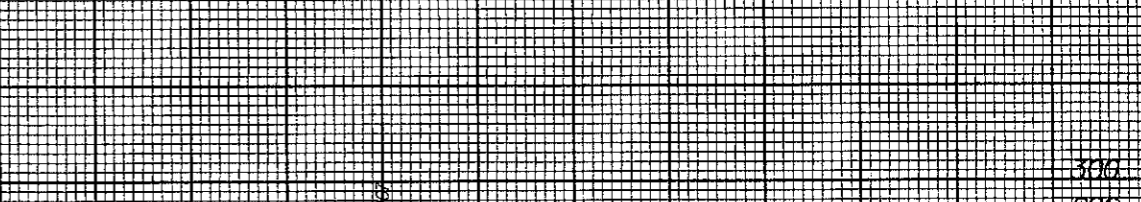
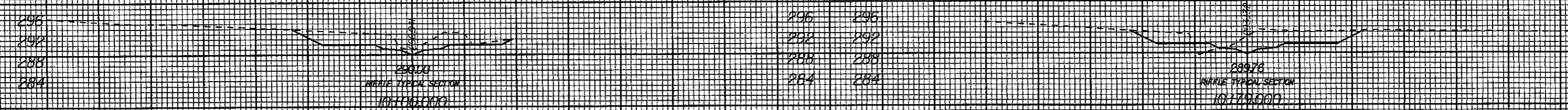
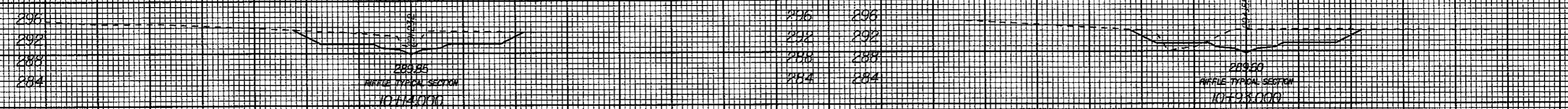
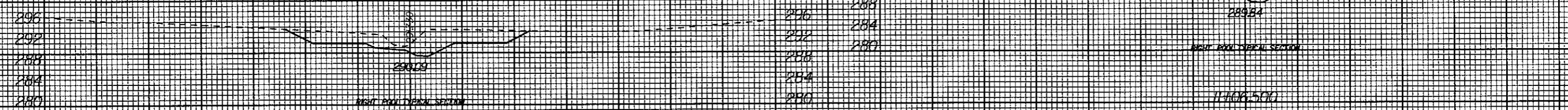
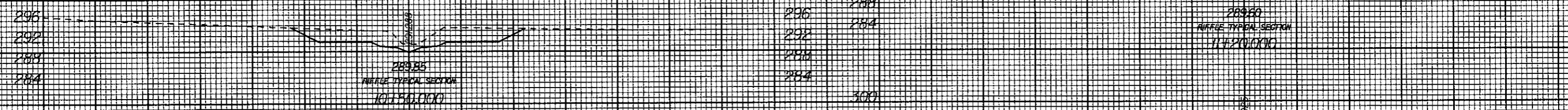
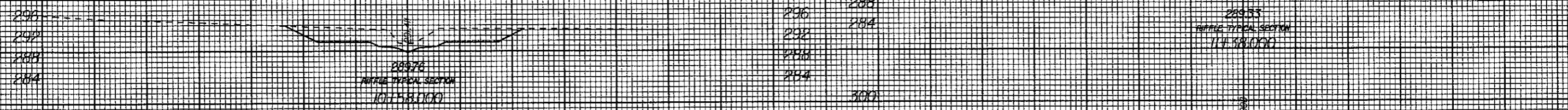
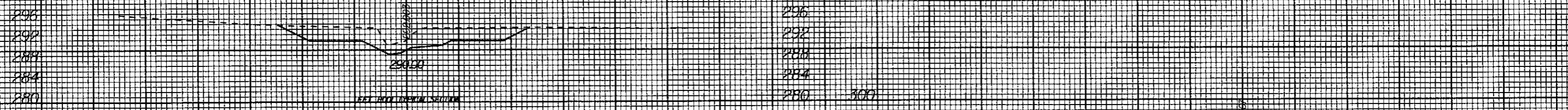
8/23/99  
i:05:56 PM  
K:\53257\Const Admin\Phil DuBoise SCOVAs Built Drawings\53257arevl.xpl.dgn  
russoi,berdair



06/26/07 AS BUILT DRAWINGS

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



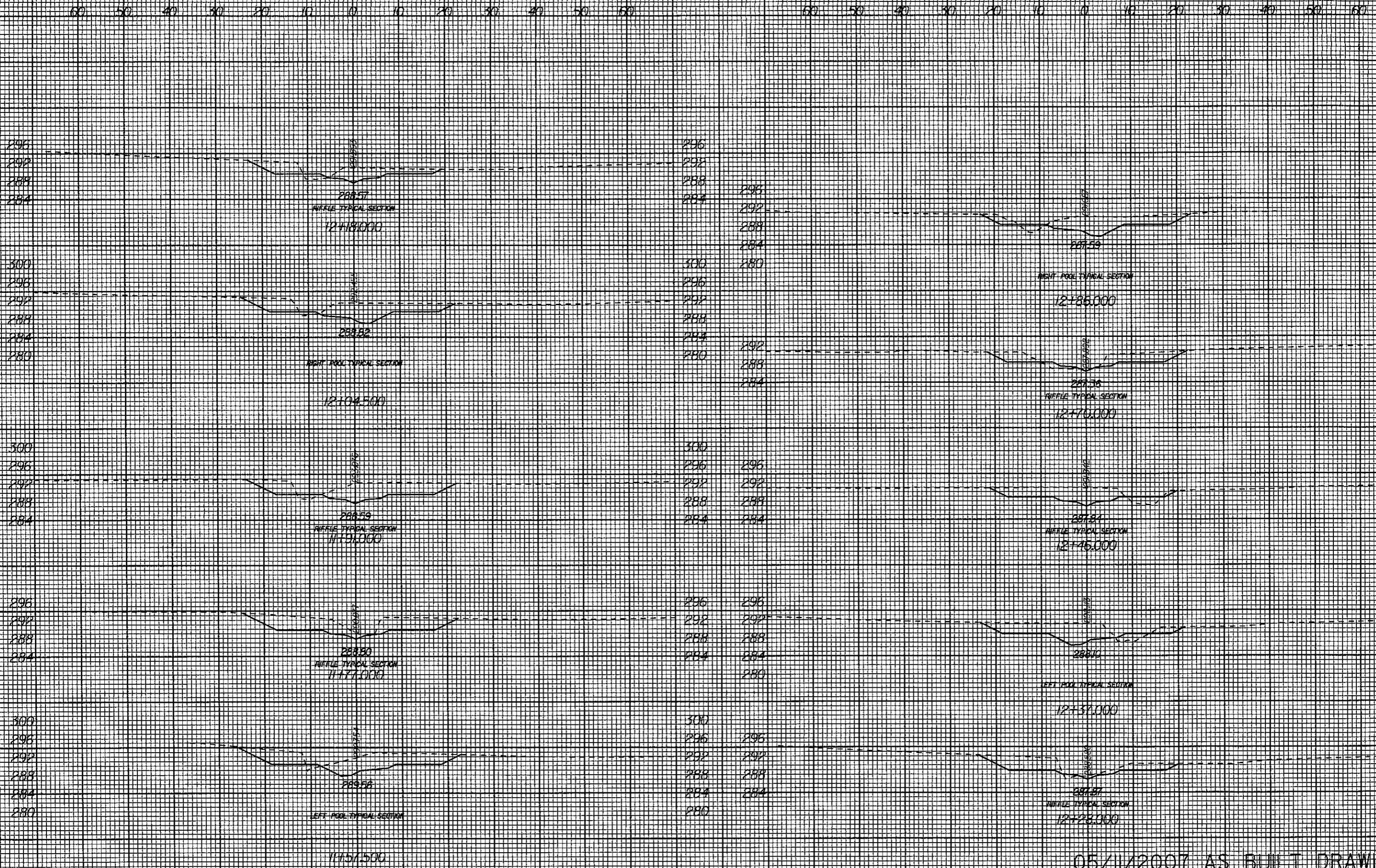
05/11/2007 AS BUILT DRAWINGS

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

H:\07 PM\Const Admin\Ph1 DuBoise SC0\As Bult Drawings\53257\rev1.xpl.dgn



8/23/99

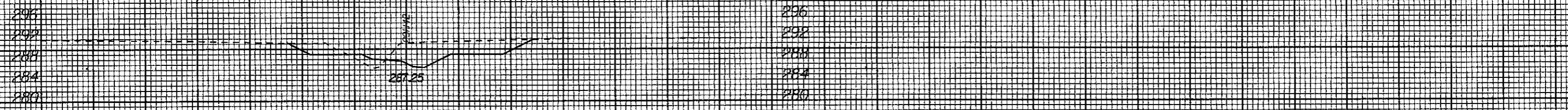


K:\53257\Const Admin\Phil DuBose SC0\As Built Drawings\53257\rev1.xpl.dgn  
russel.barbour

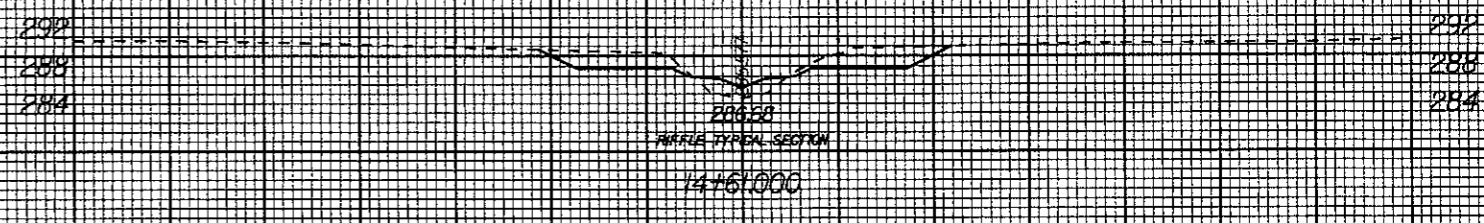
05/11/2007 AS BUILT DRAWINGS

8/23/99

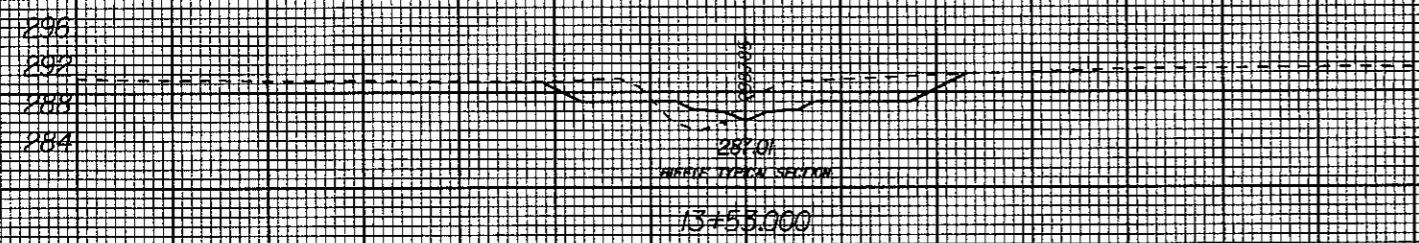
60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



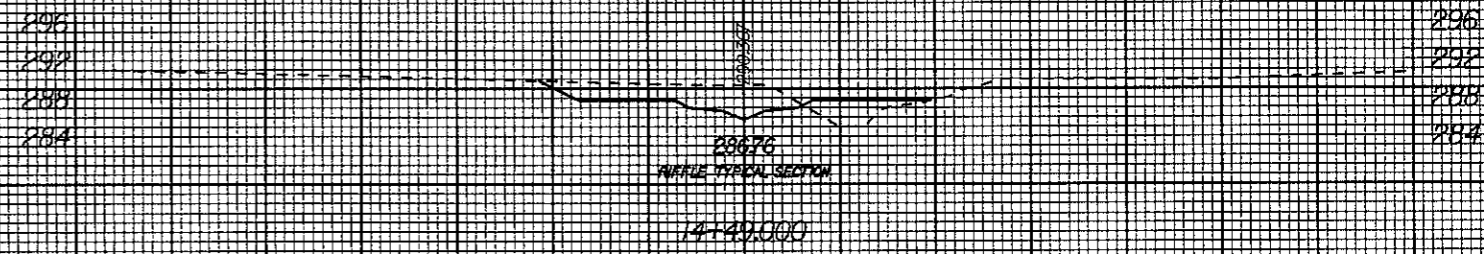
RIGHT POOL TYPICAL SECTION  
13+72.500



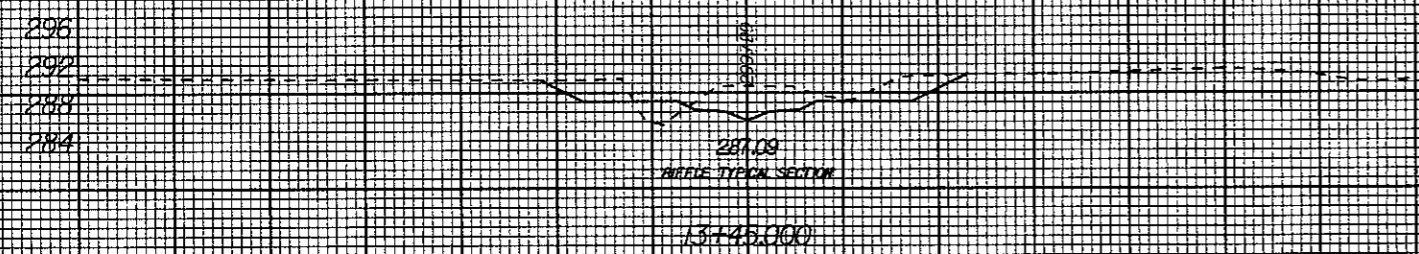
AIRFILE TYPICAL SECTION  
14+61.000



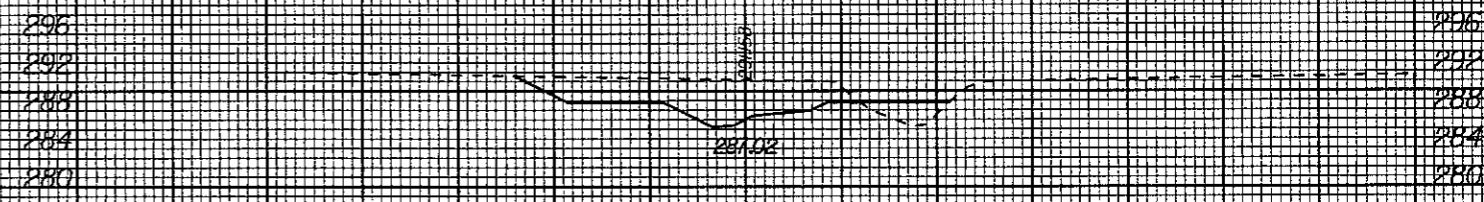
AIRFILE TYPICAL SECTION  
13+53.000



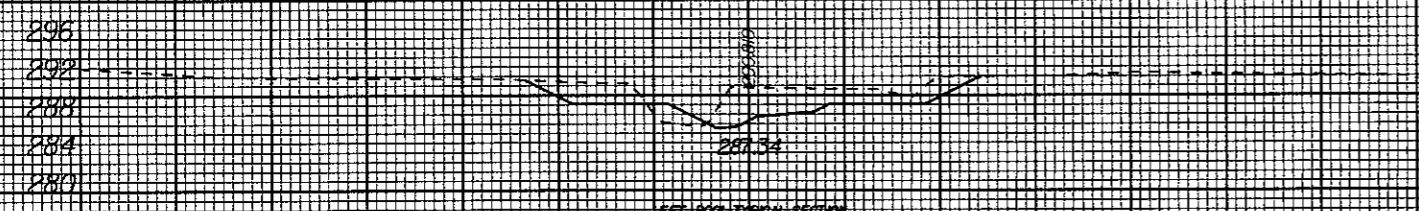
AIRFILE TYPICAL SECTION  
14+49.000



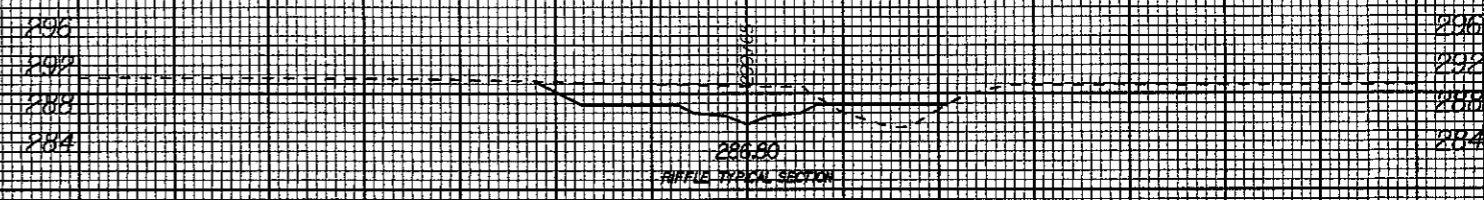
AIRFILE TYPICAL SECTION  
13+45.000



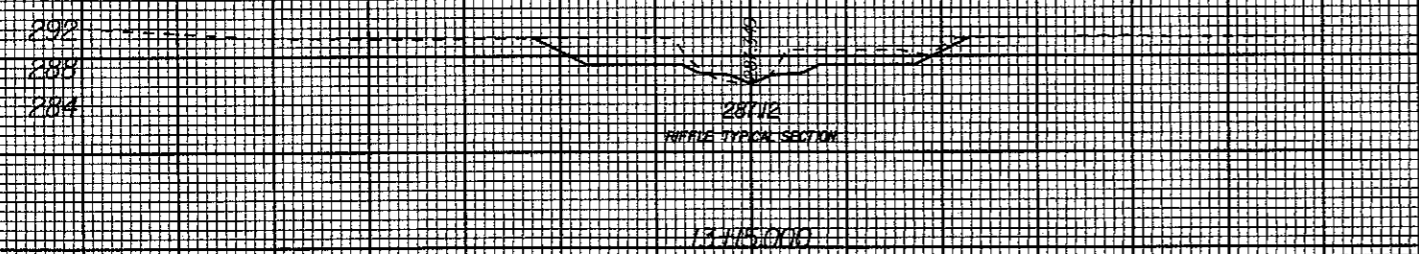
LEFT POOL TYPICAL SECTION  
14+21.000



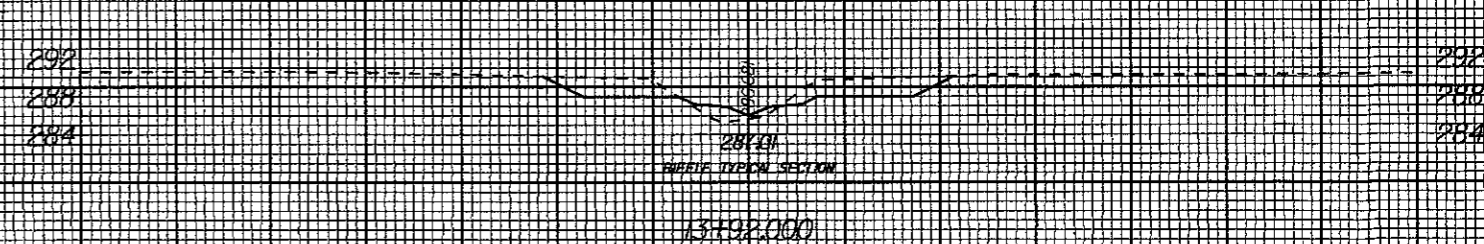
AIRFILE TYPICAL SECTION  
13+30.000



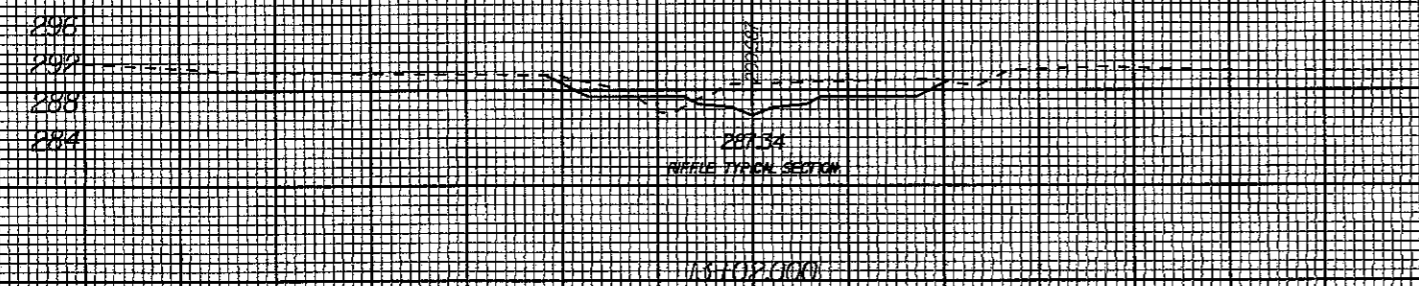
AIRFILE TYPICAL SECTION  
14+05.000



AIRFILE TYPICAL SECTION  
13+15.000



AIRFILE TYPICAL SECTION  
13+02.000



AIRFILE TYPICAL SECTION  
13+02.000

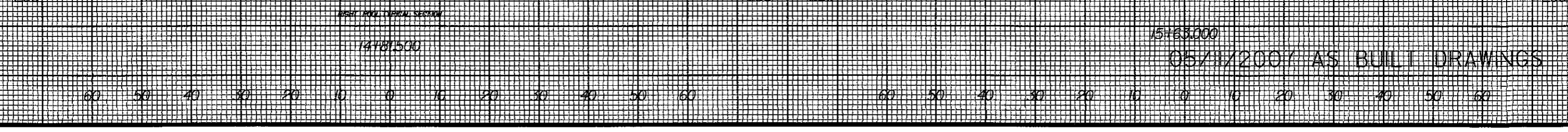
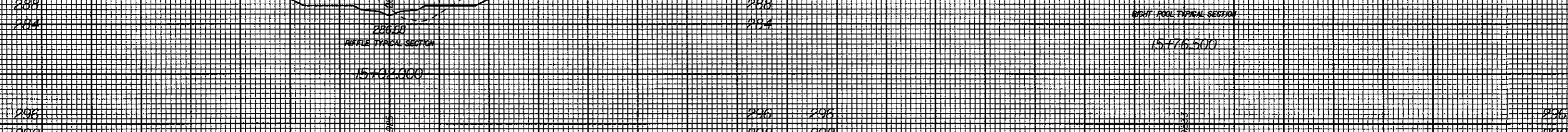
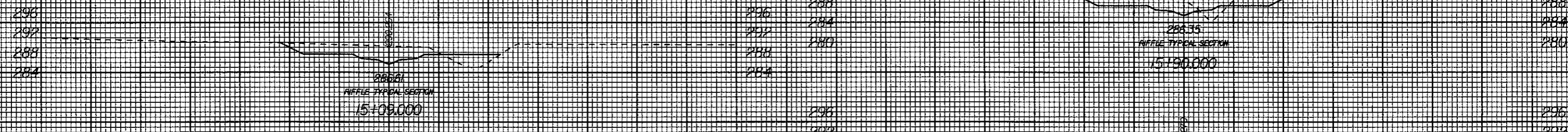
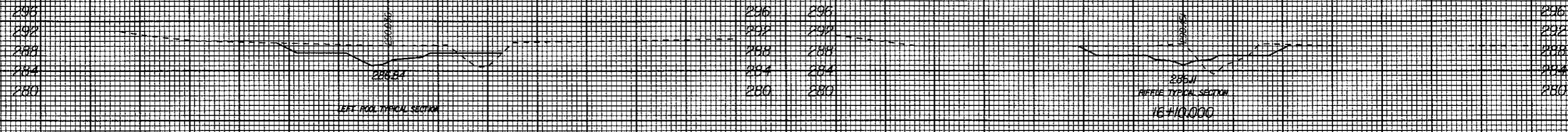
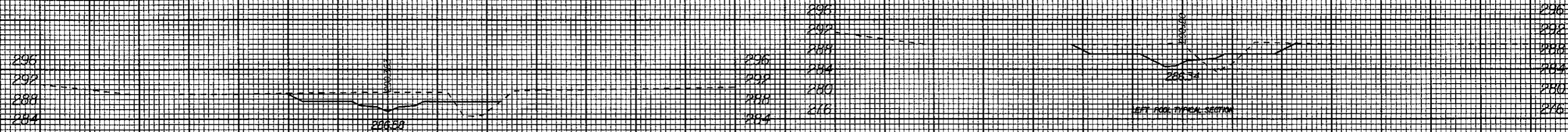
05/11/2007 AS BUILT DRAWINGS

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

H:\24 PM K:\53257\Const Admin\Phul DuBose SCU\As Built Drawings\53257\rev1.xpl.dgn  
 ruse,barbour

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

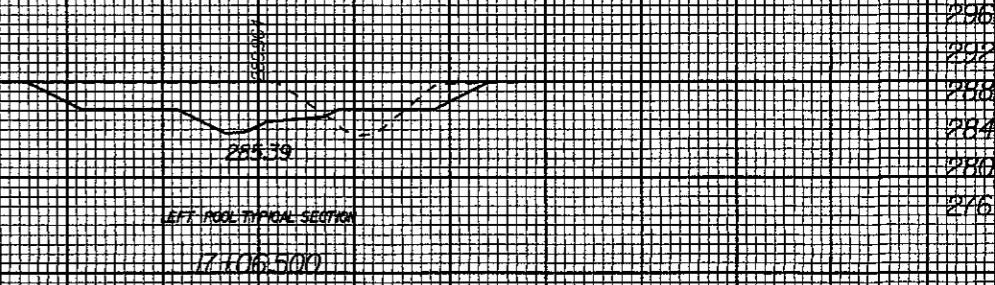
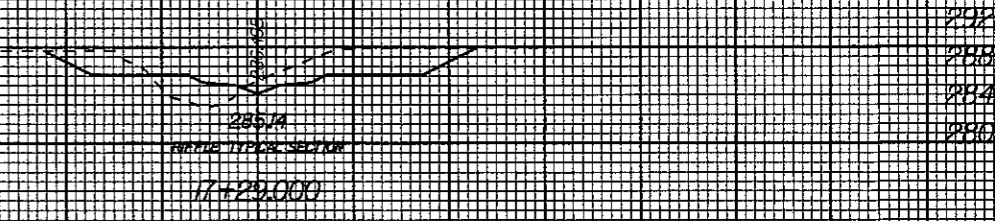
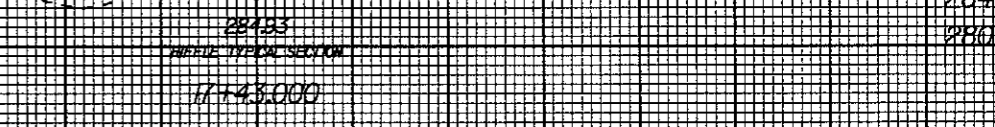
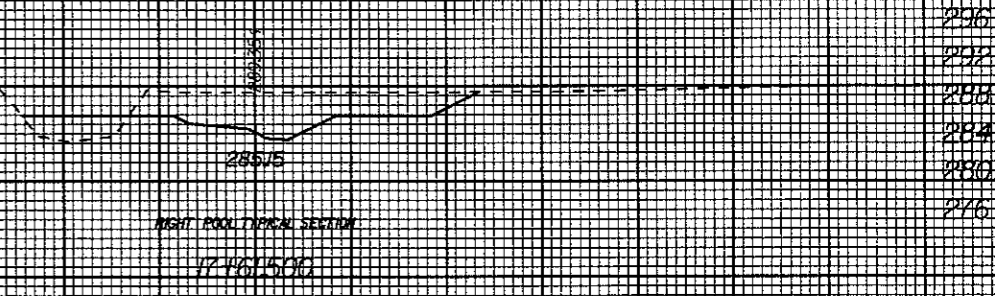
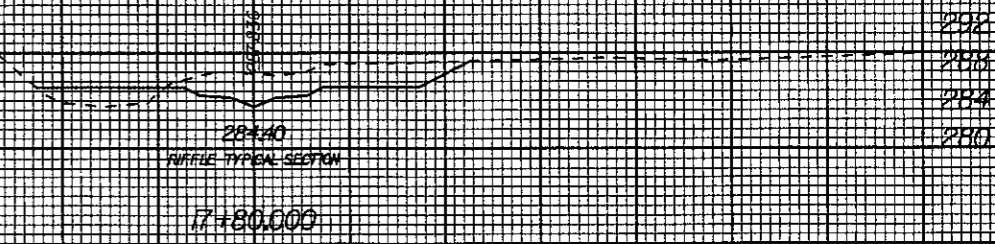
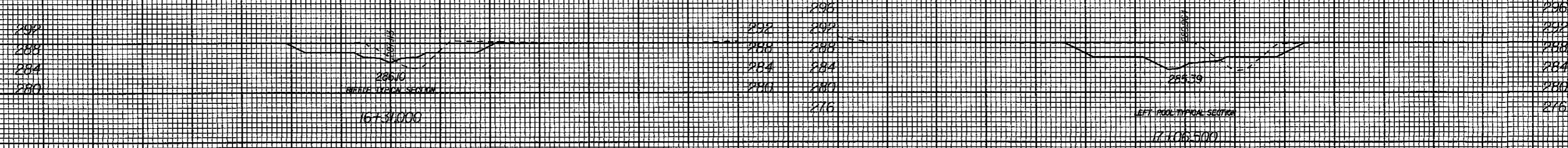
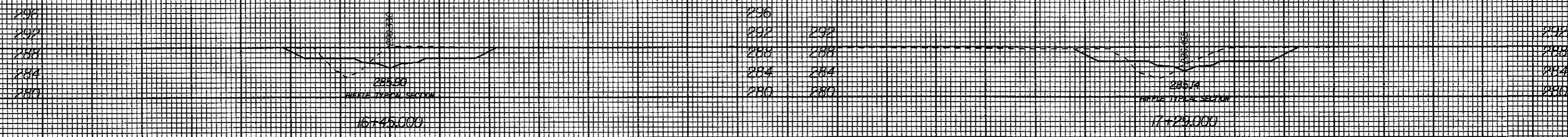
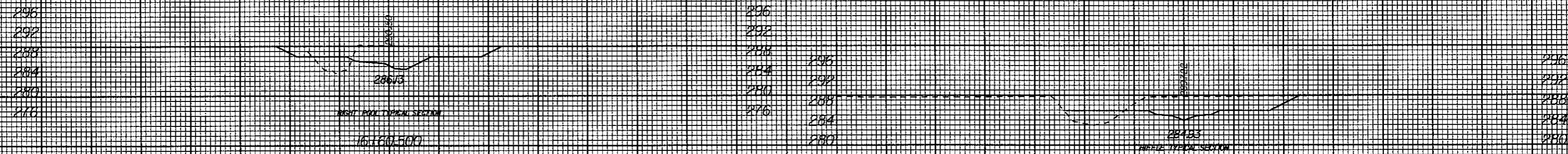
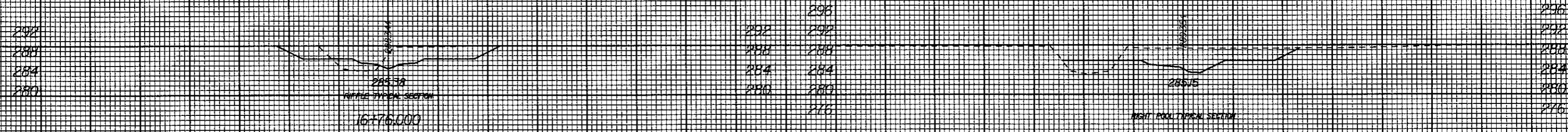
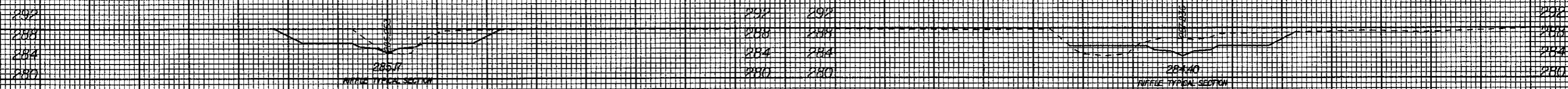


05/1/2007 AS BUILT DRAWINGS

10:33 PM K:\53257\Const Admin\Phil DuBois SCUVAs Built Drawings\53257srev1.xpl.dgn

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



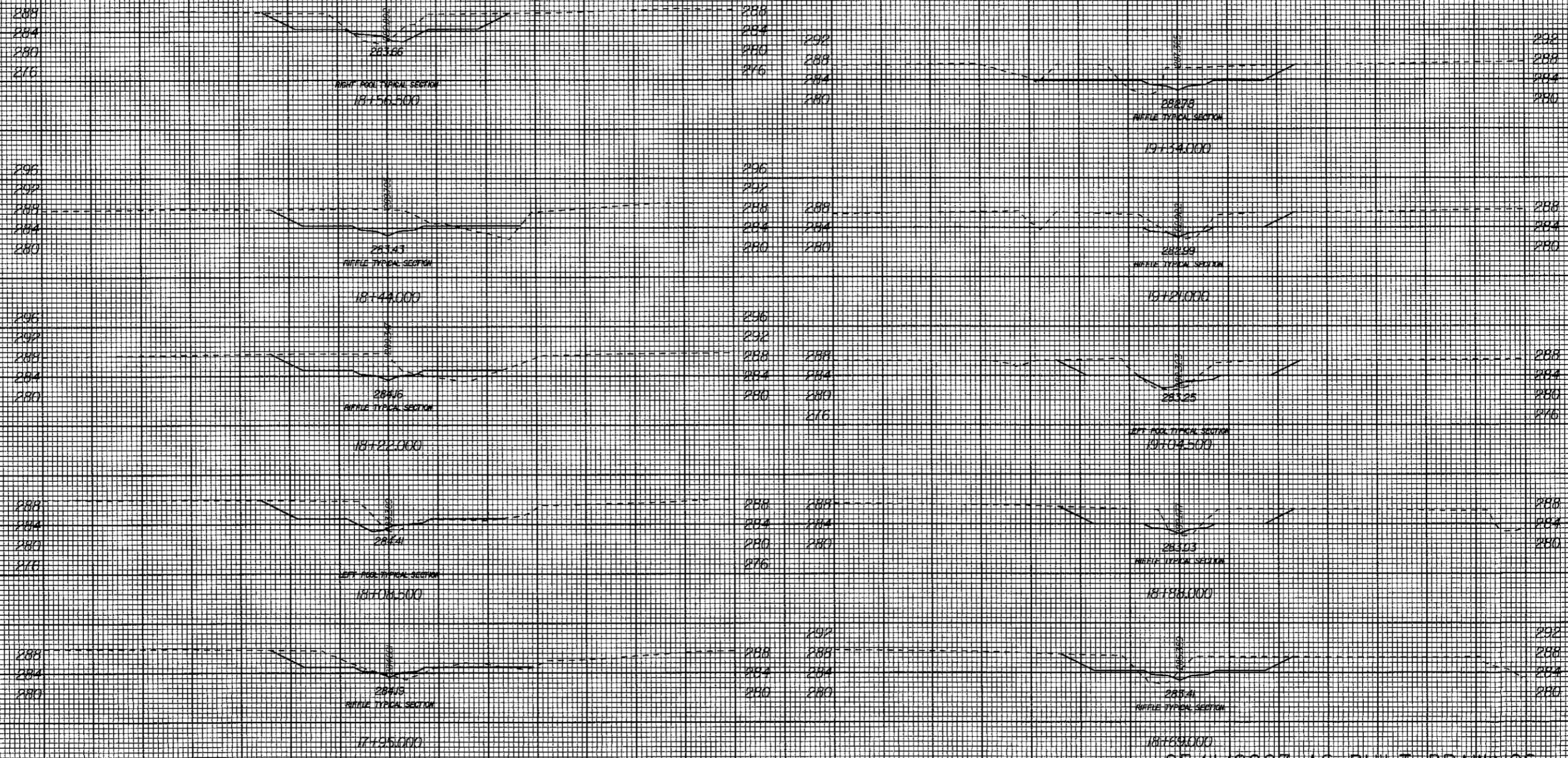
05/11/2007 AS BUILT DRAWINGS

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

i:\04\PM\K153257\Const Admin\Phil DuBose SCOVAs Built Drawings\53257\rev1.xpl.dgn

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



05/1/2007 AS BUILT DRAWINGS

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

10:50 PM K:\53257\Const Admin\Phil DuBose SC0\As Built Drawings\53257\sevl\_xpl.dgn  
 ruse.lbarbour

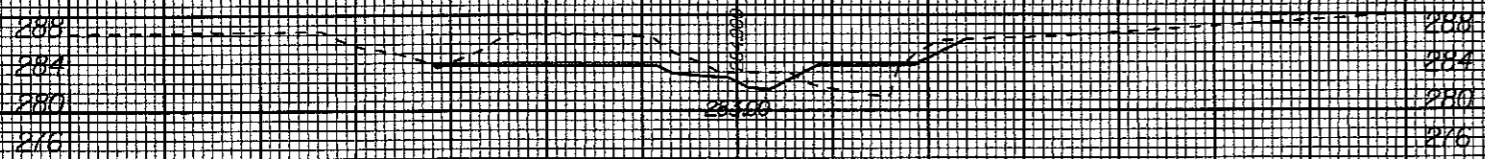
8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60



NATRE TYPICAL SECTION

191991000



NIGHT TIME TYPICAL SECTION

19162500

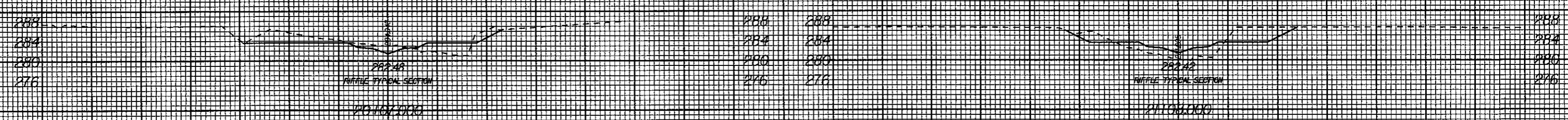
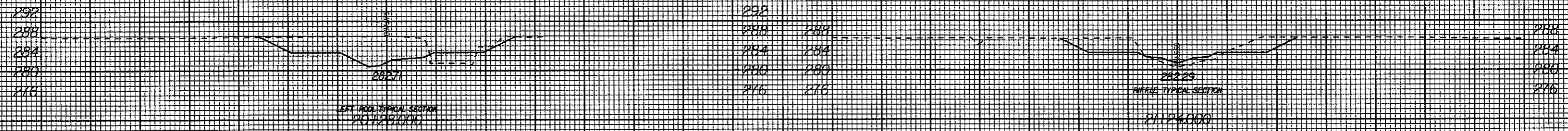
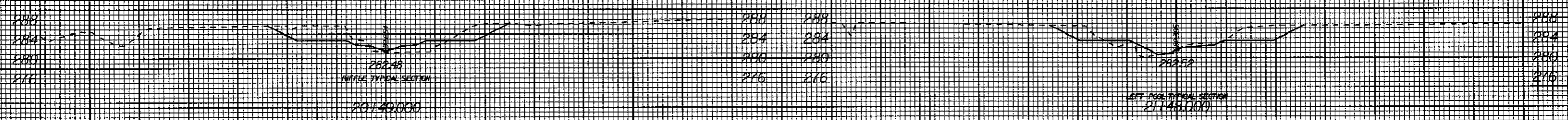
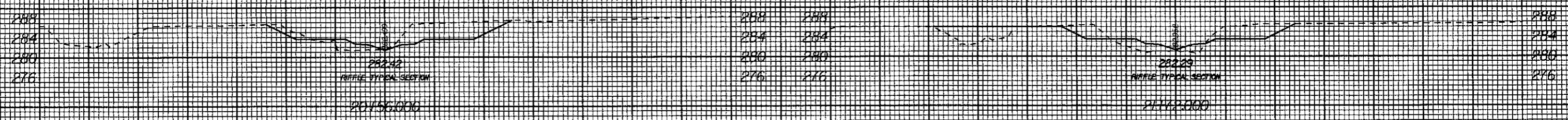
60 50 40 30 20 10 0 10 20 30 40 50 60

05/17/2007 AS BUILT DRAWINGS

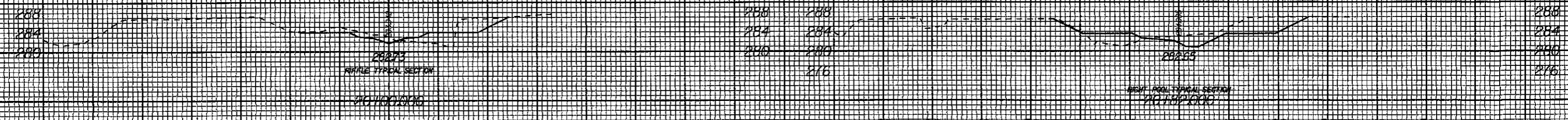
K:\5325\Const Admin\Phul DuBose 500\As Built Drawings\5325\sevi-xpl.dgn  
Russell, Barbara

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



06/26/07 AS BUILT DRAWINGS

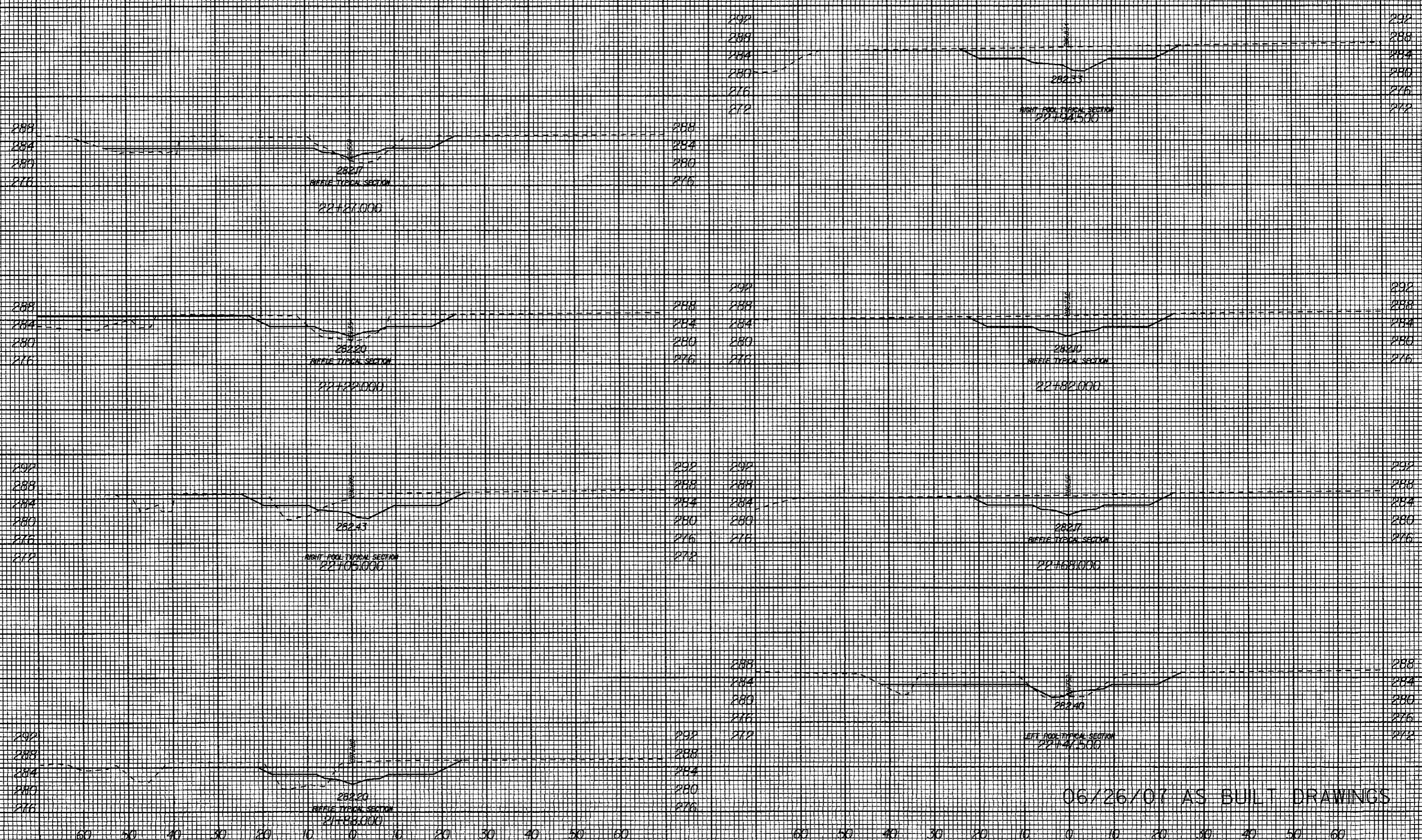


60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

H:\35 PM K:\53257 Const Admin\Phil DuBose SCD\As Built Drawings\53257\rev2\_xpl.dgn  
russej.barbour

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



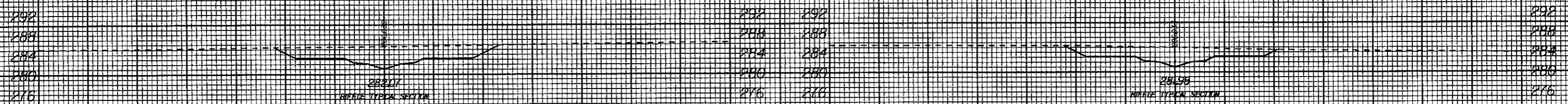
11:24:43 PM K:\53257\Const Admin\Phil DuBois SCVAs Built Drawings\53257+rev2+.xpl.dgn

06/26/07 AS BUILT DRAWINGS

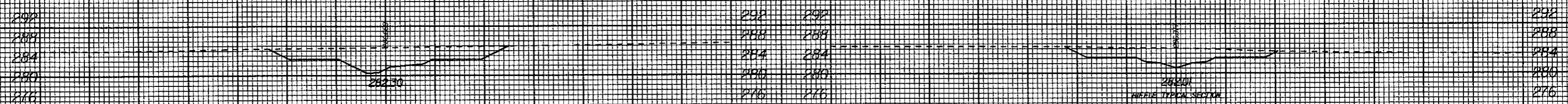


8/23/99

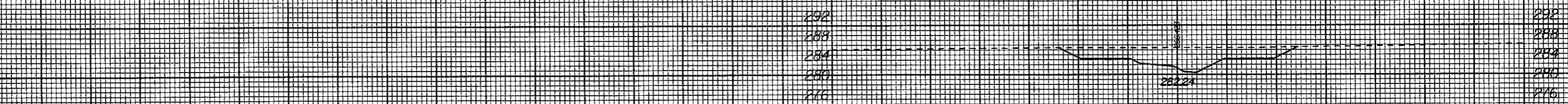
60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



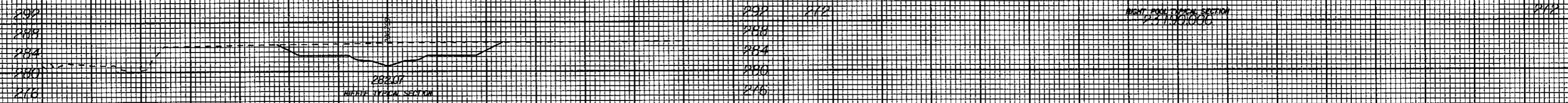
292 292  
288 288  
284 284  
280 280  
276 276



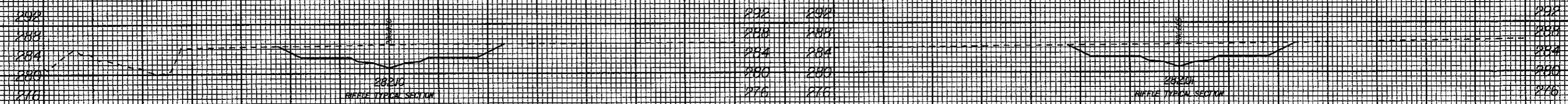
292 292  
288 288  
284 284  
280 280  
276 276  
272 272



292 292  
288 288  
284 284  
280 280  
276 276  
272 272



292 292  
288 288  
284 284  
280 280  
276 276



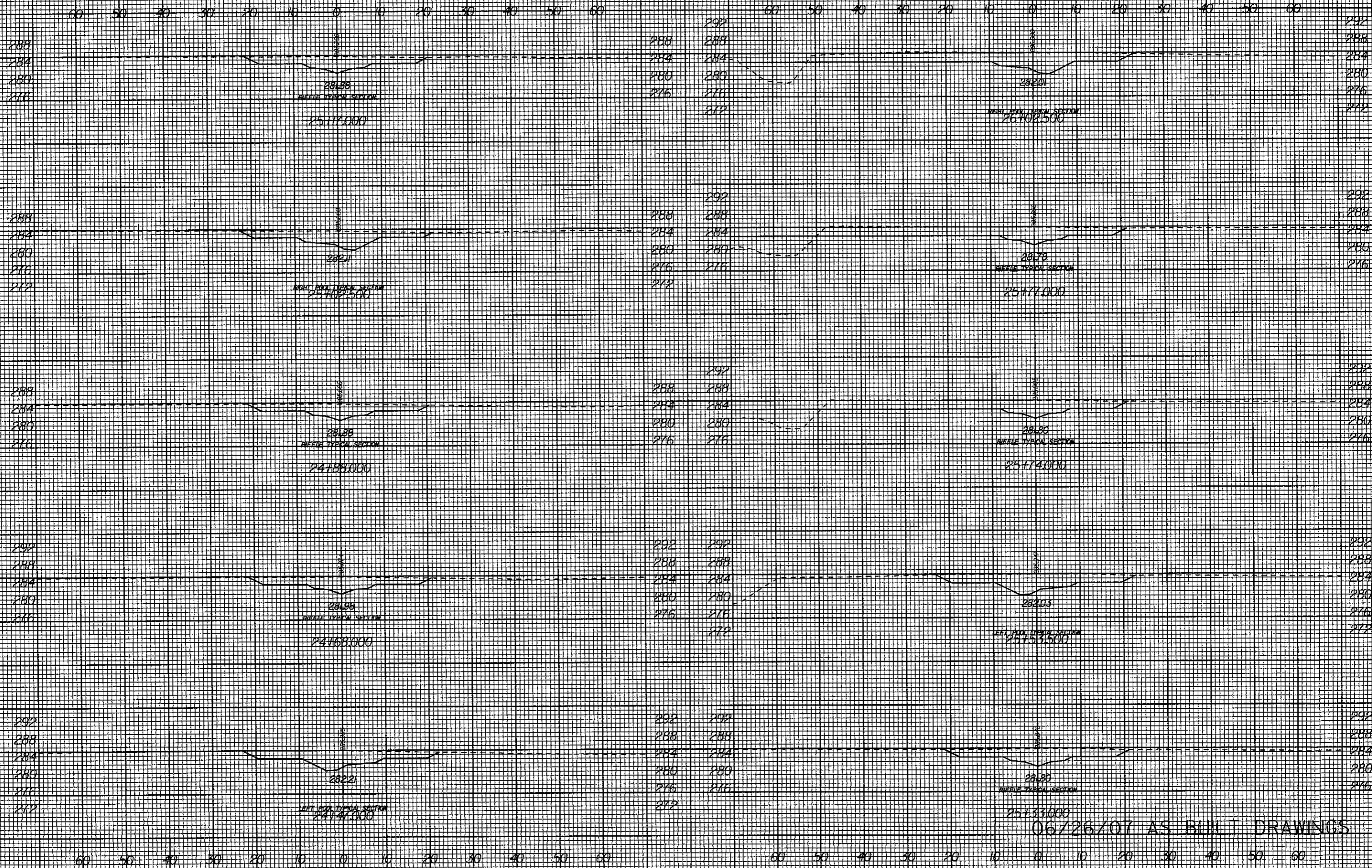
292 292  
288 288  
284 284  
280 280  
276 276

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

06/26/07 AS BUILT DRAWINGS

K:\53257\Const Admin\Ph1 DuBoise\SC0\As Built Drawings\53257\rev2.spl.dgn

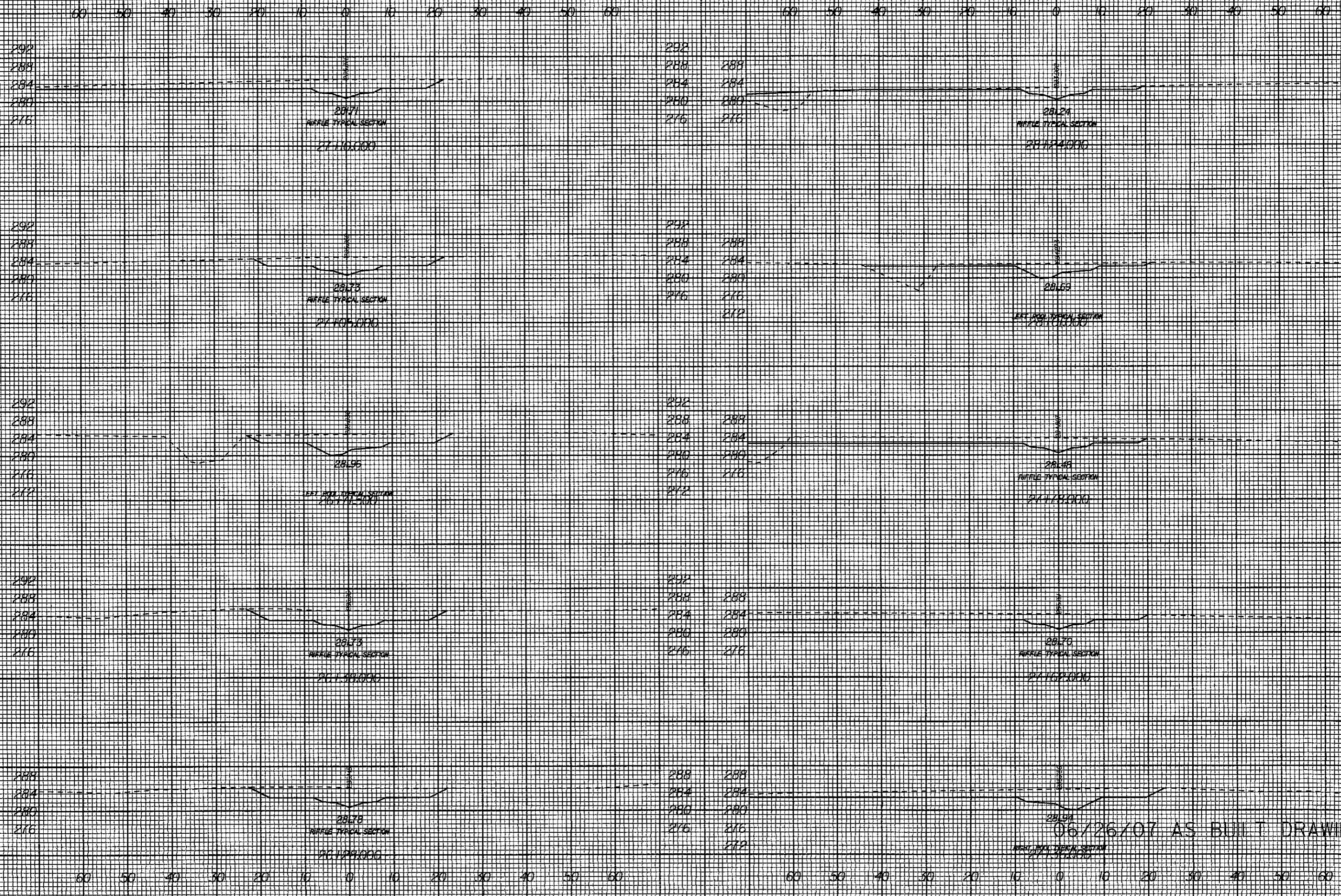
8/23/99



06/26/07 AS BUILT DRAWINGS

K:\53257\Const Admin\Phil DuBoise SCD\As Built Drawings\53257\asv2\_xpl.dgn

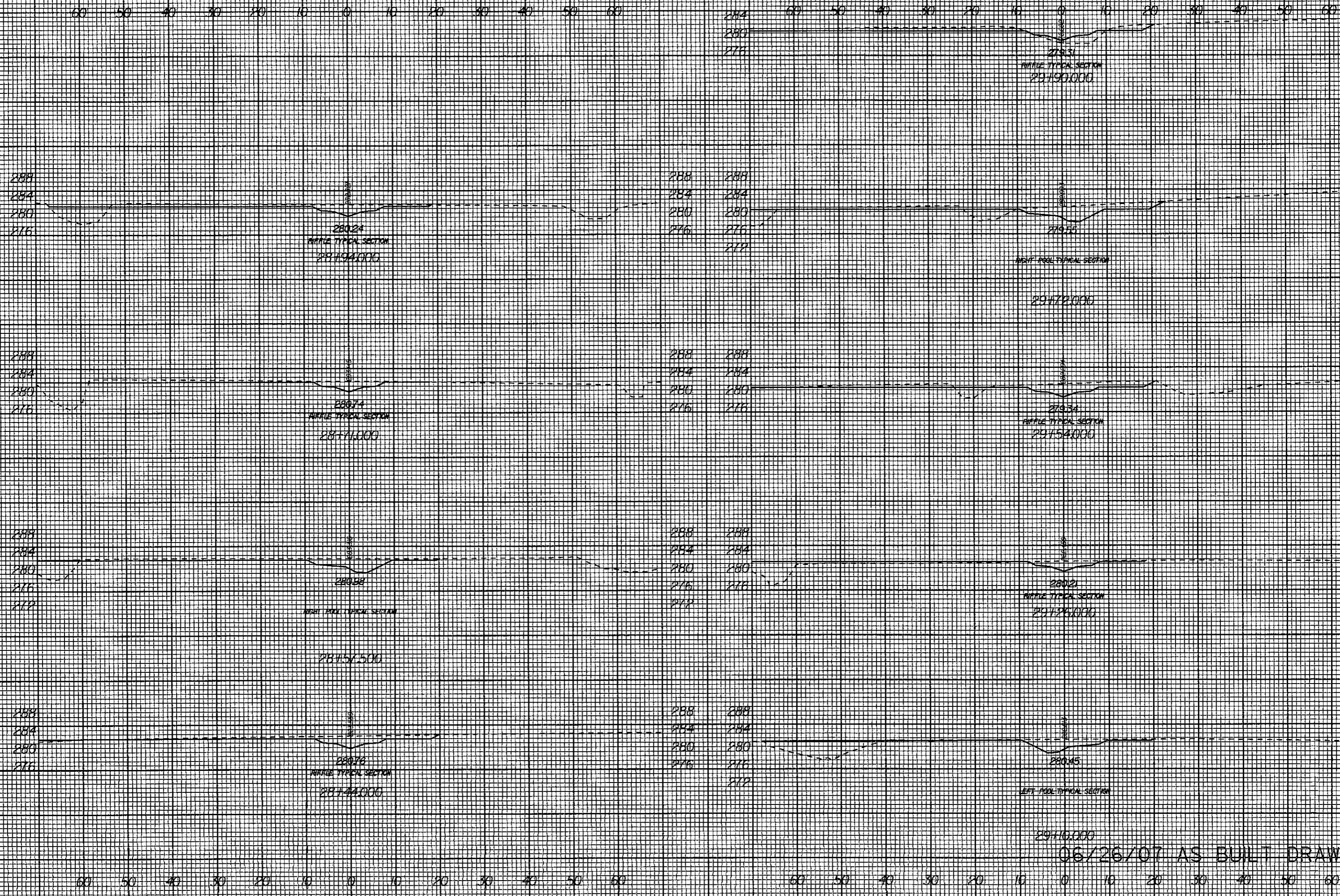
8/23/99



H:\95 PM K:\53257\Const Admin\Phil DuBose SCD\As Built Drawings\53257\rev2\_xpl.dgn russel.lbarbour

06/26/07 AS BUILT DRAWINGS

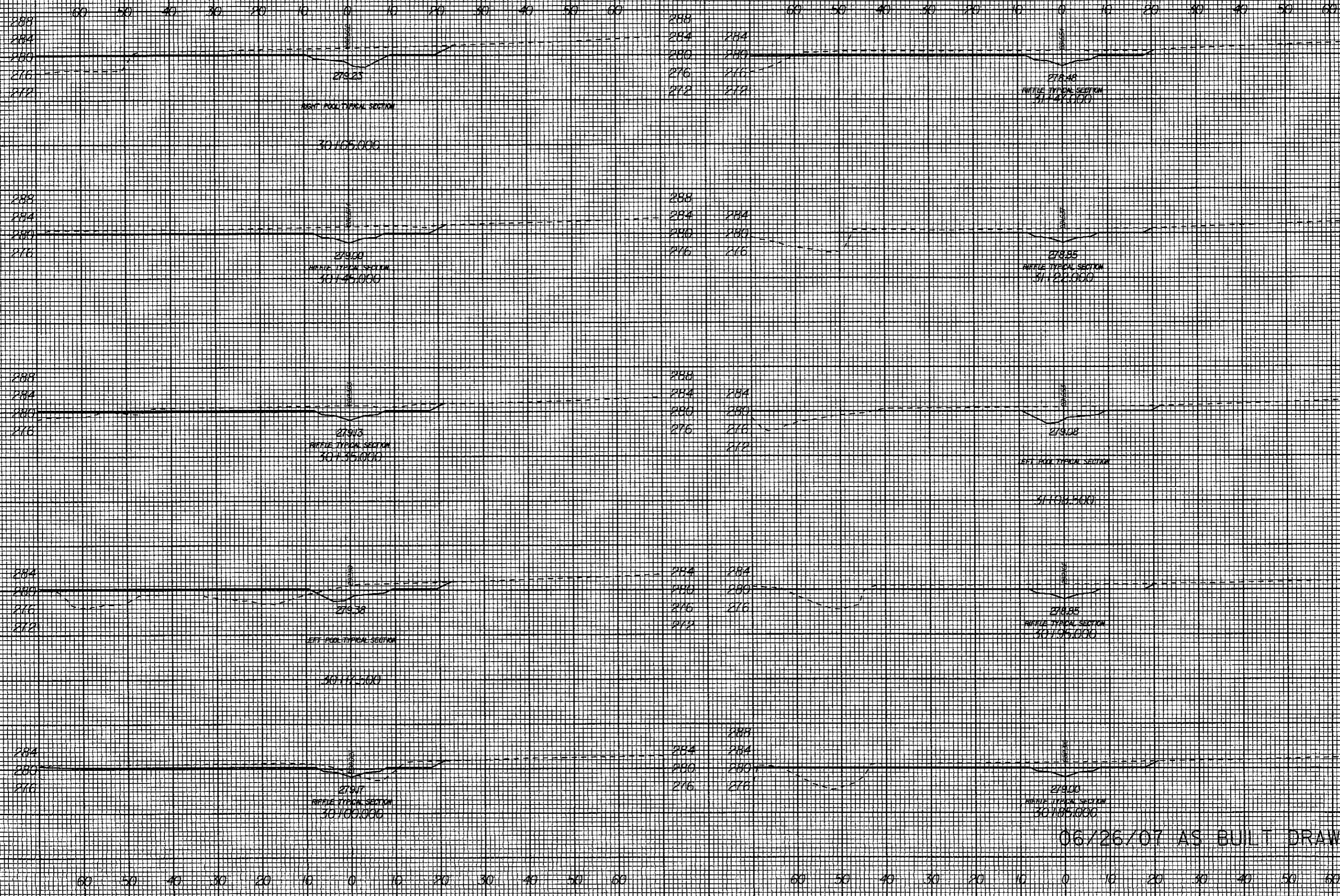
8/23/99



06/26/07 AS BUILT DRAWINGS

H:\27 PM K:\53257 Const Admin\Phil DuBose SCVAs Built Drawings\53257\rev2.xpl.dgn  
Russell.Barbour

8/23/99

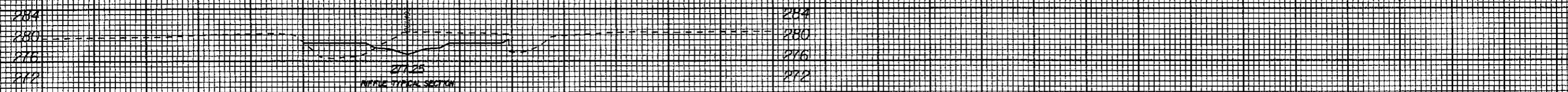


H:\333 PM Const Admin\Phil DuBose SCUAs Built Drawings\53257arev2.xpl.dgn  
K:\53257 arev2.dwg  
8/23/99

06/26/07 AS BUILT DRAWINGS

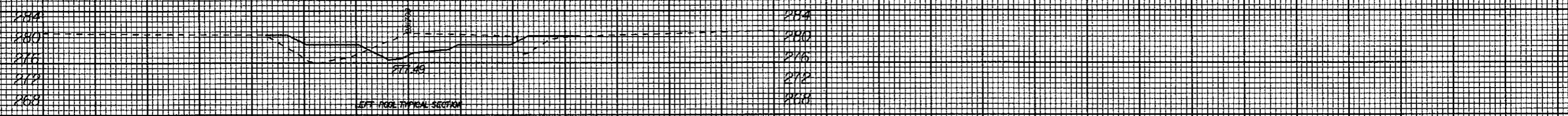
8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



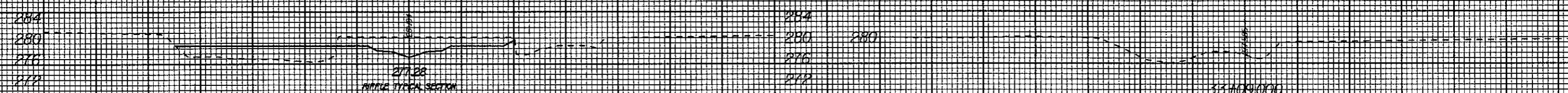
MIDDLE TYPICAL SECTION

32+60.000



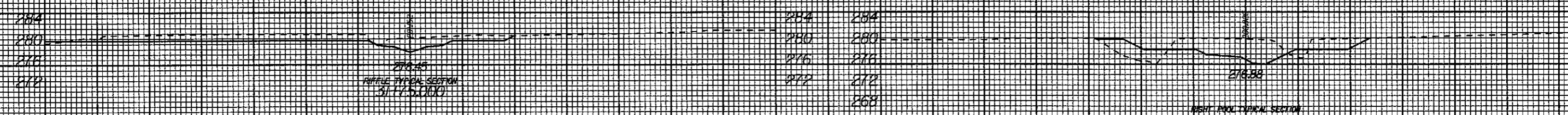
LEFT ROAD TYPICAL SECTION

32+41.500



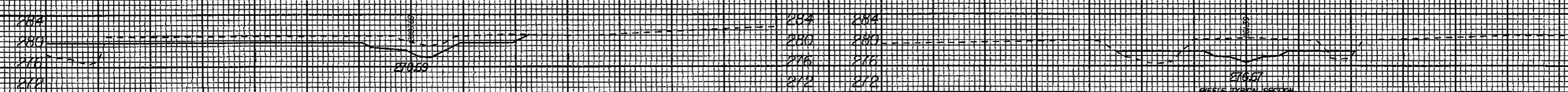
MIDDLE TYPICAL SECTION

32+72.500



MIDDLE TYPICAL SECTION

31+75.000



RIGHT ROAD TYPICAL SECTION

31+89.000

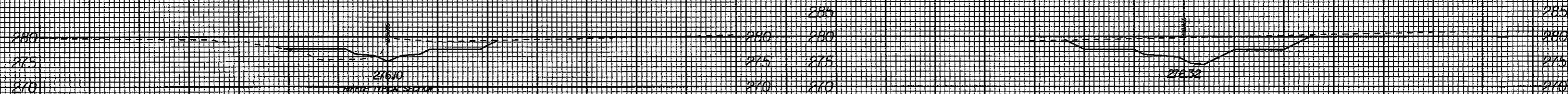
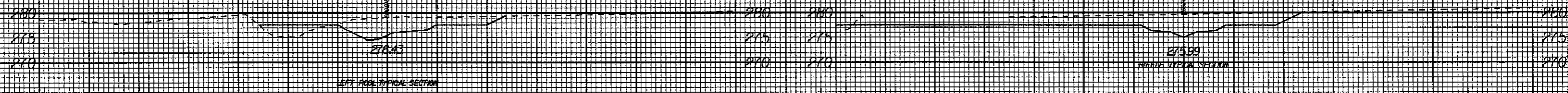
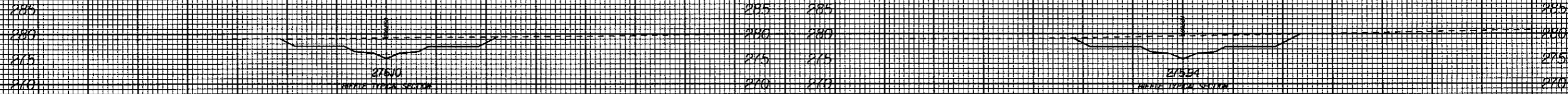
60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

08/26/07 AS BUILT DRAWINGS

11:46 PM K:\53257\Const Admin\Phil DuBoise SCD\As Built Drawings\53257\sv2\_xpl.dgn russel.labarour

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



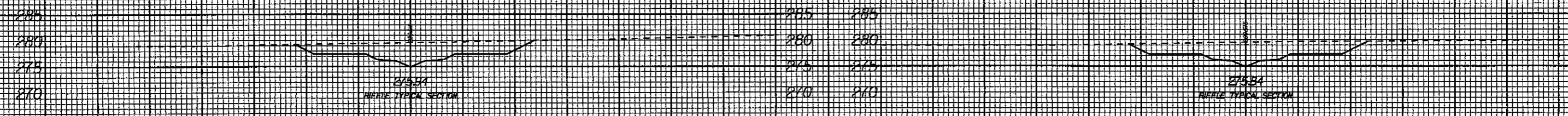
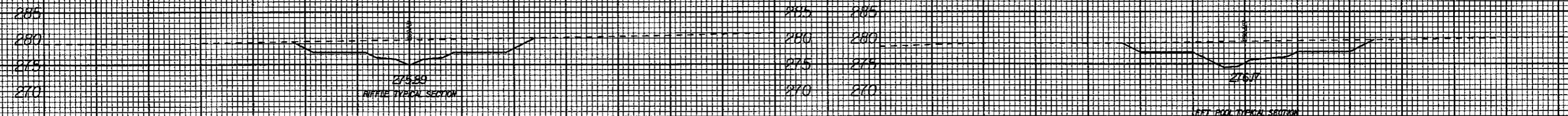
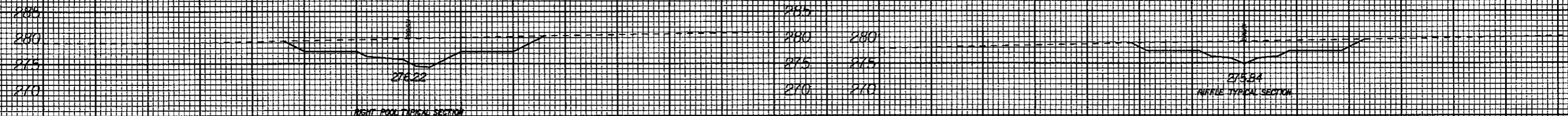
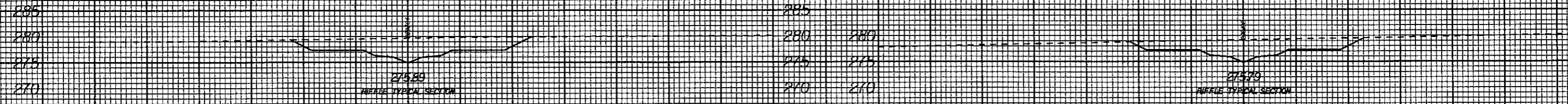
60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

06/26/07 AS BUILT DRAWINGS

K:\53257\Const Admin\Ph1 DuBoise SC0\As Built Drawings\53257\rev3\_xpl.dgn

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



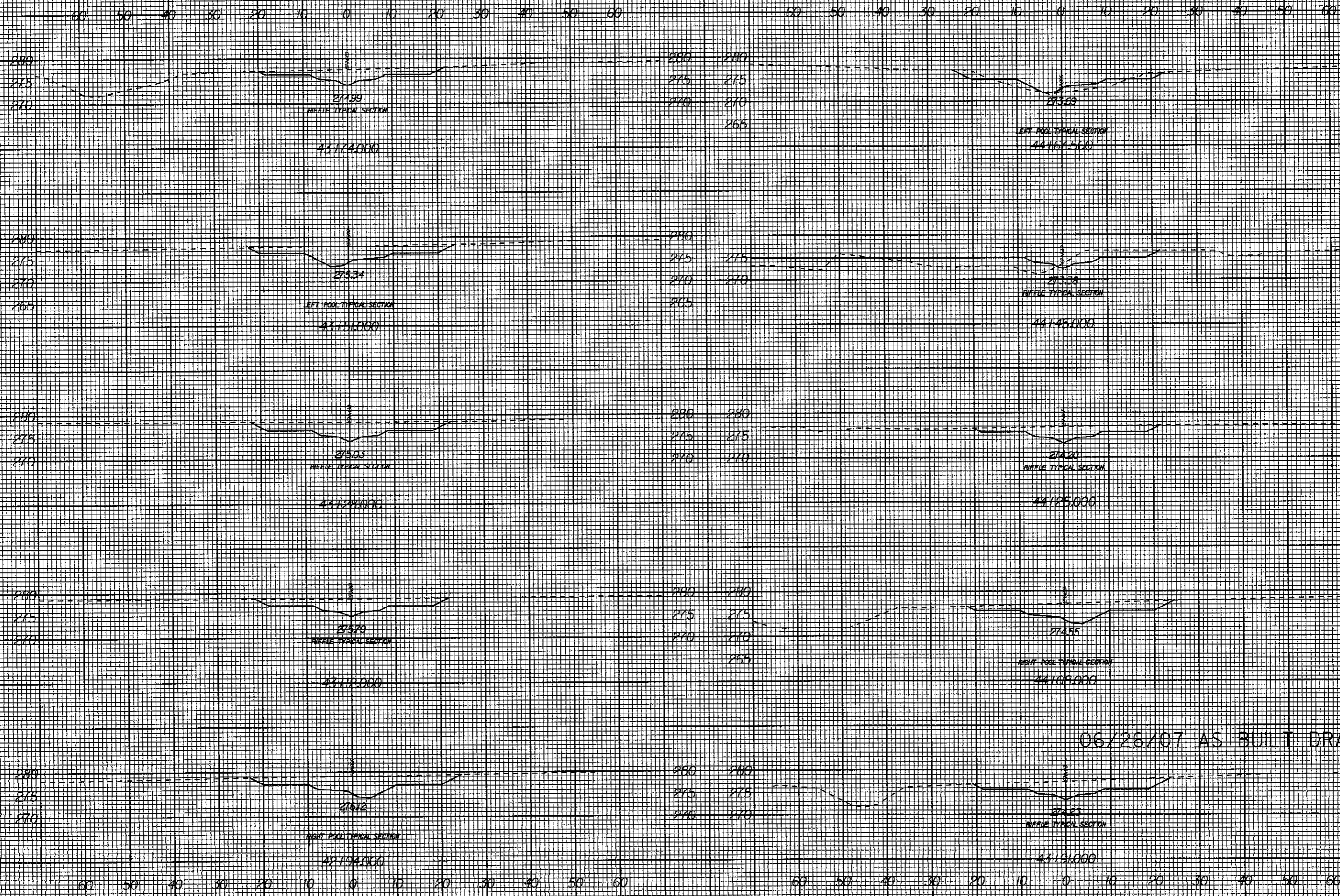
60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

06/26/07 AS BUILT DRAWINGS

I:\2:00 PM  
K:\5325\Conat Admin\Ph1 DuBose SCD\As Built Drawings\53257srev3\_xp1.dgn  
russe.lbarbour



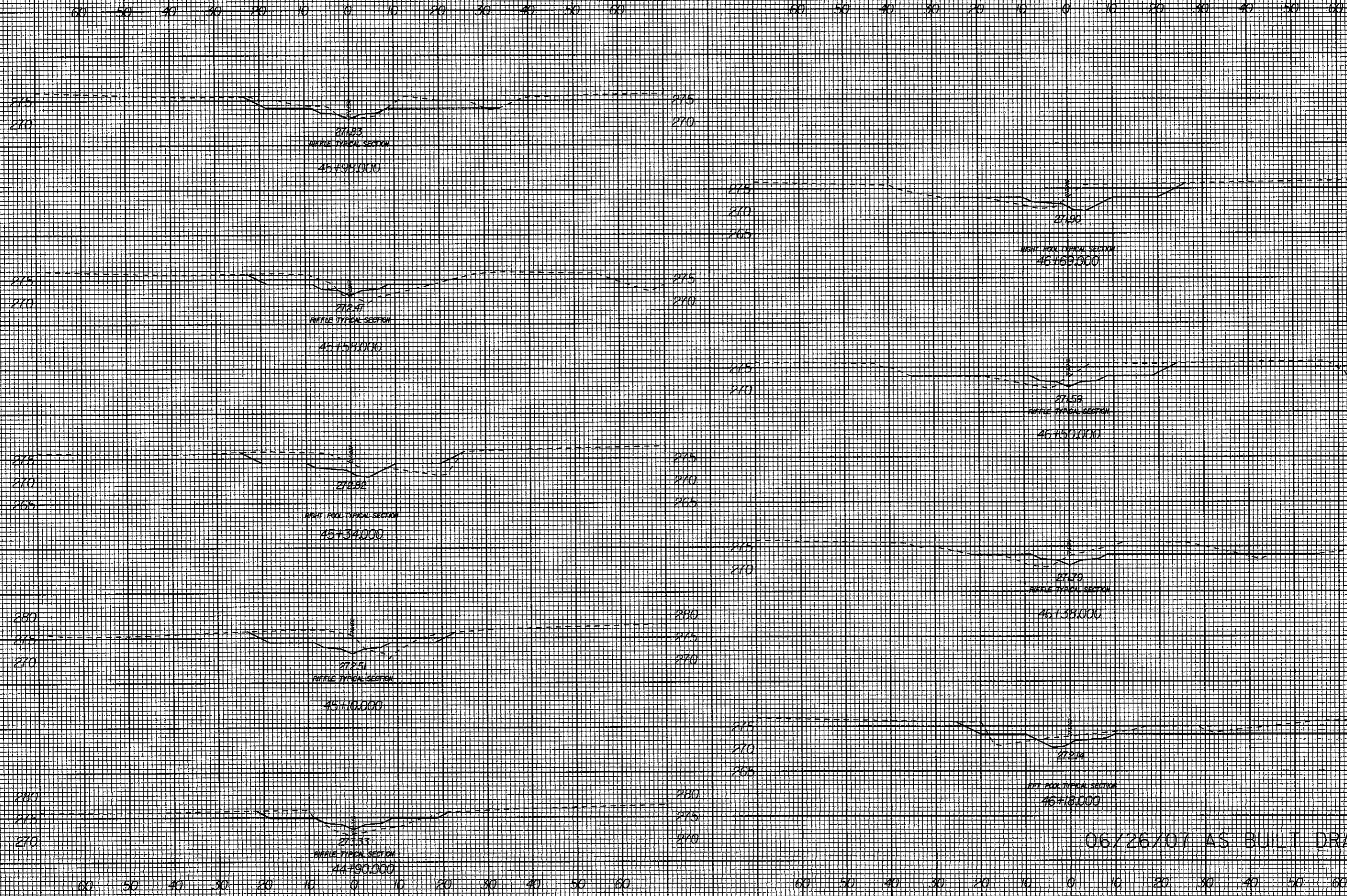
8/23/99



06/26/07 AS BUILT DRAWINGS

I:\2009 PM\K1\53257\Const Admin\Ph1 DuBose SCOVAs Buil Drawings\53257.srv3\_xpl.dgn  
RUSAL, LOR-COUR

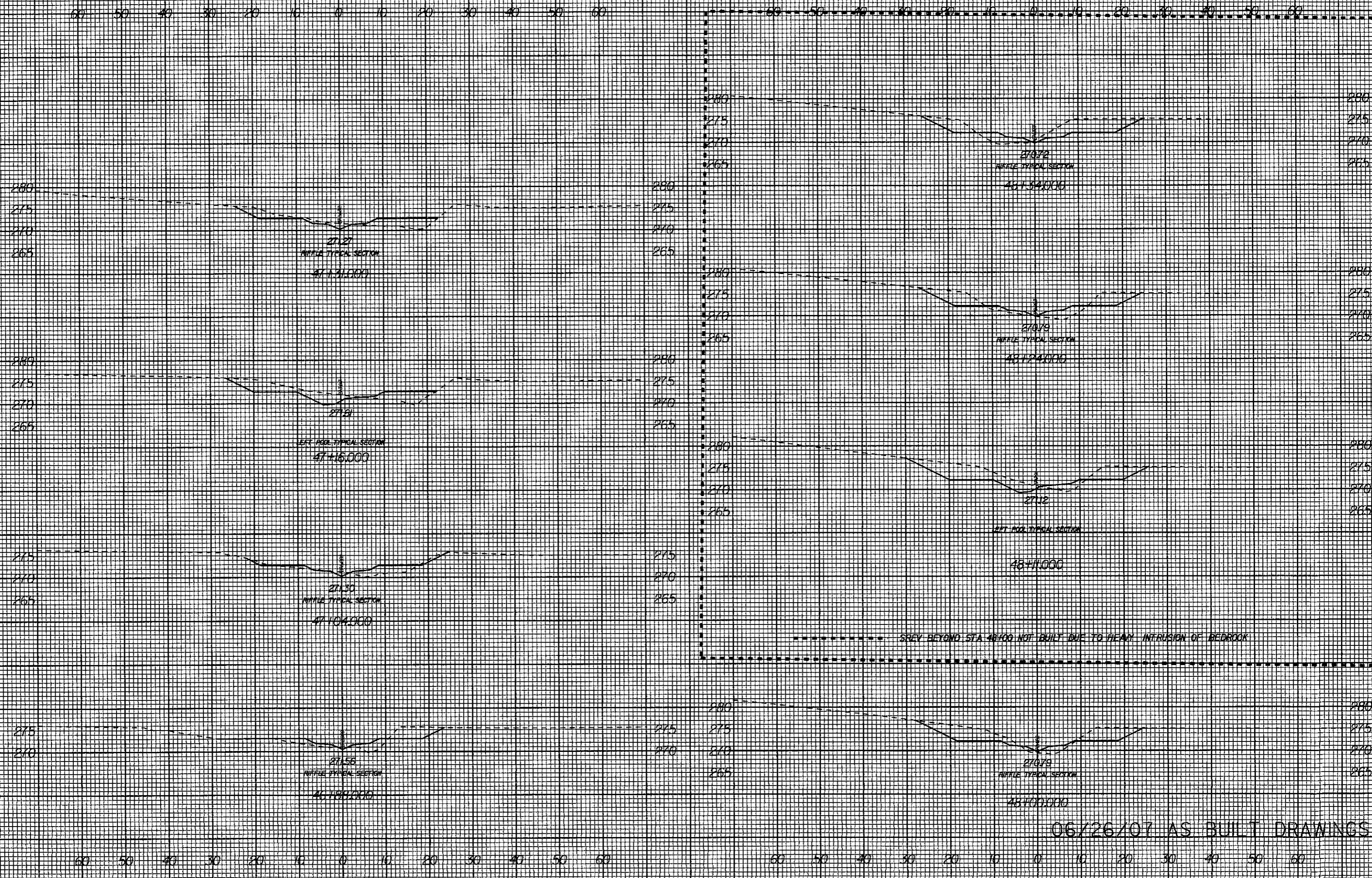
8/23/99



06/26/01 AS BUILT DRAWINGS

I:2245 PM  
K:\3257\Const Adm\Phil DuBoise S00\As Built Drawings\53257-REV3.XPL.DGN  
russe, l. d. b. r.

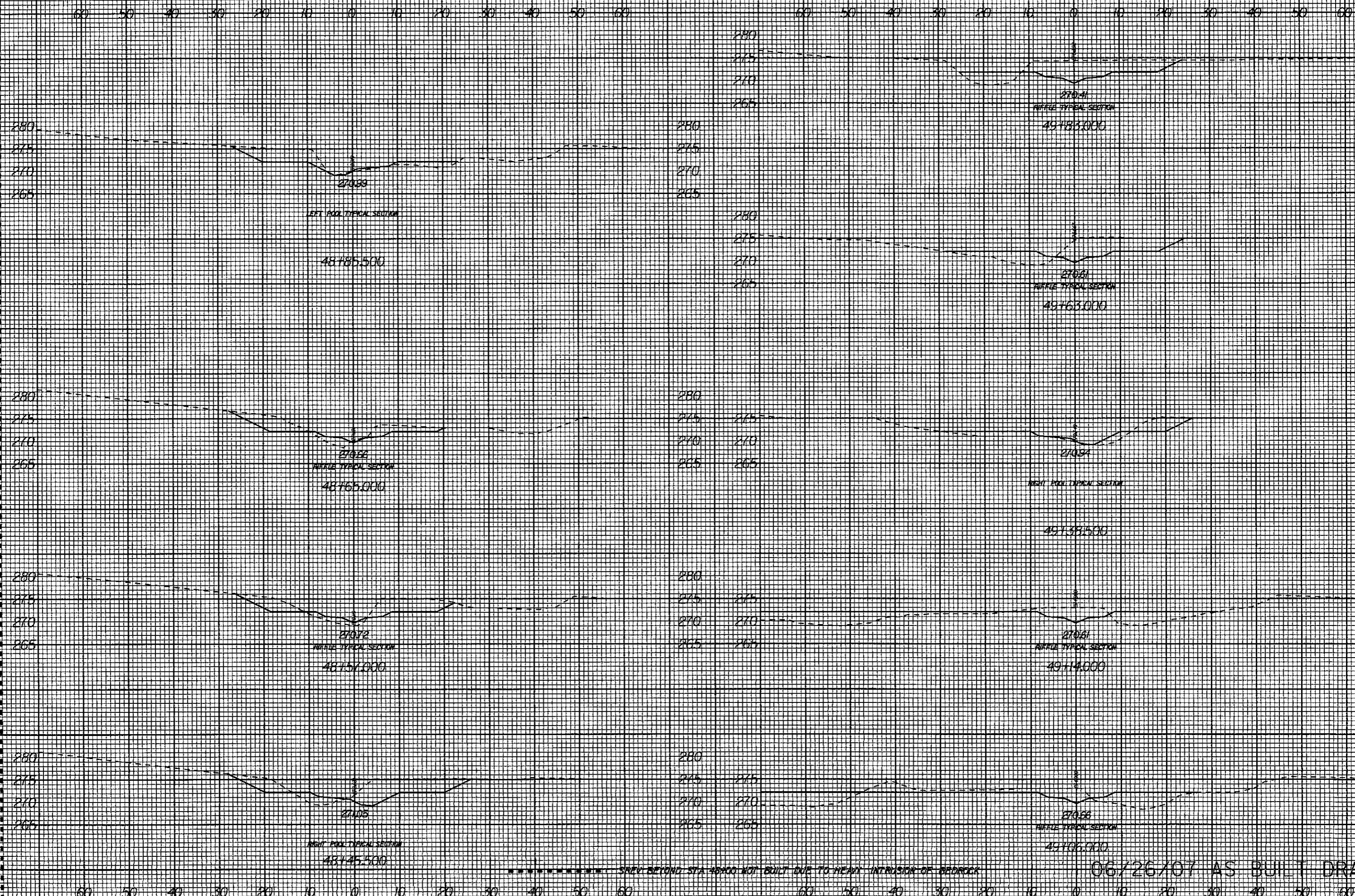
8/23/99



12:25 PM K:\53257\Const Admin\Phil DuBois SCD\As Built Drawings\53257srev3\_xpl.dgn

06/26/07 AS BUILT DRAWINGS

8/23/99

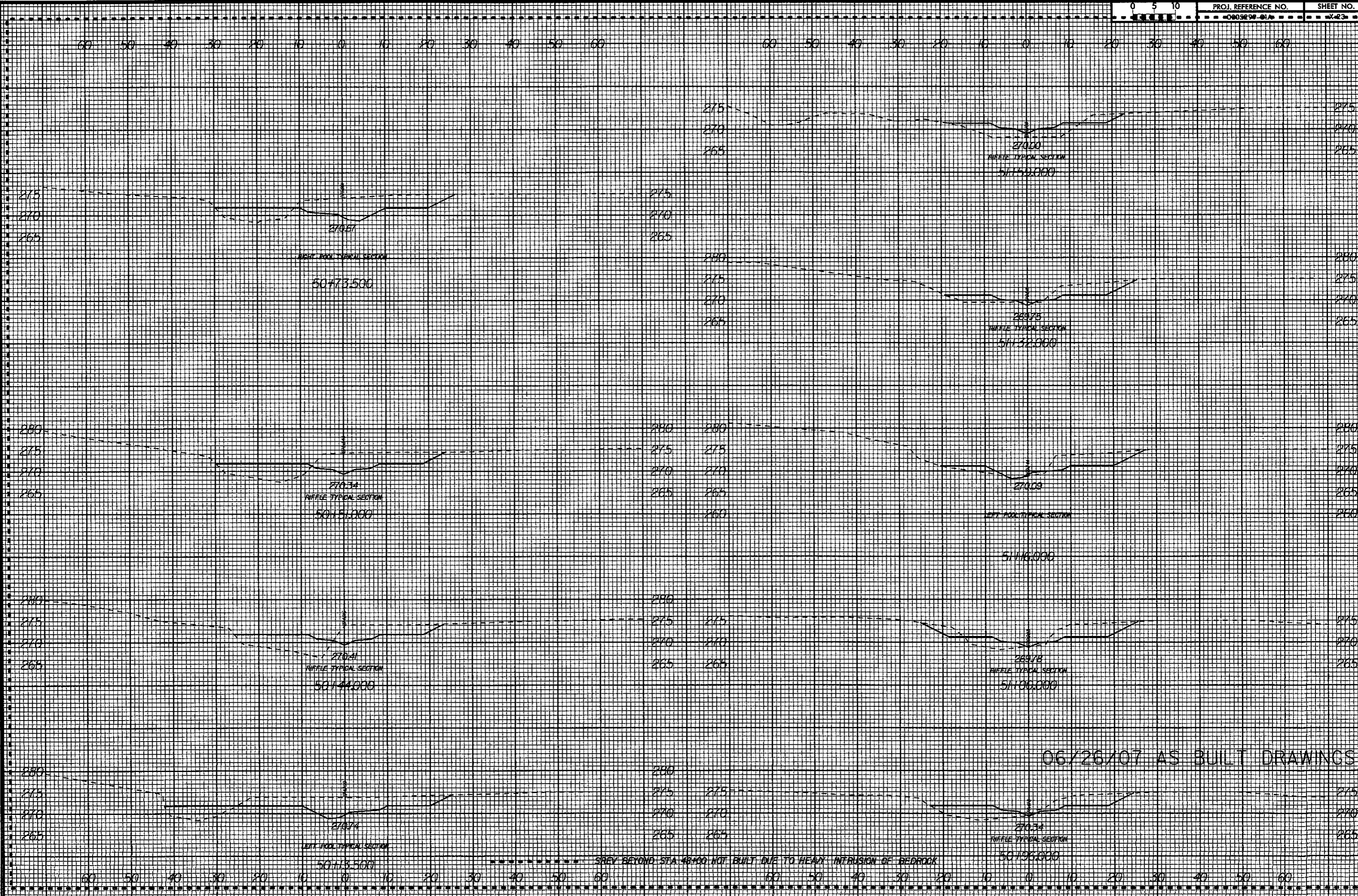


1:22:33 PM K:\53257\Const Admin\Phil DuBoise SCD\As Built Drawings\53257\rev3\_xpl.dgn russell.l@va.gov

AREA BEYOND STA 48400 NOT BUILT DUE TO HEAVY INTERUSION OF BEDROCK 06/26/07 AS BUILT DRAWINGS

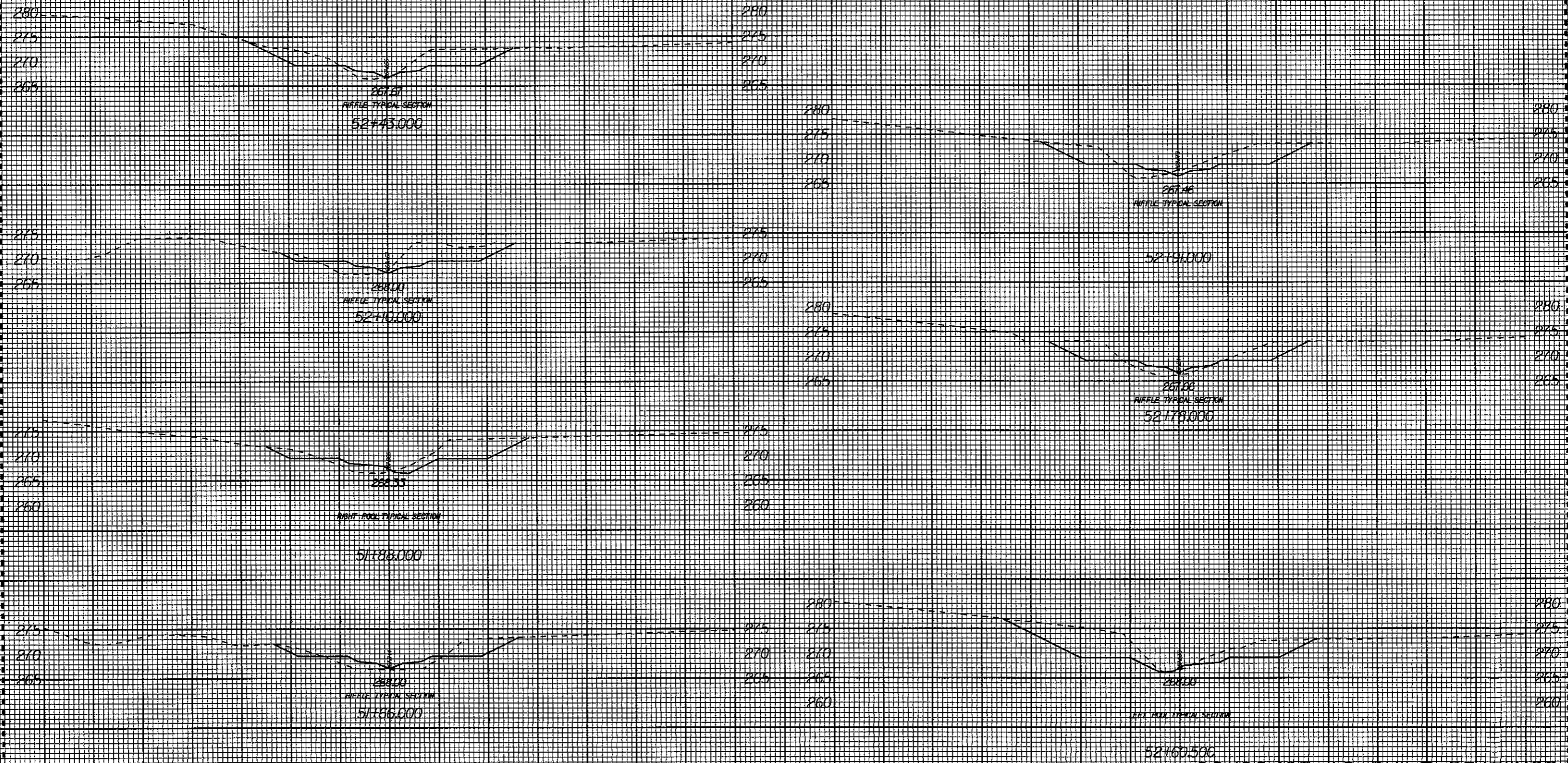
8/23/99

12:43 PM K:\5325\Const Admin\Pinl DuBose SC0\As Built Drawings\53257-srv3-xpl.dgn russell.barbour



8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



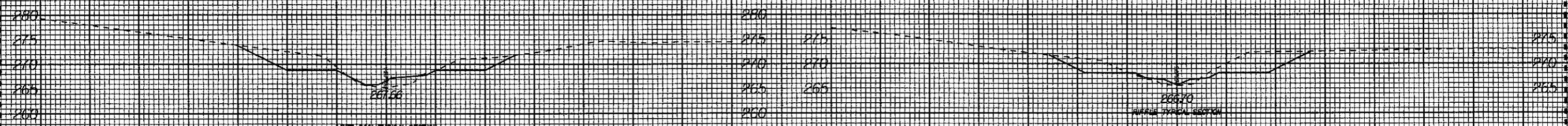
12:52 PM K:\53257\Const Admin\Phil DuBoise SCD\As Built Drawings\53257\rev3\_xpl.dgn

SAFETY BEYOND STA 16+00 NOT BUILT DUE TO HEAVY INTRUSION OF BEDROCK 06/26/07 AS BUILT DRAWINGS

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



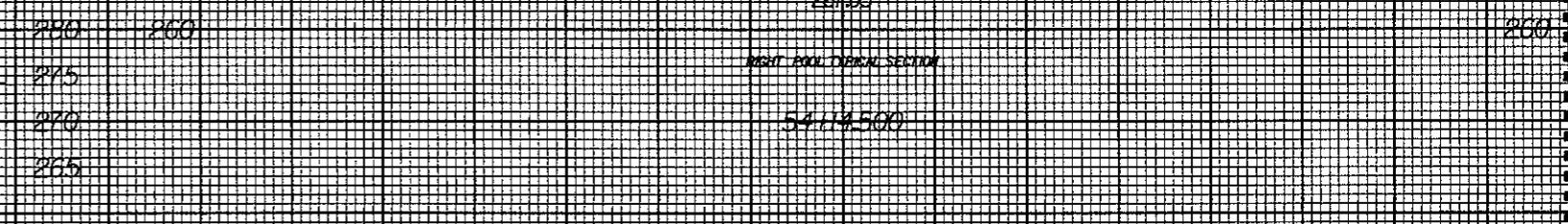
53+45.000



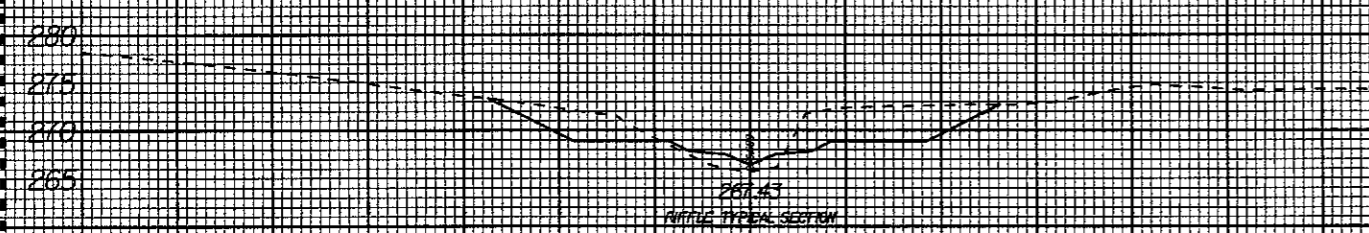
54+20.000



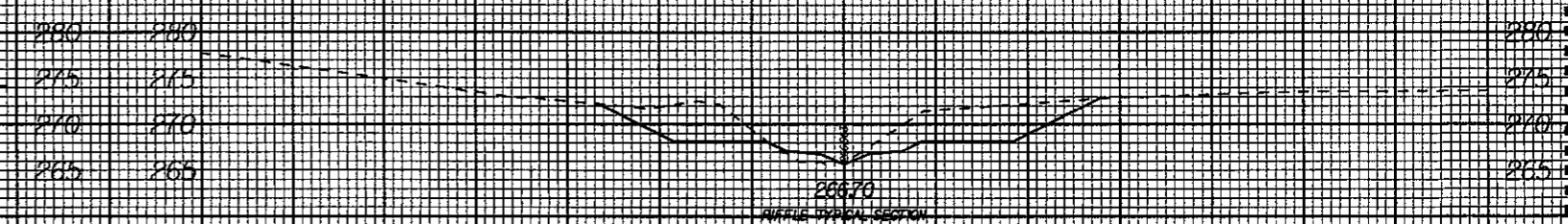
53+28.000



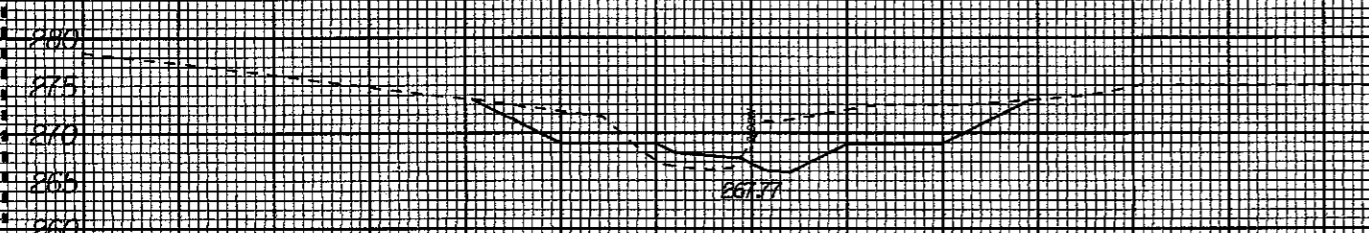
54+14.500



53+21.000



54+00.000



53+06.000



54+10.000

06/26/07 AS BUILT DRAWINGS

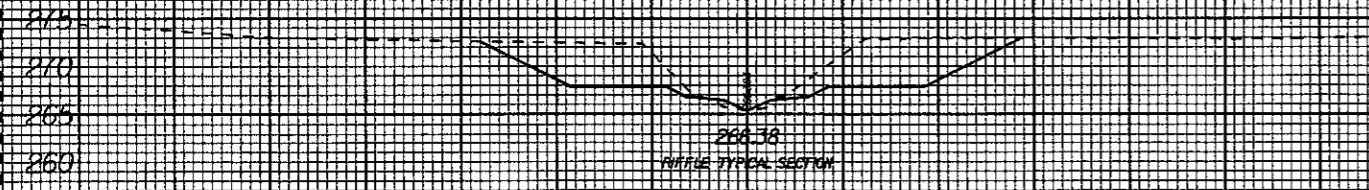
SREV BEYOND SPA 48100 NOT BUILT DUE TO HEAVY INTERUSION OF BEDROCK

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

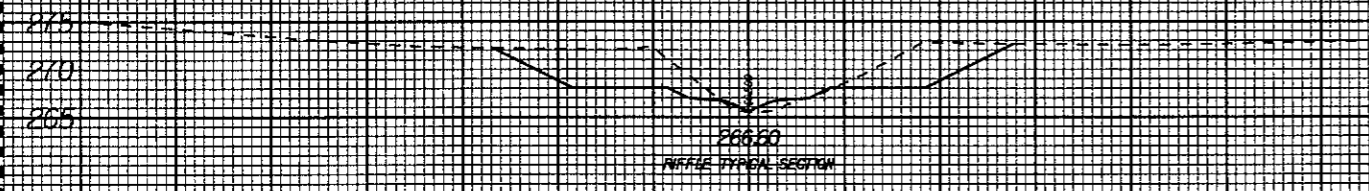
I:\2158 PM K:\5325\Conat Admin\Phul DuBose SCD\As Built Drawings\53257srev3\_xpl.dgn russel.lan@bar

8/23/99

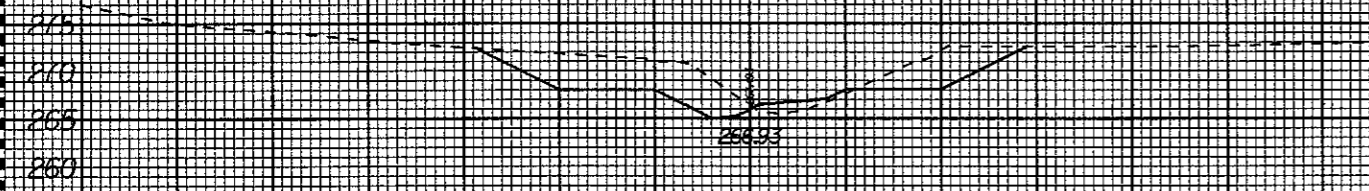
60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



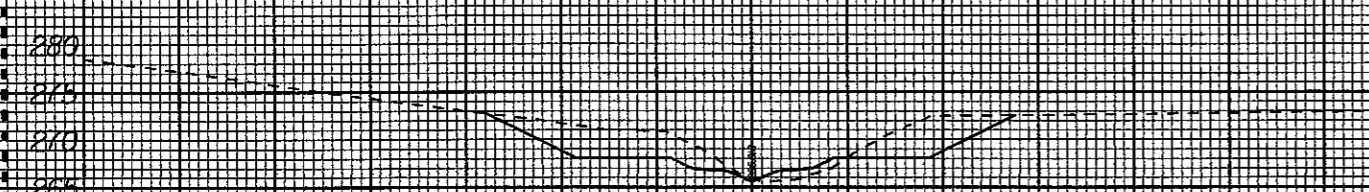
54189.000



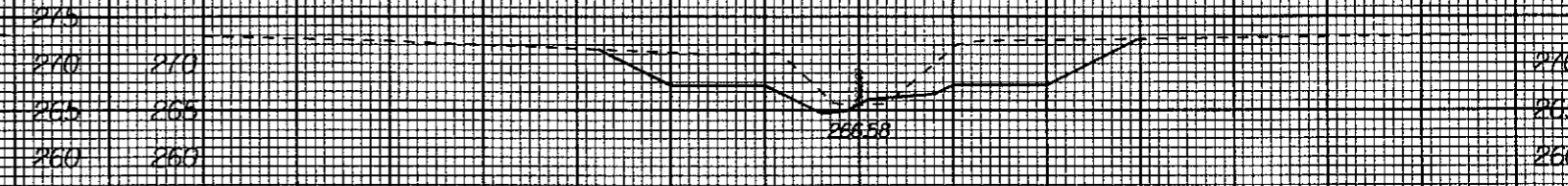
54172.000



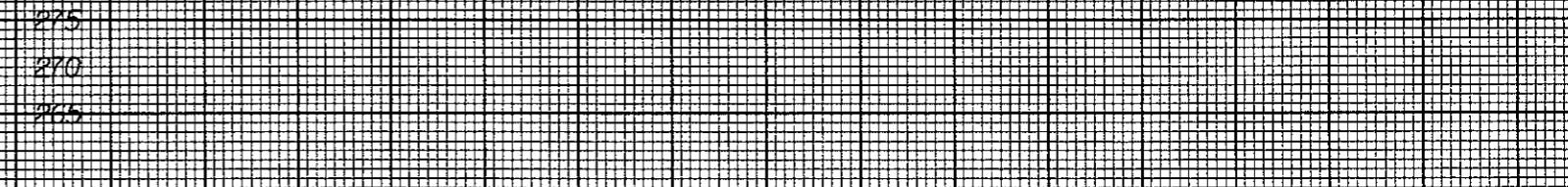
54154.500



54137.000



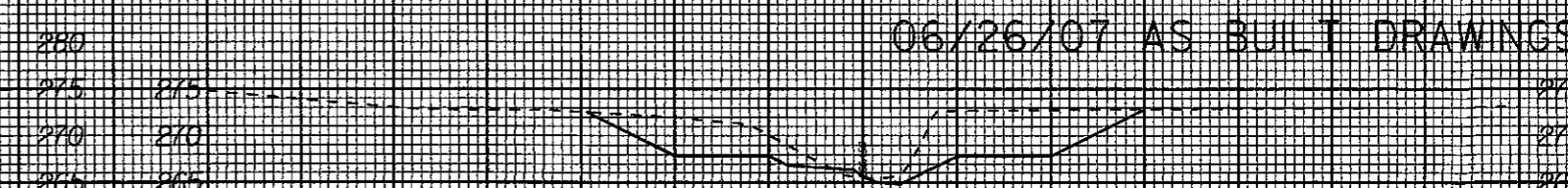
55157.500



55143.000



55117.000



55103.000

AREA BEYOND STA 40+00 NOT BUILT DUE TO HEAVY INFUSION OF BEDROCK

06/26/07 AS BUILT DRAWINGS

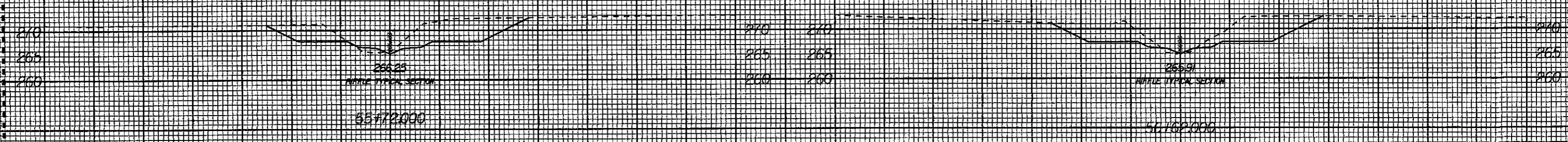
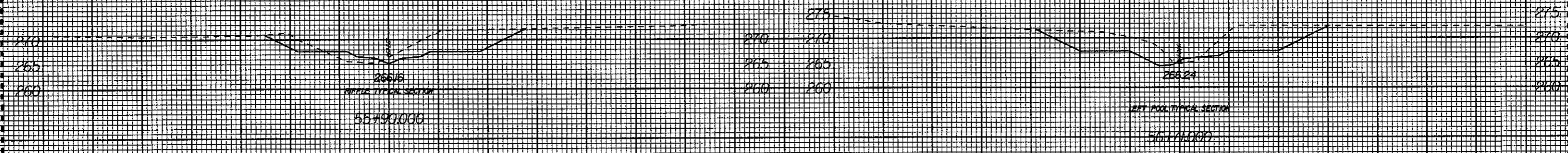
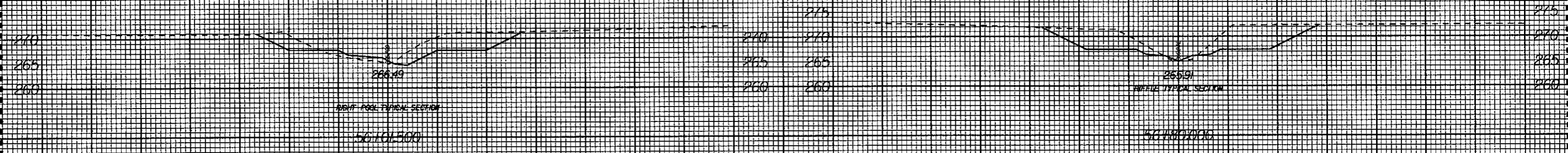
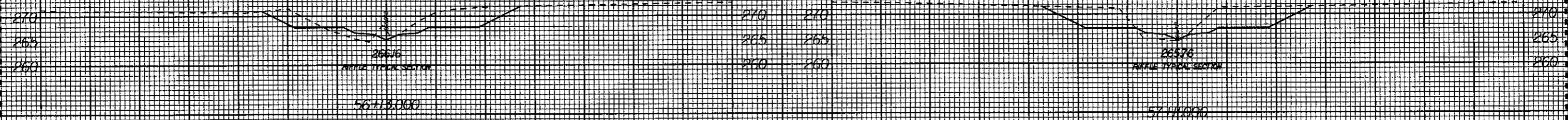
60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

I:\2307\_PM\K153257\Const Admin\Phil DuBois SCD As Built Drawings\53257\rev3\_xpl.dgn  
Jesse.Labarbour



8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



----- SHEV BEYOND STA 48+00 NOT BUILT DUE TO HEAVY INTRUSION OF BEDROCK

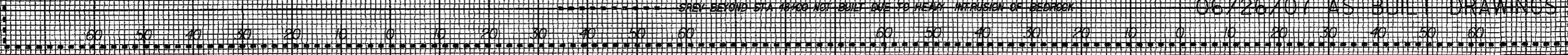
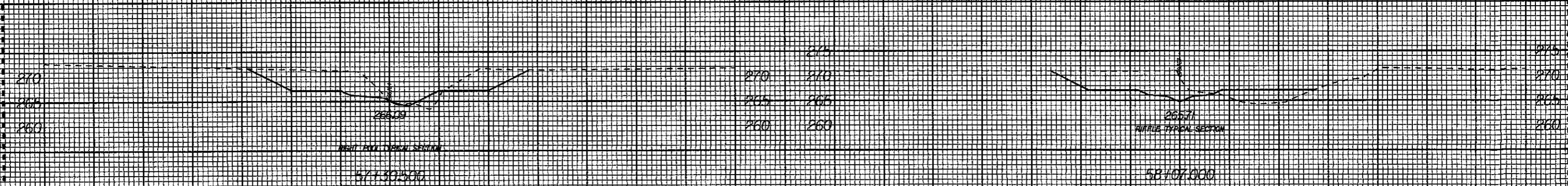
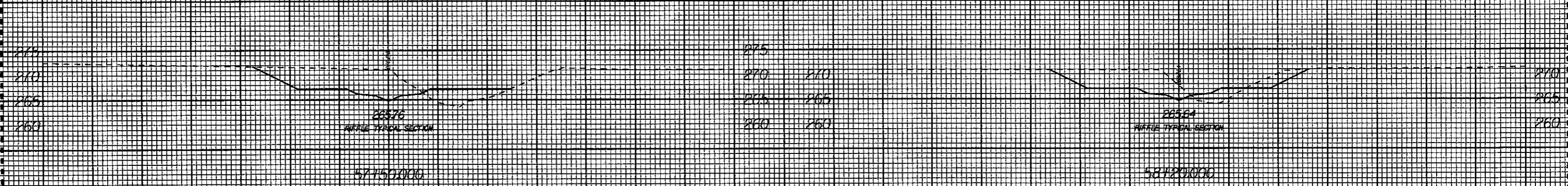
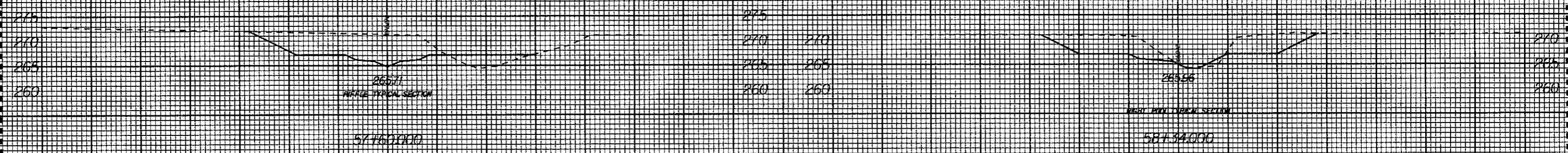
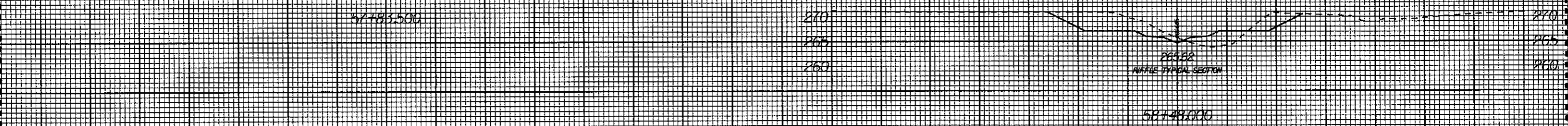
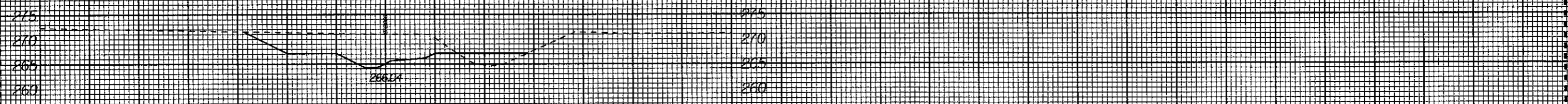
06/26/01 AS BUILT DRAWINGS

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

I2313 PM  
 K:\53257\Const Admin\Ph1 DuBois SCU\As Built Drawings\53257srev3\_xpl.dgn  
 russel.barbour

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

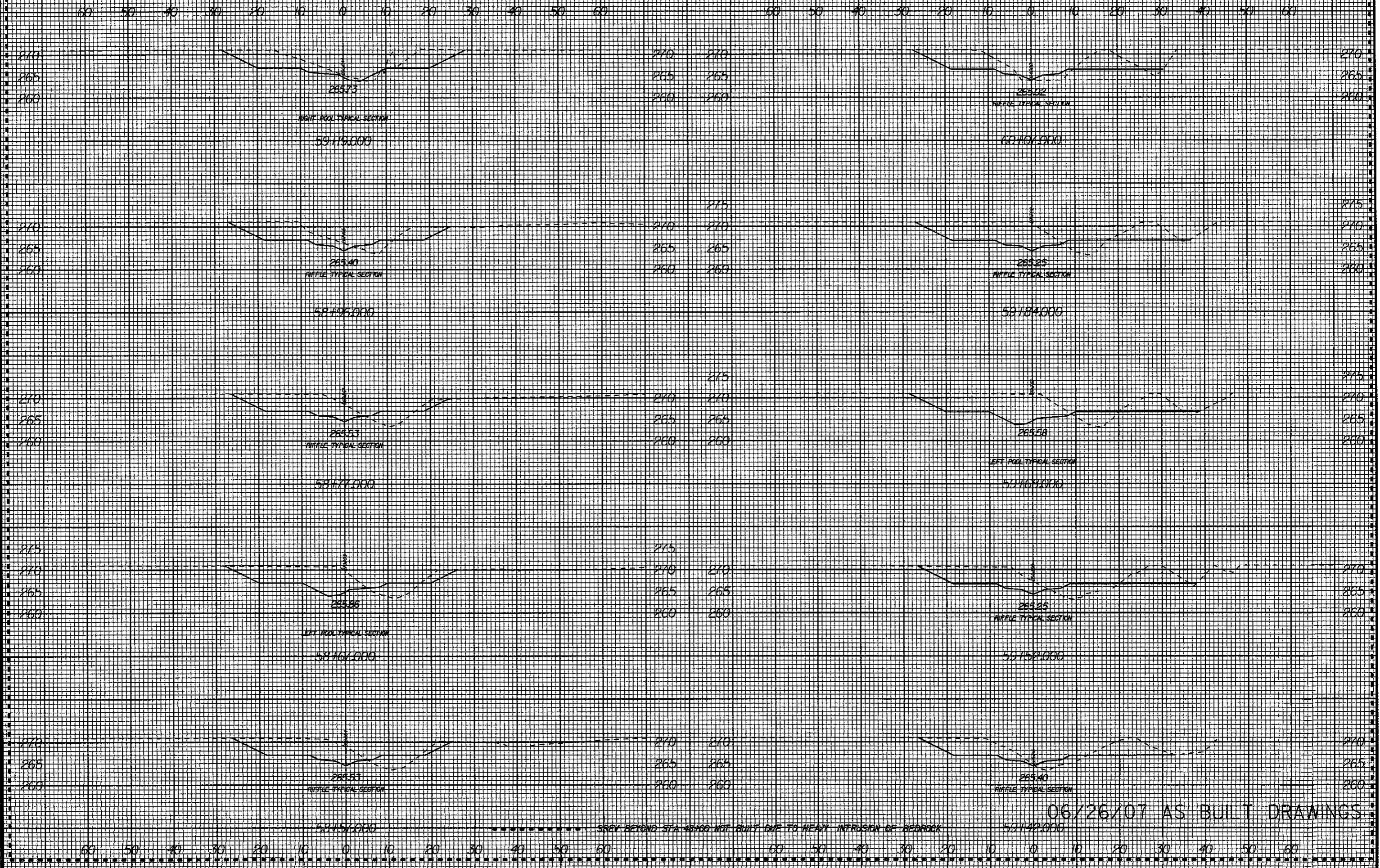


AREA BEYOND STA 18+00 NOT BUILT DUE TO HEAVY INFUSION OF BEDROCK

06/26/07 AS BUILT DRAWINGS

K:\53257\Const Admin\Phil DuBoise SCD\As Built Drawings\53257\rev3\_xpl.dgn  
 -nasel.barbour  
 12:32 PM

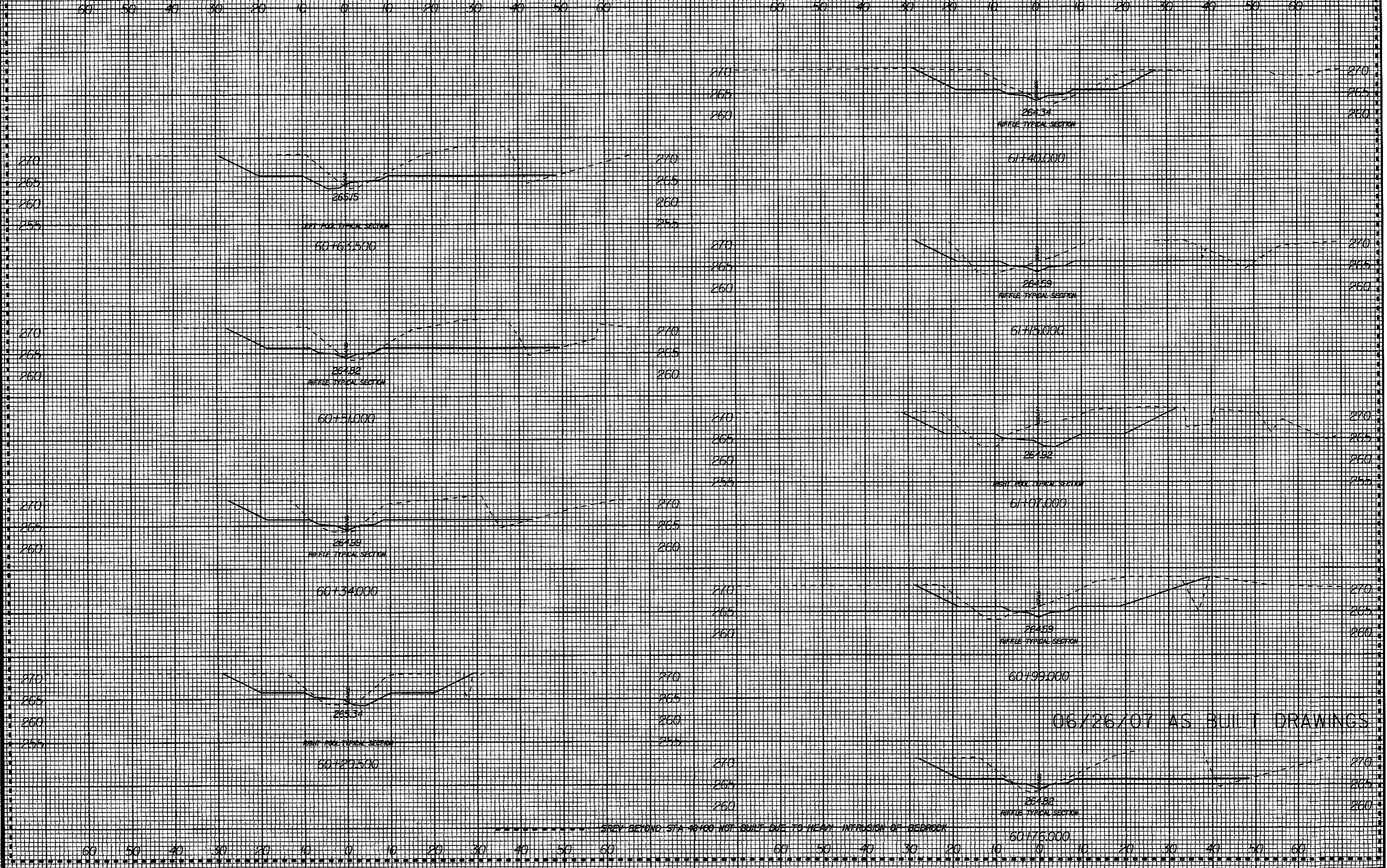
8/23/99



12:29 PM K:\3257\Const Admin\Phil DuBose SCDA's Built Drawings\53257\rev3\_xpl.dgn

06/26/07 AS BUILT DRAWINGS

8/23/99

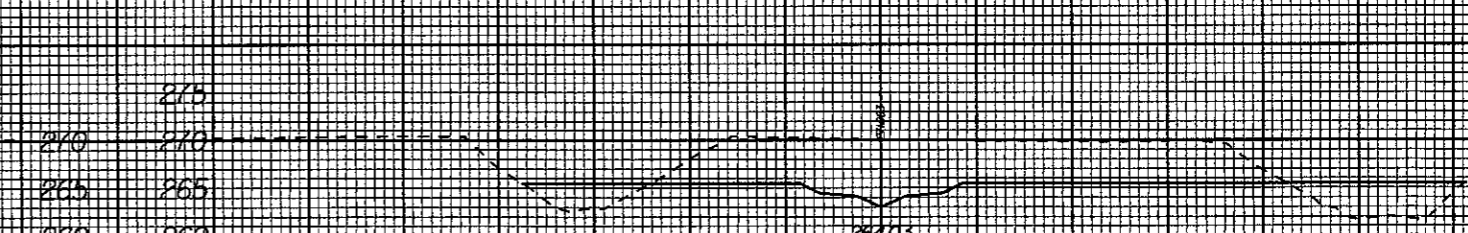
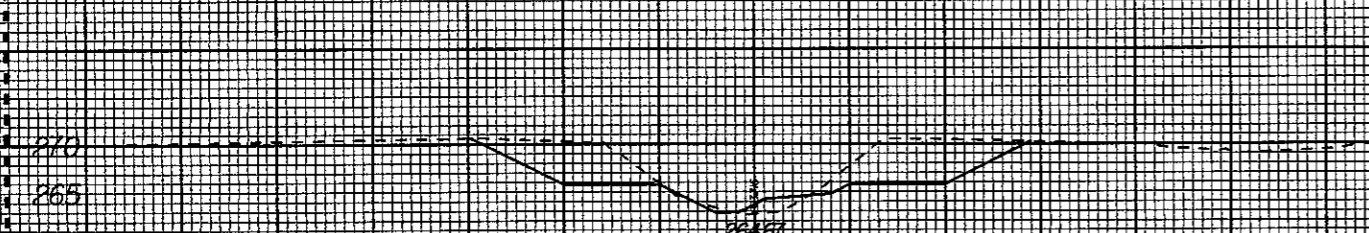
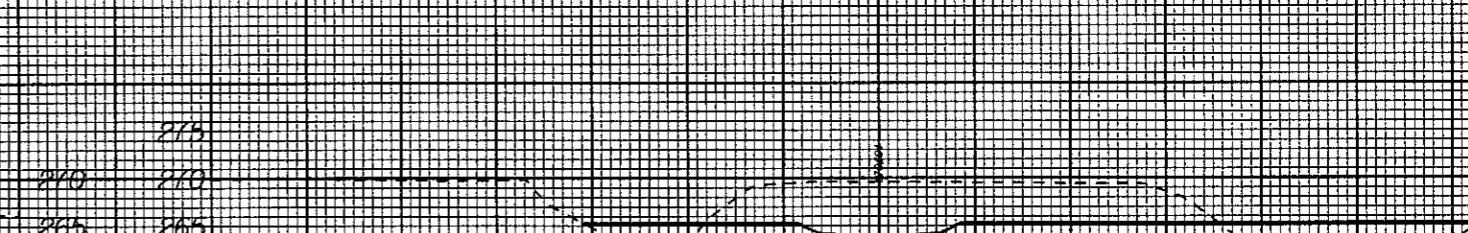
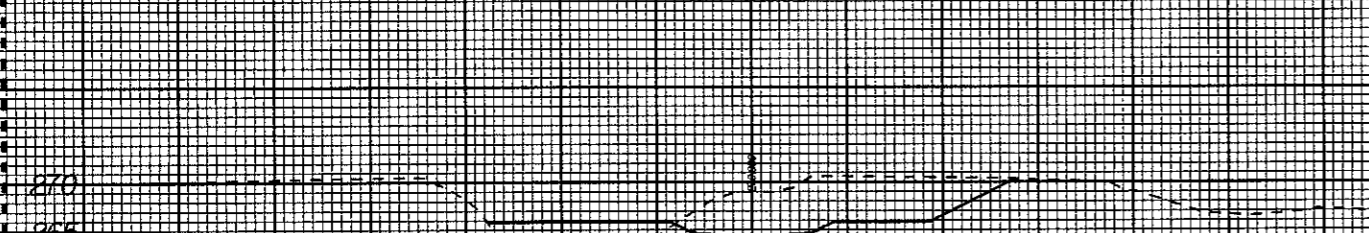
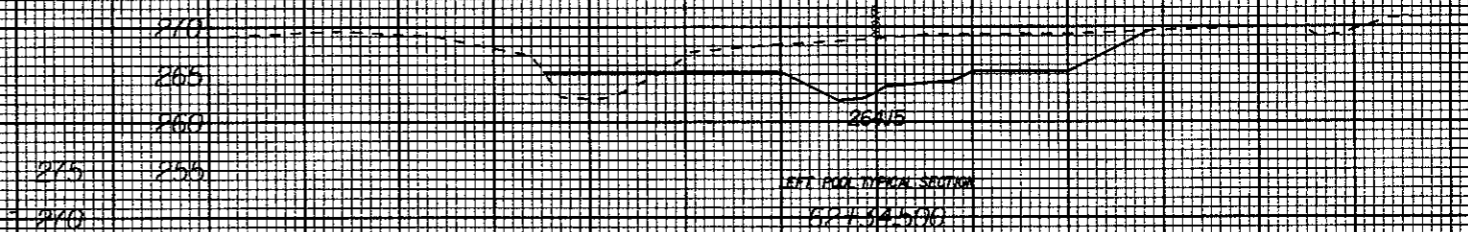
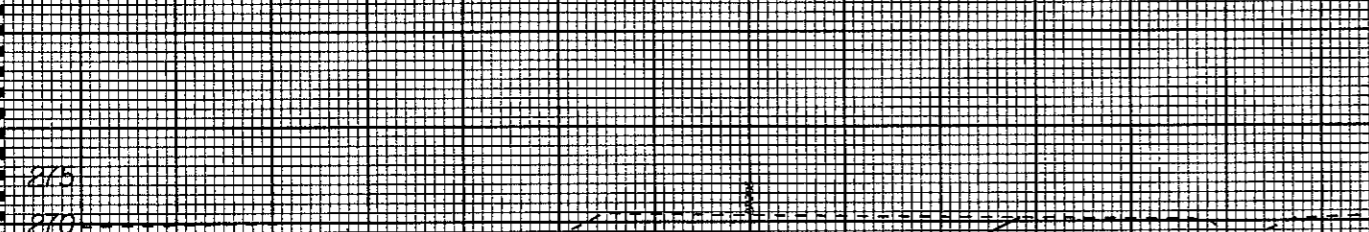
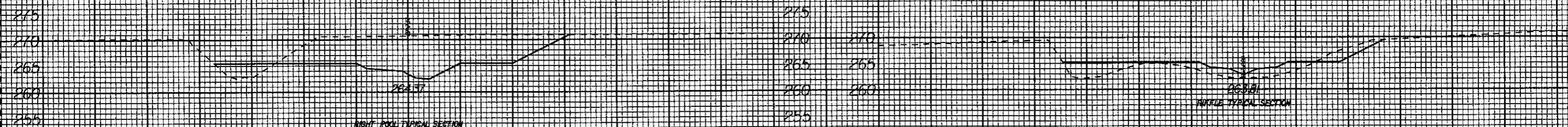


06/26/07 AS BUILT DRAWINGS

I:\2338 PM Const Admin\Phil DuBoise\SCD\As Built Drawings\53257\rev3\_xpl.dgn  
russell.barbour

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60



----- SHEV BEYOND STA 48+00 NOT BUILT DUE TO HEAVY INTRUSION OF BEDROCK

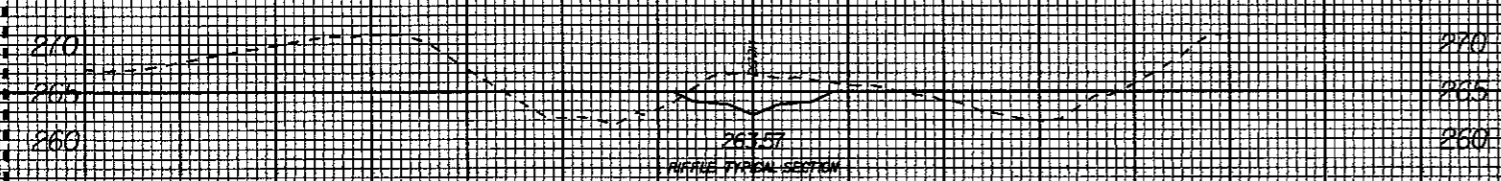
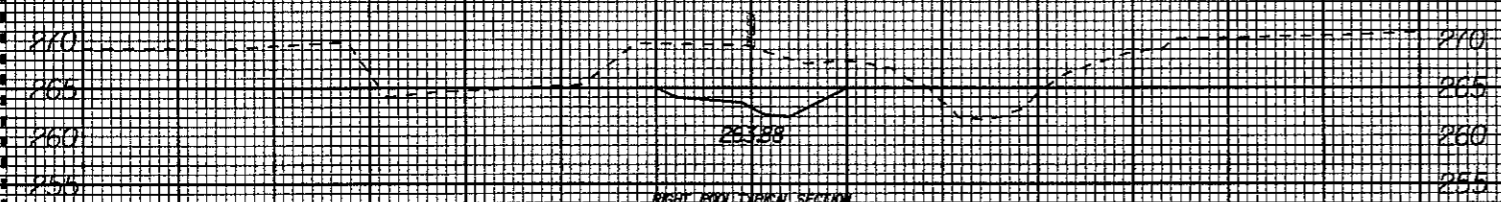
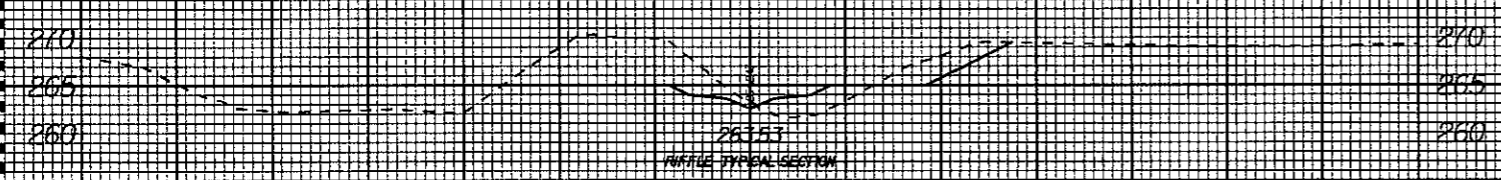
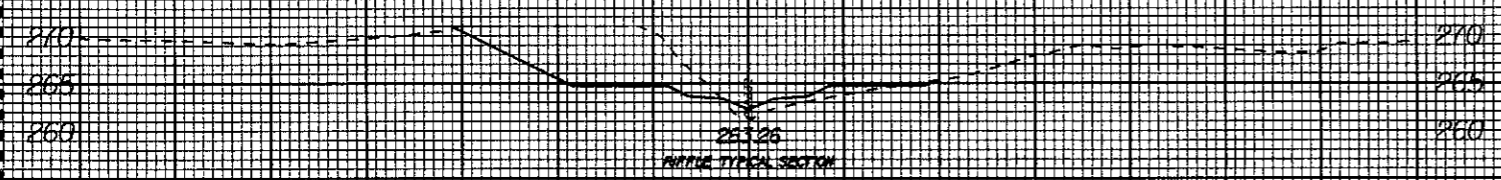
06/26/01 AS BUILT DRAWINGS

60 50 40 30 20 10 0 10 20 30 40 50 60      60 50 40 30 20 10 0 10 20 30 40 50 60

12:45 PM  
 K:\53257\Const Admin\Ph1 DuBoise SC0\As Built Drawings\53257srev3\_xpl.dgn  
 -ussalborhour

8/23/99

60 50 40 30 20 10 0 10 20 30 40 50 60



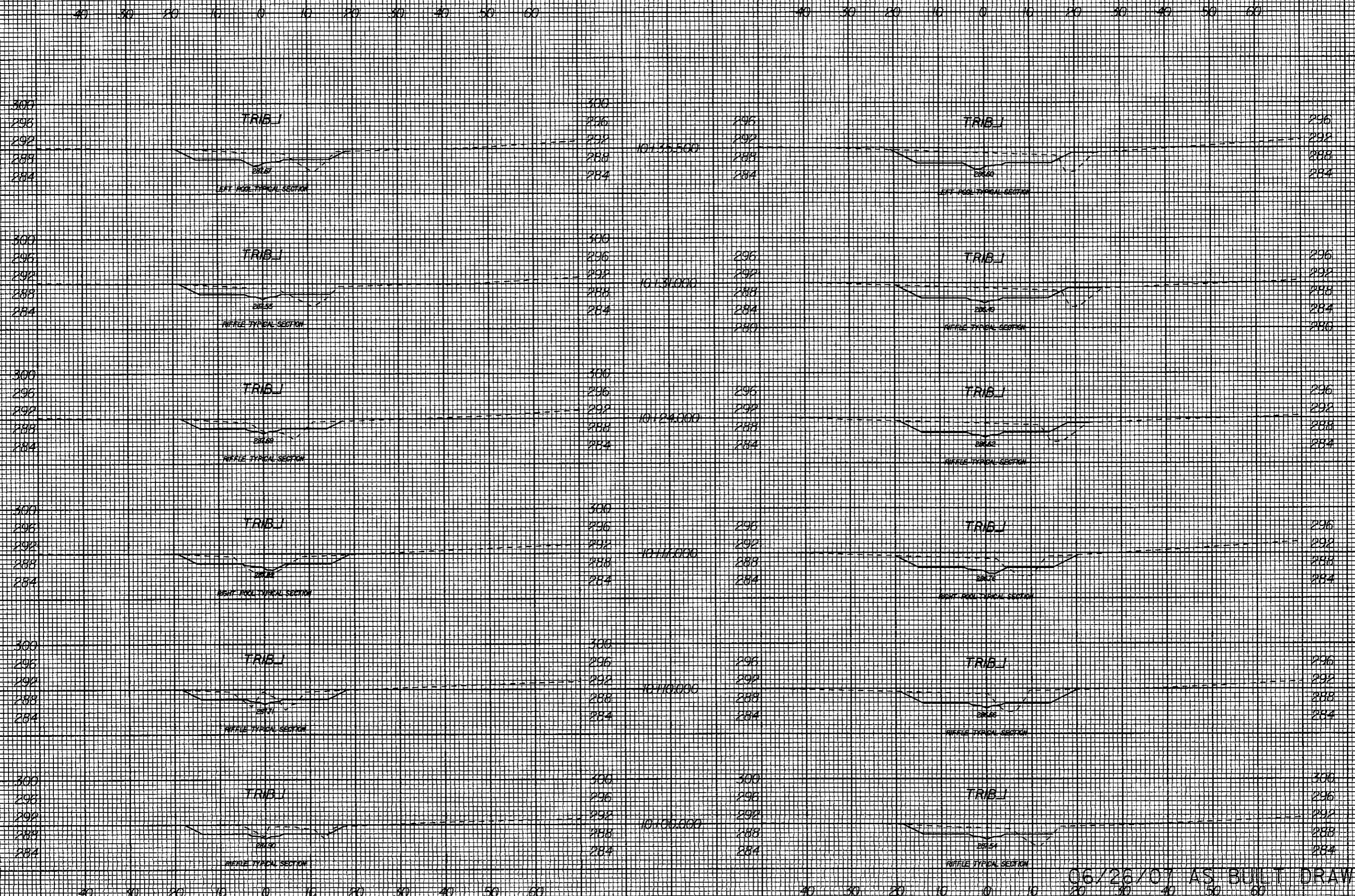
SREV BEYOND STA 10+00 NOT BUILT DUE TO HEAVY INFUSION OF BEDROCK

06/26/07 AS BUILT DRAWINGS

60 50 40 30 20 10 0 10 20 30 40 50 60

I:\2356 PM Const Admin\Phil DuBose SCD\As Built Drawings\53257\sev3\_xpl.dgn  
K:\53257\As Built Drawings\53257\sev3\_xpl.dgn  
Russell Bour

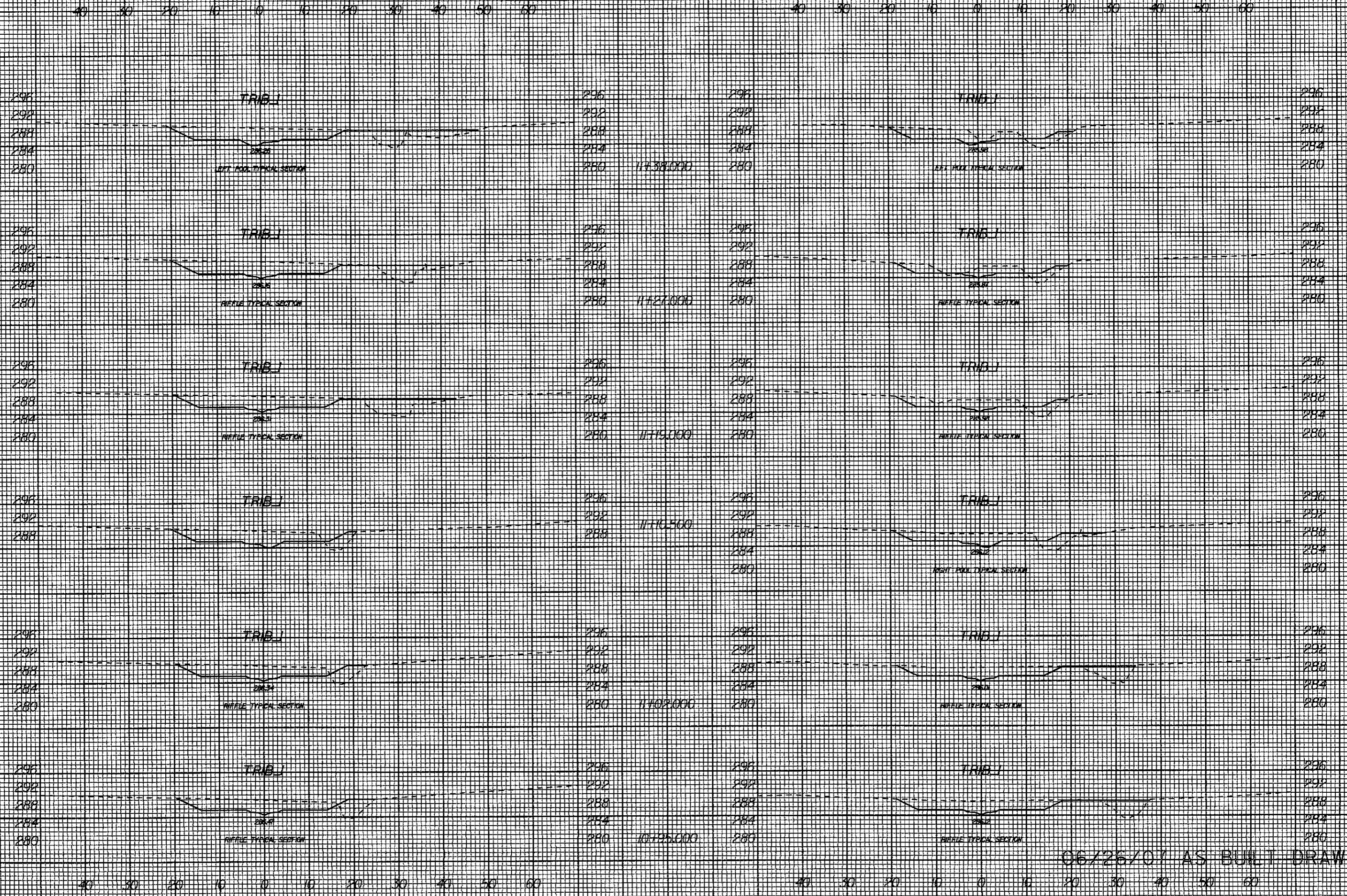
8/23/99



K:\53257\Const Admin\Phil DuBois SC0\As Built Drawings\53257-tr-bl.xpl.dgn

06/26/07 AS BUILT DRAWINGS

8/23/99

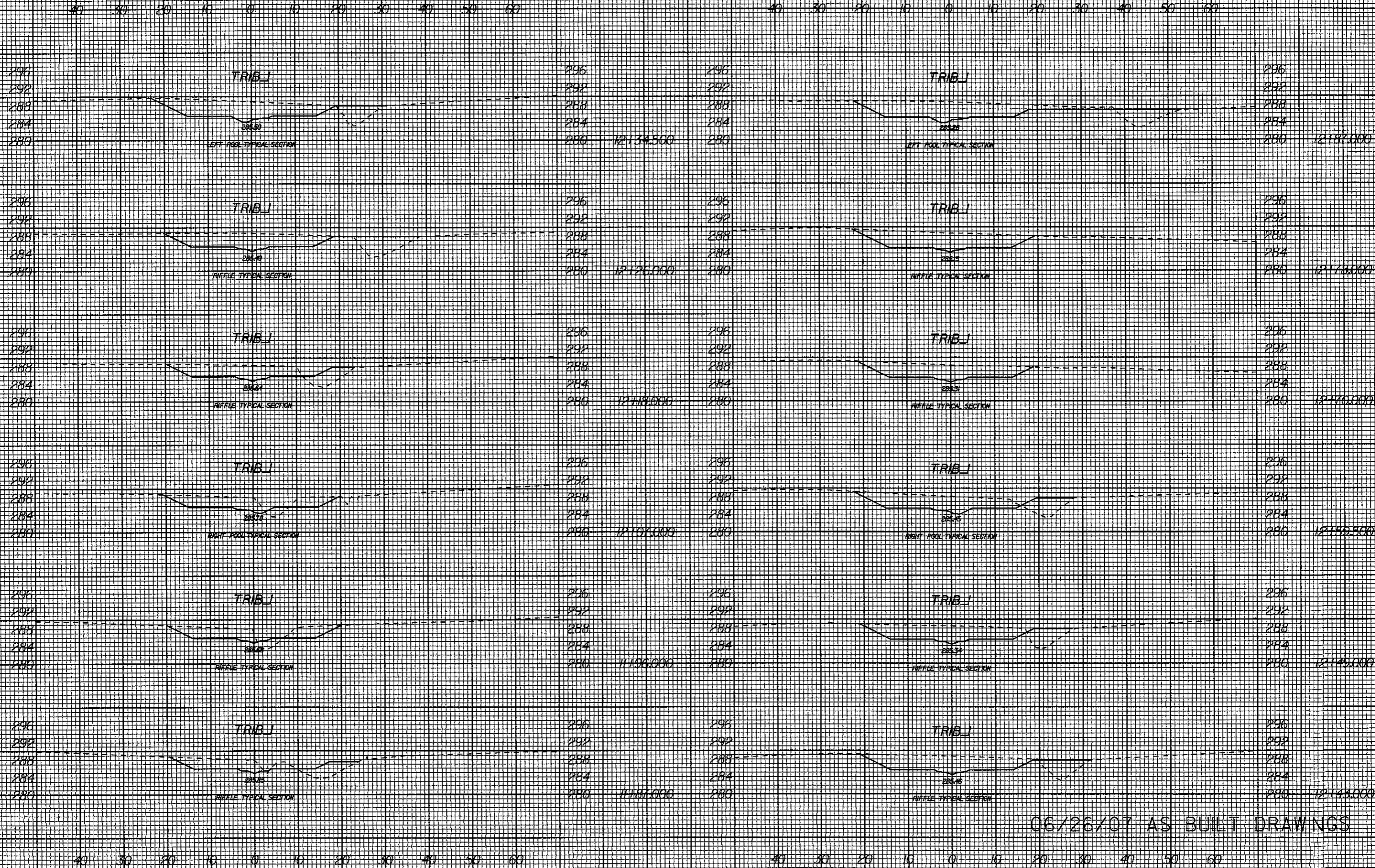


i:25:42 PM K:\53257\Const Admin\Phil DuBose SCOVAs Built Drawings\53257-bi-wp1.dgn

06/26/07 AS BUILT DRAWINGS



8/23/99

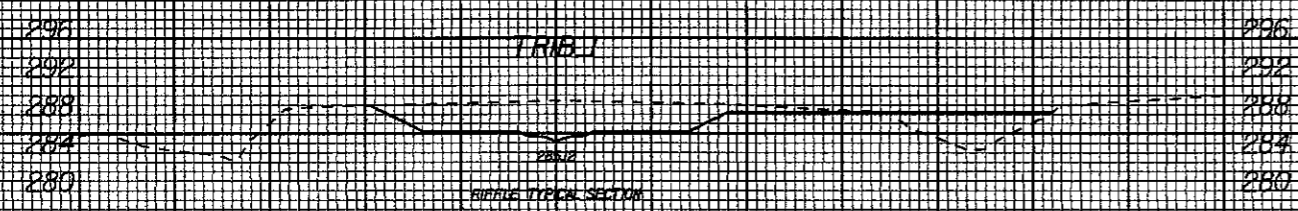
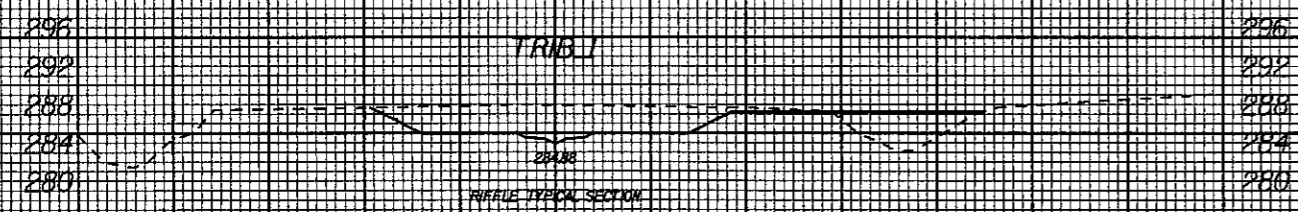
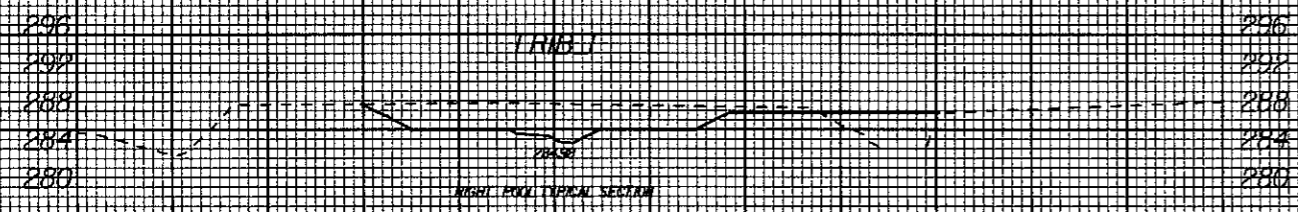
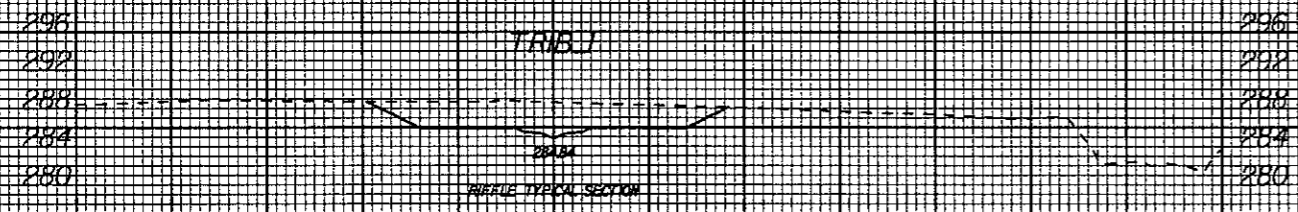
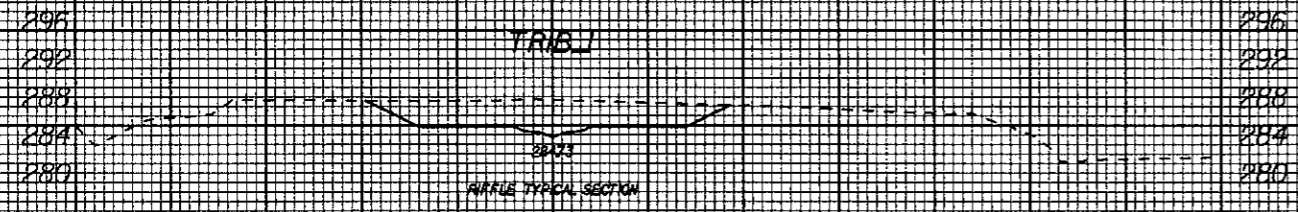
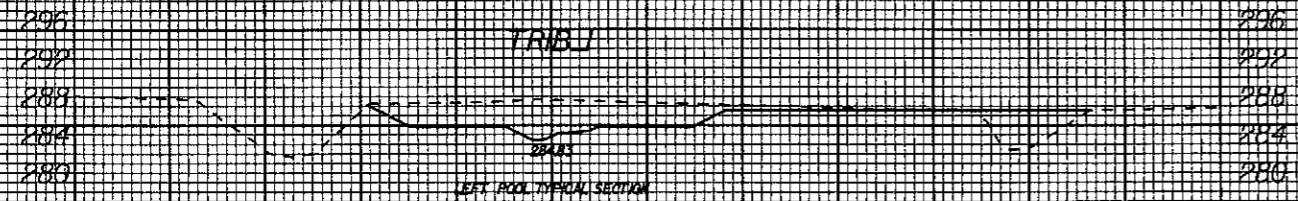


12:52 PM K:\53257\Const Admin\Ph1 DuBois SCD\As Built Drawings\53257-tribl\_xpl.dgn russel\_barbour

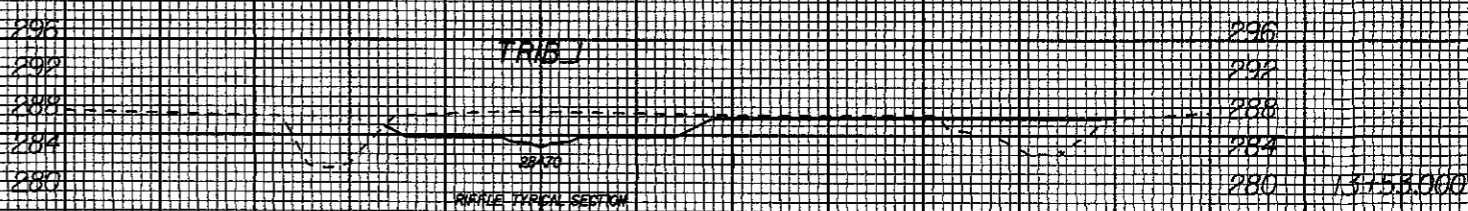
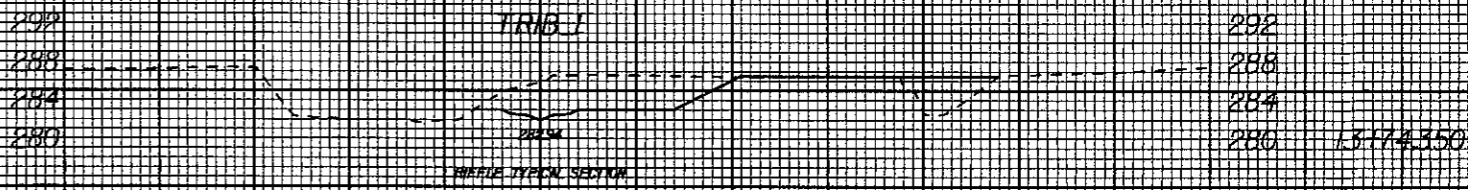
06/26/07 AS BUILT DRAWINGS

8/23/99

40 30 20 10 0 10 20 30 40 50 60



40 30 20 10 0 10 20 30 40 50 60



06/26/07 AS BUILT DRAWINGS

40 30 20 10 0 10 20 30 40 50 60

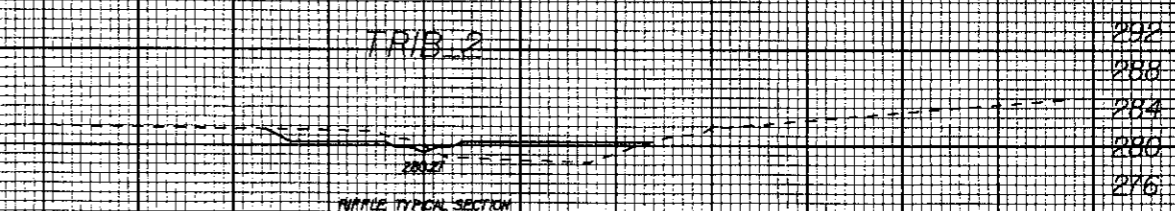
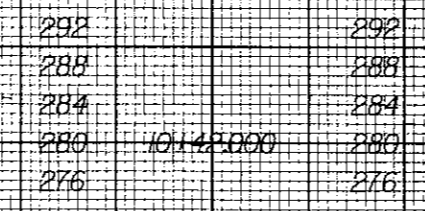
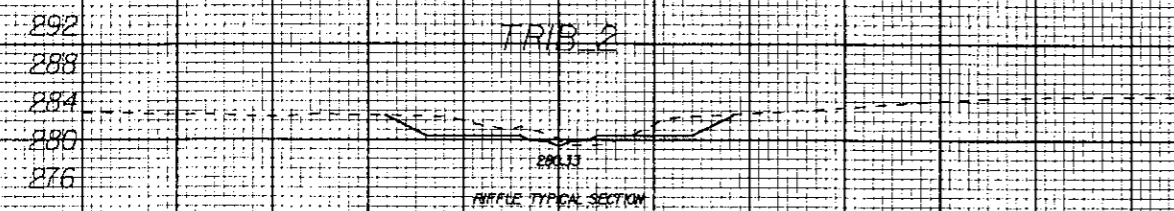
40 30 20 10 0 10 20 30 40 50 60

12:58 PM K:\53257\Const Admin\Phl DuBose SCU\As Built Drawings\53257-ar-bl-xpl.dgn

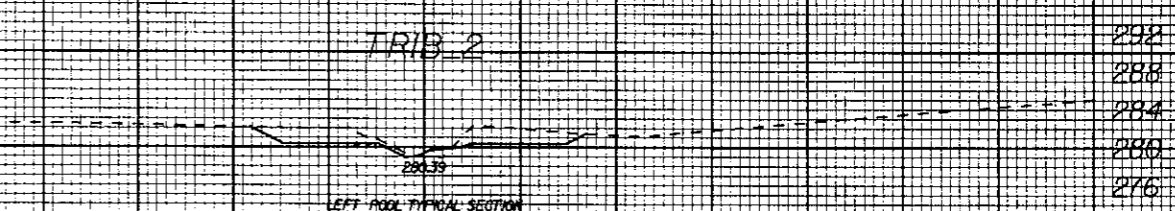
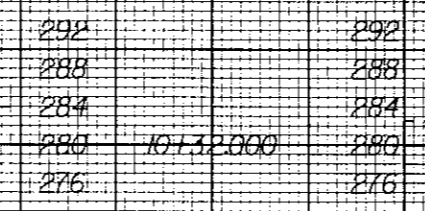
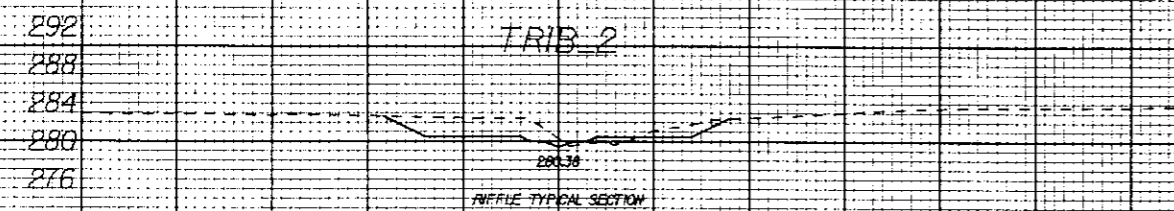


40 30 20 10 0 10 20 30 40 50 60

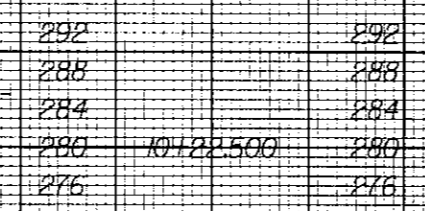
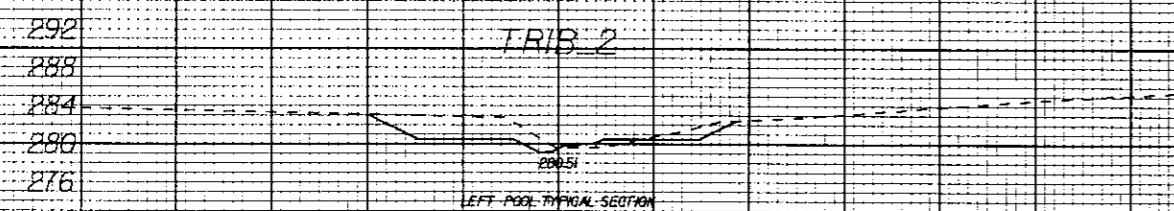
40 30 20 10 0 10 20 30 40 50 60



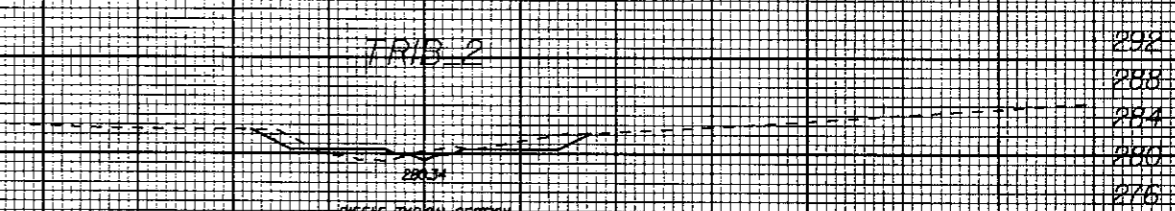
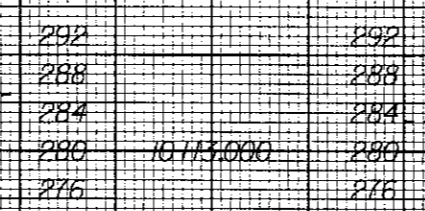
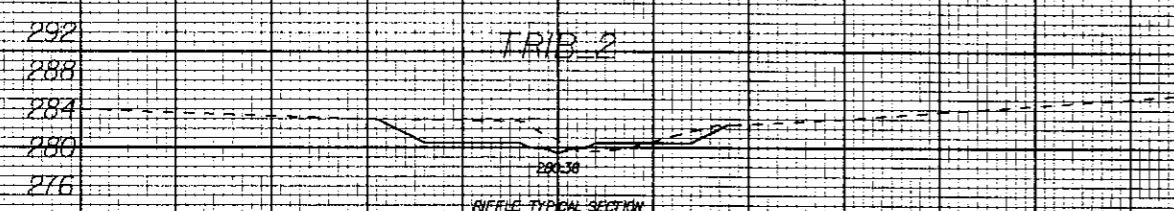
10+143.000



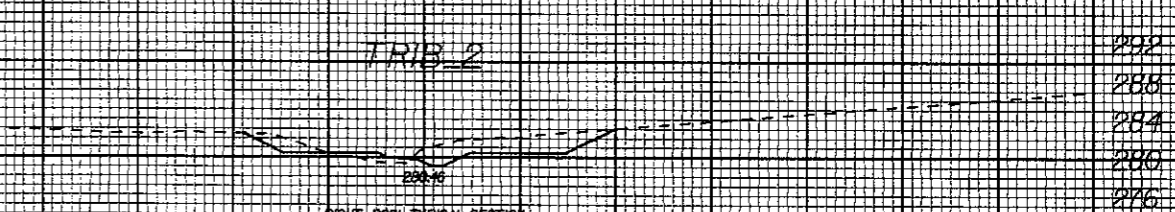
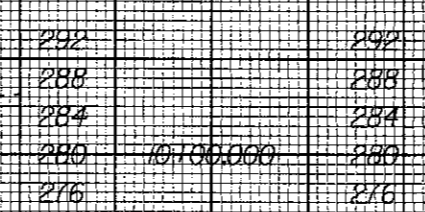
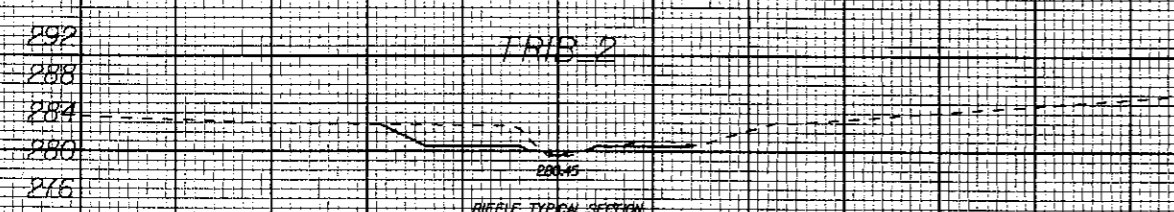
10+132.000



10+122.500



10+113.000



10+100.000

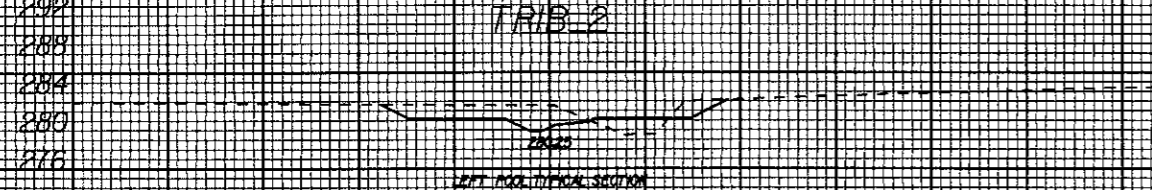
40 30 20 10 0 10 20 30 40 50 60

40 30 20 10 0 10 20 30 40 50 60

06/26/07 AS BUILT DRAWINGS

8/23/99

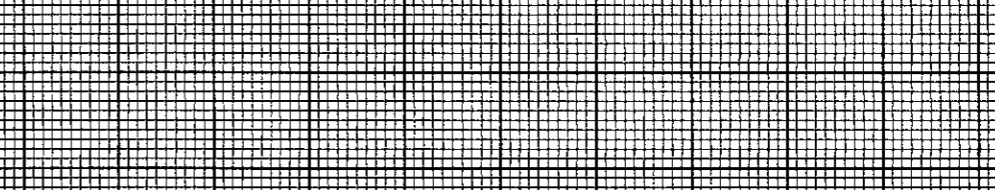
40 30 20 10 0 10 20 30 40 50 60



292  
288  
284  
280  
276

11721000

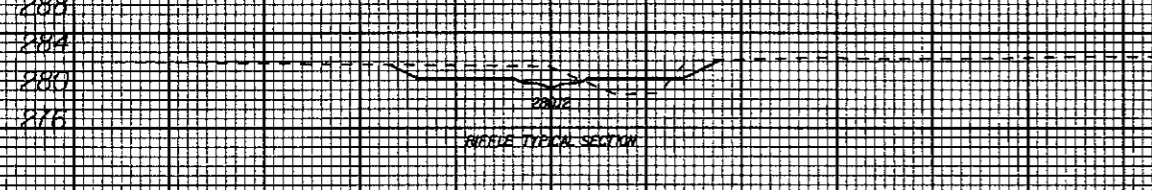
40 30 20 10 0 10 20 30 40 50 60



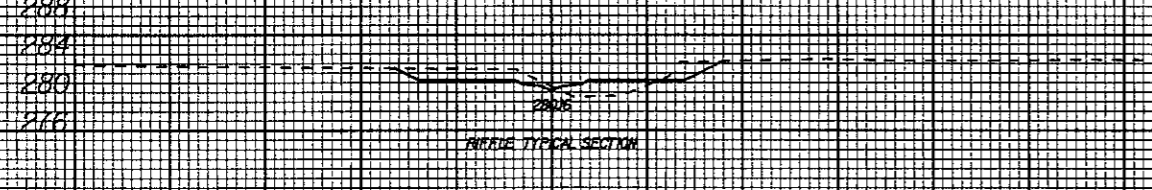
292  
288  
284  
280  
276

11763000

40 30 20 10 0 10 20 30 40 50 60



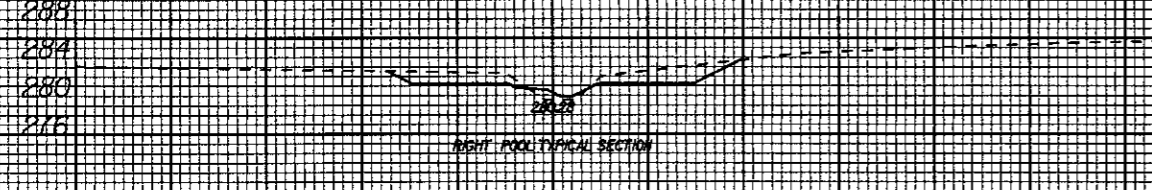
40 30 20 10 0 10 20 30 40 50 60



292  
288  
284  
280  
276

11758000

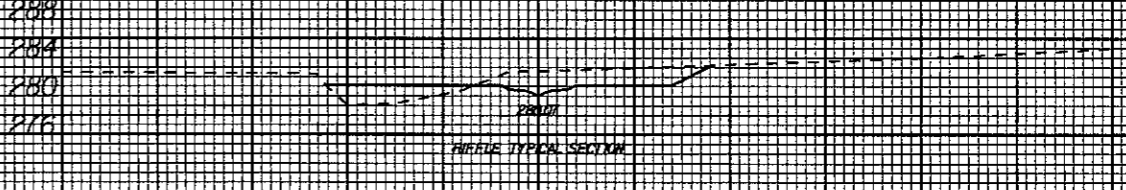
40 30 20 10 0 10 20 30 40 50 60



292  
288  
284  
280  
276

11749000

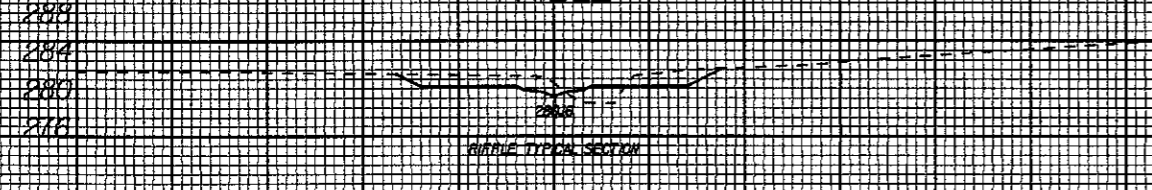
40 30 20 10 0 10 20 30 40 50 60



292  
288  
284  
280  
276

11759500

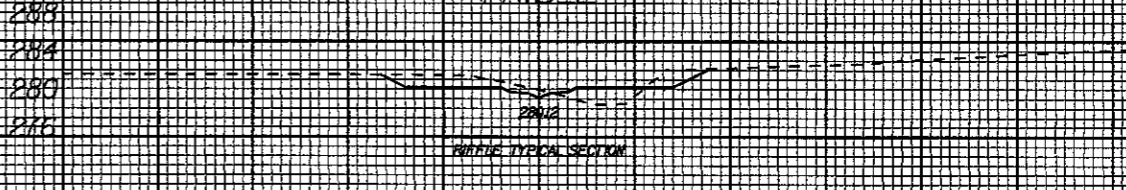
40 30 20 10 0 10 20 30 40 50 60



292  
288  
284  
280  
276

11740000

40 30 20 10 0 10 20 30 40 50 60



292  
288  
284  
280  
276

11790000

06/26/07 AS BUILT DRAWINGS

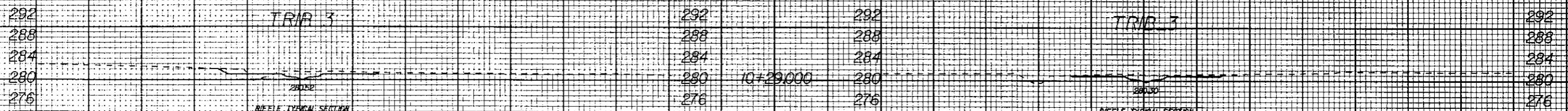
40 30 20 10 0 10 20 30 40 50 60

40 30 20 10 0 10 20 30 40 50 60

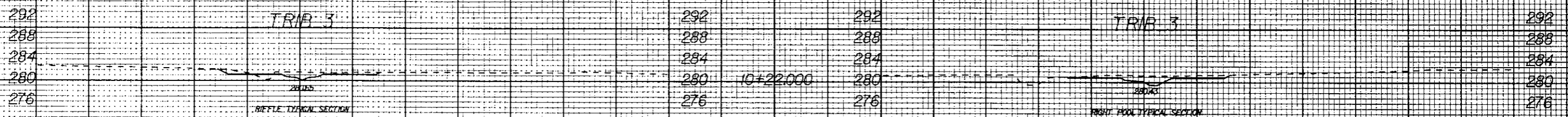
I:\2646 PM Const Admin\Ph1 DuBois SC0\As Built Drawings\53257v-l2\_xpl.dgn  
russellbarbour

40 30 20 10 0 10 20 30 40 50 60

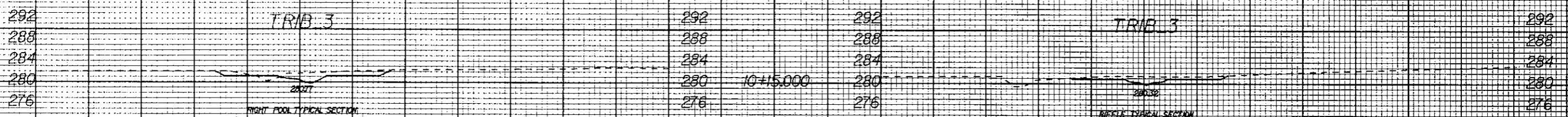
40 30 20 10 0 10 20 30 40 50 60



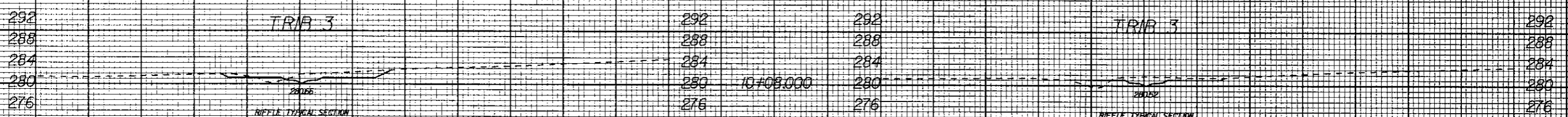
10+61.000



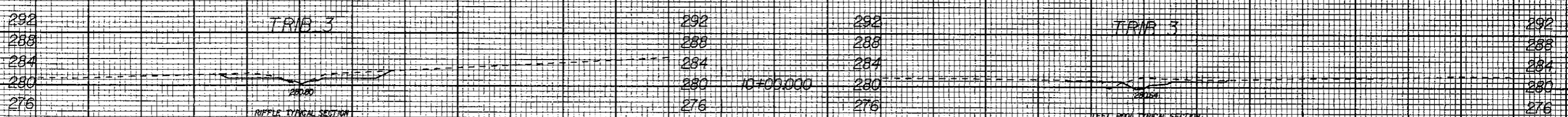
10+56.500



10+50.000



10+39.000



10+34.000

06/26/07 AS BUILT DRAWINGS

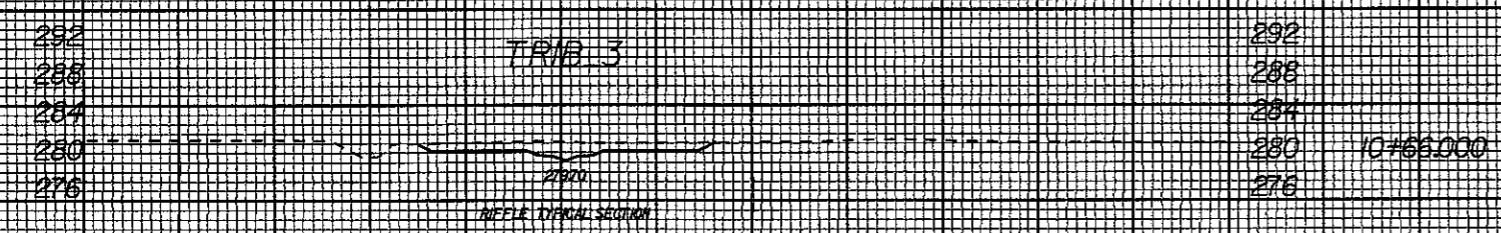
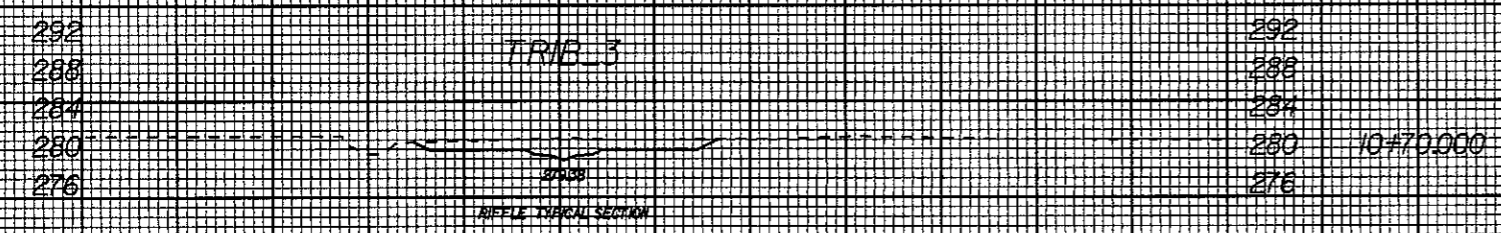
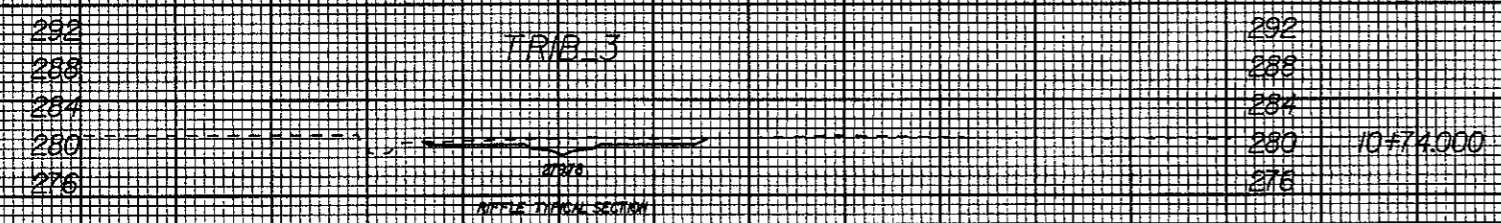
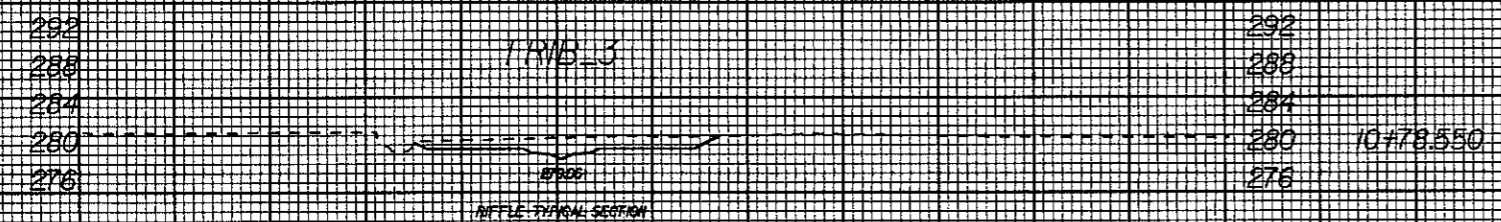
40 30 20 10 0 10 20 30 40 50 60

40 30 20 10 0 10 20 30 40 50 60

K:\53571\Const Admin\Phil DuBose SCOVAs Built Drawings\53257-r-b3\_xpl.dgn

8/23/99

40 30 20 10 0 10 20 30 40 50 60



40 30 20 10 0 10 20 30 40 50 60

06/26/07 AS BUILT DRAWINGS

12:34 PM K:\53257\Const Admin\Phil DuBois\SCD\As Bult Drawings\53257-r-b3\_xpl.dgn russel.barbour