

C-SS-38

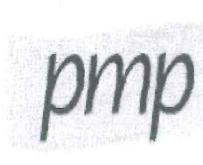
10/31/15

- Remove Old Structure	\$15,000
- SPV 36" x 58' Conc. Pipe Arch, 84' @ 200 ⁰⁰ (Alt = 38" x 60" Horiz. elliptical)	\$16,800
- 4 AEW @ 2,000	\$8,000
- Pipe Bedding Special ; (#2 Stone)	
58' x .75 x 15 x $\frac{1.95}{27}$ = 45 tons $\Rightarrow$ 50 tons x 25 ^{cy} / _{ton}	\$1,250
- Rip Rap 100 x 15 x 2 $\div$ 27 = 111 use 115 @ .50	\$5,750
- HR Fabric 102 x 19 : 9 215 x 3 ²⁵	\$700
	47,500
MISC +/- 25%	12,500
Total =	\$66,000

Alt Turn 7x4 Box $\Rightarrow$ Appro current agency

8"

162



Project ID : 8949-04-08

Title : BALDWIN - MENOMONIE

Region : NORTHWEST

Route : USH 012

Sub Title : CULVERTS C-55-9001, 9002 & 0014

County : ST. CROIX

Structure # 2

Existing Structure

- Existing structure ID
- Existing structure type
- Year constructed
- Latest year of rehab
- Current condition
- Bridge sufficiency number
- Rate score
- Vertical clearance
- Clear roadway width
- Last inspection date
- Posted load rating
- Inventory rating
- Feature on
- Feature over/under
- Location
- Existing Skew
- Existing Structure Sq/FT

Existing Utilities

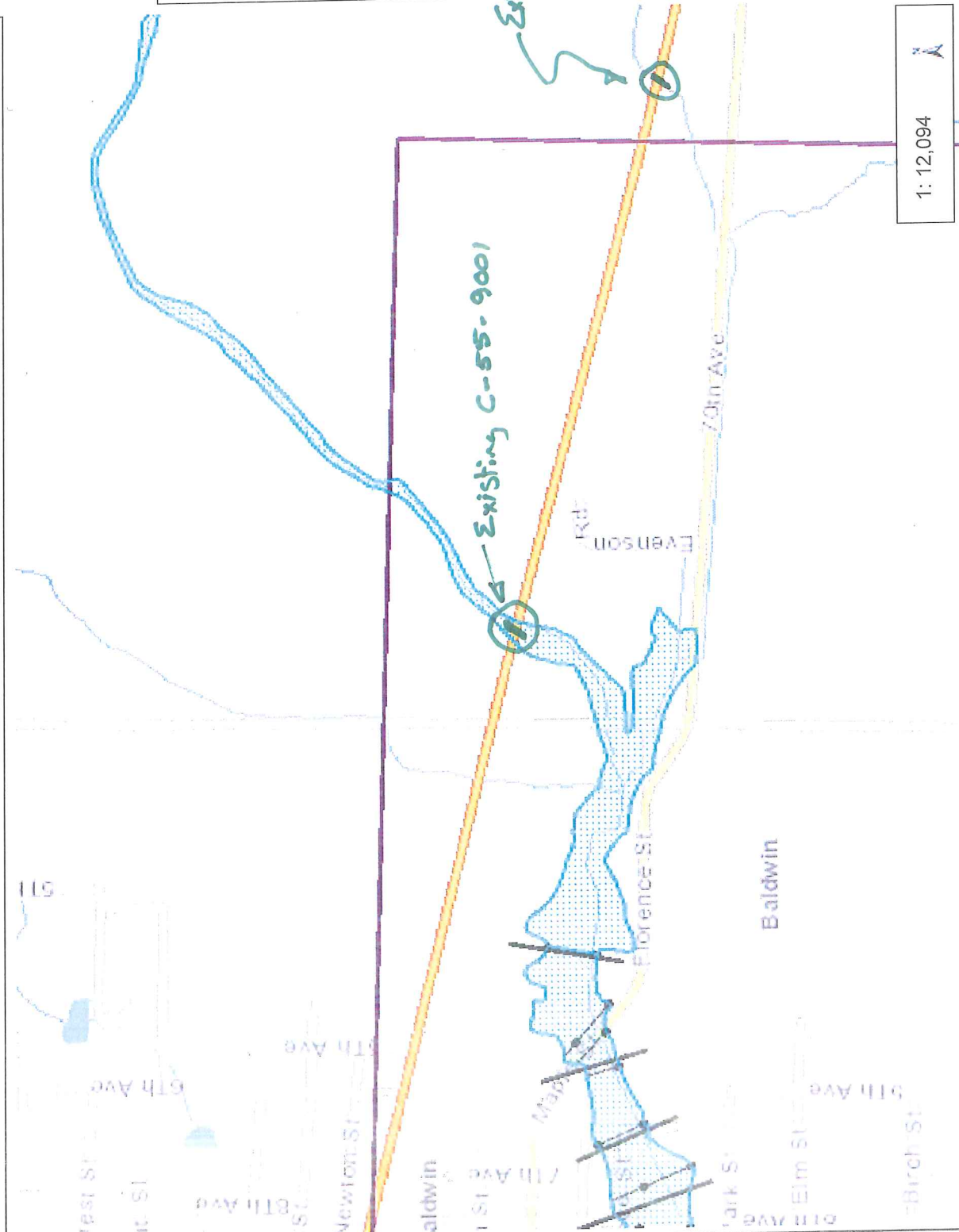
Existing Lighting

Proposed Structure Work

- Proposed structure work **Box Culvert - Multi Cell
- Related Construction Project ID8949-04-78
- Proposed structure IDC-55-0038
- Spans or Cells1
- Proposed aesthetic value **No aesthetics
- SkewNot on Skew
- WideningNo Widening
- Curved SuperstructureNot Curved or Tapered
- Twin Structure
- Structure Survey Report
- Steel Tub Girders

old
C-55-9002

Super Elevation Transition on Structure	
Non-Standard Pier (Straddle bent, integral cap)	
Utility/Lighting Accommodation	
Sign Structure Mounted on Structure	
Raised Sidewalks	
Bridge Painting (with other structure work)	
Tapered Superstructure	
Staged Construction	
Structural approach slab	
BOS Estimated Design Hours	150
Estimated structure cost	\$ 200,000
Proposed Utilities	
Proposed Lighting	
Additional Information	
Additional work required	
Approach slabs	
Approach work	
Canoe/boat landing	
Consultant design structure	
Dam	
Existing foundations	
Fisherman's platform	
Gauging station (USGS)	
High cost bridge	
Pedestrian/bike lanes	
Snowmobiles	
Comments	
C-55-0038 is replacing C-55-9002 located 0.9 miles east of 220th St.	
Last updated by HARRIS, KYLE J on 04/09/2015	



- 1: 12,094

0.4 0 0.19 0.4 Miles

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0.4 Miles

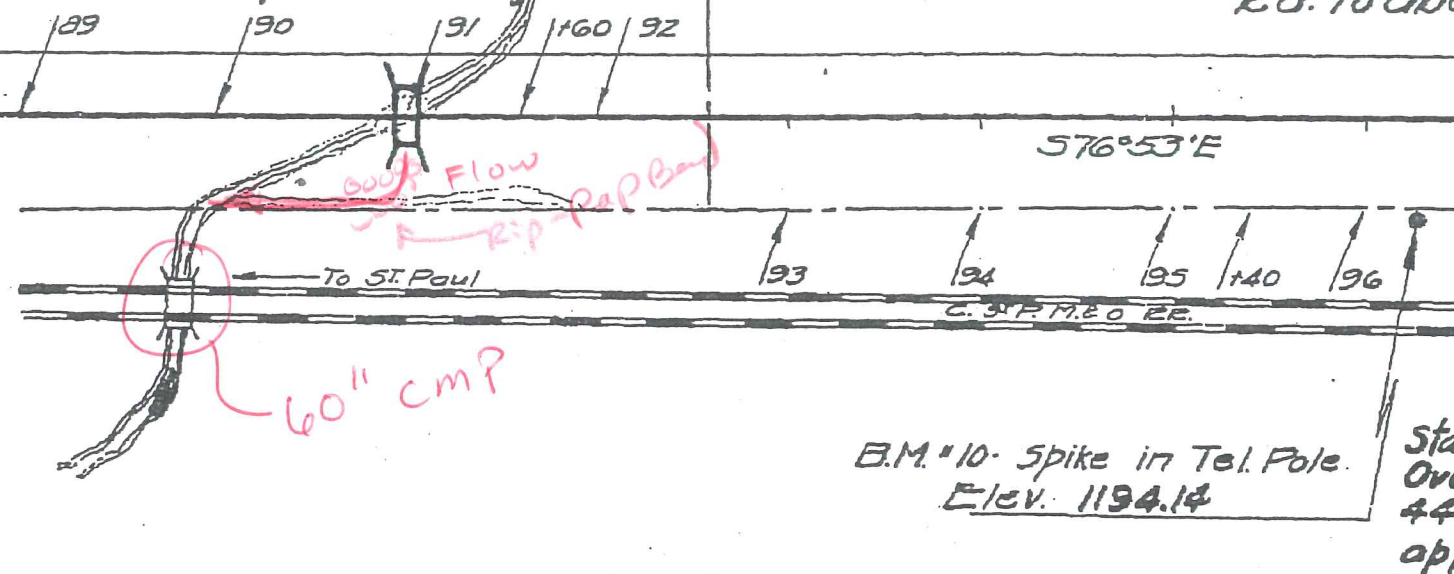


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12' Span - 28' Rdwy. R.C. Slab Span
See Special Bridge Plans

Cultivated

Ease comm.
Ed. to abut.



Net length of Centerline Sta. 90 to Sta. 106 = 1600 Ft.

" " " " " 106 " " 115+55.35 = 955.35 Ft.

Sta. 91-99: Cut ± 1197 C.Y. Fill ± 1303 C.Y.

NOTE: Shrinkage Allowance Sta. 90 - Sta.

GREGGSON BRIDGE

Sta. 91+00: 12' R.C. Slab Span Bridge Reg'd

28' Rdwy. El. B. Floor = 86.04

El. Bottom Footg = 77.5

Stream Bed = 81.1

Conc. Class A = 7150 Yds.

Rain. Steel = 2000 Lbs.

8 Tile Drains 36" Poly Reg'd

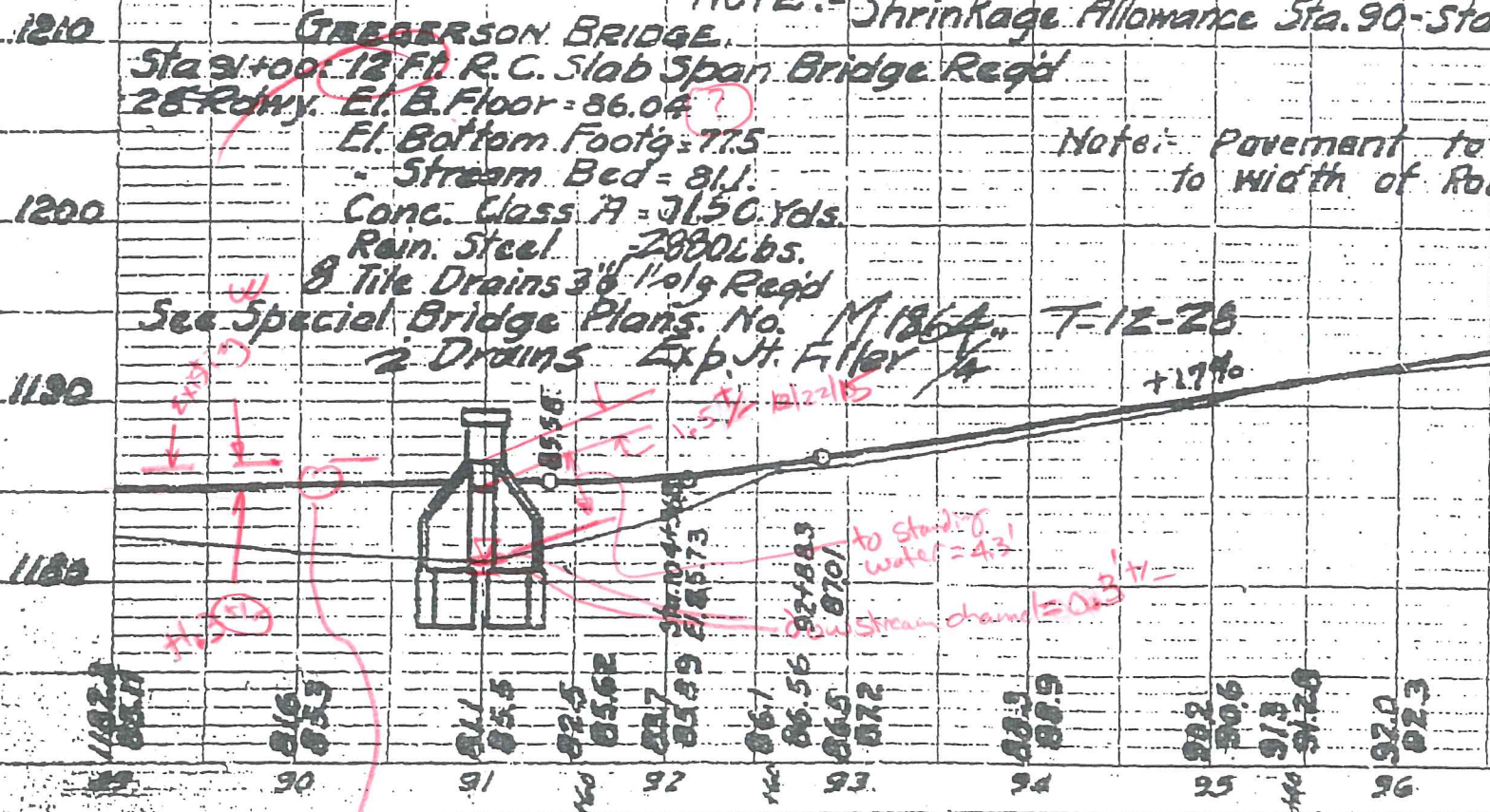
See Special Bridge Plans. No. M 1864

2 Drains Exp. H. Filler 1/4

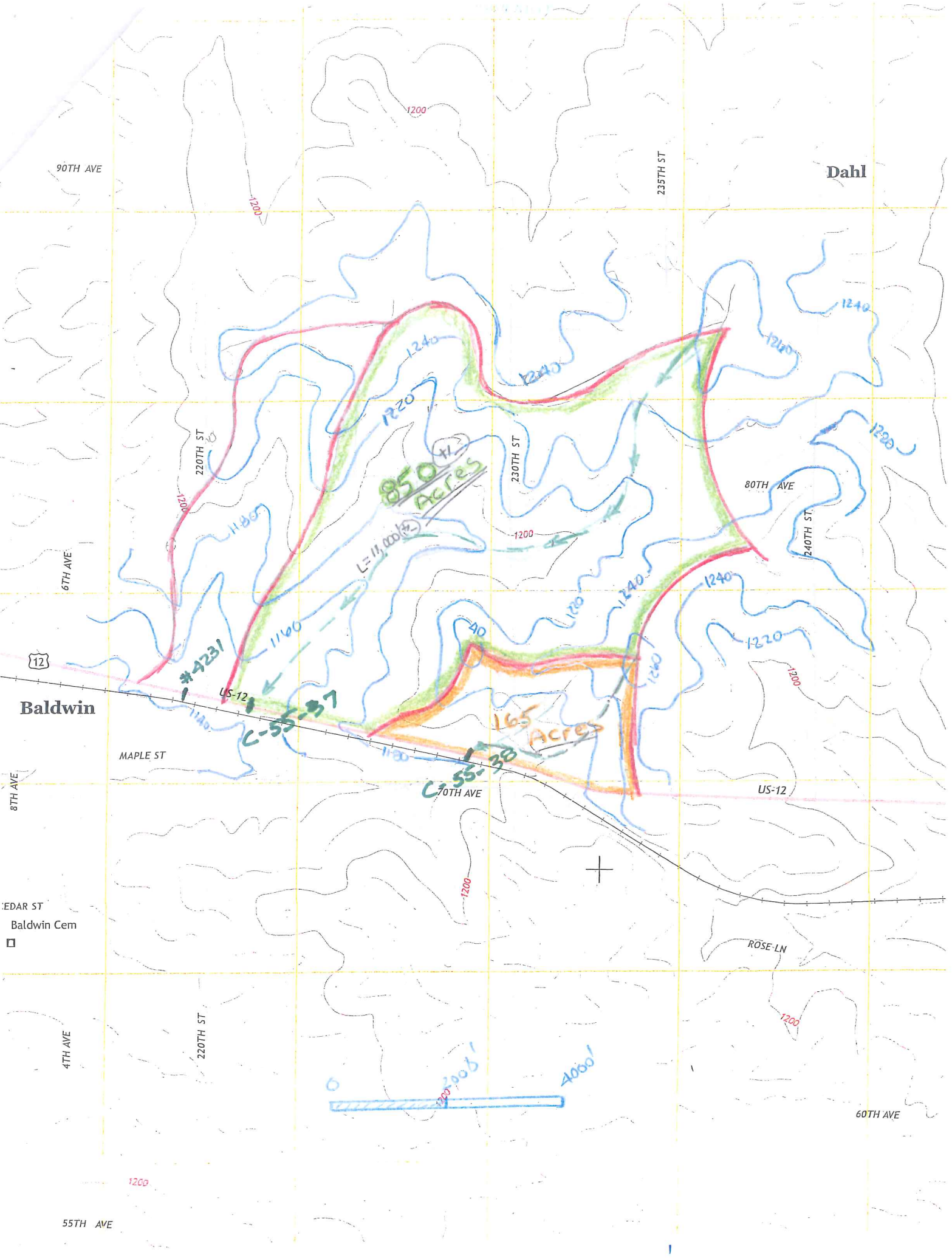
Note: Pavement to
to width of Road

T-12-28

+1740



subgrade, add 6 1/2" for
old Conc. par't profile



C-55-38

$$L = 3,800' \pm$$

$$H = 1265 - \overset{\text{As built}}{1181} = 84'$$

$$A = 165 \text{ Acres } \pm$$

$$\tau_c = 10$$
$$L_1 = 2500'$$

$$H_1 = 39'$$

$$\tau_c = 1$$

$$L_2 = 1300'$$

$$H_2 = 45'$$

$$\text{Total } \tau_c = 23 \text{ for channel flow}$$

$$\times 2$$
$$\tau_c = 46 \text{ for overland flow}$$

$$Q_{50} \text{ overland} = (165)(3.0)(.21) = 104 \text{ cfs}$$

$$\frac{3.3}{3.0}$$

$$Q_{50} \text{ channel} = (165)(4.5)(.21) = 156 \text{ cfs}$$

$$\frac{4.9}{4.5}$$

$$\text{original opening} = 12' \times 3.8' \pm = 46 \text{ ft}^2 (\pm)$$

$$\text{existing max opening} = 12' \times (4.3 \pm .3) = 55 \text{ ft}^2 (\pm)$$

$$60 \text{ cmp downstream} = \pi (2\frac{1}{2})^2 = 19.6 \text{ ft}^2$$

Recommend twin 36" x 58" Arch Pipes

$$\text{Estimated Capacity} = 73 \times 2 = 146 \text{ cfs}$$

$$\text{Estimated Opening} = 2 \times 12\frac{1}{2} = 25 \text{ ft}^2$$

$$\text{pipe length} = 48' - 3' \times 2 = 42'$$

each

$$84'$$

Assume AEW's (4)

$$\text{ends} \quad \text{(Disch \& inlet Fil, edge of endwalls} = 29' \text{ RT \& LT}$$

48-INCH CIRCULAR

FIGURE 15: 36 x 58-Inch Concrete Arch Pipe

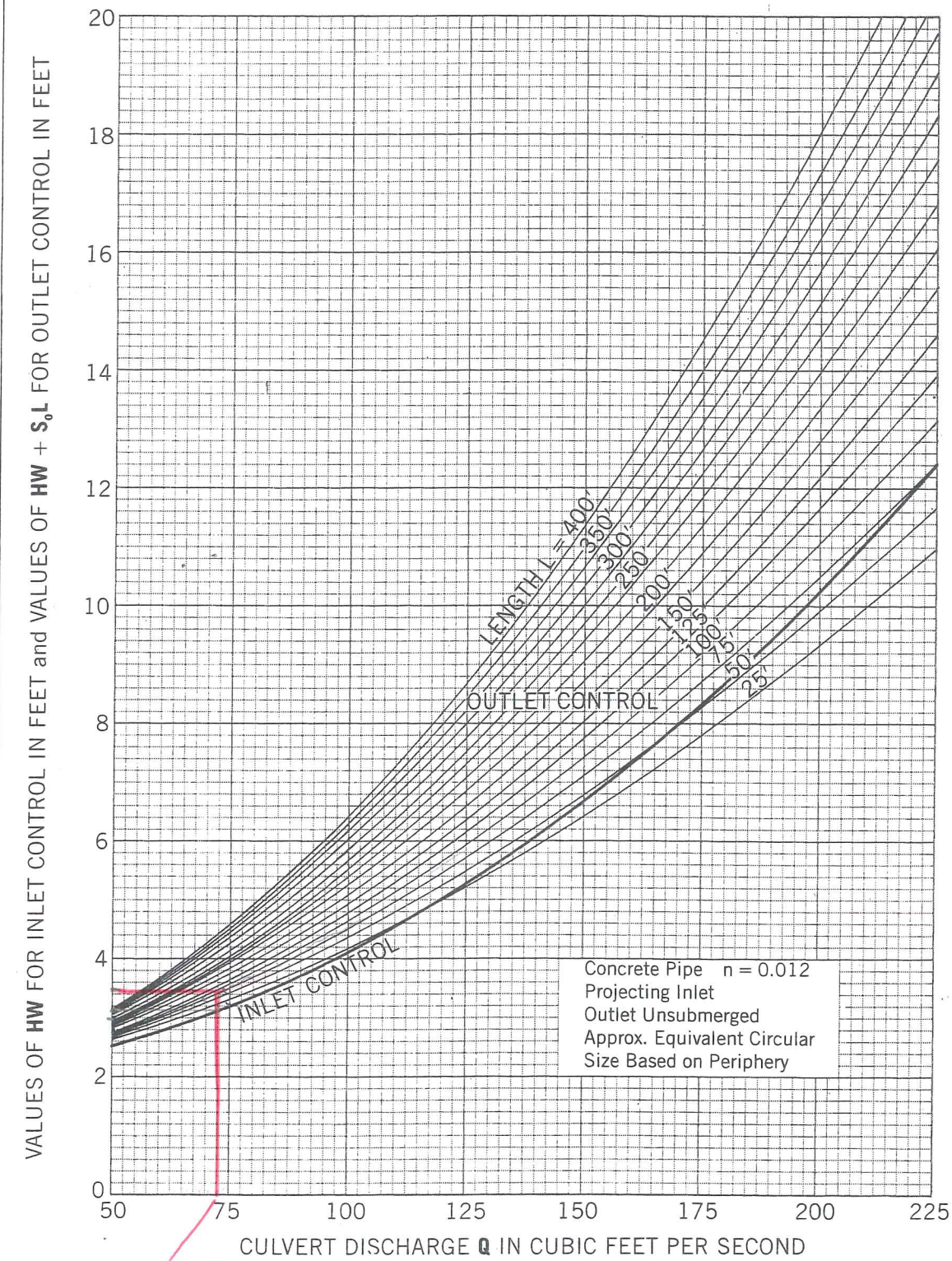
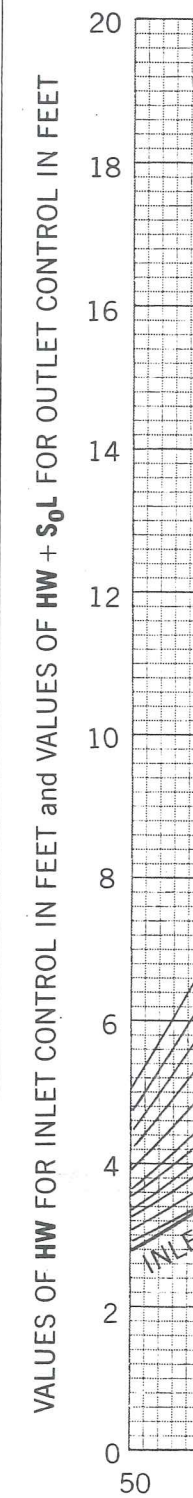
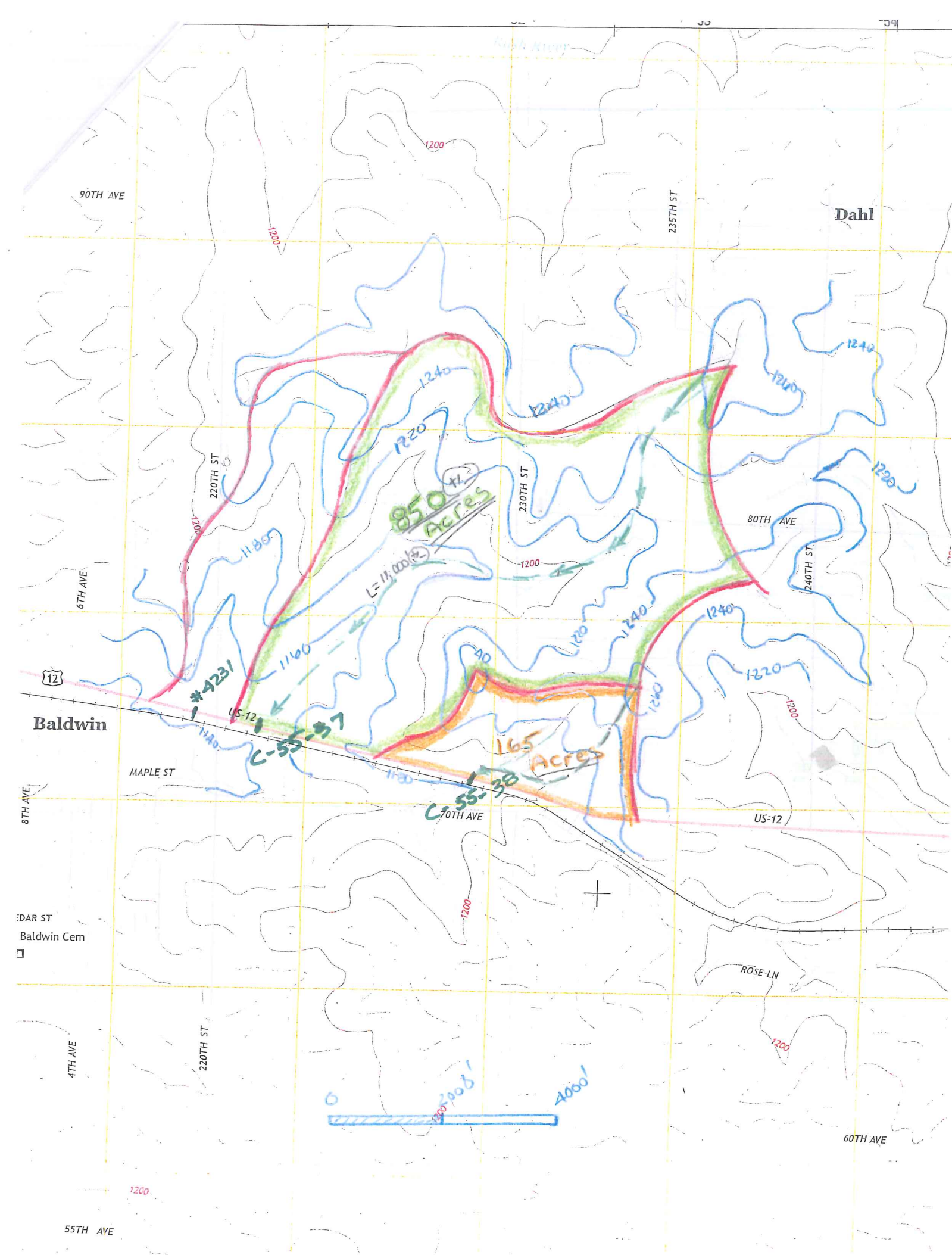
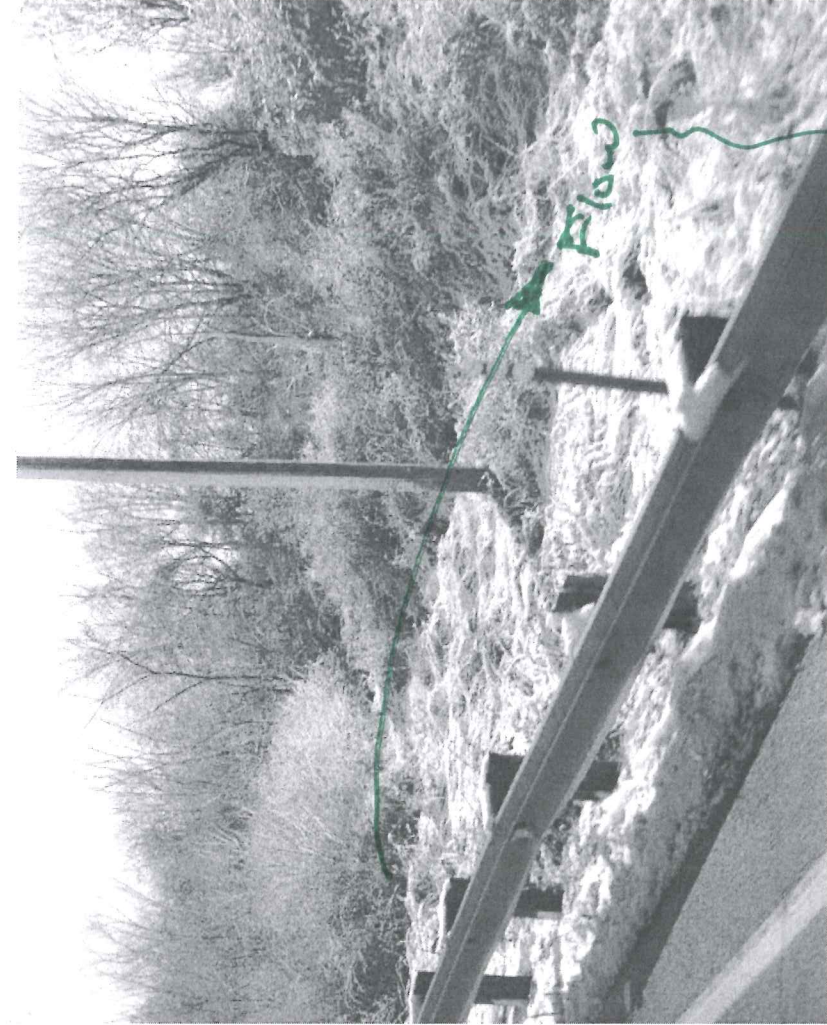


FIGURE 16:



Interpolate for intermediate culvert length





route: 012E county: ST. CROIX date: 11/06/2013 plm: 020.060
Lat: 44.96384477 Long: -92.34240017 Elev: 1088.27 ft.
\\doteauplog1p\photolog\RG5\012E_R5_2013\FrontDir_020\F_02032.jpg

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C- 55 - 9002 Existing
C- 55 - 0038 Proposed

Flows to
Flow to
Flow to
Flow to



route: 012W county: ST. CROIX date: 11/05/2013 plm: 120.119
Lat: 44.96373445 Long: -92.34149376 Elev: 1111.13 ft.
\\doteauplog1\photolog\RG5\012W_R5_2013\FrontDir_123\F_12314.jpg
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C-55-9002 old
C-55-38 New

Flow to culvert appears
overland type => not
well defined channel

M1964

12' slab span

new ID # C-SS-0038

old ID H C-55-9002

28' Roadway Bridge

Elev. ~~Bottom~~ Floor = 86.04

Elav. Bottom fasting = 77.5'

Stream Bed = 21.1

$$\begin{aligned} \text{max original opening} &= \cancel{12' (26.04 + 21.1) = 58.8 \text{ ft}^2} \\ &= 12' \times \frac{(26.04 - 1.1' - 21.1')}{3.84} = 46.1 \text{ ft}^2 \end{aligned}$$

ENGINEER'S ESTIMATE / Q2P WORKBOOK
PROJECT MANAGER: RICHARD SHERMO

CONST. I.D.: 8949-04-78
TITLE: BALDWIN - MENOMONIE
LIMITS: CULVERTS C-55-0037, 0038, & 0039
HIGHWAY: USH 12
COUNTY: ST. CROIX
PROGRAM CODE: 303 STATE HIGHWAY REHABILITATION
CONCEPT CODE: RESURF RESURFACING

CONSTRUCTION COST ESTIMATE
6/9/2015
\$136,361.06

PSE Date:
Let Date:
NET C/L MILES: 0.130

TOTAL BID ITEMS		SCHEDULE OF BID ITEMS WISDOT STANDARD SPECIFICATIONS 2015 EDITION				
42		ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
203.0200		REMOVING OLD STRUCTURE (91+00, C-55-9002)	1	LS	\$2,000.00	\$2,000.00
204.0100		REMOVING PAVEMENT	222	SY	\$5.00	\$1,111.11
204.0110		REMOVING ASPHALTIC SURFACE	600	SY	\$4.00	\$2,400.00
204.0165		REMOVING GUARDRAIL	600	LF	\$3.00	\$1,800.00
205.0100		EXCAVATION COMMON	3200	CY	\$12.00	\$38,400.00
211.0100		PREPARE FOUNDATION FOR ASPHALTIC PAVING (PROJECT)	1	LS	\$5,000.00	\$5,000.00
305.0110		BASE AGGREGATE DENSE 3/4-INCH	60	TON	\$20.00	\$1,200.00
305.0120		BASE AGGREGATE DENSE 1 1/4-INCH	60	TON	\$30.00	\$1,814.81
305.0500		SHAPING SHOULDERS	10.8	STA	\$100.00	\$1,080.00
455.0605		TACK COAT	2.5	GAL	\$15.00	\$37.50
465.0105		ASPHALTIC SURFACE	36	TON	\$145.00	\$5,252.63
465.0115		ASPHALTIC SURFACE DETOURS	100	TON	\$120.00	\$12,000.00
522.0160		CULVERT PIPE REINFORCED CONCRETE CLASS III 60-INCH	70	LF	\$175.00	\$12,250.00
522.1060		IRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 60-INCH	2	EACH	\$2,500.00	\$5,000.00
606.0200		RIPRAP MEDIUM	7.78	CY	\$60.00	\$466.67
614.0920		SALVAGED RAIL	600	LF	\$2.00	\$1,200.00
614.2300		MGS GUARDRAIL 3	200	LF	\$18.00	\$3,600.00
614.2610		MGS GUARDRAIL TERMINAL EAT	4	EACH	\$2,500.00	\$10,000.00
619.1000		MOBILIZATION	1	EACH	\$6,152.00	\$6,152.00
625.0500		SALVAGED TOPSOIL	1400	SY	\$1.75	\$2,450.00
628.1504		SILT FENCE	700	LF	\$2.00	\$1,400.00
628.1520		SILT FENCE MAINTENANCE	700	LF	\$0.34	\$238.00
628.1905		MOBILIZATIONS EROSION CONTROL	1	EACH	\$200.00	\$200.00
628.1910		MOBILIZATIONS EMERGENCY EROSION CONTROL	1	EACH	\$150.00	\$150.00
628.2004		EROSION MAT CLASS I TYPE B	1400	SY	\$1.50	\$2,100.00
628.7504		TEMPORARY DITCH CHECKS	100	LF	\$7.25	\$725.00
628.7555		CULVERT PIPE CHECKS	2	EACH	\$20.00	\$40.00
629.0210		FERTILIZER TYPE B	1.59	CWT	\$100.00	\$158.76
630.0120		SEEDING MIXTURE NO. 20	45	LB	\$11.00	\$498.96
630.0200		SEEDING TEMPORARY	68	LB	\$4.00	\$272.16
633.5200		MARKERS CULVERT END	2	EACH	\$40.00	\$80.00
634.0416		POSTS WOOD 4X4-INCH X 16-FT	1	EACH	\$75.00	\$75.00
634.0805		POSTS TUBULAR STEEL 2X2-INCH X 5-FT	4	EACH	\$100.00	\$400.00
637.2210		SIGNS TYPE II REFLECTIVE H	18	SF	\$17.00	\$310.25
638.2602		REMOVING SIGNS TYPE II	5	EACH	\$125.00	\$625.00

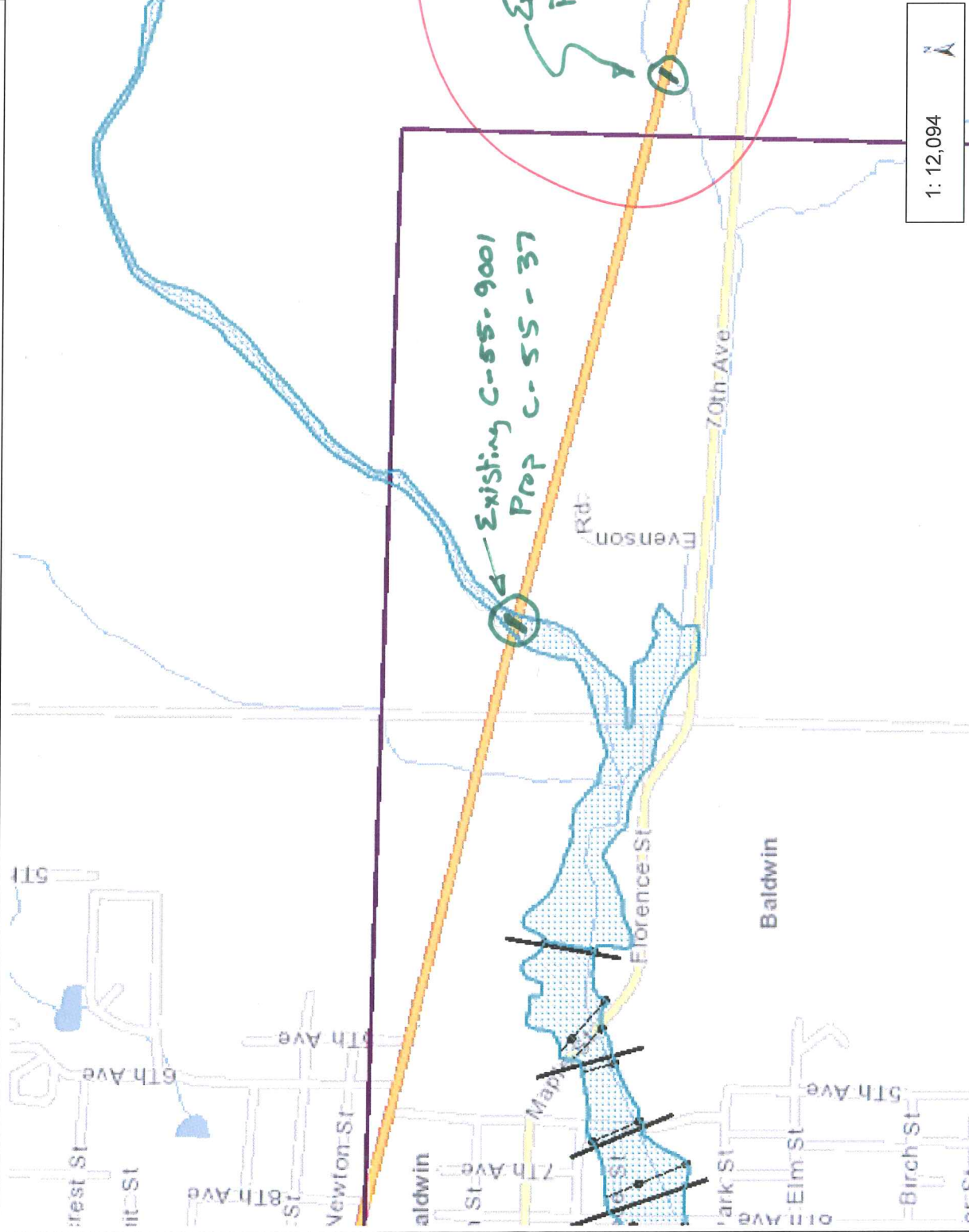
Checked By:
Date:



Surface Water Data Viewer Map



- Legend**
- 1% Annual Chance Flood Hazard
 - 0.2% Annual Chance Flood Hazard
 - Cross Sections
 - Floodway
 - Base Flood Elevations
 - FIRM Panel Index
 - Rivers and Streams
 - Open Water



1: 12,094



0.4 0 0.19 0.4 Miles

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Notes

Z.J.

12-10-25

FINAL
SURVEY

YARDAGE
CUT 0 FILL 573

85.3

90

81.6

C 0
C-0
NEW CENTER LINE

F 159

F 142

0 495

85.11

89

82.3

C 0
ELEVATION OF NEW SUBGRADE

F 123

F 122

0 393

85.55

88

83.4

C 0
C-0

F 89

F 88

0 165

86.28

86.28

+35

83.7

C 0
C-0

F 98

F 81

F 84

15 41

87

84.6

86.7

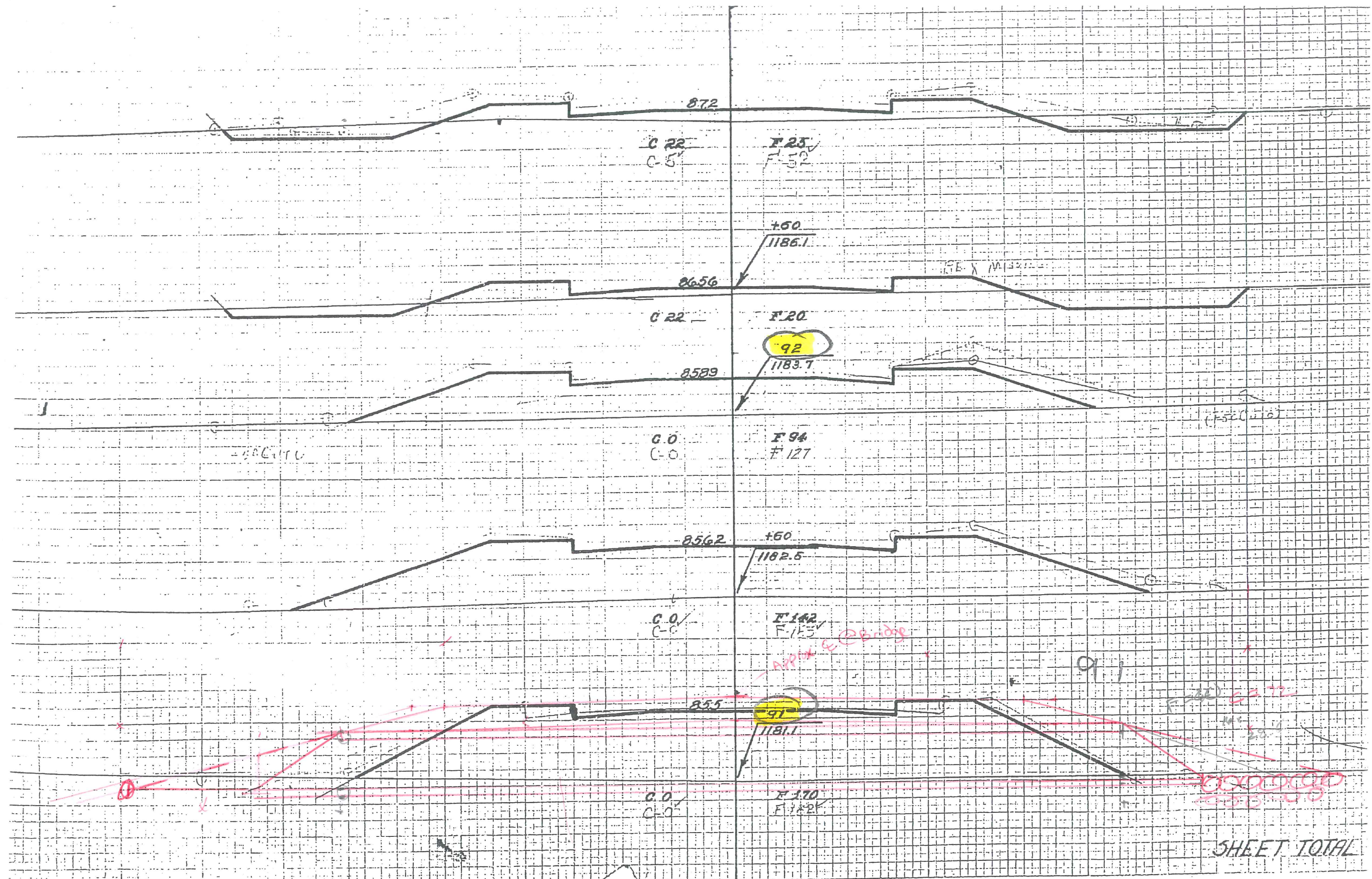
C 83

C-21

2

F 15

F 16



C 31
C-5

F 12
F-5

951.40
950

912.8

C 32
C-5

F 8
F-5
39

90.6

C 22
C-5

F 23
F-5

94

88.9

C 29
C-4

F 20
F-5
58

94

87.2

C 22
C-5

F 25
F-5

93

92+50
1186.1

1186.1