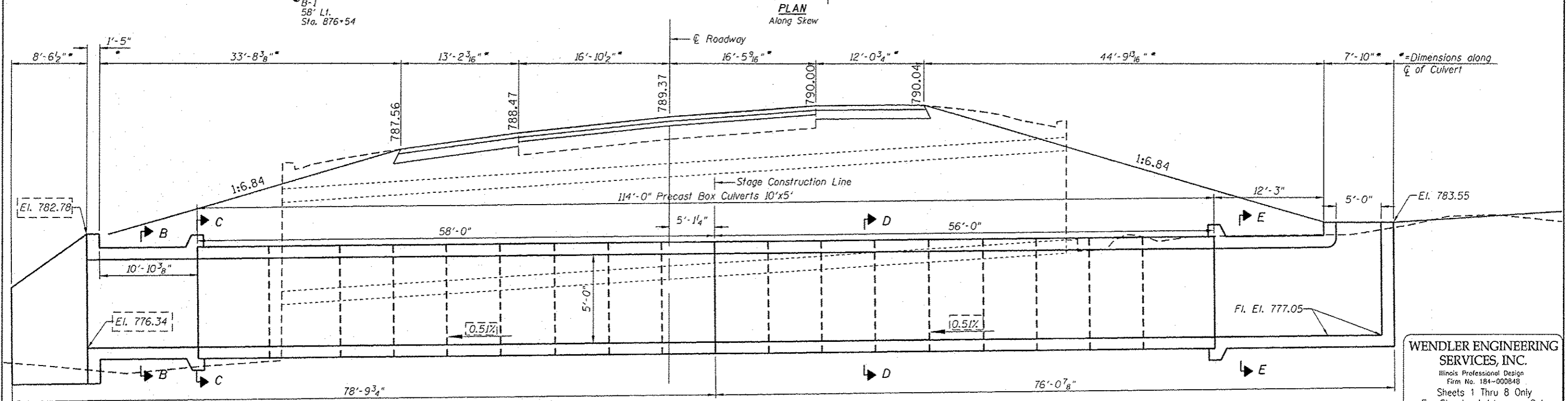
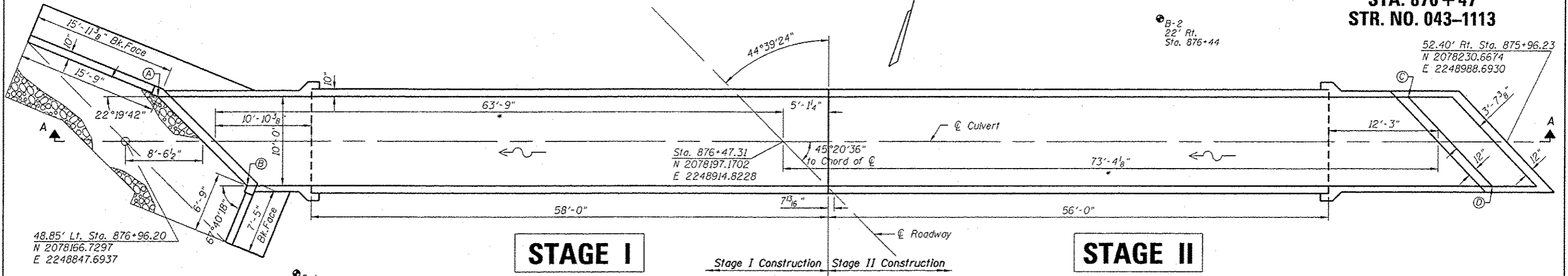


BOX CULVERT PLAN
US 20 /IL RTE 84
F.A.P. RTE 301 SECTION 29T-2
JO DAVIESS COUNTY
STA. 876+47
STR. NO. 043-1113

LAYOUT COORDINATES

Point	Northing	Easting
(A)	2078172.7434	2248848.8482
(B)	2078167.7711	2248862.0970
(C)	2078230.6147	2248976.4698
(D)	2078225.4487	2248989.2913



WATERWAY INFORMATION TABLE

Drainage Area = 174.0 acres
 Existing Low Grade Elevation: 788.82 ft. @ 876+50
 Proposed Low Grade Elevation: 788.82 ft. @ 876+50

Flood Year	Frequency	Discharge cfs	Headwater Elev. (ft.) Existing	Headwater Elev. (ft.) Proposed
Ten-Year	10	200	785.97	784.64
Design	50	288	786.97	785.25
Base	100	338	787.54	785.57
OVT (Existing)	328	443	778.82	-
Max	500	488	-	787.60

10-Year Velocity through Existing Culvert = 16.0 fps
 10-Year Velocity through Proposed Culvert = 5.2 fps

SEC A-A
 * Along Skew @ C of Culvert

LOADING HL-93
 Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

Field Units
 $f_y = 60,000$ psi (Reinforcement)
 $f'_c = 4,000$ psi

PreCast Units
 $f_y = 65,000$ psi (Welded Wire Fabric)
 $f'_c = 5,000$ psi (Precast)

DESIGN SPECIFICATIONS
 AASHTO LRFD 6TH Edition

TOTAL BILL OF MATERIAL - STA. 876+47

Item	Unit	Quantity
PreCast Concrete Box Culverts 10'x5'	Foot	114
Concrete Box Culverts	Cu.Yd.	46.9
Reinforcement Bars, Epoxy Coated	Pound	8,600
Traversable Pipe Grate (SPECIAL)	Foot	25
Name Plates	Each	1
Temporary Shoring	Each	1

WENDLER ENGINEERING SERVICES, INC.
 Illinois Professional Design Firm No. 184-000848
 Sheets 1 Thru 8 Only
 For Structural Adequacy Only



SCOTT A. BROWN
 DIXON, ILLINOIS
 ILLINOIS LICENSED STRUCTURAL ENGINEER NO. 081-005981
 EXPIRES 11-30-2014



USER NAME - Jamie Shaw
 WES JOB # - 2120114
 PLOT SCALE - 1/8" = 1'-0"
 PLOT DATE - 12/7/2012

DESIGNED - SB
 DRAWN - BEH
 CHECKED - DB
 DATE - 12/07/2012

REVISED -
 REVISED -
 REVISED -
 REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

BOX CULVERT PLAN STA. 876+47
 STRUCTURE NO. 043-1113

SHEET 1 OF 7 SHEETS STA. 876+47

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
301	29T-2	JO DAVIESS	52	21

CONTRACT NO. 64H17
 ILLINOIS FED. AID PROJECT