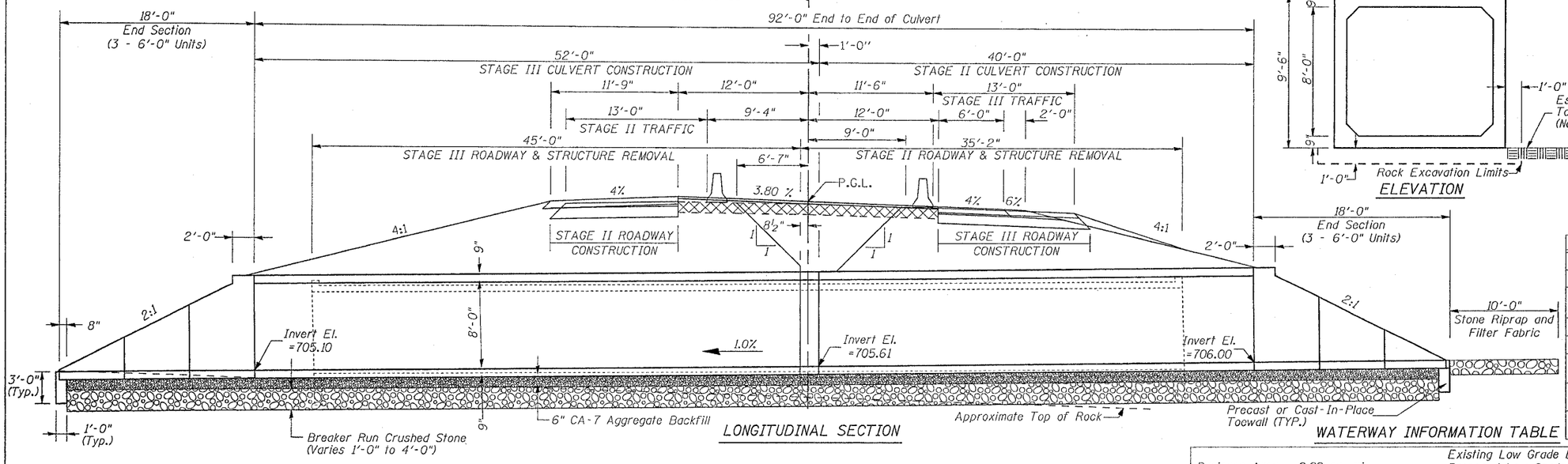
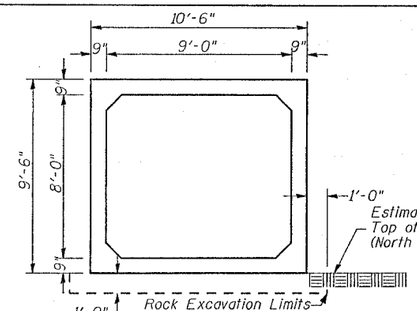
Benchmark:

Existing Structure: Built in 1958 as a Single Barrel 8'-0" x 7'-6" R. C. Box Culvert, with a Culvert Length of ±80'-4". Traffic to be Maintained Utilizing Stage Construction. No Salvage

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



LONGITUDINAL SECTION



ELEVATION

PROFILE GRADE

Match existing plus 2½" overlay

DESCRIPTION	UNIT	QTY.
Stone Riprap, Class **A5**	Sq Yd	11.7
Filter Fabric	Sq Yd	11.7
Rock Excavation For Structures	Cu Yd	14
Removal of Existing Structures No. 1	Each	1
Temporary Sheet Piling	Sq Ft	972
Box Culvert End Section, Culvert No. 1	Each	2
Precast Concrete Box Culvert 9' X 8'	Foot	92
Breaker Run Crushed Stone	Ton	203

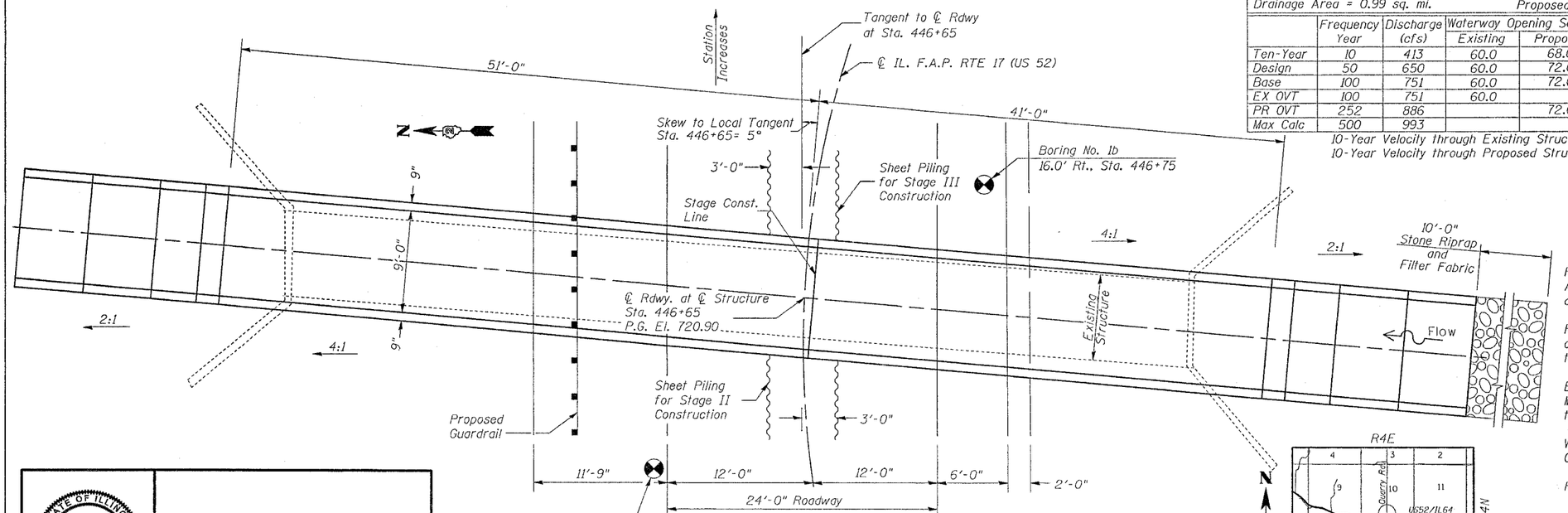
WATERWAY INFORMATION TABLE

Drainage Area = 0.99 sq. mi.

Existing Low Grade Elevation: 719.40 ft. @ Sta. 451+74.7
Proposed Low Grade Elevation: 719.59 ft. @ Sta. 451+74.7

	Frequency Year	Discharge (cfs)	Waterway Opening Sq. Ft. Existing	Waterway Opening Sq. Ft. Proposed	Natural H.W.E.	Head (ft) Existing	Head (ft) Proposed	Headwater Elev. (ft) Existing	Headwater Elev. (ft) Proposed
Ten-Year	10	413	60.0	68.0	712.82	1.51	1.20	714.33	714.02
Design	50	650	60.0	72.0	714.69	3.17	2.26	717.86	716.95
Base	100	751	60.0	72.0	715.37	4.04	2.84	719.41	718.21
EX OVT	100	751	60.0		715.37	4.04		719.41	
PR OVT	252	886		72.0	716.23		3.36		719.59
Max Calc	500	993							

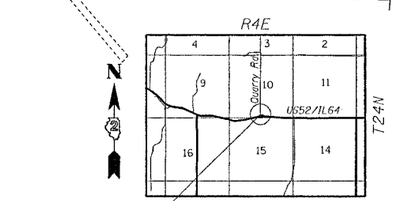
10-Year Velocity through Existing Structure= 6.88 fps
10-Year Velocity through Proposed Structure= 6.79 fps



PLAN

DESIGN STRESSES

fy = 60,000 psi
fy = 65,000 psi (Welded Wire Fabric)
f'c = 3,500 psi
f'c = 5,000 psi (Precast)



LOCATION SKETCH

DESIGN SPECIFICATIONS

2002 A.A.S.H.T.O. Specifications

LOADING HS 20-44

Allow 50#/Sq. Ft. for future wearing surface

NOTES

Precast Box shall conform to the requirements of A.A.S.H.T.O. M259 (A.S.T.M. C789). The maximum design fill height for this structure is 6'-6".

Rock excavation is estimated at the North End of the culvert for approximately 30'. The width is 1'-0" from the outside of the culvert at an average depth of 1'-0".

Breaker Run Crushed Stone to be placed as a subbase. Min. depth over competent rock is 1'-0". Additional thickness required if competent rock is not found.

Work this sheet with Staging sheets. Stage I is for Culvert No. 3.

For additional notes see the General Notes sheet.

HORIZONTAL CURVE DATA

PI STA. = 447+95.15
Δ = 17° 21' 49" (RT)
D = 1° 50' 11"
R = 3,119.87'
T = 476.39'
L = 945.48'
E = 36.16'
P.C. STA. = 443+18.76
P.T. STA. = 452+64.24
S.E. = 0.038'/'

CONTRACT NO.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
17	*	CARROLL	548	176
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

* (1,2)RS & (3-1)RS-1

DAVID F. MAXWELL 081-005455 ST. LOUIS, MO.
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

David F. Maxwell, S.E. Reg. No. 081-005455
Date: 3/15/07
My registration expires November 30, 2008.

PLOT DATE = 3/13/2007
FILE NAME = c:\projects\853300P01\207480CUL1.dgn
PLOT SCALE = #SCALE#
USER NAME = #USER#

GENERAL PLAN
US RTE 52 / IL RTE 64
CULVERT NO. 1
F.A.P. RTE 17 SECTION (1,2)RS & (3-1)RS-1
CARROLL COUNTY
STA. 446+65