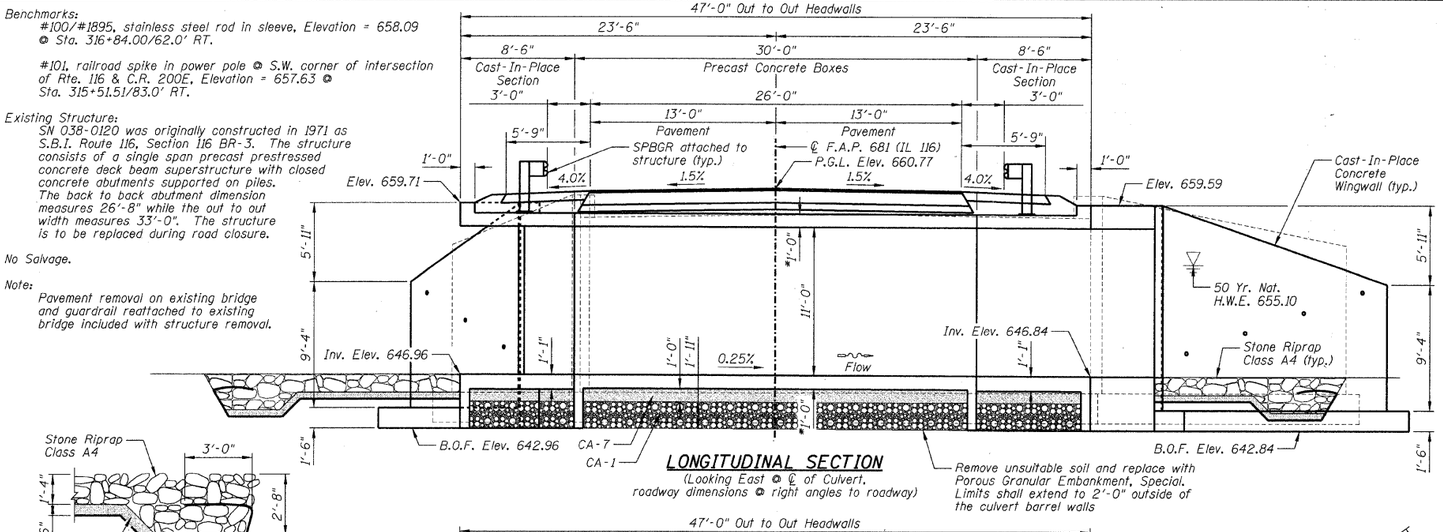
Benchmarks:
#100/#1895, stainless steel rod in sleeve, Elevation = 658.09 @ Sta. 316+84.00/62.0' RT.

#101, railroad spike in power pole @ S.W. corner of intersection of Rte. 116 & C.R. 200E, Elevation = 657.63 @ Sta. 315+51.51/83.0' RT.

Existing Structure:
SN 038-0120 was originally constructed in 1971 as S.B.I. Route 116, Section 116 BR-3. The structure consists of a single span precast prestressed concrete deck beam superstructure with closed concrete abutments supported on piles. The back to back abutment dimension measures 26'-8" while the out to out width measures 33'-0". The structure is to be replaced during road closure.

No Salvage.

Note:
Pavement removal on existing bridge and guardrail reattached to existing bridge included with structure removal.

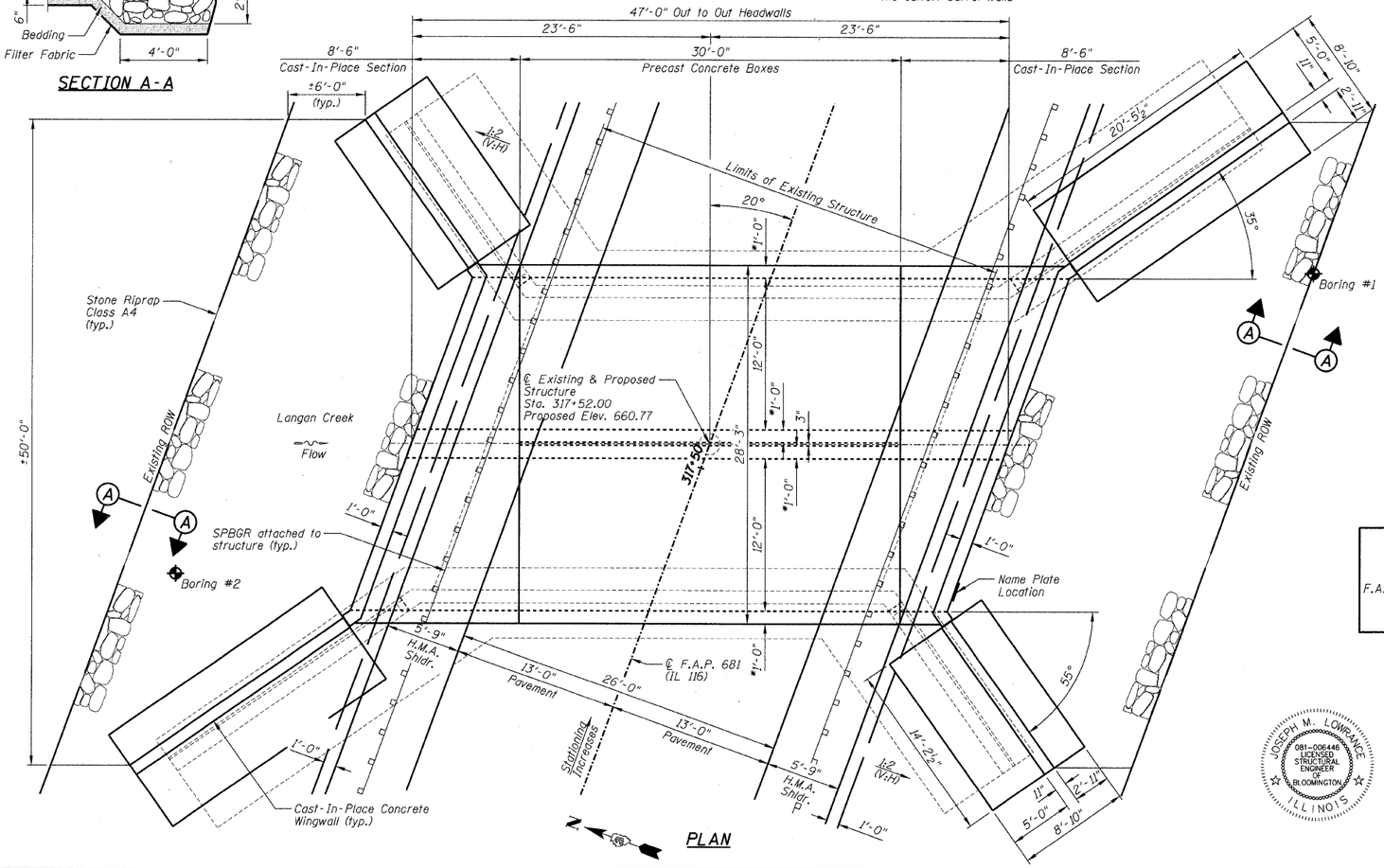



## LONGITUDINAL SECTION

(Looking East @ ℄ of Culvert, roadway dimensions @ right angles to roadway)



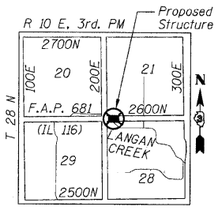

## SECTION A-A




## PLAN

## TOTAL BILL OF MATERIAL - BOX CULVERT

| ITEM | UNIT | TOTAL |
|---|---|---|
| Removal and Disposal of Unsuitable Material | Cu Yd | 160 |
| Porous Granular Embankment, Special | Cu Yd | 160 |
| Stone Riprap, Class A4 | Sq Yd | 185 |
| Filter Fabric | Sq Yd | 185 |
| Removal Of Existing Structures | Each | 1 |
| Reinforcement Bars | Pound | 19,040 |
| Reinforcement Bars, Epoxy Coated | Pound | 1,780 |
| Name Plates | Each | 1 |
| Concrete Box Culverts | Cu Yd | 142.2 |
| Precast Concrete Box Culvert 12' x 11' (M273) | Foot | 60 |




## LOCATION SKETCH

## WATERWAY INFORMATION

Drainage Area = 3.00 Sq. Mi.
Existing Low Grade Elev. 659.39 @ Sta. 326+00
Proposed Low Grade Elev. 659.39 @ Sta. 326+00

| Flood | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. Exist. | Opening Sq. Ft. Prop. | Nat. H.W.E. | Head - Ft. Exist. | Head - Ft. Prop. | Headwater El. Exist. | Headwater El. Prop. |
|---|---|---|---|---|---|---|---|---|---|
| | 10 | 145 | 151 | 170 | 654.20 | 0.00 | 0.00 | 654.20 | 654.20 |
| Design | 50 | 201 | 172 | 191 | 655.10 | 0.00 | 0.00 | 655.10 | 655.10 |
| Base | 100 | 223 | 181 | 201 | 655.50 | 0.00 | 0.00 | 655.50 | 655.50 |
| Overtopping | | | | | | | | | |
| Max. Calc. | 500 | 272 | 195 | 218 | 656.20 | 0.00 | 0.00 | 656.20 | 656.20 |

10 year velocity through Existing Structure = 1.0 fps
10 year velocity through Proposed Structure = 0.9 fps

## DESIGN SPECIFICATIONS

AASHTO 2002

## DESIGN STRESSES

FIELD UNITS
f'c = 3,500 psi (Cast-In-Place)
fy = 60,000 psi (Reinforcement)
PRECAST UNITS
f'c = 5,000 psi (Precast)
fy = 60,000 psi (Reinforcement)
fy = 65,000 psi (Welded Wire Fabric)

## LOADING HS20-44

Allow 50#/sq. ft. for future wearing surface.

STATION 317+52.00
BUILT 200_ BY
STATE OF ILLINOIS
F.A.P. RTE. 681 SECTION 116 BR-1
LOADING HS20
STR. NO. 038-2022

## NAME PLATE

See Standard 515001

JOSEPH M. LOWRANCE
081-006446
LICENSED STRUCTURAL ENGINEER OF BLOOMINGTON
ILLINOIS

Joseph M. Lowrance Date 4/14/08
JOSEPH M. LOWRANCE
ILLINOIS STRUCTURAL ENGINEER
NO. 081-006446
Exp. Date 11/30/08

## GENERAL NOTES

1.) Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions.
2.) Reinforcement bars designated (E) shall be epoxy coated.
3.) Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
4.) Cast-In-Place concrete exposed edges shall be beveled ¾".
5.) It shall be the responsibility of the Contractor to divert the stream flow during construction in order to keep the construction area free of water. The method of water diversion shall be subject to the approval of the Engineer and the cost shall be included with the cost of "Concrete Box Culverts".
6.) Structural seal does not include design of precast elements.
7.) The precast concrete culvert sections shall be designed and manufactured in accordance with AASHTO M273 (ASTM C 850).
8.) For backfilling and embankment, see Standard Specifications.
9.) End of precast section shall not have a bell or spigot.
10.) Contractor to confirm all precast culvert dimensions with supplier before starting construction. All applicable cast-in-place concrete dimensions shall match precast culvert dimensions.
11.) The existing plans are provided for informational use only.
12.) See Sheet B7-B9 for soil borings.
13.) The last section of precast culvert shall have an integral toe wall and reinforcing bars extending from the precast culvert as shown on Sheets B2 - B5.
14.) The pay item "Removal and Disposal of Unsuitable Material" shall include the excavation of unsuitable material for a depth of 2'-11" below the structure for a width of 32'-3" within the limits of the toe walls as shown on the plans. The actual amount shall be determined in the field by the Engineer.
15.) The pay item "Porous Granular Embankment, Special" shall include the placement of CA-1 and CA-7 below the structure for a width of 32'-3" within the limits of the toe walls as shown on the plans. The actual amount shall be determined in the field by the Engineer.
16.) The Contractor shall reshape the channel within the Right-Of-Way in order to facilitate drainage and the placement of riprap as directed by the Engineer. The cost of reshaping the channel shall be included in the cost of "Removal of Existing Structures".

## INDEX TO SHEETS



## NOTES:

1.) *Confirm slab and wall thickness with Precaster.
2.) B.O.F. denotes Bottom Of Footing.
3.) P.G.L. denotes Profile Grade Line.

| | | | | |
|---|---|---|---|---|
| FILE NAME = *FILEL* | USER NAME = *USER* | DESIGNED - JML | REVISED - | |
| | | DRAWN - DJM | REVISED - | |
| | PLOT SCALE = *SCALE* | CHECKED - MSW | REVISED - | |
| | PLOT DATE = *DATE* | DATE - 04/09/08 | REVISED - | |

**STATE OF ILLINOIS**
**DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN AND ELEVATION**

SCALE: | SHEET NO. B1 OF 14 SHEETS | STA. | TO STA.

| F.A.P RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 681 | 116 BR-1 | IROQUOIS | 28 | 11 |
| | | | CONTRACT NO. 66730 | |
| FED. ROAD DIST. NO. 3 | ILLINOIS | FED. AID PROJECT | | |


FARNSWORTH GROUP, INC. CONSULTING ENGINEERS - 2709 MCGRAW DRIVE BLOOMINGTON, ILLINOIS 61704 (309) 663-8435 / (309) 663-1571 FAX


24-7917