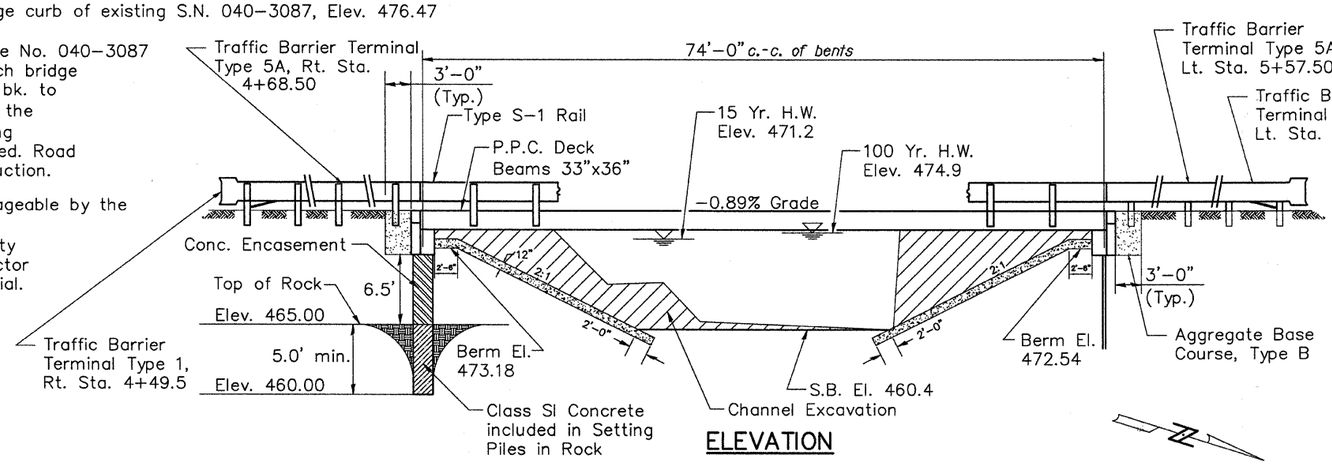
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 186A	05-10127-00-BR	JASPER	15	5
CONTRACT NO. 95620		ILLINOIS	PROJECT BROS-079(140)	

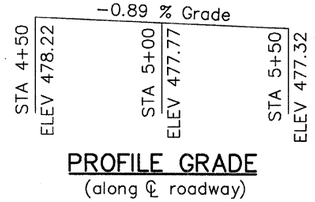
B.M.–Rt. Sta. 5+27, N.E. corner bridge curb of existing S.N. 040–3087, Elev. 476.47

Existing Structure – Existing structure No. 040–3087 consists of single span concrete arch bridge on closed concrete abutments. The bk. to bk. of abutments length is 42' and the out–to–out width is 15'. The existing structure shall be completely replaced. Road closure shall be used during construction.

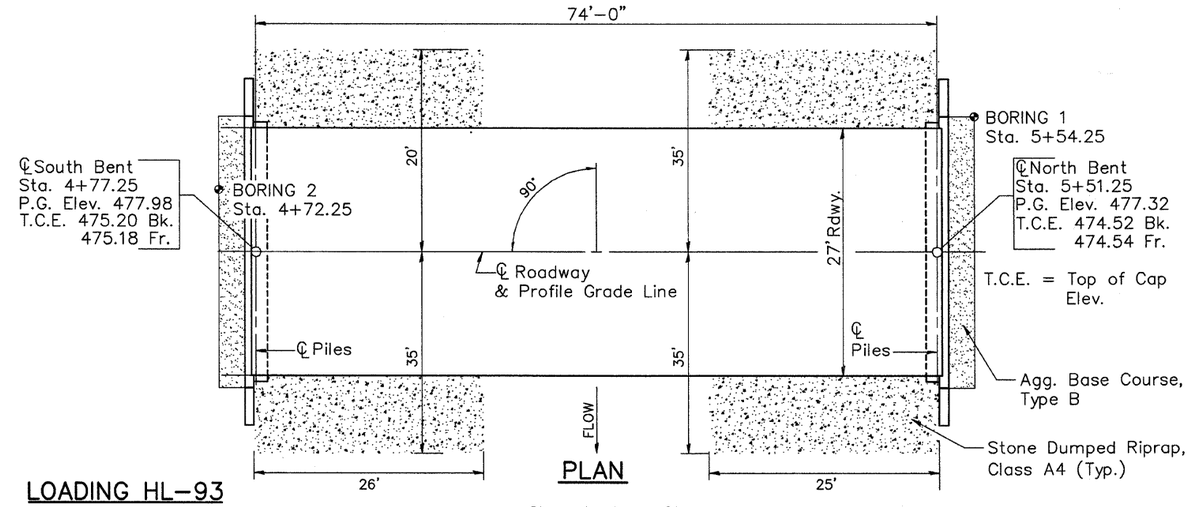
Salvage – Any material deemed salvageable by the Engineer shall be stockpiled on the R.O.W. and shall become the property of Wade Road District. The Contractor shall dispose of all remaining material.



ELEVATION



PROFILE GRADE
(along ℄ roadway)



PLAN
Skew Angle = 0°

DESIGN STRESSES

FIELD UNITS
f'c = 3,500 psi
Fy = 60,000 psi (reinforcement)

PRECAST PRESTRESSED UNITS
f'c = 6,000 psi
f'ci = 5,000 psi
F's = 270,000 psi (½" low relax. strands)
Fsi = 201,960 psi (½" low relax. strands)

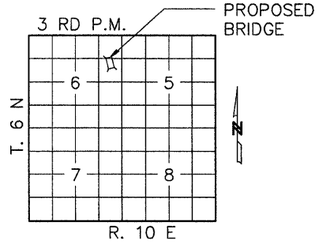
LOADING HL–93
Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS
2007 AASHTO LRFD B
Design Specifications

SEISMIC DATA
Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.220g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.500g
Soil Site Class = D

STATION 5+14.25
BRUSH CREEK
SEC. 05–10127–00–BR BUILT 201_
WADE ROAD DISTRICT
JASPER COUNTY
LOADING HL–93
STR. NO. 040–3260

LETTERING FOR NAME PLATE
Locate Name Plate at S.E. Corner of Bridge (See Std. 515001)



LOCATION SKETCH

PILE DATA (SOUTH ABUT.)

Type	HP 12 X 53
Nominal Required Bearing	Set in Rock
Factored Resistance Available	170 kips
Estimated Pile Length	13.5 Feet
Number of Production Piles	5
Number of Test Piles	0
Estimated Top of Rock Elevation	465.00
Rock Socket Depth	5.0 Feet
Rock Socket Diameter	2.0 Feet

PILE DATA (NORTH ABUT.)

Type	HP 12 X 53
Nominal Required Bearing	419 kips
Factored Resistance Available	170 kips
Estimated Pile Length	30 Feet
Number of Production Piles	4
Number of Test Piles	1

WATERWAY INFORMATION

Drainage Area = 11.0 SQ MI Low Grade Elev = 472.2 @ Sta. 7+55

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.
Design	15	2380	317	426	471.2	0.6	0.0	471.8	471.2
Base	100	4140	390	656	474.9	0.3	0.2	475.2	475.1
Overtopping									
Max. Calc.	500								

GENERAL NOTES

1. The Contractor shall drive test pile(s) to 110% of the nominal required bearing specified in production locations at North abutment or approved by the Engineer before ordering the remainder of piles.
2. See Bridge Plan Sheet 8 for boring logs.
3. A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
4. Concrete sealer shall be applied to exterior face of each fascia beam.
5. Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
6. The Steel H–piles shall be according to AASHTO M270 Grade 50.
7. Reinforcement bars shall conform to the requirements of ASTM A 706 Fr 60 (IL Modified). See Special Provisions.
8. Reinforcement bars designated (E) shall be epoxy coated.
9. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub. Piers	Sub. Abuts.	Total
Removal of Existing Structures	Each	–	–	–	1
Concrete Structures	Cu. Yd.	–	–	26.4	26.4
Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	2025	–	–	2025
Steel Railing, Type S–1	Foot	150	–	–	150
Reinforcement Bars, Epoxy Coated	Pound	–	–	3000	3000
Furnishing Steel Piles HP 12x53	Foot	–	–	187.5	187.5
Setting Piles in Rock	Each	–	–	5	5
Driving Piles	Foot	–	–	120	120
Test Pile Steel HP 12x53	Each	–	–	1	1
Name Plates	Each	–	–	1	1
Concrete Encasement	Cu. Yd.	–	–	8.5	8.5
Aggregate Base Course, Type B	Tons	–	–	85	85
Stone Dumped Riprap, Class A4	Tons	–	–	180	180
Channel Excavation	Cu. Yd.	–	–	240	240

INDEX OF SHEETS

I certify that to the best of knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.

STATE OF ILLINOIS
MATTHEW D. FAKRODDIN
3377
ST. CHARLES
LICENSED STRUCTURAL ENGINEER
EXPIRES: 11-30-10
10-14-09

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GENERAL PLAN & ELEVATION
STRUCTURE NO. 040-3260
T.R. 186A
OVER BRUSH CREEK
SECTION 05-10127-00-BR
JASPER COUNTY
STATION 5+14.25

GP-1 (04-04-05)