

BENCH MARK: CRA 18

South bolt on fire hydrant at Sta. 173+03.39, 92.89' Lt., Elev. 703.55

EXISTING STRUCTURE:

Existing Structure No. 022-0054 was first constructed in 1948 under Section 1977-212-WRS-BR-TS. The bridge has three simply supported spans; Spans 1 & 3 are 32'-3" cts. to cts. of bearings, span 2 is 44'-3" cts. to cts. of bearings, for a total of 116'-6" back to back of abutments. The substructure consists of closed abutments and reinforced concrete solid wall piers constructed on spread footings. In 1980 the superstructure was reconstructed with Precast Prestressed Concrete Deck Beams and both the superstructure and substructure were widened to 59'-0" out to out of beams.

The existing structure is to be removed & replaced.

Traffic is to be maintained utilizing Stage Construction.

The existing structure is to be used as Stage I Traffic Lanes during Stage I Construction.

Salvage: None

Traffic Barrier Terminal
Std. 631026, Type 5 (WB)
Traffic Barrier Terminal
Std. 631031, Type 6 (EB)

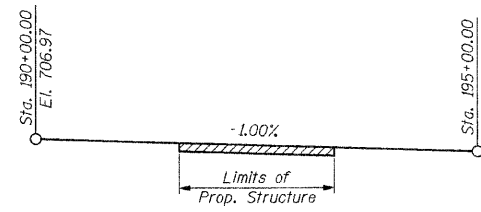
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WATERWAY INFORMATION

| Flood | Freq. (Year) | Q (C.F.S.) | Waterway Opening (Sq. Ft.) | | NAT. H.W.E. | Created Head (Ft.) | | Headwater Elev. | |
|----------------------|--------------|------------|----------------------------|----------|-------------|--------------------|-------|-----------------|--------|
| | | | Exist. | Prop. | | Exist. | Prop. | Exist. | Prop. |
| - | 10 | 2,830 | 702.43 | 796.40 | 695.27 | 0.00 | +0.10 | 695.27 | 695.37 |
| Design | 50 | 3,970 | 820.47 | 967.70 | 696.60 | 0.00 | +0.12 | 696.60 | 696.72 |
| Base | 100 | 4,450 | 874.14 | 1,050.90 | 697.22 | 0.01 | +0.13 | 697.23 | 697.35 |
| Overtopping Existing | 30 | 3,580 | | | | | | | |
| Proposed | >500 | N/A | | | | | | | |
| Max. Calc. | 500 | 5,650 | 941.98 | 1,216.90 | 698.43 | .044 | +0.15 | 698.87 | 698.58 |

DESIGN SCOUR ELEVATION TABLE

| Location | W. Abut. | Pier | E. Abut. |
|-------------------------|----------|--------|----------|
| Design Scour Elevations | 697.00 | 681.00 | 695.36 |



PROFILE GRADE

(Along WB P.G.L. & E.B. P.G.L. of IL. Rte. 56)

DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications with 2008 & 2009 Interims

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

LOADING HL-93

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

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
f'ci = 5,000 psi
fpu = 270,000 psi (1/2" low lax strands)
fpbt = 201,960 psi (1/2" low lax strands)

SEISMIC DATA

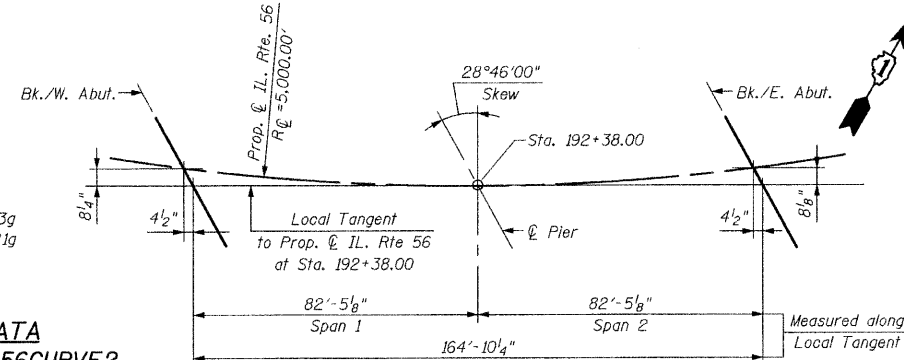
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration @ 1.0 sec (SD1) = 0.063g
Design Spectral Acceleration @ 0.2 sec (SDS) = 0.121g
Soil Site Class = C

CURVE DATA

PROP. CURVE #56 CURVE 2

Δ = 14°15'54" (Lt.)
D = 1°08'45"
T = 625.66'
L = 1,244.85'
E = 38.99'
R = 5,000.00'
S.E. = 2.2%
P.C. = Sta. 190+01.95
P.T. = Sta. 202+46.80
P.I. = Sta. 196+27.61

OFFSET SKETCH



APPROVED

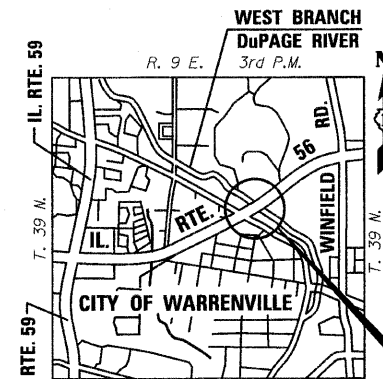
FOR STRUCTURAL ADEQUACY ONLY

Relph E. Anderson (P.E.)
ENGINEER OF BRIDGES AND STRUCTURES



Bhadrash N. Shah
BHADRASH N. SHAH 08/11/2010
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS LIC. No. 081-004476
EXPIRES: 11-30-10

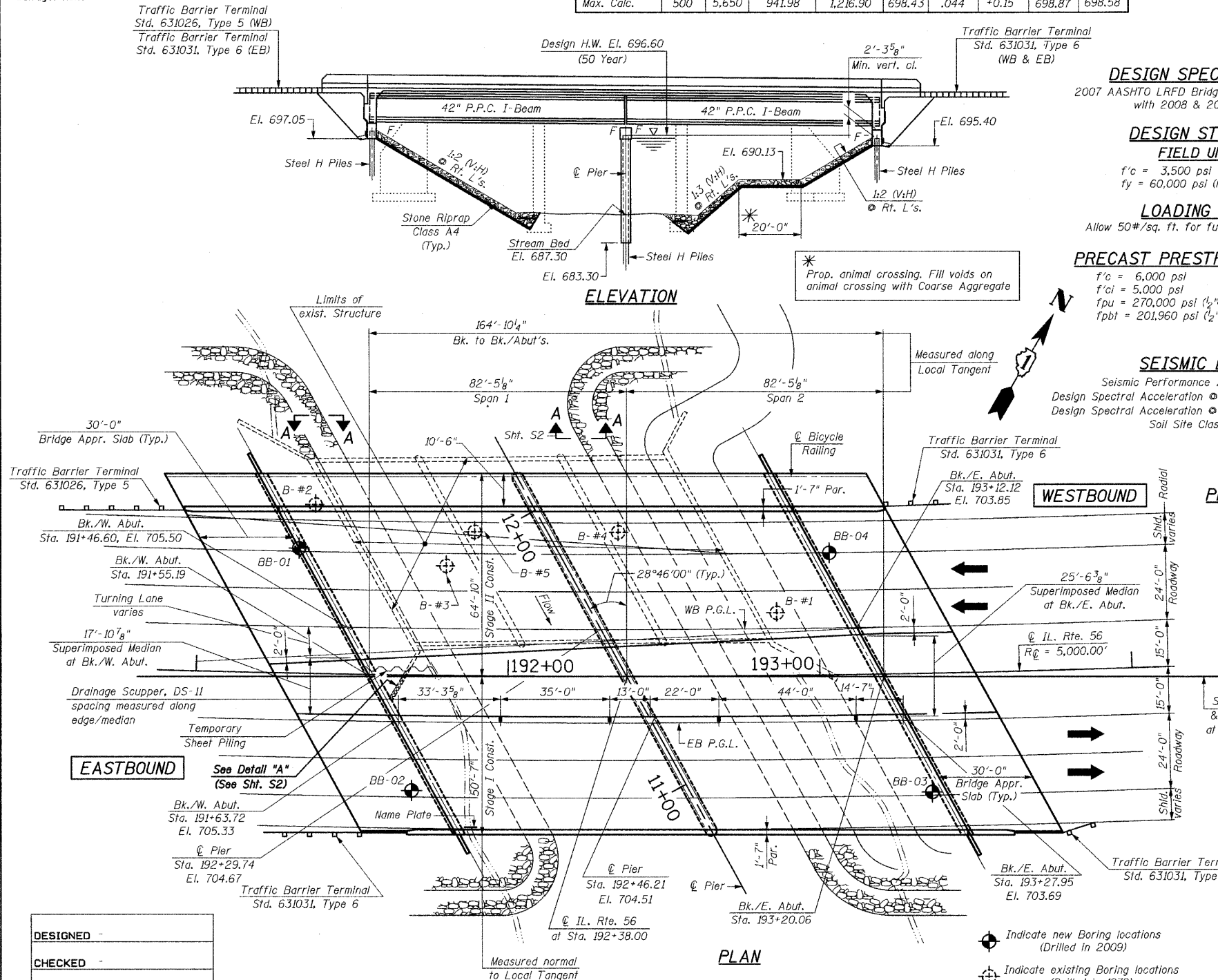
GENERAL PLAN & ELEVATION
IL. ROUTE 56 OVER
WEST BRANCH DuPAGE RIVER
F.A.P. RTE. 365
SECTION (58&59) WRS-3
DuPAGE COUNTY
STA. 192+38.00
STRUCTURE NO. 022-2027



LOCATION SKETCH

| | | | | | |
|--------------|--------------------|-----------------------|---------------|---------------------------|---------------|
| SHEET NO. S1 | F.A. RTE. 365 | SECTION (58&59) WRS-3 | COUNTY DuPAGE | TOTAL SHEETS 466 | SHEET NO. 207 |
| S43 SHEETS | CONTRACT NO. 62420 | | | ILLINOIS FED. AID PROJECT | |

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| |
|------------|
| DESIGNED - |
| CHECKED - |
| DRAWN - |
| CHECKED - |