

Bench Mark: DuPage County Survey Control Disk (PID DK3129) located on top of NE wingwall, Elev. 658.20 (NAVD88)

Existing Structure: The original 3-spans, two lanes one eastbound and one westbound structure was built in 1959 as part of State of Illinois, F. A. S. Route 1147, S.A. Route 33, Project S-488 (7), and Section No. 162-B, DuPage County. The original structure was modified and widened towards the north as per the contract plans dated June 1983, part of State of Illinois, DuPage County Highway Department, County Highway 33, Section No. 83-00162-02-BR, Station 214+14.50. The structure is a three simple span precast prestressed concrete (P.P.C.) deck beam bridge. Concrete wall abutments, and piers are supported by spread footings founded on rock. The structure has an overall length of 120'-8 1/2" back to back abutments and a width of 84'-6" out to out deck. Traffic to be maintained utilizing stage construction.

EAST BRANCH DUPAGE RIVER
RE-BUILT 2012 BY
DUPAGE COUNTY
SEC. 08-00162-03-BR
F.A.P. RT. 369 STA. 24+41.52
STR. NO. 022-3012 LOADING HL93

* Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.

DESIGN SPECIFICATIONS

NEW CONSTRUCTION:
2010 AASHTO LRFD Bridge Design Specifications, 5th Ed.

LOADING HL-93

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

DESIGN STRESSES

PRECAST PRESTRESSED UNITS (NEW CONSTRUCTION):

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)

FIELD UNITS (NEW & EXISTING 1983 CONSTRUCTION):

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

FIELD UNITS (EXISTING 1959 CONSTRUCTION):

f'c = 3,500 psi
fc = 1,400 psi (with soil pressure = 1,000 psi)
fs = 20,000 psi (Reinforcement)

SEISMIC DATA

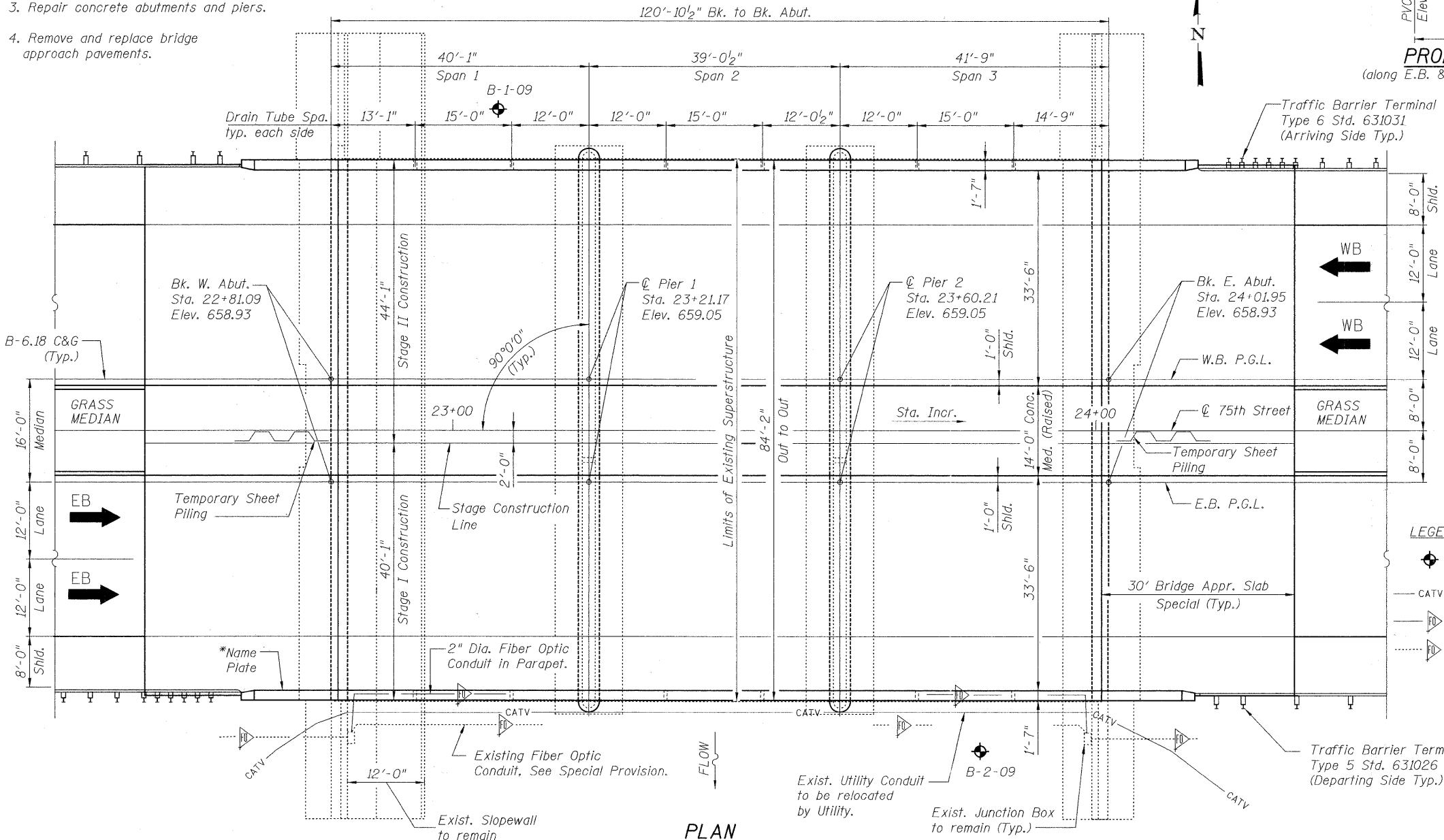
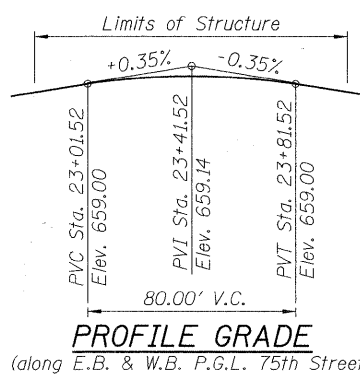
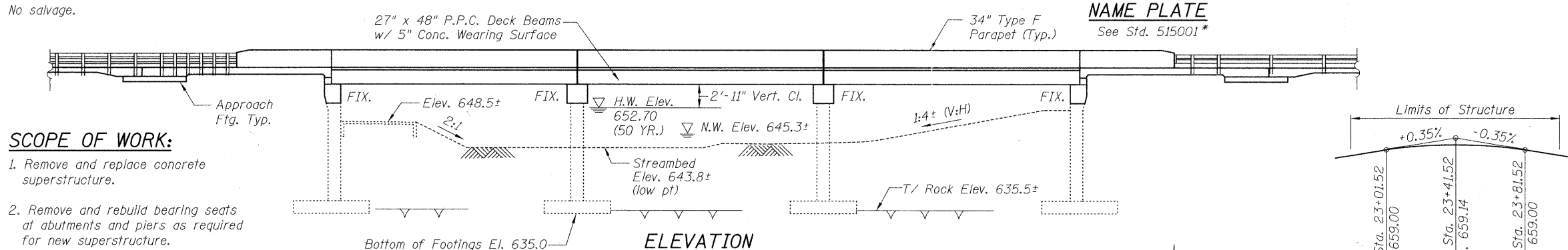
NEW CONSTRUCTION:
Seismic Performance Zone (SPZ) = 1
Design Spectral Acc. at 1.0 sec (SD1) = 0.08g
Design Spectral Acc. at 0.2 sec (SDS) = 0.14g
Soil Site Class = A

EXISTING CONSTRUCTION:
Seismic Performance Category (SPC) = A
Horiz. Bedrock Acceleration Coef. (A) = 0.04g
Site Coefficient = 1.0

No salvage.

SCOPE OF WORK:

1. Remove and replace concrete superstructure.
2. Remove and rebuild bearing seats at abutments and piers as required for new superstructure.
3. Repair concrete abutments and piers.
4. Remove and replace bridge approach pavements.



WATERWAY INFORMATION

Max Recorded H.W.E. = 653.78'

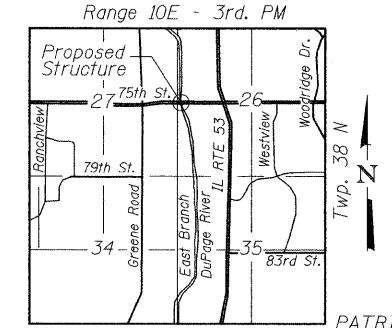
Drainage Area = 6.32 sq.mi

Flood	Freq. (Yr.)	Q (cfs)	Opening (Sq. Ft.)		Natural H.W.E.	Head (ft)		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	1,840	689.34	689.34	651.93	0.39	0.39	652.32	652.32
Base	100	3,015	812.20	812.20	653.03	0.67	0.67	653.70	653.70
Max. Calc.	500	4,175	893.75	893.75	653.76	0.92	0.92	654.68	654.68
Overtop	>500								

Existing Low Grade Elev. 658.30' at Sta. 22+81
Proposed Low Grade Elev. 658.57' at Sta. 22+81

DESIGN SCOUR ELEVATIONS (Ft)

W. Abut.	Pier 1	Pier 2	E. Abut.
647.50	640.52	640.22	648.00



LOCATION SKETCH

LEGEND:

- ⊕ Boring Log
- CATV — Cable Line
- Fiber Optic
- Existing Fiber Optic (to be removed & reinstalled)

CERTIFICATION

I certify that to the best of my knowledge, information and belief, this bridge/box culvert 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.

PATRICK ENGINEERING, INC



Roger DiGiulio
ROGER DIGIULIO, S.E.
NO. 081-005197
EXP: 11/30/12
DATE: 12/15/2011

PATRICK ENGINEERING INC. 4970 VARSITY DRIVE LISLE, IL 60532 patrickengineering.com	USER NAME =	DESIGNED - RDW	REVISED -	DUPAGE COUNTY DIVISION OF TRANSPORTATION	GENERAL PLAN 75TH STREET OVER EAST BRANCH DUPAGE RIVER	FAP RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT CONFIG	CHECKED - RLD	REVISED -			0369	08-00162-03-BR	DUPAGE	58	24
PLOT SCALE =	DRAWN - APD	REVISED -		SHEET NO. S1 OF S24 SHEETS		CONTRACT NO. 63662		ILLINOIS FED. AID PROJECT		
PLOT DATE =	CHECKED - RLD	REVISED -								