

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WATERWAY INFORMATION

Benchmarks: 1) Benchmark CDI TBM 200: Top cap bolt (not operator nut) of fire hydrant at southwest quadrant of Vernon Avenue and Kathleen Drive intersection. Elev. 786.99
2) Benchmark RM 314-4: Chiseled square atop center of east concrete rail of bridge on Towanda Avenue between Vernon Avenue and Baugh Drive. Elev. 796.44

STRUCTURE NO. 057-7800
BUILT 201 - BY
NORMAL, ILLINOIS
VERNON AVENUE BRIDGE
OVER SUGAR CREEK
LOADING HL-93

		Exist. Low Grade Elev. 782.65 ft. @ Sta. 46+61		Prop. Low Grade Elev. 782.65 ft. @ Sta. 46+61					
Drainage Area = 6.75 sq. mi.		Opening Sq. Ft.		Head - Ft.					
Flood	Freq. Yr.	Q C.F.S.	Exist.	Prop.	Nat. H.W.E.	Head - Ft. Exist.	Prop.	Exist.	Prop.
	10	743	238.4	238.3	780.93	.04	.04	780.97	780.97
Design	30	1158	329.4	329.4	782.43	.06	.05	782.49	782.48
	50	1265	350.8	350.8	782.78	.05	.05	782.83	782.83
Base	100	1566	388.5	391.7	783.61	.05	.05	783.66	783.66
Max Calc	500	2021	399.4	404.7	784.34	.01	.01	784.35	784.35

Existing Structure: S.N. 057-7800 was built in 1971 as Vernon Avenue Bridge. The superstructure consists of a 3 span cast-in-place concrete slab with 17 1/2" thickness on a 45 degree skew. The substructure consists of open stub abutments and pile bent piers founded on precast concrete piles. The back-to-back dimension measures 105'-6 1/2" while the out-to-out width measures 51'-8". The superstructure is to be removed and replaced using stage construction with a reinforced concrete slab. The existing abutments will be reused and widened with additional piles. The existing pier cap is integral with the superstructure and will be removed. The existing pier piles will be used with additional piles added for the wider superstructure.

NAME PLATE
See Std. 515001

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	W. Abut.	Pier 1	Pier 2	E. Abut.
	781.6	773.2	773.2	780.0

DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications with 2009 Interims

DESIGN STRESSES

FIELD UNITS (New Construction)

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

FIELD UNITS (Existing Construction)

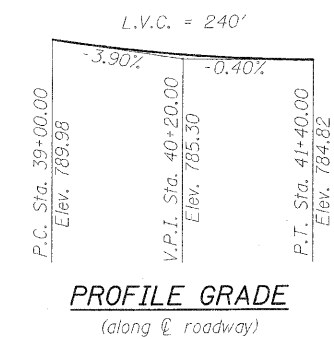
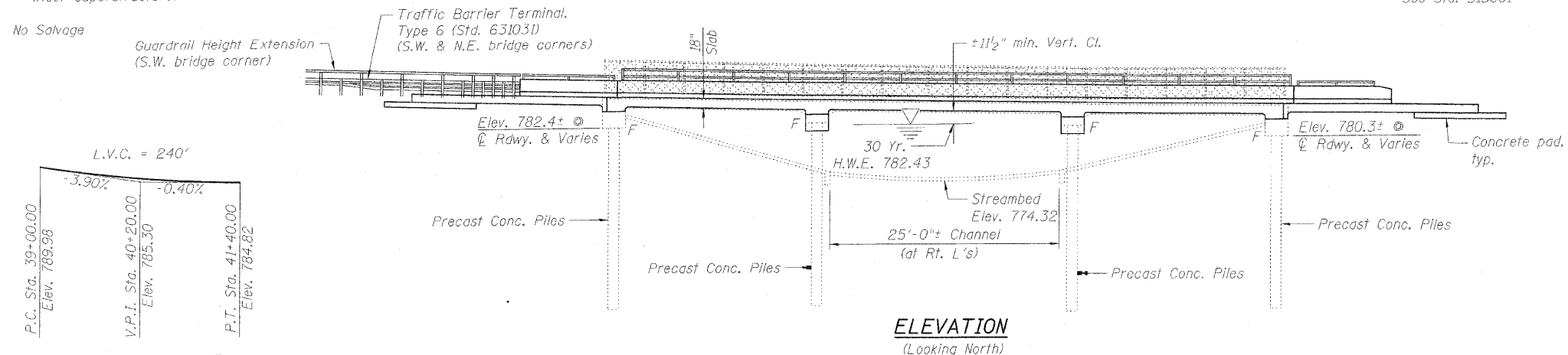
f'c = 1,400 psi
fs = 20,000 psi (Reinforcement)
n = 10

SEISMIC DATA

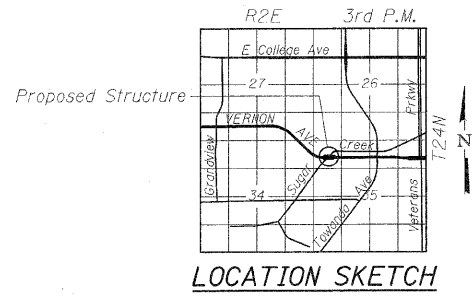
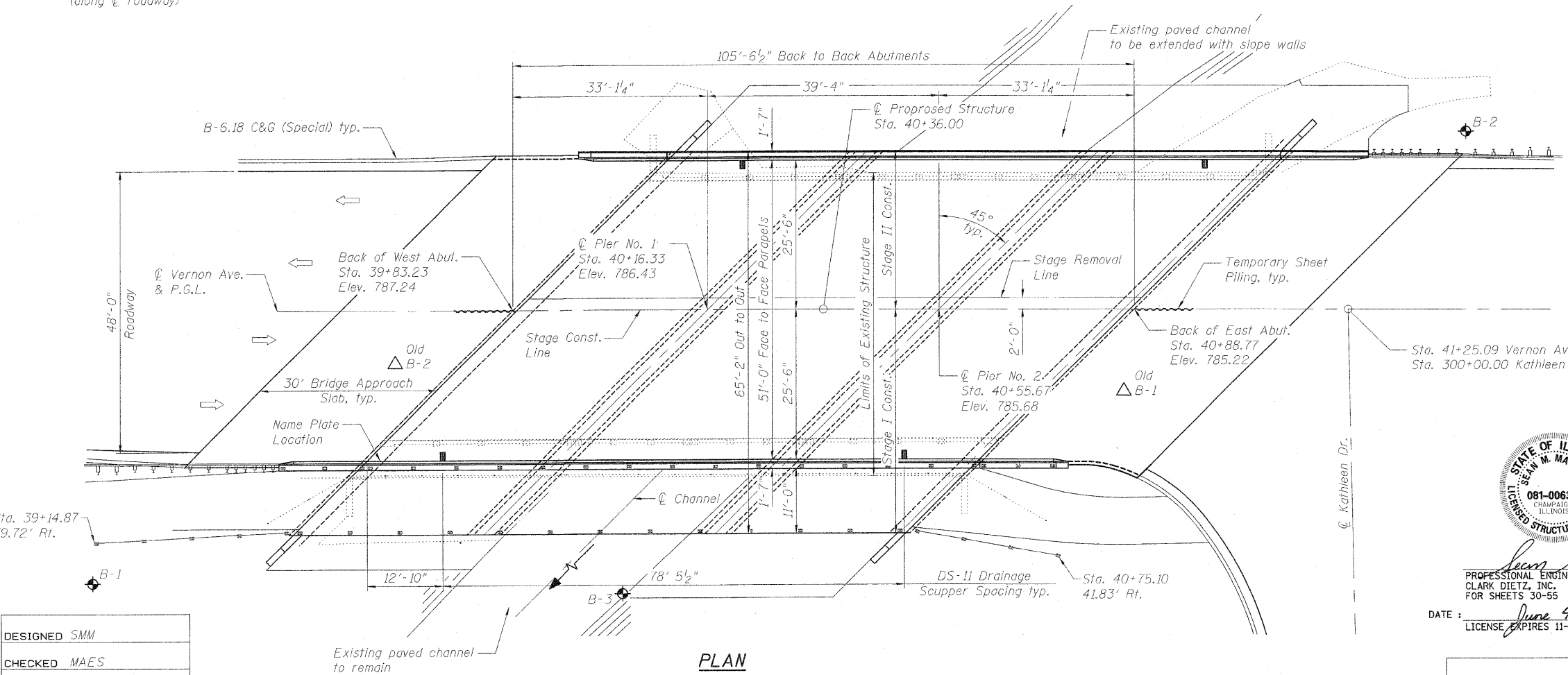
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{1.0}) = 0.13g
Design Spectral Acceleration at 0.2 sec. (S_{0.2}) = 0.21g
Soil Site Class = D

LOADING HL-93

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



PROFILE GRADE
(along centerline roadway)



GENERAL PLAN AND ELEVATION

VERNON AVENUE OVER
SUGAR CREEK
F.A.U. RTE. 6354
SEC. 06-002300-00-BR
TOWN OF NORMAL
STATION 40+36
STRUCTURE NO. 057-7800



PROFESSIONAL ENGINEER
CLARK DIETZ, INC.
FOR SHEETS 30-55
DATE: June 4, 2010
LICENSE EXPIRES 11-30-2010

DESIGNED	SMM
CHECKED	MAES
DRAWN	SMM
CHECKED	MAES

SHEET NO. 1	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	6354	06-002300-00-BR	MCLEAN	64	30
26 SHEETS	SN 057-7800		CONTRACT NO. 91430		
FED. ROAD DIST. NO. 5 ILLINOIS FED. AID PROJECT					