Bench Mark: N.G.S. plaque in southeast abutment of S.N. 013-0005 Station 1294+09, 17.5 ft. Right at Elev. 424.02

Existing Structure: S.N. 013-0005 Built in 1952 as F.A.P.-13, Sec. 7,2BF, 7-2B-1-1 at Station 1291+65.75 as a 9 span wide flange beam structure 490'-0" Bk.-to Bk. of abutments. Substructure supported on untreated timber piles. Bridge rail replacement in 1985 with 2" bituminous overlay. Existing bridge to be removed and replaced. Traffic to be maintained utilizing stage construction.

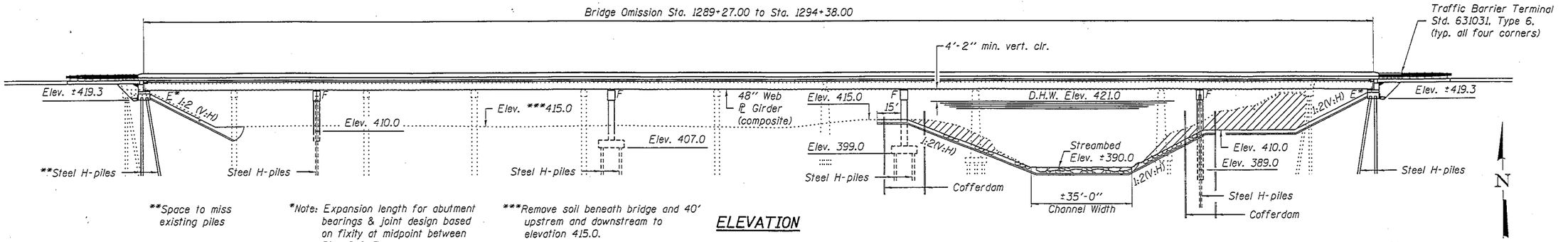
No salvage.

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| - | - | - | | |
| - | - | | | |
| FED. ROAD DIST. NO. 7 | | ILLINOIS | FED. AID PROJECT- | |

SHEET NO. 1
2 SHEETS

Contract #

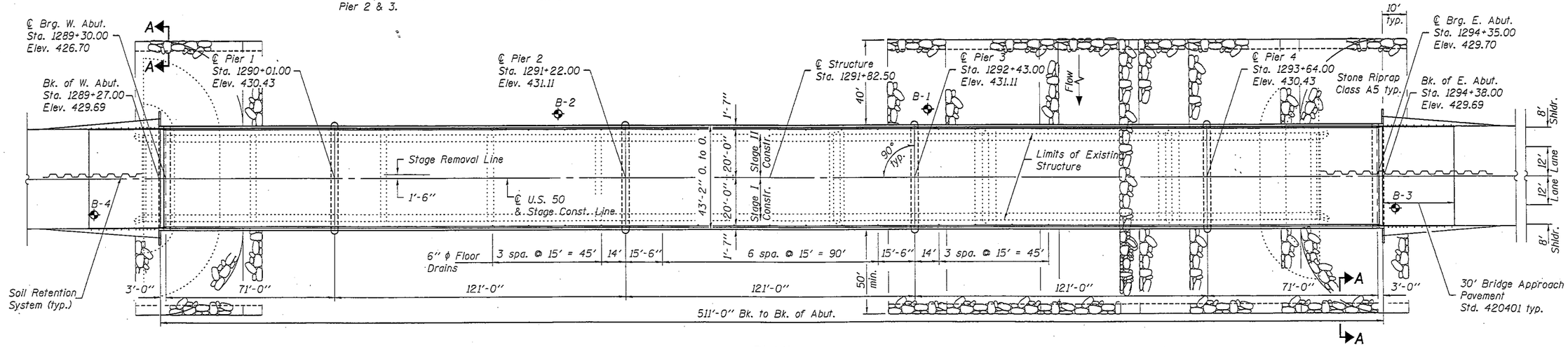



**Space to miss existing piles

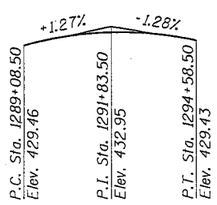
*Note: Expansion length for abutment bearings & joint design based on fixity at midpoint between Pier 2 & 3.

***Remove soil beneath bridge and 40' upstrem and downstream to elevation 415.0.

## ELEVATION




## PLAN




## PROFILE GRADE
(F.A.P. Rte. 327)

| | |
|---|---|
| DESIGNED | R.J. Chaput |
| CHECKED | M.D. Cima |
| DRAWN | W.D. Collins |
| CHECKED | M.K. Christensen |

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

## WATERWAY INFORMATION

Drainage Area = 1112.15 mi.$^2$ Low Grade Elev. 425.7 @ Sta. 1310+00

| Flood Frequency | | Q C.F.S. | | Opening Sq. Ft. | | Nat. | Head - Ft. | | Headwater El. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Exist. | Prop. | Exist. | Prop. | H.W.E. | Exist. | Prop. | Exist. | Prop. |
| 10 Yr. | Little Wabash | 4502 | 4472 | 884 | 884 | | | | | |
| | Little Muddy | 10646 | 10846 | 2223 | 2325 | | | | | |
| | Big Muddy | 14459 | 14289 | 3639 | 3639 | | | | | |
| | Total | 29607 | 29607 | 6746 | 6848 | 419.2 | 0.4 | 0.4 | 419.6 | 419.6 |
| Design 50 Yr. | Little Wabash | 7476 | 7341 | 1178 | 1178 | | | | | |
| | Little Muddy | 15476 | 15304 | 3013 | 3166 | | | | | |
| | Big Muddy | 24656 | 24963 | 4836 | 4836 | | | | | |
| | Total | 47608 | 47608 | 9027 | 9180 | 421.0 | 0.5 | 0.5 | 421.5 | 421.5 |
| Base 100 Yr. | Little Wabash | 8625 | 8612 | 1308 | 1308 | | | | | |
| | Little Muddy | 18536 | 17901 | 3323 | 3499 | | | | | |
| | Big Muddy | 28474 | 29122 | 5305 | 5305 | | | | | |
| | Total | 55635 | 55635 | 9936 | 10112 | 421.7 | 0.5 | 0.5 | 422.2 | 422.2 |
| Max. Calc. 500 Yr. | Little Wabash | 10442 | 10615 | 1517 | 1517 | | | | | |
| | Little Muddy | 24920 | 24840 | 3813 | 4022 | | | | | |
| | Big Muddy | 34910 | 34817 | 6046 | 6046 | | | | | |
| | Total | 70272 | 70272 | 11376 | 11585 | 422.8 | 0.6 | 0.6 | 423.4 | 423.4 |

10 yr. velocity through proposed bridge = 5.0 fps

## HIGHWAY CLASSIFICATION

F.A.P. Route 327 - U.S. Route 50
Functional Class: Other Principal Arterial
ADT: 4,350 (2005); 3,083 (2022)
DHV: 12
Design Speed: 60 m.p.h.
Posted Speed: 55 m.p.h.

## LOADING HL-93

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

## DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications, 4th. Edition

## DESIGN STRESSES

### FIELD UNITS

$f'_c$ = 3.500 psi
$f_y$ = 60.000 psi (reinforcement)
$f_y$ = 50.000 psi (structural steel)

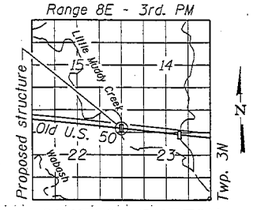
## SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Bedrock Acceleration Coefficient (A) = 0.09g
Site Coefficient (S) = 1.5

| Design Scour Elevation (feet) | West Abut. | Pier 1 | Pier 2 | Pier 3 | Pier 4 | East Abut. |
|---|---|---|---|---|---|---|
| | 419.3 | 407.0 | 407.0 | 399.3 | 394.3 | 419.3 |

# APPROVED
**December 03, 2007**

AS A BASIS FOR PREPARATION OF DETAILED PLANS



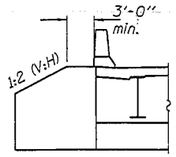

## LOCATION SKETCH

GENERAL PLAN
F.A.P. ROUTE 327 OVER
LITTLE MUDDY CREEK
U.S. ROUTE 50 - SECTION (7-2B)B-1
CLAY COUNTY
STATION 1291+82.50
S.N. 013-0042

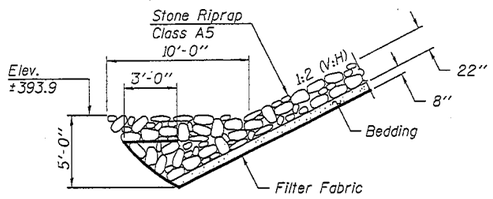
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| - | | | | |
| - | - | - | | |
| FED. ROAD DIST. NO. 7 | | ILLINOIS | FED. AID PROJECT- | |

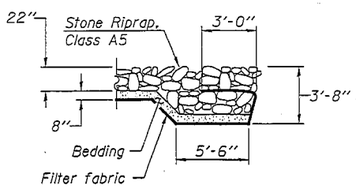
SHEET NO. 2
2 SHEETS
Contract #



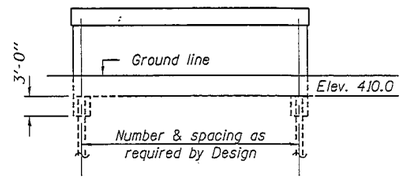

WINGWALL DETAIL



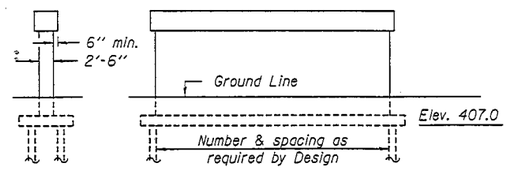

STONE RIPRAP ANCHOR DETAIL



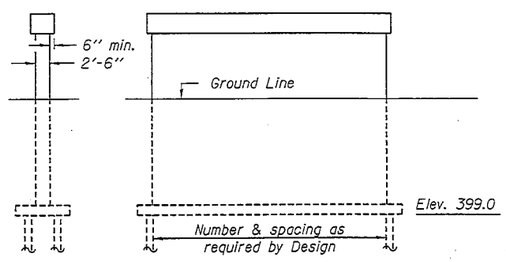

SECTION A-A



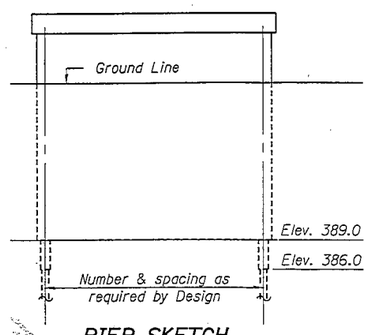

PIER SKETCH
(Pier 1)



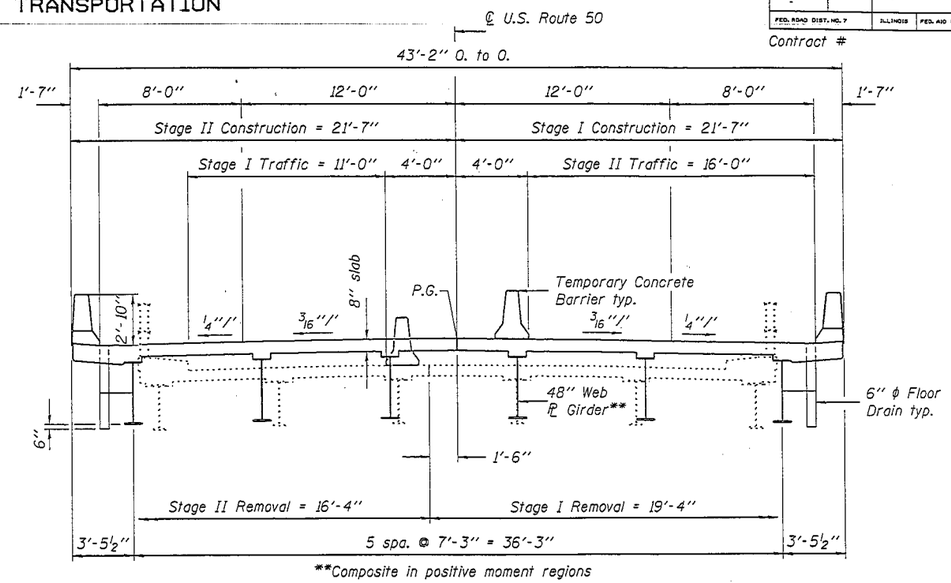

PIER SKETCH
(Pier 2)




PIER SKETCH
(Pier 3)

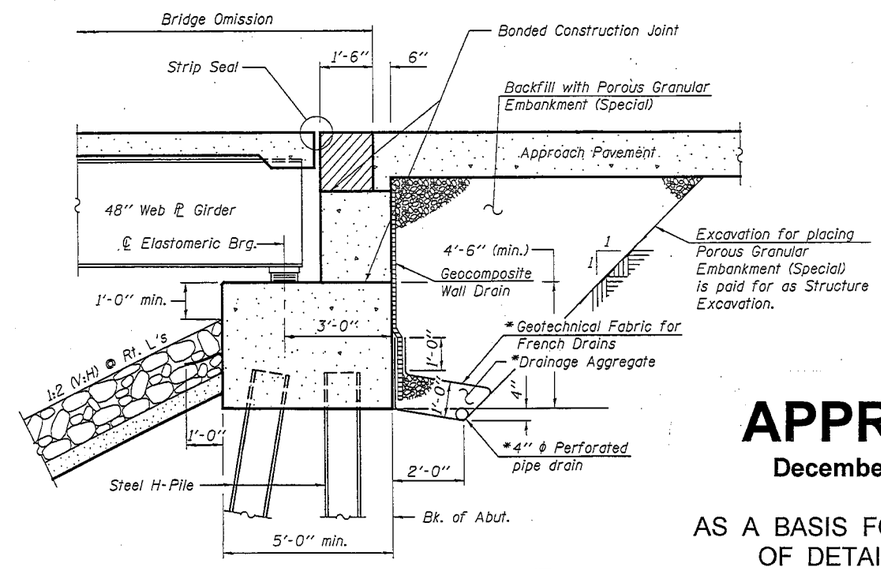



PIER SKETCH
(Pier 4)




**Composite in positive moment regions

CROSS SECTION




SECTION THRU ABUTMENT
(Horiz. dim. @ Rt. L's)

* Included in the cost of Pipe Underdrains for Structures.

Note:
All drainage system components shall extend parallel to the abutment back wall until they intersect the wingwalls or 2'-0" from the end of the wingwalls when the wings are parallel to the abutment. The pipe shall extend under the wingwall, if necessary, until intersecting the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

**APPROVED**
**December 03, 2007**

AS A BASIS FOR PREPARATION
OF DETAILED PLANS

DETAILS
F.A.P. ROUTE 327 OVER
LITTLE MUDDY CREEK
U.S. ROUTE 50 - SECTION (7-2B)B-1
CLAY COUNTY
STATION 1291+82.50
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EXAMINED
ENGINEER OF BRIDGE DESIGN

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ENGINEER OF BRIDGES AND STRUCTURES