

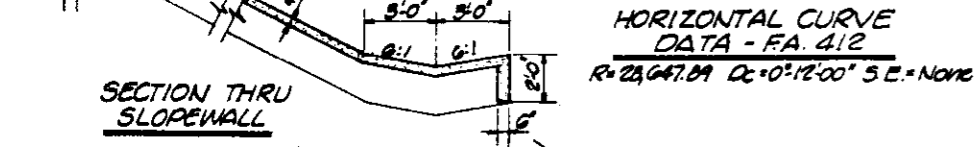
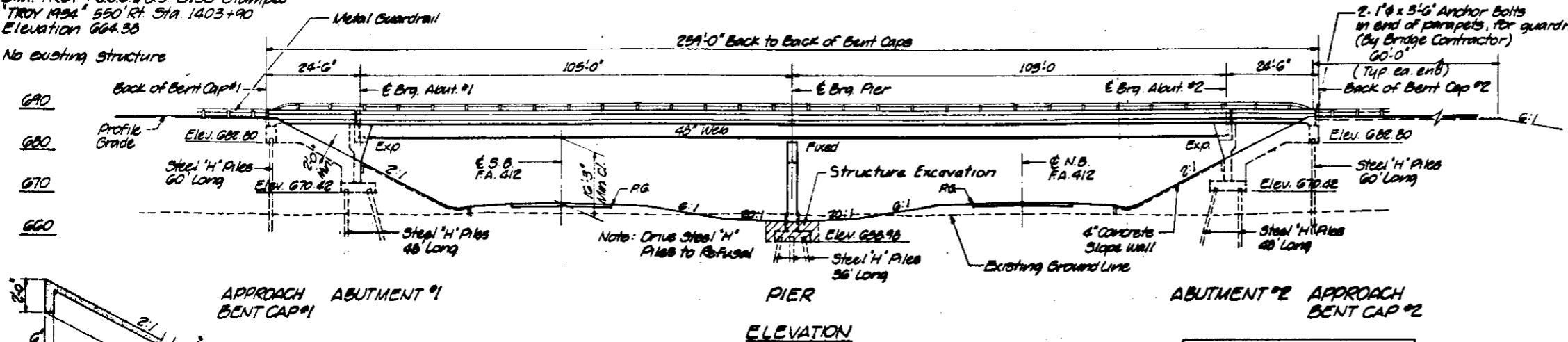
B.M. TROY: USC & GS Disc stamped
TROY 1954 550' Ft. Sta. 1403+90
Elevation 664.35

Sheet No. 1
of 11 Sheets

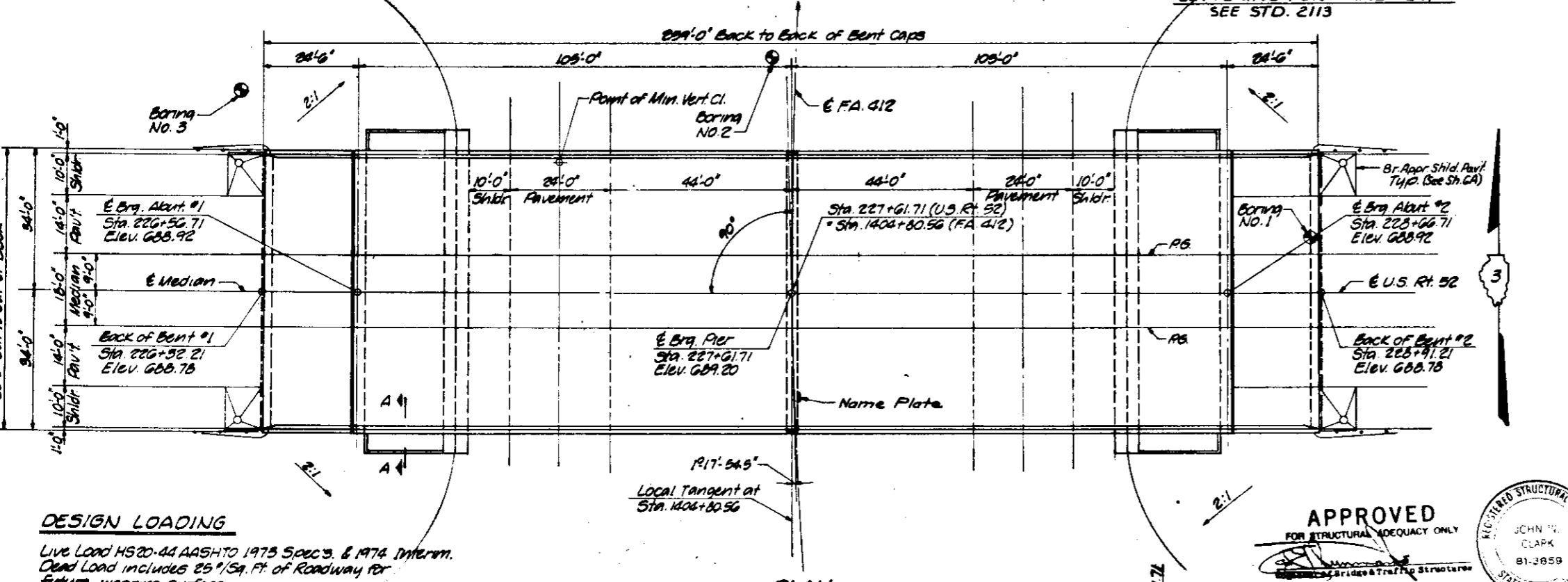
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---------------------|-----------|----------|--------------|-----------|
| FA 412 | 50-6 HB-1 | LaSalle | 81 | 33 |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |

GENERAL NOTES

- All reinforcement bars shall be lapped 24 diameters unless otherwise shown.
- Fasteners shall be high strength bolts. Bolts 3/4" ϕ ; open holes 13/16" ϕ , unless otherwise noted.
- Calculated weight of Structural Steel = 276,080 Lbs. M183
156,460 Lbs. M223 Gr. 50
- The basic lead silico chromate paint system shall be used for shop and field painting of Structural Steel.
- Field welding of construction accessories will not be permitted to the bottom flange of girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.
- Anchor bolts shall be set before bolting diaphragms over supports.
- Slope wall shall be reinforced with welded wire fabric 6" x 6" mesh, weighing 58 lbs. per 100 sq. ft.
- The Contractor shall drive two (2) steel test piles, each in a permanent location as directed by the Engineer before ordering the remainder of the piles. One test pile shall be driven at Abutment No. 1 and one test pile at the Pier.
- The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.
- The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.
- Protective Coat shall not be applied to surfaces to which Waterproofing Membrane System is applied.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 1/8" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.
- For Soil Boring data see Special Provisions.



STA. 1409+80.56
BUILT 197 BY
STATE OF ILLINOIS
FA 412 SECTION 50-6 HB-1
FA PROJ. EBRF-42-4(14)
LOADING HS 20
LETTERING FOR NAME PLATE
SEE STD. 2113



DESIGN LOADING

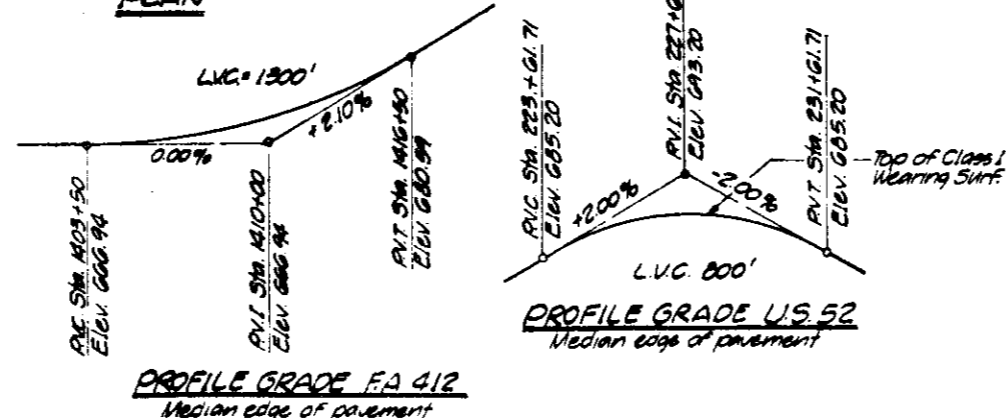
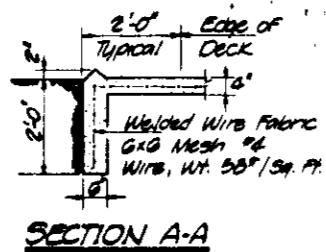
Live Load HS20-44 AASHTO 1975 Specs. & 1974 Interim.
Dead Load includes 25' / 59' Ft. of Roadway for future wearing surface.

DESIGN STRESSES

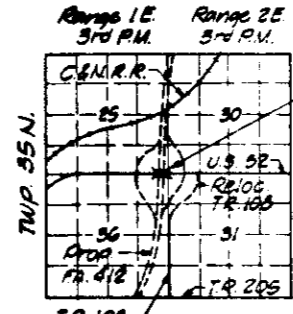
- f_c = 1400 psi. Curbs & Parapets
- f_c = 1200 psi. Superstructure Deck Slab
- f_s = 20 ksi. Reinforcing (Superstructure)
- n = 10
- f_c = 3500 psi. Abutment Slabs & Substructure
- f_s = 40 ksi. Reinforcing Abutment Slabs & Substr.
- A_s = 20 ksi to 27 ksi Structural Steel

LIVE LOAD DEFLECTION

1/1200 For composite construction



APPROVED
FOR STRUCTURAL ADEQUACY ONLY



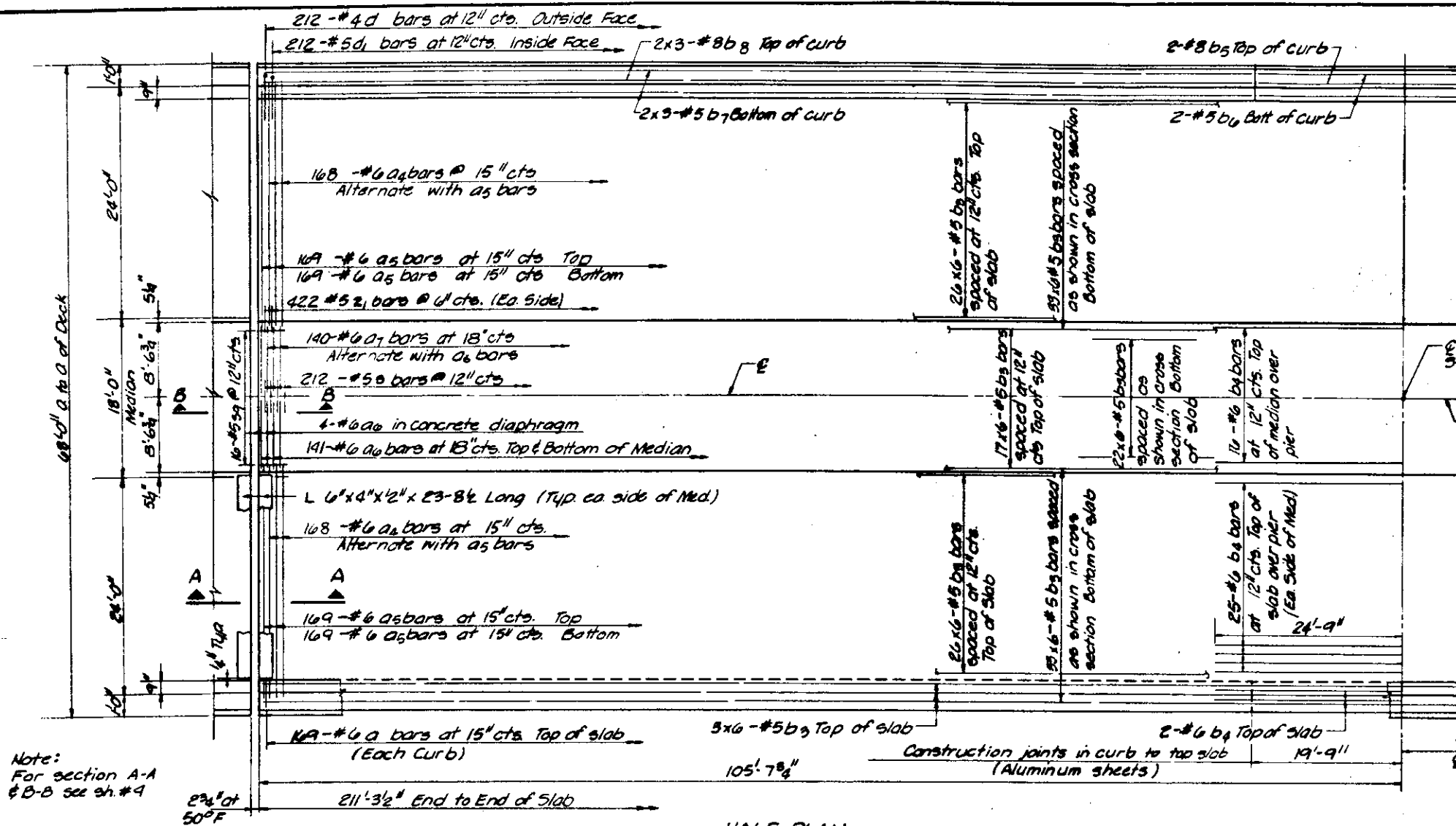
| ITEM | UNIT | SUPERSTR. | SUBSTR. | TOTAL |
|--------------------------------|----------|-----------|---------|---------|
| Structure Excavation | Cu. Yd. | | 135 | 135 |
| Sand Backfill | Cu. Yd. | | 470 | 470 |
| Class X Concrete | Cu. Yd. | 613.9 | 426.1 | 1,040.0 |
| Stud Shear Connectors | Each | 3,510 | | 3,510 |
| Structural Steel | L. Sum | 1 | | 1 |
| Aluminum Roofing | Lin. Ft. | 512 | | 512 |
| Reinforcement Bars | Pounds | 138,930 | 47,880 | 186,810 |
| Steel Piles (HP 8 x 36) | Lin. Ft. | | 1,368 | 1,368 |
| Test Pile, Steel | Each | | 2 | 2 |
| Name Plates | Each | | 1 | 1 |
| Slope Wall, 4" | Sq. Yd. | | | 552 |
| Preformed Joint Sealer 4" | Lin. Ft. | 140 | | 140 |
| Steel Piles (HP 10 x 42) | Lin. Ft. | | 3,840 | 3,840 |
| Bit. Conc. Surf. Crs., Cl. 1 # | Tons | 110 | | 110 |
| Protective Coat | Sq. Yd. | 192 | | 192 |
| Waterproofing Membrane System | Sq. Yd. | 1,366 | | 1,366 |

| REVISIONS | DATE | DESCRIPTION |
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| 1 | | |
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U.S. 52 OVER R. 100
FA 412 SEC 50-6 HB-1 PROJ. EBRF-42-4(14)
STA. 1409+80.56 (FA 412) LA SALLE COUNTY

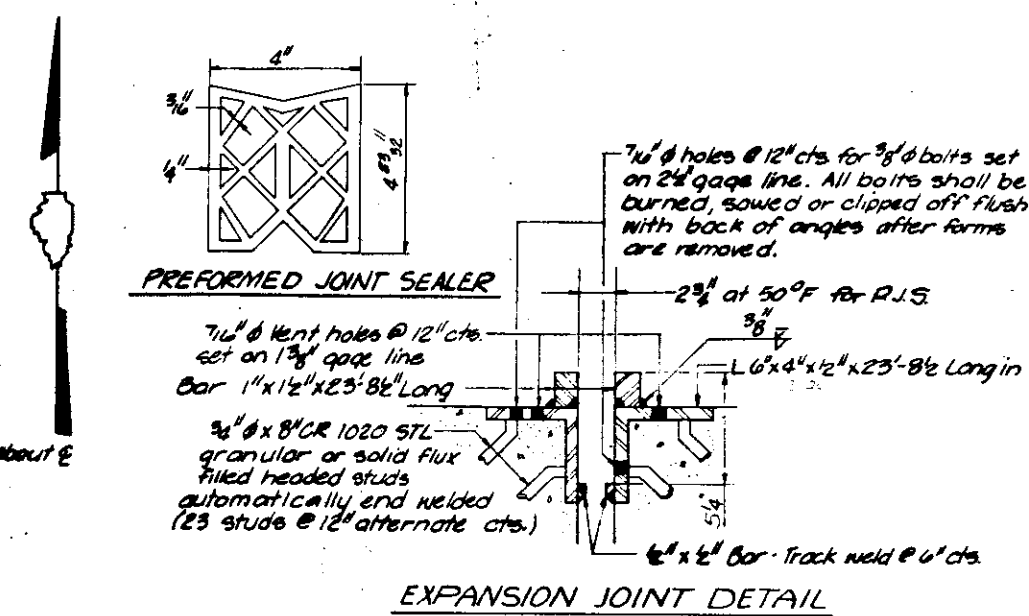
HOMER L. CHASTAIN & ASSOCIATES
CONSULTING ENGINEERS
DECATUR, ILLINOIS

| PROJECT NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|-----------------|----------|---------|--------------|-----------|
| FA 412 | 50-6 | LaSalle | 81 | 37 |
| PROJ. SHEET NO. | ILLINOIS | PROJECT | | |

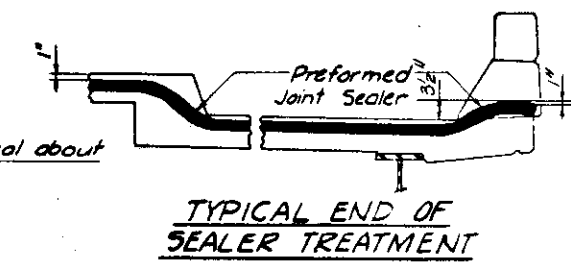


Note: For section A-A & B-B see sh. #4

HALF PLAN



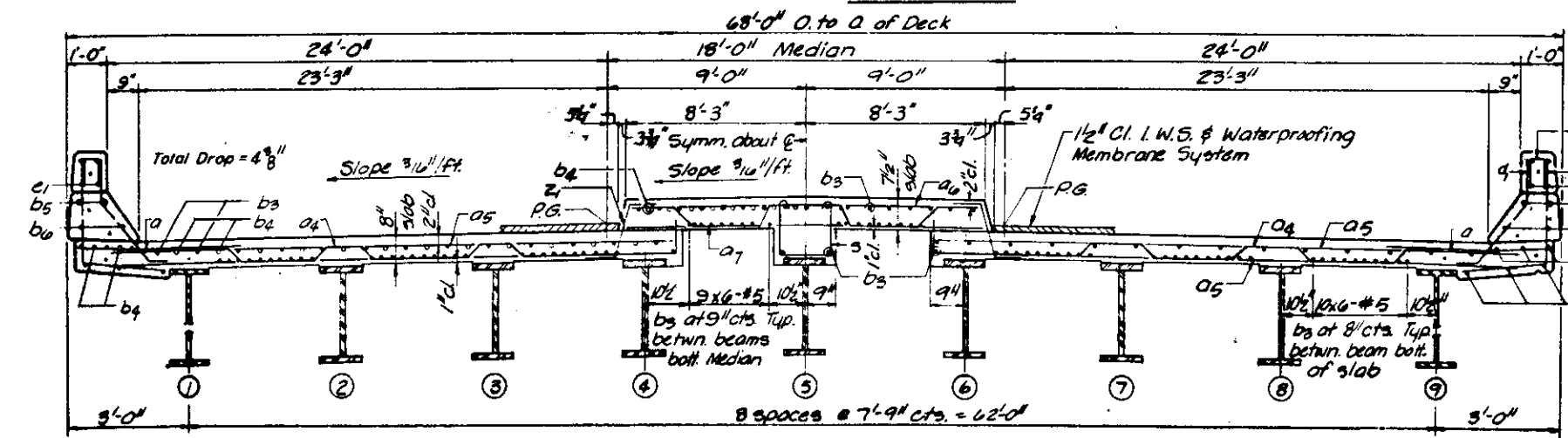
EXPANSION JOINT DETAIL



TYPICAL END OF SEALER TREATMENT

BILL OF MATERIAL

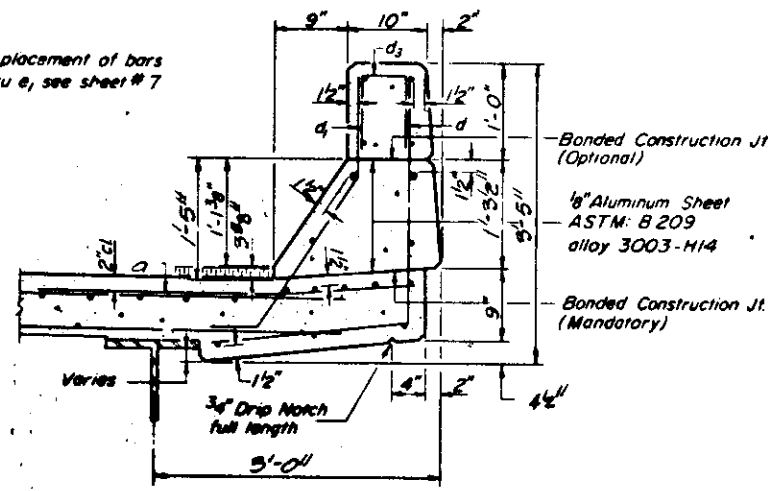
| Bar | No | Size | Length | Shape |
|----------------------|-----|------|---------|--------------|
| a | 338 | #6 | 4'-0" | |
| a4 | 336 | #6 | 2'-8" | |
| a5 | 676 | #6 | 25'-9" | |
| a6 | 290 | #6 | 16'-3" | |
| a7 | 190 | #6 | 16'-11" | |
| b5 | 978 | #5 | 30'-3" | |
| b6 | 70 | #6 | 39'-0" | |
| b5 | 8 | #8 | 19'-0" | |
| b4 | 8 | #5 | 19'-0" | |
| b7 | 24 | #5 | 29'-0" | |
| b8 | 24 | #8 | 30'-0" | |
| d | 424 | #4 | 3'-8" | |
| d1 | 424 | #5 | 3'-7" | |
| 5 | 212 | #5 | 4'-0" | |
| 5a | 52 | #5 | 4'-0" | |
| z1 | 844 | #5 | 3'-7" | |
| Reinforcement Bars | | | | Lbs 105,380 |
| Preformed Jt. Sealer | | | | Lin. Ft. 190 |
| Class X Concrete | | | | Cu Yds 421.6 |



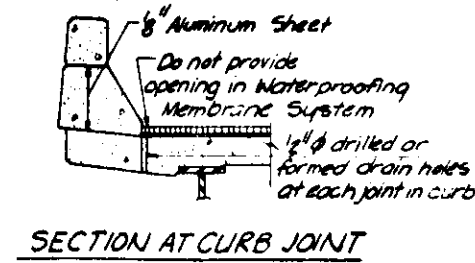
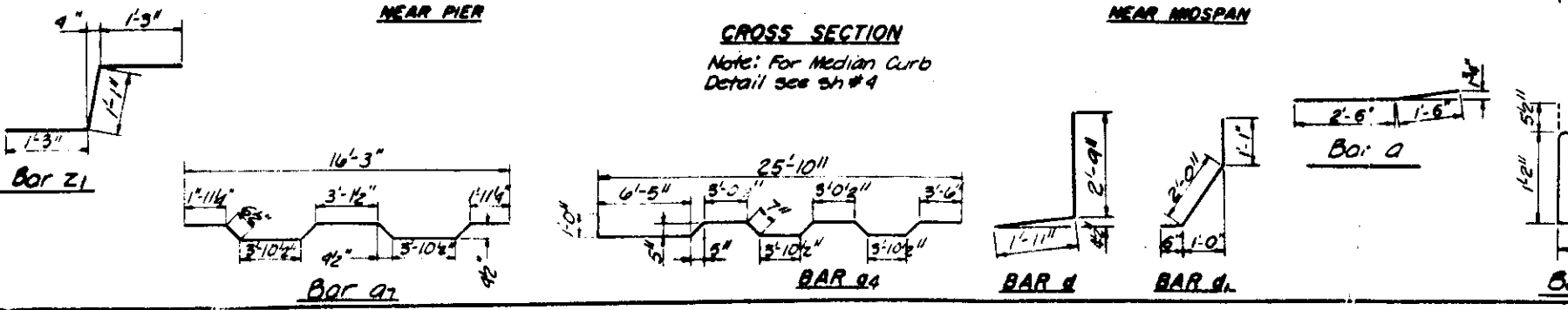
CROSS SECTION

Note: For Median Curb Detail see sh. #4

Note: For placement of bars d3 & e thru e, see sheet #7



CURB SECTION



SECTION AT CURB JOINT

The lengths and quantities of longitudinal reinforcement and Class X Concrete in parapets are not included in above quantities. See sheet # 6

SUPERSTRUCTURE-SPANS 253

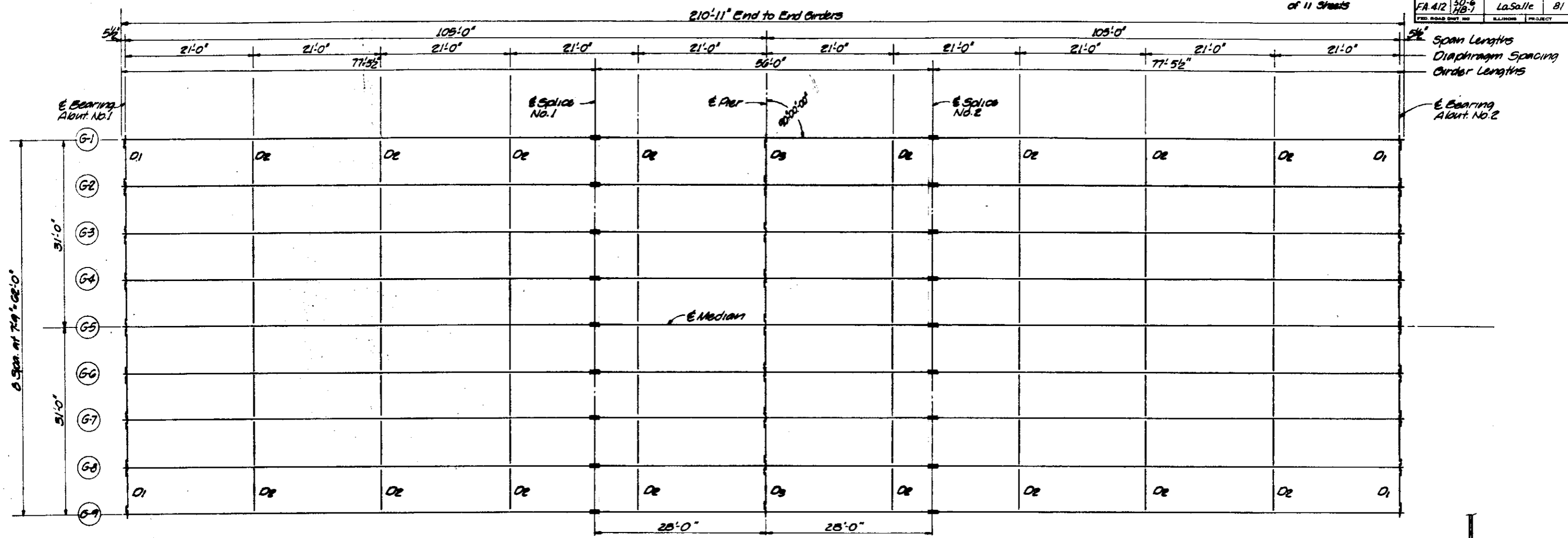
| REVISIONS | DATE | INITIALS |
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DRAWN BY DATE: JWN 5-76
 CHECKED BY DATE: [Blank]
 PROJECT NO: 2001-3
 SHEET NO: [Blank]

U.S. R. 32 OVER FA 412
 FA 412 SEC 50-6 HB-1 PROJ
 STA. 404+90.50 (FA 412) LASALLE COUNTY

HOMER L. CHASTAIN & ASSOCIATES
 CONSULTING ENGINEERS
 DECATUR, ILLINOIS

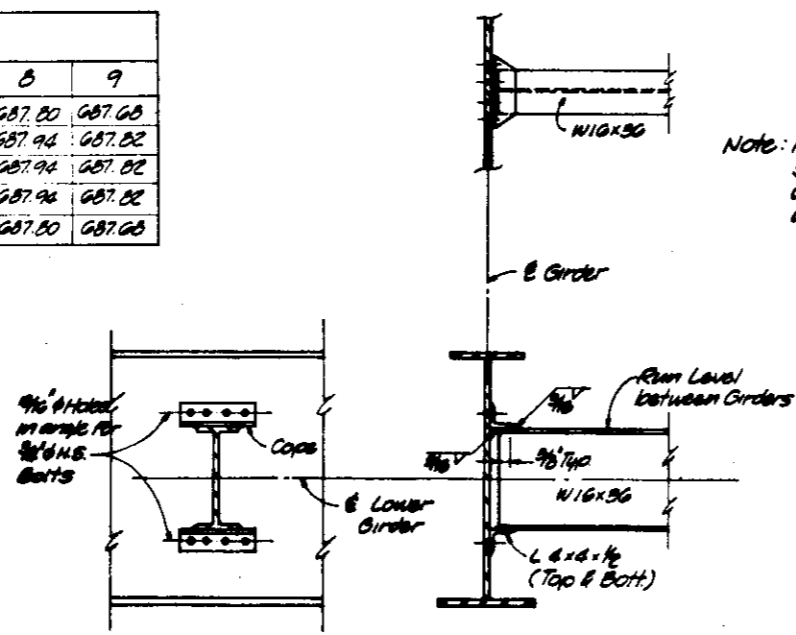
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---------------------|-----------|---------|--------------|-----------|
| FA 412 | 50-6 HB-1 | LaSalle | 81 | 39 |
| FED. ROAD DIST. NO. | ILLINOIS | PROJECT | | |



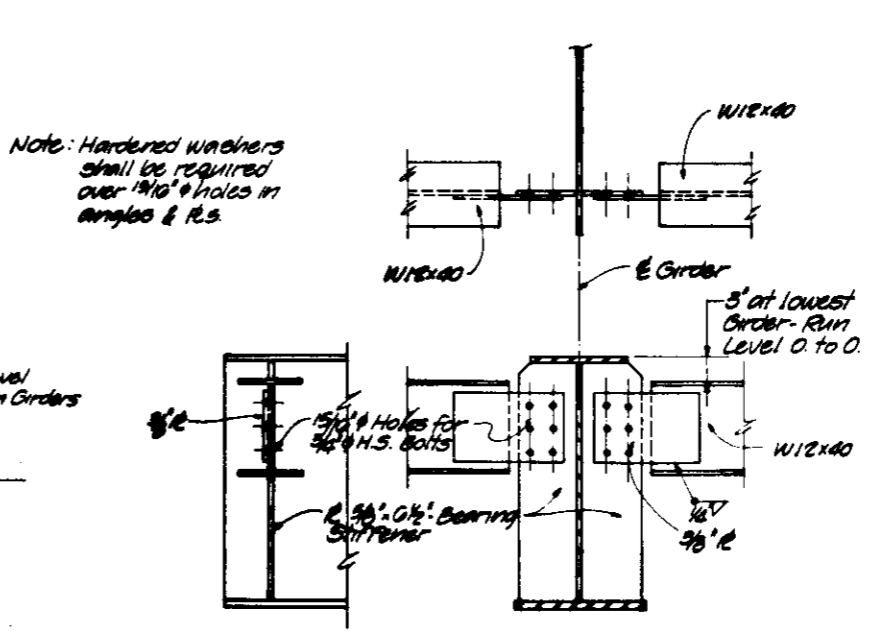
FRAMING PLAN
All end diaphragms to be W12x40 MK D1
All interior diaphragms to be W16x36 MK D2 or D3

| TOP OF WEB ELEVATIONS * | | | | | | | | | | |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Location | Girder | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| E. Brg. About #1 | | 687.68 | 687.80 | 687.92 | 688.04 | 688.16 | 688.04 | 687.92 | 687.80 | 687.68 |
| E. Splice #1 | | 687.82 | 687.94 | 688.06 | 688.18 | 688.30 | 688.18 | 688.06 | 687.94 | 687.82 |
| E. Pier | | 687.82 | 687.94 | 688.06 | 688.18 | 688.30 | 688.18 | 688.06 | 687.94 | 687.82 |
| E. Splice #2 | | 687.82 | 687.94 | 688.06 | 688.18 | 688.30 | 688.18 | 688.06 | 687.94 | 687.82 |
| E. Brg. About #2 | | 687.68 | 687.80 | 687.92 | 688.04 | 688.16 | 688.04 | 687.92 | 687.80 | 687.68 |

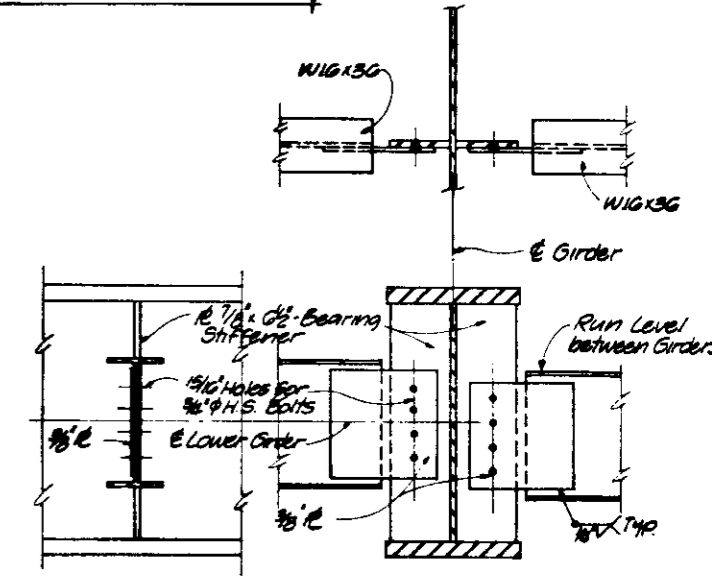
* For Fabrication only



INTERIOR DIAPHRAGM - MK D2



END DIAPHRAGM - MK D1



INTERIOR DIAPHRAGM - MK D3

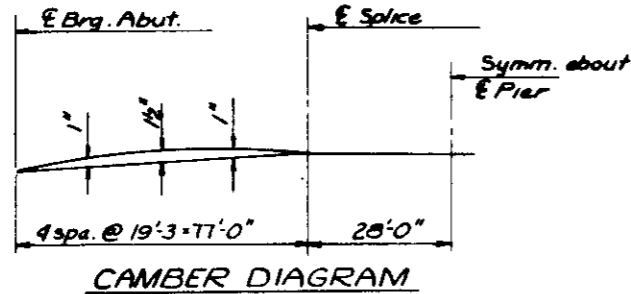
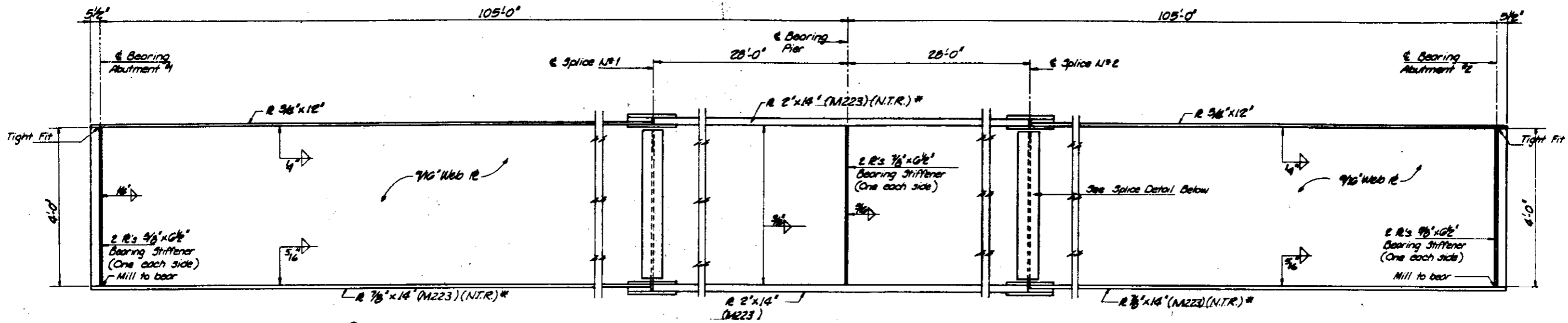
| REVISIONS | | | DATE |
|-----------|------|----|----------|
| NO. | DATE | BY | |
| 1 | | | JCH 2.75 |
| 2 | | | RJR 5.77 |

STRUCTURAL STEEL

US RT 52 OVER FA 412
FA 412 SEC 50-6 HB-1 PROJ
Sta 1404+80.56 (FA 412) LA SALLE COUNTY
2001-3

HOMER L. CHASTAIN & ASSOCIATES
CONSULTING ENGINEERS
DECATUR, ILLINOIS

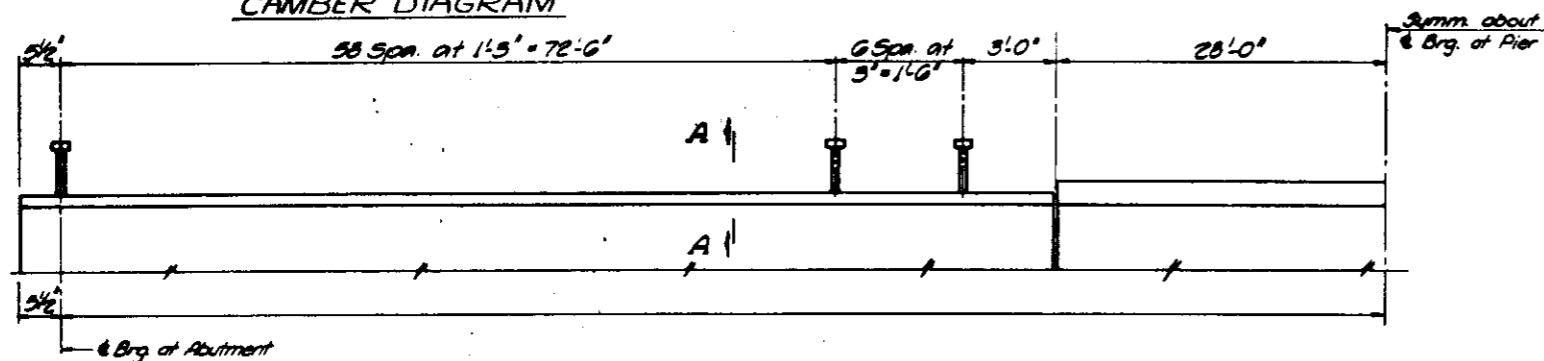
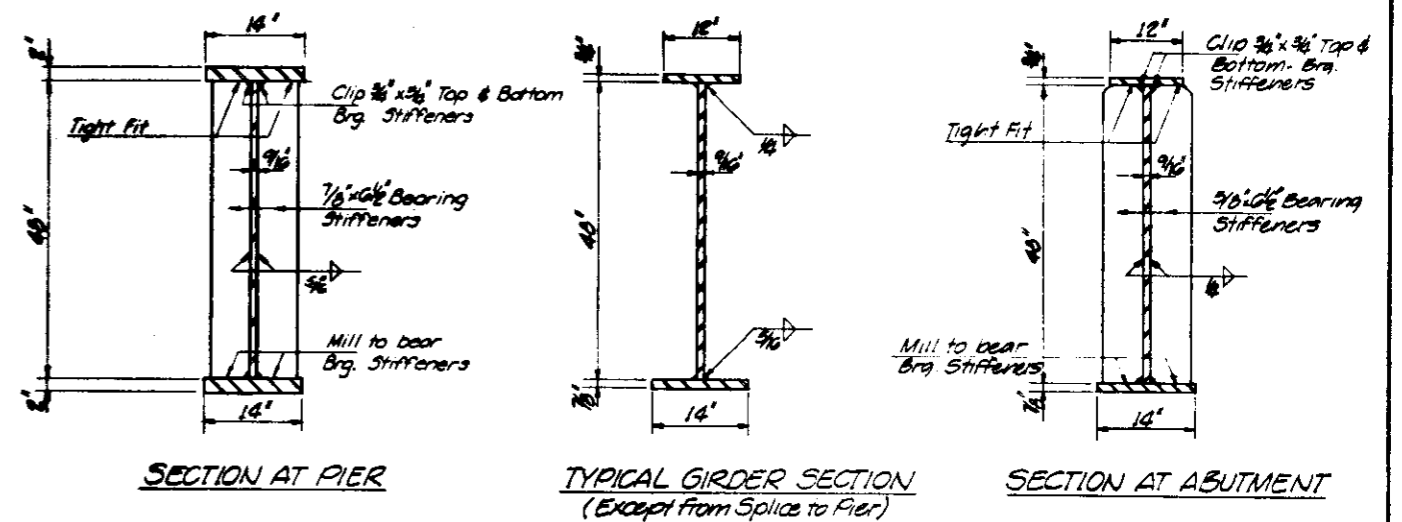
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---------------------|-----------|------------------|--------------|-----------|
| FA 412 | 50-6 NB-1 | LaSalle | 81 | 40 |
| FED. ROAD DIST. NO. | | ILLINOIS PROJECT | | |



GIRDER ELEVATION

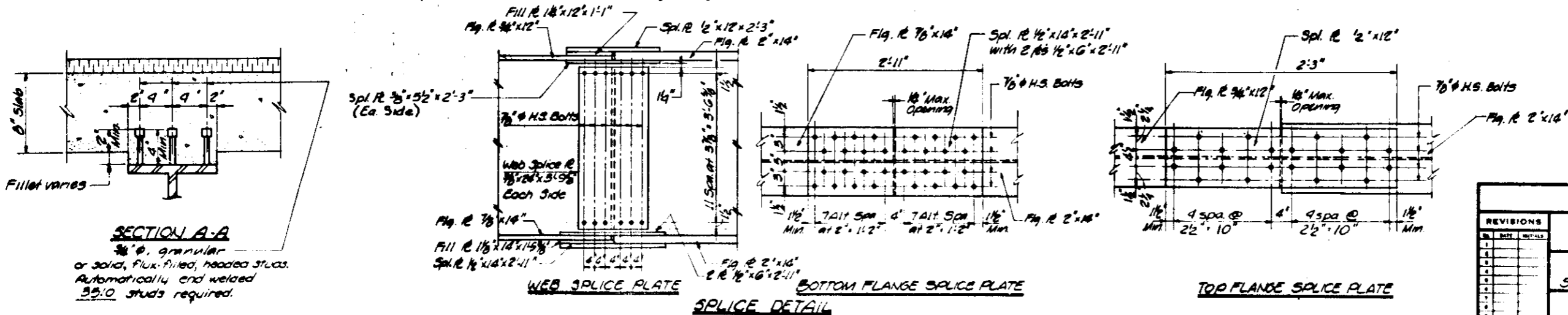
Unless otherwise noted,
all steel is AASHTO M105
AASHTO M223 shall be
Grade 50

* Notch Toughness Requirements



SHEAR CONNECTOR ELEVATION

(390 stud shear connectors req'd. ea girder)



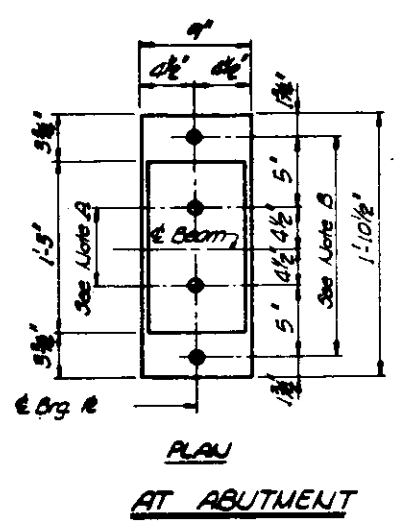
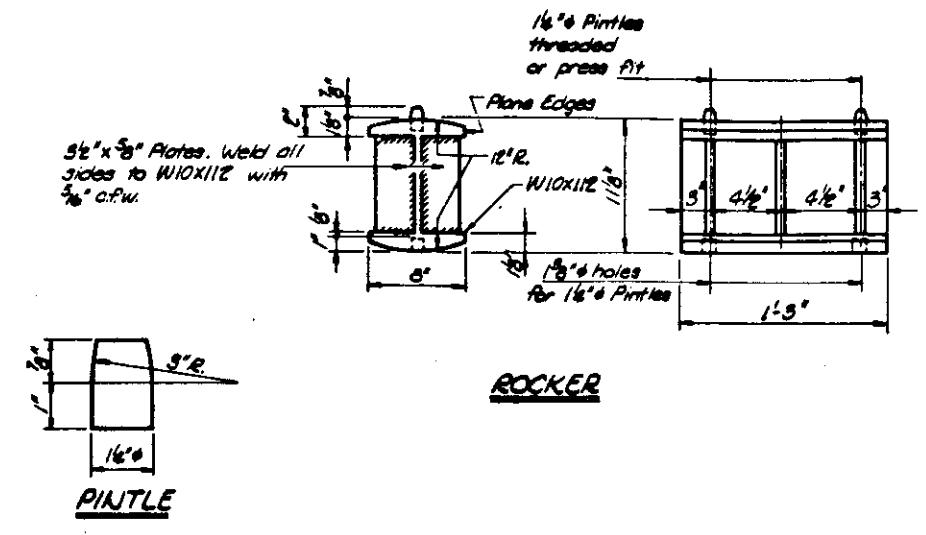
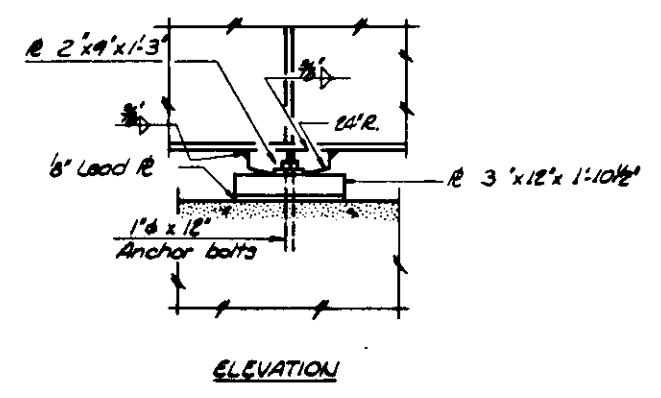
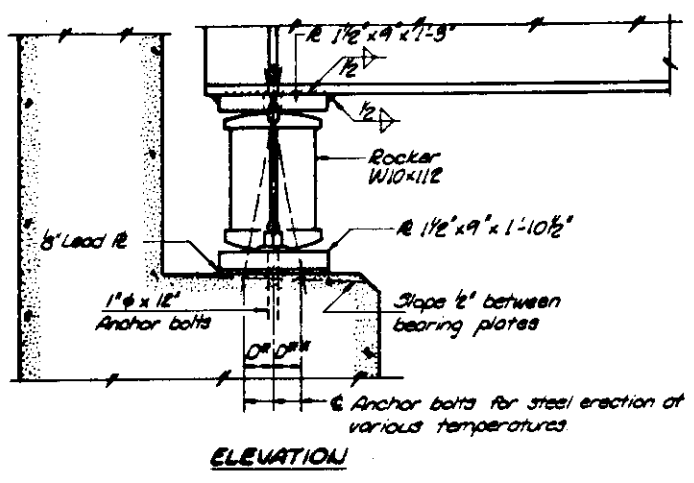
Note: The main load carrying member components subject to the Supplemental Requirements for Notch Toughness are the flanges, as shown on Girder Elevation view, the webs of the steel girders and all splice plates.

| REVISIONS | | | STRUCTURAL STEEL | |
|-----------|------|-------------|------------------|------------|
| NO. | DATE | DESCRIPTION | DESIGNED BY | CHECKED BY |
| 1 | | | | |
| 2 | | | | |
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US 52 OVER FA 412
FA 412 SEC 50-6 NB-1 PROJ.
STA 1402+80 TO 1402+80.50 FA 412 LA SALLE COUNTY
HOMER L. CHASTAIN & ASSOCIATES
CONSULTING ENGINEERS
DECATUR, ILLINOIS

DATE: JUN 5 1975
SCALE: AS SHOWN
PROJECT: 2601-3
SHEET NO.

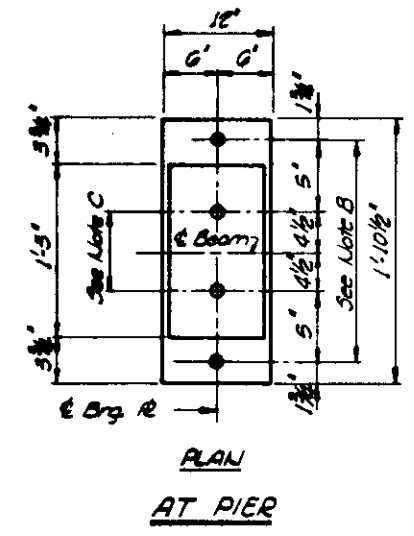
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---------------------|---------|----------|--------------|-----------|
| FA 412 | 50-6 | LaSalle | 81 | 41 |
| FED. ROAD DIST. NO. | | ILLINOIS | PROJECT | |



NOTE A
1 1/2" holes - 1" deep in top flange for pintles. Thread or press fit pintles into bottom flange.

NOTE B
1 1/2" holes for 1" anchor bolts. 2" x 2" x 5/16" flange washers under nut.

NOTE C
1 1/2" holes 1" deep in top flange only for 1/2" pintles.



NOTES ON SETTING OF ANCHOR BOLTS AT EXPANSION BEARINGS

- a) D^o (Side of brg. away from fixed brg.)
D^o = 1/8" per each 100' of expansion for every 15° below the normal temperature of 50° F.
- D^o (Side of brg. toward fixed brg.)
D^o = 1/8" per each 100' of expansion for every 15° above the normal temperature of 50° F.
- b) After beams have been erected and dimensions D^o or C^o determined, holes shall be drilled and anchor bolts shall be grouted in place. All fixed anchor bolts may be built into the masonry.

MOMENT TABLE - Symm. Composite & Span (Composite in Positive Moment areas only)

| INTERIOR GIRDER MOMENT TABLE | | |
|---------------------------------------|------------|-------|
| | 0.4 Span 1 | PIER |
| I _s (in ⁴) | 17714 | 40203 |
| I _{cm} (in ⁴) | 34005 | --- |
| I _c (in ⁴) | 40983 | --- |
| S _y (in ³) | 763 | 1946 |
| S _{cm} (in ³) | 1004 | --- |
| S _p (in ³) | 1112 | --- |
| e (K/1) | 1.020 | 1.020 |
| M _e (K) | 613 | 1764 |
| f _s e (KSI) | 9.7 | 13.7 |
| S _e (K/1) | 0.395 | 0.395 |
| M _{se} (K) | 314 | 576 |
| f _{se} (KSI) | 5.8 | 4.5 |
| M _e (K) | 431 | 820 |
| M _{imp} (K) | 201 | 182 |
| TOTAL (K) | 1132 | 1022 |
| f _v + s _e (KSI) | 12.2 | 7.9 |
| f _v TOTAL (KSI) | 25.7 | 26.1 |
| V _R (K) | 58.3 | --- |

| INTERIOR GIRDER REACTION TABLE | | |
|--------------------------------|----------|-------|
| | ABUTMENT | PIER |
| R _l (K) | 50.9 | 196.2 |
| R _r (K) | 50.0 | 81.0 |
| Imp (K) | 10.8 | 17.5 |
| R TOTAL (K) | 111.7 | 294.7 |

I_s and S_y are the moment of inertia and section modulus of the steel section
 I_c and S_c are the moment of inertia and section modulus of the composite section used in computing f_s
 V_R is the maximum + Impact shear range.
 I_{cm} & S_{cm} are the moment of inertia and section modulus of the Composite Section used in computing f_v for n=30

| REVISIONS | | | DRAWN BY DATE |
|-----------|------|--------|-----------------|
| NO. | DATE | DETAIL | JLN 5-79 |
| 1 | | | CHECKED BY DATE |
| 2 | | | 5-12-79 |
| 3 | | | BOOK NUMBER |
| 4 | | | PROJECT NO |
| 5 | | | 2601-3 |
| 6 | | | SHEET NO |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

BEARING DETAILS

U.S. RT. 52 OVER FA 412
 FA 412 SEC 50-6 HB-1 PROJ.
 Sta. 1404+80.56 (FA 412) LA SALLE COUNTY

HOMER L. CHABSTAIN & ASSOCIATES
 CONSULTING ENGINEERS
 DECATUR, ILLINOIS