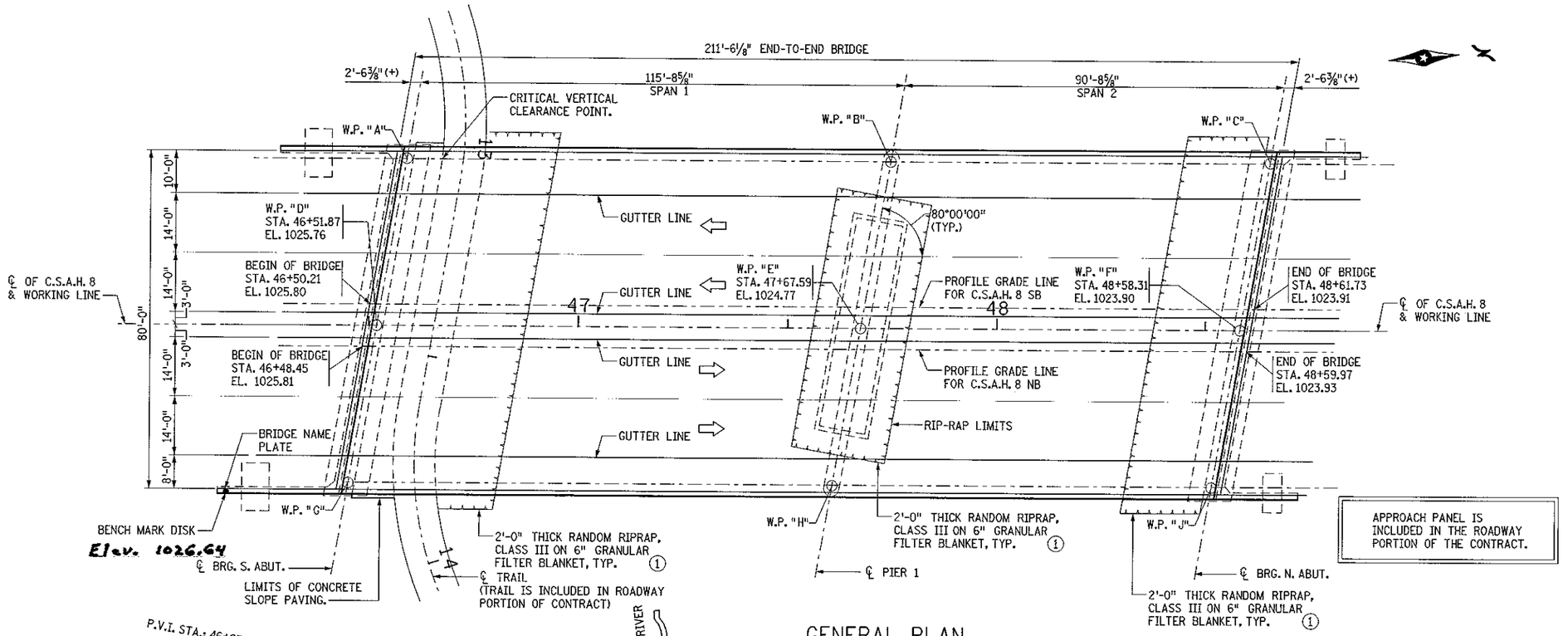
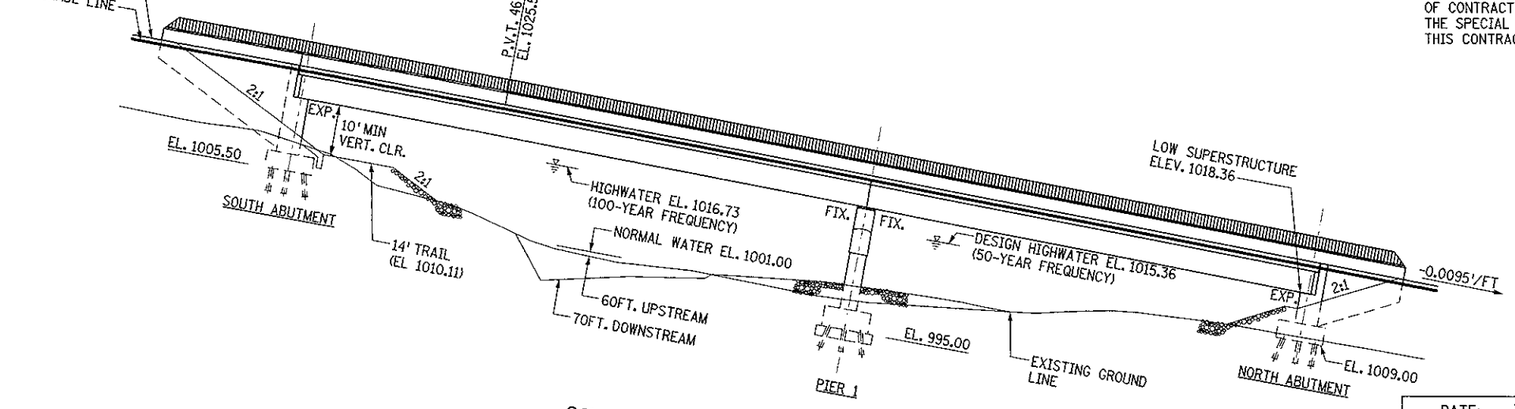



GENERAL PLAN

(1) TYPICAL LIMITS OF RIPRAP. ADDITIONAL RIPRAP TO BE INCLUDED IN GRADING PORTION OF CONTRACT ACCORDING TO THE SPECIAL PROVISIONS OF THIS CONTRACT.

APPROACH PANEL IS INCLUDED IN THE ROADWAY PORTION OF THE CONTRACT.




GENERAL ELEVATION

NOTE:
LOW SUPERSTRUCTURE ELEVATION IS CONTROLLED BY 3-FT FREEBOARD REQUIREMENT ABOVE Q50.

AS-BUILT

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FED. PROJ.

## DESIGN DATA

1996 AND CURRENT INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS. LOAD FACTOR DESIGN METHOD.
DESIGN LOADING: HS 25 LOAD
DEAD LOAD INCLUDES 17 PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.

MAXIMUM ALLOWABLE DESIGN STRESSES:
REINFORCED CONCRETE:
f'c = 4000 psi; n= 8
fy = 60,000 psi; (REINFORCEMENT)
PRESTRESSED CONCRETE:
f'c = 8500 psi; n= 1
fy = 270,000 psi; FOR 0.6" Ø LOW RELAXATION STRANDS

DECK AREA = 17,415 SQ. FT.
DESIGN SPEED = 45 M.P.H.
17100 PROJECTED A.D.T. FOR YEAR 2021
OPERATING RATING HS 57

## LIST OF SHEETS


| NO. | SHEET TITLE |
|---|---|
| 1 | GENERAL PLAN AND ELEVATION |
| 2 | TYPICAL SECTION AND QUANITIES |
| 3 | BRIDGE LAYOUT |
| 4-8 | SOUTH ABUTMENT |
| 9-13 | NORTH ABUTMENT |
| 14-17 | PIER 1 |
| 18 | SUBSTRUCTURE BARLISTS |
| 19 | SUBSTRUCTURE QUANTITY SUMMARIES |
| 20 | FRAMING PLAN |
| 21 | SLAB REINFORCEMENT |
| 22 | RAILING AND SIDEWALK DETAILS |
| 23 | SUPERSTRUCTURE DETAILS |
| 24 | SUPERSTRUCTURE QUANITIES & BARLISTS |
| 25-26 | PRESTRESSED BEAM DETAILS |
| 27-35 | STANDARD PLANS & DETAILS |
| 36 | BRIDGE SURVEY |
| 37 | BRIDGE SURVEY PLAN AND PROFILE |


## CONSTRUCTION NOTES

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" (AS AMENDED BY THE MAY 2, 1994 SUPPLEMENTAL SPECIFICATIONS) SHALL GOVERN.

BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE BEAMS SHALL BE ERECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR AND PLACING ANCHOR RODS.

THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE. (IN MILLIMETERS) BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

BENCH MARK ELEVATION 1023.19 (M.S.L. 1929 ADJ)
LOCATION: BRASS PLUG AT SOUTH EAST CORNER OF EXISTING BRIDGE

C.S.A.H. 8 OLMSTED COUNTY
MINNESOTA
DEPARTMENT OF TRANSPORTATION

## BRIDGE NO. 55567

C.S.A.H. 8 OVER THE ZUMBRO RIVER 0.08 MI. S. OF JCT. OF C.S.A.H. 22 & C.S.A.H. 8, IN OLMSTED COUNTY
115'-90'-115' PRESTRESSED CONCRETE BEAM SPANS, 62-FT. RDWY WITH 6-FT. RAISED MEDIAN, 10-FT. TRAIL & 8-FT. SIDEWALK
IDENTIFICATION NO. 501 10°0'0" SKEW

## GENERAL PLAN AND ELEVATION

SEC. 10 TWP. 106N. R. 14W.
CITY OF ROCHESTER OLMSTED COUNTY

DATE: 7/11/01
APPROVED: Michael J. Gluba
OLMSTED COUNTY ENGINEER

TKDA
TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
ENGINEERS • ARCHITECTS • PLANNERS SAINT PAUL, MINNESOTA

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

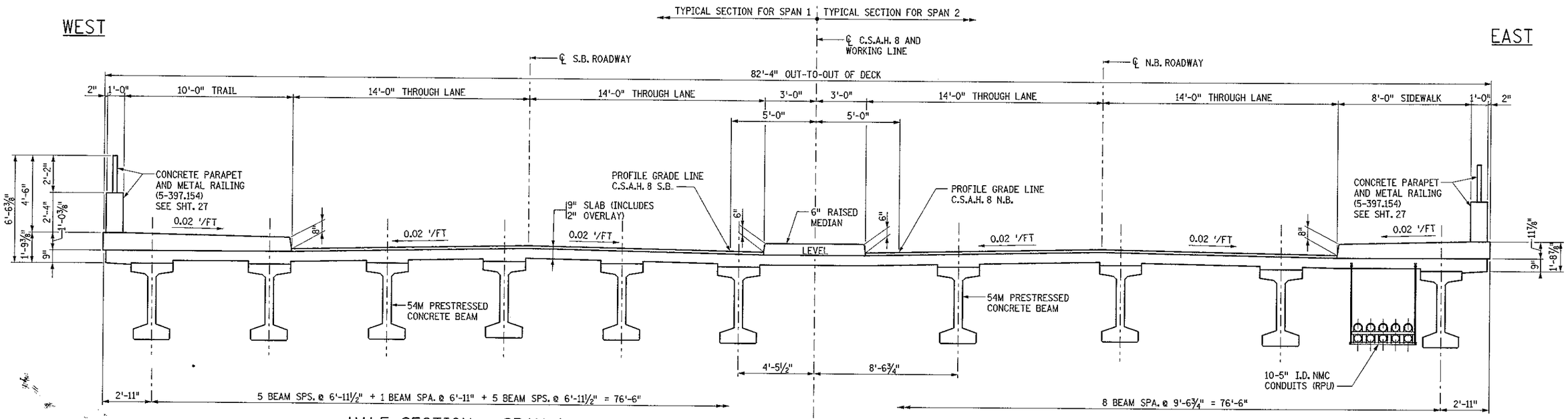
APPROVED: Daniel J. Wagner 7/16/01
STATE BRIDGE ENGINEER DATE:

| DES: | MJC | DR: | MJC | 55567 |
|---|---|---|---|---|
| CHK: | GM | CHK: | GM | |

STATE PROJ. NO. 55-608-11

Sheet No. 1 of 37 Sheets

Path: k:/site/proj/c11521/csdh8/dwg/bridge/gpe.dgn
Date: 07/03/2001




HALF SECTION - SPAN 1

TYPICAL SECTION

HALF SECTION - SPAN 2

## ESTIMATED QUANTITIES

Total

| ITEM NO | ITEM DESCRIPTION | UNIT | QUANTITY | | |
|---|---|---|---|---|---|
| 2021.501 | MOBILIZATION | LUMP SUM | 0.42 | | |
| 2031.501 | FIELD OFFICE TYPE D | EACH | 0.42 | | |
| 2401.501 | STRUCTURAL CONCRETE (1X62) | CU.YD. | 87 | (P) | |
| 2401.501 | STRUCTURAL CONCRETE (1A43) | CU.YD. | 329 | (P) | |
| 2401.501 | STRUCTURAL CONCRETE (3Y43) | CU.YD. | ~~494~~ | ~~(P)~~ | 510 (P) |
| 2401.512 | BRIDGE SLAB CONCRETE (3Y36A) | SQ.FT. | 17261 | (P) | |
| 2401.513 | TYPE P-1 RAILING CONCRETE (3Y46A) | LIN.FT. | 516 | (P) | |
| 2401.515 | SIDEWALK CONCRETE (3Y46A) | SQ.FT. | 4293 | (P) | |
| 2401.516 | RAISED MEDIAN CONCRETE (3Y46A) | SQ.FT. | 1267 | (P) | |
| 2401.541 | REINFORCEMENT BARS | POUND | 13810 | (P) | |
| 2401.541 | REINFORCEMENT BARS (EPOXY-COATED) | POUND | 145030 | (P) | |
| 2401.603 | ARCHITECTURAL SURFACE TREATMENT | SQ.FT. | 2020 | (P) | |
| 2402.583 | METAL RAILING FOR BIKEWAYS, TYPE M-1 | LIN.FT. | 516 | (P) | |
| 2402.591 | EXPANSION JOINT DEVICES, TYPE 4 | LIN.FT. | 162 | (P) | |
| 2402.595 | BEARING ASSEMBLY | EACH | 42 | | |
| 2404.501 | CONCRETE OVERLAY (3U17A) | SQ.FT. | 14119 | (P) | |
| 2405.502 | PRESTRESSED CONCRETE BEAMS, TYPE 54M | LIN.FT. | 2213 | (P) | |
| 2405.511 | DIAPHRAGMS FOR TYPE 54M PREST. BEAMS | LIN.FT. | 466 | (P) | |
| 2452.507 | C-I-P CONCRETE PILING DELIVERED, 12" | LIN.FT. | ~~7740~~ | | 6666 |
| 2452.508 | C-I-P CONCRETE PILING DRIVEN, 12" | LIN.FT. | ~~7740~~ | | 6129 |
| 2452.519 | C-I-P CONCRETE TEST PILE, 85 FT. LONG, 12" | EACH | 3 | | |
| 2452.519 | C-I-P CONCRETE TEST PILE, 80 FT. LONG, 12" | EACH | 6 | | |
| 2511.501 | RANDOM RIPRAP CLASS III | CU.YD. | 485 | (P) | |
| 2511.511 | GRANULAR FILTER | CU.YD. | 106 | (P) | |
| 2514.501 | CONCRETE SLOPE PAVING | SQ.YD. | ~~70~~ | ~~(P)~~ | 50 (P) |
| 2545.509 | CONDUIT SYSTEM (RPU) | LUMP SUM | 1 | | |
| 2401.601 | STRUCTURE EXCAVATION | LUMP SUM | 1 | | |
| 2401.601 | FOUNDATION PREPARATION (PIER 1) | LUMP SUM | 1 | | |
| 2502.603 | DRAINAGE SYSTEM, TYPE (B910) | LUMP SUM | 1 | | |
| 2563.601 | TRAFFIC CONTROL | LUMP SUM | 0.42 | | |

**NOTE:**

THE COST SPLITS FOR FIELD OFFICE TYPE D AND TRAFFIC CONTROL ARE 72% FEDERAL FUNDS AND 28% LOCAL FUNDS.

THE COST SPLITS FOR ALL OTHER BID ITEMS ARE 72% FEDERAL FUNDS, 18% BOND FUNDS, AND 10% LOCAL FUNDS.

**NOTE:**

REFER TO FRAMING PLAN FOR COMPLETE INFORMATION ON BEAM SPACING.

AS-BUILT

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| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

TKDA ENGINEERS • ARCHITECTS • PLANNERS
TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
SAINT PAUL, MINNESOTA

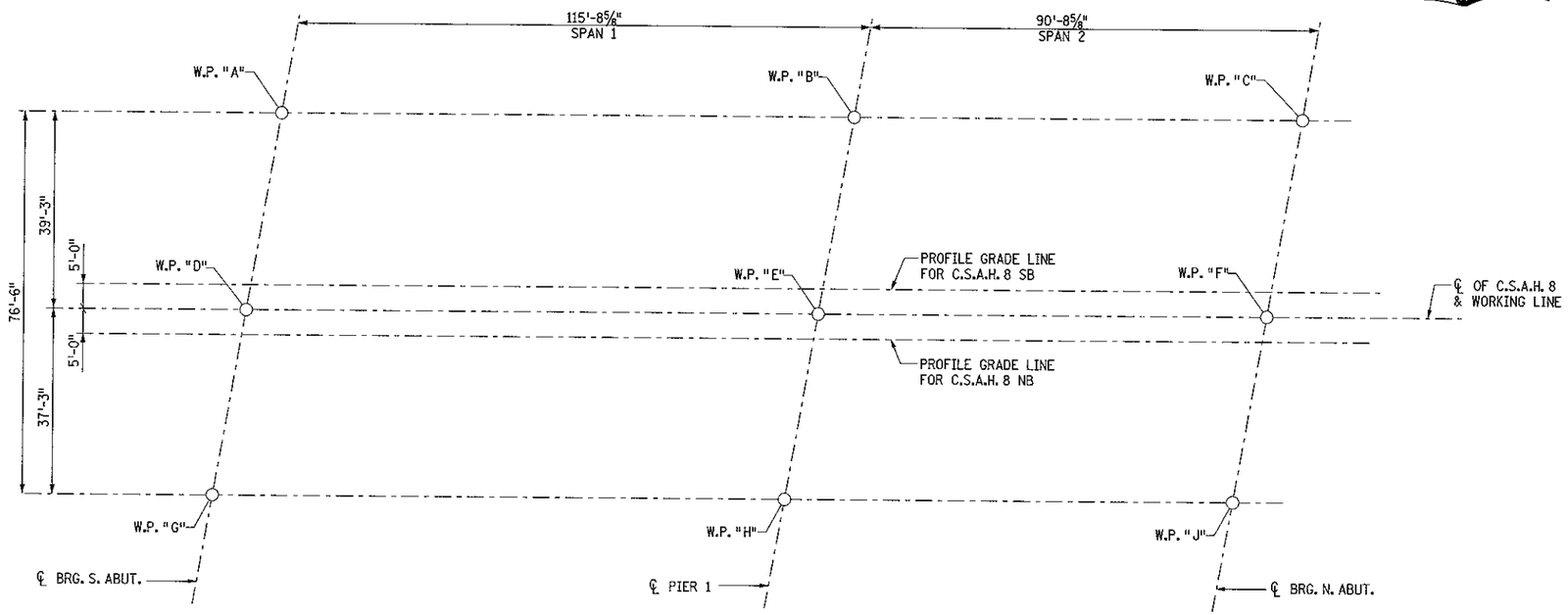
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: TYPICAL SECTION AND QUANTITIES

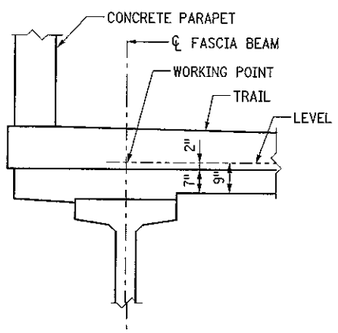
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Sheet No. 2 of 37 Sheets

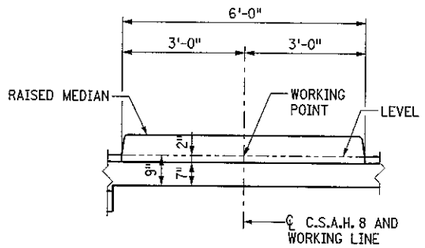
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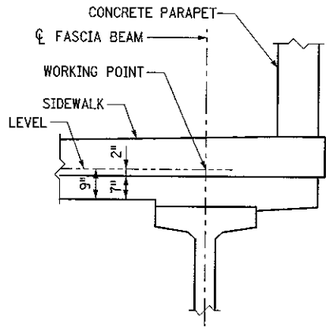

## WORKING POINT LAYOUT




WEST WORKING POINTS




℄ WORKING POINTS




EAST WORKING POINTS

## WORKING POINT LOCATIONS

| DIMENSIONS BETWEEN WORKING POINTS | | | | | | | | | | | | | ELEVATIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POINT | STATION | X-COORD. | Y-COORD. | A | B | C | D | E | F | G | H | J | TOP OF ROADWAY | TOP/RDWY TO BR. SEAT | BRIDGE SEAT | POINT |
| A | 46+58.79 | 395,445.707 | 67,237.633 | | 115.72 | | 39.86 | 115.66 | | | 127.68 | 207.56 | 1025.73 | 6.06 | 1019.67 | A |
| B | 47+74.51 | 395,455.587 | 67,352.930 | | | 90.72 | | 39.86 | 92.53 | 150.16 | | 108.70 | 1024.70 | 5.96 | 1018.74 | B |
| C | 48+65.23 | 395,463.331 | 67,443.317 | | | | | | 39.86 | 232.85 | 129.27 | | 1023.84 | 5.93 | 1017.91 | C |
| D | 46+51.87 | 395,484.223 | 67,227.387 | | | | | 115.72 | | 37.82 | 115.33 | | 1025.76 | ---- | -------- | D |
| E | 47+67.59 | 395,494.102 | 67,342.683 | | | | | | 90.72 | | 37.82 | 92.03 | 1024.77 | ---- | -------- | E |
| F | 48+58.31 | 395,501.847 | 67,433.071 | | | | | | | | | 37.82 | 1023.90 | ---- | -------- | F |
| G | 46+45.30 | 395,520.776 | 67,217.663 | | | | | | | | 115.72 | | 1025.78 | 6.06 | 1019.72 | G |
| H | 47+61.02 | 395,530.656 | 67,332.959 | | | | | | | | | 90.72 | 1024.83 | 5.96 | 1018.87 | H |
| J | 48+51.74 | 395,538.401 | 67,423.347 | | | | | | | | | | 1023.97 | 5.93 | 1018.04 | J |

| TOP OF RDWY. TO BR. SEAT | | | |
|---|---|---|---|
| | S. ABUT. | PIER | N. ABUT. |
| SLAB THICKNESS | 9" | 9" | 9" |
| STOOL HEIGHT | 4¾" | 4¾" | 3¾" |
| BEAM HEIGHT | 54" | 54" | 54" |
| BEARING HEIGHT | 5" | 3¾" | 4⅜" |
| TOTAL | 72¾" | 71½" | 71⅛" |

AS-BUILT

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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

TKDA TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
ENGINEERS • ARCHITECTS • PLANNERS SAINT PAUL, MINNESOTA

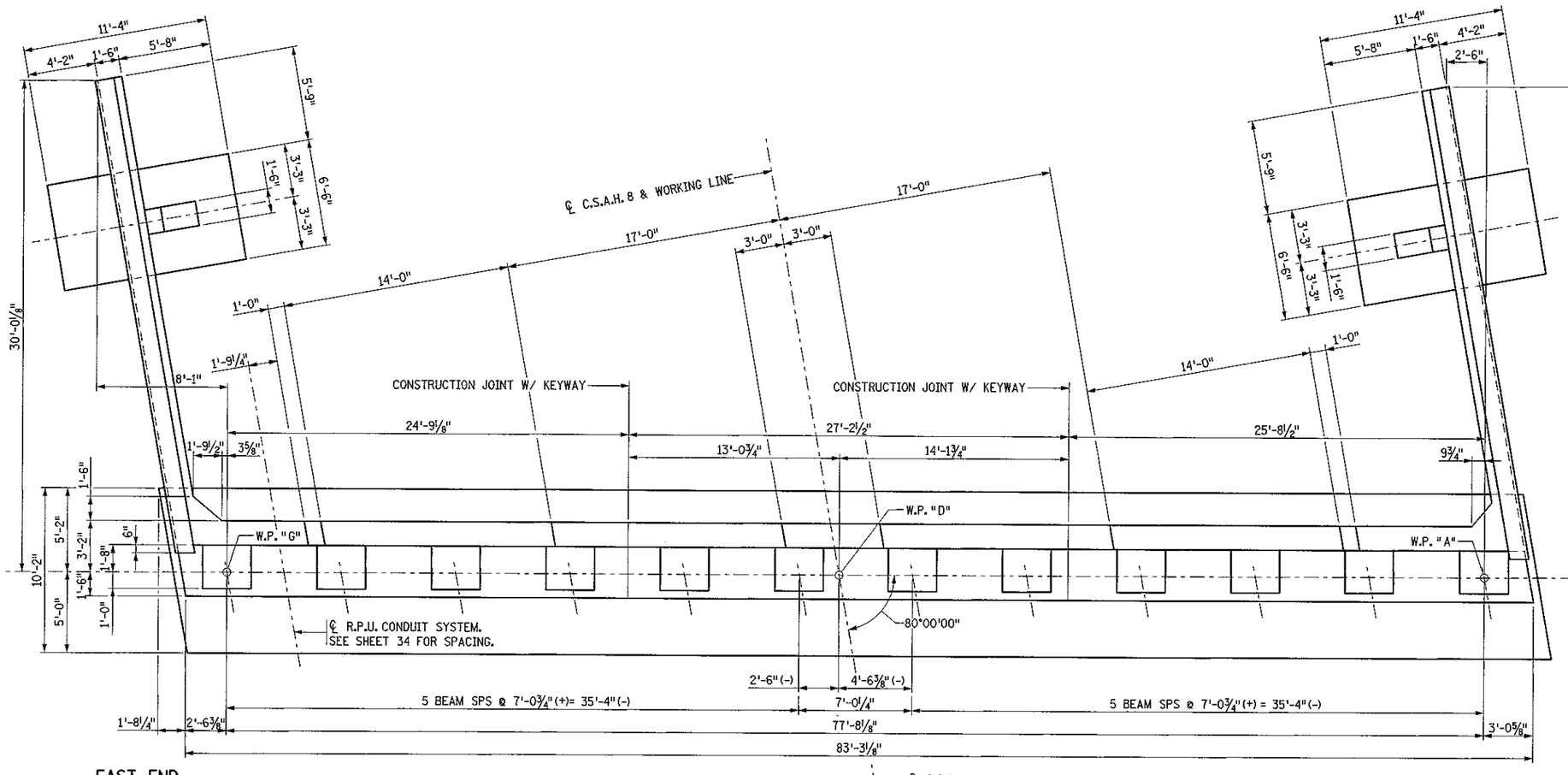
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: BRIDGE LAYOUT

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| CHK: GM | CHK: GM | |

Sheet No. 3 of 37 Sheets

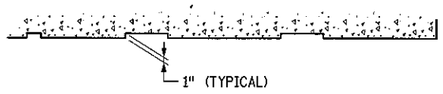
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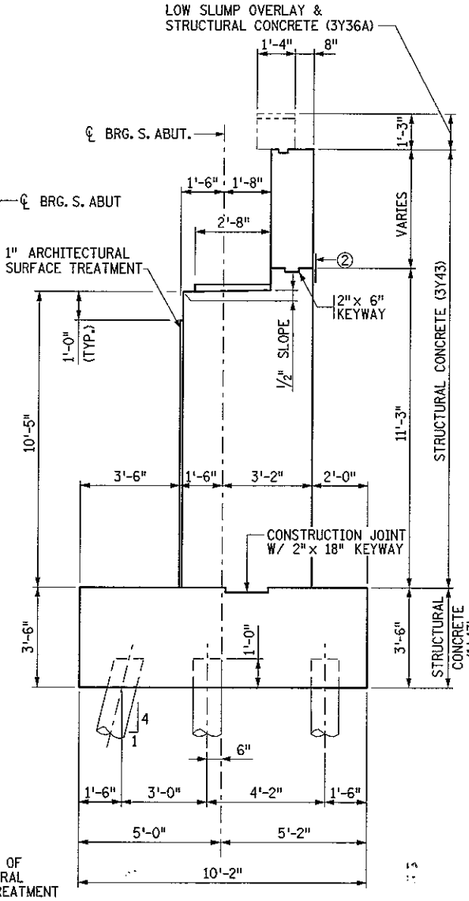

## NOTES:

① ABUTMENT END BLOCK NOT SHOWN. REFER TO SHEET 23.

② PERMISSIBLE CONSTRUCTION JOINT WITH 2"× 6" KEYWAY AND 3-PLY JOINT WATERPROOFING.




## DETAIL OF ARCHITECTURAL SURFACE TREATMENT




## TYPICAL SECTION A-A

FEB 18 2005

ENGINEERING

AS BUILT

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| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
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SAINT PAUL, MINNESOTA

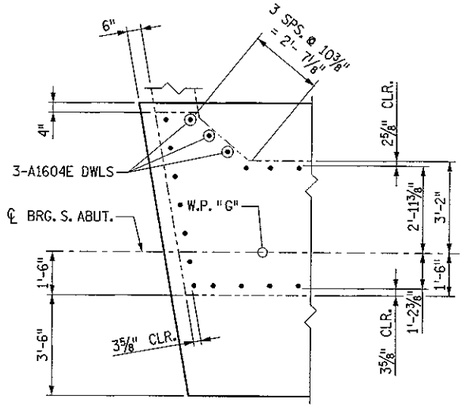
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: SOUTH ABUTMENT PLAN AND ELEVATION

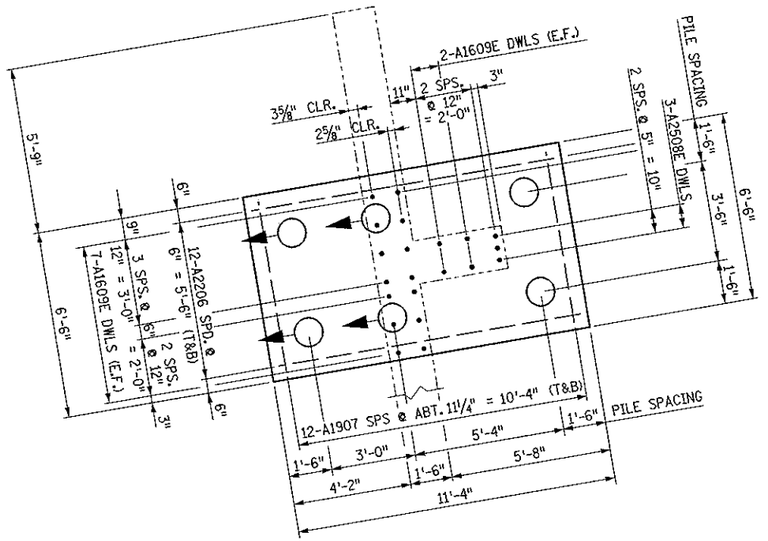
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Sheet No. 4 of 37 Sheets

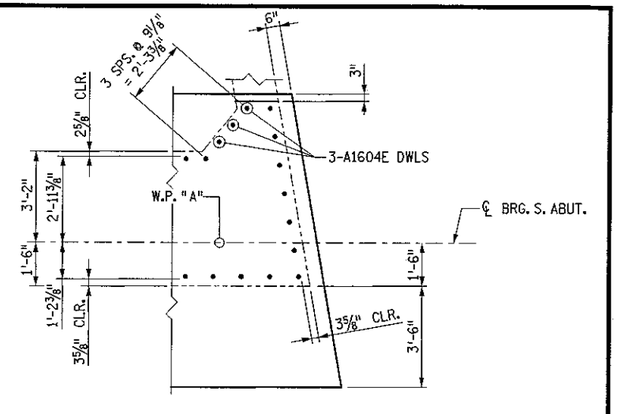
Bridge No. 55567



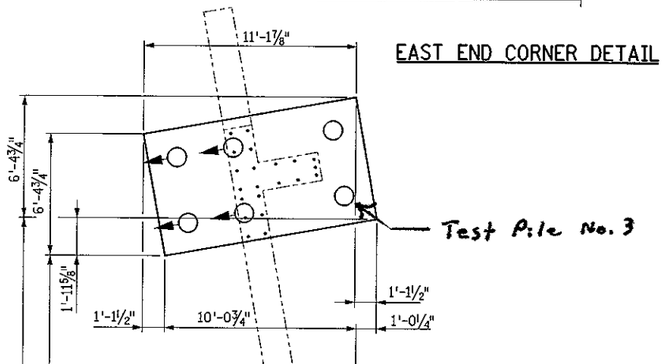

EAST END CORNER DETAIL

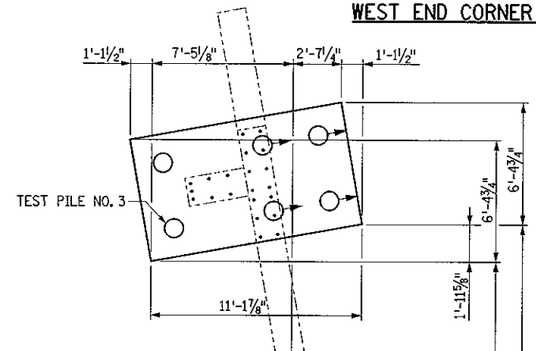



EAST COUNTERFORT PLAN
(WEST COUNTERFORT PLAN SIMILAR)




WEST END CORNER DETAIL

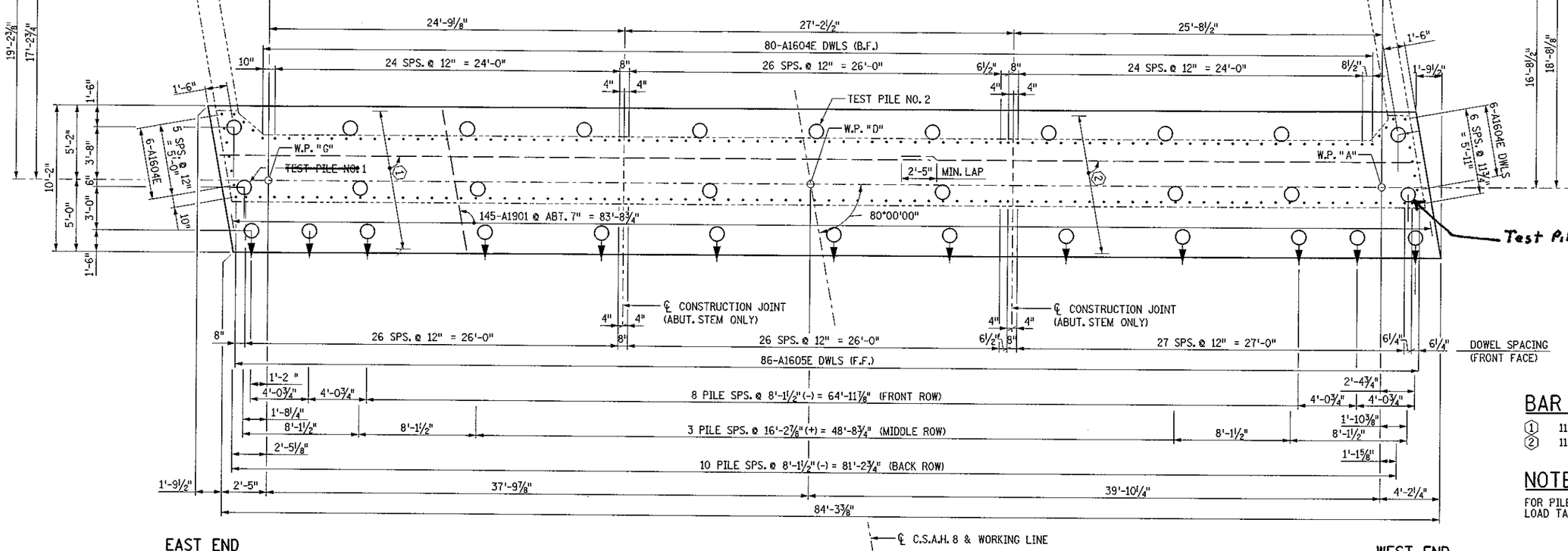



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EAST END

WEST END

PLAN

## BAR CALL-OUTS

① 11-A1902 @ 12" MAX
② 11-A1903 @ 12" MAX

## NOTES:

FOR PILE LOADS AND PILE LOAD TABLES SEE SHEET 19.

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SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

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TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
SAINT PAUL, MINNESOTA

Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: SOUTH ABUTMENT FOOTING PLAN

| DES: MJC | DR: MJC | APPROVED |
|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 5 of 37 Sheets

Bridge No. 55567

## NOTES:

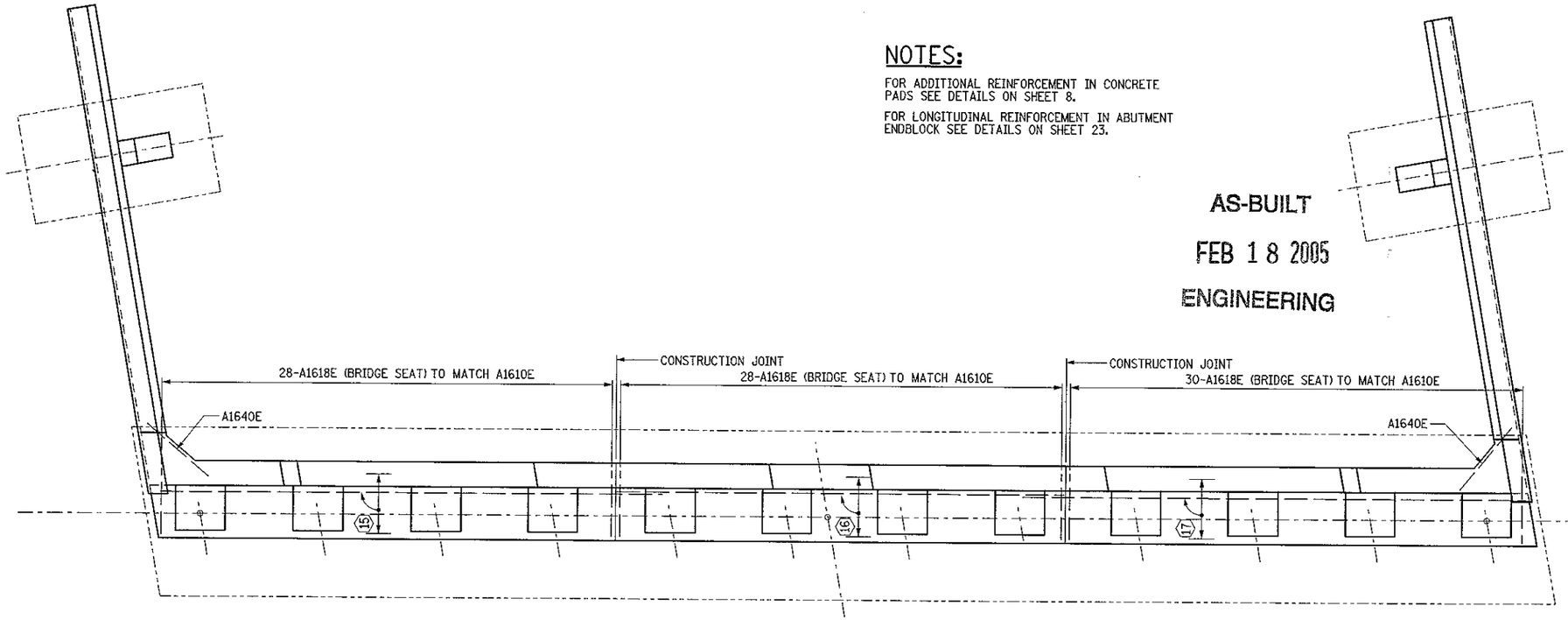
FOR ADDITIONAL REINFORCEMENT IN CONCRETE PADS SEE DETAILS ON SHEET 8.

FOR LONGITUDINAL REINFORCEMENT IN ABUTMENT ENDBLOCK SEE DETAILS ON SHEET 23.

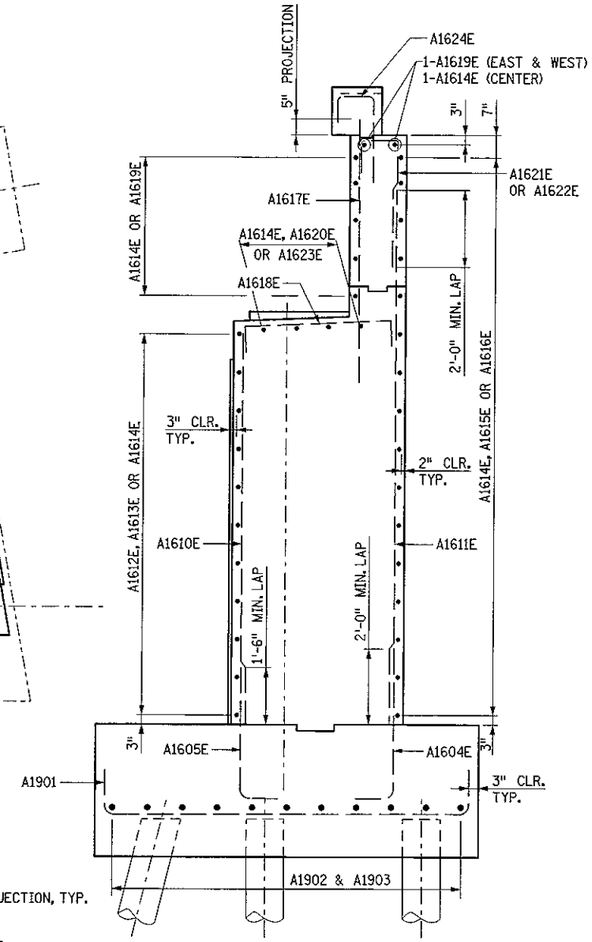
AS-BUILT

FEB 18 2005

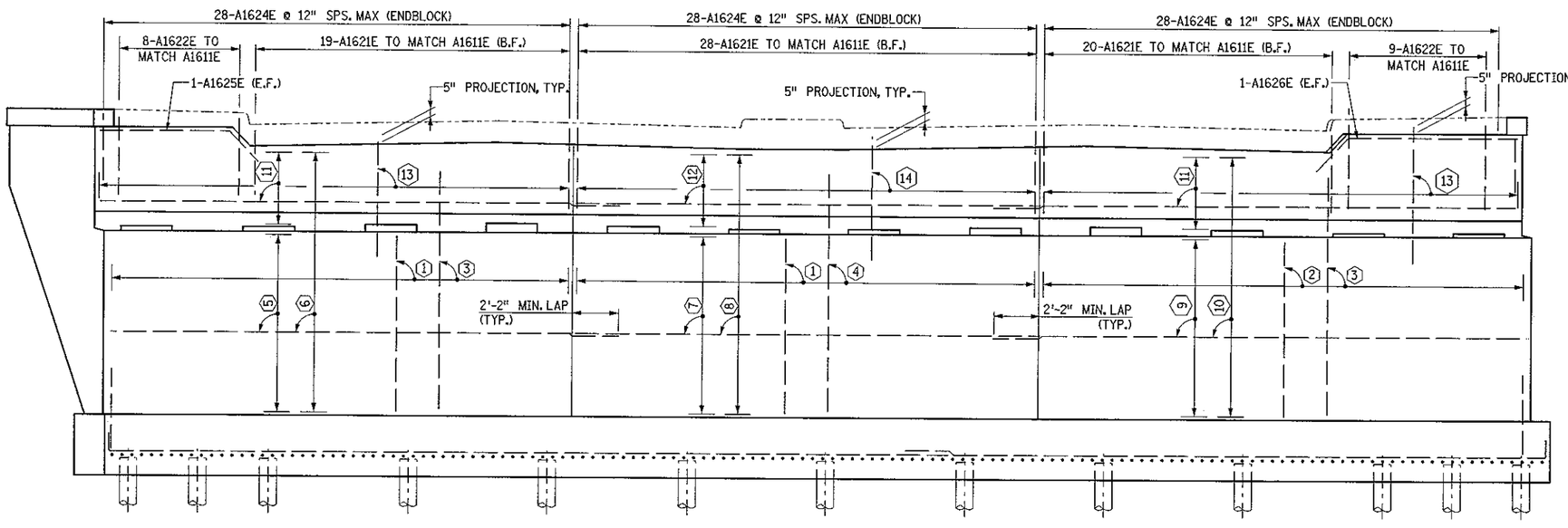
ENGINEERING




BRIDGE SEAT REINFORCEMENT




ABUTMENT REINFORCEMENT




ABUTMENT REINFORCEMENT

## BAR CALL-OUTS

| | |
|---|---|
| 1 | 28-A1610E TO MATCH A1605E (F.F.) |
| 2 | 30-A1610E TO MATCH A1605E (F.F.) |
| 3 | 26-A1611E TO MATCH A1604E (B.F.) |
| 4 | 28-A1611E TO MATCH A1604E (B.F.) |
| 5 | 11-A1612E @ 12" SPS. MAX. (F.F.) |
| 6 | 16-A1615E @ 12" SPS. MAX. (B.F.) |
| 7 | 11-A1614E @ 12" SPS. MAX. (F.F.) |
| 8 | 16-A1614E @ 12" SPS. MAX. (B.F.) |
| 9 | 11-A1613E @ 12" SPS. MAX. (F.F.) |
| 10 | 16-A1616E @ 12" SPS. MAX. (B.F.) |
| 11 | 5-A1619E @ 12" SPS. MAX. (F.F.) |
| 12 | 5-A1614E @ 12" SPS. MAX. (F.F.) |
| 13 | 28-A1617E @ 12" SPS. MAX. (F.F.) |
| 14 | 28-A1617E TO MATCH A1611E (F.F.) |
| 15 | 4-A1620E @ 12" SPS. MAX. |
| 16 | 4-A1614E @ 12" SPS. MAX. |
| 17 | 4-A1623E @ 12" SPS. MAX. |

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| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

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TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
SAINT PAUL, MINNESOTA

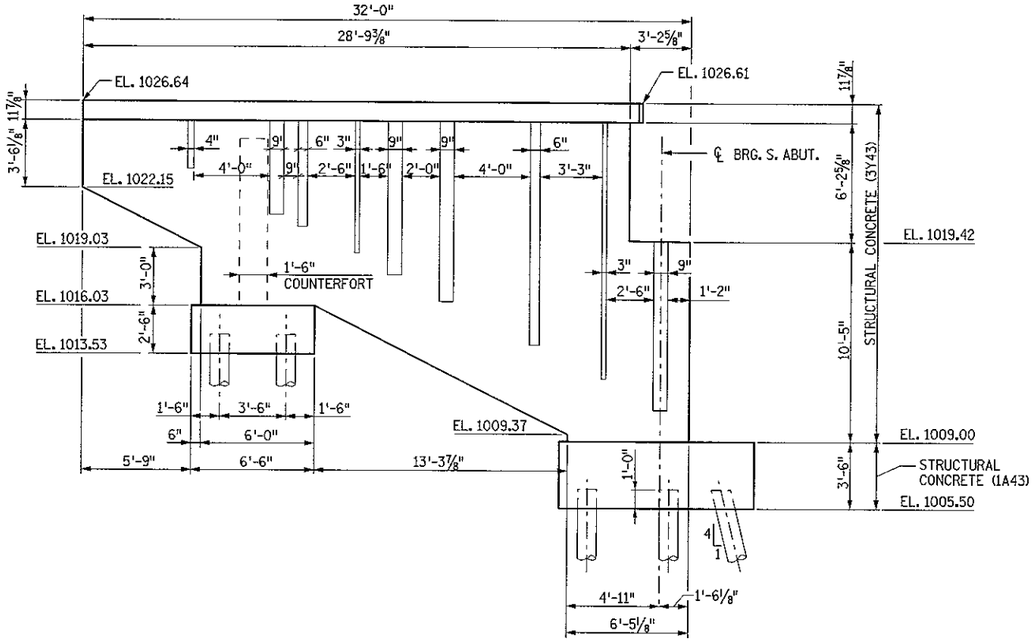
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: SOUTH ABUTMENT REINFORCEMENT

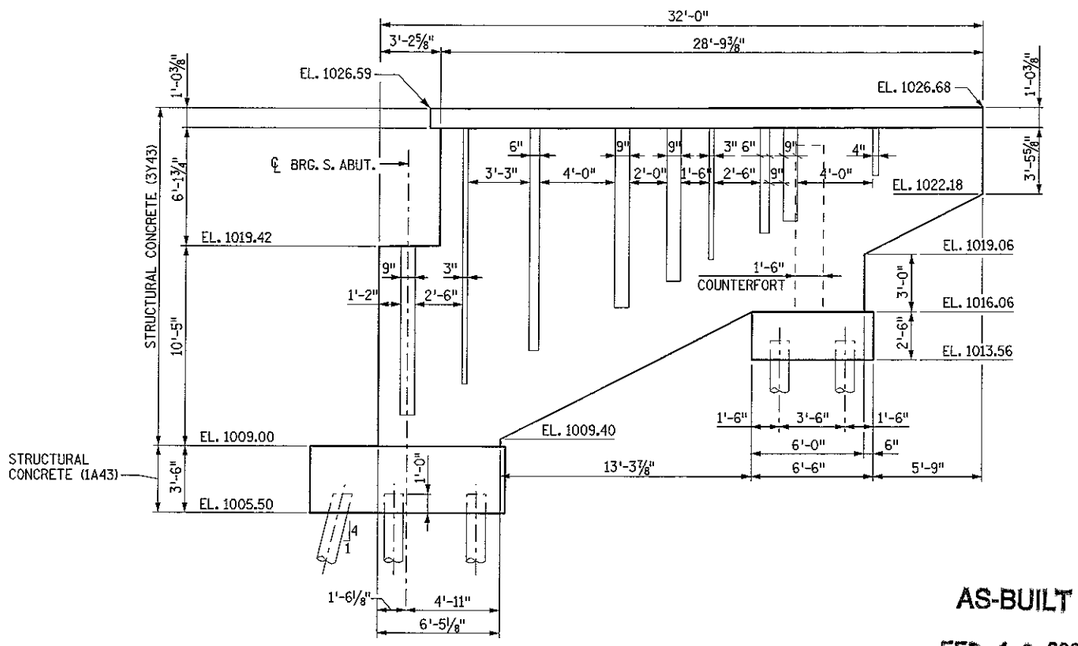
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Sheet No. 6 of 37 Sheets

Bridge No. 55567




EAST WINGWALL ELEVATION




WEST WINGWALL ELEVATION

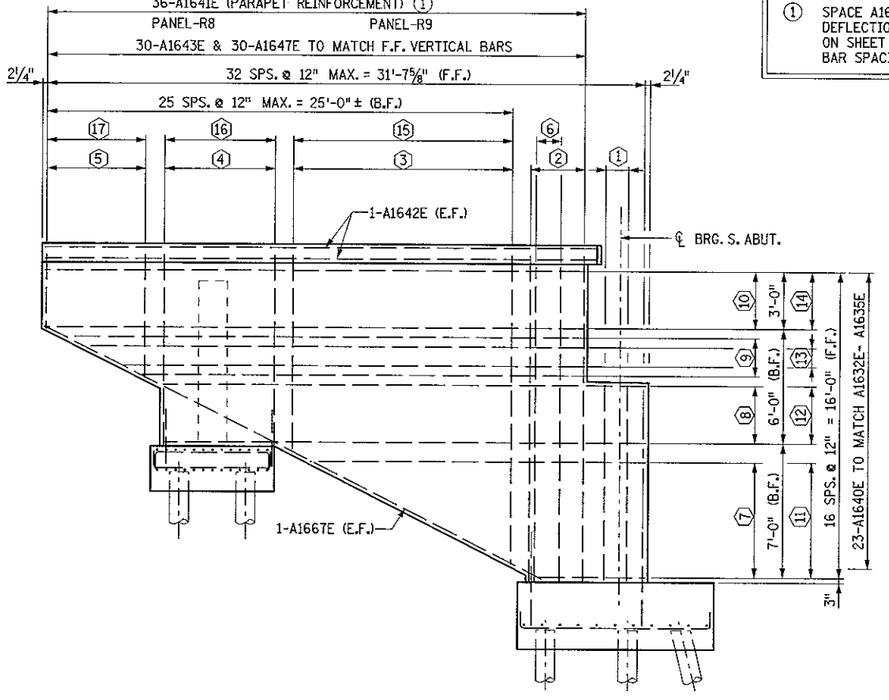
AS-BUILT

FEB 18 2005

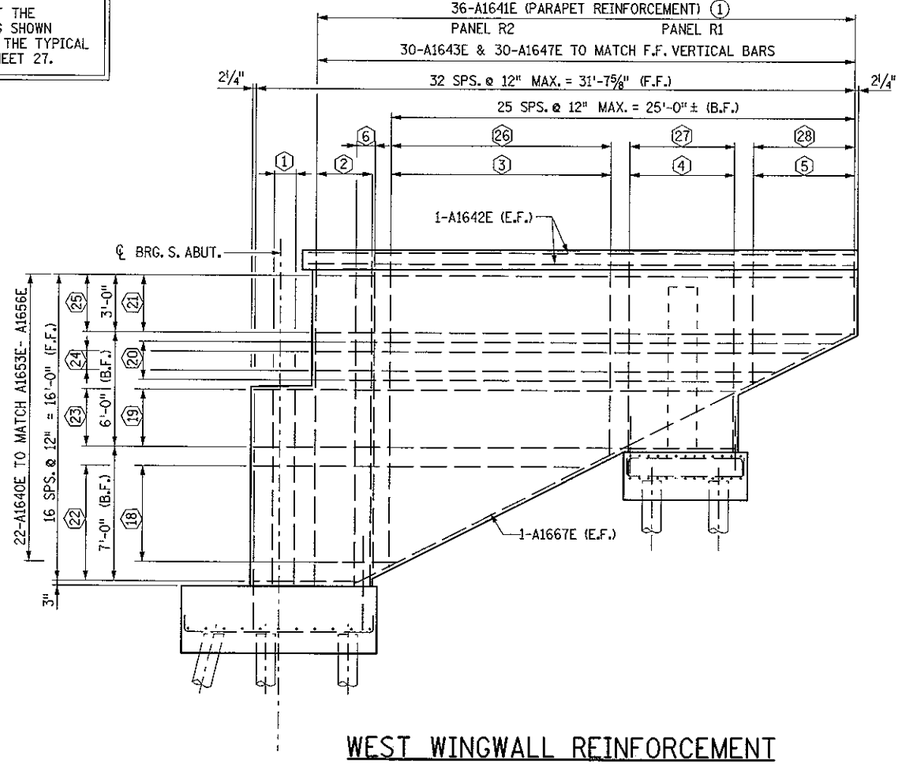
ENGINEERING

## NOTE:

① SPACE A1641E BARS TO FIT THE DEFLECTION JOINT SPACING SHOWN ON SHEET 22 WHILE USING THE TYPICAL BAR SPACING SHOWN ON SHEET 27.




EAST WINGWALL REINFORCEMENT




WEST WINGWALL REINFORCEMENT

## BAR CALL-OUTS

| | |
|---|---|
| ① | 2-A1627E TO MATCH A1604E (F.F.) |
| ② | 4-A1628E TO MATCH A1604E (F.F.) |
| ③ | 1-SER. OF 13-A1629E @ 12" SPS. MAX (F.F.) |
| ④ | 7-A1630E TO MATCH A1609E (F.F.) |
| ⑤ | 1-SER. OF 6-A1631E @ 12" SPS. MAX (F.F.) |
| ⑥ | 3-A1652E TO MATCH A1604E (IN FILLET) |
| ⑦ | 1-SER. OF 7-A1632E @ 12" SPS. MAX (B.F.) |
| ⑧ | 7-A1633E @ 6" SPS. MAX (B.F.) |
| ⑨ | 1-SER. OF 5-A1634E @ 6" SPS. MAX (B.F.) |
| ⑩ | 4-A1635E @ 12" SPS. MAX (B.F.) |
| ⑪ | 1-SER. OF 7-A1636E @ 12" SPS. MAX (F.F.) |
| ⑫ | 4-A1637E @ 12" SPS. MAX (F.F.) |
| ⑬ | 1-SER. OF 2-A1638E @ 12" SPS. MAX (F.F.) |
| ⑭ | 4-A1639E @ 12" SPS. MAX (F.F.) |
| ⑮ | 1-SER. OF 13-A1644E @ 12" SPS. MAX (B.F.) |
| ⑯ | 7-A1645E TO MATCH A1609E (B.F.) |
| ⑰ | 1-SER. OF 6-A1646E @ 12" SPS. MAX (B.F.) |
| ⑱ | 1-SER. OF 6-A1653E @ 12" SPS. MAX (B.F.) |
| ⑲ | 7-A1654E @ 6" SPS. MAX (B.F.) |
| ⑳ | 1-SER. OF 5-A1655E @ 6" SPS. MAX (B.F.) |
| ㉑ | 4-A1656E @ 12" SPS. MAX (B.F.) |
| ㉒ | 1-SER. OF 7-A1657E @ 12" SPS. MAX (F.F.) |
| ㉓ | 4-A1658E @ 12" SPS. MAX (F.F.) |
| ㉔ | 1-SER. OF 2-A1659E @ 12" SPS. MAX (F.F.) |
| ㉕ | 4-A1660E @ 12" SPS. MAX (F.F.) |
| ㉖ | 1-SER. OF 13-A1661E @ 12" SPS. MAX (B.F.) |
| ㉗ | 7-A1662E TO MATCH A1609E (B.F.) |
| ㉘ | 1-SER. OF 6-A1663E @ 12" SPS. MAX (B.F.) |

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| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

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SAINT PAUL, MINNESOTA

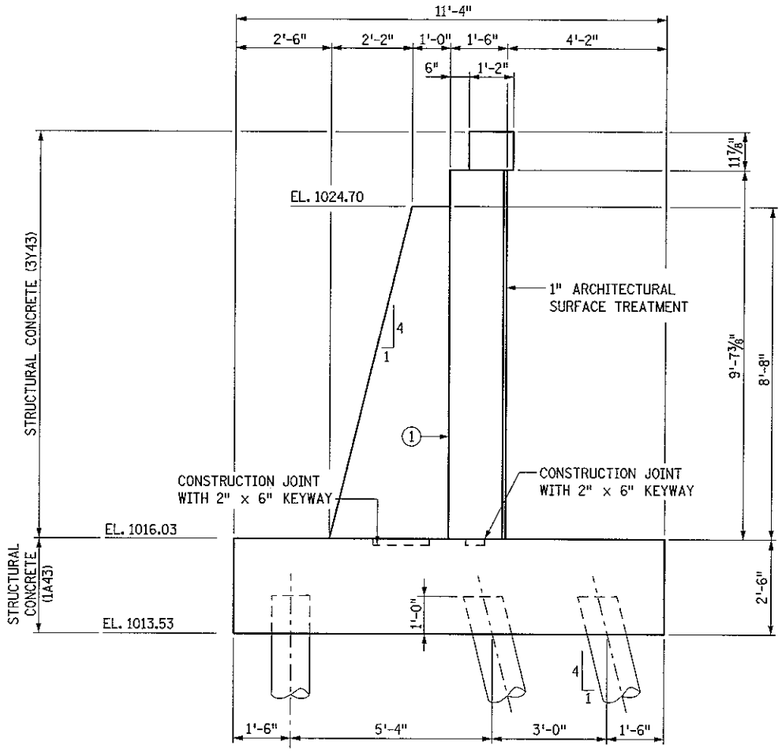
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: SOUTH ABUTMENT WINGWALLS

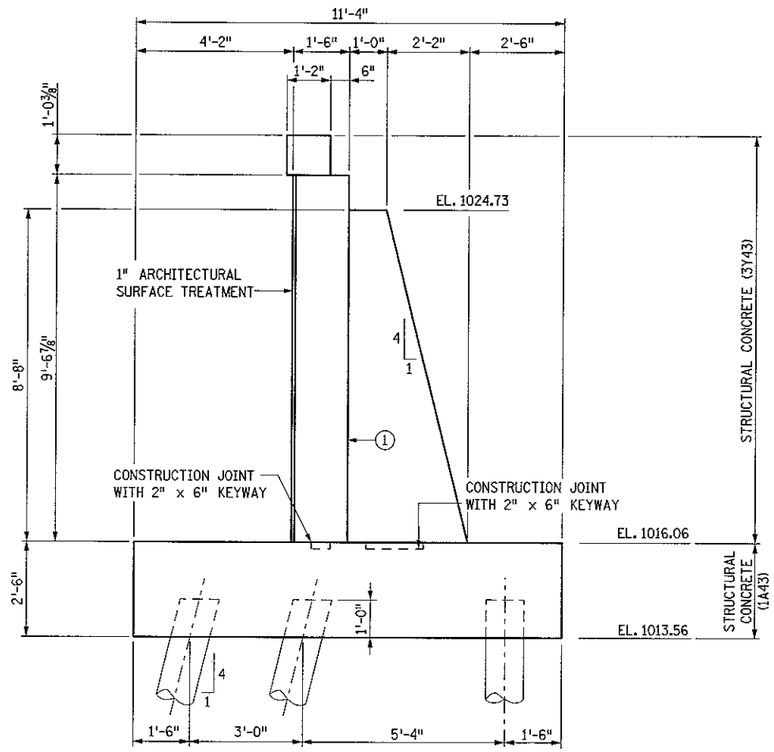
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Sheet No. 7 of 37 Sheets

Bridge No. 55567



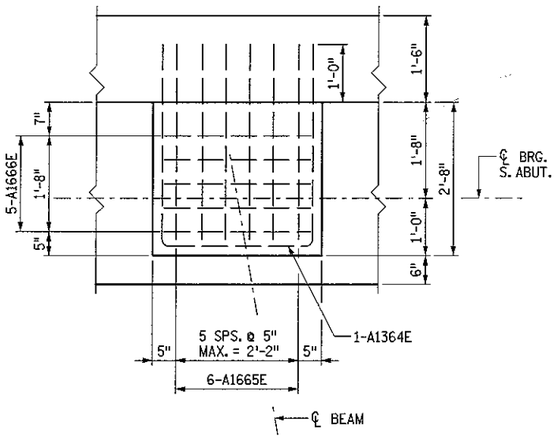

EAST COUNTERFORT




WEST COUNTERFORT

NOTE:

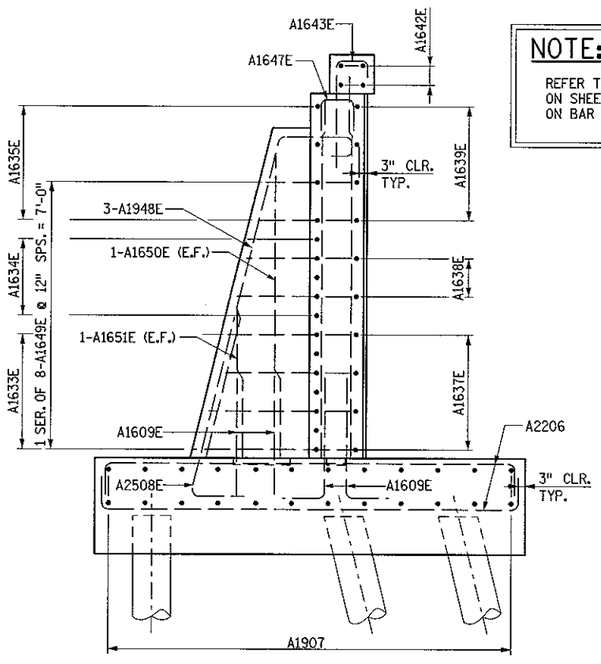
① PERMISSIBLE VERTICAL CONSTRUCTION JOINT BETWEEN COUNTERFORT AND WINGWALL.



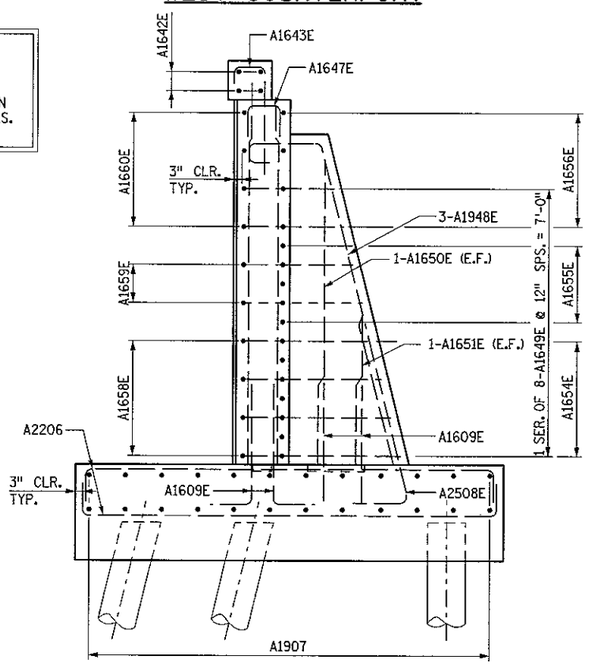

PLAN

NOTE:

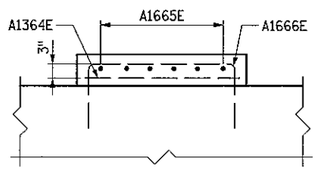
REFER TO RAILING PARAPET DETAIL ON SHEET 22 FOR COMPLETE INFORMATION ON BAR PLACEMENT IN TOP OF WINGWALLS.




EAST COUNTERFORT REINFORCEMENT




WEST COUNTERFORT REINFORCEMENT




ELEVATION

CONCRETE PAD REINFORCEMENT

AS-BUILT

FEB 18 2005

ENGINEERING

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SAINT PAUL, MINNESOTA

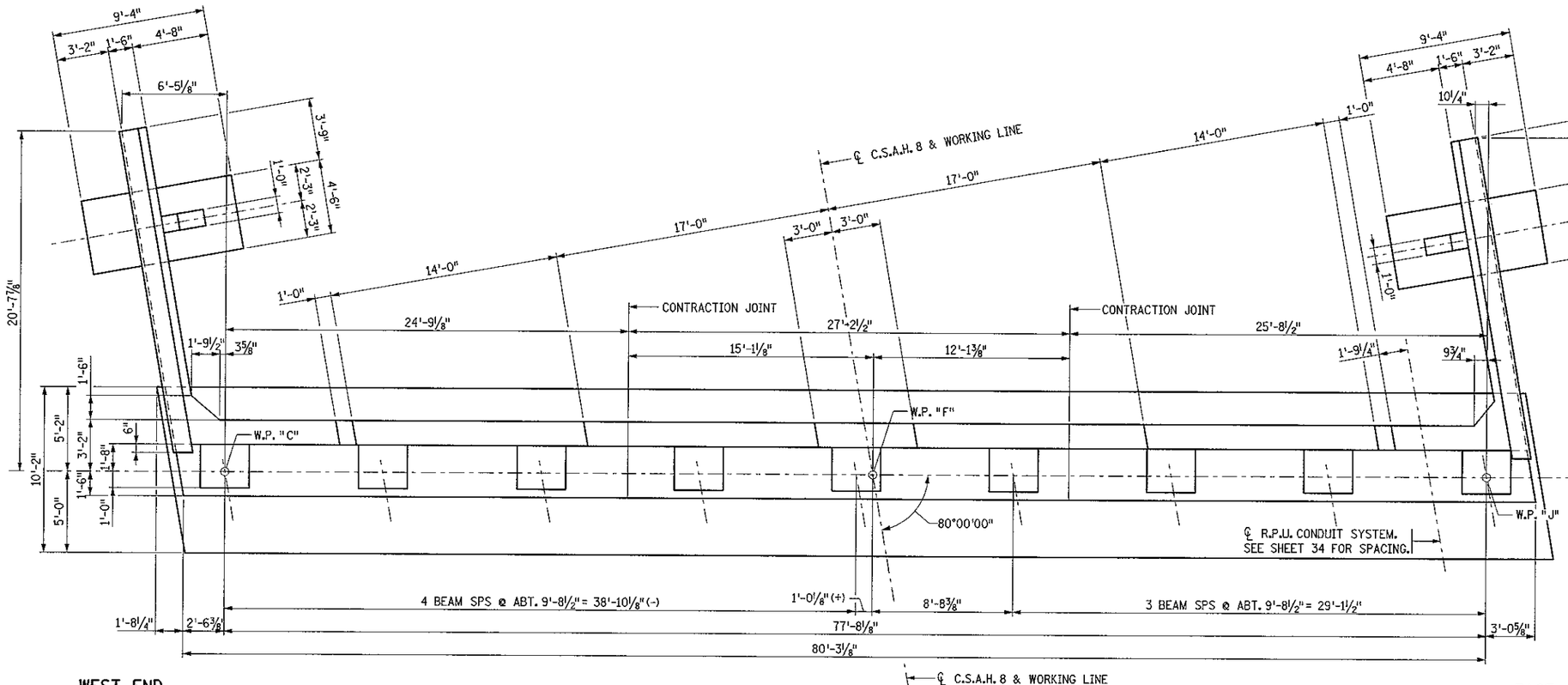
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: SOUTH ABUTMENT COUNTERFORTS

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Sheet No. 8 of 37 Sheets

Bridge No. 55567




WEST END

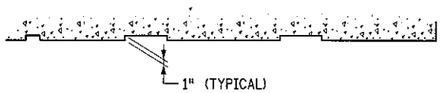
PLAN ①

EAST END

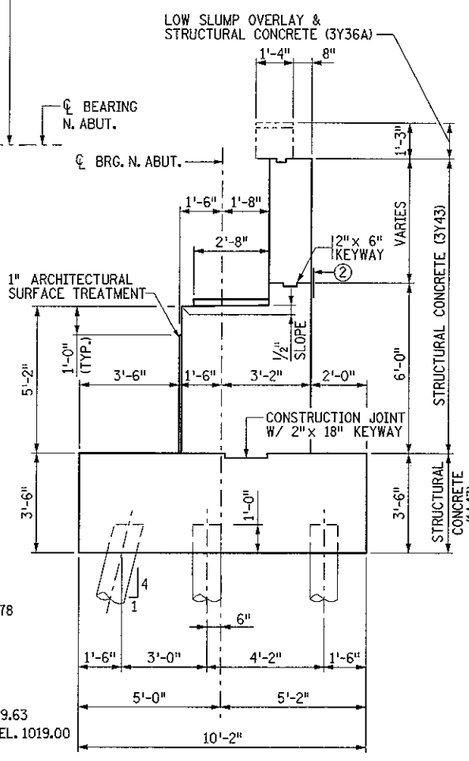
## NOTES:

① ABUTMENT END BLOCK NOT SHOWN. REFER TO SHEET 23.

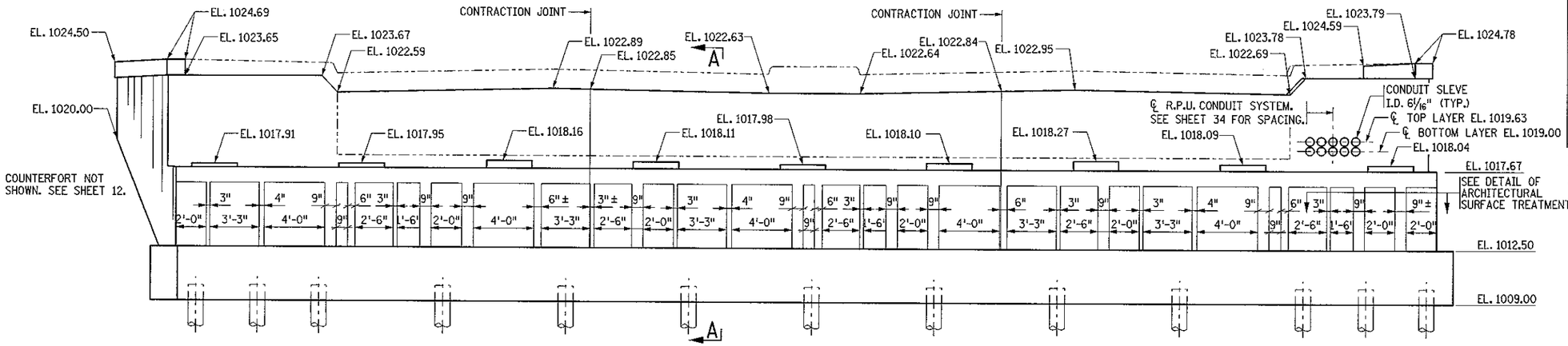
② PERMISSIBLE CONSTRUCTION JOINT WITH KEYWAY AND 3-PLY JOINT WATERPROOFING.




## DETAIL OF ARCHITECTURAL SURFACE TREATMENT




TYPICAL SECTION A-A




ELEVATION VIEW

**AS-BUILT**

**FEB 18 2005**

**ENGINEERING**

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SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

**TKDA** TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
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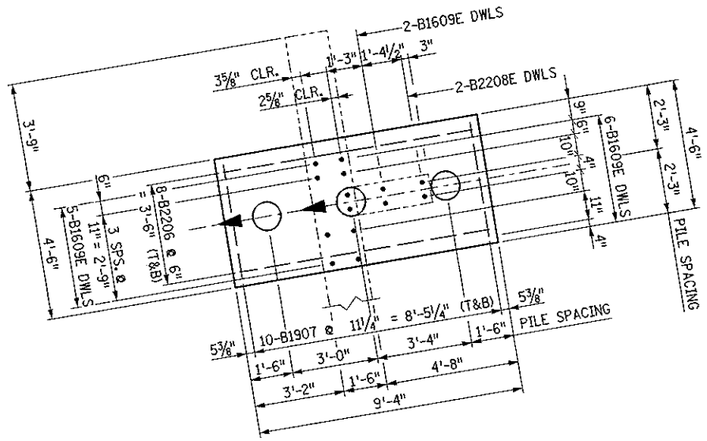
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: NORTH ABUTMENT PLAN AND ELEVATION

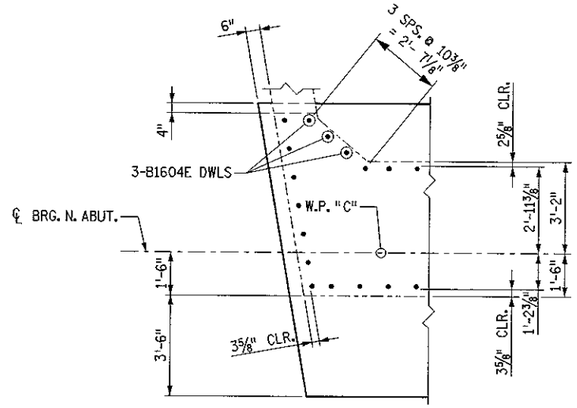
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Sheet No. 9 of 37 Sheets

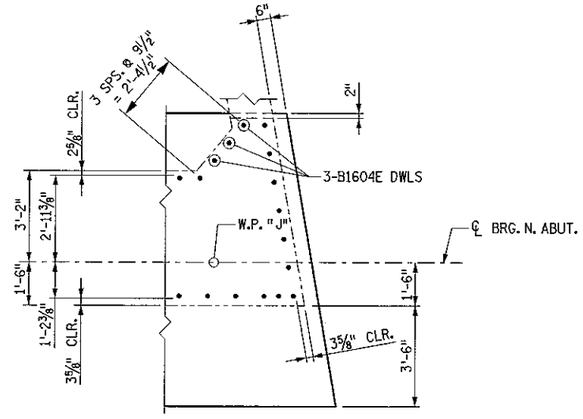
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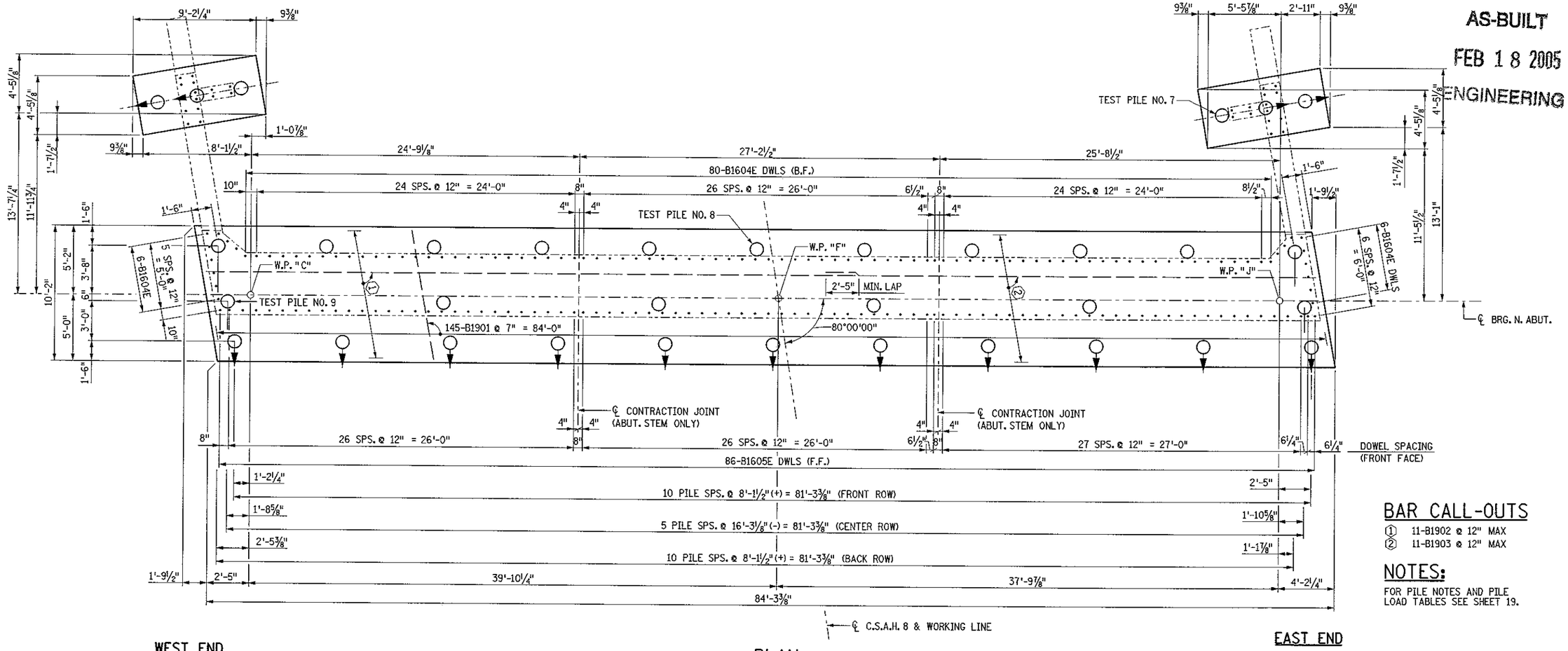

WEST COUNTERFORT PLAN
(EAST COUNTERFORT PLAN SIMILAR)




WEST END CORNER DETAIL




EAST END CORNER DETAIL




WEST END

PLAN

EAST END

AS-BUILT
FEB 1 8 2005
ENGINEERING

## BAR CALL-OUTS

① 11-B1902 @ 12" MAX
② 11-B1903 @ 12" MAX

## NOTES:

FOR PILE NOTES AND PILE LOAD TABLES SEE SHEET 19.

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SIGNED Gottfried Millner
DATE: 07/03/2001
GOTTFRIED MILLNER
LIC. NO. 19879

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SAINT PAUL, MINNESOTA

Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: NORTH ABUTMENT FOOTING PLAN

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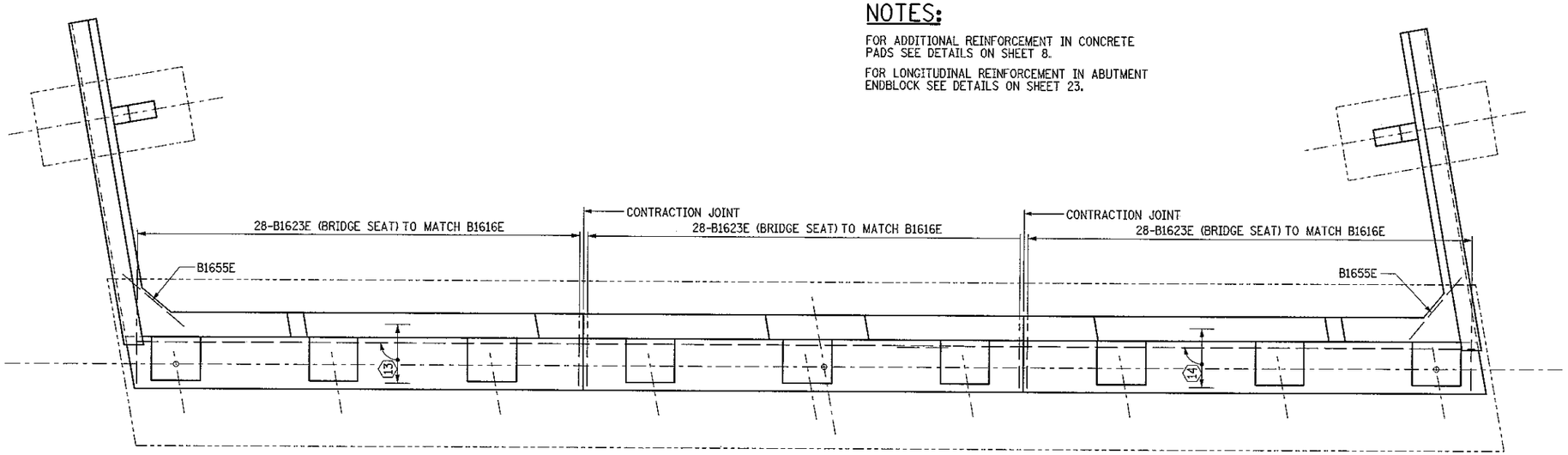
Sheet No. 10 of 37 Sheets

Bridge No. 55567

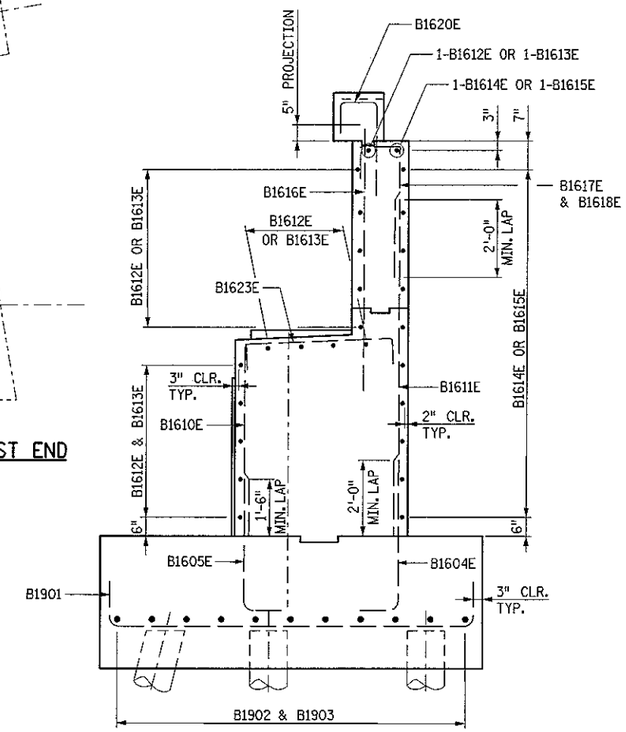
## NOTES:

FOR ADDITIONAL REINFORCEMENT IN CONCRETE PADS SEE DETAILS ON SHEET 8.

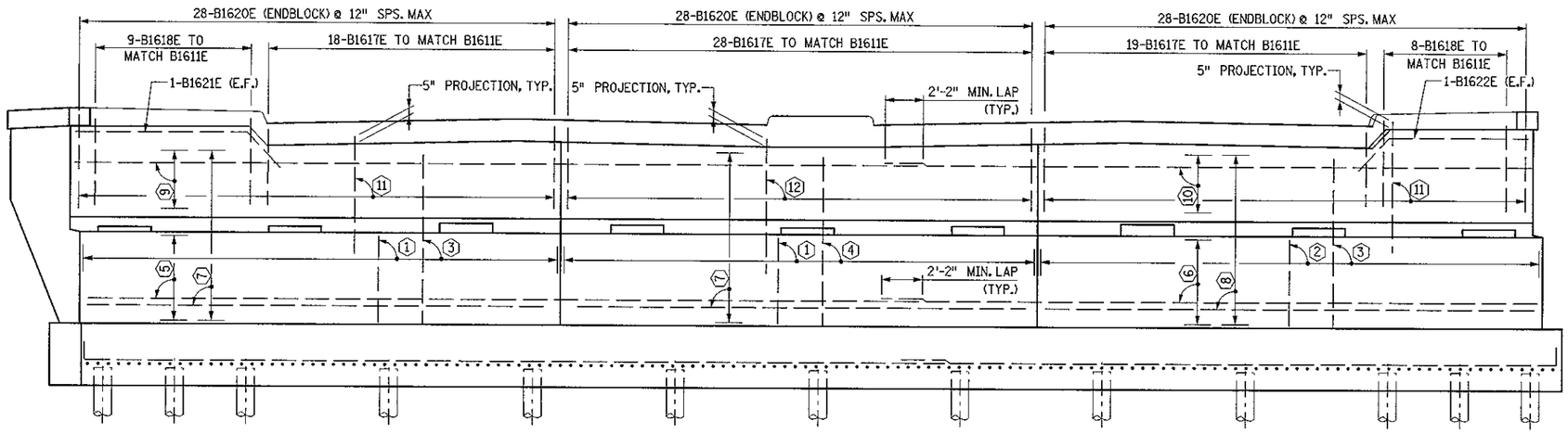
FOR LONGITUDINAL REINFORCEMENT IN ABUTMENT ENDBLOCK SEE DETAILS ON SHEET 23.




## BRIDGE SEAT REINFORCEMENT




## TYPICAL SECTION




## ABUTMENT REINFORCEMENT

## BAR CALL-OUTS

| | |
|---|---|
| 1 | 28-B1610E TO MATCH B1605E (F.F.) |
| 2 | 30-B1610E TO MATCH B1605E (F.F.) |
| 3 | 26-B1611E TO MATCH B1604E (B.F.) |
| 4 | 28-B1611E TO MATCH B1604E (B.F.) |
| 5 | 5-B1612E @ 12" SPS. MAX. (F.F.) |
| 6 | 5-B1613E @ 12" SPS. MAX. (F.F.) |
| 7 | 10-B1614E @ 12" SPS. MAX. (B.F.) |
| 8 | 10-B1615E @ 12" SPS. MAX. (B.F.) |
| 9 | 5-B1612E @ 12" SPS. MAX. (F.F.) |
| 10 | 5-B1613E @ 12" SPS. MAX. (F.F.) |
| 11 | 28-B1616E @ 12" SPS. MAX. (F.F.) |
| 12 | 28-B1616E TO MATCH B1611E (F.F.) |
| 13 | 4-B1612E @ 12" SPS. MAX. |
| 14 | 4-B1613E @ 12" SPS. MAX. |

AS-BUILT

FEB 1 8 2005

ENGINEERING

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DATE: 07/03/2001 LIC. NO. 19879

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SAINT PAUL, MINNESOTA

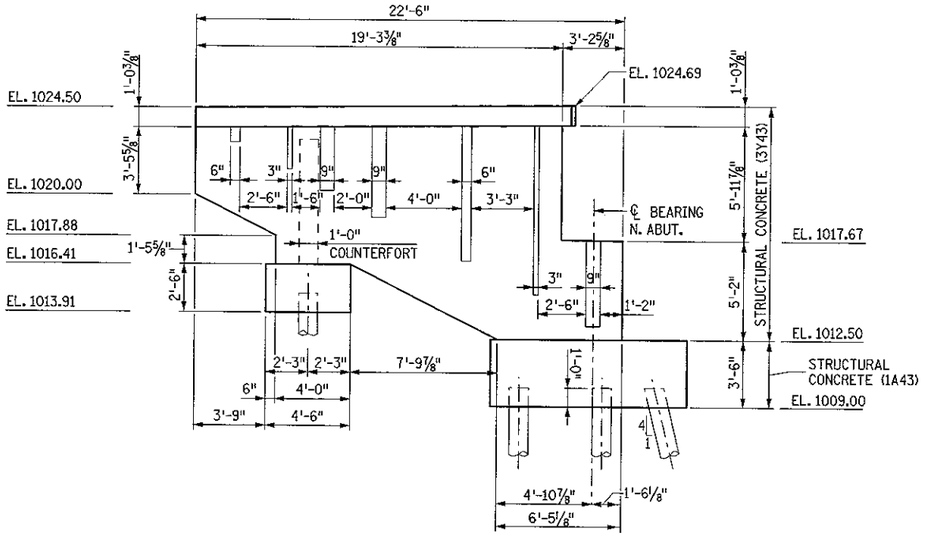
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: NORTH ABUTMENT REINFORCEMENT

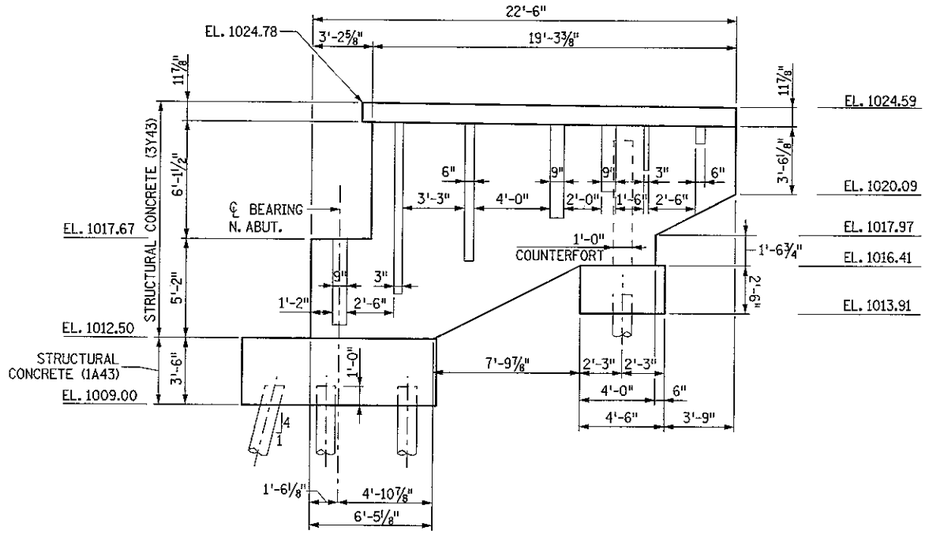
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Sheet No. 11 of 37 Sheets

Bridge No. 55567




WEST WINGWALL ELEVATION




EAST WINGWALL ELEVATION

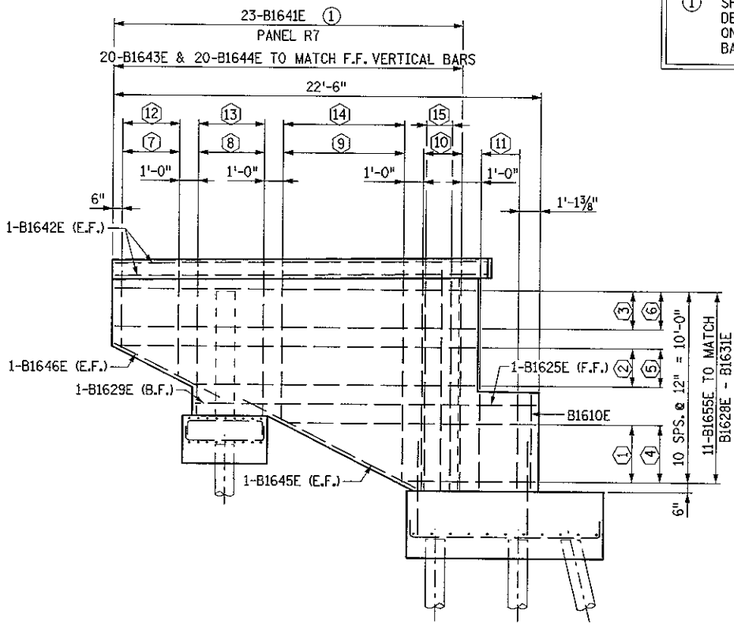
## NOTE:

① SPACE B1641E BARS TO FIT THE DEFLECTION JOINT SPACING SHOWN ON SHEET 22 WHILE USING THE TYPICAL BAR SPACING SHOWN ON SHEET 27.

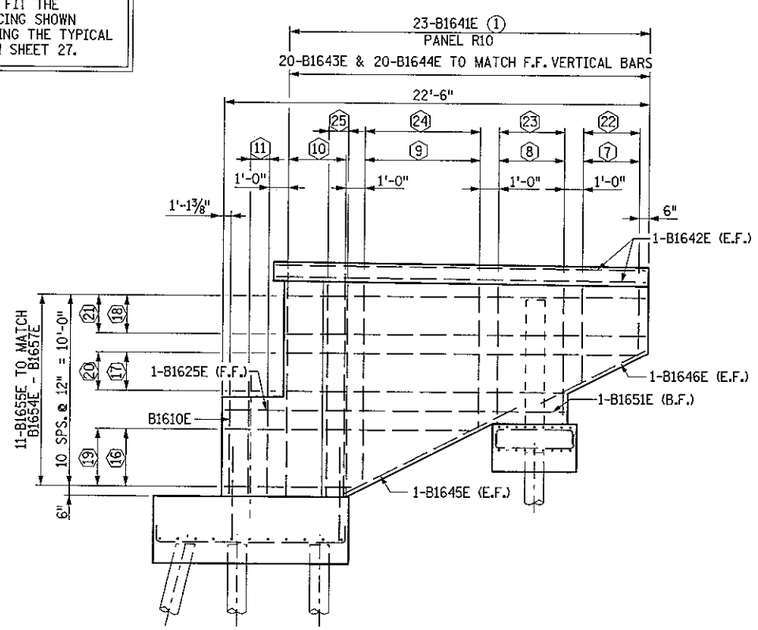
AS-BUILT

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ENGINEERING




WEST WINGWALL REINFORCEMENT




EAST WINGWALL REINFORCEMENT

## BAR CALL-OUTS

1. 1-SER OF 4-B1628E @ 12" SPS. MAX. (B.F.)
2. 1-SER OF 3-B1630E @ 12" SPS. MAX. (B.F.)
3. 3-B1631E @ 12" SPS. MAX. (B.F.)
4. 1-SER OF 4-B1624E @ 12" SPS. MAX. (F.F.)
5. 1-SER OF 3-B1626E @ 12" SPS. MAX. (F.F.)
6. 3-B1627E @ 12" SPS. MAX. (F.F.)
7. 1-SER OF 4-B1632E @ 12" SPS. MAX. (F.F.)
8. 5-B1633E TO MATCH B1609E (F.F.)
9. 1-SER OF 7-B1634E @ 12" SPS. MAX. (F.F.)
10. 3-B1635E TO MATCH B1604E (F.F.)
11. 3-B1636E TO MATCH B1604E (F.F.)
12. 1-SER OF 4-B1637E @ 12" SPS. MAX. (B.F.)
13. 5-B1638E TO MATCH B1609E (B.F.)
14. 1-SER OF 7-B1639E @ 12" SPS. MAX (B.F.)
15. 3-B1640E TO MATCH B1604E (IN FILLET)
16. 1-SER OF 4-B1650E @ 12" SPS. MAX (B.F.)
17. 1-SER OF 3-B1652E @ 12" SPS. MAX (B.F.)
18. 3-B1653E @ 12" SPS. MAX (B.F.)
19. 1-SER OF 4-B1654E @ 12" SPS. MAX (F.F.)
20. 1-SER OF 3-B1656E @ 12" SPS. MAX (F.F.)
21. 3-B1657E @ 12" SPS. MAX (F.F.)
22. 1-SER OF 4-B1658E @ 12" SPS. MAX (B.F.)
23. 5-B1659E TO MATCH B1609E (B.F.)
24. 1-SER OF 7-B1660E @ 12" SPS. MAX (B.F.)
25. 3-B1661E TO MATCH B1604E (IN FILLET)

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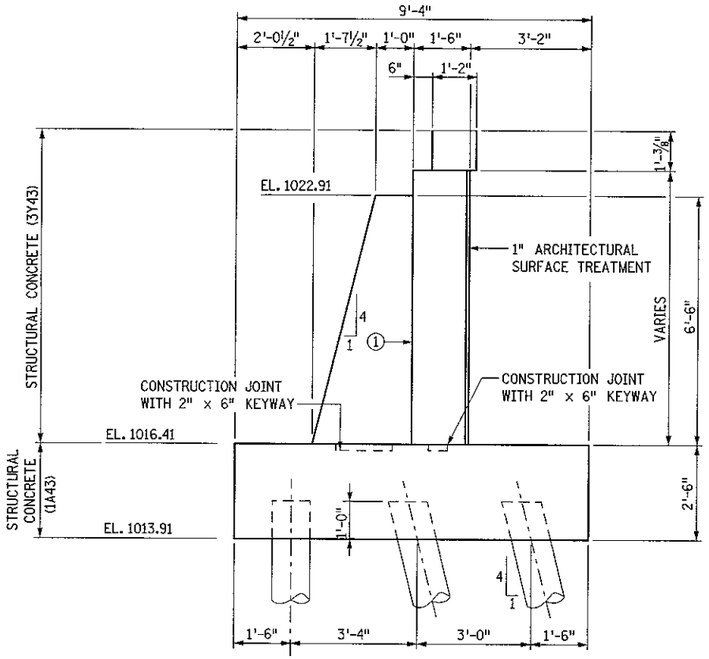
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

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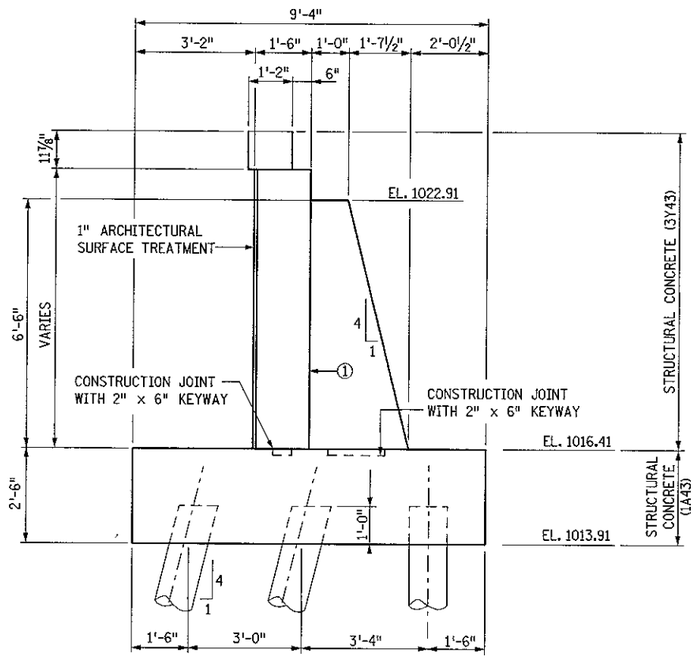
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Sheet No. 12 of 37 Sheets

Bridge No. 55567



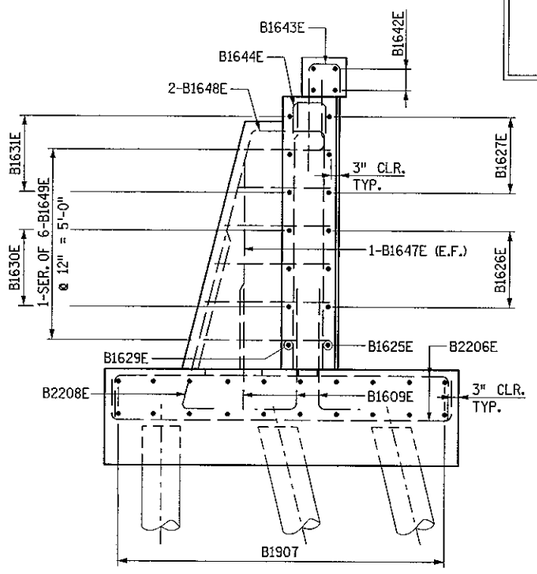

WEST COUNTERFORT



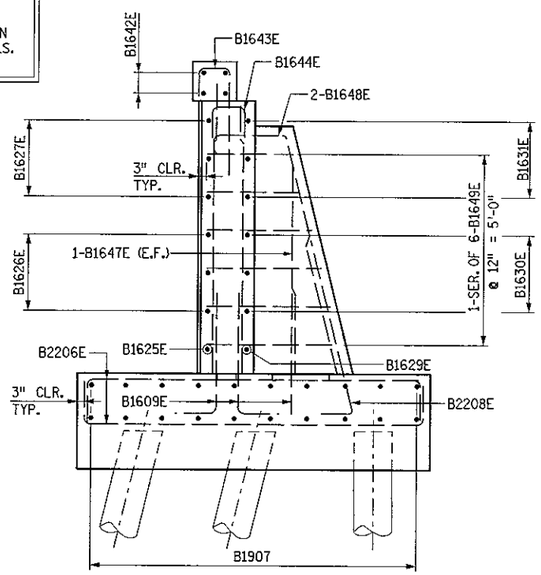

EAST COUNTERFORT

NOTE:

REFER TO RAILING PARAPET DETAIL ON SHEET 22 FOR COMPLETE INFORMATION ON BAR PLACEMENT IN TOP OF WINGWALLS.



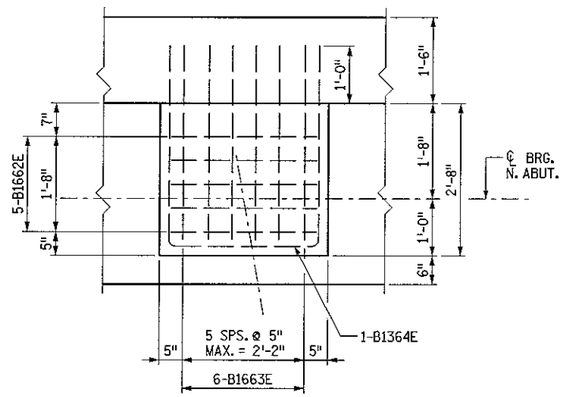

WEST COUNTERFORT REINFORCEMENT



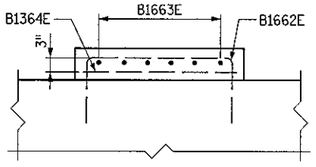

EAST COUNTERFORT REINFORCEMENT

NOTE:

① PERMISSIBLE VERTICAL COSTRUCTION JOINT BETWEEN COUNTERFORT AND WINGWALL




PLAN




ELEVATION

CONCRETE PAD REINFORCEMENT

AS-BUILT

FEB 1 8 2005

ENGINEERING

FILENAME: k:\site\proj\cil25\csah8\dwg\bridge\abut5.dgn
DATE: 07/03/01 TIME: 02:28:21 PM

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|
| | | | |

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SIGNED Gottfried Millner
DATE: 07/03/2001
GOTTFRIED MILLNER
LIC. NO. 19879

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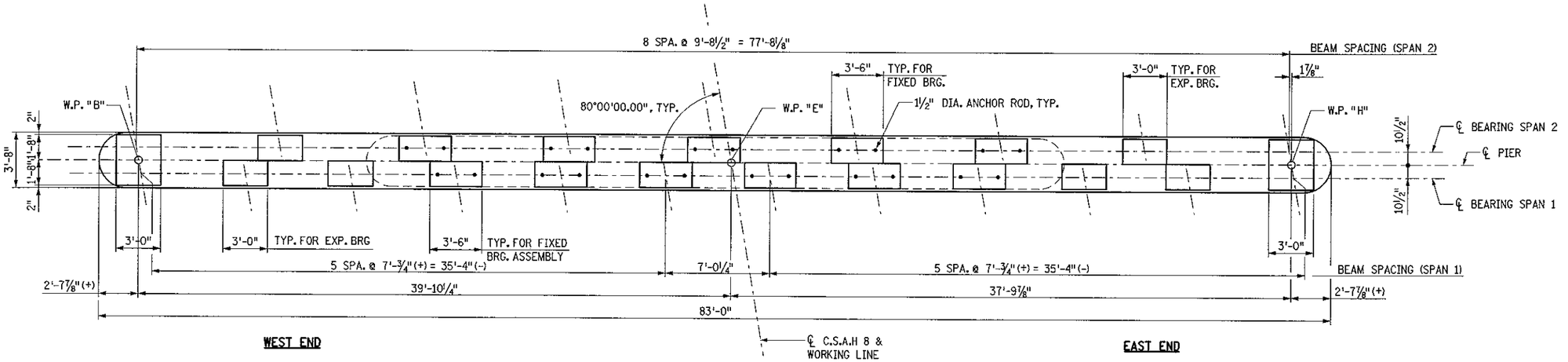
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: NORTH ABUTMENT COUNTERFORTS

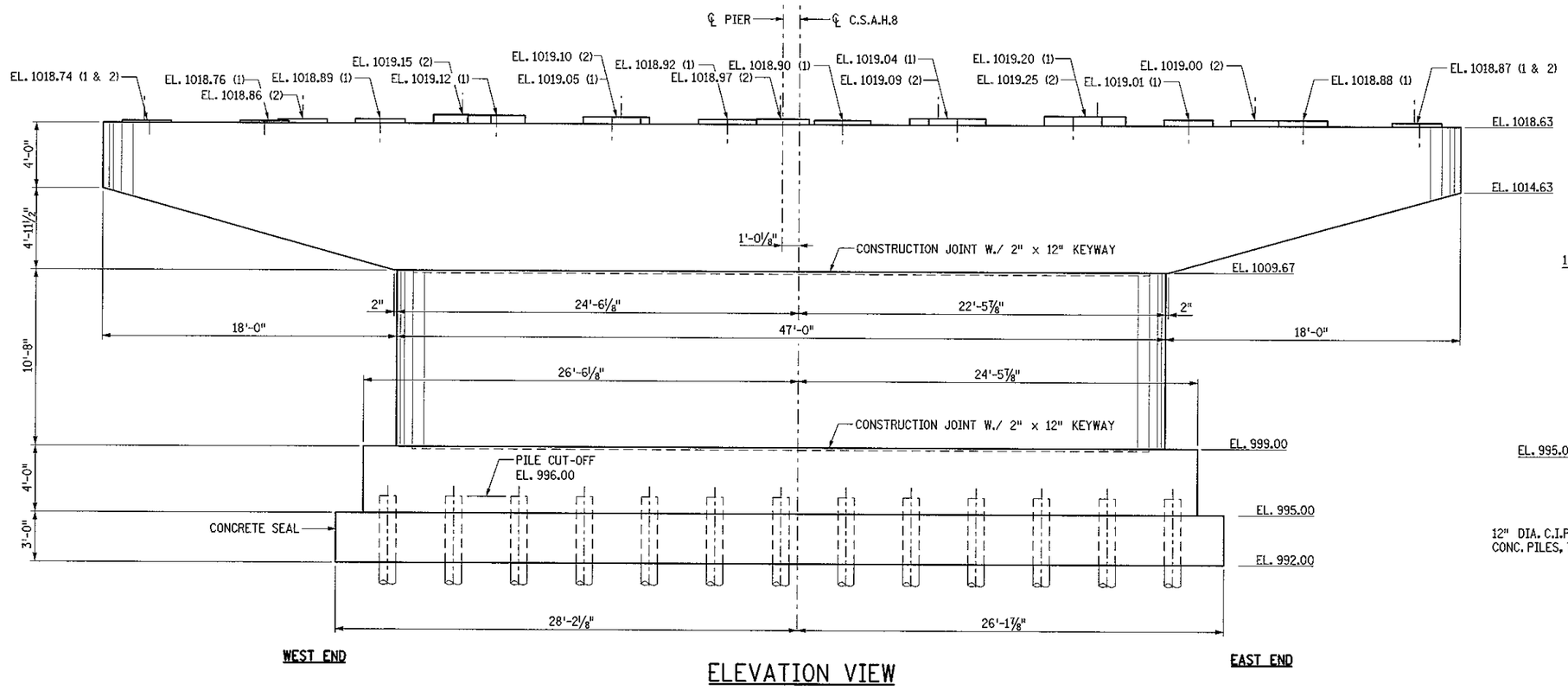
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| CHK: GM | CHK: GM | |

Sheet No. 13 of 37 Sheets

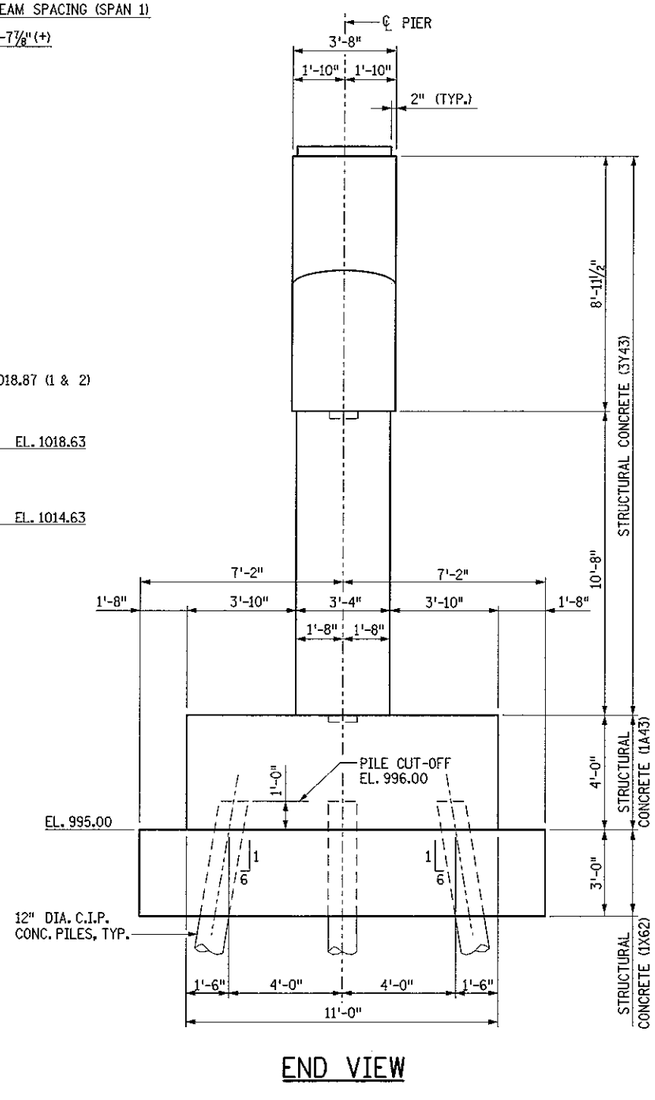
Bridge No. 55567




PLAN VIEW




ELEVATION VIEW




END VIEW

AS-BUILT
FEB 1 8 2005
ENGINEERING

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DATE: 07/03/2001 LIC. NO. 19879

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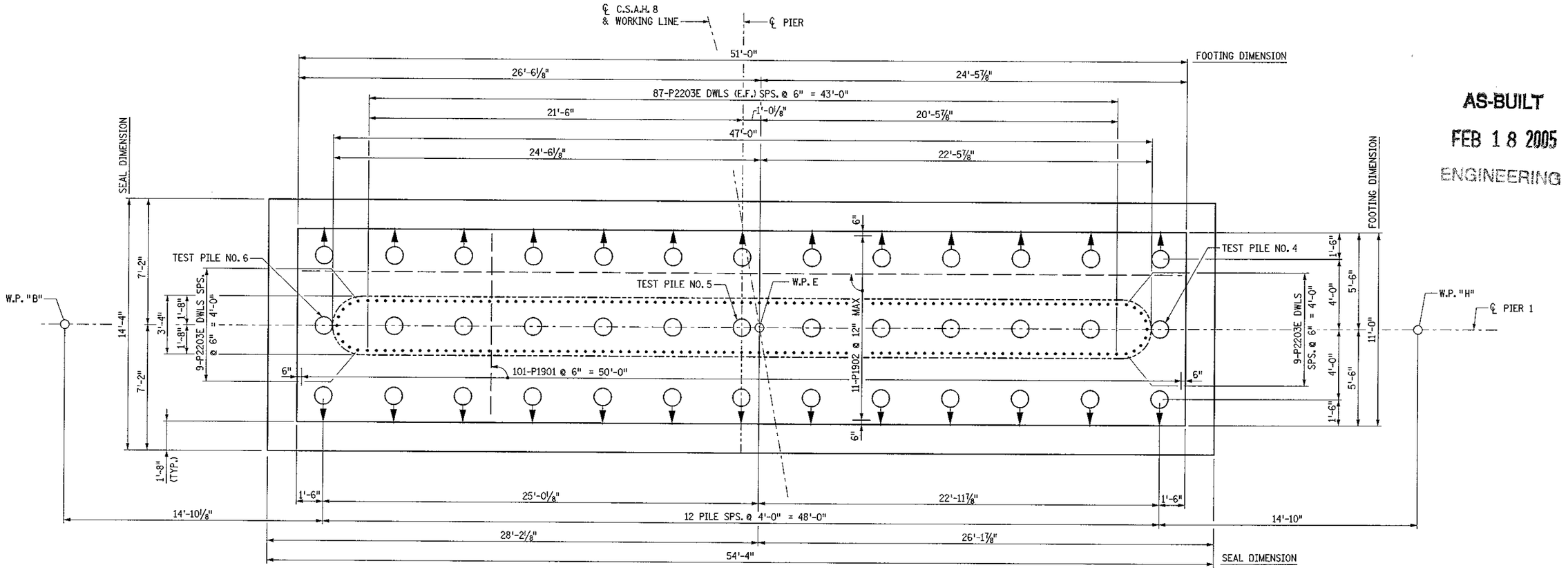
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: PIER 1
PLAN AND ELEVATION

| DES: MJC | DR: MJC | APPROVED |
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| CHK: GM | CHK: GM | |

Sheet No. 14 of 37 Sheets

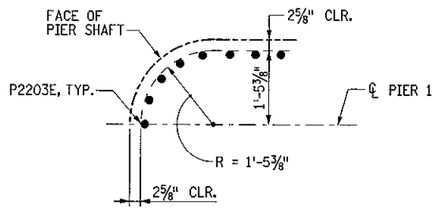
Bridge No. 55567




WEST END

EAST END

## FOOTING PLAN




## DOWEL PLACEMENT DETAIL

| COMPUTED PILE LOADS<br>PIER 1 - (TONS PER PILE) | |
|---|---|
| DEAD LOAD + EARTH PRESSURE | 52.3 |
| LIVE LOAD | 3.0 |
| OVERTURNING | 0.0 |
| TOTAL LOAD | 55.3 |
| *DESIGN LOAD | 55.3 |

* 55.3/1.0 REDUCTION PER AASHTO 3.22.1 GROUP 1 LOADING

## PILE NOTES:

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING

PILES MARKED THUS ◯→ TO BE BATTERED
2 INCHES PER FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12 INCHES.
36 CAST-IN-PLACE PILES EST. LENGTH 75 FEET LONG
3 CAST-IN-PLACE CONCRETE TEST PILES 85 FEET LONG
39 CAST-IN-PLACE CONCRETE PILES REQ'D FOR PIER 1 FOOTING

AS-BUILT
FEB 1 8 2005
ENGINEERING

FILENAME: k:\stfe\proj\ncl125\csah8\dwg\bridge\pelr2.dgn
DATE: 07/03/01 TIME: 03:02:32 PM

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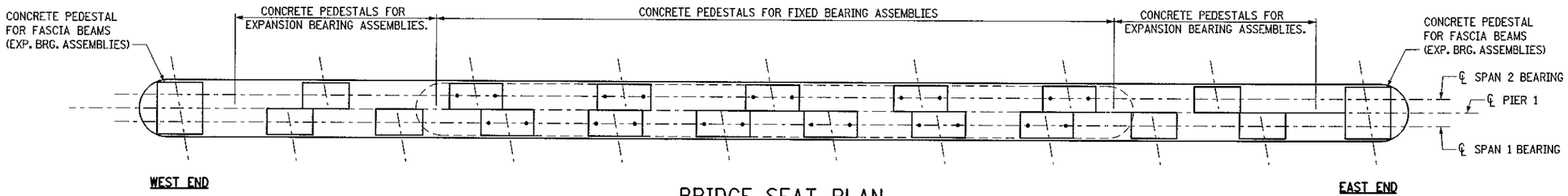
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: PIER 1 FOOTING PLAN

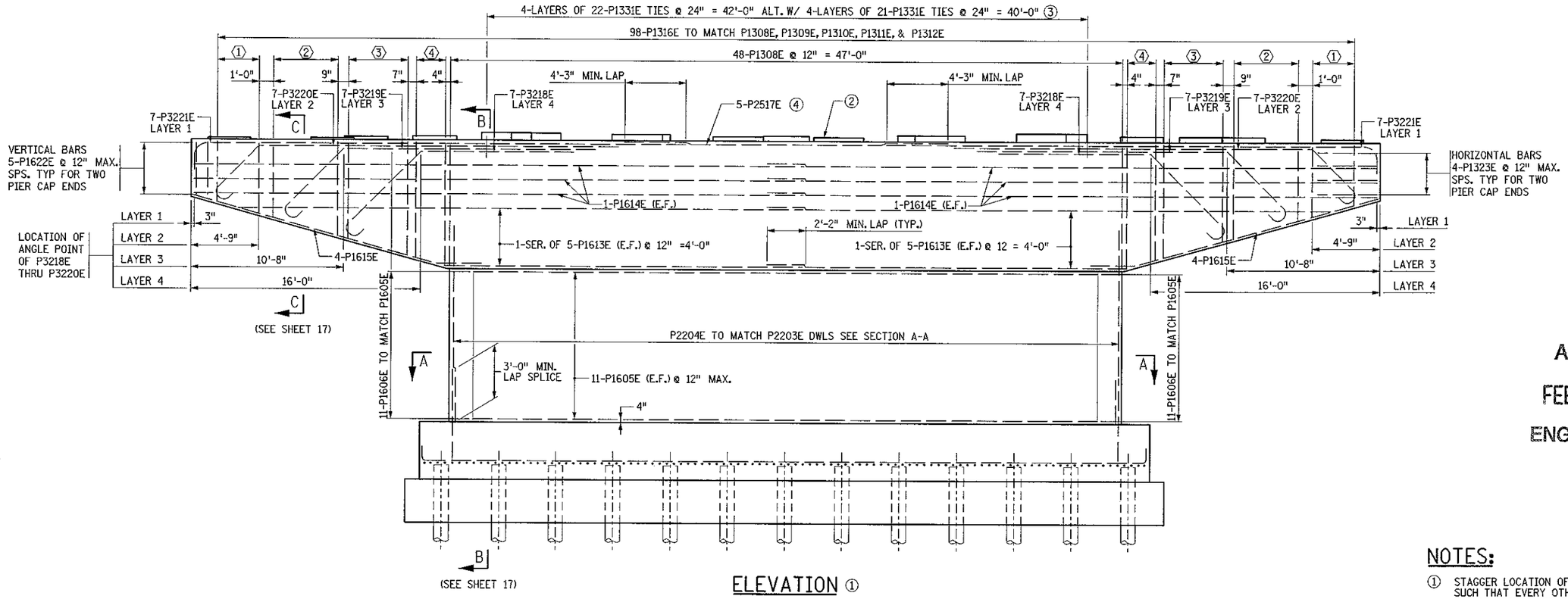
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Sheet No. 15 of 37 Sheets

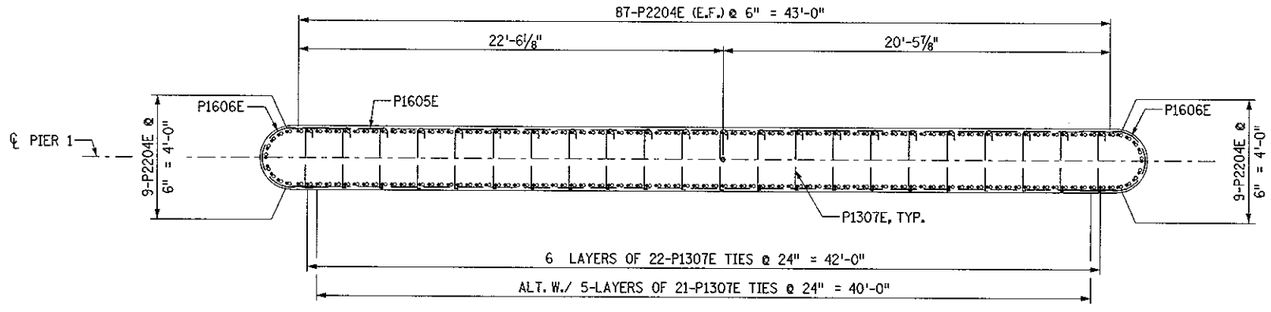
Bridge No. 55567




## BRIDGE SEAT PLAN




## ELEVATION ①




## SECTION A-A

AS-BUILT

FEB 18 2005

ENGINEERING

## NOTES:

① STAGGER LOCATION OF P1307E TIES SUCH THAT EVERY OTHER VERTICAL P2204E BAR IS RESTRAINED IN 24" INTERVALS.

② FOR ADDITIONAL CONCRETE PAD REINFORCEMENT, SEE DETAILS ON SHEET 17.

③ PLACE P1331E TIES SIMILARLY TO PLACEMENT OF P1307E TIES AS SHOWN IN SECTION A-A.

④ PLACE 3-P2517E BARS IN BETWEEN ANCHOR RODS AND REMAINING 2-P2517E BARS IN OUTSIDE STIRRUP CORNERS.

## BAR CALL-OUTS

① 2-SER. OF 3-P1309E SPS. @ 12" SPS. MAX = 2'-11±
② 2-SER. OF 7-P1310E @ 9" = 4'-6"
③ 2-SER. OF 8-P1311E @ 7" = 4'-1"
④ 2-SER. OF 7-P1312E @ 4" = 2'-0"

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DATE: 07/03/01 TIME: 02:28:46 PM

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
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DATE: 07/03/2001 LIC. NO. 19879

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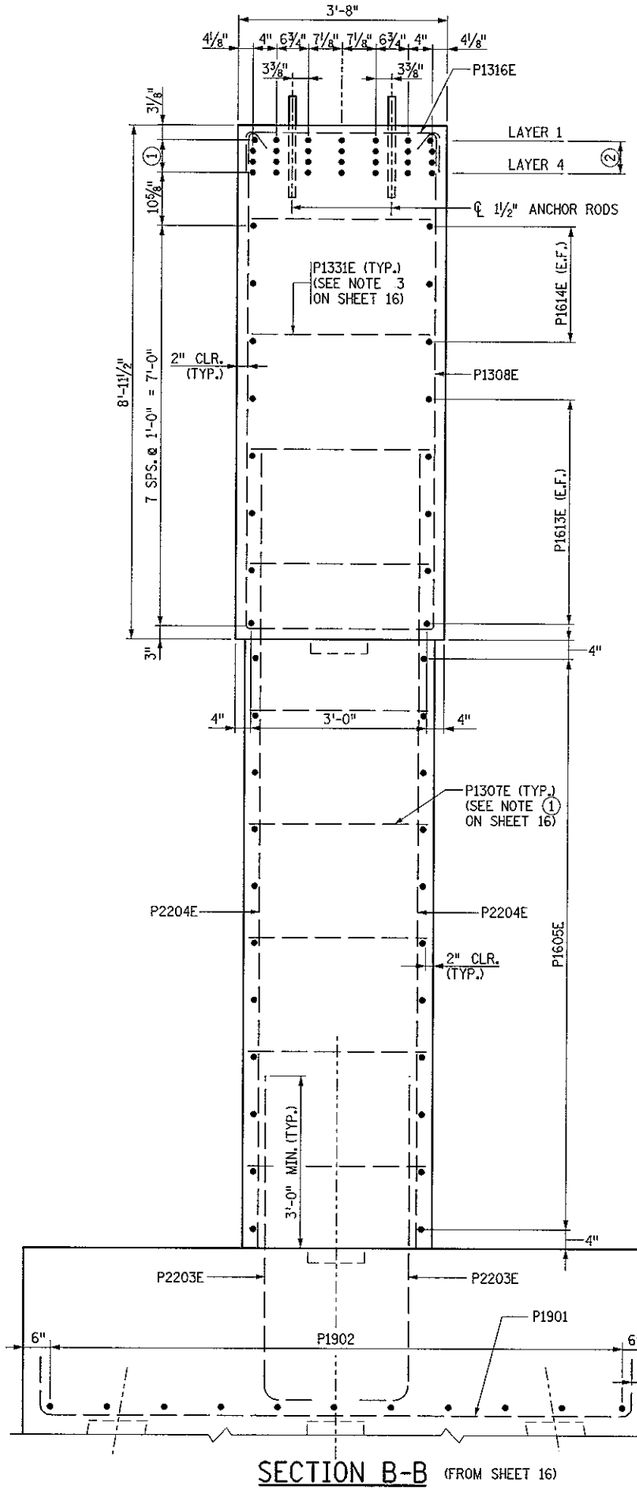
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: PIER 1 REINFORCEMENT

| DES: MJC | DR: MJC | APPROVED |
|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 16 of 37 Sheets

Bridge No. 55567

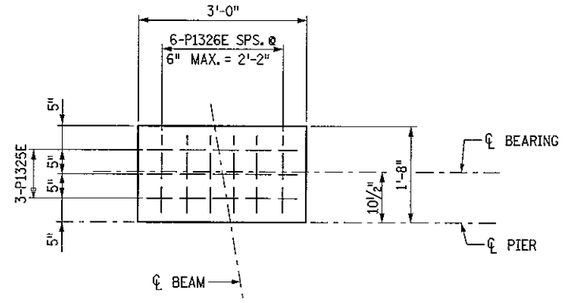



SECTION B-B (FROM SHEET 16)

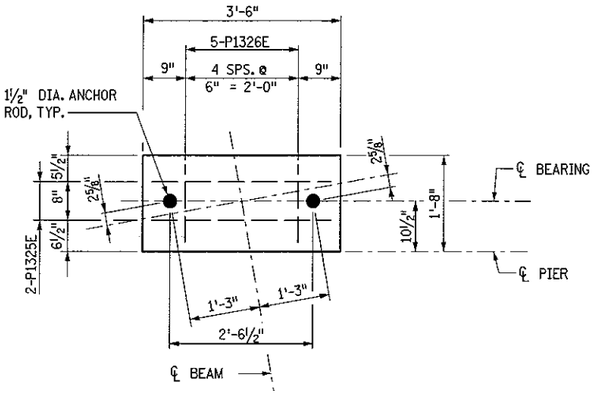
## NOTES:

① 1" VERTICAL CLEARANCE BETWEEN LAYERS.

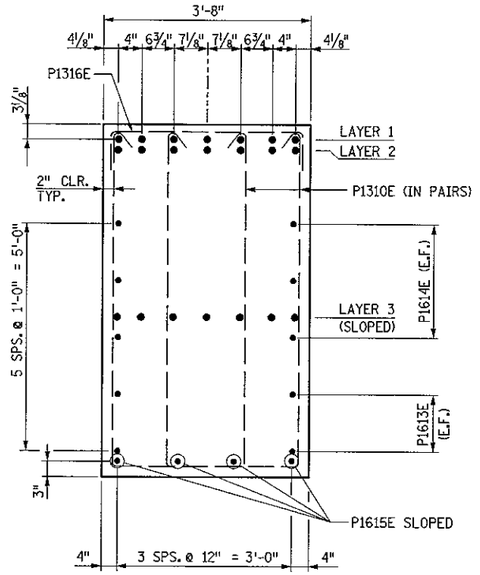
② P3221E LAYER 1, P3220E LAYER 2
P3219E LAYER 3, P3218E LAYER 4



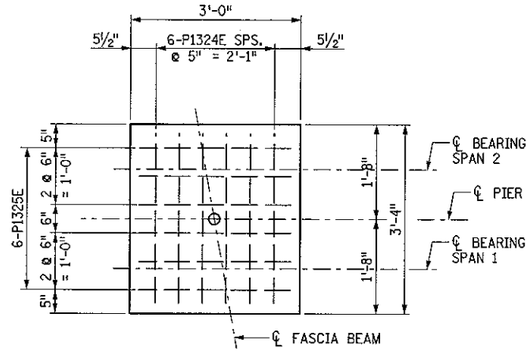

CONCRETE PEDESTAL FOR
EXPANSION BEARING ASSEMBLIES




CONCRETE PEDESTAL AND ANCHOR ROD
LAYOUT FOR FIXED BEARING ASSEMBLIES

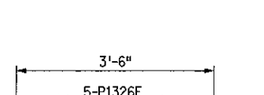



SECTION C-C (FROM SHEET 16)




CONCRETE PEDESTAL FOR
EXP. BEARING ASSEMBLIES
AT FASCIA BEAMS

1-P1327E FOR END BEARING ASSEMBLIES
1-P1328E FOR EXPANSION BEARING ASSEMBLIES
1-P1329E FOR FIXED BEARING ASSEMBLIES




ELEVATION VIEW (TYP.)

## BRIDGE SEAT REINFORCEMENT

AS-BUILT

FEB 18 2005

ENGINEERING

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DATE: 07/03/01 TIME: 02:28:53 PM

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
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SIGNED Gottfried Millner GOTTFRIED MILLNER
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Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: PIER 1
REINFORCEMENT DETAILS

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|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 17 of 37 Sheets

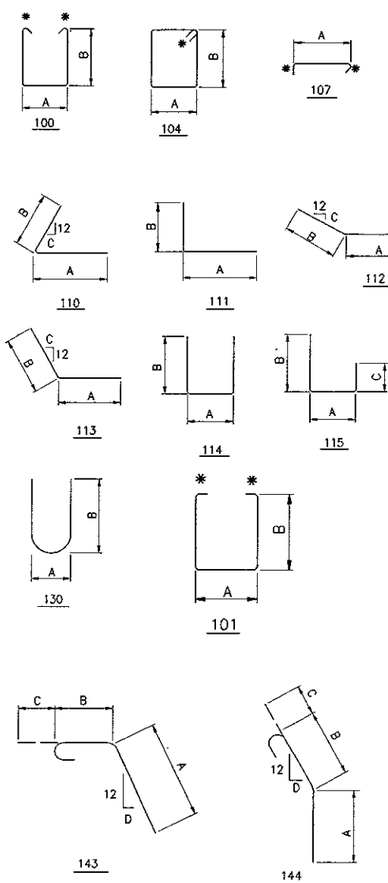
Bridge No. 55567

| BAR MARK | NO. | SERIES NO. | OF | LENGTH FT | IN | SIZE | TYPE | DIMENSIONS A | B | C | D | LOCATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SOUTH ABUTMENT REINFORCEMENT** | | | | | | | | | | | | |
| A1901 | 145 | | | 11 | 10 | 19 | 114 | 9'-10" | 1'-0" | | | ABUT. FTG. TRANS |
| A1902 | 11 | | | 51 | 0 | 19 | 111 | 50'-0" | 1'-0" | | | ABUT. FTG. LONG |
| A1903 | 11 | | | 37 | 4 | 19 | 111 | 36'-4" | 1'-0" | | | ABUT. FTG. LONG |
| A1604E | 98 | | | 5 | 4 | 16 | 111 | 4'-6" | 0'-10" | | | ABUT. FTG. DWL |
| A1605E | 86 | | | 4 | 10 | 16 | 111 | 4'-0" | 0'-10" | | | ABUT. FTG. DWL |
| A2206 | 48 | | | 13 | 2 | 22 | 114 | 10'-10" | 1'-2" | | | CTRFORT FTG. LONG |
| A1907 | 48 | | | 8 | 0 | 19 | 114 | 6'-0" | 1'-0" | | | CTRFORT FTG. TRANS |
| A2508E | 6 | | | 7 | 2 | 25 | 110 | 5'-4" | 1'-10" | 3 | | CTRFORT FTG. DWL |
| A1609E | 36 | | | 3 | 10 | 16 | 111 | 3'-0" | 0'-10" | | | CTRFORT FTG. DWL |
| A1610E | 86 | | | 10 | 2 | 16 | STR | | | | | BARREL VERT. FF |
| A1611E | 80 | | | 13 | 9 | 16 | STR | | | | | BARREL VERT. BF |
| A1612E | 11 | | | 29 | 6 | 16 | STR | | | | | BARREL HORZ. FF |
| A1613E | 11 | | | 30 | 10 | 16 | STR | | | | | BARREL HORZ. FF |
| A1614E | 38 | | | 27 | 0 | 16 | STR | | | | | CTR PORTION HORIZ |
| A1615E | 16 | | | 29 | 2 | 16 | STR | | | | | BARREL HORZ. BF |
| A1616E | 16 | | | 29 | 0 | 16 | STR | | | | | BARREL HORZ. BF |
| A1617E | 84 | | | 7 | 6 | 16 | STR | | | | | BACKWALL VERT. FF |
| A1618E | 86 | | | 5 | 9 | 16 | 114 | 4'-0 1/2" | 0'-10" | | | SEAT TRANS |
| A1619E | 14 | | | 30 | 10 | 16 | STR | | | | | BACKWALL HORIZ. FF |
| A1620E | 8 | | | 30 | 10 | 16 | 111 | 30'-0" | 0'-10" | | | SEAT LONG |
| A1621E | 65 | | | 5 | 11 | 16 | 115 | 1-0 1/2" | 4'-0" | 0'-10" | | BACKWALL VERT |
| A1622E | 17 | | | 6 | 9 | 16 | 115 | 1-0 1/2" | 4'-10" | 0'-10" | | BACKWALL VERT |
| A1623E | 4 | | | 31 | 7 | 16 | 111 | 30'-9" | 0'-10" | | | SEAT LONG |
| A1624E | 84 | | | 3 | 5 | 16 | 115 | 0'-11" | 2'-2" | 0'-9" | | ENDBLOCK VERT |
| A1625E | 2 | | | 9 | 9 | 16 | 113 | 7'-9" | 2'-0" | 12 | | BACKWALL, SDWK |
| A1626E | 2 | | | 11 | 9 | 16 | 113 | 9'-9" | 2'-0" | 12 | | BACKWALL, SDWK |
| A1627E | 4 | | | 10 | 3 | 16 | STR | | | | | WINGWALLS VERT |
| A1628E | 8 | | | 17 | 0 | 16 | STR | | | | | WINGWALLS VERT |
| A1629E | | 2 | SER | 10 | 3 | 16 | STR | | | | | WINGWALLS VERT |
| | | OF | 13 | 16 | 1 | | | | | | | |
| A1630E | 14 | | | 10 | 0 | 16 | STR | | | | | WINGWALLS VERT |
| A1631E | | 2 | SER | 3 | 10 | 16 | STR | | | | | WINGWALLS VERT |
| | | OF | 6 | 6 | 5 | | | | | | | |
| A1632E | | 1 | SER | 1 | 9 | 16 | STR | | | | | E. WING HORIZ BF |
| | | OF | 7 | 13 | 6 | | | | | | | |
| A1633E | 7 | | | 21 | 4 | 16 | STR | | | | | E. WING HORIZ BF |
| A1634E | | 1 | SER | 22 | 6 | 16 | STR | | | | | E. WING HORIZ BF |
| | | OF | 5 | 26 | 8 | | | | | | | |
| A1635E | 4 | | | 27 | 8 | 16 | STR | | | | | E. WING HORIZ BF |
| A1636E | | 1 | SER | 6 | 4 | 16 | 113 | 5'-6" | 0'-10" | 2 1/8 | | E. WING HORIZ FF |
| | | OF | 7 | 18 | 6 | | | 17'-8" | | | | |
| A1637E | 4 | | | 26 | 3 | 16 | 113 | 25'-5" | 0'-10" | 2 1/8 | | E. WING HORIZ FF |
| A1638E | | 1 | SER | 25 | 3 | 16 | 113 | 24'-5" | 0'-10" | 2 1/8 | | E. WING HORIZ FF |
| | | OF | 2 | 27 | 3 | | | 26'-5" | | | | |
| A1639E | 4 | | | 29 | 3 | 16 | 113 | 28'-5" | 0'-10" | 2 1/8 | | E. WING HORIZ FF |
| A1640E | 45 | | | 5 | 0 | 16 | STR | | | | | FILLETS HORIZ |
| A1641E | 72 | | | 8 | 5 | 16 | 104 | 0'-8" | 3'-1" | | | PARAPET VERT |
| A1642E | 8 | | | 28 | 9 | 16 | STR | | | | | WINGWALLS TOP |
| A1643E | 60 | | | 3 | 9 | 16 | 115 | 0'-8" | 2'-10" | 0'-5" | | WINGWALLS TOP |
| A1644E | | 1 | SER | 9 | 8 | 16 | STR | | | | | E. WING VERT BF |
| | | OF | 13 | 15 | 5 | | | | | | | |
| A1645E | 7 | | | 9 | 3 | 16 | STR | | | | | E. WING VERT BF |
| A1646E | | 1 | SER | 3 | 3 | 16 | STR | | | | | E. WING VERT BF |
| | | OF | 6 | 5 | 10 | | | | | | | |
| A1647E | 60 | | | 2 | 8 | 16 | 114 | 0'-11 1/2" | 0'-10" | | | WINGWALLS TOP |
| A1948E | 6 | | | 11 | 4 | 19 | 143 | 8'-8" | 2'-0" | 0'-8" | 3 | CTRFORTS VERT |
| A1649E | | 2 | SER | 7 | 0 | 16 | 101 | 1'-2" | 2'-5" | | | CTRFORTS HORIZ |
| | | OF | 8 | 10 | 6 | | | | 4'-2" | | | |
| A1650E | 4 | | | 7 | 10 | 16 | STR | | | | | CTRFORTS VERT |
| A1651E | 4 | | | 3 | 10 | 16 | STR | | | | | CTRFORTS VERT |
| A1652E | 6 | | | 16 | 5 | 16 | STR | | | | | FILLETS VERT |
| A1653E | | 1 | SER | 2 | 9 | 16 | STR | | | | | W. WING HORIZ BF |
| | | OF | 6 | 12 | 9 | | | | | | | |
| A1654E | 7 | | | 20 | 9 | 16 | STR | | | | | W. WING HORIZ BF |
| A1655E | | 1 | SER | 22 | 0 | 16 | STR | | | | | W. WING HORIZ BF |
| | | OF | 5 | 26 | 0 | | | | | | | |
| A1656E | 4 | | | 26 | 7 | 16 | STR | | | | | W. WING HORIZ BF |
| A1657E | | 1 | SER | 6 | 5 | 16 | 110 | 5'-7" | 0'-10" | 2 1/8 | | W. WING HORIZ FF |
| | | OF | 7 | 18 | 5 | | | 17'-7" | | | | |
| A1658E | 4 | | | 26 | 3 | 16 | 110 | 25'-5" | 0'-10" | 2 1/8 | | W. WING HORIZ FF |
| A1659E | | 1 | SER | 25 | 2 | 16 | 110 | 24'-4" | 0'-10" | 2 1/8 | | W. WING HORIZ FF |
| | | OF | 2 | 27 | 2 | | | 26'-4" | | | | |
| A1660E | 4 | | | 29 | 3 | 16 | 110 | 28'-5" | 0'-10" | 2 1/8 | | W. WING HORIZ FF |

| BAR MARK | NO. | SERIES NO. | OF | LENGTH FT | IN | SIZE | TYPE | DIMENSIONS A | B | C | D | LOCATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1661E | | 1 | SER | 9 | 6 | 16 | STR | | | | | W. WING HORIZ FF |
| | | OF | 13 | 15 | 4 | | | | | | | |
| A1662E | 7 | | | 9 | 4 | 16 | STR | | | | | W. WING HORIZ FF |
| A1663E | | 1 | SER | 3 | 2 | 16 | STR | | | | | W. WING HORIZ FF |
| | | OF | 6 | 5 | 10 | | | | | | | |
| A1364E | 12 | | | 9 | 8 | 13 | 114 | 2'-8" | 3'-6" | | | CONC. PADS TIE |
| A1665E | 72 | | | 4 | 9 | 16 | 111 | 3'-6" | 1'-3" | | | CONC. PADS |
| A1666E | 60 | | | 3 | 11 | 16 | 114 | 2'-7" | 0'-8" | | | CONC. PADS |
| A1667E | 4 | | | 29 | 3 | 16 | STR | | | | | WINGWALLS BOTT |
| **PIER REINFORCEMENT** | | | | | | | | | | | | |
| P1901 | 101 | | | 12 | 6 | 19 | 114 | 10'-6" | 1'-0" | | | FOOTING TRANS. |
| P1902 | 11 | | | 52 | 6 | 19 | 114 | 50'-6" | 1'-0" | | | FOOTING LONG. |
| P2203E | 192 | | | 7 | 2 | 22 | 111 | 6'-0" | 1'-2" | | | FOOTING DWLS |
| P2204E | 192 | | | 14 | 0 | 22 | STR | | | | | SHAFT VERTICAL |
| P1605E | 22 | | | 43 | 8 | 16 | STR | | | | | SHAFT HORIZONTAL |
| P1606E | 22 | | | 8 | 0 | 16 | 130 | 3'-0" | 3'-2" | | | SHAFT HORIZ (END) |
| P1307E | 237 | | | 3 | 9 | 13 | 107 | 3'-0" | | | | SHAFT TIES |
| P1308E | 48 | | | 21 | 4 | 13 | 100 | 3'-4" | 8'-7 1/2" | | | CAP STIRRUPS |
| P1309E | | 4 | SER | 11 | 6 | 13 | 100 | 2'-5" | 4'-2" | | | CAP STIRRUPS |
| | | OF | 3 | 13 | 2 | | | | 5'-0" | | | |
| P1310E | | 4 | SER | 13 | 8 | 13 | 100 | 2'-5" | 5'-3" | | | CAP STIRRUPS |
| | | OF | 7 | 16 | 2 | | | | 6'-6" | | | |
| P1311E | | 4 | SER | 16 | 8 | 13 | 100 | 2'-5" | 6'-9" | | | CAP STIRRUPS |
| | | OF | 8 | 18 | 10 | | | | 7'-10" | | | |
| P1312E | | 4 | SER | 19 | 2 | 13 | 100 | 2'-5" | 8'-0" | | | CAP STIRRUPS |
| | | OF | 7 | 20 | 4 | | | | 8'-7" | | | |
| P1613E | | 4 | SER | 25 | 0 | 16 | STR | | | | | CAP HORZ. |
| | | OF | 5 | 39 | 4 | | | | | | | |
| P1614E | 12 | | | 40 | 9 | 16 | STR | | | | | CAP-HORZ. |
| P1615E | 8 | | | 17 | 5 | 16 | 112 | 1'-0" | 16'-5" | 3 3/8" | | CAP-SLOPE |
| P1316E | 98 | | | 4 | 8 | 13 | 114 | 3'-4" | 8" | | | CAP-TIE |
| P2517E | 5 | | | 22 | 7 | 25 | STR | | | | | CAP-LONG. |
| P3218E | 14 | | | 19 | 6 | 32 | 144 | 10'-8" | 7'-5" | 1'-5" | 12 | CAP-LAYER 4 |
| P3219E | 14 | | | 24 | 11 | 32 | 144 | 17'-6" | 6'-0 | 1'-5" | 12 | CAP-LAYER 3 |
| P3220E | 14 | | | 30 | 11 | 32 | 144 | 25'-0" | 4'-6" | 1'-5" | 12 | CAP-LAYER 2 |
| P3221E | 14 | | | 36 | 1 | 32 | 111 | 34'-3" | 1'-10" | | | CAP-LAYER 1 |
| P1622E | 10 | | | 3 | 8 | 16 | STR | | | | | CAP-VERT. @ END |
| P1323E | 10 | | | 8 | 6 | 13 | 130 | 3'-4" | 3'-4" | | | CAP-HORZ. @ END |
| P1324E | 12 | | | 4 | 3 | 13 | 114 | 2'-11" | 8" | | | SEAT-TRANS. |
| P1325E | 40 | | | 5 | 1 | 13 | 114 | 2'-7" | 1'-3" | | | SEAT-LONG. |
| P1326E | 119 | | | 4 | 6 | 13 | 114 | 1'-3" | 1'-3" | | | SEAT-TRANS. |
| P1327E | 2 | | | 12 | 8 | 13 | 104 | 2'-8" | 3'-0" | | | SEAT-TIE |
| P1328E | 6 | | | 8 | 9 | 13 | 104 | 2'-8" | 1'-4" | | | SEAT-TIE |
| P1329E | 11 | | | 9 | 9 | 13 | 104 | 3'-2" | 1'-4" | | | SEAT-TIE |
| P1630E | 44 | | | 5 | 7 | 16 | 114 | 3'-1" | 1'-3" | | | SEAT-LONG. |
| P1331E | 172 | | | 4 | 1 | 13 | 107 | 3'-4" | | | | CAP TIES |
| **NORTH ABUTMENT REINFORCEMENT** | | | | | | | | | | | | |
| B1901 | 145 | | | 11 | 10 | 19 | 114 | 9'-10" | 1'-0" | | | ABUT. FTG TRANS |
| B1902 | 11 | | | 51 | 0 | 19 | 111 | 50'-0" | 1'-0" | | | ABUT. FTG LONG |
| B1903 | 11 | | | 37 | 4 | 19 | 111 | 36'-4" | 1'-0" | | | ABUT. FTG LONG |
| B1604E | 98 | | | 5 | 4 | 16 | 111 | 4'-6" | 0'-10" | | | ABUT. FTG DWL |
| B1605E | 86 | | | 4 | 10 | 16 | 111 | 4'-0" | 0'-10" | | | ABUT. FTG DWL |
| B2206 | 32 | | | 11 | 2 | 22 | 114 | 8'-10" | 1'-2" | | | CTRFORT FTG LONG |
| B1907 | 40 | | | 6 | 0 | 19 | 114 | 4'-0" | 1'-0" | | | CTRFORT FTG TRANS |
| B2208E | 4 | | | 5 | 10 | 22 | 110 | 4'-8" | 1'-2" | 3 | | CTRFORT FTG DWL |
| B1609E | 26 | | | 4 | 3 | 16 | 111 | 3'-5" | 0'-10" | | | CTRFORT FTG DWL |
| B1610E | 86 | | | 5 | 0 | 16 | STR | | | | | BARREL VERT FF |
| B1611E | 80 | | | 8 | 11 | 16 | STR | | | | | BARREL VERT BF |
| B1612E | 15 | | | 50 | 0 | 16 | STR | | | | | HORIZ FF |
| B1613E | 14 | | | 35 | 9 | 16 | STR | | | | | HORIZ FF |
| B1614E | 22 | | | 27 | 0 | 16 | STR | | | | | HORIZ BF |
| B1615E | 11 | | | 26 | 6 | 16 | STR | | | | | HORIZ BF |
| B1616E | 84 | | | 7 | 6 | 16 | STR | | | | | BACKWALL VERT FF |

| BAR MARK | NO. | SERIES NO. | OF | LENGTH FT | IN | SIZE | TYPE | DIMENSIONS A | B | C | D | LOCATION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B1617E | 65 | | | 5 | 11 | 16 | 115 | 1-0 1/2" | 4'-0" | 0'-10" | | BACKWALL VERT |
| B1618E | 17 | | | 6 | 9 | 16 | 115 | 1-0 1/2" | 4'-10" | 0'-10" | | BACKWALL VERT |
| B1620E | 84 | | | 3 | 5 | 16 | 115 | 0'-11" | 2'-2" | 0'-9" | | ENDBLOCK VERT |
| B1621E | 2 | | | 11 | 9 | 16 | 113 | 9'-9" | 2'-0" | 12 | | BACKWALL HORIZ SDWK |
| B1622E | 2 | | | 9 | 9 | 16 | 113 | 7'-9" | 2'-0" | 12 | | BACKWALL HORIZ SDWK |
| B1623E | 84 | | | 5 | 9 | 16 | 114 | 4'-0 1/2" | 0'-10" | | | BRIDGE SEAT TRANS |
| B1624E | | 1 | SER | 7 | 6 | 16 | 113 | 6'-8" | 0'-10" | 2 1/8 | | W. WING HORIZ FF |
| | | OF | 4 | 13 | 6 | | | 12'-8" | | | | |
| B1625E | 2 | | | 18 | 6 | 16 | 113 | 17'-8" | 0'-10" | 2 1/8 | | WINGWALLS HORIZ FF |
| B1626E | | 1 | SER | 15 | 6 | 16 | 113 | 14'-8" | 0'-10" | 2 1/8 | | W. WING HORIZ FF |
| | | OF | 3 | 19 | 6 | | | 18'-8" | | | | |
| B1627E | 3 | | | 19 | 8 | 16 | 113 | 18'-10" | 0'-10" | 2 1/8 | | W. WING HORIZ FF |
| B1628E | | 1 | SER | 3 | 0 | 16 | STR | | | | | W. WING HORIZ BF |
| | | OF | 4 | 9 | 0 | | | | | | | |
| B1629E | 1 | | | 13 | 10 | 16 | STR | | | | | W. WING HORIZ BF |
| B1630E | | 1 | SER | 14 | 0 | 16 | STR | | | | | W. WING HORIZ BF |
| | | OF | 3 | 18 | 0 | | | | | | | |
| B1631E | 3 | | | 18 | 1 | 16 | STR | | | | | W. WING HORIZ BF |
| B1632E | | 2 | SER | 4 | 0 | 16 | STR | | | | | WINGWALLS VERT FF |
| | | OF | 4 | 5 | 6 | | | | | | | |
| B1633E | 10 | | | 7 | 8 | 16 | STR | | | | | WINGWALLS VERT FF |
| B1634E | | 2 | SER | 7 | 10 | 16 | STR | | | | | WINGWALLS VERT FF |
| | | OF | 7 | 11 | 0 | | | | | | | |
| B1635E | 6 | | | 11 | 7 | 16 | STR | | | | | WINGWALLS VERT FF |
| B1636E | 6 | | | 5 | 0 | 16 | STR | | | | | WINGWALLS VERT FF |
| B1637E | | 1 | SER | 3 | 4 | 16 | STR | | | | | W. WING VERT BF |
| | | OF | 4 | 4 | 11 | | | | | | | |
| B1638E | 5 | | | 6 | 11 | 16 | STR | | | | | W. WING VERT BF |
| B1639E | | 1 | SER | 7 | 2 | 16 | STR | | | | | W. WING VERT BF |
| | | OF | 7 | 10 | 5 | | | | | | | |
| B1640E | 3 | | | 10 | 11 | 16 | STR | | | | | W. WING FILLET VERT |
| B1641E | 46 | | | 8 | 5 | 16 | 104 | 0'-8" | 3'-1" | | | PARAPET VERT |
| B1642E | 4 | | | 19 | 4 | 16 | STR | | | | | WINGWALLS HORZ. |
| B1643E | 40 | | | 3 | 9 | 16 | 115 | 0'-8" | 2'-10" | 0'-5" | | WINGWALLS TOP |
| B1644E | 40 | | | 2 | 8 | 16 | 114 | 0'-11 1/2" | 0'-10" | | | WINGWALLS TOP |
| B1645E | 4 | | | 10 | 2 | 16 | STR | | | | | WINGWALLS BOTT |
| B1646E | 4 | | | 6 | 2 | 16 | STR | | | | | WINGWALLS BOTT |
| B1647E | 4 | | | 5 | 4 | 16 | STR | | | | | CTRFORTS VERT |
| B1648E | 4 | | | 9 | 9 | 16 | 143 | 6'-5" | 2'-0" | 0'-7" | 3 | CTRFORTS VERT |
| B1649E | | 2 | SER | 6 | 2 | 16 | 101 | 0'-8" | 2'-3" | | | CTRFORTS HORIZ |
| | | OF | 6 | 8 | 8 | | | | 3'-6" | | | |
| B1650E | | 1 | SER | 2 | 4 | 16 | STR | | | | | E. WING HORIZ BF |
| | | OF | 4 | 8 | 4 | | | | | | | |
| B1651E | 1 | | | 13 | 4 | 16 | STR | | | | | E. WING HORIZ BF |
| B1652E | | 1 | SER | 13 | 4 | 16 | STR | | | | | E. WING HORIZ BF |
| | | OF | 3 | 17 | 3 | | | | | | | |
| B1653E | 3 | | | 17 | 3 | 16 | STR | | | | | E. WING HORIZ BF |
| B1654E | | 1 | SER | 7 | 10 | 16 | 110 | 7'-0" | 0'-10" | 2 1/8 | | E. WING HORIZ FF |
| | | OF | 4 | 13 | 10 | | | 13'-0" | 10" | | | |
| B1655E | 22 | | | 5 | 0 | 16 | STR | | | | | FILLETS HORIZ |
| B1656E | | 1 | SER | 15 | 6 | 16 | 110 | 14'-8" | 0'-10" | 2 1/8 | | E. WING HORIZ FF |
| | | OF | 3 | 19 | 4 | | | 18'-6" | | | | |
| B1657E | 3 | | | 19 | 9 | 16 | STR | 18'-11" | 10" | | | E. WINGWALL |
| B1658E | | 1 | SER | 3 | 5 | 16 | STR | | | | | E. WINGWALL |
| | | OF | 4 | 4 | 11 | | | | | | | |
| B1659E | 5 | | | 7 | 1 | 16 | STR | | | | | E. WINGWALL |
| B1660E | | 1 | SER | 7 | 4 | 16 | STR | | | | | E. WINGWALL |
| | | OF | 7 | 10 | 5 | | | | | | | |
| B1661E | 3 | | | 11 | 1 | 16 | STR | | | | | E. WING FILLET FF |
| B1662E | 45 | | | 3 | 11 | 16 | 114 | 2'-7" | 0'-8" | | | CONCRETE PAD |
| B1663E | 54 | | | 4 | 9 | 16 | 111 | 3'-6" | 1'-3" | | | CONCRETE PAD |
| B1364E | 9 | | | 9 | 8 | 13 | 114 | 2'-8" | 3'-6" | | | CONC. PAD TIE |

## BAR BENDING DIAGRAMS




**AS-BUILT**

**FEB 18 2005**

**ENGINEERING**

NOTE

BENT BAR DIMENSIONS GIVEN ARE OUT-TO-OUT
ACTUAL BAR LENGTHS SHALL BE DETERMINED BASED ON THE DETAIL DIMENSIONS SHOWN IN THE BAR BENDING DIAGRAMS. TOTAL BAR LENGTHS ARE SHOWN FOR USE IN COMPUTING REINFORCEMENT BAR WEIGHTS FOR PAYMENT ONLY

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SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE 7/3/2001 LIC. NO. 19879

**TKDA** ENGINEERS • ARCHITECTS • PLANNERS

TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
SAINT PAUL, MINNESOTA

Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: SUBSTRUCTURE BARLISTS

| DES: MJC | DR: MJC | APPROVED |
|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 18 of 37 Sheets

Bridge No. 55567

| COMPUTED PILE LOADS<br>NORTH ABUTMENT - (TONS PER PILE) | |
|---|---|
| DEAD LOAD + EARTH PRESSURE | 46.4 |
| LIVE LOAD | 4.7 |
| TOTAL LOAD | 51.1 |
| *DESIGN LOAD | 51.1 |

* 51.1/1.0 REDUCTION PER AASHTO 3.22.1
GROUP 1 LOADING

## PILE NOTES:

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING

PILES MARKED THUS ◯→ TO BE BATTERED
3 INCHES PER FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12 INCHES.
31 CAST-IN-PLACE PILES EST. LENGTH 70 FEET LONG
3 CAST-IN-PLACE CONCRETE TEST PILES 80 FEET LONG
34 CAST-IN-PLACE CONCRETE PILES REQ'D FOR NORTH ABUTMENT FOOTING

| COMPUTED PILE LOADS<br>SOUTH ABUTMENT - (TONS PER PILE) | |
|---|---|
| DEAD LOAD + EARTH PRESSURE | 54.5 |
| LIVE LOAD | 3.5 |
| TOTAL LOAD | 58.0 |
| *DESIGN LOAD | 58.0 |

* 58.0/1.0 REDUCTION PER AASHTO 3.22.1
GROUP 1 LOADING

## PILE NOTES:

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING

PILES MARKED THUS ◯→ TO BE BATTERED
3 INCHES PER FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12 INCHES.
41 CAST-IN-PLACE PILES EST. LENGTH 70 FEET LONG
3 CAST-IN-PLACE CONCRETE TEST PILES 80 FEET LONG
44 CAST-IN-PLACE CONCRETE PILES REQ'D FOR SOUTH ABUTMENT FOOTING

| SUMMARY OF QUANTITIES FOR SOUTH ABUTMENT | | |
|---|---|---|
| ITEM DESCRIPTION | UNIT | QUANTITY |
| STRUCTURAL CONCRETE (1A43) | CU.YD. | 125 |
| STRUCTURAL CONCRETE (3Y43) | CU.YD. | 221 |
| REINFORCEMENT BARS | POUND | 5910 |
| REINFORCEMENT BARS (EPOXY-COATED) | POUND | 14550 |
| C-I-P CONCRETE PILING DELIVERED, 12" | LIN.FT. | 2870 |
| C-I-P CONCRETE PILING DRIVEN, 12" | LIN.FT. | 2870 |
| C-I-P CONCRETE TEST PILE, 80 FT. LONG, 12" | EACH | 3 |
| RANDOM RIPRAP CLASS III | CU.YD. | 153 |
| GRANULAR FILTER | CU.YD. | 35 |
| CONCRETE SLOPE PAVING | SQ.YD. | 70 |
| STRUCTURE EXCAVATION | PARTIAL | 1 |
| DRAINAGE SYSTEM, TYPE (B910) | PARTIAL | 1 |

| SUMMARY OF QUANTITIES FOR PIER 1 | | |
|---|---|---|
| ITEM DESCRIPTION | UNIT | QUANTITY |
| STRUCTURAL CONCRETE (1X62) | CU.YD. | 87 |
| STRUCTURAL CONCRETE (1A43) | CU.YD. | 83 |
| STRUCTURAL CONCRETE (3Y43) | CU.YD. | 148 |
| REINFORCEMENT BARS | POUND | 2770 |
| REINFORCEMENT BARS (EPOXY-COATED) | POUND | 22020 |
| C-I-P CONCRETE PILING DELIVERED, 12" | LIN.FT. | 2700 |
| C-I-P CONCRETE PILING DRIVEN, 12" | LIN.FT. | 2700 |
| C-I-P CONCRETE TEST PILE, 85 FT. LONG, 12" | EACH | 3 |
| RANDOM RIPRAP CLASS III | CU.YD. | 160 |
| GRANULAR FILTER | CU.YD. | 31 |
| STRUCTURE EXCAVATION | PARTIAL | 1 |
| FOUNDATION PREPARATION (PIER 1) | LUMP SUM | 1 |

| SUMMARY OF QUANTITIES FOR NORTH ABUTMENT | | |
|---|---|---|
| ITEM DESCRIPTION | UNIT | QUANTITY |
| STRUCTURAL CONCRETE (1A43) | CU.YD. | 121 |
| STRUCTURAL CONCRETE (3Y43) | CU.YD. | 125 |
| REINFORCEMENT BARS | POUND | 5130 |
| REINFORCEMENT BARS (EPOXY-COATED) | POUND | 9500 |
| C-I-P CONCRETE PILING DELIVERED, 12" | LIN.FT. | 2170 |
| C-I-P CONCRETE PILING DRIVEN, 12" | LIN.FT. | 2170 |
| C-I-P CONCRETE TEST PILE, 80 FT. LONG, 12" | EACH | 3 |
| RANDOM RIPRAP CLASS III | CU.YD. | 172 |
| GRANULAR FILTER | CU.YD. | 40 |
| STRUCTURE EXCAVATION | PARTIAL | 1 |

AS-BUILT

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| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|
| | | | |

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SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

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SAINT PAUL, MINNESOTA

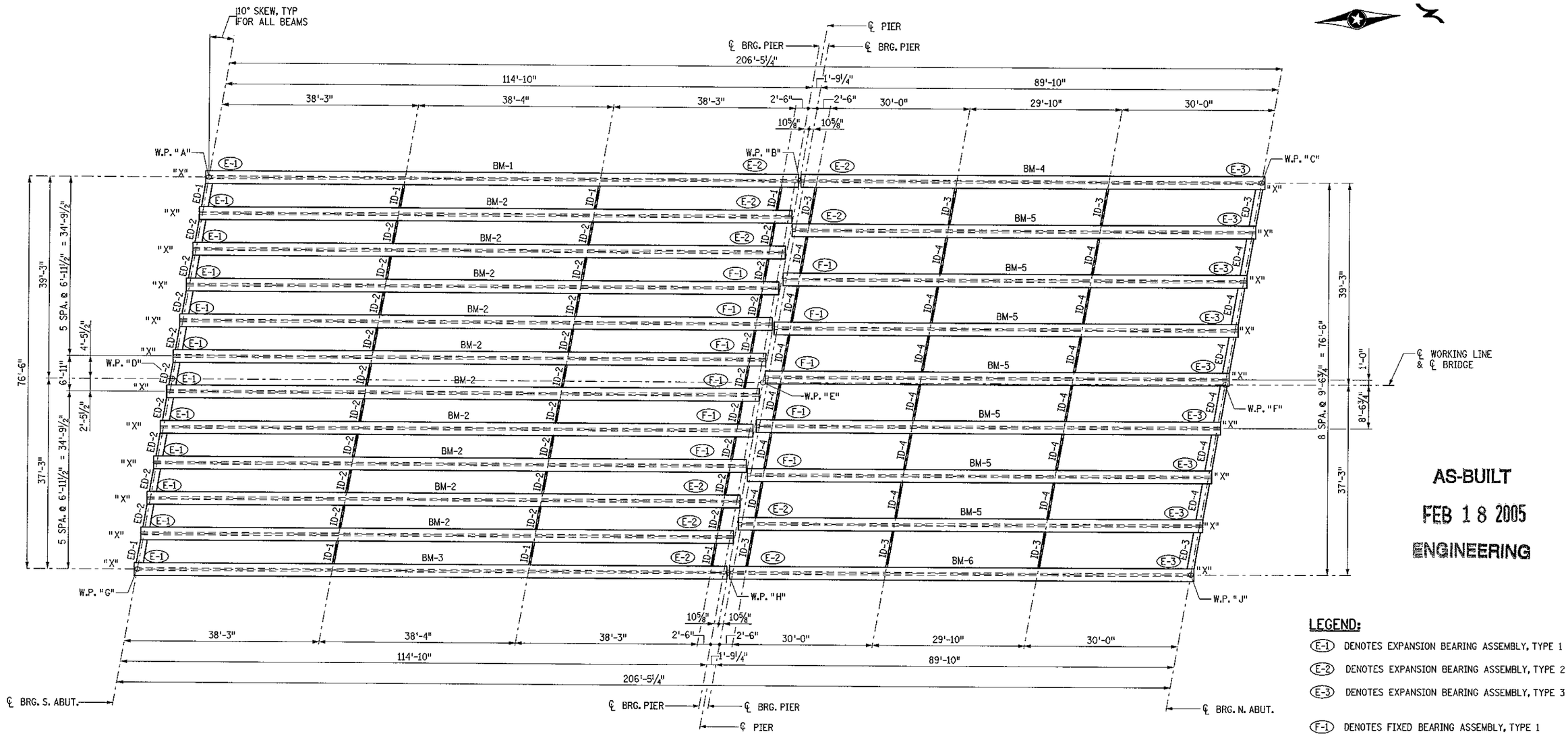
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S.P. 55-608-11

TITLE: SUBSTRUCTURE QUANTITY SUMMARIES

| DES: MJC | DR: MJC | APPROVED |
|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 19 of 37 Sheets

Bridge No. 55567




FRAMING PLAN

AS-BUILT

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**LEGEND:**

(E-1) DENOTES EXPANSION BEARING ASSEMBLY, TYPE 1

(E-2) DENOTES EXPANSION BEARING ASSEMBLY, TYPE 2

(E-3) DENOTES EXPANSION BEARING ASSEMBLY, TYPE 3

(F-1) DENOTES FIXED BEARING ASSEMBLY, TYPE 1

ID-1 DENOTES INTERMEDIATE DIAPHRAGM, TYPE 1

ID-2 DENOTES INTERMEDIATE DIAPHRAGM, TYPE 2

ID-3 DENOTES INTERMEDIATE DIAPHRAGM, TYPE 3

ID-4 DENOTES INTERMEDIATE DIAPHRAGM, TYPE 4

ED-1 DENOTES END DIAPHRAGM, TYPE 1

ED-2 DENOTES END DIAPHRAGM, TYPE 2

ED-3 DENOTES END DIAPHRAGM, TYPE 3

ED-4 DENOTES END DIAPHRAGM, TYPE 4

**NOTES:**

SEE SHEET 23 FOR LOCATION OF END DIAPHRAGM.

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|---|---|---|---|

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DATE: 07/03/2001 LIC. NO. 19879

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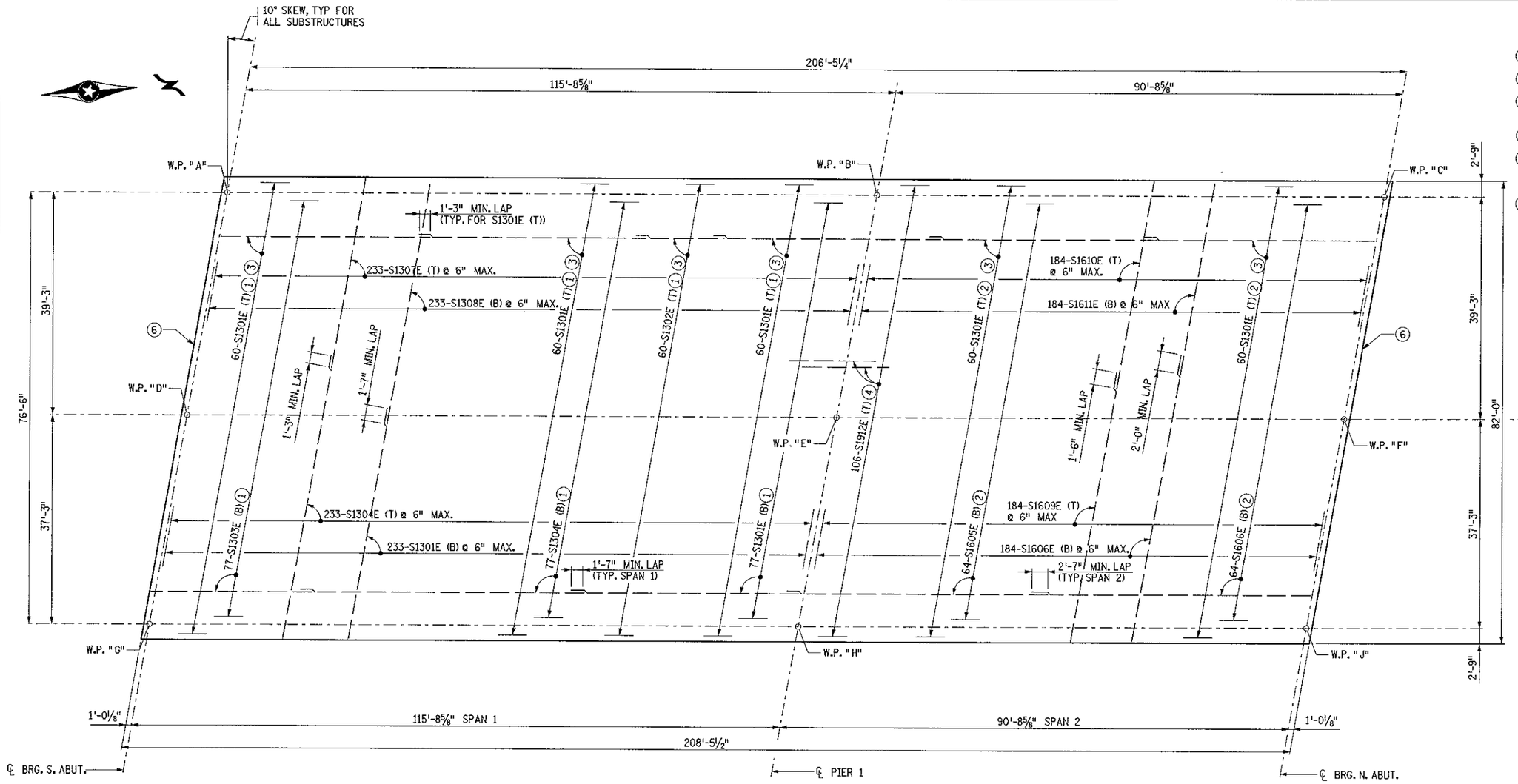
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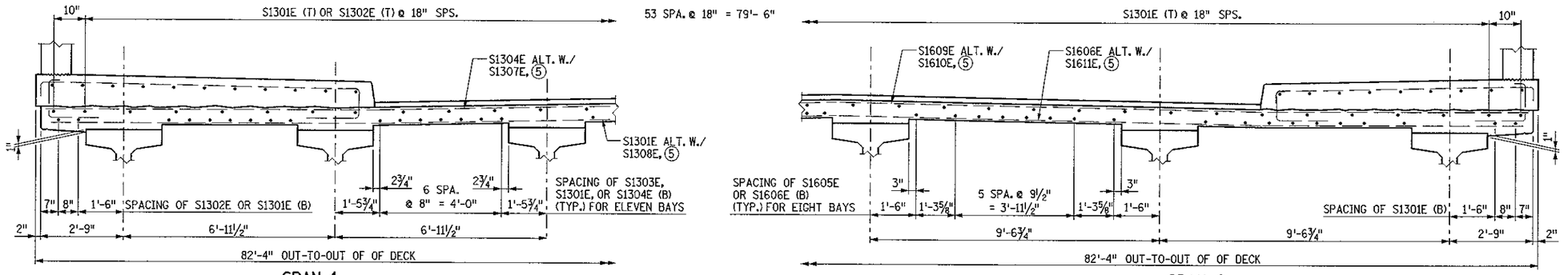
Sheet No. 20 of 37 Sheets

Bridge No. 55567

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## SLAB REINFORCEMENT ⑥




## TYPICAL SECTIONS

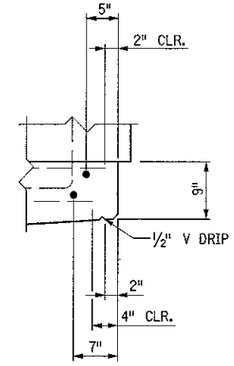
## NOTES:

1. FOR BAR SPACING SEE TYP. SECTION, SPAN 1
2. FOR BAR SPACING SEE TYP. SECTION, SPAN 2
3. QTY. INCLUDES BOTTOM BARS IN CANTILEVER PORTIONS OF SLAB
4. SEE DETAIL ON SHEET 19 FOR BAR PLACEMENT
5. 6" MAX. SPACING IS MEASURED PARALLEL TO ℄ BRIDGE. ALTERNATE (FLIP) BAR MARKS TO PRODUCE STAGGERED SPLICE LOCATIONS.
6. FOR ADDITIONAL REINFORCEMENT PLACED IN ABUTMENT END BLOCK REFER TO SHEET 23.

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## REBAR CLEARANCES AT EDGE OF SLAB

82'-0" OUT-TO-OUT BRIDGE SLAB.

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DATE: 07/03/01 TIME: 03:04:14 PM

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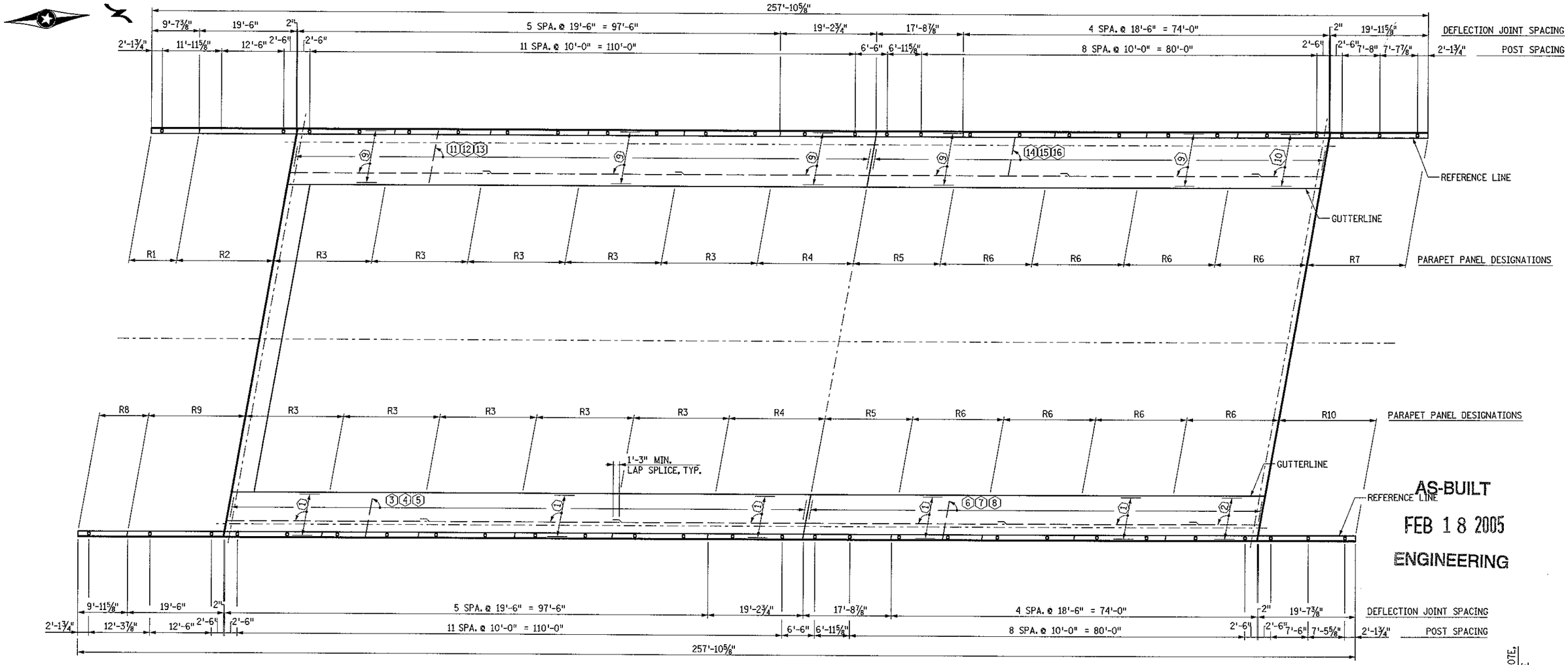
Olmsted County
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S.P. 55-608-11

TITLE: SLAB REINFORCEMENT

| DES: MJC | DR: MJC | APPROVED |
|---|---|---|
| CHK: GM | CHK: GM | |

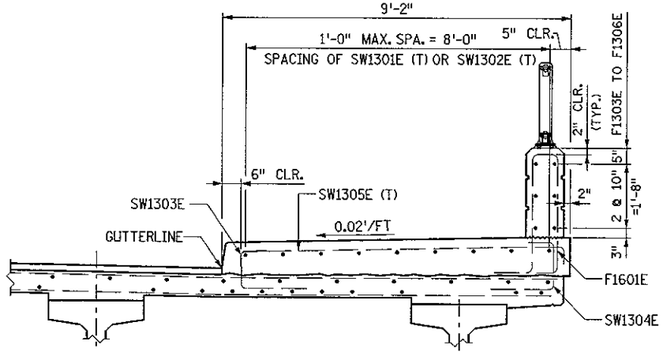
Sheet No. 21 of 37 Sheets

Bridge No. 55567




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# SIDEWALK AND PARAPET DETAILS




TYPICAL SECTION ①

## SIDEWALK REINFORCEMENT

EAST SIDEWALK

① 9-SW1301E (T) @ 12" MAX.
② 9-SW1302E (T) @ 12" MAX.
③ 118-SW1303E (T) @ 12" MAX.
④ 118-SW1304E (T) @ 12" MAX.
⑤ 118-SW1305E (T) @ 12" MAX.
⑥ 92-SW1303E (T) @ 12" MAX.
⑦ 92-SW1304E (T) @ 12" MAX.
⑧ 92-SW1305E (T) @ 12" MAX.

WEST SIDEWALK

⑨ 11-SW1301 (T) @ 12" MAX.
⑩ 11-SW1302 (T) @ 12" MAX.
⑪ 118-SW1303 (T) @ 12" MAX.
⑫ 118-SW1304 (T) @ 12" MAX.
⑬ 118-SW1306 (T) @ 12" MAX.
⑭ 92-SW1303 (T) @ 12" MAX.
⑮ 92-SW1304 (T) @ 12" MAX.
⑯ 92-SW1306 (T) @ 12" MAX.

## PARAPET REINFORCEMENT

FOR TYPICAL BAR PLACEMENT SEE SHEET 23

FOR ONE PANEL R1
6-F1302E
1 THUS

FOR ONE PANEL R2
6-F1303E
1 THUS

FOR ONE PANEL R3
23-F1601E
6-F1303E
10 THUS

FOR ONE PANEL R4
23-F1601E
6-F1304E
2 THUS

FOR ONE PANEL R5
22-F1601E
6-F1305E
2 THUS

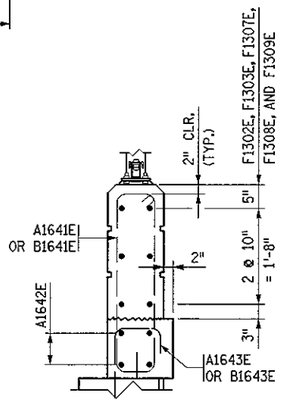
FOR ONE PANEL R6
22-F1601E
6-F1306E
8 THUS

FOR ONE PANEL R7
6-F1307E
1 THUS

FOR ONE PANEL R8
6-F1308E
1 THUS

FOR ONE PANEL R9
6-F1303E
1 THUS

FOR ONE PANEL R10
6-F1309E
1 THUS




TYPICAL SECTION THROUGH WINGWALL AND PARAPET

**NOTES:**

① EAST SIDEWALK SHOWN. WEST SIDEWALK SIMILIAR.

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

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TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
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Olmsted County
C.S.A.H. 8
S.P. 55-608-11

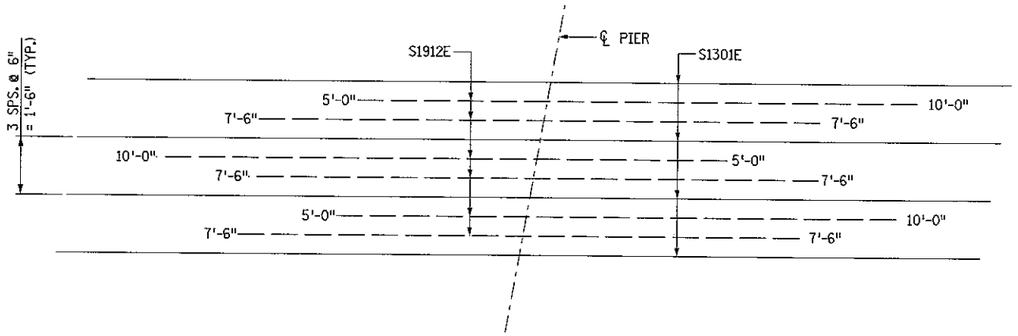
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|---|---|---|
| CHK: GM | CHK: GM | |

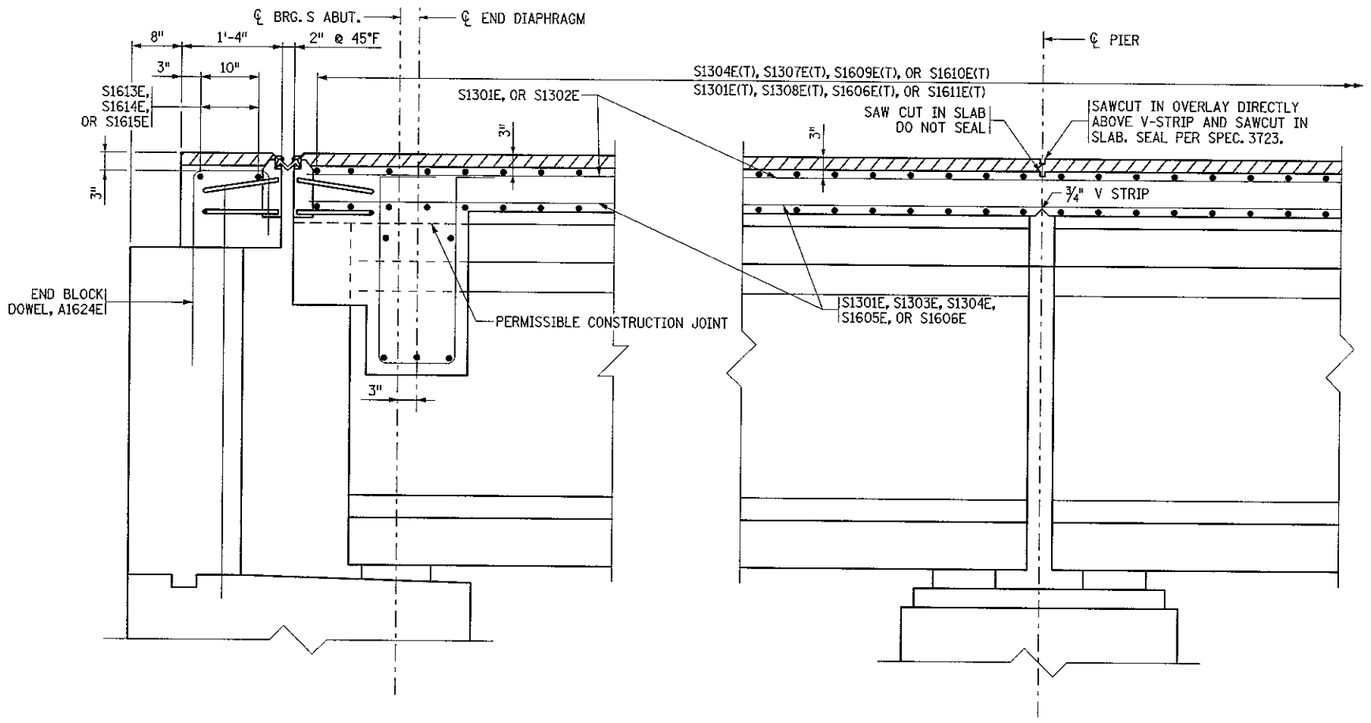
Sheet No. 22 of 37 Sheets

Bridge No. 55567

FILENAME: k:\site\pro\c\125\csah8\dwg\bridge\rail&sidwlk.dgn
DATE: 07/03/01 TIME: 02:29:20 PM




STAGGER DETAIL

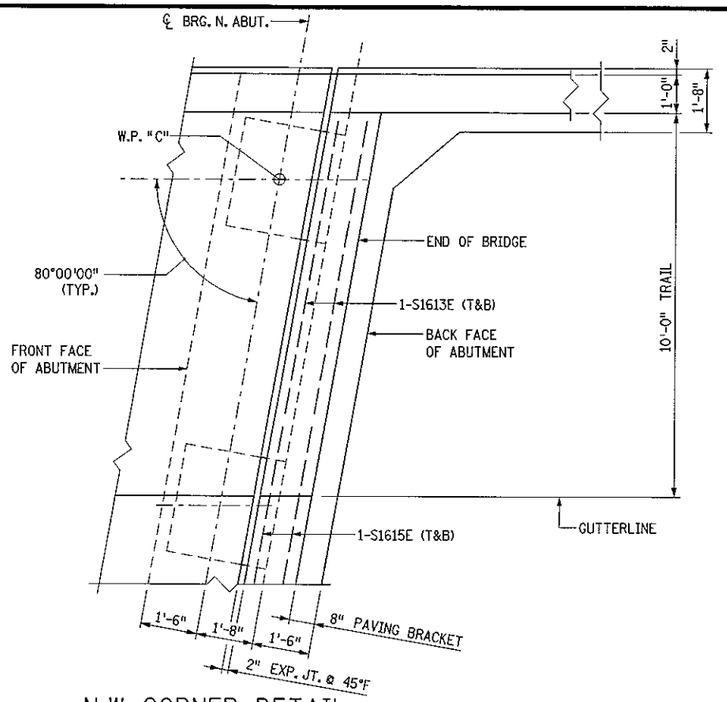



LONGITUDINAL SECTION AT ABUTMENT

(SOUTH ABUTMENT SHOWN, NORTH ABUTMENT SIMILIAR)




SAWCUT DETAIL AT PIERS

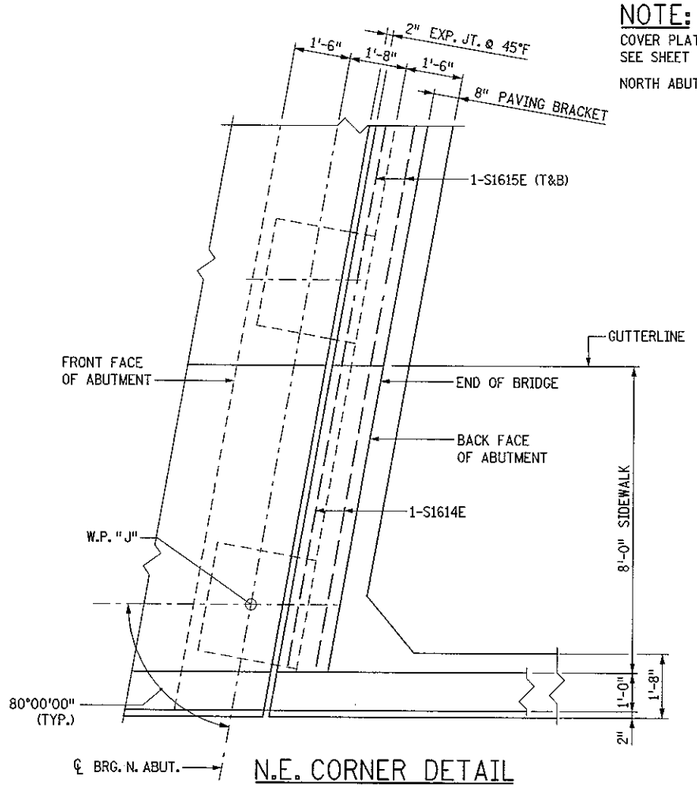



N.W. CORNER DETAIL

NOTE:

COVER PLATE IS NOT SHOWN FOR CLARITY. SEE SHEET 29 FOR COVER PLATE DETAILS.

NORTH ABUTMENT SHOWN, SOUTH ABUTMENT SIMILAR.




N.E. CORNER DETAIL

AS-BUILT

FEB 1 8 2005

ENGINEERING

FILENAME: k:\site\proj\co125\csah8\dwg\bridge\superstructure.dgn
DATE: 07/03/01 TIME: 02:29:26 PM

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DATE: 07/03/2001 LIC. NO. 19879

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SAINT PAUL, MINNESOTA

Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: SUPERSTRUCTURE DETAILS

| DES: MJC | DR: MJC | APPROVED |
|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 23 of 37 Sheets

Bridge No. 55567

# SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE

| | ITEM DESCRIPTION | UNIT | QUANTITY |
|---|---|---|---|
| (8) | STRUCTURAL CONCRETE (3Y43) | CU.YD. | 15.5 |
| (3) | BRIDGE SLAB CONCRETE (3Y36A) | SQ.FT. | 17261 |
| (5) | TYPE P-1 RAILING CONCRETE (3Y46A) | LIN.FT. | 516 |
| (6) | SIDEWALK CONCRETE (3Y46A) | SQ.FT. | 4293 |
| (7) | RAISED MEDIAN CONCRETE (3Y46A) | SQ.FT. | 1267 |
| (2) | REINFORCEMENT BARS (EPOXY-COATED) | POUND | 98960 |
| | METAL RAILING FOR BIKEWAYS, TYPE M-1 | LIN.FT. | 516 |
| | EXPANSION JOINT DEVICES, TYPE 4 | LIN.FT. | 162 |
| (10) | FIXED BEARING ASSEMBLY, TYPE F1 | EACH | 11 |
| (10) | EXPANSION BEARING ASSEMBLY, TYPE E1 | EACH | 12 |
| (10) | EXPANSION BEARING ASSEMBLY, TYPE E2 | EACH | 10 |
| (10) | EXPANSION BEARING ASSEMBLY, TYPE E3 | EACH | 9 |
| (4) | CONCRETE OVERLAY (3U17A) | SQ.FT. | 14119 |
| (9) | PRESTRESSED CONCRETE BEAMS, TYPE 54M-116 | EACH | 12 |
| (9) | PRESTRESSED CONCRETE BEAMS, TYPE 54M-91 | EACH | 9 |
| | DIAPHRAGMS FOR TYPE 54M PREST. BEAMS | LIN.FT. | 466 |
| | CONDUIT SYSTEM (RPU) | LUMP SUM | 1 |
| (11) | BENCH MARK DISK | EACH | 1 |
| (1) | CORK FILLER | SQ.FT. | 46 |
| (1) | BRIDGE NAME PLATE | EACH | 1 |
| (1) | 3-PLY JOINT WATER PROOFING | LIN.FT. | 174 |

## QUANTITY NOTES:

(1) TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS

(2) INCLUDES SLAB (END DIAPHRAGMS, SIDEWALK) AND RAILING REINFORCEMENT

(3) BRIDGE SLAB CONCRETE (3Y36A) VOLUME IS APPROXIMATELY 416 CU.YD., USING THE LOW-SLUMP CONCRETE OVERLAY ALTERNATE, AND AN AVERAGE STOOL HEIGHT OF 2 INCHES. INCLUDES END BLOCKS.

(4) "OVERLAY CONCRETE TYPE SPECIAL" VOLUME IS APPROXIMATELY 87 CU.YD., USING THE LOW-SLUMP CONCRETE OVERLAY ALTERNATE. INCLUDES 2275 SQ.FT FOR BRIDGE APPROACH PANELS.

(5) TYPE F RAILING CONCRETE (3Y46A) VOLUME IS APPROXIMATELY 45 CU YD.

(6) SIDEWALK CONCRETE (3Y46A) VOLUME IS APPROXIMATELY 147 CU YD.

(7) RAISED MEDIAN CONCRETE (3Y46A) VOLUME IS APPROXIMATELY 31 CU.YD.

(8) INCLUDES END DIAPHRAGM CONCRETE.

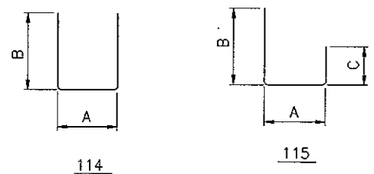
(9) PAYMENT FOR BEAMS INCLUDED IN ITEM "PRESTRESSED CONCRETE BEAMS, TYPE 54M" PER LIN. FT

(10) PAYMENT FOR BEARINGS INCLUDED IN ITEM "BEARING ASSEMBLY" PER EACH.

(11) STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

| BAR MARK | NO. | SERIES NO. OF | LENGTH FT | LENGTH IN | SIZE | TYPE | DIMENSIONS A | DIMENSIONS B | DIMENSIONS C | DIMENSIONS D | LOCATION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DIAPHRAGM REINFORCEMENT** | | | | | | | | | | | |
| SD1301E | 98 | | 7 | 6 | 13 | 126 | 1'-0" | 2'-6" | 9" | 9" | SPANS 1 & 2 |
| SD2202E | 34 | | 5 | 0 | 22 | STR | | | | | SPANS 1 & 2 |
| SD1303E | 22 | | 4 | 2 | 13 | STR | | | | | SPAN 1 |
| SD2204E | 22 | | 6 | 2 | 22 | STR | | | | | SPAN 1 |
| SD1605E | 11 | | 17 | 6 | 16 | 127 | 4'-0" | 2'-6" | 4'-0" | 4'-0" | SPAN 1 |
| SD1308E | 16 | | 6 | 10 | 13 | STR | | | | | SPAN 2 |
| SD2209E | 16 | | 8 | 10 | 22 | STR | | | | | SPAN 2 |
| SD1910E | 8 | | 17 | 0 | 19 | 128 | 2'-5" | 2'-6" | 4'-0" | 12 | SPAN 2 |
| **SLAB REINFORCEMENT** | | | | | | | | | | | |
| S1301E | 610 | | 40 | 0 | 13 | STR | | | | | T & B LG & B TRANS |
| S1302E | 60 | | 15 | 0 | 13 | STR | | | | | T LONG |
| S1303E | 77 | | 30 | 0 | 13 | STR | | | | | B LONG |
| S1304E | 310 | | 50 | 0 | 13 | STR | | | | | B LONG & T TRANS |
| S1605E | 64 | | 46 | 0 | 16 | STR | | | | | B LONG |
| S1606E | 248 | | 50 | 0 | 16 | STR | | | | | B LONG & TRANS |
| S1307E | 233 | | 34 | 3 | 13 | STR | | | | | T TRANS |
| S1308E | 233 | | 44 | 3 | 13 | STR | | | | | B TRANS |
| S1609E | 184 | | 47 | 0 | 16 | STR | | | | | T TRANS |
| S1610E | 184 | | 37 | 6 | 16 | STR | | | | | T TRANS |
| S1611E | 184 | | 34 | 8 | 16 | STR | | | | | B TRANS |
| S1912E | 106 | | 15 | 0 | 19 | STR | | | | | T LONG @ PIER |
| S1613E | 8 | | 9 | 9 | 16 | STR | | | | | END BLOCK (W. SDWLK) |
| S1614E | 8 | | 7 | 8 | 16 | STR | | | | | END BLOCK (E. SDWLK) |
| S1615E | 16 | | 32 | 0 | 16 | STR | | | | | END BLOCK (ROADWAY) |
| **SIDEWALK REINFORCEMENT** | | | | | | | | | | | |
| SW1301E | 100 | | 40 | 0 | 13 | STR | | | | | TOP LONG |
| SW1302E | 20 | | 15 | 0 | 13 | STR | | | | | TOP LONG |
| SW1303E | 420 | | 3 | 2 | 13 | 115 | 1'-0" | 1'-6" | 8" | | VERT. |
| SW1304E | 420 | | 3 | 4 | 13 | 115 | 1'-2" | 1'-6" | 8" | | VERT. |
| SW1305E | 210 | | 9 | 6 | 13 | 114 | 8'-8" | 5" | | | EAST TOP TRANS |
| SW1306E | 210 | | 11 | 6 | 13 | 114 | 10'-8" | 5" | | | WEST TOP TRANS |
| **PARAPET REINFORCEMENT** | | | | | | | | | | | |
| F1601E | 496 | | 8 | 6 | 16 | 126 | 7 1/2" | 3'-2" | 6 1/2" | 1'-0" | PANELS R3 - R6 |
| F1302E | 6 | | 9 | 3 | 13 | STR | | | | | PANEL R1 |
| F1303E | 72 | | 19 | 1 | 13 | STR | | | | | PANELS R2, R3, R9 |
| F1304E | 12 | | 18 | 10 | 13 | STR | | | | | PANEL R4 |
| F1305E | 12 | | 17 | 4 | 13 | STR | | | | | PANEL R5 |
| F1306E | 48 | | 18 | 1 | 13 | STR | | | | | PANEL R6 |
| F1307E | 6 | | 19 | 6 | 13 | STR | | | | | PANEL R7 |
| F1308E | 6 | | 9 | 4 | 13 | STR | | | | | PANEL R8 |
| F1309E | 6 | | 19 | 3 | 13 | STR | | | | | PANEL R10 |

# BAR BENDING DIAGRAMS




**AS-BUILT**

**FEB 18 2005**

**ENGINEERING**

NOTE

BENT BAR DIMENSIONS GIVEN ARE OUT-TO-OUT
ACTUAL BAR LENGTHS SHALL BE DETERMINED BASED ON THE DETAIL DIMENSIONS SHOWN IN THE BAR BENDING DIAGRAMS. TOTAL BAR LENGTHS ARE SHOWN FOR USE IN COMPUTING REINFORCEMENT BAR WEIGHTS FOR PAYMENT ONLY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED
DATE 7/3/2001 REG. NO. 19879

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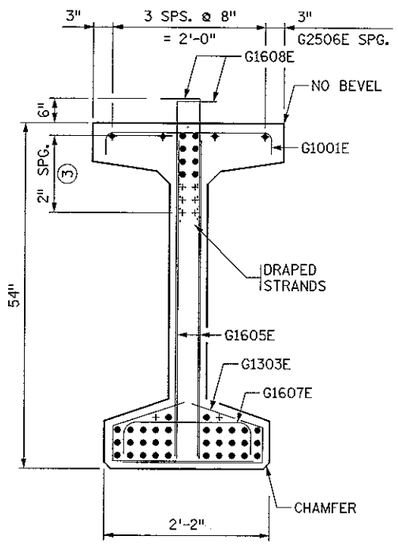
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: SUPERSTRUCTURE QUANTITIES AND BARLISTS

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CHK: GM | CHK: GM

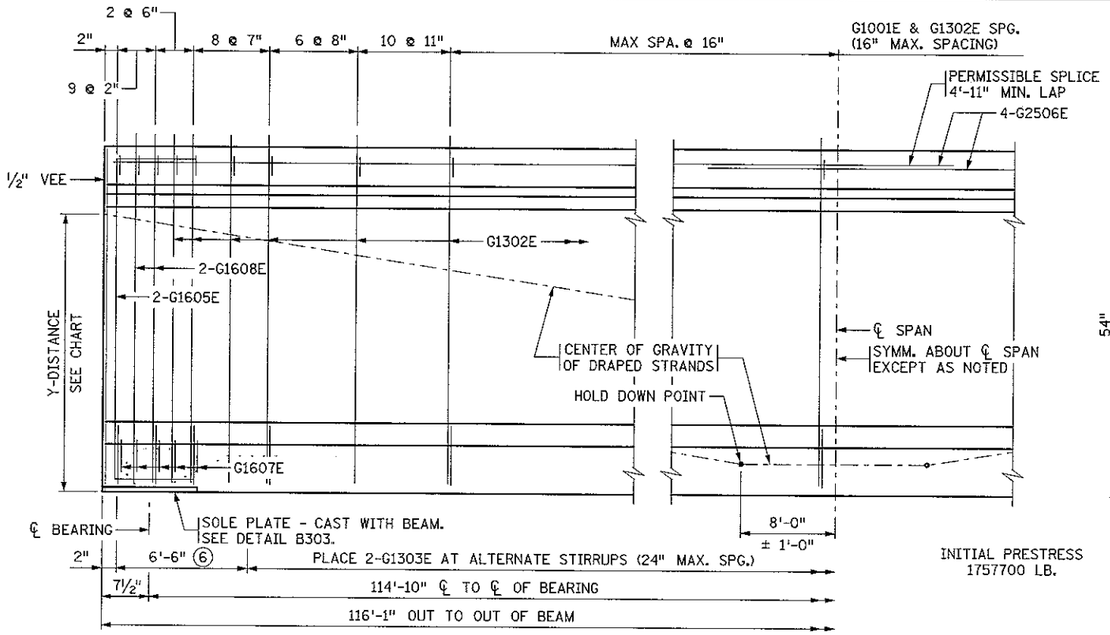
Sheet No. 24 of 37 Sheets

Bridge No. 55567



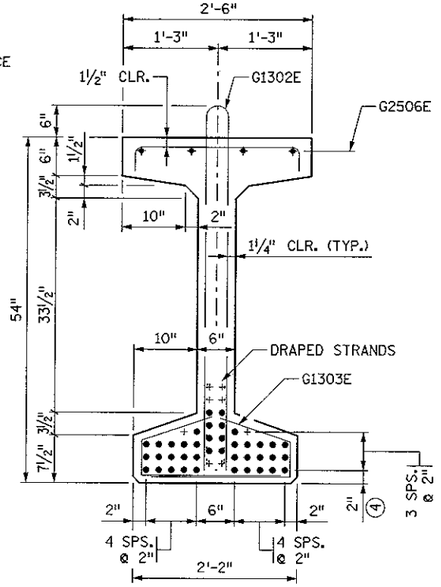

## END VIEW

CUT STRANDS FLUSH WITH CONCRETE. PAINT ENDS WITH AN APPROVED GRAY EPOXY EXCEPT AS NOTED.




## BEAM ELEVATION

INITIAL PRESTRESS
1757700 LB.

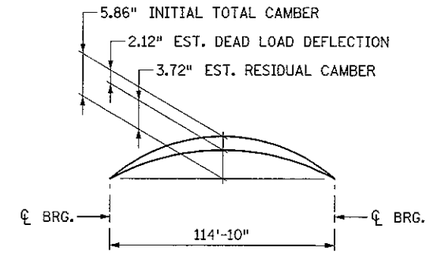



## SECTION AT ℄ SPAN

| Y DISTANCES (IN INCHES) | | | |
|---|---|---|---|
| | NO. | ℄ SPAN | END |
| STRAIGHT STRANDS | 32 | 4.25 | |
| DRAPED STRANDS | 8 | 8.00 | 47.00 ▫ |
| TOTAL STRANDS | 40 | 5.00 | |

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

▫ A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.

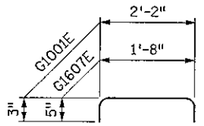



## CAMBER DIAGRAM

INITIAL CAMBER IS GIVEN AFTER DIAPHRAGMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, RAILING, SIDEWALK AND MEDIAN WHERE APPLICABLE.

ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.

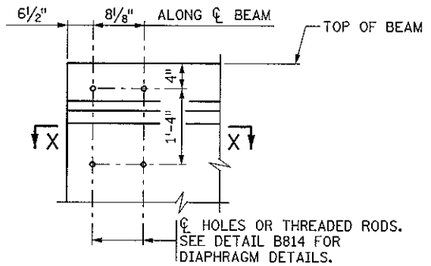



## G1001E & G1607E

AS-BUILT

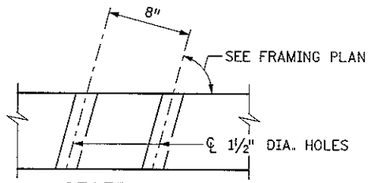
FEB 18 2005

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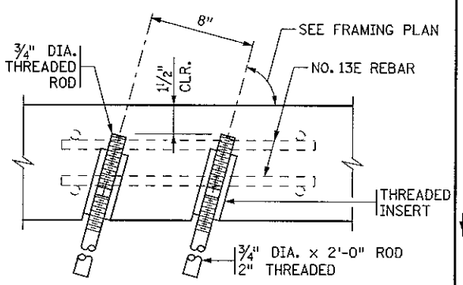

## CONCRETE END DIAPHRAGM

(PARAPET ABUTMENT)




## SECTION X-X

USE AT INTERIOR BEAMS WITH CONTINUOUS CONCRETE DIAPHRAGMS



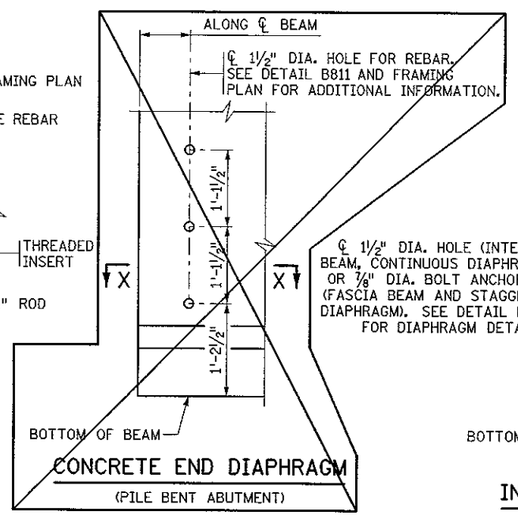

## SECTION X-X

USE AT FASCIA BEAMS

| MINIMUM CONCRETE STRENGTH - P.S.I. | | |
|---|---|---|
| | ① f'ci | ② f'c |
| REQUIRED MIN. CONCRETE STRENGTH | 7500 | 8500 |

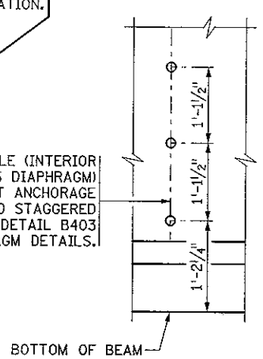
| PRESTRESSING STRAND DIAMETER | |
|---|---|
| ⑤ | ½" ☐ |
| ⑤ | 0.60" ☒ |

PLACE AN "X" IN THE APPROPRIATE BOX TO INDICATE THE STRAND DIAMETER USED FOR THE DESIGN.

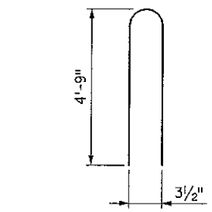



## CONCRETE END DIAPHRAGM

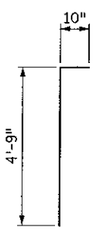
(PILE BENT ABUTMENT)



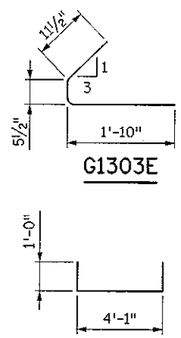

## STEEL INTERMEDIATE DIAPHRAGM




## G1302E




## G1608E




## G1303E

## G1605E

## GENERAL NOTES

TOPS OF BEAMS SHALL BE INTENTIONALLY ROUGHENED FOR BOND.

PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE Mn/DOT SPEC. 2405.

SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.

APPROXIMATE WEIGHT OF BEAM IS 42.4 TONS.

AS AN ALTERNATE TO THE DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.

① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.

② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.

③ DRAPED STRANDS.

④ STRAIGHT STRANDS.

⑤ PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A 416, GRADE 270.

⑥ PLACE 2-G1303E WITH STIRRUPS (6" MAX. SPG.)

REVISION: 02-11-00

APPROVED: NOVEMBER 6, 1995

Donald J. Flemming
STATE BRIDGE ENGINEER

CERTIFIED BY Gottfried Millner
GOTTFRIED MILLNER
PROFESSIONAL ENGINEER
LIC. NO. 19879 DATE: 07/03/2001

TITLE: 54" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 54M-116

BEAMS B1, B2, B3

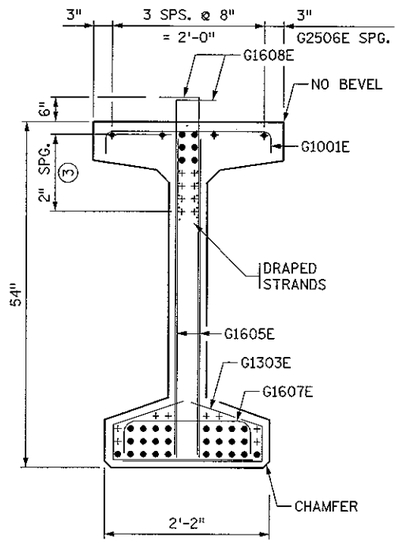
| DES: MJC | DR: MJC | APPROVED: |
|---|---|---|
| CHK: GM | CHK: GM | |

SHEET NO. 25 OF 37 SHEETS

FIG. 5-397.515

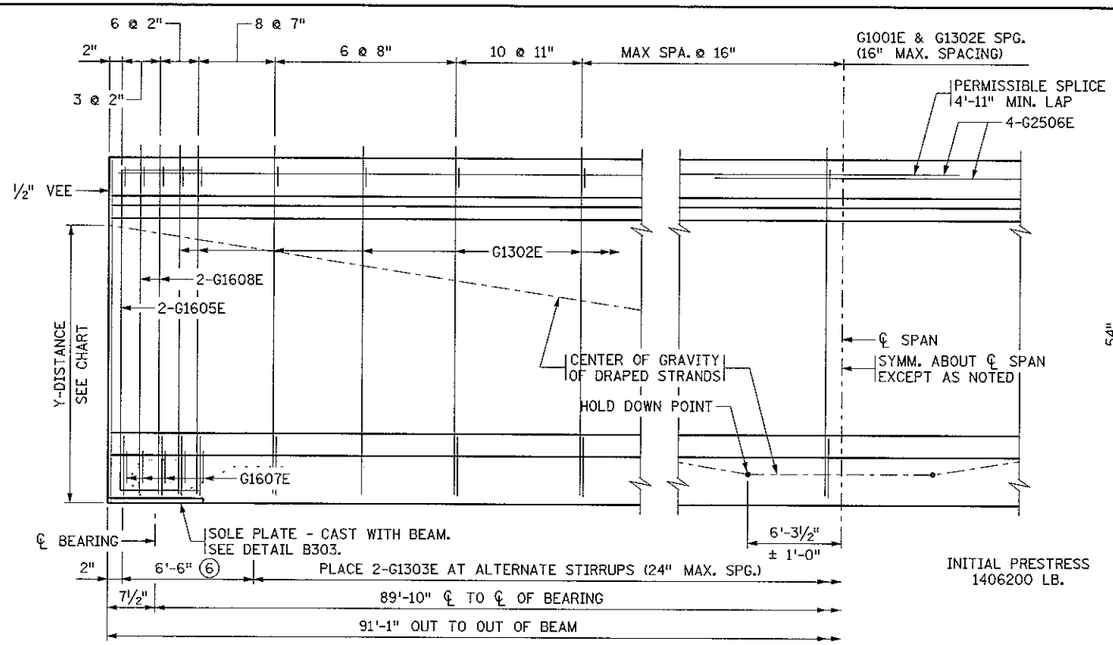
BRIDGE NO. 55567

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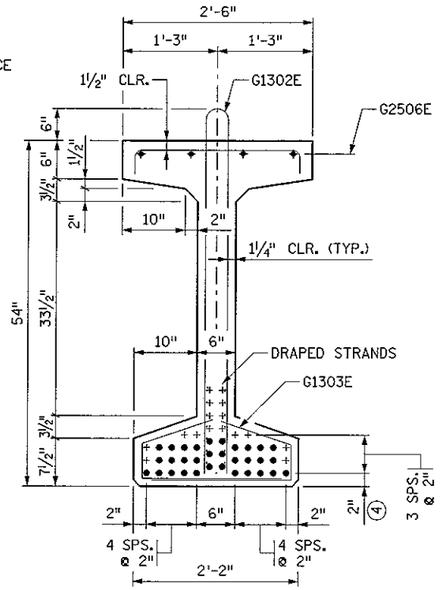

## END VIEW

CUT STRANDS FLUSH WITH CONCRETE. PAINT ENDS WITH AN APPROVED GRAY EPOXY EXCEPT AS NOTED.




## BEAM ELEVATION

INITIAL PRESTRESS
1406200 LB.

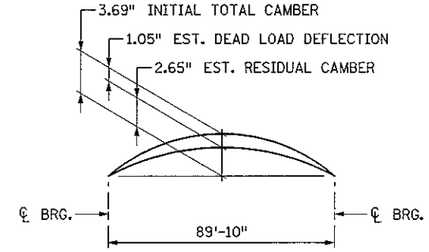



## SECTION AT ℄ SPAN

| Y DISTANCES (IN INCHES) | | | |
|---|---|---|---|
| | NO. | ℄ SPAN | END |
| STRAIGHT STRANDS | 26 | 3.85 | |
| DRAPED STRANDS | 6 | 5.00 | 48.00 ▫ |
| TOTAL STRANDS | 32 | 4.06 | |

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

▫ A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.

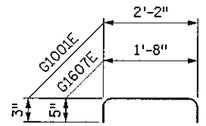



## CAMBER DIAGRAM

INITIAL CAMBER IS GIVEN AFTER DIAPHRAGMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, RAILING, SIDEWALK AND MEDIAN WHERE APPLICABLE.

ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.

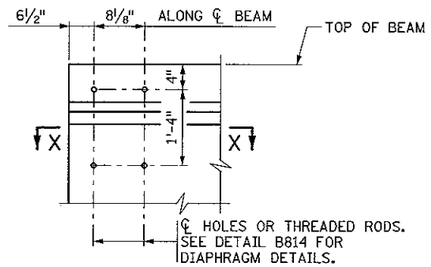



## G1001E & G1607E

AS-BUILT

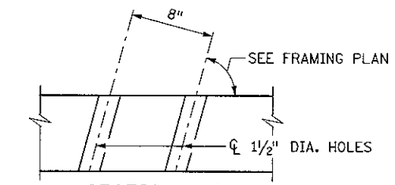
FEB 18 2005

ENGINEERING




## CONCRETE END DIAPHRAGM

(PARAPET ABUTMENT)



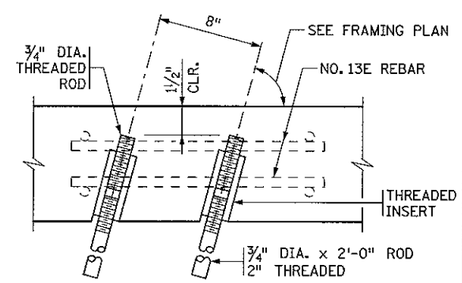

## SECTION X-X

USE AT INTERIOR BEAMS WITH CONTINUOUS CONCRETE DIAPHRAGMS

| MINIMUM CONCRETE STRENGTH - P.S.I. | | |
|---|---|---|
| | ① f'ci | ② f'c |
| REQUIRED MIN. CONCRETE STRENGTH | 7000 | 8500 |
| | | |

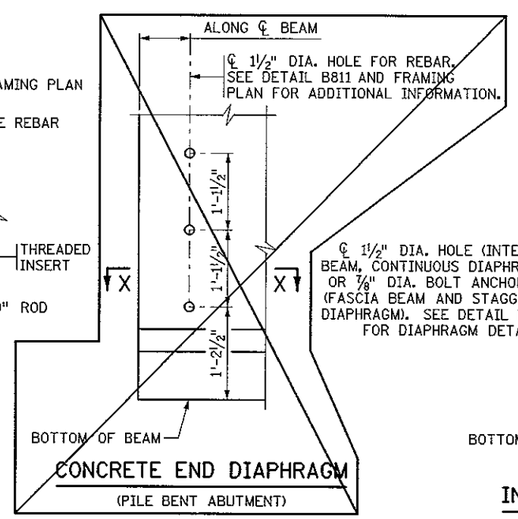
| PRESTRESSING STRAND DIAMETER | |
|---|---|
| ⑤ | ½" ☐ |
| ⑤ | 0.60" ☒ |

PLACE AN "X" IN THE APPROPRIATE BOX TO INDICATE THE STRAND DIAMETER USED FOR THE DESIGN.



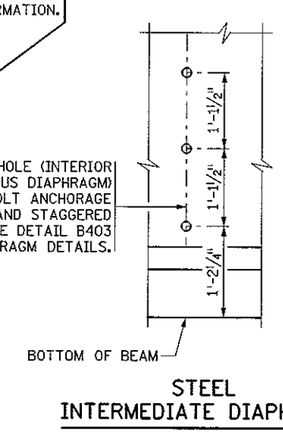

## SECTION X-X

USE AT FASCIA BEAMS

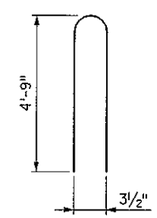



## CONCRETE END DIAPHRAGM

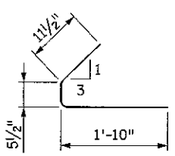
(PILE BENT ABUTMENT)




## STEEL INTERMEDIATE DIAPHRAGM




## G1302E




## G1608E




## G1303E




## G1605E

## GENERAL NOTES

TOPS OF BEAMS SHALL BE INTENTIONALLY ROUGHENED FOR BOND.

PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE Mn/DOT SPEC. 2405.

SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.

APPROXIMATE WEIGHT OF BEAM IS 33.2 TONS.

AS AN ALTERNATE TO THE DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.

① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.

② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.

③ DRAPED STRANDS.

④ STRAIGHT STRANDS.

⑤ PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A 416, GRADE 270.

⑥ PLACE 2-G1303E WITH STIRRUPS (6" MAX. SPG.)

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REVISION: 02-11-00

APPROVED: NOVEMBER 6, 1995

Donald J. Flemming
STATE BRIDGE ENGINEER

BEAMS B4, B5, B6 | FIG. 5-397.515

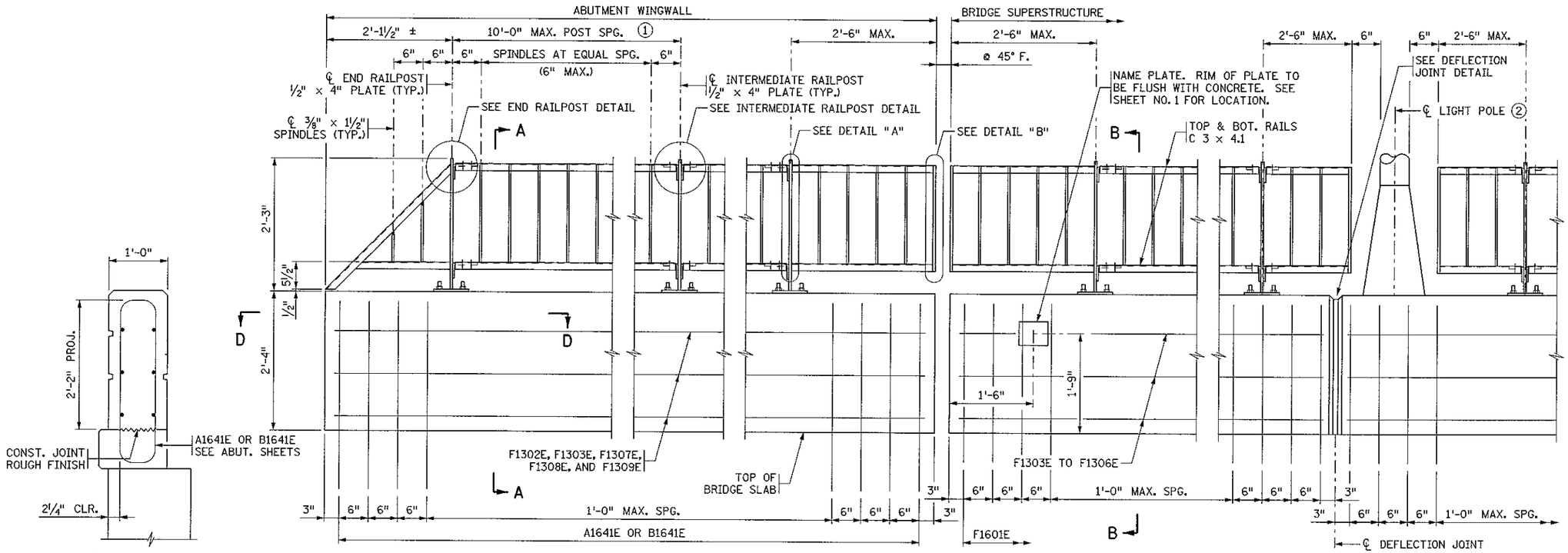
CERTIFIED BY Gottfried Millner
GOTTFRIED MILLNER
PROFESSIONAL ENGINEER
LIC. NO. 19879 DATE: 07/3/2001

TITLE: 54" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 54M-91

| DES: MJC | DR: MJC | APPROVED: | BRIDGE NO. 55567 |
|---|---|---|---|
| CHK: GM | CHK: GM | | |

SHEET NO. 26 OF 37 SHEETS

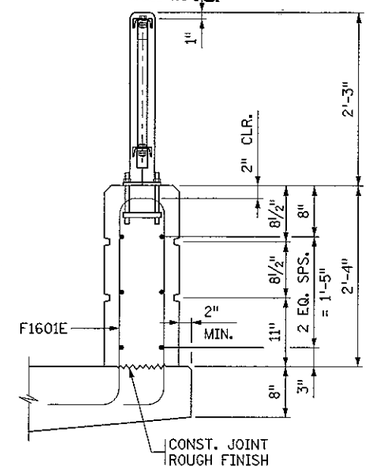
AS-BUILT
FEB 18 2005
ENGINEERING







SECTION A-A




SECTION B-B

EXPANSION JOINT

EXP. DEVICE NOT SHOWN

INSIDE ELEVATION OF RAILING

DEFLECTION JOINT

## GENERAL NOTES

LENGTH OF "TYPE P-1 RAILING CONCRETE (3Y46)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE RAILING.

LENGTH OF "METAL RAILING FOR BIKEWAYS, TYPE M-1" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE RAILING.

CONCRETE PARAPET = 350 LBS./FT. (0.086 CU. YDS./FT.)

FINISH ALL EDGES OF CONCRETE PARAPET WITH ½" VEE, EXCEPT WHERE OTHERWISE NOTED.

MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.

SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF METAL RAILING. SET NORMAL TO GRADE.

DRILLED IN ANCHORAGES WILL BE PERMITTED IN LIEU OF ANCHORAGE SHOWN.

RAILPOSTS AND SPINDLES SHALL BE NORMAL TO GRADE.

ALL STRUCTURAL STEEL MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3306.

GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

GALVANIZE ALL OTHER STRUCTURAL STEEL PER Mn/DOT SPEC. 3394 AFTER FABRICATION.

ALL RAILING MEMBERS SHALL BE FLAT AFTER FABRICATION AND GALVANIZING TO WITHIN ⅛" IN 10 FT. VERTICALLY AND HORIZONTALLY BY MECHANICAL MEANS WITHOUT DAMAGE TO THE ZINC COATING.

SEE SPECIAL PROVISIONS FOR PAINT TO BE APPLIED TO METAL RAILING.

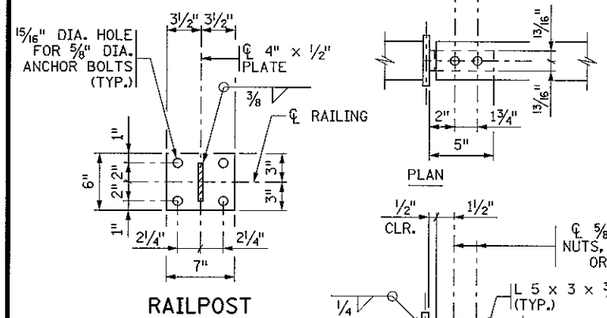
GUARDRAIL CONNECTION TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

PRICE BID FOR METAL RAILING INCLUDES ANCHORAGES AND ALL MATERIAL ABOVE TOP OF CONCRETE PARAPET.

RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

(1) SPACE LIGHT AND RAILPOST ANCHORAGE TO CLEAR REINFORCEMENT IN CONCRETE PARAPET.

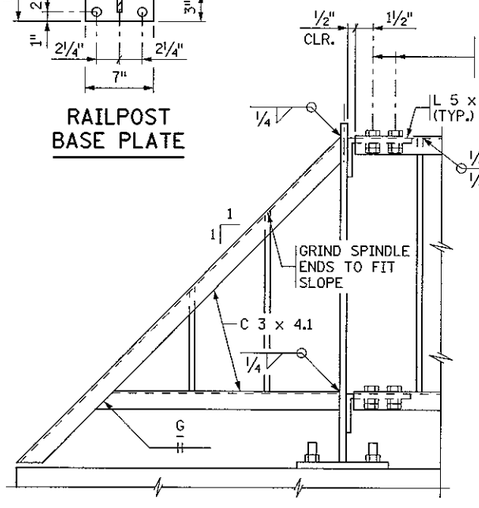
(2) SEE STANDARD BRIDGE DETAIL B950 FOR LIGHT POLE ANCHORAGE IF REQUIRED.




RAILPOST BASE PLATE



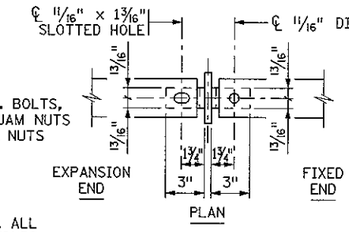

PLAN



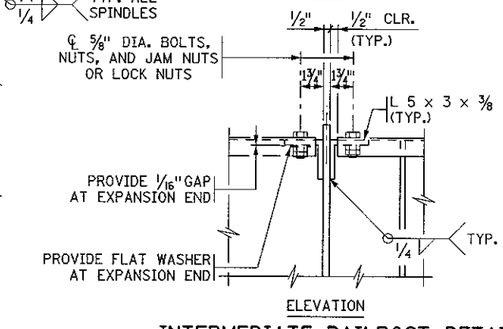

ELEVATION

END RAILPOST DETAIL

TOP AND BOTTOM RAIL CONNECTIONS SIMILAR



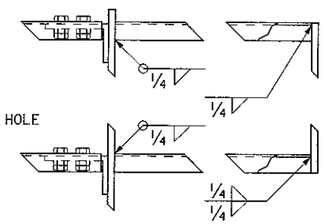

PLAN



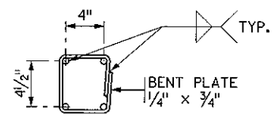

ELEVATION

INTERMEDIATE RAILPOST DETAIL

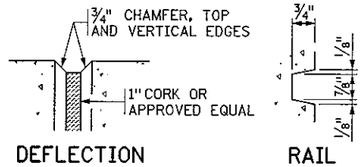
TOP AND BOTTOM RAIL CONNECTIONS SIMILAR




DETAIL "A" DETAIL "B"

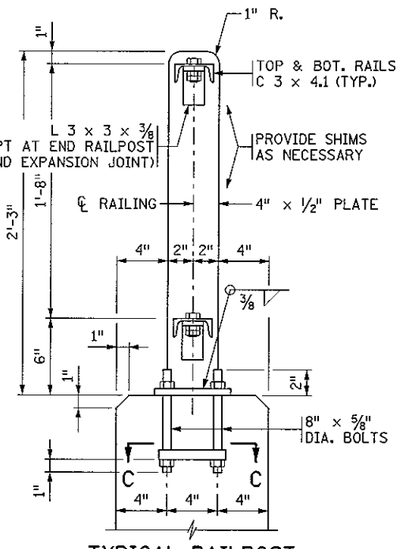



SECTION C-C




DEFLECTION JOINT DETAIL

RAIL RUSTICATION




TYPICAL RAILPOST

SPINDLE NOT SHOWN

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DATE: 07/03/01 TIME: 02:29:45 PM

REVISION: 11-08-00

APPROVED: SEPTEMBER 18, 1989
Donald J. Flemming
STATE BRIDGE ENGINEER

CERTIFIED BY Gottfried Millner 07/03/2001
LICENSED PROFESSIONAL ENGINEER DATE
NAME: GOTTFRIED MILLNER LIC. NO. 19879

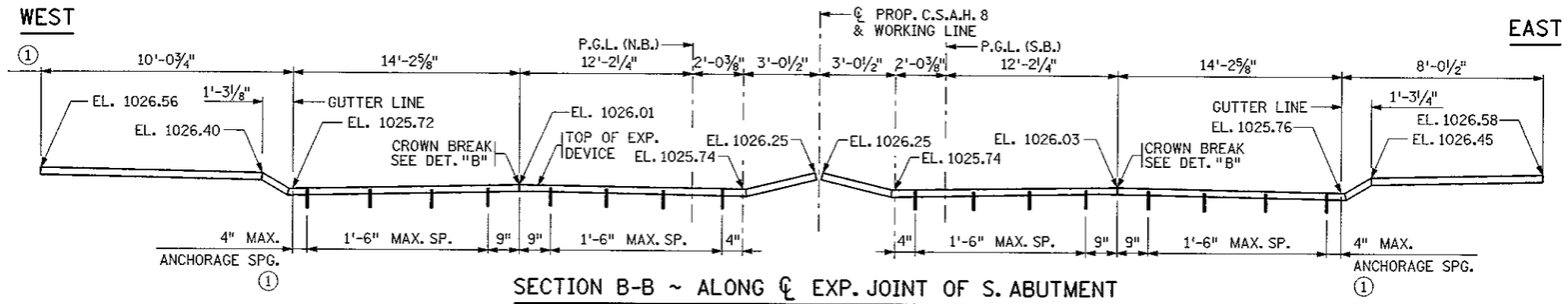
TITLE: METAL RAILING FOR BIKEWAYS (TYPE M-1) AND CONCRETE PARAPET (TYPE P-1) (WITH INTEGRAL END POST)

| DES: MJC | DR: MJC | APPROVED: MODIFIED |
|---|---|---|
| CHK: GM | CHK: GM | |

SHEET NO. 27 OF 37 SHEETS

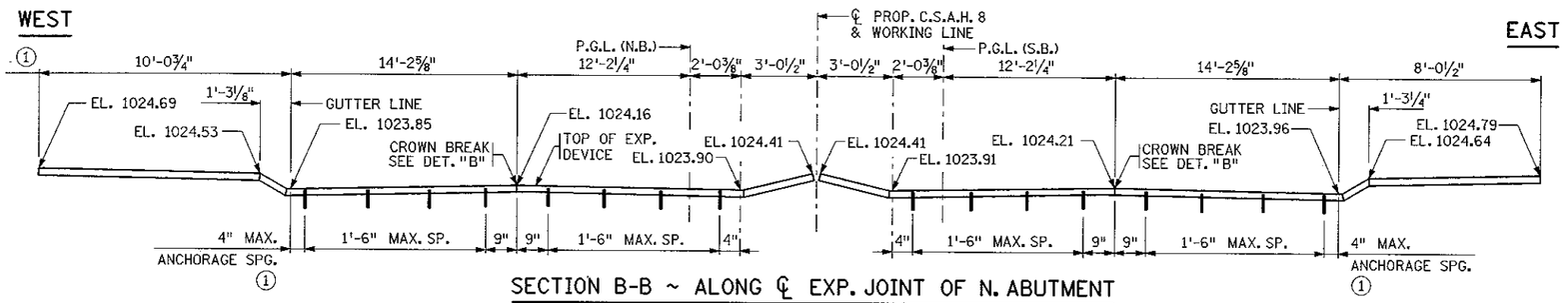
FIG. 5-397.154

BRIDGE NO. 55567



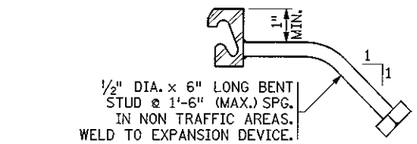

## SECTION B-B ~ ALONG ℄ EXP. JOINT OF S. ABUTMENT

ELEVATIONS SHOWN ARE ⅛" BELOW TOP OF SLAB @ ℄ JOINT

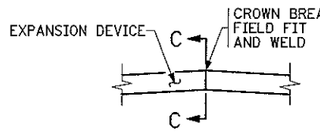



## SECTION B-B ~ ALONG ℄ EXP. JOINT OF N. ABUTMENT

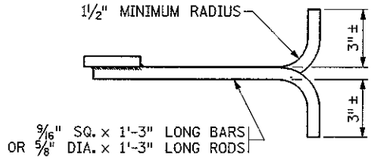
ELEVATIONS SHOWN ARE ⅛" BELOW TOP OF SLAB @ ℄ JOINT



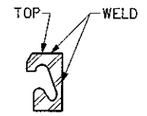

BENT STUD DETAIL




DETAIL "B"




BAR-ROD DETAIL




SECTION C-C

AS-BUILT

FEB 1 8 2005

ENGINEERING

## GENERAL NOTES

GALVANIZE STRUCTURAL STEEL AFTER FABRICATION AS PER MnDOT SPEC. 3394. GALVANIZE FASTENERS AS PER MnDOT SPEC. 3392.

JOINTS IN EXTRUSION SHALL BE LOCATED AT BREAKS IN TRANSVERSE PROFILE AND AS OTHERWISE REQUIRED. JOINTS SHALL BE CLOSE FIT AND WELDED. REPAIR AFTER WELDING AS PER MnDOT SPEC. 2471.3L.

STRUCTURAL STEEL SHALL COMPLY WITH MnDOT SPEC. 3306 OR MnDOT SPEC. 3309.

EXPANSION DEVICE SHALL BE STRAIGHTENED TO A TOLERANCE OF ⅛" IN 10 FT.

CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.

LENGTH OF PAYMENT FOR DEVICE IS FROM OUT TO OUT OF EXTRUSION ALONG CENTERLINE OF JOINT.

① DIMENSIONS ARE ALONG CENTERLINE OF JOINT.

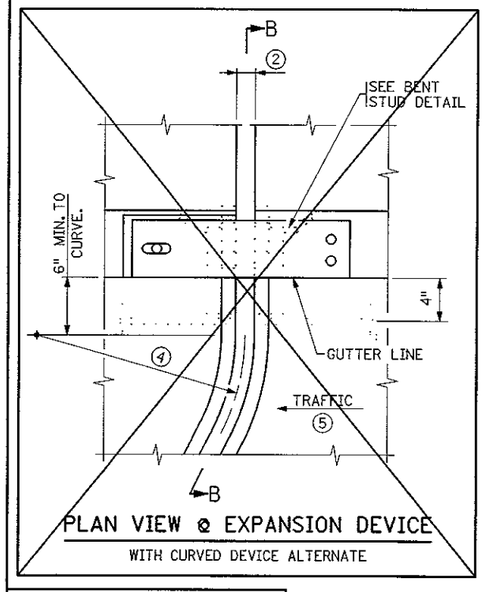
② 2" AT 45°F; 1⅝" AT 90°F

③ ⅛" (¼" MAX.). ½" (⅝" MAX.) WHEN SNOWPLOW FINGERS ARE USED. SNOWPLOW FINGERS ARE REQUIRED FOR SKEWS OVER 15° AND LESS THAN 50°.

~~④ SEE SUPERSTRUCTURE DETAILS FOR RADIUS.~~

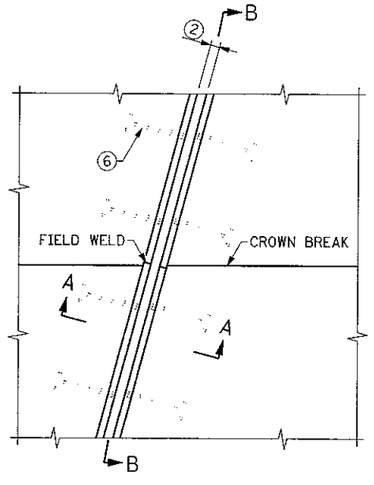
⑤ SEE SHEET NO. 1 FOR DIRECTION OF TRAFFIC.

⑥ PLACE BAR-ROD NORMAL TO JOINT ON NEW BRIDGES AND JOINT REPLACEMENTS. ON JOINT REPLACEMENTS WHEN SKEW IS OVER 15° AND LESS THAN 50° BEND RODS PARALLEL TO ℄ ROADWAY.



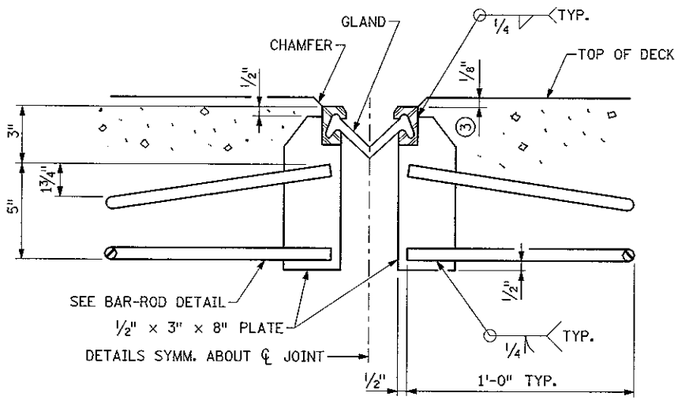

PLAN VIEW @ EXPANSION DEVICE

WITH CURVED DEVICE ALTERNATE




PLAN VIEW @ EXPANSION DEVICE

WITH STRAIGHT DEVICE




SECTION A-A

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REVISION: 05-01-00

APPROVED: NOVEMBER 6, 1995

Donald J. Flemming
STATE BRIDGE ENGINEER

MODIFIED

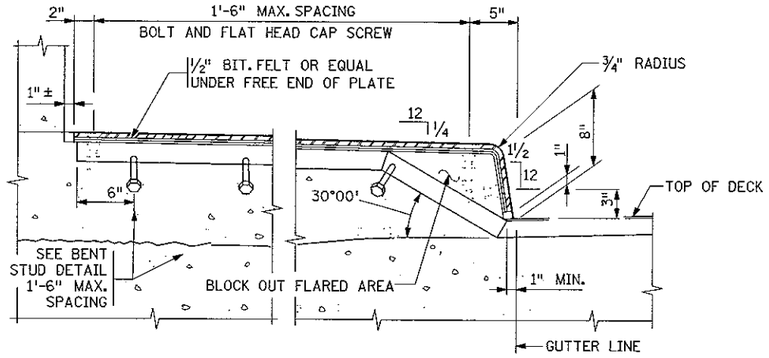
FIG. 5-397.627

CERTIFIED BY Gottfried Millner
GOTTFRIED MILLNER
PROFESSIONAL ENGINEER
LIC. NO. 19879 DATE: 07/03/2001

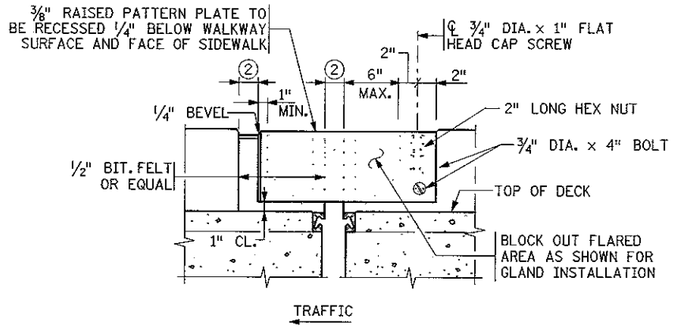
TITLE: WATERPROOF EXPANSION DEVICE

| DES: GM | DR: GM | APPROVED: MODIFIED | BRIDGE NO. 55567 |
|---|---|---|---|
| CHK: MJC | CHK: MJC | | |

SHEET NO. 28 OF 37 SHEETS

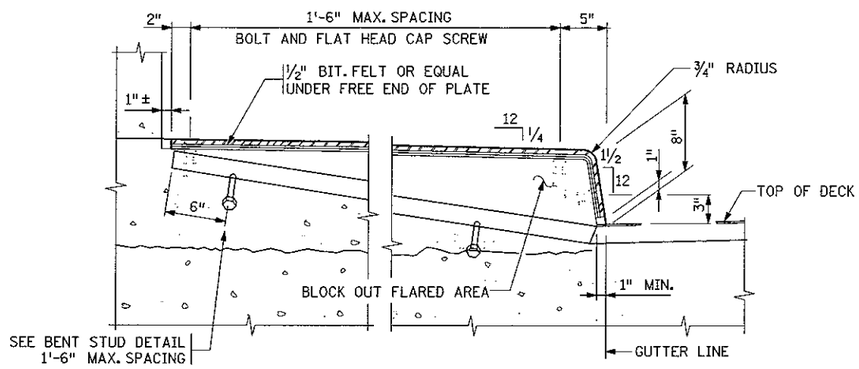



SECTION THROUGH SIDEWALK - OPTION 1

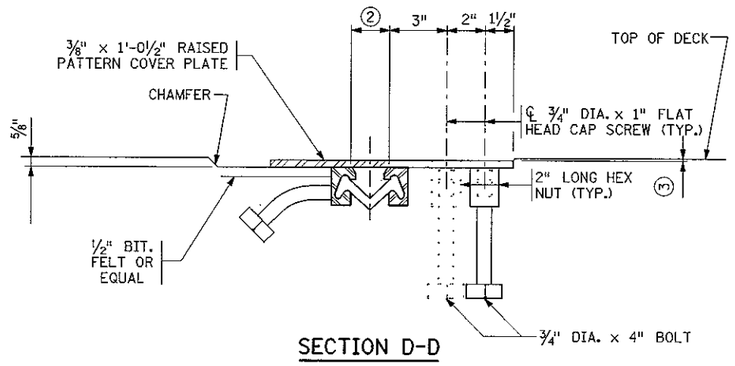



ELEVATION

SIDEWALK DETAILS

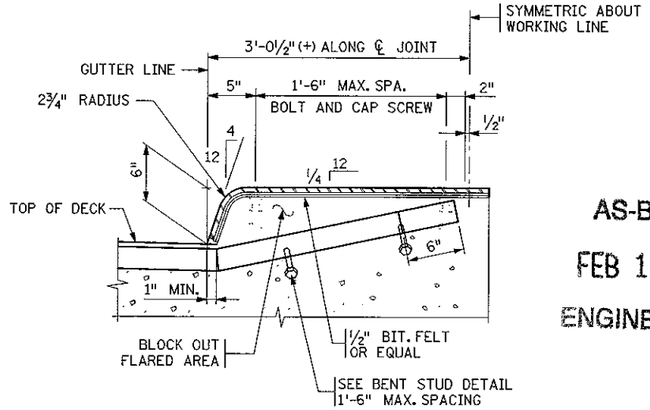



SECTION THROUGH SIDEWALK - OPTION 2



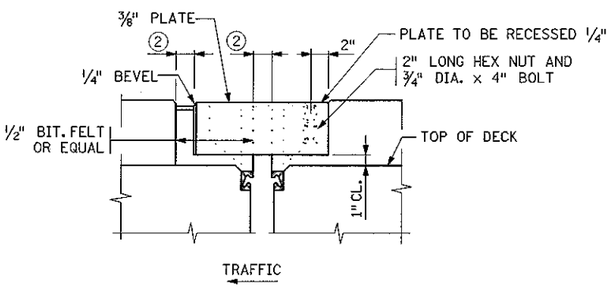

SECTION D-D

NOTE:
TRANSVERSE DECK REINFORCEMENT MAY BE SHIFTED THE MINIMUM DISTANCE REQUIRED FOR EXPANSION DEVICE PLACEMENT




MEDIAN SECTION

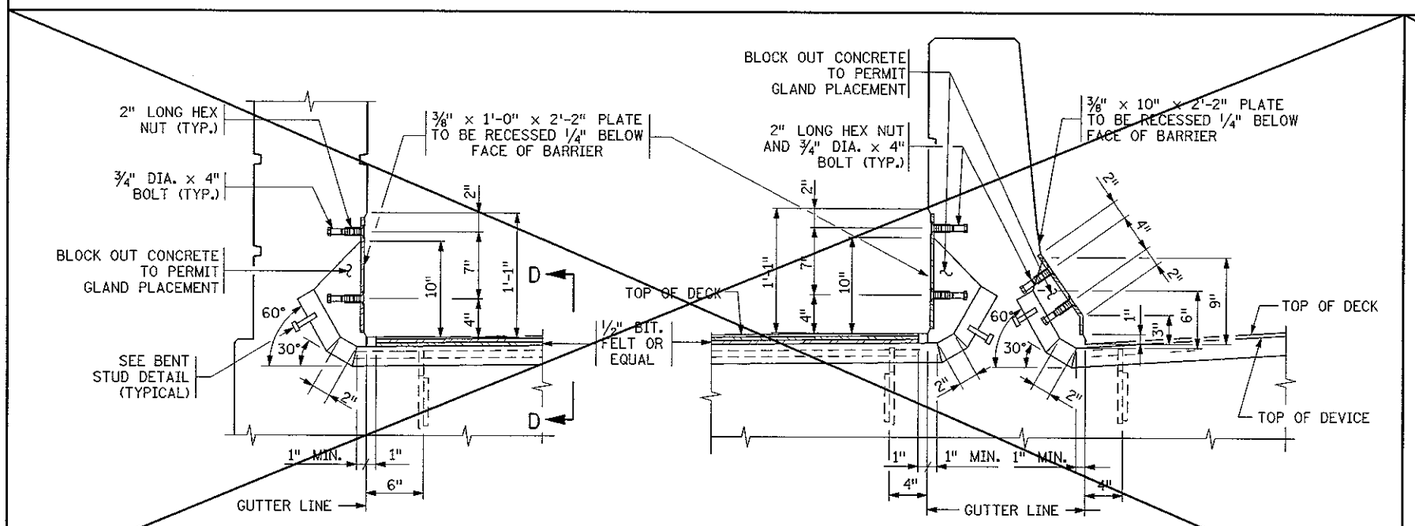
AS-BUILT
FEB 18 2005
ENGINEERING



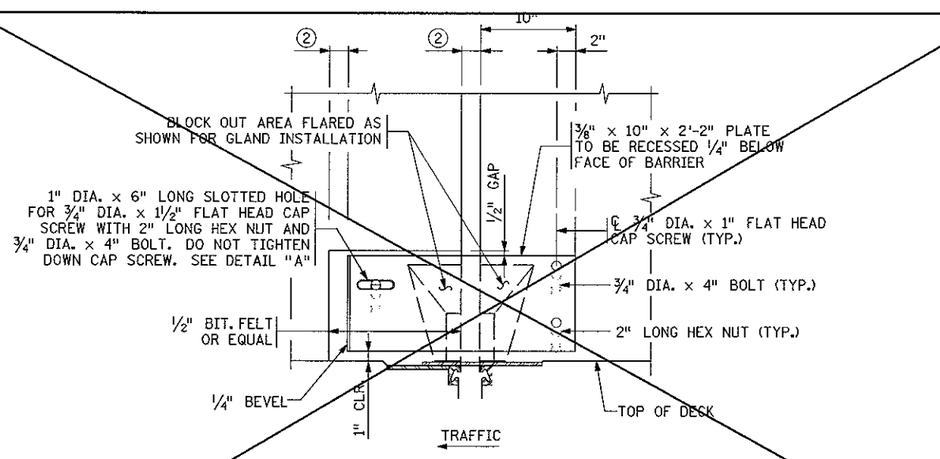

MEDIAN ELEVATION

GENERAL NOTE

SEE DETAIL 5-397.627 FOR ADDITIONAL DETAILS AND NOTES.




SECTION THROUGH RAILINGS - INTEGRAL SIDEWALK




INSIDE ELEVATION

(CONCRETE PARAPET RAILING & BACK OF TYPE F RAIL)

FILENAME: k:\stfe\proj\cll25\cssht\dwg\bridge\sdwlksht.dgn
DATE: 07/03/01 TIME: 02:29:58 PM

REVISION: 05-01-00

APPROVED: NOVEMBER 6, 1995
Donald J. Flemming
STATE BRIDGE ENGINEER

CERTIFIED BY Gottfried Millner
GOTTFRIED MILLNER
PROFESSIONAL ENGINEER
LIC. NO. 19879 DATE: 07/03/2001

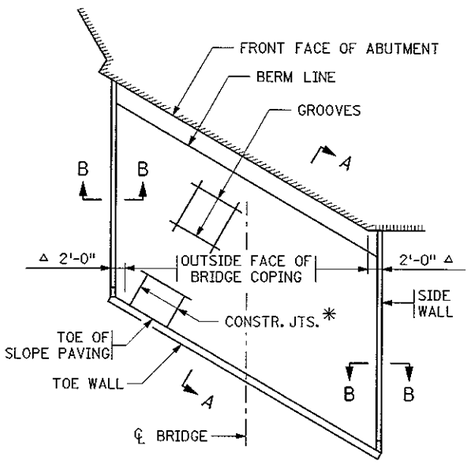
TITLE: WATERPROOF EXPANSION DEVICE
WITH RAISED MEDIAN OR SIDEWALK

| DES: GM | DR: GM | APPROVED: MODIFIED |
|---|---|---|
| CHK: MJC | CHK: MJC | |

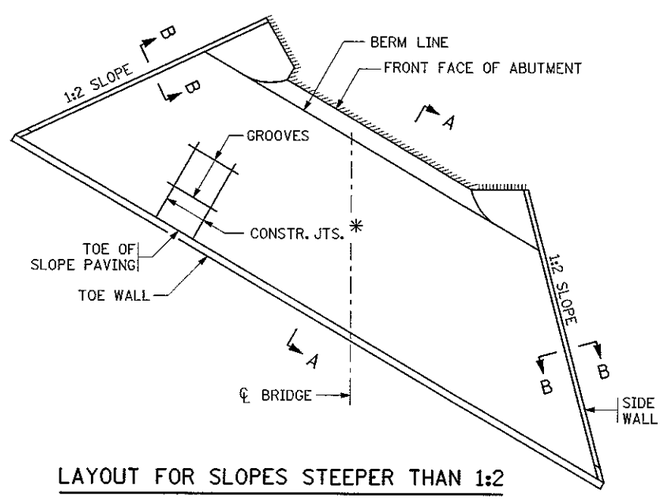
SHEET NO. 29 OF 37 SHEETS

FIG. 5-397.630

BRIDGE NO. 55567



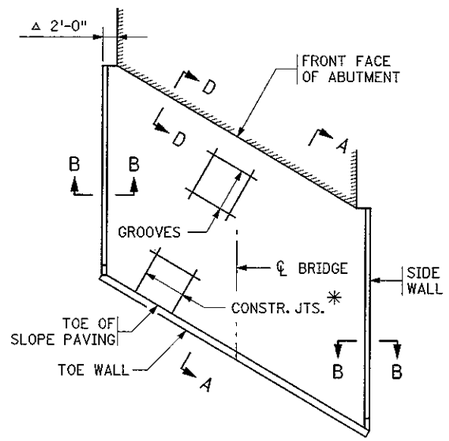

LAYOUT FOR SLOPES
1:2 OR FLATTER



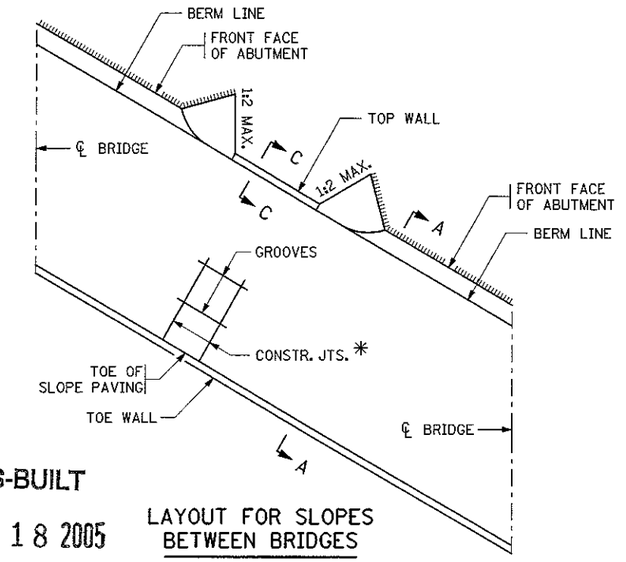

LAYOUT FOR SLOPES STEEPER THAN 1:2

△ 2'-0" FOR TANGENT BRIDGE SUPERSTRUCTURES. VARIES 2'-0" MINIMUM FOR CURVED BRIDGE SUPERSTRUCTURE.

✳ VERTICAL CONSTRUCTION JOINTS MAY BE CONSTRUCTED PARALLEL TO ℄ OF BRIDGE FOR SKEWS TO 10° ONLY.




LAYOUT FOR SLOPES
AT HIGH ABUTMENTS

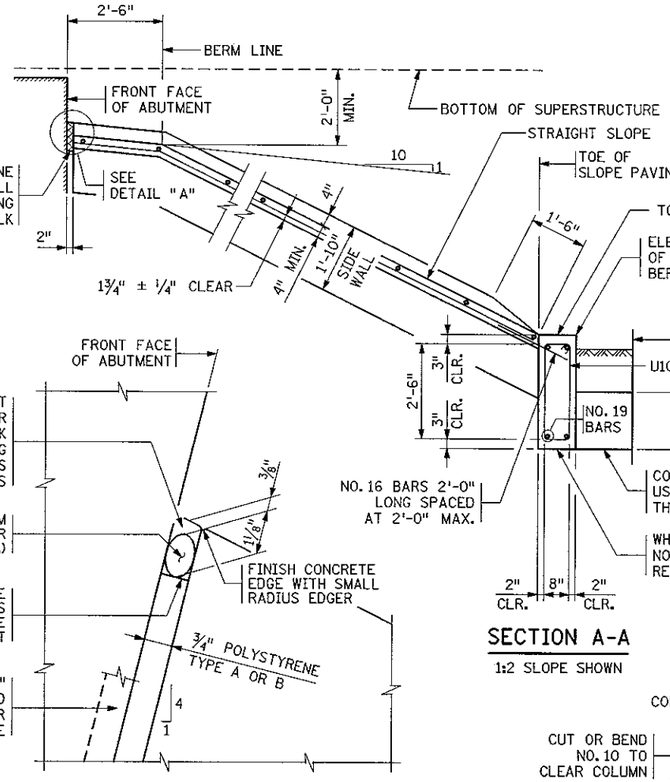



LAYOUT FOR SLOPES
BETWEEN BRIDGES

AS-BUILT

FEB 1 8 2005

ENGINEERING



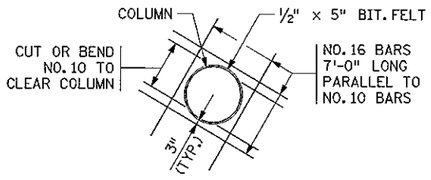

SECTION A-A

1:2 SLOPE SHOWN

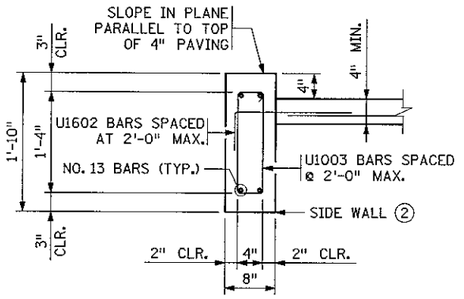



SECTION D-D

HIGH ABUTMENTS WITH RUSTICATION

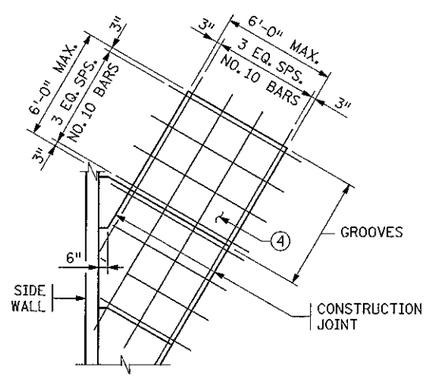



DETAIL WHERE PIER COLUMN
EXTENDS THROUGH SLOPE PAVING

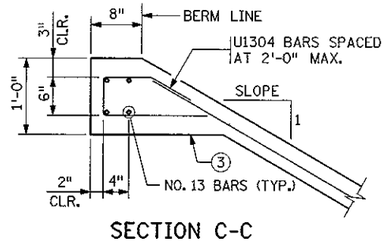



SECTION B-B

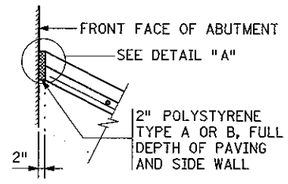
NORMAL TO SLOPE




PAVING DETAIL

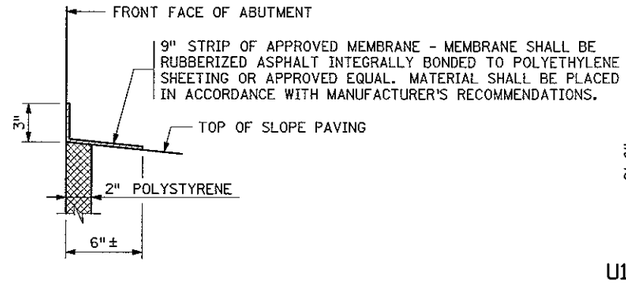



SECTION C-C




SECTION D-D

HIGH ABUTMENTS WITHOUT RUSTICATION

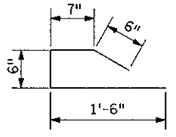



DETAIL "A"

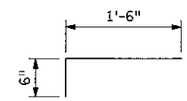
SLOPE PAVING AS PER MnDOT SPEC. 2514.




U1001 & U1003




U1304




U1602

## CONCRETE & REINFORCEMENT UNIT QUANTITIES

① 0.111 CU. YD. OF CONCRETE/LIN. FT.
8.37 LBS. OF REINFORCEMENT/LIN FT.

② 0.046 CU. YD. OF CONCRETE/LIN. FT.
4.46 LBS. OF REINFORCEMENT/LIN FT.

③ 0.058 CU. YD. OF CONCRETE/LIN. FT.
3.70 LBS. OF REINFORCEMENT/LIN FT.
BASED ON A SLOPE OF 1:2.

④ 0.111 CU. YD. OF CONCRETE/SQ. YD.
4.50 LBS. OF REINFORCEMENT/SQ. YD.

## GENERAL NOTE

SLOPES ARE EXPRESSED AS A RATIO OF VERTICAL DISTANCE: HORIZONTAL DISTANCE.

REVISION: 05-01-00

APPROVED: APRIL 17, 1985
KEITH V. BENTHIN
STATE BRIDGE ENGINEER

CERTIFIED BY Gottfried Millner
GOTTFRIED MILLNER
PROFESSIONAL ENGINEER
LIC. NO. 19879 DATE: 07/03/2001

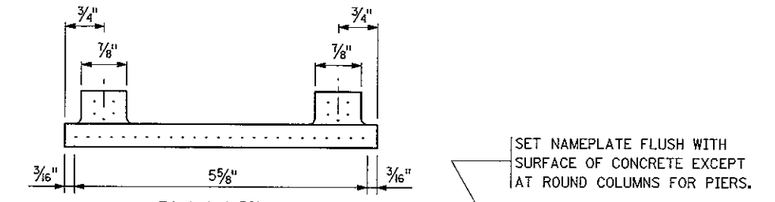
CONCRETE SLOPE PAVING UNDER BRIDGES

| DES: MJC | DR: MJC | APPROVED: MODIFIED | BRIDGE NO. 55567 |
|---|---|---|---|
| CHK: GM | CHK: GM | | |

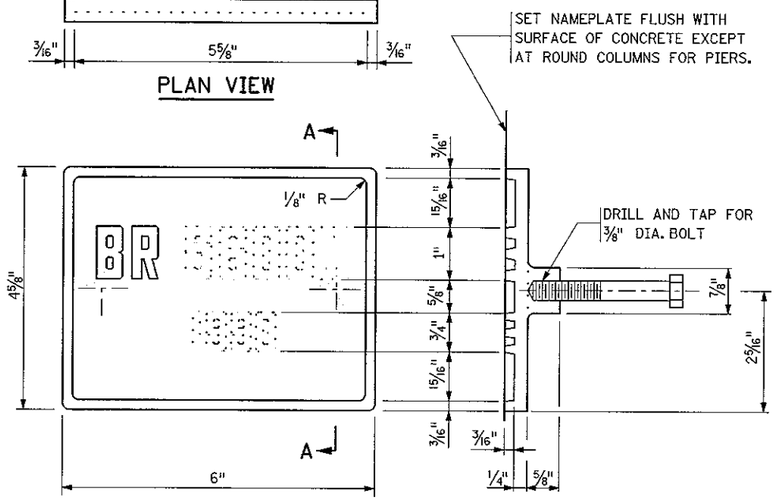
SHEET NO. 30 OF 37 SHEETS

FIG. 5-397.301

FILENAME: k:\stte\proj\oll25\rosab\dwg\bridge\f1g7301e.dgn
DATE: 07/03/01 TIME: 02:30:05 PM




PLAN VIEW



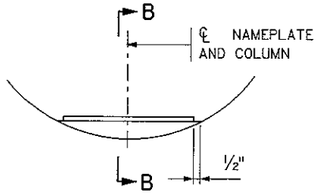

ELEVATION

SECTION A-A

THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

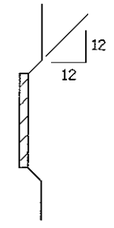
BRIDGE 55567

YEAR 2001




NAMEPLATE PLACEMENT

(ROUND CONCRETE PIER COLUMNS)




SECTION B-B




NUMBERS FOR NAMEPLATE

## NOTES:

NO SHOP DRAWING REQUIRED.

MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3327.

LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.

DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".

HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.

TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.

FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.

ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

| APPROVED: JULY 30, 1999 | STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION | REVISION | DETAIL NO. |
|---|---|---|---|
| Donald J. Flemming<br>STATE BRIDGE ENGINEER | BRIDGE NAMEPLATE<br>(FOR NEW BRIDGES) | | B101 |

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

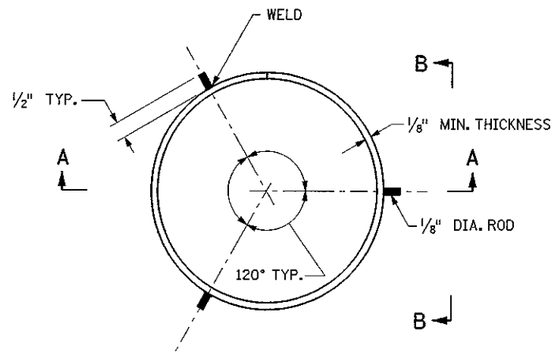
TKDA — ENGINEERS • ARCHITECTS • PLANNERS — TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED — SAINT PAUL, MINNESOTA

Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: STD. DETAILS B101 & B201

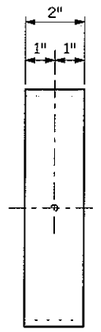
| DES: MJC | DR: MJC | APPROVED | Bridge No. |
|---|---|---|---|
| CHK: GM | CHK: GM | | 55567 |

Sheet No. 31 of 37 Sheets



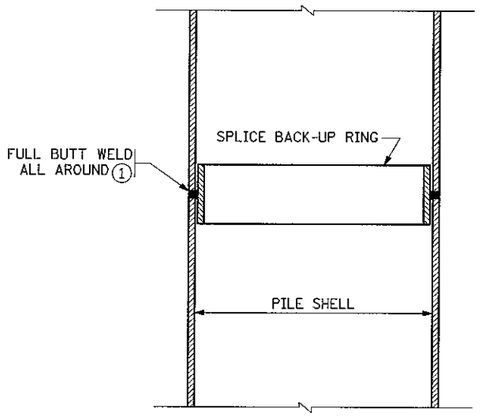

PLAN VIEW SPICE

( PILE NOT SHOWN )




SECTION B-B

( PILE NOT SHOWN )




SECTION A-A

AS-BUILT

FEB 18 2005

ENGINEERING

## NOTES:

APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED. BACK-UP RING SHALL HAVE A TIGHT FIT.

WELDING ELECTRODE SHALL BE A.W.S. TYPE E7016 OR E7018 ( LOW-HYDROGEN ).

LOW-HYDROGEN ELECTRODES SHALL BE SUPPLIED IN HERMETICALLY ( AIR-TIGHT ) SEALED CONTAINERS.

LOW-HYDROGEN ELECTRODES SHALL BE STORED IN HOLDING OVENS AT A TEMPERATURE OF NOT LESS THAN 250° F.

LOW-HYDROGEN ELECTRODES SHALL BE PLACED IN A HOLDING OVEN FOR AT LEAST 8 HOURS IF THEY HAVE BEEN EXPOSED TO THE ATMOSPHERE FOR MORE THAN 2 HOURS.

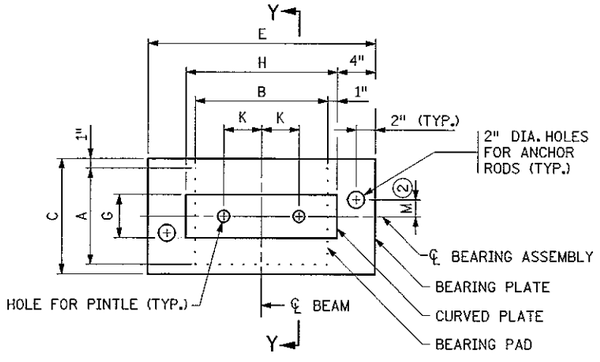
ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.

WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

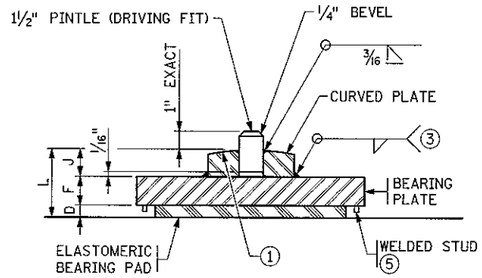
(1) FOR PILE SHELL THICKNESSES GREATER THAN 1/2", USE A B-U4a WELD CONFIGURATION.

| APPROVED: JULY 30, 1999 | STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION | REVISION | DETAIL NO. |
|---|---|---|---|
| Donald J. Flemming<br>STATE BRIDGE ENGINEER | PILE SPLICE<br>(CAST-IN-PLACE CONCRETE PILES) | | B201 |

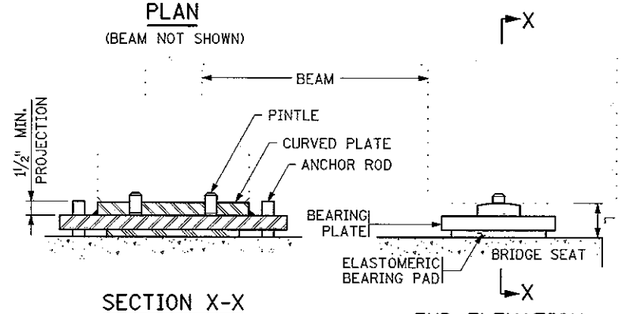
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DATE: 07/03/01 TIME: 02:30:11 PM




PLAN
(BEAM NOT SHOWN)

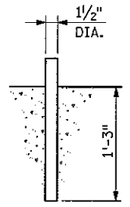



SECTION Y-Y
(ENLARGED)




SECTION X-X

END ELEVATION
(ANCHOR RODS NOT SHOWN)




ANCHOR ROD DETAIL

| TABLE | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASSEMBLY TYPE | LOCATION | BEAM SIZE | BEARING PAD SIZE | | | SHAPE FACTOR | BEARING PLATE SIZE | | | CURVED PLATE SIZE | | | PINTLE DIA. | PINTLE DISTANCE | ANCHOR ROD OFFSET | ASSY. HEIGHT |
| | | | A | B | D | | C | E | F | G | H | J | | K ④ | M ② | L |
| F1 | PIER | 54M | 10 | 24 | ½ | 7.1 | 12 | 34 | 1 | 4½ | 26 | 1¼ | 1½ | 8 | 2⅝ | 2¾ |

## NOTES:

ELASTOMERIC MATERIALS & PAD CONSTRUCTION SHALL COMPLY WITH Mn/DOT SPEC. 3741.

ALL STEEL PLATES SHALL COMPLY WITH Mn/DOT SPEC. 3306.

ANCHOR RODS SHALL COMPLY WITH Mn/DOT SPEC. 3306. GALVANIZE PER Mn/DOT SPEC. 3394.

PINTLES SHALL COMPLY WITH Mn/DOT SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER MnDOT SPEC. 3394, EXCEPT AS NOTED.

PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL.

① THE RADIUS OF THE CURVED PLATE SHALL BE 1'-4" MINIMUM AND 2'-0" MAXIMUM. FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1⁄16" LESS THAN SHOWN.

② OFFSET MAY BE OPPOSITE OF THAT SHOWN. SEE ANCHOR ROD LAYOUT FOR DETAILS.

③ WELDING PER Mn/DOT SPEC. 2471.

④ SEE DETAIL B303 FOR PINTLE DISTANCE K.

⑤ 5⁄16" DIA. × ⅜" KNOCK-OFF WELD STUDS INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. CENTERLINE STUD TO EDGE OF PAD DIMENSION = ½", MAX. STUD SPACING = 4".

## DESIGN DATA:

MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1½" PINTLES.

| APPROVED: JULY 30, 1999 | STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION | REVISION | DETAIL NO. |
|---|---|---|---|
| Donald J. Flemming<br>STATE BRIDGE ENGINEER | CURVED PLATE BEARING ASSEMBLY<br>(PRESTRESSED CONCRETE BEAMS)<br>(FIXED) | | B310 |

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

TKDA — TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
ENGINEERS • ARCHITECTS • PLANNERS — SAINT PAUL, MINNESOTA

Olmsted County
C.S.A.H. 8
S.P. 55-608-11

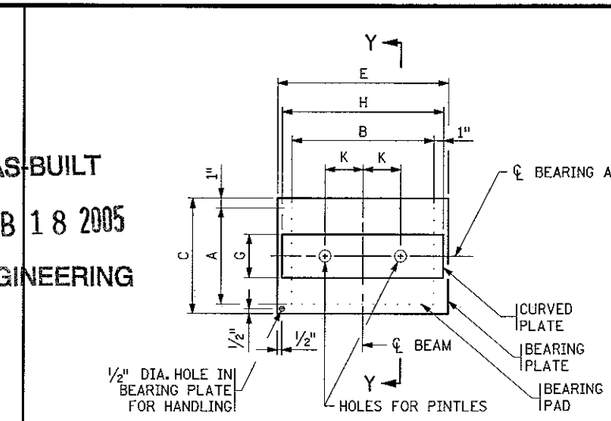
TITLE: STD. BEARING DETAILS B310 & B311

| DES: MJC | DR: MJC | APPROVED | Bridge No. |
|---|---|---|---|
| CHK: GM | CHK: GM | | 55567 |

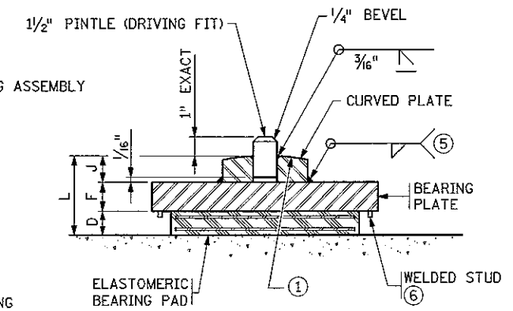
Sheet No. 32 of 37 Sheets

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DATE: 07/03/01 TIME: 02:30:33 PM

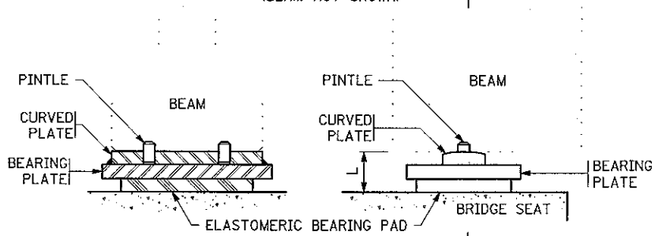
AS-BUILT
FEB 18 2005
ENGINEERING




PLAN
(BEAM NOT SHOWN)

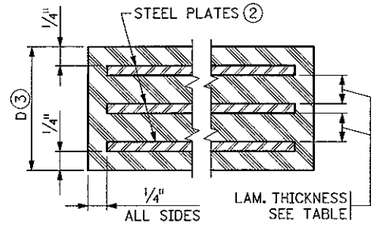



SECTION Y-Y
(ENLARGED BEARING ASSEMBLY)




SECTION X-X

END ELEVATION




SECTION THRU BEARING PAD

| TABLE | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASSEMBLY TYPE | LOCATION | BEAM SIZE | BEARING PAD SIZE | | | STEEL PLATES | | LAMINATES | | SHAPE FACTOR | BEARING PLATE SIZE | | | CURVED PLATE SIZE | | | PINTLE DIA. | PINTLE DISTANCE | ASSY. HEIGHT |
| | | | A | B | D | NO. | THICK. | NO. | THICK. | | C | E | F | G | H | J | | K ④ | L |
| E1 | SO. ABUT. | 54M | 10 | 24 | 2½ | 4 | ⅛ | 3 | ½ | 7.1 | 12 | 27 | 1⅛ | 4½ | 26 | 1⅜ | 1½ | 8 | 5 |
| E2 | PIER | 54M | 10 | 24 | 1¼ | 2 | ⅛ | 1 | ½ | 7.1 | 12 | 27 | 1⅛ | 4½ | 26 | 1⅜ | 1½ | 8 | 3¾ |
| E3 | NO. ABUT. | 54M | 10 | 24 | 1⅛ | 3 | ⅛ | 2 | ½ | 7.1 | 12 | 27 | 1⅛ | 4½ | 26 | 1⅜ | 1½ | 8 | 4⅜ |

## NOTES:

ELASTOMERIC MATERIALS & PAD CONSTRUCTION SHALL COMPLY WITH Mn/DOT SPEC. 3741.

ALL STEEL PLATES SHALL COMPLY WITH Mn/DOT SPEC. 3306

PINTLES SHALL COMPLY WITH Mn/DOT SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER Mn/DOT SPEC. 3394, EXCEPT AS NOTED.

PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL.

① THE RADIUS OF THE CURVED PLATE SHALL BE 1'-4" MINIMUM AND 2'-0" MAXIMUM. FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1⁄16" LESS THAN SHOWN.

② DO NOT GALVANIZE THESE PLATES.

③ THE TOTAL THICKNESS SHOWN INCLUDES THE STEEL PLATES.

④ SEE DETAIL B303 FOR PINTLE DISTANCE K.

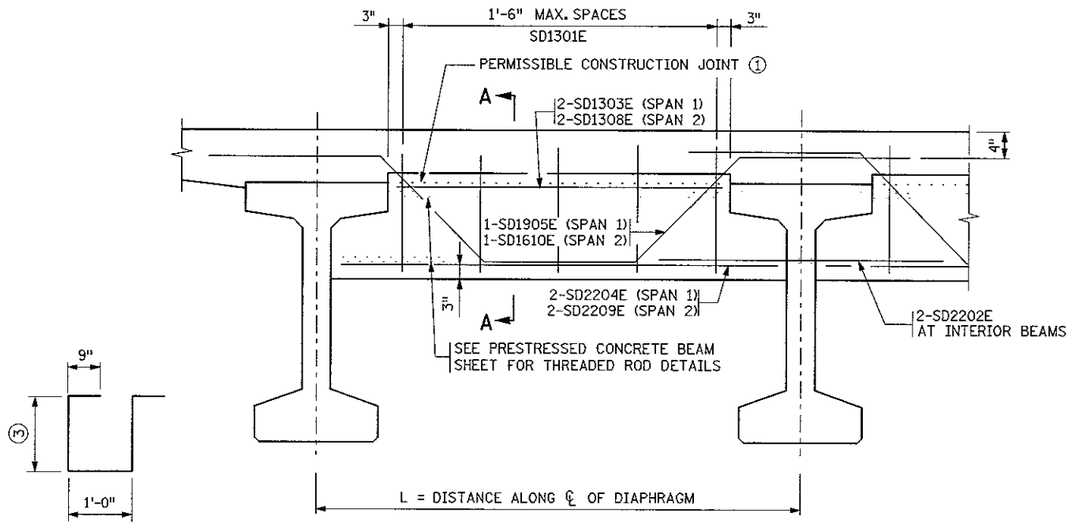
⑤ WELDING PER Mn/DOT SPEC. 2471.

⑥ 5⁄16" DIA. × ⅜" KNOCK-OFF WELD STUDS INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. CENTERLINE STUD TO EDGE OF PAD DIMENSION = ½", MAX. STUD SPACING = 4".

## DESIGN DATA:

MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1½" PINTLES.

| APPROVED: JULY 30, 1999 | STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION | REVISION | DETAIL NO. |
|---|---|---|---|
| Donald J. Flemming<br>STATE BRIDGE ENGINEER | CURVED PLATE BEARING ASSEMBLY<br>(PRESTRESSED CONCRETE BEAMS)<br>(EXPANSION) | | B311 |

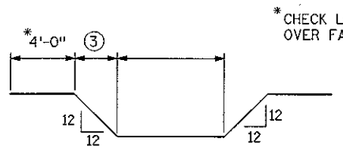



PART TRANSVERSE SECTION

(L > 8' SHOWN)



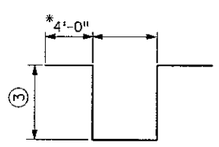

SD1301E




*CHECK LENGTH OVER FACIA BEAM

SD1910E

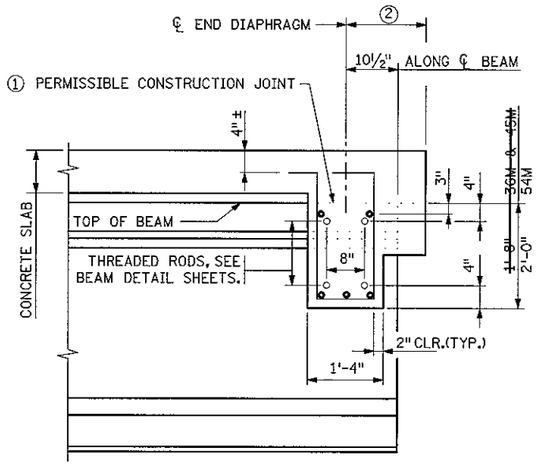
(IF L > 8')




SD1605E

(IF L ≤ 8')

| LONGITUDINAL REINFORCEMENT IN BOTTOM OF DIAPHRAGM | | | | |
|---|---|---|---|---|
| DISTANCE "L" ALONG ℄ OF DIAPHRAGM | BARS REQUIRED | | | |
| | STRAIGHT | | BENT | |
| | NO. | SIZE | NO. | SIZE |
| UP TO 8' | 2 | 19E | 1 | 16E |
| OVER 8' TO 11' | 2 | 22E | 1 | 19E |
| ~~OVER 11' TO 13'~~ | ~~2~~ | ~~25E~~ | ~~1~~ | ~~25E~~ |
| ~~OVER 13' TO 15'~~ | ~~2~~ | ~~29E~~ | ~~1~~ | ~~32E~~ |
| ~~OVER 15' TO 18'~~ | ~~2~~ | ~~36E~~ | ~~1~~ | ~~36E~~ |




SECTION A-A

| BILL OF REINFORCEMENT FOR END DIAPHRAGM ④ | | | | |
|---|---|---|---|---|
| BAR | NO. | LENGTH | SHAPE | LOCATION |
| SD1301E | | | | VERTICAL TIE |
| SD2202E | | 5'-0" | | LONG. THRU BEAM |
| SD1303E | | | | LONG. TOP |
| SD2204E | | | | LONG. BOTTOM |
| SD1905E | | | | LONGITUDINAL |
| SD1606E | | | | LONGITUDINAL |

NOTES:

DIAPHRAGM CONCRETE TO BE MIX NO. 3Y43.

ALL DIAPHRAGM CONCRETE AND REINFORCEMENT BARS SHOWN ON THIS DETAIL TO BE INCLUDED IN PAYMENT FOR SUPERSTRUCTURE QUANTITIES.

THREADED RODS ARE INCLUDED IN PAYMENT FOR PRESTRESSED CONCRETE BEAMS.

① USE OF CONSTRUCTION JOINT REQUIRES CLEARANCE FOR EXPANSION DEVICE. WHEN CONSTRUCTION JOINT IS USED AT THIS LOCATION, DIAPHRAGM FALSEWORK SHALL REMAIN INPLACE UNTIL COMPLETION OF SLAB CURING PERIOD.

② PERPENDICULAR TO CENTERLINE OF DIAPHRAGM. SEE PLANS FOR DIMENSION.

③ ~~2'-2"(45M),~~ 2'-6"(54M) BASED ON 3" STOOL AND 9" DECK.

④ REFER TO SUPERSTRUCTURE BARLIST

| APPROVED: JULY 30, 1999 | STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION | REVISION | DETAIL NO. |
|---|---|---|---|
| Donald J. Flemming<br>STATE BRIDGE ENGINEER | CONCRETE END DIAPHRAGM<br>(36M, 45M - 54M PRESTRESSED CONCRETE BEAMS)<br>(PARAPET ABUTMENT) | 01-20-00 ljh | B814 |

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

TKDA ENGINEERS • ARCHITECTS • PLANNERS
TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
SAINT PAUL, MINNESOTA

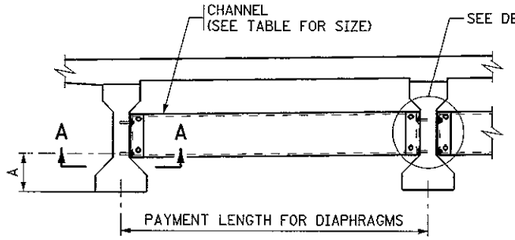
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: STD. DIAPHRAGMS DETAILS B403 & B814

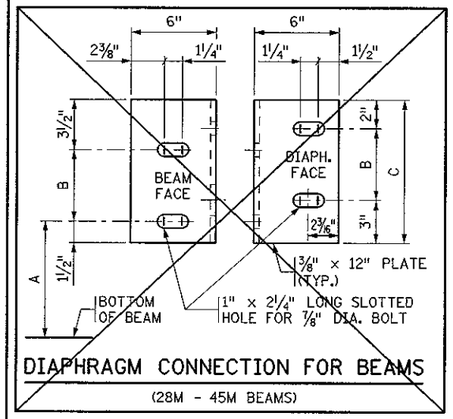
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|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 33 of 37 Sheets

Bridge No. 55567

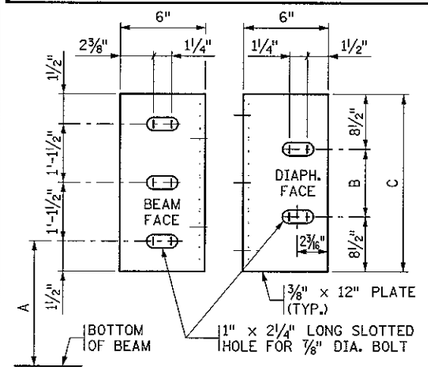



PART TRANSVERSE SECTION AT DIAPHRAGM




DIAPHRAGM CONNECTION FOR BEAMS

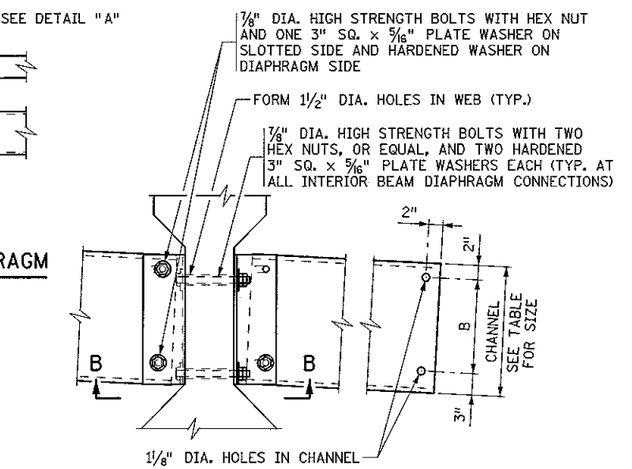
(28M - 45M BEAMS)




DIAPHRAGM CONNECTION FOR BEAMS

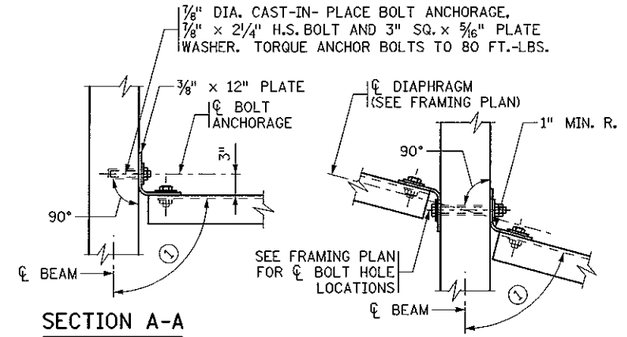
(54M BEAMS)

| TABLE | | | | |
|---|---|---|---|---|
| BEAM HEIGHT | DISTANCE | | | CHANNEL SIZE |
| | A | B | C | |
| ~~28M~~ | ~~1' 0"~~ | ~~5"~~ | ~~10"~~ | ~~C10x15.3~~ |
| ~~36"~~ | ~~1' 3"~~ | ~~7"~~ | ~~1' 0"~~ | ~~C12x20.7~~ |
| ~~36M~~ | ~~1'-3"~~ | ~~7"~~ | ~~1' 0"~~ | ~~C12x20.7~~ |
| ~~40"~~ | ~~1' 5"~~ | ~~7"~~ | ~~1' 0"~~ | ~~C12x20.7~~ |
| ~~45M~~ | ~~1' 3¾"~~ | ~~1' 1"~~ | ~~1' 6"~~ | ~~MC18x42.7~~ |
| 54M | 1'-2¼" | 1'-1" | 2'-6" | MC18x42.7 |




DETAIL "A"

INTERIOR BEAM WITH CONTINUOUS LINE OF DIAPHRAGMS




SECTION A-A

TYPICAL SECTION AT ALL FASCIA BEAM AND STAGGERED DIAPHRAGM CONNECTIONS

SECTION B-B

TYPICAL SECTION AT CONTINUOUS INTERIOR DIAPHRAGMS

AS-BUILT

FEB 18 2005

ENGINEERING

NOTES:

ALL STEEL SHALL CONFORM TO SPEC. 3306.

SEE Mn/DOT SPEC. 2405.3M FOR INSTALLATION

THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A ⅜" × 6" × 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.

FOR BOLT LENGTHS GREATER THAN 8½", USE HIGH STRENGTH BOLTS PER Mn/DOT SPEC. SAE GRADE 5 OR BETTER. SEE Mn/DOT SPEC. 2405.3M FOR INSTALLATION

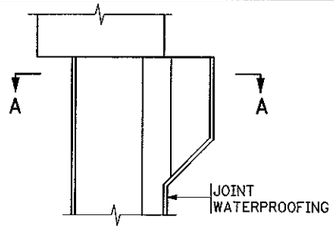
ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, SHALL BE INCLUDED IN THE PAYMENT FOR DIAPHRAGMS FOR PRESTRESSED BEAMS.

BENT PLATES MAY BE USED IN PLACE OF CHANNELS. THE BENT PLATES MUST BE THE SAME HEIGHT AS THE CHANNELS THEY REPLACE, BE ⅜" IN THICKNESS, AND HAVE LEGS 5" LONG.

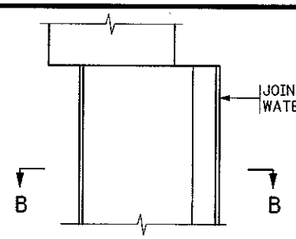
① FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. ~~FOR SKEW ANGLES OVER 20°, USE 90°.~~

| APPROVED: JULY 30, 1999 | STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION | REVISION | DETAIL NO. |
|---|---|---|---|
| Donald J. Flemming<br>STATE BRIDGE ENGINEER | STEEL INTERMEDIATE DIAPHRAGM<br>(FOR 28M - 54M PRESTRESSED CONCRETE BEAMS) | 06-16-00 | B403 |

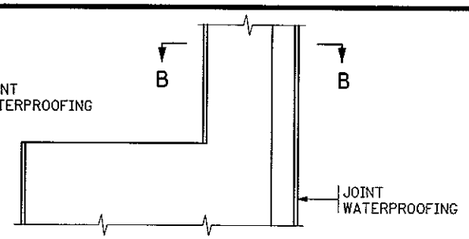
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SECTION THRU WALL

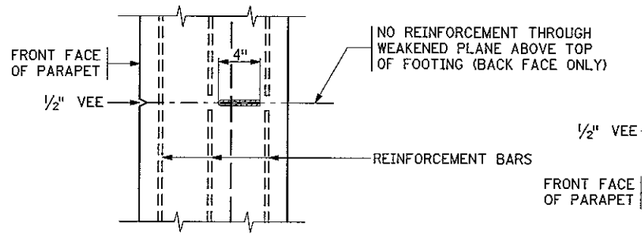



SECTION THRU WALL

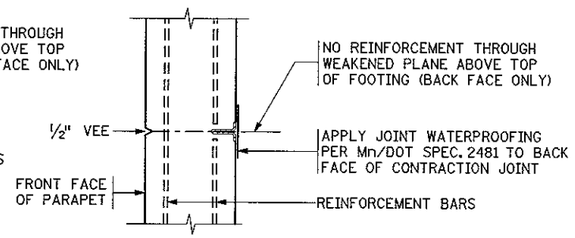



SECTION THRU BRIDGE SEAT

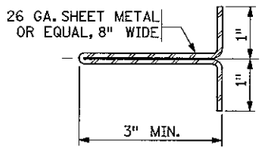
## PART SECTION THRU ABUTMENT AT JOINT




SECTION A-A




SECTION B-B



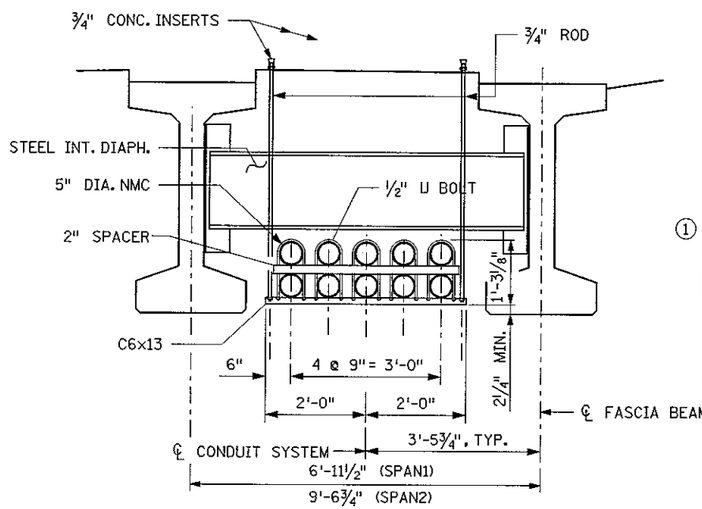

BACK STRIP

## NOTES:

THE METHODS AND MATERIALS INDICATED ON THIS SHEET SHALL BE CONSIDERED AS SUGGESTED ONLY. VARIATIONS WILL BE PERMITTED, SUBJECT TO APPROVAL BY THE ENGINEER, BUT MUST PROVIDE DUMMY JOINTS OF A DEPTH SHOWN. THE SEPARATION OF THE HORIZONTAL REINFORCEMENT BARS IN THE BACK OF THE PARAPET AND BACK FACE OF THE ABUTMENT SHALL NOT BE LESS THAN 1½" NOR MORE THAN 3", CENTERED AS SHOWN, REGARDLESS OF THE PROCEDURE USED FOR FOR FORMING THE DUMMY JOINT.

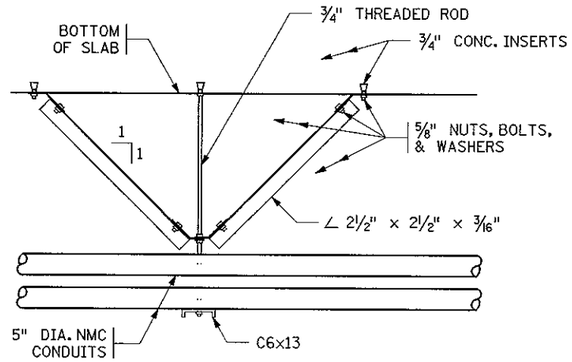
THE BACK STRIP MAY BE GALVANIZED METAL, A SUITABLE PLASTIC, OR OTHER DURABLE MATERIAL SATISFACTORY TO THE ENGINEER. THE BACK STRIP SHALL REMAIN IN PLACE AFTER THE FORMS ARE REMOVED.

THE COST OF FORMING THE JOINT SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS.




## TRANSVERSE SECTION

(FOR CONDUIT SYSTEM (RPU))




## CENTERING DEVICE DETAIL - SIDE VIEW

(LOCATED ONLY ON A HANGER ADJACENT TO PIER)

AS-BUILT
FEB 18 2005
ENGINEERING

## SUMMARY OF QUANTITIES FOR CONDUIT SYSTEM (RPU)

| | | |
|---|---|---|
| | HANGER ASSEMBLY | 20 UNITS |
| | CENTERING DEVICE | 1 UNIT |
| | CONDUIT CAP | 20 UNITS |
| | DRAINAGE TEE | 10 UNITS |
| | COMBINATION EXPANSION/DEFLECTION FITTING | 20 UNITS |
| | 5" DIA. NMC CONDUIT | 2200 LIN. FT. |
| ① | 6" PIPE SLEEVE | 20 UNITS |

ALL MATERIAL LISTED ABOVE IS INCLUDED IN PRICE BID FOR "CONDUIT SYSTEM (RPU)".

① SEE ABUTMENT SHEETS FOR LOCATION AND DETAILS.

## GENERAL NOTES

RODS, EYE BOLTS AND PIPE CLAMPS SHALL COMPLY WITH MnDOT SPEC. 3313, TYPE I.

TURNBUCKLES AND EYE BOLTS SHALL COMPLY WITH A.S.T.M. A235 CLASS A MINIMUM REQUIREMENTS.

FLAT BARS AND ANCHORAGES SHALL COMPLY WITH MnDOT SPEC. 3306.

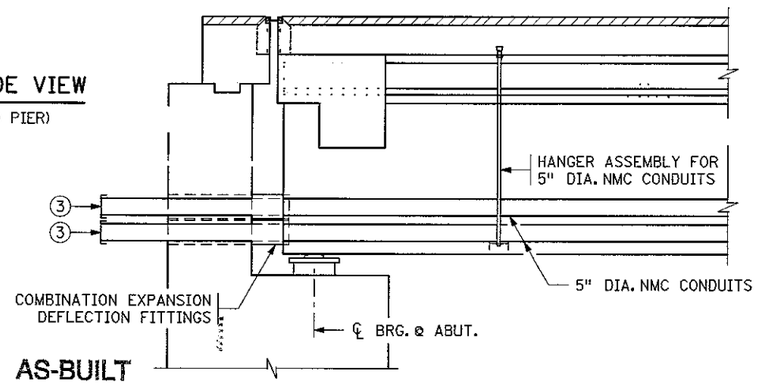
CONCRETE INSERTS SHALL BE APPROVED TYPE MALLEABLE IRON. MATERIAL AS PER MnDOT SPEC. 3324, GRADE 35018. TAP AFTER GALVANIZING.

GALVANIZE BOLTS, NUTS, WASHERS, TURNBUCKLES, RODS, EYE BOLTS, AND INSERTS AS PER MnDOT SPEC. 3392. GALVANIZE OTHER MATERIAL AS PER MnDOT SPEC. 3394 AFTER FABRICATION.

PIPE SLEEVES SHALL COMPLY WITH MnDOT SPEC. 3362.

② SPACE INSERTS AT 10'-0" MAXIMUM CENTERS.

③ CAP ENDS.




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## LONGITUDINAL SECTION

(FOR CONDUIT SYSTEM (RPU))

FILENAME: K:\site\proj\cil25\csah8\dwg\bridge\misc3std.dgn
DATE: 17 JUL 2001 TIME: 13:18:31

APPROVED: JULY 30, 1999

Donald J. Flemming
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CONTRACTION JOINT

REVISION

DETAIL NO.
B801

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|
| | | | |

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

TKDA
ENGINEERS • ARCHITECTS • PLANNERS
TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
SAINT PAUL, MINNESOTA

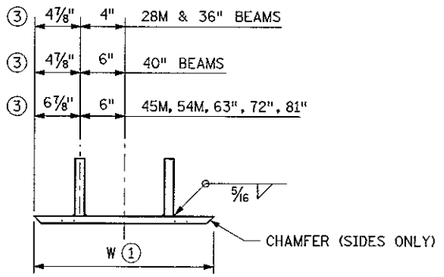
Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE:
STD. DETAIL B801
AND CONDUIT SYSTEM DETAILS

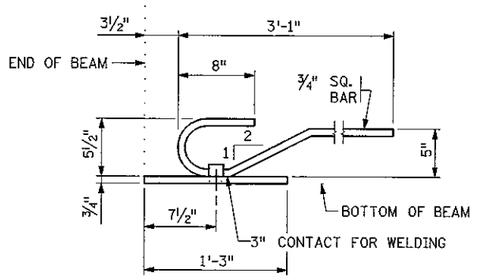
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| CHK: GM | CHK: GM | |

Sheet No. 34 of 37 Sheets

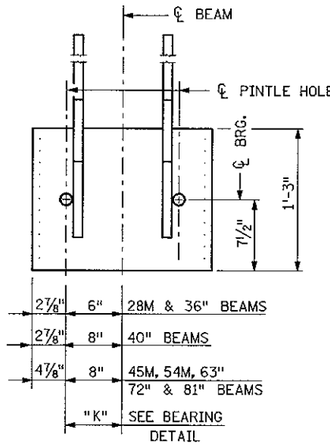
Bridge No.
55567



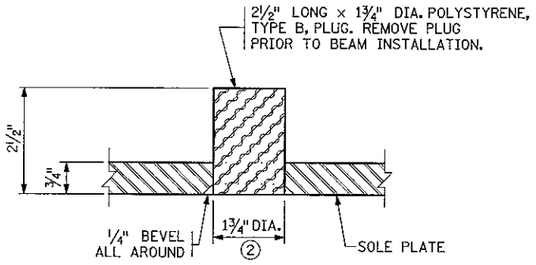

FRONT VIEW




SIDE VIEW




TOP VIEW




PINTLE HOLE DETAIL

| BEAM SIZE | ① W VALUE (In.) |
|---|---|
| 28M,36" | 1'-5¾" |
| 40" | 1'-9¾" |
| 45M,54M 63",72",81" | 2'-1¾" |

## NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

SOLE PLATE FOR BEARING ASSEMBLY TO BE HOT DIPPED GALVANIZED PER Mn/DOT SPEC. 3394 AFTER FABRICATION.

PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.

PAYMENT FOR SOLE PLATES TO BE INCLUDED IN PRICE BID FOR PRESTRESSED CONCRETE BEAMS.

① DIMENSION "W" TO BE THE WIDTH AT THE BOTTOM FLANGE OF THE BEAM MINUS ¼".

② FOR 1½" DIA. PINTLES.

③ THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.

| APPROVED: JULY 30, 1999 | STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION | REVISION | DETAIL NO. |
|---|---|---|---|
| Donald J. Flemming STATE BRIDGE ENGINEER | SOLE PLATE (PRESTRESSED CONCRETE BEAMS) (FOR BEARINGS WITH PINTLES) | | B303 |

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
SIGNED Gottfried Millner GOTTFRIED MILLNER
DATE: 07/03/2001 LIC. NO. 19879

TKDA ENGINEERS • ARCHITECTS • PLANNERS
TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED
SAINT PAUL, MINNESOTA

Olmsted County
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TITLE: STD. DETAILS B303 & B910

| DES: MJC | DR: MJC | APPROVED |
|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 35 of 37 Sheets

Bridge No. 55567

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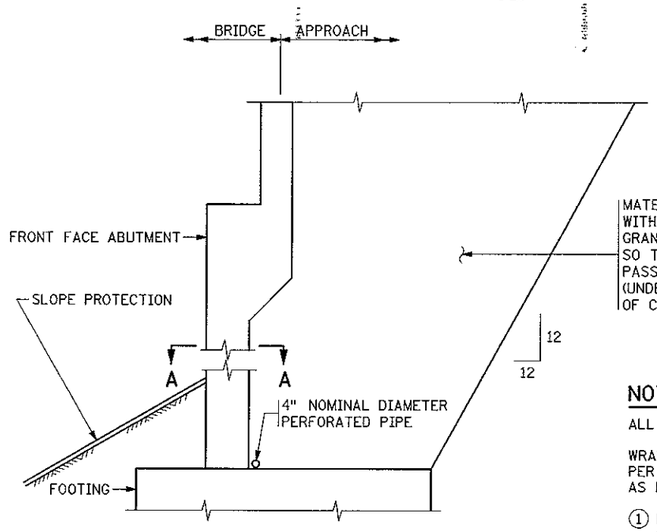
AS-BUILT
FEB 18 2005
ENGINEERING

## SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM

| | | | |
|---|---|---|---|
| | 4" DIA. PERFORATED PIPE | 77 | LIN. FT. |
| | 4" DIA. NON-PERFORATED PIPE | 25 | LIN. FT. |
| | 45° ELBOW | 3 | EACH |
| | 4" DIA. END CAP | 1 | EACH |
| | 4" DIA. COUPLING | 0 | EACH |
| | PIPE SLEEVE | 0 | EACH |
| ① | PRECAST CONCRETE HEADWALL | 1 | EACH |

THE SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM IS AS SHOWN ABOVE. ANY ADDITIONAL MINOR ITEMS OR SLIGHT CHANGES OF QUANTITIES REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.

PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR ITEM 2502.603 DRAINAGE SYSTEM, TYPE (B910).




SECTION THROUGH ABUTMENT

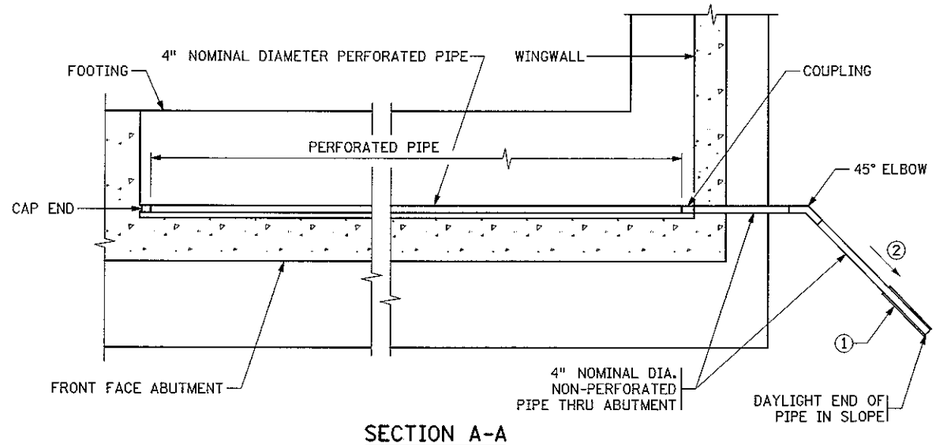
## NOTES:

ALL PIPE SHALL BE AS PER MnDOT SPEC. 3245.

WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER MnDOT SPEC. 3733, TYPE 1. ATTACH TO PIPE AS PER MnDOT SPEC. 2502.

① PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.

② ⅛" PER FT. MINIMUM SLOPE.

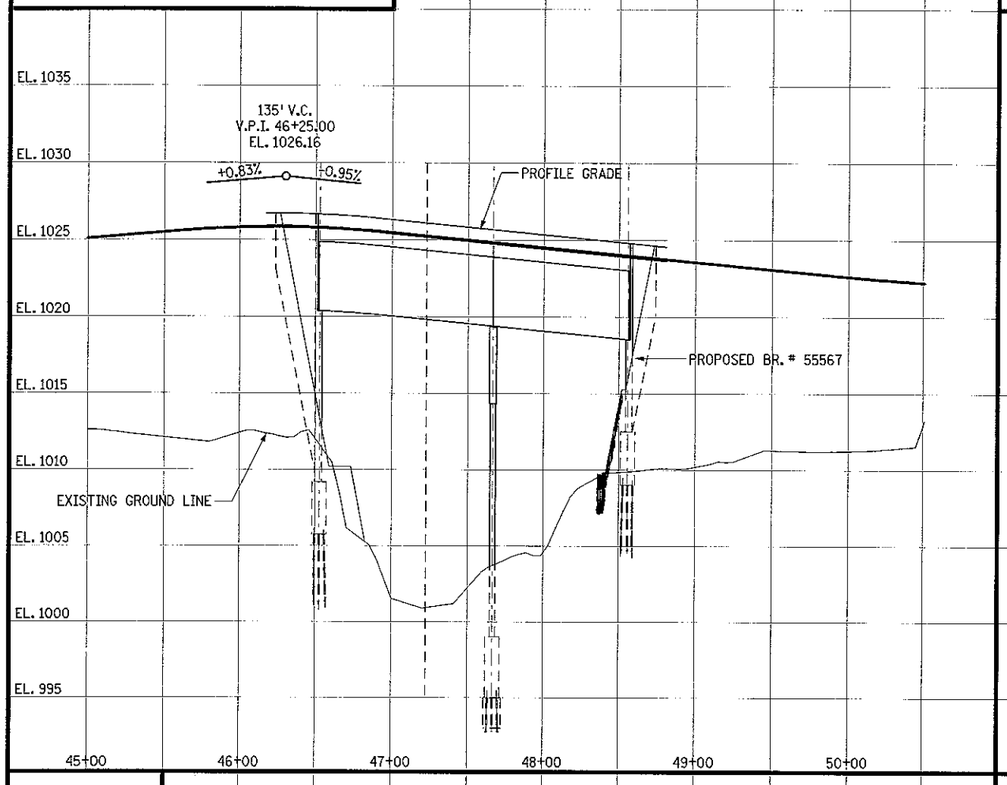



SECTION A-A

| APPROVED: JULY 30, 1999 | STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION | REVISION | DETAIL NO. |
|---|---|---|---|
| Donald J. Flemming STATE BRIDGE ENGINEER | DRAINAGE SYSTEM (FOR HIGH ABUTMENTS) | 04-03-00 | B910 |

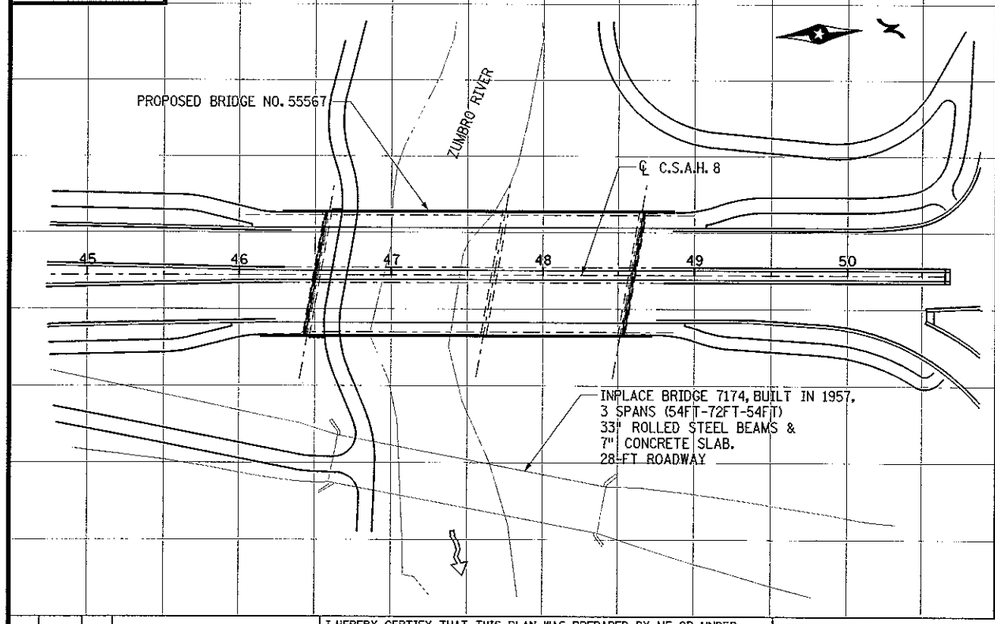
## CONTRACTED PROFILE

SCALE: HORIZ: 1"= 50' VERT: 1"= 5'



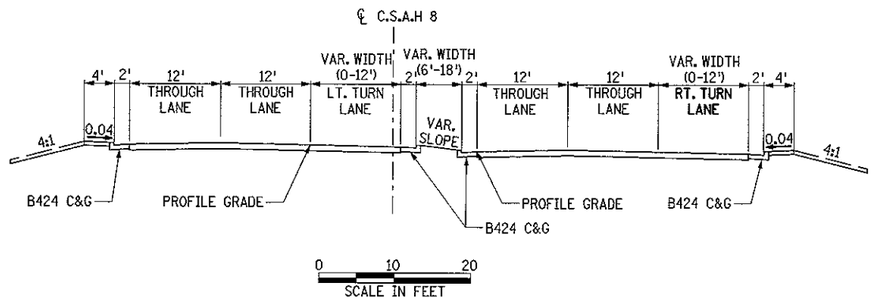

## PLAT

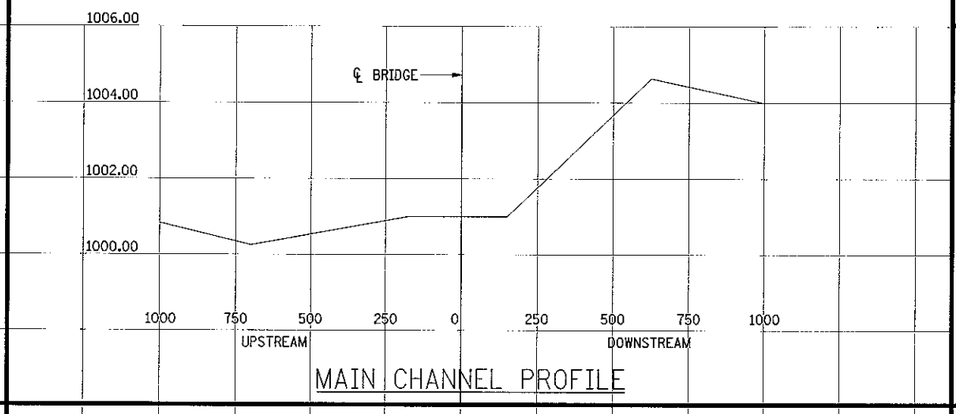
SCALE 1"= 50'



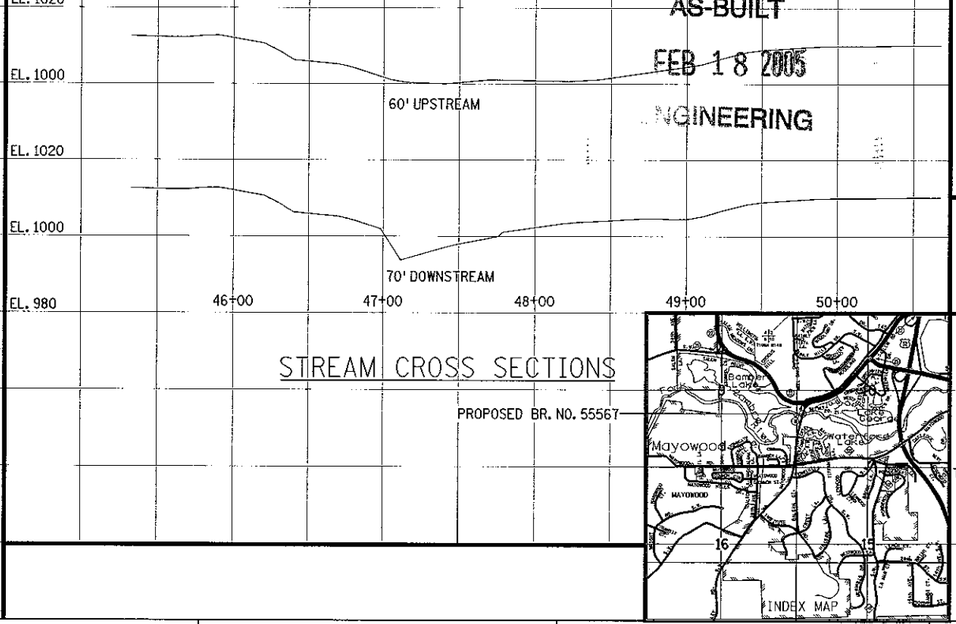

## TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN




MAIN CHANNEL PROFILE




STREAM CROSS SECTIONS

PROPOSED BR. NO. 55567

AS-BUILT

FEB 18 2005

ENGINEERING




Fed. Proj.

### LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.
   SCOUR AT PIER FOOTING OF BR. NO. 7174
2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area etc.
3. Apparent highwater elevation — Obtained from
4. Other data: Approx. velocity of water at time of survey

### HYDRAULIC ENGINEER'S RECOMMENDATION

DATE: JANURARY 29, 2001

Stream or ditch designation: South Fork Zumbro River

Drainage area: 155 Square Miles

Max. flood on record: 21,800cfs, 1978 Design flood (100 yr. freq.) 14,800 C.F.S.

Max. observed highwater elevation: Unknown

Design highwater elevation: 1016.84

Design mean velocity through structure: 6.6 F.P.S.

Low superstructure at or above elevation: 1018.36 (3ft above 50-yr flood)

Flowline elevation: 1001.0 Skew angle: 10°

Waterway area req'd. below elevation 1016.84 = 2250 Sq. Ft. at Rt. angles to channel.

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 14,800 C.F.S. at stage 1016.73 and mean velocity of 6.6 F.P.S. with 0.02 Ft. swellhead.

The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

### FOUNDATION ENGINEER'S RECOMMENDATION

DATE: MAY 25, 2000

SEE REVISED GEOTECHNICAL EVALUATION REPORT. DATED MAY 25, 2000

Bridge survey sheets made from:

Bench mark elevation ..1023.19.... (M.S.L. 1929 Adj.)
Location: BRASS PLUG AT SOUTH EAST CORNER OF EXISTING BRIDGE

MINNESOTA
DEPARTMENT OF TRANSPORTATION

### BRIDGE SURVEY

PROPOSED BRIDGE LOCATED 0.05 MILES SOUTH OF THE INTERSECTION OF C.S.A.H. 8 WITH C.S.A.H. 22.

SEC. 10 TWP 106N R 14W

CITY: ROCHESTER COUNTY: OLMSTED

| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
|---|---|---|---|

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNED Gottfried Millner GOTTFRIED MILLNER

DATE: 07/03/2001 LIC. NO. 19879

**TKDA** TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES INCORPORATED

ENGINEERS • ARCHITECTS • PLANNERS SAINT PAUL, MINNESOTA

Olmsted County
C.S.A.H. 8
S.P. 55-608-11

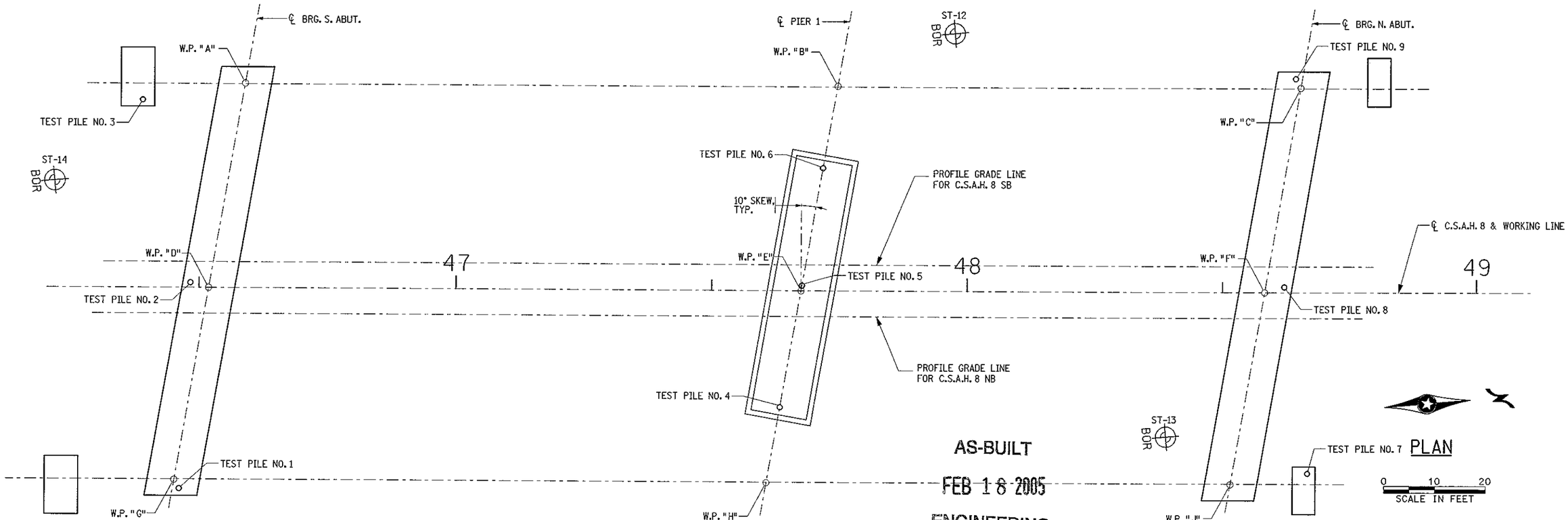
TITLE: BRIDGE SURVEY

| DES: MJC | DR: MJC | APPROVED |
|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 36 of 37 Sheets

Bridge No. 55567

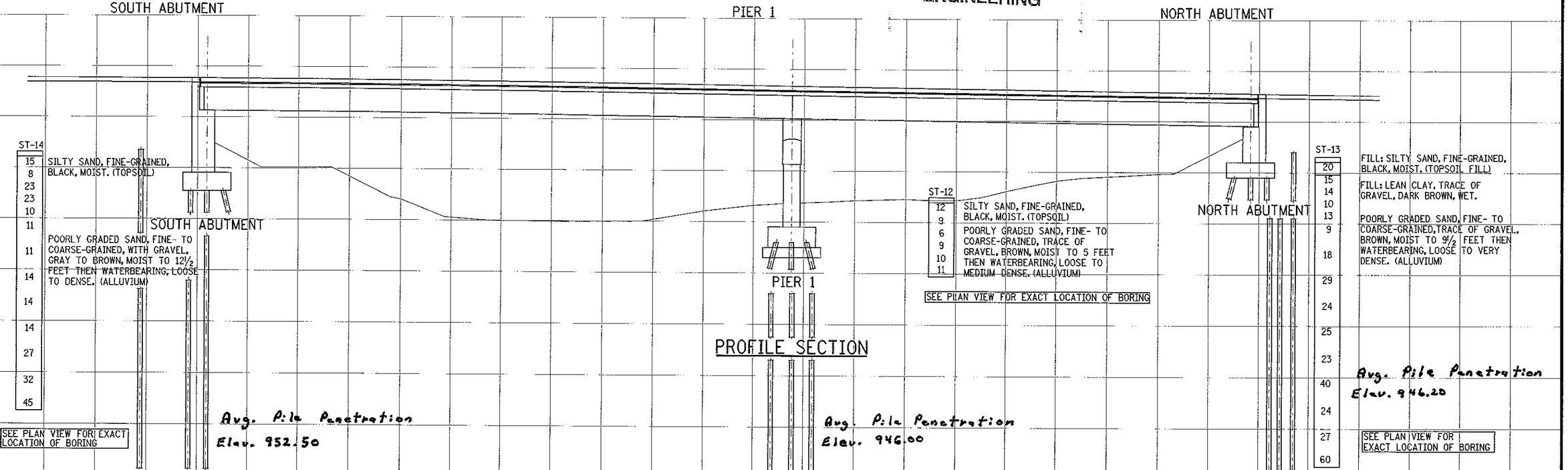
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AS-BUILT

FEB 18 2005

ENGINEERING




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| NO. | DATE | BY | DESCRIPTION OF REVISIONS |
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SIGNED Gottfried Millner
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SAINT PAUL, MINNESOTA

Olmsted County
C.S.A.H. 8
S.P. 55-608-11

TITLE: BRIDGE SURVEY AND PROFILE

| DES: MJC | DR: MJC | APPROVED |
|---|---|---|
| CHK: GM | CHK: GM | |

Sheet No. 37 of 37 Sheets

Bridge No. 55567