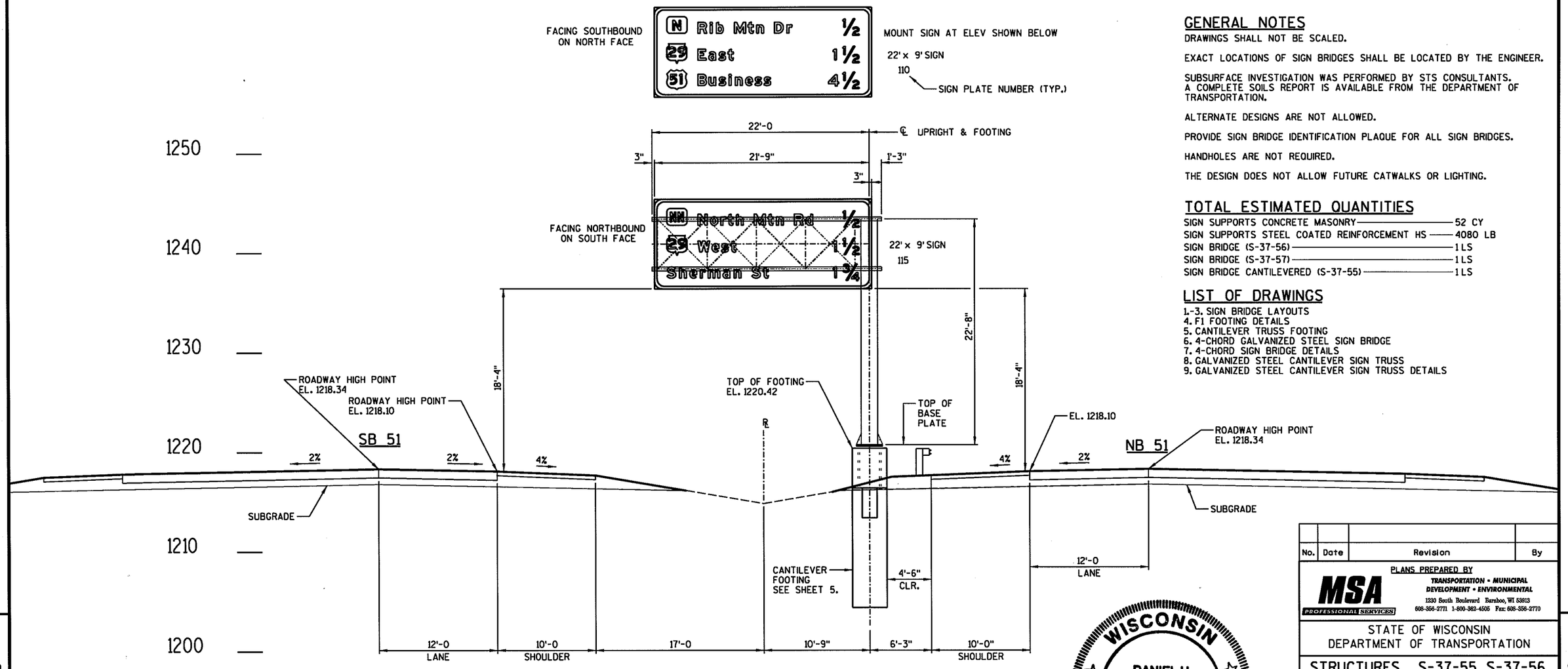
STATE PROJECT NUMBER	SHEET NO.
1166-07-74	



SIGN BRIDGE S-37-55 (STATION 509+50)
(USH 51, LOOKING NORTH)

BRIDGE OFFICE CONTACT:
FINN HUBBARD
(608) 266-8489

DESIGN DATA

SIGN BRIDGE	DESIGN SIGN AREA (SQ. FT.)
S-37-55	396 (TOTAL OF 2 SIDES)
S-37-56	402
S-37-57	660

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

EXACT LOCATIONS OF SIGN BRIDGES SHALL BE LOCATED BY THE ENGINEER.

SUBSURFACE INVESTIGATION WAS PERFORMED BY STS CONSULTANTS. A COMPLETE SOILS REPORT IS AVAILABLE FROM THE DEPARTMENT OF TRANSPORTATION.

ALTERNATE DESIGNS ARE NOT ALLOWED.

PROVIDE SIGN BRIDGE IDENTIFICATION PLAQUE FOR ALL SIGN BRIDGES.

HANDHOLES ARE NOT REQUIRED.

THE DESIGN DOES NOT ALLOW FUTURE CATWALKS OR LIGHTING.

TOTAL ESTIMATED QUANTITIES

SIGN SUPPORTS CONCRETE MASONRY	52 CY
SIGN SUPPORTS STEEL COATED REINFORCEMENT HS	4080 LB
SIGN BRIDGE (S-37-56)	1 LS
SIGN BRIDGE (S-37-57)	1 LS
SIGN BRIDGE CANTILEVERED (S-37-55)	1 LS

LIST OF DRAWINGS

WISCONSIN
DANIEL H. WAGNER
E-19220
BARABOO, WI
1-25-05
PROFESSIONAL ENGINEER
Daniel H. Wagner

No.	Date	Revision	By

PLANS PREPARED BY
MSA PROFESSIONAL SERVICES
TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
1230 South Boulevard Baraboo, WI 53913
608-356-2771 1-800-362-4505 Fax: 608-356-2770

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURES S-37-55, S-37-56, S-37-57

USH 51 SIGN BRIDGES

County MARATHON		Town/~~City~~/Village RIB MOUNTAIN	
Design Spec. AASHTO 2003		Load N/A	Const. Spec. WI "03"
Designed By BPT	Design Checked DHW	Drawn By RLR	Plans Checked DHW

Approved Finn Hubbard SDR — Chief Structural Design Engineer — 10-13-05 Date

SIGN BRIDGE LAYOUT

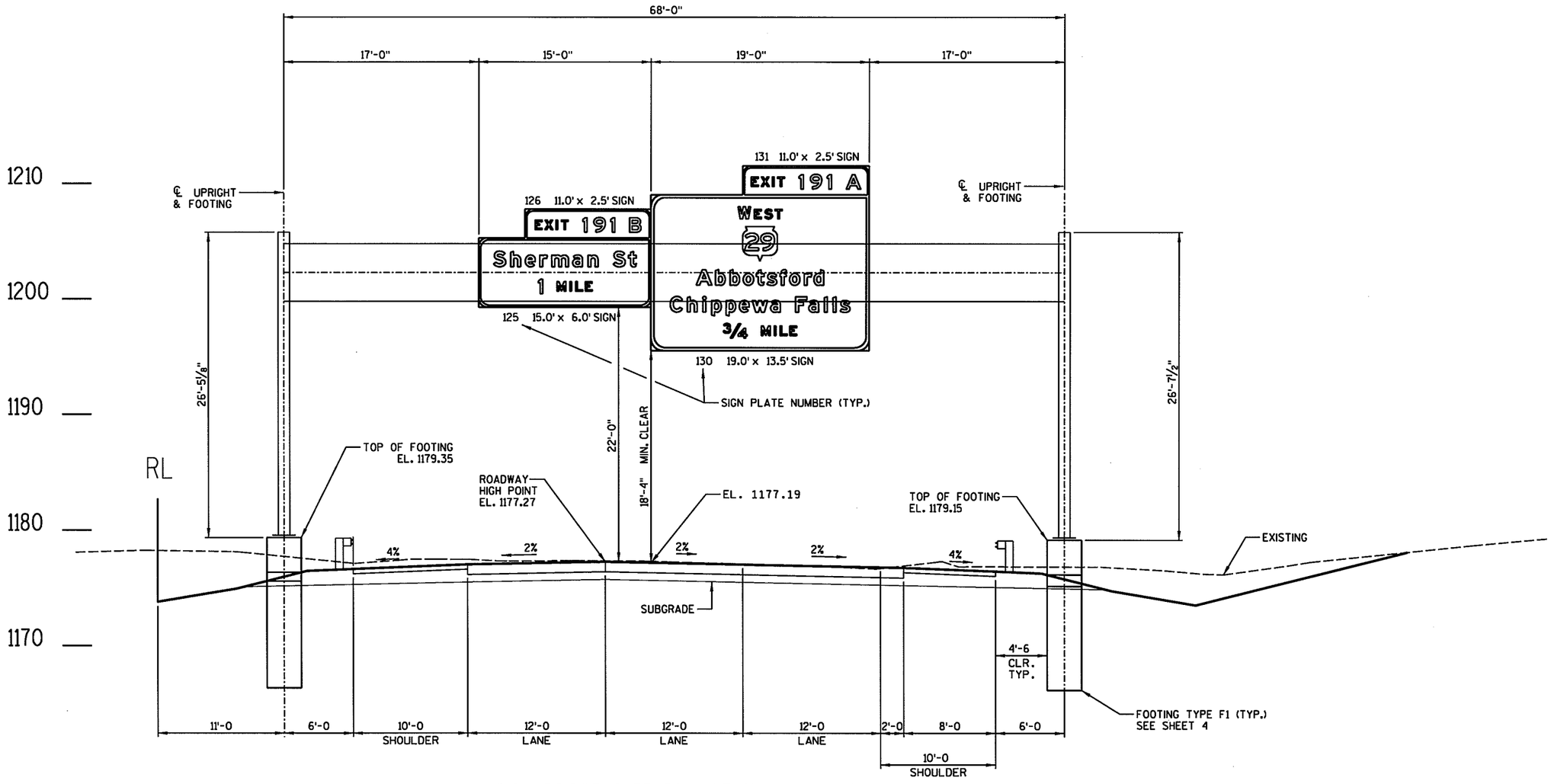
SHEET 1 OF 9

8

8

FILE NAME: HDGN: G:±projects±90s±93±930232±STRUCTURES±Sign Bridges±PLANSHTS±930414±93041401.dgn REV. DATE: 07/25/2005

STATE PROJECT NUMBER	SHEET NO.
1166-07-74	



SIGN BRIDGE S-37-56 (STATION 546+00)
(NORTHBOUND USH 51, LOOKING NORTH)

8

8

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-37-56

Const. Spec. WI "03"	Drawn By RLR	Plans Checked DHW

SIGN BRIDGE LAYOUT

SHEET 2 OF 9

FILE NAME: HDGN: G:±projects±90s±93±930232±STRUCTURES±Sign Bridges±PLANSHTS±930414±93041402.dgn REV. DATE: 07/25/2005

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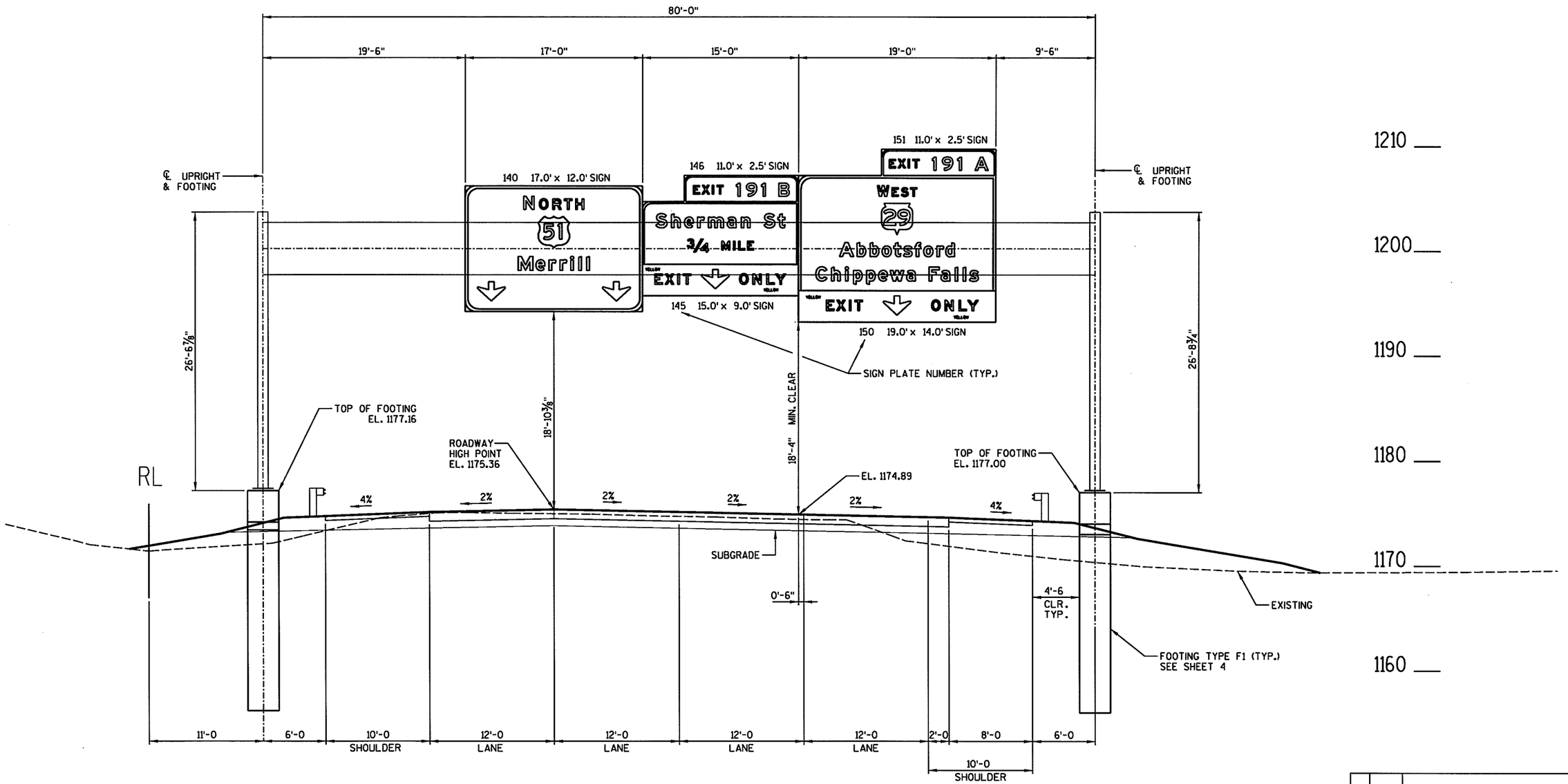

SIGN BRIDGE S-37-57 (STATION 562+00)

(NORTHBOUND USH 51, LOOKING NORTH)

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-37-57

Const. Spec. WI "03"	Drawn By RLR	Plans Checked DHW

SIGN BRIDGE LAYOUT

SHEET 3 OF 9

8

8

FILE NAME: HDGN: G:±projects±90s±93±930232±STRUCTURES±Sign Bridges±PLANSHTS±930414±93041403.dgn REV. DATE: 07/25/2005

STATE PROJECT NUMBER	SHEET NO.
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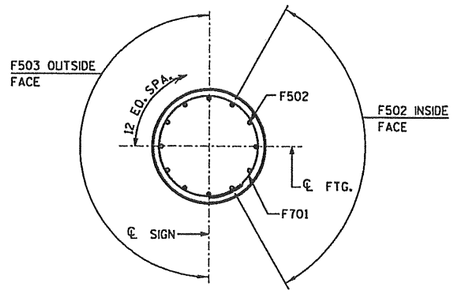
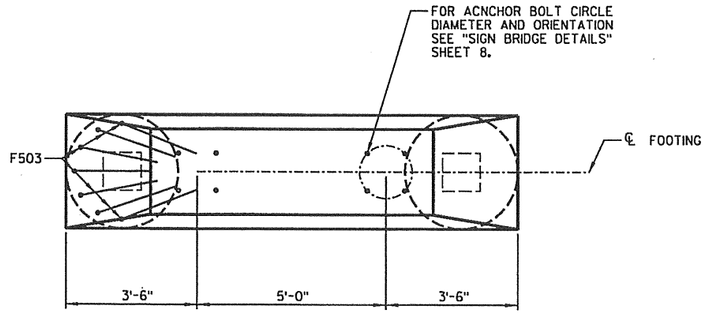


SECTION A



PLAN

SUMMARY OF QUANTITIES (1 FTG.)

ITEM	UNIT	FOOTING TYPE F1	
		S-37-56	S-37-57
SIGN SUPPORTS CONCRETE MASONRY	CY	9	13
SIGN SUPPORTS STEEL COATED REINFORCEMENT HS	LB	680	870

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 3" CLEAR UNLESS DETAILED OTHERWISE.

ALLOWABLE DESIGN STRESSES

CONCRETE MASONRY — f'c=3,500 P.S.I.
BAR STEEL REINFORCEMENT HS COATED
ANCHOR BOLTS A.A.S.H.T.O. M314 — GRADE 60 — fy=60,000 P.S.I. / fy=55,000 P.S.I.

FOUNDATION DATA

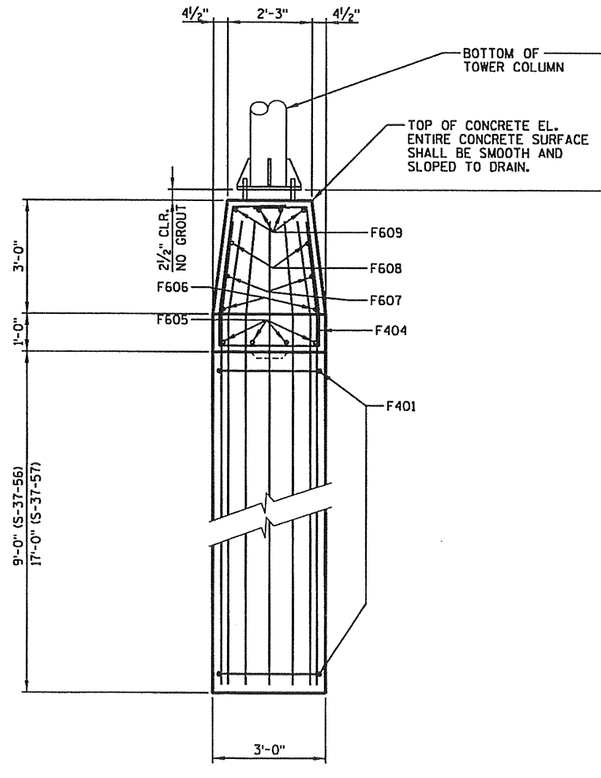
MINIMUM SOIL BEARING PRESSURE = 3T/SQ. FT.

1 FOOTING 870 LBS. (S-37-57)
BILL OF BARS - COATED 680 LBS. (S-37-56)

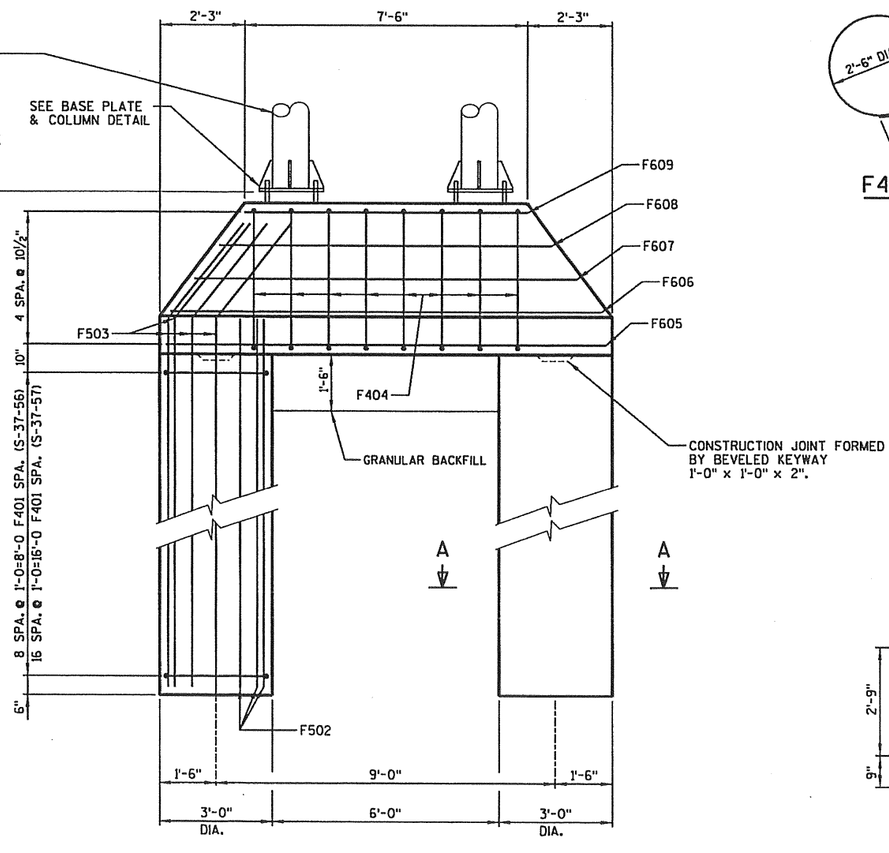
BAR MARK	NO. REQ'D	LENGTH	BENT	LOCATION
F401	18 *	9-10	X	CAISSON - HOOPS
F502	10	10-4 *		CAISSON - VERTICAL
F503	14	13-0 *	X	CAISSON - VERTICAL
F404	8	12-0	X	FOOTING - STIRRUP - VERT.
F605	4	11-6		FOOTING - BOTTOM - LONGIT.
F606	2	11-2		FOOTING - LONGIT.
F607	2	9-10		FOOTING - LONGIT.
F608	2	8-6		FOOTING - LONGIT.
F609	4	7-4		FOOTING - TOP - LONGIT.
* #7	14	15'-0		

* BILL OF BARS SHOWN IS FOR EACH FOOTING ON S-37-56 AT S-37-57, USE 34 F401 BARS & MAKE F502 BARS 18'-4 LONG.

* #7 Bars Spliced To F503 Bars To Obtain
NOTE: Required Length For S-37-57
THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL BARS.



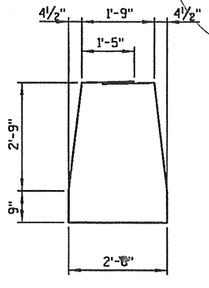
END VIEW



ELEVATION

F401

F503



F404

8

8

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURES S-37-56, 57

Const. Spec. WI "03"	Drawn By RLR	Plans Checked DHW

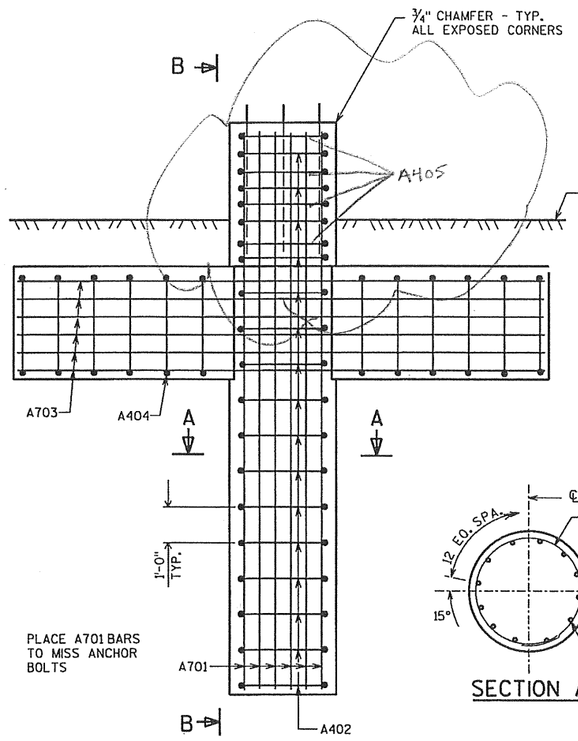
F-1 FOOTING DETAILS

SHEET 4 OF 9

FILE NAME: G:\projects\90s\93\930232\STRUCTURES\Sign Bridges\PLANSHTS\930414\93041404.dgn

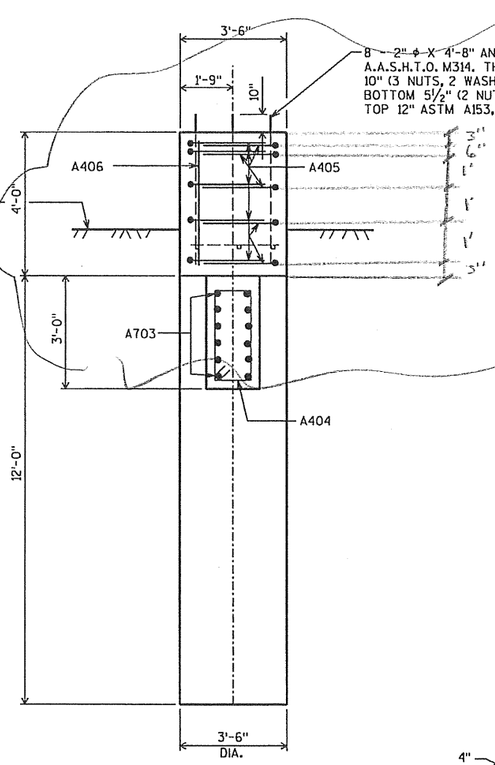
REV. DATE: 07/25/2005

STATE PROJECT NUMBER	SHEET NO.
1166-07-74	



ELEVATION
(8 C.Y.)

SECTION A



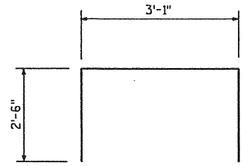
SECTION B

→ DIMENSIONS PROVIDED BY DAN WAGNER (MSA)

BILL OF BARS (COATED) 980 LBS.

BAR MARK	NO. REQ'D	LENGTH	BENT	LOCATION
A701	12	15-6		FOOTING - COLUMN/TOP
A402	16	10-6	X	FOOTING - COLUMN/TOP
A703	12	15-0		FOOTING - WINGS
A404	12	7-6	X	FOOTING - WINGS
A405	10	8-0	X	FOOTING - TOP
A406	4	3-6		FOOTING - TOP - COLUMNS

NOTE:
THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL BARS.



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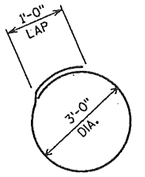

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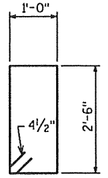
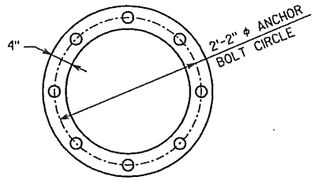
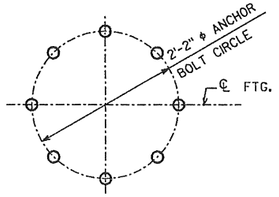
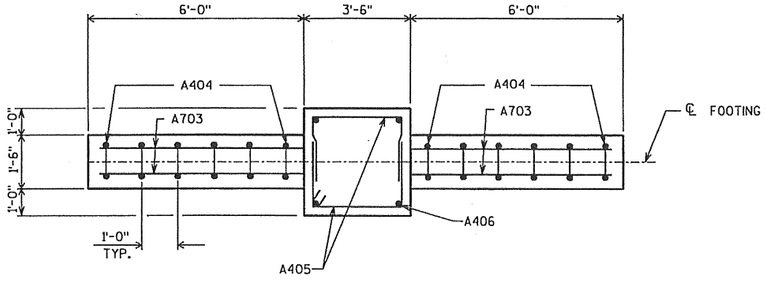


A404
(STIRRUP)

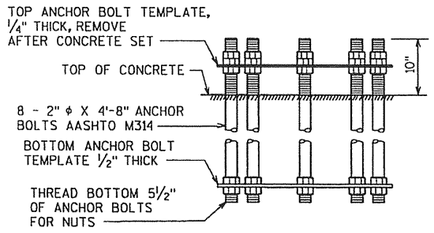


TOP VIEW OF TOP & BOTTOM TEMPLATES





PLAN



ANCHOR BOLT DETAILS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 3" CLEAR UNLESS DETAILED OTHERWISE.

ALLOWABLE DESIGN STRESSES

CONCRETE MASONRY ——— f'c=3,500 P.S.I.
BAR STEEL REINFORCEMENT HS COATED GRADE 60 ——— fy=60,000 P.S.I.
ANCHOR BOLTS A.A.S.H.T.O. M314 ——— fy=55,000 P.S.I.

FOUNDATION DATA

ALLOWABLE SOIL BEARING PRESSURE = 2T/SQ. FT.

TOTAL ESTIMATED QUANTITIES (1 FTG.)

SIGN SUPPORTS CONCRETE MASONRY ——— 8 C.Y.
SIGN SUPPORTS STEEL COATED REINFORCEMENT HS ——— 980 LB.

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-37-55

Const. Spec. WI "03"	Drawn By RLR	Plans Checked DHW

CANTILEVER TRUSS FOOTING

SHEET 5 OF 9

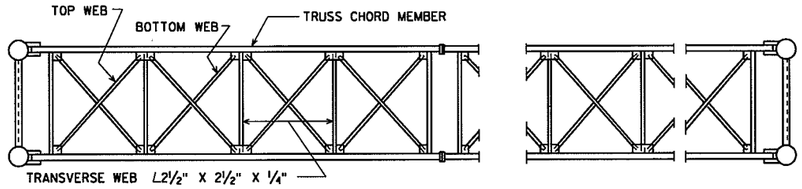
8

8

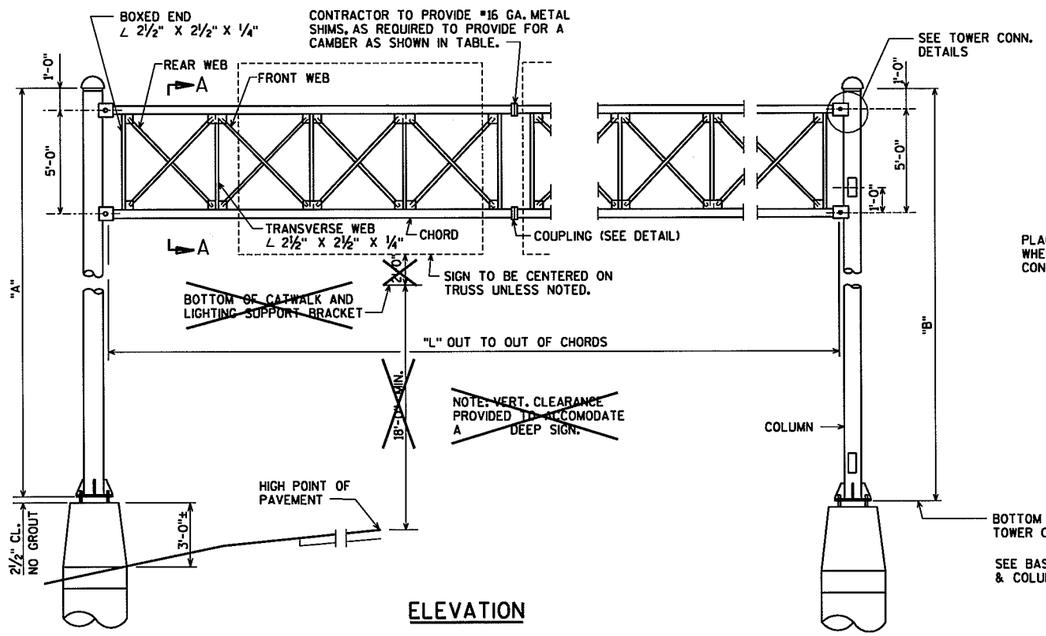
FILE NAME: G:\projects\90s\93\930232\STRUCTURES\Sign Bridges\PLANSHTS\930414\93041405.dgn

REV. DATE: 07/25/2005

STATE PROJECT NUMBER	SHEET NO.
1166-07-74	



PLAN



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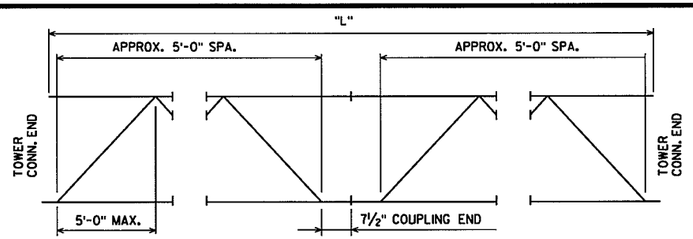
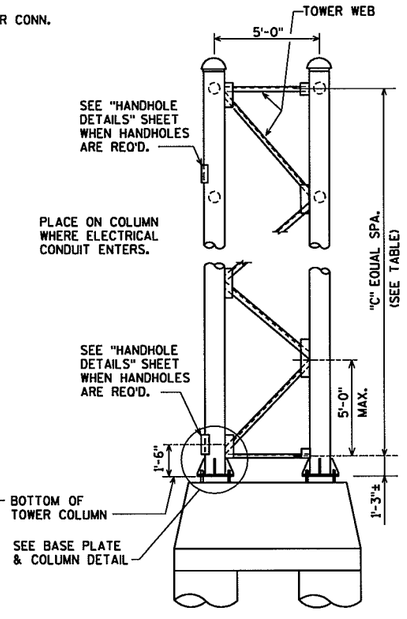


TRUSS ARRANGEMENT

FABRICATOR MAY MAKE TRUSSES ANY LENGTH KEEPING A SECTION A MINIMUM OF 20'-0" & A MULTIPLE OF 5'-0". CHORD FIELD SPLICES SHALL BE MADE WITH COUPLINGS. CHORD SHOP SPLICE SHALL BE THE WELDED SPLICE SHOWN ABOVE.



END VIEW

NOTES

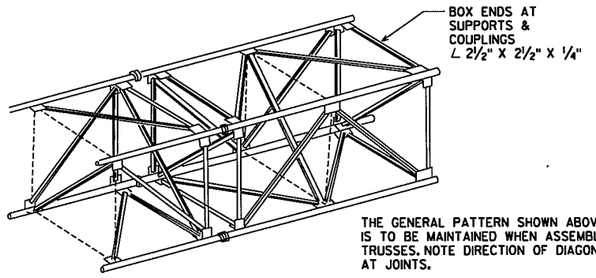
DRAWINGS SHALL NOT BE SCALED.
STEEL COLUMN PIPE SHALL BE A.P.I. SPEC. 5L GRADE X42 Fy = 42,000 P.S.I.
ALL STEEL PIPE MEMBERS OF TRUSS SHALL BE A.P.I. SPEC. 5L GRADE X42 Fy = 42,000 P.S.I.
PLATES, BARS, STRUCTURAL ANGLES SHALL BE A.S.T.M. A709 GRADE 36 Fy = 36,000 P.S.I.
ALL STRUCTURAL STEEL MEMBERS SHALL BE GALVANIZED.
ALL BOLTED CONNECTIONS SHALL BE MADE WITH ¾" ϕ A325 BOLTS, GALVANIZED A.S.T.M. A153, CLASS C.
WELDED CONNECTIONS CAN BE USED IN LIEU OF BOLTED CONNECTIONS, IF UNIT CAN BE GALVANIZED IN ONE PIECE.
STEEL ANCHOR BOLTS SHALL BE A.A.S.H.T.O. M314-90 GRADE 55. Fy = 55,000 P.S.I.
SIGNS OR BLANKS SHALL BE INSTALLED ON TRUSS AT TIME OF ERECTION.
BLANKS SHALL BE ¼ THE LENGTH OF THE BRIDGE, 2'-0" DEEPER THAN C TO C OF CHORDS & SHALL BE CENTERED ON THE BRIDGE. SIGNS SHALL BE AS DESIGNATED IN PLANS.
THE UPPER 12" OF ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE A.A.S.H.T.O. SPECIFICATION AS STATED IN SECTION 641 OF THE WIS. D.O.T. STANDARD SPECIFICATIONS.
WELD TEST AS PER AWS D1.1.

DESIGN DATA

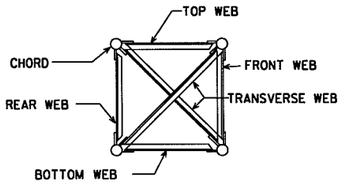
DEAD LOAD - WT. OF SIGN, SUPPORTING STRUCTURE, CATWALK, LIGHTS AND RAILINGS.
LIVE LOAD - NONE.
ICE LOAD - 3 P.S.F. TO 1 FACE OF SIGN & AROUND SURFACE OF MEMBERS.
WIND PRESSURE - 90 M.P.H. (3-SECOND GUST SPEED) TO SIGN AREA & EXPOSED MEMBERS.

WIND COMPONENTS	NORMAL	TRANSVERSE
COMBINATION 1	1.0	0.2
COMBINATION 2	0.6	0.3
GROUP LOADS	% OF ALLOWABLE STRESS	
1. DEAD	100	
2. DEAD + WIND	133	
3. DEAD + ICE + ½ (WIND*)	133	

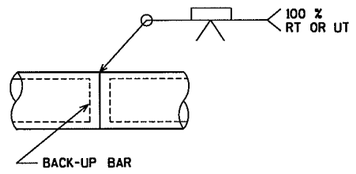
*MIN. VALUE OF 25 PSF FOR GR. 3



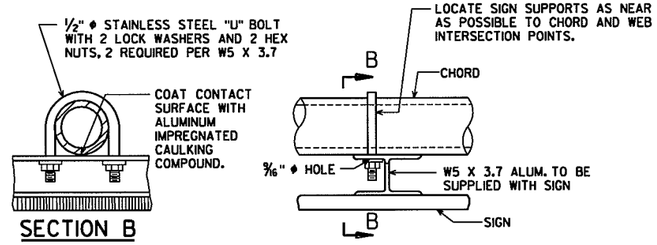
TYPICAL TRUSS SECTION



SECTION A



CHORD SPLICE



SECTION B

TYPICAL SIGN CONNECTION

TABLE

STRUCTURE	A	B	C	CHORDS O.D. X THK.	TOP & BOTTOM WEB	FRONT & REAR WEB	COUPLING PLATE "D1" & "T"	BOLT CIRCLE DIA. "D2"	NO. OF BOLTS IN COUPLING	CAMBER	COLUMN O.D. X THK.	TOWER WEBS	"L"
S-37-56	26'-2⅝"	26'-5"	5	3.50" X 0.216"	L 3" X 3" X 3/16"	L 3" X 3" X 3/16"	9" X 1"	6"	4	1"	10.75" X 0.365"	L 3" X 3" X ¼"	66'-10 ¼"
S-37-57	26'-4⅜"	26'-6 ¼"	5	3.50" X 0.216"	L 3" X 3" X 3/16"	L 3" X 3" X 3/16"	9" X 1"	6"	4	1¼"	12.75" X 0.375"	L 3" X 3" X ¼"	78'-8 ¼"

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURES S-37-56, 57

Const. Spec. WI "03"	Drawn By RLR	Plans Checked DHW

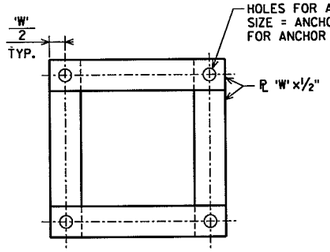
4-CHORD GALVANIZED STEEL SIGN BRIDGE

SHEET 6 OF 9

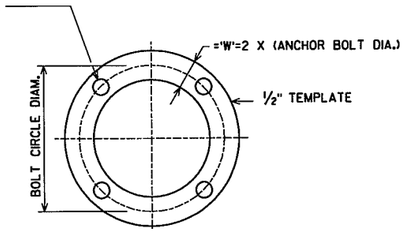
FILE NAME: G:\projects\90s\93\930232\STRUCTURES\Sign Bridges\PLANSHTS\930414\93041406.dgn

REV. DATE: 07/25/2005

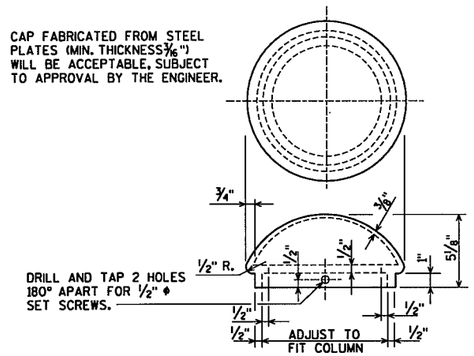
STATE PROJECT NUMBER	SHEET NO.
1166-07-74	



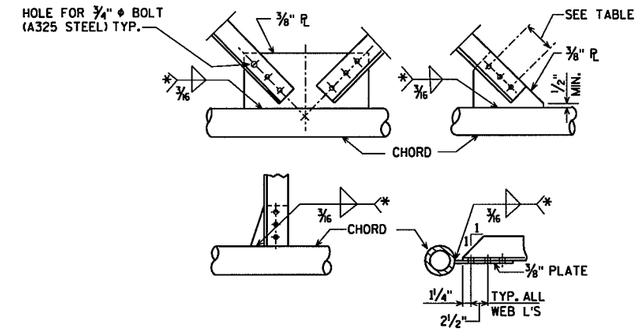
ALTERNATE
ANCHOR PLATE/TEMPLATE PLAN



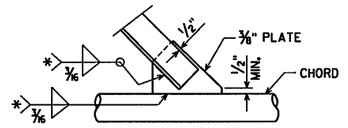
ANCHOR PLATE/TEMPLATE PLAN



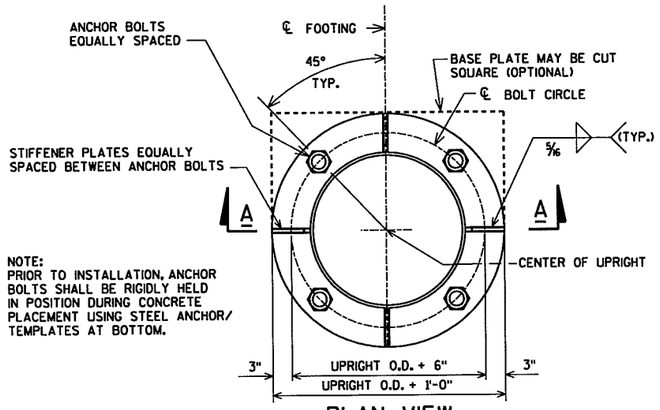
TOWER CAP DETAIL



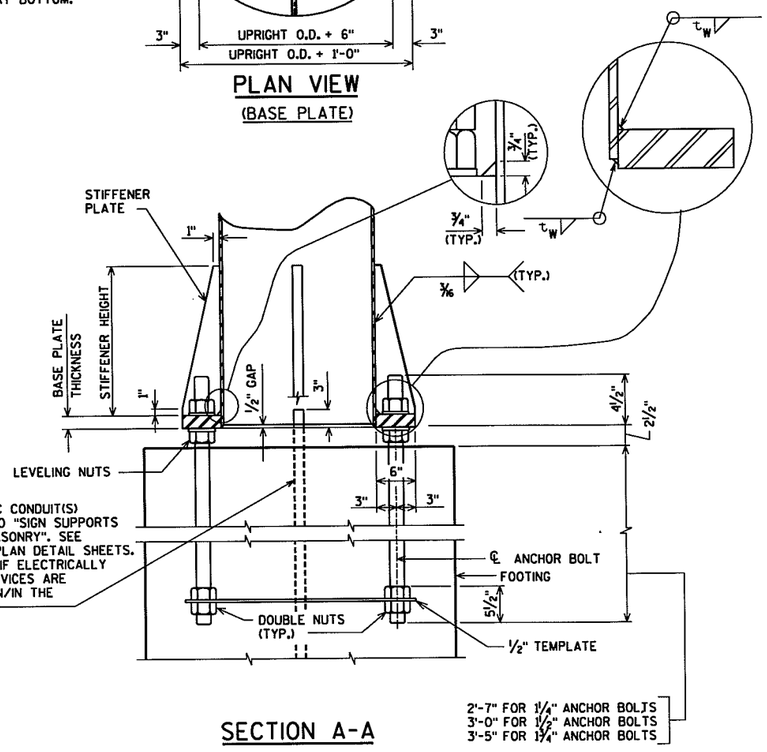
TYPICAL TRUSS CONNECTION DETAILS



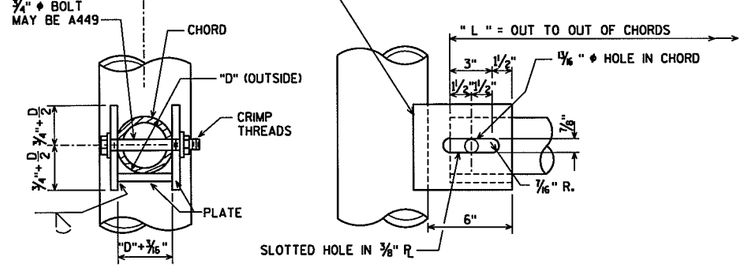
TYPICAL WELDED ALTERNATE



PLAN VIEW
(BASE PLATE)



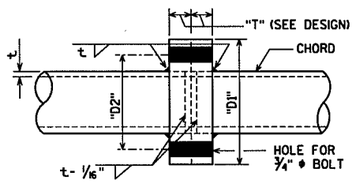
SECTION A-A



TOWER CONNECTION DETAIL

*ANGLE	WELD LENGTH	NO. OF BOLTS
● 2 1/2"x2 1/2"x1/4"	11"	3
3"x3"x3/16"	10"	3
3"x3"x1/4"	13"	4
3"x3"x5/16"	16 1/2"	5
3"x3"x3/8"	19 1/2"	6
4"x4"x1/4"	18"	5
4"x4"x5/16"	22"	6
4"x4"x3/8"	26"	8
4"x4"x7/16"	30"	9
4"x4"x1/2"	34"	10

● ONLY USED FOR BOXED END AND TRANSVERSE BRACING.



COUPLING DETAIL

BASE PLATE & UPRIGHT COLUMN DETAILS

STRUCTURE	COLUMN O.D. X THK.	ANCHOR BOLTS	BASE PLATE THICKNESS (IN.)	STIFFENER PLATE THICKNESS (IN.)	STIFFENER PLATE HEIGHT (IN.)	t_w (IN.)
S-37-56	10.75" x 0.365"	4 - 1 1/4" ϕ	1 1/4"	1/2"	10"	1/4"
S-37-57	12.75" x 0.375"	4 - 1 1/4" ϕ	1 1/4"	1/2"	10"	1/4"

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURES S-37-56, 57

Const. Spec. WI "03"	Drawn By RLR	Plans Checked PHW

4-CHORD SIGN BRIDGE DETAILS

SHEET 7 OF 9

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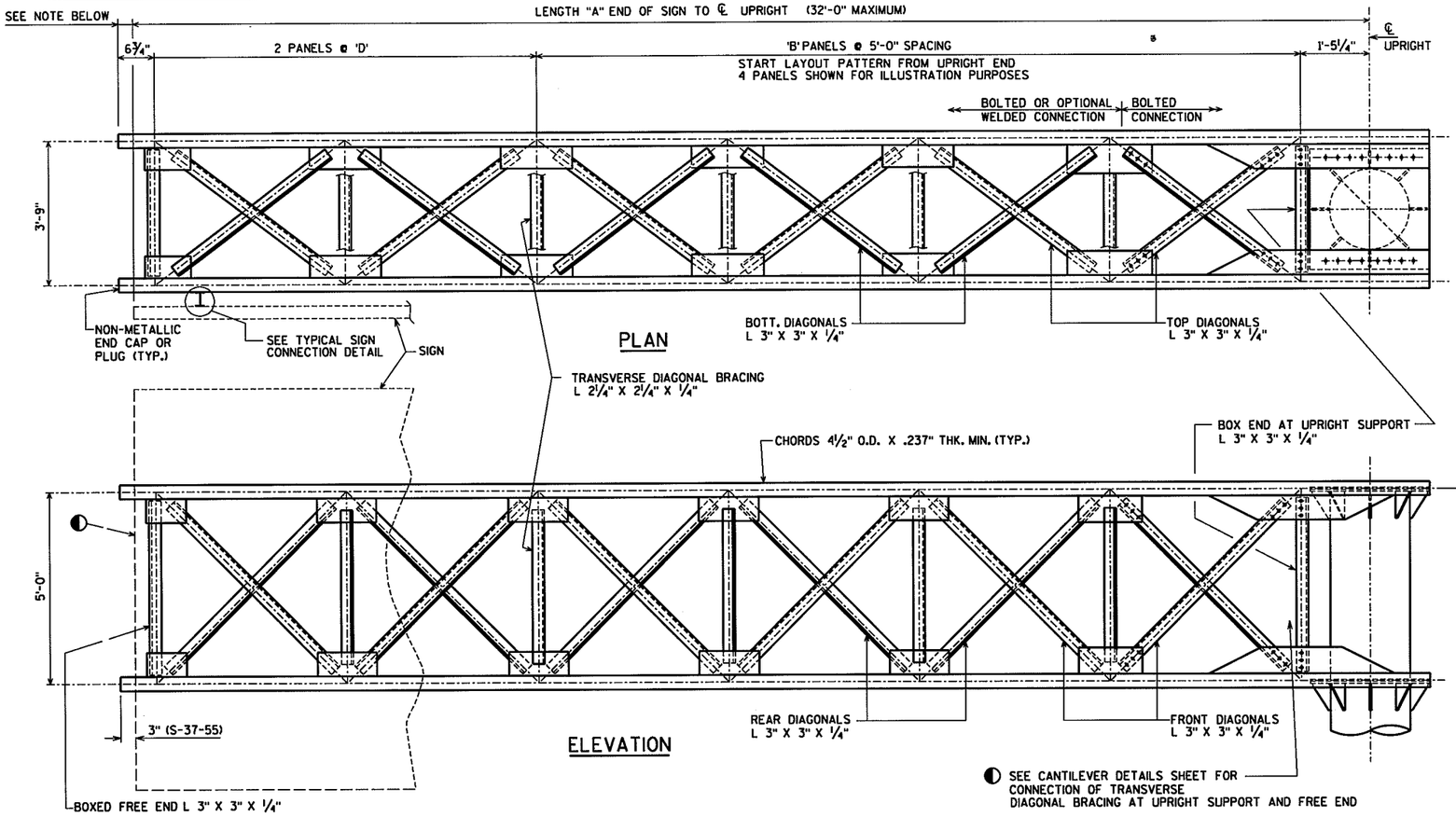
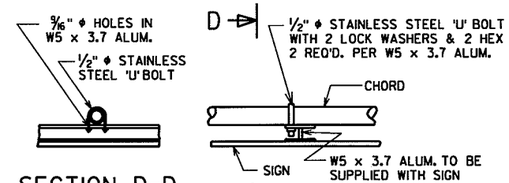
FILE NAME: ...\93041407.dgn

REV. DATE: 04/26/2005

STATE PROJECT NUMBER	SHEET NO.
1166-07-74	





SECTION D-D

TYPICAL SIGN CONNECTION

ALLOWABLE DESIGN STRESSES

CHORDS & COLUMN (INCLD. HANDHOLE) — API-5L-X42 — fy=42,000 P.S.I.
STRUCTURAL ANGLES — A.S.T.M. A709 GRADE 36 — fy=36,000 P.S.I.
PLATES & BARS — A.S.T.M. A709 GRADE 36 — fy=36,000 P.S.I.
ANCHOR BOLTS — A.A.S.H.T.O. M314 — fy=55,000 P.S.I.
HIGH STRENGTH BOLTS - A325 — fy=92,000 P.S.I.
STRUCTURAL MEMBERS GALVANIZED A123
HARDWARE GALVANIZED — A153 CLASS C

STRUCTURE	"A"	"L"	"B"	"D"	"X"	"Y"
S-37-55	21'-9"	22'-8"	2	5'-0"	⅜"	1⅛"

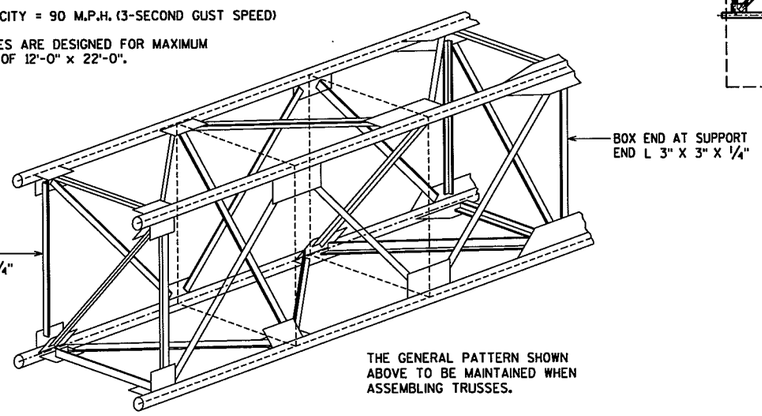
GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

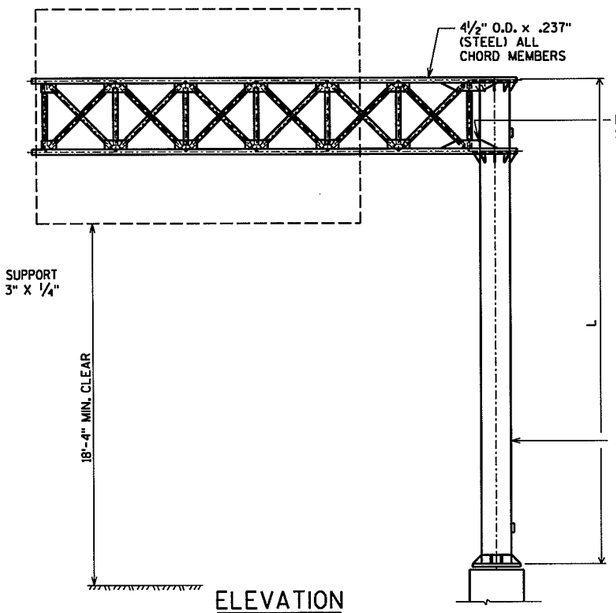
DESIGNED ACCORDING TO A.A.S.H.T.O. "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS"

WIND VELOCITY = 90 M.P.H. (3-SECOND GUST SPEED)

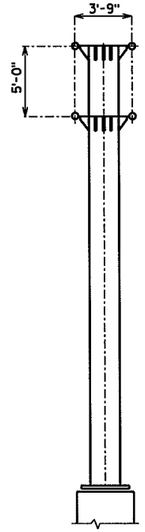
STRUCTURES ARE DESIGNED FOR MAXIMUM SIGN SIZE OF 12'-0" x 22'-0".



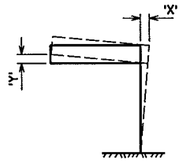
TYPICAL TRUSS SECTION



ELEVATION



END VIEW



CAMBER DIAGRAM

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-37-55

Const. Spec. WI "03" | Drawn By RLR | Plans Checked DHW

GALVANIZED STEEL CANTILEVER SIGN TRUSS

SHEET 8 OF 9

8

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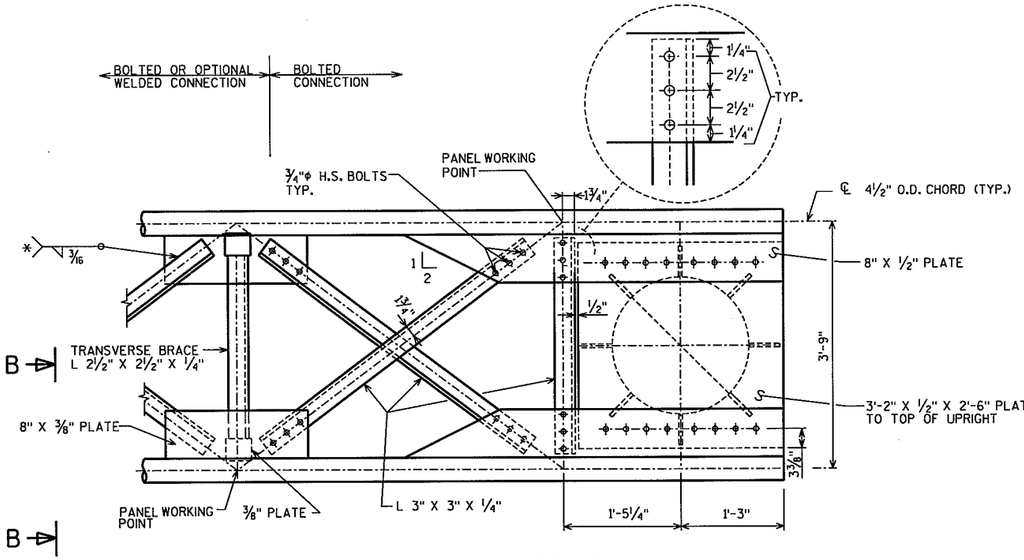
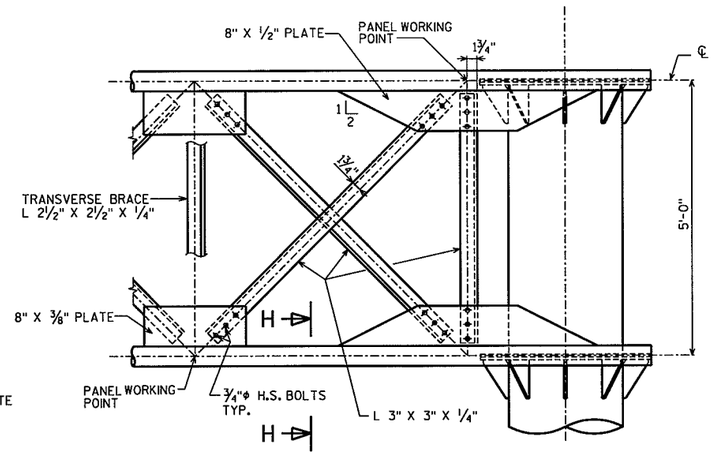
FILE NAME: ...\93041408.dgn

REV. DATE: 04/26/2005

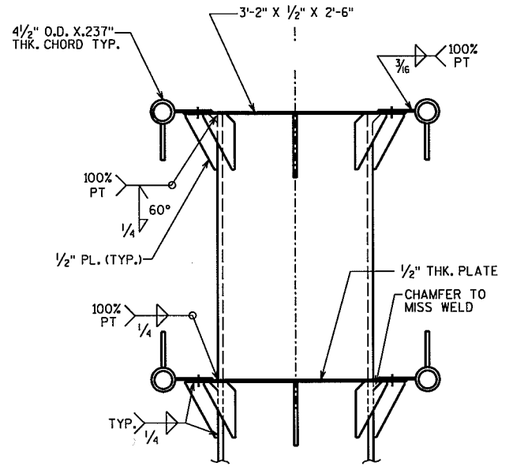
STATE PROJECT NUMBER	SHEET NO.
1166-07-74	



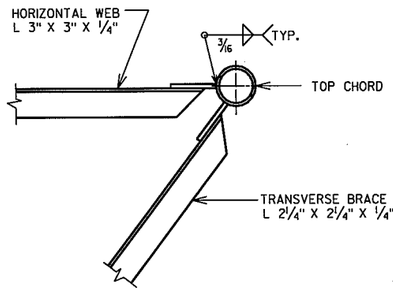
PLAN TRUSS TO UPRIGHT



ELEVATION TRUSS TO UPRIGHT

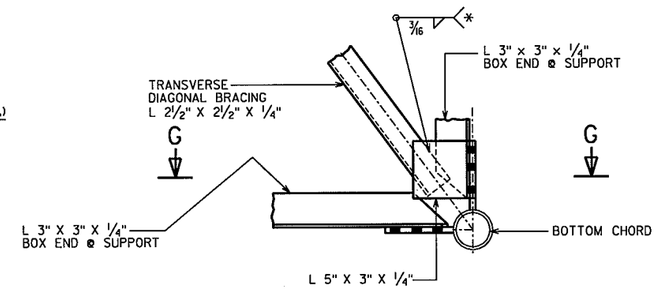


END VIEW
TRUSS TO UPRIGHT

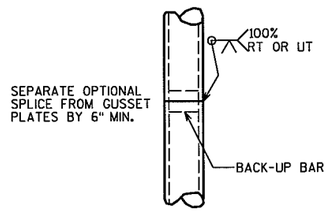


SECTION B-B

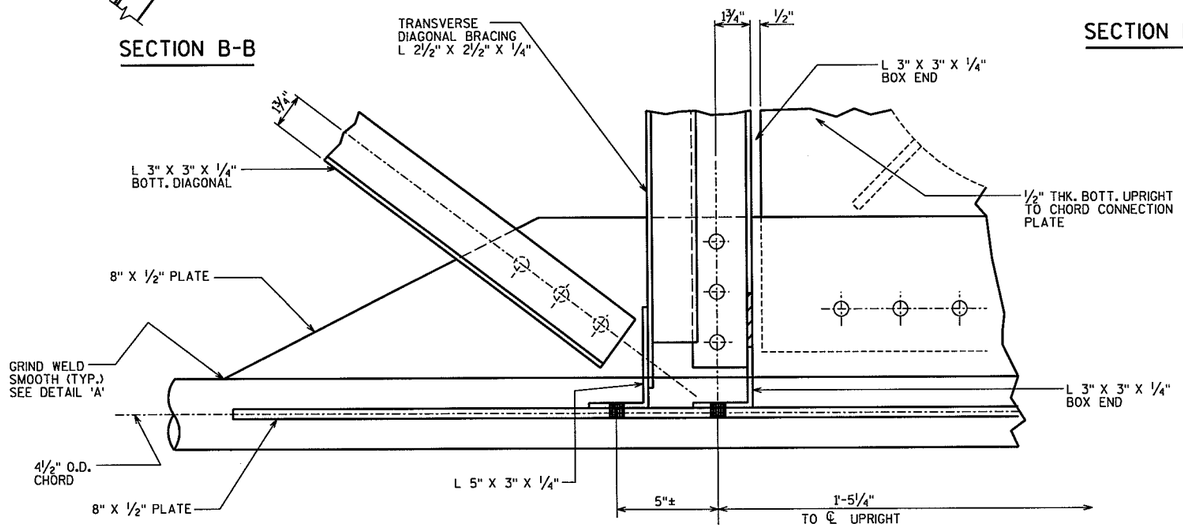
* ANGLE	WELD LENGTH (MIN.)
L 2½" X 2½" X ¼"	7"
L 3" X 3" X ¼"	8"



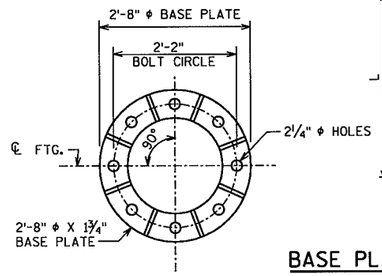
SECTION H-H

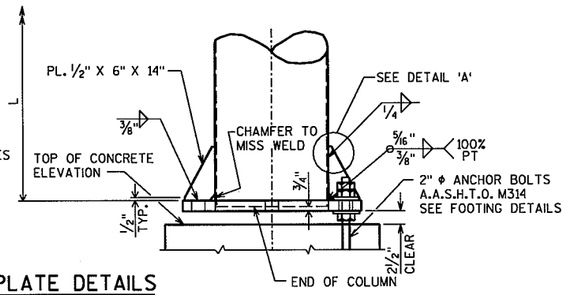


OPTIONAL COLUMN OR CHORD SPLICE DETAIL

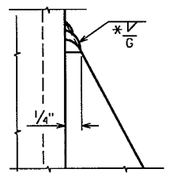


SECTION G-G
(LOOKING DOWN @ BOTT. HORIZ. PLANE @ FRONT CHORD)





BASE PLATE DETAILS



DETAIL 'A'

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-37-55

Const. Spec. WI "03"	Drawn By RLR	Plans Checked DHW

GALVANIZED STEEL CANTILEVER SIGN TRUSS DETAILS

SHEET 9 OF 9

8

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FILE NAME: ...\93041409.dgn

REV. DATE: 04/18/2005