

DESIGN DATA

LIVE LOAD:
 DESIGN LOADING: HL-93
 INVENTORY RATING FACTOR: RF = 1.12
 OPERATING RATING FACTOR: RF = 1.46
 WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 250 (KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY:
 SUPERSTRUCTURE _____ f'c = 4,000 P.S.I.
 ALL OTHER _____ f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT:
 GRADE 60 _____ fy = 60,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 105 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED _____ LONG.

** THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA

100 YEAR FREQUENCY

Q₁₀₀ = _____ C.F.S.
 VEL₁₀₀ = _____ F.P.S.
 HW₁₀₀ = EL. _____
 WATERWAY AREA = _____ SQ. FT.
 DRAINAGE AREA = _____ SQ. MI.
 ROADWAY OVERTOPPING = _____ IN/A
 SCOUR CRITICAL CODE = _____

2 YEAR FREQUENCY

Q₂ = _____ C.F.S.
 VEL₂ = _____ F.P.S.
 HW₂ = EL. _____

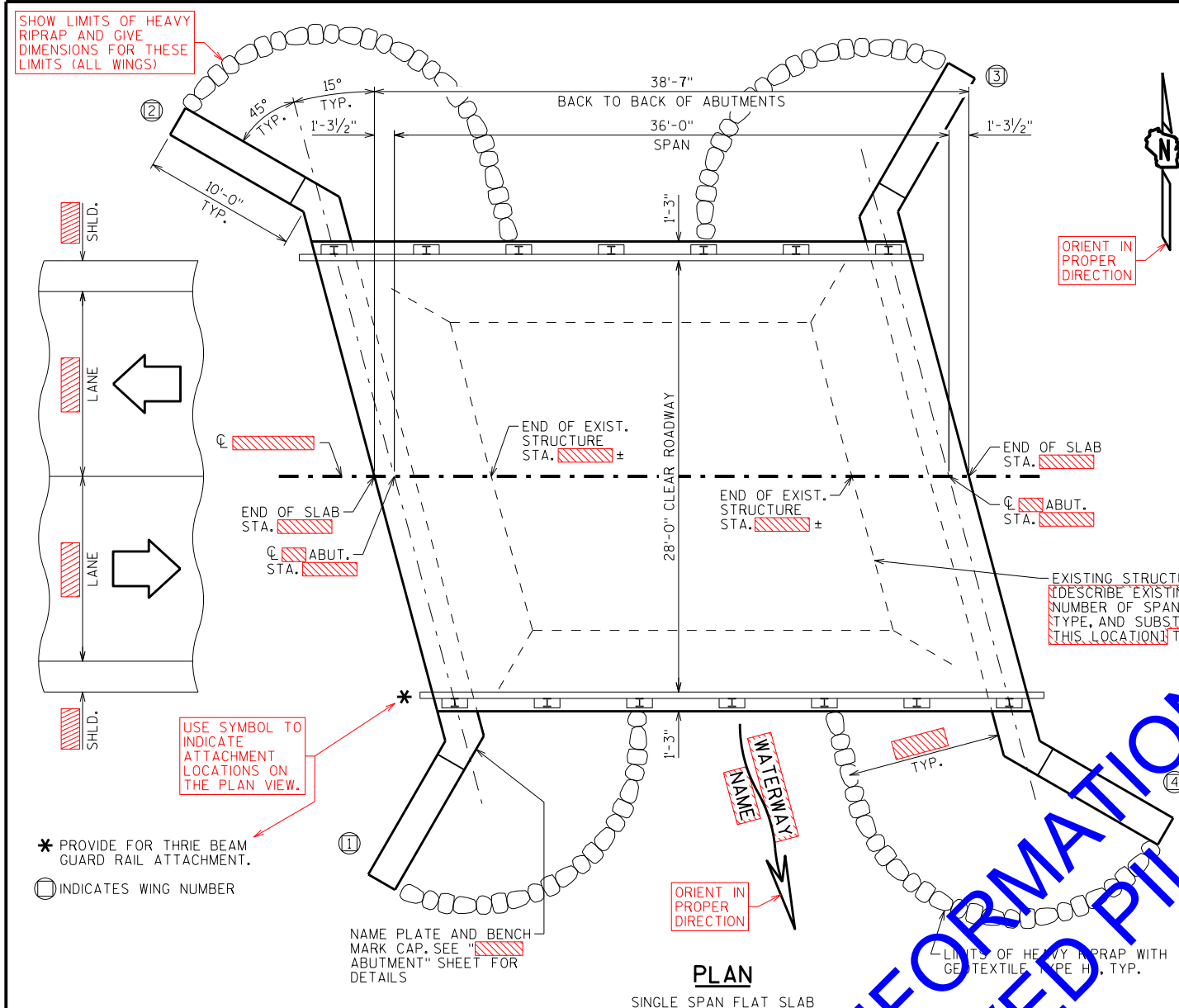
TRAFFIC VOLUME

FEATURE ON

ADT = _____ (YEAR)
 R.D.S. = _____ M.P.H.

FEATURE UNDER

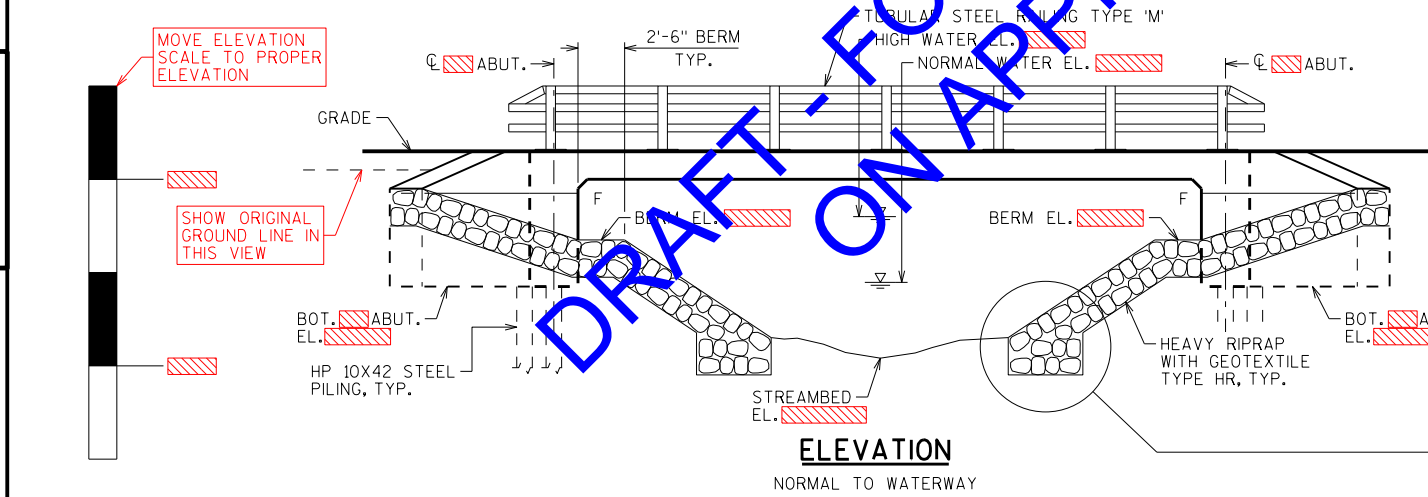
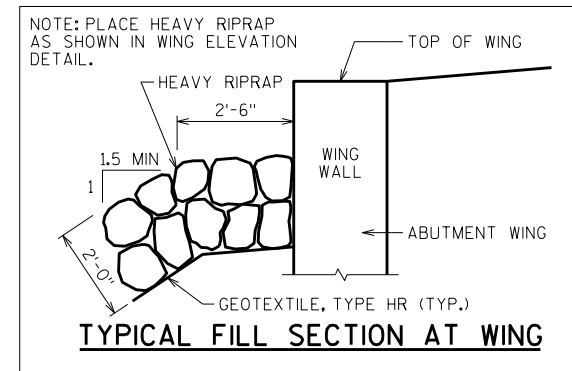
ADT = _____ (YEAR)
 R.D.S. = _____ M.P.H.



USE SYMBOL TO INDICATE ATTACHMENT LOCATIONS ON THE PLAN VIEW.

* PROVIDE FOR THREE BEAM GUARD RAIL ATTACHMENT.

⊙ INDICATES WING NUMBER



LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. ABUTMENT
5. ABUTMENT DETAILS
6. ABUTMENT
7. ABUTMENT DETAILS
8. SUPERSTRUCTURE
9. SUPERSTRUCTURE DETAILS
10. TUBULAR STEEL RAILING TYPE 'M'

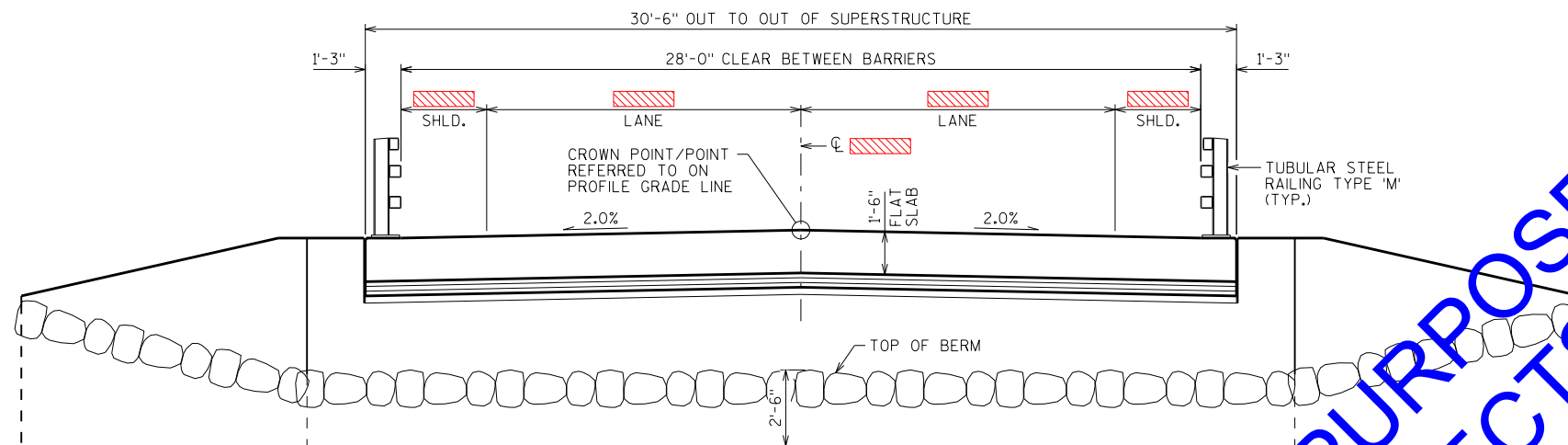
PROVIDE SUBSURFACE EXPLORATION SHEET

NO.	DATE	REVISION	BY
(COMPANY NAME & LOGO)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED _____		DATE _____	
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-_____-_____			
HWY. NAME _____		OVER WATERWAY NAME _____	
COUNTY _____	TOWN/CITY/VILLAGE _____		
DESIGN SPEC. _____			
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY _____	DESIGN CK'D. _____	DRAWN BY _____	PLANS CK'D. _____
GENERAL PLAN			SHEET 1 OF 10

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GENERAL NOTES

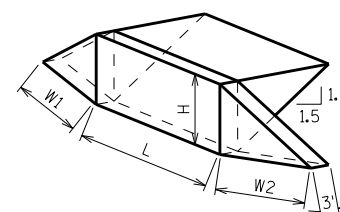
- DRAWINGS SHALL NOT BE SCALED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- LEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.
- THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES B- [REDACTED]" SHALL BE THE EXISTING GROUNDLINE.
- AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.
- EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.
- THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.
- ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK AND APPROACH SLAB SURFACES AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES AT ABUTMENT DIAPHRAGMS.
- THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE "HR" TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.
- AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.



CROSS SECTION THRU ROADWAY
LOOKING UPSTATION

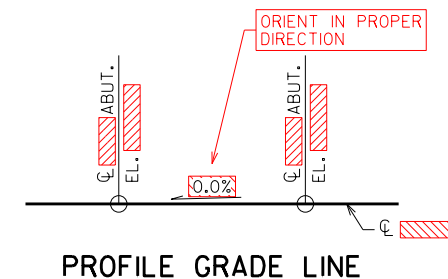
BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

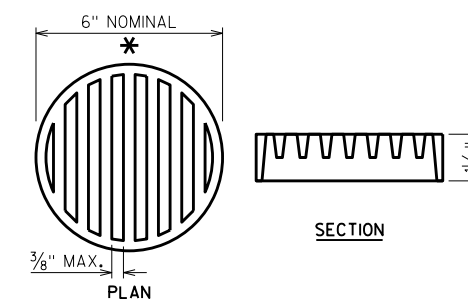


ABUTMENT BACKFILL DIAGRAM

- L = OUT TO OUT OF ABUTMENT BODY (FT)
- H = AVERAGE ABUTMENT FILL HEIGHT (FT)
- W1 = WING 1 LENGTH (FT)
- W2 = WING 2 LENGTH (FT)
- EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
- $V_{CF} = (L)(3.0)(H) + (L)(0.5)(1.5H)(H) + (3.0)(0.5)(W1+W2)(H)$
- $V_{CY} = V_{CF} (EF) / 27$
- $V_{TON} = V_{CY} (2.0)$



PROFILE GRADE LINE



RODENT SHIELD DETAIL

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

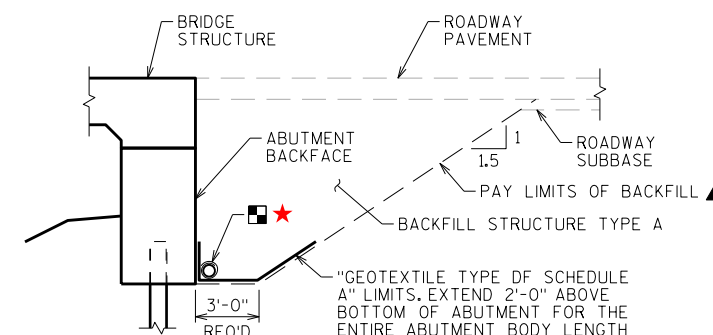
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	ABUT.	ABUT.	TOTALS
203.0500.S	REMOVING OLD STRUCTURE OVER WATERWAY STA. [REDACTED]	LS	---	---	---	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B- [REDACTED]	LS	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	---	186	186	372
502.0100	CONCRETE MASONRY BRIDGES	CY	71	33	33	137
502.3200	PROTECTIVE SURFACE TREATMENT	SY	131	---	---	131
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	---	2,080	2,080	4,160
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	16,190	1,580	1,580	19,350
513.4061	RAILING TUBULAR TYPE M	LF	79	---	---	79
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	---	13	13	26
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	---	[REDACTED]	[REDACTED]	[REDACTED]
606.0300	RIPRAP HEAVY	CY	---	[REDACTED]	[REDACTED]	[REDACTED]
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	---	70	70	140
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	---	34	34	68
645.0120	GEOTEXTILE TYPE HR	SY	---	[REDACTED]	[REDACTED]	[REDACTED]
NON-BID ITEMS						
	FILLER	SIZE	---	---	---	1/2", 3/4", 1/2"

CALCULATED QUANTITIES AND COMPLETE TABLE



TYPICAL SECTION THRU ABUTMENT

▲ BACKFILL PAY LIMITS, BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

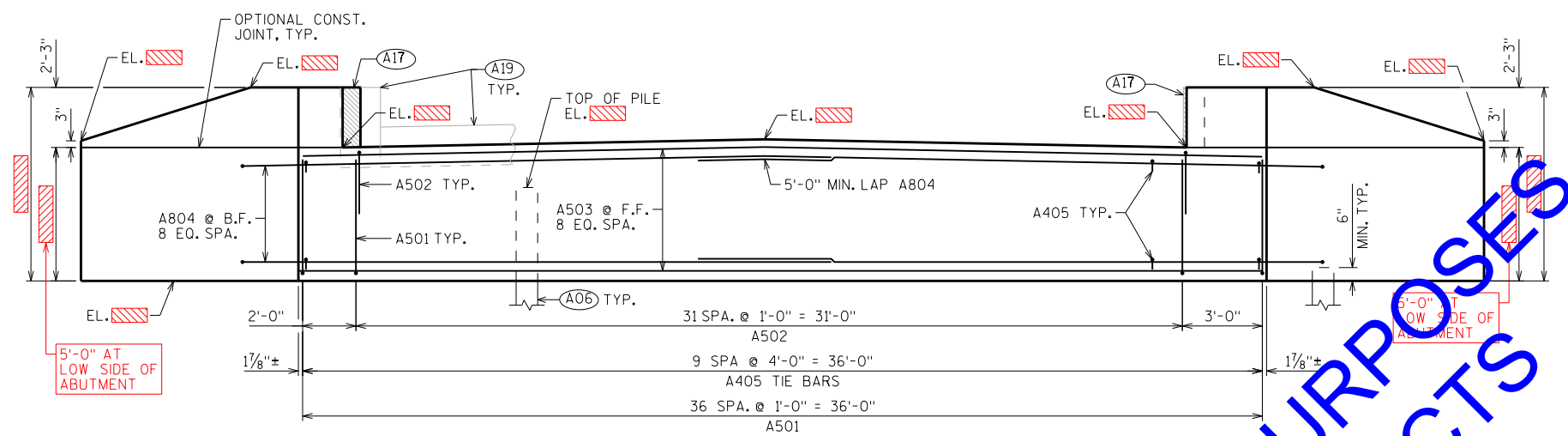
■ PIPE UNDERDRAIN WRAPPED (6 INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

* FOR BOTTOM OF ABUTMENTS LOCATED BELOW NORMAL WATER, PLACE UNDERDRAIN ABOVE NORMAL WATER. SEE BIDGE MANUAL 12.6.1 FOR ADDITIONAL GUIDANCE

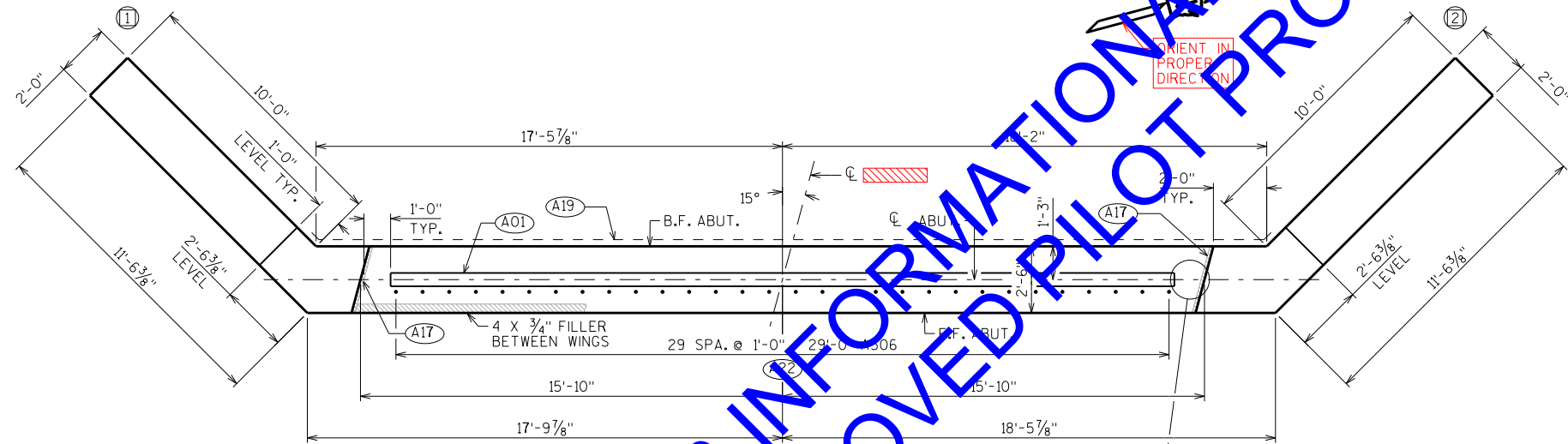
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B- [REDACTED]			
DRAWN BY [REDACTED]		PLANS CKD. [REDACTED]	
CROSS SECTION & QUANTITIES			SHEET 2

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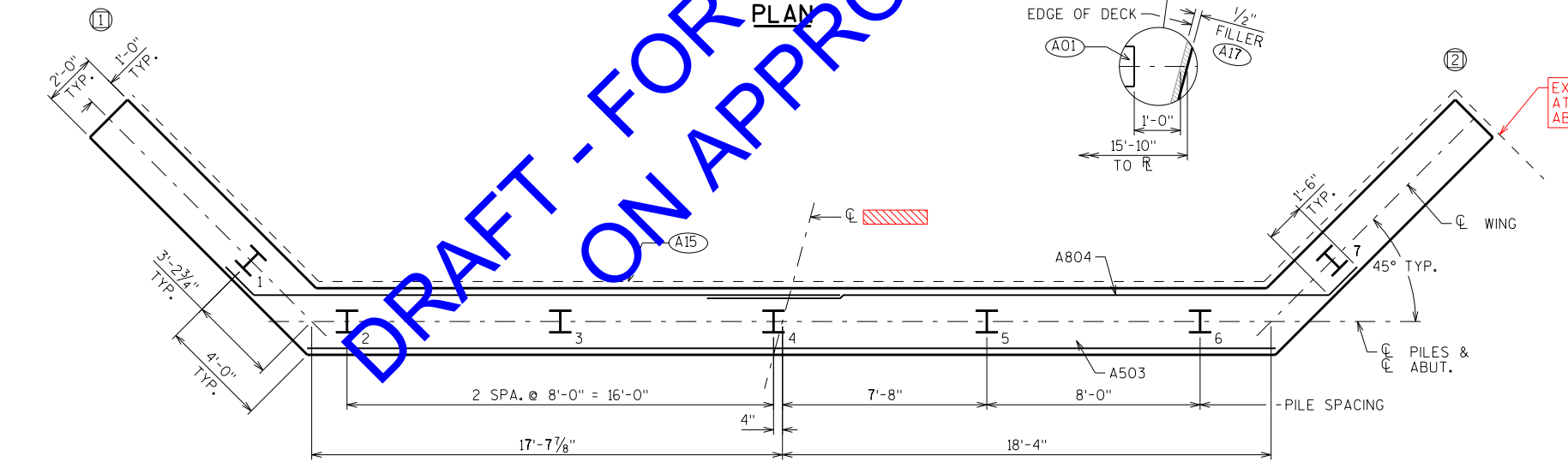
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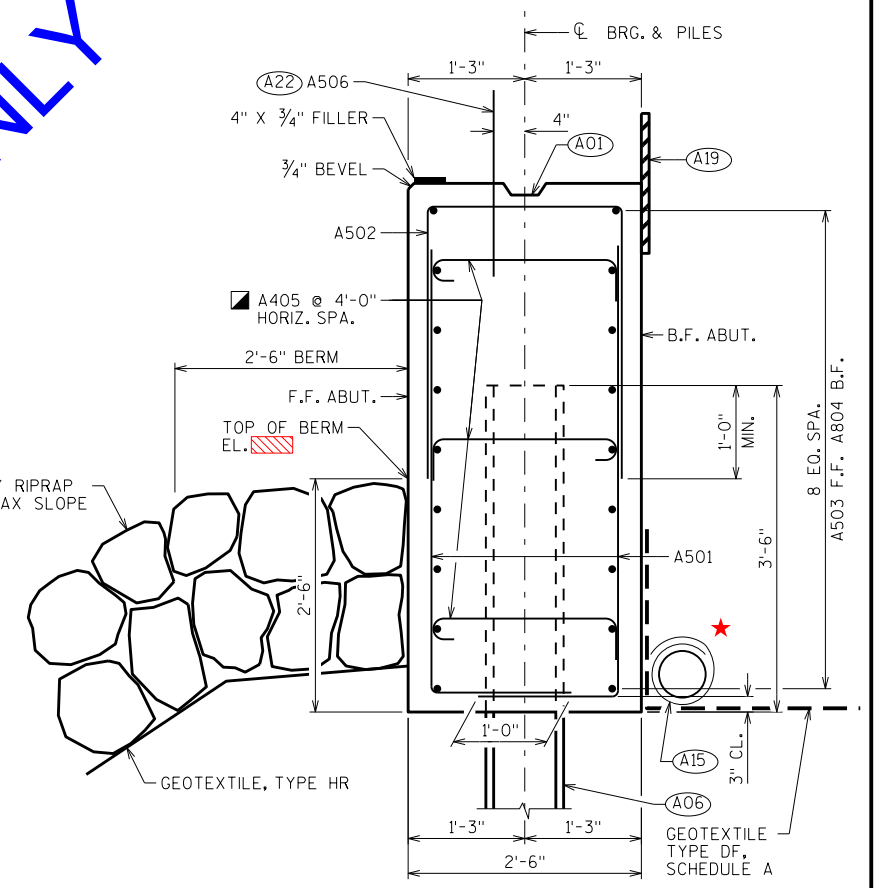
ELEVATION
LOOKING DOWNSTREAM



PLAN



PILE PLAN



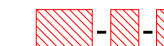
SECTION THRU BODY

- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 10'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A22) A506 BARS SPACED @ 1'-0" CTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- ALTERNATE THE POSITION OF 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES

NO.	DATE	REVISION	BY
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STRUCTURE B- -			
DRAWN BY		PLANS CKD.	
ABUTMENT		SHEET 4	

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⓪ INDICATES WING NUMBER

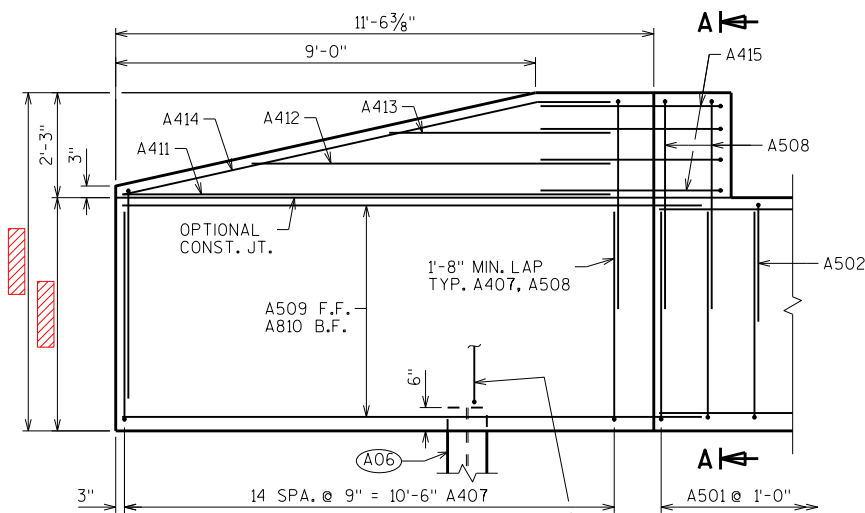


BILL OF BARS

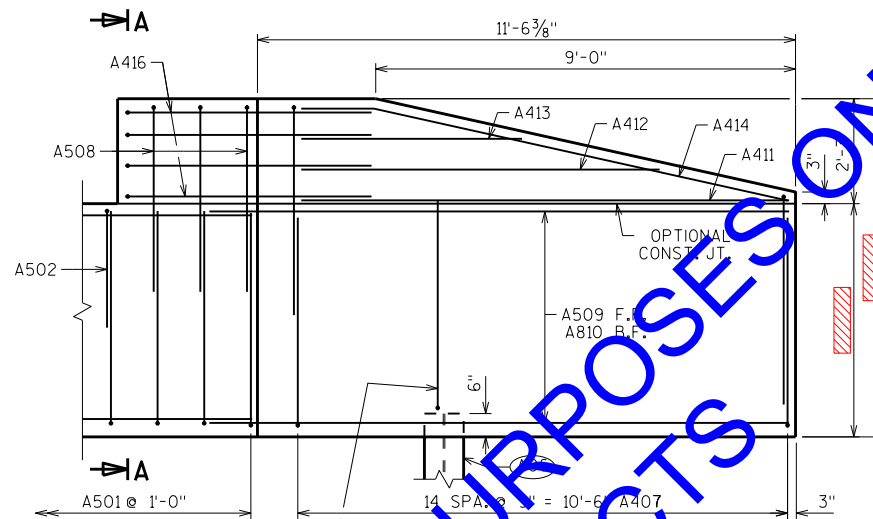
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		64	6'-0"	X		ABUT BODY STIRRUPS
A502		32	7'-3"	X		ABUT BODY STIRRUPS - TOP U-BAR
A503		9	36'-4"			ABUT BODY HORIZ. - F.F.
A804		18	21'-8"	X		ABUT BODY HORIZ. - B.F.
A405		27	3'-0"	X		ABUT BODY TIE BARS
A506	X	30	2'-0"			ABUT BODY DOWEL BARS
A407	X	60	10'-6"	X		WING STIRRUPS
A508	X	5	5'-11"	X		WING CORNER STIRRUPS
A509	X	18	12'-9"	X		WING LOWER HORIZ. F.F.
A810	X	18	14'-3"	X		WING LOWER HORIZ. B.F.
A411	X	4	10'-6"			WING UPPER HORIZ.
A412	X	4	7'-7"			WING UPPER HORIZ.
A413	X	4	4'-8"			WING UPPER HORIZ.
A414	X	4	10'-8"	X		WING TOP HORIZ.
A415	X	4	8'-6"	X		WING 1 UPPER HORIZ. CORNER
A416	X	4	10'-0"	X		WING 2 UPPER HORIZ. CORNER

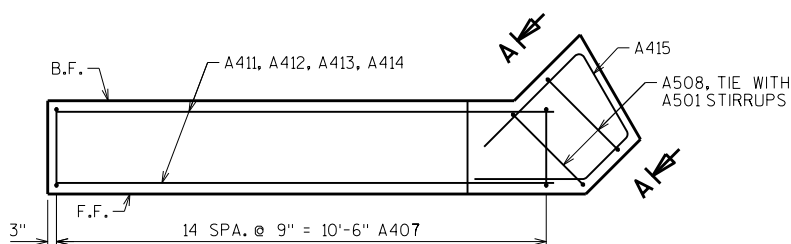
▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



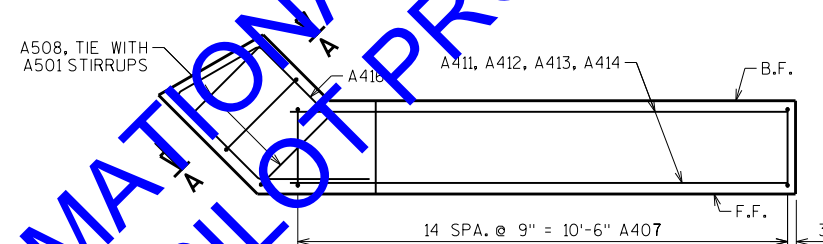
WING 1 ELEVATION
SHOWING F.F. WING



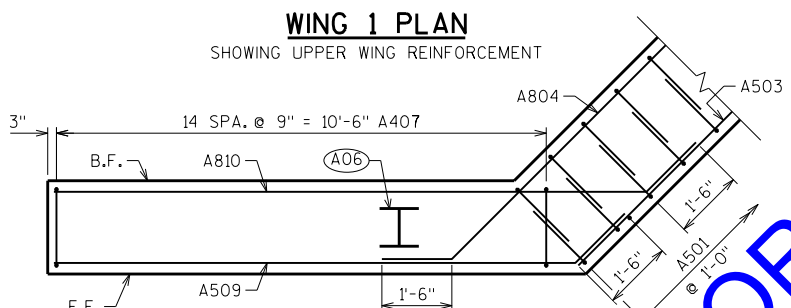
WING 2 ELEVATION
SHOWING F.F. WING



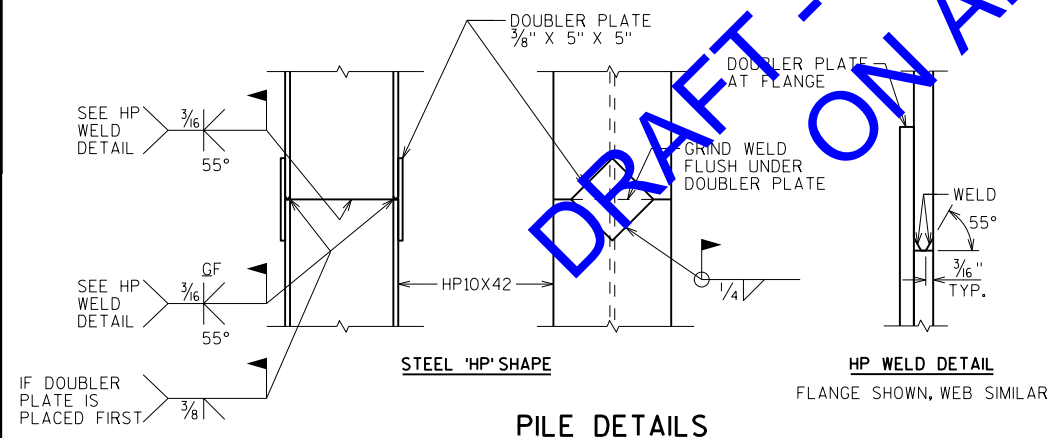
WING 1 PLAN
SHOWING UPPER WING REINFORCEMENT



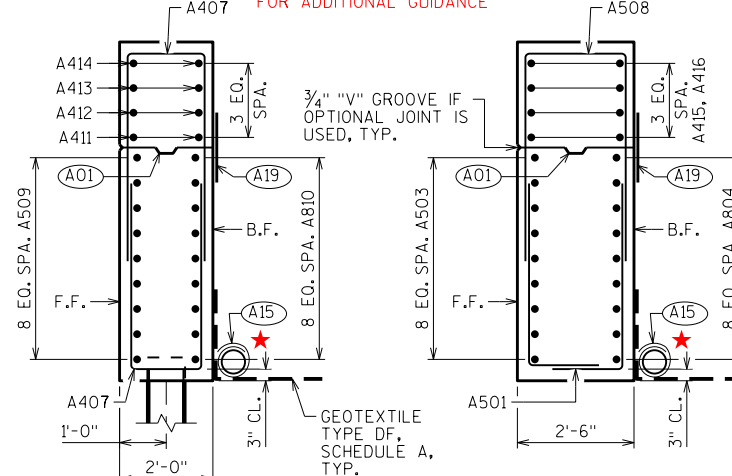
WING 2 PLAN
SHOWING UPPER WING REINFORCEMENT



WING 1 PLAN
SHOWING LOWER WING REINFORCEMENT
WING 2 SIMILAR

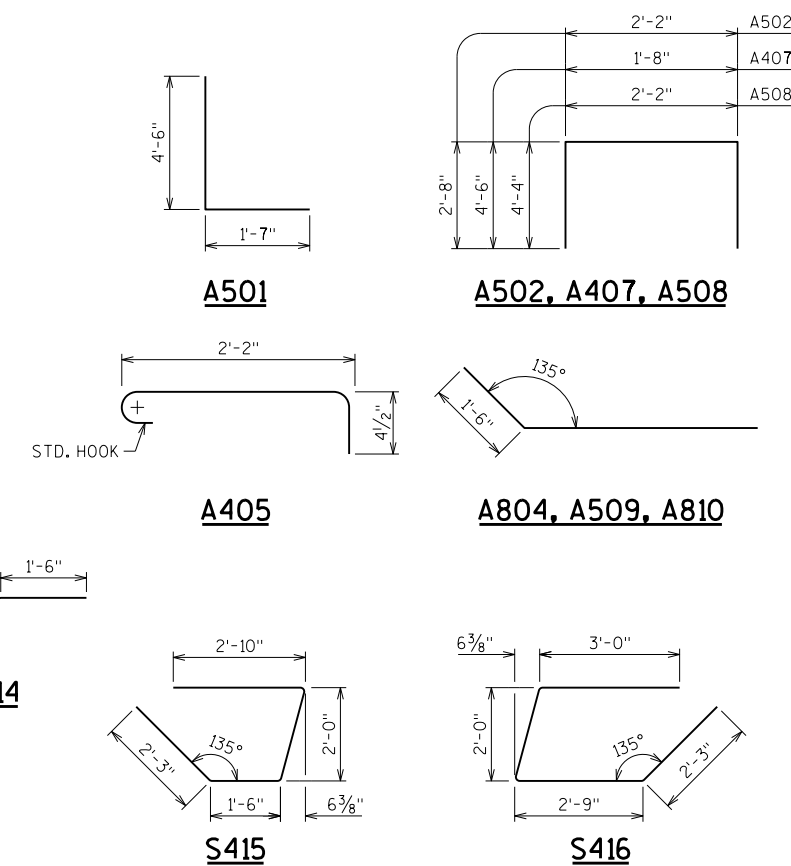


PILE DETAILS



SECTION THRU WING 1
WING 2 SIMILAR

SECTION A-A



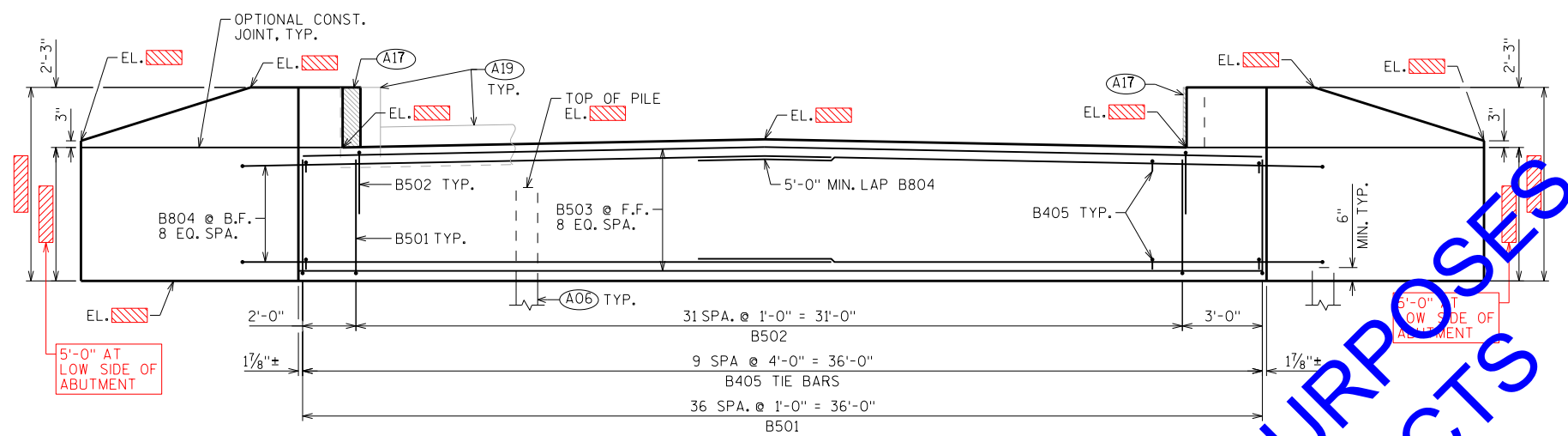
★ FOR BOTTOM OF ABUTMENTS LOCATED BELOW NORMAL WATER, PLACE UNDERDRAIN ABOVE NORMAL WATER. SEE BIDGE MANUAL 12.6.1 FOR ADDITIONAL GUIDANCE

- (A01) OPTIONAL CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 X 6. PROVIDE A 3/4" "V" GROOVE ON F.F. OF WINGWALL IF JOINT IS USED
- (A06) SUPPORT ABUTMENT ON HP 10 X 42 STEEL PILING, ESTIMATED 180'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING ONLY IF OPTIONAL CONSTRUCTION JOINT IS USED. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY STRUCTURES"

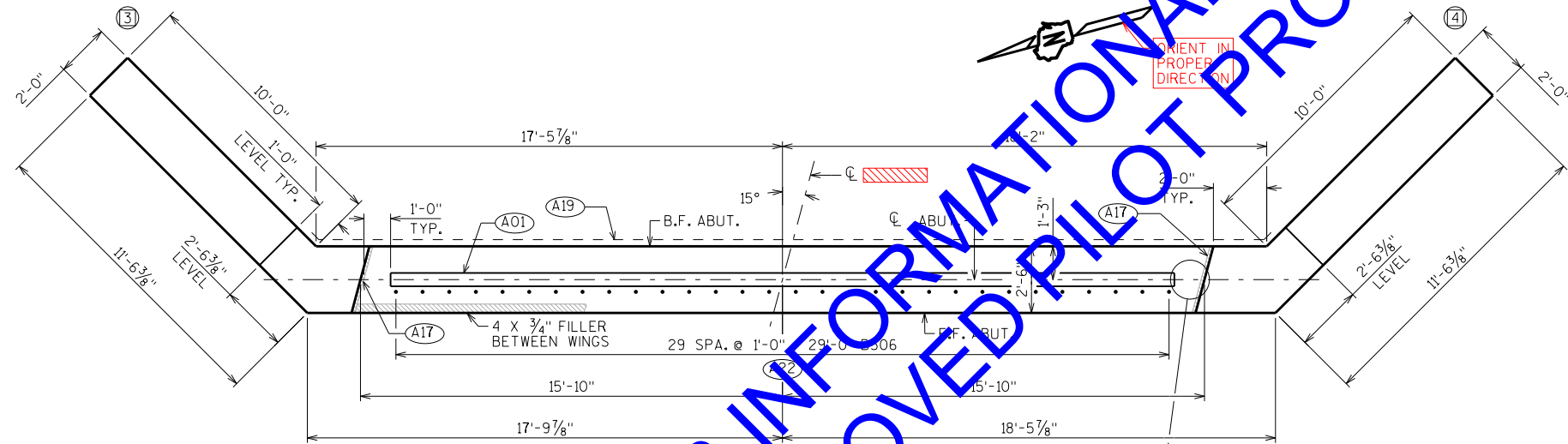
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B- -			
DRAWN BY		PLANS CKD.	
ABUTMENT DETAILS			SHEET 5

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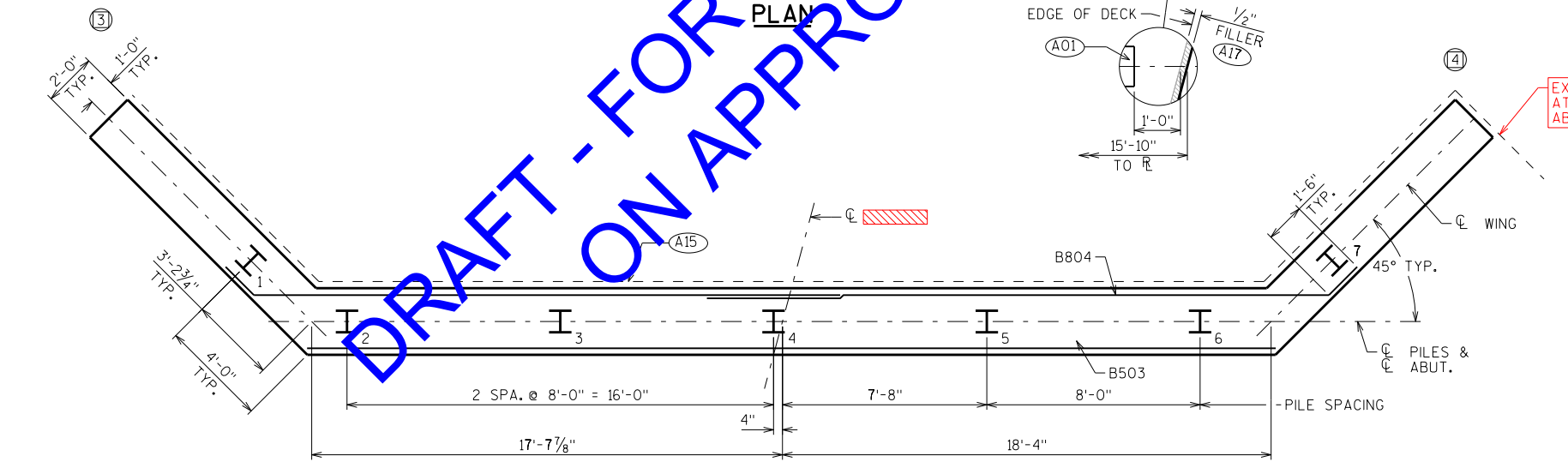
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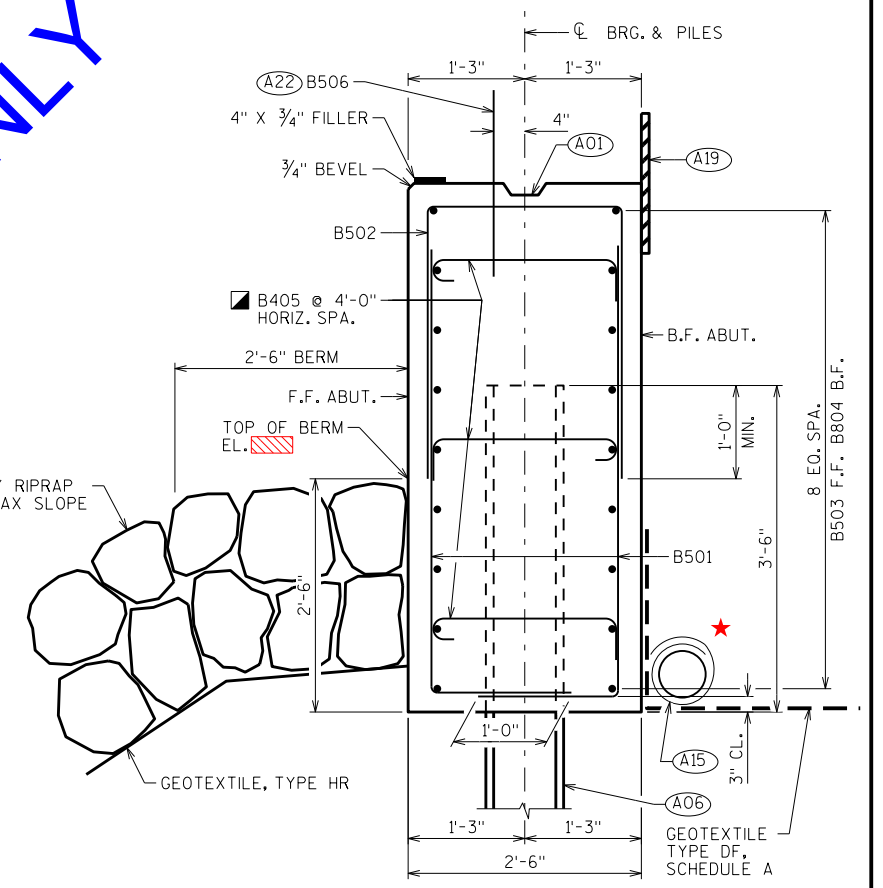
ELEVATION
LOOKING UPSTATION



PLAN



PILE PLAN



SECTION THRU BODY

- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 1'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
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- ALTERNATE THE POSITION OF 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES

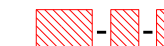
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B- -			
DRAWN BY		PLANS CKD.	
ABUTMENT		SHEET 6	

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⊙ INDICATES WING NUMBER

8

8

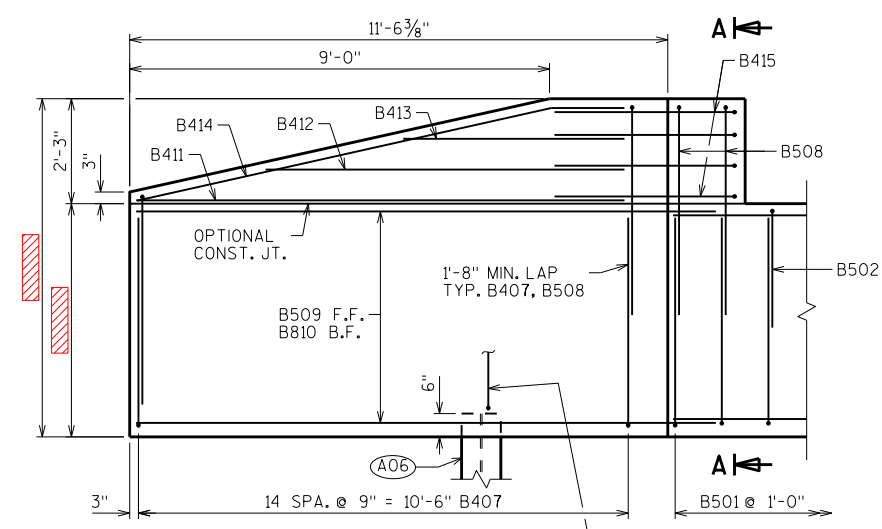


BILL OF BARS

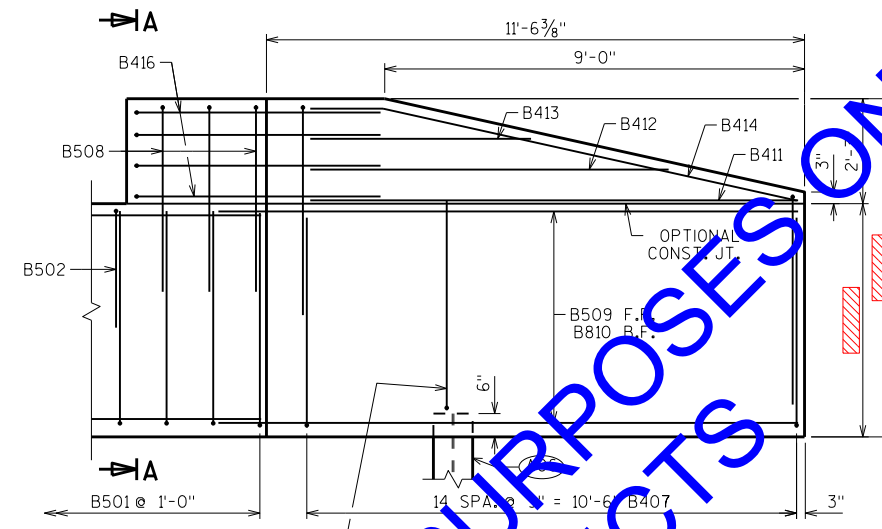
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B502		32	7'-3"	X		ABUT BODY STIRRUPS - TOP U-BAR
B503		9	36'-4"			ABUT BODY HORIZ. - F.F.
B804		18	21'-8"	X		ABUT BODY HORIZ. - B.F.
B405		27	3'-0"	X		ABUT BODY TIE BARS
B506	X	30	2'-0"			ABUT BODY DOWEL BARS
B407	X	60	10'-6"	X		WING STIRRUPS
B508	X	5	5'-11"	X		WING CORNER STIRRUPS
B509	X	18	12'-9"	X		WING LOWER HORIZ. F.F.
B810	X	18	14'-3"	X		WING LOWER HORIZ. B.F.
B411	X	4	10'-6"			WING UPPER HORIZ.
B412	X	4	7'-7"			WING UPPER HORIZ.
B413	X	4	4'-8"			WING UPPER HORIZ.
B414	X	4	10'-8"	X		WING TOP HORIZ.
B415	X	4	8'-6"	X		WING 1 UPPER HORIZ. CORNER
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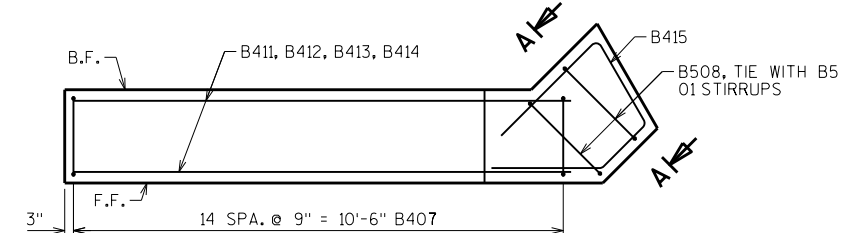
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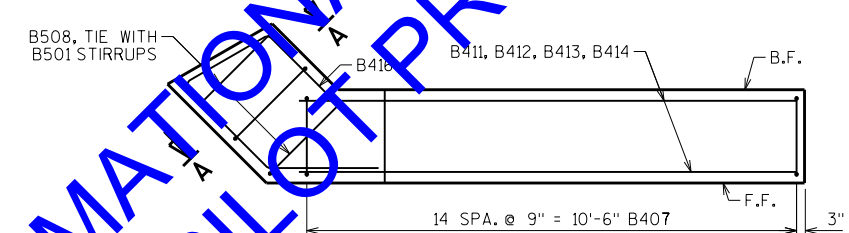
WING 3 ELEVATION
SHOWING F.F. WING



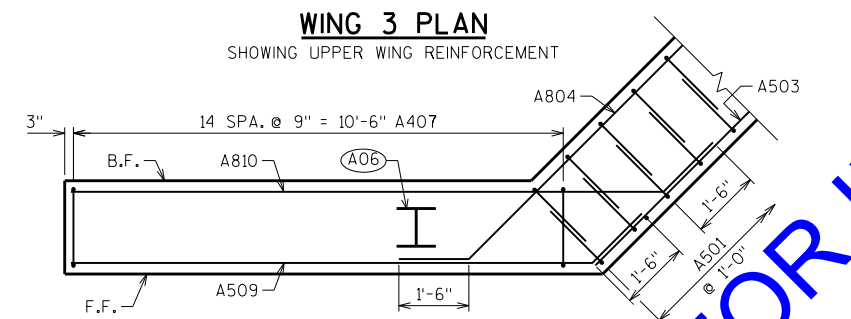
WING 4 ELEVATION
SHOWING F.F. WING



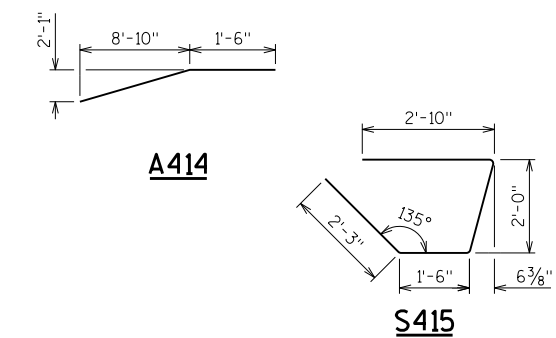
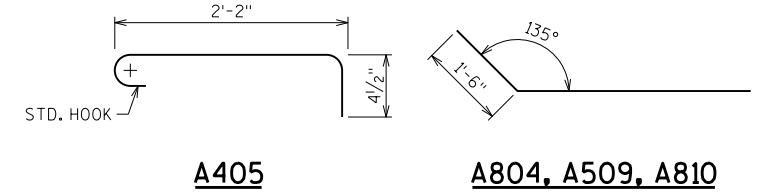
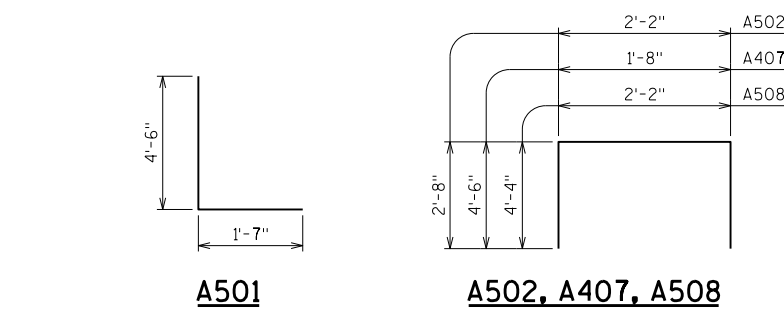
WING 3 PLAN
SHOWING UPPER WING REINFORCEMENT



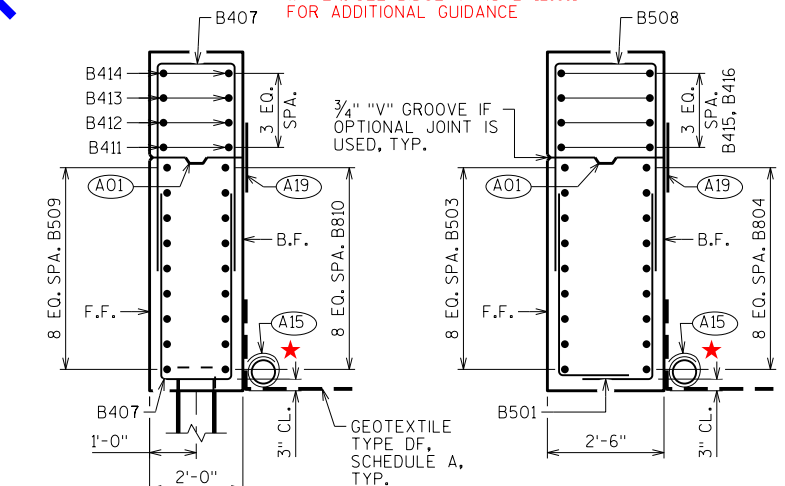
WING 4 PLAN
SHOWING UPPER WING REINFORCEMENT



WING 3 PLAN
SHOWING LOWER WING REINFORCEMENT
WING 4 SIMILAR



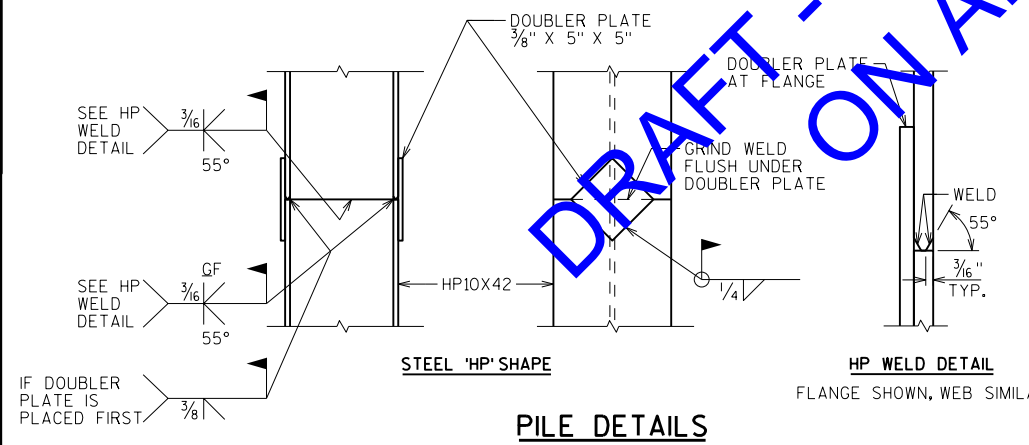
★ FOR BOTTOM OF ABUTMENTS LOCATED BELOW NORMAL WATER, PLACE UNDERDRAIN ABOVE NORMAL WATER. SEE BIDGE MANUAL 12.6.1 FOR ADDITIONAL GUIDANCE



SECTION THRU WING 3
WING 4 SIMILAR

SECTION A-A

8

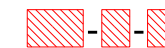


PILE DETAILS

- (A01) OPTIONAL CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 X 6. PROVIDE A 3/4" "V" GROOVE ON F.F. OF WINGWALL IF JOINT IS USED
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 10'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING ONLY IF OPTIONAL CONSTRUCTION JOINT IS USED. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY STRUCTURES"

NO.	DATE	REVISION	BY
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STRUCTURE B- -			
DRAWN BY		PLANS CKD.	
ABUTMENT DETAILS		SHEET 7	

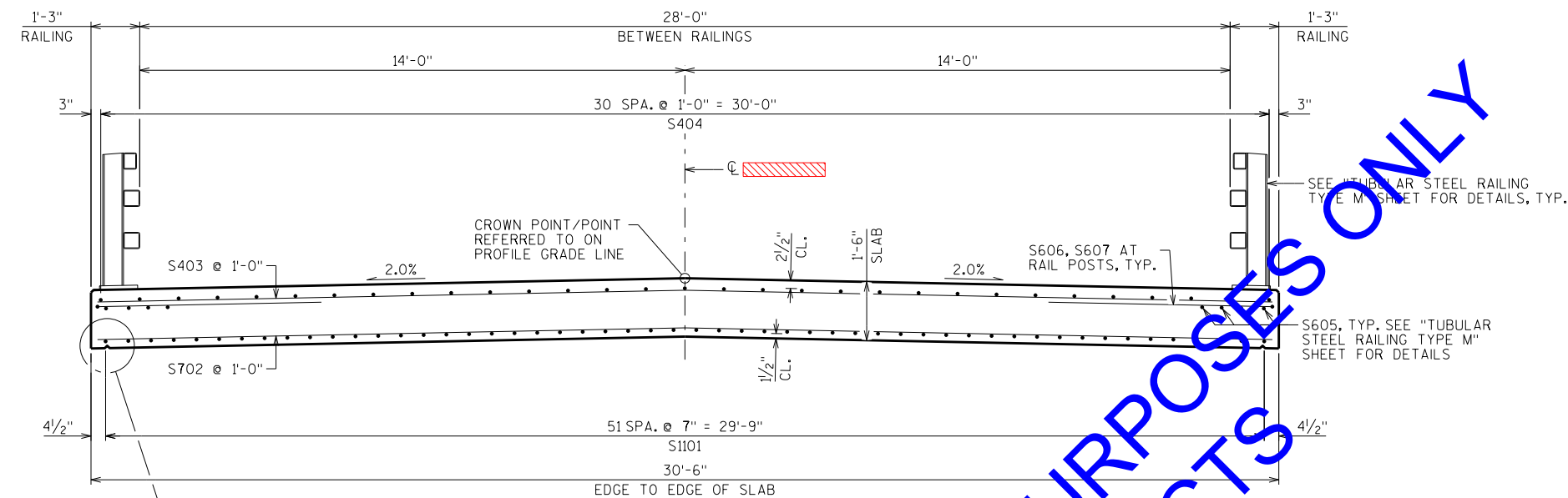
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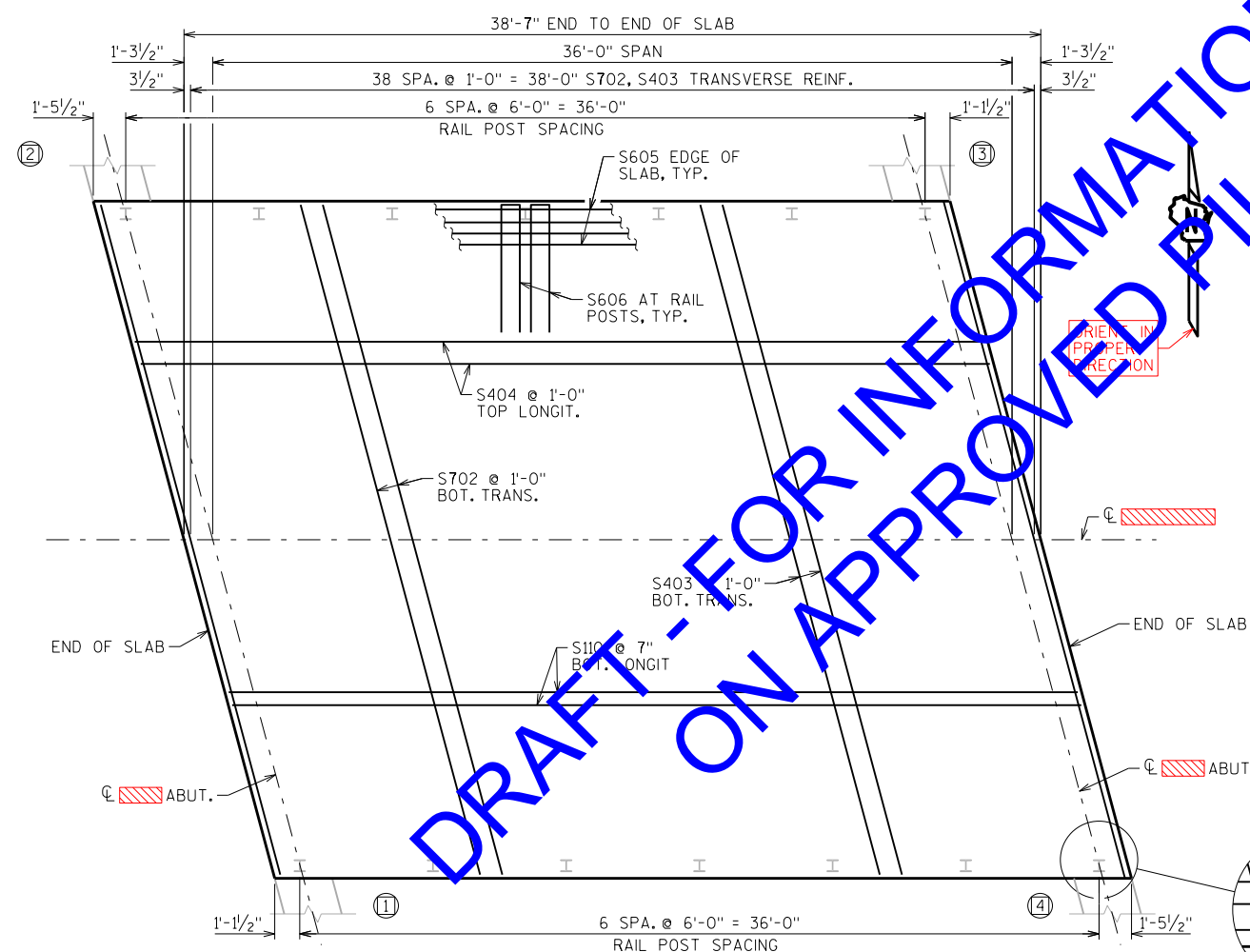
GENERAL NOTES

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

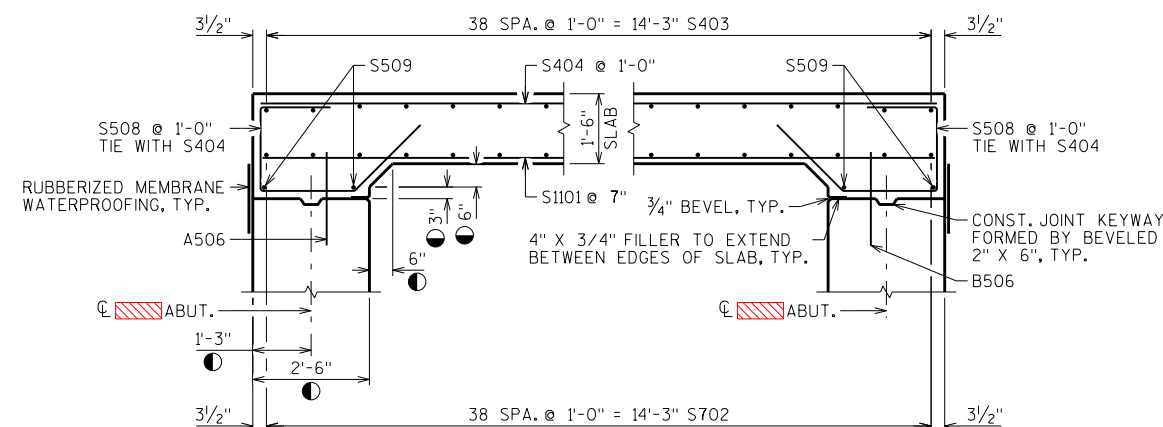
ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).



CROSS SECTION THRU ROADWAY



PLAN



LONGITUDINAL SECTION

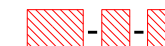
DIMENSIONS ARE GIVEN PARALLEL TO CL ROADWAY UNLESS OTHERWISE NOTED

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MEASURED NORMAL TO THE CL OF ABUTMENT. DIMENSIONS ARE TYPICAL FOR BOTH ABUTMENTS.

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STRUCTURE B--			
DRAWN BY		PLANS CKD.	
SUPERSTRUCTURE			SHEET 8

Ⓢ INDICATES WING NUMBER



BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

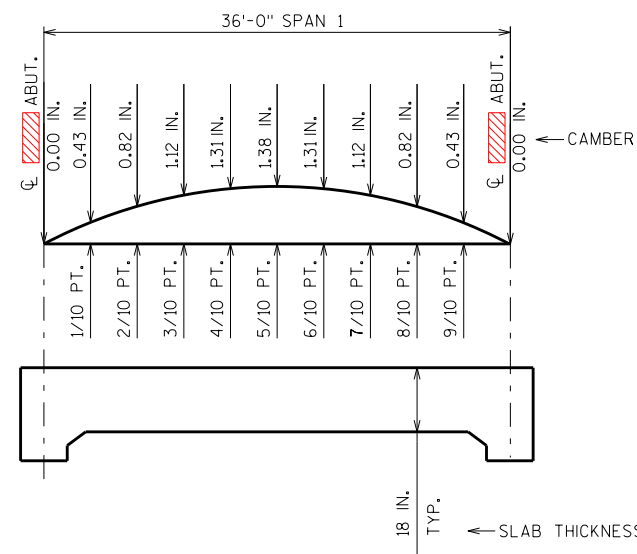
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S1101	X	52	38'-2"			SLAB BOTTOM LONGITUDINAL
S702	X	39	31'-2"			SLAB BOTTOM TRANSVERSE
S403	X	39	31'-2"			SLAB TOP TRANSVERSE
S404	X	31	38'-2"			SLAB TOP LONGITUDINAL
S605	X	8	38'-2"			SLAB TOP LONGITUDINAL UNDER RAILINGS
S606	X	24	12'-0"	X		SLAB TOP @ RAIL POST
S607	X	4	12'-0"	X		SLAB TOP @ WING 2 & 4 RAIL END POSTS
S508	X	62	7'-2"	X		STIRRUPS @ ABUTMENT
S509	X	4	31'-2"			ABUTMENT DIAPHRAGM LONGITUDINAL

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

SURVEY TOP OF SLAB ELEVATIONS

	ABUTMENT	5/10 PT.	ABUTMENT
☒ GUTTER			
CROWN OR \mathcal{R}			
☒ GUTTER			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE \mathcal{C} OF ABUTMENTS, THE \mathcal{C} OF PIERS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR \mathcal{C} . RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

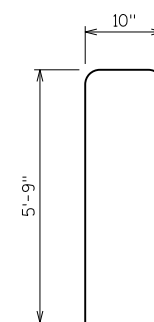


CAMBER AND SLAB THICKNESS DIAGRAM

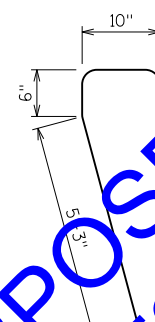
CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS. CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED, EXCEPT FOR STAGED CONSTRUCTION.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

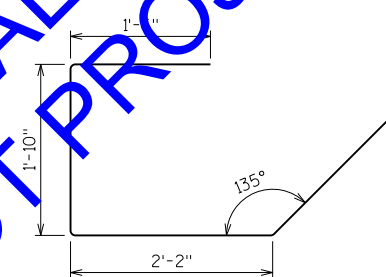
- LESS TOP OF SLAB ELEVATION AT FINAL GRADE
- PLUS SLAB THICKNESS
- PLUS CAMBER
- PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
- EQUALS TOP OF SLAB FALSEWORK ELEVATION.



S606



S607



S508

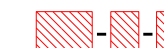
TOP OF SLAB ELEVATIONS

	\mathcal{C} BRG. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	\mathcal{C} BRG. ABUT.
☒ EDGE OF DECK											
CROWN OR \mathcal{R}											
☒ EDGE OF DECK											

CALCULATE ELEVATIONS AND COMPLETE TABLE

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-			
DRAWN BY		PLANS CKD.	
SUPERSTRUCTURE DETAILS			SHEET 9



LEGEND

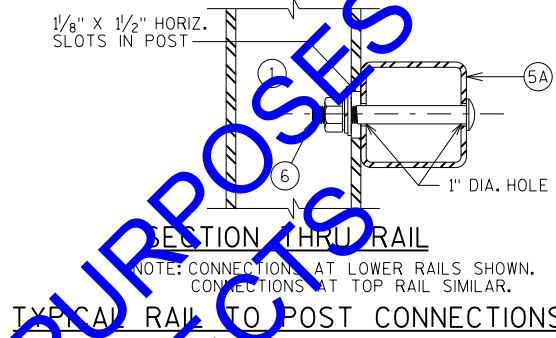
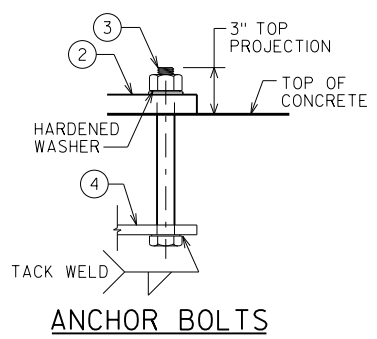
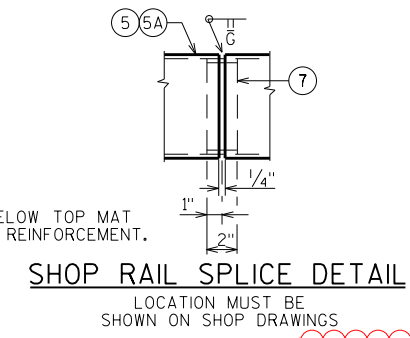
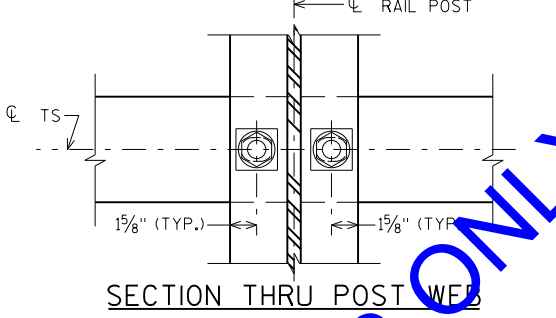
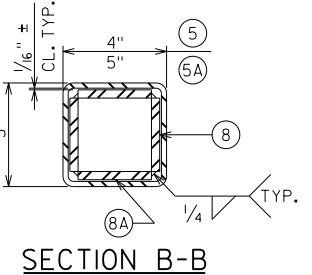
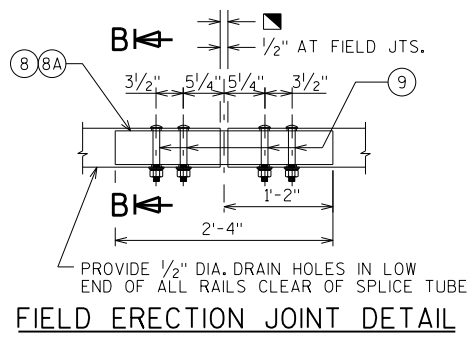
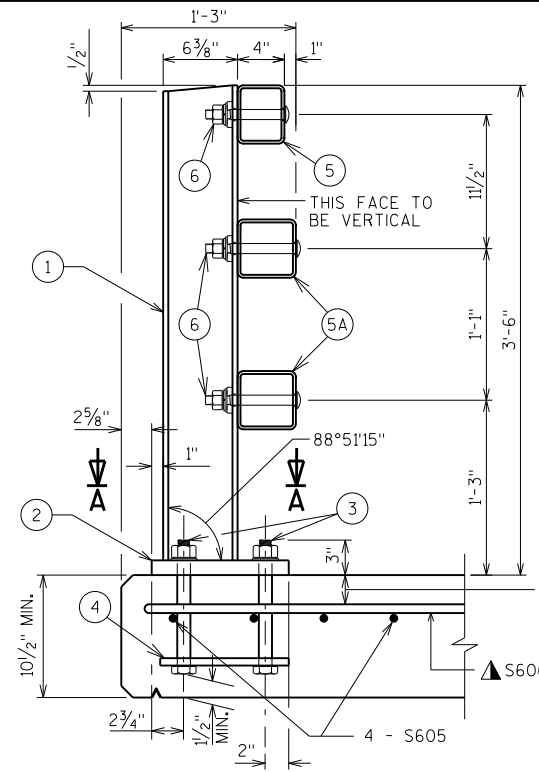
- ① W6 x 25 WITH 1/8" x 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1/4" x 11 3/4" x 1'-8" WITH 1 5/16" x 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ③ ASTM A449 - 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED), 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)
- ④ 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" x 1 5/8" x 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ⑧ 3/8" x 3 5/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑧A 3/8" x 2 5/8" x 2'-4" PLATE USED IN NO. 5. 3/8" x 3 5/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑨ 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/8" x 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 5/8" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- ⑩ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" x 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- ⑪ 1" DIA. HOLES IN PLATE NO. 10 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 10.
- ⑫ 7/8" DIA. x 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- ⑬ 3/8" x 8" x 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- ⑭ 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- ⑮ 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

- 1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
- 2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- 3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
- 4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
- 5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- 6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- 7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
- 8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
- 9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
- 10. PAINT OVER GALVANIZING, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & NO. 4), WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO.

INCLUDE NOTE ONLY IF PAINTING IS REQUIRED, AND FILL IN COLOR NAMES

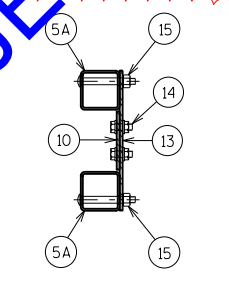
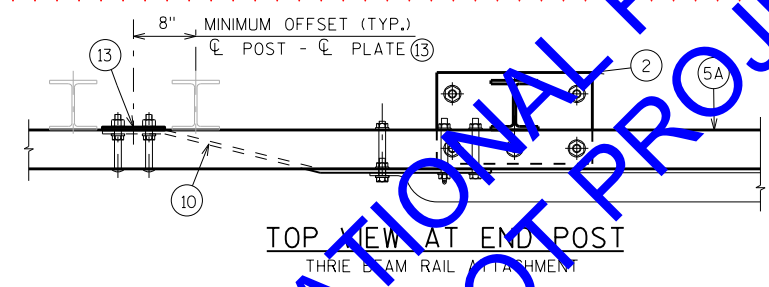
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B- - - 			
DRAWN BY 		PLANS CKD. 	
TUBULAR STEEL RAILING TYPE 'M'			SHEET 10



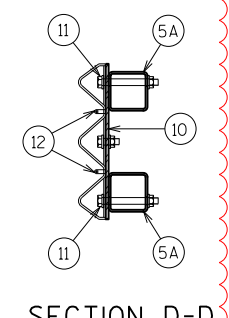
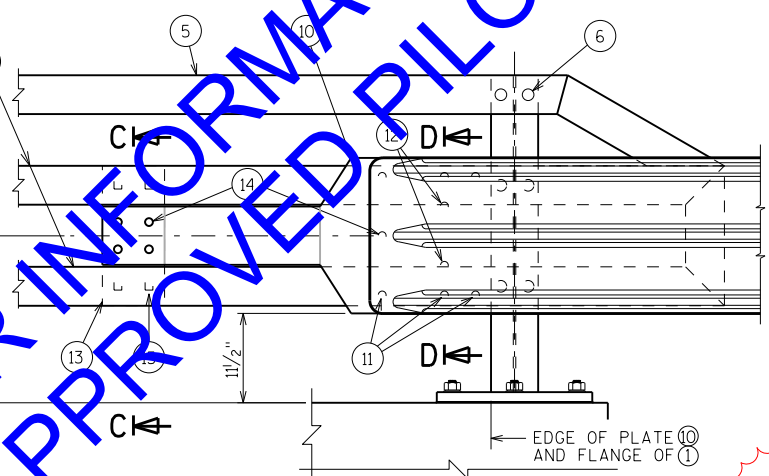
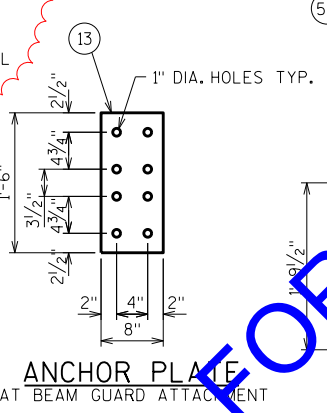
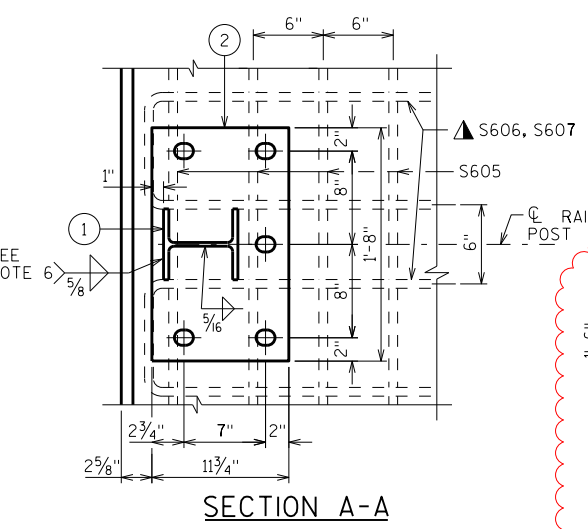
SECTION THRU RAILING ON DECK

▲ TIE TO TOP MAT OF STEEL.

INCLUDE DETAILS ONLY IF THRIE BEAM ATTACHMENT IS REQUIRED

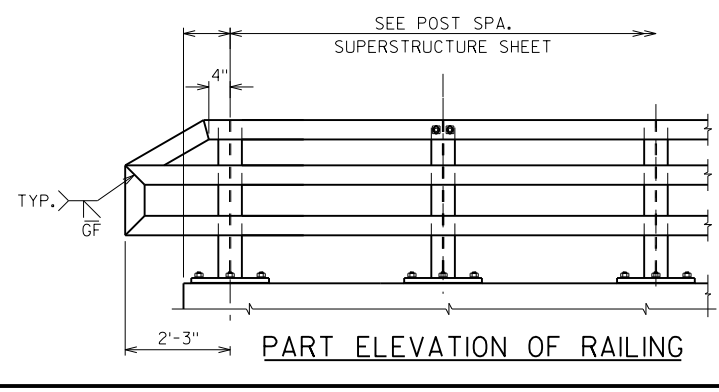
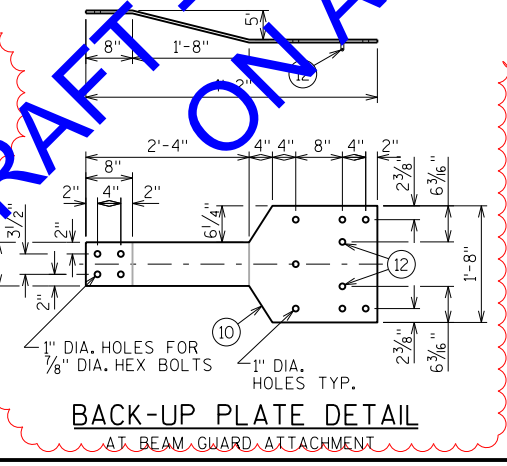
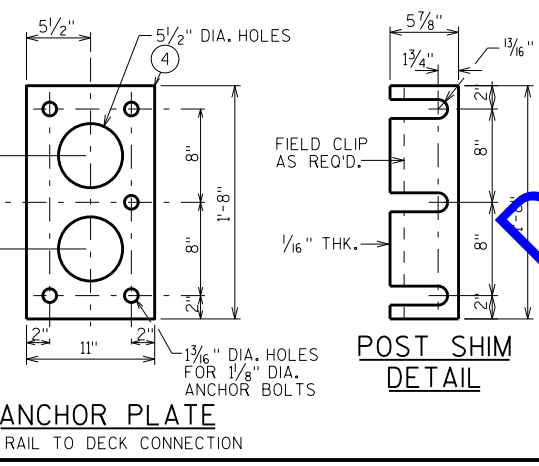


SECTION C-C



SECTION D-D

DETAIL AT END POST
THRIE BEAM RAIL ATTACHMENT



8

8