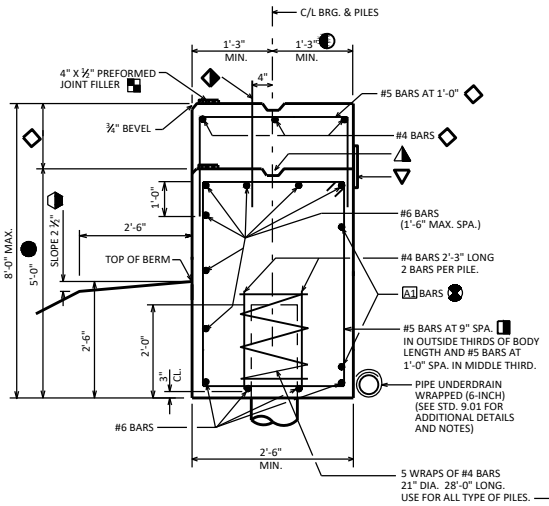
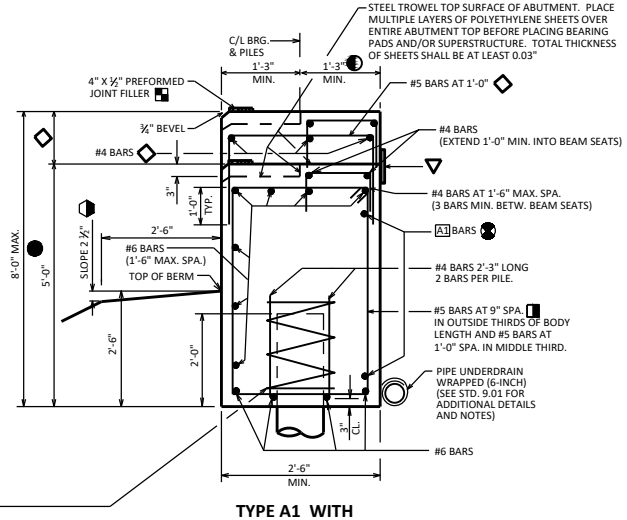


TYPE A1 WITH FIXED SEAT



TYPE A1 WITH SEMI-EXPANSION SEAT

DESIGNER NOTES

LAP LENGTHS FOR HORIZONTAL BARS SHALL BE BASED ON A "CLASS C" TOP TENSION LAP SPLICE.

WING BARS AND DOWEL BARS SHALL BE EPOXY COATED.

PILING SPACING IN ABUTMENT BODY SHALL BE 8'-0" MAX. FOR ALL TYPES OF PILING. THE MAX. PILE SPACING FROM THE END OF THE ABUT. BODY TO THE FIRST PILE SHALL BE THE MINIMUM OF ONE-HALF PILE SPACE OR 2'-6".

TOTAL LENGTH OF A1 BARS SHALL BE ≥ TO WING LENGTH.

CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 STANDARD SPECIFICATIONS.

THE SEMI-EXPANSION SEAT SHALL BE USED WHEN REQUIRED AS STATED IN CHAPTER 12, FIGURE 12.7-1 OF THE BRIDGE MANUAL OR WHENEVER A WING PILE IS REQUIRED.

THE FIXED SEAT CANNOT BE USED WHEN A WING PILE IS REQUIRED (SEE STD. 12.02 FOR CRITERIA).

WHEN THE BOTTOM OF GIRDER SLOPES MORE THAN 1%, SLOPE THE BEAM SEAT BASED ON ADDING THESE TWO VALUES:
- LONGITUDINAL GRADE OF GIRDER (PERCENT)
- CAMBER EFFECT = 4(RC)/L X 100 (PERCENT), WHERE:
  RC = RESIDUAL CAMBER (INCHES)
  L = GIRDER LENGTH (INCHES)

(SEE STANDARD 13.01 FOR SLOPED SEAT DETAILS)

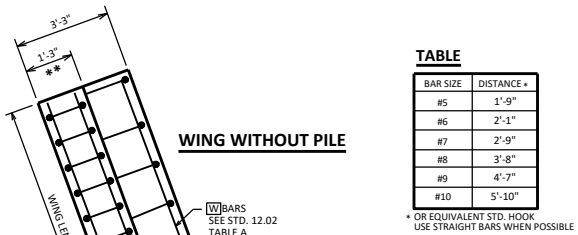
ABUTMENT DETAILED WITHOUT STRUCTURAL APPROACH SLAB. SEE STD. 12.10 THRU 12.13 FOR STRUCTURAL APPROACH DETAILS.

USE THIS SHEET FOR BEAM SEAT DETAILS (WITH OR WITHOUT A STRUCTURAL APPROACH SLAB).

USE ¾" THICK FILLER FOR SLAB STRUCTURES.

LEGEND

- #5 BARS (COATED) AT 1'-0" (2'-0" LONG). THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- WHEN THIS DIMENSION ≥ 4" THIS ADDITIONAL REINFORCEMENT SHALL BE ADDED. MAX. SPA. OF HORIZ. #4 BARS = 1'-0".
- USE 1'-3" FOR SLAB SPANS AND FOR GIRDER SPANS WITH NO PAVING NOTCH.
  USE 1'-6" FOR GIRDER SPANS WITH NO PAVING NOTCH, BUT WHERE 36W", 45W", 54", 54W", 70", 72W" OR 82W" GIRDERS ARE USED, AND SKEW > 25°.
  USE 1'-3" FOR SLAB SPANS WITH A PAVING NOTCH, BUT NO STRUCTURAL APPROACH SLAB.
  USE 1'-11" FOR GIRDER SPANS WITH A PAVING NOTCH, BUT NO STRUCTURAL APPROACH SLAB.
  USE 1'-7" FOR SLAB SPANS WITH A STRUCTURAL APPROACH SLAB. (STD. 12.10)
  USE 2'-3" FOR GIRDER SPANS WITH A STRUCTURAL APPROACH SLAB. (STD. 12.10)
- DIMENSION IS FROM BOTTOM OF ABUTMENT TO LOW BEAM SEAT OR LOW SIDE OF SLAB TYPE SUPERSTRUCTURE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- KEYED CONST. JOINT FORMED BY BEVELED 2" X 6".
- ** WINGWALL WIDTH SHALL BE 1'-6" WHEN TYPE "M" RAILING, VERTICAL FACE PARAPET "TX", OR SINGLE SLOPE PARAPET "56SS" IS USED. "56SS" SHOULD NOT BE USED ON A SIDEWALK. WINGWALL WIDTH SHALL BE 1'-4" WHEN PARAPET 'A' ON A RAISED SIDEWALK IS USED. WINGWALL WIDTH SHALL BE 1'-9" WHEN TYPE "NY3" OR "NY4" RAILING IS USED. (USE 2'-0" WIDTH WHEN "NY4" IS USED ON A SIDEWALK).
- USE #5 BARS AT 6" SPA. IN OUTSIDE THIRDS OF BODY LENGTH WHEN THE WING LENGTH > 20'-0" AND WING HEIGHT > 10'-0".
- WHEN BODY SECTION IS > 50'-0" ± LONG PROVIDE VERTICAL CONSTRUCTION JOINT. RUN BAR STEEL THRU JOINT AND SEAL JOINT WITH 18" RUBBERIZED MEMBRANE WATERPROOFING. SEE STD. 12.09 FOR ALTERNATE CONSTRUCTION JOINT.
- SHOW ALL BARS FOR CLARITY.
- NO SLOPE FOR HEAVY RIPRAP. SEE STANDARD 12.08 FOR DETAILS.

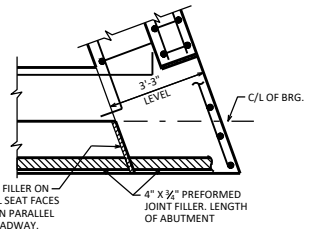


WING WITHOUT PILE

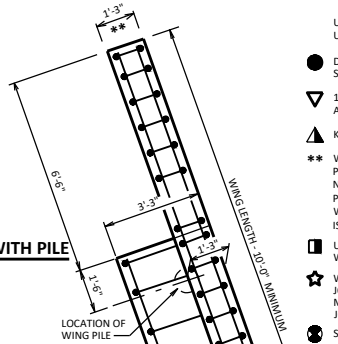
TABLE

BAR SIZE	DISTANCE *
#5	1'-9"
#6	2'-1"
#7	2'-9"
#8	3'-8"
#9	4'-7"
#10	5'-10"

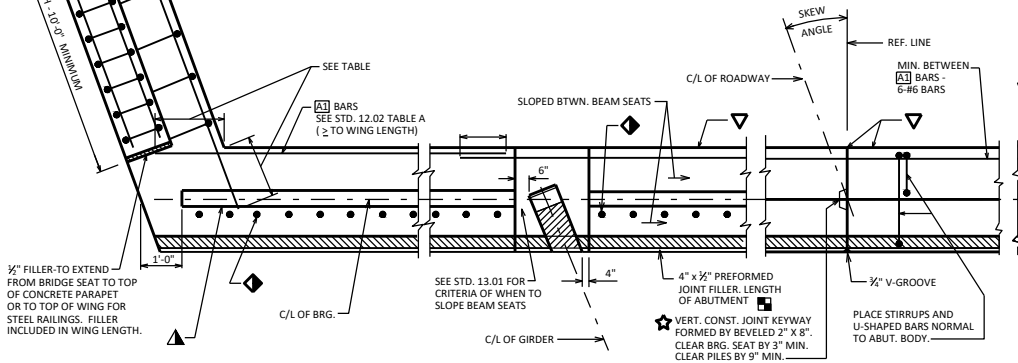
* OR EQUIVALENT STD. HOOK USE STRAIGHT BARS WHEN POSSIBLE



SLAB SPAN WITH SEMI EXPANSION SEAT



WING WITH PILE

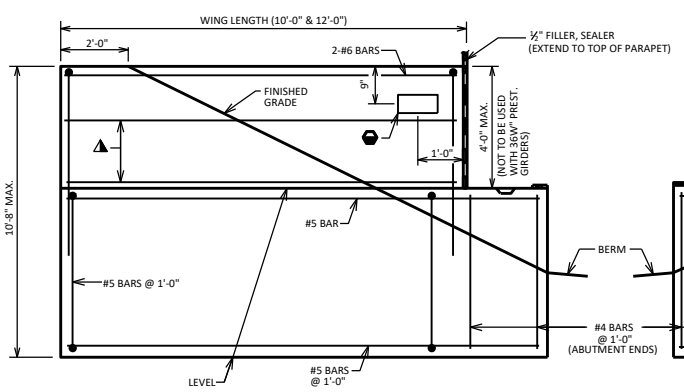


SLAB SPAN WITH FIXED SEAT | **GIRDER SPAN WITH FIXED SEAT** | **SLAB SPAN WITH SEMI EXPANSION SEAT** | **GIRDER SPAN WITH SEMI EXPANSION SEAT**

ABUTMENT TYPE A1 (INTEGRAL ABUTMENT)

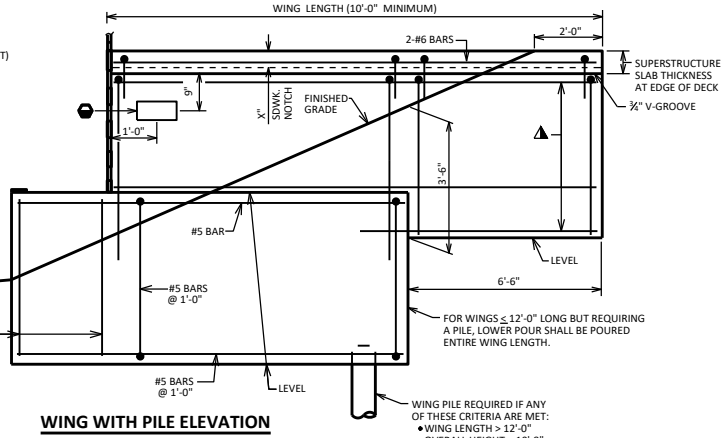
BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald* DATE: 7-23



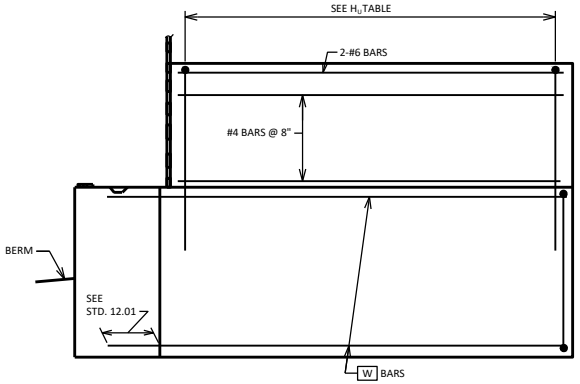
WING WITHOUT PILE ELEVATION

(FRONT FACE)



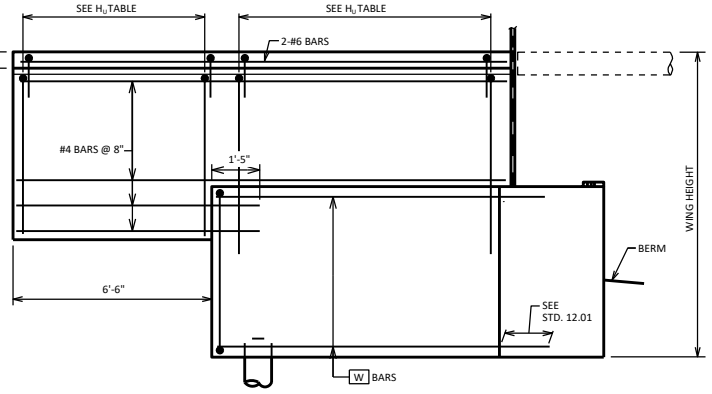
WING WITH PILE ELEVATION

(FRONT FACE)



WING WITHOUT PILE ELEVATION

(BACK FACE)



WING WITH PILE ELEVATION

(BACK FACE)

DESIGNER NOTES

SEE STD. 12.01 FOR ADDITIONAL DESIGNER NOTES.

WING WITH PILE & WING WITHOUT PILE CAN BE USED FOR EITHER SIDEWALK OR SLOPED FACE PARAPETS. THE TYPE OF WING TO USE IS BASED ONLY ON THE WING HEIGHT AND WING LENGTH LIMITATIONS SHOWN.

⬢ NAME PLATE (ONLY FOR TYPE "F", "W" AND "M" OR TIMBER RAIL AS SHOWN ON STANDARD 30.24), LOCATE NAME PLATE ON FIRST RIGHT WING TRAVELING UP STATION.

SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ½" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

LRFD DESIGN LOADS

LIVE LOAD = 2'-0" SURCHARGE

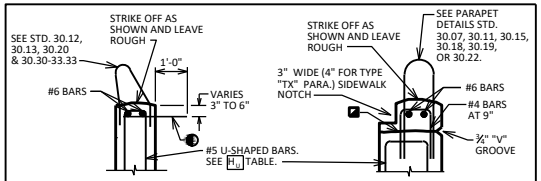
LOAD FACTORS:
- γ_{pDC} = 1.25
- γ_{pEH} = 1.50
- γ_{pEV} = 1.35
- γ_{LS} = 1.75

EXPOSURE CLASS 2, γ_E = 0.75
fy = 60,000 P.S.I.
f'c = 3,500 P.S.I.
HORIZ. EARTH LOAD BASED ON: 35 P.C.F. EQUIV. FLUID UNIT WEIGHT OF SOIL

TABLE A

WING LENGTH	WING HEIGHT 8'-6"	10'-0"	11'-6"	13'-0"	BARS
10'-0"	* 6-#6'S	* 6-#6'S	6-#5'S		W
	* 7-#8'S	* 7-#8'S	6-#5'S		A1
12'-0"	* 6-#6'S	* 7-#6'S	7-#5'S	7-#6'S	W
	* 7-#8'S	* 7-#8'S	6-#7'S	7-#7'S	A1
16'-0"	7-#6'S	8-#6'S	7-#7'S	8-#7'S	W
	5-#8'S	6-#8'S	7-#8'S	8-#8'S	A1
20'-0"	7-#7'S	7-#8'S	8-#8'S	8-#9'S	W
	6-#9'S	7-#9'S	7-#10'S	8-#10'S	A1
24'-0"	8-#8'S	9-#8'S	9-#9'S	9-#10'S	W
	7-#9'S	8-#9'S	8-#10'S	9-#10'S	A1

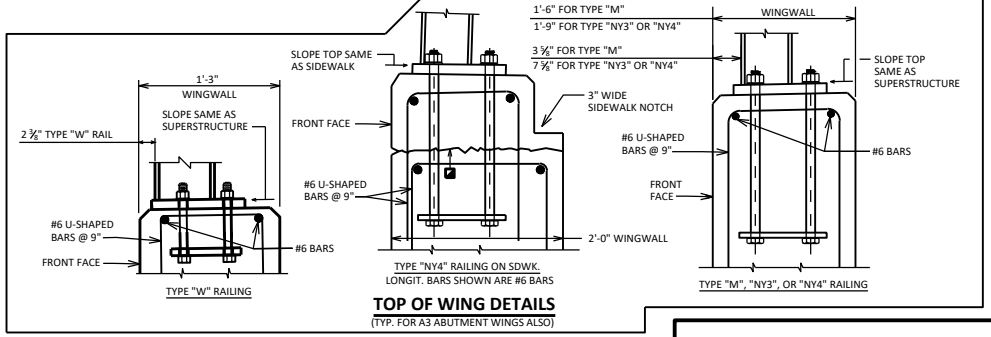
* WING WITHOUT PILE VALUES SHOWN. USE 10'-0" WING HEIGHT VALUES FOR WING HEIGHTS UP TO 10'-8". (FOR WING WITH PILE THAT HAS WING LENGTH IN THIS REGION, USE VALUES FOR 11'-6" WING HEIGHT)



TYPE "LF", "HF", "51F" OR "__SS" PARAPETS

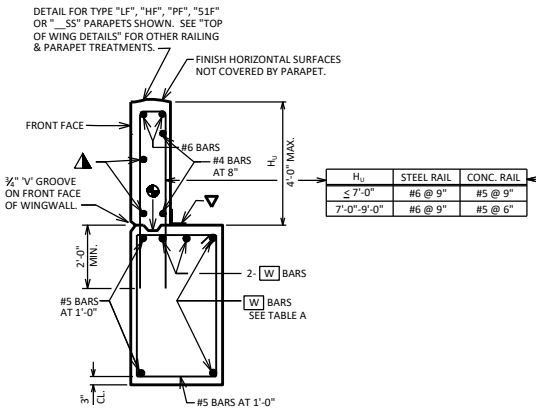
⬢ #4 DOWELS (COATED) 2'-0" LONG AT 1'-0" ALONG ENTIRE WING LENGTH, PLACE IN WING ADJACENT TO SURFACE DRAIN APRON ONLY.

CONC. PARAPET AND SIDEWALK



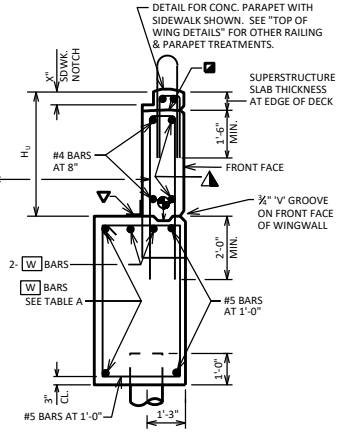
TOP OF WING DETAILS

(TYP. FOR A3 ABUTMENT WINGS ALSO)



H_U	STEEL RAIL	CONC. RAIL
≤ 7'-0"	#6 @ 9"	#5 @ 9"
7'-0"-9'-0"	#6 @ 9"	#5 @ 6"

WING WITHOUT PILE SECTION



WING WITH PILE SECTION

◪ CONSTRUCTION JOINT, LEAVE ROUGH. REQUIRED FOR PRESTRESSED CONCRETE SUPERSTRUCTURES. OPTIONAL FOR OTHERS. POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE. IF JOINT IS USED, UTILIZE RUBBERIZED MEMBRANE WATERPROOFING (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES").

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

△ USE #4 BARS @ 1'-0"

⬢ OPTIONAL CONST. JOINT FORMED BY BEVELED 2" X 6" KEYWAY WITH MEMBRANE ON BACKFACE.

ABUTMENT TYPE A1

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

DATE: 7-23

STANDARD 12.02

DESIGNER NOTES

LAP LENGTHS FOR HORIZONTAL BARS SHALL BE BASED ON A "CLASS C" TOP TENSION LAP SPLICE.

BARS IN WINGS, ABUTMENT BACKWALL, AND PAVING BLOCK SHALL BE EPOXY COATED.

PILING SPACING IN ABUTMENT FOOTING SHALL BE 8'-0" MAXIMUM.

PILE REACTION EQUATIONS ARE FOR PRELIMINARY PILE LAYOUT PURPOSES ONLY.

TOTAL LENGTH OF A3 BARS SHALL BE ≥ TO WING LENGTH.

WHEN BODY SECTION IS MORE THAN 50'-0"± LONG, PROVIDE VERTICAL CONSTRUCTION JOINT, RUN BAR STEEL THRU JOINT, SEAL JOINT WITH 18" RUBBERIZED MEMBRANE WATERPROOFING. SEE STD. 12.09 FOR ALTERNATE CONSTRUCTION JOINT.

IN "FRONT ELEVATION" VIEW, GIVE ELEVATION OF ALL BEARING AREAS AND ELEVATION AT BOTTOM OF PARAPETS AT EACH END OF WINGS. ALL ELEVATIONS ARE TAKEN AT FRONT FACE OF BACKWALL.

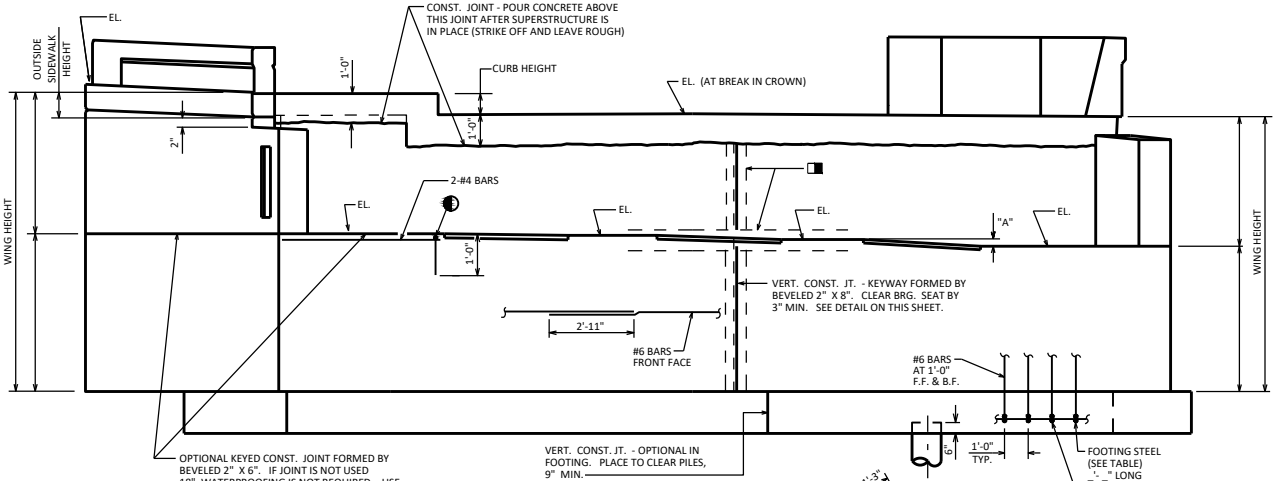
PARAPET NOT SHOWN IN PLAN VIEW FOR CLARITY.

ABUTMENT DETAILED WITHOUT STRUCTURAL APPROACH SLAB. SEE STD. 12.10 THRU 12.13 FOR STRUCTURAL APPROACH DETAILS.

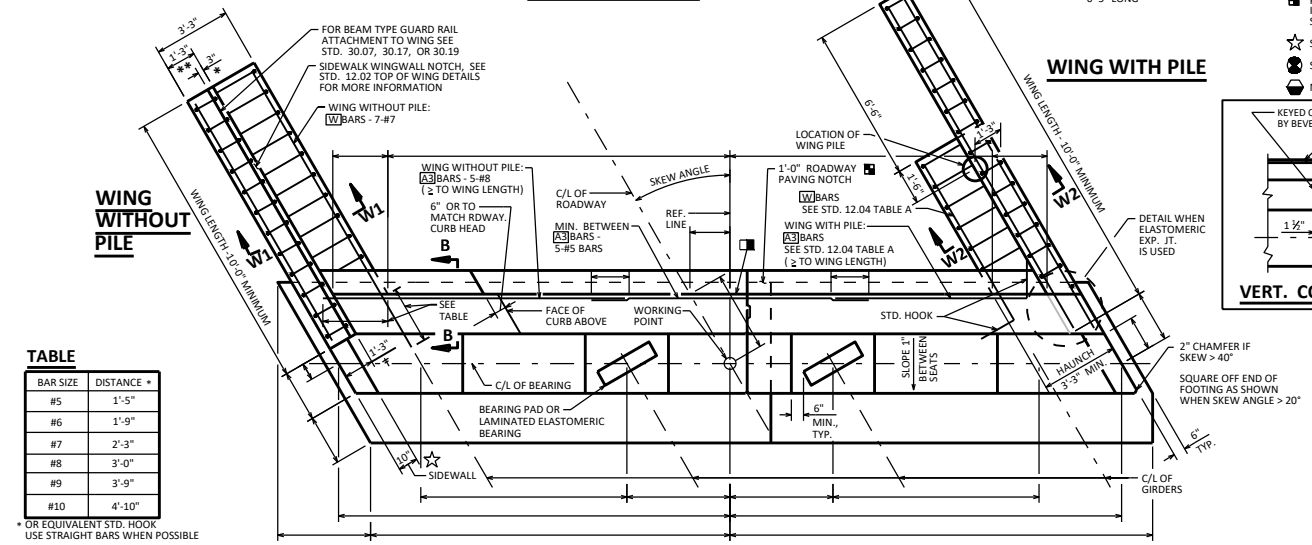
SEE STANDARDS 12.01 AND 13.01 FOR SLOPED BEAM SEAT CRITERIA AND DETAILS.

LEGEND

- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. AND VERT. JOINTS ON BACKFACE ABOVE FOOTING.
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6".
- #4 AT 9" BEAM SEAT. SPACE AT 1'-0" BETWEEN SEATS. THIS STEEL IS REQUIRED ONLY IF DIMENSION "A" EXCEEDS 4".
- † 1'-5" WHEN VERTICAL FACE PARAPET TYPE "TX" IS USED.
- * 4" WHEN VERTICAL FACE PARAPET TYPE "TX" IS USED.
- ** WINGWALL WIDTH SHALL BE 1'-6" WHEN TYPE "M" RAILING, VERTICAL FACE PARAPET "TX", OR SINGLE SLOPE PARAPET "S6SS" IS USED. "S6SS" SHOULD NOT BE USED ON A SIDEWALK. WINGWALL WIDTH SHALL BE 1'-4"" WHEN PARAPET 'A' ON A RAISED SIDEWALK IS USED. WINGWALL WIDTH SHALL BE 1'-9" WHEN TYPE "NY3" OR "NY4" RAILING IS USED. (USE 2'-0" WIDTH WHEN NY4 IS USED ON A SIDEWALK)
- 3'-3" (SLOPE PAVING), 4'-6" (HEAVY RIPRAP)
- PAVING NOTCH IS 1'-0" WIDE BY 1'-4" DEEP IF STRUCTURAL APPROACH SLAB (STD. 12.10) IS USED. SHOW NO. 9 STAINLESS STEEL BAR (STD 12.12) FOR STRUCTURAL APPROACH SLAB ON THE ABUTMENT SHEET.
- SIDEWALL IS 1'-3" WIDE IF STRUCTURAL APPROACH SLAB (STD. 12.10) IS USED.
- SHOW ALL BARS FOR CLARITY.
- NO SLOPE FOR HEAVY RIPRAP. SEE STANDARD 12.08 FOR DETAILS.



FRONT ELEVATION

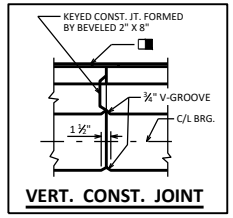


WING WITHOUT PILE

WING WITH SIDEWALK

PLAN

WING WITH SLOPED FACE PARAPET

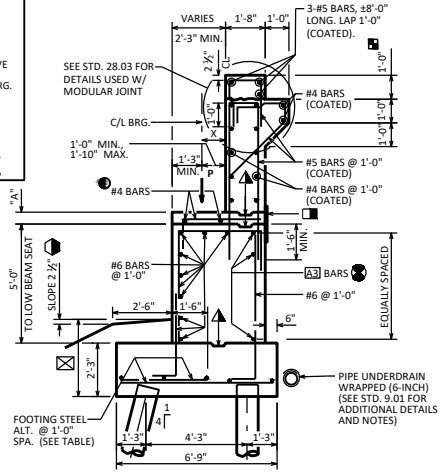


VERT. CONST. JOINT

TABLE

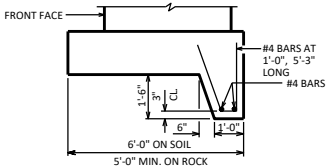
BAR SIZE	DISTANCE *
#5	1'-5"
#6	1'-9"
#7	2'-3"
#8	3'-0"
#9	3'-9"
#10	4'-10"

* OR EQUIVALENT STD. HOOK USE STRAIGHT BARS WHEN POSSIBLE



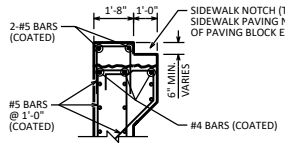
SECTION THRU BODY

ALL FOOTING BARS NOT IDENTIFIED ARE #5 BARS



KEY DETAIL

FOR SILL ABUTMENT WITHOUT PILING PLACED ON SOIL



SECTION B-B

PILE REACTIONS PER FOOT IN KIPS
FRONT ROW = P[(0.22+X/4.25)] + [(h+2.25)∛310] +4.6
BACK ROW = P[(0.78-X/4.25)] - [(h+2.25)∛705] +16.8

NOTES:

h = WING HEIGHT (FT.)

$P = \gamma_{DC}(P_{DC}) + \gamma_{DW}(P_{DW}) + \gamma_{LL}(LL)$ (K/FT.)

FRONT ROW PILE DESIGN IS BASED ON AN EQUIVALENT FLUID UNIT WEIGHT OF SOIL OF 40 P.C.F. WITH γ_{EH}= 1.50, AND SUPERSTRUCTURE REACTIONS "P". BACK ROW PILE DESIGN IS BASED ON AN EQUIVALENT FLUID UNIT WEIGHT OF SOIL OF 40 P.C.F. WITH γ_{EH} MIN. = 0.90, AND "P".

PILES MUST ALSO BE DESIGNED TO ACCOUNT FOR LATERAL LOADS

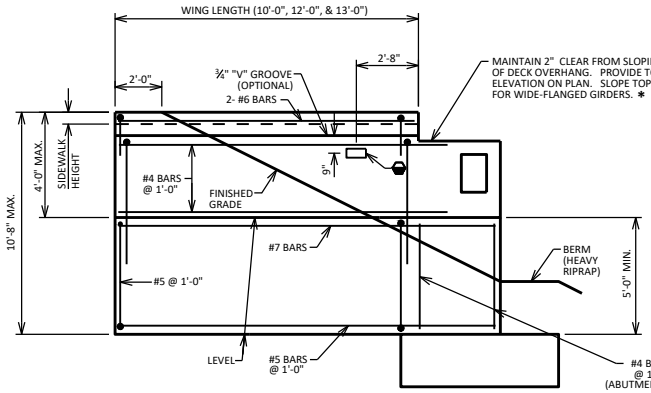
P K/FT.	FOOTING STEEL SIZE
20	#6
40	#7
62	#8
75	#9

ABUTMENT TYPE A3

BUREAU OF STRUCTURES

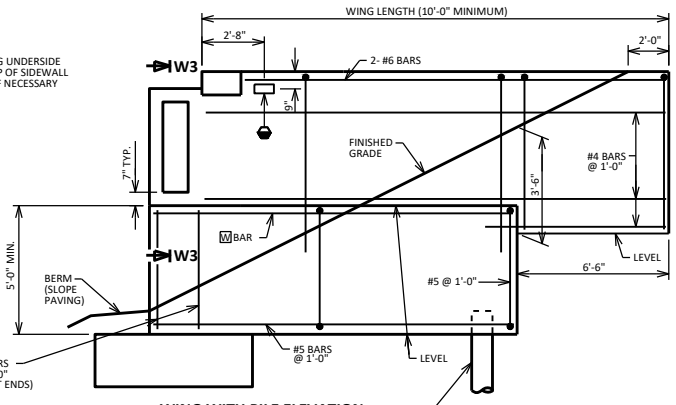
APPROVED: *Laura Shadewald* DATE: 7-23

STANDARD 12.03



WING WITHOUT PILE ELEVATION

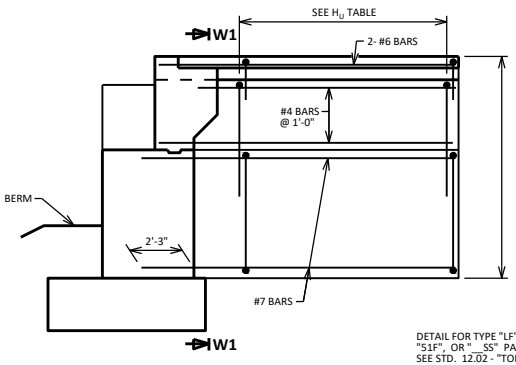
(FRONT FACE)



WING WITH PILE ELEVATION

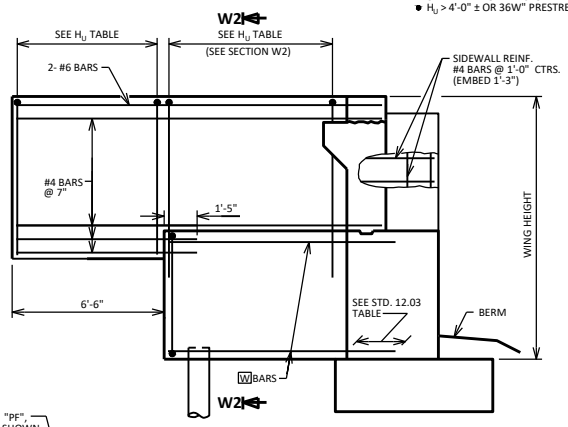
(FRONT FACE)

WING PILE REQUIRED IF ANY OF THESE CRITERIA ARE MET:
- WING LENGTH > 13'-0"
- OVERALL HEIGHT > 10'-8"
- H_U > 4'-0" ± OR 36W" PRESTRESSED GIRDER



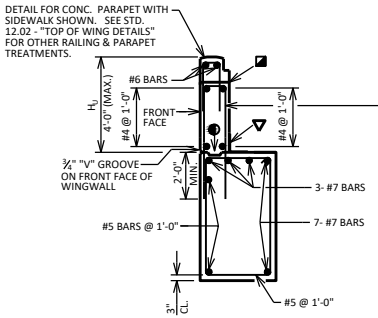
WING WITHOUT PILE ELEVATION

(BACK FACE)



WING WITH PILE ELEVATION

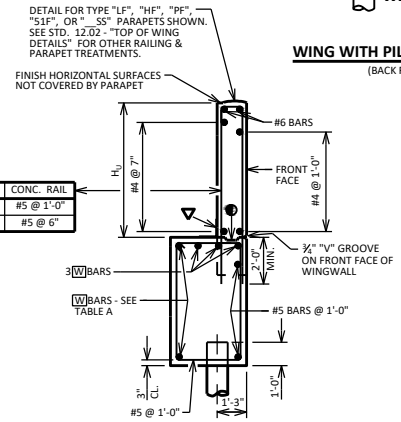
(BACK FACE)



H_U	STEEL RAIL	CONC. RAIL
≤ 7'-0"	#6 @ 9"	#5 @ 1'-0"
7'-0" - 9'-6"	#6 @ 9"	#5 @ 6"

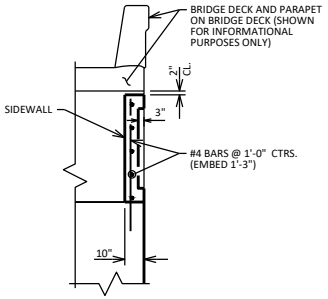
SECTION W1

(WING WITHOUT PILE)



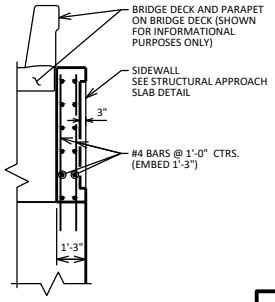
SECTION W2

(WING WITH PILE)



SECTION W3

(WITHOUT STRUCTURAL APPROACH SLAB)



SECTION W3

(WITH STRUCTURAL APPROACH SLAB)

DESIGNER NOTES

SEE STD. 12.03 FOR ADDITIONAL DESIGNER NOTES.

WING WITH PILE & WING WITHOUT PILE CAN BE USED FOR EITHER SIDEWALK OR SLOPED FACE PARAPETS. THE TYPE OF WING TO USE IS BASED ONLY ON THE WING HEIGHT AND WING LENGTH LIMITATIONS SHOWN.

NAME PLATE (ONLY FOR TYPE "F", "W", AND "M" OR TIMBER RAIL AS SHOWN ON STANDARD 30.24). LOCATE NAME PLATE ON FIRST RIGHT WING TRAVELING UP STATION.

FOR MODULAR EXPANSION JOINTS WITH CONCRETE DIAPHRAGMS RUNNING TO EDGE OF DECK: IF SIDEWALL IS USED, FORM SIDEWALL 2" BELOW CONCRETE DIAPHRAGM.

CONSTRUCTION JOINT, LEAVE ROUGH. REQUIRED FOR PRESTRESSED CONCRETE SUPERSTRUCTURES, OPTIONAL FOR OTHERS. POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE.

OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY WITH MEMBRANE ON BACKFACE.

18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

* ABUTMENT DETAILED WITHOUT STRUCTURAL APPROACH SLAB. SEE STD. 12.10 THRU 12.13 FOR STRUCTURAL APPROACH DETAILS.

LRFD DESIGN LOADS

LIVE LOAD = 2'-0" SURCHARGE
LOAD FACTORS:
- γ_p DC = 1.25
- γ_p DW = 1.50
- γ_p EH = 1.50
- γ_p EH MIN. = 0.90
- γ_p EV = 1.35
- γ_p LL = 1.75

EXPOSURE CLASS 2, χ_E = 0.75
fy = 60,000 P.S.I.
f'c = 3,500 P.S.I
HORIZONTAL EARTH LOAD BASED ON:
35 P.C.F. EQUIVALENT FLUID UNIT WEIGHT OF SOIL

TABLE A

WING 2 LENGTH	WING 2 HEIGHT				
	10'-0"	11'-6"	13'-0"	14'-6"	BARS
12'-0"		6-#6'S			W
		7-#5'S			A3
16'-0"	8-#6'S	7-#7'S	8-#7'S		W
	7-#6'S	5-#8'S	7-#7'S		A3
20'-0"	8-#7'S	9-#7'S	9-#8'S	10-#8'S	W
	5-#9'S	6-#9'S	7-#9'S	8-#9'S	A3
24'-0"	9-#8'S	10-#8'S	10-#9'S	8-#10'S ↕	W
	9-#8'S	9-#9'S	9-#10'S	10-#10'S	A3
26'-0"	9-#9'S	10-#9'S	9-#9'S ↕	10-#9'S ↕	W
	7-#10'S	9-#10'S	9-#10'S ↔	10-#10'S ↔	A3

↕ USE 4'-6" FOR LOWER WING POUR WIDTH
↔ USE 3'-3" MIN. FOR BEARING SEAT WIDTH

ABUTMENT TYPE A3

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

DATE: 1-20

STANDARD 12.04

DESIGNER NOTES

THIS TYPE OF WING SHOULD BE USED WHEN POSSIBLE IN LIEU OF WINGS PARALLEL TO THE ROADWAY. DO NOT USE FOR STREAM CROSSINGS WHERE HIGH WATER ELEVATION IS ABOVE THE BOTTOM OF ABUTMENT.

*USE 2½:1 FOR THE UNSTABLE CLAYS WHICH ARE SOMETIMES ENCOUNTERED IN NORTHWEST WISC. (SUPERIOR AREA)

◑ WHEN TIMBER RAILING IS USED AS PER STANDARD 30.24, AND THE SKEW IS > 0°, THIS CONSTRUCTION JOINT SHALL BE MANDATORY. THE WING CONCRETE SHALL BE PLACED ABOVE CONSTR. JT. AFTER THE TIMBER END POSTS ARE IN PLACE.

ALL WING BARS SHALL BE EPOXY COATED.

⊗ SHOW ALL LONGITUDINAL BARS FOR CLARITY.

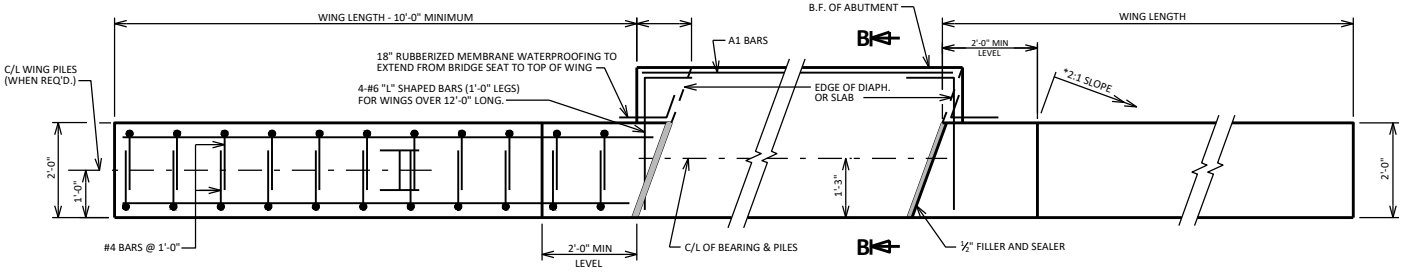
LRFD DESIGN LOADS (WINGS)

LIVE LOAD = 1'-0" SURCHARGE
LOAD FACTORS:
γ_{pDC} = 1.25
γ_{pEH} = 1.50
γ_{LS} = 1.75
EXPOSURE CLASS 2, γ_d = 0.75
HORIZ. EARTH LOAD BASED ON: 35 P.C.F. EQUIV. FLUID UNIT WEIGHT OF SOIL
FY = 60,000 P.S.I.
F'C = 3,500 P.S.I.

TABLE A

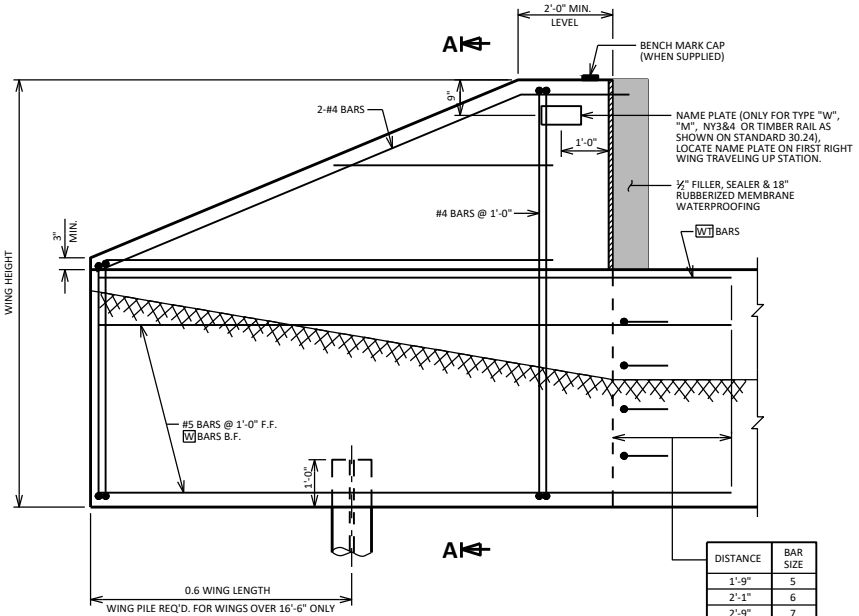
WING LENGTH	WING HEIGHT 8'-6"	10'-0"	11'-6"	13'-0"	BARS
10'-0"	5-#5'S	5-#5'S	6-#5'S		W
	2-#5'S	2-#5'S	2-#5'S		WT
	4-#6'S	4-#6'S	5-#6'S		A1
12'-0"		5-#6'S	5-#7'S	6-#7'S	W
		2-#7'S	2-#7'S	2-#8'S	WT
		5-#6'S	6-#6'S	6-#7'S	A1
16'-0"		5-#8'S	6-#8'S	5-#9'S	W
		2-#8'S	2-#8'S	2-#9'S	WT
		5-#8'S	6-#8'S	7-#8'S	A1
20'-0" ⚠			8-#8'S	8-#9'S	W
			2-#8'S	2-#9'S	WT
			7-#9'S	8-#9'S	A1

⚠ WING PILE REQUIRED



PLAN FOR TYPE A1 ABUTMENT

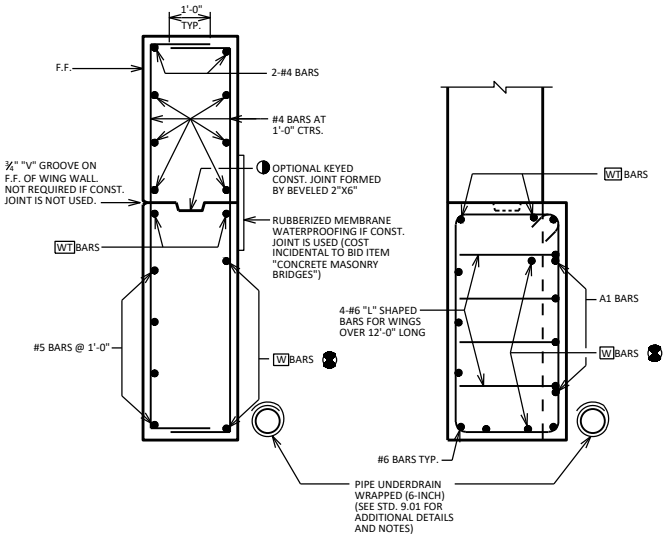
(SEE STD. 12.01 FOR ABUTMENT BODY DETAILS)



DISTANCE	BAR SIZE
1'-9"	5
2'-1"	6
2'-9"	7
3'-8"	8
4'-7"	9

WING ELEVATION

(A1 ABUTMENT)



SECTION A-A

SECTION B-B

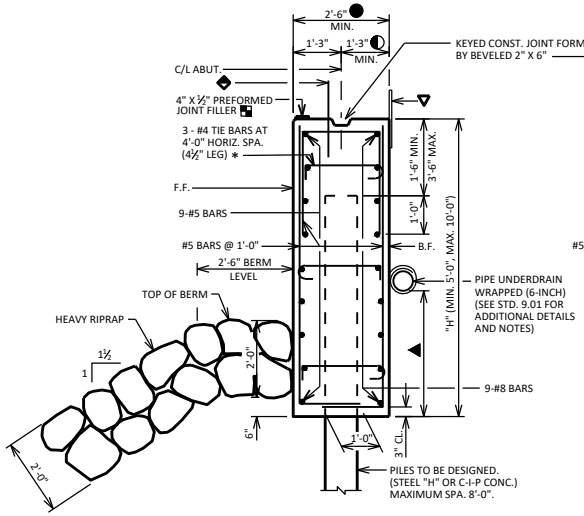
SEE STD. 12.01 & 12.02 FOR NOTES & DETAILS

DETAILS FOR WINGS PARALLEL TO A1 ABUTMENT CENTERLINE

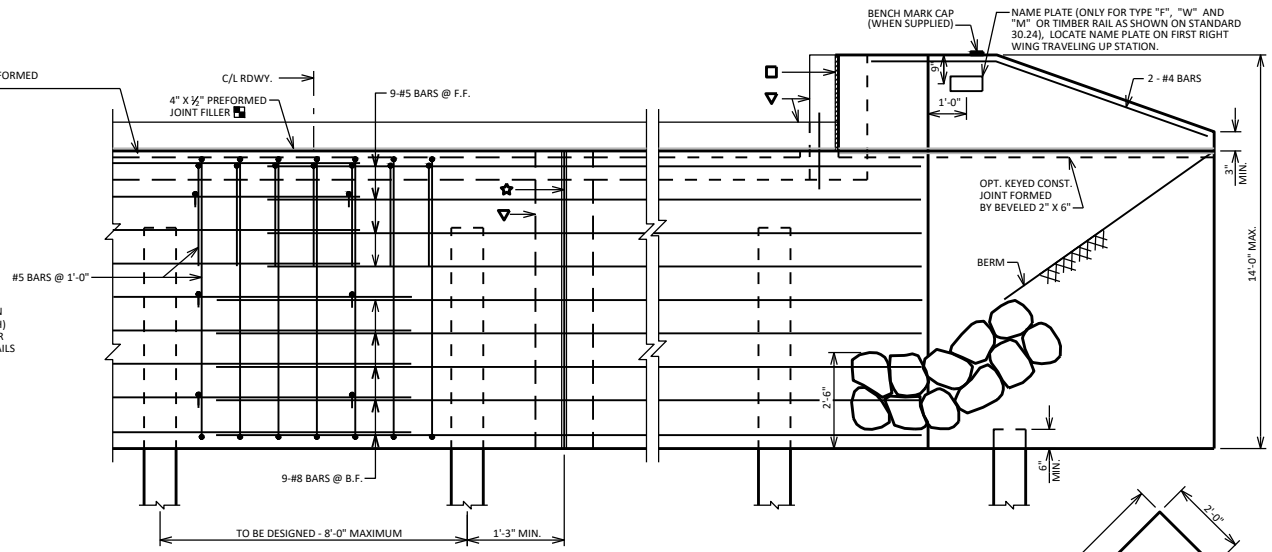
BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald* DATE: 7-21

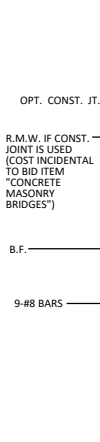
STANDARD 12.07



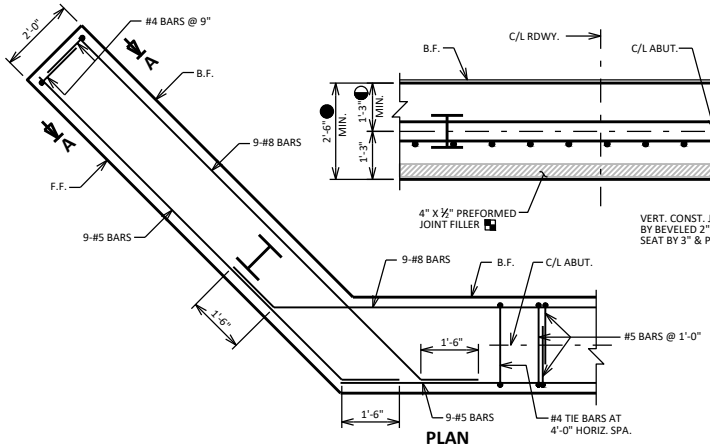
TYP. SECTION THRU ABUTMENT BODY



ELEVATION

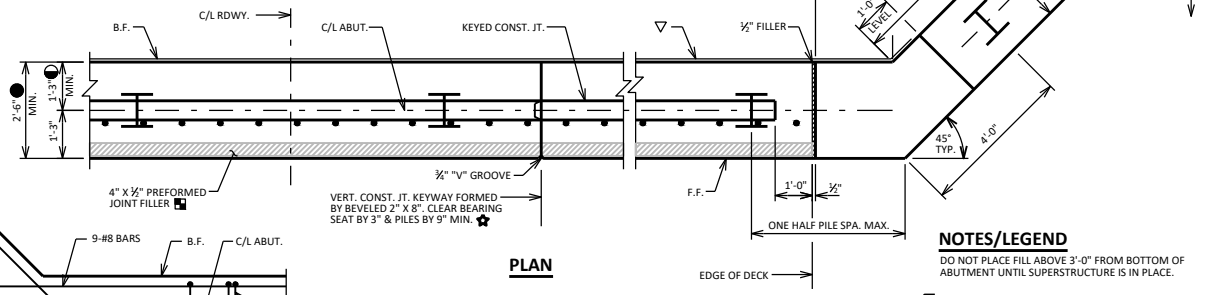


SECTION A-A

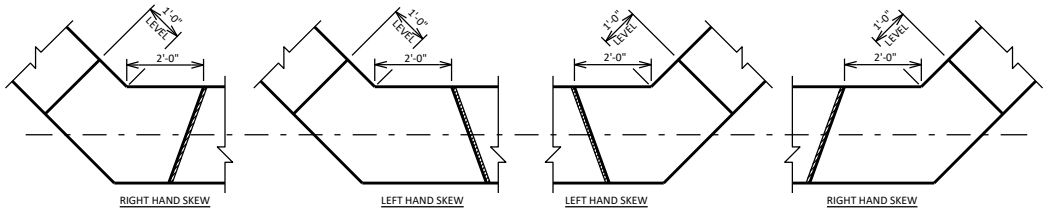


PLAN

SHOWING BAR STEEL REINFORCEMENT



PLAN



WING DETAIL FOR SKEWED STRUCTURES

DESIGNER NOTES

FOR SLAB AND PRESTRESSED GIRDER SPANS L < 200'-0" & FOR STEEL GIRDER SPANS L < 150'-0" WHERE L = LENGTH OF CONTINUOUS SUPERSTRUCTURE BETWEEN ABUTMENTS.

WHEN GIRDERS WITH SEMI EXPANSION SEAT OR FIXED SEAT, OR SLAB SPAN WITH SEMI EXPANSION SEAT ARE USED, MAKE BEAM SEATS SIMILAR TO THAT SHOWN ON STANDARD 12.01.

WING BARS AND DOWEL BARS SHALL BE EPOXY COATED.

✿ WHEN BODY SECTION IS ± 50'-0" LONG, PROVIDE VERT. CONST. JOINT. RUN BAR STEEL THRU JOINT. BEVEL EXPOSED EDGES ¾" AND SEAL JOINT. SEE STD. 12.09 FOR ALTERNATE CONSTRUCTION JOINT.

◐ USE 1'-3" FOR SLAB SPANS AND FOR GIRDER SPANS WITH NO PAVING NOTCH.
USE 1'-6" FOR GIRDER SPANS WITH NO PAVING NOTCH, BUT WHERE 36W", 45W", 54", 54W", 70", 72W" OR 82W" GIRDERS ARE USED, AND SKEW > 25°.
USE 1'-3" FOR SLAB SPANS WITH A PAVING NOTCH, BUT NO STRUCTURAL APPROACH SLAB.
USE 1'-11" FOR GIRDER SPANS WITH A PAVING NOTCH, BUT NO STRUCTURAL APPROACH SLAB.
USE 1'-7" FOR SLAB SPANS WITH A STRUCTURAL APPROACH SLAB. (STD. 12.10)
USE 2'-3" FOR GIRDER SPANS WITH A STRUCTURAL APPROACH SLAB. (STD. 12.10)

▲ FOR BOTTOM OF ABUTMENTS LOCATED ABOVE NORMAL WATER, PLACE UNDERDRAIN NEAR THE BOTTOM OF ABUTMENT AS SHOWN IN STANDARD 12.01. FOR BOTTOM OF ABUTMENTS LOCATED BELOW NORMAL WATER, PLACE UNDERDRAIN ABOVE NORMAL WATER. SEE BRIDGE MANUAL 12.6.1 FOR ADDITIONAL GUIDANCE. FOR UNDERDRAIN EXPOSED TO HIGH WATER, CONSIDER CAPPING THE UPSTREAM END TO PREVENT CLOGGING.

▪ USE ¾" THICK FILLER FOR SLAB STRUCTURES

NOTES/LEGEND

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

□ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF " FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD " BELOW SURFACE OF CONC.)

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING.

● WHEN ABUTMENT WIDTH > 2'-10" FIXED POINT OF WING ROTATION SHALL BE ON F.F. OF ABUTMENT (0° SKEW ONLY).

◆ THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE. SEE STD. 12.01 & 27.05

∗ ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

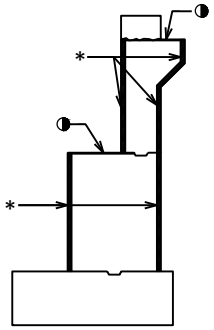
ABUTMENT A5 (INTEGRAL, PILE ENCASED ABUTMENT)

BUREAU OF STRUCTURES

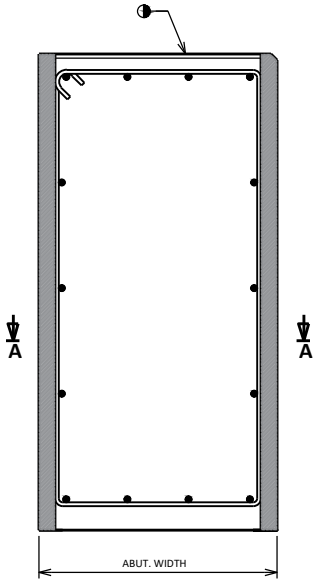
APPROVED: *Laura Shadewald*

DATE: 1-22

STANDARD 12.08

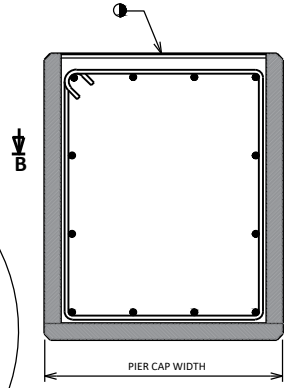


A3 ABUTMENT

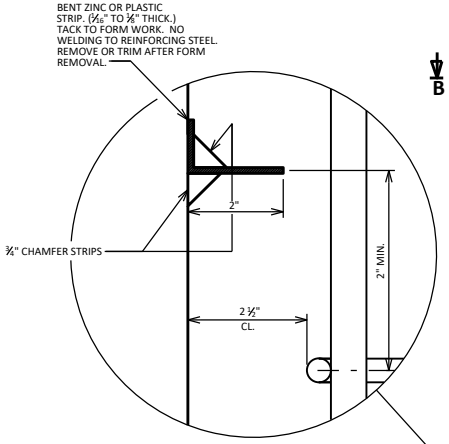


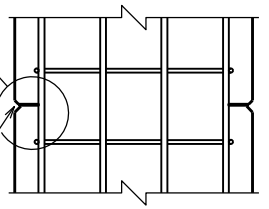
SECTION THRU ABUTMENT BODY

A1 ABUTMENT SHOWN, A5 SIMILAR



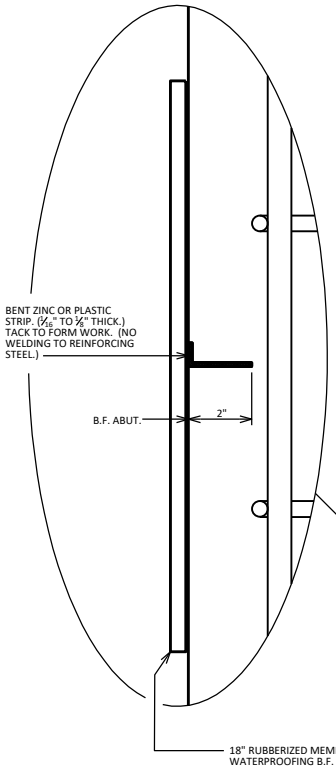
SECTION THRU PIER CAP

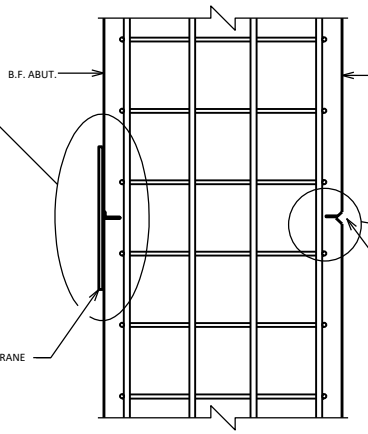




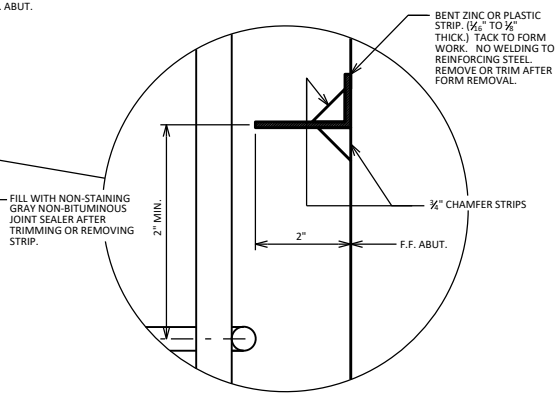
SECTION B-B

ALTERNATE CONSTRUCTION JOINT AT PIER CAP





SECTION A-A



ALTERNATE CONSTRUCTION JOINT AT ABUTMENT

NOTES

PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

SAW CUTTING JOINT IS NOT ALLOWED.

◑ USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY ½" DEEP.

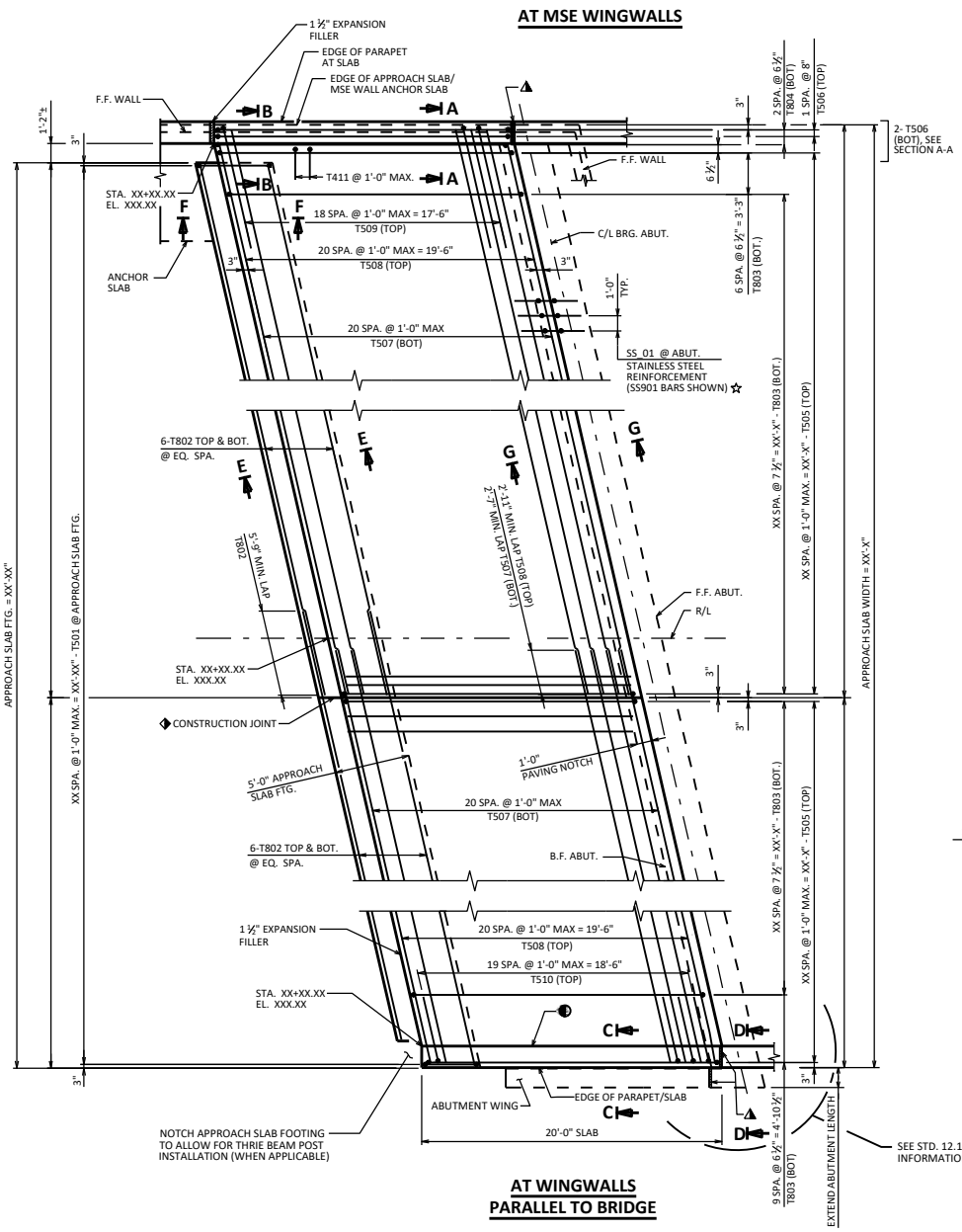
* BENT ZINC OR PLASTIC STRIP.

ALTERNATE CONSTRUCTION JOINT

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

DATE: 1-18



AT WINGWALLS PARALLEL TO BRIDGE

APPROACH SLAB PLAN

INSTALLATION (WHEN APPLICABLE)
(A1 ABUT. SHOWN - A3 ABUT. SIMILAR)

DESIGNER NOTES

STRUCTURAL APPROACH SLABS SHALL BE USED ON ALL I.H. BRIDGES AND U.S.H. BRIDGES. STRUCTURAL APPROACH SLABS ARE RECOMMENDED FOR BRIDGES CARRYING TRAFFIC VOLUMES GREATER THAN 3500 AADT (FUTURE DESIGN YEAR). OTHER LOCATIONS CAN BE CONSIDERED WITH THE APPROVAL OF THE CHIEF STRUCTURAL DESIGN ENGINEER. SEE BRIDGE MANUAL SECTION 12.11 FOR ADDITIONAL GUIDANCE.

STRUCTURAL APPROACH SLABS TO BE PART OF THE BRIDGE PLAN. BID ITEMS ARE CONCRETE MASONRY BRIDGES, BAR STEEL REINFORCEMENT HS COATED STRUCTURES, ETC. POLYETHYLENE SHEETS SHALL BE INCIDENTAL TO CONCRETE MASONRY BRIDGES.

QUANTITIES FOR APPROACH SLABS SHALL BE SHOWN IN A SEPARATE COLUMN WITHIN THE TOTAL ESTIMATED QUANTITIES TABLE IN THE FINAL PLANS.

◆ CONSTRUCTION JOINT REQUIRED WHEN WIDTH OF SUPERSTRUCTURE EXCEEDS 90'. RUN REINFORCEMENT THROUGH THE JOINT.

LONGITUDINAL APPROACH SLAB REINFORCEMENT SHALL BE PLACED PARALLEL TO THE APPROACH (I.E., NOT NORMAL TO THE C/L ABUTMENT WITH SKEWED STRUCTURES).

STRUCTURE APPROACH SLABS TO BE DETAILED TO MATCH THE BRIDGE DECK (I.E., PROTECTIVE SURFACE TREATMENT, STAINLESS STEEL REINFORCEMENT, LONGITUDINAL GROOVING, ETC.). WHERE HIGH PERFORMANCE CONCRETE IS USED AT THE BRIDGE DECK, HPC SHALL BE USED FOR THE APPROACH SLAB ONLY (I.E., HPC IS NOT REQUIRED FOR APPROACH SLAB FOOTING).

☆ THE BID ITEM FOR SS901 AND SS601 BARS SHALL BE STANDARD SPECIAL PROVISION "BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES".

DESIGNER TO COORDINATE LOCATION OF SURFACE DRAINS, INLETS, AND/OR FLUMES WITH ROADWAY DESIGNER AND THE FDM.

SEE STANDARD 9.01 FOR BACKFILL AND BASE AGGREGATE DENSE 1-¼ INCH DETAILS.

SHOW "DESIGN DATA" INFORMATION ON FIRST SHEET OF PLANS

DESIGN DATA

CONCRETE STRENGTH (STRUCTURAL APPROACH SLAB AND FOOTING), f'c:	4,000 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60, fy:	60,000 P.S.I.
ALLOWABLE SOIL BEARING PRESSURE:	2,000 P.S.F.

LEGEND

▲ SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ½" BELOW SURFACE OF CONCRETE).

◐ SEE PARAPET STANDARD DETAILS FOR LOCATION OF NAME PLATE AND BENCH MARK WITH RESPECT TO THE END OF PARAPET.

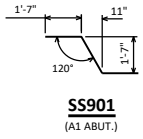
BILL OF BARS

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

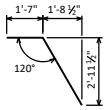
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
SS901			5'-0"	X		CONC. ABUT. DIAPH. TO APPROACH SLAB
SS901			5'-0"	X		CONC. BACKWALL TO APPROACH SLAB
SS601			3'-0"			STRUCTURE SLAB TO APPROACH SLAB

STAINLESS STEEL (A1 ABUT. - GIRDER SPAN)
STAINLESS STEEL (A3 & A4 ABUT.)
STAINLESS STEEL (A1 ABUT. - SLAB SPAN)

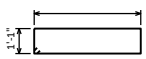
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
T501	X			X		APPROACH SLAB FTG. - STIRRUP
T802	X					APPROACH SLAB FTG. - TRANS.
T803	X			X		APPROACH SLAB - LONG. - BOT.
T804	X			X		APPROACH SLAB - LONG. - BOT. - WALL
T505	X					APPROACH SLAB - LONG - TOP.
T506	X					APPROACH SLAB - LONG. - WALL
T507	X					APPROACH SLAB - TRANS. - BOT.
T508	X					APPROACH SLAB - TRANS - TOP.
T509	X		4'-10"	X		APPROACH SLAB - TRANS. - TOP - WALL
T510	X		4'-1"	X		APPROACH SLAB - TRANS. - TOP - WING
T411	X		3'-0"	X		APPROACH SLAB - TRANS. - WALL



SS901
(A1 ABUT.)

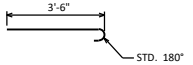


SS901
(A3 & A4 ABUT.)



T501

T509



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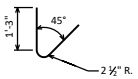

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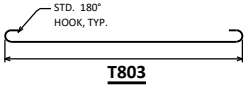

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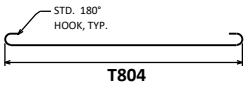


T804

SECTIONS A-A THRU G-G ARE SHOWN ON STANDARD 12.11 & 12.12

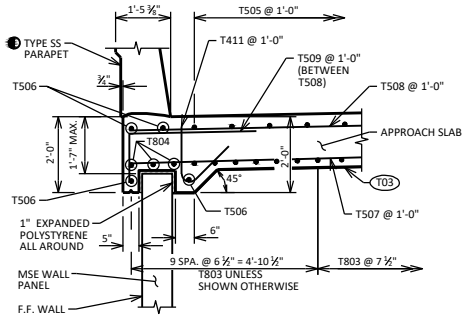
STRUCTURAL APPROACH SLAB

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

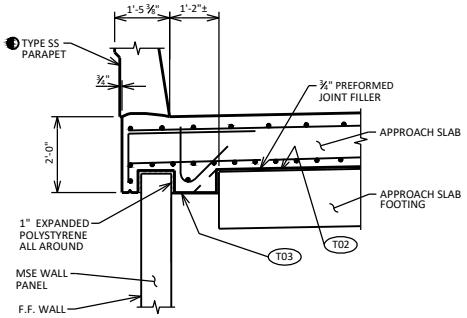
DATE: 1-21

STANDARD 12.10



SECTION A-A

(AT MSE WINGWALLS)

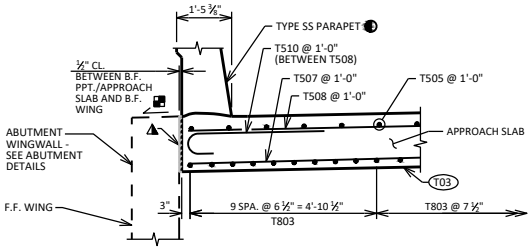


SECTION B-B

(AT MSE WINGWALLS)

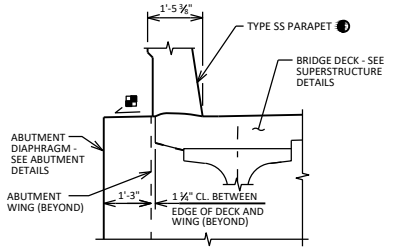
LEGEND

- T02 — STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.
- T03 — PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.
- ⚠ SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).
- ◐ SEE PARAPET STANDARD DETAILS FOR REINFORCEMENT, LOCATION OF NAME PLATE AND BENCH MARK WITH RESPECT TO THE END OF PARAPET, ETC.
- ▨ CONST. JOINT-STRIKE OFF AS SHOWN AND LEAVE ROUGH. FOR DECK POUR MATCH BRIDGE X-SLOPE.
- ▞ SLOPE TO DRAIN
- ✱ SECTION REPRESENTATIVE OF SIMILAR LOCATION AS SHOWN ON STANDARD 12.10 FOR DIFFERENT APPLICATION.



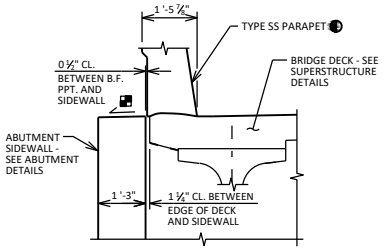
SECTION C-C

(AT WINGWALLS PARALLEL TO BRIDGE)



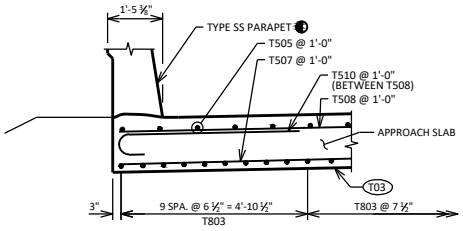
SECTION D-D

(AT WINGWALLS PARALLEL TO BRIDGE - A1 ABUT.)



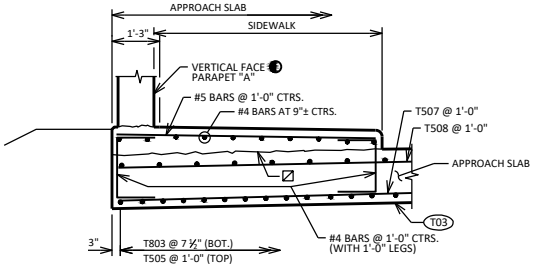
SECTION D-D ✱

(AT WINGWALLS PARALLEL TO BRIDGE - A3 ABUT.)



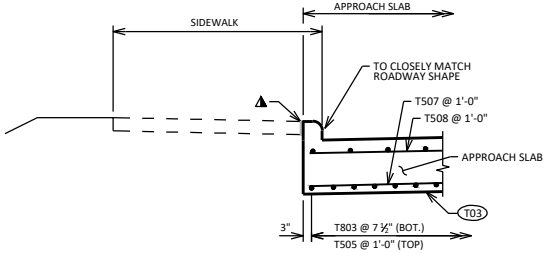
SECTION C-C ✱

(AT WINGWALLS PARALLEL TO ABUT.)



SECTION C-C ✱

(AT WINGWALLS PARALLEL TO ABUT.)



SECTION C-C ✱

(AT WINGWALLS PARALLEL TO ABUT.)

SECTIONS A-A THRU G-G ARE FROM STANDARD 12.10

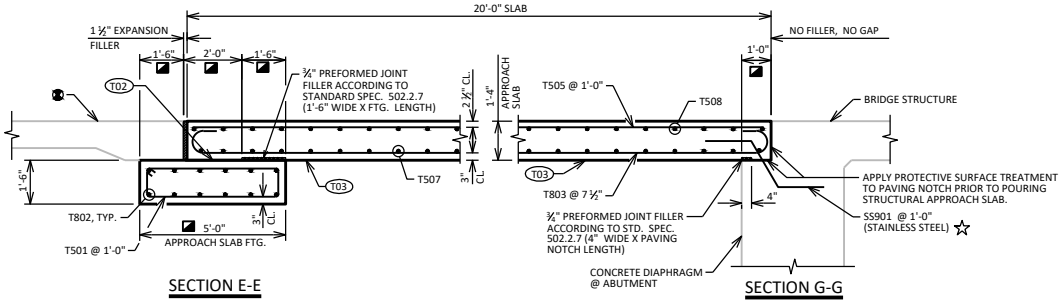
STRUCTURAL APPROACH SLAB DETAILS 1

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

DATE: 1-20

STANDARD 12.11

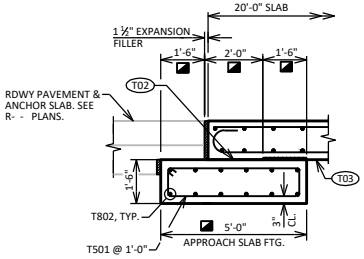


SECTION E-E

SECTION G-G

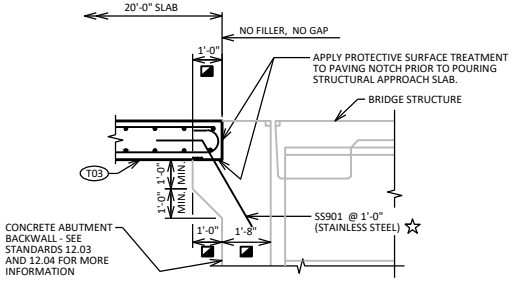
(A1 ABUT. - GIRDER SPAN)

SECTION THRU APPROACH SLAB



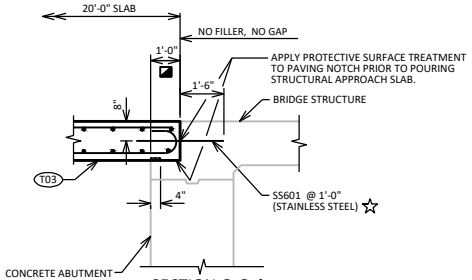
SECTION F-F

(AT MSE WINGWALLS WITH ANCHOR SLAB)



SECTION G-G *

(A3 ABUT.)

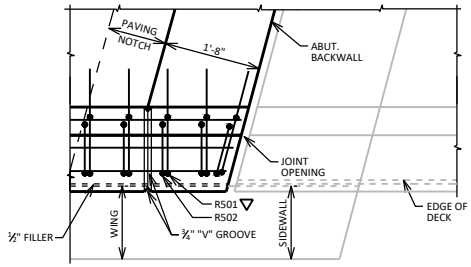


SECTION G-G *

(A1 ABUT. - SLAB SPAN)

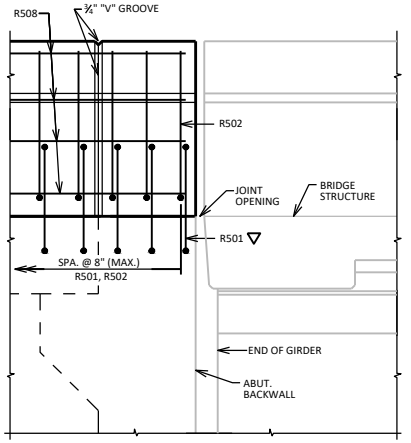
LEGEND

- T02 — STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.
- T03 — PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.
- ◪ MEASURED NORMAL TO ABUTMENT
- ◙ FOLLOW FDM 14-10-25 REQUIREMENTS FOR ROADWAY APPROACH PAVEMENT.
- * SECTION REPRESENTATIVE OF SIMILAR LOCATION AS SHOWN ON STANDARD 12.10 FOR DIFFERENT APPLICATION.
- ☆ THE BID ITEM FOR SS901 AND SS601 BARS SHALL BE STANDARD SPECIAL PROVISION "BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES".
- ▽ R501 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL AND ABUT. STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.



PLAN

(PARAPET ON STRUCTURAL APPROACH SLAB AT A3 ABUT.)



OUTSIDE ELEVATION

(PARAPET ON STRUCTURAL APPROACH SLAB AT A3 ABUT.)
(WING NOT SHOWN FOR CLARITY)

DESIGNER NOTES

SEE CHAPTER 30 FOR PARAPETS ON STRUCTURAL APPROACH SLAB DETAILS.

SECTIONS A-A THRU G-G ARE FROM STANDARD 12.10

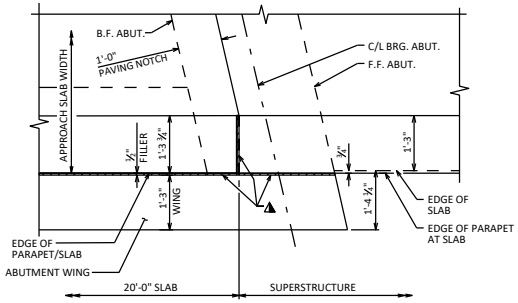
STRUCTURAL APPROACH SLAB DETAILS 2

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

DATE: 7-19

STANDARD 12.12



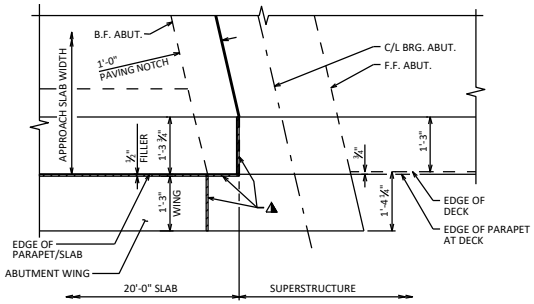
APPROACH SLAB PARTIAL PLAN

(AT WINGWALLS PARALLEL TO BRIDGE - A1 ABUT. - SLAB SPAN)

LEGEND

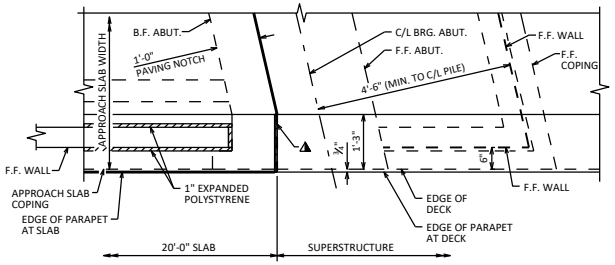
⚠ SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ½" BELOW SURFACE OF CONCRETE).

✱ PARTIAL PLAN REPRESENTATIVE OF SIMILAR LOCATION AS SHOWN ON STANDARD 12.10 FOR DIFFERENT APPLICATION.



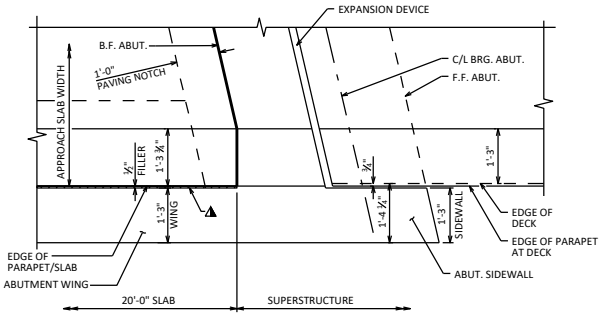
APPROACH SLAB PARTIAL PLAN

(AT WINGWALLS PARALLEL TO BRIDGE - A1 ABUT. - GIRDER SPAN)



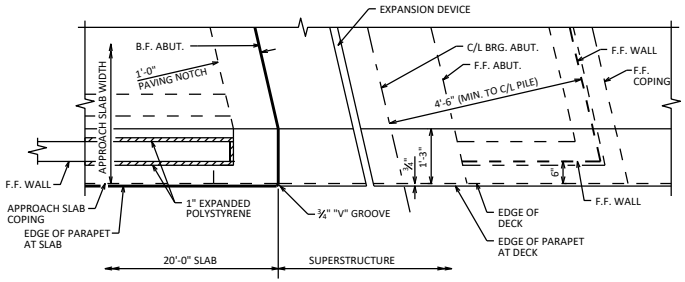
APPROACH SLAB PARTIAL PLAN ✱

(AT WINGWALLS PARALLEL TO BRIDGE - A1 ABUT. AT MSE WINGWALLS - GIRDER SPAN)



APPROACH SLAB PARTIAL PLAN ✱

(AT WINGWALLS PARALLEL TO BRIDGE - A3 ABUT. - GIRDER SPAN)



APPROACH SLAB PARTIAL PLAN ✱

(AT WINGWALLS PARALLEL TO BRIDGE - A3 ABUT. AT MSE WINGWALLS - GIRDER SPAN)

PARTIAL PLANS SHOWN HERE ARE FROM STANDARD 12.10

STRUCTURAL APPROACH SLAB DETAILS 3

BUREAU OF STRUCTURES

APPROVED: *Laura Shadewald*

DATE: 7-18

STANDARD 12.13