

INDEX OF SHEETS

PLAN SHEETS

1	TITLE
2	PRELIMINARY INFORMATION SHEET
3	CONVENTIONAL SYMBOLS - LEGEND
4 - 5	TYPICAL SECTIONS
6	PROJECT NOTES
7 - 9	QUANTITY SHEETS
10	BRIDGE QUANTITY SHEET
11	TIE SHEET
12	ALIGNMENT
13 - 14	LAYOUTS
15 - 16	VT 15 PROFILES
17	TH 71 AND TH 43 PROFILES AND MATERIAL TRANSITIONS
18 - 19	UTILITY LAYOUTS
20 - 21	SIGNS & PAVEMENT MARKINGS
22	TRAFFIC SIGN SUMMARY
23	BORING INFORMATION
24 - 25	BORING LOGS
26	PLAN AND ELEVATION
27	BRIDGE DECK DETAILS
28	FRAMING PLAN AND STEM END DETAILS
29	NEXT BEAM SECTIONS AND STRAND DETAILS
30	BEARING DETAILS
31	APPROACH SLAB PLAN AND TYPICAL SECTION
32	ABUTMENT #1 PLAN AND ELEVATION
33	ABUTMENT #2 PLAN AND ELEVATION
34	ABUTMENT TYPICAL SECTION
35	WINGWALL ELEVATIONS AND TYPICAL SECTION
36	ABUTMENT #1 AND #2 PILE LAYOUT
37	RETAINING WALL ELEVATION AND TYPICAL SECTION
38	REINFORCING STEEL SCHEDULE
39 - 40	GUARDRAIL TRANSITION DETAILS
41	VT 15 BANKING DIAGRAM AND MATERIAL TRANSITION
42 - 49	VT 15 CROSS SECTIONS
50	TH 71 CROSS SECTIONS
51	TH 43 CROSS SECTIONS
52	PIPE PROFILES
53 - 56	CHANNEL CROSS SECTIONS
57	EPSC NARRATIVE
58 - 59	EPSC EXISTING CONDITIONS
60 - 61	EPSC CONSTRUCTION CONDITIONS
62 - 63	EPSC FINAL CONDITIONS
64 - 66	EPSC DETAILS
67	R.O.W. DETAIL SHEET #1
68 - 69	R.O.W. LAYOUTS

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	2/9/2012
SD-502.00	CONCRETE DETAILS AND NOTES	10/10/2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	8/29/2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010

STANDARDS LIST

D-30	UNDERDRAIN CONSTRUCTION DETAILS	08-13-2007
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-141	REGULATORY SIGN DETAILS	09-20-1995
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	02-10-2014
G-1B	BOX BEAM GUARD RAIL	06-01-1994
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-31	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-44	MILEMARKER DETAILS STATE AND TOWN HIGHWAYS	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: November 2013

DRAINAGE AREA : 4.3 sq. mi.
 CHARACTER OF TERRAIN : Mostly forested, mountainous
 STREAM CHARACTERISTICS : Sinuous, steep and probably incised
 NATURE OF STREAMBED : Mostly gravel and sand, some cobbles

PEAK FLOW DATA

Q 2.33 =	325 cfs	Q 50 =	1025 cfs
Q 10 =	650 cfs	Q 100 =	1200 cfs
Q 25 =	850 cfs	Q 500 =	1700 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 5.0 fps
 ICE CONDITIONS : Moderate
 DEBRIS : Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? : No
 IS ORDINARY RISE RAPID? : No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? : Possibly
 IF YES, DESCRIBE : Backwater from Lamoille River

WATERSHED STORAGE : <1% HEADWATERS :
 UNIFORM : X
 IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Single span concrete T-beam
 YEAR BUILT : 1926, Reconstructed in 1969
 CLEAR SPAN(NORMAL TO STREAM) : 22'
 VERTICAL CLEARANCE ABOVE STREAMBED : 6.8'
 WATERWAY OF FULL OPENING : 140 sq. ft.
 DISPOSITION OF STRUCTURE : Replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	482.4'	VELOCITY =	6.0 fps
Q10 =	484.1'	"	8.2 fps
Q25 =	484.9'	"	9.7 fps
Q50 =	486.4'	"	9.9 fps
Q100 =	486.7'	"	11.0 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 488.7'
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Johnson DISTANCE: 2047'
 HIGHWAY #: Lamoille Valley Rail Trail STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Johnson DISTANCE: 1000'
 HIGHWAY #: STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE: Confluence with Lamoille River

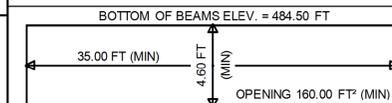
LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.01	1.18					
POSTING							
OPERATING	2.79	1.53	2.73	1.54	2.00	1.81	1.18
COMMENTS:							

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TEMPORARY BRIDGE PROFILE ALONG TEMP CL



TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2012 to 2032	40 year ESAL for flexible pavement from 2012 to 2052
2012	5000	560	56	4	510	4615000	11448000
2032	5700	640	56	5.7	830		Design Speed : 50 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span concrete bridge NEXT 24F
 CLEAR SPAN(NORMAL TO STREAM): 50'
 VERTICAL CLEARANCE ABOVE STREAMBED: ~9'
 WATERWAY OF FULL OPENING: 380 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	482.2'	VELOCITY=	5.0 fps
Q10 =	483.6'	"	6.2 fps
Q25 =	484.3'	"	6.7 fps
Q50 =	484.7'	"	7.1 fps
Q100 =	485.1'	"	7.6 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 489.3'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 487.8'
 VERTICAL CLEARANCE: @ Q50 = 3.1'

SCOUR: Contraction scour is 0' up to Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 10 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 5 cfs 0.5'
 ORDINARY HIGH WATER: 140 cfs 3.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
 CLEAR SPAN (NORMAL TO STREAM): 35'
 VERTICAL CLEARANCE ABOVE STREAMBED: Low beam elevation 484.5'
 WATERWAY AREA OF FULL OPENING: 160 sq. ft.

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY
4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

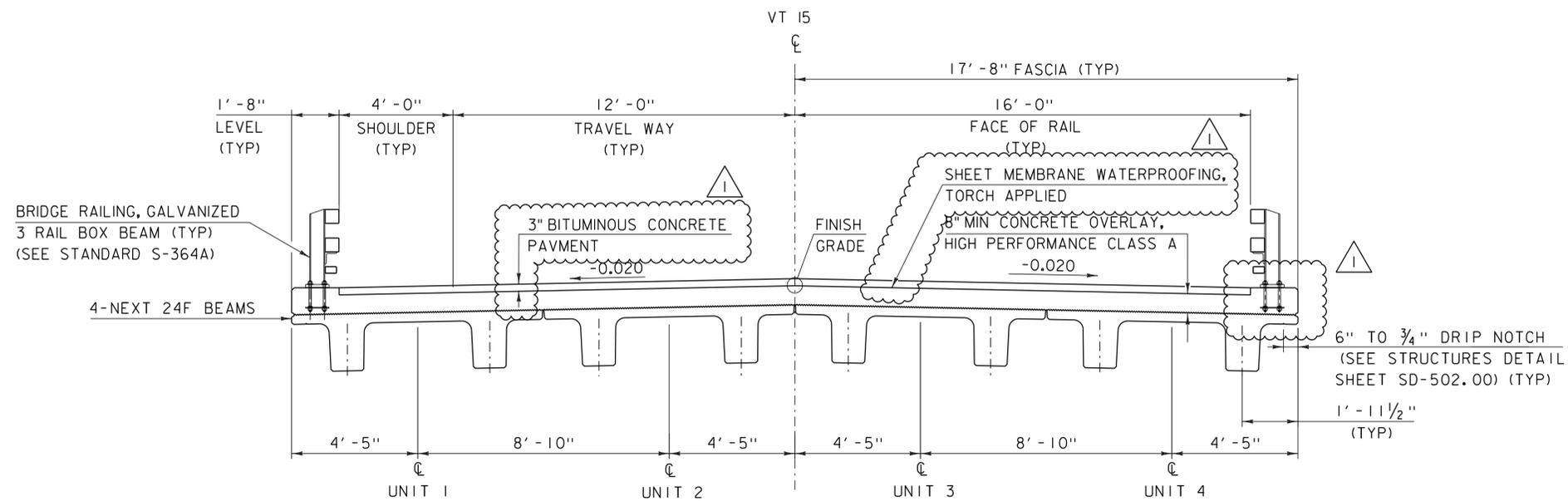
1. DESIGN LIVE LOAD HL-93
2. FUTURE PAVEMENT d_p : 0.0 INCH
3. DESIGN SPAN L: 36.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) Δ : 1.51 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX) f_y : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH $f'c$: 8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH $f'ci$: 6.5 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA $f'c$: ---
9. CONCRETE, HIGH PERFORMANCE CLASS A $f'c$: 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B $f'c$: 3.5 KSI
11. CONCRETE, CLASS C $f'c$: ---
12. REINFORCING STEEL f_y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 f_y : ---
14. NOMINAL BEARING RESISTANCE OF SOIL q_n : 4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) ϕ : ---
16. NOMINAL BEARING RESISTANCE OF ROCK q_n : 10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) ϕ : ---
18. PILE RESISTANCE FACTOR ϕ : 0.65
19. LATERAL PILE DEFLECTION Δ : 0.16 INCH
20. BASIC WIND SPEED V_{3s} : ---
21. MINIMUM GROUND SNOW LOAD p_g : ---
22. EST. PILE LENGTHS (TWO SUBSTRUCTURES) S_s : ---
 (ABUTMENT 1 = 50 AND ABUTMENT 2 = 48) FT
 6 PILES PER ABUTMENT

PROJECT NAME: JOHNSON

PROJECT NUMBER: BRP 030-2(26)

FILE NAME: s88b193pi.dgn PLOT DATE: 11/5/2014
 PROJECT LEADER: C. CARLSON DRAWN BY: G. ROY
 DESIGNED BY: H. SALLS CHECKED BY: H. SALLS
 PRELIMINARY INFORMATION SHEET SHEET 2 OF 69

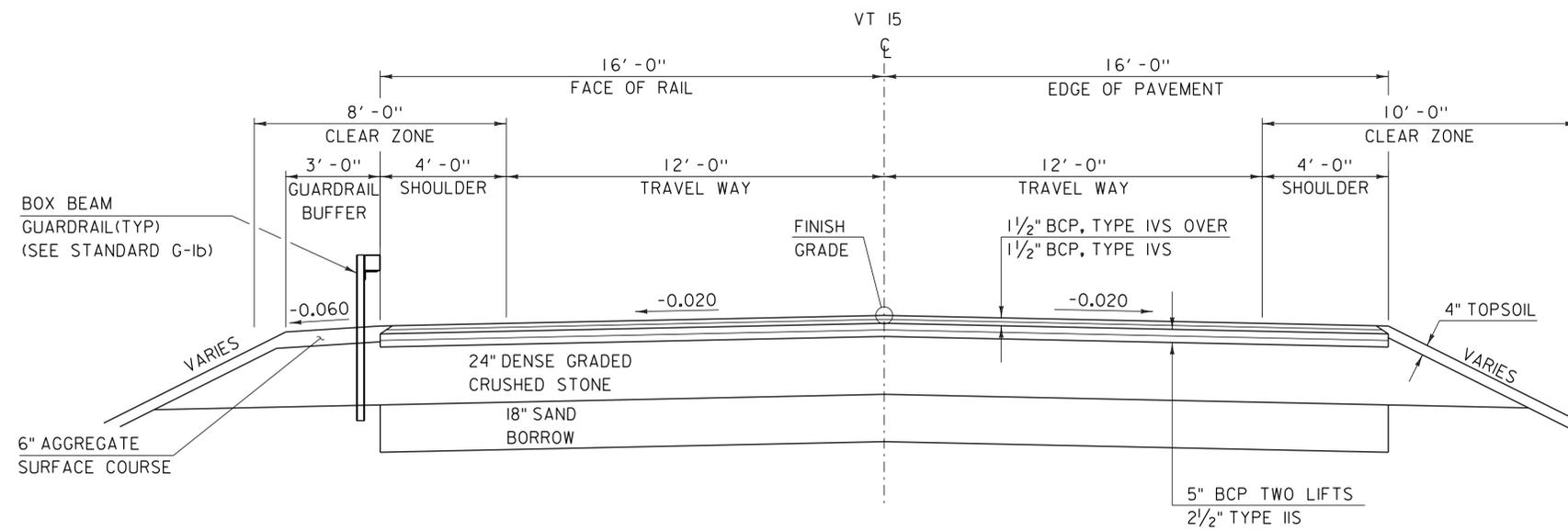
REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR



REMOVE LONGITUDINAL DECK GROOVING

BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"



*BCP: BITUMINOUS CONCRETE PAVEMENT PAID FOR UNDER ITEM 900.680 "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".

ROADWAY TYPICAL SECTION

SCALE 3/8" = 1'-0"

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

MATERIAL TOLERANCES (IF USED ON PROJECT)	
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME:	JOHNSON	PLOT DATE:	05-NOV-2014
PROJECT NUMBER:	BRF 030-2(26)	DRAWN BY:	R. PELLETT
FILE NAME:	s88b193typ.dgn	DESIGNED BY:	H. SALLS
PROJECT LEADER:	C. CARLSON	CHECKED BY:	H. SALLS
TYPICAL SECTIONS (1)		SHEET	4 OF 69

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SIXTH EDITION, DATED 2012 AND ITS LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS THIRD EDITION, DATED 2010 AND ITS LATEST REVISIONS.
2. THE BRIDGE WAS DESIGNED FOR THE HL-93 LIVE LOADS.
3. ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL BE USED FOR THE REMOVAL OF THE EXISTING STRUCTURE INCLUDING THE SUPERSTRUCTURE, ALONG WITH THE ABUTMENTS AND WINGWALLS OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION. THE EXISTING CONCRETE ABUTMENTS SHALL BE COMPLETELY REMOVED.
4. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS OTHERWISE NOTED.

EARTHWORK AND RELATED ITEMS

5. THE TEMPORARY BRIDGE AND ITS APPROACHES SHALL BE CONSTRUCTED AND PAID FOR IN ACCORDANCE WITH ITEM 528.11 "TWO-WAY TEMPORARY BRIDGE". THE APPROACHES TO THE TEMPORARY BRIDGE SHALL BE PAVED WITH 2 INCHES OF PAVEMENT.
6. TEMPORARY CONSTRUCTION FILLS WITHIN THE WATERCOURSE FOR ANY PURPOSE SHALL CONSIST OF CLEAN STONE FILL ONLY. NO OTHER FILLING IN THE STREAM SHALL OCCUR WITHOUT THE APPROVAL OF THE STREAM ALTERATION ENGINEER.
7. THE BACKFILL BEHIND THE ABUTMENTS SHALL NOT BE PLACED HIGHER THAN THE BRIDGE SEATS UNTIL THE ABUTMENTS AND DECK CONSTRUCTION IS COMPLETED.
8. THE "STONE FILL, TYPE III" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEXT BEAMS ARE SET.

PILES

9. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(f).
10. THE PILES SHALL BE DRIVEN TO A NOMINAL PILE DRIVING RESISTANCE OF 285 KIPS.
11. TO ENSURE THAT THE NOMINAL CAPACITY HAS BEEN ATTAINED AND TO PREVENT THE OVERSTRESSING OF THE PILE DURING DRIVING OPERATIONS, DYNAMIC PILE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 505.04 OF THE STANDARD SPECIFICATIONS. PAYMENT FOR PILE TESTING SHALL BE MADE UNDER ITEM 505.45 "DYNAMIC PILE LOADING TEST". A MINIMUM OF ONE DYNAMIC PILE TEST SHALL BE CONDUCTED ON THE FIRST PILE AT EACH ABUTMENT FOR A TOTAL OF 2 TESTS. MORE TESTS MAY BE ORDERED BY THE ENGINEER. ADDITIONAL TESTS ORDERED BY THE ENGINEER WILL BE PAID FOR AT THE UNIT PRICE FOR CONTRACT ITEM 505.45.
12. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.
13. THE PILES SHALL BE HP 12 X 63.
14. ALL MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO ITEM 505.155 "STEEL PILEING, HP 12 X 63". THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE METHOD OF DRIVING FOR APPROVAL BY THE ENGINEER.

CONCRETE

15. SUBSTRUCTURE (INCLUDING RETAINING WALL) AND APPROACH SLAB CONCRETE SHALL BE HIGH PERFORMANCE CLASS B AND SHALL BE PAID FOR UNDER ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B". THE OVERLAY AND ALL CONCRETE PLACED INTEGRALLY WITH THE SUPERSTRUCTURE SHALL BE ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A".
16. THE ABUTMENT AND WINGWALL CONCRETE ABOVE THE HORIZONTAL CONSTRUCTION JOINTS SHALL BE PLACED MONOLITHICALLY WITH THE DECK POUR.

17. INDIVIDUAL POURED SEGMENTS ARE TO BE PLACED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A CONSTRUCTION JOINT SHALL BE USED BETWEEN ADJACENT POURS. A MINIMUM 96 HOUR DELAY BETWEEN ADJACENT POURS SHALL BE OBSERVED.
18. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.
19. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
20. EXCLUDING REINFORCING STEEL IN WINGWALLS, ALL REINFORCING STEEL ABOVE THE CONSTRUCTION JOINT SHALL BE CORROSION PROTECTION LEVEL II AND ALL REINFORCING STEEL BELOW THE CONSTRUCTION JOINT, IN WINGWALLS AND IN THE APPROACH SLABS SHALL BE CORROSION PROTECTION LEVEL I. PAYMENT WILL BE MADE UNDER THE APPROPRIATE SECTION 507 CONTRACT ITEM. OVERLAY REINFORCING SHEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING AND WILL BE PAID FOR UNDER CONTRACT ITEM 507.12. F BEAM REINFORCING SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING AND WILL BE PAID FOR UNDER CONTRACT ITEM 900.640 SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT F BEAM).
21. LEVEL I REINFORCING STEEL IN THE ABUTMENTS SHALL BE EPOXY COATED.

TRAFFIC CONTROL

22. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
23. ANY TEMPORARY MEANS OF SUPPORTING FILL SHALL BE INCIDENTAL TO THE ITEM 528.11 "TWO-WAY TEMPORARY BRIDGE". TEMPORARY PAVEMENT MARKINGS ON APPROACHES TO THE TEMPORARY BRIDGE WILL BE INCLUDED FOR PAYMENT UNDER CONTRACT ITEM 528.11.
24. THE CONTRACTOR SHALL ADD SIGN G20-5AP TO THE TOP OF ALL TEMPORARY SPEED LIMIT SIGNS AS DETAILED IN THE MUTCD.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A DETAILED TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. NO WORK SHALL BEGIN UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED.
26. PAYMENT FOR ALL ON AND OFF-PROJECT CONSTRUCTION SIGNING AND TRAFFIC CONTROL DEVICES, INCLUDING DRUMS, TRAFFIC DIVIDERS AND BARRICADES, AND FOR ALL COSTS RELATED TO TRAFFIC CONTROL NOT OTHERWISE PAID UNDER A SEPARATE CONTRACT ITEM(S), INCLUDING PREPARATION OF AND IF NECESSARY REVISION(S) TO THE SITE-SPECIFIC TRAFFIC CONTROL PLAN, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

NEXT F BEAMS

27. THE NEXT F BEAMS ARE A NON-PROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT [HTTP://WWW.PCINE.ORG](http://www.pcine.org).

DESIGN VALUES

- a. CONCRETE COMPRESSIVE STRENGTH: $f'c = 10,000$ PSI
- b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: $f'c = 6,500$ PSI
- c. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
- d. ASSUMED MODULUS OF ELASTICITY = 28,500 KSI
- e. JACKING FORCE PER STRAND = 47 KIPS
- f. SERVICE LOADS:
 - MEMBER MOMENT: 406 K-FT
 - SUPERIMPOSED DEAD LOAD MOMENT: 368 K-FT
 - LIVE LOAD AND IMPACT MOMENT: 1077 K-FT 
 - DEAD LOAD REACTION: 66.1 K 
 - LIVE LOAD AND IMPACT REACTION: 119 K
 - TOTAL REACTION: 184 K 
 - FINAL CAMBER: 1.09 INCHES 

REVISION	DATE	DESCRIPTION	BY
	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193notes.dgn PLOT DATE: 05-NOV-2014
PROJECT LEADER: C. CARLSON DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS CHECKED BY: H. SALLS
PROJECT NOTES SHEET 6 OF 69

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
							5600				5600		CY	COMMON EXCAVATION	203.15				
									570		570		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
							500				500		CY	SAND BORROW	203.31				
							190				190		CY	TRENCH EXCAVATION OF EARTH	204.20				
							1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
									290		290		CY	STRUCTURE EXCAVATION	204.25				
									180		180		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
							1110				1110		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
							1240				1240		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
							60				60		CY	AGGREGATE SURFACE COURSE	401.10				
							19				19		CWT	EMULSIFIED ASPHALT	404.65				
							1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
													CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
													CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
													LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
													LF	STEEL PILING, HP 12 X 63	505.155				
													EACH	DYNAMIC PILE LOADING TEST	505.45				
													LB	REINFORCING STEEL, LEVEL I	507.11				
													LB	REINFORCING STEEL, LEVEL II	507.12				
													SY	LONGITUDINAL DECK GROOVING	509.10				
													GAL	WATER REPELLENT, SILANE	514.10				
													LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
													LF	JOINT SEALER, HOT POURED	524.11				
													LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335				
													LS	TWO-WAY TEMPORARY BRIDGE (910 SF - EST.)	528.11				
													EACH	REMOVAL OF STRUCTURE (755 SF - EST.)	529.15				
													EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
														BEGIN OPTION AA					
							128				128		LF	18" CAAP .060 (2-2/3 X 1/2)	601.0215				
							128				128		LF	18" PCCSP .064 (2-2/3 X 1/2)	601.0415				
							128				128		LF	18" CPEP(SL)	601.2615				
														END OPTION AA					
							348				348		LF	8 INCH UNDERDRAIN PIPE	605.11				
							3				3		LF	6 INCH UNDERDRAIN CARRIER PIPE	605.20				
							78				78		LF	8 INCH UNDERDRAIN CARRIER PIPE	605.21				
							1				1		EACH	UNDERDRAIN FLUSHING BASIN	605.95				
								1			1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
							60	10			70		CY	STONE FILL, TYPE I	613.10				
							1330				1330		CY	STONE FILL, TYPE II	613.11				

PROJECT NAME: **JOHNSON**
PROJECT NUMBER: **BRF 030-2(26)**
FILE NAME: s88193qs.dgn PLOT DATE: 06/10/2014
PROJECT LEADER: C. CARLSON DRAWN BY: G. ROY
DESIGNED BY: H. SALLS CHECKED BY: H. SALLS
QUANTITY SHEET #1 SHEET 7 OF 69

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								229		229		LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT F BEAMS)(NEXT 24 F)	900.640				
						1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
						1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650				
						1				1	715	LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650				
						680		35		680		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				
								219		219		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				

PROJECT NAME: JOHNSON
 PROJECT NUMBER: BRF 030-2(26)
 FILE NAME: s88193qs.dgn
 PROJECT LEADER: C. CARLSON
 DESIGNED BY: H. SALLS
 QUANTITY SHEET #3

PLOT DATE: 06/10/2014
 DRAWN BY: G. ROY
 CHECKED BY: H. SALLS
 SHEET 9 OF 69

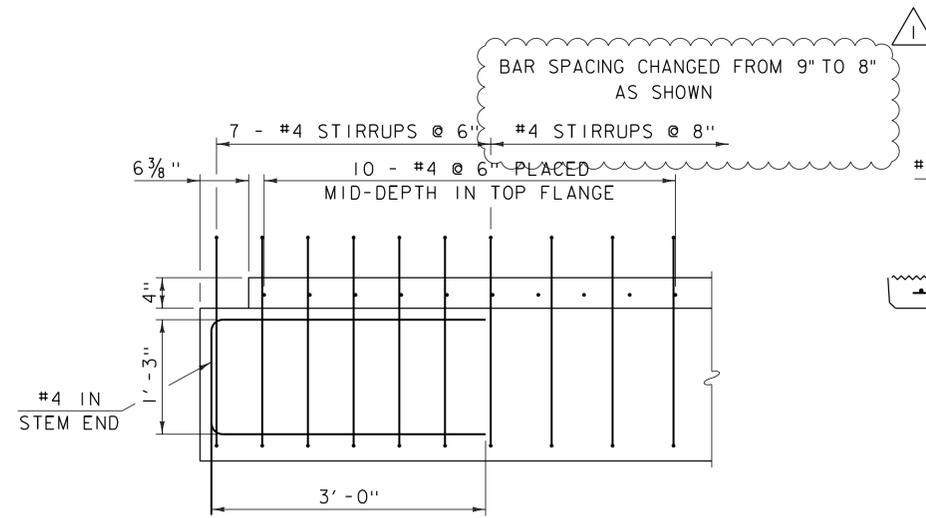
REVISION	DATE	DESCRIPTION	BY
	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

BRIDGE QUANTITY SHEET 1

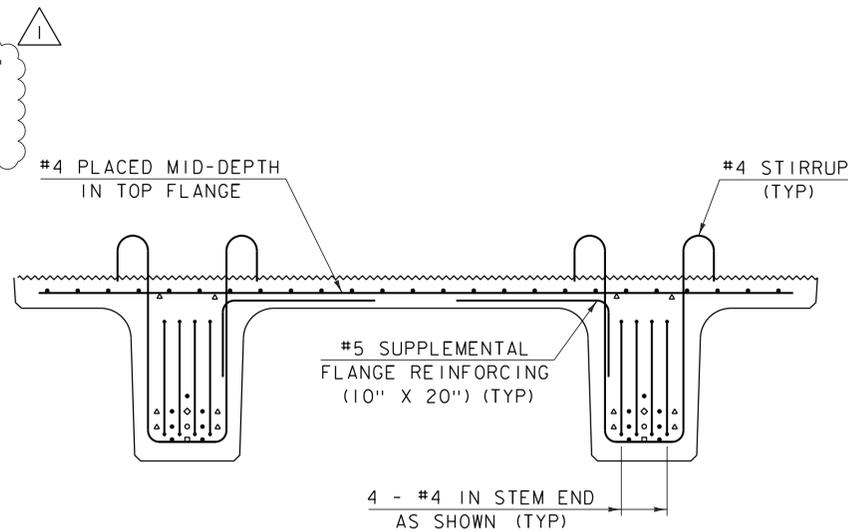
SUMMARY OF BRIDGE QUANTITIES										TOTALS		DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
DECK	APPROACH SLAB #1	APPROACH SLAB #2	ABUTMENT #1	ABUTMENT #2	RETAINING WALL	CHANNEL	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS				
						570	570	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27							
			205	85			290	CY	STRUCTURE EXCAVATION	204.25							
			130	50			180	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30							
55			14	14			82	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33							
			36	24			154	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34							
	30		0.5	0.5			1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10							
			300	288			588	LF	STEEL PILING, HP 12 X 63	505.155							
			1	1			2	EACH	DYNAMIC PILE LOADING TEST	505.45							
	3720	3720	3622	3260	2102		16424	LB	REINFORCING STEEL, LEVEL I	507.11							
15189			1330	1330			17849	LB	REINFORCING STEEL, LEVEL II	507.12							
206							206	SY	LONGITUDINAL DECK GROOVING	509.10							
18			5	5			28	GAL	WATER REPELLENT, SILANE	514.10							
	34	34					68	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10							
	34	34					68	LF	JOINT SEALER, HOT POURED	524.11							
122							122	LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335							
1							1	LS	TWO-WAY TEMPORARY BRIDGE (910 SF - EST.)	528.11							
1							1	EACH	REMOVAL OF STRUCTURE (755 SF - EST.)	529.15							
			8	8			16	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17							
						440	440	CY	STONE FILL, TYPE III	613.12							
						200	200	SY	GEOTEXTILE UNDER STONE FILL	649.31							
229							229	LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT F BEAMS)(NEXT 24 F)	900.640							
219							219	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20							
35							35	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680							

PROJECT NAME: JOHNSON
 PROJECT NUMBER: BRF 030-2(26)
 FILE NAME: s88193qs.dgn PLOT DATE: 06/10/2014
 PROJECT LEADER: C. CARLSON DRAWN BY: G. ROY
 DESIGNED BY: H. SALLS CHECKED BY: H. SALLS
 BRIDGE QUANTITY SHEET #1 SHEET 10 OF 69

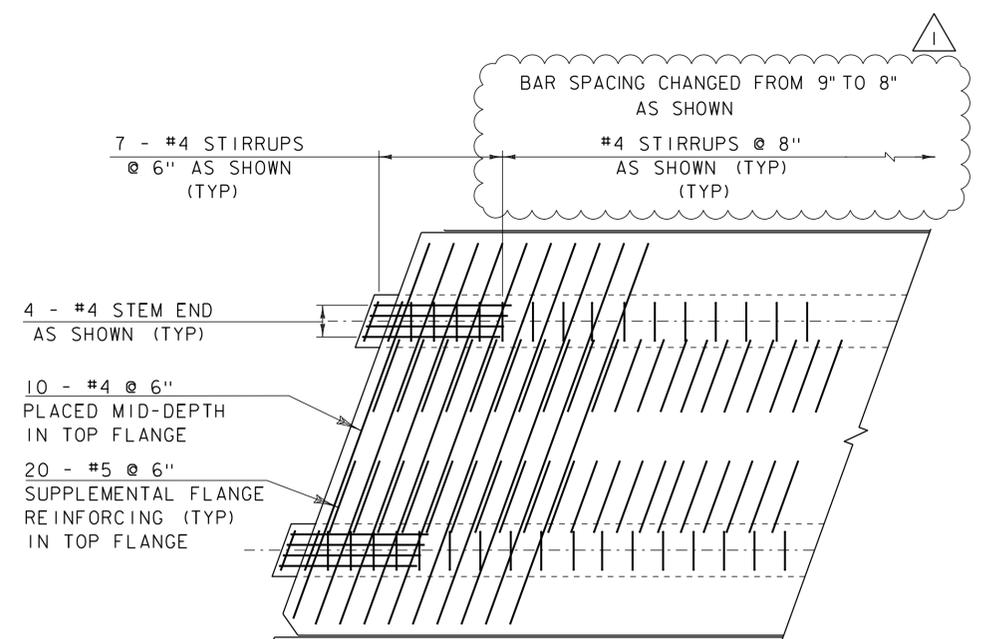
REVISION	DATE	DESCRIPTION	BY
△	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR



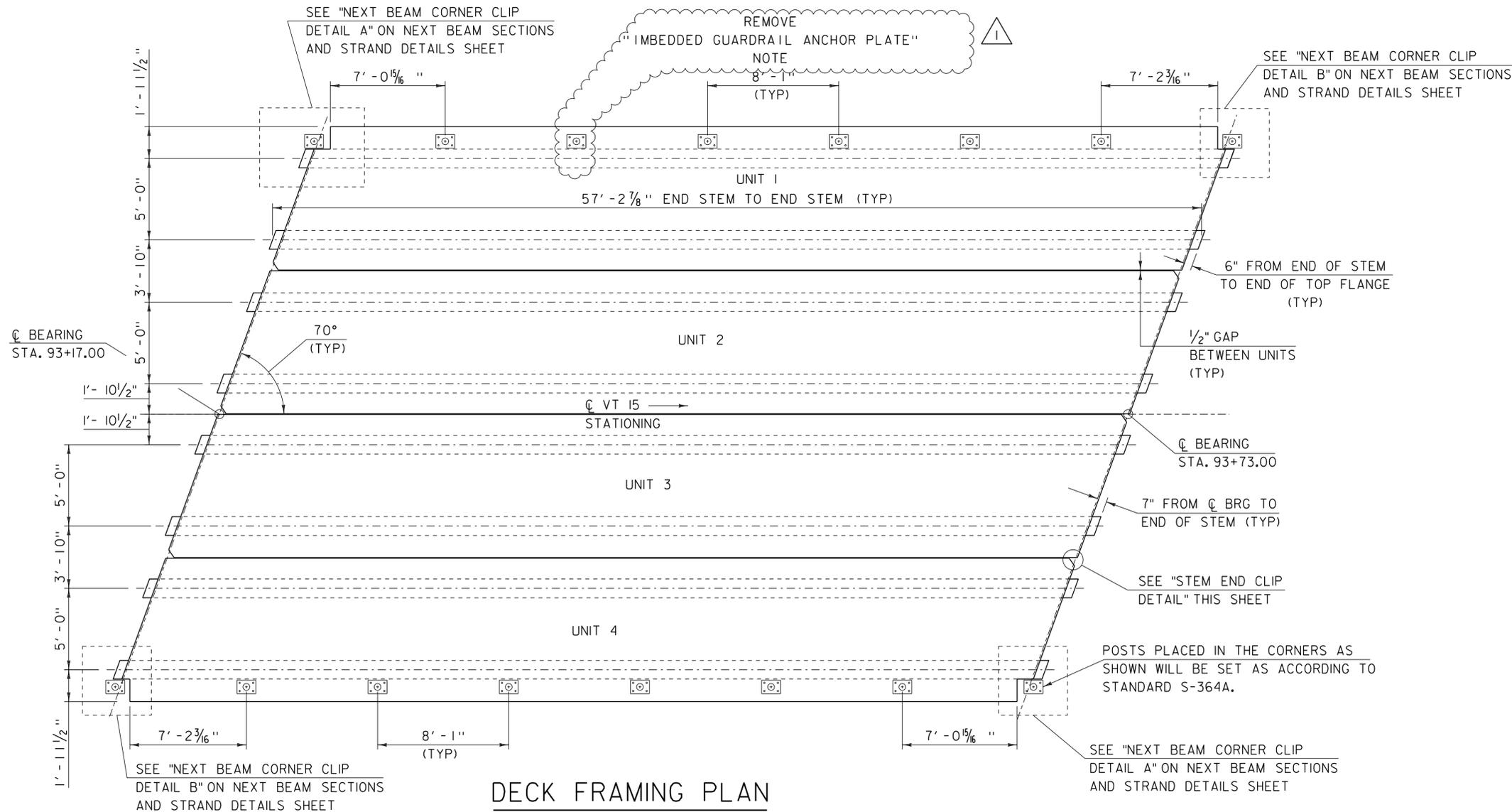
STEM END - SIDE ELEVATION
SCALE: 1" = 1'-0"



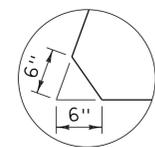
STEM END - END ELEVATION
SCALE: 1" = 1'-0"



STEM END - PLAN
SCALE: 1/2" = 1'-0"



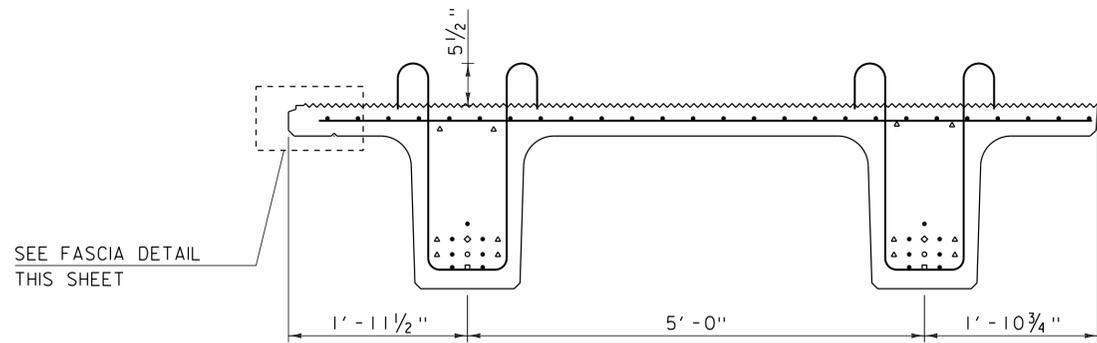
DECK FRAMING PLAN
SCALE: 1/4" = 1'-0"



TOP FLANGE CLIP DETAIL
SCALE: 1" = 1'-0"

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

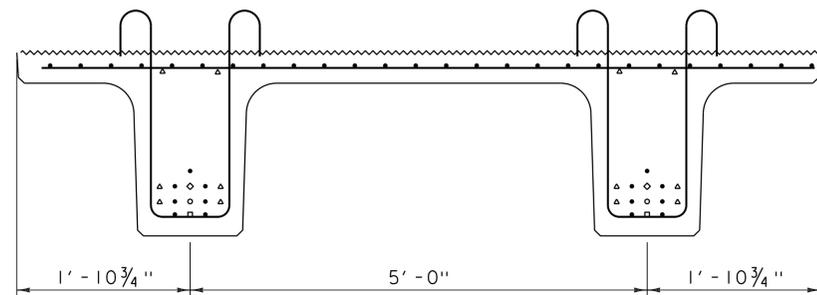
PROJECT NAME:	JOHNSON	PLOT DATE:	05-NOV-2014
PROJECT NUMBER:	BRF 030-2(26)	DRAWN BY:	G. ROKES
FILE NAME:	s88b193sup.dgn	CHECKED BY:	H. SALLS
PROJECT LEADER:	C. CARLSON	SHEET	28 OF 69
DESIGNED BY:	H. SALLS		
FRAMING PLAN AND STEM END DETAILS			



FASCIA UNITS 1 & 4

SCALE: 1" = 1'-0"

SEE FASCIA DETAIL THIS SHEET



UNITS 2 & 3

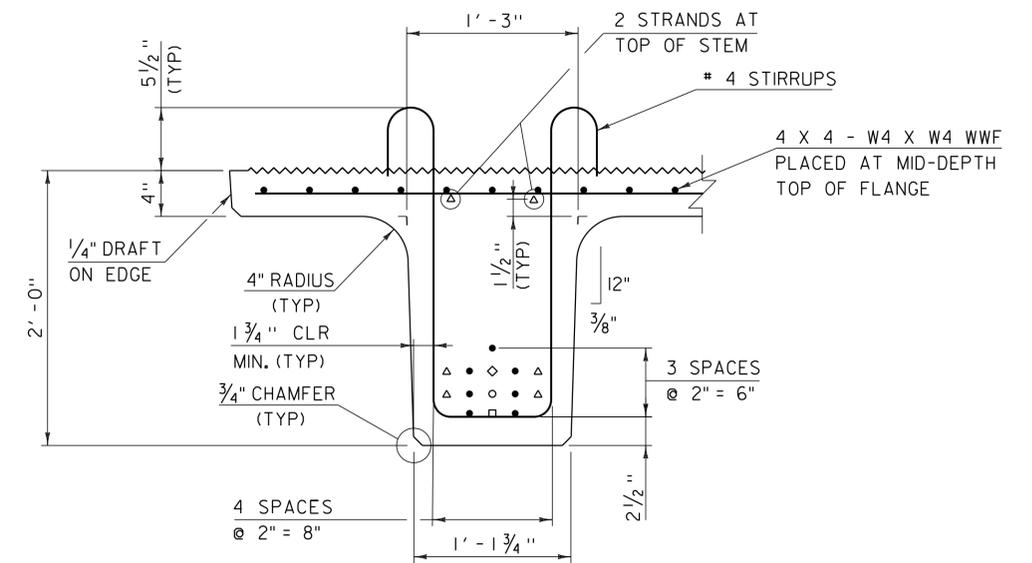
SCALE: 1" = 1'-0"

SEE "SCORE MARK DETAIL" ON THE "STRUCTURES DETAIL SD-501.00" SHEET

SEE "DRIP NOTCH DETAIL" ON THE "STRUCTURES DETAIL SD-502.00" SHEET

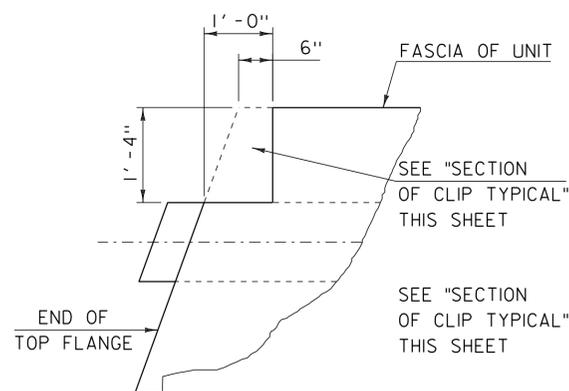
FASCIA DETAIL

SCALE: 3" = 1'-0"



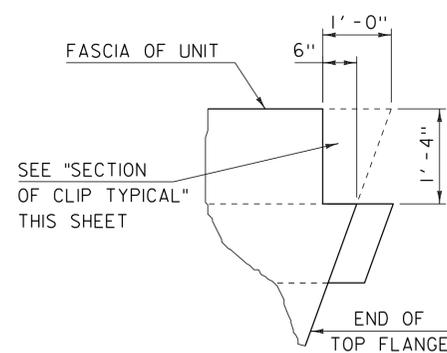
STEM TYPICAL SECTION

SCALE: 1 1/2" = 1'-0"



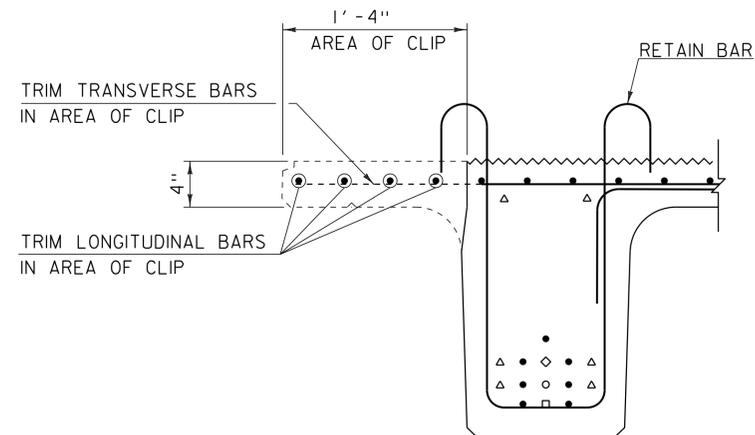
NEXT BEAM CORNER CLIP DETAIL A

SCALE: 3/4" = 1'-0"



NEXT BEAM CORNER CLIP DETAIL B

SCALE: 3/4" = 1'-0"



SECTION OF CLIP TYPICAL

SCALE: 1 1/2" = 1'-0"



STRAND LEGEND

- NOT DEBONDED
- △ DEBONDED 0' - 6"
- ◇ DEBONDED 4' - 0"
- DEBONDED 8' - 0"
- DEBONDED 10' - 0"

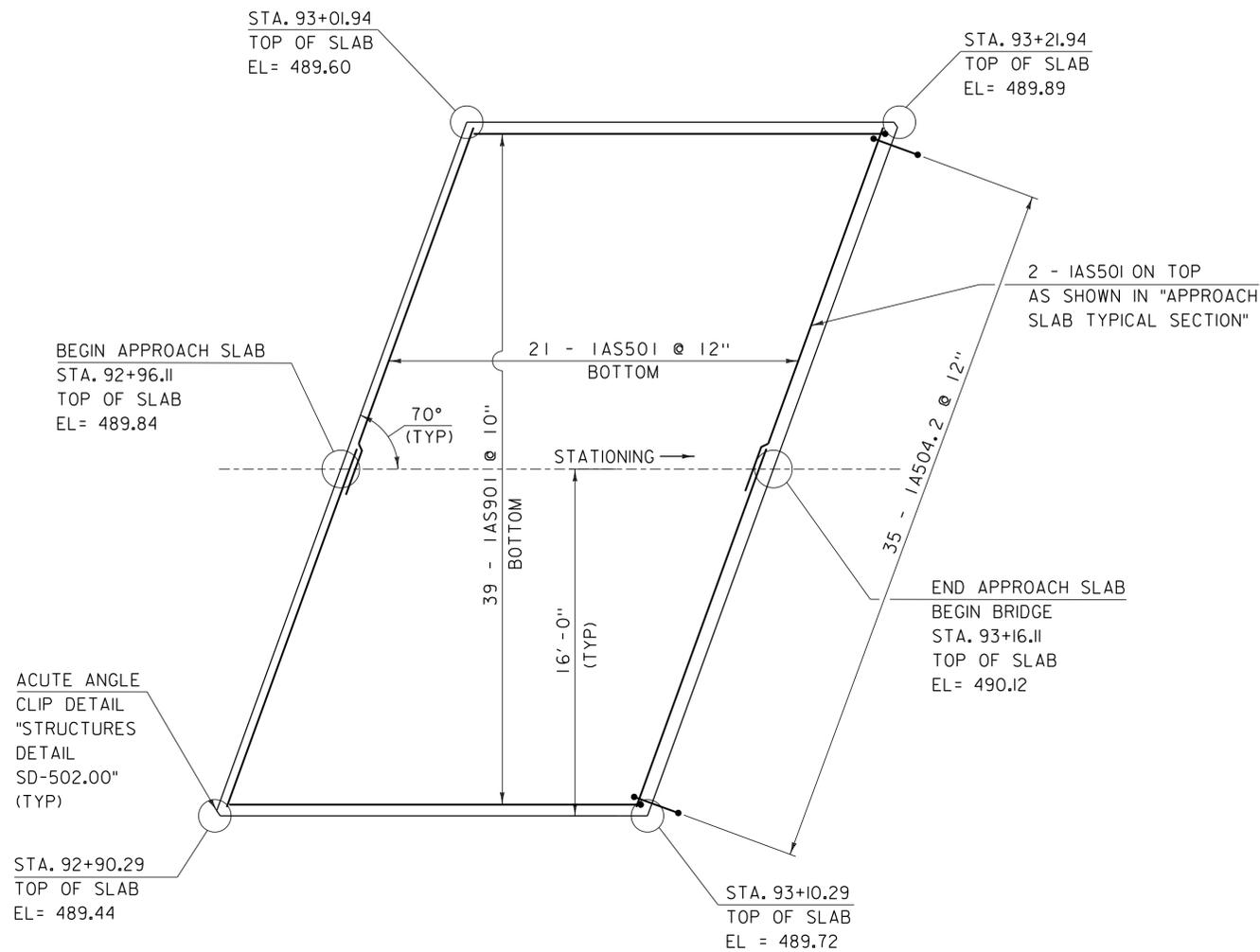
NOTES:

1. TOP SURFACE OF TOP FLANGE SHALL HAVE A RAKE FINISH. SEE STRUCTURES DETAIL SHEET SD-501.00.
2. STRANDS IN THE TOP AND BOTTOM ROWS THAT ARE NOT DEBONDED SHALL EXTEND 1'-6" FROM THE FINISHED END OF EACH BEAM STEM.

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

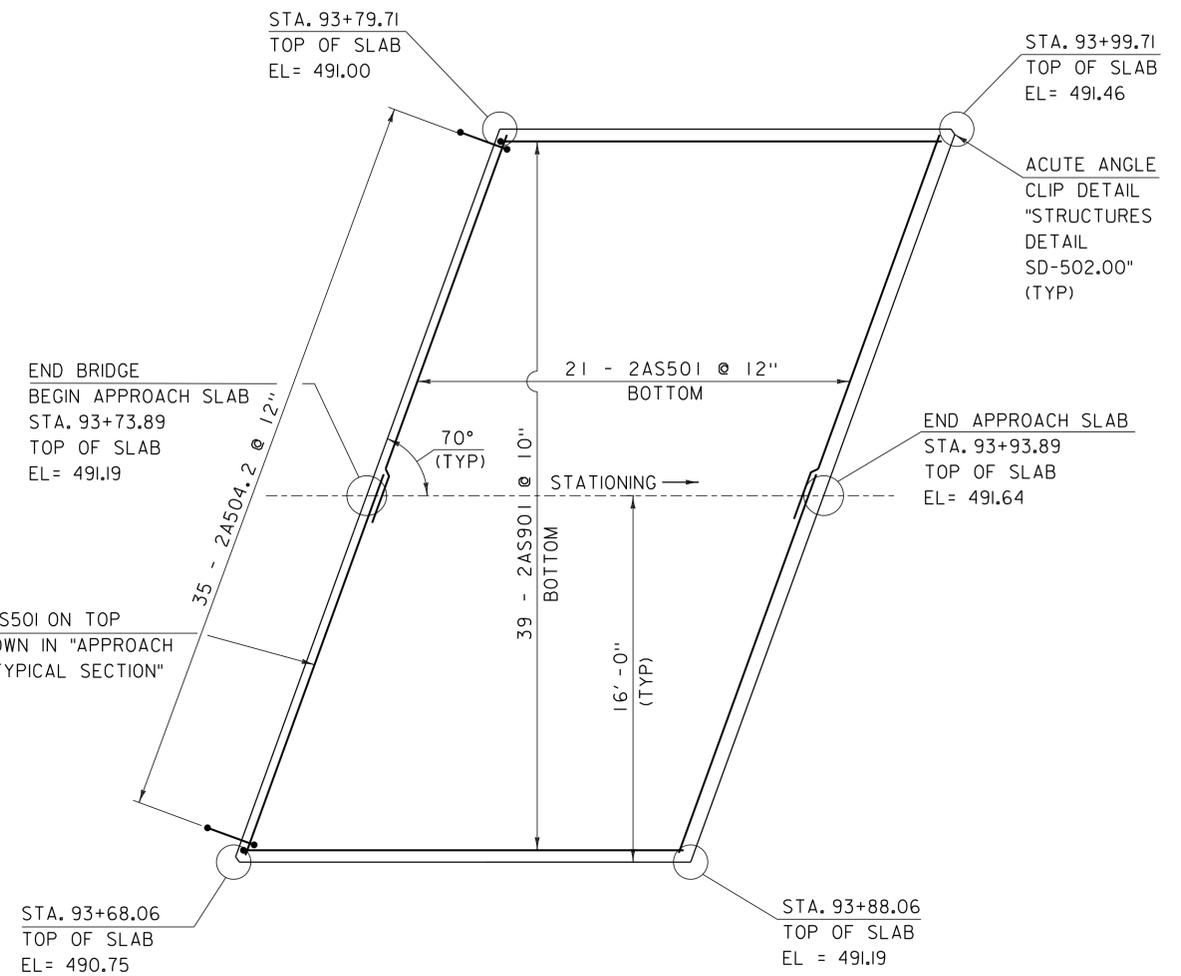
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193sup.dgn PLOT DATE: 05-NOV-2014
PROJECT LEADER: C. CARLSON DRAWN BY: G. ROKES
DESIGNED BY: H. SALLS CHECKED BY: H. SALLS
NEXT BEAM SECTIONS AND STRAND DETAILS SHEET 29 OF 69



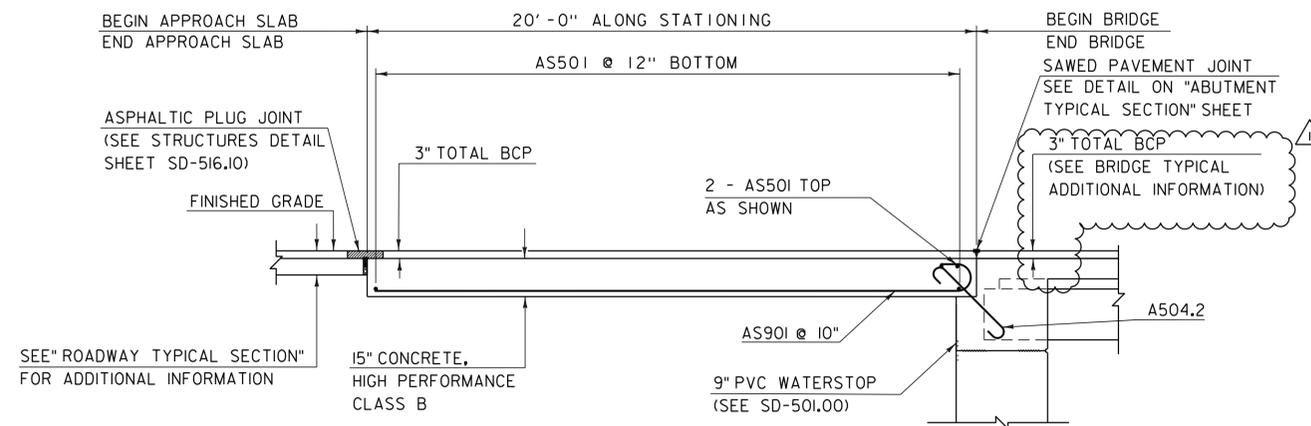
APPROACH SLAB # 1 PLAN

SCALE: 1/4" = 1'-0"



APPROACH SLAB # 2 PLAN

SCALE: 1/4" = 1'-0"



APPROACH SLAB TYPICAL SECTION

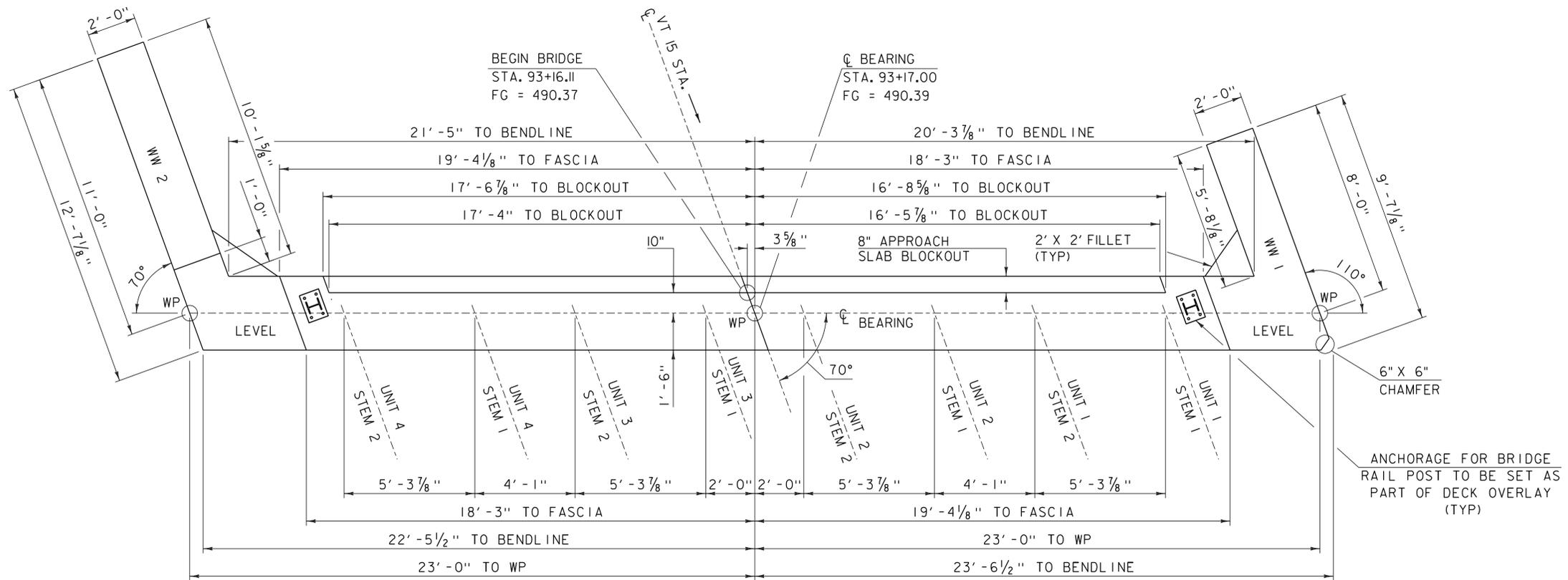
SCALE: 3/8" = 1'-0"

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

NOTE:

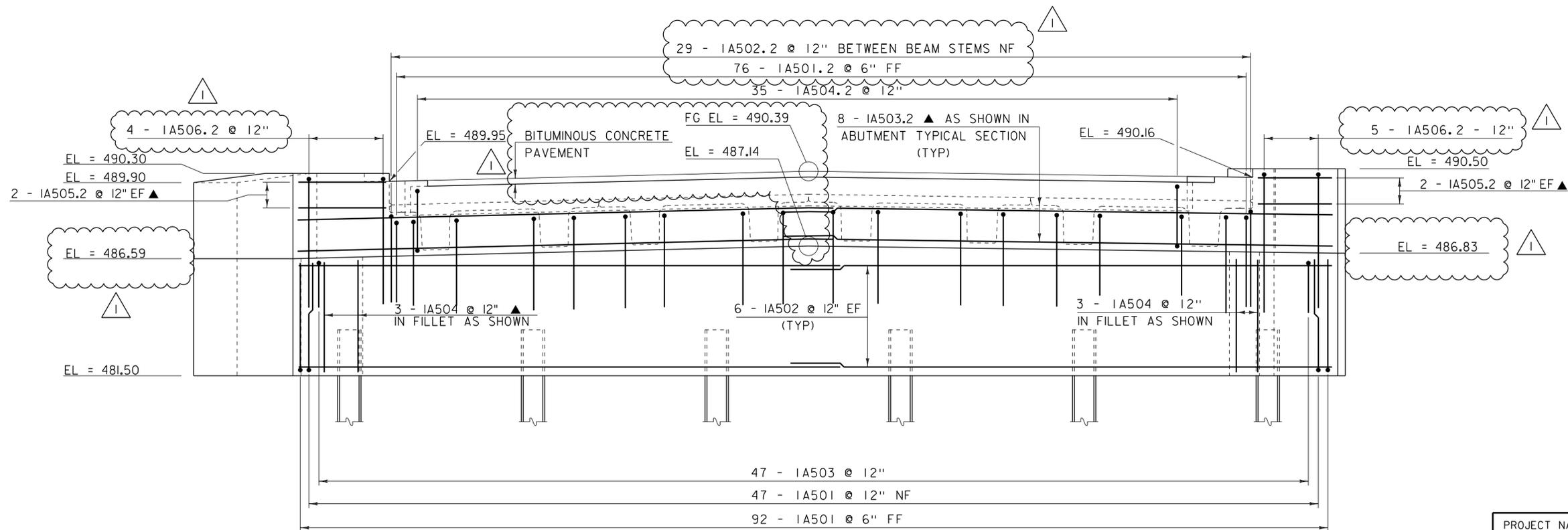
- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- 2' - 2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME:	s88b193sub.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	H. SALLS
APPROACH SLAB PLAN AND TYPICAL SECTION	
PLOT DATE:	05-NOV-2014
DRAWN BY:	G. ROKES
CHECKED BY:	H. SALLS
SHEET	31 OF 69



ABUTMENT #1 PLAN

SCALE: 3/8" = 1'-0"



ABUTMENT #1 ELEVATION

SCALE: 3/8" = 1'-0"

NOTE:

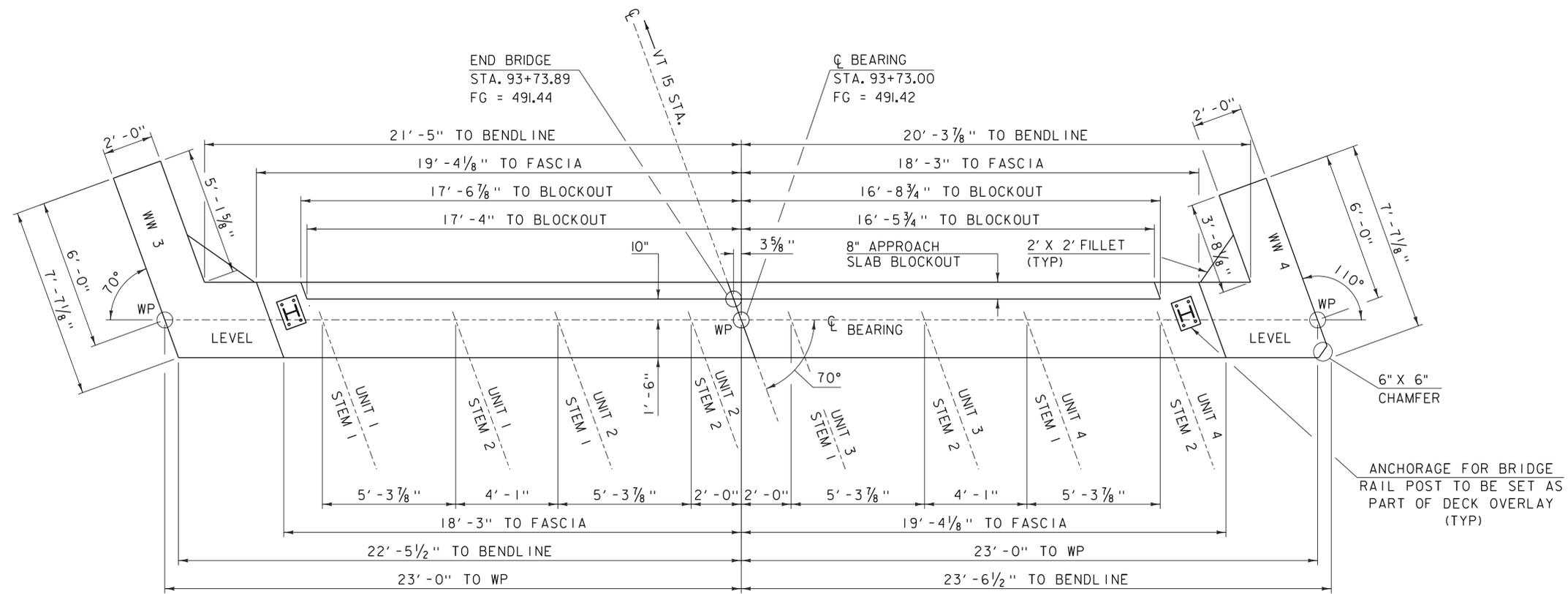
NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
 PROJECT NUMBER: BRF 030-2(26)

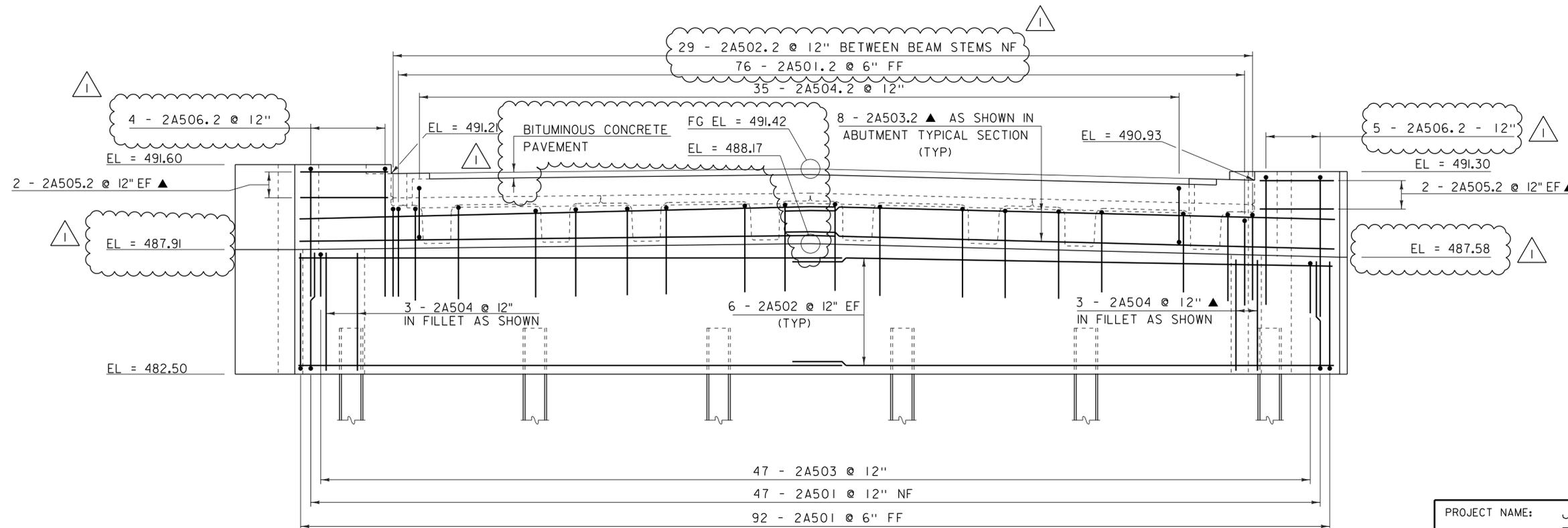
FILE NAME: s88b193sub.dgn
 PROJECT LEADER: C. CARLSON
 DESIGNED BY: H. SALLS
 ABUTMENT #1 PLAN AND ELEVATION

PLOT DATE: 05-NOV-2014
 DRAWN BY: G. ROKES
 CHECKED BY: H. SALLS
 SHEET 32 OF 69



ABUTMENT #2 PLAN

SCALE: 3/8" = 1'-0"



ABUTMENT #2 ELEVATION

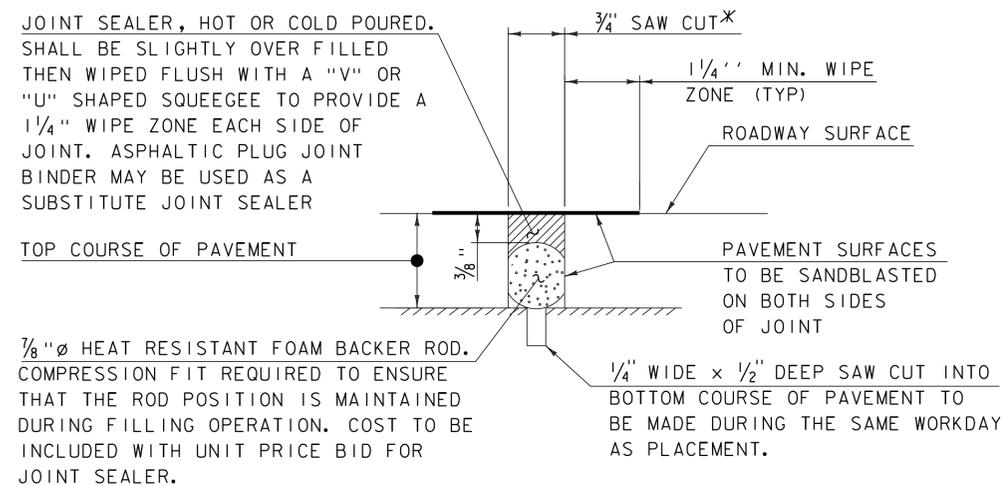
SCALE: 3/8" = 1'-0"

NOTE:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 2' - 2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: JOHNSON
 PROJECT NUMBER: BRF 030-2(26)

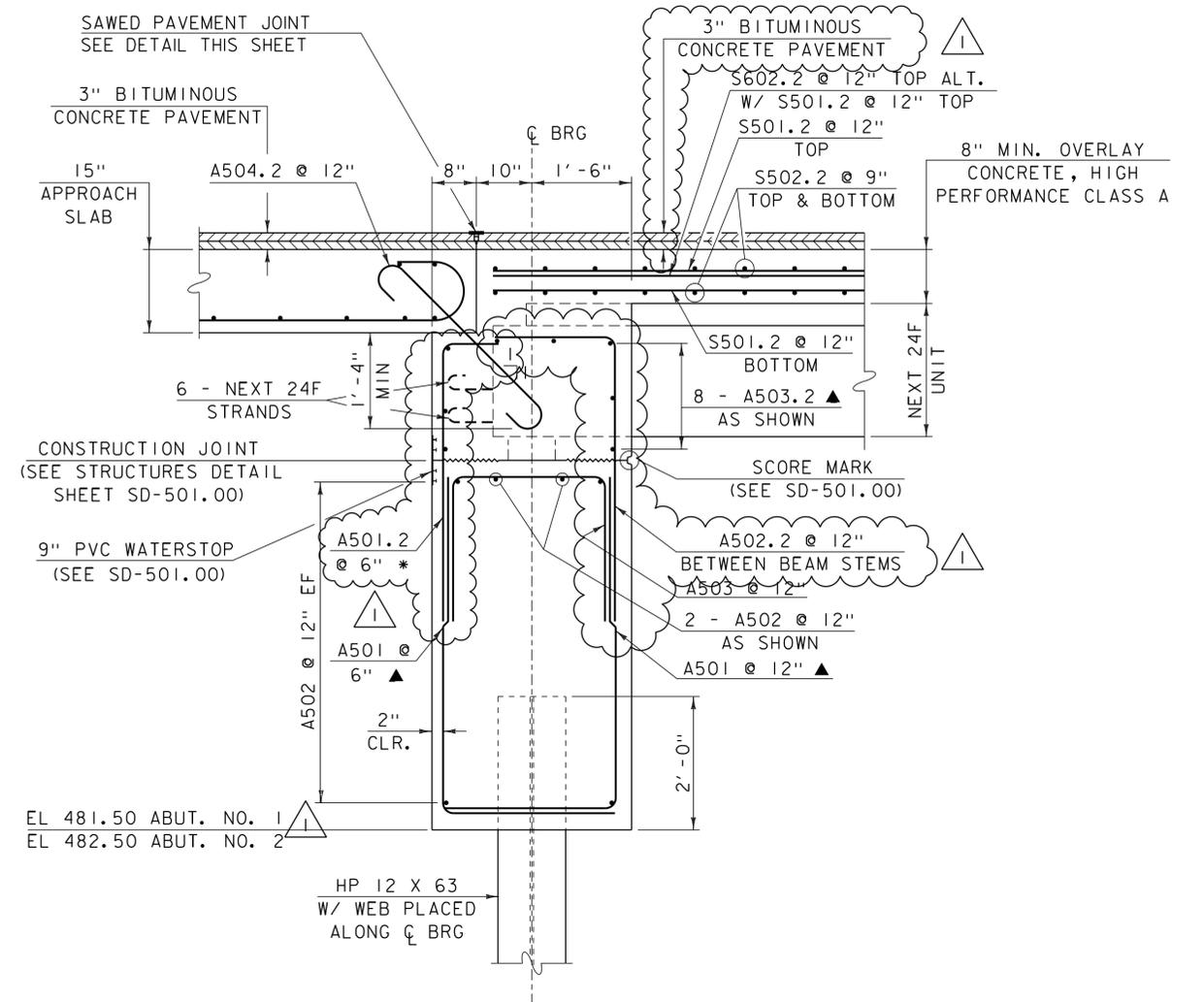
FILE NAME: s88b193sub.dgn PLOT DATE: 05-NOV-2014
 PROJECT LEADER: C. CARLSON DRAWN BY: G. ROKES
 DESIGNED BY: H. SALLS CHECKED BY: H. SALLS
 ABUTMENT #2 PLAN AND ELEVATION SHEET 33 OF 69

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR



SAWED PAVEMENT JOINT DETAIL
(NOT TO SCALE)

* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER.



ABUTMENT TYPICAL SECTION

SCALE: 3/4" = 1'-0"

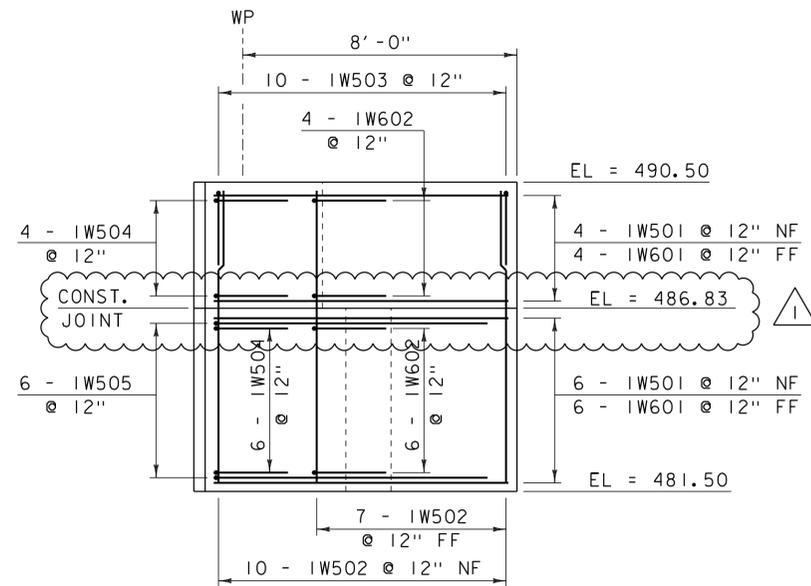
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLR. UNLESS OTHERWISE NOTED
2' - 2" BAR LAP UNLESS OTHERWISE NOTED
* THE HOOKS WILL NEED TO BE TURNED OR REMOVED WHEN IN CONFLICT WITH THE BEAM STEMS.

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

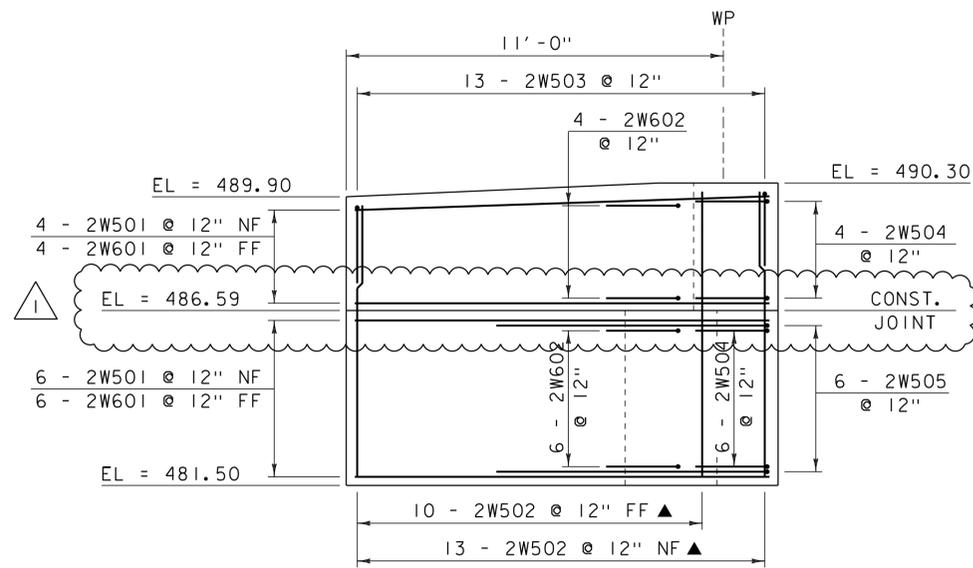
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193sub.dgn PLOT DATE: 05-NOV-2014
PROJECT LEADER: C. CARLSON DRAWN BY: G. ROKES
DESIGNED BY: H. SALLS CHECKED BY: H. SALLS
ABUTMENT TYPICAL SECTION SHEET 34 OF 69



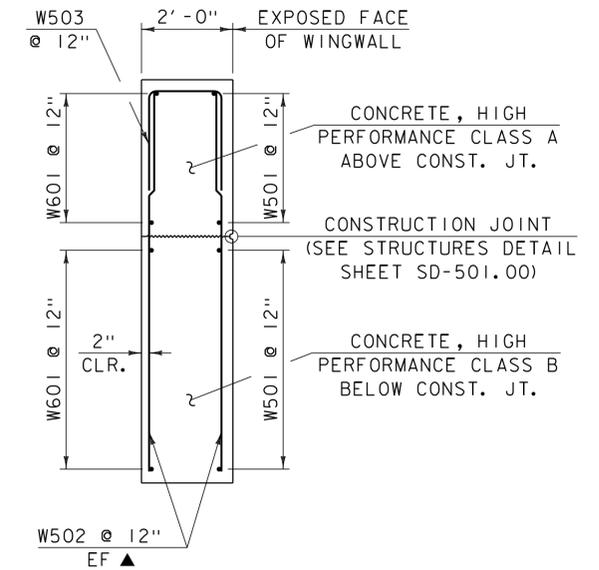
WINGWALL #1 ELEVATION

SCALE: 3/8" = 1'-0"



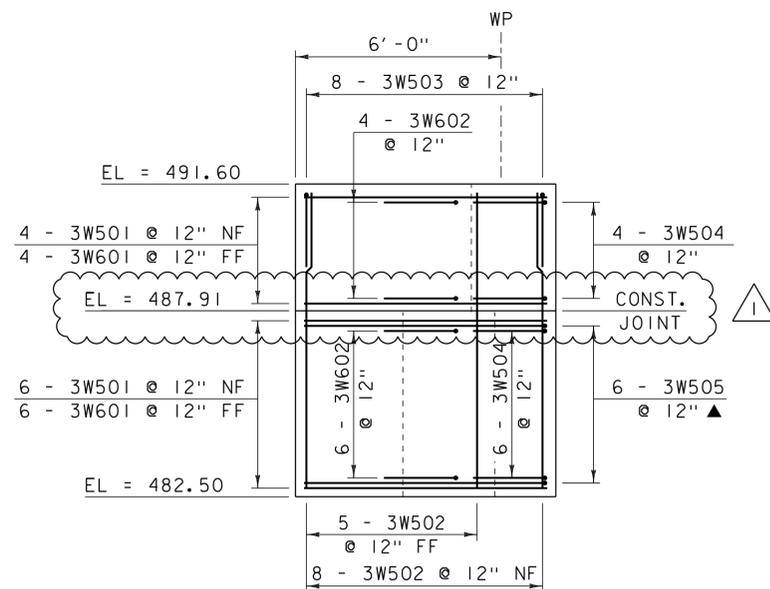
WINGWALL #2 ELEVATION

SCALE: 3/8" = 1'-0"



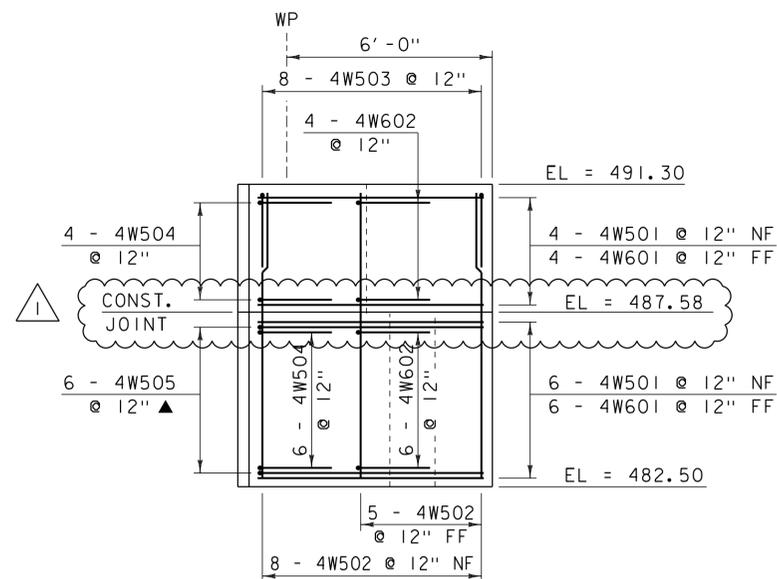
WINGWALL TYPICAL SECTION

SCALE: 1/2" = 1'-0"



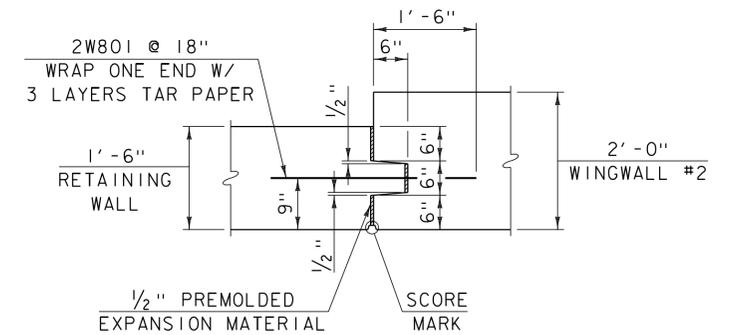
WINGWALL #3 ELEVATION

SCALE: 3/8" = 1'-0"



WINGWALL #4 ELEVATION

SCALE: 3/8" = 1'-0"



CONCRETE EXPANSION JOINT

(BETWEEN RETAINING WALL AND WINGWALL #2)

SCALE: 3/4" = 1'-0"

NOTE:

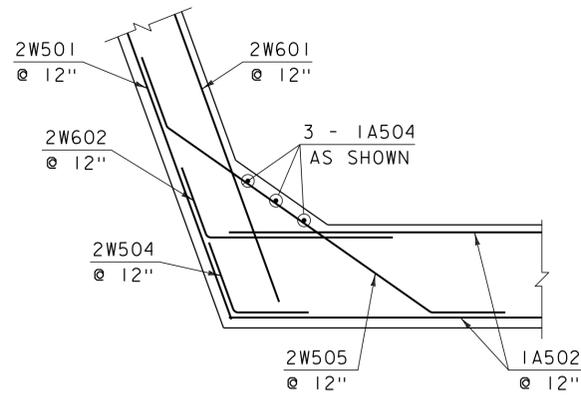
- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

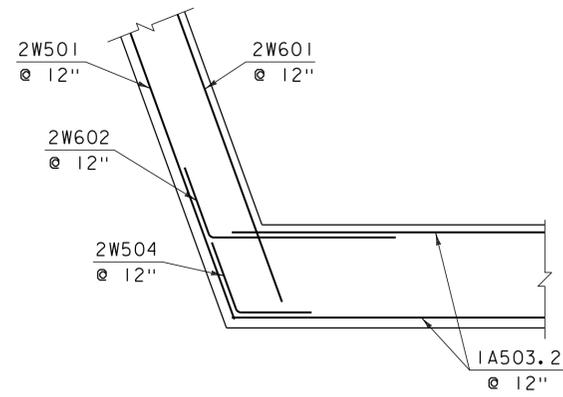
FILE NAME: s88b193sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
WINGWALL ELEVATIONS AND TYPICAL SECTION SHEET 35 OF 69

PLOT DATE: 05-NOV-2014
DRAWN BY: G. ROKES
CHECKED BY: H. SALLS



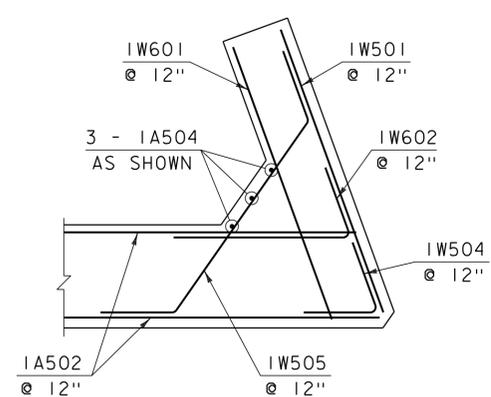
**WINGWALL NO. 2 CORNER
REINFORCING BELOW
CONSTRUCTION JOINT**

SCALE: 3/8" = 1'-0"
(WINGWALL 3 SIMILAR)



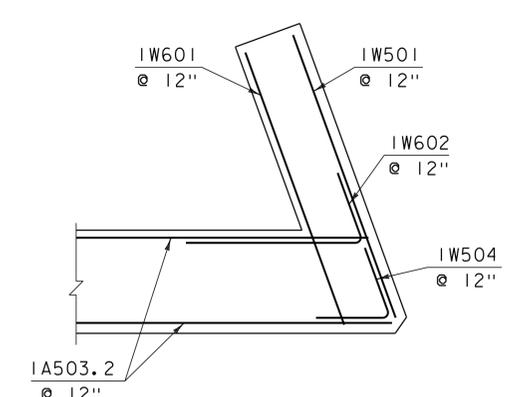
**WINGWALL NO. 2 CORNER
REINFORCING ABOVE
CONSTRUCTION JOINT**

SCALE: 3/8" = 1'-0"
(WINGWALL 3 SIMILAR)



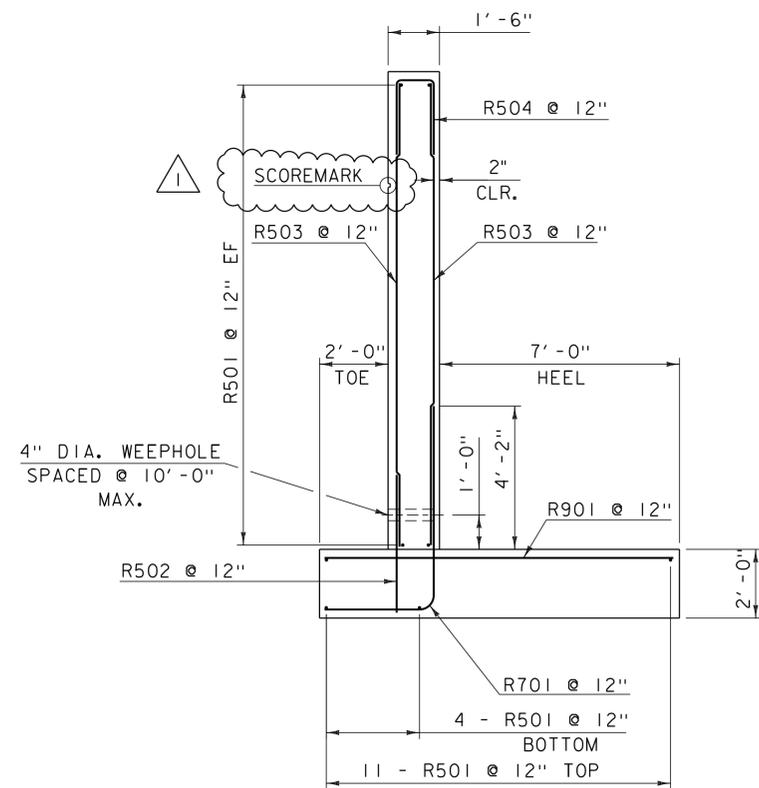
**WINGWALL NO. 1 CORNER
REINFORCING BELOW
CONSTRUCTION JOINT**

SCALE: 3/8" = 1'-0"
(WINGWALL 4 SIMILAR)



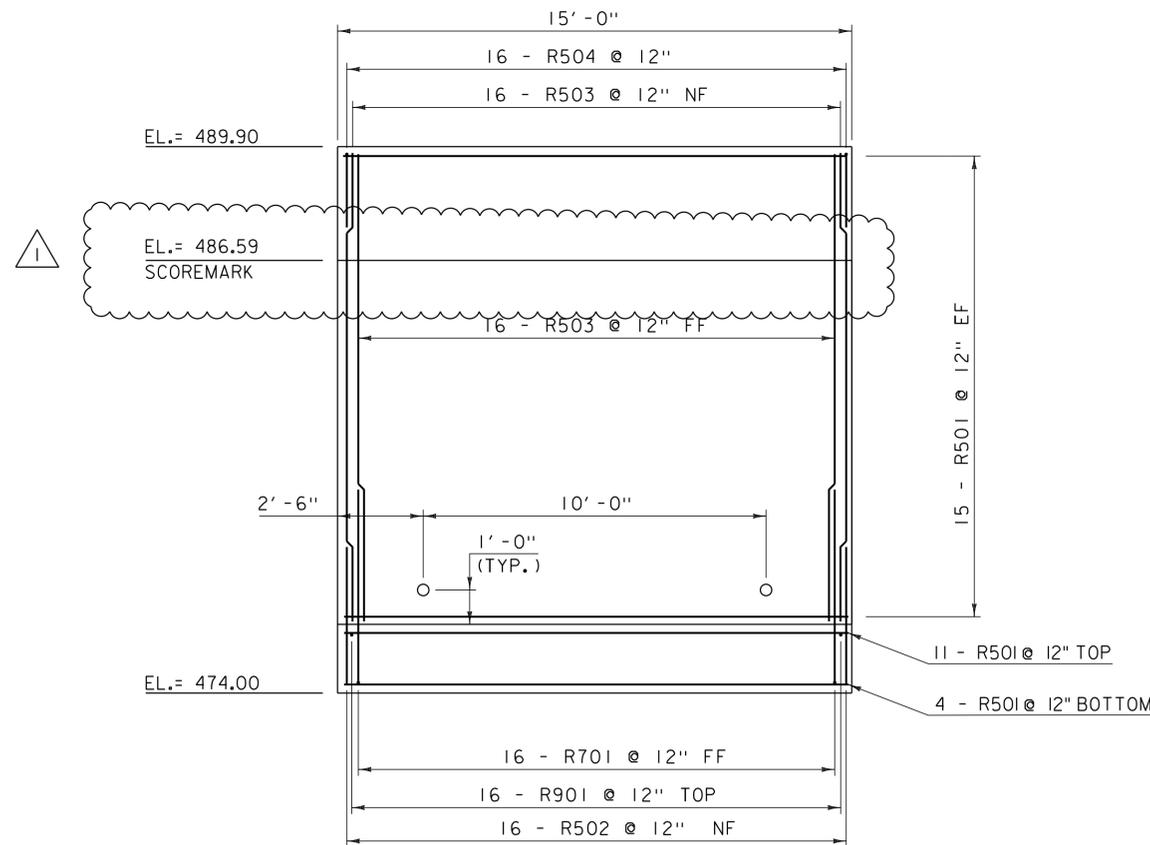
**WINGWALL NO. 1 CORNER
REINFORCING ABOVE
CONSTRUCTION JOINT**

SCALE: 3/8" = 1'-0"
(WINGWALL 4 SIMILAR)



RETAINING WALL TYPICAL

SCALE: 3/8" = 1'-0"



RETAINING WALL ELEVATION

SCALE: 3/8" = 1'-0"

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

NOTE: 1/2" EXPANSION MATERIAL SHALL BE PLACED BETWEEN WINGWALL #2 AND THE RETAINING WALL. IN ADDITION, 2 LAYERS OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINT ON THE BACK (EARTH) SIDE.

NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

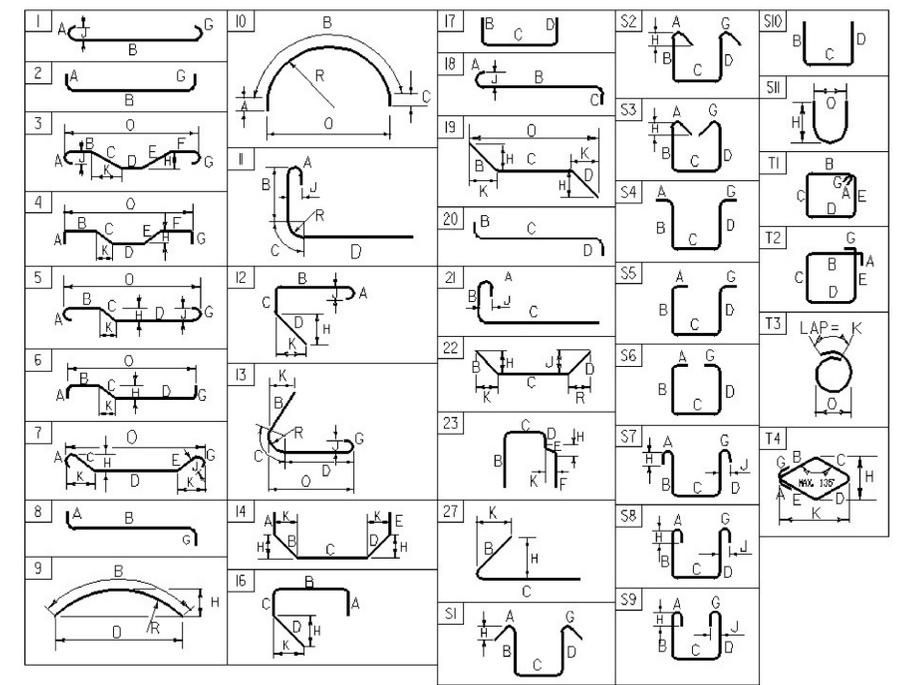
PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME:	s88b193sub.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	H. SALLS
RETAINING WALL ELEVATION AND TYPICAL SECTION SHEET	37 OF 69
PLOT DATE:	05-NOV-2014
DRAWN BY:	G. ROKES
CHECKED BY:	H. SALLS

REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
CONCRETE DECK OVERLAY																		ABUTMENT # 2																	
* 181	5	21'- 4"	S501.2	STR														24	5	23'- 10"	2A502	STR													
* 157	5	37'- 1"	S502.2	STR														* ▲ 7	5	5'- 1"	2A504	STR													
* 61	6	21'- 7"	S601.2	STR														139	5	7'- 4"	2A501	S10		4'- 9"	2'- 7"	---									
* 63	6	6'- 0"	S602.2	STR														47	5	6'- 11"	2A503	S10		2'- 2"	2'- 7"	2'- 2"									
▲ 234	7	5'- 4"	S701.2	STR														16	5	23'- 10"	2A503.2	STR													
APPROACH SLAB #1																		WINGWALL # 3																	
* 47	5	17'- 11"	1AS501	STR														* 11	5	7'- 1"	3W501	STR													
* 40	9	20'- 9"	1AS901	I	---	19'- 6"							1'- 3"		0'- 11"			13	5	8'- 7"	3W502	STR													
APPROACH SLAB #2																		RETAINING WALL																	
* 47	5	17'- 11"	2AS501	STR														45	5	14'- 6"	R501	STR													
* 40	9	20'- 9"	2AS901	I	---	19'- 6"							1'- 3"		0'- 11"			16	5	3'- 11"	R502	STR													
ABUTMENT # 1																		WINGWALL # 4																	
* ▲ 24	5	23'- 10"	1A502	STR														* 11	5	6'- 7"	4W501	STR													
* ▲ 7	5	5'- 0"	1A504	STR														13	5	8'- 3"	4W502	STR													
139	5	7'- 4"	1A501	S10		4'- 9"	2'- 7"	---										* 11	6	6'- 7"	4W601	STR													
47	5	6'- 11"	1A503	S10		2'- 2"	2'- 7"	2'- 2"										8	5	5'- 11"	4W503	S10		2'- 2"	1'- 7"	2'- 2"									
16	5	23'- 10"	1A503.2	STR														10	5	4'- 4"	4W504	27		2'- 2"	2'- 2"	2'- 2"									
▲ 8	5	3'- 8"	1A505.2	STR														▲ 6	5	10'- 8"	4W505	22		2'- 2"	6'- 4"	2'- 2"									
76	5	5'- 4"	1A501.2	S10		4'- 6"	3'- 10"	---										* 11	6	7'- 4"	4W602	27		2'- 2"	5'- 2"										
29	5	6'- 6"	1A502.2	S10		4'- 8"	1'- 10"	---										REINFORCING WALL																	
35	5	4'- 4"	1A504.2	S10		0'- 7"	3'- 2"							0'- 7"		0'- 5"		45	5	14'- 6"	R501	STR													
9	5	14'- 7"	1A506.2	S10		6'- 0"	2'- 7"	6'- 0"										16	5	3'- 11"	R502	STR													
WINGWALL #1																		WINGWALL #2																	
* 11	5	8'- 7"	1W501	STR														* 11	5	12'- 1"	2W501	STR													
17	5	8'- 6"	1W502	STR														▲ 23	5	8'- 3"	2W502	STR													
* 11	6	8'- 7"	1W601	STR														* 11	6	12'- 1"	2W601	STR													
10	5	5'- 11"	1W503	S10		2'- 2"	1'- 7"	2'- 2"										13	5	5'- 11"	2W503	S10		2'- 2"	1'- 7"	2'- 2"									
10	5	4'- 4"	1W504	27		2'- 2"	2'- 2"	---										10	5	4'- 4"	2W504	22		2'- 2"	2'- 2"	---									
6	5	10'- 8"	1W505	22		2'- 2"	9'- 4"	2'- 2"						2'- 1"	---	1'- 9"	---	6	5	13'- 8"	2W505	22		2'- 2"	9'- 4"	2'- 2"									
* 11	6	7'- 4"	1W602	27		2'- 2"	5'- 2"							2'- 1"	---	0'- 9"	---	* 11	6	7'- 7"	2W602	22		2'- 2"	5'- 5"	0'- 0"									

~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

BAR SIZE	YIELD STRENGTH (ksi)	TENSILE STRENGTH (ksi)	ELONGATION (%)	WEIGHT (lb/ft)
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.04	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.14
#9	3.400	1.13	1.00	3.54
#10	4.3	1.270	1.27	3.990
#11	5.31	1.410	1.56	4.430
#14	7.65	1.69	2.25	5.32
#18	13.60	2.26	4.00	7.09

~ REINFORCING STEEL CORROSION RESISTANCE LEVEL ~

THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX. 1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIDED FOR EACH CORROSION LEVEL WILL BE RECORDED ON THE PLAN SET SHEET FOR AS-BUILT RECORD PLAN ARCHIVES.

REVISION	DATE	DESCRIPTION	BY
△	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: **JOHNSON**
 PROJECT NUMBER: **BRF 030-2(26)**
 FILE NAME: s88b193rss.xls PLOT DATE: 05-NOV-2014
 PROJECT MANAGER: C. CARLSON DRAWN BY: G. ROKES
 DESIGNED BY: H. SALLS CHECKED BY: H. SALLS
REINFORCING STEEL SCHEDULE SHEET 38 OF 69