GENERAL NOTES

A. GENERAL SPECIFICATIONS:
MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION–ENGLISH, DATED 2012, AND AMENDMENTS.

B. DESIGN SPECFICATIONS:
THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS –6TH EDITION–2012 AND THE WASHINGTON STATE BRIDGE DESIGN MANUAL–2011.

C. DESIGN METHOD:
LOAD AND RESISTANCE FACTOR DESIGN METHOD (LRFD) USING STRENGTH, EXTREME EVENT, SERVICE AND FATIGUE LIMIT STATES.

D. DESIGN LOADING:
1. OPERATIONAL IMPORTANCE FACTOR: 1.0 IN ACCORDANCE WITH WSDOT BRIDGE DESIGN MANUAL
2. DEAD LOADS:
   - UNIT WEIGHT OF REINFORCED CONCRETE IN CIP CLOSURES (INCLUDING REINFORCEMENT)....150PCF
   - UNIT WEIGHT OF LIGHTWEIGHT CONCRETE IN PRESTRESSED GIRDERS (INCLUDING REINFORCEMENT)....138PCF
   - UNIT WEIGHT OF LIGHTWEIGHT CONCRETE IN ALL OTHER MEMBERS (INCLUDING REINFORCEMENT)....130PCF
   - TRAFFIC RAILING BARRIER....265PLF
   - MEDIAN TRAFFIC RAILING....352PLF
   - UNIT WEIGHT OF 1½" OVERLAY....150PCF
3. FUTURE WEARING SURFACE: NO ALLOWANCE FOR FUTURE DECK OVERLAY HAS BEEN ACCOUNTED FOR IN THE DESIGN
4. LIVE LOADS: HL–93 WITH IMPACT
5. UTILITIES: NO ALLOWANCE FOR FUTURE UTILITY LOADS HAS BEEN INCLUDED IN THE DESIGN
6. WIND LOADS: WIND LOADS ARE IN ACCORDANCE WITH AASHTO SECTION 3.8 AND THE WSDOT BRIDGE DESIGN MANUAL SECTION 3.11.
7. TEMPERATURE LOADS:

STRUCTURAL MATERIAL	TEMPERATURE (°F) MEAN	HIGH	LOW	RANGE	COEFFICIENT OF THERMAL EXPANSION
CONCRETE BRIDGES	64	+100	+0.0	100	0.000005/°F *

* LIGHTWEIGHT CONCRETE

8. EARTHQUAKE LOADS: EARTHQUAKE PROVISIONS ARE IN ACCORDANCE WITH SECTION 4 OF THE BRIDGE DESIGN MANUAL

E. DISTRIBUTION VALUES (LANES/GIRDER): LIVE LOAD DISTRBUTION IN ACCORDANCE WITH AASHTO SECTION 4.6.2.2

F. ALL DIMENSIONS ARE MEASURED IN FEET EITHER HORIZONTALLY OR VERTICALLY UNLESS OTHERWISE SHOWN.

G. UNLESS OTHERWISE NOTED IN THE PLANS, THE CONCRETE COVER MEASURED FROM THE FACE OF THE CONCRETE TO THE FACE OF ANY REINFORCING STEEL SHALL BE 1½". ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾" UNLESS NOTED OTHERWISE.

H. ELEVATIONS: ALL ELEVATIONS REFER TO NATIONAL AMERICAN VERTICAL DATUM OF 1988 (NAVD–88)

I. MATERIALS: SHALL BE AS NOTED IN THE PLANS.

J. ESTIMATED DEAD LOAD SPAN WEIGHT:
1. THE WEIGHT OF THE SUPERSTRUCTURE IS ESTIMATED USING THE FOLLOWING:
   - UNIT WEIGHT OF REINFORCED CONCRETE IN CIP CLOSURES (INCLUDING REINFORCEMENT)....150PCF
   - UNIT WEIGHT OF LIGHTWEIGHT CONCRETE IN PRESTRESSED GIRDERS (INCLUDING REINFORCEMENT BASED ON GROSS SECTION)....132PCF
   - UNIT WEIGHT OF LIGHTWEIGHT CONCRETE IN ALL OTHER MEMBERS (INCLUDING REINFORCEMENT)....130PCF
   - TRAFFIC RAILING BARRIER....265PLF
   - MEDIAN TRAFFIC RAILING....352PLF
   - UNIT WEIGHT OF 1½" OVERLAY....145PCF

K. SCREEDING DECK SLABS:
SCREED THE RIDING SURFACE OF THE BRIDGE DECK TO ACHIEVE THE FINISH GRADE ELEVATIONS SHOWN IN THE PLANS. ACCOUNT FOR THEORETICAL DEFLECTIONS DUE TO THE SELF WEIGHT, DECK CASTING SEQUENCE, DECK FORMING SYSTEM, TRAFFIC RAILINGS, CONSTRUCTION LOADS, OVERLAYS, AND TEMPORARY SHORING, ETC. AS REQUIRED

L. CONSTRUCTION JOINTS IN CONCRETE:
CONSTRUCTION JOINTS WILL BE PERMITTED ONLY AT LOCATIONS INDICATED ON PLANS. ADDITIONAL CONSTRUCTION JOINTS OR ALTERATIONS TO THOSE SHOWN SHALL REQUIRE WRITTEN APPROVAL OF THE ENGINEER

M. BEAM TEMPORARY BRACING:
THE CONTRACTOR SHALL INVESTIGATE THE BEAM STABILITY AND TEMPORARY BRACING AS REQUIRED AND SUBMIT TO THE ENGINEER FOR APPROVAL PER SPECIFICATION 6–02.3(17)F4. BEAMS SHALL NOT BE LEFT UN–BRACED DURING NON–WORKING HOURS. BRACING SHALL REMAIN IN PLACED UNTIL CLOSURE POUR CONCRETE REACHES 3500PSI.

N. FOR CONSTRUCTION SEQUENCE SEE TEMPORARY WORK BENTS PLANS.

INDEX OF SHEETS

Max. J Kuney Construction
RELEASED FOR CONSTRUCTION
Date: 8/6/13, TRW

VICTOR RYZHKOV
STATE OF WASHINGTON
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
8/6/13

SR 5 FILE NO. ____ SHEET 1

Bridge Design Engr.	Ryznikov, V		T:\Sys\WSDOT_Skagit_River\GeneralNotes.dgn				REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor	Poulson, J						10	WASH.			
Designed By	Vanek, C	06/13					JOB NUMBER				
Checked By	Rudie, C	06/13									
Detailed By	Vanek, C	06/13									
Bridge Projects Engr.											
Prelim. Plan By											
Architect/Specialist			DATE	REVISION	BY	APP'D					

8/6/2013 2:44:44 PM

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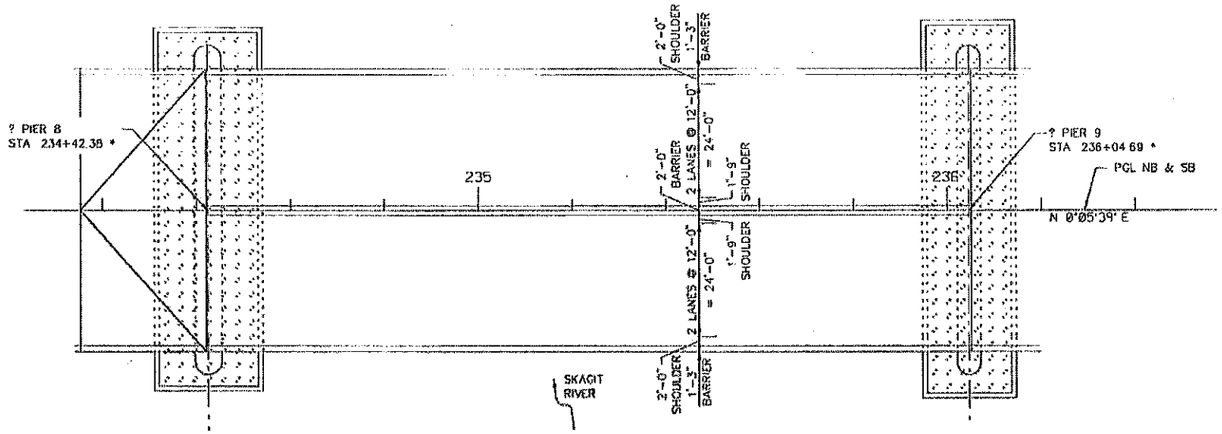
Washington State Department of Transportation

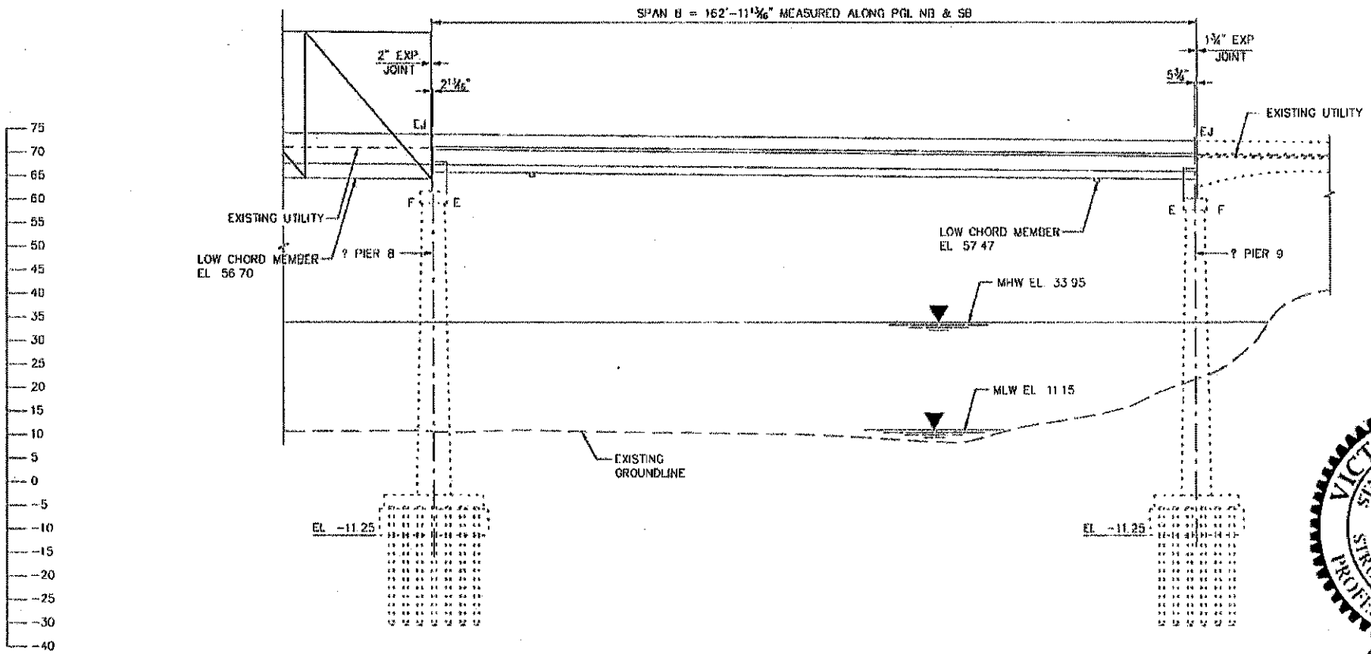
I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

GENERAL NOTES & INDEX OF SHEETS

BRIDGE SHEET NO. P-1
BRIDGE 1 OF 20 SHEETS

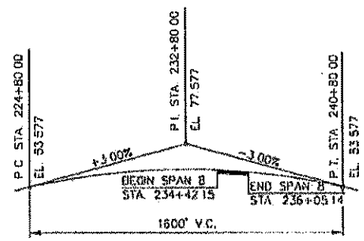


PARTIAL PLAN



PARTIAL ELEVATION

* STATIONS ARE ADJUSTED FROM ORIGINAL CONTRACT PLANS BASED ON SURVEY



VERTICAL ALIGNMENT
ALONG PGL NB & SB
(SEE NOTE 1)

LEGEND:

E – EXPANSION BEARING

F – FIXED BEARING

EJ – EXPANSION JOINT

NOTES:

1. HORIZONTAL AND VERTICAL ALIGNMENT IS PER THE ORIGINAL CONTRACT PLANS DATED JULY 29, 1954. THE ELEVATIONS SHOWN ARE ADJUSTED BY FIELD SURVEY TO THE NAVD88 DATUM.
2. CONTRACTOR SHALL CONNECT EXISTING UTILITY CONDUITS PRESENT IN THE ADJACENT SPANS TO NEW CONDUITS INSTALLED ON SPAN 8 IN LIKE AND KIND.
3. FOR EXISTING BRIDGE DIMENSIONS SEE ORIGINAL CONTRACT PLANS.

Max. J Kuney Construction
RELEASED FOR CONSTRUCTION
Date: 8/6/13, TRW

VICTOR RYZHIKOV
STATE OF WASHINGTON
19711
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
8/6/13

SR 5 FILE NO. ____ SHEET 2

Bridge Design Engr. Ryzhikov, V			T:\Sys\WSDOT_Skagit_River\PlanElevation01.dgn							
Supervisor Poulson, J										
Designed By Vanek, C	06/13									
Checked By Rudie, C	06/13									
Detailed By Vanek, C	06/13									
Bridge Projects Engr.										
Profiles, Plan By										
Architect/Specialist		DATE	REVISION	BY	APP'D					

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				

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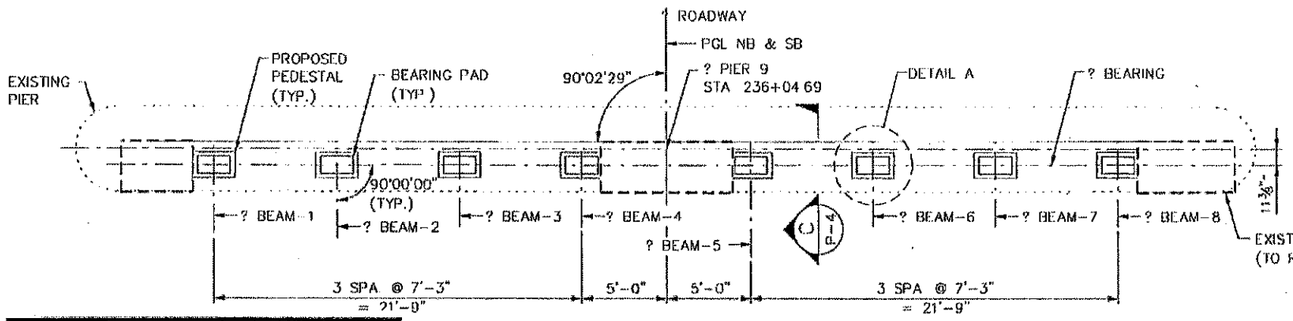
I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

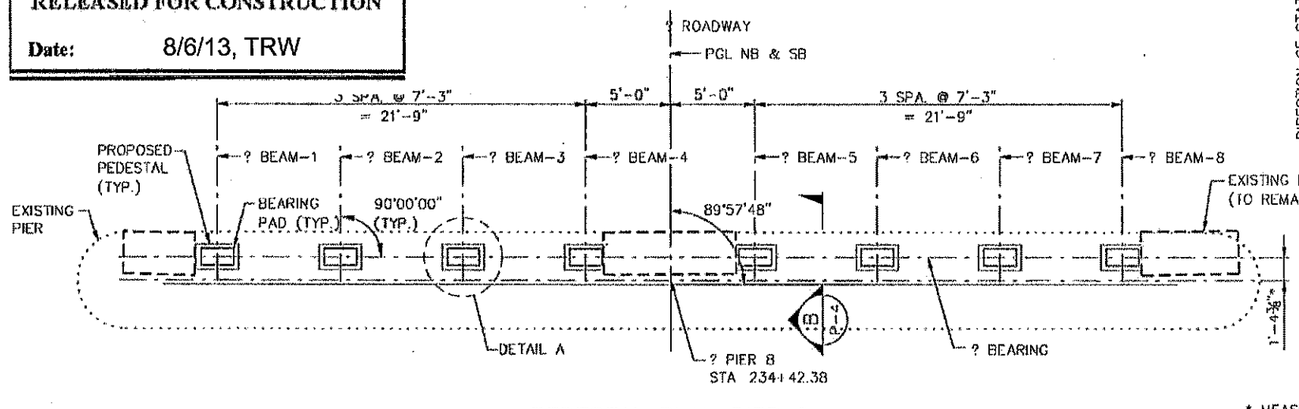
BRIDGE LAYOUT

BRIDGE SHEET NO. P-2

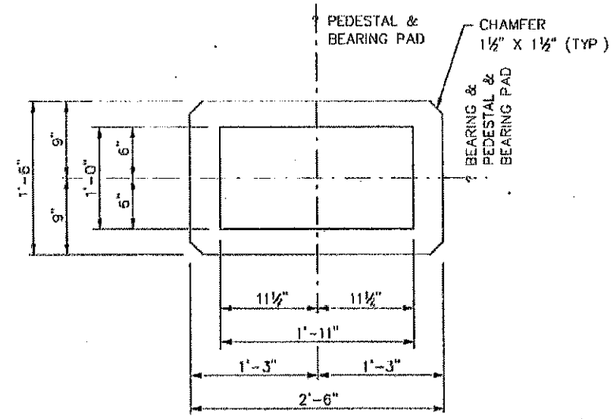
SHEET 2 OF 20 SHEETS



PEDESTAL PLAN PIER 9



PEDESTAL PLAN PIER 8



DETAIL A

DIRECTION OF STATIONING

N

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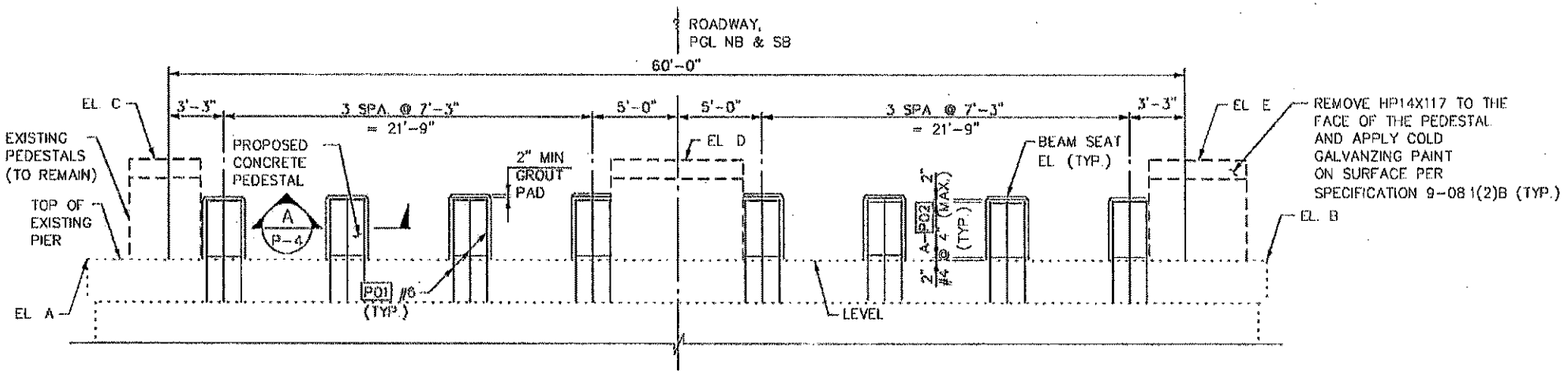
STATE OF WASHINGTON
29711
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
8/6/13

BAR QUANTITY A		
PEDESTAL	PIER 8	PIER 9
1	11	11
2	11	11
3	11	11
4	12	12
5	12	12
6	11	11
7	11	11
8	11	11

* MEASURED ALONG PGL NB & SB



ELEVATION

PIER 9 SHOWN LOOKING UPSTATION. PIER 8 SIMILAR

NOTES.

1. WORK THIS SHEET WITH P-4
2. FOR BEARING PAD DETAILS, SEE SHEET P-20.
3. CONCRETE SHALL BE CLASS 4000 USING A LIGHTWEIGHT AGGREGATE CONCRETE MIX TESTED IN ACCORDANCE WITH AASHTO T-121. THE COARSE AGGREGATE SHALL CONFORM TO SECTION 9.03.1(4) OF THE STANDARD SPECIFICATIONS, EXCEPT GRADING IN CONFORMANCE WITH AASHTO T-195
4. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATION 9-07.2 AND CONFORM WITH ASTM-A706, GRADE 60. EPOXY COATED BARS SHALL CONFORM TO AASHTO M284 WITH ADDITIONAL MODIFICATIONS PER 9-07.3 OF THE STANDARD SPECIFICATIONS.
5. FOR EXISTING BRIDGE DIMENSIONS SEE ORIGINAL CONTRACT PLANS DATED 1954 AND EMERGENCY CONTRACT PLANS DATED 2013.
6. FOR END DIAPHRAGM DETAILS, SEE SHEET P-15.
7. GROUT SHALL MEET THE REQUIREMENTS OF TYPE 3 GROUT PER SPECIFICATION 9-20.3.
8. EPOXY RESIN SHALL BE TYPE HILTI HY150 OR HILTI RE500 OR APPROVED EQUAL

SR 5 FILE NO. ____ SHEET 3

Bridge Design Engr.	Ryzhikov, V	T:\Sys\WSDOT_Skagit_River\PedestalDet01.dgn	
Supervisor	Poulson, J		
Designed By	Vanek, C 06/13		
Checked By	Rudie, C 06/13		
Detailed By	Vanek, C 06/13		
Bridge Projects Engr.			
Prelim. Plan By			
Architect/Specialist			

DATE	REVISION	BY	APP'D

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				

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Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

PEDESTAL RETROFIT PLAN AND ELEVATION

BRIDGE SHEET NO. P-3

SHEET 3 OF 20 SHEETS

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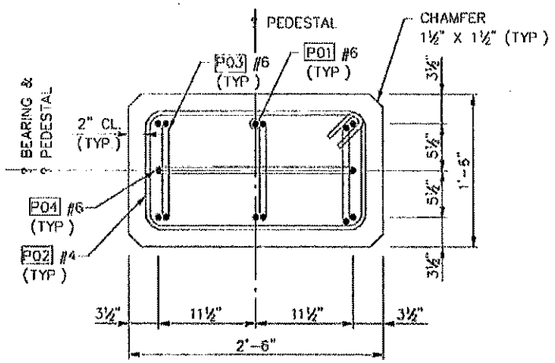
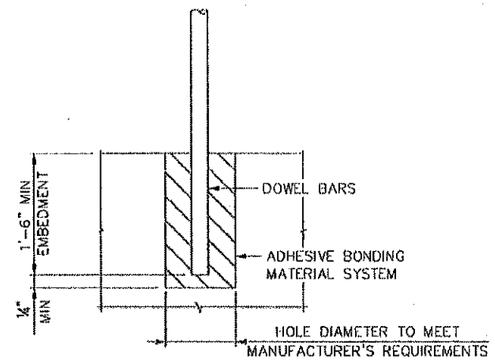


SECTION (A / P-3)



DOWEL DETAIL

TABLE OF PEDESTAL VALUES		
ITEM	LOCATION PIER 8	PIER 9
CAP ELEVATIONS		
EL. A	55.459	54.035
EL. B	55.466	54.012
EL. C	61.397	59.962
EL. D	61.395	59.929
EL. E	61.404	59.939
BEAM SEAT ELEVATIONS		
BEAMLINE 1	59.141	57.679
BEAMLINE 2	59.217	57.754
BEAMLINE 3	59.292	57.830
BEAMLINE 4	59.368	57.905
BEAMLINE 5	59.368	57.905
BEAMLINE 6	59.292	57.830
BEAMLINE 7	59.217	57.754
BEAMLINE 8	59.141	57.679

* BEAM SEAT EL ARE SHOWN TO THE TOP OF THE GROUT PAD

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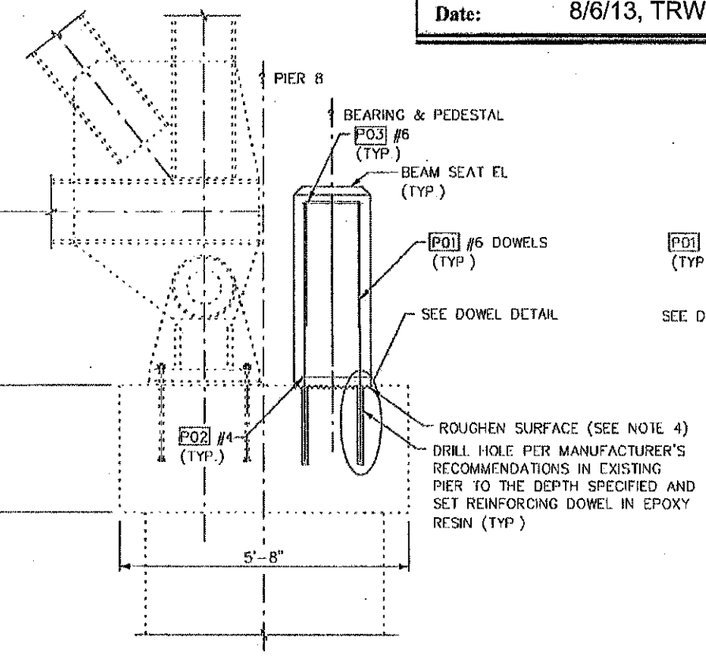
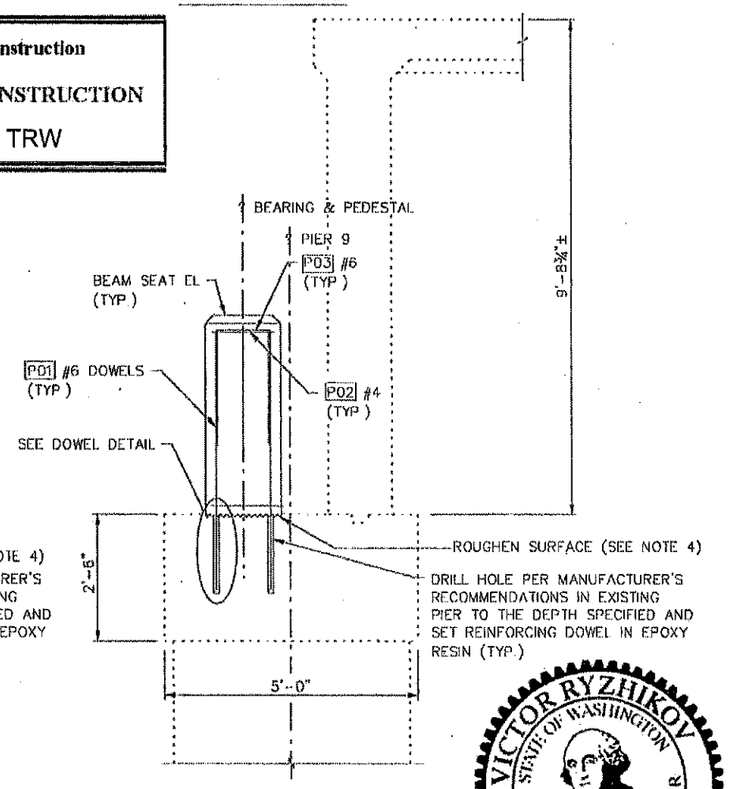


VIEW (B / P-3)

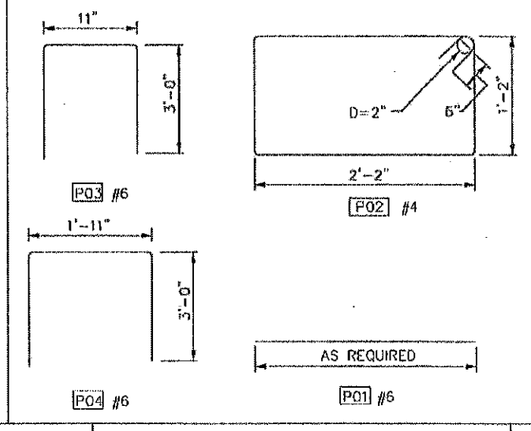


VIEW (C / P-3)

NOTES:

1 WORK THIS SHEET WITH P-3
2 HOLES FOR DOWEL BARS SHALL BE THOROUGHLY CLEANED WITH COMPRESSED AIR PRIOR TO PLACING THE ADHESIVE BONDING MATERIAL AND DOWELS.
3. SHIFT DOWEL BARS TO CLEAR IF EXISTING REBAR IS ENCOUNTERED.
4 EXISTING CONCRETE SURFACE SHALL BE MECHANICALLY ROUGHENED TO ¼" AMPLITUDE TO REMOVE LAITANCE AND EXPOSE SMALL AGGREGATE
5 COAT THE PREPARED SURFACE WITH AN QPL APPROVED "TYPE V" EPOXY BONDING AGENT PER SPECIFICATION 9-26 EPOXY BONDING AGENT SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS

BAR DIAGRAM (ALL DIMENSIONS ARE OUT TO OUT)



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8/6/13

Bridge Design Engr.	Ryzhikov, V		T:\Sys\WSDOT_Skagit_River\PedestalDet02.dgn			REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor	Poulson, J					10	WASH.			
Designed By	Vanek, C	06/13				JOB NUMBER				
Checked By	Rudie, C	06/13								
Detailed By	Vanek, C	06/13								
Bridge Projects Engr.										
Prelim. Plan By										
Architect/Specialist			DATE	REVISION	BY	APP'D				

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SR 5 FILE NO. ____ SHEET 4

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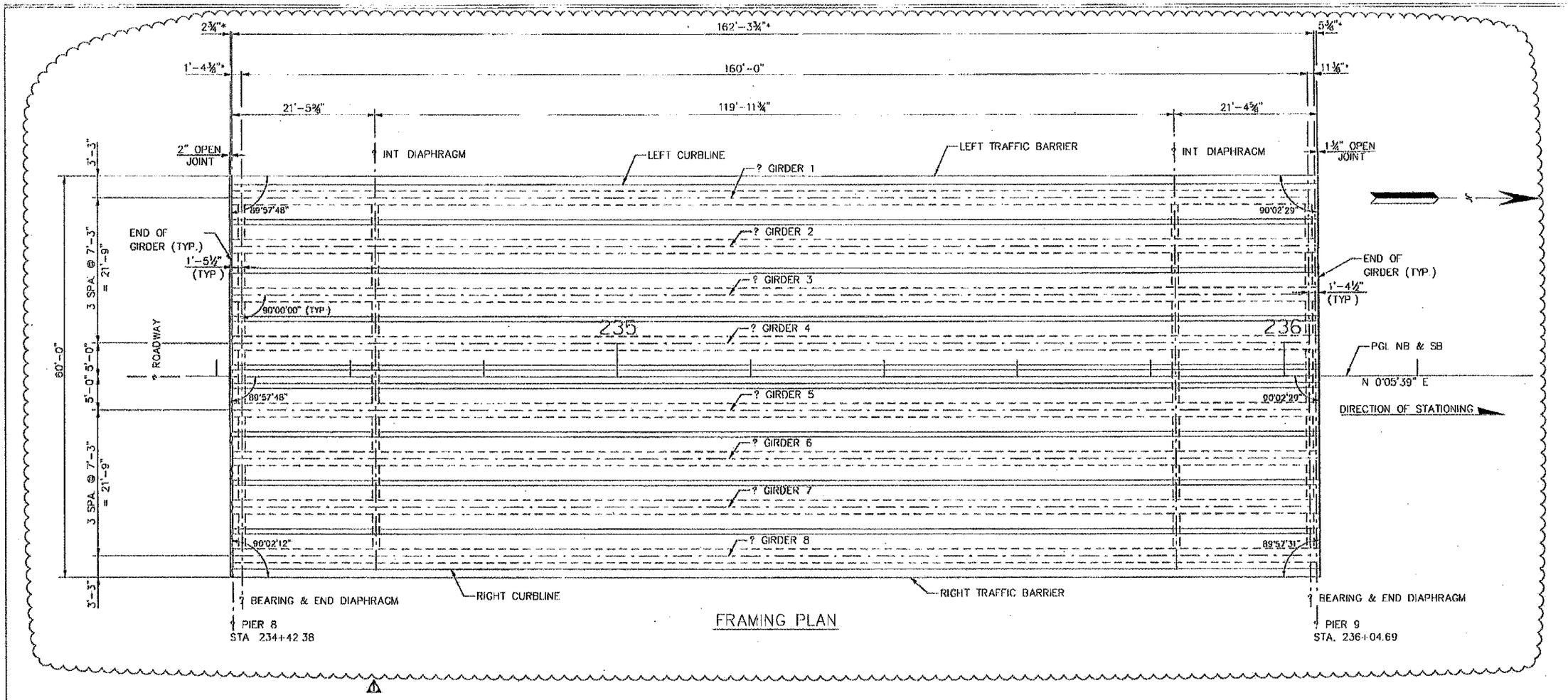
I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

PEDESTAL RETROFIT DETAILS

BRIDGE SHEET NO. P-4

SHEET 4 OF 20 SHEETS



FRAMING PLAN

* MEASURED ALONG PGL

Max. J Kuney Construction

RELEASED FOR CONSTRUCTION

Date: 8/6/13, TRW

VICTOR RYZHIKOV — STATE OF WASHINGTON — 29711 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

8/6/13

NOTES:

1. FOR SUPERSTRUCTURE SECTION, SEE SHEET P-6.
2. FOR EXPANSION JOINT DATA, SEE SHEET P-19.
3. FOR DIAPHRAGM DETAILS, SEE SHEET P-14 THRU P-15.
4. FOR CAST IN PLACE HEADER DETAILS SEE SHEET P-15

SR 5 FILE NO. ____ SHEET 5

Bridge Design Engr.	Ryzhikov, V	
Supervisor	Poulson, J	
Designed By	Vanek, C	06/13
Checked By	Rudie, C	06/13
Detailed By	Vanek, C	06/13
Bridge Projects Engr.		
Prelim. Plan By		
Architect/Specialist		

T:\Sys\WSDOT_Skagit_River\FramingPlan.dgn

DATE	REVISION	BY	APP'D
07/13	⚠1 REV SHEET BASED ON FIELD	CV	

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				

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I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

FRAMING PLAN

BRIDGE SHEET NO. P-5

SHEET 5 OF 20 SHEETS

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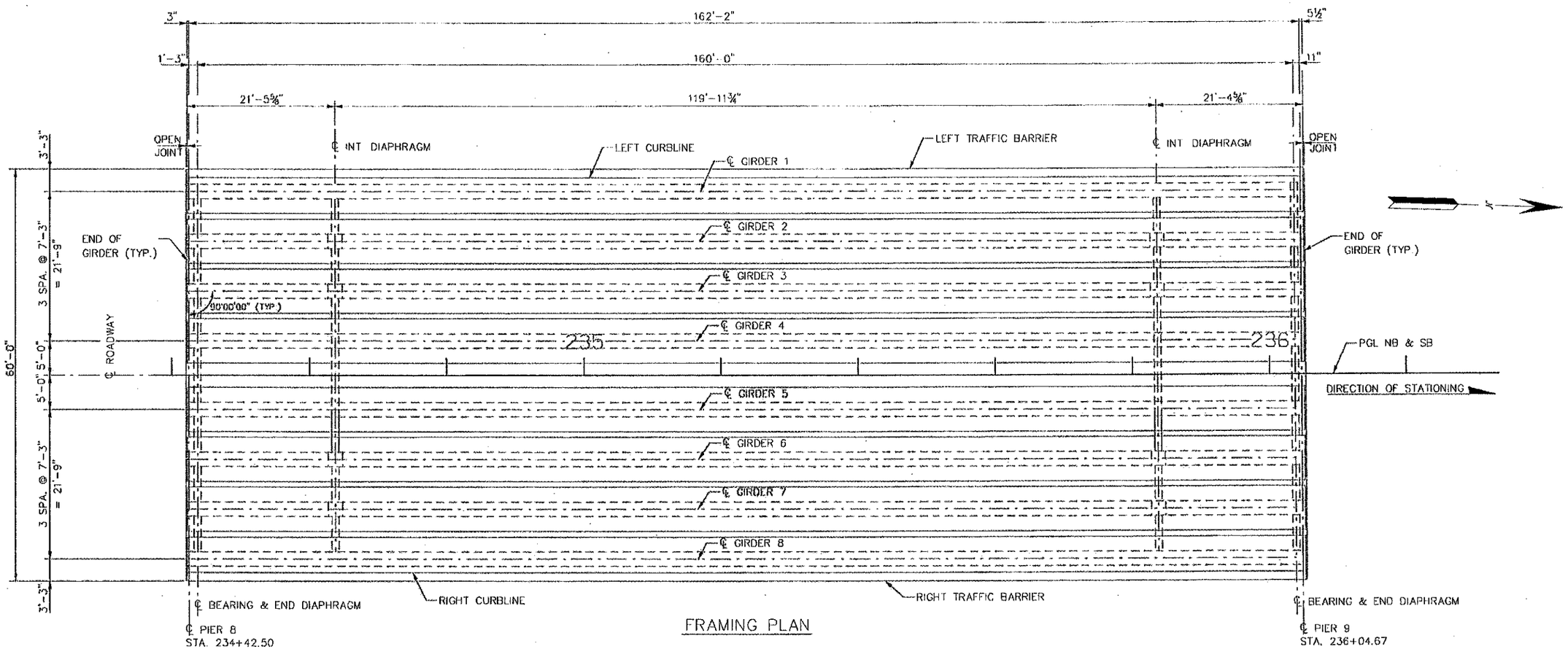

FRAMING PLAN

VICTOR RYZHIKOV
STATE OF WASHINGTON
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
7/9/13

Max. J Kuney Construction

RELEASED FOR CONSTRUCTION

Date: 7/9/13

NOTES:

1 FOR SUPERSTRUCTURE SECTION, SEE SHEET P-6.
2 FOR EXPANSION JOINT DATA, SEE SHEET P-19
3. FOR DIAPHRAGM DETAILS, SEE SHEET P-14 THRU P-15

SR 5 FILE NO. ____ SHEET 5

Bridge Design Engr.	Ryzhikov, V		T:\Sys\WSDOT_Skagit_River\FramingPlan.dgn			REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	BRIDGE SHEET NO.
Supervisor	Poulsen, J					10	WASH.				P-5
Designed By	Vanek, C	06/13				JOB NUMBER					SHEET 5 OF 20 SHEETS
Checked By	Rudie, C	06/13									
Detailed By	Vanek, C	06/13									
Bridge Projects Engr.											
Prelim. Plan By											
Architect/Specialist			DATE	REVISION	BY	APP'D					

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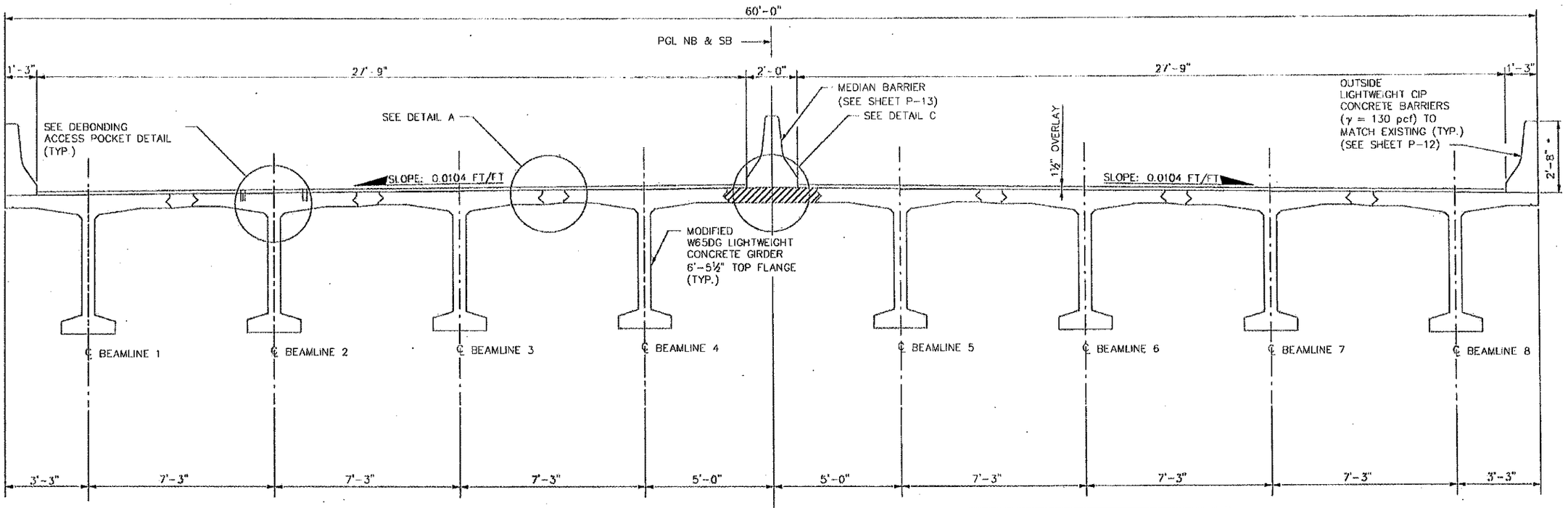
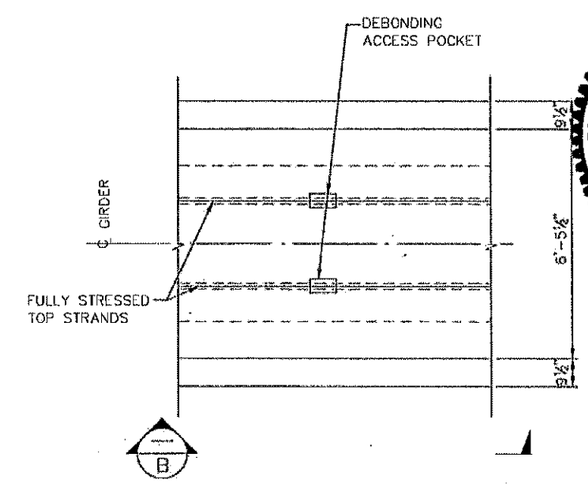
Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

FRAMING PLAN
SPAN 8





DEBONDING ACCESS POCKET

SUPERSTRUCTURE SECTION

ESTIMATED WEIGHT = 1,797,600#
LOOKING UPSTATION
(DIAPHRAGM AND REINFORCING NOT SHOWN FOR CLARITY)

VICTOR RYZHIKOV — STATE OF WASHINGTON — 19711 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
7/9/13

Max. J Kuney Construction

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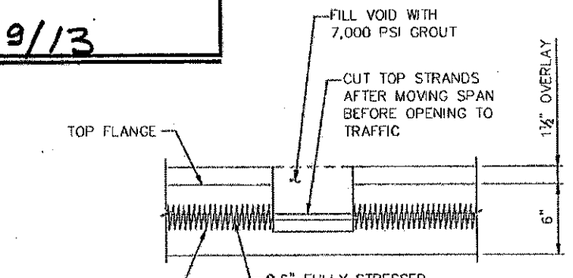
Date: 7/9/13

NOTES:

2. FOR DETAIL A AND BARRIER CONNECTION DETAIL C SEE SHEET P-9
   METHOD OF FORMING CLOSURE POUR TO BE DETERMINED BY CONTRACTOR. THE FORMS NEED TO BE REMOVABLE AND CAPABLE OF ACCOMMADATING DIFFERENTIAL CAMBER. FORM SUPPORTS SHOULD NOT PENETRATE THROUGH THE TOP OF THE POUR UNLESS APPROVED BY THE ENGINEER.
3. GROUT KEYS SHALL BE ROUGHENED A ¼" TO IMPROVE GROUT BOND.
4. FOR DIAPHRAGM LOCATIONS AND DETAILS, SEE SHEET P-5 & P-14 THRU P-15.

* BARRIER DIMENSIONS SHALL BE ADJUSTED TO MATCH EXISTING SPAN 7 & 8 BARRIERS



VIEW B

TYPICAL TOP FLANGE ACCESS POCKET SEE DECK BULB TEE GIRDER DETAILS

SR 5 FILE NO. ___ SHEET 6

Bridge Design Engr.	Ryzhikov, V	T:\Sys\WSDOT_Skagit_River\P-1.dgn				REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	PARSONS BRINCKERHOFF
Supervisor	Poulson, J					10	WASH.				
Designed By	Vanek, C 06/13					JOB NUMBER					
Checked By	Rudie, C 06/13										
Detailed By	Vanek, C 06/13										
Bridge Projects Engr.											
Prelim. Plan By											
Architect/Specialist		DATE	REVISION	BY	APP'D						

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I-5 SKAGIT RIVER BRIDGE SPAN 8 REPLACEMENT

SUPERSTRUCTURE SECTION

BRIDGE SHEET NO. P-6

SHEET 6 OF 20 SHEETS

GIRDER SCHEDULE

SPAN	GIRDER	GIRDER SERIES	END 1 TYPE	END 2 TYPE	"A" DIMENSION AT ℄ BEARINGS	B1 (FT-IN)	B2 (FT-IN)	L (FT-IN)	L1 (FT-IN)	LT (FT-IN)	Ø1 (DEG)	Ø2 (DEG)	P1 (FT-IN)	P2 (FT-IN)	PLAN LENGTH (ALONG GIRDER GRADE)	MIN CONC COMP. STRENGTH @ 28-DAYS F'C (KSI)	MIN CONC COMP. STRENGTH @ RELEASE F'CI (KSI)	NUMBER OF STRAIGHT STRANDS	NUMBER OF HARPED STRANDS	NUMBER OF TEMP STRANDS	LOCATION OF C G STRANDS E (IN)	LOCATION OF C G STRANDS FC (IN)	LOCATION OF C G STRANDS Fo (IN)	STRAIGHT STR TO EXTEND END 1	STRAIGHT STR TO EXTEND END 2	DECK SCREED CAMBER C	D * LOWER BOUND @ 20 DAYS	D * UPPER BOUND @ 30 DAYS	D * LONG TERM @ 120 DAYS	REINFORCEMENT DETAILS V1	V2 (IN.)	V3	V4 (IN.)	V5	V6 (IN.)
8	1	W65DG	B	B	N/A	3'-3"	3'-7½"	5'-0"	15'-0"	15'-0"	0.00	0.00	1'-5½"	1'-4½"	162'-10⅛"	9.0	7.5	26	22	2	3.69	4.91	14	N/A	N/A	1.76	3.53	4.04	5.58	10	2.5	16	6	36	12
8	2	W65DG	B	B	N/A	3'-7½"	3'-7½"	5'-0"	15'-0"	15'-0"	0.00	0.00	1'-5½"	1'-4½"	162'-10⅛"	9.0	7.5	26	22	2	3.69	4.91	14	N/A	N/A	1.95	3.39	3.89	5.41	10	2.5	16	6	36	12
8	3	W65DG	B	B	N/A	3'-7½"	3'-7½"	5'-0"	15'-0"	15'-0"	0.00	0.00	1'-5½"	1'-4½"	162'-10⅛"	9.0	7.5	26	22	2	3.69	4.91	14	N/A	N/A	1.95	3.39	3.89	5.41	10	2.5	16	6	36	12
8	4	W65DG	B	B	N/A	3'-7½"	5'-0"	5'-0"	15'-0"	15'-0"	0.00	0.00	1'-5½"	1'-4½"	162'-10⅛"	9.0	7.5	26	22	2	3.69	4.91	14	N/A	N/A	2.61	3.32	3.83	5.33	10	2.5	16	6	36	12
8	5	W65DG	B	B	N/A	5'-0"	3'-7½"	5'-0"	15'-0"	15'-0"	0.00	0.00	1'-5½"	1'-4½"	162'-10⅛"	9.0	7.5	26	22	2	3.69	4.91	14	N/A	N/A	2.61	3.32	3.83	5.33	10	2.5	16	6	36	12
8	6	W65DG	B	B	N/A	3'-7½"	3'-7½"	5'-0"	15'-0"	15'-0"	0.00	0.00	1'-5½"	1'-4½"	162'-10⅛"	9.0	7.5	26	22	2	3.69	4.91	14	N/A	N/A	1.95	3.39	3.89	5.41	10	2.5	16	6	36	12
8	7	W65DG	B	B	N/A	3'-7½"	3'-7½"	5'-0"	15'-0"	15'-0"	0.00	0.00	1'-5½"	1'-4½"	162'-10⅛"	9.0	7.5	26	22	2	3.69	4.91	14	N/A	N/A	1.95	3.39	3.89	5.41	10	2.5	16	6	36	12
8	8	W65DG	B	B	N/A	3'-7½"	3'-3"	5'-0"	15'-0"	15'-0"	0.00	0.00	1'-5½"	1'-4½"	162'-10⅛"	9.0	7.5	26	22	2	3.69	4.91	14	N/A	N/A	1.76	3.53	4.04	5.58	10	2.5	16	6	36	12

* THE COMPUTED GIRDER CAMBER AT MIDSPAN IMMEDIATELY BEFORE TIME OF OVERLAY CONCRETE PLACEMENT IS ADJUSTED FOR THE FORM CAMBERING SHOWN ON SHEET P-10 OF THE DECK BULB TEE GIRDER SHEETS

Max. J Kuney Construction

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Date: 7/9/13

VICTOR RYZHIKOV — STATE OF WASHINGTON — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

7/9/13

GIRDER NOTES

1. PLAN LENGTH SHALL BE INCREASED AS NECESSARY TO COMPENSATE FOR SHORTENING DUE TO PRESTRESS AND SHRINKAGE.
2. ALL PRETENSIONED AND TEMPORARY STRANDS SHALL BE 0.6"Ø AASHTO M203 GRADE 270 LOW RELAXATION STRANDS, TENSIONED TO 202.5 KSI.
3. FOR END TYPES A, C AND D CUT ALL STRANDS FLUSH WITH THE GIRDER ENDS AND PAINT WITH AN APPROVED EPOXY RESIN, EXCEPT FOR EXTENDED STRANDS AS SHOWN. FOR END TYPE B CUT ALL STRANDS 1" BELOW CONCRETE SURFACE AND GROUT WITH AN APPROVED EPOXY GROUT.
4. THE TOP SURFACE OF THE GIRDER FLANGE SHALL BE ROUGHENED IN ACCORDANCE WITH SECTION 6-02.3(25)H OF THE STANDARD SPECIFICATIONS
5. LIFTING EMBEDMENTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6-02.3(25)L OF THE STANDARD SPECIFICATIONS.
6. CAUTION SHALL BE EXERCISED IN HANDLING AND PLACING GIRDERS. ALL GIRDERS SHALL BE CHECKED BY THE CONTRACTOR TO ENSURE THAT THEY ARE BRACED ADEQUATELY TO PREVENT TIPPING AND TO CONTROL LATERAL BENDING DURING SHIPPING. ONCE ERECTED, ALL GIRDERS SHALL BE BRACED LATERALLY TO PREVENT TIPPING UNTIL THE DIAPHRAGMS ARE CAST AND CURED.
7. FORMS FOR BEARING PAD RECESSES SHALL BE CONSTRUCTED AND FASTENED IN SUCH A MANNER AS TO NOT CAUSE DAMAGE TO THE GIRDER DURING THE STRAND RELEASE OPERATION.
8. ALL REINFORCING STEEL CONFORM TO ASTM A709, GRADE 60 EPOXY COATED BARS SHALL CONFORM TO AASHTO M284 WITH ADDITIONAL MODIFICATION PER 9-07.3 PER THE STANDARD SPECFICIATIONS. HEADED DEFORMED REINFORCING BARS SHALL CONFORM TO ASTM A970 INCLUDING ANNEX A1 REQUIREMENTS FOR CLASS HA HEAD DIMENSIONS.
9. STUDS SHALL BE MADE FROM COLD DRAWN BAR STOCK CONFORMING TO THE REQUIREMENTS OF ASTM A108, GRADE 1015, 1017, OR 1020, EITHER SEMI-KILLED OR KILLED ALUMINUM OR SILICON DEOXIDATION WITH MECHANICAL PROPERTIES IN CONFORMANCE WITH ASTM A370. FABRICATION SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT APPLICABLE EDITION OF AWS D1.1 STRUCTURAL WELDING CODE.
10. TEMPORARY TOP STRANDS SHALL BE EITHER PRETENSIONED OR POST-TENSIONED IN ACCORDANCE WITH SECTION 6-02.3(25)L OF THE STANDARD SPECIFICATIONS AND THE GIRDER DETAILS SHEETS. THE LIFTING LOCATION L AND CONCRETE RELEASE STRENGTH F'CI SHOWN IN THE GIRDER SCHEDULE ASSUME THAT THE TEMPORARY TOP STRANDS ARE PRETENSIONED. ALTERNATIVELY, POST-TENSIONED TEMPORARY TOP STRANDS MAY BE USED IF THE LIFTING POINTS IN THE GIRDER SCHEDULE ARE MAINTAINED AND THE STRANDS ARE STRESSED PRIOR TO LIFTING THE GIRDER FROM THE FORM.
11. FOR DIAPHRAGMS, PLACE HOLES ON THE FACE OF THE GIRDERS AS SHOWN IN THE DIAPHRAGM DETAILS SHEETS. FOR THE EXTERIOR FACE OF THE WEB ON THE EXTERIOR GIRDER PLACE INSERTS ON THE INTERIOR FACE OF THE EXTERIOR WEB. PLACE HOLES AND INSERTS PARALLEL TO SKEW. INSERTS SHALL BE ¾" or ⅞"Ø MEADOWBURKE MX-3 HI-TENSILE, ¾" or ⅞"Ø x 5½" WILLIAMS F22 OPEN FERRULE INSERT, ¾" or ⅞"Ø x 4⅝" DAYTON-SUPERIOR F-62 FLARED THIN SLAB FERRULE INSERT OR APPROVED EQUAL.
12. DEFORMED WELDED WIRE REINFORCEMENT CONFORMING TO SECTION 9-07.7 WITH DEFORMED WIRE CONFORMING TO SECTION 9-07.8 MAY BE SUBSTITUTED FOR MILD STEEL REINFORCEMENT IF AASHTO LRFD BRIDGE DESIGN SPECIFICATION REQUIREMENTS (INCLUDING DEVELOPMENT AND ANCHORAGE) ARE MET. WELDED WIRE REINFORCEMENT SHALL HAVE THE SAME AREA AND SPACING AS THE MILD STEEL REINFORCEMENT THAT IT REPLACES AND THE YIELD STRENGTH SHALL BE GREATER THAN OR EQUAL TO 60 KSI. SHEAR STIRRUP LONGITUDINAL WIRES AND TACK WELDS SHALL BE EXCLUDED FROM GIRDER WEBS. LONGITUDINAL WIRES FOR ANCHORAGE OF WELDED WIRE REINFORCEMENT SHALL HAVE AN AREA OF 40% OR MORE OF THE AREA OF THE WIRE BEING ANCHORED BUT SHALL NOT BE LESS THAN D4.
13. STRUCTURAL STEEL SHAPES AND ASSEMBLIES SHALL BE ASTM A36. THEY SHOULD BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
14. CONCRETE SHALL BE CLASS 9000 UTILIZING A LIGHTWEIGHT AGGREGATE CONCRETE MIX IN ACCORDANCE WITH AASHTO T-121. THE COARSE AGGREGATE SHALL CONFORM TO SECTION 9.03.1(4) OF THE STANDARD SPECFICATIONS, EXCEPT GRADING IN CONFORMANCE WITH AASHTO T-195.

SR 5 FILE NO. ____ SHEET 7

Bridge Design Engr.	Ryzhikov, V	T:\Sys\WSDOT_Skagit_River\ScheduleandNotes.dgn	
Supervisor	Poulson, J		
Designed By	Vanek, C 06/13		
Checked By	Rudie, C 06/13		
Detailed By	Vanek, C 06/13		
Bridge Projects Engr.			
Prelim. Plan By			
Architect/Specialist		DATE / REVISION / BY / APP'D	

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				

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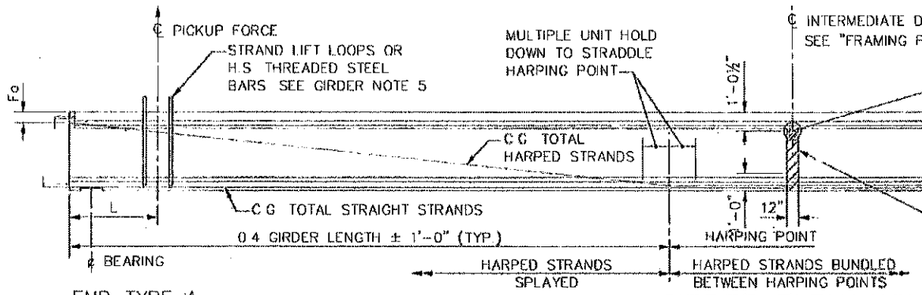
I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

GIRDER SCHEDULE AND NOTES

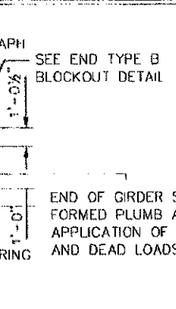
BRIDGE SHEET NO. P-7

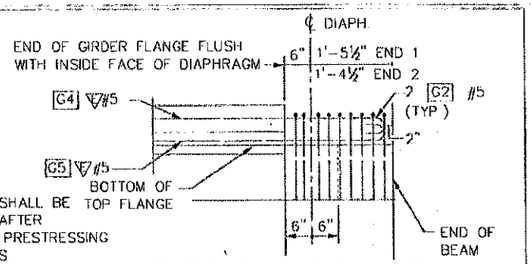
SHEET 7 OF 20 SHEETS

7/9/2013 2:01:14 PM



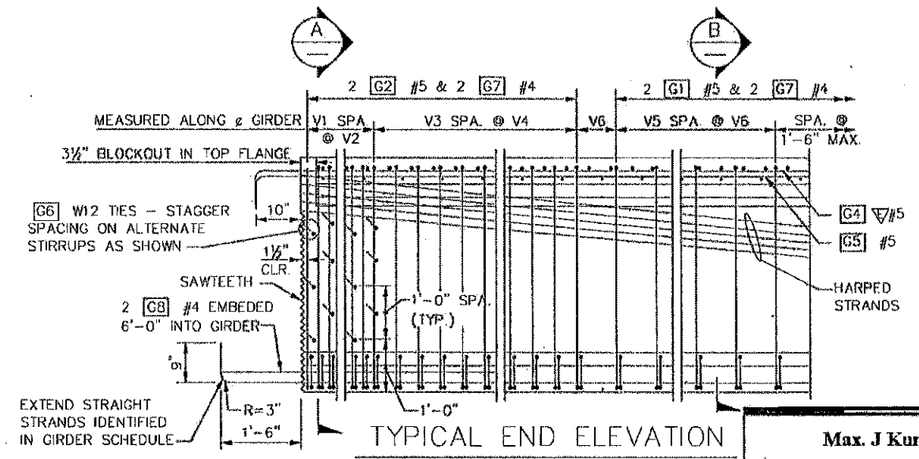
GIRDER ELEVATION





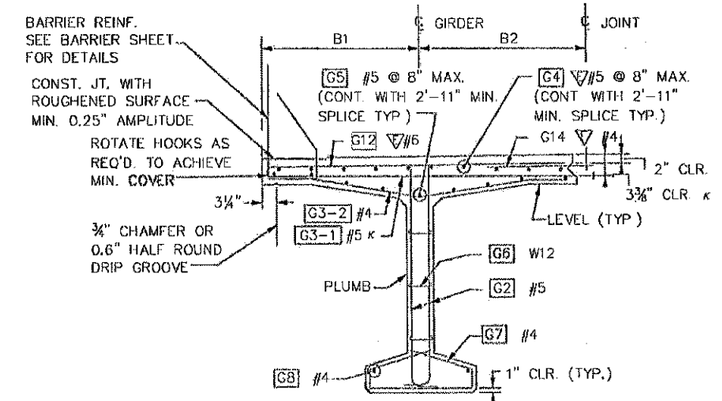
END TYPE B BLOCKOUT

DIMENSIONS ARE NORMAL TO DIAPHRAGM
OTHER REINFORCEMENT NOT SHOWN FOR CLARITY



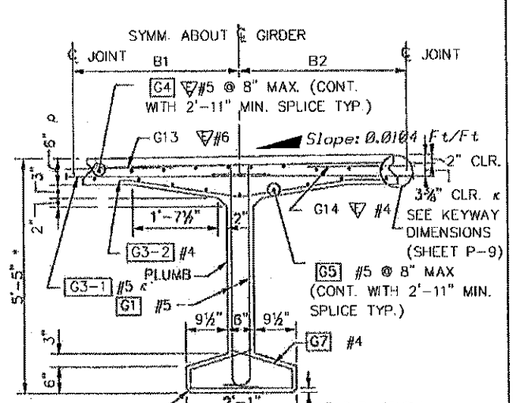
TYPICAL END ELEVATION

END TYPE A SHOWN, END TYPE B SIMILAR



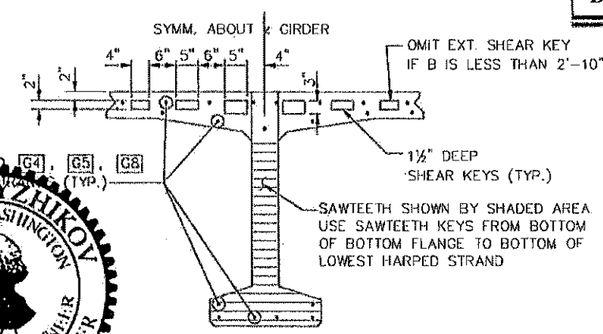
SECTION (A)

EXT. GIRDER SHOWN
INT. GIRDER SIMILAR ***



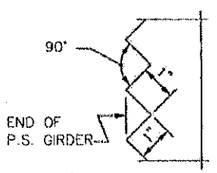
SECTION (B)

INT. GIRDER SHOWN
EXT. GIRDER SIMILAR



GIRDER END

FOR END TYPE A ONLY



SAWTEETH DETAILS

SAWTEETH ARE FULL WIDTH

DUE TO FLANGE THICKENING THE CG OF STRANDS GIVEN IN THE GIRDER SCHEDULE ARE TAKEN WITH RESPECT TO THE BASE HEIGHT OF 65"

** 8 : 1 MAXIMUM SLOPE FOR EACH HARPED STRAND

*** EXTERIOR GIRDER 1 SHOWN, GIRDER 8 OPPOSITE HAND

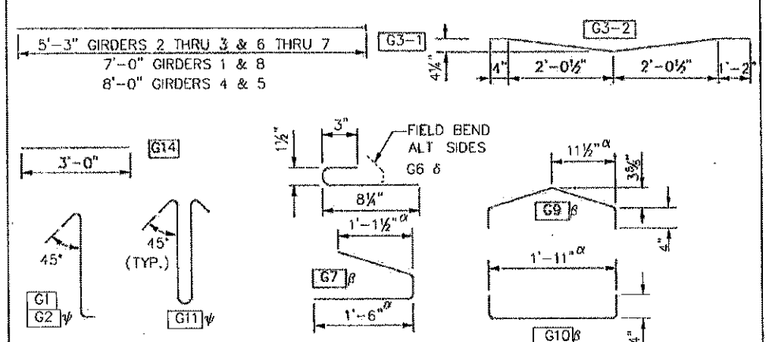
κ PLACE G3-1 BARS ALONG SLOPE OF TOP FLANGE. MAINTAIN DISTANCE FROM TOP FLANGE CONSTANT ACROSS FLANGE WIDTH

λ SEE GIRDER NOTE 11.

ρ THICKEN FLANGE TO COMPENSATE FOR SUPERELEVATION.

▽ DENOTES EPOXY COATED

BENDING DIAGRAM (ALL DIMENSIONS ARE OUT TO OUT)



β – PAIRS OF G7 BARS, OR G9 AND G10 BARS, MAY BE USED INTERCHANGEABLY AS BOTTOM FLANGE TIES.

δ – #3 OR #4 MAY BE SUBSTITUTED FIELD BENDING IS OPTIONAL

ψ – 1 G11 MAY BE SUBSTITUTED FOR 2 G2 WITHIN THE V1 SPA. @ V2.

ρ – VARIES FOR SKEWED ENDS.

VICTOR RYZHIKOV STATE OF WASHINGTON STRUCTURAL ENGINEER PROFESSIONAL ENGINEER 29711

7/9/13

Max. J Kuney Construction

RELEASED FOR CONSTRUCTION

Date: 7/9/13

Bridge Design Engr.	Ryzhikov, V	
Supervisor	Poulson, J	
Designed By	Vanek, C	06/13
Checked By	Rudie, C	06/13
Detailed By	Vanek, C	06/13
Bridge Projects Engr.		
Prelim. Plan By		
Architect/Specialist		

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DATE	REVISION	BY	APP'D

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				

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Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

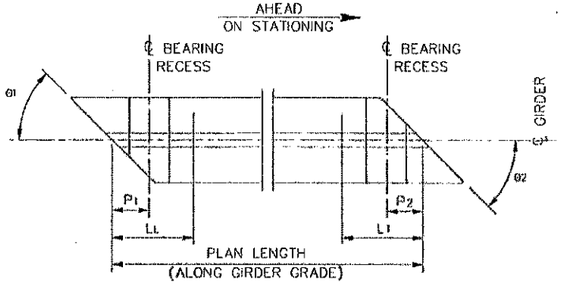
DECK BULB TEE GIRDER DETAILS (1 OF 4)

BRIDGE SHEET NO. P-8

SHEET 8 OF 20 SHEETS

SR 5 FILE NO. SHEET 8

7/9/2013 2:01:17 PM

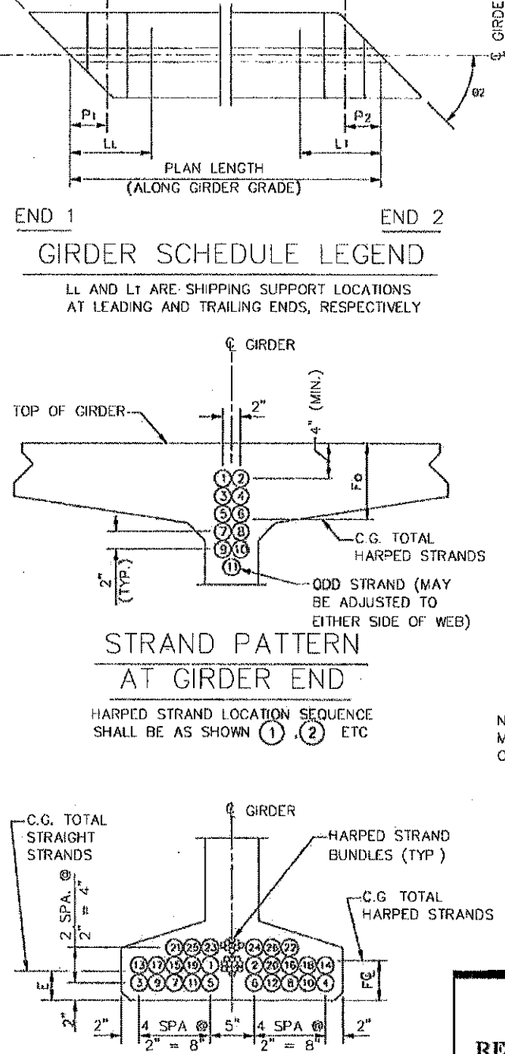


GIRDER SCHEDULE LEGEND

LL AND LT ARE SHIPPING SUPPORT LOCATIONS AT LEADING AND TRAILING ENDS, RESPECTIVELY

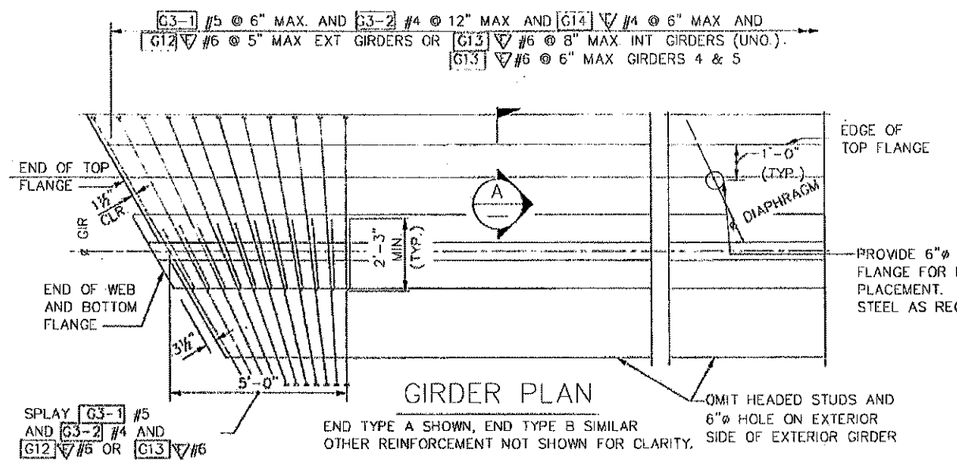
STRAND PATTERN AT GIRDER END

HARPED STRAND LOCATION SEQUENCE SHALL BE AS SHOWN (1), (2) ETC



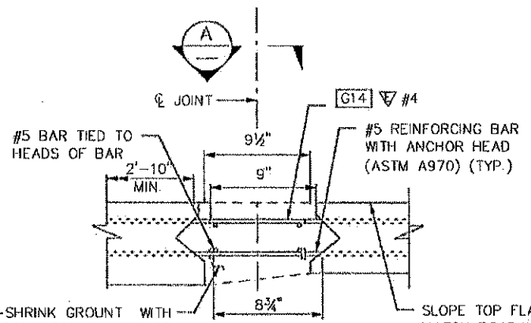
STRAND PATTERN AT ℄ SPAN

STRAIGHT STRAND LOCATION SEQUENCE SHALL BE AS SHOWN (1), (2) ETC.



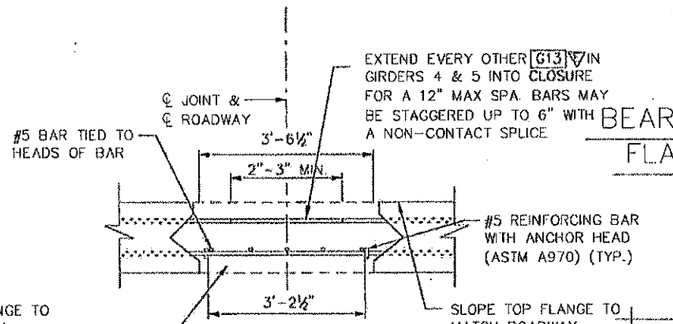
GIRDER PLAN

END TYPE A SHOWN, END TYPE B SIMILAR
OTHER REINFORCEMENT NOT SHOWN FOR CLARITY.



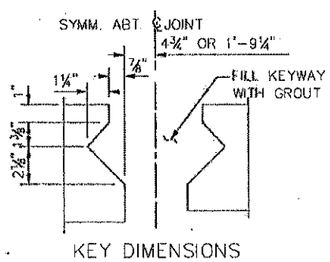
SECTION (A / P-6)

TYPICAL CLOSURE JOINT DETAILS SHOWN

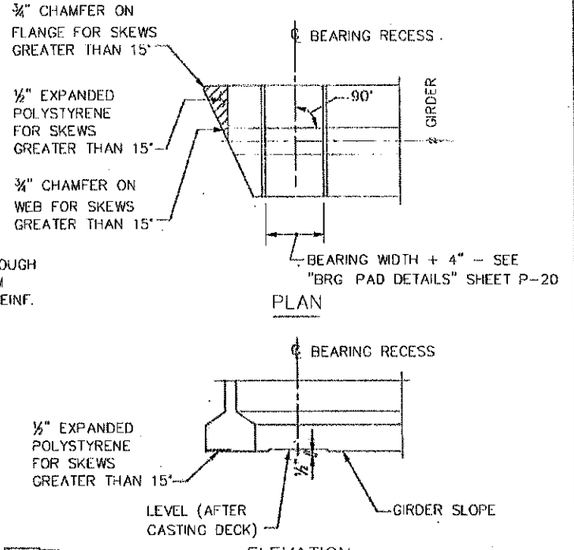


SECTION (A / P-6)

CENTER CLOSURE JOINT DETAILS SHOWN (MEDIAN BARRIER STEEL NOT SHOWN FOR CLARITY SEE SHEET P-13)



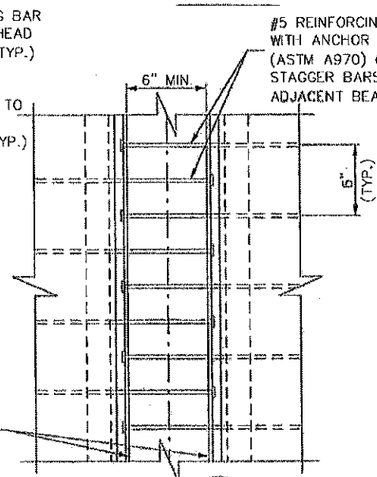
KEY DIMENSIONS



PLAN

ELEVATION

BEARING RECESS AND BOTTOM FLANGE SPALL PROTECTION DETAIL



VIEW (A / P-6)

TYPICAL CLOSURE JOINT DETAILS SHOWN, CENTER JOINT SIMILAR (G14 BARS NOT SHOWN FOR CLARITY)

Max. J Kuney Construction

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Date: 7/9/13

VICTOR RYZHIKOV — STATE OF WASHINGTON — 29??? — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

7/9/13

SR 5 FILE NO. SHEET 9

Bridge Design Engr.	Ryzhikov, V		T:\Sys\WSDOT_Skagit_River\Details02.dgn			REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor	Poulson, J					10	WASH.			
Designed By	Vanek, C	06/13				JOB NUMBER				
Checked By	Rudie, C	06/13								
Detailed By	Vanek, C	06/13								
Bridge Projects Engr.										
Prelim. Plan By										
Architect/Specialist			DATE	REVISION	BY	APP'D				

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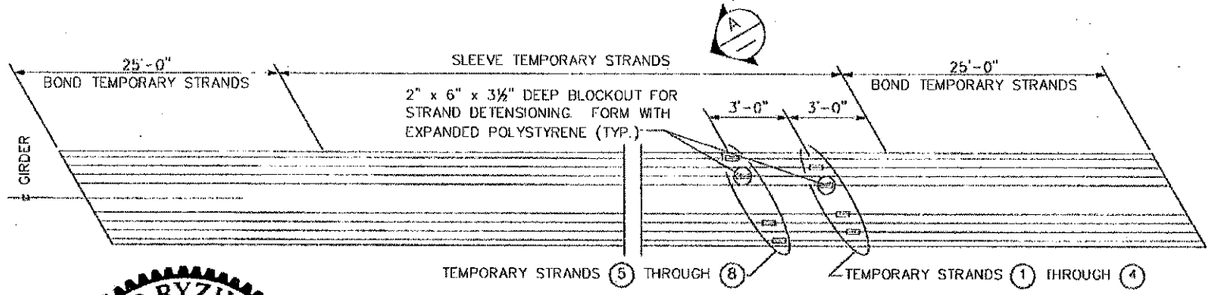
Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

DECK BULB TEE GIRDER DETAILS (2 OF 4)

BRIDGE SHEET NO. P-9

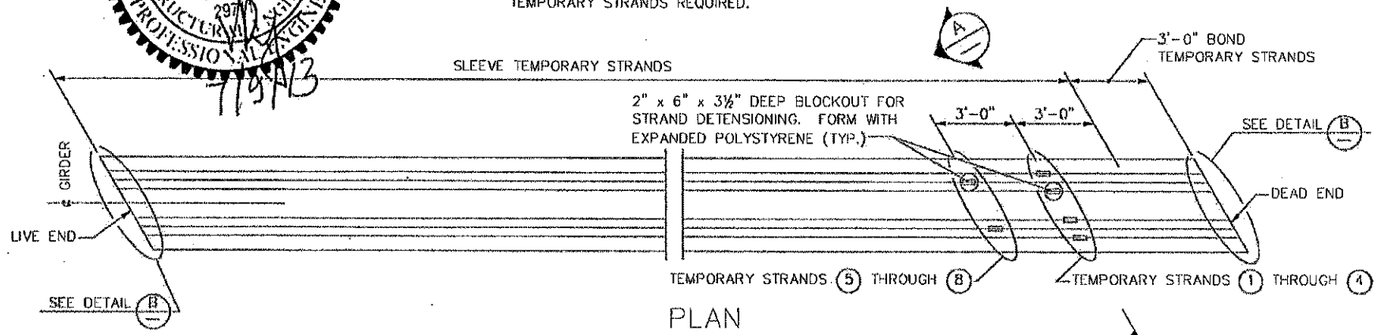
SHEET 9 OF 20 SHEETS



PLAN

PRETENSIONED TEMPORARY TOP STRANDS ALTERNATE

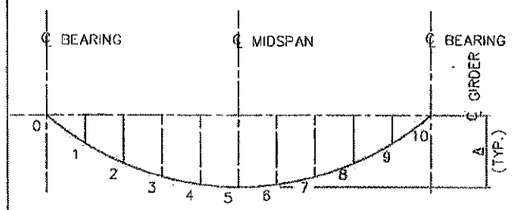
SEE "GIRDER SCHEDULE" FOR NUMBER OF TEMPORARY STRANDS REQUIRED.



PLAN

POST-TENSIONED TEMPORARY TOP STRANDS ALTERNATE

SEE "GIRDER SCHEDULE" FOR NUMBER OF TEMPORARY STRANDS REQUIRED. POST-TENSIONED ALTERNATE ONLY AVAILABLE FOR 6 OR FEWER TEMPORARY STRANDS.

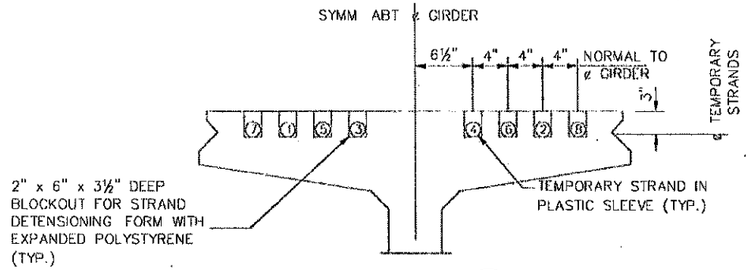


FORM CAMBERING PLAN

CAMBER FORM AS INDICATED ABOVE USING THE VALUES IN THE FORM SCHEDULE

FORM SCHEDULE	
ALL BEAMS	
BEAM LOC.	Δ (IN.)
0 – ℄BEARING	0.00
1	1.67
2	2.84
3	3.69
4	4.23
5 – ℄MIDSPAN	4.41
6	4.23
7	3.69
8	2.84
9	1.67
10 – ℄BEARING	0.00

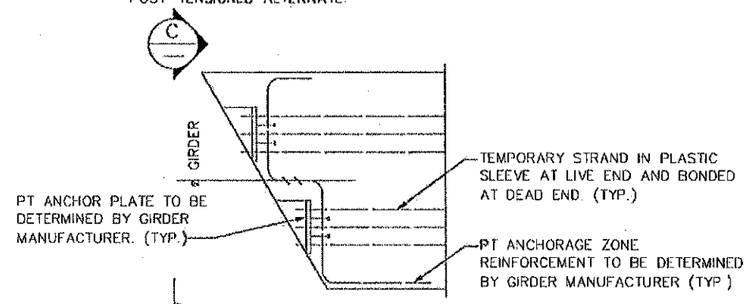
NOTE: CAMBER VALUES ARE DETERMINED USING THE 20 DAY PRESTRESS VALUE (D) SHOWN ON SHEET P-7. THE FORM IS DEFLECTED USING THE SCREED CAMBER VALUES FOR BEAMLINES 2,3,6 & 7 & THE AMOUNT OF OFFSET NEEDED TO FOLLOW THE PGL OF THE BRIDGE



SECTION (A)

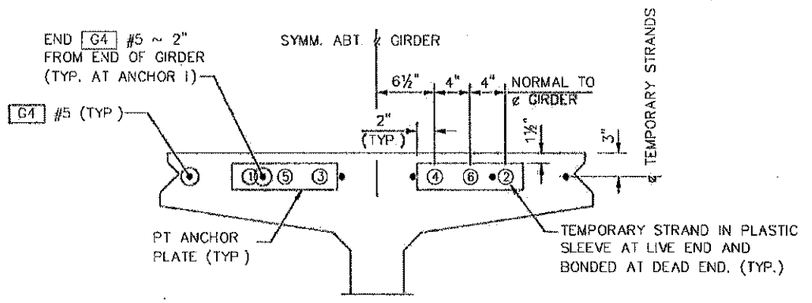
NOTES:

1. TEMPORARY STRAND LOCATION SEQUENCE SHALL BE AS SHOWN (1), (2) ETC
2. STRANDS (7) AND (8) ARE NOT AVAILABLE FOR POST-TENSIONED ALTERNATE.



DETAIL (B)

LIVE END SHOWN
DEAD END SIMILAR.



VIEW (C)

TEMPORARY STRAND LOCATION SEQUENCE SHALL BE AS SHOWN (1), (2) ETC.

Max. J Kuney Construction

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Date: 7/9/13

VICTOR RYZHIKOV — STATE OF WASHINGTON — 29710 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

7/9/13

SR 5 FILE NO. ___ SHEET 10

Bridge Design Engr.	Ryzhikov, V		T:\Sys\WSDOT_Skagit_River\Details03.dgn			REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor	Poulson, J					10	WASH.			
Designed By	Vanek, C	06/13				JOB NUMBER				
Checked By	Rudie, C	06/13								
Detailed By	Vanek, C	06/13								
Bridge Projects Engr.										
Prelim. Plan By										
Architect/Specialist			DATE	REVISION	BY	APP'D				

7/9/2013 2:01:25 PM

PARSONS BRINCKERHOFF

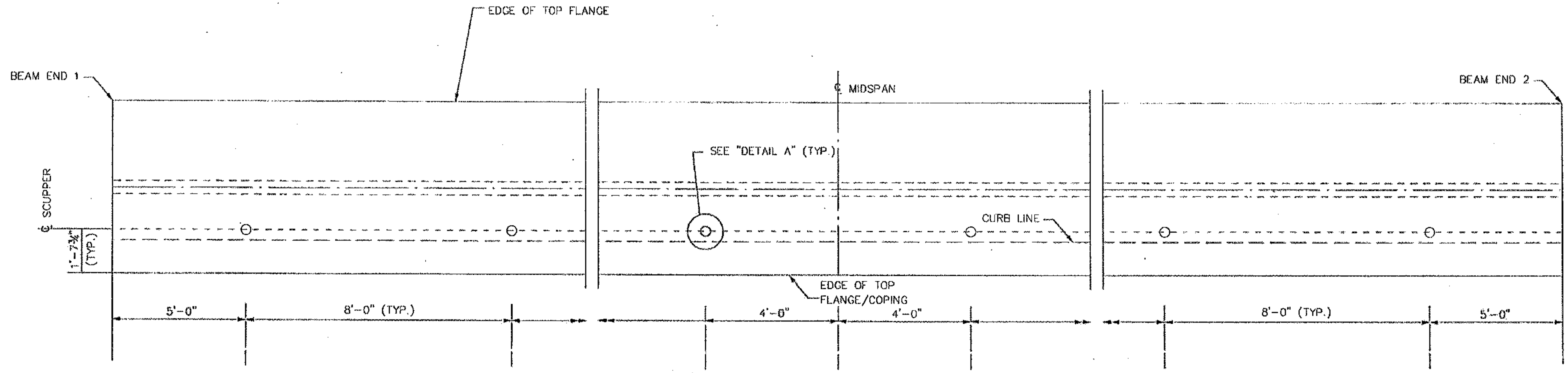
Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

DECK BULB TEE GIRDER DETAILS (3 OF 4)

BRIDGE SHEET NO. P-10

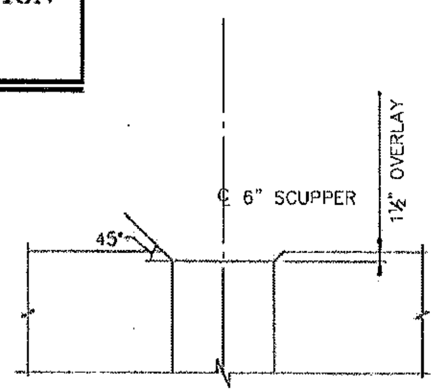
SHEET 10 OF 20 SHEETS



Max. J Kuney Construction

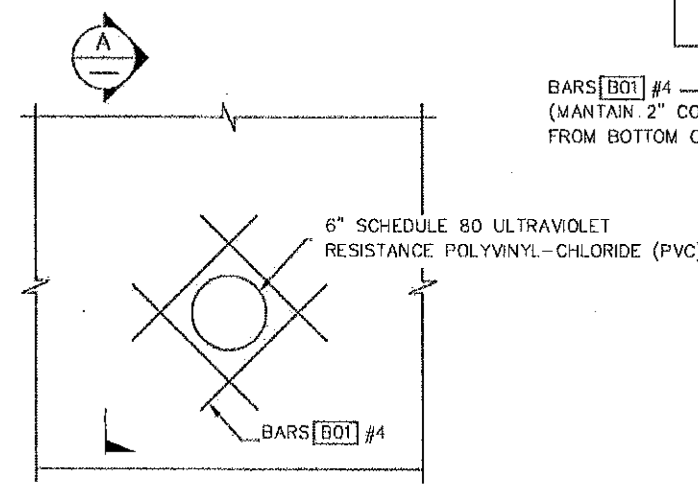
RELEASED FOR CONSTRUCTION

Date: 7/9/13

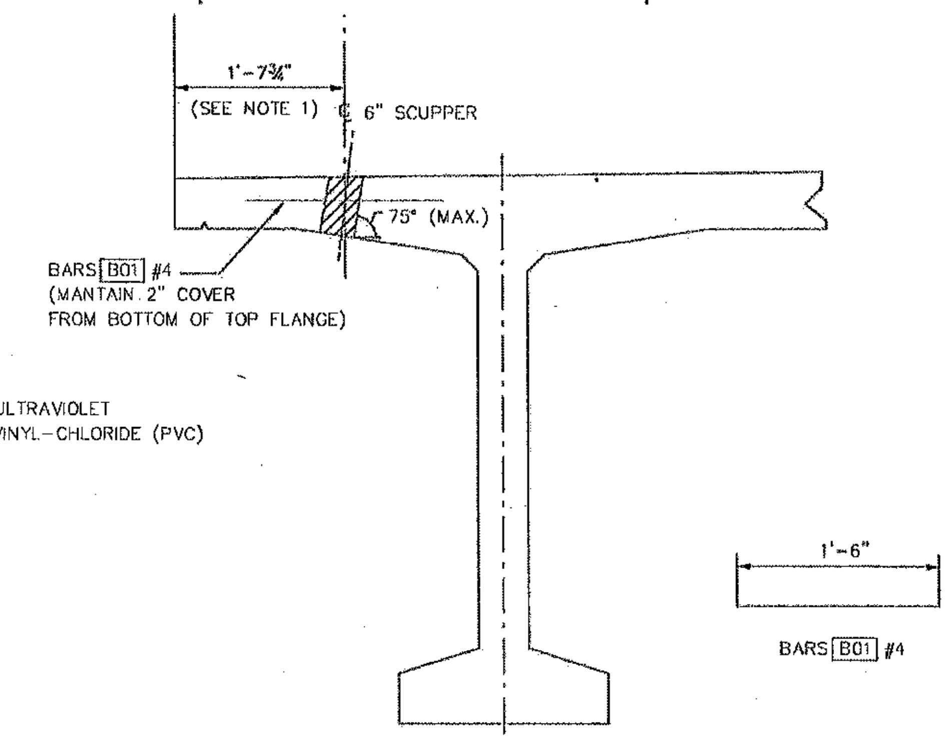


SCUPPER DETAIL

TYPICAL DRAINAGE DETAILS AROUND SCUPPER



DETAIL A



SECTION A

VICTOR RYZHIKOV STATE OF WASHINGTON STRUCTURAL ENGINEER PROFESSIONAL ENGINEER 7/9/13

NOTES:

1. LONGITUDINALLY ADJUST POSITION OF SCUPPER BY ± 3" TO CENTER SCUPPER LOCATION BETWEEN G3-1 REINFORCING BARS AND TRIM BARS TO MAINTAIN A 2" CLEARENCE. LATERALLY ADJUST POSITION OF G12 REINFORCING BARS TO MAINTAIN 2" CLEARANCE TO SCUPPER LOCATIONS.

SR 5 FILE NO. ____ SHEET 11

Bridge Design Engr.	Ryzhikov, V	
Supervisor	Poulson, J	
Designed By	Vonek, C	06/13
Checked By	Rudie, C	06/13
Detailed By	Vonek, C	06/13
Bridge Projects Engr.		
Prelim. Plan By		
Architect/Specialist		

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DATE | REVISION | BY | APP'D

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			

JOB NUMBER

PARSONS BRINCKERHOFF

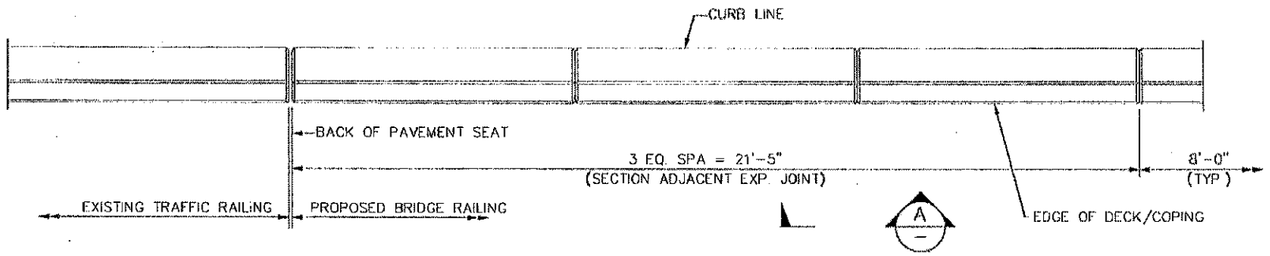
Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE SPAN 8 REPLACEMENT

DECK BULB TEE GIRDER DETAILS (4 OF 4)

BRIDGE SHEET NO. P-11

SHEET 11 OF 20 SHEETS



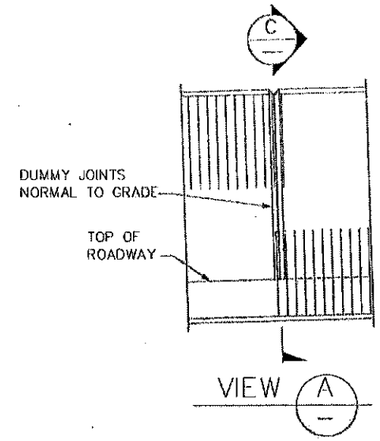
PLAN
TRAFFIC BARRIER

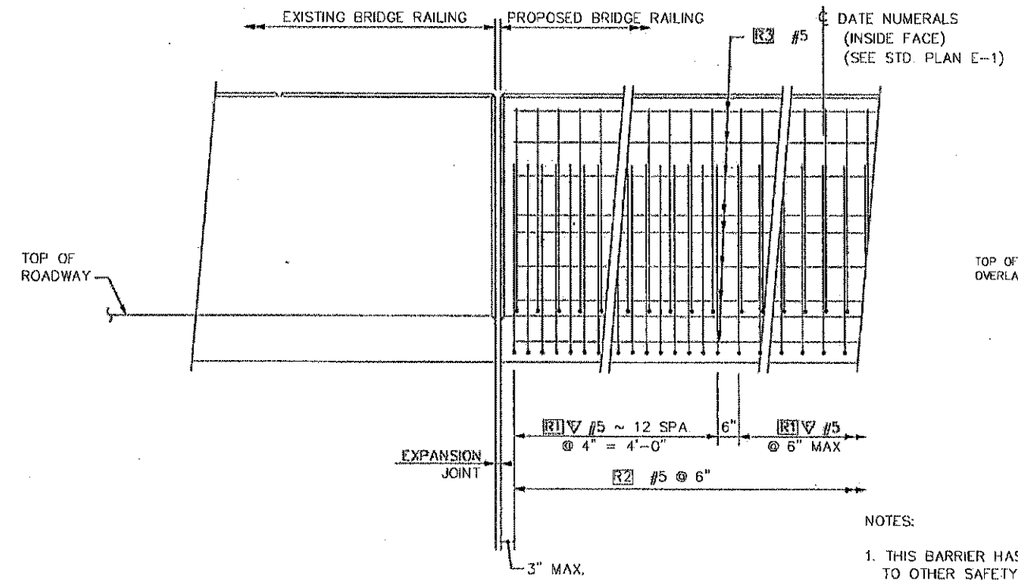
BARRIER CONTINUOUS BETWEEN ROADWAY EXPANSION JOINTS
CONSTRUCTION JOINTS WITH SHEAR KEYS ARE PERMISSIBLE AT DUMMY JOINT LOCATIONS
FORM JOINTS BETWEEN DUMMY JOINTS SHALL NOT BE PERMITTED.

Max. J Kuney Construction

RELEASED FOR CONSTRUCTION

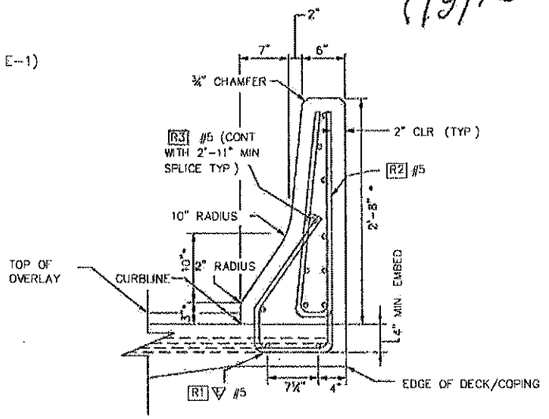
Date: 7/9/13





OUTSIDE ELEVATION
END OF TRAFFIC BARRIER

SHOWN ADJACENT TO EXISTING BRIDGE RAILING

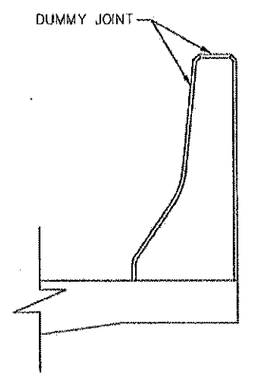


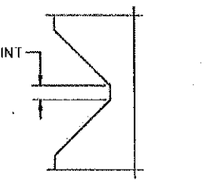
TYPICAL SECTION
TRAFFIC BARRIER

* BARRIER DIMENSIONS SHALL BE ADJUSTED
TO MATCH EXISTING SPAN 7 AND 9 BARRIERS

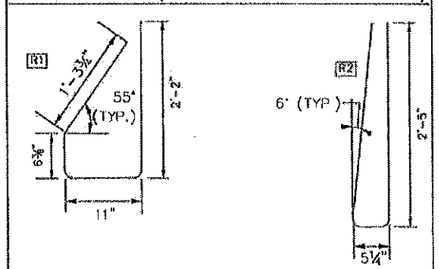
NOTES:

1. THIS BARRIER HAS BEEN STRUCTURALLY EVALUATED TO BE EQUIVALENT OR GREATER IN STRENGTH TO OTHER SAFETY SHAPE RAILINGS WHICH HAVE BEEN CRASH TESTED TO NCHRP REPORT 350 TL-4 CRITERIA
2. CONCRETE SHALL BE CLASS 4000 USING A LIGHTWEIGHT AGGREGATE CONCRETE MIX TESTED IN ACCORDANCE WITH AASHTO T-121. THE COARSE AGGREGATE SHALL CONFORM TO SECTION 9.03.1(4) OF THE STANDARD SPECFICATIONS, EXCEPT GRADING IN CONFORMANCE WITH AASHTO T-195.
3. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF STANDARD SPECFICIATION 9-07.2 AND CONFORM WITH ASTM A706, GRADE 60. EPOXY COATED BARS SHALL CONFORM TO AASHTO M284 WITH ADDITIONAL MODIFICATIONS PER 9-07.3 OF THE STANDARD SPECFICATIONS
4. THE DIMENSION OF THE OPEN JOINT AT THE DECK EXPANSION JOINT LOCATIONS SHALL MATCH THE DIMENSIONS SHOWN IN P-19.





BENDING DIAGRAM (ALL DIMENSIONS ARE OUT TO OUT)



Bridge Design Engr.	Ryzhikov, V		T:\Sys\WSDOT_Skagit_River\TrafficBarrier01.dgn			REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor	Poulson, J					10	WASH.			
Designed By	Vanek, C	06/13				JOB NUMBER				
Checked By	Rudie, C	06/13								
Detailed By	Vanek, C	06/13								
Bridge Projects Engr.										
Prelim. Plan By										
Architect/Specialist			DATE	REVISION	BY	APP'D				

7/9/2013 2:01:31 PM

SR 5 FILE NO. SHEET 12

PARSONS BRINCKERHOFF

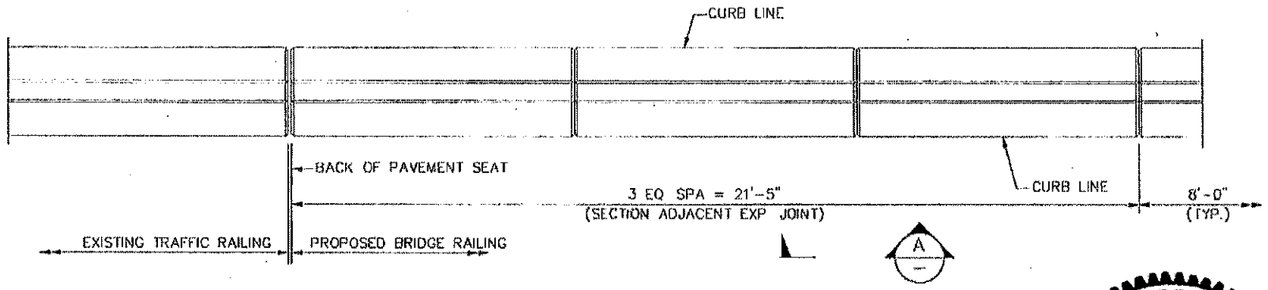
Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

OUTSIDE TRAFFIC BARRIER DETAILS

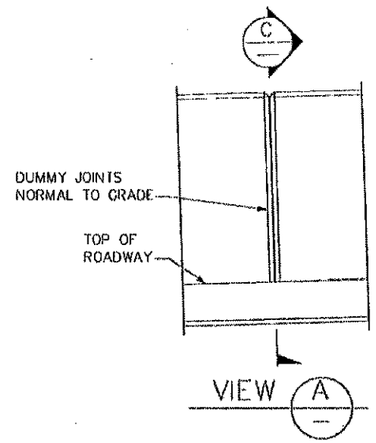
BRIDGE SHEET NO. P-12

SHEET 12 OF 20 SHEETS



PLAN
TRAFFIC BARRIER

BARRIER CONTINUOUS BETWEEN ROADWAY EXPANSION JOINTS
CONSTRUCTION JOINTS WITH SHEAR KEYS ARE PERMISSIBLE AT DUMMY JOINT LOCATIONS
FORM JOINTS BETWEEN DUMMY JOINTS SHALL NOT BE PERMITTED.

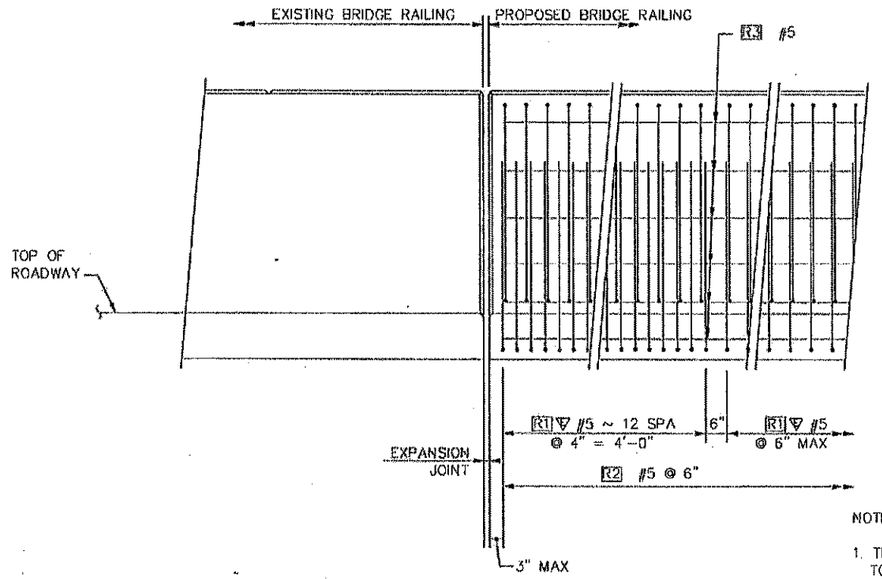


Max. J Kuney Construction

RELEASED FOR CONSTRUCTION

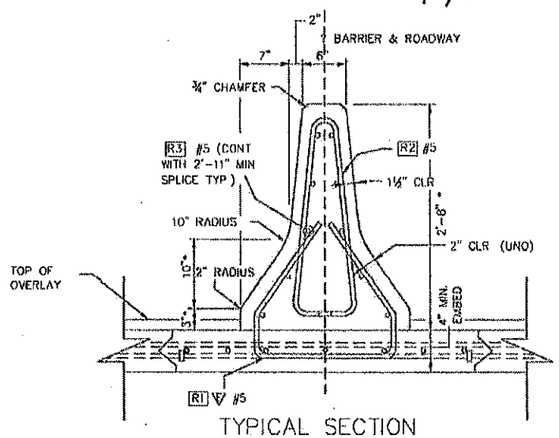
Date: 8/6/13, TRW

VICTOR RYZHIKOV
STATE OF WASHINGTON
STRUCTURAL
PROFESSIONAL ENGINEER
29711
8/6/13



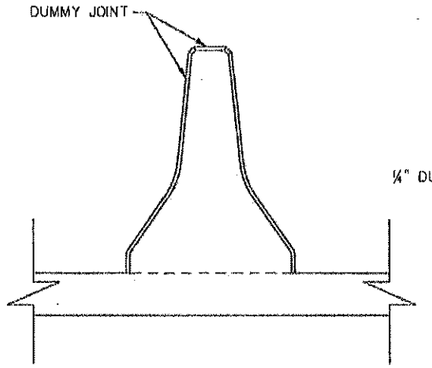
OUTSIDE ELEVATION
END OF TRAFFIC BARRIER

SHOWN ADJACENT TO EXISTING BRIDGE RAILING

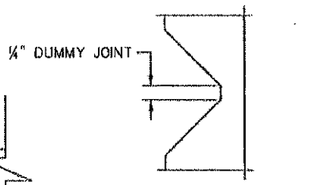


TYPICAL SECTION
TRAFFIC BARRIER

* BARRIER DIMENSIONS SHALL BE ADJUSTED
TO MATCH EXISTING SPAN 7 AND 9 BARRIERS



SECTION C

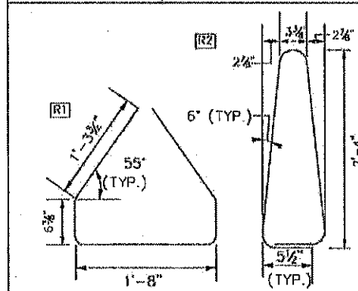


DUMMY JOINT
DETAIL

NOTES:

1. THIS BARRIER HAS BEEN STRUCTURALLY EVALUATED TO BE EQUIVALENT OR GREATER IN STRENGTH TO OTHER SAFETY SHAPE RAILINGS WHICH HAVE BEEN CRASH TESTED TO NCHRP REPORT 350 TL-4 CRITERIA
2. CONCRETE SHALL BE CLASS 4000 USING A LIGHTWEIGHT AGGREGATE CONCRETE MIX TESTED IN ACCORDANCE WITH AASHTO T-121 THE COARSE AGGREGATE SHALL CONFORM TO SECTION 9.031(4) OF THE STANDARD SPECIFICATIONS, EXCEPT GRADING IN CONFORMANCE WITH AASHTO T-195
3. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICIATION 9-07.2 AND CONFORM WITH ASTM A706, GRADE 60. EPOXY COATED BARS SHALL CONFORM TO AASHTO M284 WITH ADDITIONAL MODIFICATIONS PER 9-07.3 OF THE STANDARD SPECFICATIONS
4. THE DIMENSION OF THE OPEN JOINT AT THE DECK EXPANSION JOINT LOCATIONS SHALL MATCH THE DIMENSIONS SHOWN IN P-19.

BENDING DIAGRAM (ALL DIMENSIONS ARE OUT TO OUT)



SR 5 FILE NO. ____ SHEET 13

Bridge Design Engr.	Ryzhikov, V		T:\Sys\WSDOT_Skagit_River\TrafficBarrier02.dgn			REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor	Poulson, J					10	WASH.			
Designed By	Vanek, C	06/13				JOB NUMBER				
Checked By	Rudie, C	06/13								
Detailed By	Vanek, C	06/13								
Bridge Projects Engr.										
Prelim. Plan By										
Architect/Specialist			DATE	REVISION	BY	APP'D				

9/6/2013 2:15:16 PM

PARSONS BRINCKERHOFF

Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

MEDIAN TRAFFIC BARRIER DETAILS

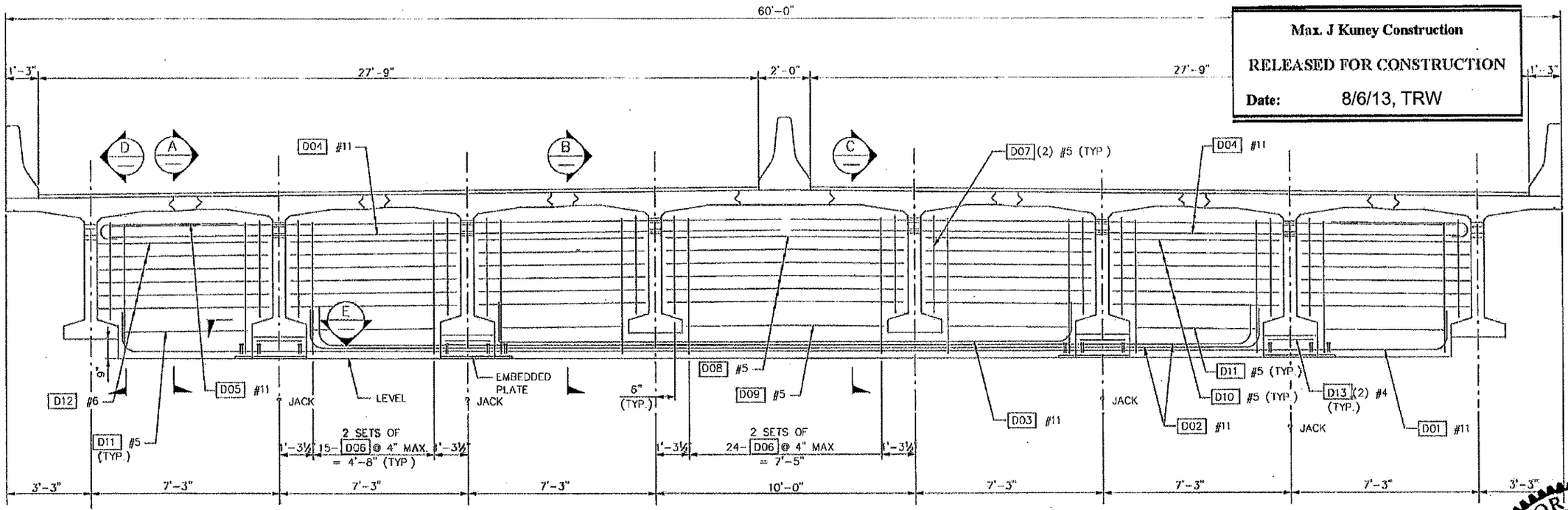
BRIDGE SHEET NO. P-13

SHEET 13 OF 20 SHEETS

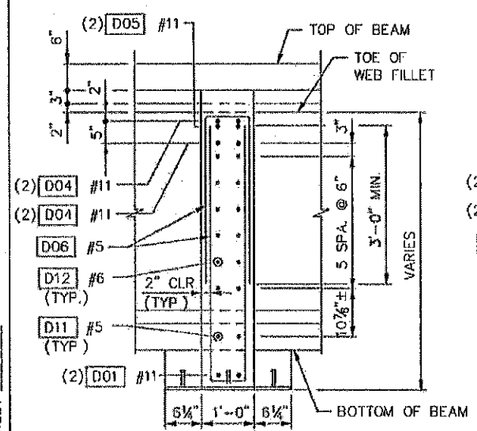
Max. J Kuney Construction

RELEASED FOR CONSTRUCTION

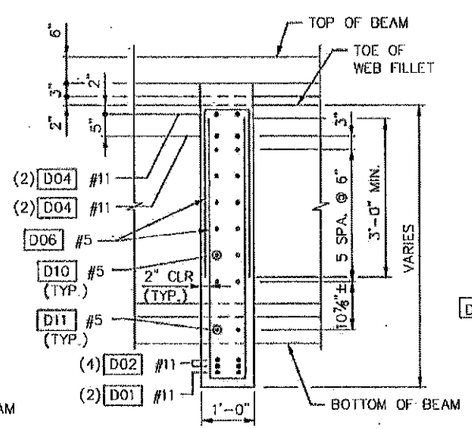
Date: 8/6/13, TRW



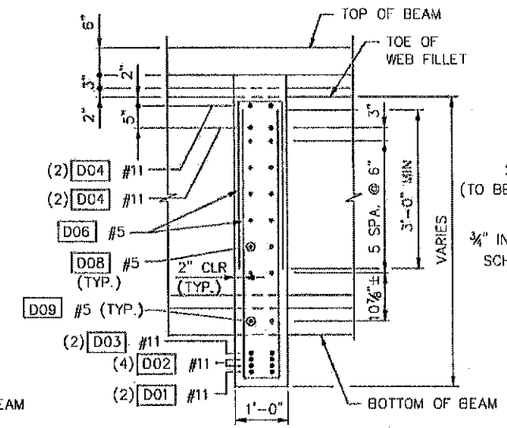
INTERMEDIATE DIAPHRAGM SECTION



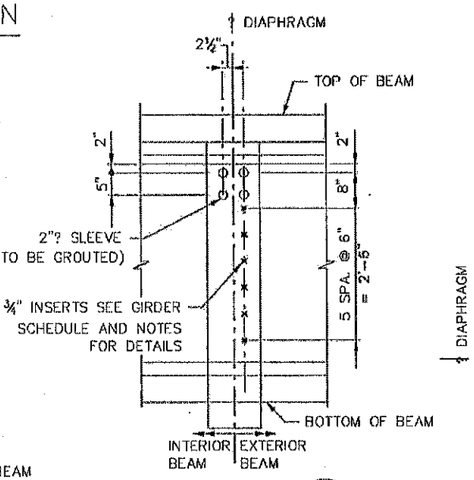
SECTION A



SECTION B



SECTION C

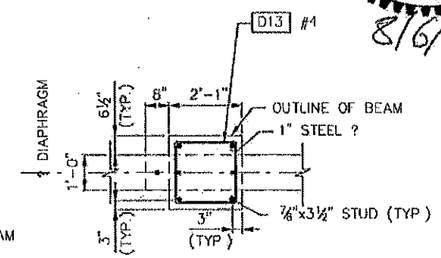


SECTION D

TYPICAL GIRDER WEB SHOWN. DETAILS SYMMETRIC ABOUT ? DIAPHRAGM

NOTE:

1 NOTES SEE SHEET P-16



SECTION E

TYPICAL BLISTER ON DIAPHRAGM, DETAILS TYPICAL FOR BEAMLINES 2,3,6 & 7

VICTOR RYZHIKOV — STATE OF WASHINGTON — 29701 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER — 8/6/13

SR 5 FILE NO. ___ SHEET 14

Bridge Design Engr.	Ryzhikov, V		T:\Sys\WSDOT_Skagit_River\intDiaDet01.dgn								
Supervisor	Poulsen, J										
Designed By	Vanek, C	06/13									
Checked By	Rudie, C	06/13									
Detailed By	Vanek, C	06/13									
Bridge Projects Engr.											
Prelim. Plan By											
Architect/Specialist			DATE	REVISION	BY	APP'D					

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				

8/6/2013 2:45:51 PM

PARSONS BRINCKERHOFF

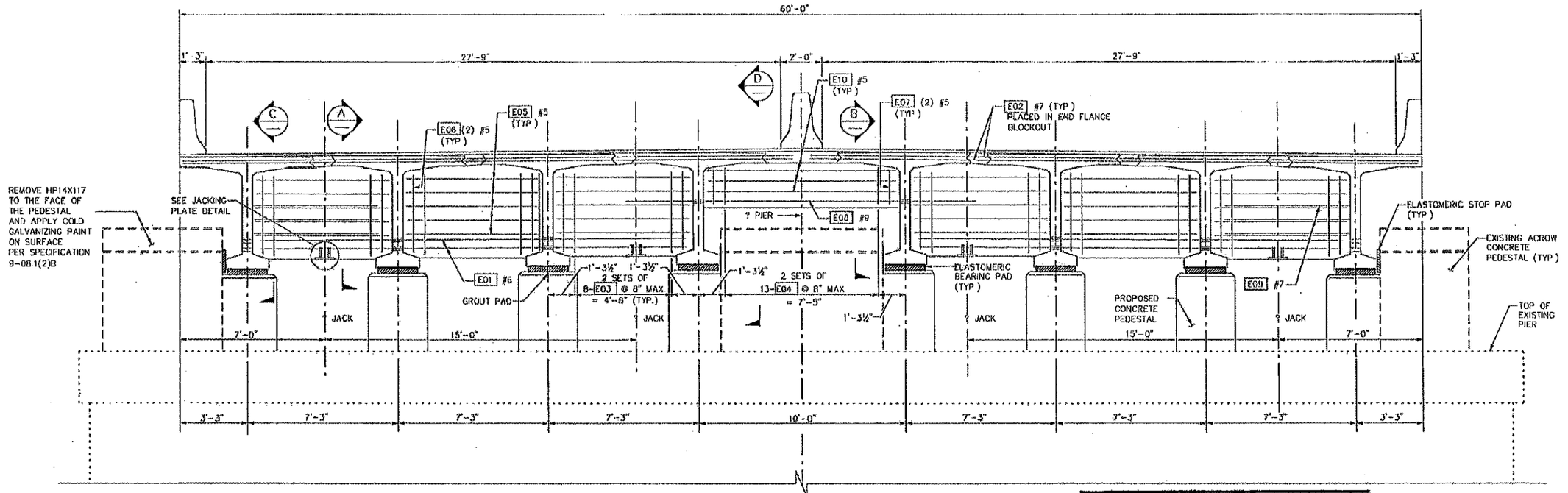
Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE SPAN 8 REPLACEMENT

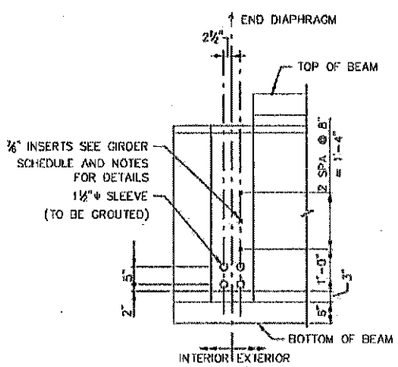
INTERMEDIATE DIAPHRAGM DETAILS

BRIDGE SHEET NO. P-14

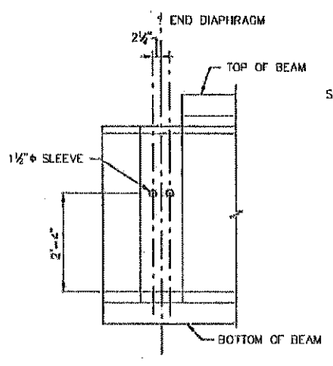
SHEET 14 OF 20 SHEETS



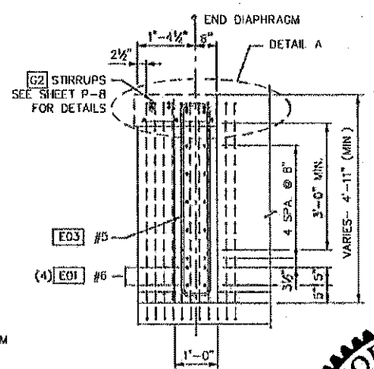
END DIAPHRAGM SECTION
(PIER 8 SHOWN, PIER 9 SIMILIAR)



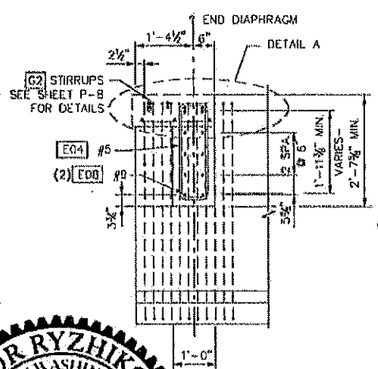
SECTION C
TYPICAL GIRDER WEB SHOWN, DETAILS SYMMETRIC ABOUT ? DIAPHRAGM



SECTION D
GIRDER WEB DETAILS SHOWN FOR BEAMLINES 4 & 5



SECTION A
TYPICAL BEAM END 1 DIAPHRAGM SHOWN END 2 SIMILIAR

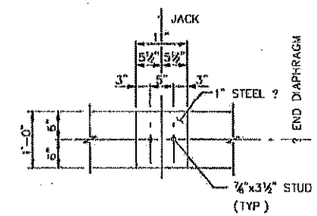


SECTION B
BEAM END DIAPHRAGM SHOWN BETWEEN BEAMLINES 4 & 5, END 2 SIMILIAR

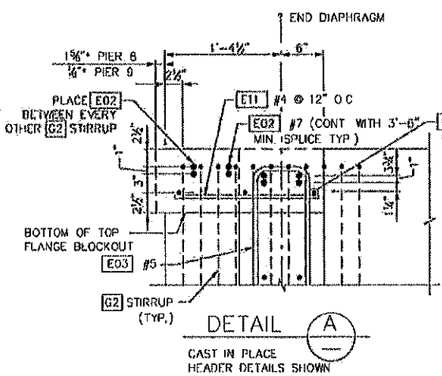
Max. J Kuney Construction

RELEASED FOR CONSTRUCTION

Date: 8/6/13, TRW



JACKING PLATE DETAIL



DETAIL A
CAST IN PLACE HEADER DETAILS SHOWN

* DIMENSION TAKEN ALONG PGL NB & SB

NOTE:

1 FOR NOTES SEE SHEET P-16
2 SEE SHEET P-3 FOR PEDESTAL RETROFIT DETAILS
3 FOR FLANGE BLOCKOUT DETAILS SEE SHEET P-8
4 WORK THIS SHEET WITH SHEET P-5

VICTOR RYZHIKOV — STATE OF WASHINGTON — 20711 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
PARSONS BRINCKERHOFF
8/6/13

Bridge Design Engr.	Ryzhikov, V	T:\Sys\WSDOT_Skagit_River\EndDiaDet01.dgn	
Supervisor	Poulson, J		
Designed By	Vonek, C 06/13		
Checked By	Rudie, C 06/13		
Detailed By	Vonek, C 06/13		
Bridge Projects Engr.			
Prelim. Plan By			
Architect/Specialist			

DATE	REVISION	BY	APP'D

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				

Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

END DIAPHRAGM DETAILS

BRIDGE SHEET NO. P-15
SHEET 15 OF 20 SHEETS

SR 5 FILE NO. ____ SHEET 15

8/6/2013 2:45:55 PM

NOTES:

1. FOR DIAPHRAGM LOCATIONS SEE FRAMING PLAN SHEET P-5.
2. WORK THIS SHEET WITH SHEET P-15 & P-16.
3. CONCRETE SHALL BE CLASS 4000 USING A LIGHTWEIGHT AGGREGATE CONCRETE MIX TESTED IN ACCORDANCE WITH AASHTO T-121 THE COARSE AGGREGATE SHALL CONFORM TO SECTION 9 03 1(4) OF THE STANDARD SPECFICATIONS, EXCEPT GRADING IN CONFORMANCE WITH AASHTO T-195
4. REINFORCING STEEL SHALL CONFORM WITH THE REQUIREMENTS OF STANDARD SPECIFICAIONS 9-07 2 AND CONFORM WITH ASTM A706, GRADE 60.
5. STUDS SHALL BE MADE FROM COLD DRAWN BAR STOCK CONFORMING TO THE REQUIREMENTS OF ASTM A108, GRADE 1015, 1017, OR 1020, EITHER SEMI-KILLED OR KILLED ALUMINUM OR SILICON DEOXIDATION WITH MECHANICAL PROPERTIES IN CONFORMANCE WITH ASTM A370, FABRICATION SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT APPLICABLE EDITION OF AWS D1.1 STRUCTURAL WELDING CODE
6. STRUCTURAL STEEL SHALL BE ASTM A36 AND GALVANIZED IN ACCORDANCE WITH ASTM A123
7. CARE SHALL BE TAKEN TO PROPERLY CONSOLIDATE DIAPHRAGM CONCRETE UNDER FLANGES OF BEAMS.

Max. J Kuney Construction

RELEASED FOR CONSTRUCTION

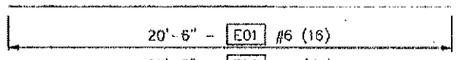
Date: 8/6/13, TRW

VICTOR RYZHIKOV STATE OF WASHINGTON STRUCTURAL ENGINEER PROFESSIONAL ENGINEER

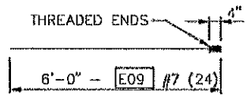
8/6/13

BENDING DIAGRAM (ALL DIMENSIONS ARE OUT TO OUT)

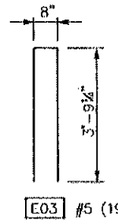
END DIAPHRAGM



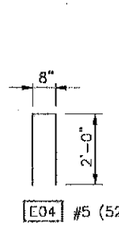
20'-6" - E01 #6 (16)
29'-5" - E02 #7 (32)
6'-5" - E05 #5 (120)
20'-0" - E08 #9 (4) **
9'-2" - E10 #5 (12)
1'-8" - E11 #4 (122)
59'-8" - E12 #5 (6) ***



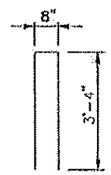
6'-0" - E09 #7 (24)



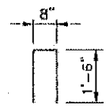
E03 #5 (192)



E04 #5 (52)



E05 #5 (48)



E07 #5 (8)

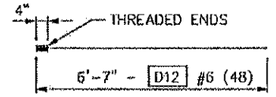
** #9 E08 BAR MAY BE SPLIT INTO THREE PIECES WITH A MIN. LAP OF 5'-0" NO BAR SPLICES ARE ALLOWED WITH THE MIDDLE THIRD OF THE CENTER DIAPHRAGM SPACING

*** FIELD BEN AS NECESSARY OR SPLIT ALL BARS INTO TWO PIECES AND ADD A CENTER LAP BAR WITH MIN. SPLICE LENGTH OF 2'-11".

INTERMEDIATE DIAPHRAGM

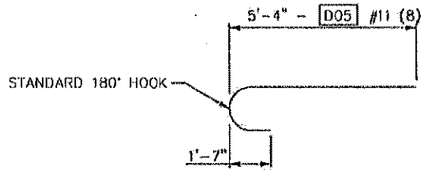
51'-1" - D01 #11 (4)
36'-7" - D02 #11* (8)
22'-1" - D03 #11 (4)

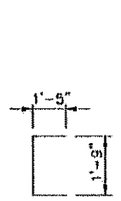
25'-11" - D04 #11 (16)
9'-2" - D08 #5 (24)
7'-7" - D09 #5 (4)
6'-5" - D10 #5 (96)
4'-10" - D11 #5 (24)



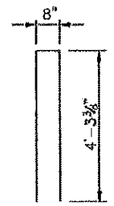
6'-7" - D12 #6 (48)

5'-4" - D05 #11 (8)

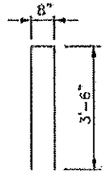




D13 #4 (16)



D06 #5 (456)



D07 #5 (56)

* PROVIDE (4) AT D02 DIMENSION SHOWN AND PROVIDE SECOND (4) AT 4" LESS

SR 5 FILE NO. ____ SHEET 16

Bridge Design Engr.	Ryzhikov, V		T:\Sys\WSDOT_Skagit_River\DiaReinDet.dgn								
Supervisor	Paulson, J										
Designed By	Vanek, C	06/13									
Checked By	Rudie, C	06/13									
Detailed By	Vanek, C	06/13									
Bridge Projects Engr.											
Prelim. Plan By											
Architect/Specialist			DATE	REVISION	BY	APP'D	REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
							10	WASH.			
							JOB NUMBER				

8/6/2013 2:46:00 PM

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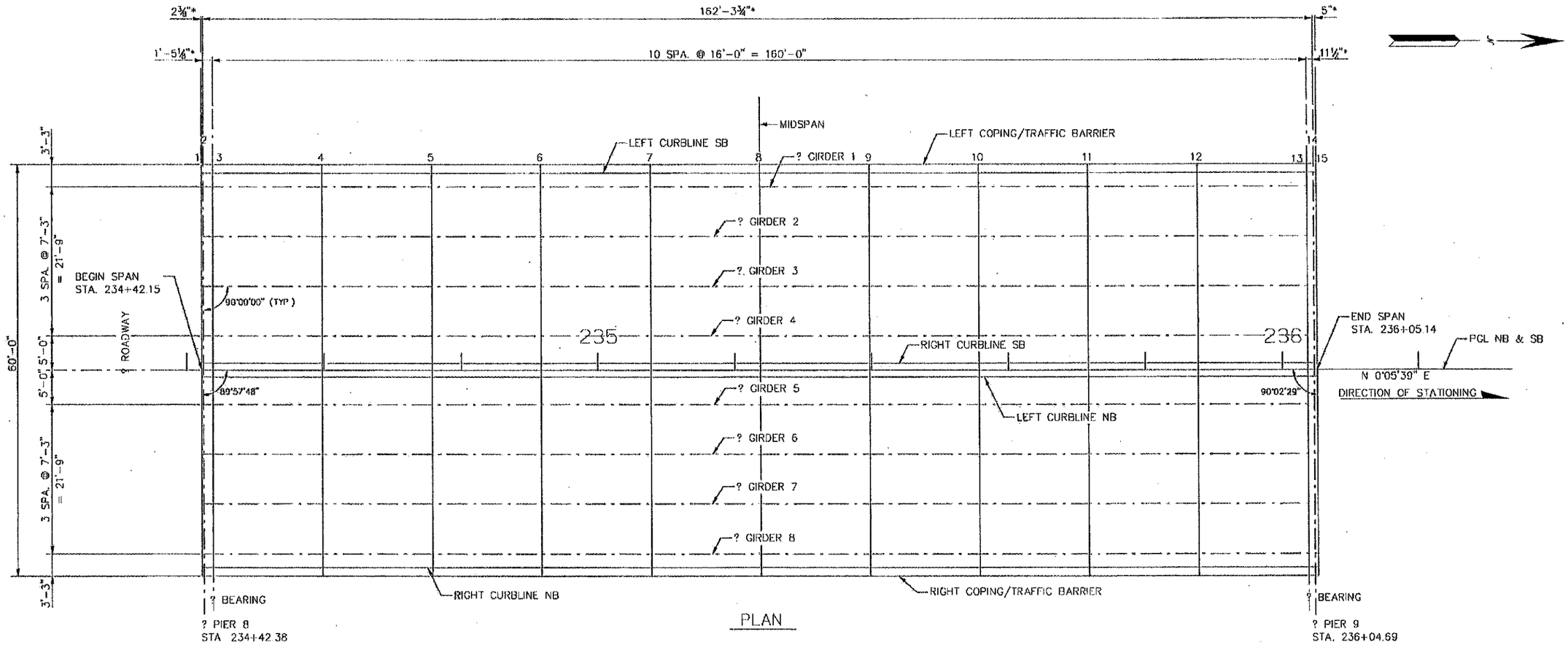
Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

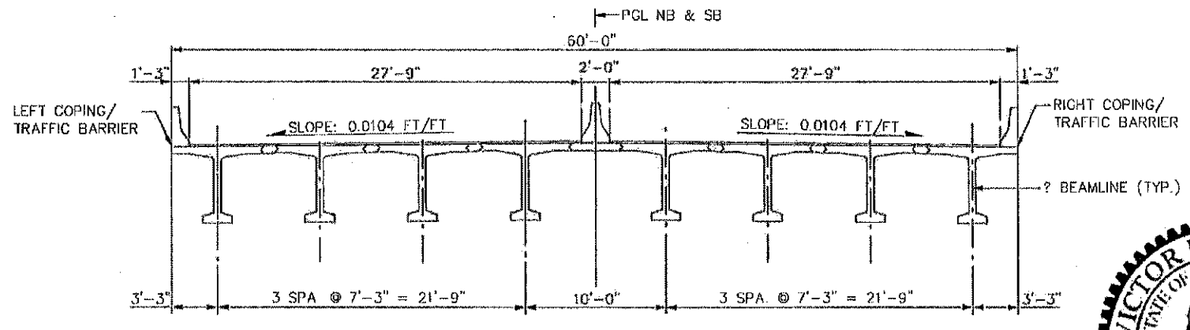
DIAPHRAGM REINFORCING DETAILS

BRIDGE SHEET NO. P-16

SHEET 16 OF 20 SHEETS



PLAN



TYPICAL SECTION

*. MEASURED ALONG PGL

Max. J Kinney Construction

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Date: 8/6/13, TRW

NOTES:

1. WORK THIS SHEET WITH SEE SHEET P-18.
2. FINISH GRADE ELEVATIONS GIVEN ARE BASED ON AN AVERAGE 2" OVERLAY PLACED ABOVE EXISTING BRIDGE PROFILE. CONTRACTOR SHALL VERIFY ADJACENT SPAN ELEVATIONS FOR ADJUSTMENT OF DECK ELEVATIONS
3. FINISH GRADE ELEVATIONS GIVEN FOR THE TOP OF THE FINISHED ROADWAY SURFACE AFTER 1½" OVERLAY HAS BEEN PLACED ON THE BRIDGE DECK.
4. CONTRACTOR SHALL ADJUST ELEVATIONS GIVEN IN THE TABLE FOR THE ELEVATION THE SPAN IS BUILT ON TEMPORARY BENTS

VICTOR RYZHIKOV — STATE OF WASHINGTON — 29011 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

PARSONS BRINCKERHOFF 8/6/13

Bridge Design Engr.	Ryzhikov, V		
Supervisor	Poulson, J		
Designed By	Vanek, C	06/13	
Checked By	Rudie, C	06/13	
Detailed By	Vanek, C	06/13	
Bridge Projects Engr.			
Prelim. Plan By			
Architect/Specialist			

T:\Sys\WSDOT_Skagit_River\FinishGrade01.dgn

DATE	REVISION	BY	APP'D

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				

Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

FINISH GRADE ELEVATIONS (1 OF 2)

BRIDGE SHEET NO. P-17

SHEET 17 OF 20 SHEETS

SR 5 FILE NO. ____ SHEET 17

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TABLE OF BRIDGE DECK FINISH GRADE ELEVATIONS

	SPAN 8														
	1 BEGIN SPAN	2 ℄ PIER 8	3 ℄ BEARING	4	5	6	7	8 MIDSPAN	9	10	11	12	13 ℄ BEARING	14 ℄ PIER 9	15 END SPAN
STATION	234+42.15	234+42.38	234+43.75	234+59.75	234+75.75	234+91.75	235+07.75	235+23.75	235+39.75	235+55.75	235+71.75	235+87.75	236+03.75	236+04.69	236+05.14
LEFT COPING/TRAFFIC BARRIER	64.938	64.937	64.928	64.825	64.713	64.590	64.459	64.317	64.166	64.005	63.835	63.655	63.466	63.454	63.449
LEFT CURBLINE (SB)	64.951	64.950	64.941	64.838	64.726	64.603	64.472	64.330	64.179	64.018	63.848	63.668	63.479	63.467	63.462
℄ BEAMLINE 1	64.972	64.971	64.962	64.859	64.747	64.624	64.492	64.351	64.200	64.039	63.869	63.689	63.500	63.488	63.483
℄ BEAMLINE 2	65.048	65.046	65.038	64.935	64.822	64.700	64.568	64.427	64.275	64.115	63.945	63.765	63.575	63.564	63.558
℄ BEAMLINE 3	65.123	65.122	65.113	65.010	64.898	64.775	64.643	64.502	64.351	64.190	64.020	63.840	63.651	63.639	63.634
℄ BEAMLINE 4	65.199	65.197	65.189	65.086	64.973	64.851	64.719	64.578	64.427	64.266	64.096	63.916	63.726	63.715	63.709
RIGHT CURBLINE (SB)	65.240	65.239	65.230	65.127	65.015	64.893	64.761	64.619	64.468	64.308	64.137	63.957	63.768	63.757	63.751
PGL NB & SB	65.251	65.249	65.241	65.138	65.025	64.903	64.771	64.630	64.479	64.318	64.148	63.968	63.778	63.767	63.761
LEFT CURBLINE (NB)	65.240	65.239	65.230	65.127	65.015	64.893	64.761	64.619	64.468	64.308	64.137	63.957	63.768	63.757	63.751
℄ BEAMLINE 5	65.199	65.197	65.189	65.086	64.973	64.851	64.719	64.578	64.427	64.266	64.096	63.916	63.726	63.715	63.709
℄ BEAMLINE 6	65.123	65.122	65.113	65.010	64.898	64.775	64.643	64.502	64.351	64.190	64.020	63.840	63.651	63.639	63.634
℄ BEAMLINE 7	65.048	65.046	65.038	64.935	64.822	64.700	64.568	64.427	64.275	64.115	63.945	63.765	63.575	63.564	63.558
℄ BEAMLINE 8	64.972	64.971	64.962	64.859	64.747	64.624	64.492	64.351	64.200	64.039	63.869	63.689	63.500	63.488	63.483
RIGHT CURBLINE (NB)	64.951	64.950	64.941	64.838	64.726	64.603	64.472	64.330	64.179	64.018	63.848	63.668	63.479	63.467	63.462
RIGHT COPING/TRAFFIC BARRIER	64.938	64.937	64.928	64.825	64.713	64.590	64.459	64.317	64.166	64.005	63.835	63.655	63.466	63.454	63.449

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Date: 8/6/13, TRW

VICTOR RYZHIKOV
STATE OF WASHINGTON
29711
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
8/6/13

NOTES:

1. FOR SUPERSTRUCTURE SECTION, SEE SHEET P-6.
2. FOR EXPANSION JOINT DATA, SEE SHEET P-19.
3. FOR DIAPHRAGM DETAILS, SEE SHEET P-14 THRU P-15.
4. WORK THIS SHEET WITH SHEET P-17

SR 5 FILE NO. ____ SHEET 18

Bridge Design Engr.	Ryzhikov, V	T:\Sys\WSDOT_Skagit_River\FinishGrade02.dgn	
Supervisor	Poulson, J		
Designed By	Vanek, C 06/13		
Checked By	Rudie, C 06/13		
Detailed By	Vanek, C 06/13		
Bridge Projects Engr.			
Prelim. Plan By			
Architect/Specialist		DATE REVISION BY APP'D	

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				

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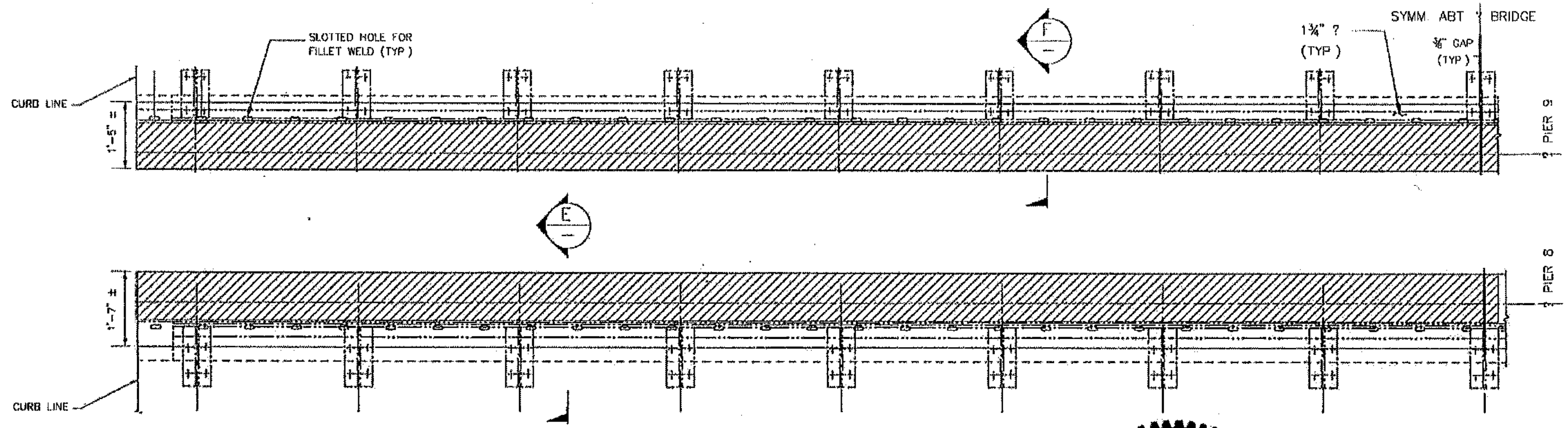
Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

FINISH GRADE ELEVATIONS (2 OF 2)

BRIDGE SHEET NO. P-18

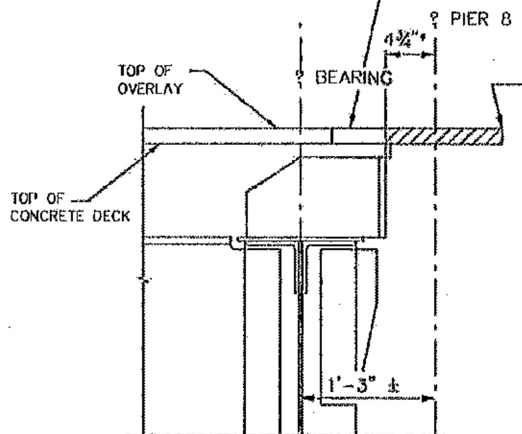
SHEET 18 OF 20 SHEETS



PLAN

LEGEND:

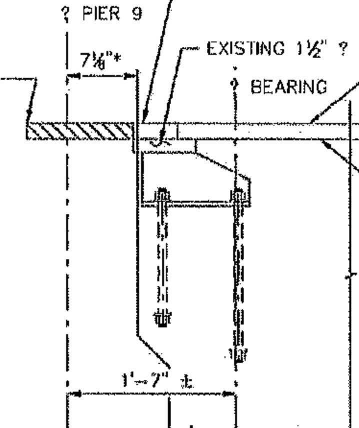
EXISTING STRUCTURE TO BE REMOVED



SECTION E

PIER 8 SHOWN

EXISTING 1¾" STL. ? TO BE REMOVED AS SHOWN

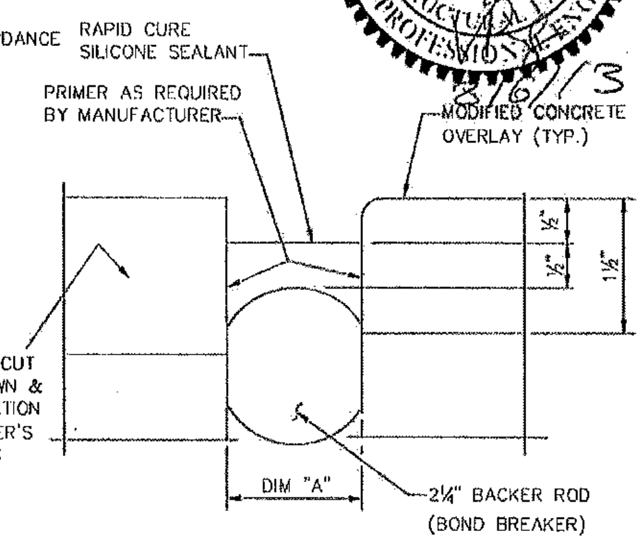


SECTION F

PIER 9 SHOWN

EXISTING STEEL ? CUT PER DETAILS SHOWN & SURFACE PREPERATION PER MANUFACTURER'S RECOMMENDATIONS

* MEASURED ALONG PGL NB & SB



EXPANSION JOINT DETAIL

DIM "A" = 2.234" (PIER 8) & 1.984" (PIER 9) @ 40°F
DIM "A" = 2" (PIER 8) & 1.75" (PIER 9) @ 64°F
DIM "A" = 1.844" & 1.594" (PIER 9) @ 80°F
DIM "A" SHALL BE ADJUSTED BY 0.097"
PER 10°F PERPENDICULAR TO ? EXPANSION JOINT

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Date: 8/6/13, TRW

NOTES:

1. RAPID CURE SILICONE SEALANT SHALL BE DOW CORNING 902 RCS JOINT SEALANT OR APPROVED EQUAL AND SHALL MEET THE REQUIREMENTS OF SPECIFICATION 9-04.2(2).
2. EXPANSION JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATION 6-02.3(13)

CONSTRUCTION STEPS:

1. PLACE MODIFIED CONCRETE OVERLAY TO FINAL RDW'Y ELEVATION.
2. REMOVE FORM FROM JOINT OPENING AND LIGHTLY SANDBLAST TO REMOVE ALL RESIDUE.
3. AFTER MOVING SPAN INTO FINAL POSITION PLACE AND EXISTING JOINT TOP PLATE IS CUT AND PREPARED, PLACE AN APPROPRIATELY SIZED BACKER ROD TO THE CORRECT DEPTH IN JOINT OPENING IN ACCORDANCE WITH SEALANT MANUFACTURER'S DIRECTIONS
4. PLACE RAPID CURE SILICON SEALANT IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS

SR 5 FILE NO. ____ SHEET 19

Bridge Design Engr.	Ryzhikov, V	
Supervisor	Poulson, J	
Designed By	Vanek, C	06/13
Checked By	Rudie, C	06/13
Detailed By	Vanek, C	06/13
Bridge Projects Engr.		
Prelim. Plan By		
Architect/Specialist		

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DATE | REVISION | BY | APP'D

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			

JOB NUMBER

PARSONS BRINCKERHOFF

Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

EXPANSION JOINT DETAILS

BRIDGE SHEET NO. P-19

SHEET 19 OF 20 SHEETS

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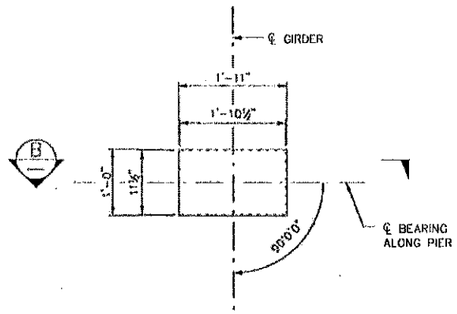
BEARING DESIGN TABLE AASHTO METHOD B DESIGN	
SERVICE – I LIMIT STATE	
DEAD LOAD (DL) REACTION	120.9 KIPS
LIVE LOAD REACTION (W/O IMPACT)	121.3 KIPS
UNLOADED HEIGHT	3.45 IN
LOADED HEIGHT (DL)	3.39 IN
SHEAR MODULUS	165 PSI

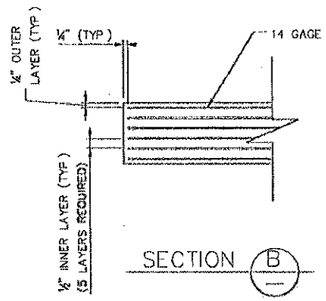
Max. J Kuney Construction

RELEASED FOR CONSTRUCTION

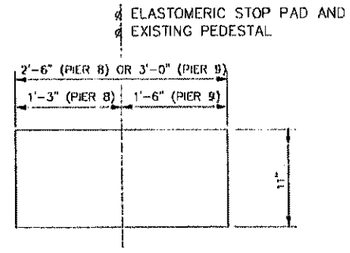
Date: 7/9/13



BEARING PAD DETAIL

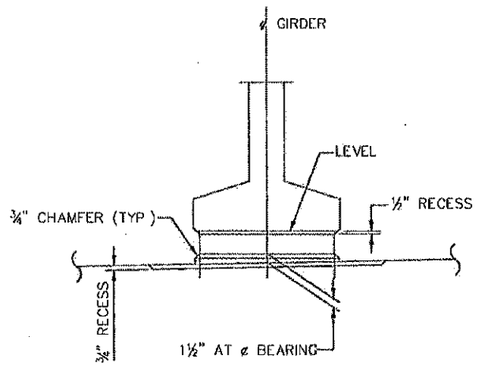


SECTION B

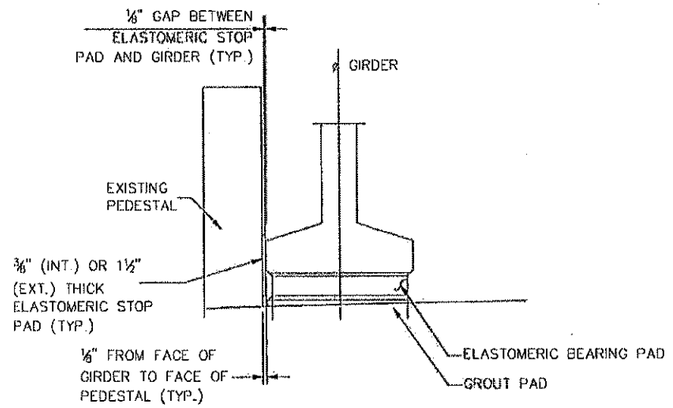


ELASTOMERIC STOP PAD

SHEAR MODULUS = 165 PSI



GROUT PAD ELEVATION



SECTION A

VICTOR RYZHIKOV
STATE OF WASHINGTON
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

7/9/13

SR 5 FILE NO. ____ SHEET 20

Bridge Design Engr.	Ryzhikov, V	T:\Sys\WSDOT_Skagit_River\Bearing_Detail.dgn				REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	PARSONS BRINCKERHOFF
Supervisor	Paulson, J					10	WASH.				
Designed By	Vanek, C 06/13					JOB NUMBER					
Checked By	Rudie, C 06/13										
Detailed By	Vanek, C 06/13										
Bridge Projects Engr.											
Prelim. Plan By											
Architect/Specialist		DATE	REVISION	BY	APP'D						

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Washington State Department of Transportation

I-5 SKAGIT RIVER BRIDGE
SPAN 8 REPLACEMENT

BEARING PAD DETAILS

BRIDGE SHEET NO. P-20

SHEET 20 OF 20 SHEETS