STRUCTURAL STEEL NOTES

1. ALL STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL CONFORM TO ASTM A572 EXCEPT MEMBER MARKED "B" MAY BE FABRICATED FROM GRADE 36 STEEL.

2. STEEL HSS TUBES SHALL CONFORM TO ASTM A500 GRADE B.

3. STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B.

4. STAINLESS STEEL SHALL CONFORM TO ASTM A276, TYPE 304 OR 304L (FOR WELDING).

5. HIGH STRENGTH BOLTS (DESIGNATED BY H.S. IN THE PLANS) SHALL CONFORM TO AASHTO M 214.

6. BELTS SPECIFIED IN THE PLANS AS STAINLESS STEEL SHALL CONFORM TO ASTM A491, CLASS 2 GRADE 50.

7. BELTS, NUTS AND WASHERS NOT DESIGNATED AS STAINLESS STEEL, OR HIGH STRENGTH STEEL SHALL CONFORM TO SECTION B.06-03(1) OF THE STANDARD SPECIFICATIONS.

8. ALL RESIN BONDED ANCHORS SHALL BE STAINLESS STEEL ALLOY 316 AND SHALL CONFORM TO SECTION 6-02.2 AND 6-02.31B IN THE SPECIAL PROVISIONS.

9. ANCHOR BOLTS SHALL CONFORM TO ASTM F 755.

10. UNLESS OTHERWISE NOTED, ALL NON-STAINLESS STEEL COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 318 AFTER FABRICATION. NON-STAINLESS STEEL BELTS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 282.

11. UNLESS OTHERWISE NOTED, STEEL COMPONENTS SPECIFIED AS BEING PAINTED SHALL NOT BE GALVANIZED.

12. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1, LATEST EDITION. ALL WELDING SHALL BE IN ACCORDANCE WITH LOW HYDROGEN PRACTICES AND DONE TO MINIMIZE Distortion. THE WELDING SEQUENCES AND PROCEDURES TO BE USED SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF WELDING.

GENERAL NOTES

1. THERE ARE ELEMENTS REPRESENTED IN THESE PLAN DOCUMENTS THAT ARE FURNISHED BY THE STATE. THE DESIGN-BUILDER SHALL TAKE NOTE OF THIS. SEE SECTION 2.12 OF THE REQUEST FOR PROPOSALS (RFP) FOR THE DESIGN-BUILDER RESPONSIBILITIES.

2. ALL MATERIAL AND WORKSHOPS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2020, AND AMENDMENTS.

3. THESE FOUNTIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 9TH EDITION 2010. THESE FOUNTIONS HAVE BEEN DESIGNED AS PART OF A STRUCTURAL SYSTEM AS DEFINED IN THE "SR 520 EVERGREEN POINT FLOATING BRIDGE" AND LANDSCAPE PROJECT REQUEST FOR PROPOSAL (RFP) DATED 12/6/2010 AND ADDENDUMS THROUGH 4/1/2011, INCLUDING APPENDIXES A12, M20, M28, AND M35. THESE FOUNTIONS ARE ONLY WARRANTED FOR THAT STRUCTURAL SYSTEM. THESE FOUNTIONS HAVE NOT BEEN DESIGNED FOR LOADS DUE TO FOUNTION HANDLING, INCLUDING TOWING.

ALLOWABLE LOCAL LOADS NOTES

1. THE ALLOWABLE ELEVATED STRUCTURAL LOCAL LOADS ON THE PONTOONS ARE PROVIDED FOR EACH UNIT STATE IN THE TABLES ON BR. 406, 506, 607 AND 508. THESE ARE THE MAXIMUM LOADS THAT MAY BE IMPOSED ON THE PONTOONS BY THE ELEVATED STRUCTURE AT INDIVIDUAL CONNECTIONS.

2. THE SIGN CONVENTION USED IN THE TABLES IS BASED ON A CARTESIAN COORDINATE SYSTEM THAT FOLLOWS THE "RIGHT-HANDED RULE." THE ORIENTATION OF THE X AND Y AXES ARE SHOWN ON THE ELEVATED STRUCTURE TO PONTOON CONNECTION LAYOUT SHEETS.

3. THE ALLOWABLE LOADS IMPOSED ARE PROVIDED ABOUT THE WORK POINTS SHOWN IN THE ELEVATED STRUCTURE TO PONTOON CONNECTION DETAILS. THE HORIZONTAL LOCATIONS OF WORK POINTS ARE SHOWN IN THE CONNECTION DETAILS. THE VERTICAL LOCATIONS OF WORK POINTS IS THE TOP OF THE PONTOON DECK FOR ALL CONNECTION TYPES.

4. THE LOADS IMPOSED BY THE ELEVATED STRUCTURE SHALL BE DISTRIBUTED OVER THE ENTIRE LOAD APPLICATION AREAS SHOWN IN THE CONNECTION DETAILS.

5. THE LOADS IMPOSED SHALL BE DETERMINED BY THE DESIGN-BUILDER USING AN ANALYTICAL MODEL THAT INCORPORATES THE STIFFNESS EFFECTS OF THE SUPPORTING PONTOONS AND WATER DISPLACEMENT (BEAM ON ELASTIC FOUNDATION).

6. THE DRAFT AND FEED-BACK REQUIREMENTS OF RFP SECTION 2.12 MAY GOVERN OVER THE ALLOWABLE LOCAL LOADS PRESENTED IN THE TABLES.

7. THE ALLOWABLE GLOBAL LOADS IMPOSED ON THE PONTOONS BY THE ELEVATED STRUCTURE MAY GOVERN OVER THE ALLOWABLE LOCAL LOADS PRESENTED IN THE TABLES.

ABBREVIATIONS LIST

E.F. - EACH FACE
N.F. - NEAR FACE
P.F. - FAR FACE

APPENDIX M23
OUTFITTING & ASSEMBLY
TECHNICAL REQUIREMENTS
NOTES

Washington State Department of Transportation
BRIDGE AND STRUCTURES OFFICE
PONTOON ASSEMBLY

* Pontoons grouped for clarity

MATCH LINE A

= Pontoons and SSPs constructed for the B-Line configuration

= SSPs added for the future widening configuration

APPENDIX M23
OUTFITTING & ASSEMBLY
TECHNICAL REQUIREMENTS

Washington State Department of Transportation
BRIDGE AND STRUCTURES OFFICE

PONTOON ASSEMBLY LAYOUT
GENERAL ASSEMBLY NOTES:

1. PLAT JACKS SHALL BE USED TO ACCOMODATE IRREGULARITIES AND ANY ADJUSTMENTS, TO MAINTAIN PONTOON ALIGNMENT, OF THE GROUNDT. THE DESIGN-BUILDER SHALL SUBMIT FOR APPROVAL DETAILS OF THE PLAT JACKS.

2. THE CONCRETE BELOW THE PLAT JACKS SHALL BE SMOOTH TO GIVE UNIFORM BEARING FOR THE PLAT JACKS FORCES.

3. PROVIDE 37 MIN. CLEARANCE BETWEEN THE PLAT JACKS & THE CONFOCERED CONCRETE SEAL FOR GROUDT PLACEMENT.

4. THE DESIGN-BUILDER SHALL ACCURATELY LOCATE THE BOLT SLEEVES. THE DESIGN-BUILDER SHALL VERIFY THAT THE BOLT SLEEVES OF ALIACENT PONTOONS ARE ALIGNED.

5. THE DESIGN-BUILDER SHALL SUBMIT A PLAN INDICATING ON WHICH SIDE OF EACH PONTOON THE NEOPRENE SHEET IS INSERTED.

6. THE DESIGN-BUILDER SHALL PROVIDE AN INITIAL CLAMPING FORCE, CONCENTRICALLY APPLIED TO THE PLAT JACKS, SUFICIENT TO MAINTAIN PRESTRESS OF THE GROUDT UNTIL COMPLETION OF TEMPORARY BOLT TENSIONING. THIS CLAMPING FORCE IS IN ADDITION TO THE FORCES REQUIRED TO COMPRESS THE SEAL AND IS TO PROVIDE A ROUGH PONTOON INTERFACE DURING HARDENING OF THE GROUDT. AFTER TEMPORARY BOLT TENSIONING THE PLAT JACKS SHALL BE DEPRESSURIZED AND PRESSURE AIR PREDICTED.


8. THE MAXIMUM ALLOWABLE LOADS ON EACH ALIGNMENT KEY SHALL BE:
   VERTICAL FORCE = 420 KIPS
   HORIZONTAL FORCE = 500 KIPS

ASSEMBLY TENDON NOTES:

1. EACH ASSEMBLY TENDON SHALL HAVE A MINIMUM OF 13 STRANDS. THE MINIMUM PRESTRESSING LOAD AFTER SEATING FOR EACH ASSEMBLY TENDON SHALL BE AS FOLLOWS:
   LIVE END = 654 KIPS
   DEAD END = 672 KIPS
   "LIVE END" REFERS TO THE END WHERE JACCKING OCCURS
   "DEAD END" REFERS TO THE END WHERE JACCKING DOES NOT OCCUR.

2. THE DESIGN IS BASED ON 0.6-INCH DIAMETER LOW RELAXATION STRANDS, AN ANCHOR SET OF 3.5 INCH, A CURVATURE FRICTION COEFFICIENT, μ = 0.25, A WORKABLE COEFFICIENT, K = 1.00, THE SFSP TYPICAL, AND A JACCKING LOAD OF 904 KIPS. THE ACTUAL ANCHOR SET AND JACCKING LOAD USED BY THE DESIGN-BUILDER SHALL BE SPECIFIED IN THE SHOP PLANS AND INCLUDED IN THE TRANSFER FORCE CALCULATIONS.

3. THE DESIGN IS BASED ON AN ESTIMATED ADDITIONAL PRESTRESS LOSS OF POST-TENSIONED PRESTRESSING STRANDS OF 27 KIPS DUE TO STEEL RELAXATION, ELASTIC SHORTENING, ORE, AND SHRINKAGE OF CONCRETE.

4. ALL ASSEMBLY TENDONS MAY BE STRESSSSED FROM ONE END.

5. ASSEMBLY TENDON DUCT SPLICE LOCATIONS ARE CONCEPTUAL. THE DESIGN-BUILDER SHALL DETERMINE DUCT SPLICE LOCATIONS.


ASSEMBLY BOLT TABLE & NOTES:

<table>
<thead>
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<th>JOINT LOCATION</th>
<th>BOLT SIZE (IN.)</th>
<th>FINAL LOAD (KIPS)</th>
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<tr>
<td>TYPE 1 TO TYPE 23A</td>
<td>3</td>
<td>750</td>
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1. ASSEMBLY BOLTS SHALL BE ASTM A36 GRADE B, 1/2 THREADS PER INCH WITH 2 CIRCULAR HARDENED WASHERS AND 2 HEAVY HEX NUTS. PROVIDE 1/2" OF THREADS ON EACH END OF THE BOLT. ASSEMBLY BOLTS, NUTS, AND BEARING PLATES SHALL BE SLEEVED. UNEVENTURED PORTIONS OF THESE COMPONENTS SHALL BE PAINTED WITH AN INORGANIC ZINC-RICH PRIMER IN ACCORDANCE WITH STD. SPEC. 0-073-05B.

2. NUTS FOR ASSEMBLY BOLTS SHALL CONFORM TO ASME BS4700 GRADE 9F. HARDENED WASHERS FOR ASSEMBLY BOLTS SHALL CONFORM TO ASHRAE PAS.

3. STEEL PLATES AND SHAFTS SHALL CONFORM TO ASTM A500, EXCEPT AS NOTED.

4. TEMPORARY SUPPORT PLATES TO CENTER ASSEMBLY BOLTS IN THE BOLT SLEEVE. REMOVE SUPPORTS AFTER SEATING.

5. ASSEMBLY BOLT THREADS SHALL BE PROTECTED AGAINST DAMAGE DURING HANDLING AND INSTALLATION.

6. ASSEMBLY BOLTS SHALL BE TENSIONED IN THE PIPE FRAME PLUS OR MINUS 2 PERCENT. TENSION BOLT BY JACCKING TO THE FINAL LOAD, TIGHTENING THE NUT AND RELEASING THE JACK. EXTENSION BOLT AND TIGHTEN NUT UNTIL A UTILITY TEST SHOWS THE BOLT TO BE TENSIONED TO THE FINAL LOAD WHEN THE JACK IS RELEASED.

7. THE DESIGN-BUILDER SHALL SUBMIT AN ASSEMBLY BOLT TENSIONING PLAN.

8. ALL ASSEMBLY BOLTS SHALL BE TENSIONED PRIOR TO TENSIONING ASSEMBLY TENDONS.

INJECTION / EXHAUST PORT NOTES:

1. NORMAL PORT DIAMETER SHALL BE 1/2" TAP FOR 1/2" DIAMETER STD. PIPE THREADS.

2. INSTALL INJECTION / EXHAUST PORT ABOVE ASSEMBLY BOLT ON BOLT CENTERLINE.

3. LOCATE PORT TO ACCESS ANNULAR SPACE BETWEEN ASSEMBLY BOLT AND BOLT SLEEVE. PORT SHALL CLEARLY BE MARKED HARDENED WASHED.

4. PLUG INJECTION PORT WITH TAPED BOLTS PLUG PRIOR TO PAINTING.

5. WORKING DRAWINGS SHALL SHOW ORIENTATION OF EXHAUST AND INJECTION PORTS WITH RESPECT TO SIDE WALLS AND PILEFLIES. THESE DRAWINGS SHALL ALSO INDICATE WHICH SIDE OF THE BOLTED JOINT WILL BE UTILIZED FOR THE INJECTION PORT AND FOR THE EXHAUST PORT.

ASSEMBLY KEY

[Diagram showing assembly key with symbols and labels for SSP, Type 1, Type 15A, Type 23A, etc.]

APPENDIX M23
OUTFITTING & ASSEMBLY TECHNICAL REQUIREMENTS
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
BRIDGE AND STRUCTURES OFFICE
PONTOON ASSEMBLY NOTES & KEY
BEARING PLATE
TYPE 1 & 1A END VIEW
END OF LONGITUDINAL PONTOON
SHOWN AT 17, 1/4" W; ALIGNMENT ACCESS SIMILAR

SECTION A
DECK SLAB BOLT BEAM
LOCAL GRID SHOWN

SECTION B
WALL BOLT BEAM
LOCAL GRID SHOWN

SECTION C
KEEL SLAB BOLT BEAM
LOCAL GRID SHOWN

INJECTION/EXHAUST PORT FOR GROUT
SEE INJECTION/EXHAUST PORT NOTES
BK. BHT. A2

CENTER PONT ON
8° BEVEL
45° BEVEL
45° BEVEL
8° BEVEL

ASSEMBLY BOLT
BEARING PLATE
NUT & WASHER
NUT & WASHER

ASP. (TYP.)
CIRCULAR RUBBER SEAL (TYP.)
PERIMETER RUBBER SEAL

4/8" NEDRENE SHEET (TYP.)
FULLY BONDED TO END WALL

FLAT JACK (TYP.)

DCOLONIAL (TYP.)
LOCAL (TYP.)
ALIGNMENT KEY (TYP.)

2/3" TYP.
2/3" TYP.
4/8" TYP.

APPENDIX M23
OUTFITTING & ASSEMBLY
TECHNICAL REQUIREMENTS
PONTOON ASSEMBLY DETAILS I

Washington State
Department of Transportation
BRIDGE AND STRUCTURES OFFICE
NAVIGATION LIGHT, CCTV, JIB CRANE LAYOUT

TYPICAL NAVIGATION LIGHT / CCTV LAYOUT

NOTE:
SEE APPENDIX M1 AND M2 DRAWINGS FOR LOCATIONS OF DECK SLAB PENETRATIONS, EMBEDDED COUPLERS IN DECK SLAB, AND RAILING POST LOCATIONS.
**FENDER ASSEMBLY**

- FENDER ASSEMBLY 1 SHOWN (28 REQUIRED)
- FENDER ASSEMBLY 2 AS SHOWN (4 REQUIRED)
- ALL PLATES ARE A588 PLATE, GALVANIZED AFTER ASSEMBLY
- FILLET WELD ALL STEEL CONNECTIONS BOTH SIDES

**SECTION A**

- DC EXTRUDED FENDER, UHMW-PE BLOCK AND HARDWARE NOT SHOWN FOR CLARITY.

**SECTION B**

- ASSEMBLY SYMMETRICAL ABOUT E-AXIS.
- FENDER ASSEMBLY 2 ONLY.

**SECTION C**

- UHMW-PE BLOCK DETAIL

---

**APPENDIX M23**

OUTFITTING & ASSEMBLY TECHNICAL REQUIREMENTS

MARINE FENDER ASSEMBLY DETAILS
See drilling details for holes. (Typ.)

Panel A

Panel B

Panel C

Panel D

Panel E

Panel F & G

Drill Detail

Notes:
1. Hole spacing based on Appendix M1 inhibit layout, field verify before drilling, and counterboring panels.
2. All counterbores for panels are shown.
3. All panels 2½" thick unawn.

Marine Fender Panel Details

Washington State Department of Transportation
Bridges and Structures Office

APPENDIX M23
OUTFITTING & ASSEMBLY
TECHNICAL REQUIREMENTS

MANUFACTURER'S DRAWING

E1200004

9/11/2000

Sketch No.

Rev.

Scale

Date

By
PONTOO ANCHOR DATA

SSP ANCHOR DATA
SEE TABLE FOR DIMENSIONS

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APPROXIMATE LAKE BOTTOM

TYPICAL FLUKE ANCHOR

TYPICAL FLUKE ANCHOR

TYPICAL FLUKE ANCHOR

TYPICAL GRAVITY ANCHOR

TYPICAL FLUKE ANCHOR

TYPICAL FLUKE ANCHOR

TYPICAL FLUKE ANCHOR

PROJECT LAKE LEVEL ELEV. 18.72
ELEVATED STRUCTURE TO PONTOON CONNECTIONS

PONTOON TYPES 1, 1A, & 2.
CONNECTION TYPES 17 & 18
* LOCAL GRIDINES FOR PONTOON TYPES 3 AND 5A SHOWN.

CONNECTION TYPE 19
* LOCAL GRIDINES FOR PONTOON TYPES 3 AND 5A SHOWN.
## STRENGTH LIMIT STATE ALLOWABLE IMPOSED LOCAL LOADS TABLE

| CONNECTION TYPE | Fx MAX (KIP) | Fx MIN (KIP) | Fy MAX (KIP) | Fy MIN (KIP) | Fz MAX (KIP) | Fz MIN (KIP) | Mx MAX (KIP-FT) | Mx MIN (KIP-FT) | My MAX (KIP-FT) | My MIN (KIP-FT) | Mz MAX (KIP-FT) | Mz MIN (KIP-FT) |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 1              | 3,200        | -3,200       | 640          | -500         | 0            | -4,600       | 4,600          | -6,000         | 4,600          | -6,000         | 180            | -180           |
| 2              | 3,200        | -3,200       | 900          | -600         | 0            | -6,000       | 4,500          | -6,000         | 4,500          | -6,000         | 180            | -180           |
| 3              | 3,200        | -3,200       | 800          | -500         | 0            | -2,600       | 4,600          | -6,000         | 4,500          | -6,000         | 180            | -180           |
| 4              | 3,200        | -3,200       | 450          | -200         | 110          | -1,710       | 0              | 0              | 0              | 0              | 0              | 0              |
| 5              | 3,200        | -3,200       | 900          | -900         | 110          | -1,710       | 0              | 0              | 0              | 0              | 0              | 0              |
| 6              | 3,200        | -3,200       | 900          | -200         | 110          | -1,710       | 0              | 0              | 0              | 0              | 0              | 0              |
| 7              | 2,100        | -450         | 450          | -750         | 0            | -1,800       | 4,500          | -6,000         | 4,500          | -6,000         | 180            | -180           |
| 8              | 2,100        | -450         | 2,570        | -350         | 0            | -1,800       | 4,500          | -6,000         | 4,500          | -6,000         | 180            | -180           |
| 9              | 450          | -2,100       | 450          | -1290        | 0            | -1,800       | 4,500          | -6,000         | 4,500          | -6,000         | 180            | -180           |
| 10             | 450          | -2,100       | 2,570        | -192         | 0            | -1,800       | 4,500          | -6,000         | 4,500          | -6,000         | 180            | -180           |
| 11             | 450          | -2,100       | 450          | -525         | 60           | -1,030       | 0              | 0              | 0              | 0              | 0              | 0              |
| 12             | 450          | -2,100       | 1,550        | -430         | 60           | -1,030       | 0              | 0              | 0              | 0              | 0              | 0              |
| 13             | 2,100        | -450         | 450          | -1,089       | 60           | -1,030       | 0              | 0              | 0              | 0              | 0              | 0              |
| 14             | 2,100        | -450         | 1,550        | -1,000       | 60           | -1,030       | 0              | 0              | 0              | 0              | 0              | 0              |
| 15             | 2,100        | -2,100       | 450          | -1,030       | 60           | -1,030       | 0              | 0              | 0              | 0              | 0              | 0              |
| 16             | 2,100        | -2,100       | 1,530        | -192         | 60           | -1,030       | 0              | 0              | 0              | 0              | 0              | 0              |
| 17             | 900          | -900         | 900          | -900         | 0            | -1,100       | 500            | -650           | 600            | -450           | 180            | -180           |
| 18             | 900          | -900         | 900          | -900         | 0            | -1,100       | 400            | -400           | 400            | -400           | 180            | -180           |
| 19             | 630          | -630         | 630          | -630         | 0            | -4,500       | 18,000         | -18,000        | 18,000         | -18,000        | 18,000         | -18,000        |

**Table Notes:**
The allowable elevated structure local loads on the piers shown in the table apply to load combinations for the strength limit state only. These are the maximum local loads that may be imposed on the piers by the elevated structure at individual connections.

---

**APPENDIX M23 OUTFITTING & ASSEMBLY TECHNICAL REQUIREMENTS**

**ALLOWABLE LOCAL LOADS**

**STRENGTH LIMIT STATE**
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<th>Connection Type</th>
<th>Px Max (kips)</th>
<th>Px Min (kips)</th>
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</table>

**NOTE:** The allowable elevated structure local loads on the piers given in this table are for the extreme event limit state only. These are the maximum local loads that may be imposed on the piers by the elevated structure at individual connections.
| CONNECTION TYPE | Fx MAX (KIP) | Fx MIN (KIP) | Fy MAX (KIP) | Fy MIN (KIP) | Fz MAX (KIP) | Fz MIN (KIP) | Mx MAX (KIP•FT) | Mx MIN (KIP•FT) | My MAX (KIP•FT) | My MIN (KIP•FT) | Mz MAX (KIP•FT) | Mz MIN (KIP•FT) |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 1              | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 2              | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 3              | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 4              | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 5              | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 6              | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 7              | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 8              | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 9              | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 10             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 11             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 12             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 13             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 14             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 15             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 16             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 17             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 18             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |
| 19             | 2,400        | -2,400       | 2,400        | -2,400       | 0            | -2,000       | 0              | -5,000         | 0              | -5,000         | 0              | -5,000         | 0              |

**TABLE NOTES:**

The allowable elevated structure local loads on the pontoons provided in the table apply to load combinations for the service limit state only. These are the maximum local loads that may be imposed on the pontoons by the elevated structure at individual connections.
CABLE ADJUSTMENT TRACK NOTES

1. All steel, except anchor cable socket, shall be painted in accordance with Section 0-073(8) of the Standard Specifications.

2. Unless otherwise noted, structural steel for the cable adjustment device shall conform to AASHTO M 164 Type 5 and the requirements of Section 9-00-5(3), of the Standard Specifications.

3. The anchor cable shall be HDG steel, and the anchor cable shall comply with Section 9-00-5(3), of the Standard Specifications.

4. The anchor cable shall be HDG steel, and the anchor cable shall comply with Section 9-00-5(3), of the Standard Specifications.

5. The anchor cable shall be HDG steel, and the anchor cable shall comply with Section 9-00-5(3), of the Standard Specifications.

6. The anchor cable shall be HDG steel, and the anchor cable shall comply with Section 9-00-5(3), of the Standard Specifications.

7. The anchor cable shall be HDG steel, and the anchor cable shall comply with Section 9-00-5(3), of the Standard Specifications.

8. The anchor cable shall be HDG steel, and the anchor cable shall comply with Section 9-00-5(3), of the Standard Specifications.

SECTION

CABLE CROSSHEAD

NOT SHOWN FOR CLARITY

SHIM TYPE A SIMILAR

SHIM AS REQUIRED AT CABLE CROSSHEAD

CABLE TRACK AND CHECK PLATES

CONSTRUCTED IN CONFORM TO TABLE 9.4 (TYP.)

CABLE SOCKET AND PIN

SEE BR. SHT. A03 FOR DETAILS

CABLE CROSSHEAD

SEE BR. SHT. A03 FOR DETAILS

SHIM TYPE A

NUMBER OF SHIMS REQUIRED PER CABLE

= 4 @ 1" THICK

= 2 @ 1½" THICK

= 2 @ 1½" THICK

SHIM TYPE B

NUMBER OF SHIMS REQUIRED PER CABLE = 6

WITH 2 @ 1½" HIGH-STRENGTH BOLTS PER SHIM

THE BOLT LENGTH SHALL BE THE SAME AS THE BOLTS PROVIDED FOR THE DOUBLE CHECK PLATES.
ELEVATION - SHOE

ALL RADIUS MEASURED FROM SAME POINT (U.N.O.)

SECTION A

DETAIL 1

BOTH ENDS

DETAIL 2

1/8" x 1/16" FTPG SHEET:
FACTORY BENDED TO CURVED SHAPE & MACHINED AS SHOWN
Hawse Pipe Cover Notes

1. Unless otherwise noted, structural steel for the hawse pipe cover shall conform to ASTM A 572.

2. Unless noted otherwise, bolts shall conform to ANSI/ASME A193 B16.1 and the requirements of Section B-06.03 of the standard specifications.

3. Bolts specified as stainless steel shall conform to ASTM A 479, Class 2 grade B440; nuts shall conform to ASTM A 194, Grade 2H.

4. Steel components shall be galvanized in accordance with ASTM A 714 M 111A. After fabrication, non-stainless steel bolts and hardware shall be galvanized in accordance with ASTM A 723.

5. Neoprene gasket and boot shall be diameter 50.

6. Field verify existing insert locations before fabricating cover plate.

Hawse Pipe Cover Assembly

Pontoon Types 1, 1A, 3 & 3A Shown. Pontoon Types 4 & 4A Similar.
NOTES:
1. CELL IDS ARE SHOWN FOR DIFFERENT PONTIIONS. SEE DK. SHT. M & AS FOR PONTIION ASSEMBLY LAYOUT.
2. WV. SHT: ID FOR GLOBAL CELL AND WALL NAME CONVENTIONS AND EFF. 2/12 FOR CREATING PONTIION AND DEP. CELL IDS.
3. SEE APPENDIX M1 FOR EXTERNAL FEATURES.

KEY

- UPPER LEVEL PLATFORM & WATERTIGHT DOOR
- LOWER LEVEL PLATFORM & WATERTIGHT DOOR
- WALL OPENING DECK
- ANCHOR GALLERY
- PONTION DECK ACCESS OPENING & LADDER
- ANCHOR GALLERY SLAB
- ACCESS OPENING & LADDER
- LADDER

DECK HATCH ID
PONTIIONS B SHOWN. PONTIIONS C TO V SIMILAR

CELL ID PLAN
PONTIIONS B SHOWN. PONTIIONS C TO V SIMILAR

APPENDIX M23
OUTFITTING & ASSEMBLY
TECHNICAL REQUIREMENTS
ID PLANS
PONTIIONS B TO V

Washington State Department of Transportation
BRIDGE AND STRUCTURES OFFICE
SECTION B

SECTION C
NOTES:
1. CELL IDS ARE SHOWN DIFFERENT PONTOON LOCATIONS. SEE BK. SHEET A1 & A2 FOR PONTOON ASSEMBLY LAYOUT. BK. SHEET 101 FOR OIL Cell AND WALL MAKE CONVENTIONS AND REF. 2.5 FOR CREATING PONTOON AND SAFETY CELL IDS.
2. SEE BK. SHEET 102 FOR DETAILS LOCATING Cell IDS.
3. SEE APPENDIX M23 FOR EXTERNAL FEATURES.

KEY
- UPPER LEVEL PLATFORM & WATER-PROOF DOOR (SWING AS INDICATED ON PLAN)
- LOWER LEVEL PLATFORM & WATER-PROOF DOOR (SWING AS INDICATED ON PLAN)
- WALL OPENING BELOW ANCHOR GALLERY
- PONTOON DOCK ACCESS OPENING & LADDER
- ANCHOR GALLERY LADDER
- ACCESS OPENING & LADDER

APPENDIX M23
OUTFITTING & ASSEMBLY
TECHNICAL REQUIREMENTS

CELL ID PLAN
PONTOONS A & W

WASHINGTO STATE
DEPARTMENT OF TRANSPORTATION
BRIDGE AND STRUCTURES OFFICE

PONTIIN CELL ID PLAN

PONTIIN A

PONTIIN CELL ID PLAN

PONTIIN W
NOTES:

1. CELL IDS ARE SHOWN FOR DIFFERENT PONTIION LOCATIONS. SEE BR. SHT. A1 FOR PONTIION ASSEMBLY LAYOUT,
   BR. SHT. BR FOR GLOBAL CELL AND WALL NAME CONVENTIONS AND RFP 2.12 FOR
   CREATING PONTIION AND SSP CELL IDS.

2. SEE BR. SHT. IDS FOR DETAILS LOCATING CELL IDS.

3. SEE APPENDIX A4 FOR EXTERNAL FEATURES.

HATCH LOCATION VARIES
PER SSP TYPE (TYHP)

PONTOON DECK HATCH ID PLAN

SSP ATTACHED TO PONTIION B SHOWN
SSP ATTACHED TO OTHER PONTIIONS SIMILAR.
ROTATIONS MAY OCCUR EITHER CLOCKWISE OR COUNTERCLOCKWISE DIRECTIONS. DISPLACEMENTS MAY OCCUR IN ANY DIRECTION. CENTRAL BEARING FOR EACH TRANSITION SPAN SHALL BE LOCATED AT THE CENTERLINE OF EACH TRANSITION SPAN. POINTS OF ROTATION AND OTHER BEARING LOCATIONS SHALL NOT BE RELOCATED BETWEEN THE 6-LANE, 4-LANE, AND 6-LANE + 2-HOT CONFIGURATIONS.

NOTE: X, Y, Z COORDINATE SYSTEM CORRESPONDS TO THAT USED IN THE WAVE ANALYSIS.
PONTOON HEAVE - ELEVATION
Lake level change, pontoon heave, and expansion joint movement shown in one direction only and exaggerated for clarity.

PONTOON SWAY - PLAN
Pontoon sway and expansion joint movement shown in one direction only and exaggerated for clarity.

PONTOON SURGE - PLAN
Pontoon surge and expansion joint movement shown in one direction only, limited by longitudinal restrainer, and shown exaggerated for clarity.

PONTOON ROLL - SECTION
Pontoon roll shown in one direction only and exaggerated for clarity.

PONTOON MOVEMENT TYPES AFFECTING EXPANSION JOINT OPENING/CLOSING AT TRANSITION SPANS

APPENDIX M23
OUTFITTING & ASSEMBLY
TECHNICAL REQUIREMENTS
TRANSITION SPAN MOVEMENT DETAILS
MOVEMENT DIAGRAMS
Washington State Department of Transportation
BRIDGE AND STRUCTURES OFFICE
TRANSITION SPAN PLAN

NW TRANSITION SPAN SHOWN; OTHER SPANS SIMILAR.
DIMENSION "D" MEASURED FROM NEAREST MEDIAN BARRIER.

ELEVATION CENTER OF ROTATION

APPROACH END OF WEST TRANSITION SPAN SHOWN; EAST TRANSITION SPAN SIMILAR

MOVEMENT PLAN

TYPICAL MOVEMENTS IN HORIZONTAL PLANE FOR WEST TRANSITION SPANS; EAST TRANSITION SPANS WIRE ROPE ABOUT "Y"-AXIS, "X"-AXIS REMAIN POSITIVE TO THE EAST

NOTE: LOCAL X', Y', Z' COORDINATE SYSTEM FOR EACH TRANSITION SPAN IS PARALLEL TO X, Y, Z COORDINATE SYSTEM USED IN THE WIND / WAVE ANALYSIS.

MOVEMENT ELEVATION

TYPICAL MOVEMENTS IN VERTICAL PLANE FOR WEST TRANSITION SPANS; EAST TRANSITION SPANS WIRE ROPE ABOUT "Y"-AXIS, "X"-AXIS REMAIN POSITIVE TO THE EAST

NOTE: LOCAL X', Y', Z' COORDINATE SYSTEM FOR EACH TRANSITION SPAN IS PARALLEL TO X, Y, Z COORDINATE SYSTEM USED IN THE WIND / WAVE ANALYSIS.
DETAIL 1

POINT A* MOVEMENTS SHOWN DUE TO ROTATIONS IN X-Y PLANE. OTHER LOCATIONS NORTH (+Y) AND WEST (-X) OF CENTRAL POINT HAVE MOVEMENTS IN SAME DIRECTION AS POINT A*.

DETAIL 2

POINT B* MOVEMENTS SHOWN DUE TO ROTATIONS IN X-Y PLANE. OTHER LOCATIONS SOUTH (-Y) AND EAST (+X) OF CENTRAL POINT HAVE MOVEMENTS IN SAME DIRECTION AS POINT B*.

DETAIL 3

POINT C* MOVEMENTS SHOWN DUE TO ROTATIONS IN X-Y PLANE. OTHER LOCATIONS SOUTH (-Y) AND EAST (+X) OF CENTRAL POINT HAVE MOVEMENTS IN SAME DIRECTION AS POINT C*.

DETAIL 4

POINT D MOVEMENTS SHOWN DUE TO ROTATIONS IN X-Y PLANE. OTHER LOCATIONS SOUTH (-Y) AND EAST (+X) OF CENTRAL POINT HAVE MOVEMENTS IN SAME DIRECTION AS POINT D.

NOTE: LOCAL X, Y, Z COORDINATE SYSTEM FOR EACH TRANSITION SPAN IS PARALLEL TO X, Y, Z COORDINATE SYSTEM USED IN THE WIND / SLOPE ANALYSIS.
NORTHWEST AND SOUTHWEST TRANSITION SPAN (FEET, DEGREES)

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**NORTHEAST AND SOUTHEAST TRANSITION SPAN (FEET, DEGREES)**

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*PONTON MOVEMENTS SHOWN OCCUR AT REFERENCE POINTS DEPICTED IN ELEVATIONS BELOW. STORM MOVEMENTS HAVE BEEN DETERMINED FROM STATIC AND DYNAMIC COMPONENTS WITH 120 DYNAMIC FACTOR.

** FURTHER MOVEMENT RESTRICTED BY LONGITUDINAL RESTRAINER, WHICH SHALL BE SET TO AN INITIAL GAP OF 18 INCHES.

CATASTROPHIC LAKE LEVEL DROP ASSOCIATED WITH LOSS OF COUNTERWEIGHT LOCKS REQUIRES REMOVAL AND REINSTALLATION OF LONGITUDIAL RESTRAINERS TO AN INITIAL GAP OF 24 INCHES TO ACCOMMODATE ADDITIONAL JOINT OPENING MOVEMENT.

---

TO BE DETERMINED BY THE DESIGN-BUILDER.

**NOTE:** X, Y, Z COORDINATE SYSTEM CORRESPONDS TO THAT USED IN THE WIND / WAVE ANALYSIS.

---

PONTOON A

ELEVATION ~ PIER A

LOOKING AHEAD ON STATIONING

DATUM NAVD 88

---

PONTOON W

ELEVATION ~ PIER W

LOOKING AHEAD ON STATIONING

REFERENCE POINT FOR PONTOON MOVEMENTS

REFERENCE POINT FOR PONTOON MOVEMENTS

---

PONTON KEEL

---

10.91'

CROSS PONTOON W

---

WASHINGTON STATE

DEPARTMENT OF TRANSPORTATION

BRIDGE AND STRUCTURES OFFICE

APPENDIX M23

OUTFITTING & ASSEMBLY

TECHNICAL REQUIREMENTS

TRANSITION SPAN MOVEMENT DETAILS

ELEVATIONS & TABLES
MOORAGE CLEAT DETAIL

NOTE: CLEAT DESIGNED FOR MAXIMUM ALLOWABLE SERVICE CLASS OF 12 KIPS APPLIED IN ANY DIRECTION. 10" MAXIMUM ABOVE DECK AT CLEAT.

- DRILL HOLE IN PIPE AND BASE FOR BUSHING FIT OF PILES BEFORE WELDING.
- HOLES CANNOT BE DETAILED ON APPENDIX M4 INSERT LAYOUT. FIELD VERIFY SIZE AND LOCATION BEFORE FABRICATION.

S.S. HARDWARE / NYLON FLANGE BUSHING (TYP.)

EXISTING INSERT BY OTHERS (TYP.)

TOP OF SLAB SLUMP VARIES

WORKBOAT MOORAGE FEATURES
AT SSP GSW AND QNW
**WATER LINE INDICATOR**

* Varies by position location. See Appendix M1 and M3 for details.

- Dimensions: 1224.0x790.0

**NOTES:**

1. Stainless steel hardware shall be either threaded rod with nut and washers, or bolt with washers. Nylon flange bushing shall be used to isolate rivets at each insert location.

2. Field verify insert locations before drilling holes in pipes and indicators. Oversized holes may need to accommodate bushings.

3. Apply anti-seizing compound to threads at time of installation.

4. End of threaded rod shall extend min. 8" to max. 1" past exposed face of nut after tightening.

5. Refer to KSP Section 2.32 for additional information.

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**Appendix M1**

- Designated by: KSP
- Created by: Washington State Department of Transportation
- Last updated: October 10, 2023

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**Appendix M23**

- Title: OUTFITTING & ASSEMBLY TECHNICAL REQUIREMENTS
- Department: BRIDGE AND STRUCTURES OFFICE

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**Appendix M3**

- Title: PONTONN SIGNS
PLAN

EXCESS CLEARANCE OPENING WITHIN MODULAR JOINT ENCLOSURE

EXCESS CLEARANCE OPENING OUTSIDE MODULAR JOINT ENCLOSURE (TYP.)

SUPPORT COLUMN FOR FLOOR SLAB (TYP.)

SUPPORT COLUMN FOR CANOPY

ARCHITECTURAL FEATURE (TYP.)
(FINAL CONCEPT YET TO BE DETERMINED)

FLOOR SLAB ACCESS GRATINGS WITH FIXED LADDER (TYP.)

MEAN TRAFFIC BARRIER

MEAN BARRIER

MAINTENANCE ACCESS PLATFORM WITH FIXED LADDER (TYP.)

SOUND WALL (TYP.)

PLAN

GRID AND BEARINGS NOT SHOWN FOR CLARITY