KITSAP TRANSIT ANNAPOLIS FERRY DOCK UPGRADE

VICINITY MAP

SITE PLAN

CAUTION:
FLOAT SYSTEMS ARE UNSTABLE WHEN PLACED IN WATER PRIOR TO ASSEMBLY IN THEIR FINAL INTENDED CONFIGURATION. MODULES OR SUBASSEMBLIES SHOULD BE HANDLED WITH CARE DURING INSTALLATION AND SHOULD NEVER BE STOOD OR WALKED UPON PRIOR TO FINISHED ASSEMBLY.

CONTACT INFORMATION

PROJECT ADDRESS:
SEATTLE, WA

CONTRACTOR:
BELLINGHAM MARINE INDUSTRIES, INC. (NW)
ATTN: ROB RASMUSSEN, GENERAL MANAGER
NORTHWEST DIVISION
5500 NORDIC PLACE
FERNDALE, WA 98248
TEL: 360-380-2142

STRUCTURAL ENGINEER:
BELLINGHAM MARINE ENGINEERING (BME)
ATTN: CRAIG FUNSTON, P.E.,
3825 E. SUNSET DRIVE
BELLINGHAM, WA 98226
TEL: 360.715.0121

ABBREVIATIONS

&	and	%	Percent
@	at	±	Plus or Minus
A.C.O.E.	Army Corps of Engineers	PL.	Plate
ALUM.	Aluminum	PCF	Pounds per Cubic Foot
A.S.	Anti-Skid	P.O.C.	Point of Connection
x	by	PSI	Pounds per Square Inch
CB	Carriage Bolt	P.T.	Pressure Treated
℄	Center Line	PVC	Polyvinyl Chloride
C-C	Center to Center	PL.	Plate
C.F.	Cubic Foot/Feet	PW	Plate Washer
C.I.P.	Cast in Place	QTY.	Quantity
CLR.	Clear	REINF.	Reinforced, reinforcement
CW	Cleat Washer	REQ'D	Required
CONC.	Concrete	SQ.	Square
CONT.	Continuous	SQW	Square Washer
C.Y.	Cubic Yard	S.F.	Square Foot
°	Degrees	SIM.	Similar
D.F.	Douglas Fir	SHT.	Sheet
DWG	DWG	S.S.	Stainless Steel
D.L.	Dead Load	T.O.C.	Top of Concrete
DET.	Detail	T.O.S.	Top of Slope
∅ or DIA.	Diameter	T.S.	Tube Steel
ELEV. or EL.	Elevation	TYP.	Typical
EXIST. or (E)	Existing	THK.	Thick
EA.	Each	U.N.O.	Unless Otherwise Noted
Fab.	Fabrication	UHMW	Ultra High Molecular Weight
F.B.	Flat Bar	VERT.	Vertical
FH	Flat Head	W.W.F.	Welded Wire Fabric
FT.	Foot	W.W.M.	Welded Wire Mesh
FW	Flat Washer	w/	with
GA.	Gage	W.	Wide, Width
GALV.	Galvanized	X.H.W.	Extreme High Water
GLB	Glue Laminated Beam	X.L.W.	Extreme Low Water
H.D.	Heavy Duty		
H.D.G.	Hot Dip Galvanized		
HDPE	High Density Polyethylene		
HW	Hardware		
HN	Hex Nut		
IN.	Inch(es)		
LBS. or # (after number)	pound(s)		
LAM	Laminated		
LIN	Linear/lineal		
LG	Long		
L.L.	Live Load		
LW	Lock Washer		
MLLW	Mean Lower Low Water		
MAX.	Maximum		
MB	Machine Bolt		
MDPE	Medium Density Polyethylene		
MFR	Manufacturer		
MM	Millimeter		
MIN.	Minimum		
N.I.C.	Not In Contract		
NO. or # (before number)	Number		
(N)	New		
NTS	Not To Scale		
O.A.	Overall		
O.C.	On Center		
OPP	Opposite		

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Bellingham MARINE
THE WORLD'S MOST COMPREHENSIVE MARINA BUILDER

REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

TITLE SHEET

Craig S. Funston
2019.09.19
16:17:46-07'00'

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PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	1
DRAWING:	G1

INDEX			
REV. STATUS	SHEET NO.	DRAWING	DRAWING DESCRIPTION
-		G1	TITLE SHEET
1		IND	INDEX SHEET
3		L1	GENERAL LAYOUT
3		L2	GRATING LAYOUT
-		L3	TUB LAYOUT
3		L4	STEEL LAYOUT
3		F1	FLOAT SUB ASSEMBLY
3		F2	FLOAT SUB ASSEMBLY
3		F3	FLOAT SUB ASSEMBLY
1		F4	FLOAT SUB ASSEMBLY
3		F5	FLOAT SUB ASSEMBLY
3		F6	FLOAT SUB ASSEMBLY
1		F7	FLOAT SUB ASSEMBLY
3		F8	FLOAT SUB ASSEMBLY
3		F9	FLOAT SUB ASSEMBLY
3		F10	FLOAT SUB ASSEMBLY
1		A1	ASSEMBLY DETAILS
-		A2	ASSEMBLY DETAILS
3		A3	ASSEMBLY DETAILS
3		A4	ASSEMBLY DETAILS
2		A5	ASSEMBLY DETAILS
1		A6	ASSEMBLY DETAILS
-		A7	ASSEMBLY DETAILS
-		PT-01	GENERAL NOTES
-		PT-02	ECI 6-4 SYSTEM DRAWINGS
-		PT-03	MODULE TENDON LAYOUTS
-		PT-04	MODULE SECTIONS & DETAILS
-		PT1	PT LAYOUT
-		FD1	MODULE 1 / 10 REINFORCING DIAG.
1		FD2	MODULE 2, 3, 5, 6, 8, 9 REINFORCING
-		FD3	MODULE 4, 7 REINFORCING
1		FD4	REINFORCING DIAGRAMS
3		FD5	REINFORCING DIAGRAMS
		FD6	SHEAR KEY DETAILS
2		GR1	GRATING FABRICATION
-		PF1	PILE GUIDE FABRICATION
1		PF2	PILE GUIDE FABRICATION
1		PF3	PILE GUIDE FABRICATION
1		PF4	PILE GUIDE FABRICATION
-		PF5	PILE GUIDE FABRICATION
1		S1	STEEL FABRICATION
-		S2	STEEL FABRICATION
-		S3	STEEL FABRICATION
2		S4	STEEL FABRICATION
2		S4.1	STEEL FABRICATION
-		S5	STEEL FABRICATION
-		S6	STEEL FABRICATION
-		S7	STEEL FABRICATION
-		S8	STEEL FABRICATION
-		S9	STEEL FABRICATION
-		S10	STEEL FABRICATION
-		S11	STEEL FABRICATION
-		S12	STEEL FABRICATION
-		S13	STEEL FABRICATION

INDEX			
REV. STATUS	SHEET NO.	DRAWING	DRAWING DESCRIPTION
-		DF1	D-FENDER FABRICATION
-		DF2	D-FENDER FABRICATION
-		WF1	WEAR DECK FABRICATION
1		WF2	WEAR DECK FABRICATION
3		MF1	FLOAT FABRICATION
3		MF2	FLOAT FABRICATION
1		MF3	FLOAT FABRICATION
3		MF4	FLOAT FABRICATION
3		MF5	FLOAT FABRICATION
3		MF6	FLOAT FABRICATION
1		MF7	FLOAT FABRICATION DETAILS
1		MF8	FLOAT SECTION VIEWS

2

CONCRETE AND REINFORCEMENT:

1. USE SAND LIGHTWEIGHT CONCRETE WITH MIN 28-DAY COMPRESSIVE STRENGTH (f'c) OF 6000 PSI. MAX WATER/CEMENT RATIO OF 0.40.

2. PROVIDE A FLOAT DECK SURFACE THAT IS BROOM FINISHED IN THE TRANSVERSE DIRECTION OF THE FLOAT. PROVIDE TOP DECK EDGES WITH 3/8" TOOLED RADIUS.

3. REINFORCING BARS: ASTM A615, GR. 60, H.D.G PER ASTM A767 1

4. PROVIDE A MIN OF 1.25" CONCRETE COVER OVER REINFORCEMENT. CONCRETE COVERS MAY BE REDUCED TO 3/4" WHEN CAST AGAINST EPS FOAM CORE.

STRUCTURAL STEEL:

2. SHAPES AND PLATES: ASTM A572 GR.50

3. HSS: ASTM A500 GR.B

4. ALL WELDMENTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.

FASTENERS:

1. THRU RODS AND ASSOCIATED HARDWARE SHALL BE HDG AND ATTACHED WITH MATCHING NUTS, WASHERS AND LOCK WASHERS AS CALLED OUT ON DRAWINGS.

2. USE 316 STAINLESS STEEL FASTENERS WHERE SPECIFIED.

3. EPOXY ANCHORS SHALL USE A HIGH STRENGTH EPOXY SUCH AS SIMPSON SET-3G OR APPROVED EQUAL.

POLYSTYRENE: 1

5. INNER CORE SHALL BE CLOSED CELL, CORROSION PROOF, EXPANDED POLYSTYRENE WITH A DENSITY OF 1.1 POUNDS PER CUBIC FOOT AND SHALL CONFORM TO ASTM D162.

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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	SEE SHEETS FOR UPDATED INFORMATION, CLEAT DESIGN UPDATED	SSB
2	10-21-19	SEE SHEETS FOR UPDATED INFORMATION, NEW SHEET ADDED	SSB
1	10-04-19	SEE SHEETS FOR UPDATED INFORMATION, NOTES UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

INDEX SHEET

Craig S. Funston
2019.11.12
09:41:56-08'00'

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PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
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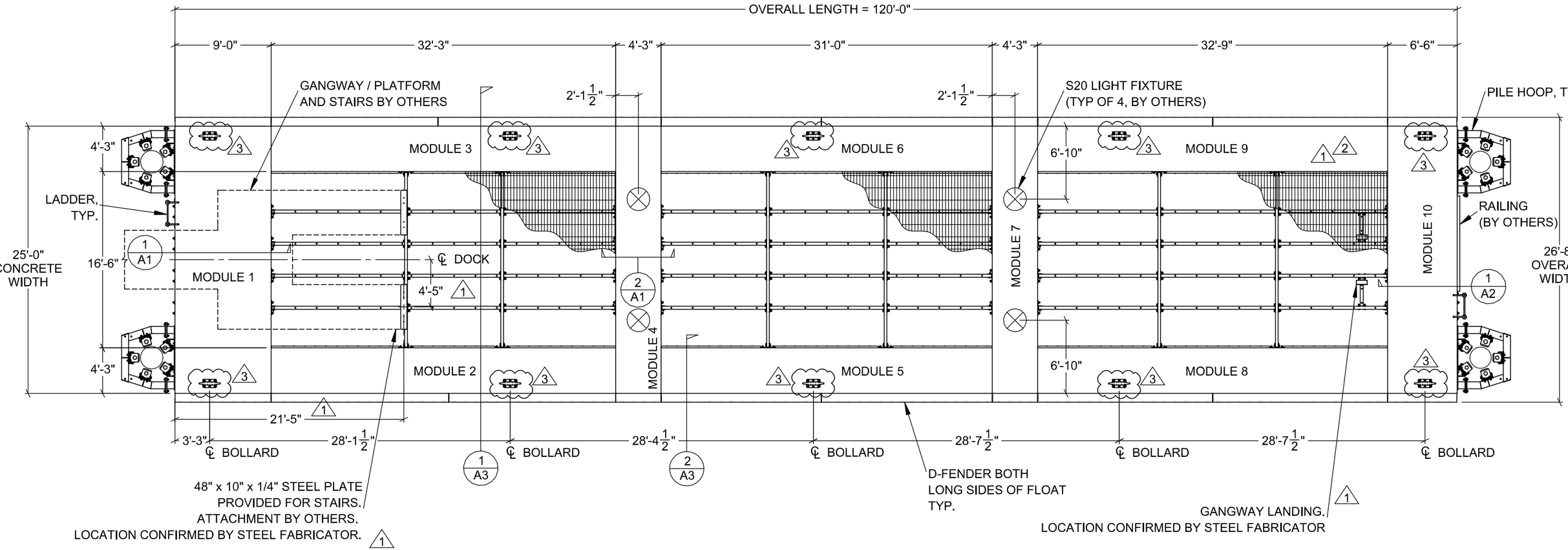
DATE:	09-27-19
SHEET NO:	2
DRAWING:	IND



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NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
2	10-21-19	LANDING JOIST UPDATED	SSB
1	10-03-19	DIMENSION UPDATED, DESIGN UPDATED, NOTES UPDATED	SSB

KITSAP TRANSIT

ANNAPOLIS FERRY
DOCK UPGRADES

GENERAL LAYOUT

Craig S. Funston
2019.11.12
09:41:56-08'00'

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DRAWN BY: SSB
CHECKED BY: DNS

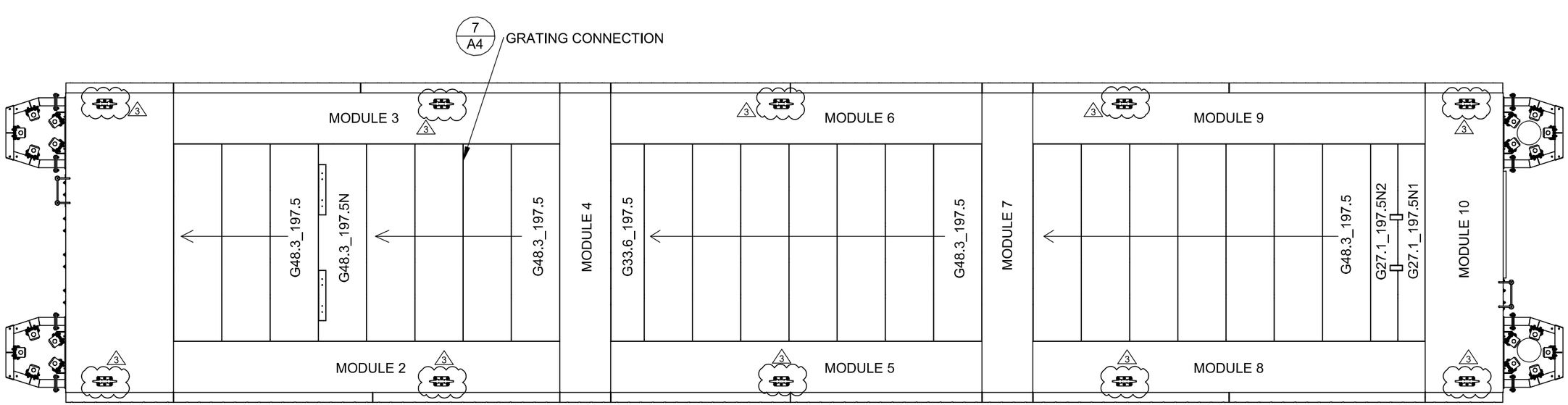
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	L1

GX_X

LENGTH (INCHES)

WIDTH (INCHES)

GRATING



NOTE:
GANGWAY, PLATFORMS, AND RAILING
NOT SHOWN FOR CLARITY.

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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
2	10-21-19	GRATING LAYOUT UPDATED	SSB
1	10-03-19	GRATING NAMES CHANGED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

GRATING LAYOUT

CRAIG S. FUNSTON — STATE OF WASHINGTON — 37766 — REGISTERED PROFESSIONAL ENGINEER

Craig S. Funston
2019.11.12
09:41:57-08'00'

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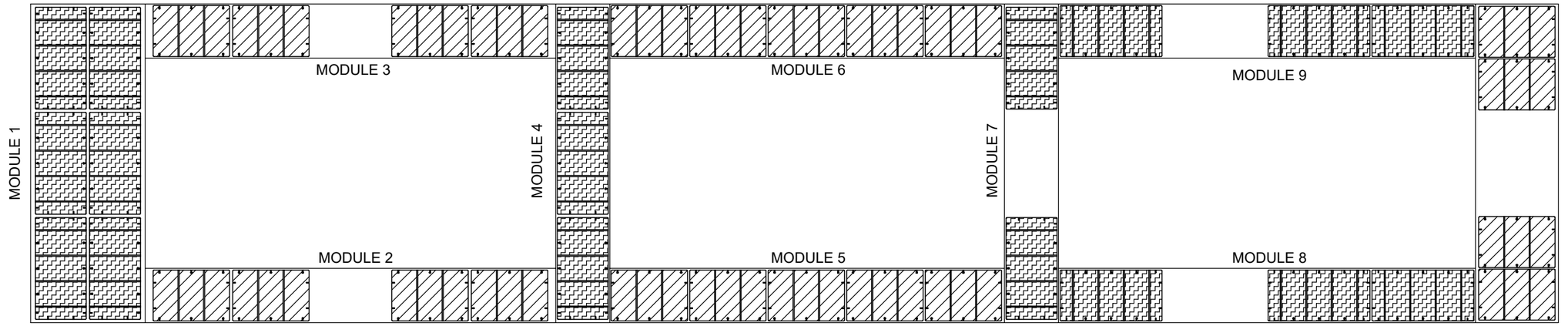
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	L2

4x8x32 FLOATATION TUB - QTY. 17

4x6x32 FLOATATION TUB - QTY. 22



NOTE:
GANGWAY, PLATFORMS, BEAMS, PILE GUIDES, GRATING AND RAILING
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KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

TUB LAYOUT

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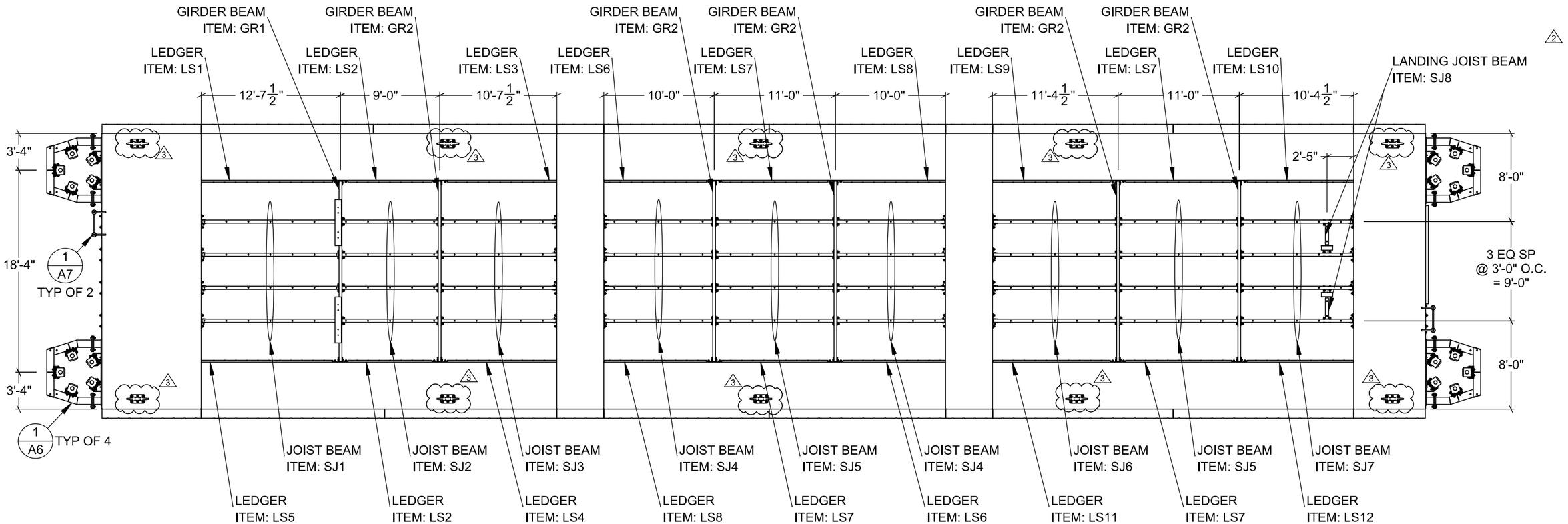
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	5
DRAWING:	L3

PRODUCTION RELEASE SET 02-19-20



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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
2	10-21-19	LANDING JOIST UPDATED	SSB
1	10-03-19	NEW SHEET ADDED	SSB

KITSAP TRANSIT

ANNAPOLIS FERRY
DOCK UPGRADES

STEEL LAYOUT

Craig S. Funston
2019.11.12
09:41:57-08'00'

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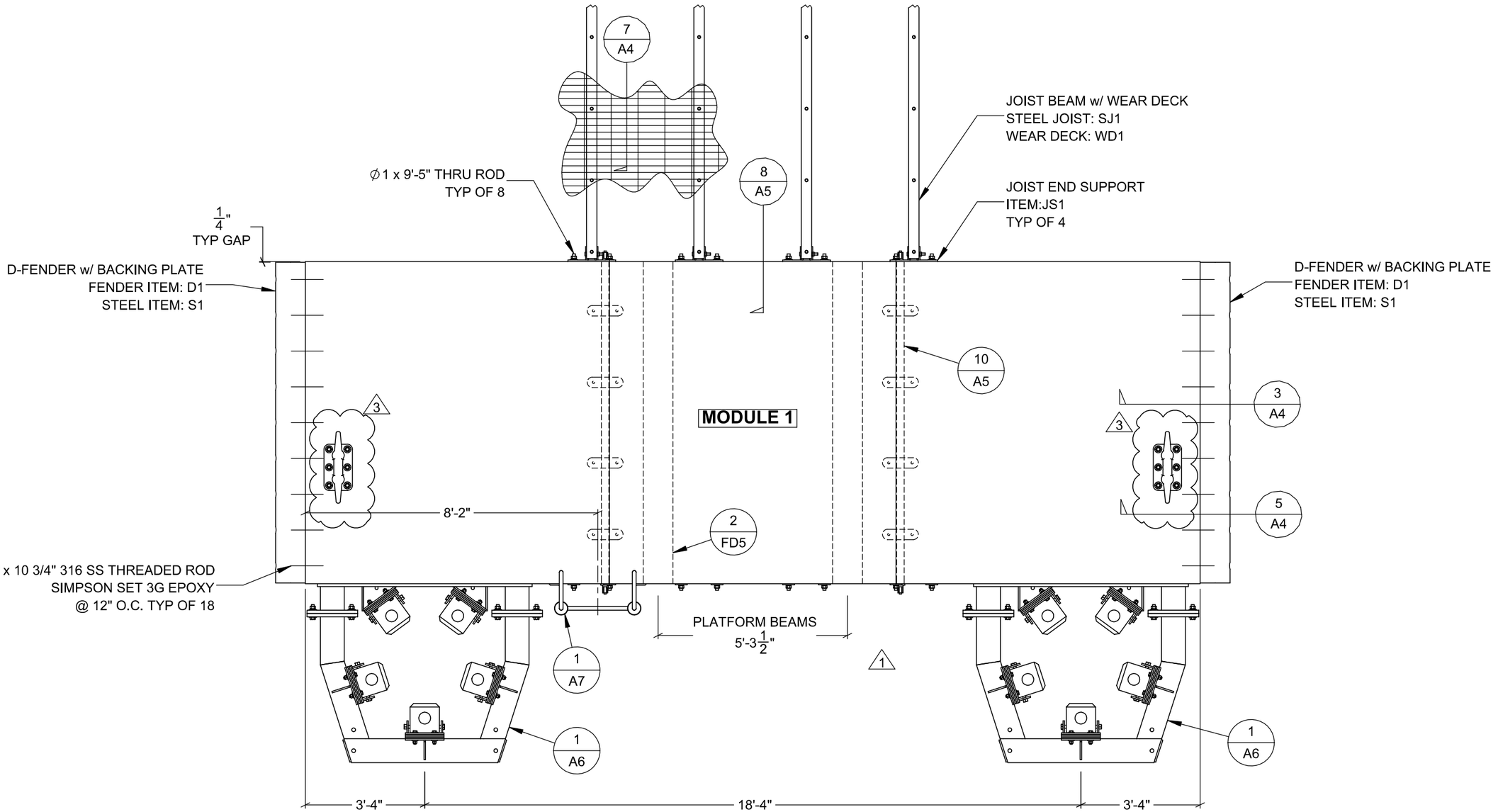
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	1 L4



NOTE: INSTALL TRANSVERSE BEAMS
AFTER THE ASSEMBLY HAS BEEN
PLACED ON WATER, TYP FOR ALL FLOATS

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NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
1	10-04-19	PLATFORM BEAMS ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT SUB ASSEMBLY

Craig S. Funston
2019.11.12
09:41:58-08'00'

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SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
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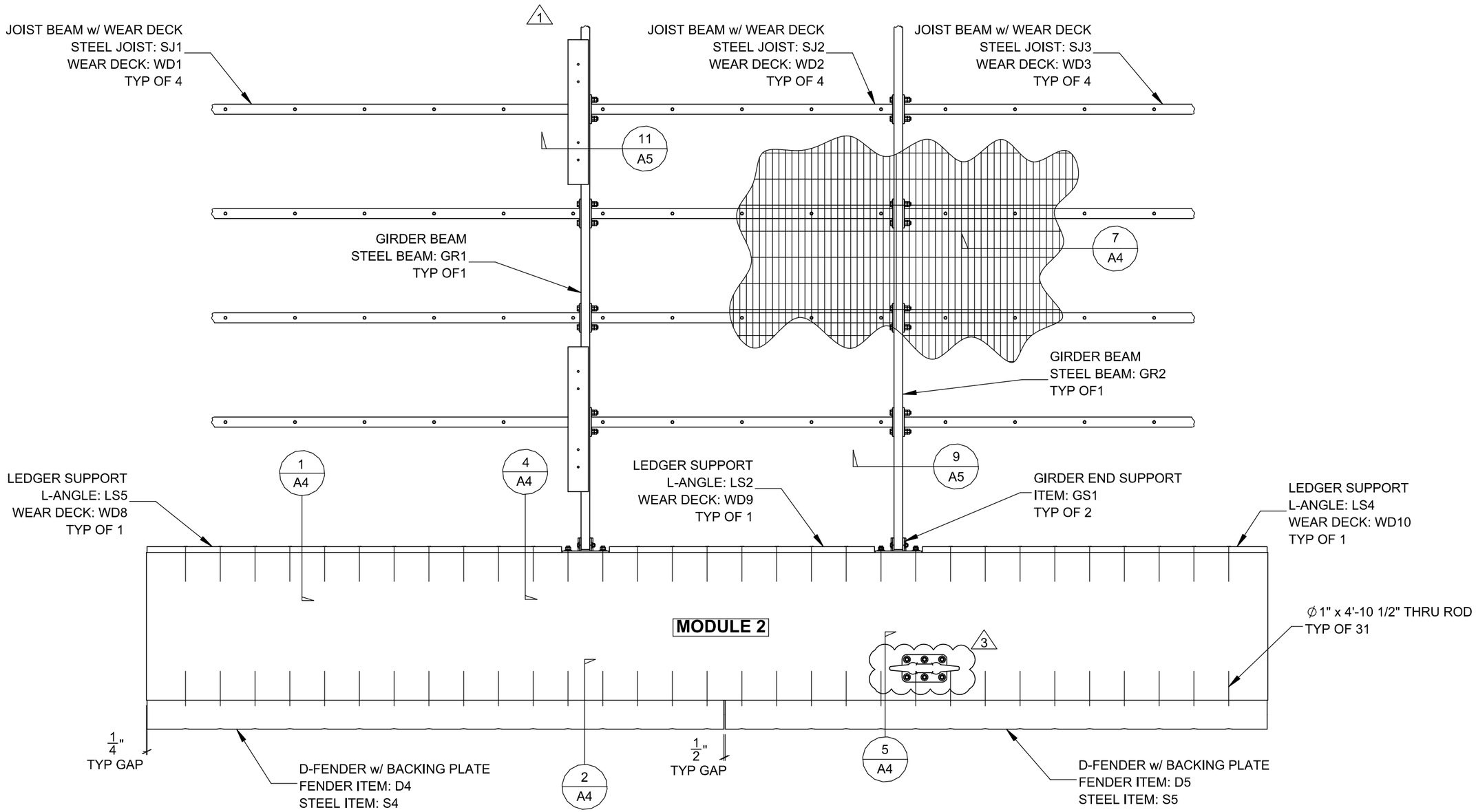

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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
1	10-04-19	GIRDER DESIGN UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT SUB ASSEMBLY

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09:41:58-08'00'

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SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
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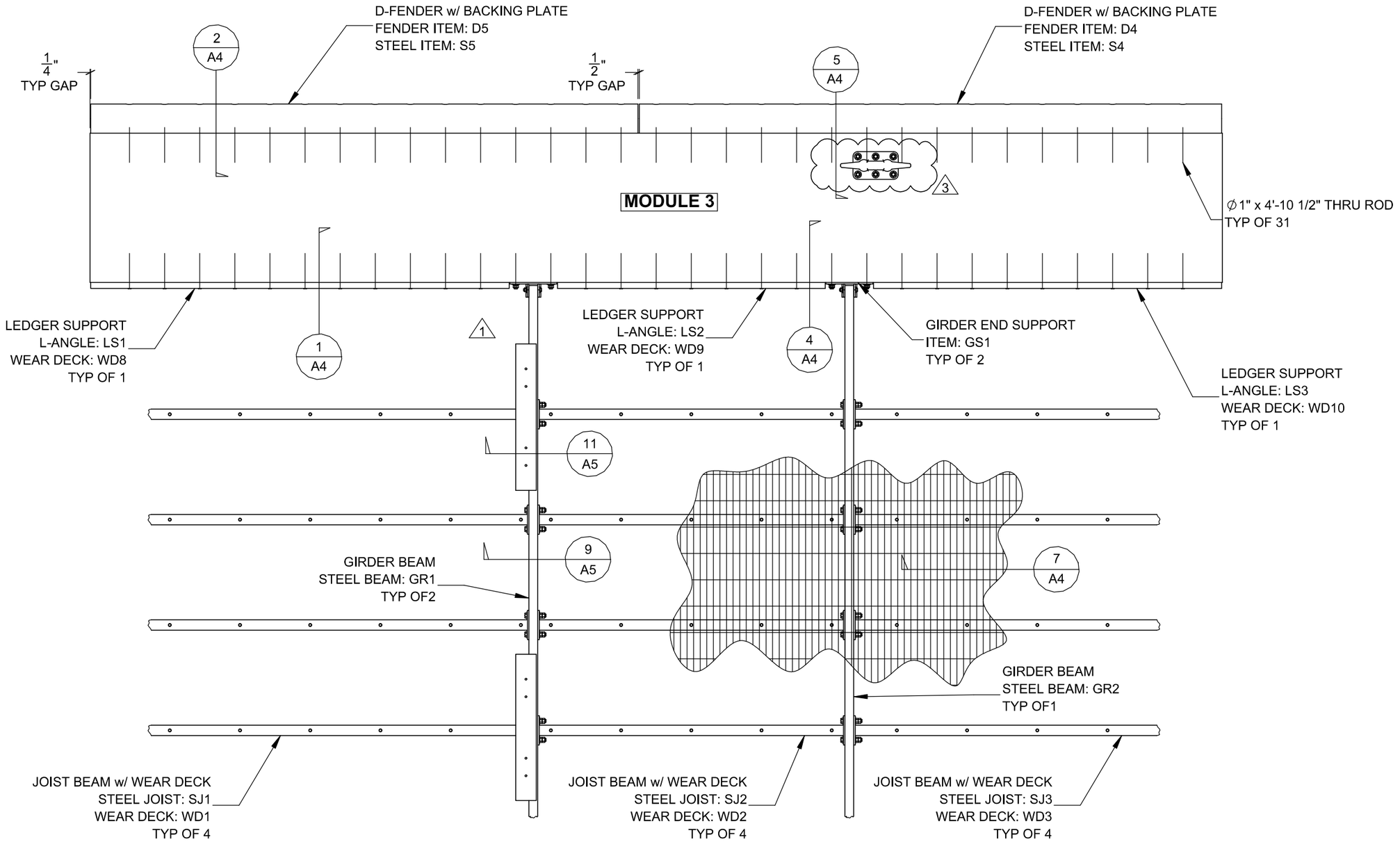
DRAWING:	F2



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1	10-04-19	GIRDER DESIGN UPDATED	SSB

KITSAP TRANSIT
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DOCK UPGRADES

FLOAT SUB ASSEMBLY

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DRAWN BY: SSB
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SCALE:	NTS
SHEET SIZE:	11" x 17"
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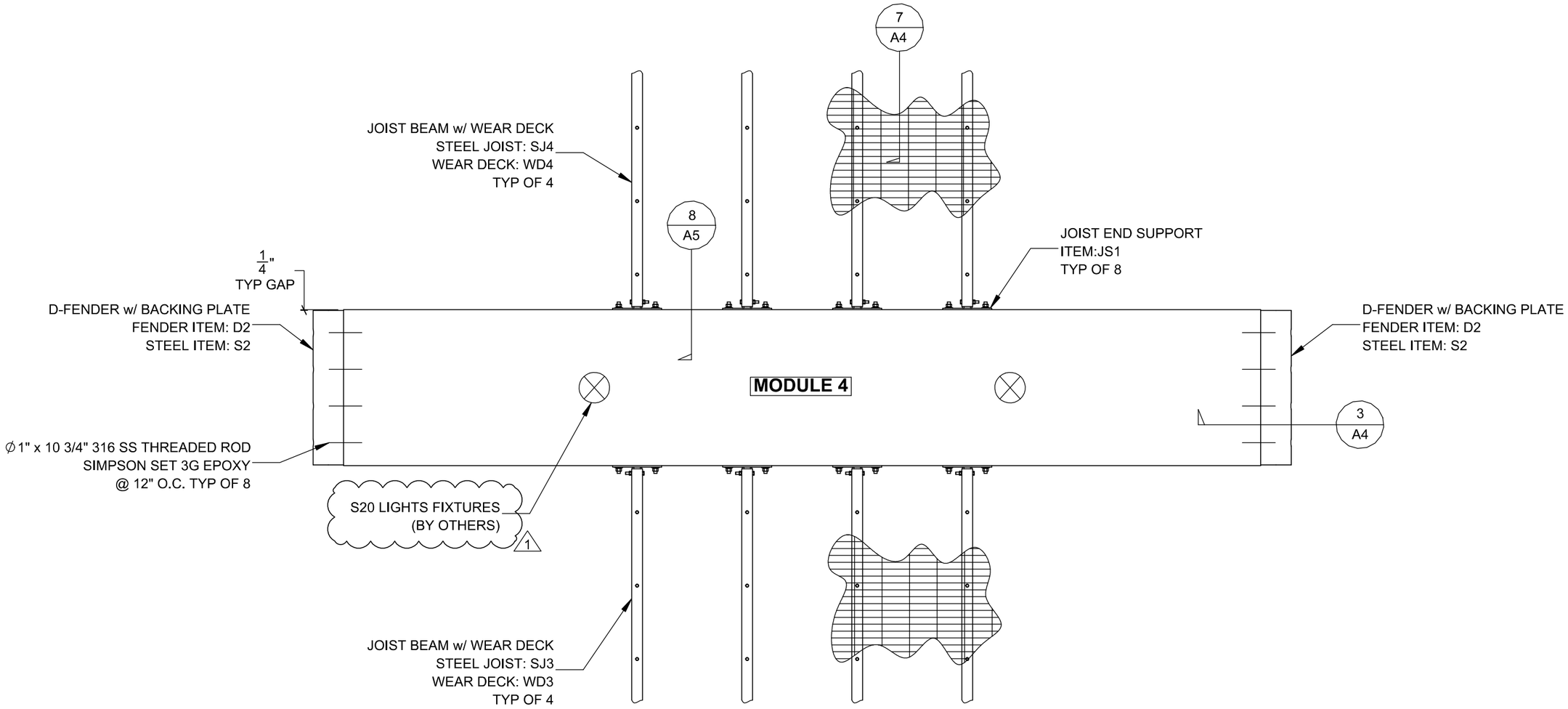

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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	NOTES ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT SUB ASSEMBLY

Craig S. Funston
2019.10.08
09:54:07-07'00'

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SCALE:	NTS
SHEET SIZE:	11" x 17"
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SHEET NO:	
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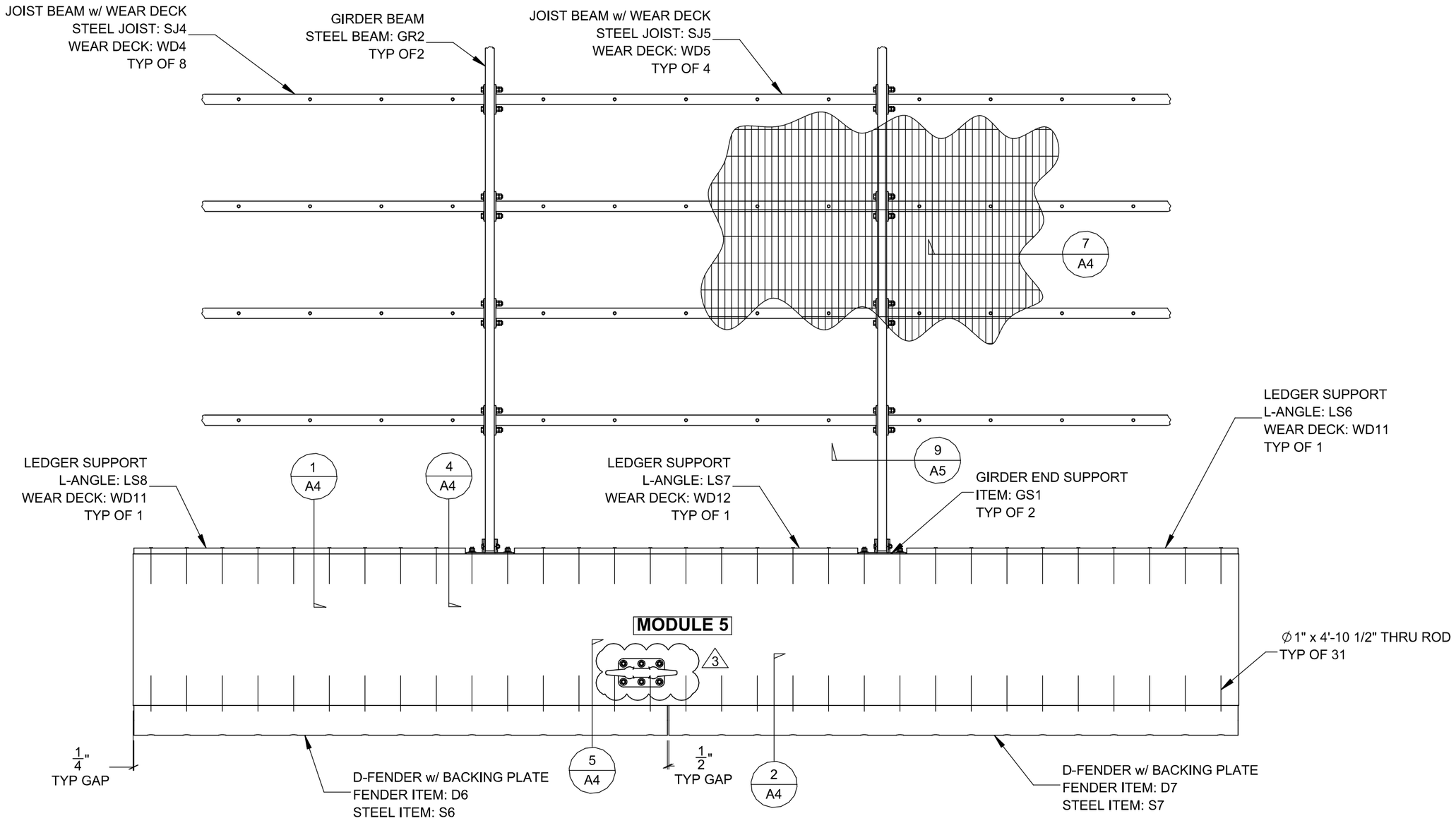

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3	10-30-19	CLEAT DESIGN UPDATED	SSB

KITSAP TRANSIT
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FLOAT SUB ASSEMBLY

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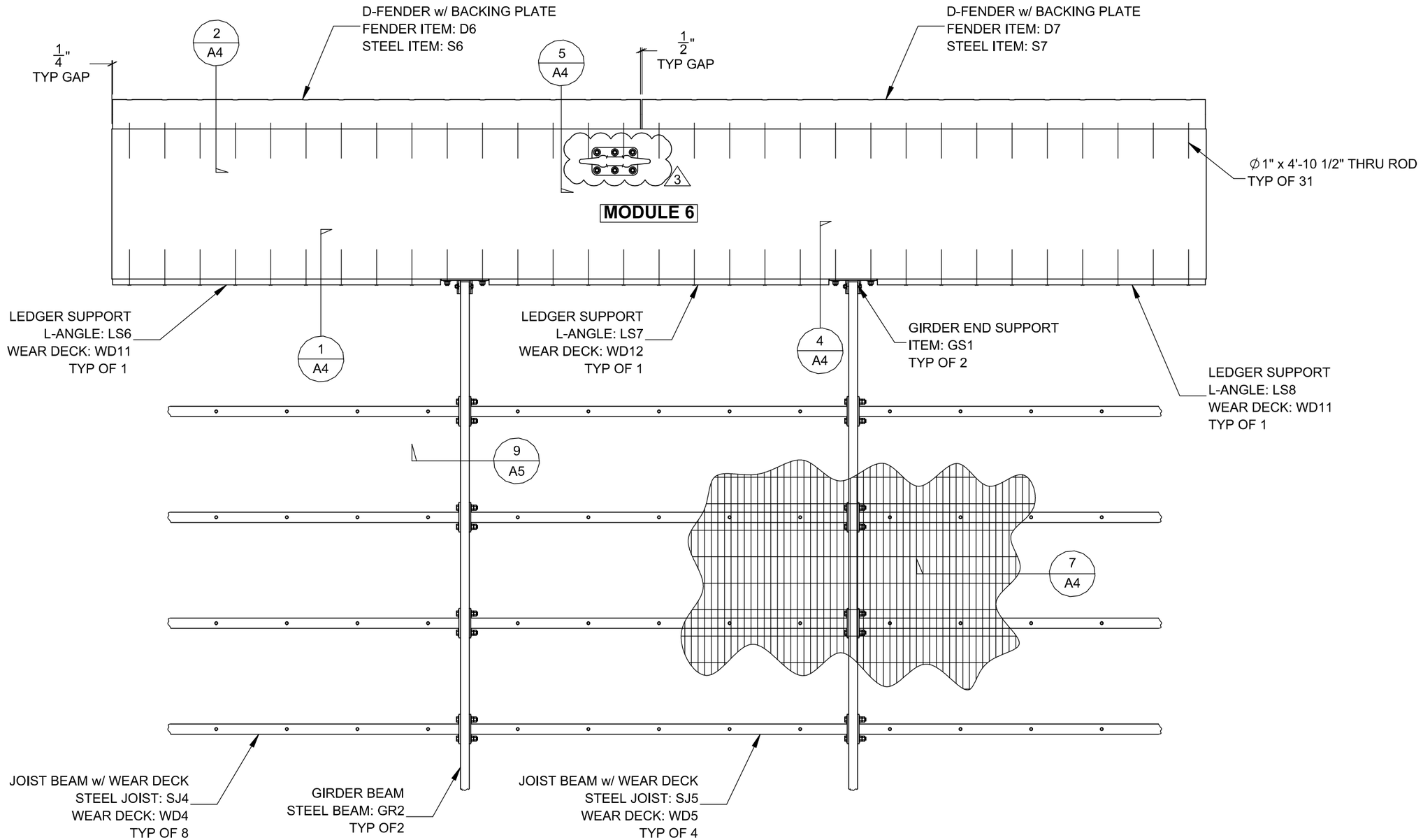
CHECKED BY:	DNS
DRAWING:	F5



NOTE: INSTALL TRANSVERSE BEAMS
AFTER THE ASSEMBLY HAS BEEN
PLACED ON WATER, TYP FOR ALL FLOATS

Northwest Division
5500 Nordic Place
Ferndale, WA 98248
TEL: (360) 380-2142

Engineering
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TEL: (360) 715-0121

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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEATDESIGN UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT SUB ASSEMBLY

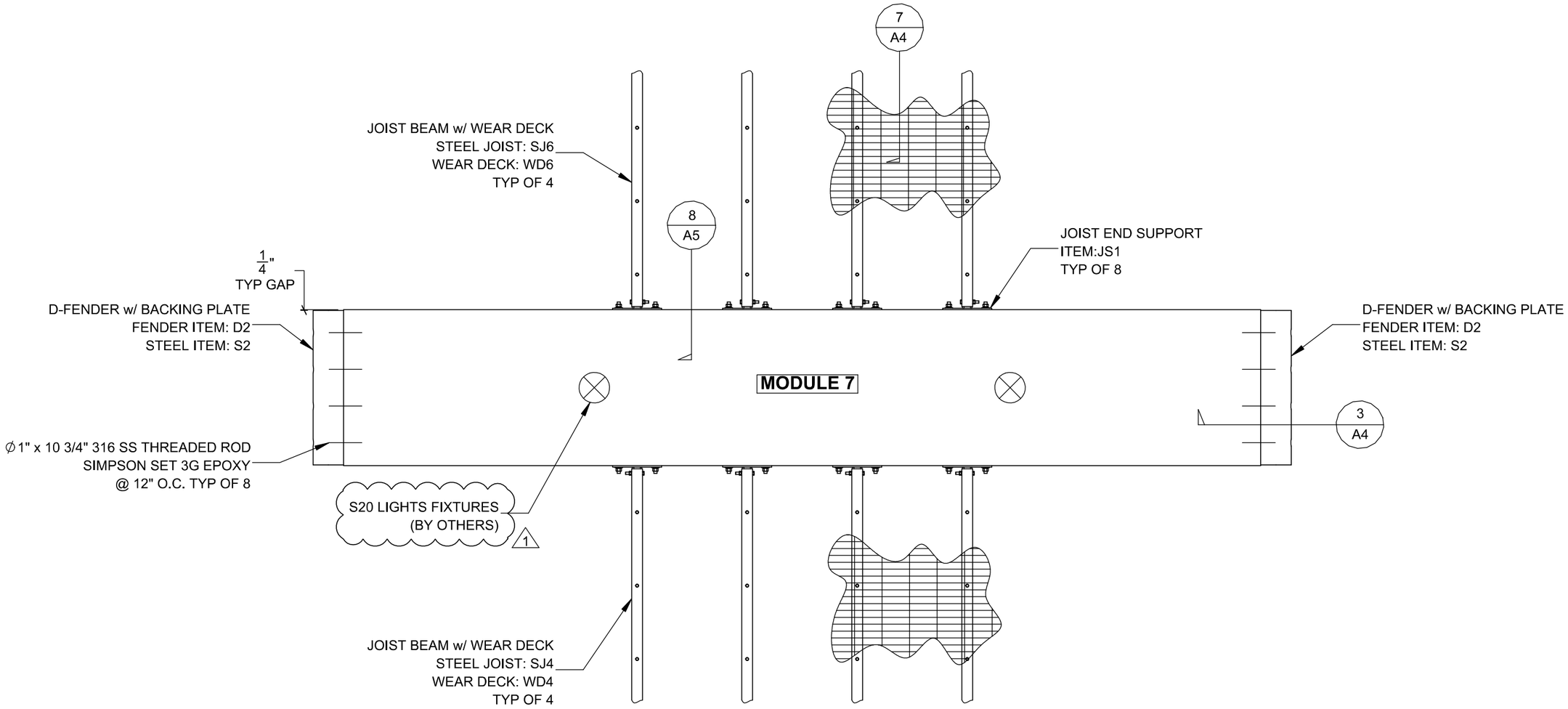
Craig S. Funston
2019.11.12
09:41:59-08'00'

The structural system shown on these drawings, including member sizes, layout, and connection has been designed by Bellingham Marine Engineering under my supervision. No other aspect of the design including suitability for use, safety, mechanical, electrical, quantities, cut lengths and the like have been included in this review. Bellingham Marine Engineering can not be responsible for accuracy of information provided by others.

PROJECT NUMBER: 1757

DRAWN BY:	SSB
CHECKED BY:	DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	F6



NOTE: INSTALL TRANSVERSE BEAMS
AFTER THE ASSEMBLY HAS BEEN
PLACED ON WATER, TYP FOR ALL FLOATS

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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	NOTES ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT SUB ASSEMBLY

Craig S. Funston
2019.10.08
09:54:01-07'00'

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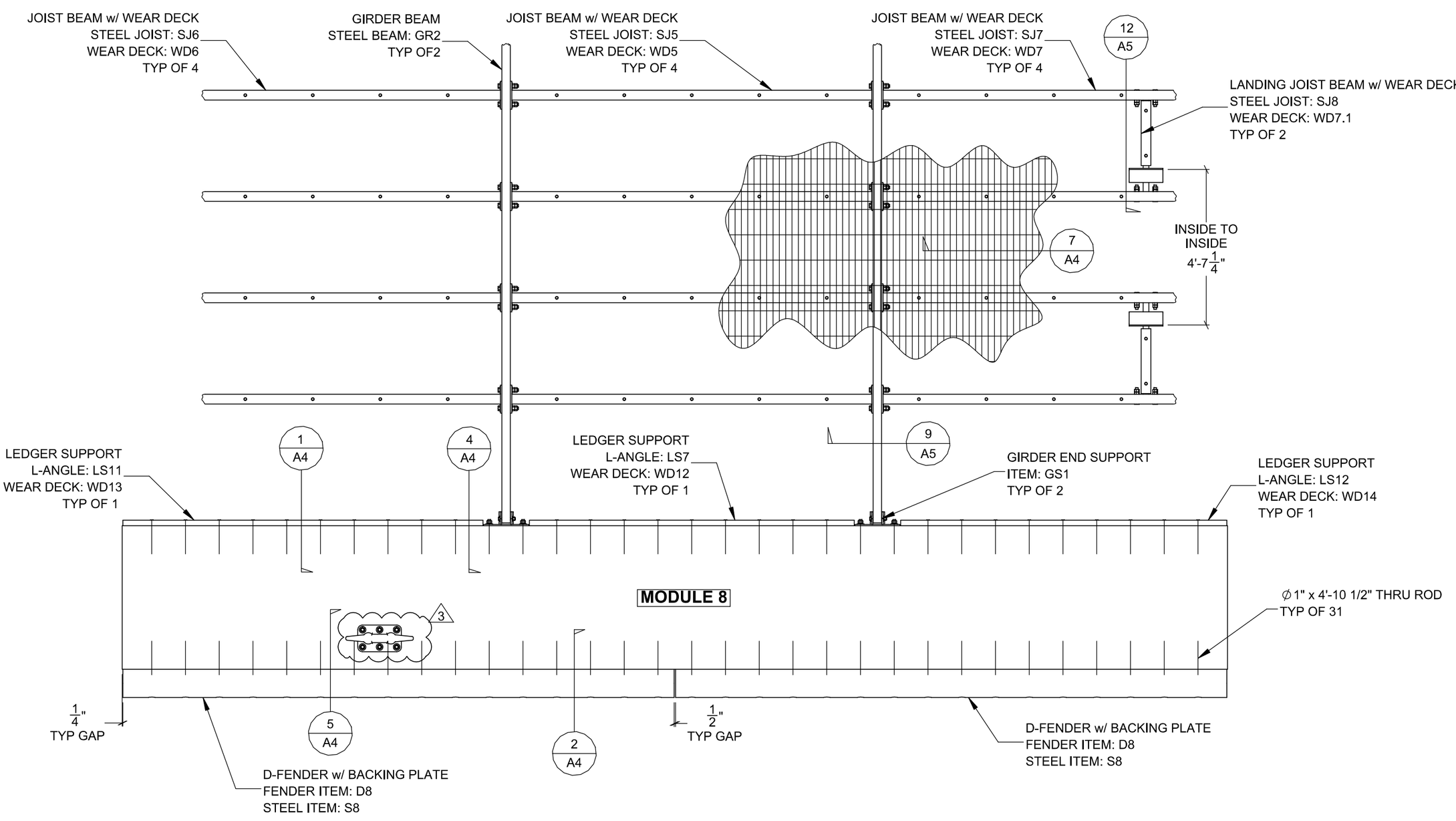
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	F7



NOTE: INSTALL TRANSVERSE BEAMS
AFTER THE ASSEMBLY HAS BEEN
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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
2	10-21-19	LANDING BEAMS UPDATED	SSB
1	10-04-19	LANDING BEAMS SUPPORT ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT SUB ASSEMBLY

Craig S. Funston
2019.11.12
09:41:59-08'00'

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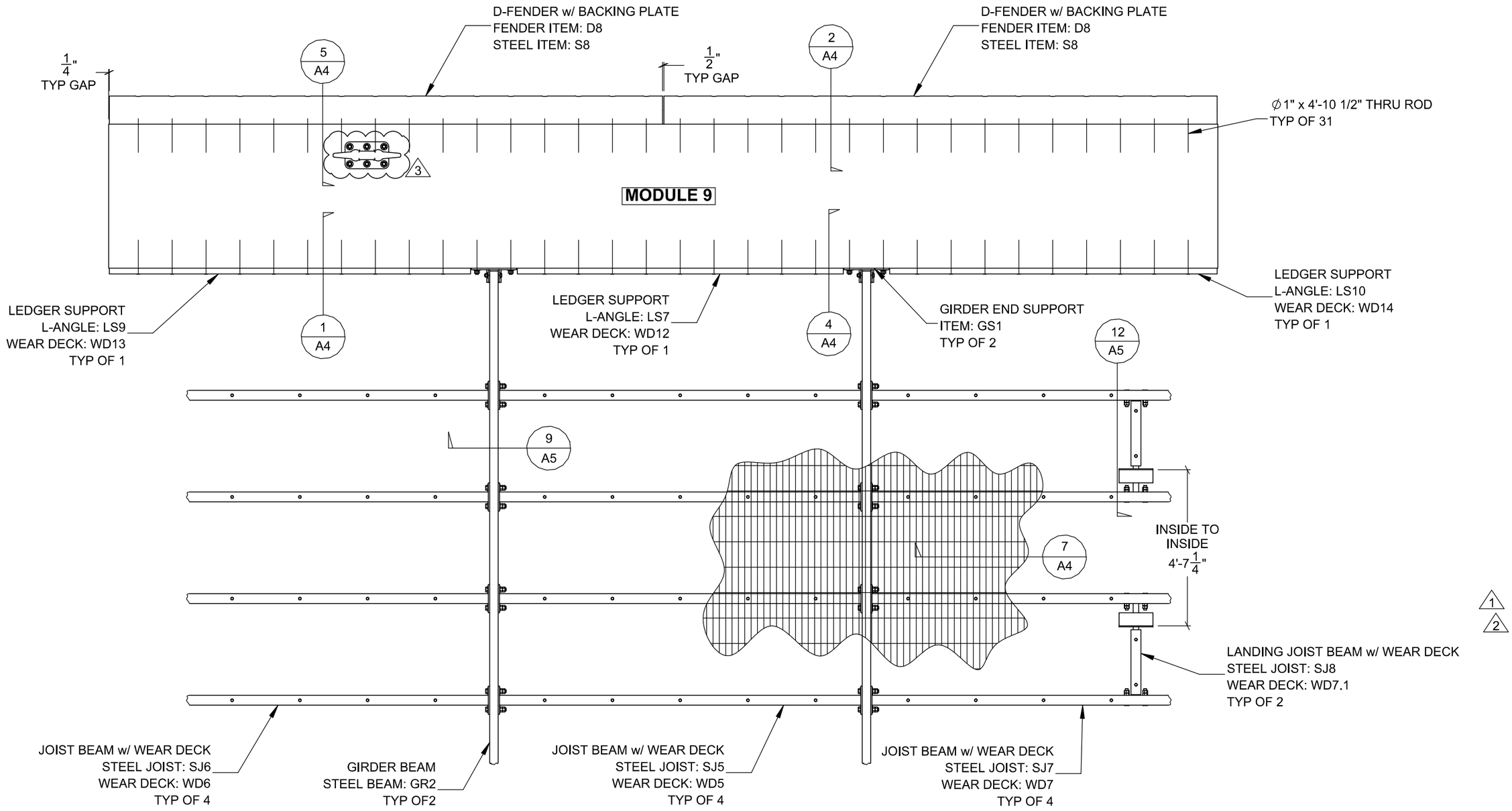
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	F8



NOTE: INSTALL TRANSVERSE BEAMS
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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
2	10-21-19	LANDING BEAMS UPDATED	SSB
1	10-04-19	LANDING BEAMS SUPPORT ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT SUB ASSEMBLY

Craig S. Funston
2019.11.12
09:42:00-08'00'

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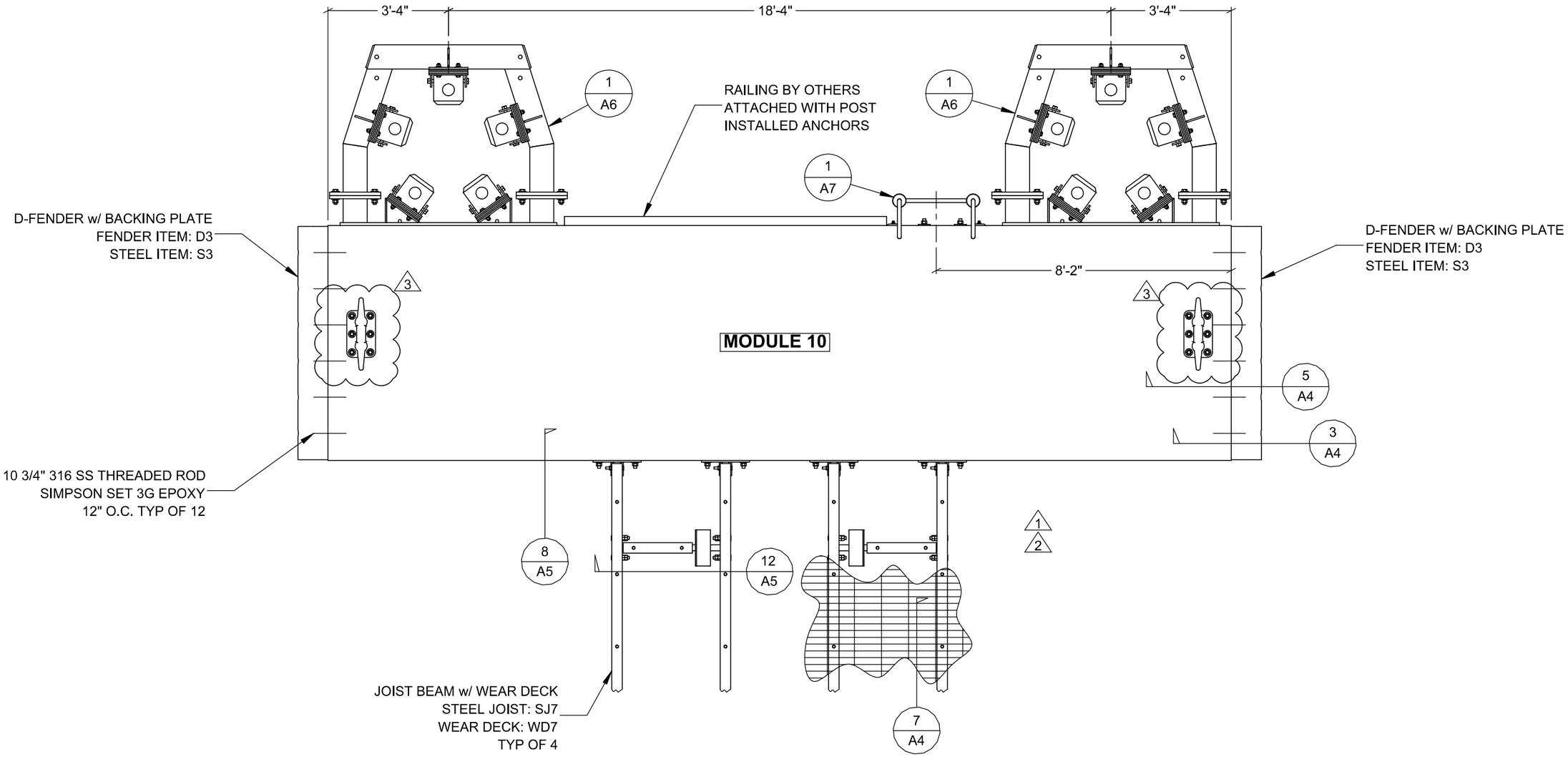
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	F9



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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
2	10-21-19	LANDING BEAMS UPDATED	SSB
1	10-04-19	LANDING BEAM SUPPORT ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT SUB ASSEMBLY

Craig S. Funston
2019.11.12
09:42:00-08'00'

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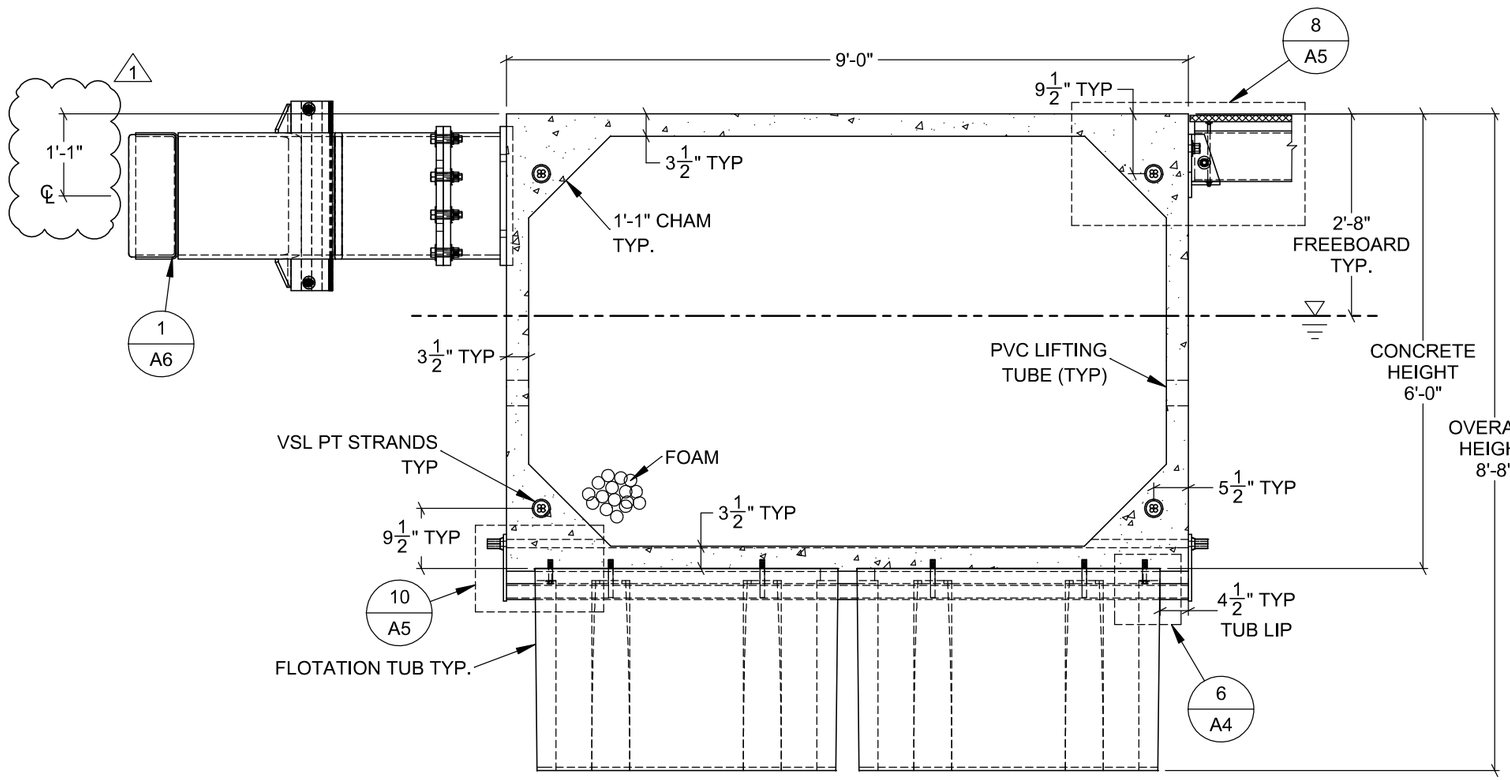
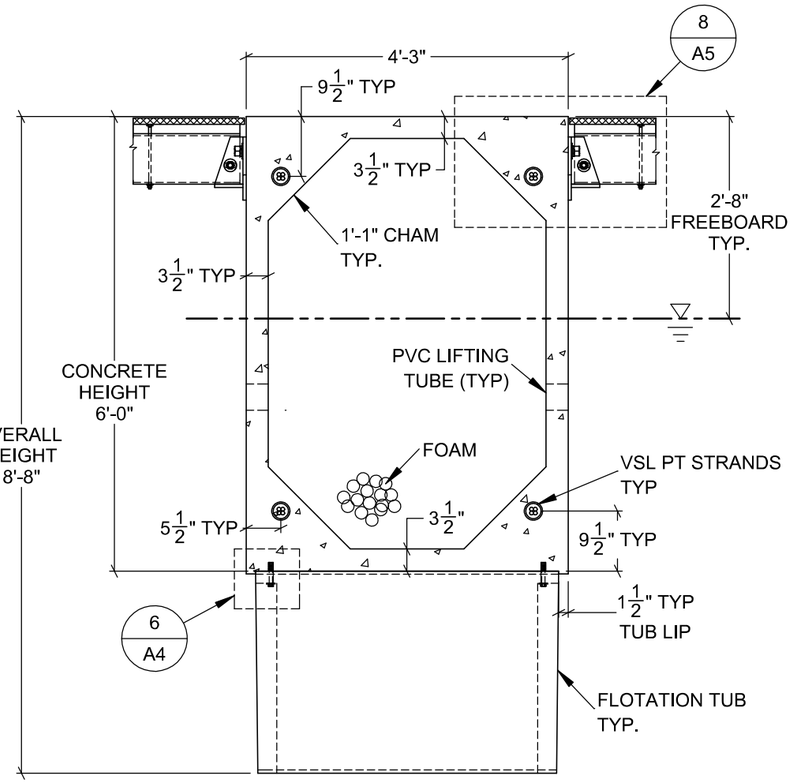
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	F10



1 A1 MODULE 1 FLOAT SECTION



2 A1 MODULE 2, 3, 5, 6, 8, 9 FLOAT SECTION

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Ferndale, WA 98248
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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	DIMENSIONS ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

ASSEMBLY DETAILS

Craig S. Funston
2019.10.08
09:53:47-07'00'

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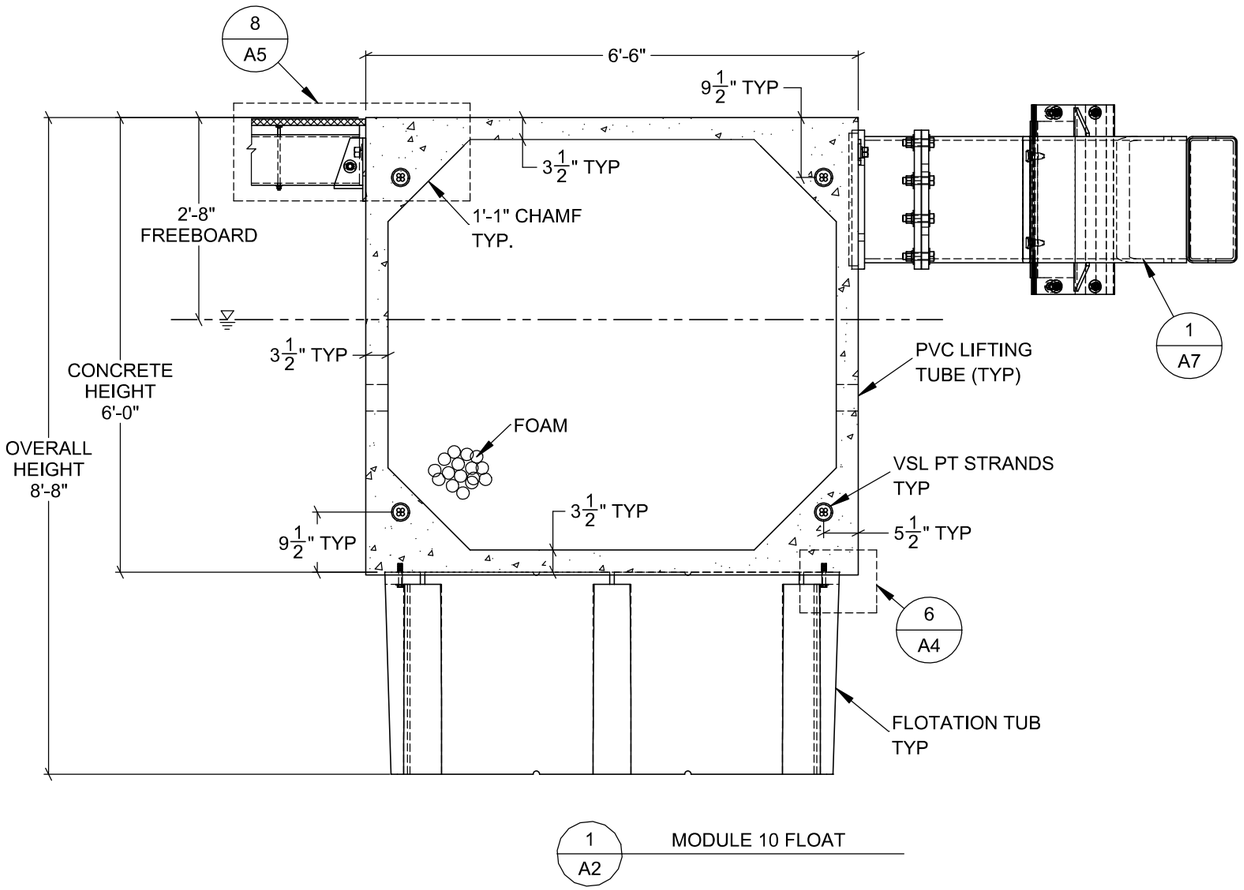
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	A1



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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

ASSEMBLY DETAILS

Craig S. Funston
2019.09.19
16:16:44-07'00'

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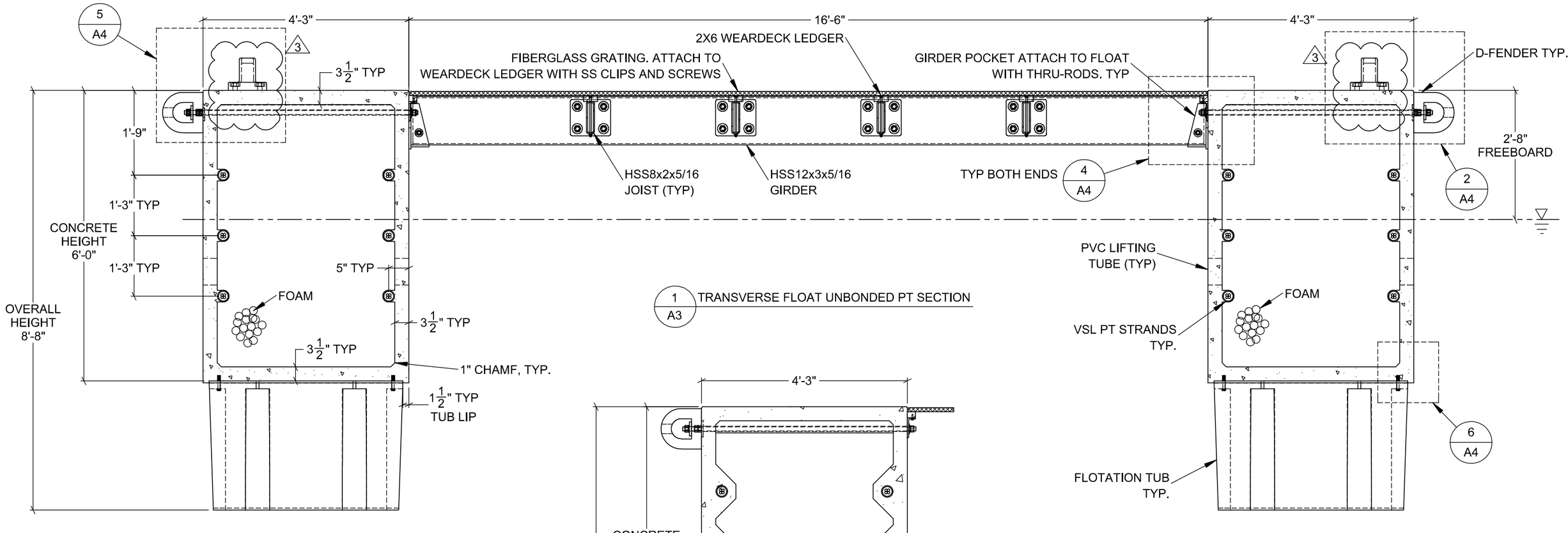
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	A2



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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

ASSEMBLY DETAILS

Craig S. Funston
2019.11.12
09:41:57-08'00'

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PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
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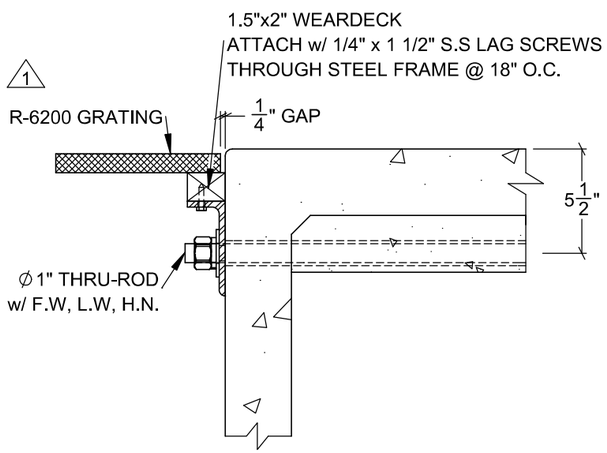
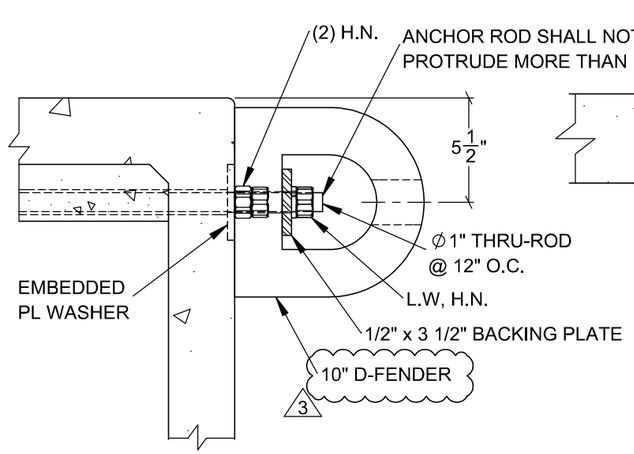
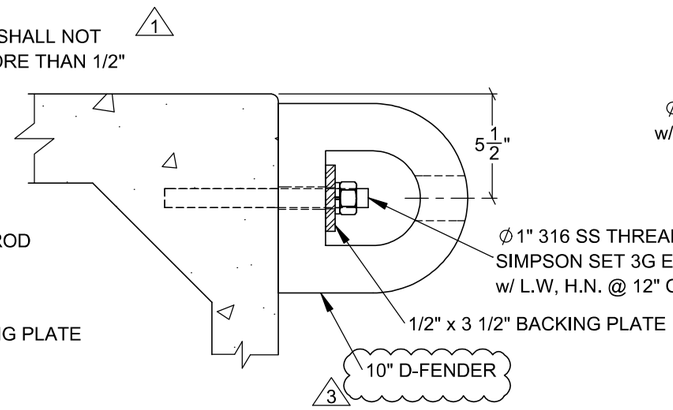


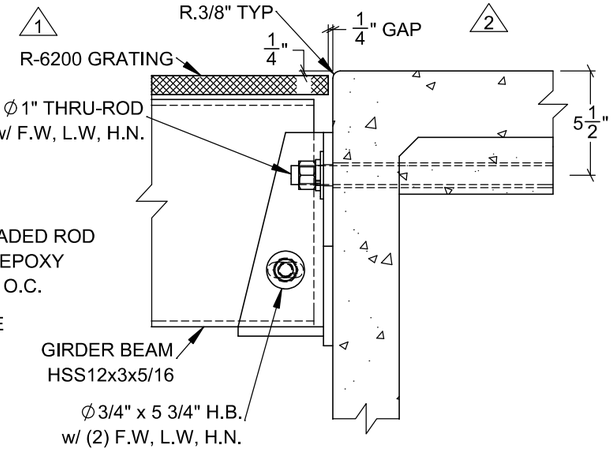
1 / A4 LEDGER SUPPORT



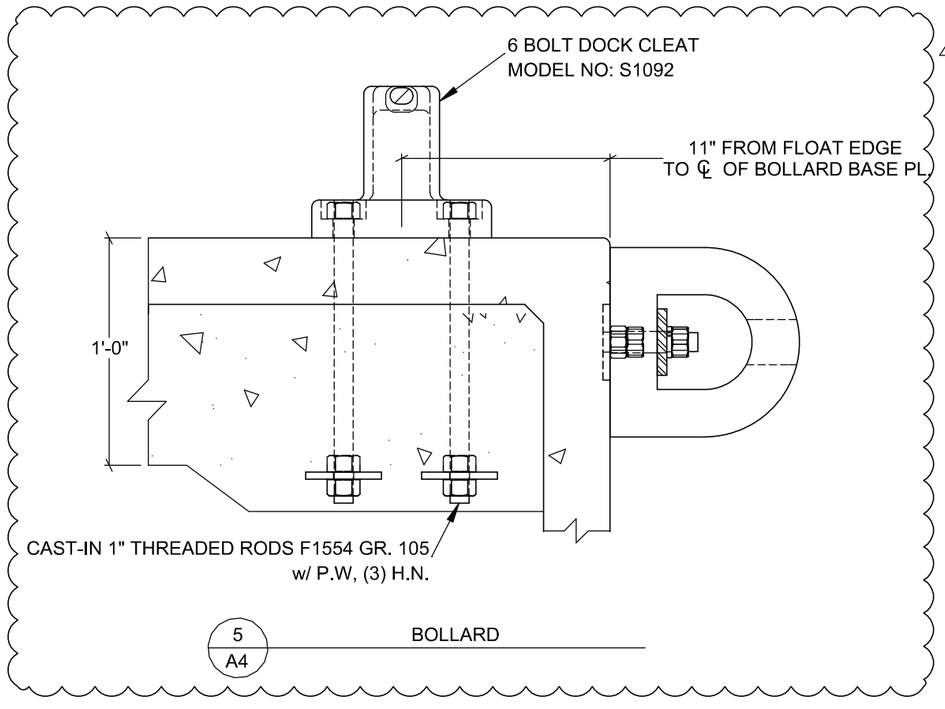
2 / A4 D-FENDER @ THRU RODS



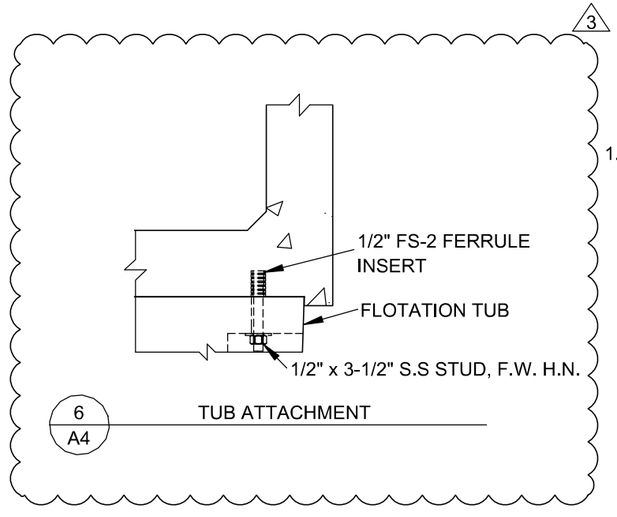
3 / A4 D-FENDER @ INSERTS



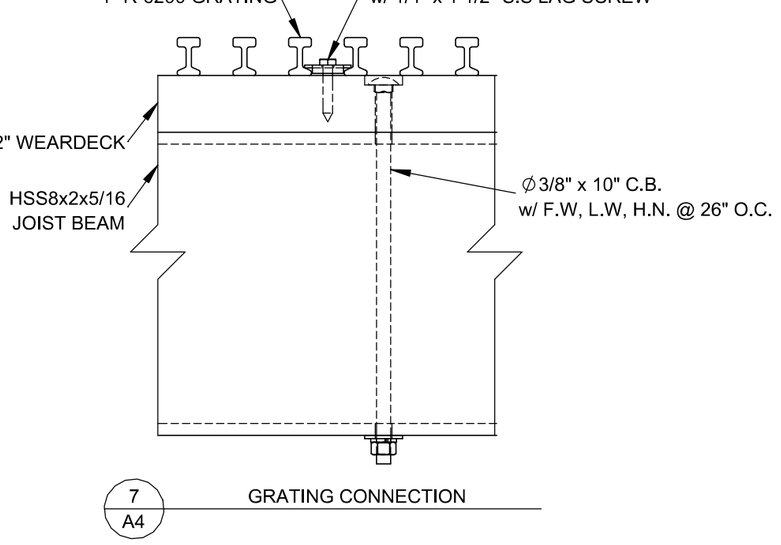
4 / A4 GIRDER HANGER



5 / A4 BOLLARD



6 / A4 TUB ATTACHMENT



7 / A4 GRATING CONNECTION

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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED / D-FENDER NAME UPDATED	SSB
2	10-21-19	NOTES UPDATED	SSB
1	10-04-19	NOTES UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

ASSEMBLY DETAILS

Craig S. Funston
2019.11.15
15:53:49-08'00'

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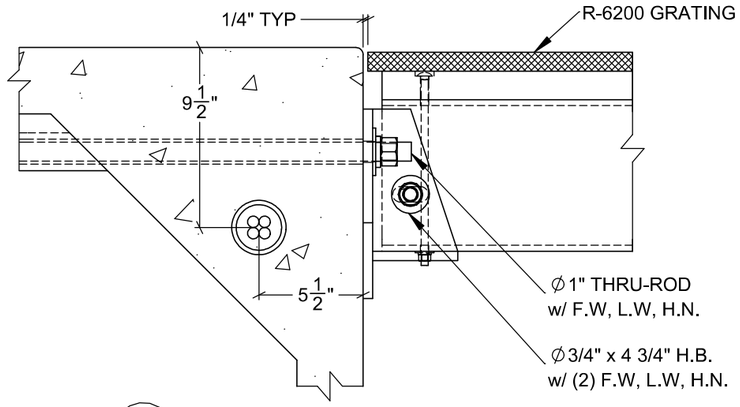
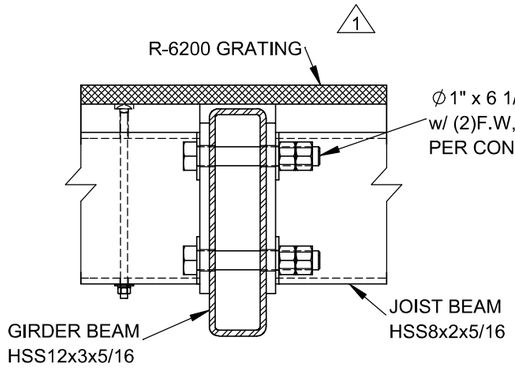
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

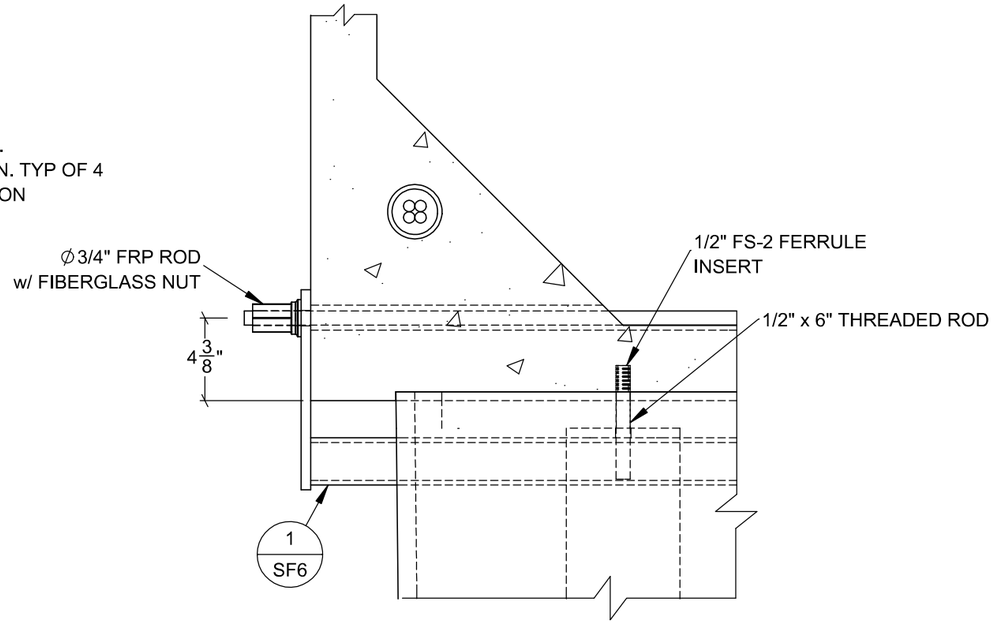
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	A4



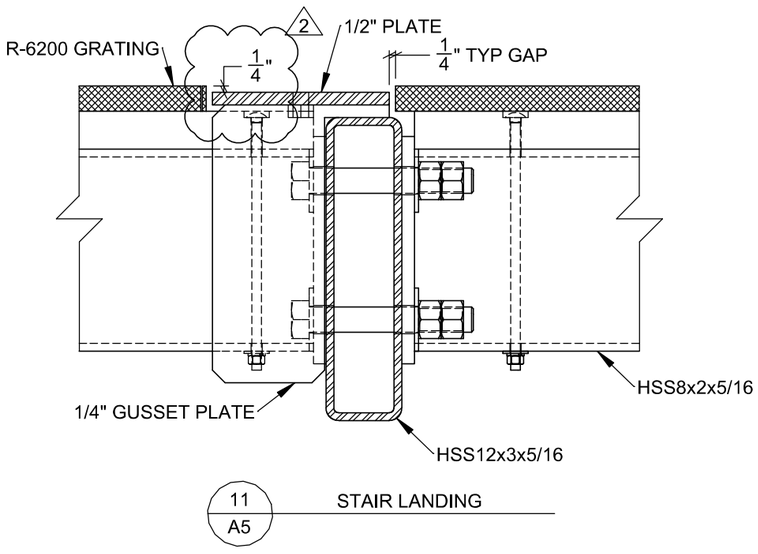
8 / A5 JOIST HANGER



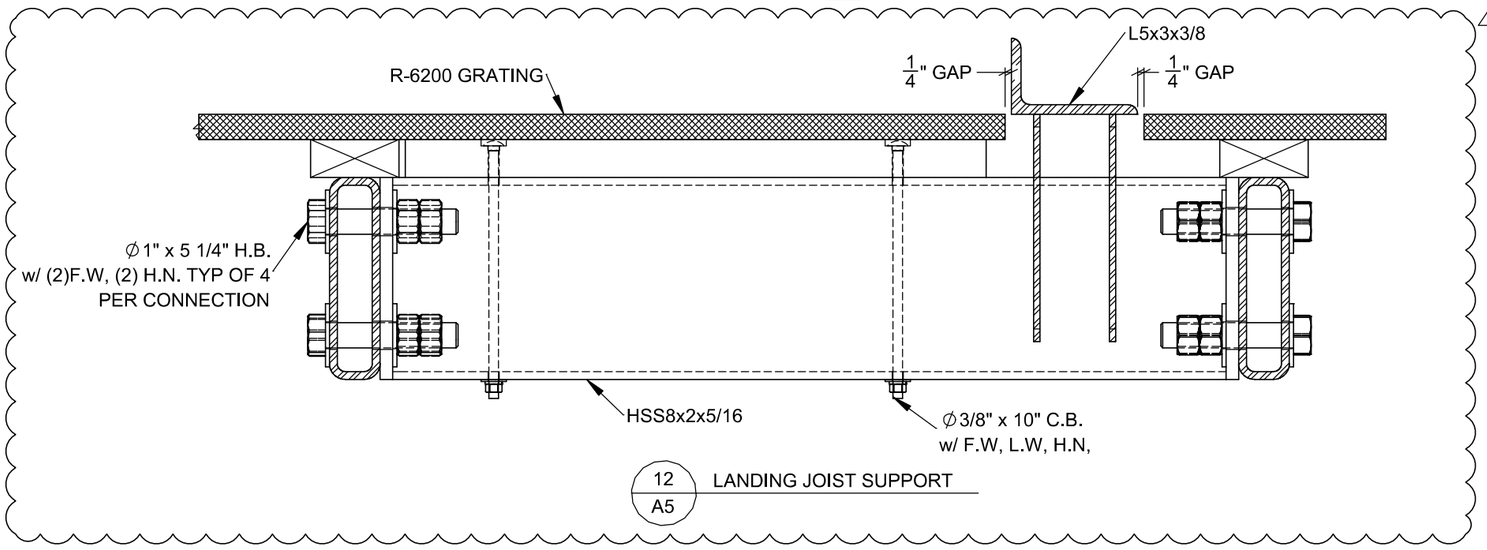
9 / A5 JOIST BEAM TO GIRDER



10 / A5 MODULE 1 TUB ATTACHMENT



11 / A5 STAIR LANDING



12 / A5 LANDING JOIST SUPPORT

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REVISIONS

NO.	DATE	DESCRIPTION	BY
2	10-21-19	DESING UPDATED	SSB
1	10-04-19	DESIGN UPDATED, NEW DETAIL ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

ASSEMBLY DETAILS

Craig S. Funston
2019.10.28
16:08:25-07'00'

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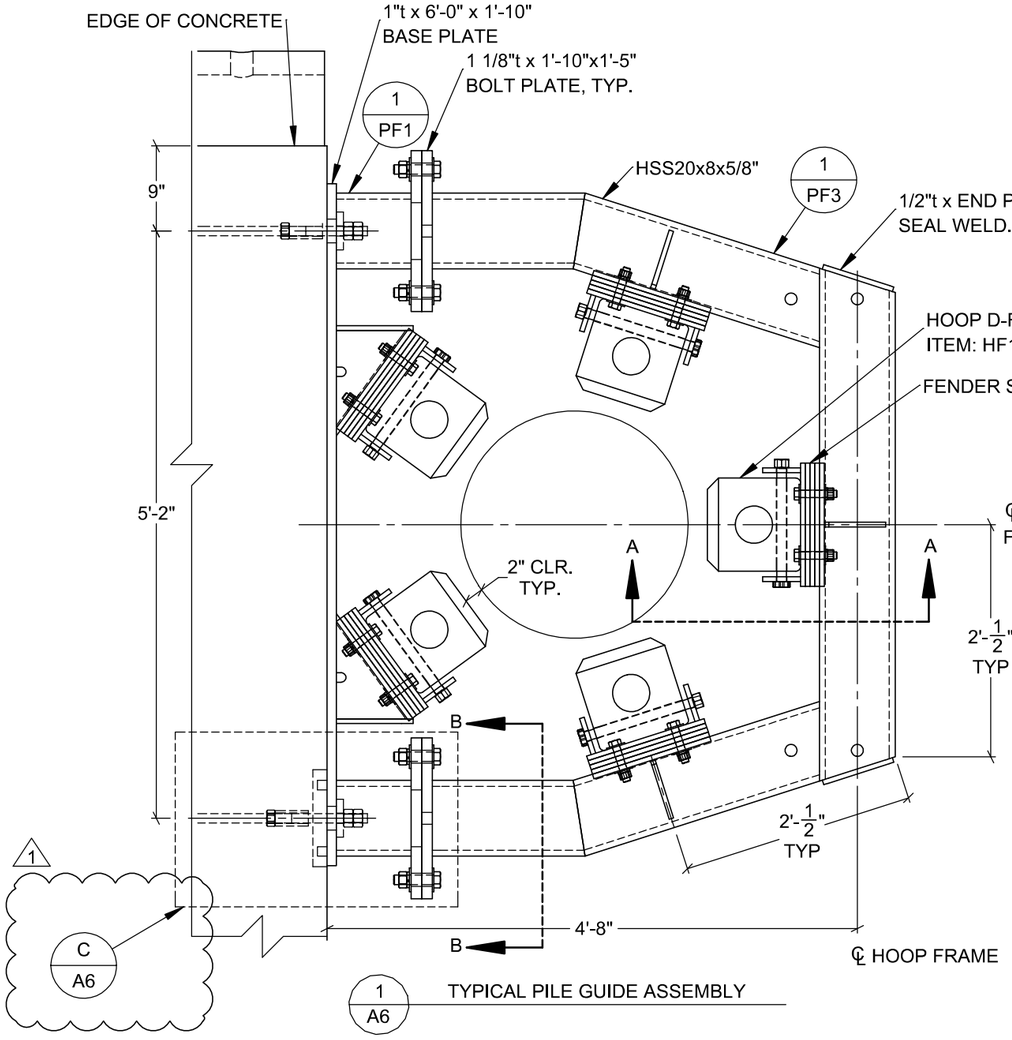
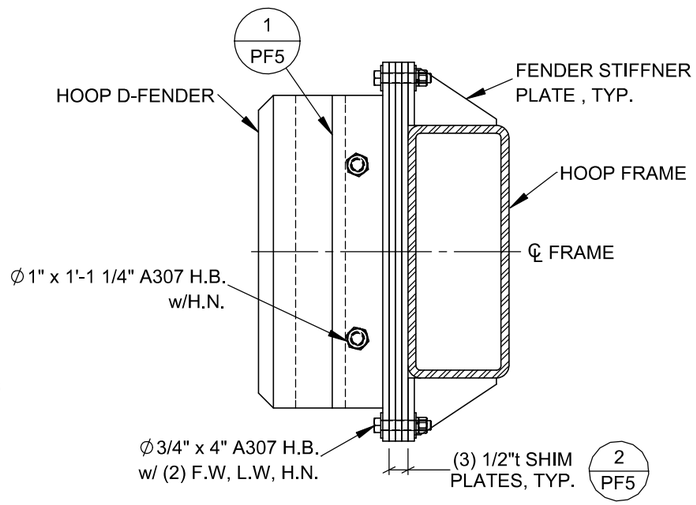
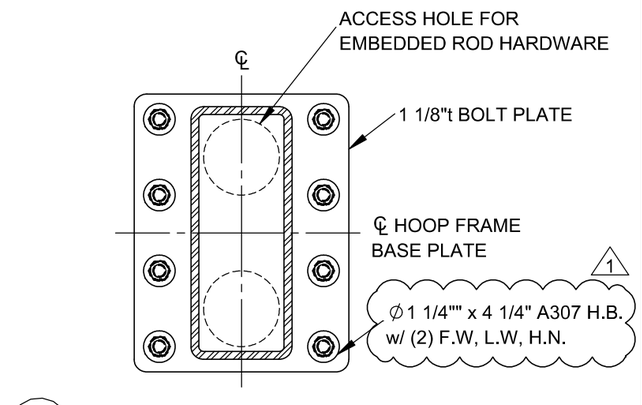
PROJECT NUMBER: 1757

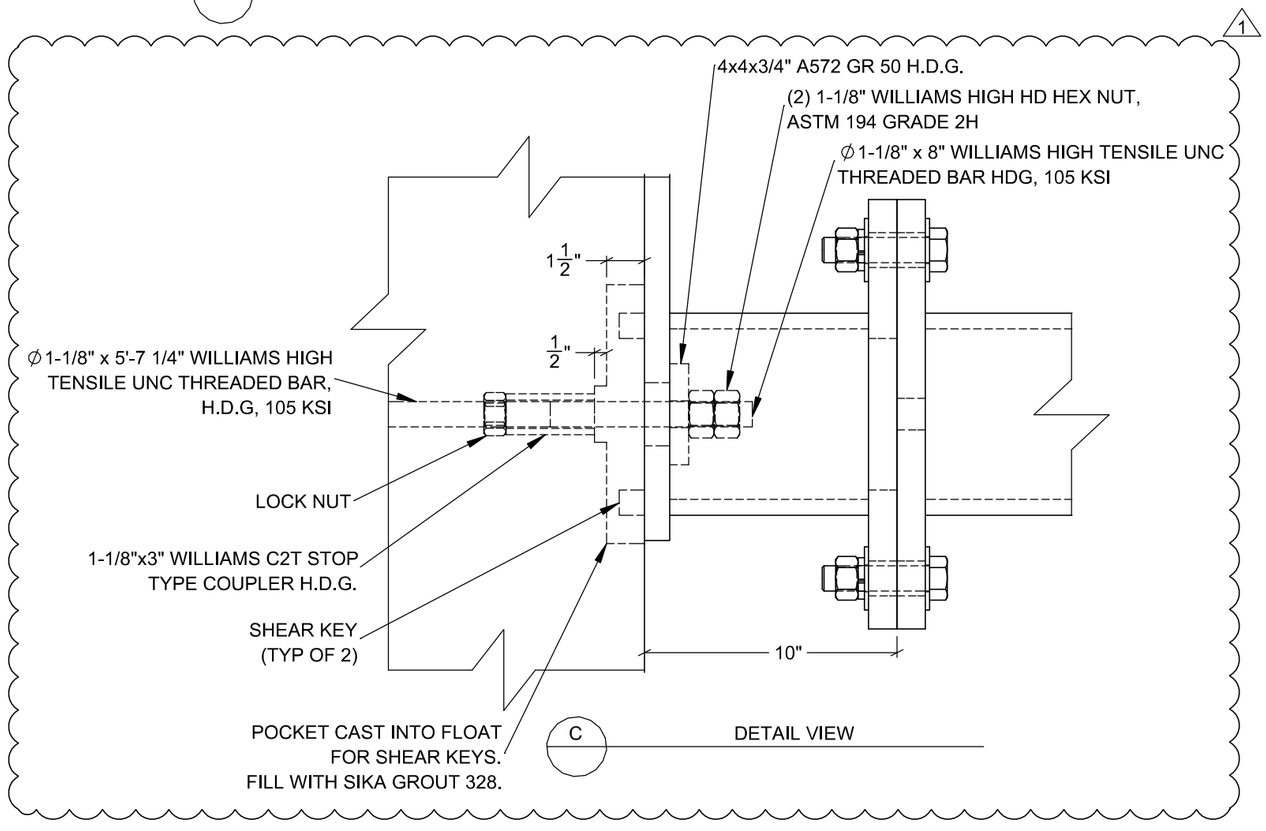
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	A5









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REVISIONS

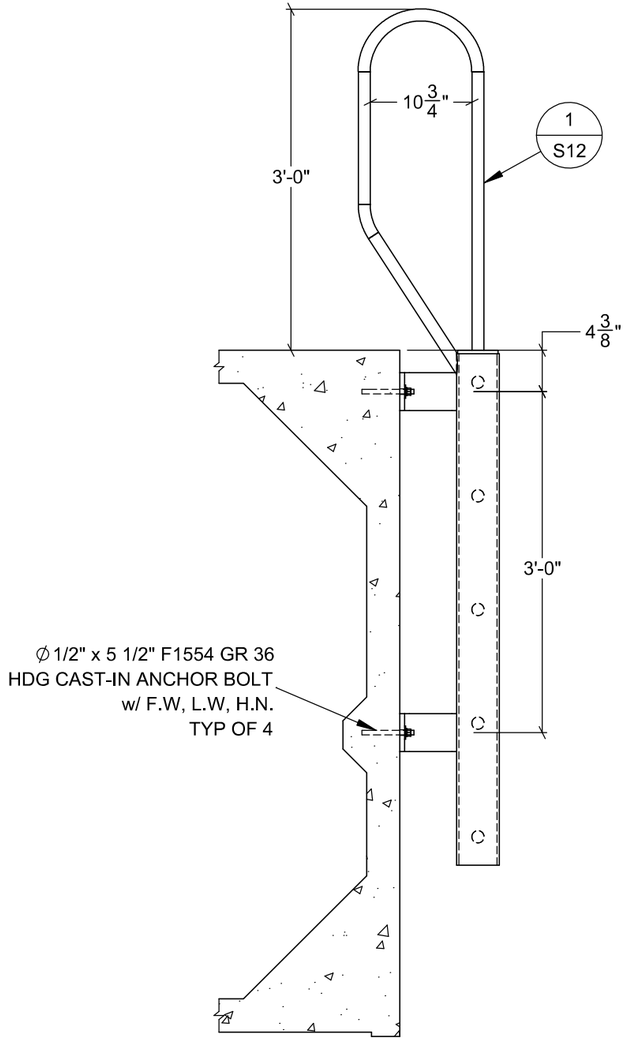
NO.	DATE	DESCRIPTION	BY
1	1004-19	NEW DETAIL ADDED, DESIGN UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

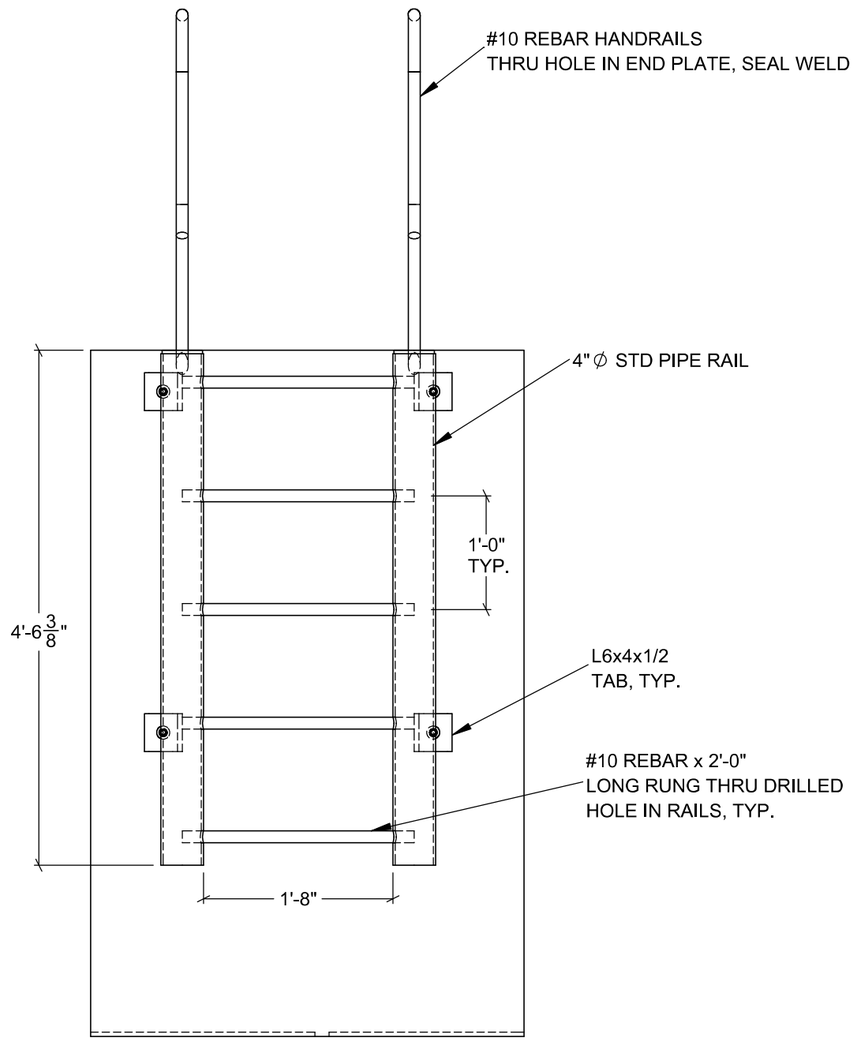
ASSEMBLY DETAILS

PROJECT NUMBER: 1757

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWN BY:	SSB
CHECKED BY:	DNS
DRAWING:	A6



1 A7 ACESS LADDER DETAIL



ELEVATION VIEW

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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

ASSEMBLY DETAILS

Craig S. Funston
2019.09.19
16:16:24-07'00'

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PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	A7

MULTISTRAND GENERAL NOTES

1.0 PRESTRESSING STEEL

1.1 PRESTRESSING STEEL SHALL BE 7-WIRE, LOW RELAXATION STRAND OF DOMESTIC ORIGIN WITH TAGS FOR PRESTRESSED CONCRETE MANUFACTURED IN ACCORDANCE WITH ASTM A416 - GRADE 270.

NOMINAL DIAMETER.....0.60 IN.
ASSUMED NOMINAL AREA.....0.217 SQ. IN.
ASSUMED MODULUS OF ELASTICITY.....28,500 KSI
GUARANTEED ULTIMATE TENSILE STRENGTH.....58.6 KIPS
MAX. TEMPORARY JACKING FORCE.....80% GUTS
MAX. @ ANCHORAGE.....70% GUTS
FRICTION COEFFICIENT.....0.14
WOBBLE COEFFICIENT.....0.0002/FT.
ANCHOR SET.....0.375 IN.

2.0 ANCHORAGES

2.1 ANCHORAGES SHALL MEET THE MINIMUM REQUIREMENTS SET FORTH IN AASHTO.

WEDGES.....AISI 11L17 / 1.6G WEDGE x 0.6 WITH GROOVE
DUCT.....59MM PT-PLUS

2.2 BEARING PLATES SHALL BE PLACED PERPENDICULAR TO THE TENDON PATH AND SHALL BE SHIMMED AS NECESSARY.

2.3 GROUT FITTINGS AND ATTACHMENTS SHALL BE POLYPROPYLENE OR POLYSTYRENE. PERMANENT FITTINGS SHALL BE NON-METALLIC.

3.0 TENDON FABRICATION AND SHIPMENT

3.1 TENDONS SHALL BE FABRICATED WITH SUFFICIENT LENGTH BEYOND THE BEARING PLATE TO ALLOW STRESSING. A MINIMUM LENGTH OF 48" BEYOND THE FACE OF THE ANCHORHEAD IS REQUIRED.

3.2 TENDONS SHALL BE CUT TO LENGTH AT THE JOBSITE FROM BULK COILS.

3.3 DAMAGED OR DENTED DUCT LENGTHS THAT MAY INHIBIT STRAND PLACEMENT SHALL BE REMOVED AND REPLACED COMPLETELY, NOT REPAIRED.

3.4 EACH SHIPMENT SHALL BE ACCOMPANIED BY A LIST OF MATERIALS INDICATING: TOTAL NUMBER OF STRAND COILS, DUCT, COMPONENTS, EQUIPMENT, ETC. UPON RECEIPT OF THE MATERIAL AND EQUIPMENT SHIPMENT, THE RECEIVER SHALL VERIFY THE QUANTITIES ARE IN AGREEMENT WITH THE SHIPPING LISTS AND SHALL NOTIFY THE SHIPPER AND STRUCTURAL TECHNOLOGIES / VSL OF ANY DISCREPANCIES.

3.5 MATERIALS SHALL BE ORDERED IN SUCH SEQUENCE AND QUANTITY TO ALLOW SHIPPING IN FULL TRUCKLOADS.

3.6 USE OF A NYLON SLING IS REQUIRED TO PREVENT DAMAGE TO THE MATERIALS DURING HANDLING. MATERIALS AND EQUIPMENT SHALL BE PROPERLY STORED AT THE JOBSITE TO PREVENT THEFT, DETERIORATION FROM WEATHER, ETC.

3.7 ALL PRESTRESSING COILS SHALL BE SATISFACTORILY PROTECTED AT THE JOBSITE AND WHEN STORED OFF THE JOBSITE FROM CORROSION AND DAMAGE. SUFFICIENT PROTECTION SHALL ALSO BE PROVIDED FOR EXPOSED IN-PLACE PRESTRESSING STEEL TO PREVENT EXCESSIVE DETERIORATION FROM CORROSION.

4.0 TENDON PLACEMENT

4.1 STRANDS, DUCTS, BEARING PLATES, AND ANCHORAGE SPIRALS SHALL BE PLACED ACCORDING TO THE QUANTITY AND SPACING SHOWN ON THE DRAWINGS.

4.2 DUCT SHALL BE SUPPORTED AT A MAXIMUM SPACING OF 24". TIE DUCT SECURELY TO ALL SUPPORTS.

4.3 THE GENERAL CONTRACTOR SHALL PROVIDE SUFFICIENT END FORM BULKHEADS FOR FASTENING BEARING PLATES AND DUCTS. THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY SHIMMING REQUIRED TO INSURE THAT BEARING PLATES ARE PLACED PERPENDICULAR TO THE TENDON PATH.

4.4 SECURE ATTACHMENT OF THE BEARING PLATES TO THE BULKHEAD. ALL BOLTS SHALL BE TIGHTENED SECURELY (BY OTHERS).

4.5 IF REQUIRED, THE ANCHORAGE SPIRAL SHALL BE PLACED CONCENTRIC TO THE TRUMPET PROVIDING THE REQUIRED COVER TO THE BULKHEAD. THE SPIRAL PITCH SHALL NOT EXCEED 3" AT ANY POINT AND OVERALL LENGTH SHALL BE MAINTAINED.

4.6 PLACEMENT OF MILD STEEL REINFORCEMENT SHALL BE COORDINATED WITH PLACEMENT OF POST TENSIONING TENDONS. PROPER TENDON PLACEMENT HAS PRIORITY.

4.7 SUFFICIENT SUPPORT STEEL SHALL BE PROVIDED BY OTHERS. THESE BARS ARE USED TO PREVENT LATERAL AND VERTICAL MOVEMENT OF THE TENDONS DURING CONCRETE PLACEMENT.

4.8 ALL SUPPORT STEEL (BY OTHERS) AND POST TENSIONING TENDONS SHALL BE FIRMLY SECURED IN FORMS TO OBTAIN DIMENSIONS AND LOCATIONS AS REQUIRED.

4.9 AN INTERNAL SUPPORT STRUCTURE (BY OTHERS) SHALL BE USED IN THE ANCHOR TRUMPET DURING CONCRETING AND CURING OPERATIONS TO PREVENT TRUMPET COLLAPSE AND/OR POTENTIAL DAMAGE TO THE POST TENSIONING SYSTEM.

4.10 CONCRETE SHALL BE PLACED IN SUCH A MANNER AS TO INSURE THAT ALIGNMENT OF POST TENSIONING TENDONS REMAINS UNCHANGED. SPECIAL PROVISIONS SHALL BE MADE TO INSURE PROPER PLACEMENT OF REINFORCING STEEL AND PLACEMENT AND CONSOLIDATION OF CONCRETE BEHIND AND AROUND POST TENSIONING ANCHORAGES AND DUCTS.

4.11 DUCT JOINTS SHALL USE PT-PLUS DUCT COUPLERS. TIE WIRE COUPLERS SECURELY TO KEEP THEM TOGETHER IN CASE THE COUPLER CLAMP BREAKS DURING CONCRETING.

4.12 INSPECT ANCHORAGE UPON REMOVAL OF BULKHEADS. CHECK FOR MISALIGNMENT OF BEARING PLATES, TRUMPETS, AND DUCTS. CHECK FOR CONCRETE OR DEBRIS IN DUCTS.

5.0 STRESSING

5.1 THE STRESSING OPERATIONS MUST BE UNDER THE IMMEDIATE CONTROL OF A PERSON EXPERIENCED IN THIS TYPE OF WORK; HE SHALL MAINTAIN A CLOSE CHECK AND RIGID CONTROL OF ALL OPERATIONS. SAFETY IS THE TOP PRIORITY!

5.2 ADEQUATE ACCESS SCAFFOLDS, PLATFORMS, AND SAFETY DEVICES SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AS REQUIRED BY GOVERNING JOBSITE STANDARDS, INSTALLATION, OR STRESSING PROCEDURES.

5.3 READ VSL MAINTENANCE MANUAL FOR FIELD SAFETY AND MAINTENANCE OPERATIONS. THE JOBSITE SAFETY PROGRAM SHALL INCLUDE STRUCTURAL TECHNOLOGIES / VSL SAFETY POLICIES AND PROCEDURES.

5.4 TAKE SAFETY PRECAUTIONS AS NECESSARY. DO NOT PERMIT ANYONE TO STAND BEHIND, ABOVE, OR BELOW RAMS, OR DEAD END AREA WHILE STRESSING. ONLY ESSENTIAL PERSONNEL SHALL BE IN THE AREA.

5.5 ALL TENDONS SHALL BE STRESSED BY MEANS OF STRUCTURAL TECHNOLOGIES / VSL HYDRAULIC RAMS, EQUIPPED WITH CALIBRATED HYDRAULIC PRESSURE GAUGES. A CALIBRATION CHART SHALL ACCOMPANY EACH GAUGE. NOTE: RAMS AND GAUGES ARE NOT TO BE INTERCHANGED.

5.6 THE STRANDS MAY BE FULLY STRESSED WHEN CONCRETE TEST CYLINDERS, CURED UNDER JOBSITE CONDITIONS, HAVE BEEN TESTED AND INDICATE THE CONCRETE HAS REACHED THE MINIMUM CYLINDER STRENGTH INDICATED ON THE POST TENSIONING DRAWINGS.

5.7 THE POST TENSIONING OPERATION SHALL BE SO CONDUCTED THAT ACCURATE ELONGATION OF THE TENDONS CAN BE RECORDED AND COMPARED WITH ELONGATIONS.

5.8 RECORDS OF ALL GAUGE PRESSURES AND ELONGATIONS SHALL BE SUBMITTED PROMPTLY TO THE ENGINEER FOR APPROVAL.

5.9 PROPER ALIGNMENT OF THE ANCHORAGE AND JACKING EQUIPMENT IS MANDATORY DURING ALL STRESSING OPERATIONS.

5.10 STRESSING PROCEDURE (MULTISTRAND)

A) INSPECT RAM AND PUMP FOR LOOSE SCREWS, FITTINGS, ELECTRICAL, AND HOSE CONNECTIONS AND TIGHTEN IF NECESSARY. CHECK JACK GRIPPERS TO INSURE THEY ARE CLEAN AND ALIGNED PROPERLY.

B) INSTALL ANCHOR HEAD, CONFIRM THAT ANCHOR HEAD IS CENTERED AND INSTALL WEDGES INTO EACH WEDGE CAVITY (DO NOT REMOVE OILY FILM FROM WEDGES).

C) AS A REFERENCE FOR ELONGATIONS MEASUREMENTS, MARK BOTH ENDS OF STRANDS BEYOND THE JACK GRIPPER LOCATION. THE MARK SHALL BE A CONSISTENT DISTANCE FROM A FIXED REFERENCE.

D) STRESS INITIALLY TO 20% OF PJACK, MEASURE DISTANCE FROM A FIXED REFERENCE TO DATUM POINT ON STRAND AT BOTH ENDS. RECORD MEASUREMENTS.

E) STRESS TO 100% OF PJACK. MEASURE ELONGATION FROM FIXED REFERENCE TO DATUM POINT ON STRAND. RECORD ELONGATION. MEASURE OPPOSITE END FOR WEDGE SEATING AND RECORD. ELONGATIONS ARE AFTER SLACK REMOVAL (20% OF PJACK) AND BEFORE LIVE END WEDGE SEATING.

F) RETRACT RAM AND REMOVE FROM TENDON. VERIFY WEDGES ARE SEATED ON BOTH ENDS.

G) PROMPTLY SUBMIT STRESSING RECORDS TO THE ENGINEER. UPON APPROVAL OF THE ELONGATIONS, STRESSING TAILS MAY BE REMOVED USING AN APPROVED METHOD TO APPROXIMATELY 3/4" FROM FACE OF ANCHOR HEAD.

H) INSTALL GROUT FITTINGS AND PREPARE FOR GROUTING.

6.0 GROUTING

6.1 FOR GROUTING REQUIREMENTS, SEE CONTRACT DOCUMENTS.

7.0 MISCELLANEOUS

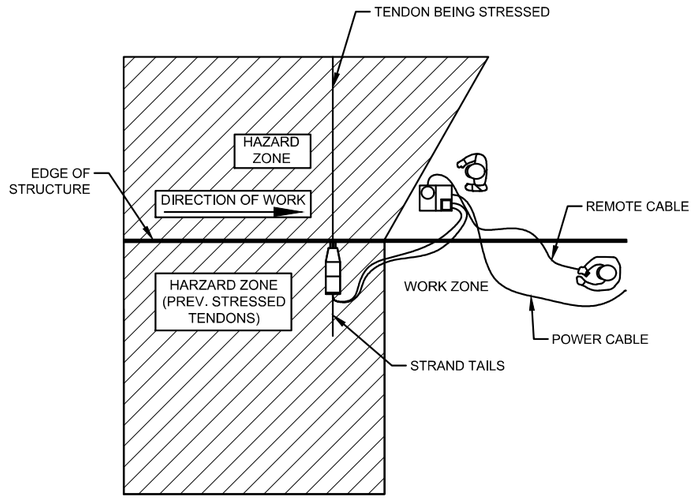
7.1 ALL EQUIPMENT AND PROCEDURES USED FOR HANDLING AND PLACING TENDONS SHALL NOT DAMAGE OR CAUSE DETERIORATION TO THE PRESTRESSING STEEL, DUCT, OR COMPONENTS.

7.2 ALL CONCRETE INSERTS MUST BE CAST-IN-PLACE. IF ADDITIONAL INSERTS ARE REQUIRED AFTER THE CONCRETE IS CAST, THE CONTRACTOR MUST LOCATE TENDONS AT THE SURFACE OF THE CONCRETE BEFORE DRIVING FASTENERS. IF THERE IS A RISK OF PENETRATING THE TENDON, WRITTEN APPROVAL MUST BE OBTAINED FROM THE ENGINEER PRIOR TO PENETRATING THE CONCRETE SURFACES.

7.3 ALL STRESSING RECESSES, CLOSURE STRIPS, AND CONSTRUCTION JOINTS REQUIRED FOR ANCHORAGES MUST BE ADEQUATELY REINFORCED SO AS TO NOT DECREASE THE STRENGTH OF THE STRUCTURE. COLD JOINTS SHALL NOT INTERSECT ANCHORAGES.

STRESSING SAFETY GUIDELINES

1. THESE STRESSING SAFETY GUIDELINES APPLY TO ALL STRAND AND HIGH STRENGTH BAR TENDONS BUT ARE NOT INTENDED TO BE COMPLETE GUIDELINES ADDRESSING ALL CONSIDERATIONS REQUIRED TO MAINTAIN SAFETY. IT IS THE RESPONSIBILITY OF THE PLACER (THE CONTRACTOR PERFORMING STRESSING OPERATIONS) TO HAVE THE TRAINING AND EXPERIENCE IN ALL EQUIPMENT OPERATIONS AND SAFETY REQUIREMENTS NECESSARY TO PREVENT PROPERTY DAMAGE AND MAINTAIN THE SAFETY OF JOBSITE PERSONNEL AND THE GENERAL PUBLIC.
2. THE NON-STRESSING END OR FIXED END OF A TENDON MAY BE AS HAZARDOUS AS THE STRESSING END. SIMILAR PRECAUTIONS, SUCH AS PLYWOOD BARRIERS, SHOULD BE TAKEN AT BOTH ENDS AS DIRECTED BY THE PLACER.
3. WEDGES AND WEDGE CAVITIES MUST BE FREE OF CEMENT PASTE, DEBRIS AND CORROSION. THE NOSE OF THE RAM MUST PROPERLY SEAT AGAINST THE ANCHORAGE BEARING SURFACE. THE RAM MUST EXTEND PROPERLY AND NOT CONTACT OBSTRUCTIONS DURING STRESSING.
4. PROPER THREAD ENGAGEMENT OF HEX NUTS (INCLUDING LIVE AND DEAD ENDS) AND COUPLERS FOR HIGH STRENGTH BAR TENDONS MUST BE VERIFIED PRIOR TO STRESSING.
5. IMMEDIATELY CEASE STRESSING AND REMOVE ALL PERSONNEL FROM THE AREA IF ANY EXISTING CRACK WIDENING, NEW CONCRETE CRACKING, BEARING PLATE MOVEMENT, OR UNUSUAL SOUNDS ARE OBSERVED.
6. WORK ZONES SHALL BE DEFINED BY THE PLACER AND ONLY ESSENTIAL PERSONNEL SHALL OCCUPY THE WORK ZONES DURING STRESSING OPERATIONS.
7. HAZARD ZONES SHALL BE DEFINED BY THE PLACER AND ENTERING THE HAZARD ZONES SHALL BE AVOIDED DURING STRESSING OPERATIONS AND FOR A PERIOD OF TIME AFTER COMPLETION OF STRESSING OPERATIONS AS DIRECTED BY THE PLACER.
8. TOOLS, MATERIALS, AND EQUIPMENT NOT ESSENTIAL TO THE STRESSING OPERATION SHALL BE CLEARED FROM THE WORK AND HAZARD ZONES DURING STRESSING OPERATIONS. STRESSING EQUIPMENT SHALL BE SECURED TO PREVENT FALLING FROM ELEVATED AREAS IN THE EVENT OF A FAILURE. STAND CLEAR OF EQUIPMENT, HOSES, AND ELECTRICAL CORDS WHILE STRESSING IS TAKING PLACE.



STRESSING SAFETY DETAIL

NO	DESCRIPTION	BY	CHK	DATE
0	FOR APPROVAL	CDL	JJ	13SEP2019

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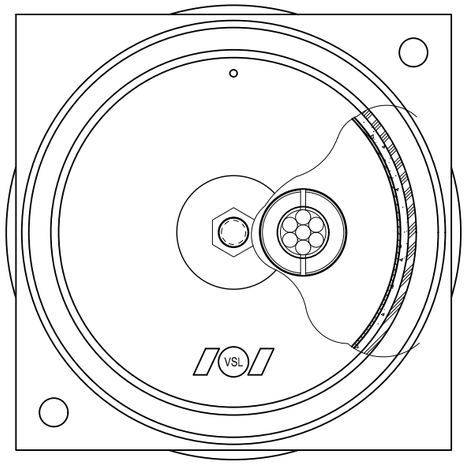
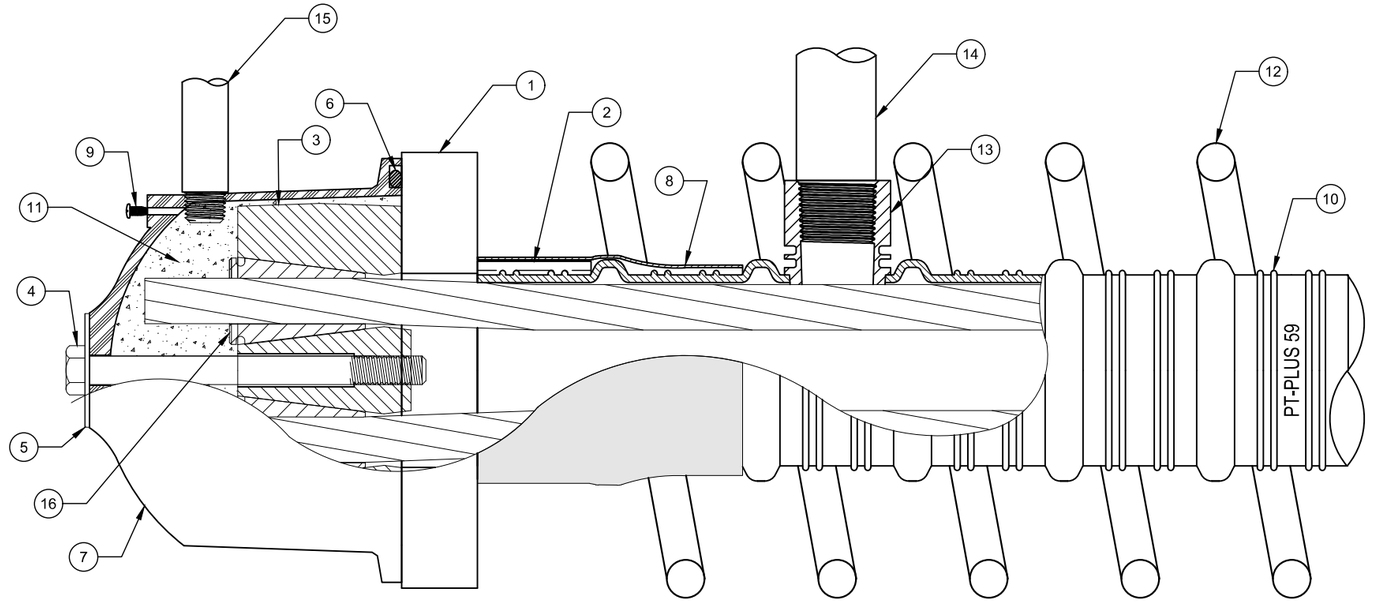
PROJECT INFORMATION:
KITSAP TRANSIT
ANNAPOLIS FERRY DOCK UPGRADES
PORT ORCHARD, WA

TITLE: GENERAL NOTES

PROJECT NO: 429361
SCALE: NTS
SHEET NO: PT-01

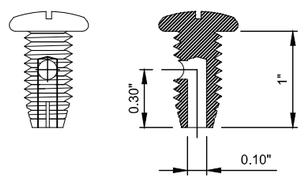


FRONT VIEW



ELEVATION VIEW

ITEM	QTY	DESCRIPTION	MATERIAL	INVENTORY #
1	1	BEARING PLATE E6-4	STEEL A36 Fy=36 ksi, GALV.	-
2	1	1.5" LENGTH DUCT CONNECTOR	2½"Ø SCHED. 10 PIPE, STEEL A53 GR. B Fy=35KSI, GALV.	-
3	1	ANCHOR HEAD ECI 6-4	CAST STEEL	02AH034D
4	1	3/8" DIA X 4 1/2" HEX BOLT, 16 THREAD	ASTM F593 TYPE 316 STAINLESS STEEL	-
5	1	3/8" X 1.5" DIA FENDER WASHER	316 STAINLESS STEEL	-
6	1	O-RING, PARKER # 2-352	BUNA-N 70D	-
7	1	ECI 6-4 GROUT CAP	ABS LUSTRAN 633	02WX5010
8	1	HEAT SHRINK, 3 1/2" LENGTH	POLYOLEFIN	-
9	1	CAP VENT PLUG - SS SCREW	STAINLESS STEEL	02WX7001D
10	-	DUCT, WHT PP, 59 MM PT-PLUS	POLYPROPYLENE	02DT0412
11	-	GROUT	JOB SPECIFIC	-
12	1	SPIRAL (#4, DIA. 6", 2" PITCH, 5 TURNS)	A615, GR 60	-
13	1	3/4" FNPT SMOOTH GROUT PORT PE	POLYEHTYLENE	02DT0253
14	-	3/4" NPT GALV. STEEL NIPPLE	SCH 40 STEEL	-
15	-	1/4" NPT GALV. STEEL NIPPLE	SCH 40 STEEL	-
16	4	1.6G WEDGE .6 1.77 W/GROOVE	AISI 11-L-17/12-L-14	02WG0008



CAP VENT PLUG DETAIL

NO	DESCRIPTION	BY	CHK	DATE
0	FOR APPROVAL	CDL	JJ	13SEP2019

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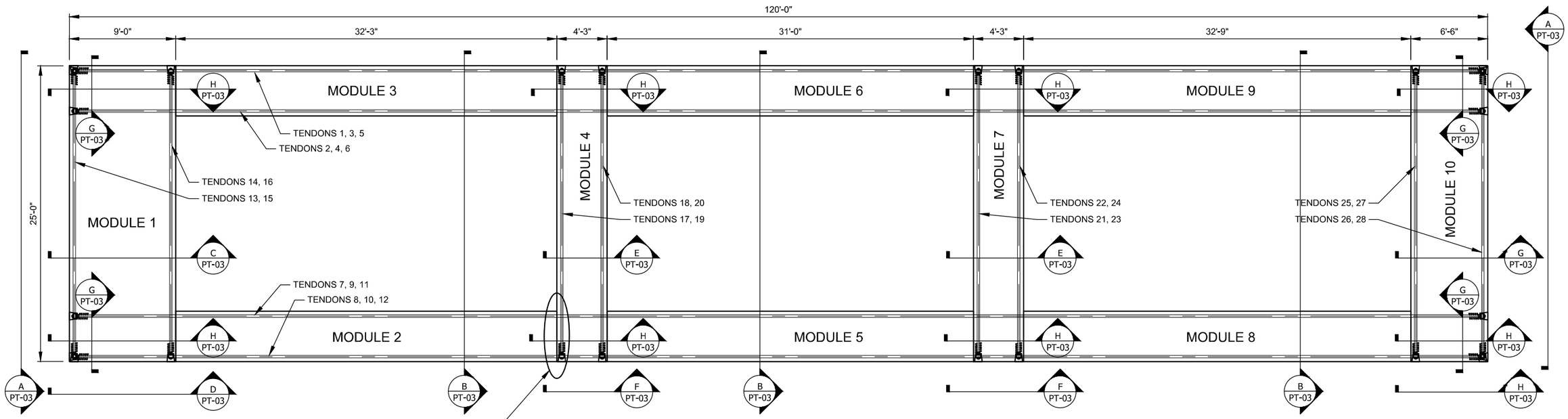
PROJECT INFORMATION:
KITSAP TRANSIT
ANNAPOLIS FERRY DOCK UPGRADES
PORT ORCHARD, WA

TITLE:
ECI 6-4 SYSTEM DRAWINGS

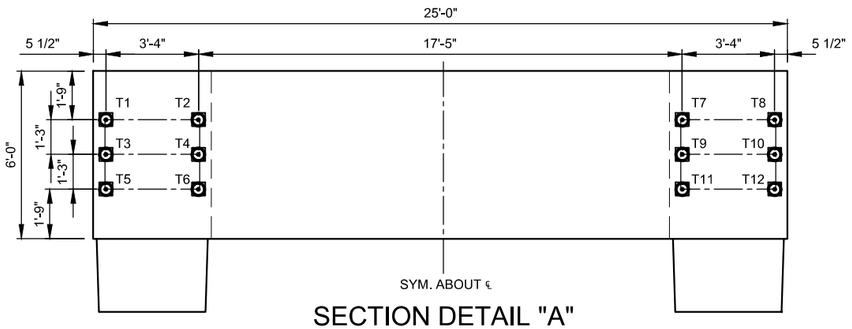
PROJECT NO: 429361
SCALE: NTS
SHEET NO: PT-02



CONTRACTOR TO ENGINEER DUCT CONNECTION AT MODULE JOINTS. WATERTIGHT DUCT CONNECTIONS, TYP. (DETAILS BY OTHERS)

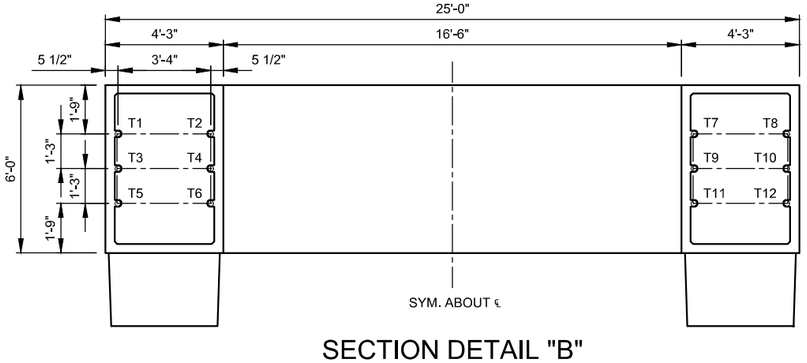
NOTE: GROUT INLETS AND OUTLETS LOCATED AT BEARING PLATES

TENDON PLAN - MODULES 1-10

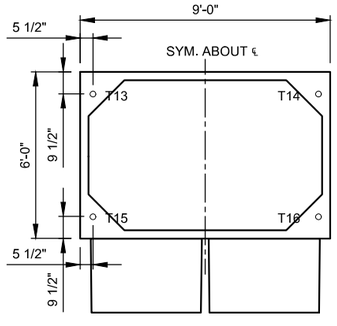


SECTION DETAIL "A"

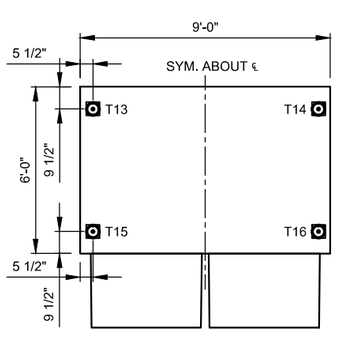
(MODULE 1 SHOWN, MODULE 10 OPPOSITE HAND)



SECTION DETAIL "B"



SECTION DETAIL "C"



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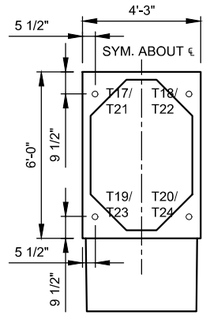

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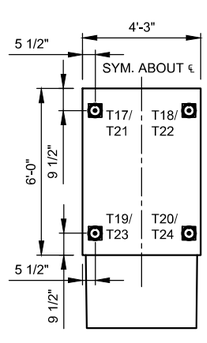

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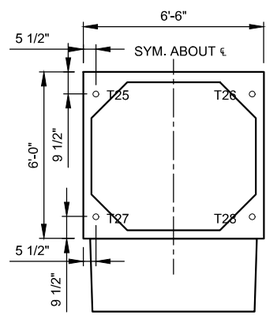
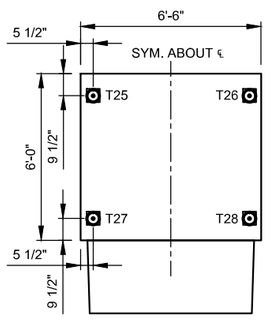


SECTION DETAIL "G"



SECTION DETAIL "H"

NOTES
1. ALL DUCT IS TO BE 59MM PT-PLUS
2. ALL TENDONS HAVE 4 STRANDS EACH
3. ANCHORAGES AND GROUT PORTS BY STRUCTURAL TECHNOLOGIES
4. BLOCKOUT FORMS TO BE 6" PVC 6" DEEP

NO	DESCRIPTION	BY	CHK	DATE
0	FOR APPROVAL	CDL	JJ	13SEP2019

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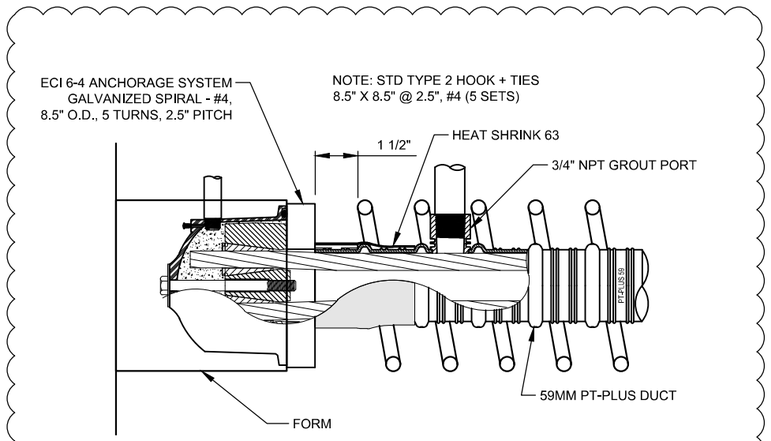
PROJECT INFORMATION:
KITSAP TRANSIT
ANNAPOLIS FERRY DOCK UPGRADES
PORT ORCHARD, WA

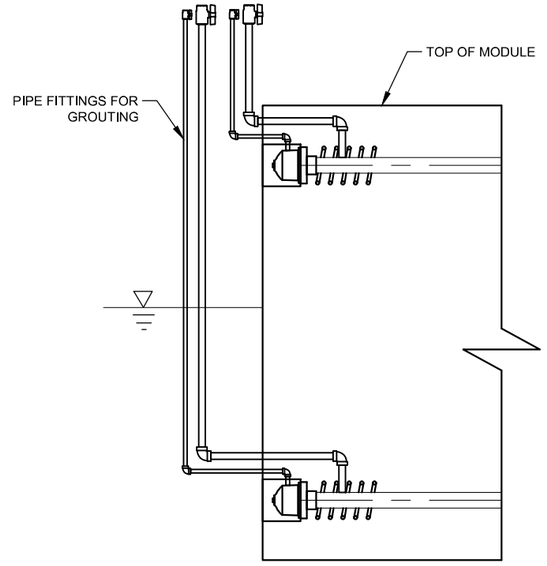
TITLE: MODULE TENDON LAYOUTS & SECTION DETAILS

PROJECT NO: 429361
SCALE: NTS
SHEET NO: PT-03



TYPICAL ANCHORAGE ZONE DETAIL

EOR VERIFY COVER ON LOCAL ZONE



GROUT ACCESSORY ARRANGEMENT

STRESSING DATA SUMMARY					
TENDON NUMBER	NUMBER OF STRANDS PER TENDON	TENDON STRESSING LENGTH	100% PJACK/TENDON (kips)	INITIAL 20% PJACK/TENDON (kips)	*TOTAL MEASURABLE ELONGATION (in)
T1-T12	4-0.6"Ø	118.79'	187.5	37.5	8.54
T13-T28	4-0.6"Ø	23.83'	187.5	37.5	1.73

*ELONGATIONS ARE AFTER SLACK REMOVAL (20% OF P-JACK) AND BEFORE LIVE END WEDGE SEATING. ELONGATIONS DO NOT INCLUDE ELONGATION IN RAM.

PRESTRESSING CALCULATIONS

USE: 0.6"Ø, GRADE 270, LOW-RELAXATION, 7-WIRE STRAND (ASTM A416)
GUARANTEED MINIMUM ULTIMATE STRENGTH = 58,600 LBS.

GIVEN: (μ) = 0.14, K = 0.0002 RAD./FT.
ANCHOR SET = 0.25 IN

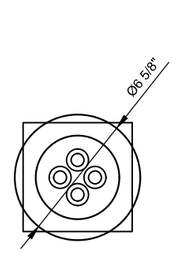
NOTES:

1. ASSUMED A = 0.217 IN² AND E = 28,500 KSI USED FOR ELONGATION CALCULATIONS TO BE VERIFIED ON ACTUAL PRESTRESSING STEEL USED. THESE FIGURES MAY VARY, WHICH WOULD RESULT IN A VARIANCE OF THE CALCULATED ELONGATION.
2. CONCRETE STRENGTH: MINIMUM f'ci = 3,500PSI @ TIME OF STRESSING.
3. PT TENDONS ARE DOUBLE END STRESSED AND WILL HAVE 4' TAIL AT EACH STRESSING END.
4. SEE DRAWING NO. PT01 FOR GENERAL NOTES AND ANCHORAGE DETAILS.
5. MINIMUM DUCT BEND RADIUS = 25'-0".

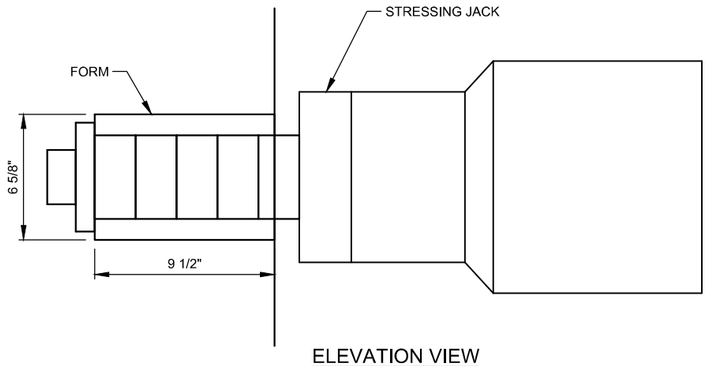
STRESSING SEQUENCE
STAGE 1:
ENSURE ALL SHEAR KEYS ARE PROPERLY SEATED. USE TEMPORARY EXTERNAL ALIGNMENT EQUIPMENT.

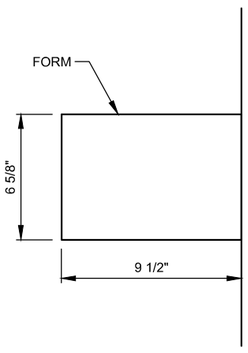
STAGE 2: DOCK FIRST END SEQUENCE (TENDONS SHALL BE ONE END STRESSED):
STEP 1: TENDON #1-28, STRESS TO 20% PJACK –> MARK TENDON, AT BOTH ENDS. THEN STRESS TO 100% PJACK.

ENGINEER TO VERIFY STRESSING SEQUENCE



FRONT VIEW





ELEVATION VIEW

TENDON BLOCK OUT DIMENSIONS

*SHIM BEARING PLATE PERPENDICULAR TO AS-BUILT TENDON PATH

BILL OF MATERIALS (FOR STRUCTURAL TECHNOLOGIES INTERNAL USE ONLY)		
QTY	DESCRIPTION	INVENTORY #
56	ECI 6-4 GROUT CAP	02WX5010
56	ECI 6-4 GROUT CAP O-RING	02WX5011
56	ECI 6-4 ANCHOR HEAD	02AH0034
56	ECI 6-4 BEARING PLATE	-
56	ECI 6-4 HEX BOLT/WASHER, 316L SS, DOM	02WX4010D
1812 FT.	DUCT WHT PP 59MM PT-PLUS	02DT0412
224	1.6G WEDGE .6 1.77 W/GROOVE	02WG0008
50 CU. FT.	GROUT	-

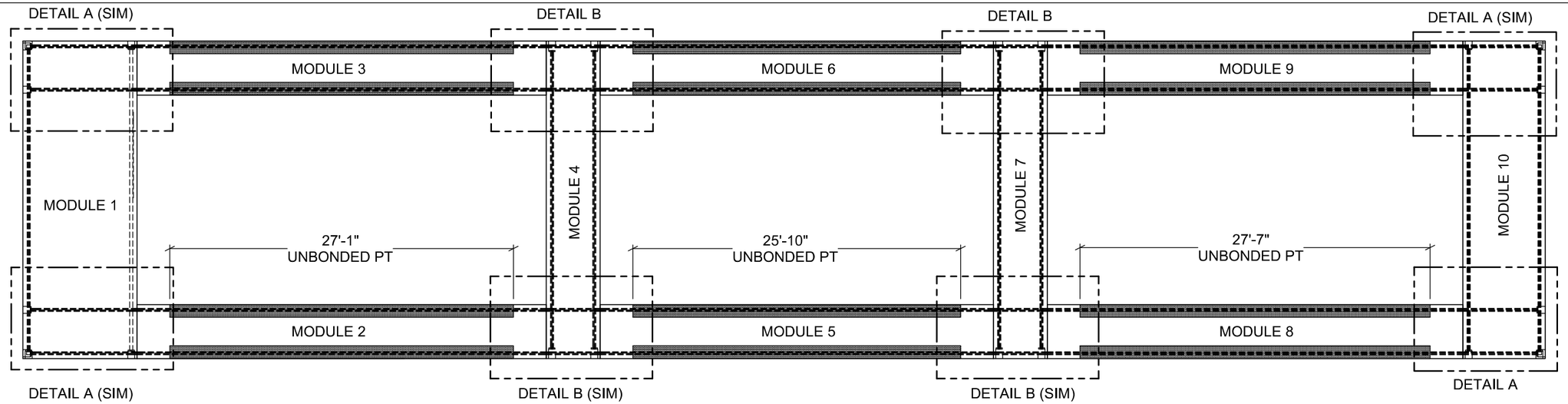
NO	DESCRIPTION	BY	CHK	DATE
0	FOR APPROVAL	CDL	JJ	13SEP2019

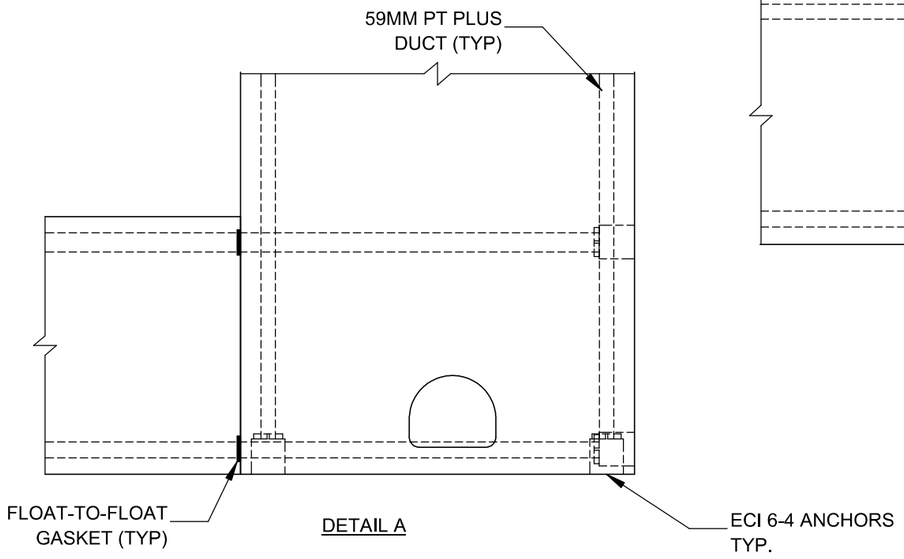
structural TECHNOLOGIES
Dallas, TX / Washington DC / Denver, CO / Pompano Beach, FL
STRUCTURAL TECHNOLOGIES, LLC
DENVER OFFICE
5161 WARD ROAD, SUITE 1
WHEAT RIDGE, CO 80033
PHONE: (303) 456-0887
structuraltechnologies.com

PROJECT INFORMATION:
KITSAP TRANSIT
ANNAPOLIS FERRY DOCK UPGRADES
PORT ORCHARD, WA

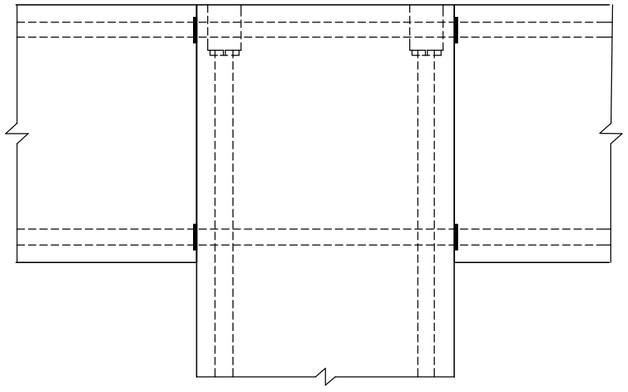
TITLE:
MODULE SECTIONS & DETAILS

PROJECT NO: 429361
SCALE: NTS
SHEET NO: PT-04



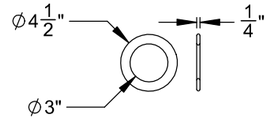


DETAIL A

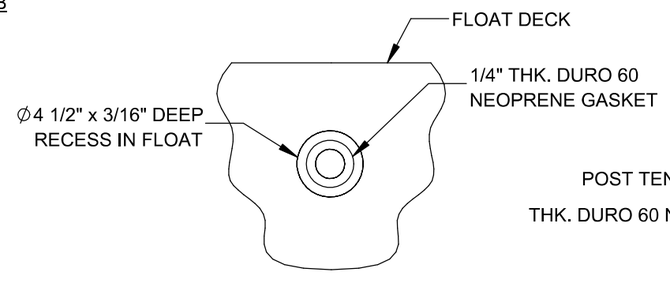


DETAIL B

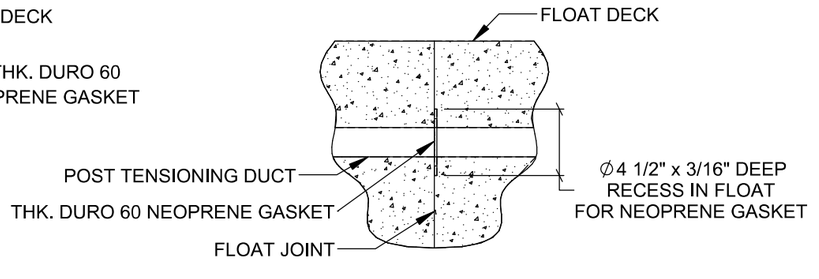
NOTE:
TENSION TRANSVERSE MODULES 1, 4, 7 & 6 BEFORE TENSIONING LONGITUDINAL STRANDS.



1/4" THICK 60 DURO NEOPRENE GASKET
TYPICAL AT ALL FLOAT MATING FACES & PT DUCTS



END ELEVATION AT PT DUCT
TYPICAL AT ALL FLOAT MATING FACES & DUCTS



SECTION AT PT DUCT JOINT
TYPICAL AT ALL FLOAT MATING FACES & PT DUCTS

Northwest Division
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Ferndale, WA 98248
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TEL: (360) 715-0121

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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

PT LAYOUT

Craig S. Funston
2019.09.19
16:16:17-07'00'

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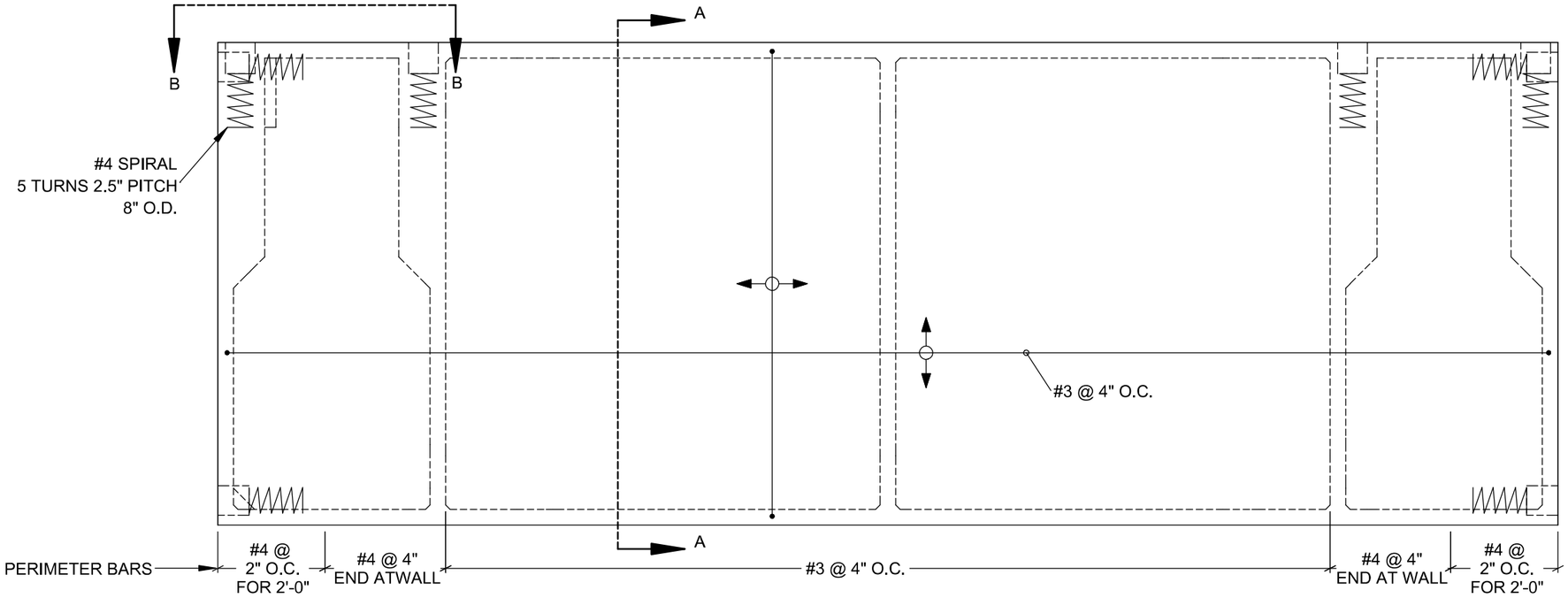
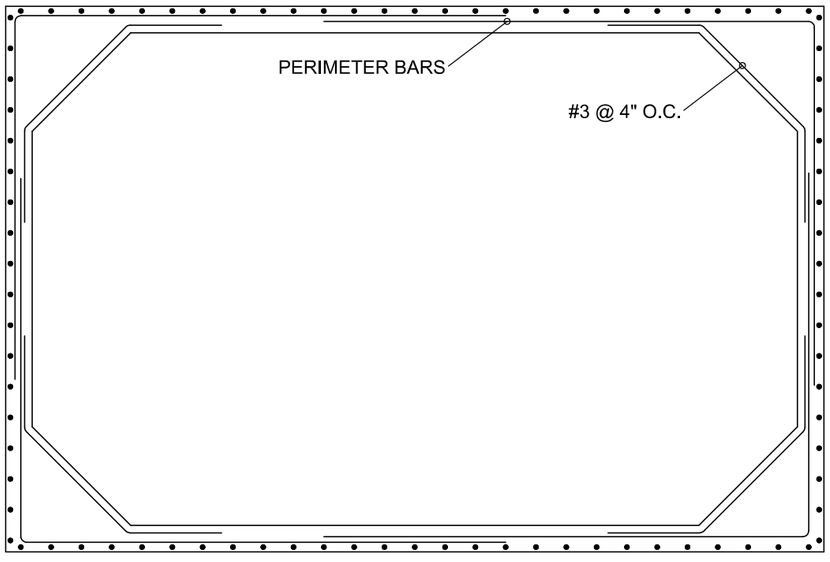
PROJECT NUMBER: 1757

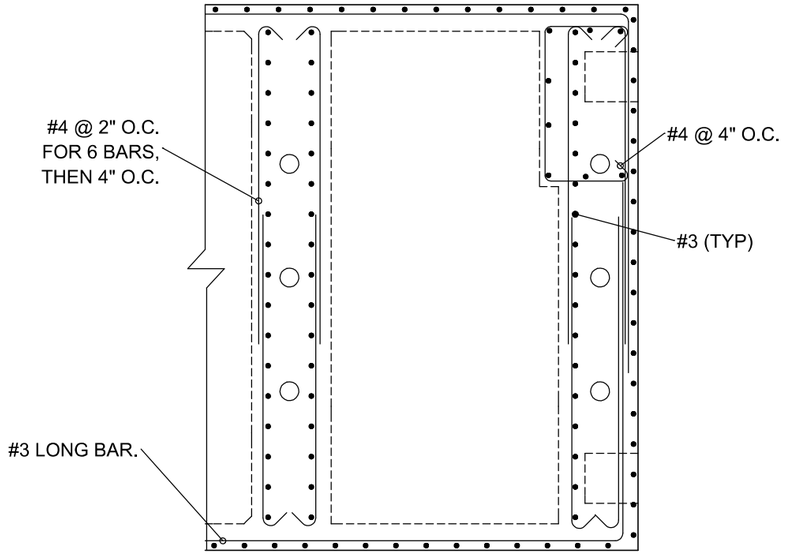
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	PT1





A-A FD1 MODULE 1 FLOAT SECTION



B-B FD1 ANCHOR REINFORCEMENT

Northwest Division
5500 Nordic Place
Ferndale, WA 98248
TEL: (360) 380-2142

Engineering
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Bellingham, WA 98226
TEL: (360) 715-0121

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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

MODULE 1 / 10 REINFORCING DIAG.

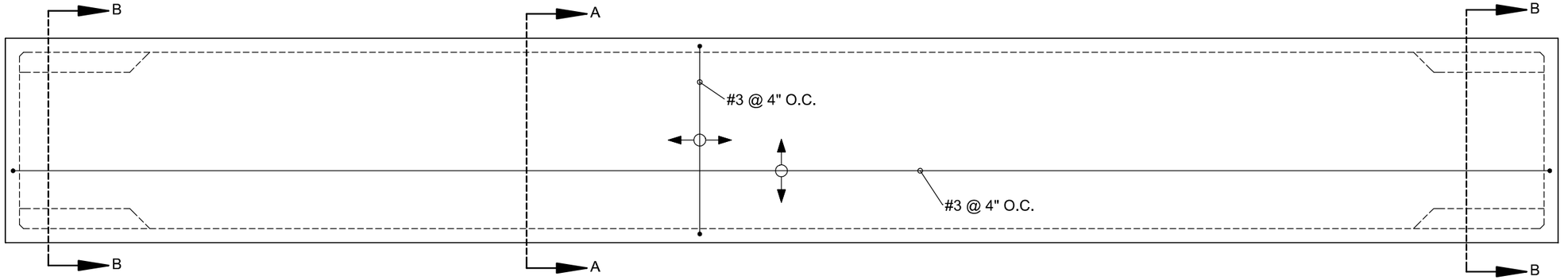
Craig S. Funston
2019.09.19
16:16:13-07'00'

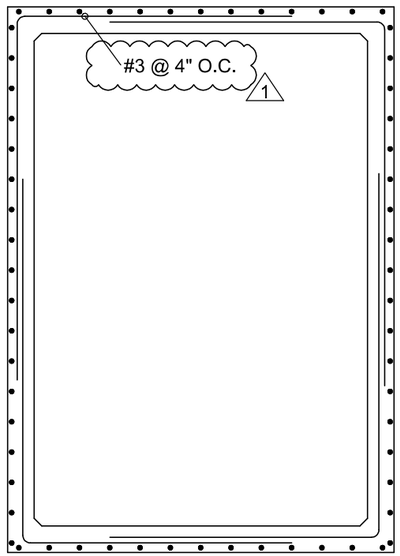
The structural system shown on these drawings, including member sizes, layout, and connection has been designed by Bellingham Marine Engineering under my supervision. No other aspect of the design including suitability for use, safety, mechanical, electrical, quantities, cut lengths and the like have been included in this review. Bellingham Marine Engineering can not be responsible for accuracy of information provided by others.

PROJECT NUMBER: 1757

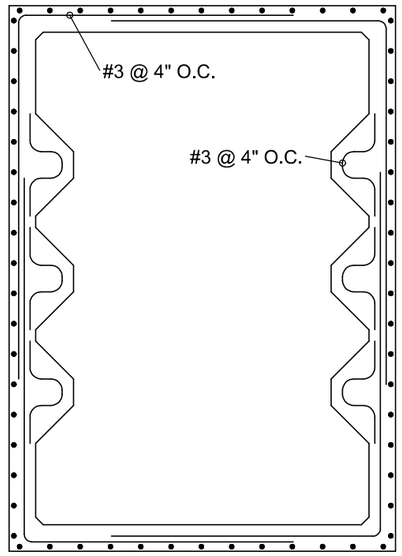
DRAWN BY:	SSB
CHECKED BY:	DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	FD1





A-A FD2 TYPICAL FLOAT SECTION



B-B FD2 PT REINFORCING SECTION

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Ferndale, WA 98248
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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	NOTES UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

MODULE 2, 3, 5, 6, 8, 9 REINFORCING

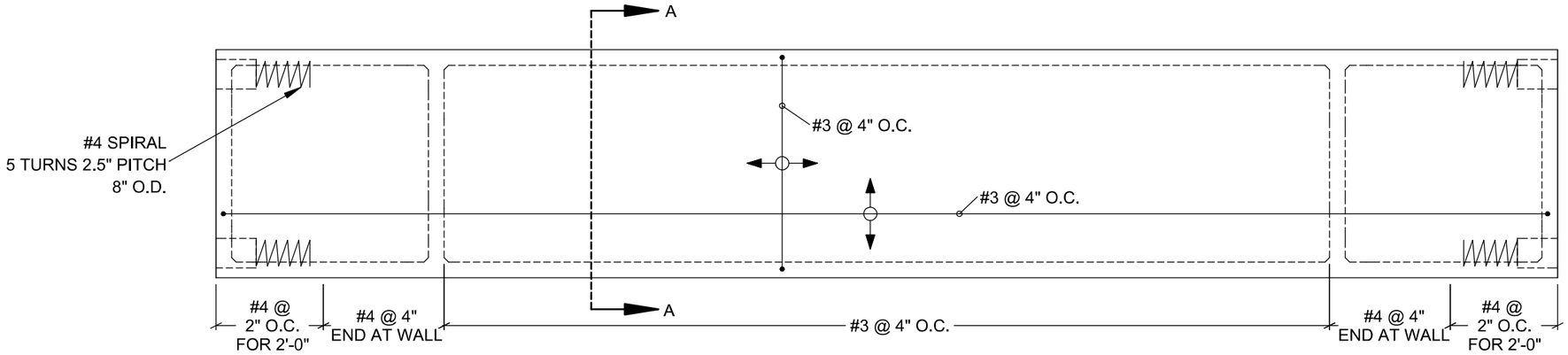
Craig S. Funston
2019.10.08
09:53:26-07'00'

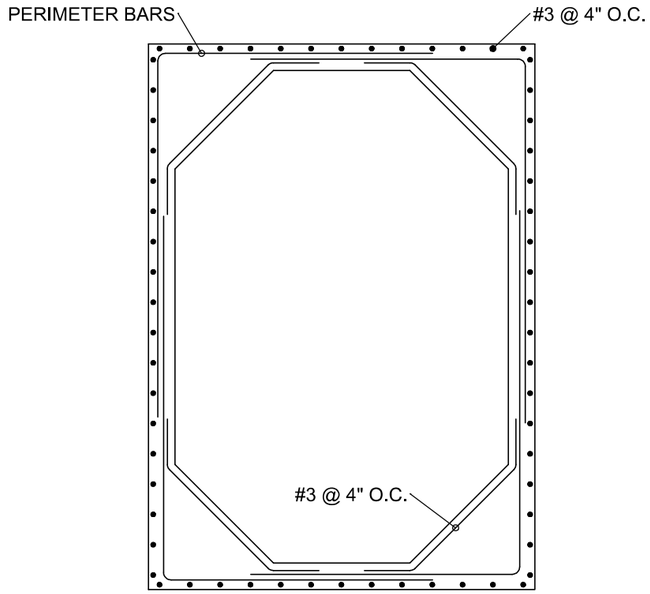
The structural system shown on these drawings, including member sizes, layout, and connection has been designed by Bellingham Marine Engineering under my supervision. No other aspect of the design including suitability for use, safety, mechanical, electrical, quantities, cut lengths and the like have been included in this review. Bellingham Marine Engineering can not be responsible for accuracy of information provided by others.

PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	FD2





A-A
FD3

MODULE 4, 7 FLOAT SECTION

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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

MODULE 4, 7 REINFORCING

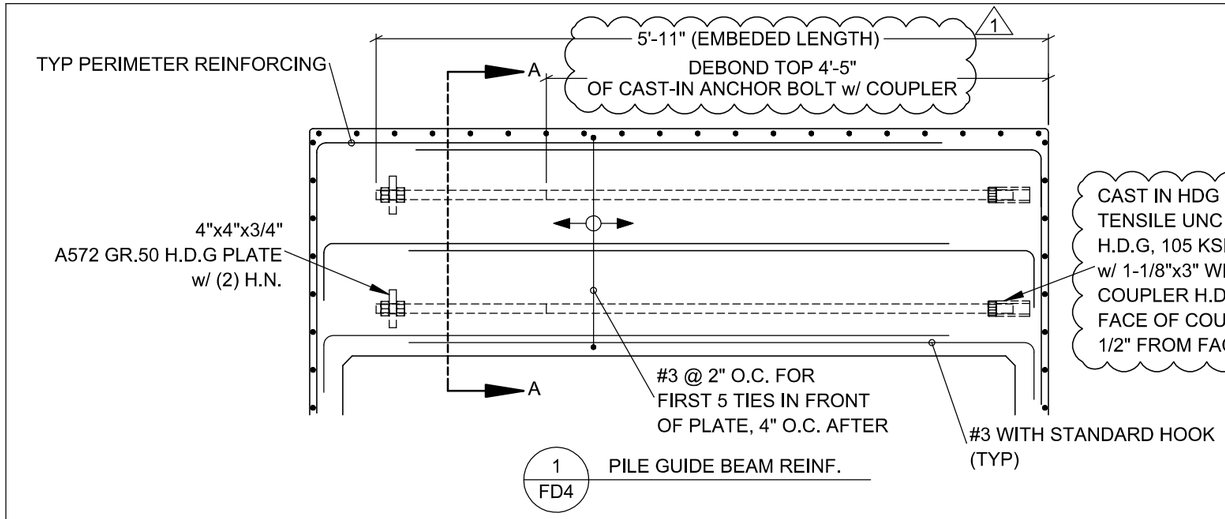
Craig S. Funston
2019.09.19
16:16:04-07'00'

The structural system shown on these drawings, including member sizes, layout, and connection has been designed by Bellingham Marine Engineering under my supervision. No other aspect of the design including suitability for use, safety, mechanical, electrical, quantities, cut lengths and the like have been included in this review. Bellingham Marine Engineering can not be responsible for accuracy of information provided by others.

PROJECT NUMBER: 1757

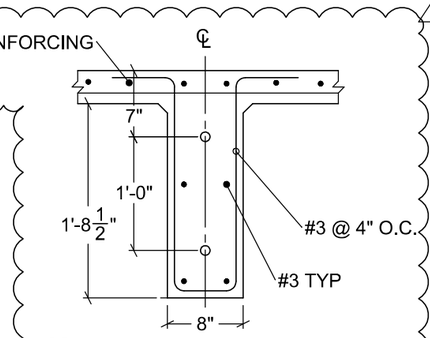
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	FD3

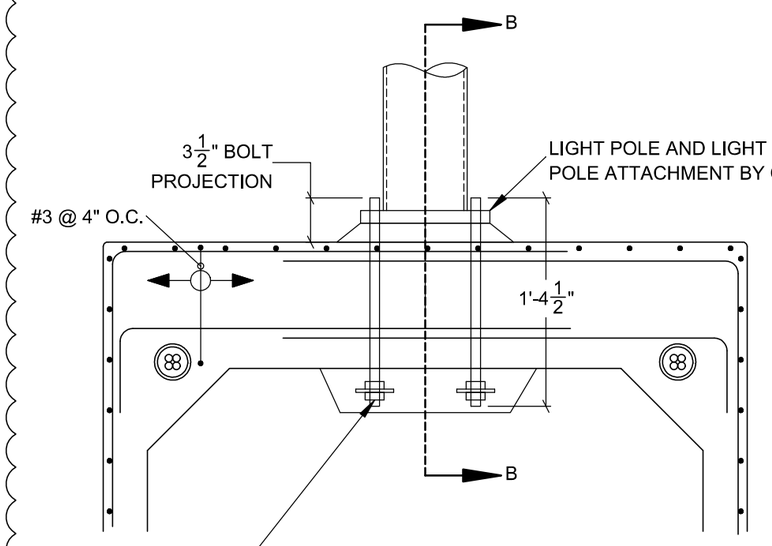


1 / FD4 PILE GUIDE BEAM REINF.

CAST IN HDG 1-1/8" WILLIAMS HIGH TENSILE UNC THREADED BAR, H.D.G, 105 KSI
w/ 1-1/8"x3" WILLIAMS C2T STOP TYPE COUPLER H.D.G.
FACE OF COUPLER SHALL BE SET BACK 1/2" FROM FACE OF CONCRETE.

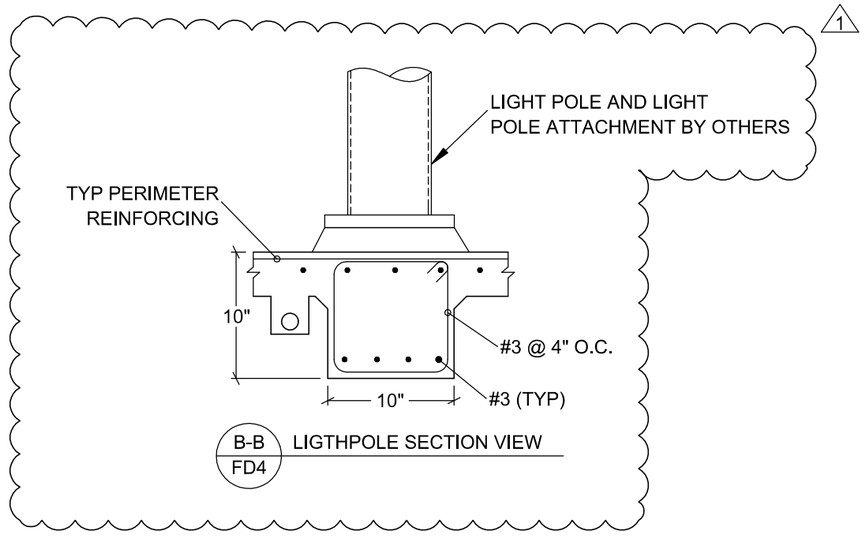


A-A / FD4 PILE GUIDE SECTION VIEW



(4) CAST IN 3/4" F1554 GR 36 THREAD ROD
w/ (4) P.W, (2) H.N. PER ROD.
USE A TEMPLATE TO LOCATE THE
EMBEDDED RODS.

2 / FD4 LIGTHPOLE ANCHORAGE



B-B / FD4 LIGTHPOLE SECTION VIEW

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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	DIMENSIONS ADDED, DESIGN UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

REINFORCING DIAGRAMS

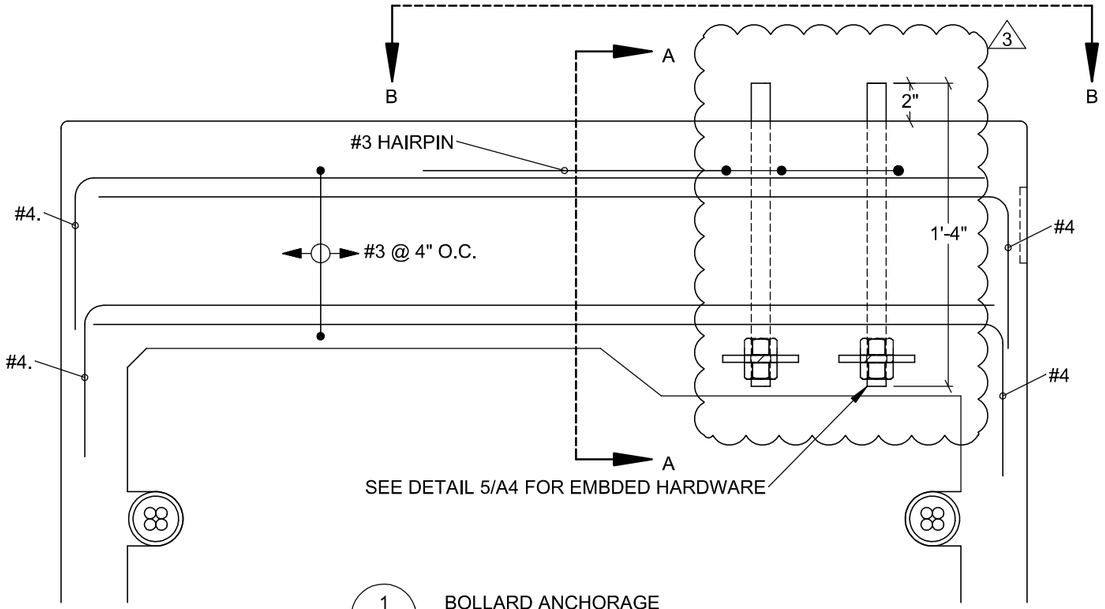
Craig S. Funston
2019.11.12
09:42:01-08'00'

The structural system shown on these drawings, including member sizes, layout, and connection has been designed by Bellingham Marine Engineering under my supervision. No other aspect of the design including suitability for use, safety, mechanical, electrical, quantities, cut lengths and the like have been included in this review. Bellingham Marine Engineering can not be responsible for accuracy of information provided by others.

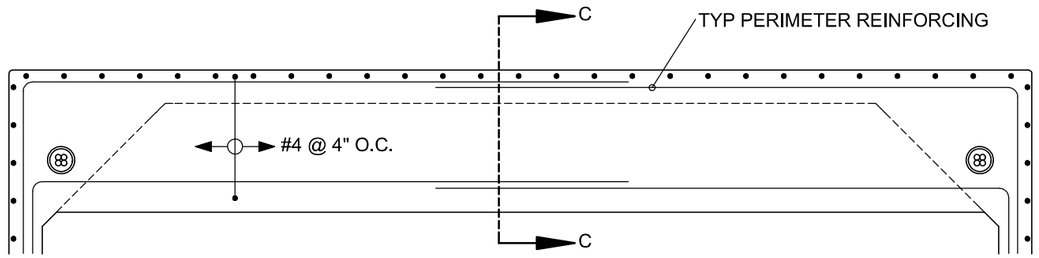
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

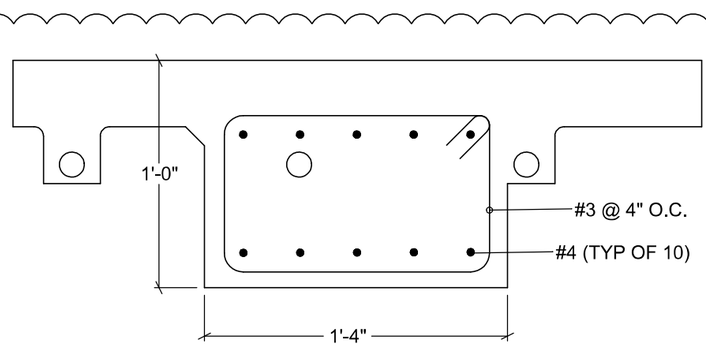
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	FD4



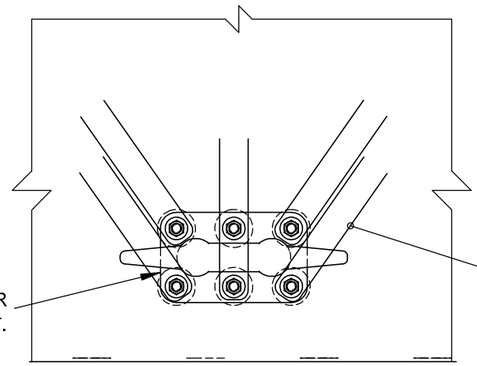
1 FD5 BOLLARD ANCHORAGE



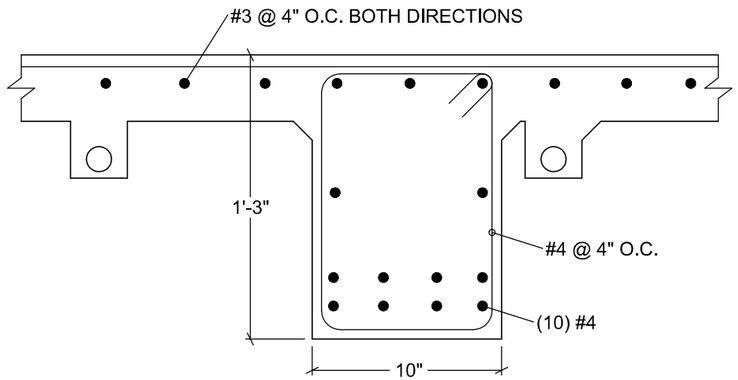
2 FD5 PLATFORM BEAM



A-A FD5 BOLLARD ANCHORAGE SECTION



B-B FD5 BOLLARD ANCHORAGE SECTION



C-C FD5 PLATFORM BEAM SECTION

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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED, REINFORCING UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

REINFORCING DIAGRAMS

Craig S. Funston
2019.11.12
09:42:01-08'00'

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PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
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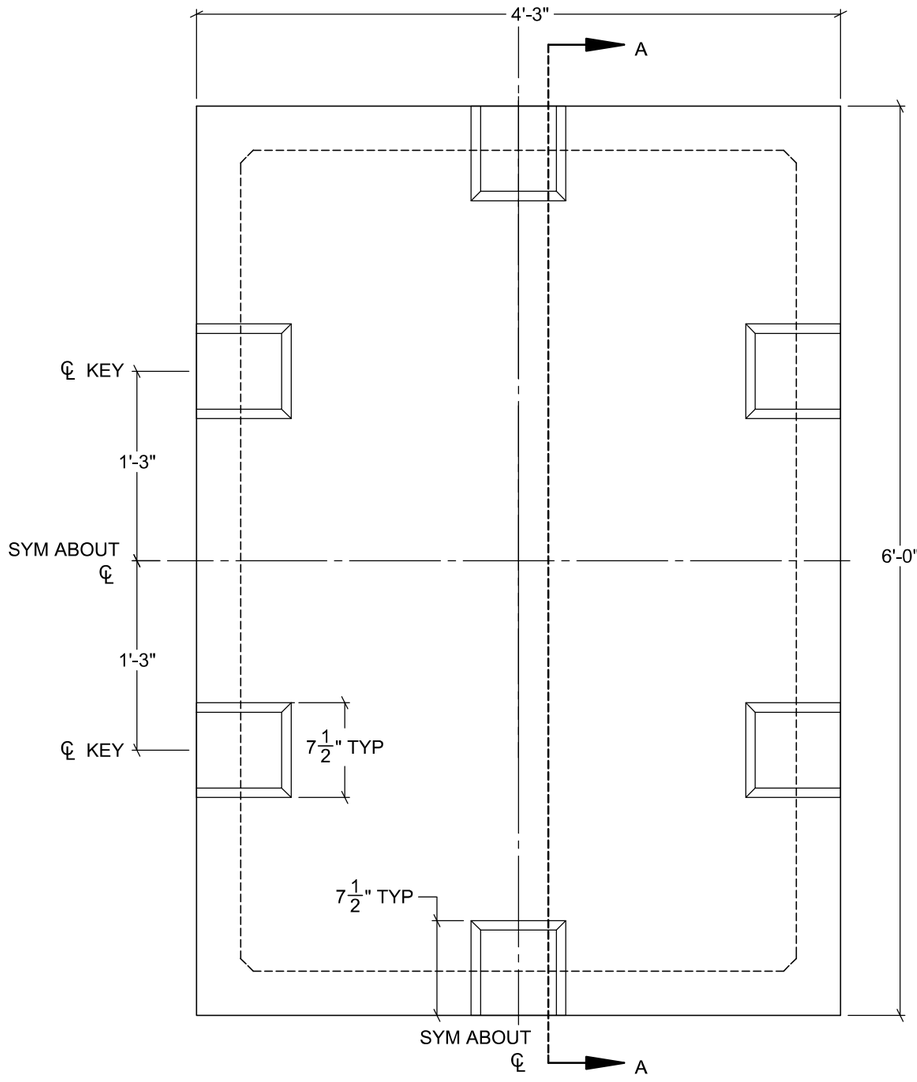
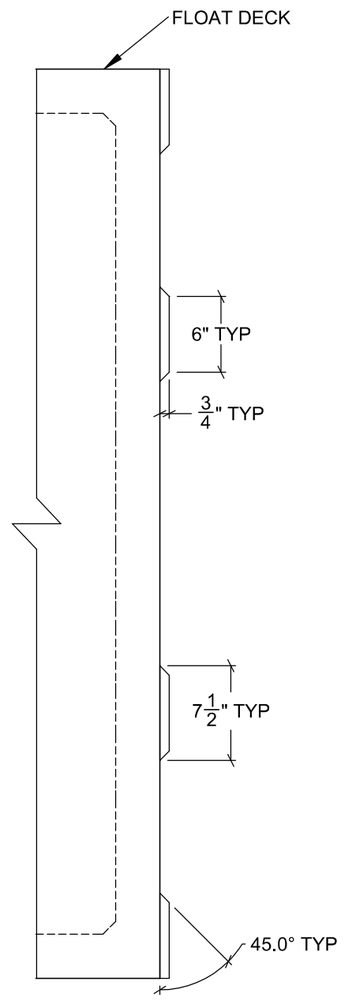
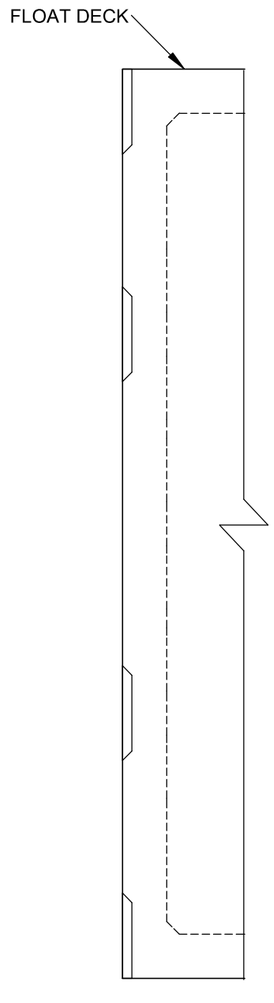
DATE:	09-19-19
SHEET NO:	
DRAWING:	FD5



1 FD6 SHEAR KEY DETAIL



SECTION A-A
MALE SHEAR KEYS



SECTION A-A
FEMALE SHEAR KEYS

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REVISIONS			
NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

SHEAR KEY DETAILS

Craig S. Funston
2019.09.19
16:15:54-07'00'

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PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

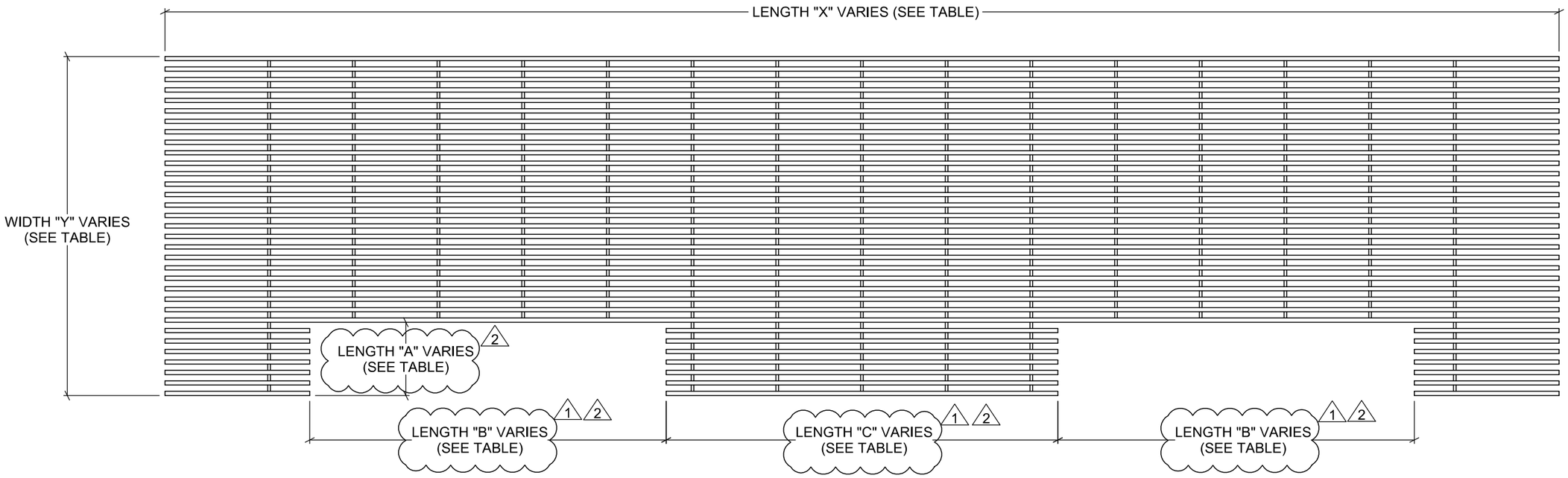
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	FD6

GRATING (1" DEEP R6200)						
GRATING NAME	QTY	WIDTH "Y"	LENGTH "X"	LENGTH "A"	LENGTH "B"	LENGTH "C"
G48.3_197.5	21	48.2795"	16'-5 1/2"	N/A	N/A	N/A
G48.3_197.5N	1	48.2795"	16'-5 1/2"	7 3/4"	4'-2 1/2"	4'-7 1/2"
G33.6_197.5	1	33.6455"	16'-5 1/2"	N/A	N/A	N/A
G27.1_197.5N1	1	27.1415"	16'-5 1/2"	4 5/8"	5 1/2"	3'-9 1/2"
G27.1_197.5N2	2	27.1415"	16'-5 1/2"	7 13/16"	5 1/2"	3'-9 1/2"

△1 △2

TOTAL GRATING SHEETS NEEDED	
GRATING SHEETS	QTY
48.2795"x16'-5 1/2"	22
33.6455"x16'-5 1/2"	1
27.1415"x16'-5 1/2"	2

△1



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REVISIONS

NO.	DATE	DESCRIPTION	BY
2	10-21-19	GRATING LAYOUT UPDATED	SSB
1	10-04-19	GRATING LENGTH UPDATED, NAME UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

GRATING FABRICATION

Craig S. Funston
2019.10.28
16:08:28-07'00'

The structural system shown on these drawings, including member sizes, layout, and connection has been designed by Bellingham Marine Engineering under my supervision. No other aspect of the design including suitability for use, safety, mechanical, electrical, quantities, cut lengths and the like have been included in this review. Bellingham Marine Engineering can not be responsible for accuracy of information provided by others.

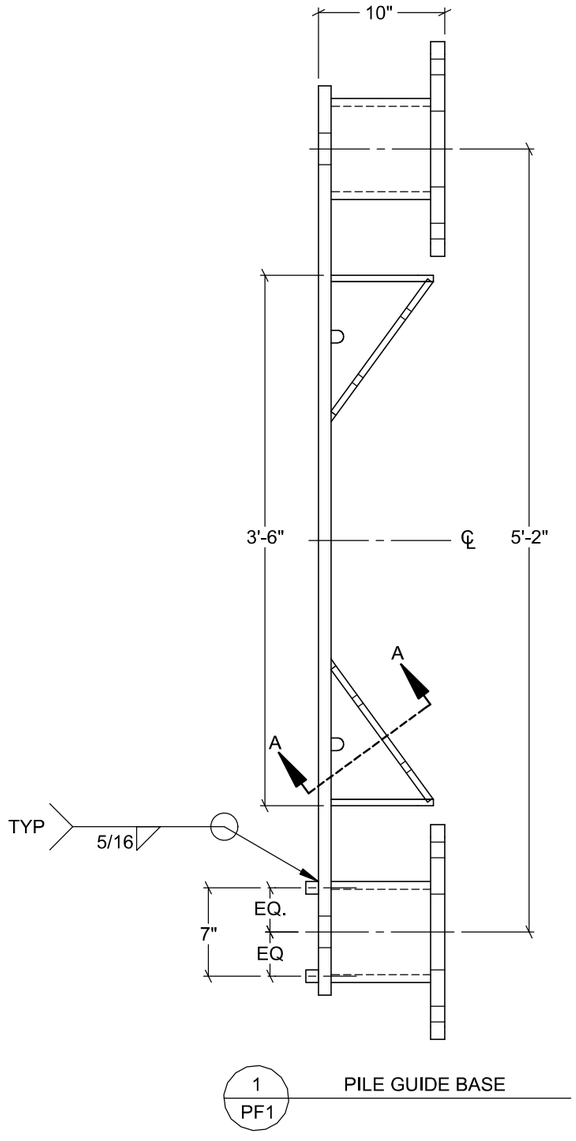
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

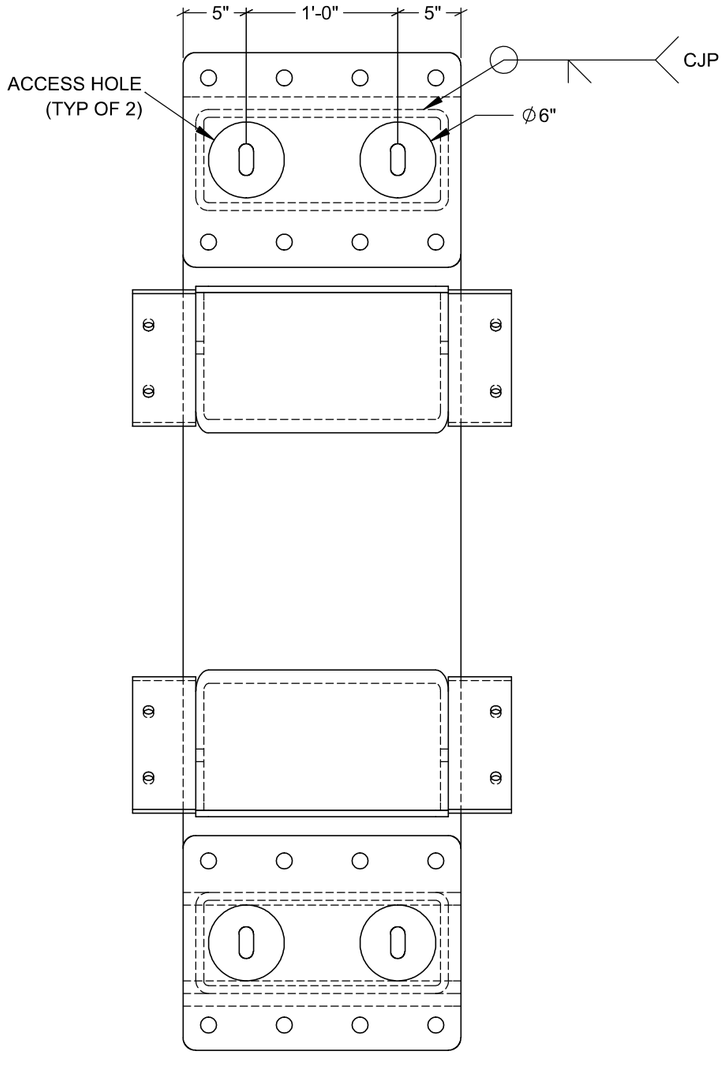
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	GR1

PILE GUIDE BASE
QTY: 4

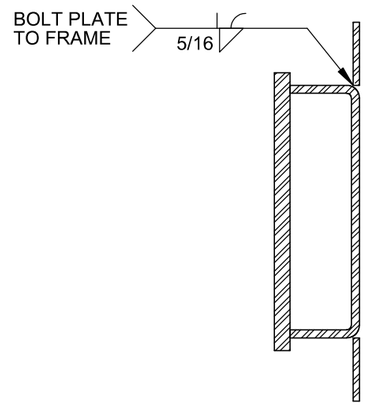
NOTE:
- ALL WELDS CJP UNLESS NOTED OTHERWISE



1 / PF1 PILE GUIDE BASE



SIDE VIEW



SECTION A-A

REFER TO PF2 FOR FAB DETAILS

Northwest Division
5500 Nordic Place
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3825 E. Sunset Dr.
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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

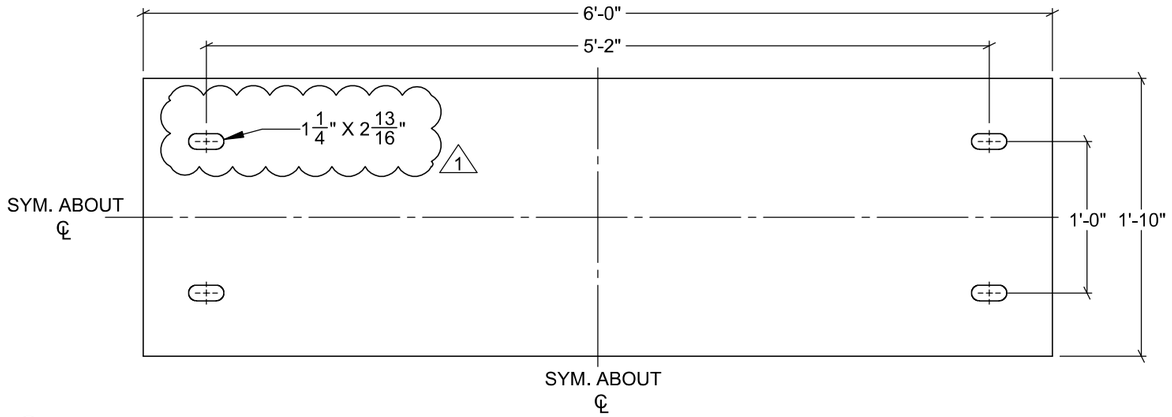
PILE GUIDE FABRICATION

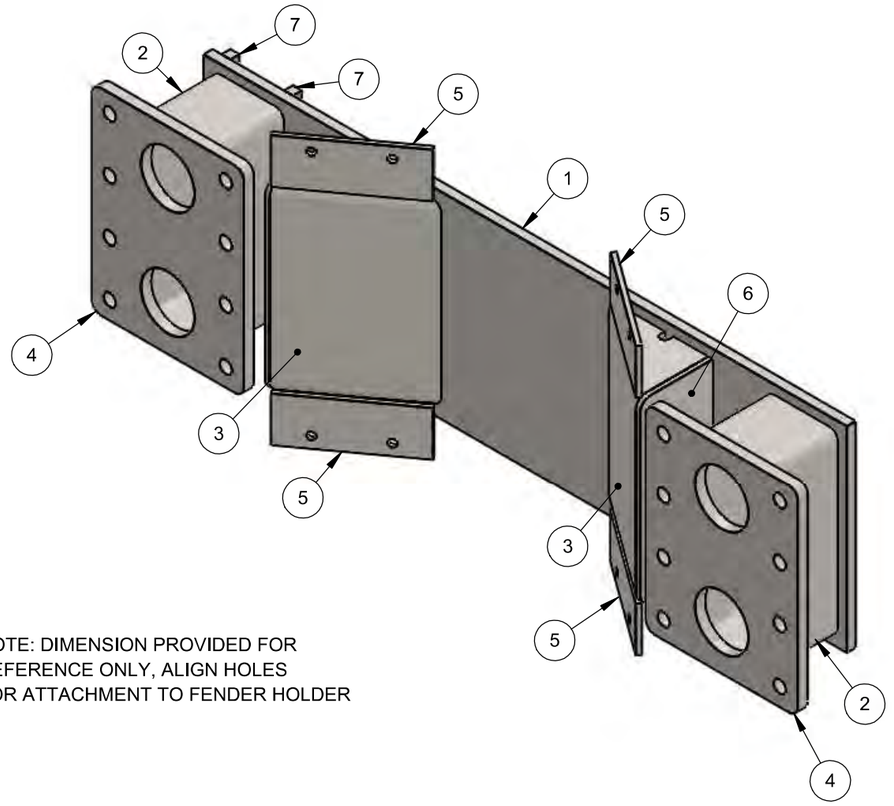
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

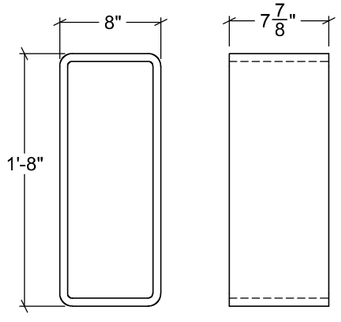
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	PF1

① QTY: 1 PER PILE GUIDE BASE
1" THICK STEEL PLATE

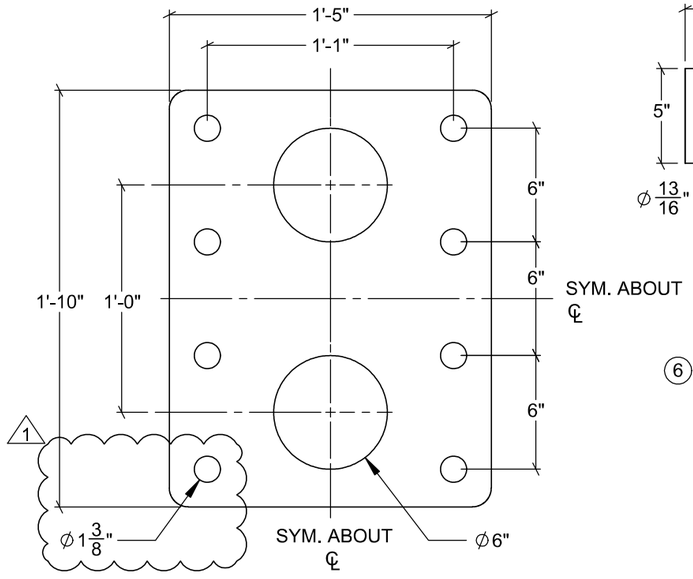




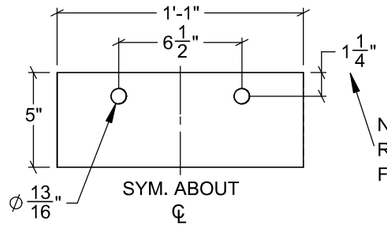
② QTY: 2 PER PILE GUIDE BASE
HSS 20x8x5/8



④ QTY: 2 PER PILE GUIDE BASE
1.125" THICK STEEL PLATE

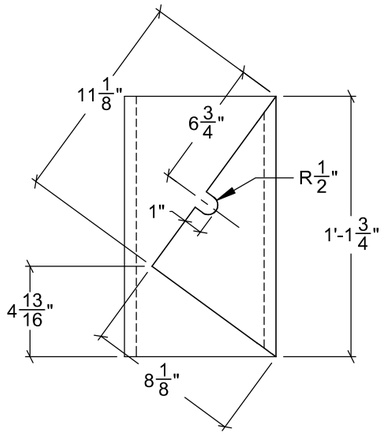


⑤ QTY: 4 PER PILE GUIDE BASE
1/2" THICK STEEL PLATE

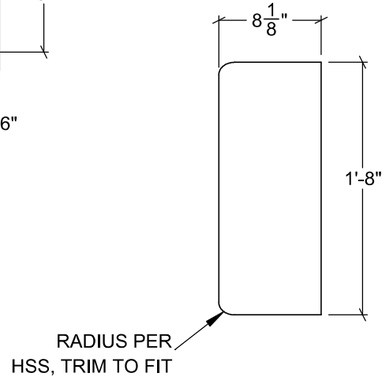


NOTE: DIMENSION PROVIDED FOR
REFERENCE ONLY, ALIGN HOLES
FOR ATTACHMENT TO FENDER HOLDER

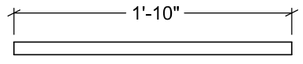
③ QTY: 2 PER PILE GUIDE BASE
FABRICATE FROM HSS 20x8x5/8



⑥ QTY: 2 PER PILE GUIDE BASE
1/2" THICK STEEL PLATE



⑦ QTY: 2 PER PILE GUIDE BASE
1"x1" STEEL BAR



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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	HOLE DIA CHANGED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

PILE GUIDE FABRICATION

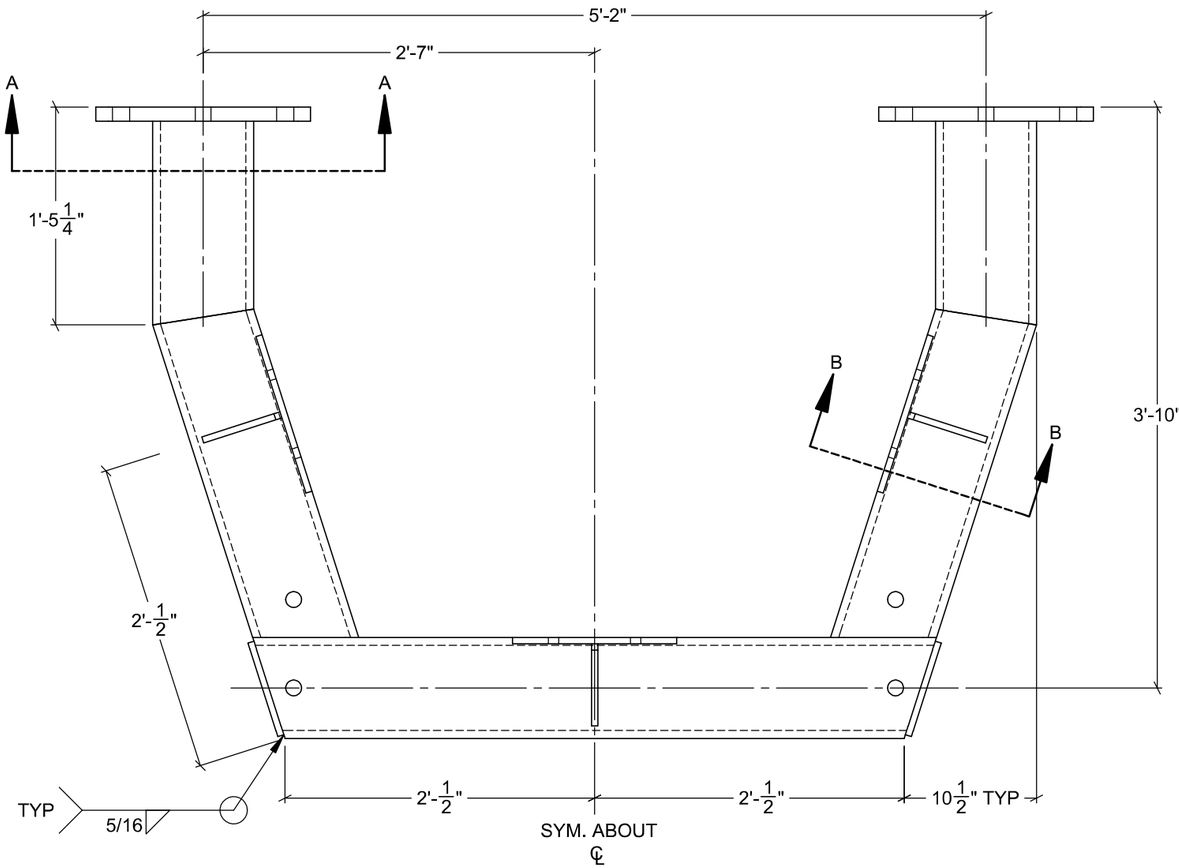
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

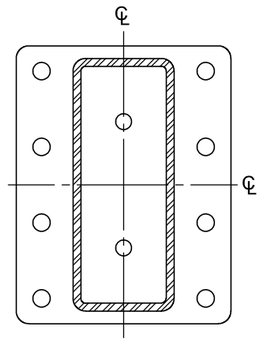
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	PF2

PILE GUIDE MAIN HOOP
QTY: 4

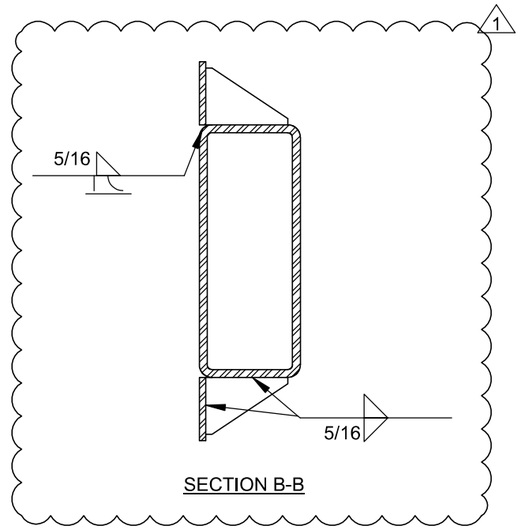
NOTE:
- ALL WELDS CJP UNLESS NOTED OTHERWISE



1 PF3 PILE GUIDE MAIN HOOP



SECTION A-A



SECTION B-B

REFER TO PF4 FOR FAB DETAILS

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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	WELD CALL OUTS UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

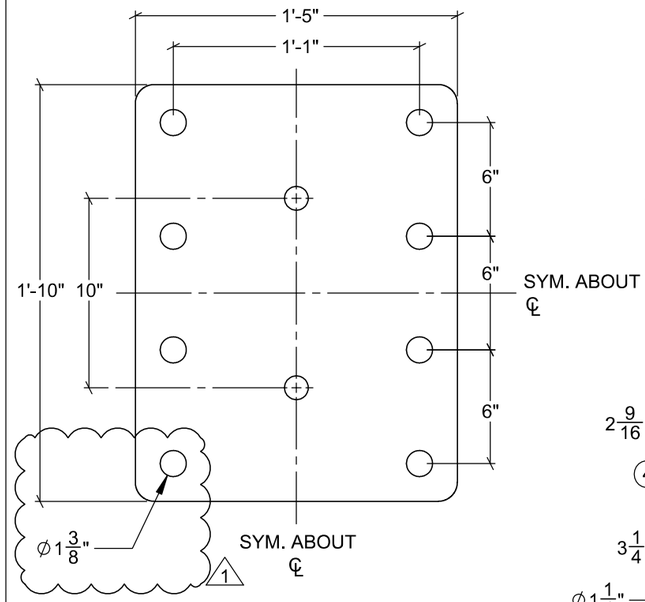
PILE GUIDE FABRICATION

PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

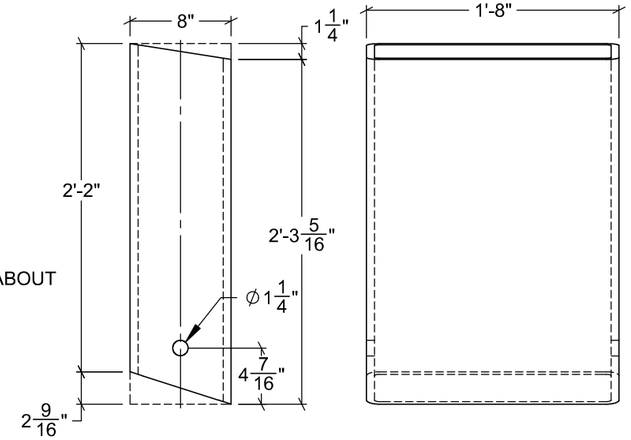
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	PF3

① QTY: 2 PER PILE GUIDE MAIN HOOP
1.125" THICK STEEL PLATE

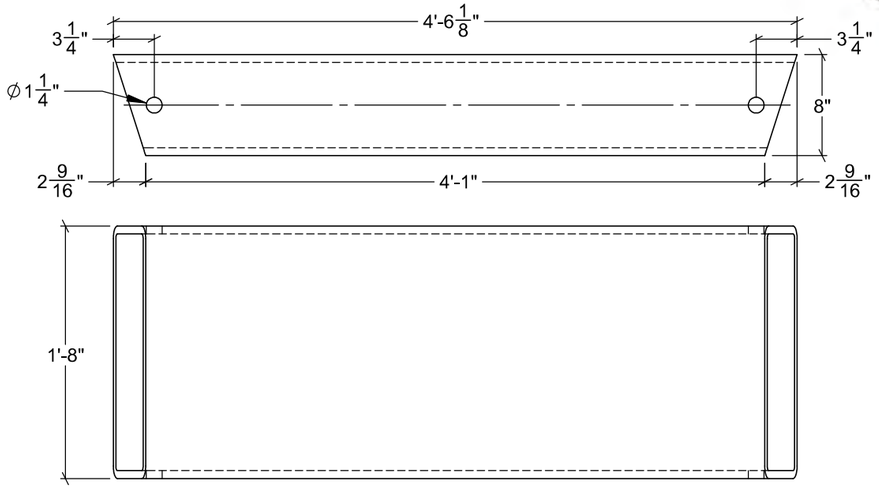


② QTY: 2 PER PILE GUIDE MAIN HOOP
HSS 20x8x5/8

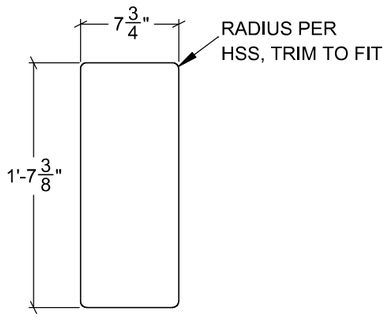
③ QTY: 2 PER PILE GUIDE MAIN HOOP
HSS 20x8x5/8



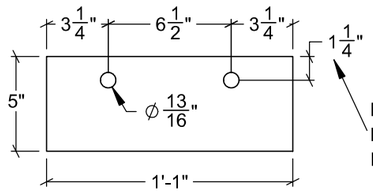
④ QTY: 1 PER PILE GUIDE MAIN HOOP
HSS 20x8x5/8



⑤ QTY: 2 PER PILE GUIDE MAIN HOOP
1/2" THICK STEEL PLATE

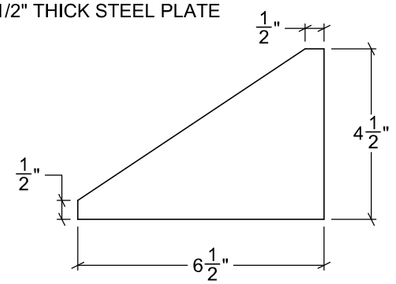


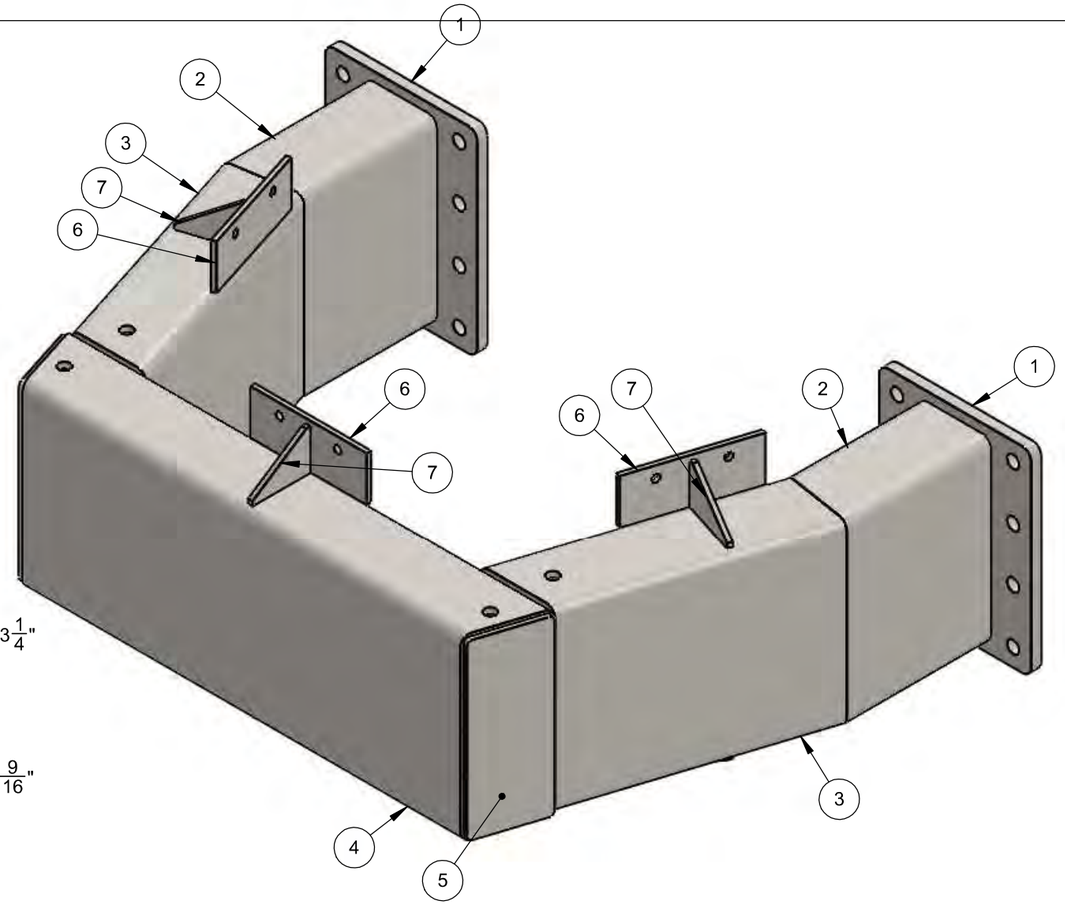
⑥ QTY: 6 PER PILE GUIDE MAIN HOOP
1/2" THICK STEEL PLATE



NOTE: DIMENSION PROVIDED FOR
REFERENCE ONLY, ALIGN HOLES
FOR ATTACHMENT TO FENDER HOLDER

⑦ QTY: 6 PER PILE GUIDE MAIN HOOP
1/2" THICK STEEL PLATE





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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	HOLE DIA CHANGED	SSB

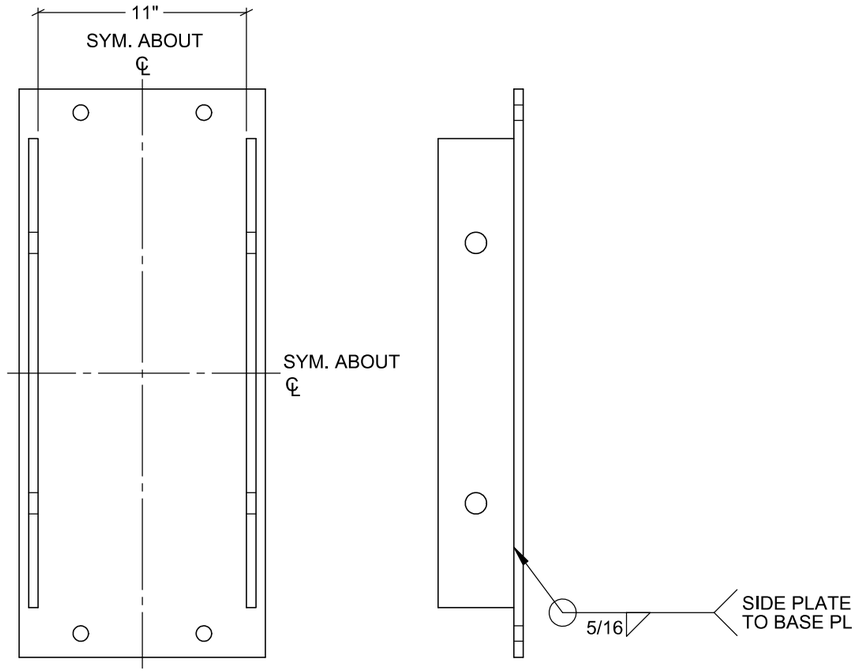
KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

PILE GUIDE FABRICATION

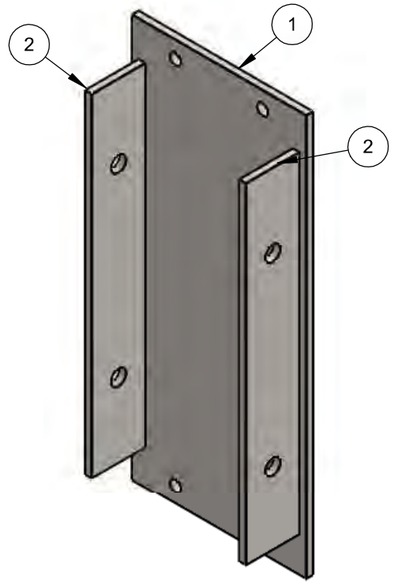
PROJECT NUMBER: 1757

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWN BY:	SSB
CHECKED BY:	DNS
DRAWING:	PF4

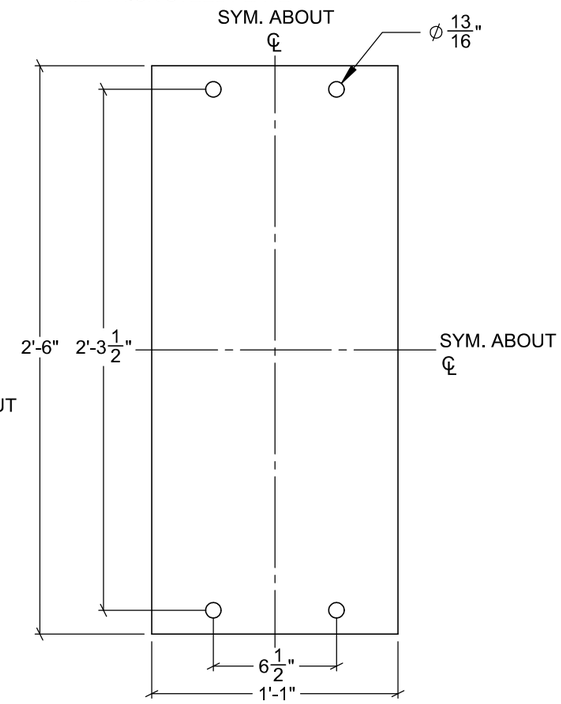
FENDER HOLDER
QTY: 16



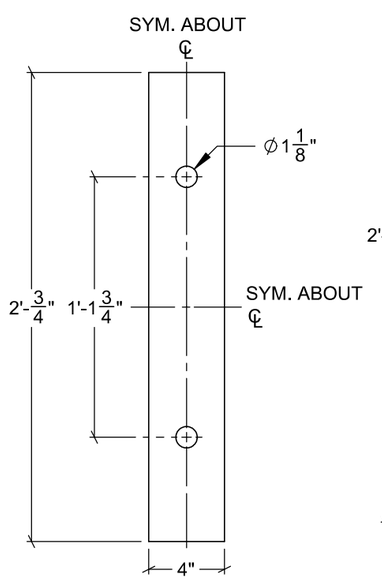
1 / PF5 FENDER HOLDER



① QTY: 1 PER PILE GUIDE
1/2" THICK STEEL PLATE

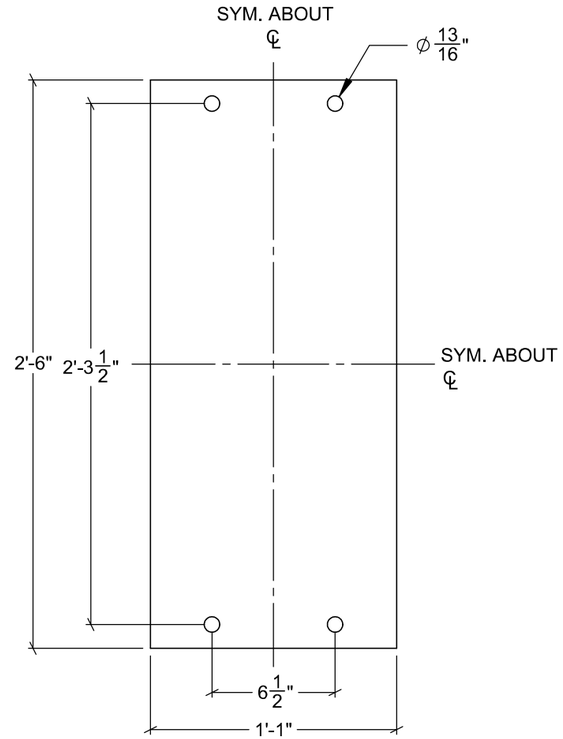


② QTY: 2 PER PILE GUIDE
1/2" THICK STEEL PLATE



1/2" SHIM PLATE
QTY: 60

① QTY: 15 PER PILE GUIDE
1/2" THICK STEEL PLATE



2 / PF5 1/2" SHIM PLATE

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REVISIONS

NO.	DATE	DESCRIPTION	BY

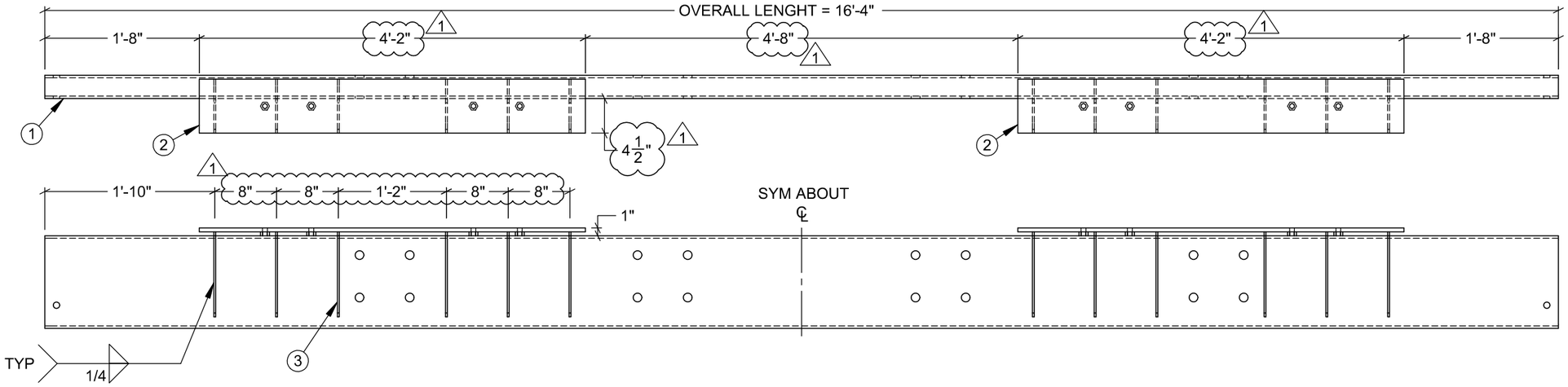
KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

PILE GUIDE FABRICATION

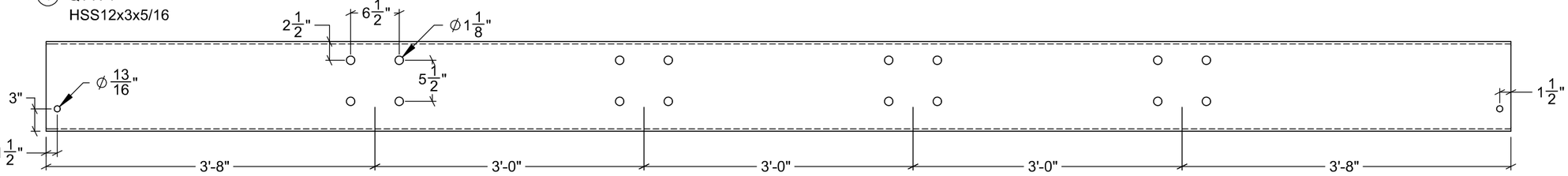
PROJECT NUMBER: 1757

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWN BY:	SSB
CHECKED BY:	DNS
DRAWING:	PF5

CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
GR1	1	HSS12x3x5/16	617 LBS

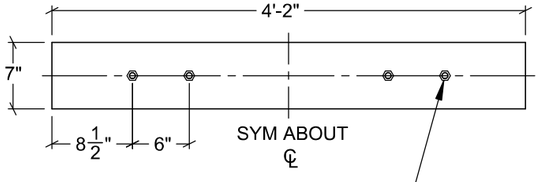


(1) QTY: 1
HSS12x3x5/16

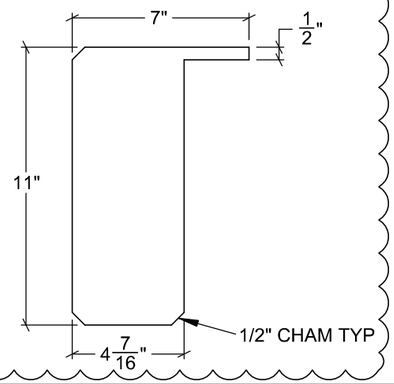


1

(2) QTY: 2
PLATE 1/2" TH



(3) QTY: 12
PLATE 1/4" TH



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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	DIMENSIONS UPDATED, HEX NUTS ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.10.08
09:53:02-07'00'

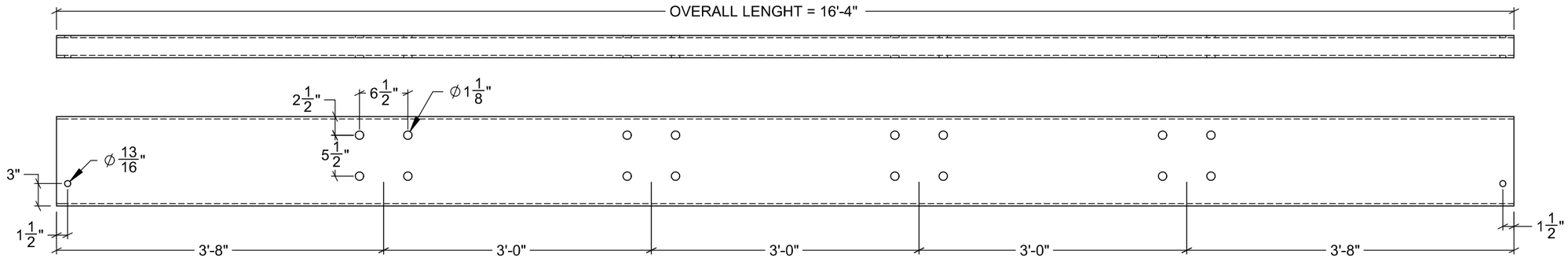
The structural system shown on these drawings, including member sizes, layout, and connection has been designed by Bellingham Marine Engineering under my supervision. No other aspect of the design including suitability for use, safety, mechanical, electrical, quantities, cut lengths and the like have been included in this review. Bellingham Marine Engineering can not be responsible for accuracy of information provided by others.

PROJECT NUMBER: 1757

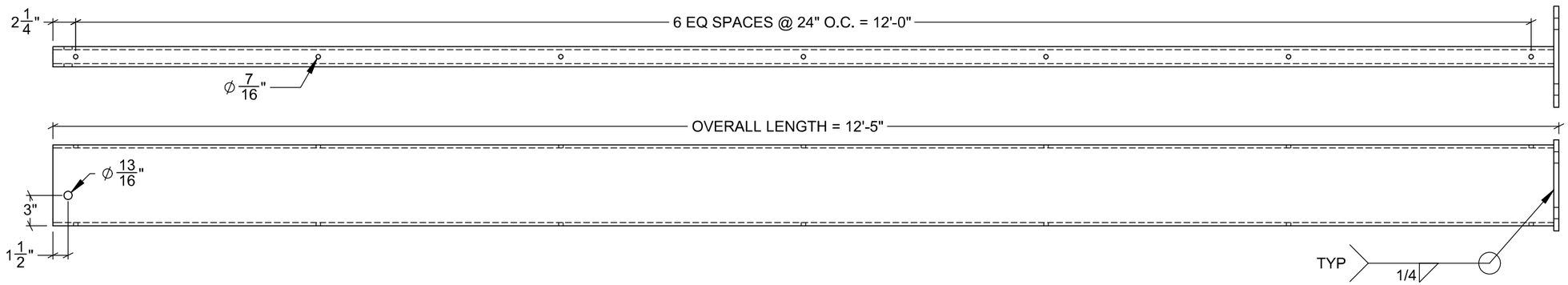
DRAWN BY: SSB
CHECKED BY: DNS

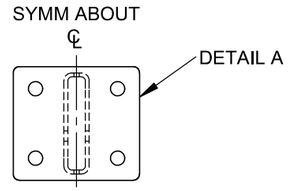
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S1

CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
GR2	5	HSS12x3x5/16	484 LBS

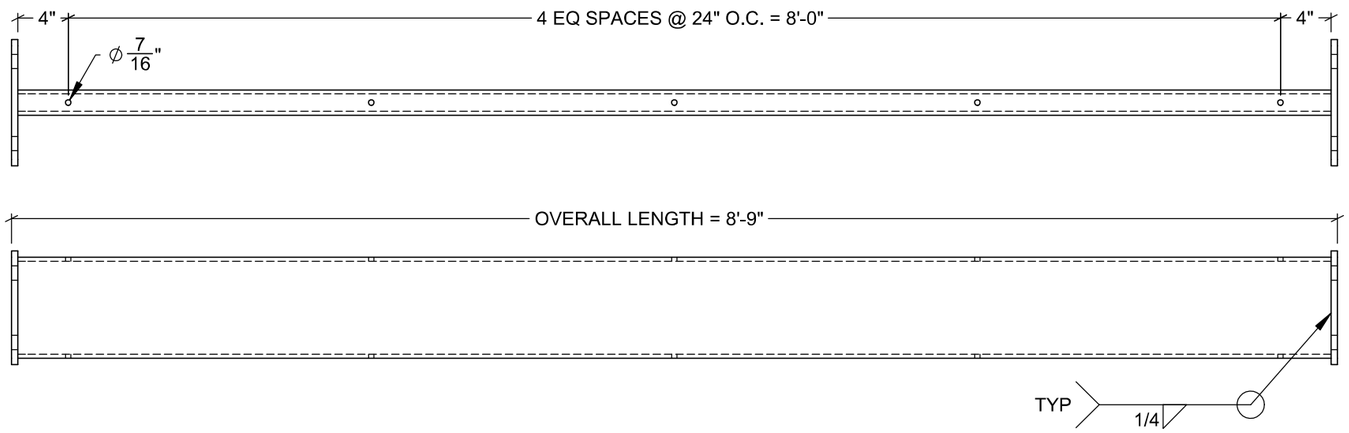


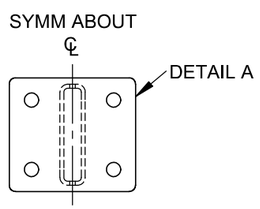
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
SJ1	4	HSS8x2x5/16	246 LBS

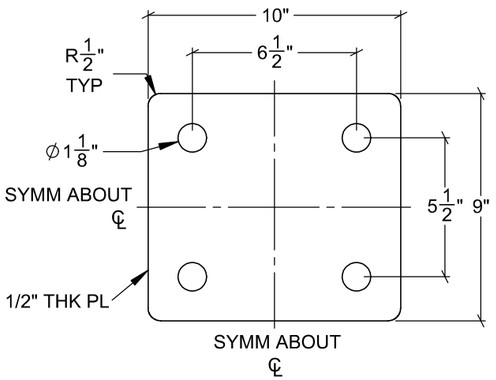




CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
SJ2	4	HSS8x2x5/16	189 LBS







DETAIL A

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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.09.19
16:15:37-07'00'

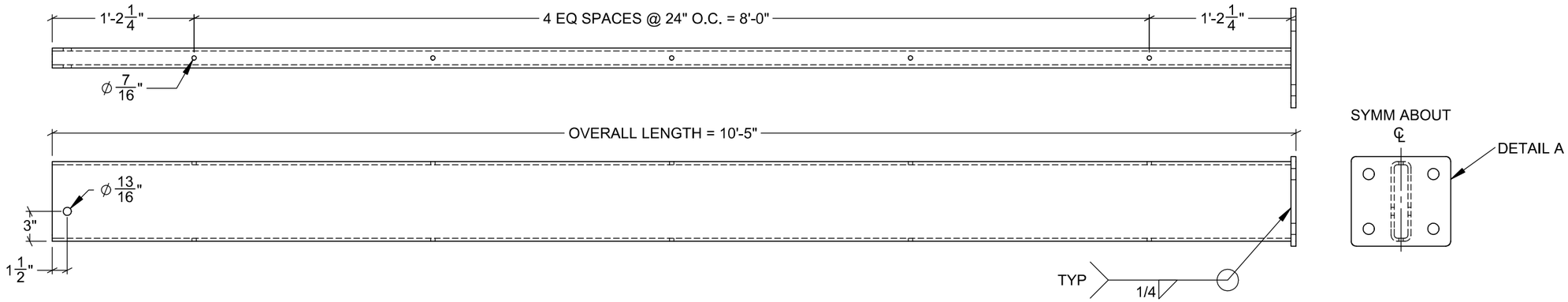
The structural system shown on these drawings, including member sizes, layout, and connection has been designed by Bellingham Marine Engineering under my supervision. No other aspect of the design including suitability for use, safety, mechanical, electrical, quantities, cut lengths and the like have been included in this review. Bellingham Marine Engineering can not be responsible for accuracy of information provided by others.

PROJECT NUMBER: 1757

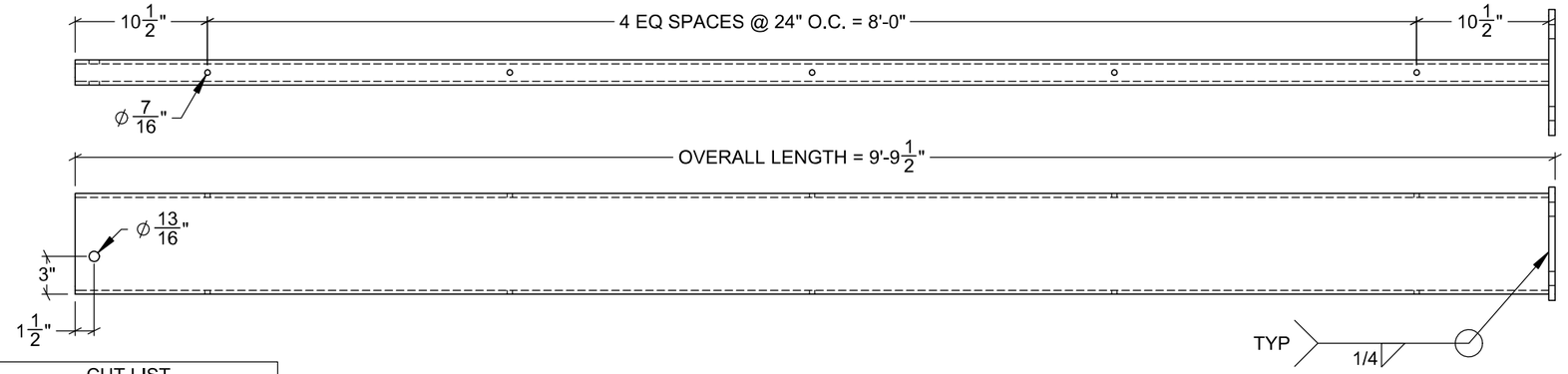
DRAWN BY: SSB
CHECKED BY: DNS

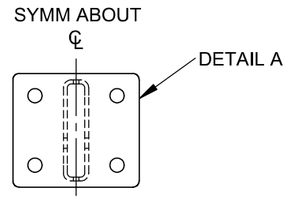
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S2

CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
SJ3	4	HSS8x2x5/16	209 LBS

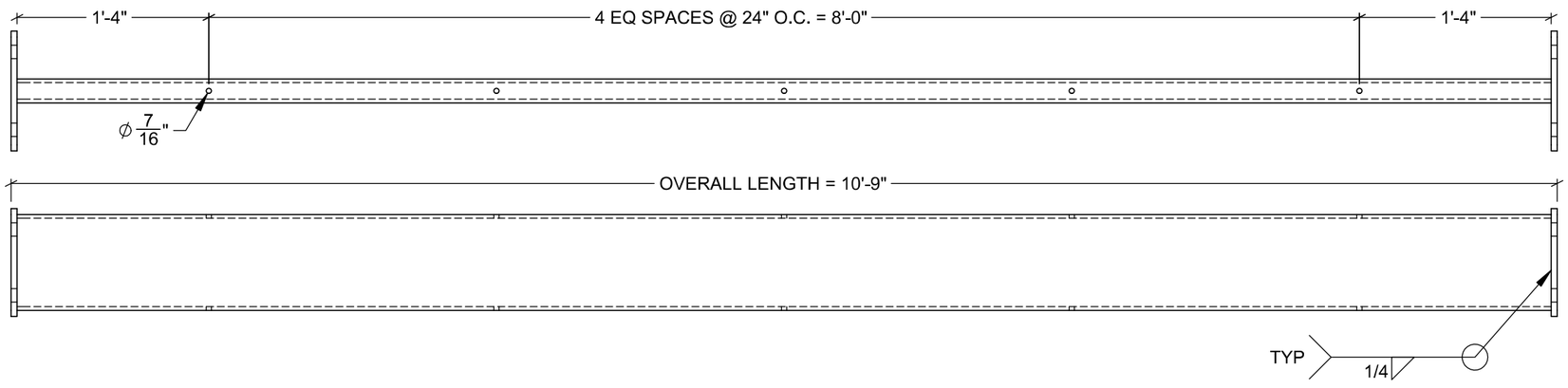


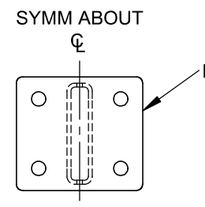
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
SJ4	8	HSS8x2x5/16	197 LBS

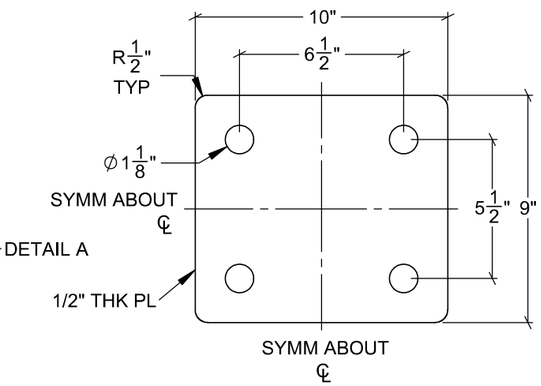




CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
SJ5	8	HSS8x2x5/16	227 LBS







DETAIL A

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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.09.19
16:15:33-07'00'

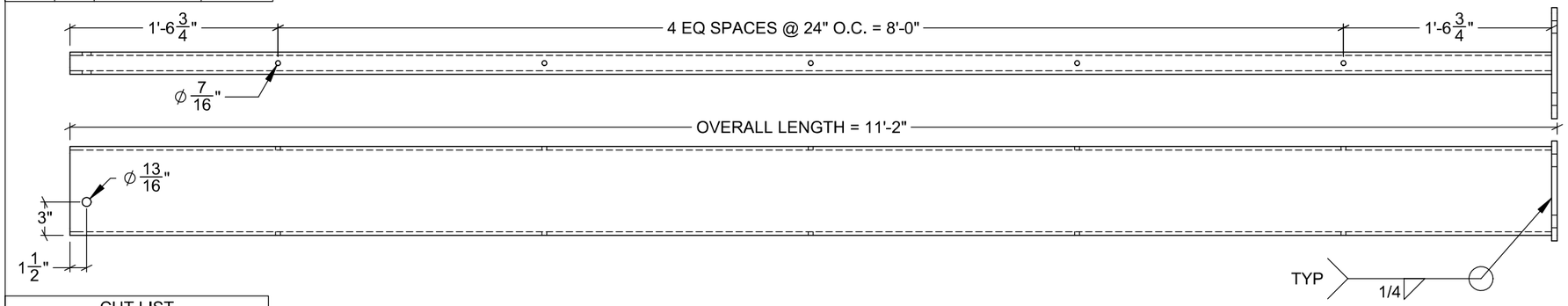
The structural system shown on these drawings, including member sizes, layout, and connection has been designed by Bellingham Marine Engineering under my supervision. No other aspect of the design including suitability for use, safety, mechanical, electrical, quantities, cut lengths and the like have been included in this review. Bellingham Marine Engineering can not be responsible for accuracy of information provided by others.

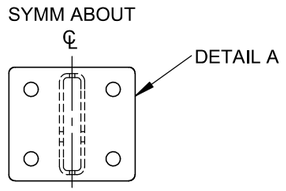
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

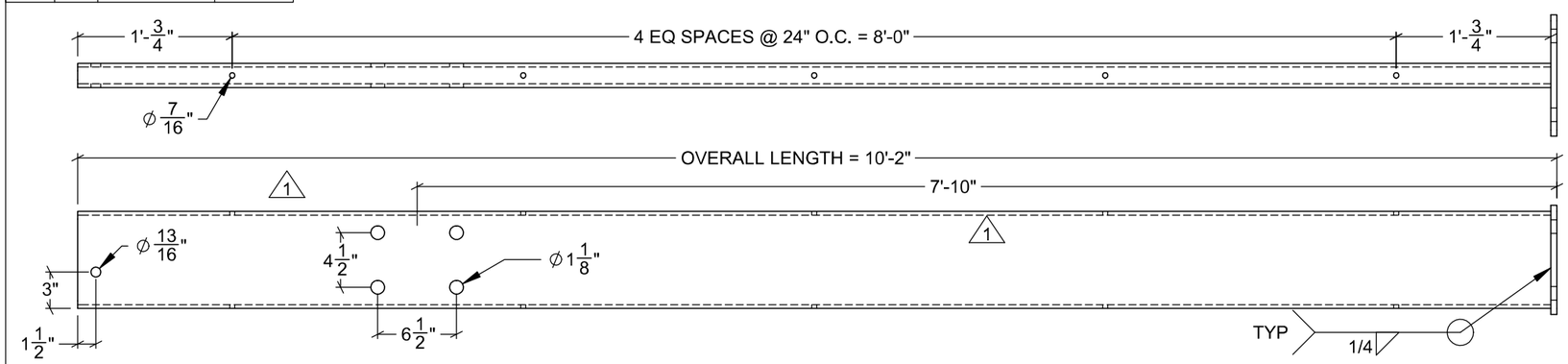
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S3

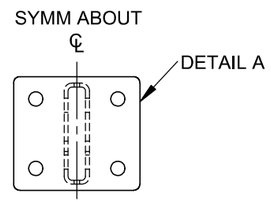
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
SJ6	4	HSS8x2x5/16	223 LBS



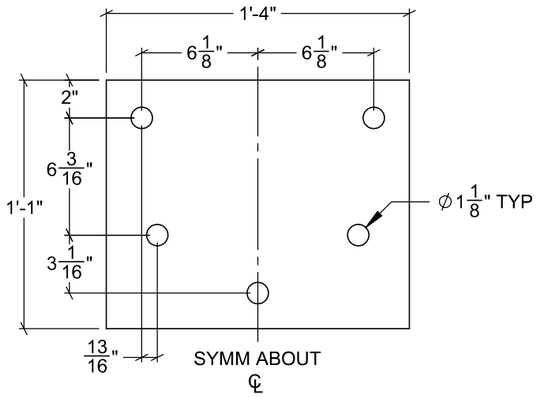


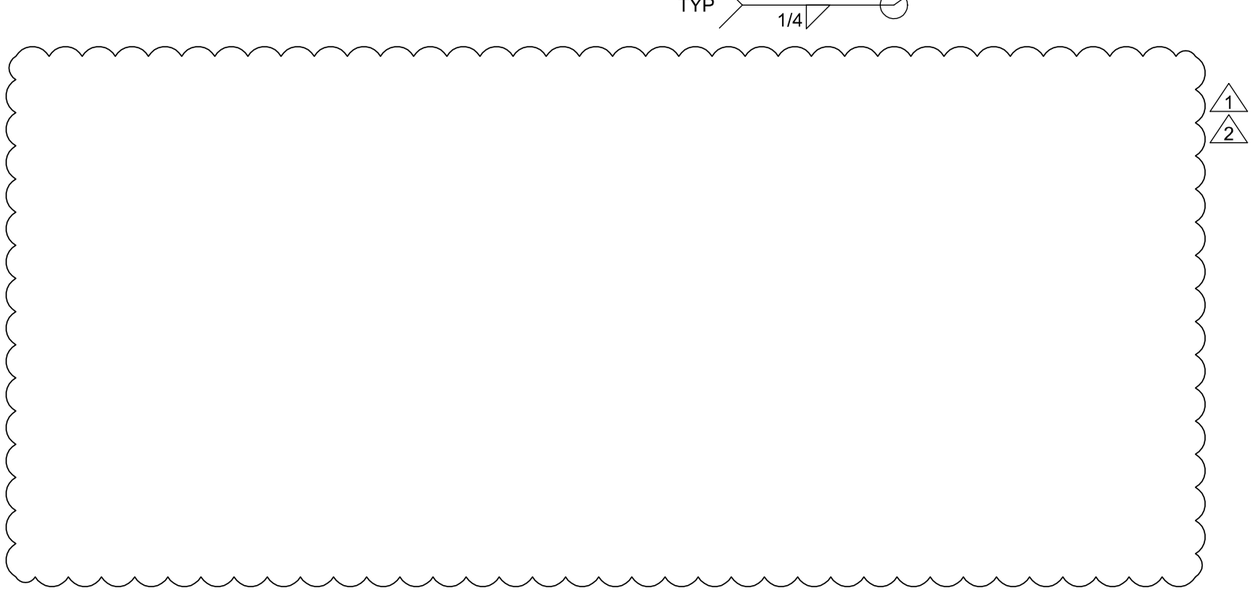
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
SJ7	4	HSS8x2x5/16	204 LBS

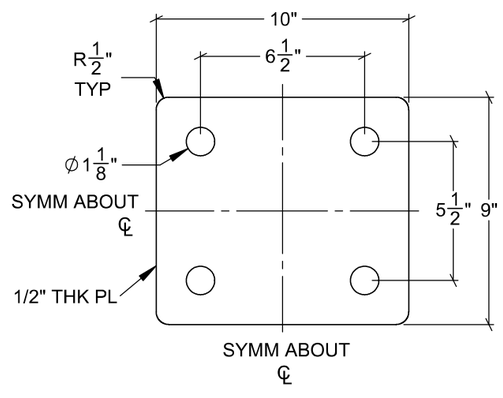




CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
BL1	10	3/4" PLATE	38 LBS







DETAIL A

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REVISIONS			
NO.	DATE	DESCRIPTION	BY
2	10-21-19	VIEW REMOVED	SSB
1	10-04-19	NEW DETAIL ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.10.28
16:08:33-07'00'

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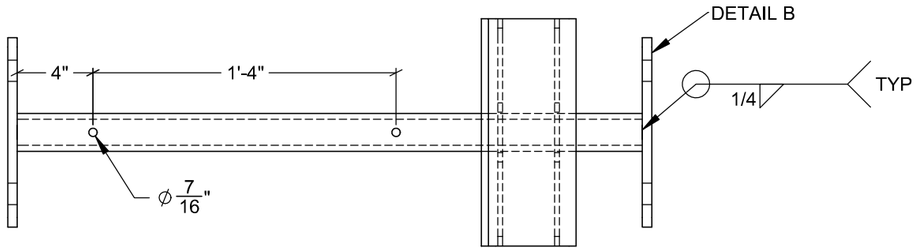
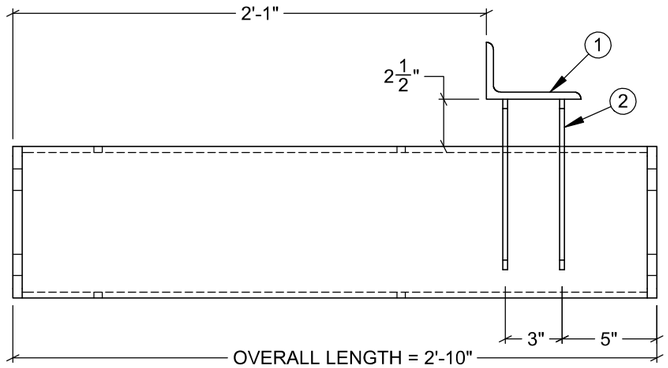
PROJECT NUMBER: 1757

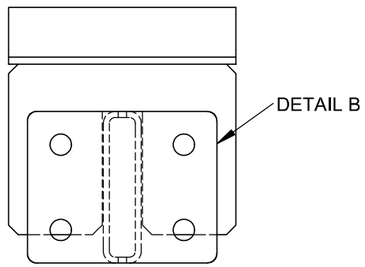
DRAWN BY: SSB
CHECKED BY: DNS

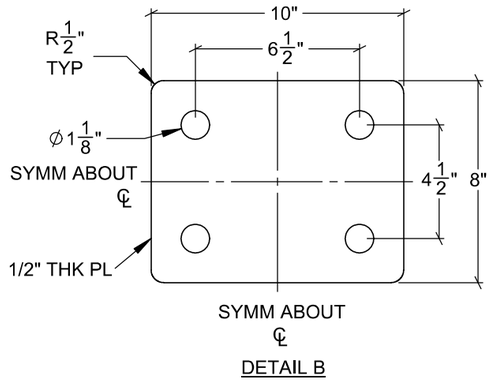
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S4

CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
SJ8	2	HSS8x2x5/16	71 LBS

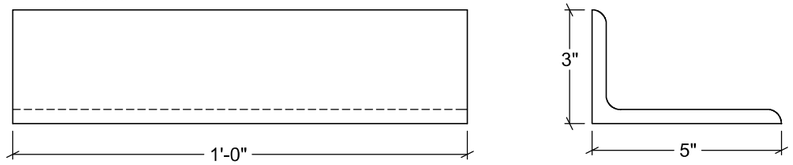




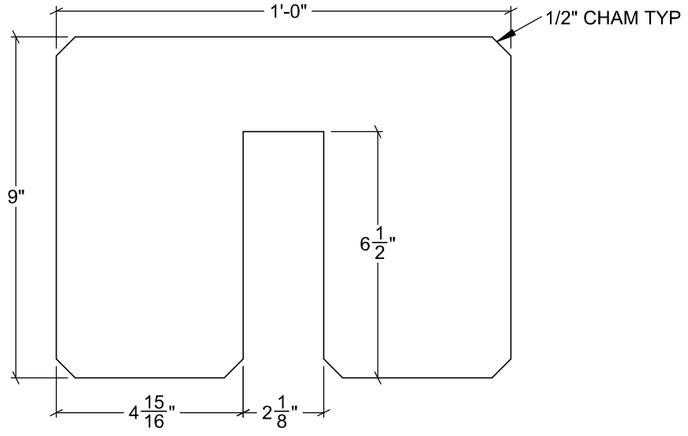




① QTY: 1
L5x3x3/8



② QTY: 2
PLATE 1/4" TH



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REVISIONS			
NO.	DATE	DESCRIPTION	BY
2	10-21-19	NEW PAGE ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.10.28
16:08:37-07'00'

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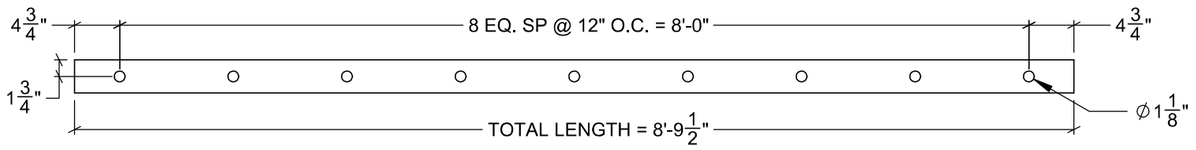
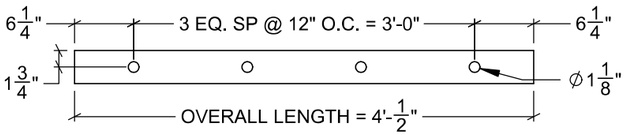
PROJECT NUMBER: 1757

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWN BY:	SSB
CHECKED BY:	DNS
DRAWING:	2 S4.1

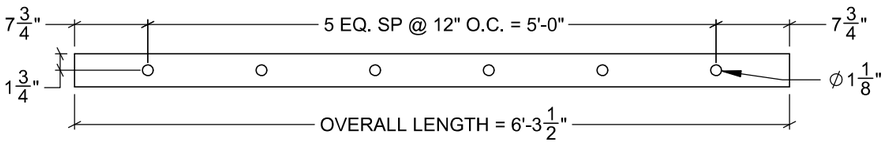
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
S1	2	1/2"x3 1/2" STEEL FLATBAR	51 LBS



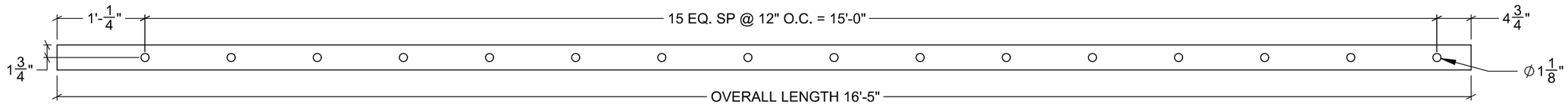
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
S2	4	1/2"x3 1/2" STEEL FLATBAR	24 LBS



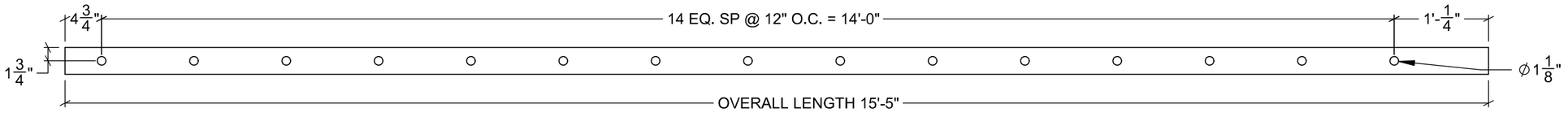
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
S3	2	1/2"x3 1/2" STEEL FLATBAR	37 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
S4	2	1/2"x3 1/2" STEEL FLATBAR	95 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
S5	2	1/2"x3 1/2" STEEL FLATBAR	90 LBS



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NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.09.19
16:15:25-07'00'

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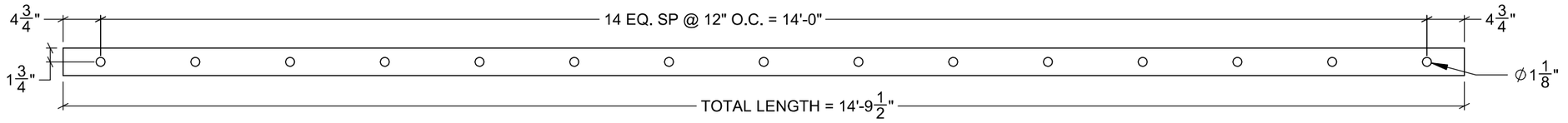
PROJECT NUMBER: 1757

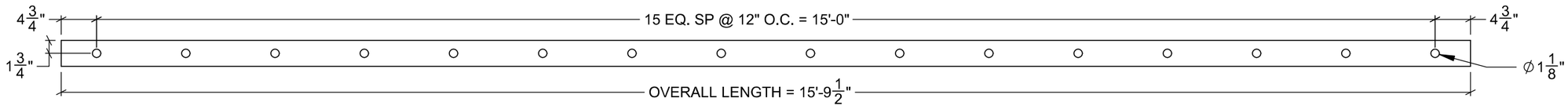
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S5

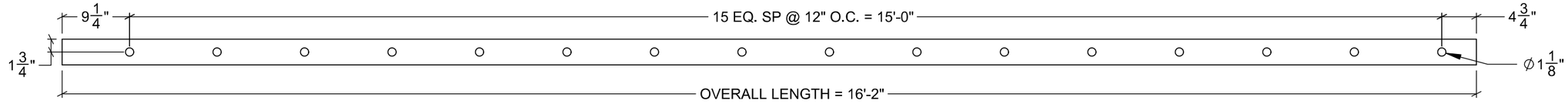
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
S6	2	1/2"x3 1/2" STEEL FLATBAR	86 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
S7	2	1/2"x3 1/2" STEEL FLATBAR	92 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
S8	4	1/2"x3 1/2" STEEL FLATBAR	37 LBS



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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.09.19
16:15:22-07'00'

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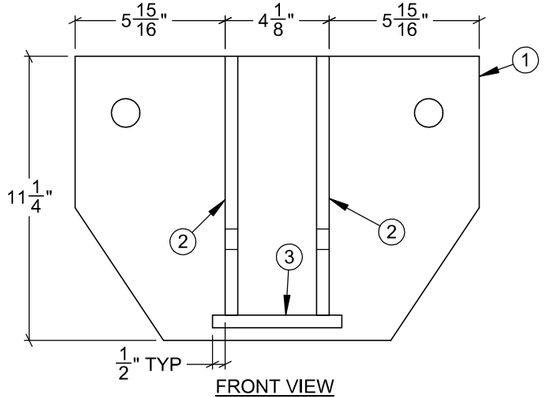
PROJECT NUMBER: 1757

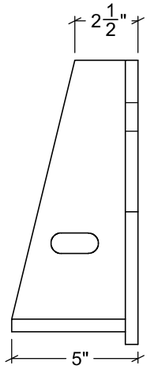
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S6

CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
GS1	12	1/2" PLATE	34 LBS



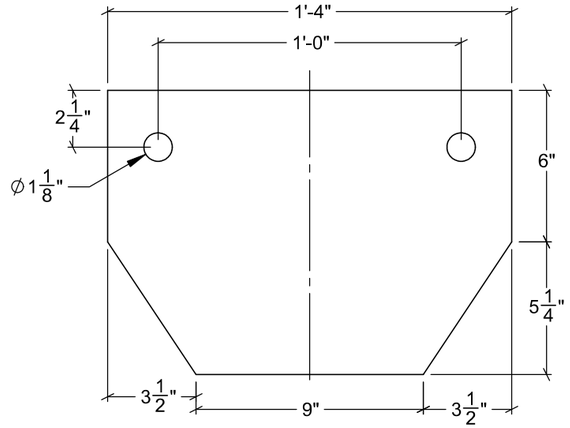
FRONT VIEW



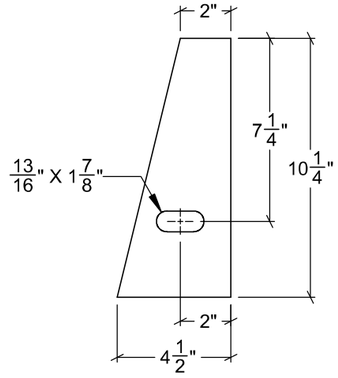
SIDE VIEW

2

(1) QTY: 1 PER HANGER
1/2" BACK PLATE

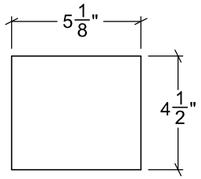


(2) QTY: 2 PER HANGER
1/2" SIDE PLATE



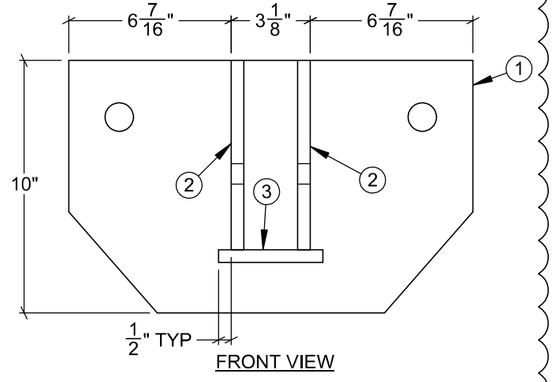
2

(3) QTY: 1 PER HANGER
1/2" BOTTOM PLATE

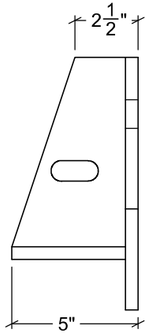


2

CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
JS1	24	1/2" PLATE	29 LBS



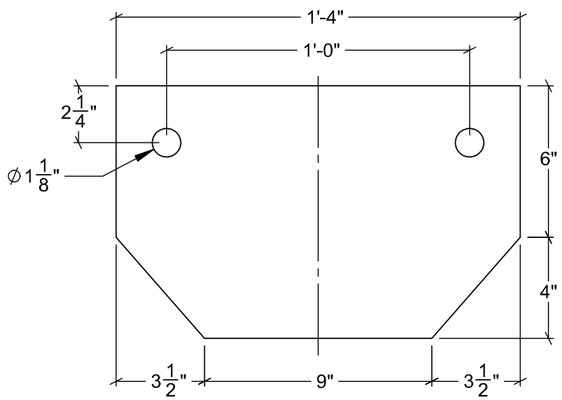
FRONT VIEW



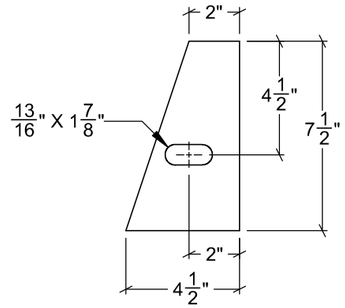
SIDE VIEW

2

(1) QTY: 1 PER HANGER
1/2" BACK PLATE

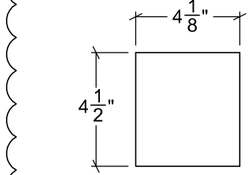


(2) QTY: 2 PER HANGER
1/2" SIDE PLATE



2

(3) QTY: 1 PER HANGER
1/2" BOTTOM PLATE



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REVISIONS

NO.	DATE	DESCRIPTION	BY
2	10-21-19	DESIGN UPDATED	SSB

KITSAP TRANSIT

ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.10.28
16:08:41-07'00'

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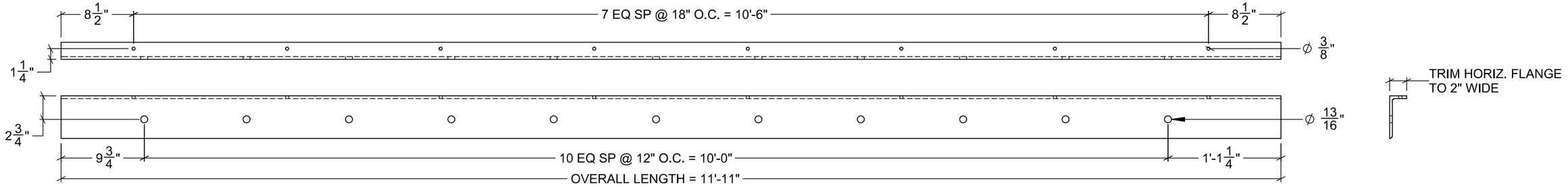
PROJECT NUMBER: 1757

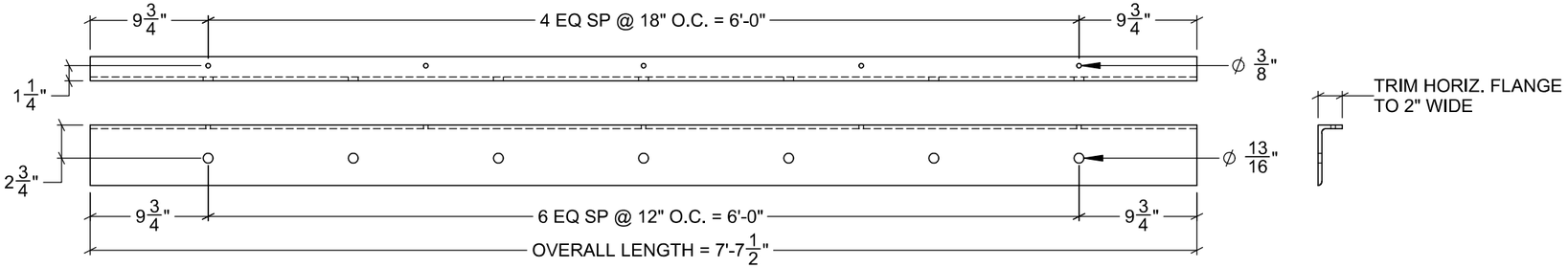
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S7

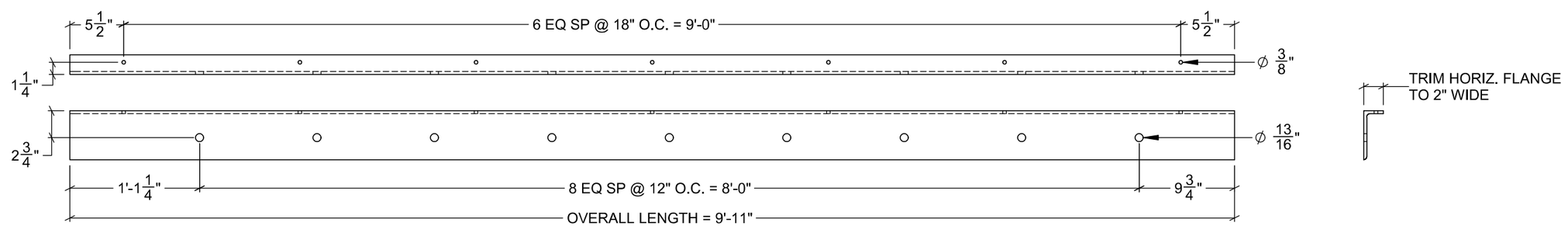
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS1	1	L5x3x5/16 LLV	96 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS2	2	L5x3x5/16 LLV	62 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS3	1	L5x3x5/16 LLV	80 LBS



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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.09.19
16:15:14-07'00'

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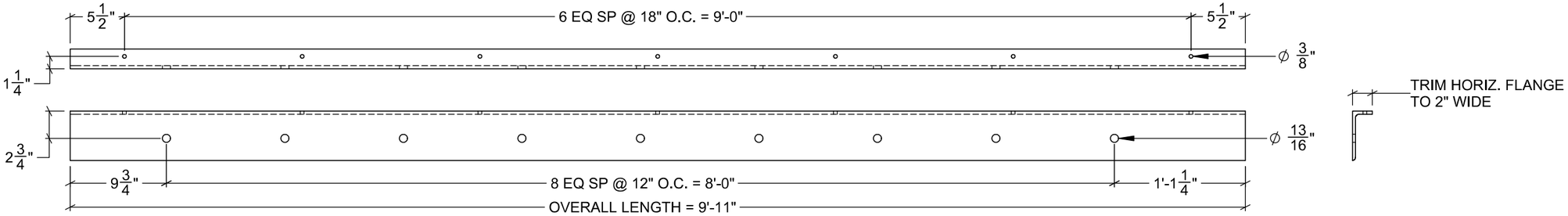
PROJECT NUMBER: 1757

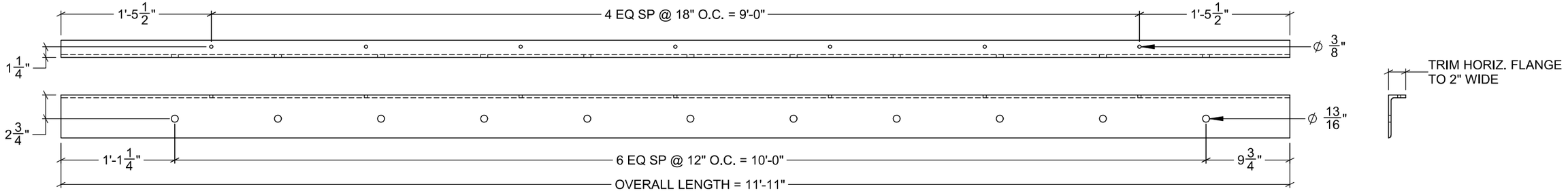
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S8

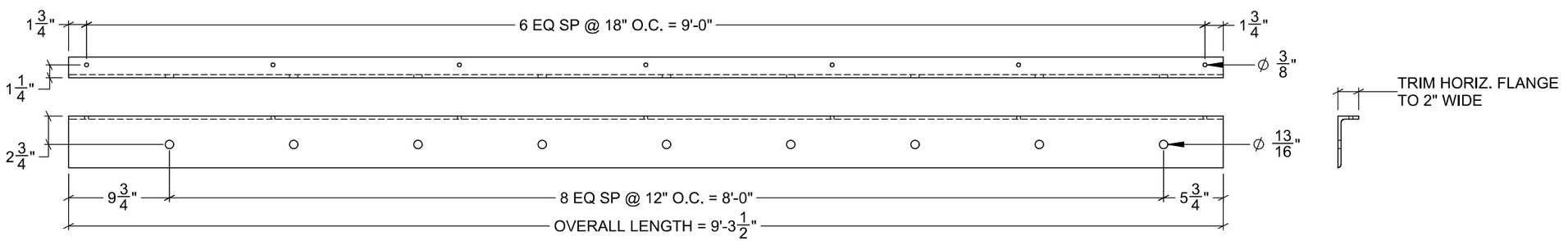
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS4	1	L5x3x5/16 LLV	80 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS5	1	L5x3x5/16 LLV	96 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS6	2	L5x3x5/16 LLV	75 LBS



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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
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STEEL FABRICATION

Craig S. Funston
2019.09.19
16:15:10-07'00'

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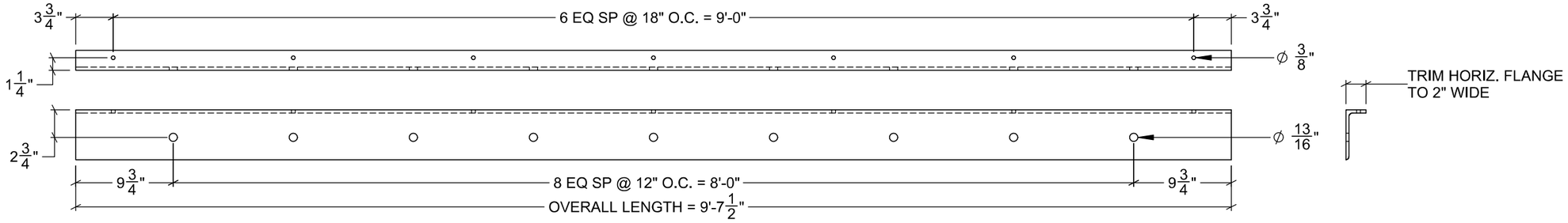
PROJECT NUMBER: 1757

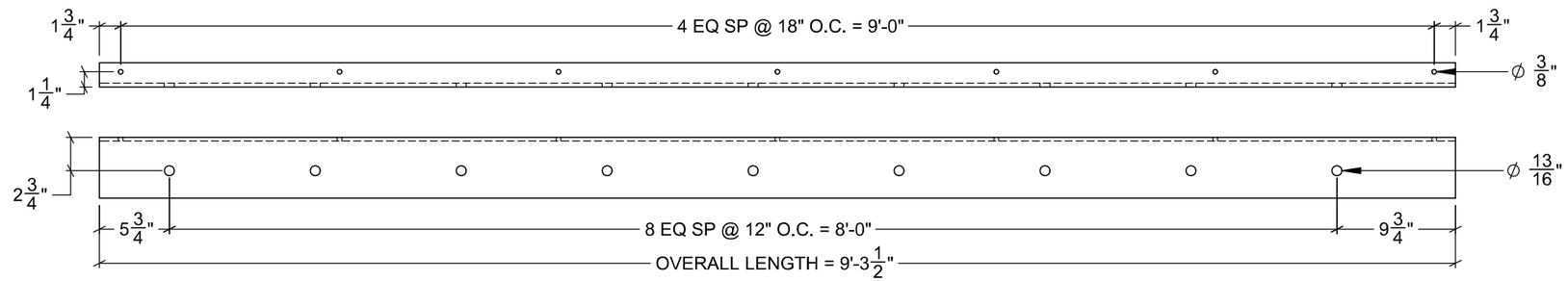
DRAWN BY: SSB
CHECKED BY: DNS

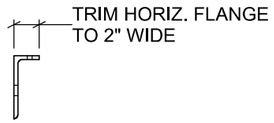
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S9

CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS7	2	L5x3x5/16 LLV	78 LBS

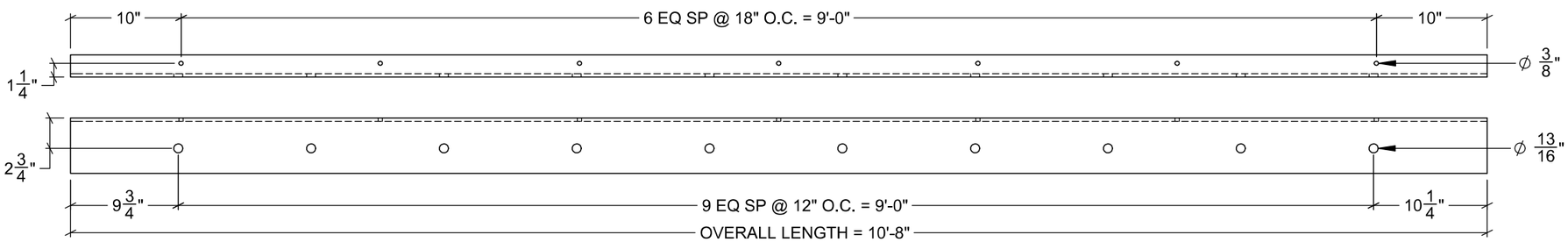


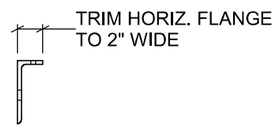
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS8	2	L5x3x5/16 LLV	75 LBS





CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS9	1	L5x3x5/16 LLV	86 LBS





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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.09.19
16:15:06-07'00'

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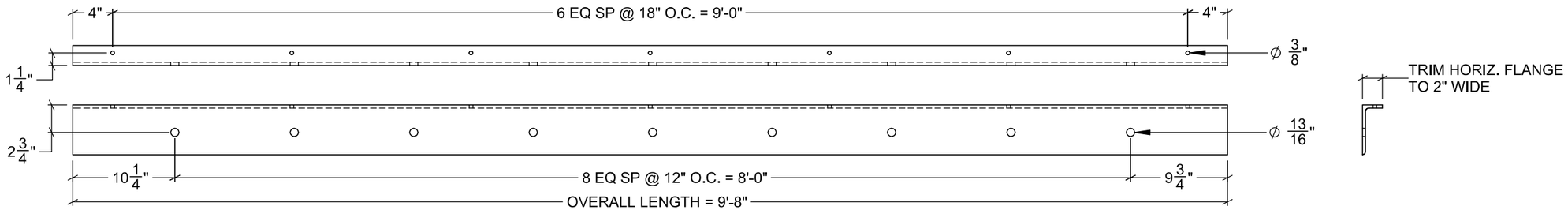
PROJECT NUMBER: 1757

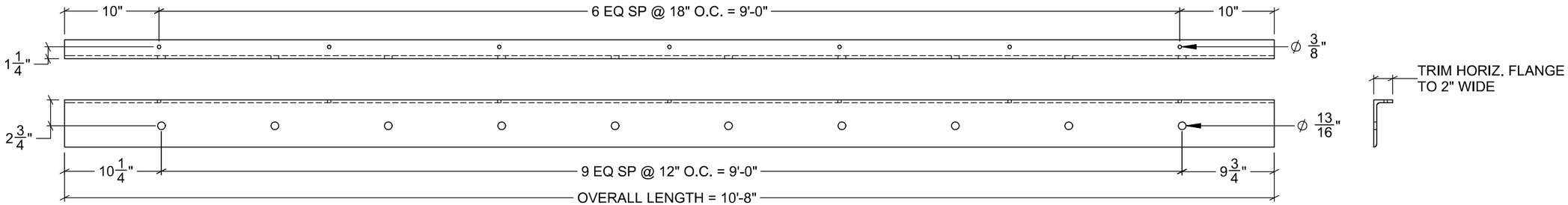
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S10

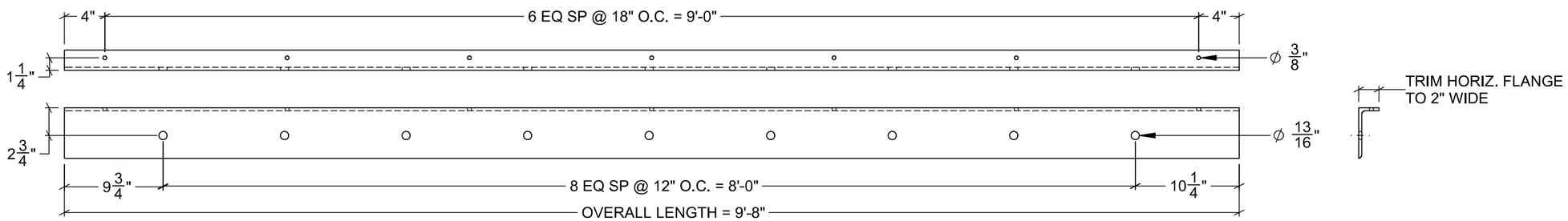
CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS10	1	L5x3x5/16 LLV	78 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS11	1	L5x3x5/16 LLV	86 LBS



CUT LIST			
ITEM	QTY	MATERIAL	WEIGHT
LS12	1	L5x3x5/16 LLV	78 LBS



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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.09.19
16:14:59-07'00'

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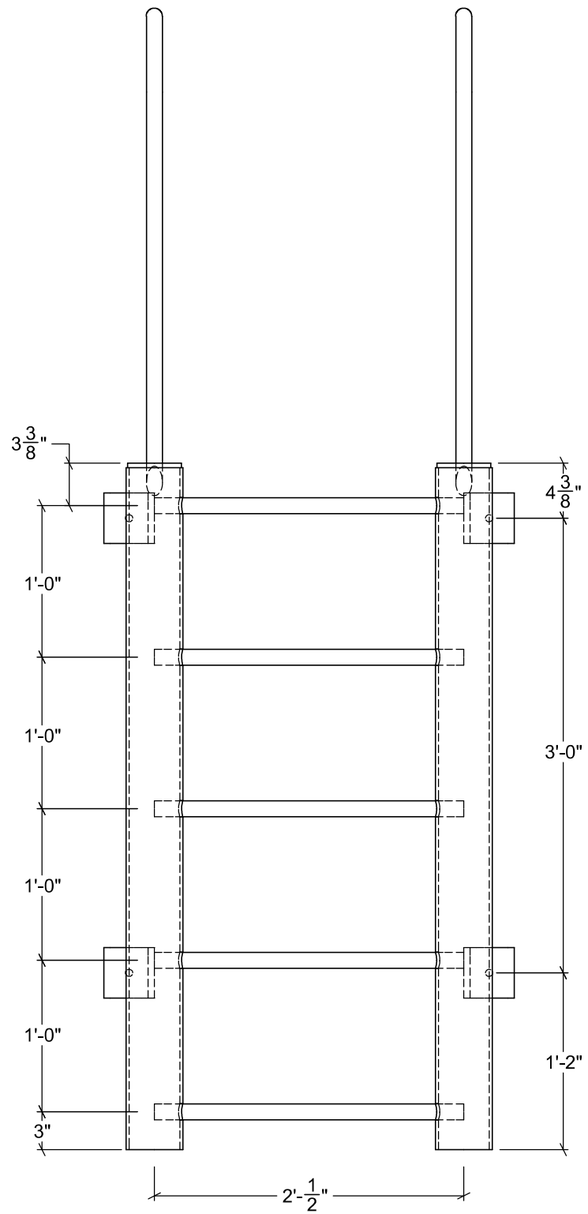
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

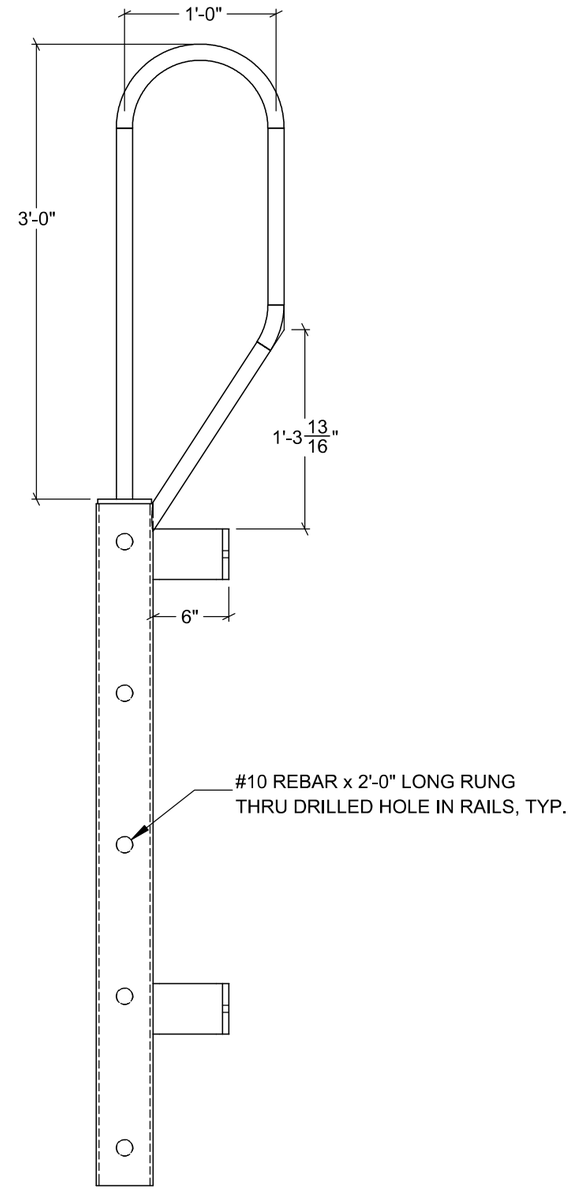
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S10

STEEL LADDER
QTY: 2

NOTE:
-ALL WELDS ARE 5/16" FILLET UNLESS OTHERWISE SPECIFIED



1 / S12 STEEL LADDER



SIDE VIEW

REFER TO S13 FOR FAB DETAILS

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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.09.19
16:14:52-07'00'

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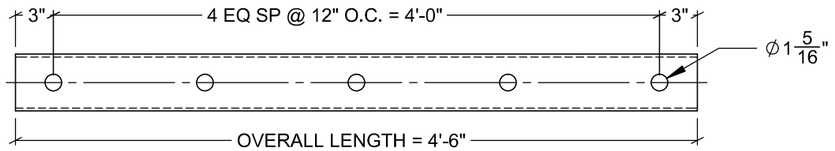
PROJECT NUMBER: 1757

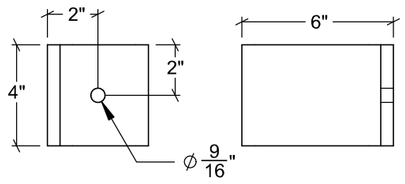
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S12

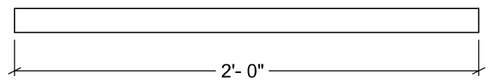
(1) QTY: 2 PER LADDER
4" SCH 40 PIPE



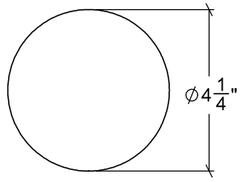
(2) QTY: 4 PER LADDER
L6x4x1/2



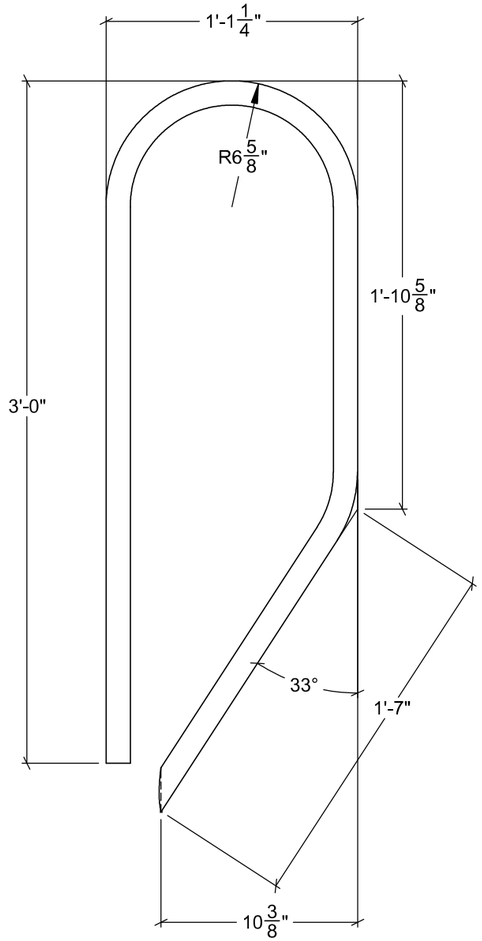
(3) QTY: 5 PER LADDER
#10 REBAR

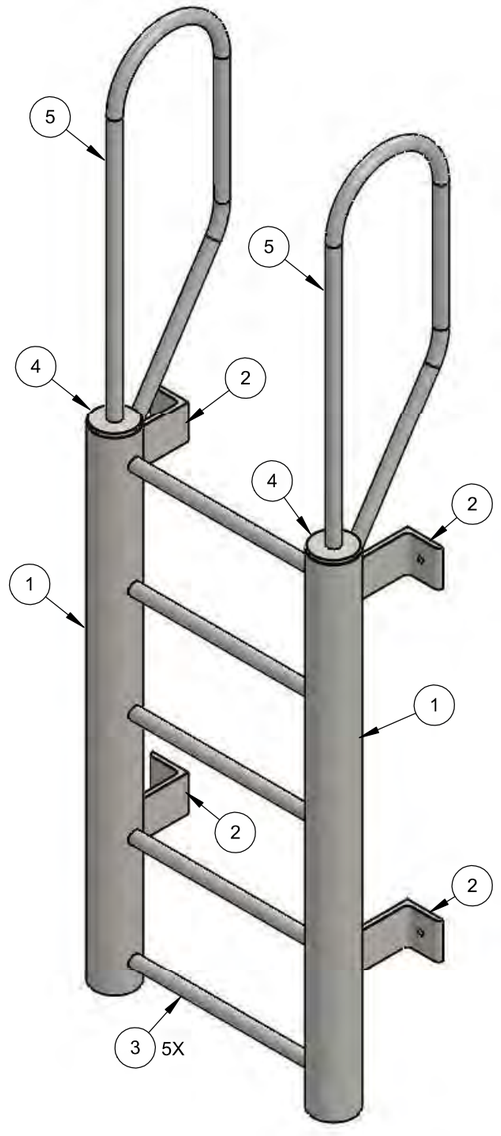


(4) QTY: 2 PER LADDER
3/8" THICK STEEL PLATE



(5) QTY: 2 PER LADDER
#10 REBAR





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ANNAPOLIS FERRY
DOCK UPGRADES

STEEL FABRICATION

Craig S. Funston
2019.09.19
16:14:48-07'00'

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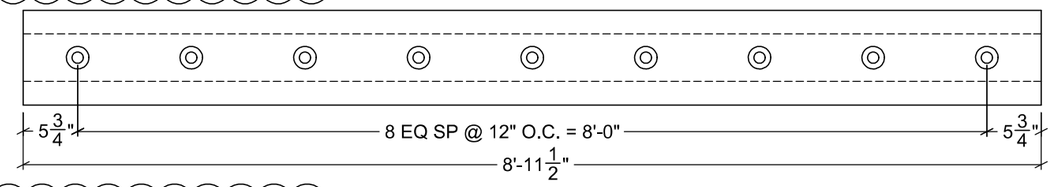
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	S13

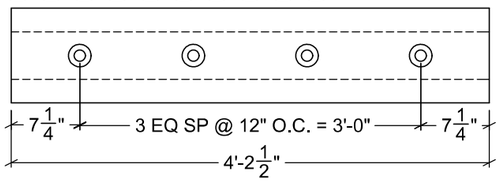
CUT LIST		
ITEM	QTY	MATERIAL
D1	2	10" D-FENDER G07000

3



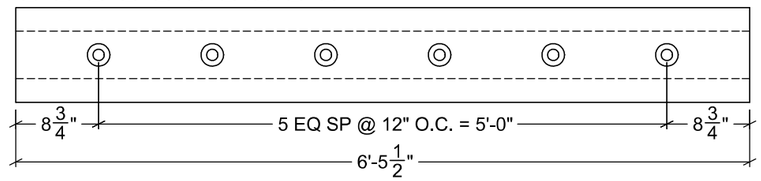
CUT LIST		
ITEM	QTY	MATERIAL
D2	4	10" D-FENDER G07000

3



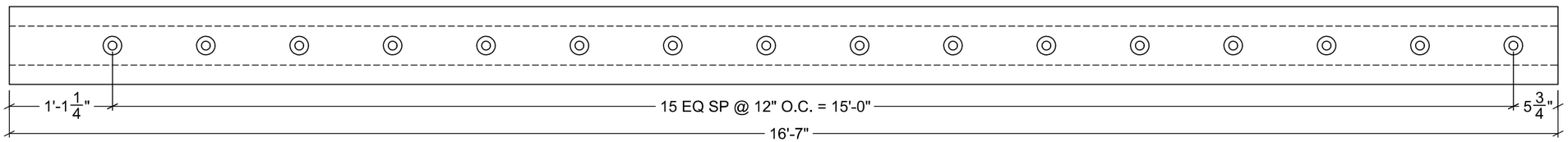
CUT LIST		
ITEM	QTY	MATERIAL
D3	2	10" D-FENDER G07000

3



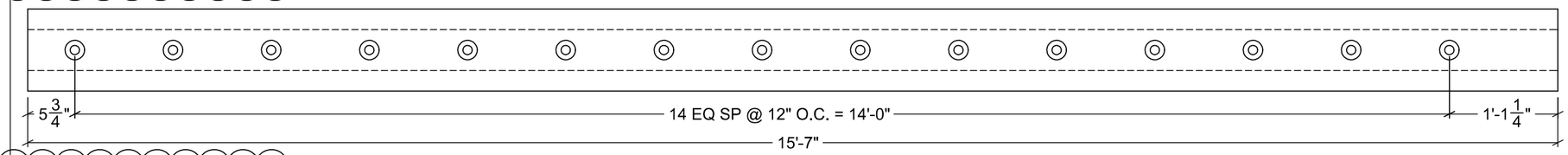
CUT LIST		
ITEM	QTY	MATERIAL
D4	2	10" D-FENDER G07000

3



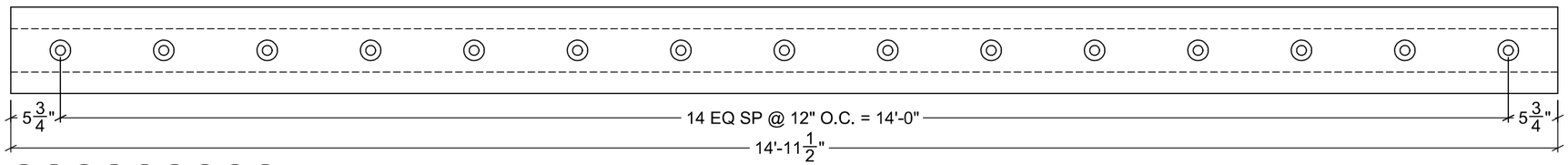
CUT LIST		
ITEM	QTY	MATERIAL
D5	2	10" D-FENDER G07000

3



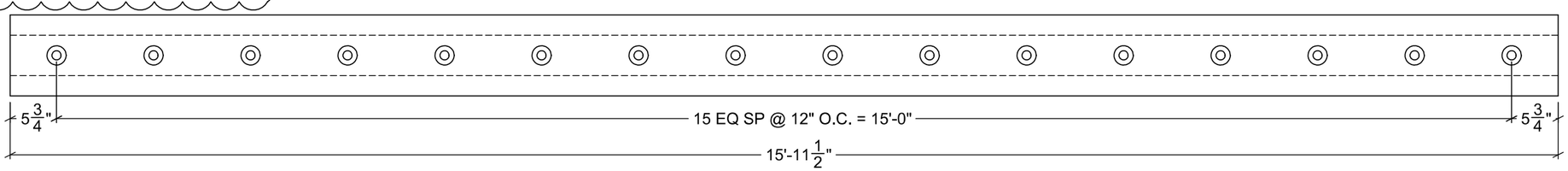
CUT LIST		
ITEM	QTY	MATERIAL
D6	2	10" D-FENDER G07000

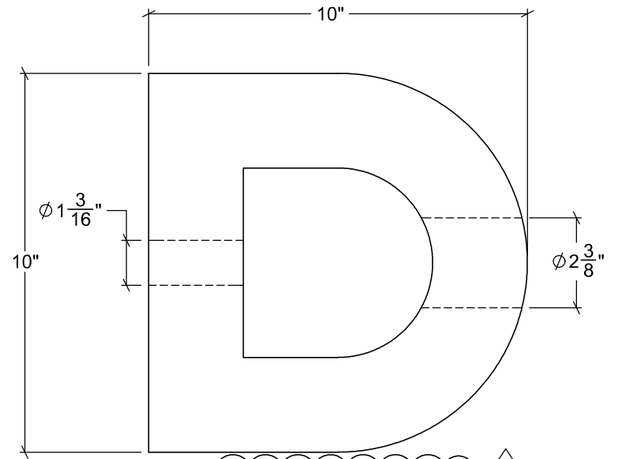
3



CUT LIST		
ITEM	QTY	MATERIAL
D7	2	10" D-FENDER G07000

3





3

MORSE RUBBER
10" D-FENDER G07000

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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	11-15-19	DESIGN / NAMES UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

D-FENDER FABRICATION

Craig S. Funston
2019.11.15
15:53:57-08'00'

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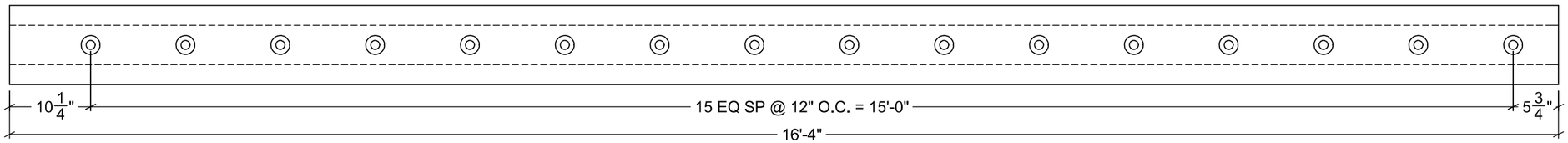
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

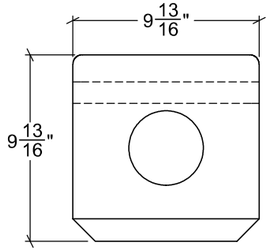
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	DF1

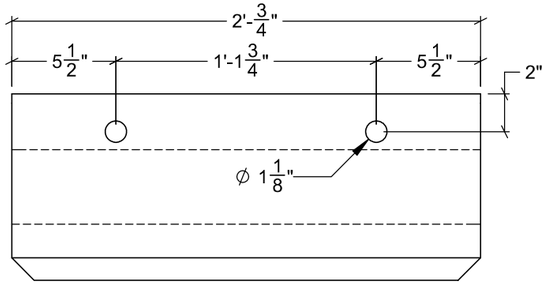
CUT LIST		
ITEM	QTY	MATERIAL
D8	4	10" D-FENDER G07000

3



CUT LIST		
ITEM	QTY	MATERIAL
HF1	20	A-250 HOOP-FENDER





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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	11-15-19	DESIGN / NOTES UPDATED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

D-FENDER FABRICATION

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2019.11.15
15:53:57-08'00'

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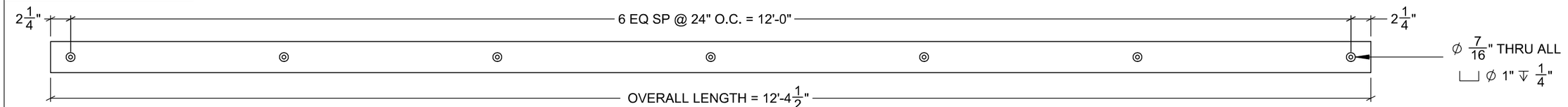
PROJECT NUMBER: 1757

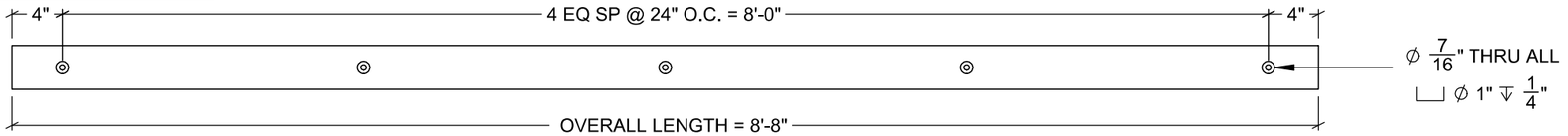
DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	DF2

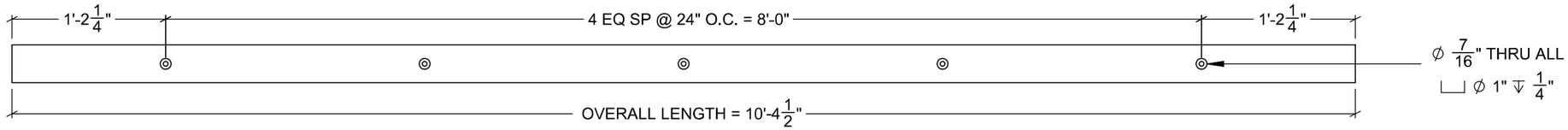
CUT LIST		
ITEM	QTY	MATERIAL
WD1	4	1.5x2 WEAR DECK



CUT LIST		
ITEM	QTY	MATERIAL
WD2	4	1.5x2 WEAR DECK

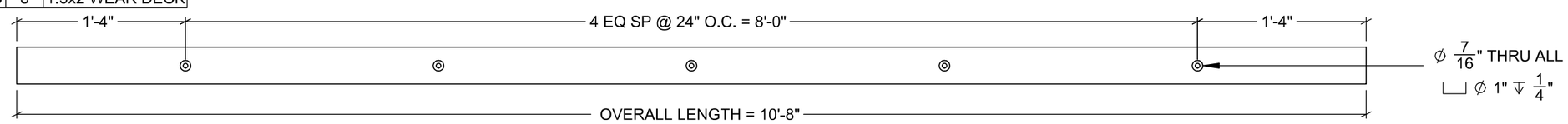


CUT LIST		
ITEM	QTY	MATERIAL
WD3	4	1.5x2 WEAR DECK

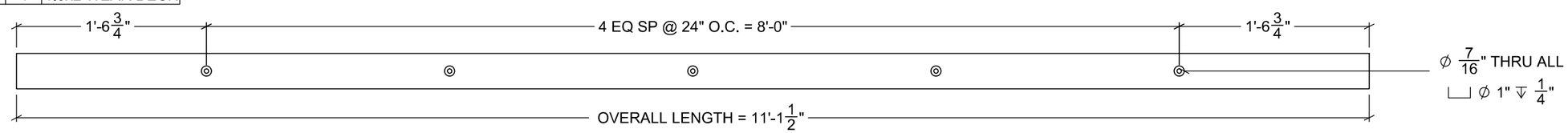


CUT LIST		
ITEM	QTY	MATERIAL
WD4	8	1.5x2 WEAR DECK

CUT LIST		
ITEM	QTY	MATERIAL
WD5	8	1.5x2 WEAR DECK



CUT LIST		
ITEM	QTY	MATERIAL
WD6	4	1.5x2 WEAR DECK



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REVISIONS

NO.	DATE	DESCRIPTION	BY

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

WEAR DECK FABRICATION

Craig S. Funston
2019.09.19
16:14:36-07'00'

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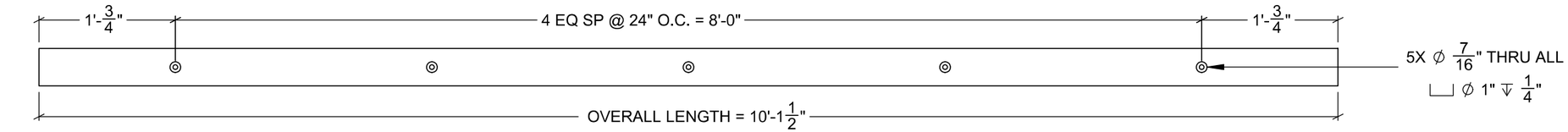
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

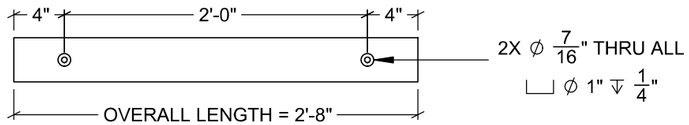
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	WF1

CUT LIST		
ITEM	QTY	MATERIAL
WD7	4	1.5x2 WEAR DECK

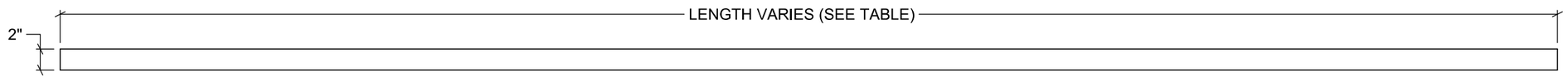


1

CUT LIST		
ITEM	QTY	MATERIAL
WD7.1	2	1.5x2 WEAR DECK



CUT LIST			
ITEM	QTY	LENGTH	MATERIAL
WD8	2	11'-11"	1.5x2 WEAR DECK
WD9	2	7'-7 1/2"	1.5x2 WEAR DECK
WD10	2	9'-11"	1.5x2 WEAR DECK
WD11	4	9'-3 1/2"	1.5x2 WEAR DECK
WD12	4	9'-7 1/2"	1.5x2 WEAR DECK
WD13	2	10'-8"	1.5x2 WEAR DECK
WD14	2	9'-8"	1.5x2 WEAR DECK



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REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	10-04-19	NEW PARTS ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

WEAR DECK FABRICATION

Craig S. Funston
2019.10.08
09:52:40-07'00'

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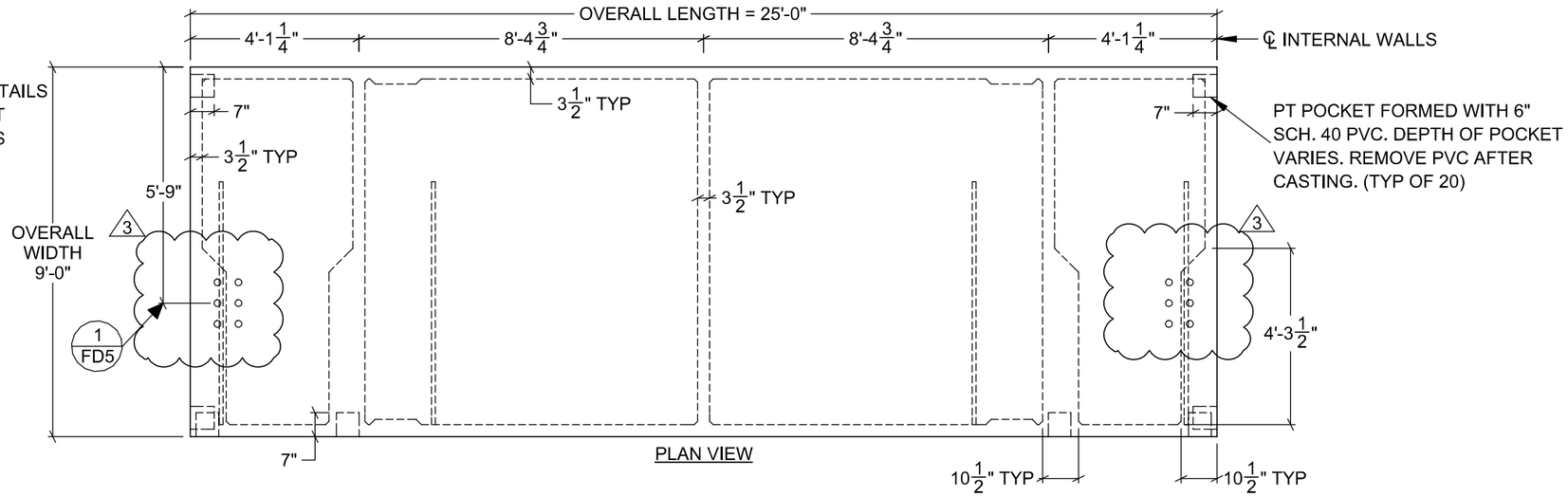
PROJECT NUMBER: 1757

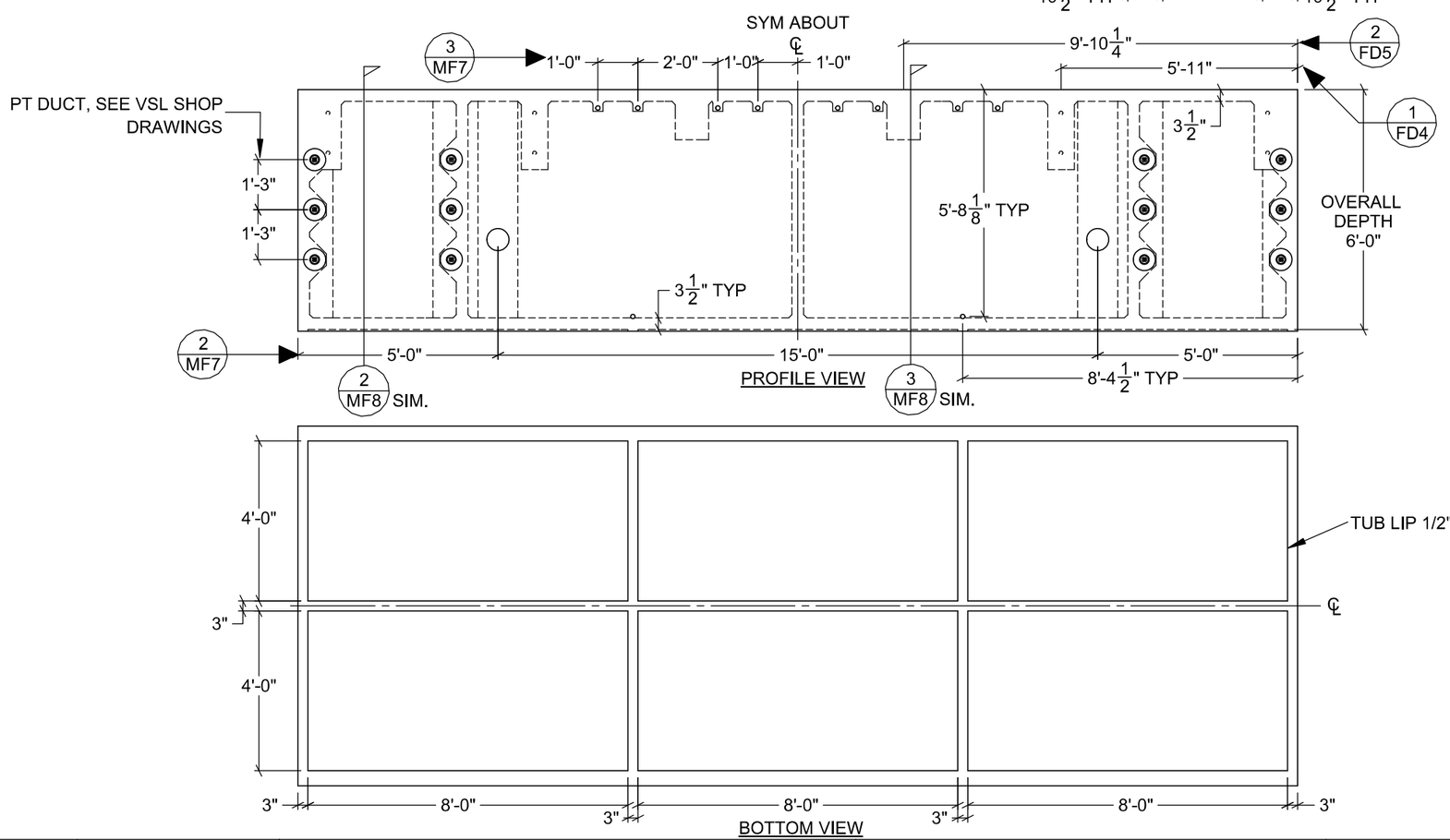
DRAWN BY: SSB
CHECKED BY: DNS

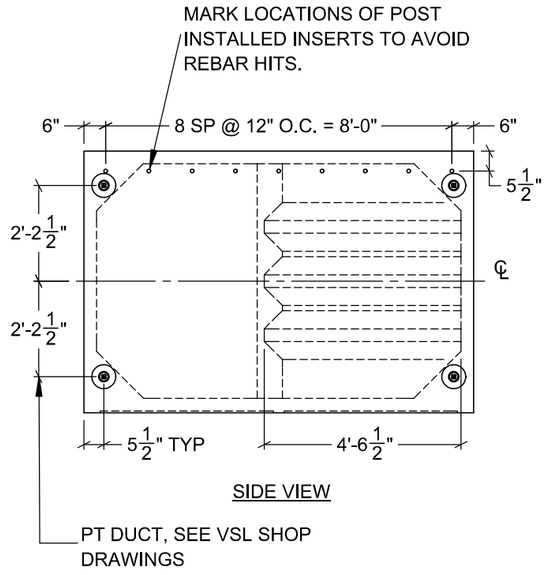
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-19-19
SHEET NO:	
DRAWING:	WF2

ITEM	QTY.	CUBIC YARDS
MODULE 1	1	16.8 CY

NOTE:
- SEE SHEET FD1 FOR REINFORCING DETAILS
- CORNER CHAMFERS SIZE CHANGES AT INTERNAL WALLS. SEE FOAM DRAWINGS AND SECTION VIEWS.







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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
1	10-4-19	NEW PAGE ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT FABRICATION

Craig S. Funston
2019.11.12
09:42:01-08'00'

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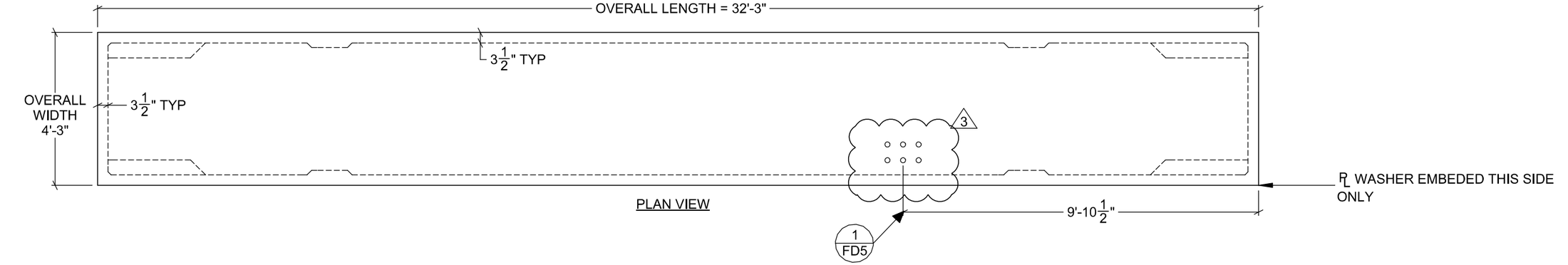
PROJECT NUMBER: 1757

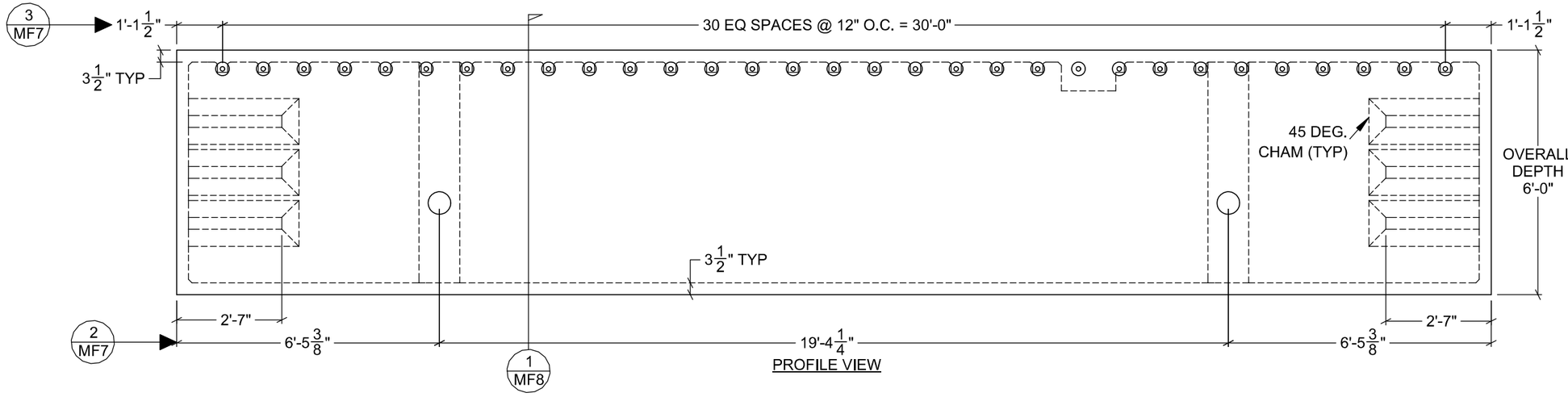
DRAWN BY: SSB
CHECKED BY: DNS

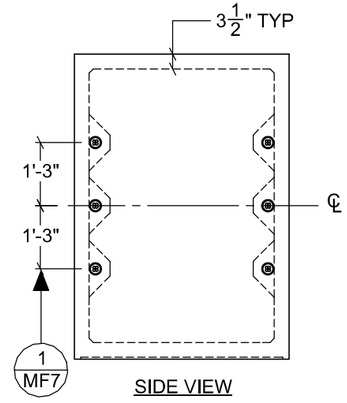
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-27-19
SHEET NO:	
DRAWING:	MF1

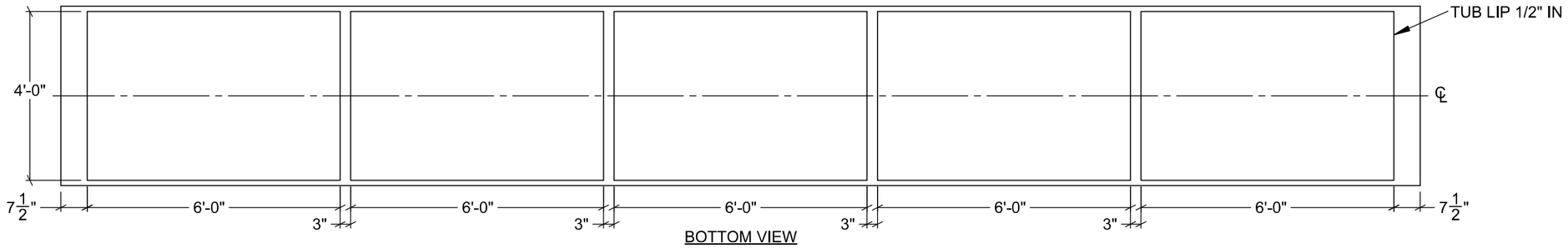
ITEM	QTY.	CUBIC YARDS
MODULE 2	1	8.29 CY
MODULE 3 (OPP. HAND)	1	8.29 CY

NOTE:
SEE SHEET FD2 FOR REINFORCING DETAILS









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REVISIONS

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3	10-30-19	CLEAT DESIGN UPDATE	SSB
1	10-4-19	NEW SHEET ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT FABRICATION

Craig S. Funston
2019.11.12
09:42:02-08'00'

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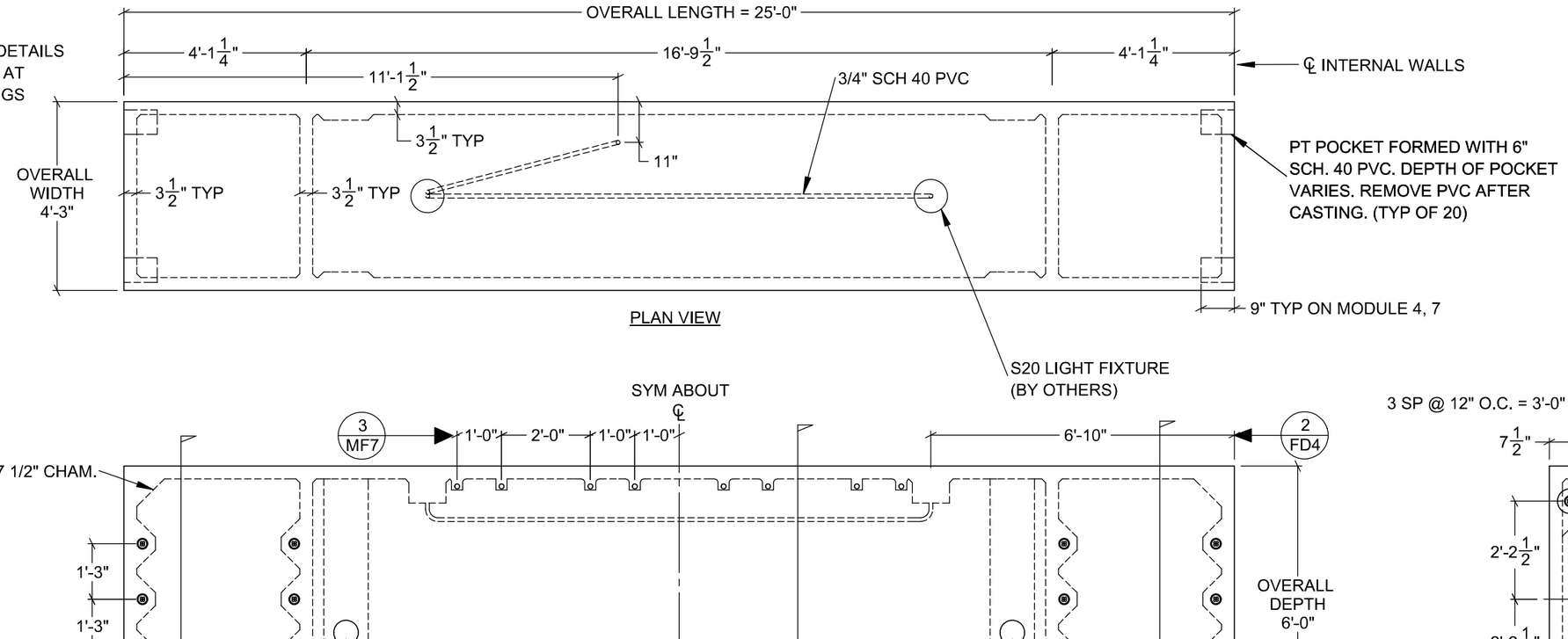
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-27-19
SHEET NO:	
DRAWING:	MF2

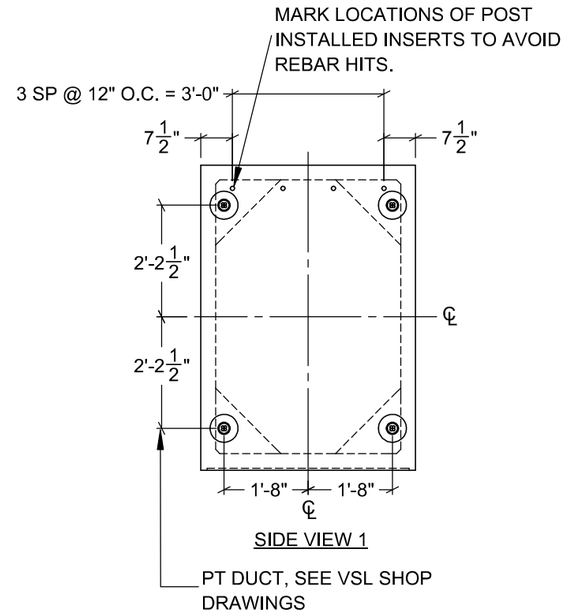
ITEM	QTY.	CUBIC YARDS
MODULE 4	1	9.1 CY
MODULE 7	1	9.1 CY

NOTE:
- SEE SHEET FD3 FOR REINFORCING DETAILS
- CORNER CHAMFERS SIZE CHANGES AT INTERNAL WALLS. SEE FOAM DRAWINGS AND SECTION VIEWS.

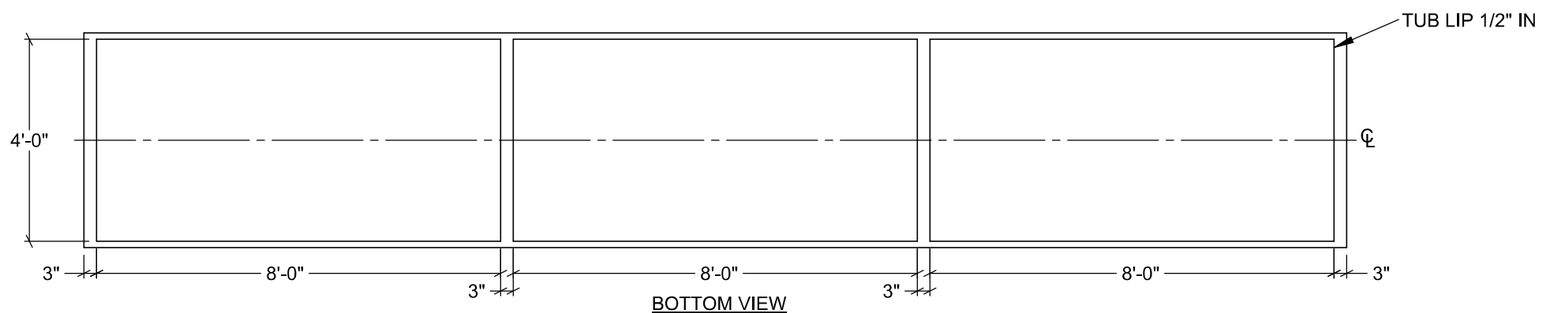


PLAN VIEW

PROFILE VIEW



SIDE VIEW 1



BOTTOM VIEW

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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	NEW SHEET ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT FABRICATION

Craig S. Funston
2019.10.08
09:52:20-07'00'

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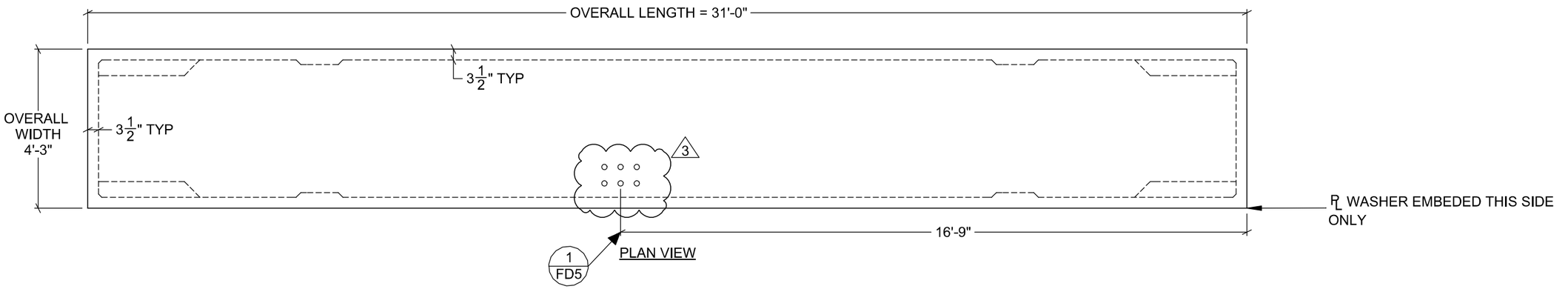
PROJECT NUMBER: 1757

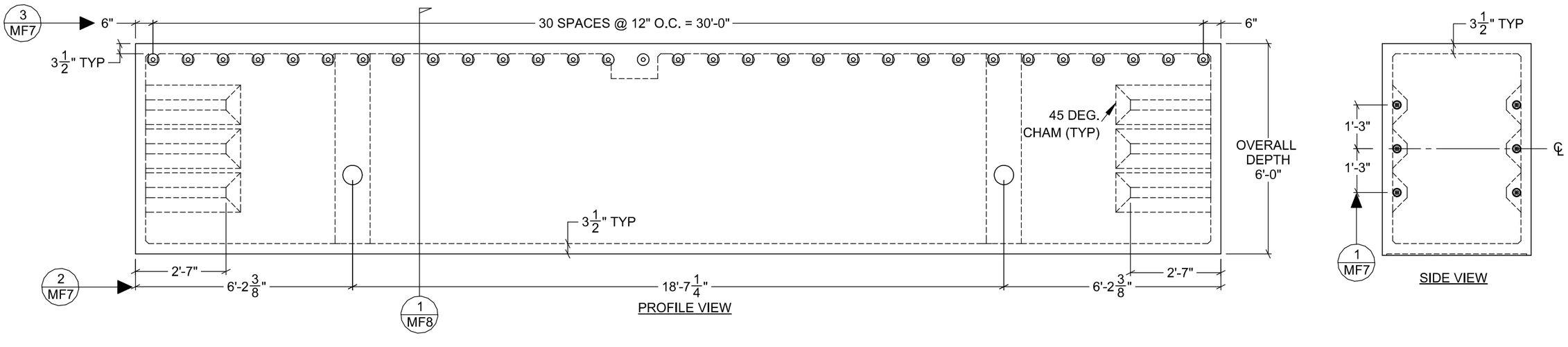
DRAWN BY: SSB
CHECKED BY: DNS

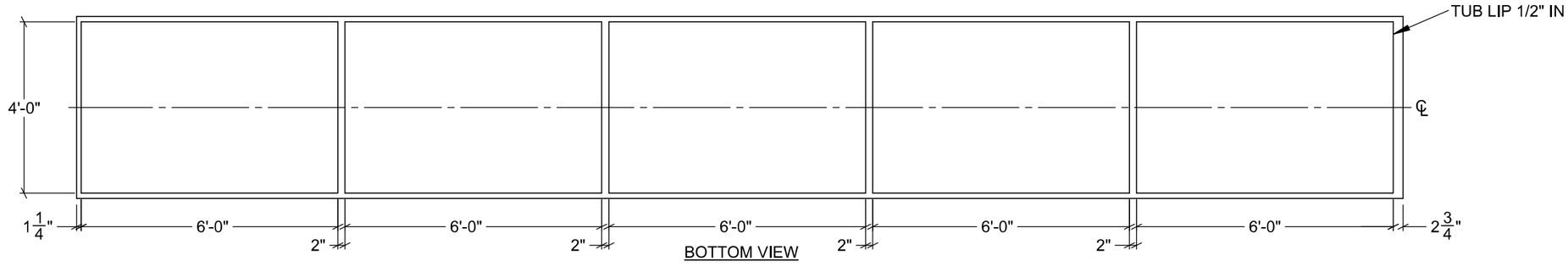
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-27-19
SHEET NO:	
DRAWING:	MF3

ITEM	QTY.	CUBIC YARDS
MODULE 5	1	8.3 CY
MODULE 6 (OPP. HAND)	1	8.3 CY

NOTE:
SEE SHEET FD2 FOR REINFORCING DETAILS







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1	10-04-19	NEW SHEET ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT FABRICATION

Craig S. Funston
2019.11.12
09:42:02-08'00'

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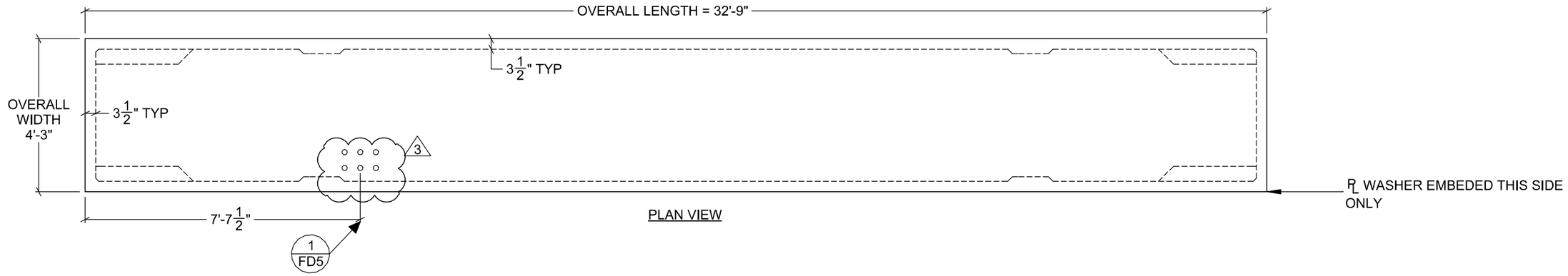
PROJECT NUMBER: 1757

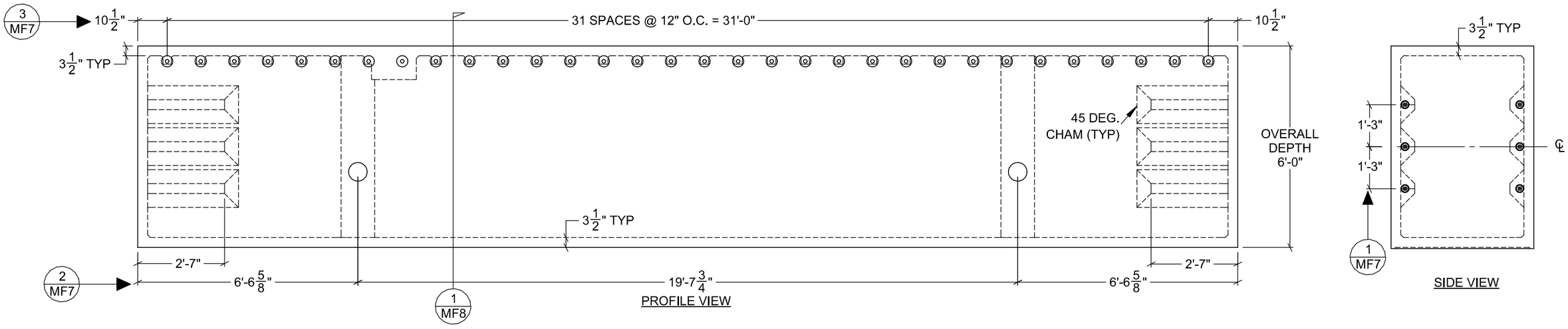
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-27-19
SHEET NO:	
DRAWN BY:	SSB
CHECKED BY:	DNS
DRAWING:	MF4

ITEM	QTY.	CUBIC YARDS
MODULE 8	1	8.5 CY
MODULE 9 (OPP. HAND)	1	8.5 CY

NOTE:
SEE SHEET FD1 FOR REINFORCING DETAILS

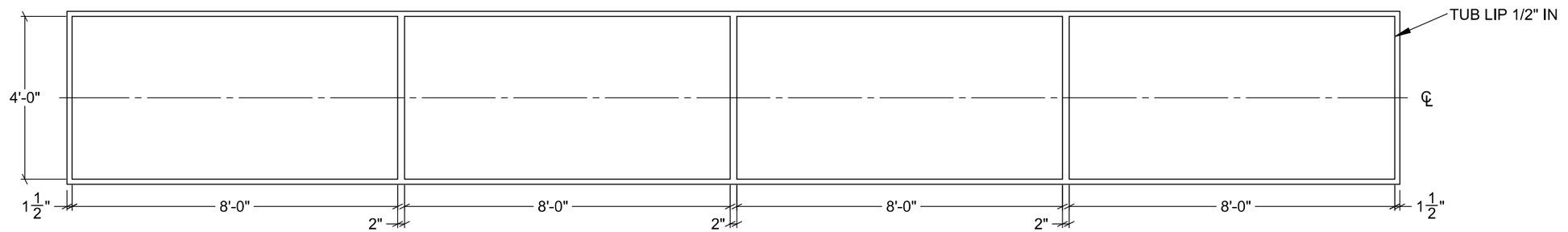


PLAN VIEW



PROFILE VIEW

SIDE VIEW



BOTTOM VIEW

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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
1	10-04-19	NEW SHEET ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT FABRICATION

Craig S. Funston
2019.11.12
09:42:03-08'00'

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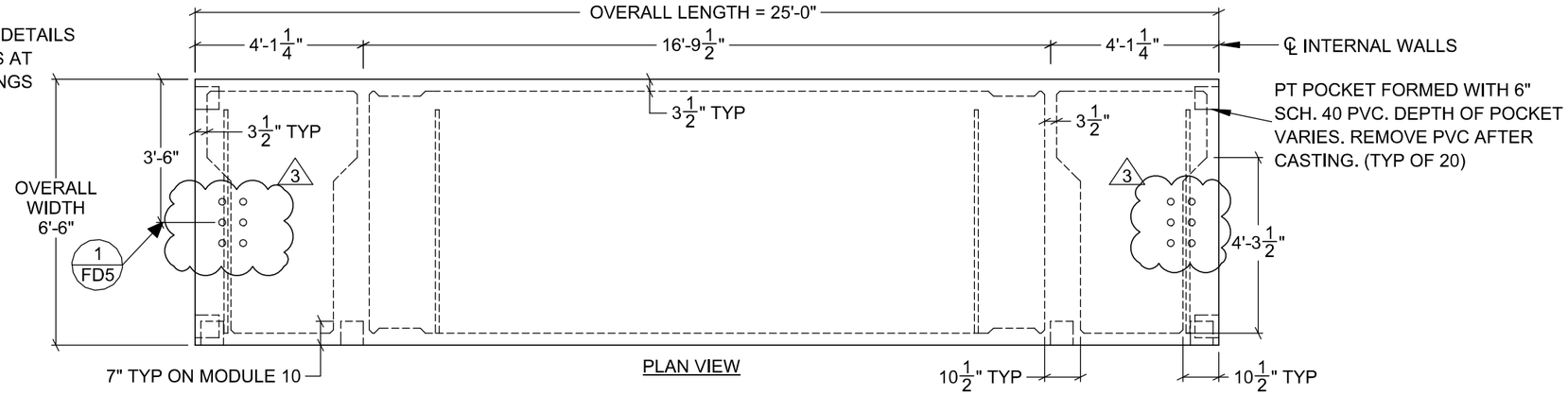
PROJECT NUMBER: 1757

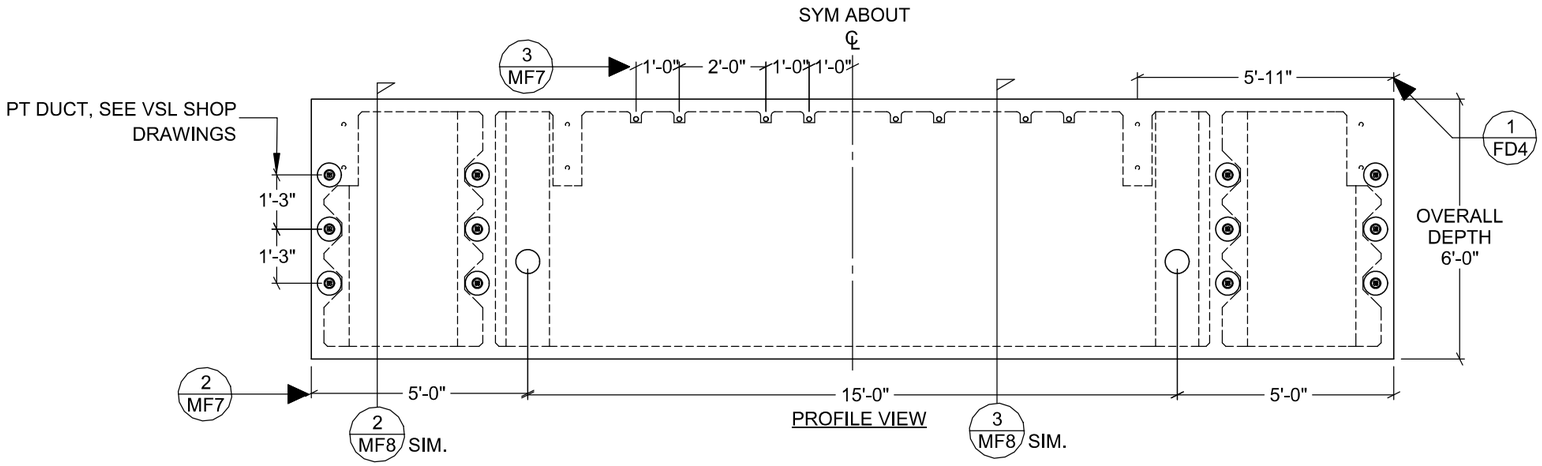
DRAWN BY: SSB
CHECKED BY: DNS

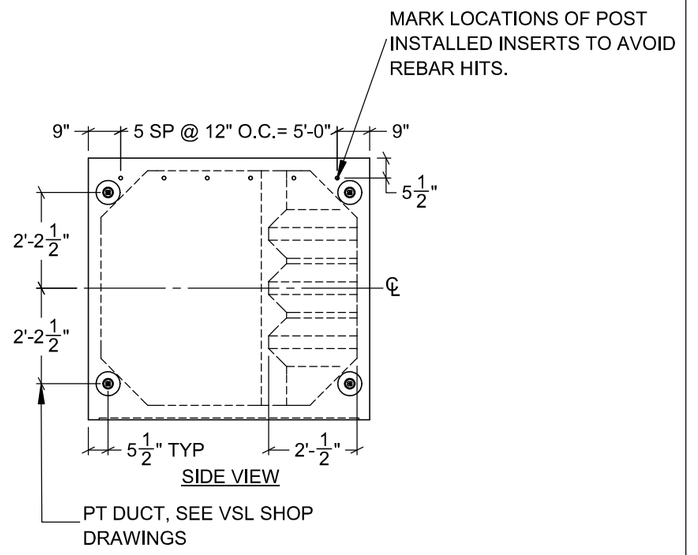
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-27-19
SHEET NO:	
DRAWING:	MF5

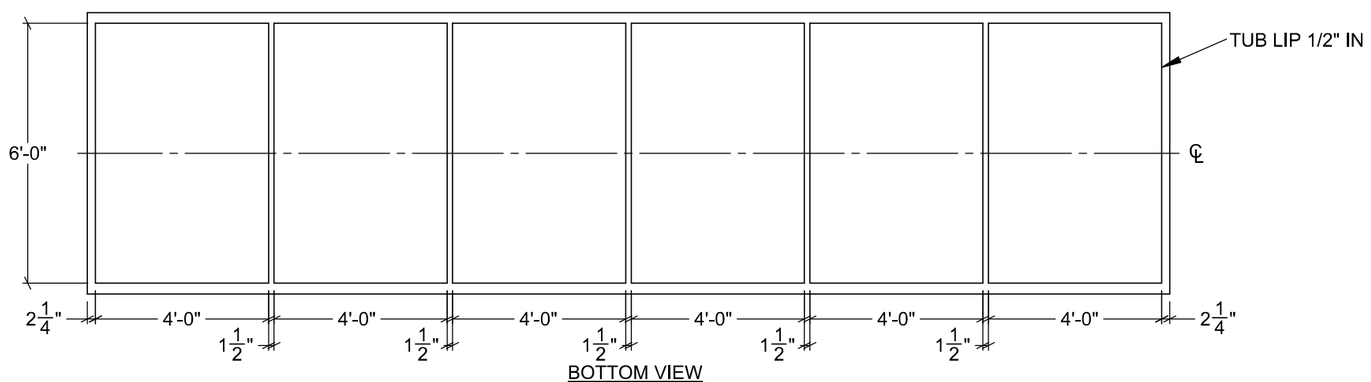
ITEM	QTY.	CUBIC YARDS
MODULE 10	1	12.9 CY

NOTE:
- SEE SHEET FD1 FOR REINFORCING DETAILS
- CORNER CHAMFERS SIZE CHANGES AT INTERNAL WALLS. SEE FOAM DRAWINGS AND SECTION VIEWS.









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REVISIONS

NO.	DATE	DESCRIPTION	BY
3	10-30-19	CLEAT DESIGN UPDATED	SSB
1	10-04-19	NEW SHEET ADDED	SSB

KITSAP TRANSIT

ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT FABRICATION

Craig S. Funston
2019.11.12
09:42:03-08'00'

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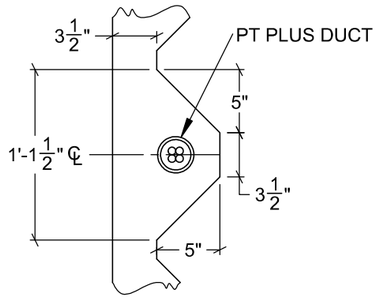
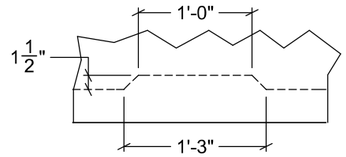
PROJECT NUMBER: 1757

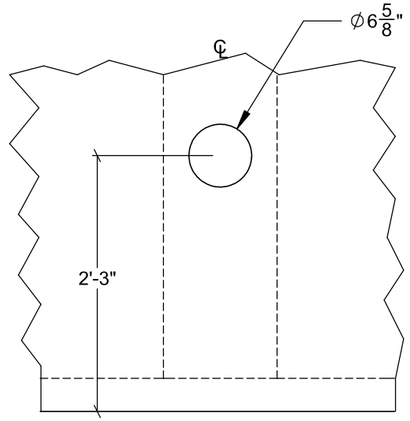
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-27-19
SHEET NO:	
DRAWN BY:	SSB
CHECKED BY:	DNS
DRAWING:	MF6



1 MF7 TYPICAL PT DETAIL

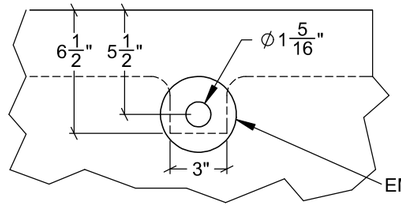


PLAN VIEW



PROFILE VIEW

2 MF7 TYPICAL LIFTING BEAM VIEW



3 MF7 TYPICAL ROD / PL WASHER VIEW

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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	NEW SHEET ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT FABRICATION DETAILS

Craig S. Funston
2019.10.08
09:51:58-07'00'

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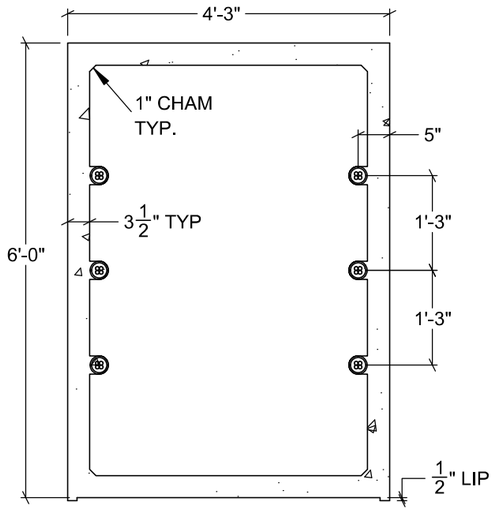
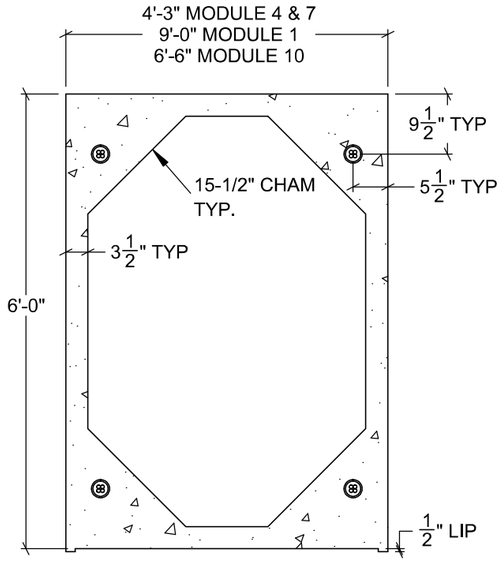
PROJECT NUMBER: 1757

DRAWN BY: SSB
CHECKED BY: DNS

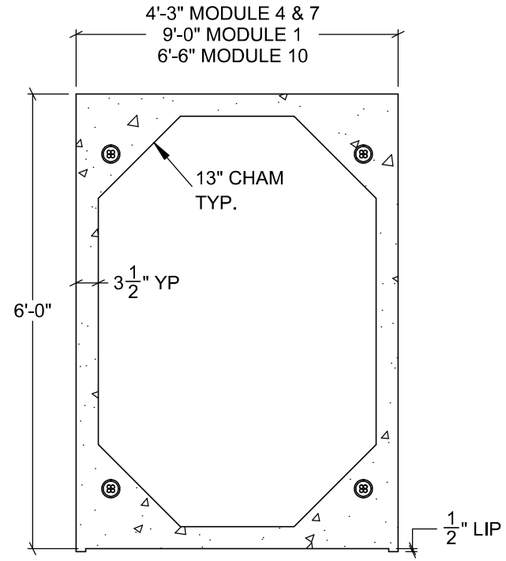
SCALE:	NTS
SHEET SIZE:	11" x 17"
DATE:	09-27-19
SHEET NO:	
DRAWING:	MF7



1 MF8 MODULE 2, 3, 5, 6, 8, 9 TYP SECTION



2 MF8 MODULE 1, 4, 7, 10 END SECTION



3 MF8 MODULE 1, 4, 7, 10 MID SECTION

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REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-04-19	NEW SHEET ADDED	SSB

KITSAP TRANSIT
ANNAPOLIS FERRY
DOCK UPGRADES

FLOAT SECTION VIEWS

Craig S. Funston
2019.10.08
09:51:49-07'00'

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SHEET NO:	
DRAWING:	MF8