

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
761	101-1-2	ILLINOIS	64	1
			CONTRACT NO. 76G16	
*CALHOUN & GREENE				

<b>TITLE</b>	<b>PAGE NO.</b>
COVER SHEET	1
SUMMARY OF QUANTITIES	2
BARGE PLANS	3-16
PUSHBOAT PLANS	17-64

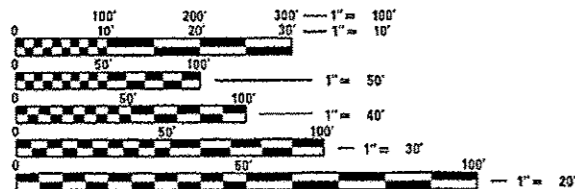
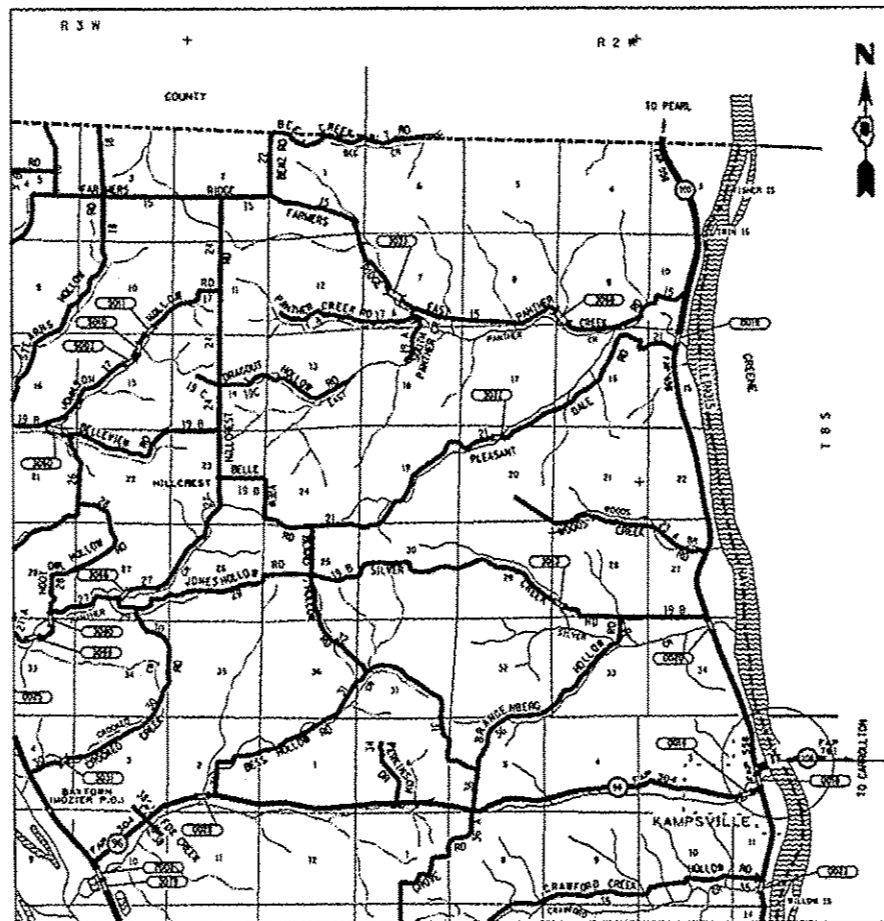
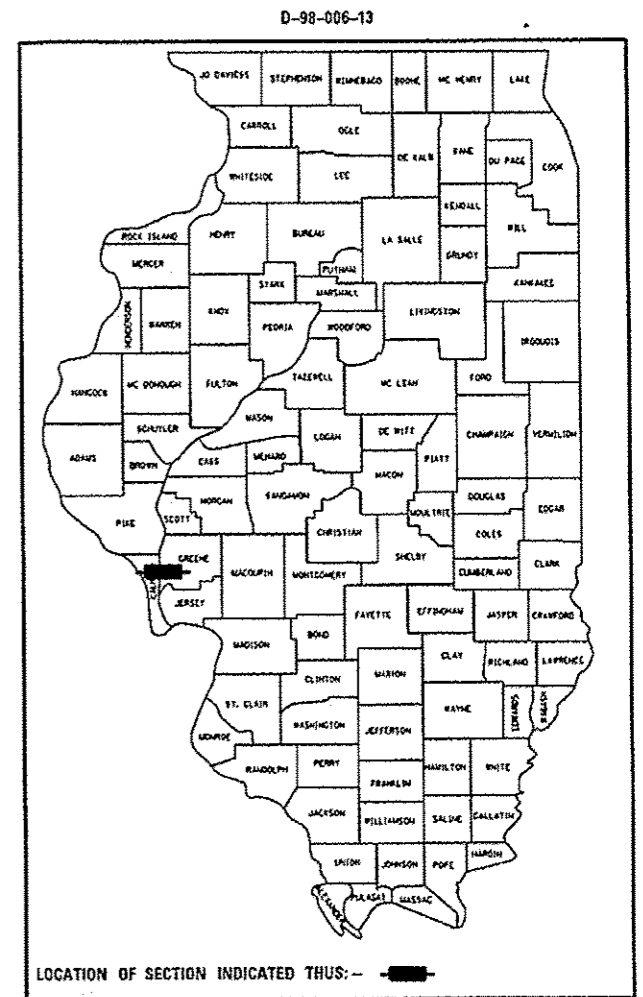
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

# PROPOSED HIGHWAY PLANS

FAP ROUTE 761 (IL 108)  
SECTION 101-1-2  
PROJECT FBD-0761(013)  
PUSH BOAT AND BARGE  
CALHOUN & GREENE COUNTIES

C-98-017-13

KAMPSVILLE\_FERRY\_ADT  
2011 ADT = 600 (ACTUAL)  
2013 ADT = 625 (ESTIMATED)  
2033 ADT = 750 (ESTIMATED)  
SU = 2.2%  
MU = 3.0%



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 811

PROJECT ENGINEER: TIM PADGETT (618)346-3325  
PROJECT MANAGER: DON HAYDEN (618)346-3194

CONTRACT NO. 76G16

NOT TO SCALE  
LAT. = 39.299626  
LONG. = -90.608774

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED July 19 20 13  
*Jeffrey J. Kern*  
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

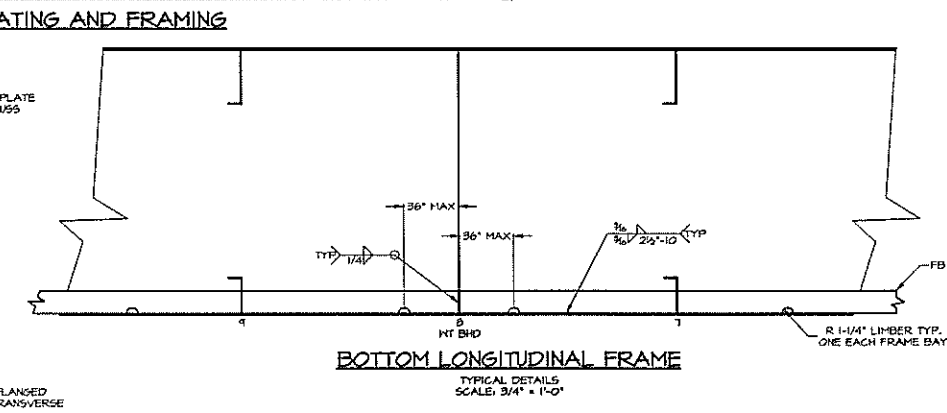
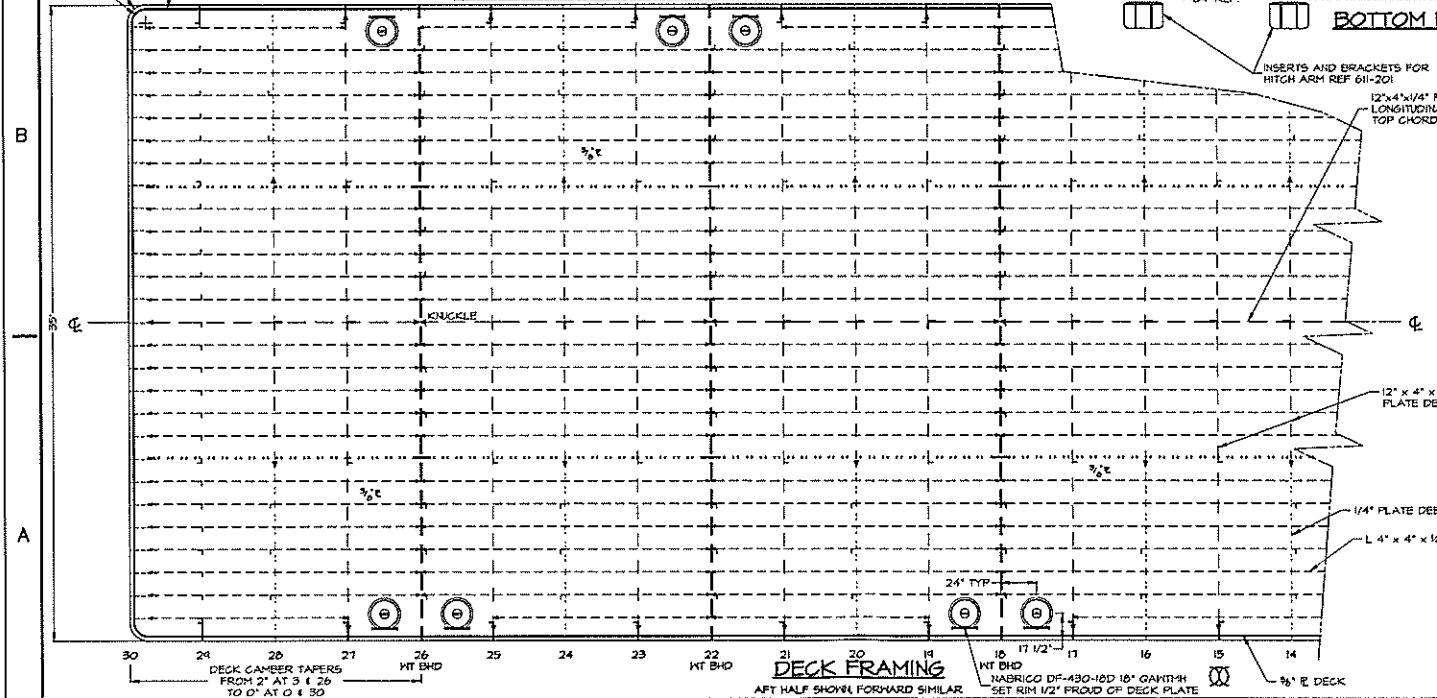
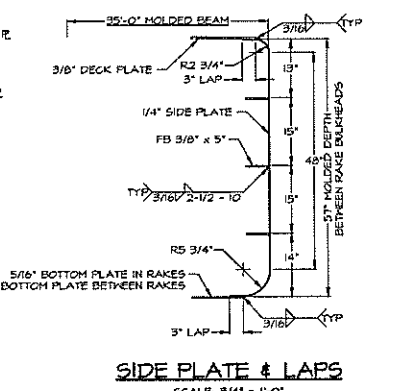
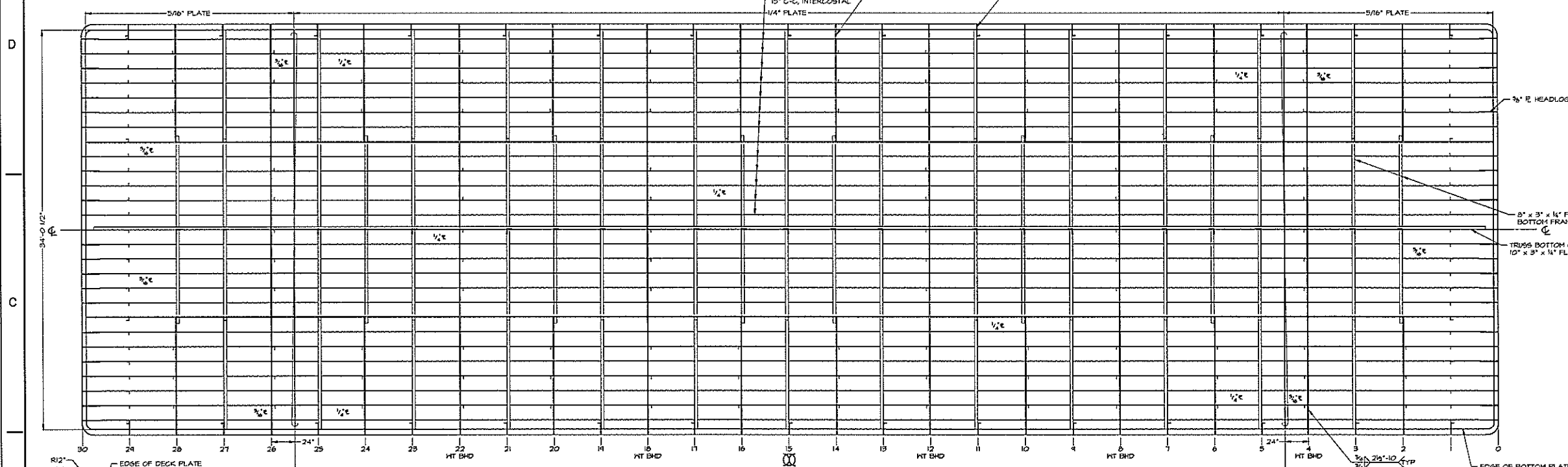
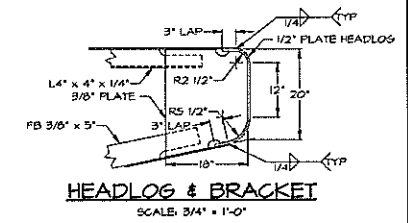
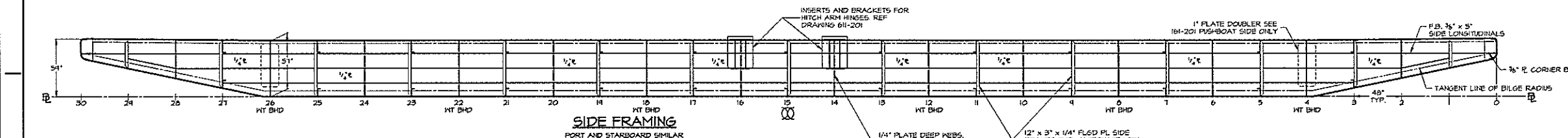
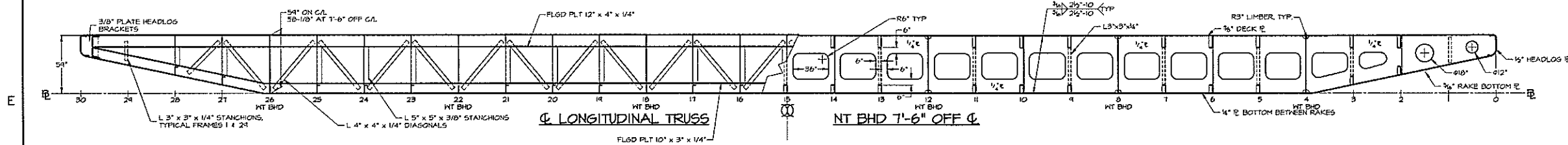
Aug 16 20 13  
*John D. Baranzelli PE*  
ENGINEER OF DESIGN AND ENVIRONMENT

Aug 16 20 13  
*Omer Osman PE*  
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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OF THE STATE OF ILLINOIS



REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	09/23/99	

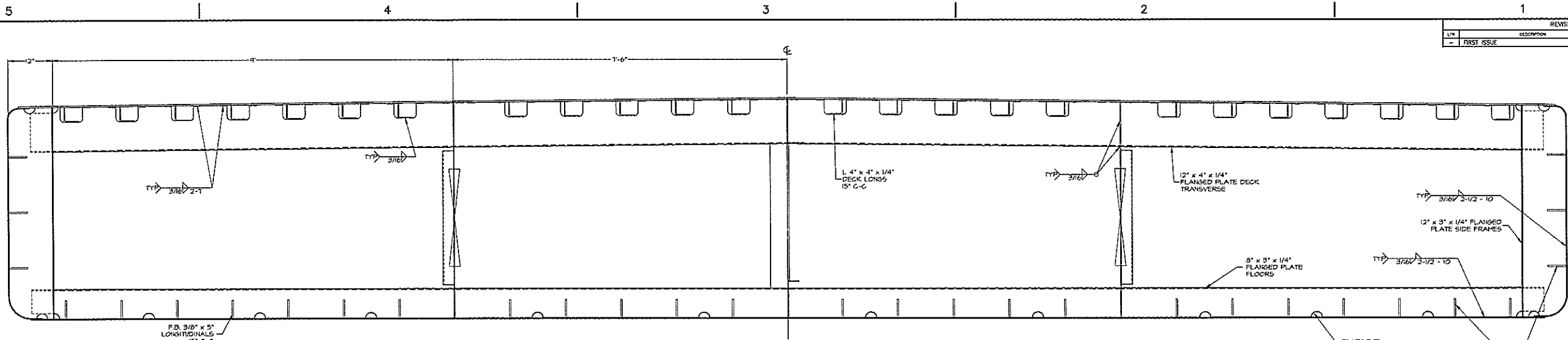


- NOTES**
- SIDE AND BOTTOM LONGITUDINALS MUST BE INTERCOSTAL OR WELDED ALL AROUND, BOTH SIDES WHERE THEY PENETRATE TRANSVERSE FRAMES. THIS IS REQUIRED BY TONNAGE REGULATIONS.
  - DECK HAS 2\"/>

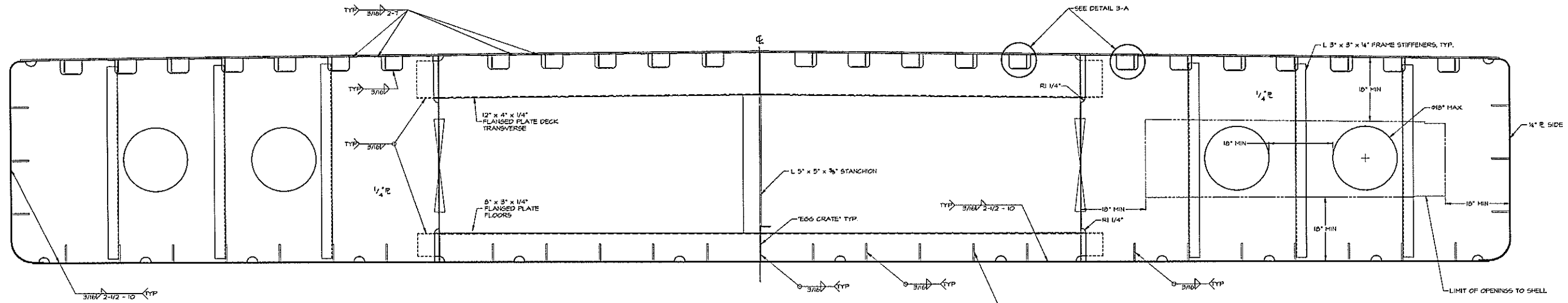
DWN. H.G. HITT	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 35'-0" x 4'-4" BRUSSELS FERRY BARGE	Project No. 99005
TITLE	HULL STRUCTURE PLANS AND PROFILES	Scale: 1/4" = 1'-0"
		REV. DATE 09/20/99
		Drawing No. 116-201

Prof. 99005 Dwg. 116-201 Rev. - TITLE HULL STRUCTURE - PLANS AND PROFILES

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	09/20/99	



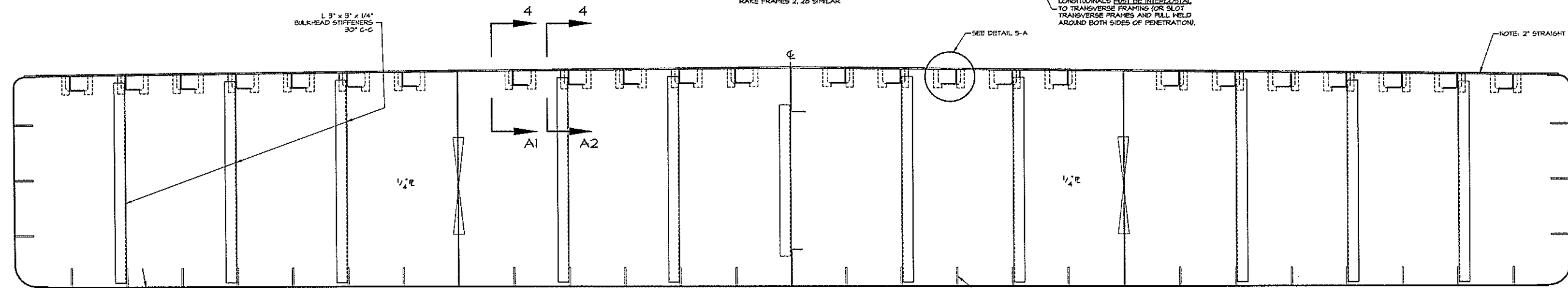
**TYPICAL INTERMEDIATE FRAME**  
 AT FRAMES 5, 11, 17, 23, 25  
 RAKE FRAMES 3, 21 SIMILAR



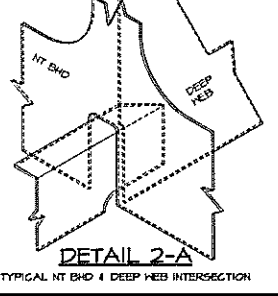
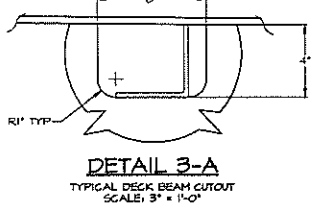
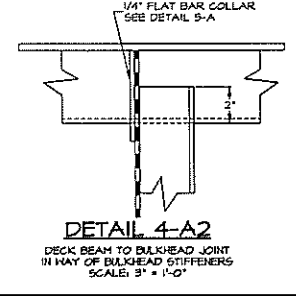
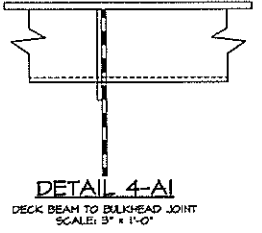
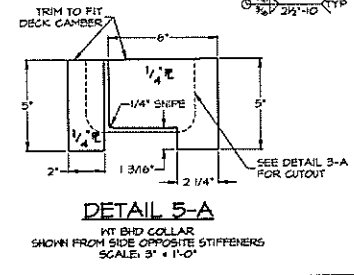
**TYPICAL DEEP FRAME**  
 AT FRAMES 6, 10, 14, 16, 20, 24  
 RAKE FRAMES 2, 28 SIMILAR

NOTE: BOTTOM AND SIDE LONGITUDINALS MUST BE INTERCOSTAL TO TRANSVERSE FRAMING (OR SLOT TRANSVERSE FRAMES AND FULL WELD AROUND BOTH SIDES OF PENETRATION).

NOTE: 2\"/>



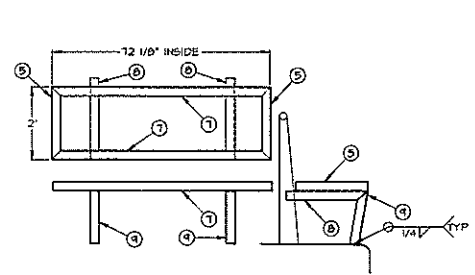
**TYPICAL WATERTIGHT BULKHEAD**  
 AT FRAMES 4, 8, 12, 16, 20, 26



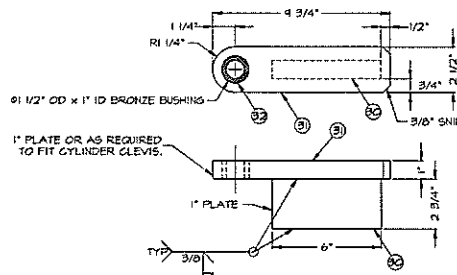
DWN. K.G. HITT	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 35'-0" x 4'-9" BRUSSELS FERRY BARGE	Project No. 99005
	IDOT JOB D-48-07B-99	Scale: 1" = 1'-0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. - Date 09/20/99
TITLE	HULL STRUCTURE SECTIONS	Drawing No. 117-201

Prof. 99005 Dwg. 117-201 Rev. - Title HULL STRUCTURE - SECTIONS

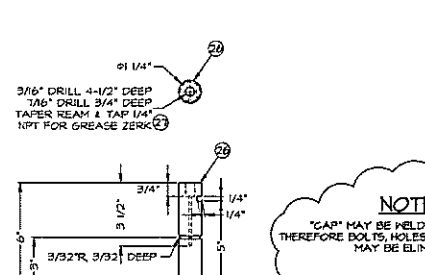
REVISIONS			
LV	DESCRIPTION	DATE	APPROVED
-	FIRST ISSUE	09/20/99	



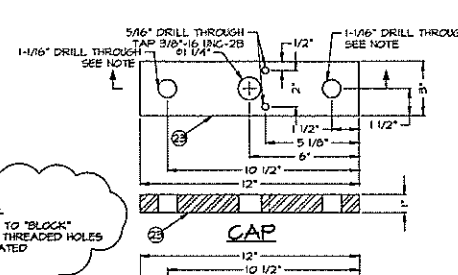
**LIFE JACKET BOX FOUNDATION**  
FOUNDATION DIMENSIONS BASED ON BOXES AS MADE BY:  
BETTER HAY PRODUCTS  
7183 C.R. 23  
NEW PERLE IN 46555  
(2) 83-3540  
FIVE REQUIRED



**CYLINDER FNDN**  
SCALE: 3\"/>

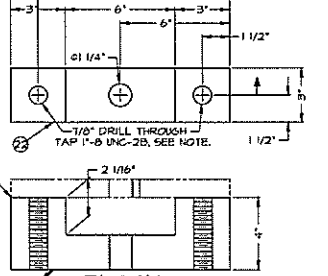


**PIN**

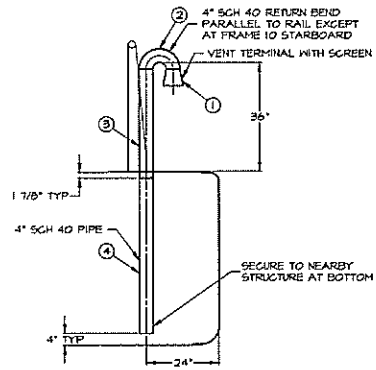


**CAP**

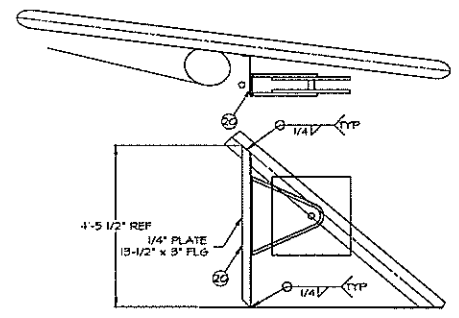
**NOTE:**  
"CAP" MAY BE WELDED TO "BLOCK"  
THEREFORE BOLTS, HOLES & THREADED HOLES  
MAY BE ELIMINATED



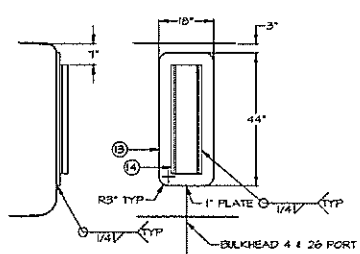
**BLOCK**



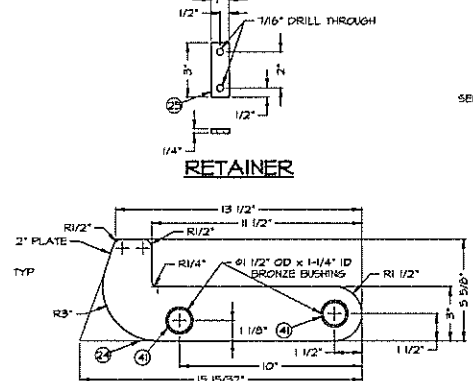
**COMPARTMENT VENT**  
TWO VENTS PER COMPARTMENT  
ONE PER COMPARTMENT EXTENDS TO BILGE



**FIRE HOSE RACK FNDN**



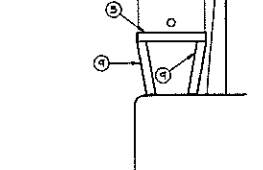
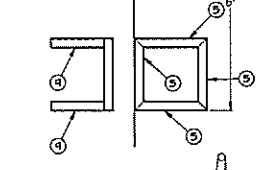
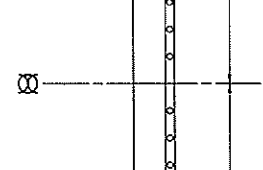
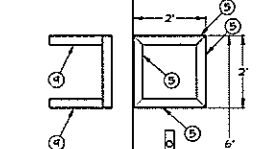
**BARGE FENDER ATTACHMENT**



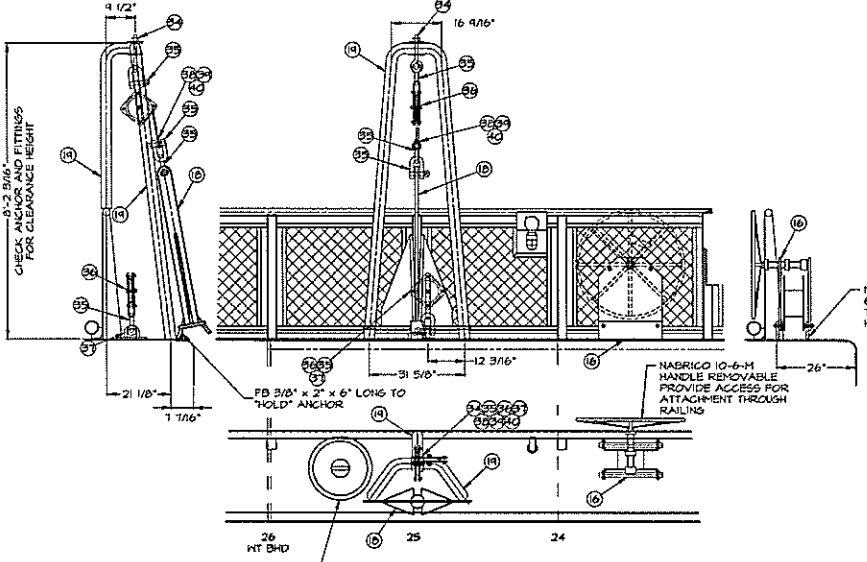
**LATCH**

**LATCH FNDN PIECES**  
SCALE: 3\"/>

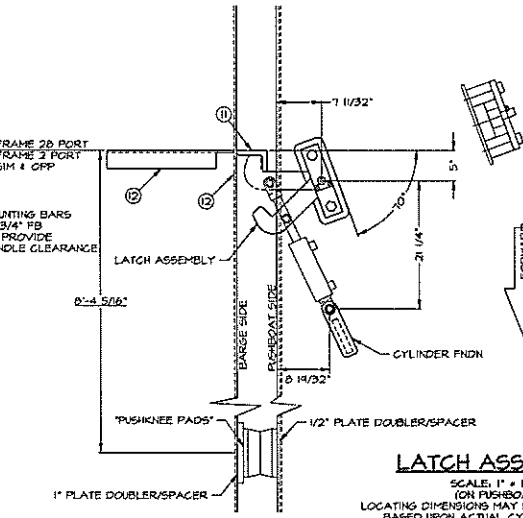
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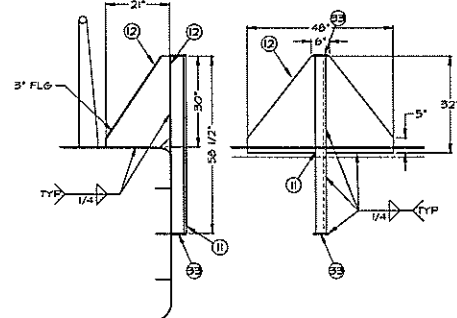
**FIRE/BILGE PUMP FNDN**  
FOUNDATION DIMENSIONS BASED ON HALF PUMP  
GRAINER # 3P636  
THO REQUIRED



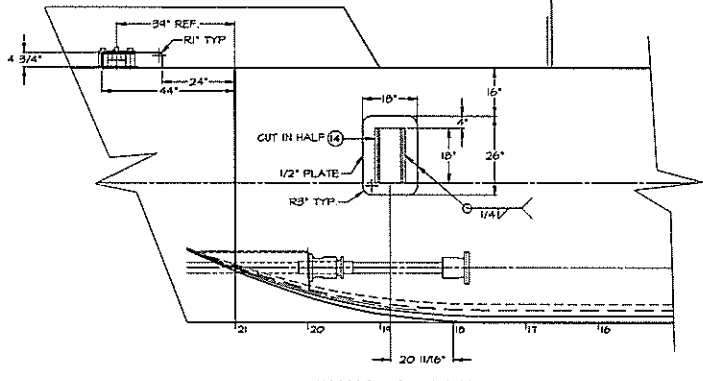
**ANCHOR & WINCH**



**LATCH ASSEMBLY**  
SCALE: 1\"/>



**TOWING LATCH HOOK ANGLE**



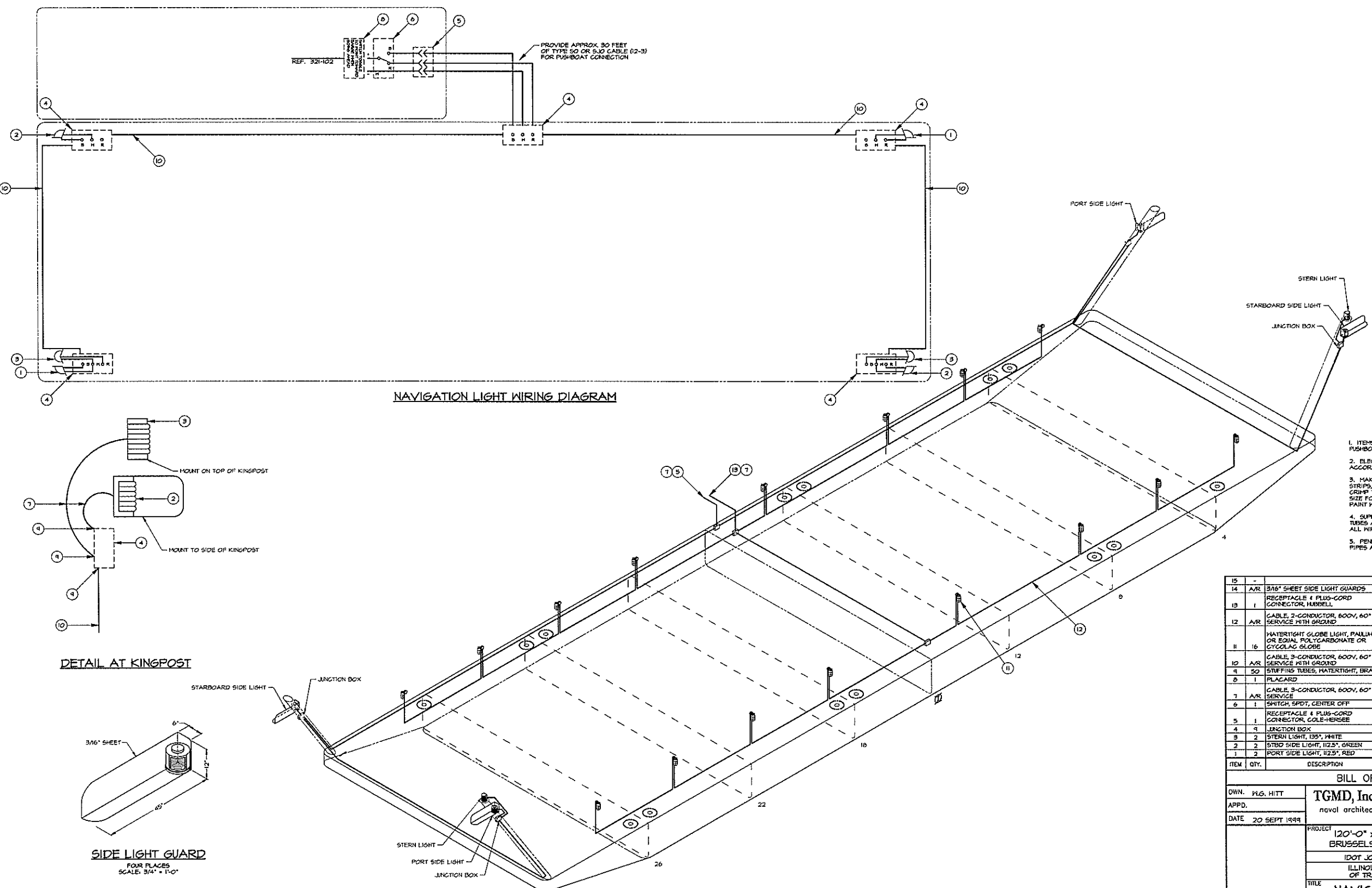
**PUSHBOAT FENDER**

ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
43	-	-	-
42	-	-	-
41	4	BUSHING	1/2" OD x 1-1/4" ID x 2" LONG, BRONZE PRESS FIT
40	800	1/2" 1/4" 6x31 GALVANIZED WIRE ROPE	-
34	3	SHACKLE FOR 1/2" WIRE ROPE	5-306 "GOLD-TUFF" OR EQUAL, OR WIRE ROPE CLIPS
36	1	THIMBLE FOR 1/2" WIRE ROPE	FED SPEC FF-T-316D TYPE III, EXTRA HEAVY
37	1	15 (8-1/4") PADDEYE	1095 CARBON STEEL FORGED
36	2	8" WIRE ROPE BLOCK, BRONZE BEARINGS	STEEL SHEAVE, DIAMOND, WESTERN SHVEL EYE OR EQUAL
35	4	1-1/4" SCREW PIN CHAIN / ANCHOR SHACKLE	CROSBY OR EQUAL
34	1	SHOULDER NUT EYEBOLT, 1-1/4" SHANK x 8"	FORGED STEEL, HOT DIP GALVANIZED
33	4	FB 3/8" x 5" x 5" LONG	A-36
32	2	BUSHINGS	1-1/2" OD x 1-1/4" ID x 1" LONG, BRONZE PRESS FIT
31	2	CYLINDER BAR	1" PLATE, A-36, 2-1/2" x 4-3/4"
30	2	CYLINDER LUG	1" PLATE, A-36, 6" x 2-3/4"
29	4	FASTENER	3/8" x 1-1/2", 304 OR 316 SST HMM
28	4	FASTENER	1"-8 x 2-1/2", 304 OR 316 SST HMM
27	2	GREASE ZERK	COMMERCIAL, 5/16", 1/4" NPT
26	2	PIN	RB 1-1/4", 1045 STEEL, 6" LONG
25	2	RETAINER	FB 1/4" x 1", A-36, 3" LONG
24	2	LATCH	2" PLATE, A-36, 5-1/2" x 15-1/2"
23	2	CAP	1" PLATE, A-36, 3" x 12"
22	2	BLOCK	4" BAR, A-36, 3" x 12"
21	2	BASE	1/2" PLATE, A-36, 5" x 14"
20	2	FIRE HOSE SUPPORT PLATE	1/4" PLATE, A-36, 13-1/2" x 53-1/2" WITH 3" FLG
19	5-10	ANCHOR SUPPORT & BRACE	PIPE, 3" SCH 80, ASTM A-53
18	1	ANCHOR	DANFORTH 150H
17	-	-	-
16	1	ANCHOR WINCH	NABRICO 10-6-M
15	14	DECK HATCHES	NABRICO DF-430-18D
14	3	BUMPER	MORSE E42000 - FULL LENGTHS ON BARGE - CUT IN HALF TO MAKE 18" LONG ON PUSHBOAT
13	2	BUMPER DOUBLER	1" PLATE, A-36, 18" x 44"
12	2x2	LATCH ANGLE BRACKET WITH 3" FLG	3/8" PLATE, A-36, 48" x 52" x 21" x 30"
11	2	LATCH ANGLE	L5" x 3-1/2" x 3/4" x 67-1/2" LONG, A-36
10	-	-	-
9	-	-	-
8	10	L/J SUPPORT, BRACE	L3" x 3" x 1/4" x 18" LONG, A-36
7	10	L/J SUPPORT, FACE	L3" x 3" x 1/4" x 21" LONG, A-36
6	-	-	-
5	10	L/J SUPPORT, SIDE - ALSO FOR FIRE/BILGE PUMP	L3" x 3" x 1/4" x 24" LONG, A-36
4	7	PIPE, 4" SCH 40 x 64-1/2" LONG	ASTM A-53
3	7	PIPE, 4" SCH 40 x 36" LONG	ASTM A-53
2	14	4" 180° LR BEND, B/L SCH 40	BLACK STEEL
1	14	4" VENT TERMINAL	WITH SCREEN - HAYWARD OR EQUAL

BILL OF MATERIALS			
DWN.	H.G. HITT	TGMD, Inc. / Timothy Graul marine design	
APPD.		naval architects	marine engineers
DATE	20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 35'-0" x 4'-4" BRUSSELS FERRY BARGE	Project No.	99005
	IDOT JOB D-18-078-49	Scale:	1/2" = 1'-0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV.	Date: 09/20/99
TITLE	MISC. HULL DETAILS FNDNS AND FITTINGS	Drawing No.	161-201

Proj. 99005 Dwg. 161-201 Rev. 1 Title MISC. HULL DETAILS, FNDNS & FITTINGS

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	09/20/99	



NAVIGATION LIGHT WIRING DIAGRAM

DETAIL AT KINGPOST

SIDE LIGHT GUARD  
FOUR PLACES  
SCALE: 3/4" = 1'-0"

GENERAL NOTES

- ITEMS 5, 6, AND 8 SHALL BE INSTALLED ON THE PUSH-BOAT.
- ELECTRICAL SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH 48CFR PART 183.
- MAKE ALL CONNECTIONS IN JUNCTION BOXES, TERMINAL STRIPS, OR AT FIXTURE/EQUIPMENT. USE SOLDERLESS CRIMP TYPE CONNECTORS OF PROPER STYLE & CORRECT SIZE FOR WIRE & TERMINAL. USE STAR LOCKWASHERS AND PAINT WITH GYLTYAL ALL SCREW CONNECTIONS.
- SUPPORT ALL WIRES 14 INCHES C-C. PROVIDE STUFFING TUBES AT ALL WATER-TIGHT PENETRATIONS. PROTECT ALL WIRE FROM CHAFE.
- PENETRATIONS OF MAIN DECK TO BE MADE USING KICK PIPES AT LEAST 6 INCHES HIGH.

ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
15	-	3/16" SHEET SIDE LIGHT GUARDS	-
14	A/R	RECEPTACLE & PLUS-CORD CONNECTOR, HUBBELL	30 AMP, 250CMOA, 14CM25MOA, 25CMH, 60CMH
13	1	CABLE, 2-CONDUCTOR, 600V, 60" SERVICE WITH GROUND	ANS 14-2, TYPE D53U-4
12	A/R	CABLE, 3-CONDUCTOR, 600V, 60" SERVICE WITH GROUND	ANS 12-3, TYPE T56U-6
11	16	WATERTIGHT GLOBE LIGHT, PAULHIN OR EQUAL, POLYCARBONATE OR CYCLOGAG GLOBE	60 OR 100A, 10TAP6 OR TOTAMP6
10	A/R	CABLE, 3-CONDUCTOR, 600V, 60" SERVICE WITH GROUND	ANS 12-3, TYPE T56U-6
9	50	STUFFING TUBES, WATERTIGHT, BRASS TO SUIT WIRE	
8	1	PLACARD	WHITE / BLACK
7	A/R	CABLE, 3-CONDUCTOR, 600V, 60" SERVICE	ANS 12-3, TYPE 60 OR EQ.
6	1	SWITCH, SPDT, CENTER OFF	COMMERCIAL, 12 VDC SERVICE
5	1	RECEPTACLE & PLUS-CORD CONNECTOR, COLE-HERSEE	20 AMP, M-123H
4	1	JUNCTION BOX	COMMERCIAL, WATERTIGHT
3	2	STERN LIGHT, 135°, WHITE	PERKO 1121 6AO BLK OR EQUAL
2	2	STBD SIDE LIGHT, 112.5°, GREEN	PERKO 1121 6AO BLK OR EQUAL
1	2	PORT SIDE LIGHT, 112.5°, RED	PERKO 1121 6AO BLK OR EQUAL
ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS

BILL OF MATERIALS

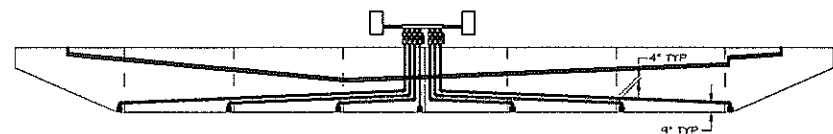
OWN: M.G. HITT  
 APPD: **TGMD, Inc. / Timothy Graul marine design**  
 DATE: 20 SEPT 1999  
 naval architects  
 Sturgeon Bay, WI 54235  
 marine engineers

PROJECT: 120'-0" x 35'-0" x 4'-9" BRUSSELS FERRY BARGE  
 IDOT JOB D-48-018-99  
 ILLINOIS DEPARTMENT OF TRANSPORTATION

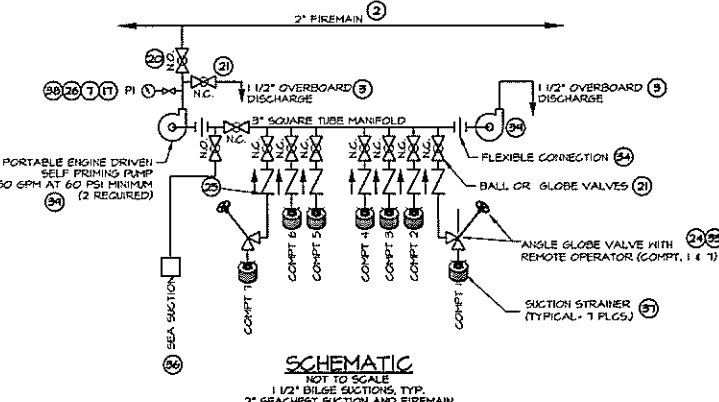
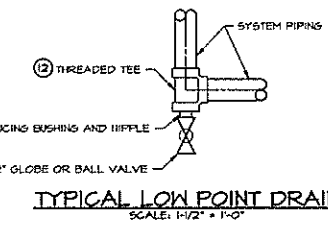
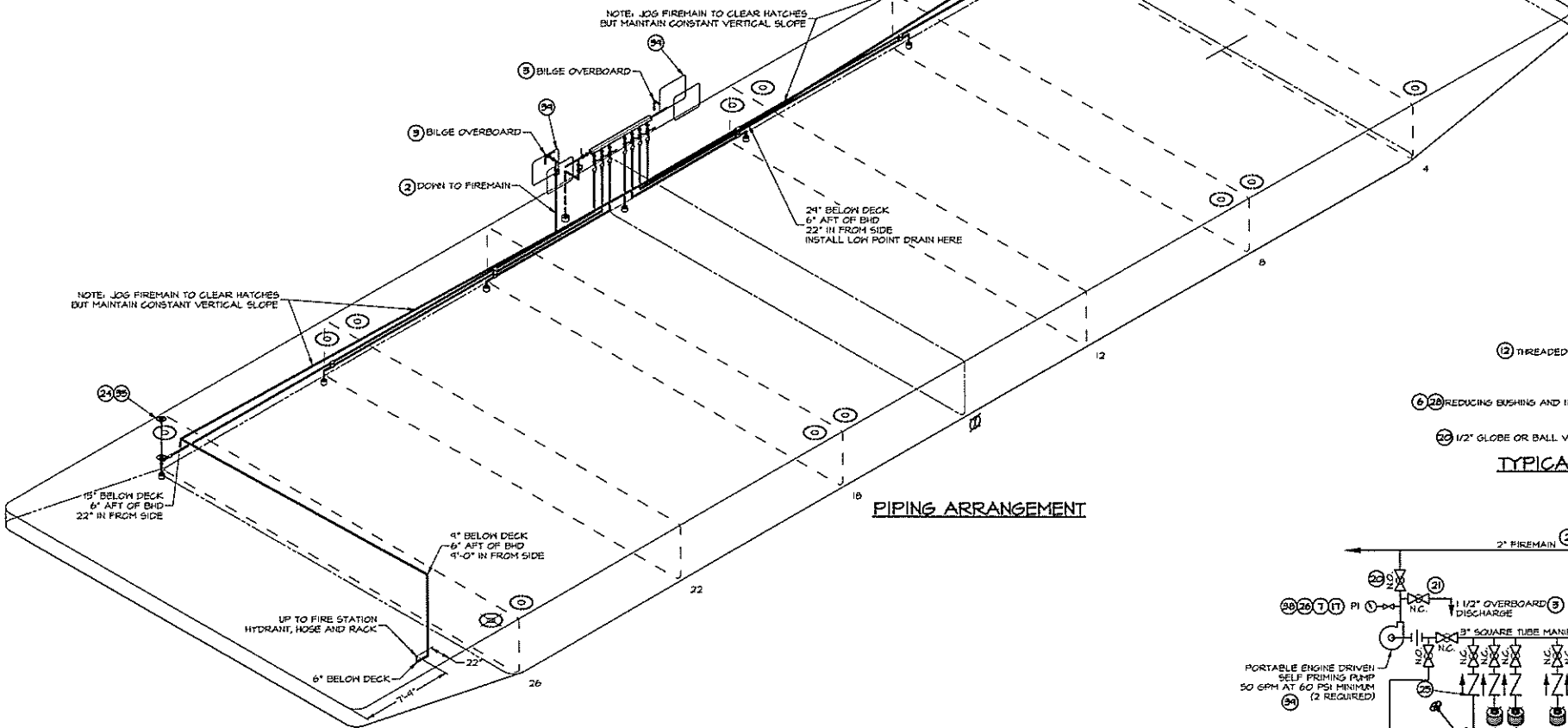
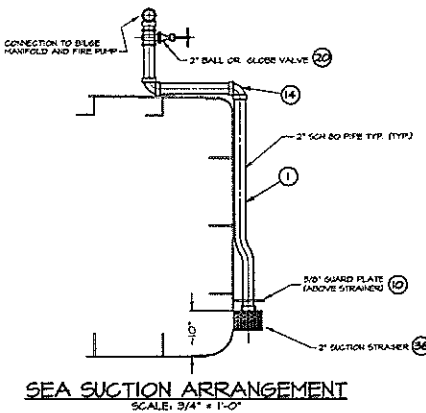
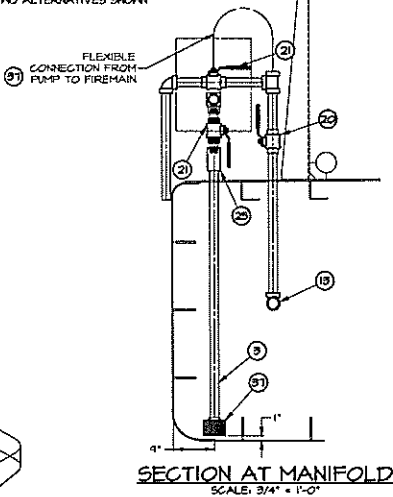
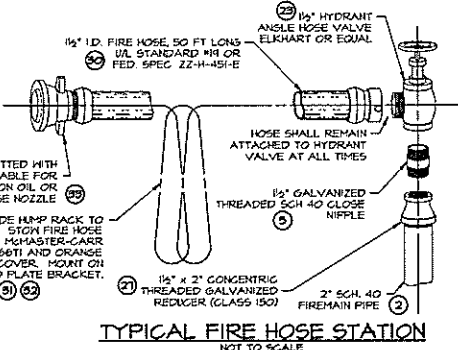
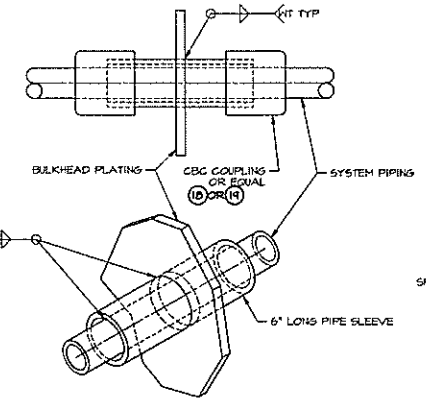
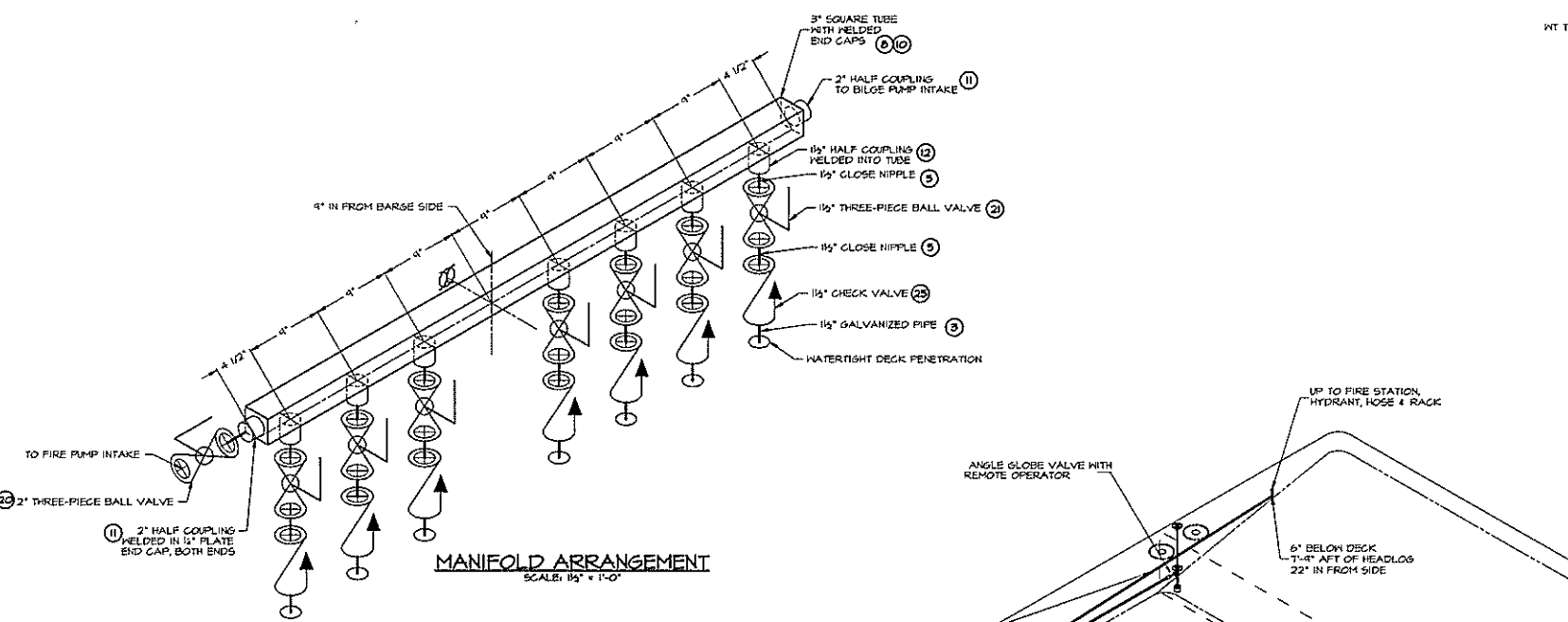
Project No. 99005  
 Scale: 3/16" = 1'-0"  
 REV. - Date: 09/20/99  
 Drawing No. 422-201

TITLE: **NAVIGATION AND DECK LIGHTS**

Proj: 99005 Dwg: 422-201 Rev: 1 Title: NAVIGATION AND DECK LIGHTS



REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	07/29/99	



ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
44	-	-	-
43	-	-	-
42	-	-	-
41	-	-	-
40	-	-	-
34	2	PORTABLE PUMP	GRANGER 1/2HP, 6 HP KOHLER 4 CYCLE GASOLINE ENGINE
36	1	PRESSURE GAUGE	COMMERCIAL 0-150 PSI
37	7	SUCTON STRAINER 1-1/2"	MCMASTER-CARR #44381, ZINC PLATED STEEL
38	1	SUCTON STRAINER 2" THREADED	MCMASTER-CARR #44382, ZINC PLATED STEEL
35	2	REACH ROD WITH STUFFING TUBE	COMMERCIAL
34	2/B	HOSE, 2" WITH SST CLAMPS	-
33	2	NOZZLE, 1-1/2" HOSE, DUAL PURPOSE	UL STD 14 OR FED SPEC ZZ-H-451-E
32	2	HOSE RACK COVER	MCMASTER-CARR #646T21
31	2	HOSE RACK	MCMASTER-CARR #646T1
30	2	HOSE 1-1/2"	UL STD 14 OR FED SPEC ZZ-H-451-E
24	1	REDUCING COUPLING 1-1/2" x 1/2"	GALV MALL IRON
28	1	REDUCING BUSHING 2" x 1/2"	GALV MALL IRON
27	8	REDUCING COUPLING 2" x 1-1/2"	GALV MALL IRON
26	1	NEEDLE VALVE, 1/4"	BRONZE 150#
25	7	VALVE, CHECK, 1-1/2"	BRONZE 150#
24	2	VALVE, 1-1/2" ANGLE GLOBE	BRONZE 150#, WITH ITEM #35
23	2	VALVE, 1-1/2" HYDRANT, ANGLE HOSE	BRONZE 150#, ELKHART OR EQUAL
22	1	VALVE 1/2" THREADED BALL OR GLOBE	BRONZE 150#
21	8	VALVE, 1-1/2" THREADED BALL	BRONZE 150#, 3 PIECE
20	3	VALVE, 2" THREADED BALL	BRONZE 150#
18	18	CBC COUPLING 1-1/2"	COMMERCIAL
18	4	CBC COUPLING 2"	COMMERCIAL
17	1	WELDOLET 1/4"	COMMERCIAL
16	A/R	ELBOW, 1-1/2" 90°	GALV MALL IRON
15	A/R	ELBOW, 2" 45°	GALV MALL IRON
14	A/R	ELBOW, 2" 90°	GALV MALL IRON
13	A/R	TEE, 2"	GALV MALL IRON
12	7	HALF COUPLING, 1-1/2"	GALV MALL IRON
11	2	HALF COUPLING, 2"	GALV MALL IRON
10	A/R	PLATE, 3/8"	ASTM A-36 STEEL
8	A/R	FB 1/4" x 1" (HANGERS & BRACKETS)	ASTM A-36 STEEL
8	6 FT	TS 3" DIA 1/4"	ASTM A-300 GRADE B
7	A/R	NIPPLE, 1/4" SCH 40 CLOSE	GALV
6	A/R	NIPPLE, 1/2" SCH 40 CLOSE	GALV
5	A/R	NIPPLE, 1-1/2" SCH 40 CLOSE	GALV
4	A/R	NIPPLE, 2" SCH 40 CLOSE	GALV
3	A/R	PIPE, 1-1/2" SCH 40	ASTM A-53
2	A/R	PIPE, 2" SCH 40	ASTM A-53
1	A/R	PIPE, 2" SCH 80	ASTM A-53
ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS

BILL OF MATERIALS			
DWN.	H.G. HITT	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.		naval architects	marine engineers
DATE	24 JULY 1999	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 95'-0" x 4'-9" BRUSSELS FERRY BARGE	Project No.	99005
	IDOT JOB D-18-07B-19	Scale:	3/16" = 1'-0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV.	Date: 07/29/99
TITLE	FIREMAIN AND BILGE SYSTEM	Drawing No.	524-201

5

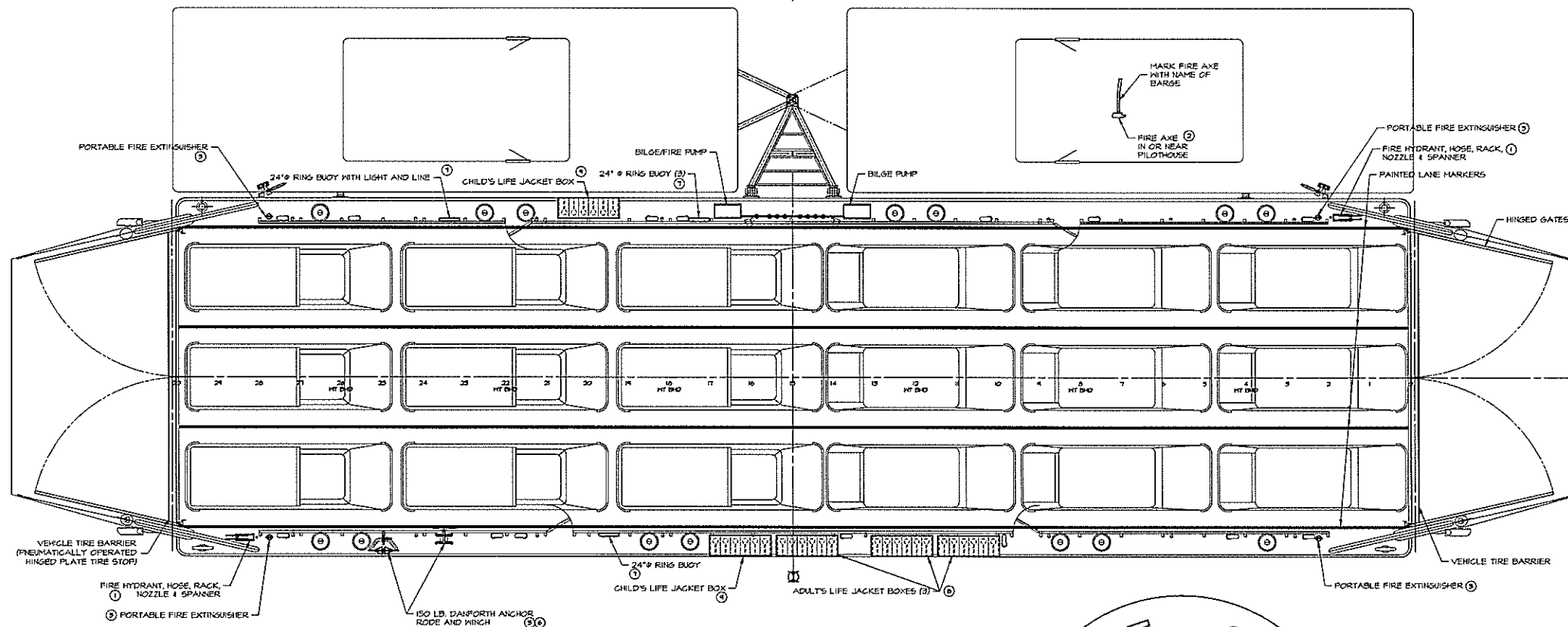
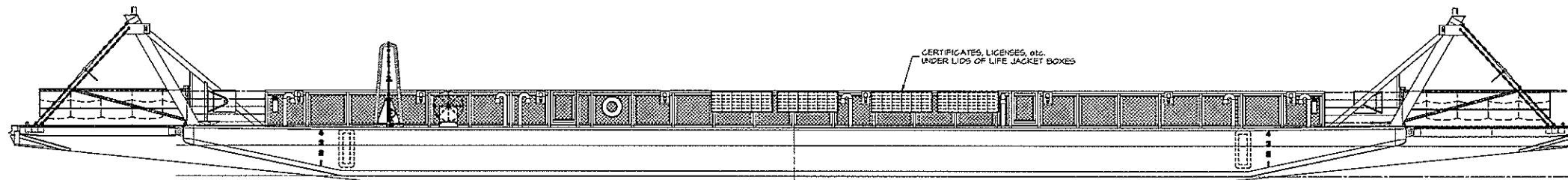
4

3

2

1

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	03/23/99	
A	MOVE ONE LIFE RING TO SIDE OPP. PUSHBOAT	03/06/01	



ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
15	1	SET TRAFFIC LANE MARKINGS	46CFR 105.340 (a)
14	1	FIRST AID KIT	46CFR 104.710
13	1	EMERGENCY INSTRUCTIONS	46CFR 105.510
12	2	PLACARDS FOR DONNING AND USE OF LIFE JACKETS	46CFR 105.516
11	4	NO SMOKING SIGNS	46CFR 105.340 (c)
10	1	HAND OPERATED PORTABLE FIRE/BILGE PUMP (5 GPM MINIMUM)	PAR 45800; 46CFR 101.10-5
9	75	CHILD LIFE JACKETS	46CFR 100.25 & 105.30-10
8	150	ADULT LIFE JACKETS	46CFR 100.25 & 105.30-10
7	3	24" LIFE RINGS, WITH WATER LIGHT AND 60' LINE	46CFR 100.30 & 105.30-5
6	1	ANCHOR CHAIN & SHIVEL SHACKLE 12" x 3/8"	46CFR 104.10-1
5	1	ANCHOR, 150# DANFORTH TYPE, RODE, 300 FT 3/4"	46CFR 104.10-1
4	PER OCH	PORTABLE BATTERY LIGHTS (FLASHLIGHT OR HAND LANTERN)	46CFR 104.30-1
3	4	PORTABLE FIRE EXTINGUISHER, 15# CO2 OR 10# DRY CHEMICAL	B-II, 46CFR 101.30
2	1	FIRE AXE	-
1	2	FIRE HOSE STATION WITH LINED COMMERCIAL FIRE HOSE PER UL STD 19 & COMBINATION NOZZLE	50' x 1-1/2", 46CFR 101.5-10

BILL OF MATERIALS			
DWN.	PLG. HITT	TGMD, Inc. / Timothy Graul marine design	
APPD.		naval architects	marine engineers
DATE	20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 35'-0" x 4'-9" BRUSSELS FERRY BARGE	Project No.	99005
	IDOT JOB D-95-07B-99	Scale:	3/16" = 1'-0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. A	Date: 02/06/01
TITLE	SAFETY PLAN	Drawing No.	555-201

Proj. 48002 Dwg. 555-201 Rev. A Title SAFETY PLAN

5

4

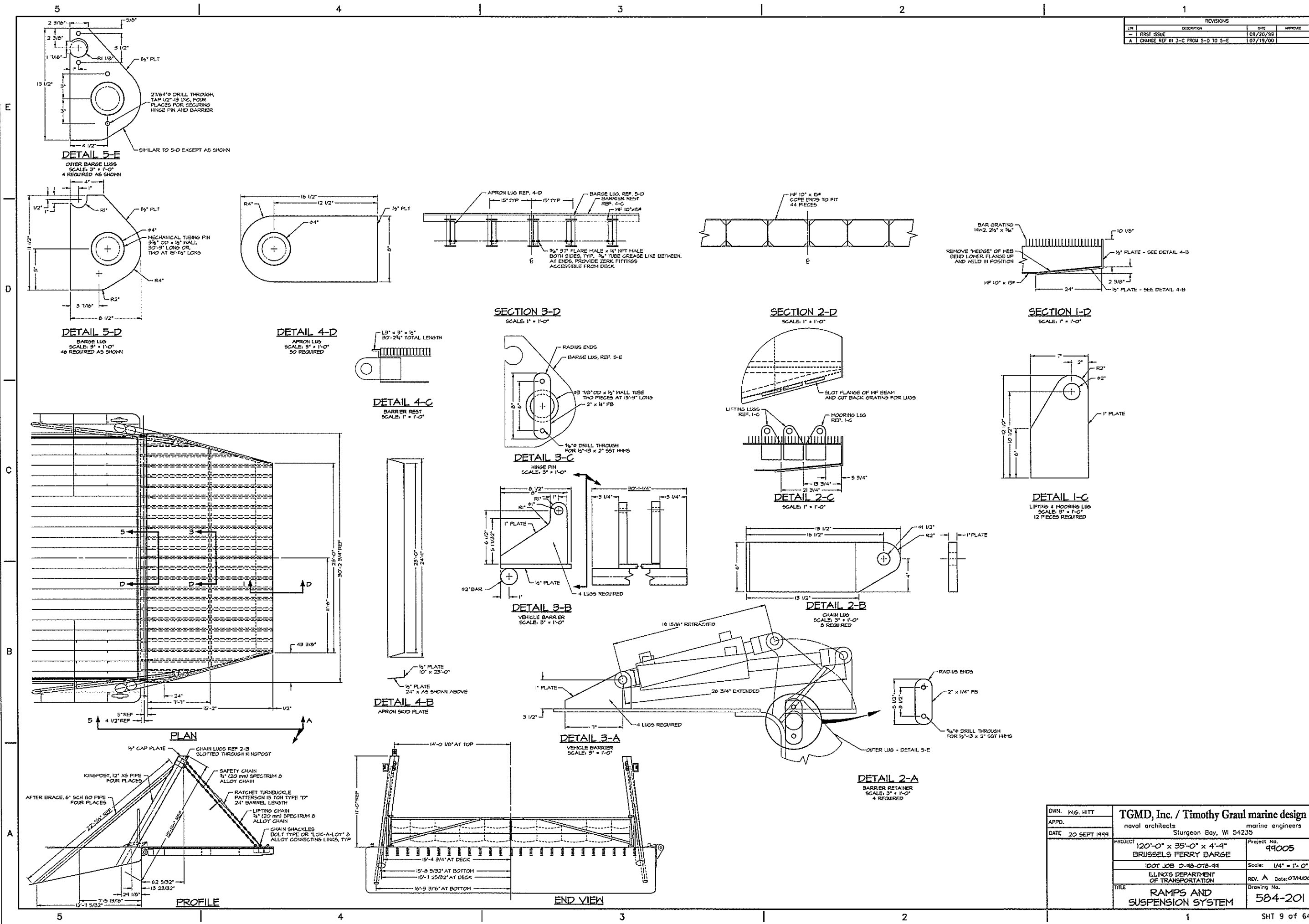
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2

1



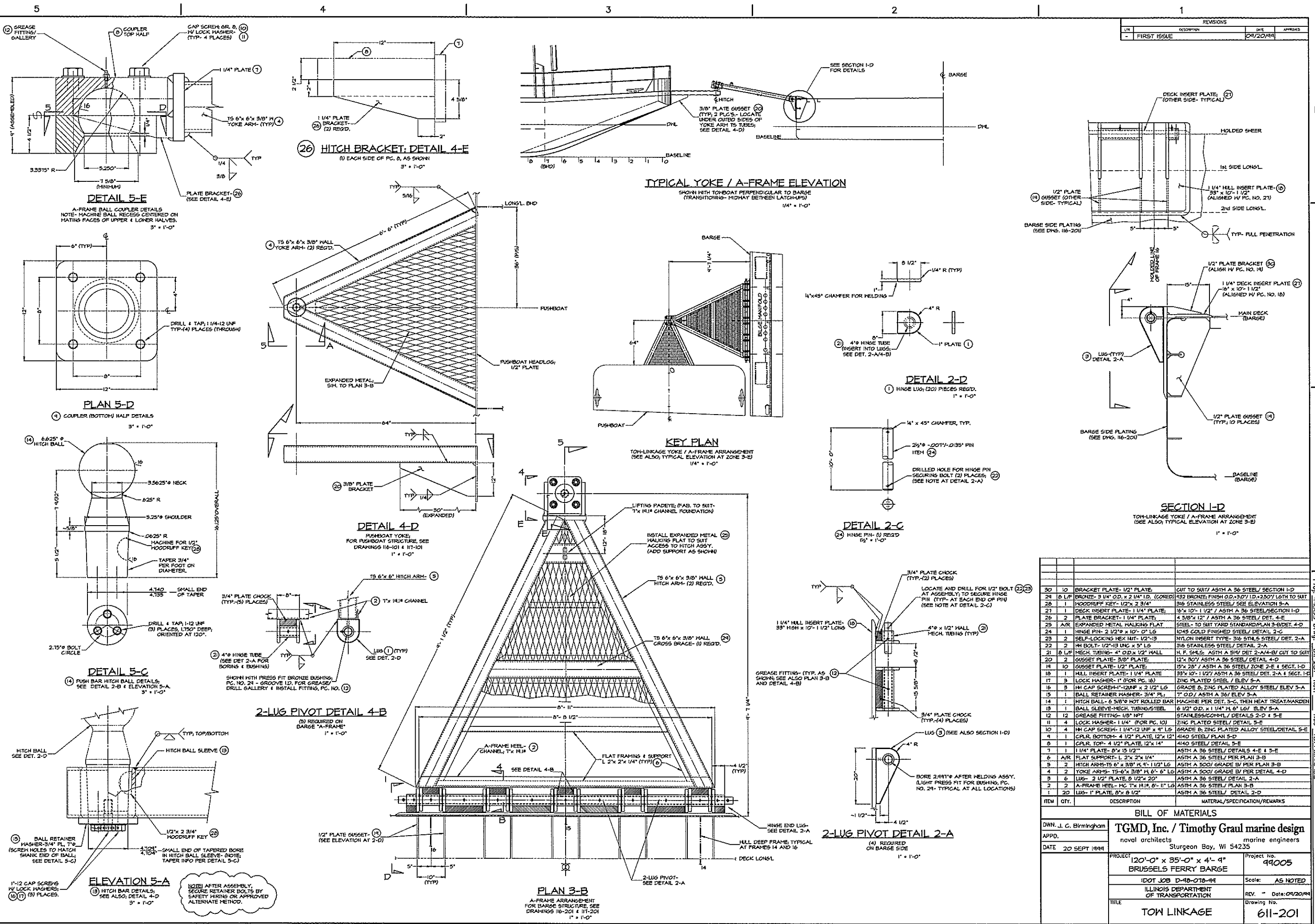
REVISIONS			
LINE	DESCRIPTION	DATE	APPROVED
-	FIRST ISSUE	09/20/99	
A	CHANGE REF BY 3-C FROM 5-D TO 5-E	07/19/00	



DWN. K.G. HITT	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 35'-0" x 4'-9" BRUSSELS FERRY BARGE	Project No. 49005
	IDOT JOB D-48-078-49	Scale: 1/4" = 1'-0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. A Date: 07/14/00
TITLE	RAMPS AND SUSPENSION SYSTEM	Drawing No. 584-201

Proj. 584-201 Rev. A Title RAMPS AND SUSPENSION SYSTEM

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	09/20/99	

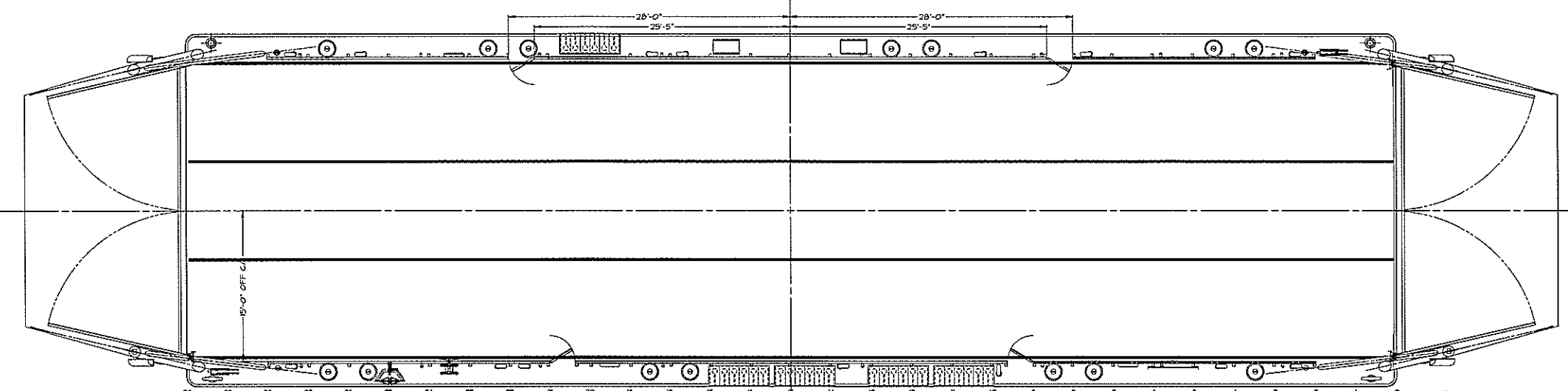


ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
30	10	BRACKET PLATE- 1/2" PLATE	CUT TO SUIT/ ASTM A 36 STEEL/ SECTION 1-D
24	8	L.F. BRONZE- 3/4" O.D. x 2 1/4" I.D. (CORED)	#32 BRONZE, FINE SH. O.D. x I.D. +2.507/ L6TH TO SUIT
28	1	WOODRUFF KEY- 1/2" x 3/4"	316 STAINLESS STEEL/ SEE ELEVATION 5-A
27	1	DECK INSERT PLATE- 1/4" PLATE	16" x 10" x 1/2" / ASTM A 36 STEEL/ SECTION 1-D
26	2	PLATE BRACKET- 1 1/4" PLATE	4 3/8" x 12" / ASTM A 36 STEEL/ DET. 4-E
25	1	EXPANDED METAL WALKING PLAT	STEEL TO SUIT YARD STANDARD/ PLAN 3-B/ DET. 4-D
24	1	HINGE PIN- 2 1/2" x 10" x 1/2" LG.	1045 COLD FINISHED STEEL/ DETAIL 2-C
23	2	SELF-LOCKING HEX NUT- 1/2"-13	NYLON INSERT TYPE- 316 STNLS STEEL/ DET. 2-A
22	2	MECH. TUBING- 4" O.D. x 5' LG.	316 STAINLESS STEEL/ DETAIL 2-A
21	2	HINGE BOLT- 1/2"-13 UNC x 5' LG.	H. F. SMLS. ASTM A 314/ DET. 2-A/4-B/ CUT TO SUIT
20	2	GUSSET PLATE- 3/8" PLATE	12" x 30" / ASTM A 36 STEEL/ DETAIL 4-D
19	10	GUSSET PLATE- 1/2" PLATE	15" x 20" / ASTM A 36 STEEL/ ZONE 2-E & SECT. 1-D
18	1	MILL INSERT PLATE- 1 1/4" PLATE	38" x 10" x 1/2" / ASTM A 36 STEEL/ DET. 2-A & SECT. 1-D
17	3	LOCK WASHER- 1" (FOR PG. 16)	ZINC PLATED STEEL / ELEV 5-A
16	3	HI CAP SCREW- 1 1/4" x 2 1/2" LG.	GRADE 8/ ZINC PLATED ALLOY STEEL/ ELEV 5-A
15	1	BALL RETAINER WASHER- 3/4" PL.	17" O.D. / ASTM A 36/ ELEV 5-A
14	1	HIGH BALL- 6 5/8" HOT ROLLED BAR	MACHINE PER DET. 5-C, THEN HEAT TREAT/HARDEN
13	1	BALL SLEEVE- MECH. TUBING/STEEL	6 1/2" O.D. x 1 1/4" I.D. 6' LG. / ELEV 5-A
12	12	GREASE FITTING- 1/8" NPT	STAINLESS/CONMIL/ DETAILS 2-D & 5-E
11	4	LOCK WASHER- 1 1/4" (FOR PG. 10)	ZINC PLATED STEEL/ DETAIL 5-E
10	4	HI CAP SCREW- 1 1/4" x 2 1/2" LG.	GRADE 8/ ZINC PLATED ALLOY STEEL/ DETAIL 5-E
9	1	CPLR. BOTTOM- 4 1/2" PLATE, 12" x 12"	4140 STEEL/ PLAN 5-D
8	1	CPLR. TOP- 4 1/2" PLATE, 12" x 14"	4140 STEEL/ DETAIL 5-E
7	1	1 1/4" PLATE- 8" x 15 1/2"	ASTM A 36 STEEL/ DETAILS 4-E & 5-E
6	1	PLAT SUPPORT- L. 2" x 2" x 1/4"	ASTM A 36 STEEL/ PER PLAN 3-B
5	2	HIGH ARM- 6" x 3/8" x 1 1/2" LG.	ASTM A 300/ GRADE BY PER PLAN 3-B
4	2	YOKE ARM- TS- 6" x 3/8" x 6' 6"	ASTM A 300/ GRADE BY PER DETAIL 4-D
3	6	LUG- 3 1/2" PLATE, 6 1/2" x 20"	ASTM A 36 STEEL/ DETAIL 2-A
2	2	A-FRAME HEEL- MC 7" x 1 1/2" x 8' 11"	ASTM A 36 STEEL/ PLAN 3-B
1	20	LUGS- 1" PLATE, 8" x 1/2"	ASTM A 36 STEEL/ DETAIL 2-D

BILL OF MATERIALS			
DRW. J. G. Birmingham	TGMD, Inc. / Timothy Graul marine design		novel architects
APPD.	novel architects		marine engineers
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235		Scale: AS NOTED
PROJECT	120'-0" x 35'-0" x 4'-9" BRUSSELS FERRY BARGE	Project No. 99005	
REV.	IDOT JOB D-18-078-99	Scale: AS NOTED	
TITLE	TOW LINKAGE	REV. - Date: 09/20/99	Drawing No. 611-201

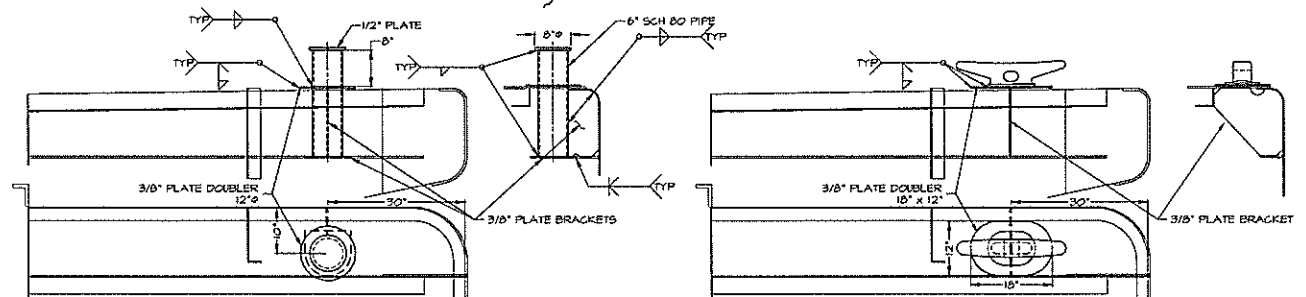
Proj. 611-201 Rev. 1 Title TOW LINKAGE

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	03/20/99	



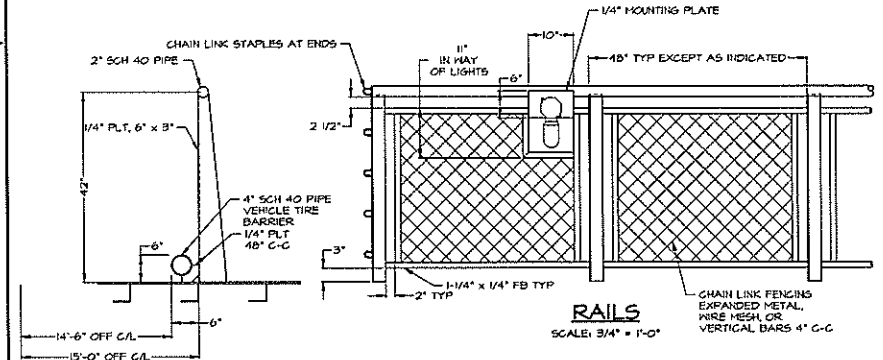
**DECK PLAN**

**PROFILE**

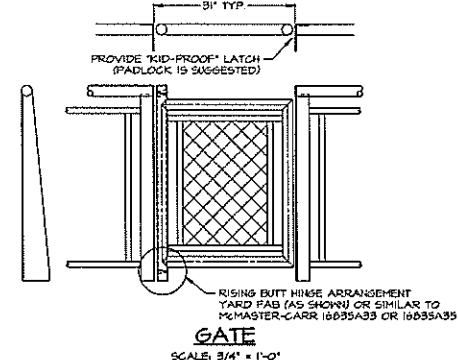


**BITT DETAIL 2-C**  
2 PLACES ON PUSHBOAT SIDE  
SCALE: 3/4" = 1'-0"

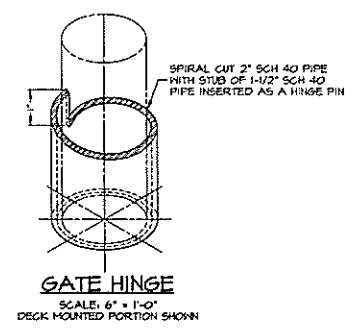
**24" KEVEL DETAIL 1-C**  
2 PLACES OPPOSITE OF PUSHBOAT  
SCALE: 3/4" = 1'-0"



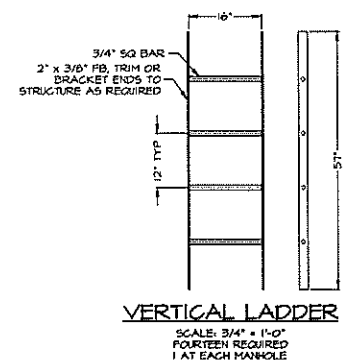
**RAILS**  
SCALE: 3/4" = 1'-0"



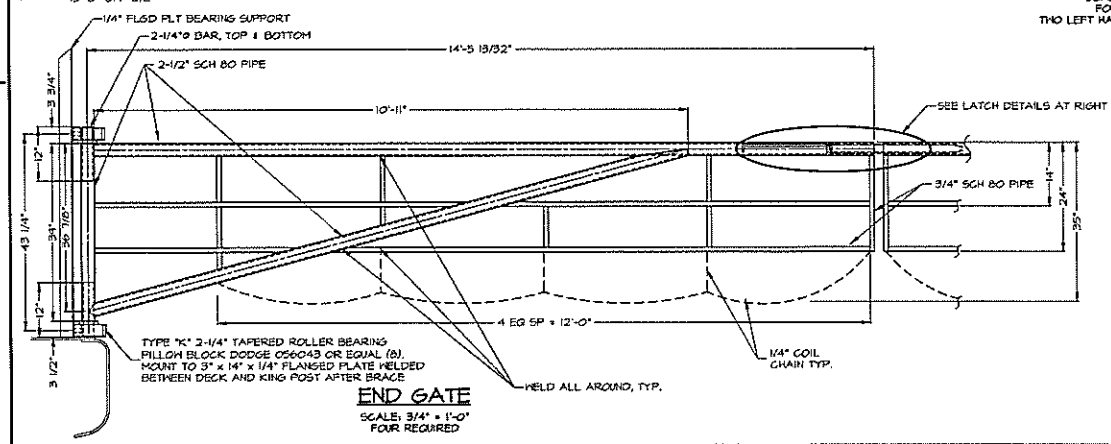
**GATE**  
SCALE: 3/4" = 1'-0"  
FOUR REQUIRED  
TWO LEFT HAND & TWO RIGHT HAND



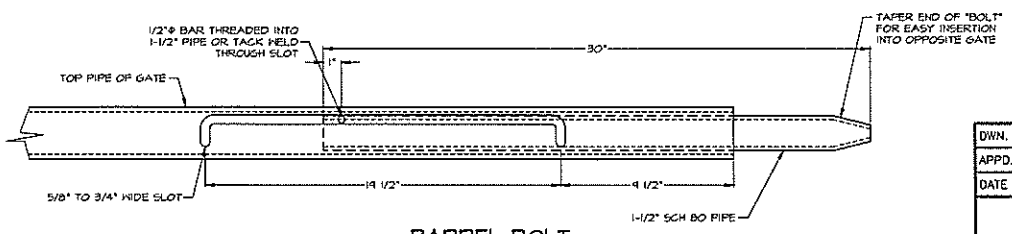
**GATE HINGE**  
SCALE: 6" = 1'-0"  
DECK MOUNTED PORTION SHOWN



**VERTICAL LADDER**  
SCALE: 3/4" = 1'-0"  
FOURTEEN REQUIRED  
1 AT EACH MANHOLE



**END GATE**  
SCALE: 3/4" = 1'-0"  
FOUR REQUIRED

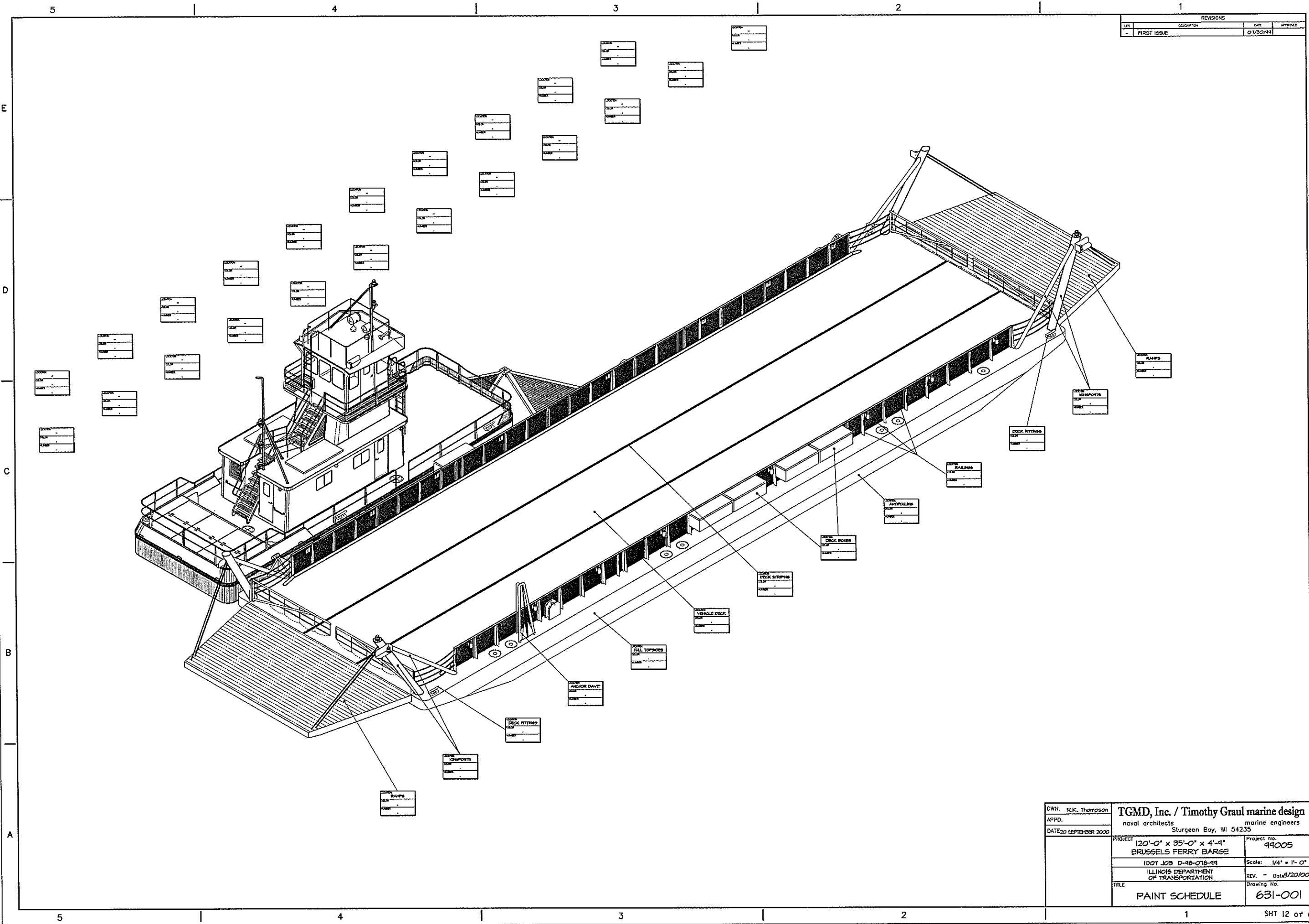


**BARREL BOLT**  
SCALE: 3" = 1'-0"  
FOUR REQUIRED

DWN. P.L.G. HITT	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 35'-0" x 4'-4" BRUSSELS FERRY BARGE	Project No. 99005
	IDOT JOB D-48-018-49	Scale: 3/16" = 1'-0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. - Date 04/20/99
TITLE	RAILS, LADDERS, GATES AND DECK FITTINGS	Drawing No. 623-201

Proj: 99005 Dwg. 623-201 Rev. - Title RAILS, LADDERS, GATES AND DECK FITTINGS

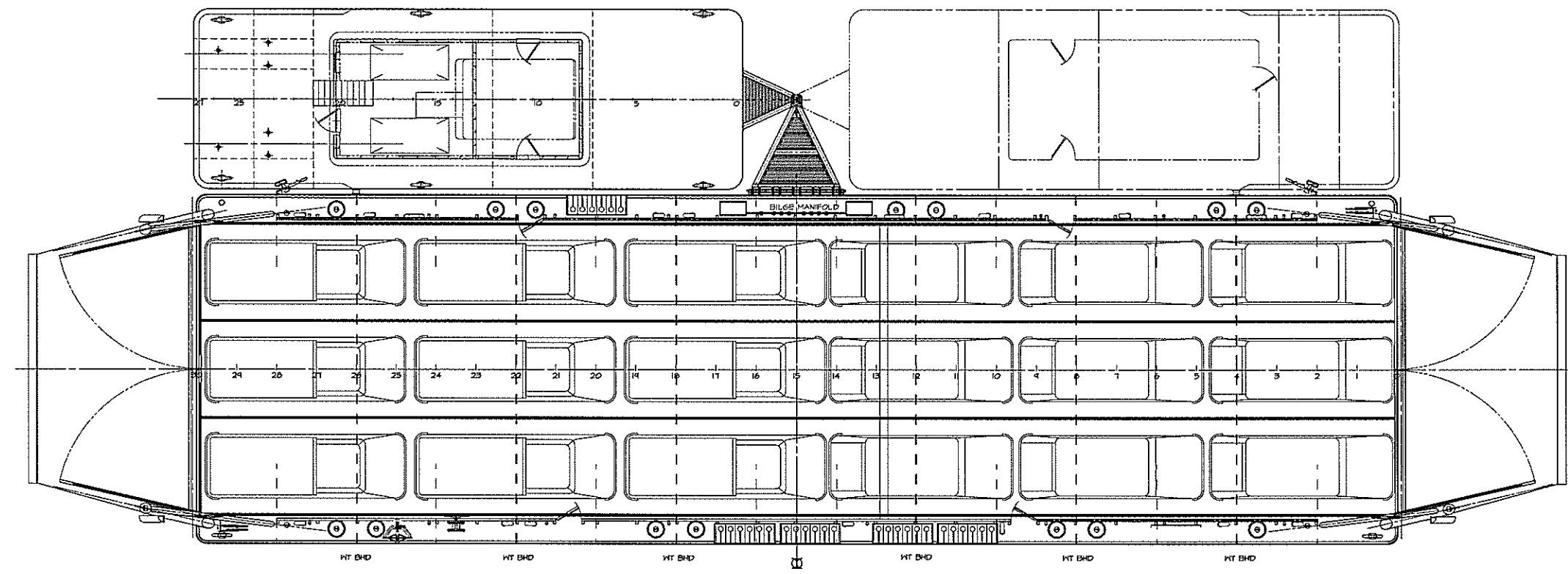
REVISIONS		
NO.	DESCRIPTION	DATE
1	FIRST ISSUE	01/30/99



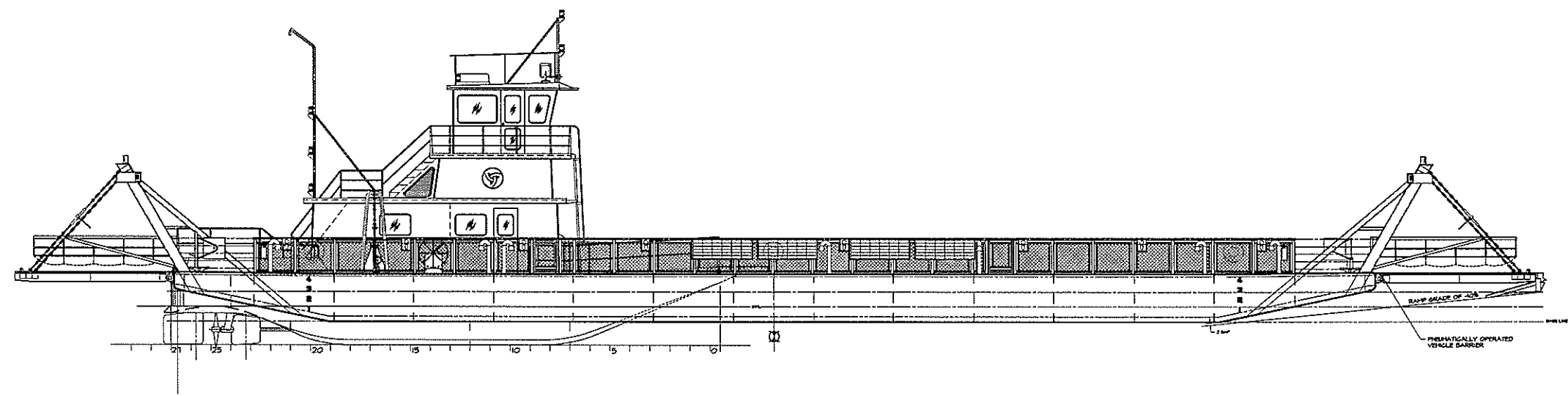
DWN. R.K. Thompson	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects marine engineers	
DATE 20 SEPTEMBER 2000	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 35'-0" x 4'-4" BRUSSELS FERRY BARGE	Project No. 99005
IDOT JOB	D-98-07B-49	Scale: 1/4" = 1'-0"
ILLINOIS DEPARTMENT OF TRANSPORTATION		REV. - Date 8/20/00
TITLE	PAINT SCHEDULE	Drawing No. 631-001

Proj. 99005 Dwg. 631-001 Rev. - Title PAINT SCHEDULE

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
-	FIRST ISSUE	09/20/19	



GENERAL ARRANGEMENT

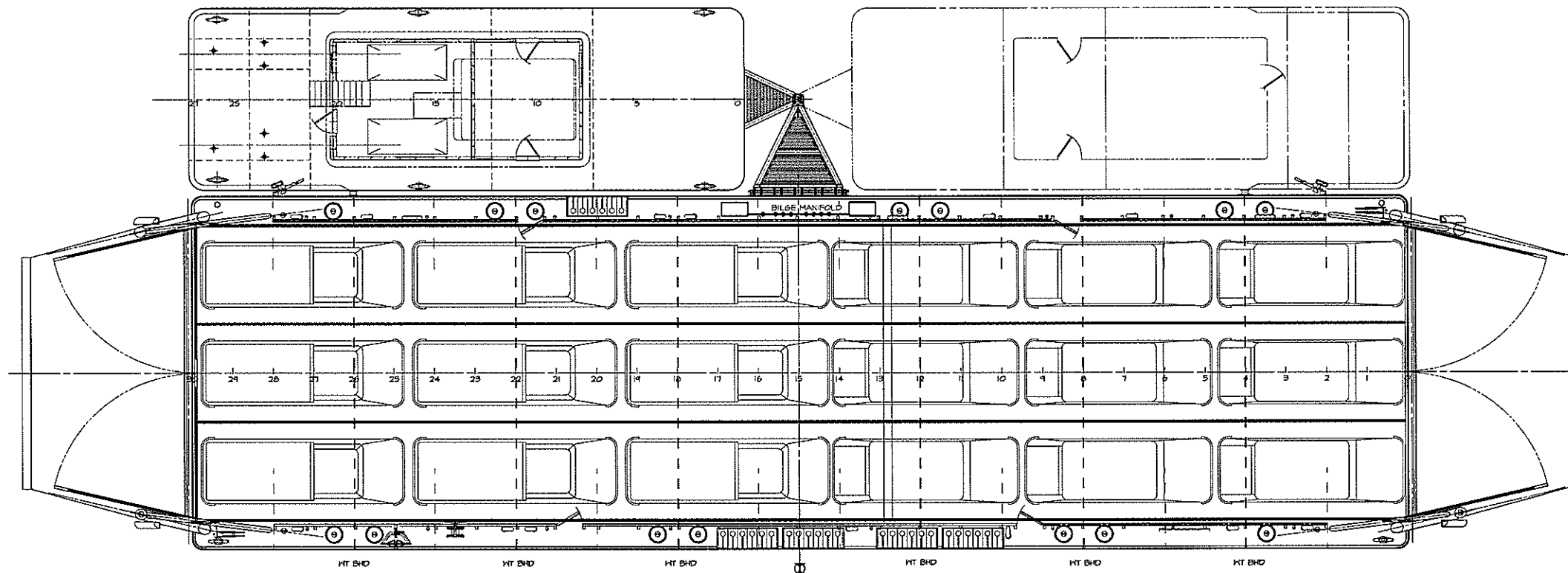


OUTBOARD PROFILE

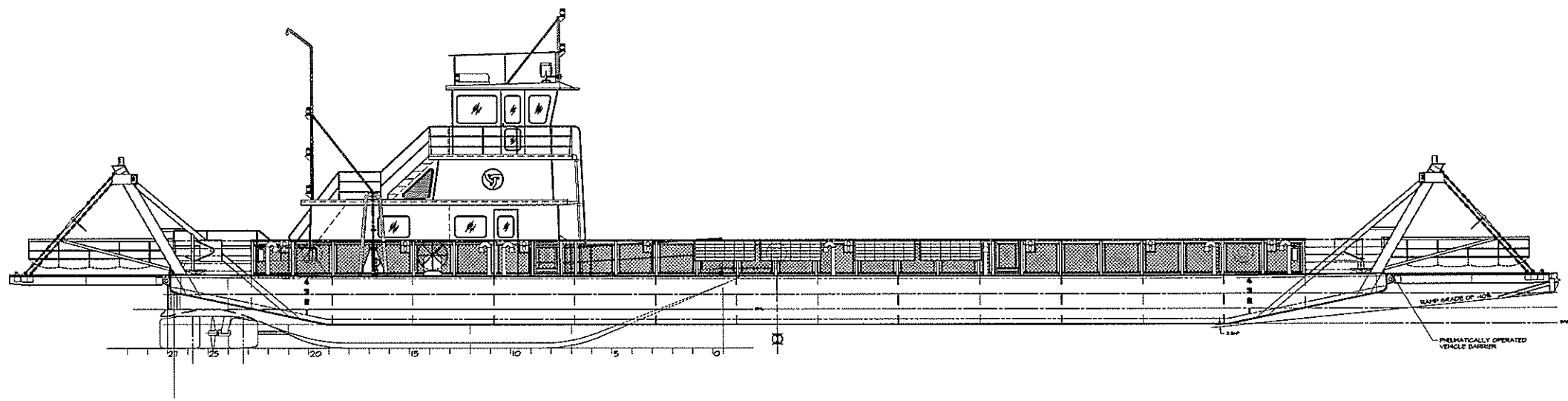
DWN. J.C. Birmingham	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 35'-0" x 4'-4" BRUSSELS FERRY BARGE	Project No. 99005
	IDOT JOB D-48-078-99	Scale: 3/16" = 1'-0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. - Date: 9/20/19
TITLE	BARGE/TOWBOAT GENERAL ARRANGEMENT	Drawing No. 801-201

Proj: 99005 Dwg: 801-201 Rev. - Title BARGE/TOWBOAT GENERAL ARRANGEMENT

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	04/20/99	



GENERAL ARRANGEMENT

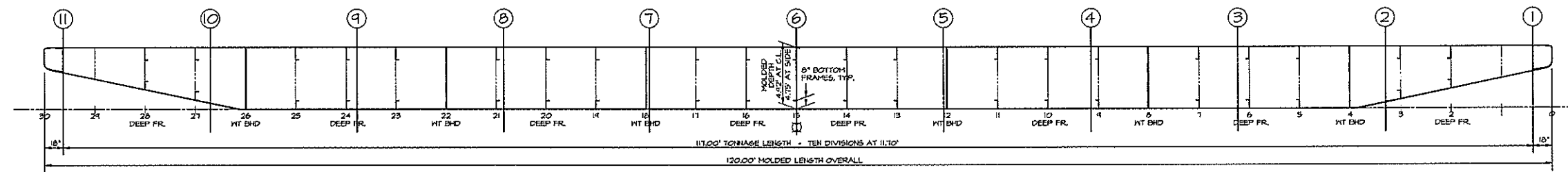


OUTBOARD PROFILE

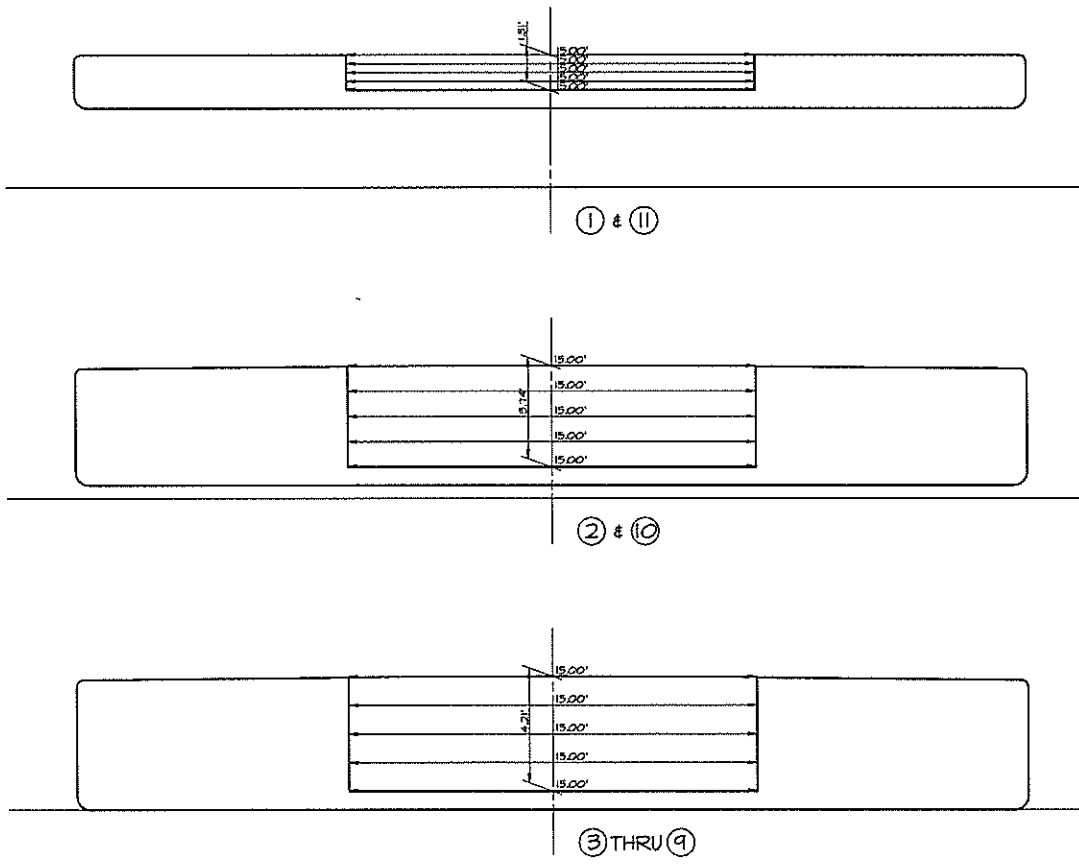
DWN. J.C. Birmingham	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD. naval architects	marine engineers	
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	
	PROJECT 120'-0" x 35'-0" x 4'-4" BRUSSELS FERRY BARGE	Project No. 99005
	IDOT JOB D-48-078-99	Scale: 3/16" = 1'-0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. - Date: 9/20/99
	TITLE BARGE/TOWBOAT GENERAL ARRANGEMENT	Drawing No. 801-201

Proj. 99005 Dwg. 801-201 Rev. - TITLE BARGE/TOWBOAT GENERAL ARRANGEMENT

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	9/20/99	



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



TONNAGE SECTIONS  
SCALE 3/8" = 1'-0"

		SPEAKERS AND PRODUCTS																					
		SECTION 1		SECTION 2		SECTION 3		SECTION 4		SECTION 5		SECTION 6		SECTION 7		SECTION 8		SECTION 9		SECTION 10		SECTION 11	
SECTION	NO. OF PRODUCTS	1.31		3.14		4.21		4.21		4.21		4.21		4.21		4.21		4.21		3.14		1.31	
SECTION	NO. OF PRODUCTS	0.33	0.34	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	0.34	0.33		
1	1	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
2	4	15.00	30.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00
3	2	15.00	30.00	15.00	30.00	15.00	30.00	15.00	30.00	15.00	30.00	15.00	30.00	15.00	30.00	15.00	30.00	15.00	30.00	15.00	30.00	15.00	30.00
4	4	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00
5	2	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
TOTAL		150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	
1/2		0.11	0.31	0.39	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	
MARK RD		14.80	55.80	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	55.80	14.80		

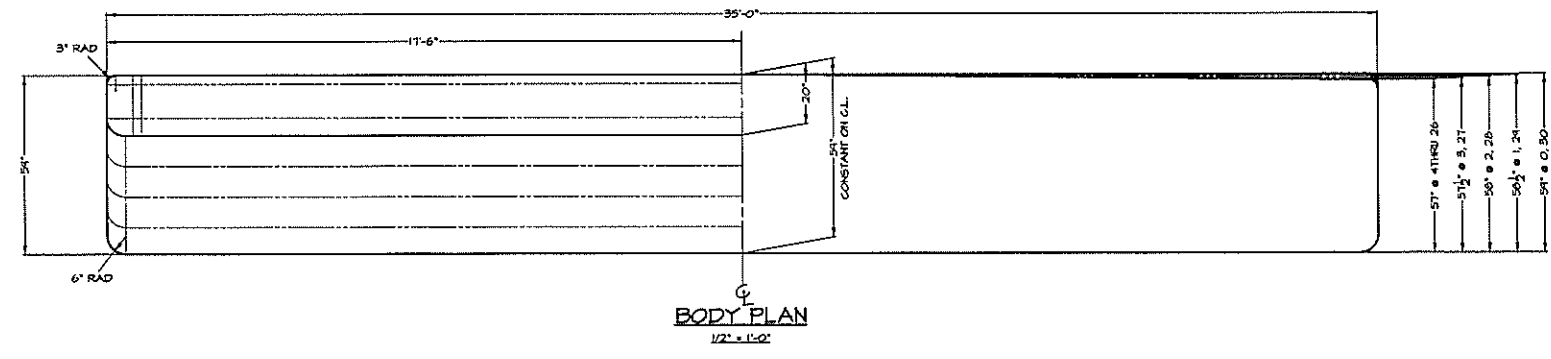
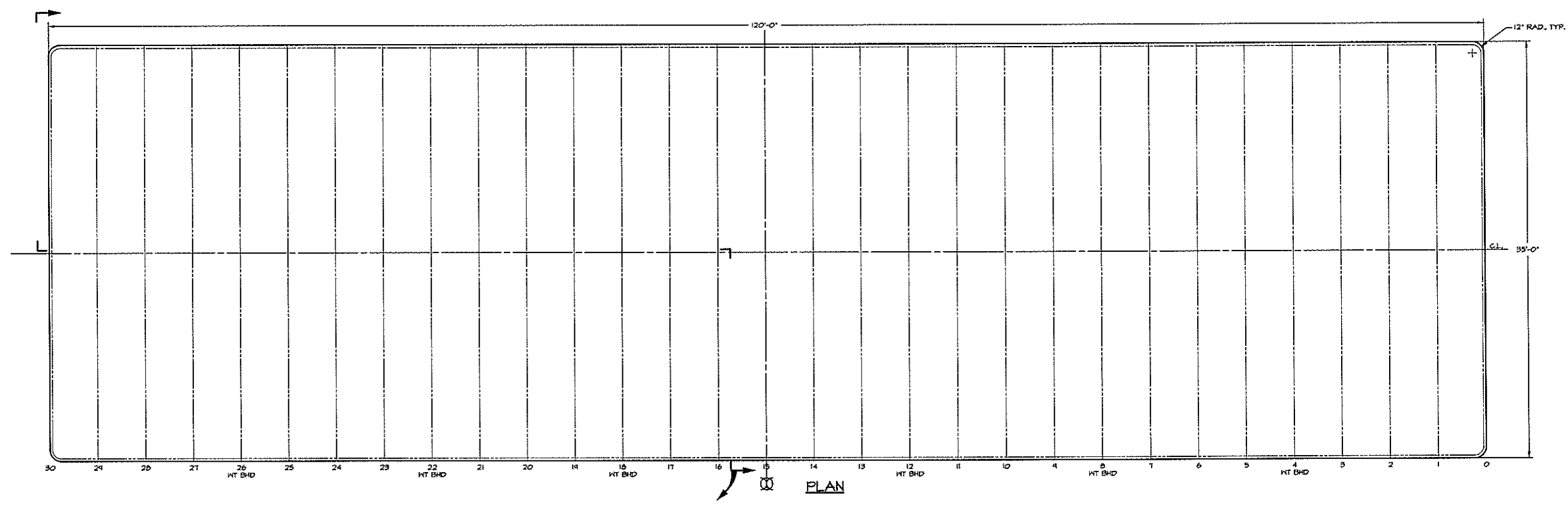
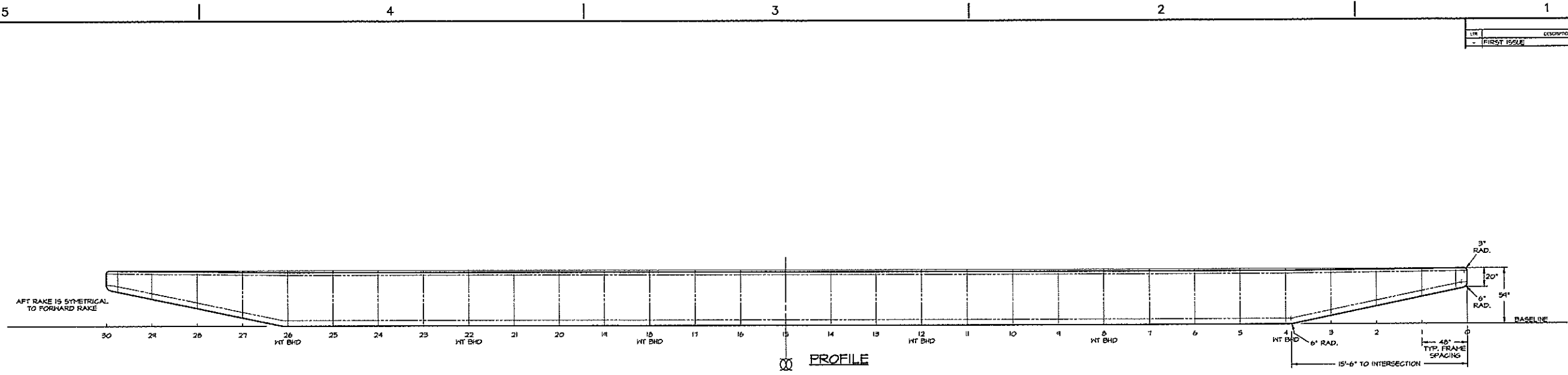
UNDER TONNAGE DECK			
NO. OF PRODUCTS	SECTION	NO. OF PRODUCTS	PRODUCT
1	1	19.80	19.80
2	4	55.80	223.20
3	2	63.00	126.00
4	4	63.00	252.00
5	2	63.00	126.00
6	4	63.00	252.00
7	2	63.00	126.00
8	4	63.00	252.00
9	2	63.00	126.00
10	4	55.80	223.20
11	1	19.80	19.80
TOTAL			1746.00
1/2			3.400
			6808.40
			+1.00
UNDER TONNAGE DECK AS MEASURED			6809.40

TONNAGE	
	Tonnage
UNDER TONNAGE DECK	68.04
Enclosure on or above the tonnage deck	0.00
CROSS TONNAGE	68.04

DWN. MDP	<b>TGMD, Inc. / Timothy Graul marine design</b> naval architects marine engineers Sturgeon Bay, WI 54235	Project No.
APPD.		49005
DATE 20 SEPT 1999	PROJECT 120'-0" x 35'-0" x 4'-0" BRUSSELS FERRY BARGE	Scale: AS NOTED
	IDOT JOB D-48-018-49	REV. - Date: 9/20/99
	ILLINOIS DEPARTMENT OF TRANSPORTATION	Drawing No.
	TITLE TONNAGE PLAN	839-201

Proj. 49005 Dwg. 839-201 Rev. - Title TONNAGE PLAN

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	9/20/99	

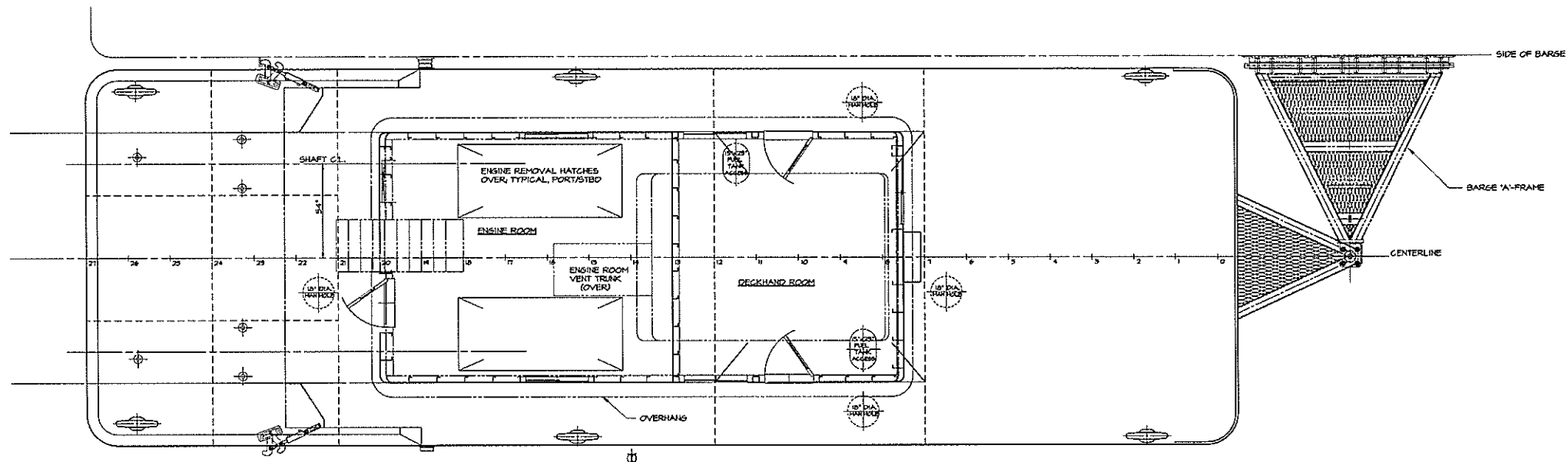


DWN. VGH	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	120'-0" x 35'-0" x 4'-9" BRUSSELS FERRY BARGE	Project No. 99005
REV.	IDOT JOB D-18-078-99	Scale: 1/4" = 1'-0"
TITLE	HULL LINES PLAN	Drawing No. 839-203

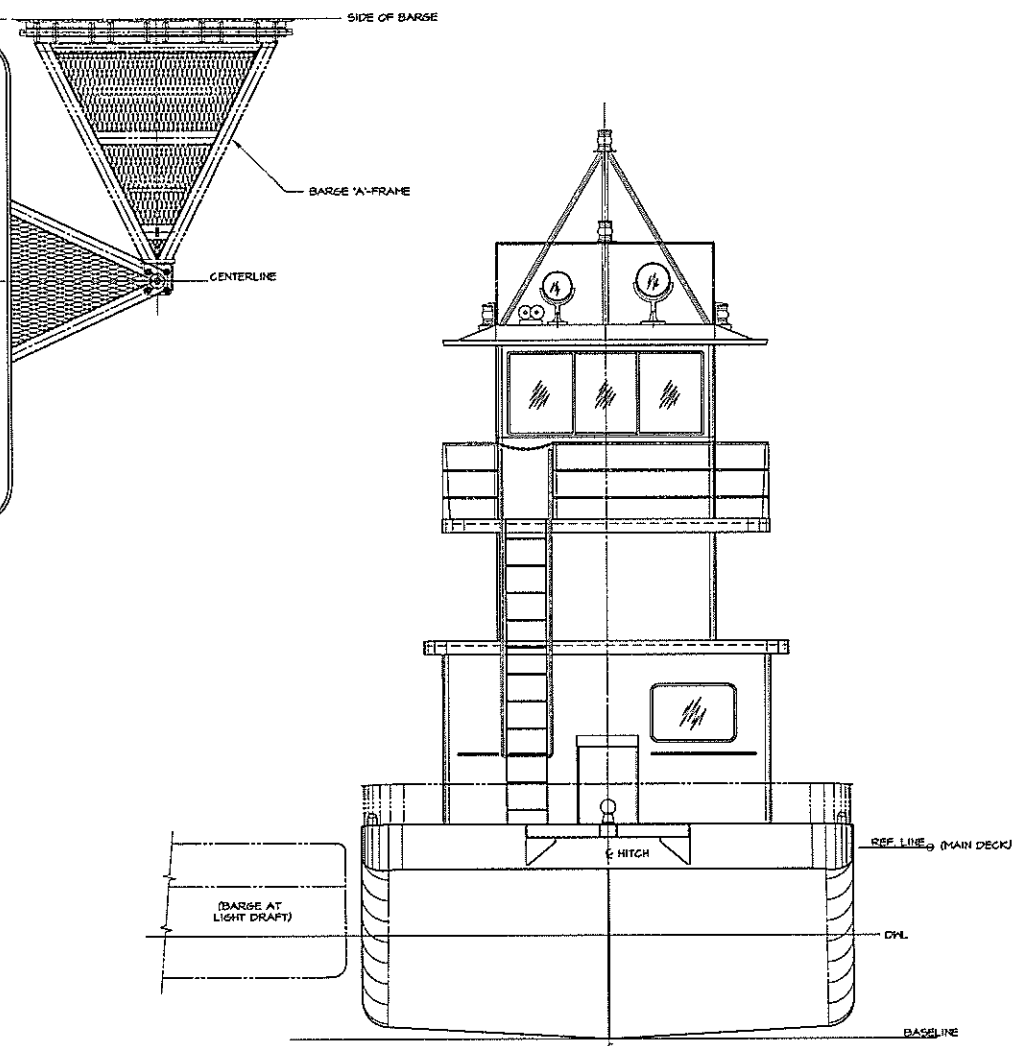
Proj. 839-203 Dwg. 839-203 Rev. - Title HULL LINES PLAN



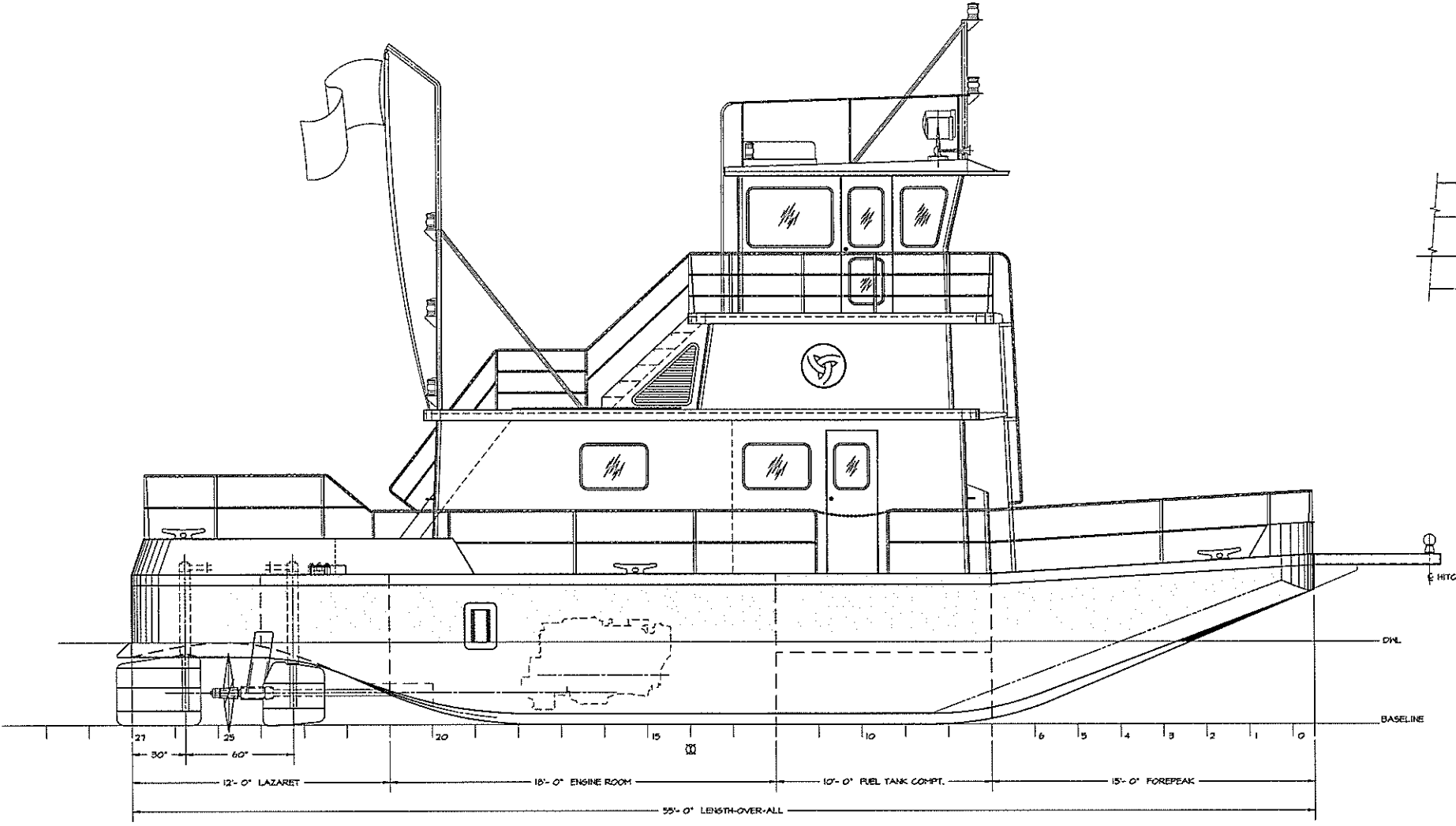
REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	07/30/99	
A	REVISES BILGE FROM CAME TO ROUND	1/13/00	



MAIN DECK PLAN



BOW ELEVATION



STARBOARD PROFILE

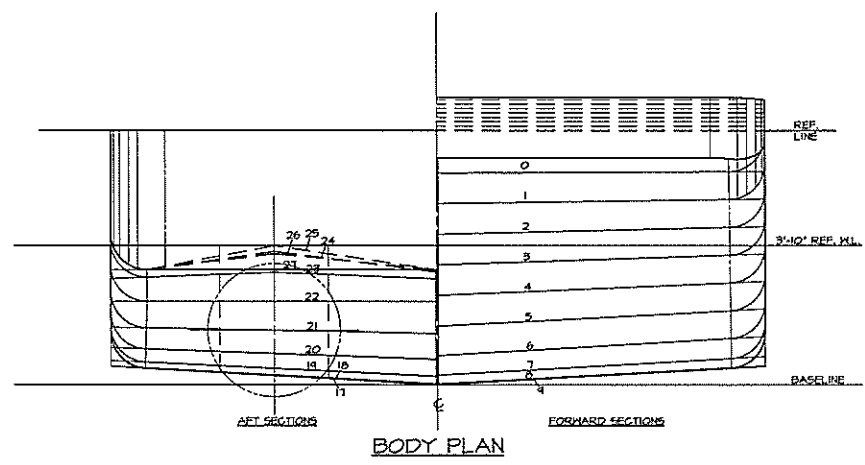
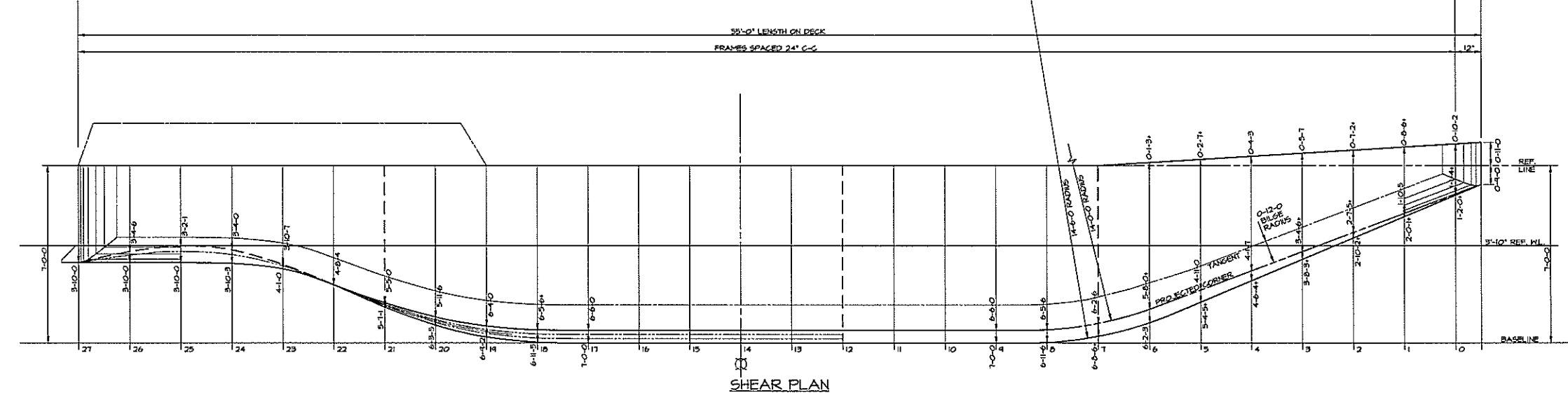
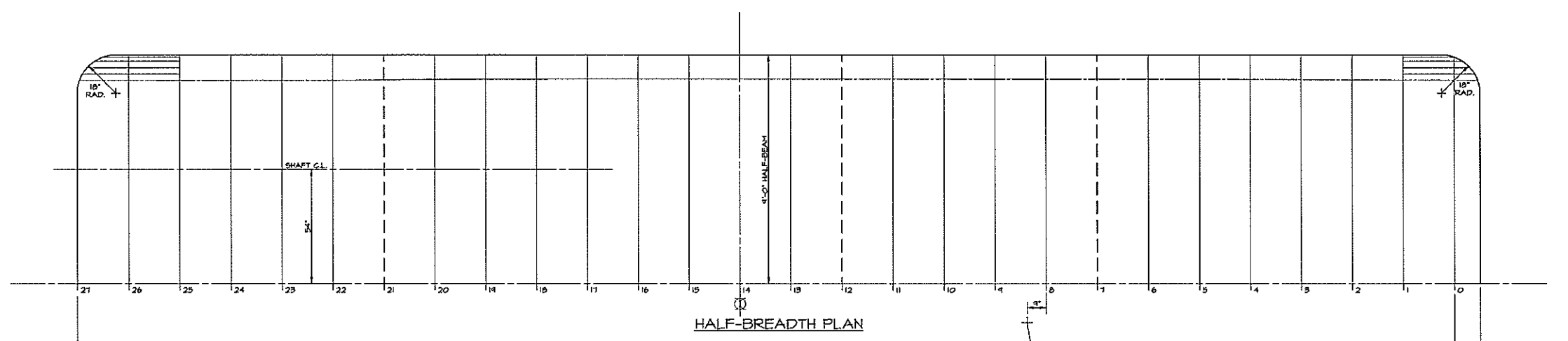
**PARTICULARS**

LENGTH OVERALL	55'-0"
BEAM	18'-0"
DEPTH	7'-0"
HULL DRAFT	3'-10"
PROJECTION DRAFT	4'-2" (MAX)
DISPLACEMENT (NORMAL OPERATION)	60 LONG TONS
PROPULSION	TWIN SCREW- DIESEL ENGINES
ROUTE/CLASS	UNINSPECTED

DWN. J.C. Birmingham	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 30 JULY 1999	Sturgeon Bay, WI 54235	
PROJECT	55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Project No. 99005
IDOT JOB D-18-078-99	ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: 3/8" = 1'-0"
REV. A	Date: 1/13/00	Drawing No. 801-101
TITLE	GENERAL ARRANGEMENT	

Proj. 8005 Dwg. 801-101 Rev. A Title Title GENERAL ARRANGEMENT

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
A	REVISES BILGE PER BUILDERS REQUEST EXTENDS RADIUS TO STERN AND MODIFIES TUNNEL LINES.	4/7/00	



NOTES:  
 1) OFFSETS GIVEN IN FEET-INCHES-EIGHTHS. \*\* MEANS ADD 1/16".  
 2) LINES ARE MOLDED, TO INSIDE OF PLATING.

DWN. MDP	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 2 JULY 1999	Sturgeon Bay, WI 54235	
PROJECT	55'- 0"x 18'- 0"x 7'- 0" BRUSSELS FERRY PUSHBOAT	Project No. 99005
	IDOT JOB D-18-078-19	Scale: 1/2" = 1'- 0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. A Date: 4/7/00
TITLE	HULL LINES AND OFFSETS	Drawing No. 839-101

Proj. 83902 Dwg. 839-101 Rev. A Title HULL LINES AND OFFSETS

5

4

3

2

1

E

E

D

D

C

C

B

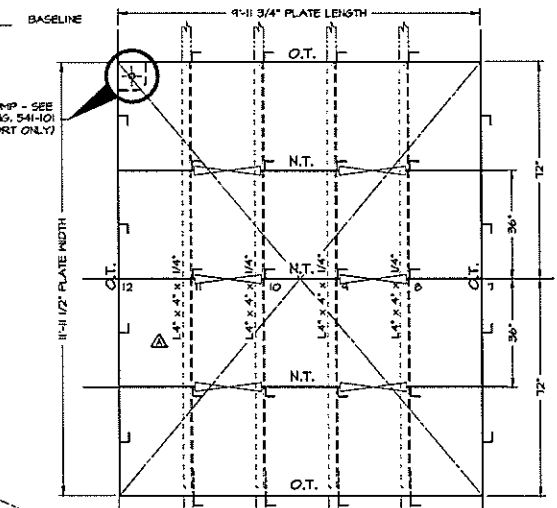
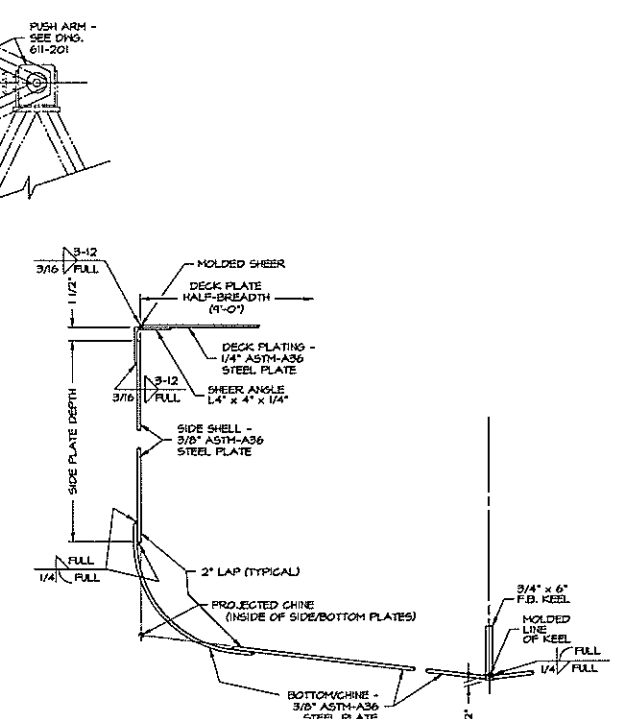
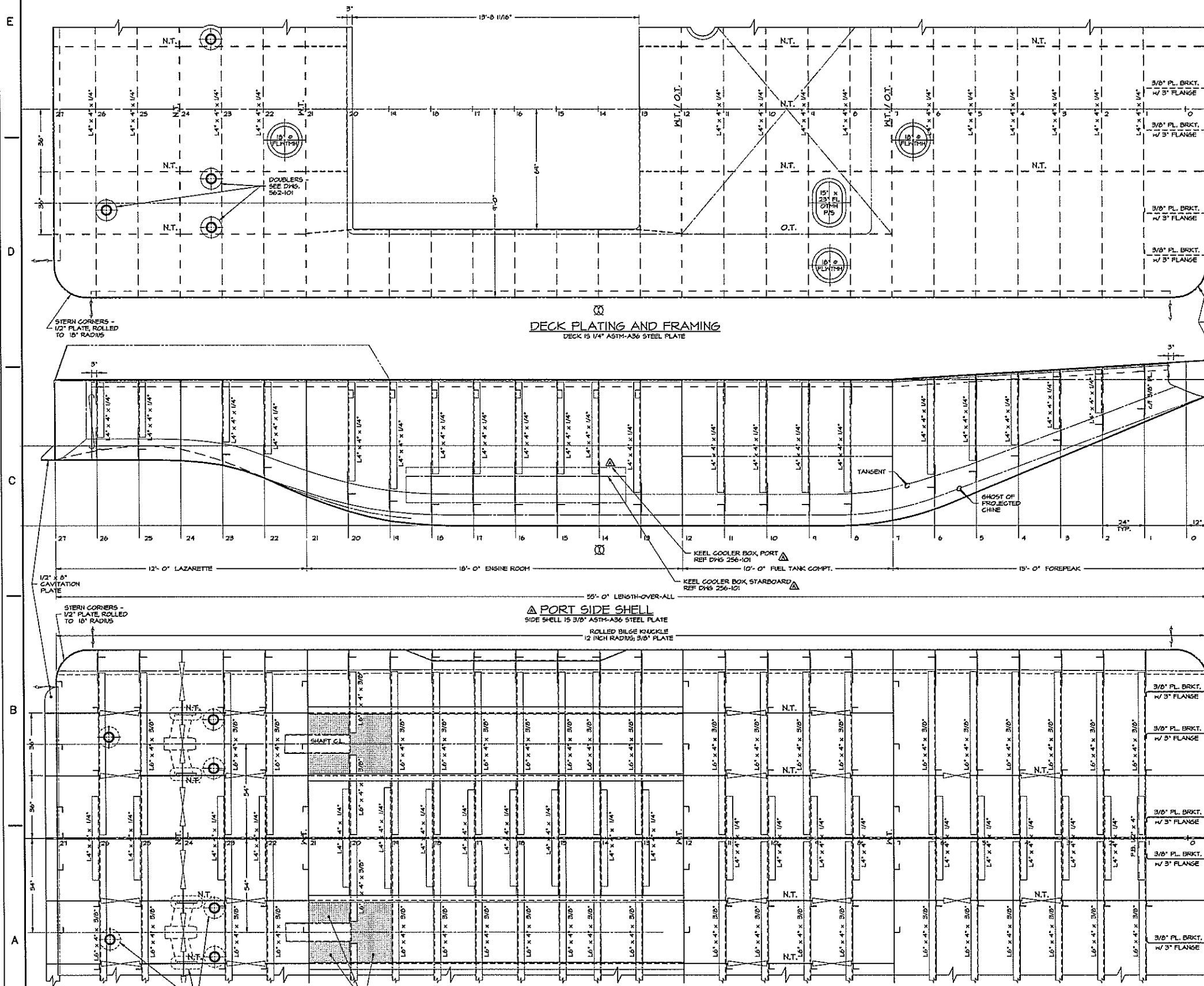
A

5

1

SHT 18 of 64

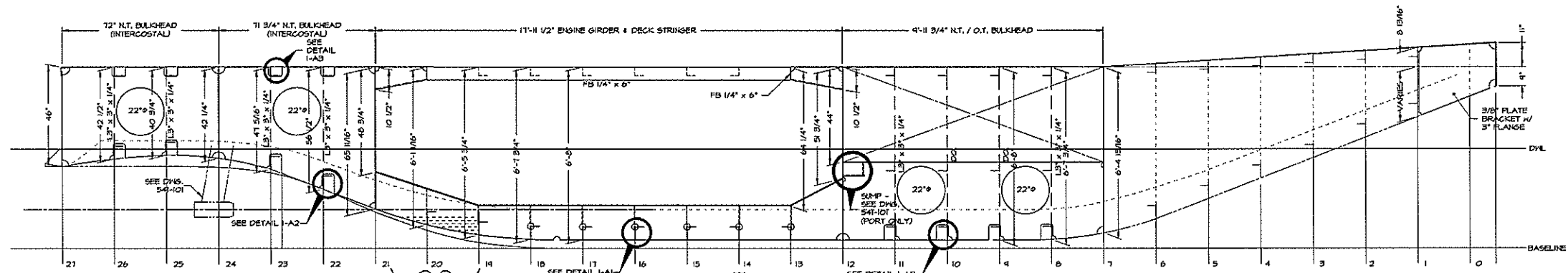
REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
A	1) REVISES HARD CHINE BILGE TO ROUNDED PER BUILDER'S REQUEST. 2) ADDS AND CORRECTS MISC. DETAILS. 3) SHOWS KEEL COOLER BOXES. 4) REVISES TANK BOTTOM TRANSVERSE BEAMS FROM L5'X3'X5/16" TO L4'X4'X1/4".	5/3/00	



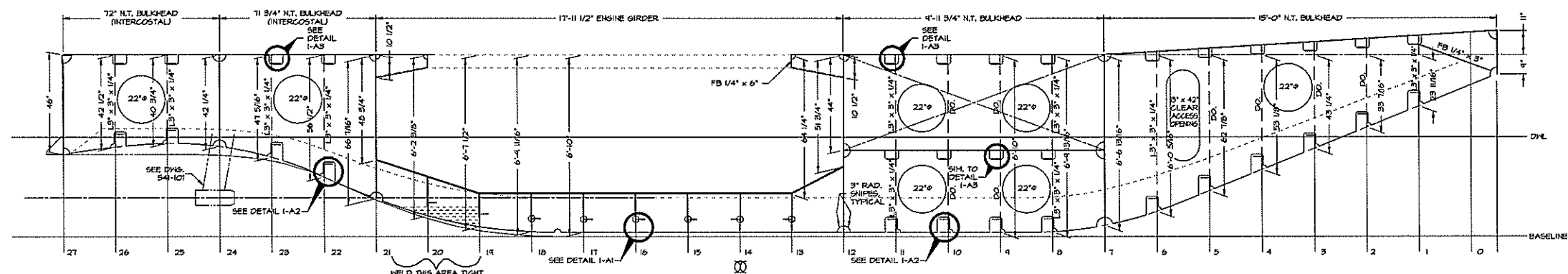
DWN. RJK, Thompson	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 16 JULY 1999	Sturgeon Bay, WI 54235	Project No. 49005
	PROJECT 55'-0\"/>	
	BRUSSELS FERRY PUSHBOAT	Scale: 1/2\"/>
	IDOT JOB D-40-018-49	REV. A Date: 5/3/00
	ILLINOIS DEPARTMENT OF TRANSPORTATION	Drawing No. III-101
TITLE SHELL AND DECK PLATING AND FRAMING		

Proj. 49005 Dwg. III-101 Rev. A Title SHELL AND DECK PLATING AND FRAMING

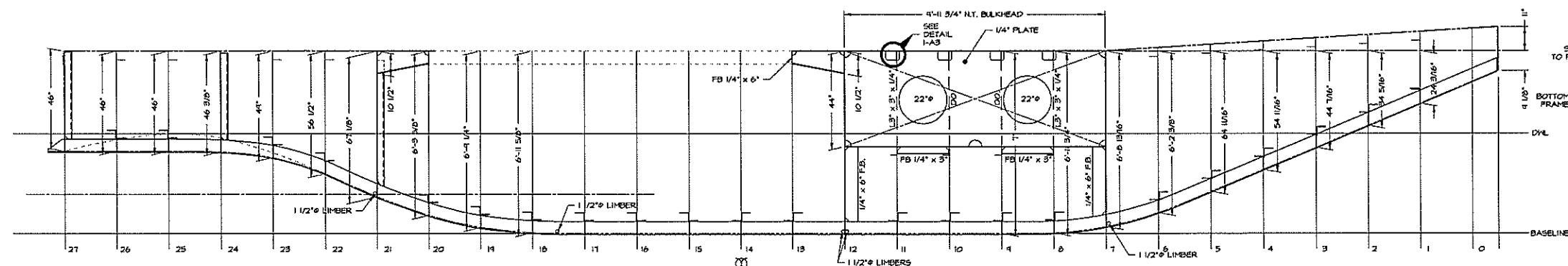
REVISIONS			
ITN	DESCRIPTION	DATE	APPROVED
A	CHGTD TO RADUIS BULGE FULL LENGTH	7/25/00	



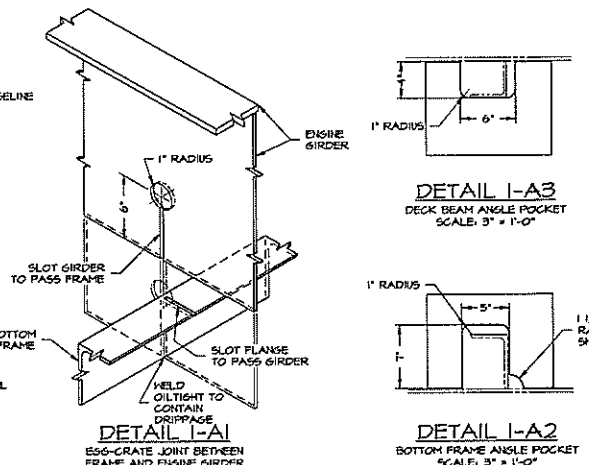
**STRUCTURE 6'-0" OFF CENTERLINE**  
BULKHEADS ARE 1/4" HR. ASTM-A36 STEEL PLATE



**STRUCTURE 36 INCHES OFF CENTERLINE**  
BULKHEADS ARE 1/4" HR. ASTM-A36 STEEL PLATE

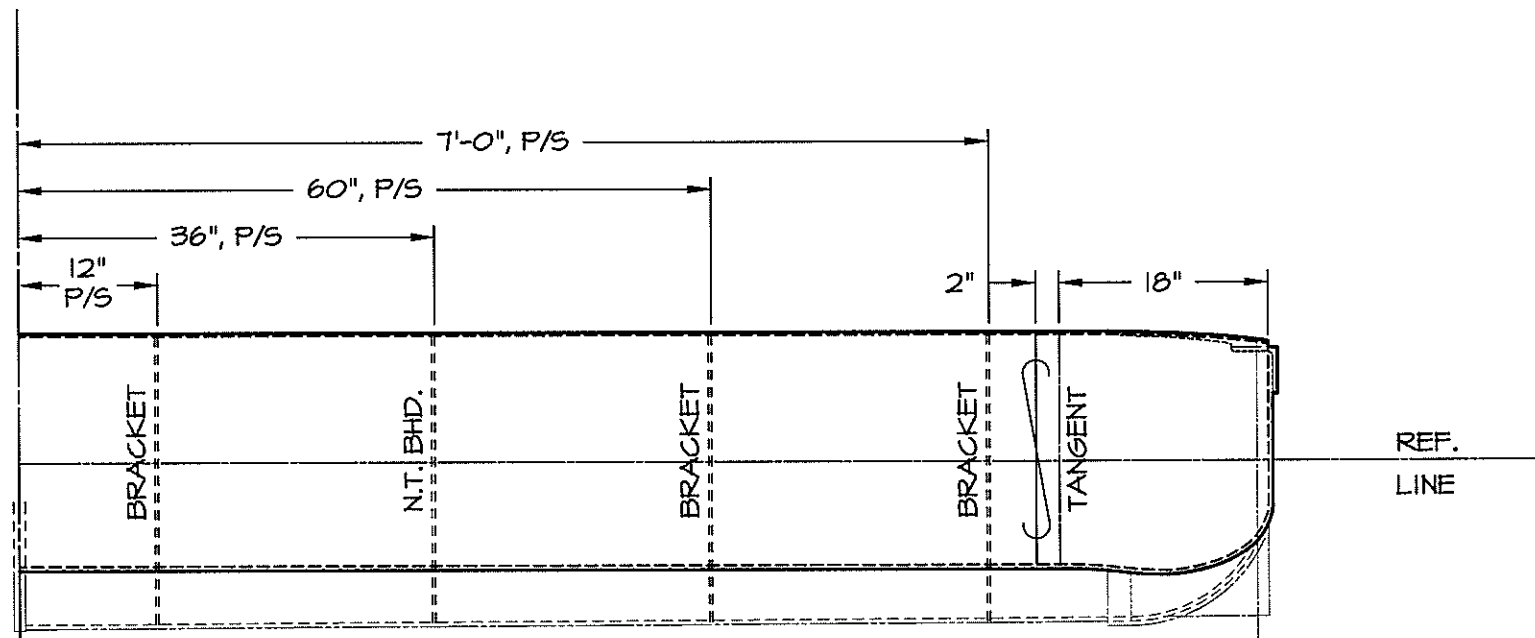


**STRUCTURE ON CENTERLINE**  
KEEL IS FB 1" x 6" & CUT PLATE



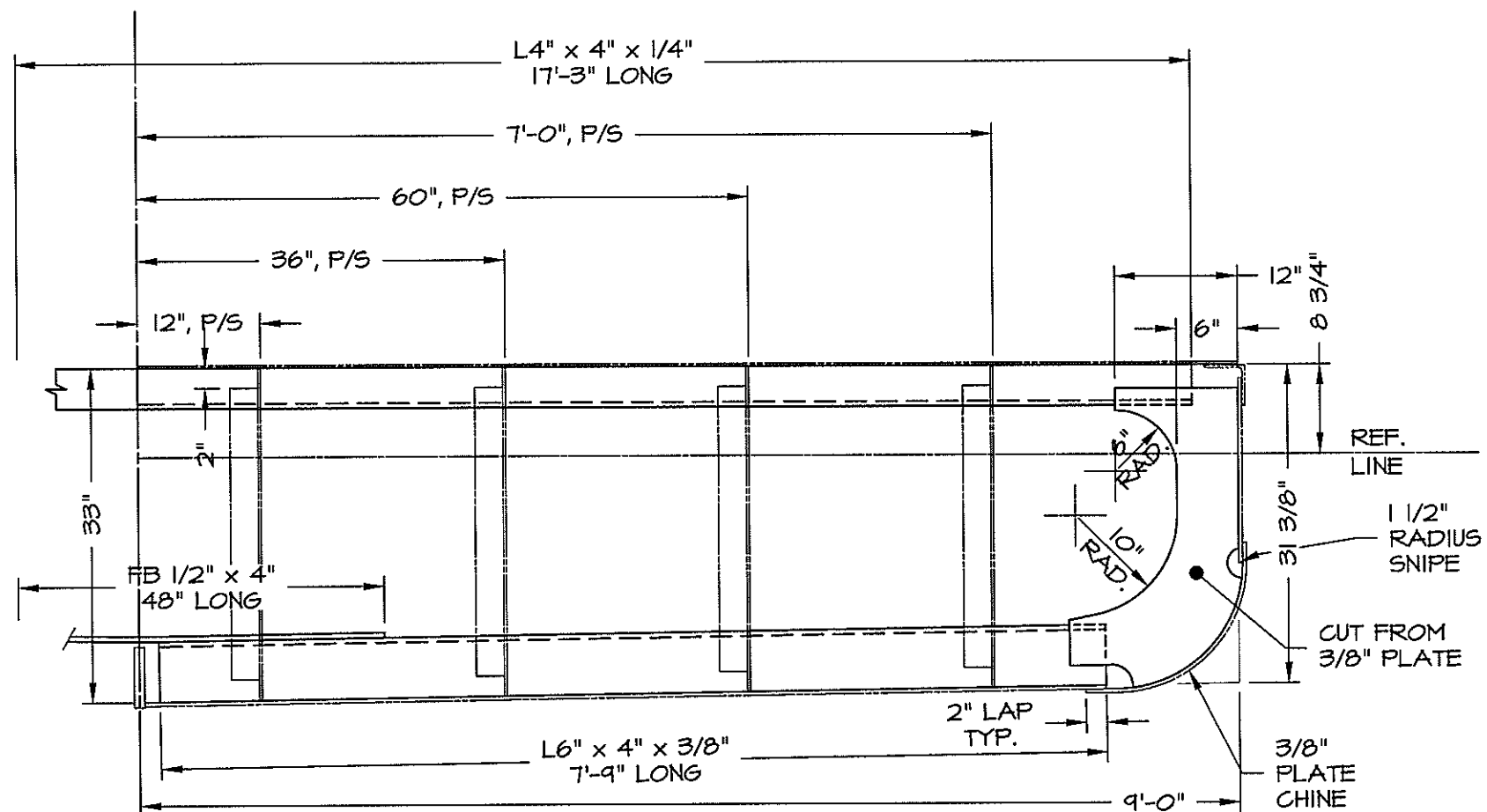
DWN. R.K. Thompson	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 18 JULY 1999	Sturgeon Bay, WI 54235	
PROJECT	55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Project No. 99005
ILLINOIS DEPARTMENT OF TRANSPORTATION	IDOT JOB D-40-07B-49	Scale: 1/2" = 1'-0"
TITLE	LONGITUDINAL STRUCTURE	REV. A Date: 07/15/00
		Drawing No. 116-101

Proj. 99005 Dwg. 116-101 Rev. A Title LONGITUDINAL STRUCTURE



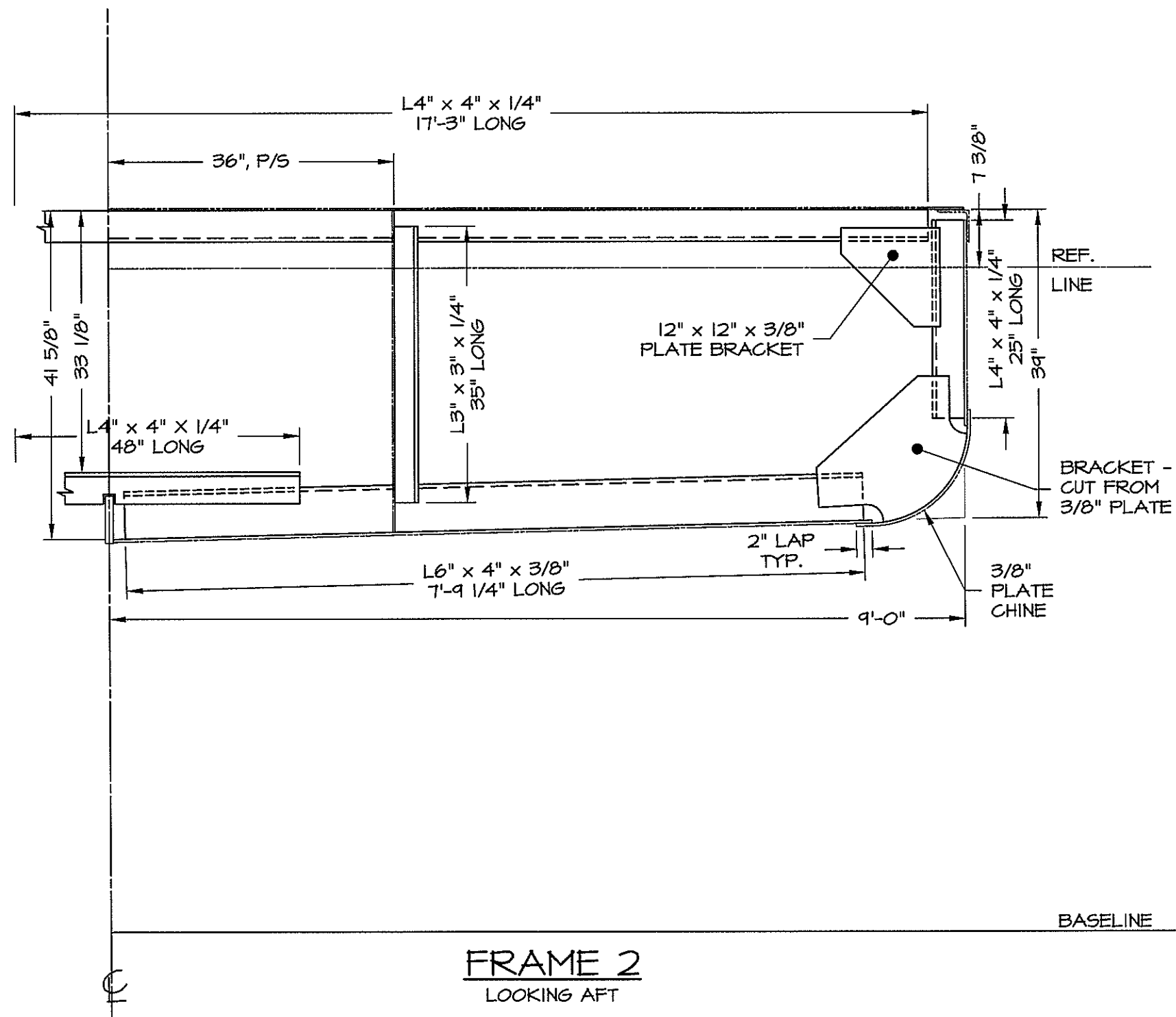
**HEADLOG / FRAME 0**  
 HEADLOG AND CORNERS ARE 1/2" ASTM-A36 STEEL PLATE  
 LOOKING AFT

DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
PROJECT	<b>BRUSSELS FERRY PUSHOAT</b>	Project No. <b>99005</b>
CLIENT	<b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	Scale: <b>AS NOTED</b>
	<b>IDOT JOB D-98-078-99</b>	REV. <b>A</b> Date: <b>4/25/00</b>
TITLE	<b>TRANSVERSE FRAMING BOOKLET</b>	Drawing No. <b>117-101-FO</b>

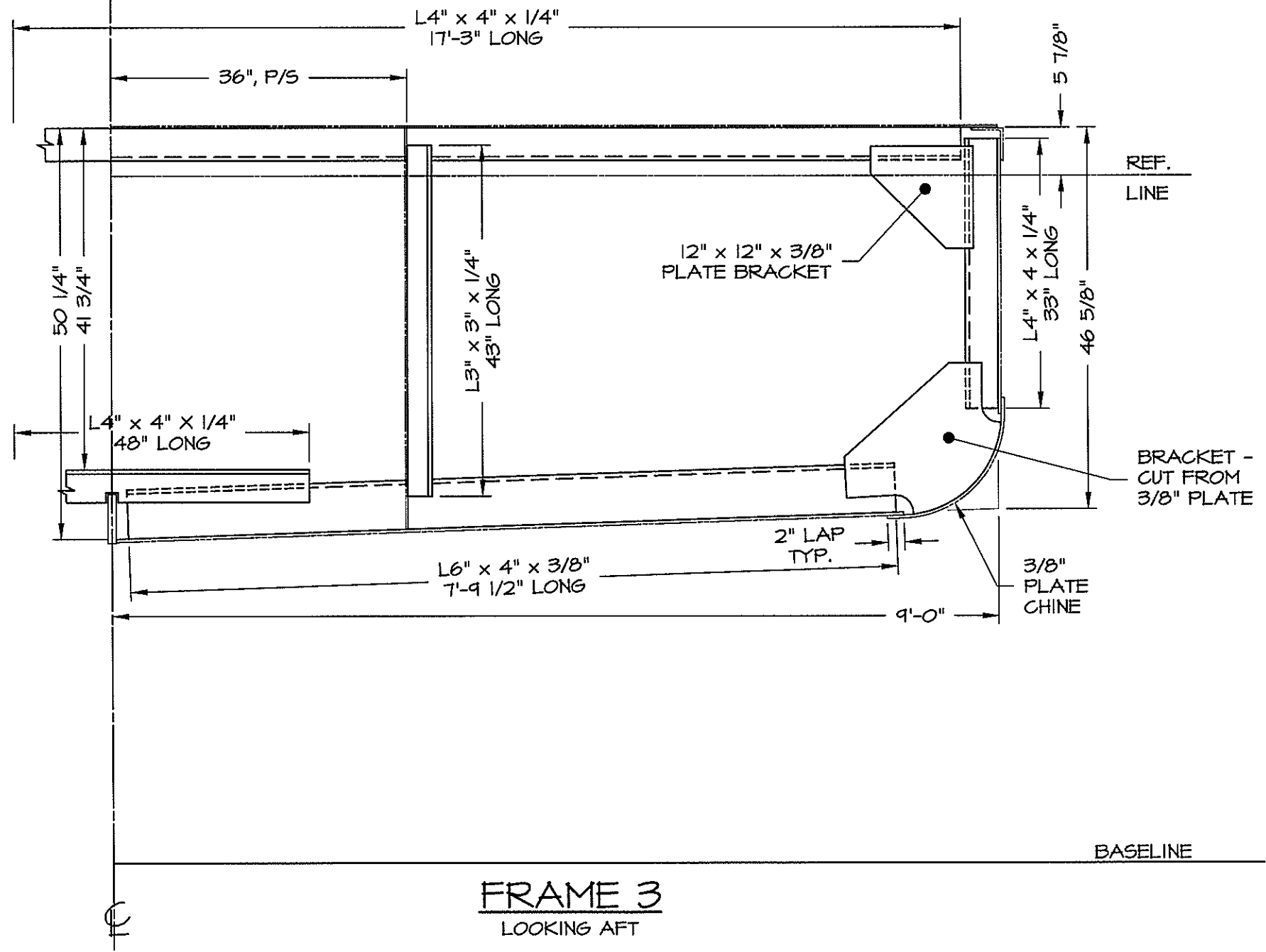


**FRAME I**  
 LOOKING AFT

DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-101-F1

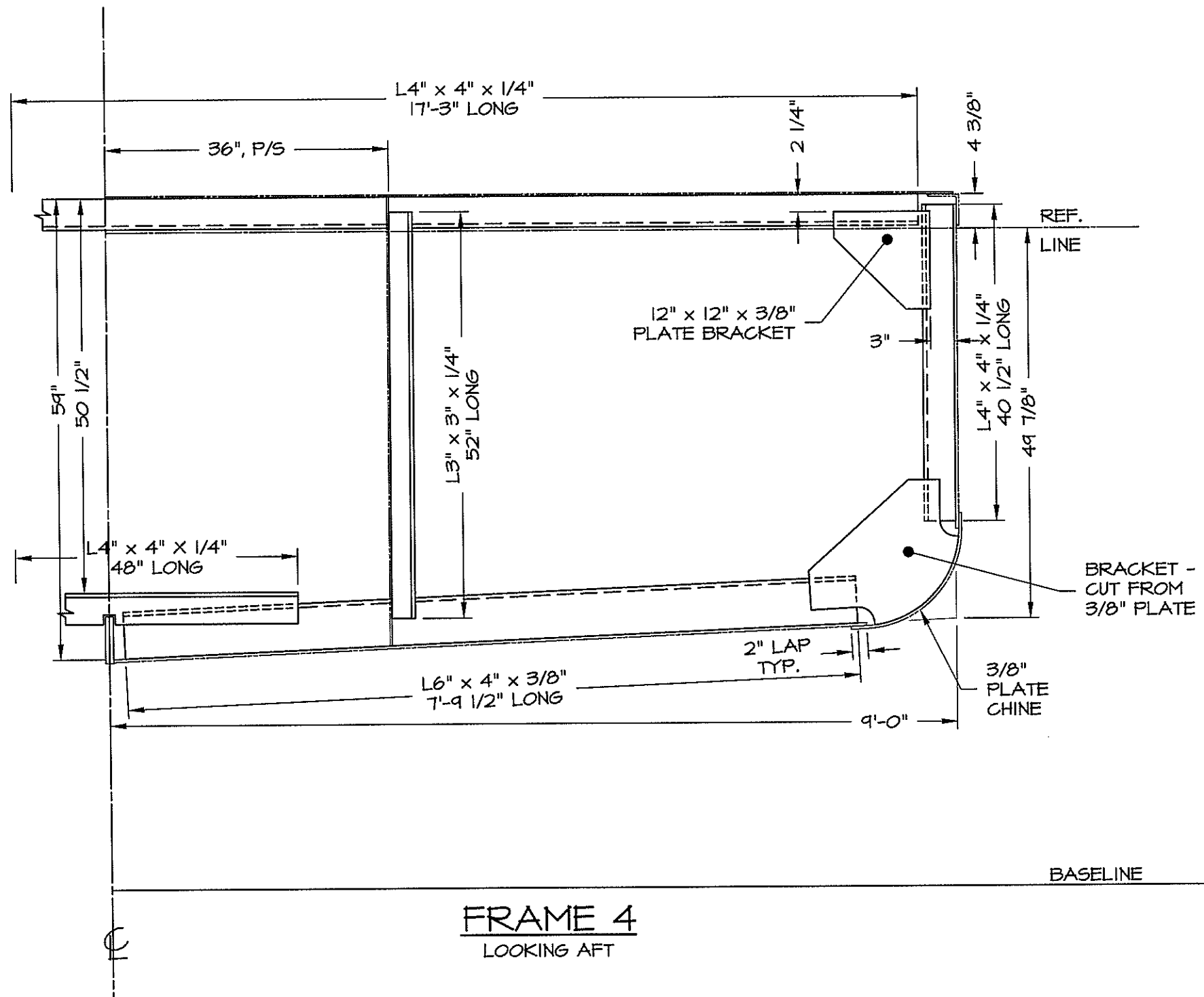


DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-101-F2



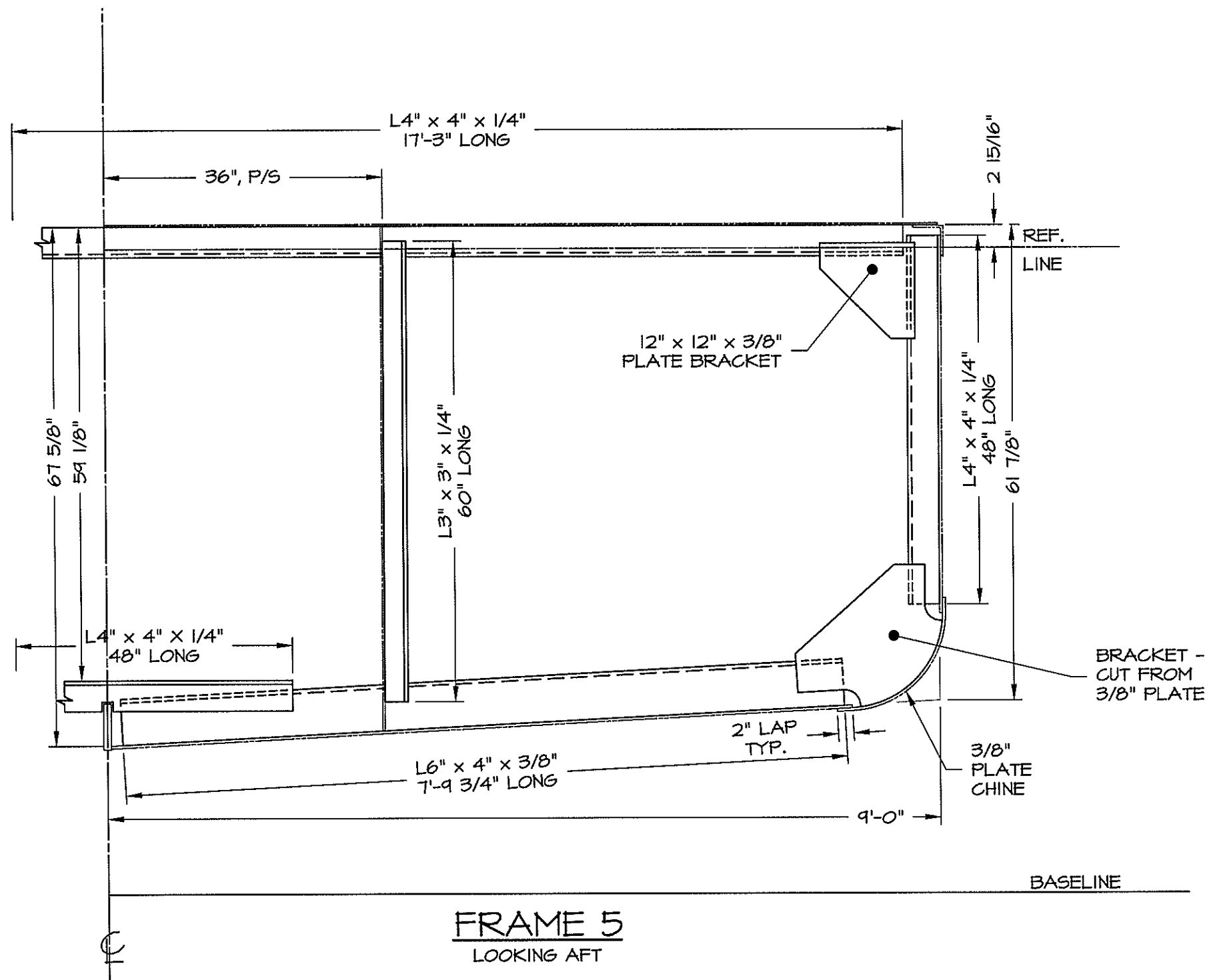
DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-101-F3



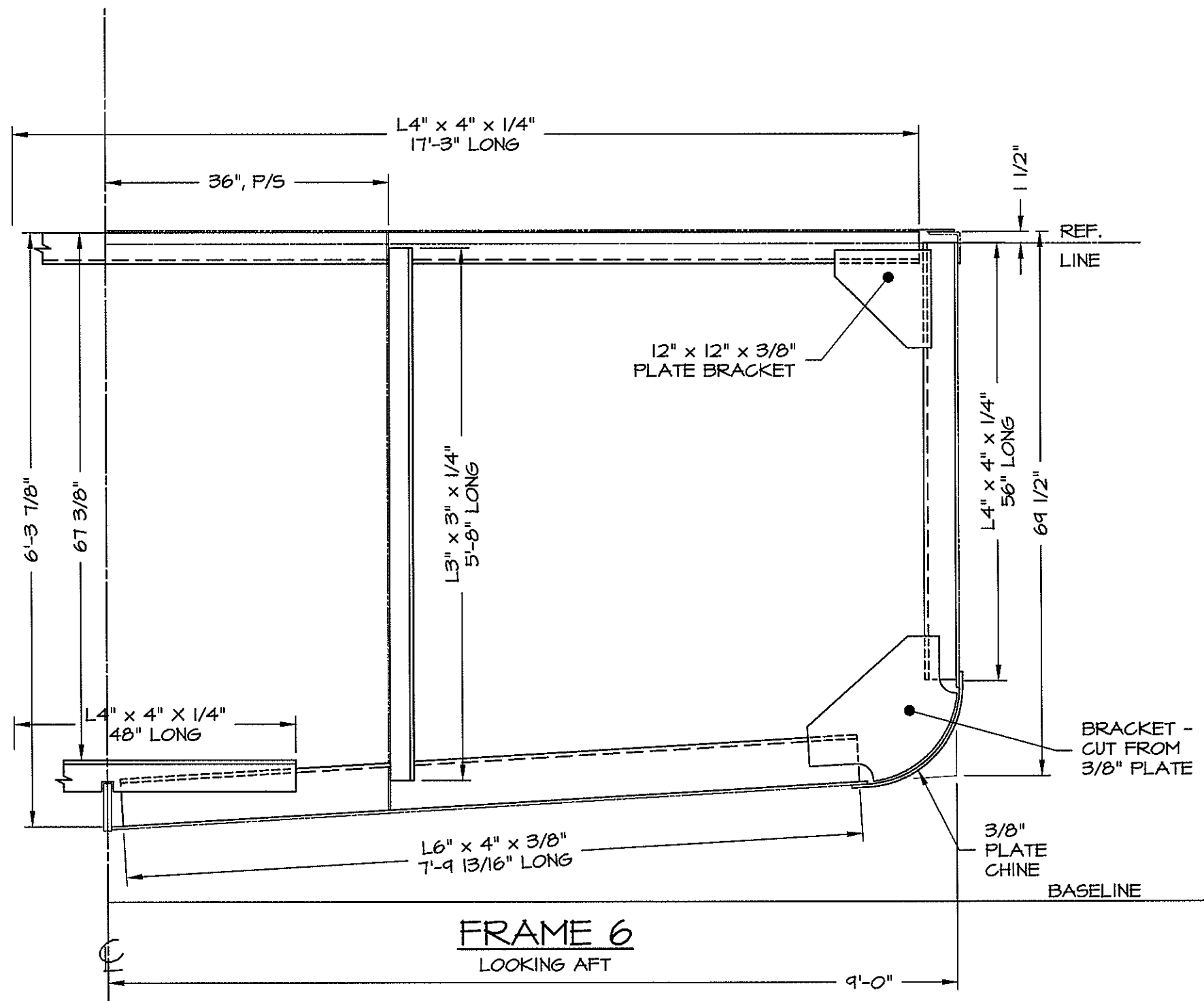


**FRAME 4**  
LOOKING AFT

DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT <b>BRUSSELS FERRY PUSHBOAT</b>	Project No. <b>99005</b>
	CLIENT <b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	Scale: <b>AS NOTED</b>
	<b>IDOT JOB D-98-078-99</b>	REV. <b>A</b> Date: <b>4/25/00</b>
	TITLE <b>TRANSVERSE FRAMING BOOKLET</b>	Drawing No. <b>117-101-F4</b>

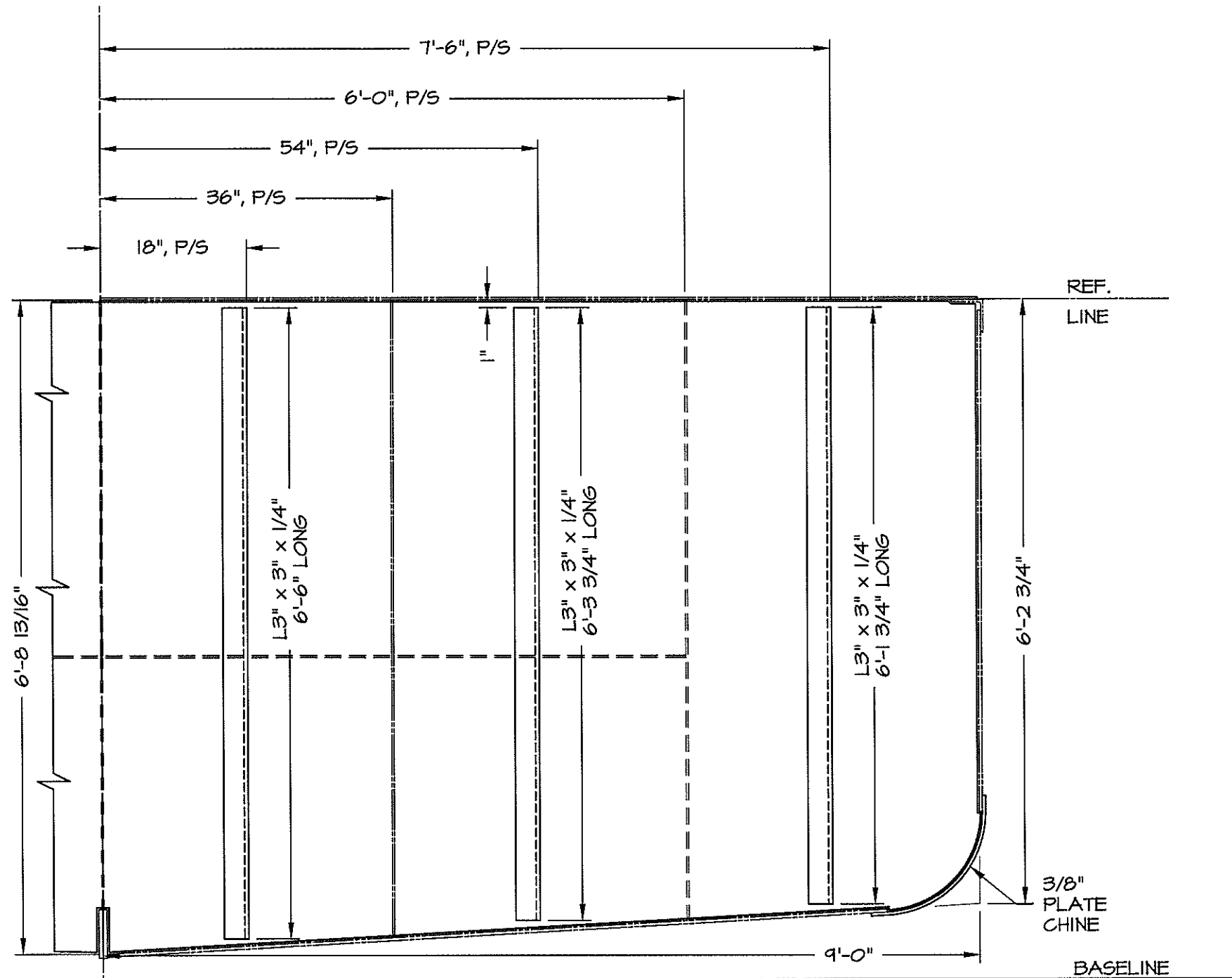


DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT <b>BRUSSELS FERRY PUSHPHAT</b>	Project No. <b>99005</b>
	CLIENT <b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	Scale: <b>AS NOTED</b>
	<b>IDOT JOB D-98-078-99</b>	REV. <b>A</b> Date: <b>4/25/00</b>
	TITLE <b>TRANSVERSE FRAMING BOOKLET</b>	Drawing No. <b>117-101-F5</b>



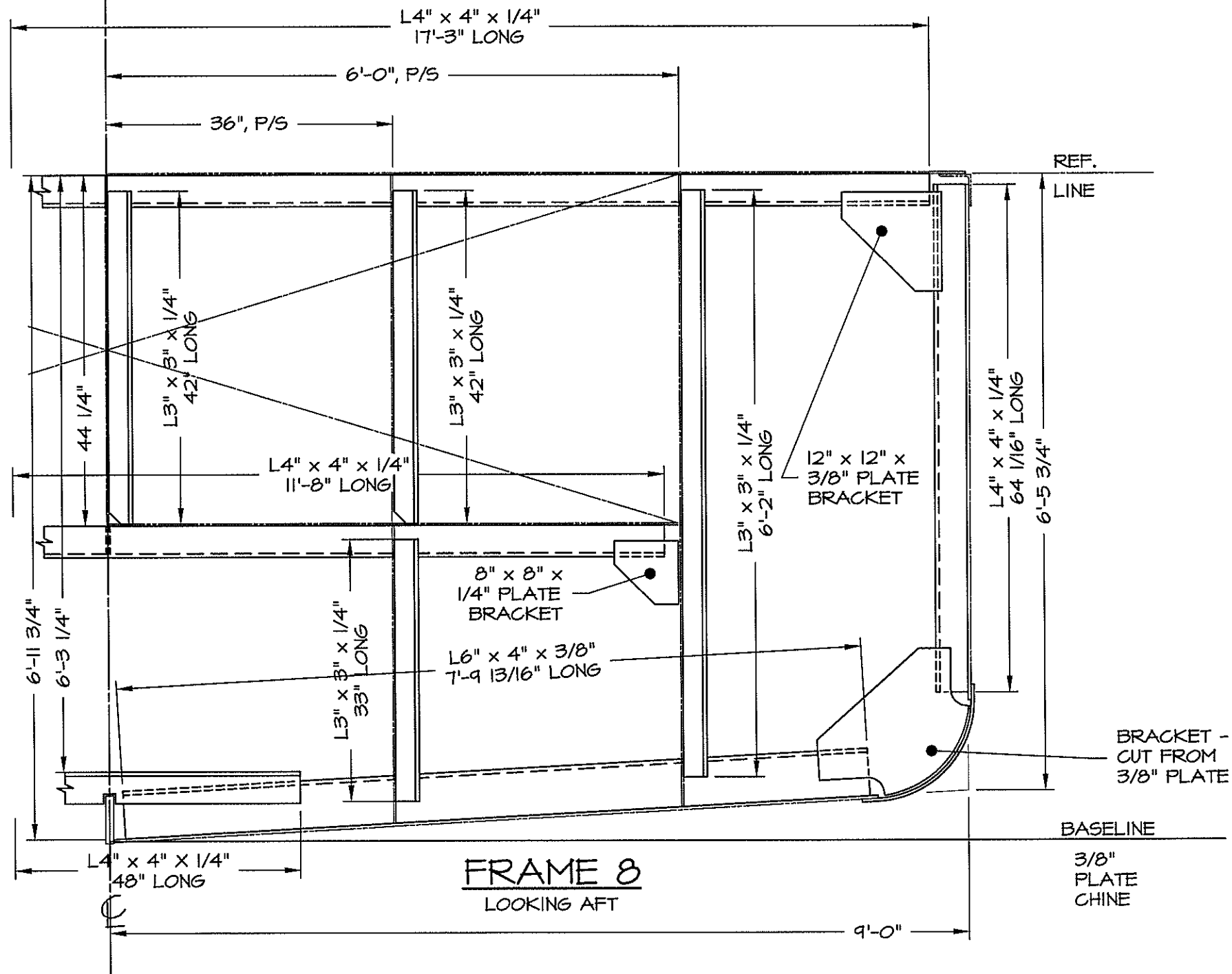
**FRAME 6**  
LOOKING AFT

DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT <b>BRUSSELS FERRY PUSHOAT</b>	Project No. <b>99005</b>
	CLIENT <b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	Scale: <b>AS NOTED</b>
	<b>IDOT JOB D-98-078-99</b>	REV. <b>A</b> Date: <b>4/25/00</b>
	TITLE <b>TRANSVERSE FRAMING BOOKLET</b>	Drawing No. <b>117-101-F6</b>

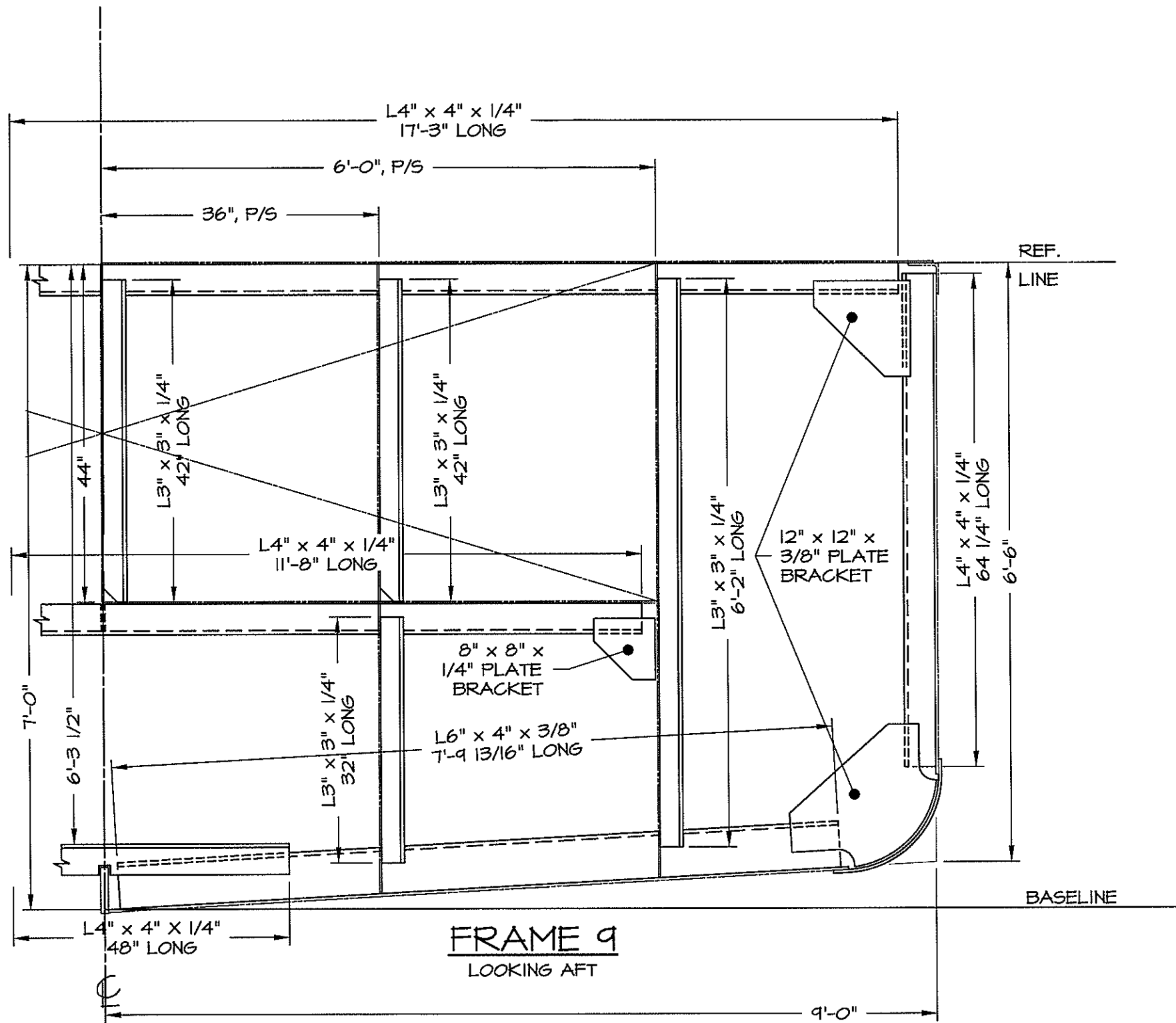


**BULKHEAD 7**  
 BULKHEAD IS 1/4" ASTM-A36 PLATE  
 LOOKING AFT

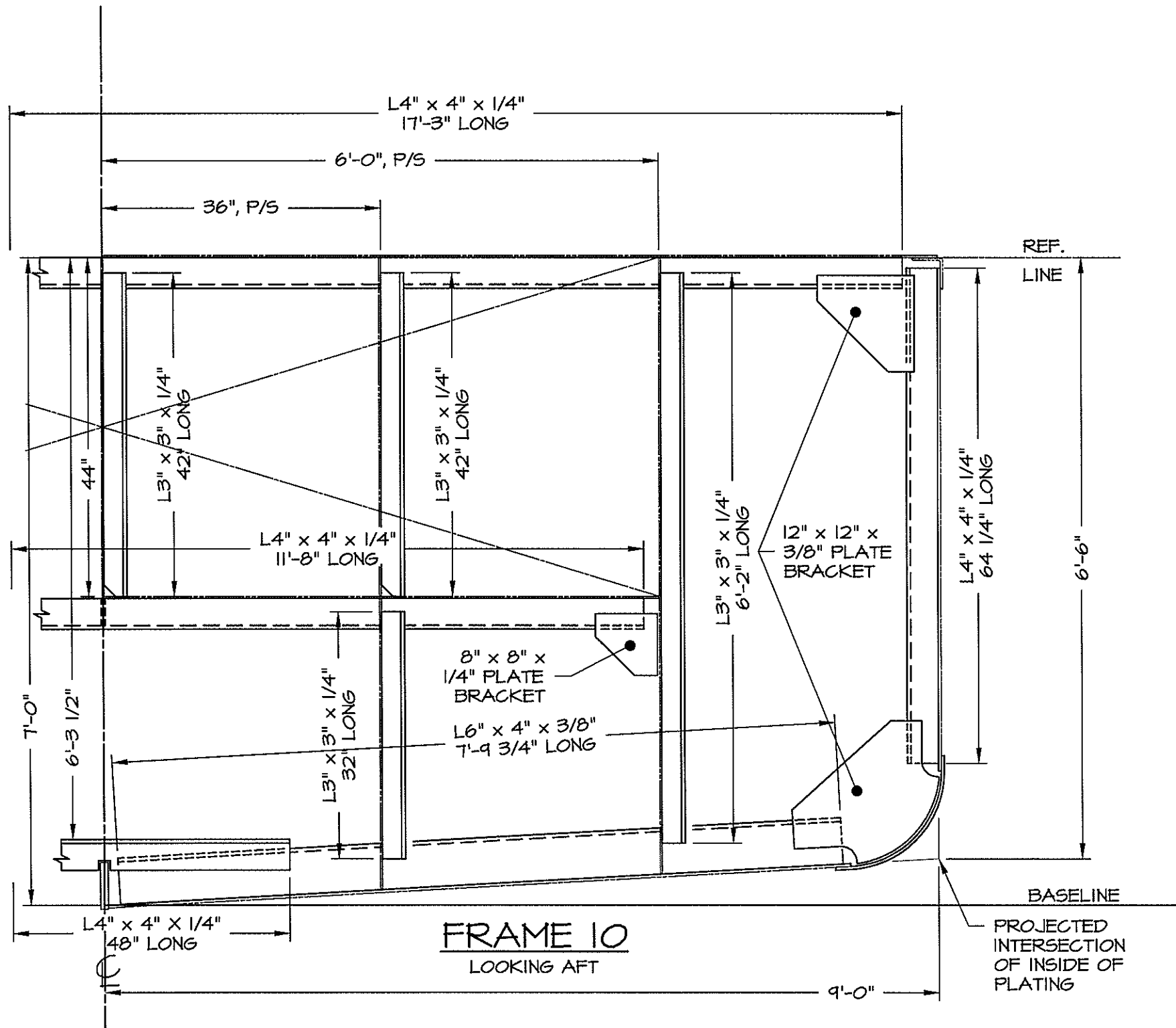
DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-101-F7



DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-101-F8

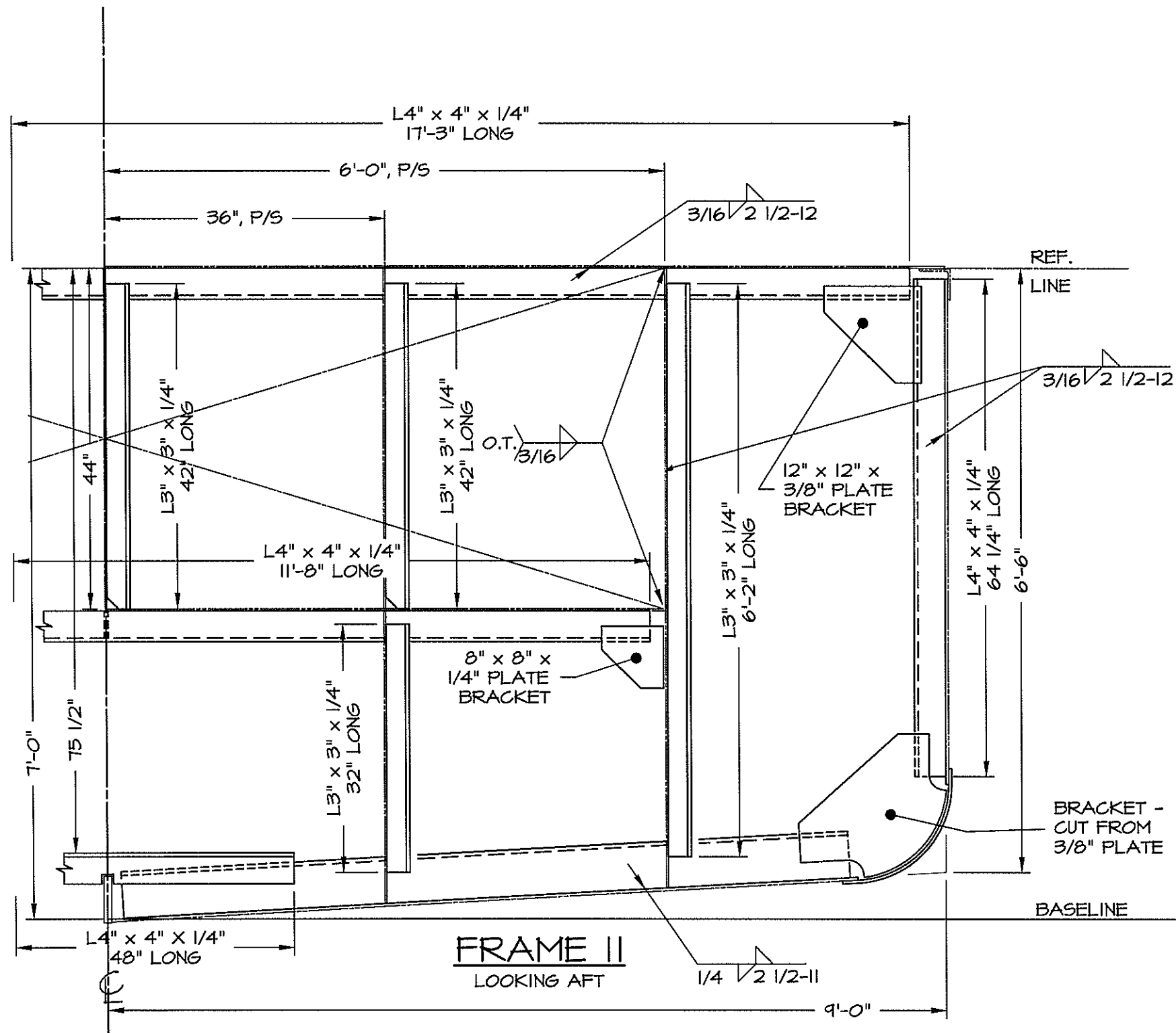


DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
PROJECT	BRUSSELS FERRY PUSHBOAT	Project No. 99005
CLIENT	ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
TITLE	TRANSVERSE FRAMING BOOKLET	Drawing No. 117-101-F9



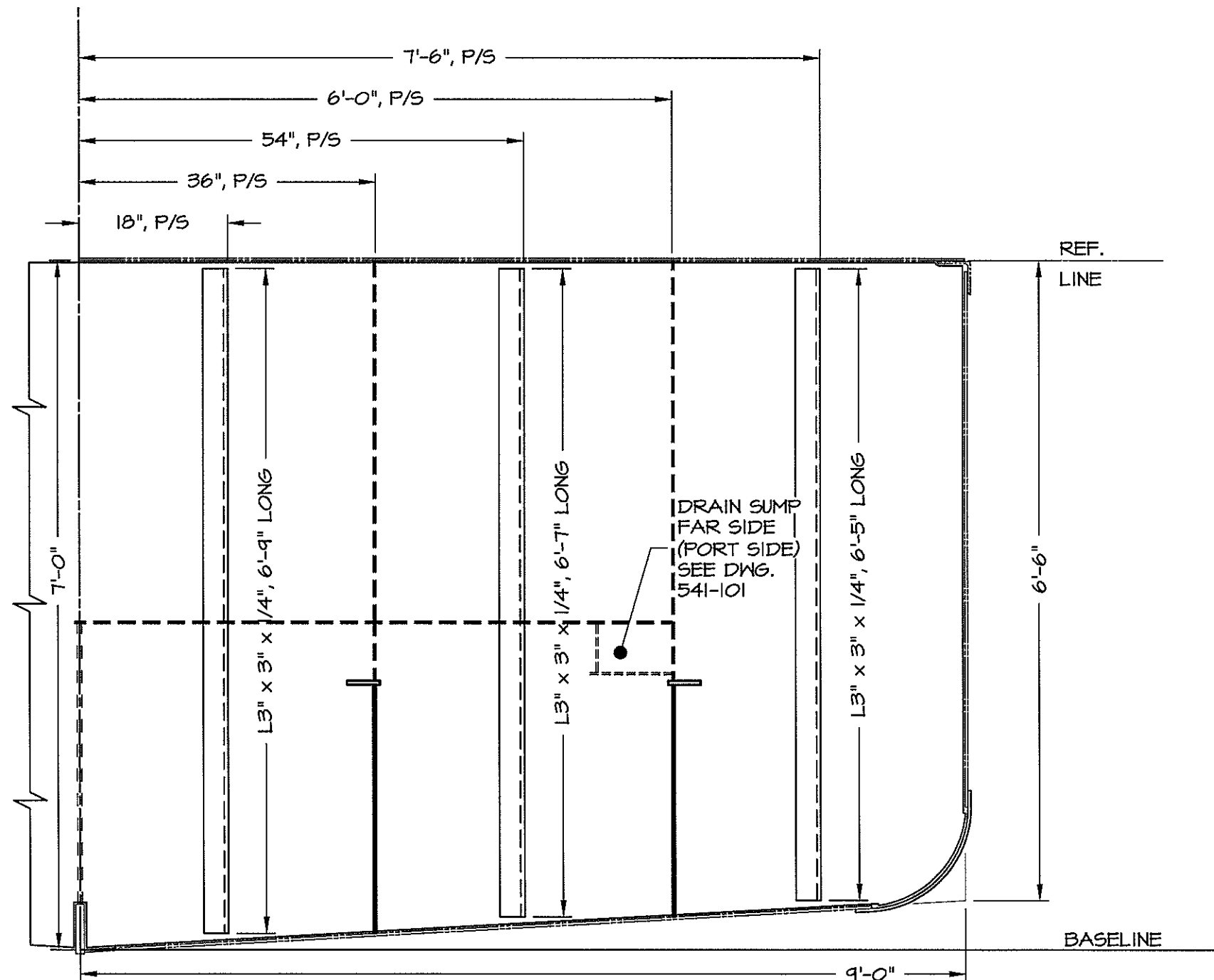
**FRAME 10**  
LOOKING AFT

DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT <b>BRUSSELS FERRY PUSHOAT</b>	Project No. <b>99005</b>
	CLIENT <b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	Scale: <b>AS NOTED</b>
	<b>IDOT JOB D-98-078-99</b>	REV. A Date: <b>4/25/00</b>
	TITLE <b>TRANSVERSE FRAMING BOOKLET</b>	Drawing No. <b>117-101-F10</b>



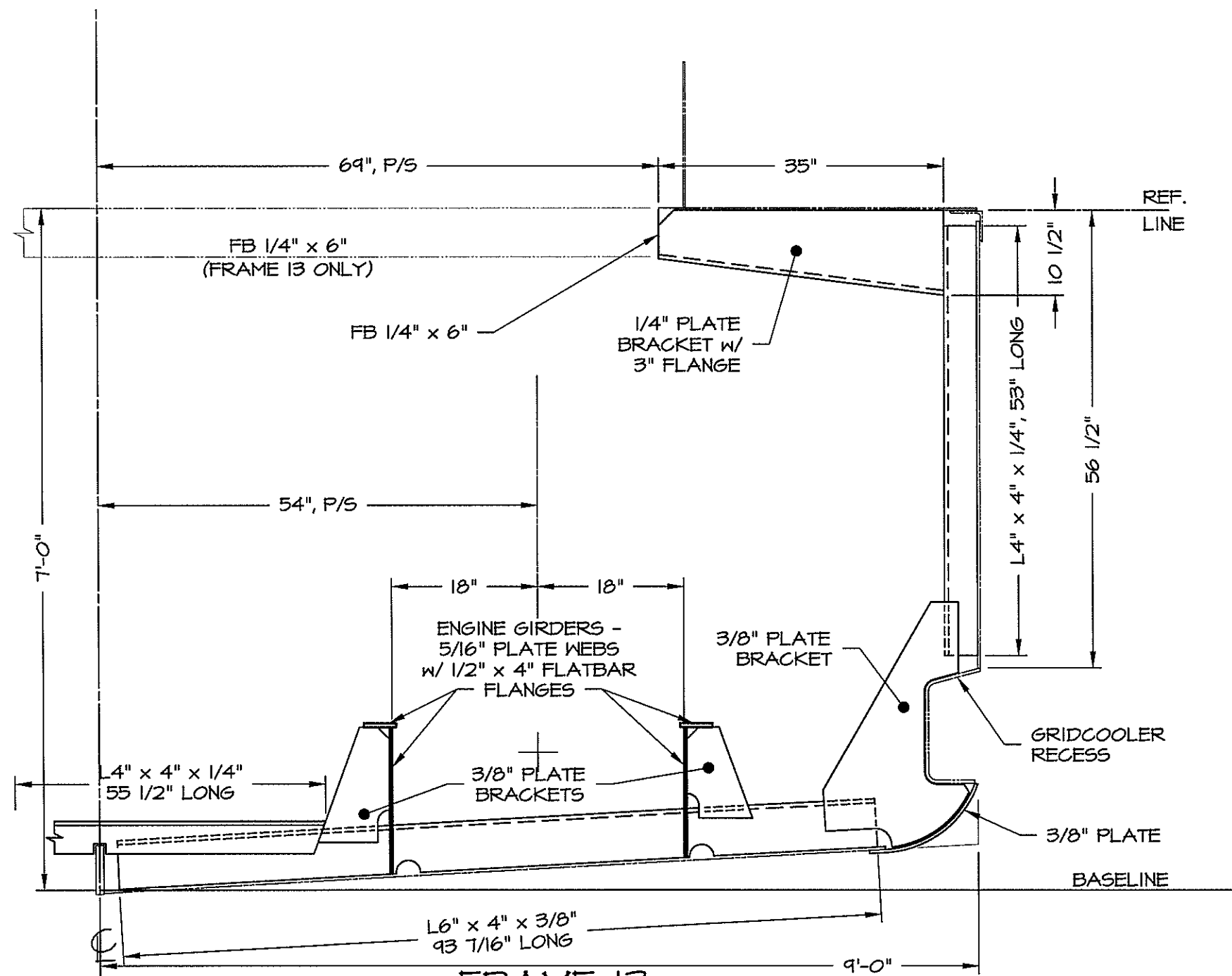
DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
PROJECT	BRUSSELS FERRY PUSHBOAT	Project No. 99005
CLIENT	ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
TITLE	TRANSVERSE FRAMING BOOKLET	Drawing No. 117-101-F11





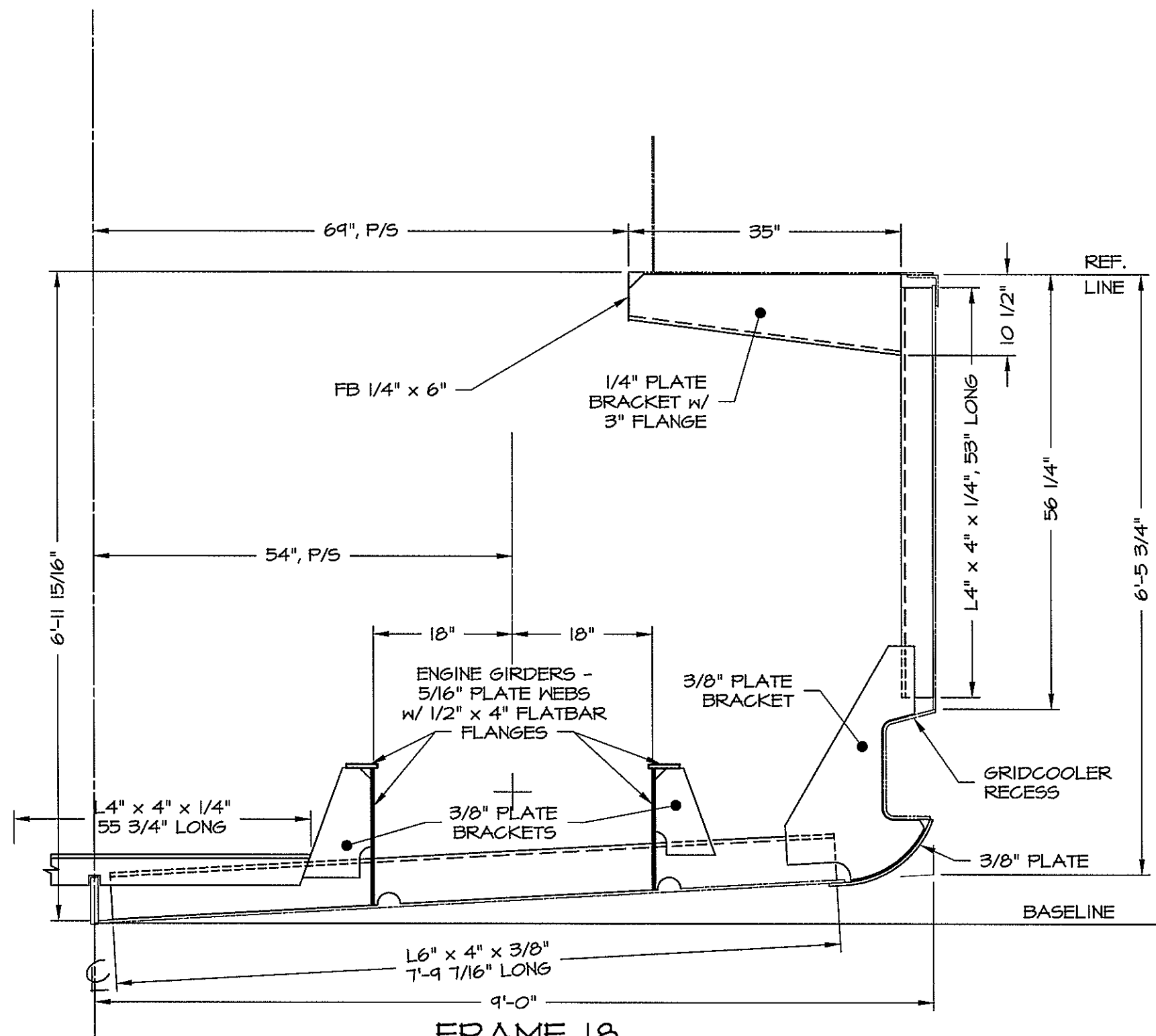
**BULKHEAD 12**  
 BULKHEAD IS 1/4" ASTM-A36 PLATE  
 LOOKING FORWARD

DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHPHAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-102-F12



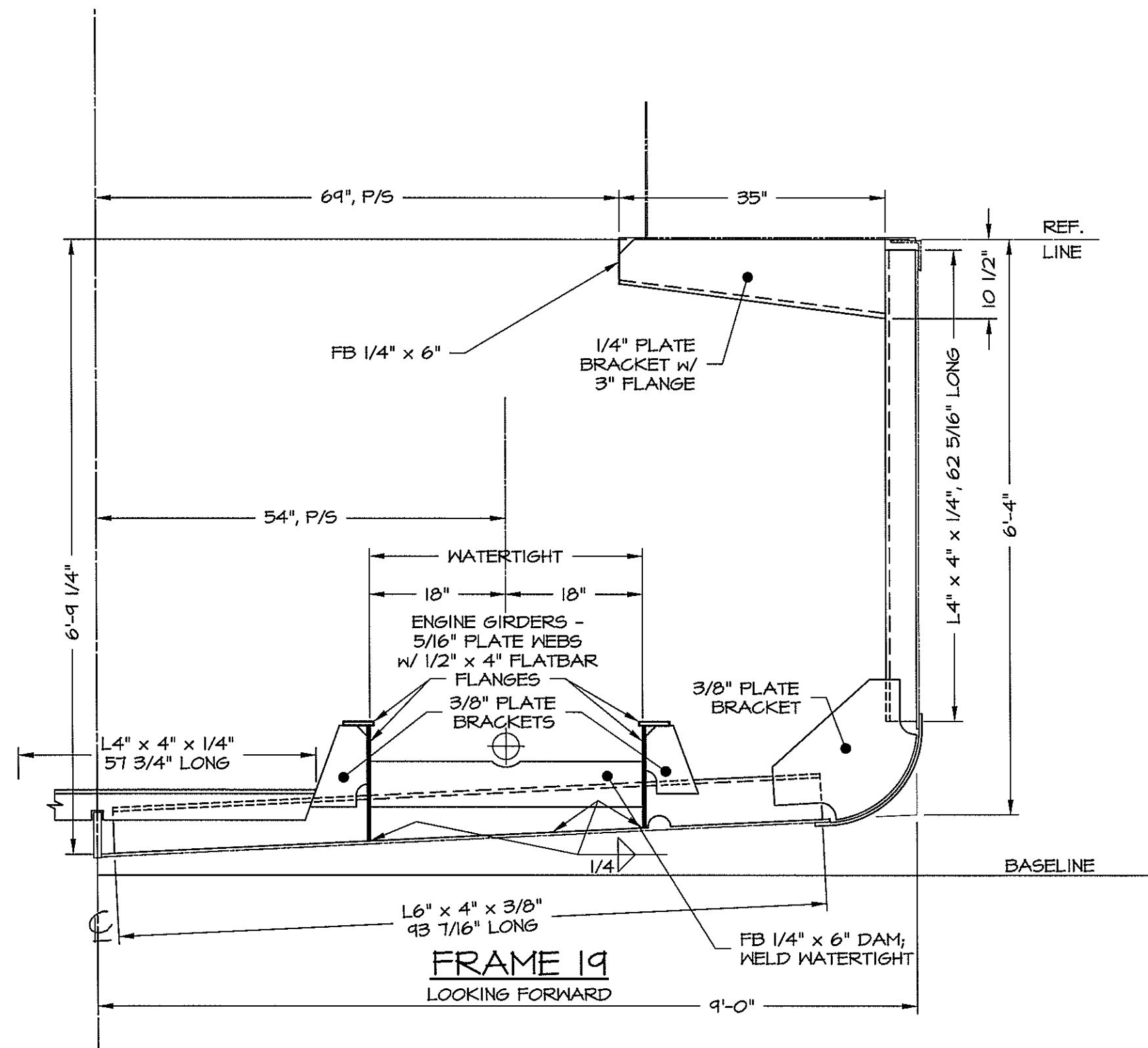
**FRAME 13**  
 FRAMES 14 THROUGH 17 ARE IDENTICAL EXCEPT AS NOTED  
 LOOKING FORWARD

DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY FUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-102-F13

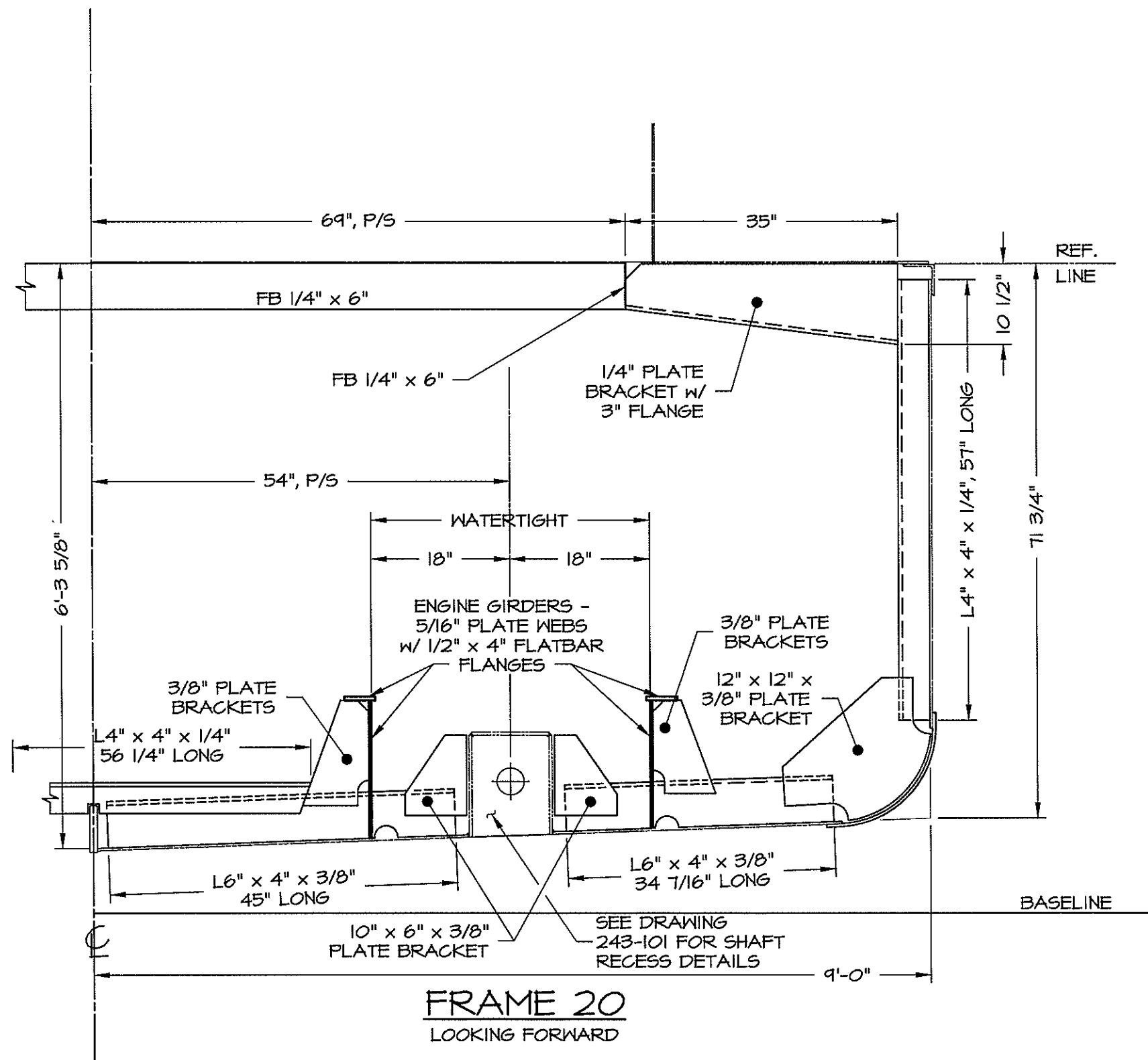


**FRAME 18**  
LOOKING FORWARD

DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT <b>BRUSSELS FERRY PUSHPHAT</b>	Project No. <b>99005</b>
	CLIENT <b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	Scale: <b>AS NOTED</b>
	<b>IDOT JOB D-98-078-99</b>	REV. <b>A</b> Date: <b>4/25/00</b>
	TITLE <b>TRANSVERSE FRAMING BOOKLET</b>	Drawing No. <b>117-102-F18</b>

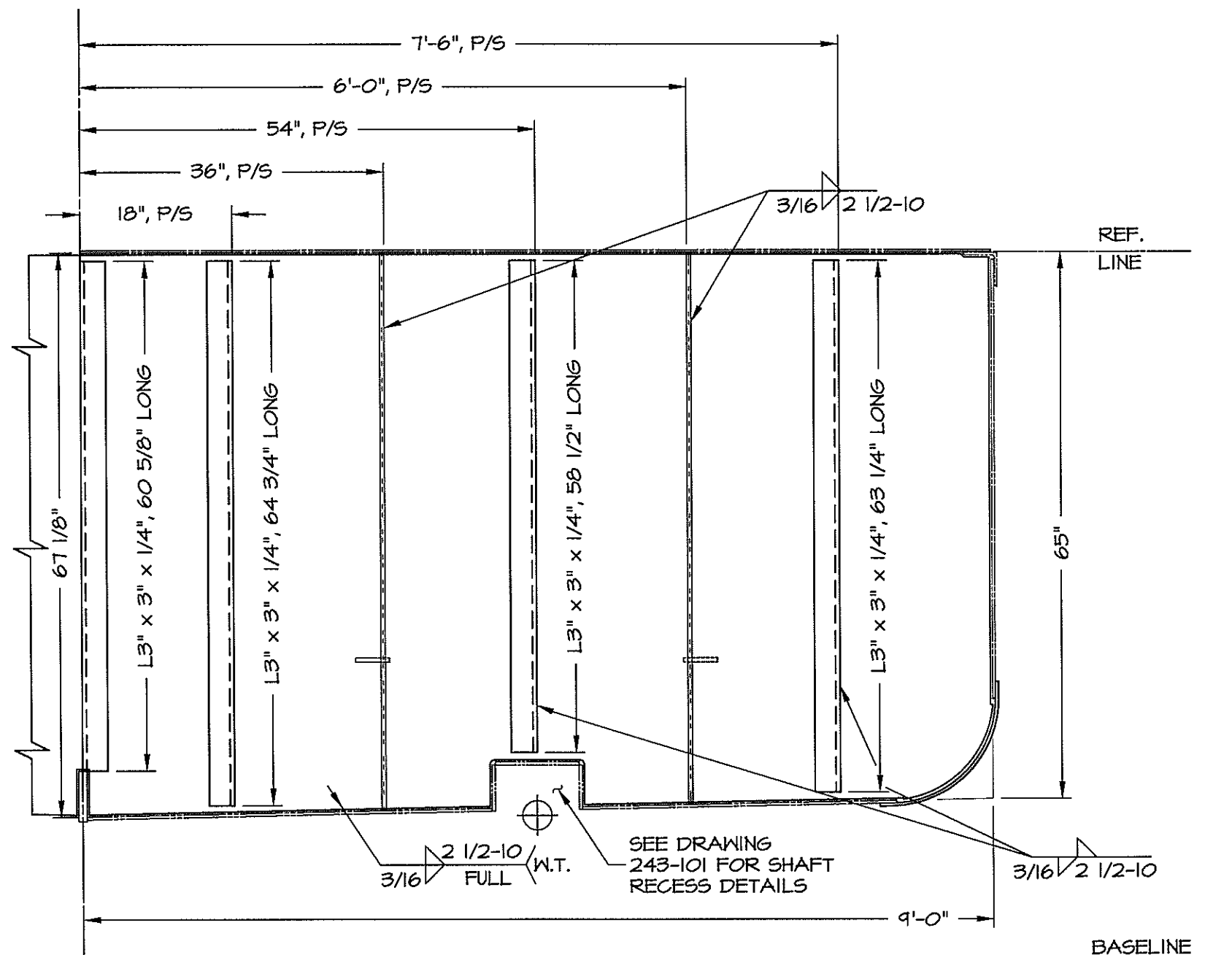


DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY FUSHOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-102-F19



**FRAME 20**  
LOOKING FORWARD

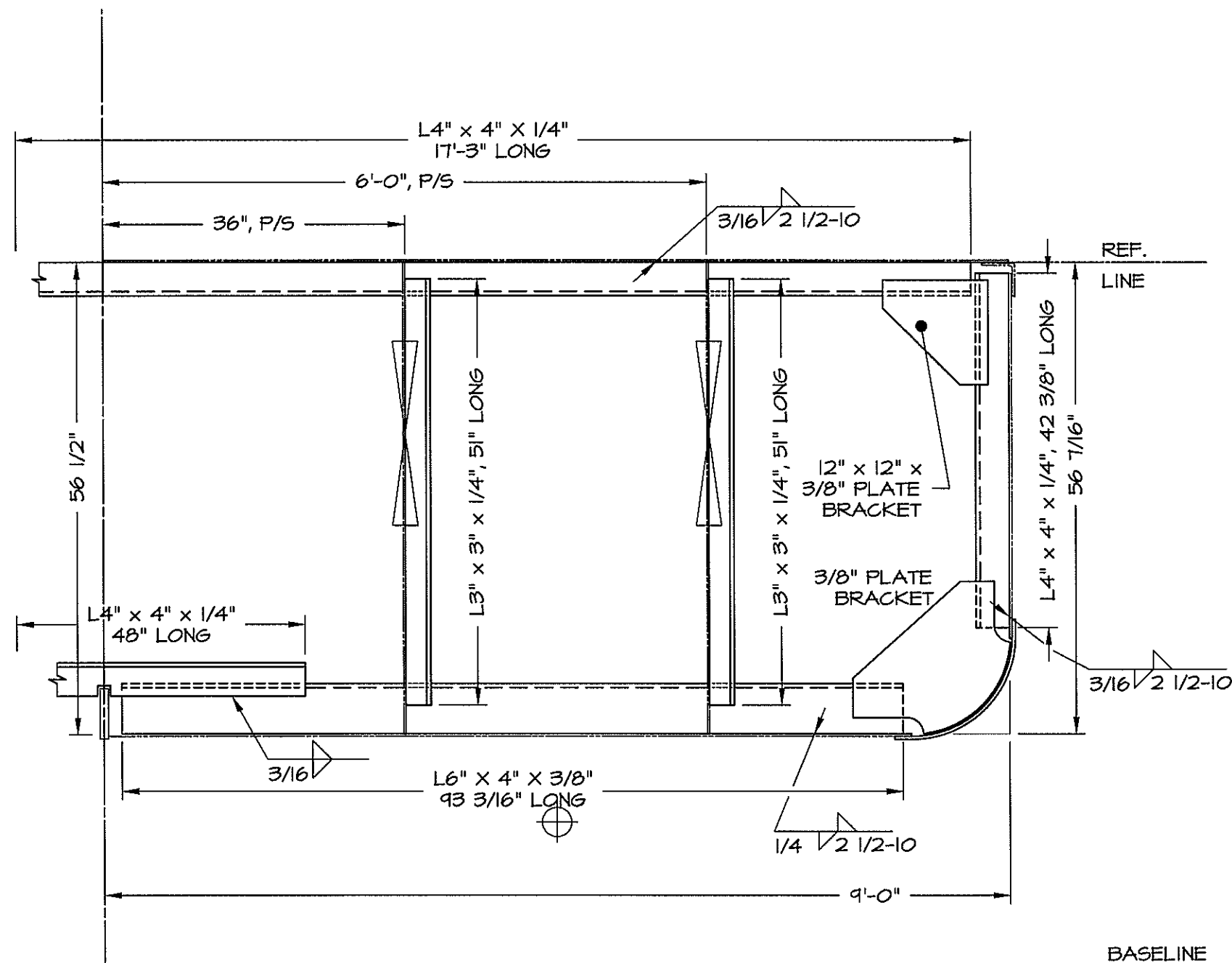
DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT <b>BRUSSELS FERRY PUSHBOAT</b>	Project No. <b>99005</b>
	CLIENT <b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	Scale: <b>AS NOTED</b>
	<b>IDOT JOB D-98-078-99</b>	REV. A Date: <b>4/25/00</b>
	TITLE <b>TRANSVERSE FRAMING BOOKLET</b>	Drawing No. <b>117-102-F20</b>



### BULKHEAD 21

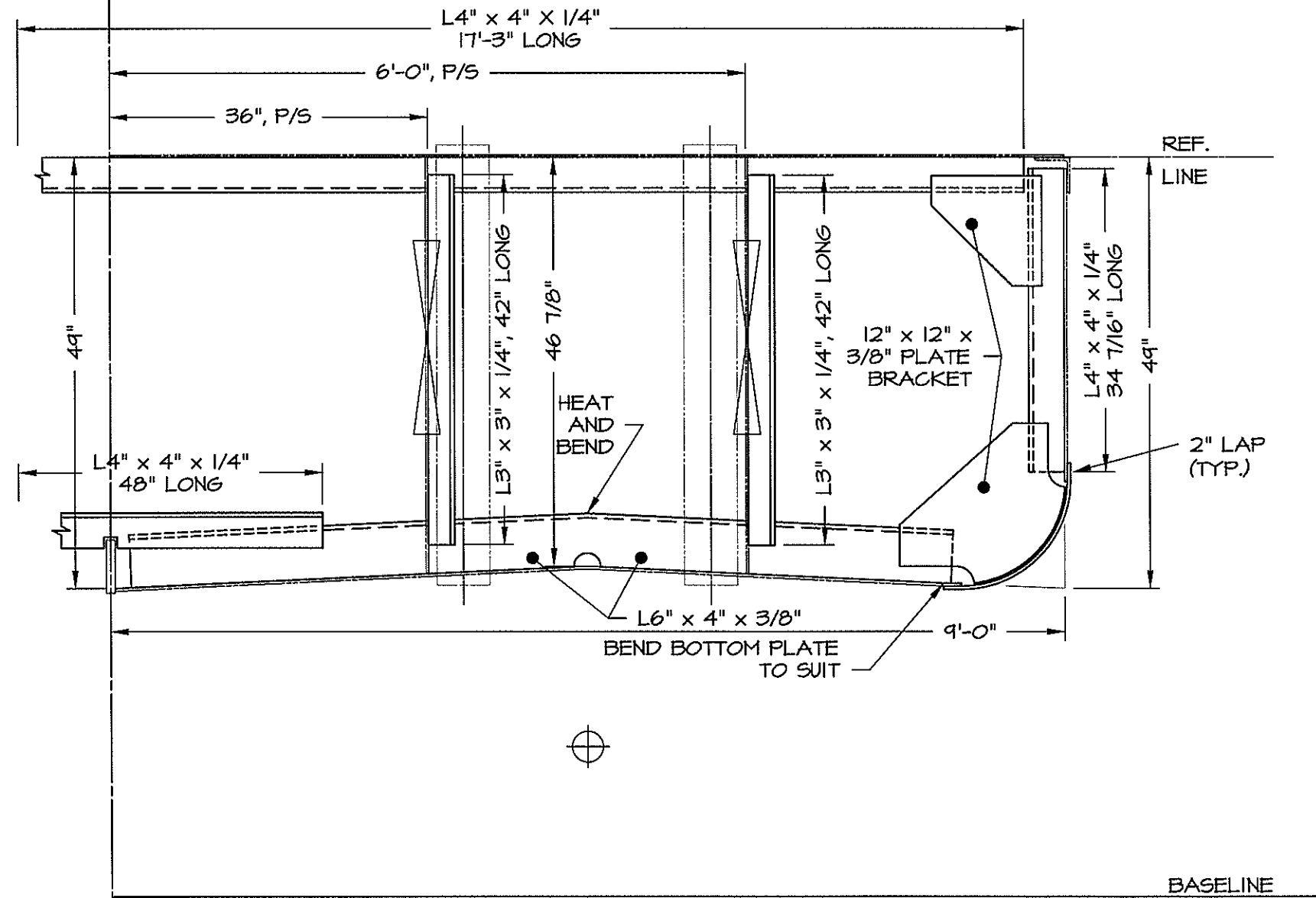
BULKHEAD IS 1/4" ASTM-A36 PLATE  
LOOKING FORWARD

DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-102-F21



**FRAME 22**  
LOOKING FORWARD

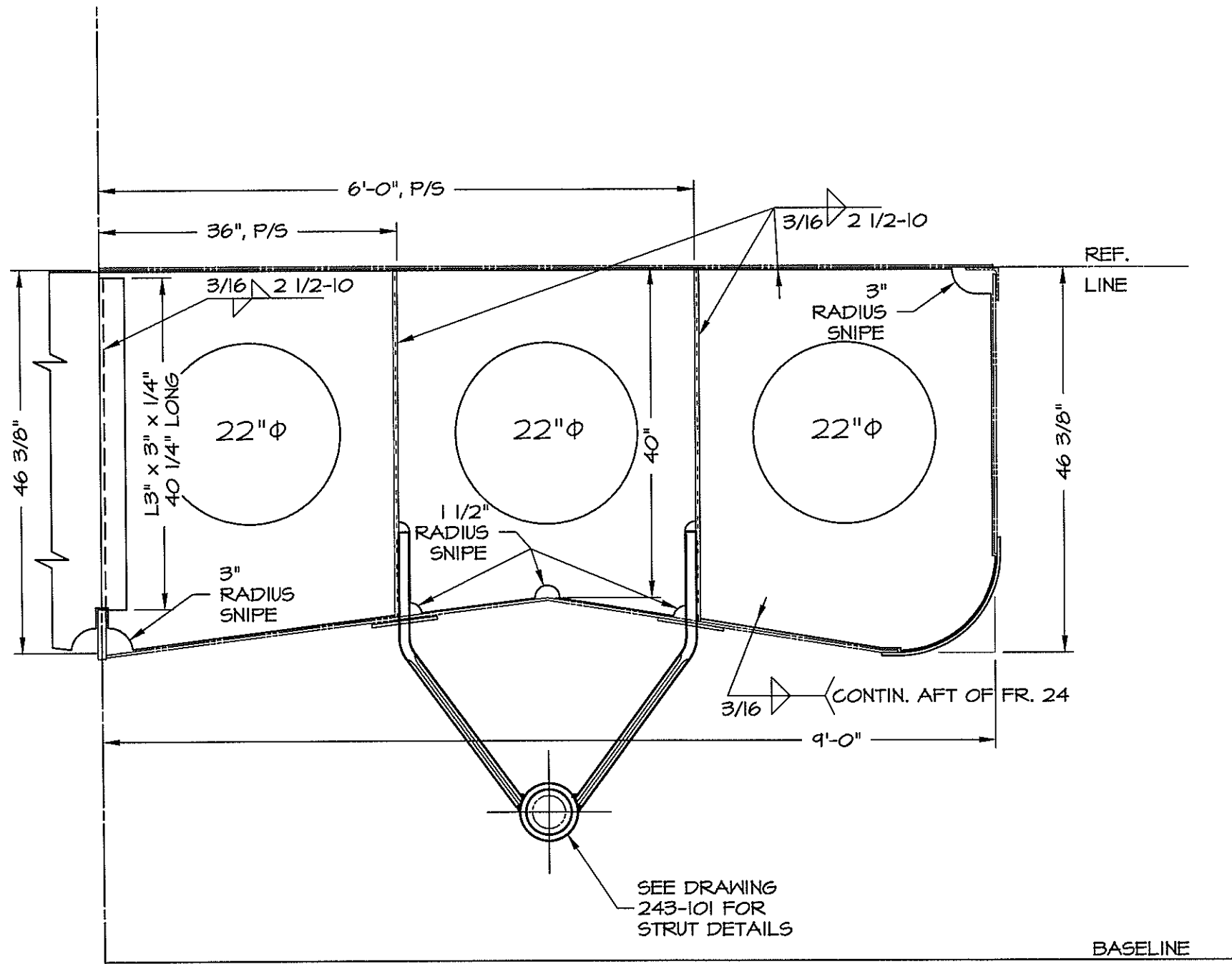
DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT <b>BRUSSELS FERRY PUSHBOAT</b>	Project No. <b>99005</b>
	CLIENT <b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	Scale: <b>AS NOTED</b>
	<b>IDOT JOB D-98-078-99</b>	REV. <b>A</b> Date: <b>4/25/00</b>
	TITLE <b>TRANSVERSE FRAMING BOOKLET</b>	Drawing No. <b>117-102-F22</b>



**FRAME 23**  
LOOKING FORWARD

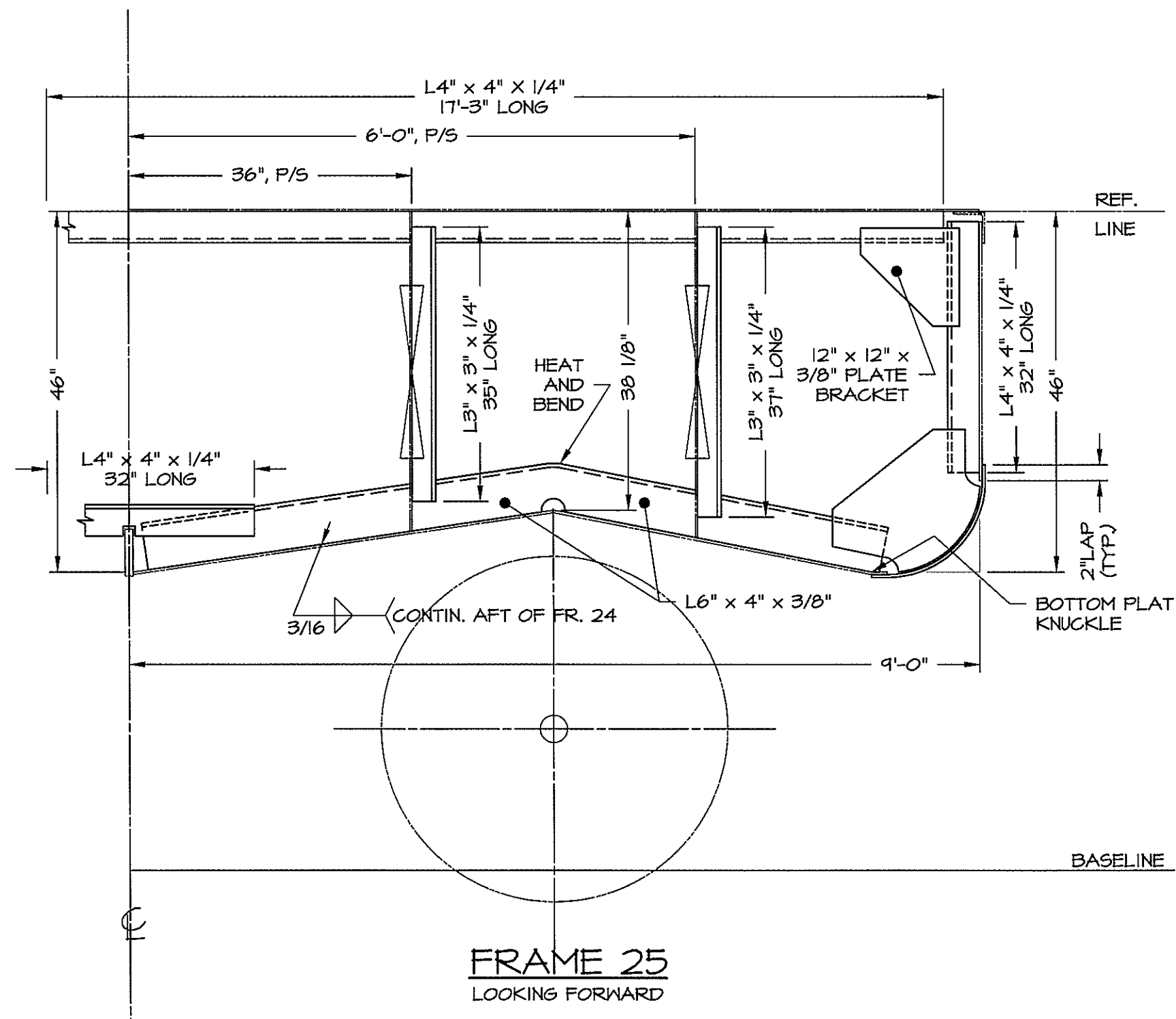
DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-102-F23



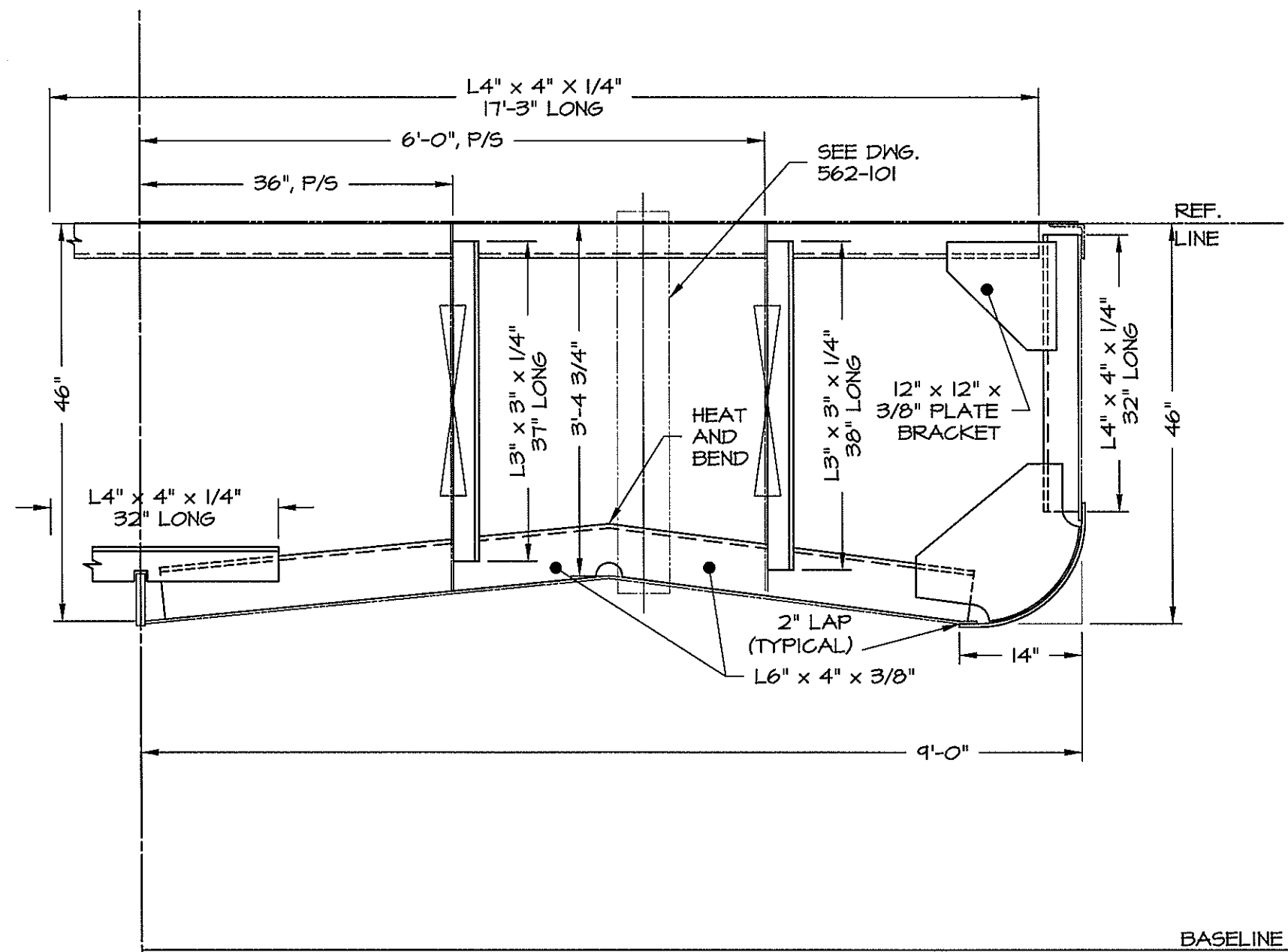


**BULKHEAD 24**  
 BULKHEAD IS 1/4" ASTM-A36 PLATE  
 LOOKING FORWARD

DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-102-F24

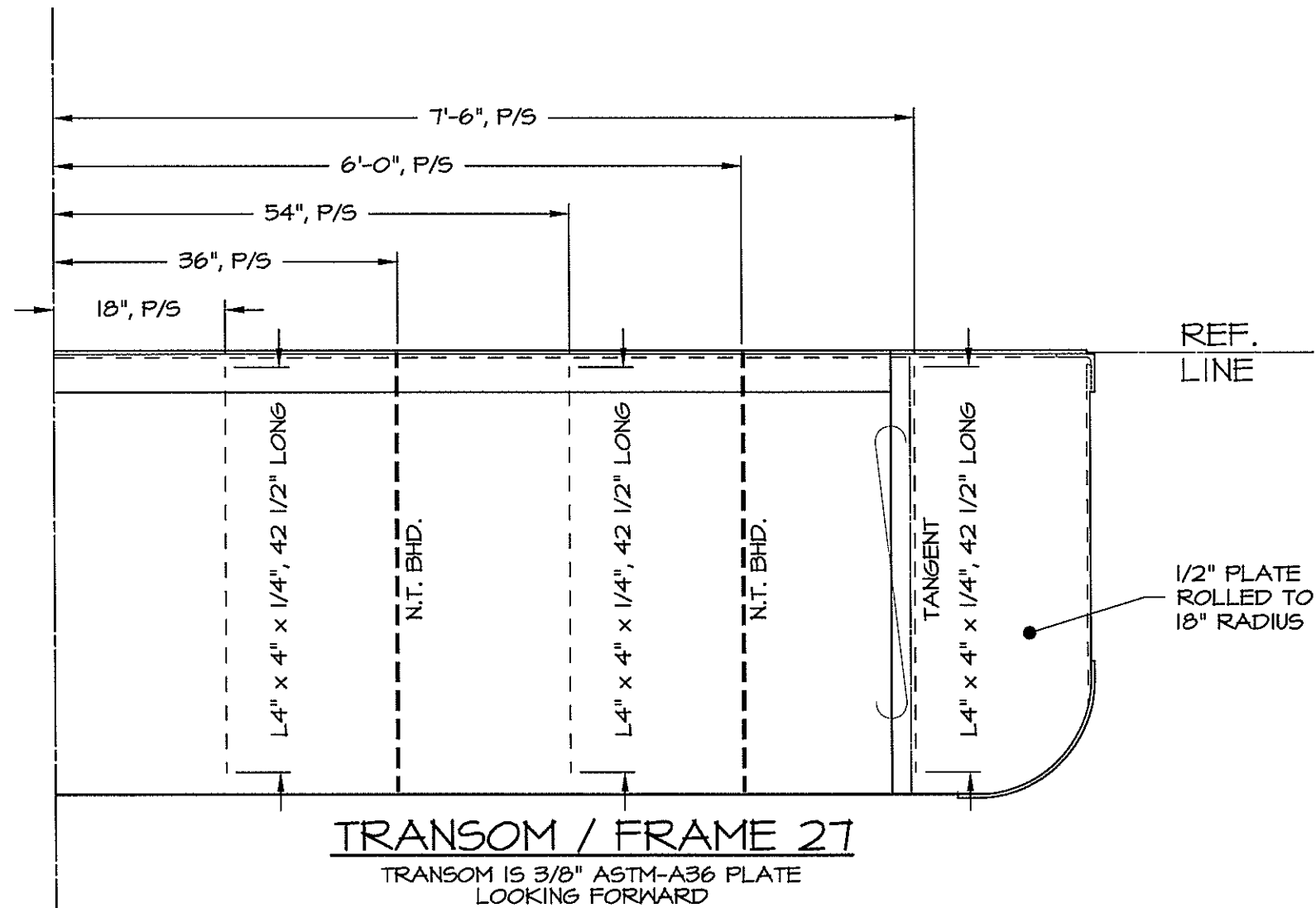


DWN. T.HODGES	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-102-F25



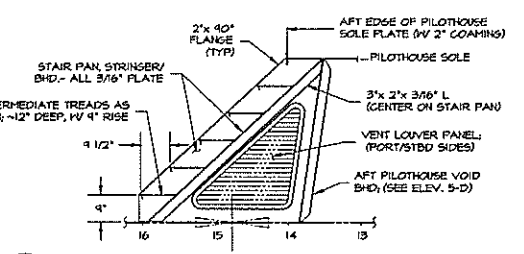
**FRAME 26**  
LOOKING FORWARD

DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT <b>BRUSSELS FERRY PUSHOAT</b>	Project No. <b>99005</b>
	CLIENT <b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	Scale: AS NOTED
	<b>IDOT JOB D-98-078-99</b>	REV. A Date: 4/25/00
	TITLE <b>TRANSVERSE FRAMING BOOKLET</b>	Drawing No. <b>117-102-F26</b>

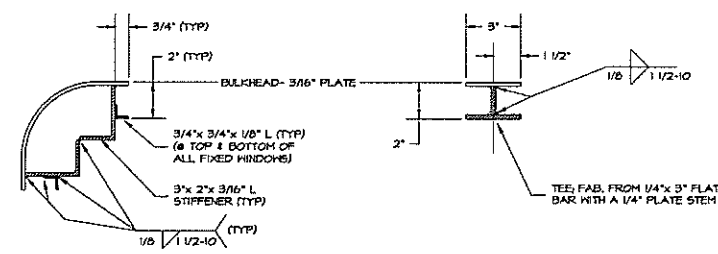


DWN. T.HODGES	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 4/25/00	Sturgeon Bay, WI 54235	
	PROJECT BRUSSELS FERRY PUSHBOAT	Project No. 99005
	CLIENT ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: AS NOTED
	IDOT JOB D-98-078-99	REV. A Date: 4/25/00
	TITLE TRANSVERSE FRAMING BOOKLET	Drawing No. 117-102-F27

REVISIONS			
LN	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	09/20/99	

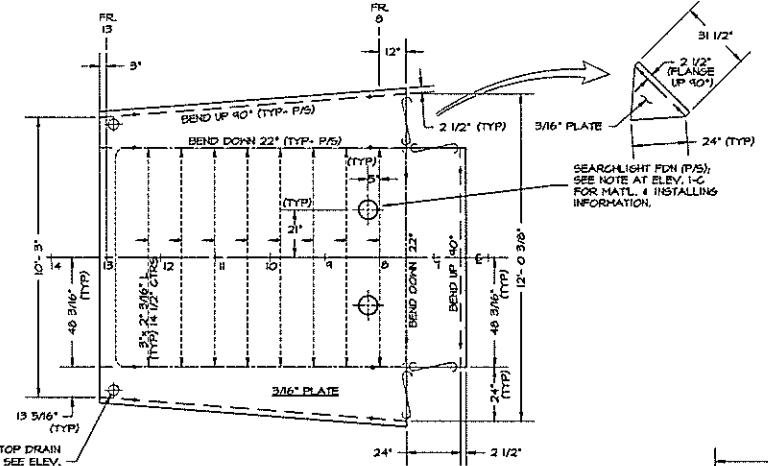


**SECTION 5-E**  
THROUGH ENGINE ROOM VENT  
TRUNK/ PILOTHOUSE STAIRS  
LOOKING TO PORT  
1/2" = 1'-0"



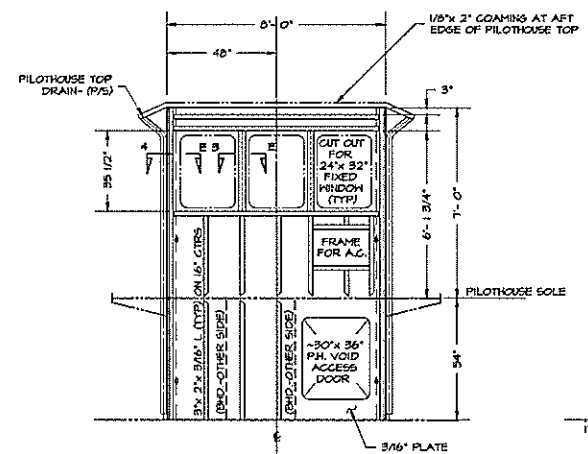
**SECTION 4-E**  
THROUGH AFT PILOTHOUSE CORNER  
IN WAY OF WINDOW CUTOUTS  
3" = 1'-0"

**SECTION 3-E**  
THROUGH AFT PILOTHOUSE  
STRUCTURE BETWEEN WINDOWS  
3" = 1'-0"

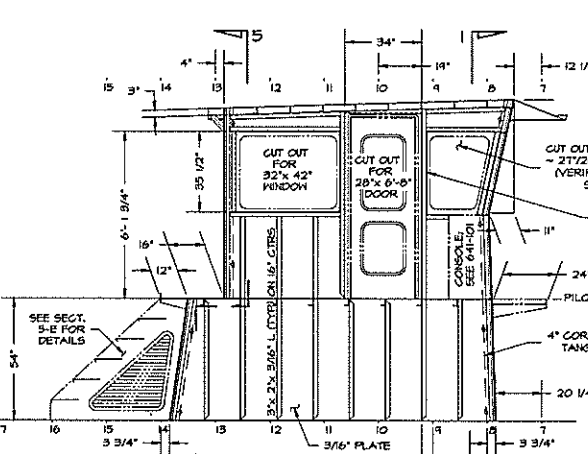


**PILOTHOUSE TOP (EXPANDED)**

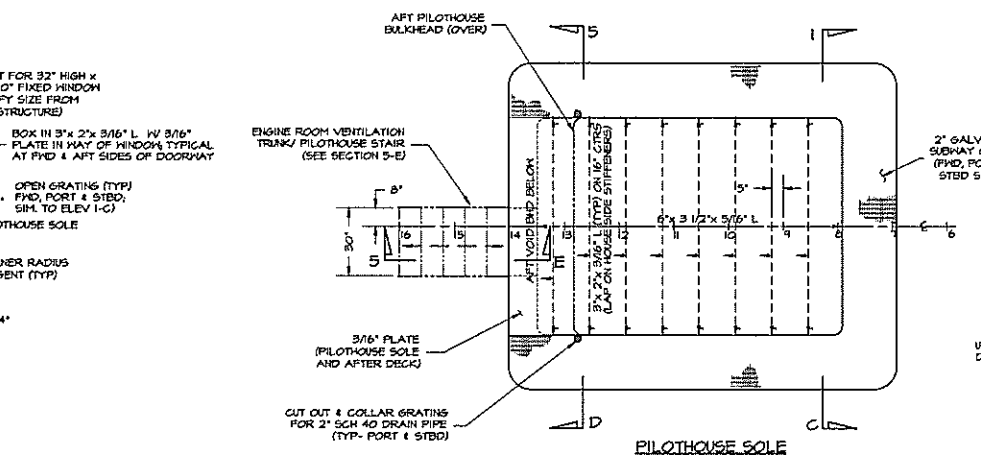
**NOTE**  
ALL STAIR TREADS SHALL HAVE DRAIN HOLES AT BOTH FORWARD CORNERS, TO ALLOW WATER TO DRAIN TO DECK ON STAIR PAN PLATE. INSTALL 'WOODSTOCK' STYLE 300 ALUMINUM/BRASS TREAD OVERLAYS AT ALL STAIR TREADS.



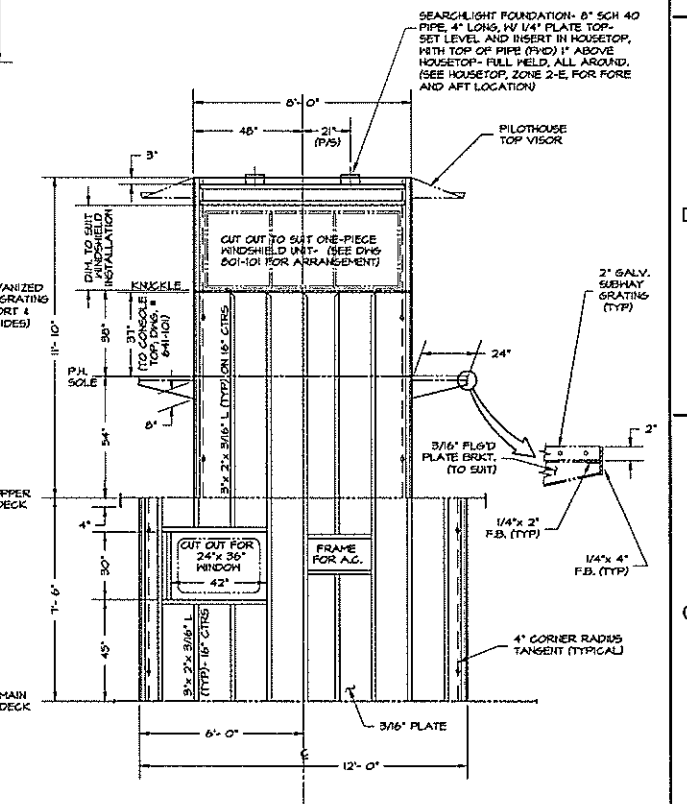
**ELEVATION 5-D**  
PILOTHOUSE / VOID AFT BULKHEAD  
LOOKING AFT  
3/8" = 1'-0"



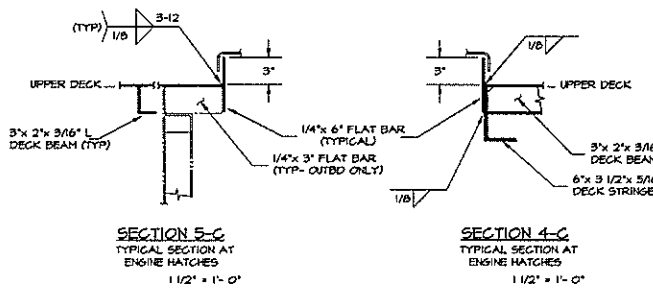
**ELEVATION 4-D**  
PILOTHOUSE- PORT SIDE  
STARBOARD SIDE SIMILAR AND OPPOSITE  
3/8" = 1'-0"



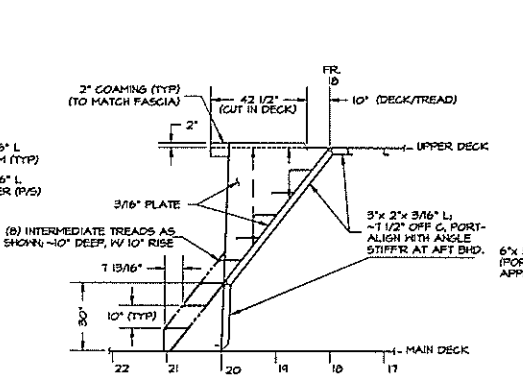
**PILOTHOUSE SOLE**



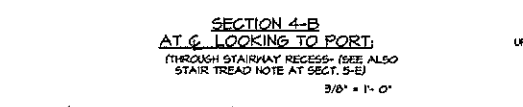
**ELEVATION 1-C**  
PILOTHOUSE MAIN DECKHOUSE FRONT  
LOOKING FORWARD  
3/8" = 1'-0"



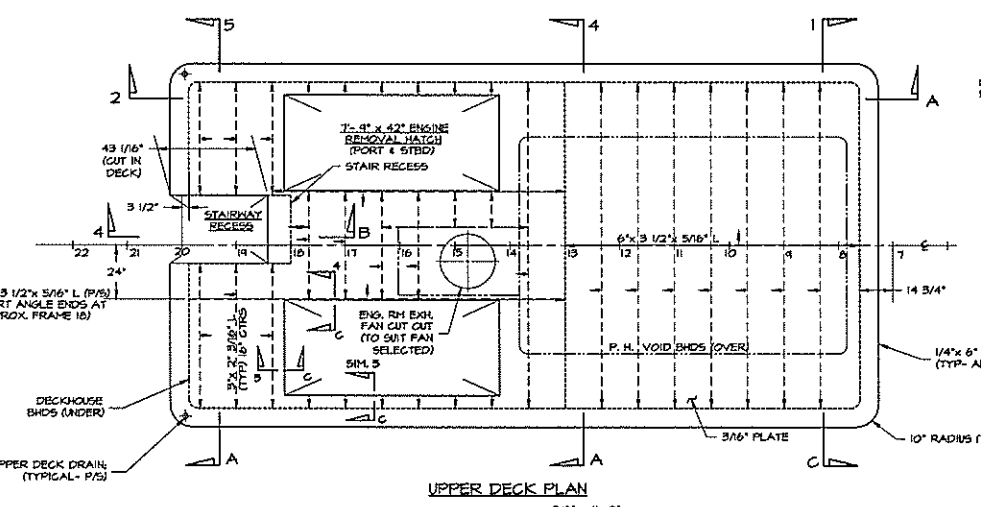
**SECTION 5-C**  
TYPICAL SECTION AT  
ENGINE HATCHES  
1 1/2" = 1'-0"



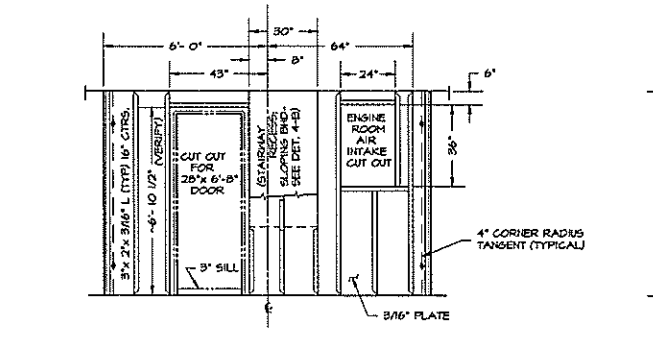
**SECTION 4-C**  
TYPICAL SECTION AT  
ENGINE HATCHES  
1 1/2" = 1'-0"



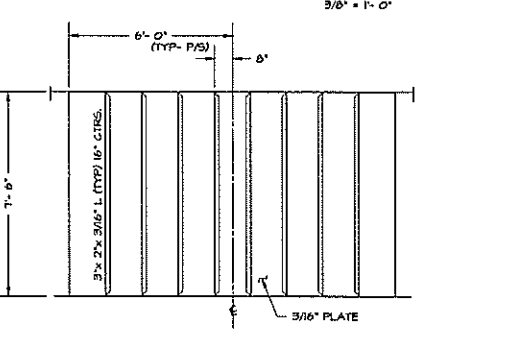
**SECTION 4-B**  
AT C LOOKING TO PORT  
THROUGH STAIRWAY RECESS- (SEE ALSO  
STAIR TREAD NOTE AT SECT. 5-E)  
3/8" = 1'-0"



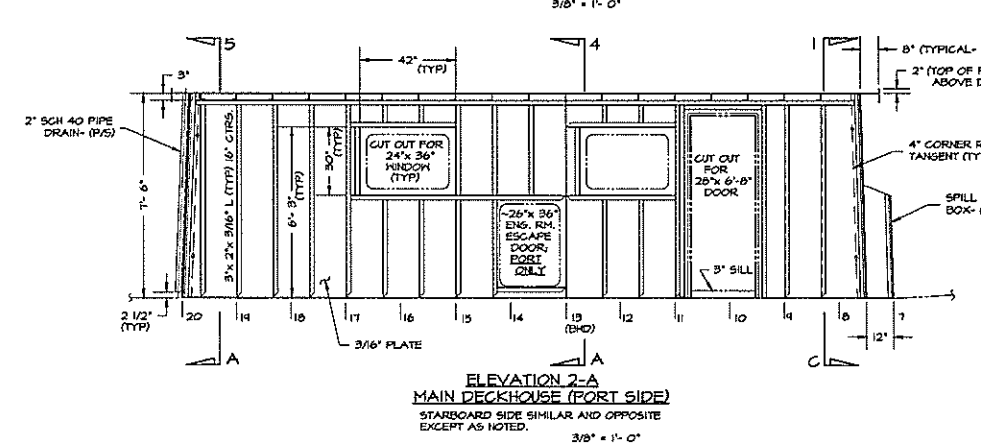
**UPPER DECK PLAN**  
3/8" = 1'-0"



**ELEVATION 5-A**  
MAIN DECKHOUSE- AFT BULKHEAD  
LOOKING AFT  
3/8" = 1'-0"



**ELEVATION 4-A**  
BULKHEAD B  
LOOKING AFT  
3/8" = 1'-0"

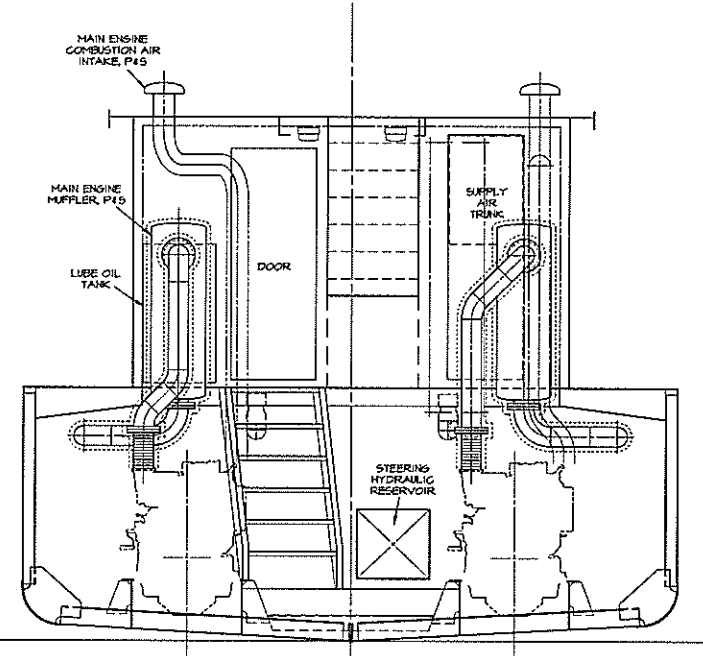
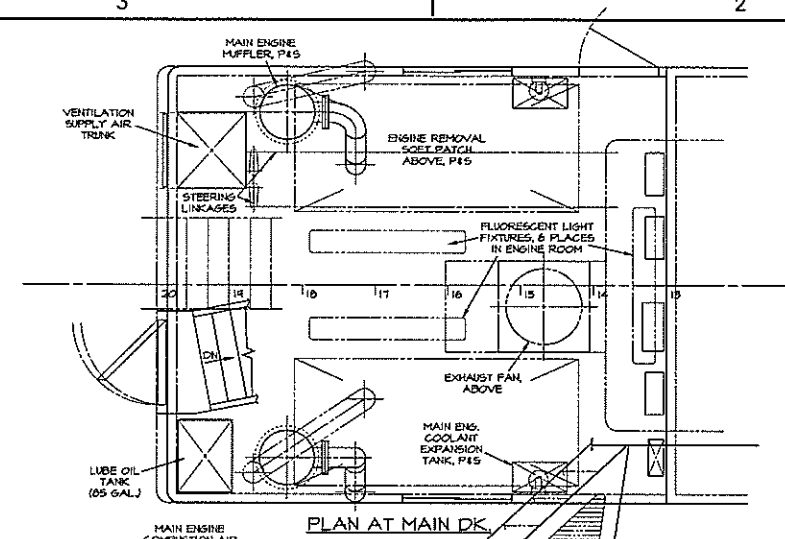


**ELEVATION 2-A**  
MAIN DECKHOUSE (PORT SIDE)  
STARBOARD SIDE SIMILAR AND OPPOSITE  
EXCEPT AS NOTED.  
3/8" = 1'-0"

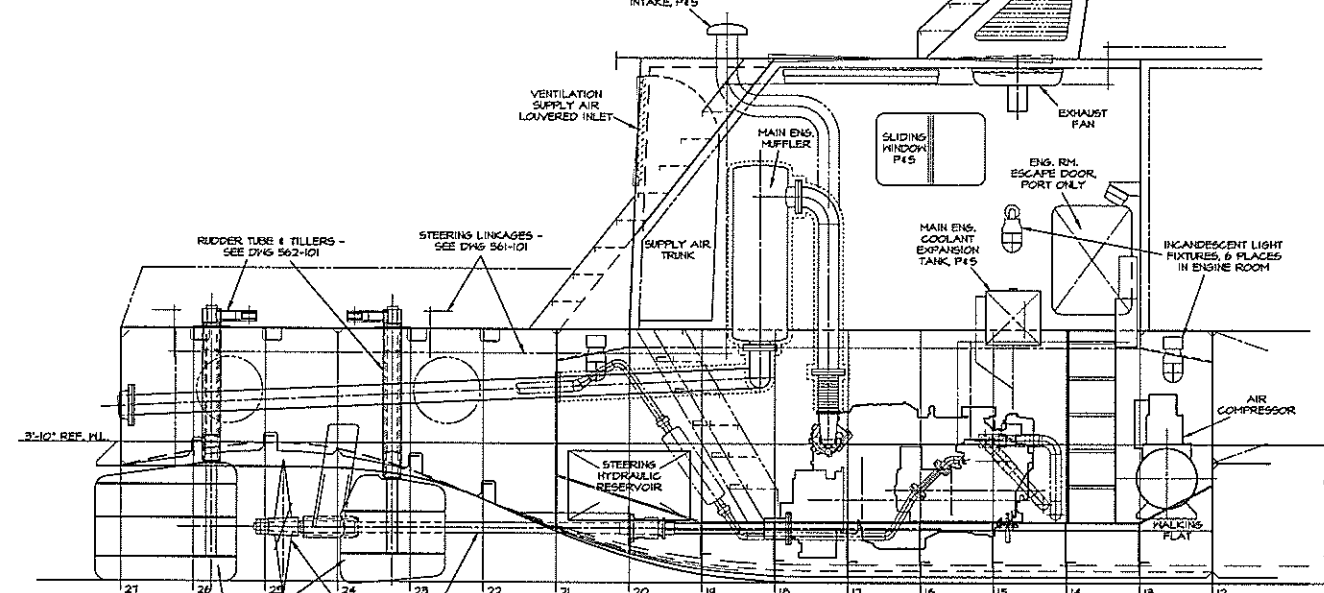
DWN. J.C. Birmingham	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	Project No. 99005
	PROJECT 55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Scale: 3/8" = 1'-0"
	IDOT JOB D-98-078-99	REV. - Date: 04/20/99
	ILLINOIS DEPARTMENT OF TRANSPORTATION	Drawing No. 151-101
	TITLE DECKHOUSE AND PILOTHOUSE CONSTRUCTION	

Proj. 99005 Dwg. 151-101 Rev. - Title DECKHOUSE AND PILOTHOUSE CONSTRUCTION

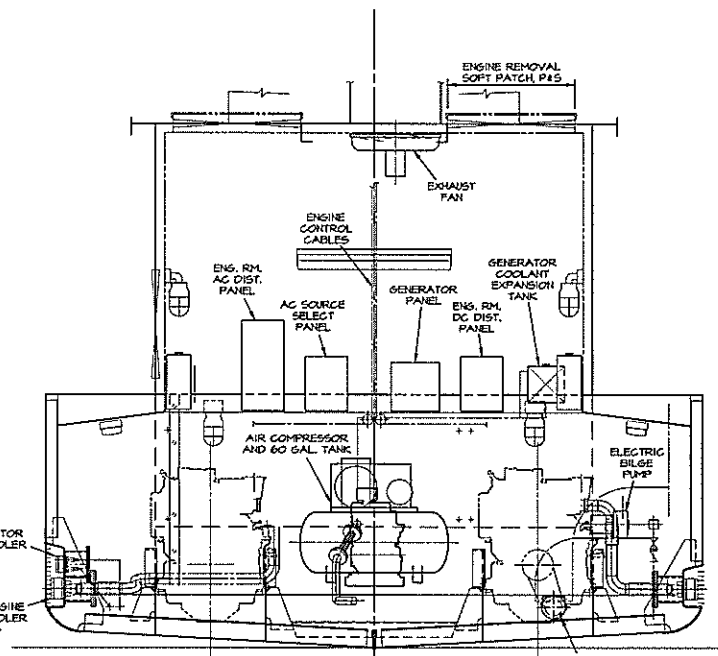
REVISIONS			
LT#	DESCRIPTION	DATE	APPROVED
A	REVISES BILGE FROM CHINE TO ROUND	1/13/00	
B	LOWER ENG. RM. MAKING FLAT 3" BELOW FLANGES	8/1/00	



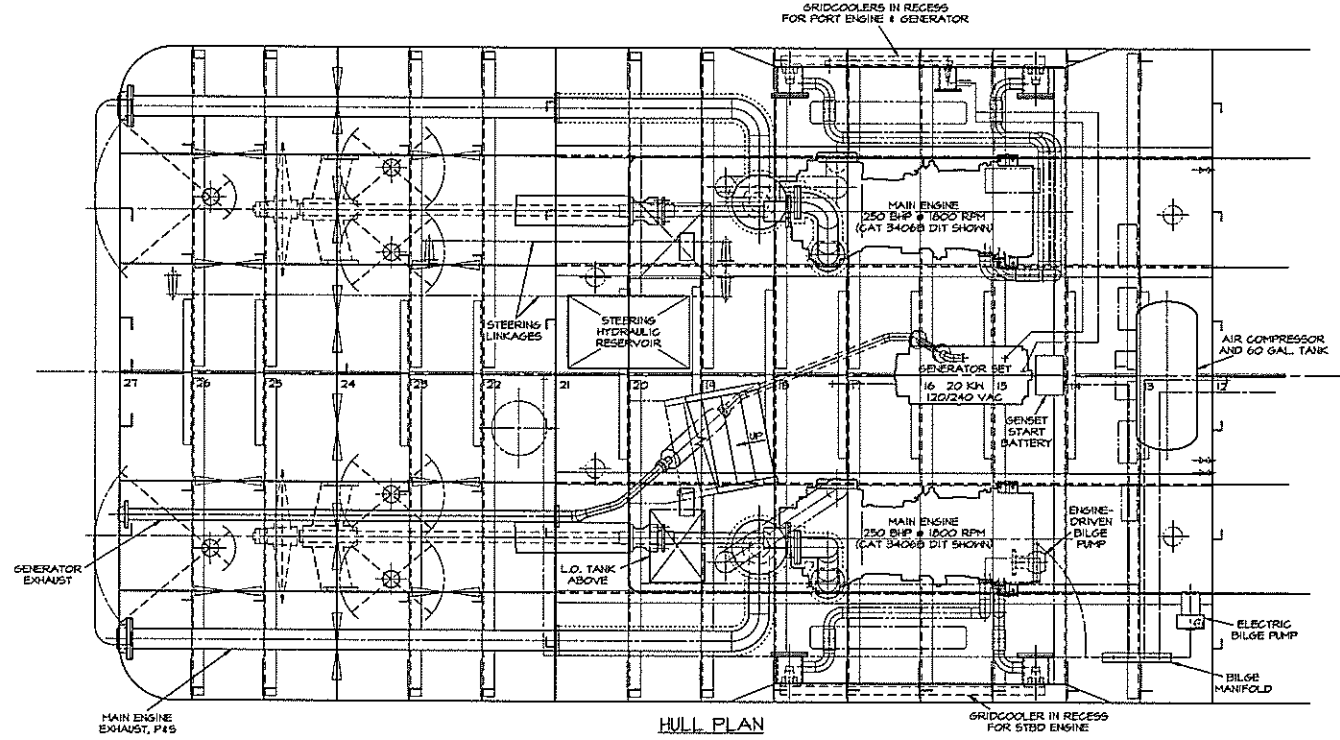
SECTION LOOKING AFT  
FROM FRAME 10 1/2



PORT ELEVATION



SECTION LOOKING FORWARD  
FROM FRAME 15 1/2



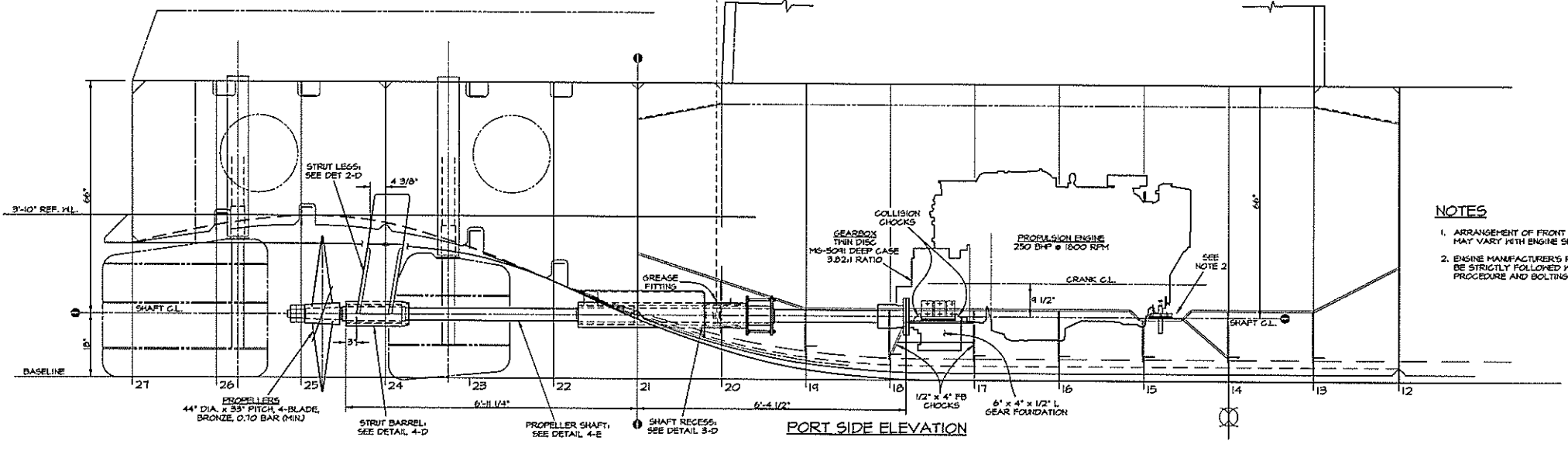
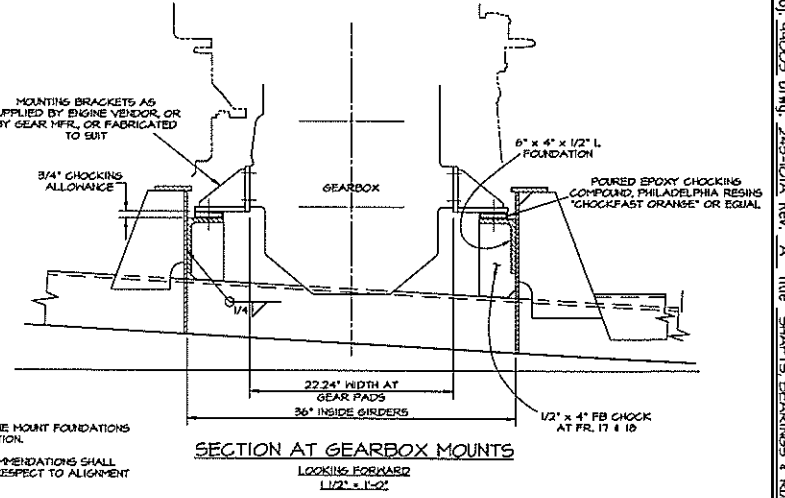
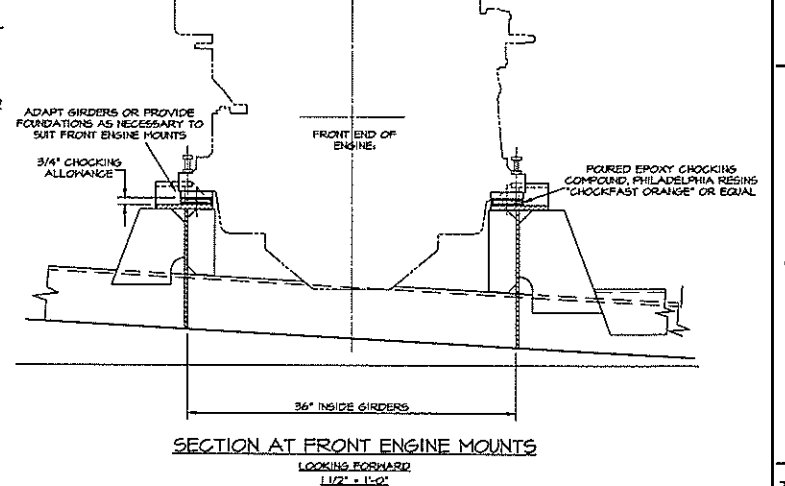
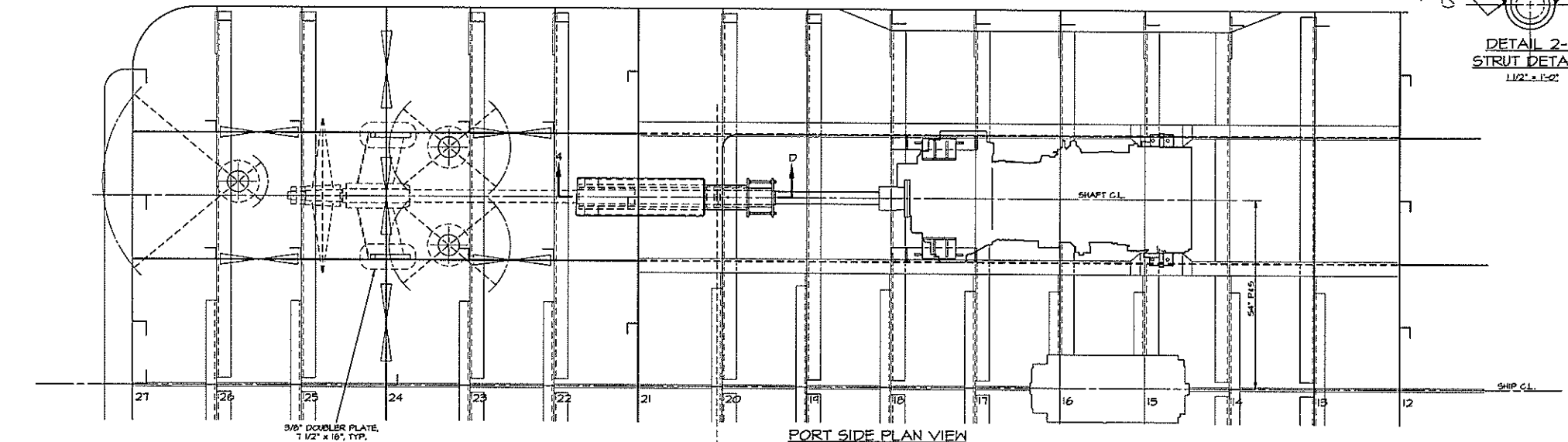
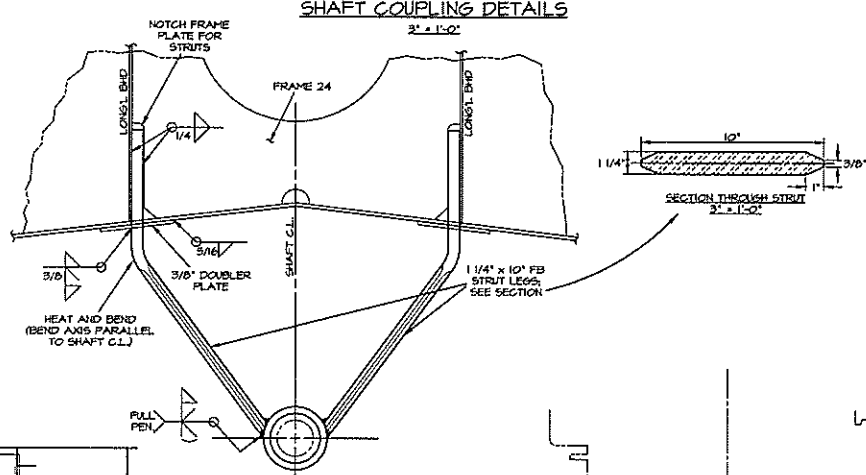
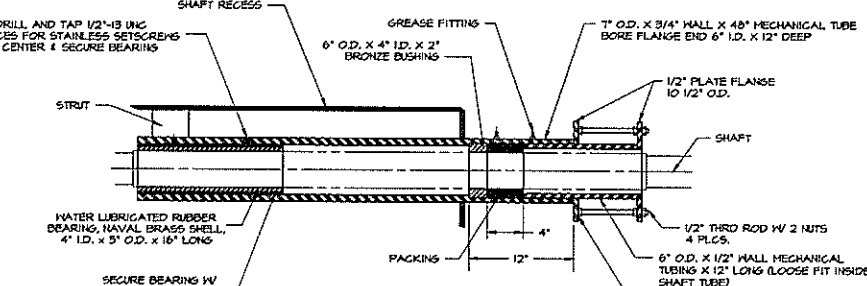
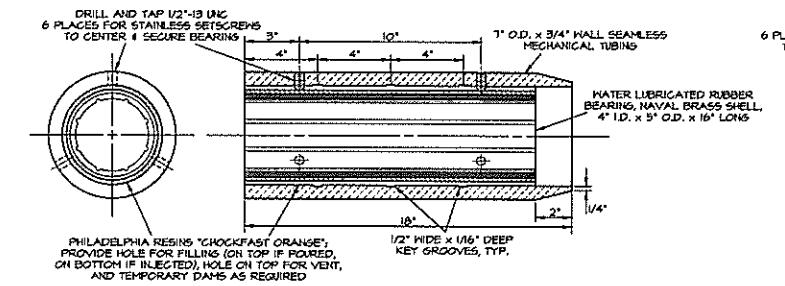
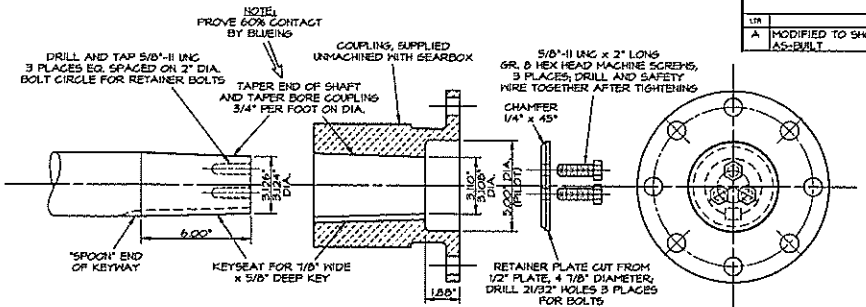
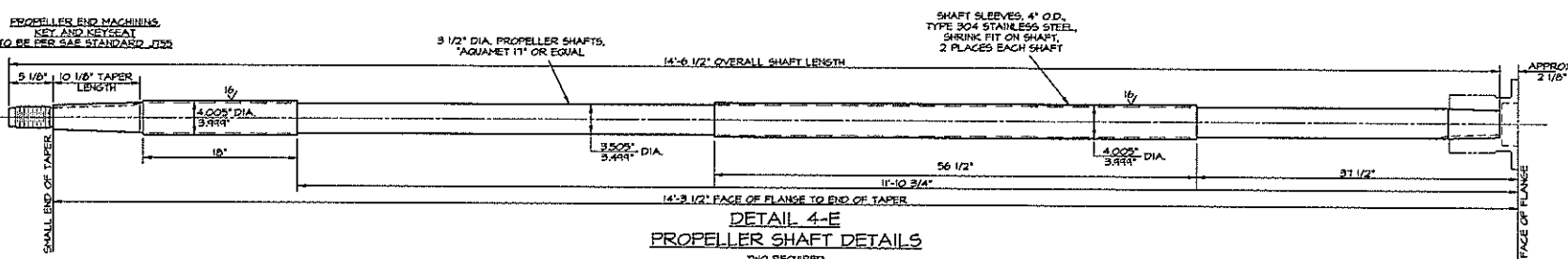
HULL PLAN

NOTES  
1. ARRANGEMENT IS SHOWN WITH CATERPILLAR 3406B DIT MAIN PROPULSION ENGINES. OTHER ENGINES OF EQUIVALENT RATING (SUCH AS CUMMINS HT 655-M) MAY BE SUBSTITUTED.

DWN. MDP	TGMD, Inc. / Timothy Graul marine design	Project No.
APPD.		99005
DATE 20 JULY 1999	naval architects Sturgeon Bay, WI 54235	marine engineers
	PROJECT 55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Scale: 1/2" = 1'-0"
	IDOT JOB D-48-078-99	REV. B Date: 8/1/00
	ILLINOIS DEPARTMENT OF TRANSPORTATION	Drawing No.
	TITLE MACHINERY ARRANGEMENT	233-101

Proj. 99005 Dwg. 233-101 Rev. B Title MACHINERY ARRANGEMENT

REVISIONS		
NO.	DESCRIPTION	DATE
1	MODIFIED TO SHOW ARRANGEMENT AS-BUILT	8/06/01

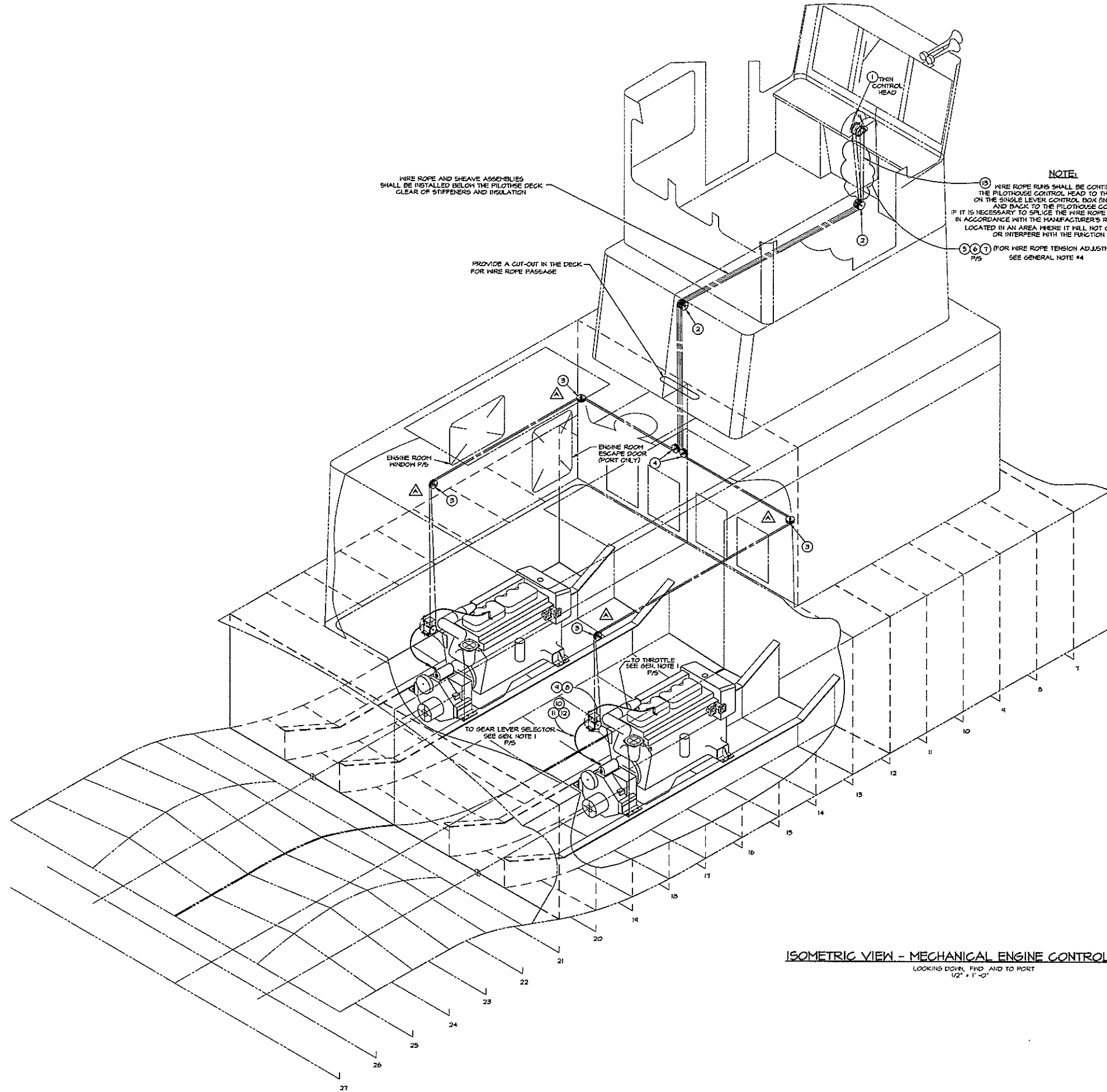


- NOTES**
1. ARRANGEMENT OF FRONT ENGINE MOUNT FOUNDATIONS MAY VARY WITH ENGINE SELECTION.
  2. ENGINE MANUFACTURER'S RECOMMENDATIONS SHALL BE STRICTLY FOLLOWED WITH RESPECT TO ALIGNMENT PROCEDURE AND BOLTING.

DWN. MDP	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects	marine engineers
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Project No. 99005
	ILLINOIS DEPARTMENT OF TRANSPORTATION	Scale: 3/4" = 1'-0"
TITLE	SHAFTS, BEARINGS & RUNNING GEAR	REV. A Date: 8/06/01 Drawing No. 243-101A

Proj. 49005 Dwg. 243-101A Rev. A Title SHAFTS, BEARINGS & RUNNING GEAR

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	9/22/99	
A	INCORPORATE BUILDER'S COMMENTS FROM Q104101 RELOCATING ENGINE CONTROL CABLES TO JUST ABOVE THE WINDOWS & ABOVE THE ESCAPE DOOR TO CLEAR ELECTRICAL BOXES.		01/05/01



**NOTE:**  
 WIRE ROPE RUNS SHALL BE CONTINUOUS FROM THE PILOTHOUSE CONTROL HEAD TO THE POWER SHEAVE ON THE SINGLE LEVER CONTROL BOX (IN THE ENGINE ROOM) AND BACK TO THE PILOTHOUSE CONTROL HEAD. IF IT IS NECESSARY TO SPLICE THE WIRE ROPE RUN, IT SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND LOCATED IN AN AREA WHERE IT WILL NOT CAUSE BODILY HARM OR INTERFERE WITH THE FUNCTION OF THE RUN.  
 (3, 6, 7) (FOR WIRE ROPE TENSION ADJUSTMENT) SEE GENERAL NOTE #4

**GENERAL NOTES:**

- FIG. NOS. 8, 9, 10, 11 & 12 SHALL BE MOUNTED OFF THE MAIN ENGINE OR GEAR BOX ON A SEPARATE FOUNDATION TO SUIT THE EQUIPMENT AND PROVIDE THE BEST LOCATION TO INSURE A SMOOTH MOVEMENT OF LEVERS AND LINKAGE TO GEARS AND THROTTLE.
- PROVIDE SUPPORTS FOR SHEAVE ASSEMBLIES AND SINGLE LEVER CONTROL BOXES. THE SHEAVE ABOVE THE SINGLE LEVER CONTROL BOX MAY BE MOUNTED ON A SEPARATE BRACKET FOUNDATION OFF THE ENGINE OR OFF THE CONTROL BOX FOUNDATION.
- SUPPORT SHEAVES FROM CLOSEST STRUCTURE CLEAR OF STIFFENERS AND INSULATION. KEEP WIRE ROPE RUNS CLEAR OF ENGINE REMOVAL HATCH, WORKING AREA AND WALKING AREAS.
- TENSION CABLES TO ELIMINATE SLACK (INSIDE PILOTHOUSE CONSOLE). GOTTER ALL TURNBUCKLES AND BE SURE SYSTEM OPERATES SMOOTHLY AND WITHOUT INTERFERENCE.
- FOR MAINTENANCE PURPOSE, STAINLESS STEEL FASTENERS SHOULD BE USED FOR THE INSTALLATION OF THE CONTROL SYSTEM EQUIPMENT.
- ALL FOUNDATIONS AND BRACKETS SHALL BE ADEQUATE TO SUPPORT THE EQUIPMENT'S FUNCTION AND BUILT IN ACCORDANCE TO THE SHIPYARD'S STANDARD PRACTICES AND DETAILS.
- PROVIDE ONE SPARE INTERNAL CABLE OF EACH LENGTH FOR THROTTLE AND SHIFT ACTUATORS.

NOTE: MATERIAL DESCRIPTIONS ARE TAKEN FROM KOBELT MANUFACTURING COMPANY LIMITED. FOR EQUAL PARTS AND PIECES MAY BE USED.

SEE GENERAL NOTE #1

ITEM	QUAN.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
15	-	-	-
14	-	-	-
13	16	WIRE ROPE 1/8" - 7 X 19 (APPROX 60 L/F)	STSLS KOBELT #2331-0004 OR EQ.
12	2	BELL CRANK (2) 204-02-B + SHAFT	KOBELT #2346-C
11	2	SLACKROD FOR 2350 (FULL TYPE)	KOBELT #2350-A
10	4	LEVER, 5" L.G., 6 HOLE, 5/8" BORE	KOBELT #2104-0001-B
9	2	#306 SHEAVE, 5 1/4", UNBORED	KOBELT #2303-0003
8	2	SINGLE LEVER CONTROL BOX	KOBELT # 2310
7	4	FERRULES, 1/8"	COPPER KOBELT #2351-0004 OR EQ.
6	4	THIMBLE, 3/32" TO 1/8"	KOBELT #2352-0004 OR EQ.
5	2	TURNBUCKLE, 4 1/4"	KOBELT #2353-0004 OR EQ.
4	2	SHEAVE ASSY., FACE MNT, 2 SH	BRONZE KOBELT # 2340-2000
3	4	SHEAVE ASSEMBLY, UPRIGHT, 2 SH	BRONZE KOBELT # 2344-2000
2	2	SHEAVE ASSEMBLY, UPRIGHT, 4 SH	BRONZE KOBELT # 2344-4000
1	1	K/P CONTROL 15-IL HANDL, DT, FR	VARIES KOBELT # 2212-B0K

**ISOMETRIC VIEW - MECHANICAL ENGINE CONTROL SYSTEM**

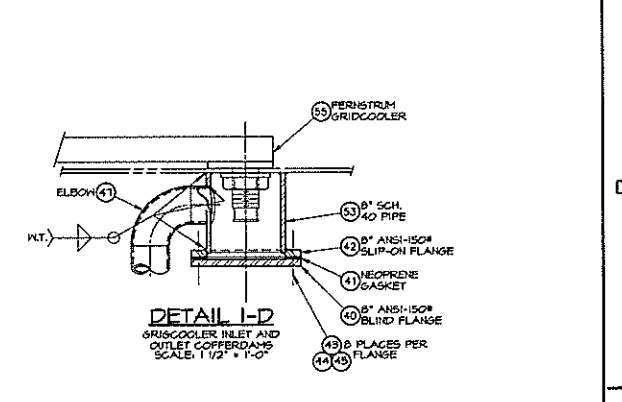
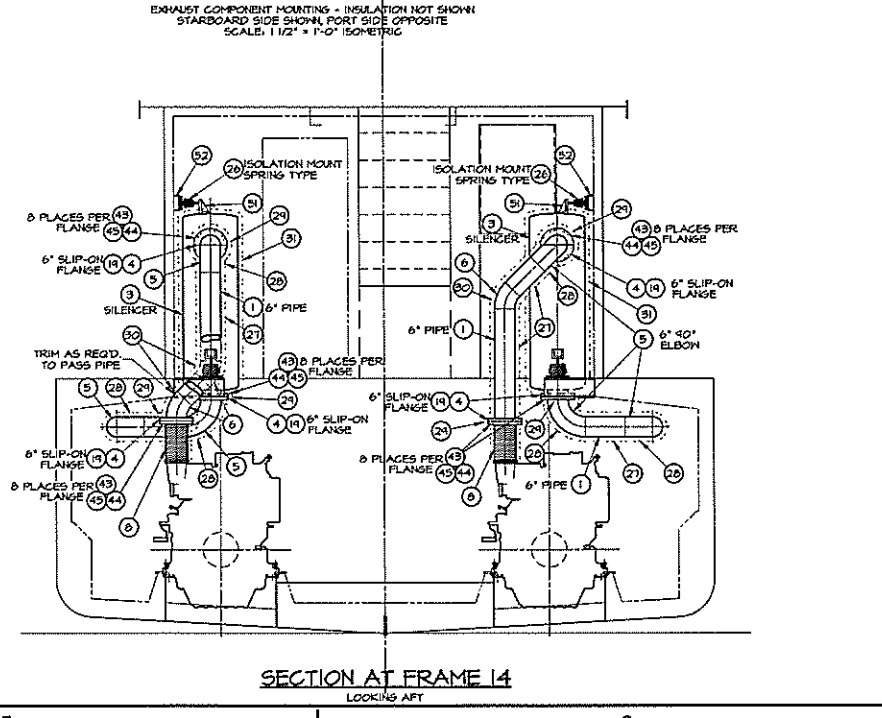
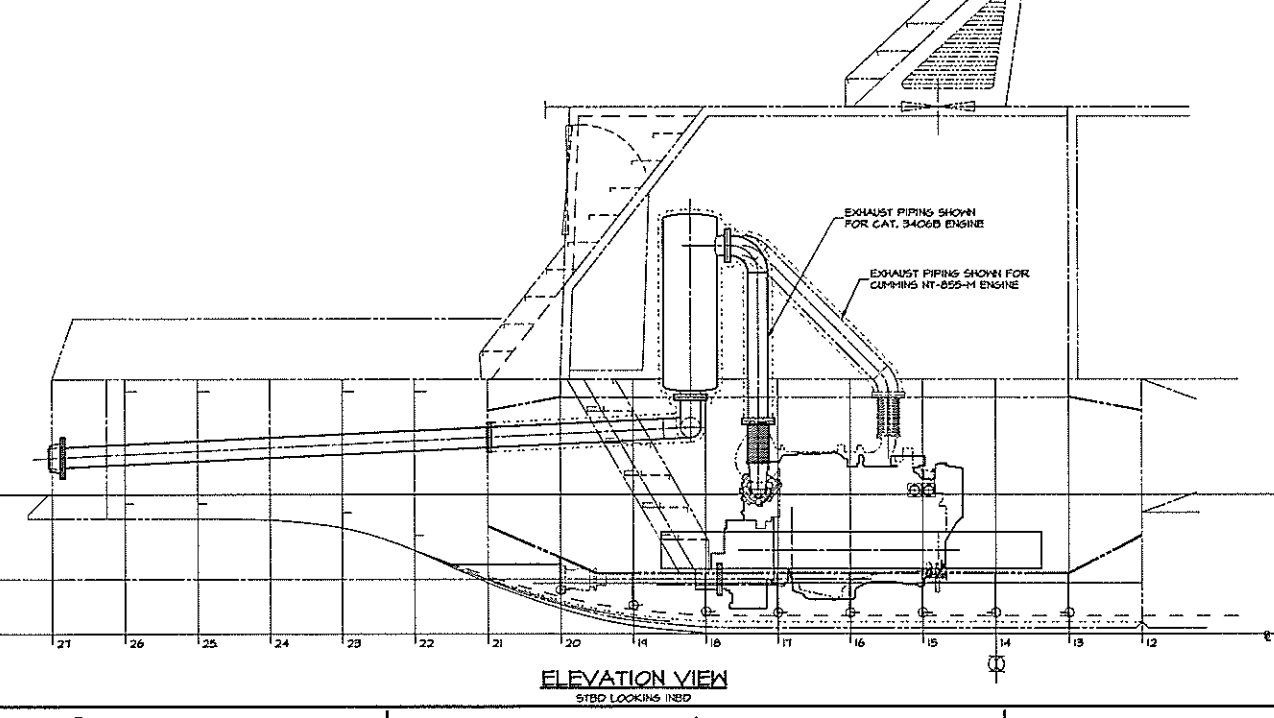
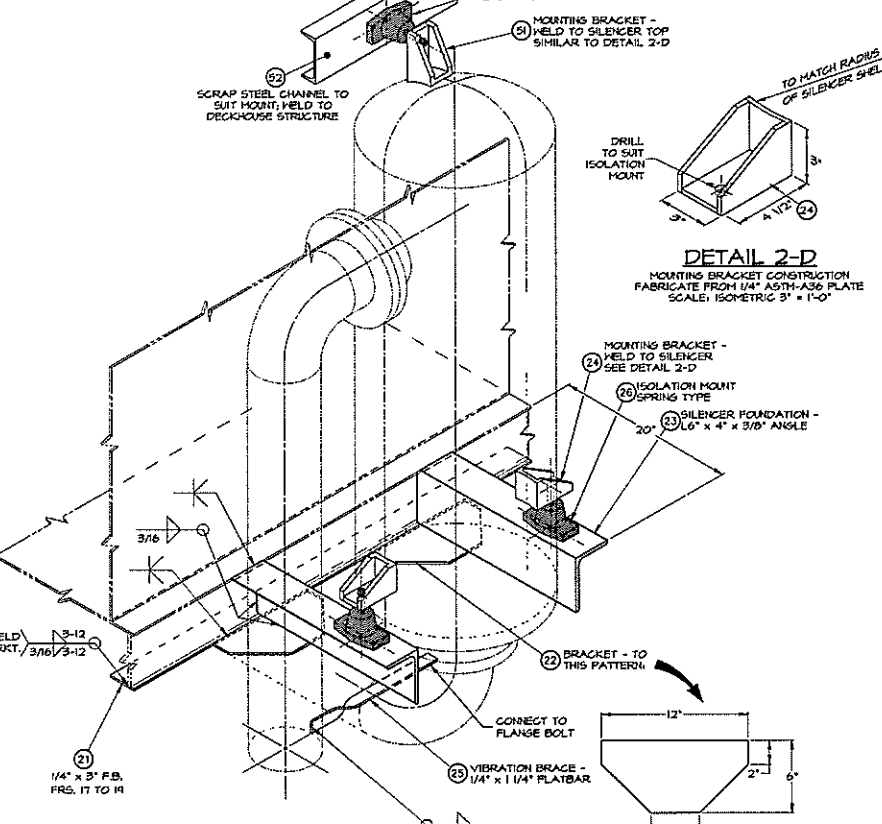
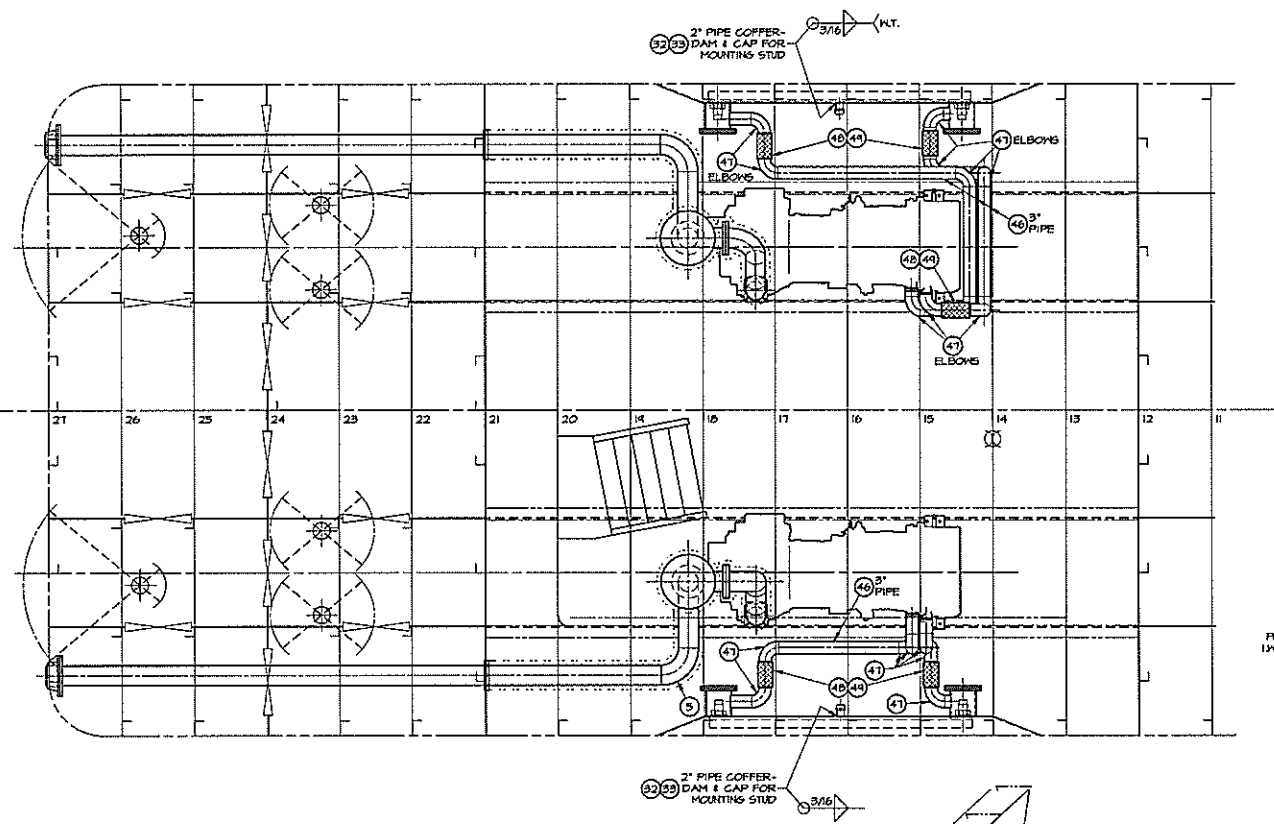
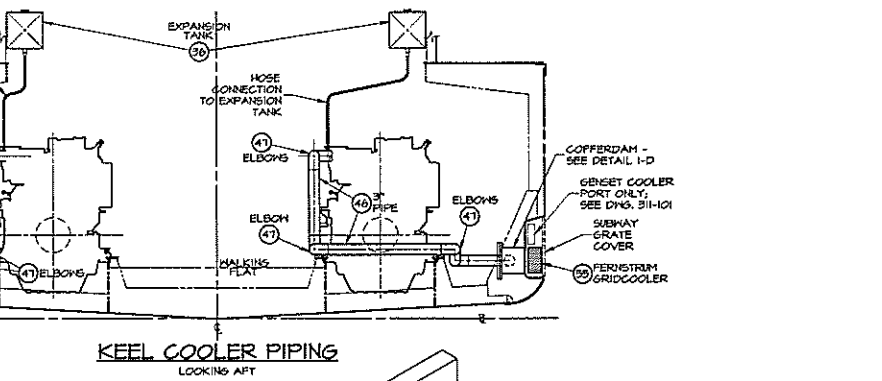
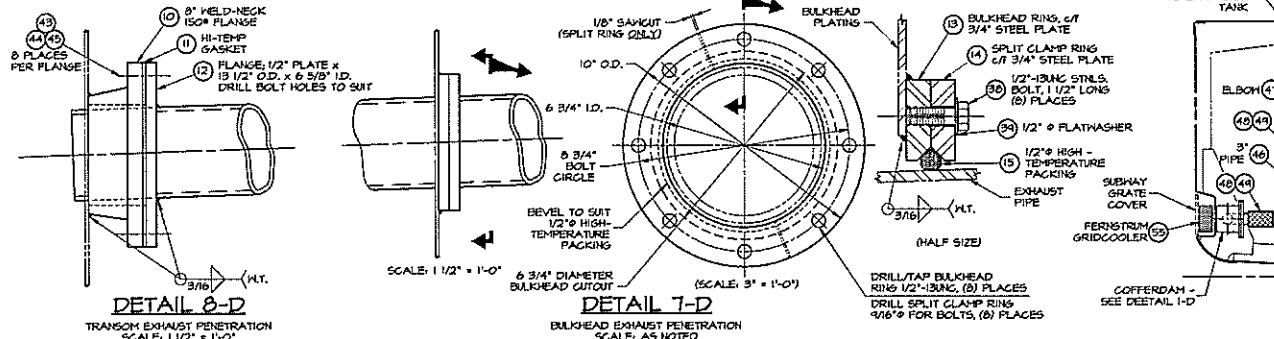
LOOKING DOWN, FWD AND TO PORT  
 1/2" = 1'-0"

BILL OF MATERIALS	
DWN. C.J. BALESTRERI	TGMD, Inc. / Timothy Graul marine design
APPD.	naval architects marine engineers
DATE 20 SEPT, 1999	Sturgeon Bay, WI 54235
PROJECT 55'-0"x 18'-0"x 7'-0" BRUSSELS FERRY PUSHBOAT	Project No. 99005
IDOT JOB D-48-078-99	Scale: 1/2" = 1'-0"
ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. A Date 01/05/01
TITLE MACHINERY CONTROL SYSTEM	Drawing No. 252-101

Proj: 99005 Dwg: 252-101 Rev: A Title: MACHINERY CONTROL SYSTEM



REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
A	REVISES BULGE FROM CHINE TO ROUND	7/13/00	
B	LOWER BULGE, RM MAKING FLAT 3" BELLOW FLANGES	8/17/00	

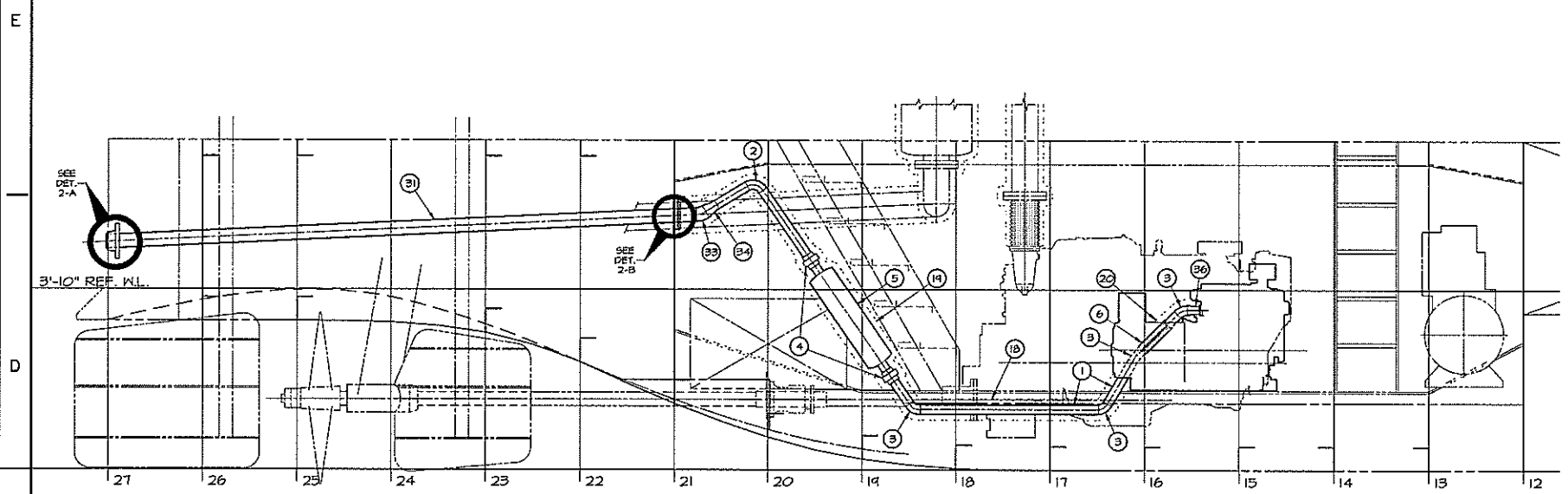


NO.	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
20	2	GRIDCOOLER, FERROSTRIM DOM	VARIOUS
24	8	FLANGE 3/4\" x 1/2\" DIA.	ASTM A-26 STEEL
25	4	PIPE 6\" SCH 40 x 1/2\" LONG	ASTM-A36 BLACK STEEL, BH
28	2	SCRAP CHANNEL TO SHT VIBRATION MOUNT	ASTM-A36 STEEL
31	2	MOUNTING BRACKET, HELD TO TOP OF SILENCER	1/4\" STEEL PLATE, ASTM-A36 SIMILAR TO DETAIL 5-D
30	5 L/F	PIPE 3\" SCH 40	ASTM-A36 GALV. STEEL, BH
44	32	HOSE CLAMPS	ALL 300 SERIES STAINLESS
48	8	HOSE 3/2\" ID, SUCT/PRESS. COOLANT SERVICE	REINFORCED NEOPRENE, ABOUT 12\" LONG
47	M	ELBOW 3\" 90° LR, STD. HT. BH	FORMED STEEL, ASTM-A36
46	60 L/F	PIPE 3\" SCH 40	ASTM-A36 GALV. STEEL, BH
45	30	HT. 3/4\" DIA	TYPE 304 STAINLESS STEEL
44	80	HASHER 3/4\" #	TYPE 304 STAINLESS STEEL
43	80	BOLT 3/4\" DIA x 4\" LONG	TYPE 304 STAINLESS STEEL
42	2	SLIP-ON FLANGE 6\" ANGI-ISO	ASTM-A36 BLACK STEEL (MAY BE YARD-FAB FROM PLATE)
41	2	GASKET, 6\" ANGI-ISO	NEOPRENE, 1/2\" THK
40	2	BLIND FLANGE, 3/4\" PLATE, IS 1/2\" DIAMETER	ASTM-A36 BLACK STEEL (MAY BE YARD-FAB FROM PLATE)
34	16	HASHER, 1/2\" #	TYPE 304 STAINLESS STEEL
36	16	BOLT, 1/2\" DIA x 1 1/2\" LONG	TYPE 304 STAINLESS STEEL
37	2	HOSE EXPANSION TANK TO COOLING PIPE	MTH HELD TO SHT
36	2	EXPANSION TANK, 8 GAL CAPACITY	VARIOUS
35	-	2\" PIPE CAP, 5/8\" THREADED	GALVANIZED MALLEABLE IRON
34	2	2\" PIPE CAP, 5/8\" THREADED	GALVANIZED MALLEABLE IRON
33	1 L/F	PIPE 2\" SCH 40	ASTM-A36 GALV. STEEL, BH
32	-	-	-
31	2	INSULATION FOR 6\" HANDB. SILENCER	ADVANCED THERMAL PRODUCTS, INC.
30	3	6\" 45° ELBON INSULATION	ADVANCED THERMAL PRODUCTS, INC.
24	6	6\" FLANGE INSULATION	ADVANCED THERMAL PRODUCTS, INC.
28	6	6\" 90° ELBON INSULATION	ADVANCED THERMAL PRODUCTS, INC.
27	20 L/F	6\" PIPE INSULATION	ADVANCED THERMAL PRODUCTS, INC.
26	6	ISOLATION MOUNT - SPRING TYPE	VARIOUS - MUST BE SUITABLE FOR HIGH-TEMP. APPLICATION
25	2	VIBRATION BRACE - 1/4\" x 1/4\" x 1/4\"	ASTM-A36 STEEL
24	4	MOUNTING BRACKET, HELD TO SILENCER	1/4\" STEEL PLATE, ASTM-A36 - SEE DETAIL 5-D
23	4	SILENCER FOUNDATION, 16\" x 4\" x 3/8\" ANGLE	ASTM-A36 STEEL
22	4	BRACKET, 6\" x 12\"	1/4\" STEEL PLATE, ASTM-A36
21	2	CHOCK, 1/4\" x 3\" FB, 50\" LONG	ASTM-A36 STEEL
20	-	-	-
19	6	HIGH-TEMPERATURE GASKET, 6\" ANGI-ISO PATT.	NON-ASBESTOS
18	-	-	-
17	-	-	-
16	-	-	-
15	2	HIGH-TEMPERATURE PACKING, 1/2\" #	NON-ASBESTOS
14	3	SPLIT CLAMP RING, 1/2\" O.D. x 6 3/4\" I.D.	3/4\" STEEL PLATE, ASTM-A36
13	2	BULKHEAD RING, 1/2\" O.D. x 6 3/4\" I.D.	3/4\" STEEL PLATE, ASTM-A36
12	2	YARD-FAB FLANGE, IS 1/2\" O.D. x 6 3/8\" I.D.	1/2\" STEEL PLATE, ASTM-A36
11	2	HIGH-TEMPERATURE GASKET, 6\" ANGI-ISO PATT.	NON-ASBESTOS
10	2	WELD-NECK FLANGE, 6\" ANGI-ISO	ASTM-A36 BLACK STEEL, BH (MAY BE YARD-FAB FROM PLATE)
9	-	-	-
8	2	FLEX SECTION 6\", ANGI-ISO FLANGED ENDS	TYPE 304 STAINLESS STEEL
7	-	-	-
6	3	ELBOW, 6\" 45° LR, BH STD. HT.	ASTM-A36 BLACK STEEL, BH
5	6	ELBOW, 6\" 90° LR, BH STD. HT.	ASTM-A36 BLACK STEEL, BH
4	6	SLIP-ON FLANGE, 6\" ANGI-ISO PATTERN	ASTM-A36 BLACK STEEL, BH
3	2	SILENCER, 6\" HANDB. H-3	STEEL
2	-	-	-
1	44 L/F	PIPE, 6\" SCH 40	ASTM-A36 BLACK STEEL, BH

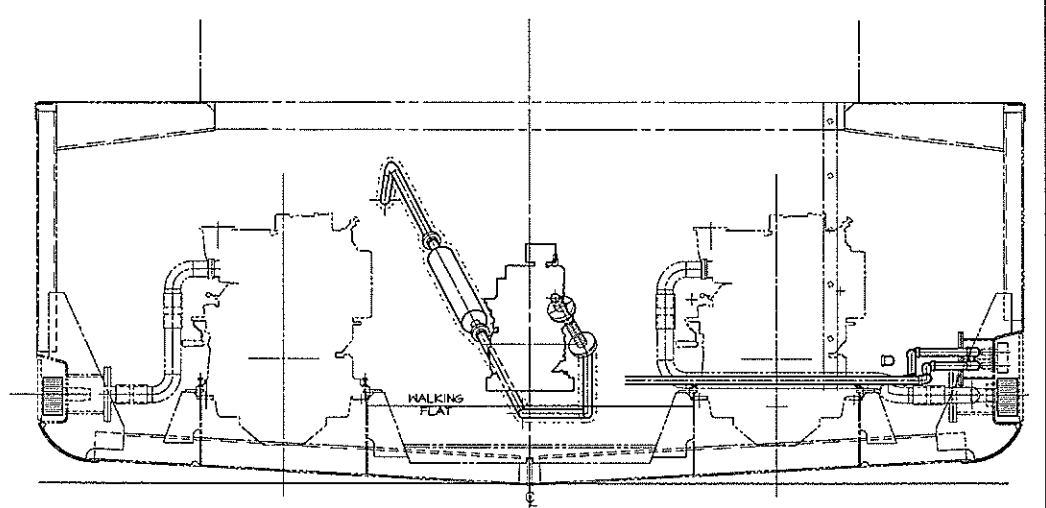
BILL OF MATERIALS			
DWN. R.K. Thompson	TGMD, Inc. / Timothy Graul marine design		
APPD.	naval architects marine engineers		
DATE 24 JULY 1999	Sturgeon Bay, WI 54235		Project No. 49005
PROJECT	55'-0\" x 18'-0\" x 7'-0\" BRUSSELS FERRY PUSHBOAT	Scale: 1/2\" = 1'-0\"	
TITLE	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. B Date: 8/17/00	Drawing No. 256-101
MACHINERY PIPING SYSTEMS		256-101	

Proj. 49005, Dwg. 256-101 Rev. B Title MACHINERY PIPING SYSTEMS

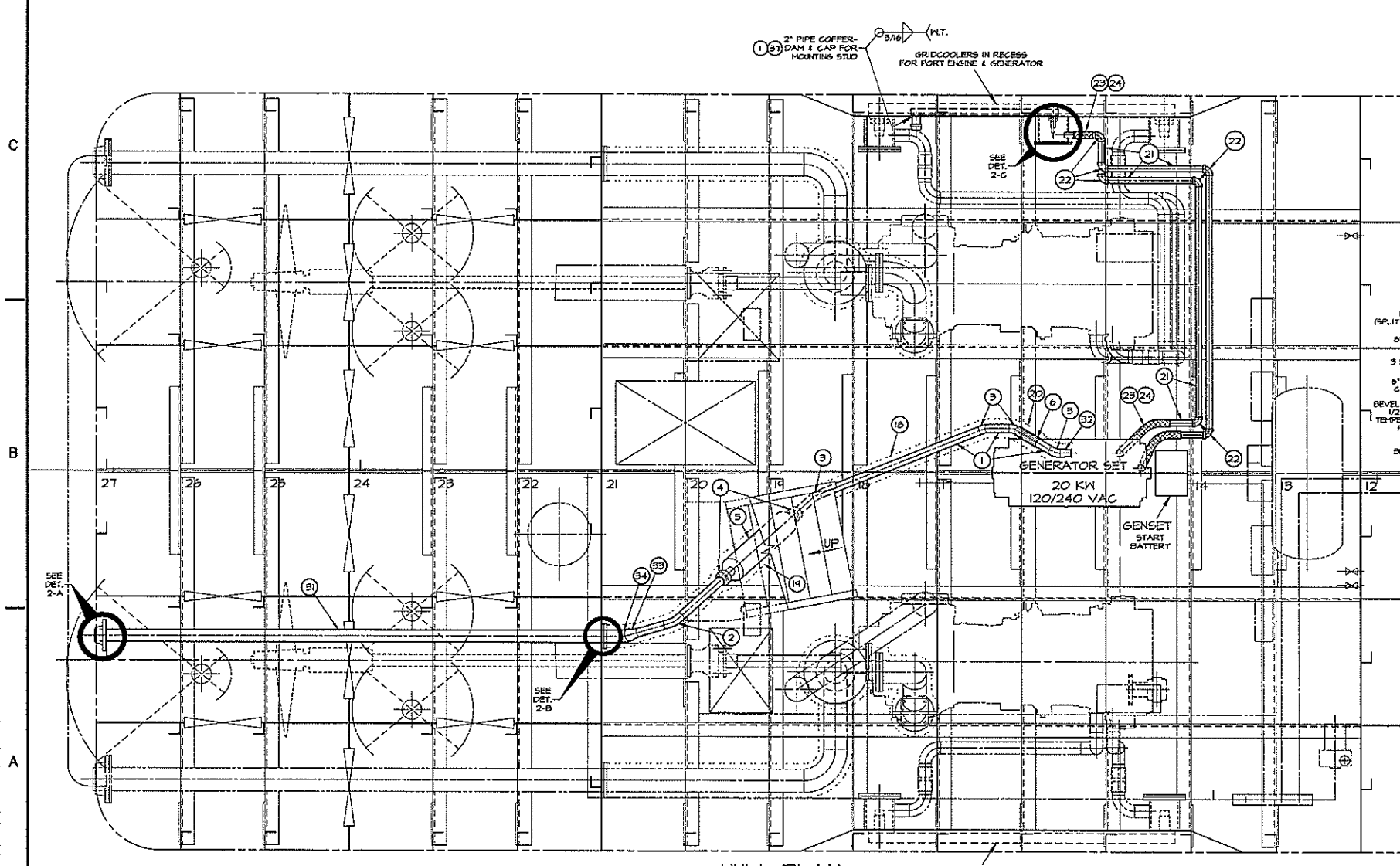
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	REVISES BULGE FROM CHINE TO ROUND	7/13/00	
B	LOWER ENG. RM. WALKING FLAT 5' BELOW FLANGES	8/17/00	
C	SECT. AT FR. 11, 90° EXHAUST PIPE BELOW WALKING FLAT	8/22/00	



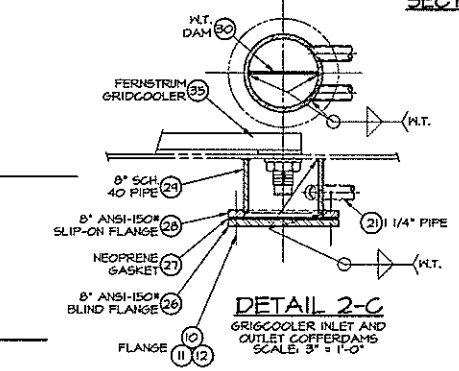
PORT ELEVATION



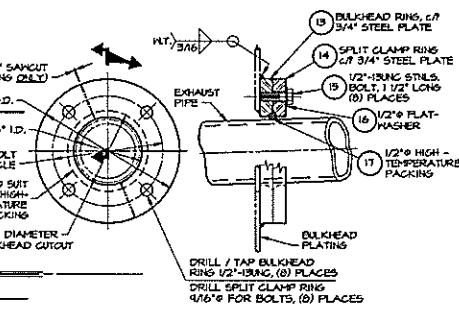
SECTION AT FRAME 17  
LOOKING AFT



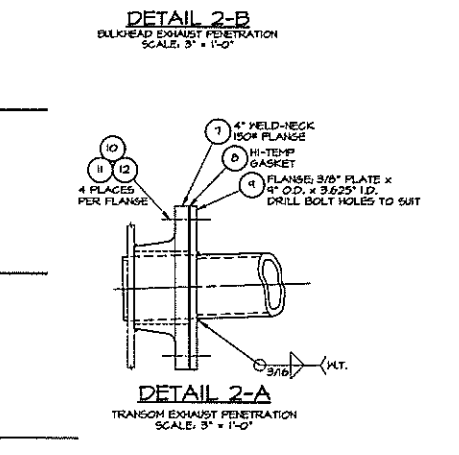
HULL PLAN  
FOR PORT ENGINE & GENERATOR  
GRIDCOOLERS IN RECESS



DETAIL 2-C  
GRIDCOOLER INLET AND  
OUTLET COFFERDAMS  
SCALE: 3\"/>



DETAIL 2-B  
BULKHEAD EXHAUST PENETRATION  
SCALE: 3\"/>



DETAIL 2-A  
TRANSOM EXHAUST PENETRATION  
SCALE: 3\"/>

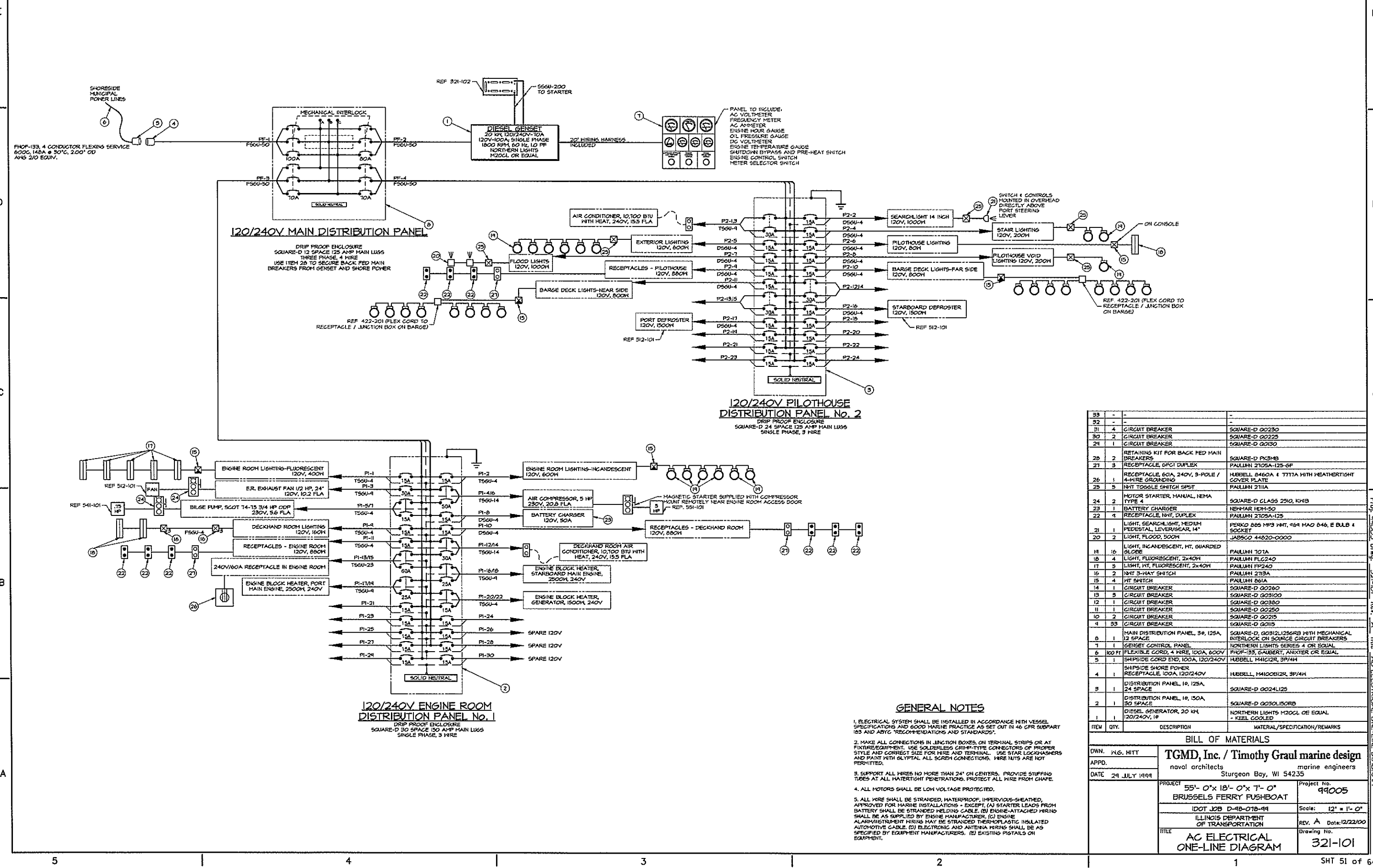
NO.	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
40	4	END BRACKETS, 1/4\"/>	
39	15 LF	GENERATOR FOUNDATION, 13\"/>	
38	1	EXPANSION TANK FOR GENSET	STEEL
37	2	PIPE CAP, 2\"/>	
36	2	REDUCER, 2\"/>	
35	1	GRIDCOOLER - FERROSTRIM	COPPER-NICKEL - FERROSTRIM MODEL # B0420
34	1	ELBOW, 3\"/>	
33	1	REDUCER, 3\"/>	
32	1	REDUCER, 2\"/>	
31	15 LF	PIPE, 3\"/>	
30	2	DIAM. 1/4\"/>	
29	2	PIPE, 8\"/>	
28	2	SLIP-ON FLANGE, 8\"/>	
27	2	GASKET, 13 1/2\"/>	
26	2	BLIND FLANGE, 8\"/>	
25	-	ELBOW, 1 1/4\"/>	
24	16	HOSE CLAMPS, SAE TYPE T\", SIZE NO. 32	STAINLESS TYPE 304
23	4	1/60\"/>	
22	8	ELBOW, 1 1/4\"/>	
21	25 LF	PIPE, 1 1/4\"/>	
20	1	FLEX INSULATION, 2\"/>	
19	1	SILENCER INSULATION, MAX. HULL, 2\"/>	
18	15 LF	PIPE INSULATION, 2\"/>	
17	1	1/2\"/>	
16	4	FLATWASHER, 1/2\"/>	
15	4	BOLT, 1/2\"/>	
14	1	SPLIT CLAMP RING, 8\"/>	
13	1	BULKHEAD RING, 8\"/>	
12	16	HEX-NUT, 5/8\"/>	
11	16	FLATWASHER, 5/8\"/>	
10	16	BOLT, 5/8\"/>	
9	1	HI-TEMPERATURE GASKET, 4\"/>	
8	1	REDUCING SLIP-ON FLANGE, 4\"/>	
7	1	WELD-NECK FLANGE, 4\"/>	
6	1	FLEX SECTION, 2\", BUTT-WELD ENDS, 12\"/>	
5	1	SILENCER, 2\"/>	
4	2	IRON, 2\"/>	
3	3	ELBOW, 2\"/>	
2	1	ELBOW, 2\"/>	
1	15 LF	PIPE, 2\"/>	

BILL OF MATERIALS

OWN.	R.K. Thompson	<b>TGMD, Inc. / Timothy Graul marine design</b> naval architects Sturgeon Bay, WI 54235 marine engineers	Project No.	19005
APPD.			Scale:	3/4\"/>
DATE	30 JULY 1999		REV. C	Date: 8/22/00
			Drawing No.	311-101

Proj. 30005 Dwg. 311-101 Rev. C Title: GENSET INSTALLATION

REVISIONS			
LT#	DESCRIPTION	DATE	APPROVED
-	FIRST ISSUE	07/29/99	
A	CHANGE PANEL FEED BREAKERS (100A TO 75A)	12/22/00	

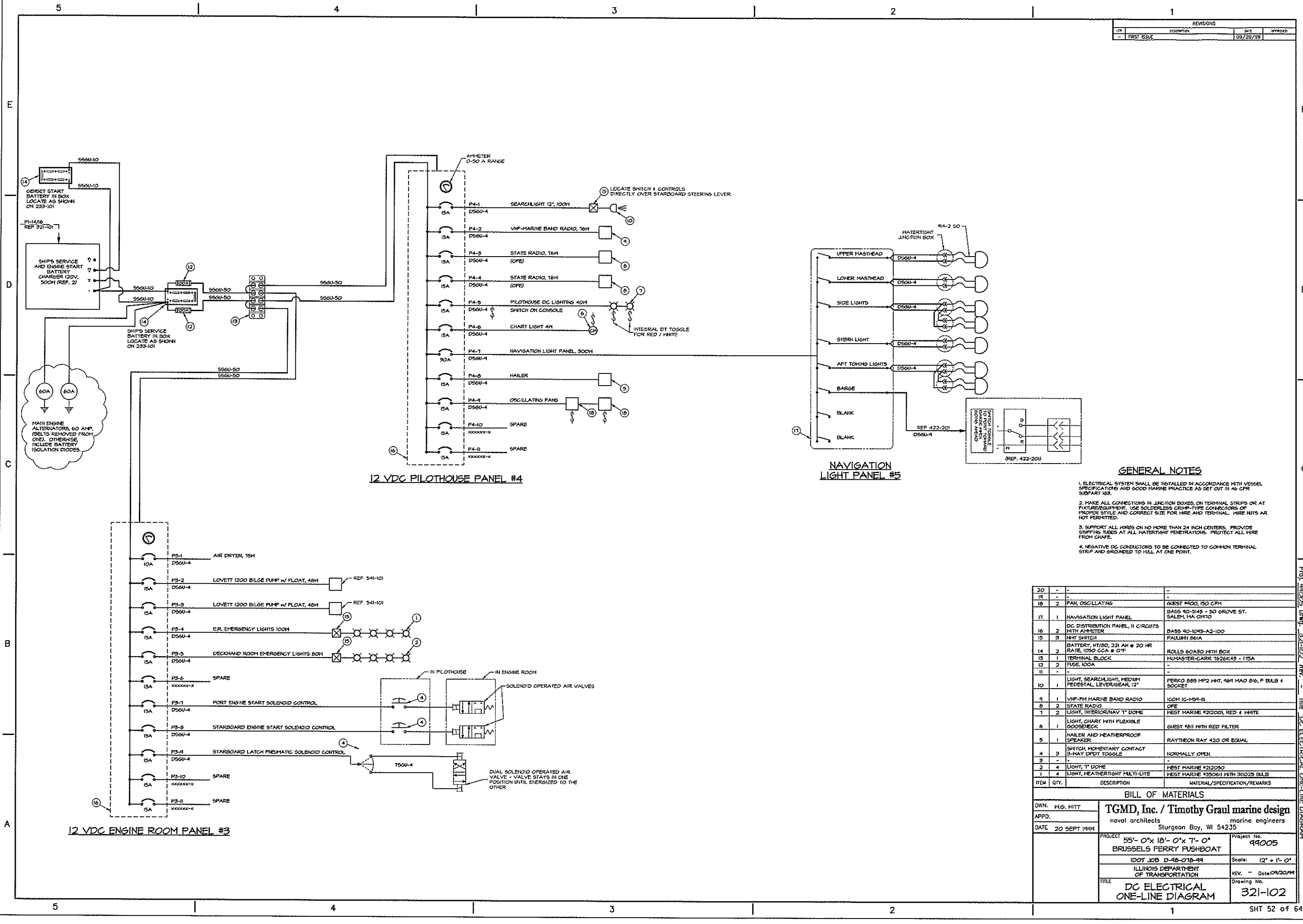


QTY	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
33	CIRCUIT BREAKER	SQUARE-D QO230
31	CIRCUIT BREAKER	SQUARE-D QO225
30	CIRCUIT BREAKER	SQUARE-D QO150
24	CIRCUIT BREAKER	SQUARE-D QO150
28	RETAINING KIT FOR BACK FED MAIN BREAKERS	SQUARE-D PK2MB
27	RECEPTACLE, GFCI DUPLEX	PAULHNI 2T05A-125-6F
26	RECEPTACLE, 60A, 240V, 3-POLE / 4-WIRE GROUNDING	HUBBELL 8460A 4 TTTTA WITH WEATHERTIGHT COVER PLATE
25	INT TOGGLE SWITCH SPST	PAULHNI 2T11A
24	MOTOR STARTER, MANUAL, NEMA TYPE 4	SQUARE-D CLASS 2310, 104B
23	BATTERY CHARGER	NEH-MAR 1EM-50
22	RECEPTACLE, INT, DUPLEX	PAULHNI 2T05A-125
21	LIGHT, SEARCHLIGHT, MEDIUM PEDESTAL, LEVER/GEAR, 14"	PERKO 285 14"3 WHT, 16" HAD 8-46, E BULB & SOCKET
20	LIGHT, FLOOD, 500W	JABSCO 44820-0000
19	LIGHT, INCANDESCENT, HT, GUARDED GLOBE	PAULHNI 707A
18	LIGHT, FLUORESCENT, 2x40W	PAULHNI FLC240
17	LIGHT, HT, FLUORESCENT, 2x40W	PAULHNI FP240
16	INT 3-WAY SWITCH	PAULHNI 2T13A
15	INT SWITCH	PAULHNI 681A
14	CIRCUIT BREAKER	SQUARE-D QO260
13	CIRCUIT BREAKER	SQUARE-D QO3100
12	CIRCUIT BREAKER	SQUARE-D QO380
11	CIRCUIT BREAKER	SQUARE-D QO250
10	CIRCUIT BREAKER	SQUARE-D QO215
9	CIRCUIT BREAKER	SQUARE-D QO15
8	MAIN DISTRIBUTION PANEL, 30, 125A, 12 SPACE	SQUARE-D, G0812L256R3 WITH MECHANICAL INTERLOCK ON SOURCE CIRCUIT BREAKERS
7	GENSET CONTROL PANEL	NORTHERN LIGHTS SERIES 4 OR EQUAL
6	100 FT FLEXIBLE CORD, 4 WIRE, 100A, 600V	PHOF-35, GAUBERT, ANXITER OR EQUAL
5	SHIPSIDE SHORE POWER RECEPTACLE, 100A, 120/240V	HUBBELL 141G12R, 3P/4W
4	DISTRIBUTION PANEL, 10, 125A, 24 SPACE	SQUARE-D QO24L125
3	DISTRIBUTION PANEL, 10, 150A, 30 SPACE	SQUARE-D QO30L150B
2	DIESEL GENERATOR, 20 KW, 120/240V, 10	NORTHERN LIGHTS M20GL OR EQUAL - KEEL COOLED

BILL OF MATERIALS			
OWN.	H.G. HITT	<b>TGMD, Inc. / Timothy Graul marine design</b> naval architects Sturgeon Bay, WI 54235	
APPD.			
DATE	24 JULY 1999	PROJECT	55'-0"x18'-0"x7'-0" BRUSSELS FERRY FUSHBOAT
		PROJECT No.	99005
		IDOT JOB	D-48-07B-11
		Scale:	12" = 1'-0"
		ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. A Date: 12/22/00
		TITLE	AC ELECTRICAL ONE-LINE DIAGRAM
		Drawing No.	321-101

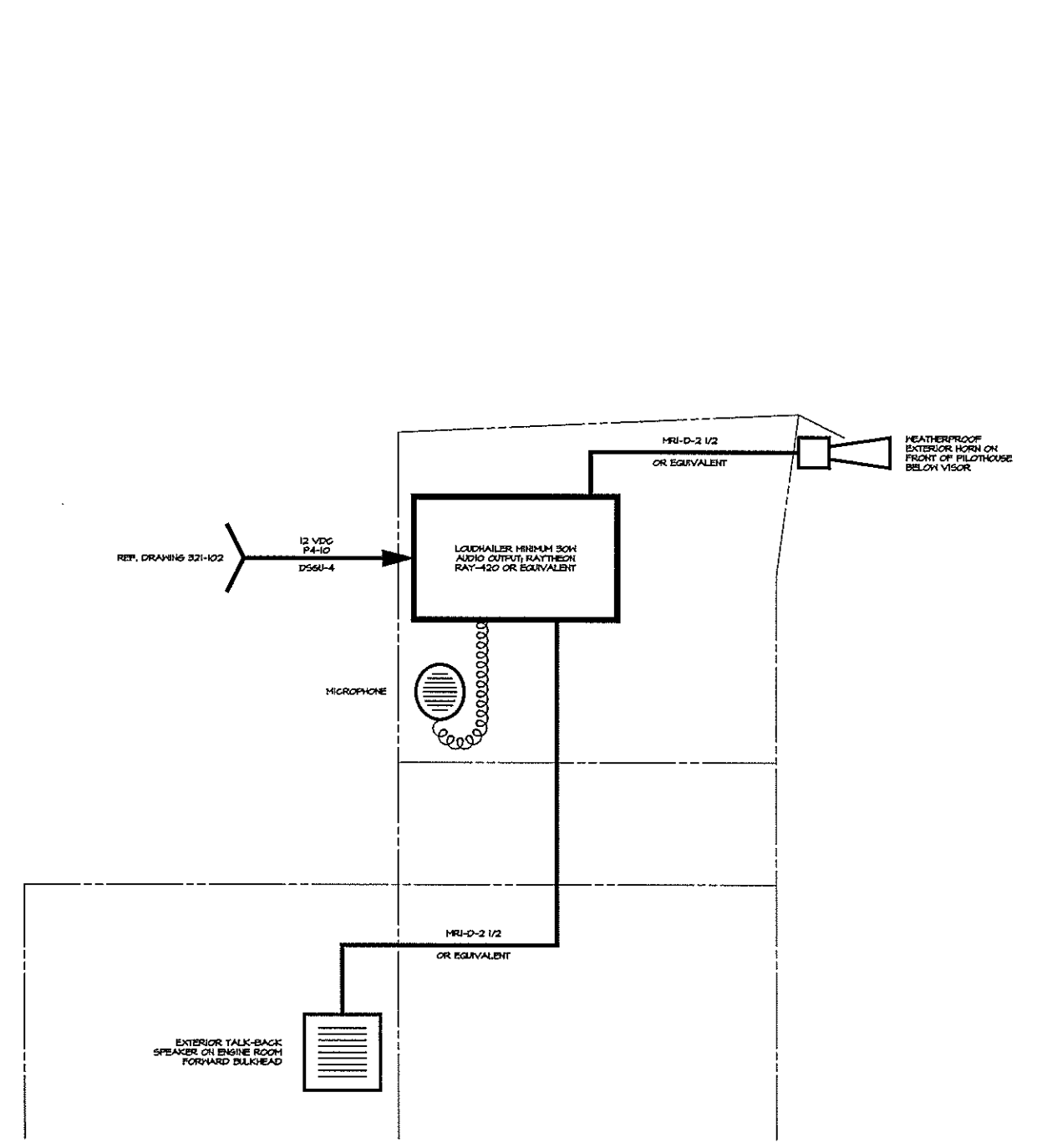
Proj. 99005 DWG. 321-101 Rev. A Title AC ELECTRICAL ONE-LINE DIAGRAM

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	09/20/99	

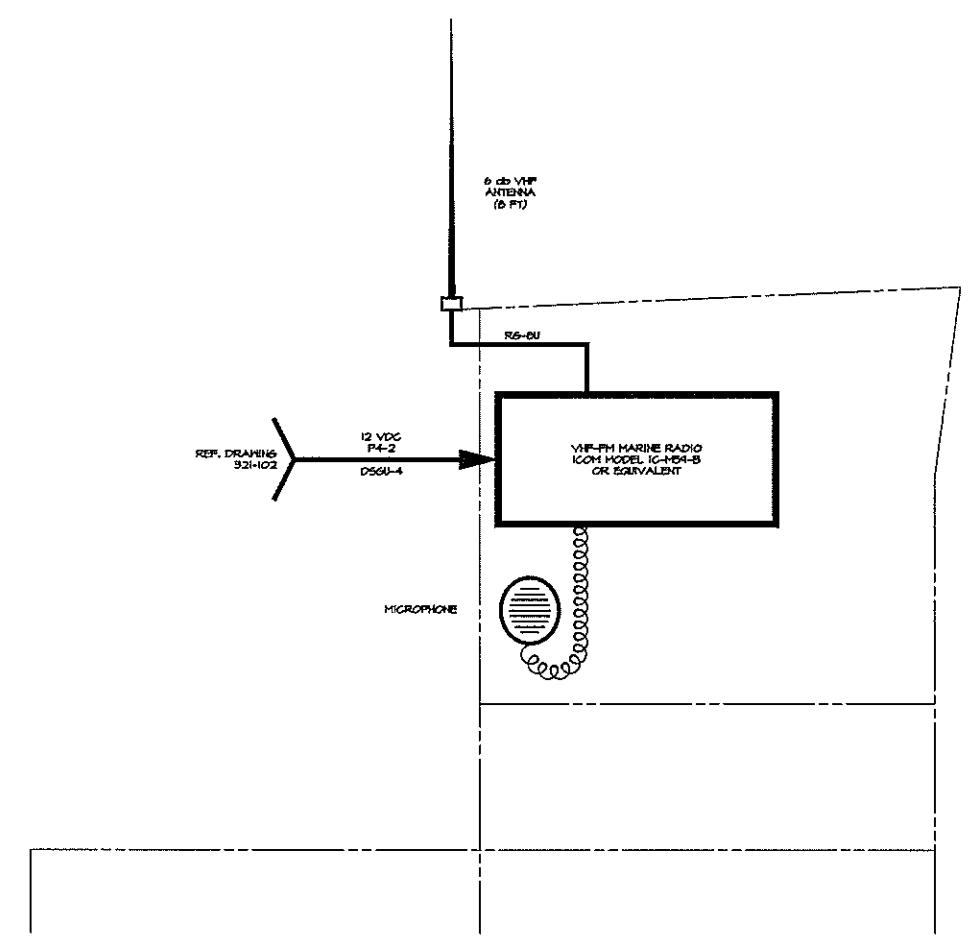


Proj. 990025 Dwg. 321-102 Rev. 1 Title DC ELECTRICAL ONE-LINE DIAGRAM

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
-	FIRST ISSUE	07/29/99	



INTERNAL COMMUNICATIONS  
(PUBLIC ADDRESS SYSTEM)

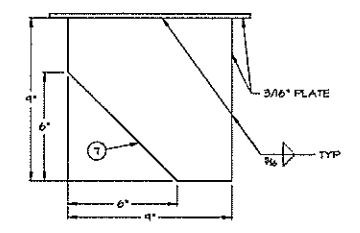
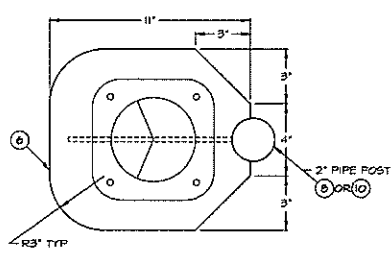


EXTERNAL COMMUNICATIONS  
(RADIO SYSTEM)

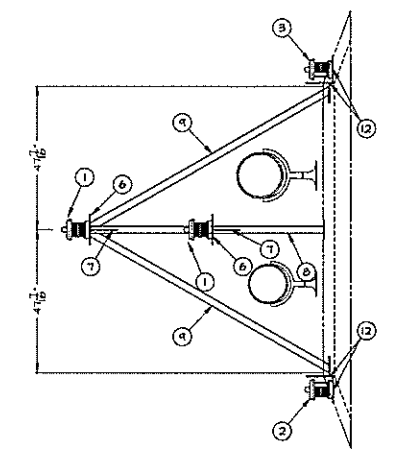
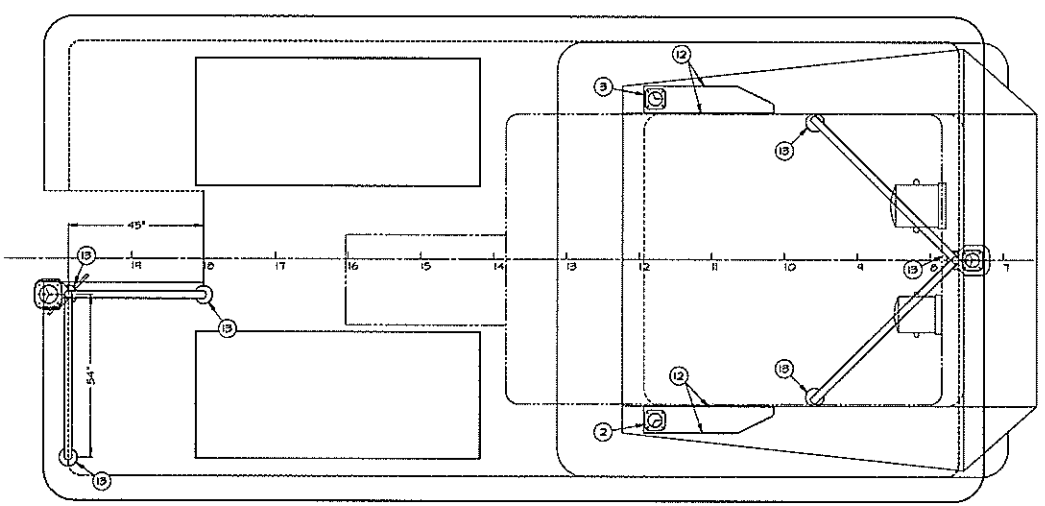
DWN.	W.G. HITT	<b>TGMD, Inc. / Timothy Graul marine design</b> naval architects      marine engineers Sturgeon Bay, WI 54235
APPD.		
DATE	24 JULY 1999	PROJECT
		55'-0"x 18'-0"x 7'-0" BRUSSELS FERRY PUSHBOAT
		IDOT JOB D-98-07B-99
		ILLINOIS DEPARTMENT OF TRANSPORTATION
		TITLE
		COMMUNICATION SYSTEMS
		Project No.
		99005
		Scale:
		3/4" = 1'-0"
		REV. - Date:
		07/29/99
		Drawing No.
		400-101

Proj. 88025 Dwg. 400-101 Rev. - Title COMMUNICATION SYSTEMS

REVISIONS			
LTN	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	09/20/99	

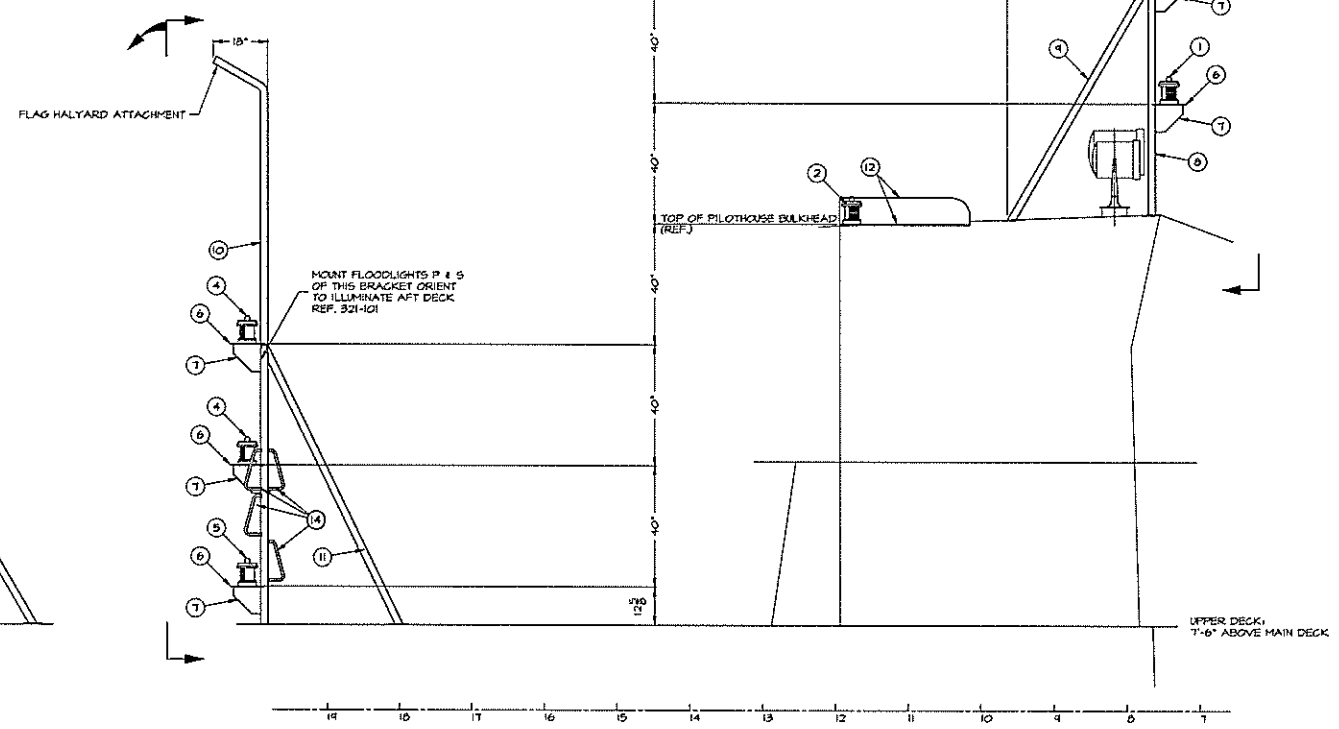
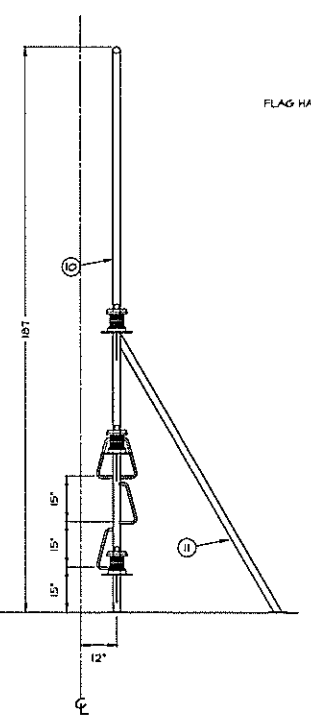


**LIGHT BRACKET**  
SCALE: 3" = 1'-0"  
FIVE REQUIRED  
PLATE SIZES MAY BE ADJUSTED  
TO FIT LIGHT FIXTURES



**CLIMBING STIRRUP**  
SCALE: 3" = 1'-0"  
FOUR REQUIRED

**PLAN**



**PROFILE**

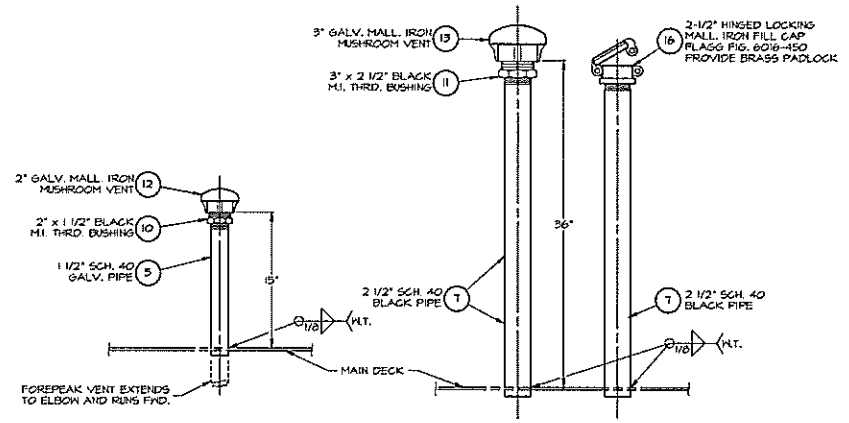
ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
15	-	-	-
14	4	RB 3/4" x APPROX 23" LONG	ASTM A-36, CLIMBING STIRRUPS
13	6	3/16" PLATE x 6" W	ASTM A-36, DOUBLERS UNDER FCS. 8, 9, 10, 11
12	4	3/16" PLATE 12" x 43"	ASTM A-36, SIDE LIGHT SHIELDS
11	2	PIPE 2" SCH 40 x APPROX 9'-0" LONG	ASTM A-53, TRIM ENDS TO FIT
10	1	PIPE 2" SCH 80 x APPROX 16'-0" LONG	ASTM A-53, TRIM ENDS TO FIT
9	2	PIPE 2" SCH 40 x APPROX 8'-4" LONG	ASTM A-53, TRIM ENDS TO FIT
8	1	PIPE 2" SCH 40 x APPROX 6'-4" LONG	ASTM A-53, TRIM ENDS TO FIT
7	5	3/16" PLATE 9" x 4"	ASTM A-36
6	5	3/16" PLATE 10" x 11"	ASTM A-36
5	1	STERN LIGHT 135" WHITE	PERKO 1124 ADD BLK OR EQUAL
4	2	TOWING LIGHT 135" YELLOW	PERKO 1124 HAO BLK OR EQUAL
3	1	PORT SIDE LIGHT 123" RED	PERKO 1121 RAO BLK OR EQUAL
2	1	STARBOARD SIDE LIGHT 123" GREEN	PERKO 1121 6AO BLK OR EQUAL
1	2	MASTHEAD LIGHT 235" WHITE	PERKO 1128 ADD BLK OR EQUAL

**BILL OF MATERIALS**

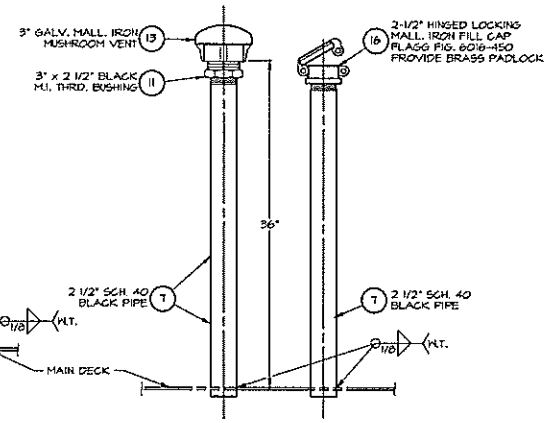
OWN. H.G. HITT	<b>TGMD, Inc. / Timothy Graul marine design</b> naval architects marine engineers Sturgeon Bay, WI 54235	Project No. <b>99005</b>
APPD.		Scale: <b>1/2" = 1'-0"</b>
DATE <b>20 SEPT 1999</b>	PROJECT <b>55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT</b>	REV. - Date: <b>09/20/99</b>
	IDOT JOB <b>D-98-018-99</b>	Drawing No. <b>422-101</b>
	ILLINOIS DEPARTMENT OF TRANSPORTATION	
	<b>RUNNING LIGHTS</b>	

Proj. 99005 Dwg. 422-101 Rev. - Title RUNNING LIGHTS

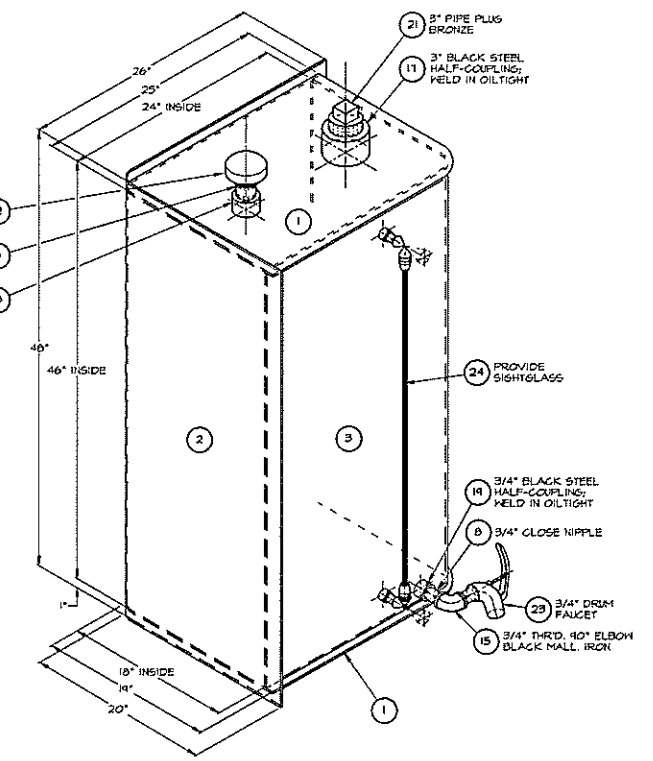
REVISIONS			
LN	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	09/22/99	



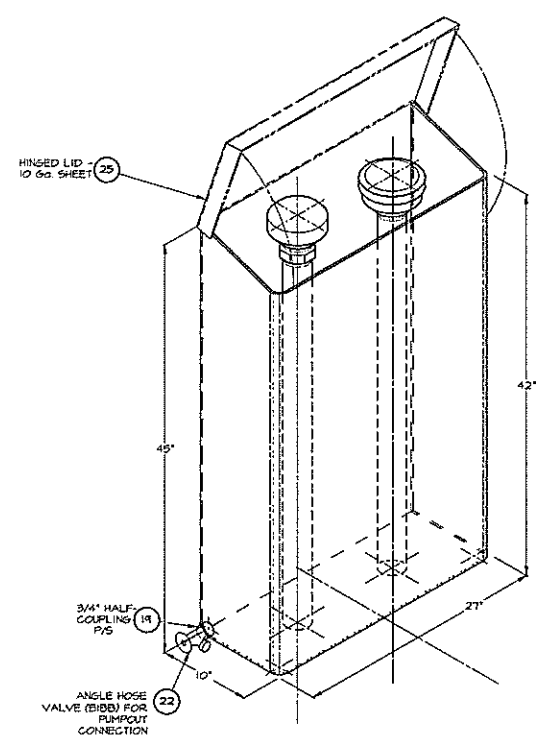
**DETAIL 5-D**  
COMPARTMENT VENT TERMINAL  
SCALE: 1 1/2" = 1'-0"



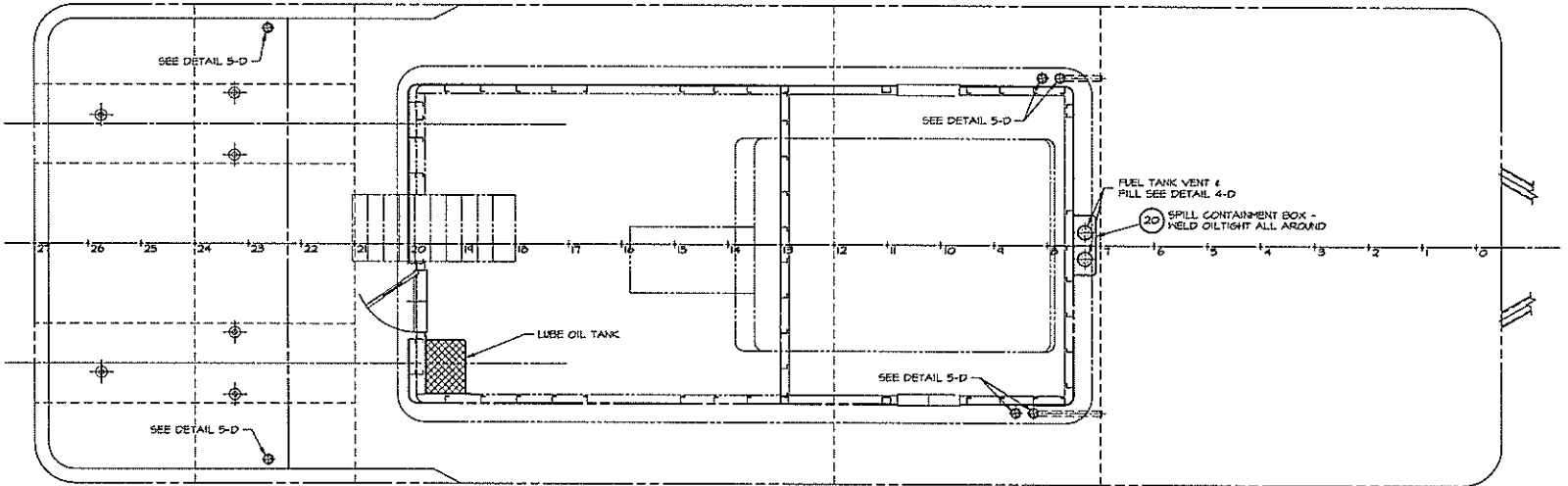
**DETAIL 4-D**  
FUEL TANK VENT AND FILL  
SCALE: 1 1/2" = 1'-0"



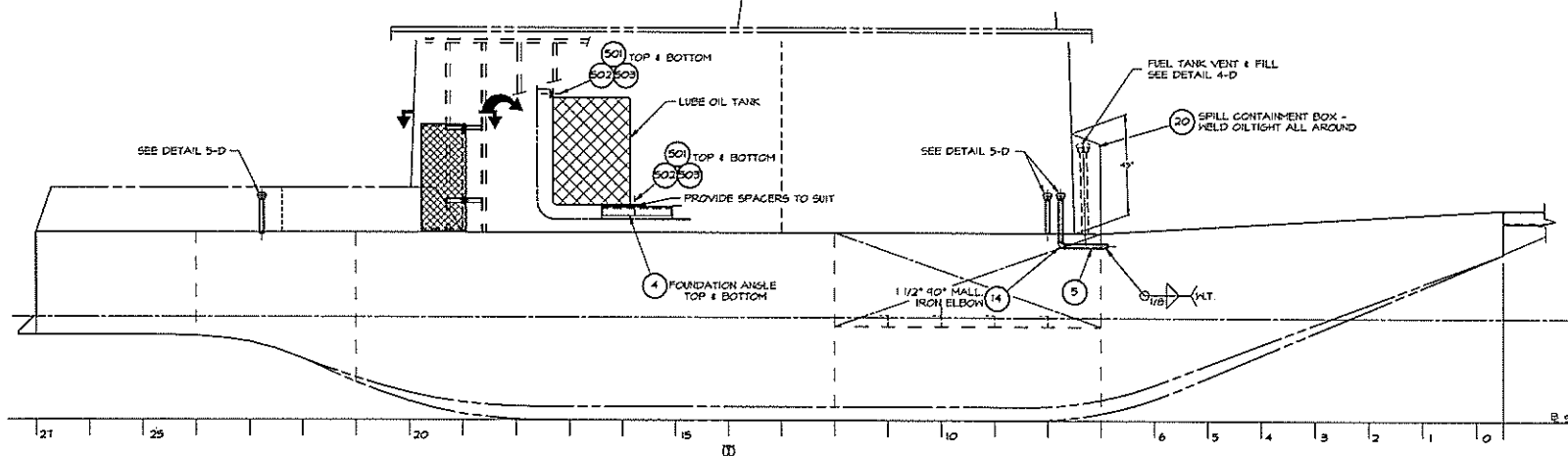
**86 GALLON LUBE OIL TANK**  
WELD OILTIGHT THROUGHOUT  
ISOMETRIC - 1 1/2" = 1'-0"



**SPILL CONTAINMENT BOX**  
WELD OILTIGHT THROUGHOUT  
ISOMETRIC - 1 1/2" = 1'-0"



**HULL PLAN**



**HULL PROFILE**

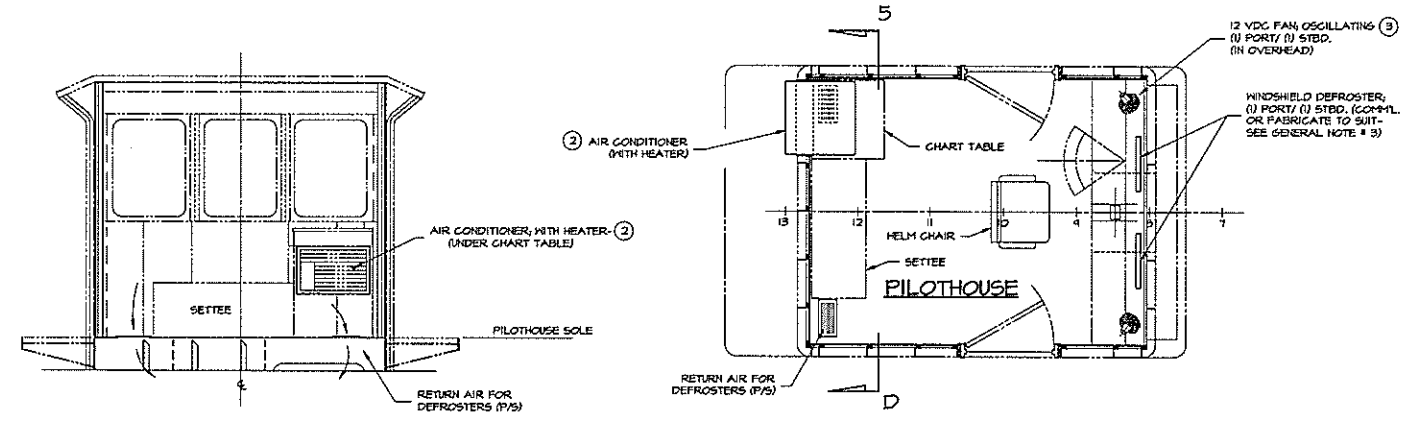
ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
501	4	BOLTS, 1/2"-13 UNC, HEX HEAD, LENGTH AS REQUIRED	GRADE 5 STEEL
502	4	1/2" FLATWASHERS	COMMERCIAL STEEL
503	4	SELF-LOCKING NUTS, 1/2"-13 UNC	GRADE 5 STEEL
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
25	1	HINGED LID, 10" x 37" WITH 2" LIP	10 GA. SHEET, ASTM-A36 STEEL
24	1	SIGHT GLASS W/ SHUTOFF VALVES	BRONZE / GLASS
23	1	DRUM FAUCET (BARREL COCK), 3/4" NPT	BRASS (N/A APPROVED), MCMASTER-CARR No. 400551B
22	2	ANGLE HOSE VALVE (BIBB), 3/4" THREADED	BRONZE
21	1	PIPE PLUG, 3" THREADED, SQUARE HEAD	BRONZE
20	1	SPILL CONTAINMENT BOX, 10" x 27" x 10" FLANGED	10GA. SHEET, ASTM-A36 STEEL, 45" HIGH
19	3	HALF-COUPLES, 3/4" THREADED, COMMERCIAL	BLACK STEEL
18	1	HALF-COUPLES, 2" THREADED, COMMERCIAL	BLACK STEEL
17	1	HALF-COUPLES, 3" THREADED, COMMERCIAL	BLACK STEEL
16	1	HINGED LOCKING FILL CAP, 2-1/2" FPT	GALV. MALL. IRON, FLAGG FIG. 6110-450 OR EQUAL
15	1	ELBOW, 3/4" 40" THREADED 150#	GALV. MALL. IRON
14	2	ELBOW, 1-1/2" 40" THREADED 150#	GALV. MALL. IRON
13	1	MUSHROOM VENT, 3" FPT W/ BRASS SCREEN	GALV. MALL. IRON, FLAGG FIG. 6110-500 OR EQUAL
12	7	MUSHROOM VENT, 2" FPT W/ BRASS SCREEN	GALV. MALL. IRON, FLAGG FIG. 6110-400 OR EQUAL
11	1	BUSHING, 3" x 2-1/2" THREADED	GALV. MALL. IRON
10	6	BUSHING, 2" x 1-1/2" THREADED	GALV. MALL. IRON
9	1	HALF NIPPLE, 3" SCH. 40 BLACK STEEL	ASTM-A36 SEAMLESS
8	1	CLOSE NIPPLE, 3/4" SCH. 40 BLACK STEEL	ASTM-A36 SEAMLESS
7	6	L/F PIPE, 2-1/2" SCH. 40 BLACK STEEL	ASTM-A36 SEAMLESS
6	1	CLOSE NIPPLE, 2" SCH. 40 BLACK STEEL	ASTM-A36 SEAMLESS
5	1	PIPE, 1-1/2" SCH. 40 GALV. STEEL	ASTM-A36 SEAMLESS
4	2	FOUNDATION ANGLE, 15-3/4" LONG	L2"x2"x1/4" ANGLE, ASTM-A36
3	1	TANK FRONT, 54" HIGH, 24" x 54" FLANGED	3/16" SHEET, ASTM-A36 STEEL
2	1	TANK BACK, 56" HIGH, 26" x 20" FLANGED	3/16" SHEET, ASTM-A36 STEEL
1	2	TANK TOP / BOTTOM, 25" x 11"	3/16" SHEET, ASTM-A36 STEEL

**BILL OF MATERIALS**

DWN. HLG. HITT	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects marine engineers	
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	
PROJECT	55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Project No. 99005
	IDOT JOB D-48-078-99	Scale: 3/8" = 1'-0"
	ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. - Date: 09/20/99
TITLE	HULL AND TANK VENTS, SOUNDS & FILLS	Drawing No. 506-101

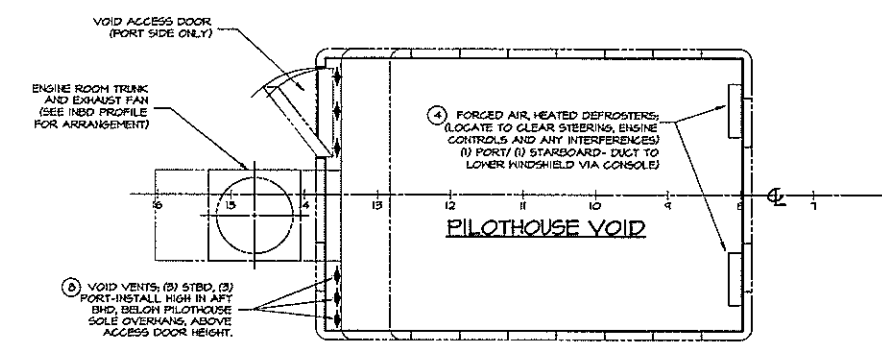
Title: HULL AND TANK VENTS, SOUNDS AND FILLS

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
-	FIRST ISSUE	01/20/99	
A	LOWER ENG. RM. WALKING FLAT 3" BELOW FLANGES.	08/11/00	

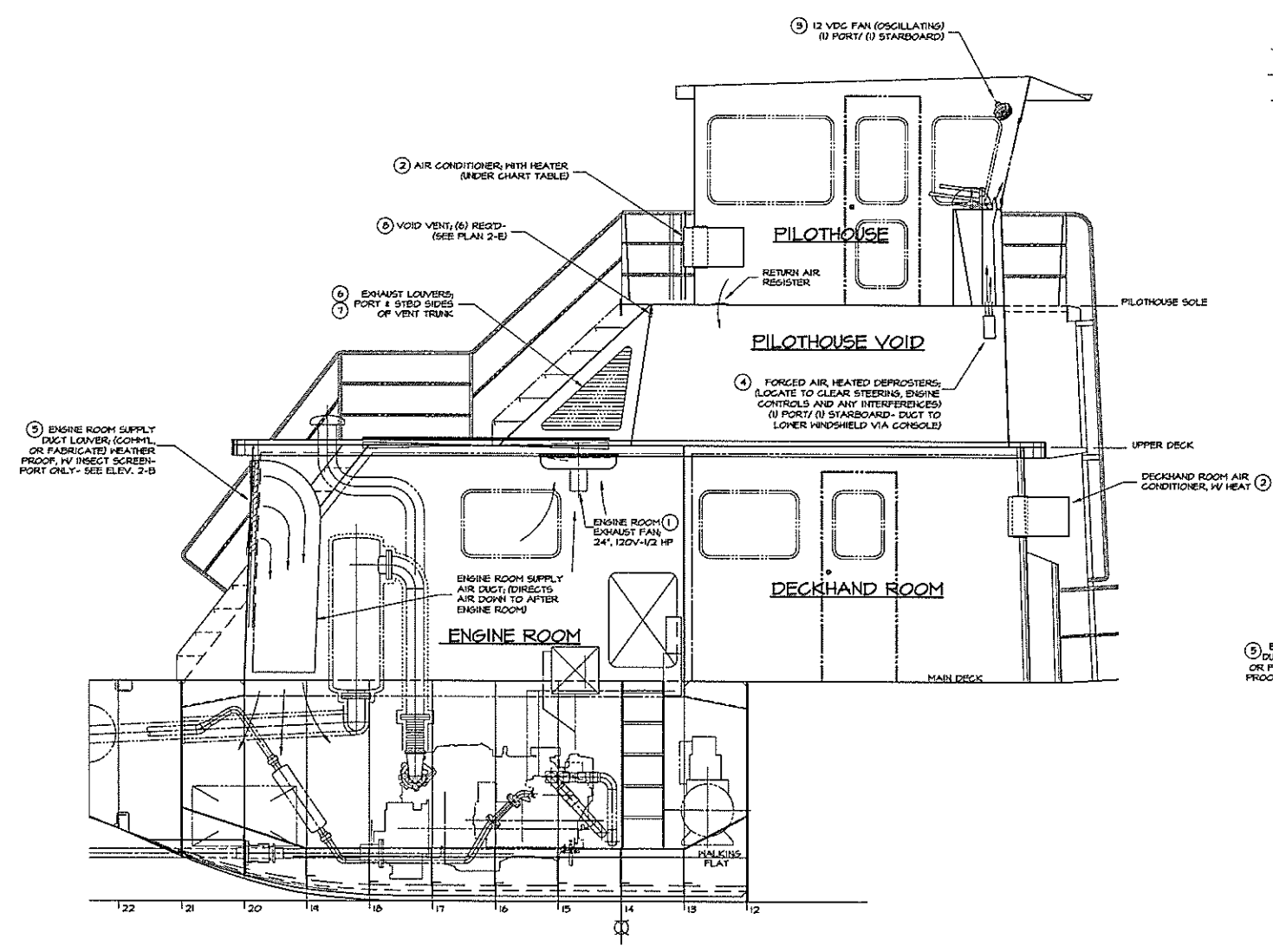


**ELEVATION 5-D**  
AFT PILOTHOUSE BULKHEAD  
LOOKING AFT  
1/2" = 1'-0"

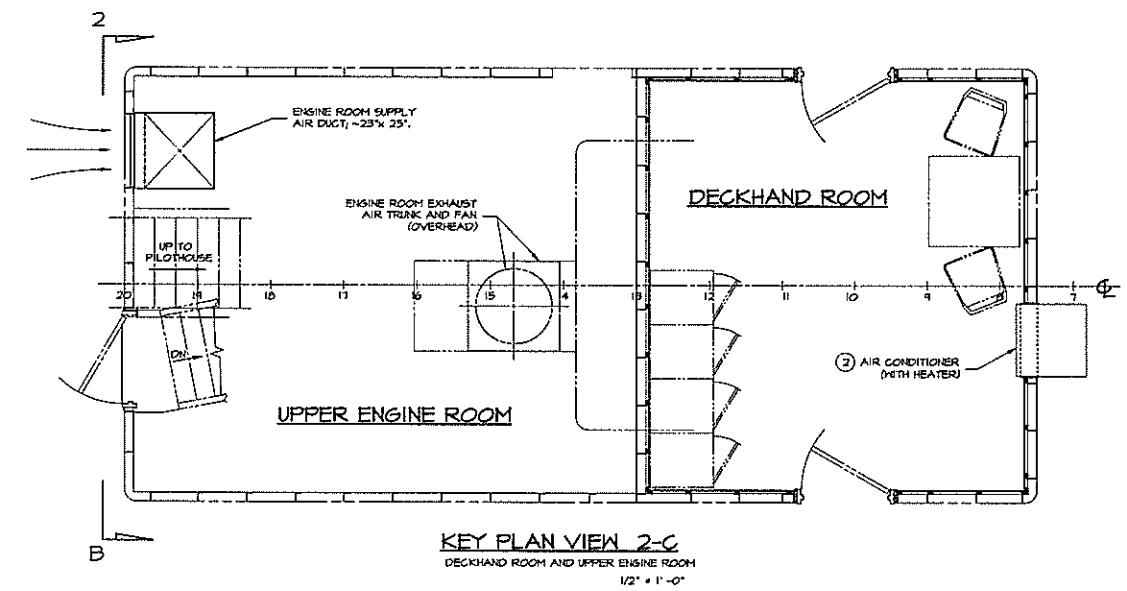
**KEY PLAN VIEW 2-D**  
PILOT HOUSE ARRANGEMENT  
1/2" = 1'-0"



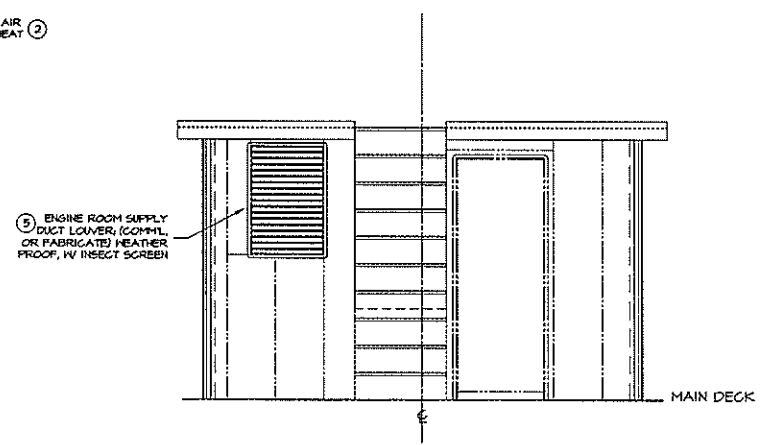
**KEY PLAN VIEW 2-E**  
VOID BELOW PILOT HOUSE SOLE  
1/2" = 1'-0"



**VENTILATING, HEATING AND DEFROSTING ARRANGEMENT**  
INBOARD PROFILE, LOOKING TO PORT  
1/2" = 1'-0"



**KEY PLAN VIEW 2-C**  
DECKHAND ROOM AND UPPER ENGINE ROOM  
1/2" = 1'-0"



**ELEVATION 2-B**  
MAIN DECKHOUSE - AFT BULKHEAD  
LOOKING FORWARD  
3/8" = 1'-0"

**GENERAL NOTES**

- FOR PILOTHOUSE, VOID AND DECKHOUSE/UPPER ENGINE ROOM STRUCTURE, SEE DRAWINGS 151-101; FOR PILOTHOUSE AND DECKHAND ROOM INTERIORS AND JOINERY, SEE DRAWINGS 641-101.
- VENTILATION OF THE PILOTHOUSE SHALL BE NATURAL VIA THE PORT AND STARBOARD DOORS AND THE OPENING FORWARD WINDSHIELDS; WINDOWS IN DECKHAND ROOM SLIDE OPEN FOR VENTILATION.
- AIR CONDITIONERS (PG. # 2) SHALL BE "THROUGH-THE-WALL" TYPE, SLEEVE MOUNTED THROUGH THE AFT PILOTHOUSE AND FORWARD DECKHAND ROOM BULKHEADS AS SHOWN ON THE DRAWING. ALL CONTROLS FOR BOTH AIR CONDITIONERS SHALL BE IN THE PILOTHOUSE.

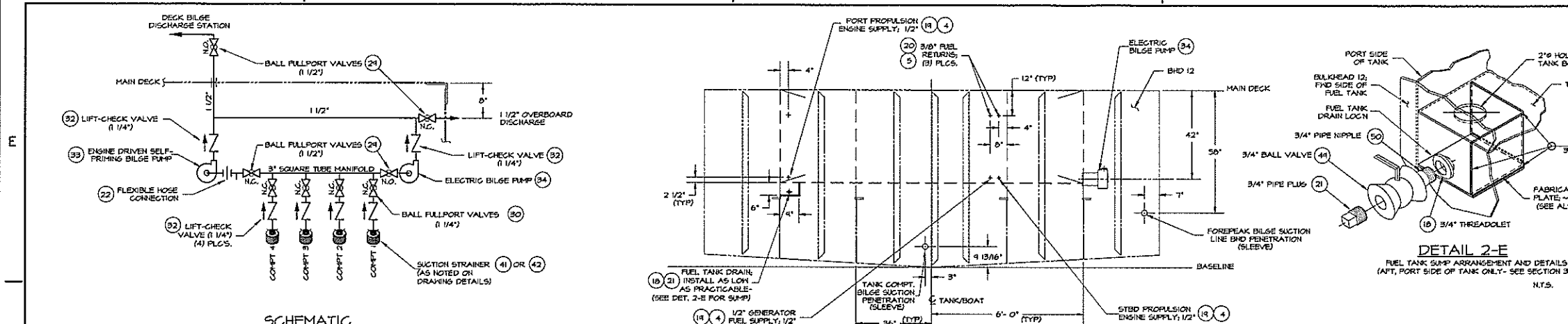
ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
5	6	MINIATURE VENT, 3"	COMPL. - LOUVERED, PUSH-IN STYLE
7	1	ENGINE ROOM EXHAUST LOUVER, PORT	FABRICATE, SIZE AND SHAPE TO SUIT TRUNK
6	1	ENGINE ROOM EXHAUST LOUVER, STBD	FABRICATE, SIZE AND SHAPE TO SUIT TRUNK
5	1	ENGINE ROOM SUPPLY LOUVER	COMPL. OR FABRICATE; APPROX. 24" x 30"
4	2	DEFROSTER, FORCED AIR - HEATED	VALAD # 6450 1 1/2 I. OR EQUAL
5	2	FAN, OSCILLATING, 12VDC	GUEST # 400, 150 CFM, OR EQUAL
2	2	AIR CONDITIONER, WITH HEATER	10,100 BTU; 240 V, 15.5 FLA
1	1	ENGINE ROOM EXHAUST FAN	24" V, 1/2 HP

BILL OF MATERIALS			
DWN.	J.C. Birmingham	TGMD, Inc. / Timothy Graul marine design	
APPD.		naval architects marine engineers	
DATE	30 JULY 1999	Project No.	99005
		Scale:	1/2" = 1'-0"
		REV. A Date:	08/17/00
		Drawing No.	512-101
		TITLE	VENTILATING, HEATING AND DEFROSTING

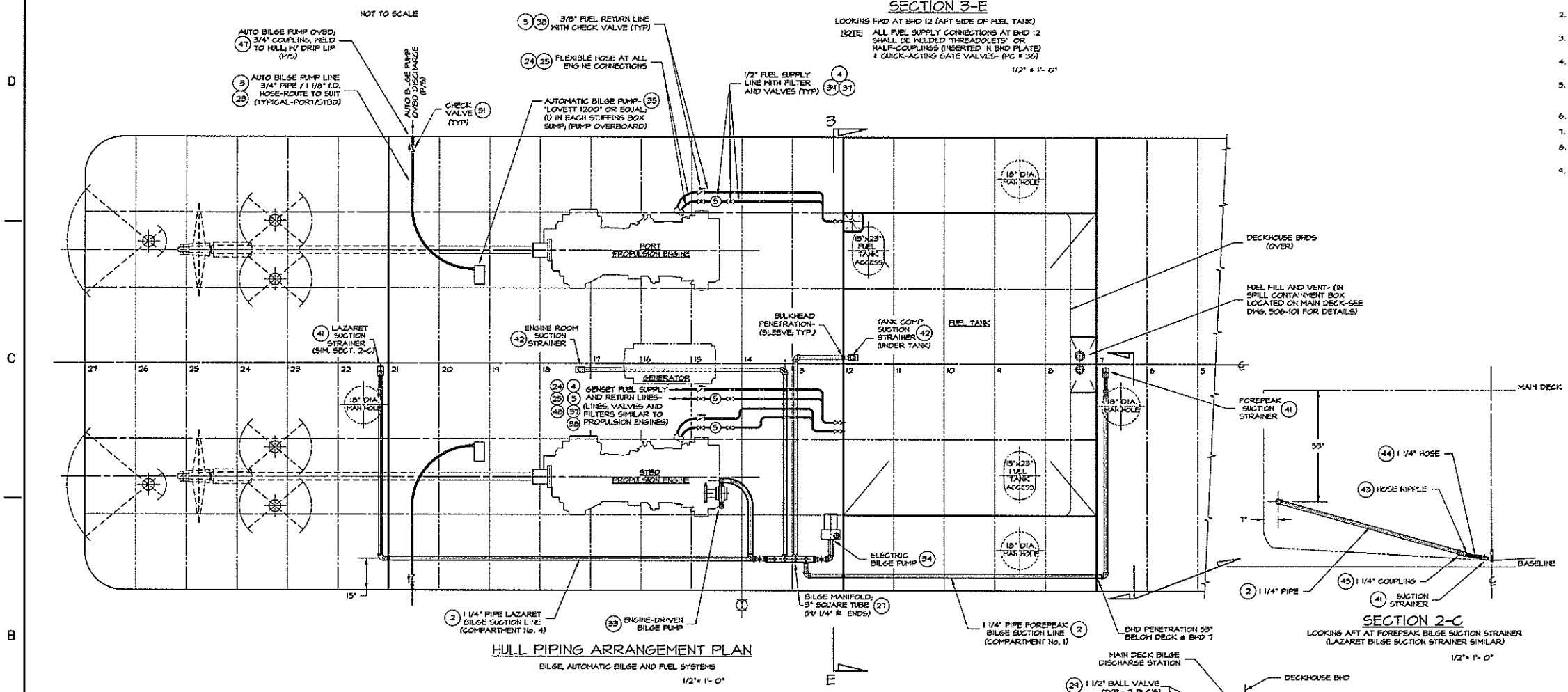
Proj. 99005 Dwg. 512-101 Rev. B Title VENTILATING, HEATING AND DEFROSTING



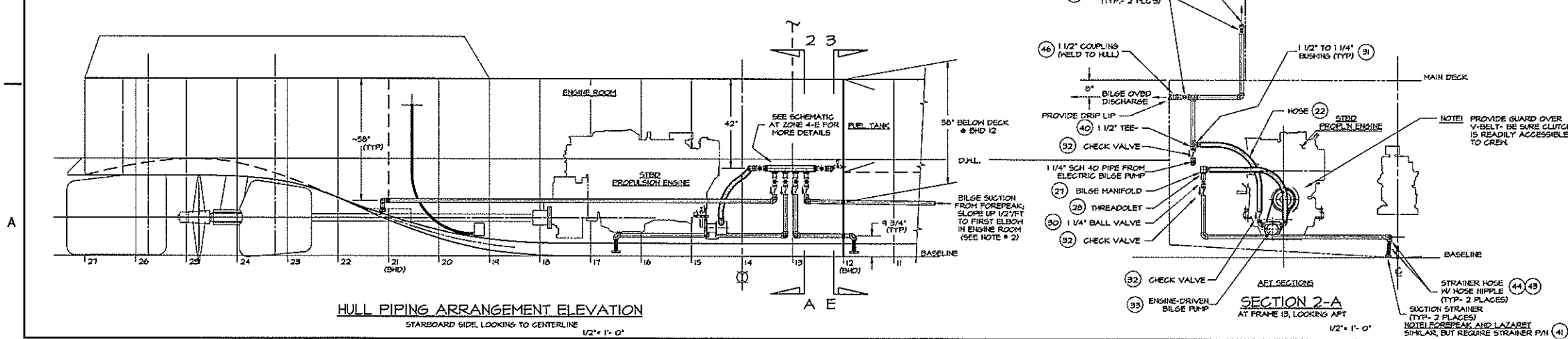
REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	04/20/99	



**SCHEMATIC**  
1/4" BILGE SUCTIONS, TYP.



**SECTION 3-E**  
LOOKING FWD AT BHD 12 (AFT SIDE OF FUEL TANK)



**HULL PIPING ARRANGEMENT ELEVATION**  
STARBOARD SIDE, LOOKING TO CENTERLINE

**SECTION 2-C**  
LOOKING AFT AT FOREPEAK BILGE SUCTION STRAINER (LAZARET BILGE SUCTION STRAINER SIMILAR)

**SECTION 2-A**  
AT FRAME 13, LOOKING AFT

**DETAIL 2-E**  
FUEL TANK SUMP ARRANGEMENT AND DETAILS (AFT, PORT SIDE OF TANK ONLY - SEE SECTION 3-E)

**GENERAL NOTES**

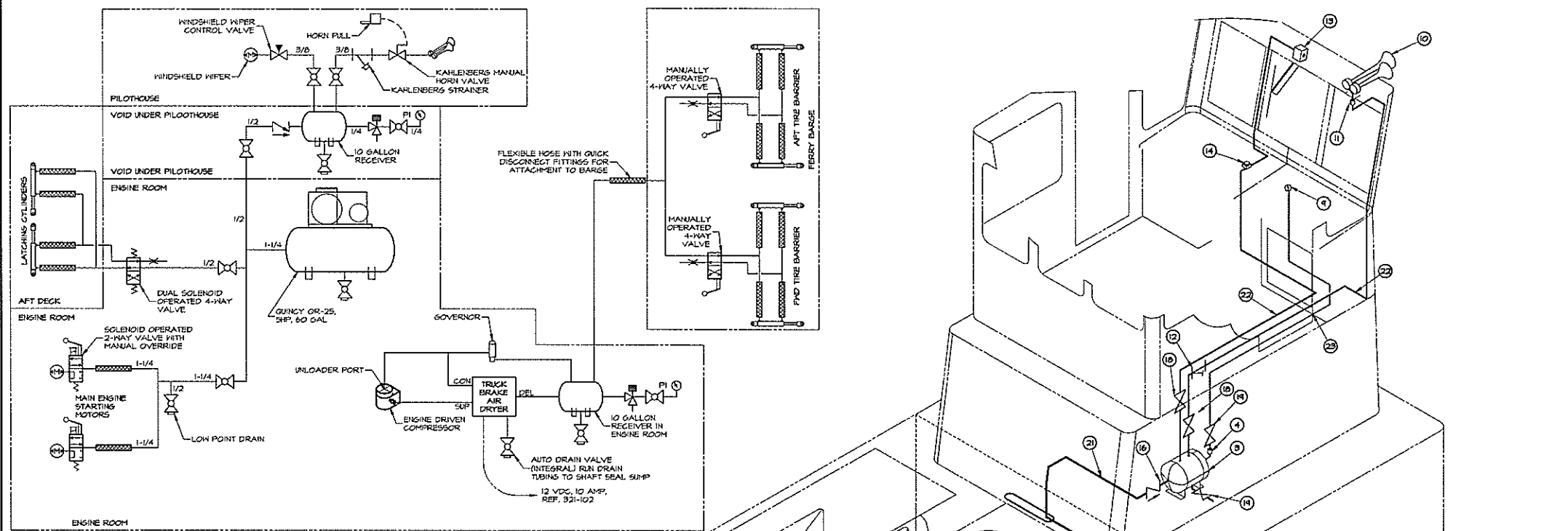
- BILGE SUCTION AND DISCHARGE LINES SHALL BE GALVANIZED, SCH 40 STEEL PIPE, 1/4" FITTINGS SHALL BE THREADED, GALVANIZED STEEL. VALVES SHOULD BE BRONZE, FULL-PORT BALL TYPE.
- BILGE SUCTION LINES SHALL BE ROUTED TO AVOID AIR POCKETS, AND TO ALLOW FOR PROPER DRAINAGE AND VENTING.
- PROVIDE VENT/DRAIN PLUGS AT HIGH POINTS NEAR MANIFOLD, AND AT LOW POINTS OF THE SYSTEM FOR PROPER DRAINAGE AND VENTING.
- UNIONS SHOULD BE PROVIDED THROUGHOUT THE SYSTEM TO ALLOW DISASSEMBLY FOR MAINTENANCE AND REPAIR.
- COLLARS ARE TO BE PROVIDED AT ALL WATERTIGHT BULKHEAD OR DECK PENETRATIONS AND SHALL BE FULLY WELDED AFTER TESTING. PIPING SHALL BE PRESSURE TESTED TO 35 PSI AFTER INSTALLATION IS COMPLETE.
- ALL FUEL OIL PIPING SHALL BE BLACK IRON (ASTM A-106) WITH THREADED FITTINGS.
- UNIONS SHOULD BE PROVIDED IN THE FUEL SYSTEM TO FACILITATE DISASSEMBLY.
- FLEXIBLE HOSE SECTIONS AT ENGINES SHALL BE WIRE BRAID REINFORCED, FIRE RESISTANT, IN ACCORDANCE WITH SAE J-1942.
- VALVES IN THE FUEL SYSTEM SHALL BE ISO 10 MOG, THREADED, WITH IRON, STEEL, OR BRONZE BODIES.

NO.	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
55	-	-	-
54	-	-	-
53	-	-	-
52	-	-	-
51	-	-	-
50	2	CHECK VALVE- 3/4" SHING	THRD. MOG- BRONZE
49	1	NIPPLE CLOSE- 3/4" THREADED	BLACK STEEL
48	1	VALVE- 3/4" BALL, 3" FC, THRD. MOG	BRASS, ISO # (SEE GENL. NOTE 4)
47	1	FILTER/ WATER SEPARATOR, FUEL	RACOR 500MA, OR EQ. (W/ 1/2" NPTF ADAPTORS)
46	2	COUPLING- 3/4" N.P.T.	GALVANIZED MALLEABLE IRON
45	2	COUPLING- 1/2" N.P.T.	GALVANIZED MALLEABLE IRON
44	A/R	HOSE- 1/4" I.D., SUCTION SERVICE	RUBBER REINFORCED (GATES GREEN STRIP) OR EQ.
43	4	HOSE NIPPLE- 1/4" I.D. HOSE/ 1/4" PIPE	GALVANIZED STEEL, COMMERCIAL
42	2	SUCTION STRAINER- 1/4" (HOSE)	CAST BRONZE PERKO FIG. 704 OR EQ.
41	2	SUCTION STRAINER- 1/4" (HOSE)	CAST BRONZE PERKO FIG. 704 OR EQ.
40	2	TEE- 1/2" 150 #, THRD.	GALVANIZED MALLEABLE IRON
39	2	FILTER/ WATER SEPARATOR, FUEL	RACOR 500MA, OR EQ. (W/ 1/2" NPTF ADAPTORS)
38	3	CHECK VALVE- 3/8" SHING, THRD. MOG	BRASS, ISO # (SEE GENL. NOTE 4)
37	6	VALVE- 1/2" BALL, 3" FC, THRD. MOG	BRASS, ISO # (SEE GENL. NOTE 4)
36	3	VALVE- 1/2" GATE, QUICK-ACTING/ISO#	BRONZE, CLASS 125 (SEE GENL. NOTE 4)
35	2	AUTOMATIC BILGE PUMP	LOVETT 1200 OR EQ. (STUFFING BOX SUMP PUMP OUT)
34	1	ELECTRIC BILGE PUMP, 15 V.A.C.	SCOT MODEL 74-75, OR EQUAL (SELF-PRIMING)
33	1	BILGE PUMP, ENGINE-DRIVEN (MANUAL CLUTCH)	JABSCO 51200-403 1/2" PORTS
32	6	CHECK VALVE- 1/4" VERTICAL	THRD. MOG- BRONZE
31	A/R	GENSET- 1/2" TO 1/4" THRD, ISO #	GALVANIZED MALLEABLE IRON
30	4	VALVE- 1/4" BALL, 3" FC, THRD. MOG	125# - BRONZE FULL PORT
29	4	VALVE- 1/2" BALL, 3" FC, THRD. MOG	125# - BRONZE FULL PORT
28	6	THREADOLET, 1/4" N.P.T.	FORGED STEEL (SUCTION 4 PUMP CONN. # PC, 27)
27	1/2	SQUARE TUBE- 3" x 3" x 1/4" WALL	STEEL, ASTM A 500, (BILGE MANIFOLD)
26	A/R	HOSE GLAHP- NORM GEAR TYPE	SAE TYPE T- (USE WITH FC. #3 22 & 23)
25	A/R	HOSE- 3/8" I.D. WIRE BRAID REINFORCED	SAE J142, FIRE RESISTANT (FUEL SERVICE)
24	A/R	HOSE- 1/2" I.D. WIRE BRAID REINFORCED	SAE J142, FIRE RESISTANT (FUEL SERVICE)
23	A/R	HOSE- 1/8" I.D. (BILGE DISC)	RUBBER REINFORCED (USE W/ FC. #3 9 & 35)
22	A/R	HOSE- 1/8" I.D., SUCTION SERVICE	RUBBER REINFORCED (GATES GREEN STRIP) OR EQ.
21	1	PIPE PLUG- 3/4" 50 HD, THRD.	BLACK STEEL, OR BRASS (USE W/ FC. 45)
20	3	THREADOLET- 3/8" N.P.T.	BLACK FORGED STEEL (OPTION 3/8" HALF-CPLG.)
19	3	THREADOLET- 1/2" N.P.T.	BLACK FORGED STEEL (OPTION 1/2" HALF-CPLG.)
18	1	THREADOLET- 3/4" N.P.T.	BLACK FORGED STEEL (OPTION 3/4" HALF-CPLG.)
17	A/R	UNION- 3/8", ISO #, THREADED	MALLEABLE IRON, BLACK
16	A/R	UNION- 1/2", ISO #, THREADED	MALLEABLE IRON, BLACK
15	A/R	UNION- 1/4", ISO #, THREADED	SALV. MALLEABLE IRON
14	A/R	UNION- 1/2", ISO #, THREADED	SALV. MALLEABLE IRON
13	A/R	NIPPLE CLOSE- 3/8" THREADED	BLACK STEEL
12	A/R	NIPPLE CLOSE- 1/2" THREADED	BLACK STEEL
11	A/R	NIPPLE CLOSE- 1/4" THREADED	STEEL, GALVANIZED
10	A/R	BUSHING- 3/8"	BLACK IRON
9	A/R	BUSHING- 1/2"	BLACK IRON
8	A/R	ELBOW 45°- 3/4" THREADED	GALVANIZED MALLEABLE IRON
7	A/R	ELBOW 90°- 1/4" THREADED	GALVANIZED MALLEABLE IRON
6	A/R	ELBOW 90°- 1/2" THREADED	GALVANIZED MALLEABLE IRON
5	A/R	PIPE- 3/8" SCH 40	ASTM A 53, BLACK STEEL
4	A/R	PIPE- 1/2" SCH 40	ASTM A 53, BLACK STEEL
3	A/R	PIPE- 3/4" SCH 40	ASTM A 53, GALVANIZED
2	A/R	PIPE- 1/4" SCH 40	ASTM A 53, GALVANIZED
1	A/R	PIPE- 1/2" SCH 40	ASTM A 53, GALVANIZED

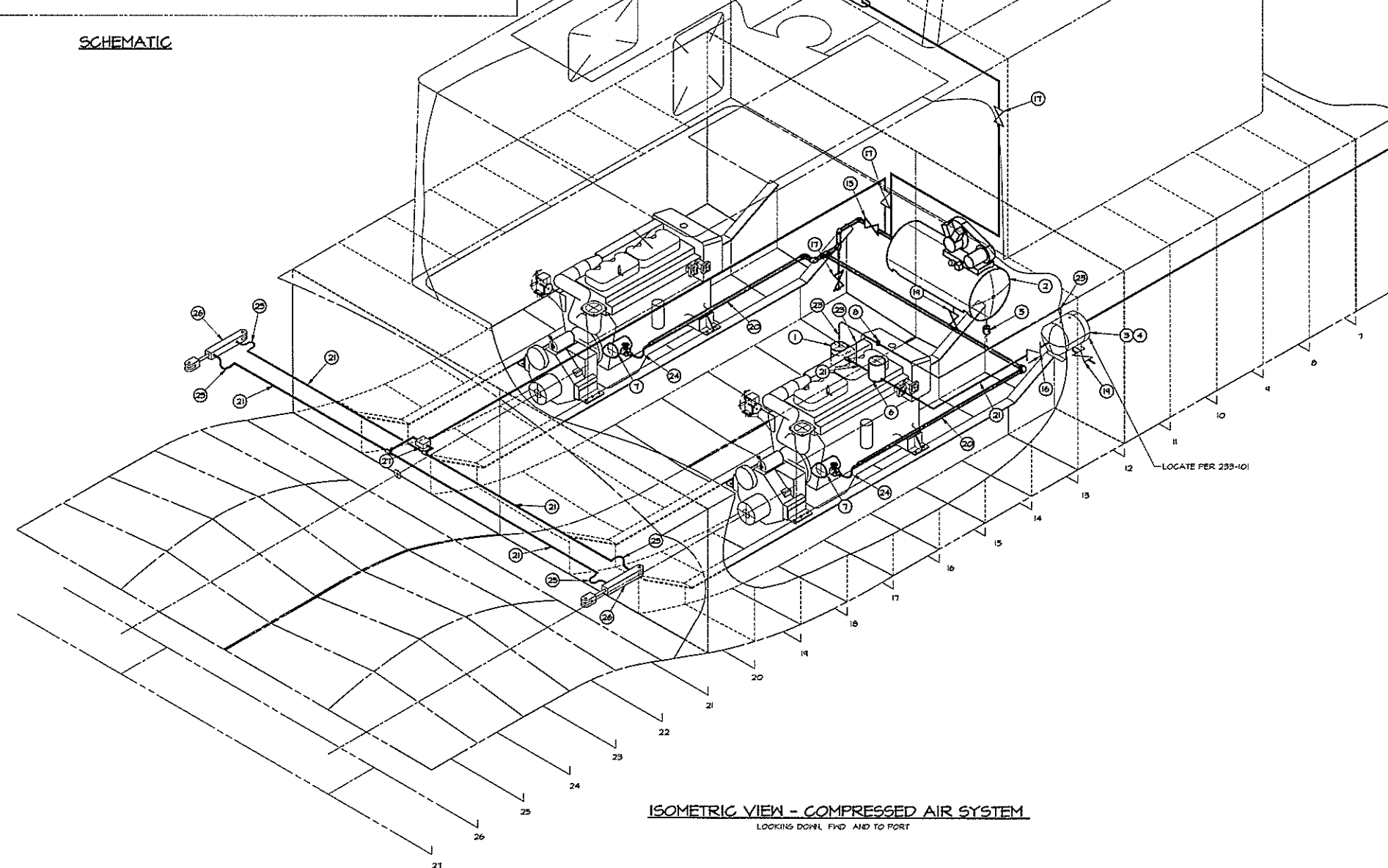
**BILL OF MATERIALS**

DWN. J.C. Birmingham	<b>TGMD, Inc. / Timothy Graul marine design</b>	
APPD.	naval architects marine engineers	
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	Project No. 99005
PROJECT 55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Scale: 1/2" = 1'-0"	REV. - Date: 9/20/99
IDOT JOB D-48-078-99	ILLINOIS DEPARTMENT OF TRANSPORTATION	Drawing No. 541-101
TITLE HULL PIPING SYSTEMS BILGE AND FUEL	SHT 57 of 64	

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	09/29/99	



- GENERAL NOTES:**
- AIR LINES MUST BE COPPER TUBING (ASTM B 75) OR SYNTHETIC RUBBER MATERIAL, EXCEPT AS NOTED.
  - BULK PIPE TO BE SCH 40 SEAMLESS ASTM-A106, FITTINGS TO BE MALLEABLE IRON 300 LB. - QUANTITIES AS REQUIRED.
  - BLOW DOWN ALL AIR LINES TO ENSURE THEY ARE FREE OF DEBRIS BEFORE MAKING FINAL CONNECTIONS.
  - LINE GOES TO UNLOADER VALVE ON COMPRESSOR.
  - SET CONTROL FOR 100 PSI - ON / 140 PSI-OFF.
  - THE LOCATIONS OF VALVES AND EQUIPMENT MAY BE MODIFIED FROM AS SHOWN LOCATIONS TO IMPROVE ACCESSIBILITY AND MAINTENANCE.
  - ROUTE AUTO DRAINS TO SHAFT LOG SUMP.
  - INSTALLATION OF AIR DRYER SHALL BE TO MANUFACTURER'S REQUIREMENTS.
  - AIR LINE CONNECTIONS SHALL BE PROVEN TO HAVE NO LEAKS.
  - PIPE AND TUBING DESIGNATIONS ARE AS FOLLOWS:
- \_\_\_\_\_ 1/4" MIN. I.D. TUBING (COPPER OR SYNTHETIC)  
 \_\_\_\_\_ 3/8" MIN. I.D. TUBING (COPPER OR SYNTHETIC)  
 \_\_\_\_\_ 1/2" SCH 40 SEAMLESS PIPE ASTM-A106  
 \_\_\_\_\_ 1 1/4" SCH 40 SEAMLESS PIPE ASTM-A106



FORWARD TO HEADS AND HOSE CONNECTION TO BARGE. EACH TIRE BARRIER EXCEPT FWD LATCHING CYL. SOLENOID OPERATED VALVES.

ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
34	-	-	-
33	-	-	-
32	-	-	-
31	1	QUICK DISCONNECT AIR COUPLER WITH SHUT OFF	COMMERCIAL, TO FIT ITEM 28 & 30, GRAINGER 6X410 OR EQUAL, 1/2" BODY SIZE
30	1	QUICK DISCONNECT AIR PLUG	COMMERCIAL TO FIT ITEM 31, GRAINGER 6X421 OR EQUAL, 1/2" BODY SIZE
29	2	MANUALLY OPERATED 4-WAY VALVE	VARIOUS
28	1	HOSE, AEROGUIP 2556 OR EQUAL	SYNTHETIC RUBBER WITH BRASS FITTINGS AND LENGTHS TO SUIT
27	1	DUAL SOLENOID OPERATED 4-WAY VALVE	VARIOUS
26	6	PNEUMATIC CYLINDER, REF. 161-201 & 564-201	FOR TIRE BARRIERS AND LATCHES
25	12	OSE, AEROGUIP 2556 OR EQUAL	SYNTHETIC RUBBER WITH BRASS FITTINGS AND LENGTHS TO SUIT
24	2	HOSE, AEROGUIP 2556 OR EQUAL	SYNTHETIC RUBBER WITH BRASS FITTINGS AND LENGTHS TO SUIT
23	A/R	TUBING, 1/4" MIN I.D.	COPPER ASTM B-75, OR SYNTHETIC (LENGTHS TO SUIT)
22	A/R	TUBING, 3/8" MIN I.D.	COPPER ASTM B-75, OR SYNTHETIC (LENGTHS TO SUIT)
21	A/R	PIPE, SCH 40 SEAMLESS 1/2"	BLACK ASTM A-106 (LENGTHS TO SUIT)
20	A/R	PIPE, SCH 40 SEAMLESS 1-1/4"	BLACK ASTM A-106 (LENGTHS TO SUIT)
19	4	VALVE, BALL, 1/4"	300# HOS THREADED BRONZE / BRASS
18	2	VALVE, BALL, 3/8"	300# HOS THREADED BRONZE / BRASS
17	2	VALVE, CHECK, 1/2"	300# HOS THREADED BRONZE / BRASS
16	2	VALVE, CHECK, 1/2"	300# HOS THREADED BRONZE / BRASS
15	1	VALVE, BALL, 1-1/4"	300# HOS THREADED BRONZE / BRASS
14	1	WIPER CONTROL VALVE	SPRASIE
13	1	WINDSHIELD WIPER AND BLADE	SPRASIE PARALLELOGRAM AIR OPERATED
12	1	STRAINER	KAHLEBERG H-100
11	1	MANUAL CONTROL VALVE	KAHLEBERG V-110B
10	1	DUAL TRUMPET AIRHORN	KAHLEBERG D-0A
9	2	GAUGE, 0-300 PSI	2" DIAL, 1/8"-21 NPT REAR PIPE CONNECTION, WABCO #P4118B-C001 OR EG
8	1	GOVERNOR CONTROL	ALLIEDSIGNAL / BENDIX D-2
7	2	PNEUMATIC ENGINE STARTERS WITH LUBRICATOR, SOLENOID VALVE AND MANUAL OVERRIDE	ORDER WITH ENGINES
6	1	TRUCK AIR BRAKE AIR DRYER WITH COALESCING FILTER, AUTO DRAIN VALVE, ETC.	ALLIEDSIGNAL / BENDIX PAD1
5	1	AUTOMATIC DRAIN VALVE	QUINCY OPH-T1
4	2	PRESSURE RELIEF VALVE, 150 PSI	ASME CODE FOR ITEM 3
3	2	AIR RECEIVER TANK - 10 GALLON	ASME CODE, MASTER-CARR M883KIT
2	1	AIR COMPRESSOR, 5 HP, 60 GAL	QUINCY OR-25 HYDRAULIC PRESSURE UNLOADING
1	1	ENGINE DRIVEN AIR COMPRESSOR	T5 OPH - TO SUIT MAIN ENGINE

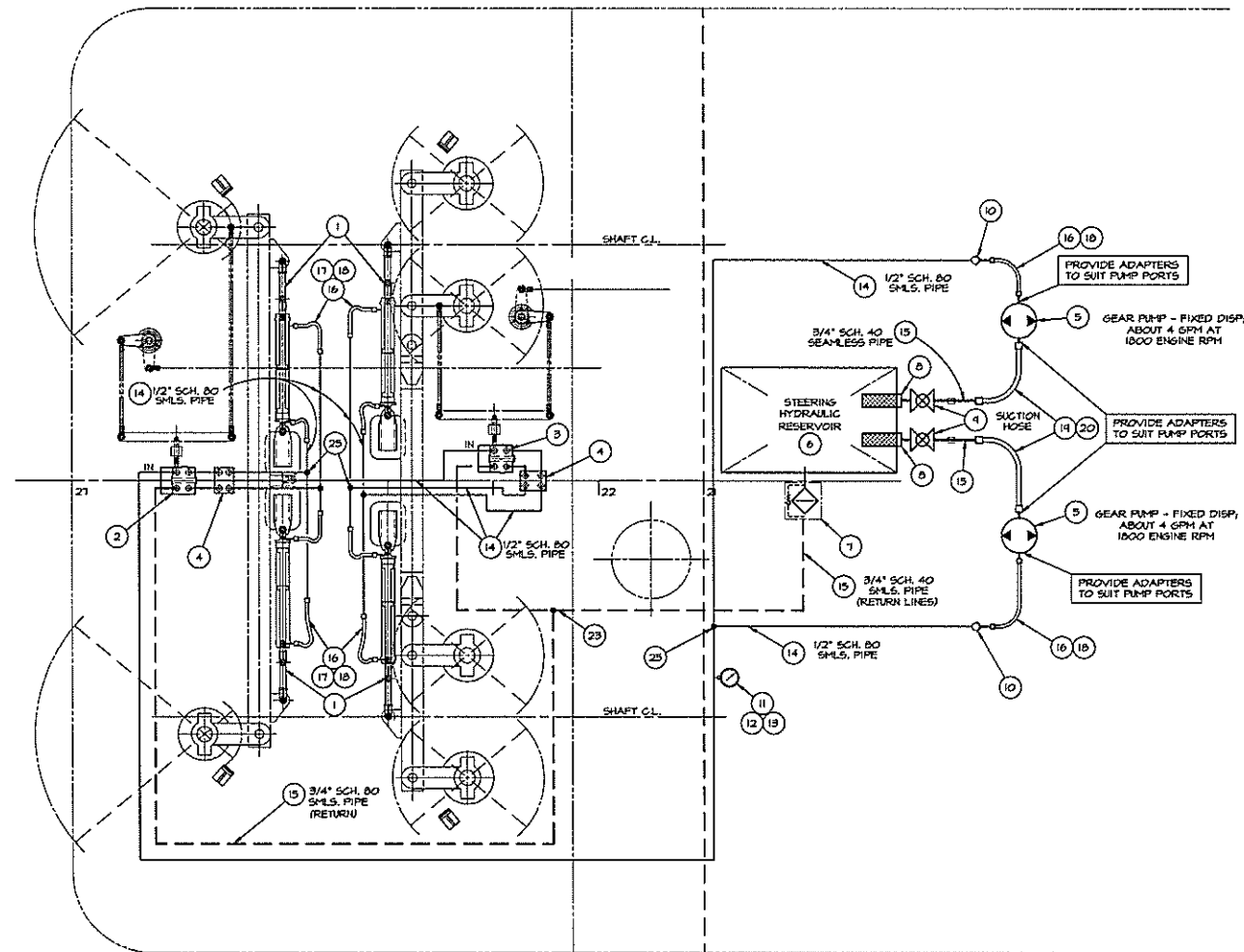
**BILL OF MATERIALS**

DWN. C.J.B. / W.G.H.  
 APPD. **TGMD, Inc. / Timothy Graul marine design**  
 naval architects marine engineers  
 DATE 20 SEPT 1999 Slurgeon Bay, WI 54235

PROJECT 55'-0"x18'-0"x6'-4" BRUSSELS FERRY PUSHBOAT Project No. 99005  
 IDOT JOB D-48-016-99 Scale: 1/2" = 1'-0"  
 ILLINOIS DEPARTMENT OF TRANSPORTATION REV. - Date: 09/20/99  
 TITLE COMPRESSED AIR SYSTEM Drawing No. 551-101

Proj. 99005, Dwg. 551-101 Rev. - Title COMPRESSED AIR SYSTEM

REVISIONS			
LR	DESCRIPTION	DATE	APPROVED
-	FIRST ISSUE	9/20/49	



**GENERAL NOTES**

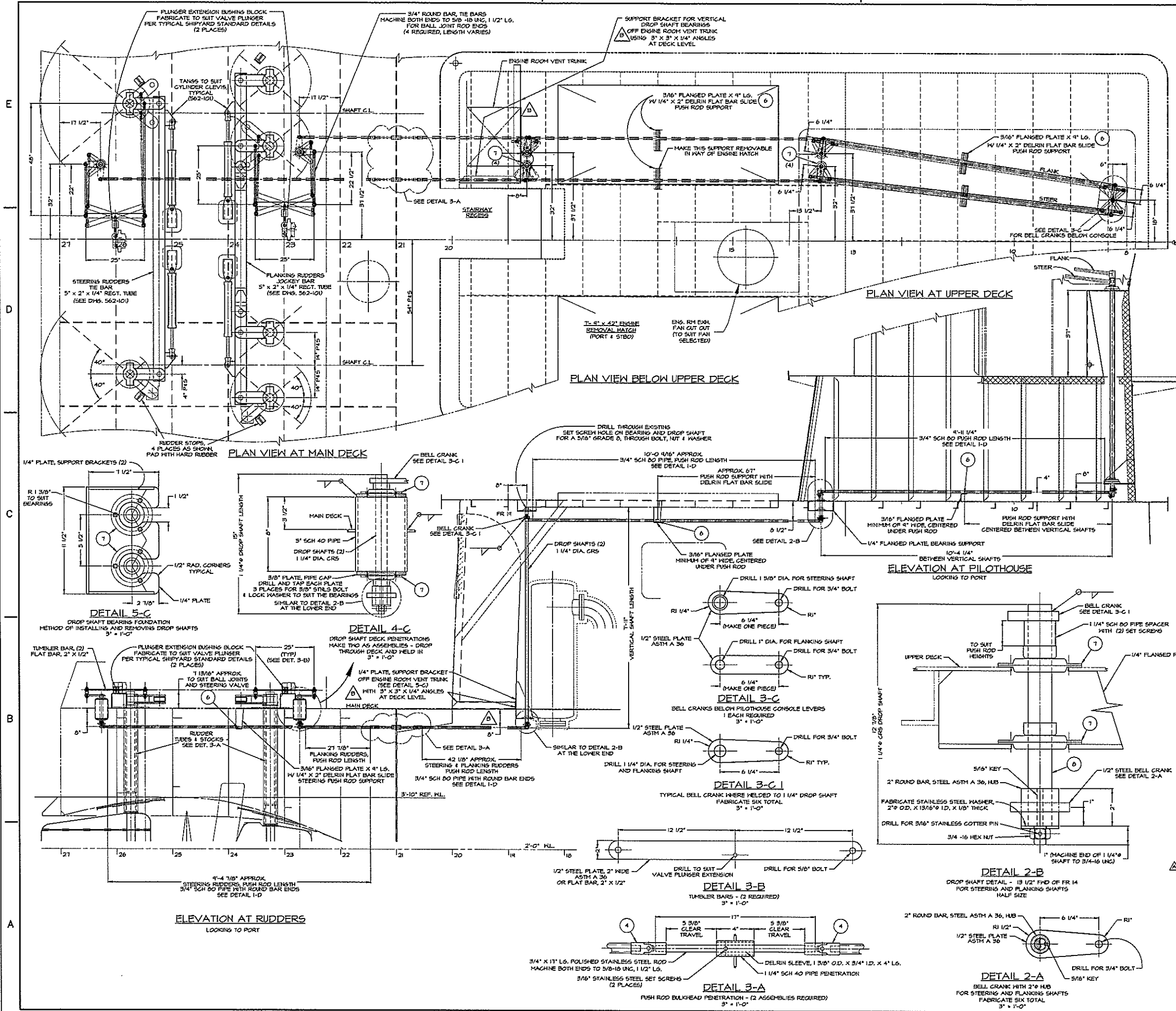
1. MOUNT PUMPS (5) ON ACCESSORY DRIVE PADS OF ENGINES.
2. MOUNT RETURN FILTERS (1) AND 3/4" BALL VALVES (4) ON HYDRAULIC RESERVOIR (6).
3. RESERVOIR LOCATION AND APPROXIMATE SIZE ARE SHOWN ON DRAWING NO. 233-101, PURCHASE OR FABRICATE TO SUIT.
4. INSTALL HOSES PER MFR'S RECOMMENDED PROCEDURE, ALLOWING SUFFICIENT LENGTH FOR BENDS AND PRESSURE CHANGES.
5. SEE DRAWINGS 562-101 FOR RUDDERS, TILLERS AND TUBES.
6. SEE DRAWINGS 561-101 FOR STEERING CONTROL AND ACTUATION.
7. QUANTITIES OF FITTINGS MAY VARY TO SUIT FINAL ARRANGEMENT.
8. PROVIDE ONE MADE-UP SPARE OF EACH SIZE AND LENGTH OF HYDRAULIC HOSE, INCLUDING END FITTINGS.

HYDRAULIC STEERING SYSTEM - DIAGRAM OVER ARRANGEMENT

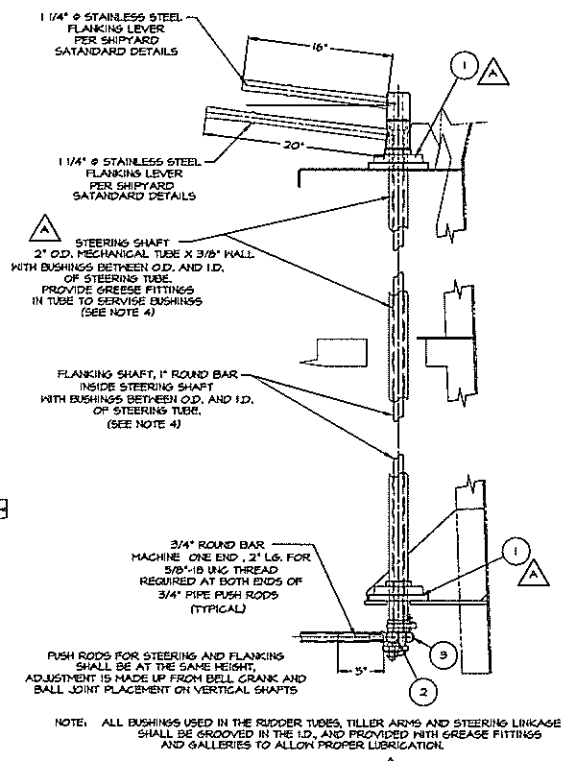
ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
35			
34			
33			
32			
31			
30			
29			
28			
27			
26			
25	5	TEE, 1/2" 3000# SOCKET WELD	BLACK FORGED STEEL, USA6 86.11 - LADISH OR EQUAL
24	AVR	40° ELBOW, 1/2" 3000# SOCKET WELD	BLACK FORGED STEEL, USA6 86.11 - LADISH OR EQUAL
23	1	TEE, 3/4" 3000# SOCKET WELD	BLACK FORGED STEEL, USA6 86.11 - LADISH OR EQUAL
22	AVR	40° ELBOW, 3/4" 3000# SOCKET WELD	BLACK FORGED STEEL, USA6 86.11 - LADISH OR EQUAL
21	AVR	PRESSURE HOSE, PARKER 301, W.P. # 2250 PSI	SAE 100R2, 31" JG-16 1/4-12 FEM. SWIVEL ENDS
20	2	ADAPTER, 1 1/8-12 31" MALE x 3/4" FPT	PARKER P/N 0203-12-12 SAE 070103
19	AVR	SUCTION HOSE, PARKER 881-12	SAE 100R4, 31" JG-12 1/4-12 FEM. SWIVEL ENDS
18	10	ADAPTER, 3/4-16 31" MALE x 1/2" FPT	PARKER P/N 0203-8-8 SAE 070103
17	10	ADAPTER, 3/4-16 31" MALE x 1/2" FPT	PARKER P/N 0303-0-8 SAE 070102
16	AVR	PRESSURE HOSE, PARKER 301, W.P. # 3000 PSI	SAE 100R2, 31" JG-08 3/4-16 FEM. SWIVEL ENDS
15	AVR	PIPE, 3/4" SCH. 80 SEAMLESS	ASTM-A106 BLACK STL.
14	AVR	PIPE, 1/2" SCH. 80 SEAMLESS	ASTM-A106 BLACK STL.
13	AVR	PIPE, 1/4" SCH. 80 SEAMLESS	ASTM-A106 BLACK STEEL
12	1	NEEDLE VALVE, 1/4" THREADED, 3000#	STEEL BARSTOCK
11	1	PRESSURE GAUGE, 0-3000 PSI	ENERGY OR EQUAL
10	2	1/2" CHECK VALVES, 3000# RATING	STEEL, ENERGY OR EQUIVALENT
9	2	BALL VALVE, 3/4" THREADED	BRONZE OR STEEL
8	2	SUCTION STRAINER, 3/4" OUTLET, 100 MESH	ZINSA 96-010-3 OR EQUAL
7	1	RETURN FILTER, 25 MICROMETER RATING, 25 PSI BYPASS	WICKERS OFRS 25 P-25 OR EQUAL
6	1	HYDRAULIC RESERVOIR, W/ 50W GAZE FILTER/SEPARATOR 1 INCH RING 20 GALLON RES. DING. 38-12 FOR LOCATION	
5	2	GEAR PUMPS, FIXED DISPLACEMENT, ABOUT 4 GPM AT 1800 ENGINE RPM	TYTRON OR EQUAL
4	2	CROSS PORT RELIEF VALVE, 1/2" NPT FPORTS, [SUN MODEL NO. RPEC YBC - OR EQUAL	
3	1	4-WAY, 3 POSITION DIRECTIONAL CONTROL VALVE, SPOOL OPERATED (NO LEVER), SPRING CENTER.	6RESN V10 OR EQUAL
2	1	POWER BEYOND, 4-WAY, 3 POSITION DIRECTIONAL CONTROL VALVE, SPOOL OPERATED (NO LEVER), SPRING CENTER W/ MAIN PRESSURE RELIEF	6RESN V10 OR EQUAL
1	4	HYDRAULIC CYLINDER, CTR-250, 2 1/2" BORE, 20" STROKE, 3000 P.S.I. ENERGY HYDRAULICS SERIES CTR-250 (2322) OR EQUAL	

BILL OF MATERIALS			
OWN. C.J. BALESTRIERI	TGMD, Inc. / Timothy Graul marine design		
APPD.	naval architects marine engineers		
DATE 20 SEPT. 1949	Sturgeon Bay, WI 54235		
PROJECT	55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Project No.	99005
IDOT JOB	D-48-078-49	Scale:	3/4" = 1'-0"
ILLINOIS DEPARTMENT OF TRANSPORTATION		REV. -	Date: 9/20/49
TITLE		Drawing No.	
HYDRAULIC SYSTEM			556-101

Proj. 99005 Dwg. 556-101 Rev. - Title HYDRAULIC SYSTEM



REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	9/20/99	
A	INCORPORATE BUILDER'S COMMENTS FROM 12/21/00. CHANGED OUTER STEERING SHAFT TO 2" O.D. X 3/8" WALL TO INCORPORATE A KEYWAY ON THE OUTER SHAFT AT THE HUB PER SHIPYARD DETAILS. DETAIL 1-D	01/04/01	
B	INCORPORATE BUILDER'S COMMENTS FROM 01/04/01. ADDED 3" X 3" X 1/4" ANGLES AT DECK LEVEL TO SUPPORT DROP SHAFT BEARING BRACKET OFF ENGINE ROOM VENT TRUNK.	02/28/01	



**DETAIL 1-D**  
STEERING LEVER ARRANGEMENT AT CONSOLE  
1 1/2" x 1'-0"

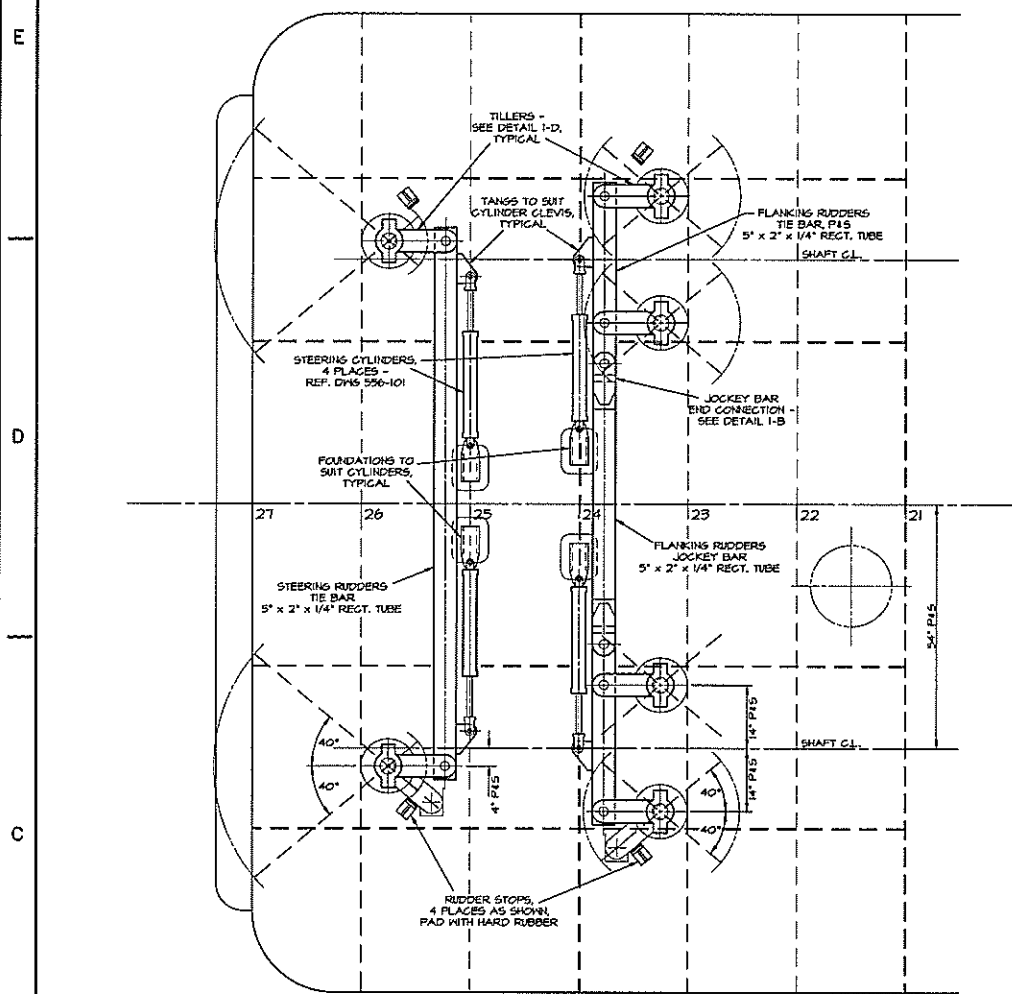
- GENERAL NOTES**
1. ALL STEEL USED SHALL BE ASTM A 36, UNLESS NOTED OTHERWISE.
  2. SEE DRAWINGS 562-101 FOR RUDDERS, TILLERS AND TUBES.
  3. ALL BOLTS USED TO ASSEMBLE AND MOUNT STEERING COMPONENTS SHALL BE GRADE 8.
  4. ALL BUSHINGS USED IN THE RUDDER TUBES, TILLER ARMS AND STEERING LINKAGE SHALL BE GROOVED IN THE I.D., AND PROVIDED WITH GREASE FITTINGS AND GAL- LERIES TO ALLOW PROPER LUBRICATION.
  5. LOCATE RUDDER STOPS TO SUIT (4 PLACES).
  6. SEE DRAWING 556-101 FOR HYDRAULIC SYSTEM AND HOOP-UP.

NO.	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
1	2	BEARINGS, 2" SHAFT, 5G NICKEL PLATED 4-BOLT FLANGED DODGE - OR EQUAL	
2	12	BEARINGS, 1 1/4" SHAFT, 3-BOLT FLANGE, DODGE SLX PIN 12B150	
3	4	FLAT BAR, 2" X 1/4" X 4" LG.	DELTRIN (PUSH ROD SLIDES)
4	4	SLEEVE, 1 1/8" O.D. X 3/4" I.D. X 4" LG.	DELTRIN
5	4	UNIVERSAL JOINT, 5/8" BORE, 1 1/4" JOINT	MEMMASTER-CARR # 6443KIT - OR EQ.
6	3	BALL JOINT, ROD END, FEMALE-5/8" B.H.	MEMMASTER-CARR # 6072K37 - OR EQ.
7	2	BALL JOINT, ROD END, FEMALE-5/8" B.H.	MEMMASTER-CARR # 6072K37I - OR EQ.
8	1	BEARINGS, 2" SHAFT, 5G NICKEL PLATED 4-BOLT FLANGED DODGE - OR EQUAL	

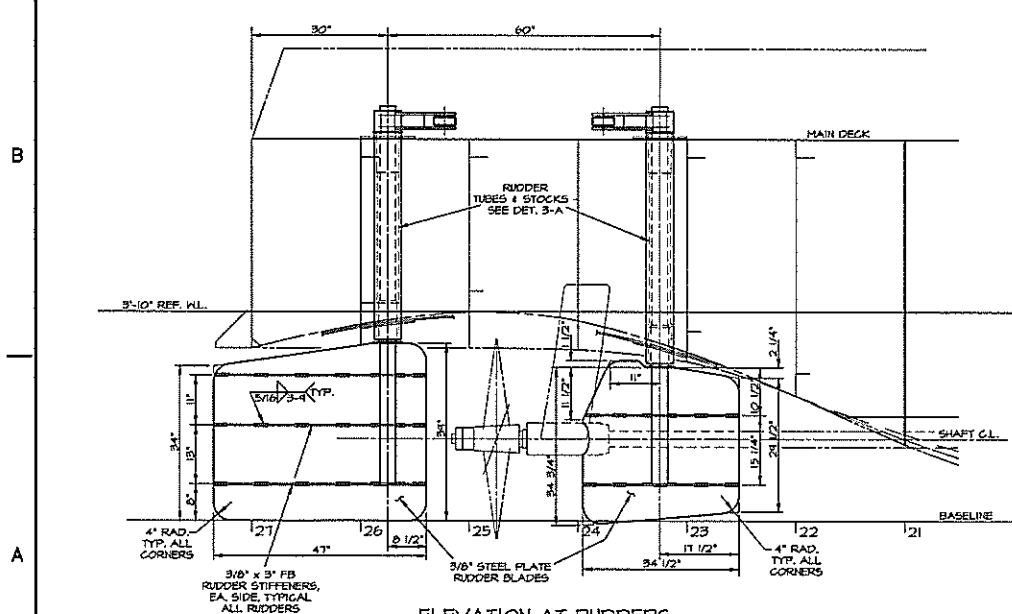
BILL OF MATERIALS			
OWN. C.J. BALESTRIERI	TGMD, Inc. / Timothy Graul marine design		
APPD.	naval architects	marine engineers	
DATE 20 SEPT. 1999	Sturgeon Bay, WI 54235		
PROJECT	55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY FUSHBOAT	Project No.	99005
SCALE	1/8" = 1'-0"	Scale:	3/4" = 1'-0"
ILLINOIS DEPARTMENT OF TRANSPORTATION		REV. B DATE 01/05/01	
TITLE	STEERING CONTROL & ACTUATION	Drawing No.	561-101

Proj. 562-101 Rev. B Title STEERING CONTROL & ACTUATION

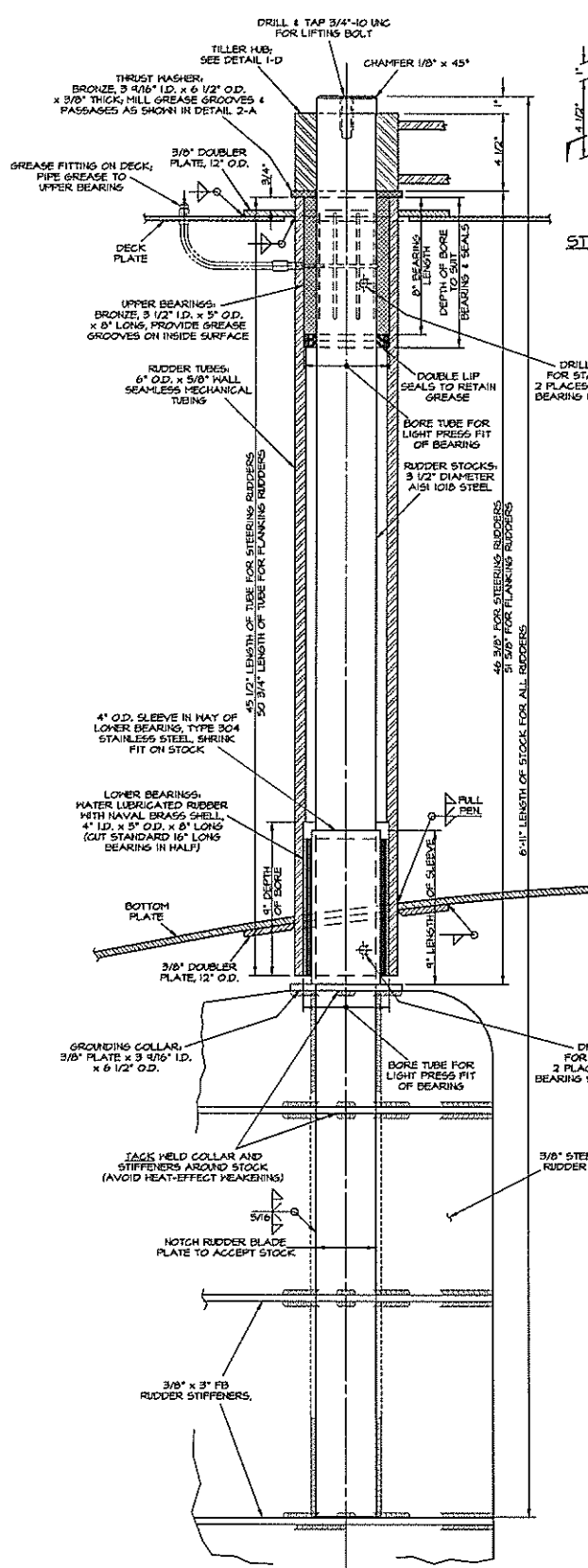
REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	9/20/99	



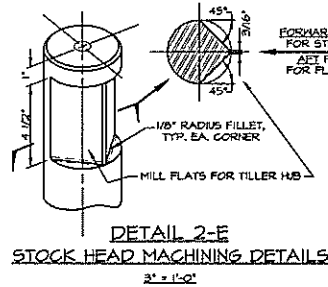
PLAN VIEW AT MAIN DECK  
3/4" = 1'-0"



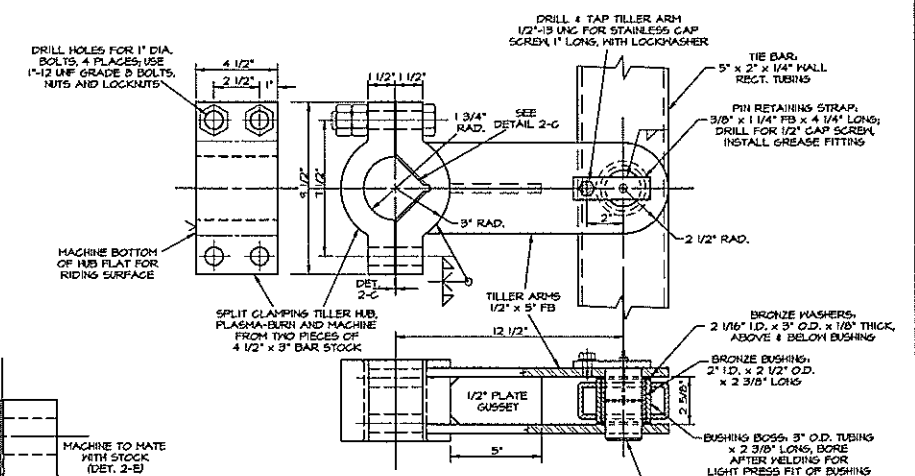
ELEVATION AT RUDDERS  
3/4" = 1'-0"



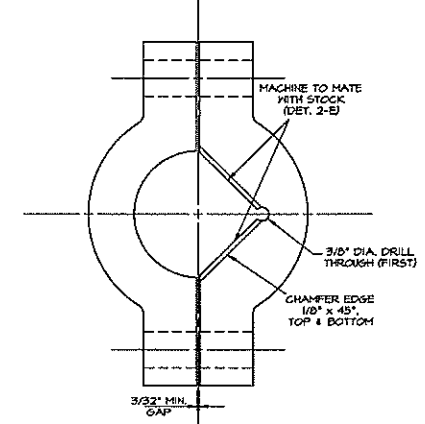
DETAIL 3-A  
RUDDER TUBES AND STOCKS  
2 EACH REQ'D FOR STEERING RUDDERS, 4 EACH REQ'D FOR FLANKING RUDDERS  
(STEERING RUDDER SHOWN)  
3/4" = 1'-0"



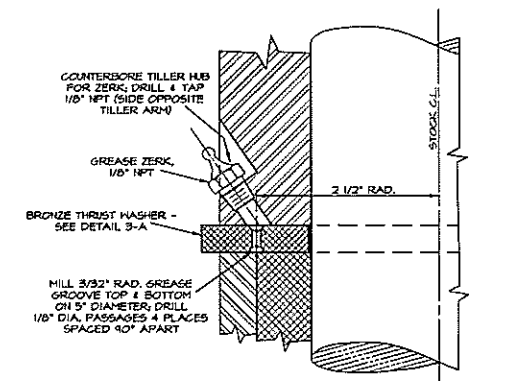
DETAIL 2-E  
STOCK HEAD MACHINING DETAILS  
3/4" = 1'-0"



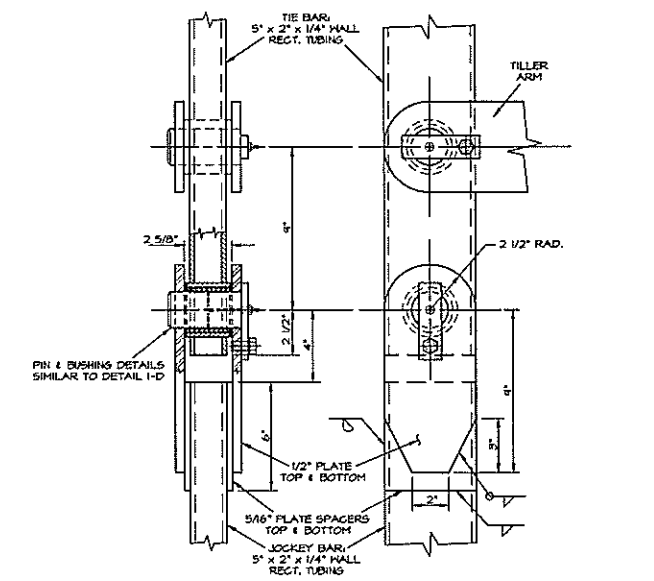
DETAIL 1-D  
TILLER & TIE ROD DETAILS  
3/4" = 1'-0"



DETAIL 2-C  
TILLER HUB DETAILS  
1/2" = 1'-0"



DETAIL 2-A  
THRUST WASHER & GREASE FITTING  
TYPICAL EACH TILLER  
FULL SIZE

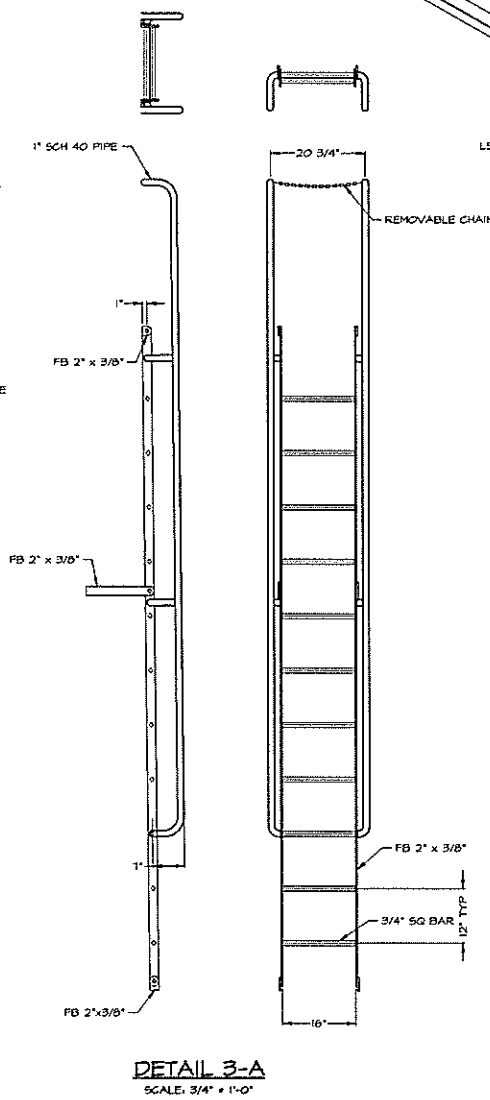
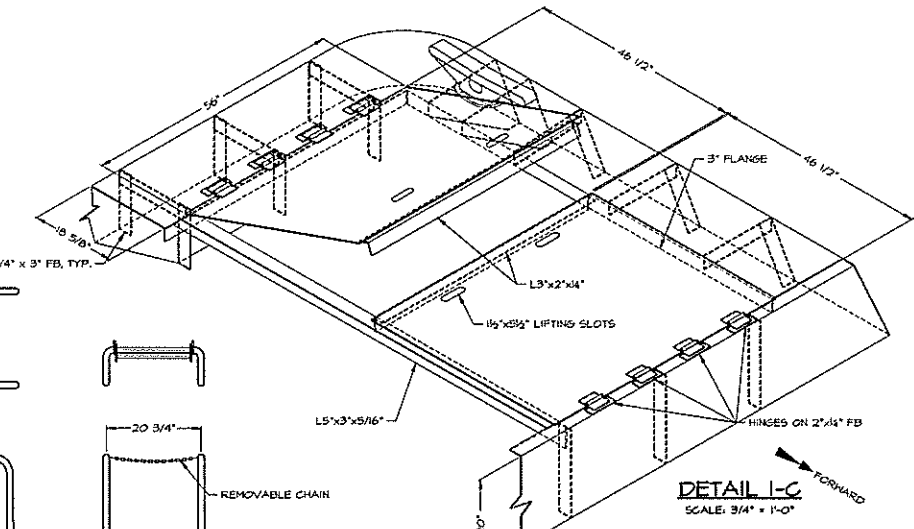
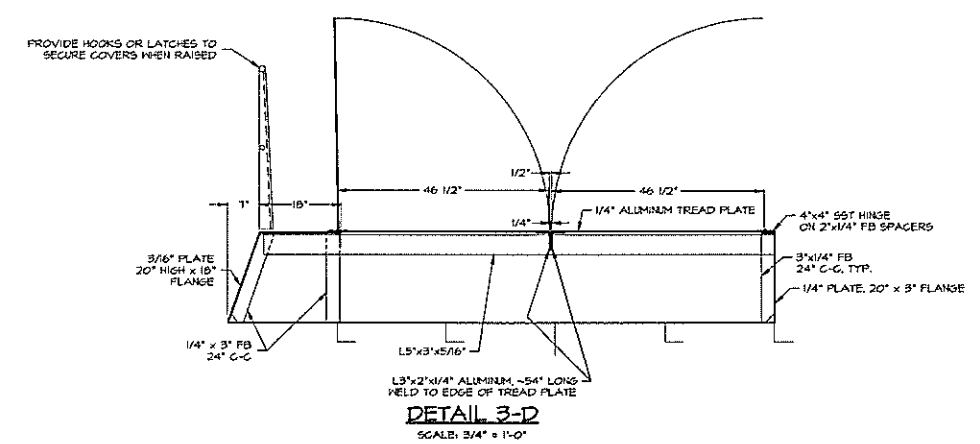
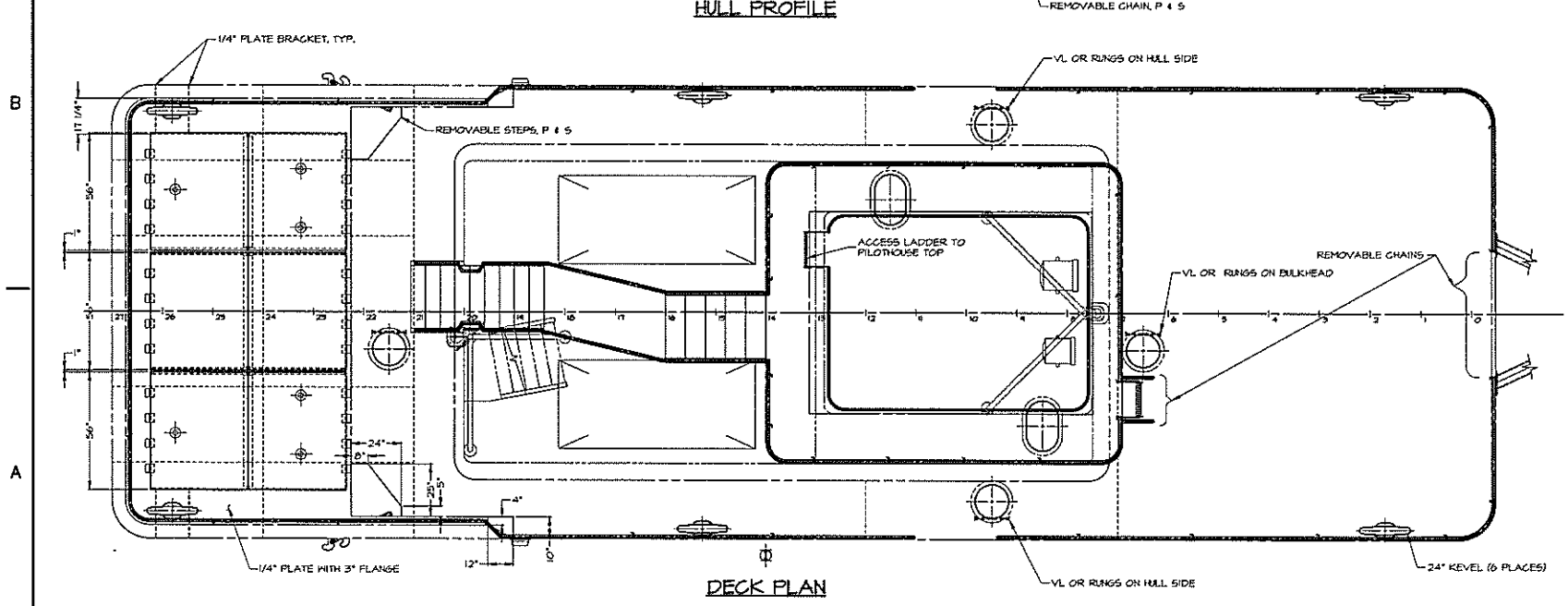
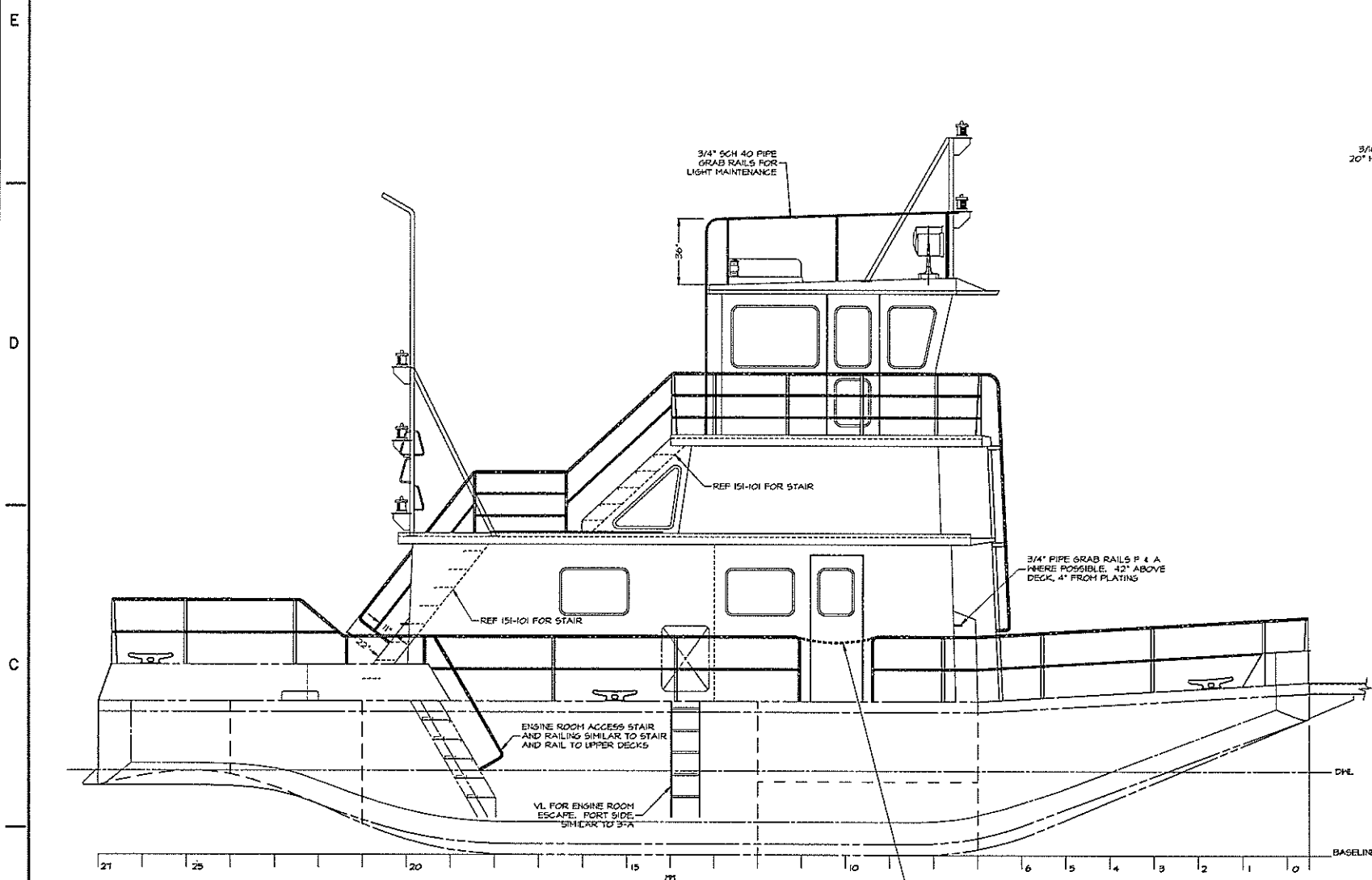


DETAIL 1-B  
JOCKEY BAR END CONNECTION  
3/4" = 1'-0"

OWN. MDP	TGMD, Inc. / Timothy Graul marine design	
APPD.	naval architects marine engineers	
DATE 20 SEPT 1999	Sturgeon Bay, WI 54235	Project No. 99005
	PROJECT 55'-0" x 16'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Scale: 3/4" = 1'-0"
	IDOT JOB D-18-07B-99	REV. " Date: 9/20/99
	ILLINOIS DEPARTMENT OF TRANSPORTATION	Drawing No. 562-101
	TITLE RUDDERS, TILLERS & TUBES	

Proj. 562-101 Rev. - Title RUDDERS, TILLERS & TUBES

REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
A	CHG'D TO RADUS BULGE FULL LENGTH	7/5/00	



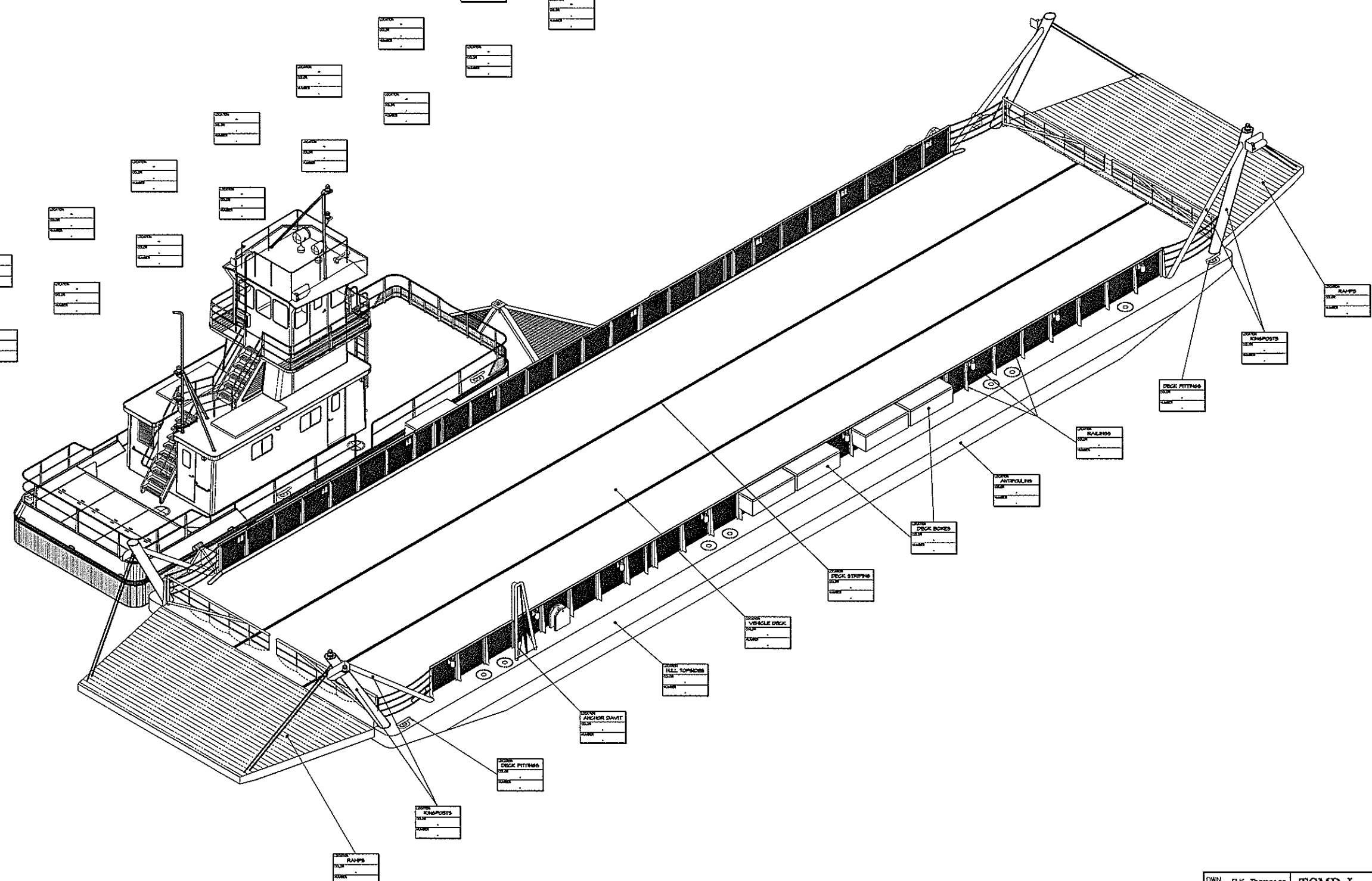
DETAIL 2-B  
SCALE: 3/4" = 1'-0"  
TYPICAL STANCHION

ITEM	QTY.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
15	-	-	-
14	72	BOLT, WASHER, NUT 1/4"	S&T 304 OR 316, FASTENS S&T HINGE TO ALUMINUM TREAD PLATE
13	A/R	FB 1/4" x 2"	ASTM A-36
12	A/R	SG BAR 3/4"	ASTM A-36
11	A/R	FB 3/8" x 4"	ASTM A-36
10	A/R	FB 3/8" x 2"	ASTM A-36
9	A/R	PIPE 3/4" SCH 40	ASTM A-53
8	A/R	PIPE 1" SCH 40	ASTM A-53
7	24	HINGE, 4" x 4" S&T	MASTER-CARR 1642A&2
6	A/R	ANGLE, 3" x 2" x 1/4" ALUMINUM	6061-T6
5	A/R	ANGLE, 3" x 3" x 5/16"	ASTM A-36
4	A/R	PLATE, 1/4" ALUMINUM TREAD	6061-T6
3	A/R	PLATE, 1/4"	ASTM A-36
2	A/R	PLATE, 3/16"	ASTM A-36
1	6	24" LEVEL	HARRISS DF-30

BILL OF MATERIALS			
OWN.	W.S. HITT	TGMD, Inc. / Timothy Graul marine design	
APPD.		naval architects marine engineers	
DATE	30 JULY 1999	Sturgeon Bay, WI 54235	
PROJECT	55'-0" x 18'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Project No.	99005
IDOT JOB	D-48-07B-41	Scale:	3/8" = 1'-0"
ILLINOIS DEPARTMENT OF TRANSPORTATION		REV. A Date:	7/5/00
TITLE	DECK FITTINGS, RAILS AND LADDERS	Drawing No.	611-101

Proj. 99005 Dwg. 611-101 Rev. A Title DECK FITTINGS, RAILS AND LADDERS

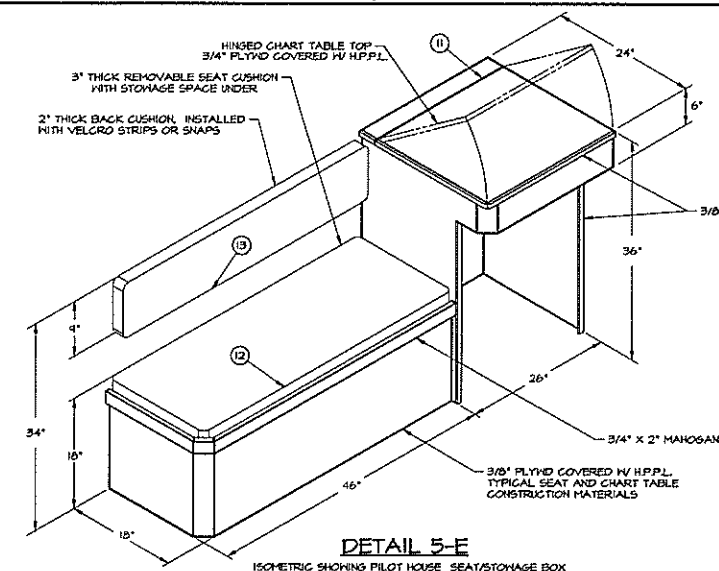
REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	07/30/99	



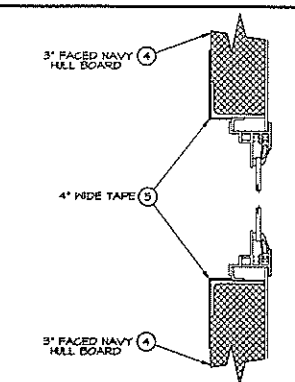
DWN. R.K. Thompson APPD. DATE 20 SEPTEMBER 2000	<b>TGMD, Inc. / Timothy Graul marine design</b> naval architects Sturgeon Bay, WI 54235 marine engineers	Project No. <b>49005</b>
PROJECT 120'-0" x 35'-0" x 4'-4" <b>BRUSSELS FERRY BARGE</b>		Scale: 1/4" = 1'-0"
IDOT JOB D-4B-07B-49 ILLINOIS DEPARTMENT OF TRANSPORTATION		REV. - Date 9/20/00
TITLE <b>PAINT SCHEDULE</b>		Drawing No. <b>631-001</b>

Proj. 49005 Dwg. 631-001 Rev. - TILE PAINT SCHEDULE

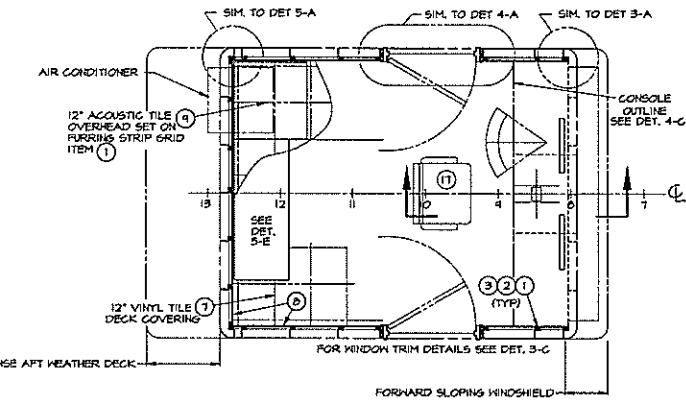
REVISIONS			
LN	DESCRIPTION	DATE	APPROVED
1	FIRST ISSUE	04/20/44	



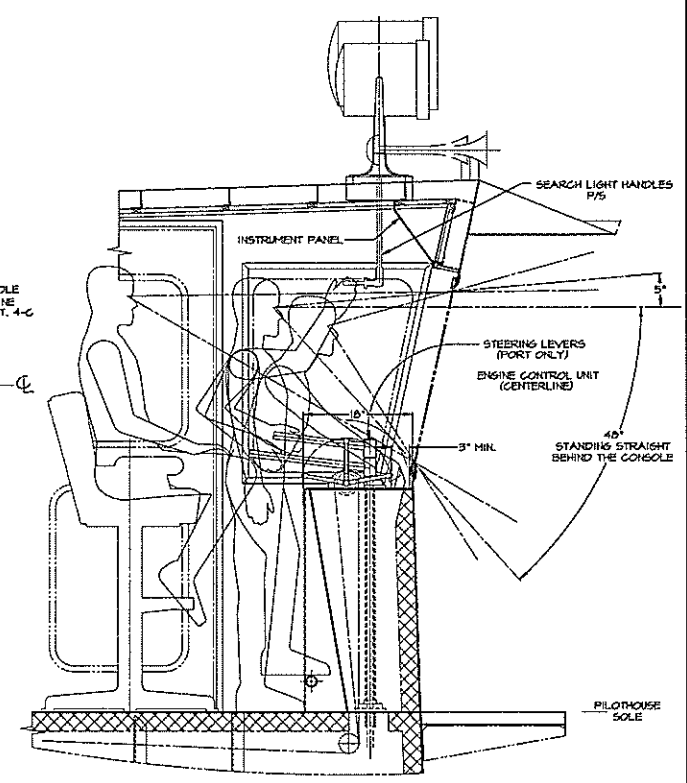
**DETAIL 5-E**  
ISOMETRIC SHOWING PILOT HOUSE SEAT/STORAGE BOX AND CHART TABLE LOOKING AFT AND TO PORT 1' x 1'-0"



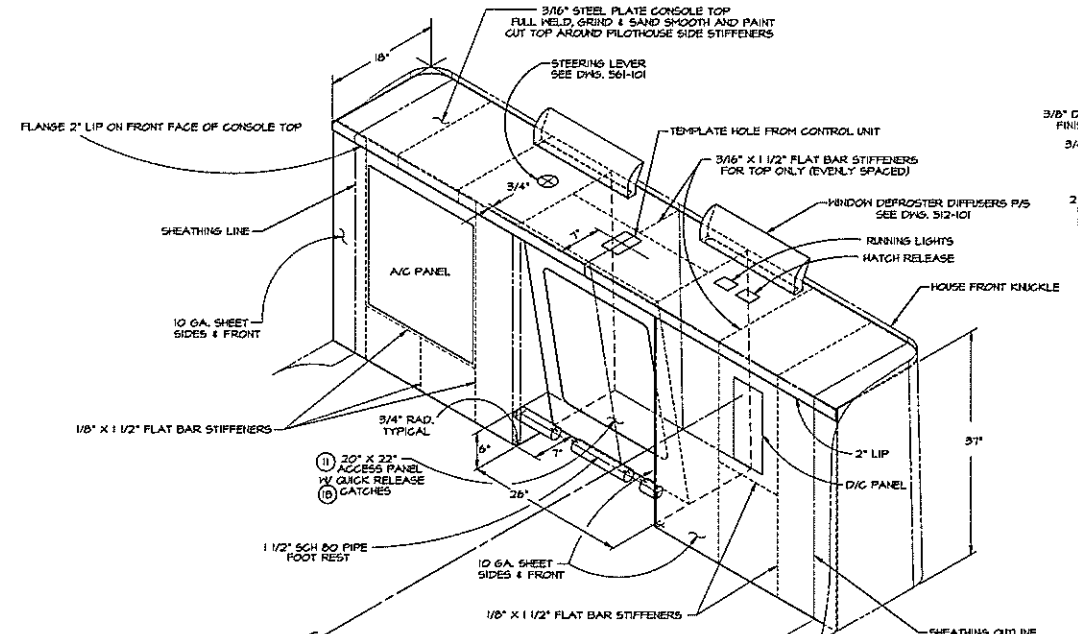
**DETAIL 3-E**  
TYPICAL SECTION THROUGH ENGINE ROOM WINDOWS 3' x 1'-0"



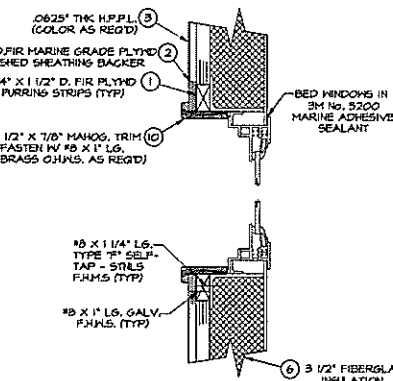
**KEY PLAN VIEW 2-D**  
PILOT HOUSE ARRANGEMENT FURRINGS AND SHEATHING - SHOWN BELOW WINDOW LEVEL 1/2' x 1'-0"



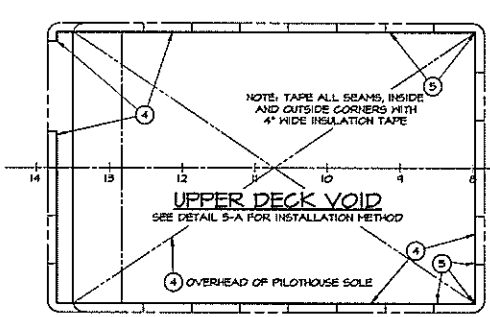
**SECTION 1-D**  
OPERATOR'S EQUIPMENT SIGHT ARRANGEMENT AS VIEWED BY A 6'0" TALL OPERATOR 1' x 1'-0"



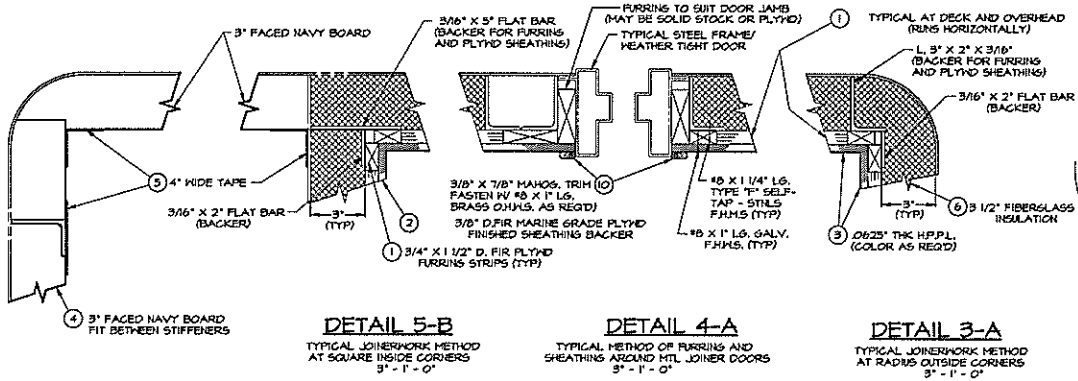
**DETAIL 4-C**  
ISOMETRIC SHOWING PILOT HOUSE CONSOLE LOOKING FWD AND TO PORT 1' x 1'-0"



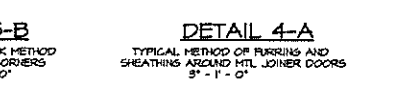
**DETAIL 3-C**  
TYPICAL SECTION THROUGH WINDOW TRIM 3' x 1'-0"



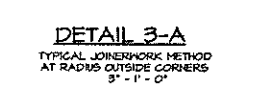
**KEY PLAN VIEW 2-C**  
VOID BELOW PILOT HOUSE SOLE 1/2' x 1'-0"



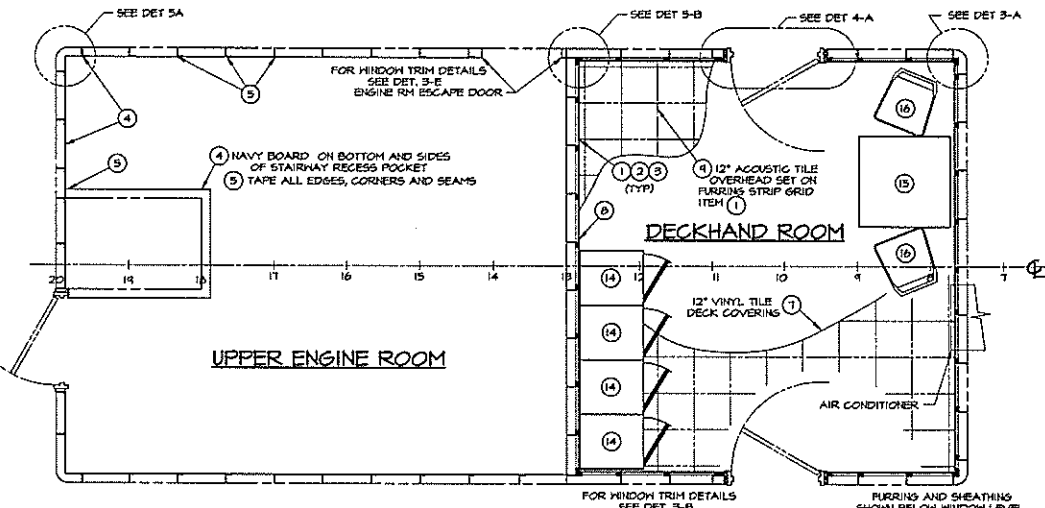
**DETAIL 5-A**  
TYPICAL NAVY BOARD INSTALLATION METHOD 3' x 1'-0"



**DETAIL 4-A**  
TYPICAL METHOD OF FURRINGS AND SHEATHING AROUND MTL JOINDER DOORS 3' x 1'-0"



**DETAIL 3-A**  
TYPICAL JOINERWORK METHOD AT RADIUS OUTSIDE CORNERS 3' x 1'-0"



**KEY PLAN VIEW 2-A**  
MAIN DECK HOUSE JOINER ARRANGEMENT 1/2' x 1'-0"

- GENERAL NOTES:**
- ADHESIVES SHALL COMPLY WITH THE SPECIFIC PRODUCTS MANUFACTURERS REQUIREMENTS AND RECOMMENDATIONS.
  - H.P.P.L. IS HIGH PRESSURE PLASTIC LAMINATE.
  - A MIN. OF 1/4" RADIUS SHALL BE USED AT ALL INSIDE CORNERS OR H.P.P.L. CUT-OUTS.
  - ALL METAL MUST BE CLEAN AND FREE OF OILS BEFORE PAINTING.
  - RESERVE EQUIPMENT ARRANGEMENT ON CONSOLE.

ITEM	QUAN.	DESCRIPTION	MATERIAL/SPECIFICATION/REMARKS
1	1	TABLE, SINGLE PEDESTAL, 30" SQ	STEEL/VARIOUS MCMASTER-CARR #4622 T II
2	1	CHAIR, STACKABLE	STEEL/VARIOUS MCMASTER-CARR #4610 T II
3	1	LOCKER, SINGLE TIER	STEEL MCMASTER-CARR #5162 T II
4	1	CUSHION, BACK, 2" THICK	FIRM FOAM RUBBER SIZED TO SUIT SEAT AREA
5	1	CUSHION, SEAT, 3" THICK	FIRM FOAM RUBBER COVERED W/ NAUGAHYDE
6	1	HINGE, PIANO, 1 1/2" OPEN X 22" LG.	CHROME PLTD BRASS CHART TABLE & CONSOLE
7	1	AS REQ'D LUMBER, MAHOGANY, 1" STOCK	MARINE/COMMERCIAL SHAPE AS REQ'D
8	1	25.0 SF 12" X 12" OVERHEAD CEILING TILE	FIBER/ACOUSTIC ARMSTRONGS OR EQUAL
9	1	50 LF 3" HIGH COVE MOLDING	VINYL ARMSTRONGS OR EQUAL
10	1	15.0 SF 12" X 12" TILE, DECK COVERING	VINYL ARMSTRONGS OR EQUAL
11	1	56.0 SF 3 1/2" X 16" INSULATION	FIBERGLASS COMFL
12	1	AS REQ'D 4" WIDE INSULATION TAPE	COMFL FOR ITEM #4
13	1	AS REQ'D 3" THICK NAVY BOARD	COMFL
14	1	58.0 SF 3/8" THK H.P.P.L. X 48" X 96" SHT	LAMINATED PLASTIC FORNICA OR EQUAL
15	1	25.0 SF 3/8" X 48" X 96" PLYWD	FIR - A3 GRADE SHEATHING BACKER
16	1	AS REQ'D 3/4" X 1 1/2" PLYWD FURRING	D/FIR - A3 GRADE CUT FROM 4 X 8 SHITS

BILL OF MATERIALS	
DWN, C.J. BALESTRIERI	<b>TGMD, Inc. / Timothy Graul marine design</b>
APPD.	naval architects marine engineers
DATE 20 SEPT, 1944	Sturgeon Bay, WI 54235
PROJECT 55'-0" x 12'-0" x 7'-0" BRUSSELS FERRY PUSHBOAT	Project No. 49005
LOT JOB D-48-078-44	Scale: 1/2" = 1'-0"
ILLINOIS DEPARTMENT OF TRANSPORTATION	REV. - Date: 4/20/44
TITLE JOINERWORK AND INTERIOR	Drawing No. 641-101

Proj. 55005, Dwg. 641-101 Rev. 1 Title JOINERWORK AND INTERIOR