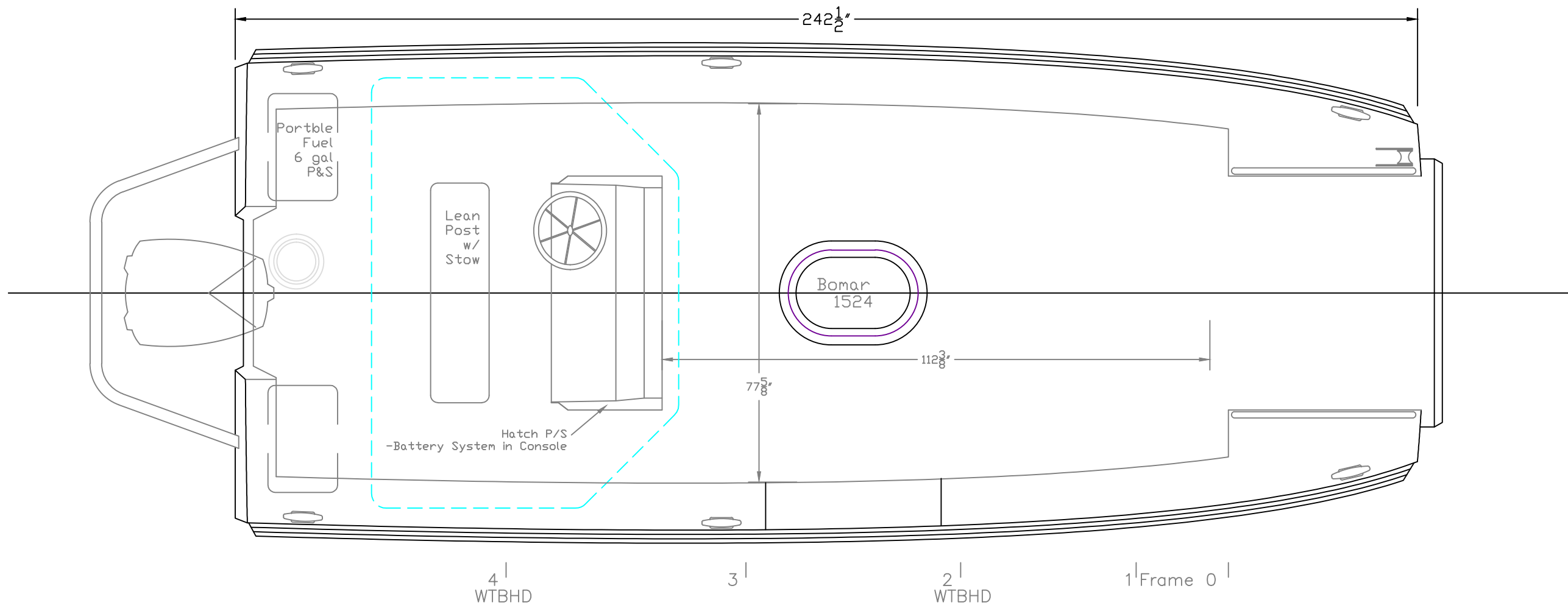


Waterlines:
 B- 3541 lbs, 370 lbs crew, 20 lbs gear
 C- 3900 lbs, 740 lbs crew (aft) , 120 lbs gear
 E- 5026 lbs, 1850 lbs crew (mid), 20 lbs gear
 F- 3916 lbs, 740 lbs crew (fwd), 20 lbs gear

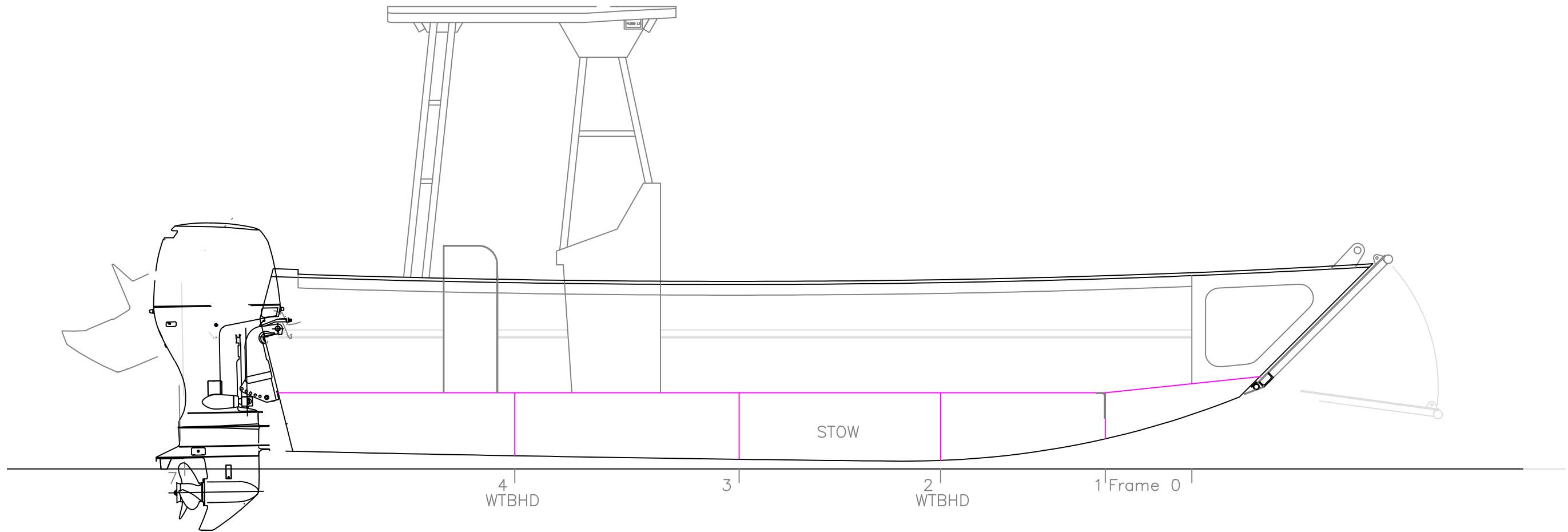
NUSAR
 20' X 8' FIRE/RESCUE

REV.	DESCRIPTION
	OUTBOARD PROFILE
	#436- Flat Bottom
SCALE 1/2" = 1'	DES/DWN WAL
	DATE 10/22/12
Response Marine, Inc.	
Newburyport, MA, www.responsemarine.com	
	SHEET
	DWG NO. 436-1



NUSAR
20' X 8' FIRE/RESCUE

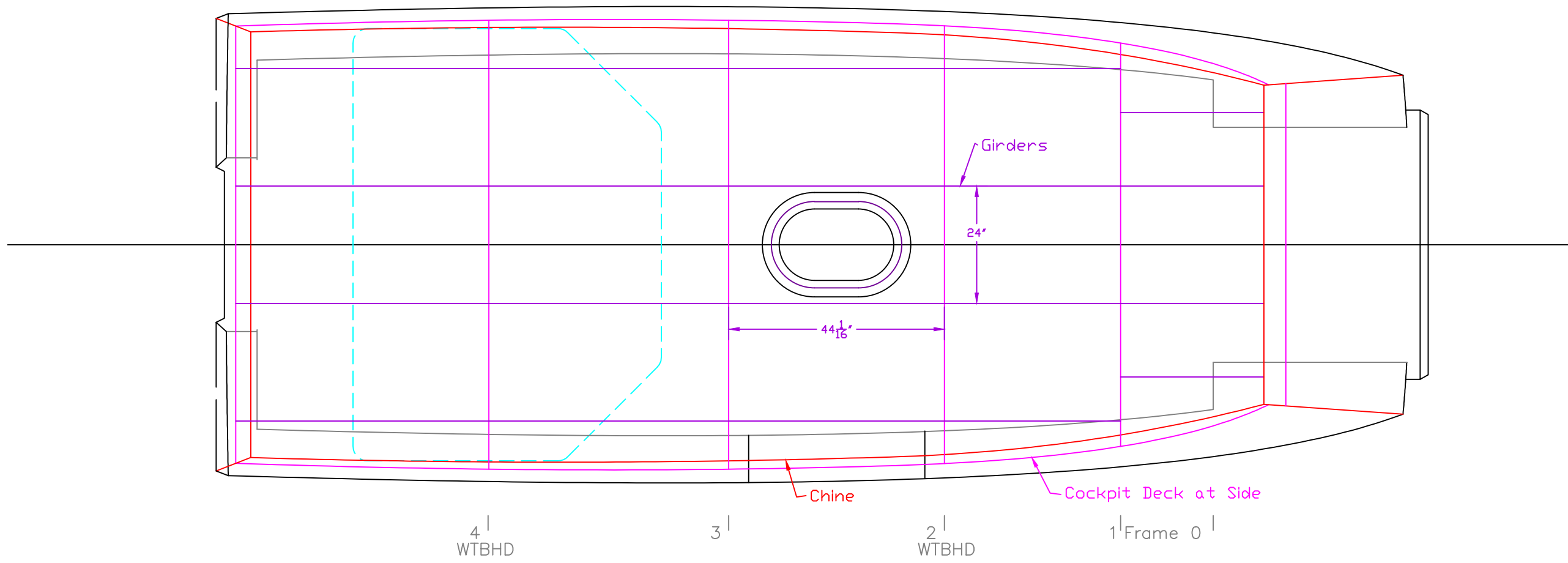
REV.	DESCRIPTION		
		OUTBOARD PLAN	
		#436- Flat Bottom	
		SCALE 1/2" = 1'	DES/DWN WAL
			DATE 10/22/12
			SHEET
Response Marine, Inc. Newburyport, MA, www.responsemarine.com			DWG NO. 436-2



NUSAR
20' X 8' FIRE/RESCUE

REV.	DESCRIPTION	SCALE	DES/DWN	DATE
		1/2" = 1'	WAL	10/22/12
<p>Response Marine, Inc. Newburyport, MA, www.responsemarine.com</p>				<p>SHEET DWG NO. 436-3</p>

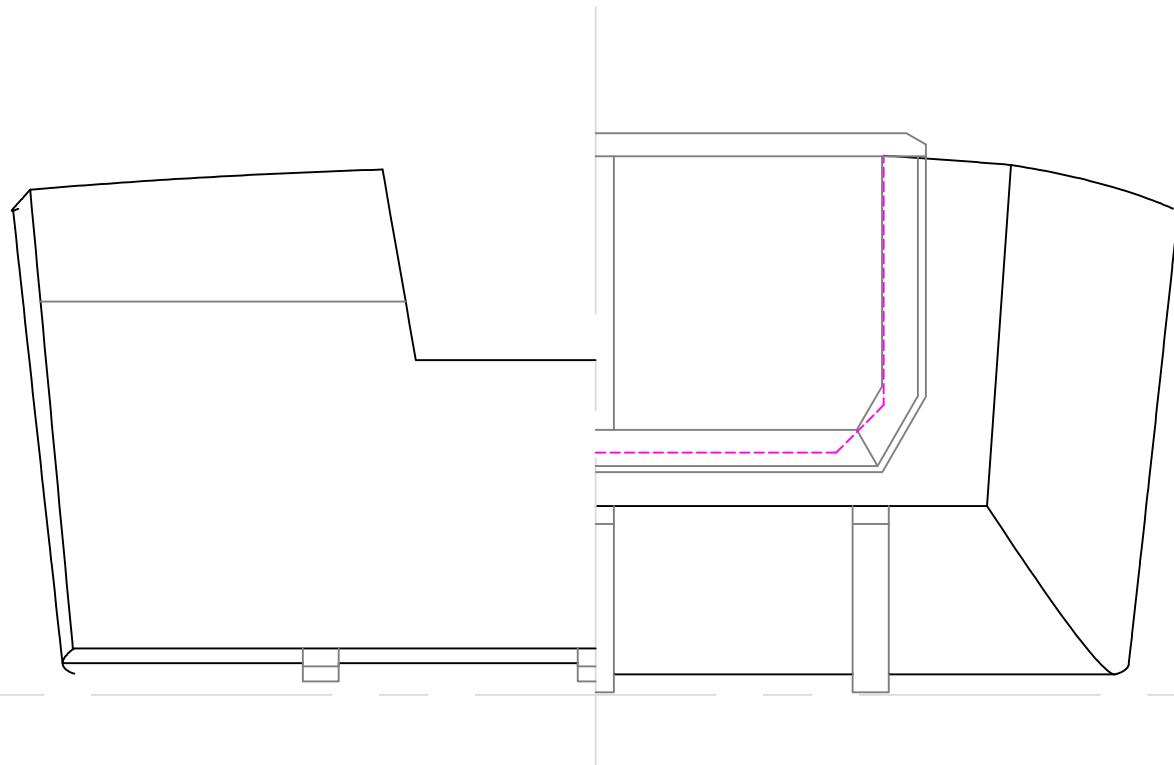
INBOARD PROFILE
#436- Flat Bottom



NUSAR
20' X 8' FIRE/RESCUE

REV.	DESCRIPTION	SCALE	DES/DWN	DATE
		1/2" = 1'	WAL	10/22/12
Response Marine, Inc.				SHEET
Newburyport, MA, www.responsemarine.com				DWG NO. 436-4

INBOARD PLAN
#436- Flat Bottom



NUSAR
20' X 8' FIRE/RESCUE

END VIEWS

#436- Flat Bottom

SCALE	DES/DWN	DATE
3/4" = 1'	WAL	10/22/12

SHEET	
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Response Marine, Inc.	
DWG NO.	436-5

Newburyport, MA, www.responsemarine.com

REV.	DESCRIPTION
11/12/12,	moved outer bot channels

DRAWING LIST

Design	Dwg	Description	Date	REV
NUSAR 20	FBLC			
	436	1	Ourboard Profile	10/23/12
		2	Outboard Plan	10/23/12
		3	Inboard Profile	10/23/12
		4	Inboard Plan	10/23/12
		5	End Views	10/23/12
	2-1		Bottom & Girder Layout	11/12/12
	2-2		Topside Stringers	11/12/12
	2-3		Side & Side Deck Layout	11/12/12
	2-4		Transom	11/12/12
	2-5		Bow & Bow Door	11/12/12
	2-6		Cockpit Decks	11/12/12
	2-7		Bow Door Hinges	11/12/12
	4-1		Console	11/12/12
	4-2		Leaning Post	11/12/12
	4-3		Tee Top	11/12/12
	B-1		Flange Bending	11/12/12
	F-0		Frame 0	11/12/12
	F-1		Frame 1	11/12/12
	F-2		Frame 2	11/12/12
	F-3		Frame 3	11/12/12
	F-4		Frame 4	11/12/12

NC Parts

Response Marine, Inc. Plaz Parts for #436, NUSAR 20' FBLC

File: Chester\20fbw10side decks\derivatives\NUSAR

10/30/2012

Print Date: 11/13/2012

List reflects nesting changes made by Yarde 121031

1/8" Parts- 5052

<u>Part #</u>	<u>Pieces</u>	<u>Description</u>	<u>BEND</u>
CB	1	Console Front	
CC	1	Console Back	
LP-2	1	Lean Post Top/Front	Y, Bump
LP-3	1	Lean Post Shelf	
T-BA	1	Tee Top Box, Aft	Y, Tight Radius
T-BA-SP	1	Tee Top Box Soft Patch, Aft	
T-BAW	2	Tee Top Box Wing, Aft	
T-BF	1	Tee Top Box, Fwd	Y, Tight Radius
T-BF-SP	1	Tee Top Box Soft Patch, Fwd	
T-BFW	2	Tee Top Box Wing, Fwd	
T-R	1	Tee Top Roof	Y, Tight Radius
	13	Sub Total	

3/16" Parts- 5052

<u>Part #</u>	<u>Pieces</u>	<u>Description</u>	<u>BEND</u>
BD	1	Bow Door	
BOW	1	Bow	
CD	1	Console Top	Y, Tight Radius
DB-A	1	Deck Body F1 to Bow	
DB-B	1	Deck Body F1 to F2	
DB-C	1	Deck Body F2-F4	
DB-D	1	Deck Body F4-Tran	
DD-A	1	Dive Door, Frame Fwd	Flange, B1
DD-B	1	Dive Door, Frame Aft	Flange, B1
LP-1	1	Lean Post Back	
TC	1	Transom Conduit, Port Side	Y, Tight Radius
TC-P	1	Transom Coaming, Port	Flange, B1
TC-S	1	Transom Coaming, Stbd	Flange, B1
TK	1	Transom Knee on CL	Flange, B1
TSL-AP	1	Topside Stringer, Bow-F0, Port	
TSL-AS	1	Topside Stringer, Bow-F0, Stbd	
TSL-BP	1	Topside Stringer, F0-F3, Port	Flange, B1
TSL-BS	1	Topside Stringer F0-F2, Stbd	Flange, B1

NC Parts

TSL-CP	1	Topside Stringer, F3-Tran, Port	Flange, B1
TSL-CS	1	Topside Stringer, Dive Door, Stbd	Flange, B1
TSL-DS	1	Topside Stringer, F3-Tran, Stbd	Flange, B1
21		Sub Total	

3/16" Parts- 5086/5083 H116

<u>Part #</u>	<u>Pieces</u>	<u>Description</u>	<u>BEND</u>
B	1	Bottom	
BC-P	1	Bow Coaming, Port	
BC-S	1	Bow Coaming, Stbd	
CA	2	Console Sides	
DD-CS	1	Dive Door Coaming Step	
DD-DT	1	Dive Door, Door Threshold	
DD-HT	1	Dive Door, Hull Threshold	Flange, B1
DM-P	1	Deck Margin, Port	
DM-S	1	Deck Margin, Stbd	
DP-5C	5	Deck Plate Cover, 5"	
DP-5R	5	Deck Plate Ring, 5"	
F0-P	1	Frame 0, Topsides only, Port	
F0-S	1	Frame 0, Topsides only, Port	
F1	1	Frame 1, Body	Flange, B1
F1-U	2	Frame 1, side deck only	
F2	1	Frame 2, Body	Flange, B1
F2-P	1	Frame 2, Topsides, Stbd (dive door)	Flange, B1
F2-U	1	Frame 2, side deck, Port	
F3	1	Frame 3, Body	Flange, B1
F3-P	1	Frame 3, Topsides, Port	Flange, B1
F3-S	1	Frame 3, Topsides, Stbd (dive door)	Flange, B1
F4	1	Frame 4 , Body	Flange, B1
F4-U	2	Frame 4, Side Deck Only	
G1-AP	1	Girder 1, F1-Bow, Port	Flange, B1
G1-AS	1	Girder 1, F1-Bow, Stbd	Flange, B1
G1-BP	1	Girder 1, F1-F3, Port	Flange, B1
G1-BS	1	Girder 1, F1-F3, Stbd	Flange, B1
G1-CP	1	Girder 1, F3-Tran, Port	Flange, B1
G1-CS	1	Girder 1, F3-Tran, Stbd	Flange, B1
G2-AP	1	Girder 2, F1-Bow, Port	Flange, B1
G2-AS	1	Girder 2, F1-Bow, Stbd	Flange, B1
G2-BP	1	Girder 2, F1-F3, Port	Flange, B1
G2-BS	1	Girder 2, F1-F3, Stbd	Flange, B1
G2-CP	1	Girder 2, F3-Tran, Port	Flange, B1
G2-CS	1	Girder 2, F3-Tran, Stbd	Flange, B1
SDC-P	1	Coaming, Port	
SDC-S	1	Coaming, Stbd	
SD-P	1	Side Deck, Stbd	
SD-S	1	Side Deck Port	
T-BA-PD	2	Tee Top Box Pipe Doubler, Aft	
T-BF-PD	2	Tee Top Box Pipe Doubler, Fwd	

NC Parts

T-BF-SPR	1	Tee Top Box Doubler Ring, Fwd
TDC-P	1	Transom Deck Coaming, Port
TDC-S	1	Transom Deck Coaming, Stbd
TD-P	1	Transom Deck, Port
TD-S	1	Transom Deck, Stbd
TS-AP	1	Topsides, Port
TS-AS	1	Topsides, Starboard
T-VA	1	Tee Top Roof Visor, Aft
T-VF	1	Tee Top Roof Visor, Fwd

63 Sub Total

1/4" Parts- 5086/5083 H116

<u>Part #</u>	<u>Pieces</u>	<u>Description</u>	<u>BEND</u>
TR	1	Transom	Y
TL	1	Transom Lip	
	2	Sub Total	
	99	Total Cut Parts	

10/31/2012

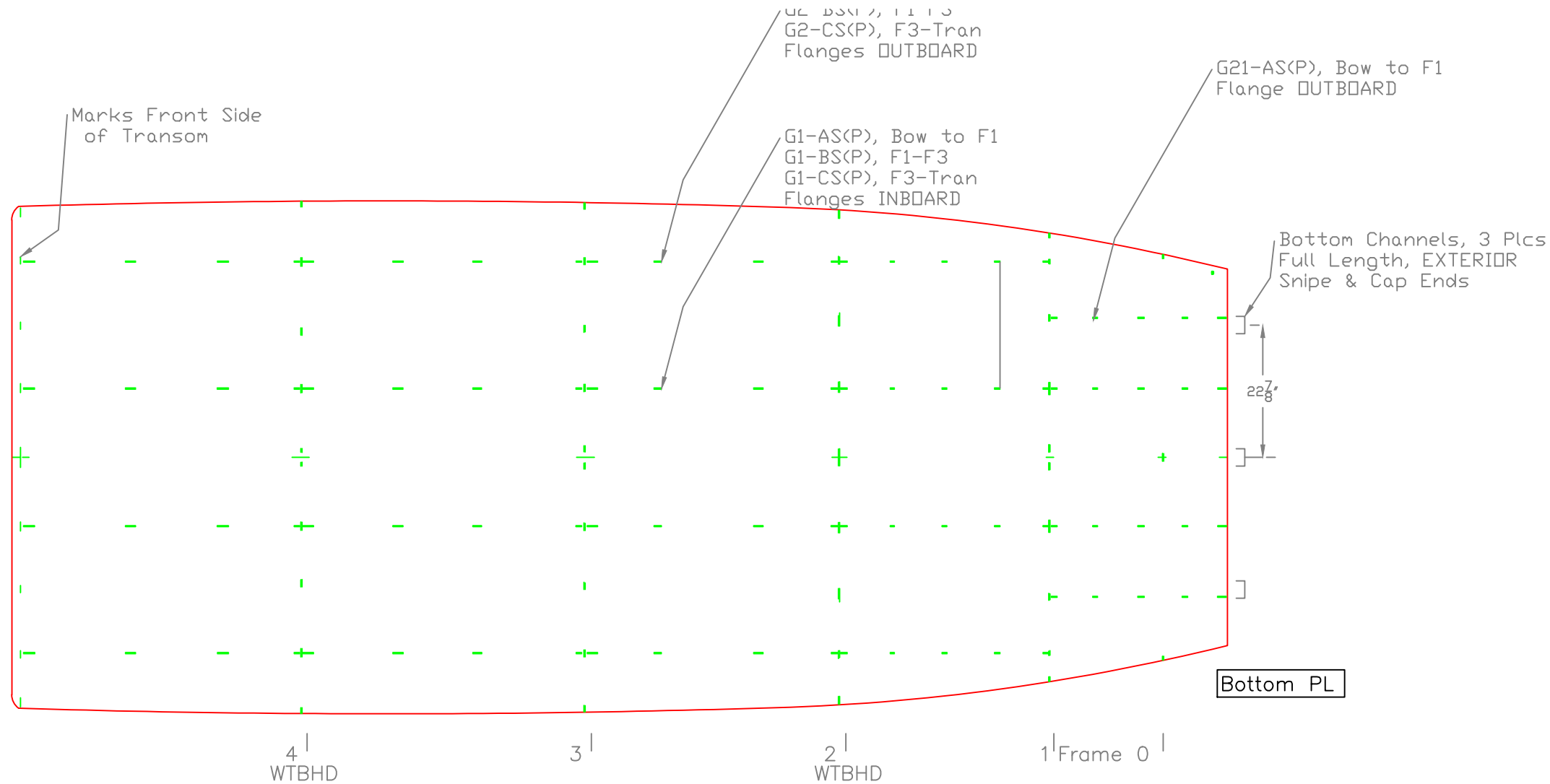
SHEET/PLATE for NC CUT

<u>QTY</u>	<u>Alloy</u>	<u>Thick</u>	<u>Width</u>	<u>Lngth</u>	approx. <u>lbs/ft^2</u>	<u>lbs</u>
2	5052	0.125	72	144	1.8	259
4	5086	0.190	96	288	2.7	2,074
1	5052	0.250	43	96	3.6	103
Sub Total						2,436

EXTRUSION

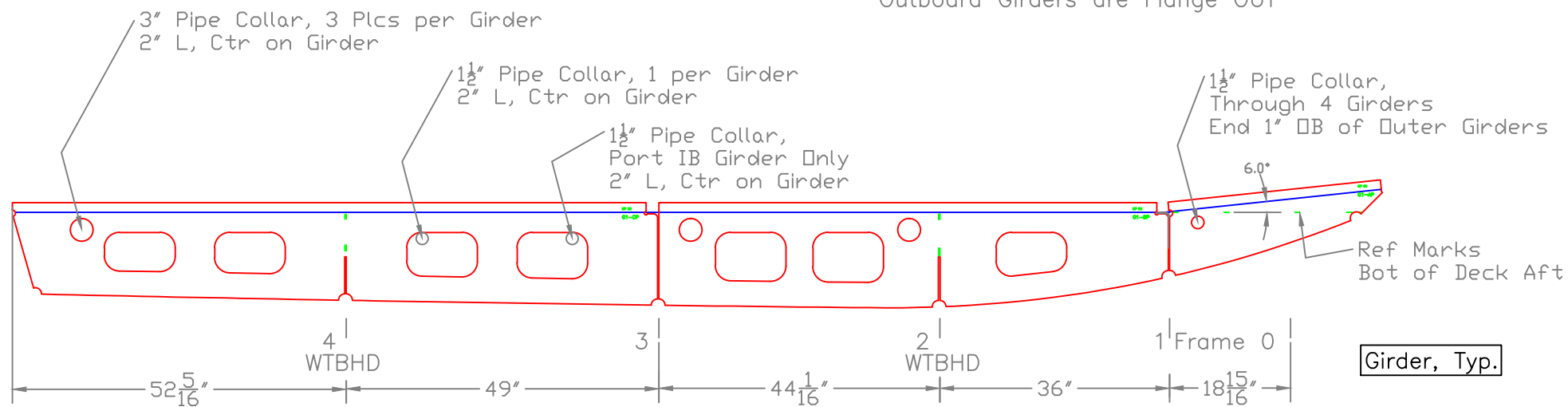
<u>QTY</u>	<u>Alloy</u>	<u>Item</u>	<u>Lgth (ft)</u>	<u>lbs/ft</u>	<u>lbs</u>
4	6061 T6	.250"x1.50"x1.50" Tee	25	.87	87
4	6061 T6	3" x 1.5"x.13, 1.14# Channel	25	1.14	114
1	6061 T6	2x1x.13 Channel	25	.58	15
3	6061 T6	2x2x.125" Sq Tube	24	1.13	81
6	6063	.75x.75x.125" Angle	16	.322	31
Stock	6061 T6	1.5x1.5x.125" Sq Tube	24		
Stock		3" sch 40 pipe			
Stock		1.5" sch 40 Pipe			
Sub Total					328

TOTAL	2,764
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Bottom PL

Inboard Girders are Flange IN
Outboard Girders are Flange OUT



Girder, Typ.

BOTTOM & GIRDER LAYOUT

20' X 8' FIRE/RESCUE

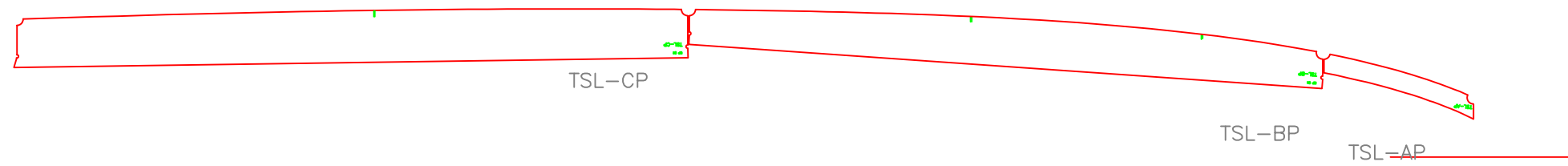
#436- Flat Bottom

SCALE 1/2" = 1'	DES/DWN WAL	DATE 11/12/12
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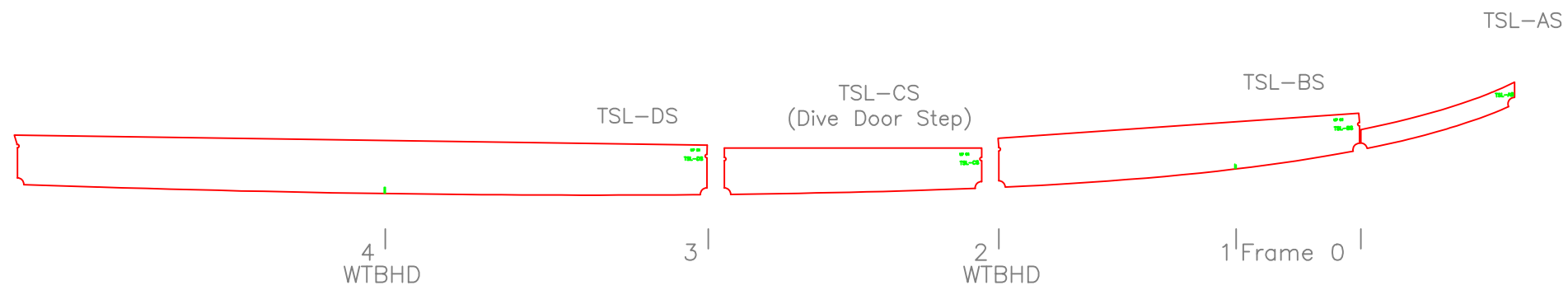
Response Marine, Inc.

SHEET	DWG NO. 436-2-1
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REV.	DESCRIPTION

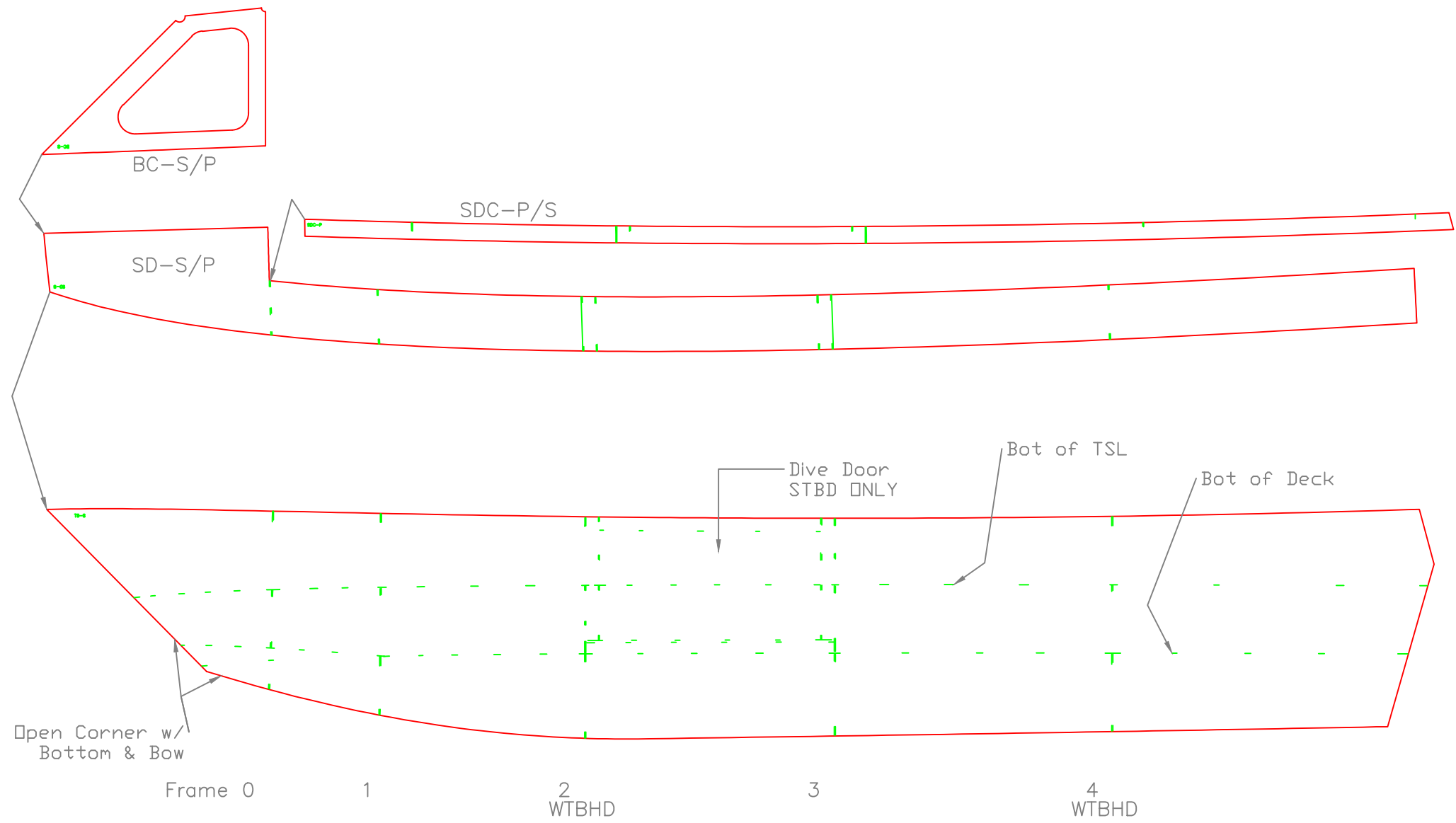


TS Stringers
All Flanges UP



TOPSIDE STRINGERS		
20' X 8' FIRE/RESCUE		
#436- Flat Bottom		
SCALE 1/2" = 1'	DES/DWN WAL	DATE 11/12/12
Response Marine, Inc. Newburyport, MA, www.responsemarine.com		SHEET DWG NO. 436-2-2

REV.	DESCRIPTION



SIDE & SIDE DECK LAYOUT

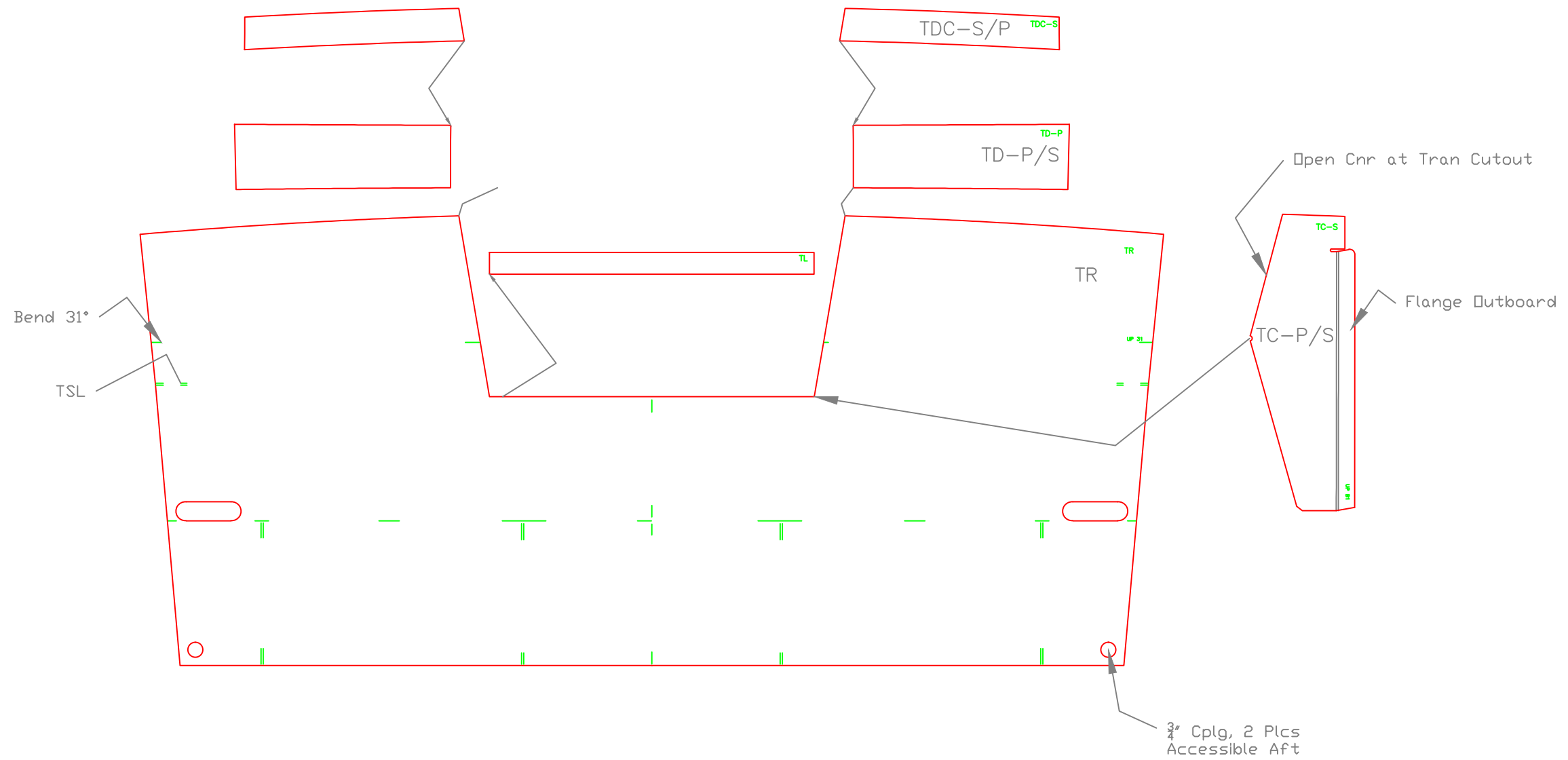
20' X 8' FIRE/RESCUE

#436- Flat Bottom

SCALE 1/2" = 1'	DES/DWN WAL	DATE 11/12/12
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SHEET	
Response Marine, Inc.	DWG NO. 436-2-3
Newburyport, MA, www.responsemarine.com	

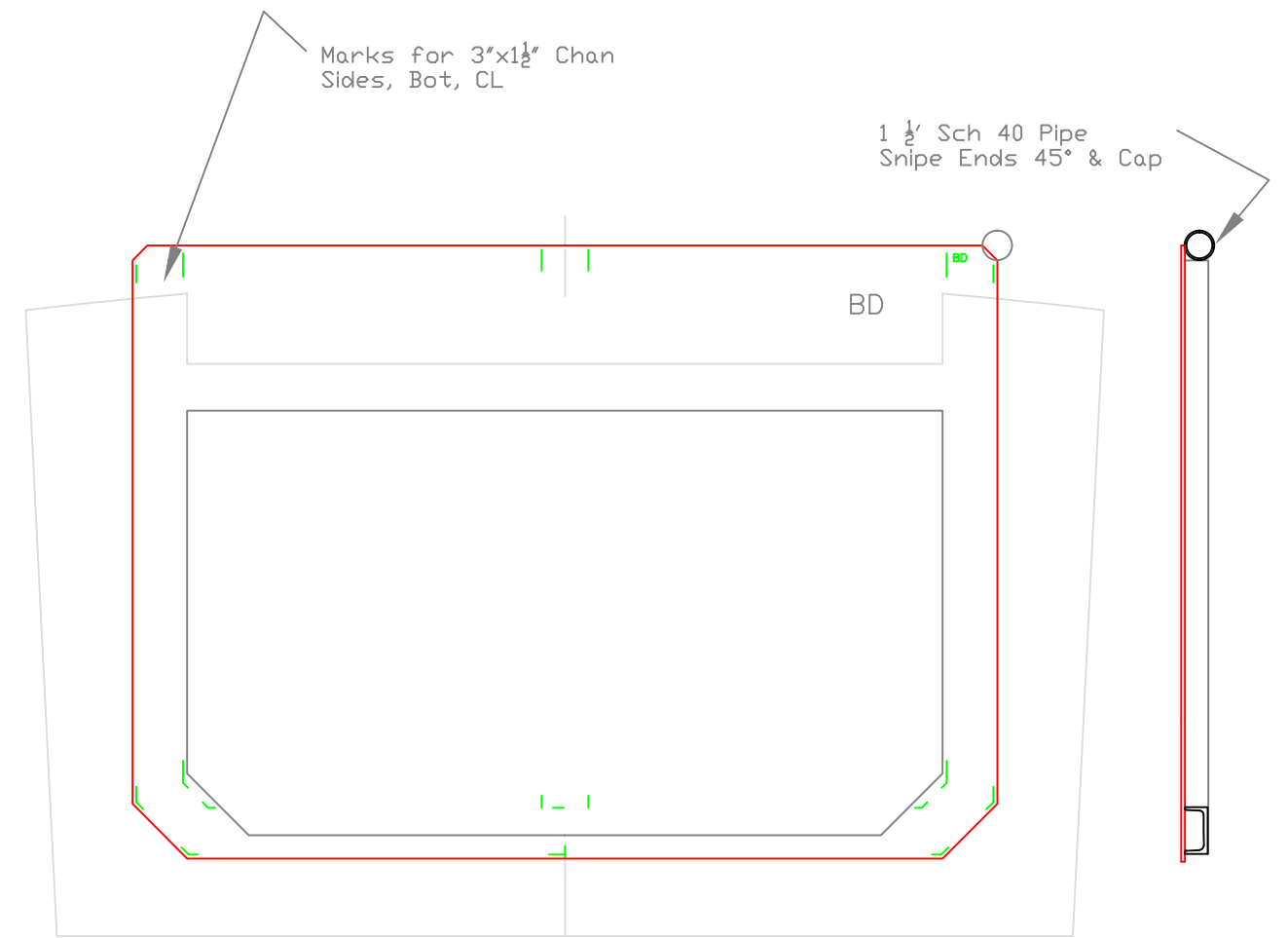
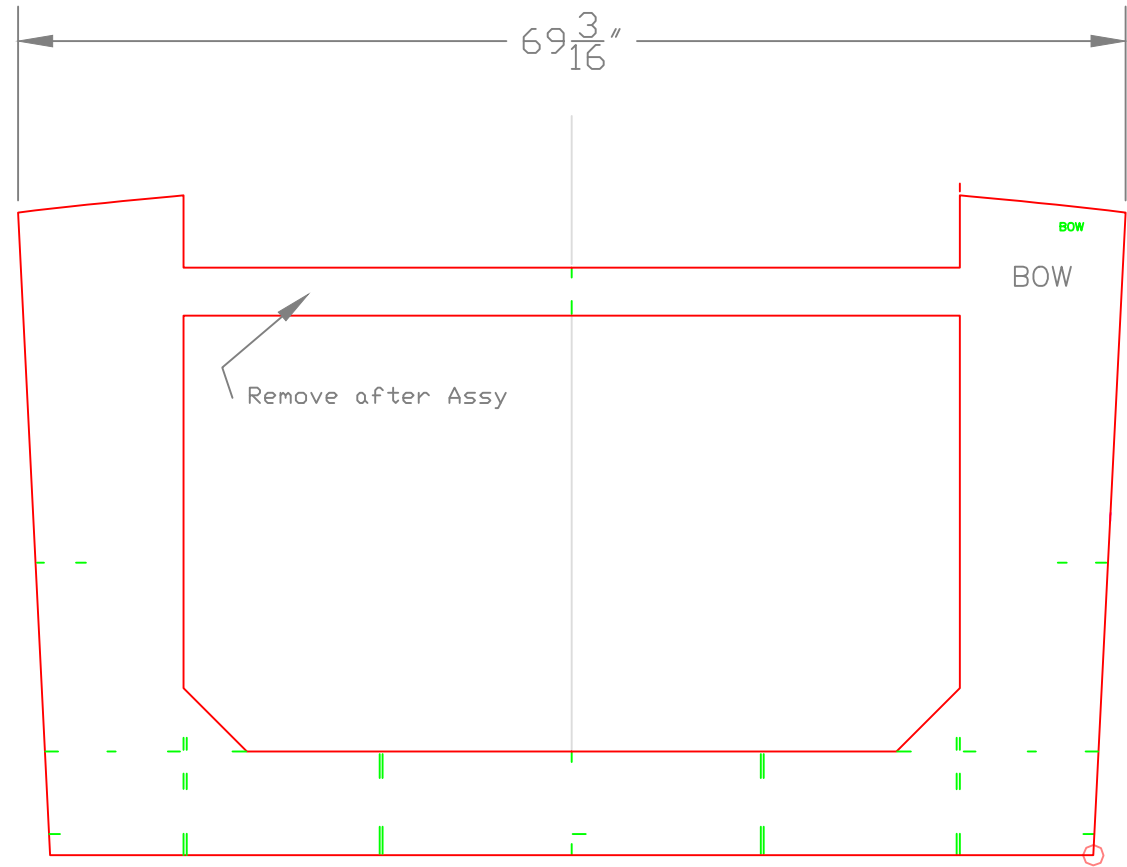
REV.	DESCRIPTION



TRANSOM

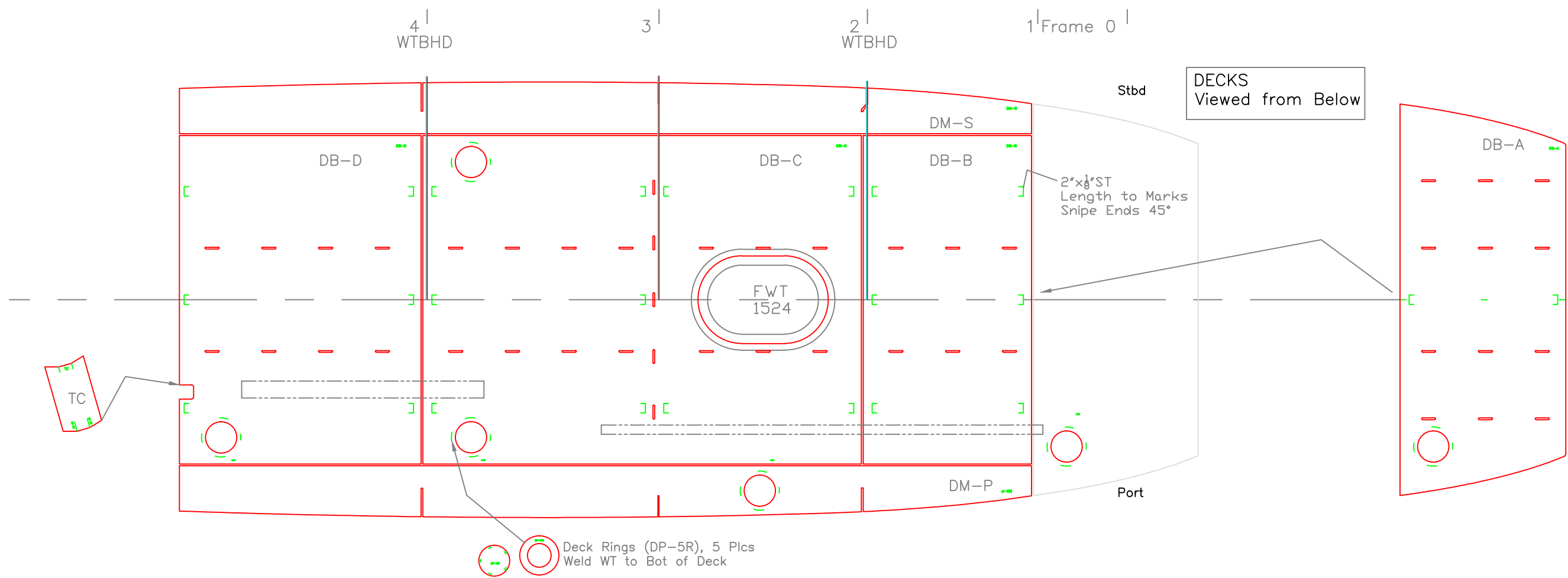
20' X 8' FIRE/RESCUE		
#436- Flat Bottom		
SCALE 1" = 1'	DES/DWN WAL	DATE 11/12/12
Response Marine, Inc.		SHEET
Newburyport, MA, www.responsemarine.com		DWG NO. 436-2-4

REV.	DESCRIPTION



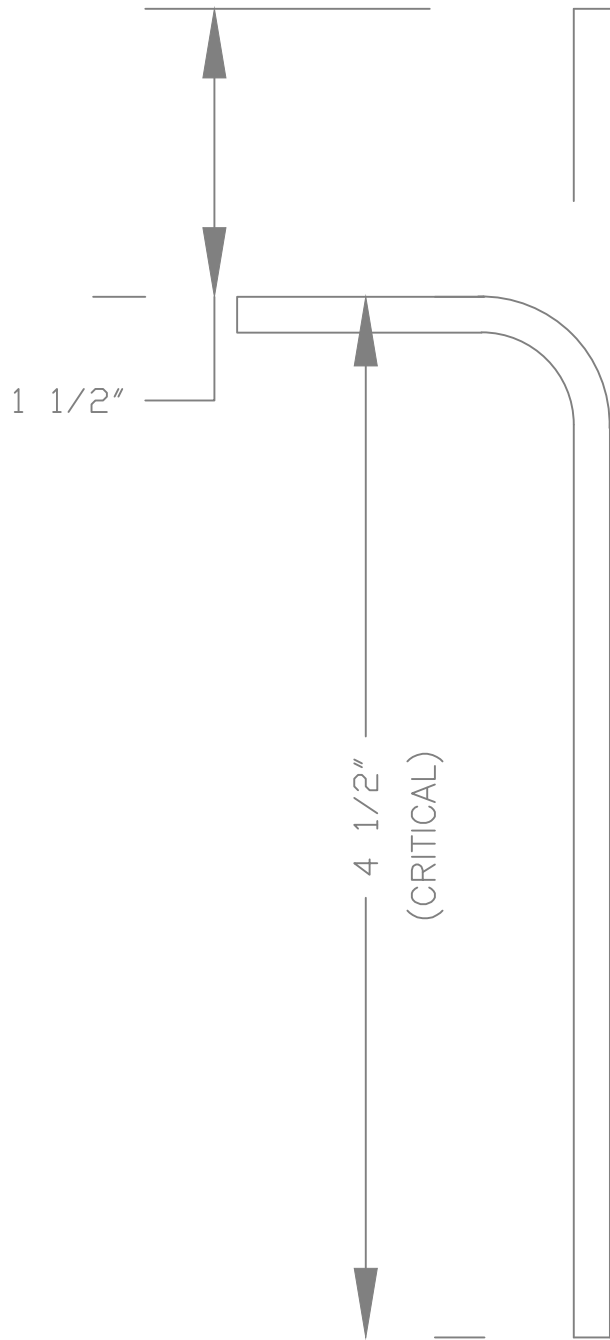
BOW & BOW DOOR		
20' X 8' FIRE/RESCUE		
#436- Flat Bottom		
SCALE 1" = 1'	DES/DWN WAL	DATE 11/12/12
Response Marine, Inc. Newburyport, MA, www.responsemarine.com		SHEET DWG NO. 436-2-5

REV.	DESCRIPTION



COCKPIT DECKS		
20' X 8' FIRE/RESCUE		
#436- Flat Bottom		
SCALE 1/2" = 1'	DES/DWN WAL	DATE 11/12/12
SHEET		DWG NO.
Response Marine, Inc.		436-2-6
Newburyport, MA, www.responsemarine.com		

REV.	DESCRIPTION



FRAME BENDING: $\frac{3}{16}$ " 5086 H116 Stock

- 1) Confirm results for dimensions and cracking with test strips before bending frames.
- 2) Expected Die Radius is $\frac{1}{2}$ "
- 3) Flanges are designed for Outside major flange of $1\frac{1}{2}$ " less than flat stock length as shown.
- 4) Expected Back Gauge setting is 1.74", but confirm and adjust.
- 5) Parts to be flanged per this same set-up:

DD-A	Dive Door, Frame Fwd
DD-B	Dive Door, Frame Aft
DD-HT	Dive Door, Hull Threshold
F1	Frame 1, Body
F2	Frame 2, Body
F2-P	Frame 2, Topsides, Stbd (dive door)
F3	Frame 3, Body
F3-P	Frame 3, Topsides, Port
F3-S	Frame 3, Topsides, Stbd (dive door)
F4	Frame 4, Body
G1-AP	Girder 1, F1-Bow, Port
G1-AS	Girder 1, F1-Bow, Stbd
G1-BP	Girder 1, F1-F3, Port
G1-BS	Girder 1, F1-F3, Stbd
G1-CP	Girder 1, F3-Tran, Port
G1-CS	Girder 1, F3-Tran, Stbd
G2-AP	Girder 2, F1-Bow, Port
G2-AS	Girder 2, F1-Bow, Stbd
G2-BP	Girder 2, F1-F3, Port
G2-BS	Girder 2, F1-F3, Stbd
G2-CP	Girder 2, F3-Tran, Port
G2-CS	Girder 2, F3-Tran, Stbd
TC-P	Transom Coaming, Port
TC-S	Transom Coaming, Stbd
TK	Transom Knee on CL
TSL-BP	Topside Stringer, F0-F3, Port
TSL-BS	Topside Stringer F0-F2, Stbd
TSL-CP	Topside Stringer, F3-Tran, Port
TSL-CS	Topside Stringer, Dive Door, Stbd
TSL-DS	Topside Stringer, F3-Tran, Stbd

FLANGE BENDING

20' X 8' FIRE/RESCUE

#436- Flat Bottom

SCALE NONE	DES/DWN WAL	DATE 11/12/12
Response Marine, Inc.		SHEET
Newburyport, MA, www.responsemarine.com		DWG NO. 436-B-1

REV. DESCRIPTION

Frame 2, L'kg FWD
Flanges Aft

95 ¹/₄"

98 ¹/₄"

39 ³/₁₆"

³/₄" Cplg
Accessible Aft

F2
wtbhd

FRAME 2

20' X 8' FIRE/RESCUE
#436- Flat Bottom

SCALE 1"=1'	DES/DWN WAL	DATE 11/12/12
Response Marine, Inc. Newburyport, MA, www.responsemarine.com		SHEET DWG NO. 436-F-2

REV.	DESCRIPTION