

UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
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Tritium Laboratory

8 June 2018

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SWAB REPORT # 905

SWAB DATE: 2 June 2018

R/V Endeavor

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Associate Research Professor

Distribution:
SWAB Committee
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COMMENTS TO SWAB REPORTS

12 May 2014

Typical LSC instrument background values for ^3H and ^{14}C are 2 and 5 cpm, respectively. The LSC is a Tricarb 2910 TR with the low level counting option.

All samples are counted for 60 minutes, the instrument background is subtracted, and activities are reported in dpm/m^2 . Bucket blank activities are not subtracted. Counting errors (2 standard deviations) are also reported in dpm/m^2 . An error larger than the activity indicates that the activity is not significantly different from zero.

Criteria for SWAB Results

Category	^3H (dpm/m^2)	^{14}C (dpm m^2)	Recommendations
A	<500	<50	No action
B*	500-10,000	50-10,000	Needs cleaning before any natural tracer work. Decks in radiation vans with activities above $1000 \text{ dpm}/\text{m}^2$ should be cleaned.
C**	10,000-100,000	10,000-50,000	Must be cleaned before any use.
D***	>100,000	>50,000	May be a health hazard. Notify local radiation safety official.

Note: ^{14}C and ^{35}S have peak energies of 156 and 167 KeV, respectively; thus ^{35}S will be registered as ^{14}C by our counting techniques. Categories A, B and C are not a health hazard.

Recommended Cleaning Procedure

Wearing ordinary household rubber gloves:

^3H : Wash and scrub with radioactive cleanup detergent such as COUNT-OFF (50 ml COUNT-OFF to 4 liters of water), using sponges to distribute solution and reabsorb it.

^{14}C : Wash with 1% sulfuric or 2% hydrochloric (muriatic) acid with good ventilation (will dissolve carbonates, releasing $^{14}\text{CO}_2$). Follow up with wash as if for ^3H .

Disposal of Cleaning Materials (gloves, sponges, etc)

Categories A & B dispose as ordinary garbage, C & D contact your institution's radiation safety office.

Note: If category C or D is encountered, we try to notify the insitution promptly by phone or email.

REPORT FOR SWAB # 863

LOCATION: San Juan, Puerto Rico

DATE: 2 June 2018

VESSEL: R/V Endeavor

TECHNICIAN: Jim Happell

Sample #	Sample Identification	³ H dpm/m ²		¹⁴ C dpm/m ²	
		activity	error	activity	error
1	1st Vial Bkgnd	0	± 0	0	± 0
2	Initial bucket blank	-30	± 69	33	± 39
<u>UNOLS Radioisotope Van 2408-04 (Figure 1)</u>					
3	Inside freezer	9	± 21	30	± 37
4	Inside refrigerator	150	± 56	28	± 29
5	Benchtop above freezer	17	± 21	*59	± 38
6	Benchtop above refrigerator	14	± 20	*50	± 37
7	Sink area	-21	± 49	25	± 39
8	Benchtop next to LSC	36	± 32	54	± 37
9	Benchtop opposite sink	54	± 45	24	± 33
10	Inside fume hood	-10	± 22	19	± 38
11	Top of LSC	108	± 46	*57	± 35
12	Deck between fume hood and LSC	189	± 48	*149	± 39
13	Deck in center of van	444	± 65	*210	± 40
14	Deck in shoe change area	139	± 50	*72	± 35
<u>Main Lab (Figure 2)</u>					
15	Deck in front of aft sink	-17	± 40	-9	± 62
16	Aft benchtop on port side	-31	± 72	5	± 58
17	Port sink area	-22	± 51	19	± 39
18	Deck in front of port sink	-1	± 17	-6	± 42
19	Center benchtop	-39	± 90	6	± 54
20	Deck at top of stairs to living quarters	24	± 56	3	± 26
21	Deck inside starboard door	-61	± 142	9	± 58
22	Inside aft refrigerator	-45	± 105	2	± 12
23	Port benchtop	-37	± 84	-3	± 21
24	Deck of forward entrance to lab	-21	± 49	-14	± 45
25	Deck in front of computer rack	-13	± 28	2	± 55
26	Inside forward refrigerator	-34	± 79	6	± 54
<u>Wet Lab (Figure 3)</u>					
27	Deck inside aft entrance	-15	± 34	-2	± 17
28	Benchtop next to sink	-24	± 55	23	± 39
29	Port benchtop	14	± 55	-3	± 20
30	Deck inside port entrance	-31	± 71	6	± 50

Sample Identification	^3H dpm/m ²		^{14}C dpm/m ²	
	activity	error	activity	error
<u>Special Purpose Lab (Figure 3)</u>				
31 Inside fume hood	-57	± 132	-44	± 68
32 Inside Revco refrigerator	-2	± 50	-13	± 43
33 Benchtop forward of sink	-43	± 99	18	± 42
34 Forward benchtop	-5	± 10	4	± 39
35 Benchtop aft of sink	-46	± 106	-7	± 44
36 Deck outside lab entrance	-9	± 20	19	± 38
37 Deck in front of fume hood	-42	± 96	16	± 43
38 Deck in front of freezer	3	± 81	-3	± 20
39 Deck in front of sink	0	± 5	-23	± 74
<u>Upper Lab and 01 Deck (Figure 4)</u>				
40 Deck at top of stairs	-27	± 62	-7	± 47
41 Deck in front of forward benchtop	-37	86	-5	34
42 Starboard aft benchtop	23	± 72	-14	± 44
43 Deck at aft entrance to 01 deck	-20	46	-19	60
44 Deck outside electrical repair room	20	84	-18	56
45 Final bucket blank	-35	81	13	43

Comments

Please note that the error reported for each isotope is the two-standard deviation counting error. The reports may now contain values less than zero. When decay counting background samples will be distributed about the background vial, which means that negative values are possible. In the past we rounded the negative values to zero. Values are only significantly above background when they are positive and larger than the error. All areas tested on the ship were free from any isotope contamination that requires cleaning. Minor ^{14}C contamination found in the rad van. No action is necessary.

East Coast Van Pool Van #2408-04

Figure 1
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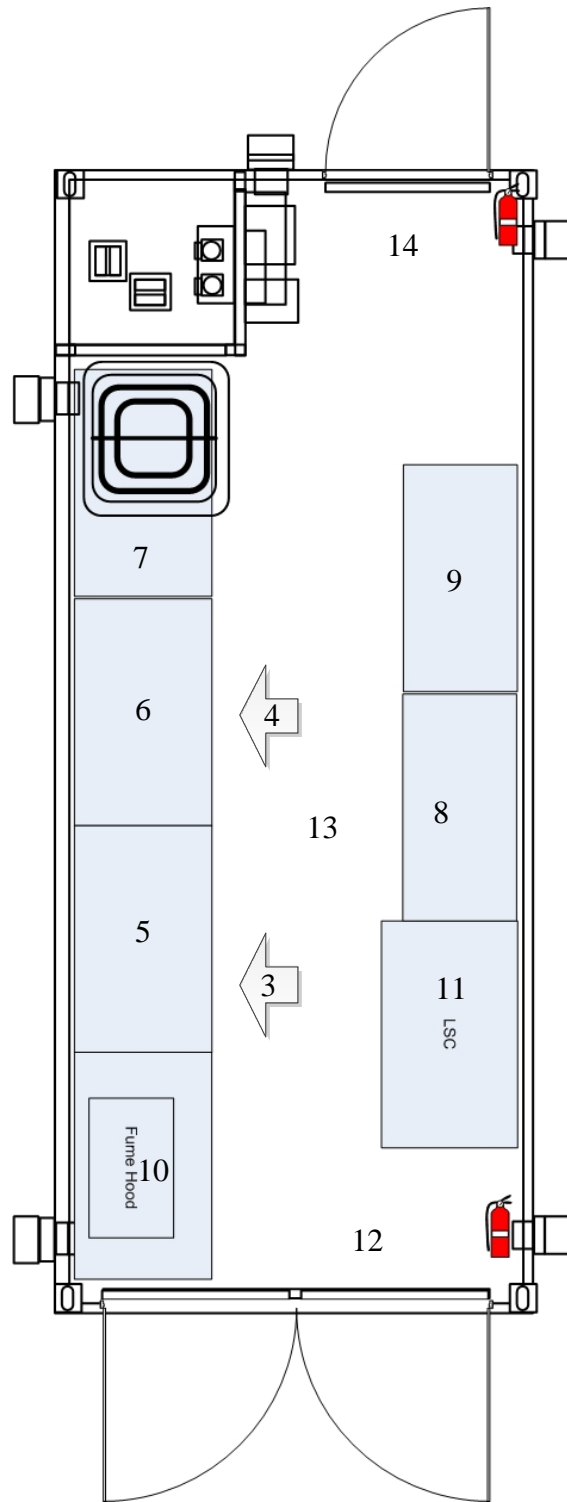
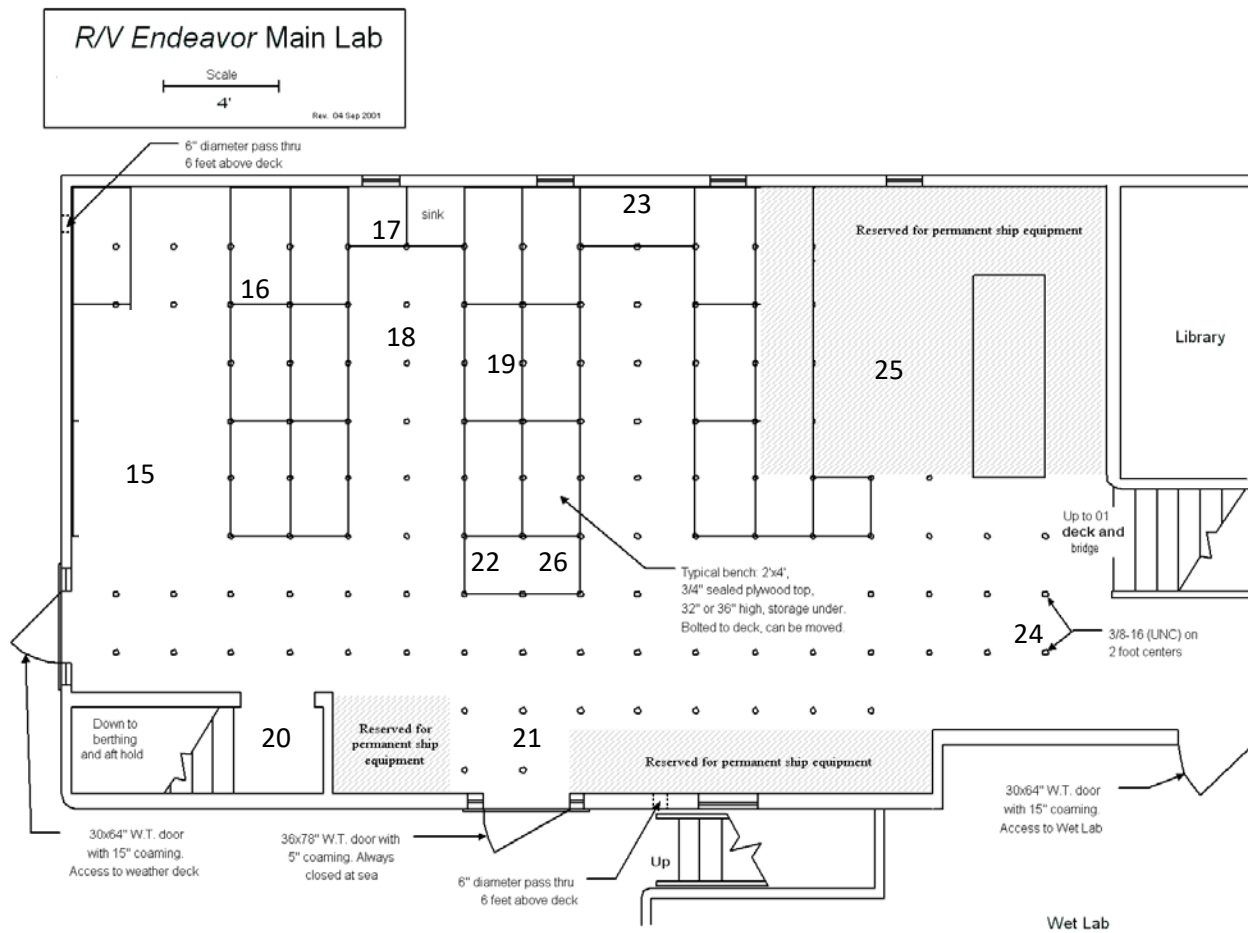
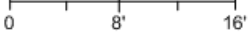


Figure 2
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R/V Endeavor Main Deck and Labs

Scale



Deck bolt pattern is on 2 foot centers

Rev. 04 Sep 2001

Figure 3
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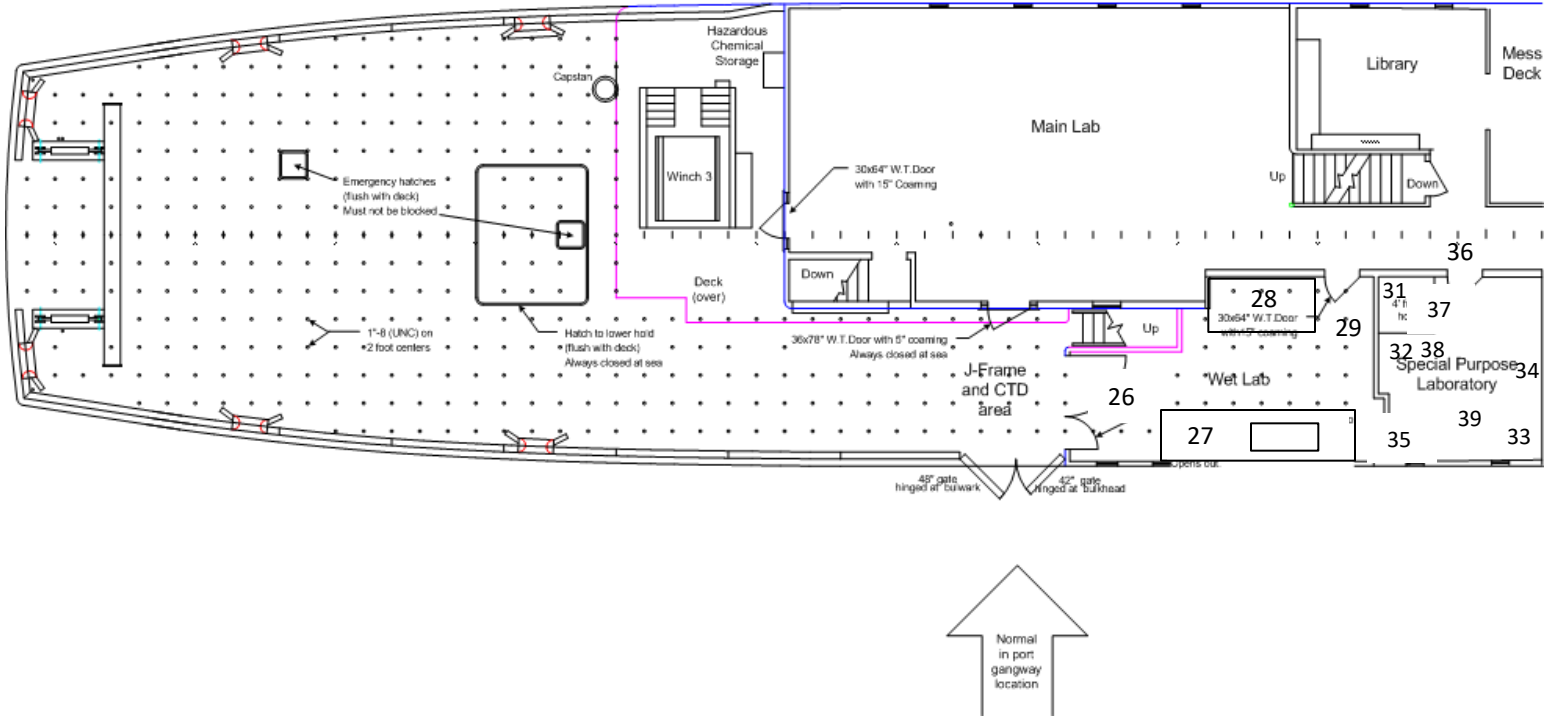
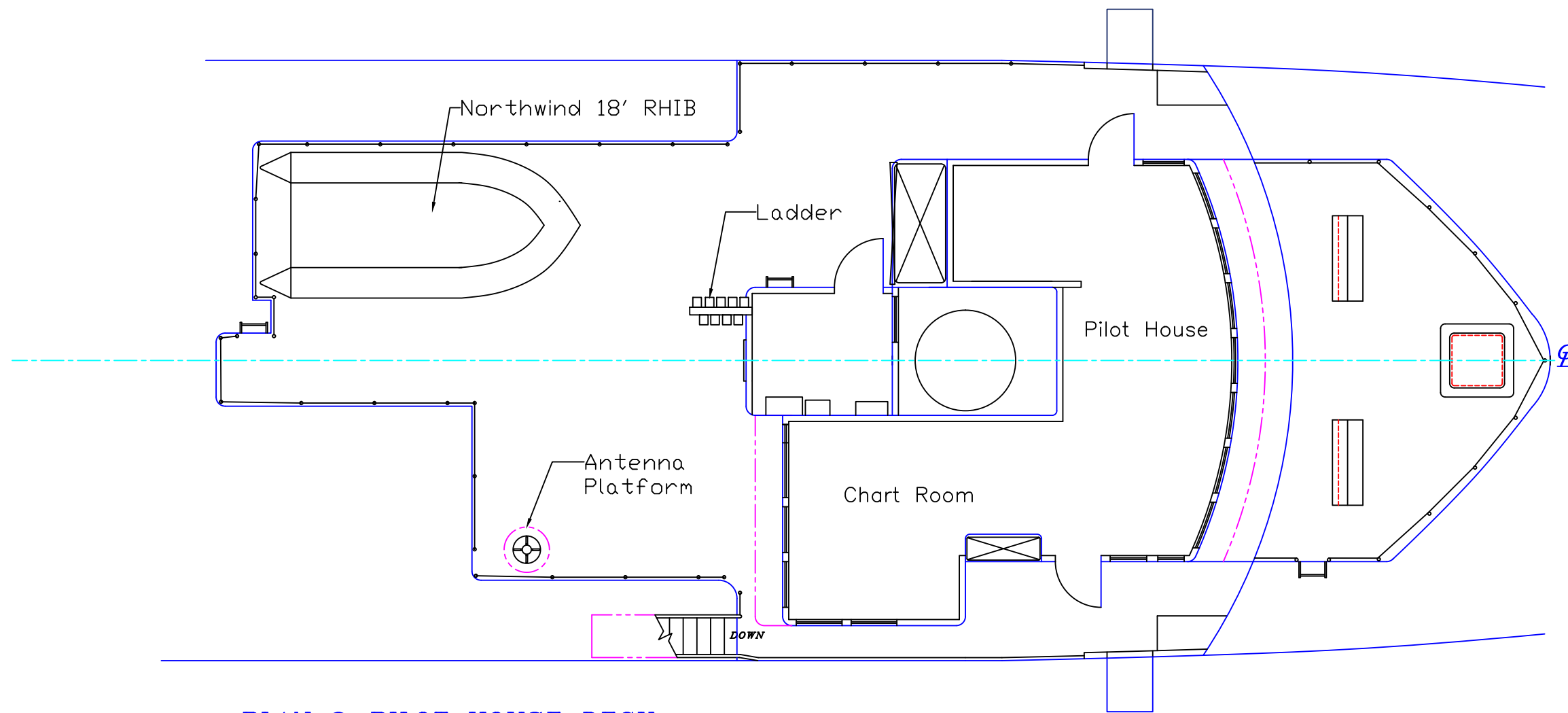
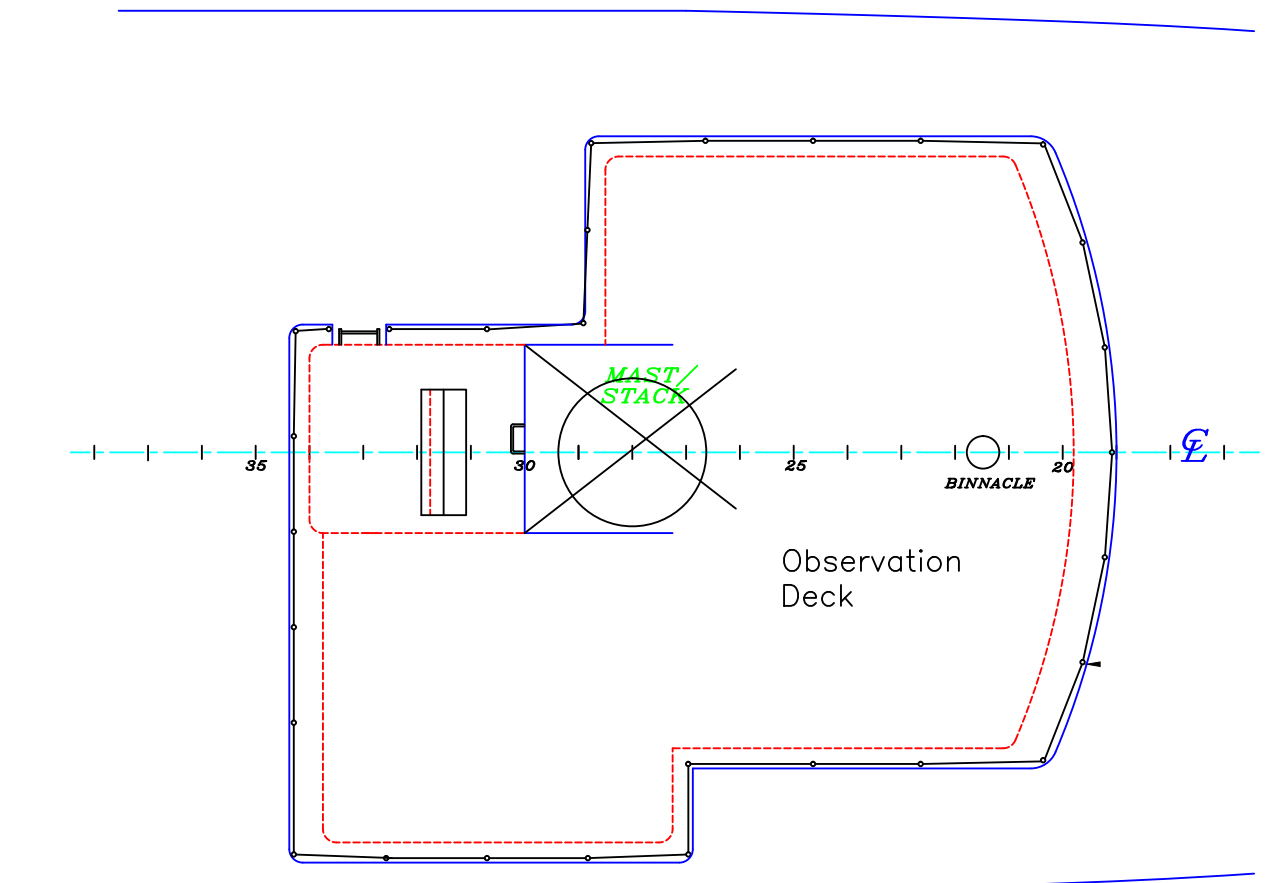


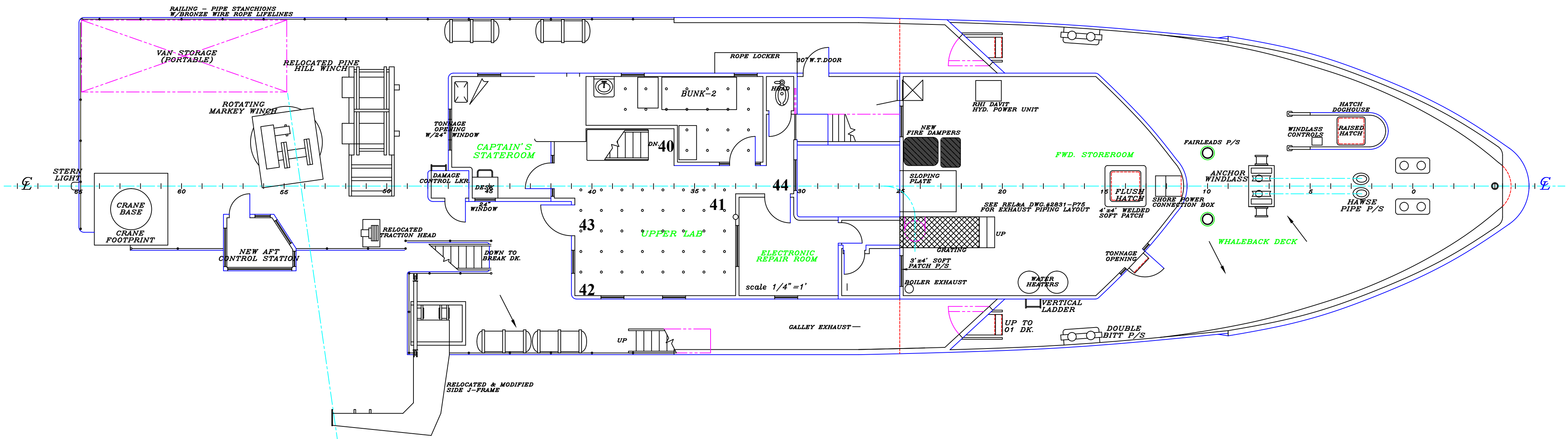
Figure 4
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PLAN @ PILOT HOUSE DECK



PLAN @ PILOT HOUSE TOP



PLAN @ 01 DECK