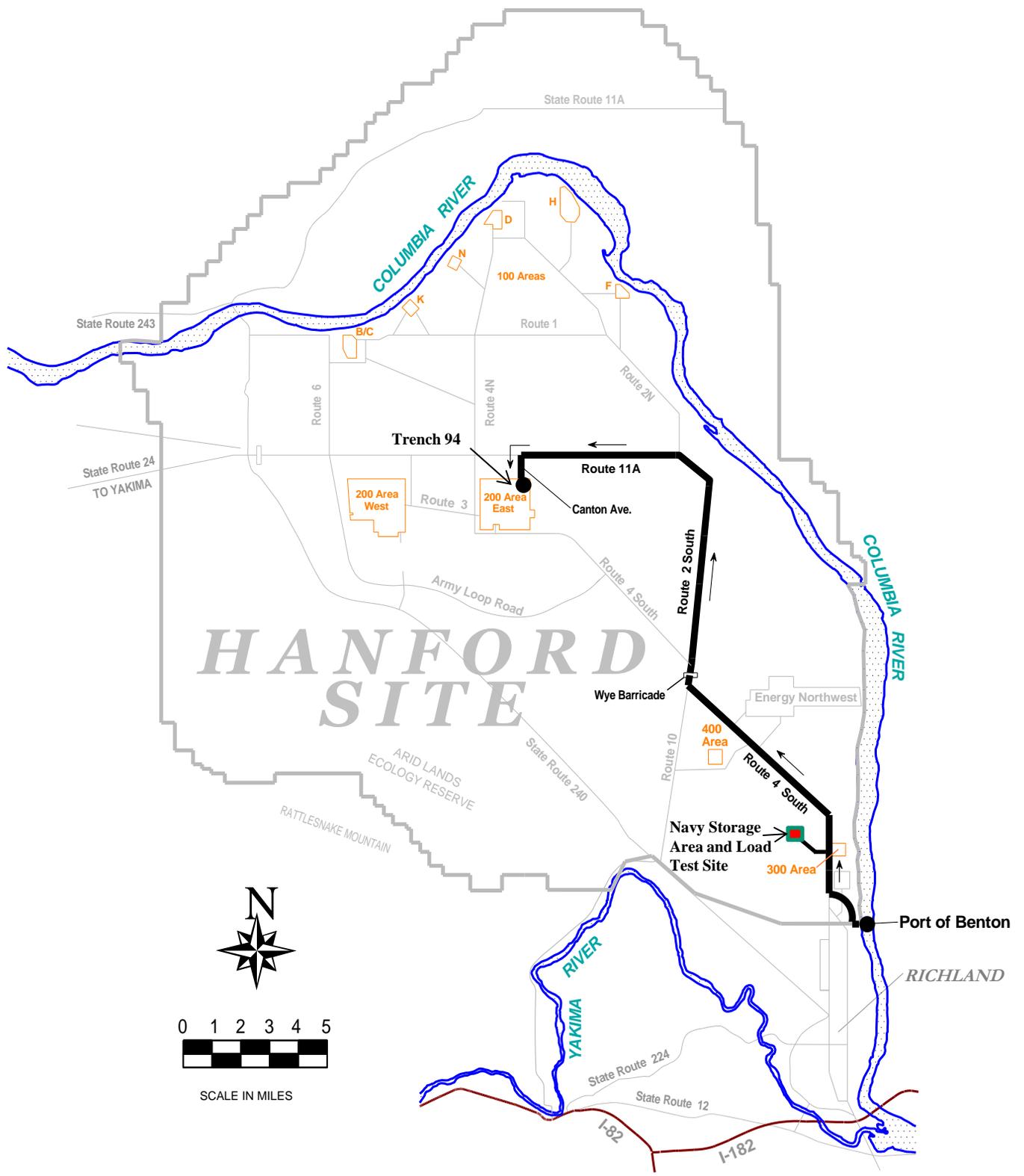
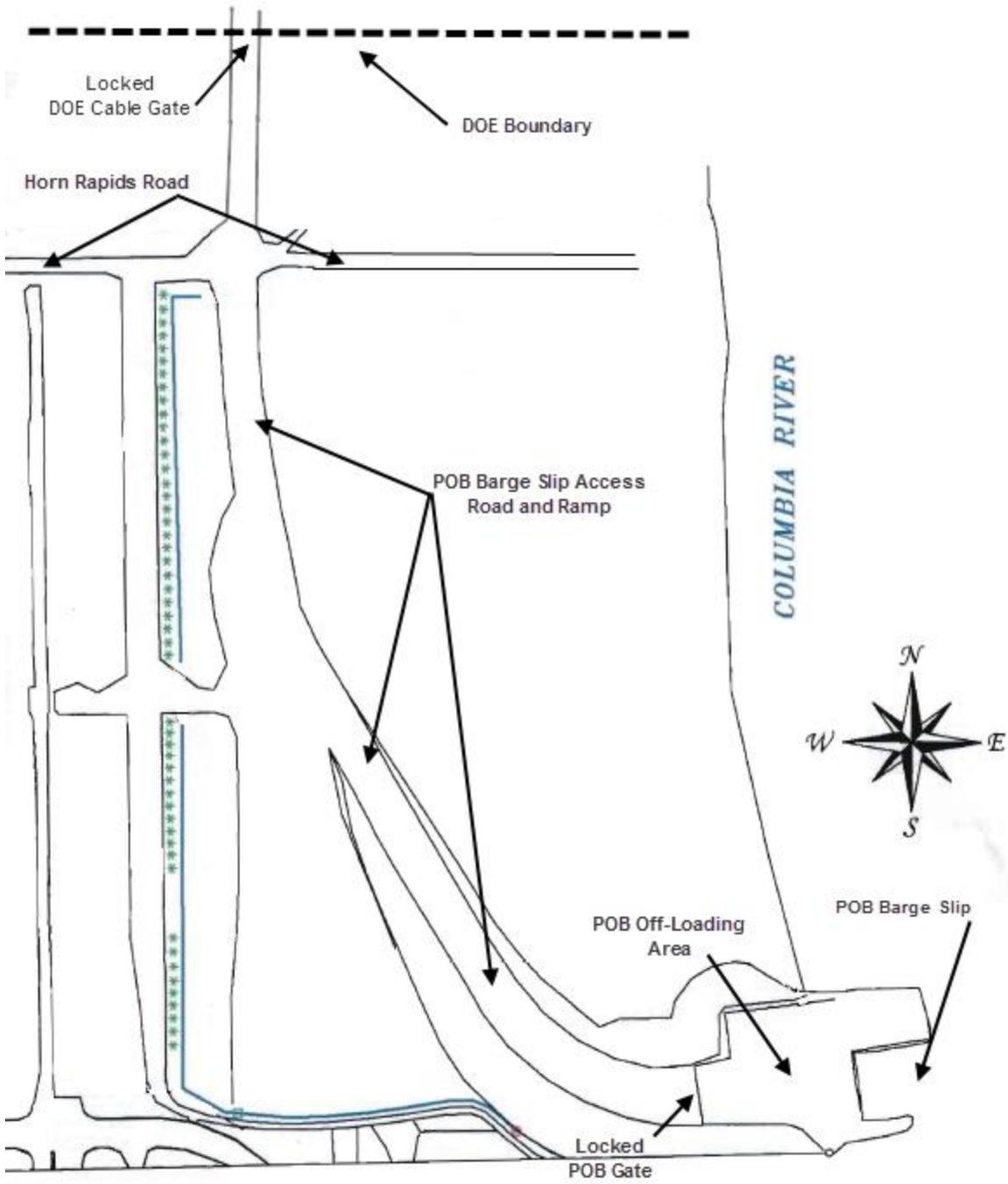


HANFORD SITE LOCATION

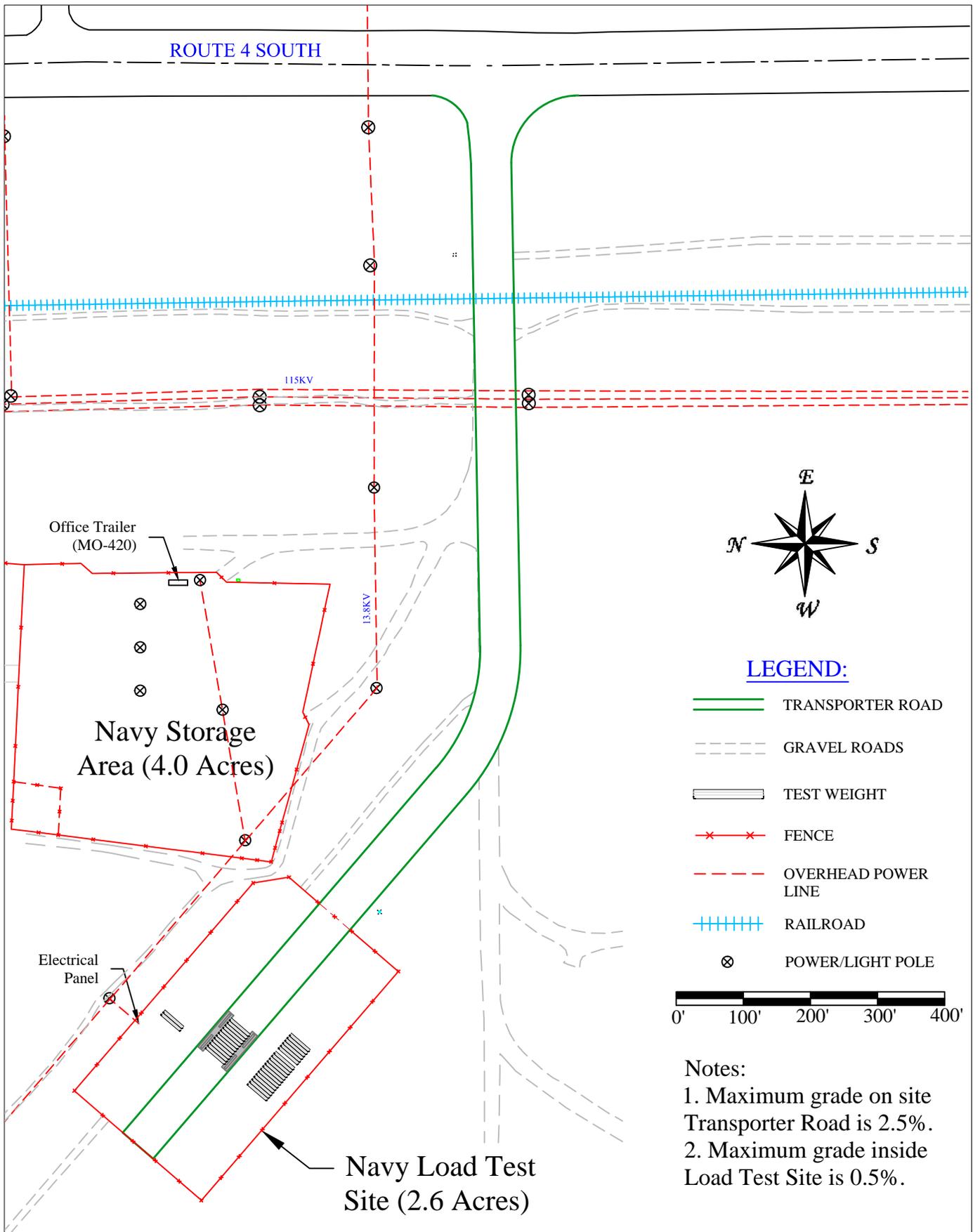


— TRANSPORT ROUTE & NAVY STORAGE AREA AND LOAD TEST SITE LOCATION

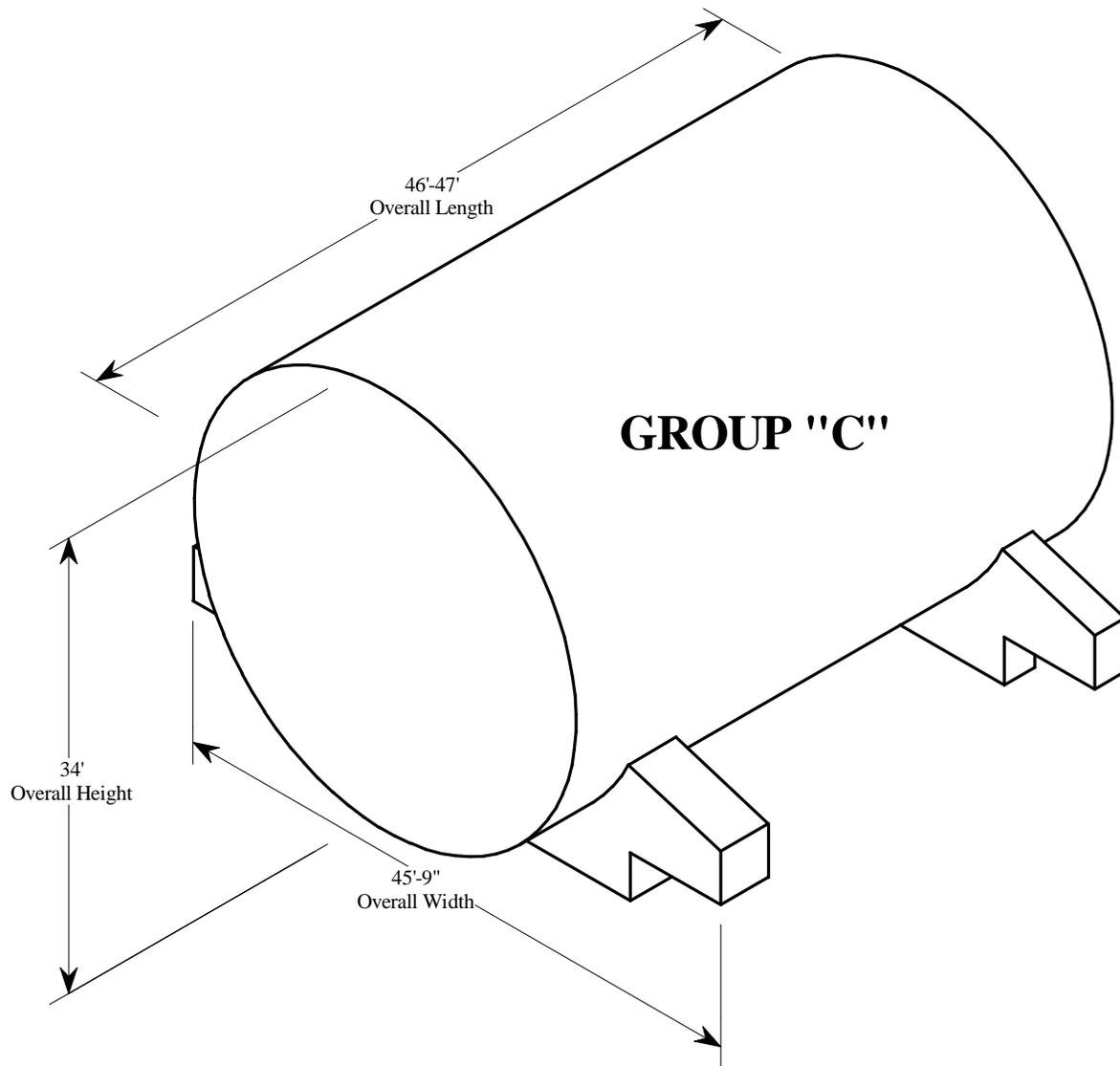


SCALE: 1" = 160'

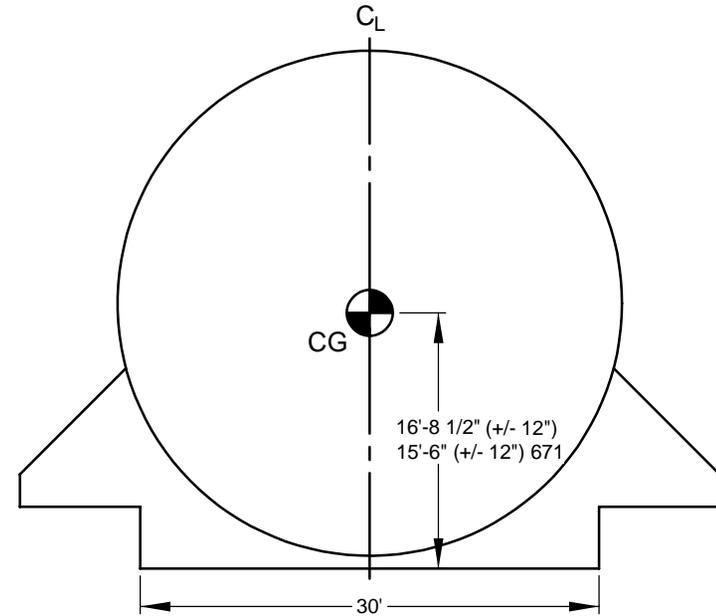
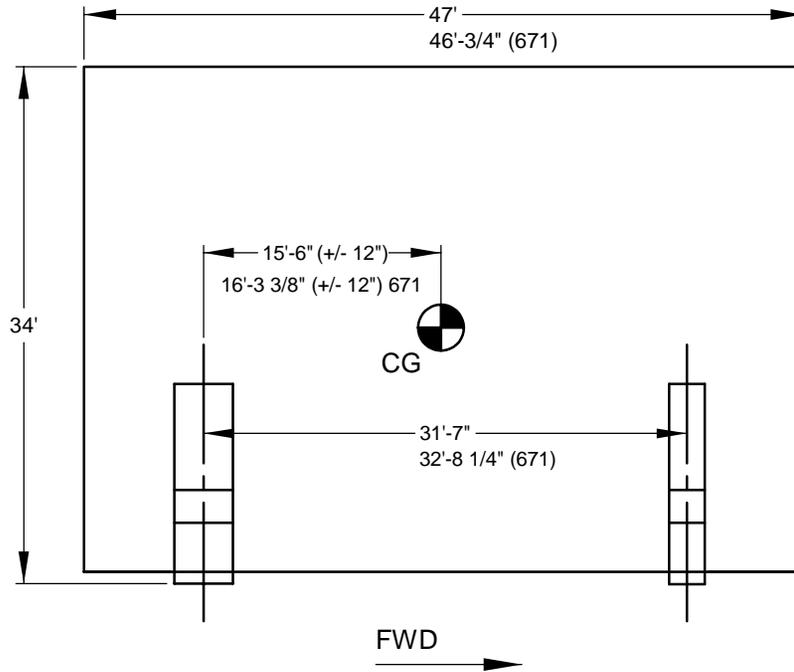
PORT OF BENTON SITE PLAN



NAVY STORAGE AREA & LOAD TEST SITE PLAN



GROUP "C" PACKAGE ISOMETRIC VIEW



Notes:

1. Maximum package weight is 1680 short tons.
2. All dimensions are approximate, based on concept and are subject to minor change.
3. Group "C" (671) package dimensions differ from other Group "C" packages as shown.
4. Vertical and longitudinal centers of gravity locations are as shown.
5. Transverse center of gravity is +/- 6" off the longitudinal centerline of the package.

GROUP "C" PACKAGE WEIGHT AND DIMENSIONS

LIST OF SUBMITTALS

The following list contains Contractor required submittals. See the referenced paragraph numbers of each submittal and paragraph number 4.2.4 of the Statement of Work (SOW) for details of the submittals and submittal requirements. This list does not include those items in the SOW required to be submitted only upon request by PSNS & IMF.

Submittal No.	Description / Document Title	Submittal Date (Calendar Days)	Number & Type of Copies	SOW Para. Number	Approval or Information Only
1	Contractor designated point of contact	At Award	1E	4.2.2	IO
2	Manufacturer certification letter for transporter	30 days after Award	1E, 1H	4.9.2	A
3	Design drawings and calculations of additional support structure attached to the transporter deck	30 days after Award	1E, 1H	4.9.3	A
4	Prime mover information	30 days after Award	1E, 1H	4.9.9	A
5	Transition ramp design and calculations	60 days after Award	1E, 1H	4.6.3	A
6	Details and drawings of the jacks and hydraulic pump units	60 days after Award	1E, 1H	4.8.2	A
7	Drawings of the jack top and bottom plates	60 days after Award	1E, 1H	4.8.3	A
8	Wood cribbing design drawings and calculations	60 days after Award	1E, 1H	4.8.6	A
9	Steel crib design drawings and calculations. MT results after manufacture of steel cribs	60 days after Award	1E, 1H	4.8.7	A
10	Hazardous material safety permit	30 days after 105-day Letter	1E, 1H	4.2.8.a	IO
11	Hazardous material security plan	30 days after 105-day Letter	1E, 1H	4.2.8.b	A
12	Safety Procedure, Welding Procedure, Detailed Work Procedures, Drawings, and Calculations	30 days after 105-day Letter	1E, 1H	4.3.1	A
13	Name and organization of the Marine Surveyor who will be performing barge inspections	30 days after 105-day Letter	1E	4.5.14	IO
14	Roster and copies of training certifications for each Marine Chemist or competent person who will be testing and certifying the barge tanks	30 days after 105-day Letter	1E, 1H	4.5.16.a	IO
15	Confined space entry procedures	30 days after 105-day Letter	1E, 1H	4.5.16.b	IO
16	Confined space certificate	30 days after 105-day Letter	1E, 1H	4.5.16.c	IO

Attachment 2.4
1 of 3

E – Electronic Copy
H – Hard Copy

A – Approval by PSNS & IMF Required
IO – Information Only

LIST OF SUBMITTALS

Submittal No.	Description / Document Title	Submittal Date (Calendar Days)	Number & Type of Copies	SOW Para. Number	Approval or Information Only
17	Design drawings and calculations of equipment used to move packages to their final positions in Trench 94	30 days after 105-day Letter	1E, 1H	4.13.16	A
18	Design drawings and calculations of west end anchor	30 days after 105-day Letter	1E, 1H	4.13.17	A
19	Details of the method of final package placement	30 days after 105-day Letter	1E, 1H	4.13.20	A
20	Package to Transporter tie-down attachment design drawings and calculations	30 days after 105-day Letter	1E, 1H	4.10.2.a	A
21	Reduced Package to Transporter tie-down attachment design drawings and calculations	30 days after 105-day Letter	1E, 1H	4.10.2.e	A
22	Contractor designated project manager	60 days prior to package arrival at Port of Benton	1E	4.2.3	IO
23	Contractor EPA/state identification number	60 days prior to package arrival at Port of Benton	1E	4.2.5	IO
24	Name of prime mover driver(s) and evidence of their training (upon request)	30 days prior to package arrival at Port of Benton	1E, 1H	4.2.7	IO
25	Personnel List requiring access to the Port of Benton and the Hanford Site	30 days prior to package arrival at Port of Benton	1E	4.2.17.d	IO
26	Details of all oversize/overweight vehicles to DOE-RL	30 days prior to package arrival at Port of Benton	1E	4.11.1	IO
27	Calibration documentation of force measuring device	20 days prior to package arrival at Port of Benton	1E	4.13.16	IO
28	Calibration documentation of jack load test gages	20 days prior to package arrival at Port of Benton	1E	5.1.1	IO
29	Jack and Hydraulic Pump Unit load test certification	20 days prior to package arrival at Port of Benton	1E, 1H	5.1.6	IO
30	Jack and Hydraulic Pump Unit load test certification for subsequent shipment	20 days prior to package arrival at Port of Benton	1E, 1H	5.1.7	IO
31	Transporter Load Test documentation	20 days prior to package arrival at Port of Benton	1E, 1H	5.2.9	IO

E – Electronic Copy
H – Hard Copy

A – Approval by PSNS & IMF Required
IO – Information Only

LIST OF SUBMITTALS

Submittal No.	Description / Document Title	Submittal Date (Calendar Days)	Number & Type of Copies	SOW Para. Number	Approval or Information Only
32	Transporter Load Test documentation for subsequent shipment	20 days prior to package arrival at Port of Benton	1E, 1H	5.2.10	IO
33	Crane Certifications	10 days prior to crane operations	1E, 1H	5.3	IO
34	Name, organization, experience, and training of the designated person-in-charge of the diving operations	30 days prior to diving operations	1E	4.4.1	IO
35	Survey grid maps of barge slip bottom	2 days after each survey	1E, 1H	4.4.2.d	IO
36	Report documenting the pre-season inspection and survey results of the barge slip	10 days after inspection and survey	1E, 1H	4.4.2.i	IO
37	Pre-Shipment Inspection Results and Survey Grid Maps	Immediately after inspection and survey	1E, 1H	4.4.3	IO
38	Pre-Arrival Inspection Results of barge slip	72 hours and 4 hours prior to package arrival at Port of Benton	1E	4.4.5	IO
39	Additional Inspection Results and Survey Grid Maps	10 days after inspection and survey	1E, 1H	4.4.6	IO
40	MT results of Package to Transporter tie-down attachment welds	Immediately after Inspections	1E, 1H	4.10.2.d	IO
41	Incident Report	Immediately after Report Completion	1E, 1H	4.11.9	A
42	Final Report	30 days after package placement in Trench 94	1E, 1H	4.14.1	A
43	Copy of Contactor Radiation Exposure Records	60 days after package placement in Trench 94	1E, 1H	4.2.18	IO
44	Welder Qualification Records	Upon Request	1E	4.2.10.a	IO

VERIFICATION AND STOP POINT SIGNATURES

1. **VERIFICATION POINTS:** Verification points shall be placed in the work procedures to verify completion of key work steps. Each verification point shall contain signature and date blocks for the required signatures. Table 1 identifies key work evolutions, at a minimum, that require verification points. Signatures by both the contractor and PSNS & IMF representatives are required for Table 1 verification points unless otherwise indicated.
2. **STOP POINTS:** Stop points shall be placed in the work procedures indicating critical work evolutions. These stop points shall ensure that prerequisite steps are completed prior to performing a critical work evolution. Each stop point shall contain signature and date blocks for both the contractor and PSNS & IMF representatives. Table 1 identifies the key work evolutions, at a minimum, that require stop points.
3. **PLACEMENT OF VERIFICATION AND STOP POINT SIGNATURES IN WORK PROCEDURES:** The contractor developed work procedures shall clearly indicate, at the appropriate work steps, that verification and stop point signatures are required. Each work step shall contain a statement similar to the example in Table 1 that indicates that all prerequisite work is complete and the next work evolution may proceed.
4. **BASIS FOR VERIFICATION AND STOP POINT SIGNATURES:** Signatures shall be based on direct observation by the person making the signature, or based on a direct report from the person(s) performing the work (e.g., Signatures that the barge structure was inspected and found acceptable for release of the barge to the tow contractor can be based on a report from the Marine Surveyor).
5. **OFFICIAL SIGNATURES:** All signatures shall be made in the "Official Copy" of the work procedures, maintained by the contractor.

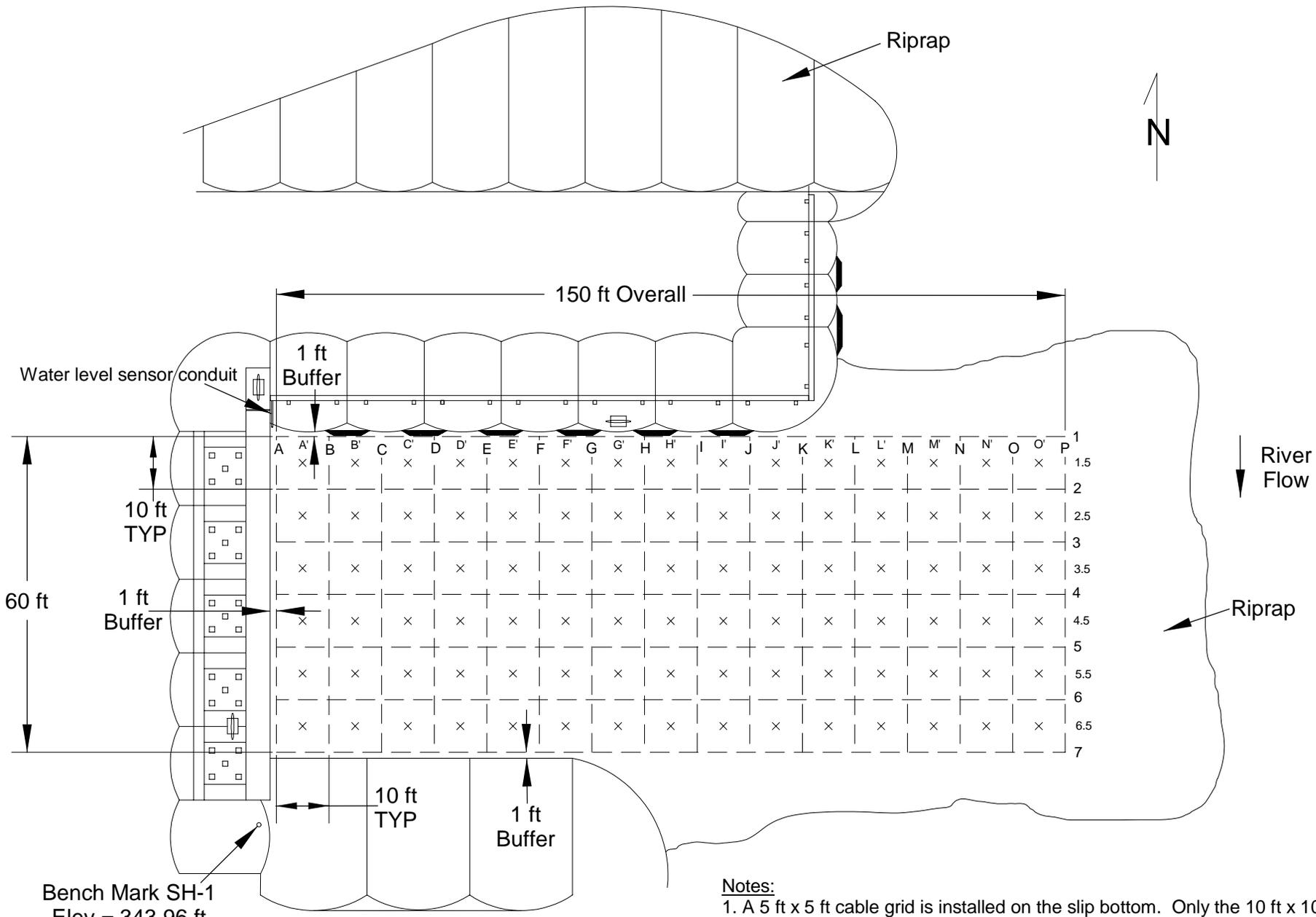
TABLE 1

VERIFICATION AND STOP POINTS

The following is a list of the minimum work evolutions that require verification and stop points in the work procedures and suggested wording for the statements. Each statement shall contain signature and date blocks for the required signatures.

1. **VERIFICATION POINT**: All personnel directing work to be accomplished in accordance with these procedures have read and are familiar with the requirements of the procedures. (Contractor only signature required.)
2. **VERIFICATION POINT**: A visual inspection of the barge tanks is complete. Ballast water may be added to the barge tanks.
3. **VERIFICATION POINT**: The barge is within 6 feet of the slip bottom and the 30 inches of weld per support fixture to remain attached during ballasting operations has been clearly marked. All but 30 inches of attachment weld per support fixture (4 places total) may be cut loose from the barge deck.
4. **VERIFICATION POINT**: The barge is grounded on the slip bottom and is verified level within a maximum of 6" athwart ship and a maximum of 10" fore and aft measured at the four elevation markers. The remaining attachment welds may be removed.
5. **STOP POINT**: Jacks are installed in the location for jacking as specified by PSNS & IMF. Barge ballasting is complete. Jacking operations may begin.
6. **STOP POINT**: The temporary support stands are properly located. Approximately 50% of the package weight has been transferred to the support stands to seat them to the barge deck for welding.
7. **VERIFICATION POINT**: Welding of the temporary support stands to the barge deck is complete. Welds have been inspected and are acceptable. Cribbing may be removed from under the package.
8. **STOP POINT**: The transporter is correctly positioned under the package. The transporter may be raised to bear 100% of the load.

9. **STOP POINT**: Water level and barge ballast are within specified requirements and the Tugboat Captain has been alerted to be ready to assist in the event the barge should float when the package is moved. The transporter and package may be moved off the barge.
10. **STOP POINT**: Visual and magnetic particle inspections of attachment welds are complete. The package may be moved up the Port of Benton hill.
11. **STOP POINT**: The transporter and package are aligned with the off-load dock and temporary support stands. The package may be lowered onto the stands.
12. **STOP POINT**: Jacks are installed in the location for jacking as specified by PSNS & IMF and roller stops are installed on the track. Jacking the package onto the rollers may begin.
13. **STOP POINT**: The package is on rollers, roller alignment and location are satisfactory, rollers are shimmed tight to roller stops, and transition steel track is installed. Installation of tow rigging may begin.
14. **STOP POINT**: Transition steel track is installed and tow rigging is attached to the package. Package rolling operations may begin.
15. **STOP POINT**: The package is at the set location. Jacking operation to land the disposal package atop the concrete rails may proceed.
16. **VERIFICATION POINT**: A Marine Surveyor has inspected the barge and there is no reported damage that would preclude release of the barge to the towing contractor.
17. **VERIFICATION POINT**: Manhole covers are installed, all fasteners are tightened, and all gear is properly stowed. Radiological surveys have been completed. The barge may be released to the towing contractor.



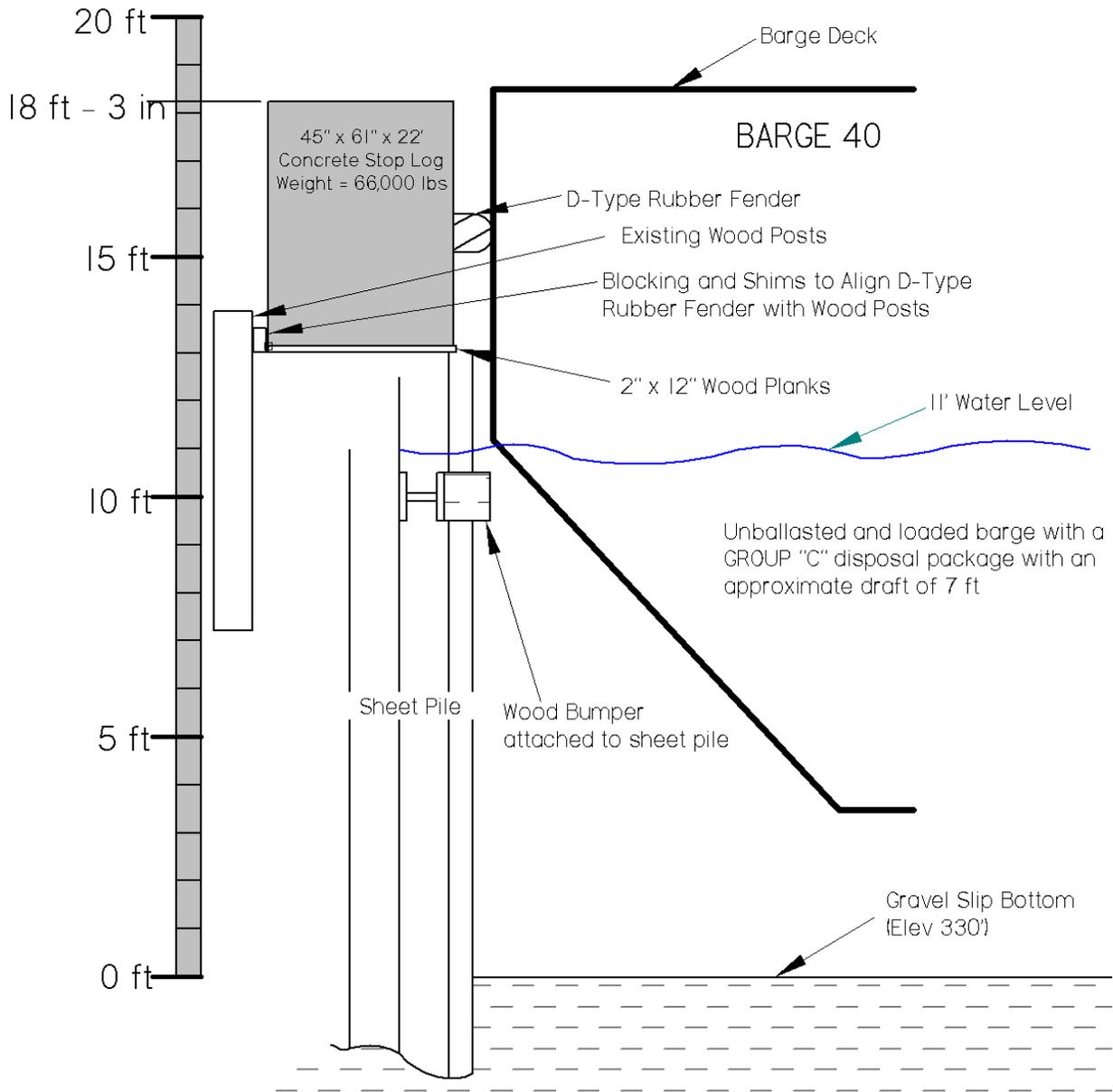
Notes:

1. A 5 ft x 5 ft cable grid is installed on the slip bottom. Only the 10 ft x 10 ft gridlines are shown for clarity. The lines that locate the centers of each square are indicated by an X. Each intersecting grid point is tagged for easy identification, e.g., A-1, A-2, B'-1.5, B'-2.5.
2. Grid Row C through Row P are in the area of the slip bottom contacted by the barge when ballasted down.
3. Elevations shall be taken at each intersecting grid point and in the center of each grid square as denoted by the "X".

Survey Grid

Port of Benton Barge Slip Plan View

Port of Benton Barge Slip Looking East

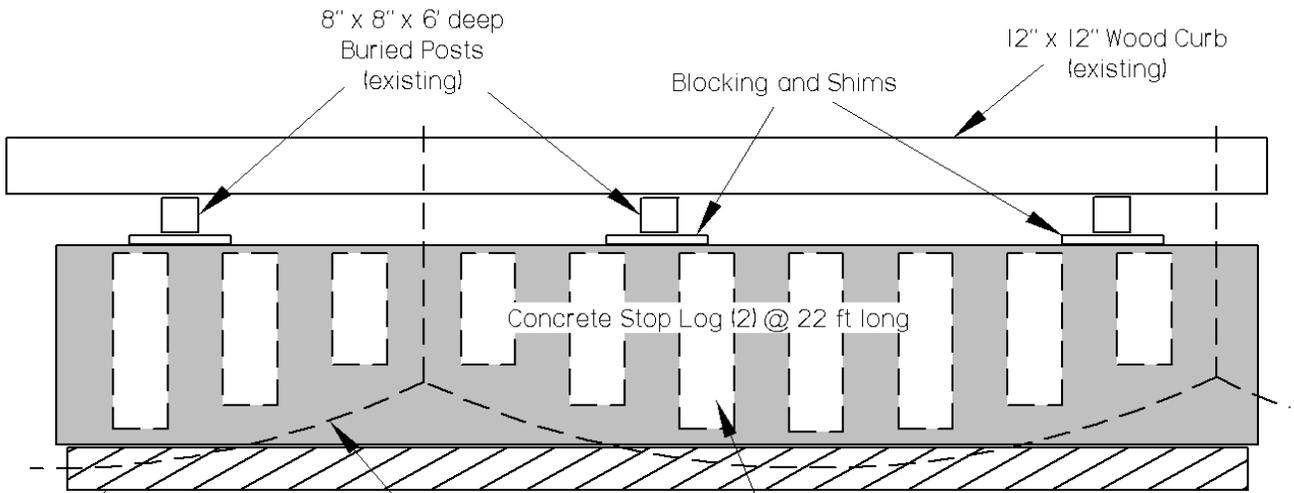


Barge 40 Temporary Bumper System

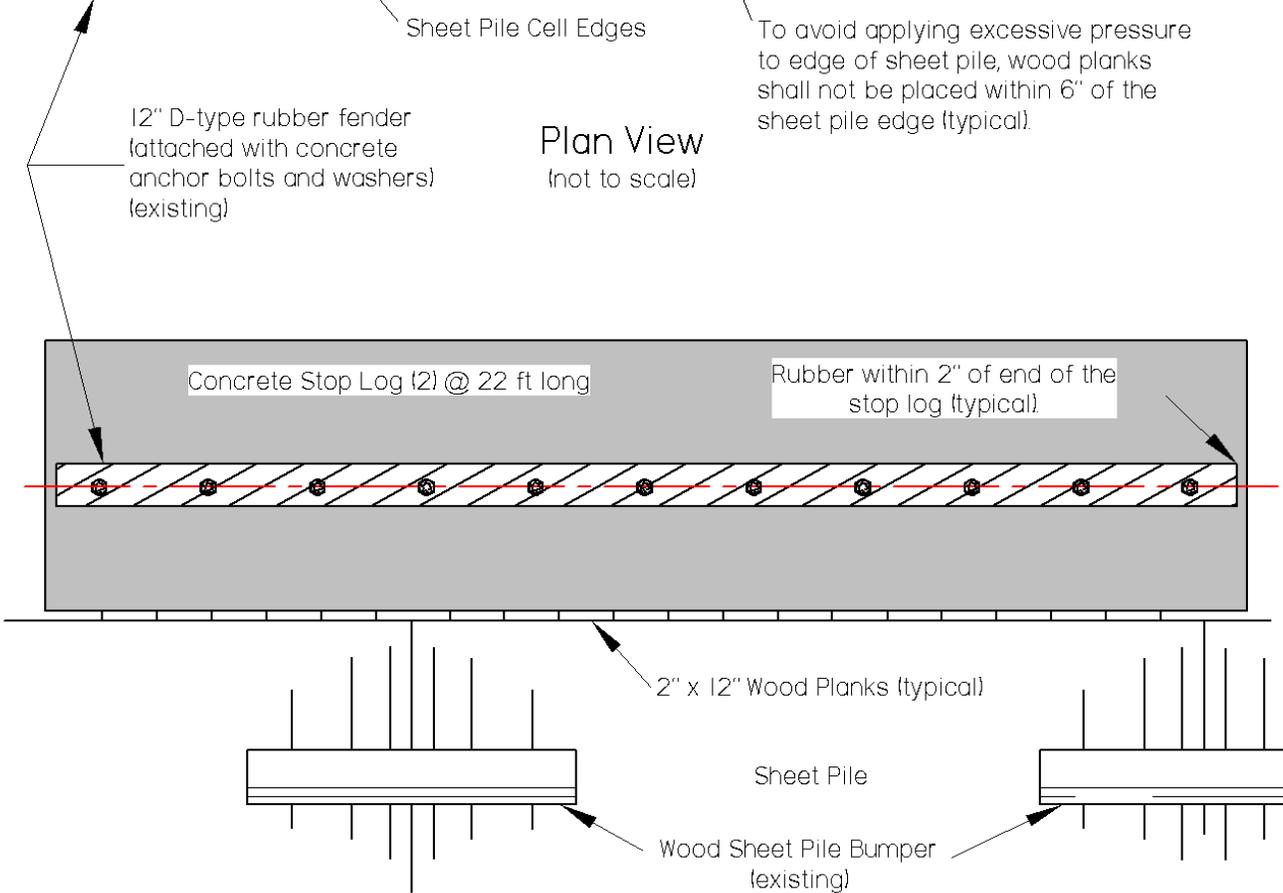
(not to scale)



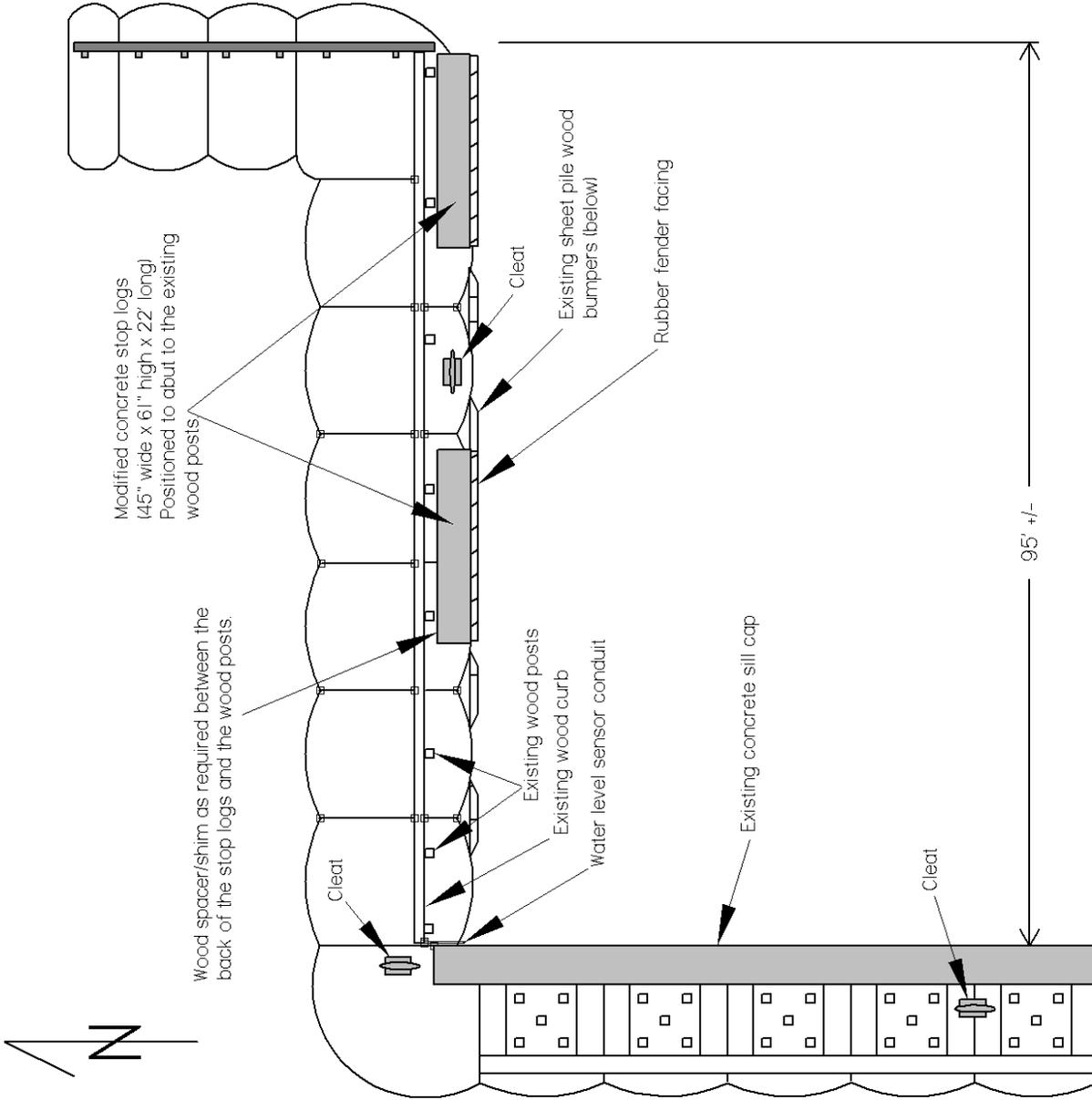
Rubber Fender & Stop Log Details



Plan View
(not to scale)



Elevation View
Looking North
(not to scale)



Port of Benton Barge Slip

Overall Plan View

GROUP "C" PACKAGE SALVAGE SLING ARRANGEMENT

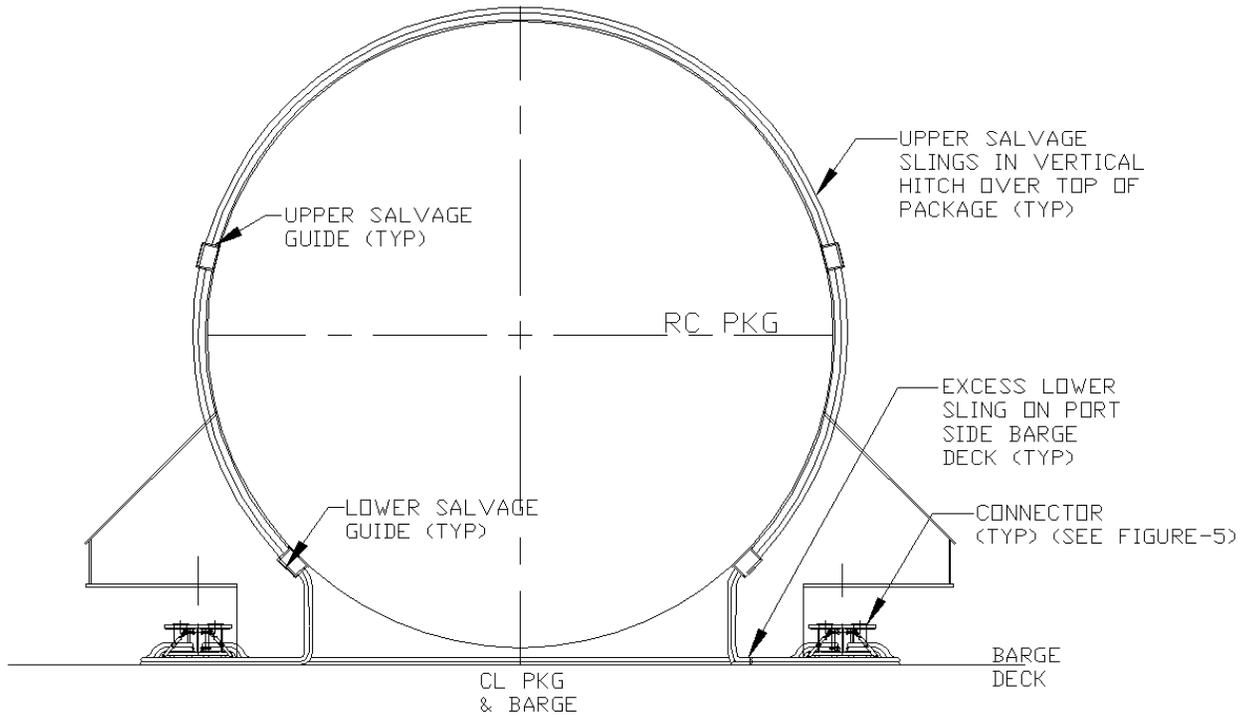


FIGURE-1
LOOKING AFT ON BARGE

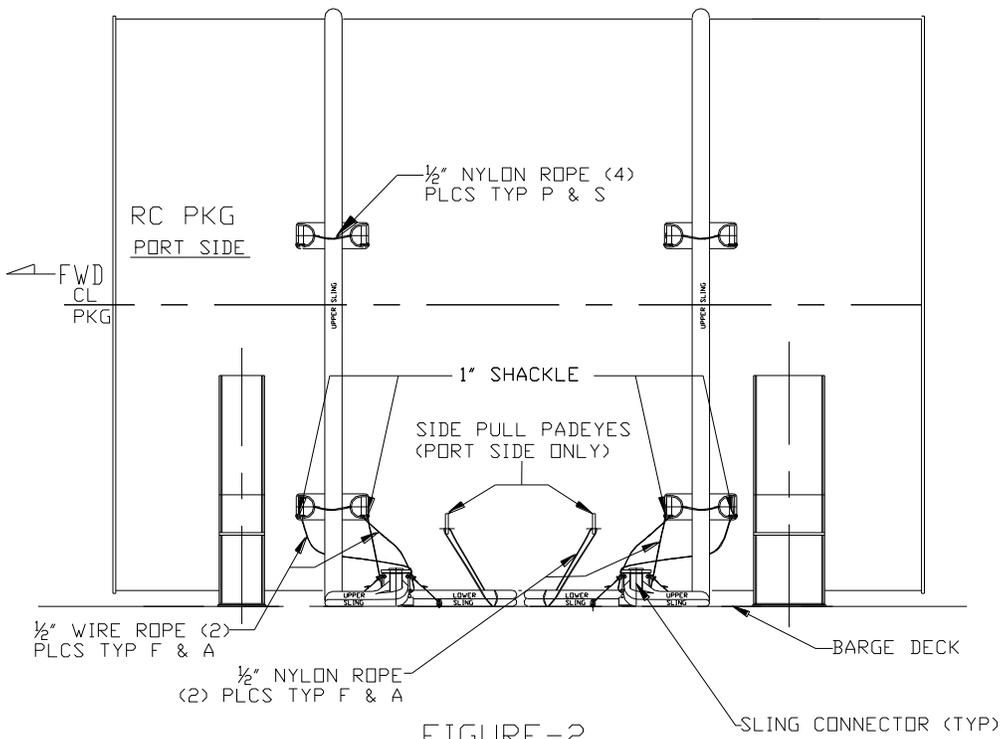
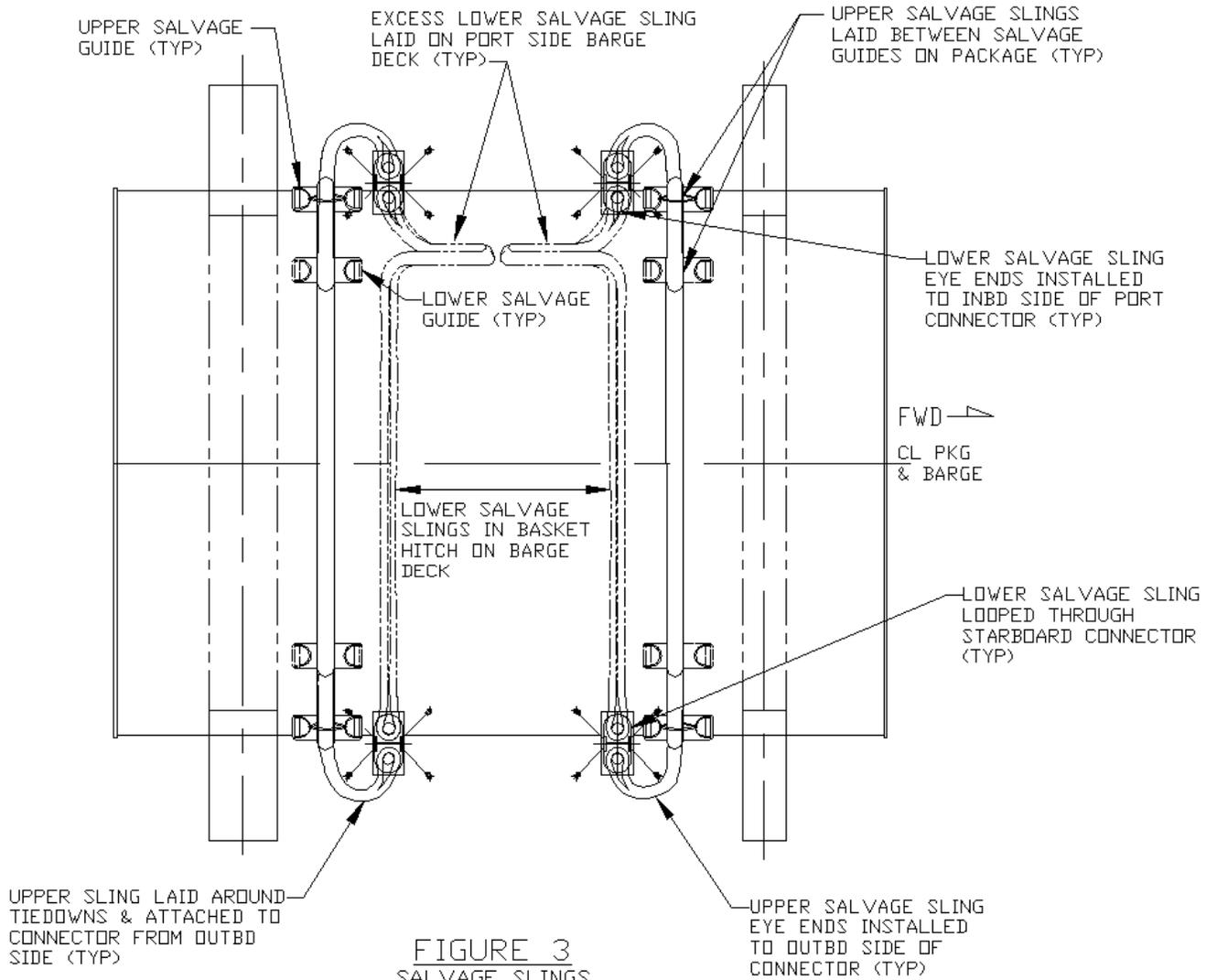


FIGURE-2
SLING & CONNECTOR
RESTRAINTS PORT SIDE

GROUP "C" PACKAGE SALVAGE SLING ARRANGEMENT



GROUP "C" PACKAGE CONNECTORS

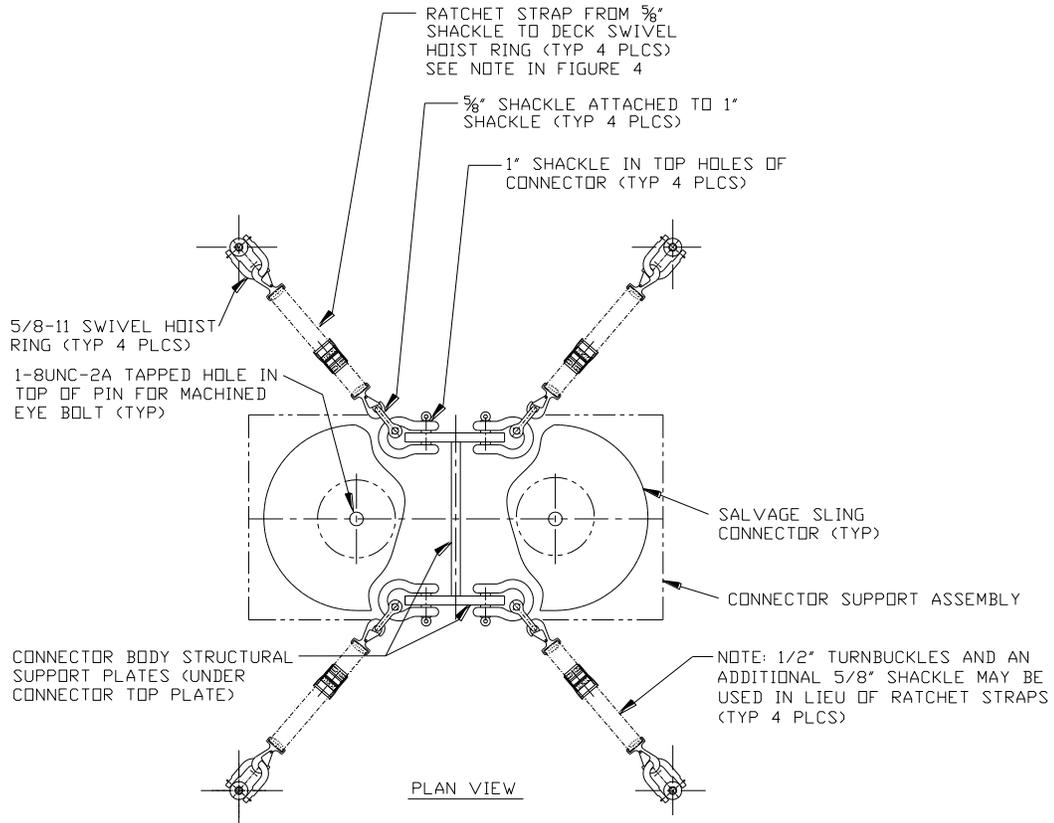


FIGURE 4
CONNECTOR TIE-DOWN ARRANGEMENT

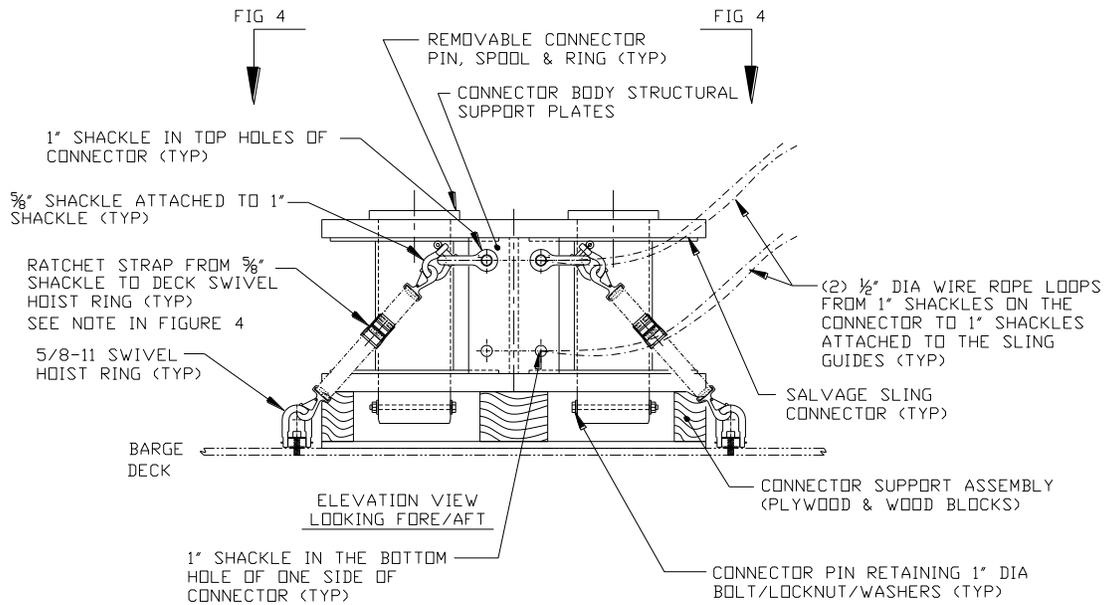


FIGURE 5
CONNECTOR TIE-DOWN ARRANGEMENT

GROUP "C" PACKAGE TRANSPONDERS

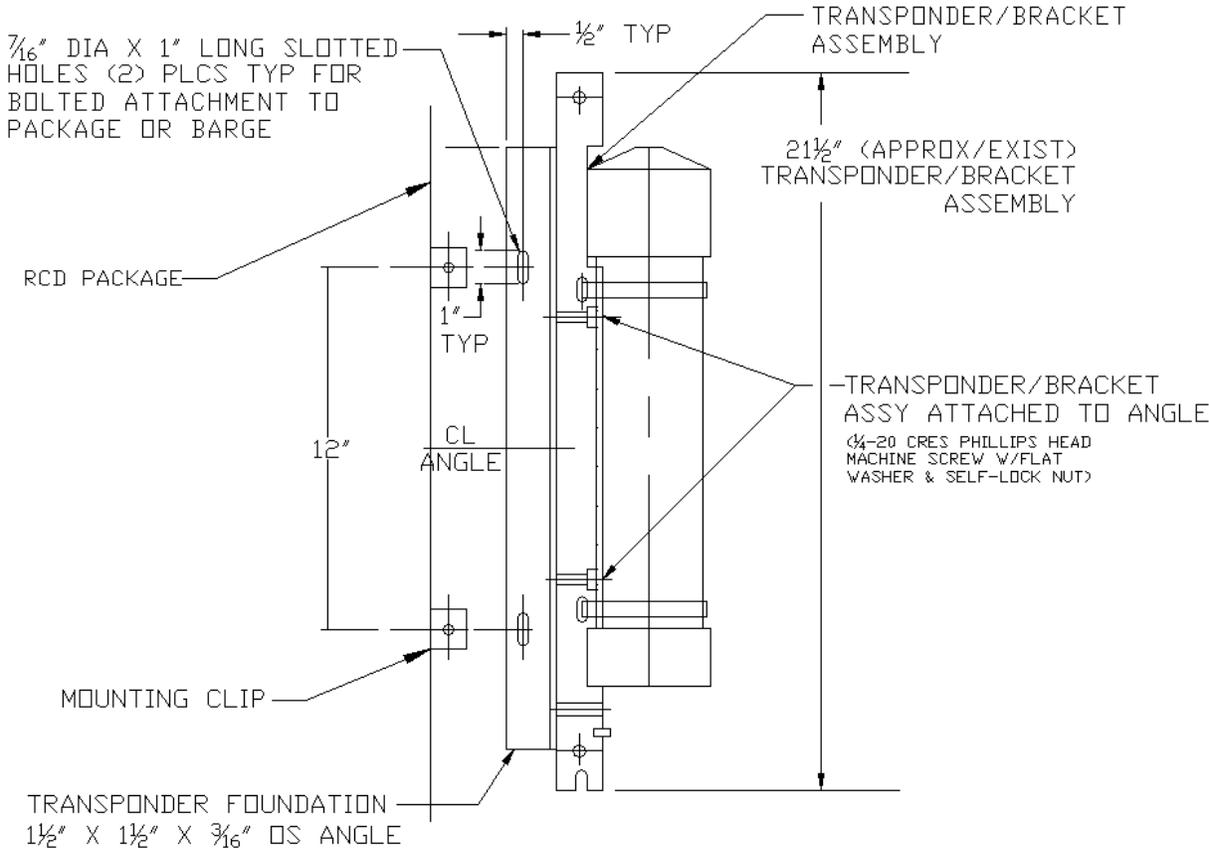


FIGURE-6
 TRANSPONDER FOUNDATION DETAILS

Sample Ballast Process

PUGET SOUND NAVAL SHIPYARD BREMERTON, WASHINGTON		
CODE	TEL. NO.:	DATE
PREPARED		
CHECKED		
PROJECT ENGINEER		
BRANCH MANAGER		

TABLE OF CONTENTS

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Criteria for Landing Barge	4
Landing Procedures	5 - 7
Criteria for Off-loading the Package	8
Off-Loading Procedures	9-10
De-ballasting Procedures.11
Barge Layout12
Barge Profile13

List of References

Reference A (Contractor transporter wheel load and spacing diagram)

GENERAL NOTES

1. This report provides the ballasting procedures to land a representative sample barge on the slip at the Port of Benton, Washington. The barge is loaded with approximately a 1300 long ton disposal package. It also provides the ballasting procedures required to off-load the disposal package using a contractor transporter/prime mover. It also includes the procedure to de-ballast the barge upon completion of the off-loading.
2. Modifications to these procedures will be required if the off-loading contractor supplies different off-loading equipment other than those shown in reference (A).
3. The procedures are valid for a river depth between 8'-0" to 13'-0" as measured from the slip bottom.
4. The landing procedures have been calculated to give a stern trim between 0 and 3 inches between the benchmarks throughout the ballasting. The water levels in the tanks give this trim if no external forces are acting on the barge (misc. equip, tug boats, mooring lines, river current, etc.) and the tanks are filled without trapped air. If the trim exceeds the anticipated amount the contractor may deviate slightly from the given tank levels to produce the desired trim provided the PSNS Representative is notified prior to the changes.
5. The off-load procedures have been developed to protect the barge bottom from damage. The maximum allowable pressure that the slip bottom may exert on the barge is 0.92 short tons per square foot.
6. The off-load procedures (pages 9-10) must be followed verbatim while in a river level range. If the river level changes from one procedure to another, the PSNS Representative will give instructions on how to go from one procedure to another.
7. Prior to ballasting, flood alarms shall be turned off. No ballasting equipment (i.e. hoses) shall be placed in the tanks until the tank is gas freed and inspection for the individual tank is complete and signed off by the PSNS Representative.
8. After the barge is ballasted on the slip, if the levelness tolerances required by the contract are exceeded and cannot be corrected by relocation of equipment, the PSNS Representative may require the barge to be de-ballasted by a modified procedure to permit re-inspection of the barge slip.
9. **CAUTION:** At no time during the ballasting down and offload shall the barge be out of the selected ballast procedure. If the ballast procedure selected is starting to approach its upper or lower river level limit (within 3 inches) the PSNS Representative shall evaluate the river flow rates and the required amount of water movement in the tanks to determine at which river level the change in procedure shall commence. Tank ballasting and/or de-ballasting shall be accomplished so as to maintain an even distribution during the change. If the river level goes below 8'-0" or above 13'-0", the PSNS Representative will provide on-site direction to modify the ballast procedures.
10. For barge layout and profile, see pages 12 and 13 respectively.

11. De-ballasting of the barge shall be in accordance with the de-ballasting procedures on sheet 11. Water in the tanks shall be removed to a level as low as practical, no more than one inch, to prevent activation of the low level alarm sensors during the return trip to Puget Sound Naval Shipyard. The barge draft mark readings shall be checked upon completion of de-ballasting and provided to the PSNS Representative.

CRITERIA FOR LANDING THE BARGE

1. The purpose of these procedures is to land the barge while maintaining between 0 to 3 inches of stern trim throughout the ballasting. EDGE CUMBE will arrive at the Port of Benton slip with approximately 5” of stern trim measured at the bench marks. The barge is allowed up to 8 inches of stern trim (measured at the bench marks) and zero bow trim before it approaches the slip bottom. If these limits are exceeded, corrections may be made in process. When the barge approaches the slip bottom (about 6” above the slip bottom), the tanks are to be filled in a sequence that gives about 3” of stern trim.
2. While the barge is still floating, **no more than four tanks can be partially filled**. Any number of tanks may have up to 1” of water in them or filled to within 1” below the deck. All other tank conditions are considered “partially filled”. Tank levels are measured from the lower edge of the manway insert. A tank is considered full when the water is within 1” of the lower edge of the manway insert.
3. The following procedures have the tank ballasting sequences that give the desired results under ideal circumstances. These steps may be combined when needed as long as the above criteria are met and the PSNS Representative is notified prior to initiating the changes.

LANDING PROCEDURE

Procedure A (valid for 8'-0" up to and including 11'-0")

1. The purpose of this procedure is to give the barge between 0 to 3 inches of stern trim throughout the ballasting and to have tanks 040, 060, 070, 080 and 090 full of water, tank 020 filled to 13'-0" below the deck, tank 030 filled to 5'-0" below the deck, and tank 050 filled to 9'-6" below the deck when complete.

2. Position any of the equipment on the deck in such a manner to reduce the amount of any list.

3. Ballast the tanks in groups according to the following:

- a. Tank 040 to 8'-0" below the deck (62,000 gallons)
Tank 070 to 9'-6" below the deck (59,000 gallons)

NOTE: The barge will be on the slip bottom at minimum river level.

- b. Tank 030 to 14'-0" below the deck (8,000 gallons)
Tank 040 FULL (70,000 gallons)
Tank 070 FULL (101,000 gallons)

- c. Tank 030 to 12'-0" below the deck (16,000 gallons)
Tank 060 to 3'-0" below the deck (121,000 gallons)

NOTE: The barge will be on the slip bottom at maximum river level.

- d. Tank 030 to 11'-0" below the deck (8,000 gallons)
Tank 060 FULL (30,000 gallons)
Tank 080 to 12'-0" below the deck (27,000 gallons)

- e. Tank 030 to 5'-0" below the deck (48,000 gallons)
Tank 050 to 9'-6" below the deck (55,000 gallons)
Tank 080 to 5'-0" below the deck (62,000 gallons)

- f. Tank 020 to 13'-0" below the deck (18,000 gallons)
Tank 080 FULL (44,000 gallons)
Tank 090 FULL (40,000 gallons)

4. The ballasting is complete for Procedure A.

Procedure B (valid for 9'-1" up to and including 12'-0")

1. The purpose of this procedure is to give the barge between 0 to 3 inches of stern trim throughout the ballasting and to have tanks 030, 040, 060, 070, 080 and 090 full of water, tank 020 filled to 12'-0" below the deck, tank 050 filled to 9'-0" below the deck and fill tank 091/092 to 11'-0" below the deck when complete.
2. Position any equipment on the deck in such a manner to reduce the amount of any list.
3. Ballast the tanks in groups according to the following:
 - a. Tank 030 to 14'-0" below the deck (8,000 gallons)
Tank 040 to 3'-0" below the deck (106,000 gallons)
Tank 070 to 3'-6" below the deck (123,000 gallons)

NOTE: The barge will be on the slip bottom at minimum river level.

- b. Tank 040 FULL (26,000 gallons)
Tank 070 FULL (37,000 gallons)
- c. Tank 030 to 12'-0" below the deck (16,000 gallons)
Tank 060 to 2'-0" below the deck (131,000 gallons)
- d. Tank 030 to 7'-0" below the deck (40,000 gallons)
Tank 060 FULL (20,000 gallons)
Tank 080 to 10'-6" below the deck (40,000 gallons)

NOTE: The barge will be on the slip bottom at maximum river level.

- e. Tank 030 FULL (56,000 gallons)
Tank 050 to 9'-0" below the deck (60,000 gallons)
Tank 080 FULL (93,000 gallons)
- f. Tank 020 to 12'-0" below the deck (26,000 gallons)
Tank 090 FULL (40,000 gallons)
Tank 091/092 to 11'-0" below the deck (21,000 gallons)

4. The ballasting is complete for Procedure B.

Procedure C (valid for 10'-2" up to and including 13'-0")

1. The purpose of this procedure is to give the barge between 0 to 3 inches of stern trim throughout the ballasting and to have Tanks 030, 040, 060, 070, 080, 090 and 091/092 full of water, tank 020 filled to 6'-0" below the deck and tank 050 filled to 9'-0" below the deck when complete.

2. Position any equipment on the deck in such a manner to reduce the amount of any list.

3. Ballast the tanks in groups according to the following:

- a. Tank 030 to 14'-0" below the deck (8,000 gallons)
Tank 040 FULL (132,000 gallons)
Tank 070 FULL (160,000 gallons)
- b. Tank 030 to 12'-6" below the deck (12,000 gallons)
Tank 060 to 13'-0" below the deck (20,000 gallons)
Tank 080 to 14'-0" below the deck (9,000 gallons)

NOTE: The barge will be on the slip bottom at minimum river level.

- c. Tank 030 to 7'-0" below the deck (44,000 gallons)
Tank 060 FULL (131,000 gallons)
Tank 080 to 10'-0" below the deck (35,000 gallons)
- d. Tank 030 to 5'-0" below the deck (16,000 gallons)
Tank 050 to 9'-0" below the deck (60,000 gallons)
Tank 080 to 6'-0" below the deck (36,000 gallons)

NOTE: The barge will be on the slip bottom at maximum river level.

- e. Tank 030 FULL (40,000 gallons)
Tank 080 FULL (53,000 gallons)
Tank 090 FULL (40,000 gallons)
- f. Tank 020 to 6'-0" below the deck (80,000 gallons)
Tank 091/092 FULL (81,000 gallons)

4. The ballasting is complete for Procedure C.

CRITERIA FOR OFF-LOADING THE PACKAGE

To safely off-load the package at the Port of Benton barge slip, the barge must be grounded firmly on the slip bottom in accordance with the landing procedure. To avoid damage to the vehicles, the barge, and the transition ramp, the barge must remain stationary throughout the off-loading procedure. The conditions which must be satisfied during the off-loading evolution are:

- a. The weight of the barge and the weight of the water in the tanks is greater than the buoyancy of the barge.
- b. That the package weight and the ballast condition do not cause a moment that would allow the barge to pivot on its stern rake knuckle.
- c. The package weight and ballast conditions must not cause a moment that would cause the barge to pivot on the edge of the slip bottom grounding pad. This could occur because the forward 80 feet of the barge extends past the end of the slip bottom.
- d. The slip bottom edge/barge is not loaded above allowable limits (0.92 short tons/ft²).

OFF-LOADING PROCEDURES

Three procedures were developed for off-loading the package. Procedure A is applicable for river depths from 8'-0" up to and including 11'-0", Procedure B is applicable for river depths from 9'-1" up to and including 12'-0", and Procedure C is applicable for river depths from 10'-2" up to and including 13'-0". The three off-loading procedures contain one stop for ballast prior to off-load.

Procedure A (valid from 8'-0" to 11'-0")

1. Barge has landed. Tanks 040, 060, 070, 080 and 090 full of water, tank 020 filled to 13'-0" below the deck, tank 030 filled to 5'-0" below the deck, and tank 050 filled to 9'-6" below the deck.
2. Raise disposal package for off-loading. Move temporary supports into position.
3. Move transporter into position. Load disposal package on transporter.
4. Move Transporter/Prime Mover off the barge till the last axle off is 6 ft past the barge stern.
5. Fill tanks 020 to 4 ft below the deck (about 80,000 gal), 030 FULL (40,000 gal), and 091/092 to 8 ft below the deck (about 38,000 gal).
6. Move transporter off barge.

Procedure B (valid from 9'-1" to 12'-0")

1. Barge has landed. Tanks 030, 040, 060, 070, 080 and 090 full of water, tank 020 filled to 12'-0" below the deck, tank 050 filled to 9'-0" below the deck and fill tank 091/092 to 11'-0" below the deck..
2. Raise disposal package for off-loading. Move temporary supports into position.
3. Move transporter into position. Load disposal package on transporter.
4. Move Transporter/Prime Mover off the barge till the last axle off is 6 ft past the barge stern.
5. Fill tanks 020 to 4 ft below the deck (about 72,000 gal), 050 FULL (90,000 gal), and 091/092 to 3 ft below the deck (about 38,000 gal).
6. Move transporter off barge.

Procedure C (valid from 10'-2" to 13'-0")

1. Barge has landed. Tanks 030, 040, 060, 070, 080, 090 and 091/092 full of water, tank 020 filled to 6'-0" below the deck and tank 050 filled to 9'-0" below the deck.
2. Raise disposal package for off-loading. Move temporary supports into position.
3. Move transporter into position. Load disposal package on transporter.
4. Move Transporter/Prime Mover off the barge till the last axle off is 6 ft past the barge stern.
5. Fill tanks 020 FULL (about 54,000 gal), 050 FULL (90,000 gal), and 011/012 to 12 ft below the deck (about 9,000 gal) and 101/102 to 10 ft below the deck (about 22,000 gal).
6. Move transporter off barge.

DEBALLASTING PROCEDURES

These procedures were developed for de-ballasting the barge. These procedures are applicable for river depths of 8'-0" to 13'-0". These procedures are designed to float the barge off the slip bottom with a minimum of list and trim. Once the barge has lifted off the bottom, the pumping procedures may be varied to obtain trim and list conditions more favorable for pumping. The following is a list of how much water (in gallons) is remaining in each tank prior to de-ballasting for each off-loading procedure:

<u>TANK</u>	<u>PROCEDURE "A"</u>	<u>PROCEDURE "B"</u>	<u>PROCEDURE "C"</u>
010	0	0	0
011/012	0	0	9,000
020	98,000	98,000	134,000
030	120,000	120,000	120,000
040	132,000	132,000	132,000
050	55,000	150,000	150,000
060	151,000	151,000	151,000
070	160,000	160,000	160,000
080	133,000	133,000	133,000
090	40,000	40,000	40,000
091/092	38,000	59,000	81,000
100	0	0	0
101/102	0	0	22,000

Procedure "A"

1. Pump tanks 020 and 070 dry.
2. Pump tanks 030 and 080 dry, simultaneously.
3. Pump tanks 040 and 090 dry, simultaneously.
4. Pump tanks 050, 060, and 091/092 dry, simultaneously.

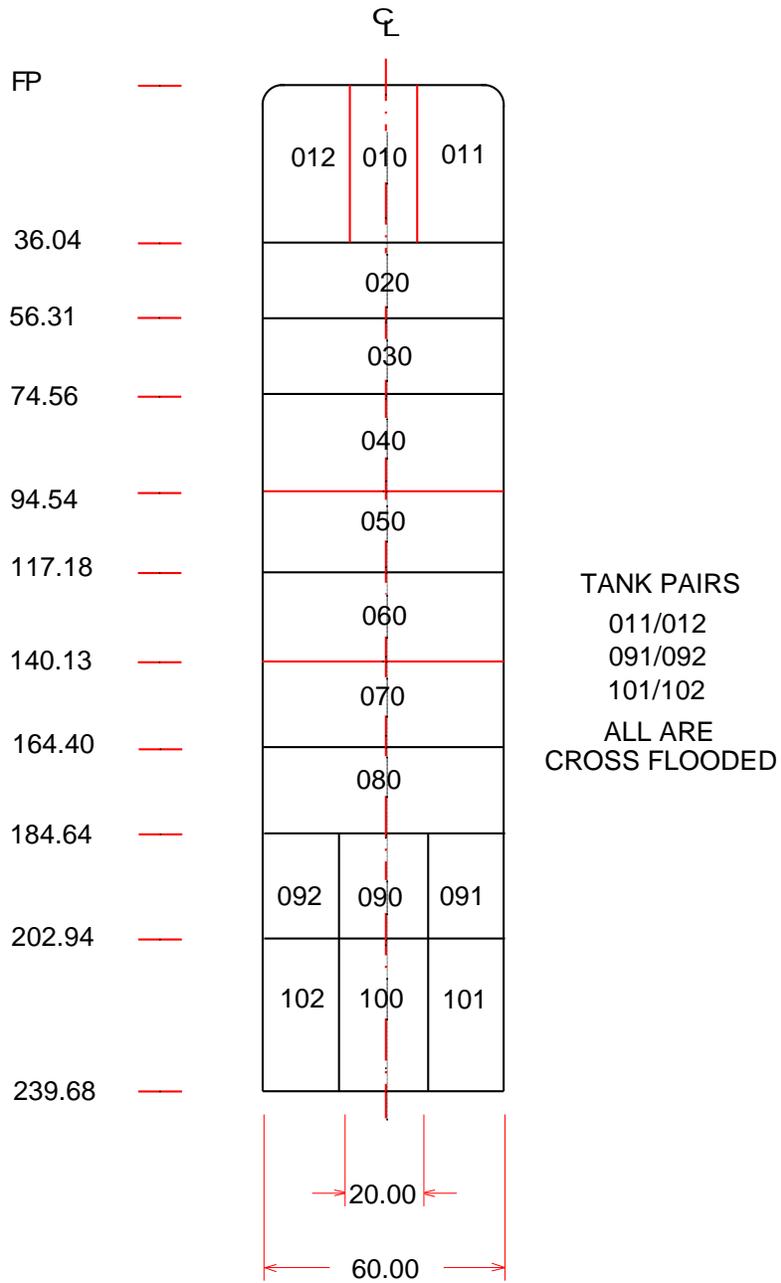
Procedure "B"

1. Pump tanks 020 and 080 dry simultaneously.
2. Pump tanks 040 and 070 dry, simultaneously.
3. Pump tanks 050 and 060 dry, simultaneously.
4. Pump tanks 030, 090, and 091/092 dry.

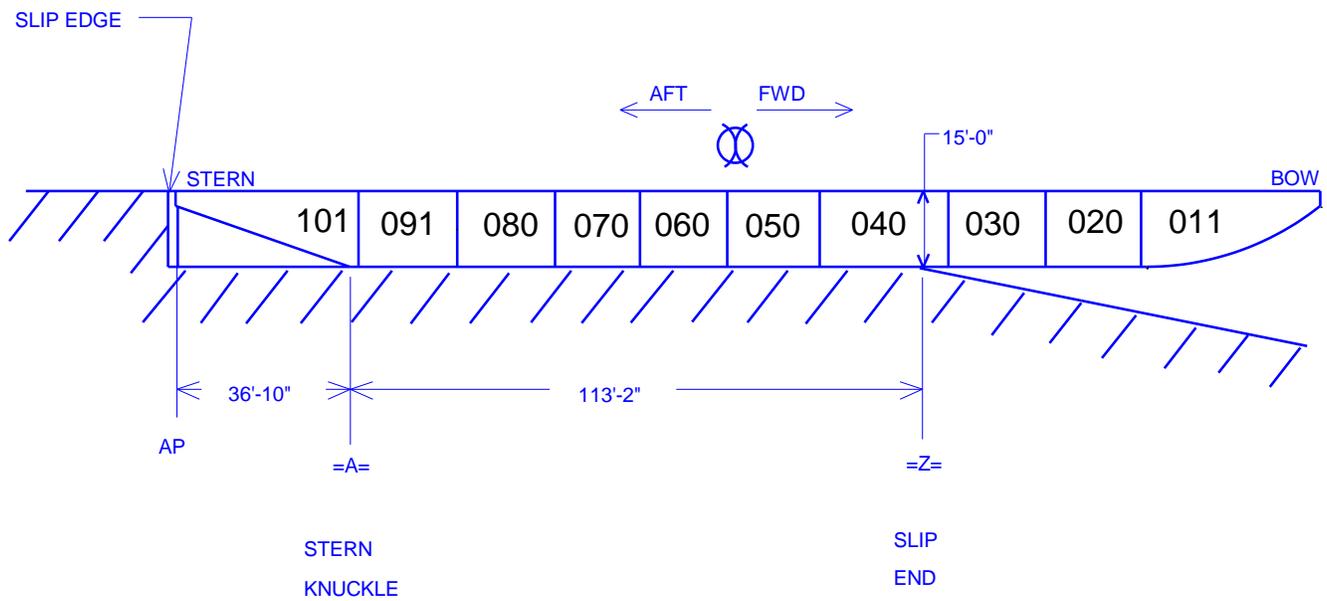
Procedure "C"

1. Pump tanks 020, 060 and 080 dry, simultaneously.
2. Pump tanks 040 and 090 dry, simultaneously.
3. Pump tanks 030 and 070 dry, simultaneously.
4. Pump tanks 011/012, 050, 091/092, and 101/102 dry, simultaneously

The expected deballasted barge drafts are 2'-11" FWD and 3'-0" AFT (FW).



BARGE LAYOUT
(Sample)



BARGE PROFILE
(Sample)

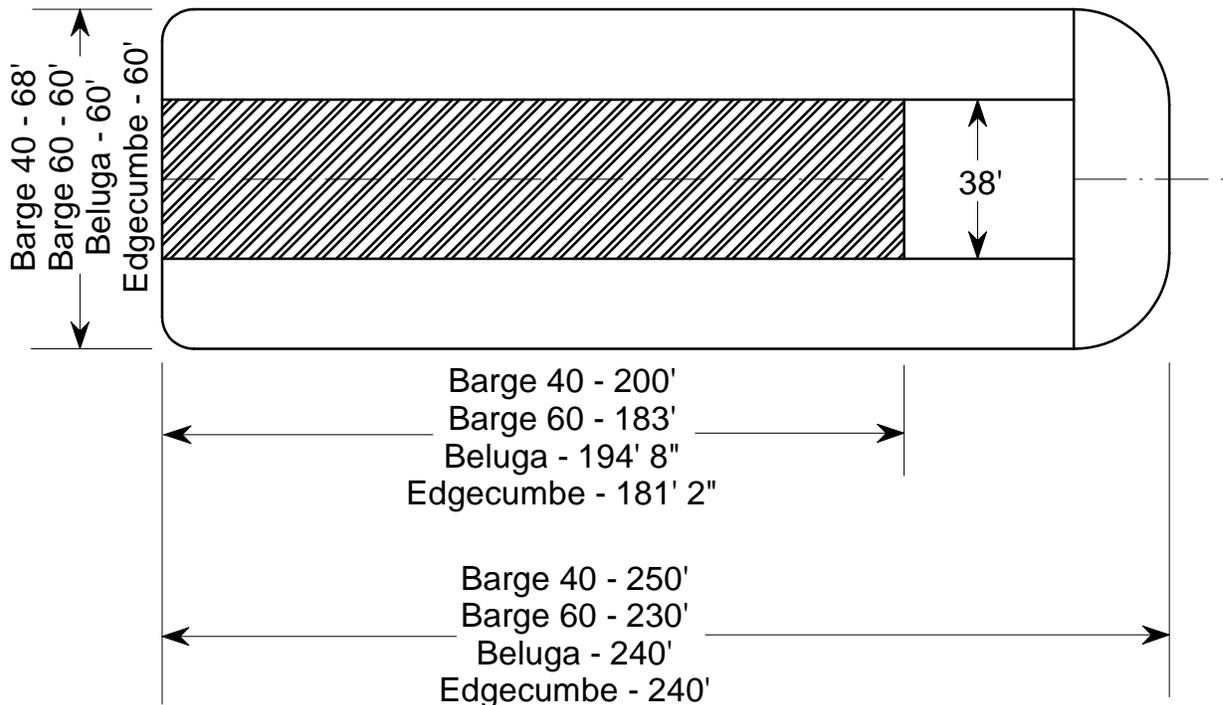


FIGURE 1

(Not to Scale)

NOTES:

- Figure 1 shows four barges that may be used to ship a package including: Barge 40, Barge 60, Beluga, and Edgecumbe. These barges have been strengthened to support an off-loading vehicle and package. The deck area strengthened for transporter loads is shown in the shaded area of Figure 1. Transporter and Prime Mover wheel loads must remain within the strengthened area. All barge deck loads will be evaluated by PSNS & IMF to ensure that deck load capacities are not exceeded.
- See Table 1 on page 2 of this attachment for transporter wheel configurations, loads, and spacings which are acceptable according to PSNS & IMF calculations.
- See Table 1 on page 2 of this attachment for an example of acceptable prime mover wheel spacing and wheel loading. Prime movers that fall within the given parameters are acceptable. Any other wheel spacing and loading will be evaluated by PSNS & IMF. Both variables, spacing and loading, affect the acceptability of prime mover loading on barge decks.

BARGE DECK LOADING SPECIFICATIONS

TABLE 1, for GROUP "C" Packages
ACCEPTABLE TRANSPORTER & PRIME MOVER WHEEL LOADS AND SPACINGS

Transporter Type	Tire Size	Approximate Tire Footprint (width x length)	Approximate Tire Pressure	Maximum Allowable Wheel Load	See Figure 2				
					A	B	C	D	E
Goldhofer <i>Type THP/H</i>	8.25R15 18 ply	6.5" x 10.33"	125 psi	10.0 kips	63"	10.625"	21.25"	47.25"	24"
Goldhofer <i>Type PST/H</i> <i>Manufactured in 2000 or later</i>	235/75R17.5 LRH	6.6" x 13.5"	125 psi	10.0 kips	63"	10.625"	21.25"	47.25"	24"
Goldhofer <i>Type THP or PST</i>	215/75	8.46" x 7.14"	120 psi	8.0 kips	59"	9.75"	19.125"	32.125"	20.375"
Scheuerle <i>G3 or G4 SPMT</i> <i>*see Figure 3</i>	355/65-15 24 PR	12.6" x 9.8"	145 psi	12.0 kips	55.1"	N/A	24.4"	32.7"	32.7"
Kamag <i>2400-S</i> <i>*see Figure 3</i>	355/65-15 24 PR	12.6" x 9.8"	145 psi	12.0 kips	55.1"	N/A	24.4"	32.7"	32.7"
					G	H	I	J	K
<i>Prime Mover</i> <i>(Example only)</i>	Front Tire 12.50 X 20	12.50" X 7.5"	120 psi	11.5 kips	71"	15' - 6"	17"	84"	92"
	Rear Tire 12.50 X 20	12.50" X 9.8"	120 psi	14.8 kips					

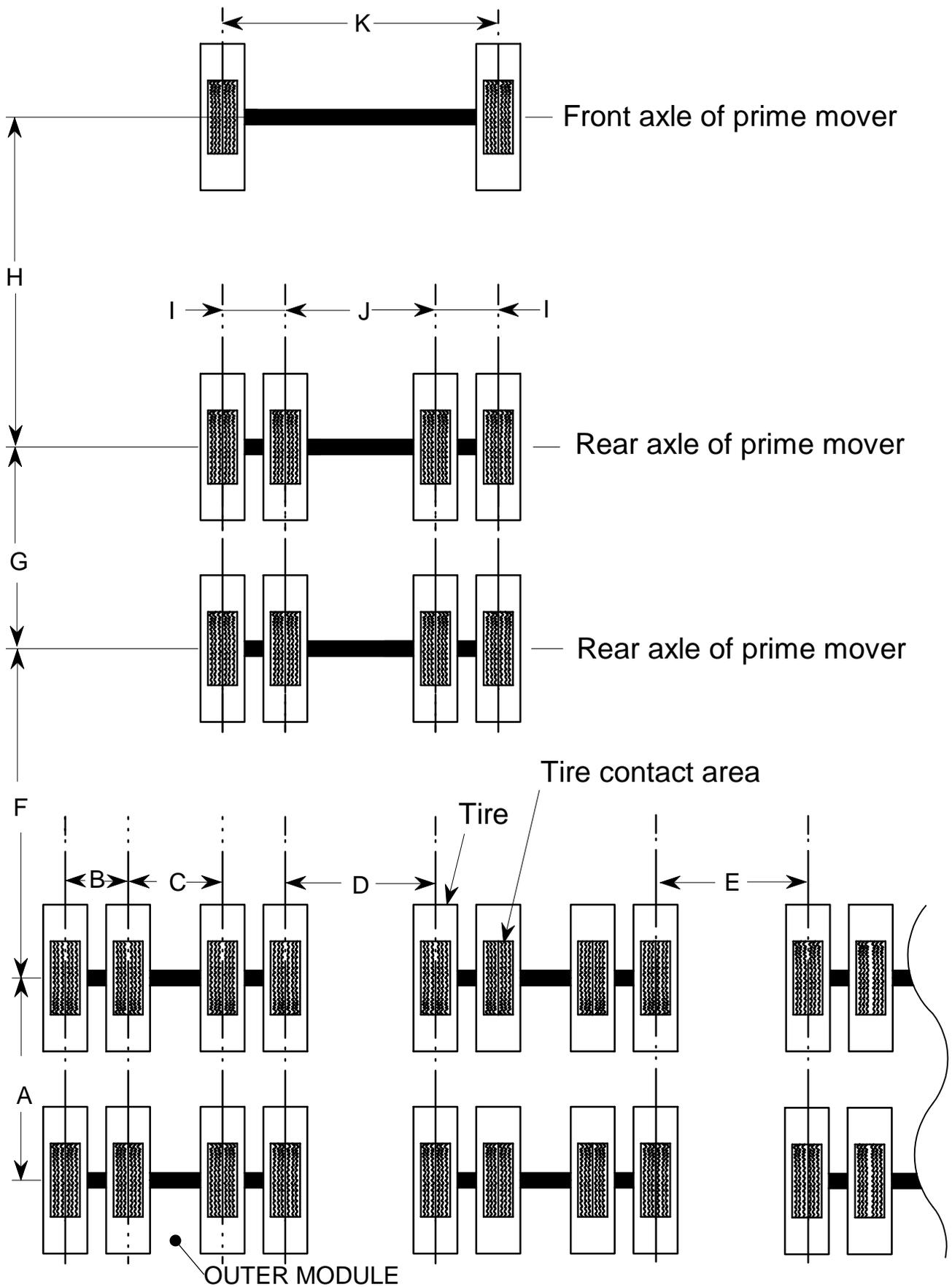


FIGURE 2
WHEEL SPACING DIAGRAM FOR PRIME MOVER AND
4 TIRES PER BOGIE TRANSPORTER
 (Not to Scale)

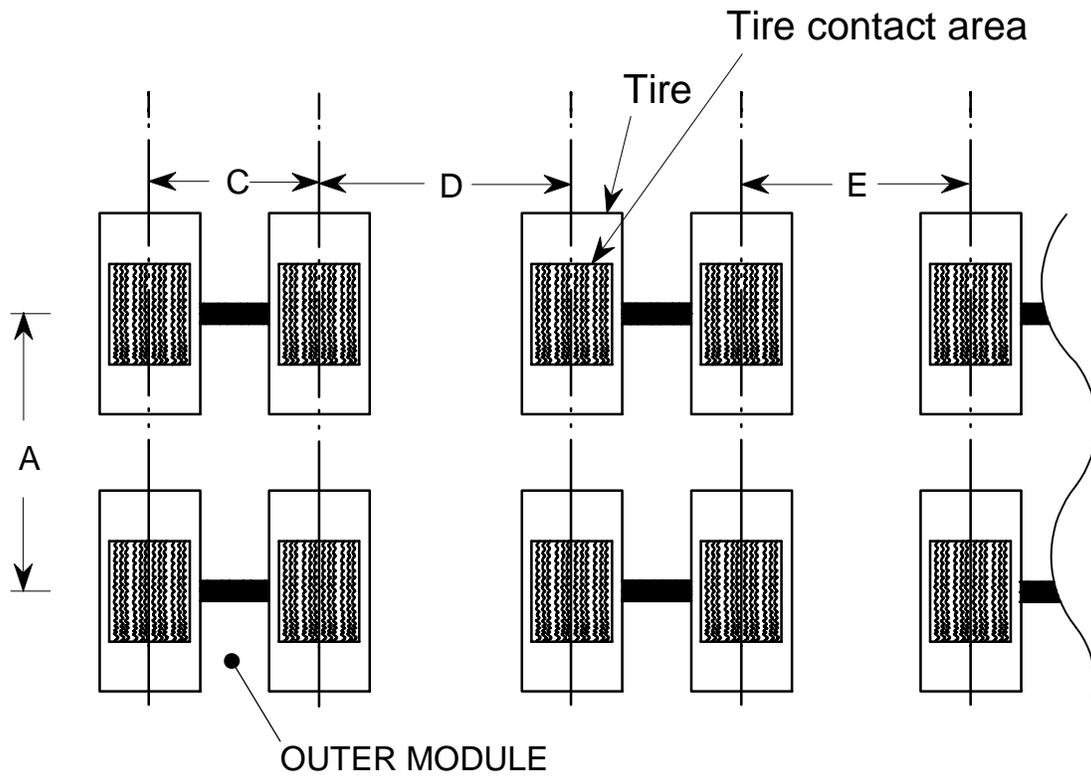
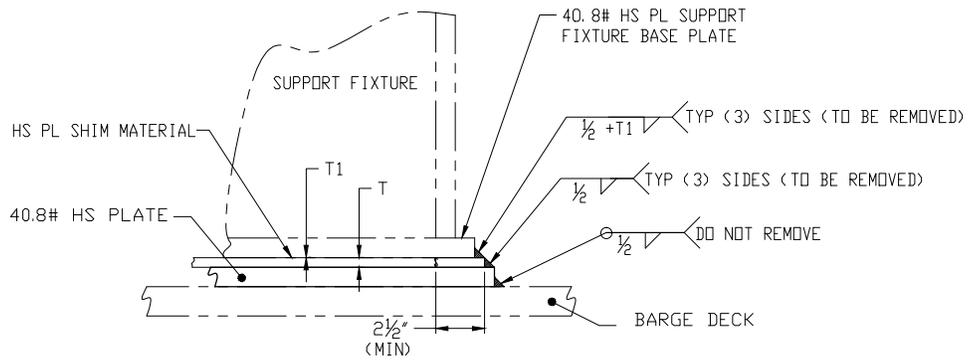
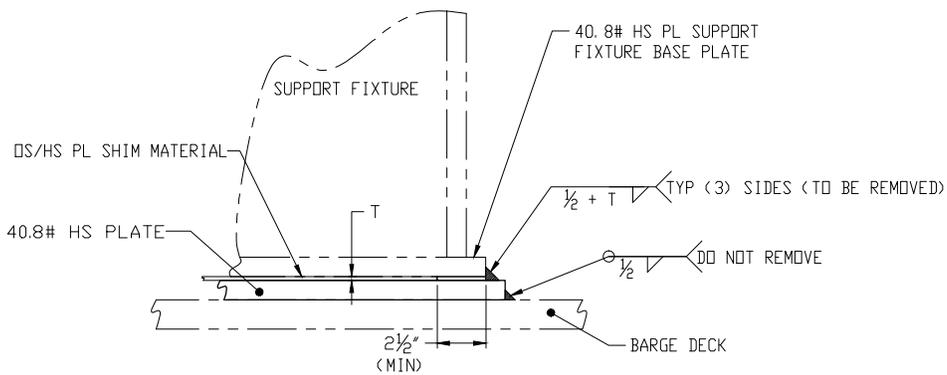


FIGURE 3
WHEEL SPACING DIAGRAM FOR
2 TIRES PER BOGIE TRANSPORTER
 (Not to Scale)

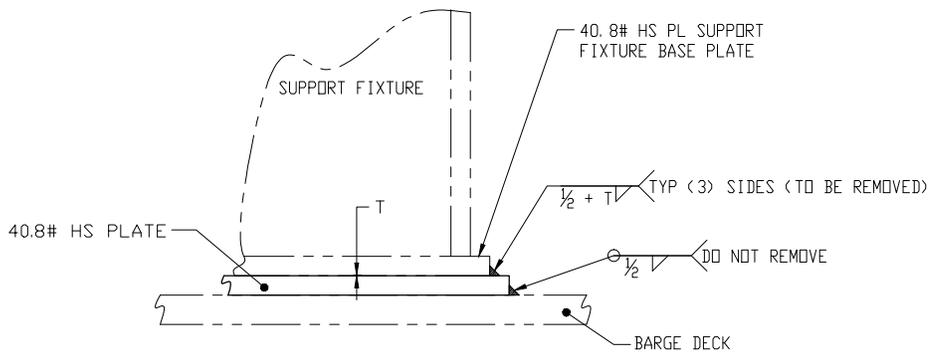


SHIMMING AND WELDING DETAILS FOR GAPS 1/2" AND GREATER

T=Thickness of shim plate
T1=Gap between shim plate and support fixture

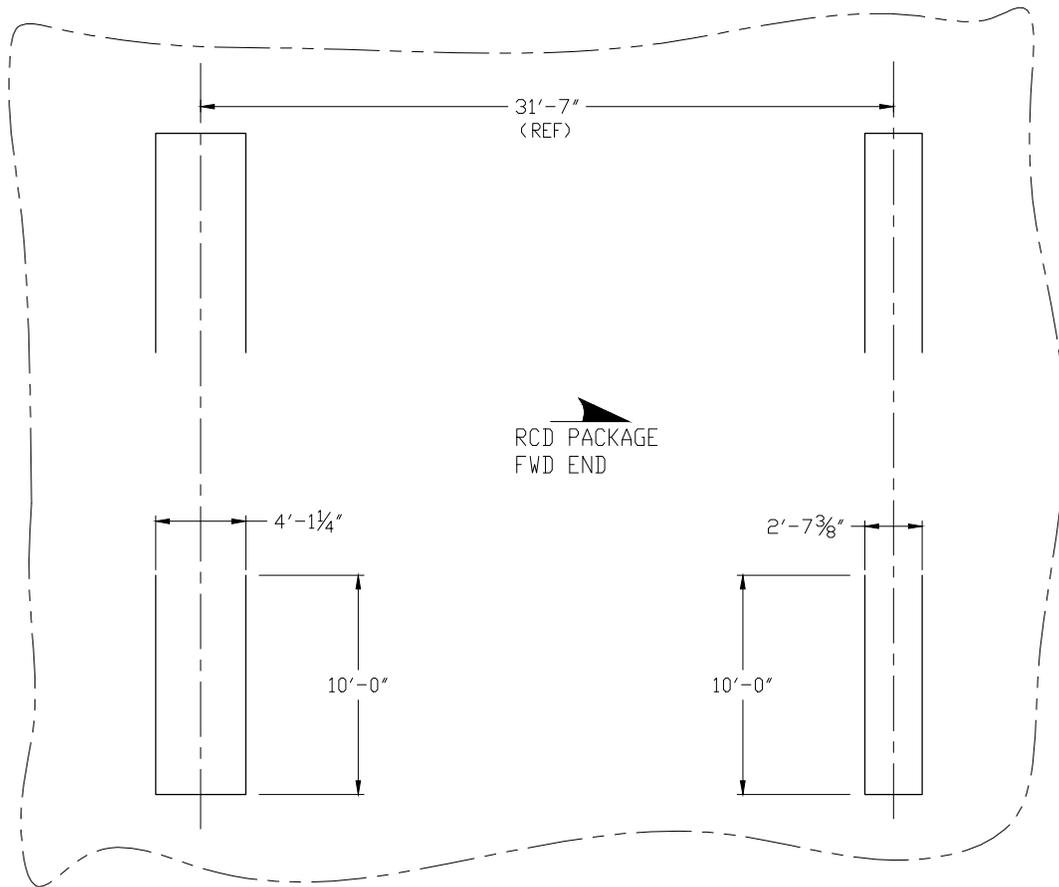


SHIMMING AND WELDING DETAILS FOR GAPS BETWEEN 1/8" AND 1/2"



WELDING DETAILS FOR GAPS 1/8" AND LESS

PACKAGE TO BARGE ATTACHMENT WELDS



ATTACHMENT WELD PLAN VIEW