



William Morgante, PWS  
Wetlands Administrator

State of Maryland  
**Board of Public Works**

Wetlands Administration  
80 Calvert Street, Room 117, Annapolis, Maryland 21401  
410-260-7791

Wes Moore  
Governor

Dereck E. Davis  
Treasurer

Brooke Lierman  
Comptroller

John T. Gontrum, Esq.  
Executive Secretary

**WETLANDS LICENSE NO. 24-0607EX**  
**FRANCIS SCOTT KEY BRIDGE**

The Maryland Board of Public Works authorizes you to:

- I. Mechanically remove the remaining parapet, median, deck and six remaining girders over water spans
- II. Place one hundred 36-diameter temporary piles
- III. Place three temporary buoys
- IV. Conduct 60 soil borings/geotechnical investigations using a maximum 12-inch diameter outer casing and an 8-inch diameter inner casing to a maximum depth of 275 feet below the mudline
- V. Conduct the following temporary investigative in-water tests: 14 test piles, six drill shaft tests, and six static load tests.

*Patapsco River, Francis Scott Key Bridge, Baltimore City and County, Maryland*

Issuance of this Tidal Wetlands License constitutes the State's determination that the authorized activities are consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the Federal Coastal Zone Management Act of 1972, as amended [16 U.S.C. §1456].

**THIS LICENSE AUTHORIZES YOU TO PERFORM THE WORK ONLY IF YOU COMPLY WITH THE FOLLOWING SPECIAL CONDITION(S):**

- A. The Licensee shall dispose of all demolition material at an approved facility or disposal site.
- B. The Licensee shall strictly manage and maintain all above water erosion controls BMPs during demolition activities to prevent runoff and debris from entering surface waters and protect stream resources, to the extent possible.
- C. The Licensee shall strictly manage and maintain all in-water BMPs, including the placement of shielding barges, during demolition activities to prevent runoff and debris from entering surface waters, to the extent possible.
- D. If any in-water pile installation or testing activity occurs between February 15 through June 15, inclusive during any year, the Licensee shall coordinate with DNR for minimization and avoidance measures.
- E. The Licensee shall make every effort to complete pile driving activities outside of the above TOY restriction.
- F. The Licensee shall use appropriate BMPs for all pile driving activities that are identified in the "*Proposed Best Management Practices for Francis Scott Key Bridge Demolition and*

*Geotechnical Investigation Activities to be permitted under MDE's Emergency Authorization. (adapted from NMFS/GARFO BMP Manual)" document.*

- G. The Licensee shall implement a "hold point" for agency coordination and adaptive management if the following is observed during or immediately (approximately 1 hour) after pile driving activity:
- a. Presence of dolphin, sea turtle, or sturgeon within the injury or behavioral modification zone- reference figures from Key Crossing Environmental Compliance Plan (applicability: all impact hammer activities);
  - b. One (1) stunned or dead sturgeon and/or dolphin (applicability: all impact hammer activities);
  - c. Ten (10) stunned or dead game fish or species considered to be in need of conservation per pile location, such as all Bass species, Alewife, Blueback Herring, and American Shad and others (applicability: all impact hammer activities);
  - d. Forty (40) stunned or dead non-game fish per pile location (applicability: all impact hammer activities).
- H. The Licensee shall implement a "hold point" for agency coordination and adaptive management if the following is observed cumulatively for all pile driving during 24-hour period when pile driving occurred:
- a. One (1) stunned or dead sturgeon and/or dolphin (applicability: all impact hammer activities);
  - b. Thirty (30) stunned or dead game fish or species considered to be in need of conservation, such as all Bass species, Alewife, Blueback Herring, and American Shad and others (applicability: all impact hammer activities);
  - c. One hundred-twenty (120) stunned or dead non-game fish (applicability: all impact hammer activities).
- I. The Licensee shall submit a weekly report and a summary report at the end of pile driving activities documenting total injured/killed fish observed, approximate location relative to where the pile driving was occurring, and time/date.
- J. The Licensee shall provide compensation for fish mortality if a Hold Point is issued. The Licensee shall provide payment into a Maryland Department of Natural Resources (DNR) Special Fund as designated by DNR. Monetary values associated with fish kills shall be evaluated in accordance with the Fish Mortality Mitigation Cost Table depicted on Attachment B.
- K. The Licensee shall install appropriate hazard notification, visibility, and safety requirements on all temporary pilings.
- L. If any mooring, pile driving, and other demonstration activities overlap within the Fort Carroll Sensitive Species Project Review Area (SSPRA) area as depicted on Attachment A, the Licensee shall coordinate with DNR's Environmental Review Program for minimization and avoidance measures. \*The SSPRA over the Key Bridge (green oval) can be disregarded, as the nest is believed to have been lost in the bridge collapse.

**THIS LICENSE AUTHORIZES YOU TO PERFORM THE WORK ONLY IF YOU COMPLY WITH THE FOLLOWING STANDARD CONDITIONS:**

1. Licensee shall conduct the authorized work in accordance with the plans and drawings dated July 12, 2024, which are hereby incorporated into this License.
2. Until the authorized work is complete, Licensee shall have available at the site a copy of this License including the plans and drawings.
3. This License constitutes Maryland's authorization to conduct the authorized work under the State Tidal Wetlands Law. This License does not bestow any other federal, State, or local government authorization.
4. Licensee shall have all proposed work above Mean High Water reviewed and authorized by the local county Department of Planning and Zoning or applicable agency.
5. Licensee shall notify MDE's Inspection and Compliance Program, in writing, of the project:
  - start date at least five business days before beginning work; and
  - completion date no more than five business days after project completion.

*MDE/Inspection and Compliance Program: 410-537-3510*
6. If MDE has issued a Water Quality Certification with respect to the authorized work, Licensee shall comply with all conditions of that certification.
7. Licensee shall conduct the authorized work in accordance with Critical Area Commission requirements. This License does not authorize disturbance in the Buffer. If authorized work will disturb the Buffer, Licensee shall have a Commission-approved or locally approved Buffer Management Plan before beginning the authorized work.

"Buffer" means the 100-foot Critical Area Buffer and any expanded area that is immediately landward of the mean high water line of the tidal waters or is immediately landward of tidal wetlands. The Buffer includes expanded contiguous area if the contiguous area includes steep slopes, hydric soil, or highly erodible soil, or otherwise meets the criteria of COMAR 27.01.09.01.E(7). "Disturbance" means any alteration or change to the land including any amount of clearing. Clearing includes vegetation removal, grading, and construction activity.
8. Licensee may not fill, dredge, or otherwise alter or destroy tidal marsh or its vegetation unless this License specifically authorizes the activity.
9. Licensee may not stockpile material in State tidal wetlands or State tidal waters of the U.S.
10. Licensee shall allow unfettered public use of State wetlands and State tidal waters of the U.S.
11. This License does not transfer a property interest of the State.
12. Licensee shall file a Miss Utility ticket for the proposed work at least 10 days before beginning work. *Miss Utility: 800-257-7777*
13. Licensee shall ensure that structures (for example, piers and piles) removed from the site are taken to an upland disposal facility approved by MDE's Inspection and Compliance Program.
14. If the authorized work impacts more than 5,000 square feet or includes 100 or more cubic yards of fill, Licensee shall conduct the authorized work in accordance with a locally approved Soil Erosion and Sediment Control Plan.
15. If the authorized work is not performed by the property owner, all work performed under this Tidal Wetlands License shall be conducted by a marine contractor licensed by the Marine Contractors Licensing Board (MCLB) in accordance with Title 17 of the

Environment Article, Annotated Code of Maryland. A list of licensed marine contactors may be obtained by contacting the MCLB at 410-537-3249, by email at MDE.MCLB@maryland.gov or by accessing the MDE MCLB webpage.

- 16. Licensee shall allow State officials and employees to make inspections at reasonable times and cooperate with those inspections.
- 17. This License is granted only to the Licensee. Licensee may transfer the license only with written approval from the Board of Public Works. If the Board of Public Works approves the transfer, the transferee is subject to all License terms and conditions.
- 18. Licensee shall indemnify, defend, and save harmless the State of Maryland, its officials, officers, and employees from and against any and all liability, suits, claims, and actions of whatever kind, caused by or arising from, the work this License authorizes.
- 19. The Board of Public Works or its Wetlands Administrator may modify, suspend, or revoke this License in its reasonable discretion.

**EXPIRATION:** This License expires July 26, 2027. If the authorized work is not completed by the expiration date, all activity must stop.

By the authority of the Board of Public Works:

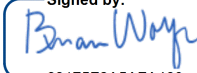
DocuSigned by:  
  
 D1F6E3178FDB4B0...

William Morgante  
Wetlands Administrator

Effective Date: July 26, 2024

**I accept this License and all its conditions.**

7/31/2024  
\_\_\_\_\_  
Date

Signed by:  
  
 63175F2A5AFA460...

\_\_\_\_\_  
Licensee (Signature)

Brian Wolfe

\_\_\_\_\_  
Name (Printed)

Director of Project Development

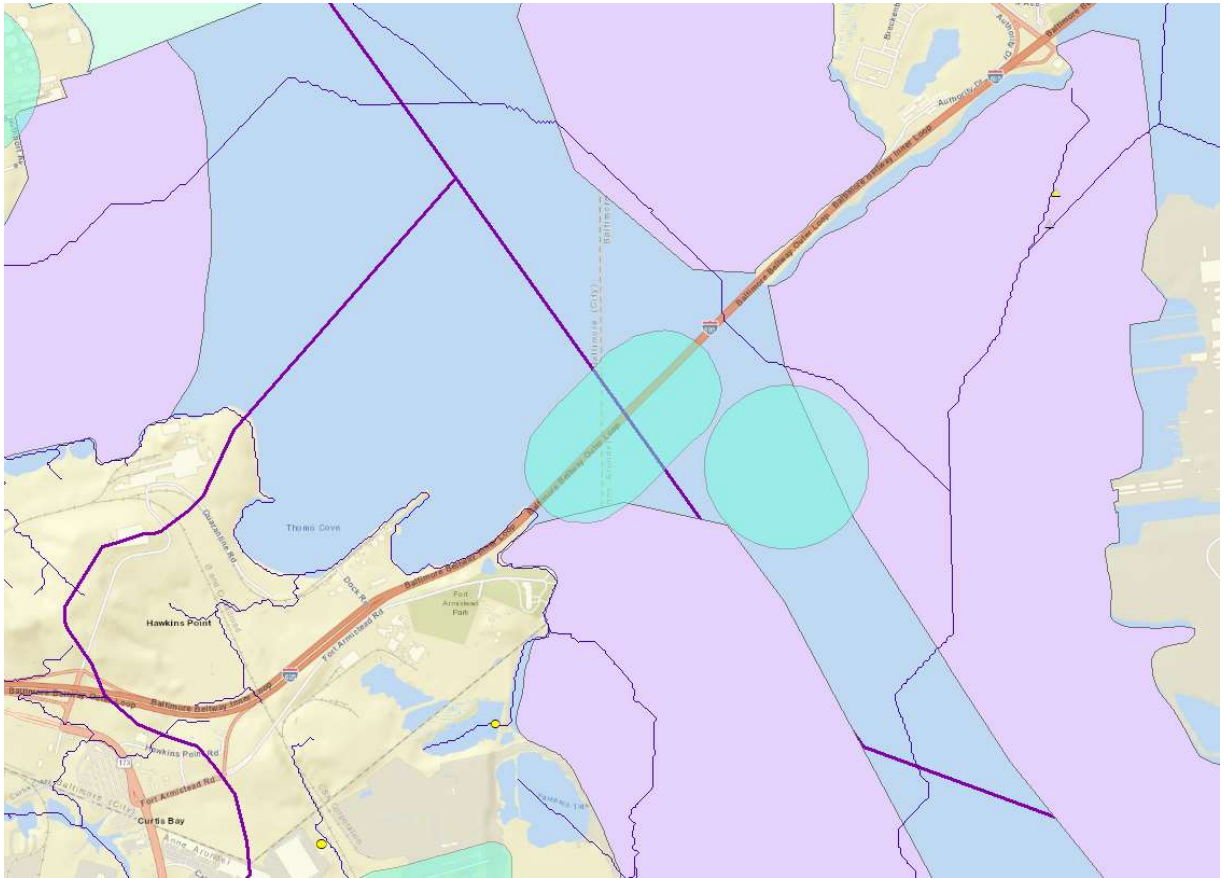
\_\_\_\_\_  
Title

bwolfe3@mdta.state.md.us

\_\_\_\_\_  
Email (To receive completed license.)

## Attachment A:

### Sensitive Species Project Review Area (SSPRA) for Fort Carroll

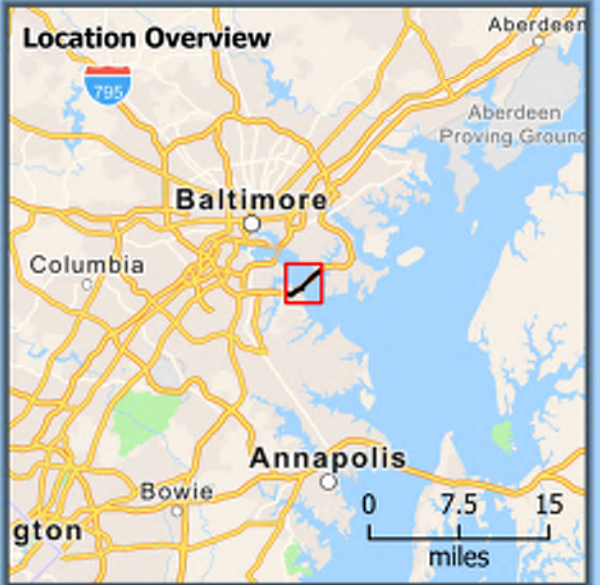


*If any mooring, pile driving, and other demonstration activities overlap within the Fort Carroll SSPRA area depicted above, the Licensee shall coordinate with DNR for minimization and avoidance measures.*

*\*The SSPRA over the Key Bridge (green oval) can be disregarded, as the nest is believed to have been lost in the bridge collapse.*



24-WL-0607 EX  
202460906  
7-12-2024  
1 of 25





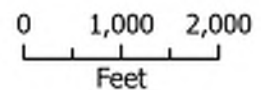
### Francis Scott Key Bridge Rebuild Project

#### Vicinity Map

Baltimore City and Baltimore County, Maryland  
June 2024



-  Study Area
-  County Boundaries



**SCOPE:**

The work consists of the demolition of the remaining portions of the Francis Scott Key Bridge carrying I-695 over the Patapsco River. The limits of removal include the bridge superstructure from the west abutment through Span 16 and from Pier 22 to the east abutment. The superstructure shall be fully demolished. The substructure removal includes both abutments, Piers 1 through 13 and 25 through 36 on land, and ~~Piers 14, 15, 16, 17, 18, 22, 23, and 24 along with the remainders of Piers 19, 20 and 21 in the Patapsco River. The substructure shall also be removed to two (2) feet below grade or as directed by the United States Coast Guard (USCG) or the United States Army Corps of Engineers (USACE).~~

The existing bridge median barrier, parapet, and deck shall be removed utilizing hydraulic excavators operating on the bridge deck. The steel spans over the water shall be removed utilizing a ringer crane on a barge. The steel spans over land shall be removed by felling the piers and dropping the steel spans. The abutments shall be removed utilizing hydraulic excavators equipped with hydraulic hammers. ~~The water piers shall be removed utilizing explosive demolition.~~

**GENERAL OPERATIONS STATEMENT:**

All work performed by Demolition Contractor will be done in strict accordance with local, state, and federal safety requirements. A Site-Specific Health and Safety Plan is required to be prepared by the Contractor for this demolition phase, and the Competent Person will convene a safety meeting prior to starting work at which all operatives shall be present. The Competent Person shall review the Site-Specific Safety Plan on a daily basis and ensure that all persons present understand the demolition procedure, all pertinent safety issues, including fall protection and what is required of them.

**SITE MAINTENANCE:**

During demolition operations, the site shall be maintained in a neat and orderly fashion. Truck drivers and on-site personnel shall coordinate deliveries and disposal operations to alleviate traffic issues.

Operations will be conducted in a manner that will minimize disturbance to the public in areas adjacent to the work.

At no time will unauthorized personnel be allowed in work areas. At no time will the work be left unattended without proper safety protection.

**RECYCLING:**

- All concrete and asphalt will be recycled at an approved facility.
- All steel and non-ferrous metals will be transported to an approved facility.
- All other demolition debris will be disposed of at an approved disposal site.

**LIST OF PROPOSED RECYCLING FACILITIES:**

Ferrous & Non-Ferrous Metals	TBD
Concrete	TBD

**GENERAL NOTES:**

- Demolition Contractor shall not allow debris, tools, or incidental equipment to swing over areas where there is vehicular or pedestrian traffic. Any debris or tools that enter the River shall be retrieved.
- Dust control shall be provided during demolition operations and consist of water hose(s) equipped with spray nozzles to wet down debris as required.

**EQUIPMENT TO BE UTILIZED AND/OR AVAILABLE:**

Excavator(s)	Ringer Crane(s)
Crawler Crane(s)Ringer	Triaxle Dump Trucks
Tractors and Dump Trailers	Hydraulic Hammers
Hydraulic Shears	
Core Cut or Husqvarna Walk-Behind Concrete Saw, Wall Saw & Wire Saw	
Grapples, Slab Bucket, Universal Processer, Concrete Pulverizer, and Miscellaneous Small Tools	

**WORK REQUIRED PRIOR TO DEMOLITION:**

Prior to demolition, the following work shall be completed:

- Communication will be established with the MDTA prior to the commencement of any demolition.
- Longitudinal and transverse cut lines will be laid out and painted on the deck.
- Prior to deck removal over the water, barges shall be placed beneath that portion of deck to act as a shield to eliminate any debris or slurry from entering the water.

**DEMOLITION SEQUENCE:**

1. Remove parapet, median, and deck over land and water.
2. Remove existing girders on the six (6) remaining water spans.
3. Remove existing land spans and land piers using explosives to fell the piers.
4. ~~Remove water piers and dolphins using explosives.~~

**NOTES:**

- The equipment included in the demolition procedure below may be replaced by an alternative piece of equipment that has the capability to perform the intended

REDLINED ITEMS NOT INCLUDED IN EMERGENCY AUTHORIZATION.



operation (subject to the Engineer's approval).

- No demolition work shall proceed without authorization by MDTA.
- Demolition Contractor personnel shall always utilize fall protection PPE when working at or near a leading edge where no barrier, handrails, or fall restraints are in place. Fall protection PPE will be in accordance with OSHA Standards and include the use of harnesses, self-retracting lifelines lanyards, concrete fall arrest anchors, and other approved means.
- At the end of each shift of work, Demolition Contractor will ensure that all leading edges are secured and protected.

## **REMAINDER OF FSK BRIDGE DEMOLITION**

### **NOTES:**

- Erosion controls shall be in place on both approaches prior to removing any deck or dropping any steel.
- Shielding barges will be positioned beneath span being removed to prevent any slurry or debris from entering the waterway.

### **Deck, Parapet, and Median Removal (Water)**

1. The existing median barrier will be removed by hammering it every ten (10) feet to create sections. The barrier will then be hammered where it meets the deck. Cut any rebar and move each section down the bridge.
2. Parapet will be removed by sawcutting techniques.
3. Core holes in the parapet to allow rigging to be inserted.
4. Make plunge cuts every ten (10) feet to create sections.
5. Finally, make a longitudinal cut adjacent to the bottom of the barrier.
6. Lift the sections and place them on the deck.
7. Drag the sections out of the way to the laydown area.
8. Next, the concrete deck will be removed. The concrete deck is non-composite so sawcutting techniques will also be utilized for this removal operation.
9. The size of the deck panels shall be six (6) feet long and nine (9) feet wide (this is the spacing of the girders.)
10. Make the sawcuts in the span to be removed. Sawcut down the center of the existing girders.
11. Once the deck is sawcut, begin to remove the deck sections.
12. Deck sections shall be moved off the span and down to the laydown yard.
13. The concrete deck and parapet sections will be downsized and then shall be loaded into trucks for recycling at an approved recycling facility.

### **Deck, Parapet, and Median Removal (Land)**

1. The existing median barrier will be removed by hammering it every ten (10) feet to create sections. The barrier will then be hammered where it meets the deck. Cut

- any rebar and move each section down the bridge.
2. Parapet will be removed by sawcutting techniques.
  3. Core holes in the parapet to allow rigging to be inserted.
  4. Make plunge cuts every ten (10) feet to create sections.
  5. Finally, make a longitudinal cut adjacent to the bottom of the barrier.
  6. Lift the sections and place them on the deck.
  7. Drag the sections out of the way to the laydown area.  
Next, the concrete deck will be removed. The concrete deck is non-composite so sawcutting techniques will also be utilized for this removal operation.
  8. The size of the deck panels shall be six (6) feet long and nine (9) feet wide (this is the spacing of the girders.)
  9. Make the sawcuts in the span to be removed. Sawcut down the center of the existing girders.
  10. Once the deck is sawcut, begin to remove the deck sections.
  11. Deck sections shall be moved off the span and down to the laydown yard.
  12. The concrete deck and parapet sections will be downsized and then shall be loaded into trucks for recycling at an approved recycling facility.

### **Girder Removal (Water)**

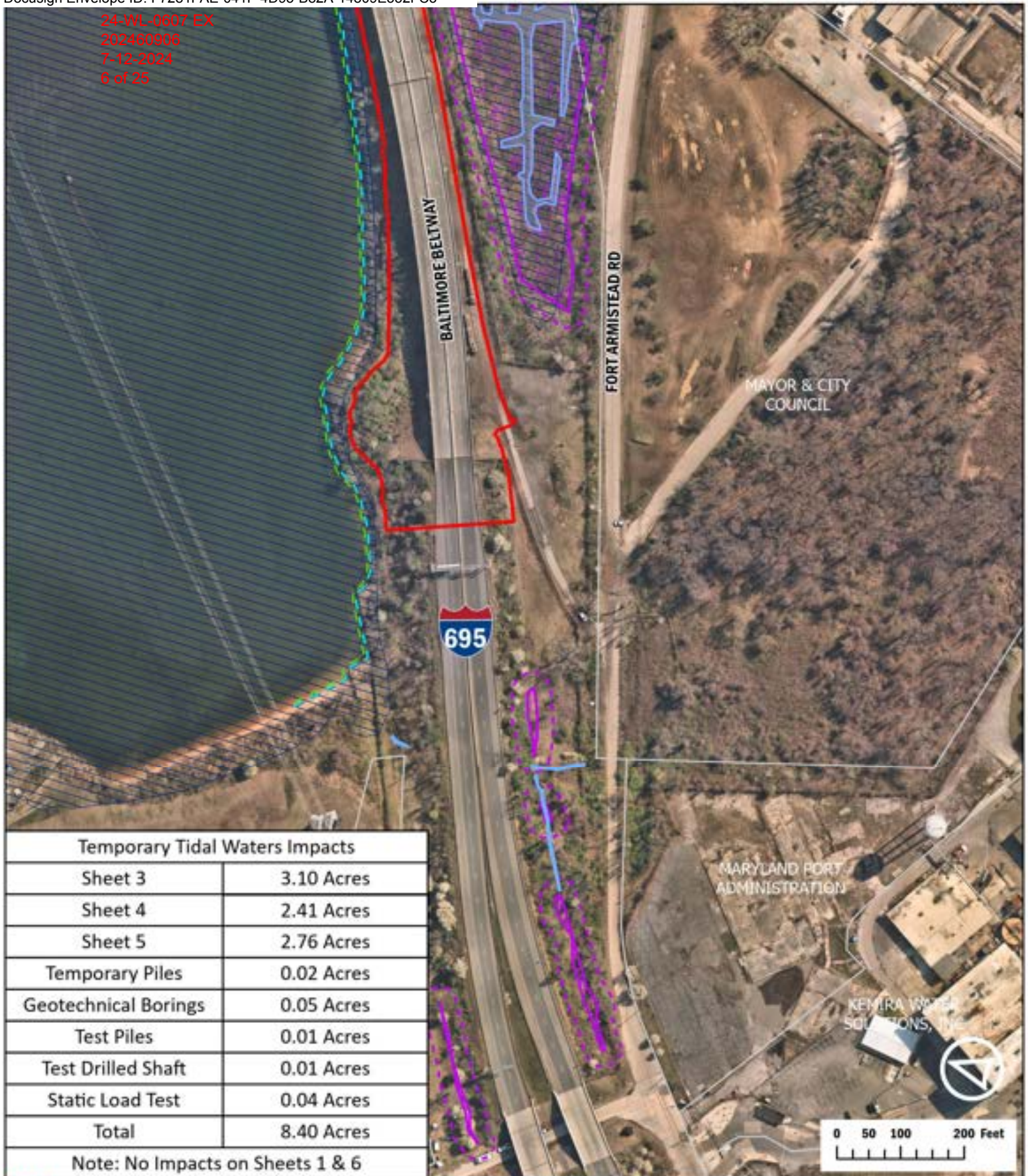
1. The existing continuous span girders shall be removed either in pairs or as a single unit (there are seven (7) beams in each span.)
2. Position the Ringer Crane into position and spud down. A material barge shall be placed alongside the crane barge.
3. Remove the first section of steel by cutting holes in the web to insert the chain through. A spreader bar will be utilized as these spans are 300 feet long.
4. Lift the section of steel with the crane and place it on the material barge.
5. Multiple material barges may be required due to the span length.
6. Continue in each span until all the beams are removed.
7. Move to the adjacent span and repeat the process.
8. The operation will then be moved to the opposite approach to remove those spans.
9. The material barges will be pushed to the laydown yard where they will be offloaded.
10. Once the steel is offloaded, it will be subsequently downsized with a combination of hydraulic shears and oxygen/propane torches.
11. Load steel into trucks to be recycled at facility listed above.

### **Girder & Pier Removal (Land) – Piers 1 through 13 & 25 through 36**

1. The existing land spans and piers shall be removed by felling the piers and allowing the steel girders to drop.
2. The existing column legs, caps, and struts shall be drilled to allow charges to be placed.
3. Once all charges are placed, explosive demolition shall fell the piers which will bring



24-WL-0807 EX  
 20240806  
 7-12-2024  
 6 of 25



Temporary Tidal Waters Impacts	
Sheet 3	3.10 Acres
Sheet 4	2.41 Acres
Sheet 5	2.76 Acres
Temporary Piles	0.02 Acres
Geotechnical Borings	0.05 Acres
Test Piles	0.01 Acres
Test Drilled Shaft	0.01 Acres
Static Load Test	0.04 Acres
<b>Total</b>	<b>8.40 Acres</b>

Note: No Impacts on Sheets 1 & 6

- Limits of Disturbance
- Potential Temporary Pile Area
- Streams
- Wetlands
- 25ft Wetland Buffer
- 100-Year Floodplain
- Approximate MLW Line
- MHHW Line
- MHW Line
- Property Parcels
- Municipal Boundaries



**Francis Scott Key  
 Bridge  
 Demolition  
 Impact Plates**

Page 1 of 6      July 2024



24-WL-0807 EX  
 20240806  
 7-12-2024  
 7 of 25

Patapsco River

**POTENTIAL  
 TEMPORARY  
 PILE, SOIL BORING,  
 TEST PILE, TEST  
 DRILLED SHAFT,  
 & STATIC LOAD  
 TEST AREA**

695

Fort Armistead Park


BALTIMORE BELTWAY

FORT ARMISTEAD RD

MAYOR & CITY COUNCIL

MARYLAND PORT  
 ADMINISTRATION

0 50 100 200 Feet

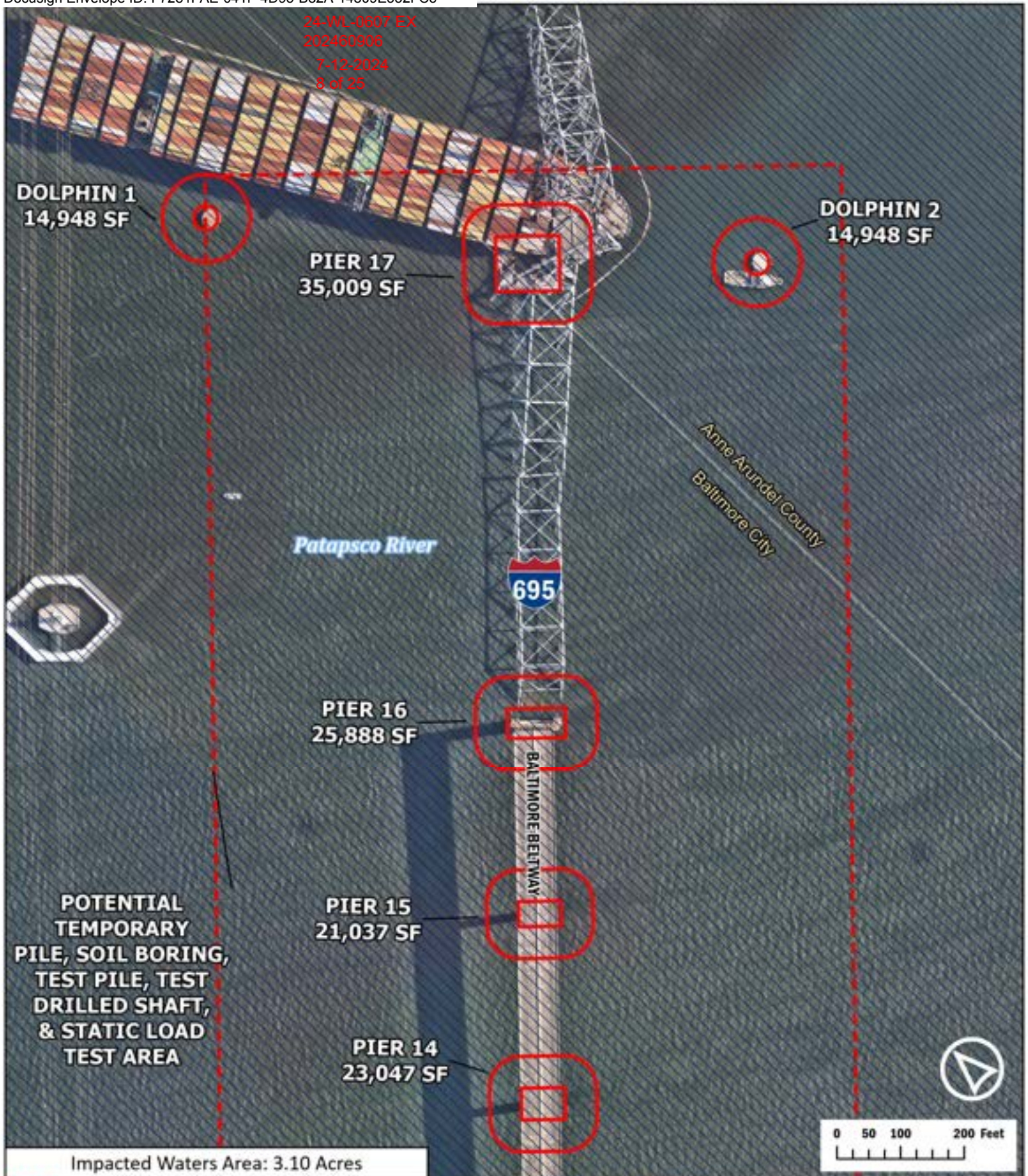
- |  |                               |   |                      |
|--|-------------------------------|---|----------------------|
|  | Limits of Disturbance         |  | Approximate MLW Line |
|  | Potential Temporary Pile Area |  | MHHW Line            |
|  | Streams                       |  | MHW Line             |
|  | Wetlands                      |  | Property Parcels     |
|  | 25ft Wetland Buffer           |  | Municipal Boundaries |
|  | 100-Year Floodplain           |   |                      |



**Francis Scott Key  
 Bridge  
 Demolition  
 Impact Plates**



24-WL-0807 EX  
 20240908  
 7-12-2024  
 8 of 25



**POTENTIAL  
 TEMPORARY  
 PILE, SOIL BORING,  
 TEST PILE, TEST  
 DRILLED SHAFT,  
 & STATIC LOAD  
 TEST AREA**

Impacted Waters Area: 3.10 Acres

- |                               |                      |
|-------------------------------|----------------------|
| Limits of Disturbance         | Approximate MLW Line |
| Potential Temporary Pile Area | MHHW Line            |
| Streams                       | MHW Line             |
| Wetlands                      | Property Parcels     |
| 25ft Wetland Buffer           | Municipal Boundaries |
| 100-Year Floodplain           |                      |

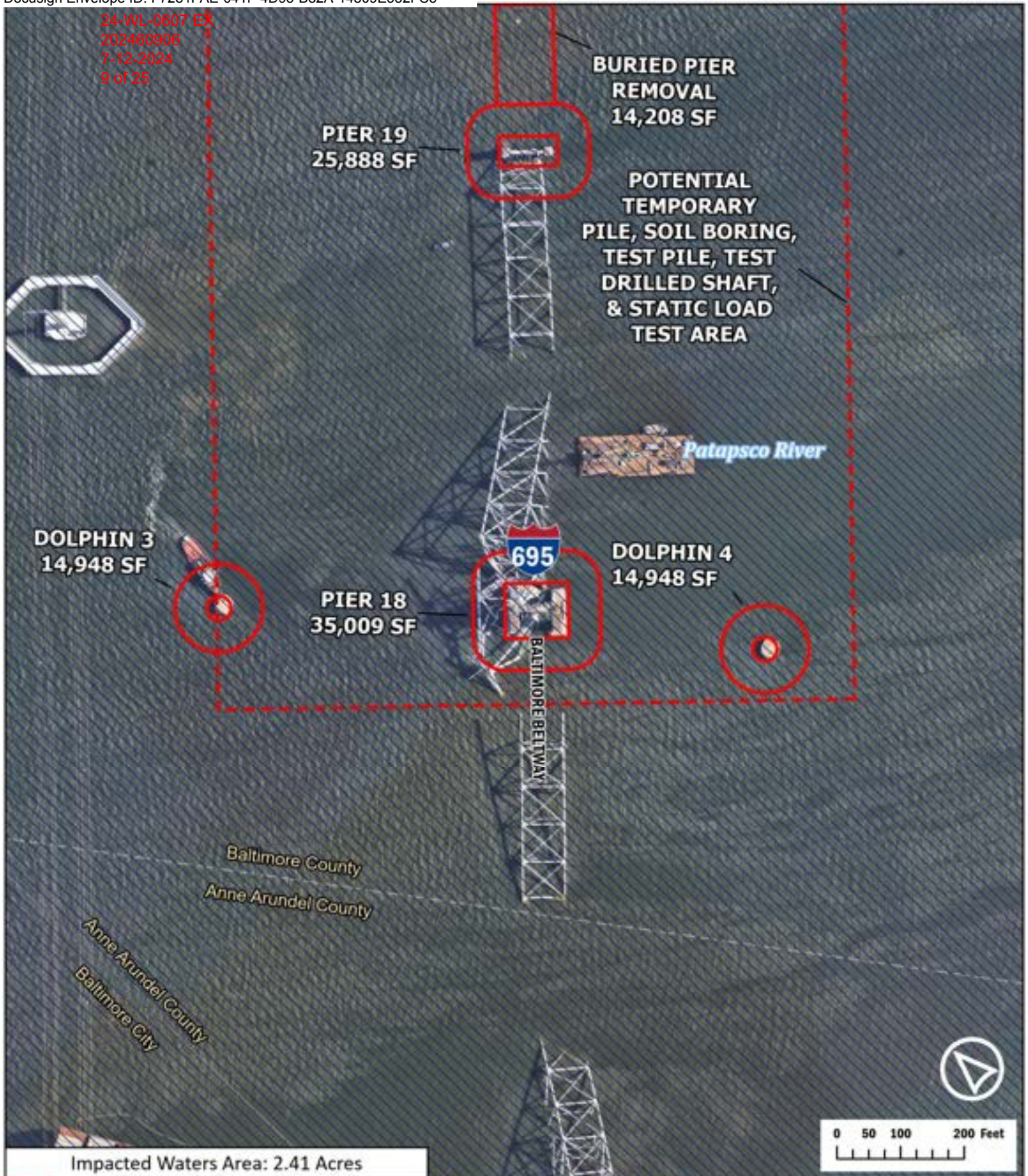


**Francis Scott Key  
 Bridge  
 Demolition  
 Impact Plates**

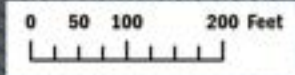
Page 3 of 6 July 2024



24-WL-0007 EX  
202400908  
7-12-2024  
9 of 25



Impacted Waters Area: 2.41 Acres



- Limits of Disturbance
- Potential Temporary Pile Area
- Streams
- Wetlands
- 25ft Wetland Buffer
- 100-Year Floodplain
- Approximate MLW Line
- MHHW Line
- MHW Line
- Property Parcels
- Municipal Boundaries



**Francis Scott Key  
Bridge  
Demolition  
Impact Plates**

Page 4 of 6 July 2024



24-WL-0807 EX  
20240908  
7-12-2024  
10 of 25

POTENTIAL  
TEMPORARY  
PILE, SOIL BORING,  
TEST PILE, TEST  
DRILLED SHAFT,  
& STATIC LOAD  
TEST AREA

PIER 24  
& GIRDERS  
29,911 SF

PIER 23  
20,288 SF

PIER 22  
20,288 SF

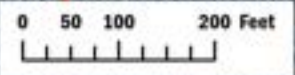
PIER 21  
23,012 SF

PIER 20  
21,653 SF

BURIED PIER  
REMOVAL  
5,168 SF

BALTIMORE BELTWAY

Patapsco River



Impacted Waters Area: 2.76 Acres

- Limits of Disturbance
- Potential Temporary Pile Area
- Streams
- Wetlands
- 25ft Wetland Buffer
- 100-Year Floodplain
- Approximate MLW Line
- MHHW Line
- MHW Line
- Property Parcels
- Municipal Boundaries



**Francis Scott Key  
Bridge  
Demolition  
Impact Plates**



24-WL-0807 EX  
20240806  
7-12-2024  
11 of 25



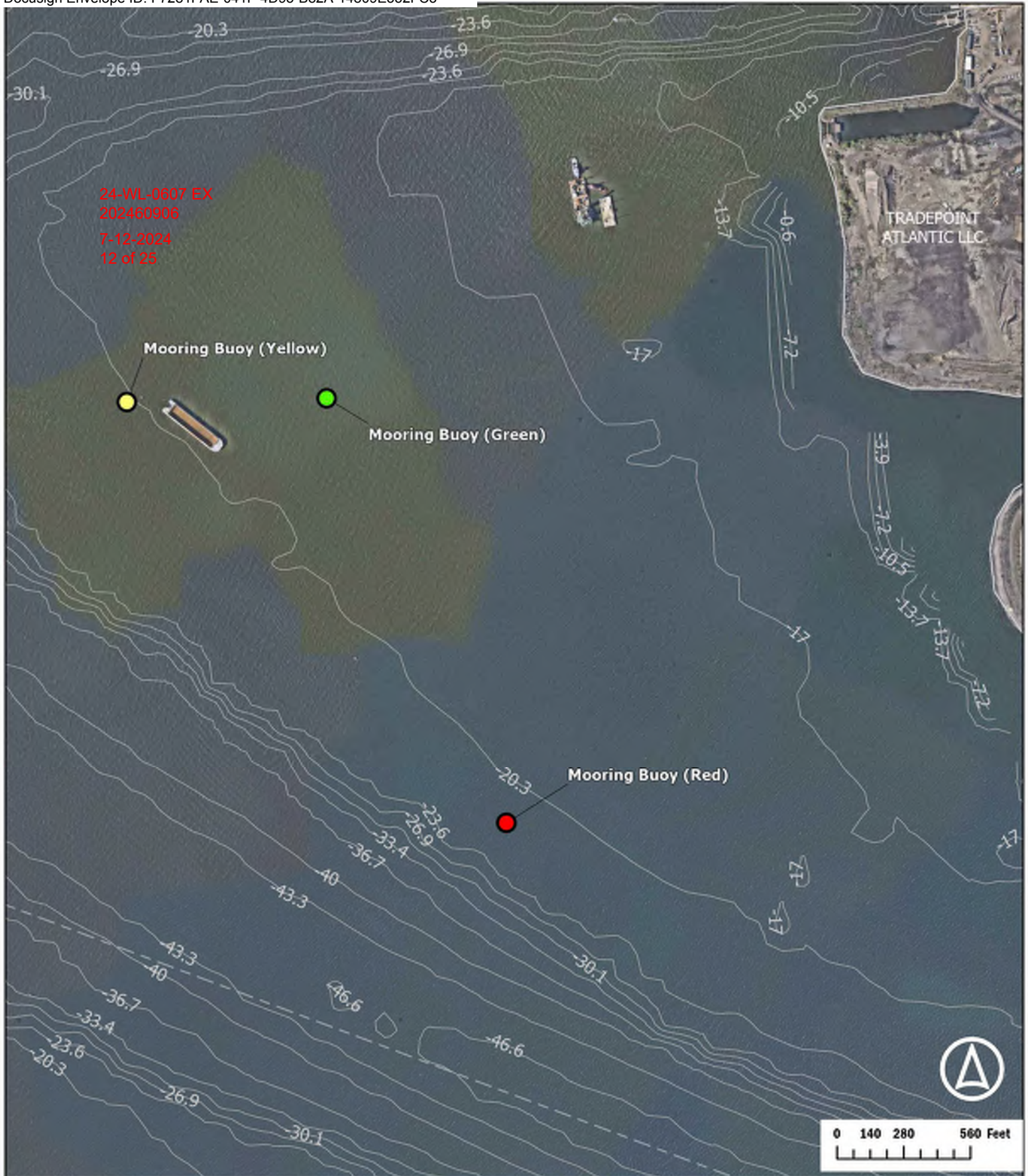
	Limits of Disturbance		Approximate MLW Line
	Potential Temporary Pile Area		MHHW Line
	Streams		MHW Line
	Wetlands		Property Parcels
	25ft Wetland Buffer		Municipal Boundaries
	100-Year Floodplain		



**Francis Scott Key  
Bridge  
Demolition  
Impact Plates**

Page 6 of 6 July 2024





Limits of Disturbance	MHHW Line	Mooring Buoy Yellow
Temporary Pile Area	MHW Line	Mooring Buoy Green
Streams	Bathymetry Contours	Mooring Buoy Red
Wetlands	Property Parcels	
25ft Wetland Buffer	Municipal Boundaries	
Approximate MLW Line		

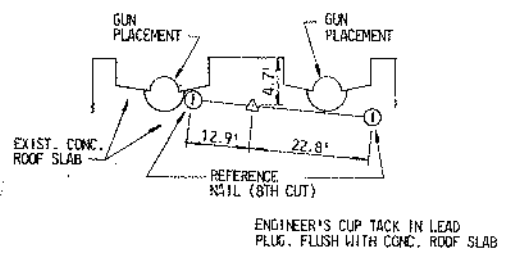


**Francis Scott Key Bridge Demolition**  
Emergency Authorization Plates

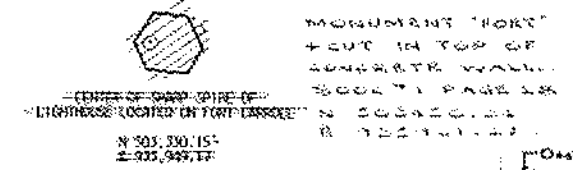
Page 6 of 6      June 2024



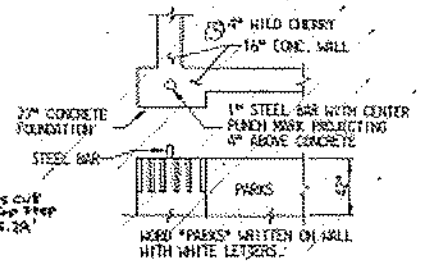
24-WL-0607-EX  
202460906  
7-12-2024  
13 of 25



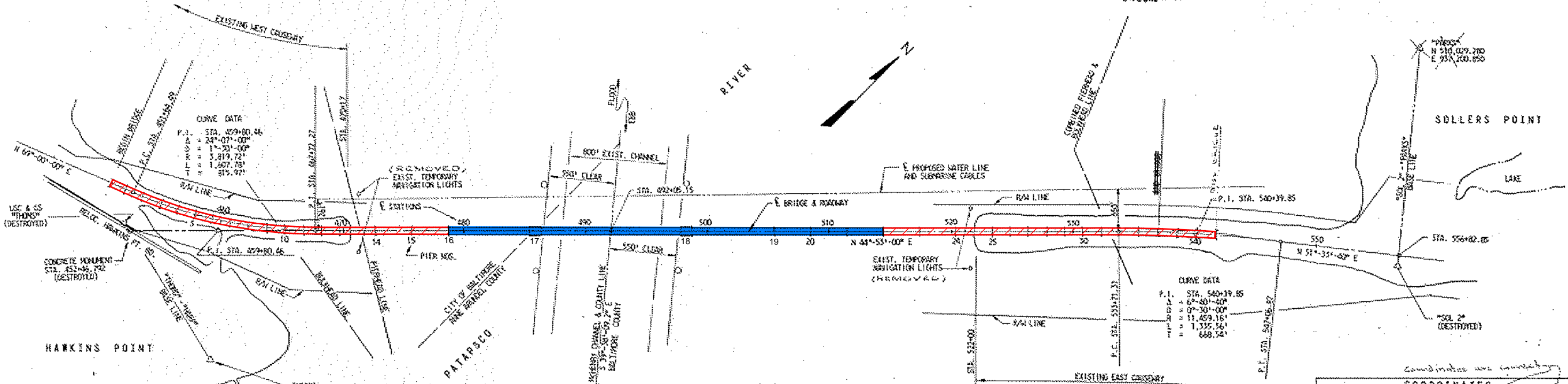
MONUMENT - "HARP"



MONUMENT - "FORT CARROLL" LIGHTHOUSE



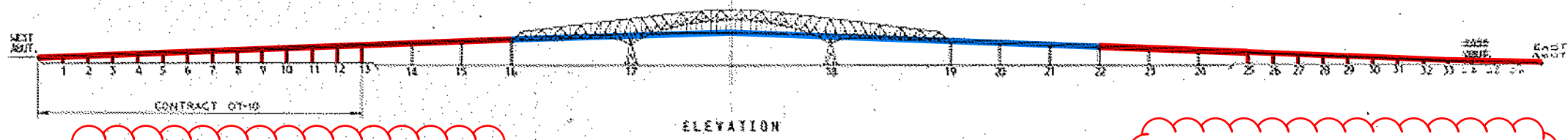
MONUMENT - "PARKS" (DESTROYED)



← Bridge Deck and Piers 17 and 18 Salvage Operations/Demolition by Others →

Coordinates are in feet

STATION	NORTH	EAST
P.C. 451+64.69	501,829.295	935,564.035
P.T. 459+80.46	501,921.696	935,775.111
P.T. 467+72.27	502,499.847	931,831.614
P.O.T. 492+05.15	504,223.684	933,568.415
P.C. 535+71.31	507,175.567	936,508.332
P.T. 540+19.85	507,649.254	936,980.004
P.T. 547+04.87	508,064.869	937,503.799



Demolition Limits Covered By Emergency Authorization include Bridge Superstructure from West Abutment through Pier 16, West Abutment, and Piers 1 through 13.

Demolition Limits Covered By Emergency Authorization include Bridge Superstructure from Pier 22 to East Abutment, Piers 25 through 36, and East Abutment.

NO SCALE

REVISIONS

STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
BALTIMORE, MD.

**BALTIMORE HARBOR OUTER CROSSING  
PATAPSCO RIVER BRIDGE  
DEMOLITION PLAN  
(EMERGENCY AUTHORIZATION)**

SCALE: 1" = 400' DATE: JAN. 1972 CONTRACT: 07-10

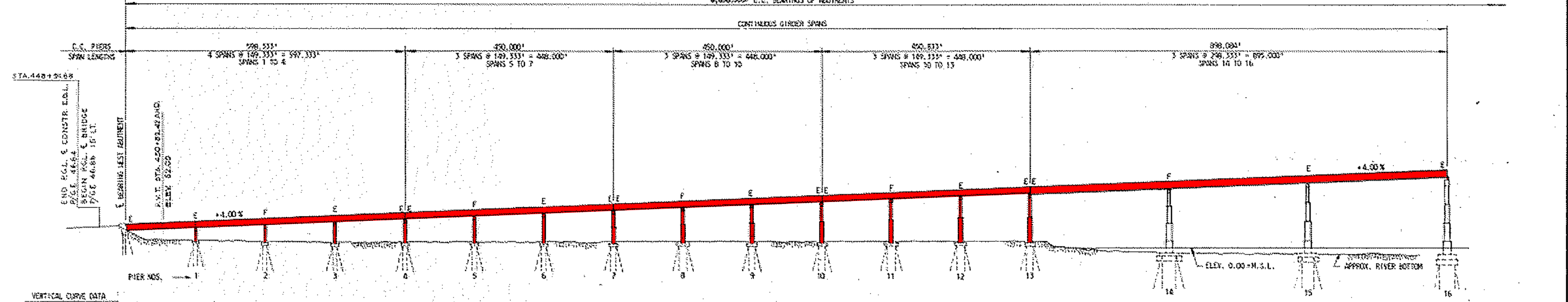
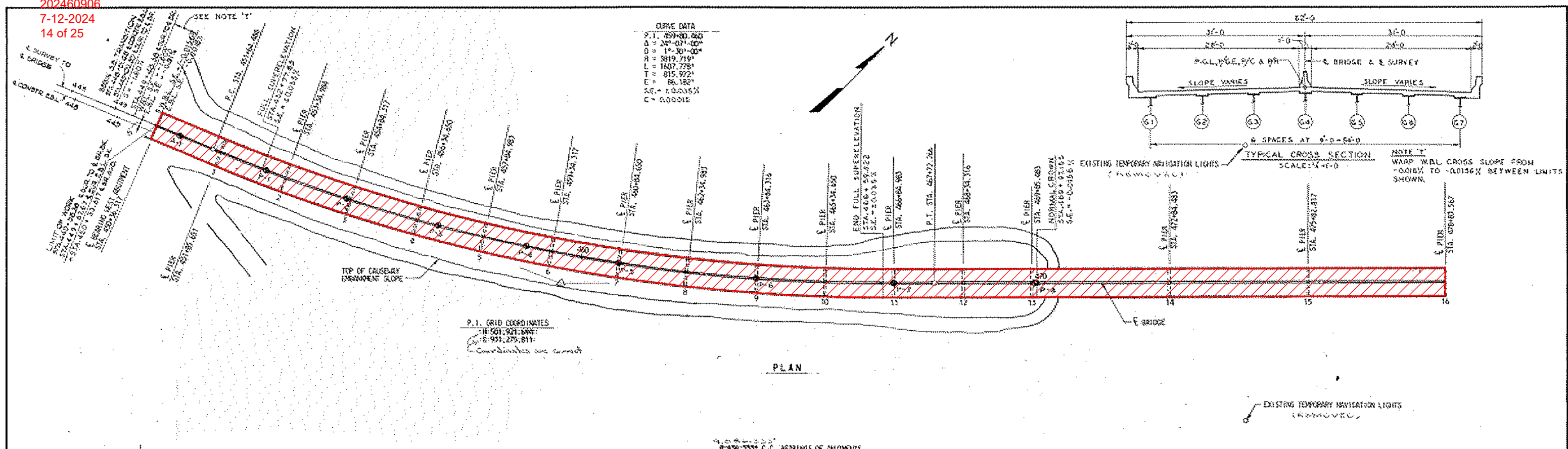
MADE BY: ERA  
TRACED BY: ERA  
CHECKED BY: SJS

ZOLMAN ASSOC. INC.  
SINGSTAD, KEHART  
NOVEMBER AND HURKA  
A JOINT VENTURE  
Baltimore, MD.

DRAWING NO. C-2  
SHEET NO. 07  
INDEXED

File No. \_\_\_\_\_ Pocket No. \_\_\_\_\_ Folder No. \_\_\_\_\_

24-WL-0607 EX  
202460906  
7-12-2024  
14 of 25



LOCATION	TIP ELEVATIONS
WEST ABUTMENT	-12.7
PIER 1	-24.0
PIER 2	-30.4
PIER 3	-38.0
PIER 4	-43.2
PIER 5	-48.3
PIER 6	-52.2
PIER 7	-56.0
PIER 8	-59.4
PIER 9	-62.4
PIER 10	-65.0
PIER 11	-67.4
PIER 12	-69.3
PIER 13	-70.1

Demolition Limits Covered By Emergency Authorization include Bridge Deck from West Abutment through Pier 16, West Abutment, and Piers 1 through 13.

**STATE OF MARYLAND**  
**DEPARTMENT OF TRANSPORTATION**  
**STATE HIGHWAY ADMINISTRATION**  
 BALTIMORE, MD.

**BALTIMORE HARBOR OUTER CROSSING**  
**PATAPSCO RIVER BRIDGE**  
**BRIDGE DEMOLITION PLAN**  
**(EMERGENCY AUTHORIZATION)**

SCALE: 1" = 100'    DATE: JAN. 1972    CONTRACT: QT-10

MADE BY: ERA  
 TRACED BY: ERA  
 CHECKED BY: SJS

ZOLLMAN ASSOC. INC.  
 AND  
 SINGSTAD, KEHART  
 NOVEMBER AND MIRKA  
 A JOHN SEIBERS  
 BALTIMORE, MD.

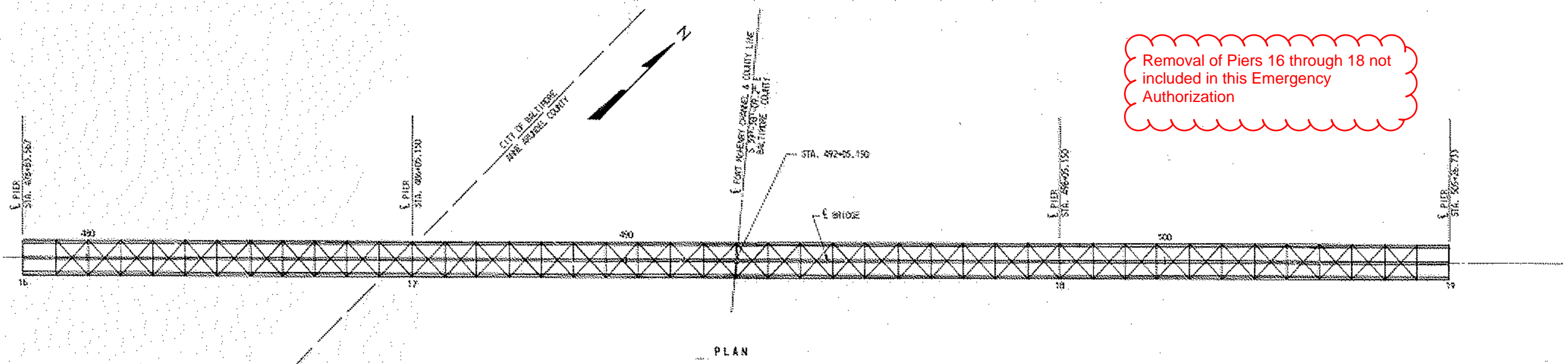
DRAWING NO. C-3  
 SHEET NO. 07  
 INDEXED

File No. \_\_\_\_\_ Pocket No. \_\_\_\_\_ Folder No. \_\_\_\_\_

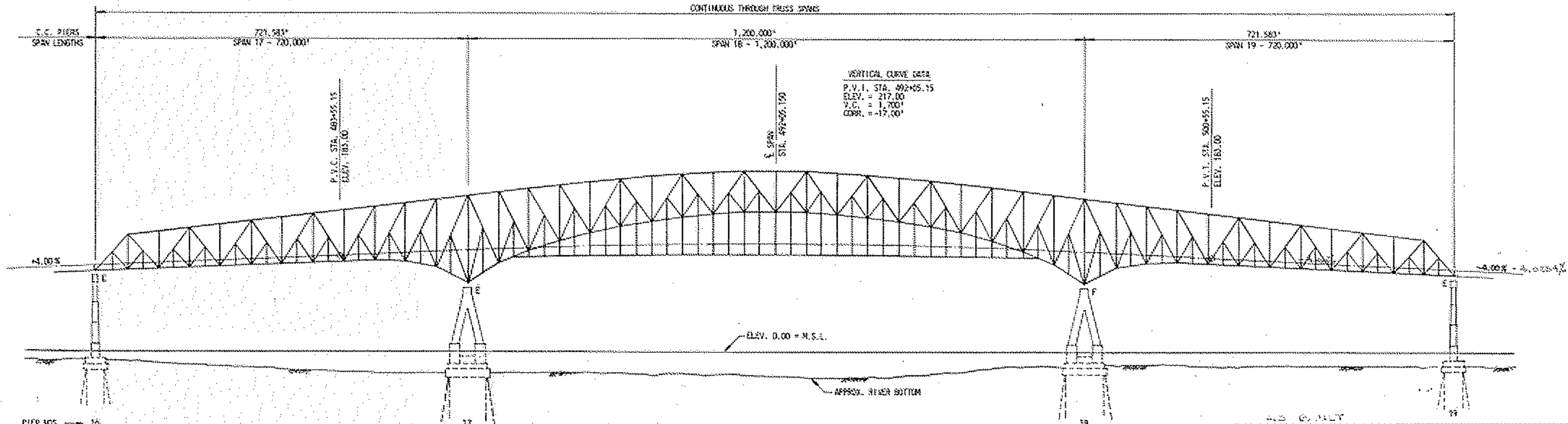


24-WL-0607 EX  
202460906  
7-12-2024  
15 of 25

Removal of Piers 16 through 18 not included in this Emergency Authorization



PLAN  
1/16" = 1'-0"  
C.C. BEARINGS OF ABUTMENTS



ELEVATION

Salvage Operations for Continuous Truss Spans and Piers 17 and 18 By Others

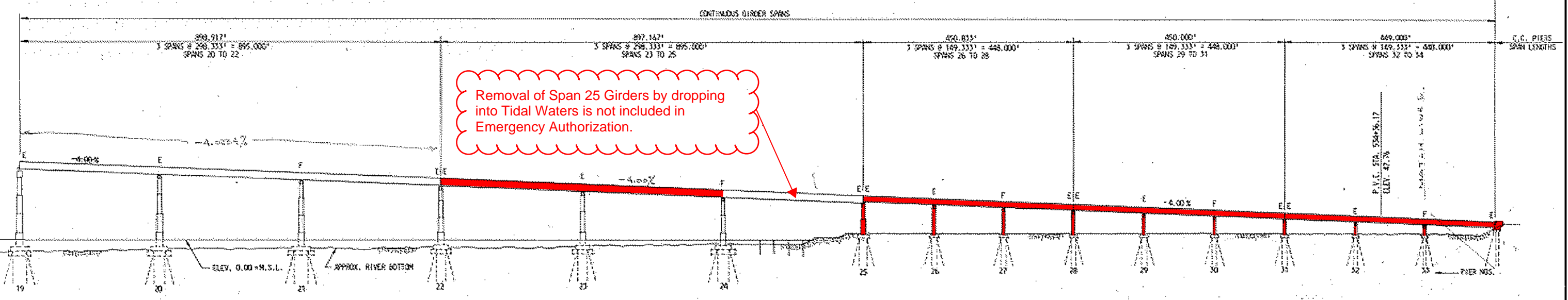
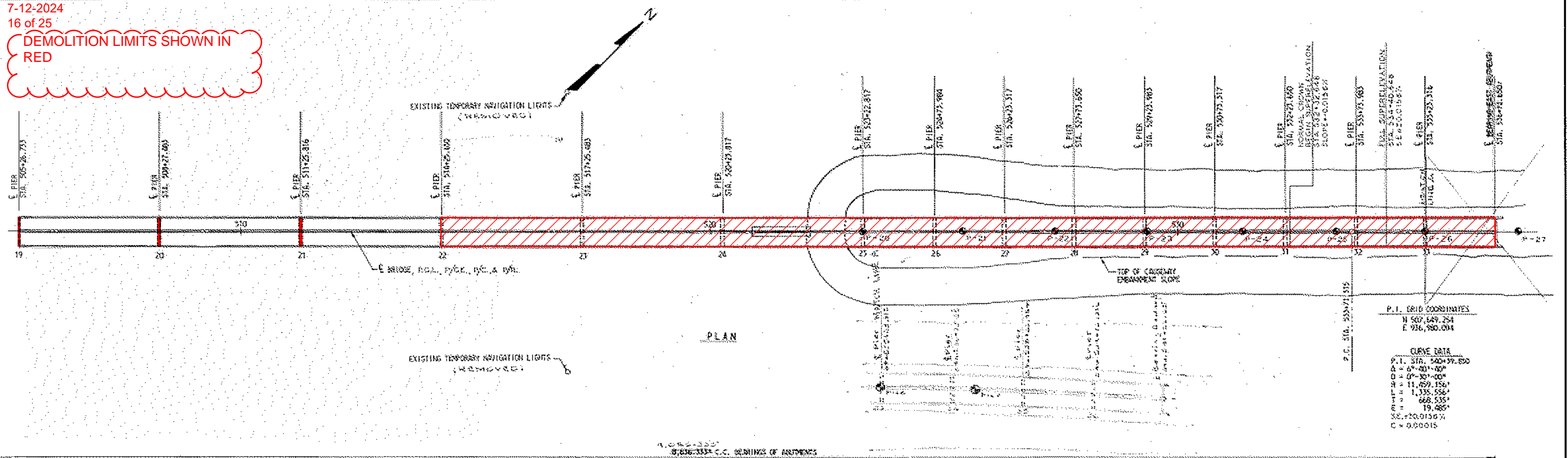
NOTE:  
ALL DIMENSIONS & SPAN LENGTHS SHOWN ARE HORIZONTAL.  
ALL elevations here shall be subject to Mark 12 Drop Sheet Contract 04-874.

REVISIONS		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION BALTIMORE, MD.	
		BALTIMORE HARBOR OUTER CROSSING PATAPSCO RIVER BRIDGE BRIDGE DEMOLITION PLAN (EMERGENCY AUTHORIZATION)	
SCALE: 1" = 100'		DATE: JAN. 1972	CONTRACT: OT-10
MADE BY: E.R.A.	TRACED BY: E.R.A.	ZOLEMAN ASSOC. INC. AND SINGSTAR, KEHART NOVEMBER AND BURKA A JOINT VENTURE Baltimore, Md.	
CHECKED BY: S.J.S.	DRAWING NO. C-2		SHEET NO. OF
File No.	Packet No.	Folder No.	INDEXED



24-WL-0607 EX  
202460906  
7-12-2024  
16 of 25

DEMOLITION LIMITS SHOWN IN RED

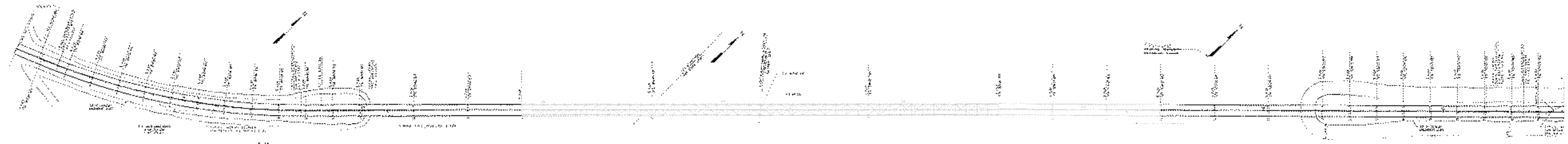


Demolition Limits Covered By Emergency Authorization include Bridge Superstructure (Parapets, Deck and Girders) from Pier 22 to East Abutment; Piers 25 through 36, and East Abutment.

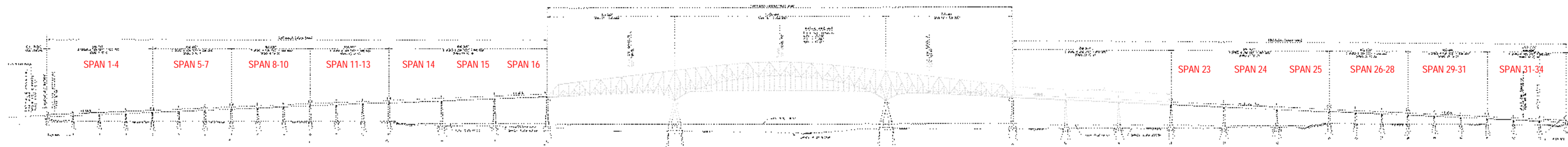
REVISIONS		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION BALTIMORE, MD. <b>BALTIMORE HARBOR OUTER CROSSING          PATAPSCO RIVER BRIDGE          BRIDGE DEMOLITION PLAN          (EMERGENCY AUTHORIZATION)</b>	
SCALE: 1" = 100'		DATE: JAN. 1972	
MADE BY: E.R.A.		ZOLLMAN ASSOC. INC. SINGSTAD, REHART NOVEMBER AND JURKA A JOINT VENTURE Baltimore, Md.	
TRACED BY: E.R.A.		DRAWING NO. C-5	
CHECKED BY: S.E.S.		SHEET NO. OF	
INDEXED		FILE NO.    POCKET NO.    FOLDER NO.	

24-WL-0607 EX

202460906  
7-12-2024  
17 of 25



PLAN

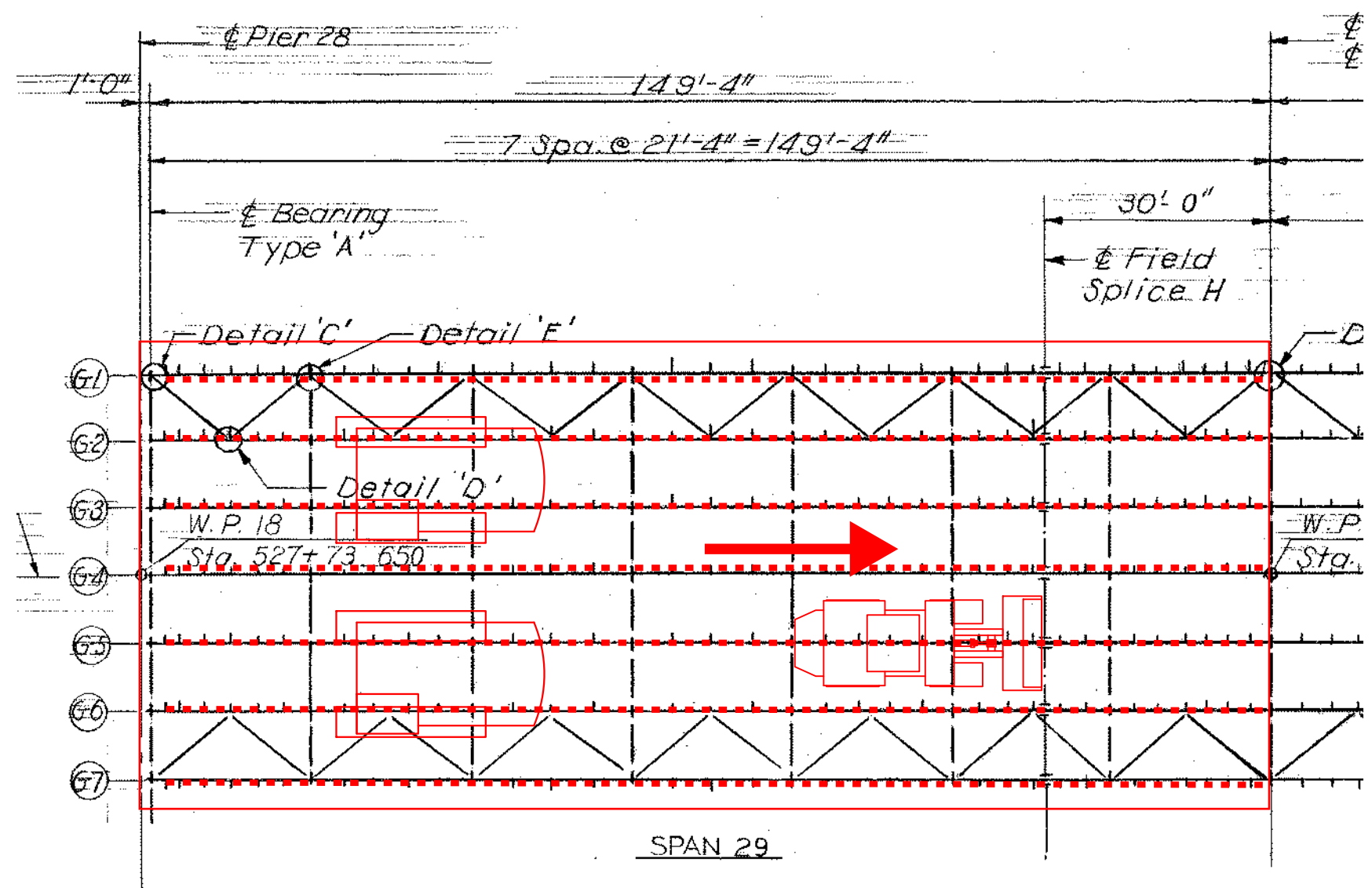
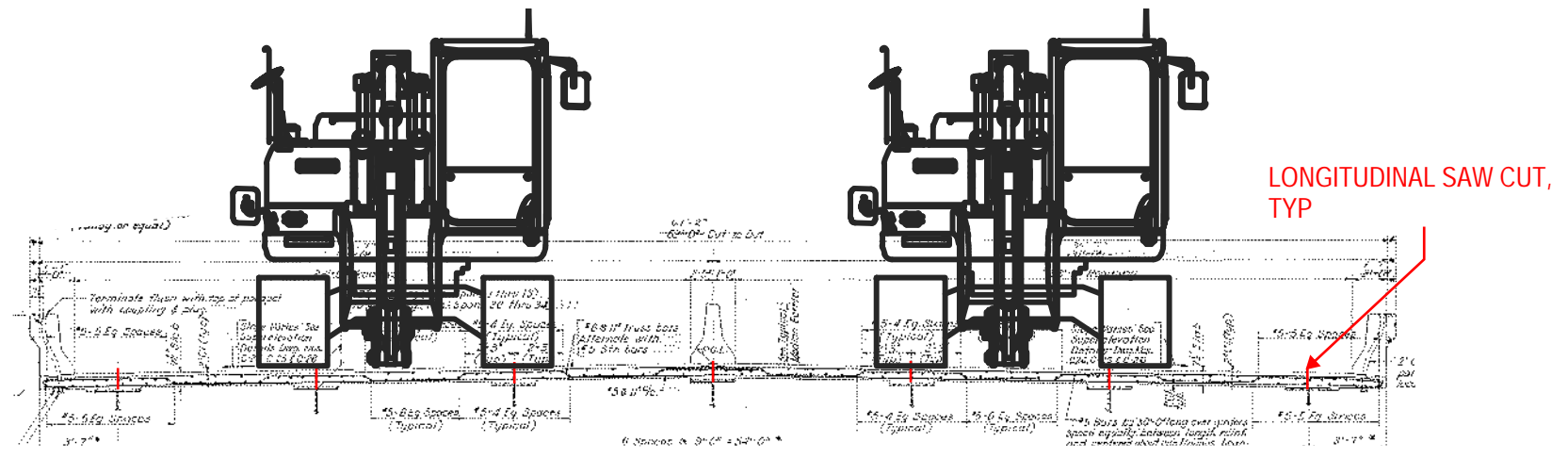


ELEVATION

PRELIMINARY  
NOT FOR CONSTRUCTION

△			
△			
△			
NO.	DATE	REMARKS	BY

GENERAL LAYOUT KEY BRIDGE DEMOLITION	
	DRAWN BY    CHK'D BY
	DATE
PROJECT	SHEET NO.



- DECK DEMOLITION SEQUENCE**
1. SAW AND REMOVE OVERHANG BARRIER AND DECK
  2. LONGITUDINAL SAW DECK
  3. WITH EXCAVATOR, PULL BACK SECTION OF DECK, CUT/BREAK REBAR, HAUL PANEL OFF DECK WITH LOADER

REPEAT FOR ENTIRE DECK

PRELIMINARY  
NOT FOR CONSTRUCTION

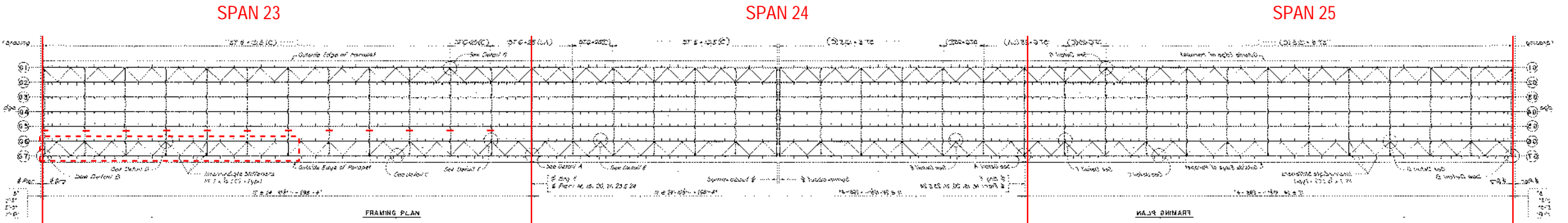
NO.	DATE	REMARKS	BY
△			
△			
△			

GENERAL DECK DEMOLITION KEY BRIDGE DEMOLITION	
DRAWN BY	CHK'D BY
DATE	
PROJECT	SHEET NO.

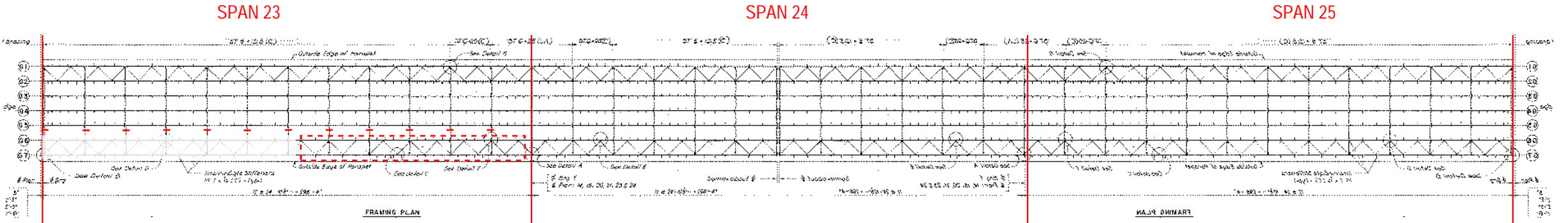
24-WL-0607 EX

202460906  
7-12-2024  
19 of 25

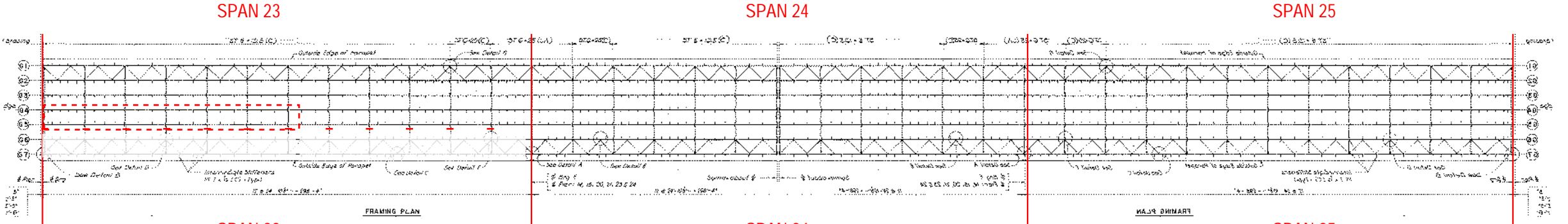
STEP 1 -  
CUT CROSSFRAMES BETWEEN G6 & G5  
HOIST G6&G7. APPROX WT = 100 TNS



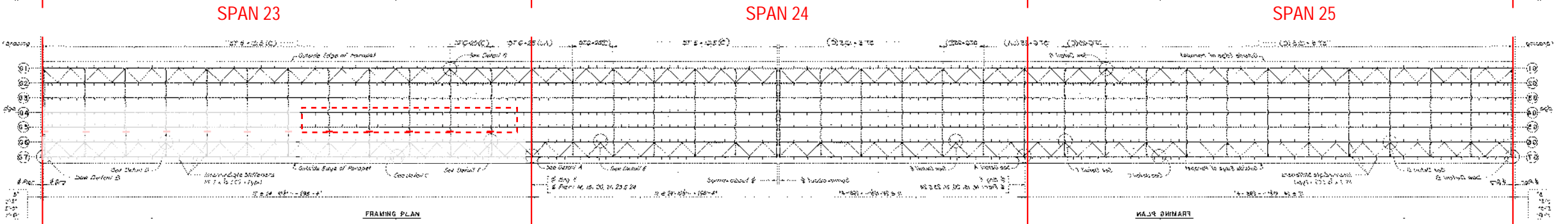
STEP 2 -  
CUT CROSSFRAMES BETWEEN G6 & G5  
HOIST G6&G7. APPROX WT = 75 TNS



STEP 3 -  
CUT CROSSFRAMES BETWEEN G3 & G4  
HOIST G4&G5. APPROX WT = 100 TNS



STEP 4 -  
CUT CROSSFRAMES BETWEEN G3 & G4  
HOIST G4&G5. APPROX WT = 75 TNS



PRELIMINARY  
NOT FOR CONSTRUCTION

NO.	DATE	REMARKS	BY

STEEL DEMOLITION SPANS 23-25 KEY BRIDGE DEMOLITION	
DRAWN BY	CHK'D BY
DATE	
PROJECT	SHEET NO.

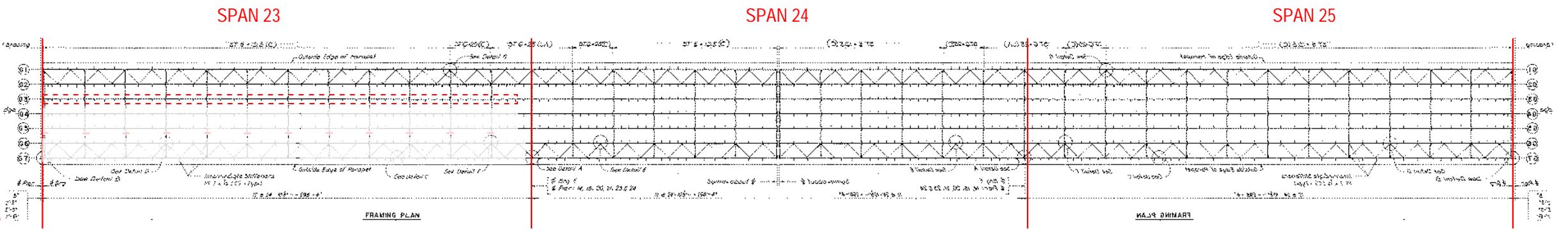


24-WL-0607 EX

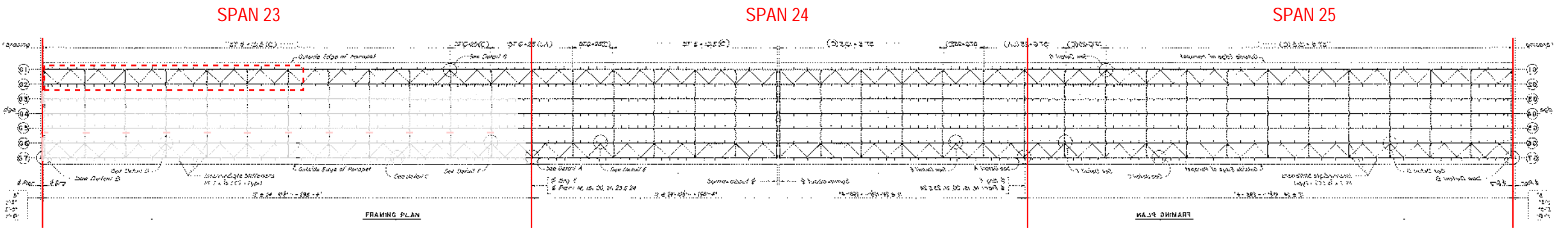
202460906  
7-12-2024  
20 of 25

STEP 5 -  
RIG TO G3 WITH SPREADER  
CUT CROSSFRAMES BETWEEN G3 & G2  
HOIST G3. APPROX WT = 90 TNS

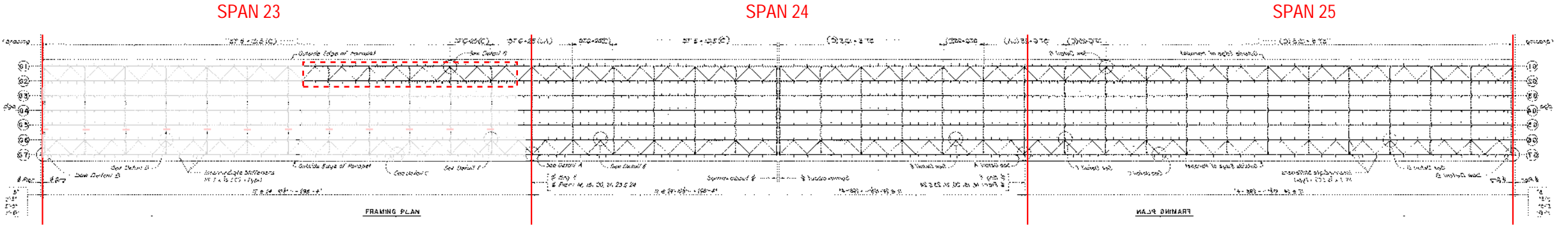
MAY ALSO TAKE PARTIAL LENGTH AND  
KEEP CONNECTED WITH CROSSFRAMES



STEP 6 -  
HOIST G1&G2. APPROX WT = 100 TNS



STEP 7 -  
HOIST G1&G2. APPROX WT = 75 TNS



REPEAT SAME STEPS FOR SPAN 24

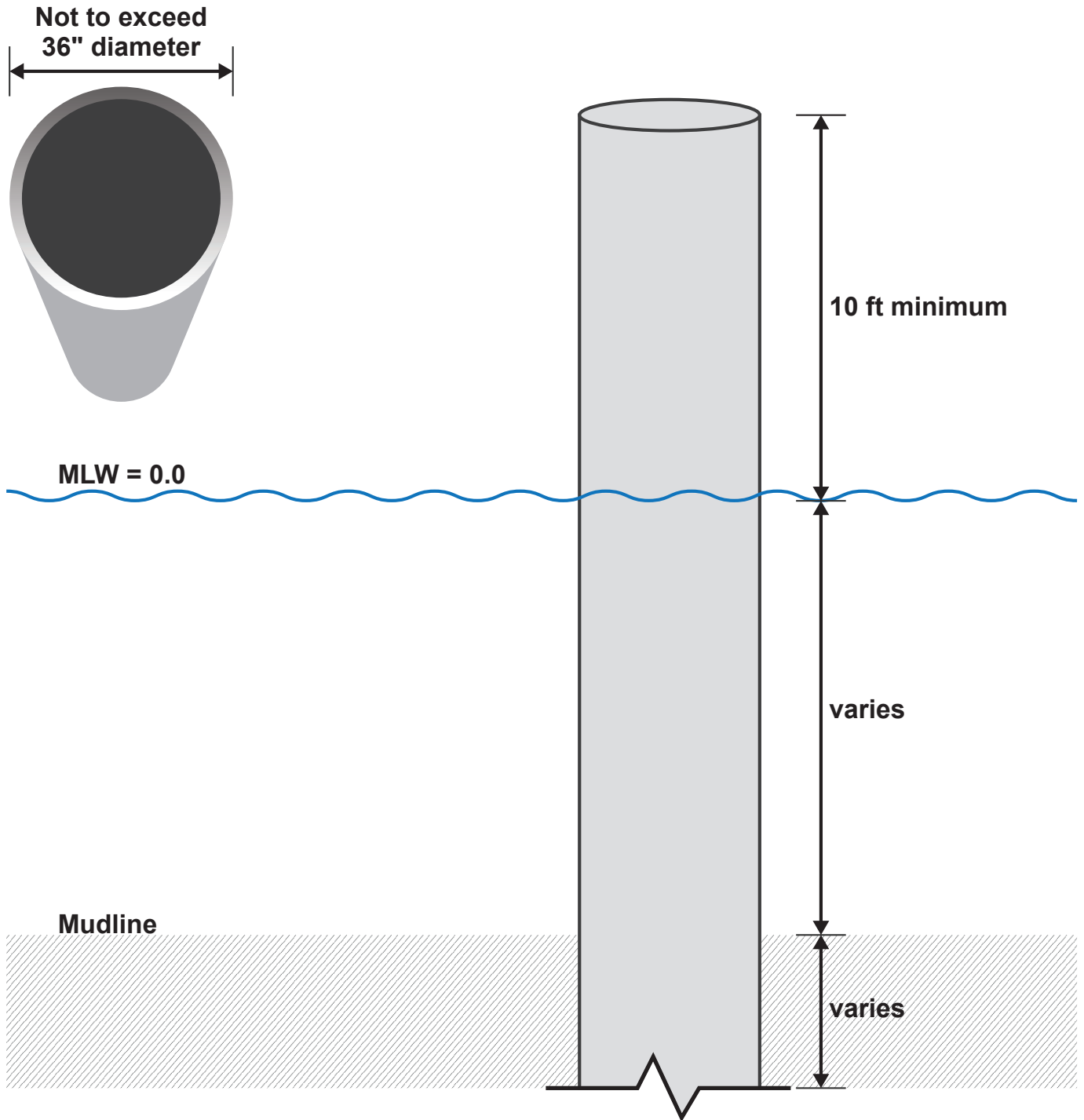
PRELIMINARY  
NOT FOR CONSTRUCTION

NO.	DATE	REMARKS	BY

STEEL DEMOLITION SPANS 23-25 KEY BRIDGE DEMOLITION	
DRAWN BY	CHK'D BY
DATE	
PROJECT	SHEET NO.

24-WL-0607 EX  
202460906  
7-12-2024  
21 of 25

# Temporary Pile Typical Section



**Francis Scott Key Bridge  
Rebuild Project  
Demolition Plan**

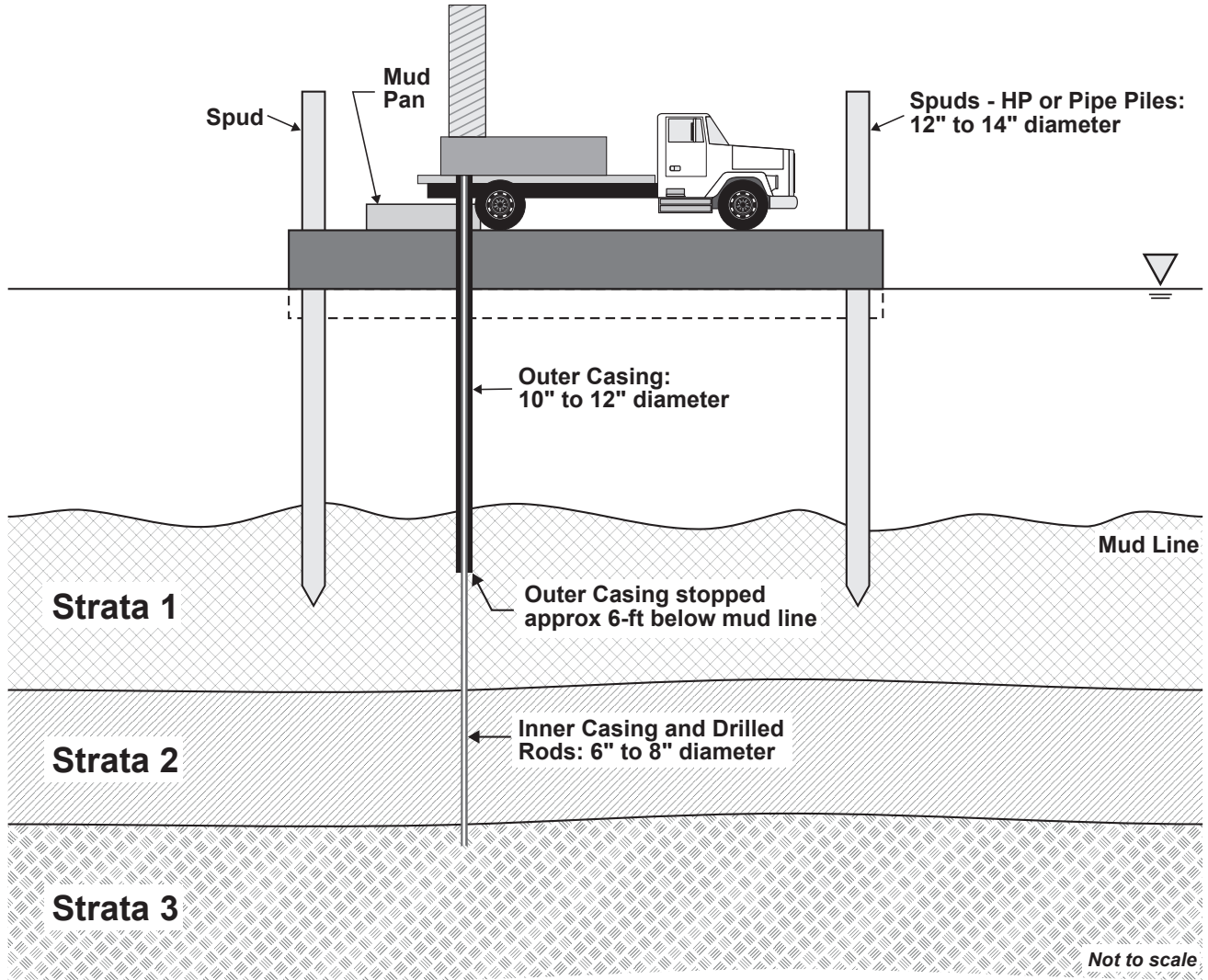
**July 2024**

Not to scale



24-WL-0607 EX  
202460906  
7-12-2024  
22 of 25

# Subsurface Exploration Cross-Section - Geotechnical Boring



33 sq. ft. impact/boring  
Total impact not to exceed 1,980 sq. ft. (60 borings)

**Note:** The subsurface exploration work will be conducted with a barge mounted drill rig to obtain Standard Penetration Test (SPT) samples. The field crew will install an outer casing below the mudline to seat the borehole. Drill rods and inner casing will be run through the outer casing to obtain soil samples. Spuds on the four corners of the barge will be used to keep the barge in position. A mud pan will be used to minimize sedimentation in the river.

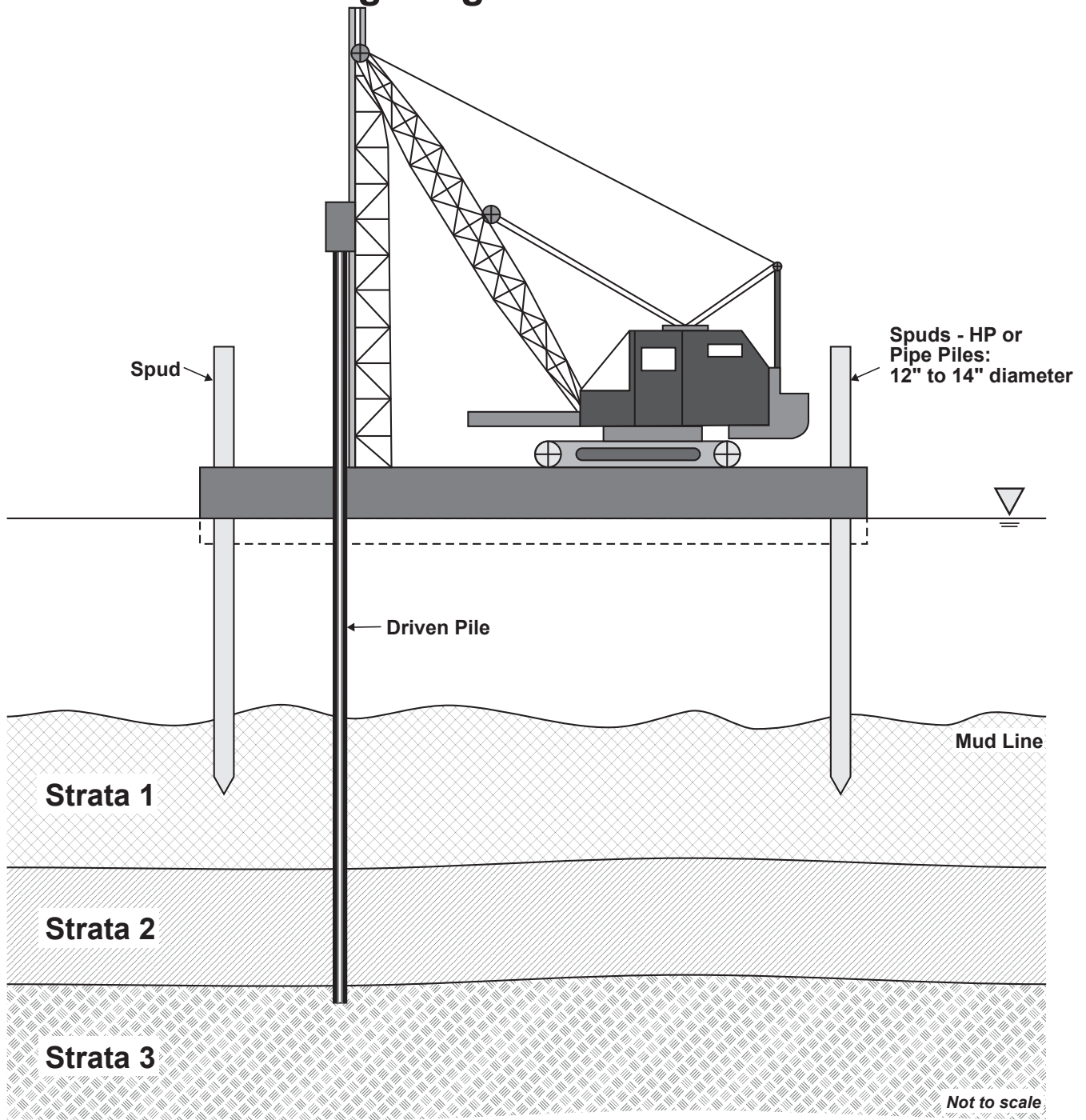


Maryland  
Transportation  
Authority

**Francis Scott Key Bridge  
Demolition**  
Preliminary Engineering  
July 2024

24-WL-0607 EX  
202460906  
7-12-2024  
23 of 25

# Foundation Testing Program Cross-Section – Pile Test



33 sq. ft. impact/pile test

Total impact not to exceed 462 sq. ft. (14 pile tests)

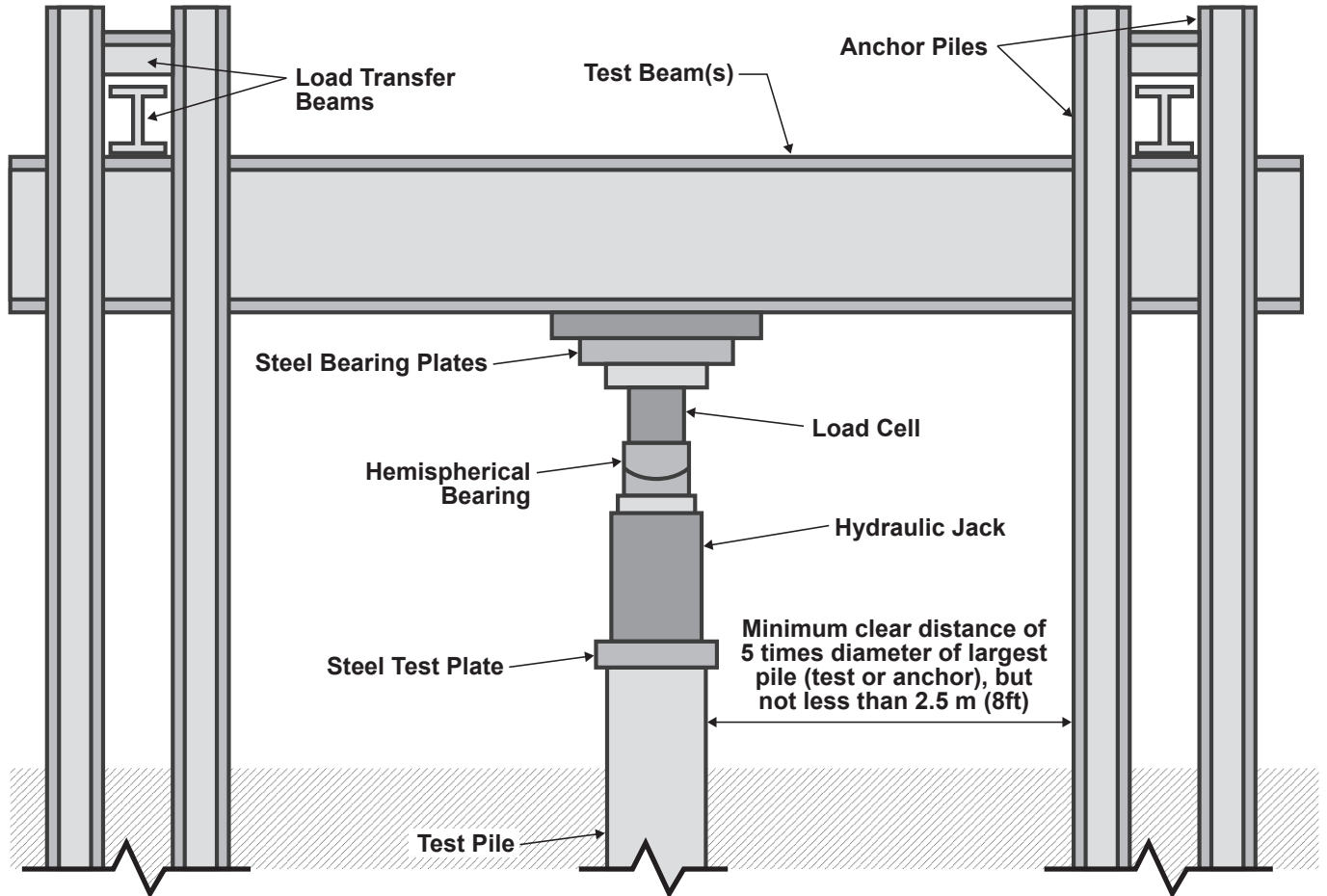
**Note:** Test piles will be driven into the substrata using an impact hammer for the purposes of evaluating pile foundation capacities and developing the hydro acoustic monitoring program. The pile driving equipment will be mounted on a barge, and spuds on the four corners of the barge will be used to keep the barge in position. Upon completion, all piles will be cut off below the mudline. Piles may also be subjected to load testing per ASTM D7383 "Axial Compressive Force Pulse (Rapid) Testing of Deep Foundations" (i.e. Statnamic or other tests allowed by the ASTM D7383), when allowed by the Authority.



**Francis Scott Key Bridge  
Rebuild Project  
Preliminary Engineering  
July 2024**

24-WL-0607 EX  
202460906  
7-12-2024  
24 of 25

# Foundation Testing Program Cross-Section – Static Load Test



260 sq. ft. impact (1 shaft or pile)  
Total impact not to exceed 1,560 sq. ft. (6 tests)

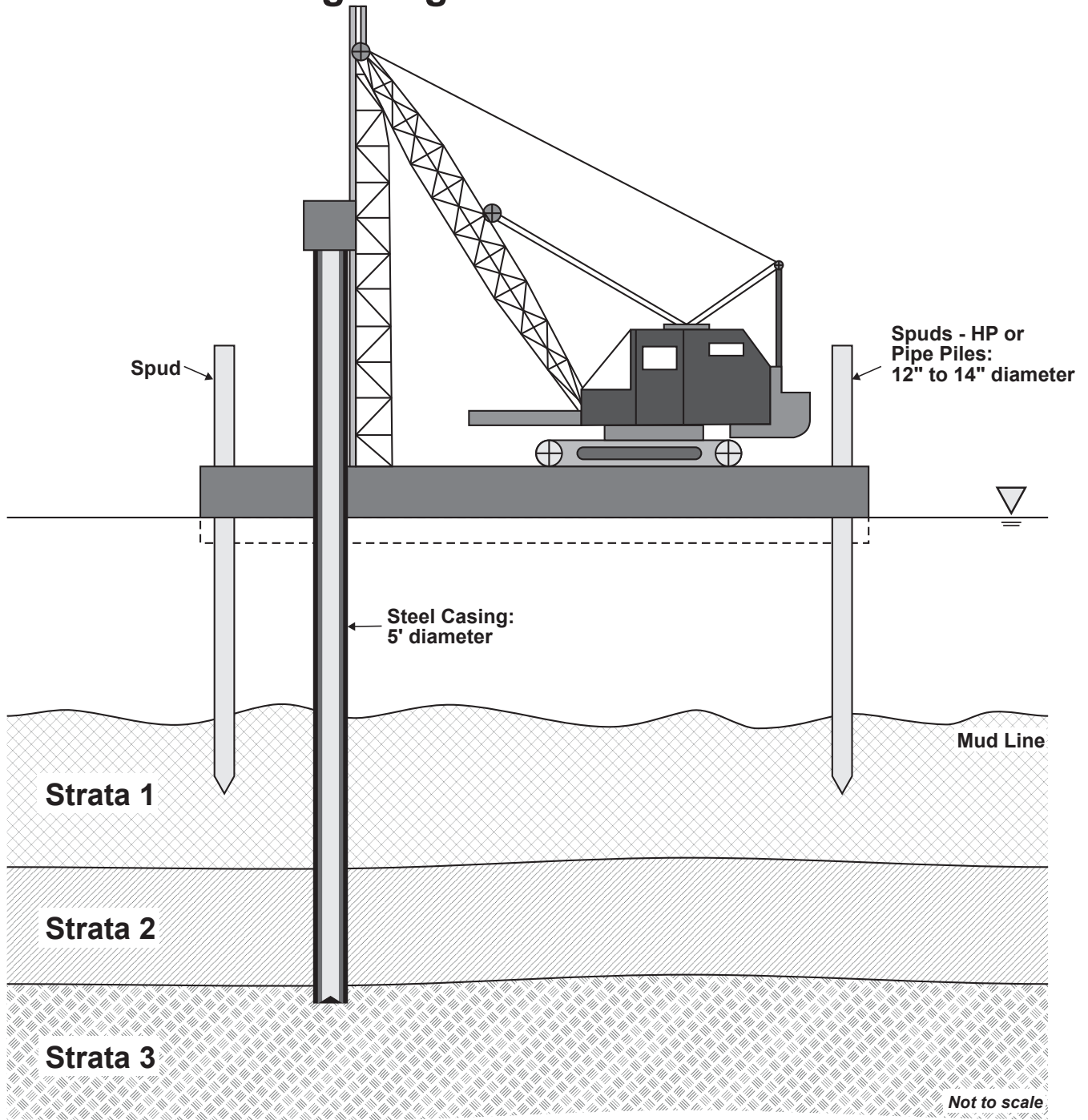
**Note:** Static load test includes one drilled shaft or pile, and a four reaction shaft pile array. Shaft and piles are installed in river bottom and loaded with weight. Then upon completion test shaft and reaction piles will be cut below the mudline.



**Francis Scott Key Bridge  
Rebuild Project  
Preliminary Engineering  
July 2024**

24-WL-0607 EX  
202460906  
7-12-2024  
25 of 25

# Foundation Testing Program Cross-Section – Drilled Shaft



50 sq. ft. impact (1 shaft)  
Total impact not to exceed 300 sq. ft. (6 shafts)

**Note:** A 5-foot diameter drilled shaft will be constructed to determine the capacity of this foundation type. A steel casing will be installed into the substrata for construction of the shaft. Upon reaching the appropriate depth; testing equipment, rebar and concrete will be installed within the steel casing. The drilled shaft rig will be mounted on a barge, and spuds on the four corners of the barge will be used to keep the barge in position. Upon completion, the drilled shaft will be cut off below the mudline.



**Francis Scott Key Bridge  
Rebuild Project  
Preliminary Engineering  
July 2024**

