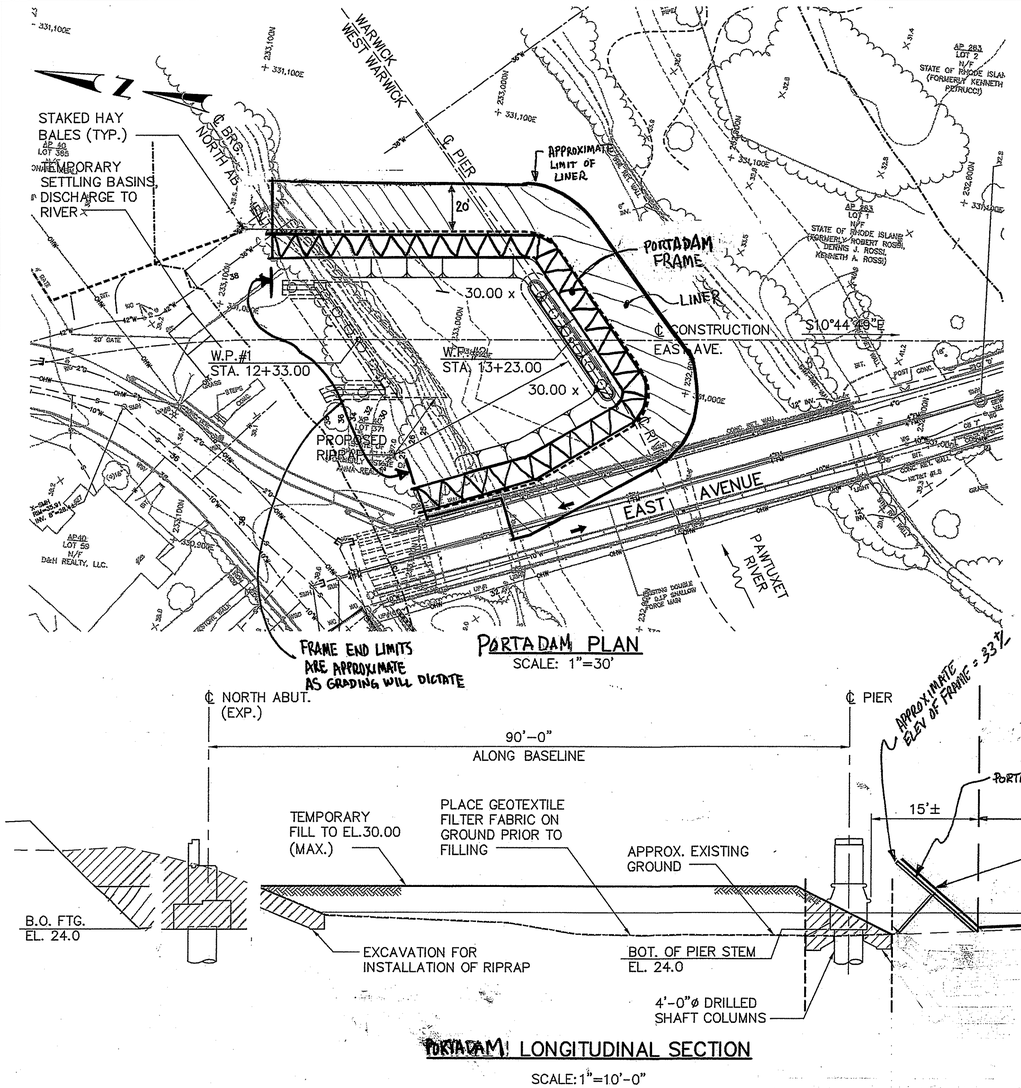
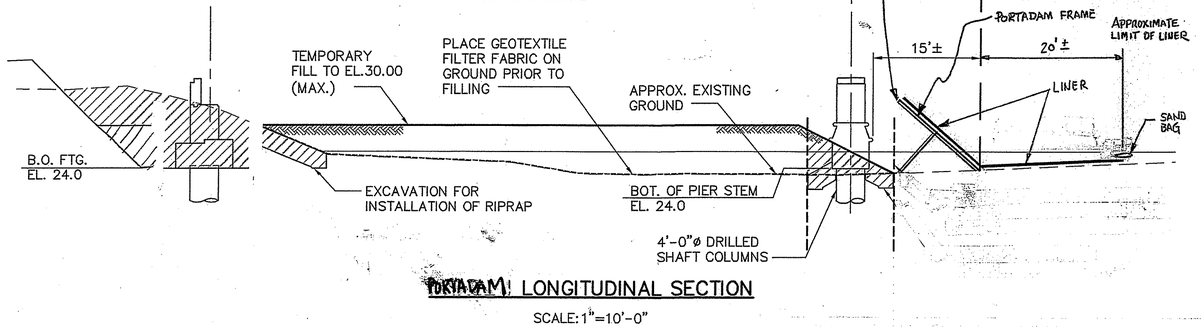
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
—	RI	—	—	1	





PORTADAM LONGITUDINAL SECTION

SCALE: 1"=10'-0"

Portadam System Basic Installation Procedure

Steel Framework:

1. Individual steel frame Components are prepared on-shore by attaching two pinned connectors at the bottom horizontal brace of two separate frames in order to construct a frame "pair", consisting of two frames and two bar connectors.

2. Frame sets are then placed directly into position by hand, off wooden floats or by crane along the desired configuration perimeter line with progressive connections made using adjustable clamp (one bolt) arrangement. Final elevation and/or direction adjustments are made at this point. Obstruction removal may be required at this point.

3. Along the predetermined installation line, the frame pairs are lowered into vertical position, adjusted and then spread at the top to form a "V". A steel spacer link is installed in the "V" to maintain distance. The frame pair is then attached to the previous frame pair using a steel, two-part, bolted clamp designed to clamp anywhere on the frame member. This adjustment permits frame pairs to be installed at different elevations as encountered over irregular contours as well as up and down slopes. Standard frame spacing is 15" or 30" per pair. Spacing can be increased for shallower water or decreased for deeper water.

4. To create a turn along the installation line, single frame members are placed vertically plumb with inside toes tight together and outside toes separated to produce a fan shape. Only the adjustable top clamp is used in corners, the upper and lower connectors are not needed.

5. To complete the assembly, heavy steel poles can be added through steel loops at the back of each frame member, both vertically and horizontally, to increase stability in soft foundation areas.

Fabric sealing membrane ("Liner"):

1. Fabric sealing sheets are provided in 25' and 50' horizontal section and special outside corners (fan shaped) which can be joined by waterproof, pinned end seams. Preparation is done onshore by laying out individual liner sections and joining into the desired configuration. There are no special tools required for this operation. The assembled liner is then folded, rolled and tied into a long "sausage" shape for ease of installation on the framework structure.

2. The entire assembled liner section is then placed around the perimeter of the framework and secured to the top at each frame pair location. Once secured at the top of the frame structure, the liner is then unrolled down the diagonal face of the framework and extended out onto the existing bed at the toe of the frames. An extension of the liner is pulled horizontally out away from the toe of the framework to form a "sealing apron". The outside perimeter of the sealing apron contains a heavy chain which assists with sinking the liner. That perimeter can be buried in soft material to form a cutoff and is normally sandbagged into place to assist with sealing.

3. Preparations at the shoreline ends and at the turns are then completed to insure a proper seal.

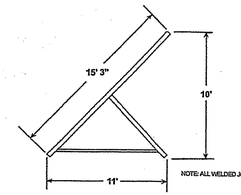
4. Pumping equipment is positioned in the enclosed area in sump holes, if possible. Once the pumps are started, the water head differential sucks the liner membrane tightly onto the framework and the surrounding bed area. Final liner adjustments are then made. Minor leaks under the sealing apron are located and sealed with sandbags.

Removal:

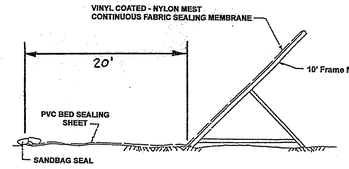
1. Upon completion of all internal construction or repair work and clean up, the enclosed area is then flooded, thereby equalizing pressure on the structure and releasing suction on the liner. All fabric membrane sections are removed first, then all steel framework is lifted out by the same method used for installation. All components are checked for damage and inventoried. All components are reusable and are then packaged for shipping.

OCT 18 2012
Office of

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED NOV 05 2012 FILE # 12-0170
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wencek



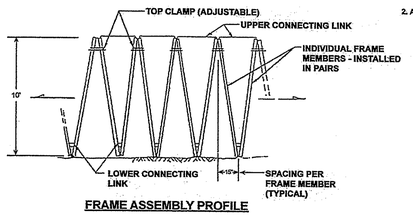
10' HIGH FRAME DETAIL



SEALING MEMBRANE DETAIL
CROSS-SECTION
N.T.S.

NOTES:
1. OPTIONAL ATTACHMENTS
- BACK BRACE POLE
- HORIZONTAL ADDITIONAL BRACING
- SINGLE FRAME ATTACHMENTS FOR IRREGULAR CONTOURS & TURNS

2. ANCHOR BOLTS MAY BE REQUIRED ON HARD ROCK, FLAT OR CONCRETE SURFACES.



FRAME ASSEMBLY PROFILE

10' HIGH FRAMEWORK & FABRIC SEALING MEMBRANE DETAILS
STANDARD PORTADAM SYSTEM ASSEMBLY

Portadam, Inc. Williamstown, NJ

STEVEN M. CLARKE
No. 4477
REGISTERED PROFESSIONAL ENGINEER

REVISIONS		
NO.	DATE	BY

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

BRIDGE REPLACEMENT
NATICK BRIDGE NO. 383

WARWICK & WEST WARWICK, RHODE ISLAND

PORTADAM
CONSTRUCTION PLAN - 1

CHECKED BY _____ DATE _____ SCALE AS SHOWN