

SECTION 02240 (31 23 19)

DEWATERING AND FLOOD MITIGATION

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\*\* NOTE TO SPECIFIER \*\* HSI Services, Inc.; water-inflated dewatering and flood barrier dams.

This section is based on the products of HSI Services, which is located at:

20581 FM 362

Waller, TX 77484

Toll Free: 800-245-0199

Phone: 936-372-1222

Email: info@aquabarrier.com

Web: www.aquabarrier.com

[[Click Here](https://www.arcat.com/arcatcos/cos53/arc53491.html?pids=210041)] for additional information.

Originally named Hydrological Solutions, HSI Services, Inc. is a fast-growing water management company based in Waller, TX.

Together with our over 25 years of experience and a new warehouse, our team has made it our goal to provide superior customer service. We're committed to providing a number of dewatering and flood protection services for your applications. Whether you're located in the United States or across the globe, we're prepared to assist you with the highest quality available.

Aqua-Barrier water-inflated cofferdams are constructed from industrial grade vinyl coated polyester. This fabric is coated with a base of woven polyester between two layers of flexible polyvinyl chloride. These units can be repaired easily in the field in both wet or dry conditions and are completely reusable. Plus, their unique design allows for compact storage, user-friendly transportation, and ease of handling.

1. GENERAL
	1. SECTION INCLUDES
		1. Water inflated dams.
	2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 02200 – Site Preparation.
		2. Section 02300 – Earthwork.
		3. Section 10719 – Flood Barriers.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. German Institute for Standardization (DIN):
			1. DIN 53354 – Testing of artificial leather, tensile test.
			2. DIN 53363 – Testing of artificial leather and similar sheet materials determination of thickness with mechanical feelers.
			3. DIN 53357 – Testing of plastic sheets, adhesion test.
	1. SUBMITTALS
		1. Submit under provisions of Section 01300.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern and color.
		2. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
			1. Company must have an active certified quality management system in place such as ISO 9001:2015 or equivalent.
		2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect’s review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	4. WARRANTY
		1. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: HSI Services, Inc., which is located at: 20581 FM 362; Waller, TX 77484; an ISO 9001:2015 certified company. Toll Free: 800-245-0199; Phone: 936-372-1222; Email: info@aquabarrier.com; Web: www.aquabarrier.com.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01600.
	1. WATER-INFLATED DAMS
		1. Basis of Design: Aqua-Barrier, Water-Inflated Dams; as manufactured by HSI Services.
			1. Performance and Design Requirements
				1. Tensile Warp, DIN 53354: 1568 lb/2 inch (7000 N/5 cm).
				2. Tear Warp, DIN 53363: 336 lb/2 inch (1500 N/5 cm).
				3. Adhesion, DIN 53357: 22 lb/2 inch (100 N/5 cm).
			2. Description: Water-inflated dam consisting of a self-contained, single tube with an inner restraint baffle stabilization system, used to control water and liquids.
			3. Fabric: UV protected; heavy gauge polyvinyl chloride (PVC) reinforced with polyester.
			4. Ports: Threaded fill ports and drain ports for rapid inflation and draining.
				1. Cap: Floating.
				2. Fill Ports: 4 inches.
				3. Drain Ports: 4 inches.
				4. Drain Ports: 8 inches.
			5. Lifting Loops: Patented end lifting loops used to control the dam with equipment during installation and removal.
			6. Connecting: Individual units connect together by overlapping end of the units to length equal to 1.5 times the unit height for straight overlaps and 2.25 times the unit height for corner overlaps.
			7. Additional Support: May be required in case of slick or weak soils, excess slope, high water velocities, dynamic loads from wave action, surface irregularities, or changes in interrelated hydrological conditions.
			8. Repairs: Easily repaired with vinyl adhesive and patch material.
			9. Application:

\*\* NOTE TO SPECIFIER \*\* Delete application options not required.

* + - * 1. Floodwater control.
				2. Water management for controlling surface water for construction and maintenance operations.
				3. Turbidity retention in environmentally sensitive areas.
			1. Weight: 36 ounces per square yard (1250 grams per square meter).
			2. Thickness: 0.041 inches (1.06 mm).

\*\* NOTE TO SPECIFIER \*\* Delete height options not required.

* + - 1. Height: 2 ft (0.610 m).
				1. Inflated Barrier Width: 4.5 ft (1.372 m).
				2. Inflated Barrier Minimum Water Volume: 56 gallons per linear foot (695 liters per meter).
				3. Maximum Retained Water Height: 1.5 ft (0.457 m).
			2. Height: 3 ft (0.914 m).
				1. Inflated Barrier Width: 6.75 ft (2.057 m).
				2. Inflated Barrier Minimum Water Volume: 131 gallons per linear foot (1627 liters per meter).
				3. Maximum Retained Water Height: 2.25 ft (0.686 m).
			3. Height: 4 ft (1.219 m).
				1. Inflated Barrier Width: 9 ft (2.743 m).
				2. Inflated Barrier Minimum Water Volume: 225 gallons per linear foot (2794 liters per meter).
				3. Maximum Retained Water Height: 3 ft (0.914 m).
			4. Height: 5 ft (1.524 m).
				1. Inflated Barrier Width: 11.25 ft (3.429 m).
				2. Inflated Barrier Minimum Water Volume: 352 gallons per linear foot (4372 liters per meter).
				3. Maximum Retained Water Height: 3.75 ft (1.143 m).
			5. Height: 6 ft (1.828 m).
				1. Inflated Barrier Width: 13.5 ft (4.115 m).
				2. Inflated Barrier Minimum Water Volume: 506 gallons per linear foot (6284 liters per meter).
				3. Maximum Retained Water Height: 4.5 ft (1.372 m).
			6. Height: 7 ft (2.133 m).
				1. Inflated Barrier Width: 15.75 ft (4.801 m).
				2. Inflated Barrier Minimum Water Volume: 688 gallons per linear foot (8544 liters per meter).
				3. Maximum Retained Water Height: 5.25 ft (1.600 mm).
			7. Height: 8 ft (2.438 mm).
				1. Inflated Barrier Width: 18 ft (5.486 mm).
				2. Inflated Barrier Minimum Water Volume: 901 gallons per linear foot (11,190 liters per meter).
				3. Maximum Retained Water Height: 6 ft (1.828 m).
			8. Configuration:

\*\* NOTE TO SPECIFIER \*\* Delete configuration options not required.

* + - * 1. Canal block.
				2. Complete enclosure.
				3. Partial block.
				4. Tee-pee configuration.
				5. Straight shoreline.
				6. As indicated on Drawings.
			1. Accessories:

\*\* NOTE TO SPECIFIER \*\* Delete accessory options not required.

* + - * 1. Fill port assembly, 4 inches (102 mm).
				2. Adapter, 2 inch (51 mm) to 3/4 inch (19 mm).
				3. Additional protective membrane.
				4. EZ Roller.
				5. Patented End Pipe Loops

\*\* NOTE TO SPECIFIER \*\* The remaining options apply to flood protection use only.

* + - * 1. Overflow fitting with stand-pipe attached.
				2. Fill port for inflation by garden hose, 3/4 inch (19 mm).
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
		2. Remove all ground objects that could puncture water-inflated dams.
		3. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
			1. Follow manufacturer’s safety recommendations for installation.
	4. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* The manufacturer provides field quality control , either onsite or phone/ virtual personnel for instruction or supervision of product installation, application, erection or construction. Delete if not required or delete lever of service not required.

* + 1. Manufacturer’s Services: Coordinate manufacturer’s services in accordance with appropriate sections in Division 01. Services to include but are not limited to the following:
			1. Phone and Virtual Support:
			2. Onsite Support:
	1. CLEANING AND PROTECTION
		1. Clean products in accordance with the manufacturer’s recommendations.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION