TIPS VENDOR AGREEMENT

Between_____Aqua Dam, Inc._____and
(Company Name)

THE INTERLOCAL PURCHASING SYSTEM (TIPS),
a Department of Texas Education Service Center Region 8 for
TIPS RFP 190702 Temporary Flood Barriers

General Information

The Vendor Agreement ("Agreement") made and entered into by and between The Interlocal Purchasing System (hereinafter referred to as "TIPS" respectfully) a government cooperative purchasing program authorized by the Region 8 Education Service Center, having its principal place of business at 4845 US Hwy 271 North, Pittsburg, Texas 75686. This Agreement consists of the provisions set forth below, including provisions of all Attachments referenced herein. In the event of a conflict between the provisions set forth below and those contained in any Attachment, the provisions set forth shall control unless otherwise agreed by the parties in writing and by signature and date on the attachment.

A Purchase Order, Agreement or Contract is the TIPS Member's approval providing the authority to proceed with the negotiated delivery order under the Agreement. Special terms and conditions as agreed between the Vendor and TIPS Member should be added as addendums to the Purchase Order, Agreement or Contract. Items such as certificate of insurance, bonding requirements, small or disadvantaged business goals are some, but not all, of the addendums possible.

Terms and Conditions

Freight

All quotes to members shall provide a line item for cost for freight or shipping regardless if there is a charge or not. If no charge for freight or shipping, indicate by stating "No Charge" or "$0", "included in price" or other similar indication. Otherwise, all shipping, freight or delivery changes shall be passed through to the TIPS Member at cost with no markup and said charges shall be agreed by the TIPS Member unless alternative shipping terms are agreed by TIPS as a result of the proposal award.

Warranty Conditions

All new supplies equipment and services shall include ***manufacturer's minimum standard warranty*** unless otherwise agreed to in writing. Vendor shall be legally permitted to sell all products offered for sale to TIPS Members if the offering is included in the Request for Proposal category. All goods proposed and sold shall be new unless clearly stated in writing.

Customer Support

The Vendor shall provide timely and accurate customer support for orders to TIPS Members as agreed by the Parties. Vendors shall respond to such requests within a commercially reasonable time after receipt of the request. If support and/or training is a line item sold or packaged with a sale, support shall be as agreed with the TIPS Member.

Agreements

Agreements for purchase will normally be put into effect by means of a purchase order(s) executed by

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authorized agents of the TIPS Member participating government entities, but other means of placing an order may be used at the Member's discretion.

Tax exempt status

Most TIPS Members are tax exempt and the related laws and/or regulations of the controlling jurisdiction(s) of the TIPS Member shall apply.

Assignments of Agreements

No assignment of this Agreement may be made without the prior notification of TIPS. Written approval of TIPS shall not be unreasonably withheld. Payment for delivered goods and services can only be made to the awarded Vendor, Vendor designated reseller or vendor assigned company.

Disclosures

- Vendor and TIPS affirms that he/she or any authorized employees or agents has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor or service to a public servant in connection with this Agreement.
- Vendor shall attach, in writing, a complete description of any and all relationships that might be considered a conflict of interest in doing business with the TIPS program.
- The Vendor affirms that, to the best of his/her knowledge, the offer has been arrived at independently, and is submitted without collusion with anyone to obtain information or gain any favoritism that would in any way limit competition or give an unfair advantage over other vendors in the award of this Agreement.

Term and Renewal of Agreements

The Agreement with TIPS is for three (3) years with an option for renewal for an additional one (1) consecutive year if both parties agree. TIPS may or may not exercise the one-year extension beyond the base three-year term and whether or not to offer the extension is at the sole discretion of TIPS. The scheduled Agreement termination date shall be the last date of the
month of the last month of the agreement's legal effect. **Example:** *If the agreement is scheduled to end on May 23, the anniversary date of the award, it would actually be extended to May 31 in the last month of the last year the contract is active.*

Automatic Renewal Clauses Incorporated in Awarded Vendor Agreements with TIPS Members Resulting from the Solicitation and with the Vendor Named in this Agreement.

No Agreement for goods or services with a TIPS Member by the awarded vendor named in this Agreement that results from the solicitation award named in this Agreement, may incorporate an automatic renewal clause that exceeds month to month terms with which the TIPS Member must comply. All renewal terms incorporated in an Agreement by the vendor with the TIPS Member shall only be valid and enforceable when the vendor receives written confirmation by purchase order, executed Agreement or other written instruction issued by the TIPS Member for any renewal period. The purpose of this clause is to avoid a TIPS Member inadvertently renewing an Agreement during a period in which the governing body of the TIPS Member has not properly appropriated and budgeted the funds to satisfy the Agreement renewal. This term is not negotiable and any Agreement between a TIPS Member and a TIPS awarded vendor with an automatic renewal clause that conflicts with these terms is rendered void and unenforceable.

Shipments

The Vendor shall ship, deliver or provide ordered products or services within a commercially reasonable time after the receipt of the order from the TIPS Member. If a delay in said delivery is anticipated, the Vendor shall notify TIPS Member as to why delivery is delayed and shall provide an estimated time for

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completion of the order. TIPS or the requesting entity may cancel the order if estimated delivery time is not acceptable or not as agreed by the parties.

Invoices

Each invoice or pay request shall include the TIPS Member's purchase order number or other identifying designation as provided in the order by the TIPS Member. If applicable, the shipment tracking number or pertinent information for verification of TIPS Member receipt shall be made available upon request.

Payments

The TIPS Member will make payments directly to the Vendor, the vendor assigned dealer or as agreed by the Vendor and the TIPS Member after receiving invoice and in compliance with applicable payment statute(s), whichever is the greater time or as otherwise provided by an agreement of the parties.

Pricing

Price increases will be honored according to the terms of the solicitation. All pricing submitted to TIPS shall include the participation fee, as provided in the solicitation, to be remitted to TIPS by the Vendor. Vendor will not show adding the fee to the invoice presented to TIPS Member customer.

Participation Fees

The Participation Fee that was published as part of the Solicitation and the fee published is the legally effective fee, along with any fee conditions stated in the RFP. Collection of the fees by TIPS is required under Texas Government Code §791.011 Et seq. Vendor or vendor assigned dealer agrees to pay the participation fee for all Agreement sales to TIPS on a monthly scheduled report or as otherwise agreed by the parties. To report sales, login to the TIPS Vendor Portal and click on the PO's and Payments tab. Pages 3-7 of the Vendor Portal User Guide will walk you through the process of reporting sales to TIPS. Please refer to the TIPS Accounting FAQ's for more information about reporting sales and if you have further questions, contact the Accounting Team at accounting@tips-usa.com. The Vendor or vendor assigned dealers are responsible for keeping record of all sales that go through the TIPS Agreement and submitting same to TIPS. Failure to render the participation fee to TIPS shall constitute a breach of this agreement with our parent governmental entity, Texas Education Service Center Region 8, as established by the Texas legislature and shall be grounds for termination of this agreement and any other agreement held with TIPS and possible legal action. TIPS reserves all rights under the law to collect the fees due. Please contact TIPS at tips@tips-usa.com or call (866) 839-8477 if you have questions about paying fees.

Warranties

Express Warranties; Exclusion of Implied Warranties. Seller warrants that the goods supplied hereunder will conform to the description herein stated or attached hereto; that it will convey good title thereto, free of all liens of any kind whatever unknown to buyer; and that such goods will be of merchantable quality. This is seller's sole warranty with respect to the goods. SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATEVER, EXPRESS OR IMPLIED; AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE AFORESAID OBLIGATION ARE HEREBY DISCLAIMED BY SELLER AND EXCLUDED FROM THIS AGREEMENT.

Limitation of Liability

Vendor's liability for providing a defective product expressly excludes any right to compensation for property damages (other than the product itself), injuries, or death caused, in whole or in part, from water, as a result of using the product.

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State of Texas Franchise Tax

By signature hereon, the bidder hereby certifies that he/she is not currently delinquent in the payment of any franchise taxes owed the State of Texas under Chapter 171, Tax Code.

Miscellaneous

The Vendor acknowledges and agrees that continued participation in TIPS is subject to TIPS sole discretion and that any Vendor may be removed from the participation in the Program at any time with or without cause. Nothing in the Agreement or in any other communication between TIPS and the Vendor may be construed as a guarantee that TIPS or TIPS Members will submit any orders at any time. TIPS reserves the right to request additional proposals for items or services already on Agreement at any time.

Purchase Order Pricing/Product Deviation

If a deviation of pricing/product on a purchase order or contract modification occurs between the Vendor and the TIPS Member, TIPS must be notified within five (5) business days of receipt of change order.

Termination for Convenience of TIPS Agreement Only

TIPS reserves the right to terminate this agreement for cause or no cause for convenience with a thirty (30) days prior written notice. Termination for convenience is conditionally required under Federal Regulations 2 CFR part 200 if the customer is using federal funds for the procurement. All purchase orders presented to the Vendor, but not fulfilled by the Vendor, by a TIPS Member prior to the actual termination of this agreement shall be honored at the option of the TIPS Member. The awarded vendor may terminate the agreement with ninety (90) days prior written notice to TIPS 4845 US Hwy North, Pittsburg, Texas 75686. The vendor will be paid for goods and services delivered prior to the termination provided that the goods and services were delivered in accordance with the terms and conditions of the terminated agreement. This termination clause does not affect the sales agreements executed by the Vendor and the TIPS Member customer pursuant to this agreement. TIPs Members may negotiate a termination for convenience clause that meets the needs of the transaction based on applicable factors, such as funding sources or other needs.

TIPS Member Purchasing Procedures

Usually, purchase orders or their equal are issued by participating TIPS Member to the awarded vendor and should indicate on the order that the purchase is per the applicable TIPS Agreement number. Orders are typically emailed to TIPS at tipspo@tips-usa.com.

- Awarded vendor delivers goods/services directly to the participating member.
- Awarded vendor invoices the participating TIPS Member directly.
- Awarded vendor receives payment directly from the participating member.
- Awarded vendor reports sales monthly to TIPS (unless prior arrangements have been made with TIPS for an alternative submission schedule).

Licenses

Awarded vendor shall maintain, in current status, all federal, state and local licenses, bonds and permits required for the operation of the business conducted by awarded vendor. Awarded vendor shall remain reasonably fully informed of and in compliance with all ordinances and regulations pertaining to the lawful

provision of goods or services under the Agreement. TIPS and TIPS Members reserves the right to stop work and/or cancel an order or terminate this or any other sales Agreement of any awarded vendor whose license(s) required for performance under this Agreement have expired, lapsed, are suspended or terminated subject to a 30-day cure period unless prohibited by applicable statue or regulation.

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Novation

If awarded vendor sells or transfers all assets, rights or the entire portion of the assets or rights required to perform this Agreement, a successor in interest must guarantee to perform all obligations under this Agreement. A simple change of name agreement will not change the Agreement obligations of awarded vendor. TIPS will consider Contract Assignments on a case by case basis. TIPS must be notified within five (5) business days of the transfer of assets or rights.

Site Requirements (only when applicable to service or job)

Cleanup: When performing work on site at a TIPS Member's property, awarded vendor shall clean up and remove all debris and rubbish resulting from their work as required or directed by TIPS Member or as agreed by the parties. Upon completion of work, the premises shall be left in good repair and an orderly, neat, clean and unobstructed condition.

Preparation: Awarded vendor shall not begin a project for which TIPS Member has not prepared the site, unless awarded vendor does the preparation work at no cost, or until TIPS Member includes the cost of site preparation in a purchase order.

Site preparation includes, but is not limited to: moving furniture, installing wiring for networks or power, and similar pre-installation requirements.

Registered sex offender restrictions: For work to be performed at schools, awarded vendor agrees that no employee of a sub-contractor who has been adjudicated to be a registered sex offender will perform work at any time when students are, or reasonably expected to be, present unless otherwise agreed by the TIPS Member. Awarded vendor agrees that a violation of this condition shall be considered a material breach and may result in the cancellation of the purchase order at the TIPS Member's discretion.

Awarded vendor must identify any additional costs associated with compliance of this term. If no costs are specified, compliance with this term will be provided at no additional charge. **Safety measures:** Awarded vendor shall take all reasonable precautions for the safety of employees on the worksite, and shall erect and properly maintain all necessary safeguards for protection of workers and the public. Awarded vendor shall post warning signs against all hazards created by the operation and work in progress. Proper precautions shall be taken pursuant to state law and standard practices to protect workers, general public and existing structures from injury or damage.

Smoking

Persons working under Agreement shall adhere to the TIPS Member's or local smoking statutes, codes or policies.

Marketing

Awarded vendor agrees to allow TIPS to use their name and logo within TIPS website, marketing materials and advertisement subject to any reasonable restrictions provided to TIPS in the Proposal to the Solicitation. The Vendor may submit an acceptable use directive for Vendor's names and logos with which TIPS agrees to comply. Any use of TIPS name and logo or any form of publicity, inclusive of press release, regarding this Agreement by awarded vendor must have prior approval from TIPS which will not be unreasonably withheld. Request may be made by email to TIPS@TIPS-USA.COM

Supplemental Agreements

The TIPS Member entity participating in the TIPS Agreement and awarded vendor may enter into a separate Supplemental Agreement or contract to further define the level of service requirements over and above the minimum defined in this Agreement such as but not limited to, invoice requirements, ordering requirements, specialized delivery, etc. Any Supplemental Agreement or contract developed as a result of this Agreement is exclusively between the TIPS Member entity customer and the Vendor. TIPS, its agents, TIPS Members and employees not a party to the Supplemental Agreement with the TIPS Member customer, shall not be made party to any claim for breach of such agreement unless named and agreed by the Party in question in writing in

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the agreement. If a Vendor submitting a Proposal requires TIPS and/or TIPS Member to sign an additional agreement, those agreements shall comply with the award made by TIPS to the Vendor. Supplemental Vendor's Agreement documents may not become part of TIPS's Agreement with vendor unless and until an authorized representative of TIPS reviews and approves it. TIPS review and approval may be at any time during the life of this Vendor Agreement. TIPS permits TIPS Members to negotiate additional terms and conditions with the Vendor for the provision of goods or services under the Vendor's TIPS Agreement so long as they do not materially conflict with this Agreement.

Survival Clause

All applicable sales, leases, Supplemental Agreements, contracts, software license agreements, warranties or service agreements that were entered into between Vendor and TIPS or the TIPS Member Customer under the terms and conditions of this Agreement shall survive the expiration or termination of this Agreement. All Orders, Purchase Orders issued or contracts executed by TIPS or a TIPS Member and accepted by the Vendor prior to the expiration or termination of this agreement, shall survive expiration or termination of the Agreement, subject to previously agreed terms and conditions agreed by the parties or as otherwise specified herein relating to termination of this agreement.

Legal obligations

It is the responding Vendor's responsibility to be aware of and comply with all local, state and federal laws governing the sale of products/services identified in the applicable Solicitation that resulted in this Vendor Agreement and any awarded Agreement thereof. Applicable laws and regulations must be followed even if not specifically identified herein.

Audit rights

Due to transparency statutes and public accountability requirements of TIPS and TIPS Members', the awarded Vendor shall, at their sole expense, maintain appropriate due diligence of all purchases made by TIPS Member that utilizes this Agreement. TIPS and Region 8 ESC each reserve the right to audit the accounting of TIPS related purchases for a period of three (3) years from the time such purchases are made. This audit right shall survive termination of this Agreement for a period of one (1) year from the effective date of termination. In order to ensure and confirm compliance with this agreement, TIPS shall have authority to conduct audits of Awarded Vendor's pricing or TIPS transaction documentation with TIPS Members with 30 days' notice unless the audit is ordered by a Court Order or by a Government Agency with authority to do so without notice. Notwithstanding the foregoing, in the event that TIPS is made aware of any pricing being offered to eligible entities that is materially inconsistent with the pricing under this agreement, TIPS shall have the ability to conduct the audit internally or may engage a third- party auditing firm to investigate any possible non-compliant conduct or may terminate the Agreement according to the terms of this Agreement. In the event of an audit, the requested materials shall be reasonably provided in the time, format and at the location acceptable to Region 8 ESC or TIPS. TIPS agrees not to perform a random audit the TIPS transaction documentation more than once per calendar year, but reserves the right to audit for just cause or as required by any governmental agency or court with regulatory authority over TIPS or the TIPS Member.

Force Majeure

If by reason of Force Majeure, either party hereto shall be rendered unable wholly or in part to carry out its obligations under this Agreement then such party shall give notice and full particulars of Force Majeure in writing to the other party within a reasonable time after occurrence of the event or cause relied upon, and the obligation of the party giving such notice, so far as it is affected by such Force Majeure, shall be suspended during the continuance of the inability then claimed, except as hereinafter provided, but for no longer period, and such party shall endeavor to remove or overcome such inability with all reasonable dispatch.

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Project Delivery Order Procedures

The TIPS Member having approved and signed an interlocal agreement, or other TIPS Membership document, may make a request of the awarded vendor under this Agreement when the TIPS Member desires goods or services awarded to the Vendor. Notification may occur via phone, the web, courier, email, fax, or in person. Upon notification of a pending request, the awarded vendor shall acknowledge the TIPS Member's request as soon as possible, but must make contact with the TIPS Member within two working days.

Status of TIPS Members as Related to This Agreement

TIPS Members stand in the place of TIPS as related to this agreement and have the same access to the proposal information and all related documents. TIPS Members have all the same rights under the awarded Agreement as TIPS.

Vendor's Resellers as Related to This Agreement

Vendor's Named Resellers under this Agreement shall comply with all terms and conditions of this agreement and all addenda or incorporated documents. All actions related to sales by Authorized Vendor's Resellers under this Agreement are the responsibility of the Awarded Vendor.

Support Requirements

If there is a dispute between the awarded vendor and TIPS Member, TIPS or its representatives will assist in conflict resolution or third party if requested by either party. TIPS, or its representatives, reserves the right to inspect any project and audit the awarded Vendor's TIPS project files, documentation and correspondence related to the requesting TIPS Member's order. If there are confidentiality requirements by either party, TIPS shall comply to the extent permitted by law.

Incorporation of Solicitation

The TIPS Solicitation which resulted in this Vendor Agreement, whether a Request for Proposals, the Request for Competitive Sealed Proposals or Request for Qualifications solicitation, or other, the Vendor's response to same and all associated documents and forms made part of the solicitation process, including any addenda, are hereby incorporated by reference into this Agreement as if copied verbatim.

SECTION HEADERS OR TITLES

THE SECTON HEADERS OR TITLES WITHIN THIS DOCUMENT ARE MERELY GUIDES FOR CONVENIENCE AND ARE NOT FOR CLASSIFICATION OR LIMITING OF THE RESPONSIBILITES OF THE PARTIES TO THIS DOCUMENT.

STATUTORY REQUIREMENTS

Texas governmental entities are prohibited from doing business with companies that fail to certify to this condition as required by Texas Government Code Sec. 2270. By executing this agreement, you certify that you are authorized to bind the undersigned Vendor and that your company (1) does not boycott Israel; and (2) will not boycott Israel during the term of the Agreement.
You certify that your company is not listed on and does not and will not do business with companies that are on the Texas Comptroller of Public Accounts list of Designated Foreign Terrorists Organizations per Texas Gov't Code 2270.0153 found at https://comptroller.texas.gov/purchasing/docs/foreign-terrorist.pdf
You certify that if the certified statements above become untrue at any time during the life of this Agreement that the Vendor will notify TIPS within three (3) business day of the change by a letter on Vendor's letterhead from and signed by an authorized representative of the Vendor stating the non-compliance decision and the TIPS Agreement number and description at:

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Attention: General Counsel
ESC Region 8/The Interlocal Purchasing System (TIPS)
4845 Highway 271 North
Pittsburg, TX,75686
And by an email sent to bids@tips-usa.com

Insurance Requirements

The undersigned Vendor agrees to maintain the below minimum insurance requirements for TIPS Contract Holders.

General Liability	$2,000,000 each Occurrence/ Aggregate
Automobile Liability	$300,000 Includes owned, hired & non-owned
Workers' Compensation	Statutory limits for the jurisdiction in which the Vendor performs under this Agreement.

When the contractor or its subcontractors are liable for any damages or claims, the contractors' policy, when the Vendor is responsible for the claim, must be primary over any other valid and collectible insurance carried by the District. Any immunity available to TIPS or TIPS Members shall not be used as a defense by the contractor's insurance policy. The coverages and limits are to be considered minimum requirements and in no way limit the liability of the Contractor(s). Insurance shall be written by a carrier with an A-; VII or better rating in accordance with current A.M. Best Key Rating Guide. Only deductibles applicable to property damage are acceptable, unless proof of retention funds to cover said deductibles is provided. "Claims made" policies will not be accepted. Vendor's required minimum coverage shall not be suspended, voided, cancelled, non-renewed or reduced in coverage or in limits unless replaced by a policy that provides the minimum required coverage except after thirty (30) days prior written notice by certified mail, return receipt requested has been given to TIPS or the TIPS Member if a project or pending delivery of an order is ongoing. Upon request, certified copies of all insurance policies shall be furnished to the TIPS or the TIPS Member.

Special Terms and Conditions

- **Orders:** All vendor orders received from TIPS Members must be emailed to TIPS at tipspo@tips-usa.com. Should a TIPS Member send an order directly to the Vendor, it is the Vendor's responsibility to forward a copy of the order to TIPS at the email above within 3 business days and confirm its receipt with TIPS.
- **Vendor Encouraging Members to bypass TIPS agreement:** Encouraging TIPS Members to purchase directly from the Vendor or through another agreement, when the Member has requested using the TIPS cooperative Agreement or price, and thereby bypassing the TIPS Agreement is a violation of the terms and conditions of this Agreement and will result in removal of the Vendor from the TIPS Program.
- **Order Confirmation**: All TIPS Member Agreement purchase orders are approved daily by TIPS and sent to vendor. The vendor should confirm receipt of orders to the TIPS Member (customer) within 3 business days.
- **Vendor custom website for TIPS**: If Vendor is hosting a custom TIPS website, updated pricing when effective. TIPS shall be notified when prices change in accordance with the award.
- **Back Ordered Products**: If product is not expected to ship within the time provided to the TIPS member by the Vendor, customer is to be notified within 3 business days and appropriate action taken based on customer request.

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TIPS Vendor Agreement Signature Form

TIPS RFP 190702 Temporary Flood Barriers

Company Name AquaDam Inc

Address P.O. Box 144 / 121 Main St. Suite A

City Scotia State CA Zip 95565

Phone 707-234-3506 Fax 707-243-3506

Email of Authorized Representative MATTHEW@AQUADAM.NET

Name of Authorized Representative Matthew Wennerholm

Title Vice President

Signature of Authorized Representative Matth Wen

Date 12/11/19

TIPS Authorized Representative Name Meredith Barton

Title Chief Operating Officer

TIPS Authorized Representative Signature Meredith Barton

Approved by ESC Region 8 David Wayne Fitts

Date 12/11/19

190702
Aqua Dam Inc.
Supplier Response

Event Information

Number: 190702
Title: Temporary Flood Barriers
Type: Request for Proposal
Issue Date: 7/11/2019
Deadline: 8/16/2019 03:00 PM (CT)

Contact Information

Contact: Kristie Collins
Address: Region 8 Education Service Center
4845 US Highway 271 North
Pittsburg, TX 75686
Phone: +1 (866) 839-8477
Fax: +1 (866) 839-8472
Email: bids@tips-usa.com

Aqua Dam Inc. Information

Contact: Matthew Wennerholm
Address: P.O. Box 144
121 Main Street
Scotia
Scotia, CA 95565
Phone: (707) 764-5099
Toll Free: (800) 682-9283
Email: matthew@aquadam.net

By submitting your response, you certify that you are authorized to represent and bind your company.

Matthew Michael Wennerholm
Signature

Matthew@AquaDam.net
Email

Submitted at 8/16/2019 12:40:15 PM

Supplier Note

ADI is pleased to offer the AquaDam Water-Filled Temporary Perimeter Flood Barrier, and attached document s, for consideration by the TIPS community. AquaDams are an effective flood fighting tool, when they are used within published parameters, and alongside other parts of the customers flood control plan. ADI does not guara ntee the outcome of our customers projects, and will assume liability only for the replacement cost of the AquaD am product, if product is found to contain a manufacturers defect.

Requested Attachments

Vendor Agreement

1. Vendor Agreement.PDF

The vendor must download the Vendor Agreement from the attachment tab, fill in the requested information and uploa d the completed agreement.
DO NOT UPLOAD encrypted or password protected files.

Agreement Signature Form

2. Agreement Signature Form (unsigned).PDF

If you have not taken exception or deviation to the agreement language in the solicitation attributes, download the AG REEMENT SIGNATURE FORM from the "ATTACHMENTS" tab. This PDF document is a fillable form. Download the doc ument to your computer, fill in the requested company information, print the file, SIGN the form, SCAN the completed a nd signed AGREEMENT SIGNATURE FORM, and upload here.

If you have taken exception to any of the agreement language and noted the exception in the deviations section of the attributes for the agreement, complete the AGREEMENT SIGNATURE FORM, but DO NOT SIGN until those deviations have been negotiated and resolved with TIPS management. Upload the unsigned form here, because this is a require d document.

Pricing Spreadsheet #1

3. Pricing_form_1.xlsx

The vendor must download the PRICING SPREADSHEET SHEET from the attachment tab, fill in the requested informa tion and upload the completed spreadsheet.
DO NOT UPLOAD encrypted or password protected files.

Pricing Spreadsheet #2

4. Pricing_form_2.xlsx

The vendor must download the PRICING SPREADSHEET SHEET from the attachment tab, fill in the requested informa tion and upload the completed spreadsheet.
DO NOT UPLOAD encrypted or password protected files.

References

5. Reference-Form.xls

The vendor must download the References spreadsheet from the attachment tab, fill in the requested information and upload the completed spreadsheet. DO NOT UPLOAD encrypted or password protected files.

Proposed Goods and Services

6. Proposed Goods and Services.pdf

Please upload one or more documents or sheets describing your offerings, line cards, catalogs, links to offerings OR li st links to your offerings that illustrate the catalog of proposed lines of goods and or services you carry and offer unde r this proposal. I does not have to be exhaustive but should, at a minimum tell us what you are offering. It could be as simple as a sheet with your link to your online catalog of goods and services.

Resellers/Dealers - COMPLETE AND UPLOAD ONLY IF YOU HAVE RESELLER OF YOUR GOODS OR SERVICES PROPOSED

No response

If the PROPOSING vendor has resellers that will be selling for the vendor UNDER this contract, the vendor must downl oad the Resellers/Dealers spreadsheet from the attachment tab, fill in the requested information and upload the compl eted spreadsheet.
DO NOT UPLOAD encrypted or password protected files.

HUB Subcontracting Plan Form OPTIONAL

8. HUB Subcontracting Plan Form.PDF

Completion of the HUB Subcontracting Plan Form is OPTIONAL. THE FORM INFORMATION HAS NO EFFECT ON YO UR EVALUATION SCORE. IT IS INFORMATIONAL ONLY. Some Texas State agencies and Universities require it be a p art of the file when determining if they can use a TIPS contract. If you choose to complete one, it is not project specific but the general plan the vendor would use. Complete it as best you can.
Vendor can download the HUB Subcontracting Plan Form from the "Attachments" tab and upload their HUB Subcontra cting Plan Form.

D/M/WBE Certification OPTIONAL

No response

D/M/WBE Certification documentation may be scanned and uploaded if you desire to claim your status as one of the i dentified enterprises. (Disadvantaged Business Enterprise, Minority Business Enterprise and/or Woman Business Ent erprise) If vendor has more than one certification scan into one document. (PDF Format ONLY)
DO NOT UPLOAD encrypted or password protected files.

HUB Certification OPTIONAL

No response

HUB Certification documentation may be scanned and uploaded if you desire to document you status as a HUB compa ny. (Historically Underutilized Business) (PDF Format ONLY)
DO NOT UPLOAD encrypted or password protected files.

Warranty

11. Warranty.PDF

Warranty information (if applicable) must be scanned and uploaded. (PDF Format ONLY)
DO NOT UPLOAD encrypted or password protected files.

Supplementary

12. Final Supplementary.pdf

Supplementary information may be scanned and uploaded. (Company information, brochures, catalogs, etc.) (PDF Fo rmat ONLY)
DO NOT UPLOAD encrypted or password protected files.

All Other Certificates

13. All Other Certificates.pdf

All Other Certificates (if applicable) must be scanned and uploaded. If vendor has more than one other certification sc an into one document. (PDF Format ONLY)
DO NOT UPLOAD encrypted or password protected files.

Logo and Other Company Marks

14. Logo 300x225.jpg

If you desire, please upload your company logo to be added to your individual profile page on the TIPS website. If any particular specifications are required for use of your company logo, please upload that information under the Supplem entary section or another non-required section under the “Response Attachment” tab. Preferred Logo Format: 300 x 2 25 px - .png, .eps, .jpeg preferred

Conflict of Interest Form CIQ- ONLY REQUIRED IF A CONFLICT EXISTS PER THE INSTRUCTIONS

No response

ONLY REQUIRED IF A CONFLICT EXISTS PER THE INSTRUCTIONS
Conflict of Interest Form for Vendors that are required to submit the form. The Conflict of Interest Form is included in t he Base documents or can be found at https://www.tips-usa.com/assets/documents/docs/CIQ.pdf.

Certificate of Corporate Offerer - COMPLETE ONLY IF OFFERER IS A CORPORATION 16. Certifcation of Corporate Offerer.PDF

COMPLETE AND UPLOAD FORM IN ATTACHMENTS SECTION ONLY IF OFFERER IS A CORPORATION

Disclosure of Lobbying Activities Standard Form LLL *No response*

ONLY IF you answered "I HAVE Lobbied per above" to attribute #66, please download and complete and upload the St andard Form-LLL, “disclosure Form to Report Lobbying,” in the Response attachments section.

Confidentiality Form 18. Confidentiality Form.PDF

REQUIRED CONFIDENTIALITY FORM. Complete the form according to your company requirements, make any desire d attachments and upload to the appropriate section under "Response Attachments" THIS FORM DETERMINES HOW ESC8/TIPS RESPONDS TO LEGAL PUBLIC INFORMATION REQUESTS.

Bid Attributes

1	**Yes - No** Disadvantaged/Minority/Women Business Enterprise - D/M/WBE (Required by some participating governmental enti ties) Vendor certifies that their firm is a D/M/WBE? Vendor must upload proof of certification to the ”Response Attac hments” D/M/WBE CERTIFICATES section. NO
2	**Yes - No** Historically Underutilized Business - HUB (Required by some participating governmental entities) Vendor certifies that their firm is a HUB as defined by the State of Texas at https://comptroller.texas.gov/purchasing/vendor/hub/ or in a HUBZone as defined by the US Small Business Administration at https://www.sba.gov/offices/headquarters/oh p Proof of one or both may be submitted. Vendor must upload proof of certification to the “Response Attachments” HU B CERTIFICATES section. No
3	**Yes - No** The Vendor can provide services and/or products to all 50 US States? Yes
4	**States Served:** If answer is NO to question #3, please list which states can be served. (Example: AR, OK, TX) *No response*
5	**Company and/or Product Description:** This information will appear on the TIPS website in the company profile section, if awarded a TIPS contract. (Limit 7 50 characters.) Company: AquaDam Inc "Water Controlling Water Product: AquaDam - Dual-Chamber, Flexible, Internal Baffle, Temporary Water Filled Perimeter Flood Barrier (com posed of lightweight heavy-duty polyethylene and polypropylene)
6	**Primary Contact Name** Primary Contact Name Matthew Wennerholm

7 **Primary Contact Title**

Primary Contact Title

Vice President

8 **Primary Contact Email**

Primary Contact Email

Matthew@aquadam.net

9 **Primary Contact Phone**

Enter 10 digit phone number. (No dashes or extensions)
Example: 8668398477

7072343506

10 **Primary Contact Fax**

Enter 10 digit phone number. (No dashes or extensions)
Example: 8668398477

7072432541

11 **Primary Contact Mobile**

Enter 10 digit phone number. (No dashes or extensions)
Example: 8668398477

7076016701

12 **Secondary Contact Name**

Secondary Contact Name

David Doolaege

13 **Secondary Contact Title**

Secondary Contact Title

President

14 **Secondary Contact Email**

Secondary Contact Email

David@aquadam.net

15 **Secondary Contact Phone**

Enter 10 digit phone number. (No dashes or extensions)
Example: 8668398477

7072343506

16 **Secondary Contact Fax**

Enter 10 digit phone number. (No dashes or extensions)
Example: 8668398477

7072432541

17 **Secondary Contact Mobile**

Enter 10 digit phone number. (No dashes or extensions)
Example: 8668398477

7074994678

18 **Admin Fee Contact Name**

Admin Fee Contact Name. This person is responsible for paying the admin fee to TIPS.

LeeAnne Miller

19 **Admin Fee Contact Email**

Admin Fee Contact Email

LeeAnne@AquaDam.net

20 **Admin Fee Contact Phone**

Enter 10 digit phone number. (No dashes or extensions)
Example: 8668398477

7072343508

21 **Purchase Order Contact Name**

Purchase Order Contact Name. This person is responsible for receiving Purchase Orders from TIPS.

Matthew Wennerholm

22 **Purchase Order Contact Email**

Purchase Order Contact Email

matthew@aquadam.net

23 **Purchase Order Contact Phone**

Enter 10 digit phone number. (No dashes or extensions)
Example: 8668398477

7072343506

24 **Company Website**

Company Website (Format - www.company.com)

www.AquaDam.net

25 **Federal ID Number:**

Federal ID Number also known as the Employer Identification Number. (Format - 12-3456789)

27-1289321

26 **Primary Address**

Primary Address

121 Main Street, Ste A

27 **Primary Address City**

Primary Address City

Scotia

28 **Primary Address State**

Primary Address State (2 Digit Abbreviation)

CA

29 **Primary Address Zip**

Primary Address Zip

95565

30 **Search Words:**

Please list search words to be posted in the TIPS database about your company that TIPS website users might search. Words may be product names, manufacturers, or other words associated with the category of award. YOU MAY NOT LIST NON-CATEGORY ITEMS. (Limit 500 words) (Format: product, paper, construction, manufacturer name, etc.)

aquadam, water filled, flood, barrier, expedient, temporary, perimeter, flexible, control, bladder, portadam, sandbag, hesco, aquabarrier, bladder dam, inflatable, water, dike, aqua, berm, levee, wetlands, isolation, protection, remediation, plastic, poly, dam

31 **Do you want TIPS Members to be able to spend Federal grant funds with you if awarded? Is it your intent to be able to sell to our members regardless of the fund source, whether it be local, state or federal?**

Most of our members receive Federal Government grants and they make up a significant portion of their budgets. The members need to know if your company is willing to sell to them when they spend federal budget funds on their purchase. There are attributes that follow that are provisions from the federal regulations in 2 CFR part 200. Your answers will determine if your award will be designated as Federal or Education Department General Administrative Regulations (EDGAR)compliant.

Do you want TIPS Members to be able to spend Federal grant funds with you if awarded and is it your intent to be able to sell to our members regardless of the fund source, whether it be local, state or federal?

Yes

32 **Yes - No**

Certification of Residency (Required by the State of Texas) The vendor's ultimate parent company or majority owner:

(A) has its principal place of business in Texas;

OR

(B) employs at least 500 persons in Texas?

No

33 **Company Residence (City)**

Vendor's principal place of business is in the city of?

Scotia, CA

34 **Company Residence (State)**

Vendor's principal place of business is in the state of?

California

35 **Discount Offered - CAUTION READ CAREFULLY BECAUSE VENDORS FREQUENTLY MAKE MISTAKES ON THIS ATTRIBUTE QUESTION**

Remember this is a MINIMUM discount percentage so, be sure the discount percentage inserted here can be applie d to ANY OFFERING OF GOODS OR SERVICES THROUGH OUT THE LIFE OF THE CONTRACT

CAUTION: BE CERTAIN YOU CAN HONOR THIS MINIMUM DISCOUNT PERCENTAGE ON ANY OFFERED SERVICE OR GOOD.
What is the MINIMUM percentage discount off of any item or service you offer to TIPS Members that is in your regul ar catalog (as defined in the RFP document), website, store or shelf pricing? The resulting price of any goods or se rvices Catalog list prices after this discount is applied is a ceiling on your pricing and not a floor because, in order to be more competitive in the individual circumstance, you may offer a larger discount depending on the items or servi ces purchased and the quantity at time of sale. Must answer with a number between 0% and 100%.

3%

36 **TIPS administration fee**

By submitting a proposal, I agree that all pricing submitted to TIPS shall include the participation fee, as designated in the solicitation or as otherwise agreed in writing and shall be remitted to TIPS by the Vendor as agreed in the Ven dor agreement. I agree that the fee shall not and will not be added by the vendor as a separate line item on a TIPS member invoice, quote, proposal or any other written communications with the TIPS member.

37 **Yes - No**

Vendor agrees to remit to TIPS the required administration fee?

TIPS/ESC Region 8 is required by Texas Government Code § 791 to be compensated for its work and thus, failure t o agree shall render your response void and it will not be considered.

Yes

38 **Yes - No**

Do you offer additional discounts to TIPS members for large order quantities or large scope of work?

Yes

39 **Years Experience**

Company years experience in this category? This is an evaluation criterion worth a maximum of 10 points. See RFP for more information.

30

40 **Resellers:**

Does the vendor have resellers that it will name under this contract? Resellers are defined as other companies that sell your products under an agreement with you, the awarded vendor of TIPS.

EXAMPLE: BIGmart is a reseller of ACME brand televisions. If ACME were a TIPS awarded vendor, then ACME woul d list BIGmart as a reseller.

(If applicable, vendor should download the Reseller/Dealers spreadsheet from the Attachments section, fill out the f orm and submit the document in the ”Response Attachments” RESELLERS section.

No

41	**Pricing discount percentage are guaranteed for?** Does the vendor agrees to honor the proposed pricing discount percentage off regular catalog (as defined in the R FP document), website, store or shelf pricing for the term of the award? YES
42	**Right of Refusal** Does the proposing vendor wish to reserve the right not to perform under the awarded agreement with a TIPS mem ber at vendor's discretion? No
43	**NON-COLLUSIVE BIDDING CERTIFICATE** By submission of this bid or proposal, the Bidder certifies that: 1) This bid or proposal has been independently arrived at without collusion with any other Bidder or with any Compe titor; 2) This bid or proposal has not been knowingly disclosed and will not be knowingly disclosed, prior to the opening of bids, or proposals for this project, to any other Bidder, Competitor or potential competitor: 3) No attempt has been or will be made to induce any other person, partnership or corporation to submit or not to s ubmit a bid or proposal; 4) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties being applicable to the Bidder as well as to the pe rson signing in its behalf. Not a negotiable term. Failure to agree will render your proposal non-responsive and it will not be considered.
44	**CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ - Do you have any CONFLICT OF INTEREST TO REPORT OR DISCLOSE under this statutory requirement?** Do you have any CONFLICT OF INTEREST TO REPORT OR DISCLOSE under this statutory requirement? YES or NO If you have a conflict of interest as described in this form or the Local Government Code Chapter 176, cited therein- you are required to complete and file with TIPS. You may find the Blank CIQ form on our website at: Copy and Paste the following link into a new browser or tab: https://www.tips-usa.com/assets/documents/docs/CIQ.pdf There is an optional upload for this form provided if you have a conflict and must file the form. No
45	**Filing of Form CIQ** If yes (above), have you filed a form CIQ by uploading the form to this RFP as directed above? *No response*

46	**Regulatory Standing** I certify to TIPS for the proposal attached that my company is in good standing with all governmental agencies Federal or state that regulate any part of our business operations. If not, please explain in the next attribute question. Yes

47	**Regulatory Standing** Regulatory Standing explanation of no answer on previous question. *No response*

48	**Antitrust Certification Statements (Tex. Government Code § 2155.005)** By submission of this bid or proposal, the Bidder certifies that: I affirm under penalty of perjury of the laws of the State of Texas that: (1) I am duly authorized to execute this contract on my own behalf or on behalf of the company, corporation, firm, partnership or individual (Company) listed below; (2) In connection with this bid, neither I nor any representative of the Company has violated any provision of the Texas Free Enterprise and Antitrust Act, Tex. Bus. & Comm. Code Chapter 15; (3) In connection with this bid, neither I nor any representative of the Company has violated any federal antitrust law; (4) Neither I nor any representative of the Company has directly or indirectly communicated any of the contents of this bid to a competitor of the Company or any other company, corporation, firm, partnership or individual engaged in the same line of business as the Company.

49	**Suspension or Debarment Instructions** Instructions for Certification: 1. By answering yes to the next Attribute question below, the vendor and prospective lower tier participant is providi ng the certification set out herein in accordance with these instructions. 2. The certification in this clause is a material representation of fact upon which reliance was placed when this trans action was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an err oneous certification in addition to other remedies available to the federal government, the department or agency wit h which this transaction originated may pursue available remedies, including suspension and / or debarment. 3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal i s submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submi tted or has become erroneous by reason of changed circumstances. 4. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participa nts,” “person,” “primary covered transaction,” “principal,” “proposal” and “voluntarily excluded,” as used in this claus e, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 1254 9. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regula tions. 5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transacti on be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred , suspended, declared ineligible or voluntarily excluded from participation in this covered transaction, unless authori zed by the department or agency with which this transaction originated. 6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled “C ertification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction ” without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions. 7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier cove red transaction that it is not debarred, suspended, ineligible or voluntarily excluded from the covered transaction, u nless it knows that the certification is erroneous. A participant may decide the method and frequency by which it det ermines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List. 8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not r equired to exceed that which is normally possessed by a prudent person in the ordinary course of business dealing s. 9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transacti on knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible or vol untarily excluded from participation in this transaction, in addition to other remedies available to the federal govern ment, the department or agency with which this transaction originated may pursue available remedies, including sus pension and / or debarment.

50

Suspension or Debarment Certification

By answering yes, you certify that no federal suspension or debarment is in place, which would preclude receiving a federally funded contract as described above.

Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must no t be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accor dance with the OMB guidelines at 2 CFR 180 that implement Executive
Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), “Debarment and Sus pension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

By answering yes, you certify that no federal suspension or debarment is in place, which would preclude receiving a federally funded contract as described above.

Yes

51

Non-Discrimination Statement and Certification

In accordance with Federal civil rights law, all U.S. Departments, including the U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating i n or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil right s activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies a nd complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, larg e print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Cent er at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additi onally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, fo und online at How to File a Program Discrimination Complaint and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Offic e of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fa x: (202) 690-7442; or (3)
email: program.intake@usda.gov.

(Title VI of the Education Amendments of 1972; Section 504 of the Rehabilitation Act of 1973; the Age Discriminatio n Act of 1975; Title 7 CFR Parts 15, 15a, and 15b; the Americans with Disabilities Act; and FNS Instruction 113-1, Ci vil Rights Compliance and Enforcement – Nutrition Programs and Activities)

All U.S. Departments, including the USDA are equal opportunity provider, employer, and lender.

Not a negotiable term. Failure to agree by answering YES will render your proposal non-responsive and it will not be considered. I certify that in the performance of a contract with TIPS or its members, that our company will conform to the foregoing anti-discrimination statement and comply with the cited and all other applicable laws and regulations.

Yes

52

2 CFR PART 200 Contract Provisions Explanation

Required Federal contract provisions of Federal Regulations for Contracts for contracts with ESC Region 8 and TIP S Members:

The following provisions are required to be in place and agreed if the procurement is funded in any part with federal funds.

The ESC Region 8 and TIPS Members are the subgrantee or Subrecipient by definition. Most of the provisions are l ocated in 2 CFR PART 200 - Appendix II to Part 200—Contract Provisions for Non-Federal Entity Contracts Under F ederal Awards at 2 CFR PART 200. Others are included within 2 CFR part 200 et al.

In addition to other provisions required by the Federal agency or non-Federal entity, all contracts made by the non-Federal entity under the Federal award must contain provisions covering the following, as applicable.

53

2 CFR PART 200 Contracts

Contracts for more than the simplified acquisition threshold currently set at $150,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Co uncils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances wh ere contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

Notice: Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members reserves all rights and privileges under the applicable laws and regulations with respect to this procurement in the event of breach of contract by either party.

Does vendor agree?

Yes

54

2 CFR PART 200 Termination

Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be eff ected and the basis for settlement. (All contracts in excess of $10,000)

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members reserves the right to terminate any agreement in excess
of $10,000 resulting from this procurement process for cause after giving the vendor an appropriate opportunity an d up to 30 days, to cure the causal breach of terms and conditions. ESC Region 8 and
TIPS Members reserves the right to terminate any agreement in excess of $10,000 resulting from this procurement process for convenience with 30 days notice in writing to the awarded vendor. The vendor
would be compensated for work performed and goods procured as of the termination date if for convenience of the ESC Region 8 and TIPS Members. Any award under this procurement process is not exclusive and the ESC Region 8 and TIPS reserves the right to purchase goods and services from other vendors when it is in the best interest of t he ESC Region 8 and TIPS.

Does vendor agree?

Yes

55

2 CFR PART 200 Clean Air Act

Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—Contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

Pursuant to the Clean Air Act, et al above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members requires that the proposer certify that during the term of an award by the ESC Region 8 and TIPS Members resulting from this procurement process the vendor agrees to comply with all of the above regulations, including all of the terms listed and referenced therein.

Does vendor agree?

Yes

56

2 CFR PART 200 Byrd Anti-Lobbying Amendment

Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members requires the proposer certify that during the term and during the life of any contract with ESC Region 8 and TIPS Members resulting from this procurement process the vendor certifies to the terms included or referenced herein.

Does vendor agree?

Yes

57

2 CFR PART 200 Federal Rule

Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15). (Contracts, subcontracts, and subgrants of amounts in excess of $100,000)

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members requires the proposer certify that in performance of the contracts, subcontracts, and subgrants of amounts in excess of $100,000, the vendor will be in compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15).

Does vendor certify that it is in compliance with the Clean Air Act?

Yes

58

2 CFR PART 200 Procurement of Recovered Materials

A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must co mply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental P rotection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with
maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value o f the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management servi ces in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement progra m for procurement of recovered materials identified in the EPA guidelines.

Does vendor certify that it is in compliance with the Solid Waste Disposal Act as described above?

Yes

59

Certification Regarding Lobbying

Applicable to Grants, Subgrants, Cooperative Agreements, and Contracts Exceeding $100,000 in Federal Funds

Submission of this certification is a prerequisite for making or entering into this transaction and is imposed by sectio n 1352, Title 31, U.S. Code. This certification is a material representation of fact upon which reliance was placed wh en this transaction was made or entered into. Any person who fails to file the required certification shall be subject t o a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with the awarding of a Federal contr act, the making of a Federal grant, the making of a Federal loan, the entering into a cooperative agreement, and th e extension, continuation, renewal, amendment, or modification of a Federal contract, grant, loan, or cooperative ag reement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of c ongress, or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “disclosure Form to Report Lobbying,” in accordan ce with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all c overed subawards exceeding $100,000 in Federal funds at all appropriate tiers and that all subrecipients shall certif y and disclose accordingly.

I HAVE NOT Lobbied per above

60

If you answered "I HAVE lobbied per above to the previous question.

IF you answered "I HAVE lobbied" per above Attribute question, you must download the Lobbying Report "Standard From LLL, disclosure Form to Report Lobbying" which includes instruction on completing the form, complete and su bmit it in the Response Attachments section as a report of the lobbying activities you performed or paid others to pe rform.

61	**Subcontracting with small and minority businesses, women's business enterprises, and labor surplus area firms.** Do you ever anticipate the possibility of subcontracting any of your work under this award if you are successful? IF NO, DO NOT ANSWER THE NEXT ATTRIBUTE QUESTION. . IF YES, and ONLY IF YES, you must answer the nex t question YES if you want a TIPS Member to be authorized to spend Federal Grant Funds for Procurement. NO
62	**ONLY IF YES TO THE PREVIOUS QUESTION OR if you ever do subcontract any part of your performance under the TIPS Agreement, do you agree to comply with the following federal requirements?** ONLY IF YES TO THE PREVIOUS QUESTION OR if you ever do subcontract any part of your performance under th e TIPS Agreement, do you agree to comply with the following federal requirements? Federal Regulation 2 CFR §200.321 Contracting with small and minority businesses, women's business enterprises, and labor surplus area firms. (a)The non-Federal entity must take all necessary affirmative steps to assure that min ority businesses, women's business enterprises, and labor surplus area firms are used when possible. (b) Affirmative steps must include:(1) Placing qualified small and minority businesses and women's business enterpr ises on solicitation lists; (2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources; (3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum partic ipation by small and minority businesses, and women's business enterprises; (4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and min ority businesses, and women's business enterprises; (5) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration a nd the Minority Business Development Agency of the Department of Commerce ; and (6) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs(1) through (5) of this section. *No response*

63 **Indemnification**

The ESC Region 8 and TIPS is a Texas Political Subdivision and a local governmental entity; therefore, is prohibited from indemnifying third parties pursuant to the Texas Constitution (Article 3, Section 52) except as specifically provided by law or as ordered by a court of competent jurisdiction. A provision in a contract to indemnify or hold a party harmless is a promise to pay for any expenses the indemnified party incurs, if a specified event occurs, such as breaching the terms of the contract or negligently performing duties under the contract. Article III, Section 49 of the Texas Constitution states that "no debt shall be created by or on behalf of the State ... " The Attorney General has counseled that a contractually imposed obligation of indemnity creates a "debt" in the constitutional sense. Tex. Att'y Gen. Op. No. MW-475 (1982). Contract clauses which require the System or institutions to indemnify must be deleted or qualified with "to the extent permitted by the Constitution and Laws of the State of Texas." Liquidated damages, attorney's fees, waiver of vendor's liability, and waiver of statutes of limitations clauses should also be deleted or qualified with "to the extent permitted by the Constitution and laws of State of Texas."

Not a negotiable term. Failure to agree will render your proposal non-responsive and it will not be considered. Do you agree to these terms?

Yes

64 **Remedies**

The parties shall be entitled to exercise any right or remedy available to it either at law or in equity, subject to the choice of law, venue and service of process clauses limitations agreed herein. Nothing in this agreement shall commit the TIPS to an arbitration resolution of any disagreement under any circumstances. Any Claim arising out of or related to the Contract, except for those specifically waived under the terms of the Contract, may, after denial of the Board of Directors, be subject to mediation at the request of either party. Any issues not resolved hereunder MAY be referred to non-binding mediation to be conducted by a mutually agreed upon mediator as a prerequisite to the filing of any lawsuit over such issue(s). The parties shall share the mediator’s fee and any associated filing fee equally. Mediation shall be held in Camp or Titus County, Texas. Agreements reached in mediation shall be reduced to writing, and will be subject to the approval by the District's Board of Directors, signed by the Parties if approved by the Board of Directors, and, if signed, shall thereafter be enforceable as provided by the laws of the State of Texas.

Do you agree to these terms?

Yes, I Agree

65 **Remedies Explanation of No Answer**

No response

66 **Choice of Law**

The agreement between the Vendor and TIPS/ESC Region 8 and any addenda or other additions resulting from this procurement process, however described, shall be governed by, construed and enforced in accordance with the law s of the State of Texas, regardless of any conflict of laws principles.
THIS DOES NOT APPLY to a vendor's agreement entered into with a TIPS Member, as the Member may be located outside Texas.

Not a negotiable term. Failure to agree will render your proposal non-responsive and it will not be considered. Do y ou agree to these terms?

Yes

67 **Jurisdiction and Service of Process**

Any Proceeding arising out of or relating to this procurement process or any contract issued by TIPS resulting from or any
contemplated transaction shall be brought in a court of competent jurisdiction in Camp County, Texas and each of th e parties
irrevocably submits to the exclusive jurisdiction of said court in any such proceeding, waives any objection it may no w or hereafter
have to venue or to convenience of forum, agrees that all claims in respect of the Proceeding shall be heard and de termined only in
any such court, and agrees not to bring any proceeding arising out of or relating to this procurement process or an y contract resulting
from or any contemplated transaction in any other court. The parties agree that either or both of them may file a co py of this paragraph
with any court as written evidence of the knowing, voluntary and freely bargained for agreement between the partie s irrevocably to
waive any objections to venue or to convenience of forum. Process in any Proceeding referred to in the first senten ce of this Section
may be served on any party anywhere in the world. Venue clauses in contracts with TIPS members may be determin ed by the parties.

Not a negotiable term. Failure to agree will render your proposal non-responsive and it will not be considered. Do y ou agree to these terms?

Yes

68 **Infringement(s)**

The successful vendor will be expected to indemnify and hold harmless the TIPS and its employees, officers, agents , representatives, contractors, assignees and designees from any and all third party claims and judgments involving infringement of patent, copyright, trade secrets, trade or service marks, and any other intellectual or intangible prop erty rights attributed to or claims based on the Vendor's proposal or Vendor’s performance of contracts awarded an d approved.

Do you agree to these terms?

No

69 **Infringement(s) Explanation of No Answer**

ADI will indemnify TIPS against any IP claims, but will not indemnify against any claims based on use or supply of A DI products. Floods are unpredictable, and flood damage costs are astronomical, so ADI will not indemnify anyone against third party claims, nor will ADI accept any liability associated with the supply, installation, use, misuse, abus e, removal or storage of the AquaDam.

70	**Contract Governance** Any contract made or entered into by the TIPS is subject to and is to be governed by Section 271.151 et seq, Tex Loc Gov't Code. Otherwise, TIPS does not waive its governmental immunities from suit or liability except to the extent expressly waived by other applicable laws in clear and unambiguous language. Yes
71	**Payment Terms and Funding Out Clause** Payment Terms: TIPS or TIPS members shall not be liable for interest or late payment fees on past due balances at a rate higher than permitted by the laws or regulations of the jurisdiction of the TIPS Member. Funding Out Clause: Vendor agrees to abide by the laws and regulations, including Texas Local Government Code § 271.903, or any statutory or regulatory limitations of the jurisdiction of any TIPS Member which governs contracts entered into by the Vendor and TIPS or a TIPS Member that requires all contracts approved by TIPS or a TIPS Member are subject to the budgeting and appropriation of currently available funds by the entity or its governing body. See statute(s) for specifics or consult your legal counsel. Not a negotiable term. Failure to agree will render your proposal non-responsive and it will not be considered. Do you agree to these terms? Yes

72	**Insurance and Fingerprint Requirements Information** Insurance If applicable and your staff will be on TIPS member premises for delivery, training or installation etc. and/or with an automobile, you must carry automobile insurance as required by law. You may be asked to provide proof of insurance. Fingerprint It is possible that a vendor may be subject to Chapter 22 of the Texas Education Code. The Texas Education Code, Chapter 22, Section 22.0834. Statutory language may be found at: http://www.statutes.legis.state.tx.us/ If the vendor has staff that meet both of these criterion: (1) will have continuing duties related to the contracted services; and (2) has or will have direct contact with students Then you have ”covered” employees for purposes of completing the attached form. TIPS recommends all vendors consult their legal counsel for guidance in compliance with this law. If you have questions on how to comply, see below. If you have questions on compliance with this code section, contact the Texas Department of Public Safety Non-Criminal Justice Unit, Access and Dissemination Bureau, FAST-FACT at NCJU@txdps.state.tx.us and you should send an email identifying you as a contractor to a Texas Independent School District or ESC Region 8 and TIPS. Texas DPS phone number is (512) 424-2474. See form in the next attribute to complete entitled: Texas Education Code Chapter 22 Contractor Certification for Contractor Employees

73	**Texas Education Code Chapter 22 Contractor Certification for Contractor Employees** Introduction: Texas Education Code Chapter 22 requires entities that contract with school districts to provide service s to obtain criminal history record information regarding covered employees. Contractors must certify to the district t hat they have complied. Covered employees with disqualifying criminal histories are prohibited from serving at a sch ool district. Definitions: Covered employees: Employees of a contractor or subcontractor who have or will have continuing dutie s related to the service to be performed at the District and have or will have direct contact with students. The District will be the final arbiter of what constitutes direct contact with students. Disqualifying criminal history: Any conviction or other criminal history information designated by the District, or one of the following offenses, if at the time of the o ffense, the victim was under 18 or enrolled in a public school: (a) a felony offense under Title 5, Texas Penal Code; (b) an offense for which a defendant is required to register as a sex offender under Chapter 62, Texas Code of Criminal Procedure; or (c) an equivalent offense under federal law or the laws of another state. I certify that: **NONE (Section A)** of the employees of Contractor and any subcontractors are covered employees, as defined abo ve. If this box is checked, I further certify that Contractor has taken precautions or imposed conditions to ensure tha t the employees of Contractor and any subcontractor will not become covered employees. Contractor will maintain t hese precautions or conditions throughout the time the contracted services are provided. **OR** **SOME (Section B)** or all of the employees of Contractor and any subcontractor are covered employees. If this box is checked, I further certify that: (1) Contractor has obtained all required criminal history record information regarding its covered employees. None of the covered employees has a disqualifying criminal history. (2) If Contractor receives information that a covered employee subsequently has a reported criminal history, Contra ctor will immediately remove the covered employee from contract duties and notify the District in writing within 3 busi ness days. (3) Upon request, Contractor will provide the District with the name and any other requested information of covered employees so that the District may obtain criminal history record information on the covered employees. (4) If the District objects to the assignment of a covered employee on the basis of the covered employee's criminal h istory record information, Contractor agrees to discontinue using that covered employee to provide services at the District. Noncompliance or misrepresentation regarding this certification may be grounds for contract termination. None

74	**Texas Business and Commerce Code § 272 Requirements as of 9-1-2017** SB 807 prohibits construction contracts to have provisions requiring the contract to be subject to the laws of another state, to be required to litigate the contract in another state, or to require arbitration in another state. A contract with such provisions is voidable. Under this new statute, a “construction contract” includes contracts, subcontracts, or agreements with (among others) architects, engineers, contractors, construction managers, equipment lessors, or materials suppliers. “Construction contracts” are for the design, construction, alteration, renovation, remodeling, or repair of any building or improvement to real property, or for furnishing materials or equipment for the project. The term also includes moving, demolition, or excavation. BY RESPONDING TO THIS SOLICITATION, AND WHEN APPLICABLE, THE PROPOSER AGREES TO COMPLY WITH THE TEXAS BUSINESS AND COMMERCE CODE § 272 WHEN EXECUTING CONTRACTS WITH TIPS MEMBERS THAT ARE TEXAS GOVERNMENT ENTITIES.

75	**Texas Government Code 2270 Verification Form** Texas Government Code 2270 Verification Form Texas 2017 House Bill 89 has been signed into law by the governor and as of September 1, 2017 will be codified as Texas Government Code § 2270 and 808 et seq. The relevant section addressed by this form reads as follows: Texas Government Code Sec. 2270.002. PROVISION REQUIRED IN CONTRACT. A governmental entity may not enter into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract.engaged by ESC Region 8/The Interlocal Purchasing System (TIPS) 4845 Highway 271 North Pittsburg,TX,75686 verify by this writing that the above-named company affirms that it (1) does not boycott Israel; and (2) will not boycott Israel during the term of this contract, or any contract with the above-named Texas governmental entity in the future. I further affirm that if our company’s position on this issue is reversed and this affirmation is no longer valid, that the above-named Texas governmental entity will be notified in writing within one (1) business day and we understand that our company’s failure to affirm and comply with the requirements of Texas Government Code 2270 et seq. shall be grounds for immediate contract termination without penalty to the above-named Texas governmental entity. AND our company is not listed on and we do not do business with companies that are on the the Texas Comptroller of Public Accounts list of Designated Foreign Terrorists Organizations per Texas Gov't Code 2270.0153 found at https://comptroller.texas.gov/purchasing/docs/foreign-terrorist.pdf I swear and affirm that the above is true and correct. YES

76 Logos and other company marks

Please upload your company logo to be added to your individual profile page on the TIPS website. If any particular specifications are required for use of your company logo, please upload that information under the "Logo and Other Company Marks" section under the “Response Attachment” tab. Preferred Logo Format: 300 x 225 px - .png, .eps, . jpeg preferred

Potential uses of company logo:

* Your Vendor Profile Page of TIPS website

* Potentially on TIPS website scroll bar for Top Performing Vendors

* TIPS Quarterly eNewsletter sent to TIPS Members

* Co-branding Flyers and or email blasts to our TIPS Members (Permission and approval will be obtained before pu blishing)

77 Solicitation Deviation/Compliance

Does the vendor agree with the General Conditions Standard Terms and Conditions or Item Specifications listed in this proposal invitation?

No

78 Solicitation Exceptions/Deviations Explanation

If the bidder intends to deviate from the General Conditions Standard Terms and Conditions or Item Specifications li sted in this proposal invitation, all such deviations must be listed on this attribute, with complete and detailed conditi ons and information included or attached.
TIPS will consider any deviations in its proposal award decisions, and TIPS reserves the right to accept or reject any bid based upon any deviations indicated below or in any attachments or inclusions.
In the absence of any deviation entry on this attribute, the proposer assures TIPS of their full compliance with the St andard Terms and Conditions, Item Specifications, and all other information contained in this Solicitation.

ADI will not indemnify anyone of liability associated with the use of the AquaDam. Floods are unpredictable events, and flood damage costs can be astronomical, far more than any profit margin on an AquaDam could cover. ADI do es not have $1,000,000 Umbrella insurance policy, but does comply with other insurance requirements. Additionall y, ADI is not a contractor, holds no contractor license or bond, and cannot act as a contractor. Any reference to co ntractor should be struck and replaced with "Vendor" or "Supplier". ADI cannot provide installation services, as suc h, but can provide training in California or Louisiana for $10 per person, per day. ADI can also suggest local contr actors for TIPS members to contract with, to accomplish installation of AquaDams.

79 Agreement Deviation/Compliance

Does the vendor agree with the language in the Vendor Agreement?

No

80 **Agreement Exceptions/Deviations Explanation**

If the proposing Vendor desires to deviate form the Vendor Agreement language, all such deviations must be listed on this attribute, with complete and detailed conditions and information included. TIPS will consider any deviations in its proposal award decisions, and TIPS reserves the right to accept or reject any proposal based upon any deviatio ns indicated below. In the absence of any deviation entry on this attribute, the proposer assures TIPS of their full co mpliance with the Vendor Agreement.

ADI will not indemnify anyone of liability associated with the use of the AquaDam. Floods are unpredictable events, and flood damage costs can be astronomical, far more than any profit margin on an AquaDam could cover. ADI do es not have $1,000,000 Umbrella insurance policy, but does comply with other insurance requirements. Additionall y, ADI is not a contractor, holds no contractor license or bond, and cannot act as a contractor. Any reference to co ntractor should be struck and replaced with "Vendor" or "Supplier". ADI cannot provide installation services, as suc h, but can provide training in California or Louisiana for $10 per person, per day. ADI can also suggest local contr actors for TIPS members to contract with, to accomplish installation of AquaDams.

81 **Felony Conviction Notice**

Texas Education Code, Section 44.034, Notification of Criminal History, Subsection (a), states “a person or business entity that enters into a contract with a school district must give advance notice to the district if the person or an own er or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony.” Subsection (b) states “a school district may terminate a contra ct with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract.” (c) This section does n ot apply to a publicly held corporation. The person completing this proposal certifies that they are authorized to pro vide the answer to this question.

Select A., B. or C.

A. My firm is a publicly held corporation; therefore, this reporting requirement is not applicable.

OR B.My firm is not owned nor operated by anyone who has been convicted of a felony, OR

C. My firm is owned or operated by the following individual(s) who has/have been convicted of a felony. (if you answ er C below, you are required to provide information in the next attribute.

B. Firm not owned nor operated by felon; per above

82 **If you answered C. My Firm is owned or operated by a felon to the previous question, you are REQUIRED TO ANSWER THE FOLLOWING QUESTIONS.**

If you answered C. My Firm is owned or operated by a felon to the previous question, you must provide the following information.

1. Name of Felon(s)

2. The named person's role in the firm, and

3. Details of Conviction(s).

No response

83	**Long Term Cost Evaluation Criterion # 4.** READ CAREFULLY and see in the RFP document under "Proposal Scoring and Evaluation". Points will be assigned to this criterion based on your answer to this Attribute. Points are awarded if you agree not increase your catalog prices (as defined herein) more than X% annually over the previous year for years two and three and potentially year four, unless an exigent circumstance exists in the marketplace and the excess price increase which exceeds X% annually is supported by documentation provided by you and your suppliers and shared with TIPS, if requested. If you agree NOT to increase prices more than 5%, except when justified by supporting documentation, you are awarded 10 points; if 6% to 14%, except when justified by supporting documentation, you receive 1 to 9 points incrementally. Price increases 14% or greater, except when justified by supporting documentation, receive 0 points. increases will be 5% or less annually per question
84	**Required Confidentiality Claim Form** Required Confidentiality Claim Form This completed form is required by TIPS. By submitting a response to this solicitation you agree to download from the "Attachments" section, complete according to the instructions on the form, then uploading the completed form, with any confidential attachments, if applicable, to the "Response Attachments" section titled "Confidentiality Form" in order to provide to TIPS the completed form titled, "CONFIDENTIALITY CLAIM FORM". By completing this process, you provide us with the information we require to comply with the open record laws of the State of Texas as they may apply to your proposal submission. If you do not provide the form with your proposal, an award will not be made if your proposal is qualified for an award, until TIPS has an accurate, completed form from you. Read the form carefully before completing and if you have any questions, email Rick Powell at TIPS at rick.powell@tips-usa.com
85	**Choice of Law clauses** If the vendor is awarded a contract with TIPS under this solicitation, the vendor agrees to make any Choice of Law clauses in any contract or agreement entered into between the awarded vendor and with TIPS or a TIPS member entity to read as follows: "Choice of law shall be the laws of the state where the customer resides" or words to that effect. Disagree
86	**Venue of dispute resolution** In the event of a litigation or use of any dispute resolution model when resolving disputes with TIPS or a TIPS member entity as a result of a transaction between the vendor and TIPS or the TIPS member entity, the Venue for any litigation or other agreed upon model shall be in the state and county where the customer resides unless otherwise agreed by the parties at the time the dispute resolution model is decided by the parties. Disagree
87	**Automatic renewal of contracts or agreements with TIPS or a TIPS member entity** This clause **DOES NOT** prohibit multiyear contracts or agreements with TIPS member entities. Because TIPS and TIPS members are governmental entities subject to laws that control appropriations of funds during their fiscal years for contracts and agreements to provide goods and services, does the Vendor agree to limit any automatic renewal clauses of a contract or agreement executed as a result of this TIPS solicitation award to not longer than "month to month" and at the TIPS contracted rate. Agreed

88	**Indemnity Limitation** Texas and other states restrict by law or state Constitution the ability of a governmental entity to indemnify others. TIPS requires that any contract entered into between a vendor and TIPS or a TIPS Member as a result of an award under this Solicitation limit the requirement that the Customer indemnify the Vendor by either eliminating any such indemnity requirement clauses in any agreements, contracts or other binding documents **OR** by prefacing all indemnity clauses required of TIPS or the TIPS Member entity with the following: "To the extent permitted by the laws or the Constitution of the state where the customer resides, ". **Agreement is a required condition to award of a contract resulting from this Solicitation.** Agreed
89	**Arbitration Clauses** Except for certain circumstances, TIPS forbids a mandatory arbitration clause in any contract or agreement entered into between the awarded vendor with TIPS or a TIPS member entity. Does the vendor agrees to exclude any arbitration requirement in any contracts or agreement entered into between TIPS or a TIPS member entity through an awarded contract with TIPS? Agreed

REFERENCES

Please provide three (3) references, preferably from school districts or other governmental entities who have used your services within the last three years. Additional references may be required. DO NOT INCLUDE TIPS EMPLOYEES AS A REFERENCE.

You may provide more than three (3) references.

Entity Name	Contact Person	VALID EMAIL IS REQUIRED	Phone
New York State Fire Dept	**Bryan Monacelli**	**bryan.monacelli@dhses.ny.gov**	**518.703.5339**
South Carolina Dept of Transportation	**David B. Cook, P.E.**	**cookdb@scdot.org**	**803.737.1290**
Iberville Parish (Louisiana)	**Mitch Ourso**	**parishcouncil@eatel.net**	**803.737.1290**

CERTIFICATION BY CORPORATE OFFERER

COMPLETE ONLY IF OFFERER IS A CORPORATION,
THE FOLLOWING CERTIFICATE SHOULD BE EXECUTED AND INCLUDED AS PART OF PROPOSAL FORM/PROPOSAL FORM.

OFFERER: Aqua Dam Inc
(Name of Corporation)

I, Matthew Wennerholm (Name of Corporate Secretary) **certify that I am the Secretary of the Corporation named as OFFERER herein above; that**

Matthew Wennerholm
(Name of person who completed proposal document)

who signed the foregoing proposal on behalf of the corporation offerer is the authorized person that is acting as

Vice President
(Title/Position of person signing proposal/offer document within the corporation)

of the said Corporation; that said proposal/offer was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

AQUA DAM, INC. INCORPORATED OCT. 28. 2009 CALIFORNIA

CORPORATE SEAL if available

SIGNATURE

8/7/19
DATE

TIPS RFP # 190702

Required Confidential Information Status Form

CONFIDENTIAL INFORMATION SUBMITTED IN RESPONSE TO COMPETITIVE PROCUREMENT REQUESTS OF EDUCATION SERVICE CENTER REGION 8 AND TIPS (ESC8) IS GOVERNED BY TEXAS GOVERNMENT CODE, CHAPTER 552

If you consider any portion of your proposal to be confidential information and not subject to public disclosure pursuant to Chapter 552 Texas Gov't Code or other law(s), **you must attach a copy of all claimed confidential materials within your proposal and put this COMPLETED form as a cover sheet to said materials then scan, name "CONFIDENTIAL" and upload with your proposal submission**. (You must include all the confidential information in the submitted proposal. The copy uploaded is to indicate which material in your proposal, if any, you deem confidential in the event the receives a Public Information Request.) ESC8 and TIPS will follow procedures of controlling statute(s) regarding any claim of confidentiality and shall not be liable for any release of information required by law. Upon your claim and your defense to the Office of Texas Attorney General is required to make the final determination whether the information submitted by you and held by ESC8 and TIPS is confidential and exempt from public disclosure.

AquaDam Inc

Name of company

Matthew Wennerholm - Vice President

Printed Name and Title of authorized company officer declaring below the confidential status of material

121 Main St. Ste A	Scotia	CA	95565	7072343506
Address	**City**	**State**	**ZIP**	**Phone**

ALL VENDORS MUST COMPLETE THE ABOVE SECTION.

I DO CLAIM parts of my proposal to be confidential and *DO NOT* desire to expressly waive a claim of confidentiality of all information contained within our response to the solicitation. The attached contains material from our proposal that I classify and deem confidential under Texas Gov't Code Sec. 552 or other law(s) and I invoke my statutory rights to confidential treatment of the enclosed materials.

ATTACHED ARE COPIES OF_____PAGES OF CLAIMED CONFIDENTIAL MATERIAL FROM OUR PROPOSAL THAT WE DEEM TO BE NOT PUBLIC INFORMATION AND WILL DEFEND THAT CLAIM TO THE TEXAS ATTORNEY GENERAL IF REQUESTED WHEN A PUBLIC INFORMAITON REQUEST IS MADE FOR OUR PROPOSAL.

Signature_____ Date _____

OR ----------

I DO NOT CLAIM any of my proposal to be confidential, complete the section below.

Express Waiver: I desire to expressly waive any claim of confidentiality as to any and all information contained within our response to the competitive procurement process (e.g. RFP, CSP, Bid, RFQ, etc.) by completing the following and submitting this sheet with our response to Education Service Center Region 8 and TIPS.

Signature Matt Wennerholm Date 8/7/19

Business License
County of Humboldt
Eureka, California

LICENSE NUMBER
7801

AQUA DAM, INC.
PO BOX 144
SCOTIA CA 95565-0144

This License is issued to:

Business Name: **AQUA DAM, INC.**

Owner Name(s): Corporation - Aqua Dam, Inc.
President - Craig Doolaege, President
Vice President - Matthew Wennerholm, Vice President

This License Valid Only at the Following Locations(s)

121 MAIN ST
SCOTIA, CA 95565-9901

Type of business activity to be transacted:

Water Filled Cofferdam Manufacture

TYPE	ISSUED	EXPIRES
Storefront	**01/15/2019**	**01/01/2020**

John Bartholomew
JOHN BARTHOLOMEW, License Collector

Cheryl Dillingham
CHERYL DILLINGHAM, Interim Auditor - Controller

This License Must Be Displayed in Public View

CALIFORNIA DEPARTMENT OF TAX AND FEE ADMINISTRATION

SELLER'S PERMIT

January 1, 2010

ACCOUNT NUMBER

101691663 - 10000

AQUA DAM, INC.
121 MAIN ST STE A
SCOTIA CA 95565-9901
USA

Office of Control:
Santa Rosa Office

NOTICE TO PERMITTEE: You are required to obey all Federal and State laws that regulate or control your business. This permit does not allow you to do otherwise.

IS HEREBY AUTHORIZED PURSUANT TO SALES AND USE TAX LAW TO ENGAGE IN THE BUSINESS OF SELLING TANGIBLE PERSONAL PROPERTY AT THE ABOVE LOCATION. THIS PERMIT IS VALID ONLY AT THE ABOVE ADDRESS.

THIS PERMIT IS VALID UNTIL REVOKED OR CANCELED AND IS NOT TRANSFERABLE. IF YOU SELL YOUR BUSINESS OR DROP OUT OF A PARTNERSHIP, NOTIFY US OR YOU COULD BE RESPONSIBLE FOR SALES AND USE TAXES OWED BY THE NEW OPERATOR OF THE BUSINESS.

Not valid at any other address

For general tax questions, please call our Customer Service Center at 1-800-400-7115 (TTY:711).
For information on your rights, contact the Taxpayers' Rights Advocate Office at 1-888-324-2798 or 1-916-324-2798.

CDTFA-442-R REV. 18 (5-18)

Aqua Dam Inc.
P.O. Box 144
121 Main St.
Scotia, CA 95565

Aug 8th, 2019

AQUADAM WARRANTY

AquaDam Inc warrants the craftsmanship of the product (AquaDam). If a dam is delivered with a manufacturing defect, ADI will provide a replacement unit. The customer is responsible for shipping costs of the replacement unit. Pictures must be provided to determine cause of damage, before a replacement unit is shipped. Damage due to shipping is the responsibility of the customer or freight carrier. No guarantee about the outcome of the project is ever made, especially in flood control situations where max flood water surface elevations can be unpredictable.

At no time is ADI liable for damages beyond the purchase price of the AquaDam.

AquaDam Specifications

Inflated Dimensions	**Controllable Mud/Water Depth***	**Specifications of Inner and Outer Tubes**	**Capacity**** per linear ft	**Dry Weight** per linear ft
1' H x 2' W (0.3m tall)	**9”** (23 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	12 gal/LF 45 liters/LF	0.75 lbs/LF 0.34 kg/LF
1.5' H x 3' W (0.45m tall)	**14”** (36 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	25 gal/LF 95 liters/LF	0.95 lbs/LF 0.43 kg/LF
2' H x 4' W (0.61m high)	**18”** (45cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	50 gal/LF 189 liters/LF	1.5lbs/LF 0.68kg/LF
2.5' H x 5' W (0.76m tall)	**24”** (61 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	88 gal/LF 333 liters/LF	1.85 lbs/LF 0.84 kg/LF
3' H x 7' W (0.9m tall)	**30”** (77 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	120 gal/LF 454 liters/LF	2.5 lbs/LF 1.1 kg/LF
4' H x 9' W (1.2m tall)	**38”** (97 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	210 gal/LF 795 liters/LF	4.3 lbs/LF 1.9 kg/LF
5' H x 11' W (1.5m tall)	**44”** (112 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 2 plys of 300 lb/in² burst strength PP	320 gal/LF 1,211 liters/LF	6.4 lbs/LF 2.9 kg/LF
6' H x 13' W (1.8m tall)	**54”** (137 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 2 plys of 300 lb/in² burst strength PP	450 gal/LF 1,703 liters/LF	8.5 lbs/LF 3.9 kg/LF
8' H x 17' W (2.4m tall)	**74”** (188 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 2 plys of 300 lb/in² burst strength PP	700 gal/LF 2,650 liters/LF	12 lbs/LF 5.4 kg/LF
10' H x 21' W (3m tall)	**88”** (223 cm)	**Inner Tubing:** 2 plys, 8 mil, Polyethylene **Shroud:** 1 PP woven shroud around both inner tubes **Outer Sleeve:** 4 plys of 300 lb/in² burst strength PP	1,000 gal/LF 3,785 liters/LF	25 lbs/LF 11.3 kg/LF
12' H x 25' W (3.7m tall)	**100”** (254 cm)	**Inner Tubing:** 2 plys, 8 mil, Polyethylene **Shroud:** 1 PP woven shroud around each inner tube. **Outer Sleeve:** 5 plys of 300 lb/in² burst strength PP	1,700 gal/LF 6,435 liters/LF	35 lbs/LF 15.9 kg/LF
16' H x 33' W (4.8m tall)	**126”** (320 cm)	**Inner Tubing:** 3 plys, 5 mil, Polyethylene **Shroud:** 2 PP woven shrouds between inside tubes **Outer Sleeve:** 7-plys of 300 lb/in² burst strength PP	3,000 gal/LF 11,356 liters/LF	51 lbs/LF 23 kg/LF

*This number is based on the friction of a rocky bottom. Slick mud, poly pond liners, and other slick surfaces may require the use of a taller primary AquaDam and/or a support dam installed behind the primary AquaDam.

** Capacity is based on installation on flat ground. Slopes will reduce internal volume of AquaDam.

Aqua Dam Inc
“Water Controlling Water”
www.aquadam.net
1.800.682.9283
+1.707.764.1999
matthew@aquadam.net
Revised 2/2018

“Water Controlling Water”
Company Profile

Name: AquaDam Inc (abbreviated ADI)
Date of Incorporation: 2009
State of Incorporation: California, USA
Mailing Address: PO Box 144, Scotia, California, USA zip: 95565
Street Address: 121 Main Street, Suite A, Scotia, California, USA zip: 95565
Contact Information:
Phone: +1.800.682.9283
Email: Inquiries@AquaDam.net

Invented in 1988, David Dooleage realized the need for a contemporary solution to control floodwater. With sandbagging proving to be time consuming and labor intensive, Doolaege realized that all sandbags represent is weight and mass. So why not fill a bag with water? It weighs a lot too, and there is plenty of it in any flood situation. Why not use the onsite water that is causing the problem and make it part of the solution? The AquaDam (initially called Water Structure) is a flexible, multi-tube structure that forms a stable structure when filled with water. Since the invention, the water-filled structure has grown and evolved to include a central vertical stability baffle, with achievable AquaDam heights exceeding 20ft (6m).

“Water Controlling Water” is ADIs registered trademark, and is also the company motto. AquaDams have several uses, including flood control and water storage, but they are mainly used in the construction business to isolate work areas for dewatering, or to maintain turbidity (dirty water) discharges within the isolated-but-submerged work area. AquaDams are a very environmentally friendly way of forming a temporary cofferdam. US law prohibits the uncontrolled discharge of earth-fill material into water ways of the US. AquaDams helps customers avoid this. AquaDams are versatile, with deployments in: creeks, streams, rivers, lakes, bays, ocean/tidal zones, sewage ponds, waste water lagoons, coves, box culverts and many other types of waterways.

ADI has a number of patents under which the AquaDam product is manufactured, including patents on the internal stability baffle, putting multiple tubes inside each other, the connection collar, and others. Currently, ADI has the capability to manufacture AquaDams up to 1200ft (350m) in length, and has manufactured AquaDams up to 28ft (8m) in height. AquaDams of greater height are technically feasible but haven't been produced yet.

AquaDams have been accepted for use in Emergency Flood Control in a number of US states (New York, South Carolina, Illinois, Texas, Louisiana), all Canadian provinces, and also by the Danish Emergency Management Agency.

Applicable Applications for AquaDams:

Water Storage	Emergency Response	Construction
• Above ground ponds	• Hazmat & Remediation	• Boat Ramps
• Standalone units	**Flood Control**	• Canals
	• Homeowners	• Pipe Crossings
	• Industrial/Commercial	• Culvert Repairs
	• Government	• Diversion Pipes

Outside the domestic US market, AquaDams are being recognized and have been successfully used in the following countries:

- Canada
- Great Britain
- France
- Germany
- United Arab Emirates
- Australia
- Malaysia
- Uruguay
- Myanmar
- Trinidad
- Saudi Arabia
- Slovenia
- Pakistan
- Iraq
- Indonesia
- New Zealand
- Japan
- Ireland
- Africa
- Romania
- Afghanistan

Distributors of AquaDams are present in the US, Canada, UK, and Australia in order to serve our global customer base.

Many government agencies have deployed AquaDams: US National Guard, US Air Force, US Navy, and Environment Agency (UK). Several state DOTs: SCDOT, TxDOT, IDOT, LaDOT, ODOT, PDOT, and WSDOT. ADI has also had the pleasure of working with companies such as: Kiewit Corporation, Meydan Sobha, Duke Energy, Excel Energy, Syblon Reid, OPPD Nuclear and PG&E.

As of 2019, ADI employs between 15-30 people, depending on seasonal demand, and generates an annual gross revenue between $5-10 million USD.

Looking ahead, ADI plans to continue providing our customers with the most effective, temporary expedient water-filled barriers, for flood control, construction support to minimize the impact of turbidity on construction sites, water isolation projects, and provide temporary water storage. We enjoy reviewing hard water control problems that are faced by our customers, and offering novel, creative, out of the box solutions.


12X375


DVL EXPRESS


BENSON


Revolution 52

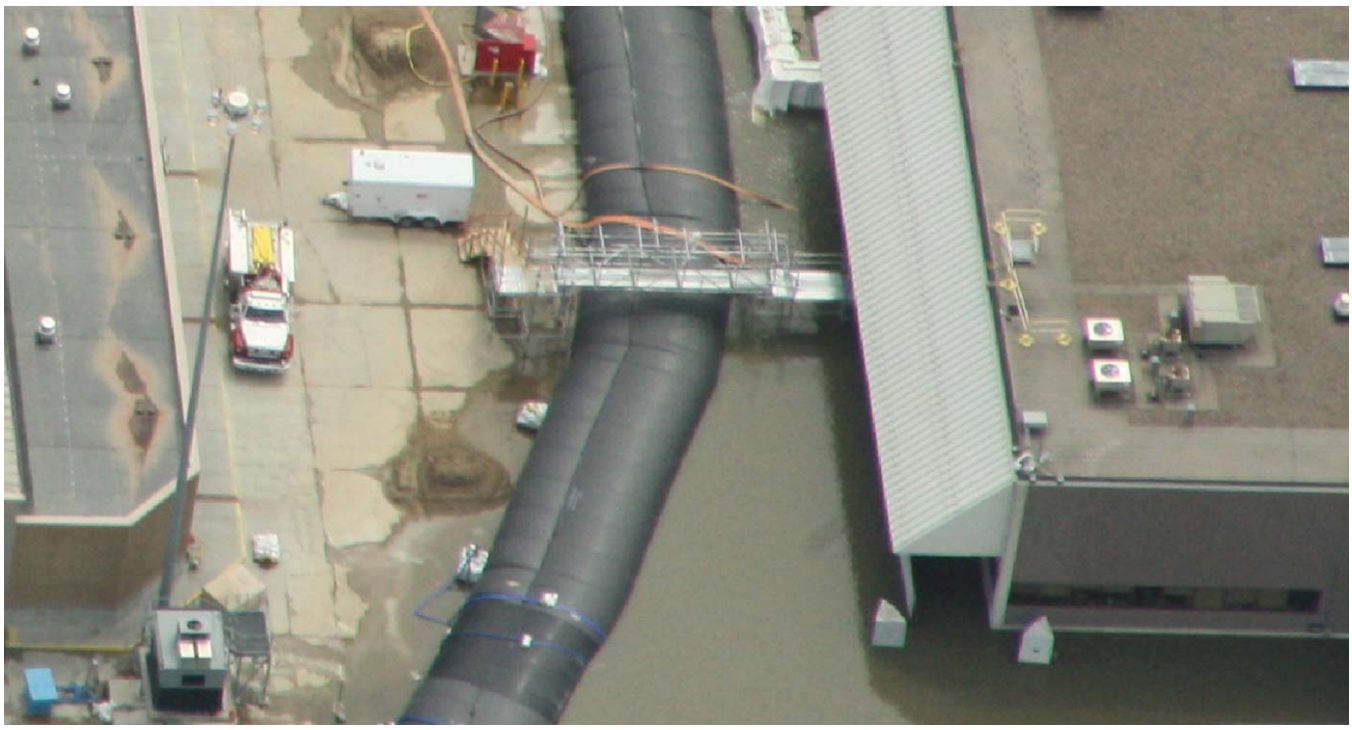

STEPHENSVILLE
ELEMENTARY SCHOOL
MAY13 FRI. COOKIE DOUGH
DELIVERY 9AM-1PM
PK REGISTRATION STARTS NOW


WBRZ 2 abc

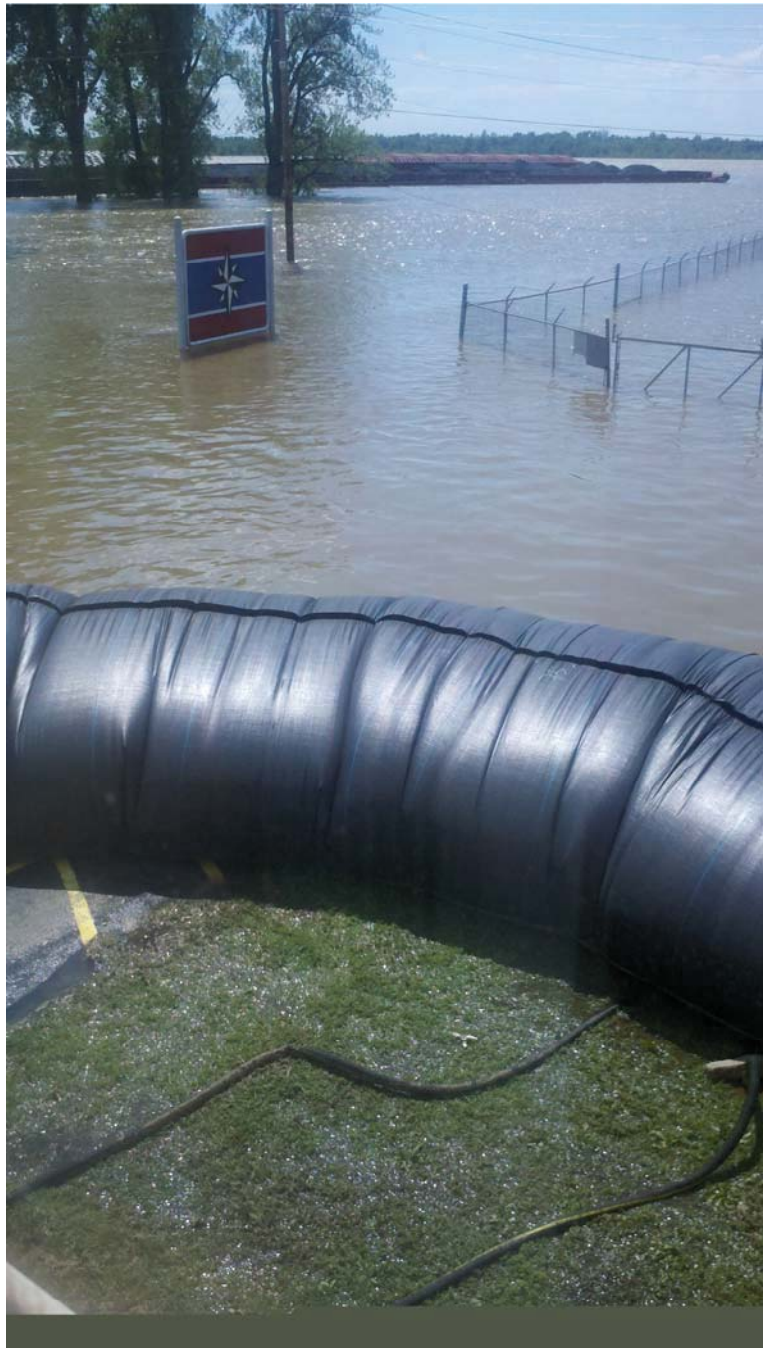

Electrical
Plumbing
Ace Best
St. Gabriel
Hardware
Tools

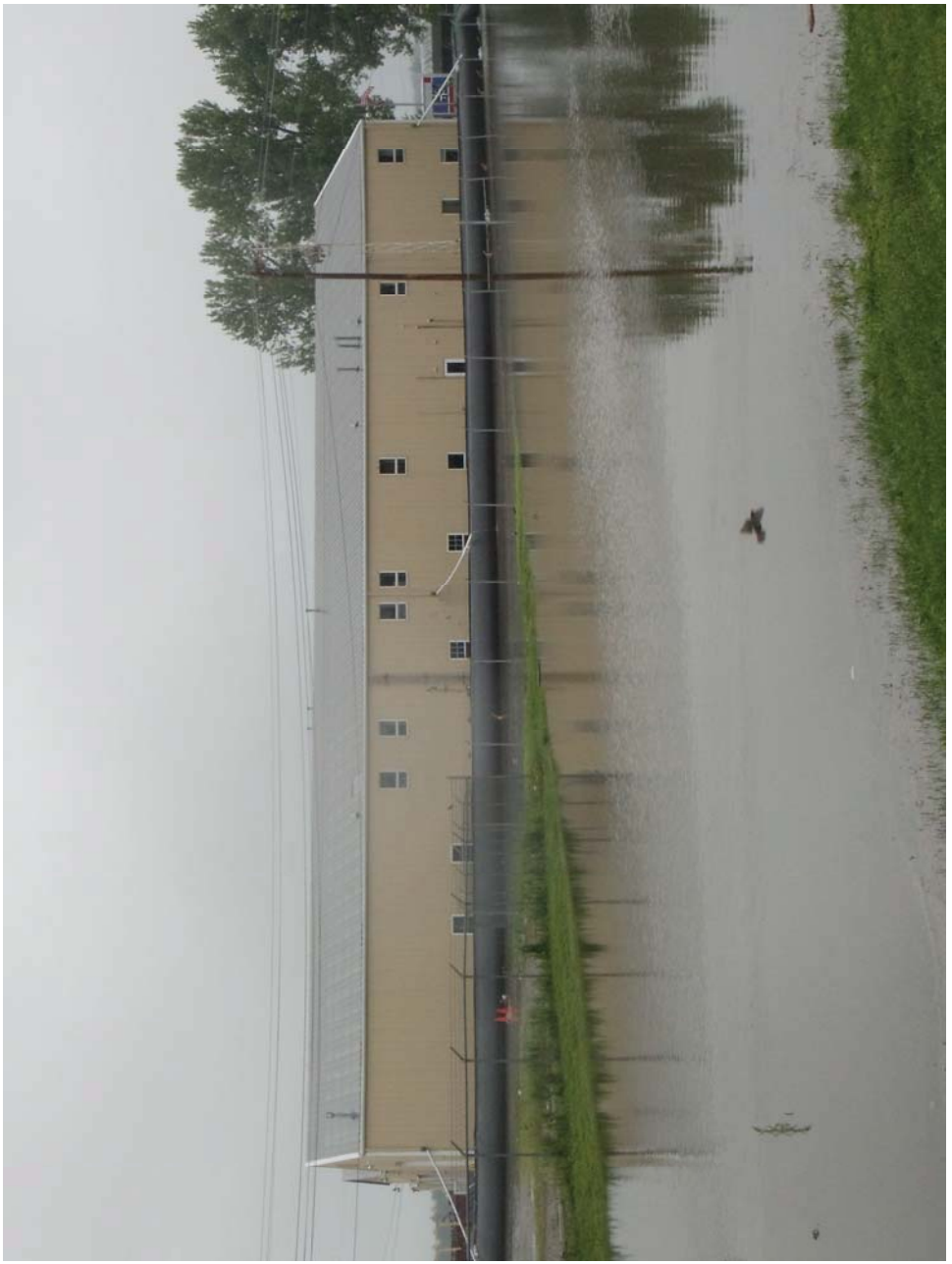

THE GOLDEN CLEAT


AQUA DAM




AQUA DAM
Georgetown
Historic Waterfront
DINE • SHOP • HARBORWALK
Established 1734






UNITED
Barge Line


UNITED
Barge Line

Quick Reference Installation Guide

www.AquaDam.net – 800.682.9283

Task: Tie the starting end of the AquaDam to an anchor-point. Black seatbelt is used to tie the AquaDam to the Excavator in the picture at right

Consequence of Failure: Open starting end of the AquaDam slips down the bank, possibly reducing achievable height of the main body of the unit.

Task: Control Lines (white rope in picture) are laid beneath the AquaDam, back over the AquaDam, tied to the anchor point at the start end, with the other end of the rope held by a person, to control the rate that the AquaDam unrolls.

Consequence of Failure: AquaDam unrolls in an uncontrolled manner, subject to influence from surrounding water flow.

8ft tall, 100ft long AquaDam sits at the top of the starting bank

Task: Identify high- and low-ground – Start the dam at high ground. Avoid low ground where possible.

Consequence of Failure: Possible reduction in achievable AquaDam height, controllable water depth, or both.

Task: Elevate the open end of the outer sleeve of the AquaDam higher than the filled elevation of the main body of the AquaDam, using berm, bank, or "Starter AquaDam".

Consequence of Failure: Reduction in achievable AquaDam height, controllable water depth, or both.

8'x100' long AquaDam has been unrolled down the starting bank.

Task: Use 2"x6" boards, 1-3ft in length, to form temporary bracing along the downhill side of the AquaDam, prior to and during filling. The dam will resist down-slope movement when full, but may require the bracing support during the filling process.

Consequence of Failure: Unintended lateral/downhill movement of the AquaDam during installation process.

Many 2-board braces are in place along the side of the partially filled AquaDam.

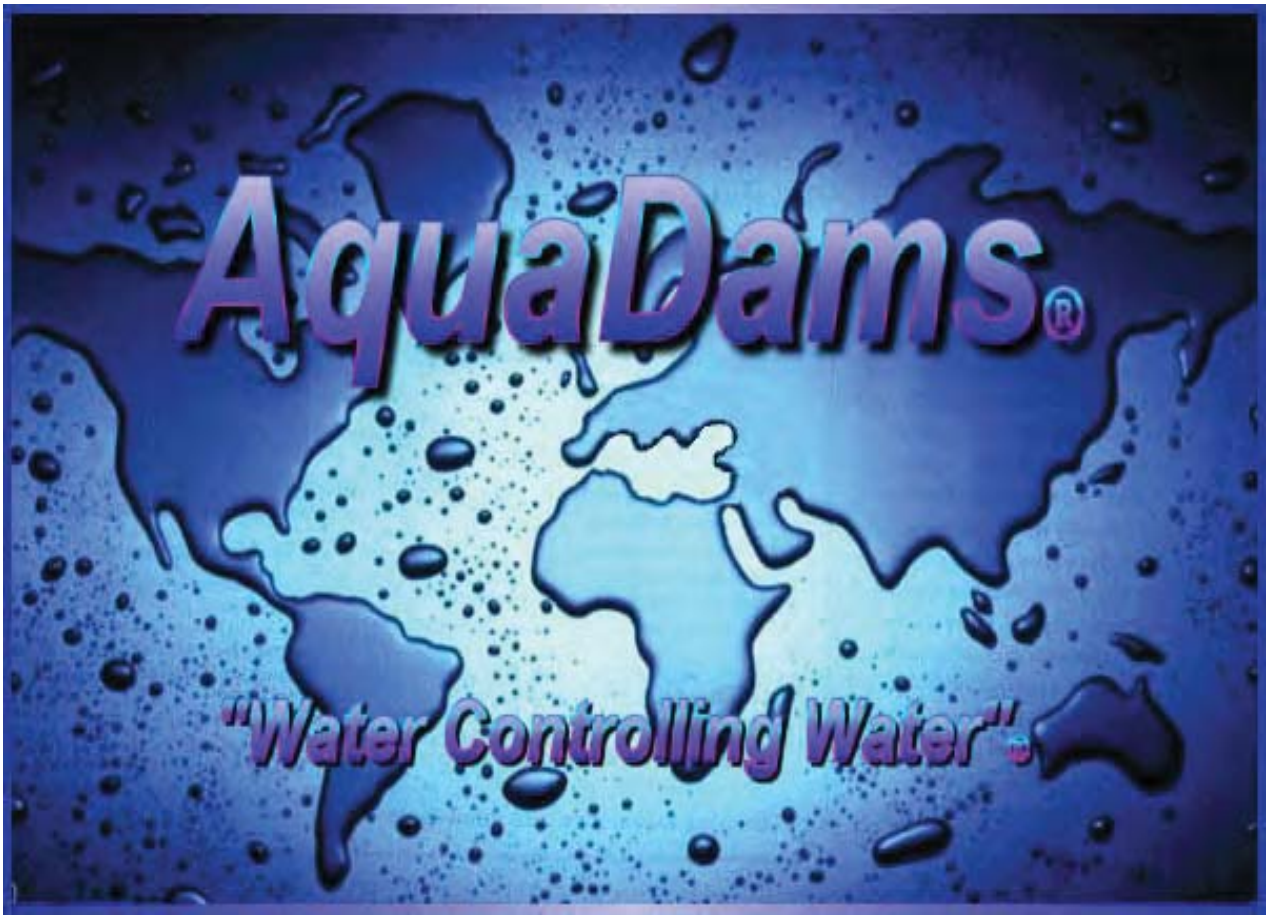
Quick Reference Installation Guide

www.AquaDam.net – 800.682.9283

Task: Fill both sides of the AquaDam at the same time and rate – the stability of the AquaDam depends on (2) equalized internal columns of water. **Consequence of Failure:** Unintended movement (leaning, rolling) or in extreme cases, burst inner tubing.	 Two blue-color hoses are used to fill the two AquaDam inner tubes
Task: Make a Turn – The AquaDam must not be filled above surrounding water level. Pull the material of the AquaDam on the inside edge of the turn, to get slack into the inside of the turn, re-orienting the AquaDam roll. Turn down the pump(s) filling the side of the AquaDam along the inside of the turn to help form this turn. **Consequence of Failure:** AquaDam installation along unintended/undesired alignment.	 One turn has been made, and another is about to be made
Task: Stop pumping when AquaDam is full. AquaDam is full when design height is achieved at lowest point along path of dam **Consequence of Failure:** AquaDam will fill to design height, at the lowest spot along its path. If it is over-filled, sections of AquaDam on elevated ground will continue to fill, exerting additional pressure on the AquaDam at the lowest point along its path. The AquaDam will burst not long after exceeding its design height. Under-filling is acceptable; Over-filling is not an option.	 6ft tall men, 10ft, 16ft, and 21ft tall AquaDam (foreground to background)

AquaDam Applications

(Includes Material Specifications)



Water Filled Cofferdams

LOW-IMPACT, ENVIRONMENTALLY FRIENDLY WATER FILLED
COFFERDAMS FOR WATER DIVERSIONS, DEWATERING, FLOOD CONTROL,
REMEDIATION, HAZ-MAT CONTAINMENT, AND WATER STORAGE

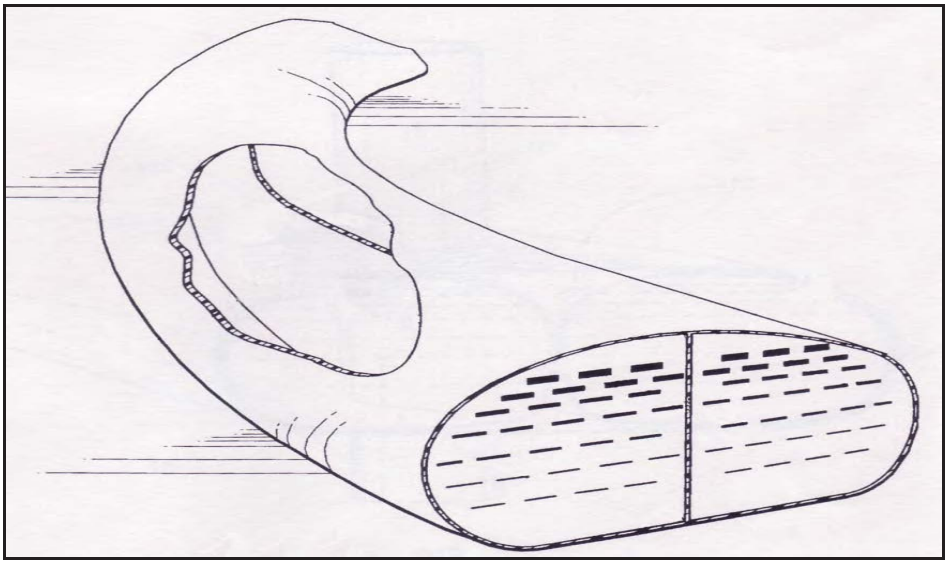
Aqua Dam, Inc.® AquaDams® are water filled barriers that can be used as dams or cofferdams for stream diversions and dewatering boat ramps, boat docks, and pond liners for repairs. Also excellent for flood protection, they are more effective than sandbags and other water control devices.

Aqua Dam, Inc. ®
P.O. Box 144 / 121 Main Street
Scotia, CA 95565 USA
800-682-9283 (International: 707-764-1999)
www.aquadam.net
email: Inquiries@aquadam.net

Table of Contents:

THE CONCEPT:

AquaDams® are portable dams filled with onsite water that can be installed wherever needed to control, contain, or divert the flow of water. AquaDams® consist of two basic components: two watertight inner polyethylene tubes which contain the water, and an outer or "master tube" made of a heavy duty geotextile woven polypropylene which holds the two inner tubes in contact when filled. The outer and inner tubes combine to form an AquaDam. This picture shows a cut away section illustrating the relationship between the inner and outer tubes of a typical filled AquaDam®.



To inflate an AquaDam®, water is pumped into the two inner tubes. The durable woven outer tube confines the water-inflated inner tubes and prevents them from moving away from each other. The counter friction / hydraulic pressure between the inner tube and the outer tube, along with the mass and weight of the water, creates pressure and stabilizes the AquaDam®, even when lateral water pressure is exerted against it. Due to the inherent flexibility of the materials used in their construction, AquaDams® will conform to most surfaces, providing an excellent seal and keeping water seepage to a minimum.

AquaDams® come in a variety of sizes, ranging from 1 to 16 feet in height when inflated. AquaDams® come in standard lengths of 50 or 100 feet, and these are available for immediate shipment. However, any length can be fabricated, and shorter, longer, or irregular lengths are available with notice. Using attachment collars, two or more AquaDams® can be joined together to form a continuous dam of any necessary length. AquaDams® are joined together by a patented coupling collar connection (standard with each AquaDam®). Large and small AquaDams® can be used in conjunction with each other, making the possible configurations almost endless. They can be used in a straight line, to form an arc, or to encircle an area. AquaDams® can also be connected at angles to each other, as necessitated by the job requirements. AquaDams® are usually assembled at the factory and shipped rolled and ready for use at the job site. However, it is not unusual to assemble larger AquaDams® on site. A typical AquaDam® consists of the "master tube" and a pair of inner tubes rolled up on a wooden or metal core. In many instances, the core also plays an important part in the installation, rerolling, and transportation of AquaDams®.

COMMON APPLICATIONS:

- Cofferdams for dewatering construction sites
- Water diversion in rivers and wetlands
- Water containment
- Flood control
- Erosion control through diversion or containment of flowing water
- Water storage
- Boat ramp dewatering
- Pond liner repair dewatering
- Bridge pier repair
- Pipeline crossings
- Water intake structures for municipalities
- Water discharge structures
- Fish habitat improvement
- Silt containment, sediment collection, or settling ponds
- Levees, levee toppings
- Hazardous material or chemical spills (containment)
- Temporary foot causeway through environmentally sensitive areas
- Wetlands management

The old ways of earthen fill discharges and expensive sheet piling have been the historic ways of working in waterways. These methods are environmentally detrimental, time consuming, and expensive because of their reliance on heavy equipment.

Water filled cofferdams make the ideal water control structure for construction sites. Onsite water is pumped into an AquaDam®, which unrolls due to the water pressure inside it and can be installed in hours in most applications, without causing damage to the aquatic environment. Complete dewatering of the work site can be achieved to form and pour concrete, remove sediments, and install geotextiles.

When used for flood control and augmenting levees, for example, AquaDams® are much more effective than sandbags. They can be installed far quicker, at a fraction of the cost, without all the foot traffic associated with labor-intensive sandbagging, and best of all AquaDams® are reusable.

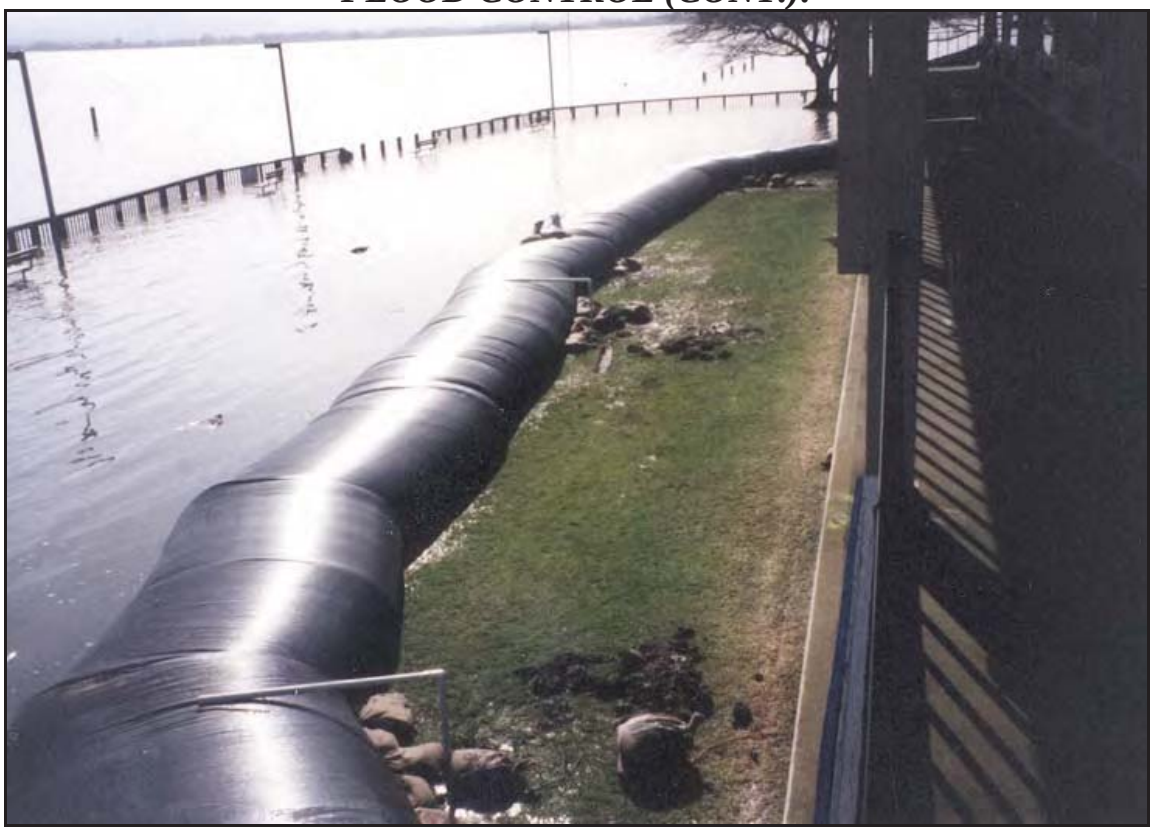
The amount of water that can be stored in a standard 4 foot AquaDam®, with a width of 10 feet and a length of 100 feet (filled to capacity), is about 25,000 gallons. AquaDams® are durable, long lasting, and with proper installation and removal can be stored and used again and again. Should an inner tube develop a leak, patching tape is available. If necessary, replacement tubes are available from Aqua Dam Inc.®. AquaDams® are relatively easy to install, requiring only a couple of portable pumps, an onsite water supply, and two or more laborers depending on the size of the AquaDam®.

FLOOD CONTROL:

3’ high AquaDams® being used for homeowner flood protection in Clear Lake, CA.

3’ high AquaDams® used to protect a home from floodwaters in Sun Valley, ID.

FLOOD CONTROL (CONT.):



4’ high AquaDams® used for flood protection of the Skylark Hotel in Clear Lake, CA.

More 3’ and 4’ high AquaDams® used for flood protection in Sun Valley, ID.

BOAT RAMP CONSTRUCTION & REPAIR:

16’ high AquaDam® at Little Creek Naval Amphibious Base, Norfolk, VA

6’ high AquaDam® in Lake Havasu, CA, along the Colorado River.

BOAT RAMP CONSTRUCTION & REPAIR (CONT.):


12’ high AquaDam® in Chattanooga, TN, along the Tennessee River.

AquaDams®, used to dewater for boat ramp repair on Lake Erie, OH.

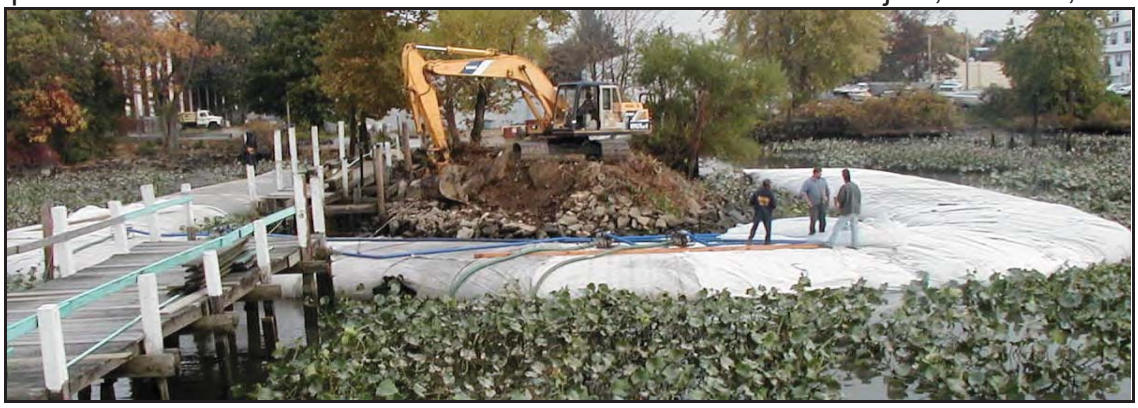
AquaDams® used to dewater for boat ramp construction on Gold Lake, CA.

9’ high AquaDam® used for boat ramp construction in Bullhead City, CA.

BRIDGE / PIER / CANAL / FOOTINGS:

14’ high AquaDam® used to dewater a tidal canal in Fremont, CA.

AquaDams® used to dewater a canal bank on the Salt River Project, Phoenix, AZ.



8’ high AquaDam® used to isolate a work area for pier construction in Philadelphia, PA.

BRIDGE / PIER / CANAL / FOOTINGS (CONT.):

Several 6’ high AquaDams® used to dewater a bridge pier for retrofitting in Bear Creek, Medford, OR.

8’ and 5’ high AquaDams®, used to dewater a canal for pump station repair, Antioch, CA.

8’ and 4’ high AquaDams® used to dewater for “open cut” pipeline repair in Parker, AZ.

10’ high AquaDam® used to dewater for bridge pier construction, Sacramento, California.

PIPELINE CROSSINGS:

8', 6' and 4' high AquaDams® used to contain sediments during a Williams Transco natural gas pipeline repair project on the Bogue Chitto River, McComb, Mississippi.

4' high AquaDam® in Eureka, CA

AquaDam® blocks canal in Denver, CO

Natural gas pipeline crossings in Alberta, Canada and Ft. St. John, B.C.

PIPELINE CROSSINGS (CONT.):

4’ high AquaDams® were used upstream and downstream of this trench to contain sediments during a Williams Transco gas pipeline installation in Pine Creek, Williamsport, PA.

1.5’ high AquaDams® in Oakland, CA.

6’ high AquaDams in the Pitt River, CA. The river passed through the pipes.

8’ and 6’ high AquaDams® abut into the sides of a flume near Grand Forks, BC.

STREAM DIVERSIONS:

5’ high AquaDam® used to divert water for
installation of an irrigation check dam in Apple Creek, OR.

Mad River, Arcata, CA.

Eagle River, Vail, CO

Fish habitat construction on the Eel River, Redcrest, CA.

POND LINER REPAIR:

6', 4' &1.5' high AquaDams® near Kingman, AZ.

1,300 linear feet of AquaDams® in an arsenic pond, Northern WA.

Nevada Cogeneration Associates Power Plant #1

REMEDIATION / HAZARDOUS MATERIALS (HAZ-MAT):

AquaDam® being used to isolate the Vermilion River from contaminants, Pontiac, IL.

Containing a chemical spill on the Columbia River, The Dalles, OR

AquaDams® at an oil refinery in Martinez, CA.

7’ high AquaDam® used to split a sanitation pond in Yolo County, CA.

WATER STORAGE:

4’ and 5’ high AquaDams® used for salt water storage during cleaning and renovation of Shamu the killer whale’s tank at Sea World Ohio.

This AquaDam® has been used to convert a flatbed trailer into an instant water tank.

Another picture from Sea World Ohio.

6’ high AquaDam® used to store low-level radioactive water for Westinghouse in Northern PA.

WETLAND RESTORATION / CONSTRUCTION PROJECTS:


4’ high AquaDams® used to separate the Upper Truckee River from newly created wetlands to prevent erosion into Lake Tahoe, Lake Tahoe Keys, CA.

Low tide

High tide

4’ high AquaDams® isolate a dredge spoil area from tidal flow to protect newly planted aquatic vegetation near Kingman Lake, Anacostia River, District of Columbia.

Years later, vegetation at Kingman Lake

Wetland construction, Great Salt Lake, UT

LAKE RESTORATION / CONSTRUCTION PROJECTS:

A combination of 8’ and 14’ high AquaDams® used to isolate and dewater one section of a lake separating two building complexes at the Broadmoor Hotel, Colorado Springs, CO

Woodlawn Lake, San Antonio, TX

Kissena Lake, Queens, NY

Dewatering for amphitheatre construction, Foster City, CA.

RECREATIONAL USE:

A 6’ high AquaDam® installed for recreational use in Ruth Lake, CA.

The end of this AquaDam® was covered with slick plastic to create a giant slip-and-slide.

A 5’ high AquaDam® installed in Larabie Creek, CA to contain water for a swimming hole.

AquaDam Job Assessment Form

Please complete this form and either email it back to matthew@aquadam.net or fax it to 707-243-2541. If you have pictures or drawings of your project please email them to us to expedite your Quote.

Company / Agency you represent:

Your Name:

Mailing Address of Company / Agency:

City / State / Zip:

Office Phone:

Fax:

Cell:

Email:

How did you hear about us:

Your Project name or reference # :

Work to be performed:

Location of Worksite:

Bid Date of project:

Estimated Installation Date for AquaDam:

Required Total Linear Footage of AquaDams:

Purchase or Rental:

If rental, please state for how long:

Installation conditions:

If Flowing water what is the CFS Volume:

Maximum Water Depth at time of installation:

Maximum Water Depth for entire project life:

How will flowing water be passed around work area:

If using other method, please specify:

Surface Conditions at worksite:

If other surfaces (or a combination) then describe:

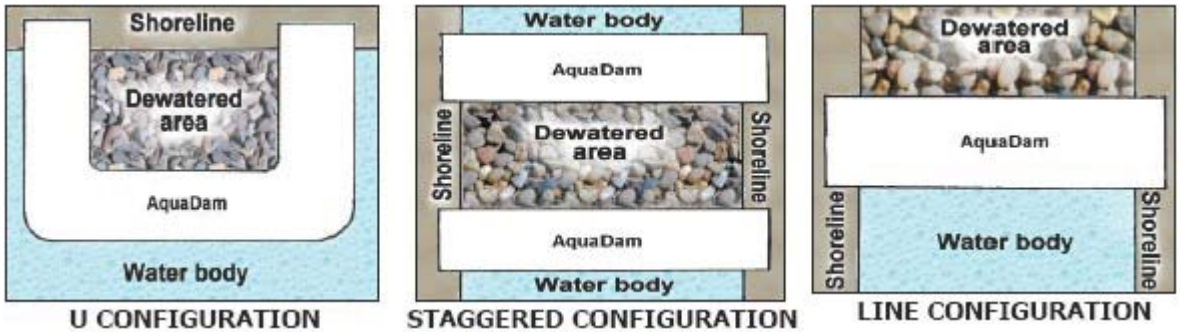
Describe the Dirt / Mud/ Sand Depth and consistency:

Are there any objects present that could damage a Dam? If so, please describe:

Are any slopes present:

If there are any Grades or slope, Please describe in detail:

AquaDam Worksite Configuration:



How soon do you need a quote?

Additional Notes or Comments:

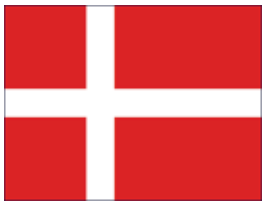
Aqua Dam Inc's recommendations regarding AquaDam applications are dependent on application information provided by the Customer. The undersigned Customer representative hereby declares that, to the best of the Customer's knowledge, the information contained in this form is complete and accurate. The Customer Representative understands that, if actual field conditions prior to ordering installation differ from those stated on the form, Aqua Dam Inc has the option to refuse to supervise the installation if the job cannot be performed safely. In the event that Aqua Dam Inc agrees to supervise an installation in circumstances other than those described on this form, or in circumstances which exceed the design limitation of the AquaDam, the Customer shall bear all liability for damages of any type sustained as a consequence of the installation and use of the AquaDam. Aqua Dam Inc. has not been to the site, so the contractor is solely responsible for the selection of the correct size AquaDam(s) for the site conditions during the course of the entire project.

X_____ _____
Signature Date

AquaDam User Manual

AQUA DAM®

"Water Controlling Water"



Safety Warning

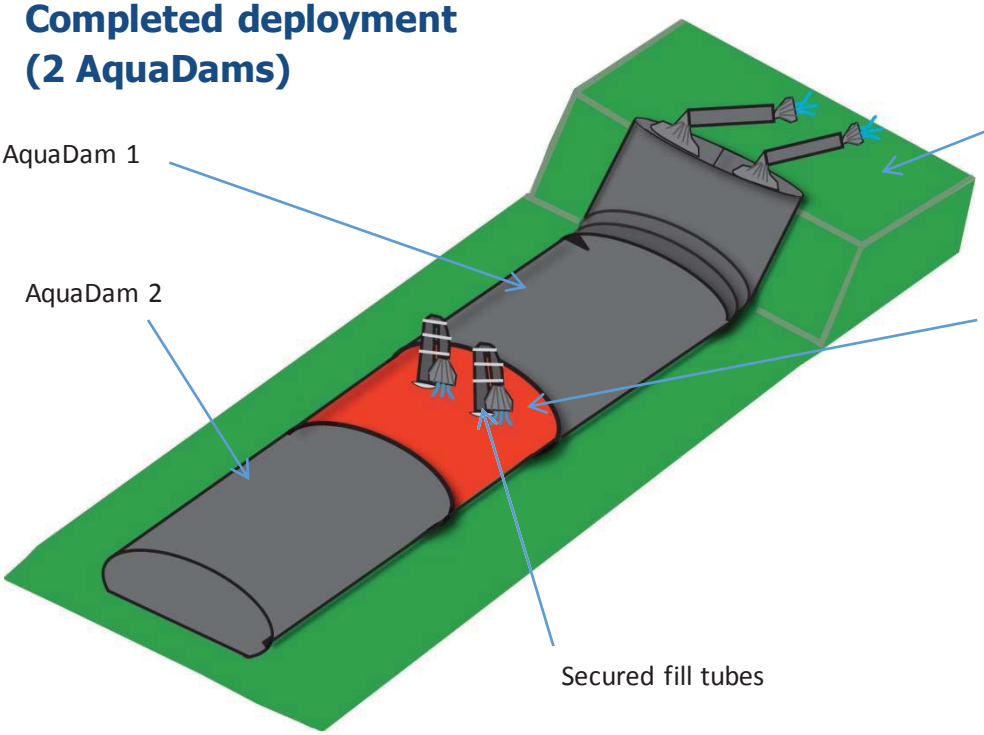
The consequences of a temporary flood barrier failure must be fully understood by the controlling authority when preparing an AquaDam Installation Plan. In particular adequate measures must be put in place to prevent injury. Evacuation of a protected area may be an appropriate response.

Contents

 Version 1-1014

AquaDam Quick Start

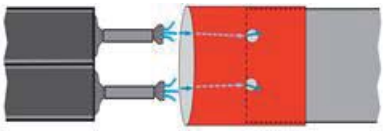
Completed deployment (2 AquaDams)

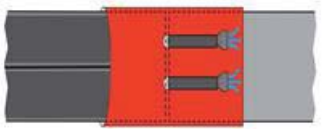


Fill tubes positioned at top of launch point.

Ensure fill tubes are straight and not twisted.

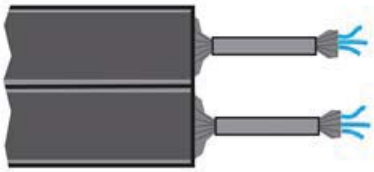
Collar





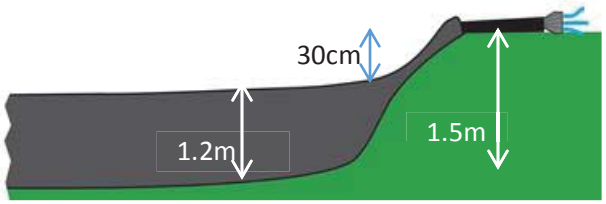
Fill Tubes - Open ended for ease of emptying. Gathered and taped with pre-installed hose, for filling.

Use connectors to join pump discharge hoses to fill hoses



Position – roll out - fill

Roll out AquaDam ,1 ensuring that fill tubes remain elevated on launch point.



Fill tube must be elevated to allow at least 30cm water head above the inflated height of the dam

Pumping – Ensure fill rate is the same for both fill tubes.

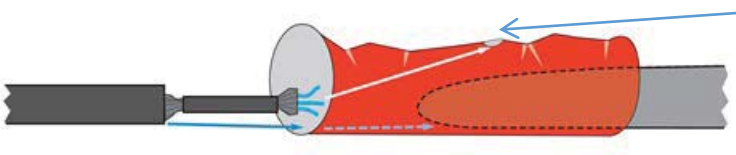
Safety Warning

The consequences of a temporary flood barrier failure must be fully understood by the controlling authority when preparing an AquaDam Installation Plan. In particular adequate measures must be put in place to prevent injury. Evacuation of a protected area may be an appropriate response.

Connect AquaDam 2 when AquaDam 1 is approximately 25% full

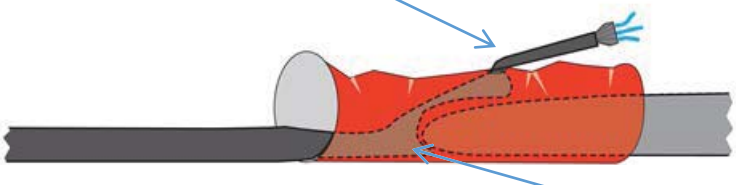
Filling and joining AquaDams

Use the white pull straps to help pull the fill tubes of AquaDam 2 through the collar holes. Tie the strap around the fill tube – person 1 pulls through the collar hole whilst person 2 pushes the fill tubes up from inside the collar.

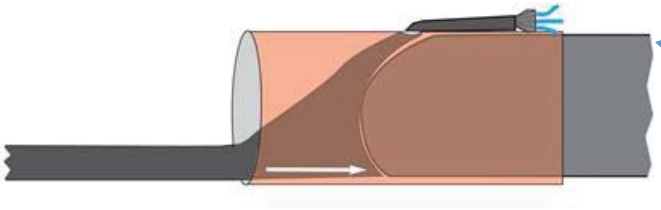


Collar holes for fill tubes

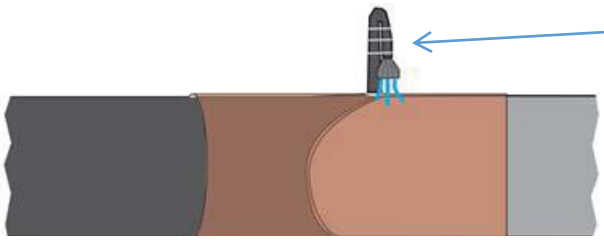
Pull fill tubes fully through collar holes – connect adaptors



Pull Aquadam 2 right up to Aquadam 1



Once AquaDam 1 is full, either water starts flowing out of the fill tubes or the AquaDam is solid when stood on, start filling AquaDam 2.



Once AquaDam 2 is full, secure the fill tubes with tape, maintaining

Filling Issues

One tube is filling faster

Check pumps are operating evenly

Adjust Pump flow

Fill tube flow restriction

Walk on and manipulate fill tubes to remove twist/kinks etc

AquaDam appears to be rolling/sliding

Check pumps are operating evenly

Adjust Pump flow – tubes must fill at same rate

Check surface camber

Use a brace to stop movement. Either wooden 'wedge' or person to prevent movement

Introduction

Application

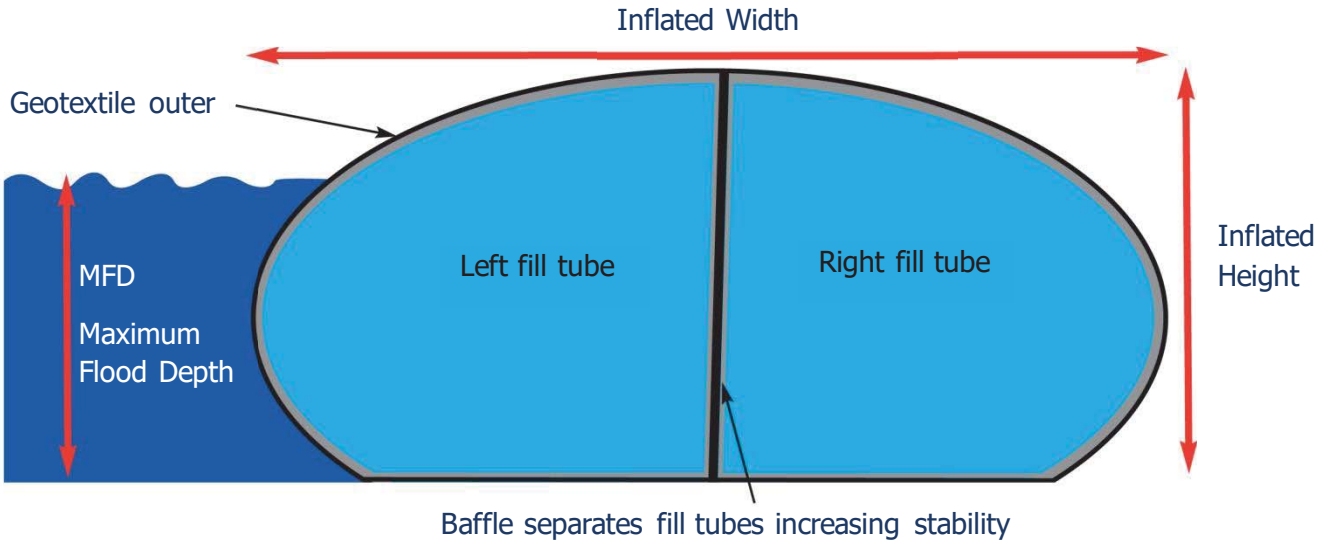
AquaDam is a WATER FILLED temporary flood barrier system. It can be used on level surfaces for perimeter flood protection, to divert flood water or to create temporary flood water storage reservoirs.

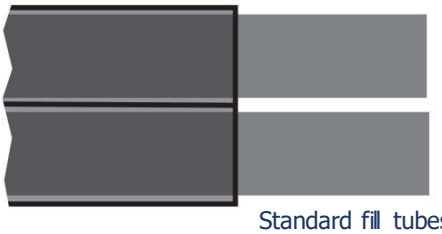
AquaDams can be filled with flood water or sea water as available. The use of water from fire hydrants is not recommended as this source contains excessive amounts of air.

It is recommended a flood protection risk assessment is carried out by a suitably qualified professional. Routes for water ingress should be identified and confirmation that the structural integrity of the surface upon which the temporary flood barrier is to be installed will not be compromised by use of the AquaDam.

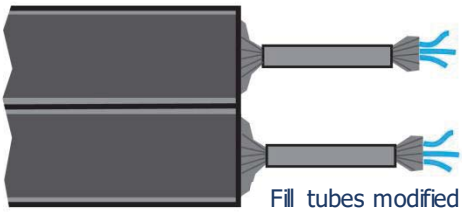
Anatomy of an AquaDam

An AquaDam is made up of 2 polyethylene inner tubes and an outer high tensile strength, porous, geotextile outer tube. The 2 inner tubes are separated by a geotextile baffle which runs the length of the dam.

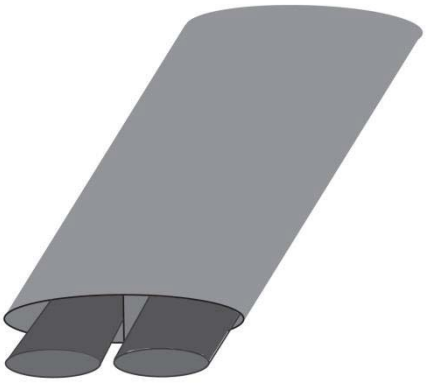




Standard fill tubes



Fill tubes modified for rapid installation (DEMA)



Two fill tubes contained within a high tensile strength, porous, geotextile outer tube which has a longitudinal baffle.

DEMA framework agreement 2014/034625 AquaDams are available in two sizes.

	Max Flood Depth	Single length	Inflated Height	Inflated Width	Weight (Kg)
Type 1	80cm	25m	120cm	290cm	160
Type 2	120cm	25m	180cm	430cm	320

MFD – Maximum Flood Depth is the limiting performance of an AquaDam and should not be confused with inflated height. An AquaDam must only be used within its limiting performance MFD. If the MFD is exceeded the temporary flood barrier may fail.

Pre-Installation

Making an AquaDam Installation Plan (AIP)

Prior to any emergency deployment of a flood barrier it is desirable to prepare an ***AquaDam Installation Plan*** for each location where it is determined a temporary flood barrier may be required.

Requirements to complete an AquaDam Installation Plan (AIP):

1. Decide on start and end locations of flood barrier and identify path/route.
2. Measure total length of the path of the intended flood barrier (total barrier length)
3. Identify objects in the path of the AquaDam which may need to be removed or avoided.
4. Calculate the number of AquaDams required
5. Identify a suitable launch point (existing or improvised)
6. Confirm distance to water supply from each AquaDam fill tube and calculate length of pump discharge hose required.
7. Consider consequences of flood barrier failure
8. Complete Table 1 below for each intended location

Notes

Requirement 3 – Objects to be removed or avoided

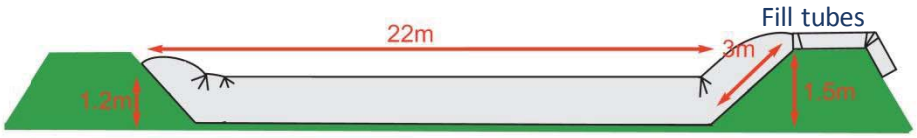
Objects such as trees, roots, sharp rocks and debris must be removed or avoided. Surfaces such as gravel may result in some flood water passing beneath the flood barrier. Account for additional length required to go around obstacles such as trees, lamp posts and flag poles.

Requirement 4 – Calculating the number of AquaDams Required

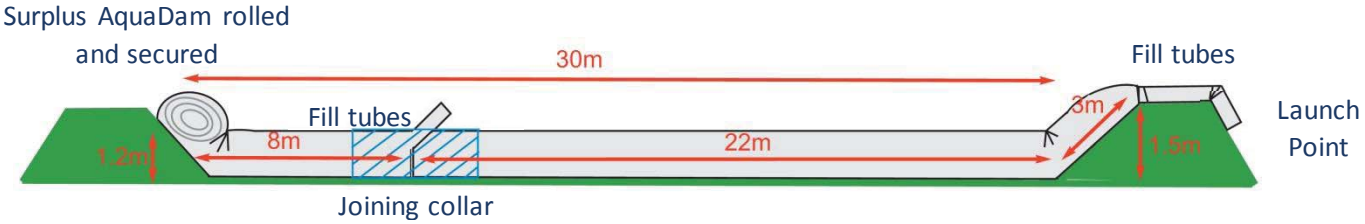
Each 25m long AquaDam will cover a path length of approximately 22m when used in the launch position and approximately 23m when connected to a preceding AquaDam. For simplicity the example calculations assume 22m throughout.

Single AquaDam flood barrier

80cm MFD
AquaDam model



Multi AquaDam flood barrier



Example Calculations

Example 1

Flood barrier path length = 30m

AquaDam No1 - 22m long after allowing for 3m for launch/connection

AquaDam No2 - 30m – 22m = 8m long + 3m for connection = total 11m (This means 25m – 11m =14m of the 2nd AquaDam will not be required and is left securely rolled up (surplus roll)

Example 2

Flood barrier path length = 210m

No of AquaDams = 210m/22m = 10 AquaDams (9.5)

AquaDams No 1 – 9 fully deployed

AquaDam No 10 will have approximately 10m surplus roll.

Requirement 5 - Identify a suitable launch point

The fill end (start point) of an AquaDam must be elevated above ground level (1.5m for the 80cm MFD AquaDam and 2.1m for the 120 cm MFD AquaDam).

Three typical launch points

Existing launch point e.g. flood bank

Improvised launch point

DCE AquaDam

Please note the DCE AquaDam is a single use optional purchase item.

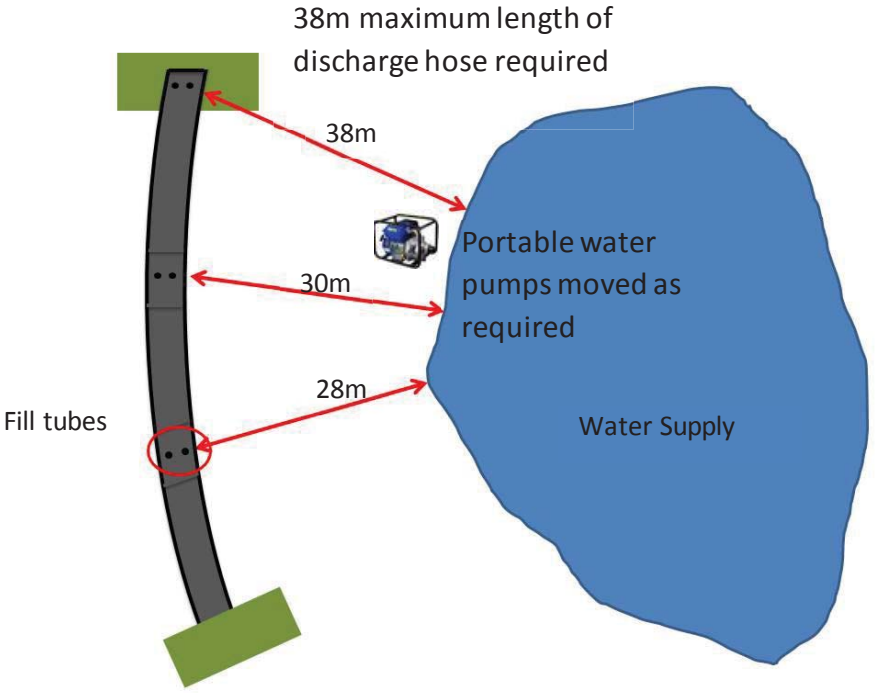
Requirement 6 – Distance to water supply

Water supply hose length

The water pumps supplied are man portable and should be positioned as close as possible to the intended water supply e.g. a lake or the ocean.

The pump discharge hose must be of sufficient length (30m supplied as standard) to run from each water pump to the fill tubes of each AquaDam in the flood barrier installation. It may be preferable to reposition the water pumps as the flood barrier is installed.

If this distance is greater than the standard pump discharge hose length of 30m additional 3 inch pump discharge hose and connectors must be made available or the water pumps must be repositioned.



Each fill tube (red arrow) location must be supplied with water to fill the AquaDam using water pumps located close to a suitable water supply (e.g. the ocean).

AquaDam Installation Plan (AIP)

(Version for photocopy – inside back cover)

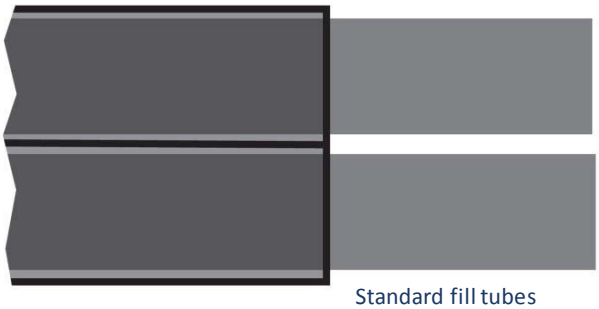
LOCATION	**Name** **Suitability** *slope, surface, obstacles, max anticipated flood depth*
Launch Point (Existing / Improvised)	
Flood barrier path length	
No of AquaDams Number of AquaDams	*See AIP requirement 4 above*
Obstacles Remove or run around obstacles. Allow for additional length.	
Water supply distance Accessibility to water supply	*The distance between the water supply and the furthest AquaDam fill end.*
Additional discharge hose Requirement over 30m	*Each water pumps is supplied with 30m of discharge hose as standard.*
Additional connectors Required in adding hose length	
Additional Notes for AquaDam Installers – *e.g.* *1. Identify possible routes of water ingress with flood barrier in place* *2. Inspection frequency /responsibility of AquaDam installation i. before flood ii. during flood*	
Consequences of flood barrier failure – *detail appropriate precautions and procedures e.g. Evacuation of non-essential personnel from protected areas.*	

Equipment Preparation

PUMPS	Primed and ready for use	
Discharge and suction hose and pump connectors	Ensure pump end connectors are correctly fitted	
Suction hose	Connect to water pumps	
3 inch Pump Discharge hose	Ensure sufficient length and in good condition (see AquaDam Installation Plan).	
Discharge hose connectors – male and female	Adequate supply (1 set per water pump)	
Improvised slope braces:	Ensure a supply of improvised braces to serve as stability wedges until the dam is fully inflated and becomes semi rigid.	
Water proof duct tape for securing fill tubes following installation	Adequate supply	

Identify AquaDam components

Fill tubes:

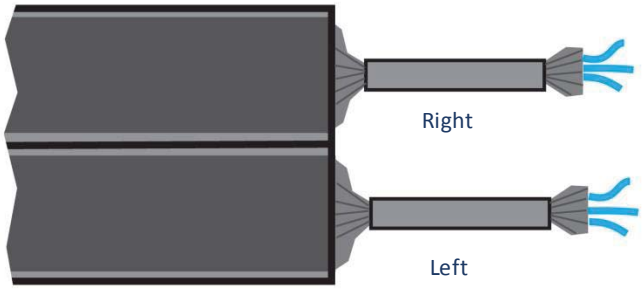


Standard fill tubes

The fill tubes are open at one end which allows for filling and emptying.

DEMA framework AquaDams have pre-inserted fill hoses. The fill tubes are gathered around the blue hose inserts, taped and sleeved for faster deployment.

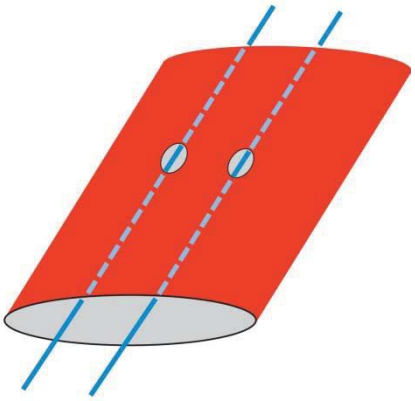
The pre-inserted fill hoses must be connected to the pumps discharge hoses using the connectors provided.

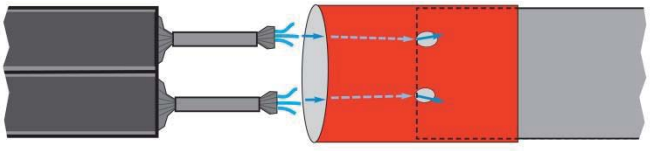


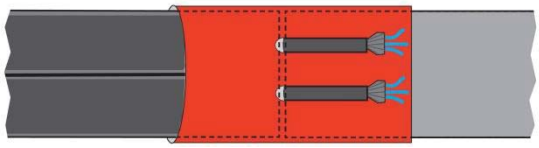
Fill tubes modified
for rapid installation (DEMA)

		
Connect a pump to at least one of the blue fill hoses on each fill tube. Maximum of 3 per fill tube.	If only using one pair of pumps connect one to left and right sides. It is acceptable to remove unused blue fill hose	Fill left and right tubes at the same rate and at the same time.

Joining Collars:







Joining collar attached to the end of each 25m AquaDam

Joining collar removed from AquaDam for clarity

Handling & Transportation

AquaDams can often be manually handled into position.

If mechanical lifting equipment is used lifting strops MUST be employed.

Where fork lift equipment is employed use of pallets is recommended – exercise CAUTION to avoid damage. Where pallets are not used the dams should be rolled onto the forks.

Installation Procedure

Overview – the first AquaDam in a sequence is known as the "launch dam". The fill tubes of this dam must be elevated using either: an existing launch point such as a flood bank or an improvised launch point – see paragraph 2 below. Subsequent AquaDams in a sequence are attached to the end of the preceding AquaDam via a connection collar.

DO NOT attach connectors to hose inserts on AquaDams which are intended to be launched from connection collars (i.e. AquaDams 2, 3 etc.) **until the fill tubes** have been passed through the pre-cut holes in the joining collar of the preceding AquaDam. *See paragraph 9 below*

AquaDam 1.

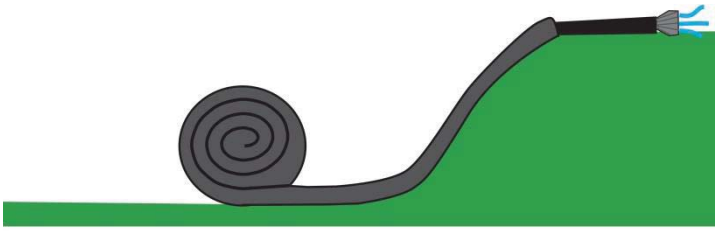
Position AquaDam at the launch point (as identified in AquaDam Installation Plan).

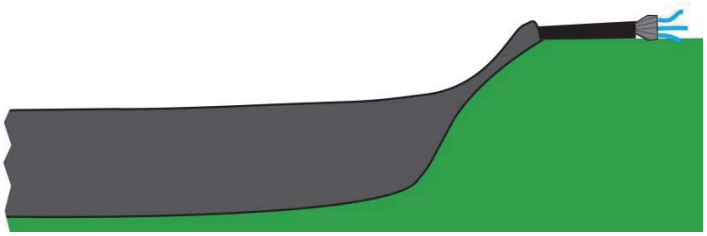
1: Unpacking the AquaDam

		
Remove outer cover using the pull stitching. If using knives or scissors EXTREME CAUTION is recommended.	Cut or undo the straps. Care must be taken not to damage the AquaDam.	Locate the pull strap and pull to unroll the AquaDam far enough to expose the fill tubes. Initial un-rolling may require an additional person to push the AquaDam.
		
Fold out the fill tubes. CAUTION – do not allow the fill tube to twist as this will restrict water flow into and out of the AquaDam.	Locate the THREE pre-inserted blue fill hose within each fill tubes. To each fill hose attach discharge hose coupling (male).	Ensure that the connectors are tightly fitted

2: Positioning of AquaDam 1

The geotextile outer cover at the fill end of the AquaDam **must be elevated at least 1.5m above ground level**. (120cm MFD version must be elevated 2.1m AquaDam).





An existing launch point

An improvised launch point

3: Rolling out AquaDam 1

Roll out AquaDam into the desired position ensuring that the fill tubes remain in position.

Ensure the full width of the dam is unfolded

4: Connecting the pumps

		
Connect at least one pump to each of the fill tubes. Maximum of 3.	If only using one pair of pumps connect one pump to each side of the AquaDam. Unused fill hoses can be removed.	DEMA AquaDams have 3 pre-installed discharge hoses in each fill tube (hose inserts).

5: Ground chamber - stabilise the AquaDam if required

If the AquaDam is being deployed across a lateral incline use a wooden slope brace or other holding object (centre photograph below).

Slopes and Corners

For tight corners ensure that outside edges are flat to the ground.

Where a lateral incline is present use a slope brace to prevent the partially filled dam moving.

6: Filling AquaDam 1

CAUTION – the fill tubes of AquaDam 2 must be passed through the pre-cut holes in the collar of AquaDam 1 BEFORE AquaDam 1 is 25% full. As AquaDam 1 inflates access to the pre-cut holes becomes restricted.

Both tubes of an AquaDam must be filled at the same rate. If one tube is filling significantly faster than the other this may be due to:

- The pumps on one fill tube side running faster/slower
- Twist in the fill tube.
- A twist or kink in the hose inserts. This can be resolved by manipulating the hose insert through the affected fill tube.
- Blockage at the suction side of a water pump or allowing the pump is ingesting air instead of water.

Once AquaDam 1 has started filling, position AquaDam 2 and connect to ready for filling – see AquaDam 2 deployment below.

If the deployment only requires a single AquaDam then move on to stage 10.

7: AquaDam 2.

Open and position AquaDam 2 using the same sequence as for AquaDam 1.

8: Positioning AquaDam 2

		
Position AquaDam 2 close to the joining collar on the end of AquaDam 1	Locate the pull rope and unroll the dam to expose the fill tubes	Unfold the fill tubes. DO NOT attach hose connectors until the fill tubes have been positioned within the connection collar

9: Connecting the AquaDams

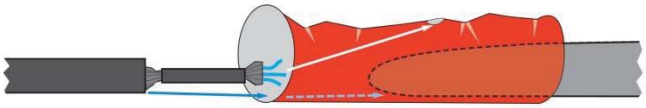
Red Straps - ignore

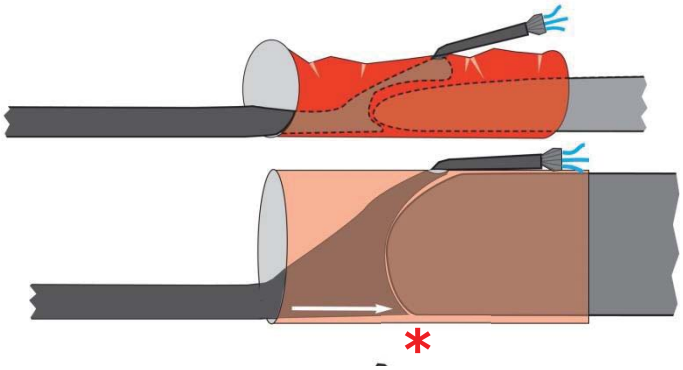
Connect the fill tube pull-assist straps (white ribbon).

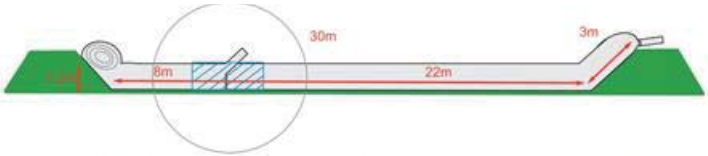
White straps

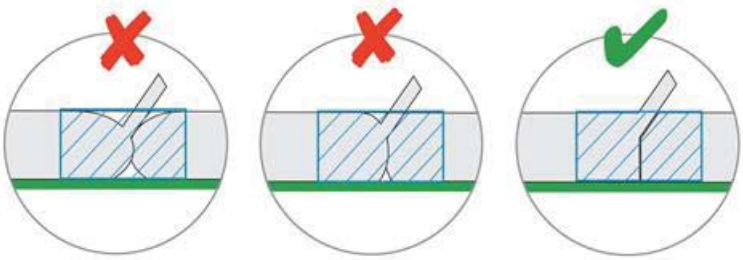
		
Identify the white pull straps	Tie the white straps around the fill tubes	The straps run through the holes in the collar to assist in pulling fill tubes through the pre-cut holes in the collar.

Positioning AquaDam within the joining collar









To minimise leakage between AquaDams at the connection collar ensure:

1. AquaDam 2 – the entire length of fill tubes are pulled up through the collar holes
2. Ensure here is no twist in either fill tube
3. The base of AquaDam 2 is in contact with the base of AquaDam 1 see *

	
Push the fill tubes into the collar and up through the pre-cut holes using the white pull straps to assist.	Pull the full tubes through the holes using the white pull straps as well as pushing from below

To make a water tight seal AquaDam 2 should be positioned tight up against AquaDam 1 with the fill tubes pulled fully through the collar holes.

Once positioned within the collar, roll out AquaDam 2 as is required. Continue with AquaDam 3 as required.

10: Completing AquaDam 1 installation

Once the dam is full the water will start to overflow flow back out of the fill tubes. If it is suspected air has been pumped into the walking along the length of the dam will "burp" the air out which should be replaced with water. Remove pump connections and ensure fill tubes are secured into an elevated position.

A correctly filled AquaDam will feel solid to walk on.

If the fill tubes are allowed to drop water will flow out of the dam.

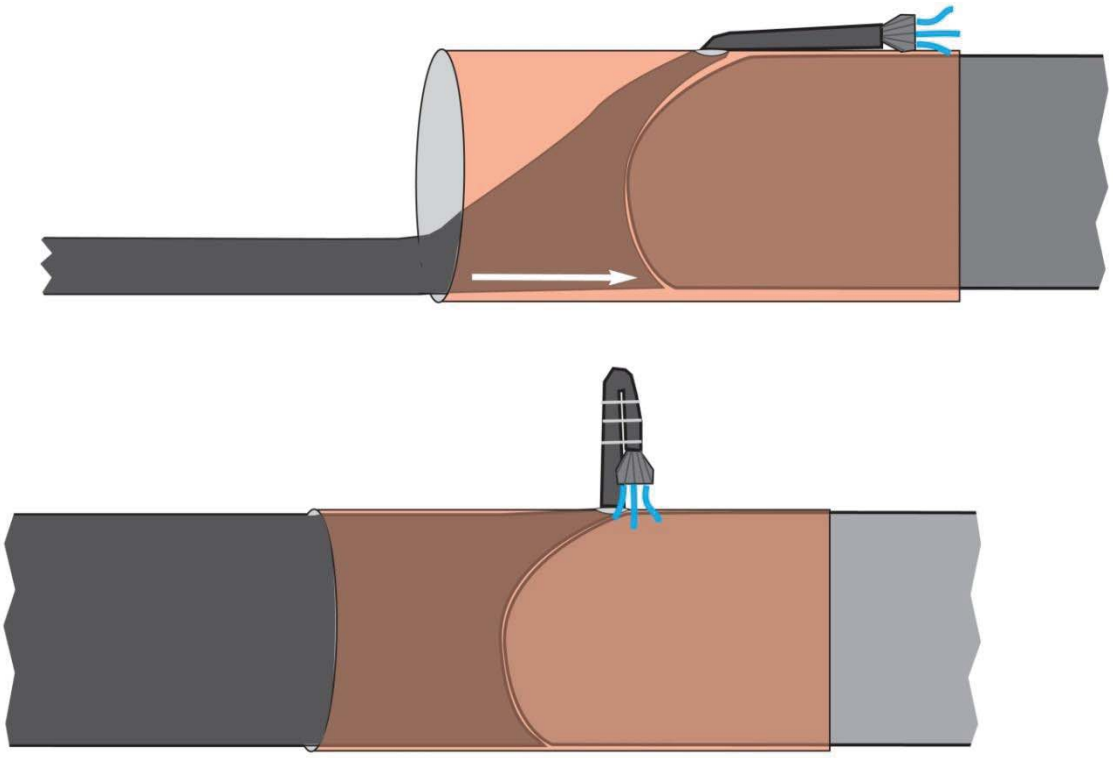
11: Once the AquaDam is full AND AquaDam 2 is correctly positioned within the collar of AquaDam 1 remove connectors from hose inserts on AquaDam 1 and connect to those on AquaDam 2. Commence filling and then make ready AquaDam 3 etc.

12: Repeat stage 4 (Connect the water pumps)

Roll the AquaDam out into the desired position. Ensure the fill tubes remain on top of AquaDam 1 collar. It is preferable to elevate these fill tubes.

12: Repeat stage 5 (Stabilise the AquaDam as required)

13: Filling AquaDam 2 – when ready commence filling AquaDam 2 and prepare to position AquaDam 3 etc. WARNING – see paragraph 6 above.



Once full, elevate and secure fill tubes in upright position using duct tape to prevent siphon dewatering.

If it is desired to increase pressure within the AquaDam proceed as follows. With one fill tube taped off elevate the remaining fill tube and allow the water pump to run at idle for a few moments. Keeping the fill tube elevated tape off and secure both fill tubes together.

Deployment into existing flood water

Installing an AquaDam into existing water is a common occurrence. Instead of rolling the dam out and then filling with water the dam must be filled as it is unrolled. This way the AquaDam will sink to the ground and remain in position throughout the installation process.

Post Installation Protection and Monitoring

Once an AquaDam flood barrier has been installed it should be protected from damage/interference/vandalism and monitored for correct operation. If water is leaking from an AquaDam the lost water must be replaced by connecting a water pump to a fill tube.

Protection

Protection against accidental damage, tampering, vandalism and theft should be considered. It is for the installing authority to assess the level of risk and put in place appropriate measures.

Monitoring

Once an AquaDam system has been installed it should periodically be inspected for performance, stability and condition. The inspector should be vigilant for developing environmental threats e.g. a potential threat may be posed by increasing traffic levels coupled with the absence of safety barriers to keep vehicular or pedestrian traffic clear of an AquaDam installation.

The frequency of inspection should be decided by the installation authority.

Factors to consider in deciding the frequency of inspections include but are not limited to:

I. Importance of protected areas/assets
II. Current flood status at the temporary barrier
III. Vandalism/tampering threat level
IV. Maximum flood depth

Inspection Procedure

This inspection is best carried by personnel who are familiar with a particular AquaDam installation (location).

A. Confirm adequate protection is in place and effective e.g. road cones/pedestrian barriers
B. Confirm adequate security procedures are in place and effective
C. Walk along the entire length of the AquaDam installation and confirm for **EACH AquaDam** in the installation:
    a. The dam is fully inflated. This is indicated by being firm enough to walk on.
    b. Each fill tube remains elevated
    c. There are no signs of damage.
D. Should an AquaDam appear to be deflating the immediate response is to add water into both fill tubes of the damaged section. For minor leaks this can be achieved using a small portable water pump or even a domestic garden hose from a nearby house. Additional monitoring may be appropriate.
E. It is advisable to keep an **AquaDam Flood Barrier Inspection Log**. This will permit meaningful information as the condition of a flood barrier to be passed between responsible personnel at shift change.

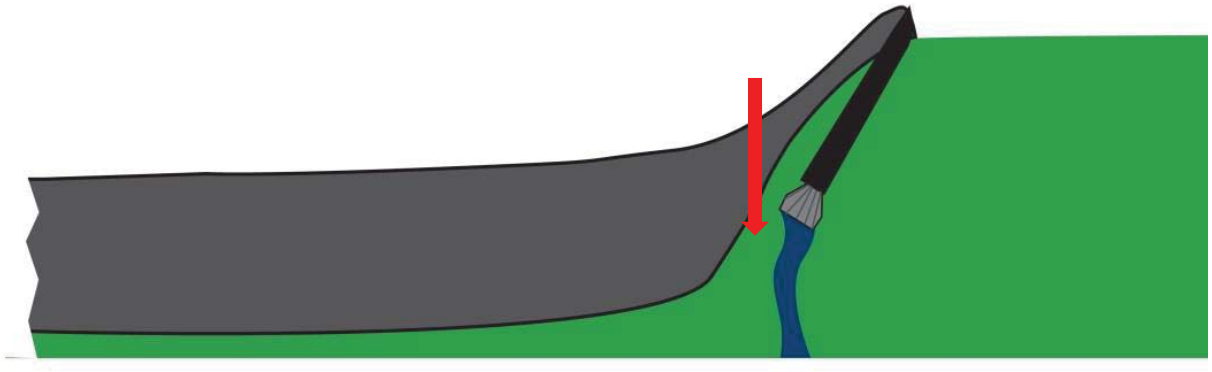
AquaDam Emptying and Removal

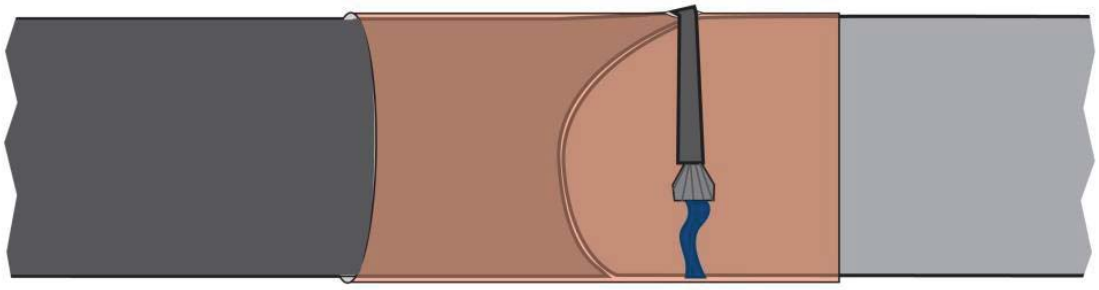
AquaDam is designed for high speed installation in response to an imminent flood threat. The process of emptying and re-rolling an AquaDam ready for storage takes significantly more time and manpower than installation. The use of lifting equipment will greatly assist.

It should be understood that a fully inflated AquaDams contain large volumes of water which must be released in a controlled fashion if a secondary flood event is to be avoided.

CAUTION – even a small amount of contained water within an AquaDam will dramatically increase the weight of handling the AquaDam. Attempting to lift a partially full AquaDam may cause irreparable damage.

In the first instance emptying the AquaDam is carried out by simply lowering each fill tube to allow the water to flow out under gravity. This process will take time.





Once the dam is largely deflated the fill tube cover sleeve should be removed to expose the plastic fill tube.

The duct tape should be removed and the plastic pushed back through the collar and the tube lowered to the ground.

As the AquaDam empties of water the structure becomes more flexible. Eventually, each dam can be separated and the remaining water removed through re-rolling. Lifting equipment can be used WITH care to avoid overstressing the geotextile material. SLOWLY elevate short sections of each dam to allow gravity to assist with dewatering.

Re-roll bars are available as an optional purchase.

Cutting an AquaDam Joining Collar to speed emptying – although not a recommended procedure some operators cut and remove the joining collars to speed recovery and removal of an AquaDam installation. These collars cannot be repaired but replacements are available.

Maintenance and Storage

AquaDams can be stored indoors or outdoors. Take care to avoid damage by vehicles, animals/vermin or corrosive liquid spills. Storage on pallets will facilitate movement.

Rolled AquaDams can be stacked.

Although the geotextile material is UV protected we recommend when stored outdoors the dams are covered with a tarpaulin or similar for maximum life.

Following a major flood deployment it is recommended that dams returned to storage after deployment are inflated with air, inspected for damage and re-rolled with insert hose reinstalled into each fill tube and the fill tube cover sleeve slid back into position.

Repairs

The geotextile outer material is robust and will tolerate some damage. If damaged the AquaDam plastic liner should be repaired using AquaDam repair tape and a heat gun.

Inflating the AquaDam with an air blower will allow a thorough internal inspection.

AquaDam repair kits are available to purchase.

AquaDam Limitations and Risk

The consequences of a temporary flood barrier failure must be fully understood by the controlling authority when preparing an AquaDam Installation Plan. In particular adequate measures must be put in place to prevent injury. Evacuation of a protected area may be an appropriate response.

A flood protection risk assessment should to be carried out by a suitably qualified suitably qualified expert prior to installation of a flood protection barrier to ensure the relevant routes for water entry have been identified and that the installation will not affect the structural integrity of any associated buildings.

Failure Mechanisms

There are multiple factors which may cause a temporary flood barrier to fail. It is the responsibility of the installation authority to fully consider all possibilities.

Factors specific to AquaDam

1. **MFD – Maximum Flood Depth** is the limiting performance of an AquaDam. An AquaDam must only be used within its stated limiting performance MFD. If the MFD of an AquaDam is exceeded the temporary barrier may fail.

2. An AquaDam will deliver stated performance only when fully inflated with water. Under inflation or partial deflation as a result of damage or poor installation will compromise stated performance.

3. Air pumped into an AquaDam displacing some of the fill water will compromise performance.

DISPOSAL

AquaDam is manufactured from polypropylene (geotextile outer material) and polyethylene (plastic inner) and is suitable for recycling.

Where an AquaDam has come into contact with pollutants specialist advice should be sought.

Ancillary Equipment

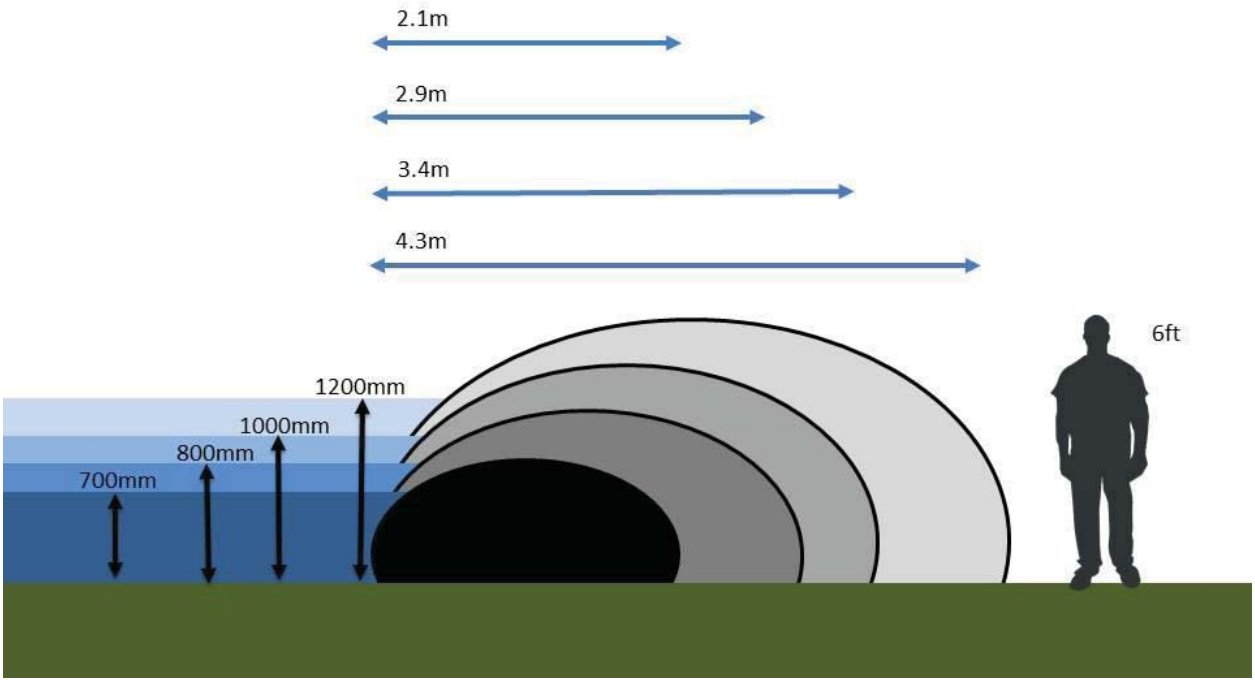
Re-roll bars – optional purchase

DCE Launch dam with twin collars – optional purchase

Typical air blower for AquaDam air inflation for inspection/repair operations

Typical heat gun for tube repair

AquaDam range



	Max Flood Depth	Inflated Height	Inflated Width	Max length
FP700	70cm	92cm	210cm	150m
FP800	80cm	120cm	290cm	150m
FP1000	100cm	150cm	340cm	150m
FP1200	120cm	180cm	430cm	150m

Lengths to best suit the operational requirements of the installing authority up to a maximum single length of 150m

Notes

AquaDam Installation Plan (AIP)

LOCATION	**Name**
	Suitability *slope, surface, obstacles, max anticipated flood depth*
Launch Point (Existing / Improvised)	
Flood barrier path length	
No of AquaDams Number of AquaDams	*See AIP requirement 4 above*
Obstacles Remove or run around obstacles. Allow for additional length.	
Water supply distance Accessibility to water supply	*The distance between the water supply and the furthest AquaDam fill end.*
Additional discharge hose Requirement over 30m	*Each water pumps is supplied with 30m of discharge hose as standard.*
Additional connectors Required in adding hose length	
Additional Notes for AquaDam Installers – *e.g.* *1. Identify possible routes of water ingress with flood barrier in place* *2. Inspection frequency /responsibility of AquaDam installation i. before flood ii. during flood*	
Consequences of flood barrier failure – *detail appropriate precautions and procedures e.g. Evacuation of non-essential personnel from protected areas.*	

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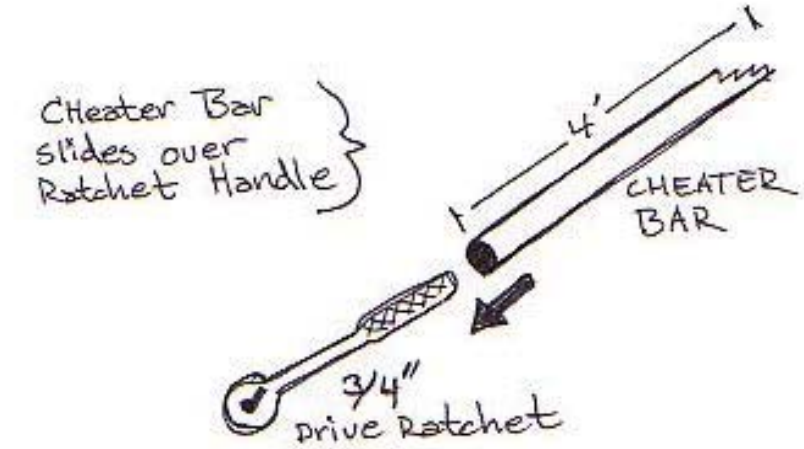
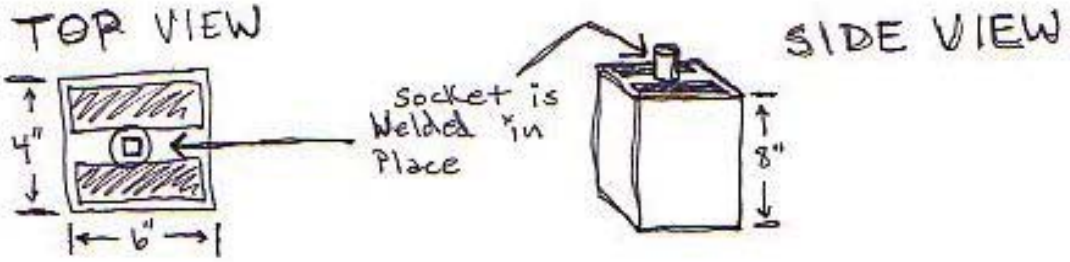
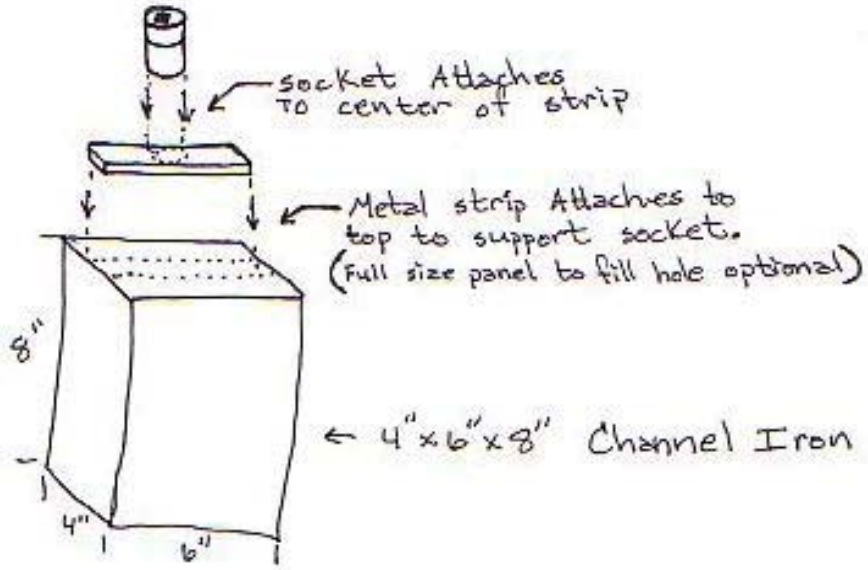
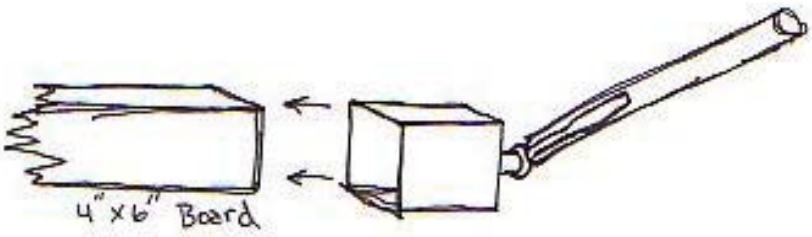








Double Closed-Ended AquaDam Users Guide

An amendment to our standard User's Guide.

One end of the AquaDam is closed with a coupling collar. It is rolled so that the collar is the last thing to be deployed. The AquaDam is rolled on a 4" x 6" wooden core. A 4" x 6" bracket is attached to each end of the core, and a ¾" drive ratchet with a cheater bar is attached to it. This allows the AquaDam to be rolled up easily using 1-2 workers.

On a standard AquaDam, the zippered end would be left open and would have to be elevated above the filled height of the AquaDam by placing them against a bank or something similar to hold in the water. However, this AquaDam will be closed on the normally open end with a zipper. The fill tubes will come up through the top, and to get them in position the fill hoses must first be inserted into the fill tubes.

A 3” fill hose with a quick-connect fitting is inserted well into each fill tube, and the fill tube is then bunched around it.

The fill tube is then wrapped tightly around the 3” fill hose and secured with duct tape. This part of the tube will extend up through the fill hole and out the top of the filled AquaDam. Little or no pressure will be placed on this part of the fill tube because it will be higher in elevation than the rest of the AquaDam, so there is no danger of the duct tape breaking.

Both fill tubes must be wrapped tightly enough so that they will fit through the reinforced fill tube holes and so that the blue hoses will not slip out when under pressure. **Do not pull the blue hoses out of the fill tubes!**

The tightly wrapped fill tubes and hoses are pulled up through the holes so that the fill tubes extend out approximately 5 feet. **Do not pull the blue hoses out of the fill tubes!** There are many extra feet of blue fill hose inside the AquaDam to prevent them from slipping out, but some pulling may be necessary to pass water through a kinked blue hose when the filling process starts.

The fill tubes (with the blue fill hoses already inside) are bent over carefully to ensure that water flow will not be restricted in any way. Special care is taken not to kink the fill hoses inside the black fill tubes.

When the fill tubes are pulled through far enough, the inner tubes should just fit inside the outer tube with a foot or more of extra slack.

The AquaDam is then zipped completely closed. The zipper allows for easy access for relining and draining. The duct tape can be removed from the fill tubes, they can be laid out flat, and all of the water inside can be drained from the AquaDam. Once the AquaDam is drained, the process described above should be followed to prepare the AquaDam for the next use.

This double closed –ended AquaDam is designed to abut into the cement wall of a building. On each side and in the middle of the zippered end loops are sewn into the AquaDam. These are used to help secure the AquaDam to the wall. Hooks should be placed into the wall so that the loops of the AquaDam can hold it in place at least 3’ up the wall.

The AquaDam should extend up the wall it abuts into at least ¾ the height of the AquaDam when it is completely full of water. You can hold it by hand, or you can tie it up. It is very important that this end stays elevated! Otherwise the AquaDam will pull off the wall and allow a space to be created between the AquaDam and the wall, which will allow leakage.

The AquaDam needs to press firmly against whatever it abuts into. It should be given some slack on each end because the ends will naturally round out as the AquaDam fills. Leaving slack will ensure a tight fit and minimize leakage between the AquaDam and the wall. Where the wall and the ground meet, one half-full sandbag can be placed under the AquaDam to prevent seepage underneath.

This AquaDam has a zippered end, so it can also be used in our standard open-ended configuration, with the open end starting up a bank or the side of a wall.

A small amount of sand or fill material (3 square yards, less than one dump truck) could be placed at the base of the wall so that the slope would be gradual rather than vertical. The opposite end of the AquaDam will run up the wall or bank as shown in this picture. It is fine if there is still material left on the roll. For safety you can tie this ends wooden core off to something (tree, post, rock).

Using the rerolling brackets and ¾” drive ratchets w/ bars, you can stop the AquaDam from unrolling. This will allow you to keep driveways clear until the last minute.

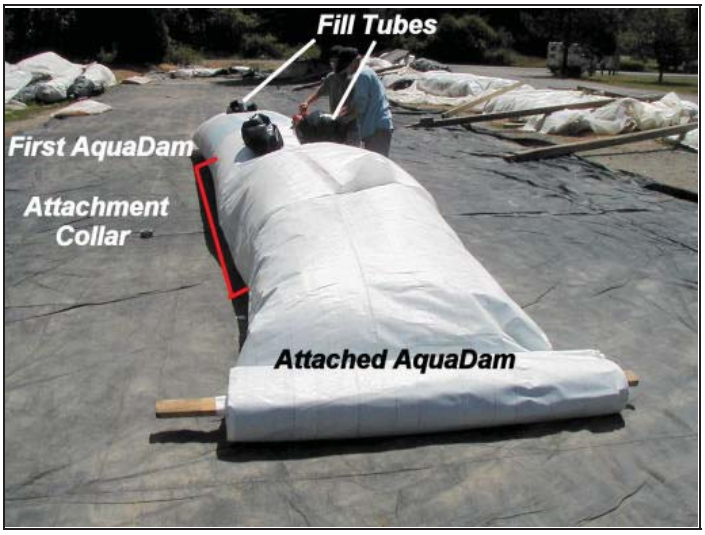
Since the AquaDam is already in place and partially unrolled, it will take only a matter of minutes to finish the installation. Just remove the ratchets, start filling and allow the AquaDam to unroll as normal. The AquaDam will want to unroll. Laborers should stand behind it as the ratchets are removed to maintain the internal pressure from unrolling too quickly.

To drain the AquaDam, ratchets can be used to twist the water back to the open end which extends up the bank so that it can be drained or pumped out. Simply pull the end off the bank and let it drain. A closed-ended AquaDam will have to be drained with a siphon hose. For a closed-ended structure with a zipper, remove the duct tape from the fill tubes and allow water to start draining before unzipping.

1. A 30” high x 30’ long closed-ended AquaDam with two zippered ends.

3. An attachment collar has been added to both ends.

2. Fill tubes extend out the top. The AquaDam is inflated with air.



4. Two AquaDams being connected together using the attachment collar.

Notes:

When filling first begins, start slowly. The pumps should be kept on idle until kinks in the fill hoses can be addressed. It is possible that the hoses will be kinked, and must be massaged until the kink comes out and water starts flowing. The end of the inside plastic will have a tendency to be pulled down when elevated. The weight of the hose with the water in it will cause it to want to kink and slide down. You may have to unzip it and grab the inside tube to readjust it. Do not get the inside tube caught in the zipper! Do not unzip the AquaDam if it has more than 6" of water inside! You can gently pull on the blue hoses to straighten out kinks inside the AquaDam. You can safely pull out about 5' of the blue hose. Do it in short pulls, a little bit goes a long way. The hose is approximately 20' long. Try not to pull out more than necessary to unkink the hose.

The length of the AquaDam remaining on the roll has been marked on top so that you will know how much material is left. Once you are pumping water, you are committed! You cannot move that section of the AquaDam without draining it! You should put the AquaDam out under pressure by having 3-4 people stand behind it, letting it fill until it builds internal pressure, and then letting it out a little at a time. More information on this can be found under the Installation section of our web site. Because there air cannot escape a full closed-ended AquaDam, make sure to "burp" it by walking along the top while it still has less than a foot of water in it, starting at the end with collar and working your way toward the fill hoses. You should burp it again when it has 2' of water in it. Many water pumps also pump air.

If your area is perfectly flat, you can unroll the entire AquaDam by hand and lay it in position before filling, making sure that each end is at least 3' high on the wall of the building you want to abut into. The AquaDam can be turned any way that you want, but each end must abut into a building if it is going to be watertight. However, few areas are perfectly flat. If the area is sloped from one side of the AquaDam to the other, something must be used to hold the AquaDam in place or it will try to roll downhill due to the lack of internal water pressure. A human foot, a small pile of fill material, or a couple of sandbags should work just fine to hold the AquaDam in place, depending on the slope.

Once you start adding water, you will not be able to move that potion of the AquaDam because of the weight, so choose the position carefully. Use a measuring tape! When the AquaDam is completely filled, the internal pressure will compensate for the slope and hold it securely in place, even holding back a head of water.

AquaDam Flood Control Assessment Form

Please complete this form and either email it back to matthew@aquadam.net or fax it to 707-243-2541.

Please send some pictures of the area where you plan to install the AquaDams. The more details, the better we can help you plan your installation plan for emergency flood control.

****All customers should perform test deployments from time to time in order to be familiar with the installation process. Sharp or Large Objects should be removed or avoided. The starting end of the AquaDam should be elevated up a bank, to allow for the full height to be reached.****

Your Name:

Physical (street) Address:

Mailing Address of Company / Agency:

City / State / Zip:

Home Phone:

Cell:

Email:

How did you hear about us:

Required Total Linear Footage of AquaDams:

Installation conditions (is there dirt, gravel, bricks, concrete or other substrate present in the path of the AquaDam?):

Anticipated Max Flood Water Control Depth:

Surface Conditions at site:

If other surfaces (or a combination) then describe:

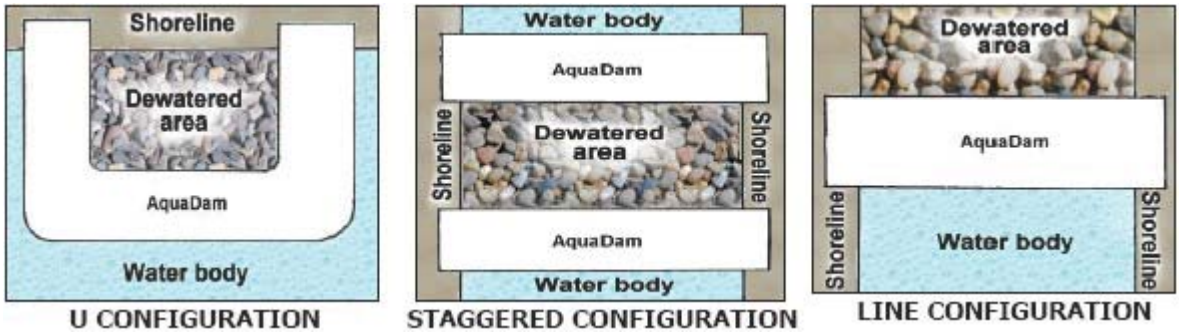
Describe the Dirt / Mud/ Sand Depth and consistency:

Are there any objects present that could damage a Dam? If so, please describe:

Are any slopes present:

If there are any Grades or slope, Please describe in detail:

AquaDam Worksite Configuration:



How soon do you need a quote?

Additional Notes or Comments:

Aqua Dam Inc's recommendations regarding AquaDam applications are dependent on application information provided by the Customer. The undersigned Customer representative hereby declares that, to the best of the Customer's knowledge, the information contained in this form is complete and accurate. The Customer Representative understands that, if actual field conditions prior to ordering installation differ from those stated on the form, Aqua Dam Inc has the option to refuse to supervise the installation if the job cannot be performed safely. In the event that Aqua Dam Inc agrees to supervise an installation in circumstances other than those described on this form, or in circumstances which exceed the design limitation of the AquaDam, the Customer shall bear all liability for damages of any type sustained as a consequence of the installation and use of the AquaDam. Aqua Dam Inc. has not been to the site, so the contractor is solely responsible for the selection of the correct size AquaDam(s) for the site conditions during the course of the entire project.

X_____ _____
Signature Date

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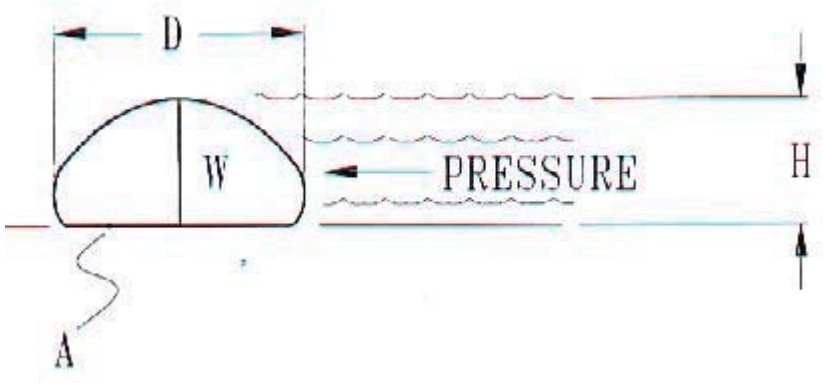

In order for an AquaDam® to move as a result of the pressure exerted on one side, it must slide across the surface on which it rests. In order to tip, the water pressure must lift the first inner tube up and over the second. The following calculations show the AquaDams® resistance to tipping:

Assumptions:

> To facilitate the calculations, we will assume that the inner tubes are generally rectangular when filled. As the worst case scenario, we will assume that the water level on one side has reached the top of the AquaDams®.

P = pressure
h = water depth
D = width of AquaDam®
l == length of AquaDam®
p = mass density of water
g = gravitational acceleration
Y = specific weight of water
F= force exerted on the face of the AquaDam® due to pressure (P)
A = area of the side face of the AquaDam®
W = weight of water in the inner tube
V = volume of the inner tube
P = pgh = yh

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$P_{avg} = \gamma(h/2)$
$A = hl$
$F = PA = P_{avg}A$
$W = \gamma V$

The force exerted on the side of the AquaDam® is then: $F=\gamma\frac{h}{2}hl$

Having determined the force on the side of the AquaDam®, we can evaluate the tendency of the AquaDam® to tip. We assume point A as the pivot point and sum moments about this point. The moment created by each force, is a measure of how much the force contributes to rotating the first column of water around point A.

$$\sum M_A = W\frac{1}{2}D - F\frac{n}{3} = 0$$

OR

$$\sum M_A = \rho h\frac{D}{2}l\frac{D}{2} - \rho\frac{h^2}{2}l\frac{h}{3} = 0$$

Simplifying the expression we see that the stability of the AquaDam® is dependant on the relationship between its width (D) and the depth of water it must resist.

$$D=(.82)h$$

The relationship above indicates the minimum width of the AquaDam® to prevent it from tipping when resisting water with a depth (h) equal to the height of the AquaDam® itself. The design height for the AquaDam® to prevent tipping would be described as:

$$D>(.82)h$$

In order to quantify the stability of the AquaDam® we substitute the actual dimensions of the standard AquaDam® for D and h into the equation above. The results are expressed in terms of a safety factor. The safety factor indicates how many times greater the water pressure or water depth must be in order to roll the AquaDam®. Based on the current AquaDam® designs, the safety factor against tipping when the water levels are to the top of the AquaDam® areas follows:

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INFLATED HEIGHT (in inches)	INFLATED WIDTH (in inches)	SAFETY FACTOR AGAINST TIPPING
12	24	2.44
24	46	2.34
36	68	2.30
48	120	3.48
72	186	3.15
84	282	4.12

If the recommended maximum water depth is maintained, the safety factor against tipping is improved. The following table illustrates the improvement when recommended water depths are observed:

INFLATED HEIGHT (in inches)	INFLATED WIDTH (in inches)	RECOMMENDED MAXIMUM DEPTH	SAFETY FACTOR AGAINST TIPPING
12	24	8	3.65
24	46	18	3.11
36	68	28	2.96
48	120	36	4.06
72	186	54	4.20
84	282	72	4.78

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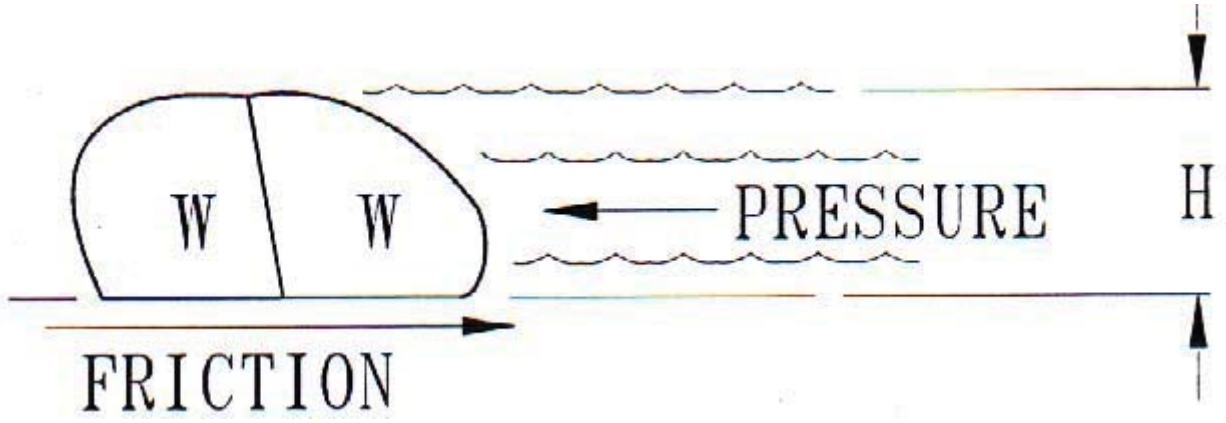
The second method for moving the AquaDam® is to slide the entire dam. The resistance to sliding is provided by the friction between the ground and the structure. Although any type of barrier could slide along the ground if the pushing force were great enough, we will present the calculations for sliding the AquaDam® in order to quantify its tendency to slide.



AquaDam®

In addition to the variables already defined we add:
μ=coefficient of friction between AquaDam® and its supporting surface
f=friction force
N=normal force (equivalent to weight)

Assumptions:

> We are assuming that the supporting surface is smooth and flat. Any deviation from a smooth surface will add greater opposition to sliding. Again, we assume that the inner tubes are generally rectangular to facilitate the calculations.

f=μN=μW

$$\sum F_x=\mu W-F=0$$

or

$$\sum F_x=2(\gamma\frac{D}{2}hl)\mu-\gamma\frac{h}{2}hl=0$$

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Deriving a term for the coefficient of friction yields:

$$\mu = \frac{1}{2} hD$$

For current AquaDam® designs, the coefficient of friction (μ) that will allow sliding (when the water depth is equal to the height of the AquaDam®) are as follows:

INFLATED HEIGHT (in inches)	INFLATED WIDTH (in inches)	WHEN WATER LEVEL = AQUADAM HEIGHT
12	24	.25
24	46	.26
36	68	.26
48	120	.2
72	186	.19
84	282	.15

The coefficient of friction that will allow sliding if the recommended maximum waterdepths are observed is as follows:

INFLATED HEIGHT (in inches)	INFLATED WIDTH (in inches)	RECOMMENDED MAXIMUM DEPTH (in inches)	WHEN RECOMMENDED WATER LEVELS ARE USED
12	24	8	.11
24	46	18	.15
36	68	28	.16
48	120	36	.11
72	186	54	.11
84	282	72	.11

Coefficients of friction ranging from .10 - .20 indicate that the surface may be quite slippery. For example, the coefficient of friction between two pieces of greased or oiled steel is .10 - .20. Again we have assumed that the surface under the AquaDam® will be comparatively rough and will pose even greater opposition to sliding than indicated in the calculations above. The principles used to create the AquaDam® are simple, yet effective. The stable non-rolling wall of water conforms to the surface beneath it, creating a tight seal. The AquaDam® will remain stationary even if water levels reach the maximum recommended water containment depth. AquaDams® provide a lightweight, reusable and ecologically safe method of temporary water control.

This technical information was compiled by Todd Mendenhall at F. S. New Products, Inc.

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See instructions below:

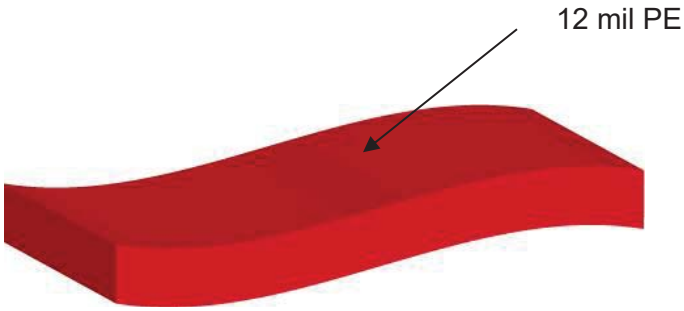
AQUADAM® PATCH TAPE INSTRUCTIONS

1. Locate leak in AquaDam which consists of two inner tubes within a master woven geotextile tube. The inner tube is the one that needs to be patched.
2. Tools needed: pair of pliers, razor or pocket knife, heat to warm up the patch tape, example: small propane torch, automobile window defroster, automobile muffler with car running, sunlight, and cigarette lighter. Patch tape works best when warmed then placed on a clean, dry surface. Patch tape will stick on wet surface of inside black tube.
3. First person with pliers pinches outer material, and then lifts up. Second person with razor knife makes slit into outside material ONLY (approximately 4-6 inches long). Stick finger into slit to keep inside and outside material separated while enlarging slit. Use knife carefully as shown in first picture #2. DO NOT CUT or PUNCTURE INSIDE TUBE.
4. Hole is exposed on inside tube that has water leaking.
5. Frayed ends of knife slice of outer woven material needs to be cut off using scissors, razor knife, or torched. This will keep the frayed ends of outer material from adhering to tape.
6. Area that needs to be patched has been prepared.
7. Measure and cut patch tape. Patch tape should surround the hole plus the surrounding area on all sides. The slit in the outside geotextile woven material should be long enough to accommodate a large piece (4" to 6") of patch tape. Warm with heat. Patch tape will have clear pull-off plastic protecting the gray tape. The other side will be black, geotextile material. Use razor knife to cut. (Heat gray side of material with clear plastic in place). Separate corner of clear plastic to get corner starting to peel.
8. Place gray side down and start corner into slit in between the inside and outside tubes. Try to spread evenly. Work clear film halfway off patch tape.
9. Additional hands needed to hold the outside tube elevated while the other side of the patch tape is forced in between the other side of the hole that needs to be patched.
10. Picture out of sequence. Second half of tape may need to be reheated.
11. Pull off clear protective film. Tape needs to lay flat against the inside tube without creases. Evaluate your success. If still leaking, pull off and discard. Try again with new tape. Enlarge the slit in outside tube so that patch tape can be placed easier. Slit will not cause the outside tube to fail. Do not worry. Trust me.
12. Smooth patch in place.
13. If second leak discovered repeat steps.
14. Cover outside slit with patch tape. (Optional – save your patch tape).
15. Completed patch job repair. Holes located on top of the AquaDam are the easiest to patch. Hole located on bottom cannot be patched until the AquaDam is emptied. The patch can be placed on the inside of the inside tube when the AquaDam is blown up with air.

LAYFIELD
FLEXIBLE PACKAGING

PRODUCT SPECIFICATION
12 mil water liners

Structure Diagram



Film Property		Unit	Typical Value	Test Method
Gauge		mil	12	
Tensile Strength	MD	MPa	11	ASTM D882
	TD	MPa	9	ASTM D882
Elongation	MD	%	1070	ASTM D882
	TD	%	1220	ASTM D882
Tear Strength	MD	g/mil	265	ASTM D1922
	TD	g/mil	405	ASTM D1922

(1) **Typical values represent average laboratory values and are intended as guides only, not as specifications.**
(2) **Properties designated have been determined in accordance with the current issues of the specified test methods.**

TUBE FABRIC MILL CERT

PRODUCT: AQ-105LF

CONSTRUCTION: Woven geotextile of consisting of strong, rot resistant, chemically stable long chain synthetic polymer materials, dimensionally stable with each other. The plastic yarn or fibers used in this geotextile consist of at least 95% percent by mass of polyolefins, polyesters, or polymides; and contain stabilizers and inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultraviolet and heat exposure.

CERTIFIED MARV VALUES:

GRAB TENSILE MD (ASTM D 4632): 315 POUNDS
GRAB TENSILE CD (ASTM D 4632): 315 POUNDS
ELONGATION MD (ASTM D 4632): 15 %
ELONGATION CD (ASTM D 4632): 15 %
PUNCTURE (ASTM D 4833): 140 POUNDS
TRAP TEAR MD (ASTM D 4533): 135 POUNDS
TRAP TEAR MD (ASTM D 4533): 135 POUNDS
AOS* (ASTM D 4751): 40 US SIEVE
PERMITTIVITY (ASTM D 4491): 0.05 PER SEC
FLOW RATE (ASTM D 4491): 4.2 GPM/SF
UV STRENGTH AT 2500 HOURS (ASTM D 4355): 80%

* ASTM D 4751, AOS is a Maximum Opening Diameter Value

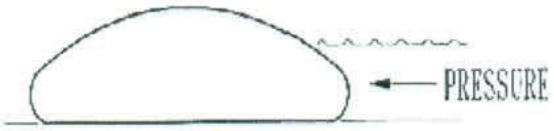
Manufacturers Name: VANTAGE PARTNERS, LLC **Date:** _____
Manufacturer's Official: Randy DeMao **Title:** President

386 East Plaza Drive * Mooresville, NC 28115 * (704) 871-8700 * (704) 871-9700 Fax

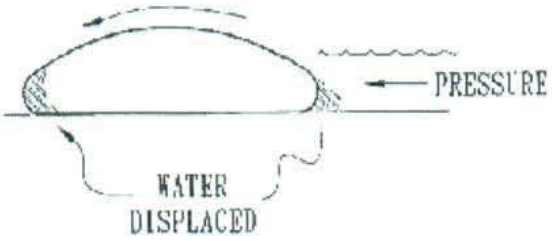
Technical Overview:

AquaDams® are environmentally safe, stable water barriers used to contain, divert, and control the flow of water. The design consists of two polyethylene liners contained by a single woven geo-tech outer tube. When the two inner tubes are filled with water, the resulting pressure and mass create a stable, non-rolling wall of water.

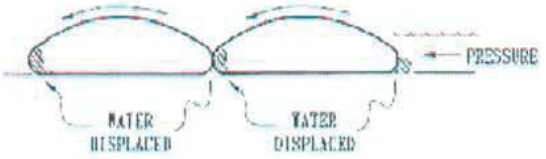
A single tube filled with water will not provide a stable wall or dam. As the water builds up on one side of the tube the pressure on the wall of the tube begins to increase.



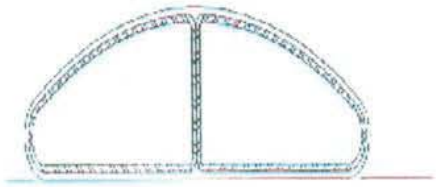
As a result of the building pressure, the water is pushed from one side of the tube to the other side where the pressure remains low. As the water continues to move from one side to the other, the tube begins to roll.



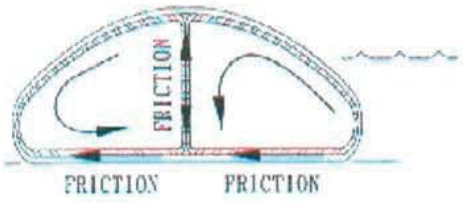
Two water-filled tubes or columns placed side-by-side will assume their natural shapes. If pressure is applied to one side, the water is displaced in the first tube and causes it to roll. As the first tube rolls, it pushes on the second tube moving the water from one side to the other and the two tubes roll together.



The AquaDam® is able to offer a stable wall by containing two water columns in a single outer tube. The contained water columns are unable to assume their natural position and form a vertical wall in the middle as they press against each other. The pressure inside the tubes applies a substantial force to both sides of this vertical wall.

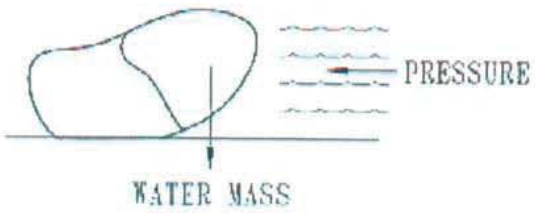


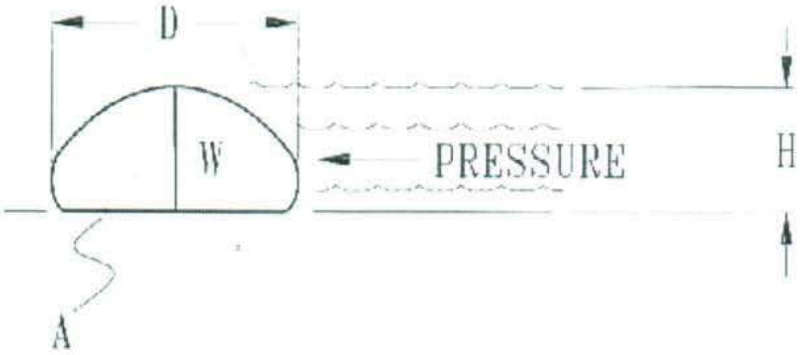
As water pressure begins to build on one side of the AquaDam®, the inner tube naturally tries to roll. However, the friction between the vertical walls and between the inner and outer tubes opposes the rolling tendency and the structure remains fixed.



As water pressure builds on one side of the AquaDam®, the pressure displaces the water in the inner tubes. However, because the inner tubes are unable to move, the AquaDam® assumes a position of equilibrium and behaves as a solid dam.

In order to move or tip a filled AquaDam®, the maximum recommended working depth would have to be exceeded. Too much water pressure against the side may cause the entire AquaDam® to slide or tip sideways, depending on the nature of the surface and friction factor it is placed on. It would be technically impossible for one tube to roll completely over another in a filled AquaDam.





In order for an AquaDam® to move as a result of the pressure exerted on one side, it must slide across the surface on which it rests. In order to tip, the water pressure must lift the first inner tube up and over the second. The following calculations show the AquaDams® resistance to tipping:

Assumptions:
To facilitate the calculations, we will assume that the inner tubes are generally rectangular when filled. As the worst case scenario, we will assume that the water level on one side has reached the top of the AquaDams®.

P = pressure
h = water depth
D = width of AquaDam®
I == length of AquaDam®
p = mass density of water
g = gravitational acceleration
Y = specific weight of water
F= force exerted on the face of the AquaDam® due to pressure (P)
A = area of the side face of the AquaDam®
W = weight of water in the inner tube
V = volume of the inner tube
P = pgh = yh

$$P_{avg} = \gamma(h/2)$$
$$A = hl$$
$$F = PA = P_{avg}A$$
$$W = \gamma V$$

The force exerted on the side of the AquaDam® is then:

$$F = \gamma \frac{h}{2} hl$$

Having determined the force on the side of the AquaDam®, we can evaluate the tendency of the AquaDam® to tip. We assume point A as the pivot point and sum moments about this point. The moment created by each force, is a measure of how much the force contributes to rotating the first column of water around point A.

$$\sum M_A = W\frac{1}{2}D - F\frac{h}{3} = 0$$

OR

$$\sum M_A = \rho h\frac{D}{2}l\frac{D}{2} - \rho\frac{h^2}{2}l\frac{h}{3} = 0$$

Simplifying the expression we see that the stability of the AquaDam® is dependant on the relationship between its width (D) and the depth of water it must resist: ***D=(.82)h***

The relationship above indicates the minimum width of the AquaDam® to prevent it from tipping when resisting water with a depth (h) equal to the height of the AquaDam® itself. The design height for the AquaDam® to prevent tipping would be described as: ***D>(.82)h***

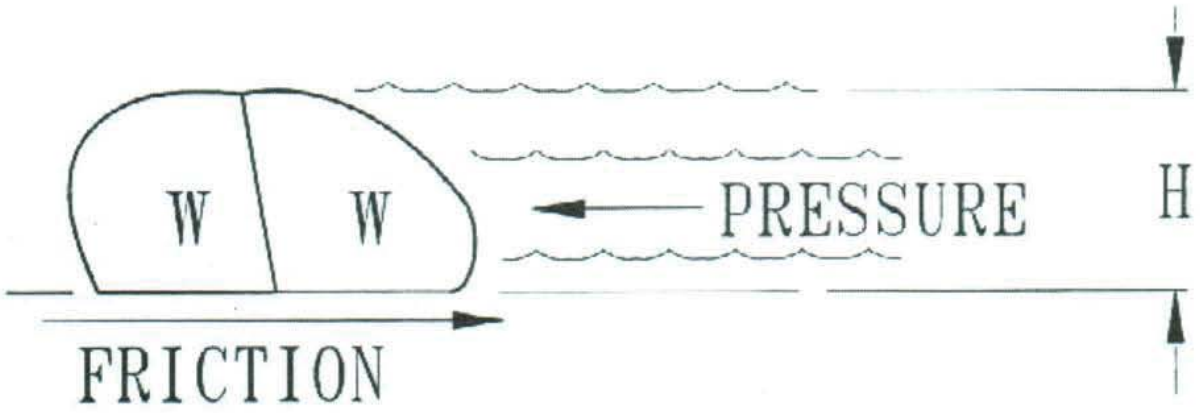
In order to quantify the stability of the AquaDam® we substitute the actual dimensions of the standard AquaDam® for D and h into the equation above. The results are expressed in terms of a safety factor. The safety factor indicates how many times greater the water pressure or water depth must be in order to roll the AquaDam®. Based on the current AquaDam® designs, the safety factor against tipping when the water levels are to the top of the AquaDam® are as follows:

INFLATED HEIGHT (in inches)	INFLATED WIDTH (in inches)	SAFETY FACTOR AGAINST TIPPING
12	24	2.44
24	46	2.34
36	68	2.30
48	120	3.48
72	186	3.15
84	282	4.12

If the recommended maximum water depth is maintained, the safety factor against tipping is improved. The following table illustrates the improvement when recommended water depths are observed:

INFLATED HEIGHT (in inches)	INFLATED WIDTH (in inches)	RECOMMENDED MAXIMUM DEPTH	SAFETY FACTOR AGAINST TIPPING
12	24	8	3.65
24	46	18	3.11
36	68	28	2.96
48	120	36	4.06
72	186	54	4.20
84	282	72	4.78

The second method for moving the AquaDam® is to slide the entire dam. The resistance to sliding is provided by the friction between the ground and the structure. Although any type of barrier could slide along the ground if the pushing force were great enough, we will present the calculations for sliding the AquaDam® in order to quantify its tendency to slide.



In addition to the variables already defined we add:
μ=coefficient of friction between AquaDam® and its supporting surface
f=friction force
N=normal force (equivalent to weight)

Assumptions:
We are assuming that the supporting surface is smooth and flat. Any deviation from a smooth surface will add greater opposition to sliding. Again, we assume that the inner tubes are generally rectangular to facilitate the calculations: $f=\mu N=\mu W$

$$\sum F_x=\mu W-F=0$$

or

$$\sum F_x=2(\gamma\frac{D}{2}hl)\mu-\gamma\frac{h}{2}hl=0$$

Deriving a term for the coefficient of friction yields: $\mu=\frac{h}{2D}$

For current AquaDam® designs, the coefficient of friction (μ) that will allow sliding are as follows:

INFLATED HEIGHT (in inches)	INFLATED WIDTH (in inches)	WHEN WATER LEVEL = AQUADAM HEIGHT
12	24	.25
24	46	.26
36	68	.26
48	120	.2
72	186	.19
84	282	.15

The coefficient of friction that will allow sliding if the recommended maximum water depths are observed:

INFLATED HEIGHT (in inches)	INFLATED WIDTH (in inches)	RECOMMENDED MAXIMUM DEPTH (in inches)	WHEN RECOMMENDED WATER LEVELS ARE USED
12	24	8	.11
24	46	18	.15
36	68	28	.16
48	120	36	.11
72	186	54	.11
84	282	72	.11

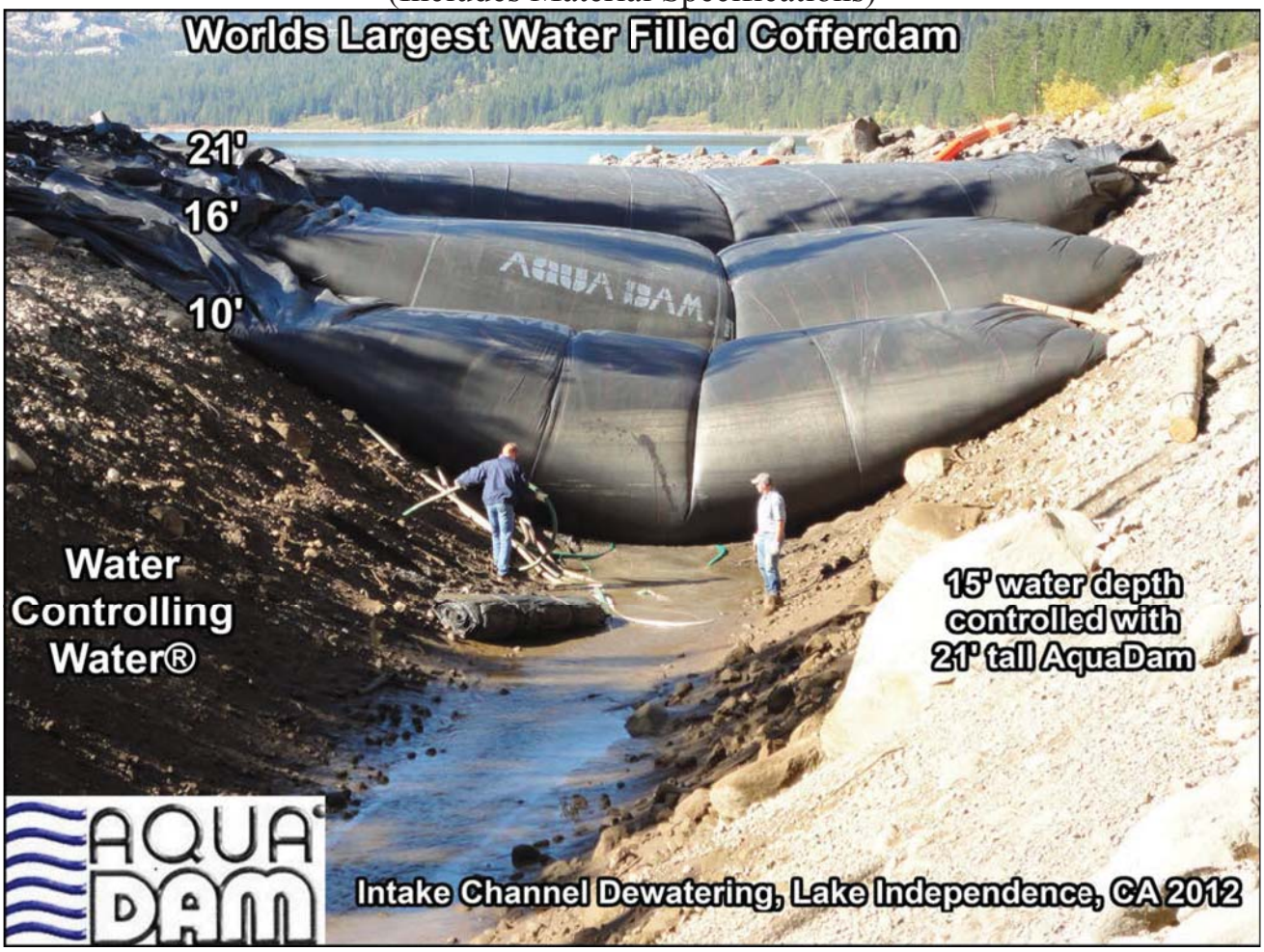
Coefficients of friction ranging from .10 - .20 indicate that the surface may be quite slippery. For example, the coefficient of friction between two pieces of greased or oiled steel is .10 - .20. Again we have assumed that the surface under the AquaDam® will be comparatively rough and will pose even greater opposition to sliding than indicated in the calculations above. The principles used to create the AquaDam® are simple, yet effective. The stable non-rolling wall of water conforms to the surface beneath it, creating a tight seal. The AquaDam® remain stationary even if water levels reach the maximum recommended water containment depth. AquaDams® provide a lightweight, reusable and ecologically safe method of temporary water control.

AquaDam®

"Water Controlling Water"™

User's Guide

(Includes Material Specifications)



Low-Impact, Environmentally Friendly Water Filled Cofferdams for Stream Diversions, Flood Control, Haz-Mat Containment, and Dewatering Structures.

AquaDams® are flexible water filled barriers that can be used as barriers or cofferdams to isolate work areas such as stream diversions and dewatering boat ramps, boat docks, and pond liners for repairs.
They are more effective than sandbags and other water control devices.

Revised: 1/2019

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Table of Contents

Introduction

AquaDam Inc.® manufactures AquaDams®, a low-impact water filled option that is quickly supplanting temporary earthen filled cofferdams (barriers). The Clean Water Act demands the use of alternatives to fill discharges, where practical, to achieve Best Management Practices. Site isolation is mandatory. Water filled protective devices, such as AquaDams®, are the ideal tools for water management programs that protect the aquatic environment. The U.S. Army Corps of Engineers has and is presently approving the use of AquaDams® as a viable, environmentally acceptable method of diverting or containing water.

The following is an overview of AquaDam Inc®; the various applications of AquaDams®; site and size requirements; equipment and manpower requirements; installation techniques; safety, maintenance, and removal.

About The Company

AquaDam Inc.® was incorporated in 2009, after 20 years of using the idea of water controlling water to offer a new concept for managing water diversions, dewatering, flood control barriers, levee toppings, and water storage by using AquaDams. AquaDam Inc. offers observation services and free consulting services regarding the installation and implementation of a water filled cofferdam. The most important features of AquaDams are the ease and speed at which they can be installed (especially in emergency situations), and that they consist almost entirely of onsite water and have a good chance of being reused.

Patents

AquaDam Inc.® uses patents on the design and utilization of multiple chambered AquaDams® that use water and air as the inflation media, and the technique used in connecting multiple AquaDams® together to achieve any necessary length.

US Patent No. 5059065
US Patent No. 5125767
US Patent No. 6481928

Several other patents are currently pending.

Concept

AquaDams are portable dams meant for temporary use, which are filled with onsite water,and can be installed wherever needed to contain or divert the flow of water. AquaDams consist of two basic parts: an outer or “master” sleeve made of a heavy duty geotextile woven polypropylene with a vertical internal stability baffle, which holds the two polyethylene inner tubes (A & B) in contact when filled with water. The baffled outer sleeve and inner tubes combine to form an AquaDam as shown in *Figure 1*, a cut away section illustrating the relationship between the inner and outer tubes of a typical filled AquaDam.

Figure 1: A Typical Filled AquaDam®

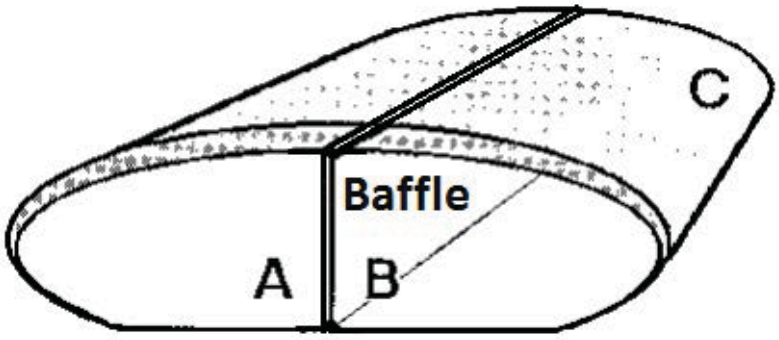


Figure 1. A cross section of a typical AquaDam, illustrating the relationship between the two inner tubes which contain the water and the “master” sleeve that keeps the inner tubes parallel and in contact with each other.

A and B illustrates the two inner tubes inflated with water.
C is the outer or “master” sleeve made of very tough polypropylene woven geotextile fabric which confines the water filled inner tubes, making the AquaDam a solid wall of water. These two confined columns of water provide the mass, weight, and pressure that gives the AquaDam its stability.

To install an AquaDam, onsite water is pumped into the two inner tubes during the installation process. The durable woven outer sleeve confines the water-inflated inner tubes. The counter friction / hydraulic pressure between the inner tube and the baffled outer sleeve, along with the mass and weight of the water, creates pressure and stabilizes the AquaDam when lateral water pressure is exerted against it. Due to the inherent flexibility of the materials used to confine the water, AquaDams will conform to most surfaces, providing an excellent seal and keeping water seepage to a minimum.

AquaDams come in a variety of sizes, ranging from to 16 feet in height when inflated. AquaDams come in standard lengths from 50 to 500 feet, in 50 feet increments, and are available for immediate shipment. Any length can be fabricated, usually within 3 to 4 days from the time of order. Shorter, longer, or irregular lengths are available with notice. Using coupling collars, two or more AquaDams can be joined together to form a continuous cofferdam of any length. AquaDams are joined together by patented coupling collar connection. Large and small AquaDams can be used in conjunction with each other. The possible configurations are almost endless. They can be used in a straight line, to form an arc, or to encircle an area.

AquaDams are usually assembled at the factory and shipped rolled and ready for use at the job site. However, it is not unusual to assemble larger AquaDams on site. A typical AquaDam® consists of the "master" sleeve and a pair of inner tubes rolled up on a wooden core, as shown in *Figure 2.* In many instances, the core also plays an important part in the installation, rerolling for future use, and transportantion of AquaDams.

Figure 2:

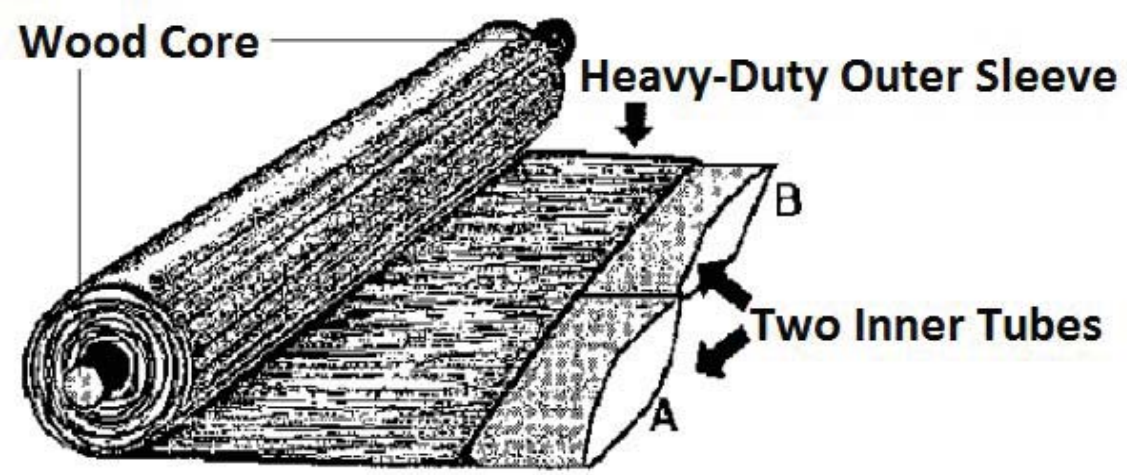


Figure 2. A typical factory assembled AquaDam prior to inflation, showing the inner tubes and outer sleeve rolled up around the core. The AquaDams' tubes (A & B) are left open for filling purposes. This open, starting end will be elevated up the stream bank (the starting point) which has to be higher than the elevation that the main body of the AquaDam will achieve when fully inflated. The other end is sealed and has an attached coupling collar used for allowing a second AquaDam® to be connected.

What Is A Cofferdam?

Applications

AquaDams can be used in a wide range of applications. Listed below are some of the more common applications of AquaDams :

Construction • Work area Isolation and Dewatering • Water diversion in rivers and wetlands • Water containment • Boat ramp dewatering • Pond liner repair dewatering • Bridge pier repair • Pipeline crossings • Erosion control through diversion or containment of flowing water • Water intake structures for municipalities • Water discharge structures	**Environmental** • Fish habitat improvement • Silt containment, sediment collection, or settling ponds • Hazardous material or chemical spills (containment) • Temporary foot causeway through environmentally sensitive areas • Wetlands management •
Flood Control • Residential • Municipal • Industrial • Commercial • Levees, levee toppings	**Water Storage** • Residential • Municipal • Industrial • Commercial

The old ways of earthen fill discharges and expensive sheet piling have been the traditional method of isolating submerged work areas. These methods are environmentally detrimental, time consuming, and expensive because of their reliance on heavy equipment.

Water filled cofferdams eliminate the fill-discharge risk of construction sites. Onsite water is pumped into an AquaDam, which unrolls due to the water pressure inside it and can be installed in hours in most applications, without causing damage to the aquatic environment with the AquaDam isolating the work area. Complete dewatering of the worksite can be achieved and your work can begin.

When used for perimeter flood control and augmenting levees, for example, AquaDams are much more effective than sandbags. They can be installed quickly, at a fraction of the cost, without all the foot traffic associated with labor-intensive sandbagging.

The amount of water that can be stored in a standard 4 foot AquaDam, with a width of 10 feet and a length of 100 feet (filled to capacity), is about 21,000 gallons. AquaDams are durable, long lasting, and with proper installation and removal can be stored and used again and again. Should a leak develop, patching tape is available. If necessary, replacement tubes are available for purchase.

AquaDams are relatively easy to install, requiring only a couple of portable pumps, an onsite water supply, and two or more laborers depending on the size of the AquaDam.

AquaDam® Height Selection and Size Criteria

Appropriate AquaDam height selection is determined by a number of factors, including work site conditions, the water depth to be contained or diverted, and to a lesser degree, stream bed slope and water velocity. Accurate estimation of maximum water depth over the life of the diversion project is very important . *Table 1* lists sizes of AquaDams and their maximum rated controllable mud / water depth. Customized dams of any length can be ordered.

Table 1: Standard AquaDam® Heights and Maximum Controllable Mud / Water Depth

Inflated Height (Feet)	Inflated Width (Feet)	Maximum Controllable Mud / Water Depth (Inches)
1' (0.3m)	2' (0.61m)	9” (23 cm)
1.5' (0.45m)	3' (0.9m)	14” (36 cm)
2' (0.61m)	4' (1.2m)	18” (45 cm)
2.5' (0.76m)	5' (1.5m)	24” (61 cm)
3' (0.9m)	7' (2.1m)	30” (77 cm)
4' (1.2m)	9' (2.7m)	38” (97 cm)
5' (1.5m)	11' (3.3m)	44” (112 cm)
6' (1.8m)	13' (4m)	54” (137 cm)
8' (2.4m)	17' (5.2m)	74” (188 cm)
10' (3m)	21' (6.4m)	88” (223 cm)
12' (3.7m)	25' (7.6m)	100” (254 cm)
16' (4.8m)	33' (10m)	126” (320 cm)

This chart represents the maximum controllable mud / water depth to be controlled on flat surfaces. The slope and topography of the stream bed needs to be accounted for as well as water depths.

Water Depth

The height to be controlled by the AquaDam is the most important factor when selecting the proper size. A good rule of thumb is to overestimate water levels over the lifetime of the project. The importance of determining the correct projected maximum water depths after installation and diversion of the stream cannot be stressed enough. Too small of an AquaDam will fail. The depth of water to be retained by an AquaDam is often underestimated by the buyer, resulting in an AquaDam that is too small for the projects requirements. This results in delays, increased costs and potentially unsafe work conditions.

Water Velocity

When an AquaDam is used to dam or divert flowing water, water velocity is a concern. During installation, the AquaDam is being filled with water, causing it to unroll across the stream channel. This causes water flow to back up and an increase in water depth. The water velocity around the end of the AquaDam is increased. Depending on the firmness of the river bed, some undercutting might occur around the end of the AquaDam as it is being installed. This results in an increase in the depth of water to be retained and should be factored into the analysis. Velocity of current is also a factor. The water head will build up on the upstream side and water on the downstream side flows away before the completion of the installation. Installation in moving water requires control of the rate of unrolling of the AquaDam, maintaining head above surrounding water level with ropes.

Installation Site

AquaDams can be installed on top of most types of soils or fluvial materials, including: flat lying bed rock, mud, sand, gravel, small rocks, and vegetation. Select a site that is flat, and devoid of: wire, rebar, sharp objects, garbage, glass or dead vegetation containing tree branches, rip-rap, or other obstructions. The slope of the river bed should also be relatively flat or inclined in the direction of the upstream or contained water. Make sure to check the installation course for holes, obstructions or washed out areas that may cause problems during installation.

Weather / Spring Run-off

Local wet seasons and thunderstorms affect water levels in rivers, lakes, and wetlands and are important to understand during your construction project. Projects that have flexible construction dates should be coordinated with favorable weather conditions that avoid high water levels. Water depth being controlled by the AquaDam should never exceed the rated maximum controllable mud / water depth during the life of the project, not just the day the AquaDam is installed.

Other Site Criteria

All of the previous factors are important considerations once the site has been selected. The following are additional factors that may influence the site selection:

Width of the River. A location on a wide, shallow river is easier to cofferdam than a narrow river channel. Wide rivers will allow a diversion with only minor increases in water depth. A narrow river will quickly increase in water depth as the AquaDam takes up available flow channel. The larger and wider the diversion channel, the less the water depth will increase.

Rough River Bed. An extremely rugged alpine river bed (such as the Eagle River) with large angular boulders within the stream bed is a difficult area, since a good tight seal can only be accomplished through the removal of said boulders by hand or heavy equipment. In the case of the Eagle River, the boulders were scraped into a line, and the AquaDam was installed directly upstream so that the boulders would help support it. Using four ropes to restrain the AquaDam from unrolling freely is also important in the installation.

Installation

Small AquaDams (1' – 4' high)

Equipment List:

- We recommend that you use at least two portable gasoline water 3” discharge pumps; any water supply will work. Anything from fire hydrants to garden hoses is acceptable; it all depends on the speed at which you want to install the AquaDam. *Attention: City mains water are chlorinated and pressurized, therefore, you may need a permit to use this water source. If this source is used, then an air bubble will form in the AquaDam and will need to be released.
- Two discharge and suction hoses, one each per pump; no fitting is required on the end of the discharge hoses.
- A roll of duct tape to secure and constrict the size of the fill tubes when coupling AquaDams together.
- For safety reasons, each laborer should carry a utility knife.
- 2” x 6” boards, 2 feet and 4 feet long
- Ropes

AquaDam Inc. recommends a 5.5HP Honda gas powered 3” discharge pumps which provide a maximum flow rate of 15,000 GPH. They are available from your local distributor for sale or rental. They can also be ordered from Great Plains Manufacturers and Distributors: 1-800-525-9716. Using two of these you can inflate: A 1' high by 100' long AquaDam in less than 15 minutes; a 2' high by 100' long AquaDam in 30 minutes; a 3' high by 100' long AquaDam in under an hour; and a 4' high by 100' long AquaDam in under an hour and a half.

Man Power. Two to four laborers are required to install the smaller AquaDams. Plan out the installation beforehand and discuss it with your work party. The number of AquaDams to be installed, time constraints, and access to the installation sites may dictate the need for additional help.

Rock Removal. Someone will have to remove rocks by hand from the path of the AquaDam to assure that a good seal is achieved. The laborers installing the AquaDam are already committed, and cannot be the rock picking crew. Rocks should be picked out from directly in front of the AquaDam as it is being installed. The rocks should be stacked on the work area side of the AquaDam to provide additional support.

Large AquaDams (6' – 16' high)

Equipment List:

- At least two discharge pumps are required; using larger or more numerous pumps will inflate the AquaDam faster; the fill tubes can be opened to accommodate any size discharge hose.
- One discharge and suction hose per pump; discharge hoses do not require fittings. No sharps on hoses entering AquaDam. Hoses must be long enough to reach from the pump to the start of the fill tubes.
- A roll of duct tape for securing the fill tubes.
- For safety reasons, each laborer should have a utility knife.
- In moving water, restraining ropes need to be used to assist the installation; at the very least, each 100 foot AquaDam that is installed requires 250 feet of ½ inch rope. A four rope set up is strongly recommended on the installation of AquaDams 6 feet high or larger in fast-moving rivers and streams.

Manpower (for installation in non-moving water). Three to five laborers are needed to install the larger AquaDams in non-moving water. Ropes are usually not needed to restrain the AquaDam from unrolling during the installation process, but can be used to pull the AquaDam around using people or equipment on shore, if water depths are too great for a laborer to stand. Non-moving water conditions require the fewest number of laborers.

Manpower (for installation in moving water). Five to seven laborers are needed to install the larger AquaDams; the exact number of laborers is related to the size and number of AquaDams to be installed, terrain above and below water, water velocity, water depths, and time constraints. *Table 2* better describes the manpower needed during a typical installation of AquaDams 6 feet or more in height in moving water.

Table 2: Recommended Manpower Requirements During Installation in Moving Water

AquaDam Size	Rope Assisted Installation	Number of Laborers in Water	Number of Laborers on Pumps
1 – 3 feet	No	2 - 4	1
4 feet	Yes - 2	2 - 4	1
6 feet	Yes - 3	2 - 4	1
8 feet	Yes- 4	2 - 4	1

Table 2. The need for ropes depends on moving water rather than the height of the AquaDam. The use of ropes is to prevent the AquaDam from prematurely unrolling during installation.

Strong water velocities or currents require more manpower to ensure proper installation, and to secure the safety of those installing the AquaDam. The above list does not address personnel that might be operating heavy equipment, such as an excavator. An AquaDam Inc. representative who will observe the customers crew and equipment during the installation and make suggestions is also recommended.

Table 2 (continued). In most installations, very little site preparation work is required, but to obtain a good seal, rock picking is a must. The are should also be policed for objects that might puncture the AquaDam during installation. See "Rock Removal" on page 9.

This guide assumes that all Federal, State, County, and City permits have been obtained from the appropriate government authority. AquaDam Inc. also recommends that the buyer (Prime Contractor, Company Supervisor, etc) have an understanding of the necessary permits and what can or cannot be done within the river bed (lake) should the use of heavy equipment be necessary.

AquaDam Installation Procedures

Installation can be broken down into three categories: moving water (rivers and streams), non-moving water (lakes, ponds, non-pumped irrigation ditches), and dry land installation.

Step 1 – Transport

Transport the AquaDam to the installation starting point. Smaller AquaDams can be easily moved into position by hand.

Carrying ropes or straps are provided on larger AquaDams. Just hook or tie the ropes or straps to a piece of heavy equipment for transportation. Unpack the AquaDam by carefully removing the protective wrap from the outside after cutting the packing ropes and carrying straps with a knife.

Step 2 – Starting Point

The open, starting end of the AquaDam will have long fill-tubes protruding from the open end of the outer sleeve of the AquaDam (usually 2 to 6 feet long). These are for connecting one AquaDam to another using a connection collar. The fll-tubes are not the start of the AquaDam. The AquaDam starts at the woven outside (usually black) sleeve that confines the two inner water tight tubes (see *Figure 1*). Position the end of the outer sleeve up the bank at least as high as the main body of the AquaDam will be when fully inflated (i.e., a 3 foot high AquaDam would have at least 4 feet in elevation up the bank. The bank slope will have to be calculated in, and the end will have to be higher than the water level inside the AquaDam after inflation. The AquaDam will only achieve its rated height at the lowest point along its path.).

If the bank is not tall enough to achieve its necessary starting height, a small amount of fill material can be placed at the waters edge to create a false bank or berm. This is the least expensive way to way a good starting point.

Step 3 – Preparing the AquaDam for Filling

Insert a fill hose into each fill tube. Excess fill tube length can be cut off if not desire for future use. Wrap duct tape or tie rope tightly around the fill tubes to keep the fill hose from bucking out. The corners at the end of the AquaDam The corners at the end of the AquaDam can be tied to an anchor, such as, a tree or rock to prevent it from slipping down the bank slope. For smaller dams (3 feet and under), laborers are needed to stand in front of the AquaDam roll at the foot of the slope along the waters edge. Filling begins by pumping into both the inside tubes at the same rate. The rolled portion of the AquaDam will begin to unroll, and will push against the laborers legs. The laborers will wait for the water level inside the AquaDam to rise above water level. When the height of the AquaDam is great enough (several inches), the laborers should take a step back. Then they must wait until the height builds up again before taking another step back. All laborers must step backwards in unison and cooperate so that a foot does not get caught under the AquaDam. Water levels inside the AquaDam must be kept at a level higher than the upstream water side of the AquaDam. This water depth will increase as the unrolling AquaDam begins to constrict (cut off) the available flow channel.

Step 4 – Moving Rocks and Debris

When installing an AquaDam, you must not only remove rocks from its path to maximize formation of a good seal, you must remove all debris. Sharp, angular objects are often submerged along the path of the AquaDam, and usually the only way to find them is to walk around in the water until you step on them. Not only will these obstructions cause a greater amount of seepage into the work area, there is always the possibility that they may cause damage to the AquaDam. **Never take it for granted that your work area is free from debris! Always check first!**

This shopping cart was completely invisible during high tide.

Step 5 – Restraining Ropes

Large AquaDams
AquaDams that are four or more feet in height commonly require control ropes to restrain the rolled AquaDam during the installation process in live streams. Without these ropes the pressure of the water in the inner tubes will cause the AquaDam to unroll before the proper inside head pressure is achieved. Maintaining control and preventing the pressure from prematurely unrolling the AquaDam is very important. The pressure of the water mass inside the AquaDam has to withstand the pressure generated by the difference between the upstream and downstream water levels. In standing water, the pressure will be the same on both sides of the AquaDam (until dewatering begins by pumping).

The number of ropes required by a particular sized AquaDam is discussed in *Table 2* and *Figure 3*. If ropes are to be used in the installation process, they should be placed under the AquaDam before water is added. The ropes are attached to the base of the metal posts or trees, then run under the AquaDam, over the top, and back to the starting point. They should be held in a manner that will allow the rope to be let out as the AquaDam unrolls across the stream. The rope should be twice as long as the AquaDam when inflated, plus an extra 50 feet. Bending the rope around a heavy, round smooth anchor, such as, a telephone pole or excavator, adds leverage.

Standing Water Applications

Installation into standing water is much simplier than installation in live streams. The AquaDam will unroll itself with a minimum number of laborers to assist in the installation. Ropes can be used to turn the AquaDam in places where it is too deep for laborers to stand. Water level from one side of the AquaDam to the other should remain equal, making it unnecessary to maintain dam height during installation. Laborers just need to guide it in the right direction.

Step 6 – Determine Height and Elevation

The rolled AquaDam should start at the top of the riverbank or berm. The open, starting end of the AquaDam must be raised higher up the starting point than the height of the fully inflated AquaDam. Gravity keeps the water used to fill the AquaDam from flowing back out the elevated end.

Figure 3: Large AquaDam Installation Across a Flowing Stream

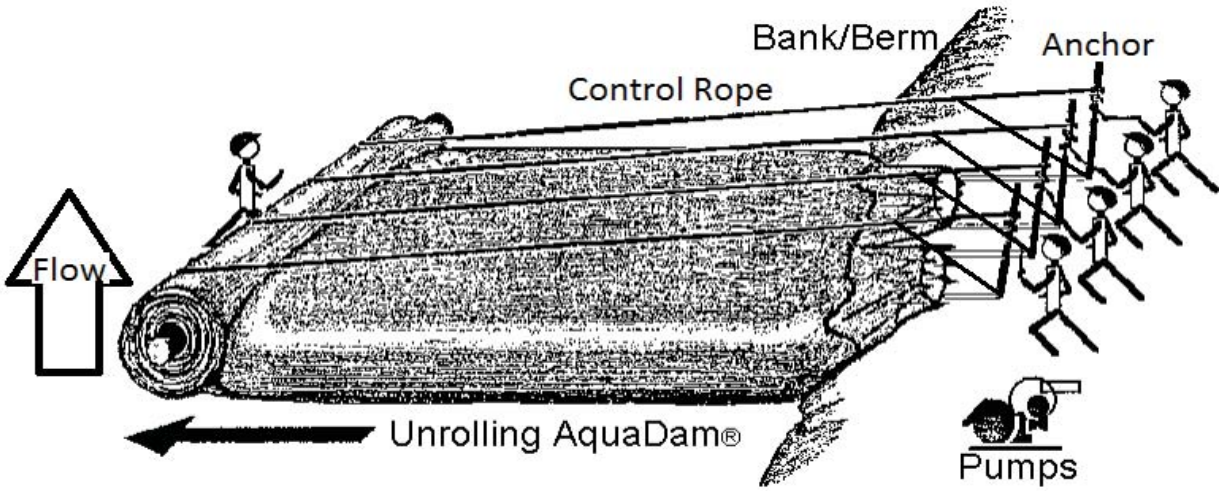


Figure 3 shows the location of the ropes, posts, laborers and the inflating AquaDam.

Step 7 – Filling the AquaDam

Figure 3 represents the most difficult installation scenario, such as a flowing stream where ropes must be used. The onsite conditions can change quickly in live streams because water depths will change from one side of the AquaDam to the other. This difference in pressure will make the AquaDam move downstream unless head pressure is maintained inside the AquaDam during all phases of the installation. An AquaDam that is unrolled too quickly and is not allowed to fill above the level of the surrounding water, will move downstream with the water flow. The workers on the bank slowly let the ropes out to allow the AquaDam to unroll when inside water pressure and mass are achieved. Allow the AquaDam to unroll 2 to 3 feet at a time, then wait for head pressure to build again, repeating this process until the AquaDam is fully unrolled. Timing is everything. **Do not get in a hurry! Let your pumps work!** A requirement of using ropes is that the AquaDam must be installed in a straight line. Turns can be made depending on site conditions and use of a deadman. Head pressure must be maintained inside the AquaDam to prevent it from moving. Ropes tend to move to the outside of the unrolling AquaDam. The worker at the end of the unrolling AquaDam adjusts the ropes and keeps them in the center by slackening and moving one rope at a time while the other ropes maintain the necessary inside pressure to keep the AquaDam from moving downstream. On site rock that needs to be moved to assure a good seal should always be moved to the downstream side and used for support.

Figure 4:

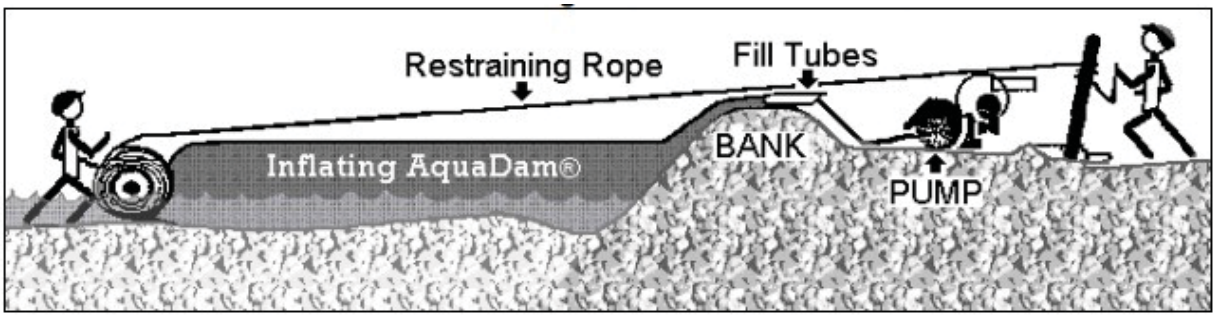


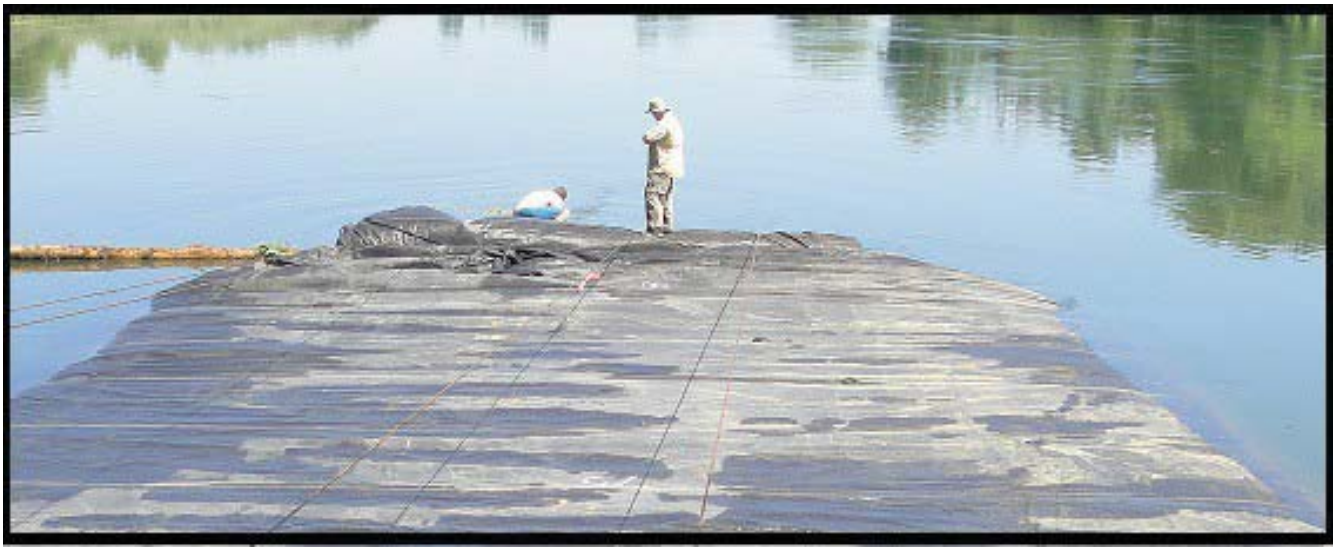
Figure 4. A cross section of a large AquaDam being installed in flowing water, illustrating the location of

the berm, pumps, ropes, laborers and the inside water head pressure, compared to the outside water levels.

Manning the Ropes

Once the ropes are manned, the pumps are primed, and the AquaDam is aimed in the proper direction (at a perpendicular angle to the slope of the staring bank), the pumps can be turned on and the inflation process can begin. *Figure 5* shows a picture of restraining ropes used during installation of a large AquaDam in a fast moving river. In some instances, a project demands that a larger AquaDam should be used despite the low water level, because of the anticipated increase in water depth. The AquaDam should be allowed to unroll at a rate of about 1 to 3 feet every time the ropes are slackened and maintain a 12 to 24 inch (or greater) head of water pressure inside the AquaDam, compared to the upstream water depth, which will be increasing. Each foot of installed AquaDam requires 2 feet of additional rope. The AquaDam has to overcome imbalances of water head displacements happening in the river during the installation process. **Only experienced installation personnel should attempt to install large AquaDams in moving water.** Smaller AquaDams can be installed more easily and require less expertise.

Figure 5: Using Ropes to Install an AquaDam in Flowing Water



Lateral Movement

An AquaDam being installed in flowing water is vulnerable to moving downstream during the installation process. Maintaining internal head pressure is very important. A technique used to install large AquaDams in flowing water is to install a shorter, sometimes smaller dam in a straight line using ropes (this is sometimes referred to as a “deaman”), and then place the bigger AquaDam directly upstream, allowing it to rest against the smaller AquaDam. In this fashion, t he head pressure in the larger upstream AquaDam can be lowered to allow it to turn around the end of the smaller AquaDam, without it having to be kept in a straight line with ropes. Another technique can be used with fill material that is inside of a 1 meter sandbag to create the same effect.

How Lateral Movement Occurs

Lateral movement of an AquaDan during installatioon occurs when there is insufficient head height inside the AquaDam to overcome the force generated from the difference in water height between the upstream side of the AquaDam and the downstream side. The difference in water depth must be compensated for by maintaining appropriate head height inside the AquaDam during and after installation. Upstream water levels will rise rapidly as the flow channel is reduced during installation and should be monitored continuously by the crew in the water.

Sometimes lateral movement is hard to detect, but usually the following are indications:

- Visual lateral movement of the AquaDam.
- The top seam of the AquaDam is straight for some distance but appears bent in the middle.
- The AquaDam is no longer pointed in the direction originally taken.

If lateral movement begins to take place or evidence of rolling can be detected, the steps should be taken to correct it. A minor change in water level could wash out the AquaDam if the proper amount of head pressure is not maintained during installation. One step that can be taken to prevent lateral movement is to increase the internal water volume which creates the internal pressure. All rocks moved for seepage control should be used to brace the AquaDam during installation. Often, fill material has to be excavated from the channel. This should be placed behind the AquaDam for controlled than what our Users Guide suggests.

AquaDams should always be filled with the maximum amount of water possible. Always fill your AquaDam to their recommended height, measured at the lowest point along the path of the AquaDam.
Other solutions to moving or sliding are to install a smaller AquaDam directly behind the main AquaDam on the dewatering side. In standing water, if the work are has already been dewatered, stop dewatering and allow the bodies of water on either side of the AquaDam to equalize.

Figure 6: Shoring-Up Cross Section

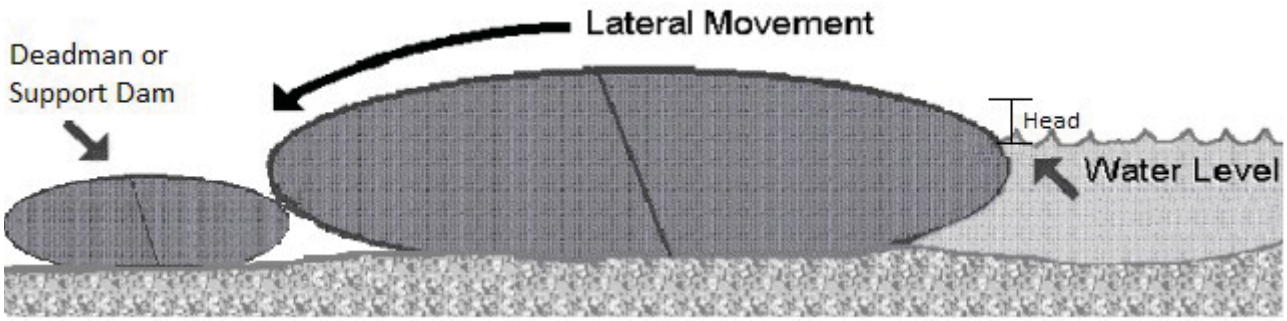


Figure 6. A cross section showing the placement of a support dam to shore up an AquaDam that shows signs of lateral movement.

Connecting AquaDam Sections Using Connection Collars

Step 1: Certain applications require two or more AquaDams to be coupled together to form a longer, continuous water-filled cofferdam. The following illustrates how this is accomplished (the procedure assumes that the AquaDams are being joined in a straight line end to end). All standard single closed-ended AquaDams come with a connection collar on the closed end. The other end is open and has the fill tubes, and has been designed to fit snugly into the connection collar. Before a second AquaDam can be attached, step one is to install an AquaDam fitted with a connection collar. Fill this first dam to about 2/3 capacity before making a connection.

Step 2: Position the second AquaDam directly in front and in line with the first partially filled AquaDam and unroll about 10 feet of the new section, exposing the length of the fill tubes. (See *Figure 7 A*)

Step 3: Insert the fill tubes through the holes on the connection collar, the left fill tube through the left hole and the right fill tube through the right hole. This is done by working your way inside the connection collar, pushing the inner tube toward the hole and having a second person reach through the hole from the outside, grab the tube, and pull it through the hole (about four feet of fill tube should be pulled on top for a four foot high AquaDam). Pull the outer tube of the AquaDam being connected inside the connection and around the inner tubes as well as possible. The new section should be totally enclosed by the connection collar, and the outer sleeve of the connecting AquaDam being installed should be pulled up so as to be in contact with the end of the first, partially filled AquaDam. Pull all excess material up on top through the holes. (See *Figure 7 C*)

Step 4: The 4'x8'x1/2" sheet of plywood described in the equipment list is for the pumps to sit on, should they need to be places on an AquaDam. When two AquaDams are attached together, pumps are generally set on the previously filled AquaDam, about 15 to 20 feet away from the connection point between the two AquaDams. The plywood will prevent damage to the AquaDam, but it is not necessary. (*See Figure 7 D*)

Step 5: At this point the new section is ready to be filled in the same manner as the first section. Follow all of the instructions previously presented to install the first AquaDam. *Figure 8* is a drawing of two AquaDams, one filled and the other ready to be filled.

Figure 7: Connecting AquaDams Using Connection Collars

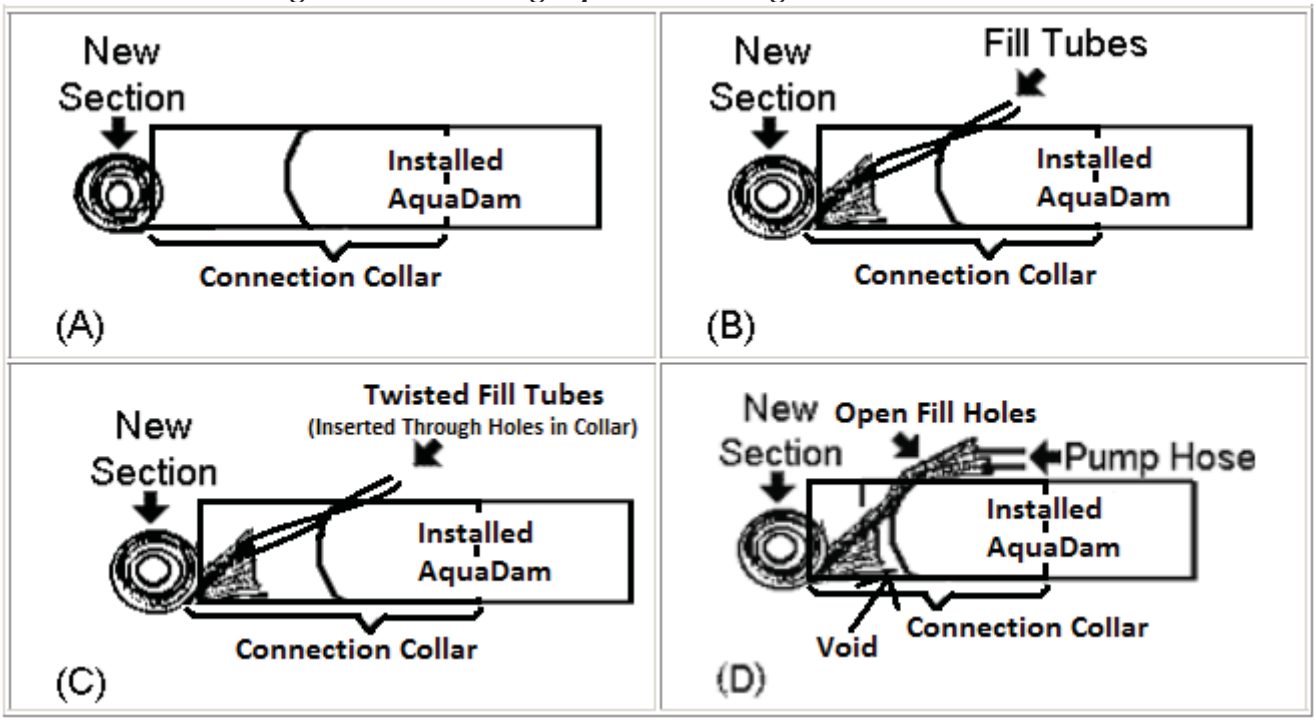


Figure 7, illustrates A, B, C , and D show the different steps taken in the process of joining two AquaDams together using a collar.

Figure 8: Two AquaDams Connected Together

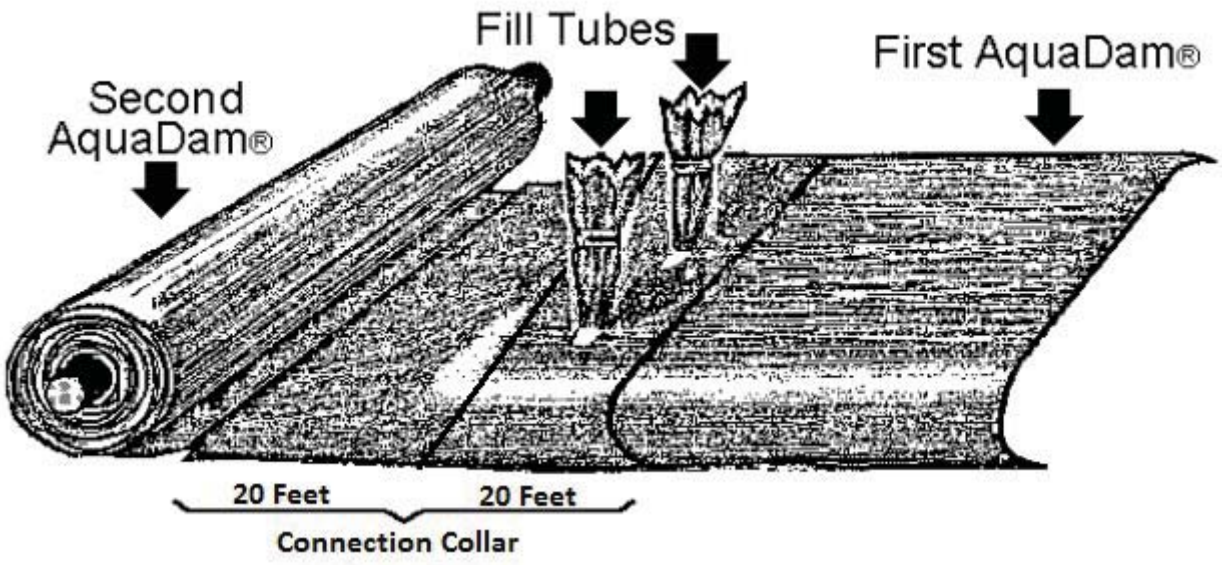


Figure 8: Two AquaDams are joined together by a connection collar and ready to be inflated. The two inner tubes stick out and up from the middle portion of the connection collar. These are the extra fill tubes located at the open end of each AquaDam.

Step 6: After the second AquaDam is filled, the fill hoses can be removed from the inner tubes. The fill tubes are rewrapped in such a manner that the tubes will stand up by themselves. If possible, use duct tape to attach the two upright inner tubes to each other, making them even more stable and preventing water from leaking out. Gravity will keep the water from rising above the height of the fill tubes. The fill tubes must be elevated higher than the main body of the AquaDam.

Maintenance Procedures

Installed AquaDams are durable and will last a long time. Each installed section should be monitored regularly for leaks. The easiest way to deal with a leak without removing the AquaDam is to pump more water into it. Small leaks can be patched with special repair tape. Patched damage will require periodic maintenance pumping.

There are four important observations that should be made on a regular basis.

- Leaks in the AquaDam
- Seepage under the AquaDam
- Inner fill tubes that have fallen over and are draining water
- Lateral movement of the AquaDam

Most leaks are of such a nature that they can be resolved simply by pumping additional water into the AquaDams on a periodic basis. Identify which of the tubes is leaking, untie and unwrap the inner tube and insert the discharge hose from the water pump and fill it. Sometimes, a leak is large enough to require a patch. To repair such a leak, first identify and isolate the area around it. Then, using a sharp knife, cut a 'cross' or X through the master tube and pull the material apart to expose the leak, being careful not to further damage the inner tube. Then, using tape provided by AquaDam Inc , apply the patch to the inner tube. Once the leak is repaired, cover the 'cross' cut in the master tube with the same repair tape. In most cases it is best to just add water on a regular basis, until the AquaDam can be taken out of service and patched properly from the inside or the inner tubes can be replaced.

AquaDam Removal Using Rerolling Brackets

Rerolling a small AquaDam after use in a small stream. When two or more AquaDams are connected together the downstream AquaDam is removed first by pumping out the inside water, or allowing the fill tubes to drain the AquaDam down to a level where the connection can be disassembled, allowing the water to pass out freely once rewinding begins at the other end. This forces the water to the open end and out.

Note: in some cases, it may be a better idea to hook the closed end to an excavator or other piece of equipment, lift it up, and simply let gravity drain the water out (see below).

Large AquaDam Removal

For larger AquaDams that are too big to reroll in place, equipment such as an excavator or backhoe can be used to pull the AquaDam from the lake (in standing water). Pump out or drain as much of the water as you can, and put a strap around the closed end of the AquaDam. Place the strap as close to the end as possible or water will remain trapped inside. Do not pull on the collar. Very slowly lift up on the strap. The water should drain out the open end. Make sure that the fill tubes are draining, they might need to be pulled further off the bank. Go slowly so that you do not lift the water any higher than is necessary for it to drain. Pull the deflated AquaDam out of the water. It can now be blown up with air for inspection and rerolling. After the AquaDam has been inspected and any holes have been patched, make sure that the coupling collar is still in place. It is now time to reroll the AquaDam for storage and reuse. AquaDams can be reused over and over again, depending on the application. They can also be used on a one-time basis and be destroyed when they are removed, or if they become contaminated with a hazardous material. It is difficult to remove large AquaDams used to block off flowing streams and rivers. Sometimes, there is no way to remove the AquaDam and maintain the internal water pressure necessary to hold it in place at the same time.

As the AquaDam is being emptied, it will be forced out of the way by the difference in water depth from the upstream side of the AquaDam® to the downstream side.

There are many applications where an AquaDam can be saved and rerolled for use at a later date. All smaller AquaDams can be rerolled. Rerolling requires brackets to fit over the ends of the wooden beams that the AquaDams come assembled on. A 3/4" drive ratchet can then be attached to the bracket. A 5' long section of pipe is slid over the handle of the ratchet (a cheater bar) to achieve maximum torque. Water can be pushed to the open end and out.

Safety

Emergency Removal

Laborers should stay out of harm's way and be aware that standing at the end of the unrolling AquaDam is dangerous, and they should stand clear whenever possible. The number of personnel in this position should be kept to a minimum. Should the laborers holding the ropes let go of them, the AquaDam will rapidly unroll, and a laborer could be pinned underneath. That is why all laborers should carry safety knives, so that the AquaDam can be slit open on the upstream side to relieve inside water pressure so that the AquaDam will immediately drain, allowing it to move off of the trapped worker. The best way to do this is with a single long, lateral slice down the side of the AquaDam. You must be standing on the upstream side. The downstream side is the direction that the AquaDam and all of the water behind it will move in. It is very important that everyone works together!

Obstacles and Debris

The beds of rivers and streams are rough and can have holes and other obstacles that should be avoided in them. The easiest way to avoid them is to just go around. Removing something large that is silted into the riverbed will leave a large hole. This leaves you worse off than you were before. Going over this type of area will have more seepage, and it will also affect the height of the AquaDam.

Cold Weather

In cold water, neoprene chest waders are highly recommended. All OSHA rules and guidelines should be followed closely. Personal Flotation Devices (PFDs) should be also used.

Walking on the AquaDam

The woven geo-textile fabric that the master tube is made of is puncture and UVI resistant. Heavy foot traffic on top of the AquaDam is okay. The only time you might curtail foot traffic is during cold weather, when ice occurs within the inner tubes, but they can still be walked on. The ice may cut the polyethylene when it cracks or breaks from foot traffic.

AquaDam Specifications

Inflated Dimensions	Controllable Mud/Water Depth*	Specifications of Inner and Outer Tubes	Capacity** per linear ft	Dry Weight per linear ft
1' H x 2' W (0.3m tall)	**9"** (23 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	12 gal/LF 45 liters/LF	0.75 lbs/LF 0.34 kg/LF
1.5' H x 3' W (0.45m tall)	**14"** (36 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	25 gal/LF 95 liters/LF	0.95 lbs/LF 0.43 kg/LF
2' H x 4' W (0.61m high)	**18"** (45cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	50 gal/LF 189 liters/LF	1.5lbs/LF 0.68kg/LF
2.5' H x 5' W (0.76m tall)	**24"** (61 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	88 gal/LF 333 liters/LF	1.85 lbs/LF 0.84 kg/LF
3' H x 7' W (0.9m tall)	**30"** (77 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	120 gal/LF 454 liters/LF	2.5 lbs/LF 1.1 kg/LF
4' H x 9' W (1.2m tall)	**38"** (97 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 1 ply, 300 lb/in² burst strength PP	210 gal/LF 795 liters/LF	4.3 lbs/LF 1.9 kg/LF
5' H x 11' W (1.5m tall)	**44"** (112 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 2 plys of 300 lb/in² burst strength PP	320 gal/LF 1,211 liters/LF	6.4 lbs/LF 2.9 kg/LF
6' H x 13' W (1.8m tall)	**54"** (137 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 2 plys of 300 lb/in² burst strength PP	450 gal/LF 1,703 liters/LF	8.5 lbs/LF 3.9 kg/LF
8' H x 17' W (2.4m tall)	**74"** (188 cm)	**Inner Tubing:** 1 ply, 12 mil, Polyethylene **Outer Sleeve:** 2 plys of 300 lb/in² burst strength PP	700 gal/LF 2,650 liters/LF	12 lbs/LF 5.4 kg/LF
10' H x 21' W (3m tall)	**88"** (223 cm)	**Inner Tubing:** 2 plys, 8 mil, Polyethylene **Shroud:** 1 PP woven shroud around both inner tubes **Outer Sleeve:** 4 plys of 300 lb/in² burst strength PP	1,000 gal/LF 3,785 liters/LF	25 lbs/LF 11.3 kg/LF
12' H x 25' W (3.7m tall)	**100"** (254 cm)	**Inner Tubing:** 2 plys, 8 mil, Polyethylene **Shroud:** 1 PP woven shroud around each inner tube. **Outer Sleeve:** 5 plys of 300 lb/in² burst strength PP	1,700 gal/LF 6,435 liters/LF	35 lbs/LF 15.9 kg/LF
16' H x 33' W (4.8m tall)	**126"** (320 cm)	**Inner Tubing:** 3 plys, 5 mil, Polyethylene **Shroud:** 2 PP woven shrouds between inside tubes **Outer Sleeve:** 7-plys of 300 lb/in² burst strength PP	3,000 gal/LF 11,356 liters/LF	51 lbs/LF 23 kg/LF

*This number is based on the friction of a rocky bottom. Slick mud, poly pond liners, and other slick surfaces may require the use of a taller primary AquaDam and/or a support dam installed behind the primary AquaDam.

** Capacity is based on installation on flat ground. Slopes will reduce internal volume of AquaDam.

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