NOTICE

The Zoning Hearing Board of Upper Providence Township, Montgomery County, pursuant to Act 15 of 2020 due to the current COVID-19 disaster emergency, will meet on Tuesday, **August 25, 2020**, at **7:00 p.m.**, virtually via ZOOM (a telephone and video conferencing service), and hold a public hearing to consider the following:

Application No. 20-04 of **Graphic Packaging International, LLC,** owner of legal title; **CONCERNING** a certain 38.5506-acre tract situate at 1035 Longford Road, Upper Providence Township, in the M-1 Office and Limited Industrial District, the overlay IN Institutional District, and the overlay FP Flood Plain District. Applicant proposes to remove the existing office building; construct two additions, one of which is a locker room addition, to the existing warehouse building; place two temporary modular office trailers in the existing parking lot area; and install an AquaDam. In connection with such proposal, Applicant **REQUESTS THE FOLLOWING RELIEF** from the following provisions of the Upper Providence Township Zoning Ordinance: (i) a variance from Sections 182-28.1.A. and O. (specifically prohibiting certain uses in the FP District), to permit the proposed modular office trailers and proposed fill to flatten existing grades for the proposed AquaDam; (ii) a variance from Section 182-28.2.B. (prohibiting certain expansion or enlargement of an existing structure in the floodway), to permit the proposed locker room addition to the existing warehouse; and (iii) a variance from Section 182-195.D. (providing a six-month time period within which to apply for permits to which an applicant may be entitled as a result of a Zoning Hearing Board decision), to extend such permit-application time period to 18 months.

A copy of Application No. 20-04 is available for review on the Upper Providence Township website at www.uprov-montco.org by following the posted link to the Application.

All citizens and interested persons may attend the hearing via ZOOM and will be given the opportunity to participate and be heard. Any citizen or interested person wishing to attend and participate in the hearing may do so by visiting the above Township website prior to the commencement of the hearing, and register as a participant in accordance with the instructions posted on the website. In the alternative, any citizen or interested person may participate in the hearing by submitting written comments on Application No. 20-04 via U.S. mail (first-class postage prepaid) addressed to the Upper Providence Township Zoning Hearing Board at 1286 Black Rock Road, Phoenixville, PA 19460, or via e-mail to Geoffrey Grace, Township Director of Planning and Zoning, at ggrace@uprov-montco.org. All such written comments must be **received by 2:00 p.m. on August 25, 2020,** and must include the full name and address of the citizen or interested person

submitting the comments, and a reference to Application No. 20-04 in the reference or subject line of the written comments.

The Zoning Hearing Board reserves the right, at the meeting, to consider such other matters and to conduct such other business as may properly come before the Board.

Terrence J. McKenna
Chairman
John A. Koury, Jr., Esquire
Solicitor

HRMM&L

HAMBURG, RUBIN, MULLIN,
MAXWELL & LUPIN, PC
ATTORNEYS AT LAW

www.HRMML.com

J. Edmund Mullin
Steven H. Lupin
Douglas I Zeiders
Carl N. Weiner
Jonathan Samel, LL.M.
Merle R. Ochrach
Mark F. Himsworth
Steven A. Hann
Steven B. Barrett
Christen G. Pionzio
Joseph J. McGrory, Jr.
Ethan R. O'Shea
Bernadette A. Kearney
Paul G. Mullin
John J. Iannozzi
William G. Roark
Andrew P. Grau, LL.M.
Susan E. Piette
Lisa A. Shearman
Nathan M. Murawsky
Timothy P. Briggs
Kathleen A. Maloles
John F. Walko
Steven J. English
Michael A. Luongo
Noah Marlier
Kevin M. McGrath
Graham R. Bickel
Daniel L. Maschi

OF COUNSEL:
John C. Rafferty, Jr.

LANSDALE
ACTS Center – Blue Bell
375 Morris Road
Post Office Box 1479
Lansdale, PA 19446-0773
Phone 215-661-0400
Fax 215-661-0315

LIMERICK
HARRISBURG

June 29, 2020 31630-000

Via FedEx and Via Email
Geoffrey Grace
Director of Planning and Zoning
Upper Providence Township
1286 Black Rock Road
Phoenixville, PA 19460

Re: Graphic Packaging International, LLC. – 1035 Longford Road
Zoning Hearing Board Application

Dear Mr. Grace:

Enclosed are the following items in connection with the above-referenced Application to Zoning Hearing Board:

- Original and six (6) copies of Application to Zoning Hearing Board with Attachments;
- Seven (7) copies of a 7 page Grading Permit Plan set, prepared by Advanced GeoServices (dated 11/19/19); and
- Filing fee in the amount of $2,000.00

Also enclosed is an extra copy of the application. Please have it time-stamped and return it in the self, addressed stamped envelope provided.

Should you have any questions, please call me at (215) 661-0400. Thank you for your assistance in this matter.

Very truly yours,

HAMBURG, RUBIN, MULLIN,
MAXWELL & LUPIN

By: _____
BERNADETTE A. KEARNEY

BAK:ch
Enclosures

cc: Daniel Wright; via email
Jay Stewart; via email

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER

Montrose Environmental Group
1 Park Plaza
Suite 100
Irvine CA 92614

Bank of America
P.O. Box 15284
Wilmington, DE 19850

11-35 14338 **46376**
1210CA

DATE 06/01/2020

$ ****2,000.00

PAY Two Thousand Dollars and 00/100 Cents

TO THE ORDER OF Upper Providence Twp.

Authorization Signature

Void after 90 days

THE BACK OF THIS DOCUMENT CONTAINS CHECK SECURITY WATERMARK AND COIN REACTIVE INK

⑈00004637 6⑈ ⑆121000358⑆325000500793⑈

Montrose Environmental Group **46376**
V114831 Upper Providence Twp. **06/01/2020**

Date	Memo	Invoice	Orig. Amt	Amt. Due	Amount
6/1/2020	Journal JE1452913	Bill Zoning Hearing Applicatio			2,000.00
					2,000.00

PLEASE DETACH AND RETAIN FOR YOUR RECORDS

Montrose Environmental Group **46376**
V114831 Upper Providence Twp. **06/01/2020**

Date	Memo	Invoice	Orig. Amt	Amt. Due	Amount
6/1/2020	Journal JE1452913	Bill Zoning Hearing Applicatio			2,000.00
					2,000.00

PLEASE DETACH AND RETAIN FOR YOUR RECORDS

RECEIVED
JUN 30 2020
UPPER PROVIDENCE TOWNSHIP

APPLICATION NO. 20-04 FEE AMOUNT: $ 2000.00

DATE FILED: 6-30-2020 TIME FILED: VIA FED EX

(THIS SECTION FOR TOWNSHIP USE ONLY)

****

APPLICATION TO ZONING HEARING BOARD

Upper Providence Township
1286 Black Rock Road
Phoenixville, Pennsylvania 19460

ORIGINAL

1. DATE: 6/29/2020

2. CLASSIFICATION OF APPLICATION (CHECK ONE OR MORE IF APPLICABLE):

[x] A. Request for Variance (PA MPC, Section 909.1(a)(5)-910.2)

[ ] B. Request for Special Exception (PA MPC, Section 909.1(a)(6)-912.1)

[ ] C. Appeal of decision of the Zoning Officer (PA MPC, Section 909.1(a)(3)(4)(8))

[ ] D. Challenge of the validity of ordinance or map by person aggrieved by use or development permitted on land of another (PA MPC, Section 909.1(a)(1)(2)

3. APPLICANT:

Name (a) Graphic Packaging International, LLC

Mailing Address (b) 1035 Longford Road
Phoenixville, PA 19460

Phone Number (c) 224-325-7320

OWNER:

(a) Graphic Packaging International, LLC

(b) 1035 Longford Road
Phoenixville, PA 19460

(c) 224-325-7320

4. LEGAL STATUS OF APPLICANT (check one):

[x] Owner of Legal Title - Copy of deed must be attached as Exhibit A

[ ] Owner of Equitable Title-Agreement of Sale must be attached as Exhibit A

[ ] Tenant with the Permission of Owner of Legal Title - Lease must be attached as Exhibit A

[ ] Other (describe)

5. APPLICANT'S ATTORNEY, if any:

(a) Name Bernadette A. Kearney, Esq. / HRMM&L

(b) Mailing Address 375 Morris Road, PO Box 1479, Lansdale, PA 19446

(c) Phone Number 215-661-0400 Email: bkearney@hrmml.com

6. PROPERTY:

(a) Present Zoning Classification Institutional Overlay; underlying zoning is M-1

(b) Number and Street (if assigned pursuant to Township Ordinance No. 179, June 28, 1976, as amended):
1035 Longford Road

(c) Location, with reference to nearby intersections or prominent features:
Along Port Providence Road.

(d) Tax Map Identification: Block 062 Unit 006 (parcel # 61-00-03310-01-3)

(e) Dimensions: Area 38.5506 acres

Frontage 2,906 feet Depth 600 feet

(f) Describe the size, construction and use of existing improvements or use of land, if unimproved:
One-story warehouse building and 3-story office building and associated parking

7. DESCRIBE THE PROPOSED USE OR CONSTRUCTION:

See attached

8. DESCRIBE HOW THE PROPOSED USE OR CONSTRUCTION DIFFERS FROM WHAT IS PERMITTED:

See attached

9. STATE LEGAL GROUNDS FOR APPEAL, CITE SPECIFIC SECTIONS OFPENNSYLVANIA MUNICIPALITIES PLANNING CODE, ZONING ORDINANCE, SUBDIVISION REGULATIONS OR OTHER ACTS OR ORDINANCES:

See attached

10. HAS ANY PREVIOUS APPEAL BEEN FILED CONCERNING SUBJECT MATTER OF THIS APPEAL?

Yes [ ] No [x] If yes, specify: _____

11. CHALLENGES (IF 2 (d) IS CHECKED ON PAGE 1). LIST REQUESTED ISSUES OF FACT OR INTERPRETATION:

12. I (We) hereby certify that the above information is true and correct to the best of my (our) knowledge, information or belief:

_____Applicant's Signature _____ Owner's Signature

Lauren S. Tashma
EVP, General Counsel & Secretary

Lauren S. Tashma
EVP, General Counsel & Secretary

_____Applicant's Signature _____ Owner's Signature

Check One:

[x] Owner of Record

[ ] Equitable Owner

Zoning Hearing Board Attachment

3. Applicant/Owner:

Applicant has attached the following documentation to demonstrate that Graphic Packaging International, LLC is the owner of the Property and has standing before the Zoning Hearing Board:

June 2006 Deed for the Property setting forth Bluegrass Folding Carton Company, LLC as the Grantee;

Certificate of Merger of Bluegrass Folding Carton Company, LLC with and into Graphic Packaging International, Inc. (merger effective November 30, 2008);

Certificate of Formation of Graphic Packaging International, LLC (executed December 15, 2017) with attached Delaware certification of the filing on December 26, 2017, stating effective date of formation is December 24, 2017;

Certificate of Conversion of Graphic Packaging International, Inc. to become a limited liability company, Graphic Packaging International, LLC (executed December 15, 2017), and

Commonwealth of Pennsylvania Good standing certificate for Graphic Packaging International, LLC

7., 8. & 9.

Applicant will be removing the three story office building shown on the plan and is proposing a 39' x 45' addition and a 33' x 202' locker room addition to the existing warehouse building. Two temporary modular office trailers, a 60' x 60' (3600 sf) unit and a 60' x 36' (2160 sf) unit will be placed on grade in the parking lot area. The Applicant is also proposing an AquaDam, in the location as shown on the plan, with the following dimensions:

405 LF, 8' High x 17' Wide
190 LF, 10' High x 21' Wide
385 LF, 12' High x 25' Wide
751 LF, 8' High x 25' Wide
214 LF, 10' High x 21' Wide

The Applicant is requesting the following variance relief from Chapter 182, Article III, Floodplain Conservation District.

Sections 182-28.1. A and O: To permit the proposed modular office trailers and the proposed fill required to flatten the existing grades for the AquaDam.

Section 182-28.2.B: To permit the proposed Locker Room addition.

Attached are the following documents in support of the Application:

May 11, 2020 letter from FEMA with attached FEMA Conditional Letter of Map Revision Comment Documents for Upper Providence Township

May 11, 2020 letter from FEMA with attached FEMA Conditional Letter of Map Revision Comment Documents for Schuylkill Township

May 21, 2020 letter from the Montgomery County Conservation District.

Information on AquaDams: AquaDam User's Guide 2004

The proposed AquaDam is designed to protect the building and is environmentally friendly. The relief requested will not adversely affect the public health, safety or welfare or the Township. The proposed uses are appropriately located in the floodplain and will not impede the flow or storage of floodwaters or otherwise cause danger to life and property, at, above, or below the location of the Property along the floodplain.

Section 182-195.D, Issuance of permits, to request an additional 12 months for a total of 18 months to apply for permits. Due to the uncertainty surrounding COVID-19, the Applicant is requesting this relief in an abundance of caution.

June 2006 Deed for the Property setting forth Bluegrass Folding Carton Company, LLC as the Grantee

PA 20
STATE TAX AFFIDAVIT FILED

EY 2

2

DE BK05610-0153 DT-DEED
2006092711 07/27/2006 03 38 25 PM 5
RCD FEE $58 50 LCL TAX $85 060 00 ST TAX $85,060 00

MONTGOMERY COUNTY ROD

61-UPPER PROVIDENCE TOWNSHIP $85,060.00 NANCY BECKER ROD

This instrument prepared by:
Mark G Henning
Winston & Strawn LLP
35 West Wacker Drive
Chicago, Illinois 60601
312-558-5600

Upon recording, return to:
Krista McManus
Sumpson Thacher & Bartlett LLP
425 Lexington Avenue
New York, NY 10017
212-455-2000

Tax Parcel # 61-00-03310-01-3

MONTGOMERY COUNTY COMMISSIONERS REGISTRY
61-00-03310-01-3 UPPER PROVIDENCE
1035 LONGFORD RD
CONTAINER CORP OF AMERICA $5 00
B 062 U 006 L 3341 DATE 07/27/2006 BR

1ST AMERICAN TITLE INSURANCE CO
WO PENN CENTER PLAZA, SUITE 1910
PHILADELPHIA, PA 19102
205620 PA 20

Special Warranty Deed

THIS DEED, made and entered into this 30th day of June, 2006, by and between SMURFIT-STONE CONTAINER ENTERPRISES, INC , a Delaware corporation, having an office at 8182 Maryland Avenue, St Louis, MO 63105 ("Grantor") and BLUEGRASS FOLDING CARTON COMPANY, LLC, a Delaware limited liability company, having an office at c/o Texas Pacific Group, 301 Commerce Street, Suite 3300, Fort Worth, TX 76102 ("Grantee")

WITNESSETH:

That Grantor, for and in consideration of the sum of TEN DOLLARS ($10 00) and other good and valuable consideration to it in hand paid by Grantee, the receipt and sufficiency whereof is hereby acknowledged, does by these presents GRANT, BARGAIN, SELL, CONVEY AND CONFIRM unto Grantee the property located in Montgomery County, Pennsylvania, described in Exhibit "A" (the "Property") attached hereto and by this reference incorporated herein.

BEING the same premises which Grover C. Curry and Ella L Curry by Deed dated September 24, 1951 and recorded in the Office for Recording of Deeds in and for the County of Montgomery on September 25, 1951in Deed Book 2215, Page 422, granted and conveyed unto Container Corporation of America, a Delaware corporation, in fee.

1035 Longford Road
Valley Forge, PA (Montgomery County)

CHI.1746052 2

RECEIVED JUL 27 2006
Instrument: 2006092711 Page: 1 of 2

AND being part of the same premises which National Life Insurance Company by Deed dated August 8, 1973 and recorded October 10, 1973 in Deed Book 3894, Page 129, conveyed unto Container Corporation of America, a Delaware corporation, in fee

AND by Certificate of Merger dated December 20, 1994 and recorded in Montgomery County on February 9, 1995 in Charter Book 19, Page 694, the said Container Corporation of America merged with Jefferson Smurfit Corporation (U S), a Delaware corporation, and became known as Jefferson Smurfit Corporation (U S.)

AND pursuant to Section 251 of the General Corporation Law of the State of Delaware by Certificate of Merger effective November 1, 2004 Jefferson Smurfit Corporation merged with Stone Container Corporation and became known as Smurfit Stone Container Enterprises, Inc , a copy of said Certificate of Merger being filed in Montgomery County on November 15, 2004 in Misc. Book 20, Page 232.

TOGETHER WITH all easements, tenements, hereditaments and appurtenances belonging to the land, and

TOGETHER WITH all buildings and other improvements now or hereafter located on the land, and

TOGETHER WITH all of Grantor's right, title and interest, if any, in and to the streets, avenues, roads, ways, alleys, waterways and canals, open and proposed, in front of or adjoining the land,

TO HAVE AND TO HOLD the premises herein granted unto the Grantee, the heirs or successors and assigns of the Grantee forever And Grantor hereby covenants with Grantee that Grantor is lawfully seized of said Property in fee simple, that Grantor has good right and lawful authority to sell and convey said Property, and that, subject to the Permitted Exceptions (as such term is defined in that certain Asset Purchase Agreement dated May 11, 2006, between Smurfit-Stone Container Enterprises, Inc., Smurfit-Stone Container Canada Inc. and Bluegrass Container Company, LLC), Grantor hereby warrants the title to said Property and will defend the same against the lawful claims of all persons owning, holding or claiming by, through or under Grantor, other than and subject to the Permitted Exceptions.

AND the said Grantor hereby covenants and agrees that it will warrant specially the Property hereby conveyed

[SIGNATURE PAGE FOLLOWS]

1035 Longford Road
Valley Forge, PA (Montgomery County)

IN WITNESS WHEREOF, the Grantor has duly executed this Deed the day and year first above written.

SMURFIT-STONE CONTAINER ENTERPRISES, INC., a Delaware corporation

By: _____
Name: Ronald J. Megna
Title: Assistant Secretary

STATE OF ILLINOIS)
) ss.
COUNTY OF COOK)

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared Ronald J. Megna, personally known to me to be the Assistant Secretary of SMURFIT-STONE CONTAINER ENTERPRISES, INC., a Delaware corporation, personally known to me to be the same person whose name is subscribed to the foregoing instrument as such appeared before me this day in person and acknowledged that he/she signed and delivered the said instrument as his/her own free and voluntary act and as the free and voluntary act of said corporation, for the uses and purposes therein set forth.

Given my hand and official seal this 28th day of June, 2006.

Linda C. McKenzie
Notary Public

My commission expires: 9-1-2008

[Seal]

"OFFICIAL SEAL"
Linda C. McKenzie
Notary Public, State of Illinois
My Commission Exp. 09/01/2008

The address of the above named Grantee is, and mail subsequent tax bills to:

Bluegrass Folding Carton Company, LLC
301 Commerce Street, Suite 3300
Fort Worth, TX 76102

/s/ _____
On behalf of Grantee

1035 Longford Road
Valley Forge, PA (Montgomery County)

CHI:1746052.2

IN WITNESS WHEREOF, the Grantor has duly executed this Deed the day and year first above written

SMURFIT-STONE CONTAINER ENTERPRISES, INC , a Delaware corporation

By _____
Name. Ronald J Megna
Title Assistant Secretary

STATE OF ILLINOIS)
) ss
COUNTY OF COOK)

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared Ronald J. Megna, personally known to me to be the Assistant Secretary of SMURFIT-STONE CONTAINER ENTERPRISES, INC , a Delaware corporation, personally known to me to be the same person whose name is subscribed to the foregoing instrument as such appeared before me this day in person and acknowledged that he/she signed and delivered the said instrument as his/her own free and voluntary act and as the free and voluntary act of said corporation, for the uses and purposes therein set forth.

Given my hand and official seal this _____ day of June, 2006.

_____
Notary Public

My commission expires _____ [Seal]

The address of the above named Grantee is, and mail subsequent tax bills to

Bluegrass Folding Carton Company, LLC
301 Commerce Street, Suite 3300
Fort Worth, TX 76102

/s/ _____
On behalf of Grantee

1035 Longford Road
Valley Forge, PA (Montgomery County)

CHI.1746052 2

Exhibit A

Legal Description

EXHIBIT "A"

ALL THAT CERTAIN lot or piece of ground with the buildings and improvements thereon erected

SITUATE in the Township of Upper Providence, County of Montgomery and Commonwealth of Pennsylvania described according to a Final Subdivision Plan, made by Jefferson Smurfit Corporation U.S. dated 1/4/1990 and last revised 9/11/2000, as recorded in the Office of the Recorder of Deeds of Montgomery County in Plan Book A 59 page 350, as follows to wit·

BEGINNING at a point on the Northwesterly ultimate right of way line of Longford Road said point being a corner at this and Tract No. 1 and a point on Schuylkill Valley Branch of Pennsylvania Railroad right of way as shown on plan thence extending along the Northwesterly ultimate right of way line of Longford Road the two (2) following courses and distances, (1) South 40 degrees 36 minutes 43 West the distance of 101.35 feet to a point crossing the Schuylkill Valley Branch of Pennsylvania Railroad right of way; thence crossing a 125 feet Philadelphia Electric Company right of way and the Schuylkill Valley Branch of Pennsylvania Railroad right of way, South 41 degrees 12 minutes 22 seconds West the distance of 1006.11 to a point of curve on same, thence extending on the arc of a circle, curing to the right having a radius of 297.51 feet the arc distance of 248.21 feet to an iron pin set on the Northeasterly side of Port Providence Road, thence extending along the said Port Providence Road ultimate right of way the four following distances; (1) South 89 degrees 00 minutes 29 seconds West the distance of 183.06 feet to a point of curve; (2) thence along point of curve, curving to the left having a radius of 930.00 the arc distance of 165 83 to a point, (3) South 78 degrees 47 minutes 29 West the distance of 135.51 feet to a point a curve; (4) thence along curve, curving to the right having a radius of 2000.00 feet the arc distance of 536.48 to a point, said point being a corner of lands of Joseph J. and Sharon A. Parone, thence leaving Port Providence Road and extending lands of Joseph Parone, North 04 degrees 09 minutes 29 seconds East the distance of 141 67 feet to a point; thence further along lands of Parone, North 85 degrees 24 minutes 34 seconds West the distance of 229.75 feet to another corner of lands of Joseph Parone; thence along lands of Parone, South 06 degrees 25 minutes 29 seconds West the distance of 85.32 feet to a point on lands of Peter J and Vanessa M Koerner, thence extending along lands of various owners North 83 degrees 56 minutes 31 seconds West the distance of 458.55 feet to a point, thence extending North 65 degrees 22 minutes 05 seconds West 125.55 feet to a point; a corner of lands of Kevin and Carolyn McDonnell, thence extending along same and along lands of various owners North 42 degrees 29 minutes 55 minutes East the distance of 717.53 feet to a point set being a iron pin, thence still along line extending North 41 degrees 51 minutes 19 East crossing the Schuylkill Valley Branch of Pennsylvania Railroad right of way the distance of 380.62 feet to a iron pin set, said point being a corner of Tract No. 1 as shown on Plan; thence extending along the Schuylkill Valley Branch of Pennsylvania Railroad Company Right of Way and Tract No 1 the three (3) following courses and distances, (1) South 82 degrees 36 minutes 44 seconds East the distance of 954.44 feet to a point of curve, (2) thence along curve and crossing a 125 feet Philadelphia Electric Company right of way, curving to the left having a radius of 1,870 feet the arc distance of 771.34 feet to a point, (3) thence extending North 73 degrees 45 minutes 16 seconds East the distance of 359.78 feet to the first mentioned point and place of beginning.

BEING LOT NO. Tract No. 3 as shown on Plan.

BEING known as 1035 Longford Road

BEING Parcel #61-00-03310-01-3

BEING part of the same premises which Grover C. Curry and Ella L. Curry by Deed dated 9/24/1951 and recorded 9/25/1951 in the County of Montgomery in Deed Book 2215 page 422, conveyed unto Container Corporation of America, a Delaware corporation, in fee

AND BEING part of the same premises which National Life Insurance Company by Deed dated 8/8/1973 and recorded 10/10/1973 in Deed Book 3894 page 129, conveyed unto Container Corporation of America, a Delaware corporation, in fee.

AND by Certificate of Merger dated 12/20/1994 and recorded in Montgomery County on 2/9/1995 in Charter Book 19 page 694, the said Container Corporation of America merged with Jefferson Smurfit Corporation (U S), a Delaware Corporation, and became known as Jefferson Smurfit Corporation (U.S).

AND Pursuant to Section 251 of the General Corporation Law of the State of Delaware by Certificate of Merger effective 11/1/2004 Jefferson Smurfit Corporation merged with Stone Container Corporation and became known as Smurfit Stone Container Enterprises, Inc., a copy of said Certificate of Merger being filed in Montgomery County on 11/15/2004 in Misc. Book 20 page 232.

RECORDER'S OFFICE
MONTGOMERY COUNTY, PA

VALLEY FORGE 26

REV 183 EX (6-96)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF REVENUE
BUREAU OF INDIVIDUAL TAXES
DEPT 280603
HARRISBURG PA 17128-0603

REALTY TRANSFER TAX STATEMENT OF VALUE

See Reverse for Instructions

RECORDER'S USE ONLY	
State Tax Paid	85,060.00
Book Number	5610
Page Number	153
Date Recorded	7/27/06

Complete each section and file in duplicate with Recorder of Deeds when (1) the full value/consideration is not set forth in the deed, (2) when the deed is without consideration, or by gift or (3) a tax exemption is claimed. A Statement of Value is not required if the transfer is wholly exempt from tax based on (1) family relationship or (2) public utility easement. If more space is needed attach additional sheet(s).

A CORRESPONDENT - All inquiries may be directed to the following person:

Name: Timothy P. Davisson
Telephone Number: Area Code (312) 580-3492
Street Address: 150 N. Michigan Avenue
City: Chicago
State: IL
Zip Code: 60601

B TRANSFER DATA

Date of Acceptance of Document

Grantor(s)/Lessor(s)	Grantee(s)/Lessee(s)
Smurfit-Stone Container Enterprises, Inc.	Bluegrass Folding Carton Company, LLC
Street Address: 150 N. Michigan Avenue	Street Address: 400 E. North Avenue
City: Chicago	City: Carol Stream
State: IL	State: IL
Zip Code: 60601	Zip Code: 60188

C PROPERTY LOCATION

Street Address: 1035 Longford Road
City Township Borough: Upper Providence
County: ~~Philadelphia~~ Montgomery
School District: Spring Ford
Tax Parcel Number: 61-00-03310-01-3

D VALUATION DATA

1. Actual Cash Consideration	2. Other Consideration	3. Total Consideration
8,506,000	+ 0	= 8,506,000
4. County Assessed Value	5. Common Level Ratio Factor	6. Fair Market Value
6,733,700	x ~~1.87~~ 1.66	= ~~12,592,019~~ # 11,177,942.00

E EXEMPTION DATA

1a. Amount of Exemption Claimed	1b. Percentage of Interest Conveyed
0	100%

2. Check Appropriate Box Below for Exemption Claimed

- [ ] Will or intestate succession (Name of Decedent) (Estate File Number)
- [ ] Transfer to Industrial Development Agency.
- [ ] Transfer to a trust. (Attach complete copy of trust agreement identifying all beneficiaries.)
- [ ] Transfer between principal and agent. (Attach complete copy of agency/straw party agreement)
- [ ] Transfers to the Commonwealth, the United States and instrumentalities by gift, dedication, condemnation or in lieu of condemnation. (If condemnation or in lieu of condemnation attach copy of resolution.)
- [ ] Transfer from mortgagor to a holder of a mortgage in default. Mortgage Book Number _____, Page Number _____
- [ ] Corrective or confirmatory deed. (Attach complete copy of the prior deed being corrected or confirmed.)
- [ ] Statutory corporate consolidation, merger or division. (Attach copy of articles.)
- [ ] Other (Please explain exemption claimed, if other than listed above.)

Under penalties of law, I declare that I have examined this Statement, including accompanying information, and to the best of my knowledge and belief, it is true, correct and complete.

Signature of Correspondent or Responsible Party	Date
Edward [illegible]	6-21-06

Certificate of Merger of Bluegrass Folding Carton Company, LLC with and into Graphic Packaging International, Inc.
(merger effective November 30, 2008)

State of Delaware
Secretary of State
Division of Corporations
Delivered 03:42 PM 11/24/2008
FILED 03:36 PM 11/24/2008
SRV 081141458 - 0860372 FILE

CERTIFICATE OF MERGER
OF
BLUEGRASS FOLDING CARTON COMPANY, LLC
(a Delaware limited liability company)
WITH AND INTO
GRAPHIC PACKAGING INTERNATIONAL, INC.
(a Delaware corporation)

Pursuant to Title 8, Section 264(c) of the Delaware General Corporation Law, Graphic Packaging International, Inc. executes the following Certificate of Merger:

1. The name and state of domicile of each of the constituent entities which are to merge are:

Name	Domicile
Bluegrass Folding Carton Company, LLC	Delaware
Graphic Packaging International, Inc.	Delaware

2. The name of the surviving corporation is Graphic Packaging International, Inc., a Delaware corporation.

3. An Agreement and Plan of Merger and Reorganization has been approved, adopted, executed and acknowledged by Bluegrass Folding Carton Company, LLC and Graphic Packaging International, Inc.

4. The Agreement and Plan of Merger and Reorganization is on file at the principal office of Graphic Packaging International, Inc., which is located at 814 Livingston Court, Marietta, Georgia 30067.

5. A copy of the Agreement and Plan of Merger and Reorganization will be furnished by Graphic Packaging International, Inc. on request and without cost, to any stockholder of Graphic Packaging International, Inc. or any member of Bluegrass Folding Carton Company, LLC.

6. The Certificate of Incorporation of Graphic Packaging International, Inc. shall be the Certificate of Incorporation of the surviving corporation.

7. The merger shall be effective at 11:59 p.m. EST on November 30, 2008.

[Signature on following page]

IN WITNESS WHEREOF, Graphic Packaging International, Inc. has caused this Certificate of Merger to be signed by a duly authorized officer this 21st day of November, 2008.

GRAPHIC PACKAGING INTERNATIONAL, INC.

By: _____
Stephen A. Hellrung
Senior Vice President, General Counsel and Secretary

LEGAL02/30946644v1

Certificate of Formation of Graphic Packaging International, LLC (executed December 15, 2017) with attached Delaware certification of the filing on December 26, 2017, stating effective date of formation is December 24, 2017

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THAT THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF FORMATION OF "GRAPHIC PACKAGING INTERNATIONAL, LLC" FILED IN THIS OFFICE ON THE TWENTY-SIXTH DAY OF DECEMBER, A.D. 2017, AT 1:20 O`CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF FORMATION IS THE TWENTY-NINTH DAY OF DECEMBER, A.D. 2017 AT 2:05 O'CLOCK A.M.

Jeffrey W. Bullock, Secretary of State

860372 8100V
SR# 20177767657

Authentication: 203834007
Date: 12-27-17

You may verify this certificate online at corp.delaware.gov/authver.shtml

State of Delaware
Secretary of State
Division of Corporations
Delivered 01:20 PM 12/26/2017
FILED 01:20 PM 12/26/2017
SR 20177767657 - File Number 860372

CERTIFICATE OF FORMATION
OF
GRAPHIC PACKAGING INTERNATIONAL, LLC

1. The name of the limited liability company is Graphic Packaging International, LLC.

2. The address of its registered office in the State of Delaware is 251 Little Falls Drive, Wilmington, Delaware 19808. The name of its registered agent at such address is Corporation Service Company.

3. This Certificate of Formation shall be effective at 2:05 a.m. local time on December 29, 2017.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Formation of Graphic Packaging International, LLC this 15 day of December, 2017.

Laura Lynn Church
Laura Lynn Church
Authorized Person

Certificate of Conversion of Graphic Packaging International, Inc. to become a limited liability company, Graphic Packaging International, LLC (executed December 15, 2017), and

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THAT THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF CONVERSION OF A DELAWARE CORPORATION UNDER THE NAME OF "GRAPHIC PACKAGING INTERNATIONAL, INC." TO A DELAWARE LIMITED LIABILITY COMPANY, CHANGING ITS NAME FROM "GRAPHIC PACKAGING INTERNATIONAL, INC." TO "GRAPHIC PACKAGING INTERNATIONAL, LLC", FILED IN THIS OFFICE ON THE TWENTY-SIXTH DAY OF DECEMBER, A.D. 2017, AT 1:20 O`CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF CONVERSION IS THE TWENTY-NINTH DAY OF DECEMBER, A.D. 2017 AT 2:05 O'CLOCK A.M.

Jeffrey W. Bullock, Secretary of State

860372 8100V
SR# 20177767657

Authentication: 203834007
Date: 12-27-17

You may verify this certificate online at corp.delaware.gov/authver.shtml

State of Delaware
Secretary of State
Division of Corporations
Delivered 01:20 PM 12/26/2017
FILED 01:20 PM 12/26/2017
SR 20177767657 - File Number 860372

CERTIFICATE OF CONVERSION OF GRAPHIC PACKAGING INTERNATIONAL, INC. TO BECOME A LIMITED LIABILITY COMPANY

Pursuant to Section 18-214 of the Delaware Limited Liability Company Act, Graphic Packaging International, Inc., a Delaware corporation (the "Corporation"), certifies as follows.

1. The Corporation was incorporated in the State of Delaware on September 22, 1978.

2. The name of the Corporation immediately prior to the filing of the Certificate of Conversion is Graphic Packaging International, Inc.

3. The name of the limited liability company as set forth in its Certificate of Formation is Graphic Packaging International, LLC.

4. The conversion shall be effective at 2:05 a.m. local time on December 29, 2017.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Conversion this 15th day of December, 2017.

Laura Lynn Church

Laura Lynn Church
Authorized Person

Commonwealth of Pennsylvania Good standing certificate for Graphic Packaging International, LLC

C O M M O N W E A L T H O F P E N N S Y L V A N I A

D E P A R T M E N T O F S T A T E

06/02/2020

TO ALL WHOM THESE PRESENTS SHALL COME, GREETING:

I DO HEREBY CERTIFY THAT,

GRAPHIC PACKAGING INTERNATIONAL, LLC

is duly registered to do business under the laws of the Commonwealth of Pennsylvania and remains a registered Foreign Limited Liability Company so far as the records of this office show, as of the date herein.

I DO FURTHER CERTIFY THAT this Certificate of Registration shall not imply that all fees, taxes and penalties owed to the Commonwealth of Pennsylvania are paid.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused the Seal of the Secretary's Office to be affixed, the day and year above written

Secretary of the Commonwealth

Certification Number: TSC200602110402-1

Verify this certificate online at http://www.corporations.pa.gov/orders/verify

May 11, 2020 letter from FEMA with attached FEMA Conditional Letter of Map Revision Comment Documents for Upper Providence Township

Federal Emergency Management Agency

Washington, D.C. 20472

May 11, 2020

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 20-03-0076R
Community Name: Township of Upper Providence, PA
Community No.: 420709

The Honorable Helene Calci
Chair, Township of Upper Providence
Board of Supervisors
P. O. Box 406
Oaks, PA 19456

104

Dear Ms. Calci:

We are providing our comments with the enclosed Conditional Letter of Map Revision (CLOMR) on a proposed project within your community that, if constructed as proposed, could revise the effective Flood Insurance Study (FIS) report and Flood Insurance Rate Map (FIRM) for your community.

If you have any questions regarding the floodplain management regulations for your community, the National Flood Insurance Program (NFIP) in general, or technical questions regarding this CLOMR, please contact the Director, Mitigation Division of the Federal Emergency Management Agency (FEMA) Regional Office in Philadelphia, Pennsylvania, at (215) 931-5512, or the FEMA Mapping and Insurance eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at https://www.fema.gov/national-flood-insurance-program.

Sincerely,

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Enclosure:
Conditional Letter of Map Revision Comment Document

cc: The Honorable Martha Majewski
Chair, Township of Schuylkill Board of Supervisors

Mr. Geoffrey Grace, AICP
Director of Planning/Zoning Officer
Township of Upper Providence

Ms. Kimberly Yocum
Floodplain Administrator
Township of Schuylkill

Mr. Francis Greene, P.E.
Engineer
Advanced GeoServices Corp.

May 11, 2020 letter from FEMA with attached FEMA Conditional Letter of Map Revision Comment Documents for Schuylkill Township

Federal Emergency Management Agency

Washington, D.C. 20472

May 11, 2020

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 20-03-0076R
Community Name: Township of Schuylkill, PA
Community No.: 421489

The Honorable Martha Majewski
Chair, Township of Schuylkill
Board of Supervisors
111 Valley Park Road
Phoenixville, PA 19460

104

Dear Ms. Majewski:

We are providing our comments with the enclosed Conditional Letter of Map Revision (CLOMR) on a proposed project within your community that, if constructed as proposed, could revise the effective Flood Insurance Study (FIS) report and Flood Insurance Rate Map (FIRM) for your community.

If you have any questions regarding the floodplain management regulations for your community, the National Flood Insurance Program (NFIP) in general, or technical questions regarding this CLOMR, please contact the Director, Mitigation Division of the Federal Emergency Management Agency (FEMA) Regional Office in Philadelphia, Pennsylvania, at (215) 931-5512, or the FEMA Mapping and Insurance eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at https://www.fema.gov/national-flood-insurance-program.

Sincerely,

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Enclosure:
Conditional Letter of Map Revision Comment Document

cc: The Honorable Helene Calci
Chair, Township of Upper Providence Board of Supervisors

Ms. Kimberley Yocum
Floodplain Administrator
Township of Schuylkill

Mr. Geoffrey Grace, AICP
Director of Planning and Zoning Officer
Township of Upper Providence

Mr. Francis Greene, P.E.
Engineer
Advanced GeoServices Corp.

May 21, 2020 letter from the Montgomery County Conservation District.

MONTGOMERY COUNTY
CONSERVATION DISTRICT
143 Level Road • Collegeville, PA 19426-3313 • 610-489-4506 • Fax: 610-489-9795
www.montgomeryconservation.org

May 21, 2020

Graphic Packaging International, LLC
Attn: Travis Mount
1035 Longford Road
Phoenixville, PA 19460-1205

Re: Approval of Minor Amendment to Permit Coverage
GPI Valley Forge
NPDES Permit No. PAC460465
Upper Providence Township, Montgomery County

Dear Mr. Mount:

Under the authority of the federal Clean Water Act and Pennsylvania's Clean Streams Law, the Montgomery County Conservation District has approved your request for a minor amendment to your permit. The latest versions of the NOI for PAG-02 and all supporting documents, including the Erosion and Sediment Control (E&S) Plan and Post-Construction Stormwater Management (PCSM) Plan, are incorporated into this approval.

The terms and conditions of your permit, including the expiration date, have not otherwise changed. In addition, if stormwater discharges associated with construction activities are expected to continue beyond the expiration date of your coverage, you must apply to renew your coverage at least 180 days prior to the expiration date, unless otherwise approved by the Department of Environmental Protection (DEP) or the District.

If you have questions, please contact Cody Schmoyer by e-mail at cschmoyer@montgomerycounservation.org or by telephone at 610-489-4506 ext. 19 and refer to Permit No. PAC460465.

Sincerely,

Jessica Buck

Jessica Buck
District Manager
Montgomery County Conservation District

cc: Francis Greene, Advanced GeoServices
DEP Permits Section Chief
Upper Providence Township

Enclosures: Approved E&S Plan
Approved PCSM Plan
bcc: File

Information on AquaDams: AquaDam User's Guide 2004

AquaDam®
User's Guide ~ 2004

(Includes Material Specifications)

"Water Controlling Water"™

LOW-IMPACT, ENVIRONMENTALLY FRIENDLY WATER FILLED COFFERDAMS FOR STREAM DIVERSIONS, FLOOD CONTROL, HAZ-MAT CONTAINMENT, AND DEWATERING STRUCTURES.

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 St.
Scotia, CA 95565
(800) 682-9283
www.AquaDam.net
email: matthew@aquadam.net

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INTRODUCTION

AquaDam Inc® manufactures AquaDams®, a low-impact alternative to temporary earthen fill cofferdams (barriers). The Clean Water Act demands the use of alternatives to fill discharges to achieve Best Management Practices. On site mitigation is mandatory. Alternative protective devices, such as water filled cofferdams, are the ideal tools for water management programs that protect the aquatic environment. The US 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 Aqua Dam 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 2003, after 20 years of using the idea created in the late 1980's to offer a new concept for managing water diversions, dewatering, flood control barriers, levee toppings, and water storage by using AquaDam Inc® offers installation 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). They consist almost entirely of onsite water, and are reusable.

PATENTS

Aqua Dam 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.

©2004 AquaDam Inc

CONCEPT

AquaDams® are portable dams filled with onsite water that can be installed wherever needed to cofferdam, contain, or divert the flow of water. AquaDams® consist of two basic parts: an outer or "master tube" (**C**) made of a heavy duty geotextile woven polypropylene which holds the two inner tubes (**A & B**) in contact when filled with water. The outer 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®

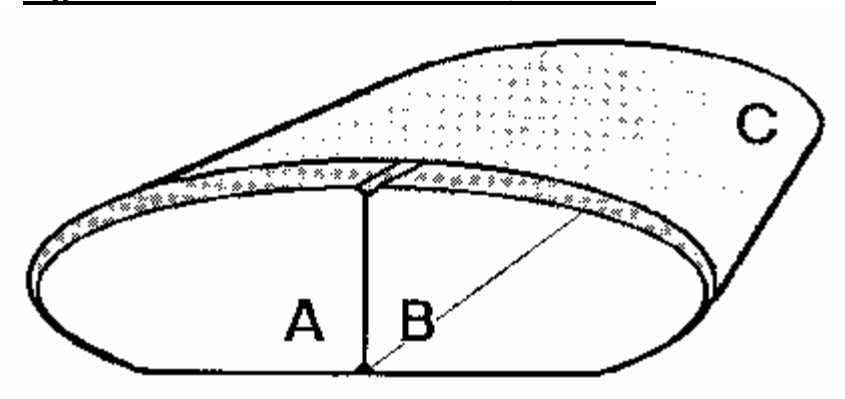

Figure 1. A cross section of a typical AquaDam®, illustrating the relationship between the two inner tubes which contain the water and the "master" tube that keeps the inner tubes parallel and in contact with each other.

A and **B** illustrates the two inner tubes inflated with water.
C is the outer or "master" tube 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 tube confines the water-inflated inner tubes. 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® 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 1 to 16 feet in height when inflated. AquaDams® come in standard lengths of 50 or 100 feet, and are available for immediate shipment. Any length can be fabricated. Shorter, longer, or irregular lengths are available with notice. Using attachment collars, two or more AquaDams® can be joined together to form a continuous cofferdam 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. The possible configurations are almost endless. They can be used in a straight line, to form an arc, or to encircle a building. AquaDams® can also be connected at angles to each other, as may be required 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 as shown in Figure 2. In many instances, the core also plays an important part in the installation, rerolling for future use, and transportation of AquaDams®.

Figure 2:

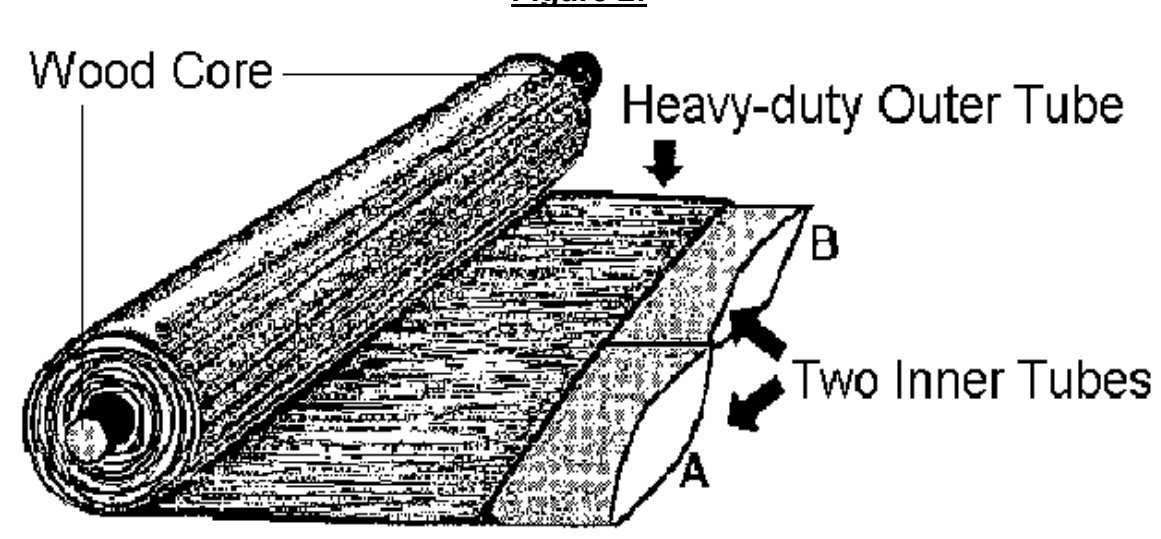

Figure 2. A typical factory assembled AquaDam® prior to inflation, showing the inner and outer tubes rolled up around the core. The AquaDams'® tubes (A & B) are left open for filling purposes. This end will be elevated up the stream bank (the starting point) which has to be higher than the height of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

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APPLICATIONS

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

• 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®.

AQUADAM® HEIGHT SELECTION AND SIZE CRITERIA

AquaDam® height selection is determined by work site conditions, the water depth to be contained or diverted, and to a lesser degree, stream bed slope and water velocity. Maximum projected changes in water depth are very important during the life of the diversion project. Table 1 lists sizes of AquaDams® and their recommended water depth usage. Customized dams of any length can be ordered.

TABLE 1: STANDARD AQUADAM® SIZES AND RECOMMENDED USE

INFLATED HEIGHT (FEET)	INFLATED WIDTH (FEET)	CONTROLLED WATER DEPTH (INCHES)
1	2	9
1.5	3	14
2	4	18
3	7	30
4	9	38
5	11	44
6	13	56
8	17	74
10	23	90
12	27	104
16	33	132

This chart represents maximum water depths to be controlled on flat surfaces. The slope and topography of the streambed needs to be accounted for as well as water depths.

Water Depth:

The height of water to be contained by the AquaDam® is the most important factor when selecting the proper size. A good rule of thumb for determining the water height after diversion is as follows:
Add:
1.) the maximum water depth along the installation site,
2.) the average depth of water at the installation site,
3.) and the difference in elevation (water levels) between the installation and diverted water sites.

These three numbers equal the height of water that will be found at the installation site after the AquaDams® have been installed and water is flowing through the diversion channel.

The importance of determining the correct projected maximum water depths after installation and diversion of the stream cannot be taken too lightly. Too small of an AquaDam® will fail. **The depth of water to be retained by an AquaDam® is often underestimated, resulting in an AquaDam® that is too small for the project. This results in delays, increased costs and potentially unsafe work conditions!**

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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 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 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 void of: wire, rebar, sharp objects, garbage, glass or dead vegetation containing tree branches, or other rip-rap. The slope of the riverbed 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 retained by the AquaDam® should never exceed the recommended maximum water depth during the life of the project, not just the day you install it.

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. The larger and wider the diversion channel, the less 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 was also important in the installation.

INSTALLATION

SMALL AQUADAMS® (1'- 4' high)

Equipment List:

- We recommend that you use at least two portable gasoline water 2"-3" discharge pumps or one gasoline discharge pump switched from fill tube to fill tube during inflation; any available 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®. *
- 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.

The Aqua Dam Inc® crew uses 5.5HP Honda-powered 3" Volume Pumps which provide a maximum flow rate of 16,200 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.

Manpower:

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 (see the Lemhi River installation on our website). The laborers installing the AquaDam® are already committed, and cannot be the rock picking crew. Please see the Installation Section of our web site. Rocks should be picked out from directly in front of the AquaDam® as it is being installed. The rocks can be stacked on the downstream side of the AquaDam® to provide additional support (see the Williams Transco Gas Pipeline installation project in Williamsport, PA. on our website).

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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.
- 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 setup is strongly recommended on the installation of AquaDams® 6' high or larger in fast-moving rivers and streams (please see the Eagle River Crossing under the Installation section of our web site).

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 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, water velocity, water depths, and time constraints. Table 2 better describes the manpower needs during a typical installation of AquaDams® 6' 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	0-1
4 FEET	NO	3-5	1
4 FEET	YES-2	2-4	1
6 FEET	YES-3	2-3	1
8 FEET	YES-4	2-3	1

Table 2 (cont.):

Manpower requirements are based on a particular size of AquaDam® in moving water. The chart also provides the number of ropes commonly used with a specific size AquaDam®. Note that 4, 6, and 8 foot structures are commonly installed with the aid of ropes to prevent them from unrolling prematurely. Only in standing water would rope assisted installations not be used on larger size AquaDams®.

Strong water velocities or currents require more manpower to insure 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® supervisor who oversees the installation procedure is also recommended.

In most installations, very little site preparation work is required, but to obtain a good seal, rock picking is a must. The area should also be policed for objects that might puncture the AquaDam® during installation.

This Guide assumes that all Federal, State, County, and City Permits have been obtained from the appropriate government authority. Aqua Dam 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 two categories: Moving water (rivers and streams) and nonmoving water (lake shores).

Step 1-Transport:

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

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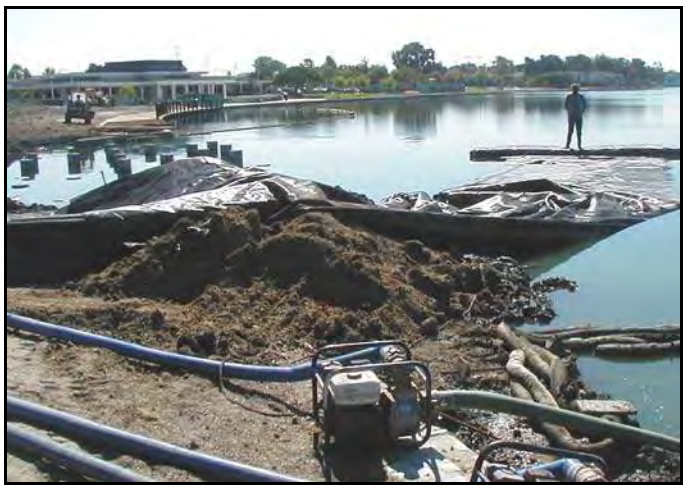
Carrying straps are provided on larger AquaDams®. Just hook or tie the straps to a piece of heavy equipment for transportation. Unpack the AquaDam® by carefully removing the protective wrap from the outside after cutting the packing ropes and carrying straps with a knife.

Step 2-Starting Point:

The end of the AquaDam® will have long fill tubes to start with (usually 2-6 foot long). These are for connecting one AquaDam® to another using a collar. They are not the start of the AquaDam®. The AquaDam® starts at the outside (usually black or white) master tube that confines the two inside fill tubes (see Figure 1). Position the end of the outer tube up the bank at least as high as 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 a height of 3+ feet at the lowest point along its path.).



If the bank is not steep enough to achieve the 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 make a good starting point.

Step 3-Preparing the AquaDam® for Inflation:

Insert a discharge hose into each inside fill tube. Excess fill tubes can be cut off if not desired for future use. Wrap duct tape or tie packing rope tightly around the fill tubes to keep the discharge hose from slipping out. The corners at the end of the AquaDam® can be tied to 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 back of the AquaDam® roll at the foot of the slope along the waters edge. The pumping begins by pumping into both inside tubes at the same rate. The rolled portion of the AquaDam® will try to unroll, and will push up against the laborers' legs. The laborers' will wait for the water level to rise and build pressure inside the AquaDam®. When the height of the AquaDam® is great enough, the laborers should take a step back. Then they must wait until the height builds up again before taking another step backwards. All laborers must step backwards in unison and cooperate so that a foot does not get caught while unrolling it®. Water levels inside the AquaDam® must be kept at a level higher than the upstream water side of the AquaDam® (see the Pacific Gas and Electric and other installations on our website). This water depth will increase as the unrolling AquaDam® begins to constrict (cut off) the stream flow.

Step 4-Moving Rocks and Debris:

When installing an AquaDam®, you must not only remove rocks from its path to ensure a good seal, you must remove all debris. Sharp, angular objects are often located under the water level, 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 leakage, 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 IS YOUR ENEMY…

This shopping cart was completely invisible during high tide.

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Step 5-Restraining Ropes:

Large AquaDams®

AquaDams® that are four or more feet in height commonly require restraining ropes to restrain the unrolled portion of the AquaDam® during the installation process in live streams. Without these lines or ropes the pressure of the water in the inner tubes would cause the AquaDam® to unroll before the proper inside head pressure is achieved. Preventing this pressure from prematurely unrolling the AquaDam® is very important. The pressure of the water mass inside the AquaDam® has to overpower the pressure of the water on the upstream side (compared to the downstream side). In lake water, the pressure will be the same on both sides of the AquaDam® (until dewatering begins by pumping).

The number of ropes (lines) 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.

Standing Water Applications:

Standing water or lake installations are much simpler than those using AquaDams® or 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 pressure from one side of the AquaDam® to the other should stay equal, making it unnecessary to maintain head pressure inside the unit. Laborers just need to guide it in the right direction.

Step 6-Determine Height & Elevation:

The rolled AquaDam® should start at the top of the riverbank or berm. The end of the AquaDam® must be raised higher up the starting bank than the estimated height of the fully inflated AquaDam®. Gravity keeps the water used to fill the AquaDam® from flowing back out the elevated end. (Actually, we recently began offering double closed-ended AquaDams® which no not need to have the end elevated to hold water. However, the start of the AquaDam® must still tie into something like a bank or berm or water would just go around the end.)

Figure 3: LARGE AQUADAM® INSTALLATION ACROSS A FLOWING STREAM

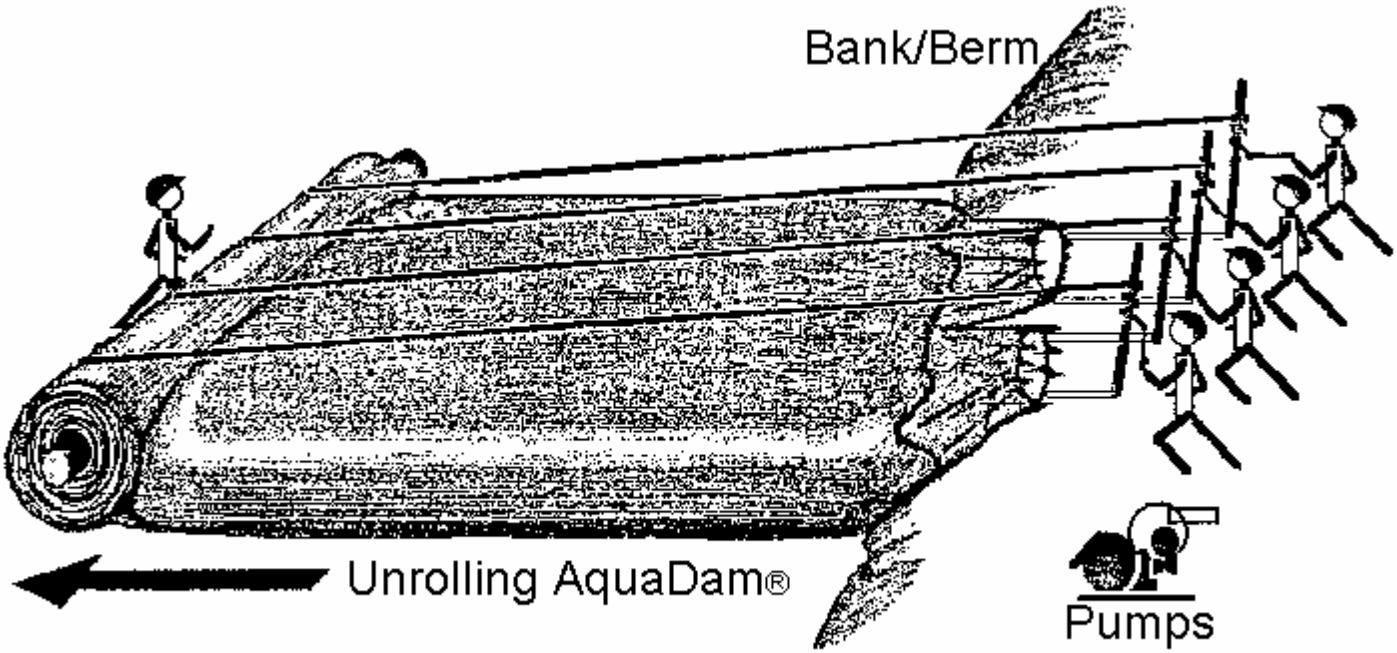

Figure 3. shows the location of the ropes, posts, laborers and the inflating AquaDam®.

Step 7-Inflating 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 inflate 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. Unroll 2-3 feet at a time, then wait for head pressure to build again, repeating this process until the AquaDam® is fully unrolled (see the Eagle River installation in Vail, CO on our website). 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. 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.

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Figure 4:

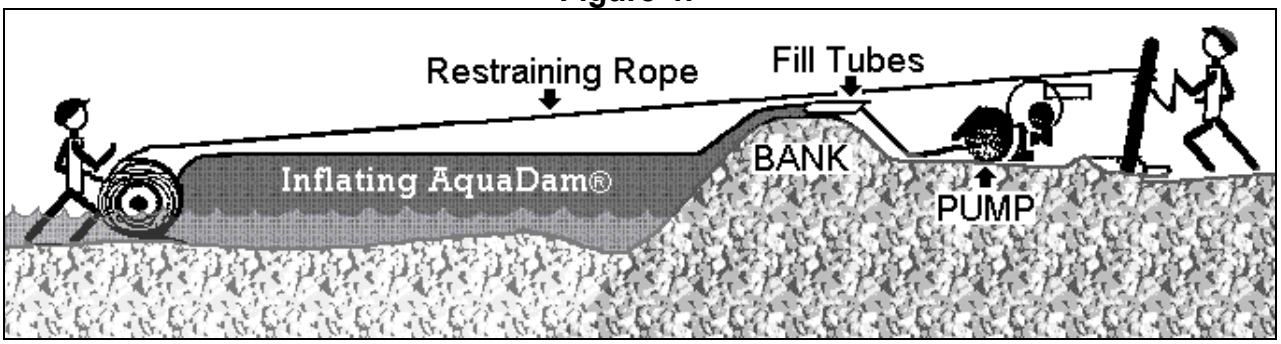

Figure 4. A cross section of a large AquaDam® being installed in flowing water, illustrating the location of the berm, pumps, ropes, laborers and the inside water head pressure, compared to the outside water levels.

Manning the Ropes:

Once the ropes are manned, the pumps are primed, and the AquaDam® is aimed in the proper direction (at a right angle to the starting point on the 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. The small diversion channel in this project demands that a large AquaDam® be used despite the low water level, because of the anticipated increase in water depth (above 6 feet). The AquaDam® should be unrolled at a rate of about 1 to 3 feet every time the ropes are slipped and maintain a 12-24 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

Figure 5.: A large AquaDam® being installed on the Saddle River in northeastern New Jersey. Only one laborer is needed in the water to keep the ropes in position. Using ropes require that the AquaDam® only be installed in a straight line. Connections can be made at a later date if turns are required. Coupling collars are placed underneath the first AquaDam® as it is being unrolled(if connections are necessary).

Lateral Movement:

An AquaDam® being installed in flowing water can be vulnerable to moving downstream during the installation process. Maintaining internal head pressure is very important. To give support along the side of the AquaDam® a small mound of fill material can be placed directly downstream so that the AquaDam® rests against it. A small mound every 20-30 feet provides a tremendous amount of support. Of course, turbidity is kept to a minimum because the flow has already been diverted by the AquaDam® as it is being installed.

Another 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 “buffer”), and then place the bigger AquaDam® directly upstream, allowing it to rest against the smaller AquaDam®. In this fashion, the 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. You can see an example of this on the Williams Transco Gas Pipeline project in McComb, MS on our website.

How Lateral Movement Occurs:

Lateral movement of an AquaDam® during installation occurs when there is insufficient water mass inside the AquaDam® to overcome the difference in water pressure on the upstream side of the AquaDam® (compared to the downstream side, which will always be less). The difference in water depth must be compensated for by the amount of pressure inside the AquaDam® during and after installation. Water levels will rise rapidly 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 seams on the AquaDam® are straight for some distance but appear 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, then steps should be taken to correct it. A 6-12 inch change in water level could wipe out all of the installed AquaDams® if the proper amount of head pressure is not kept inside. One step that can be taken to prevent lateral movement is to increase the internal water volume that creates the internal pressure. Fill material can be placed directly on the downstream side in small amounts, allowing the AquaDam® to rest on it. All rocks moved for seepage control should be used to shore it up during installation. Often, fill material has to be excavated from the channel. This is placed behind the AquaDam® for storage, and allows the AquaDam® to rest on it so that more water depth can be controlled than what our User's Guide suggests.

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AquaDams® should always be filled with the maximum amount of water possible. Always fill your AquaDams® to their recommended height.

Other solutions to moving or sliding are to install a smaller AquaDam® directly behind the main AquaDam® on the dewatered side. In standing water, stop dewatering and allow the bodies of water on either side of the AquaDam® to equalize.

Figure 6: SHORING-UP CROSS SECTION

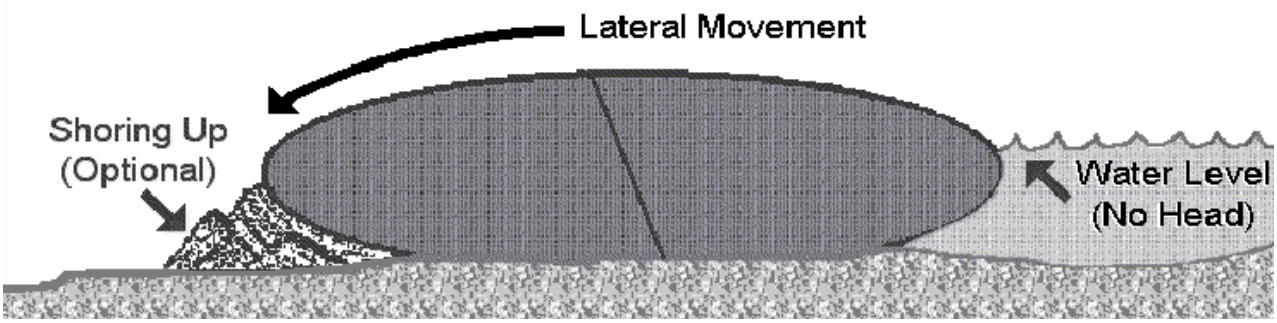

Figure 6. A cross section showing the placement of earthen fill material to shore up an AquaDam® that shows signs of lateral movement.

CONNECTING AQUADAM® SECTIONS USING COUPLING COLLARS:

Step 1: Certain applications require two or more sections 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 closed-ended AquaDams® come with a coupling collar on the closed end. The other end has the fill tubes, and has been designed to fit snugly into the coupling collar. Before a second AquaDam® can be attached, step one is to install an AquaDam® fitted with a coupling collar.

Step 2: Position the second AquaDam® directly behind and in-line with the filled AquaDam® and unroll about 10 feet of the new section, plus the length of the fill tubes *(see Figure 7a).*

Step 3: Gather up the end of one fill tube, gently twist or bunch it up, and wrap with duct tape. Do the same thing to the other tube. This will allow the inner tubes to be easily inserted and pulled through the round holes cut into the top of the coupling collar at the end of the installed AquaDam® *(see Figure 7b)*

Step 4: Carefully cut two round holes 6 inches in diameter in the top of the collar attached to the filled AquaDam® master tube. Each hole should be large enough to accommodate the bunched inner fill tube of the AquaDam® that is being attached. The two holes should be positioned midway between each side of the AquaDam®.
They should be about 1-2 feet apart on a four foot AquaDam® and 4 feet apart on a six foot high AquaDam®.

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Step 5: Insert the wrapped right inner tube through the hole on the right side of the coupling collar, and the wrapped left inner tube through the hole on the left side of the coupling collar. This is done by working your way inside the coupling 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 coupling collar and around the inner tubes as well as possible. The new section should be totally enclosed by the coupling collar, and the master tube of the AquaDam® being installed should be pulled up so as to be in contact with the end of the water-filled AquaDam®. Pull all excess fill tube material up on top through the holes.
(see Figure 7c).

Step 6: The 4'X8'X ½" sheet of plywood described in the equipment list is for the pumps to sit on, should they need to be placed on an inflated AquaDam®. When two AquaDams® are coupled or attached together, pumps are generally set on the previously filled AquaDam®, about 15-20 feet away from the end of the AquaDam®. The plywood will prevent damage to the AquaDam®, but it is not necessary by any means.

Step 7: Remove the tape or string from around the bunched inner fill tubes and insert the discharge hoses deep inside them, making sure that they extend past the coupling collar. Removal of fittings on the discharge hoses is recommended. If they cannot be removed, cover metal ones with duct tape. To keep the fill hoses from sliding back out, bunch the fill tubes up around them and secure with duct tape

(see Figure 7d).

Step 8: 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 COUPLING COLLARS

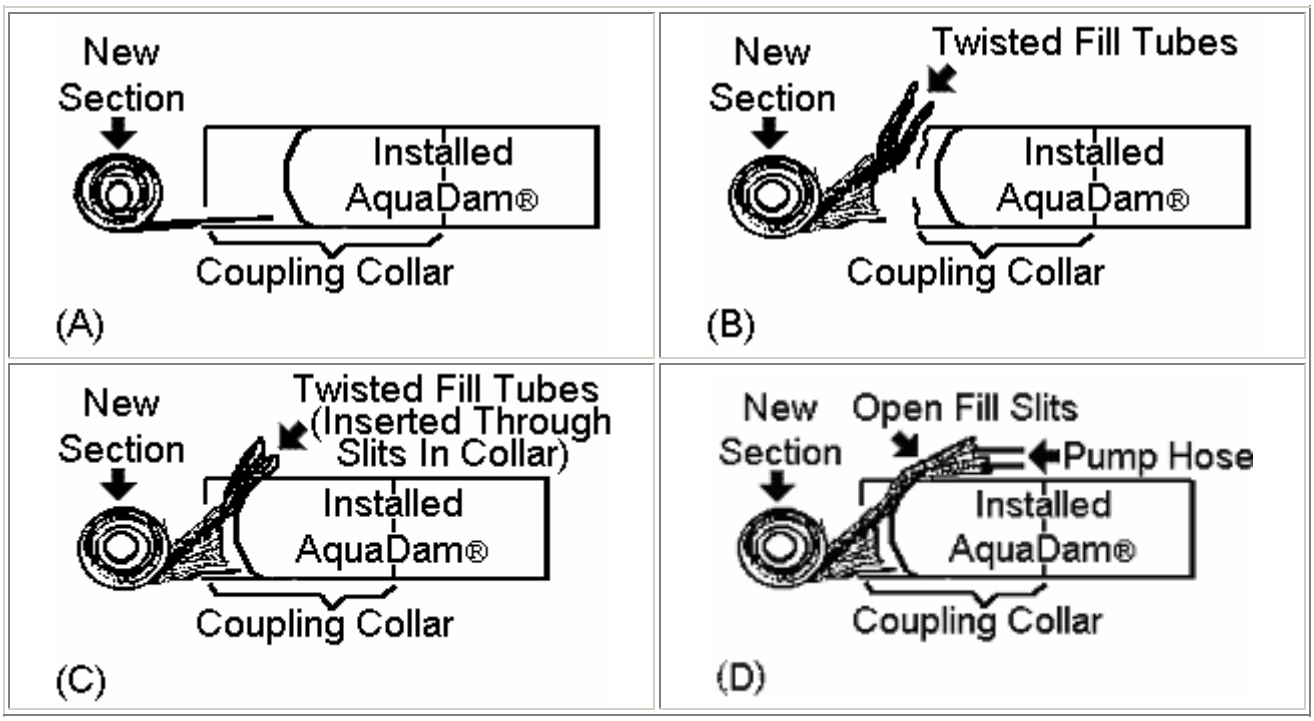

Figure 7, illustrations a, b, c, and d show the different steps taken in the process of joining two AquaDams® together using a collar.

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Figure 8: TWO AQUADAMS® COUPLED TOGETHER:

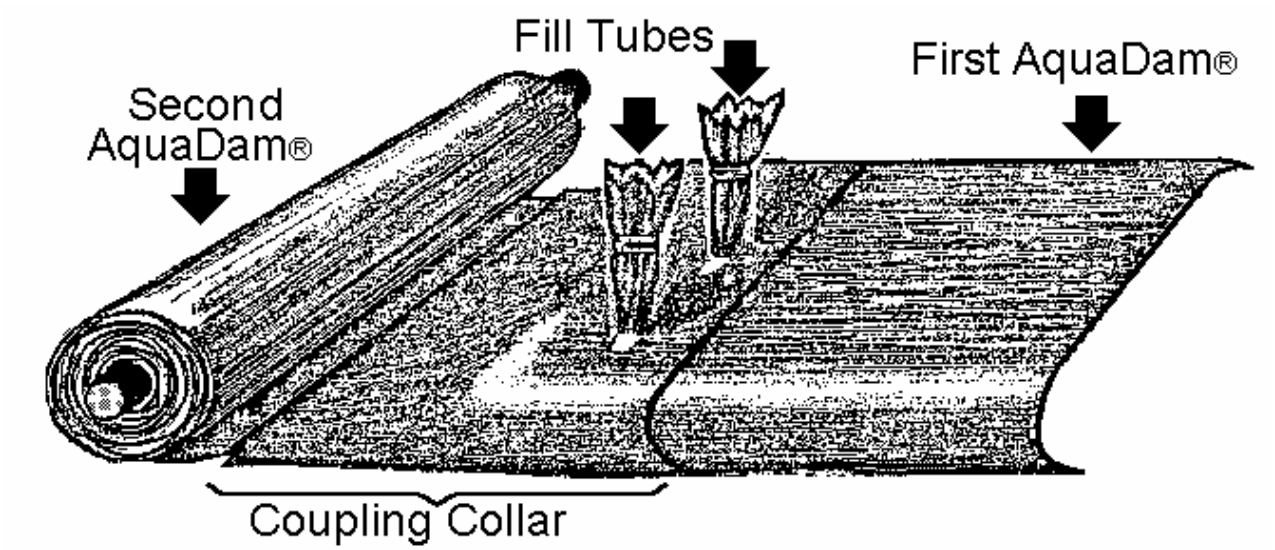

Figure 8: Two AquaDams® are joined together by a coupling collar and ready to be inflated. The two inner tubes stick out and up from the middle portion of the coupling collar. These are the extra fill tubes located at the open end of each AquaDam®.

Step 9: When the second section is filled, the water hoses can be removed from the inner tubes. The fill tubes are rewrapped with duct tape tightly and in such a manner that the tubes will stand up by themselves (see the Woodlawn Lake Sediment Removal project in San Antonio, TX on our website). If possible, use duct tape to attach the two upright inner tubes together, 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.

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

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

- Leaks in the AquaDams®
- Seepage under the AquaDams®
- 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)*.

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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 & 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.

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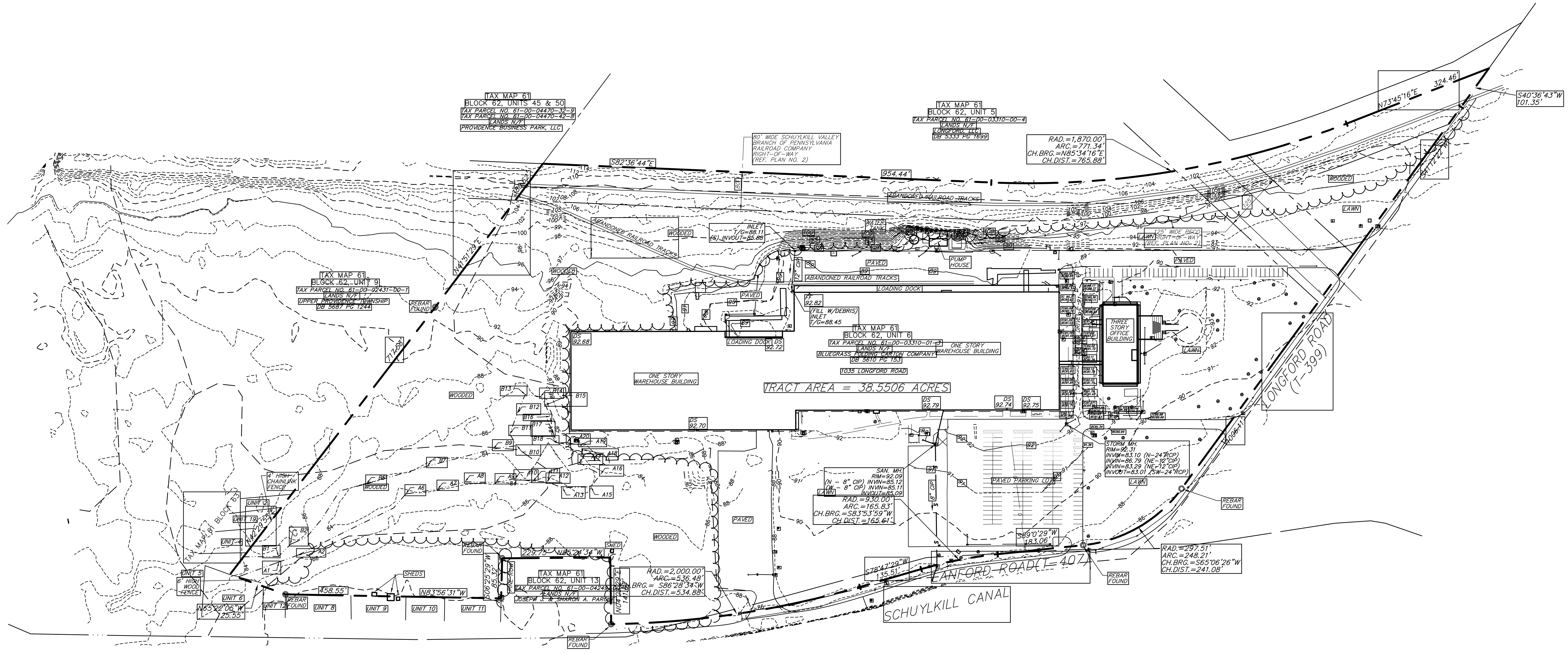
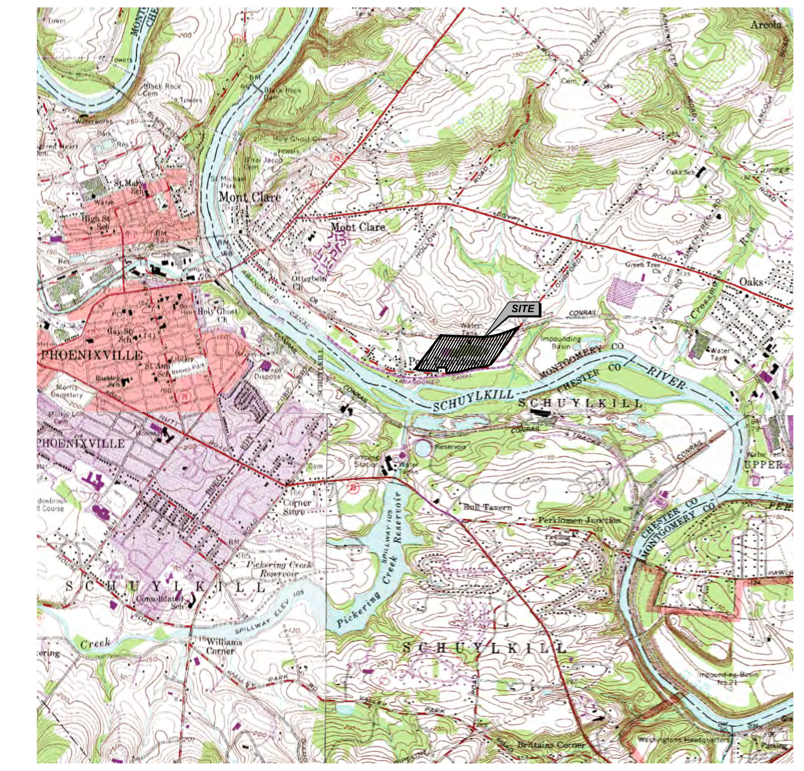
AquaDam Specifications

Dimensions (completely full)	Controllable Mud/Water Depth	Specifications of Inner and Outer Tubes	Capacity in Gallons (gal per ft.)	Empty Weight (lbs per ft.)
1' H x 2' W* (0.3m high)	**9”** (23 cm)	Same material thickness and strength as 4' high AquaDam	12	0.75 lbs
1.5' H x 3' W* (0.5m high)	**14”** (36 cm)	Same material thickness and strength as 4' high AquaDam	25	0.95 lbs
2.5' H x 5' W* (0.76m high)	**24”** (61 cm)	Same material thickness and strength as 4' high AquaDam	88	1.85 lbs
3' H x 7' W (1m high)	**30”** (77 cm)	Same material thickness and strength as 4' high AquaDam	120	2.5 lbs
4' H x 9' W (1.2m high)	**38”** (97 cm)	12 mil polyethylene inside tube. 300 lb/in² burst strength woven polyethylene geotextile outside tube.	240	4.25 lbs
5' H x 11' W (1.5m high)	**44”** (112 cm)	Same material thickness and strength as a 8' high AquaDam	320	6.4 lbs
6' H x 13' W (1.8m high)	**54”** (137 cm)	Same material thickness and strength as a 8' high AquaDam	400	8.5 lbs
8' H x 17' W (2.4m high)	**74”** (188 cm)	12 mil polyethylene inside tube. 2 plys of 300 lb/in² burst strength woven polyethylene geotextile outside tube.	500	12 lbs
10' H x 21' W (3m high)	**90”** (229 cm)	8 mil polyethylene inside tube. 3 plys of 300 lb/in² burst strength woven polyethylene geotextile outside tube.	800	25 lbs
12' H x 25' W (3.7m high)	**104”** (264 cm)	2 plys of 8 mil polyethylene inside tube 1 ply shroud surrounding inside tubes 4 plys of 300 lb/in² burst strength woven polyethylene geotextile outside tube.	900	31 lbs
16' H x 33' W (4.8m high)	**132”** (335 cm)	2 plys of 5 mil polyethylene inside tube 1 ply shroud surrounding inside tubes 5 plys of 300 lb/in² burst strength woven polyethylene geotextile outside tube.	1250	45 lbs

All AquaDams 3' and taller are manufactured with an internal baffle for added stability. Smaller AquaDams can be special ordered with a baffle. Call for pricing.

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





LOCATION MAP
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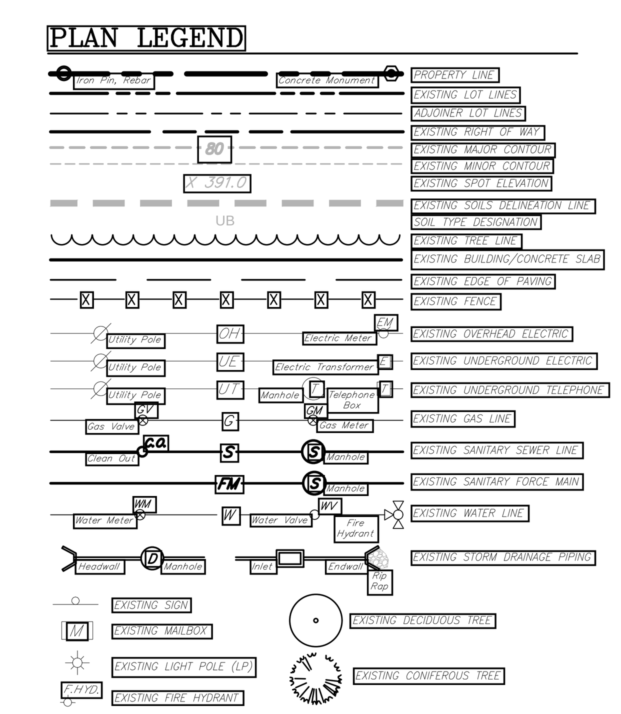

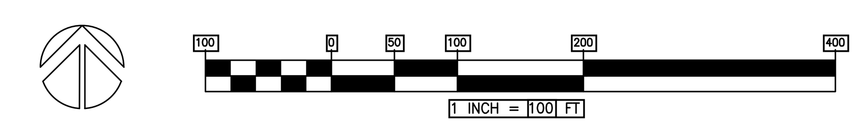

NOTES:

1. TOPOGRAPHIC INFORMATION TAKEN FROM PASDA DATABASE.
2. SUPPLEMENTAL TOPOGRAPHIC INFORMATION AND OUTBOUND BASED ON SURVEY PLAN BY NAVE NEWELL ENTITLED "PLAN OF SURVEY – OVERALL SITE LANDS N/F BLUEGRASS FOLDING CARTON COMPANY" DATED 4/10/19.
3. BEARING BASIS FOR THE NAVE NEWELL SURVEY IS PER THE PLAN ENTITLED "FINAL SUBDIVISION PLAN FOR JEFFERSON SMURFIT CORPORATION, U.S.", DATED JANUARY 4, 1990, LAST REVISED SEPTEMBER 11, 2000 AND RECORDED IN THE MONTGOMERY COUNTY COURTHOUSE AS PLAN BOOK A-59 PAGE 350.
4. VERTICAL DATUM IS NAVD 1988 DATUM.
5. WETLAND INFORMATION TAKEN FROM A WETLAND INVESTIGATION REPORT BY VORTEX ENVIRONMENTAL, INC. ENTITLED "WETLAND INVESTIGATION FOR THE GPI VALLEY FORGE PROJECT; 1035 LONGFORD ROAD, UPPER PROVIDENCE TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA "DATED AUGUST 16, 2019.
6. THE SITE IS LOCATED WITHIN THE M1 OFFICE AND LIMITED INDUSTRIAL DISTRICT.
7. THE PROPOSED IMPROVEMENTS INCLUDE THE GRADING OF A LEVEL AREA FOR THE PROPOSED AQUDAM, CONSTRUCTION OF ADDITIONS TO THE EXISTING BUILDING AND THE DEMOLITION OF THE EXITING THREE STORY OFFICE BUILDING.
8. A. THE EXTENT, EXACT LOCATION AND DEPTH OF UNDERGROUND UTILITIES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXTENT AND THE EXACT LOCATION AND DEPTH OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTORS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CONTRACTORS SHALL NOTIFY UTILITY COMPANIES THREE (3) DAYS PRIOR TO COMMENCING WORK TO COMPLY WITH PA ACT NO. 38.
   B. CONTRACTOR SHALL CONTACT THE PENNSYLVANIA ONE CALL CENTER SYSTEM (1-800-242-1776) 48 HOURS PRIOR TO START OF ANY EXCAVATION. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO COMPARE THE SITE DRAWINGS AND REPORT ANY DISCREPANCY WITHIN SET OF DRAWINGS TO THE ENGINEER PRIOR TO FABRICATION AND INSTALLATION OF ANY SITE WORK ELEMENTS.
9. THE OWNER OF RECORD ARE: GRAPHIC PACKAGING INTERNATIONAL
10. FLOOD HAZARD DISTRICT IS LOCATED ON THIS SITE PER FIRM PANEL 42091C0238G DATE EFFECTIVE 3/2/16.
11. TOTAL TRACT AREA IS EQUAL TO 38.55 ACRES GROSS.

Number:	Date:	Revision:
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GPI VALLEY FORGE

1035 LONGFORD ROAD
PHOENIXVILLE, PA

EXISTING CONDITIONS PLAN

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
FRANCIS GREENE
ENGINEER
PE 075817

ADVANCED GeoServices
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Scale:	1" = 100'
Drawn By:	RRP
Checked By:	FEG
Project Mgr.:	DTW
Originated By:	RRP
Project No.:	20193908
Drawing Date:	11/19/19
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Revision Number:	1

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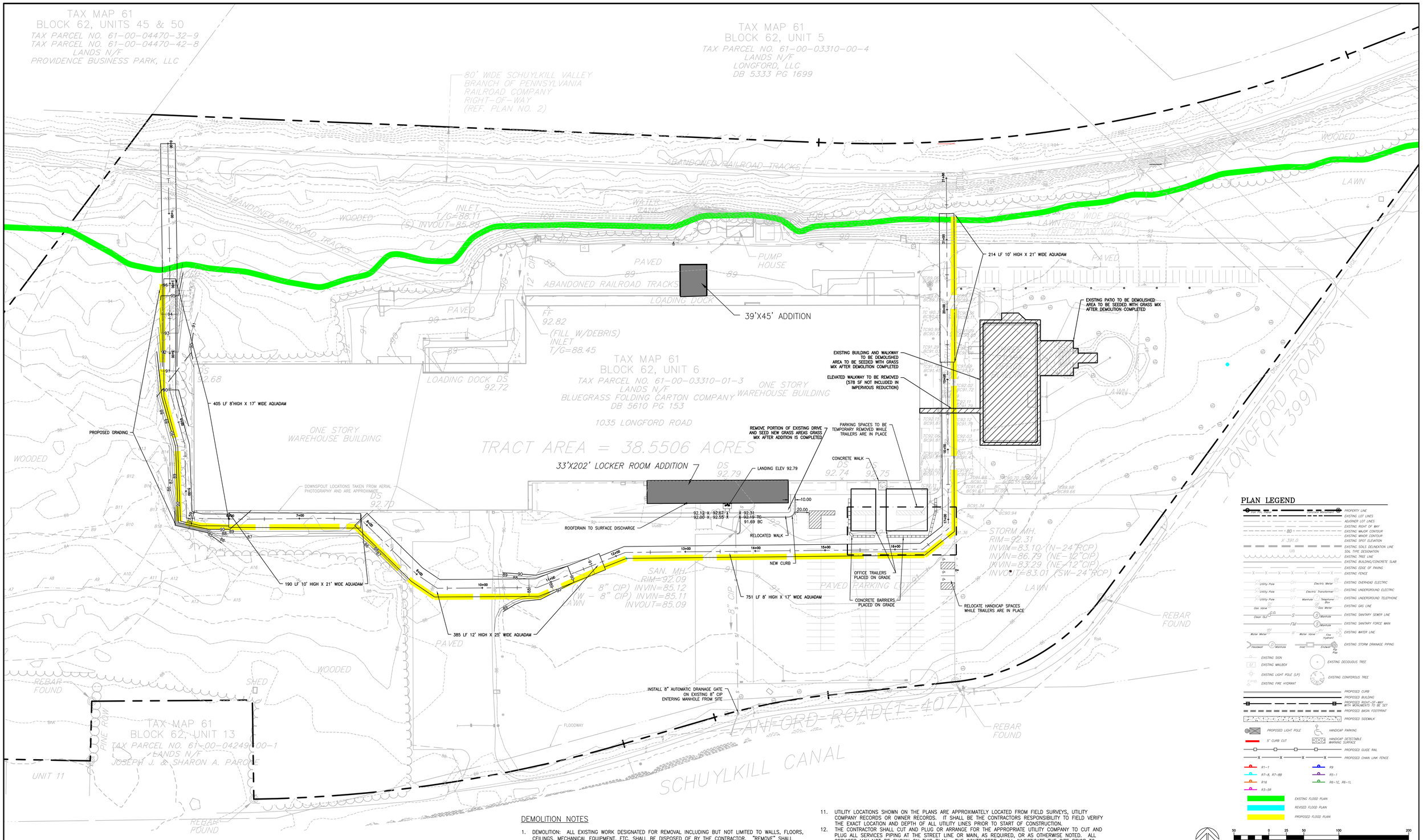

NOTES:

1. THE TOWNSHIP ENGINEER SHALL BE NOTIFIED A MINIMUM 48-HOURS PRIOR TO THE START OF ANY WORK COVERED BY THIS GRADING PERMIT.
2. THE EXISTING STORM SEWER SYSTEM SHALL BE MAPPED PRIOR TO WORK BEING PERFORMED. ONCE MAPPED, THE CONTRACTOR IS TO PROVIDE LOCATIONS OF PROPOSED AUTOMATIC DRAINAGE GATES AND/OR GATE VALVES TO CONTROL FLOODING BEHIND THE AQUADAM.

PRE AND POST IMPERVIOUS

EXISTING IMPERVIOUS TO BE REMOVED:	
OFFICE BUILDING	13,218 SF
PATIO AND WALKWAY AROUND BUILDING	4,370 SF
DRIVEWAY AND SIDEWALK FOR ADDITION 1	4,074 SF
BITUMINOUS FOR ADDITION 2	1,755 SF
TOTAL:	23,417 SF
NEW IMPERVIOUS:	
ADDITION 1	6,666 SF
ADDITION 2	1,755 SF
RELOCATED SIDEWALK	2,198 SF
CONCRETE WALK	160 SF
TOTAL:	10,779 SF
NET IMPERVIOUS REMOVED	12,638 SF

DEMOLITION NOTES

1. DEMOLITION: ALL EXISTING WORK DESIGNATED FOR REMOVAL INCLUDING BUT NOT LIMITED TO WALLS, FLOORS, CEILINGS, MECHANICAL EQUIPMENT, ETC. SHALL BE DISPOSED OF BY THE CONTRACTOR. "REMOVE" SHALL MEAN COMPLETELY AND ENTIRELY FROM SITE.
2. TERMINATING UTILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING PLUMBING AND ELECTRICAL WHERE ITEMS ARE REMOVED, BY DEAD-ENDING PIPING AND WIRES IN A SAFE, CODE CONFORMING AND PERMANENT MANNER.
3. UTILITY SHUTDOWNS: OWNER/TENANT MUST RECEIVE A MINIMUM OF 48 HOURS NOTICE PRIOR TO ALL UTILITY SHUTDOWNS AND THE SHUTDOWN MUST BE APPROVED BY THE OWNER/TENNANT. SHUTDOWNS SHOULD BE SCHEDULED FOR "OFF" HOURS OR WEEKENDS.
4. SIGNAGE: CONTRACTOR SHALL PROVIDE DIRECTIONAL SIGNAGE AS REQUIRED BY THE OWNER. SIGNAGE PLANS MUST BE SUBMITTED TO OWNER FOR APPROVAL A MINIMUM OF 48 HOURS PRIOR TO THE START OF ANY DEMOLITION OR CONSTRUCTION. ALL SIGNS SHALL BE LAMINATED. MINIMAL SIZE FOR EXTERIOR SIGNAGE SHALL BE 24"x36".
5. THE CONTRACTOR SHALL SECURE ALL REQUIRED PERMITS FOR THE DEMOLITION. DISPOSAL OF ALL DEMOLITION MATERIAL SHALL BE REMOVED FROM THE SITE. THE CONTRACTOR SHALL POST BONDS AND PAY PERMIT FEES AS REQUIRED.
6. PRIOR TO COMMENCEMENT OF DEMOLITION ACTIVITIES, THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES INC COMPLIANCE WITH ACT 172 TO VERIFY THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL MAKE THE PENNSYLVANIA ONE-CALL NOTICE AT 1-800-242-1776 IN ACCORDANCE WITH CURRENT REQUIREMENTS.
7. THE CONTRACTOR SHALL PROTECT ALL IRON PINS, MONUMENTS AND PROPERTY CORNERS THAT WILL NOT BE REMOVED. ANY DISTURBED IRON PINS, MONUMENTS OR PROPERTY CORNERS SHALL BE RESET BY A LICENSED LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
8. SEDIMENT AND EROSION CONTROLS AS SHOWN ON A SEPARATE PLAN SHALL BE IN PLACE PRIOR TO START OF DEMOLITION.
9. REMOVE AND DISPOSE OF ANY CONCRETE, FENCES, STAIRS, WALLS, DEBRIS AND RUBBISH REQUIRING REMOVAL FROM THE WORK AREA IN AN APPROVED LANDFILL BY AN APPROVED HAULER.
10. ASBESTOS OR HAZARDOUS MATERIAL, IF FOUND ON SITE, SHALL BE REMOVED BY A LICENSED HAZARDOUS MATERIAL CONTRACTOR AND DISPOSED OF AT AN APPROVED LANDFILL.
11. UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATELY LOCATED FROM FIELD SURVEYS, UTILITY COMPANY RECORDS OR OWNER RECORDS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE EXACT LOCATION AND DEPTH OF ALL UTILITY LINES PRIOR TO START OF CONSTRUCTION.
12. THE CONTRACTOR SHALL CUT AND PLUG OR ARRANGE FOR THE APPROPRIATE UTILITY COMPANY TO CUT AND PLUG ALL SERVICES PIPING AT THE STREET LINE OR MAIN, AS REQUIRED, OR AS OTHERWISE NOTED. ALL SERVICES MAY NOT BE SHOWN ON THIS PLAN. THE CONTRACTOR SHALL INVESTIGATE THE SITE PRIOR TO BIDDING TO DETERMINE THE EXTENT OF SERVICE PIPING TO BE REMOVED, CUT OR PLUGGED.
13. THE CONTRACTOR SHALL FURNISH A DISCONNECT NOTIFICATION TO ALL ASSOCIATED UTILITY COMPANIES PERTAINING TO THIS SITE AT LEAST TWO (2) WEEKS PRIOR TO BEGINNING DEMOLITION.
14. THE CONTRACTOR SHALL CUT AND REMOVE ANY PROTRUDING CONDUITS AT LUMINARIES TO 24" BELOW GRADE. THE CONTRACTOR SHALL REMOVE ALL CABLE AND CONDUCTORS FROM REMAINING LIGHTING.
15. BACKFILL DEPRESSIONS, FOUNDATION HOLES AND REMOVED DRIVEWAY AREAS WITH SELECT STRUCTURAL MATERIALS (PENNDOT 2A) AND COMPACT, PLACE TOPSOIL, FERTILIZE, SEED AND MULCH DISTURBED AREAS NOT SUBJECT TO FURTHER SITE CONSTRUCTION. EMPLOY WATERING EQUIPMENT FOR DUST CONTROL.
16. OSHA REGULATIONS MAKE IT UNLAWFUL TO OPERATE CRANES, BOOMS, HOISTS, ETC. WITHIN TEN (10) FEET OF ANY ELECTRIC LINE OVER 50KV.
17. PROOF ROLL THE EXPOSED SUBGRADE BY APPLYING A MINIMUM OF 4 COVERAGES OF A 20-TON VIBRATORY ROLLER AT THE DIRECTION OF A GEOTECHNICAL ENGINEER. REMOVE ANY SOFT OR OTHERWISE UNSUITABLE AREAS IDENTIFIED DURING PROOF ROLLING.
18. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROLS REQUIRED FOR DEMOLITION. THE CONTRACTOR MUST PROTECT ALL TRAFFIC SIGNAL EQUIPMENT AND TRAFFIC SIGNS.
19. ALL EXISTING PIPES TO BE REMOVED MAY BE FILLED AND LEFT IN PLACE WHERE THEY DO NOT INTERFERE WITH NEW CONSTRUCTION AND ARE NOT WITHIN THE BUILDING FOOTPRINT AND FOOTING INFLUENCE ZONE. MATERIALS FOR FILLING ABANDONED PIPES SHALL BE 30 PSI CONTROLLED DENSITY FILL OR 1:8 CEMENT-SAND GROUT. PIPES 10" IN DIAMETER AND UNDER ARE NOT REQUIRED TO BE FILLED UNLESS OTHERWISE NOTED ON THE PLANS. ALL TREES, EXCEPT AS NOTED, SHALL BE REMOVED FROM THE SITE.
20. ALL DEBRIS, SOIL, LIQUIDS AND OTHER MATERIAL TO BE REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
21. THE EXISTING WALLS ARE TO BE INSPECTED BY A LICENSED STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION. THE STRUCTURAL ENGINEER SHALL DETERMINE THE INTEGRITY OF THE WALLS AND IF THE PORTIONS OF THE WALLS THAT ARE TO REMAIN NEED REINFORCEMENT.

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GPI VALLEY FORGE

1035 LONGFORD ROAD
PHOENIXVILLE, PA

PROPOSED CONDITIONS PLAN

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
FRANCIS GREENE
ENGINEER
No. 044824-E
Not valid without the raised seal of the professional engineer

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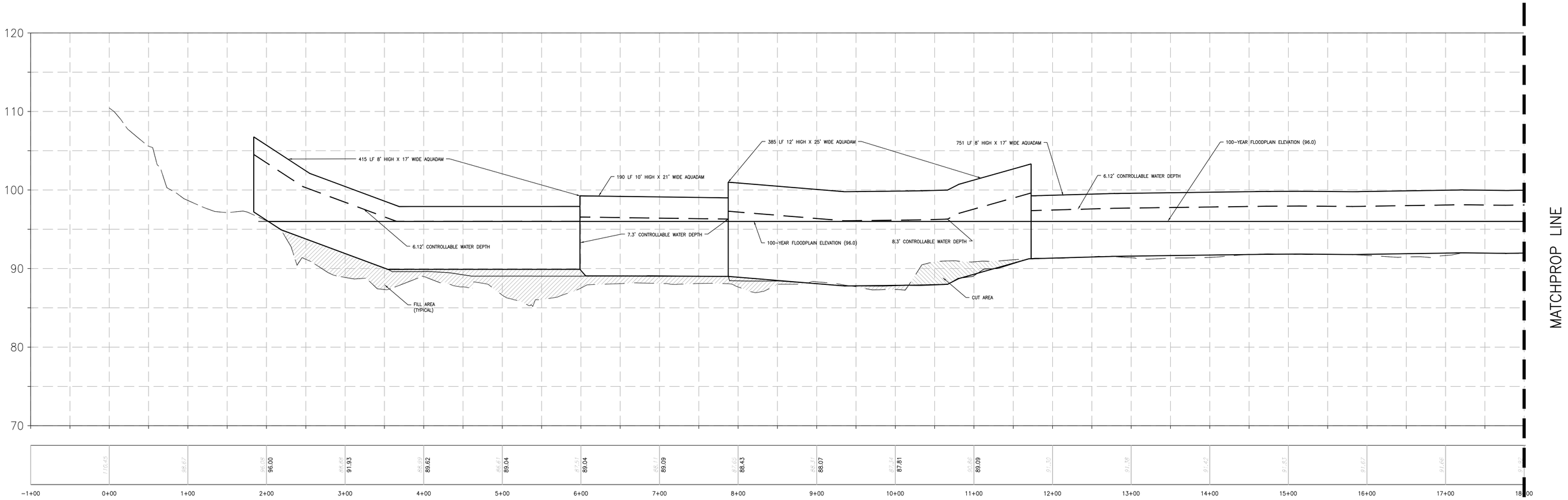
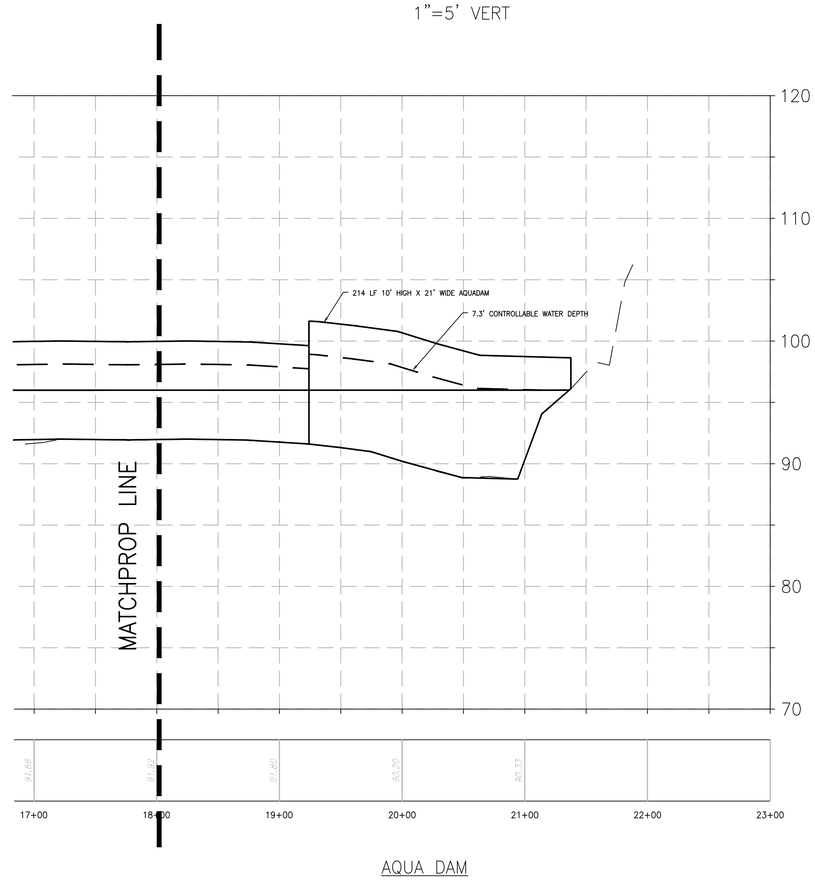


AQUA DAM
SCALE: 1"=50' HOR
1"=5' VERT



AQUA DAM
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GPI VALLEY FORGE
1035 LONGFORD ROAD
PHOENIXVILLE, PA

PROFILE

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
FRANCIS GREENE
Francis Greene

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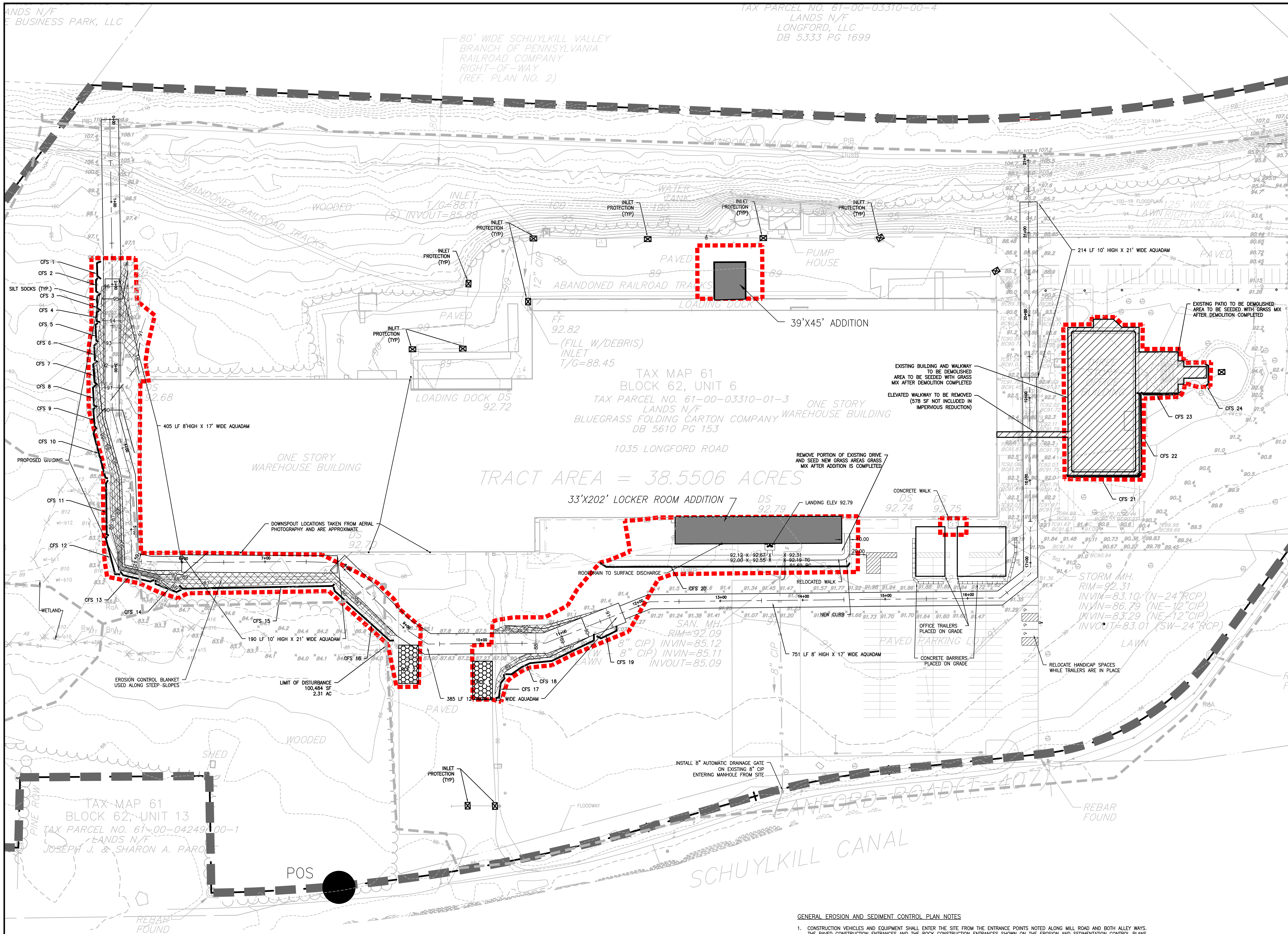

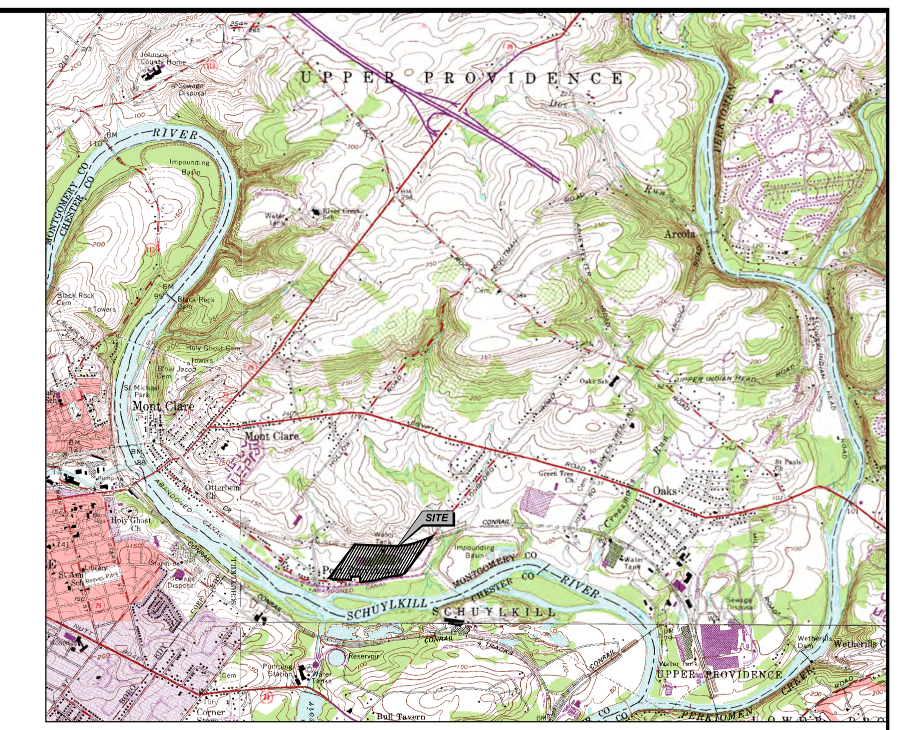

LOCATION MAP
SCALE 1"=1,000'

LEGEND

- EXISTING WETLAND DELINEATION LINE
- EXISTING SOILS DELINEATION LINE
- LIMIT OF DISTURBANCE
- NPDES BOUNDARY
- ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET (NAG S150BN)
- INLET PROTECTION
- COMPOST FILTER SOCK
- SEALED INLET

1 INCH = 50 FT

UTILITY LINE TRENCH EXCAVATION NOTES:

1. LIMIT ADVANCED CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF THE PIPE INSTALLATION THAT CAN BE COMPLETED IN ONE DAY.
2. WORK CREW AND EQUIPMENT FOR TRENCHING, PLACEMENT OF PIPE, PLUG CONSTRUCTION AND BACKFILLING WILL BE SELF CONTAINED AND SEPARATE FROM CLEARING AND GRUBBING AND SITE RESTORATION AND STABILIZATION OPERATIONS.
3. ALL SOIL EXCAVATED FROM THE TRENCH WILL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
4. LIMIT DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.
5. WATER WHICH ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING BEFORE PIPE PLACEMENT AND / OR BACKFILLING BEGINS. WATER REMOVED FROM THE TRENCH SHALL BE PUMPED THROUGH A FILTRATION DEVICE.
6. ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND IMMEDIATELY STABILIZED.

UTILITY INSTALLATION EROSION AND SEDIMENT CONTROL NOTES

1. LIMIT ADVANCE CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF PIPE INSTALLED IN ONE DAY. CLEARING AND GRUBBING SHALL BE MINIMIZED TO ONLY THE AREA REQUIRED TO PERFORM THE WORK.
2. WATER BARS SHALL BE INSTALLED WHERE UTILITY INSTALLATION RUNS ARE PERPENDICULAR TO THE CONTOUR, AS ILLUSTRATED ON THE PLAN.
3. WHERE TRENCH INSTALLATION OCCURS, SILT FENCE SHALL BE INSTALLED DOWNSTREAM OF THE WORK AREA.
4. MATERIAL EXCAVATED DURING TRENCH OPERATIONS SHOULD BE PLACED ON THE UPSTREAM SIDE OF THE TRENCH EXCAVATION IN ORDER THAT ANY SEDIMENT LADEN RUNOFF IS CAPTURED BY THE OPEN TRENCH.
5. THE TOTAL LENGTH OF EXCAVATED TRENCH OPEN AT ONE TIME SHOULD NOT BE GREATER THAN THE TOTAL LENGTH OF PIPELINE/UTILITY LINE THAT CAN BE PLACED IN THE TRENCH AND BACK-FILLED IN ONE WORKING DAY.
6. WATER THAT ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING BEFORE PIPE PLACEMENT AND/OR BACKFILLING BEGINS. WATER REMOVED FROM THE TRENCH SHALL BE PUMPED THROUGH A FILTRATION DEVICE.
7. NO MORE THAN 50 LINEAR FEET OF OPEN TRENCH SHOULD EXIST WHEN PIPELINE/UTILITY LINE INSTALLATION CEASES AT THE END OF THE WORKDAY.
8. BACK-FILLING OF THE TRENCH SHALL OCCUR ON A DAILY BASIS. ONCE BACK-FILLING OF THE TRENCH IS COMPLETE, STABILIZE THE DISTURBED AREA. STABILIZATION SHALL BE CONSIDERED IN THE FORM OF VEGETATION (TOPSOIL, SEED AND MULCH AT A MINIMUM), STONE, OR PAVING MATERIAL.
9. SILT FENCE MUST REMAIN IN PLACE UNTIL THE DISTURBED AREA HAS BEEN STABILIZED.

GENERAL EROSION AND SEDIMENT CONTROL PLAN NOTES

1. CONSTRUCTION VEHICLES AND EQUIPMENT SHALL ENTER THE SITE FROM THE ENTRANCE POINTS NOTED ALONG MILL ROAD AND BOTH ALLEY WAYS. THE PAVED CONSTRUCTION ENTRANCES AND THE ROCK CONSTRUCTION ENTRANCES SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLANS SHALL BE USED.
2. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING THAT ALL FILL MATERIALS AND AGGREGATES IMPORTED ONTO THE PROJECT SITE ARE CONSIDERED TO BE "CLEAN FILL" IN ACCORDANCE WITH THE REGULATIONS OF THE COMMONWEALTH OF PENNSYLVANIA.
4. THE OPERATOR SHALL ENSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
5. UNTIL THE SITE ACHIEVES FINAL STABILIZATION, THE CONTRACTOR SHALL ENSURE THAT THE BEST MANAGEMENT PRACTICES ARE IMPLEMENTED, OPERATED, AND MAINTAINED PROPERLY AND COMPLETELY. ALL MAINTENANCE WORK, INCLUDING CLEANING, REPAIR, REPLACEMENT, RE-GRADING, AND RE-STABILIZATION SHALL BE PERFORMED IMMEDIATELY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL SITE INSPECTIONS WILL BE DOCUMENTED IN AN INSPECTION LOG KEPT FOR THIS PURPOSE, INCLUDING THE COMPLIANCE ACTIONS AND THE DATE, TIME AND NAME OF THE PERSON CONDUCTING THE INSPECTION. THE INSPECTION LOG WILL BE KEPT ON SITE AT ALL TIMES AND MADE AVAILABLE TO CHESTER COUNTY CONSERVATION DISTRICT.

   ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING, AND RE-NETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.

   WHERE BMPS ARE FOUND TO FAIL TO ALLEVIATE EROSION OR SEDIMENT POLLUTION, THE PERMITTEE OR CO-PERMITTEE SHALL DOCUMENT FAILURE AND INCLUDE THE FOLLOWING INFORMATION:
   A. THE LOCATION AND SEVERITY OF THE BMPS FAILURE AND ANY POLLUTION EVENTS.
   B. ALL STEPS TAKEN TO REDUCE, ELIMINATE AND PREVENT THE RECURRENCE OF THE NON-COMPLIANCE.
   C. THE TIMEFRAME TO CORRECT THE NON-COMPLIANCE, INCLUDING THE EXACT DATES WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.

   AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED.

6. ONLY LIMITED DISTURBANCE WILL BE PERMITTED TO PROVIDE ACCESS TO COMPOST FILTER SOCKS FOR GRADING AND ACQUIRING BORROW OR CUT MATERIAL TO CONSTRUCT THOSE BMPS.
7. EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS.
8. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.
9. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WILL BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS.
10. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
11. SEDIMENT BASINS AND OTHER TEMPORARY STRUCTURAL DEVICES MUST BE PROTECTED FROM UNAUTHORIZED ACTS OF THIRD PARTIES.
12. ALL AREAS WITH SLOPES 3H:1V OR STEEPER SHOULD BE LINED WITH EROSION CONTROL BLANKET.
13. ANY OFF-SITE WASTE AND BORROW AREA MUST HAVE AN E&S PLAN REVIEWED AND APPROVED BY CCCD PRIOR TO BEING ACTIVATED.
14. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED 4 DAYS, OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION. HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE. §102.22(b).
15. THE CONTRACTOR MUST ENSURE THAT ALL SEDIMENT LADEN FLOWS OF STORMWATER ARE DIRECTED THROUGH AN EROSION AND SEDIMENTATION CONTROL BMP THROUGHOUT THE DURATION OF THE PROJECT. 102.4(C)

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GPI VALLEY FORGE
1035 LONGFORD ROAD
PHOENIXVILLE, PA

EROSION AND SEDIMENTATION CONTROL PLAN

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — FRANCIS GREENE — ENGINEER — PE 075817

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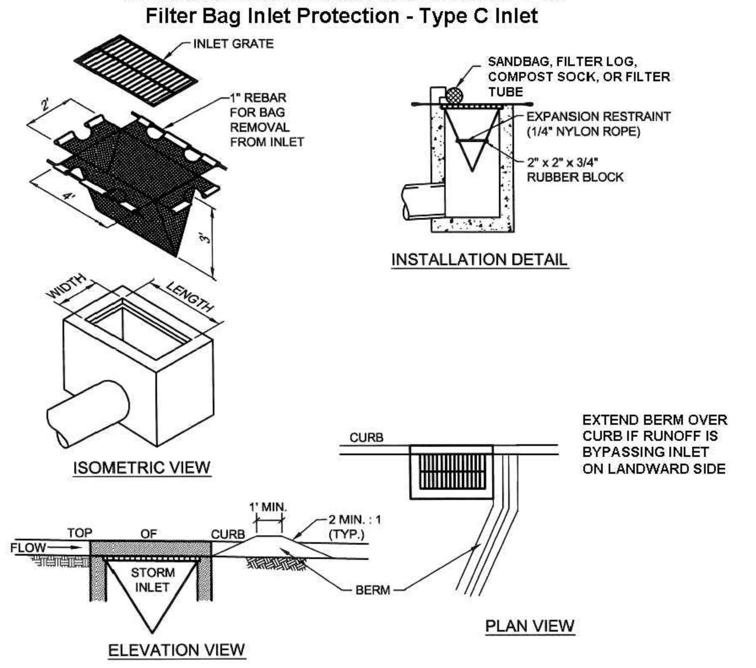
C700

STANDARD CONSTRUCTION DETAIL # 4-15
Filter Bag Inlet Protection - Type C Inlet



Adapted from PennDOT RC-70, 2008 Edition

Maximum drainage area = ½ acre.

Inlet protection shall not be required for inlet tributary to sediment basin or trap. Berms shall be required for all installations.

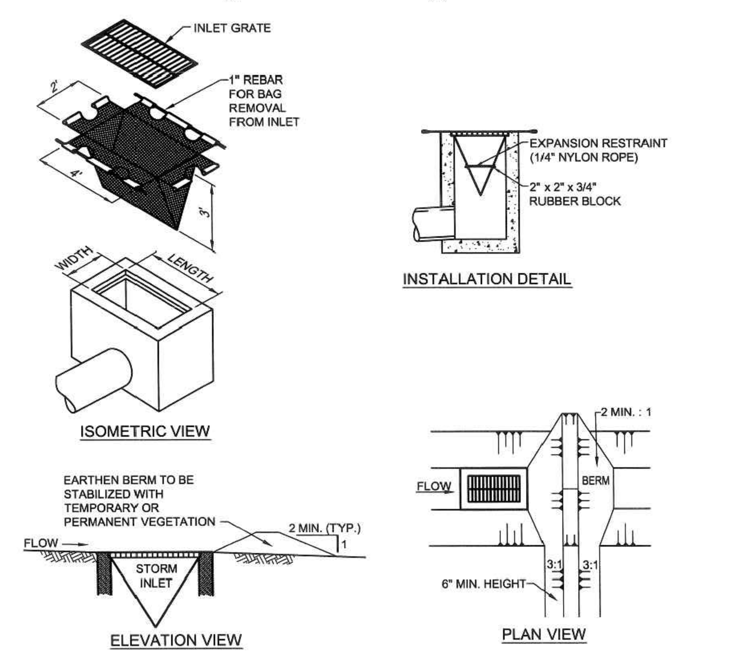
Rolled earthen berm shall be maintained until roadway is stoned. Road subbase berm shall be maintained until roadway is paved. Six inch minimum height asphalt berm shall be maintained until roadway surface receives final coat.

At a minimum, the fabric shall have a minimum grab tensile strength of 120 lbs, a minimum burst strength of 200 psi, and a minimum trapezoidal tear strength of 50 lbs. Filter bags shall be capable of trapping all particles not passing a No. 40 Sieve.

Inlet filter bags shall be inspected on a weekly basis and after each runoff event. Bags shall be emptied and rinsed or replaced when half full or when flow capacity has been reduced so as to cause flooding or bypassing of the inlet. Damaged or clogged bags shall be replaced. A supply shall be maintained on site for replacement of bags. All needed repairs shall be initiated immediately after the inspection. Dispose of accumulated sediment as well as all used bags according to the plan notes.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL # 4-16
Filter Bag Inlet Protection - Type M Inlet



Adapted from PennDOT RC-70, 2008 Edition

Maximum drainage area =½ acre.

Inlet protection shall not be required for inlet tributary to sediment basin or trap. Berms shall be required for all installations.

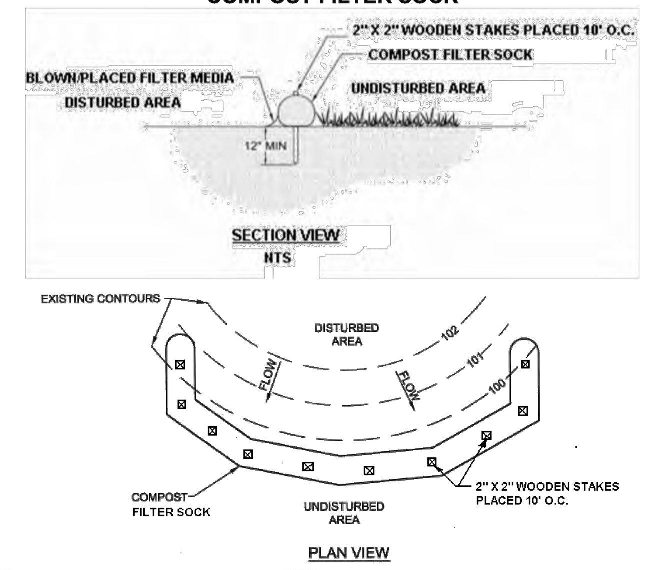
Rolled earthen berm in roadway shall be maintained until roadway is stoned. Road subbase berm on roadway shall be maintained until roadway is paved. Earthen berm in channel shall be maintained until permanent stabilization is completed or remain permanently.

At a minimum, the fabric shall have a minimum grab tensile strength of 120 lbs., a minimum burst strength of 200 psi, and a minimum trapezoidal tear strength of 50 lbs. Filter bags shall be capable of trapping all particles not passing a No. 40 sieve.

Inlet filter bags shall be inspected on a weekly basis and after each runoff event. Bags shall be emptied and rinsed or replaced when half full or when flow capacity has been reduced so as to cause flooding or bypassing of the inlet. Damaged or clogged bags shall be replaced. A supply shall be maintained on site for replacement of bags. All needed repairs shall be initiated immediately after the inspection. Dispose accumulated sediment as well as all used bags according to the plan notes.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK



Filtrexx **NTS**

Sock fabric shall meet standards of Table 4.1. Compost shall meet the standards of Table 4.2.

Compost filter sock shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment (Figure 4.1). Maximum slope length above any sock shall not exceed that shown on Figure 4.2. Stakes may be installed immediately downslope of the sock if so specified by the manufacturer.

Traffic shall not be permitted to cross filter socks.

Accumulated sediment shall be removed when it reaches half the aboveground height of the sock and disposed in the manner described elsewhere in the plan.

Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired according to manufacturer's specifications or replaced within 24 hours of inspection.

Biodegradable filter socks shall be replaced after 6 months; photodegradable socks after 1 year. Polypropylene socks shall be replaced according to manufacturer's recommendations.

Upon stabilization of the area tributary to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed. In the latter case, the mesh shall be cut open and the mulch spread as a soil supplement.

TABLE 4.1
Compost Sock Fabric Minimum Specifications

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years
Two-ply systems					
Inner Containment Netting			**HDPE biaxial net Continuously wound Fusion-welded junctures 3/4" X 3/4" Max. aperture size**		
Outer Filtration Mesh			**Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch) 3/16" Max. aperture size**		
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					

Filtrexx & JMD

Compost should be a well decomposed, weed-free organic matter derived from agriculture, food, stump grindings, and yard or wood/bark organic matter sources. The compost should be aerobically composted. The compost should possess no objectionable odors and should be reasonably free (<1% by dry weight) of man-made foreign matter. The compost product should not resemble the raw material from which it was derived. Wood and bark chips, ground construction debris or reprocessed wood products are not acceptable as the organic component of the mix.

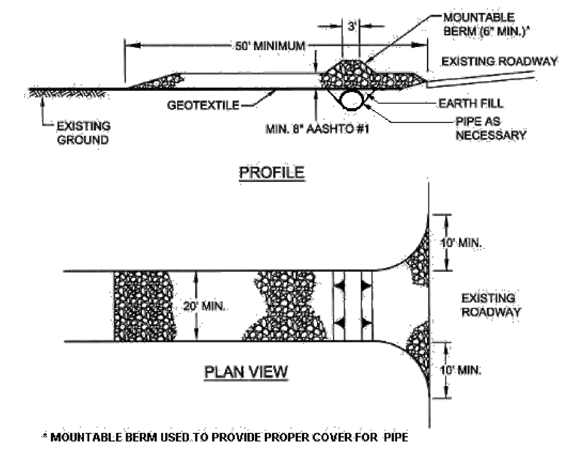
The physical parameters of the compost should comply with the standards in Table 4.2. The standards contained in the PennDOT Publication 408 are an acceptable alternative.

TABLE 4.2
Compost Standards

Organic Matter Content	80% - 100% (dry weight basis)
Organic Portion	Fibrous and elongated
pH	5.5 - 8.0
Moisture Content	35% - 55%
Particle Size	98% pass through 1" screen
Soluble Salt Concentration	5.0 dS/m (mmhos/cm) Maximum

Filtrexx

STANDARD CONSTRUCTION DETAIL # 3-1
Rock Construction Entrance



Modified from Maryland DOE

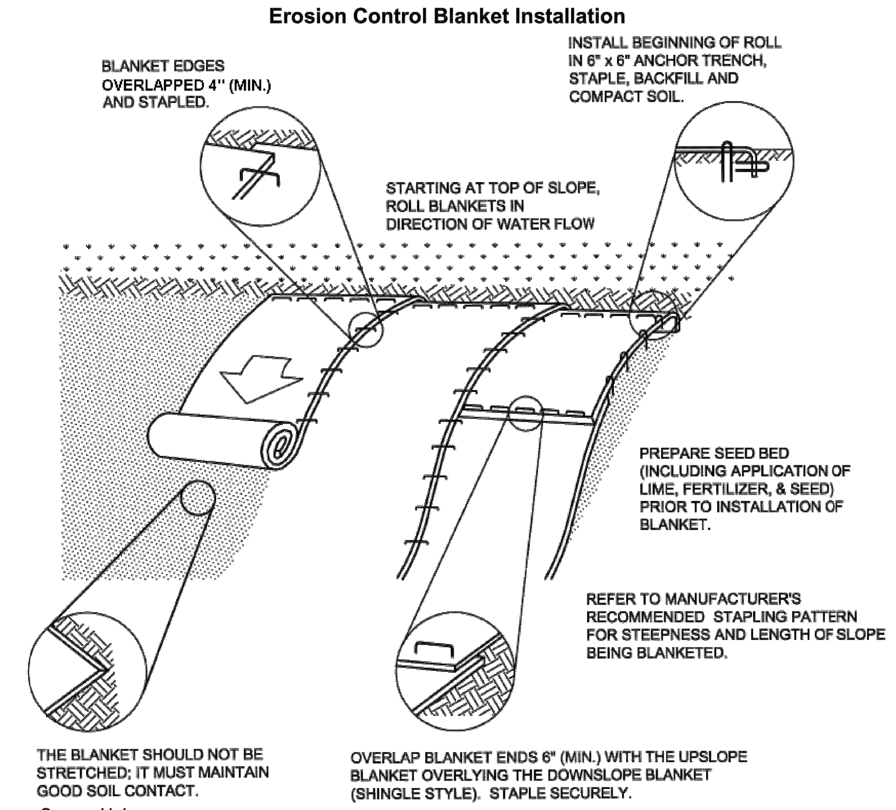
Remove topsoil prior to installation of rock construction entrance. Extend rock over full width of entrance.

Runoff shall be diverted from roadway to a suitable sediment removal BMP prior to entering rock construction entrance.

Mountable berm shall be installed wherever optional culvert pipe is used and proper pipe cover as specified by manufacturer is not otherwise provided. Pipe shall be sized appropriately for size of ditch being crossed.

MAINTENANCE: Rock construction entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. All sediment deposited on paved roadways shall be removed and returned to the construction site immediately. If excessive amounts of sediment are being deposited on roadway, extend length of rock construction entrance by 50 foot increments until condition is alleviated or install wash rack. Washing the roadway or sweeping the deposits into roadway ditches, sewers, culverts, or other drainage courses is not acceptable.

STANDARD CONSTRUCTION DETAIL # 11-1
Erosion Control Blanket Installation



Source Unknown

Seed and soil amendments shall be applied according to the rates in the plan drawings prior to installing the blanket.

Provide anchor trench at toe of slope in similar fashion as at top of slope.

Slope surface shall be free of rocks, clods, sticks, and grass.

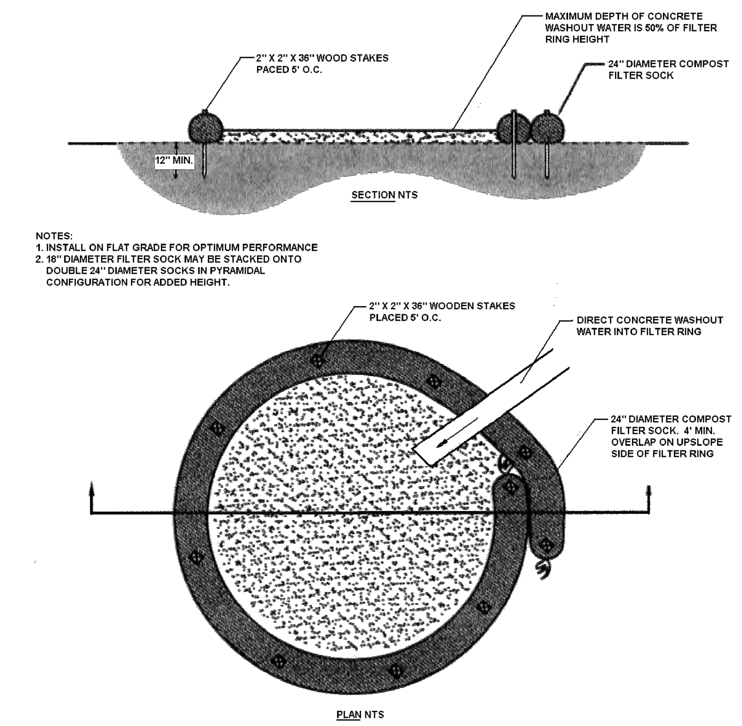
Blanket shall have good continuous contact with underlying soil throughout entire length. Lay blanket loosely and stake or staple to maintain direct contact with soil. Do not stretch blanket.

The blanket shall be stapled in accordance with the manufacturer's recommendations.

Blanketed areas shall be inspected weekly and after each runoff event until perennial vegetation is established to a minimum uniform 70% coverage throughout the blanketed area. Damaged or displaced blankets shall be restored or replaced within 4 calendar days.

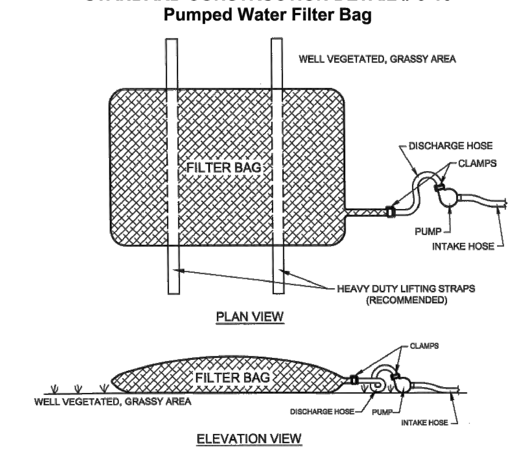
Filtrexx

FIGURE 3.18
Typical Compost Sock Washout Installation



A suitable impervious geomembrane shall be placed at the location of the washout prior to installing the socks.
Adapted from Filtrexx

STANDARD CONSTRUCTION DETAIL # 3-16
Pumped Water Filter Bag



PA DEP

Low volume filter bags shall be made from non-woven geotextile material sewn with high strength, double stitched "J" type seams. They shall be capable of trapping particles larger than 150 microns. High volume filter bags shall be made from woven geotextiles that meet the following standards:

Property	Test Method	Minimum Standard
Avg. Wide Width Strength	ASTM D-4884	60 lb/in
Grab Tensile	ASTM D-4632	205 lb
Puncture	ASTM D-4833	110 lb
Mullen Burst	ASTM D-3786	350 psi
UV Resistance	ASTM D-4355	70%
AOS % Retained	ASTM D-4751	80 Sieve

A suitable means of accessing the bag with machinery required for disposal purposes shall be provided. Filter bags shall be replaced when they become ½ full of sediment. Spare bags shall be kept available for replacement of those that have failed or are filled. Bags shall be placed on straps to facilitate removal unless bags come with lifting straps already attached.

Bags shall be located in well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile underlayment and flow path shall be provided. Bags may be placed on filter stone to increase discharge capacity. Bags shall not be placed on slopes greater than 5%. For slopes exceeding 5%, clean rock or other non-erodible and non-polluting material may be placed under the bag to reduce slope steepness.

No downslope sediment barrier is required for most installations. Compost berm or compost filter sock shall be installed below bags located in HQ or EV watersheds, within 50 feet of any receiving surface water or where grassy area is not available.

The pump discharge hose shall be inserted into the bags in the manner specified by the manufacturer and securely clamped. A piece of PVC pipe is recommended for this purpose.

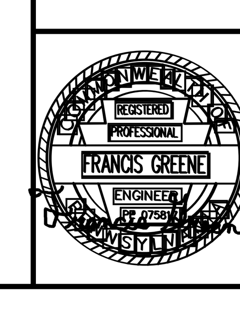
The pumping rate shall be no greater than 750 gpm or ½ the maximum specified by the manufacturer, whichever is less. Pump intakes shall be floating and screened.

Filter bags shall be inspected daily. If any problem is detected, pumping shall cease immediately and not resume until the problem is corrected.

Number:	Date:	Revision:
1	03/12/20	REVISIONS PER TWP REVIEW DATED 03/10/20

GPI VALLEY FORGE
1035 LONGFORD ROAD
PHOENIXVILLE, PA

ERODION AND SEDIMENT CONTROL DETAILS



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Scale:	AS SHOWN
Drawn By:	RRP
Checked By:	FEG
Project Mgr.:	DTW
Originated By:	RRP
Project No.:	20193908
Drawing Date:	11/19/19
Sheet No.:	9 OF 7
Revision Number:	1

C750

EROSION AND SEDIMENTATION NOTES

EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL (NOTES)

STANDARD E&S NOTES (APPENDIX C):

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS HALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE MONTGOMERY COUNTY CONSERVATION DISTRICT) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE MONTGOMERY COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATION BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED OR DISCHARGED AT THE SITE.
11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BE ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
14. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY FROM LOTS _____ ONTO _____.
15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDNG, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS A THE TIME OF INSPECTION.
17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
19. AREA WHICH ARE TO BE TOPSOILED SHALL BE SCARFIEID TO A MINIMUM DEPTH OF 3 TO 5 INCHES --- 6 TO 12 INCHES ON COMPACTED SOILS --- PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWING, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
27. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OF SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMEINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH PERMANENT STABILIZATION SPECIFICATIONS.
28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING OR OTHER MOVEMENTS.
29. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCATION CONSERVATION DISTRICT OR THE DEPARTMENT.
30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID RE-VEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCATION CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.

E&S PLAN PLANNING AND DESIGN 102.4(b)(4)

E&S PLAN
THIS EROSION AND SEDIMENTATION CONTROL PLAN AND THE ASSOCIATED DRAWINGS ARE SEPARATE FROM THE PCSM REPORT AND PLANS PREPARED FOR THE SITE AND ARE BASED UPON THE PLANS PREPARED FOR CONSTRUCTION.

MINIMIZES EXTENT AND DURATION OF EARTH DISTURBANCE
THE PROPOSED PLAN MINIMIZES THE EXTENT OF DISTURBANCE DURING CONSTRUCTION BY FOLLOWING EXISTING PAVED PARKING AREA TO ACCESS THE PROPOSED PROJECT SITE. FOLLOWING THE PROPOSED CONSTRUCTION SEQUENCE AND PROVIDING TEMPORARY AND PERMANENT STABILIZED SURFACES AS SOON AS POSSIBLE REDUCES THE DURATION OF THE DISTURBANCE ON THE PROPERTY.

MAXIMIZES PROTECTION OF EXISTING DRAINAGE FEATURES AND VEGETATION
THE GENERAL DRAINAGE PATTERNS HAVE BEEN MAINTAINED. THE PROPOSED DESIGN PROVIDES FOR LANDSCAPE RESTORATION (MEADOW) TO PRESERVE THE QUALITY OF RUNOFF DISCHARGED INTO THE RECEIVING STREAM. EXISTING VEGETATION IS PROTECTED TO THE EXTENT POSSIBLE BY RESTRICTING THE DISTURBED AREA AND UTILIZING PAVED PARKING AREAS FOR IMPROVEMENTS AND WORK AREAS.

MINIMIZES SOIL COMPACTION
USE OF EXISTING PAVED PARKING AREAS FOR ACCESS AND EXISTING PAVED SURFACES AS WORK SPACE ALONG WITH THE CONTROL OF DISTURBANCE TO THE EXISTING VEGETATED AREAS REDUCES ADDITIONAL SOIL COMPACTION TO THE EXTENT POSSIBLE.

UTILIZES OTHER MEASURES THAT PREVENT OR MINIMIZE GENERATION OF INCREASED STORMWATER RUNOFF
THE INCREASE IN RUNOFF, BOTH PEAK RATES AND TOTAL VOLUME, IS MINIMIZED BY THE INTRODUCTION OF THE FOLLOWING ELEMENTS:
- LANDSCAPE RESTORATION

EXISTING TOPOGRAPHIC FEATURES OF THE PROJECT SITE AND THE IMMEDIATE SURROUNDING AREA 102.4(b)(5)(i)

TOPOGRAPHIC MAP(S) OF THE PROJECT SITE PROVIDED
1. A TOPOGRAPHIC MAP OF THE PROJECT SITE IS PROVIDED IN THE LOCATION MAP (UPPER RIGHT CORNER) ON C700: EROSION AND SEDIMENTATION CONTROL PLAN.

LOCATION MAP (USGS QUADRANGLE) PROVIDED
1. A LOCATION MAP (COLLEGEVILLE, PA USGS QUADRANGLE) OF THE PROJECT SITE IS PROVIDED IN THE LOCATION MAP (UPPER RIGHT CORNER) ON C700: EROSION AND SEDIMENTATION CONTROL PLAN AND FIGURE 1 OF THE EROSION AND SEDIMENTATION REPORT.

TYPES, DEPTH, SLOPE, LOCATION AND LIMITATION OF THE SOILS 102.4(b)(5)(ii)

SOIL MAP PROVIDED
1. A SOIL MAP GENERATED BY THE NRCS WEB SOIL SURVEY IS PROVIDED ON C701: EROSION AND SEDIMENTATION CONTROL PLAN-DEMOLITION, C702: EROSION AND SEDIMENTATION CONTROL PLAN-CONSTRUCTION, AND FIGURE 2 OF THE EROSION AND SEDIMENTATION REPORT.

SOIL USE LIMITATIONS AND THEIR RESOLUTIONS PROVIDED
2. REFER TO THE SOIL SUITABILITY AND RESOLUTION TABLE AND SOIL LIMITATIONS AND RESOLUTIONS CHART BELOW.

SOILS CHARACTERISTICS CHART

DESCRIPTION		TABLE 6 INFORMATION		SUITABILITY FOR							
SOIL		DEPTH TO S.H.W.T.	DEPTH TO BEDROCK	SHALLOW EXCAVATION	COMMERCIAL BUILDINGS	LAWN	RESERVOIR AREA	EMBANKMENTS	HYDRIC RATING	ERODIBILITY (K VALUE)	USDA-SCS SOIL RATING FOR NFILTRATION AND ERODIBILITY
BIRDSBORO SILT LOAM	0% - 3% SLOPES	24"- 72"	72"- 99"	SOMEWHAT LIMITED	NOT LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	3	0.37	GROUP B
BUCKINGHAM SILT LOAM	0% - 3% SLOPES	6"- 18"	80"-99"	VERY LIMITED	VERY LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	VERY LIMITED	7	0.32	GROUP B/D
GIBRALTAR SILT LOAM		36"- 60"	60"-72"	SOMEWHAT LIMITED	VERY LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	5	0.37	GROUP B
PENN-LANDSDALE COMPLEX	3% - 8% SLOPES	> 80"	20"- 40"	VERY LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	VERY LIMITED	SOMEWHAT LIMITED	0	0.20	GROUP B
RARITAN SILT LOAM	0% - 3% SLOPES	6"- 31"	60"- 99"	VERY LIMITED	VERY LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	VERY LIMITED	2	0.37	GROUP C/D
ROWLAND SILT LOAM	0%-3% SLOPES	18"-33"	60"- 99"	VERY LIMITED	VERY LIMITED	VERY LIMITED	SOMEWHAT LIMITED	SOMEWHAT LIMITED	5	0.32	GROUP C
URBAN LAND UDORTHENTS SHALE AND SANDSTONE COMPLEX	0%-8% SLOPES	> 80"	20"- 99"	NOT RATED	NOT RATED	NOT RATED	NOT RATED	NOT RATED	0	NOT RATED	GROUP A

USDA-SCS SOIL GROUP RATING FOR INFILTRATION AND ERODIBILITY
GROUP A: LOWEST RUNOFF POTENTIAL WITH HIGH INFILTRATION RATES.
GROUP B: LOW TO MODERATE RUNOFF POTENTIAL, WITH MODERATE INFILTRATION WHEN WET.
GROUP C: MODERATE TO HIGH RUNOFF POTENTIAL, WITH SLOW INFILTRATION WHEN WETTED.
GROUP D: HIGH RUNOFF POTENTIAL, WITH VERY SLOW INFILTATION RATES WHEN WETTED.

SOIL USE LIMITATIONS:

DUE TO POTENTIAL SHALLOW DEPTH TO BEDROCK, CONTRACTOR TO EVALUATE ALTERNATIVE METHODS FOR ROCK EXCAVATION PRIOR TO COMMENCING CONSTRUCTION. MAX ROCK PARTICLE SIZE TO BE USED IN FILLS TO BE DETERMINED BY GEOTECHNICAL ENGINEER.
SHALLOW GROUNDWATER ENCOUNTERED WITHIN DRIVEWAYS TO BE EVALUATED BY ONSITE ENGINEER. REFER TO SUBSURFACE DRAIN DETAIL ON SHEET C901.

SOIL SUITABLILITY AND RESOLUTION

SOIL TYPE\SOIL USE	CUTBANKS CAVE	CORROSIVE TO STEEL/ CONCRETE	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH/ LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
BIRDSBORO SILT LOAM	X	C/S		[X]		[X]	[X]		[X]	X	X	X				X
BUCKINGHAM SILT LOAM	X	C/S		[X]		[X]	[X]	[X]	[X]	[X]	[X]	X				[X]
GIBRALTER SILT LOAM	X	C/S		[X]	[X]	[X]	X	X	[X]	X		X				
PENN LANDSDALE COMPLEX	X	C	[X]				X	X		X	X	X				
RARITAN SILT LOAM	X	C/S				X	X		X	X	X	X				X
ROWLAND SILT LOAM	X	C/S		[X]	[X]	X	X	[X]	X	X	X	X				X
UusB, URBAN LAND	SOIL SUITABILITY IS LISTED AS "NOT RATED" FOR ALL USES. NO LIMITATIONS ARE NOTED THEREFOR NO RESOLUTIONS ARE REQUIRED.															

* IF SHALLOW BEDROCK IS ENCOUNTERED, IT SHALL BE REMOVED BY MECHANICAL METHODS OR BLASTING (BLASTING SHALL CONFORM WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
IF SHALLOW GROUNDWATER IS ENCOUNTERED, THE DESIGN ENGINEER SHALL BE CONTACTED IMMEDIATELY TO EVALUATE AND DETERMINE THE BEST COURSE OF ACTION.

SOILS SUITABILITY & CHARACTERISTICS NOTES

1. THERE ARE NO NATRUALLY OCCURRING GEOLOGIC FORMATIONS OR SOIL CONDITIONS THAT HAVE POTENTIAL TO CAUSE POLLUTION AFTER EARTH DISTURBANCE ACTIVITIES ARE COMPLETED.
2. IF UNSTABLE OR UNSUITABLE SOILS ARE ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DESIGN ENGINEER. NO WORK SHALL OCCUR IN SUCH AREA UNTIL THE DESIGN ENGINEER HAS APPROVAL FROM THE MUNICIPALITY AND CONSERVATION DISTRICT FOR AN ALTERNATIVE DESIGN.

PAST, PRESENT AND PROPOSED LAND USES AND PROPOSED ALTERATION TO PROJECT SITE 102.4(b)(5)(iii)

PROPOSED ALTERATION/LAND USES SHOWN ON A PLAN MAP
1. THE PROPOSED USE IS COMMERCIAL. THE PROPOSED IMPROVEMENTS ARE ILLUSTRATED ON DRAWING C700.

VOLUME AND RATE OF RUNOFF FROM THE PROJECT SITE AND ITS UPSTREAM WATERSHED AREA 102.4(b)(5)(iv)

DRAINAGE AREA MAPS PROVIDED FOR PROPOSED CHANNELS, BASINS, AND TRAPS
1. NO CHANNELS, BASINS OR TRAPS ARE PROPOSED.

LOCATION OF ALL SURFACE WATERS AND THEIR CLASSIFICATION UNDER CHAPTER 93 102.4(b)(5)(v)

SURFACE WATERS SHOWN ON PLAN MAP(S)
1. THE RECEIVING WATERS ARE THE SCHUYLKILL RIVER, IS SHOWN AND LABELED ON C700 WITHIN THE LOCATION PLAN.

EXISTING/DESIGNATED USES OF ALL STREAMS, LAKES, PONDS, WETLANDS OR OTHER SURFACE WATERS IDENTIFIED
1. CHAPTER 93 DESIGNATION OF RECEIVING WATERS IS WWF-MF.

NARRATIVE DESCRIPTION OF THE LOCATION AND TYPE OF PERIMETER AND ONSITE BMPs 102.4(b)(5)(vi)

E&S BMPs SHOWN ON PLAN MAP(S)
1. THE PROPOSED E&S BMPs (PERIMETER COMPOST FILTER SOCKS, INLET PROTECTION DEVICES ON EXISTING INLETS, AND STABILIZED ROCK CONSTRUCTION ENTRANCE ARE SHOWN ON C700: EROSION AND SEDIMENTATION CONTROL PLAN.

SEQUENCE OF BMP INSTALLATION AND REMOVAL 102.4(b)(5)(vii)

SEQUENCE OF BMP INSTALLATION AND REMOVAL

CONSTRUCTION SEQUENCE
EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL NOTES
1. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES (INCLUDING CLEARING AND GRUBBING), THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, AND A REPRESENTATIVE FROM THE MONTGOMERY COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
2. UPON INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMPS AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED BY THE MONTGOMERY COUNTY CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION. EACH STEP OF THE SEQUENCE SHALL BE COMPLETED BEFORE PROCEEDING TO THE NEXT STEP, EXCEPT WHERE NOTED.
5. THE CONTRACTOR SHALL ENSURE THAT IN NO CASE DOES AN AREA EXCEEDING 15,000 SQUARE FEET, WHICH IS TO BE STABILIZED BY VEGETATION, REACH FINAL GRADE WITHOUT BEING SEEDED AND MULCHED.

SEQUENCE OF CONSTRUCTION DEFINITIONS
1. BULK EARTHWORK REFERS TO THE ROUGH GRADING OF THE SITE, BUILDING PADS AND ROAD SECTIONS
2. LOW PRESSURE EQUIPMENT SHALL GENERATE NO MORE THAN 3.5 PSI OF PRESSURE AND BE USED WITHIN (5) FEET OF AN INFILTRATION BASIN'S BED BOTTOM.
3. SEVENTY PERCENT (70%) UNIFORM STABILIZATION MEANS THE ENTIRE TRIBUTARY AREA DESCRIBED SHALL HAVE AN EVEN 70% STABILIZATION THROUGHOUT. ADDITIONALLY THE COVER SHALL HAVE A DENSITY SUFFICIENT TO RESIST SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS. THE ULTIMATE DETERMINATION OF ADEQUATE UNIFORM STABILIZATION FOR THE SITE OR WITHIN ANY BMP TRIBUTARY AREA SHALL BE MADE BY MONTGOMERY COUNTY CONSERVATION DISTRICT.
4. CRITICAL STAGE OF CONSTRUCTION REFERS TO ALL PHASES OR INTEGRAL E&S AND/OR PCSM BMP INSTALLATION THAT SHALL BE INSPECTED BY AN AUTHORIZED ENGINEER AND/OR APPROPRIATE MUNICIPAL ENGINEER. THE CRITICAL STAGES OF CONSTRUCTION ARE DENOTED WITHIN THE SEQUENCE OF CONSTRUCTION BY, ***CRITICAL STAGE OF CONSTRUCTION*** PRIOR TO EACH.
5. SITE STABILIZATION SHALL BE CONSIDERED THE FOLLOWING: VEGETATED AREAS HAVE ACHIEVED A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OVER THE ENTIRE DISTURBED AREA; ALL PROPOSED CONCRETE AREAS INCLUDING BUT NOT LIMITED TO: SIDEWALKS, LOADING AREAS, AND YARD AREAS HAVE BEEN INSTALLED; ALL PROPOSED PAVED SURFACES HAVE BEEN INSTALLED TO THE BASE COURSE.

SEQUENCE OF CONSTRUCTION
1. PERFORM AN ON-SITE PRECONSTRUCTION MEETING WITH THE REPRESENTATIVES STATED ABOVE IN THE EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL NOTES.
2. STAKE THE LIMIT OF DISTURBANCE AS SHOWN ON SHEET C700. CONSTRUCTION ACTIVITIES ARE NOT OCCUR BEYOND THE LIMITS SHOWN ON SHEET C700.
3. INSTALL ROCK CONSTRUCTION ENTRANCE AS SHOWN ON SHEET C700.
4. INSTALL PERIMETER COMPOST FILTER SOCKS AS SHOWN ON SHEET C700.
5. INSTALL INLET PROTECTION ON EXISTING INLETS ASH SHOWN ON SHEET C700.
6. PERFORM BULK EARTHWORK ACTIVITIES FOR THE AQUA DAM LANDING AREAS. PLACE ANY EXCESS SOIL IN STOCKPILE AREA.
7. DEMOLISH EXISTING BUILDING AS SHOWN ON SHEET C700.
8. CONSTRUCT ADDITION, AND ASSOCIATED SIDEWALKS.
9. FINE GRADE THE AQUA DAM LANDING AREAS TO SLOPES.
10. STABILIZE DISTURBED AREAS IMMEDIATELY.
11. ***CRITICAL STAGE OF CONSTRUCTION*** - CONFIRMATION OF SITE STABILIZATION. THE CONTRACTOR SHALL ENSURE THE FOLLOWING PRIOR TO STABILIZATION INSPECTION BY MONTGOMERY COUNTY CONSERVATION DISTRICT:
    a. VEGETATED AREAS HAVE ACHIEVED A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OVER THE ENTIRE DISTURBED AREA.
    b. ALL PROPOSED CONCRETE AREAS INCLUDING BUT NOT LIMITED TO: SIDEWALKS HAVE BEEN INSTALLED.
12. REMOVAL OF INLET PROTECTION FROM ALL INLETS.
13. ***CRITICAL STAGE OF CONSTRUCTION*** - LANDSCAPE RESTORATION WITH MEADOW OF DISTURBED AREAS SHOWN ON C600.
14. ONCE SITE HAS ACHIEVED PERMANENT STABILIZATION, A SITE WALK WITH THE CONSERVATION DISTRICT, CONTRACTOR, AND ENGINEER PREPARING THE NOTICE OF TERMINATION SHALL BE SCHEDULED.
15. UPON PERMANENT STABILIZATION OF THE EARTH DISTURBANCE ACTIVITY UNDER § 102.22(A)(2) (RELATING TO PERMANENT STABILIZATION), AND INSTALLATION OF BMPS IN ACCORDANCE WITH AN APPROVED PLAN PREPARED AND IMPLEMENTED IN ACCORDANCE WITH §§ 102.4 AND 102.8 (RELATING TO EROSION AND SEDIMENT CONTROL REQUIREMENTS; AND PCSM REQUIREMENTS), THE PERMITTEE OR CO-PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR CONSERVATION DISTRICT. THE NOTICE OF TERMINATION MUST INCLUDE:
    A. THE FACILITY NAME, ADDRESS AND LOCATION.
    B. THE OPERATOR NAME AND ADDRESS.
    C. THE PERMIT NUMBER.
    D. THE REASON FOR PERMIT TERMINATION.
    E. IDENTIFICATION OF THE PERSONS WHO HAVE AGREED TO AND WILL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS IN ACCORDANCE WITH § 102.8(M) AND PROOF OF COMPLIANCE WITH § 102.8(M)(2).
16. REMOVE ANY REMAINING EROSION CONTROLS. ANY DISTURBANCE CAUSED DURING REMOVAL OF ANY EROSION CONTROL MUST BE IMMEDIATELY STABILIZED.

SEEDING NOTES

PERMANENT SEEDING SITE PREPARATION

PERMANENT STABILIZATION OF ALL EXPOSED EARTH SURFACES AFTER THE COMPLETION OF THE SITE GRADING AND IMPROVEMENTS SHALL BE IMMEDIATELY ACCOMPLISHED BY THE FOLLOWING METHODS AND MATERIALS.

1. EXISTING TOPSOIL STRIPPED AND STOCKPILED ON SITE MAY BE USED FOR TOPSOILING ALL DISTURBED AREAS PRIOR TO SEEDING.
2. TOPSOIL SHALL CONSIST OF NATURAL FRIABLE LOAM SOIL CAPABLE OF SUSTAINING NORMAL PLANT GROWTH. IT SHALL BE UNIFORM QUALITY, FREE FROM BRUSH, WEEDS, HARD CLODS, STIFF CLAY, SODS, STONES, STUMPS, ROOTS, ETC. LARGER THAN ½ INCH IN DIAMETER, TOXIC SUBSTANCES AND ANY NATURAL OR MANMADE SUBSTANCE HARMFUL TO PLANT GROWTH OR THAT WOULD BE A HINDRANCE TO PLANTING AND MAINTAINING OPERATIONS. TOPSOIL SHALL BE WITHOUT ADMIXTURE OF SUBSOIL, REFUSE, AND/OR FOREIGN MATERIAL. TOPSOIL SHALL CONTAIN BETWEEN 6 PERCENT AND 10 PERCENT ORGANIC MATTER. THE PH RANGE SHALL BE 6.0 TO 7.0.
3. TOPSOIL SHALL BE SPREAD TO A MINIMUM DEPTH OF 4 INCH.

PREPARATION OF SUBSOIL:
A. PREPARE SUBSOIL TO ELIMINATE UNEVEN AREAS. MAINTAIN PROFILES AND CONTOURS. MAKE CHANGES IN GRADE GRADUAL. BLEND SLOPES INTO LEVEL AREAS.
B. REMOVE FOREIGN MATERIALS, WEEDS, AND UNDESIRABLE PLANTS AND THEIR ROOTS. REMOVE CONTAMINATED SUBSOIL.
C. SCARIFY SUBSOIL TO A DEPTH OF 3-½ TO 4 INCHES WHERE TOPSOIL IS TO BE PLACED. REPEAT CULTIVATION IN AREAS WHERE EQUIPMENT USED FOR HAULING AND SPREADING TOPSOIL HAS COMPACTED SUBSOIL.

PLACING TOPSOIL:
A. SPREAD TOPSOIL TO A MINIMUM DEPTH OF 4" OVER ALL NON-PAVED AREAS.
B. PLACE TOPSOIL DURING DRY WEATHER AND ON DRY UNFROZEN SUBGRADE.
C. REMOVE VEGETABLE MATTER AND FOREIGN NON-ORGANIC MATERIAL FROM TOPSOIL WHILE SPREADING.
D. GRADE AND COMPACT TOPSOIL TO ELIMINATE ROUGH, LOW, OR SOFT AREAS., AND TO ENSURE POSITIVE DRAINAGE.

TABLE 11.1
Cubic Yards of Topsoil Required for Application to Various Depths

Depth (in)	Per 1,000 Square Feet	Per Acre
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672
6	18.6	806
7	21.7	940
8	24.8	1,074

Adapted from VA DSWC

AFTER INSTALLATION OF THE NEEDED SURFACE WATER CONTROL MEASURES, PERFORM ALL CULTURAL OPERATIONS AT RIGHT ANGLES TO THE SLOPES. BEFORE SEEDING, APPLY GROUND LIMESTONE AT A RATE OF 3 TONS PER ACRE AND BASIC FERTILIZER (10-20-20) AT THE RATE OF 22 LBS PER 1000 SF. WORK LIME AND BASIC FERTILIZER INTO THE TOP 4 INCHES OF THE SOIL. AT THE TIME OF SEEDING, APPLY STARTER FERTILIZER (10-20-20) AT THE RATE OF 20 LBS PER ACRE AND WORK LIGHTLY INTO THE SOIL.

4. PRIOR TO SEEDING, SMOOTH AND FIRM AREAS TO BE SEEDED WITH CULTIPACKER OR OTHER SIMILAR EQUIPMENT.
5. APPLY SEED UNIFORMLY AT THE RATES SPECIFIED.
6. AFTER SEEDING, MULCH WITH HAY OR STRAW AT A RATE OF THREE (3) TONS PER ACRE.
7. RECOMMENDED PLANTING DATES: APRIL 1-MAY 31 AND AUGUST 16-OCTOBER 15.

PERMANENT LAWN SEED MIXTURE
ALL LAWN AREA SHALL BE SEEDED WITH THIS MIXTURE AT 4 LBS. PER 1,000 SQUARE FEET UNLESS A DIFFERENT SEED MIXTURE IS SPECIFIED BY THE LANDSCAPE ARCHITECT.

SEED	BY WEIGHT	PURITY	GERMINATION
KENTUCKY BLUEGRASS	50%	98%	85%
LINN PERENNIAL RYEGRASS	30%	98%	90%
ANNUAL RYE	20%	98%	90%

LANDSCAPE RESTORATION - MEADOW PERMANENT MEADOW SEED MIXTURE
ERNST SEED MIX ERNMX-117 - UPLANDS/MEADOWS FALL MULTI-PURPOSE/MULTI-YEAR WILDLIFE FOOD AND SHELTER MIX
INSTALL AT MANUFACTURERS RECOMMENDED SEEDING RATE (40 LB PER ACRE). SPECIFICATION IS PROVIDED ON SHEET C652
PLACE STRAW OVER AFFECTED AREA ONCE SEEDED AND PLACE JUTE MESH OVER AREA.

TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS
TEMPORARY STABILIZATION OF ALL EXPOSED EARTH SURFACES WHERE CONSTRUCTION ACTIVITY HAS CEASED (4 DAYS OR LONGER), INCLUDING TOPSOIL STOCKPILES SHALL BE STABILIZED IMMEDIATELY BY THE FOLLOWING METHODS AND MATERIALS.

1. APPLY ONE (1) TON OF AGRICULTURAL GRADE LIMESTONE PER ACRE PLUS FERTILIZER (10-10-10) AT THE RATE OF 1000 LBS. PER ACRE AND WORK INTO SOIL WHEREVER POSSIBLE.
2. APPLY 30% ANNUAL RYEGRASS AND 70% PERENNIAL RYEGRASS SEED AT A RATE OF 4 TO 5 LBS. PER 1000 SQUARE FEET.
3. AFTER SEEDING, MULCH WITH HAY OR STRAW AT A RATE OF THREE (3) TONS PER ACRE.
4. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER.
5. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.

PLAN DRAWINGS 102.4(b)(5)(ix)

PLAN MAP(S) SHOWING PROPOSED EARTHMOVING PROVIDED
1. THE PROPOSED GRADING AND SITE ALTERATIONS ARE SHOWN ON C700: EROSION AND SEDIMENTATION CONTROL PLAN.

DETAILS AND/OR TYPICALS PROVIDED FOR EACH PROPOSED E&S BMP
1. STANDARD DETAILS AND COMPLETED ASSOCIATED TABLES ARE SHOWN ON C750: EROSION AND SEDIMENTATION CONTROL DETAILS PLAN FOR THE PROPOSED E&S BMPS INCLUDING BUT NOT LIMITED TO: COMPOST FILTER SOCKS, ROCK CONSTRUCTION ENTRANCE, AND EROSION CONTROL BLANKET.

SOIL RESOLUTIONS

CAVING OF CUT BANKS. IT IS IMPERATIVE THAT APPROPRIATE PRECAUTIONS BE TAKEN TO SAFEGUARD WORKERS DURING ALL TRENCHING AND EXCAVATION OPERATIONS. ALL APPLICABLE OSHA STANDARDS AND REGULATIONS MUST BE IMPLEMENTED AT ALL TIMES.
CORROSIVE TO CONCRETE , UNCOATED STEEL, OR BOTH. SUITABLE PRECAUTIONS SHOULD BE TAKEN TO PROTECT ALL UNDERGROUND PIPES, CONDUITS, AND STORAGE TANKS.
EASILY ERODIBLE: ALL SITE WORK RESULTING IN DISTURBANCE SHALL BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY AND PERMANENT STABILIZATION REQUIREMENTS ON SHEET C750.
SHALLOW DEPTHS TO SATURATED ZONES AND/OR SEASONAL HIGH WATER TABLES: UNLESS ON-SITE DATA INDICATES OTHERWISE, IT SHOULD BE ASSUMED THAT EXCAVATIONS INTO THESE SOILS WILL ENCOUNTER WATER AND APPROPRIATE MEANS PROVIDED TO HANDLE THAT WATER. ANY PUMPED WATER SHALL BE DONE THROUGH A FILTER BAG.
HYDRIC/HYDRIC INCLUSIONS: UNLESS ON-SITE DATA INDICATES OTHERWISE, IT SHOULD BE ASSUMED THAT EXCAVATIONS INTO THESE SOILS WILL ENCOUNTER WATER AND APPROPRIATE MEANS PROVIDED TO HANDLE THAT WATER. ANY PUMPED WATER SHALL BE DONE THROUGH A FILTER BAG.
RELATIVELY LOW STRENGTH: PRECAUTIONS SHOULD BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES SUCH AS OVER-STEEPENING AND OVERLOADING OF SLOPES, REMOVAL OF LATERAL SUPPORT, AND FAILURE TO PREVENT SATURATION OF SLOPES. SETBACKS SHOULD COMPLY WITH THE STANDARDS CONTAINED IN CHAPTER 16 OF THE PA E&S MANUAL UNLESS IT CAN BE SHOWN THAT PROPOSED CUTS AND FILLS DO NOT POSE A HAZARD TO PUBLIC SAFETY OR TO SURFACE WATERS. ALSO, ROAD FILL MATERIAL WILL LIKELY NEED TO BE IMPORTED IN AREAS WHERE SOILS HAVE LOW STRENGTH.
ZONES WITHIN THEIR PROFILE WITH SLOW INFILTRATION RATES: SOIL TESTS ARE STRONGLY RECOMMENDED FOR INFILTRATION BMPS PROPOSED AS PART OF A PCSM PLAN. SEE APPENDIX A OF PENNSYLVANIA'S STORMWATER BEST MANAGEMENT PRACTICES MANUAL FOR ADDITIONAL GUIDANCE.
POOR SOURCES OF TOPSOIL: SOIL TESTS ARE STRONGLY RECOMMENDED TO DETERMINE THE PROPER APPLICATION OF SOIL AMENDMENTS TO PROMOTE THE GROWTH OF THE DESIRED VEGETATION. WHEREVER SOILS THAT ARE FAIR OR GOOD SOURCES OF TOPSOIL MAY EXIST ON A SITE, THEY SHOULD BE CAREFULLY PRESERVED AND STORED FOR LATER USE IN RESTORATION. THE FINAL DESIGN SHOULD ALSO ADDRESS THE PROPER MOISTURE CONTENT FOR THE PROPOSED VEGETATIVE COVER.
DROUGHTY: SOIL TESTS ARE STRONGLY RECOMMENDED TO DETERMINE THE PROPER APPLICATION OF SOIL AMENDMENTS TO PROMOTE THE GROWTH OF THE DESIRED VEGETATION. WHEREVER SOILS THAT ARE FAIR OR GOOD SOURCES OF TOPSOIL MAY EXIST ON A SITE, THEY SHOULD BE CAREFULLY PRESERVED AND STORED FOR LATER USE IN RESTORATION. THE FINAL DESIGN SHOULD ALSO ADDRESS THE PROPER MOISTURE CONTENT FOR THE PROPOSED VEGETATIVE COVER.
TOO WET: SOIL TESTS ARE STRONGLY RECOMMENDED TO DETERMINE THE PROPER APPLICATION OF SOIL AMENDMENTS TO PROMOTE THE GROWTH OF THE DESIRED VEGETATION. WHEREVER SOILS THAT ARE FAIR OR GOOD SOURCES OF TOPSOIL MAY EXIST ON A SITE, THEY SHOULD BE CAREFULLY PRESERVED AND STORED FOR LATER USE IN RESTORATION. THE FINAL DESIGN SHOULD ALSO ADDRESS THE PROPER MOISTURE CONTENT FOR THE PROPOSED VEGETATIVE COVER.
FROST ACTION PRECAUTIONS ARE NEEDED TO PREVENT DAMAGE, ESPECIALLY TO ROADWAYS.
PIPING: UTILITY TRENCHES WILL REQUIRE TRENCH PLUGS MADE FROM IMPERVIOUS MATERIALS TO ENSURE WATER DOES NOT FOLLOW THE TRENCHES. ANTI-SEEP COLLARS ARE REQUIRED FOR ALL UTILITIES PENETRATING THROUGH EMBANKMENTS.

MAINTENANCE PROGRAM 102.4(b)(5)(x)

THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROL FACILITIES AND BMPS THROUGH THE CONSTRUCTION PERIOD UNTIL SUCH TIME AS THE OWNER ACCEPTS THE PROJECT AS COMPLETED.

MAINTENANCE OF PROPOSED BMPs
1. THE CONTRACTOR SHALL MAINTAIN ON-SITE STORAGE OF ALL MATERIALS NECESSARY TO MAKE EMERGENCY REPAIRS TO THE EROSION CONTROL BMPS.
2. SUPER FILTER FABRIC FENCING SHALL BE RESTORED TO AN UPRIGHT AND OPERATING POSITION.
3. ROCK FILTERS AND SUPER FILTER FABRIC FENCES SHALL BE CLEANED WHEN SILT ACCUMULATES TO THE DEPTH PRESCRIBED FOR EACH BMP.
4. AREAS OF SUPER FILTER FABRIC FENCING THAT HAVE BEEN OVERTOPPED SHALL BE REPLACED WITH A ROCK FILTER OUTLET.
5. ANY AREA THAT BEGINS TO ERODE OR GULLY SHALL BE RE-GRADED, RE-TOPSOILED AND RESEEDED OR GRAVELED.
6. REPAIRS OR CORRECTIVE ACTION IDENTIFIED DURING NORMAL INSPECTIONS SHALL BE COMPLETED IMMEDIATELY.
7. ADJACENT ROADWAYS OR PUBLIC PAVED AREAS SHALL BE INSPECTED DAILY AND ANY DEPOSITED MATERIALS SHALL BE IMMEDIATELY REMOVED.
8. CLEAN OUT STAKES SHALL BE PLACED AT HALF DISTANCES FROM POINTS OF CONCENTRATED INFLOWS TO THE DISCHARGE ELEMENTS. WHEN SEDIMENT HAS ACCUMULATED TO CLEAN OUT ELEVATIONS ON ANY STAKE, THE SEDIMENT MUST BE REMOVED TO RESTORE BASIN CAPACITIES.
9. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH ½ THE ABOVE GROUND HEIGHT OF THE SUPER FABRIC FENCE.
10. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
11. STORMWATER INLETS WHICH DO NOT DISCHARGE TO SEDIMENT TRAPS OR BASINS MUST BE PROTECTED UNTIL THE TRIBUTARY AREAS ARE STABILIZED.
12. SEDIMENT MUST BE REMOVED FROM INLET PROTECTION AFTER EACH STORM EVENT.

INSPECTION SCHEDULE FOR PROPOSED BMPs (SEE ALSO C751)
1. ALL EROSION AND SEDIMENTATION CONTROL BMPs SHALL BE INSPECTED AT LEAST ONCE EVERY WEEK AND AFTER EACH RUNOFF PRODUCING RAINFALL.
2. COMPOST FILTER SOCK - SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.
3. SEDIMENT BASIN OR SEDIMENT TRAP SEDIMENT STORAGE DEWATERING FACILITY - FACILITY SHALL BE CONTINOUSLY MONITORED DURING OPERATION.
4. COMPOST SOCK SEDIMENT TRAP - COMPOST SOCK SEDIMENT TRAPS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.

WRITTEN REPORT DOCUMENTING INSPECTIONS AND REPAIRS SPECIFIED
5. BMP INSPECTIONS SHALL BE LOGGED ONTO DEP FORM 31050-FM-BWEW0083 DATED 2/2012 AND KEPT ONSITE AT ALL TIMES.

RECYCLING AND DISPOSAL OF MATERIALS 102.4(b)(5)(xi)

THE SELECTED CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER RECYCLING AND/OR DISPOSAL OF MATERIALS GENERATED BY THE SITE CONSTRUCTION ACTIVITIES AND EXCESS OR SCRAP MATERIALS USED DURING THE DEVELOPMENT OF THE PROJECT. DISPOSAL OF ALL BUILDING MATERIALS WHICH CANNOT BE RECYCLED AND WASTE SHALL BE PERFORMED IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE. NO BURNING WILL BE PERMITTED ON THE SITE. NO BURYING OF DELETERIOUS MATERIALS, TRASH OR RUBBISH WILL BE PERMITTED ON THE SITE.

ANTICIPATED CONSTRUCTION WASTES
THE FOLLOWING ARE THE IDENTIFIED CONSTRUCTION WASTES: WOODY MATERIAL, TOPSOIL, CEMENT CONCRETE, BITUMINOUS CONCRETE, TRASH AND/OR RUBBISH.

INSTRUCTIONS FOR PROPER RECYCLING/DISPOSAL OF MATERIALS

THE FOLLOWING ACTIVITIES ARE RECOMMENDED:
1. APPLICANT HAS THE OPTION OF REMOVING WOODY MATERIAL FROM THE SITE OR TO SHRED IT FOR USE AS MULCH FOR TEMPORARY AND PERMANENT EROSION CONTROL.
2. TOPSOIL TO BE STOCKPILED FOR REUSE ON THE SITE.
3. CEMENT CONCRETE AND BITUMINOUS CONCRETE MATERIALS THAT ARE GENERATED DURING SITE CLEARING OPERATIONS TO BE SEGREGATED AND RECYCLED.
4. CONSTRUCTION MATERIALS AND TRASH AND/OR RUBBISH GENERATED DURING CONSTRUCTION ACTIVITIES TO BE PROPERLY SEGREGATED AND RECYCLED TO THE EXTENT PRACTICAL.

GEOLOGIC FORMATIONS/SOIL CONDITIONS THAT MAY HAVE THE POTENTIAL TO CAUSE POLLUTION 102.4(b)(5)(xii)

GEOLOGIC/SOIL CONDITIONS ADDRESSED
1. THERE ARE NO NATRUALLY OCCURRING GEOLOGIC FORMATIONS OR SOIL CONDITIONS THAT HAVE POTENTIAL TO CAUSE POLLUTION AFTER EARTH DISTURBANCE ACTIVITIES ARE COMPLETED.

WHERE POTENTIAL FOR POLLUTION IDENTIFIED, MEASURES PROVIDED TO AVOID/MINIMIZE/OR MITITGATE
1. IF UNSTABLE OR UNSUITABLE SOILS ARE ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DESIGN ENGINEER. NO WORK SHALL OCCUR IN SUCH AREA UNTIL THE DESIGN ENGINEER HAS APPROVAL FROM THE MUNICIPALITY AND CONSERVATION DISTRICT FOR AN ALTERNATIVE DESIGN.

POTENTIAL THERMAL IMPACTS TO SURFACE WATERS 102.4(b)(5)(xiii)

POTENTIAL FOR THERMAL IMPACTS
SEDIMENT BASINS AND/OR TRAPS ARE NOT PROPOSED, THEREFORE RUNOFF WILL NOT BE EXPOSED TO ADDITIONAL THERMAL HEAT. THE ADDITION OF UNSHADED IMPERVIOUS COVER DURING CONSTRUCTION CREATES THE POTENTIAL FOR INCREASING THE TEMPERATURE OF THE RUNOF FROM THE PROJECT SITE.

MEASURES TO AVOID/MINIMIZE/OR MITIGATE IMPACTS
DURING CONSTRUCTION, THE THERMAL IMPACT TO THE RECEIVING STREAM IS REDUCED TO THE MAXIMUM EXTENT POSSIBLE BY FILTERING RUNOFF THROUGH COMPOST FILTER SOCKS ONTO VEGETATE AREAS WHERE THE VOLUME AND TEMPERATURE OF RUNOFF CAN BE REDUCED PRIOR TO LEAVING THE SITE. ADDITIONALLY, THERE IS A REDUCTION IN THE TOTAL IMPERVIOUS COVER WHICH REDUCES THE VOLUME AND TEMPERATURE OF RUNOFF.

E&S PLAN DESIGNED AND IMPLEMENTED TO BE CONSISTENT WITH PCSM PLAN 102.4(b)(5)(xiv)

PROPOSED STRUCTURAL PCSM BMPS SHOWN ON THE E&S PLAN MAP(S)
1. NO PROPOSED STRUCTURAL PCSM VOLUME/PEAK REDUCTION W/O INFILTRATION AND RUNOFF QUALITY/PEAK RATE BMPS ARE PROPOSED, ONLY LANDSCAPE RESTORATION BMPS ARE PROPOSED.

EXISTING/PROPOSED RIPARIAN BUFFERS OUTSIDE LIMITS OF DISTRUBANCE
1. NO EXISTING OR PROPOSED RIPARIAN BUFFERS ARE LOCATED ON THE PROJECT OUTSIDE THE LIMIT OF DISTURBANCE.

PROPOSED INFILTRATION BMPS OUTSIDE PROPOSED GRADING AREAS
1. NO INFILTRATION BMPS OUTSIDE OF PROPOSED GRADING AREAS ARE PROPOSED.

EXISTING/PROPOESD RIPARIAN FOREST BUFFERS 102.4(b)(5)(xv)

EXISTING/PROPOSED RIPARIAN FOREST BUFFERS SHOWN ON PLAN MAPS
1. THERE IS NOT AN EXISTING OR PROPOSED RIPARIAN BUFFER.

EXISTING/PROPOSED RIPARIAN FOREST BUFFERS OUTSIDE LIMITS OF DISTURBANCE
1. THERE IS NOT AN EXISTING OR PROPOSED RIPARIAN BUFFER OUTSIDE THE LIMITS OF DISTURBANCE.

PROTECTION PROVIDED FOR WETLANDS WTIHIN RIPARIAN FOREST BUFFER
1. THERE IS NOT AN EXISTING OR PROPOSED RIPARIAN BUFFER.

RIPARIAN BUFFER OFFSET SHOWN, IF NECESSARY
1. THERE IS NOT AN EXISTING OR PROPOSED RIPARIAN BUFFER.

ANTIDEGRADATION ANALYSIS

EVALUATION OF NONDISCHARGE ALTERNATIVES
THE PROJECT IS NOT LOCATED WITHIN A SPECIAL PROTECTION WATERSHED. NO ANTIDEGREDATION ANALYSIS IS REQUIRED,

ABACT INCLUDED FOR BOTH E&S AND PCSM
THE PROJECT IS NOT LOCATED WITHIN A SPECIAL PROTECTION WATERSHED. NO ANTIDEGRADATION ANALYSIS OR ABACT DESIGN IS REQUIRED.

NONDISCHARGE AND ABACT BMPS IDENTIFIED FOR E&S AND PCSM
THE PROJECT IS NOT LOCATED WITHIN A SPECIAL PROTECTION WATERSHED. NO ANTIDEGRADATION ANALYSIS OR ABACT DESIGN IS REQUIRED.

Number:	Date:	Revision:
1	03/12/20	REVISIONS PER TWP REVIEW DATED 03/10/20

GPI VALLEY FORGE
1035 LONGFORD ROAD
PHOENIXVILLE, PA

EROSION AND SEDIMENT CONTROL NOTES

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
FRANCIS GREENE
ENGINEER
PE 075817

ADVANCED GeoServices
A MONTROSE ENVIRONMENTAL GROUP COMPANY
1055 ANDREW DRIVE, SUITE A
WEST CHESTER, PENNSYLVANIA 19380
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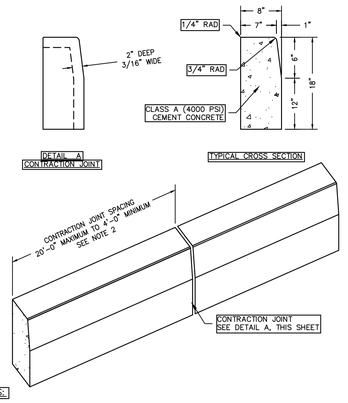
Scale:	AS SHOWN
Drawn By:	RRP
Checked By:	FEG
Project Mgr.:	DTW
Originated By:	RRP
Project No.:	20193908
Drawing Date:	11/19/19
Sheet No.:	10 OF 7
Revision Number:	1

C751

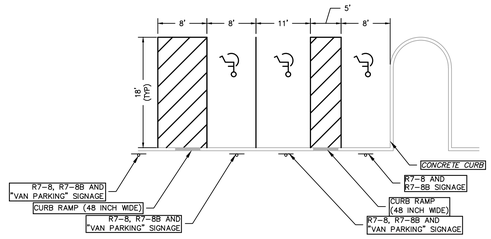


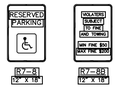
NOTES:

1. MATERIALS AND CONSTRUCTION SHALL MEET THE REQUIREMENTS OF PUBLICATION 408, SECTION 630 FOR PLAIN CEMENT CONCRETE CURB.
2. SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
3. PLACE 3/4 INCH PREMOLDED EXPANSION JOINT FILLER MATERIAL AT STRUCTURES AND AT THE END OF THE WORK DAY. SQZ MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS SECTIONAL AREA OF CURB.

PLAIN CEMENT CONCRETE CURB (6 INCH REVEAL)

NOT TO SCALE





HANDICAPPED SIGNS

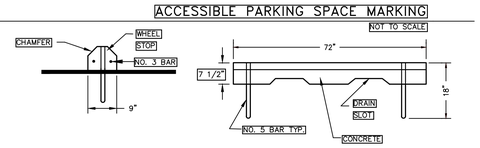
NOTES:

1. PAVEMENT MARKINGS FOR ACCESSIBLE SPACES SHALL BE 4-INCH WIDE BLUE TRAFFIC PAINT.
2. PAVEMENT MARKINGS FOR CONVENTIONAL SPACES SHALL BE 4-INCH WIDE WHITE TRAFFIC PAINT.
3. APPLICATION RATE SHALL PROVIDE WET-FILM THICKNESS OF 15 MILS MINIMUM. APPLY WITH STANDARD TRAFFIC PAINTING EQUIPMENT. USE OF HAND BRUSHES AND ROLLERS IS PROHIBITED.
4. ALL DIMENSIONS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH ADA STANDARDS FOR ACCESSIBLE DESIGN.

ACCESSIBLE PARKING SPACE MARKING

HOPKGTB

NOT TO SCALE

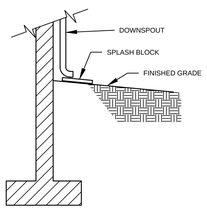


NOTE: PROVIDE WHEEL STOPS FOR EACH PARKING SPACE NOT ALONG A CURB OR AS SHOWN ON PLANS.

CONCRETE WHEEL STOP

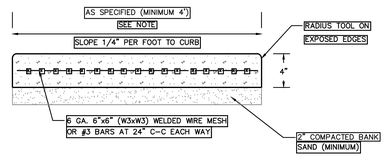
CONWH_STP.DWG

NOT TO SCALE



ROOF DRAIN DOWNSPOUT DETAIL

NOT TO SCALE



NOTE:
FOOTWAY TO BE PENNDOT CLASS AA CONCRETE (3,300 PSI) OR POROUS CONCRETE.

CONCRETE SIDEWALK

NOT TO SCALE

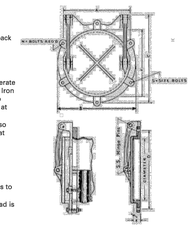
R-5050 Series
Automatic Drainage Gate

Automatic drainage gates are used in areas with a requirement to prevent back flow, such as storm and sanitary sewer systems.

STANDARD GATES: Furnished with vertical closure for maximum ease of operation.
GENERAL INFORMATION: Gates are made of cast iron. All moving parts operate on stainless steel hinge pins. The cover is hung with cast iron arms (Ductile iron arms on larger sizes) located at the outer edges near the center of gravity to ensure sensitive operation. For improved seating, order with neoprene seat at extra cost.
Aluminum covers can be furnished for special requirements, if specified. Also available on special order and at extra cost are neoprene or solid bronze seat mounts and bronze bushed hinges.

For applications with extreme head pressure contact Neenah's Product Engineering Department.

Maximum head loss occurs when pipe is flowing full. Consider the head loss to be one-half the pipe diameter.
These flap gates are self-draining when no up-stream flow exists and no head is on the downstream side.



Dimensions in inches

Catalog No. Type SF	Catalog No. Type CF	Catalog No. Type FF	Diameter	A	B	C	D	E	F	N	S
R-5050-SF6	R-5050-CF6	R-5050-FF6	6	7	11	13	11	3/4	7	four	5/8
R-5050-SF8	R-5050-CF8	R-5050-FF8	8	9 1/4	11	13	11	1 1/8	9 1/4	four	5/8
R-5050-SF10	R-5050-CF10	R-5050-FF10	10	11 1/4	13 1/2	15 1/5	13 1/2	1 1/8	11 1/4	four	5/8
R-5050-SF12	R-5050-CF12	R-5050-FF12	12	13 1/4	19 7/8	18	15 3/4	1 1/8	13 1/4	four	5/8
R-5050-SF15	R-5050-CF15		15	16 1/4	19	21	18 3/4	1 1/8	16 1/4	four	5/8
R-5050-SF18	R-5050-CF18	R-5050-FF18	18	19 1/4	22 1/8	24 1/4	22 1/8	1 1/4	19 1/4	four	3/4
R-5050-SF20	R-5050-CF20	R-5050-FF20	20	22 1/4	25 1/8	27 1/4	25 1/8	1 1/4	22 1/4	four	3/4
R-5050-SF21	R-5050-CF21		21	22 1/4	25 1/8	27 1/4	25 1/8	1 1/4	22 1/4	four	3/4
R-5050-SF24	R-5050-CF24	R-5050-FF24	24	25 1/4	28 1/4	30 1/4	28 1/4	1 1/4	25 1/4	six	3/4
R-5050-SF27			27	28 1/4	31 1/4	33 1/4	31 1/4	1 1/4	28 1/4	six	7/8
R-5050-SF30	R-5050-CF30		30	31 1/4	34 1/4	36 1/2	34 1/4	1 1/4	31 1/4	six	7/8
R-5050-SF36	R-5050-CF36		36	37 1/2	41 1/2	43 1/2	41 1/2	1 3/8	37 1/2	six	7/8
R-5050-SF42	R-5050-CF42		42	43 1/2	47 1/2	49 1/2	47 1/2	1 3/8	43 1/2	six	7/8
R-5050-SF48	R-5050-CF48		48	49 1/2	54	56 1/2	54	1 1/2	49 1/2	six	1

Type SF attached to concrete wall.

Type CF attached to corrugated metal pipe. (not for use with helical CMP)

Type FF attached to flanged iron pipe.

SHEET 5 OF 5

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Number	Date	Revision

GPI VALLEY FORGE
1035 LONGFORD ROAD
PHOENIXVILLE, PA

SITE DETAILS

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
FRANCIS GREENE
ENGINEER
No. 044134-E

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