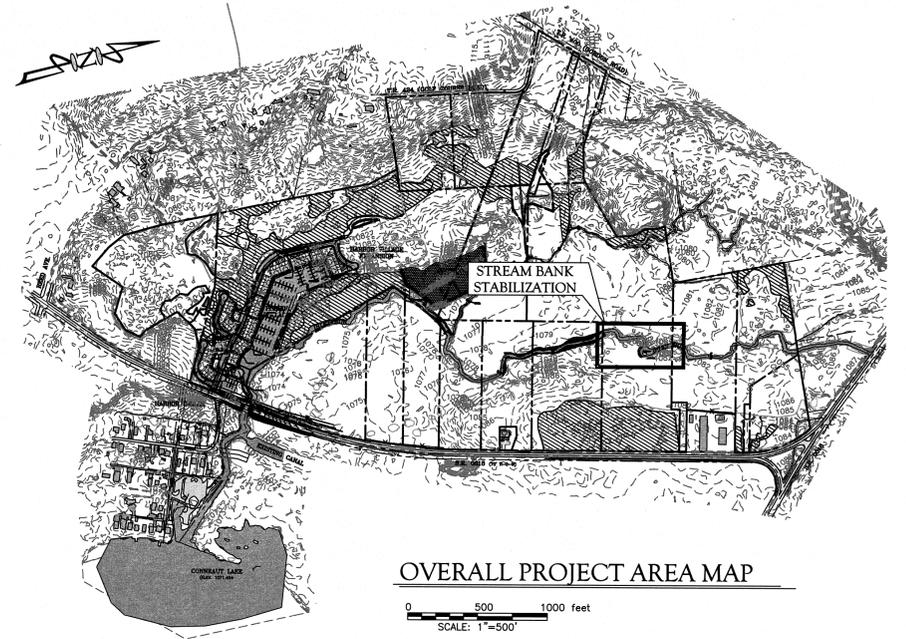
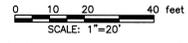


STREAM BANK STABILIZATION PLAN



OVERALL PROJECT AREA MAP

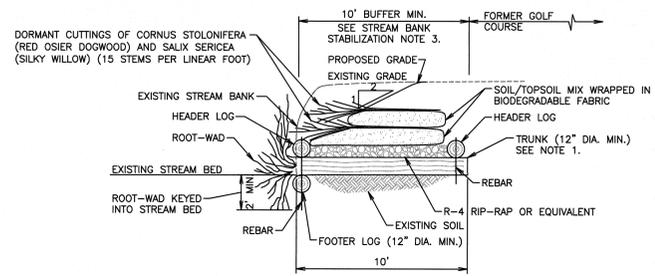
GENERAL NOTES:

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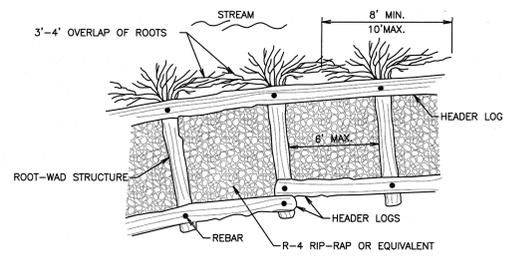
TEMPORARY AND PERMANENT SEEDING SPECIFICATIONS

SPECIFICATIONS: The Department recommends the use of the Penn State Agronomy Guide as the standard to use for selection of species, seed specifications, mixture, timing and fertilizing, time of seeding, and seeding methods. Specifications for these items may also be obtained from Penn DOT's Publication #408, Section 600 or by contacting the applicable county conservation district. Upon selection of a reference, that reference must be used to provide all specifications for seeding, mulching, and soil amendments. The following specifications will be used for this project:

(Temporary)	Species*	Spring Date	Rate	%
Seeding Dates: March to Aug. 15	% Pure Live Seed: 85	81	20	10/acre
	Application Rate: 20	81	20	10/acre
	Fertilizer Type: Contractor's choice	81	20	10/acre
	Fertilizer Appl. Rate: 5-10-10	81	20	10/acre
	Living Rate: 1	81	20	10/acre
	Mulch Type: Hay or straw	81	20	10/acre
	Mulching Rate: 1	81	20	10/acre
	Anchor Material: N/A	81	20	10/acre
	Anchor Method: N/A	81	20	10/acre
	Rate of Anchor Material Appl: N/A	81	20	10/acre
	Seeding Season Dates: N/A	81	20	10/acre
	Species*: <i>Dormus Villosus + Agrostis Perennans</i>	81	20	10/acre
	% Pure Live Seed: N/A	81	20	10/acre
	Application Rate: 2 (Pure Live Seed) x 2 (Pure Live Seed)	81	20	10/acre
	Fertilizer Type: Contractor's choice	81	20	10/acre
	Fertilizer Appl. Rate: 100-200-200	81	20	10/acre
	Living Rate: 1	81	20	10/acre
	Mulch Type: Hay or straw	81	20	10/acre
	Mulching Rate: 1	81	20	10/acre
	Anchor Material: N/A	81	20	10/acre
	Anchor Method: N/A	81	20	10/acre
	Rate of Anchor Material Appl: N/A	81	20	10/acre
	Seeding Season Dates: N/A	81	20	10/acre
	Species*: N/A	N/A	N/A	N/A
	% Pure Live Seed: N/A	N/A	N/A	N/A
	Application Rate: N/A	N/A	N/A	N/A
	Fertilizer Type: N/A	N/A	N/A	N/A
	Fertilizer Appl. Rate: N/A	N/A	N/A	N/A
	Living Rate: N/A	N/A	N/A	N/A
	Mulch Type: N/A	N/A	N/A	N/A
	Mulching Rate: N/A	N/A	N/A	N/A
	Anchor Material: N/A	N/A	N/A	N/A
	Anchor Method: N/A	N/A	N/A	N/A
	Rate of Anchor Material Appl: N/A	N/A	N/A	N/A
	Seeding Season Dates: N/A	N/A	N/A	N/A



PROFILE VIEW
NOT TO SCALE



PLAN VIEW
NOT TO SCALE

NOTES:

1. THE ROOT-WAD/TRUNK STRUCTURES SHOULD BE TAKEN FROM LIVE, HEALTHY HARDWOOD TREES WITH A MINIMUM BASE DIAMETER OF 12-INCHES. SOFTWOOD TREES OR HOLLOW TREES SHALL NOT BE USED.
2. BOULDERS MAY BE USED IN ASSOCIATION WITH HEADER AND FOOTER LOGS TO ANCHOR ROOT-WADS.

ROOT-WAD INSTALLATION DETAIL

NOT TO SCALE

LEGEND

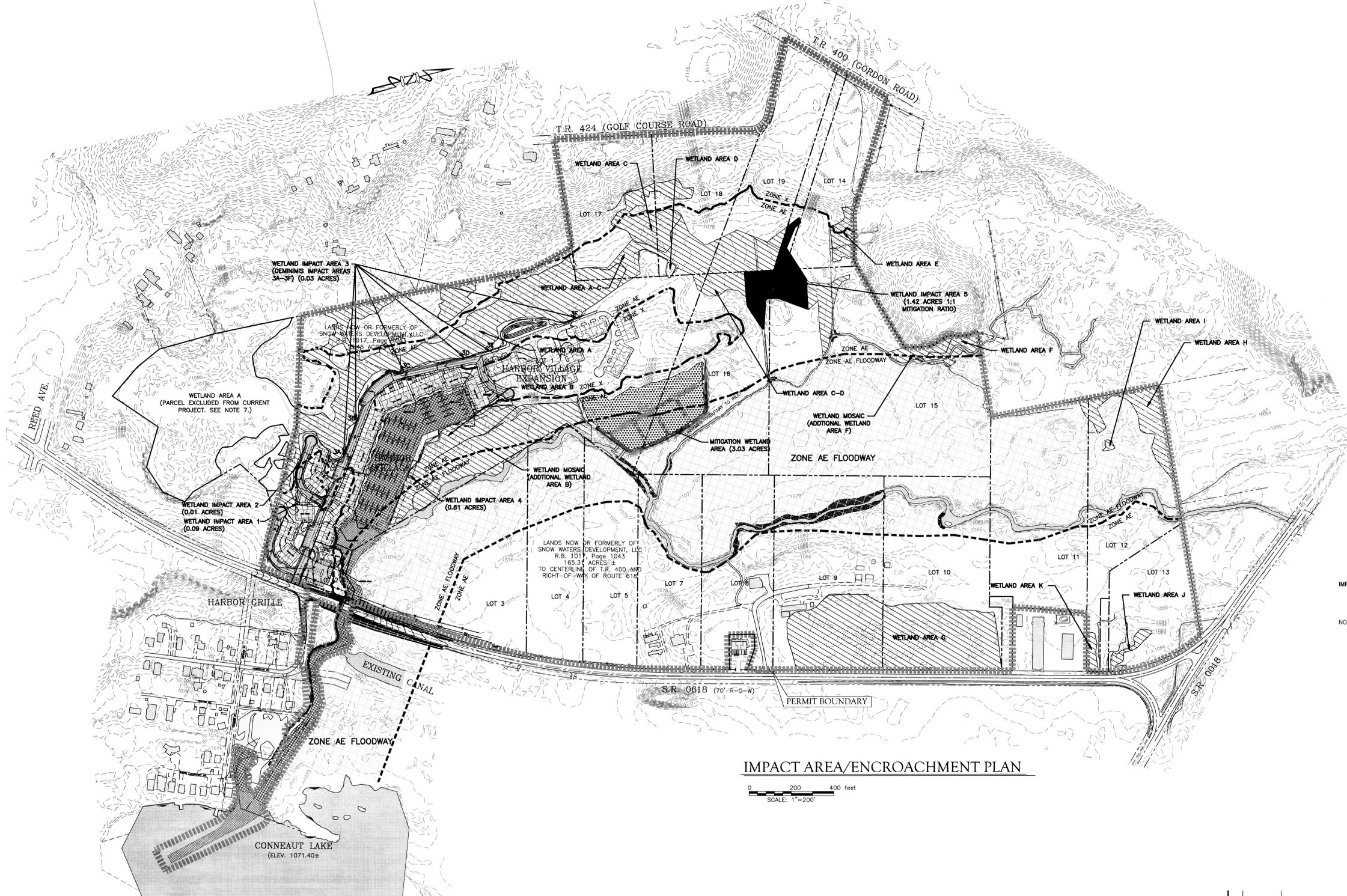
- SUBJECT PROPERTY LINE (PROJECT BOUNDARY)
- PROPERTY LINE
- FOUND IRON PIN FOUND
- FOUND IRON PIPE FOUND
- * EXISTING EVERGREEN TREE
- EXISTING TREE
- EXISTING EDGE OF WOODED AREA
- EDGE OF WATER
- EXISTING CONTOURS (APPROXIMATE)
- STREAM RESTORATION BANK STABILIZATION
- STREAM BANK STABILIZATION AREA BOUNDARY (APPROXIMATE)

STREAM BANK STABILIZATION NOTES:

1. ALL GRADING AND EARTHMOVING ACTIVITIES SHALL BE COMPLETED DURING LOW-FLOW CONDITIONS IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. ALL EXCAVATING AND GRADING WORK SHALL BE COMPLETED FROM THE STABILIZED STREAM BANK. NO HEAVY EQUIPMENT SHALL BE PERMITTED IN THE STREAM CHANNEL.
2. THE CONTRACTOR SHALL EXERCISE CARE NOT TO DISTURB ADJACENT NATURAL RIPARIAN AND STREAM AREAS DURING STABILIZATION ACTIVITIES. EXISTING STREAM BANK VEGETATION NOT LOCATED WITHIN STABILIZATION AREAS WILL REMAIN UNDISTURBED.
3. AN UNMOWED VEGETATIVE BUFFER SHALL BE MAINTAINED BETWEEN THE FORMER GOLF COURSE AND THE STREAM AND SHALL BE SEEDED WITH *ELYMUS VILLOSUM* (SILKY WILD RYE) AT A RATE OF 8 (PURE LIVE SEED) LBS/ACRE AND *AGROSTIS PERENNANS* (AUTUMN BENTGRASS) AT A RATE OF 2 (PURE LIVE SEED) LBS/ACRE.
4. THE NUMBER OF ROOT WADS AND LOCATIONS SHOWN ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON ACTUAL FIELD CONDITIONS.

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Porter Consulting Engineers, P.C. Developing Engineered Solutions To Meet Your Project Needs SNOW WATERS DEVELOPMENT, LLC PROJECT SNOW WATERS CHAPTER 105/SECTION 404 JOINT PERMIT APPLICATION STREAM BANK STABILIZATION PLAN SUMMIT TOWNSHIP, CRAWFORD COUNTY, PENNSYLVANIA			
File No.: 12038-1703-A Scale: SHOWN Date: 5/19/2017	Drawn by: JAMES D. KLECK Checked by: James D. Kleck Approved by: L. Ashley Porter, P.E.	Drawing No.: C1.15	

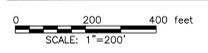


LEGEND

- PROPOSED OVERHEAD ELECTRIC
- PROPOSED WATERLINE
- PROPOSED GAS LINE
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- SUBJECT PROPERTY LINE (PROJECT BOUNDARY)
- PROPERTY LINE
- FOUND: IRON PIN FOUND
- FOUND: IRON PIPE FOUND
- * EXISTING EVERGREEN TREE
- EXISTING TREE
- EXISTING EDGE OF WOODED AREA
- PROPOSED EDGE OF WOODED AREA
- EDGE OF WATER
- EXISTING CONTOURS (APPROXIMATE)
- PROPOSED CONTOURS (APPROXIMATE)
- ▨ DREDGING - 6-FOOT AVERAGE DEPTH
- ▨ DREDGING - 8-FOOT AVERAGE DEPTH
- ▨ WETLAND AREA
- ▨ WETLAND MITIGATION AREA
- ▨ FLOODWAY AREA
- ▨ INLET RUN RESTORATION AREAS
- ▨ WETLAND DISTURBANCE AREA
- ▨ UNNAMED TRIBUTARY DISTURBANCE
- ▨ PERMIT BOUNDARY
- ▨ FEMA FLOOD ZONE BOUNDARY

- IMPORTANT NOTE:**
- ALL WETLAND MITIGATION AREAS WILL BE CONSTRUCTED IN STRICT ACCORDANCE WITH ALL U.S. ARMY CORPS OF ENGINEERS AND Pa. DEP REGULATIONS AND REQUIREMENTS.
- NOTES:**
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 - A PORTION OF WETLAND AREA A IDENTIFIED IN THE ORIGINAL 2006 WETLAND DELINEATION PLAN WAS SUBSEQUENTLY DETERMINED TO BE ON A PARCEL UNDER DISPUTED TITLE. SAID PARCEL IS NOT PART OF THE CURRENT PROJECT, AND THE ACREAGE OF WETLAND AREA A WITHIN THIS PARCEL HAS BEEN DEDUCTED FROM THE TOTAL AREA FOR WETLAND AREA A AS SHOWN ON THE WETLAND AREA SUMMARY TABLE.
 - AS SHOWN HEREON, PORTIONS OF THIS PARCEL ARE LOCATED IN A SPECIAL HAZARD AREA DESIGNATED "ZONE AE" AND "ZONE X" IN ACCORDANCE WITH FIRM MAP SUMMIT TOWNSHIP COMMUNITY - PANEL NUMBERS 42039C0290D AND 42039C0293D, EFFECTIVE DATE AUGUST 16, 2012. ALL FLOOD ZONE DESIGNATIONS AND BOUNDARIES SHOWN ON THIS DRAWING WERE REPRODUCED FROM EXISTING FLOOD INSURANCE RATE MAPS (FIRMS) AND ARE APPROXIMATE.

IMPACT AREA/ENCROACHMENT PLAN



WETLAND AREA SUMMARY					
LOCATION	AREA (ACRES)	GENERAL DESCRIPTION	MITIGATION RATIO	IMPACT AREA (ACRES)	MITIGATION AREA REQUIRED (ACRES)
WETLAND AREA A	7.82	PREDOMINANTLY WOODED	3:1	0.13	0.39
WETLAND AREA B	5.00	PREDOMINANTLY SCRUB-SHRUB	2:1	0.61	1.22
WETLAND AREA C	1.44	PREDOMINANTLY WOODED			
WETLAND AREA D	0.05	SCRUB-SHRUB			
WETLAND AREA E	0.52	WOODED			
WETLAND AREA F	0.83	PREDOMINANTLY WOODED			
WETLAND AREA G	7.09	PREDOMINANTLY SCRUB-SHRUB			
WETLAND AREA H	1.30	PREDOMINANTLY SCRUB-SHRUB			
WETLAND AREA I	0.04	SCRUB-SHRUB			
WETLAND AREA J	0.24	PREDOMINANTLY SCRUB-SHRUB			
WETLAND AREA K	0.20	SCRUB-SHRUB			
WETLAND AREA A-C	0.47	PREDOMINANTLY EMERGENT			
WETLAND AREA C-D	4.48	PREDOMINANTLY EMERGENT	1:1	1.42	1.42
TOTAL	29.48			2.16	3.03

MITIGATION AREA SUMMARY	
LOCATION	AREA (ACRES)
MITIGATION WETLAND AREA	3.03
TOTAL	3.03

ENCROACHMENT SUMMARY	
DESCRIPTION OF IMPACT	AREA (ACRES)
INLET RUN	2.50
CONNEAUT LAKE	1.19
WETLANDS	REFER TO WETLAND AREA SUMMARY

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No.	Date	Revisions	By

Engineer's Seal: **L. ASHLEY PORTER** (Professional Engineer, No. 102276)

Engineer's Signature: *L. Ashley Porter, P.E.*
 Lic. No. PE-052292-E

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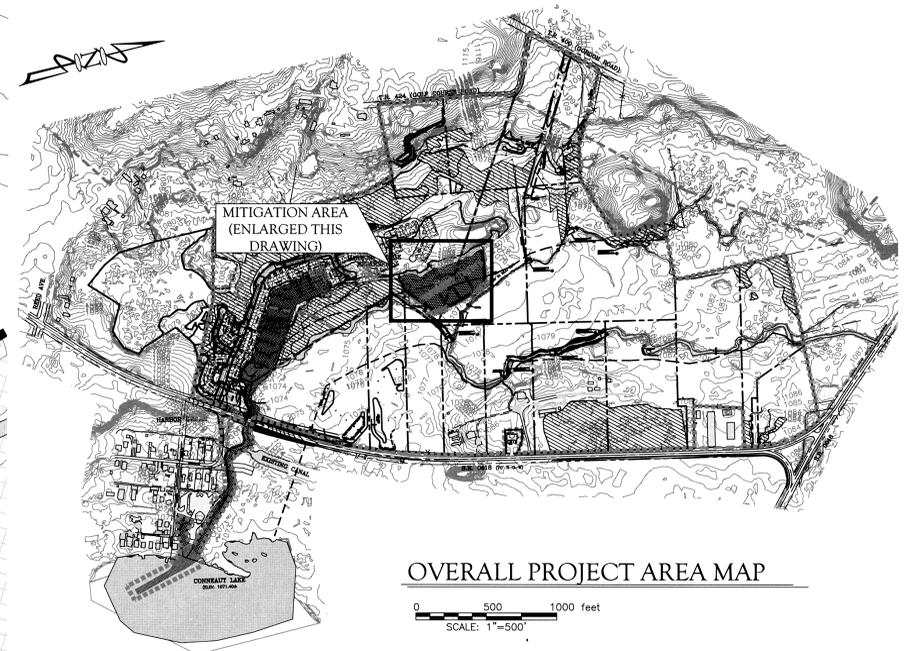
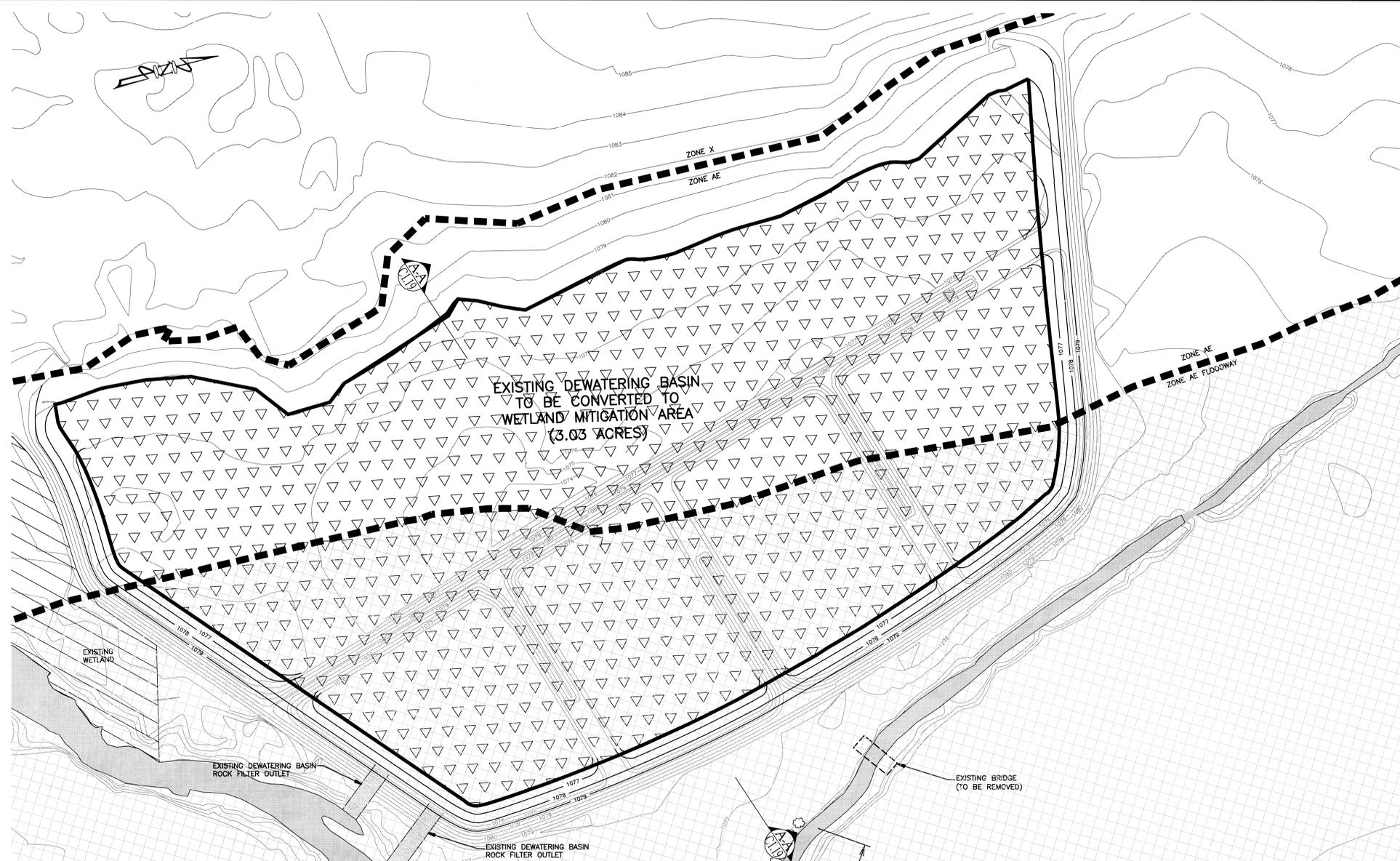
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SNOW WATERS DEVELOPMENT, LLC
PROJECT SNOW WATERS
CHAPTER 105/SECTION 404 JOINT PERMIT APPLICATION
IMPACT AREA/ENCROACHMENT PLAN

SUMMIT TOWNSHIP, CRAWFORD COUNTY, PENNSYLVANIA

File No.: 12038-1703-A	Drawn by: JAMES D. KLECK	Drawing No.:
Scale: SHOWN	Checked by:	C1.18
Date: 5/19/2017	Approved by:	

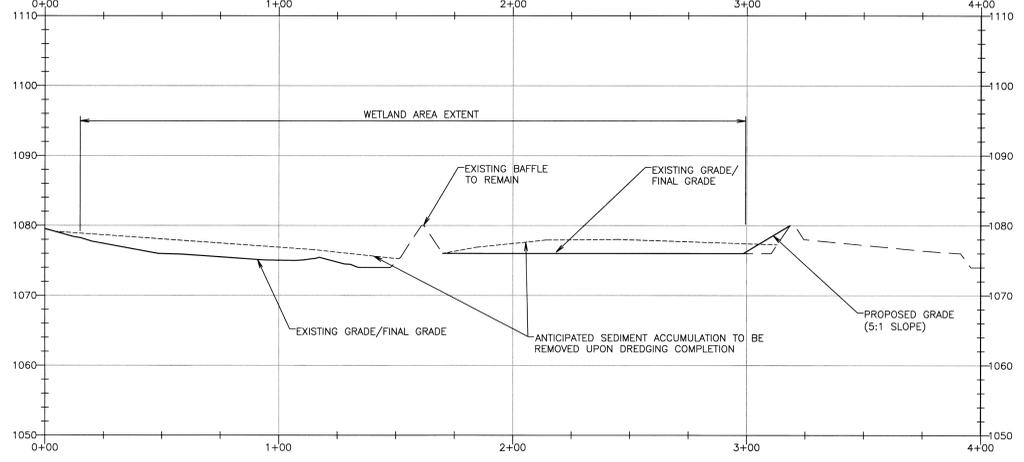


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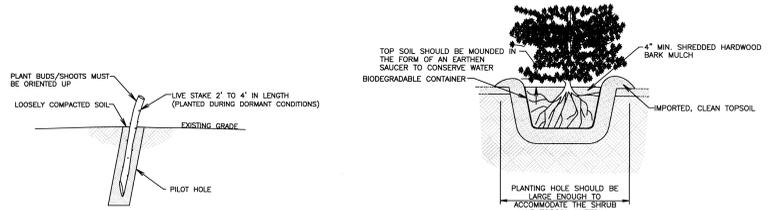
- WETLAND MITIGATION NOTES:
1. THE GRADING OF THE MITIGATION AREAS SHALL INVOLVE THE EXCAVATION AND REMOVAL OF SURFACE SOIL LAYERS INCLUDING NATURAL SOIL AND DISCHARGED DREDGING MATERIAL AS NECESSARY TO ACHIEVE THE PROPOSED GRADES SHOWN. IF NEEDED TO COMPLETE THE PROJECT, IMPORTED SOILS SHALL BE LOCALLY SOURCED AND FREE OF INVASIVE OR EXOTIC PLANT SPECIES.
 2. UPON ESTABLISHMENT OF MITIGATION AREA GRADES, THE EXPOSED MINERAL SOIL SHALL BE SCARIFIED OR CHISEL PLOWED TO A DEPTH OF 2-4 INCHES. THE MITIGATION AREAS SHALL THEN BE TREATED WITH AN EVEN 2-3 INCH THICK LAYER OF MUSHROOM COMPOST OR COMPOSTED HAY/STRAW. THIS MATERIAL SHALL BE TILLED INTO THE MINERAL SOIL LAYER USING A ROTARY TILLER SET TO A DEPTH OF SIX INCHES. THE FINAL MITIGATION WETLAND SOIL SURFACE SHALL BE A LOOSE, ROUGH SURFACE WITH SIGNIFICANT MICROTOPOGRAPHIC RELIEF THROUGHOUT THE FULL EXTENT OF EACH WETLAND MITIGATION AREA.
 3. PRIOR TO SEEDING AND PLANTING INSTALLATION, THE CONTRACTOR SHALL TEST SOIL pH WITHIN EACH MITIGATION AREA AND ADJUST pH AS NECESSARY TO CONFORM WITH SEED/PLANTING MATERIAL SUPPLIER'S RECOMMENDATIONS.
 4. THE MITIGATION AREAS SHALL BE SEEDED WITH ERNST CONSERVATION SEED ERNMX-120 OR EQUAL AT A RATE OF 20 LBS PER ACRE OR 1/2 LB PER 1000 SQ.FT. THE MITIGATION AREAS SHALL BE PLANTED FOLLOWING THE PLANTING SCHEME GIVEN ON THIS DRAWING AND IN ACCORDANCE WITH THE SEED/PLANT MATERIAL SUPPLIER'S RECOMMENDATIONS. THE MITIGATION AREAS SHALL BE MULCHED WITH WEED-FREE STRAW (NOT HAY) AT A RATE OF 3 TONS PER ACRE.
 5. THE CONTRACTOR SHALL EXERCISE CARE NOT TO DISTURB EXISTING ADJACENT WETLAND AREAS DURING CONSTRUCTION, AND THE CONTRACTOR SHALL FOLLOW THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN FOR THE PROJECT.

IMPORTANT NOTE:
ALL WETLAND MITIGATION AREAS WILL BE CONSTRUCTED IN STRICT ACCORDANCE WITH ALL U.S. ARMY CORPS OF ENGINEERS AND Pa. DEP REGULATIONS AND REQUIREMENTS.

WETLAND MITIGATION ENLARGEMENT



SECTION A-A
SCALE: 1"=30' (HORIZONTAL)
1"=10' (VERTICAL)



SHRUB/TREE PLANTING DETAIL

SHRUB PLANTING SCHEME

COMMON NAME	SCIENTIFIC NAME	NO. OF PLANTS
ELDERBERRY	<i>Sambucus canadensis</i>	500
SILKY DOGWOOD	<i>Cornus amomum</i>	500
WILLOW	<i>Salix sp.</i>	500
SILVER MAPLE	<i>Acer saccharinum</i>	100
RED MAPLE	<i>Acer rubrum</i>	100
EASTERN COTTONWOOD	<i>Populus deltoides</i>	100
PIN OAK	<i>Quercus palustris</i>	100
SWAMP WHITE OAK	<i>Quercus bicolor</i>	100
TOTAL		2,000

SHRUB/TREE PLANTING NOTE:
THE SHRUBS AND TREES SHALL BE PLANTED THROUGHOUT EACH MITIGATION AREA BASIN AT AN APPROXIMATE SPACING OF 8 FEET CENTER-TO-CENTER. THE DISTRIBUTION OF EACH SPECIES WITHIN EACH MITIGATION AREA SHALL GENERALLY BE RANDOM, OR AT THE DISCRETION OF THE WETLAND CONSULTANT. THE SHRUBS AND TREES MAY BE PLANTED AS CONTAINERED PLANTS, BARE-ROOT STOCK, OR LIVE STAKES DEPENDING ON AVAILABILITY, SITE CONDITIONS, AND TIME OF YEAR AND SHALL BE INSTALLED IN ACCORDANCE WITH THE SUPPLIER'S RECOMMENDATIONS.

- LEGEND**
- SUBJECT PROPERTY LINE (PROJECT BOUNDARY)
 - - - PROPERTY LINE
 - FOUND IRON PIN FOUND
 - FOUND IRON PIPE FOUND
 - * EXISTING EVERGREEN TREE
 - EXISTING TREE
 - - - EXISTING EDGE OF WOODED AREA
 - ~~~~~ PROPOSED EDGE OF WOODED AREA
 - ~~~~~ EDGE OF WATER
 - - - EXISTING CONTOURS (APPROXIMATE)
 - ~~~~~ PROPOSED CONTOURS
 - ▨ WETLAND AREA
 - ▨ FLOODWAY AREA
 - ▨ WETLAND MITIGATION AREA
 - FEMA FLOOD ZONE BOUNDARY

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL

POCS SERIAL NUMBER
20170611402
PA1 SYSTEM, INC.
1-800-242-1776

Revisions

No.	Date	By

Engineer's Seal: **L. ASHLEY PORTER**

Engineer's Signature: **L. Ashley Porter, P.E.**
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PCE Porter Consulting Engineers, P.C.
Developing Engineered Solutions To Meet Your Project Needs

SNOW WATERS DEVELOPMENT, LLC
PROJECT SNOW WATERS
CHAPTER 105/SECTION 404 JOINT PERMIT APPLICATION
WETLAND MITIGATION ENLARGEMENT

SUMMIT TOWNSHIP, CRAWFORD COUNTY, PENNSYLVANIA

File No. 12038-1703-A
Scale: SHOWN
Date: 5/19/2017

Drawn by: JAMES D. KLECK
Checked by: **L. Ashley Porter, P.E.**
Approved by: **L. Ashley Porter, P.E.**

Drawing No. **C1.19**