

**GENERAL NOTES**

- TAX PARCEL NO.: 47-00-03758-00-2  
BLOCK: 023 UNIT: 003
- EXISTING SITE DATA:  
GROSS LOT AREA: 962,447.42 S.F.(22.09 AC)  
DEED INFORMATION: DBV, 5669 PG.00252
- RECORD OWNER/SUBDIVIDER:  
FDEV LLC  
1150 FIRST AVE STE 920  
KING OF PRUSSIA, PA  
19406
- BOUNDARY AND TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY MICHAEL DIPALO, PLS, FROM ACTUAL FIELD SURVEY PERFORMED MAY 2014 AND MARCH 2015.
- SITE FALLS IN ZONE (X) BASED ON FEMA MAP NUMBER 42091C0083 E EFFECTIVE DATE: OCTOBER 19, 1996.
- REFERENCE PLANS:  
•PLAN BY BURSICH ASSOCIATES INC. TITLED "SKETCH PLAN" DRAWING NUMBER 1 OF 1 DATED 09-12-07 LAST REVISED N/A.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES, WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- THE DATUM IS BASED ON LIDAR MAPPING.
- INTENDED USE: THREE PROPOSED DETACHED DWELLINGS AND ONE EXISTING DETACHED DWELLING WITH ON LOT SEWER AND WATER.
- SOURCE OF TITLE:  
BEING THE SAME PROPERTY OF FIRST PENN BANK BY DEED DATED OCTOBER 12TH, 2007 AND RECORDED IN DBV, 5669 PG. 00252, MONTGOMERY COUNTY RECORDS, GRANTED AND CONVEYED UNTO FDEV LLC.
- THE TOWNSHIP SHALL BE GRANTED A BLANKET EASEMENT ON EACH LOT FOR INSPECTION OF THE PROPOSED STORMWATER FACILITIES.
- SURVEY MONUMENTATION SHALL BE INSTALLED PER TOWNSHIP REQUIREMENTS.
- INDIVIDUAL RAINGARDENS AND TRENCH DRAINS/OUTLET PIPES SHALL BE OWNED AND MAINTAINED BY THE RESPECTIVE LOT OWNERS.
- CLEAR SIGHT TRIANGLES SHALL BE MAINTAINED, WITHIN WHICH VEGETATION AND OTHER VISUAL OBSTRUCTIONS SHALL BE LIMITED IN HEIGHT OF NOT MORE THAN 2' ABOVE STREET GRADE.
- THREE PARKING SPACES SHALL BE PROVIDED FOR EACH LOT(2.25 REQUIRED).
- THE DETENTION BASINS AND STORMWATER FACILITIES(AS SHOWN ON THIS PLAN) ARE A BASIC AND PERPETUAL PLAN OF THE STORM DRAINAGE SYSTEM OF THE TOWNSHIP OF NEW HANOVER, AND AS SUCH ARE TO BE PROTECTED AND PRESERVED, IN ACCORDANCE WITH THE APPROVED FINAL PLAN BY THE OWNER(S) ON WHOSE LANDS THE STRUCTURE(S) IS(ARE) LOCATED. THE TOWNSHIP OF NEW HANOVER AND/OR ITS AGENTS RESERVES THE RIGHT AND PRIVILEGE TO ENTER UPON SUCH LANDS FROM TIME TO TIME FOR THE PURPOSE OF INSPECTION OF SAID DETENTION BASIN(S) IN ORDER TO DETERMINE THAT THE STRUCTURAL AND DESIGN INTEGRITY ARE BEING MAINTAINED BY THE OWNER(S). IN THE EVENT THAT MAINTENANCE AND STRUCTURAL INTEGRITY ARE NOT MAINTAINED BY THE OWNER AS REQUIRED BY THE TOWNSHIP, THE OWNER HEREBY GRANTS TO THE TOWNSHIP THE RIGHT TO ENTER UPON SUCH PROPERTY AND TO PERFORM ANY AND ALL IMPROVEMENTS, REVISIONS OR MAINTENANCE AS MAY BE DETERMINED NECESSARY BY THE TOWNSHIP AND TO RECOVER THE COSTS THEREOF FROM THE PROPERTY OWNER BY ALL LAWFUL MEANS INCLUDING, BUT NOT LIMITED TO, THE IMPOSITION OF A MUNICIPAL LIEN ON THE SUBJECT PROPERTY.

**CERTIFICATION OF ACCURACY**

I HEREBY CERTIFY THAT THE PLAN SHOWN AND DESCRIBED HEREON, AS WELL AS ALL DRAWINGS BEARING MY SEAL, ARE TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE NEW HANOVER TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE AND WERE PREPARED BY ME OR UNDER MY DIRECTION FOR WHICH I ACCEPT FULL RESPONSIBILITY. THE PERIMETER MONUMENTS SHALL BE ACCURATELY PLACED AS REQUIRED BY THE TOWNSHIP.

MICHAEL DIPALO, PLS

DATE

**CERTIFICATION OF OWNERSHIP**

COMMONWEALTH OF PENNSYLVANIA  
COUNTY OF MONTGOMERY  
ON THIS, THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 2017, BEFORE ME, THE UNDERSIGNED, PERSONALLY APPEARED \_\_\_\_\_ WHO BEING DULY SWORN ACCORDING TO LAW, DEPOSES AND SAYS THAT HE IS THE REPRESENTATIVE OF THE PROPERTY SHOWN ON THIS PLAN, THAT THE PLAN WAS PREPARED AT HIS DIRECTION, AND DESIRES THE SAME TO BE RECORDED AS SUCH ACCORDING TO LAW, AND THAT HE ACKNOWLEDGES THE SAME TO BE HIS ACT AND THAT ALL STREETS SHOWN AND NOT HERETOFORE DEDICATED ARE HEREBY DEDICATED TO THE PUBLIC USE.

FDEV LLC, REPRESENTATIVE

NOTARY PUBLIC  
MY COMMISSION EXPIRES \_\_\_\_\_

**RECORDER OF DEEDS:**

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS OF MONTGOMERY COUNTY AT NORRISTOWN, PENNSYLVANIA IN THE PLAN BOOK \_\_\_\_\_, PAGE \_\_\_\_\_, ON THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 2017.

RECORDER OF DEEDS

- ALL DEVELOPMENT ACTIVITIES, SUCH AS CLEARING, GRADING, REGRADING, DRIVEWAYS, ROADS, BUILDINGS, SEPTIC SYSTEMS, RETENTION/DETENTION BASINS AND UTILITY EASEMENTS SHALL BE LIMITED TO THE NATURAL RESOURCE PROTECTION STANDARDS AS SPECIFIED IN THE NEW HANOVER TOWNSHIP ZONING ORDINANCE(CHAPTER 27) AS LAST AMENDED. THE REMAINING RESOURCES SHALL REMAIN IN ITS NATURAL CONDITION, INCLUDING THE NATURAL FOREST GROUND COVER. THIS RESTRICTION SHALL RUN WITH THE LAND AND BE BINDING ON THE PRESENT AND ALL FUTURE OWNERS AND/OR LESSEES.
- THE ON LOT WELLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 913 OF THE SALDO.
- THE STORMWATER O&M PLAN, O&M AGREEMENT AND EASEMENTS SHALL BE RECORDED PER SECTION 708 OF THE SWAMP CREEK STORMWATER MANAGEMENT PLAN.
- NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE, OR ALTER ANY EXISTING STORMWATER CONTROL OR BMP UNLESS IT IS PART OF AN APPROVED MAINTENANCE PROGRAM WITHOUT THE WRITTEN APPROVAL OF NEW HANOVER TOWNSHIP.
- NO PERSON SHALL PLACE ANY STRUCTURE, FILL, LANDSCAPING, OR VEGETATION INTO A STORMWATER CONTROL OR BMP OR WITHIN A DRAINAGE EASEMENT THAT WOULD LIMIT OR ALTER THE FUNCTIONING OF THE STORMWATER CONTROL OR BMP WITHOUT THE WRITTEN APPROVAL OF NEW HANOVER TOWNSHIP.
- EXISTING TREES ALONG LAYFIELD ROAD SHALL BE CONSIDERED STREET TREES.
- THE AREA BETWEEN THE EXISTING AND ULTIMATE RIGHTS-OF-WAY ALONG LAYFIELD ROAD IS HEREBY OFFERED FOR DEDICATION TO NEW HANOVER TOWNSHIP.
- THE RIGHT-OF-WAY FOR THE PROPOSED CUL-DE-SAC IS HEREBY OFFERED FOR DEDICATION TO NEW HANOVER TOWNSHIP AND SHALL INCLUDE THE STORM DRAINAGE SYSTEM(HW1-EW1, CB1-EW3, MH1 TO HW2, MH1 TO EW2).
- THE TREE PROTECTION STANDARDS OF SALDO SECTION 22.825.J SHALL BE MET DURING CONSTRUCTION.
- LOT 2 SHALL NOT BE FURTHER SUBDIVIDED, UNLESS IT MEETS ALL TOWNSHIP REQUIREMENTS.
- A BLANKET 20' DRAINAGE EASEMENT IS HEREBY OFFERED PROTECTING THE NATURAL DRAINAGE FOR THE AREAS SHOWN AS WETLAND BUFFER AND EASEMENTS.
- THE WOODLAND BUFFER YARD FOR EACH LOT SHALL BE PRESERVED IN ACCORDANCE WITH SECTION 27-1606.4.3 OF THE ZONING ORDINANCE.
- PHASE 2 FINAL PLANS ARE ANTICIPATED TO BE SUBMITTED IN SPRING 2019.

**WAIVER REQUEST**

AT A MEETING HELD ON FEBRUARY 22, 2016 THE NEW HANOVER TOWNSHIP BOARD OF SUPERVISORS GRANTED THE FOLLOWING WAIVERS:

- SECTION 22-803 - TO ALLOW LOT 3 TO HAVE A LOT DEPTH TO WIDTH RATIO GREATER THAN 2.5 TO 1 (APPROXIMATELY 2.88:1).
- SECTION 22-812.E.3 - TO NOT REQUIRE CURBING ALONG LAYFIELD ROAD UNLESS REQUIRED BY PENNDOT.
- SECTION 813.6.C - TO ALLOW A FULL DEPTH PAVED STREET CARTWAY OF 20 FEET WITH 2 FOOT WIDE STRIPED SHOULDERS INSTEAD OF A 24 FOOT WIDE CARTWAY, NO ON STREET PARKING.
- SECTION 22-813.6.C (MCMAHON IDENTIFIES AS 22-815.3) - TO NOT REQUIRE CURBING ALONG THE PROPOSED CUL-DE-SAC.
- SECTION 22-822.1 - TO NOT REQUIRE SIDEWALK ALONG LAYFIELD ROAD UNLESS REQUIRED BY PENNDOT.
- SECTION 22-834 - TO NOT REQUIRE A BIKEWAY PATH ALONG THE REAR PROPERTY LINE OF THE DEVELOPMENT.
- SECTION 22-834.2.A - TO NOT REQUIRE THE BIKE PATH ALONG ROUTE 663 AND ALLOW A FEE IN LIEU OF THE PATH. THE BIKE PATH WILL BE GRADED AND THE FENCE WILL BE COMPLETED ON LOT 1.
- SECTIONS 302.B.19 AND 410.Y - TO ALLOW A BLANKET STORMWATER EASEMENT ON EACH LOT INSTEAD OF BEING DEFINED BY BEARING AND DISTANCES.

**VARIANCES GRANTED**

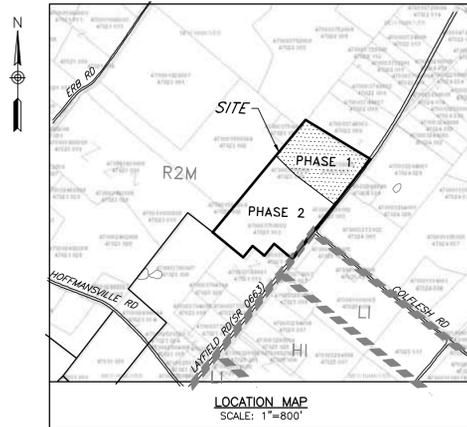
AT A MEETING HELD ON JULY 26, 2016 THE NEW HANOVER TOWNSHIP ZONING HEARING BOARD APPROVED THE FOLLOWING VARIANCES:

- SECTION 27-1601.F - TO PERMIT INCURSIONS INTO THE 50' REQUIRED BUFFERS.
- SECTION 27-1601.J - TO ALLOW STORMWATER DRAINAGE ENCROACHMENTS AND CUL-DE-SAC AND DRIVEWAY ENCROACHMENTS LOCATED WITHIN OVERLAPPING RESOURCES CONSISTENT WITH TESTIMONY OF THE APPLICANT.
- SECTION 27-1606.4.3 - TO ALLOW EXISTING LANDSCAPED HOME BUFFERING RELIEF WHERE THE 3 PROPOSED LOTS TO BE SUBDIVIDED COMPLY WITH BUFFER YARD REQUIREMENTS.



# FDEV SUBDIVISION

NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA



**PREPARED FOR:**  
FDEV LLC  
1150 FIRST AVE STE 920  
KING OF PRUSSIA, PA  
19406

**PREPARED BY:**  
1860 WEAVERTOWN ROAD, SUITE 100  
DOUGLASSVILLE, PA 19518  
PHONE: 610-689-8021  
FAX: 610-689-4538

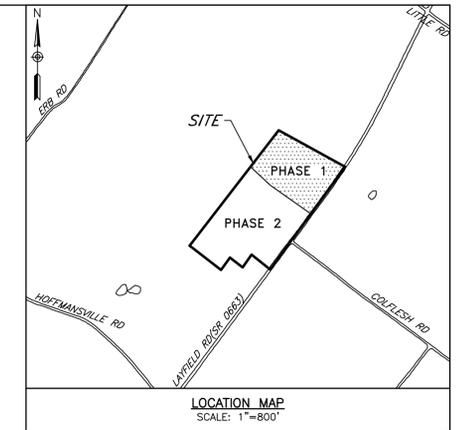
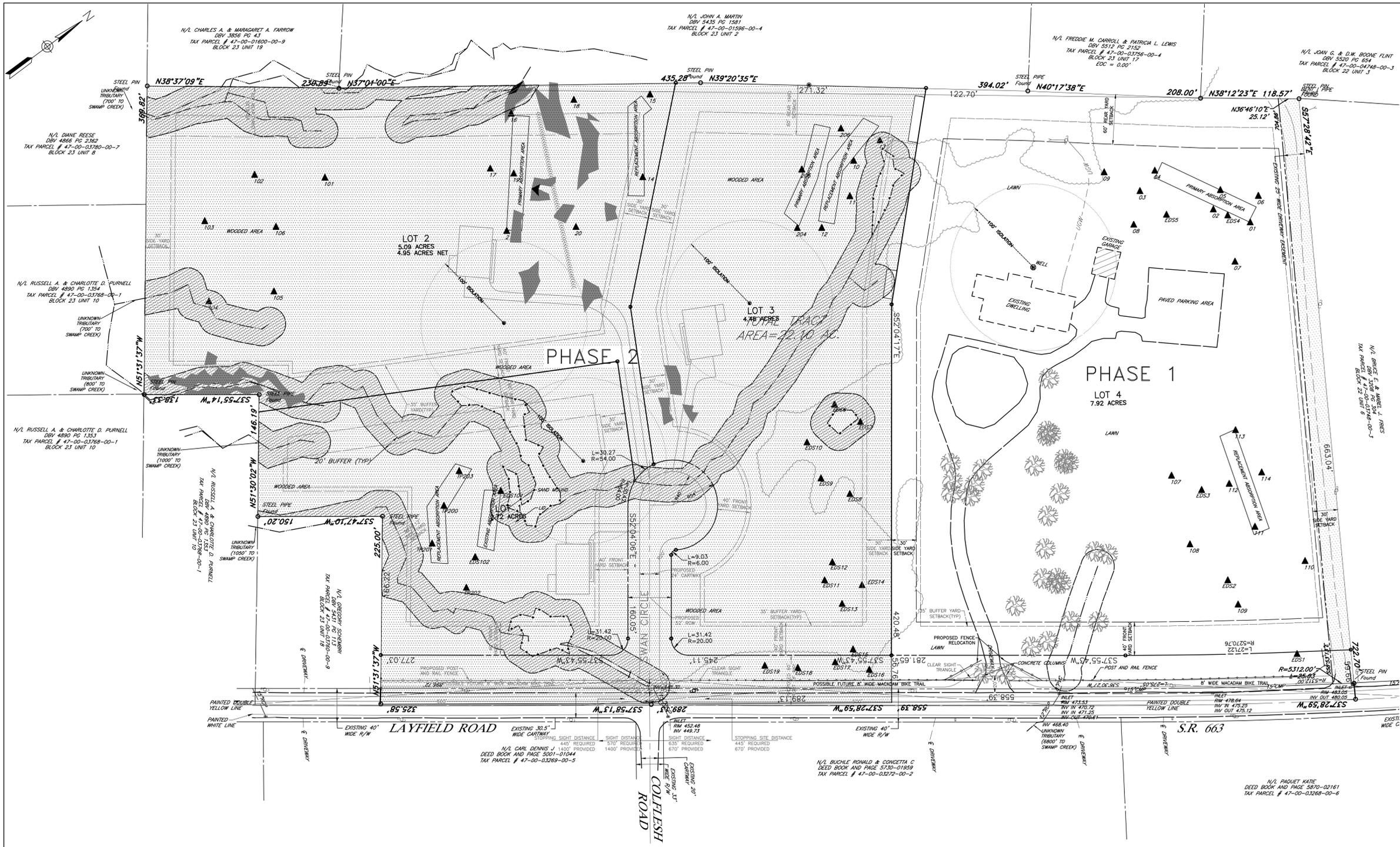
## FINAL PLAN - PHASE 1

SHEET LIST	
#	PLAN
1	COVER SHEET
2	FINAL PLAN PHASE 1
3	EXISTING FEATURES PLAN
4	GRADING AND UTILITY PLAN
5	LAND DEVELOPMENT DETAIL SHEET
6	PROFILE SHEET
7	EROSION CONTROL PLAN - PROPOSED ROAD/LOT 4
8	EROSION CONTROL PLAN - LOTS 1, 2, AND 3
9	EROSION CONTROL NARRATIVE & DETAILS
10	EROSION CONTROL DETAILS
11	POST CONSTRUCTION STORMWATER MANAGEMENT/ O&M PLAN
12	AERIAL PLAN
M	GENERAL PERMIT PLAN

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-06-06	WJD	BDB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/5/16, GILMORE 12/6/16, MCMAHON 12/12/16, KMS DESIGN 12/8/16 REVIEW LETTERS	1-12-17	JOE	BDB
2.	PER GILMOREASSOCIATES, INC 3/14/16, KMS DESIGN GROUP, LLC 3/16/16, MCMAHON ASSOCIATES, INC. 2/11/16 REVIEW LETTERS.	10-25-16	WJD	BDB
1.	PER GILMOREASSOCIATES, INC 6/5/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC. 6/3/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS.	10-21-15	WJD	BDB

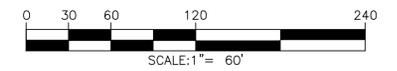
<b>DESIGN ENGINEER</b>	
I, BRIAN D. BOYER, PE ON THIS DATE _____ HEREBY CERTIFY THAT THE DRAINAGE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE NEW HANOVER TOWNSHIP STORMWATER MANAGEMENT ORDINANCE.	
BRIAN D. BOYER, PE	
<b>OWNER ACKNOWLEDGEMENT</b>	
ANY REVISIONS TO THE APPROVED POST CONSTRUCTION STORMWATER MANAGEMENT PLAN MUST BE APPROVED BY NEW HANOVER TOWNSHIP, THE CONSERVATION DISTRICT, AND/OR PADEP AND A REVISED EROSION AND SEDIMENT CONTROL PLAN MUST BE SUBMITTED TO THE CONSERVATION DISTRICT FOR A DETERMINATION OF ADEQUACY.	
OWNER _____	
<b>TOWNSHIP ENGINEER</b>	
REVIEWED BY THE TOWNSHIP ENGINEER ON THE ____ DAY OF _____.	
TOWNSHIP ENGINEER _____	
<b>BOARD OF SUPERVISORS</b>	
AT THE MEETING HELD ON _____ THE BOARD OF SUPERVISORS OF NEW HANOVER TOWNSHIP BY RESOLUTION _____ DULY ENACTED AND APPROVED THE SUBDIVISION PLAN OF THE PROPERTY OF FDEV LLC AS SHOWN HERON.	
CHAIRMAN OF THE BOARD OF SUPERVISORS. _____	
TOWNSHIP SECRETARY _____	
<b>TOWNSHIP PLANNING COMMISSION</b>	
REVIEWED BY THE NEW HANOVER TOWNSHIP PLANNING COMMISSION AND RECOMMENDED FOR APPROVAL ON THE ____ DAY OF _____.	
PLANNING COMMISSION CHAIRMAN _____	
<b>MONTGOMERY COUNTY PLANNING COMMISSION</b>	
MCPC NO. _____ PROCESSED AND REVIEWED. A REPORT HAS BEEN PREPARED BY THE MONTGOMERY COUNTY PLANNING COMMISSION IN ACCORDANCE WITH THE MUNICIPALITIES PLANNING CODE. CERTIFIED THIS DATE: _____	
FOR THE DIRECTOR MONTGOMERY COUNTY PLANNING COMMISSION	

SEAL	SEAL
1860 WEAVERTOWN ROAD, SUITE 100 DOUGLASSVILLE, PA 19518 PHONE: 610-689-8021 FAX: 610-689-4538	
DESIGN BDB	CHKD. BY BDB
DRAWN BY WJD	CHKD. BY
DATE 4-22-2015	SCALE AS SHOWN
PROJECT NO. 14-146	DWG. NO. CS114146
SHEET NO. 1 OF 13	



**LEGEND**

- EX. FENCE
- EX. TRACT LINE
- EX. BOUNDARY
- PR BOUNDARY
- EX. RIGHT-OF-WAY
- SETBACKS
- 35' BUFFER YARD SETBACK
- EX. MONUMENTATION
- EX. UTILITY POLE
- EX. STORM INLET
- PR. MONUMENTATION(STEEL PINS)
- APPROXIMATE LOCATION OF WATERS OF THE COMMONWEALTH
- WETLANDS
- WETLAND AND RIPARIAN BUFFER AND EASMENT
- TEST PITS
- EXISTING AND PROPOSED WELLS
- EX. WOODLAND
- PR FENCE
- EX TREES
- PHASE 2 - FUTURE



**NATIONAL RESOURCE PROTECTION STANDARDS**

RESOURCE	OPEN SPACE RATIO	ACRES OF LAND IN RESOURCES (LOT 1)	REQUIRED RESOURCE PROTECTION (LOT 1)	PROPOSED RESOURCE PROTECTION (LOT 1)	ACRES OF LAND IN RESOURCES (LOT 2)	REQUIRED RESOURCE PROTECTION (LOT 2)	PROPOSED RESOURCE PROTECTION (LOT 2)	ACRES OF LAND IN RESOURCES (LOT 3)	REQUIRED RESOURCE PROTECTION (LOT 3)	PROPOSED RESOURCE PROTECTION (LOT 3)	ACRES OF LAND IN RESOURCES (LOT 4)	REQUIRED RESOURCE PROTECTION (LOT 4)	PROPOSED RESOURCE PROTECTION (LOT 4)
STEEP SLOPES 15% OR MORE	70%	0	0	0	8798 SF	6158 SF	7459 SF	983	688	0	0	0	0
25% OR MORE	80%	0	0	0	131 SF	105 SF	129 SF	0	0	0	0	0	0
WOODLANDS (R-2M)	80%	2.72 AC	2.18 AC	2.37 AC	5.00 AC	4.00 AC	4.01 AC	4.01 AC	3.20 AC	3.20 AC	0.68 AC	0.68 AC	0.68 AC
WETLANDS	100%	8343 SF	8343 SF	8343 SF	0	0	0	2155 SF	2155 SF	2155 SF	0 SF	0 SF	0 SF
WETLAND MARGINS	80%	42129 SF	33703 SF	41390 SF	39194 SF	31355 SF	39194 SF	24059 SF	19247 SF	22826 SF	5397 SF	4318 SF	5397 SF
RIPARIAN CORRIDOR	100%	0	0	0	0	0	0	0	0	0	0	0	0
LAND WITH RESOURCE RESTRICTIONS	100%	0	0	0	0	0	0	0	0	0	0	0	0
RESOURCE PROTECTION LAND	100%	0	0	0	0	0	0	0	0	0	0	0	0
FLOODWAY	100%	0	0	0	0	0	0	0	0	0	0	0	0
FLOOD FRINGE	100%	0	0	0	0	0	0	0	0	0	0	0	0
APPROX. 100-YEAR FLOOD BOUNDARY	100%	0	0	0	0	0	0	0	0	0	0	0	0
POND SHORELINES	80%	0	0	0	0	0	0	0	0	0	0	0	0
WATERCOURSES	100%	0	0	0	0	0	0	0	0	0	0	0	0

TAX PARCEL NUMBER  
47-00-03758-00-2

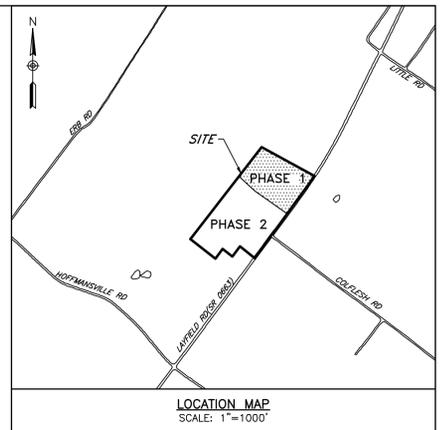
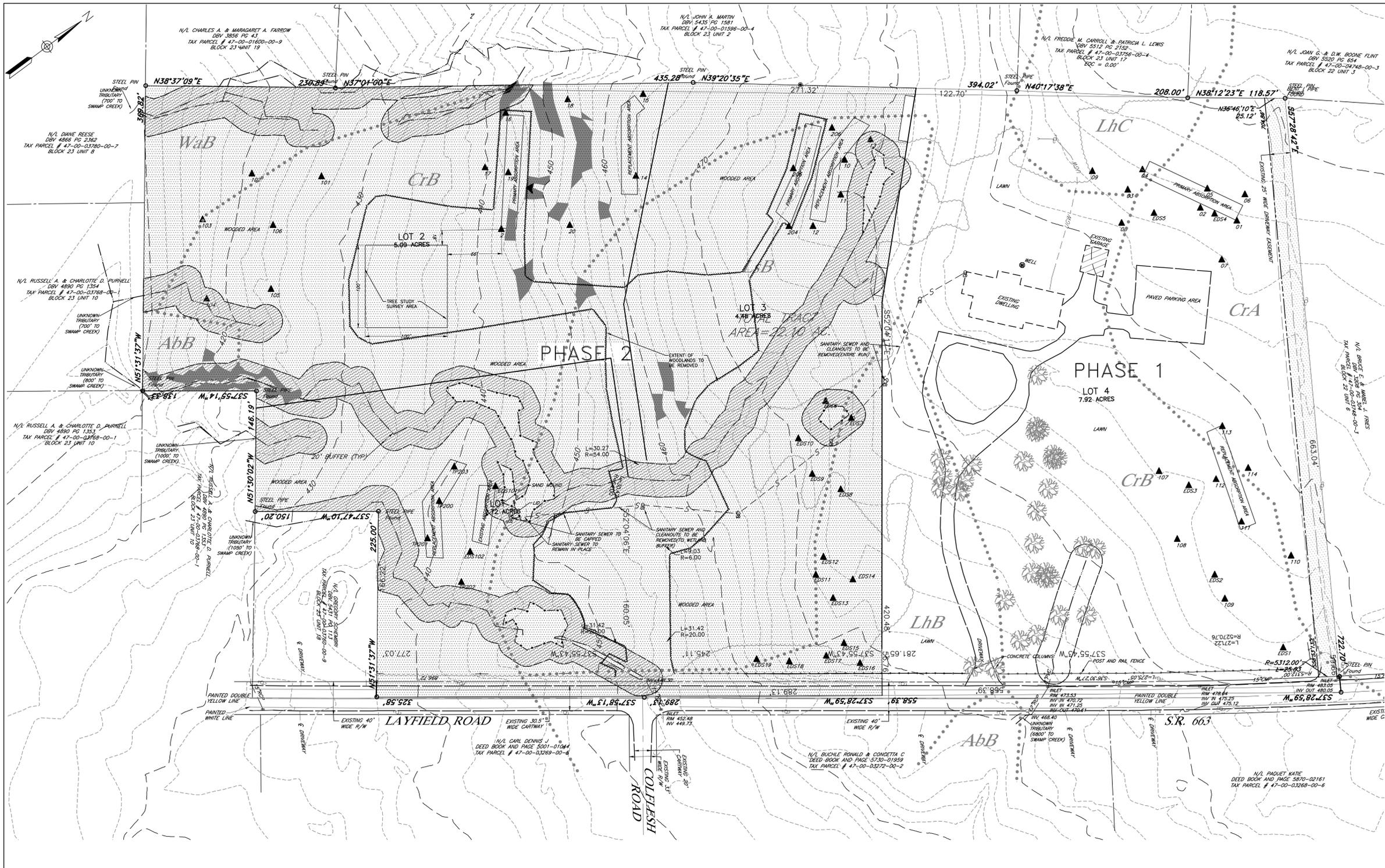
**ZONING DATA R-2M**

	REQUIRED	EXISTING	LOT 1	LOT 2	LOT 3	LOT 4	SWAN CIRCLE	LOT 4 LAYFIELD ROAD ULTIMATE ROW	LOT 1,2,3 LAYFIELD ROAD ULTIMATE ROW
LOT AREA(GROSS)	22.10 ACRES	2.72 ACRES	5.09 ACRES	4.46 ACRES	7.93 ACRES	0.38 ACRES		0.71 ACRES	0.81
LOT AREA(NET)	2 ACRES	21.60 AC (EX ROW) 20.58 AC (ULT ROW)	2.72 ACRES	4.95 ACRES	4.46 ACRES	7.93 ACRES			
LOT WIDTH	250 FT.	>250 FT.	311 FT.	25 FT.	251 FT.	585 FT.			
FRONT YARD	40 FT.	>40 FT.	73 FT.	71 FT.	357 FT.	387 FT.			
REAR YARD	60 FT.	>60 FT.	255 FT.	167 FT.	287 FT.	221 FT.			
SIDE YARD	30 FT.	>30 FT.	60 FT.	173 FT.	60 FT.	122 FT.			
BUILDING COVERAGE	15%	<15%	1.5%	1.1%	1.2%	1.7%			
BUILDING HEIGHT	35 FT.	<35 FT.	<35 FT.	<35 FT.	<35 FT.	<35 FT.			
MAX WOODLAND DISTURBANCE	20%	20%	20%	20%	20%	20%			
MIN BUILDING ENVELOPE	8500 SF.	>8500 SF.	>8500 SF.	>8500 SF.	>8500 SF.	>8500 SF.			
STREAM CORRIDOR SETBACK	50 FT.	N/A	N/A	N/A	N/A	N/A			

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-08-06	WJD	BOB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/5/16, GILMORE 12/6/16, MCMAHON 12/12/16, KMS DESIGN 12/9/16 REVIEW LETTERS	1-12-17	JOE	BOB
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1.	PER GILMOREASSOCIATES, INC 6/5/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC. 6/5/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS.	10-21-15	WJD	BOB

CLIENT	SUBJECT	
FDEV LLC 1150 FIRST AVE STE 920 KING OF PRUSSIA, PA 19406	FDEV SUBDIVISION PHASE 1	
SEAL	SEAL	SEAL
1860 WEAVERTOWN ROAD, SUITE 100 DOUGLASSVILLE, PA 19518 PHONE: 610-689-8021 FAX: 610-689-4538		PROJECT NO. 14-146
DESIGN BDB	CHKD. BY	DWG. NO. FP114146
DRAWN BY WJD	CHKD. BY	SHEET NO. 2 OF 13
DATE 4/22/15	SCALE 1"=60'	





LOCATION MAP  
SCALE: 1"=1000'

**LEGEND**

- EX. BOUNDARY
- EX. RIGHT-OF-WAY
- SETBACKS
- EX. SANITARY
- EX. SANITARY CLEANOUT
- EX. MONUMENTATION
- EX. WOODLINE
- EX. TREES
- EX. CONTOURS
- EX. SOILS
- SOILS LINE
- EX. UTILITY POLE
- EX. SIGN
- TEST PIT
- APPROXIMATE LOCATION OF WATERS OF THE COMMONWEALTH
- WETLANDS
- WETLANDS BUFFER
- EXISTING AND PROPOSED WELLS
- 15-25% SLOPES
- >25% SLOPES
- PROPOSED WOODLINE



**Soil Characteristics**

Soil Name	CrB - Croton Silt Loam, 3 to 8% Slopes	LhB - Lehigh Silt Loam, 3 to 8% Slopes	LhC - Lehigh Silt Loam, 8 to 15% Slopes
Depth to Seasonal Water Table (ft)	0 to 6	6 to 36	6 to 36
Depth to Bedrock (in)	40 to 60	40 to 60	40 to 60
Topsoil - The topsoil shall have lime applied as necessary to have a pH of 7 to 7.5. Compost shall be mixed with the topsoil per the amended soil specifications to increase its organic content and water holding capacity. Any topsoil that needs to be imported shall be from a site with an approved erosion control plan.	Variable Use Soil tests to determine	Variable Use Soil tests to determine	Variable Use Soil tests to determine
Suitability for Winter Grading	Poor (Depth to Saturated Zone)	Fair (Depth to Saturated Zone)	Poor (Depth to Saturated Zone)
Suitability for Frost Action	High (Depth to Saturated Zone)	High (Depth to Saturated Zone)	High (Depth to Saturated Zone)
Topsoil Suitability	Poor (wetness)	Poor (Rock Fragments)	Poor (Rock Fragments)
Road Fill Suitability	Poor (wetness)	Fair (Depth to Saturated Zone)	Fair (Depth to Saturated Zone)
Highway Location	Very Limited (Depth to Saturated Zone)	Very Limited (Depth to Saturated Zone)	Very Limited (Depth to Saturated Zone)
Shallow Excavations	Very Limited (Depth to Saturated Zone)	Very Limited (Depth to Saturated Zone)	Very Limited (Depth to Saturated Zone)
Embankment Suitability for Detention Basins	Very Limited (Depth to Saturated Zone)	Very Limited (Depth to Saturated Zone)	Very Limited (Depth to Saturated Zone)
Landscaping and Lawn Suitability	Very Limited (Depth to Saturated Zone)	Somewhat Limited (Depth to Saturated Zone)	Somewhat Limited (Depth to Saturated Zone)
On-site Sewage Disposal Suitability	Very Limited (Depth to Saturated Zone)	Very Limited (Slow Percolation)	Very Limited (Slow Percolation)
Home Site Suitability with Basement	Very Limited (Depth to Saturated Zone)	Very Limited (Depth to Saturated Zone)	Very Limited (Depth to Saturated Zone)
Corrosion of Concrete	Moderate	Low	Low
Mechanical Site Preparation (Deep)	Well Suited	Well Suited	Well Suited
Hydrologic Soil Group	D	C/D	C/D

**TRUE STUDY REFERENCE:**  
A TREE STUDY ON NOVEMBER 06, 2015 PERFORMED BY BOYER ENGINEERING  
A TYPICAL SAMPLE AREA OF 100 BY 100, LOCATED APPROXIMATELY 66 SOUTHWEST AND 18 SOUTHEAST OF TEST PIT #21, 21 TREES WITH A DIAMETER OF 10 AND ABOVE, MEASURED AT A DBH OF 4.5 WERE FOUND. 4 TREES WITH A DIAMETER OF 6-10", MEASURED AT A DBH OF 4.5 WERE FOUND.

**SOILS TABLE**

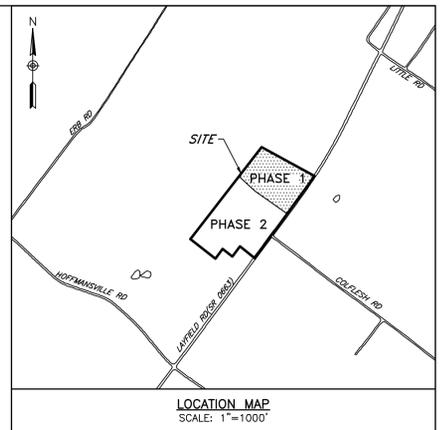
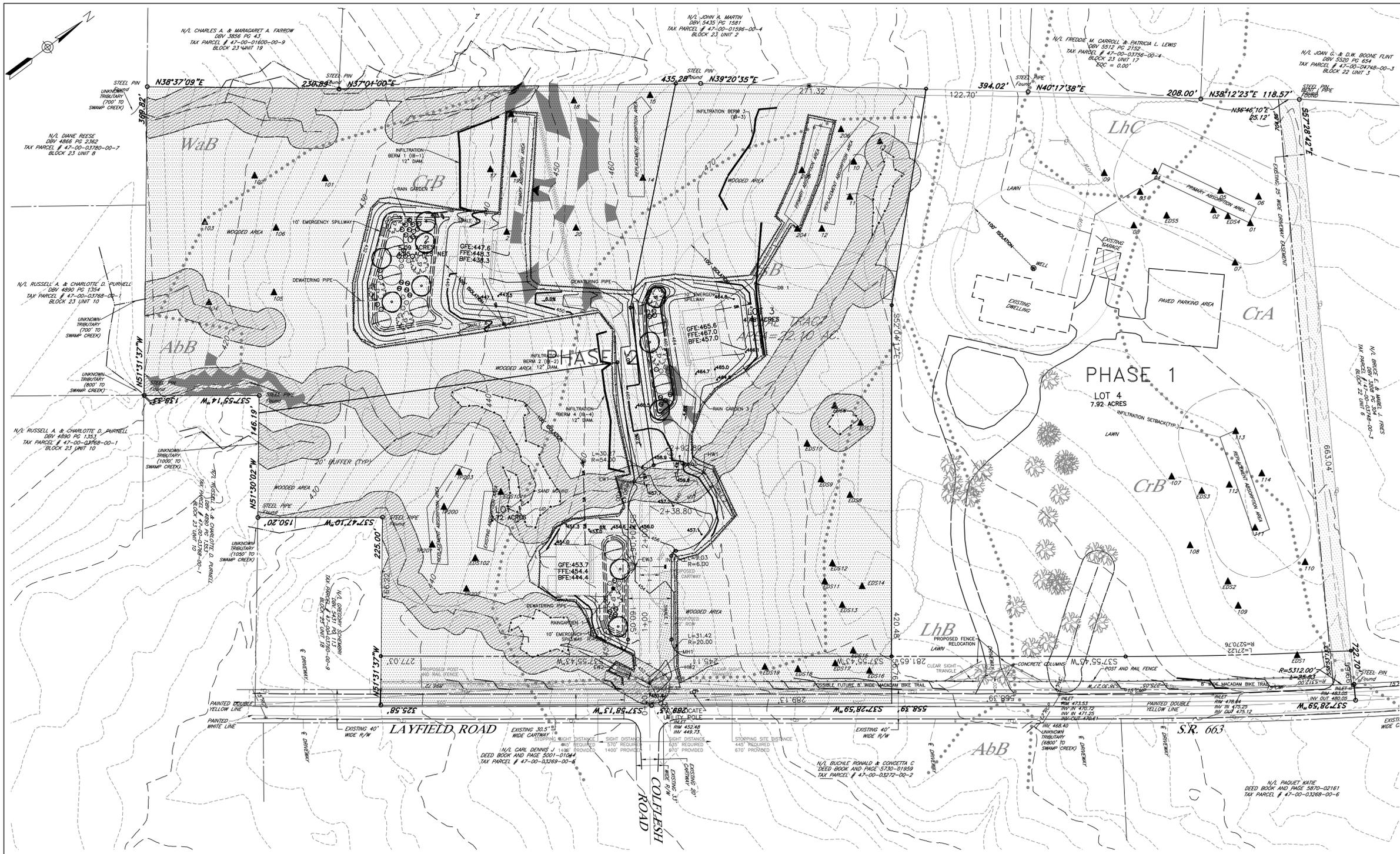
SYMBOL	NAME/DESC
AbB	ABBOTSTOWN SILT LOAM 3-8% SLOPES
CrA	CROTON SILT LOAM 0-3% SLOPES
CrB	CROTON SILT LOAM 3-8% SLOPES
LhB	LEHIGH SILT LOAM, 3-8% SLOPES
LhC	LEHIGH SILT LOAM 8-15% SLOPES
LsB	LEHIGH SILT LOAM 0-8% SLOPES
WbB	WATCHUNG SILT LOAM 3-8% SLOPES

**Soil Resolutions**  
pH - The topsoil shall be tested prior to applying the seed and mulch. Lime shall be added to the soil until it reaches a pH of 7 to 7.5.  
Water Grading - The soils shall be stabilized with mulch until it is appropriate to apply the seed.  
Frost Action - Soils containing frost shall not be utilized as structural backfill.  
Topsoil - The topsoil shall have lime applied as necessary to have a pH of 7 to 7.5. Compost shall be mixed with the topsoil per the amended soil specifications to increase its organic content and water holding capacity. Any topsoil that needs to be imported shall be from a site with an approved erosion control plan.  
Road Fill - Suitable material shall be found onsite or imported from a site with an approved erosion control plan.  
Highway Location - Limitations include wetness and low strength. If bedrock is encountered it shall be removed to an appropriate depth and the stone base for the road shall be installed. Roads shall not be constructed when the temperature is below freezing unless the frozen soils are removed.  
Pipeline Construction - Limitations may include high water table. Utility trenches shall be pumped to keep the working area dry. All pumped water shall be discharged to a sediment filtering device.  
Detention Basin Embankments - The limitation is the low strength. Any soil that is imported shall come from a site with an approved erosion control plan.  
Landscaping and Lawn - Appropriate stabilization materials shall be used as specified in the plans.  
Landscaping and Lawn - Limitations include poor and limited amounts of topsoil and wet soils. Soil amendment with compost and sand shall be used to provide adequate planting soil. Any soil that is imported shall come from a site with an approved erosion control plan. Sloped areas shall be mulched and have the appropriate netting installed where necessary to prevent erosion.

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-08-06	WJD	BOB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/5/16, GILMORE 12/6/16, MCMAHON 12/12/16, KMS DESIGN 12/9/16 REVIEW LETTERS.	1-12-17	JCE	BOB
2.	PER GILMOREASSOCIATES, INC 3/14/16, KMS DESIGN GROUP, LLC 3/16/16, MCMAHON ASSOCIATES, INC. 2/11/16 REVIEW LETTERS.	10-25-16	WJD	BOB
1.	PER GILMOREASSOCIATES, INC 6/9/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC. 6/9/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS.	10-21-15	WJD	BOB

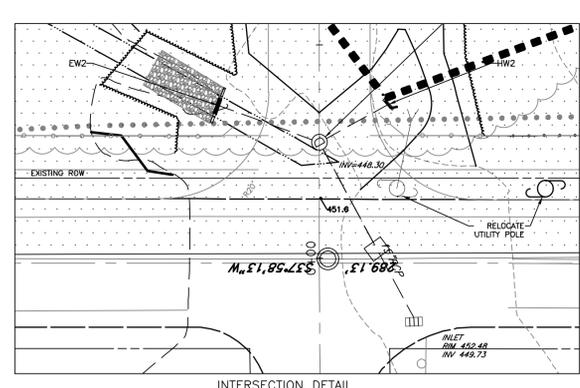
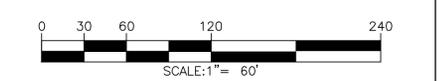
CLIENT		SUBJECT	
FDEV LLC 1150 FIRST AVE STE 920 KING OF PRUSSIA, PA 19406		FDEV SUBDIVISION	
NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA		PROJECT NO. 14-146	
1860 WEAVERTOWN ROAD, SUITE 100 DOUGLASSVILLE, PA 19518 PHONE: 610-689-8021 FAX: 610-689-4538		DWG. NO. EF114146	
DESIGN BOB	CHKD. BY	SHEET NO. 3 OF 13	
DRAWN BY WJD	CHKD. BY		
DATE 4/22/15	SCALE 1"=60'		





**LEGEND**

EX. TRACT LINE	---
EX. BOUNDARY	---
EX. RIGHT-OF-WAY	---
SETBACKS	---
EX. SANITARY	---
EX. GAS	---
PR. CLEANOUT	○
EX. MONUMENTATION	○
EX. UTILITY POLE & GUY WIRE	○
EX. SANITARY MANHOLE	○
EX. SOILS	PIB
EX. CONTOURS	--- 230 --- --- 229 ---
PR. CONTOURS	--- 230 --- --- 229 ---
PR. INTERIM CONTOURS	---
PR. SANITARY LATERAL	---
PR. STORM PIPE	---
TEST PIT	▲
APPROXIMATE LOCATION OF WATERS OF THE COMMONWEALTH	---
WETLANDS	---
WETLANDS BUFFER	---
EXISTING AND PROPOSED WELLS	○
15-25% SLOPES	■
>25% SLOPES	■
EXISTING WOODLINE	---
PROPOSED WOODLINE	---
TREE PROTECTION FENCE	---



**RAIN GARDEN PLANTING SCHEDULE**

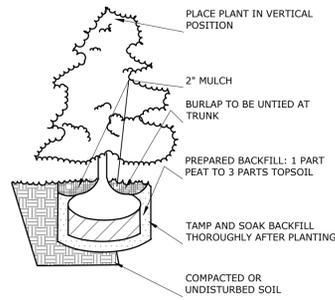
Common Name	Scientific Name	Quantity	Plant Type	Symbol
Sweet Pepper Bush	Clethra alnifolia	13	Shrub	○
Elderberry	Sambucus canadensis	13	Shrub	○
Arrowwood	Viburnum prunifolia	12	Shrub	○
Pussy Willow	Salix discolor	13	Shrub	○
Sweetbay Magnolia	Magnolia virginiana	7	Tree	○
Shadblow Serviceberry	Amelanchier canadensis	8	Tree	○
River Birch	Betula Nigra	9	Tree	○

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-08-08	WJD	BOB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/9/16, GILMORE 12/8/16, MCMAHON 12/12/16, KMS DESIGN 12/9/16 REVIEW LETTERS	1-12-17	JCE	BOB
2.	PER GILMOREASSOCIATES, INC 3/14/16, KMS DESIGN GROUP, LLC 3/16/16, MCMAHON ASSOCIATES, INC. 2/11/16 REVIEW LETTERS.	10-25-16	WJD	BOB
1.	PER GILMOREASSOCIATES, INC 6/9/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC. 6/9/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS.	10-21-15	WJD	BOB

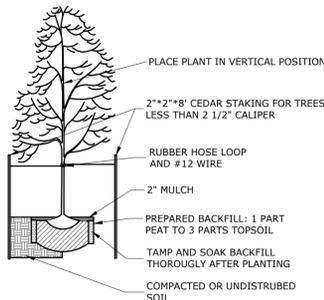
CLIENT	SUBJECT	
FDEV LLC 1150 FIRST AVE STE 920 KING OF PRUSSIA, PA 19406	GRADING AND UTILITY PLAN	
<b>FDEV SUBDIVISION</b>		
NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA		
1860 WEAVERTOWN ROAD, SUITE 100 DOUGLASSVILLE, PA 19518 PHONE: 610-689-8021 FAX: 610-689-4538		PROJECT NO. 14-146
DESIGN BDB	CHKD. BY	DWG. NO. GR114146
DRAWN BY WJD	CHKD. BY	SHEET NO.
DATE 4/22/15	SCALE 1"=60'	4 OF 13



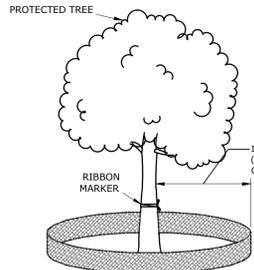
P:\PROJECTS\14-146 Steam Property\WP114146 - PHASE 1.dwg, 2017-08-08 1:38:08 PM



CONIFEROUS TREE PLANTING DETAIL  
NO SCALE



DECIDUOUS TREE PLANTING DETAIL  
NO SCALE

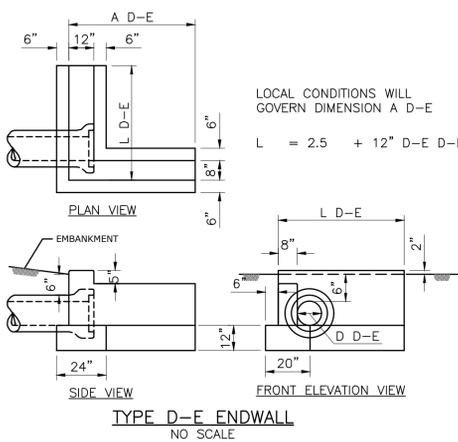


TREE PROTECTION  
NO SCALE

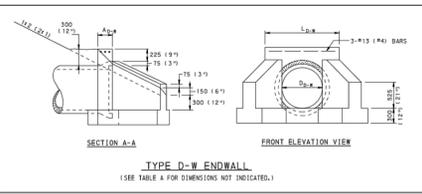
- NOTES:
1. MARK TREE TO BE PROTECTED WITH RIBBON PRIOR TO CONSTRUCTION.
  2. INSTALL CONSTRUCTION FENCE 15' FROM THE MARKED TREES, OR ALONG DRILINE (WHICHEVER IS GREATER).
  3. WHEN CONSTRUCTION IS COMPLETED, REMOVE FENCING.
  4. ANY DAMAGE, DESTRUCTION OR FALLING OF A TREE SLATED FOR PROTECTION SHALL REQUIRE REPLACEMENT WITH A TREE OF SIMILAR CALIPER OR SUCH NUMBER OF TREES AS ARE REQUIRED TO EQUAL THE CIRCUMFERENCE OF THE AFFECTED TREE.

- TREE PROTECTION NOTES:
1. GRADE CHANGES AND EXCAVATIONS SHALL NOT ENROACH UPON THE TREE PROTECTION ZONE.
  2. NO TOXIC MATERIAL, INCLUDING PETROLEUM BASED AND/OR DERIVED PRODUCTS, SHALL BE STORED WITHIN 100' OF A TREE PROTECTION ZONE.
  3. THE AREA WITHIN THE TREE PROTECTION ZONE SHALL NOT BE BUILT UPON, NOR SHALL ANY MATERIALS BE STORED, TEMPORARILY OR PERMANENTLY. VEHICLES AND EQUIPMENT SHALL NOT BE PARKED IN THE TREE PROTECTION ZONE.
  4. WHERE TREE STUMPS ARE LOCATED WITHIN 100' OF THE TREE PROTECTION ZONE, THE STUMPS SHALL BE REMOVED BY MEANS OF A STUMP GRINDER TO MINIMIZE THE EFFECT ON SURROUNDING ROOT SYSTEMS.
  5. TREE ROOTS, WHICH MUST BE SEVERED, SHALL BE CUT BY A BACKHOE OR SIMILAR EQUIPMENT ALIGNED RADIIALLY TO THE TREE. THIS METHOD REDUCES THE LATERAL MOVEMENT OF THE ROOTS DURING EXCAVATION, WHICH COULD DAMAGE THE INTERTWINED ROOTS OF ADJACENT TREES IF DONE BY OTHER METHODS.
  6. WITHIN 4 HOURS OF ANY SEVERANCE OF THE ROOTS, ALL TREE ROOTS THAT HAVE BEEN EXPOSED AND/OR DAMAGED SHALL BE TRIMMED CLEANLY AND COVERED TEMPORARILY WITH MOIST PEAT MOSS, MOIST BURLAP OR OTHER MOIST BIODEGRADABLE MATERIAL TO KEEP THE ROOTS FROM DRYING OUT UNTIL PERMANENT COVER IS INSTALLED.

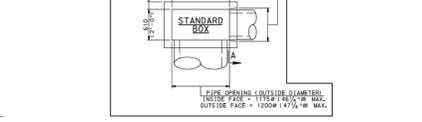
- NOTES:
1. TREE STAKING AND GUYING IS NOT REQUIRED, HOWEVER THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ASSURING THAT TREES ARE MAINTAINED STRAIGHT AND UPRIGHT THROUGHOUT THE GUARANTEE PERIOD. IF TREE STAKES OR GUYS ARE USED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE STAKES AND GUYS, INCLUDING WIRES, AFTER ONE YEAR. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO PLACE AND MAINTAIN WARNING DEVICES ON EACH GUY WIRE AND STAKE.
  2. TREES SHALL NOT BE PRUNED AT TIME OF PLANTING. TREE LEADERS SHALL NOT BE CUT OR DAMAGED.



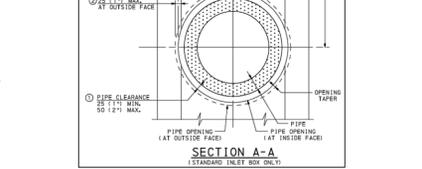
TYPE D-E ENDWALL  
NO SCALE



TYPE D-W ENDWALL  
(SEE TABLE 4 FOR DIMENSIONS NOT INDICATED.)



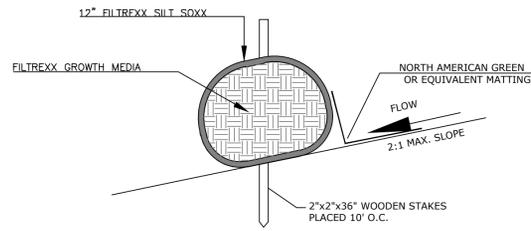
STANDARD BOX



CAST IRON MANHOLE COVER  
(PLATEN COVER)



DETAIL A  
GASKET SEALING SYSTEM

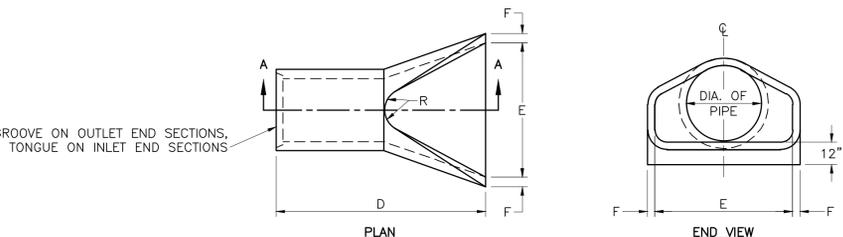


1. THE SILT SOXX SHALL BE FILLED WITH FILTREXX GROWTH MEDIA OR OTHER APPROVED SOIL CAPABLE OF ESTABLISHING SEED GROWTH.
2. REFER TO SILT SOXX AT WWW.FILTREXX.COM

- INFILTRATION BERMS CONSTRUCTION SEQUENCE**
1. LIGHTLY SCARIFY SOIL IMMEDIATELY UPSLOPE OF THE BERM. PERFORM INFILTRATION TEST. PROTECT FROM COMPACTION.
  2. PLACE BERM AT THE LOCATION SHOWN ON THE PLAN AVOIDING REMOVAL OF TREES. STAKE.
  3. PLACE AMENDED SOIL MIX 3" DEEP UPSLOPE OF THE BERM AND COVER WITH LINING MATERIAL.
  4. SEED WITH PERMANENT SEEDING.
  5. MULCH WITH COMPOST MULCH TO PREVENT EROSION.
- MAINTENANCE NOTES**
1. INSPECT AFTER EVERY RAINFALL EVENT. MONITOR DRAWDOWN TIME AFTER MAJOR STORM EVENTS.
  2. SEDIMENT SHALL BE REMOVED IF IT EXCEEDS ONE INCH. TRASH AND DEBRIS SHALL BE REMOVED PERIODICALLY AND DISPOSED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
  3. IF INFILTRATION BECOMES SIGNIFICANTLY REDUCED (GREATER THAN 72 HOURS) THE OWNER SHALL CONTACT A LICENSED PROFESSIONAL TO DETERMINE A COURSE OF ACTION TO CORRECT THE SITUATION.
  4. DO NOT USE HEAVY EQUIPMENT ON THE INFILTRATION AREA AT THE UPSIDE BASE OF THE BERM.
  5. MOW AND MAINTAIN THE LAWN AREAS. REMOVE INVASIVE SPECIES AS NEEDED. REMULCH AS NEEDED.
  6. INSPECT FOR FLOW CHANNELIZATION AND RESTORE LEVEL GRADIENT IMMEDIATELY AFTER DEFICIENCIES ARE OBSERVED.

BERM#	HEIGHT	SLOPE	LENGTH	AMENDED SOIL LENGTH ABOVE BERM
1	8"	EXISTING	88'	12'
2	8"	EXISTING	32'	12"
3	8"	EXISTING	117'	12"
4	8"	EXISTING	115'	12"

INFILTRATION BERM CROSS-SECTION  
N.T.S.



CONCRETE END SECTIONS  
NO SCALE

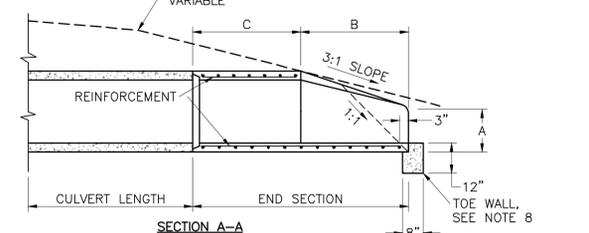
**DIMENSIONS FOR END SECTION FOR CONCRETE PIPE**

DIAM.	A	B	C	D	E	G	R
18"	9"	2'-3"	3'-10"	6'-1"	3'-0"	2"	7"
21"	9"	3'-0"	3'-1"	6'-1"	3'-6"	2"	8"
24"	9"	3'-7"	2'-6"	6'-1"	4'-0"	3"	8"
27"	10"	4'-0"	2'-10"	6'-1"	4'-6"	3"	9"
30"	12"	4'-6"	1'-7"	6'-1"	5'-0"	3"	8"
33"	13"	4'-10"	3'-10"	8'-0"	5'-6"	3"	9"
36"	15"	5'-3"	2'-9"	8'-0"	6'-0"	4"	10"
42"	21"	5'-3"	2'-9"	8'-0"	6'-6"	4"	11"
48"	24"	6'-0"	2'-0"	8'-0"	7'-0"	5"	12"

CONCRETE END SECTIONS NOTE

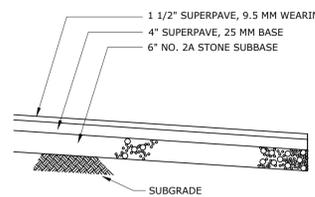
1. PROVIDE TOE WALL OF CLASS A CONCRETE.

- VEGETATED CHANNELS CONSTRUCTION SEQUENCE**
1. INSTALL AT THE LOCATIONS SHOWN ON THE PLAN.
  2. PLACE THE SPECIFIED LINING MATERIAL.
  3. SEED WITH PERMANENT SEEDING.
  4. MULCH WITH COMPOST MULCH TO PREVENT EROSION.
- MAINTENANCE NOTES**
1. INSPECT AFTER EVERY SIGNIFICANT RAINFALL EVENT.
  2. SEDIMENT SHALL BE REMOVED IF IT EXCEEDS 1/3 THE DEPTH OF THE CHANNEL. TRASH AND DEBRIS SHALL BE REMOVED PERIODICALLY AND DISPOSED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
  3. DO NOT USE HEAVY EQUIPMENT ON THE CHANNEL.
  4. MOW AND MAINTAIN THE LAWN AREAS. REMOVE INVASIVE SPECIES AS NEEDED. REMULCH AS NEEDED.
  5. INSPECT FOR FLOW CHANNELIZATION AND RESTORE GRADIENT IMMEDIATELY AFTER DEFICIENCIES ARE OBSERVED.

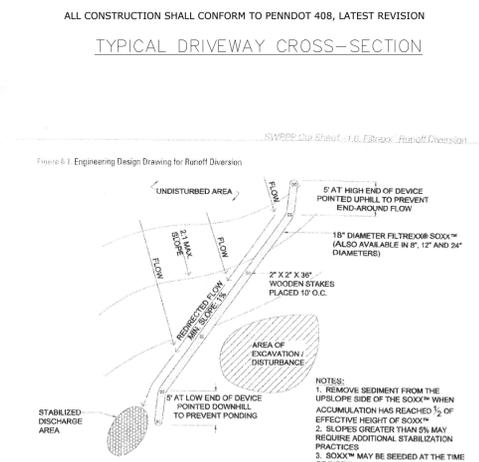


CONCRETE END SECTIONS SLOPE DETAIL  
NO SCALE

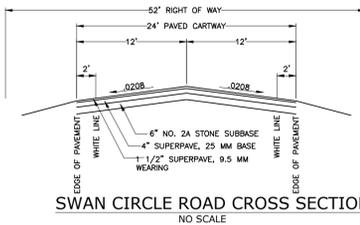
- SOIL AMENDMENT**
1. SUB SOIL SHALL BE IN A LOOSE, FRIABLE CONDITION TO A DEPTH OF 20" BELOW FINAL GRADE.
  2. SOIL AMENDMENT SPECIFICATION: COMPOST SHALL BE ADDED TO TOPSOIL AT A RATE OF 2:1 (SOIL:COMPOST). THE COMPOST SHALL HAVE A PH BETWEEN 5.0 AND 8.5, HAVE A MOISTURE CONTENT BETWEEN 30% AND 60% AND AN ORGANIC CONTENT BETWEEN 25% AND 65%. THE COMPOST SHALL HAVE 100% PASSING A 3" MESH, 90%+ PASSING A 1" MESH, 65% PASSING A 3/4" MESH, UP TO 75% PASSING THE 1/4" MESH.
  3. SPREAD 4" OF THE COMPOST/SOIL MIX. ROTOTILL THE COMPOST AND SOIL INTO THE SUBSOIL. ADD ADDITIONAL COMPOST/SOIL MIX TO BRING TO FINAL GRADE.
  4. PLANT SEED, PAKE, AND STABILIZE WITH MULCH.
  5. MULCH SHALL BE A NATURAL SHREDDED HARDWOOD, PINE MATERIAL SHALL NOT BE USED.



TYPICAL DRIVEWAY CROSS-SECTION



FILTREXX® RUNOFF DIVERSION



SWAN CIRCLE ROAD CROSS SECTION  
NO SCALE

**RAIN GARDENS/BIORETENTION BEDS**

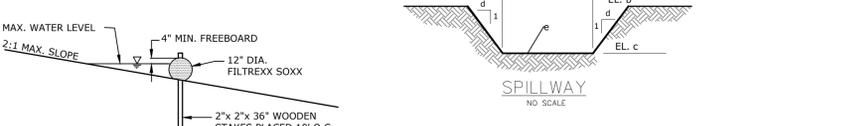
**CONSTRUCTION SEQUENCE**

1. THE RAIN GARDEN SUBSOIL SHALL NOT BE COMPACTED OR RECEIVE EXCESSIVE HEAVY EQUIPMENT TRAFFIC. THEY SHALL BE PROTECTED FROM SEDIMENT AT ALL TIMES DURING CONSTRUCTION. THE RAIN GARDEN AREA SHALL BE PROTECTED DURING THE INSTALLATION OF THE UNIT BY USING TAPE, FENCING OR OTHER SUITABLE METHOD.
2. THE EXCAVATION OF THE RAIN GARDENS SUB-GRADE CAN BE PERFORMED DURING SITE GRADING. THE RAIN GARDEN SHALL NOT BE GRADED TO WITHIN ONE FOOT OF THE FINAL BOTTOM SUB-GRADE ELEVATION UNTIL AFTER THE HOME CONSTRUCTION IS COMPLETED. THE ROOF DRAINS SHALL NOT BE DIRECTED TO THE RAIN GARDENS UNTIL AFTER THEY ARE CONSTRUCTED AND PLANTED (ITEM 10).
3. ANY SEDIMENT ENTERING THE RAIN GARDENS SHALL BE REMOVED WITH LIGHT EQUIPMENT. THE UNDERLYING SOIL SHALL BE SCARIFIED A MINIMUM OF SIX INCHES WITH A YORK RAKE OR ROTOTILLER.
4. THE RAIN GARDENS SHALL BE BROUGHT TO GRADE PER THE DETAILS. ANY AREAS THAT ARE DAMAGED BY EROSION, HAVE WATER PONDING OR ARE COMPACTED SHALL BE REGRADED. THE BOTTOM AREA SHALL BE GRADED LEVEL.
5. INSTALL THE EMERGENCY DEWATERING OUTLET PIPE AND SCREW CAP.
6. IF UNFORESEEN CONDITIONS SUCH AS BEDROCK OR SINKHOLES ARE UNCOVERED, THE ENGINEER SHALL BE CONSULTED.
7. THE 18" OF SOIL MODIFIED WITH COMPOST SHALL BE PLACED IN ACCORDANCE WITH THE DETAILS. THE SOIL SHALL BE LIGHTLY COMPACTED WITH THE BACKHOE BUCKET. THE SOIL SHALL HAVE A PH SHOULD BE BETWEEN 5.5 AND 6.5, A MAXIMUM CLAY CONTENT OF 10%, BE FREE OF TOXIC SUBSTANCES AND UNWANTED PLANT MATERIALS AND HAVE AN ORGANIC CONTENT OF APPROXIMATELY 10%.
8. THE RAIN GARDEN AREA SHALL BE PRESOAKED AND THEN THE 6" OF TOPSOIL MODIFIED WITH COMPOST SHALL BE PLACED IN ACCORDANCE WITH THE DETAILS. THE SOIL SHALL BE LIGHTLY COMPACTED WITH THE BACKHOE BUCKET. THE SOIL SHALL HAVE AN ORGANIC CONTENT OF 20-30% (COMPOST) AND 70-80% TOPSOIL.
9. THE PLANTS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS FROM MID-MARCH THROUGH MID-OCTOBER.
10. THE 2" LAYER OF SHREDDED HARDWOOD MULCH (AGED A MINIMUM OF 6 MONTHS) OR COMPOST MULCH SHALL BE INSTALLED.
11. THE ROOF DRAIN CAN BE DIRECTED TO THE RAIN GARDEN AT THIS TIME.
12. WHEN THE DRAINAGE AREA TO EACH RAIN GARDEN IS STABILIZED (70% GRASS COVER) THE SEDIMENT CONTROL DEVICES CAN BE REMOVED.
13. WATER EACH RAIN GARDEN AT THE END OF EVERY DAY FOR TWO WEEKS.

**MAINTENANCE NOTES**

1. DO NOT ADD FERTILIZERS TO THE RAIN GARDENS.
2. WEEDING AND PRUNING MAY BE REQUIRED WHILE THE VEGETATION IS BEING ESTABLISHED. WEEDS SHALL BE REMOVED BY HAND.
3. DEAD PLANT MATERIAL SHALL BE REMOVED EVERY YEAR.
4. PERENNIAL PLANTINGS SHALL BE CUT BACK AT THE END OF THE GROWING SEASON.
5. MULCH SHALL BE RE-SPREAD WHEN IT ERODES AND BE REPLISHED AS NECESSARY. THE AREA SHALL HAVE THE MULCH REPLACED EVERY 2 TO 3 YEARS, IF REQUIRED.
6. THE RAIN GARDENS MAY NEED TO BE WATERED DURING EXTENDED DROUGHT PERIODS.
7. THE RAIN GARDENS SHALL BE INSPECTED AT LEAST TWO TIMES PER YEAR FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, ETC.
8. SEDIMENT SHALL BE REMOVED IF IT EXCEEDS ONE INCH. TRASH AND DEBRIS SHALL BE REMOVED PERIODICALLY AND DISPOSED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
9. IF INFILTRATION BECOMES SIGNIFICANTLY REDUCED (GREATER THAN 72 HOURS) OR THE VOLUME OF THE RAIN GARDEN IS REDUCED, THE TOP FEW INCHES OF SOIL SHALL BE REMOVED AND REPLACED. THE AREA SHALL BE TILLED OR AMENDED AS NECESSARY AND REPLANTED PER THE ORIGINAL DETAILS.
10. DEWATERING OF THE RAIN GARDEN SHALL OCCUR VIA THE OUTLET PIPE SHOULD STORED WATER REMAIN AFTER THE MAXIMUM 72 HOUR DETENTION PERIOD.

**SPILLWAY**



FILTREXX RUNOFF DIVERSION SECTION  
SINGLE INSTALLATION SECTION  
NO SCALE

**CONSTRUCTION SEQUENCE**

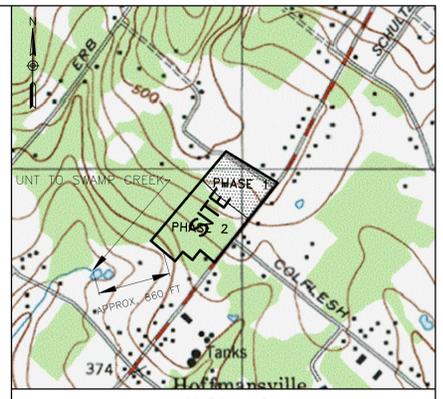
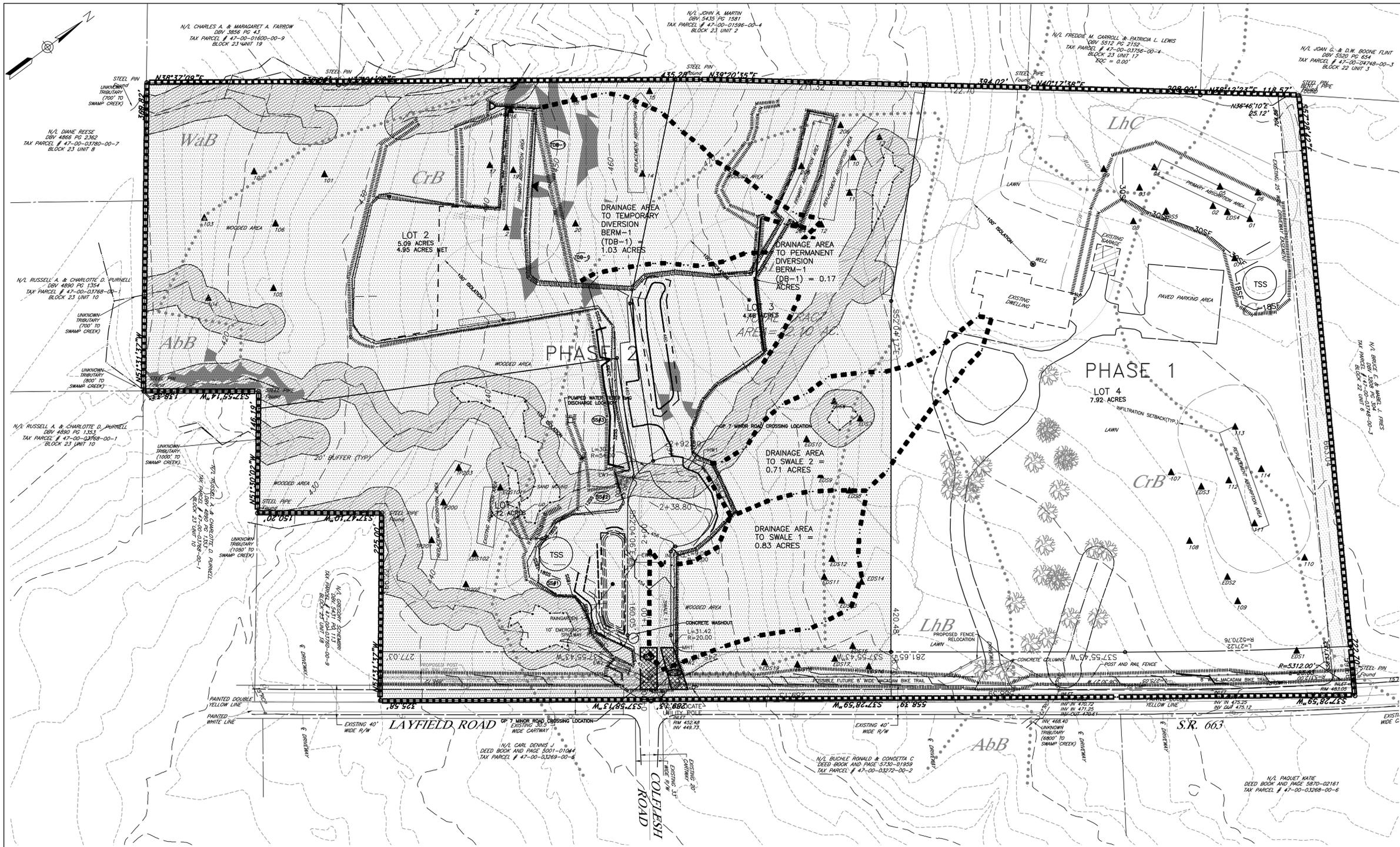
1. INSTALL AT THE LOCATIONS SHOWN ON THE PLAN AVOIDING REMOVAL OF TREES. STAKE.
  2. PLACE AMENDED SOIL MIX 3" DEEP UPSLOPE OF THE BERM AND COVER WITH LINING MATERIAL.
  3. SEED WITH PERMANENT SEEDING.
  4. MULCH WITH COMPOST MULCH TO PREVENT EROSION.
- MAINTENANCE NOTES**
1. INSPECT AFTER EVERY SIGNIFICANT RAINFALL EVENT.
  2. SEDIMENT SHALL BE REMOVED IF IT EXCEEDS ONE INCH. TRASH AND DEBRIS SHALL BE REMOVED PERIODICALLY AND DISPOSED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
  3. DO NOT USE HEAVY EQUIPMENT ON THE BERM.
  4. MOW AND MAINTAIN THE LAWN AREAS. REMOVE INVASIVE SPECIES AS NEEDED. REMULCH AS NEEDED.
  5. INSPECT FOR FLOW CHANNELIZATION AND RESTORE GRADIENT IMMEDIATELY AFTER DEFICIENCIES ARE OBSERVED.

**POST CONSTRUCTION STORM WATER MANAGEMENT PLAN SET INCLUDES DRAWINGS PC114146, DE114146, DA114146, DA214146, AND DA314146.**

CLIENT FDEV LLC 1150 FIRST AVE STE 920 KING OF PRUSSIA, PA 19406	SUBJECT LAND DEVELOPMENT & POST CONSTRUCTION STORMWATER MANAGEMENT DETAIL SHEET
<b>FDEV SUBDIVISION</b>	
NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA	
PROJECT NO. 14-146	DWG. NO. DE114146
DESIGN BBB	CHKD. BY BBB
DRAWN BY WJD	CHKD. BY WJD
DATE 4/22/15	SCALE 1"=60'
<b>1860 WEAVERTOWN ROAD, SUITE 100 DOUGLASSVILLE, PA 19518 PHONE: 610-689-8021 FAX: 610-689-4538</b>	

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-08-06	WJD	BBB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/5/16, GILMORE 12/8/16, MCMAHON 12/12/16, KMS DESIGN 12/8/16 REVIEW LETTERS.	1-12-17	JCE	BBB
2.	PER GILMOREASSOCIATES, INC 3/14/16, KMS DESIGN GROUP, LLC 3/18/16, MCMAHON ASSOCIATES, INC. 2/11/16 REVIEW LETTERS.	10-25-16	WJD	BBB
1.	PER GILMOREASSOCIATES, INC 6/9/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC. 6/9/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS.	10-21-15	WJD	BBB



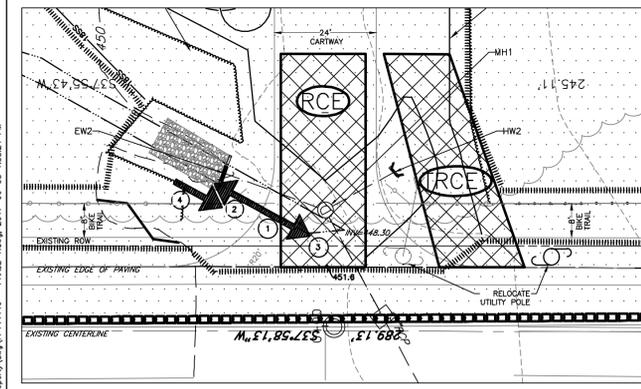


LOCATION MAP  
SCALE: 1"=1000'

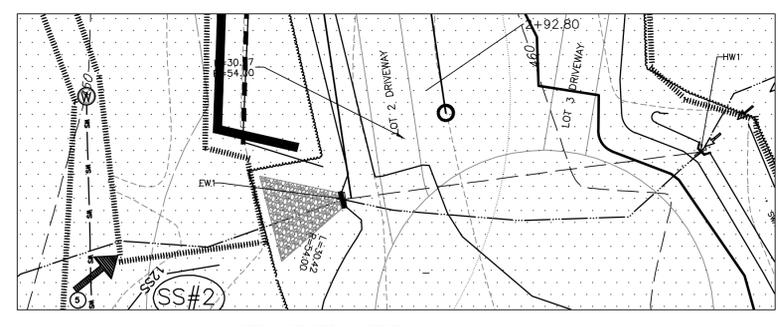
**LEGEND**

- EX. TRACT LINE
- EX. BOUNDARY
- EX. RIGHT-OF-WAY
- SETBACKS
- EX. SANITARY
- EX. GAS
- PR. LOT LINE
- PR. CLEANOUT
- EX. MONUMENTATION
- EX. UTILITY POLE & GUY WIRE
- EX. UNDERGROUND WIRE
- EX. POST & RAIL FENCE
- EX. SANITARY MANHOLE
- EX. SOILS
- EX. CONTOURS
- PR. CONTOURS
- PR. SANITARY LATERAL
- PR. WATER LATERAL
- INFILTRATION SETBACK
- PR. STORM PIPE
- PR. INFILTRATION BERM
- PR. STORM HEADWALL/ENDWALL
- PR. STORM INLET 2X4
- PR. RIPRAP
- TEST PIT
- APPROXIMATE LOCATION OF WATERS OF THE COMMONWEALTH
- WETLANDS LIMIT
- WETLANDS BUFFER
- STREAM BUFFER
- EXISTING AND PROPOSED WELLS
- 15-25% SLOPES
- >25% SLOPES
- EXISTING WOODLINE
- PROPOSED WOODLINE
- TREE PROTECTION FENCE
- PHOTO LOCATION

SCALE: 1"= 60'



DETAIL OF GP7.A  
SCALE: 1"=20'



DETAIL OF GP5 & GP7.B  
SCALE: 1"=20'

**EROSION CONTROL LEGEND**

- LIMIT OF DISTURBANCE
- NPDES LIMIT
- DRAINAGE AREA
- TEMP. GRADING
- 12" DIAM. SILT SOCK
- 18" DIAM. SILT SOCK
- 24" DIAM. SILT SOCK
- 32" DIAM. SILT SOCK
- PROTECTION FENCE
- TEMP. DIVERSION BERM
- ROCK CONSTRUCTION ENTRANCE
- CHANNEL LINING
- SILT SOCK LABEL
- TOPSOIL STOCKPILE
- 18" STANDARD SILT FENCE
- 30" REINFORCED SILT FENCE
- TEMP GRADING

**NOTES**

- AREAS PROPOSED FOR INFILTRATION SHALL BE PROTECTED FROM SEDIMENTATION AND COMPACTION DURING CONSTRUCTION THROUGH THE USE OF ORANGE CONSTRUCTION FENCING.
- INFILTRATION BMP'S SHALL NOT BE CONSTRUCTED NOR RECEIVE RUNOFF UNTIL THEIR TRIBUTARY AREAS ARE PERMANENTLY STABILIZED.

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-08-06	WJD	BOB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/5/16, GILMORE 12/6/16, MCMAHON 12/12/16, KMS DESIGN 12/9/16 REVIEW LETTERS	1-12-17	JCE	BOB
2.	PER GILMOREASSOCIATES, INC 3/14/16, KMS DESIGN GROUP, LLC 3/16/16, MCMAHON ASSOCIATES, INC. 2/11/16 REVIEW LETTERS	10-25-16	WJD	BOB
1.	PER GILMOREASSOCIATES, INC 6/9/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC. 6/9/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS	10-21-15	WJD	BOB

CLIENT  
FDEV LLC  
1150 FIRST AVE STE 920  
KING OF PRUSSIA, PA  
19406

SUBJECT  
EROSION CONTROL PLAN - PROPOSED ROAD/LOT 4

**FDEV SUBDIVISION**

NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

1860 WEAVERTOWN ROAD, SUITE 100  
DOUGLASSVILLE, PA 19518  
PHONE: 610-689-8021  
FAX: 610-689-4538

PROJECT NO.  
14-146

DWG. NO.  
ES114146

SHEET NO.  
7 OF 13

DESIGN: BOB  
CHKD. BY: BOB

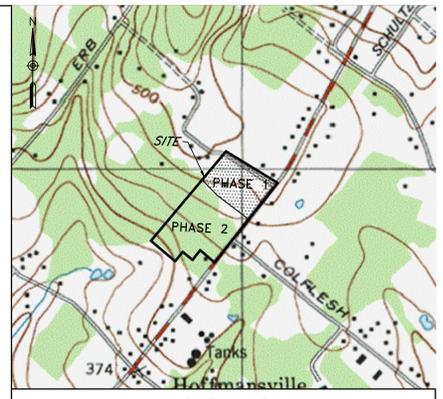
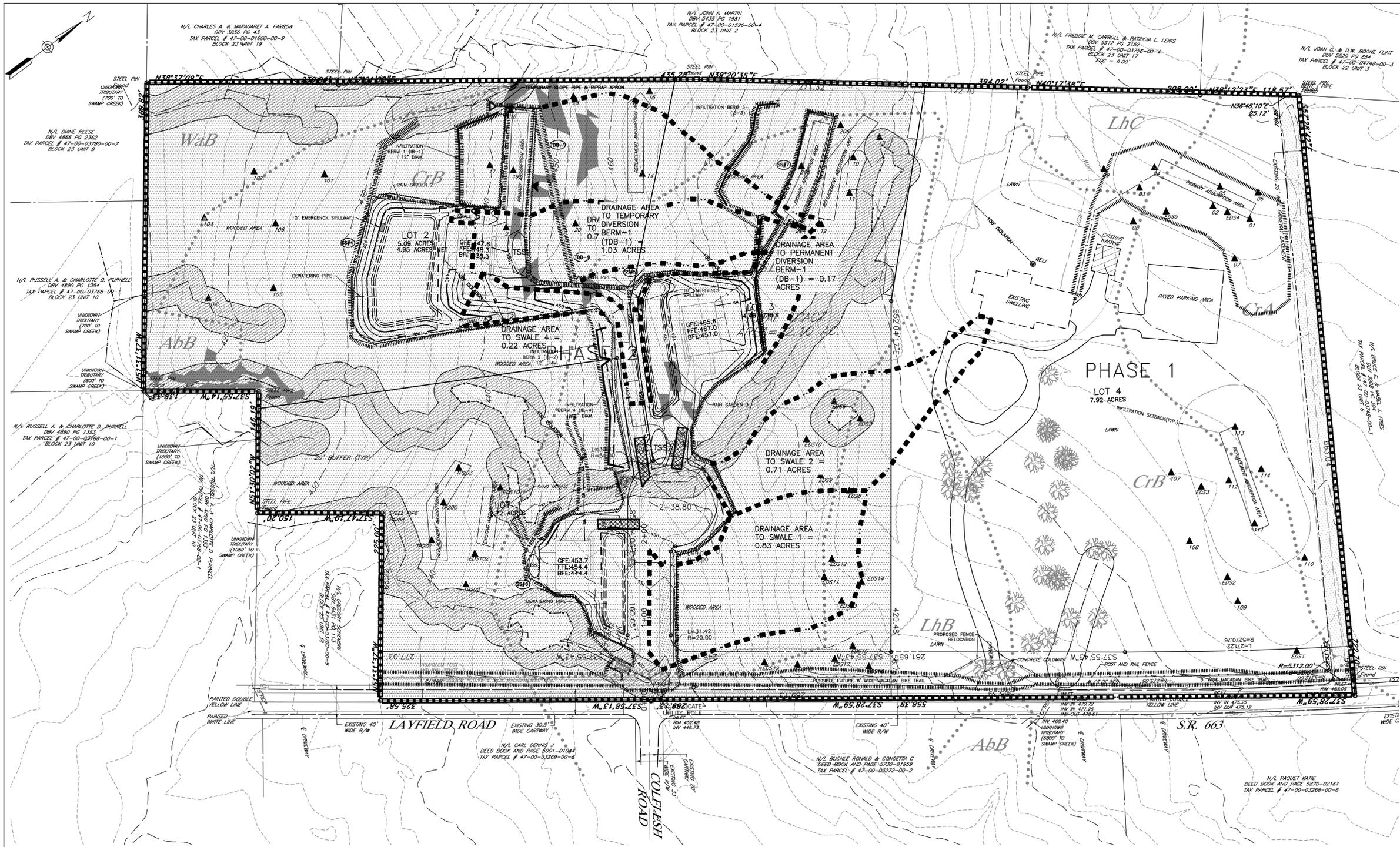
DRAWN BY: WJD  
CHKD. BY: BOB

DATE: 10/29/15  
SCALE: 1"=60'

SEAL

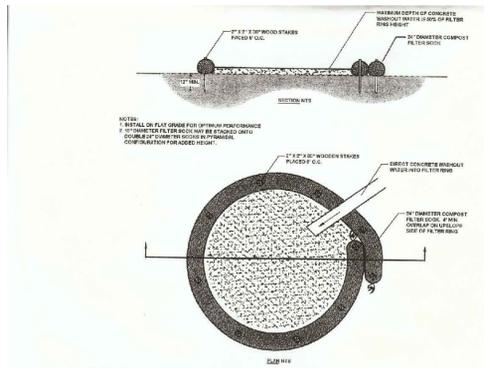
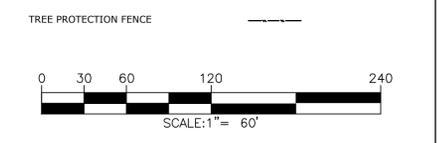
SEAL

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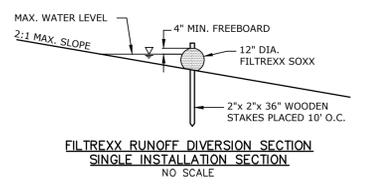
**LEGEND**

EX. TRACT LINE	---
EX. BOUNDARY	---
EX. RIGHT-OF-WAY	---
SETBACKS	---
EX. SANITARY	---
EX. GAS	---
PR. LOT LINE	---
PR. CLEANOUT	○
EX. MONUMENTATION	○
EX. UTILITY POLE & GUY WIRE	○
EX. UNDERGROUND WIRE	---
EX. POST & RAIL FENCE	---
EX. SANITARY MANHOLE	○
EX. SOILS	PIB
EX. CONTOURS	---
PR. CONTOURS	---
PR. SANITARY LATERAL	---
PR. WATER LATERAL	---
INFILTRATION SETBACK	---
PR. STORM PIPE	---
PR. INFILTRATION BERM	---
PR. STORM HEADWALL/ENDWALL	---
PR. STORM INLET 2X4	---
PR. RIPRAP	---
TEST PIT	▲
APPROXIMATE LOCATION OF WATERS OF THE COMMONWEALTH	---
WETLANDS LIMIT	---
WETLANDS BUFFER	---
STREAM BUFFER	---
EXISTING AND PROPOSED WELLS	○
15-25% SLOPES	---
>25% SLOPES	---
EXISTING WOODLINE	---
PROPOSED WOODLINE	---
TREE PROTECTION FENCE	---



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

383-2134-008 / March 31, 2012 / Page 58  
**CONCRETE WASHOUT**



FILTRIX RUNOFF DIVERSION SECTION  
SINGLE INSTALLATION SECTION  
NO SCALE

**EROSION CONTROL LEGEND**

LIMIT OF DISTURBANCE	---	18" STANDARD SILT FENCE	18SF	18SF
NPDES LIMIT	---	30" REINFORCED SILT FENCE	30SF	30SF
DRAINAGE AREA	---	TEMP GRADING	---	---
TEMP. GRADING	---	12" DIAM. SILT SOCK	12SS	---
12" DIAM. SILT SOCK	---	18" DIAM. SILT SOCK	18SS	---
18" DIAM. SILT SOCK	---	24" DIAM. SILT SOCK	24SS	---
24" DIAM. SILT SOCK	---	32" DIAM. SILT SOCK	32SS	---
32" DIAM. SILT SOCK	---	PROTECTION FENCE	---	---
PROTECTION FENCE	---	TEMP. DIVERSION BERM	---	---
TEMP. DIVERSION BERM	---	ROCK CONSTRUCTION ENTRANCE	RCE	---
ROCK CONSTRUCTION ENTRANCE	---	CHANNEL LINING	---	---
CHANNEL LINING	---	SILT SOCK LABEL	---	---
SILT SOCK LABEL	---	TOPSOIL STOCKPILE	TSS	---
TOPSOIL STOCKPILE	---			

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-08-08	WJD	BOB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/5/16, GILMORE 12/6/16, MCMAHON 12/12/16, KMS DESIGN 12/9/16 REVIEW LETTERS.	1-12-17	JCE	BOB
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CLIENT  
FDEV LLC  
1150 FIRST AVE STE 920  
KING OF PRUSSIA, PA  
19406

SUBJECT  
EROSION CONTROL PLAN - LOTS 1, 2, AND 3  
**FDEV SUBDIVISION**  
NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

1860 WEAVERTOWN ROAD, SUITE 100  
DOUGLASSVILLE, PA 19518  
PHONE: 610-689-8021  
FAX: 610-689-4538

PROJECT NO.  
14-146  
DWG. NO.  
ES214146  
SHEET NO.  
8 OF 13



IV. 102.4(B)(5)(II) - THE TYPES, DEPTH, SLOPE, LOCATIONS AND LIMITATIONS OF THE SOILS.

THE SOILS BOUNDARIES, TYPES, DEPTH ARE SHOWN ON THE EROSION CONTROL PLAN. THE SOILS MAPPING AND INFORMATION HAS BEEN OBTAINED FROM THE UNITED STATES GEOLOGICAL SURVEY. THE NATURAL RESOURCES CONSERVATION SERVICE SOIL SURVEY FOR MONTGOMERY COUNTY, PA. THREE SOIL TYPES (CRB, LSB, AND LHB) ARE LOCATED IN AREAS OF PROPOSED DEVELOPMENT. THE CROTON AND LEHIGH SOILS ARE CLASSIFIED AS BEING HYDRIC OR HAVING HYDRIC COMPONENTS, ACCORDING TO THE EROSION CONTROL MANUAL. A COPY OF THE SOIL REPORT IS INCLUDED IN APPENDIX B.

Soil Characteristics	CRB - Croton Silt Loam, 3 to 8% slopes	LHB - Lehigh Silt Loam, 3 to 8% Slopes	LUC - Lehigh Silt Loam, 8 to 15% slopes
Depth to Seasonal Water Table (in)	40 to 60	40 to 60	40 to 60
Depth to Bedrock (in)	40 to 60	40 to 60	40 to 60
pH	Variable	Variable	Variable
Soil Tests to determine Floor	Use Soil Tests to determine Floor	Use Soil Tests to determine Floor	Use Soil Tests to determine Floor
Suitability for Winter Grading	Fair	Fair	Fair
Susceptibility to Frost Action	High	High	High
Topsoil Suitability	Floor	Floor	Floor
Rock Frag Suitability	Fair	Fair	Fair
Highway Location	Fair	Fair	Fair
Shallow Excavations	Very Limited	Very Limited	Very Limited
Embarkment Suitability for Detention Basins	Very Limited	Very Limited	Very Limited
Landscape and Lawn Suitability	Very Limited	Somewhat Limited	Somewhat Limited
On-site Sewage Disposal Suitability	Very Limited	Very Limited	Very Limited
Home Site Suitability with Basement	Very Limited	Very Limited	Very Limited
Corrosion of Concrete	Moderate	Low	Low
Mechanical Site Preparation (Deep)	Well Suited	Well Suited	Well Suited
Hydrologic Soil Group	D	C/D	C/D

SOIL RESOLUTIONS

- PH - THE TOPSOIL SHALL BE TESTED PRIOR TO APPLYING THE SEED AND MULCH. LIME SHALL BE ADDED TO THE SOIL UNTIL IT REACHES A PH OF 7 TO 7.5.
- WINTER GRADING - THE SOILS SHALL BE STABILIZED WITH MULCH UNTIL IT IS APPROPRIATE TO APPLY THE SEED.
- FROST ACTION - SOILS CONTAINING FROST SHALL NOT BE UTILIZED AS STRUCTURAL BACKFILL.
- TOPSOIL - THE TOPSOIL SHALL HAVE LIME APPLIED AS NECESSARY TO HAVE A PH OF 7 TO 7.5. COMPOST SHALL BE MIXED WITH THE TOPSOIL PER THE AMENDED SOIL SPECIFICATION TO INCREASE ITS ORGANIC CONTENT AND WATER HOLDING CAPACITY. ANY TOPSOIL THAT NEEDS TO BE IMPORTED SHALL BE FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN.
- ROAD FILL - SUITABLE MATERIAL SHALL BE FOUND ONSITE OR IMPORTED FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN.
- HIGHWAY LOCATION - LIMITATIONS INCLUDE WEENESS AND LOW STRENGTH. IF BEDROCK IS ENCOUNTERED IT SHALL BE REMOVED TO AN APPROPRIATE DEPTH AND THE STONE BASE FOR THE ROAD SHALL BE INSTALLED. ROADS SHALL NOT BE CONSTRUCTED WHEN THE TEMPERATURE IS BELOW FREEZING UNLESS THE FROZEN SOILS ARE REMOVED.
- PIPELINE CONSTRUCTION - LIMITATIONS MAY INCLUDE HIGH WATER TABLE. UTILITY TRENCHES SHALL BE PUMPED TO KEEP THE WORKING AREA DRY. ALL PUMPED WATER SHALL BE RETURNED TO A NEARBY ALTERING DEVICE.
- DETENTION BASIN EMBANKMENTS - THE LIMITATION IS THE LOW STRENGTH. ANY SOIL THAT IS IMPORTED SHALL COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN.
- TERRACES AND WATERWAYS - APPROPRIATE STABILIZATION MATERIALS SHALL BE USED AS SPECIFIED IN THE PLANS.
- LANDSCAPING AND LAWN - LIMITATIONS INCLUDE POOR AND LIMITED AMOUNTS OF TOPSOIL AND WEY SOILS. SOIL AMENDMENT WITH COMPOST AND SAND SHALL BE USED TO PROVIDE ADEQUATE PLANTING SOIL. ANY SOIL THAT IS IMPORTED SHALL COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN. SLOPED AREAS SHALL BE MULCHED AND OTHER TRENCH IMPROVEMENTS SHALL BE NECESSARY TO PREVENT EROSION.

- V. 102.4(B)(5)(III) - THE CHARACTERISTICS OF THE EARTH DISTURBANCE ACTIVITY, INCLUDING THE PAST, PRESENT AND PROPOSED LAND USES AND THE PROPOSED ALTERATION TO THE PROJECT SITE.
- THE PRESENT LAND USE IS SINGLE FAMILY RESIDENTIAL. THE PAST LAND USE IS SINGLE FAMILY RESIDENTIAL. THE PROPOSED LAND USE IS SINGLE FAMILY RESIDENTIAL. THE LAND WILL BE REGRADED TO CONSTRUCT THE IMPROVEMENTS.
- VI. 102.4(B)(5)(IV) - THE AMOUNT OF RUNOFF FROM THE PROJECT AREA AND ITS UPSTREAM AREA.
- THE MAXIMUM DURING CONSTRUCTION DRAINAGE AREAS TOTAL 4.55 ACRES. THE ENTIRE DRAINAGE AREA IS CONTROLLED BY SILT/SOAK DURING CONSTRUCTION. IN POST-CONSTRUCTION RAIN GARDENS AND INFILTRATION BERMS CONTROL THE RUNOFF, WHILE THE REMAINDER IS CONSIDERED BYPASS. OFFSITE RUNOFF SHALL BE CONTROLLED IN DEVELOPED AREAS. PEAK FLOWS ARE REDUCED FROM POSTDEVELOPED CONDITIONS TO PREDEVELOPED CONDITIONS FOR ALL STORMS. ACCORDING TO THE TOWNSHIP'S ORDINANCE REQUIREMENTS.
- VII. 102.4(B)(5)(V) - THE LOCATION OF WATERS OF THE COMMONWEALTH WHICH MAY RECEIVE RUNOFF WITHIN OR FROM THE PROJECT SITE AND THEIR CLASSIFICATION PURSUANT TO CHAPTER 93 OF THIS TITLE.
- THE SITE IS TRIBUTARY TO THE SWAMP CREEK, PA CODE CHAPTER 93 CLASSIFICATION OF T5F.
- VIII.102.4(B)(5)(VI) - A WRITTEN DEPICTION OF THE LOCATION AND TYPE OF PERMETER AND ON SITE BMP'S USED BEFORE, DURING, AND AFTER THE EARTH DISTURBANCE ACTIVITY.

THE LOCATION OF THE PROPOSED PERMANENT AND TEMPORARY BMP'S AND THEIR CONSTRUCTION DETAILS ARE SHOWN ON THE EROSION CONTROL PLANS AND DETAIL SHEET. THE WORKSHEETS AND CALCULATIONS ARE PROVIDED IN APPENDIX C.

- GENERAL NOTES**
- ONLY LIMITED DISTURBANCE WILL BE PERMITTED TO PROVIDE ACCESS TO (CONSTRUCT SEDIMENT TRAPS, DIVERSION TERRACES, ETC.) FOR GRADING AND ACQUIRING BORROW TO CONSTRUCT THOSE CONTROLS.
  - EROSION AND SEDIMENTATION CONTROLS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE WITHIN THE TRIBUTARY AREAS OF THOSE CONTROLS.
  - AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE CONTROLS MUST BE STABILIZED IMMEDIATELY.
  - VEHICLES AND EQUIPMENT MUST USE THE DESIGNATED DRIVEWAY ENTRANCES OFF PARK AVENUE AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE OF THE BULK EARTH DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS MAY BEGIN.
  - AT THE END OF EACH WORKING DAY, ANY SEDIMENT TRACKED OR CONVEYED ONTO A PUBLIC ROADWAY OR SIDEWALK WILL BE REMOVED AND RE-DEPOSITED ONTO THE CONSTRUCTION SITE. REMOVAL CAN BE COMPLETED THROUGH USE OF MECHANICAL OR HAND TOOLS, BUT MUST NEVER BE WASHED, SHOVELLED, OR SWEEP INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
  - SEDIMENT REMOVED FROM E86C CONTROLS & FACILITIES SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF WETLANDS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED OR PLACED ON TOPSOIL STOCKPILES.
  - ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A DIRT BAG FILTRATION DEVICE OR EQUIVALENT SEDIMENT REMOVAL FACILITY. OVER NON-DISTURBED VEGETATED AREAS. DISCHARGE POINTS SHOULD BE ESTABLISHED TO PROVIDE FOR MAXIMUM DISTANCE TO ACTIVE WATERWAYS.
  - AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBSTRUCTIONABLE MATERIAL.
  - ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
  - FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOO, OR OTHER FOREIGN OR OBSTRUCTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILL.
  - SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
  - ALL EXCAVATION FOR UTILITY LINE INSTALLATION SHALL BE LIMITED TO THE AMOUNT THAT CAN BE EXCAVATED, INSTALLED, BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY. ALL EXCAVATED MATERIAL SHALL BE DEPOSITED ON THE UPSLOPE SIDE OF THE TRENCH.
  - 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 MONTGOMERY COUNTY PERMITTING AND MAINTENANCE DIVISION AND/OR REGIONAL DEP. STOCKPILES OF WOOD CHIPS, HAY BALES, CRUSHED STONE AND OTHER MULCHES SHALL BE HELD IN READINESS TO DEAL IMMEDIATELY WITH EMERGENCY PROBLEMS THAT MAY OCCUR.
  - THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX #4, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.
  - A COPY OF THIS EROSION CONTROL REPORT AND PLANS MUST BE POSTED AT THE CONSTRUCTION SITE.
  - FAILURE TO CORRECTLY INSTALL E86S BMPs, FAILURE TO PREVENT SEDIMENT LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E86S BMPs MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES 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.

**TEMPORARY CONTROL MEASURES AND FACILITIES FOR USE DURING EARTHMOVING**

- SILT SOXK AND/OR SILT FENCE SHALL BE INSTALLED AT LOCATIONS NOTED ON THE PLAN PRIOR TO ANY DISTURBANCE OF THE EXISTING GROUND COVER. DURING THE CONSTRUCTION PHASE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING OR REPLACING SILT SOCKS AND SILT FENCE AFTER EACH RAINFALL EVENT TO INSURE CONTINUED OPERATION.
- SEDIMENT DETENTION BASINS/TRAPS SHALL BE CONSTRUCTED AND MUST BE STABILIZED PRIOR TO ANY EARTHMOVING. SWALES SHOULD BE CONSTRUCTED AND STABILIZED AT THIS TIME, UNLESS OTHERWISE NOTED.
- STONE BASE COURSES FOR ROADS AND DRIVEWAYS SHALL BE PLACED AS SOON AS PRACTICAL.
- STACKS OF MULCHES, SUCH AS WOOD CHIPS, CRUSHED STONE, STRAW AND JUTE MESH SHALL BE KEPT ONSITE AND BE AVAILABLE TO DEAL WITH EROSION CONDITIONS AS THEY ARISE.
- ALL CUT AND FILL SLOPE AREAS WHOSE SURFACES ARE SUBJECT TO EROSIONIVE ACTION SHALL BE PROTECTED WITH ONE OF THE MULCHES IN ITEM 4 ABOVE.
- IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES HAVE CEASED IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS, DURING THE NON-GERMINATING PERIODS, MULCH OR PROTECTIVE BLANKETING MUST BE APPLIED AT THE RECOMMENDED RATE. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN ONE YEAR MAY BE SEEDED AND MULCHED WITH A QUICK GERMINATING SEEDING MIXTURE AND MULCH. DISTURBED AREAS WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE RE-DISTURBED WITHIN ONE YEAR MUST BE SEEDED AND MULCHED WITH A PERMANENT SEED MIXTURE AND MULCH. ALL ON-SITE STABILIZED, DISTURBED AREAS ARE TO BE PREPARED AND SEEDD FOLLOWING THE FINAL GRADING.
- ALL TEMPORARY CONTROLS ARE TO REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE UNTIL THE SOIL HAS BEEN STABILIZED, UNLESS OTHERWISE NOTED.

**STABILIZATION NOTES**

- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION SHOWN ON THE PLAN. 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 BY A COMPOST FILTER SOCK. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
- AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES, 6 TO 12 INCHES ON COMPACTED SOILS. PRIOR TO PLACEMENT OF TOPSOIL, AREAS TO BE TOPSOILED SHALL BE DEVEGETATED USING A 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTCROPPINGS SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
- UPON TEMPORARY CESSATION OR COMPLETION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY WHERE A CESSATION OF EARTH DISTURBANCE ACTIVITIES EXCEEDS 4 DAYS, THE OPERATOR SHALL IMMEDIATELY SEED AND MULCH THE ENTIRE SITE FROM ACCELERATED EROSION AND SEDIMENTATION. SEEDING MIXTURE AND MULCH SHALL BE INSTALLED IMMEDIATELY. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH WILL BE RE-DISTURBED WITHIN 1 YEAR MAY BE SEEDD AND MULCHED WITH A QUICK GERMINATING SEEDING MIXTURE AND MULCH. DISTURBED AREAS WHICH ARE NOT TO BE RE-DISTURBED WITHIN 1 YEAR MAY BE STABILIZED IN ACCORDANCE WITH TEMPORARY SEEDING SPECIFICATIONS. DISTURBED AREAS, WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE RE-DISTURBED WITHIN 1 YEAR, MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS.

- DIVERSION CHANNELS, SEDIMENTATION BASINS, SEDIMENT TRAPS, AND STOCKPILES MUST BE STABILIZED IMMEDIATELY.
- HAY OR STRAW MULCH MUST BE APPLIED AT A RATE OF AT LEAST 3.0 TONS PER ACRE.
- 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 OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE PLAN.
- UNTIL THE SITE HAS ACHIEVED FINAL STABLE, APPLICABLE AN APPROVED EROSION CONTROL PLAN, ANY REQUIRED FILL IMPORTED TO THE SITE SHALL MEET THE CLEAN FILL REQUIREMENTS AND THE SITE SHALL HAVE AN APPROVED EROSION CONTROL PLAN.
- THE OPERATOR SHALL MAINTAIN ALL THE BEST MANAGEMENT PRACTICES. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROL AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK INCLUDING FINAL STABILIZATION, REPAIR, REPLACEMENT, RESEEDING, REMULCHING, AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF THE E86S BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM OF 70% UNIFORM PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING OR OTHER MOVEMENTS.
- MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED ON ALL SLOPES GREATER THAN 3:1.

**PERMANENT CONTROL MEASURES AND FACILITIES FOR LONG TERM PROTECTION**

THE FOLLOWING ACTIVITIES SHALL BE UNDERTAKEN TO ACHIEVE PERMANENT STABILIZATION OF ALL EXPOSED AND DISTURBED SOIL AREAS AS REQUIRED OR DIRECTED.

**PERMANENT VEGETATIVE SURFACE STABILIZATION**

- UNTIL THE SOIL HAS ACHIEVED FINAL STABLE, APPLICABLE AN APPROVED EROSION CONTROL PLAN, ANY REQUIRED FILL IMPORTED TO THE SITE SHALL MEET THE CLEAN FILL REQUIREMENTS AND THE SITE SHALL HAVE AN APPROVED EROSION CONTROL PLAN.
- ON THE DAY FOLLOWING TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO EXISTING CONTOURS. SEEDING AND MULCHING OF ALL DISTURBED AREAS SHALL BE COMPLETED AT THE END OF EACH WEEK.
- IF DAILY BACKFILLING IS DELAYED, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS, APPROPRIATE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES/FACILITIES WILL BE INSTALLED AND THE AREA SEEDDED AND MULCHED WITHIN THE NEXT TWO CALENDAR DAYS.

**SEEDING - ALL DISTURBED AREAS SHALL BE PREPARED AND SEEDDED WITH THE SPECIES THE NOTED SEEDING RATE FOLLOWING THE FINAL GRADING.**

TEMPORARY SEEDING SPECIES:	ANNUAL RYEGRASS
% PURE LIVE SEED:	89%
APPLICATION RATE:	40 LBS. PER ACRE
FERTILIZER TYPE:	0-20-20
FERTILIZER APPLICATION RATE:	150 LBS. PER ACRE
LIMING RATE:	AGRICULTURAL GRADE LIMESTONE A AT 1 TON PER ACRE
MULCH TYPE:	HAY OR STRAW
MULCHING RATE:	3 TONS PER ACRE
ANCHOR MATERIAL:	NONE
ANCHORING METHOD:	CLEAT WITH DEEP CLEATS
SEEDING SEASON DATES:	MARCH THROUGH JUNE, SEPTEMBER, OCTOBER

PERMANENT SEEDING SPECIES:	TALL FESCUE (39%), FINE FESCUE (38%), ALSIKE CLOVE (20%), REDTOP (3%)
% PURE LIVE SEED:	89%
APPLICATION RATE:	20, 10, 20 AND 12 LBS. PER ACRE, RESPECTIVELY
FERTILIZER TYPE:	AS PER SOIL TESTING RESULTS
FERTILIZER APPLICATION RATE:	AS PER SOIL TESTING RESULTS
LIMING RATE:	AGRICULTURAL GRADE LIMESTONE A AT 4 TON PER ACRE
MULCH TYPE:	HAY OR STRAW
MULCHING RATE:	3 TONS PER ACRE
ANCHOR MATERIAL:	EAST COAST BLANKETS EC5C-2 OR EQUAL
ANCHORING METHOD:	NONE
ANCHORING METHOD:	CLEAT WITH DEEP CLEATS
SEEDING SEASON DATES:	MARCH THROUGH JUNE, SEPTEMBER, OCTOBER

PERMANENT STEEP SLOPE SEEDING SPECIES:	TALL FESCUE, ALSIKE
% PURE LIVE SEED:	89%
APPLICATION RATE:	20 AND 10 LBS. PER ACRE, RESPECTIVELY
FERTILIZER TYPE:	AS PER SOIL TESTING RESULTS
FERTILIZER APPLICATION RATE:	AS PER SOIL TESTING RESULTS
LIMING RATE:	AGRICULTURAL GRADE LIMESTONE A AT 4 TON PER ACRE
MULCH TYPE:	HAY OR STRAW
MULCHING RATE:	3 TONS PER ACRE
ANCHOR MATERIAL:	EAST COAST BLANKETS EC5C-2 OR EQUAL
ANCHORING METHOD:	NONE
ANCHORING METHOD:	CLEAT WITH DEEP CLEATS
SEEDING SEASON DATES:	MARCH THROUGH JUNE, SEPTEMBER, OCTOBER

A NURSE CROP OF OATS SHALL BE USED WITH THE PERMANENT SEEDING AT A RATE OF 45 LBS PER ACRE.

**CHANNEL NOTES**

- ALL CHANNELS MUST BE KEPT FREE OF OBSTRUCTIONS SUCH AS FILL GROUND, FALLEN LEAVES & WOODY DEBRIS, ACCUMULATED SEDIMENT, AND CONSTRUCTION MATERIALS/WASTES. CHANNELS SHOULD BE KEPT MOUND AND/OR FREE OF ALL WEEDY, BRUSHY OR WOODY OBSTRUCTIONS.
- ALL CHANNELS MUST BE MAINTAINED TO A DESIGNATED CHANNEL CROSS-SECTION. ANY OBSTRUCTIONS SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL(S) REPAIRED AND STABILIZED PER THE CHANNEL CROSS-SECTION DETAIL.
- VEGETATED CHANNELS SHALL BE CONSTRUCTED FREE OF ROCKS, TREE ROOTS, STUMPS OR OTHER PROJECTIONS THAT WILL IMPIDE NORMAL CHANNEL FLOW AND/OR PREVENT GOOD LINING TO SOIL CONTACT. THE CHANNEL SHALL BE INITIALLY OVER-EXCAVATED TO ALLOW FOR THE GROWTH OF TOPSOIL.

**UTILITY LINE TRENCH EXCAVATION**

- LIMIT ADVANCE CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF PIPE INSTALLATION THAT CAN BE COMPLETED IN ONE DAY.
- WORK CREWS AND EQUIPMENT FOR TRENCHING, PLACEMENT OF PIPE, PLUG CONSTRUCTION AND BACKFILLING WILL BE SELF-CONTAINED AND SEPARATE FROM CLEARING AND GRUBBING OPERATIONS.
- LIMIT THE DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.
- WATER WHICH ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING BEFORE PIPE PLACEMENT AND/OR BACKFILLING BEGINS. THE SEEPAGE MUST BE PUMPED TO A FACILITY FOR REMOVAL OF SEDIMENT. THIS FACILITY MUST BE LOCATED OUTSIDE OF THE CHANNEL. IF EXCAVATION TRENCHES ARE UNDERNEATH OR ADJOINING SMALL STREAMS.
- ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS. SEEDING AND MULCHING OF ALL DISTURBED AREAS SHALL BE COMPLETED AT THE END OF EACH WEEK.
- IN CERTAIN CASES TRENCHES CANNOT BE BACKFILLED UNTIL THE PIPE IS HYDROSTATICALLY TESTED, OR ANCHORS AND OTHER PERMANENT FEATURES ARE INSTALLED. IN THESE CASES, ALL OF THE REQUIREMENTS UNDER ITEMS 1 THROUGH 5 WILL REMAIN IN EFFECT WITH THE FOLLOWING EXCEPTIONS:
  - DAILY BACKFILLING OF THE TRENCH MAY BE DELAYED FOR SIX DAYS. ALL PRESSURE TESTING AND THE COMPLETE BACKFILLING OF THE OPEN TRENCH MUST BE COMPLETED BY THE SEVENTH WORKING DAY.
  - IF DAILY BACKFILLING IS DELAYED, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS, APPROPRIATE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES/FACILITIES WILL BE INSTALLED AND THE AREA SEEDDED AND MULCHED WITHIN THE NEXT TWO CALENDAR DAYS.

**RAIN GARDEN INSTALLATION PROCEDURES**

- THE RAIN GARDEN SHALL BE EXCAVATED TO THE PRESCRIBED DEPTH SHOWN ON THE PLAN DETAILS. THE BOTTOM OF THE EXCAVATION SHALL BE LEVEL AND FREE OF OBSTRUCTIONS. THE BOTTOM OF THE EXCAVATION SHALL NOT BE COMPACTED AND SHALL BE FREE FROM ROCKS AND DEBRIS. A LICENSED PROFESSIONAL SHOULD PROVIDE OVERSIGHT DURING THE EXCAVATION OF THE RAINGARDENS.
- ANY MATERIAL ENTERING THE RAINGARDENS SHALL BE REMOVED WITH LIGHT EQUIPMENT. THE UNDERLYING SOIL SHALL BE SCARIFIED A MINIMUM OF TWELVE (12) INCHES WITH A YORK RAKE, SUBSOILER OR OTHER SUITABLE EQUIPMENT. A LICENSED PROFESSIONAL SHOULD PROVIDE OVERSIGHT DURING THE SCARIFYING OF THE SUBGRADE.
- THE BOTTOM OF THE RAIN GARDEN SHALL HAVE THE AMENDED SOIL INSTALLED IMMEDIATELY UPON COMPLETION.
- STABILIZE THE DISTURBED AREAS WITH PERMANENT SEEDING AND PLANTINGS, AND MULCH IMMEDIATELY UPON COMPLETION.

**IX. 102.4(B)(5)(VII) - A SEQUENCE OF BMP INSTALLATION AND REMOVAL IN RELATION TO THE SCHEDULING OF EARTH DISTURBANCE ACTIVITY.**

APPROXIMATE START DATE FOR CONSTRUCTION - MARCH 2018  
APPROXIMATE END DATE FOR CONSTRUCTION - DECEMBER 2019

**CONSTRUCTION SEQUENCE NOTES**

- ALL EARTH DISTURBANCE, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS, BE DONE IN ACCORDANCE WITH THE APPROVED E86S 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 MONTGOMERY COUNTY CONSERVATION DISTRICT MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW.
- EACH STAGE SHALL BE COMPLETED IN COMPLIANCE WITH CHAPTER 102 REGULATIONS BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.
- 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 E86 PLAN PREPARES, THE LICENSED PROFESSIONAL PROTECTOR, AND WHICH IS FULLY IMPLEMENTED AND MAINTAINED THROUGHOUT THE PROJECT.
- THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1 ET SEQ., 271.1 E, SEQ. AND 287.1 ET SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- BEFORE DISPOSING OF SOIL OR RECEIVING BORROW FOR THE SITE, THE OPERATOR MUST ASSURE THAT EACH SPILL OR BLOWDOWN AREA HAS AN EROSION AND SEDIMENT CONTROL PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND WHICH IS FULLY IMPLEMENTED AND MAINTAINED ACCORDING TO CHAPTER 102 REGULATIONS PRIOR TO BEING ACTIVATED. THE OPERATOR SHALL ALSO NOTIFY THE MONTGOMERY COUNTY CONSERVATION DISTRICT IN WRITING OF ANY SPILL OR BLOWDOWN WHICH OCCURS AT THE PROJECT SITE.
- THE OPERATOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT TO THE SITE TO CLEAN FILL, FORM PP-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.

THE GENERAL SEQUENCE OF CONSTRUCTION IS AS FOLLOWS. IF ANY MODIFICATIONS ARE NECESSARY OR DESIRED BY THE CONTRACTOR, THEY MUST BE APPROVED BY THE MONTGOMERY COUNTY CONSERVATION DISTRICT PRIOR TO IMPLEMENTING THE CHANGES.

**A. SITE IMPROVEMENTS-LOT 4**

- LIMIT OF DISTURBANCE (LOD) SHALL BE MARKED WITH SURVEY STAKES, POSTS AND ROPE. CONSTRUCTION FENCE OR SOME OTHER ACCEPTABLE MATERIAL PRIOR TO DISTURBANCE ACTIVITIES.
- CONSTRUCTION ENTRANCE SHALL BE ESTABLISHED WHERE SHOWN ON THE PLAN, INCLUDING THE TIRE WASH AREA. THIS SHALL BE THE ONLY ENTRANCE AND EXIT FROM THE SITE FOR THE CONSTRUCTION VEHICLES.
- THE SILT FENCE #1 AND #2 SHALL BE INSTALLED WHERE SHOWN ON THE PLAN. SILT FENCE MUST BE PROPERLY FUNCTIONING BEFORE THE CONSTRUCTION OF TRIBUTARY IMPROVEMENTS.

UPON THE INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMP'S AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE MONTGOMERY COUNTY CONSERVATION DISTRICT.

**NOTIFICATION TO THE MONTGOMERY COUNTY CONSERVATION DISTRICT.**

- THE CONTRACTOR SHALL ENSURE THAT THE RUNOFF FROM ALL POSSIBLE EARTH DISTURBANCE ACTIVITIES SHALL CONSTANTLY BE DIRECTED INTO EROSION CONTROLS WHERE APPLICABLE.
- STRIP THE TOPSOIL FROM CONSTRUCTION AREA AND PLACE WHERE SHOWN ON THE PLAN. ANY EXCESS TOPSOIL MAY BE HAULED OFFSITE TO A FACILITY WITH AN APPROVED EROSION CONTROL PLAN. ANY REQUIRED FILL IMPORTED TO THE SITE SHALL MEET THE CLEAN FILL REQUIREMENTS AND THE SITE SHALL HAVE AN APPROVED EROSION CONTROL PLAN.
- CONSTRUCT THE NEW SEWAGE ABSORPTION AREA, CONNECT TO EXISTING HOUSE.
- STABILIZE DISTURBED AREAS WITH TEMPORARY SEEDING AND MULCH IN LAWN AREAS. NO MORE THAN 15,000 SQUARE FEET OF DISTURBED AREA SHALL REACH FINAL GRADE BEFORE INITIATING STABILIZATION OPERATIONS.
- REMOVE THE EXISTING SEWER LATERAL RUN TO THE EXISTING SEWAGE ABSORPTION AREA. FOLLOW **UTILITY LINE TRENCH EXCAVATION/REMOVAL PROCEDURES:**
  - LIMIT ADVANCE CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF PIPE REMOVAL THAT CAN BE COMPLETED IN ONE DAY. ALL EFFORTS TO PRESERVE EXISTING TREES SHALL BE MADE.
  - WORK CREWS AND EQUIPMENT FOR TRENCHING, REMOVAL OF PIPE, AND BACKFILLING WILL BE SELF-CONTAINED AND SEPARATE FROM CLEARING AND GRUBBING AND SITE RESTORATION AND STABILIZATION OPERATIONS.
  - LIMIT THE DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE REMOVAL AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.
  - WATER WHICH ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING BEFORE BACKFILLING BEGINS. THE SEEPAGE MUST BE PUMPED TO A FACILITY FOR REMOVAL OF SEDIMENT. THIS FACILITY MUST BE LOCATED OUTSIDE OF THE CHANNEL. IF EXCAVATION TRENCHES ARE UNDERNEATH OR ADJOINING SMALL STREAMS.
  - ON THE DAY FOLLOWING TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO EXISTING CONTOURS. SEEDING AND MULCHING OF ALL DISTURBED AREAS SHALL BE COMPLETED AT THE END OF EACH WEEK.
  - IF DAILY BACKFILLING IS DELAYED, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS, APPROPRIATE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES/FACILITIES WILL BE INSTALLED AND THE AREA SEEDDED AND MULCHED WITHIN THE NEXT TWO CALENDAR DAYS.

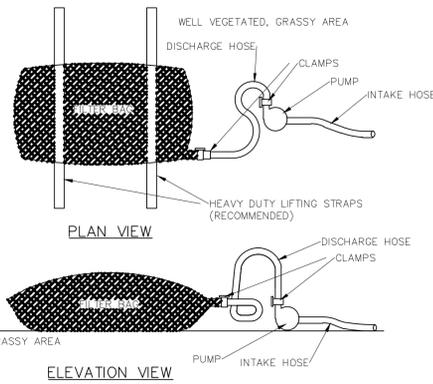
WHEN ALL OF THE DISTURBANCES ON LOT 4 ARE COMPLETELY STABILIZED (A MINIMUM OF 70% UNIFORM PERENNIAL VEGETATIVE COVER), ALL TEMPORARY BMP'S SHOULD BE REMOVED FROM THE SITE (INCLUDING ALL SILT FENCE) AND ANY DISTURBANCE CREATED WHEN REMOVING THEM SHALL IMMEDIATELY BE PERMANENTLY SEEDDED AND MULCHED. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING GERMINATING SEASON.

**B. SITE IMPROVEMENTS-PROPOSED ROAD**

- LIMIT OF DISTURBANCE (LOD) SHALL BE MARKED WITH SURVEY STAKES, POSTS AND ROPE. CONSTRUCTION FENCE OR SOME OTHER ACCEPTABLE MATERIAL PRIOR TO DISTURBANCE ACTIVITIES. CONSTRUCTION FENCE SHALL BE USED IN WOODED AREAS TO ACT AS TREE PROTECTION FENCE AND TO DELINEATE THE EXTENT OF EARTH MOVING AREAS. THE AREA OF THE RAIN GARDEN SHALL NOT BE COMPACTED OR RECEIVE EXCESSIVE HEAVY EQUIPMENT TRAFFIC. THE AREA SHALL BE PROTECTED BY USING TAPE, FENCING OR OTHER SUITABLE METHOD.
- A TEMPORARY CONSTRUCTION ENTRANCE SHALL BE ESTABLISHED UPSLOPE OF THE PROPOSED ROAD LOCATION. THIS SHALL BE THE ONLY ENTRANCE AND EXIT FROM THE SITE FOR CONSTRUCTION VEHICLES FOR THE CONSTRUCTION OF THE UTILITY CROSSINGS ASSOCIATED WITH CHAPTER 105 GENERAL PERMITS (GP).
- INSTALL SILT SOCKS #1, #2 AND #3 WHERE SHOWN ON THE PLAN. SILT SOCK MUST BE PROPERLY FUNCTIONING BEFORE THE CONSTRUCTION OF TRIBUTARY IMPROVEMENTS.
- INSTALL THE CONCRETE WASHOUT.
- CLEAR AND GRUB AREAS OF GP STORM SEWERS AND SWALE 1 & 2.
- INSTALL STORM SEWER PIPES, STRUCTURES, AND RIPRAP ASSOCIATED WITH PIPE RUN EW2-WH1-WH2 AND THE CONNECTION TO THE EXISTING PIPE CROSSING LAFFAYED ROAD.
- INSTALL AND STABILIZE SWALE 1.
- INSTALL STORM SEWER PIPES, STRUCTURES, AND RIPRAP ASSOCIATED WITH PIPE RUN EW1-WH1.
- INSTALL AND STABILIZE SWALE 2.
- CLEAR AND GRUB AREAS FOR PROPOSED ROAD CONSTRUCTION. 5. STRIP THE TOPSOIL FROM CONSTRUCTION AREA AND PLACE WHERE SHOWN ON THE PLAN. ANY EXCESS TOPSOIL MAY BE HAULED OFFSITE TO A FACILITY WITH AN APPROVED EROSION CONTROL PLAN. ANY REQUIRED FILL IMPORTED TO THE SITE SHALL MEET THE CLEAN FILL REQUIREMENTS AND THE SITE SHALL HAVE AN APPROVED EROSION CONTROL PLAN.
- ROUGH GRADE PROPOSED ROAD AND FIRST 25 FEET OF PROPOSED DRIVEWAYS ON LOTS 1 & 3 AND THE FIRST 215 FEET ON LOT 2. STABILIZE THESE AREAS.
- CONSTRUCT RAIN GARDEN #1 ACCORDING TO THE **RAIN GARDEN INSTALLATION PROCEDURES**. THE AREA OF THE RAIN GARDEN SHALL NOT BE COMPACTED OR RECEIVE EXCESSIVE HEAVY EQUIPMENT TRAFFIC. THE AREA SHALL BE PROTECTED BY USING TAPE, FENCING OR OTHER SUITABLE METHOD.
- INSTALL STORM SEWER PIPES, STRUCTURES, AND RIPRAP ASSOCIATED WITH PIPE RUN EW3-INLET 1.
- FINAL GRADE ROAD AND INSTALL SUB-BASE. INSTALL SOIL AMENDMENT WITH SWALE 1 AND STABILIZE WITH PERMANENT LINING AS SPECIFIED ON THE PLANS.
- STABILIZE REMAINING DISTURBED AREAS WITH TEMPORARY SEEDING AND MULCH IN LAWN AREAS. NO MORE THAN 15,000 SQUARE FEET OF DISTURBED AREA SHALL REACH FINAL GRADE BEFORE INITIATING STABILIZATION OPERATIONS.

**C. SITE IMPROVEMENTS-INDIVIDUAL LOTS**

- INDIVIDUAL LOT CONSTRUCTION CAN OCCUR SIMULTANEOUSLY OR IN ANY ORDER.
- LIMIT OF DISTURBANCE (LOD) SHALL BE MARKED WITH SURVEY STAKES, POSTS AND ROPE. CONSTRUCTION FENCE OR SOME OTHER ACCEPTABLE MATERIAL PRIOR TO DISTURBANCE ACTIVITIES. CONSTRUCTION FENCE SHALL BE USED IN WOODED AREAS TO ACT AS TREE PROTECTION FENCE AND TO DELINEATE THE EXTENT OF EARTH MOVING AREAS. THE AREA OF THE RAIN GARDEN SHALL NOT BE COMPACTED OR RECEIVE EXCESSIVE HEAVY EQUIPMENT TRAFFIC. THE AREA SHALL BE PROTECTED BY USING TAPE, FENCING OR OTHER SUITABLE METHOD.
- THE CONSTRUCTION ENTRANCE SHALL BE ESTABLISHED WHERE SHOWN ON THE PLAN, INCLUDING THE TIRE WASH AREA. THIS SHALL BE THE ONLY ENTRANCE AND EXIT FROM THE LOT FOR THE CONSTRUCTION VEHICLES.
- CLEAR AND GRUB THE CONSTRUCTION AREAS ON LOT 2.
- STRIP THE TOPSOIL FROM THE CONSTRUCTION AREA AND PLACE WHERE SHOWN ON THE PLAN. ANY EXCESS TOPSOIL MAY BE HAULED OFFSITE TO A FACILITY WITH AN APPROVED EROSION CONTROL PLAN. ANY REQUIRED FILL IMPORTED TO THE SITE SHALL MEET THE CLEAN FILL REQUIREMENTS AND THE SITE SHALL HAVE AN APPROVED EROSION CONTROL PLAN.
- ROUGH GRADE THE LOT.
- CONSTRUCT THE PRIMARY ABSORPTION AREA AND INSTALL SEWER LATERAL CONNECTION TO EXISTING SEWAGE ABSORPTION AREA, AVOIDING TREE REMOVAL. FOLLOW UTILITY LINE EXCAVATION PROCEDURES FOR LATERAL CONNECTION.
- INSTALL WELL AND WATER LATERAL CONNECTION. AVOID TREE REMOVAL. FOLLOW UTILITY LINE EXCAVATION PROCEDURES.
- CONSTRUCT RAIN GARDEN #2 ACCORDING TO THE **RAIN GARDEN INSTALLATION PROCEDURES**. THE AREA OF THE RAIN GARDEN SHALL NOT BE COMPACTED OR RECEIVE EXCESSIVE HEAVY EQUIPMENT TRAFFIC. THE AREA SHALL BE PROTECTED BY USING TAPE, FENCING OR OTHER SUITABLE METHOD.
- CONSTRUCT RAIN GARDEN #3 ACCORDING TO THE **RAIN GARDEN INSTALLATION PROCEDURES**. THE AREA OF THE RAIN GARDEN SHALL NOT BE COMPACTED OR RECEIVE EXCESSIVE HEAVY EQUIPMENT TRAFFIC. THE AREA SHALL BE PROTECTED BY USING TAPE, FENCING OR OTHER SUITABLE METHOD.



**NOTES:**

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 1/2 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.

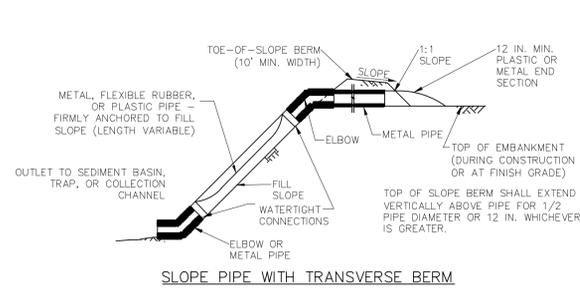
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 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.

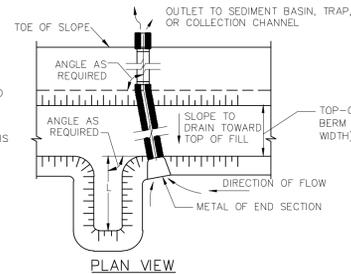
**STANDARD CONSTRUCTION DETAIL #3-16  
PUMPED WATER FILTER BAG**

NOT TO SCALE



**SLOPE PIPE WITH TRANSVERSE BERM**

PROVIDE SUFFICIENT LENGTH (L) OF TRANSVERSE BERM TO DIRECT RUNOFF INTO TEMPORARY SLOPE PIPE. WHEREVER TEMPORARY SLOPE PIPE IS LOCATED AT LOW POINT, NO TRANSVERSE BERM IS REQUIRED.



**PLAN VIEW**

SLOPE PIPE NO.	OUTLET PROTECTION TYPE	RIPRAP SIZE OR MATERIAL	APRON LENGTH (FT)	APRON WIDTH (FT)
1	RIPRAP	R-3	6	9

**NOTES:**

THE MAXIMUM DISTANCE BETWEEN ANCHOR STAKES SHALL BE 10 FEET.

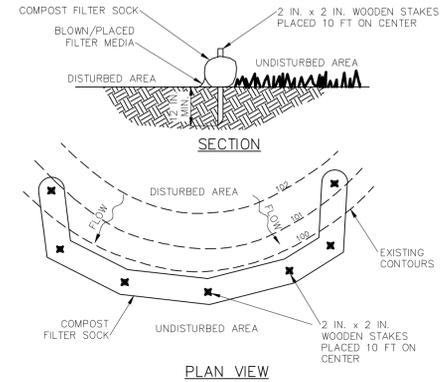
TRANSVERSE BERM SHALL BE USED WHENEVER TEMPORARY SLOPE PIPE IS NOT LOCATED AT LOW POINT.

SLOPE PIPES SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE INLET IMMEDIATELY.

DAMAGED PIPE SECTIONS SHALL BE REPLACED WITHIN 24 HOURS. LEAKING CONNECTIONS SHALL BE REPAIRED IMMEDIATELY.

**STANDARD CONSTRUCTION DETAIL #6-5  
TEMPORARY SLOPE PIPE**

NOT TO SCALE



**PLAN VIEW**

**NOTES:**

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 6 FEET UP-SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

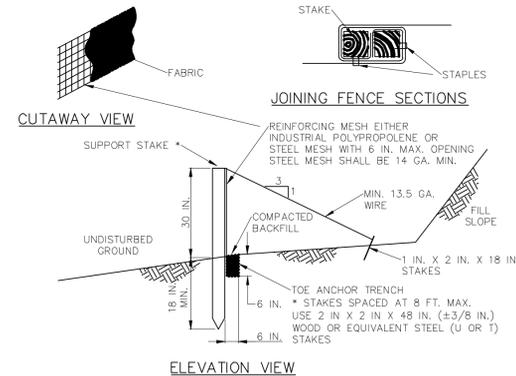
COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST 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.

**STANDARD CONSTRUCTION DETAIL #4-1  
COMPOST FILTER SOCK**

NOT TO SCALE



**ELEVATION VIEW**

**NOTES:**

FABRIC SHALL HAVE THE MINIMUM PROPERTIES AS SHOWN IN TABLE 4.3 OF THE PA DEP EROSION CONTROL MANUAL.

FABRIC WIDTH SHALL BE 42 IN. MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES. AN 18 IN. SUPPORT STAKE SHALL BE DRIVEN 12 IN. MINIMUM INTO UNDISTURBED GROUND.

SILT FENCE SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE FENCE SHALL BE EXTENDED AT LEAST 8 FEET UP-SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

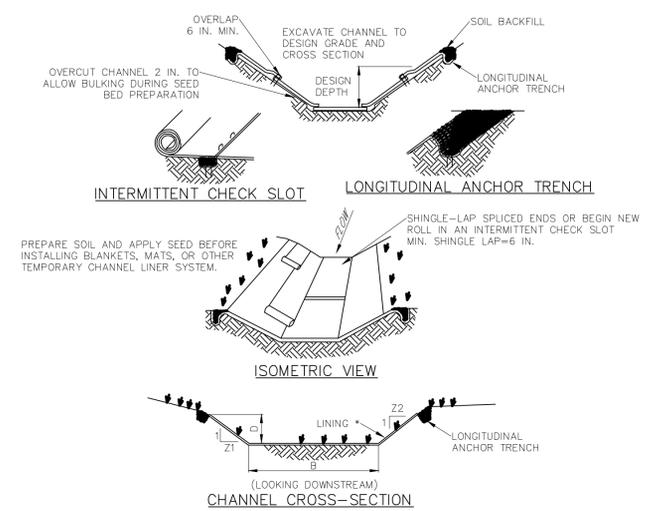
SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE.

ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET (STANDARD CONSTRUCTION DETAIL #4-6).

FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.

**STANDARD CONSTRUCTION DETAIL #4-8  
REINFORCED SILT FENCE (30" HIGH)**

NOT TO SCALE



**CHANNEL CROSS-SECTION**

\* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
1	ALL	2	0.7	5.7	25	25	ECS-1
2	ALL	2	0.8	6.8	3	3	ECS-1
3	ALL	2	0.8	6.8	3	3	ECS-1
4	ALL	1.5	0.8	6.8	3	3	ECS-1

**NOTES:**

ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

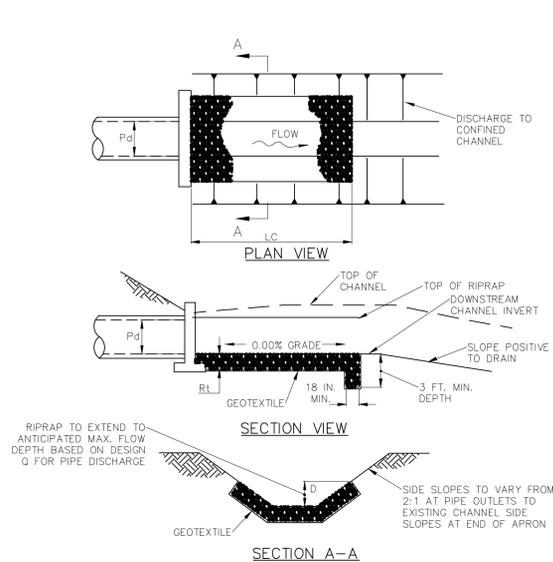
CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION.

SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

**STANDARD CONSTRUCTION DETAIL #6-1  
VEGETATED CHANNEL**

NOT TO SCALE



**SECTION VIEW**

**SECTION A-A**

OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP			APRON			SIDE SLOPES H:V	
		SIZE R-	THICK. Rt (IN)	LENGTH Lc (FT)	INITIAL TOP WIDTH (AT ENDWALL) (FT)	END TOP WIDTH (FT)	INITIAL TOP WIDTH (AT ENDWALL) (FT)		
EW2	18	5	15	16	5	5	9	9	2:1

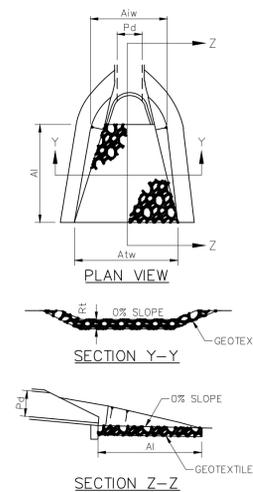
**NOTES:**

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

**STANDARD CONSTRUCTION DETAIL #9-3  
RIPRAP APRON AT PIPE OUTLET TO AN EXISTING CHANNEL**

NOT TO SCALE



**SECTION Y-Y**

**SECTION Z-Z**

OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP		APRON		TERMINAL WIDTH Aiw (FT)
		SIZE R-	THICK. Rt (IN)	LENGTH Lc (FT)	INITIAL TOP WIDTH Aiw (FT)	
EW1	15	6	18	17	3.75	20.75

**NOTES:**

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

**STANDARD CONSTRUCTION DETAIL #9-1  
RIPRAP APRON AT PIPE OUTLET WITH FLARED END SECTION OR ENDWALL**

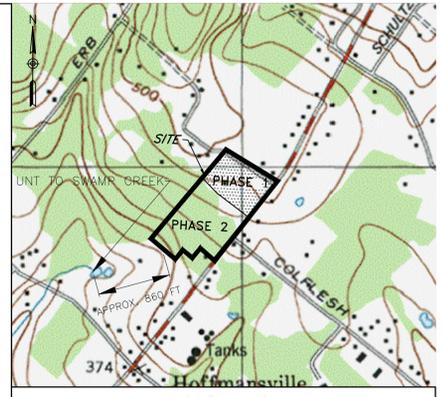
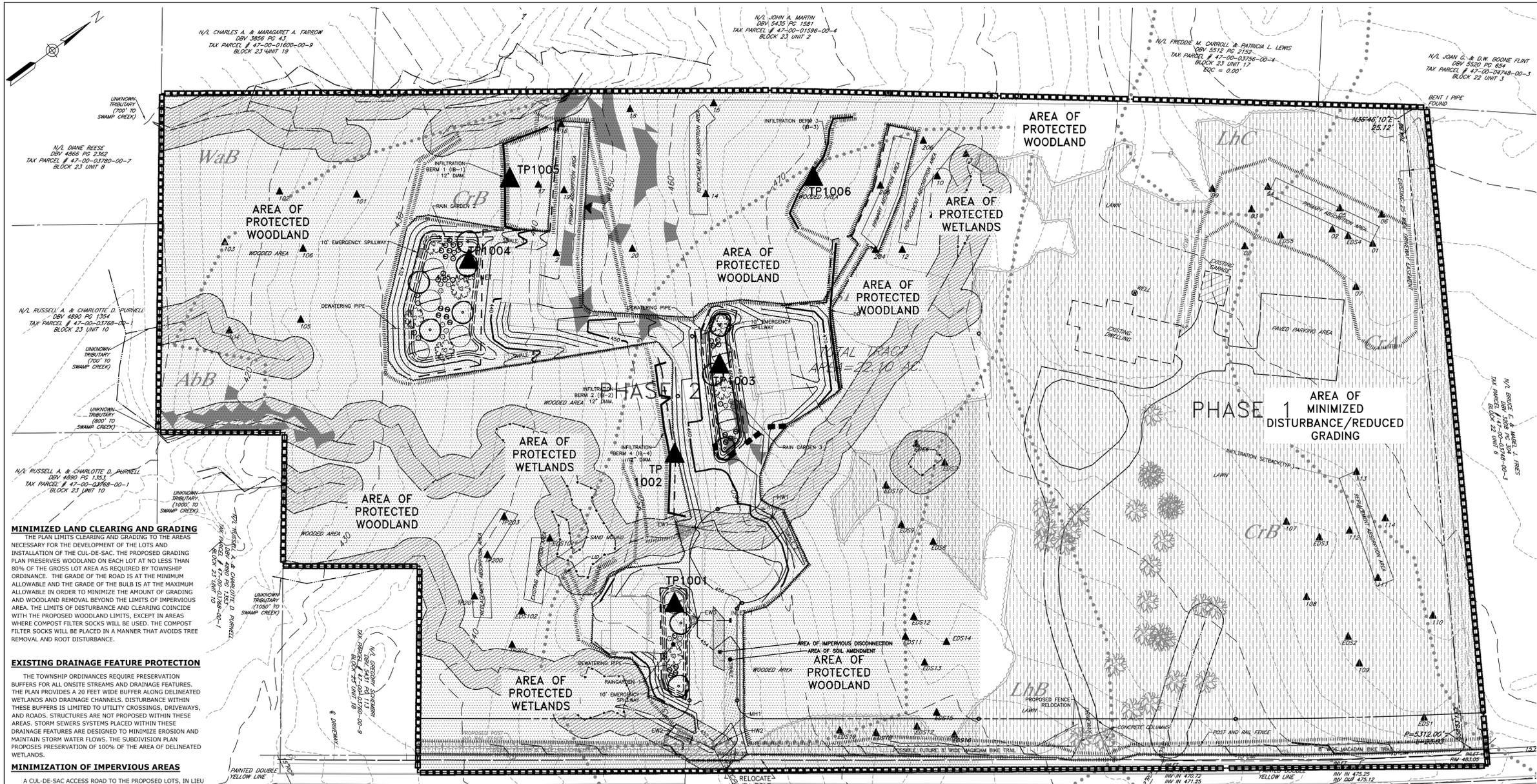
NOT TO SCALE

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-06-06	WJD	BOB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/9/16, GILMORE 12/6/16, MCMAHON 12/12/16, KMS DESIGN 12/9/16 REVIEW LETTERS.	1-12-17	JCE	BOB
2.	PER GILMOREASSOCIATES, INC 3/14/16, KMS DESIGN GROUP, LLC 3/18/16, MCMAHON ASSOCIATES, INC. 2/11/16 REVIEW LETTERS.	10-25-16	WJD	BOB
1.	PER GILMOREASSOCIATES, INC 6/9/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC. 6/9/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS.	10-21-15	WJD	BOB

SEAL	SEAL



CLIENT	FDEV LLC 1150 FIRST AVE STE 920 KING OF PRUSSIA, PA 19406		SUBJECT	EROSION CONTROL DETAILS  FDEV SUBDIVISION	
				NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA	PROJECT NO. 14-146
				1860 WEAVERTOWN ROAD, SUITE 100 DOUGLASSVILLE, PA 19518 PHONE: 610-689-8021 FAX: 610-689-4538	DWG. NO. ES414146
DESIGN	BOB	CHKD. BY			SHEET NO. 10 OF 13
DRAWN BY	WJD	CHKD. BY			
DATE	10/29/15	SCALE	1"=60'		



**LEGEND**

EX. TRACT LINE  
 EX. BOUNDARY  
 EX. RIGHT-OF-WAY  
 SETBACKS  
 EX. SANITARY  
 EX. GAS  
 PR. CLEANOUT  
 EX. MONUMENTATION  
 EX. UTILITY POLE & GUY WIRE  
 EX. SANITARY MANHOLE  
 EX. SOILS  
 EX. CONTOURS  
 PR. CONTOURS  
 PR. STORM STRUCTURE  
 PR. STORM MANHOLE  
 PR. STORM PIPE  
 TEST PIT  
 APPROXIMATE LOCATION OF WATERS OF THE COMMONWEALTH  
 WETLANDS  
 WETLANDS BUFFER  
 15-25% SLOPES  
 >25% SLOPES  
 EXISTING WOODLINE  
 PROPOSED WOODLINE  
 AREA OF MINIMIZED DISTURBANCE REDUCED GRADING  
 AREA OF IMPERVIOUS DISCONNECT  
 SWALE LINING /SOIL AMENDMENT IN SWALE 1  
 DRAINAGE AREA TO BMP  
 LIMIT OF DISTURBANCE  
 LIMIT OF NPDES PERMIT  
 INFILTRATION BERM  
 BMP PROTECTION FENCE

**MINIMIZED LAND CLEARING AND GRADING**  
 THE PLAN LIMITS CLEARING AND GRADING TO THE AREAS NECESSARY FOR THE DEVELOPMENT OF THE LOTS AND INSTALLATION OF THE CUL-DE-SAC. THE PROPOSED GRADING PLAN PRESERVES WOODLAND ON EACH LOT AT NO LESS THAN 80% OF THE GROSS LOT AREA AS REQUIRED BY TOWNSHIP ORDINANCE. THE GRADE OF THE ROAD IS AT THE MINIMUM ALLOWABLE AND THE GRADE OF THE BULB IS AT THE MAXIMUM ALLOWABLE IN ORDER TO MINIMIZE THE AMOUNT OF GRADING AND WOODLAND REMOVAL BEYOND THE LIMITS OF IMPERVIOUS AREA. THE LIMITS OF DISTURBANCE AND CLEARING COINCIDE WITH THE PROPOSED WOODLAND LIMITS, EXCEPT IN AREAS WHERE COMPOST FILTER SOCKS WILL BE USED. THE COMPOST FILTER SOCKS WILL BE PLACED IN A MANNER THAT AVOIDS TREE REMOVAL AND ROOT DISTURBANCE.

**EXISTING DRAINAGE FEATURE PROTECTION**  
 THE TOWNSHIP ORDINANCES REQUIRE PRESERVATION BUFFERS FOR ALL ON-SITE STREAMS AND DRAINAGE FEATURES. THE PLAN PROVIDES A 20 FEET WIDE BUFFER ALONG DELINEATED WETLANDS AND DRAINAGE CHANNELS. DISTURBANCE WITHIN THESE BUFFERS IS LIMITED TO UTILITY CROSSINGS, DRIVEWAYS, AND ROADS. STRUCTURES ARE NOT PROPOSED WITHIN THESE AREAS. STORM SEWERS SYSTEMS PLACED WITHIN THESE DRAINAGE FEATURES ARE DESIGNED TO MINIMIZE EROSION AND MAINTAIN STORM WATER FLOWS. THE SUBDIVISION PLAN PROPOSES PRESERVATION OF 100% OF THE AREA OF DELINEATED WETLANDS.

**MINIMIZATION OF IMPERVIOUS AREAS**  
 A CUL-DE-SAC ACCESS ROAD TO THE PROPOSED LOTS, IN LIEU OF A SHARED DRIVEWAY, WAS REQUIRED BY THE TOWNSHIP TO PROVIDE ACCESS AND SAFE TURN AROUND AREA FOR EMERGENCY EQUIPMENT. THE LENGTH AND RADIUS OF THE CUL-DE-SAC IS AT THE MINIMUM ALLOWED BY ORDINANCE. SIDEWALKS ARE NOT PROPOSED ALONG THE CUL-DE-SAC; HOWEVER, THE EIGHT FEET WIDE FUTURE BIKE TRAIL IS A REQUIREMENT BY ORDINANCE. THE DRIVEWAY WIDTHS ARE AT THE MINIMUM REQUIRED BY ORDINANCE AND ARE LOCATED AS CLOSE TO THE ROAD AS POSSIBLE TO MINIMIZE IMPERVIOUS AREAS AND CLEARING AND GRADING.

**MINIMIZATION OF SOIL COMPACTION**  
 THE EXTENT OF EARTHMOVING IS LIMITED TO ONLY THOSE AREAS NECESSARY FOR THE CONSTRUCTION OF THE SITE IMPROVEMENTS. THEREFORE, UNNECESSARY COMPACTION IS ELIMINATED. CONSTRUCTION OF RAINGARDENS SHALL UTILIZE PRACTICES DESIGNED TO PREVENT COMPACTION OF THE BOTTOM OF THE BMP. ADDITIONAL SOIL AMENDMENTS WILL BE USED TO IMPROVE SOIL PERMEABILITY IN RAINGARDENS AND AT INFILTRATION BERMS.

**NON-STRUCTURAL BMP'S**  
 THE DEVELOPMENT PLAN PROPOSES PRESERVATION OF EXISTING WOODLANDS, WETLANDS, AND DRAINAGE CHANNELS ON-SITE. THE PLAN ALSO MAINTAINS MINIMUM 20' WIDE BUFFERS ALONG WETLANDS AND DRAINAGE CHANNELS, EXCEPT FOR WHAT IS NECESSARY FOR INSTALLATION OF DRIVEWAY ACCESS TO LOTS. THE STORM WATER CONVEYANCE SYSTEMS WERE DESIGNED TO MAINTAIN FLOW TO WETLANDS AND DRAINAGE CHANNELS.

**GEOLOGIC FORMATIONS**  
 NATURALLY OCCURRING GEOLOGIC FORMATIONS OR SOIL CONDITIONS THAT MAY HAVE THE POTENTIAL TO CAUSE POLLUTION DURING EARTH DISTURBANCE ACTIVITIES DO NOT EXIST ON THIS SITE.

**THERMAL IMPACTS**  
 THE POTENTIAL FOR THERMAL IMPACTS IS PRESENT DUE TO STORM WATER FLOWS OVER IMPERVIOUS AREAS. THIS IMPACT IS MITIGATED BY DIRECTING RUNOFF FROM THESE AREAS TO RAINGARDENS AND INFILTRATION BERMS WHICH ARE SHADED WITH TREES. PROTECTION OF EXISTING STREAM AND WETLAND BUFFERS WILL HELP MITIGATE THERMAL IMPACTS FROM STORM WATER DISCHARGES OVER IMPERVIOUS AREAS NOT TRIBUTARY TO A BMP.

**SUMMARY OF POST CONSTRUCTION STORMWATER BMP'S:**  
 THE FOLLOWING BMP'S ARE IDENTIFIED AS BEING UTILIZED ON THIS PROJECT

1. NON-ROOF IMPERVIOUS DISCONNECT - A PORTION OF THE ROAD DRAINS TO A VEGETATED SWALE.
2. MINIMUM DISTURBANCE/CLUSTER USE - THE DEVELOPMENT OF THE SITE IS CONCENTRATED IN ONE AREA TO MINIMIZE TREE REMOVAL.
3. INFILTRATION BERMS - PROVIDE INFILTRATION AND RATE CONTROL
4. RAINGARDENS - PROVIDE INFILTRATION, EVAPOTRANSPIRATION, RATE CONTROL, AND WATER QUALITY IMPROVEMENT.
5. SOIL AMENDMENT - PROVIDES INFILTRATION AND WATER QUALITY IMPROVEMENT

- GENERAL MAINTENANCE & OPERATION NOTES:**
1. STORM SEWER STRUCTURES, RAINGARDENS, INFILTRATION BERMS, AND VEGETATIVE COVER TO BE OWNED AND MAINTAINED BY THE INDIVIDUAL LOT OWNER WHERE THE BMP IS PLACED.
  2. STORM SEWER STRUCTURES LOCATED WITHIN A RIGHT-OF-WAY SHALL BE OWNED AND MAINTAINED BY THE PUBLIC ENTITY TO WHICH THE RIGHT-OF-WAY BELONGS.
  3. OUTLET STRUCTURES TO BE KEPT FREE OF DEBRIS.
  4. DOWNSPOUTS ARE TO BE DIRECTED TO RAINGARDENS WHEREVER POSSIBLE, ALTERNATIVELY TO INFILTRATION BERMS, OR LAWN AREAS.

**POST CONSTRUCTION STORMWATER MANAGEMENT NOTES:**

1. THERE ARE WETLANDS, STREAMS, WOODLAND, STEEP SLOPES, AND HYDRIC SOILS ON THIS SITE.
2. ROADWAY AND DRIVEWAY WIDTHS AND LENGTHS ARE DESIGNED TO CONFORM TO THE NEW HANOVER TOWNSHIP ORDINANCE MINIMUM REQUIREMENTS.
3. ALL WASTE MATERIALS, SUCH AS SEDIMENT, TRASH, GRASS CLIPPINGS, LEAVES, ETC., SHALL BE REMOVED FROM BMP'S AND DISPOSED OF PROPERLY. SEDIMENT REDISTRIBUTED IN LANDSCAPED AREAS, LEAVES AND GRASS CLIPPING COMPOSTED OR MULCHED, TRASH REMOVED BY A LICENSED HAULER.
4. RAINGARDENS AND INFILTRATION BERMS SHALL BE PROTECTED FROM COMPACTION DURING CONSTRUCTION BY THE PLACEMENT OF FENCING AS REFERENCED ON THE EROSION & SEDIMENT CONTROL PLANS.
5. THE DETENTION BASIN AND STORMWATER FACILITIES SHOWN ON THIS PLAN ARE A BASIC AND PERPETUAL PLAN OF THE STORM DRAINAGE SYSTEM OF THE TOWNSHIP OF NEW HANOVER, AND AS SUCH ARE TO BE PROTECTED AND PRESERVED, IN ACCORDANCE WITH THE APPROVED FINAL PLAN BY THE OWNER(S) ON WHOSE LANDS THE STRUCTURE(S) IS/ARE LOCATED. THE TOWNSHIP OF NEW HANOVER AND/OR ITS AGENTS RESERVES THE RIGHT AND PRIVILEGE TO ENTER UPON SUCH LANDS FROM TIME TO TIME FOR THE PURPOSE OF INSPECTION OF SAID DETENTION BASIN(S) IN ORDER TO DETERMINE THAT THE STRUCTURAL AND DESIGN INTEGRITY ARE BEING MAINTAINED BY THE OWNER(S). IN THE EVENT THAT MAINTENANCE AND STRUCTURAL INTEGRITY ARE NOT MAINTAINED BY THE OWNER AS REQUIRED BY THE TOWNSHIP, THE OWNER HEREBY GRANTS TO THE TOWNSHIP THE RIGHT TO ENTER UPON SUCH PROPERTY AND TO PERFORM ANY AND ALL IMPROVEMENTS, REVISIONS OR MAINTENANCE AS MAY BE DETERMINED NECESSARY BY THE TOWNSHIP AND TO RECOVER THE COSTS THEREOF FROM THE PROPERTY OWNER BY ALL LAWFUL MEANS INCLUDING, BUT NOT LIMITED TO, THE IMPOSITION OF A MUNICIPAL LIEN ON THE SUBJECT PROPERTY.
6. ALL DEVELOPMENT ACTIVITIES, SUCH AS CLEARING, GRADING, REGRADEING, DRIVEWAYS, ROADS, BUILDINGS, SEPTIC SYSTEMS, RETENTION/DETENTION BASINS AND UTILITY EASEMENTS SHALL BE LIMITED TO THE NATURAL RESOURCE PROTECTION STANDARDS AS SPECIFIED IN THE NEW HANOVER TOWNSHIP ZONING ORDINANCE CHAPTER 27 AS LAST AMENDED. THE REMAINING RESOURCES SHALL REMAIN IN ITS NATURAL CONDITION, INCLUDING THE NATURAL FOREST GROUND COVER. THIS RESTRICTION SHALL RUN WITH THE LAND AND BE BINDING ON THE PRESENT AND ALL FUTURE OWNERS AND/OR LESSEES.

TEST PIT	LIMITING ZONE (IN.)	PIT DEPTH (IN.)	TEST DEPTH (IN.)	INFILTRATION RATE IN./HR.
1001	>60	60	36	0.0
1002	>64	44	0	0.0
1003	>60	60	36	0.0
1004	>62	62	0	0.23
1005	40	40	0	0.0
1006	>40	40	36	4.10

CyB	CROTON SILT LOAM, 3-8% SLOPES
LHb	LEHIGH SILT LOAM, 3-8% SLOPES
LHb	LEHIGH SILT LOAM, 8-15% SLOPES

RAIN GARDEN	Shrubs	Trees
1	9	4
2	29	13
3	13	6
TOTAL	51	23

- SHRUBS SHALL BE PLACED 4' APART IN CLUSTERS.
- TREES SHALL BE PLACED A MINIMUM OF 6' APART.
- A MINIMUM OF 4 TYPES OF PLANTS/FERNS/GRASSES SHALL BE PLACED IN EACH RAINGARDEN. THEY SHALL BE SPACED 15' APART.
- NUMBER OF TREES (300/AC.) AND SHRUBS (700/AC.) ARE BASED ON THE ACREAGE OF THE RAINGARDEN.
- TREES MUST BE A MINIMUM 2" CALIPER AND 6' HEIGHT AT PLANTING.

Common Name	Scientific Name	Quantity	Plant Type	Symbol
Sweet Pepper Bush	Clethra alnifolia	13	Shrub	○
Elderberry	Sambucus canadensis	13	Shrub	○
Arrowwood	Viburnum prunifolia	12	Shrub	○
Pussy Willow	Salix discolor	13	Shrub	○
Sweetbay Magnolia	Magnolia virginica	7	Tree	○
Shadbush Serviceberry	Amelanchier canadensis	8	Tree	○
River Birch	Betula Nigra	9	Tree	○

**POST CONSTRUCTION STORM WATER MANAGEMENT PLAN SET INCLUDES DRAWINGS PC114146, DE114146, DA114146, DA214146, AND DA314146.**

NO.	REVISION	DATE	BY	APP.
1.	FINAL PLAN - PHASE 1	2017-08-06	WJD	BOB
2.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/9/16, GLMROE 12/6/16, MCMAHON 12/12/16, KMS DESIGN 12/9/16 REVIEW LETTERS	1-12-17	JCE	BOB
3.	PER GILMOREASSOCIATES, INC 3/14/16, KMS DESIGN GROUP, LLC 3/16/16, MCMAHON ASSOCIATES, INC 2/11/16 REVIEW LETTERS.	10-25-16	WJD	BOB
4.	PER GILMOREASSOCIATES, INC 6/9/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC 6/9/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS.	10-21-15	WJD	BOB

**GENERAL BMP INSTALLATION SEQUENCE**

1. RAINGARDEN 1
2. SWALE 1 & SOIL AMENDMENT
3. RAINGARDEN 2 & INFILTRATION BERMS 1, 2, AND 4
4. DIVERSION BERM 1
5. RAINGARDEN 3 & INFILTRATION BERM 3

**LICENSED PROFESSIONAL OVERSIGHT AT CRITICAL CONSTRUCTION STAGES:**

1. EXCAVATION OF RAINGARDEN BOTTOMS.
2. PREPARATION OF RAINGARDEN SUB-GRADE, INFILTRATION TESTING, AND PLACEMENT OF AMENDED SOIL.
3. PREPARATION OF INFILTRATION BERM SUBGRADE AND INFILTRATION TESTING.
4. INSTALLATION OF SOIL AMENDMENT.

NPDES LIMIT IS 22.1 ACRES



CLIENT: FDEV LLC  
 1150 FIRST AVE STE 920  
 KING OF PRUSSIA, PA 19406

SUBJECT: POST CONSTRUCTION STORMWATER MANAGEMENT/ O&M PLAN

FDEV SUBDIVISION

NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

PROJECT NO. 14-146

DWG. NO. PC114146

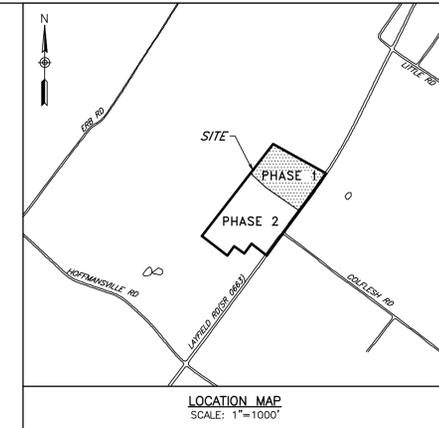
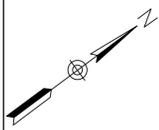
SHEET NO. 11 OF 13

1860 WEAVERTOWN ROAD, SUITE 100 DOUGLASSVILLE, PA 19518  
 PHONE: 610-689-8021  
 FAX: 610-689-4538

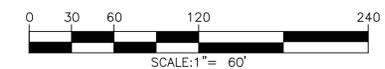
DESIGN: BDB  
 DRAWN BY: WJD  
 DATE: 11/17/15

CHKD. BY: [Signature]  
 SCALE: 1"=60'

PL\PROJECTS\14-146 Storm Properties\wp\114146 - PHASE 1.dwg, 2017-08-06 1:38:43 PM



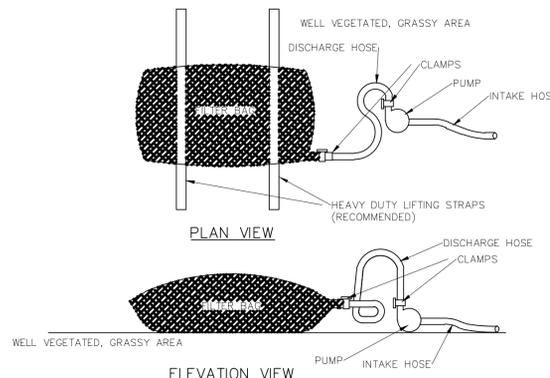
LEGEND  
EX. BOUNDARY



CLIENT		SUBJECT	
FDEV LLC 1150 FIRST AVE STE 920 KING OF PRUSSIA, PA 19406		AERIAL PLAN  FDEV SUBDIVISION  NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA	
SEAL		SEAL	
		PROJECT NO. 14-146	
		DWG. NO. AP114146	
		DESIGN BDB	CHKD. BY
		DATE 4/22/15	SCALE 1"=60'
DRAWN BY WJD		SHEET NO. 12 OF 13	

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-06-06	WJD	BOB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/5/16, GILMORE 12/6/16, MCMAHON 12/12/16, KMS DESIGN 12/9/16 REVIEW LETTERS	1-12-17	JOE	BOB
2.	PER GILMOREASSOCIATES, INC 3/14/16, KMS DESIGN GROUP, LLC 3/16/16, MCMAHON ASSOCIATES, INC. 2/11/16 REVIEW LETTERS.	10-25-16	WJD	BOB
1.	PER GILMOREASSOCIATES, INC 6/5/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC. 6/3/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS.	10-21-15	WJD	BOB

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**NOTES:**  
 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 1/2 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.

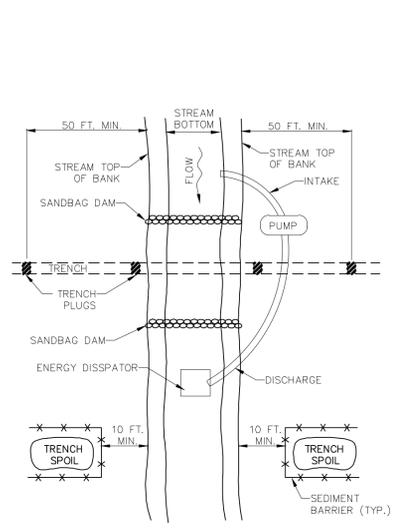
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

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 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

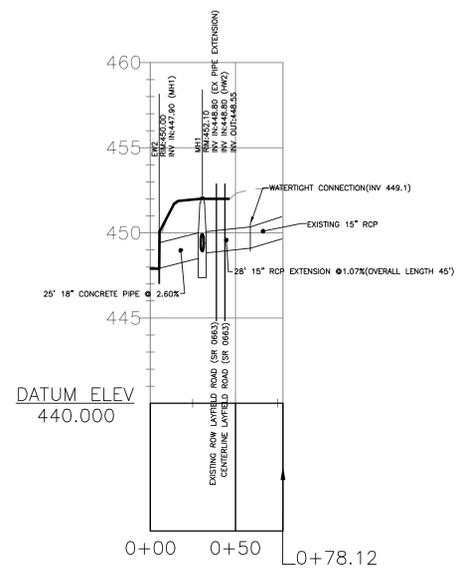
FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

**STANDARD CONSTRUCTION DETAIL #3-16  
 PUMPED WATER FILTER BAG**  
 NOT TO SCALE

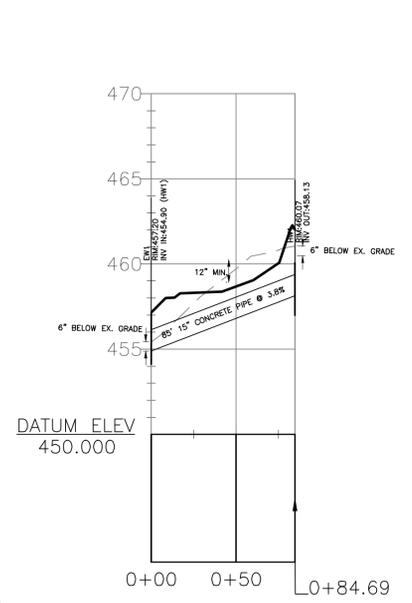


**NOTES:**  
 GRUBBING SHALL NOT TAKE PLACE WITHIN 50 FEET OF TOP-OF-BANK UNTIL ALL MATERIALS REQUIRED TO COMPLETE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION.  
 BYPASS PUMP INTAKE SHALL BE MAINTAINED A SUFFICIENT DISTANCE FROM THE BOTTOM TO PREVENT PUMPING OF CHANNEL BOTTOM MATERIALS.  
 TRENCH PLUGS SHALL BE INSTALLED WITHIN THE TRENCH ON BOTH SIDES OF THE STREAM CHANNEL (STANDARD CONSTRUCTION DETAIL #13-4).  
 WATER ACCUMULATING WITHIN THE WORK AREA SHALL BE PUMPED TO A PUMPED WATER FILTER BAG OR SEDIMENT TRAP PRIOR TO DISCHARGING INTO ANY SURFACE WATER.  
 HAZARDOUS OR POLLUTANT MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM THE TOP OF STREAMBANK.  
 ALL EXCESS EXCAVATED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE STREAM CROSSING AREA.  
 ALL DISTURBED AREAS WITHIN 50 FEET OF TOP-OF-BANK SHALL BE BLANKETED OR MATTED WITHIN 24 HOURS OF INITIAL DISTURBANCE FOR MINOR STREAMS OR 48 HOURS OF INITIAL DISTURBANCE FOR MAJOR STREAMS UNLESS OTHERWISE AUTHORIZED.  
 APPROPRIATE STREAMBANK PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.

**STANDARD CONSTRUCTION DETAIL #13-2  
 TYPICAL UTILITY LINE STREAM CROSSING  
 WITH PUMP BYPASS**  
 NOT TO SCALE



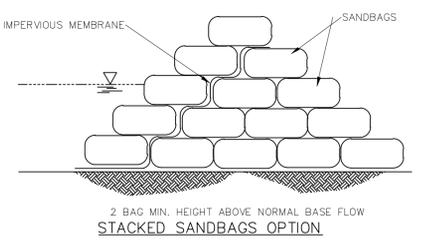
**PROFILE: EX PIPE TO EW2**  
 SCALE: 1" = 50' (HORIZ.) 1" = 5' (VERT.)



**PROFILE: EW1-HW1**  
 SCALE: 1" = 50' (HORIZ.) 1" = 5' (VERT.)

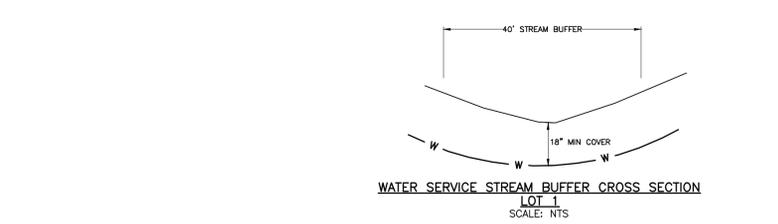
**LEGEND**

EX. RIGHT-OF-WAY	---
EX. SANITARY	---
PR. LOT LINE	---
EX. UTILITY POLE & GUY WIRE	---
EX. UNDERGROUND WIRE	---
EX. POST & RAIL FENCE	---
EX CONTOURS	---
PR CONTOURS	---
PR. WATER LATERAL	---
PR. STORM PIPE	---
PR. INFILTRATION BERM	---
PR. STORM HEADWALL/ENDWALL	---
PR. STORM INLET 2x4	---
PR. RIPRAP	---
APPROXIMATE LOCATION OF WATERS OF THE COMMONWEALTH	---
WETLANDS LIMIT	---
WETLANDS BUFFER	---
STREAM BUFFER	---
EXISTING AND PROPOSED WELLS	---
EXISTING WOODLINE	---
PROPOSED WOODLINE	---
LIMIT OF DISTURBANCE	---
DRAINAGE AREA	---
TEMP. GRADING	---
12" DIAM. SILT SOCK	---
18" DIAM. SILT SOCK	---
24" DIAM. SILT SOCK	---
32" DIAM. SILT SOCK	---
PROTECTION FENCE	---
TEMP. DIVERSION BERM	---
ROCK CONSTRUCTION ENTRANCE	---
CHANNEL LINING	---
SILT SOCK LABEL	---
TOPSOIL STOCKPILE	---

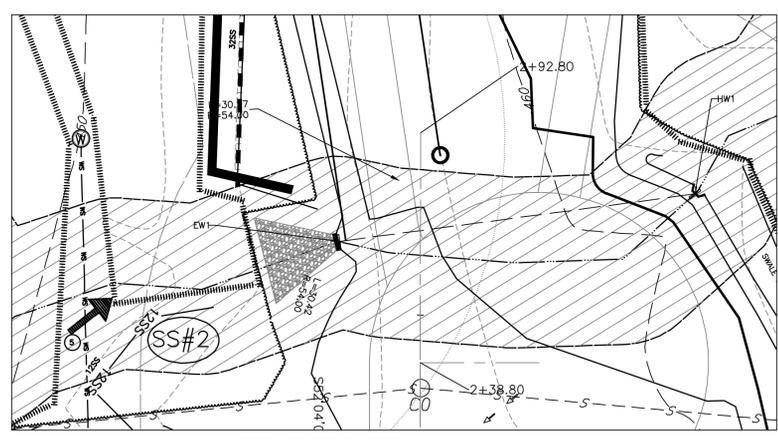


**STANDARD CONSTRUCTION DETAIL #3-15  
 SANDBAG DIVERSION DAM OR COFFERDAM**  
 NOT TO SCALE

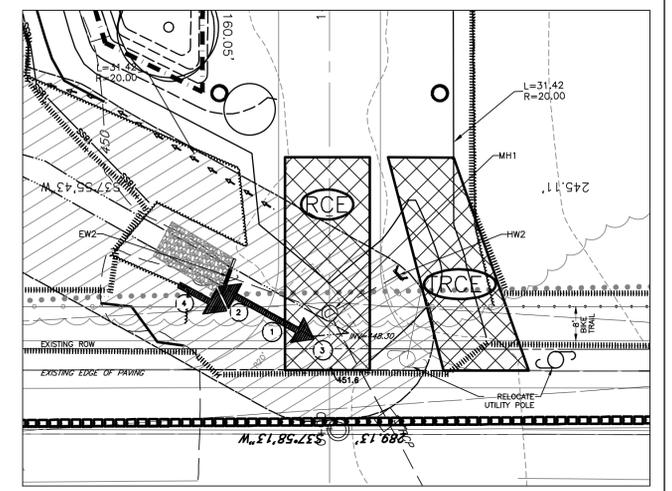
- GENERAL PERMIT FOR MINOR ROAD CROSSINGS (GP-7) NOTES:**
- THE CONSTRUCTION OF A MINOR ROAD CROSSING SHALL BE COMPLETED WITHIN THREE (3) YEARS OF THE DATE OF THE DEPARTMENT'S ACKNOWLEDGEMENT LETTER. IF ALL CONSTRUCTION IS NOT COMPLETED WITHIN THIS TIME FRAME, THE OWNER SHALL REINSTATE ALL OF THE MINOR ROAD CROSSING AND RESTORE THE WATERCOURSE AND FLOODPLAIN TO THEIR FORMER CONDITIONS.
  - MINOR ROAD CROSSINGS SHALL NOT CREATE OR CONSTITUTE A RISK OF LIFE, PROPERTY, OR THE ENVIRONMENT.
  - NO FILL SHALL BE PLACED IN ANY FLOODWAY, WATERCOURSE, OR BODY OF WATER, INCLUDING APPROACHES TO THE MINOR ROAD CROSSING, EXCEPT AS SPECIFICALLY AUTHORIZED IN THIS GENERAL PERMIT.
  - EACH MINOR ROAD CROSSING SHALL BE CONSTRUCTED IN SUCH A MANNER SO THAT THERE IS NO INTERFERENCE WITH THE MIGRATION OF FISH.
  - THE CROSSING SHALL BE DESIGNED TO PREVENT THE RESTRICTION OF AND TO WITHSTAND EXPECTED HIGH FLOWS. CULVERT CROSSINGS SHALL HAVE A WATERWAY OPENING SUFFICIENT TO ADEQUATELY DISCHARGE, AT A MINIMUM, THE BANK-FULL FLOW OF THE WATERCOURSE OR STREAM. THE WATERWAY OPENING SHALL BE LARGE ENOUGH TO MINIMIZE AND CONFINE ANY BACKWATER TO THE OWNER'S PROPERTY.
  - CULVERTS SHALL BE OF SUFFICIENT WIDTH AND SIZE SO AS NOT TO NARROW THE EXISTING STREAM CHANNEL.
  - HEADWALLS, WINGWALLS, AND RIPRAP SHALL BE INSTALLED FOR BRIDGES AND CULVERTS AS REQUIRED TO PASS FLOOD FLOWS WITHOUT LOSS OF STABILITY.
  - CULVERTS SHALL NOT INCREASE VELOCITY OR DIRECT FLOW SO AS TO RESULT IN EROSION OF STREAM BEDS AND BANKS.
  - CULVERTS SHALL BE INSPECTED BY THE OWNER ON A REGULAR BASIS TO PROVIDE FOR CONTINUED OPERATION AND MAINTENANCE DURING THE LIFETIME OF THE STRUCTURE.
  - APPROACHES TO CULVERTS SHALL BE CONSTRUCTED AT ORIGINAL GRADERS WHERE POSSIBLE. WHERE NECESSARY, DEPTH OF FILL IN THE APPROACHES SHALL BE MINIMIZED TO ALLOW OVERFLOW OF THE ROADWAY DURING PERIODS OF HIGH WATER.
  - CULVERTS INSTALLED IN STREAM CHANNELS SHALL BE ALIGNED WITH THE STREAM FLOW.
  - CULVERTS SHALL BE INSTALLED WITH THE INVERT 6 INCHES BELOW NATURAL STREAM BED SO THAT THE GRADIENT OF THE INVERT SHALL NOT DEVIATE FROM THAT OF THE NATURAL STREAM BED.
  - THE LENGTH OF THE CULVERTS INSTALLED SHALL BE ONLY THAT WHICH IS NECESSARY TO PROVIDE ADEQUATE ROAD WIDTH WITH



**WATER SERVICE STREAM BUFFER CROSS SECTION**  
 SCALE: NTS



**DETAIL OF GP5 & GP7.B**  
 SCALE: 1"=20'



**DETAIL OF GP7.A**  
 SCALE: 1"=20'

CLIENT	FDEV LLC 1150 FIRST AVE STE 920 KING OF PRUSSIA, PA 19406	SUBJECT	CH. 105 GENERAL PERMIT SHEET
		FDEV SUBDIVISION	
		NEW HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA	
DESIGN	BOB	CHKD. BY	BOB
DRAWN BY	WJD	CHKD. BY	WJD
DATE	11/19/15	SCALE	1"=60'
PROJECT NO.	14-146	DWG. NO.	GP114146
1860 WEAVERTOWN ROAD, SUITE 100 DOUGLASSVILLE, PA 19518 PHONE: 610-689-8021 FAX: 610-689-4538		SHEET NO. 13 OF 13	

NO.	REVISION	DATE	BY	APP.
4.	FINAL PLAN - PHASE 1	2017-08-08	WJD	BOB
3.	PER MONTGOMERY COUNTY CONSERVATION DISTRICT 3/1/16, PENNDOT 12/9/16, GILMORE 12/6/16, MCMAHON 12/12/16, KMS DESIGN 12/9/16 REVIEW LETTERS	1-12-17	JCE	BOB
2.	PER GILMOREASSOCIATES, INC 3/14/16, KMS DESIGN GROUP, LLC 3/16/16, MCMAHON ASSOCIATES, INC. 2/11/16 REVIEW LETTERS	10-25-16	WJD	BOB
1.	PER GILMOREASSOCIATES, INC 6/9/2015, KMS DESIGN GROUP, LLC 6/4/2015, MCMAHON ASSOCIATES, INC. 6/9/2015, AND MONTGOMERY COUNTY PLANNING COMMISSION 6/30/2015 REVIEW LETTERS.	10-21-15	WJD	BOB

P:\PROJECTS\14-146 Stream Property\141416 - PHASE 1.dwg, 2017-08-08 1:38:56 PM