Soil Scientist:

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Soil Scientist: 1 Strand W. And

Signature: 1 / S U /

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Date:	(7)	5/11/16		1000							107	1	2000
Job Name:	Dominion - A	Dominion - Atlantic Coast Pipeline Soil Survey	eline Soil Surve						79 Slope / Aspect	ct	200	A P	
RETTEW Job #:	089962000								Donth to Bofice		,		
NRCS Soil Unit:	Berks (8E)	8E)							Bedrock Type and Dip Slo	and Dip Slope:	Not clearly defined	defined	
Soil Series:	Berks ch	Berks channery silt loam, 25-45% slopes	oam, 25-4	5% slope	S				Mineralogy:		Mixed		
2			Rock				USDA						
Horizon Depth in inches	Matrix Color	Rock Fragment Type and %	Fragment Size (inches)	Texture Class	% sand	% clay	Plasticity / Stickiness	Plasticity / Structure Type, Stickiness Grade, and Size	Moist Consistence	Horizon Boundary Topography and Distinctness	Redox Feature Color	Redox Feature Description	Lab Sample ID
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Bedrock Notes:	Siltstone,	Siltstone, no clear bedding planes	dding plan	SS									
Vater Table? Y	Y/N	Description:						=					
ndications of slips or slope failures?	slope failure		Y/N	Description:									
pecial Features? Y	N/A	Description:					4					3	



WOREL LICUTIN, PERNY

Soil Scientist: Day Knoky work Field Assistant: John Calbralla

> Signature: Samil Lintamann

Bu Bw Horizon Soil Series: NRCS Soil Unit: RETTEW Job #: Job Name: Test Pit ID: Sign -56.1 Depth in inches 7.75 0000 25, 3 3 10 mg とって N90 Dominion - Atlantic Coast Pipeline Soil Survey 089962000 No fines 500 Matrix R-100511-Berks channery silt loam, 25-45% slopes C S T.S. 301.CM Rock Fragment Type and % C+ 481. (8E) X 1000 NAC-17 1/2-3 trage to 1/8-3 20-94 12-2 Size (inches) Fragment Rock 5.2 Texture R Class 20 25 20 20 % sand R-017-160511-1000-MPC 1 200 فق % clay 1 Plasticity / Structure Type, Stickiness Grade, and Size 98 8 58 82 SP a Po Current Person MEN MERK 180% 188h Rech VF6 Mineralogy: T VFC-Consistence Bedrock Type and Dip Slope: Topographic Position: Depth to Refusal: Drainage Class: % Slope / Aspect: Moist > CW CU Topography and CE Distinctness 3 Ö Ö Ö Ü Ω Ö S O Ö Ü Ö n Ö Redox Feature Mixed Somewhat excessively drained 25-45% 20 Balls halo Redox Feature Description 270 few montains None たとうって wantimed N 20° W many fina Lab Sample ID med 32010 No.

Indications of slips or slope failures? Description: Description: dipping YIN ambic Description: 10 Easta 100 down-Strike of DSOPPOSITE Haddon. fracture's to 5 12" thic 3-12" Pieces

Special Features? Y/N

Water Table?

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Bedrock Notes:

Dominant Vegetation:

Other Notes:

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Field Assistant: Soil Scientist: DEF 20

Stenature: David Lintermation

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Date:	5/11	116							% Slope / Aspect:	ect:	3/6	2900	
Job Name:	Dominion - A	Dominion - Atlantic Coast Pipeline Soil Survey	eline Soil Survey						Drainage Class:	5:	T		rained
RETTEW Job #:	089962000								Depth to Refusal:	sal:	I WOOD	Clarcity www.	
NRCS Soil Unit:	Craigsville (27)	lle (27)							Bedrock Type and Dip	and Dip Slope:	1		
Soil Series:	Craigsvi	Craigsville fine sandy loam	y loam						Mineralogy:		Micood		
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Horizon Depth in inches	n Matrix Color	Rock Fragment Type and %	Rock Fragment Size (inches)	Texture Class	% sand	% сіау	Plasticity / Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography and Distinctness	Redox Feature Color	Redox Feature Description	Lab Sample ID
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Description:

Indications of slips or slope failures?

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Dominant Vegetation: Special Features? Y (N)

MAN DECIDED - CREEK OAK

02/14 c (40% (30H) ~0.25" MY SURFAIR

Other Notes:

MARIN MEROSY. TESONICA. BILL STIFT LATONON'S SEAL

TEST PIT DESCRIPTION
Soil Scientist: DAY FEW STEAMCHEASignature: BAMM HUMLAMAMMA
Field Assistant: Tolora 3 Page

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Dominant V Other Notes:	Special Features?	Indicatio	Water Table?	Bedrock Notes:) I want		,	la Ga		9	,	T	ъ			O	Horizon	5 (Soil Series:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
Dominant Vegetation: Other Notes:	eatures?	ns of slips o	ble?	Notes:	\$\$ \$	30.88	:	778	*			in S	(7	·	0	inches		S:	Unit:	lob #:	155		j:
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Pocket Penetrometer

TEST PIT DESCRIPTION

Soil scientist: Dan Ferry teamodur signature: Daniel Juntum Mandum

Field Assistant: 5 Asin Things.

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

	Test Pit ID: Date: Job Name: RETTEW Job #;	Dominion - At 089962000				} R-0	R-020-160512-1040-MPC	12-1040-1		Topographic Position: % Slope / Aspect: Drainage Class: Depth to Refusal:	osition: ct: ;	Balkslen 47% Well Dra	Well Drained	w sheddr
	NRCS Soll Unit:	Paddy	Knob	(PamE)					8 0	epth to Refus edrock Type a	Depth to Refusal: Bedrock Type and Dip Slope:		10 J	7 7 7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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soil scientist: ্ ু কাল্ডান্ড পুনি ক্রি

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RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

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Date:	2113	Sign Comp			,				% Slope / Aspect:	Ct:	Cining Co		100
Job Name:	Dominion - Atl	Dominion - Atlantic Coast Pipeline Soil Survey	line Soil Survey						Drainage Class:		₩ We	rained	
RETTEW Job #:	089962000								Depth to Refusal:	al·	£.	હ	
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Soil Series:	Paddykn	Paddyknob-Madsheep Complex, 15-35% slopes, very stony	ep Comple	x, 15-35	% slope	s, very s	tony		Mineralogy:				9
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Horizon Depth in inches	Matrix F	Rock Fragment Type and %	Rock Fragment Size (inches)	Texture Class	% sand	% clay	Plasticity / Stickiness	Plasticity / Structure Type, Stickiness Grade, and Size	Moist Consistence	Horizon Boundary Topography and Distinctness	Redox Feature Color	Redox Feature Description	ا Jab-Sample ال
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Other Notes:

Special Features? Y/N

Dominant Vegetation:

Description:

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Penetrometer Pocket 500 Special Features? Y/N Bedrock Notes: Water Table? SOIl Scientist: DATY Fer ster wichen Signature: David Lintumpadur Dominant Vegetation: Indications of slips or slope failures? Test Pit ID: Field Assistant: soil Series: Horizon ob Name: RCS Soil Unit: ETTEW Job #: Ò Fig. 8|5t N 12 Depth in inches \$5 \$4 C163/2 95-22 Sourskips & John Indon K160512-1155-MRC - 22 Š 23 P 100 Kg 10 P Paddyknob-Madsheep Complex, 15-35% slopes, very stony Dominion - Atlantic Coast Pipeline Soil Survey B-180315 1133 WYC - 25 Matrix Color PADDY KNOW (PamE) 5-12-16 Production. 5.1.5 Description: Description: ÷ & & Rock Fragment Type and % 341-36 9 P るのとこと 47 Ž) Size (inches) C. Hobbe - S Fragment Rock Description: Texture Class Dec. Duous E) 4 $\overline{\circ}$ % sand R-022-160512-1155-MPC % clay 5 Ē -Cold 0000-2 500 J) Plasticity / Structure Type, Stickiness Grade, and Size ひり 50 (Hickory 1 XI Rock decad 1558% MON MGBK Breaky our as 7 7 Mineralogy: Consistence Bedrock Type and Dip Slope: % Slope / Aspect: Depth to Refusal: Drainage Class: Topographic Position: Ź Moist 0 0 Horizon Boundary
Topography and
Distinctness S S S 5 3 TY W Exercise. Ü ņ Ö ᠻ Ö 豆 Ü Ö Ü Ö n Redox Feature mid back Mixed the doi hallow SOUT > South (No X 271. 8 200 Redox Feature 30 00 00 Description 3000 RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Many Side SACT BURNE ならいる・ Monte & in Correct Sing るからなっ Fax: 717-394-1069 -OL oldwess qer 51,002 SLOPE Redicary

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Other Notes:

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Field Assistant:

Soil Scientist: Signature: Signature:

TEST PIT DESCRIPTION

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

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ne:	Dominion - A	tlantic Coast Pipe	line Soil Survey						Drainage Class		Wel	Drained	
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Soil Series:	Berks ch	nannery silt l	oam, 3-15%	6 slopes	, very st	ony			Mineralogy				- 1
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Matrix Color Rock Fragment Type and % Size (inches) Fragment Rock

Texture Class

% sand

% clay

Plasticity / Structure Type,

Mineralogy:

Bedrock Type and Dip Slope:

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-St. 12

D W

Mixed

Depth to Refusal: Drainage Class:

Plasticity / Structure Type, Moist
Stickiness Grade, and Size Consistence

Horizon Boundary Topography and

Redox Feature

Redox Feature Description

Lab Sample ID

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Carried States

Ω ö Berks channery sit/loam, 15-35% slopes, very stony Borney Worn Showy

(BfE)

lob Name:

est Pit ID:

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R-024-160512-1320-MPC

% Slope / Aspect:

Topographic Position:

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IRCS Soil Unit: ETTEW Job #:

oil Series:

Dominion - Atlantic Coast Pipeline Soil Survey

Soil Scientist:

TEST PIT DESCRIPTION

Field Assistant: スタックリスタ

Signature David Lenten March

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Special Features? Y/N indications of slips or slope failures? Dominant Vegetation: ***** Description: Description: ののなったから (2) P. Tak Description: collowin intheme on surrents であっているい 0 OWE BENET

Bedrock Notes:

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Water Table?

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Soil Scientist: Day Tempy of Signature: Band Lemmannantum.
Field Assistant:

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% clay Plasticity / Structure Type, Moist Horizon Boundary Stickiness Grade, and Size Consistence Distinctness Color Description Lab Sample ID	Matrix Rock Fragment Fragment Texture % sand Color Type and % Size (inches)	Horizon Depth in inches	Pocket Penetrometer
I WILKEU			
Mineralogy: Mixed	Berks channery silt loam, 15-35% slopes, very stony	Soil Series:	
Dip Slope:	りんだら (BfE)	NRCS Soil Unit:	
4	089962000	RETTEW Job #:	
Well Drained	Dominion - Atlantic Coast Pipeline Soil Survey	Job Name:	
% Slope / Aspect:	U 0 6	Date:	
R-025-160512-1420-MPC Topographic Position:	1905 1ダー 1007 1270 12001	rest Pit ID:	

Pocket Penetrometer

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-- 1605 13 - 1000 - 17 Fa - 26 ominion - Atlantic Coast Pipeline Soil Survey

% Slope / Aspect:

Topographic Position:

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Test Pit ID:

Job Name:

Signature:

Soil Scientist: Land W. A.A.

TEST PIT DESCRIPTION

Field Assistant:

R-026-160513-1000-MPC

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

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							USDA)A	Ivilitei diogy.		Wilxed		
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Bedrock Notes:

Water Table?

Description:

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Indications of slips or slope failures?

Special Features? Y/N

Description:

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Dominant Vegetation:

Other Notes:

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TEST PIT DESCRIPTION
Soil Scientist: Dan Fens der mod My
Field Assistant:

Signature: Darmil Lintummarker

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Date:			81316				k			% Slope / Aspect:	ect:	1,00	1380	
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Soil Scientist: Jones Work Field Assistant:

Symbology the Sec	Test Pit ID: Date: Job Name:	5/13/16 Dominion - Atlantic Co	たーしゅがしまったこと 5/13/16 Dominion - Atlantic Coast Pipeline Soil Survey	1 € 1 € ne Soil Survey	. 12	€ 2. <u>%</u> R-0;	*	<mark>노상</mark> R-028-160513-1210-MPC	-	Topographic Position: % Slope / Aspect: Drainage Class:	sition:	Backs Loge - L		ined
	RETTEW Job #:	089962000		Camalan						Depth to Refusal:	-		1 1	weii Di Ailled
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en.	Soil Series:	Calvin-D	Calvin-Dekalb-Berks Complex, 35-55% slopes, very stony	Complex, 3	5-55% s	lopes, ve	ery ston			Mineralogy:			4	
in the second second	Horizon Depth in inches	Matrix Color	Rock Fragment Type and %	Rock Fragment	Texture	% sand	% clay	USDA Plasticity / S Stickiness G	tructure Type,	Moist	<u>•</u>	궁풍		Horizon Boundary Topography and
Penetrometer	0 0	S A TO SAIL	\ 	\	`	(1	1 1	1	3		S. Samuelle	D: No	C: %
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Special Features? Y/(N)

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Water Table? Bedrock Notes:

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Dominant Vegetation:

Other Notes:

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TEST PIT DESCRIPTION

soil Scientist: DEVENSE IMM Field Assistant: Signature: Bawill Lentur Marhen

Test Pit ID:	•	1005	3-13	00 - MIC	50	R-02	9-16051	R-029-160513-1300-MPC	PC	Topographic Position:	osition:	Backslone	300	hore Shoilde
Date:		J	13/16							% Slope / Aspect:	ct:	1.9%	393	
Job Name:	Don	ninion - Atlan	tic Coast Pipe	Dominion - Atlantic Coast Pipeline Soil Survey	4					Drainage Class:		Well Drained		
RETTEW Job #:		089962000								Depth to Refusal:	sal:	700	7	
NRCS Soil Unit:		Calvi	vin. Dell	Kab-Bo	1/65 (C	(CdE)				Bedrock Type and Dip Slope:	and Dip Slope:	N/A		
Soil Series:		Calvin-De	kalb-Berk	Calvin-Dekalb-Berks Complex, 15-35% slopes, very stony	(, 15-35%	slopes,	very stor		10	Mineralogy:		Mixed		
Horizon Del	Depth in N	Matrix Ro Color T	Rock Fragment Type and %	Rock Fragment Size (inches)	Texture Class	% sand	% clay	Plasticity / Sy Stickiness G	Plasticity / Structure Type, Stickiness Grade, and Size	Moist Consistence	Horizon Boundary Topography and Distinctness	Redox Feature Color	Redox Feature Description	Lab Sample ID
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Indications of slips or slope failures?	f slips or slo	pe failures?		(Z)	Description:	Ħ.							•	
Special Features? Y Dominant Vegetation:	res? Y/N		Chest	hut gal	P (2)	2.4%	Pine, LI	lickow	(9) Bu	cherri		i i		
Other Notes:				Collusion over residuum	ollwin	over -	over residuum	20	1,50 U	10 V	9 BW 10	Siz	a mixed Tru	anstical Haven

Attachment 4
Soil Survey Test Pit Logs

RETTEW Job #: Job Name: Test Pit ID: Other Notes: NRCS Soil Unit: Oa Mineralogy: 33 Horizon 20 Depth in inches 8 403 42 10 h Dominion - Atlantic Coast Pipeline Soil Survey 1 1 1 2015 POOI-160620-1005-2.50R5/4 5482.51 75414217 Matrix Color 6 20 2016 Texture Class 20 20 % clay % sand دى 6 5 273 CN /272 (00 h) Type & % Fragment 200 Rock % Slope: Depth to Refusal: Rock Fragment Size (inches) Drainage Class: Topographic Position: Vegetation: Bedrock Type: 14 n 3 8 38 3 NO SIN Plasticky/ Stickiness Structure Type, Grade, and Size FISBY 12/62 F25BX 122 M Map les Backslope 2011 360 MUDD Moist NA A T 000 65 SS Horizon Boundary Topography & Distinctness 12.5/pR3/4 CZD 104R8/1 Redox Feature Color Depth to Water Table: Slope Aspect: Redox Feature Description Dip Slope & Direction: Slope Failure or slip: Parent material: 7 7 2F, 17 JF, 1M Roots Pocket Penetron pH 4.5+ 2.5 4.75 Kesid 25 7 0 700F 38/0 Lab Sample 53 52 20/0 5 3, 62 Strike: N 200 E Notes

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

TEST PIT DESCRIPTION

Ses

Signature:

Maraca

Soil Scientist: Field Assistant:

Field Assistant: Test Pit ID: TEST PIT DESCRIPTION RETTEW Job #: NRCS Soil Unit: Job Name: 842 Mineralogy: Horizon Z 7 Da 38+ Depth in inches 30 24 W 089962000 Dominion - Atlantic Coast Pipeline Soil Survey 5.00 109Rula C 109R6141 7,54R5)4 c POOT-16067D-Matrix Color 2012016 Sie oraca Texture % clay 30 80 50 10201 8 % sand 0 50% Fragment Type & % 500 500 Rock % Slope: Rock Fragment Size (inches) Drainage Class: Depth to Refusal: Topographic Position: Vegetation: Bedrock Type: (-3)11 1/4 co 14 " Signature: 500 S PO Plasticity/ Stickiness 1887 Structure Type, Grade, and Size FIGR FISBIL 오 Maples 90 2000 Moist A B B D CV 0 Horizon Boundary Topography & Distinctness ٨ 5 Redox Feature Color Dip Slope & Direction: Slope Failure or slip: Depth to Water Table: Slope Aspect: Parent material: Redox Feature Description 35.IM M1 42 T Ti Roots 4.75 4.5+ 4.75 4.5 0 SO. Lab Sample ID RISTAUUM 30+ 3 312 Strike:

Other Notes:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

N200W

Notes

TEST PIT DESCRIPTION

Soil Scientist: RUSSell Los Co

Field Assistant: Steph Moraca

Signature: Swill 4

POOS-160628 - 1025 - RLL Topographic Position: Sack Slope: Slope: Slope: Slope: Slope: Slope: Slope: Soll Survey Drainage Class: Depth to Refusal: Soll Survey Slope: Soll Soll Survey Depth to Refusal: Soll Survey Depth to Refusal: Soll Soll Soll Soll Soll Soll Soll So	SSOPE Wistope: Drainage Class: Depth to Refusal: Bedrock Type: Vegetation: Rock Fragment Type & % Size (inches) Structure Type, Moint Type & % Fragment Type & % Rock Fragment Type & % Ro	SSOR Rock Fragment Type & % Size (Inches) Red Size (Inches) STUCKURE Type: Vegetation: Red Rock Fragment Type & % Size (Inches) STUCKURE Type, Moint Type & % Size (Inches)
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Other Notes:

TEST PIT DESCRIPTION
Soil Scientist:

Signature: PINH

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RETTEW Job #:		089962000					Depth to Refusal:		()	202			Slope Fail	Slope Failure or slip:			
NRCS Soil Unit:		10	1				Bedrock Type:		5.1	5402	76		Dip Slope	Dip Slope & Direction:	1		Strike:
Mineralogy:		Mix	XX				Vegetation:		RON	Caple	et B	bech					
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
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Other Notes:

Field Assistant: Soil Scientist: TEST PIT DESCRIPTION RETTEW Job #: Job Name: Test Pit ID: Wineralogy: NRCS Soil Unit: Z 00 800 Horizon Depth in inches 22 50 W 089962000 Dominion - Atlantic Coast Pipeline Soil Survey 54R314 SIL KYRY 14 Strok Matrix Color 12016 160620 -Texture Class 00 25 % clay 1425 % sand 0 Fragment Type & % 20% Rock % Slope: 3/4-1" Rock Fragment Size (inches) Drainage Class: Bedrock Type : Depth to Refusal: Topographic Position: Vegetation: P Signature: Kull 35 50 SS 3 Plantichy/ Stickiness MISBIL FISBR Structure Type, Grade, and Size K168 Backslope 42% 50: 000 Moist Consistence 3 R 8 8 Horizon Boundary Topography & Distinctness 5000 Redox Feature Color Dip Slope & Direction: Slope Aspect: Parent material: Slope Failure or slip: Depth to Water Table: Redox Feature Description 35/1 35, IM Roots 3,75 2,6 5.25 0 403 Lab Sample ID 3520 Strike:

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Other Notes:

TEST PIT DESCRIPTION
Soil Scientist: Taylor
Field Assistant: Taylor

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Other Notes:

TEST PIT DESCRIPTION

Soil Scientist: Taylor Malter

Field Assistant: Taylor Walter

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: Date:	06-20-1	4-14062	600-10	5	104	+	Topographic Position: % Slope:	tion:	32 ACKS2	-22 C-	BENC	E	Parent material: Slope Aspect:	erial:		1320m	Collegion / Rises
lob Name:	Dominion -	Dominion - Atlantic Coast Pipeline Soil Survey	peline Soil S	rvev			Drainage Classe		1000	0	1000			Slope Asper	Stope Aspect:	0	219
RETTEW Job #:	089962000						Depth to Refusal:		W/4		0		(0)	Slope Failur	Slope Failure or slip:	2	2
NRCS Soil Unit:	Could	theen of	Channery	Tilly	Lisain	(Bedrock Type:		N/A					Dip Slope &	Dip Slope & Direction:	Dip Slope & Direction:	N//
Mineralogy:	514	limous	C	4			Vegetation:		Sugarmare	ne.	nothent	in H	2 Bas	LONE 2	Look Hickory	LX	Hilm
Horizon	Depth in M	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidity/ Stickings	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color		Pature Radox Feature Description		Redox Fasture ROOTS Podest Prinstrometer/	Redox Fasture Roots
*	0-3	She	SiL	11	16	100%	20.2	50	-6%	NEW	SA	1		ī	1 2 yu	125 A 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	からか
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2.8tx 1	28-44	4/3	SS	40	7	GA (D)	0,25-	55 55	79	wig	SA A	5 m 5/6		CP	63	4.7 J. J. J.	4.7 J. J. J.
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Other Notes:

Soil Scientist: Juane A. Truny
Field Assistant: Jerul or Malter

Date: OG - ZO - ZO C Job Name: Dominion - Atlantic Coast Pipeline Soil Survey RETTEW Job #: 089962000 NRCS Soil Unit: O September 2000		% Slope: Drainage Class: Depth to Refusal:	3/10		Slope Aspect: Depth to Water Table:	7/1/2 2000 // 1000 100 100 100 100 100 100 100
Jait:		Drainage Class: Depth to Refusal:			Depth to Water Table:	1//2
nit: #		Depth to Refusal:	-77			10/20
1. Carrotte Control		The state of the s	- 17		Slope Failure or slip:	
00000000	Man 1000 1-1+ 1000	Bedrock Type :	Sordentine		Dip Slope & Direction:	N/ANG
Mineralogy: 5/ Cases	6	Vegetation:	2017	をなっている人		J. J. Danker CO.
Horizon Depth in Matrix Color inches	Texture % clay % sand Fragment Class Type & %	Rock Fragment Purchy/ Size (inches) Stddmm	Structure Type, Moer. Hoston Boundary Grade, and Size Consistence Designmen	Redox Feature Color	Restaur Persure ROOKS	Poder Pressure / Lab Sample Notes
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Bul 12-26 5/4	1 3 42 X2 14	0.0 SS	53)	1 1 1	
C 20-31 514	38 38	0 / 10 0 / 10 0 / 10	So Im SA		9	10 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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Other Notes:

TEST PIT DESCRIPTION
Soil Scientist: M. WOOD
Field Assistant: M. DUGAT

GALBRAITH

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	0	P009-11,062	0-14	15 -M	MAN		Topographic Position:	ition:	SUMM	7			Parent material:	iterial:	Rest	Residung	
Date:		6/20/16					% Slope:						Slope Aspect:	ect:	500		
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		DO				Depth to I	Depth to Water Table:	> 32		
RETTEW Job #:	0899	089962000					Depth to Refusal:		32				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:		スとととと	d				Bedrock Type :		Natsonas	SNa			Dip Slope	Dip Slope & Direction:	270	Strike:	the: 370/1/22
Mineralogy:	H	mixed					Vegetation:		RED MAPLE	en	TRIPED	SUGIAR	BUSICH	BL. CHEMPY	KIL		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Roundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Peasttometes/	Lab Sample ID	Notes
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18	6-13	7.5 YR	21)	00	5	35	46"	8 50	22.78S	B	es		(3 A-W	0.15	4	
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Other Notes:

Soil Scientist: (M, WOOD, Field Assistant: M & DUGAN

J. GABRAITH

Signature:

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rest rit io:	- 4	1000000	(1		.0	% Slope:		2				Slope Aspect:	a.	210		
loh Name:	Dominio	-	peline Soil Su	rvev			Drainage Class:		MWD				Depth to Water Table:	ater Table:	M		
RETTEW lob #:	089962000	non					Depth to Refusal:		46				Slope Failure or slip:	re or slip:	1		7
Elitar John	200	ATRACHE					Bedrock Type :		SANDSTONE	AND			Dip Slope & Direction:	Direction:	190	ENE	Strike: 2
NKC3 SOII ORIC:	5	CAST					Vegetation:		See notes below	below							
Mineralogy:	- 10	1760					C			USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickings	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feeture Description	Roots	Product Penetrometer/ per	Lab Sample ID	Notes
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843	23-31	415 21,3/6	SIR	25	3	8	450	35	20 × 70 × 70 × 70 × 70 × 70 × 70 × 70 ×	7	CW	1		14-VF	5.75	56	
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8t3	14.4E	7.5 YR	Sich	23	15	300	151	35 30	28 K	F	CN	15/R5/8 M/d	3 3)	400	88	LITTLE POSE
Other Notes:	44	Cr															

CUGAK MAPIK BL. OHERRY KED OAK MAPLE

TEST PIT DESCRIPTION

soil Scientist: M, MOGD

Field Assistant:

M. DUGAN T. GALBRATTH

Signature: M. W.

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

24-28 3-10 NRCS Soil Unit: 10.24 7-3 RETTEW Job #: Job Name: Test Pit ID: 28+ Mineralogy: DH Horizon Bwz Depth in inches 00 Bu A Dominion - Atlantic Coast Pipeline Soil Survey CATEACHE 54R.3/2 011-160620-1140-MAIN 218 218 7.5 W \$15 YV 75 M Matrix Color 512 5.0 Texture Class Sh SA 15 5 % clay % sand 5 U 50 00 0 7 Fragment Type & % 255 611 30 30 % Slope: Depth to Refusal: Drainage Class: 1 Rock Fragment Size (inches) Bedrock Type: Topographic Position: 427 12 S 0 1 85 PS 3 3 J 1 Structure Type, Grade, and Size 3 SBK BUAGE CHECKLY SAMPSTONE 50 VF TIMMUS SBK C P 28 VFA Moist Consistence R F S A S CS H MATUE Redox Feature Color) 1 MAGNOUA, BEECH Dip Slope & Direction: Depth to Water Table: Slope Failure or slip: Parent material: Redox Feature Description 1) 3 F-VF 2 co-11 S CO-MF 10-M COM F-UF FUF 1 Roots 0.5 N 0.25 13 0.25 4 330° D KED MAPI 728 Lab Sample 1 1 Strike: 300 Notes

Other Notes:

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TEST PIT DESCRIPTION
Soil Scientist: M JOOD

Field Assistant: M. DULAN

Signature: M. WK

J. GALBRAITH

I est Pit ID:	9 6	000	155000	4	13/1/		topograpine i osition.		CON	CIVILLY I			raieil illatellat.	arendi:	The state of the s	LOUI VV IVIN	I ICICAN LA II AII
Date:	6	120/16					% Slope:		4%				Slope Aspect:	ect:	120		120041
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		G.M.				Depth to	Depth to Water Table:	40,4		
RETTEW Job #:	0899	089962000					Depth to Refusal:		45				Slope Fail	Slope Failure or slip:)		
NRCS Soil Unit:	0	PATRACHE					Bedrock Type:		SANDSTONE	57000	.6		Dip Slope	Dip Slope & Direction:	15.5%	٠	Strike: 194 < 14
Mineralogy:		MIXED					Vegetation:		SEE 001 1111	NU							The state of
										USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plantkity/ Stickborn	Structure Type, Grade, and Size	Moist Consistance	Horizon Roundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Panetrometer/ pri	Lab Sample ID	Notes
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29-27	5	MAST	1	1	1	t	1	1									
		1,11															
77	D																

Soil Scientist:

Field Assistant: MIGUEL PAREN

		t ID:		
91/61/9	7,	P-022- 60614-1050-15N		
% Slope:		Topographic Position:		
387		BACKLIEFE		
Slone Aspect	Laicht mateman	Parent material.		
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		200	- KI 0 . 0	100	0	1350	ropographic Position:	tion:	CANA	CAL	6		Parent material:	iterial:	COLLONIO	I	の名がかのかけっところ
Date:	6	911/61/					% Slope:		387				Slope Aspect:	ect:	1360		
ob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		とれて				Depth to	Depth to Water Table:	1		
RETTEW Job #:	: 089962000	62000					Depth to Refusal:		00				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	1	7- 2	EKAL	De - 3	五年五十	KS	Bedrock Type :		5115	TONE			Dip Slope	Dip Slope & Direction:	1		Strike:
Mineralogy:	Z	Q3X1M					Vegetation:		BICKOR	CHA	TUN TY 3H	OAK	444	MATUR LAURE	PEC.	BUNE	OC CONTRACTOR
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment	Plantistry/ Stickiness	Structure Type,	Moist	Horizon Boundary Topography &	Redox Feature	Redox Feathers	Roots	*metometer/	Lab Sample	Notes
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Other Notes:

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Field Assistant: MIGUE Soil Scientist: JOHL NOLL

PARAMES

Test Pit ID:	7	023-11	-41909	- 115	0.	PA 50	Topographic Position:	ition:	BACKSI	0000			Parent material:	terial:	7 00 1	LUVIO M	1000	
Date:	5	114/16					% Slope:		, 7				Slope Aspect:	ed:			0	1000000
Job Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	t Pipeline Soil	Survey			Drainage Class:		ときてし				Depth to \	Depth to Water Table:	1			
RETTEW Job #:		089962000					Depth to Refusal:		56"				Slope Failure or slip:	re or slip:	1			
NRCS Soil Unit:		CALVINIT	- DEEALB	1	BARK	53	Bedrock Type :		511757	TONE			Dip Slope	Dip Slope & Direction:	١		Strike:	1
Mineralogy:	7	MIXED					Vegetation:		ナースコナー	4	コーチャン	0	TUNTOT	ラトス	With the	P		4
										JSDA		1			400	1	100	0000
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Product Penetrymeter/ pti	Lab Sample ID		Notes
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2R	564	SILTS	TON	À	N	BEDROCK	OCK.											

Other Notes:

SANDSTONE FLASS AND STONES DN SURFACE DX 1200 50"

Field Assistant: Soil Scientist: JOHJ WA DABAMES

Signature: 9/4 W)

Dep		Mineralogy:	VRCS Soil Unit:	RETTEW Job #:	ob Name:	Date:	est Pit ID:	
Depth in		3	CA	089962000	Dominio	6)1	- A	
Matrix Color		3 XED	CALVIN - DE KALB - BERKY Bedrock Type:	000	Dominion - Atlantic Coast Pipeline Soil Survey	114/16	NST-0441-4190911-120-12N	
Texture			EKA		ipeline Soil Su		41909	
% clay			1 8		irvey		-141	
% sand			B & 7				10-	
% clay % sand Fragment			CK3				152	
Rock Fragment		Vegetation:	Bedrock Type:	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
Plastidty/ Stickiness							tion:	
Structure Type, Moist		MAPLE WHITE DAK.	SICTSTANE	١	NAC.	370	BEUCH / NOSE	
Moist	USDA	ZF	700			,	1 Nos	0
Horizon Roundary Topography &		178 27F	C.I.				et.	
Redox Feature	100							
Redox Feature Description		DEN LOCK	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	Slope Aspect:	Parent material:	
Roots		T. 25	Direction:	e or slip:	ater Table:	ff	rial:	
Poder Penetometer/ Lab Sample		WHITE PINE	1	١	1	0 0	中田と	
Lab Sample		PINE	Strike:				MANAGICAG	
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Other Notes: SOME BEGINZING COLLANIA 3 64 .. 1 12 てしいまりてな DECKARD T しいてん いいとうひだひ SURFACE SPX 957000 子母 MA V 0 11 5 Y R 3 d VE LENEL

Field Assistant: 1 ay 10- Walter

Test Pit ID:		-t-027-	1606	7	-0942- JCK		Topographic Position:	tion:	L' Man	417	Book shop	900	Parent material:	terial:	011		rosid	3
Date:		6-17-2016	016				% Slope:		100/			+	Slope Aspect:	ect:	77/0		Over legicadin	
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		OM				Depth to \	Depth to Water Table:	1	(
RETTEW Job #:		089962000					Depth to Refusal:		30				Slope Failure or slip:	are or slip:	1	1		
NRCS Soil Unit:		DeKalb-	Hazel	the			Bedrock Type :		1				Dip Slope	Dip Slope & Direction:	1)	Strike:	1
Mineralogy:	-	MIXED					Vegetation:	L	Mountain		and,	White Pine	5	her less	Pino K	W Pr	0060,	Red Oak is
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickhess	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distlectness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID		Nates
0	0.5	162216	,			33	50-52.0) 1	700	1	A			2ws	4.2	1		
4	W	10464/	2.1	12	11	10	0,25-03	Po	750	VFR	AW			1 N C C C C C C C C C C C C C C C C C C	0.25	1		
M	7	2516/4	718	12	7	01	Dr. 5-210	50 00	- SBK	FR	CE			5 m	25	1		
BWI	Ū	10425/6	215	15	卫	10 lo	50-520	250	SBK	FR	3			25,5	0.75	İ		
B w ?	19	104R76	211	17	h	20	05-52.0	SS	SAX	R	3			220	52.1	1		
(32	104R6/6	21	0	10	53	8.0-52.0	50	W 0	VF1	gw 9	1	1	1	2,4			
70	128														ř ·	1		

Other Notes:

revision consists

collucium moderterial 0.15-0.5 chert & siltstone

.04

TEST PIT DESCRIPTION
Soil Scientist: John C Robert
Field Assistant: Toylor Walter

Signature: John Robot

Test Pit ID:	P.	r-028-160	16067-	8	1005		Topographic Position:	tion:	Shoulder	e Sley	100		Parent material:	terial:	E 3	E diluxions	Pacidician
Date:		6-17-2016	0				% Slope:		220%		1		Slope Aspect:	ect:	24/	0	10000
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	survey			Drainage Class:		OM				Depth to \	Depth to Water Table:	1	1	
RETTEW Job #:	089962000	2000					Depth to Refusal:		7.4				Slope Fail	Slope Failure or slip:	1	1	
NRCS Soil Unit:	De	ockalb- Haze	elton				Bedrock Type :		Sand	Sino			Dip Slope	Dip Slope & Direction:			Strike
Mineralogy:		8					Vegetation:		Mounton	laure	Sa.de	Bank March	laste Gum	Gumil	Lto Pire		, and a
										USDA	-	una.	Linet	4	ı		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticky/ Sticklosess	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Radox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
	1	2/2						1	68	1				25	1		
De.	6	18.2	1					,	7.77		A.M.	1	1	3	4.7	1	
A	1	1/4 dxol	-	2	40	CP CH	0.5. 0.5.	Po	50	VER	VER AW)	22	0.25	1	
			-			1	10 3.0	1	1,1						N.Y		
771	10	10/25/6	_	GG	64	500	0.5-1.0	8	SOK	VFA	CM	1	1	1. v. 60.75	20,50	1	
	-						_	3							- 110		
Bw	20	7187R5/6	_	20	45	90 OH	0.5-3.0	20	58K	R	3	1	,	37	1,50	7	
Bw2	32	754846	-	22	45	368	0.4-5.0	92	2015	A	E			25.5	0.75	1	
)		7540		,				30) =		
(5	8/6	SL	o	65	1		65	00	7	6W	2	1	1	4.4	1	
3	艺																
7	**									-							
-3	н																

Other Notes:

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TEST PIT DESCRIPTION
Soil Scientist:

Field Assistant: 1 Part 9 PRE PATE Soil Scientist: JOHN VIA

Test Pit ID:	P	P-031-160	515	-122	2-1	SW	Topographic Position:	tion:	BACKS	3401	(c)		Parent material:	terial:	COLLONION		OVER RESIDUUM
Date:	6/	15/16					% Slope:		4670				Slope Aspect:	ect:	0 100		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil :	Survey			Drainage Class:		MACC				Depth to V	Depth to Water Table:	1		
RETTEW Job #:		089962000					Depth to Refusal:		32"				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		WEIKERT					Bedrock Type :		SILT 5:	3 THE			Dip Slope	Dip Slope & Direction:	Det St	300	Strike: 2200
Mineralogy:		MIXED					Vegetation:		4 13	OFX	WITH TA	TE PINE		HICKORY	TAN INCH		
										USDA				,			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size		Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetromenes/ pH	Lab Sample ID	Notes
00	0,3	x (2.5)	(1	1	ţ		1 1	Ţ		2	t	1	7-17	f 1	1	
Y	2, 2, 1	アイマアンド	2:5	12	81	200	2.0.5	0 0	1492	4	5	ì	1	2-VF,F	N N	t	
P	2,2,2	X SYRAIN	3,6	41	5	0 7	< 1	00	LASOK	272	5	1	1	7,27	N N	1	
2	2,18	JYSYRSH NCH	7.07	41	5	CT to	1-3	55 A5	NES.W.	4	6 24	-(4	7-54C	1.0	1	
C	16 24	7 KS KSTKS LAND		2	7	£ 4	2-4	3 5	NO. W.	77	î	1	1	1-F,M	10	1	
200	14. X2	ţ.	Ť	T	j	1	1	1 1	1	1	,	t	1	T	1 1	t	TITLE GHOSHELT
7	3° X	512	151	0	3	Ø1	AGS	0	7								

Other Notes:

DACKSCOPE - CINETR

CINEAR

Test Pit ID:	Field Assistant:	Soil Scientist:
032-160817-1717-1717 Topographic Position: BACKS CONT. NO. 5	THEREST TH	NON
Topographic Position:		Signature:
おかくにいしのカナ / とのい!		15 W/
Parent material:		
Sand Whiteh 102		
RECEDENCE	Phone: 717-394-3721 Fax: 717-394-1063	RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 77603

lest bit in:	0 -	032-1600	1	115	07.4	2	Topographic Position:	tion:	BACKICO	1340	2000		Parent material:	erial:	てっしてい	NYNINN C	OVER RESIDUAM
Date:	6/	15/16					% Slope:		2270				Slope Aspect:	t:	1900		
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		WELL				Depth to W	Depth to Water Table:	1		
RETTEW Job #:	089962000	2000					Depth to Refusal:		34.				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		WEIKERT					Bedrock Type:		Sitstan	P			Dip Slope 8	Dip Slope & Direction:	219 11	100	Strike: 20°
Mineralogy:	7	43×1×					Vegetation:		white pine	23	to oak	hop horno cam	can	hickory	-	0	
		18 0			W					USDA	1		1	11			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Roundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
0	0,151	Sersi	١	1	1	U	1	, 1	1	1	25	1	1	3-47	1 ,	1	
Y	12.	10/23/1	SiL	12	5	970	1	000	1858	LER	2	r		3-47	4.5	1	
2	2,10	10425/6	Z. +	71	0	H 2	0.5-2	25	NES MY	TP	2	r	1	3-46,7	4.90	,	
00	(o, \	10485/4	7.5 NCH	5	ý	T ST	1-2	000	16501	FR	2	1	Ť	1-07	4.5	1	
286	12, E	2.575/4	N.S. T.	23	0	E O	1. 7	5 5	1858X	TP	2		ı	2-1	1 1	1	PITH OCH BOWIC
101	8	1	1	r	1	,	1	, ,	1	1	1	1	1	1	(/	1	
F	3xx	516	151	0 7	4	- vi	A C.	0	7								

Other Notes:

Field Assistant: DOLL GERBBRITH Soil Scientist: Jacky Writ

Test Pit ID:	0	1033-160	-3190	401	1-1	SW	Topographic Position:	tion:	おとにより	CET:	2 . C	XYA	Parent material:	terial:	2021	0 5 5 6 7 10 50	SA LA	PECININ
Date:	6	115/16					% Slope:		1870				Slope Aspect:	ect:	20			200 000
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		なるないか	ATR	5	2011	Depth to \	Depth to Water Table:	. I			
RETTEW Job #:		089962000					Depth to Refusal:		1				Slope Failure or slip:	re or slip:	1			
NRCS Soil Unit:		ととろととととして	-1				Bedrock Type :		51 45-	3 rate			Dip Slope	Dip Slope & Direction:	1		Strike:	1
Mineralogy:	7	4341					Vegetation:		ナイトの	A LUX	PED	maple.	ng	COOR DE DON	27175	7 7	- 1	HIT YOUNGER
										USDA	1	9					100.00	
Horizon	Depth in Inches	Matrix Color	Texture Class	% clay	% sand	Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horison Roundary Topography & Distinctness	Redox Feature Color	Redax Feature Description	Roots	Pocket Penetrumeter/ pH	Lab Sample ID		Notes
00	0	PRS)	(1	Ť	1	ı	1	(1	8.5	(1	コーソアーカ	1	1		
0		N. t.				1		1		1				1-10	4.5	3		
>	3	160	2.	ت	1	0		70	e	P	_			2.7.1	0.25		45.45	STANTELINE COL
P		1017	3	í		SP	1	00		4	24	,	1		4.5			
T.	1	plegi		3	0	0 1	-	0	100	B				2 - 17 3	2.0		5 1	SANDET DHE CEP
D.	3,	101	N.C	í	1	GR	1	50	18	4	84	,	Ť	1,0	4.5)		
80	16	5.75	2.5	20	20	23	-	" 4	16:41	B	0 5	(:	1	7	1.0	1	3 142	TOTAL SELECTION
		>								1					4.5			
カメン	3	a 12967	5.5	ع	ok	03	1-3	-4	7520	3	2	1	1	7 1	1.5	1	2000	1000 00 T
0	6	1.16		,		CH		55	5		2		1		1			
2	50	0 25	404	ć	1	3	3	25	1858K	-		9/5245	620					
20	3/	104 1	28	0	-	CH	1 - >	55	JAWI	7	3	1/92/01	120	t	1	1		

Other Notes:

LINEAR CANCONE. おしてい RUBENCA

TEST PIT DESCRIPTION

Field Assistant: Soil Scientist: ZPI

Signature: 0 / N / N

a CRAP T

Test Pit ID:	- 6	054-16	0615	10	19 5	22	Topographic Position:	ition:	Backs	Spe			Parent material:	terial:	Collun	WUILLIAM OF	over Resid
Date:	6	115/16					% Slope:		2000				Slope Aspect:	ect:	0		1
ob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		1 3 m				Depth to I	Depth to Water Table:	かわれ	7	
RETTEW Job #:	089962000	52000					Depth to Refusal:		1144				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	ME	FIKERT					Bedrock Type :		Siltstan	2			Dia Slage	Dip Slope & Direction:	627	0 0	Strike: 200
Mineralogy:	3	·xed					Vegetation:		Scarlet a	Oak C	Survisor	Oak Witch	d H	Hare 35	1 0	C	ouxe:
										USDA		1			1	-	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickhess	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
0	3	18:5	1		t	1	1	,		1	A			3,45-46	1		,
0		5720	- 1	1	19			,	1	1	8	(1		47	į	
P 3	5	1 50	5.1	Ū,	1	7	^ 1	0	23	٦				3, 44-40	22.0		
-		10-14		-	-	I		50	141	4	2 4	1	1		4.9	1	
36	かった	5	72.5		R	4	,	Po	1	P				2, vf-f	0		
		10401	210	6	04	CT	5	as		4	CVZ	Ť	1	3, m-40	4	V	
7.82	15.31	100	NCH	r r	0	TEN	4-1	3	781	4	2	,		2, vf-m	9	1	いっているとってい
7		1014	27.6	-	-	500	1	50	2 3	77	0 %		(45		7
20	350	Es V	ハメハエ	2	1	S	2 1 1			o o				3 6	3		M PL STRUCTURE
	,	-	0	-	ĩ	H			040	1	CA	,	1	4,7-19	•	- 1	Aced moent
	78-44	1						*						1,5-100	,		
1	,	10	,			1	1	4	1		t	1	1		Y	1	
27	生十																

Other Notes:

3445 ENIDERCE 9 \$ 12 1 1 × 2 OL

32442E

soil Scientist: P. Fenste (MOLL War TEST PIT DESCRIPTION Field Assistant: JOHN WAH

Signature:

Job Name: Mineralogy: RETTEW Job #: Test Pit ID: NRCS Soil Unit: 000 Horizon C R 0 0 15.00 (O.14) 14.23 Depth in inches , 'N 0 Dominion - Atlantic Coast Pipeline Soil Survey 6-035-10/23/11 Wei West (Well) カイングロ 18 P 8 6 Matrix Color NATES (1606015-1011-764 715 8. * Texture Class 1 17 2 % clay 4 J a % sand 2 31 T 1 1 20 Fragment Type & % 500 POT TO Ţ. CK Bedrock Type: Depth to Refusal: Rock Fragment Size (inches) Vegetation: Drainage Class: % Slope: Topographic Position: 0.5 SP 50 04 55 1 NE LE 1887 Structure Type, Grade, and Size Chestnut car shelle Tan Ridge Top wer Should Parent material: 1 1 TA L KR Moist SOMEWHAR EXCESS DEPARTS WATER TABLE ŧ. 2 2 2 8 Horizon Boundary Topography & Obtindness (Redox Feature Color 1 (nite ank rocking Slope Failure or slip: Dip Slope & Direction: Redox Feature Description Slope Aspect: 1 1 1 ١ 3- VF アトア 3- 5 F-F,M Roots 3 218 4.5 360 0.5 20.25 wordnaw 4.2 1 1 1 Parent. 1 400 horn bearm Lab Sample JD M Strike: Notes

Other Notes:

SUX X II

CARROS

KIDSE

CBEST

TEST PIT DESCRIPTION
Soil Scientist:

Field Assistant: Taylor Soil Scientist: buts

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

											-						
Test Pit ID:	P.	P. 036 - 160615 -	15-1557		- JCR		Topographic Position:	tion:	Barl	5/000			Parent material:	terial:	0011	0	
Date:		1					% Slope:			0			Slope Aspect:	of:	3/90	O CT DA	
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:						Denth to V	Vator Table:	1		
RETTEW Job #:	08996	089962000					Depth to Refusal:		200				Slope Failure or slip:	Slope Failure or slip:	1		
NRCS Soil Unit:		Weicher					Bedrock Type :		+	stone			Dip Slope	Dip Slope & Direction:	100	9	Strike:
Mineralogy:		mixed					Vegetation:	×		1424	white	to Dino		3		M	
										USDA			4		The last	Jane 1	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctorss	Redox Feature Color	Redox Feature Description	Roots	Pocket Penecionists:/	Lab Sample ID	Notes
00	1	1/52216			1	200	0,5-1,0	1 1	100	*	A	1		3 342	1 1	1	
A	N	104/24/2 51	S	0	12	UTO NO	8.5-20	8 8	160	AN	4 4			775	0.25	T.	
128	12	10-12-6/	312	N	4	20 CH	0.5-3	55	785	TO	CW	1	1	1/m/nf	2 17 3	1	,
Bw2 23	23	104R5/6 SIL 17	215		12	65 VCH	1-3	55	198	Z	3			125 m	2.25	1	
NA	23+															1	
																ú	

Other Notes:

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TEST PIT DESCRIPTION
Soil Scientist: John L R
Field Assistant: Taylor Taylor Walter

Signature: RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	0	0-037-16	0615	1	532	Jea	Topographic Position:	tion:	Sumo	1			Parent material:	erial:	G	sidoun	
Date:		(0)	15/16				% Slope:		Cro				Slope Aspect:	e:	460		
lob Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		Ouns				Depth to Water Table:	ater Table:	(
RETTEW Job #:	089962000	2000					Depth to Refusal:		11				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:	N.	Weilcort .					Bedrock Type :		5.145	Toro			Dip Slope & Direction:	Direction:	052	Strike:	ke: 0/0
Mineralogy:		Mixed					Vegetation:		White	Pin	B	lack Sum	wh	white Oak	. 5+	ripe maple	Vac
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickbress	Structure Type, Grade, and Size	Moist	Horizos Boundary Topography A Distinctness	Redox Feature Color	Rados Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
0 e	-	54R2.8/	1		1	100	0.25-1.0	7)	77	APP	MP AU	1		43.2	£ 1	1	
A	2	10-10 3/2	715	1	12	<u>0</u> €	0.75-1.0	50	99	97	5	1		3,7,5	0.75	1	
8 4	77	1048 3/6 21CH	215 ACH	4	Ti	PH CH	1-3.0	55	SER	75	AN			4.4	2.0		
79	=																
700																	
4																	

TEST PIT DESCRIPTION
Soil Scientist: John C Pobe
Field Assistant: Taylor Walter Roberts

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	0	P-038-160	191909	1455	1	SCR	Topographic Position:	tion:	Sower	Backs	1000		Parent material:	terial:	Coll	1	Crsidoun
Date:	5	9					% Slope:		44				Slope Aspect:	ect:	1210		
lob Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		am				Depth to \	Depth to Water Table:			
RETTEW Job #:	089962000	2000					Depth to Refusal:	2	30				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	5	weiker+					Bedrock Type :		+1.	Stone			Dip Slope	Dip Slope & Direction:	1250	SE	Strike: /2/0
Mineralogy:		Mixed					Vegetation:		White	Pine	1 Chostn	0	Soule	3	sple		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horison Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
Oc	2	1623/15	-1		1	ナゴ	0.5-1.0	17	200	VFR AW	A			£*2	50)	1	
A	7	115 2/2 Dho!	25 H	14	0	TE	0.5-2.0	50	- C	VFR	3	1		44	0.25)	
30	2	3/5 2KZ	11 S H DA	17	JI	OT U	0.5-30	50	- 58K	FR	C.M.)		100	9.75	1	
B w Z	16	754R5/6 VCH	1CH	22	20	65 CH	1-4,0	55	1 DE	57	FR 6W	1	1	15,00,00		1	
10	26	2/2.7	1	10	3	55 HD	1-8	1 1	İ	1	7	1		tut	j (1	95 Vh.52
2R	26+														1 1		

TEST PIT DESCRIPTION Roberts

Field Assistant: Taylo Walter

Test Pit ID:	0	9-039-160615		1244	- JCA		Topographic Position:	tion:	Sha	travied 1			Parent material:	terial:	C611	200	
Date:	6	A Y	1				% Slope:		2				Slope Aspect:	ect:	2800		
Job Name:	Domi	3 1	Pipeline Soil S	urvey			Drainage Class:		d'W.D				Depth to \	Depth to Water Table:)		
RETTEW Job #:		089962000					Depth to Refusal:		40				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:		136:14:7					Bedrock Type:		Sands	time			Dip Slope	Dip Slope & Direction:	200	119 5	Strike: 9
Mineralogy:		m ked					Vegetation:			Pine .	Glack our	1	lace muin	· 9p.	Che strot	of Only	X
										USDA		,					
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Scickiness	Structure Type, Grade, and Size	Moist	Horizon Roundary Topography & Distinctness	Redox Feature Color	Rados Feature Description	Roots	Pucket Penetrumeter/	Lab Sample ID	Notes
ж	-	\$10 z.5/				60	-520	1		5/8				7347	1		
00		/0/				10		1			AW	- 1		-	4.2	1	
>	~	15 Oral	2	-	0	7	0.5-1.0	B	68	Ď	1	,		345	0 4	1	
D	(101/2	C	1	0	元		05	15	7	7			3	8.4		
		10001		2	5	7	0.5-2.0	Sp	SRK	52				24,m	125		
200	=	101K9/6	3/10	ō	(25		55	- 3	100	2			100	5,3		
2	à	1048 5/ CV 15	< 1	7	12	CH	0.4-5.0	SP	SRK	5				14F,50	0,2		
7 N.B.	17	7	7			50		55	13	Z	88			W. 43	5,2	1	
of the	CP																
100	c																
2R	40+																
										1							
						-											

soil scientist: John C Roberts
Field Assistant: Jaylor Walter

Signature: The West

Pipeline Soil Survey	me:	0-15-2016	%	% Slope:	2100%				Sione	Spe	spect.	7	Sione Aspert:
Dornicon Atlantic Coast Pipeline Solf Survey Dornicon Refusile: WD		9107 - 51.9	%	% Slope:	16.00					Slope Aspe	Slope Aspect:	150	150
		Atlantic Coast ripeline soll survey	0	epth to Refusal:	1 2					Slope Failui	Slope Failure or slip:	5	1.5
Marke Color Toture Med Maple Wegetation: Red Maple Wish Wish Wish Maple Wish Wish Wish Maple Wish Wish Maple Wish Wish Maple Wish Wish Maple Wish Map	No. Key		Be	edrock Type :		N.							
Depth in Matrix Color Texture Matrix M	MXEM	De l	V	egetation:		6	5	T	Pine (101	101	Cheshot Oak Itoo	Cheshot Oak Hoo kinderen
1 TSYRTH 712 - CO 0.25-10 - CR 1. AW 3 CYRTH 10 11 16 10 CR 0.25-10 - 14 CW 17 107R \$6 CSL 18 11 16 10 CR 0.5-2.0 SD 12 FR CW 17 107R \$6 CSL 18 11 15 CSR 0.5-2.0 SS 50 CW 18 107R \$6 SIL 17 10 GR 0.5-2.0 SS SBK FR CW 50 Cy SS 17 M FR CW 50 Cy SS SBK FR GW	Depth in inches	Texture % clay	Rock Fragment Type & %			Moist Consistence	Horiton Boundary Topography & Distinctness	- 20	Redox Feature Color	tedox Feature Redox Fedura		Bedoor Fedore ROOTS Poder President Profess President President Profess Profess President Presid	Redox Feature Roots
3 104RH 10 11 10 6.25 1.00 50 1 M WER AL 10 104RH 56 51L 10 11 15 0.5-2.0 50 1 M WER AL 17 104R 56 51L 10 11 15 0.5-2.0 50 1 FR CW 18 104R 56 51L 17 10 62 2-6 50 50 1 M FR CW 50 C. SOL 17 10 62 2-6 50 0.5-2.0 50 0.5-	1	The office		01-52.0	100		MA			1	J. 2 2	7.7.6	
17 10712 6 512 16 10 6R 0.5-1.0 70 58K FR CW 17 10712 6 512 10 11 15 0.5-2.0 50 12 50 1 FR CW 25 10712 50 12 60 0.5-2.0 50 1 FR CW 50 C. 50 11 10 62 2-6 50 50 1 FR GW 50 C. 50 11 10 62 2-6 50 50 1 FR GW	8	0					7		1	1	74.5	5.4 4:1	
17 107R \$6 512 18 11 GR 0.5-20 50 50K FR CW 25 104R \$6 512 20 12 68 0.5-20 55 9m FR CW 50 C. 50 512 17 10 62 2-6 50 50K FR GW 50 C.	70	311	18				CM		1	1	1 2 0 0 7	2 n 2,0	6 5
25 104R 5/6 SIL 20 12 GR 0.5-2.0 SS SBK FR GW 42 101R 5/8 SIL 17 10 GR 2-6 SP 1 m FI GW 500 C - SP SOLCITO FI GW	17	2115		-			CM			1	173	1.75 m	
C \$ 101R \$ 60 SIL 17 10 602 R-6 SS 30 Ministro FI GW	22	317	35		0.		MA				15, 17.60	15, m.co 1.75	
501	いまっ	215	400	L a L			3	1/2 24.91 4/1 Dr.01	15 26.01 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/	1/2 1m	M	W 3 3 3	2 1 3 1 4 2
	50,	5									0	9	9

TEST PIT DESCRIPTION
Soil Scientist: John C
Field Assistant: Ta Lo

ild Assistant: Ta for Walter

signature: Mana Robert

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-7051 Fax: 717-394-1063

Test Pit ID:	9.	17	14-	1453-	500		Topographic Position:	tion:	Summi	×			Parent material:	terial:	ক	A SA	M	000
Date:	6	-14-201	6				% Slope:		8				Slope Aspect:	act:	32	10		- 1
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		100				Depth to V	Depth to Water Table:	1			
RETTEW Job #:		089962000					Depth to Refusal:		73+				Slope Failure or slip:	re or slip:	1			
NRCS Soil Unit:		Developent					Bedrock Type :		13 4	1 stone	4		Dip Slope	Dip Slope & Direction:	250	R	Strike:	540
Mineralogy:		Mixed					Vegetation:		Red M	Sold	White	Pine, Hop	him	broken !	rickory			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Roundary Topography & Distinctness	Redox Feature Color	Reday Feature Description	Roots	Pocket Penetrumeter/	Lab Sample ID		Notes
0e	0.5	1/8.2 8/1.5	1		1	201	0.7-25.0	1 1	TOP	1	A	1	1	348	1 12	1		
4	1.0	10-12-4/2	511	Ī	14	300	0.25-1.0	00	- GR	FD	NOW)	48	27.0	1		
2	4	9/02/201	715	9	12	20	9.1-5.0	50	5BK	P	CW	j	Į.	24,3	75 0	1		
84	14	10425/8 514	215	74	41	NOH NON	0.5-3.0	35	58K	1	Q.)	1	-17	2.0	1		
5	23	lork 78	215	22	141	25 A	1-6.0	58			CM		1	124	17	1		
P	W+														1 ((7.5785/8 + 10887/ 5iH Stone	ch 88

Soil Scientist: Sohn C

Field Assistant:

Signature:

Test Pit ID:	-	1	60614-	-1355-	5-3	CR	Topographic Position:	ition:	Concare		Led slape		Parent material:	terial:	3113	-	Residuum
Date:		0-14-2016	6				% Slope:		12				Slope Aspect:	ect:	727	0	
Job Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	t Pipeline Soil	Survey			Drainage Class:		Ow				Depth to \	Depth to Water Table:	1		
RETTEW Job #:	0899	089962000					Depth to Refusal:		00				Slope Fall	Slope Fallure or slip:	1		
NRCS Soil Unit:		Weikert					Bedrock Type :		led S	44 St	0.0		Dip Slope	Dip Slope & Direction:	150	Co	Strike:
Mineralogy:	H	Mixed					Vegetation:		P	me, B	ack	(4, mus)	Chors	White	Oak		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasthity/ Stickiness	Structure Type, Grade, and Size	Moist	Itorison Soundary Topography & Distinctorss	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
0e	-	5485.8%	,			50	0.5-2.0	f (17 GR	1	3	1		2,5	1 24	1	
A	CV	1048412	15	12	10	60	0.5-2.0	50	38	NED SAN	£ 0		1	45.5	4.8	1	
38	7	9/9 droj	215	N	v	26 6R	02-52.0	85	1 M	R	CW.			2 20, 0	0.1	1	
Bul	13	1942 2401	SIL	8	31	20	0.7-52.0	SS	W 1 385	FR	CW	1		5m, f	2.0	1	
Buz	18	lone \$6	715	0	9)	2971 442	0.5-2.0	55	Wo 1	FR	7			75	0.75)	
1877 1872	26	1042×18	512	4	P	45A	0,4.1	55	28%	-	Z C Z		1	to mil	1:25)	Soft silt ston
C	39	64R76	51	20	15	#24 8%	1-6.0	1)	Rock	1	7. AS),	12	17	1	First between
22	200																

Other Notes:

parent producial, 7.5 18 7/6 + 10/18 3/1

Field Assistant: Taylor Walter TEST PIT DESCRIPTION
Soil Scientist: Sohn (

Test Pit ID:		1043-	160614,	4,	13/7-	- 700	Topographic Position:	ition:	Rock	12 2/100			Parent material	torial.	12	100	
Date:	1	6-14-2016	6				% Slope:		256	-			Slope Aspect:	PCT:	100	The Property	THE STATE OF THE S
Job Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		0M				Depth to	Depth to Water Table:	1		
RETTEW Job #:	0899	089962000					Depth to Refusal:	**	30				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	Z	Welkort					Bedrock Type:		S14 5	stone			Dip Slope	Dip Slope & Direction:	470	30%	Strike: 3200
Mineralogy:	H	Mikey					Vegetation:		White Pine		Sto O des	S Witch	HATE	8	Staux		-
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickhess	Structure Type, Grade, and Size	Moist Consistence	Hurbon Boundary Topography & Oktineness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
00	0.5	5.27×5/1				50	0,25.20	1 1	1 F	E	3	1	1	24	1	1	
						,		2	, -						4,5		
D	4	10-183/3	SIL 14 12	-	2	200	025-1.0	3 8	300	VFR	VFR CW	1	1	320	520	1	
		1				0		8	1 /1	1				5 m	4.75		
R	Q	1/0 40 6/6	CI 16 14	5	14		0,254,0	95	SIL		2			75	1.25		
00	-	A		-		100		55	I W	X	MY CW			NA	7.75	1	
_	ñ	1040 5/1 811 17	13	17	75	5	0.25-	50	388	Fo	1	t		18	1.25		
IMC	0	1011/10	1	-	-	500	0,75	53	I M	7	W			K, 7, 21	474	1	
	1	TORSA	2	2	2	35	1-6	Sp	2016	F		1		55			
197	00	10	(13		NG 0/CIA		50	2 w		CM			!	8.4	1	
7	30	10x85/8 SIL	211	20	5	23	2-8	1 (Rock	1	(SW)	1		1vf	1 1	1	
2	768																S'I stone
																	Ol Color

Other Notes:

Soil Scientist: John C Roberts
Field Assistant: Taylor Walter

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P	D-044-160614-		1214-25K	JUK		Topographic Position:	tion:	CONCAVE	e / had	Store		Parent material:	iterial:	67	10001	
Date:	6	6-14-2016	6				% Slope:		27		,		Slope Aspect:	ect:	12 C		
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		NO				Depth to	Depth to Water Table:	10		
RETTEW Job #:	089962000	2000					Depth to Refusal:		42				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	We	chest					Bedrock Type :		Day SI	H Stope	2		Dip Slope	Dip Slope & Direction:	. DE	n	Strike: 26
Mineralogy:	M	30					Vegetation:		5	Huzol.	Chustout	nut Cok	111		-		-
										USDA		.		1	1	1000	
Horizon De	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Product Penetrometes/	Lab Sample ID	Notes
000	20	1/823/Y	1			10	0.5-1.0	((16p	(AW		1	1241	5	4	
٥				i	5	5	0.25-06	0	GR					1.16	101		
	õ	10×K1/,	216	ī	Ĩ	68		50	7	K	3	1	1		5.4	52	
Be	7	104R 6/6	315	2	0	0	0.25-1.0	ds	SBK	1				77	9	2	
	-		0	-	-	68		3	7	FR	30	1	1	23	4.7	23	
BW	U	10-1R5/6	212	•	12	100	0.5-2.0	SP	3 6	23	2	1		34	00	0	
						6		00	1					5	4.7	1	
Burz	25	10×18×16	512	19	12	I P	0.5-3,0	90	SBK	Z	3			2 2	0.7	2	
+			1			35		55	2+	7	5			607	4.7	00	
2841	36	10 1/2 1/8	SIL	200	C(A)	90 E	1-3.0	55	SBK	FR	3		1	N 7	4.8	56	Clay films
2612	42	10485/8	25	7	6	# 67 U	7-30	25	286	FR	2		1	37	1.0	45	Clay Pilms

Soil Scientist: Som ()

Field Assistant: Taylor Wal

Signature: You have

an Chedrest

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Date:	Job Name:	RETTEW Job #:	Mineralogy:	, ignored	Horizon D	06	A	P4	BW	C		-
	Dominic	089962000			Depth in inches	~	5.5	0	0	50		
6-14-2016	Dominion - Atlantic Coast Pipeline Soil Survey	000	W+Y01	100	Matrix Color	5YRZZ,	104R3/3 51L	10+RS/4 SIL	104R\$/6 SIL	50 love of Sie		
7	Pipeline Soil S				Texture Class		13	715	715	झार		
101	urvey				% clay		0	12	6	12		
1017 00	13				% sand		9	0	12	12		
					Rock Fragment Type & %	£ 5	Z =	45	MCH MCH	86 H>3		
% Slope:	Drainage Class:	Depth to Refusal:	Vegetation:		Rock Fragment Size (inches)	0.5-1.0	0.5-1.25	0,4.0.0	1- 40	8-2 54 025 g		
won.		-			Masticity/ Stickiness	11	05	2 3	55			
279/	SED	1115	K		Structure Type, Grade, and Size	29	11/1	- M	1 M	Rock		
1 1000		Lane		-	Moist Consistence	(VAR	R	FR	1		
1 San			white pine		Horizon Boundary Topography & Distinctness	5	MAR CM	ON ON	6W	Ŧ		
			e Cheston		Redox Feature Color	1	1	1				
Slope Aspect:	Depth to	Slope Fail	not c		Redox feature Description	1			1			
ect:	Depth to Water Table:	Slope Failure or slip:	Oak Ro	7.32	Roots	W to	27	726	100	1Vf		
25)	150)	Made	H	Procket Penatrometer)	1 12	4.5	1,0	52.1	1 1		
90000		TT	Black		Lab Sample ID	S	52	53	hs	1		
		Strike: 2/0	Black Locus		Notes		4			Soll+ stone tem fines		

世

Soil Scientist: D. FENGLES MAN DUS WY

Signature:

Test Pit ID:	-		1900 17 - 1050-DET	050	20-	7	Topographic Position:	tion:	MORNAC	15			Parent material:	terial:	200	derin	
Date:	+	MILLIA					% Slope:		20	N			Slope Aspect:	ect:	250	0	
Job Name:		Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	survey			Drainage Class:		10				Depth to \	Depth to Water Table:	1		
NRCS Soil Unit:	0	Wester 1	MOD	7			Bedrock Type :		02	1	andahaa	2	Slope Failure or slip:	re or slip:	Je 1	Ц	110
Mineralogy:	F	Mixed	(Vegetation:		Checken	0.3	-	-	Bluebarn	ermy, while	Pine Do	e mode	O Suine:
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Pleaticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Soundary Topography & Distinctions	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetometer/	Lab Sample	Notes
00	707	12.e	1	1	-	1	(1	1	t	AW	\	1	75	1)	
P	1.75	1.75 104 BZ.1	5.2	16	25	20	CD.	20	ZMGM	VE	Ru	1		300	1 05		
B	1,25-	Shol Shol	2.5	6	25	501	5:	50	19531	1 th	BO	,		30	21.0	1	
Bwi	13	104/8/4	1.5	<u>co</u>	1820	CN.	73.	58	18531	1	S	1		-37	1 3	1	
Bud	です	1.5 H/2010)	5.2	ã	0	N.3	1/2-4" SP	85	1/NS 8/K	7	CM	1	(25,m	2225	(
7	12/2	1	Seft	1 Sharle	96	1	1	11	1	1	MA	Ţ	1	7	11	1	
P	27	1	1	1	Y	1	1	1 1	1	i	1	ı	y [1		(
	2																

Soil Scientist: TIXENGLOVING CHUC Field Assistant: MAX DUGON

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	K	P-047-11	1600014-1	014-1045	-DEF		Topographic Position:	ition:	Headslor	20	/sulley		Parent material:	aterial:	Collon	וחווידו	
Date:		(1/0)	4116				% Slope:	*	371		0		Slope Aspect:	ect:	1		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey		A	Drainage Class:		- here	praino	0		Depth to	Depth to Water Table:	1		
RETTEW Job #:		62000					Depth to Refusal:	**	4				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:		P21K-189FF	(F)				Bedrock Type :		1	2			Dip Slope	Dip Slope & Direction:	1		Strike:
Mineralogy:		mixin					Vegetation:		Bring !	more to	whit	25 Maluria	FOLIA				
						100				USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticky/ Stickiness	Structure Type, Grade, and Size	Moist	Horison Soundary Topography & Distinctness	Redox Feature Color	Redux Feature Description	Roots	Pucket Penetrometer/ pri	Lab Sample ID	Notes
0	0-1	251	1	1	(1	1	11	1	T	AW	1	1	かな	S 1	S	
D	5.5	10-1R3/3	7.5	23	8	CB.	21/2.	86	2MGR	F	M3	\	1	36,M		52	
Bw1	17-5.5	215 Jus.L	2.5	23	<u>60</u>	CN Hoir	55 LIIJ 50	3 5	148831		BS	\	1	200	26.0	23	
Bw 2	25	1.54B	7.5	24 18	8	28i.	71/2 SP	35	IMBBK Fr	7	cw	((るか	26.50	2	
Engl	44 -52-	2.518	2,5	25 18	36	200 to:	C1/4"	58 88	17 x68911-	7	3	1	(£4	128.8	55	
4286	20+ 14.	7.542	7:5	2612	包	30	112	55	160594 79	70	1	7,5125/0	900	书	27.6	56	

Soil Scientist: DESCRIPTION
Field Assistant: Max Dugen

Test Pit ID:	0,	00011-840-A	4	035-D	DEF		Topographic Position:	tion:	Backstone	lone	(MID		Parent material:	terial:	Polluvia	1	over assidu
Date:		5	110				% Slope:		37%	,	-		Slope Aspect:	ect:	(090		
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil :	Survey			Drainage Class:		Mell				Depth to \	Depth to Water Table:	1		
RETTEW Job #:	0899	089962000					Depth to Refusal:		3)				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		Be My St B	9				Bedrock Type:		Sing gra	140	Sandsto	ne	Dip Slope	Dip Slope & Direction:	200 5	JET S	Strike: RO
Mineralogy:	H	xed					Vegetation:		Chestant Oak		wend wind day	Deman 5	Jr 745	sedmoor	white	Snow	Rost
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horiton Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pin	Lab Sample ID	Notes
8	2	12/2	1	(1	1	(1 1	((AW	1	1	34	1 0.11	(
P	4,25	Tour	2.5	6	<u>co</u>	583.	72.	88	NESSE	ifi	3		t	100 A	1.0	1	
B	35 35	2/2	2,7	6	6	GIR Hon.	5.	RS	16831	171	3	1	i.	D 32-4	0.7	1	Wixed COF Juffer
Pu Pu	16.5	10000000000000000000000000000000000000	2	ō	14	40.1.	C2.	50	14 38K F	3	CW	1	(10°	5.0	1	Bugnily Revised
250	200	Ellino!	7.5	<u>~</u>	Ē	58.	74.	38	165/5)	F	AW	1	(五	9.75	1	Arguer CF-Residum
P	27																
	0	0. ~ (1															

Soil Scientist: D. N-EMS+C 1 M CLNL

		0 1 1 10 0 0 1 1 0 0 0 5 0 0 0 0 0 0 0 0	Coast Pipeline Soi	oll Survey	DES		Topographic Position: % Slope: Drainage Class: Depth to Refusal:	osition:	reil rem	ONCK SI	510	18	8	Parent ma Slope Asp Depth to \ Choose Falls	Parent material: Slope Aspect: Depth to Water Table: Slope Failure or clin.	Parent material: Collins Slope Aspect: 384 Depth to Water Table:	Slope Aspect: Depth to Water Table: Slope Failure or slin:
Depth Marin color Texture X-city X-sand Fragment Road Fragment Road	08	9962000	1330				Depth to Refusal:	al:	1 H	1 1			Slope Fail	are or slip:		1 / 1	1 / 1
Dophthin Matrix color Texture % clay % sand Fragment mode Fragment mode March Matrix Color March Matrix Color March Matrix Color March	i	W	XXX				Vegetation:		Beech	5.155	Cak	3	Dip Slope	& Direction:	3		-
20 0-3 5 % C 1 15 20 25 C 1	111		Texture Class	% clay			- 10	- 07	30	2 5	Horizon Bounds Topography & Distinctness	Redox Feat	Rados Feature Description	Roots	Pocket Penaltomestar/	1	
The long of 15 and as LI to 1600 NF AW 36,000 Sol LI to 23 Sol LI to 35,000 NF AW 36,000 Sol Sol LI to 33 Sol LI to 33 Sol LI to 35,000 NF AW 36,000 Sol Fr CW	0	n	((((1	()	ı	(35	1	1	3. Sh	1 1	2	0
BW 20 7,5 th 5,2 18 23 507. LIT 50 1/5 50 1/	E D	2/2 July	5,1	15			17	80	18631	TH	AW	1		25°W	26.0	NW	22
84332 104R41H SiL 18 23 96 18-3: 90 16592 FT CW JAM SIC 18 12 651 L4" 90 0M FT AW JAM SIC 18 12 651 L4" 90 0M FT AW JAW JAW 394	-	1		0	22	501.	11.7	58	IMSBK		CW	(021 W'38	7.0	1 W	45 2
Cr 35 104851N SiL 18 12 651 24 90 0M Fr AW	oce and			20	22	2 5	118-3	50	16531	T	(m)	(1 3C	1.00	00	OSY ASCITUTE
394	2,		512	~	=	-	1	50	0	T	AW	(ŗ	1	1		
722 39+ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1)	1	1	()	1 1	1	1	MA	r	1	1	1		1
		1	7	,	1	1	١	11	1	(Ţ	1	İ	1	1 1		1

TEST PIT DESCRIPTION

Soil Scientist: D, Fe mote i MOLLLY Field Assistant:

Signature:

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Depth in Matrix Color Texture % clay % sand Fragment Rock Fragment Stree (Inches) Service Scientific Stree (Inches) Service Scientific Stree (Inches) Service Scientific Stree (Inches) Service Scientific Scient	Date: Job Name: RETTEW Job #: NRCS Soil Unit:			Oast Pipeline Soil Survey	oil Survey	D. D.	त		Topographic Position: % Slope: % Slope: Drainage Class: Depth to Refusal: Bedrock Type:	tion:	5000	15 5 S	SSX.	SSX	d Buckstone	Parent Slope Depth Slope I	Parent Slope Depth Slope I	Parent material: Slope Aspect: Depth to Water Table: Slope Failure or slip: Dip Slope & Direction: 18 &	Parent material: Slope Aspect: Depth to Water Table: Slope Failure or slip: Dip Slope & Direction: 18 &
Depth in Inches Matrix Color Texture We day W. Sand Rock Fagment Machine Structure Type, Moan Machine Redox Fagment Machine Structure Type, Moan Machine Redox Redox Fagment Machine Machine Machine Machine Redox Redox Fagment Machine Machine Redox Redox Fagment Machine Machine Redox Redox Redox Redox Fagment Machine Redox Red	Mineralogy:		3	red					Vegetation:		hickory	whis	o ocak,	Rodonk	C	hast nut can		50	
Operation Inches Matrix Color Totaline Class Matrix Stand Fragment Structure Type Structure Type Most Struct			100								4	USDA			-			+0	+0
5-1.25 SYR 2.51 2.51 2.51 2.51 2.51 2.51 2.51 2.51		Depth in inches	Matrix Color	Texture Class					Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence		Redox Feature Color	Redox Feature Description	Roots	7	Ocket Penetrometer/	Lab Sample ID
25 1048/18 2 18 35 cm 23" PO 2MGR VERAW 35" 1048 10 10 1048 514 512 18 25 381.22" 50 2MGR VERAW 35" 1048 514 512 18 25 381.22" 50 1M58K Fr CW 35" 1049 512 20 18 85" 18-3" 55 1M58K Fr CW 35", 1049 512 20 18 85", 106-3" 55 1M58K Fr CW	000	6-1,75	2.51	1		((1	11	1	1	AW	7)	750		1 1	1 1
20- 104/2 Sil 825 38x L2" Sp 1861 NERCU — - 25, m 10- 104/2 Sil 825 38x L2" Sp 1861 NERCU — - 25, m 10- 104/2 Sil 81- 204/2 Sil 85% 18-3" Sp 1868 FC AL — - 104/2 Sil 85 18-3" Sp 1868 FC AL — - 1 104/2 Sp 1868 FC AL — - 104/2 Sp 1868 FC AL — - 104/2 Sp 1		5.6	162401	7	35	Çi,	0		23"		2MGR	VER	AW	1	1	35.	2 7	201	0.1
10- 104/2 10- 104/2 10- 10- 10- 10- 10- 10- 10- 10- 10- 10-		25.5	N/S NAOI	5.2		2	@ 00	7 8	12"	SS	1881	かな	CW	1	1	100 ICO	-	1 360	1 500
31 OND SIL 22 18 85% 185 1088 FC ALL			1046	2.5	8	2	04	23	1/8-3"	200	1/M5BK	73	S	1	1	sy, co	CALA	5.3	5.0
31. 101/4 Sic 24 18 58% <6" SP 1658x FC ALL - 1 Mit	Part Part		1040	S			200	- 1	1/8-5"	500	Y SISWI		CM	(1	1 Co	1/	0 -	0
1 1		3 %	1048	2,5	200	2		5,0			16582	2	Ala	1	1	TAIR		5:5	15:5
	3R	25	1	1)	1		(t	11	1	1	1	1	1	1		1	1

TEST PIT DESCRIPTION

Soil Scientist: Field Assistant:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:		72200	2011-100	-110		RLC	Topographic Position:	tion:	Headshop	- 2001	P.S	Store	Parent material:	terial:	h	1656	Posio
Date:		3	2016				% Slope:			033	d	J	Slope Aspect:	et.		600	
Job Name:	Domi	Atlantic	Pipeline Soil S	urvey			Drainage Class:		7	6			Depth to V	Depth to Water Table:		34+"	
RETTEW Job #:	0899	089962000					Depth to Refusal:		S	3,7			Slope Failure or slip:	re or slip:			
NRCS Soil Unit:		378					Bedrock Type :		51.12	1tslore	-		Dip Slope	Dip Slope & Direction:	W.	160 Strike:	3,000 E
Mineralogy:	-	W. XO	0				Vegetation:		Hard	30 3	300				100	1000	
										USDA	-						
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Hodron Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Procket Penetrometer/	Lab Sample ID	Notes
D	CU	1/23/601	7/5	10	25	4	CN	P0	FIGR	A	cs			25, M	5.4	1	
86.	3	11 715 massal	511	17	0	25	CM	55	FESBIR FR GS	FR	GS)	1	100	4.4	1	
862 24	24	10985/651L 17	511	17	ō	40	CN	33	FZSBK FR	B	6S	1	1	15	7.2	1	
Cr	34	104RS/L SIL 12 18 80	SIL	12	18	80	CN	50 3	NO	S		1	1	1	1 1	1	
ZJ	34+																

TEST PIT DESCRIPTION
Soil Scientist: PHSSell Field Assistant: Signature:

Date: Test Pit ID: DE RETTEW Job #: Job Name: 8 Mineralogy: NRCS Soil Unit: 0 Horizon Depth in inches 42 w 19 00 089962000 Dominion - Atlantic Coast Pipeline Soil Survey P0539 160613-1482-RIL 715 8/52201 1159/5230 10423/2516 **Matrix Color** 6 13 2016 Texture Class 15 % clay 75 Co % sand 0 10 5 Fragment Type & % 00 20 5 Rock Rock Fragment Size (inches) Drainage Class: Topographic Position: Vegetation: Depth to Refusal: Bedrock Type: NO 57 50 SS ST FIGR FR 3 Plasticity/ Stickiness F7584 Structure Type, Moist
Grade, and Size Consistence F25AR FR Hardway AS 310/0 Stope .1tstone L'y 70 1 S 65 50 Horizon Boundary Topography & Distinctness Redox Feature Color 1 Dip Slope & Direction: Slope Failure or slip: Depth to Water Table: Slope Aspect: Redox Feature Description Parent material: 1 NN SVF 7 Roots 4.6 0,25 0 5.2 0.5 1 42 t Lab Sample ID 1 1000 1 Kesidwa Notes

Other Notes:

TEST PIT DESCRIPTION

90 91 16 0G	13:10	155		Topographic Posit	tion:	Heads		10		Parent mate	erial:		S. Houston	NOISON -
113				% Slope:		29	10			Slope Aspec	H		C	
lantic Coast Pipeline Soi	Survey			Drainage Class:		K	5			Depth to W	ater Table:		32"	
,				Depth to Refusal:		200				Slope Failur	e or slip:	6000	- >	SollN
Te				Bedrock Type:		II.	100	1		andre dia	Direction.	Si .	7	-
Daki				Vegetation:		Ital	USDA	9					The same of the sa	
Matrix Color Class	% сіау	% sand		Rock Fragment Size (inches)	Pleathty/ Sticktowes	Structure Type, Grade, and Size		Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podat Panetrometer/	Lab Sample ID	Notes
4225/SIL		0	1	1	8 7	flax	R	CS			3£, m	20	1	
100		9	7			Early	B	0			4	1,0	1	
		0									0			
RSIY SIC	100	7	25	20		MISEK	19	CS	1		,	4.2	1	
YRS/6 SIL	15	15	9	2	83	M	FR		1/824516		3	4.2	i	
	54 14 06 113 2016 antic Coast Pipeline Soi PR 2-5 S 16 85/6 S 16 985/6 S 16	113 antic Coa antic Coa antic Coa antic Coa	15 17 8 10 10 155 10 15	8 12 25 15 40	8 12 25 15 40	Topographic Position: % Slope: % Slope: Drainage Class: Depth to Refusal: Bedrock Type: Vegetation: Vegetation: \$6 10 \$7 \$8 \$12 \$7 \$8 \$8 \$12 \$8 \$8 \$8 \$8 \$8 \$8 \$8 \$8 \$8 \$	Topographic Position: Siope: Siope	10 SS R.W. Topographic Position: H	Topographic Position: 29 Wislope: Stopen Class: Depth to Refusal: Bedrock Type: Vegetation: Wegetation: Solution Hadel Solution Hadel Solution Red Solution Red Solution Red Solution Red Solution Red Solution Red Solution Red Red Solution Red	Solope: Heads For Position: Heads Heads For Position: Heads Heads For Position: Heads Heads Heads Heads For Position: Heads He	10:55 R.W. Topographic Position: Heads to pee Parent mate 29% Slope Aspec	Topographic Position: Had St. C. C. St. Stope Parent material: Stope Aspect: Stope A	10.155 kW Topographic Position: House Sci QC Parent material: School	

TEST PIT DESCRIPTION

Soil Scientist: (25561) Los co

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	-	2211550	613-	1110.	· R1	77	Topographic Position:	ition:	Sackslope	Slope	Some	+	Parent material:	terial:	5	the	Rosiduum
Date:		6.13	. 16				% Slope:		100/2	-			Slope Aspect:	ect:	w	3450	
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		W	d			Depth to	Depth to Water Table:	>	ZA	
RETTEW Job #:	089962000	62000					Depth to Refusal:		24	11.11			Slope Fail	Slope Failure or slip:	>	NA	
NRCS Soil Unit:		3+2					Bedrock Type :		5.1	1/25 10	Ĭ		Dip Slope	Dip Slope & Direction:	320 5	Strike:	(70/N
Mineralogy:		I.X	-				Vegetation:		Hord woo	was	5						
			I							USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Tupography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
00	W	54RZS)	7	20	8	1	1	55 80	52 87 KB CS	RX	S		1	35	4.4	1	
	1			1			V										
A	*				1						ľ				90		
Bu1	9	21546/6 SIL	71S	25	to	10	CZ	55	M2582 FR	SA	65		1	25%	2.5	1	
2 mg	16	Bwz 16 100R6/ SIL	115	25	00	40	CN	50 50	55 1625BR FR CS	FR	cS	-	(32	2.7	1	
70	24	1	1	1	1	1	CV	820	1	1	1	1	1	1	11	1	

TEST PIT DESCRIPTION

Rys sell Los co

Test Pit ID:		POS6 16	06/3	111.	7:	RIL	Topographic Position:	tion:	Ridar	too	F 1	addle	Parent material:	erial:	4	45100	e Residery
Date:		6/13/	16	3			% Slope:		L	6	10/0		Slope Aspect:	a.	/	1300	
Job Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil Su	rvey			Drainage Class:		F 33				Depth to Water Table:	ater Table:	S.	30+"	
RETTEW Job #:	0899	089962000					Depth to Refusal:		30	11			Slope Failure or slip:	re or slip:	>	NA	
NRCS Soil Unit:		846					Bedrock Type :		SHS	tone	_		Dip Slope 8	Dip Slope & Direction:	5.750/5	180 Strike:	Strike: Nisof
Mineralogy:		M: W	-				Vegetation:		Fores	P 1							
						Back				USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (Inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctoress	Redox Feature Color	Redox Festure Description	Roots	Pocket Penetrumeter/ pH	Lab Sample ID	Notes
00	-	5483/2	#	V	6			00	MZGR	23	cls			3,7,5	No. S	4.61	
Ä	1	10484/3 516	JIS	25	0			50	MZGR	R	05			3,7,5	P 00	49	
348	Ą	104/25/6511	100	25	00	%01		Sp	FZSBK	FR	FR GS			3 tit	5.2	8,	
8 to	6	758455 SIL	SIL	25	20	940	"Z'XZ" CN	30	VF25BK	命	65			1 vf, £	27	1	
, ,	12	Nar754074 6	7	20	20	60	CN	8 50	NA	R	S	1	1	3 3	11	1	Matrix Color
7	30		1	1	ì	柳	CN	1 1	1	1	1	1	1	1	()	1	
REUSA	N.																

Other Notes:

3 E V NRCS Soil Unit: RETTEW Job #: Job Name: Test Pit ID: Other Notes: fineralogy: Horizon Z AA P Depth in inches 32+ 8 4 089962000 Dominion - Atlantic Coast Pipeline Soil Survey -057-16-043 · Syp 17 SIXON 040 Matrix Color 348 5 2.5 150 Texture Class Panew 1041-104 2 % clay 70 20 3 % sand MARONA 151 15% 2 Rock Fragment Type & % 255 53 00 % Slope: 1 Rock Fragment Size (inches) Depth to Refusal: **Drainage Class:** Topographic Position: Vegetation: Bedrock Type: W 12 chestad out regimen 50 SP Plastidty/ Stickiness 50 M Structure Type, Grade, and Size SP 32 " drainer SBK SBK 5 37 25 Chia 为 VR CS Moist Consistence XX CX USDA rea N Mortron Boundary Topography & Distinctness 400 560,00 Redox Feature 11/1/0 Color Slope Aspect: Depth to Water Table: Dip Slope & Direction: Slope Failure or slip: Redox Feature Description Parent material: 1 1 1 311 メンド 134 MI Roots 0 0.9 0.6 4.6 2-8 100 0 Maple COLLAND COL Lab Sample ID いたと me daine shal Shal ANA. Ledd to Sand Stone Losigninge Notes

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3

Briting

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

TEST PIT DESCRIPTION
Soil Scientist:
Field Assistant:

Signature:

TEST PIT DESCRIPTION
Soil Scientist: AMAC TISM
Field Assistant: MAX DUAAN & TISME MAKEN

Signature:

Second S	R 26+		C 26 Con	B+2 20 (24)	BH 12 7.5	4 2 181	De 1 54	Horizon Inches Matr	Mineralogy:		b #:	Job Name: Dominion - Atla	Test Pit ID:	5
Parent material: Red Du Wistope: Siope Aspect: 3 3	1		2%	de Si	,		Jan -		100	ンナト	6	antic Coast Pipelin	160	
Parent material: Parent				7			-					e Soil Survey	5	9
Parent material: Red S D \cdot V Water Stope Aspect: Stope Aspect: Stope Aspect: Stope Aspect: Stope Aspect: Stope Failure or align: Stope F				181									05/	3
Topographic Position: NOSCUME Stope: Scoperation: Science		1	95%	CN		10%.							THE	
SCALING Stope Aspect: 313 Left Mark Structure Type, Month Interview Grade, and Size Continuous Successions Grade, and Size Continuous Successions Grade, and Size Continuous Successions Grade AS PAM RS CS Parent material: Red S Feature Stope Failure or silp: 155 CE SIDPS Stope & Direction: 155 CE SIDPS Stope & Dire			h h	1-24		11/1	>		Vegetation:	Bedrock Type :	Depth to Refusa	Drainage Class:	Topographic Pos % Slope:	
Slope Aspect: Slope Aspect: Slope Fallure or slip: Dip Slope & Direction: Continence of Superman Red on Feature Internation Color Superman Red on Feature Internation Color Superman Red on Feature Internation In					SS AP	SON	1	Plastiffy/ Stickiness					ition:	
Siope Aspect: 3/3 Siope Aspect: 3/3 Depth to Water Table: Siope Failure or slip: Dip Siope & Direction: 1/3 Color fature factor from fac				78×	2M	S N	1	Structure Type, Grade, and Size	1	SILTSI	2	0-1	1	4
Parent material: Res 0 L V W Slope Aspect: 313 313				39	D	7	為	Moist Consistence	WA !	200		10:20		
Parent material: Slope Aspect: Depth to water Table: Slope Failure or slip: Dip Slope & Direction: OAK HICK ON HOP DENY Color 37 2M 37 2M 37 2M 37 2M 37 37 37 37 37 37 37 37 37 3			1	45	2	AS	th		· R			1		
Pession Ression W 313 313 313 313 313 313 313 313 313 3		Ī	1	1	1	1	1	Redox Feature Color						
Res 1024 W 313 313 313 313 313 313 313 313 313 3			1	1	1	1	1	Redox Feature Description	1410	Dip Slope	Slope Fail	Depth to	Parent ma	
SIOLUW SIOLUW	4	1	0	N EN	CHU	787	C M		4 103	& Direction:	ure or slip:	Water Table:	iterial:	
SI MANGAM SILTSTONE SILTSTONE SILTSTONE		1	1	3.3	4.9	440	5.5	Product Penetrometer/ pH	HOPE	15	1	1	Sea Man	0
MAM Bluebara Notes MINDR COLL INFLAME SILTSTONE SILTSTONE			1	75	25	52		Lab Sample ID	ORNBE	C			Man	
3 3 3		SILTSTONE	K SUFFACES	sittstane			MINOR COLLUN	Notes //						

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

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	0	10-16	50/12	2	7-10	11	Township Posi	el ano	5	10	1000		Parent material:	terial:	Kes	MAD	1
Date:	-	2	1	1	6		% Slope:		49,	-	-		Slope Aspect:	ect:	796	9	
loh Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvev			Drainage Class:		No.	60 W. 100	100		Depth to V	Depth to Water Table:	1		
RETTEW Job #:	0899	089962000					Depth to Refusal:		18:				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:		375					Bedrock Type :		11.2911	Gir s	SAM S	3/6	Dip Slope	Dip Slope & Direction:	15.	3	Strike: 34L
Minorshow	\$	- N					Vegetation:		818 ch/c								
Milleraiogy:	-						0			USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidty/ Stiddness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
00	4	2/12	1	1	1	17	2/12	1 1	Ì	1	52	1	1	my o	5.6		
4	0	104R	7:5	~	20	97	- "	3 2	28%	元	AS	\	\	CWN TEN	4.5		the graince
BN	4	1048	715	2	22	199		\$ 3	WE SWYSEKE	3	S			040	4.60		
Ews.	80	2/46	L N	12	2	154	N. F.	3	14 405WZ	サ	*	\	1	750	4.5		
R	181	1	1								~						Fine-graine Standstone
															-	- 7-	D
											Á						

Other Notes:

TEST PIT DESCRIPTION

Soll Scientist: Cy55C/l Lo5 Co

Field Assistant: Rachel Hill

Signature: RMIT

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	-	41000A	06	3-183	1-5	772	Topographic Position:	tion:	Bac	2510	20		Parent material:	erial:		1	Did.	Residuu
Date:		6/13/16	,				% Slope:			114	10%		Slope Aspect:	#		350	1	
Job Name:	Domi	- 4	Pipeline Soil !	Survey			Drainage Class:		1	0			Depth to Water Table:	ater Table:	1		1	
RETTEW Job #:	089962000	62000					Depth to Refusal:		12" 00	5	6		Slope Failure or slip:	e or slip:		1		
NRCS Soil Unit:		3+6					Bedrock Type :			2	tore		Dip Slope & Direction:	Direction:	54001	€ 30% Strike:		2005N
Mineralogy:		× : ×	XBO				Vegetation:		Hu	200	and woods					942		
			1							USDA								
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID		Notes
D	F	75%25/ SIL	SIL	10	12			50	526R FR CS	B	S	(V	3F.VF	0 0	1		
BW	5		215	0	21	0	57	Po	FISBILFR CS	R	CS			78	5.7	1		
R	2+	1:-	1	1	1	1	1	110	6		t	1	14	1	I ,	1	Slap b	Slap-dipissta
										^							than Re	Rock oute

TEST PIT DESCRIPTION Field Assistant:

Signature:

Test Pit ID:	7)	Pold-16	0614	-1000	-1	373	Topographic Position:	tion:	Shoulder	- N	050		Parent material:	terial:	Callo 4	NO WOL	ver Rosidium
Date:		14/	2016				% Slope:		340	6			Slope Aspect:	t.		0022	
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		レン				Depth to V	Depth to Water Table:		38+17	
RETTEW Job #:		089962000					Depth to Refusal:		8	11			Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		Pam E	BfF				Bedrock Type :		Fine S	Sono	Porr		Dip Slope 8	Dip Slope & Direction:	57506	St	Strike: V2508
Mineralogy:		Mited					Vegetation:		1	K					150		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctivess	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
00	5	1/2000		1	1			8 8	2913	ST	S			3F, 2m	22.0	1	
A	6	7.5414	7	7	30	10	1/2	80	F168	B	cs			37/15	5.3	Ţ	
88	6	10xRs/6	1	2	0 <i>h</i>	20	1/2"	55 55	FZSBK FRCS	FR	S			2 11/2	3.0	1	
3	30	16/23/301	2	10	40	8	1/2-1"	55	950	27	CS				4.4	1	
R	30	1	Í	1	(1	1	1 1	1	1	(1	1	1	(i	1	
Other Notes:																	

Soil Scientist: TEST PIT DESCRIPTION
Soil Scientist: Field Assistant:

0500

Signature:

Test Pit ID:	+	100	1							0 10	0/		Sinn America			1/9	
Date:	-	14/19	2016	•			% Slope:			350	0			Slope Aspe	Slope Aspect:		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil	urvey			Drainage Class:		7	C			1	Depth to W	Depth to Water Table:		Depth to Water Table:
RETTEW Job #:	089962000	52000	1				Depth to Refusal:			-				Slope Failu	Slope Failure or slip:		
NRCS Soil Unit:		MO	in	먉			Bedrock Type :		1.1	ands	Sych			Dip Slope 8	Dip Slope & Direction:	S	Dip Slope & Direction: \$300 E Strike:
Mineralogy:		Mixx	P				Vegetation:		Sugar	5	Locust	+					200
		100								USDA	STATE OF						
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	a.	UPE Redox Feature Description		Redox Festure Roots Puder Perstrometer/	Redox Feature Roots
04	Ī	1/2907	1		1	10%	10% 1/2×2"	1	CZGR PR	R	S	1			34,4	34,45	4 0
A	W	154R416	7	oh.	0	NO 20%	N XX	50	MZGR VAR		CS				35 M	4 ~	
3	13	7,5485/6	~	38	8	NO 0/0	" hXI	800	FZ56K VFR	VFR	50	1			25		
23	32	754p5H S 2 55	52	35	3		11/10"	8 3	Ø56	1	CW	1		1	1	53	53
R	39	(1		1	- (1	(1	ŀ	1	1	1	1	((1	\

TEST PIT DESCRIPTION
Soil Scientist:

Soil Scientist: Field Assistant:

Signature:

Date:	ime:	#:		Mineralogy:	Horizon Depth	AD 6	Bt 10	Btg 50	L				
6	ominion - Atlantic Coast	89962000	A Each	Mixed	in Matrix Color	1/2900	alagea,	N8) N8)					
01105	Pipeline Soil				Texture Class	133	51	45					
	survey				% clay	5	20	10					
					% sand	10	5	3					
					Rock Fragment Type & %		((
% Slope:	Drainage Class:	Depth to Refusal	Bedrock Type:	Vegetation:	Rock Fragment Size (inches)								
					Plasticity/ Stickiness	50	SE	33					
5	2	70	Z	Vetch	Structure Type, Grade, and Size	MZGR	M1584	21564					
0/0	B	+:	D	-	Moist Consistence	FR	7	2					
				ensas	Horizon Boundary Topography & Distinctness	cs	es						
					Redox Feature Color		- (15/P/16					
Slope Asp	Depth to \	Slope Failt	Dip Slope		Redox Feature Description	4		760					
et:	Vater Table:	re or slip:	& Direction:		Roots	7	1	(
3			2		Product Penatronneter pH	7.9	6.0	5.2			1		
0 36	60	NA	A		Lab Sample					1			
			Strike:					0 T 0					
			>		Note			at a					
	6/14/2016 % Slope: 5% Slope Aspect: 305	Ime: Dominion - Atlantic Coast Pipeline Soil Survey Drainage Class: SPD Depth to Water Table: 16	Ime: Dominion - Atlantic Coast Pipeline Soil Survey Slope Class: Slope Class: Slope Failure or slip: Depth to Water Table: W Job #: 089962000 Depth to Refusal: Slope Failure or slip: N	Ime: Dominion - Atlantic Coast Pipeline Soil Survey Depth to Refusal: Slope Repect: 305 C W Job #: 089962000 Depth to Refusal: 50 J L 1 Slope Failure or silp: MA Soil Unit: Redrock Type: NA Dip Slope & Direction: MA	Mark Column Col	Matrix Color Matr	Matrix Color Class Matrix Color Co		Color Colo	Commission	Common		Depth/ Color Depth/ Color Depth to Refuse; Color Depth to Refuse;

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

Test Pit ID:	1)	クラーをひつつ	12/2/21	10251	1860		Topographic Position:	tion:	5000	ul der	7		Parent material:	terial:	Collina	3	500
Date:		_	2016				% Slope:		2	0			Slope Aspect:	ict:		c	
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		Somewhat Poorly Drained	Poorly	Drained		Depth to V	Depth to Water Table:		ldir	
RETTEW Job #:		089962000					Depth to Refusal:		3	30"			Slope Failure or slip:	re or slip:		22	
NRCS Soil Unit:		Mark	171				Bedrock Type:		1000	San d	Sandstone		Dip Slope	Dip Slope & Direction:	565°W		Strike: N2COW
Mineralogy:		Ni Lo					Vegetation:		50000	Mapl	e-Sa	assafres			160	0	- 1
									6000	USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickinesa	Structure Type, Grade, and Size		Norton Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Prostromated pri	Lab Sample ID	Notes
00	-	1 5.2 dr	(1		1	0 0	T &	B	S		1	N'12	0)	
4		5						UC	c						5		
A	2	~R2.5		ā	1	10%	1/10	SP	20 20 12		^			7F M	0)	
13		7.57	SIL	10	C	75	/2	55	\$201-		0	1	1	4,17	4.7)	
Bui	9	2/20/20	HS	00	5	25%	1/2 m	3	F2582	33	S	1	1	25	1.75)	
100		10 1	11			ST		10			1			. 11	1.0		
Buz	8	1048614	511 15	15	4	20%	2/.	88	FISBY	- A	AW	1.5.2 1/6	CID	ZVE	275	1	
D	30+	1	1		1	1	1	()	((-	((1	1 1	1	
-																	

Other Notes:

TEST PIT DESCRIPTION

Soil Scientist: Field Assistant:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P-066-111	0401-11/PC	1	773	Topographic Position:	tion:	Back	510	8		Parent material:	erial:	121	920	Colluvium
Date:	14			%	% Slope:			5	(Slope Aspect:	Ct	1	000	- 1
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	ine Soil Survey		D	Drainage Class:		0	3			Depth to Water Table:	ater Table:		504	
RETTEW Job #:	089962000			D	Depth to Refusal:		20	to			Slope Failure or slip:	re or slip:		NA	
NRCS Soil Unit:	かれて			В	Bedrock Type:		7	S	dstone	•	Dip Slope & Direction:	Direction:			Strike: 2 D
Mineralogy:	Rixed			٧,	Vegetation:		Svage	Map	0						
							160	USDA 1							
Horizon	Depth in Matrix Color (Texture % clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness (Structure Type, Grade, and Size	Moist Consistence	Horison Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pls	Lab Sample ID	Notes
P	7 7.50,8516	2 13	10	30% CN1	1/2+3"	\$ 8	FISBR FR	F	Cw			3F,2M	6.1		
867	152/ed1,516 81	2	60	70%	20% Y2+4"	8 8	FISBR VIPR CW	VA	CW			W2 3N2	6.0		
2A 6	75 8/8/4/2 82	27 2	60	20%	30% 1/2×3"	50	FISER VARCW	知	CE	1		ZF, IM	57.0		
2kur 40	40 7.51Ruly 5	1 8	10	0%	20% 1/2 × 2"	500	FIRSON FR 65	B	65			7	250		
260	26m 50 7,0,845 51 5	5 75	5	70%	1/2×3"	50	50 DM	际					5.7		

Other Notes:

Located downslope from a logging road, human transported material overlying colluvium is the result of the road cut.

TEST PIT DESCRIPTION

Field Assistant:

Stephanie

Moraca

Signature:

lest Pit ID:		1000	1000	1-1	1111111111		ropographic Position:	mon.	00	DOC NOINE	77		Parent material:	erial:		41150	a	
Date:		06/	9114				% Slope:		2	9			Slope Aspect:	A		77		
lob Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		DU	D			Depth to V	Depth to Water Table:	N/ /n			
RETTEW Job #:		52000					Depth to Refusal:		7	N/A			Slope Failure or slip:	re or slip:	2/10			
NRCS Soil Unit:	r.	paddy knob -	ob-mad) Sheep			Bedrock Type:		S	sand stone	one		Dip Slope 8	Dip Slope & Direction:		1	Strike:	1
Mineralogy:	L	. N	MIXED				Vegetation:		red maple		7	maple cas	cata pa	coow wood	000			
										P				1				
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Fragment Type & %	Rock Fragment Size (inches)	Plastidity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Radox Feature Description	Roots	Product Personnents/	Lab Sample ID		Notes
Oe	3	5182.5	1	1	1	20	,5-2	1 1	ı	1	38	1	1	77	175	1		
P	7	54R3/2	Sil	16	51	20	.5-2	ρs 88	1691	nfr	8	(Ť	2 C	.25	1		
89	0	54R6/4	Sil	18	12	5 5	15-2	25	1 msbk fr	7	3	1	1	T 0	2.25	1		
Br	30	542416	sic)	8	22	30 30	,5.2	52 58	2 msbk	7	CK	1	1	2 -1	3.75	1		
JAC	50	754846	5:1	20	ī	202	1.5.1	SS B	- Imsbk	fr	1	1	1	t.	1,5	1		
		40	*															
10	i																	

Soil Scientist: TEST PIT DESCRIPTION

Field Assistant:

Stephanie Moraca

Signature:

Date: Job Name:	RETTEW Job #:	NRCS Soll Unit:	Mineralogy:	Horizon	0	A	Bw	10	200		Other Notes:
Domir			-	Depth in inches	2	4	18	30	84		
06 / 14/ 16	089962000	paddyknoh -		Matrix Color	54R25/	54R 3/2	NS 845	SYR 5/6	1		
bst Pipeline Soil 9	ripeline soil	modsheep	AGOPA	Texture Class	Į.	3-7	-	-	1		
Survey	ourvey	heep	Mixed	% clay	1	2	17	17	1		
8				% sand	1	2	35	35	ŧ		
				Rock Fragment Type & %	25	25,00	5	10	1		first
% Slope:	Depth to Refusal:	Bedrock Type :	Vegetation:	Rock Fragment Size (inches)	1-4	1-4	h-1	2-8	1		1sted
inon:				Pleatidity/ Stickiness	1 1	25	PS SS	ss Ps	1 1		200
50	30	50	ofchardarass	Structure Type, Grade, and Size	1	1690	msbk	0 0	1		1110
W/D	0 8	sandstone	daras		1	Vf.	3	fr	1		
		かん	1_	Harless Roundary Topography & Distinctness	CX	W.D	CW	aw	1		Scen
			ocust, red	Redox Feature Color	1	ŗ	1	*	-		
Parent material: Slope Aspect:	Depth to	Dip Slope		Radox Feature Description	1	1	1	* 1	1		
aterial: bect:	Depth to Water Table:	Dip Slope & Direction:	e white	Roots	オユュ	CZ	U = 1		(
CoNIT	NI	-	0	Pocket Penetrumeter/	6.5	5.75	2.75	5.25	11		
342	27	N		Lab Sample	51	52	53	54	1		3
		Strike: 39	-					54R 514	1		
		Q		Notes				1, thacheanic			

TEST PIT DESCRIPTION

Field Assistant: Stephane Moraca

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: Date:	6069-	DO61-160614-	1158-	500		9 1	Topographic Position: % Slope:	ion:		1 1	KSlope		Parent material: Slope Aspect:	t: erial:	20	294 /res
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	ntic Coast Pipe	line Soil Sun	ey			Drainage Class:			WD			Depth to Water Table:	ater Table:		NIA
REITEW Job #:	089962000		to and				Depth to Refusal:			78			Slope Failure or slip:	e or slip:		. 2
MVC3 2011 OUIT	7000	V	Day Com.	1 Sales			bedrock Type:			SOUCH CONC	TOIR	1	ĕ	Direction:		
Mineralogy:	-	M, xec	0			V	Vegetation:		5 hagbork	NSDA K	1, CKO'Y	y Sogar	maple	ile, ash	red maple	
Horizon in	Depth in Matrix	Matrix Color	Texture 9	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Olettectness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumeter/ pH	Lab Sample ID
00	2 7.5/1	7.51R 2.5	١	1	1	30 30	,5-2	1 1	1	i	aw	1	1	コミニ	5,25	5
A (6 7.51		5,1	12	ō	2 %	,5-2	50 85	1 mgr	A.	CK	1	ı	000	1,75	52
Aß	q 7.5°	7.54243	5.1	13	51	23	,5-2	PS	I mg.r	5	Ow.	Ī	1	IT ON	,75	S
8+ 2	30 101	10486/6	5,1	18	25	5 3	,5-2	80 85	2 mspk	7	CW	Ţ	1	CM	4.9	1 SH
286 48		104R56	51	9	85	ch 40	1-4	50	1 mssk	+	No.	1	1	4	5.0	55
2R 4	484	1		- 1	1	1	1	11	1	(1	1	1	١	1 1	1
					2											

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION
Soil Scientist:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	0	2091-0400	- 4190	1102	- Sold		Topographic Position:	tion:	Sul	SUMMIT			Parent material:	erial:	1	500	
Date:	-	06/14/16	9				% Slope:		7	2%			Slope Aspect:	t:		79	
Job Name:	Dominie	antic Co	ipeline Soil S	urvey			Drainage Class:		1	DW			Depth to Water Table:	ater Table:	NIN	P	
RETTEW Job #:	089962000	000					Depth to Refusal:		31				Slope Failure or slip:	re or slip:	NIA	A	
NRCS Soil Unit:	P	paddyknob - madsheep	-mads	heep			Bedrock Type :			sandstone	+ ONE		Dip Slope 8	Dip Slope & Direction:	2) S.	Strike: 50
Mineralogy:		, ,	M. XOU				Vegetation:		SURG	sugar maple		hickory					
										USDA		/					
Horizon Der	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Harlzon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penebumeter/ pH	Lab Sample ID	Notes
		151	1	Ĺ	1	Ch	1-4	1		1	Com	(1	H F	₹. 25	1	
Oe .	W	54R 1.5/1	1			40	1-4	1	1	1	Cum	(1	MM	5.5		
		4	-		1	ch		50	Ifar	1				17 20	.75		high own
F	8	7.5xR 311	-	is	35	NO	1-4	55	0	Str	aw	1	1	CC	5.25	1	1
-			1			Ch		PS	14241	5				n n n n	1,25		
Bw 1	8	104R5/6	-	G	40	55	2-9	SO	1000	+	SW.	1	١	77	4.75	1	
1		~	-	i		17	0	PS	3	7				MH	1.5		
(31	-	104R 5/6	-	13	47	70	7-8	50	3	10	S. S.	1	1		5.75	1	
R	7	1	1	1	1	1	1	1 1	1	1	1	1	1	1	,	1	
-						5											
									P								
_																	

Soil Scientist: Field Assistant: RETTEW Job #: Test Pit ID: TEST PIT DESCRIPTION Mineralogy: NRCS Soil Unit: Job Name: 20 Horizon BY P 00 P 18 Depth in inches 30 36 t I 9 Dominion - Atlantic Coast Pipeline Soil Survey 089962000 paddy knob - mad sheep DO71-160641001-599 7.5YR 46 5/R 2,5/1 7,51R 2,5/2 OYRUG Matrix Color 06/14/6 Stephanie M. Kec 51 57 Texture Class 1 % clay 1 13 12 0 6 1 Moraca % sand 3 13 30 Fragment Type & % S 83 60 CY 5 HO Rock 0 % Slope: Rock Fragment Size (inches) Vegetation: Depth to Refusal: Drainage Class: Topographic Position: Bedrock Type: 1-1 1 1 Signature: 0 -2 0 2 Plasticity/ Sticklness 00 50 Sel PS 50 Structure Type, Grade, and Size 16 St 0 4 10-15 Sugar 9 5 3 00 shoulder Sandstone Moist USDA 7 338 7 1 maple Harlzon Soundary Topography & Distinctness aw CW (250 Sw 100 Redox Feature Color Slope Aspect: Dip Slope & Direction: Depth to Water Table: Parent material: Redox Feature Description Slope Failure or slip: 1 Sha dbas エエア TI MM 2 0 0 Roots TI 3 37 1.25 .75 5,75 6.25 0 .25 1 30 hickory NIA 8H1 Lab Sample ID COL 1 East 1 Strike: res LIBA neasily an high RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063 Notes 1

0

02

Soil Scientist: TEST PIT DESCRIPTION

Stephanie

Field Assistant:

Moraco

		220	Bw2 30	Bul	A	09	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
		327	30	8		2	Depth in inches	-	-	089962000	Domi		6
,		1	1048 51	10485/6 51	LOTA TE	7.51R 2.5	Matrix Color	7	Poddy Knob	52000	Dominion - Atlantic Coast Pipeline Soil Survey	06/16/16	072-160616-1447-5de
		1	5	5	_	j	Texture	1. 100	5000		Pipeline Soil		6-14
		1	12	12	12	j	% clay		- mad		Survey		47-
		1	8	60	8	1	% sand		9	1			800
		1	30		55	25	Rock Fragment Type & %						
		1	65	1-4	.5.2	.5-2	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
		1 1	8 8	Po	Po	1 1	Planticky/ Stickiness						ition:
		1	Insbk A	2msbk fr	1 far	,	Structure Type, Grade, and Size	Sugar		27	WD		y Mind
		1	A	4	*	1	Moist Consistence	maple,	sond stage		D	8	cks
		1	Ow.	94	DW 04	3	Horizon Boundary Topography & Distinctness	910	tage				ckslope
		1	1	1	1	1	Redox Feature Color	black cherry					
		1	1	1	1	1	Redox Feature Description		Dip Slope	Slope Fail	Depth to	Slope Aspect:	Parent material:
		1	71	CH	C 74	CHA	Roots	Striped	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	ect:	iterial:
		1,	2.25	5.75	5.25	5.75	Pochet Penetrometer/	maple	12	1			5
		1	1	1	3	1	Lab Sample	6	JN		NA	125	11/res
							0		Strike:				5
							Notes		322				
				- 41									

Other Notes:

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

Maraca

Test Pit ID:	PO75-160616-1	1402-SO	00	Topographic Position:	ition:	bac	CKSIOP	K		Parent material:	erial:	60	COLLON	١
Date:	21/91/90	+		% Slope:			27			Slope Aspect:	A	2	7	
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	urvey		Drainage Class:			SE	ט		Depth to V	Depth to Water Table:	2	19	
RETTEW Job #:	089962000			Depth to Refusal:		NIA				Slope Failure or slip:	re or slip:	~	A	
NRCS Soil Unit:	addy knob.	modshee	ep .	Bedrock Type :			Sano	sandstone		Dip Slope 8	Dip Slope & Direction:			Strike:
Mineralogy:			-	Vegetation:		b ock	Cher		saplings, r	red m	maple saplings	Sprila	lacos	500
							USDA (-		
Horizon Dep	Depth in Matrix Color Class	% clay % sand	Rock nd Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumeter/	Lab Sample ID	Notes
9	7 7 540215	1	59	5-3	1	1	1			1	TY A	J	1	
	7,5YR /				1		1	20	1	1	7)	4.75]	
P		+	65	2 -7:	29						n n			
-	8 101R 2/2 5.	14 45	-	010	55	1495	13×	3-3	1	1	200	5.0	1	
RW.	0		*		PS						T M	1		
1	75187651	4	60	2-6	55	17 SPX tu	tr	8	1	,	200	5,75	J	
	1 205/ 5	15 42	95	2-6	PS.	3	,					9	1	
0	. 0.	-	cz		S	000	Ö	1)	1	1	52.5		
				THE STREET										
								J.					1	
- 4					211				7					
	*									9				
•	***													
***			4 1				*							- Sales
		1				2			3					
								,						
Other Notes:	101	0	+ 0	o get	đ	0 50) . (54	5-16-5	9.	44 04	_		-
		5	>	No.	Content	ent	-					000	- 1	The body of
	0													

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION RETTEW Job #: Job Name: NRCS Soil Unit: Test Pit ID: 00 By Horizon ineralogy: D D 24 Depth in inches 24 2 I 089962000 Dominion - Atlantic Coast Pipeline Soil Survey DO74 - 160616-1238-500 7,5485/6 7.5KR 3/2 7.54R 2.5 Matrix Color paddy knob. madsteep 1 Xec Steve Dadio Stephanie Moraca Texture Class 51 5. 1 = % clay % sand 0 0 20 1 Fragment Type & % C40 100 0 5 Rock % Slope: Rock Fragment Size (inches) Vegetation: Bedrock Type : Depth to Refusal: Drainage Class: Topographic Position: 2-4 2-12 2-4 Signature: PM PS 1 8 1 Structure Type, Moist
Grade, and Size Consistence ine gamed sandstone MSBL + 9 Sugar SUMMIT かか USDA YEV 1 ١ UD 26 Maple 98 30 1 20 Redox Feature Color I 1

Other Notes:

Kory, Shagbark Dip Slope & Direction: Slope Failure or slip: Redox Feature Description Depth to Water Table Slope Aspect: Parent material: J 1 1 CM 53 CF CN CM Roots 105 5.25 4.75 4.25 1 75 h CKOPY 161 W-Swistrike: NIA ZIA residuum Lab Sample 1 1 152 Notes 12/4/27

TEST PIT DESCRIPTION
Soil Scientist:
Field Assistant:

5-tephanie Moraca

Signature:

Test Pit ID:		0075-	160616	1	40-	500	Topographic Position:	tion:	Sho	shoulder	1 upper	5 6	Parent material:	terial:	00	1 les	5
Date:		0	16				% Slope:		14	6			Slope Aspect:	ect:		8	
Job Name:	Dominion	Dominion - Atlantic Coast Pipeline Soil Survey	peline Soil Su	urvey			Drainage Class:		9	DM			Depth to V	Depth to Water Table:		N/A	
RETTEW Job #:	089962000	0					Depth to Refusal:		26				Slope Failure or slip:	re or slip:	NI	A	
NRCS Soil Unit:		Madshepp	,	Paddy Knob	0		Bedrock Type:				Sondstone		Dip Slope	Dip Slope & Direction:	260	E/NE Strike:	Strike: 310
Mineralogy:		M	6				Vegetation:		Sugar	Dr IN	maple.	red maple		L	Arop park		
	- 9				- 1	Rock	Rock Fragment		Structure Type,	Moist	Horizon Boundary	Redox Feature	Redox Feature	Boots	_	Lab Sample	Notes
Horizon	inches	Matrix Color	Class	% clay	% sand	Fragment Type & %	Size (inches)	Stickiness		Consistence	Distinctness	Color	Description	KOOD	P	ē	Motes
0 0	R	57825	1	1	1	90	,5-2	1 1	1	t	Qw.	1	1	ZZT	<.25 U.75	1	
A	S	7.546%	-	Ö	77	98	1.5.	80	1+gr	VFr	aw	í	1	アクク	5.75	1	4
Bw	14	104R516	_	10	54	545	2-4	P5 55	I m stk	fr	CK	1	1	CZE	5,25	1	
20	14	IOYRSho	-	ō	50	170	7-8	P5	0	P	Qw	1	1	71 0	5.75	1	- 8
28	26*	1	1	1	1	1	1	11	,	J	1	1		1	1 1	1	

Other Notes:

Soil Scientist: Field Assistant:

Moraca

Signature:

Day Nois		- minimum mini	COLLIES
2 2		Slope Aspect:	306
54		Slope Failure or slip:	2
Sandsto		Dip Slope & Direction:	30 55E Strike: 235
	Striped	made, northern	red dalk
90	on floundary Redox Feature stinctness Color	Redox Festure Roots	Product Prostrometer/ Lab Sample Notes
1	YW I	5 C	4.75
f 35 fr 0	N.S.	1 CH	5.25
1 tabk fr	SW -	0 2	5.5
Imsbk for o	1	CX	5.25
3 1	C. /	ا ت	5.75
1	ZW -	+	1
	1	1	/ Addition
		-	
The state of the s	Sand Sand Sand Sand Sand Sand Sand Sand	Acrondstone Sandstone Gar Maple Striped With Manufar Redox Feature Consistence Manufar Redox Feature Color Color Ar QW - QW	Depth to Water 14 S Slope Failure or 5 Slope Failur

Field Assistant:

tephanic Moraca

			B+3 50	B+2 2	B+1 21	A 8	Oe 2	Horizon Depth in inches	Mineralogy:	NRCS Soil Unit:	b #:	Job Name:	Date:	Test Pit ID:	
	-		O 10 PR	28 10/R 5/6	1 10th %		15824	th in Matrix Color		paddi	089962000	Dominion - Atlantic Coast Pipeline Soil Survey	06/17/	0077-16	
			SS	Sich	5.1	1:5	1	Texture Class	13, xec	y knob		st Pipeline Soil :	16	160617-	
	1	1	43	35	25	18	1	% clay	0	1 mos		Survey		1035	
- 1			12	14	16	20		% sand		dshee				- 50	
-		*	55	10 ch	30	90	60	Rock Fragment Type & %	-	0				0	THE REAL PROPERTY.
			2-4	2-4	2-4	1-14	1-14	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
	•		MS	SAM	PS	PS	11	Plastichy/ Stickiness					-	ition:	
			2 cosk	2 msd	2 msbk	2 mgr	1	Structure Type, Grade, and Size	209a		V			3	STATE STATE
	(A)	N. A. W.	5	3	5	7	1	Moist Consistence	USDA MAC	50	1/A	MW	W	oots c	BUSINESS
	*			CW	, C&	ow.	aw	Horizon Boundary Topography & Distinctness	3100	Stone		,		ope	2.30
			10 YR 41 WA	109R71	1	1 "	1	Redox Feature Color	hickory	20					
	4		CMP	cmp	(1	(Redox Feature Description	nos	Dip Slope	Slope Failure or slip:	Depth to V	Slope Aspect:	Parent material:	The state of the s
			TH	CH	CH .	CC	N N	Roots	northern re	Dip Slope & Direction:	re or slip:	Depth to Water Table:	ect 1	terial:	
12/5	a.C.		5.25	5,0	1.5.	5.5	5.5	Pocket Penetrometer/ pH	ed oak		N	. 2	2	001	
			55	hs	53	52	51	Lab Sample ID		1	IA	28	36	luvic	神田 なん
24						4		Notes		Strike:				M	
4						*		Notes		Strike:					

Other Notes:

Field Assistant: Soil Scientist: TEST PIT DESCRIPTION

SHEVE Dad, o

Stephonie Moraca

Signature:

	The state of the s	36	380	28+	AB	A	0	Horizon De	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:	
		50 ⁺	HH	26	2	0	12	Depth in inches			089962000	Dominio	-	0	
	end :	1	2,51844	54R46 511	2,57R 4	2 SYS 12	7.51R 25	Matrix Color		DOODAKOOP	-	Dominion - Atlantic Coast Pipeline Soil Survey	06/17/	0078-160617	
		1	Si	5.)	5,1	5,')	J	Texture Class	11/2/11/2	41		peline Soil S	16	1	
	1.44	1	30	22	16	15	1	% clay	0	0.5		urvey		1201-	
		199	15	18	15	20	1	% sand		188	200		× .	500	
		1	85	ch 30	ch 49	50 sh	so	Rock Fragment Type & %							
		1	,5.2	,5-2	,5-2	1-4	1-4	Rock Fragment Size (inches)	Vegetation:	Bedrock Type:	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
95	172	1 ,	55	55	55	55	1	Plasticity/ Stickiness		5				tion:	
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		_!	シャ	7	4	4	١	Moist Consistence	USDA	Marie	1000	3 5	27	backslope	
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		-	1	-1	1	1)	Redox Feature Color		Maple	sandstone				
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		9-		111						ou inc.	Strike:	250		1	
		Total Control	01	100				Notes			1		*		000
			12.10	A				L.	1000						

Other Notes:

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TEST PIT DESCRIPTION

Soil Scientist: Stephanic Moraca

Field Assistant: Stephanic Moraca

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

	7		-	0	1-1		포	0	in	13	2	0	#
		5	Br	6 10	D	Oe	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
	32+	32	24	6	L	2	Depth in inches			089962000	Domin	_	0
	1	1		7.5XR4/4	7,5425/2	1822 NS	Matrix Color	M	Poddy	2000	nion - Atlantic Coast	06/17/1	1079-1606
A. Carried	1	1	Sic)	5.	5:1	1	Texture Class	400			Pipeline Soil S	6	160617-1251-5dc
	E	1	8	16	h	1	% clay		nads		survey		1-50
	1		100	16	15	1	% sand		nerep				0
	1	1	305	Ch	Ch	20	Rock Fragment Type & %						
	ř	1	.5-2	.5-2	1-5.	-01-	Rock Fragment Size (inches)	Vegetation:	Bedrock Type:	Depth to Refusal	Drainage Class:	% Slope:	Topographic Position:
	11	11	SS MA	55	PS 55	1 1	Planticity/ Stickiness						tion:
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	1	1	fr	5	St.	1	Moist Consistence	A	05	32	NO		ench
	1	· w	28	CE	CK	2 4	Horizon Boundary Topography & Distinctness	MOYPIE	one			5	
	(1	,	1 3	7	1	Redox Feature Color	200					
	1	1	1	1	1	1	Redox Feature Description		Dip Slope	Slope Fail	Depth to	Slope Asp	Parent material:
	1	1-	CON	CA CA	CCT	CM	Roots		& Direction:	ure or slip:	Water Table:	ect:	aterial:
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	C	1	-	1	Ł	1	Lab Sample		7	A	1	1	
	ī		1				Notes		Strike: 65			1158	res
				7154846 sic1 30 18 30 .5-2 PM 2msbx fr aw cc	7,5/R*/6 sicl 30 18 30 .5-2 PM 2msbk fr cw cw cc _ cc cc	7.578 1/4 5:1 H 15 ch .5-1 PS 1 F gr V fr cw CF 7.578 1/6 5:0 30 18 30 .5-2 PM 2msbk fr cw CCM 7.578 1/6 5:0 30 18 30 .5-2 PM 2msbk fr cw CCM	518 25/ ch 5.1 ow CF 6.25 7.518 1/2 5/1 16 16 ch .5-2 PS 1fgr Vfr cw CM 6.25 7.518 1/3 5/1 16 16 ch .5-2 PM 2msbk fr cw CW 3.75 7.518 1/3 5/1 20 18 30 .5-2 PM 2msbk fr cw CC 5.1	SYR 215/1	Mix color Mix	Pool y Knob - mod sheep	Depth to Reduct Type: So-nd \$ force Political	Departs Count Figure Count Stature Count	Control Cont

Other Notes:

Soil Scientist: Prepare Con active Field Assistant: Racky Hill

Signature: Recurred Medical

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

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Other Notes:

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TEST PIT DESCRIPTION

Soil Scientist: D. Lengte Marthus

Field Assistant: Soil Scientist:

- West

Date: 4 17 1 0 Job Name: Dorninion - Atlantic Coast Pipeline Soil Survey		% Slope: Drainage Class:		Well	4		Slope Aspect: Depth to Water Table:	t: ater Table:	2660		
089962000	(But)	Depth to Refusal:	S.	Sundalan o	· (om re	et nt	Slope Failure or slip:	e or slip:		1 1	Strike.
Mineralogy: Mirco	55	Vegetation:	Sugar	3	T. I	65:54	alondo solo	White Ash	(3)	601	forns + grass
Horizon Inches Matrix Color Class % clay	Rock % sand +Fragment Type & %	Rock Fragment Size (inches)	Phasichy/ Structu sections Grade,	Structure Type, Moist Grade, and Size Consistence	Horitoe Boundary Topography & Dischertness	Redox Feature Color	Redox Feature Description	Roots	Poclat Penetral	mater)	Lab Sample ID
0-15 7.576	1.	(1 1	1	AW	,)	36	1 1	,)
1.5- 7.54A SL 12	57 cs	.9. E.I.	20 1280X	ON Utr	CM	1	1	233	9.25		1
8.5 7.51/2 SL 12	60 60	1/2-7	20 1 to	The mest	CM	ľ	1	-2x	5.0		Ĭ.
Bu 20 1846 SL 14	66 Ga	23"	55 les	14534 NE	CM	1	1	36	5.2)
36 751/2 SL 19	68 stores	4-30.	80 1653x	37 KG	AW	1	J-	t	1.6		1
36+	1	1	1 1	4	1	1	1	1	1 1	100	1
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Field Assistant: MIGUAL PARAMES

Signature: ABWA

Test Pit ID:		0 X L - 18	1 to 1 + 1	101	010	0140	Topographic rosicion.		- 4 - 1				The state of the s		7	S S S S		
Date:	6)	91/ti					% Slope:		120				Slope Aspect:	e.	1250			
lob Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		MELL				Depth to Water Table:	ater Table:	1			
RETTEW Job #:	089962000	2000					Depth to Refusal:		37 :				Slope Failure or slip:	re or slip:	1			
NRCS Soil Unit:	24	PUDDYKHO	R-M	AD	SHE	Y D	Bedrock Type:		5	2			Dip Slope & Direction:	k Direction:	1	Strike:	ike:	
Mineralogy:	510	CICEDY	1				Vegetation:		アイヤレ	FINAN E	E P	812	CKBERR	FRRY				
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Prostometer/	Lab Sample ID		Notes
00	0,	1/5/2012	7	*	1	5 E	į.	1	1	V	25	1	T	2 2	+ 1	1		
V	8	1122401	450	×	60	27 0	0.8-2	50 Pa	1846	AFF	22	1	1	2-1-3	0.25)		
P	4.5	11x315.4	556	7	51	CEO	7-1	0 5	1 KSBK	100	2 4	1	1	3-1	0.25	1		
DV E	5/2	0/25/6	75	13	2	CH	2-1	\$0 PO	XEST	200	2	•	1	1 - M, E	7 0	1		
0 2	12,24	104 PS 8	754	5	14	5 5	2-5	so bo	185 m)	TP	1	1	1	1-m, F	1 .5	ſ		
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7	J'X	SAW.	150	0	W	B	EDP	90	7									

Soil Scientist: UN FU FU

Field Assistant: MIGUEL FARAMES

Signature:

Signature:

Test Pit ID:	D	0003116	4190	8	= -	350	Topographic Position:	tion:	31348	100	M.		Parent material:	terial:	COLLVAIUM	JUM OVE	ER RESIDUOM
Date:	6	11/41/					% Slope:		347.				Slope Aspect:	ect:	っちゃり		
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		E M CC				Depth to V	Depth to Water Table:	L		
RETTEW Job #:	089962000	52000					Depth to Refusal:		200				Slope Fallure or slip:	re or slip:	ı		
NRCS Soil Unit:		PADDYKLOB	- ZAD	シド	433		Bedrock Type :		5	TONE			Dip Slope	Dip Slope & Direction:	35081	12 (+ E b)	Strike: 47 5
Mineralogy:	315	2003317					Vegetation:		MAPLE	カーナー	LORY	STEI	PING	MAPL	at.	-	
										USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Hariton Boundary Topography & Distinctness	Redox Feature Color	Redits Feature Description	Roots	Podiet Peoetrometer/	Lab Sample ID	Notes
Oe	2	ilrator	1	4	1	3.	r	1 1	,	(8	(3-VF	4.5	A L	
P	0,1	1/6240)	75	1.1	29	10	- 1	0 0	1 ch	757	24	1	1	3-NE E	4.5	A / B	
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8	9	0/25/6	15	16	ot	113	2-5	20 PO	1756×	P	2	1	1	1-4-4 1-4-4	5.5	8/x	Cray skids
225	2/38	1	ţ-	1	,	1	X	1 1	i	X	r	¢	t	1	, ,	1	
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														3			

Other Notes:

BACKILOPE

TEST PIT DESCRIPTION
Soil Scientist: Dr. JOHN WAH
Field Assistant: MIGUEL PARAM PARAMES

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

ent nucesy Structure Type, ses) sections Grade, and Size	Structure Type, Moles Topearary Schickers Grade, and Size Consistence Delicionals Delicionals	Structure Type, Moist Topicons Redox Feature Six Scrives Grade, and Size Consistence Type Topicons Color	Nuclear Structure Type, Moist Structure Type, Moist Consistence Indicated State Consistence Indicated Indi	USDA USDA USDA USDA USDA National Standary Structure Types, Model Temperature Temperature Color Consistence Color Consistence Color Color Consistence Color Col
Structure Type, Moist Insulan Renders Topics and Size Consistence Topics	PO ICAR CONSTRUCTOR ACT TO ACT	PO ICCRA CONSTRUCTOR ACT ACT ACT ACT ACT ACT ACT ACT ACT ACT	PO ICCRY Type, Moist Indianal Redox Feature Indianal Roots Indiana Roots Indiana Roots Indiana Roots Indiana Ro	PO ICCRY Type, Moist Indianal Redox Feature Indianal Roots Indiana Roots Indiana Roots Indiana Roots Indiana Ro
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WSDA Modes Considerates Considerates AS FR CW FR CW	USDA Wholat Consistence Consistence Conformation AS Color FR CW FR CW FR CW FR CW FR CW FR CW	WER AW FR CW FR CW	WERR AW FR. CW FR. CW	USDA Wilson Sendary Conditioners Conformation Conformation Redox Feature Substitute Redox Feature Substitute Redox Feature Substitute Redox Feature Substitute Redox Feature Substitute Redox Feature Substitute Redox Feature Substitute SUF, F. 2.1 1.0 FR. C.W. - 3.W.F. - 3.W.F. - 3.W.F. - 3.W.F. - 1.0 H, 5 H, 5
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Redox Feature Color		1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Roots Processor Roots Product Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Part Processor of Part Part Part Processor of Part Part Part Processor of Part Part Processor of Part Part Part Part Part Part Part Processor of Part Part Part Part Part Part Part Part	Roots Print Print Parameter (Lab Sample 1D) 3VF, F 2M 3VF, F 2M 4, S 1V 1V 1V 1V 1V 1V 1V 1V 1V 1
	1 1 1 Declaration	17 73 77 77 77 77 77 77 77 77 77 77 77 77	Roots Parameter 3VE, F 4, 5 3VE, F 0.25 1M 0.5 1M 0.5 1N	Roots

Other Notes:

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Soil Scientist: Field Assistant: Field Assistant: TO 4/07 Walter

Signature:

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	4	Fax:	Phone:	RETTEW A. 3020 Colu
		717-394-1	Lancaster, PA 17603 Phone: 717-394-3721	RETTEW Associates, Inc 3020 Columbia Avenu
		063	721	inc.

Total Die ID.	P-084	1606110 -	-1429-	200		Topographic Position:	tion:	Shoulder	6	600		Parent material:	aterial:	119	1	Resideum
Date:	6-16-2016		-			% Slope:		10%				Slope Aspect:	ect:	22/0	0	
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	: Coast Pipeline Sc	il Survey			Drainage Class:		ON				Depth to	Depth to Water Table:	1		
RETTEW Job #:	089962000					Depth to Refusal:		37				Slope Fai	Slope Failure or slip:	1		
NRCS Soil Unit:	Dindy Know.	1000	Cheep			Bedrock Type :		7	stone			Dip Slope	Dip Slope & Direction:		10	Strike:
Mineralogy:		1	1			Vegetation:			49261	Red /	Made white	0	ak.			
0		8							USDA							
Horizon	Depth in Matrix Color inches	Texture Class	% clay	y % sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
00	1.5 SYRZ. \$1	1/2			50	0.5-10) 1	4	1	AW	1		775	412	1	
A	4 /04/2	104R% 512	12	R	35	85-1.5	SS	130	VFR	VFR AW			12,5	4.3	1	
A	9 104R	104R 4/4 811C	14	18	40	0.5-2.0	55	SAK	VFR	S	1		245.70	4.5	1	
Bul	24 JOYR	104R4/6 SUL	16	78	GR (500	1-3.0	55	12	FR	CW			13 f	5.0	1	
192	37 1046	10×16 1/5 NO1	N	12	65 H	0.3-5	25	24	FA	B	(- - - - -	N. 12.	1	
2R	37+ -	1	1	1	1	-1	1 1	1	1	1	1	T	1		1	Sand Start

Other Notes:

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TEST PIT DESCRIPTION
Soil Scientist: John C Roberts
Field Assistant: Taylor Walter

Signature:

ZR 4:	20 42	Bw2 26	Bw/ 17	BA 9	2	2	Horizon Depth in inches	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:	
424	2 7,51R	6 7512	2.5% 2.5%	757R	7.5783/2	5 2M5 2	th in Matrix Color	MAXIM	geny kppvd	089962000	Dominion - Atlantic Coast Pipeline Soil Survey	6-16-2016	P-086-160	
(1	215	55	500		-%	Texture		Mad		oast Pipeline Soil S	910	25-6411-011900	
1		8	17	75	9		% clay		Sheep		irvey		9-	
1	/	00	20	20	18		% sand						JCR	
t	8 I	368	30	200	60	45	Rock Fragment Type & %							Section 1
1	1-4	0.5-1.0	0.5-2,0	0.25-	0,25%0	0.5	Rock Fragment Size (inches)	Vegetation:	Bedrock Type:	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
11	1 /	25	25	Po	200	1 1	Plantichy/ Stirkiness						ition:	
1	Rock	SBK	386	SBK	152	12	Structure Type, Grade, and Size	Stripe	Sand	24	WP	25%	Showlden	
(Į.	FR	FR	VER	K/2	f	Moist B Consistence	Maph	Stone			0 1	1	
1	3	CW	20	6	CW	5	Recizon Boundary Topography & Distinctness	Red					Saddle	
(1	1	1			1	Redox Feature Color	Maple, w						
1	1			,			Redox Feature Description	itch t	Dip Slope	Slope Fail	Depth to	Slope Aspect:	Parent material:	
1	16	马节	34	3 5	w.32	345	Roots	Hazel Ble	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	ect:	aterial:	
1	1 7	2,5	0.5	200	9.0	4.5	Pocket Penetrometer/	Black Gum	150	1	1	1760	(10)	
1	1	1		1)		Lab Sample ID	6	2			1	1000	
	very the sands	Fire Staved					Notes	herry white Clark	Strike: 25 60			- ugun	Or Silver	

Other Notes:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

245

TEST PIT DESCRIPTION
Soil Scientist: Sohn C
Field Assistant: Toylov Roberts

Signature:

Dominion - Atlantic Coast Pipeline Soil Survey Dominion Coast Pipeline Soil Survey Dominion Class: MO
Depth in Matrix Color Texture Class % clay % sand Fragment Inches Inches Type & Kock Fragment Class % clay % sand Type & Kock Fragment
Total State Stat
Depth in Matrix Color Texture % clay % sand Fragment Rock Fragment Size (inches) Structure Type, or GR
1 5/R25/2 L 15 40 60 0.5540 - GR 3 7.51/2 L 15 40 60 0.5-10 PO CR 17 7.51/2 L 15 55 GR 0.5-20 PO SBK 32 7.51/2 SL 15 55 GR 1.03.0 80 SS 1 M 32 7.51/2 SL 15 55 GR 1.03.0 80 SS 1 M
3 7.57R L 15 40 65 0.5-10 PO CR 17 7.57R SL 15 55 GR 0.5-20 PO SBK 32 7.57R SL 15 55 GR 1.03.0 80 SBK
32 7.54 55 15 55 GR 0.5-20 PO SBK
32 7,54 St 15 55. CB 103,0 60 SBK
2 50 7.54R St. 2 35 60 1-4 0m FI

Soil Scientist:

John Roberts

Signature:

REITEW Associates, inc.
3020 Columbia Avenue
Lancaster, PA 17603
Phone: 717-394-3721
Fax: 717-394-1063

Test Pit ID:	-	P-000-	1606	1	2021	- JCR	60616 - 1306 - JCR Topographic Position:	tion:	Beck	STARE			Parent material:	erial:	6	Movies	over Residuum
Date:		6-16-201					% Slope:		-	1,0%			Slope Aspect:	Ct:	(3)	3110	
Job Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		an				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	0899	089962000					Depth to Refusal:		38:				Slope Fallure or slip:	re or slip:	1		
NRCS Soil Unit:		KNED	- Mad	Mad Shoep	0		Bedrock Type :		Sandstore	tore			Dip Slope i	Dip Slope & Direction:	2501	1	Strike: 21/0
Mineralogy:		mixed					Vegetation:		Stripe	e Maple		Red May	cole in	White Oak	*		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment Size (inches)	Plasticky/ Stickinesa	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Pesetrometer/ pH	Lab Sample ID	Notes
00	-	7/22 B	1				0.5-1.0		200	1	42	1		725	15	1	
A	12	7.5403/3	512	N	22	62	0.5-1.5	88	168	VER	Aw	1		3カ	0.75	İ	
AB.	7	71,5/123/4	100	8	73	30	0.5-20	po ss	188	NFR	2	1	1	27,7	0.75	1	1
Bu	4	7,548	100	20	98	68	0.4-1	35	18 X X	FR	CW		1	273	4.4	r	
Bw2	20	H/7.516	768	22	64	68 68	1-4.0	55	1886	FR	CM	1		75	1 N N	1	
0	38	7:518	25 NGR	TT	55	68	1-6,0	80	SBK/CO VFR		8 W	1	1	3	1 0	7	
P	38	1				1		1 1			1	1		1.	, 1	1	Sand stime

Other Notes:

soil Scientist: John C Roberts
Field Assistant: Taylor Walter

Test Pit ID:		P-089-	6	16-1	550 JCR		Topographic Position:	tion:	Con Contraction	Back shop	Schoo		Parent material:	erial:	245	Straun	
Job Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		S. O. W.				Depth to V	Depth to Water Table:			
RETTEW Job #:	0899	089962000					Depth to Refusal:		20				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		Paddy Kunt	- Mad sheep	Sheek			Bedrock Type :		8	Stone	-fire grain	rain	Dip Slope	Dip Slope & Direction:	250 W	'	Strike: 1810
Mineralogy:	H						Vegetation:		Stripe	Maple		witch Hazel	Red 1	Maple	Cherry		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticky/ Stickliness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redux Feature Description	Roots	Poclar Prostameted pH	Lab Sample ID	Notes
0e	i	5782.5/			1	25	1-	1 1	76	l.	AM			NW T	4,5	1	
A	2.5	104/2/2	ST 12 Ngs 12	7	8	GR	1-4	50	200	VFR AW	MY)	27,5	25.0	1	
AB	N	104R 3/3 SC	75	70	65	600	1-30	55	18%	VAR	mo		1	100 t	4.4	1.	
BW	20	10-12-5/8	750	00	53	650	462 1-3.0	25	138K	LE CM	CM			20 to 80 to	4.4	J	
P	20+	1	1		1	1	1	1 1	ţ	1	Al	,		1	1	1	
Other Notes:			Sandstone	5	Parent		Material										

TEST PIT DESCRIPTION

Soil Scientist: 5+eve

Field Assistant: Dove

Signature:

SKIPPOR

Test Pit ID:		P 090 - 160609	,	1005-500	500		Topographic Position:	tion:	S	SUMME	1		Parent material:	erial:	(01	OHUVIUM (4	ost churred / ro
Date:		06/09/	116	19			% Slope:			13	8-15	%	Slope Aspect:	ct:		70	
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:			27)		Depth to Water Table:	ater Table:	2	A	
RETTEW Job #:	089962000	2000					Depth to Refusal:			38			Slope Failure or slip:	re or slip:	N/A		
NRCS Soil Unit:		D JOYKNOS	- mad	Sheep			Bedrock Type :			sand	Stone		Dip Slope & Direction:	Direction:	12%	150 Strike:	e: 60
Mineralogy:		Siliceous	Mary 1	_			Vegetation:		northern		oak, his	vory bla	CK 00	lack ook, witch	hazel		+ chestant seed
		The same					22			USDA		100					
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
Ô	r.	7.57R 2.5/	1	1-	Ī	800	1-2	1 1	1	1	N O N	ı	Ĩ.	MVE	4.25	15	
P	2	104 R 3/2	-	0	40	800	1-2	80 Po	1 £ gr	7	0 4	1	1	C 7	25, 4, 25	52	
BE	6	lo-(Rulu	5:1	14	20	8 9	1-2	88 89	1 £ 5 bk	7	Cw	t	1	CR	4,25	53	1 %
BWI	17	10xx 5/4	511	15	25	ch 40.	2-H	P5	msbk	4	CX	t	1	アミンドア	4.75	hS	
Bw2	29	10425/6	5.1	15	25	55	2-10	58	14511	17	Que	1	1	0 0 TT 5	.25	55	
20	38	1048 5/6	5/) H	30	0p	6-12	55	0 3	H	20	1	1	77 2	25.	86	
2R	38+						,										

Other Notes:

Siliceou

Field Assistant: Dave Ski

Signature:

& Oak

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3771 Fax: 717-394-1063

Coast Peptine Sol Survey	Test Pit ID:	1	60604	- 1215	2 - 200		Topographic Position:	tion:		3-00	KSTOPE	10	Parent material:	erial:	Co	1/10
Dominion Attantic Coast Profession Self-Service Dominion Character South Dominion Attantic Coast Profession Self-Service Dominion Character South Dominion Character South Dominion Character South Dominion Character South Dominion Character Dominion Chara		140100	16	1			% Slope:			1	110602	COUNEX	Slope Aspe	Ct:		12
Comparison Com		Dominion - Atlantic Co	ast Pipeline Soi	il Survey			Drainage Class:		Well I	Drained			Depth to V	ater Table:	N/	A
Mark Color Mark Mark Color Mark Mark Color Mark Mark Color Mark Mark Color Mark Mark Color Mark Mark Mark Color Mark Mark Mark Color Mark M		089962000					Depth to Refusal:		50"	4			Slope Failu	re or slip:	2	A
Popth in	IRCS Soil Unit:	Shull	0 (37	26)			Bedrock Type :				+	9	Dip Slope 8	Direction:		
Depth Marin Color Texture Marin Mock Figure Marin Mock Figure Marin Mock Marin Marin Mock Marin Mock Marin Marin Mock Marin Mock Marin Marin Mock Marin Marin Mock Marin Mock Marin Marin Mock Marin	Aineralogy:		MITED				Vegetation:			500		210	10/01	, 61ac	00	
con Inches Operation Marks Color Tentum Vacance (Class % clay % sand Regularing Reach Fragment Inches Structure Type, a ware continue of the continue of the color of the										USDA				1		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$						Rock Fragment Type & %	Rock Fragment Size (Inches)		Structure Type, Grade, and Size		Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description		Pocket Penetrumeter/ pH	Lab Sample ID
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			non non	1	1	Ch	2	1	1	1	aw			MVF	<.25	0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			1	1	1	30	1-5	1	1	١	g- (1	,		4.75	5
A 10 7.54R4B 1 15 40 30 1-7 55 1 F 56K fr cw CH 4.25 W1 26 7.54R4B 1 15 45 60 1-4 55 1 m 56K fr cw CH 4.25 50 50 7.54R4B 1 15 45 60 1-4 55 1 m 56K fr cw F M 4.5 5 4.75						5	N	50		,	, v.			40	0	
A 10 7.54R4/3 1 15 40 30 1-3 50 1556K fr cw - CF .25 w/ 26 7.54R4/4 1 15 45 60 1-4 50 1 m56K fr cw - CF 1.0 50 50 1-4 50 1 m56K fr cw - FM 4.55 4.75				15		30	1-3		1487	4	O.W	1	1	CM	4.25	52
1) 15 40 30 55 1 56K Fr and CH 425 50 7.5485/4 1 15 45 60 1-4 50 1 m56K Fr and FM 4,75 50 45 7.5485/4 1 15 45 66 1-4 55 1 m56K Fr and FM 4,75		-				Ch	1-3	SP)		No.			CF		
50 7.5484 1 15 45 ch 2-8 50 1m56k fr aw - CF 1.0 50 1m56k fr aw - CF 1.55 4.75			13	15	40	30	-	58	1 £ 56K	+1		1	1	CM	4.25	
50 75485/4 1 15 45 40 5 55 1 M 56K FT CM - FM 45 5 475						ch	2	SP		7	30			7	1,0	
50 7.54854 1 15 45 60 1-4 50 1 M56K Fr CM - FF 1.55			14	15	53	HO		55	719C W 1	11		1	1	FM		V
50 7.54R\$\frac{5}{2}\frac{1}{10} 10 40 Ch 1 55 11 CM - 4.75					5	60	1-4	50	1 m 56K	5					1.5	
		d	1		7	05		55		11	O.W.	1	(4,75	U
		(-										
		I				2.50										
						* To beau										

No.

Soil Scientist: Field Assistant:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:		po92 - 160	- 60909i	1432-	2 - Sde	9	Topographic Position:	tion:	6	back	slope	Inneorreey	Parent material:	terial:	Co	11/1005	4
Date:		06/09/16	7				% Slope:		5	50			Slope Aspect:	T.	71	100	
Job Name:	Dor	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:			CIM			Depth to V	Depth to Water Table:	N	/A	
RETTEW Job #:		089962000					Depth to Refusal:			38			Slope Failure or slip:	re or slip:	N	14	
NRCS Soil Unit:		- + 1992	Resks	R	Raugh	COMOLEY	OM O € Bedrock Type :			Silt	Itstore/	soapstone	Dip Slope 8	STONE Dip Slope & Direction:	14	W Strike:	(e:
Mineralogy:		M. xed	d	,	C		Vegetation:		northern	hern		oak, Sua	Sugar maple,	of ash	white	oak	
Horizon ·	Depth in inches	n Matrix Color	Texture	% clay	% sand		Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
7	,	1				40		1				1	(E Z To V	25.25	1	
0e	6	7.54R 3/2	(1		Ch	1-6	1	1	1	aw		(3	4.75)	
P	5	3/2	1			27	26	20		,				77	0.1	1	
	70	10 NK 12	SI			65	,	SS	1 f gr	1	Sw.	1	1	CH	4,25		
		1/2 5/	1	16	is	`		PS	()				N	.75	1	
50	22	53 10xx 18 21	311			00	10	55	1 m sbk	fr	and	1	1	U :	4.5		
															11		
2Cr	38										20	1	1				
5		+															
7	38																

Other Notes:

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

Signature:

Test Pit ID:		0093-160609-	0609		1531-50	0	Topographic Position:	tion:		Should	older		Parent material:	erial:	Co	11/10	S
Date:			06/09/16				% Slope:			S			Slope Aspect:	B.		180	
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		WD/	G SSS			Depth to Water Table:	ater Table:	>	1/4	
RETTEW Job #:	0899	089962000					Depth to Refusal:			28	-		Slope Failure or slip:	re or slip:	>	1/A	
NRCS Soil Unit:		10 / 12 (+ - 1) e1	251	3000	(x)	36)	Bedrock Type :			So	sandstone	6	Dip Slope 8	Dip Slope & Direction:	≪	West Strike:	rike: 220
Mineralogy:	-	M.	LED				Vegetation:			hickory	V						
										USDA	1						
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
9	2	7.548/	١	1	7	40	2-4	1 1	1	1	2	,	1	ZZ) IT TZ	4.25	(
,	-	N:				5		5 9						K F	3		
A	7	7.51R2/2	Sil	16	10	40	2-4	55	14 sbk	くか	200	1	1	CM	4.5	1	
0		4		2		CH		PS						2	1.0		
50	19	7.54R %	115	07	0	27	2-6	SS	1 msbk	11	aw	1	1	CYC	4.5	t	
0	4 0																
7	1.1																

Field Assistant: Taylow Walton

Signature:

Oct	Test Pit ID:	P004-1601	160609-1541-147	41	14		Topographic Position:	ition:	BACKTODE.	e			Parent material:	iterial:	Collingian	V	Paris
	Date: O(6-09-20	6				% Slope:		55%			X	Slope Asp	ect:	2000	2	- Carrier
	Job Name: Dom	inion - Atlantic Coast	Pipeline Soil	Survey			Drainage Class:		COMPAND S	THE	x0655		Depth to 1	Water Table:	NIA		
West to Such Complex V. Story Bestock Type: Sachtebard White Nature White Story & Direction: Wastern to	RETTEW Job #: 0899	962000					Depth to Refusal:		34"			- 1	Slope Fail	ure or slip:	11/10		
Dopth in Matrix Color Texture X day X sand Fragment Rock Rack Fragment Rock Rack NRCS Soil Unit:			male	7.1	stema	Bedrock Type:		2	2			Dip Slape	& Direction:	15°C	2	Strike: 7250 W	
on Depth in Matrix Color Texture	Mineralogy:	Mix	F	-	1	0	Vegetation:		-	2	white i	27	long (Drestoned	Bad		1000
1-25 154 5.1 16 18 10.25 190 62 54			Texture	% clay	% sand	Rock	Rock Fragment	Plasticity)	Structure Type,		-	-	Radou Feature	Roots	Pocket Peasttometer/	Lab Sample	
1-25 75/1		_				Type & %				-	-					5	
1-25 7:5/1 1-25 7		syn						1			٨				1		many playstones
1-25 25 4/2 Sil 12 20 CH 0125 PO GAR 1-25 16 164 Sil 12 10 18 VCH 0125 PO GAR 10-18 1042 Sil 23 21 1618 507. 2:0 So 1:1 At SC — 2:4 1-18-28 5/6 Sicl 29 18 XCH 6125 PS SBL Tr SA — 2:5 28-34 5/6 22 30 XAL 0155 PS SBL Tr SA — 2:5 34+ — — — — — — — — — — — — — — — — — — —		2,5/1	1	. 1	1	, 1	7	1.	1		UA	1	ţ	1	2,4	1	an surface
1-25 4/2 Jul 12 20 252 50 1,3 Ver 54 7, m 1-25-10 Colfe 5:1 16 18 507, 2:0 50 1,1 Fr 5C 2, f 1-10-18 1042 5:1 23 21 1070 6.0 50 1,1 Fr 5C 2, f 1-10-18 1042 5:1 23 21 1070 6.0 50 1,2 Fr 5A 3, c 28-34 5/6 22 30 842 12.0 50 1,2 Fr 5A 3, c 34+	3	245.6)			7	122:0	00	62					25	0.75		
1 10-18 104h Sid 16 18 40th 0.25- PO SBU FT SC Zif C 1 10-18 104h Sid 23 21 100h 6.0 So 1.1 FT SC Zif C 1-18-28 104h Sid 29 18 40th 0.25- PS SBU FT SA 3m 28-34 516 22 30 852 12.0 SO 1.2 FT SA 2.0 344	H 1-25		M	13	20	252		50	2	12	45	1	į	1,7	A	1	
1 10-18 104 Sil 16 18 507, 2:0 So 1,1 ft SC 2:0 1 10-18 104 Sil 23 21 Xc1+ 6.25 PS SGN Fr SA 3m 1-18-28 5/6 Siel 29 18 Xc1+ 6.25 PS SGN Fr SA 3m 28-34 5/6 22 30 XFL 0.25 PS SGN Fr SA 2:0 34+					>	113N		00	SBN					7	2.0		
1 10-18 1042 Sid 23 21 Xc1+ 6.25- PS SSE F- SA 3m 218-28 1042 Sicl 29 18 Xc1x 8:25- PS SSE F- SA 3m 28-34 5/6 22 30 XFL 0.25- PS SSE F- SA 2:2 34+	100 1.3-10		Sil	16	0	50%	2,0	56	1,1	7	250	1	1	2 17	4.9	1	
248-28 1041 Sick 29 18 xcl 0,25 85 1,2 Fr SA 1,c 28-34 516 22 30 852 12.0 50 1,2 Fr SA 2,c 344	01-110	inne	1		7		0.25-	25	SBL	7)	١		3	1,75		
28-34 5/6 Sick 29 18 XCIV 8:25- P5 SBN Fr SA 2:0 2 28-34 5/6 22 30 XFL 0.25- P5 SBN Fr SA 2:0 4 34+	D1 10		NC	2	14		6.0	50	1,3	+	LA		1	1,0	40	1	
28-34 5/6 22 30 8/2 12:0 50 1,2 4r 5A 1, m 1 34+	at in	1091	Sicl	20	0	XC W	0,25-	82	NESS	1				2, 1	2 25		
28-34 5/6 22 30 XFL 0,25- P5 SBL Fr IA - 1,2 Fr IA 1,2 Fr IA	11/18-28	5/6		1	-0	75%	0.0	5	1,2	+7	SA	,	(2,0	4.8	١	
344				2	2	XX	-52,0	20	SBL		>	1		7	1,75		
34+			9/20	2	0	2038		50	1,2		+		1	17	4.6	١	4
		1	1	1	1	1	1	1	1	1	1	1	1	1	,	•	LandstraBarry
	1																

Other Notes:

Soil Scientist: Juan Thurk
Field Assistant: Taylon Walter

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	2000	1095-160609-1357-UAT	9-135	7-0,	F		Topographic Position:	ition:	SHOULDER	500	(Conker	2	Parent material:	terial:	Thastin	win
Date:	06	16-09-2016	,				% Slope:		3/090				Slope Aspect:	ect:	2002	7
Job Name:	Domini	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil !	survey			Drainage Class:			Sourced			Depth to V	Depth to Water Table:	N/A	
RETTEW Job #:	089962000	000					Depth to Refusal:						Slope Failure or slip:	re or slip:	N/A	
NRCS Soil Unit:	Wei	Weikert-Berks		xelex	Camplex, 1, Stones	30	Bedrock Type:		Sandstone	2			Dip Slope	Dip Slope & Direction:	190	Z
Mineralogy:	3	Mixed					Vegetation:		Red made	she.	Rod Out "		tanthorne	Chartnet	+ Rosa	
			200							USDA	1		200	Comornio	100	
Horizon D	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickingss	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetooneler/	Lab Sample ID
0e 0	0-1	जिस्त	١	1	1	1	į	1)	1	SA	١	(1	- 1	5-17
a	-	3/2		1	1	1		Ť))	0 7	1		1	* 5	5-18
	2	Zin)		1)	1	1	1	1	2					5-24
Va 1	7-1	3/1))	1	1		1	SA	ł	(J	4.2	528
4		542	,	2	7	VCH	0.25-	00	284	33			(2, +	25.0	5-34
7 71	2-4	4/3	5	a	c	10%	2,0	50	11	Mini	MW	1		2,74	4.3	5-38
	>	10/10	1.7	12	27	VCI+	0.25-	Po	785 W	2	>			7,5	1,75	5-44
100	10	6/4	ZIC	5	00	502	4.0	56	1,1	1	SA	1	(4.4	5-98
2	5	1041	>	7	1	XCF	0,25-	25	5BM	2	17		(5	2.0	5-5A
BW/C 10	10-19	666	X	7	7	65%	8,0	50	1-1	114	UA	ł			A.8	5-50
2		1042	0	9	7	XE	0 .71	0	58h	5	1	1	ľ	2,1	1.5	I.
	19-30	616	×	-	000	8570	12.0	50	1,2	NC	1,1				大子	4
	-							,		,	1	1	,		,	
Y	50+	1	,	1	1	*	1	1	1		-			1	•	i

Other Notes:

Soil Scientist: Doone Truck
Field Assistant: Taylor Walton

Signature:

28C+ NRCS Soil Unit: RETTEW Job #: Job Name: Test Pit ID: 22 B+ ineralogy: Horizon 00 P 29-46 9 4 0 15-19 0-0.3 0.5-5 Depth in inches t. Melkert-Berkes Complex , Vary Story Dominion - Atlantic Coast Pipeline Soil Survey 06-09-2016 MIXED P096-160609-1046 25/1 1012 4/10/2 25012 Matrix Color NAN 4/3 1 Sicl 2 Sil Texture 1 4 1 3 24 % clay 1223-DAL w ï 1 00 0 % sand to 45 26 2 3 1 Ţ NOK Rock Fragment Type & % XCK 14.68 がか 7 35% 222 1 6090 Bedrock Type: % Slope: Vegetation: Rock Fragment Size (inches) Depth to Refusal: Drainage Class: Topographic Position: 0.25-0 0.25-C 0.25-12,0 16:0 0 4.0 2.0 1 25-25 50 PO 3 50 2 50 Pa Structure Type, Grade, and Size 475 Red Bak Sandstone 8 Signalished excessively draw いまというでう 285 SBK 2,3 SBK 380 72 67 12 Moist F 24 3 3 T 1 TOP OF TRACKS LANCE Horizon Boundary Topography & Distinctness H IA 5 5 M \$ Sale 1 D A A A Redox Feature Color 1 1 1 1 1 Red Mussle Depth to Water Table Parent material: Dip Slope & Direction: Slope Aspect: Slope Failure or slip: 1 1 1 1 1 1 ア、万 からかけ 50 N-2,m 1 m - Z 1,0 Roots 1 NA ROLLIVIUM 4.2 4 20 0.5 860 1 14 22 1 1 4 N in Lab Sample ID 5-3A 5-43 5-44 5-36 5-24 5-50 5-18 Ship 54 12 Residum Strike: on the Surface Sandstone Bedrock 2320 Notes

Other Notes:

Soil Scientist: Field Assistant: Field Assistant: Taylor Walter

Signature:

Test Pit ID:	21	-09/-10000 -1039- DE	160M -	1039-	1		Topographic Position:	ition:	SUMMIT	7			Parent material:	terial:	Boris	J. IVA	
Date:	00	06-09-2016	6				% Slope:		10%				Slope Aspect:	ect:	1100	7	
lob Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		0	haines			Depth to \	Depth to Water Table:	2/4	1	
RETTEW Job #:	0	52000					Depth to Refusal:		27"				Slope Fail	Slope Failure or slip:	NIA		
NRCS Soil Unit:		Weikert-Berk	5	Complex .		1. stony	Bedrock Type :		Sandstone	ne			Dip Slope	Dip Slope & Direction:	000		Strike: 7000
Mineralogy:	W	1.xed		-			Vegetation:			6	walnut	Forth.	nou.	How thorne White Oak	1		-
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horkon Soundary Topography & Distinctness	Redox Feature	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample	Notes
00	0-1.5	311	1	- (1		1	1	1	1	54	1	1	7.50	1 04	5-19	
A	1.530	7.5% 4/2	Sil	7	7	OF CF	1.82.0	500	136	VA	SA	1	Ŧ	- C - C - C - C - C - C - C - C - C - C		5-2A	
Br	3-6	66	5:1	00	25	369	3.0	50	58/2	7	SA	1	1	1,0 2,m	1.75	5-34	
82	6-14	7.542	Cl	29	23	×#7	8:0	50	SAR	不	SA	1	1	1-3		5-48 5-48	Chan shing
6	14-27	1.542	>0	41	3	ESS CAS	10.0	50	1,1	FAT	IA	1	1	1,100		5-5A	ę
2	£75	Ţ	((1	1	1	7 7	j	-1	1	1	4	1	t 1	0	Sandstone Bedrach
									,								

Field Assistant: TEST PIT DESCRIPTION
Soil Scientist: D. F. 175-18 Kathleen

NRCS Soil Unit: 089952000 NRCS Soil Unit: Willert-Berks Mineralogy: (NATAL)				i Drainage Class:		000				Depth to Wate	ator Table:		1
				Depth to Refusal:		1100	Rolla	Rolldon Stabs	205		Depth to W	Depth to Water Table:	Depth to Water Table:
		Complex (53F	53F)	Bedrock Type :		1					Dip Slope 8	Dip Slope & Direction:	Dip Slope & Direction:
	80			Vegetation:	L	Striped	USDA	maple,	vitch	5	5	naze	5
Horizon Depth in Matrix Color	olor Class	% clay % sand	Rock nd Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickliness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctness	Redox Feature Color	ature	ature Redoctivature F Description		Redox feature Description
)e 0-2 540 3.511	1).	Stones Stones	2" 72"	1 /	1	1	MA	1		1	234	2 3th
A 2.6.510423/1	25 xcB	10 55	63	8-8	So o	2MGR VFTCW	VFR	cω)	() () () ()	162
BW1 6.5- 754R	25°	12 55	32.	1 - h	50	1659K	WENCO	3		1	1	1 53 to	
Heard 26 Emgl	A NEW	16 40	0 to:	1/4-6°	00 po	MEBM	2	GW			1	o) B(o)	5
115 HE 598	L'ST	16 43	3 581.	561. 1/4"- Stants >20"	00	Massy Fr	7	1	1		1	14/1	
other Notes: Rockoute	10 01	Bollon	300	hole are	Nº 8	bhat	Sed ded	1.1			11 21	11 300111	0

TEST PIT DESCRIPTION
Soil Scientist: D + CUSK (Machine)

Field Assistant: Max Duga

Signature: Alcumil Mu

Test Pit ID:	7	2-094-16	160609-10	100	5.5-1)FT	Topographic Position:	tion:	Heads	000			Parent material:	aterial:	(cllbring	Mui	
Date:		. 6	9/16	1			% Slope:		500	101			Slope Aspect:	ect:		(10	
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		Mell				Depth to	Depth to Water Table:	١	1	
RETTEW Job #:		089962000				1	Depth to Refusal:		58° P	Sugue	12 5050		Slope Fail	Slope Failure or slip:	(
NRCS Soil Unit:		Willert-	t-Bejks	Cor	Complex SZF	(53F)	Bedrock Type :		1	9			Dip Slope	Dip Slope & Direction:	(5	Strike:
Mineralogy:	-	W.>	W.xed				Vegetation:		Sugarmaple,		cherry	1 white	SNALL	4 loct	30,000	di	
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Hariton Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
Oc	0-1.5	0-1.5 2.512	1	1	1	(1	1	ı	-	1)	\	2000	45	5	
P	5.5		215	<u>60</u>	2	CN 121.	C.12.	35 55	afsex	VER QU	afr.		1	100 × 400	5.5	52	
RB	5 35	4/h 22,2,2	1.5 EN	19	27	CN 184	C1/2"	50	1588x VFC	4	AW	1	1	at,m	2000	3	-
Bw1	22	A SS'L	7:5 N3	B	88	901.	(C/)>"	58	16832	3	3	1	1	-20 3 ts		45	5,48
EMORE	22 - EE	1048	275	Be	20	389-	72"		1605BM	7)	1	(7	3.4	55	
2843	300	101/8	2.0	20	2220	1837.	SS 86 34. 86	55	1	1	1	١	1	1	11)	
					4										74		

Other Notes:

Augered to 55" from 50" - Refusal on Rocks-Shale Cot

Shale Got throughout

TEST PIT DESCRIPTION
Soil Scientist: Dan Fenst's Machine
Field Assistant: Max Dugan

Signature: 190

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: Date:	P.	P-100~160609~	16090		105-DEF		Topographic Position: % Slope:	ition:	Ridge	30%	0		Parent material: Slope Aspect:	aterial: ect:	Resi 3	down	
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		W.	(Depth to	Depth to Water Table:	1		
RETTEW Job #:	089962000	2000					Depth to Refusal:		29.				Slope Fail	Slope Failure or slip:	1		- 1
NRCS Soil Unit:	_	CKS	-weiker	+	(0E)		Bedrock Type :		Shale	1/2-	2:	Beds	Dip Slope	Dip Slope & Direction:	120 1	MNN	Strike:
Mineralogy:			MIXZO				Vegetation:		Chestra	11001	18	7	M+laure1	rel, peo	~		ſ
			Separate Sep			30				USDA					1		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	
60	(K	2542	1	,	1	1	1	1)	10	1	AW	١	1		4.4	0	
7	4	7.54/2	2:5	14	8c 41	52	1-4"	200	3MGR	5	AW	((253	5.4	3	fine sea
Bw '	16	1/5	215	16 10	10	301.	1/4-41	80	13 NESW 1	T	CC	1		160 M	34.0	23	
C	29	16- 100K	1	1	1	CM.	1/2-8"	1 1	Ruchelinel	1	AW	1	(15	1 1	(Beda
R	294	1	ι	(ı	(Ī	(1	1	1	1	1	1	1	1	
-17																	

Other Notes:

2 Buz Fleid Assistant: Mat Dugan TEST PIT DESCRIPTION Job Name: Test Pit ID: NRCS Soil Unit: RETTEW Job #: lineralogy: 0 Horizon 30 50 E 85 Depth in inches 多千 Z). Fenstermacher Dominion - Atlantic Coast Pipeline Soil Survey 089962000 Beiks-weiter (LOE 115 ANS'L コンジング 7:5:5 73G-2111-POBOODI-101 12 Pro 1 **Matrix Color** Q Mixel 250 Texture Class % clay 1 6 1 2 % sand 00 1 00 1.5h Fragment Type & % 300 5 50% Rock 87 % Slope: Drainage Class: Rock Fragment Size (inches) Depth to Refusal: Topographic Position: Vegetation: Bedrock Type: 1/2 1 Signature: 00 SP Plastichy/ Stickiness 20 SP 58 1 Structure Type, Grade, and Size MERN Shorte 1/Cossk MSBK Well ropper 2 Moist USDA K 7 12-2 7 Backslope 5 1 CW AW AW Horizon Boundary Topography & Distinctness Redox Feature Color 1 Parent material: Dip Slope & Direction: Depth to Water Table: Slope Aspect: Slope Failure or slip: Redox Feature Description 1 1 1 Kery grass, 35M 24 25,3 25 3 3 Roots 4.6 0.5 Collyvium over Residum 0.1 53 0,5 Co 1 6.5 1 White Snow Lab Sample ID 3 Strike: The or overlying

Other Notes:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Notes

Soil Scientist: D. Fenster Macher
Field Assistant: Max Dugan

Signature: Ham

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: Date:	4)	D-101A-16	60609-	9-16	1605-DE	त	Topographic Position: % Slope:	tion:	1.2C	Stope	6		Parent material: Slope Aspect:	tt aria	7	il Resi
Job Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	t Pipeline Soil	Survey			Drainage Class:		Some	west	X	cc 55	14	14	14	14
RETTEW Job #:		089962000					Depth to Refusal:		30€				-	(Slope Failure or slip:	Slope Failure or slip:
NRCS Soil Unit:		Berks - weikert	(Kert	(6E)		Bedrock Type :		Shall	12	87	14	thich	thich	+ M. CM Dip Slope & Direction:	thich
Mineralogy:		Mixed	e\				Vegetation:		Chestrut cak	1004	+	2	Redock, V	Redock, his	Redo	Redock, Michelly 151
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plantidty/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	coundary spiry & stress	Redox Feature physis Color		Redox Feature Color	Redox Feature Redox Feature Color Description
00	1-0	546/2	1	(1	1	1	1 1	1	1	AW	N	N /	N / 1	N 1 1 35	1
D	1-2	1-2 104/2 SIL	SIC	16	00	1.8%	£2"	20	SO DMGA VER AW	VEr	A	5	7	(N - 35,M	(
mg.	2,5	97.5 1048814 Sit	F. K.C.	18	16	Shar	1/4-3"	88	MSBK	For CW	0	8	- W	\	N 36M	\
5	13.	7.5- 104/25/4	1	i	f	N > 461.	1/2-4"	()	1	1	ALL	8	W -	1		
Z	151)	1	1	1	(1	(1	1	1		,	1	1	t	1

Other Notes:

Field Assistant:

Soil Scientist: Ja FT VP+

Signature:

Test Pit ID:	701	102-1	60613	3-11	0 6	2	Topographic Position:	tion:	SUMM	-			Parent material:	aterial:	R-R JI	MOUR		
Date:	8	13/16					% Slope:		37.				Slope Aspect:	ect:	940			
Job Name:	Domin	Dominion - Átlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		SORKY	ZFF	KX	FN1 16 31	Depth to	○ □ 및 → Depth to Water Table:	1			
RETTEW Job #:	089962000	2000					Depth to Refusal:	Ï	18 :				Slope Fall	Slope Failure or slip:	1			
NRCS Soil Unit:	00 4	BYRKILW	KIK	70	1		Bedrock Type :		51643	1	MK		Dip Slope	Dip Slope & Direction:	320 MW (326"	(726)Strike:		V
Mineralogy:	3	-XED					Vegetation:		LINKLLANI	707	BAR	71454	37.4	e BLVE	25027	1 1 1 1		
										USDA	1000				2000	750000000000000000000000000000000000000	1	
Horizon D	Depth in inches	Matrix Color	Texture	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Mastidty/ Stisiness	Structure Type, Grade, and Size	Moist Consistence	Harlash Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumeter/ pH	Lab Sample ID		
000	1	14.504	1	1	1	1	1	, ,	,	1	5	1	1	7-47	4 1	1		
P	5.5.2	1/22401	2,5	5	20	TO	1 >	0 0	1357	437	2	1	1	2 - VT T	0.25	,		
2	3.2.5	10425/6	5.0 F	15	7	U 30	1 - 3		1 3 SBX	T	2	1	1	2-F. M.	2.5	1		
50	12.18	j.	1	1	1	1	,	, ,	7	j	1	1	,	١	, ,	,		
P	184	511	7	L		B	BADROCK)										

Other Notes:

02

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13.3

Soil Scientist: JOHN VAL Field Assistant:

Signature: ANS W)

Test Pit ID:	7	103-16	160613-	111		SX	Topographic Position:	ition:	BACKS	340	u		Parent material:	terial:	COLLA RIVA		HUNGING & EIN
Date:	6	113/16					% Slope:		7 13				Slope Aspect:	ect:	1470		
lob Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		Ne CC				Depth to	Depth to Water Table:	2		
RETTEW Job #:	089962000	52000					Depth to Refusal:		333"				Slope Fail	Slope Failure or slip:	PRAT	100	6.5
NRCS Soil Unit:	3 N	WEIKERT -	BERK	5			Bedrock Type :		SILTSTON	702	m		Dip Slope	Dip Slope & Direction:	Jo Z	0	Strike: 220°
Mineralogy:	Z	クロケーア					Vegetation:		Kackory	. K	STATE	ことはいけるとす	24	0 1			
										JSDA	1			7			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horison Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penatrometer/ pH	Lab Sample ID	Notes
000	1	5-12-511		1	1	1	1	1 1	(,	2.5	ı	1	3-42, 5	9 1	1	
D	2	3.51×15.5	250	7	25	325	< 0.5	0 0	1357	434	53.	,	1	3-V F, F	1 23	Ţ	
AB	3,6	25/40/4 SE	2, LE	J	20	223	2.0.2	0 4	2457	2	C 41	1	1	3-4F, F	1 %	1	
BEI	6	4124/6	Sir Sis	25	20	220	11	SP	ZW/BX	23	52	f	1	- 4	200	t	CLANSKINS
134	3,5	5124/6	200	ox 2	50	2000	1-3	SS	2 MASK	42	0 4	ı	1	J) 1	1 -0	1	SANDSTONE CHAUNER
285	25 B.	STRAID	ZY CH	22	×	\$ to	1-4	50	1458K	5	a w	,	1	2. 1	000		SICT STOKE
72	330	SILT	5102	m	24	ED R	NOOK										

Other Notes:

BACKSTORE LINEAR CONCORS, SEAN SINISIAME, STADSLANE SMALL SPHISTANE OUTCRES BETWEEN I-1034 1-1030 Z JUREALE

Field Assistant:

Soil Scientist: LOFZ XPF

Test Pit ID:	P-	9091-hos	13-	1400	ししいと	٤	Topographic Position:	tion:	24748	1074			Parent material:	terial:	COLCUVIUM		0 V E B 1	V
Date:	6/	13/16					% Slope:						Slope Aspect:	Ð.	140	- 1	- 1	
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		200				Depth to V	Depth to Water Table:	1			
RETTEW Job #:	089962000	52000					Depth to Refusal:		46				Slope Failure or slip:	re or slip:	3	ガラとす	7000	
NRCS Soil Unit:	5	MEIKERT	BKP	XX			Bedrock Type :		1	TONE	27		Dip Slope 8	Dip Slope & Direction:			Strike:	1
Mineralogy:	×	MIXED					Vegetation:											
									N. S. S.	USDA								
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Roundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID		Notes
0 %	0,	Star 5)1	(1	1	ľ		1	(1	2	(1	3-45,5	41	1		
R	1	1044011	5.	12	18	2 kg	1 >	50	1898	57	28	1	1	7-1 4'11-8	< 0.15	1		
200	5	10/25/6	7. CH	4	2	16	< 1	SS	125BK	T. P.	S	1	j	4.4-6 4.4-6	1 %	1		
8	6.16	254516	1 8 L	24	15	5 2	1-2	SS	NO. W.S	カア	0 2	(1	1 1	4 5 5	1	(LD)	SKIZ
286	18.48	25-18-5/4	Sic t	10	20	L & Z	1-4	20	1650K	18	2 %	,	1	1-48	1 24.0	1	م 1 ۷) M/ DA 48
2R 0	Y8x	3114	Stal	T n	a d	EDE	BEDROCK											

Other Notes:

BACKSLOTE - CIMERR. CONVEX

Soil Scientist:) THE VI AND THE Field Assistant:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Date:	105-160	63-	415	-051	2	Topographic Position: % Slope:	ition:	SACKS	400	a		Parent material:	aterial:	COLLAAIAN		3340
Job Name:	inion - At	st Pipeline Soil Su	Ver			resignate Place.				7		Slope Aspect:	ect:	3050	10	10
RETTEW Joh #-	00003000					Cialinga Ciass.		A MA	WHAT	243	FYZIVE	Depth to	Depth to Water Table:	1		
NRCS Soil Unit:	-					Depth to Refusal:	1					Slope Fail	Slope Failure or slip:	1		
Times son with	1	E IN A	0			Bedrock Type :		21111	OZE			Dip Slope	Dip Slope & Direction:	18. X	7	N (270') Strike:
Mineralogy:	MIXED					Vegetation:		CAUREL		-PLE	TUNISSHO	9	BLUE BLUE	两部門	by	10
					Back				USDA							
Horizon Ir	Inches Matrix Color	Texture Class	% clay	% sand	Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist	Herizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumen	1	Lab Sample ID
000	1522K)	1	r	1		-t-	1 1	,	1	9	1	,	3-VF	7		1
3	1 carol	8.	=	5	0 0	_	0 0	350	427	6	1	1	3. F, M	1 25.02	10	1
22	0/5461 01 x	2.5	Z.	ox	222	_	P0	ZSXX	\$	CA	1	1	2-K	7.0		1 502737024
286 16	16,23 10425/6	2. X. C.	12	7	83	2.3	50	1 SOK	A	2	1	Į.	7	' '-		1
25%	2 SIC.	15 1	7	m	01	EDP	0	7								
																,

Other Notes:

ハンスターイ ともつり

Soil Scientist: Field Assistant:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Signature:

Test Fit 10.		- 0	619	1411	100	2	Topographic Position:	ition:	BACKS	COPE			Parent material:	iterial:	COLLUNIUM OVER	MANIA	DALES SESIDONE
Job Name:	Dom	inion Atlantic Const	Displica Soil		1		% Slope:						Slope Aspect:	ect:	0+4)		
RETTEW Ich #		Osope Sono	ripeline soil	ourvey			Drainage Class:						Depth to	Depth to Water Table:	1		
NRCS Soil Unit:		おちたとくしく	MAIN	7			Bedrock Type		7.5				Slope Fail	Slope Failure or slip:			
Mineralogy:		d					Vegetation:		715 17	200	1		Dip Slope	므	187 1	(355°)Strike:	Strike: 265°
							Acgeration:		40.40	USDA	PPIL	E CHESTNUT	720	OAK	BLVEBETR	EFR.	,
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plantidity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Radox Feature Description	Roots	Pocket Penetrometer/	Lab Sample	Notes
00	6 7	2187.21	(1	1	1	1	1 1	1	1	3	1	1	1, 1 3 V - 2	1 1	1	
P	r's	169401	8. C. E.	4	8	CH	1	So Po	To p	LA P	9 2	,	1	N W I	< 0.25	7	SANDS TONE COR
W.	2	10/25/6	7.5	14	∝	50	-	000	1 N 5 8 K	12	S	1		7-17	1 0.5	1	Str 057020 COT
178	1/9	15315.8	755	50	21	E + o	2 0 0	SS	27,84	7	S	f	1	2 · W · C	4.5)	SATALLONG CEL
2822	19.28	3575516	3.07	5	20	CH	7 - 5	2 2	7455X	P	2	1	f	2. F, M	4.5	E	CLAY SKINS
201	,35 5e'	t	1	1	1	1	1	7 1	1	,	1	,	4	*		1	
28	37	5117	STO	Z		38	70 0	7									

TEST PIT DESCRIPTION
Soil Scientist:
Field Assistant:

Stephanie Mor

Moraca Signature:

nature: & Odió

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: p 107-160613	Date: 06/		RETTEW Job #: 089962000	5	Mineralogy:	Horizon Depth in Matrix Color				4 7,546 3w 22 7,5	H 7,540 Bw 22 7,540 R 32 -	4 7,540 22 7,5 32 -	4 7,540 22 7,5 32 -	72 7,540
60613 - 1053	06/13/16	Dominion - Atlantic Coast Pipeline Soil Survey		riker+ Be	Ked	r Class % clay	1	3/2 51) 16		511	1 511	1 51	1 5:	1 5:
3-500				Berks		Rock Fragment Type & %	- 25 9r	12 25		10 55				
Topographic Position:	% Slope:	Drainage Class:	Depth to Refusal:	Bedrock Type :	Vegetation:	Rock Fragment Size (inches)	1-4	1-4		2-4				
on:				.7	070	Structure Type, stations Grade, and Size	1 1	PS 1 f gr		55 Itsbk				
Backs	W	WD	32	ine graind	2	Moist	1	A.		か		1 5	1 7	1 1
600				nd sond	6,	Horiton Boundary Topography & Distinctness	9 &	2	(2	1 8	1 8	1 8	1 8
				90045	Mounta	Redox Feature Color	(1		1	1	1	1	. 1
Parent material:	Slone Aspect	Depth to Water Table:	Slope Failure or slip:	Dip Slope & Direction:	and and	Redox Feature Description	1	1		1	1	1		
fal:		er Table:	or slip:	irection:		Roots	五五五	1 = 11		CH	CC	CC	CC	I CC X
				110	14.10	Pocket Penetrometer/	<.25	.25	27.12	4.75	1 4.75	4.75	4.75	4.75
	1170	A I I	5		O. Ne	Lab Sample	1	1		1	1	J	J	J
1000	(311)			The state of the s	Strike:	Notes								

TEST PIT DESCRIPTION
Steve

Stephanic Dadio Moraca

Field Assistant:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	D 10% - 10	1	1711-200	90		Topographic Position:	tion:	tor	Slope	(SUMMIT	W. +	Parent material:	terial:	T	0	coll /res
	1/90	13/101				% Slope:	l		11	16		Slope Aspect:	spe	spect:	spect:	spect: 147
	Dominion - Atlantic Coast Pipeline Soil Survey	Coast Pipeline So	Survey			Drainage Class:			36	C		Depth to	1	Depth to Water Table:	Water Table:	Water Table: N/A
	089962000	1				Depth to Refusal:			32		-	Slope F	ailu	Slope Failure or slip:	allure or slip:	ailure or slip:
NRCS Soil Unit:	M	Me Kert	· berk	KS		Bedrock Type:			fine	9	(aine) Sandy	Dip Slo	ppe 8	Sandy Dip Slope & Direction:	ope & Direction: HO	NNW OH
Mineralogy:		MIX CO				Vegetation:		ches	hes+nu+	sak, M	15	-0	2	3	ILB IVION	ite ivia bive us
Horizon Depth in Inches	th in Matrix Color	or Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plesticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Radox Feature Description	4 4	sture Roots	Roots Perker Perservanished	Roots Podet Penetro
00 2	51R 25/	1/2	1	1	ch 30	1-2	1 1	1	t	Cw	,	1		J. U.	C F <.25	
A 2.5	7.578	7/2 5:1	-6	15	83	1.2	55	1 fgr	Ar Ar	N 0	i	1		T C T	£ 7	T C 7
B. 14	1 7.54RS	2.	18	10	60 Ch	- 4	PS	1 msbk	fr	Q-w	1	i	,	CM	0	CM S
2cr 3	32 -	1	-1	1-	1	-	t t	t	t	940	t	1		77	77	1 N
2R 3	32+	1	ſ	I.	Ý	X.	1 1	Ī	4	1	1	1		t	(t - (

TEST PIT DESCRIPTION

Soil Scientist: S+

Stephanee Maraca

Signature:

2 Ordie

Test Pit ID:	Date:	Job Name:	RETTEW Job #:	NRCS Soil Unit:	Mineralogy:		Horizon De	S	A	B41	8+2	200 5		The second second		
0	-	Dominic	089962000				Depth in Inches	W	0	24	10	88			_	
0 109 - 160	/	Dominion - Atlantic Coast Pipeline Soil Survey	000	Shelocto			Matrix Color	5482,5/	7.54R 3/2	104R5/6	104R 5/6	104R 5/4				
613-1		Pipeline Soil S		G. Ber	117		Texture Class	1	5.	51	1.5	1,5				
321-		urvey		5 KS			% clay	1	16	22	20	18	6	,		
PPS			l l				% sand	1	0	- C	12	S		-	,	
						The state of the s	Rock Fragment Type & %	ch ch	ch.	ch ch	55	60				
Topographic Position:	% Slope:	Drainage Class:	Depth to Refusal:	Bedrock Type :	Vegetation:		Rock Fragment Size (Inches)	2.5.	.5.2	·5-4	,5.2	,5-2				
ition:							Plasticity/ Stickiness	, ,	55	55	85	SS				
50			58		red		Structure Type, Grade, and Size	1	1599	2 m sbk	1msbk	785 J. I.				
N. W.	27		lorge	3	maple	USDA		1	4	4	か	7				
9	+ ~	30	e fociss	-			Horizon Soundary Topography & Distinctness	Qw.	aw	CW	CW	1				
	Sig ancosured	Clambasta	60	9	sosafras	The second	Redox Feature Color	1	j	t	1	ţ				
Parent material:	Slope Aspect:	Depth to	Slope Fail	Dip Slope	Vira	4	Redox Feature Description	1	r	1	1	(
torial:	ect:	Depth to Water Table:	Slope Failure or slip:		licatoro M	Ш	Roots	N N J L	N N N N	003	7 m	TI				
		1/	NIA	- 51	Maple		Pucket Penetrumeter/ pH	5.4	5.5	27,5	4.6	5.45				
Marian	960	14	A				Lab Sample ID	5	52	(A)	54	50				
B				Strike:			_									
				1			Notes									

TEST PIT DESCRIPTION

Soil Scientist: Stephonis

Stephanie Marala

Signature: S C

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Date: Job Name:	Dominion -	06/3/16 Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey	100		% Slope: Drainage Class:	ition:	lower	0	2 0	MWD / 600	MWD / beach	/ beach	beach	Slope Aspect: Depth to Water Table:	Slope Aspect: Depth to Water Table:
BETTEW Ich #.	- HOHIHIDO	- Atlantic Coast	ripeline soil	survey			Drainage Class:				D		De	pth to V	Depth to Water Table:		
NRCS Soil Unit:	^	Shelocta		berks			Bedrock Type :			-	ts tone			Die class	Din slone 8. Dination.	100	11/1/11
Mineralogy:		M. Xed	600				Vegetation:		(ec		Maple	forns		adoic dia	orb stope of pirection:	1	1
										SDA	-	1 67 77					
Horizon II	Depth in N	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horkon Boundary Topography & Distinctness	Redox Feature Color		Redox Feature Description	Redox Feature Roots	Roots Product Prosetrometer/	Roots
Op	W	754R25/	i	ı	1	3	1-4	1 1	I	1	aw	1		1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- HM 5.25	
P	6	7.54R 32	Sil	5	2	5 6	1-4	85 89	1 f gr	nfr	aw	1		1	1 0 2 7	7 2	7 2
8+1	24 10	104R 5/L	Sil	22	00	30	1-4	P5	Zmsblk	5	2	١		1	H U C F		
8+2	32 11	101R516	Si	25	8	52 33	5-1	P5	2 m sbk	+	CW	1		((FF		
28+3	2	7,5485/	5.1	27	ō	55	.5-2	53	I co pr	ţ;	1	7,54R 6/3		cmd		cmd FM	cmd FM

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION Steve Stephanie Moraca Dadio Signature:

> RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

	28+3	8+2	B+1	P	Oe	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
	52	HO	28	7	W	Depth in inches		+	089962000	Domin	-	0
	10YR SK	2,545/6	2.54 6/6	7.54R3/2 5:1	5YR 2.5/	Matrix Color	-	MECONG - BEKS	2000	Dominion - Atlantic Coast Pipeline Soil Survey	06/13/	111-160613
	511	1:5	5,1	5,1	į	Texture Class	MIXPO	- Berk		Pipeline Soil	116	
		22	20	6	1	% clay		5		Survey		-1602 -
	J.	18	25	-	·i	% clay % sand	×					Sold
	5 %	540	70	30 Ch	30 Ch	Rock = Fragment Type & %						
	1-4	3-6	3-6	1-4	1-4	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
	58	55	PS 55	PS 55	1 1	Plastidty/ Stickless						ition:
	1 45616	If she fr	145.51	Ifgr	.1	Structure Type, Grade, and Size	pay					
	33	fr	7	4	1	Moist Consistence	MON			N	57	bac
	1	C.K.	0 %	9 8	9 <	Horizon Boundary Topography & Distinctness	+	31/1	NIA	CIM		Isslope
	ì	1	1	1	1	Redox Feature Color	hemiock		9			
	1	1.	Ъ	t	1	Redox Feature Description		Dip Slope	Slope Fai	Depth to	Slope Aspect:	Parent material:
	7	U = U	C 27	027	000	Roots		Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	pect:	aterial:
	2,75	3.25	1.0	5.25	5.2	Pocket Penetrometer/ pH						
	1	Ĭ	1	1	1	Lab Sample ID		1	NIA	NIA		collo
						ē		Strike:		1	3	collusion
						Notes		1				

Soil Scientist: John Robert
Field Assistant: Total for Walter

signature: De Roberts

RETTEW Associates, Inc.
3020 Columbia Avenue
Lancaster, PA 17603
Phone: 717-394-3721
Fax: 717-394-1063

Test Pit ID:	, o	160	3-1405	01			Topographic Position:	tion:	Lawer	Shoulder		Stope	Parent material:	terial:	300	12	11 / Rosinum
Date:	K	6-13-2016	6				% Slope:		7.3				Slope Aspect:	ect:		233	233
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		Well				Depth to V	Depth to Water Table:		1	1
RETTEW Job #:	089962000	2000					Depth to Refusal:		120	7			Slope Failure or slip:	re or slip:		1	I
NRCS Soil Unit:	()	Je Lert -	Berk	,			Bedrock Type :		Sand :	stone /	Shode		Dip Slope	Dip Slope & Direction:		60	OO 16 E Strike:
Mineralogy:	N	mixed					Vegetation:		White	Pine	Chestos	that Oak		Kemlock	2	white of	
						Back			-	USDA					ľ		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Masticity/ stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Rados Feature Description	Roots		S Pocket Penetromater/	
00	.5.	54R 2.8/	i			40 40	0.5-2.0	(1	1	VER	52	Ī		3 +		4,2	4,2
4	N	107R412 SIL 16	715	6	18	35	0.5-2.0		30	75	CS			83		0.75	0.75 -
4	79	104R 5/6 SIL 20	212		30	C H	0.5-3,0		SBK	FR	CS	1		27		1.25	1.25
BH2 24		10-16 3/6 SIL	215	20	30	ECH ECH	10-4.0	55	1286	FR.	cs	1	1	25		5,25	512
2)	34	34 104R96 SIL 16 36	715	9	36	HO3	1-6	50	1	FR.	CS	1		12		4.5	4.5
NP.	344																
																. 8	

W/O

TEST PIT DESCRIPTION
Soil Scientist: John C, Field Assistant: Job Name: Test Pit ID: Mineralogy: NRCS Soil Unit: RETTEW Job #: Cr Horizon BA P 4 De 0.5 Depth in inches 17 -CN 0 Dominion - Atlantic Coast Pipeline Soil Survey Tarllar Dulter WEIKERY -MIXER 6-13-2016 10485/6 142 245 104R 4/2 10485/6 Matrix Color 113-160613-Roberts BerKs SIL 215 52 Texture Class 1438-0C % clay % sand 15 w 3 20 0 0 £08 Fragment Type & % 25 60 Rock % Slope: 0.5-1,5 80-52.0 Bedrock Type : Depth to Refusal: Drainage Class: Rock Fragment Size (inches) Vegetation: Topographic Position: 10 Signature: 50 5 20 55 0 1 Structure Type, Grade, and Size SED Unite Po SOK 3 36 2 10% Moist + 50 D 1 1 54 1 A 5 AS 5 0 Redox Feature Color Dip Slope & Direction: Redox Feature Description Slope Failure or slip: Depth to Water Table Slope Aspect: Parent material: 46 100 2 N + + Roots to 0.75 127 0.5 60 45 4,25 1 2 1 1520 duny Lab Sample ID 1 1 1 Strike: 1090

Notes

Other Notes:

Soil Scientist: Solar C Roberts Walter RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

tout the tour	-	0 0000		10000			and all and a day		POS IN	1	Caso Gan	0	Parent material:	terial:	00/10	سا	William over residuum
Date:	6	-13-2016	6				% Slope:		15		-		Slope Aspect:	et:		1010	1010
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline So	Survey			Drainage Class:		SPB	Somew	Somewhat Excessively	ssively	Depth to \	Depth to Water Table:	1 1	1	1
RETTEW Job #:	089962000	52000					Depth to Refusal:		17				Slope Failure or slip:	re or slip:		١	١
NRCS Soil Unit:		Macova					Bedrock Type:		lorge	CONVIG	1 rocks	15and	Dip Slope	Tide Dip Slope & Direction:		*	Strike:
Mineralogy:	1	Mixed					Vegetation:		Hop her	heinbeam	bruen	A36	With head	H	C.	de	up Rober, Red
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size		Hustina Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots		Pocket Penetrometer/ per	Pocket Penetrometer/ Lab Sample ID
Oa	0.5	54225/	1			6R	125-1,0	1 1)	SAN SAN	ME	1	1	3		4.7	47 51
A	W	10-12-101	215	可	18	160 160	0.5-2.0	So	30	FR	5	1		17 W			0.25 SZ
AB	9	10×16 4/4	SIL	7	20	70 70	0.75-4.0	SS	-388	FR	GW.	1		3		1 0	4.5 53
Bw	71	10485/6 516	715	19	22	200	0.25-3.0	Sp	1 M	52	CW	(5 m 15			3.75 Sy
D	174	M	*	#	B	PA.		本化	K	(1		\	NF	11	1 1	1 1
- 1																	

TEST PIT DESCRIPTION
Soil Scientist: Sohn C
Field Assistant: To Alar Po St. 75

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	0	P-115-160613		27	こところ	C	Topographic Position:	tion:	Back	slope	6		Parent material:	terial:	100		
Date:	6	-13-2016	í,				% Slope:		56%	,			Slope Aspect:	et:	22	10	
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil :	Survey			Drainage Class:		MD				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	0899	089962000					Depth to Refusal:		1				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		Weichert -	Berks	S			Bedrock Type :		Sand store	I ma	hole		Dip Slope	Dip Slope & Direction:)	5	Strike:
Mineralogy:	-	Mixed					Vegetation:		White	Pin	o C	oshuit 1	Dak	chedoden	ndron 1	16 K 000	
Horizon	Depth in	Matrix Color	Texture	% clay	% sand	Rock	Rock Fragment	Plastichy/	Structure Type,	Moist	Horizon Boundary Topography &	Redox Feature	Redus Feature	Roots	Pucket Penetrumeter/	Lab Sample	Notes
						Type & %	June (manual)		and and and		- Change of the Contract of th	coloi	1			=	
	5.0	7,54825/				, -	0.25-0	1	1	550	7			7			
Ue						15	0.75	1		471		1		7	4.3	7	
,	0	10463/2	1	-		00	0.15- as	09	GR)			Cm	0.25		
4		107	217	10	52	6R		So	3	MR	3)	1		25	4.7	1	
0 0	11	1920 FOH	7	2	00	30	21-52:0	0	SBK	FR)		\	N	55.0		
174	7	Liver	711	5	-	GR		55	3		J.			77	4.4	ı	
9	=	104R7/	,	20	30	40	05-20	58	39k))	1	1	3	0.75	١	
3-8	-		1			CN		55	3	7	CM			85	4.5		
,	25	107R5)	,	7	82	000	0.5-5.0	Sp	SBIC	60	111			\$2	0.75		ange Ray stones
B+1		6		(CN/F	FL 610	35	- Prof		5			6	4.7	1	andowny gostpoor
79	4	1/04/26/1	-	12	5	*	1-20		186	10	0.1			-5	1,0)	
	(3	Г		i	6R			1	7	5	1			5/		
)	3,	D+ Involut				25	-61		^ .	5			1	-	N.	(
(00	101776				XIX			100	TIC	(4,4		

Other Notes:

Collumn throughout sit

acsimuma arumal

Soil Scientist: Sohn C Field Assistant: 104 lov

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	-	K-110-160613	3 1010	Some	-		Topographic Position:	ition:	Photo Note	2/15			Parent material:	terial:	6	1885	
Date:	0	06-13-2016					% Slope:		50%	1			Slope Aspect:	ict:	203		
lob Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		OM				Depth to V	Depth to Water Table:	1		
RETTEW Job #:		089962000					Depth to Refusal:		40				Slope Failure or slip:	re or slip:	24		
NRCS Soil Unit:		We Kest - 8	Books				Bedrock Type :		Sandstone	m / Shoke	de		Dip Slope	Dip Slope & Direction:	18%	1098	Strike: /90
Mineralogy:	3	mixed .					Vegetation:		White pire	11504	ckony.	Rhadodondran,	y nav	Red Maple			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Dietlactness	Redox Feature Color	Redox Feeture Description	Roots	Pocket Penetrometer/	Lab Sample	Notes
9	-	\$2 MZ	Ī				0.5-2.0	1	1	1	3	1		h	320		
00		11				60		1		1	5			1	4:5	1	
A	2	10 YR 3/2	5	1	R	6R	0.5-20	09	IM GR	VER	?			75	25.0	1	
			010	1	17	18		90		7	CW	1		3	シャト		
RA	2	101/2 3/3	SIL	灭	9	62	0.5-1.0	8	JABS W	3	M			32	0.51	1	
717			-	3		5		55		7				2m	4.7		
2	-	915 2ha	20	ō	5	GR	0.2-0	SP	m SBL	FR	MI			3	0.7	1	
198					(20		50			9 %			200	N		
142	26	10+18.5/6	212	20	16	CN	0.4.0	SP	JAS W	0-7	>			22	1.6		
000	0	100				40	(8)	25		1	GW			100	c	1	
3	Oh	10+R 5/6	57	8	25	*PL	1-60	95	0,1	FR	H.			カ	1		fines in water
(1	Oi		5.5		1 1	+			3	5,0	Ī	
LR.	40t																
																1	

TEST PIT DESCRIPTION
Soil Scientist: M DOOD
Field Assistant: M DUGA

DUGAN

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P	- Ofti-919091-41	16-15	+ Of	M/S	M	Topographic Position:	tion:	UPPER S	HOUL	HOULDER S	SHOTE	Parent material:	naterial:	RES	WARTSOL		
Date:	2	11/2/11/					% Slope:		00				Slope Aspect:	spect:	180			
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		PA W	Well	Well Drained		Depth to	Depth to Water Table:	>29			
RETTEW Job #:	089962000	52000					Depth to Refusal:		29				Slope Fa	Slope Failure or slip:	(
NRCS Soil Unit:		LOCTA	- BERK	KS			Bedrock Type :		29				Dip Slop	Dip Slope & Direction:	175		Strike:	361
Mineralogy:		2					Vegetation:	56	E BELOW	nja								1
Horizon	Depth in inches	Matrix Color	Texture Class	% day	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Soundary Topography & Distinctors	Redox Feature Color	B Redox Feature Description	Roots	Pocket Penatrometer/	Lab Sample ID		Notes
0-1	00	ae 75 ye	1	1	1	,	1	1 1	1	1	AS	ī	1	1 m. 10	57 1	1		
1-14	BE	1-14 Bw 1048 450	St.	_0_	4	40	12.5	PD 50	7105 11	H	2	1	1	2 F.VF	1.75	1		
14-29 Cr 1042	5	10 yr	s	9	23	80%	80% 16,00° po	P0 50	2198	fa	Fa cw	(17M-10	5,2	1		
29+	R	(1	1	1	(1	5 1	MO	1	1	1	¥	1	7	1	1	

Other Notes:

VEG. MAPLE, TULIPPOPLAR, INTERMY, WHITE DAIL (SPARSE HERB LAYBR)

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION WOOD

DUGAN

Signature:

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

C 10 Y/1 5 6 12 55 45 6.0		P118 - 0606 16 - 1030 - MGW 6 116 116 Sminion - Atlantic Coast Pipeline Soil Survey	Topographic Position: % Slope: Drainage Class:	1197	WARNI	Parent material: Slope Aspect: Depth to Water Table:	COLUVIUM 50 >32
Redock Type: **COUGH** **Cought Bedrock Type: **Vegetation: **Cought Structure Type, Modiff Minimum Redox Feature **Color Type & Structure Type, Modiff Minimum Redox Feature **Color Type & Structure Type, Modiff Minimum Redox Feature **Color Type & Structure Type, Modiff Minimum Redox Feature **Color Type & Structure Type, Modiff Minimum Redox Feature **Color Type & Structure Type, Modiff Minimum Redox Feature **Color Type & Structure Type, Modiff Minimum Redox Feature Type, Minimum Redox Feature Type, Minimum Redox Feature Type, Minimum Redox Feature Type, Minimum Redox Feature Type, Minimum Red		Dominion - Atlantic Coast Pipeline Soil Survey 089967000	Drainage Class:	258		Depth to V	Depth to Water Table:
* clay * sand Rock Rock Fragment remains Structure Type, Most Progression Type & ** Size (inches) Structure Type, Most Progression Redox Feature Type & ** Size (inches) S		13097	Bedrock Type :		CH.	Dip Slope	Dip Slope & Direction:
% clay % sand Rock Fragment Fragment Type, Most Fragment Type, Most Fragment Type, Most Type & Most T	Mineralogy:	CARIN	Vegetation:		,		
10 47 60 210 PO 10 47 20 210 PO 12 55 60 21.5 So 12 55 60 26.0 So 12 55 75% 26.0 So 50 So	-	Matrix Color Class % day % sand	Rock Fragment Size (inches)	Structure Type, Grade, and Size	Horizon Boundary Topography & Distinctness	JFG Redux feature Description	Roots Poder Peating
10 47 60 210 80 12 55 60 21.5 80 12 55 60 21.5 80 12 55 60 20.0 80 12 55 75% 26.0 80 50 50	2	75/22/2		1	A .	T	3 K-VE
12 55 40 21.5 80 12 55 40 21.5 80 12 55 60 26.0 50 12 55 75% 26.0 50		34 01	210	on of	CF	1	3 F- W
12 55 60	3-8 B	Neg 12 55	21.5	200	CW	1	3 F-4
12 55 60 26.0 50 14 -	8-12 BV	Neft 12 55	12.5	385	cw -	ī	97-W 1
(2 55 75% L b.D 80	12-25 BL	12 55	16.0	188		- 1	1 5 0 - W 1
32+ R	25-37 C	12 55		1 1)		-) M-10
	32+						

Other Notes:

Mrs. TULTE POST AR STRIPEDMAPLE XMAS FERN

10

TEST PIT DESCRIPTION NOOD Soil Scientist: N DUGAN

Signature:

Test Pit ID:	7	113-160010-070	200		-11/6	(N)	Topographic Position:	tion:	LAT LOWER		SLOPE		Parent material:	terial:	100	TO TOM	10652000
Date:		11/16/16					% Slope:		43				Slope Aspect:	Ġ.	50	,	
ob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		AM				Depth to V	Depth to Water Table:	> 19		
RETTEW Job #:	089962000	62000					Depth to Refusal:		19-1			-	Slope Failure or slip:	re or slip:	(
NRCS Soil Unit:		WEIVERT-BE	-8X7	- ROUGH	167		Bedrock Type :		3 19 4				Dip Slope	Dip Slope & Direction:	1	Strike:	ko:
Mineralogy:		-					Vegetation:		5GE 1	BEROW	0					-	
The state of									100	USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% clay % sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horiton Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pit	Lab Sample ID	Notes
0-1	6	De 7541,	J	1	1	1	1	(1	1	As	1	1	3 VF-F	1		
		0/-												1 00	100		
2	4	5/2	-	N	40	37	21.01	Po	1 4 t	VFR	VFR CW	1	1	1-10 E	0.5		
1	Ø	2 1/5 VLOI 26	SR	5	40	6n	1 11	Pb	184	100	-			7-119	1.5		
1	INC)	7.1	100		-	30%	£ 4.0.	35	SOK-CE NATI CIN	MAN	CW	1	-1	200-W	4.0		
1 12	Bu	5-12 Am 1041 8/6 5/6	15	19	22	612	N V			5	2	1	1	3-112	1.5		
-	6 N2		2		(715	50	21815	1	CV			1 CO-M	400		
N-19	9	Or 1040216 31	5	12	52	500		Po	3	1	1			J 1/1	1		
_	-4				,	80%		50	0.1	,		(.(11 CO.M	1		

Other Notes:

MEG: HEMLOCK

Soil Scientist:
Field Assistant: TEST PIT DESCRIPTION

DUGAN

Test Pit ID:	10	120-1606	6-10	010-	WOW		Topographic Position:	tion:	MAUND	3	1700	の名の河	Parent material:	terial:	PAIL	MILLANIAM		
Date:	6	91 EI				- 0	% Slope:		20/0				Slope Aspect:	Đ.	181	0,		
Job Name:	Dominie	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		C.W.				Depth to V	Depth to Water Table:	230	N		
RETTEW Job #:	089962000	000					Depth to Refusal:		30"				Slope Failure or slip:	re or slip:		1		
NRCS Soil Unit:		MACOVICCHANNON	MAN	X			Bedrock Type:		1				Dip Slope a	Dip Slope & Direction:	1	S	Strike:	1
Mineralogy:	^	MIXED		,		1	Vegetation:		HEMLOGIC,		WITCH HAZE	+4267	REDA	RIDMAPIA.	HICKORY	1045	30 01	20 18
Horizon	Depth in inches	Matrix Color	Texture	% clay	% sand	Rock	Rock Fragment Size (inches)	Planticky/ Stickings	Structure Type, Moist Grade, and Size Consistence	Moist Consistence	Horison Boundary Topography & Distinctness	Redox Feature Color	Redux Feature Description	Roots	Pucket Presetmenter/	Lab Sample		Notes
De	1-0	0-1 754L)	1	1.	1)	1 1	1	1	P	1	\	2 F-VF	7	~		
D	1-3	1115 E/E	5.	(8)	1	5R 20/8	<204	Po	SR	E	53	Ì	L	10-20 CO-W	5.3	52		
Dw.	9.9	3-9 1042	51.1	8	20 30	6a.	20% 12.0"	56 09	748	Ft Cw	CW	j	(2 F-VF	1, 35	53		
But 2	90	BW2 9-30 18 YR 1/4.	S:1 20 42	20	12	CR 65	18.6	Po .	2 F 5 BK	FR CW	Cw.	*	*	1 F-VF	5.3	54		
l l																		
12.4																		

Other Notes:

TEST PIT DESCRIPTION
Soil Scientist: M - M D D A
Field Assistant: M D D A DUGAN

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P/2	20A-16	16061600		1225 - M	MY	Topographic Position:	tion:	3 38M	LOPE			Parent material:	terial:	1103	COLLUVIUM /	RESEDUN
Date:	6	717					% Slope:		4				Slope Aspect:	Ct:	172		
Job Name:	Dominion -	Dominion - Atlantic Coast Pipeline Soil Survey	peline Soil Su	irvey			Drainage Class:		UND				Depth to V	Depth to Water Table:	>30")1/	
RETTEW Job #:	089962000						Depth to Refusal:		3011				Slope Failure or slip:	re or slip:	1	1	
NRCS Soil Unit:	MACE	DVE	CHANNERY	KJ			Bedrock Type:		1				Dip Slope &	Dip Slope & Direction:	(,	Strike:
Mineralogy:	3	Caxi					Vegetation:		HEMLOCK, WITH THE	X W		JAK RUD	MAPLE	8			
Horizon	Depth in N	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redux Feature Description	Roots	Pocket Pepaetrametes/	Lab Sample ID	Notes
0e 1	5-1 7.	2/2 7/5:t	1	1	1	1	1-	1	1	Ī	45	1	1	3 F-VF	i ((
7	1-1.5 10×a/6/4		5.1	16	00	5%	20.5"	P0 50) YFR	HA	SH HA	1	1	3 K-UF	0.25	1.	
BW 1	1.5-14	10 YR 6/4	Si.)	90	33	GR 20%	1511	50	28×	3-1	QW.	1	1	2 F-VF	0.50	Î	
38	19-30 104R6/4		21-15 XOX	90	33	65%	65% 28"	50	2 F	FR	CW	y	Ç	# F-VC	5.1	ţ	
1-																	
				÷													

Other Notes:

Refusal on coarse fragments

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

Signature:

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	-	101-101	6/10-	0750	1	NE	Topographic Position:	ition:	TUSEDY	AIS			Parent material:	terial:	4/1/1	(III)	0011111111
Date:	6	117/16			,	0.00	% Slope:		Lo				Slope Aspect:	ect:	83	1000	Section of the second
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	urvey			Drainage Class:		CWW.	- Wel	Well drained		Depth to	Depth to Water Table:	7 17	11	
RETTEW Job #:	089962000	2000					Depth to Refusal:		41				Slope Fail	Slope Failure or slip:		1	
NRCS Soil Unit:	3	ACOVE CHAN	/ WEIGHT				Bedrock Type :		(Dip Slope	Dip Slope & Direction:	1	10	Strike:
Mineralogy:	5	MAXIM					Vegetation:		388 BE	LOW							/
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidty/ Stickiness	Structure Type, Grade, and Size	Moist	Harleon Boundary Topography & Distinctores	Redox Feature Color	Redox Feature Description	Roots	Pudat Penetrometer/	Lab Sample	Notes
De 6	6-1	-18. Nrst	1	-15	1	1	100	1	Ì	F	45	Ţ	A	3 F-VF 2 M-60	6 (~	
A 1	ů.	'DYR 3/4	1	14	177	GR BY	×06.	95	200 FM 1	NFR	S	ı	1	2 F. W.	0,25	77	
-	4.5	18th 4/4	115	po ex	43	903	202	6.5 0d	200	H	CN	1	1	2 F VF	1.25	8	
C27	7	16/1/1/1	1 XGK	12	*	65 Gr	12	50	195	T	3 P)	,	2 F/VF	5.2	54	
_ •	Ŧ																
					*												
						7.								PIE			

TEST PIT DESCRIPTION,

Soil Scientist: 111, WOOD
Field Assistant: M. DUGAN

Signature:

Test Pit ID: Date:	6/12/1606		5-1000-MGM	164	% 1	Topographic Position: % Slope:	on:	1 V/01/07	AT SI	036		Parent material: Slope Aspect:	erial:	245	- 1	LUVIUM
	Atlantic Coas	+ Dinalina Soil S	TIPUAU		0	Drainage Class:		W.D				Depth to Water Table:	ater Table:		125 4	> 32"
RETTEW Joh #: 08	089962000	and the second second			0	Depth to Refusal:		32				Slope Failure or slip:	e or slip:			
	HOLING - SAPAG. INVINESM	- 57 MZ	12 NO 3		80	Bedrock Type :		SANDS	TONE			Dip Slope & Direction:	Direction:		80,00	S° S Strike:
	MIYED				<	Vegetation:		SEE B	BELOW	0						
. I Gornald								1000	USDA							
Horizon Depth in inches	in Matrix Color	Texture Class	% clay % sand		Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickliness C	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots		Pockel Penetromate/	
000-	0-3 754/2	,	r	1	1	(1 7	t	S.	As	1	- (3 4 +	3+	1 2 + 2	- A-
AB 3-5	8-13 104R	2	_0	2 0k	7,517	1151/ 710,	50	1VF	VFA	CW)		3 VF-F	2 6	CO 4.5	-
BW 5-19	5-14 104R	500	11	95	25%	35% < 1.5"	P6	X485	The	CW	1	1	1 M-10	00 10	6 4.025	4 -
Cr 14-3	14-32 104/	38x	= .	200	10%	80% <12"	00	MO	1	CM		· E	2 VF-F 1 M-60	62	60 A.8	3
R 32+	+															

Other Notes:

VEL

MTNLAUREL HICKARY, BLACK GUM HUCKLEBERRY JAIL SLIHM MILLIAK

Soil Scientist: TEST PIT DESCRIPTION

Field Assistant:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	-	123-060615	15-16	1625-NG	12/1	J	Topographic Position:	tion:	V 258/V	COPE			Parent material:	torial:			over residuum
Date:		6/15/16					% Slope:		0				Slope Aspect:	ect:		110	0
Job Name:	Domini	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		John John	1	Ť		Depth to	Depth to Water Table:		74	
RETTEW Job #:	089962000	0000					Depth to Refusal:			1172	(Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	W.	Weiler + Ber \$5 - 120 cap	5-1200		compley	(856)	Bedrock Type :		MONDA	SILTS	11 TOTONE		Dip Slope	Dip Slope & Direction:	500		Strike: 90
Mineralogy:		Mixx	0	4		(Vegetation:		SOOK	ME	Kory						
Horizon D	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Hoelzon Boundary Topography & Distinctness	Redox Feature Color	Redos Feature Description	Roots	Pocket Dynastrometer/	Lab Sample ID	Notes
9	2	154825/	9					11		A	Aw			CFCH	0 0		
3	6	JAP WILL SIL	7	5	0	40% C.N.	1/2-1"	25	ISRL FR	R	R			アル	2,75		
0	4	10 2/ 1/5 Apraha	9	6	J	90° E	1-2=	25	3	Ø-	AW			53	57		Concest of Ma
ZR 324	428										1						
										*							

Soil Scientist: M DUG Ax

DUGAN

lest Pit ID:	-	100000		SHC	MOIN SECT	8	Topographic Position:	tion:	36	00010			Parent material:	terial:	INTERNATE	1	MODILE
Date:	-	15 16					% Slope:		133				Slope Aspect:	ect:	443		
RETTEW Job #:		089962000		our enj			Depth to Refusal:		120				Slope Failure or slip:	Slope Failure or slip:			
RCS Soil Unit		- ANSTITAM	BERKS-RoyG+	65-2	006		Bedrock Type :		0	CUN) S	CTSTONE	306	Dip Slope	Dip Slope & Direction:	9.5	s	Strike: 1877
fineralogy:	H	KIN	100				Vegetation:		Chestnut	oak, Blu	eberry (f	om photo)					
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
1-0	30	3/2 1/2 t	į	1	١	1	1	, ,	1	1	45	4	1	3 F/VF	2.5		
1 1,5	A	SAKOI	5-1	03	29	90	<1.01	50	IVF GU VFR	NFR	AA)	1	37/14	0,25		
	3	1048/	2.5×	ō	26	29	130"	20	144 2811 VAR	NHA	5	Í	1	3F/UF 2 CO/M	94.0		
	BW2	1076	21/ XCV	0)	28	80% RR	×5.0"	00	12 2016 FR		CM	1	4	2 F/VF	1,25		
-25	Cr	1/82401	1			Ygo											
5+	R																
es	R S B B A C Inches	1046 1046 1046 1046 1046 1046 1046 1046		10 00 1 % clay	26 26 29 × sand	Rock Fragment Type & % 40 60 7 80% 600 790 790	Vegetation: Vegetation: Vegetation: A 3 0" A 4 3 0" A 5 0" A 5 0" A 5 0" A 5 0" A 6 0" A 7 0" A 7 0" A 7 0" A 8 0" A 8 0" A 8 0" A 9 0"	Po Po So	Chestnut oak, Blueberry (from photo) USDA Structure Type, Moist Grade, and Size Consistance Type, Con	VAR	LOST CTST Leberry (I) Leberry	Redox Feature Color	Prides Frence Duringlein	8 Direction: 8 Direction: Roots 3 F/VF 2 Co/M 2 F/VF 1 CO/M	4.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7		trike:

TEST PIT DESCRIPTION

Field Assistant: Soil Scientist:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	1	19091 52	5-13	340-	N1911		Topographic Position:	ition:	Nosk	2001	C		Parent material:	terial:	AC:	MUCH
Date:	0-	100					% Slope:		25				Slope Aspect:	ect:	26	
lob Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soi	Survey			Drainage Class:		Q V				Depth to	Depth to Water Table:	724	
RETTEW Job #:	089962000	2000					Depth to Refusal:		24				Slope Fail	Slope Failure or slip:		
NRCS Soil Unit:	×	M CIKCUT.	- BELKS	-57	2000	7	Bedrock Type :		SILTSTAN	Mats	7		Dip Slope	Dip Slope & Direction:	90	000
Mineralogy:	-	3	DYEL				Vegetation:		See below.						0/0	
		40							8	USDA						
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% clay % sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Scickingss	Structure Type, Grade, and Size	Moist Consistence	Horison Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Panetrometer/ pH	Lab Sample ID
00	0 -	2/E 3/5£	1	1	1	1)				AN			3 F/VF	12	
BW1 1	دی	1/5	215	1	70	150	507 951	P6	28K-CL	VHR CW	CW	1	1	3 F/4		
BW 3 3	11-6	2/5-11-E	35	4	20	25% ×1.8	5.17	50	785 INF	2	5		, ,		1.25	
BC III	-17	7/5 may 21-11	1.5 XCX	7	20	25%	25%<25	00	1 25 K FR (R	S	1-	4	- 45/NE	25.5	
Cr	1.24	17.24 WIR5/6				5.20 %56	12.5	j į						1m/co		
D N	24+															

TEST PIT DESCRIPTION
Soil Scientist: M, MODD

Field Assistant: DUGAN

Signature: MG Week

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P.	126-16	5190	114	0-M	MAN	Topographic Position:	tion:	MUD B.	BACKS	SLOPE		Parent material:	erial:	Coluvin	Inm/	RESED UUM
Date:	-	5 16					% Slope:						Slope Aspect:	ct:	222	1	
Job Name:	Domir	8 1	Pipeline Soil	Survey			Drainage Class:		SED				Depth to W	Depth to Water Table:	0		
RETTEW Job #:	089962000	52000					Depth to Refusal:		29				Slope Failure or slip:	re or slip:			
NRCS Soil Unit:	W	1507-	BEALKS	5			Bedrock Type :		SAH Store	6			Dip Slope 8	Dip Slope & Direction:	NSI		Strike: 172
Mineralogy:		MIXED					Vegetation:		See below								
										USDA							
Harizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctorss	Redox Feature Color	Redus Feeture Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
00	- 1	21/2 2/45:t	١	١	1	1	7	1 1	1	1	As	1	Ÿ	38/148	1 7.4	15	
PO	2	214	7:5	12	4	1	1	00	3r 7.	J. J.	Ai		١	. JN/3 E	4.5	52	
BWI	2-6	17/5 JAG	200	12	7	66	2.07	50	16/295	TH	N N	1	1	1007 -	1.6	25	
BWZ	= 61	915 JA 01	2:5	41	12	6 r 23%	411	90 50	2F	77	CW		1	2 60/M	1.25	54	
EW3	711	1045	215	91	25	5x 35%	42"	00	N 55 W	7.	CM	1	1	11011 11011	2.75	55	
7	21-	10 41	25/	93	25	10%	15"	50	Om	\	N	1	١	1691m	4.6	(
ZJ	29+																

Other Notes:

HUCKLEBICALT DAK

TEST PIT DESCRIPTION
Soil Scientist: M. DUGAI
Field Assistant: M. DUGAI

nature: M6 Wall

Test Pit ID:	P	-127-160	19190	0110	3	GW	Topographic Position:	ition:	MAGN 1	BACK	SLOPF		Parent material:	terial:	1.011	NUIVA		
Date:	-	0,115119					% Slope:		4				Slope Aspect:	ect:	30%			
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		SS				Depth to \	Depth to Water Table:				
RETTEW Job #:	0899	089962000	2				Depth to Refusal:	ľ	38%				Slope Failure or slip:	re or slip:				
NRCS Soil Unit:	*	VETICERY- ISTILKS	151-161	5			Bedrock Type:		N. F	VOLS	SE		Dip Slope	Dip Slope & Direction:			Strike:	
Mineralogy:	H	MINED					Vegetation:		See below									
						Date:				USDA								
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Fragment Type & %	Rock Fragment Size (inches)	Hastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctives	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrameter/	Lab Sample ID		Notes
96	150	54 72	1	1	1	1	1	1 1	1	1	AS	1	1	3 F/VF	4			
A	5.5	7.5 1kyst	7:5	12	20	1	X	05	lufgr	17	2	1	1	3 P Put	0.25			
	1							1							4.4			
DE CO	010	101/6	7:5	_0	22	165	10.51	500	145 145	VFC	20	1	1	1 m/co	54.0			
	- 1	, Y(,		5	3			374	1				24/4	0 3:			
BW2	0)	9/5,01	2,5	5	2	30%	17		N45	7	CK	1	-1	2 mco	4.6			
BC	201	3/5.t	252	00	11	65% Cx	1.57	200	200	77	CX	1	1	14/4	1.00			
6	29-	7.5.				CS									7. 6			
7	U~	5/6				90%												
刀	38+										-							
j																		

Other Notes:

Chastant

N.C

blueberry

JR.

TEST PIT DESCRIPTION
Soil Scientist: M DOOD

Field Assistant: M. DUGA

No Mel

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P	128-1606	15-1050	0 - N	1638		Topographic Position:	tion:	OFFER	SHOU	HOULDER		Parent material:	terial:	RES	RESTOUWN		
Date:		115/16					% Slope:		4				Slope Aspect:	act:	247			
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		SED				Depth to \	Depth to Water Table:	V -00			
RETTEW Job #:		089962000					Depth to Refusal:		<u>io</u>				Slope Failure or slip:	re or slip:				
NRCS Soil Unit:		WETKERT.	BEC 7S	5			Bedrock Type :		51170	TSTBNE	(1)		Dip Slope	Dip Slope & Direction:	100	A 0 S	Strike:	5
Mineralogy:		77	J				Vegetation:		See h	holow						1		1
										USDA								
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pit	Lab Sample ID		Notes
00	1-0	0-1 7.5XR2	١	1	1	1	7	11.	t	ij	A5	(-	Ť	341/06	1			
		3/2					,	7							7.6			
	1-2	10YR	-	į.	20	5	1007	00	NE	< F.	25			3F/VE	55.0			
	1	4/2	210	í	,	15%		00	93	4	~	1)		4.5			
1	7	7.51 10 AL EST	25.C	3	0	6). A !!	00	14)	(1)	1		31/12	2 -25			
	1	hk wa	11	ī	0	40%	40% 51.04	05	Sbw/95	17	()		1	03/12/2	4.7			
25	91-11	24CI 41-11	754	2	70	61	·/>>	00	244	1				26/06	1.75			
	1	1,15	1		0	55		5			5		7	2 m/co	4.6			
K																		

Other Notes:

N P

Soil Scientist: Other Notes: Field Assistant: TEST PIT DESCRIPTION Mineralogy: NRCS Soil Unit: RETTEW Job #: Job Name: Test Pit ID: Horizon 30 0 5 D Depth in inches 20 W 00 4 2 Dominion - Atlantic Coast Pipeline Soil Survey 5129-1606 754R4 H 15,R5/6 Matrix Color XX Texture Class 1045 5 0 % clay % sand 00 45 80 0 RU 250 Type & % Fragment Rock 1/2 x4" 145 % Slope: Rock Fragment Size (inches) Bedrock Type: Drainage Class: Topographic Position: Vegetation: Depth to Refusal: Signature: U SS WASBY KI 50 SO 00 00 Masticky/ Stickings Structure Type, Grade, and Size E1881 FR 23/17 F1881- P2 The Sand Stone Nose AND TED 300/ Moist F above S S Horizon Boundary Topography & Distinctness Redox Feature Color 8 0 Dip Slope & Direction: Depth to Water Table: Parent material: Redos Feature Description Slope Aspect: N 7 N Roots 6,4 0.75 4.9 50 6.7 ò 0 1.0 Colluvium 105h N 150 1300 1,402 Lab Sample ID 23 25 S Strike: over residuum V1 4200 Notes

Samples

TEST PIT DESCRIPTION

Soil Scientist: Kussell Los (1)
Field Assistant: Racel Hill

Signature: 1202 1

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: Date:	6/15/2016 6/15/2016	Topographic Position: % Slope:	Back 510	ope	Parent material: Slope Aspect:	
Job Name:	ĕ	Drainage Class:	W 10 7		Depth to Water Table:	11 + 12 6
RETTEW Job #:	089962000	Depth to Refusal:	, 5d,,		Slope Failure or slip:	
NRCS Soil Unit:	Wellet-Becks 35-55	Bedrock Type :	En Sant	Stone	Dip Slope & Direction:	SGS°E Strike:
Mineralogy:		Vegetation:	Male, pt. La	Lavie Elever		400
Horizon	Depth in Inches Matrix Color Class Science Section Rock Transport Transport Section Rock Transport Section Rock	Rock Fragment Plantichy/ Size (inches) Stakhoru	Structure Type, Moist Grade, and Size Consistence	Norison Roundary Topography & Redox Feature Obstinctness Color	Redox Feature Roots	Proclast Paraettomestes/ Lab Sample ID
00	1/5 7/5/2.5/	13 t	FIGR AR	cls	7,31/2	5.8
Bui	8 104RUH SIL 17 10 5T	"hy	SS FISBR FR	G/S	3F,2M	4.4
Bw2	14 10 9RSB SIL 20 5 ST	1/2"	KISBR AR 6S	65	M	4.6
10	24 10 1/2 1/2 8 4 CM	SON 1"x4" MS	MS FISER PR			4.0
Z)	24+					-

TEST PIT DESCRIPTION
Soil Scientist:

Field Assistant: Soil Scientist:

Date:	15/16				%	% Slope:	Ц	24	1654			Slope Aspect:	EF.	1 1	5	500
Job Name: Dominion - A	Dominion - Atlantic Coast Pipeline Soil Survey	eline Soil Sur	vey		D	Drainage Class:		M w D	-	KB		Depth to \	1 > 1	Depth to Water Table:		
b #:					D	Depth to Refusal:		2411	11			Slope Fai	=	Slope Failure or slip:	lure or slip:	lure or slip:
NRCS Soil Unit:	2004	Bra	52		В	Bedrock Type :		Fine S	ends	supstant		Dip Sic	pe &	Dip Slope & Direction:	pe & Direction:	pe & Direction: Strike:
The state of the s						0			USDA					-		
Horizon Depth in Mai		Texture Class	% clay %	% sand Fra	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox	Redox Feature Description	Feature Roots		Roots Poder Peatri
0a 2 54	Sypres 1						11	FIGR	23	ds	1		1	7	200	
A 5 10%		7:5	2	20	100/2	1/2 11	8 8	F15812	B	CK	1		,	35,2M		
Bus 11 109	1048401	1	3	200	20%	1/2"		FISBIL	FR	65			1	(5.0	2 50
7 24 100	10487/4 C	1.5	161	5 01	40% CN	1/27 4×	500	FISEK FR	FR					- 1	5.4	7.8
24+																
											19					

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION
Soil Scientist:

0500

Signature:

Test Pit ID:		0132110	-319	-	70	77	Topographic Position:	tion:	Ra	1251	200		Parent material:	terial:	Coller	Cope	
Date:	-	0/15/16	-				% Slope:			1652	1		Slope Aspect:	ect:		70	0
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:			6			Depth to V	Depth to Water Table:		38+	th.
RETTEW Job #:	0899	089962000					Depth to Refusal:			200			Slope Failure or slip:	re or slip:			
NRCS Soil Unit:		34.11.4	Becks	Sy			Bedrock Type :		The	Sing	dstone	0	Dip Slope	Dip Slope & Direction:	1		Strike:
Mineralogy:		1000		-			Vegetation:		0,2 0	1000							
										USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickliness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
00	3	54R2.5/1			1				F16R	R	CK		1	IF, M	0 20	-	
D	2	1	215	0	20	10%	1/2"	SS	FZGR	FRCS	cls	1	1	IVF. IM	1.25	7	
BW	14	104RS/10 SAL 183	AB	S	8	100%	1/2"	SP	SS HSBK FR	F	Gω			N	5.2	W	
2	500	7.54R516 SIL 20	715	8	N	525 CN	25% 1"x3"	SH	MISBK	FR					4.6	4	Clay Tilms
		4															5.5% 21/40 chronic

Other Notes:

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

Test Pit ID: Date:		6 187	16/5-	1118	10	Top	Topographic Position: % Slope:	on:	590	1000	1		Parent material: Slope Aspect:	t: erial:	,	0	Callus	145
Job Name:	Don	Atla	Pipeline Soil Surve	у		Dra	Drainage Class:		PULL	5,3	SED		-	Depth to W	Depth to Water Table:	Depth to Water Table:	Depth to Water Table:	er Table: 14+
RETTEW Job #:		089962000				De	Depth to Refusal:		id.					Slope Failur	Slope Failure or slip:	Slope Failure or slip:	Slope Failure or slip:	Slope Failure or slip:
NRCS Soil Unit:		Rocks 6	2001/200	+		Bec	Bedrock Type:		Tin 5	30	Store			Dip Slope &	Dip Slope & Direction:	5	32006	5
Mineralogy:	H	Mix	٥			Ve	Vegetation:		Map							17	170	170
Horizon	Depth in inches	Matrix Color	Texture %	% clay % s	Rock % sand Fragment Type & %		Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Red	Redox Feature Color	Ox Feature Padox Feature Color Description		Padas Fedure ROOTS Podes Peatments/	Pedia Fedure Roots Poder Prestama	Padas Fedure ROOTS Podes Peatments/
04	-	54225/						11	FIGR	2	cs	1			2F, IM	2F, IM 7.0	2F, IM 00	2F, IM 0
A	4	104R3/2511		20 4	100%	100	1/2 "	SS	M26R	B	cls				25	2F 37		57.9
Bw	ID.	10 aps lask	SK 22	N	07.	15°6	3/1	30	F1581	Œ	8				711	1 V F 5.2		5.2
8	12	104R6/45	SIL 20	0	1		×	SAD	1827	A		1				2.4	4.5	4.6
7																		
															-			

Other Notes:

TEST PIT DESCRIPTION

Soil Scientist: Field Assistant:

Meraca

Depth in Matrix Color Toturn Yes	Date:	061	6/15/16					% Slope:		15		12	TOOT STOPE	Slope Aspect:	ct:		0 b	88
Depth in Matrix Color Touting Me and M	b Name:	Dominion - Atla	antic Coast Pipe	line Soil Sur	Vev			rainage Class:				1		Danth to W	ator Ta	hla:		
Me, keft beford Type:	RETTEW Job #:	089962000					-	epth to Refusal:		2	IA			Slope Failu	re or s	lip:		
Martis Color Touture Calor Stand Fragment Rock Fragment Rock Structure Type, Now Rock Rock Fragment Rock Structure Type, Now Rock Rock Rock Fragment Rock	NRCS Soll Unit:	0	Kert-	perks	2.20		_	edrock Type :			5:115	Soot	4	Dip Slope & Direction:	Dire	ction:	ction:	ction: Strike:
Doubt in Matrix Color Technic State State Technic Tech	Mineralogy:		7	9				egetation:			nap/	+ 1	8 may	910	-	hickor	hickory	kory
2 SYR2.5 89° 5-2	Horizon De		1			-		Rock Fragment Size (inches)		Structure Type, Grade, and Size		Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description		Roots	Pocket Penetrometer/	
4 7.5/1835 5.1 16 18 20 1-2 55 1fgr fr ON - 22 7.5/1856 5.1 24 16 25 .5-1 55 2m5bk fr cw - 34 7.5/1856 5.1 30 18 25 .5-1 58 2m5bk fr cw - 10485/6 5.6 30 18 25 .5-1 58 2m5bk fr cw - 10485/6 5.6 30 18 26 .5-1 55 2m5bk fr cw - 10485/6 5.6 30 18 26 .5-1 55 2m5bk fr cw - 10485/6 5.6 30 18 26 .5-1 55 2m5bk fr cw - 10485/6 5.6 30 18 26 .5-1 55 2m5bk fr cw - 10485/6 56 10485/6 56 .5-1 55 2m5bk fr cw - 10485/6 56 10485/6 56 .5-1 55 2m5bk fr cw - 10485/6 56 10485/6 56 .5-1 55 2m5bk fr cw - 10485/6 56 10485/6 56 .5-1 55 2m5bk fr cw - 10485/6 56 10485/6 56 10485/6 56 .5-1 55 2m5bk fr cw - 10485/6 56 10485/6	Oe 2		-15	1	1	A	12/82	5-2	1 1	1	5	aw	1	1	0	CX II	N 1- (.25	
22 7.57R56 51d 24 16 36 .5-1 85 2m5bk fr cw - 34 7.57R56 51d 36 16 35 .5-1 85 2m5bk fr cw 104834 50 104856 51d 30 18 36 .5-1 85 2m5bk fr cw 104834 104856 51d 30 18 36 .5-1 85 2m5bk fr cw 104834 104856 51d 30 18 36 .5-1 85 2m5bk fr cw 104834 104856 104856 104834			1833	Sil		<u>«</u>	2000	1-2	PS	1691	5	NA	(1		CH	CH 45	77
34 7.588 sic1 36 16 25 .5-1 PS 2msbk fr cw 10484, 50 104856 Sic1 30 18 2ms 2msbk fr - 1048318 1048318	8+1 2		STRFL	Sid	24		35	.5-1	55	2 msbk	4	Cm	1	1		CC		
50 1048 % Sict 30 18 36 5-1 PS 2m551 fr- 1048 45 10 1048 45	8+2					I.M.	250	.5-1	SH PS	2 msbk	4	Cu	TOTRY,	comp		EC.	CM 2,25	- N
	8+3			Sid			40	1-5.	PS SS	2msbK	ナナー	1		CWD CWD		14		
			· ·			20	T									1/27-19	Water a	
					<u> </u>	10	No.	-			41				-	1	1	

TEST PIT DESCRIPTION

Soil Scientist:

Field Assistant:

Moraca-

Test Pit ID:	0	35-1606	615-	1321-	321-500	*	Topographic Position:	tion:	ba	cks	OPE		Parent material:	terial:	00	collor um	2	
Date:	1	06/15/16					% Slope:			21			Slope Aspect:	et:	21	Oh		
ame:	Dominion	Dominion - Atlantic Coast Pipeline Soil Survey	peline Soil S	Survey			Drainage Class:			OM			Depth to V	Depth to Water Table:	IN	P		
#	089962000	00			1		Depth to Refusal:		N	/A			Slope Failure or slip:	re or slip:	N/	A		
	8	weiker -	-book	N			Bedrock Type :			San	sandstone		Dip Slope	Dip Slope & Direction:	1		Strike:	ke:
Mineralogy:		M. XCO	7				Vegetation:		c hastnut	100	oak.	montain	burel	-	ginia p	ine, b	00	lueberry
0)										USDA								
Horizon Dep	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horiton Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	1	
Oe 2		5YR 2.5/	1	1	1	20	1-4	1 1	1	.1	3.0	1	1	0 C	4,5	8		
0 %		NOYR 2/1	1	1	1	200	1-4	1 1	1	t	mo	1	.1.	000	1.25	52		
B+1 2	10	104 R 6/4	9-	~	18	40	7-4	ps SS	2 msbk	5	CW	1	1	ロガナ ロガエ	2.25	5 3		
B+2	30	10 × R 6/6	S	~	20	55	2-4	PS	1msbk	か	98	1048 MA	CWE	U Z	5.75	45		
786 50		7.54R4/2	-	8	HO	7 (95)	1-5.	PS	Ifsk	4.	1	rock roces	Comp	YT F	2.25	S.		
									o	7	V							
							-				w	7 11-						
					1	7.	7											

Other Notes:

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RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Steve Dadio Stephanie Moraco.

TEST PIT DESCRIPTION

Field Assistant:

Soil Scientist:

Signature:

Test Pit ID:	e V	D136-160615-1239-500	3615	123	9-50	0	Topographic Position:	ition:		SUMM, +	+11		Parent material:	erial:	C	coll fres	
Date:		1000	115/16	.0			% Slope:		7	+			Slope Aspect:	H		160	
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soll Survey	Pipeline Soll S	urvey			Drainage Class:		3	MD			Depth to Water Table:	ater Table:	N/A		
RETTEW Job #:		3000					Depth to Refusal:			24.			Slope Failure or slip:	e or slip:	NA	4	
NRCS Soil Unit:	1		Weikert	- Bork	K5		Bedrock Type:		Fine-grouned	ained	Sano	Sandstone	Dip Slope & Direction:	Direction:	12	S	Strike: 90
Mineralogy:				M, Xed	69		Vegetation:		c.hest	100	oak, while	Mye pine	1	blueberry	, hickory	8	
Horizon	Depth in inches	Matrix Color	Texture	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Pleasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Morition Boundary Topography & Distinctness	Redox Feature Color	Redox feature Description	Roots	Pocket Penathometer/	Lab Sample ID	Notes
ð	7	54R25/1	1.	1	1	45 46	2-5.	1 1	(I.	O.M.	1	1	CF	4.75	1	
A	2.5	5YR3n	5.1	(5)	15,	Ch 40	2-5'	80	1fgr	٨﴿ر	or of the	1	1	C 41	5,25	1	
B	14	104R6/6	115	16	5	ch 60	2-3°	95	155k	+	CW	1	1	CA	1,0	.1	
K	17	104R616	Sil	14	18	ch 80	1-4	23	3	4	3	1	1	CTI	5.23	1	
Kr	34	1	i .	1	ι)	1 1	1	1	Con	1	1	1	1	j	
2.8	34+	1	1	1	/	1	1	1 1	ī	\	1	1	1	1	1 1	1	
		,															

Soil Scientist: TEST PIT DESCRIPTION Field Assistant:

Steve Stephanie Nadio Morace Signature: RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: Date: Job Name: RETTEW Job #:	Dom	06/15/16 Dominion - Atlantic Coast Pipeline Soil Survey 089962000	160615 - 15/16 0ast Pipeline Soil	1152-5do	24		Topographic Position: % Slope: Drainage Class: Depth to Refusal:	: ition:		1 6	ockslap WD		+016	+016	+016	Parent material: Slope Aspect: Depth to Water Table: Slope Failure or slip:	Slope Aspect: Slope Aspect: Depth to Water Table: Slope Failure or slip: A/A Slope Failure or slip: A/A
NRCS Soil Unit:	000	W/0:	Kert	- Berks	S		Bedrock Type :			5:1+	0	4016					Dip Slope & Direction:
Mineralogy:	H		M. 400				Vegetation:		chestnut	TOUT	_	1	low	low bush	low bush blueberry , h	low bush	low bush blueberry, hic
Horizon	Depth in inches	Matrix Color	Texture Class	% day	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Hortz Tog Di	Horizon Boundary Topography & Distinctness	na Boundary Redox Feature egraphy & Color		Redox Feature Color	Redox Feature substitution Roots Roots Product Parameters/	Redox Feature nation regions Roots
00	-	510215	1	1	- (20	1-1	1 1	1	1	0	Ow	-		1	1	000
Bw	2	54R 5/3	51)	22	-0	40	7-1	55	1 msbk	か	0	CK	*	1	1	1	CC 172
20	24	24 5785/3 Sil	5-	20	12	75 Ch	1-4	PS SS	3	7	100	G.W.	aw -	aw -	aw I I FR	1	1 T T T
26	32	1	ſ	1	1	((1 1	ſ	3	0	2 8	7 1	1	7 1 1	7 1 1 1	1 1 1 1
2 R	321	1	(1	(((1 1	((((((((

Soil Scientist: P. FANS TO AMA

Signature: David Medde

SK 0		Las Cas	- 11 Emes	Bw1 3.5-	A 33.5	000	Horizon Dep	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	lob Name:	Date:	Test Pit ID:
	736	2000	25 '		of ,	0-1.5 suk	Depth in N		410; Kest-	089962000	Dominion -		20
	1	10 mes/3	23 104RS4 S.Z 18 12 Stand	104R5 5,2 17 18 38%	1048/2	25/1	Matrix Color		Bei		Dominion - Atlantic Coast Pipeline Soil Survey		138-1606
	1	7:5	2,2	5,2	31	1	Texture Class	Mixed	1		ipeline Soil Si	0110	16-
	1	18	18	17	16	1	% clay		complex		irvey		29-
	1	01	12	13	16 18	1	% sand		-				-DE
		0 N	Stand to		C/V		Rock Fragment Type & %		33F)				
	1	13:	1/2-2/1	1/2-5" 50	74"	1	Rock Fragment Size (inches)	Vegetation:	Bedrock Type:	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
	11	50	SP	050	50	1 1	Plastichy/ Stickiness						tion:
	ı	1 Cosbu Fr	SO /MABK FO	IRBK Fr	1 mgr	1	Structure Type, Grade, and Size	المارسل	Sire Stained	286	Well	35	Nose
	1	77	77	7	WEG	1	Moist	P' ALL	TAIN			1.	15/10
	1	AN	ts	CW	WFF CW	AW	Norton Soundary Topography & Distinctness	, hillory	o Sands				roulder
	1	1	1	i	1	1	Redox Feature Color	THO PAINT	dene				
	1	j	t	1	1	1	Redox Yesture Description	Che	Dip Slope	Slope Fail	Depth to	Slope Aspect:	Parent material:
	1	ゎ	af ,	25,150	34,M	75	Roots	chester oak	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	ect:	terial:
	1)	1 1	SCH	4.50	4.6	5.2	Podast Penetrometer/ pH	0	100 5	1	(2040	Collevion
	1	٢	(1	1	Ī	Lab Sample ID	CAL DE LAS	,				m are
	4	Shite C.F. Bank	**		-	few Surtans	Notes		Strike: 940				ul Raideum

Other Notes:

Field Assistant: Kauly

Signature: Barrel Mich

Test Pit ID:	+	0110	10 116		C		% Slone:	tion:	MANGA		1000	100	Parent material:	terial:		2200	DZOO DEW
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil Su	vey			Drainage Class:		Smil	+ 1/1/	いそのメ	470	De	pth to V	Depth to Water Table:	er Table:	er Table:
RETTEW Job #:		089962000					Depth to Refusal:		1	214			S	ope Failu	Slope Failure or slip:	ope Failure or slip:	ope Failure or slip:
NRCS Soil Unit:		Weithert-Presty compley 53 F	1ky con	LAN	23		Bedrock Type :		Shull	0 1	1/8-1/2 1/4:	11:14		Dip Slope I	Dip Slope & Direction:	Dip Slope & Direction:	Dip Slope & Direction: 5" S Strike:
Mineralogy:		Dax w					Vegetation:		aryny	Day of	pme, openion	trut ock.	100	K	Kee	Ked maple	Kee
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticky/ Stickinger	Structure Type, Grade, and Size	Moist Consistence	Horizon Resembary Topography & Distinctorsa	Redox Feature Color		Redox Feature Description	Teadox Feature Roots	Roots Product Penetrometer/	Roots Product Pensets
00	0-1.5	2511	1	1	1	1	1	1.	1	1	AW	1		1	2		
Þ	25.	2/2	516	5	1	54	2	56 89	80 1860 NE CM	JV	CW	(1	w'jc -	- 26,M 0.1	
Bu1	13	100 01 91 7:5 C/5000	2,5	6	0	500	L1/5"	90 90	SO MOBRATCH	1fr	CK	1	1	1	ol, w	af,m 0.75	
Bud	シブ	10464M 2'J 12 10	215	17	0	CN 501.	50% L4"	0 S	80 16894 Fr AW	7	AW	1	,	I.	- at	- af 1,5	
P	181	1	1	,	1	1	1	1 1	1	1	1	1		1	1	1	1 1
						4											
Other Notes:		ALL	Artifort 1	5	3	dur	tritifact found during Arch	rch	Cheronia	COMCO	De601	scription	-	03			ion conducted are at three help
		۸. ۱		-													

Soil Scientist: P. F. P. P. S. T. M. R.C. L.W. Hill

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P-179A-1100616-	1241-166	Topographic Position:	tion:	90	D ru	upper Back Just he	1 /20	Parent material:	terial:	Collu	M	our hosithere
Date:	0110110		% Slope:		hoh				Slope Aspect:	ict:	0 10		
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey		Drainage Class:		ment				Depth to V	Depth to Water Table:	١		
RETTEW Job #:	089962000		Depth to Refusal:		25				Slope Failure or slip:	re or slip:	-		
NRCS Soil Unit:	Weikist-Borks comple	XX	Bedrock Type :		Shale	1-5	N+ "	7112	Dip Slope	Dip Slope & Direction:	300	56	Strike: 106°
Mineralogy:			Vegetation:		Chestry	8	K, black	chlorus	57 1	A OOK	, whi	5000	4 Stucking
Horizon	Depth in Matrix Color Class % cla	% clay % sand Fragment Type & %	Rock Fragment ent Size (inches)	Pjasticky/ Stickingss	Structure Type, Grade, and Size	Moist	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumeter/ pri	Lab Sample ID	Notes
000	2 2 2 20	1	1	1 1	-	j	AW	1	11	- 34 - 34	1 7:	1	
P U	1 7.5 the 2.5 11	16 12 cm	, cill	20	DEGR VER AW	VER	3	(w'te	1.0	1	
Bw1 2	21 12 M/h Sy 17	10000	, h/17	So	HSBX Fr CW	77	CW	1	(0)10 mite	- 54:0)	
Buz C	16.5 7514 S.L. 18	18 10 50	1 C1/4"	20	23 1W 221 EL		m	-	(1 SW	1.25	1	
30	121 15 185 15 18	10 554	1/2-4"	0 s	16534	13	AW	1	1		2.25 4,7	(
2	23+ 1 , ,	1	1	1	1	1	ı		i.	1	11	1	Competent Rover

20 Shi emala Test Pit ID: Field Assistant: TEST PIT DESCRIPTION RETTEW Job #: Job Name: Mineralogy: NRCS Soil Unit: P Bu Horizon 4 200 Depth in inches O | | Q | Q | Q | Dominion - Atlantic Coast Pipeline Soil Survey LOK NO 8-140-160616. Meller - Briks 10 4P3/4 SIL Matrix Color からいか 1 XXO 7.5 Texture Class (XNOWS 00 % clay 1 Co 1231-DEF % sand E 2 1 80 Fragment Type & % 401. Rock 1 % Slope: 47 14 Bedrock Type: 12" Rock Fragment Size (inches) Depth to Refusal: Drainage Class: Vegetation: Topographic Position: 1 Signature: 800 8 PG 36 Structure Type, Grade, and Size Not y Chr 16531 186R A James SOBE 441 tock, wh. He pine, 73 7 Moist BIGINE 1 Buckery 3 Norizon Boundary Topography & Distinctness AW Redox Feature Color 1 Slope Failure or slip: Depth to Water Table: Slope Aspect: Parent material: Dip Slope & Direction: Reits Feature Description Black SUM

anico

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SS

0.75

Roots

Lab Sample ID

Notes

0

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Strike:

880

1

Colludion

Rossdan

0

5

1

1

Other Notes:

Field Assistant: Kadyary H. II

graver Huml Hunh

it ID:	1-141-11	-01001	1235	-	- DEF	Topographic Position:	sition:	Show	del			Parent material:	aterial:	10	1 Momentall
Date:	6/16	110				% Slope:		36				Slope Aspect:	ect:	an I	0
Job Name: D	Dominion - Atlantic Coast Pipeline Soil Survey	ast Pipeline Soil	Survey			Drainage Class:		New				Depth to	Depth to Water Table:	1	
RETTEW Job #: 01	089962000					Depth to Refusal:			:50			Slope Fail	Slope Failure or slip:		
NRCS Soil Unit:	めれいルッキ	Bex 145 complex	Jung	V.	(22F)	Bedrock Type :		Very Cing	200:00	0	endsten.	Dip Slope	Dip Slope & Direction:	No N	in pro-
Mineralogy:		×				Vegetation:		20	dirio	0	17.	J 001	Wy Blue	bern	Sug
Horizon Depth in inches	in Matrix Color	Texture	% clay	% clay % sand		Rock Fragment Size (inches)	Plasticity/ Stickingsu	Structure Type,	Molst	Haritan Roundary Topography &	Redox Feature	Redox Feature Description	Roots	Picket Penetrometer/	Lab Sample
0000	0-03 54R	İ	1:	1.	1	((1	(1	Aw	(1	3£	37	1
7.5° A	2/20	SIL20	20	<u>~</u>	507.	74.	80	HGR VF, AW	VF,	A	1	1	Sat	5.25	1
BW 735	12 21 21 2 1 1 2 2 E	5,2	2	7	CN 401	72.	35		7	CM	1	1	250	4,0	1
2 Bul 23	h15 8	5,2	20	H16c	58.4	1/2-8" 58	55	IMSAU Fr AW	T	MA	١	1	20,70	1.75	1
+52 28	1	1	1	1	1	1	()	1	1	1	1	1	1	1 1	1
					ė.										
Other Notes:	2	about residuum	200	-	الم										

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	0-	142-1	100016-	_	240-	130	Topographic Position:	ition:	NODE	Buch	islans	7	Parent material:	terial:	201	ALTO TOTAL	our Reidmin
Date:		10111011	0				% Slope:		1	77.	9		Slope Aspect:	ect:	200	3	
ob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		well.				Depth to	Depth to Water Table:	1		
RETTEW Job #:	0	62000				,	Depth to Refusal:		37.				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:		W. West Be	2	complex	7 4	36)	Bedrock Type :		Should.	Mr. umore		Red Soli)	Dip Slope	Dip Slope & Direction:	300 E		Strike: 190°
Mineralogy:	-	Mixich					Vegetation:		White		e Red on	oall, h	CLOS	1 Ches	nestrutcon	2	
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Sikkliness	Structure Type, Grade, and Size	Moist	Horizon Soundary Topography A Distinctions	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetoometer/	Lab Sample ID	Notes
00	5.50	55.5	1	1	1	1	1	1 1	1	1	AW	1	1	te	00 '	1	Red Cox
P	65	107/23/2 5:1	5,2	15	15 28	6 P	Sig.	80	SO JULE ALLOW	F	CW.	1		100 34.W	0.	1	Red Roundel
Bus	17.	h land	215	16	16 10	35 CO. 1. O. 1.	5	80	80 1221 REL CM	17	CE	(1	100	रें के	1	
25-27		7.542	5,2	24	0	C/0	CN 1-10	50	IMSBU FO AW	7	AW	(1	N'K	からい	1	Karey Sand
27	4	1	-	(1	t	(1	1	1	1	1	1	L	(((

Other Notes:

TEST PIT DESCRIPTION
Soil Scientist: Denster Macher
Held Assistant: Review Hill

Signature: Durid Hall

	R 5,54	Bu 5.5	7	00 0-2	Horizon Depth in inches	Mineralogy:	řit:	RETTEW Job #: 089	Job Name: Dor	Date:	Test Pit ID:
	1	7.5 KB 5.2	27.872	2 SIN	n Matrix Color	VV INCO	Wellert-Balks	089962000	Dominion - Atlantic Coast Pipeline Soil Survey	01/01/0	P-143-160616-1735 -DEF
	(5.7	2.7	1	Texture Class	100			st Pipeline Soil	0	10016-
	١	16	14	l	% clay		(or plax		Survey		173
	1	20	25	1	% sand		(53	1			5 10
	1	Si	14 25 cm	ı	Rock Fragment Type & %		F)	1			EF
	1	16 20 YS - 6.	75.	t	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
	1 1	SP	50	1 1	Planticky/ Stickiness			-			ition:
	(1387 EC	50 2PGR VER AW	ţ	Structure Type, Grade, and Size	USD ASPACE	Since graines	10	Semilabet exects!	3	MOS
	,	74	NEC	(USDA	MAN	. 10	short	7. (mil
	i	MA	AW	AW	Horizon Boundary Tapagraphy & Distinctness	NO.	Sords		xues	61.0	15he
	1	1	1	1	Redox Feature Color	HI CHENY	in		21/5	downnose	now
	(1	1	1	Redox Feature Description	Z Z	Dip Slope	Slope Fail	Depth to	Slope Aspect:	Parent material:
	(24	12 x	C1 40	Roots	upin	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	ect:	aterial:
	11	1.25	4,4	4.5.1	Pocket Penedrometer/	1	do r	1		22	200
	(53	52	15	Lab Sample ID		2			10	acidona
					Notes		Strike: 332				2

Other Notes:

Field Assistant: Soil Scientist: Sent WAR

21100	Topographic Positio	BATA	7			Parent mate	rial:	101101	100	WALL BENDUNA
	% Slope:	637				Slope Aspec	et	2300		
Survey	Drainage Class:	5				Depth to W	ater Table:	1		
	Depth to Refusal:	28"				Slope Failur	e or slip:	ガルスト	TRES	5
EPKS	Bedrock Type :	SICT	STONE			Dip Slope &	Direction:	1.50	L'	Strike: 128°
	Vegetation:	中でにの	4	15	7		1384	174 F.		ZM
Texture % clay % sand Fragme Class Type 8	Rock Fragment Size (inches)		Moist		Redox Feature Color	Redox Festure Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
1	,	1	1	2	1		3-4E	4.5	1	
SYL 15 18 CH		1550	TA	2	1	4	3-4,4	0.25	1	
0.785/6 SIL 16 12 30	, i		2	2	,	4	W EN	0.75	١	SAMPSIONS COE
12 St 12 SS	2-6		F	2	1	, C	1 2 2	6.75	1	SANDSTONE COR
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0 7 7	H ONE	T								
() () () () () () () () () ()	12 12 12 1 12 1 12 1 12 1 12 1 12 1 12	Topographic Positi % Slope: % Slope: % Slope: % Slope: Drainage Class: Depth to Refusal: % Sand Fragment Size (inches) Type & % 12 30 1-3 12 55 2-6 15 55 2-6 15 55 2-6	Rock Rock Fragment Type & % Slope: Depth to Refusal: Rock Rock Fragment Size (inches) 18 CH 30 12 30 12 30 13 55 CH 35 55 700 8	Drainage Class: Slope: W S C	Silope: Silope: Ba-TKSINDE Silope: Bedrock Type: Vegetation: LYSTON S Vegetation: LYST	Slope: Slope: Stope: Sacressis Stope: Sacressis Stope: Sacressis Sacressis Sacressis Sacressis Sacressis Sacressis Stope: Sacressis Stope: Sacressis Stope: Sacressis Stope: Sacressis Stope: Sacressis Stope: Sacressis Stope: Sacressis Stope: Sacressis Stope: Sacressis	Stope Asp. Stope Asp. Stop	Parent mate Parent mate	Signer in the first control of the state of	Stand Fragment Manager Structure Type, Manager Standard Grade, and Size Conditions Grade, and Size Con

Soil Scientist: 20 Had VNA

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P	145-11	9190	-11-	+5-	725	Topographic Position:	ition:	BACKS	707	K (No	56)	Parent material:	terial:	1537	MOUNT	
Date:	6	116/16					% Slope:		3470				Slope Aspect:	ect:	atr		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	survey			Drainage Class:		SOMEN	干平	A.A.C	3813533	Depth to \	Depth to Water Table:	1		
RETTEW Job #:		089962000					Depth to Refusal:		03				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		MEIKERT -	BLD	K			Bedrock Type :		SICTS	1020			Dip Slope	Dip Slope & Direction:	中。大	ZZ	Strike: 350°
Mineralogy:	2	XXX					Vegetation:		2下一つれ	PINC	BUTTAN		STRIFING	STATE S	+1,	4	
									м	USDA	1000	+				7070	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plantichy/ Stockiness	Structure Type, Grade, and Size	Moist Consistence	Horison Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podat Penetromater/ pit	Lab Sample ID	Notes
00	0,	SPE SI	(,	1	(, ,	1	1	25	Ţ	1	7-0-	41	1	
P	1	10/23/1	S.E.	12	5	C#	^ /	500	1592	24 V	8	,	,	3- 4F	1 0.5	1	
E E	4	1/52 to1	3.5	w	51	CH	1-2	50	1450x	Tro	C 2	,	,	C. 7.	0 - 0	1	SILLITAME SILLITANE
20	2.10	10425/6	2.50 XCE	11	4	57	4-1	0 0	****	LAP	2	ţ	1	1	1 1	1	
23	19,50	i	,	Ĭ.	(c	ŕ	F J.	1	1	1	1	1	(, ,	1	
7	36.	SILT	Sto	7020		434	ROCK										

Other Notes:

SOME

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ZIMARKE

Field Assistant:

Soil Scientist: Land & PL

Test Pit ID:	ヤー	9119	9190	1	147	シッと	Topographic Position:	ition:	BACK	500	PE		Parent material:	iterial:	COLEMINA		History and a series
Date:	6/	16/16					% Slope:		0				Slope Aspect:	ect:	2 1 2 0	- 1	
Job Name:	Dominion	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		SOL EW	TATIONS	77 77	FRISS	Depth to 1	Depth to Water Table:	(
RETTEW Job #:	089962000	00					Depth to Refusal:			- 1	þ		Slone Fall	Slope Failure or slip:	PTZI		
NRCS Soil Unit:	BAE	WEIKERT.	BER	KS			Bedrock Type :		VARRO	TONE	r.		Din Slope	Din Slone & Direction	300	0	
Mineralogy:	3	YE 0					Vegetation:		WHITE		W. F. T.	7 2 24	The dia		7		Strike: 216
										USDA			1	+	- STATISTICS		- VACE WEEKY
Horizon in	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickings:	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
0.	1,0	1/Staks	ı	1	1	(Ĭ.		(1	2		1	N L L L	- 1	1	
	1	2				5		04							,		
D	1.1.	101PT	5	0	8	SP	^	0	188	4 P	9 2	1	j	2- くだだ	1)	
3.5	9	1/24/6	S.E	=	王	ं ज	0.5-2	9 0	15	722	3	1	1	2-4,1		١	
			1111			1								-	1.0		
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27 2.	22	SANDS	7	2	a	N	700	X									
	-																

Other Notes:

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BYLLER RAINE

ABOVE

SCOPE

Soil Scientist: JOHN WALL

Fax: 717-394-1063		
Phone: 717-394-3721		
Lancaster, PA 17603	Signature:	COFC WAS
RETTEW Associates, Inc.		ESCRIPTION
	,	COINTION

Test Pit ID:	7 1	177-1	000	100		000	- opograpine r ostron.		3 4 M.	1			raicill material.	religi.	11		
Date:	6/	116/16					% Slope:		470				Slope Aspect:	et:	3250		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	urvey			Drainage Class:		N. M. M. W.	1747	2x3	E15118	Depth to \	Depth to Water Table:			
RETTEW Job #:		089962000					Depth to Refusal:		>				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		WEIKERT	- BE	RKI			Bedrock Type :		51655	7026	,,		Dip Slope	Dip Slope & Direction:	•	Strike:	1
Mineralogy:		1					Vegetation:		MAPLE	-	CKOR	シャンチーナと	TE 4		日しくの日日	PPY	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctions	Redox Feature Color	Radox Feature Description	Roots	Pocket Penetrumetes (Lab Sample ID	Notes
90	0,3	5/22/5/	1	1	4	1	1		(-	,	5	(4 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	4 1	t	
D	3	104631	250	=	5	77	^	0 0	1 P	450	٤	1	1	THE TANK	1 %	1	
2	1,0	OPSTO	2.4	2	7	U P	1-2	50	350	FP	2	(Ţ	4 1	4 0	١	
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P	2.	7715	51	2	W	38	DRO	0	(
						0											
												λ.					

Soil Scientist: JOHN MAN Field Assistant:

Slope Aspect:

Signature:

Test Pit ID: A-148-160616 - 1044 - 12W % Slope: Topographic Position: BACKYLOTE LX To Parent material: RESIDOUM 2009

Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		SOME WHAT EXCESSIVE	7	1 37 X	SIVE	Depth to 1	Depth to Water Table:	1		
RETTEW Job #:	0899	089962000					Depth to Refusal:		o? :				Slope Failure or slip:	ure or slip:	١		
NRCS Soil Unit:	٤	EIKERT	7 (95 As	PER	4		Bedrock Type:		51175	102	Z		Dip Slope	Dip Slope & Direction:	320 N	ZZW Strike:	ke: 2110
Mineralogy:	3	A JX:					Vegetation:		CHESTUUT	1	ANG	MICKEL	EV. VA	トヤイルも		140	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticky/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Haribon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrameter/	- C	Notes
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C	2.4	Mestal	715 ROX	0 1	7	273	- 4	O P		LEP	٤	4	1	2-F,M,	5.00	(
CÍ	4,4	1	1	,	1		r	1		1	1	1)	1	1 1	,	
P	8	5112	5	0 7	3 6	3	2000	100	7								
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Other Notes:		SAND SI	90 0	BEDROCK	ICECP ICECP	P71-10	WA HA	7 -	FROUT 1	A 2 4 A A A A A A A A A A A A A A A A A	1	CISTS	A V	P + 04	ROPPING	77	5
		5															

Field Assistant:

Soil Scientist: UPFLVFC

Test Pit ID:	4	011.00	-11-	2 201	1	3	Topographic Position:	tion:	BACKS	K51 075	CRIBIC	2050	Parent material:	iterial:	PES!	2002	
Date:	5	10					% Slope:		, 4				Slope Aspect:	ect:	1300		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soll S	urvey			Drainage Class:		STATESTAT	7	1353243	12	Depth to	Depth to Water Table:	1		
RETTEW Job #:	08996	089962000					Depth to Refusal:		1.21				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	2	CIKKKY	t	3524	J		Bedrock Type :		SILTSTONE	9 74	1		Dip Slope	Dip Slope & Direction:	3100	(90°) St	Strike: % Q 6
Mineralogy:	3						Vegetation:		VAPINE	CICHE	TYPICA	VI OFK	とそうてい	てい マノスハ		BWEBERRY	RY
								W.		Si					-		
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Radox Feature Description	Roots	Pocket Penetrometer/ pit	Lab Sample ID	Notes
	/	1/8/1	(,		(=		. 4.			22	1	1	3-14	1		
De	0,	chro	(,	i		į.	1	,		9	4	1	2-F	4.4	1	
	- 1		I C			ロエ	- 1	44	8	10				3-45	0.25		
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30 to	`^	155 a 152 h	7.5 t	UJ.	5	SAL	2-5	000	1837	7	2	1	1	7 2 2 2 2	2 0	1	
								- 1									
30	2,5	10-12-516	Z. X.E.	3	7	4 元	2-5	500	12784 65	TP	P	ı	.t.		0 . 4	1	
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Other Notes:

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Soil Scientist: JUSTU WA H

Test Pit ID:	, t	150-16	9199	1	24.	MSI	Topographic Position:	tion:	1.7	36075			Parent material:	erial:	7707	MUNNATO	OVER RELIDYVIA
loh Name:	Dominio	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	urvev			Drainage Class:		S M A W	E 1 3	740	TUSSA	Depth to Wate	Depth to Water Table:	14		
RETTEW Job #:	089962000	000					Depth to Refusal:						Slope Failure or slip:	re or slip:	1		
NRCS Soll Unit:	NEIK	ICERT.	8 EZ K	2			Bedrock Type :		175	INOTE			Dip Slope 8	Dip Slope & Direction:	4404	440 2111/290 Strike:	Strike: 200
Mineralogy:	w 1	(3×1					Vegetation:		ヨナルナール	7125	AN	ヤースロ	TOKKYNOT		82K	BLUE BE 2211	E 2211
	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horison Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer	Lab Sample	Notes
0	7	15,000	1	1	,	1	1	1 1	1	1	2.5	1	1	3-45, 5,	£ 1	1	
D	2,00	10,72,01	250	11	2	£ 3	^	50	15/2	4	2 2	,	· ·	3 2 7	1 25	1	S*** プップラー
P 2	3.11	0/52/0	Sil	hl	81	T 50	< 1	50	1 W 5 8 X-	23	7,0	,	(1. 3. E. H.	4.5	,	Tagananto anotatorys
20	4	0/25/0	25 A SCE	15	Ty	CF	1-4	20 60	1878K	FR	9 2	((2 1	1 .0	1	
F .	124	2117	1	2	4	(A)	Tro	7									
Other Notes:	10	B & \$ 1200	7	4													

TEST PIT DESCRIPTION
Soil Scientist:

Soil Scientist: Steve Vada

Signature: Blaye Code

Date:	Job Name:	RETTEW Job #:	NRCS Soil Unit:	Mineralogy:	Horizon	0 <	A	0	Bwl	23	26.3	3P	
-	Domini	089962000	-	-	Depth in inches	-	4	6	*24	32	74	2	
06/06/16	Dominion - Atlantic Coast Pipeline Soil Survey	000	Lehew -		Matrix Color	2,58825	10483/2	1048/12	56,340	10.2%	7.54R63	1	
00001	ipeline Soil !	>	V-150	W.XCO	Texture Class	1	6	100	5)	51	5	1	
10	Survey		CXS		% сіау)	10	10	7	12	7	13	
800					% sand	1	60	65	29	65	55	1	
					Rock Fragment Type & %	50	40	5	8 +	25	子さ)	
% Slope:	Drainage Class:	Depth to Refusal:	Bedrock Type :	Vegetation:	Rock Fragment Size (inches)	4-8	H-8	4-4	4-4	9-H	2 2	1	
inon.		ľ			Plastidity/ Stickiness	1 1	80	80	50	80	PO 50	1	
	Mod				Structure Type, Grade, and Size)_	15 31	745 FI	lm56K	Imsk	1 M 55K	T	
2	Well	45	10	USDA	Moist Consistence		Jr.	151	4	7	17	(
2000			ands tork	brod -	Horizon Boundary Topography & Distinctness	N. S.	00	cw	CW	Cal	aw	1	
				51301C1	Redox Feature Color	1	. [1	1	10/23/6	7.548 516;	1	
Slope Aspect:	Depth to I	Slope Failure or slip:	Dip Slope	Cals	Redox Feature Description	1	1	1		CWG	CMJ	1	
ect:	Depth to Water Table:	are or slip:	Dip Slope & Direction:	LIAN)	Roots	12.4	3 7	3 5	3	43	0	1	
				3 ++ 1	Pocket Penetrometer/ pH	52.5	.75 H. S	5.25	5,35	5.75	1.0	1 /	,
1500	40	NIP	0 180	40	Lab Sample ID	5	5 2	S	75	Un	00	i	
0	MODE		Strike:	27/21/00	ple					1			- 67
	7		L	COVEL									
			600		Notes								

Soil Scientist: Field Assistant:

Test Pit ID: Date:		08/06/16	10-112	1	00		% Slope:	tion:	35	back	S lope		Parent material: Slope Aspect:	terial:			130	(011 / res
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline So	Survey			Drainage Class:			arm				Depth to W	Depth to Water Table:			/ N
RETTEW Job #:	089962000		2				Depth to Refusal:			32				Slope Failu	Slope Failure or slip:	Slope Failure or slip:	Slope Failure or slip:	Slope Failure or slip:
NKCS SOIL UNIT:	+	4.11	1961	3			Bedrock Type :			Sano	Stone			Dip Slope 8	Dip Slope & Direction:	Dip Slope & Direction:	70 S	70
Mineralogy:	-	1714 PC	60		4		Vegetation:		516	ck o	ak manta	HOUN les	0	usel, s	I red map	1. red	l red maple	l red maple
						Back		000		USDA								
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickliness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color		Redox Feature Description	Redox Fashure Description Roots	Roots Peastometer/	Roots	Roots Peastometer/
00	7	104R 2/	1	Ţ	1	1.7 1.3	6-12	1 1	1	1	3.0	1		1	100+	5.7 C+ C-12	3 +	3 +
A	N	104R 3/2	2	0	60	I1	6-12	Pa	1 Cgr	34	mo	1		1	1	1	7 7	7 7
15 ml	18	7,54056	_	12	45	25	2-4	58	NG5W	5	J. J.	1 ,		1	1	- sem 525	v -	v -
Bw2	32	7.54856	_	12	24	43.	1-2	55	1 m sbk	17	aw	1)	+m	5-	5-	5-
2 R	37	1	1	1	1	1	1	1 1	1	1	1	1		1	1	1	1	1
											4							

Other Notes:

Soll Scientist: Field Assistant:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

# Slope: Slope:	Topographic Position: % Slope: Drainage Class: Depth to Refusal: Depth to Refusal: Depth to Refusal: Figure 1 Rock Rock Fragment Fragment Size (Inches) Structure Type, Grade, and Size Condition: Rock Rock Size (Inches)	## Topographic Position: ## Slope / hench % Slope: ## Slope / hench % Slope: ## Slope / hench ## Drainage Class: ## Drainage / hench ## Drainage Class: ## Drainage / hench ## Drainage Class: ## Drainage / hench ## Drainage Class: ## Drainage / hench ## Drainage Class: ## Drainage / hench ## Drainage Class: ## Drainage / hench ## Drainage Class: ## Drainage / hench ## Drainage Class: ## Drainage / hench ## Drainage Class: ## Drainage / hench ## Drainage / hench ## Drainage Class: ## Drainage / hench ## Drainage / hench ## Drainage / hench ## Drainage / hench ## Drainage Class: ## Drainage / hench #	Topographic Position: Factor Slope Aspect: Slope Aspect: Slope Aspect: Slope Aspect: Slope Aspect: Slope Fallure or state Slope
t number Structure Type, Structure Type, and Size	Ted Maple chest MUSDA t matter Structure Type, Most Trappent's restores Grade, and Size Consistence Trappent's Consistence Co	t mater Structure Type, Molts Consistence Color Constraint Color Constraint Color Constraint Color Constraint Color Constraint M	t mutan Structure Type, Mobit transmission Grade, and Size Consistence material Color Consistence Consistence Consistence Color Consistence M F 4,25
S - USE	SIOPE / hence	Slope Abanch Slope Aspect: Slope Aspect: Slope Fallure or: Slope Fallure or: Slope Fallure or: Slope Fallure or: Slope Fallure or: Consistence Consistence Color Parent material: Slope Aspect: Dip Slope & Dire Slope & Dire Slope & Dire Slope & Dire Slope Fallure Dip Slope & Dire Slope & Dire Slope & Dire Slope Fallure Dip Slope & Dire Slope & Dire Slope Fallure Dip Slope & Dire Slope Fallure Dip Slope & Dire Slope Fallure Option Material: Color Mobit Consistence Dip Slope & Dire Slope Fallure or: Slope Fallure	Slope Aspect: Slope Aspect: Slope Aspect: Slope Fallure or slip: And Hone Mandata Roots Moist Inspection Redox Feature Consistence Color Moist Consistence Color Moist Consistence Color Moist Statement Roots Color Consistence Color Consistence Color Consistence Color Consistence Color Consistence Color Color
	MW AND THE SAPE THE SAP	The nich Parent material: Slope Aspect: Depth to Water 1 Slope Failure or: Slope Failure or: Dip Slope & Dire he Start A & M. Onto.	M.W. Slope Aspect: One Slope Fallure or slip: Note Standard Redox Feature International Roots Research Lab 5 Color Countries Redox Feature International Roots Roots Research Lab 5 One Standard Redox Feature International Roots Roo

Other Notes:

Field Assistant: Soil Scientist:

Test Pit ID:	8154-11	60606	141	7-3	99	Top	Topographic Position:	tion:		back	25/092		Parent material:	erial:		100
Date:	00100	0110				26.2	% Siope:						Slope Aspect:	St.		
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	Coast Pipelin	e Soil Surv	еу		Dra	Drainage Class:		Moderately Well -	Well	7B		Depth to Water Table:	ater Table:		NIA
RETTEW Job #:	089962000					Dep	Depth to Refusal:				32		Slope Failure or slip:	re or slip:		NA
NRCS Soil Unit:	0	Dr.5Kony	Y			Bed	Bedrock Type :			Sanc	Stone		Dip Slope & Direction:	Direction:		1000
Mineralogy:		Mixed	0			Veg	Vegetation:		che	STAUT	ook	MOUNTA	O To	aurel		+
			-						-	USDA						1000
Horizon Dep	Depth in Matrix Color		Texture %	% clay % sand	Rock and Fragment Type & %	V-V-	Rock Fragment Size (Inches)	Plastidty/ Stickiness	Structure Type, Grade, and Size		Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID
Oe 4	548	2.5/1	T P	í	8 +		6-12	1 1	1	f	D. W.	1	1	Z Z	747	<u>\(\)</u>
D	8 logs	7/2	_	ō .	50 GC	_	6-12	80	1495	nfr	Ow O	Î	1	N N	7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	52
13+11 2	T.548%	200	-	2	50 Ch	0	2-4	85	l msbk	4	2	1	1	アハ	,25	N
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2R 3	32 1	1	!	1	1	1	1	1 1	(1	1	1	4)	/	×
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						-		,								

Other Notes:

Soil Scientist: Field Assistant: A. Thurax

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	0-1	155-16	160606-11	1110	1	4	Topographic Position:	ion:	Rackstope	ope			Parent material:	erial:	Collu	luvium	
Date:	0/0-	V	1110				% Slope:		32%				Slope Aspect:	ct:	1910	South	
lob Name:	Dominion -	Dominion - Atlantic Coast Pipeline Soil Survey	peline Soil Su	ırvey			Drainage Class:		1	Rained			Depth to W	Depth to Water Table:	ZA		
RETTEW Job #:	089962000						Depth to Refusal:		_	Refuse	Refusal on Boulde	sulders)	Slope Failure or slip:	re or slip:	NA		
NRCS Soil Unit:	0	Kany	Rabblu sarda	Mario	Jack		Bedrock Type :		N/A:				Dip Slope 8	Dip Slope & Direction:	NIA		Strike: NA
Mineralogy:	IA	1	a		-		Vegetation:		Mixed C	Jak Va	Oak Varieties	Longled	0	ine, Moc	ountain.	Laurel	
Horizon	Depth in N	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Harizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
0e	0-1	542/	J	1	1	1	1	1 1	F	¥	SA	1	1	25	4.5	S-18	
A	1-27.	,	8:0	N	35	CN 20%	0.25-	50	1 F	VFA	SA	T	1	26	0.25	5-24	
M	2-47	2/5 1.54/2	5)	6	65	x62.	2:0	50	SBK	YFR	IA	1	1	2 m	4.3	5-3A	
148	4-12	7.54R	×	15	50	162 167.	2,0	50	160 180	2	SA	1	1	2 m	1.25	S-4A S-4B	
B+2	12-247	754/2	~	22	2	X6n 60%	3.0	50	SBM	R	SA	1	1	1 MV	1.75	5-58	
BC	24-30	7.51/2	Js	6	85	XGR 7072	3.0	Po	NOS	FR	SA	1	1	M	2 2	5-64	
0	30-46	7.54	SI	=	61	X CB 85%	16"	So	180	572	TA	\	1	I M	4.7	X	NO SAMPLE ;

Other Notes:

Field Assistant: Soil Scientist: Duane Max Dugan Thurst

Signature:

Test Pit ID:	P	P-156-160606-1355-DAT	606-	355	JA		Topographic Position:	tion:	TOESWAPE	SPE			Parent material:	aterial:	Co110	lovium	
Date:	06	36-06-2016	0				% Slope:		10%				Slope Aspect:	ect:	11206	011	
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		Samew	hat	Poor	In Draine	Depth to	Chine of Depth to Water Table:	122"		
RETTEW Job #:	089962000	2000					Depth to Refusal:		1/14			0	Slope Fail	Slope Failure or slip:	N/A		
NRCS Soil Unit:	9	riskona	Cobbla	Sano	2	oam	Bedrock Type :		N/A				Dip Slope	Dip Slope & Direction:	N/A		Strike: N/A
Mineralogy:	u.	Siliceous 0	,	0	A		Vegetation:		Various	Oaks	5	agor Maples	-	ong Leaf	Pine.	Mt. 1	haurel .
					1000					USDA	-		P	0			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Harises Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podet Penetometer/	Lab Sample ID	Notes
Oe 1	0-2	7.542	Ţ	1.	1	1	١	1 1	1	I	A	1	1	3+T	4.0	S-12	many Cobbles and Stones on Surface
M	2-6	7.572	S	N	59	2003	0.5-	Po	SBK 20	VENT	AI	\)	7 M	0.25	5-2A 5-2B	
BEI	6-15	1042	50	12	55	62	0.25-	50	SBK	NAT	54	1	Ţ	2 m	7.0	5-34 5-4B	clay skins
Bt2 15-2t	5-2+	104R	2	16	48	5%	6.25-	50	58K	75	1	D: 10792	SS	7	2,5	5-48	clay skins
																	0

Other Notes:

Perdual Water Table 2 22 presented description of profile to a greater dupth

Field Assistant: Max Dugan TEST PIT DESCRIPTION
Soil Scientist: Duane A. Truax

Signature:

Loess does not contain coarse fragments; not present. Just a second colluvial event.

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	6-10	ナー	190909	212	174	4	Topographic Position:	ition:	RANK	300			Parent material:	terial:	4	1001	William Desiding
Date:	06	6-06-20	010	- 1			% Slope:		990				Slope Aspect:	ect:	1220	1	1
lob Name:	Domin	itic Coa	Pipeline Soil	Survey			Drainage Class:		Welld	rained	S		Depth to	Depth to Water Table:	ZX		
RETTEW Job #:	089962000	2000					Depth to Refusal:		ZA				Slope Fail	Slope Failure or slip:	ZVA		
NRCS Soil Unit:	0,	Kany	Cobbla	Sano	day	loam	Bedrock Type:		ZIA				Dip Slope	Dip Slope & Direction:	N/A		Strike: M/A
Mineralogy:	S		0		D		Vegetation:		Various	Ock	5, 10	ong leaf	Pine	1.7M	round		
										USDA	1000	C		,			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickingss	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Rados Festure Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
0e (2-0	7.542	1	J	1	1	T	1 1	•]	į.	54	1	1	W M	A I	5-14	
7	2-4	7,512	5.3	0	20	59,	0.25-	SOPO	SBR	NEW	SA	J	1	いなり	7.0	S-2A S-2B	
Sw.	4-11	7.54h 5/4	152	16	26	6R	0.25-	550	J. M.	FAS	SA	1	1	1100	5:5	5-3A 5-3B	
28+11	11-18	2/5 2/5/12	sick 31	15	×	1	Ī	30	5BK	3	SA	1	1	1,00	7.75	5-48	
28221	18-26	2/15	Sic	4	6	1	1	SS	27 M	D.T.	SA	1)	1, m	6,0	5-58	
R13	26-38	2/15	0	3	M	1	1	MS	2,00	五	SA	Ţ	1	M	6.40	5-67	lithochromis Colors
BCT	38.50	1.54n	Sich	8	=	是	510	55 30	1.00	fn.	SA	-[1	1 m		2-34	L. Grochromic
						- 4											

Other Notes:

Soil Scientist: Joseph W 4 H

mature: AN WI

Test Pit ID: P - 158 - 160606 - 1717 - 27W Topograph Date: 6/6/16 W Slope:	Topographic Position: % Slope:	TOFSL	24	.,		Parent material: Slope Aspect:	terial:	3000	00°
- Atlantic Coast Pipeline Soil Survey		TO BE	→ Som	Somewhat Poorly	oorly	Depth to V	Depth to Water Table:	7"	
b#: 089962000		-10	Water	siable	6	Slope Failure or slip:	re or slip:	1 -	
it or skary	ē:	AMAS) -	すいしいと	1		Dip Slope	Dip Slope & Direction:	(
Mineralogy: SILICEOUS Vegetation:		MAPLE	RITORE	DA	PRARA	Z W		PINE	3 173
Horizon Inches Depth in Matrix Color Class Sciay Sand Fragment Size (Inches)	Plasticity/ Sticklesss	Structure Type, Grade, and Size	Moist Consistence	Harbon Roundary Topography & Distinctness	Redox Feature Color	Radox Feature Description	Roots	Product Pronostonenster, pt	Lab Sample
· > <18228/1	1 1)	1	1/2	1	١	2-VE, E	¥ 1	1
3/5 104 Ext 3 9R 10 72 25 5-2	0 0 0	1250	JER J	CN	1	1	1. F, A	1 (NOT)	1
Du 5, 10/82/p 2/2 2 2 2 2 2 6	SS PO	NESW!	F	1	1	1	1-F. M	4.0	1

Soil Scientist: YOUNG WANT

Test Pit ID:

P-159-

MSC - 00 HI - 909091

% Slope:

2670

BACKSLOPE

CINEAR

VOME OF HAT

EX (535) VE

Depth to Water Table:

1

Parent material: Slope Aspect:

COLUNION PART

RISI DUVM

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Topographic Position:

Job Name:
RETTEW Job #:
NRCS Soil Unit:

SILICEONS

Depth to Refusal: Bedrock Type:

Vegetation:

SANDILANE

とよけつ

PINE LAUREL

BUNEBERRY

Strike:

1

Slope Failure or slip: Dip Slope & Direction:

Dominion - Atlantic Coast Pipeline Soil Survey

089962000

Wineralogy:

Horizon

Depth in inches

Matrix Color

Texture Class

% clay

% sand

Fragment Type & %

Rock Fragment Size (inches)

> Mastichy/ Stickiness

Structure Type, Grade, and Size

Moist Consistence

Redox Feature Color

Redox Feature Description

Roots

Lab Sample ID

Notes

1

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3 - VT

Rock

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J

Signature:

Other Notes:		284	* 13 12 X	178	20	4
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E SMAY - U.W.		t	fo	40	16 HZ	47
2		2000	- N 2	Pro P	STO	22
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		13 41	25 245 BK	MP 2750X	28 /48 SA K	1497
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10		1	1	(1
160.		1	1	1	(.1
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702		25	2	2		
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		1				

Field Assistant: Soil Scientist: 2 944 WAL

Signature:

Test Pit ID:	-0	160-16	0606	- 12	10 -	55 &	Topographic Position:	tion:	BACKS	CON	AUCI	STATION	Parent material:	aterial:	COLLONION		AND	MUNCH SAS
Date:	6	16/16					% Slope:		3270				Slope Aspect:	ect:	2850			
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:			TAHMY	コンメル	SVIVE	Depth to	Depth to Water Table:	1			
RETTEW Job #:	0899	089962000					Depth to Refusal:)				Slope Fail	Slope Failure or slip:	1			
NRCS Soil Unit:		DEKALB-A	23127	2 4	1		Bedrock Type :		-SEWAS	10 L	2		Dip Slope	Dip Slope & Direction:	1		Strike:)
Mineralogy:	م	14115007					Vegetation:		CHESTANT	21	D F K	しないでとし、		るしいをまをまとい	,			
						100				USDA				/				
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Panetrometer/	Lab Sample ID		Notes
0	2,0	5-12251	- (V	(1	1	1 1	1	1	2	(1	W'121-8	5 1	1		
ァ	3,4	1/24/01	55	Tus .	7	242	1-1	00	2531	VFR	2	(1	2-44-C	1 %	1		
38	4.9	10-185/6	378	18	of	572	7-4	55	YS'MI	44	6 47	(1	N'4-6	N . 3	1		
(30)	127	1/22/2/1	25ct	21	5	19 p	2-4	55	745ML	43	2	1	1	2-5.5	1 0	1	2	5212664
2787	22,73	9/54K3	0	4	80	2 s	17	MS	2458K	A	2	(ţ	2- 1,9	2.0	1	THE SHE	THE WORLDSTOWN
285	3x.	1/2412	CC	35	90	520	17	25	1 W SOK	TP	1	(- 1	W-1	2.0	,	5 Laxond CLX5 ATO THOOF LOT	DOCKET & 012
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Other Notes:

340× 51082. SPND 5102K

Soil Scientist: 1 274 | N P 1

						900 000		- 1	1					-	1000	
6	6/16					% Slope:						Slope Asp	ect:	100 M		
Domir	nion - Atlantic Coast I	Pipeline Soil	Survey			Drainage Class:		WALL	`			Depth to	Water Table:	1		
08996	2000					Depth to Refusal		36"				Slope Fail	ure or slip:	1		
E A	181	TITIC	1	7		Bedrock Type :		7	14			Dip Slope	& Direction:	4	0,	Strike: 1000
3	(3×1					Vegetation:		CHESTW		r		334	TR -1 41			R
Depth in	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment		Structure Type,	Moist		Red	Redox Feature Franchiston		1	Lab Sample	
5	4-1225/·	,	1	1	1	,	3 1	1	(5		1	2 - N F E	f 1	N S	
	10423/2	25. E. C. ±	13	15	CH	1	500	2880	70	2	1	I	3-F 2-VF,4			
	10/25/6	200	8.1	25	0.00	-	55	JACK T	FP	2	Ī	1	2-F, M	54,1		CLBY SKINS
2,36	10425/6	7. X X X X X	S	15	CFO		SS	3	T P	1	J	1	7	1 1	1	CONT BETWEEN
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	•															
	50000	S Fron	302	10 p	5025	17	SEE	X 3 N C	36.	- 7	A14 2	0	. S. T.	2	200	1.46
Date: Job Name: RETTEW Job #: NRCS Soil Unit: Mineralogy: Horizon R O O O O O O O O O O O O	36 5 7 7 7 9 28	36 5 7 7 7 9	Depth in Matrix Color Texture Inches No 427 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	Depth in Matrix Color Texture % clay 13 13 15 15 15 15 15 15	Dominion - Atlantic Coast Pipeline Soil Survey 089962000 Degth in Marrix Color Texture Inches Inches Inches Marrix Color Class No. 15 10123 2 CH SAL 18 18 2 CH SAL 18 2 SH 2 SH 2 CH SAL 18 SEPORD SHOULES BEORD SHOULES BEORD SHOULES TO SAL 18	Depth in Matrix Color Texture Inches Matrix Color Class Welay Sand Fragment Type & ST SAL SAL SAL SAL SAL SAL SAL SAL SAL SAL	Depth in Matrix Color Texture Rock Inches No. No	Dominion Atlantic Coast Pipeline Soil Survey Dominion Atlantic Coas	Dominion-Atlantic Coast Pipeline Soll Survey Dominion-Atlantic Coast Pipeline Popeline Soll Survey Dominion-Atlantic Coast Pipeline Popeline Soll Survey Dominion-Atlantic Coast Pipeline Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeline Soll Survey Popeli	Depth in Matrix Color Tecture Stelly State Progress State Color Class Stelly State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress Stell State Progress State Progres	Depth in Matrix Color Tenture Scill Survey Change Class: WHE LE COMPAND CLASS SCIENCE TO THE STATE STA	Depthin Admit Coast Pipeline Soil Suney Depthin Red Solver Depthin Red Solver Solver	Dominion Admitic Coast Pipeline Soll Suney Dominion Admitic Coast	Dennistic Admitic Coast Pipeline Soil Suney Dennistic Admitic Coast Pipeline Soil Suney Dennistic Admitic Coast Pipeline Soil Suney Dennistic Coast Pipeline	Deminion - Addition Count Resident 501 Showers	

Soil Scientist: JOHN |N & H

P-162-160606-10억の-35W Topographic Position: ミッルル・コートレートリック Parent material: 足よりDVVM Slope Aspect: フェリック
graphic Position: ミリメルトートレーマーメリー Pare
Slop
9 3
2040

	J			-			Tanagraphic Pos	idan.	M W W		1		Parent material:	terial:	フトゥー	アトラーション	
lest Pit ID:		10	0 6 0 6	1	1040-	S S W	% Slope:		Y. Y.	-	0	2	Slope Aspect:	Ä	2040		
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		とれてし				Depth to V	Depth to Water Table:	1		
RETTEW Job #:		2000					Depth to Refusal:		1				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		DEKALB - DL	410	REST	Cor	X318H	Bedrock Type :		SHALE				Dip Slope	Dip Slope & Direction:	1		Strike:
Mineralogy:	Ш	BAXIN					Vegetation:		CHESTHAL	2	OAK PE	NAG Q3	MAT	MAPLE, WHITE		ALMIT LA	LAVEL BUVEBELD
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment Size (inches)	Plasticky/ Stickiness	Structure Type, Grade, and Size		Horizon Boundary Topography & Distinctorss	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
00	6.0	115:21:3	1	1	1	1	1	1 1	1	1	2	-	1	2. 4. 4	FOY	75	
7	N.	2/5/23/3	٢	w.	4	72	17	ad ad	2249	F	2	(1	2-12/2	9.5	×2	
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Other Notes:		5 Jah Ja 1	1	0	1 18	4	2	576	1327	13.4	13.5	70 6	70 10	0 Th C4034	2570	-	2
					1												1

TEST PIT DESCRIPTION

Soil Scientist: Jent J WATS

Field Assistant: DAN FERSINE R PLA

Test Pit ID:	-16	3-160	620-	1126	1 050		Topographic Position:	-	おすってい	12076	101		Parent material:	erial:	Carroniam		SARNO
Date:	6/20	116				% Slope:	pe:		4670				Slope Aspect:	at:	150		
Job Name:	Dominion - A	Dominion - Atlantic Coast Pipeline Soil Survey	peline Soil Su	irvey		Drain	Drainage Class:		MAM				Depth to Water Table:	ater Table:	١		
RETTEW Job #:	089962000					Dept	Depth to Refusal:		39 4				Slope Failure or slip:	e or slip:	FE W 8	173	TREE
NRCS Soil Unit:	THE CC	2000	() !	1		Bedn	Bedrock Type:		SKNO	STOF	34		Dip Slope & Direction:	Direction:	1		Strike:
Mineralogy:	- 1	CKOU	5	15		Vege	Vegetation:		MAPLE	5 F	LITE	7 40	1060	ORY C	アンスナ	707	OFT
Horizon De	Depth in Mai	Matrix Color	Texture Class	% clay %	Rock % sand Fragment Type & %		Rock Fragment Size (inches)	Plastidly/ Stickiness (Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podast Penetrumeter/ pH	Lab Sample	
000	3	1/5.245	1	*	,		,	* *	1	i	9	1	1	T TV	5.5	1	
7	For k	1/5-4701	r	5	42 10	,	-	0 0	1590	LAN P	8	(÷(:	3-45,F,	0.25	1	
02/	2 .5		2	9 01	010	2	-	30	145 PK	YFR	2	,	1		1 22.0	1	
727	1,53	2.5/R.N/6	STR	= +	7 92			50 P	12535	JER	0 %	f	1	2-F, A	2.5	t	
15 Cr 97	5. S. S. S. S. S. S. S. S. S. S. S. S. S.	7.5VR4/6	55	= +	525	-	1	20 D	JAS BK	FR	2	1	1	W'3-1	4.6	1	DETAYE STE
7 700	S.	PZO	51	5	M	D	200	1)									
Other Notes:	DIP	My d	200	0000	ce on	۲,											

Soil Scientist:

Test Pit ID:	P	164-16	0230	-	4	RSA	Topographic Position:	ition:	BACK	500	Th.		Parent material:	terial:	01000	MON	NOR
Date:	8	20/16			1		% Slope:		452				Slope Aspect:	ect:	1290	- 1	
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		いきとし				Depth to \	Depth to Water Table:	1		
RETTEW Job #:	089962000	2000					Depth to Refusal:		40				Slope Failure or slip:	re or slip:	FEW B	A Z A	776
NRCS Soil Unit:	75/ 0	PHON	- (1)	KY			Bedrock Type :		SAHDS	400	0		Dip Slope	Dip Slope & Direction:	30° NI	16306	Strike:
Mineralogy:	51	693317	5				Vegetation:		MAPLE	1710	CKORY.	CH	TUNTER	-	2	1	BOUR
- 111				1		Rock				USDA				*			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	
200	0,2	115.2215	(1	,	(,	1 1	t	1	۶	,	ī	3-45, 5	ا ه	1	
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(20)	01/9	2/54/25/6	75	~	50	98	1	5 5 5	NAS AN	77	C×	(1	1. J.	0.7	r	br by
822	18 29	1541516	250	7	5	N 0	0.5-3	55	2 Mary R	47	Cv	!	1	7	- 0	I.	STATES SECANING SECANING
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2º	*ox	4145	13	2	G.	3.5	020	1									

Field Assistant: Soil Scientist: Joy WAU

ID:			sistant:	entist: Jours	LII DESCRIPTION
165-			ľ	MA	CIA
160620-					
- 1112 -	Y				
250					
Topographic Position:		0	//	Signature:	>
おっているのでは			,		
Parent material:					
COLLONION					
		Fax: 717-394-1063	Phone: 717-394-3721	3020 Columbia Avenue	BETTEW Associator Inc

Date:	6	120/16					% Slope:		257				Slope Aspect:	et.	270		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		がないい				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	08996	089962000					Depth to Refusal:		1				Slope Failure or slip:	re or slip:	E S D	757	TREES
NRCS Soil Unit:	07	ORISKENY					Bedrock Type:		1				Dip Slope 8	Dip Slope & Direction:			
Mineralogy:	5	SLOSSITI	3				Vegetation:		MAPLE	3413	トナレレナ	OAK, F	3		85250		
Horizon .	Depth in	Matrix Color	Texture	2		Rock	Rock Fragment	Plasticity/	Structure Type,	USDA	Horizon Boundary	Redox Feature				lah Campia	
	-					Type & %	size (inches)		Grade, and Size	Consistence	Distinctness	Color	Description		1	Б	adies
	/	15.51)	()	(,			^		(3-4F F	1		
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			イントンメ			^		Po		0				7.74.1	0077		プロスグン コウスカ つのか
V		10-1	50	S	7	42	1. 1	So	15.5	4	0 44	,	1	47	١	1	
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	20	500)	20	1.1	0.4	N A A	è				,	1.0		
0	57	1.5.2	~	10	80	S.P.	1-2	05	18	2		1	,		4.5	1	

Soil Scientist:

Somewhat poorly drained

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	7-1	66-16	0620	1	40	-USW	Topographic Position:	tion:	BROKS	500	M	\	Parent material:	terial:	2200	0000	
Date:	6/2	0/16					% Slope:		87			/	Slope Aspect:	ect:	ったと		
Job Name:	Dominion	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		12 3 COM	1766	y work	V	Depth to 1	Depth to Water Table:	1 1 1 1		
RETTEW Job #:	089962000	0	I				Depth to Refusal:		,				Slope Fail	Slope Failure or slip:	1.		
NRCS Soil Unit:	08	ORISKANY -	MUR	22112			Bedrock Type :		1				Dip Slope	Dip Slope & Direction:	,		Strike:
Mineralogy:	5101	TO FOUR	n				Vegetation:		ZFIR	0 47	CHES	TUUT 0	7 2 4	10 5153H	4 12	1	BLUE BE PR
										USDA			+			1	
Horizon D	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plantidty/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Roundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
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000	1	SP	,	,		1	,	,	(1	8	ī	1		4.5	1	
	y.	12/4	CL		1	15		0 4		0				2-45,5,	< 0.25		
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34	10	PARY	75	0	+	SP	1-1	50	1436	TP	2	,	1	1	1	1	
	18	5 35/6 5/2	SP	2	,	22		45	767					1 4 3	0.1		THE DISCONTING CLAY
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	F3	2/2	82 X	i)	5.		PO	300			9/4245	423		. 0		TOD THE PRANCE
348	8	2.50	75	7	10	C8	4 - 8	\$ 5	1450	77	2			1	ı	-1	
	×	000			3	0		SP	28				727	(2.5		77
8×7 5	4 .95	7.57	15	X	++	4	^	5.5	5 x 3	T	1	77/27/2	628		4.5	1	FRAGIC PREPERTIES

Other Notes:

Soil Scientist:

Signature: () ()

Test Pit ID:	V	- 161-	6062	1-0	034	MSC.	Topographic Position:	tion:	S C C K	34915	8		Parent material:	erial:	COLLUNIUM	MULP	
Date:	5	91100					% Slope:		1				Slope Aspect:	ct:	3210		
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil !	survey			Drainage Class:		SOMEWI	TANIM	POOK	LY	Depth to V	Depth to Water Table:	10.		
RETTEW Job #:	089962000	2000					Depth to Refusal:		1				Slope Failure or slip:	re or slip:)		
NRCS Soil Unit:	1.1	104-N.C	DUNG	1	+ XX	8	Bedrock Type :		ı				Dip Slope &	Dip Slope & Direction:	1		Strike:
Mineralogy:	3	MIYED					Vegetation:		WHITE	NAD	5453	AFRAS,	MAPLE	- 5	BLUETERRY	LRY!	
-	100000					Back				USDA						,	
Horizon	Depth in Inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Festure Description	Roots	Pucket Penetrometer/ pH	Lab Sample ID	Notes
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- 1	5							MP	-AK-	3		3/221/2 t	070	12 JN - 6	1.5	50	TN 015000 TIN.
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C. Casa	000	16-18-01	SCL	22	55			55	247	7	65				4.5	4/8	
	20							Od	78.83			1/22/01	3 3 0		2.0	4	DENSE IN PLACE
186	مرو	2 8-18	25	8	4	t	1	0 5	100	TP	1	2.5/6/2	127	1	とよっ	A/B	

Other Notes:

BACK SUBPE. NOFILAM 4111 SYRY/6 NO して るる とっちんる 4004 PROTO-SPODIC

TEST PIT DESCRIPTION
Soil Scientist: D. Fe Mott Neugh Field Assistant: REACHE

Signature:

Test Pit ID:	10	-170-	160620-	_	138 - DEF	Er.	Topographic Position:	ition:	Upost	Backslane	ence		Parent material:	iterial:	2	rope wantary	Mary Cecation
Date:		(e/20)16	0/1/0				% Slope:		0	Ch.			Slope Aspect:	ect:	1/2/0		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	t Pipeline Soil S	urvey			Drainage Class:		130				Depth to	Depth to Water Table:	1		
RETTEW Job #:		089962000					Depth to Refusal:	1	279				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	- 1	Do V. 6 10- A/A.C.	res con	NO BOND	181		Bedrock Type :			mol Str	3		Dip Slope	Dip Slope & Direction:	10	t	Strike: U/O
Mineralogy:	-	M	1 x o d		1		Vegetation:		Chestrut och	Hook	Red n	mente whi	100	Blacksum		Dr. 07.100	o her
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickings	Structure Type, Grade, and Size	Moist Consistence	Horiton Bound Topography I Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
0	51.1-0	0-1.75 542	(1	1)	(11	1	1	AW	1	1	*	= 1	5	
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	(1				20			3.5	,			410		
14	200	10-12-21-01	57	N	28	900.	1/4-7	000	N 59531	171	RE	1	£	も	50.05	53	
	17	1				20.	11 710	07						25	7 -		0
Bhs s	0	1/8/12/	75	the	84 48	CB	14.7	20	1853K NEC CMB	VEC	CWB	Ī	(-2x+	F 0.05	5	Probent in 600. orpit
Bu	2.6	TOUR	2	1	76	7 76 FOR	19-4-	00	155BH NEW CM)	NFR	CW	1	(W ye	035	35	
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5	7	1	(1		(1			t	1	1		13		
产	4		(1	1	1	1	1	1	7.)		1	

Other Notes:

Soil Scientist: Description Field Assistant: Real A Hill

Signature:

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

	22	30	25643	13m2	Bul	4	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
	R.	100	35	151	35	0-25	Depth in inches	F	01	089962000	Domini		7
	(7.5 42 414(5) SCL33 57		N S S S S S S S S S S S S S S S S S S S	815	10422/2	Matrix Color	4	Or HANNY-N	2000	Dominion - Atlantic Coast Pipeline Soil Survey	(0/20)160	1-171-1600
	1	1250	506	75	76	75	Texture Class	W. X to	" CLITT		Pipeline Soil		190090-1045-DEL
	(Es	33	à	2	ع	% clay		* work		Survey		15-1
	1	12	57	67	73	78	% clay % sand			1			th
	1	GR 407.	351.	250	Car.	62	Rock Fragment Type & %		(19th)	,			
	,	700	13.	23.	1/4-5	79.,	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
	1	55	S &	8	50	50	Plasticity/ Scicoliness						tion:
	1	MO	1M58K	MASSA WAS	18884	18531	Structure Type, Grade, and Size	The Mark	Cherty	30.	1100		STACO!
	Ţ	I,	7	F	VF	130	Moist Consistence	Class+	36			8	200
	(AW	æ	S	3	VET AW	Horiton Soundary Topography & Distinctness	trutoall	SandShr				SUSTEMPOR
	(1	1	1	1	1	Redox Feature Color	Hop hoins	Se				4
	(1	1	1	(1	Redox feature Description	wasqui ou	Dip Slope	Slope Fail	Depth to	Slope Aspect:	Parent material:
	(725	Z.	25.4	oring	200	Roots	1. properly	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	ect:	aterial:
	11	0,6	1.5	202	5.5	4.5	Pocket Peoetinmeter/ pri	Ch.	200	1	1	1360	(anison
	ĺ.	8	3	S	2	2	Lab Sample ID		SSE			0	
		Lithodiers &	wo.			+11: ndofflage	Notes		Strike: 55°				over her anon

Other Notes:

PM 3 - Chert COF Project

COF prosent

Soil Scientist: P. Hanster Market

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

7 7.15	Horizon Depth in Matrix Color Class % clay % sand Fragment Type & %		Mineralogy: My XXX	NRCS Soil Unit: Or. 5 M Gray MUSSIN Complex (46C) B	RETTEW Job #: 089962000 D	Job Name: Dominion - Atlantic Coast Pipeline Soil Survey D	9	Test Pit 10: P = 173-1606 20-1117-DEF	
1	Vegetation: Vegetation: Vegetation: USDA Rock Fragment Publicaty Size (inches) Structure Type, Moint Size (orade, and Size Consists	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:			
N64531			Society	1	X60	well	181.	nose slope	-
2	_	USDA	-		s			lope	
35	Horizon Baumdary Topography & Distinctness		blachua						
1	Redox Feature Color	U.	Meny, hop						
1	Rados Feature Description		hop horn bearn	Dip Slope &	Slope Failure or slip:	Depth to M	Slope Aspect:	Parent material:	
2000	Roots		earl 10	Dip Slope & Direction:	re or slip:	Depth to Water Table:	Ġ.	erial:	
7 S	Product Personnelist/ Lab Sample	1	domando		1	1	0	Cal	
1	Lab Sample ID	The state of the s	0 - 0	1			200	In sing	
The stand				Strike:				250	
	Notes			1				MUNICIPAL RESIDENT	

200 Other Notes: 38C 33- 7540-16 5.C 1 Sew 5 Sandstore A Sh 40 6 6 52 250 1 21,7 10 Delomitic 35 D.Co.S.F.K 35 30 2011 16531 Linestone -0 CE (1 caretraguents 1 1 0 W. TE 18.3 も 00 2 3 3.0 2.75 6.8 4.1) C100 311000 CoFOIZ RONSHOR

soil Scientist: D.FINSHOMANIK TEST PIT DESCRIPTION Field Assistant: Pally

Signature:

00 Job Name: Other Notes: NRCS Soil Unit: RETTEW Job #: Test Pit ID: 3 842 R Horizon P 6 1 9 5 Depth in inches 6 1 Dominion - Atlantic Coast Pipeline Soil Survey Leany Ville 2 Shocurs 7.5 VR 7,51R 7.548 7.54 Matrix Color 173-160600-10011 DIXIO 3.2 Texture Class 97 S 4 0 % clay % sand 112-DEF 25 86 shallow as 00 1 3 Fragment Type & % 5 Rock SE 1/4 J % Slope: Rock Fragment Size (inches) Bedrock Type: Depth to Refusal: Drainage Class: Topographic Position: Vegetation: S 5 MS BUSSIN 88 5 000 1 22567 JESK. Structure Type, Grade, and Size Sugar maple, Hop humbon Dolo mitic 110 100 V Backslerge 3 7 Moist 70 dee 00 A DA E Horizon Soundary Topography & Distinctness RE 5 Redox Feature 25 720 blucklocust Dip Slope & Direction: Depth to Water Table: Slope Failure or slip: Slope Aspect: Parent material: Redux Feature Description 1 w'th 2 270 1/1/ 1000 3+ Roots 3.25 6.8 100 4.8 7.0 6.4 is Ros-dusin cak 800 1 22 Sa Lab Sample 5 6 Stale Coffins Sew linestyne could stone Strike: Chresing (husands on surface 1 Notes

MASON!

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Surface - more imported in

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osed depression

Field Assistant: Soil Scientist: TEST PIT DESCRIPTION

R 39+		Bt2 39	Bt, 28	6 23	AE &	A	09 Z	Horizon Depth in inches	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:	
	Ŧ		104RS/1	2547/2 FSL	104861	104,23/1		th in Matrix Color	N.X.	McChing - W	089962000	Dominion - Atlantic Coast Pipeline Soil Survey	6 21 7	20174-16	
		5.7	5	157	X	754		Texture Class		e town		Pipeline Soil S	016	0621-	
		27 15	25 35	5	10 (10 1		% clay %		2		urvey		11445	
		5	5	60	0	90		% sand Fragment Type & %		eks/b				- RLL	
	ri.					1		Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
		8 8	55	83	SO	00	11	Plasticity/ Stickiness			-			sition:	
		M25BK	M2SBH	MSBL	F768	FIGR	KIGR.	Structure Type, Grade, and Size	Blue berr	Sand	1-	32	260	Bac	
		R	A	R	R	9	F	Moist Consistence	USDA S	Stone	1 65	f	0/0	K 510	
			55	65	65	53	CS	Horizon Boundary Topography & Distinctness	HOP					20	
		7.54815						Redox Feature Color	210						
		CZE				1		Redox Feature Description		Dip Slope	Slope Failure or slip:	Depth to V	Slope Aspect:	Parent material:	
			7	25, IM	77	275	25 IM	Roots		Dip Slope & Direction:	re or slip:	Depth to Water Table:	Ct:	terial:	
		5.00	3.5	5.25	N.	0.70	5.0	Pocket Penetrometer/ pH		23	1			7	
		5	54	53	52		2	Lab Sample ID	380			285	1990	esidoum	
		V			A	S. Tarker	ļ	Notes		Strike: 5550W				3	

Other Notes:

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION
Soil Scientist:

Test Pit ID:		P175-16	862	-1150	OR	77	Topographic Position:	tion:	Nos.	6			Parent material:	erial:	Collevivor	Krisia	S CONTRACTOR
Date:		6 21 20	=				% Slope:		16	16%			Slope Aspect:	æ		U	1700
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	Aavin			Drainage Class:		E \$ 1	11.5	7		Depth to Water Table:	ater Table:		14+	
RETTEW Job #:	089962000	52000					Depth to Refusal:		1.	140			Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		Unas	Watakal	9.1	* Ka	5	Bedrock Type :		line	stone	0		Dip Slope & Direction:	Direction:		Si	Strike: 5750W
Mineralogy:		1					Vegetation:		Red	Maple	3/				160	0	
Horizon	Depth in inches	Matrix Color	Texture Class	% стау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Sticklerss	Structure Type, Grade, and Size	5	Horiton Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ prt	Lab Sample ID	Notes
9 .	-	1/5.5 Jis						1 1	4162	B	5			22	20		
D	W	109R3/1 85	153	00	5	420	1/c) "	80	FIGR	AR cls	0/5			WIAZ	5,0		
17	7	7 h(0,340)		6	Oh	200	h/1		FISBK FR GK	R	65			211	4.25		
D	74	>1 82 175 015 3401	17:5	23	入	100%	" h'	30	FESBE FI	T				1	5.0		
R	147																

Soil Scientist: TEST PIT DESCRIPTION
Soil Scientist: RUSSEN

Signature:

Test Pit ID:	70	176-16	06:	2 -	5	RIL	Topographic Position:	tion:	1000	1	Shoule	100	Parent material:	terial:	00.1100	SALD MA	2	Suns
Date:		6/21/20	31/0				% Slope:			310/			Slope Aspect:	ct:		1580	0	
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		a	8 5			Depth to V	Depth to Water Table:		50+		
RETTEW Job #:		089962000					Depth to Refusal:		(0	50			Slope Failure or slip:	re or slip:				
NRCS Soil Unit:		McClura	Watak	ala-	Do	Kalb	Bedrock Type :		Lines	one			Dip Slope	Dip Slope & Direction:	1		Strike:	
Mineralogy:		Milxo	2				Vegetation:		200	Mao	1							
	Denth in		Tayture			Rock	Back Fragment		Structure Type.	USUA	Horizon Boundary	Radox Feature				lah Samola		
Horizon	inches	Matrix Color	Class	% clay	% sand	Fragment Type & %	Size (inches)	Plasticity/ Stickiness	Grade, and Size	Moist Consistence	Topography & Distinctness	Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	ID ID		Notes
3		1 5.7.5						9	(1)	6	5			NITE	0	-		
Ca	-	54Kr. 1	1					1	THE THE	4	2			11111	5.5	2		
AE	00	1 (59 pm	157	ō	59	1	\	PO	KISBY - PR	A	5			R	1	52		
		IVI	,			2		8			,				(2.0)			
Bw	37	Josifento SL	25	7	0	Z2,	2×18"	8	MISBY NA CIS	B	0/5			W132	5.25	53		
287	050	28+ 50 750RUL	0	5	10	1		10	MISBR (1)	17					20	112		
				1				1										

Other Notes:

Soil Scientist: Dour NAN

Field Assistant: TAYLOR WALTER

Test Pit ID:	- 1		0622-	2-107	27-	JSW	Topographic Position:	tion:	3 PCK	200	0		Parent material:	terial:	170	MUINN	Z
Date:	6	21/18					%-Slope:		10				Slope Aspect:	ect:	- 0	ST.	1
ob Name:	Domini	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil	Survey			Drainage Class:		De As A	414	100	2000	Depui to	Deput to water rapie.	1	5	-
RETTEW Job #:	089962000		McClung-watanala-Dekalb complex	nala-D	ekalb co		Depth to Refusal:						olope Faile	Din Slone & Direction:	,		Strike:
NKCS SOIL UNIT:	A 0	1 1	1	1			Vecetation:		STATE		0 70	EY (T	P	TRIPPING MA		TOPL	7.0
Mineralogy:	-	7					A CB COMMON			USDA		-					
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pucket Penetrometer/	Lab Sample ID	
000	7	5 p. 2.5/1	1	1	ŗ	,	1	1 1	5	3	25	1	Ţ	3-VE, F	4.5	(
P	2.4	118240	757	K	7	20	1 00	Po	L L L L	VER	2	ť	(7 7 2 2	1 25	1	CAN DYTONE COFF
F K	4.1,	10/25/6	2	+1	st	C T 0	1	500	1450X	LEP	52	ı	١.	2-45	1 5:0	1	
Rt.	172	10-125/2	507	7	60	5 7	1	\$ 0 °	Y CONT	57	5)	1	1-17	5.2	Ī	CLAY SKINS
かっと	30	8/52/0)	L J C I	$\bar{\propto}$	5	E S	1 >	5 × P	TW JAK	P.	5 2	4/21/5.t	C 2 D	1	1 2.5	1	SCHALLA BELLE
D C J	30.50	1226-01	5	-0	60	C H C - C	^ /	5 54	78/81	C P	(7.5/24/6 025	625	t	4.7	1	ERAS CLAY
									<i>-</i> +-								

Soil Scientist: Dugne Frus

gnature: Mush

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P	-178-16	1621-	157	-101-		Topographic Position:	tion:	SHOULD	193			Parent material:	terial:	Callervium	1	Ceritimo
Date:	0	6-21-26	316				% Slope:		35%				Slope Aspect:	ect:	1900	1	
lob Name:	Dom	Dominion - Atlantic Coast Pipeline Soll Survey	t Pipeline Soll	Survey			Drainage Class:		Samewhat to	not 4	3000	() rained	Depth to \	Depth to Water Table:	NIA		
RETTEW Job #:	9899	089962000					Depth to Refusal:		18:		0		Slope Fail	Slope Failure or slip:	2/2		
NRCS Soil Unit:	N	W-PMW(DS)	atahala-	7	ekall-	Complex	Bedrock Type :		Sandit	topp			Dip Slope	Dip Slope & Direction:	NIA		Strike: N/A
Mineralogy:	4	ThEROUS					Vegetation:		Feel May	el. 7.	Bother	Red Oak	, 24c	3	do		
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Scickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography A Distinctness	Redox Feature Color	Redox Feature Description	Roots	Prochast Penastromestar/	Lab Sample	Notes
Oe	0-1.3	59m	1	1	1	T	(1 1	1	1	TA	(1	7.5	0.25	7/2	No SAMPLES
A	15-25	53/1	2	0	15	155	2.5	00	1,3	Um	45	(1	7.50	2.75	3/10	7.4
521	2.5-1	1646	5	12	30	25%	8.25	P0	58M	The	25	1	1	2.2	NN	3/3	4.8
Bu2	11-18	7512	1	Re	40	55	120	50	59n	343	Z P	(1 -	77	1.5	- 1	t)
BC	18-29	5414	7	7	40	XX +	5.6	50	530	FRE	7	1/2 MS/1	00	J. M.	3,25	1	1.1
0	29-4	8542	5	00	5	4.2%	10.0	DO 25	59121	Vin	H	2/5 mms/5	00	1,00	4.6	-1	34
2	8	1	3	1	- (1	1	7 /		1	1	1		I	1	7	BENESON CO

Other Notes:

Field Assistant: TRYTOR MALTER Soil Scientist: お子は

Signature:

Test Pit ID:	7	91-10+11	0621	-17	10	ASD Desp	Topographic Position:	ion:	82663	107	R		Parent material:	terial:	2020	MOUTER	
Date:	6	91/22/					% Slope:		357				Slope Aspect:	ect:	2010		
Job Name:	Domir	antic	Pipeline Soil S	urvey			Drainage Class:		5	MNOS	ZHAT	\$11533X3	Depth to	Sty VK Depth to Water Table:	,		
RETTEW Job #:	089962000	2000					Depth to Refusal:		1				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	740	MCC1345- W	MATAL	010	1	BUTHE	Bedrock Type :		5 4 K 4 S	て きえ	3		Dip Slope	Dip Slope & Direction:	1		Strike:
Mineralogy:	5	20033171					Vegetation:		345544	FAS	3	PLE W	4176	EAR	はいのでは	BE PR	
										USDA				1			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Hariton Roundary Topography A Distinctores	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
0 %	2.0.0	Ctarie).	1	f		1	1	1	1	1	2	ţ	ţ	3-45, 1	١ س) i	
AE	15.00	C. 16.21.2	として	5	X	2500 P	2-4	20 0	1494	23.	7 2	9	1	7 07	10.25	1	SPATED SAND
Or D	5.1.9	JS Alxarsit	75	×	1st	40 40 b	2-4	20 PO	4.	AT P	うえ	1	,	レデュ	1 60.27	t	
128	2.24	57 0 152401	25 X X	4	28	1000 N	3-6	000	14:41	4	É	1	1	2 · w · C	1 .25	· ·	
302	24.50	* 5/P5/6	L X CB	4	tx tx	Sacu.	3-6	500	1822	LAP	1	1	i	2.5.0	5.5	i	

Other Notes:

してでスア 11000 ON SURFACE SACE SHOULD PROTOL 214025 WORLZON. SKUYS TONE

TEST PIT DESCRIPTION
Soil Scientist: コマルル Field Assistant: TAYLOR

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P-	91-081	-1230	125	2-3	SW	Topographic Position:	ion:	BACKS	LOP	E/F	OPTSLOPE	Parent material:	aterial:	00000	MUNIN	>
Date:	6	41/23/16					% Slope:		3570		1		Slope Aspect:	pect:	1460		
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	Survey			Drainage Class:		MODER	ATELY	٤	526	Depth to	Depth to Water Table:	2711	SEW	
RETTEW Job #:	089962000	2000					Depth to Refusal:		1				Slope Fai	Slope Failure or slip:	THE !	RENT	+ REES
NRCS Soil Unit:	74734	AN - B14	TOURLD	100	27 14	1000	Bedrock Type :		50425	TON	0		Dip Slope	Dip Slope & Direction:	,		Strike:
Mineralogy:	215	5002217				1	Vegetation:		14 15 4 th 3	70	DAK	MAPLE	in .	いていてや	2 + 5		
										NSDA			1				
Horizon	Depth in Inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stichiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redos Feature Description	Roots	Pucket Penetrometer/ pH	Lab Sample ID	Notes
0	w.	5/27.5/1	\mathcal{F}	+	1	1	(1 1	(1	2	¢.	,	3 4	1.5	1	
7	N	25.12.5/3	75	2	1+	600	4 - 6	20 PO	* * * * * * * * * * * * * * * * * * *	272	ç ·		1	2-4,M	1 25.25	1	
2 2	3	10 10 mg/0	2 5	_9	St	C 8	4-6		14.34	4	2	i,	14-	C. F. A.	1 0.25	ţ	TOR TREERS
800	9 23	10485/6	2 × 5 × 5	0	7	C4 2	4-10	0 0	* SEL TO X	JER	8	,	(2-1, 4,	1 0.23	1	ACM STONES
272	200	10752/8	C 2 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4	N	d	Cas X	4-10.	50	1 W SAX	472	+	2/22601	C2F	W - 1	5.0.23	t	FEW STONES

Other Notes:

CONKY

UTPER

FOOTSLOPE .

おとうしゃれっせい

OF

Soil Scientist: JOH J VJ K

Signature:

Test Pit ID:	P-	18 - 16	0621	130	0	といと	Topographic Position:	ition:	BACKS	CA PS			Parent material:	terial:	COLLANIAN	N(0)4	MUNDISTE REPO
Date:	6	22/16					% Slope:		35%				Slope Aspect:	ect:	200		
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		とせてし				Depth to \	Depth to Water Table:	1		
RETTEW Job #:	089962000	2000					Depth to Refusal:		1				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:	Mc	CEUNG -	ZPTA	ナイヤカ	7 75	KALK	Bedrock Type :		312757	340			Dip Slope	Dip Slope & Direction:	,		Strike:
Mineralogy:	3	CBXI					Vegetation:		MAPLE	Fic	はっとい	LS 3 HO	PESTUVI		WITCH	1422	5056450
										USDA				1		177	1
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidty/ Stiddness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pucket Penetrometer/ pH	Lab Sample ID	Notes
	o	15.				(1						1	1		
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						3		Po							1		
P	4	124/2	Sic	74	12	B C	^	So	452	47	25	,	(
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N	7	F . 5	5.	, ·	- x	2	-	PO	COX.	á		1	1	371	0.25		
	8.	157	-	i		CE	1	8	163.	1	63			31.3-1	١		
	3	6/2	4		3	7		04	SAK					, M. C.	24.0		CHERT COT
12	,	Joy Kay	30	0	1	SR	-	30	JA.	4	0 %		•	40	4.5		CLAY SKINS
3	3	6/200	. 1"		2	40	17	SP	SAK	d d	2				1.0		CLAY SKINS
2000		10-1-	7 10	1	1	C V	4-6	55	Je 34	4 1				1.8.0	1		
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2000		512	8	6	20	CH	1	50	1631	7	1 40			W-1	1		
	5		X CI														
2862	N. S. C.	425/6	-01	7	2	500	2 - 4	50	なられ	42	1	1	1)	20.0		CITIL OCH ROM CO
								- 1									

Other Notes:

THE TONE P2510-

Field Assistant: TA-/LOR WALTER Soil Scientist: ZAIL

Test Pit ID:	81-4	7 - 16	0621	1	0	152	Topographic Position:	ion:	2222	1			Parent material:	terial:	COLLIANIA	NINA	OVER RESIDENM
Date:		116		- 1	1	-	% Slope:		27%				Slope Aspect:	ect:	125.		
ob Name:	inion	lantic Coast Pip	peline Soil Su	rvey			Drainage Class:		MELL				Depth to \	Depth to Water Table:	1		
RETTEW Job #:	089962000						Depth to Refusal:						Slope Failure or slip:	are or slip:	1		
NRCS Soil Unit:	2 × 1 × 2	0					Bedrock Type :		31115	102	18		Dip Slope	Dip Slope & Direction:	,		Strike:
Mineralogy:	*	1 2227	E PA P	コマナ	D	D K KAUS Vegetation:	Vegetation:		15343	207	N KO	FEW B	LUE	BLUEBERRI	53		
		-								USDA	1						
Horizon Dep	Depth in Mat	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penatrumeter/ pH	Lab Sample ID	Notes
	2	iti	1	(\		*			7			3-45,5	1		
000	1.5	512		,	1	١	į	1	,	,	63	-(1		4.5	(
		5						00						マンドド	0. 2. 1		
D	10,10	10/00	15	2	25	19	^	30	155	VCT	Ry	(1	K . 4	(
	å	-				12		20	4			,		17	0.5		1 > 8 = SAN > TONE
8 x x	10-17	10-120	25	7	t	24	1	50	1350	1 P	0	(1	1-10	1		
6	4	712			3	7		Po	ı K				,	7	24.0		LY BUSIONS CLAY
128	101	10-10-1	15	+	7	22	^ -	5.5	2253	1X	5	,		1 - 6,10	4.5		
	4				,			d N	181				(7 17	3.25		くともなるとろく
58X7 78	12. 51	5/2/2	250	4	10	1	(\$ 5	2001	1	ž	,			1		
	20				5	1		AM	1	2					2.5		CLAY CALL
18 6x9 2	X	41521-8	0 to 3 ts		7	612	1	55	2470	T	1	1	1	1	F . 01		DELAYING SILT-
																1	ALONG CCE
	_																

Other Notes:

Soil Scientist: JOHU WAH

Field Assistant: TAYLOR WALTER

Test Pit ID:	70	183-16	0621	1	04	35	Topographic Position:	tion:	BACK	SLO	PE		Parent material:	aterial:	000	2001000	
Date:	6/2	22/16					% Slope:		5570				Slope Aspect:	pect:	970		
Job Name:	Dominic	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		かんだし	SOMEWHA	TAHW	F1353383	Depth to	S 5145 Depth to Water Table:	1		
RETTEW Job #:	089962000	000					Depth to Refusal:		1				Slope Fai	Slope Failure or slip:	Tra	アクレノ	78587
NRCS Soil Unit:	727	DEKYLB - W	24147	CA	Hec	PRONT	Bedrock Type:		5				Dip Slope	Dip Slope & Direction:			Strike:
Mineralogy:	3115	LICEOUS	5			,	Vegetation:		TULLE	POPI	200	CHC 57 NUT	1 04	4	STA EP	2	7
										USDA						1	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Radox Resture Description	Roots	Pocker Penestrometer/	Lab Sample ID	Notes
90	0,7	stens!	,	1	-		,	1	ł	(23	,	1	7-4	F 1	1	
2	2	10/23/2	5	+	4	SP	1	50 P	1252	250	G-W	(1	3-455	1 25.02	1	
8 2	4.10	10-18-4/6	5	N	8	57	^	0 0	NES WI	TA P	5	,	r	3-5'7C	725.12	1	300 2 15 9 405
C) (0	10.2,	1/23/2	S	Cu	90	22	1 - 2	0 0	056	6	2	7	4	1-1010	27.07	1	407 Spaisdows
5	5,70	0-124	2 S	+	90	88	01- h	20	650	6	(Ţ	1		1 27	t	

Other Notes:

Soil Scientist:) THE WAY WAY

Soll Scientist: 1944 WAH
Field Assistant:

Signature:

RETTEW Job #: Job Name: Test Pit ID: **VRCS Soil Unit:** fineralogy: 30 Horizon 5 P 0 D 6 × × 'w 0. Depth in inches NEIKERT - BERKS- ROUGH 089962000 Dominion - Átlantic Coast Pipeline Soil Survey MIXED £09091-381-4 1/3 10/R5/8 1/5.29/5 2 leakol 10/25/61 Matrix Color 5.50 Six AP Texture Class 1 12 50 5 % clay 1 18 6 8 % sand 1 F 29 Type & % 040 22 Fragment Rock É 0.5-2 Topographic Position: Rock Fragment Size (Inches) Vegetation: Depth to Refusal: Bedrock Type: % Slope: **Drainage Class:** 2 1 1 4 PO 50 50 Po PO Plastidty/ Stickiness 0 147日本 1888 Structure Type, Grade, and Size CHESTHUT SHELLE 23: TIMMUS SOMESHAL 0 MA 750 B Moist FR USDA OPK F4CESS 1VE 82 2 CY 23 Horizon Boundary Topography & Distinctness MATE Redox Feature 1 Color 1 1 INE HICKORY Slope Aspect: Dip Slope & Direction: Slope Failure or slip: Depth to Water Table: Parent material: Redax Feature Description (1 1 --2-14 7-17 2-1 -MIC 5. W-7 Roots TI T ないしまとなると 1.670 SS E (160°) Strike: 3 0.25 0.5 4.5 4 RESIDUUM n 1 1 1 4 ار 0 Lab Sample 1 1 0 THOSINT SA CAPIT 4 ROCKS Notes

Other Notes:

PEU SLOPING 0 VMMIT NABBOW -BEERK 70 STEEP おそのとうしのかやっ 32 10 ٤

Soil Scientist: JOHN WAR H

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

rest Fit ID;	-	4	000	163	1	Conda	- opobiability osition.	itioii.	2 2	1000			Parent material:	terial:	KEYLO	200	
Date:	6	7/16					% Slope:		2870				Slope Aspect:	ect:	3420		
lob Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		SOX FULLY	12	EX CES	SIVE	Depth to \	Depth to Water Table:	١		
RETTEW Job #:	089962000						Depth to Refusal:		26"				Slope Failure or slip:	re or slip:	١		
NRCS Soil Unit:	E M	IKERT.	4×3×4	100	2	Ŧ	Bedrock Type :		いれないと				Dip Slope	Dip Slope & Direction:	tb) MNN 25	ノ(タナ。) Strike:	ke:
Mineralogy:	3	(ASXI			-		Vegetation:		F. CROP	N. Ka	P	HA WHITE	TE		ヤーエ ロギス	-	2
	Depth in		Texture			Rock	Rock Fragment	Martida/	Structure Type.	Moles	Horison Boundary	Redox Feature		,		ah Camala	
	inches	mania colo	Class	Aprilak	9 saile	Type & %	Size (inches)	Stiddiness	Grade, and Size	Consistence	Distinctness	Color	Description	Roots	¥	8	Notes
00	5	1227	1	1	(1	(1	1	1	25	Ť	1	3-45,5	7 1	l	
	7	5 (4 4)	TON	7	×	145	^	4 0	9	Y To	٤			2-46-4	X	,	
2	5	10-12-1-	215	1	5	N.O.	-	50	18		1	,	1		4.5	,	
2	2	125/6		ī	20	S.t	ı Ju	0	181	D	2		1	1	0.5		
	3.	101	3	-	- 1	F		55	1	A				1 × 1 ×	4.5		
P	XX	の子を	R P	J	1d	ROCK											
1																	

・サイクショナハけ

Soil Scientist: Tohn Wah

Test Pit ID: 7-187-160607-1477-154 Topographic Position: SUNNAII Parent material: RCSI	
Slope Aspect: 30% o	0
Class: SOMENHAT EXCESSIVE Depth to Water Table:	1
al: 나 % '' Slope Failure or slip:	1
Bedrock Type: SHALE Dip Slope & Direction: 222	222 SE(140 Strike: 500
Vegetation: PIN ONK, HICKORY, CHESTRUT CAK	~
Rock	-
Horizon Inches Depth in Matrix Color Class Clay % sand Fragment Type & % Clay % sand Type & % Clay % sand Type & % Clay % sand Type & % Class Class Type & % Class Type & % Class Class Class Class Type & % Class	Product Propriemental/ Lab Sample ID Notes
0° 0' 25 0' 1 - 1 - 1 - 2 - 1 - 3-1 - 1 - 4.5	4.7 51
SHL 11 25 CH 11 80 1892 NER ON 3-NE, FO.	7 5
BN 2/2 (0/PS) 6 7CH 14 22 85 1-3 FO 1884 FR CI - 3-VE, F 0.5	5
2-5	1.
31	4
XX SFILE BEARDOCK	T FINES
XX STALLO BEDFOCK	T FINES
XX SFILE BEDROCK	T FINES

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION
Soil Scientist: 5 + e ve

Signature:

Test Pit ID:		0/88-	6060	-09	137-5	d	Topographic Position:	tion:		Upper	Pr B	4	Parent material:	terial:	Cal	11/00	5
Date:		06/07/16					% Slope:			2	7		Slope Aspect:	A	W	350	
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		1	dm			Depth to V	Depth to Water Table:	WIA	A	
RETTEW Job #:	089962000	2000					Depth to Refusal:		36				Slope Failure or slip:	re or slip:	N	A	
NRCS Soil Unit:		5	pin				Bedrock Type :		5	1/1stone	300		Dip Slope 8	Dip Slope & Direction:	2	1700	Strike: 80
Mineralogy:		MIXED					Vegetation:		Wh, 10		0	hestact	3 20	moun	an la	dusp/	
								1		USDA '							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidty/ Stickness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
P	_	1/2 N/01	5	7-1	25	15	1-2	PS 8	1 fgr	4	me.	1	1	0 M	4,5	1	thin 14 00
BWI	12	1048 612	5	16	20	30 91	1-2	P5	lmsbk	7	3	1	1	70	5,5	1	
Bure	20	IOYR 6/4	5,1	6	20	250	7-4	55	16571	14	W.D.)	1	000	5,50	1	
20	82	101864	5:1	드	10	17	11-8	25	0	4	D.W.	1		+ + 1	7.50	(
2 R	Y.	-															
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Other Notes:

TEST PIT DESCRIPTION

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Signature:

Field Assistant:

Dave 5 Kippon

ature: Dodici

	28	20	280	Bt 2	B+1	00	Horizon I		Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:	
	キ	47	35	22	6	2	Depth in inches	-	-	Wei	089962000	Dominic	-	8	
		7.57R5/6	7.54856	107R6/6	10786/	104R 3/2	Matrix Color		M, Yec	e, Kert - Ber	000	Dominion - Atlantic Coast Pipeline Soil Survey	06/07/	189-1606	
			sid	2:0	Sic	7	Texture Class		9	of ks		ipeline Soil	16	607 -1	
			28	22	8	1	% clay		-	Rovan		Survey		143-5	
		5	12	Q	ō.	1	% sand			0				500	
		10	30 gr	97	36	36	Rock Fragment Type & %			OMPlex					
		36	2-4	2.5	4.5	7.5	Rock Fragment Size (inches)		Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	1
		P5	85	NS PS	MS PS	1 1	Plastidty/ Stickiness							tion:	
		0	1 m sbx	2 m5 bk	2 m s68	1	Structure Type, Grade, and Size		ch	CA	4			lower	
		++	7	4	7	1		USDA	hestnut	Siltston	7	UN	38%		
1		aw	cw	CW	CW	9 &	Horizon Boundary Topography & Distinctness			No				backsk	
		59R5he	10YR 6/3	1048 218	ı	1	Redox Feature Color		soulc hick					ope	
0.		fmf	cmd	cm o	1	(Redox Feature Description		You	Dip Slope	Slope Fail	Depth to I	Slope Aspect:	Parent material:	M
		F M 3	T M	CM	CA	U 22 11 22 20 21 22 20 21 21 22 20 21 21 21 21 21 21 21 21 21 21 21 21 21				Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	ect:	terial:	
		3,0	2.75	5.25	5.25	4,5	Pocket Penetrometer/ pH		2100	90	N	7			
	1	55	54	53	52	5 1	Lab Sample ID			>	A	IA	180	(0)	
										Strike:				HOUNDE	
						4	Notes			20				1005	
		4				M. 6				00				0)	
						11.69	100		7	L					

Other Notes:

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Soil Scientist: Field Assistant:

SKIPPON

Signature:

20 42 R 424	26 4		2B+2 26	8+1 2	T	Oa	000	Horizon Depth in inches	Mineralogy:	NRCS Soil Unit:	#:	me:	Date:	Test Pit ID:	
	42+	2 7.54R =	6 7,54R %	20 7.51R 5/6	9 10486/4	4 10482/1	2 54R2.5/	th in Matrix Color	MITE	10	089962000	Dominion - Atlantic Coast Pipeline Soil Survey	06/07/	p190-16060	
		5.1	5,0	5.7	51	1	1	Texture Class	,	PPN		Pipeline Soil	07/16	7 - 1	
		12	30	25	20	1	,	% сіау				survey		315-	
		5	-6	18	20	1	1	% sand						500	
		80	Ç	9	97	30	970	Rock Fragment Type & %							
		H-2	2-4	1-2	1-2	1.5	\$.5	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
			P5	P5	PS 55	1 1	1 1	Plantidity/ Stickhess						tion:	
		0) msbk	2 mssk	1 mssk	ĵ	J	Structure Type, Grade, and Size	Mhite						
		4	かか	5	\$	1	ı		USDA	511	42	000	32	69	
8			CK.	2	CX	25	CS	Horizon Boundary Topography & Distinctness	ine, b	+Stork			2	CKS	10
		i	1	1	- <u>(</u> -	1	1	Redox Feature Color	lack oak					OPE	
		1	1	(1	Ţ	ſ	Redox Feeture Description	t	Dip Slope	Slope Fail	Depth to	Slope Aspect:	Parent material:	
		7	TI TI	2 3	CF	Z C Z	TIO O	Roots	mountour	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	ect:	aterial:	
		5.75	1.75	5.25	1,0	17.5	4.5	Pocket Penetrometer/ pH	laurel	20		Λ.			
		Ī	ţ	1	Ī	1	1	Lab Sample ID		808	WA	1/A	330	colluvium	1. A 100 M
								Notes		Strike: 180				mresidum	

Other Notes:

Depth in Matrix Color Texture Yclay	Field Assistant: Test Pit ID: Date:	-1619	160607-	1 1	sdd	Topographic Position: % Slope:	Position:		N C M M L				Parent mater	Parent material: Slope Aspect:	al:	81:
Depth in Matrix Color Texture Scape Class Scape Class Scape Class Scape Class Scape Class Scape Class Scape Class Scape Class Scape Class Scape Class Scape Class Scape Class Scape Class Class Scape Class	ite:	/30 /	01/16			% Slope:			5				Slope Aspect	Slope Aspect:	2	260
It:	RETTEW Job #:	089962000	ic Coast Pipeline So	ii survey		Depth to Re	fusal:		- 10				Slope Failure	Sione Failure or slin:	Slope Fallure or slip:	Sione Failure or silo:
Mixed Vegetation: Virginization Virginiz	NRCS Soil Unit:					Bedrock Typ	ē:		ts		Such	avo,	avo,	avo,	avo,	TONG Dip Slope & Direction: 5
Depth in Matrix Color Texture Kelay Kelay Kelay Rock Rock Fragment Rock R	Mineralogy:		MIXPD			Vegetation:		Virgin	NO.	-	3010	oine chestou	oine chestou	pine Chestnut Oak, Sca	pine chestnut oak, Scarlet o	pine shestout oak, Scarlet oak
1 3 107R3/8 511 14 10 40 1-2 85 1 4gr St1 8 107R4/6 51 20 8 ch 2 13 107R4/6 51 20 8 ch 2 2 4 55 1 ms5k - 1 ms5k				% сіау					Moist Consistence		Horizon Boundary Topography & Distinctivess	Norteon Boundary Redox Feature Teoperaphy & Color		Redox Feature nedar feature Roots	Redox Feature auton funion Roots Pedar Pentimental pt	Redox Feature nedar feature Roots
3+1 8 104R4/6 5:1 20 8 ch 2-4 ps 1 ms5k + 2 13 104R4/6 5:1 20 8 ch 2-4 ss 1 ms5k - 23	A						85	- £ gr	5		MA	aw	aw I	aw I C C C	00	000
12 13 104R4/6 5i1 20 8 ch 2-4 ps 1 msbk							PS 85	1 m s 6 k	7		3	CW	N N N	0 m	1	5 C 3 L.
£ 23	+ 2		118 9/1					1 msbk			24	Q.W	1	aw F f		- C C S - 1 - C C S - 1 - C C S - 1 - C C S - 1 - C C S - 1 - C C S - C
		23					1				8	OM .	W	OW	OW	OW -
	R						1 1									
										1						

TEST PIT DESCRIPTION

Soil Scientist: STEVE POOL O

Field Assistant: Dave SK.ppon

Signature: Dodle

104R 6/4 5:1 25 15 20 7:54R 6/4 5:1 23 15 20 104R 6/4 5:1 23 15 20 100 Ch 70	Test Pit ID: Date: Job Name: RETTEW Job #: NRCS Soil Unit: Mineralogy: Dep	P 10	P 1972 - 160607 - 16 CG 107116 Dominion - Atlantic Coast Pipeline Soil Survey 089962000 G 1010 M 1800 Texture % class	Pipeline Soil S	4 0	1 - 5d		Topographic % Slope: % Slope: Drainage Cla Depth to Re Bedrock Typ Vegetation: Rock Fragm	Topographic Posi % Slope: Drainage Class: Depth to Refusal Bedrock Type: Vegetation: Rock Fragment Size (Inches)	Topographic Position: % Slope: % Slope: Drainage Class: Depth to Refusal: Depth to Refusal: Bedrock Type : Vegetation: Rock Fragment Size (Inches) Station:	Class: Class: Refusal: Yype: n: gment Nauday/ Structuu ches) Stabonu Grade, a	Class: Class:	Class: Class:	Class: Class: Class: Class: Class: Class: Class: Class: Chestnut Color Structure Type, Moit Type, Moit Type, Moit Stature Color C	Class: Class: Class: Class: Class: Class: Class: Class: Color Structure Type, Mobit International Structure Type, Mobit International Color Co	Class: Class: Class: Class: Class: Class: Class: Class: Class: Class: Class: Class: Class: Class: Class: Cooling	Thic Position: Column	Class: Class:	Thic Position: Column
104R 6/4 5:1 25 15 20 1-2 104R 6/4 5:1 25 15 20 1-2 104R 6/4 5:1 23 Ch 70 2-4	0 0	Depth in Ma	atrix Color			-		Rock Fragment Size (inches)		Plasticity/ Stickiness		Structure Type, Grade, and Size	Structure Type, Grade, and Size	Structure Type, Moiet Horizon Bundery Grade, and Size Consistence Distinctions	Structure Type, Molet Industry Redox Feature Grade, and Size Consistence Industries Color	Structure Type, Moist Incommencer Redox Feature Color Consistence Distinctions Color Consistence	Structure Type, Moist Industry Redox Feature Color Consistence Consistence Color Color Col	Structure Type, Moist Industry Redox Feature Color Consistence Consistence Color Color Col	Structure Type, Moist Industry Redox Feature Color Consistence Consistence Color Color Col
1018 % sil 25 15 20 1-2 1018 6'4 sil 23 ch 2-4 7.518 6 sil 1 23 ch 70 2-4	1/2	v	16.23/	Ţ	-	1	20	1-2		1 1	1	1	1 aw				aw C	aw FM	aw FM
7,54R & 5,1 23 ch 2-4	14	70	AR 96	2.	25	3	36	1-2	1.	PS 88		1 / Sbk fr	1 f sbk	1 f sbk	1 f sbk	1 f sbk	11 f sbk fr - FF	11 f sbk fr	11 f sbk fr
7,5YR & 5,1 1 Ch 70 2-4	C40980950		1 3 2 A	1.5	23		405	2-4	SB	PS		M 2 msb fr		2 mstx fr 1048 98	2 mssk fr	2 mstx fr 1048 98	2 mssk fr 1048 93 cmf 1	2 mstx fr 104R98 cmd EF 1	2 mstx fr 104R98 cmd EF 1
	12		SYRS	7.	-		70 70	2-4	By			Imsbk fr		Imsbk fr	Imsbk fr	Imsbk fr -	Imsbkfr - FM	1msbkfr FM 2	1msbkfr FM 2
		2+	*.																

Soil Scientist: JOWN WAY Field Assistant:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P-	193-16	10000	-	201	MST	Topographic Position:	tion:	BACKS	100	(61		Parent material:	terial:	COLLANION	MOIN	OVER RESIDVUM
Date:	5	91/1					% Slope:		3570				Slope Aspect:	ect:	700		ľ
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	ırvey			Drainage Class:		P	MHAT	e k	サノハームド	Depth to V	Depth to Water Table:	1		
RETTEW Job #:	089962000	2000					Depth to Refusal:		40:				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:	Bt	(5- W	E185	1			Bedrock Type :		SILISTONE	TOZE	1574	47	Dip Slope	Dip Slope & Direction:	7		Strike:
Mineralogy:	ž	MIXED					Vegetation:		1 NHISAHO	010	PK	AD OAK	+	ICKORY		76 P	1
										P		1	+		1	-	a
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickbress	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Product Penetrameter/	Lab Sample ID	Notes
0 9 0	'2	15.50	t	1	•	1	1	(1	i	1	2	1	1	1 1 N - E	f 1	1	
	10	320	カレス		2	57		00	·AR					2- UT, A	7		
2	2,	101Kil	2.	7	1	T.	103	55	(2/0)	TR	01	1	1	77	+	1	
2	0,36	19 1/23/1 xch	HOX	17	20	90	7-5	Pa	0 7	70	2	((1	1		BATHTEN ROCKS
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7	30	ハチャ	FI	5	9	STOTHE	THE	4	ADPOCK	7							
			-														

Other Notes:

MEATHERED GOLD BEDROCK For PICH SHALE SILTSTONE

AT 10" 74

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100:

TEST PIT DESCRIPTION

Soil Scientist:

Field Assistant:

Dave Skippon

Signature: 25 0

2000

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: Date: Job Name: RETTEW Job #:		p 195 - 16060 % - 137 0 6 /0 % / 16 Dominion - Atlantic Coast Pipeline Soil Survey 089962000	Pipeline Soi	137S	50	0	Topographic Position: % Slope: Drainage Class: Depth to Refusal:	tion:		AIN DAM	1		backsign	backsign	back	Slope Aspect: Depth to Water Table: Slope Failure or slip:	backsign
NRCS Soll Unit:		- 200	Woda he	hala -	Dekal	6	Bedrock Type :			5	1+stone		-	Din Sione &	Dip Slope & Direction:		
Mineralogy:	-						Vegetation:		hick	WSDA 1	sed (maple,	1	+0116	+ulip popla	+ulip poplar	+Ulif poplar
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickbress	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color		P. Redox Feature Description		Bades Feature Roots Peaker Bearingment pt	Redus Feature Description Roots
Oe	2	51R 2.5/	f	1	-	9 0	1-2	1	1	j	SE SE	1		1	エエ	N T	
P	6	10/R 3/2	SIL	14	-2	26	1-2	PS	1 f gr	Afr.	aw	Ĭ.		1	חבר חודר		
177	三.	104R 54	5.1	13	20	38	1-2	Ps	lmsbk	5	Cw	1		1	F F F		
8	25	104R 5/6	5:1	19	ō₹	95	1-1	SS	Zasak	4	E	1)	 		
2812	35	7.57R5/6	Si	10	10	340	12	PS	2 msbk	5	(S) X	1		1	TI TI		TI
203 60	60	7.57R% SI	SI	20	0	30	1-2	55	2msbk	ナラ	1	1		1	1 4	η	η

Other Notes:

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

Steve Dadio

Dave Skippon

Test Pit ID:		0196-11	-80909	=	57-50	99	Topographic Position:	tion:	,	Joper		backsbop	Parent material:	terial:	0		180	3
Date:		06/0	08/16				% Slope:		3	211			Slope Aspect:	ect:		X		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:			WO			Depth to 1	Depth to Water Table:	NIA			
RETTEW Job #:	0899	089962000					Depth to Refusal:			NIA			Slope Fail	Slope Failure or slip:	-	A		
NRCS Soil Unit:	7	und -	Wataha	10 - E	Dekal	0	Bedrock Type :		5,14	tstone	0		Dip Slope	Dip Slope & Direction:		Str	Strike:	1
Mineralogy:		3	1480				Vegetation:		red 1	Mcyole	tulip	p poplar	'			-	inc.	
										USDA								
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plantidty/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Chilhothess	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID		Notes
0	1	104R21	1	1	1	95	1-2	1 1	L	1	Dw	t	Ţ	Z Z T	4.5	1		
A	0	1048 4/2	5,1	5	30	16:32	1-2	PS 84	1 fgr	17	au	1	1	Z Z T	1.0	1		
77	ū	104R 7/3	5.1	2	Est Seal	200	1-2	P5	1 msbk	fr	CM	1	1	T T	5.0	1		
Bw	24.	1048614	5-	16	30	40 97	1-2	P5	/msbk	7	cw	1	1	£C.	5.0	1		
2 BCI	35	7,54R%	5.	20	20	40	2-4	55	1msby	4	gw	1)	J JN	2,5	1		
2812 50	50	7.578%	5,1	20	20	Ch 70	7-4	55	Im sbk	かか		1	1	740	2,5	4		
												7						

Other Notes:

TEST PIT DESCRIPTION
Soil Scientist:
Field Assistant:

SKAPPON

Signature:

& On

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	0 10 7	- 160606	,	1047-5	PP	Topographic Position:	ition:		backs	3000		Parent material:	erial:	00	Ollovion	11	85
Date:	0	-				% Slope:			40			Slope Aspect:	ft.	1	40		
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	tic Coast Pipeli	ne Soil Survi	еу		Drainage Class:			Ty.	7		Depth to Water Table:	ater Table:	2	A		
RETTEW Job #:	089962000	/				Depth to Refusal:			2	A		Slope Failure or slip:	e or slip:	N/A			
NRCS Soil Unit:	Mr Cluna	- Wa	0	ada - De	De Kalb De	- 10	X	1	5.	totone	0	Dip Slope & Direction:	Direction:	1		Strike:	1
Mineralogy:		Jiyon						red	Maple		+0110 E	oplas	hickory	1			
									USDA		, ,	100					
Horizon	Depth in Matrix Color inches		Texture %	% clay % sand	Rock nd Fragment Type & %	Rock Fragment Size (inches)	Plantidty/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horlaun Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Product Panetrometer/ pH	Lab Sample ID		Notes
<i>e</i>	2 54R	2.5	1	1	300	1-2	, 1	1	1	200	1		M M M	5.0	51		
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(Tr)	101 HE		5	9	0 20	1-2	50	1 £ sbk	fr.	cw	1	1	C P F F	4.5	53		
BW	31 10419	OMRIGH S		10 65	20 40	7-7	50	1 msbk	7	3	1)	U 11	4.75	Su		
280	52 7.54	7,54R4/6 s	5:11	16 35	6 60	1-2	PS 89	1 mp1	13	1	1)	71 77	2.25	55		

Other Notes:

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION
Steve

Signature:

Job Name:	NRCS Soil Unit:	Mineralogy	The state of the s	Horizon	00	A	m	26+	2 8,2	236	
	: 089962000	1		Depth in inches	w	2	=	20	30	50	
Atlantic Coa	Mc Chance	No. of the last of	17	Matrix Color	51R 25/	101R2/1	1048 6H	7.57R66	7,540.6%	7.54R 6/6	
st Pipeline Soll	+ 1/4 -	Man	200	Texture Class	i	5.1	5:1	1:5	Sil	5:1	
Survey	alasta	SHOWED	-	% clay	1	15	13	8	23	6	
		7 - 1		% sand	ŧ	20	22	72	3	2	
		JE ROUD		Rock Fragment Type & %	20	20	9 25	2 25	30	C30	
Drainage Class:	Depth to Refusal:	Bedrock Type:	Vegetation:	Rock Fragment Size (inches)	1-5.	351	1-5.	2.5	٠٠	1-2	
	-			Plasticity/ Stickiness	1)	PS 8	85 88	ps ss	es Ss	PS	
5			e white	Structure Type, Grade, and Size	7	1 fgr	yasm 1	2 mssk	2 ms6k	1 m p1	
0 m	NIA	5		Moist Consistence	1	J.V	4	7	7	17	
		rston		Horizon Boundary Topography & Oktinctness	are a	9.0	CK	Cw	9-2	1	
		76	te pine	Red	((1	((104824	
Slope Aspect: Depth to Wate	Slope Fail	Dip Slope	+01	Redox Feature Description	1	1	Į.	(-	1	dwo	
Slope Aspect: Depth to Water Table:	Slope Failure or slip:	Dip Slope & Direction:	dod di	70	C 3	CTI	T (T1 T1 3 T1	T T Z TI	VER	
200	> 3		lar		52.7	0.75	52.1	5.0	0.0	2.75	8
100	/A	1		Lab Sample	C)	3	S	7 2	5	56	
		Strike:		Notes					2,54R 5/8	Manganese	HT.
									Present	Mar.	

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

Test Pit ID:	100-160603-1496 - Sds	103-IH	-35	Sde	Т	Topographic Position:	ion:		1977	のででいった		Parent material:	rial:		
Date:	27.03/2	5			V P	% Slope:			21%	>>		Slope Aspect:	f.	300	
ame:	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil				Drainage Class:			(J)			Depth to Water Table:	iter Table:	2/2	>
b#:	089962000			,,		Depth to Refusal:			þ			Slope Failure or slip:	or slip:	1)
••		4	World	(C)	m	Bedrock Type :	_	,	Z55	17	-	Dip Stope & Direction:	Direction:	7 7 7	- 12
Mineralogy:					-	Vegetation:	_	Chocksof Color	P	3	0.80	4 2120	5	2000/で 1	ころろとようと
9									USDA			William Control	Secretary Control of the Control of		
Horizon Depth in	th in Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Flundsty/ Stddienna	Structure Type, Grade, and Size	Molet Consistence	Horbon Countary Yopography & Obtavienous	Redox Feature Color	Redox Fertura Description	Roots	Podart Panetrometer/ pH	Lab Sample ID
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	7.717.7						·								ů.
5	5														

Other Notes:

TEST PIT DESCRIPTION

Soil Scientist: New Long Village Paraves,
Field Assistant: Miguel Paraves,

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Soil Scientist: シャップァ しゅくごう Fjeld Assistant: シュック・ラ トゥッカーの

Signature:

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NRCS Soil Unit: RETTÊW Job #: lob Name: Test Pit ID; がで Horizon 12: Depth in inches ار الم 089962000 Dominion - Atlantic Coast Pipeline Soil Survey J1548 54 TOTAL S Matrix Color 6 Texture Class IA Services 1 W. $\bigcup_{n \in \mathbb{N}} A_n$ シトガイのファ % clay F3. Ō. 1330 A LE 1 % sand 190gr 41. Fragment Type & % ত্ৰ্ ত $\tilde{\circ}$ ٩ R Drainage Class:
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Soil Scientist: Field Assistant: TEST PIT DESCRIPTION

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Soil Scientist: Field Assistant しょうてん Test Pit ID: V-7 Mineralogy: NRCS Soil Unit: RETTEW Job #: Job Name: TEST PIT DESCRIPTION Other Notes: ds L () () Horizon 10 V الاز کې ुँ 13, E --> Depth in inches 1040 20 21-109031-10 Dominion - Atlantic Coast Pipeline Soil Survey かいこのでして A KANA 089962000 5 Kyrra IV 10/2/V/E 42 MF, 42x ヘアリン ハー のとり の以来とうるいろ Matrix Color ۸, T とやら MACAX 150 400 1 Texture Class (" T (J <u>(</u>5 % clay ţ 6 Ö (ゆかのべ、ひかとて、 シング 0 % sand ټـ ن L 60 1 マチィャ アスロアをデスソ Fragment Type & % 10/20 B 1-2-6-VI ROCK Ø こでけ こっ ア À١ Rock Fragment Size (Inches) % Slope: Vegetation: Topographic Position: Bedrock Type: Depth to Refusal: Drainage Class: \bigcirc ٧ د ٧ 6 ر ا ا ~ Signature: ŧ 0 14 6 1970-350 7³ -d 0 SS Martiety/ Stellens Ş ු අ d # 3 1 (あっこで むりのと・ とずった 1550 To Sp Structure Type, Grade, and Size MIXCY DECITOR とうない はんだい いかなけいてのなれ へい いいろう 1 クナヤ パヤ ₹! ~ در LA Moét -1 ... でき ļ بة (ي とすることはいれ ソリスドート ₹ 2 2 Ę ١ 1/9/ なしられのからない。 Redox Feature Color つりるので F. ... されマ人 シルらかし 1 ſ 7 12075 Nation Fasture Description Dip Slope & Direction: Slope Failure or slip: Depth to Water Table: Slope Aspect: Parent material: ١ ١ 1 TALE SALT 1 Well Drained くしむせの マダイメーン 17 17 14 4 5 h なり、い 7-4 ر. خ $\vec{\eta}$, (スペンソ Roots ١ 2000 ンコロディスク 0.25 7/2 Sio ですのことことと N. S. $v_{\rm v}$) Į 1 1 'n S w (240) Strike: V M M 70 Lab Sample が く 1, ١ といろし Z OT TO RETOURS アヤセアハナショド しれしゃついで かりづからの大 ر ارو ارو RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phoner 717-394-3721 Faxr 717-394-1063 Notes ٧ 2:

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Soil Scientist: Field Assistant:

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Soil Scientist: Field Assistant: TEST PIT DESCRIPTION Skippon

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Other Notes:

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION
Soil Scientist:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

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		7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7) (Z 71	5 0 17 E	エエハデアン	ΣΣ Λ γπ Σ	Roots	law of the state of	ion:	re or slip:	ater Table:	d:	erlai:
				52,22	4.25	4.25	< .25 4.25.	Podrat Penatrometar/ PH	t, 0:20					\$0\$
		Timenania		(1)	. }	Lab Sample ID	4	376	ベノル	NIN	278	residuum
										Strike:			,	3
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Other Notes:

Soil Scientist: Field Assistant:

5kippon

Signature:

Test Pit ID:		9.711-160002-1146	03		A 3.		Topographic Position:	tion:	***************************************	BRUKSINOR	120		Parent material:	erial:		ついいひとろ	203
Date:		00/0107	01.77	***************************************			% Slope:		3	,			Slope Aspect:	ct:		Si y	
DETTENTION IN #.		OSBOGOOO	ripeline so	Jurvey			Drainage class:		100	P			Depth to Water Table:	later Table:		N/12-	
NRCS Soil Unit:		06626		7	スペー のごからのか		Bedrock Type :		んないかんきょう	300	5	Sand Chan	Din Slone & Direction:	Direction:		ļ	Strike
Mineralogy:		Z: x00					Vegetation:		<u>C</u>	Chestrot	ğΙ	2005ta. 13	3 C C C C C C C C C C C C C C C C C C C	S. S. S. S. S. S. S. S. S. S. S. S. S. S			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
1999				_		Davel				USDA						-	
Horizon	Depth in Inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (Inches)	Platton/ Statiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary . Topography & Diretness	Redox Feature Color	Rudox Feature Description	Roots	Pocket Penetremeter/ pH	Lab Sample ID	Notes
7.		•					j	1						i Z	< . 25		
0	The Controlled in	5th 2.5/	}	ļ	.	110	177		١	1	Ę	,	l	N. S.	4,25	H	
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j Š	J.	7 5% 5	1	<u>.</u> 3	<u> </u>	56	\$ #	P 0	 } ?		}	(77	ζ.	C)	
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Other Notes:

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION Dave

Signature:

	•		75	TS E	121	Ø.	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:	
			12.	22	(V)	W	Depth in inches		-	089962000	Domini		ח	
			1,	10 X 4/		SYRZY	Matrix Color			000	Dominion - Atlantic Coast Pipeline Soil Survey	06/09/16	P-212-160602-1002	
			·		<u>\</u>	1	Texture Class		Dekalb		Pipeline Soil	2,	70%	
			1	Q	6.	(% clay		- Rock		Survey		1002	
			1	50	60	J	% sand		\triangleright				· 85	
		 قىسى قەمسىيىن دارات	1	운	ē D	0	Rock Fragment Type & %		Act solo		ľ		Q.	
	L#				67	1-6	Rock Fragment Size (inches)	Vegetation:	Bedrock Type:	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
	1.75		1 1	N Z	\$0 S0	1 1	Plantidity/ Stickings						tion:	
		, ,	ſ	3 10 0	500	1	Structure Type, Grade, and Size	Ches					Į,	
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			1	1	,,	1	Redox Feature	mountain laurel	6					
			1	1	1 .	(Redux Feature Description	re)	Dip Slope	Slope Fai	Depth to	Slope Aspect:	Parent material:	
			1	0 0 Ž ĬI	0 0 2 TI	E E E E	Roots		Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	pect:	aterial:	
			1 1	7 7 N	0.25	4.45	Pocket Ponetrometer/ pH		5	>		2 W W	706	
,			#	(A)	(5) (S)	S H	Lab Sample ID		-500	114	ONE	,	Cesid Jum	
								,	Strike:)	
***						9.25	Notes		10					
							C.							

Other Notes:

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION Soil Scientist: $S+e \lor e$ Dave Skippon Dadio

Signature:

			70	<u> </u>	\$	TT:	0	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
			24.	24	£		ŮŢ	Depth in inches		De)	089962000	Daminio		~)
				107R4/6	10 X H	104R 6/4	542 2.5%	Matrix Color		Dekalb- Roc	00	Dominion - Atlantic Coast Pipeline Soil Survey	ुः	17 A - 16 OS
						2	,	Texture Class		Rock Outcrap		ipeline Soil S	6,	160607 - 111,09 -
				14	3	<u>5</u>	٨	% clay		G		urvey	-	<u>⊘</u> 9 - <
				7.	0	5	ı	% sand		Mixod				<u>S.</u>
	·			X 88	45 40	975	(g @	Rock Fragment Type & %		o o				
	ı			5-10	2-5	1-2	۲	Rock Fragment Size (inches)	Vegetation:	Bedrock Type:	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
				88	N N	0 O	000	Particity/ Stational						tion:
				С З	- 3 5 5-	1 5 30	J	Structure Type, Grade, and Size	X+ Laurel	l.	2	SØ	15	
S. Sal				3	か	4	1	Moist Consistance		Sond s	24	8		わるこ
				9 E	2	Q.E	C-w/	Horizon Doundlery Topography & Distinctions	Chestact	sand stone				Rackslope
				1		1	1	Redox Feature Color	3 7 7					
		<u>.</u>					f ·	Radox Feature Description	ت ا ا	Dip Slope	Slope Fail	Depth to \	Slope Aspect:	Parent material:
				T*1 T1	J 11	\$ \$ E \$ 10 C 10 C	2 2 F	Roots	maple	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	ect:	iterial:
				in on	w w	12 N. 2	4,75	Packet Penetrometer/ pH		6	N			7
				-	1	1	ì	الله Sample D		ユマゲ Strike:	A	NONE	31.57	residuum
· •				A						Strike:		1		< 33
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Other Notes:

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;	28 Ky	28 K. 7	202	8, 18	84	0 0	Horizon Dep	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:	
	8 12 20 05 152	3/53/5	3/24/5/5	2.57536	2	0, 12	Depth in Matrix Color	S1 C1 CA 200	JA K ひ く が	089962000	Dominion - Atlantic Coast Pipeline Soil Survey	6/2/16	P-213-16060	
	3; S:	क्षंट ५२	C T		ST	1	Texture Class	12	,		Pipeline Soil S		l,	
			ور وي	B	Š	1	% clay				urvey		23 P	
	ő	ō	52	-\$ -	ال ب	1	% sand						しょいを	William Mark
	1	1	1	\$ 7	SS)	Rock Fragment Type & %							
	1		1.	1	^	1	Rock Fragment Size (Inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
	25	~ √ × × ×	3 S S	2 52	C 0 0	1 1	Pisadohy/ Stietinera						tion:	
	3 5 7	18 58 F	2r, tok	14 St 14	3	1	Structure Type, Grade, and Size	そこくのひ		í	8000	1720	25	
	71	4	T R	A P	77	1	Moist	SBA C	r			,	7/3	
	Į	Š	S	Ç	C	8	Horizon Boundary Topography & Circhetriss	(B40)					Ros V	
	1	1	1	9		1	Redox Feature Color						えいついしょので Parent material:	
	1	Ţ	1	1	1	1,	Redox Feature Description		Dip Slope	Slope Failure or slip:	Depth to V	Slope Aspect:	Parent ma	
	l	1-12	117,3	1-3,0	7. 17	3-44,5	Roots		Dip Slope & Direction:	re or slip:	Depth to Water Table:	it:	terial:	
	\$ 25.5	4.25	2:75	6.75	5.4.0	4,4	Pocket Penetumeter/		,	ı	ŧ	000	COLLANION	
	 S-15	5-5 A/B	S-4 A/B	8-3	S-2 A/B	S-1 A/8	Poden Presidentiast/ Lab Sample					,	l	
	141.75 1875	いったり	ر ده.						Strike:				2 10	
***************************************	CITHATARA C	5, 4 4 5,45 4 4 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	SPINS FOUND				Notes						がごびららえ	
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TEST PIT DESCRIPTION

Soil Scientist: ノタヤイ スタル

Signature: () () () () ()

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Test Pit ID:	P-214	140802-	1 1 1 1 1 1 1	100	Topographic Position:	L	はなってくてったと	1	アンアスト	***************************************	Parent material:	rial:	てのしていないひか	l	のくれだ	がいているとろ
Date:	25.5				% Slope:	3-7	20/0			10	Slope Aspect:		N N O			
iob Name:	Domínion - Atlantic Coast Pipeline Soil Survey	Coast Pipeline Soil Su	rvey		Drainage Class:	ź	えれでく			_	Depth to Water Table:	ter Table:	-			
RETTEW Job #:	089962000				Depth to Refusal:		; X			10	Slope Failure or slip:	or slip:	*			
NRCS Soll Unit:	J へ ド と こ	F			Bedrock Type:	<u></u>	いかかりくてので	22		-	Dip Slope & Direction:	Direction:	M ~20]	لا لا لا	Strike: 2	1400
Mineralogy:	S1010E 003	5			Vegetation:	ን ን	アンメイク	O Me !	50000				(2	シ		
								SDA.	USDA							
Horizon	Depth in Matrix Color Inches	Texture Class	% clay % sand	Rock d Fragment Type & %	Rock Fragment Size (inches)	Mendatry/ Strue	Structure Type, Grade, and Size	Moise 4	Horizon Boundary Topography & Distinctories	Redox Feature Color	Radux Feature Description	Roots	Pocket Penetrometer/ L	Lab Sample		Notes
9	0/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2	1	1		1	1 1		(a. J	1	(ペーペポッド		.		
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J. 22)	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		ો હ	_A_6	7-4	75 17	12,184	7	(et	1	١	7-5,40	1 25	1		
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Soil Scientist: 1951 VRU Field Assistant: カントレス 「R U トメ

TEST PIT DESCRIPTION

iest Pit ID:	7	13	000	ر ا ا	(O V +	したいる	トールシング Topographic Position:	tion:	がとってい	9	1	~ ^	Parent material:	romal.	1		3
Date:	6/2	e e		,			% Slope:		2970			1	Slope Aspect:	5	ر ښ د د د	0	2 C C C 3 C 3 A D S C S C S C S C S C S C S C S C S C S
Job Name:	Dominion	. Frequ	Pipeline Soil :	Survey			Drainage Class:	ş	۶ ۲ ۲	`			Depth to V	Death to Water Table:)		***************************************
RETTEW Job #:		90					Depth to Refusal:		v3 97 :				Slope Failure or slip:	re or slip:	l	-	
NRCS Soil Unit:		2002					Bedrock Type:		2. 	7045			Dip Slope	Dip Slope & Direction:	'	274	Strike: 1980
Mineralogy:	L		,			1	Vegetation:			2000	00000		1		\neg	7880)	
						SS				NGSU							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand F	Rock Fragment Type & %	Rock Fragment Size (Inches)	Plesidity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Baznelary Topography & Distinctness	Redox Feature Color	Rudos Feature Danofation	Roots	Packet Penetrameter/	Lab Sample ID	e Notes
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3~1	25	6	\(\frac{1}{\chi} \)	وسن	4	27	2 - 3	2 2 2	13/50	188	CZ	1	f) 4 1 1	27.7	P S L	The state of the s
Par	3 24	7 7 7 7 7	25	6	67	77 -4)3 !	SS S	70 5	7	C		1	7 77	4.7 52.0	\$\ \\\}/\\\\\	100000000000000000000000000000000000000
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TEST PIT DESCRIPTION

Soil Scientist: DUANE TRUAY

Field Assistant: Taylor Walter

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	6	216-160608	1	140-	741		Topographic Position:	tion:	RACK SLOPE	OPE			Parent material:	terial:	Resid	Sidución	
Date:	00	06-08-2016			1		% Slope:		302				Slope Aspect:	ect:	1960	5-5	M
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		MODERATECH	5711	WELL	DANNED	Depth to \	NEO Depth to Water Table:	NIA		
RETTEW Job #:	0899	089962000					Depth to Refusal:		361				Slope Fail	Slope Failure or slip:	NIA		
NRCS Soil Unit:		27	Channely	Loca	4		Bedrock Type :		ンプをイン				Dip Slope	Dip Slope & Direction:	660	>	Strike: 26/0
Mineralogy:		~	0				Vegetation:		White	Jak.	Chestout	not oak	5	Nott Bas	k. Dogwood	1	exercise Fine W
										USDA					, 0	17	0
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plesticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Bowndary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumeter/ pH	Lab Sample ID	Notes
be	9	7512			(1	1	1	1	L	54	į.	Ţ	1	4 1)	
1 mB	1-0	6/2	8	00	35	35%	2.0	50	1,1	200	YS IN	1	1	7,0	1.25	1	
BWZ	8-21	1042	J	21	at w	XC1+	0.25	52	5BL	Int.	FRS WA	J	1	1-2	2.25	1	
0	200	10712	Sil	2	24 28		45% 0.25-	5 3	SBK	IN	FI IN	5:104/2 D:104/2	600 CD	1,0	1.5	1	
R	2007	1	1		1)-	7.	1 1	1	1	1	t	1	1	, ,	1	SHALE

Field Assistant: Taylor Welter

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	7	216A-161	100	1320	1320-DA+		Topographic Position:	tion:	SHOULDER	ER			Parent material:	terial:	Resid	uom.	
Date:	06	06-08-2016	016				% Slope:		Sancial de		A STOCK STOCK	3	Slope Aspect:	Slope Aspect:	200	NN	1
RETTEW Job #:	089962000	089962000	in the second	in the same			Depth to Refusal:	at.	24"	1			Slope Failure or slip:	re or slip:	NIA		
NRCS Soil Unit:	20	4	chomners 5	1	COUNT		Bedrock Type:		Shale				Dip Slope	Dip Slope & Direction:	740	5	Strike:
Mineralogy:	51	Siliceous	1	1			Vegetation:		Vagina Pine	Pine							
No. of the last									0	USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctions	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumeter/	Lab Sample ID	
00	1-0	1/5.5/1	j)	1	1	1	1 1		1	SA	1	1		4,2	1	
But 1-5	5	104x	2	7	42	1CH 35%	5:1	50	Sex 1,1	7.77	FAT SA		1	720	1.5	1	
Bu2	5-10	2-10 JISTA	Q	7	7	15% +13%	3,0	00	5BK	787	SA	1	1	-10	2 2 3	1	
12	10-18	10-18 7,542	sil 10	0.1	Co	XCH XCH	8.0	50	W'W	CAI IA	IA	1	1	1, m	N/A	1	
2	8	1	1	1	t	1	1	, 1	1	(1	7	y	ī	1 ,	۲	SHALE GEDROOM

TEST PIT DESCRIPTION

Soil Scientist: Juane Truck

Field Assistant: Taylor Walter

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

	0.	0211-8 11-01-08-1414-	100-11	1,4-1	A		Tonographic Position:	ion:	RACHES LOPE	SIGN			Parent material:	erial:	RESIDUAM	Kim !	1995	Theory
Date.	2/2	06-08-2016	000				% Slope:		25%				Slope Aspect:	H	2630	10		
lob Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey	1		Drainage Class:		SOME WHAT	AT I	EXCESSIVEY	the i	VOA! NEW Depth to Water Table:	ater Table:	NIA			
RETTEW Job #:		2000					Depth to Refusal:		26"				Slope Failure or slip:	e or slip:	NIA			
NRCS Soil Unit:	7	Spake channers	1	+	MOD		Bedrock Type:		Shall				Dip Slope & Direction:	Direction:	860	1	Strike:	245
Mineralogy:		1100	0				Vegetation:		Virginia 1	Pine 1	Whitefing	ORex	trut &	Oak, WA	aite Olas	Scarlet	Lett Bal	R
100		шь							1000	USDA								
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography A Distinctness	Redox Feature Color	fledos Feature Description	Roots	Pocket Pedetrometer/ per	Lab Sample ID		Notes
00	1-0	1/52	1	43.	1	1	1	1 1	ı	t	SA	١	1	1	* 1)		
Bul	1-7	1042	P.S.	12	25	25%	0.25-	50	1,1	ENT	4	,	1	D 37	45	1		
Bur	7-14	6/4	Sid	4	X	767.	0.75 A.O	50	58K	ES .	SA	ì	1	103	7.0	1		
0	1426		0.5	18	7	X0.14 92%	0.0	50	N N	Fat 54	54	1	1	1,3	以大	1		
2	26+		1	1		7	1-	1	r	1	1	1	i	1	1 1	1	1	

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION Signature:

Test Pit ID:	10	P-217-16/	3608-0823-	082	3-AAT	4	Topographic Position:	tion:	RACKSLOPE	De			Parent material:	terial:	Periduin.	u.A.		
Date:	00	06-08-2	-2016				% Slope:		(05%				Slope Aspect:	ect:	160			
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		WE26 D	DRAWCO	8		Depth to V	Depth to Water Table:	1/1/			
RETTEW Job #:	089962000	2000					Depth to Refusal:		101				Slope Failure or slip:	re or slip:	4/18			
NRCS Soil Unit:	Ber	Berks Channery	my Jacon	· ·			Bedrock Type :		SHAC				Dip Slope	Dip Slope & Direction:	700	N/I	Strike:	1950
Mineralogy:	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	iccous	0				Vegetation:		Rosmo	al. S	rear 1	moch .	carl	carlett Oak	Dogwood	-	Wichon	
										USDA		1 1			0	40	2	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctions	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID		Notes
000	5-05	0-05 25/1	j	١	1	T.	1	f r	İ	1	NA A	1	1	1	4 1	1		
A	0.5-1.5	7.582	Sil	_0	元	BR 15%	0.25-	P0 50	6n	3241	VENT SA	1	1	2,7	20 4	١		
Bul 1	15-90	75th	Sil		4 35	30%	15.7	50	58K	FAT SA	54	1	1	7,7	1.0	1		
BWZ 9 049.0	pipe P	21/6	2	17	X	YOK YOK	YCK 0.75-	50	5BK	PAI SA	SA	1	1	700	7.5	1		
N	19.0+	1	1		-()	1	1	1 1	1	t	T	(1	1	1	1	7X	SHALL BEDROW

Other Notes:

Soil Scientist: DUANC TRUAX Field Assistant: Taylor Walter

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P2/8-	P218-160608-1010-	5-1010	0	7		Topographic Position:	ition:	SHOUNER	612			Parent material:	terial:	RESID	mun	
Date:	06-0	06-08-2016					% Slope:		242				Slope Aspect:	ect:	2710	2	
lob Name:	Dominion - /	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		0	RAINE	0		Depth to \	Depth to Water Table:	N/A	-	
RETTEW Job #:	089962000						Depth to Refusal:		18"				Slope Fail	Slope Failure or slip:	N/A		
NRCS Soil Unit:	Benks		channers	Lonn	4		Bedrock Type:		NHAM				Dip Slope	Dip Slope & Direction:	790	M	Strike: 10
Mineralogy:	Silineous		0				Vegetation:		Chartne	4 70	the	Mars.	5/2	most Pas	2 2/0	B	3
									USDA	USDA		1			1		more
Horizon in	Depth in Ma	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumeter/	Lab Sample	Notes
De 0-		25/1	1	1	1	1	1	1 1	1	1	*	1	1	1	25		
A I-	-3 7	4/2	0	13	4	202	0.25	000	-6	TA	54	1	1	7,5	27.0	١	
01	7	7.57K	0	5	ì	101	0.25-	BA	N. N.					o h	1.75		
15/23	0	4/5	X	22	47	4+ 50%		55	1,2	FIT SA	54	(1	27.7	4.4	1	
Bt 9.	9-100 7	2/12	Cl	2	50	15% XC+	0.25°	22 62	58x	FAT IA	IA	1	V.	 * T	N S	1	
7	00	1	1	1	JF.	1	1	1 1	1	ĵ	1	1	1	1	1	1	SHALLE

Soil Scientist: Field Assistant: DUANG IPMAY

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	00	0-11-10160	1-0207-	1430-	- DAY	1	Topographic Position:		Rackelo	lone			Parent material:	terial:	Residerom	MON	
Date:	00	1	16				% Slope:		5170	-			Slope Aspect:	ect:	2300	Non	ORTH FACING
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	survey			Drainage Class:		SOMEWITE	1	EXCESSIVERY	1627	Depth to 1	Depth to Water Table:	NIA		
RETTEW Job #:	089962000	52000					Depth to Refusal:		15.5				Slope Fail	Slope Failure or slip:	NIA		
NRCS Soil Unit:		Books chamers	in out	t loans	M		Bedrock Type:		SHA				Dip Slope	Dip Slope & Direction:	550		Strike: 2810
Mineralogy:		2	9				Vegetation:		Whitefine	ANA I	Lickory	y Oak u	14.70	be the	1 Maple		
										USDA		p.					
Horizon	Depth in inches	Matrix Color	Texture Class	% clay % sand		Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
Da	5.0	7.572	1	1	1	1	1	1 1	1	1	SP	1	1	1	1 2	1	
5	200	10411	7	9	5	CP	1	Po	SBM	7	^	1		2,2	25	5-14	
7	200	413	7	0	-	15%	2.0	8		410	F			1,0	T. N	5-13	
	0	lock			\	T	0.25	00	SBK		1			2 12	1.0	524	
Bel	AI		Sil	10	N	18	2.0	50	1,2	2	SA	1	1		45	5-23	
	201	1048				AION	-52:0	89	N815					2 1	2.25	5-34	
Bur	SS	1/2	215	15	5	55%		55	1,3	57	WA.	1	1		7.8	5-3B	
								1							,		CHAIR TOPARL
7	15.5	1	1	1	1	1	,	-	1	7)	1	,	t	7-	Ť	Comment of the Commen
											1						

Other Notes:

N.

TEST PIT DESCRIPTION

Soil Scientist: DUDNE Truck

Field Assistant: Dr. John Colbraith

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P. 220-1	60607-1336-DAT	336-7	DAT		Topographic Position:	tion:	SHAULDER		DM NO	NOSE	Parent material:	terial:	Day	B	MUM	
	06-07-	2016				% Slope:		188				Slope Aspect:	ect:			2400 N	
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	Coast Pipeline Soi	Survey			Drainage Class:		WellD	Cuine	1		Depth to Water Table:	Vater	Table:		N/X	N/A
RETTEW Job #:	089962000					Depth to Refusal:		2.0				Slope Failure or slip:	re or	slip:		N	N
NRCS Soil Unit:	Derke Shannens SIT	ample S	L	00 m		Bedrock Type :		Shale				Dip Slope & Direction:	& Dire	ction:	ction: 120 S		120 5
Mineralogy:	Sliceaus	0				Vegetation:		Cherry (7	Hinday	Lingian	16	3	hidefine	Pine white	e suder, e	se with white oak
Horizon	Depth in Matrix Color inches	Texture Class	% clay	% clay % sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Stickiness	Structure Type, Grade, and Size	Moist	Horiton Boundary Topography & Distinctness	Redox Feature Color	Redux Feature Description		Roots	Picket Penetrometer/		Picket Penetrometer/
000	0.5 7.5m	7	1	١	1	1	1	1	J	SA	t	1	N	12	T		
A	B.0 1042	5:11 15	7	S	407-	0.25-	\$0 50	1,1	NEW	VEN WA	1	١	- 10	40	40	40	40
BNI	3.0- 109K	o Sid	20	8		4.0	55	1,2	2	S A	1	1	- 14	2			
Bul.	9,0- 7,54x 20,0 5/t	4 Sil	24	24 20	X01+	8.0	5 5	113	2	SA	1	1		202			
2	24+ -	Ţ	1	1	f	1	1. 1	1	1	1	1	1		-1	1	1 1	SHALE BEXINE

Field Assistant: Tona Galbraith

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	100	10-10-11-17-07	1	72-	777-14		Topographic Position:	tion:	RAKSLOPE	390			Parent material:	terial:	10CL	LUYIUM #2	北美江 公子上
Date:	06	6-07-2016					% Slope:		2000				Slope Aspect:	Ct:	2000	South	F FACING
lob Name:	Dominio	lantic Co	Pipeline Soil S	urvey			Drainage Class:		MELLI	RAINE	(1)		Depth to V	Depth to Water Table:	>50'		
RETTEW Job #:	089962000	000					Depth to Refusal:		>50				Slope Failure or slip:	re or slip:	NA		7.
NRCS Soil Unit:	75	~	Chammon I som	Don			Bedrock Type:		NA				Dip Slope	Dip Slope & Direction:	11/4	Strike:	ke: N/A
Mineralogy:	12	2	0				Vegetation:		Black Oak,		Chestant Oa	Oak, Will	it a	WHILL AND	tetia.	AN	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
0.0	1-0	7.572	1	1	1	1	,	1 1	1	1	54	1	1	7,5	e 1	5-18	
P	3	754	Sil	Oh	10	802 802	0.25-	50	1,3	宝	NET SA	1	1	7,7	6.6	5-2A 5-28	
M	3-9	107n	ris	0	10	789°	1.0	SO	584	TES	YEAS SA	١	1	2,1	57.5	5-3/4	
Bwl c	9-15	1042	1	12	50	VCIX So7.	0.25	50	5Bh	3	FOT SC	1	(2,100	2.6	5-48	
Bu21	5-23	101×	7	5	50	xc11	50 KC14 0.25-	Po	5BL	E	SA	1	1	J. M.	6.3	5-54	
0 7	2350	109h	52	00	70	なけ	0.25-	500	0,56	SE SE	1		1	1	6.5	5-63	
TO SERVICE SER																	

Field Assistant: Dr. John Galbraith Soil Scientist: DUATE TABLE

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P-222-		160607-	1055	-DA	7	Topographic Position:	tion:	BARKSLARE	SP			Parent material:	terial:	10/100	MONION		
Date:	06-07-	7-2016	0				% Slope:		2320				Slope Aspect:	act:				
lob Name:	Dominion - A	Dominion - Atlantic Coast Pipeline Soil Survey	peline Soil Su	vey			Drainage Class:			1366	DRANGO	0	Depth to \	Depth to Water Table:	750			
RETTEW Job #:	089962000						Depth to Refusal						Slope Failure or slip:	re or slip:	NA			
NRCS Soil Unit:	Berks	Berks Channery		Loon			Bedrock Type :		NA				Dip Slope	Dip Slope & Direction:			Strike:	1/11
Mineralogy:	Siliceous	645	1.0				Vegetation:		Scarlet	100	Chestnat	natoak	F.YM	PINA	Red Ma	10 10	1	- L
						200				USDA		10000		,		1/1		Same I
Horizon Do	Depth in Mai	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Bowndary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID		Notes
A O.	0.0.5 1042		Sil	0 1	72	353	I	00	111	TAN	SA	1	1	一十	0.25	5-14		
io I	o.5- 10°	104/2	J.S	12	Z	402	5:0	50	SBK	82 SA	2	1		N N		5.2A		
Bu 1 9	9-18 1041		rs	12	20	VCt 557.	3,0	Pr	1,3	ENT 54	54	1	1	2,2	- 1	5-34		
BWZ 18-33		5/2	518	00	53	XCI+	4.0	50	5BK	ENT.	54).	-1	- 73	2:4	5-44		
BC 33	33-50 7	7576	\sim	12 38		x017	4.0	50	5Bn	FA	1-	Dilo4/6/3	67	1		5-58		
4																		

Field Assistant: Dr. John Galbraith

Signature:

Test Pit ID:	P-223	73-16C	1667-	091	0-1	F	Topographic Position:	tion:	M	TOPE			Parent material:	terial:	COLLU	alluvium/	Residuum
Date:		1	2016				% Slope:		400				Slope Aspect:	ect:	1800	,	
lob Name:	Dominion -	8	ipeline Soil Su	rvey			Drainage Class:		MELLI	RAINE	63		Depth to V	Depth to Water Table:	NIA		
RETTEW Job #:	089962000						Depth to Refusal:		Bottom Q 46"	2 46"	Soft si	: Itstone	Slope Failure or slip:	re or slip:	N/M		
NRCS Soil Unit:	Beths	s chann	S have	17	00 m		Bedrock Type :		51/tstone	ne			Dip Slope	Dip Slope & Direction:	150	5000+ S	Strike:
Mineralogy:	1111		1880 F	南	STATE OF		Vegetation:		Scotlet Bull hestout	W DY	strut	Oak, W	Stute dak	at this	WWW.	Phaybod	-
3			4		Section 2					USDA					0		
Horizon De	Depth in Inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penethimetet/	Lab Sample ID	
0a 0	2000	187	y	1	1	S. Ja	1	1 1	2 2	71/1/	CA -	,	1	27 FZ	68	5-14	
A	1.52.0	2/2	-opm	0	8	25	0.25	50	1,3	YEAT SA	A	Ì	1	2, 1/2	7,0	5-14	
Bt1 3		7512	SIR	N	00	32/	0.25	50	1,1	3m	UME SA	ř	1	1.44	0,25	to so	
BL2 7	70	7.5.7	Loan 25		N	多年	0.1	X B	58x	m	ME SA	1	1	T _M	6,5	2-4-S	
PK3 1-	7- 7	215	ca	20	30	30%	3.0	\$ 2	782	\$	\$	1	-	M	2:25	S#S	
2BC 2	29-	7,542	5:1	00	5	XCH 70%	0.25.	Sos	SBK	24	54	١	1	1	40	5-84	lithochromic colors
20r 3	46	1	1	1	1	1	j	1	1	t	y.		1	A.	f	Ī	Saprolitic

Other Notes:

TEST PIT DESCRIPTION

Soil Scientist: 5 + e - 0 6

Field Assistant: Downs

Signature: & Oadle

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	-	p-224	-1606	80	- 1315	600	Topographic Position:	tion:		Back	KSlope		Parent material:	terial:	00	-	lovium over residuum
Date:	1	1	116				% Slope:			34			Slope Aspect:	ect:	100		
loh Nāme:	Domin	00	Pipeline Soil !	urvey			Drainage Class:			SED			Depth to \	Depth to Water Table:	>	1A	
RETTEW Job #:	089962000	2000					Depth to Refusal:			26			Slope Failure or slip:	re or slip:	7.0	H	
NRCS Soil Unit:		Rocks	10	hann	473	51	Bedrock Type :			5, 1+0	STONE		Dip Slope	Dip Slope & Direction:	350	E 40	Strike: 300
Mineralogy:		6	697		,	l i	Vegetation:		h,cl	15054	white	pine,	by hite	te oools			
-	Depth in	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment Size (inches)	Plastidy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
0	-	5782.5/	j	1	t	Ch	1-2	1 1	1	t	9.4	1	1	T C 7	5.0	ŧ	
A	3	101R 3/2	1.5	16	20	50 45	1-2	80	16 85	141	Ow.	1	1	71 0	5.0	1	
5	7	101R 5/6	1.5	15	70	40	2-4	80	14 sbk	+	9.4	1	V	ロエつ	1.25	1	
\cap	26	104R516	S.	75	B	0b	11-11	80	0 m	13	78.50 18.50	1	(コアコ	4.75	1	foots between
P	26+	1	1	T.	1	1	1	, t	1	1	1	1	1	-(-	1	1	

TEST PIT DESCRIPTION
Soil Scientist: Michael Lane
Field Assistant: Dr. Ge lb a PM

Other Notes:		14	D X	(A)	28/2	281	123	0	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
ı			19-15	65.0	80	6-24	7.6	0-7	Depth in inches		000		Domini	6	Ø
Sampled/Dup.	ere .		3B x 39-1575/124/4 5:	38t \$0.59 10/R5/6 5il	281224.307.542514 Sil	28+1 16-24 7.540514 511	Bt 7-16 7.5425/6 5:1	10/12/15 sil 12	Matrix Color	Muses Wines	1 (Duowadan)	000	Dominion - Atlantic Coast Pipeline Soil Survey	101/2016	D-225-160601-1130-MED
7/pal			i g	ž.	N. E.	V. 2	~	s: l	Texture Class	279	1	>	Pipeline Soil	6	0000
ر برق آ	9: sca -		76	W	び	ひ	20	72	% clay		+ING OUNA	· .	Survey		-1130
· .		J.m.	U .	<i>Q</i> 0	Ū	101, of 101, o	<u>0</u>	ō	% sand	,	1300				1 300
			30%		15 40%	40,00	ä		Rock Fragment Type & %						
			6.4		^	V	-		Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
			G W	8 3	X 5	R A	357	8 8	Plentidhy/ Stiddonos						ition:
			2mabk FI	SE ZMSBK	15	2fsbk	MS 2msbx	2f8ran	Structure Type, Grade, and Size	USDA WHITE AME, I		cobbly free chorizon	スとり	2.5%	foots
			7	Ty.	N. T.	7	T/K	क	Moire Consistence	USDA C		500	V	0,3	000
				200	SC	20	20	C	Horton Doundary Topography & Directors	10 P	5	C Post	,	1	\searrow
			1.5425/2 7.5405/8	7.5405/L MMd	1,5/10,5/6				Redox Feature	, on , or or or or		on 45"			FERRICE
			ACD TO	N N N	C 33 +7	1	1		Radox Fearure Desolution	000,50	Dip Slope	Slope Failure or slip:	Depth to V	Slope Aspect:	Parent material:
				77	2 f, m	2¢,~	3 m /3c	3vf,f,mx	Roots	AJONO: A AMERICAS' DOOMNA	Dip Slope & Direction:	re or slip:	Depth to Water Table:	ect:	terial:
			2.0	2.0	N.T.	took,	2.25	4.8	Pocket Penetrometer/ PM	l T	1 1	-	24.0	2500	હિં
			8	S,	τ. \	\N \N	52	SI	Lab Sample ID	Dr. 164, 41.	1		S	O	Colluvium
-			,						Notes	1 d 09 w 000	Strike:		The state of the s	***************************************	
					.:										

18,30 E 2 /sa TEST PIT DESCRIPTION
Soil Scientist TONA COBULTS :ameN dol Field Assistants M. 11/900 . Sohn Wak RETTEW Job #: Test Pit ID: Other Notes: Vlineralogy: VRCS Soll Units Horizon D 1<u>0</u>, × Depth in inches Dominion -- Atlantic Coast Pipeline Soil Survey 089962000 12 4 454 1 CC P-2251 - 16 06 01 - 1130 - JCR -Fair C 1 1 x 3/10 Story Sign 9 K 3 X 1 Matrix Color 5. 77 Texture Class S. . T <u>~</u> 7 % clay ()e +) % sand 25 ٢ 3 £ 5. C O (c 2) Fragment
Type & % 7 Rock % Slope: Rock Fragment Size (inches) Bedrock Type: Depth to Refusal: Drainage Class: Topographic Position: Vegetation: ٧ 10.5 _ Signature: ا مسر دو MAN CE WAS I REPLACE MAN DE DUE -Ø 9 3 Pleaddy/ Stickless Š SS S -3,00 LASSETTE 45 1 A A Structure Type, Moist
Grade, and Size Consistence MIXED DET COUSTY THE DEPT OF THE PARTY かくするかかくずる l 1 NEERS 53 Horizon Doundary Topography & Oirdnames ١ ना भि Redox Feature Color ١ U Dip Slope & Direction: Slope Failure or slip: Depth to Water Table: 10/25/6 2 E Radox Feebura Description Slope Aspect: Parent material: (Somewhat Poorly Drained 3 P 9 × 20 Ē Roots υ 5 7.4.7 ふう 0 s e 0,忧 ナーシュー 7 ١ ١ Lab Sample ID b 5 $\frac{2}{8}$ Strike: l RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063 Notes

Soil Scientist: STEVE DA

Signature: Dave Ordi

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

7 2 2 4			1			ľ	
ا ا ا		% Slope:			Slope Aspect:	() ()	,e
lob Name: Dominion - Atlantic Coast Pipeline Soil Survey	ast Pipeline Soil Survey	Drainage Class:	S		Depth to Water Table:	2,21	
b#:		Depth to Refusal:	₩ 50°		Slope Failure or slip:	***************************************	
		Bedrock Type :	٦	compared some	్రాత్ ్లోన్స్ Dip Slope & Direction:	Strike:	
		Vegetation:	r I	2) ^ (0	aak, witch	hozel red madle seserrass	Serves
Horizon Depth in Matrix Color	Texture % clay % sand	Rock Rock Fragment Predaty/ Fragment Size (Inches)	Structure Type, Most	Horbort Do.	ature Autor functive Roots	redestransonment Lab Sample	Notes
2 2/c 2/c 2/c	5	00 1 7 20 00 00 00 00 00 00 00 00 00 00 00 00	23 5 7 7 7 8	F & 1	- 101 - 101 - 107	2 0 0	
apathola ring	18 12	7 · · · · · · · · · · · · · · · · · · ·	43/3K	C 2 C 2 C 2	1 1-4	2.0 \$ 2	
118 aloate of the	72 14	1	\$ 2000 \$ K	620 Pro 620	Volument Spacet	\(\frac{1}{2}\)	DISCONTINUESS
8×4 20 2 25/25/A	SY 18 10	10 21 SS	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	443 -	8/5=2/5 W-7/2=26st	1 hs 0 4 xxx	FRACIC PROFERIES
							•

TEST PIT DESCRIPTION
Soil Scientist: Duane Truck
Field Assistant: Michael Lane

222	5	2,7	Rt 1	BE 2-7	The state of the s	Oe o	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
31-38	43	16-24	7-16		N	0	Depth in inches	1771	17	089962000	Domir	6	ע
1	24-31 IOYR46	8+2 16-24 to 7.51/2 XCM	B+1 7-16 101/25/8	10/R sile	10/12 4/3	7.54R 2-5/1	Matrix Color	m Xec	NO CRV	2000	Dominion - Atlantic Coast Pipeline Soil Survey	0/1/16	P-226-160001-1400-DAT
1	XCX	·		ā' S	õ.	1	Texture Class				Pipeline Soil S		Q601-
ì)	20	20	ō	œ	,	% сау			٠	urvey		O
\	. ,	32	$\bar{\mathbb{Q}}$		Ŋ	j	% sand						Ž-Š
١	Ω Ø	S.	いた	Ī	<u></u>	1	Rock Fragment Type & %						
١	chounters 1"	channes	M-12"	channers	Channers		Rock Fragment Size (inches)	Vegetation:	Bedrock Type:	Depth to Refusal:	Drainage Class:	% Stope:	Topographic Position:
1 1	† \ <u>`</u>	ष्ठ ४	8 8	SS B	8 8		Plantidity/ Sticklingss	_					don:
١	Ø 3	1fsbk	- MS-S	1 m sblc	COATYER	1	Structure Type, Grade, and Size	White pine, White Oak, Black from	STINE	8	E	43%	Shoulder
}	K	FR	T S	12 13	TR		Moist Consistance	USDA TRE	≥ 			,	6
)	1/4	SA	SA	S/A	\$	SA	Hofton Soundary Topography & Distinctions	1 1 M)			c	(भिभूष्याड
				,	1	١	Redox Feature Color	333	. [slightly conceive
-	1	1	-		1	١	Redox Frature Description	ICEC MODIF	Dip Slope	Slope Faiture or slip:	Depth to V	Slope Aspect:	Parent material:
, 	1	l m	2 m	3m,0 5.0	3	-	Roots	70/8	Dip Slope & Direction:	are or slip:	Depth to Water Table:	ect:	terial:
1	too	7.75	4.5	0.5	o.25		Podet Panetrometer/ pH		72,	1	1	1950	Collwood
ţ)	S	12	S3	52	S	Lab Sample ID		m			٥	al creeo
Si/	S?/	7. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.							Strike:				Creeo Over
silt stave bedrock	Hytone	7.5/125/3					Notes		W				residuan

Other Notes:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-1063 Fax: 717-394-1063

Signature: (1) U) U) (Field Assistant:

TEST PIT DESCRIPTION

					-70000000000000000000000000000000000000													
Test Pit ID:	<u>ا</u>	174	160601-	1200	.[19:50	Topographic Position:	tion:		}-			Parent material:	terial:	Reg	Reprised to		
Date:	9						% Slope:		N 70				Slope Aspect:	tt:	0 3			Γ
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		To me as she	H. Salah	というない	上のことなる	Depth to V	Depth to Water Table:	ĺ	***************************************		Π
RETTEW Job #:	089962000	2000					Depth to Refusal:		7 X				Slope Failure or slip:	re or slip:	ì			
NRCS Soil Unit:		BERKS					Bedrock Type:		SICTS	7	(رړ)		Dip Slope	Dip Slope & Direction:	3 % 03	20% E (RS") Strike:	37.70	Γ
Mineralogy:	₹	と 186 ひ					Vegetation:		10 × 1	ابد	Dec 19195	lo ^r 4				*		<u> </u>
										USDA								330
Horizon	Depth in Inches	Matrix Color	Texture	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Particity/ Stickhan	Structure Type, Grade, and Size	Moist	Morteon Boundary Topography & Distinctures	Redox Feature Color	Rador Festure Departiption	Roots	Pocket Penetrom star/	Product Pentrumerer/ Lab Sample ID	Notes	
9	/\0	15:2013	ļ	}		}	-	3 X). Marie	8	})	で インドル ノ	1 8 8 7	ī		
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Soil Scientist: Drensler months

Signature:

Test Pit ID: Date:	Pominion Atlantic Co	- 16016 IV	100	TO THE	% Slope:	sition:	-16	tolep				Parent mai	Parent material: Slope Aspect:	25	Slope Aspect: 3 6
me:	Dominion - Atlantic Coast Pipeline Soil Survey	oast Pipeline Soil Sur	vey		Drainage Class:		1130					Depth to W	Depth to Water Table:		
NRCS Soil Unit:	Berky	(3 6)			Bedrock Type :		1)				Dip Slope 8	Dip Slope & Direction:	Dip Slope & Direction:	Dip Slone & Direction:
Mineralogy:	, W.	KRA			Vegetation:		Redmaple, Blacksum, V	4, Ble	acksup	(hite	hitcock, L	whitep	white,	white pine blubers
Horizon De	Depth in Matrix Color inches	Texture Class	% clay % sand	Rock nd Fragment Type & %	Rock Fragment Size (inches)	Planticky/ Stickhness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Datinctness	Redox	Redox Feature Color	Feature Bedow Feature	-	Redox Feature Description	Bedon Feature Description Roots
000	0-15 542	1	1	1	1	1 1	Ì	1	SA)) 3£) 3£ 4.5) 3£ <u>45</u> 51
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Bw 4	MS h	2,1	20 2	22 38%.	12.	38	IMSBN NEC	3311	Cw			1	1 of M	1 25 N 1:0	Z
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38w 306.		1.546 SIL :	22 18	SS. 38.1.	74"	828	105134 EC CM	5	CW	1	1.	1	110	0.1 11	
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					27.										

soil Scientist: 2, Fenster morely Field Assistant: May

Test Pit ID:	7	N-229-16	160610-		0400-DEF		Topographic Position: % Slope:	ition:	Wid /	Soch	Mid Backstone		Parent material: Slope Aspect:	terial:	187	Linn	
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		Well Drained	ined			Depth to V	Depth to Water Table:	10		
RETTEW Job #:	089962000	52000		1			Depth to Refusal:		59"	- Augur	Ser Ru	Refusa	Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit: Mineralogy:	-	Berks	X R				Bedrock Type : Vegetation:		Hicko	W. M	Hickory, whiteoak,		Dip Slope &	Direction:	Shakeroot	-	Strike:
-	Depth in inches	Matrix Color	Texture Class	% clay % sand	% sand	Rock Fragment	Rock Fragment Size (inches)	Plastidty/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Rados Feature Description	Roots	Pocket Penetrometer/	= S	-
ヤ	511-0	2016	212	16 28			C1/2"	00	80 / 788K UF CW	27V	CM	1		100 E	50	1	Thin layer of dute
BW	17	7.5/10	719	ge 31		404.	1 di 1/4-1/2	P6 255	1884 PG MSBL FG		CW	[(1co	2,0	1	
R	1-12	1.5 NIS 217		18	28	CN 521.	1/4-160	50	1658M Fr	7	SV	1	(T K	1 1	1	
0	465	1	1	1	1	N 851	2-10"		MO	1	1	t	1	- Q)	1	1	few (no on Ruch laces
Other Notes:		C- CON/9	tains	sisonal single	suppose	- 13	00	33	54 WWG023 85500		with void	63	Special C	51	between.		

Soil Scientist: D. FENSTE MACHE

Soil Scientist: P. Fenstermal Ind.
Field Assistant: Max Dujan

Signature: Aunual M

Test Pit ID:	アーン	アージャー・ロー・ロー・ログ・ロボア	0610-	8	DE		Topographic Position:	tion:	501110	5000	,		Parent material:	orial:	Con		
Date:		-	0110116	6			% Slope:		47	3			Slope Aspect:	#	07	TO TO STATE OF	
Job Name:	Dominion -	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil Su	rvey		-	Drainage Class:		Hall				Depth to Water Table:	ater Table:	1		
RETTEW Job #:	089962000	/				-	Depth to Refusal:		26:				Slope Failure or slip:	e or slip:	1		
NRCS Soil Unit:	Be	Ser 14 (8	(3				Bedrock Type :		Shalo -	Brown	>		Dip Slope & Direction:	Direction:	120	2/2	Strike: 20°
Mineralogy:	>	portion					Vegetation:		5	78/101	hazel, chestnutock,		mapple	Redmaple, Alleghens Blackberry	Blacks	-	13
Horizon D	Depth in M	Matrix Color	Texture	% clay % sand	_	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Roundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Pecetrometer/	Lab Sample	Notes
7	0.8.5	Jhol Vhol	7,5	15 28 381.	30	387	C12"	P0	- PAGR	VF	VETAW	\)	E 32	50	1	Red Shale Co F
AB	7 10	215 Uho1	1.5	15 28	6	58	V//2"	80 80	80 1853H	NEC CM	33	1	1	10 St. W.	1 28.0	1	Rudshall Cof
BU 3	7-18	7,5 h15,01	2,5	17 22	2 F		1/4-7"	36	1/4-7" SP 1/88/ Fr CW	7	CW	1	(W.to	4,80	1	
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P 26+	+	1	1	-	-1	1	-	11	1	(,	- 1	1	t	1.	1	
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TEST PIT DESCRIPTION

Soil Scientist: Michael Lawe

Field Assistant: Rachel Mill

Test Pit ID:	7	P-255-1600	160001-1000-ME	8	MEL		Topographic Position:	ition:	Kick S	Showings	C		Parent material:	torial:	23000	10 10 10	N
Date:	6	17/16					% Slope:		CA HI				Slope Aspect:	7.	25.0	0000	
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		D3				Depth to V	Depth to Water Table:	10		
RETTEW Job #:	089962000	2000					Depth to Refusal:		1521				Slope Failure or slip:	ra or clin-)		
NRCS Soil Unit:	W	Berks 8	¥				Bedrock Type :		Shoole				Dip Slope	Dip Slope & Direction:	230		Strike: 3700
Mineralogy:	me	mixed					Vegetation:		white	DINE	3731	20 to	1	4:4C)	000		-uine.
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography &	Redox Feature	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample	Notes
000)-(1522NS									,	-		W38	0 0	5	
D	N	15 XO	58	0	25	5	^	\$ 2	NOK	天	7			12/32	0.25	N	
	6	1/2 SY 0	2	U	25	3	_	00	NSRI	6	3		-	1436	0.5	9	
			7:0					01		-	1		-		2	,	
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12	8-1	1018 %	S X X	3	8	4	very	33	53- 7		200				33		
70	7	200	30	9	(5	2	070	5			estilit,				

TEST PIT DESCRIPTION
Soil Scientist: VICTURE
Field Assistant: Science

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Bw 3-87.	Cr 8-247.54	(C 8-24/	7 74+	117												-1	11/1	1 24+	7)					(0 9	7-14	7 8 1	1	1	,					-	1	>)					1.	1 0 1	1	0 11	3				(00	1 1 5	7			inches	Ī	Depth in			The second secon	Mineralogy:		MACO SOIL CHIEF COMME		KEI IEW Job #: 089962000			loh Name:	1000	Date:	2		Test Pit ID:	
3/4/19	3/6	9/2		trach	4										01-1041	100	1))			ī				1	1100	3	7			1	1	5	111111111111111111111111111111111111111	11/10	1000	5	1			-		-	3	×		1 1 2 2 1				1.00	777	(D./ V	100			_	Matrix Color	_				X80		500	100	00	5	Politimon - Atlantic Coast Pipeline Son Survey	Atlantic Coast Din	0 0 0	0	111	100000	37116000	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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1-2	4 204	24																					č	ō	5		2	21010	13	0				1		Ī			1							-	-													THE WORK LIGHT					Vegetation:		Bedrock Type:		Depth to Refusal:		Drainage Class:		waiohe.	& Slope.		ropographic Position:	The state of the s	
88	88	200			-								_	-								1	1	1	2	1		1	7	7	3	1	00	5	7		-	7	17	7			00	>	-		-	70		>							-			Plasticity/		-		-	7	-	4.									tion:		
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7	77	1												-															1	-	1	-	1						(/	-	1	1						(1	13	1						Distinctness	w Audustodes	Yestimos nouncary				1	100					1		>						
-	1	1			9									0											-	1										-										1												Color	-	-	_			11. 1000 - 1000	- Kar													
1	Ì	Ì		-	-									-											-	- Control of the last																												1				- non-density	Description	Redox Feature						orb Stope	71.01	Slope Fallure or Slip:	Claus Fall	A Or tradad	Denth to V		Slope Aspect:		raicit material.	Darent ma		
25/19	Constanta (Gersonal Freehores	1000000																		下 てかしょうしょう	frankling !	1		Contract of the Contract of th	0.000 1.000	The state of the s	7						(1-1-1	1 + 101	1 65	7						1	7	1	The same						0	7	1)			Roots							orb probe of prirection:	2	re or sup:		peper to state lane:	Jator Table.		ď.		reitat.	tarial.		
2000	T to a	and the	4.7																		1000		T.	47			1.501057	1	†			01 4	5	Z		-	()	1	7	1	2 300	2	12	1		200	2	15 1111 2			60 1	7	1	0	() . ()	2		PH	/attenument tarner							1300	150		-		(10	55	1	20110	1		
88		,																										-					0	3	1	1	1					-		_	/	1)				((/)			6	and comple	-						S	7/				1				Chickey	_		
	factures	tracture		,												,	,					-	01 000	1000	1 1 1 C	1	A 10 10 10 10 10 10 10 10 10 10 10 10 10	D 21 124 1 124	The state of the s																													Mores	Notes							Strike:	500							1 60 1	LAND DESTRUCTION ALPA			

Soil Scientist: Rache Lane

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	7.2	235-160607-1135-MEL	0667-	1135	ME		Topographic Position:		Ridge S	umm	+		Parent material:	terial:	(PES.)	PAI HEALTH	1 3600 1-10 11 11
Date:	6/	7/16				9	% Slope:		5%				Slope Aspect:	ect:	100	0.00	Contract to the Contract of th
Job Name:	Dominion	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		WD .				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	00						Depth to Refusal:		23"				Slope Failure or slip:	re or slip:			
NRCS Soil Unit:		TR SY					Bedrock Type :		Shale				Dip Slope	Dip Slope & Direction:	1	St	Strike:
Mineralogy:	Mixed	pa					Vegetation:	-	white Oak		chary	hickory, dogwood, pine	Dine				
Horizon	Depth in inches	Matrix Color	Texture Class	% clay 9	% sand Fi	Rock Fragment	Rock Fragment Size (inches)	Pautidy/ Stidiness	Structure Type, Grade, and Size	Moist Consiste	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podet Peretometer/	Lab Sample	Notes
00	01/0	1823/VS									>		1	W. 48	70		
AE	114-7	5K 7/3	S.S.	5	25 7	2	-	8 8	837	R	17		1	SMIC	0.75		
Bw	1- 1	YQ5/6	VGR 51L	15	20 -	04	-	8 8	MSBK	F	1 8		1	2FMC	0,75		
3	10-11/10	10189/c	XGR SIL	15 7	0	58	7	88	masine	FR	t	1		me on	かって		
20	82-11	frao	tar	6	10	0	0 6	0	100	N							
															-		
Other Notes:) d mad	sample	de													
	1	Sep 7	0 7-233-16060-1000-MEL	000	1000	MEL											

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Test Pit ID: NRCS Soil Unit: RETTEW Job #: Job Name: fineralogy: Horizon E 8 73.t 2-4 4-3 4 Depth in inches 1 089962000 Dominion - Atlantic Coast Pipeline Soil Survey Berks Syers 236-160607-1535-MEL Matrix Color 25 Texture Class 8 5 % clay 73 30 % sand 070 25 Fragment Type & % 25 Rock % Slope: Rock Fragment Size (inches) Drainage Class: Depth to Refusal: Topographic Position: 小 Vegetation: Bedrock Type: 30 00 FO Plasticity/ Stickiness MSBK OMER Structure Type, Moist
Grade, and Size Consistence H 5 果果 USDA Horizon Boundary Topography & Distinctness Redox Feature Color Centimately Blues in Reporterin Slope Failure or slip: Redox Feature Description Dip Slope & Direction: Depth to Water Table: Slope Aspect: Parent material: 2FM Roots 0 0 0.75 0.25 Pocket Penetron pH S 310" 0 Lab Sample ID 52 4 S 6001 Strike: Synthe S Notes

Field Assistant:

Packel Hill

Signature:

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Soil Scientist: With Classed

28

TEST PIT DESCRIPTION
Soil Scientist: Michael
Field Assistant: Rachel

BC 14-587578 36 VGR	AE 0-210/18 8/2 GR BE 2-810/18 8/4 GR SIL BE 3- BIOYR 8/8 VGR SIL	Mineralogy: MXXXXX Horizon Depth in Matrix Color Class	# #	Test Pit ID: P-237 - 160007 Date: 6/7/16
15 VC 60	12 25 15 16 25 15 18 25 40	Rock S sand Fragment Type & %	Soil Survey	237-160607-1240-MEL
10.25 1 mp ts	40.25	Rock Fragment Size (inches)	Drainage Class: Depth to Refusal: Bedrock Type:	Topographic Position: % Slope:
SO OTHER VE	SO IFER OF	Pustales Structure Type, states Grade, and Size	3	
天 天 日 日	R R R	Structure Type, Mosts Transport Consistence Consistenc		, head of hollow
		Redox Feature Color	+	
ZZ	3FM - 3FM	Feature neinsteam Roots	Slope Fallure or slip: Dip Slope & Direction:	Parent material: Slope Aspect:
1.28	5.0 5	Product Prontingendary Lab Sample	111	Collevium 205°
2 mary drawer 725	Tan O norto		Strike:	

Soil Scientist: Richael Lane
Field Assistant: Rachel Hill

Signature:

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	U	-238-160007-	07-1	355	1355-NE		Topographic Position:	tion:	Solsapis	ř			Parent material:	terial:	11101	11/4/4	and rocking
Date:	6						% Slope:		00				Slope Aspect:	ect:	U		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		900				Depth to 1	Depth to Water Table:	13	1	
RETTEW Job #:	089962000	62000		100			Depth to Refusal:		1				Slope Fail	Slope Failure or slip:	4	./	
NRCS Soil Unit:		Herks (8F					Bedrock Type :		Shale	1			Dip Slope	Dip Slope & Direction:)	1	Strike:
Mineralogy:	M	mixed	ì				Vegetation:		1057401	1 bic	1321	2016					
Horizon	Depth in	Matrix Color	Texture	% clay	% sand		Rock Fragment	Plantidity/ Stickliness	Structure Type,	Moist	Horizon Roundary Topography &	Redox Feature	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample	Notes
00	32-6	1/523/18										1		254	0		
7	35-35	byR3/2	7.5	0	25	40		20	IFGR	X	300	\		W35	200		
BE	15-12	453M	500	2	20	ū	-	88)F58k	K	3			25/10	20,5		
200	2-19	10/15/6	S.L	15	20	6	+	88	18811	天	7 5			ME			
()	7-28	864K5/8	XCR SIL	12	20	75	et de	1	Je Grand O	足	3	1	1	N- 131 YO	14.5 that		
N	78-50	Wee	7	6	7	0	S	-	5	20	8			1405.00/2	Happan		

Soil Scientist: PIFENS TO MOCAL

Signature: Samul Husta

Test Pit ID:	2	239-1	60607-1427	Jya.	1-DEF		Topographic Position:	tion:	Terrace	06/6		# Berch	Parent material:	terial:	ACUL	UVIUM	aval Colluvin
Date:		(0)7/11	0				% Slope:		10%	,	-	4	Slope Aspect:	ect:	163	٥	- 1
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	Survey			Drainage Class:						Depth to \	Depth to Water Table:	15		
RETTEW Job #:	089962000	2000	,				Depth to Refusal:		42" -	flac	-flastone		Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:		Be114(8E	SE)				Bedrock Type:		1			,	Dip Slope	Dip Slope & Direction:	1		Strike:
Mineralogy:	2	MIXIN					Vegetation:		Redin	ام مار	Mysola-Mostly	M (KIAS	ton	-	SHY	oine,	Greenbriar
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% clay % sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Moist Grade, and Size Consistence	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometes/	Lab Sample ID	Notes
P	0-3	2/1	715	\$	82	CN 124.	SIL 18 22 151 61/2"	50	SO TESPIK FO AM	7	AW	١	1	78	250	S	Rounded Cot Verythin De
Bul 3-147,546	3-19	2/4 Jusil	7.5	23	pe	N 52	4/6 5, L 22 23 23 CN 21/2"	8 8	18881 FC CW	7	ms	1	(1co	525	Se	Allevial
26-2	4-	14- 1412 Al CV	(5:12) 26 33	26.	9	281. 981.	981, 41/4"	200	MY MY 18581.	231	MA)	1	40	27.0	53	Sherp edged COF
38m3 6	が、	36 75 11945 B +24 2mgs	2.L	26	HI	CN .	EN Reflagsh SS / Cossil F.O	25	1656M	To	1	dw 2/15 WE	dr	F	200	25	Colluvium
							(
		~															
	3											*					
												4					

Other Notes:

Soil Scientist: PEOSECMAS M. Field Assistant: MCAX

Other Notes:				530	385	But	Bul	P	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
				27	200	(O)	1-12	-	Depth in inches	-		089962000	Dominio		カー
Seri				10412	19 PM	7/5	MSH	11 2 may	Matrix Color	Mil	Belks	000	Dominion - Atlantic Coast Pipeline Soil Survey		239 A-
30 50	-			2.K	2:5	2xx	LS Sig	7.5	Texture Class	600	(AE)	1	Pipeline Soil		- MaDIODY-
1 22				23	57	25	1621	6	% clay				Survey	1	7-1
Allv				00	23	33			% sand						05.h
(wina)				800	58	J. B.	CA.	J. 2.	Rock Fragment Type & %	100					-DEF
mederia	+7	1		K4	20 %	1. N. 7	174"	25	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
0	×-			8 8	58	SB	So	1)	Plasticity/ Stickiness			Ï			tion:
a				165BN Fr	I.MSBK F	JAN WAR	1 MS/3k	2MGR VER AW	Structure Type, Grade, and Size	Chestaut	1	文	Mode	90	flood
cf				7	7	231	7	YFR	Moist Consistence	USDA K		was	arahely		000
Gllvviu				1 -	C	CW	CH	AK	Horizon Boundary Topography & Distinctness	MON	-	400 t	mell.		2
MOIN		£		10488/12 CFD	MANOI			1	Redox Feature Color	walnut and an	1	2000	Dra ma		
		-20.4	many.	1212 (4)	G	1	1	1	Redox Feature Description	50 M 0170	Dip Slope	Slope Fail	Depth to 1	Slope Aspect:	Parent material:
				N TR		がある	25%	150	Roots	20 1 HI CHELL	rect	Slope Failure or slip:	Depth to Water Table:	ect:	terial:
		-		3.5	Sis	N N	2 5	4.60	Pocket Penetrometer/	-	1	1	24	182	THE
			0	25 25 S	hs	53	SZ	15	Lab Sample ID	my to bus				20	MINNER
	\$			Cother Shorp					Notes	WEST TOO LOS CHENTY					Ches (Quinner

TEST PIT DESCRIPTION
Soil Scientist: DELMG LE MACHA
Field Assistant: Max

gnature: Dawn Misker

	25 50 50 50 50 50 50 50 50 50 50 50 50 50	25 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2002 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	られてから	4 2003	0	(FP	Horizon Depth In Matrix Color	Mineralogy:	NRCS Soil Unit: 1266	#:	Job Name: Dominion -		Test Pit ID: P-24
		- X	~		10425 4 VGR)			11	/	line Soil Surve		0607
Pipeline Soil Surve	1	1		1	16	6	1	lay % sand				Y		
oil Survey			1	60:	40%	951.	1	Rock Fragment Type & %						完
ay % sand Fragment Type & %			1	200	12"	72.	1	Rock Fragment Size (inches)	Vegetation:	Bedrock Type:	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Posit
ay % sand Fragment Type & %			1 1	1 1	500	000	11	Plasticity/ Stickiness						tion:
A Sand Fragment Type & % Size (Inches) Rock Size (Inches) Rock Fragment Type & % Size (Inches) Rock Fragment Size (Inches) Rock Fragment Type & % Size (Inches)			T	WO	IMSBK Fr	1888 N	t	Structure Type, Grade, and Size	Scarlet	finegro	2	MEI		Back
Slope: Slope: Slope: Slope: Drainage Class: Depth to Refusal: Bedrock Type: Vegetation: Vegetation: Fragment Type & % Size (inches) Type & % Size (inches) Type & %			1	1	3	1381	-1	Moist Consistence	USDA F.		21		20	cslav
Siope: Siope: Siope: Siope: Siope: Status: Status: Structure Type, Manage Class: Vegetation: Vegetation: Structure Type, Manage Class: Size (inches) Structure Type, Manage Constitution: Structure Type, Manage Class: Size (inches) Structure Type, Manage Constitution: Size (inches) Size (inches) Size (inches) Size (inches) Size (inches) Size (inches) Size (inches) Size (inches) Size (inches)			t	CK	CW	Aw	AW	Horizon Boundary Topography & Distinctoress	lolack	ndestay			-	8
Siope: Siope: Drainage Class: Depth to Refusal: Bedrock Type: Vegetation: Vegetation: Rock Fragment Type & % Size (inches) Size (inches) Fragment Type & % Size (inches) Size (inches) Fragment Size (inches) Structure Type, Grade, and Size Consistence Consistence AM AM Marient Notest Trappende in Consistence Cons			1	1	1	1	1	Redox Feature Color	MIA	1 55 H 5h			N. A.	040
Solope: Solope: Drainage Class: Depth to Refusal: Depth to Refusal: Solope: Vegetation: Rock Fragment Type & Structure Type, Moint Type & Size (inches) Size (inches) Type & % 151. La 10 1584 Maintain Grade, and Size Consistence Type &			1	1	1	-	1	Redox Feature Description	112	Dip Slope	Slope Failu	Depth to V	Slope Aspe	Parent ma
Slope A Slope: Slope A Slope Slope Slope Slope A Slope A Slope Class: Depth to Refusal: Depth to Refusal: Slope A			1 =	71	ころす	243	75	Roots	Staut	& Direction:	re or slip:	/ater Table:	ct:	terial:
Slope Aspect: Drainage Class: Depth to Refusal: Depth to Refusal: Redrock Type: Vegetation: Vegetation: Vegetation: Structure Type, Moist Type & Moist Ty			1 1	1 1	1.0	4,5	1 1	Pocket Penetrometer/ pH	Muelae		*	1	226	Pesi
Slope: Slope: Drainage Class: Depth to Refusal: Redrock Type: Vegetation: Vegetation: Rock Fragment Type & % Size (inches) Structure Type, Mosts Type & % Size (inches) Type & % Size (inches) Type & % Size (inches) Type & % Type &			1	1	1	1	1	Lab Sample ID	-	3			0	during
Solution Structure Type & % Sand Fragment Type & % Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Structure Type & Mark Size (Inches) Size								Notes	Anduntania or a	Strike: 106				

Soil Scientist: The Asternative of Field Assistant:

Signature:

Test Pit ID:	P-	1-1h2	40607-0926-DEF	096	3000		Topographic Position:	tion:	Ridge T	90			Parent material:	terial:	Rosid	MAN	
Date:		01149					% Slope:		031	1. 4			Slope Aspect:	ect:	245		
Job Name:	Domini	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		Well				Depth to \	Depth to Water Table:	1		
RETTEW Job #:	089962000	2000					Depth to Refusal:		9 "				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	6	Serks. 9	77				Bedrock Type :		Sine Brained	ned S	andistana	ne ashalo	Dip Slope	Dip Slope & Direction:	310 1	iti	Strike: 294°
Mineralogy:		Max.w	9				Vegetation:		estry	oak,	oak, White Pino. In		cake	in to cak, blueberry	N		
										USDA					/		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidty/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Radius Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
000	51-0	2/2/2		1	1	1		1)	1	1	AW		1	34M	17.4	5	
D	3.5	3.5 loyey/2	5:5	7	$\bar{\infty}$	14 18 201.	C)"	P6	149571	770	UF AW	1	1	N. SEW	5.0	52	
801	1-55	10/4 101/4	NCN	5	10	10 381	8		JESSI Fr	7	Ch O	1	1	110 W.38	5.2	53	
Bu2	19	1000 y	2:5 XCM	15	0	CA.	CN 74"	SP	14 x85ml	13	AW	1	1	\$ 5°	1.25	15	
75	R 19+	1	1	1	1	1)	1 1	1	1	1	1	1	1	t^{\perp}	1	

Other Notes:

Field Assistant: Max TEST PIT DESCRIPTION
Soil Scientist: D. Ferred Comment Comments

Test Dit ID:	0	100	00000	7-	1000	770-1	Topographic Position:	tion:	Backe	love			Parent material:	erial:		COUR	
Date:	-	7					% Slope:		000	N			Slope Aspect:	rt:	3/0		
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil Sı	urvey			Drainage Class:		inell				Depth to Water Table:	ater Table:	1		
RETTEW Job #:		2000					Depth to Refusal:		,00				Slope Failure or slip:	e or slip:	1		
NRCS Soil Unit:		Be/KG	85)				Bedrock Type :		Sing grains	10	prod sho	tense	Dip Slope & Direction:	Direction:	280 N	C SI	Strike: 320°
Mineralogy:		mixel					Vegetation:		Hickory, Rod	1	CON B	Lucheri	5.62	Chost	nutos	OH	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctorss	Redox Feature Color	Redox Feature Description	Roots	Pucket Penetrometer/ pH	Lab Sample ID	Notes
8	0.0.5	7,512	1	1	1	- (1	()	1	1	AN	Ţ	,	36	1 54)	
A	Mis	104 8/5 NOU	SIL	5	ol	38%	1.	20	MALJU ZIONC	UF	AW	1	0	JWE	4.7	1	
BE	200	7.54RSH	からか	T	8	185°	12.	58	M324 ECCM	13	CW	1	(188	57.0	1.	
6	1 E 60	115 Jus.	7,5 92A	17	16	CB.	1-6"	55	1658h	Fo	AW	1	1	200	525	1	
Q	30+)	1	1	1	1	7	1)	1		1	1	1	1	()	1	

Soil Scientist: TEST PIT DESCRIPTION
Soil Scientist: D. Fe Blandicher

Field Assistant:

Signature:

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: Date:	1-042	6/7/16			9	% Slope:	% Slope:	O.		-		10	Slope Aspec	Slope Aspect:		Slope Aspect: 276°
ob Name: D	Dominion - Atlantic Coast Pipeline Soil Survey	ast Pipeline Soil Su	rvey			Drainage Class:		well	Draw	amed		-	Depth to W	Depth to Water Table:	Depth to Water Table:	er Table:
RETTEW Job #: 0	089962000	1				Depth to Refusal:		1				1 4	orope ranur	Siope railure or silp:	Stope ratiure of sup:	Siope railure or sup:
NRCS Soil Unit:	150115	0				Bedrock Type :		Maria	and	L. L.	100,00	3	Charles de la Company	Christony and b	aak, blar	nak, blarkown An
Mineralogy:	S IVI	4 6				0			USDA							11 0
Horizon Depth in inches	in Matrix Color	Texture Class	% clay %	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plantidky/ Sticklesess	Structure Type, Grade, and Size	Moist Consistence	Horizon Roundary Topography & Distinctness	Redox Feature Color		Redox Feature Description		Redux Festure Roots Pouter Perstament/	Redox Feature Roots
20-2	2512	(1	1	-1	(1 1	J	1	1			١	1 34	1 35	
1 2 - 4	104/22/1	55	6 22		50.	16,7	P0	SO 1586 VF AW	VF	AW	1		١	1000	50 2	
Bw1 4-	h/0) Nh01	NE	16 18		(G)	C1/2"	58 88	HESTI	17	Fr CW	1		1	- 1co	- 1co 4.7	
Bw2 32	7.8.1%	Zie	20	$\overline{\varpi}$	30	GR C1/2"	SP 85	SP IMSBK Er CW	2	CW	1		1	1	1.75	4.8 54
1603 32.	9/15 to	5.5	18 15	7	301	21/2"	58	MY YESMA	42	1	L		1	1	F 7.75	F

21-1000

Soil Scientist: D. KINSTER MOCKU Field Assistant:

Signature:

Test Pit ID:	8-	245-16	10001-	-090	00		Topographic Position:	ition:	Backel	076	-5/14/	SONT	Parent material:	terial:	Rocid	27/2	
Date:		6/5/16					% Slope:		S	-	-		Slope Aspect:	ŭ.	200	- 1	
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil !	urvey			Drainage Class:		hell				Depth to V	Depth to Water Table:	1		
RETTEW Job #:		2000					Depth to Refusal:		27				Slope Failure or slip:	re or slip:	١		
NRCS Soil Unit:		Berks.	38				Bedrock Type :		Sandale	no-li	1.01232	7	Dip Slope	Dip Slope & Direction:	230 N	131	Strike: 312°
Mineralogy:		mixed	16				Vegetation:	u l	Chestrut call	+00	W. White	100	Blackeur.	2	Lebe in		
										USDA			c		<		
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctions	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
0	9	che dus	1	-	1	1	1	11	1	1	AL	\	1	35	, 1	1	
F	25	3/2	715	2	8	1	1	50	JMGR UF	27	Au	1	1	250	1.25	7	
Bei	755	h(Spol	25	25	18	500:	17	35	IARBA FI	7	cw		1	2000 2000	2:0	1	
B w2	7-	h15	200	ER	8	Si	12"	35	1/4581	7	CW	1	1	aco with	0,75	1	Shall Car
30	20-	1/8 / F		22	20	70i.	3-8	58	165BK	7	MA	1		wtc	1 2 5 Y	1	Aira graind said for
P	27	1	1	1	1	1).	11	1	1	1	1	1	1	1 1	1	

Other Notes:

anine intohillsick

TEST PIT DESCRIPTION SOIL Scientists PIFERS TO TONG CHEY Field Assistant:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	2	11-66	10000	100	-0410-DE	,	Topographic Position:	tion:	10	8 dolg.			Parent material:	erial:	191100	un as	102 regioning
Date:	6	917/16					% Slope:		42				Slope Aspect:	e.	262		
Job Name:	Dominio	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		12001	_			Depth to V	Depth to Water Table:	1		
RETTEW Job #:	089962000	000					Depth to Refusal:		20				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		Be(K5	(3E)				Bedrock Type :		Shorle	Bedil	11 200	4 - 1/2" Start Dip Slope & Direction:	Dip Slope	k Direction:	100 6	BN3	Strike: 322°
Mineralogy:							Vegetation:		Chestru	U+ 00	K , 6	2	35	Scarlet cont	-	Work to in	1 SAMO
Horizon De	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment Size (inches)	Plastidty/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horitan Boundary Topography & Distinctness	Redox		Roots	Pocket Penetrometer/	Lab Sample ID	Notes
DO	w	200	755 X C. K	ज	w.	901	B	50	MGR.	Afr.	AW	1	1	3f	0,25	5	
AB 3-	001	101R5B	2:5 xG&	元	28	188	ひかっ	500	1882	YE	Bo	\	1	35,M	8%	52	sandature (or
20 00	231	16/4 1048	2:5	5	63	5.484	1/2	55	MASINI	77	CE	1	1	- 122 22-1-125 24-125	27.5	53	Should Lot
Bw 2	23	104/2	25	17	ES LES	301.	7/2	55	1005BK	7	S	1	1	35	25.0	5	
200 37	37-	104R	35	9(41	189	3-6.	58	MO	7	AS S	1	1	も	1 1	1	
R	39+	1	(1.	1	1	Ţ	1 1	1	1	1	1	1	1	1 1	l	
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1,Wa 55

TEST PIT DESCRIPTION
Soil Scientist: D. FORS-FA MOLCANA
Field Assistant:

Signature:

Test Pit ID:	P. 2	1-51	-80000	085	30-S	T	Topographic Position:	tion:	NOOCK.	15/10	19ht no	nose	Parent material:	terial:	Rosi	dovus	
Date:	8 3	9					% Slope:		63	,			Slope Aspect:	ect:	SHO		
Job Name:	Dominio	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Sail S	rvey			Drainage Class:		C.	hat ex	xcessively	Droined	Depth to	Depth to Water Table:	1		
RETTEW Job #:	089962000	00					Depth to Refusal:				0		Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	Ber	ks ((38)				Bedrock Type :		Como land	25 pm	andstor	4	Dip Slope	Dip Slope & Direction:	180	ENE	Strike: 330°
Mineralogy:		Mixs	C				Vegetation:		Whitepine	0	ackoak.	Chestnut cally	ON B	lue be sics	S. Pine	w/3+	5
Horizon De	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Roundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podet Prestometer/	Lab Sample ID	Notes
20	0)	SYR 25/1	1	1	T.	1	L	(/	1	-	MA	1	1	3f,M	1 2%	1	
P 3-	325	104/23/1	7,5	N	3	33 6R	7 11	050 DE	185BK	TI	AW	1	1	250 25M	200	1	
D 30 - 12 - 12 - 12 - 12 - 12 - 12 - 12 - 1	3	6/4	317	6	20	300	13,		×9551	7	CK	1	1	200	57.0	1	
7	70	419 21,57	(Cobbles	2	20	984	3-10"		W.O.	7	MA	1	1	35	11	1	in between.
P	181	(1	1	1	l	1	10	1		1	Ī	t	ţ	Į į	1	
		×															

Soil Scientist: Di Fengte maller

									T. O.L.								
Date:		80	6				% Slope:		16 C	Remeasured on	JOSAV9	124	Slope Aspect:	ect:	1680		
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil !	urvey			Drainage Class:		-				Depth to \	Depth to Water Table:	18		
RETTEW Job #:	089962000	2000					Depth to Refusal:		222:				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	7	67 10ton	(SID				Bedrock Type:		Siltstone	é			Dip Slope	Dip Slope & Direction:	180 NE		Strike: 292°
Mineralogy:	H	mixed					Vegetation:		Chestnut cak	uspa	W. charl	My My ite	pine	bluebern		grass	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Strickheese	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctions	Redox Feature Color	Redox Feature Description	Roots	1	Lab Sample ID	Notes
D	0-3.5	104R3/2 Siz	25	14	28	CN CN.	710	P0	DANGR UFF	VF	AW))	2004	26.0	1	Sparse of
BW	3.5-	7.5415145,6		16	20	20 85%	11/	SO	16592 NEC CM	VFC	CW	1	1	254	F. 0	1	Shall Cof
2	27	7.5425/4	1	1.	1	100	1	1	1	١	MA	1	t	ち	1 1	1	Soft Bedded Rock mining times blun
R	200	1												1	11	1	Nofine sinbetween

Soil Scientist: D. REPERSONAL WAR

Signature: David Man

Test Pit ID:	P-	P-247-1600	430-81 PO-80000	12-8	336		Topographic Position:	tion:	000	1 30	Backsloop		Parent material:	terial:	Colluvium		aver Residence
Date:		6/8/16					% Slope:		25.	7	-		Slope Aspect:	ect:	7000		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		Mell				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	089962000	52000					Depth to Refusal:		34"			1	Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:	+	Hazleton	(SUE)				Bedrock Type :		Shale	K/1-h/1	this.	Sheet Brown	bip Slope	Broubip Slope & Direction:	220	76	Strike: 3 090
Mineralogy:	/	V.X.V					Vegetation:			1.76c -		3			white Sight was	ally soi	
Horizon	Depth in	Matrix Color	Texture	% clav	% sand	Rock	Rock Fragment	Plastichy/	Structure Type,	Moist	Horizon Boundary	Redox Feature	Redox Feature	Book	Pocket Penetrometes/	Lab Sample	
-	inches		Class	200		+	Size (inches)	SCHOOLS S	Grade, and Size		_	Color	Description	1000	1	ID	NOTES
	1.0	7,54R		1)	151.	C1/2	PO		5	(1)	1	1	るす,か	0	0	m 2
D	6	3/3	2,2	ā	2	dy GR		05	1428K	Y	14 cm			160	5,0	0	Only thin but
	,	ANA	900)		157.	11/1/2	92						24.1	20)	Rect shale and Brann
86-	-0	4 5	7.5	ā	24	10		8	HSSM NEST	T	CC	1	(160	6.5	52	Smodstone Car
	9-	0 111	N JX	2	K	100	112-311	SP						2+3	(S)	1	Ge For ented W/BR
JBW1	9C	105/6	250	2	0	5	_		11/089/1 FC	5	CW	1	1	12	4.9	8	
0	-36	7.572	CV			90%	יית כל	1		1				35	4		Machantratar
5	2	5)6	(5,2)	86	8	CV	100	1	WO	7	PW	1	1			١	Beckled Shale Lilly
5	工							1		(1		- 1
7		1	1	-	1	1	(1	1		1	(1	-	١	1	

Other Notes:

ishaly concave horizontally

TEST PIT DESCRIPTION
Soil scientist: V. F. E.M.S. T. I. M. A.C. W. T. Fleid Assistant: M.C.X. Duglin

Signature:

Test Pit ID:	2hr.4		Clothe	K		-	of Slope.	a com	200	4000	(Slope Aspect:	ct:		_ 5	080
Job Name:	Dominion	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		Somewhat excessively drained	exces	sively drai		Dept	th to V	Depth to Water Table:	1	1
RETTEW Job #:	089962000	0					Depth to Refusal:		17"				Slope	e Failu	Slope Failure or slip:	1	1
NRCS Soil Unit:	Ber	185	(CXX				Bedrock Type :		Shorte		12 21	2	무	Slope 8	Dip Slope & Direction:	8	80 20
Mineralogy:		1111X	200				Vegetation:		NOSN LOAD CONTRACTOR	-	100	The man	1	18.00	No. and No.	V 1.01	18
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (Inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	0 F	Redox Feature Description	las Feature Roots	Roots Feder Penebumater/	Roots Fucket Penetrom
000	2 1-0	15.6 M	1	(ı	1 1	1	1	MA	١)	2 3 f	25¢ -	
X	0,1	estro	7.5	6	R	38%.	12"	Po	HSBK VF1	13/	CN	1	1	1	NXE W	4.5	
BA	Q7	2 NS	2.5	Co	hi	CV .	12.	55	MESMI	1	CN	1			236	1.4	
8+8	75	0/0	2:5 N.CM	24	ō	CN 401.	13.	SW	JMSBK	7	AW	(1	1	3MF	2M, F 1,75	+
P	17+			1	1	1	(()				I		1	t	1 1	1 1

Soil Scientist: D. FIRS & Mac Degan

Signature: Auni Miles

RETTEW Associates, Inc.
3020 Columbia Avenue
Luncaster, PA 17603
Phone: 717-394-3721
Fax: 717-394-1063

Test Pit ID:	1,	2 860 - 20 000 - 15 LB - 15 LB - 15	0608	090	3		Topographic Position:	ition:	12000	Bac	Backelora	20	Parent material	terial.	1011	011	000
Date:		16/8/16	6	3			% Slope:		354				Slope Aspect:	ect:	מוני		over residue
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		Well				Depth to \	Depth to Water Table:	18		
RETTEW Job #:	#: 089962000	52000	1	1			Depth to Refusal:		500				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		villet	39F	3)			Bedrock Type :		mayo	10-3	and		Din Slope	Dip Slope & Direction:	00h	NE	1190
Mineralogy:	-	Mixed	1	1			Vegetation:		Chestrut	cak	Black	(Gilym, 1	Nounts	Lountain laure	white	Pin	81 V2 130
Horizon	Depth in	Matrix Color	Texture	% clay	of clav of cand	Rock	Rock Fragment	Plastidty/	Structure Type,	Most	Hortren Boundary	Redox Feature				inh security	
		2110	ciasa			Type & %	oize (inches)		Grade, and Size	Consistence	Distinctness	Color	Description	noots		8	Notes
00	51.0	15:21-0	1	1	1	1	(1 1	(1	AW			£	4.4	5	
D	かられ	S LOHE	512 15 23	5	B	36%	21/2	8	IMOR VER ALL	VER	N.)		35M	0	2	
	2-	- 111		1		\$ 1.	14.	8						2466	13		
AB	-	1046118 21T	7.5	5	0	GR	4	50	1588x NEC	NE	CW	1	· (200	2 0	3	
B	29	101/2	7	16	38	55.1.	2-10"	800	1658K Fr	7	3	1	1	314	1.25	15	
0	200	2.54512 2.54512	5.KL 333	CE	8	35.1 CH	97	58 ds	MO	70	AW)	(25 J	475	23	Cake 15
P	405) (1	1	1	1	1	11	((((((1		

Test Pit ID:	ס	-250-16	10608-1320-	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	0-1	MEL	Topographic Position:	tion:	Richar	Summer	time		Parent material:	terial:	Stale		Rockling
Date:	6	8/16					% Slope:		00				Slope Aspect:	ct:	30	Con Concern	
Job Name:	Domin		ipeline Soil S	urvey			Drainage Class:		2				Depth to V	Depth to Water Table:	10		
RETTEW Job #:		2000					Depth to Refusal:		32"				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		18 5/12					Bedrock Type :		Shule				Dip Slope	Dip Slope & Direction:	450	2	Strike: 285
Mineralogy:		mixed					Vegetation:			(1ckon	Hickory, Black	Locust					
Horizon	Depth in inches	Matrix Color	Texture Class	% сіау	% clay % sand	Rock Fragment	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
00	2-0	1/42 SAS									7			3514	0,0	_	
升	2-4	2-4 10484/3	150	7	35	73	-	50	156R	K	, ,			W.57.	5,0		Santstone ct.
BE	The second	195 MOI B	SIL	17	02	25	_	3 5	XXX	K	23			SIENT	1.25		
2	11	9/5 BA 9/8	22	15	10	30	8 3 de 3 de 3 de 3 de 3 de 3 de 3 de 3 d	88	IFSJ/s	H	200		- Company	34.45	52,1		
Co	12.3	104876	57			3		ES	OMESTIC	天	2			120-27/9	Hope H	-	Some lithrecturences
N	227	02.0	X		1	Sim											ACIMIS GROWN FINCES

TEST PIT DESCRIPTION

Soil Scientist: Wire your Signal

Field Assistant: Packet Mill

Signature: Madail &

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	7	-121-160001-1230-WE	1000-	236	N-M	1	Topographic Position:	tion:	Shoulder		SKESCA	10	Parent material:	terial:	C011-1	N118	over residuum
Date:	6	01/8/16					% Slope:		35%		,		Slope Aspect:	ect:	1700		
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:			Somewl	Somewhat Excessive	V	Depth to V	Depth to Water Table:			
RETTEW Job #:	089962000	2000,	,				Depth to Refusal:		26				Slope Failu	Slope Failure or slip:	1		
NRCS Soil Unit:		Lest 1	(89F3)				Bedrock Type :		Fine greened		sand stone		Dip Slope	Dip Slope & Direction:)		Strike:
Mineralogy:							Vegetation:		Ded made chestnot	e ches	touch cake	blusson	y, who	to pino			
Horizon	Depth in	Matrix Color	Texture	% clay	% sand	Rock	Rock Fragment	Plasticky/	Structure Type,	Moist	Horizon Boundary Topography A	Redox Feature	Redox Feature Description	Roots	Podet Penetrometer/	Lab Sample	Notes
>	7.5	16.12 VAS				ype ox 70							-	2635	0		Hory HALL
(,										1.300				2		
20	34.3	1/4 8/11		H	2	111		20	N. S. S. S. S. S. S. S. S. S. S. S. S. S.	To	5	\	1	MAR	.0		
DE.	10-117	My MA	7,5	-	00	20	100	8		-	1 75	1		1	5.0		
	4	15 2KU	200	M	70	70	7	3	N. S. S. S. S. S. S. S. S. S. S. S. S. S.	T	300	1	1	THE	1.25		
4		511	7.0	1				100		-	200				1		
5	1	10185/6	SIC	75	5	15	9	813	Ü. SIN		2		1	T	5.1		
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1	4	Nove	100	6	Vi	1 3	10001	5	1	100	0 1	5					
							Ì										

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Field Assistant: Rachel Hil TEST PIT DESCRIPTION

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

RETTEW Job #: Job Name: Test Pit ID: Mineralogy: NRCS Soil Unit: Horizon Depth in inches 089962000 BC/ LS mixed Dominion - Atlantic Coast Pipeline Soil Survey P-252-16068-1452-MEL ten surface spies, some sandspie survels in **Matrix Color** 16 AB VGK XGK VGR Texture Class び % clay % sand 5 25 70 25 25 50 Fragment Type & % 040 Rock % Slope: Topographic Position: Rock Fragment Size (inches) Drainage Class: Vegetation: Bedrock Type: Depth to Refusal: d 70 Plasticity/ Stickiness Structure Type, Grade, and Size 20 V. CANS IN Chestnot Oak, Hickory, Mountain Laure 50 Shale Summit 71 Moist USDA BE horizon Redox Feature Color Redox Feature Description Slope Failure or slip: Depth to Water Table: Parent material: Dip Slope & Direction: Slope Aspect: 2FAIC 2 FM 7F M OCCUSSION Roots 45 00 racky 1.0 Sypo Lab Sample Strike: Hypochronic <2 chiama Notes

Other Notes:

unable to usuance beyond

leave shall faces extending up to 29", tow roots, sitt loan vews extending to depth

Field Assistant: Cachel TEST PIT DESCRIPTION
Soil Scientist: Michae ane

Signature:

5 Mineralogy: RETTEW Job #: Job Name: Test Pit ID: 0 IRCS Soil Unit: Horizon Depth in inches 089962000 Dominion - Atlantic Coast Pipeline Soil Survey D-253-160608-0950-MEL 100 Rerks 6/8/16 MIXED 8 12.5/l 9/4 W.C. 104R3/3 **Matrix Color** SF Texture Class r % clay % sand 5 5 8 Fragment Type & % 9.4 Rock % Slope: Rock Fragment Size (inches) Topographic Position: Depth to Refusal: Drainage Class: Vegetation: Bedrock Type: 5 1 0 Sidesdage SOZ WD Structure Type, Moist
Grade, and Size Consistence Red made supling stand USDA 77 Redox Feature Color 1 Slope Aspect: Dip Slope & Direction: Depth to Water Table: Parent material: Redox Feature Description Slope Failure or slip: 35/4 XX Roots 188 85° E Lab Sample ID 4 SS SZ Strike: RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063 Notes

Other Notes:

Some surface stommess

Few shall ghos

RADIEDIES

Bun2 of some podiets of silt loans

Soil Scientist: Wichael Lane
Field Assistant: Rechel Mill

Signature Mulds Z

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P	254	-160608-1050-	105	0-N	MEL	Topographic Position:	tion:	nose sl	200			Parent material:	terial:	Colle	J. J. Cum	oltovicus over residuum
Date:	6	0/18/16					% Slope:		, 20E	1			Slope Aspect:	ict:	1200		
Job Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		CA				Depth to V	Depth to Water Table:	1		
RETTEW Job #:		089962000					Depth to Refusal:		26"				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		Berks, 8D	_				Bedrock Type :		Sundstone	one			Dip Slope	Dip Slope & Direction:	700	A	Strike: 40
Mineralogy:	M						Vegetation:		Hickory,	redu	reducible Suplines						
										USDA		Q					
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Mastchy/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podat Pasetrometer/ pit	Lab Sample ID	Notes
0	0-2	-2 5 yk 2.5/								NA	7		No.	7	670	N	
7	2-3	101/ 4/3	SIL	17	5	20	-	50	IFGK	R	. 8		2	JIME 3	0.5	S2	
BE	3-10	10 1/6	55	15	30	30		20	HUSH	To	3	ł	Ì	W	7	SS	
802	16-01	1079 7/6	7.5	12	30	20	3-6	5 3	MSBK FR	TR	300		1	ZAIC		48	
5	6-26	16				9			Omoine	-	5			10000	420,004		2.10°+
Re	16	ock .	1	é.	91	0 10	Æ.	1	9	d	1						

1254

Soil Scientist: WALL

Field Assistant: 10+2 GEREL ITI

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

est Pit ID:	0-	100	160608-	085	0-15	Z	Topographic Position:	ition:	BACKE	340			Parent material:	terial:	COLLONION			
Date:	19	91/R/					% Slope:		4370				Slope Aspect:	6	9		2 4 4 5	0000000
lob Name:	Domi	Dominioh - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		A				Depth to 1	Depth to Water Table:	10			
RETTEW Job #:	08996	089962000					Depth to Refusal:		401				Slope Fail	Slope Failure or slip:	(
NRCS Soil Unit:	0	BEEKS					Bedrock Type :		51175	SNOT	m		Din Slone	& Direction:				
Mineralogy:	7	M 1×6 D					Vegetation:		8	37	これをとるこ	JUT TAV	1	V HICKET				
										USDA			-	1	1116	COMADA!	1	Brack Cold
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Product Penetrumeter/	Lab Sample ID		Notes
00	3	CHR75/1	1	1	t	((1 1	((13	1	1	コーンドド	7 1	7		
y	2	6/40/3	200	7	0 0	2 4 2	17	0	922	3	2	,	1	3-12,5	0.25	1		
	Le.	-				-		5	1.					7.7	4.5			
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		,				1		1						1.7	2 3	1		
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C	140	1	t	•					1		1							
	12					1	1	1		1	1	1	-	,	1	1		
1	×0,*	1715	5 10	Z	0	42	200											

Other Notes:

LINEARY CONCANE

BACKSLOPE

Soil Scientist: JOHN WAIT

Signature:

Test Pit ID:	2	256-16	8090	109	15.	250	Topographic Position:	tion:	SUMM	F			Parent material:	terial:	2000	MUNA	
Date:	6/	8/16					% Slope:		890				Slope Aspect:	ict:	1200		
Job Name:	Domini	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		13 PM	Some	TAKE WHAT	EX1513143	Depth to V	\S √ €Depth to Water Table:	7		
RETTEW Job #:	089962000	2000					Depth to Refusal:		21"				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:	JJ.	BARKS					Bedrock Type :		5117	MAL	m		Dip Slope	Dip Slope & Direction:	7	S	Strike:
Mineralogy:	3	MIXED					Vegetation:		HICKO	RY,	CHEST	THUT CAK,		BLUCBERC	AN YA	717	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Harizon Boundary Topography & Distinctness	Redox Feature Color	Radox Feature Description	Roots	Podat Penatrumeter/	Lab Sample	
00	0	5/22/5/	(1	(1		1 /	((2	,	1	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	4 1	j.	
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P	*15	514	1	d	1	434	77	0	7								

Soil Scientist: JOHN WAL

Field Assistant: Joseph 9 428 EA 1711

Signature: 915 110 X

Test Pit ID:	D.	257-160	608-	100	40-3	5 2	Topographic Position:	tion:	3 42 4 4	37076	Nose slope	lope	Parent material:	terial:	Res	MANA	
Date:	10/	2/18					% Slope:		2770				Slope Aspect:	ät:	40		
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	ırvey			Drainage Class:		SOM EWHAL	TX	Excess	301	Depth to V	Depth to Water Table:	1		
RETTEW Job #:	089962000	2000					Depth to Refusal:		・ナイ				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:	852	アイン					Bedrock Type:		SILTS	70 25	Ti		Dip Slope	Dip Slope & Direction:	12 ES	ESE (176) Strike:	77 04
Mineralogy:	7	くろべい					Vegetation:		ナイスマア	K	CHESTAUT	UT ONK.	P	PITCH PINE	7	BULKER OAK	70
under D	Depth in	Matrix Calar	Texture	R. A.		Rock	Rock Fragment	Plastidity/	Structure Type,	Moist	Horizon Roundary	Redox Feature				Lab Sample	
	5		Cidss			Type & %	size (inches)		Grade, and Size	consistence	Distinctness	Color	cendina		¥	8	10000
0e 0	-	1/2/3/1	1	1	1	1.	1	1 1	1	1	٥	1	1	3-45,5	1	1	
(5						1							4.5	1	
>	×	30	CH		70	25	1	20	454	50	2	1		3-44,5	25.0		
1		12/4	25	17	0	64		65	11	4		1	-	-3	ドウ	1	
		16	ACH			250		Po	かべ					M d - 8	0.5		
822	1	Lo To	3.	4	8	CH	1	53	14	47	2	1	1	,	4	1	
	0	- 1	HYX			20		00							7		
200	è	0/25/0	3.	5	20	CH	7-4	5	300	和	0 2	,	1	7 7 7 3	1	1	
															1	1	
77	7	451 17	Sta	C		33	D 70	7	(

Other Notes:

BACKSLOPE 0 2 SUMBIT てのかだのだ、サイトにして OTT 70 STEEP BATHSLOPS

TEST PIT DESCRIPTION
Soil Scientist: John J

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

IEST PIT ID:	1230	20.100	. 1800081	105	1	MSW	lopographic Position:	tion:	Uncas	Lean Const	A Kakken	Sul Count	raicile illatellal.	Cridi,	2 Total	>	C) I OLI I (UM)
Job Name:	Dominia	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvev			Drainage Class:		Excessive	51/4			Depth to Wate	Depth to Water Table:	>24"		
RETTEW Job #:	089962000	000					Depth to Refusal:		20"				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:	8	Berks					Bedrock Type :		5:1456	tone			Dip Slope l	Dip Slope & Direction:	80% 290°		Strike: 200°
Mineralogy:	3	Mixed					Vegetation:		Pitch 1	Pine	Scarle	took	Blac	k ook	Hickory	B1	uc beery
										USDA							A 4
Horizon Ir	Depth in Inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horkron Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podet Penetrometer/	Lab Sample ID	Notes
000-1		54R 3/2 hemic	hemic	1	1	1	7	1	1	1	50	ï	t	(2,40		
)	7							1						m, ut-m	0.25		
00		54R 2.5/	Sugar	1	1	1	Ī	1	1	1	8	1	1	4,0	4.5		
	`	1040	57			15%	1/1	PO	7.73	>	,			m, vt-vc	52.0		
7	6-3	3/2	SIL	0	5	6R	7	40	٦٠	1+1	NC	= (1		4.5		
_	_	JAKOI	X OX			70%	2/1	PO	WK, t	>		(1	C, VF-VC	0.25		
5 ma	5-10	4/6	7,5	14	25	XCH	6	62	SOK	+	8	19	1		7.7		
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Soil Scientist: 1977 27 H

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259 - 110 60X - 1305 - 15 W Tonographic Position	The state of the s			Signature:	>
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		Fax: 717-394-1063	Lancaster, PA 17603 Phone: 717-394-3721	3020 Columbia Avenue	

iest Fit ID:			00000	1	2 4 0	20	. opograpina conton	anon.	JAM NO				Parent material:	terial:	S33	ープくこと	
Date:	6	1/8/16					% Slope:		5%				Slope Aspect:	ect:	0		
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		SOMEWHAT	TAH	EXCE	SSIVE	Depth to V	Depth to Water Table:	1		
NECK Soil Hait-	1	BE EN					Depth to Refusal:		1+				Slope Failure or slip:	re or slip:	1		
Mineralogy:		X X X Z					Vegetation:		21712	12			Dip Slope	Dip Slope & Direction:	N	22 Strike:	Ke: 266 X
							Business		USDA USDA		13217	71 201	OFR	ALIHM	PINE	137 AM	BLUEBERTY
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Radox Feature Description	Roots	Podet Penetrometer/	Lab Sample ID	Notes
00	6	1/52005/1	1	1	ï	T	ř.	1 1	1	1	25	t	1	3-45	4 1	1	
A	2.3	2/42/2	2.20	12	18	23	()	Po	1258	727	2	1	1	7-45	f 0 2 7	1	
4	3,4	ofer 6	2 th	74	20	N 7	1	P0	13/84	77	2	1	1	1-F, H,	401	1	
00	* 12	155 0/50/01	コスカンス	ュ	20	± 2	1-3	55	1480 ER		CZ	ţ	1	1- 1-	4 1	1	
P	*	SILT	ST	Z	13	439	720	2									

SUP FACE

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- 1	40 - 16	609	0	2		Topographic Posit	tion:	ACK	00	n		Parent ma	terial:	RESI	MONA	
-	116		- 1			% Slope:		-Ct1				Slope Aspe	ect:	(100		
Dominio	n - Atlantic Coast F	ipeline Soil Su	IVey			Drainage Class:		37×2	N156	3		Depth to V	Vater Table:	1		
0899620	00					Depth to Refusal:		16"				Slope Fail	re or slip:	1		
N	PKS					Bedrock Type:		SILTS	ファス	M		Dip Siope	& Direction:	277 5	W	ke: 40°
	(134					Vegetation:		FICK	T	C4 8 >	7	AK	P12 00	7	ヤヤンとの	BLUEBERZ
Depth in inches	Matrix Color	Texture Class		% sand		Rock Fragment Size (inches)	Plastidly/ Stickness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctivess	Redox Feature Color	Redox Feature Description	Roots	Product Penatrometer/	Lab Sample ID	Notes
>	125/	•	· (1	(8	Ā		7 - 27	t 1	1	
2,3	2/2/2/2	2.5	5	ء	キャ	- 7	00	JAN P	ココト	2 %	f	1	2-45	4 7 75	1	
, 4	0125/6	7 LA A CH	ī	77	60	1 - 2	0 5	718541	77	2	ţ	1	2-45.5	7 7	١	
16	٠	,		-	- 1	1		1	1	1	f.	1		1 3	1	
×	5117	51	2	W	8	ED RO	CK									
		P. 260 - 16 61 9 16 00minion - Atlantic Coast P 089952000 PS EP E S NA 1 X E D NA 1 X E	Matrix Color Texture Class SILTST SILTST SILTST	Matrix Color Texture Class Silvey Matrix Color	1 1 1 2 1 1 2 1 1 2 1 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2	Matrix Color Class Pipeline Soil Survey Matrix Color Class % day % sand Fig. 12 CH Sill 13 19 SILTSTONE SIL 13 19 SILTSTONE FINANCE STONE SILL 13 19	Matrix Color Class Pipeline Soil Survey Matrix Color Class % day % sand Fig. 12 CH STONE SAL 13 19 SILTSTONE SAL 13 19 SILTSTONE SAL 12 19	Solution: Solu	Attantic Coast Pipeline Soil Survey Don Attantic Coast Pipeline Soil Survey Don Rock Matrix Color Texture Class Weight to Refusal: Class Weight to Refusal: Don Rock Rock Fragment Rock Rock Fragment Size [Inches] Size [A T I I I I I I I I I I I I I I I I I I	All b All b AnAluntic Coast Pipeline Soil Survey Dialoge Class: Dialoge Cl	A 1 b No book No by Store No book	A 1 b A	1 b	1 b	1 b

Soil Scientist: JOHN WAN Field Assistant:

Mineralogy:

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Horizon

Depth in inches

Matrix Color

Texture Class

% clay % sand

Fragment

Type & % Rock

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RETTEW Job #: Job Name:

089962000

Dominion Atlantic Coast Pipeline Soil Survey

6/9/16

VRCS Soil Unit:

Test Pit ID:

P-261-160609-0920-25W

Signature:

*Slope: 49 %	Parent material:	erial:	2500	TONI ON	7	
Class:	Depth to Water Table:	ater Table:	'			
#	Slope Failure or slip:	e or slip:	١			
Bedrock Type :	Dip Slope & Direction:	Direction:	١		Strike:	1
Vegetation: HICICORY, MAPLE, WILLIE	3117	3	TULT	しまいだら	40	しいのまちでき
USĎA			1			
Rock Fragment namedon/ Structure Type, Molet Namedon Namedon Redox Feature Size (Inches) Stations Grade, and Size Consistence Inducedons Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID		Notes
· · · · · · ·	١	3-75, 5	F 1	1		
100 ap		3-45 6	0.25			
20 12 1 Ax. 84	(3	١	1		
72		3-45,5	0.5			
V 1 22 (# 24 C. #)	1	1.C	1	1		
		2- 1 1	0.5			2
1-3 25 2xx 1 1xx Cx	1	r	4.5	1	(CA)	1.28 X
28 C 28 C 28 C 28 C 28 C 28 C 28 C 28 C			0.5		CLXX	SKINS
2-5 55 2m3 6 6 cm	1	1-4,20,0	1	1		
,0			0.5		KAS	SKINS
3-6 55 7650 66 1	1	3 W-1	4.5	1		

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Other Notes:

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Field Assistant: Soil Scientist: ZPE

Signature: (1)

Test Pit ID:	P-267 -	16060	9 - 11	4	200	Topographic Position:	ition:	BACKS	OPE			Parent material:	aterial:	2000	COLLONION	945 B 354
Date:	6/9/16					% Slope:		2				Slope Aspect:	ect:	2 4	100	7
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	ast Pipeline Sc	il Survey			Drainage Class:		MACC				Depth to	Depth to Water Table:	1		
RETTEW Job #:	089962000					Depth to Refusal:		4.30				Slope Fail	Slope Failure or slip:	BTIN	7 8 0	
NRCS Soil Unit:	BERKS					Bedrock Type :		Sands	1	8		Dip Slope	Dip Slope & Direction:	'	1	Ctriba:
Mineralogy:	アンメスカ					Vegetation:		HICKOR	7.6	上をサイ	ZUT PF			アヤブ	-	Total State of the
Horizon Del	Depth in Matrix Color	Texture	% clav	% cand	Rock	Rock Fragment	Plastidty/	Structure Type,	Moist	Norfron Boundar	Redox Feature	Tados France	1		lah Sample	
		-	+	_		Size (inches)		Grade, and Size	Consistence	Distinctness		Description	Roots	1	5	Notes
5	2			į			1						3-45	į	2	
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		6.0			3		4							0.0	41.2	
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12,	- SALL	7	1		20	1	00	14		2				4.5	A/B	
	30	4 by	Ē	600	23	-	A	500					7-VE, F,	0.5	53	
8	1	2	-	F	9	1	00	130		2	,	1	1-30-0	4.5	A/3	
	TX drang	N T	×	5	YT	() ()	000	37		ž			7 1 7	0.25	45	SIMEZHIO HILIT
13	1/4	4			0		40			1	1	1	1,0	4.5	0	FINES
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Other Notes:

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Soil Scientist: John Ward

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Date:	6/0		*		4		% Slope:		- 1				Slope Aspect:	d:	18	000	
lob Name:	Dominio	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		I n	を手が	7	ALESSINE	Denth to I	SSINE Denth to Water Table:			
RETTEW Job #:	089962000	000					Depth to Refusal:						Slope Fall	Slope Failure or slip:	1		
NRCS Soil Unit:	79	アメンタ					Bedrock Type :		5117	702	M		Din Sione	Din Sione & Direction:	0 0		, ,
Mineralogy:	3	XED					Vegetation:		TORICATO		K	Facility .	2	VITE PILE	PO T	2978	Januar FT O
										P	1	1		-	1	10000	1 SACKEL
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidty/ Stiddness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redax Festure Description	Roots	Probat Penatrometer/	Lab Sample ID	Notes
0	0,	からかい	1	1	1	1	1	1 1	,	1	5	1	1	2-47	F 1	1	
82	1.6	10-125/6	250	11	2	040	1 1	So Po	13,04	23	ć	1	1	- 3 1 T	4 0 . 1	1	
200	6	10-1P5/b	8. CI	1.1	18	40	6 - 1	0 PO	5	P	5	1	1	7 7	1 %	1	CITHOLH DOW OF
70	22	5147	sta	Z	1,,	BE	proc	*									

Soil Scientist: MAN

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P-	264-160	609	114	151	100	Topographic Position:	ition:	BACKT	LOPE	1.		Parent material:	aterial:	colly	COLLUNIUM	OVER RESTANTA
Date:	6/	9/16					% Slope:		267				Slope Aspect:	ect:	3260		- [
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		NE C				Depth to	Depth to Water Table:	1		
RETTEW Job #:	08996	089962000					Depth to Refusal:		1				Slope Fall	Slope Failure or slip:	1		
NRCS Soil Unit:		BEアドン					Bedrock Type :		١				Dip Slope	Dip Slope & Direction:	1		Strike:
Mineralogy:	3	Garin					Vegetation:		FICKOF	4,	1753412	NUT OFF		MAPLE BLUS	ましいそるそをでい	1	CACRAT
		1								USDA							
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podat Pasetroneia/ pit	Lab Sample ID	Notes
90	0,3	5/22.51	1	1	1	Ĭ	1	11	1	1	2	ţ	1	7-17	4 1	1	
K1	3)	als a hol	からか	13	2	5 97	17		12 1 0 K	3	2	1	1	27450	1 0.8	1	
かと	14	124/6	Si Ci Ci Ci Ci Ci Ci Ci Ci Ci Ci Ci Ci Ci	91	00	515		SP	* 67.4	70	2	,	1	2-45	0	1	コマ シェン・マニン
						1									4.5		
2002	2	7.5.18-4/2 CIT	5. ct	7	2	2 7	- 7	SA	24144	FP	2	i	1	2-F,M	10	1	CLAYS KINS
2823	En. 1	Strale	200	29	7	10	17	SP	xcoox	F	5	1)	VC VC	+ 5	1	SKINS KAND
286	27.25	State	73.55	No.	0	t to	10.5	5 3	1485 K		1	,	1	1-47	100	1	DECENTING SICT-
																	CHAN SKINS

Other Notes:

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TEST PIT DESCRIPTION

Soil Scientist: Michael

Field Assistant: Rachel L Pachel Hill

Signature: ///

Test Pit ID:	7.	1-762-100001-1040-WEL	1-100	040	ME	١	Topographic Position:	ion:	Sicesique	X			Parent material:	terial:	res	dul	3	
Date:	6	19/16					% Slope:		555				Slope Aspect:	A	1200	9		
lob Name:	Domini	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil	vey			Drainage Class:		a. J				Depth to V	Depth to Water Table:	1			
RETTEW Job #:	089962000	2000				-	Depth to Refusal:		182				Slope Failure or slip:	re or slip:	1			
NRCS Soil Unit:	Re	Berus (8F				m	Bedrock Type :		Sands	rack			Dip Slope	Dip Slope & Direction:	(St	Strike:	1
Mineralogy:	mixed	be.					Vegetation:		Chestry	1	hickory, wh	the och						
Horizon	Depth in inches	Matrix Color	Texture Class	% clay 9	% sand Fi	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Prodet Pasetrometer/	Lab Sample ID		Notes
000	7	1/4.2 1/18										(1	35/1	40	S		
7 2	in	5/E3/YOI	LE	171	Č,	5	_	10	\$ 50 ps	SA	7 7	MACLUS PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERT		14.38	0.25	52		
2	27-12	10485/6	500	N	6	5	of gr		INTK	77	3		1	3 FAIL	7.25	23		
Sw2	M	okeshoi	TS VG	0	6	Ö	6+		Hork	果	200	a di propini	1	J.M.L	52.	2		
7	4.39	3/6 3/6	TXT TXX		0	0			冗美	5	2	1		Oceasional	N 2 2			
70	39+	fact	Tes.	JMX	3	SMC.												

TEST PIT DESCRIPTION
Soil Scientist: VICAGE
Field Assistant: Reche

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3771 Fax: 717-394-1063

91110	76 SIODE:	1/6		Slope Aspect:	
Dominion - Atlantic Coast Pipeline Soil Survey	Drainage Class	7	Companyat avcassival		
RETTEW Job #: 089962000	Depth to Refusal:	20"	Slope Failure or slip:	Slope Failure or slip:	
NRCS Soil Unit: BOYKS 8D	Bedrock Type :	sittstone/shode	de	Dip Slope & Direction:	_
mixed	Vegetation:	reducible, white	de, withhazel,	blueberry, manitain larger sonce	2
		USDA			
Depth in Matrix Color Class % clay % sand Fi	Fragment Fragment Size (inches)	Structure Type, Moist Grade, and Size Consistence	Horizon houndary Trapography & Color	Redox Feature Description Roots	Podet Present
0-18/18/11-0		1 /	1	35/	-0.
5 92 B 75 24 M 2-1	S Water S	TO THE TR	2 0	- 3FJ/12	E9.
= 00 51 70 HOURS	35 04 50	24 MOSAVI COL	100	25	WO.
5-2010/R9/4 XCH	0	M. Shrown O.	0	Oraconal Oraconal	4.9
bedrock ha	ale				

TEST PIT DESCRIPTION
Soil Scientist: Vi chare
Field Assistant: Rachel

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	V	21-160609-1205-MEL	1-600	205	MEL		Topographic Position:	tion:	Sidestope	de	convex		Parent material:	terial:	V.	81017	2000
Date:	3	21/6					% Slope:		16/h				Slope Aspect:	et:	130	0	
Job Name:	Domir	tlant	Pipeline Soil S	urvey			Drainage Class:		500				Depth to V	Depth to Water Table:	1		
RETTEW Job #:		52000					Depth to Refusal:		12				Slope Fail	Slope Failure or slip:	1		
NRCS Soil Unit:		Serks BE					Bedrock Type:		siltstane		shale		Dip Slope	Dip Slope & Direction:	288	(1)	Strike: 65°
Mineralogy:	_						Vegetation:		mixed o	Y	hickory, se	& cores	6			9	
Horizon	Depth in	Matrix Color	Texture	% clay	% sand	Rock	Rock Fragment	Mastidty/	Structure Type,	Moist	Horizon Boundary Topography &	Redox Feature	Redox Feature Description	Roots	Pocket Panetrometar/	Lab Sample	Notes
0	0	5 th 2.81									7			354	200	-	
P	1-2	75 MM	SP	Z.	25	20	_	00	IFGK	E	1	\	1	25.11	5.0		Silt stone
5	8-5	MENTO	2.5	12	20	3	7	200	1F8/4	1	5 6	The state of the s		21.45	5,0		
BUX	11-8	8/5/1/0	2.7 New	N	20	40	+	0.1	1435K	25	9			JW42	5.0		
0	24	3/5/11	7.5 XCN	Z	20	70	5	000	Br. Bleet	3	75			WZ	1,2		
	15-1	3/61/03	J.S.			90+			Sparje	7	5	-	1	-	\	-	
7	31	frech	uved	R	200	7											

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Other Notes:

Stone in Cr

breaking to 6"+ thags poverlying two of oriented sittsbure C.t.

TEST PIT DESCRIPTION

Soil Scientist: Michael Carre

Field Assistant: Pachel Hill

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	Ų	P-268-160609	-60	142	1430-MEL		Topographic Position:	tion:	Sidos	0,00	2		Parent material:	orial:	7 11/10	Viant	100	Local in a
Date:	6	19/16					% Slope:		38%	,			Slope Aspect:	a	150			100000000000000000000000000000000000000
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		000				Depth to Water Table:	ater Table:	1			
RETTEW Job #:		089962000					Depth to Refusal:		27				Slope Failure or slip:	e or slip:	1			
NRCS Soil Unit:		3) 57	SE)				Bedrock Type :		57/4	290	3		Dip Slope & Direction:	Direction:	1		Strike:	A A S CONTRACTOR
Mineralogy:	m	mixed					Vegetation:		with .	1000	7 4 4	d wast	0					
										USDA		1						
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horison Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podast Penetrometer/	Lab Sample ID		Notes
00	20	SYR ^{2.5} /									1		1	MAS	4.7			
X	23	3/8/1/0	S. S.	T	5	5	_	POSO	FG	夬	30	\	1	35.41	UT .C.		Same	Mericans m
E	5-9	61876	517	12	20	5	_	PO	THE	7	3 8		1	2FUIC	0.75			
Bw2	9-21	01/15/8	7.5	5	20	8	+	500	NSBK	1	3 8	1	1	11/31	5.0		ter	few Stories
3	4-77	1011/6	S:r XCB			90+		1	MESON		2	1	1	Olevo one !	HOD LOCK			
D	+75	fact	red	Day	50	X												

268

TEST PIT DESCRIPTION

Soil Scientist: Michael Lane

Field Assistant: Pachel Hill

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Other Notes: Job Name: Test Pit ID: E. NRCS Soil Unit: RETTEW Job #: fineralogy: Horizon 0 Depth in inches Berks Dominion - Atlantic Coast Pipeline Soil Survey 089962000 P-269-160609-1320-MEL 6/9/16 54K25 12 NK 01 18×1 Matrix Color 5 800 87 XGR Texture Class # M Do % clay AE UT 2070 % sand n8512017 Fragment Type & % Rock Rock Fragment Size (inches) M Bedrock Type: Depth to Refusal: Drainage Class: Topographic Position: Vegetation: % Slope: 50 10 Plasticity/ Stickiness Rikye summit

3% nearly level

23"

Shale / 92/tstone

white pine chestant cak in NESEX Structure Type, Grade, and Size ancismo broken Moist Consistence 3 Horizon Soundary Topography & Distinctness G Redox Feature Color witchesze Redox Feature Description Dip Slope & Direction: Slope Aspect: Slope Failure or slip: Depth to Water Table: Parent material: SEMIC 2FMC 3 Roots S. IS 0.0 ryge runs Elw slopes H and S 25 residuen Lab Sample ID Strike: Notes

269

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TEST PIT DESCRIPTION
Soil Scientist: Field Assistant: Rachel H. De Galbruth

RETTEW Associates, Inc. 3020 Columbia Avenue

RETTEW Job #: Test Pit ID: **NRCS Soil Unit:** De ineralogy: Horizon 4.5-1510 YRE/ 10 5-21 Depth in inches P-270-160610-0915-MEL Dominion - Atlantic Coast Pipeline Soil Survey 089962000 M.XEC Berks 5X 25/ 5101R 34 VGR Matrix Color 8F nemiz Texture Class MARK 7 15 10 40 % clay 17 40 75 25 40 % sand bedy Fragment Type & % Rock Rock Fragment Size (inches) % Slope: Vegetation: Bedrock Type: Depth to Refusal: Drainage Class: Topographic Position: 40 Plasticity/ Stickiness FGR Structure Type, Grade, and Size side slope SVSSW/ Edt Moist Redox Feature Color Slope Aspect: Parent material: Redox Feature Description Slope Failure or slip: Depth to Water Table: Dip Slope & Direction: JAK S 2 FMC Orres ma STY NEW Roots 0.75 recky 53 Lab Sample ID 21 hard sitistine residerin Strike: Lancaster, PA 17603
Phone: 717-394-3721
Pax: 717-394-1063 Notes

800

270

Other Notes:

near

concave

near

ridge summer

above

Field Assistant: Soil Scientist: TEST PIT DESCRIPTION
Soil Scientist: Michael

or Galbrath

Signature:

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

							1								#
Test Pit ID:	1-671-16	1-100010-1102-11EL	1105-	INEL	Topographic Position:	ition:	16-8-31	Sho			Parent material:		Super Section	The Co	Over residuali
Date:	6/10/16				% Slope:		1000				Slope Aspect:		1		
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	t Pipeline Soil S	urvey		Drainage Class:	~	とし				Depth to Water Table:	ter Table:)		
RETTEW Job #:	089962000				Depth to Refusal:		74				Slope Failure or slip:	or slip:	1	-	
NRCS Soil Unit:	57	84			Bedrock Type :	5	11-80	3			Dip Slope & Direction:	Direction:	35	Z s	Strike: 285
Mineralogy:	paxim				Vegetation:	Fe Fe	Bry D	160,	547700	d May	010,0	Jan Di	2		
							No. of Street, or other Persons and the Person	USDA	1		16	7			
Horizon	Depth in Matrix Color inches	Texture Class	% clay % sand	Rock and Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
000	5-154825			1		(1			1	1		125	4.7	5	
7	1-310483/2	5.00	10 (0 15	1	200	FER	the "		\		3+4	20.00	52	
BW S	8-91/01/25/4	1,5	15	<u>↑</u>	-	35	YESF	K	300	1		MA	5.3	53	
Bw29	3-24/d HZ-19	VGR	2015	60	0,5-3	55 2	P\$K	天	210	1	1	FX	5.2	15	
7	24+ bedrock	Sylve	S	75	MON										

Other Notes:

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SPISSOR

18 landing cues

Soil Scientist: Richel Hi

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	7	7-112-10000-1210-MIEL	COIO.	1210	120-1	-	Topographic Position:	ition:	Sideslose	3			-		6011		5
Date:	6	110/16					% Slope:		55.83				Slope Aspect	nerial:	0	MAN IN M	Over iscoldin
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		AM				Death to 1	Depth to Water Table:	200	11	
RETTEW Job #:	: 089962000	2000					Depth to Refusal:		34				Slope Fall	Slope Failure or slip:	1		
NRCS Soil Unit:		Berks 8	10				Bedrock Type :		5:165+0	200		Ď.	Dip Slope	Dip Slope & Direction:	82%	300	Strike: 2000
Mineralogy:	M	Mixed					Vegetation:		Mtn. laure	el che	i chestnut a	ak, service	1,00	60/11	700	0/07	121816 20 Ve)
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Pleatidity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Harizon Soundary Topography & Olatinetness	Redox Feature Color	Redox Feature Description	Roots	Podet Peretrometer/	Lab Sample	Notes
0	0-1.5	1/4-245	humi			•	1	(/	1		1		With the second	STATE	000	f	
A	15-2	3/18/2	CR	00	0	5	^	20	216R	X.V	7	1	1	17	0.0	1	
(m)	27	10425/4	25	N	03	25	6.17	500	ZPSK	E		No.		ZUF-F	2,2	1	
200	11-20	151/67/6	SIL	17	15	55	5 M	25	MBM	R	3 5	1	1	3 VF-VC	5.0	ι	
R	11-43	11/15/4	J.C	20	20	85	9 ex 800	35	MISHI	and of	ý	Y-		J-12-5	ò	1	
Cr	43.52	1	1	1)	1)		1			7	į	1			
R	252	1	1	(1	1	j		1	ì		-			j.		

Soil Scientist: Michae Field Assistant:

Dr. Galbaith RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

											j				
Test Pit ID:	>-273-16	3-160610-1300-ME	300-1	IEL	Topographic Position:		sidestage		CONVEX MOSES	300/2550	Parent material:	rial:	Gollow	Cun Q	Collumba oprosition
Date:	6/10/16				% Slope:		288	,			Slope Aspect:		1700		
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil Sur	vey		Drainage Class:	7	S ST CM		Somewha	Somewhat excessively pepth to Water Table:	Depth to Wa	ter Table:	1		
RETTEW Job #:	089962000				Depth to Refusal:						Slope Failure or slip:	or slip:	1		
NRCS Soil Unit:	Berks				Bedrock Type:	01	3/45	and			Dip Slope & Direction:	Direction:	OCK	NY S	Strike: 330
Mineralogy:	mixed				Vegetation:		NO KONY	2	test	must oa	X			4	4
	The second second							USDA							
Horizon b	Depth in Matrix Color	Texture Class	% clay % sand	Rock d Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Str Stickiness Gr	Structure Type, Grade, and Size	ance	Horizon Boundary Topography & Distinctness	Redox Feature Color	Rados Feature Description	Roots	Pocket Penerometed	Lab Sample ID	Notes
0-	JERY25/	1		1		1				-	-	MIZ	0.0	-	
Ce	" VICE.	1		1		1	1		?			1.11	4.4		
AR I	5-3 10 18 4%	250	12 35	25	6.5		FS8K	2	5			W 12	20		
1	, , , , ,	280	-	1		00		-	1			011	4.6		
800	-8 1048%	2000	25	35	-	Ses l	188K	2	- 6			3FML	1.25		
7	-JE1-4251	XGR	20	X	upto			8	200			1436	Apply		
1	2/10/1/16	7:5	18	10	_	50 "	De Sand	107	111			31113	4.8		
5 5	5-21	1		1		(1	(5		_	Occasional			
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2 2	21+ 000	000	^	7	S		3								
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Soil Scientist: John J. W.A.L.

1	ートナ	-0190	-	-		Topographic Posi	tion:	NAPS.	7			Parent mat	erial:	1831	DUUM	
-	116					% Slope:						Slope Aspe	et.	っかも		
Dominion	- Atlantic Coast P	ipeline Soil Su	rvey			Drainage Class:		SOMEWI	+ =	AXIES	3715	Depth to W	ater Table:	1		
08996200	0					Depth to Refusal:		32				Slope Failu	re or slip:	1		
239	7					Bedrock Type :		SILTI	JONE	, d		Dip Slope 8	Direction:	7	Strike:	ike:
-	XED					Vegetation:		いけとうてい		P K	けっというで	1 20 1		- OU	LUE BERRY	PY MAPLE
Depth in inches	Matrix Color	Texture Class	% clay	% sand		Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots		Lab Sample ID	Notes
5	1	*	1	i	1	t	('	1	ř	25	1	1	2-45,5	4.5	1	
10	16.31	2. F	-	7	古る	1		1257	27	C.A.J	1	1	175,F,	4.5	1	
7	425/6	9 33	工	~	00	1-3		14/8x	23	0 2	1	1	7-M	4.70	i	
11.37	1	1.	1	1	1	Tr.		1	(1	u) a	1	·	, ,	1	
2 276	2111	10			K38	1707										
	Dominion Dominio Dominio Dominio Dominio Dominio Dominio Dominio Dominio Dominio Dominio Dominio Domin	Dominion - Atlantic Coast P 089962000 8 8 9 4 5 1 1 8 9 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	Matrix Color Class SILTS to SILTS to	274-160610-121 000 000 000 000 000 000 000 000 000	2744-160610-1710-3 nn-Atlantic Coast Pipeline Soil Survey Matrix Color Class	274-160610-1210-35W 274-160610-1210-35W Non-Atlantic Coast Pipeline Soil Survey X	274-160610-1210-35W 274-160610-1210-35W Non-Atlantic Coast Pipeline Soil Survey Rock Matrix Color Class Texture Class Texture Class Total Sill 11 15 18 CH OYES 6 Sil 14 18 CH CH CH CH CH CH CH CH CH CH	Topographic Position: Column Colum	Topographic Position: SUM MAINTENNE SIDE: SIOPE: No. Atlantic Coast Pipeline Soil Survey Siope: Si	Texture Welay Sand Fragment Structure Type. Wegetation: West Size (Inches) STUCT STON Note That I I I S I S I S I S I S I S I S I S I	Texture Note	Totture V day V sand Fragment Of LS STATE V ST	Tenture Cost Pipeline Soil Survey Matrix Color Tenture Class Matrix Color Tenture Class Matrix Color Tenture Class Tenture Class Tenture Class Tenture Class Tenture Class Tenture Class Tenture Class Tenture Class Tenture Site (Inches) Tenture Tenture Type, and Structure Type, and Site Confinence Color Tenture Class Tenture Site (Inches) Tenture Type, and Tenture Type, and Site Confinence Color Tenture Class Tenture Tenture Type, and Tenture Type, and Site Confinence Color Tenture Tenture Type, and Tenture Type, and Site Confinence Color Tenture Tenture Type, and Tenture Type, and Site Confinence Color Tenture Type, and Tenture Type, and Site Confinence Color Tenture Tenture Type, and Tenture Type, and tenture Type, a	Topographic Position: SUMMIT Parent material: Sign Appet: Sign	The Admitic Costs Pipeline Sell Survey Drillings Class: Texture Very Drillings Class: Texture Very Drillings Class: Texture Very Drillings Class: Very D	The first cost Pipolite Sol Survey Distance Cost Pipolite Sol Survey Distance Cost Pipolite Sol Survey Distance Cost Pipolite Sol Survey Red Fragment Read Fragment Read Pipolite Cost Pipolite Sol Survey Red Fragment Read

Soil Scientist: JOHN WAY

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Signature: () ()

Test Pit ID:	0-	275-16	0610-	10	6 - 4	3	Topographic Position:	tion:	BACK	407	ra		Parent material:	terial:	PRS!	*************************************	
Date:	13	91/01/					% Slope:		6775				Slope Aspect:	ect:	0		
lob Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		MECL				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	089962000	52000					Depth to Refusal:		30:				Slope Fallure or slip:	re or slip:	5045	7 67	7
NRCS Soil Unit:	BER	133					Bedrock Type :		JAN J	TONE	21		Dip Slope	Dip Slope & Direction:	227	(100.)	Strike. 100
Mineralogy:	7	MIXAD					Vegetation:		キーへてっち	4	٤	とチューカ	PPX.	d. 81.	. 14		Juline,
						100				SDA		F		4	1 40 2020	1	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pucket Penetrumeter/	Lab Sample ID	Notes
00	2	かずかい	1	1	1	1	(, 1	1	1	8	1	1	2-45	, (1	
P	6	2000	7	3	40	200	17	9	s of	7	2	1	1	D I T	o t	1	
15		V -	100			7		0	1					1-4 F. M.	5.0		
7	6.16	2/2/0/5/1/2	25	41	50	5P	1	\$ 0 g	1457×	TP	2	1	1	2-4, (54.0	1	IN CAY SKINS
36	16.30	8125/6	ひく	J	68	t 0	1-3	40 So	034	23	200	ľ	1	1-47	70)	
P	o x	527570	5 10	2	C)	CI of	O D D D O X										
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Other Notes:

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BALKSLOPE

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Soil Scientist: Jacquary WARL

nature: MANA

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6/10/1	6					6 Slope:						Slope Asp	ect:	1820	1	
Dominion - Atlar	ntic Coast Pipe	line Soil Sur	vey		-	rainage Class:		WELL				Depth to V	Vater Table:	41"		
089962000						epth to Refusal:		1				Slope Fail	re or slip:	1:		
CER	1	37				edrock Type :		1				Dip Slope	& Direction:	١	10	Strike:
MIXET	0	ľ			-	egetation:		MEPLE	38	EC11	CHESTN	VTO		コルチリト		FERY MAYAPPL
Depth in Matrix	-					Rock Fragment Size (inches)	Plastidity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Packet Penetrometer/ pti	-	Notes
Later C.	1/2	'			1	1	1 1	1	1	6	Ţ	1	W' 1 ' 1 N-E		A S	
					1070	4-6	500	127	231	2	1	(3-VE, T, M		D 2 2	
15.2	12/2			2	० विषक	4.6	200	1450x		7	1	J	コートラート	7 2	P/B	
45.4	1 c123	_			٢	4 - 8	0 0	1873×	23	cs	(î	3-4,4	V	4 00 +	
NS.Y. SY.	x 6/6.3					4-6	20	150	1	1	(V	1-C	'	_	
2 4	3 5	P 2	300	27		12	N	されないの		244	STOUT SAC	4	15 X 34	237	ATE	CORBUES)
	#: 089962000 #: 089962000 #: 089962000	Dominion - Atlantic Coast Pipe Dominion - Atlantic Coast Pipe	Matrix Color Texture Class No. 2 12 12 12 12 12 12 12 12 12 12 12 12 1	Matrix Color Texture Matrix Color Class % clay Cyran S V Cyran S V Cyran	100 / Le Le Le Le Le Le Le Le	Matrix Color Texture Soil Survey Company Strain Class Strain Survey Matrix Color Texture Class Strain Str	In Atlantic Coast Pipelline Soil Survey Drainage Class: An	On-Atlantic Coast Pipeline Soil Survey Drainage Class: Drain	O-15 16 16 17 17 18 18 18 18 18 18	10 16 16 16 16 17 17 17 17	10 16 16 16 16 16 16 16	Texture Soll Survey Depth to Reck Matrix Color Texture Matrix Color Texture Te	10 10	Solution Statume Dentage Cases Statut	Some Attentic Count Papeline Self Survey	State Stat

16 Other Notes: RETTEW Job #: Mineralogy: NRCS Soil Unit: Job Name: Test Pit ID: 3RC2 Horizon BX 3+ 138 D Depth in inches L W 10 8 0 089962000 Dominion - Atlantic Coast Pipeline Soil Survey 10 YR 4/2 7,5485/6 548 7.5 TR 4/3 1.54R 96 Matrix Color 7-160610 65 Mononaahela 5 50 Texture Class 13.5 5 SI 400 % clay 32 30 24 24 16 -1480 12 25 % sand 0 00 Sold Fragment Type & % 9 CY 75 10 9 65 3 Rock Rock Fragment Size (inches) Bedrock Type : Depth to Refusal: Drainage Class: % Slope: Topographic Position: Vegetation: ray laguic 2. N N -6 3: 0 4 52 52 PM 70 PM PR PS Plastichy/ Stickiness Structure Type, Grade, and Size 20 (mp) msbk 3 101 55k 8 Subarayo tul, o Moist Consistence 1 + か 7 ootslope lotar SWP poplar 30 Horizon Boundary Topography & Distinctness 0 1 QW Sw 3 240102 Sccriet 7.518 4/2 CMC Redox Feature Color 10x2 3/1 5485/8 1 Sas Dip Slope & Direction: Depth to Water Table: Slope Aspect: Parent material: 1 Redox Feature Description Slope Failure or slip: 1 OM Roots t 1 0 + 3,5 74.20 5.25 -0 1.25 5,25 ,75 4 0 8 Maple X X 260 Lab Sample ID (1 5 (1) 5 5 E W N 1 FOODY Strike: C0/1 all chromo

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Notes

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Soil Scientist:

Field Assistant:

Dove

SKAPPON

Signature:

TEST PIT DESCRIPTION

TEST PIT DESCRIPTION STRUCE Field Assistant: Soil Scientist:

		5	Bw.	P	Q	Horizon in	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:	J. C. C. C. C. C. C. C. C. C. C. C. C. C.
		81	2-	3	2	Depth in inches			089962000	Domini		T	
			10YR 66	IOYR 2/1	5182.51	Matrix Color	3	Ber	000	Dominion - Atlantic Coast Pipeline Soil Survey	190	0278-	
			5.1	5-	. 1	Texture Class	MIXED	53		Pipeline Soil	10/16	16061	
			72	91	Ĭ	% clay				Survey		10-11	
			10	25	1	% clay % sand						1143-500	
			45	30	20	Fragment Type & %						do -	
			1 - 4	h-1	7-1	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
			PS	SS	1 1	Plastidity/ Stickiness						ition:	
			Imsbk	1691	4	Structure Type, Grade, and Size	Scar let	S	1				
			7	4	1	Moist Consistence	NOSU N	一大		SED	_	Sho	
			25	98	3	Horizon floundary Topography A. Distinctness	LEG W	DNG		1	8	sulder.	
			(r	1	Redox Feature Color	mople, che			Excessively			
			(1	1	Redox Feature Description	CWESTUNA	Dip Slope	Slope Failure or slip:	Depth to V	Slope Aspect:	Parent material:	
			CC	500	1 3 J	Roots	og is	1th tone	re or slip:	Depth to Water Table:	ct:	terial:	
			4.5	1.0	4.25	Pocket Penetrumeter/ pH	mounta, n	250	N	NIA	18		
		-3	53	52	52	Lab Sample ID	~ laure	×	IA	A	180	residuam	
							(9)	Strike:				MO	
						Notes		225					
			->										B 448 8

Soil Scientist: Duant Trans
Field Assistant: Tour Woults

Test Pit ID:	7	LC 12-100010-101001-104	010-1	220-	04	1	Topographic Position:	ition:	Trood D	ain			Parent material:	terial:	20000		
Date:	06	26-10-20					% Slope:						Slope Aspect:	ect:	700000	A. A.	
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		Well	raine	1		Depth to \	Depth to Water Table:	>50.	787	
RETTEW Job #:	089	089962000		1			Depth to Refusal		NIA				Slope Failure or slip:	re or slip:	11/4		
NRCS Soil Unit:	G	raignelle	sand	loan	A.		Bedrock Type:		NIA				Din Slope	Dip Slope & Direction:	2/12		
Mineralogy:	ai	silveren					Vegetation:		Henresca	E W	hite Pine	M	Rite Oak,	Red mark	1		otrike:
						Rock				USDA				1	1	Lawrence of	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample	Notes
00	0.05	2.5/1	1	1	ř	ſ	1	+	1	1	CA	Ī	7	Ţ	A ,	5-14	
7	224	3/1	2	GØ.	24	73	0.25	50	7.57	189	4 A)	1	ww.	and the second	5-24	
AB	4-7	4/2	Al	J.(55	161	3,0	50	1) -1	JUST	54	ŧ	1	W CW	2:0	5-3A	
5	7-18	7.542	CA	7	90	300	0.25-	So So	50)	-	WA	1	1	2m		5-48	
C2	1836	7,542	4	4	9	65%	810	20	06	_	A	1	1	1	25.0	5-5B	
Co	36-50	1512	~	N	92	XCV5	24,0	SO	6°	Г	1	1	1	1	11	1	Abserved along

Other Notes:

Field Assistant: TEST PIT DESCRIPTION FORST MALMEN

Test Pit ID:	-	-819A	- 11006	00-	18	7	OOOO Topographic Position:	ition:	TOFFA	11			Parent material:	arial.	Allvon	N. A. L.	
Date:		6 6	6			1	% Slope:		4				Slope Aspect:	9		0	200000
lob Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	Survey			Drainage Class:		Mod !	Well			Depth to Water Table:	ater Table:	18		
RETTEW Job #:	#: 089962000	2000	1				Depth to Refusal:						Slope Failure or slip:	e or slip:	(
NRCS Soil Unit:		Menongahola	6 636	6)			Bedrock Type :		J				Dip Slope & Direction:	Direction:	1		Chila
Mineralogy:		W: x 01	9				Vegetation:		いけん	Lasy	el. Re	dogle	Nem or	och , Red	Somo	211	to DIM ANT land
Horizon	Depth in Inches	Matrix Color	Texture	% clay % sand	-	Rock Fragment	Rock Fragment Size (inches)	Plantichy/ Stickbees	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample	Notes
>	0-25	2/5 2/2	7.15	0	33	18 33 384	08	Se	SG SMGRNFC AW	NF	AE)	1	26,34	0.25	02	
Bwi	から	E1551	5.	16	29	1 29 361.	37	52	13 XBSW	7	CW	1	(as,M	0.75	2	Rounded EdysonGF
Bw 2	-5:1	1875 JAS 1	7:5	25	2	25.	14-18"	35	14 YESO11	7	DE	1	(30	1.25	22	<
Sex Sex	28	1/5 /V	5.1 2627 201.	36	7	507.	13:	SS	- Washi	to	1	7.54E66	CP	お	2.25	75	Argulaccox
										,	3	100					
\ \ \		Te -															M

TEST PIT DESCRIPTION
Soil Scientist:
Field Assistant:

Dave Skippon

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Sod

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Signature:

Date: Job Name: RETTEW Job #: NRCS Soil Unit:		Atlantic Coast	26/0-	Survey	150	C	Topographic Position: % Slope: % Slope: Drainage Class: Depth to Refusal: Bedrock Type:	l:	S	SWP /	I I IX	ckslope 21	80	80	80	Slope Aspect: Depth to Water Table: Slope Fallure or slip: Dip Slope & Direction:	Parent material: CO Slope Aspect: 120
NRCS Soil Unit:		Derks					Bedrock Type :			S	+5+0h0			Dip Slope 8	Dip Slope & Direction:	Dip Slope & Direction:	Dip Slope & Direction: Strike:
Mineralogy:		111,180	1				Vegetation:		black	K oak,	s, red	maple		Scar	scarlet out	scarlet oals	1
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Roundary Topography & Distinctness	Redox Feature Color		Redox Feature Description	Redox Feature Roots	Roots Poder Prestrained	Roots
Oe	7	7.5182.5	1	1	1	20	.5-1	1 1	1	1	aw	1		1	133	52.7 FE	
P	7	104R 3/2	5	6	5	200	1-5.	90 50	1fgr	4	aw	j		1	1 3 4		
8+1	18	101R614	5-	o	5	जुर	1.5	P.S.	2m sbk	4	3	1		1	CW		
28,2	26	7,5486	1.5	25	c	98	7	85	2 msbx	4	Cw	248 SH		cwd	CW C C C	00	00
3843	504 54R5/6		Sid	30	0	25	2-4	PS 89	2msk fr	かか	1	1.548 % 2.548 %		pust pust cmp	5 + pure	7 7	7 7

TEST PIT DESCRIPTION

Field Assistant: Taylor Walter

Test Pit ID:	29	P280-1606	01	308-DAT	AT		Topographic Position:	ition:	CXXXX	CAPE			Parent material:	erial:	Collinsin	1	Residence
Date:	06	06-10-2016	6				% Slope:		225				Slope Aspect:	A	3000 NW		
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		LOWEMHAT		EXCESSIVE EX	12	Depth to Water Table:	ater Table:	NA		
RETTEW Job #:	089962000	52000					Depth to Refusal:	**	JAC.				Slope Failure or slip:	e or slip:			
NRCS Soil Unit:	K	50	hinney,	Aill	Luxur		Bedrock Type :		S: Itstan	1			Dip Slope & Direction:	Direction:	250		Strike: 2
Mineralogy:	1	7					Vegetation:		Bunta 6	8.46	Mestrus	rut Oak			,		-
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickinsus	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Enpography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ ptr	Lab Sample ID	Notes
)e	0-05	7.542	1	5	(·	(1	r	1	1	1	SA	ì	1	1	. ,	(
		JAHS L	4			本	0.25-	Po	64						0.75		
A C	05-25		7	10	40	25%	1.0	05	1,2	1/97	57	1	1		44	1	
	126	1000	,	7	1	VOR	0,75-	00	SOL)				0.75		
1mg	8:0	2/2	w	6	33	2020	40	So	171	1ms 54	54	-1	Y		45		
	0	1040	0 .	5	2	xcl	0.25	po	SON			1			1.75		
7,000	19	3/6	w	B.	-		8,0	50	1,2	M	JA		1		4.5		
2	10	1046	1		>	NC+	120	00	0	1	>				1		
70	24	5/6	m	6	07.	95%	10.0	50	10	A.A.	74	1	1		7.6		
	1							1							1		Sillaton Roders
117	3	()	1	1	1	Y	1	1	1	1	1)	,	1	1	

Soil Scientist: TEST PIT DESCRIPTION

Test Pit ID:	P281-160610-	1-1144-	F			Topographic Position:	tion:	SUMMIT				Parent material:	aterial:	120510	Residence	
Date:	06-10-2016	0				% Slope:		122				Slope Aspect:	pect:	275.	M	
me:	Dominion - Atlantic Coast Pipeline Soil Survey	st Pipeline Soil	Survey			Drainage Class:		SOMEWILLT POORLY	HAT 8	DORLY	DRAINCO	Depth to	Depth to Water Table:	NIA		
b#:	089962000					Depth to Refusal:		3211				Slope Fai	Slope Failure or slip:	NIN		
	5	manhous	rill	sill loan	4	Bedrock Type :		SI/6 tane				Dip Slope	Dip Slope & Direction:	180		Strike:
Mineralogy:	B					Vegetation:		white of	July ,	Chestern	not Bak	White	e Fine , &	Source	77	ingune time
Horizon Depth in inches	h in Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctness	Redox Feature	Radox feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	
Oe 0-	15/2	1	F	ì	1	1		1	1	54	1	1	j	1 4	S-1A	
7	1072	6	7	38	38 Voit	1520	55	Son	2	SA	1	1	-	. N	5.70	
0	4			(10.0		0,						000		000	
BM 7-	19 6/6	Sil	26	26 22	1002 × 1000	3.0	2	Sin	7	SA	1	1	7 m 2	4.7	5-34	
BW 13-18	104n	5:2	21	77	MOZ.	0,25	500	Son	7	SA	D: 10412	2.0	Th	7.6	5.44	
Cr 1831		Ţ	1	\	F	1	F F	1	1	54	1	Ţ	1	1 1	Ţ	Laprol
N 32+	14	7	y	2/2	A	t	1 _ 1	T.	1	1	1	((:	1 1	(filterton
					-						*					

Other Notes:

TEST PIT DESCRIPTION

Soil Scientist: DU ANG HOUAX

Field Assistant: Taylor Walter

Test Pit ID:	8	8282-1606	160610-0839-0		7		Topographic Position:	ition:	TAESLAPE	3			Parent material:	terial:	C. Demina	1	apidmen
Date:	00		6				% Slope:		320				Slope Aspect:	e.	1120	1	
Job Name:	Domin	ant	Pipeline Soil S	urvey			Drainage Class:		20	name	-		Depth to W	Depth to Water Table:	4/18		
RETTEW Job #:	089962000	52000					Depth to Refusal:		CA!				Slone Failure or slin:	re or slip:	415		
NRCS Soil Unit:	5 6	4	near sil	120	am		Bedrock Type :		Londstone	me			Dip Slope 8	Dip Slope & Direction:	100		Strike: 39/0///
Mineralogy:		2	me 0				Vegetation:		Red musho	1	learly to	ank o	Aceto	Restort Bus	White Sah		- Barrie
												T. C.			The same of the sa	1	III P
Horizon	Depth in inches	Matrix Color	Texture Class	% day	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/ pli	Pocted Penetrometer/ Lab Sample ID	Notes
0e	0-1	2/5/2	1	1	1	1	1	7 1)	1	LA	1	1	1	7.2	5-18	
	3	7.54m	0	2		20	- 520	00	62					25	0,5	45.5	
7	3	4/2	×	7	£	20%	0.5	50	1,3	164	S A)	1	74	4,9	5-28	
0 ,	2-9	21516	0	1	1	CF	0.25	00	30h	4015				21 32		5-34	
136	-	516	~	1	5	-22	1,5	So	1,1	TUTA	SA	1	(Im	4.5	5-38	
2	9-16	520	0	F		ACK.	-25.0	PS	582		>			1111	2.5	5-44	
74	i	3/4	35	5	00	35%	2,0	50	7,2	10x	X)	1	1,0	4.6	5-48	clay rains
	>	275		,	1	YCH	135.0	29	584					7/	3.25	5-54	1
1772 1	16-27	516	Sec	10	26	ret	3,0	55	113	FIRS.	54	١	1	7	4.4	5753	day more
	27-44	35		2	11	SC =	0.25-	No de	Sohn	2	7			7	3,5	5-64	Den Shion
8+5		415	CK	31	44	33/0	20,0	53	1,3	my) "	1	,	1.1	4.5	5-63	0 0
0	15-DA	7.542	0.0	>	5	CK	2210	50	SBV	1	2	1		7	1,5	14-5	no
50	7		SCL	30	20	202	2,0	25	1,2	224	SR	1	(11	2.5	5-7B	clay skin
,	2	7546	0	2	22	XC+	135.0	20	SAW	1011	4>		١)	2.0	5-84	budding street
7	64	316	75		(85%	6.0	50	1,2	VERY	CO	1	١		5.7	5.00	0

Soil Scientist: Field Assistant: Taylor TEST PIT DESCRIPTION
Soil Scientist: Hoad block

Test Pit ID: Date: Job Name: RETTEW Job #: NRCS Soil Unit: Mineralogy:	P - 2 Dominion - A 089962000 M. C. Y. S.	Atlantic Coas	st Pipeline Soil S		4	E	Topographic Position: % Slope: Drainage Class: Depth to Refusal: Bedrock Type: Vegetation:		yn:	Market A. A. A. A. A. A. A. A. A. A. A. A. A.	Market A. A. A. A. A. A. A. A. A. A. A. A. A.	Market A. A. A. A. A. A. A. A. A. A. A. A. A.	Warreller of K With pass	Made Cate by Me M. Slope A Made Cate by Me M. Slope F Slope F Slope F Slope F Slope F Slope F	Made Cate light ell	All A 0'5 log Ce. Siope Aspect: 35 Siope Failure or silp: Dip Siope & Direction: Coll	Parent material: Slope Aspect: Depth to Water Table: Slope Failure or slip: Dip Slope & Direction: Dip Slope & Direction:
Mineralogy:		JA:	Xed	1			Vegetation:		Churten	+ OR	K JY	tch haz	21.10	10	of cak	KICEd	KICEd
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Masticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description		Roots	Roots Pucket Penebumeter/	
00	200	7.5%	(1	ı	l	1 1	ŧ	1	AW	1	7		MAR	3+M 5.2	
7	2/2	104R4/3	25	6	6	X 251.	21.7	95	IMSAN VEC	JAN	AN	1	1		277	4.7	7
ma i	15.4	7152	2:5	1616	16	CN.	C1/2"	35	MSBK	110	CW.	1	1	4	025	35 1.0 4.7	1_
3	er e	h19 2457	5, C	- CO	15	967.	11/2"	55	Masm	14	5	1	1	1	3 45	58.1	
CZ	14	11/2	1,5 N.Y.	-	82	Z.	C1/2"	35	2MERIC	11	CW	75415/18 CMP	00	CWD			14
103	405 Hri-	7.54	Channes (6)	2	2)	951.	C1/2"	Po	1 M5BK	NES	1	1		1	ħ	4.8	

Other Notes:

TEST PIT DESCRIPTION
Soil Scientist: DECRETE MOCKET

Soil Scientist: VILEM Walter

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	V-284-	60606-0748-DEF	0-0	748		Topographic Position:	tion:	Backe	Stern	de		Parent material:	aterial:	Thing C	ושים ושעיליטוני	NOW
Date:	9	01110110				% Slope:		1	1.			Slope Aspect:	ect:	355	0	
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	oast Pipeline Soil	survey			Drainage Class:		Well				Depth to	Depth to Water Table:	1		
RETTEW Job #:	089962000					Depth to Refusal:		36				Slope Fail	Slope Failure or slip:	١		
NRCS Soil Unit:	Boils	18)				Bedrock Type :		Sharks	2 5	+0+	- Me	Dip Slope	Dip Slope & Direction:	4005		Strike:
Mineralogy:	mixed					Vegetation:		-	ナロナ	all.	Red Co	11. 0	hodale	TOTAL P	1	2000
									USDA	-		-		-		0
Horizon ir	Depth in Matrix Color Inches	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Harlson Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumeter/ pH	Lab Sample ID	
000	2.5/1	1	1	1	1	1	11	1	1	Au	(1	34	1 4	5	
D	2.5- long 3	25	2	25	301.	4/17	SOPO	Do Itsur NEL AM	VF	SA	1	1	200	0,25	52	Collusion Red Coff
2Bw1 4-	h/0)	2.5×	J	25	304.	21/2"	55	SP IMSBU Fr	7	CM	1	1	100	10 2	3	Residoum
BW2 16	16- 7.51R	Sil	7	S	40%	13"	55	NOSW /	7	3	4	*	Co MAG	2,0	24	
37	25- 7.542 34 5/6	Cobbly		1	98.1.	2-6"	1 (No	1	CS	k	4.	币	1 1	1	<
300	34-	tan Shale	8				1 1	,	-	AS	Ą).	-	7-	1 1	1	
Juh.	36+ 1	ight Brown	our	S	#store	\$	11	(1	1		1	3	1 1	1	

Other Notes:

Thin collusial mantle over 185 durin

TEST PIT DESCRIPTION

soil scientist: D. Franste (Marchy Field Assistant: Taylor Walter

Signature:

Test Pit ID:	P-385-	0000000	0.90	757	- DE	70	Topographic Position:	ion:	Pidse 2	tue			Parent material:	rial:	Res.	durk	in over
loh Name:	Dominion - Atlantic Coast Pineline Soil Survey	ntic Coast Pineli	ine Soil Surve	١		0 3	Drainage Class:		me II				Depth to Water Table:	ater Table:	1		
RETTEW Job #:	089962000					D	Depth to Refusal:		37				Slope Failure or slip:	e or slip:	1		
NRCS Soil Unit:	Berky	CL8				В	Bedrock Type :		5,1456	Me-	1.ght	color	Dip Slope & Direction:	Direction:	270 6		Strike:
Mineralogy:	_	W.XIA				V	Vegetation:		Chestro	toa	Ry Sub	te call, 1	2hite	PINR,	blueb	berry	
		-	150							USDA						1	
Horizon De	Depth in Matrix Color inches		Texture % (% clay %	% sand Fi	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podat Penetrometer/	Lab Sample ID	Notes
200	0-1: 7.5 u/c	2.5/1	1	1	1	1	- (11	1	1	1))	24	5.4	15	
D	12 long	5 K/200]	-	<u>_</u>	80	201	17	88	13 46531	13	Aw	1	3.	724	25.0	22	
130	125-104A	2	7	6	20	35.1.	710	55	185M 1	13	CW	1	1	123	5.5	53	
2842	12-7,5u	En	5;CL 33	0	23	1.08	C1/2"	SS 8	JASSA	1	(M)	1	1	130	6.5	15	Redstate Cox
2623	2 805.47	5 2/2/2	23	36	U	1	1	MY	3,45BH	Fo	m			MA	5,50	25	Clay Colms
5	37 2577/1 37 2577/1	177/1 S	125		T	1	1	55	20	7	CK	72	1	1	1 1	1	Rochstice Softerery
P 2	37+	(1	1	,	1	V	1 1	1	1	1	1	l	١	11	1	

Other Notes:

Cr. Very Soft rocks- completely hithochiom.c marky colors. breakdown into Ens w/o Courset Syvania

Soil Scientist: De Moster Machine Field Assistant: Taylor Walte

moure: David Leistrand

		138 198	Bu2 19-	Bui 19	00-1.5	Horizon Depth in Inches	Mineralogy:	NRCS Soil Unit:			Date:	Test Pit ID:	
		1000003	1041/25/14	hJstrol	15 Sup	h in Matrix Color	W.X.	52130	089962000	Dominion - Atlantic Coast Pipeline Soil Survey	10/10/10	7-280-110	
		2.CN	25	12	1	Texture Class		DE		st Pipeline Soil	0	00000-08	
		<u>~</u>	17	2	1	% clay				Survey			
		25	20	ō	1	% sand						JE-DEF	
		CN 40%	2009	C. 121.	1	Rock Fragment Type & %							
		13.	1	7.	1	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
		55	P0	05	1 1	Plasticity/ Stickiness						sition:	
	24	165BK Fr	MASMI	50 1882 NER	1	Structure Type, Grade, and Size	15/12/150m	1	1	1001	24	120,00	
		T	7	TH	1	Moist Consistence	USDA L				7.	bac	
		1	CE	CV	CW	Horizon Boundary Topography & Distinctness	1750					LILA	
		1	1	1	1	Redox Feature Color	Pine Re				,	andstone	
		((1	1	Redox Feature Description	COLK	Dip Slop	Slope Fa	Depth to	Slope Aspect:	Parent material:	
		不	38	C 3 %	sing t	Roots	+ Knide	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	pect:	naterial:	
		2.1	5 N	220	1 18	Podiet Penetrumeter/ pH	endro	1	1	1	239	3	
		75	23	52	5	Lab Sample	13				0	2010	
		Cet.	Noci	Red	6,00		Blueber	Strike:					
		Cot - randomly	9 WIB CAISON	programa	AM AEONEN	Notes	A.	(,

Other Notes:

Field Assistant: Taylor walter

Signature: family flower

	1	1	400						1.00						- 0		
Date:	Dominion	Dominion - Atlantic Coast Pineline Soil Survey	Pineline Soil S	UNPV			Drainage Class:		Me				Depth to Wat	Depth to Water Table:	10		
RETTEW Job #:	089962000	0					Depth to Refusal:		2				Slope Fail	Slope Failure or slip:	1		1
NRCS Soil Unit:	30	Berks.	COR				Bedrock Type :		9; (45	1 town			Dip Slope	Dip Slope & Direction:	280	380	Strike:
Mineralogy:		Mixe					Vegetation:		Chestro	+ conk,	Black	u sum,	wh.	CPIP	Blue	esury	Ruxden
Horizon De	Depth in	Matrix Color	Texture	% clay	% sand		Rock Fragment	Planticity/ Stickiness	Structure Type,	Moist	Herizon Boundary Topography &	Redox Feature	Redox Feature Description	Roots	Pucket Panedrometer, phi	Lab Sample	Notes
00	100	1 2 3 cm	1			Type ox 76	1	1 1	1	1	1	1	1	35	1	1	Thin On underseath
B 20	15.5	6/4 Sup	2,5	16	7	8 isi	1/2	Po	18831	71	S	1	1	150 150 M. F.W.	5.0	1	
Bwa	1257	1/3/2	2'S Nich	1		28.	12:	55	1825 W	77	CW	1	1	W'te	K.0 7	1	Catorientro
286 2	2000	h/a Jahol	S'CN XCN	3210	10	N. 755	751. 2.6"	45	16584 Fr CW	T	CW	1	1	The state	11	1	
5 20	797	1	1	1	1	1	1	, 1	1	1	1	1	1	1	1 1	(
		1															

TEST PIT DESCRIPTION
Soil Scientist: Field Assistant: + and er walter

		1111						000	(3			21		700		
Date:	6 6	8				% Slope:		201	(Siope Aspect:	ect:	1/0		
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	Coast Pipeline Soi	Survey			Drainage Class:		1120				Depth to \	Depth to Water Table:	-		
	089962000					Depth to Refusal:		36	7			Slope Fail	Slope Failure or slip:	rimen		
	No. XS	00				Bedrock Type :		Sing a	MARIO	Sard	Istoric	Dip Slope	Dip Siope & Direction:	220	5	Strike: 6/0
Mineralogy:	20	9				Vegetation:		Red oak, chestnut oak, red map	hestnut	oak, red	maple, whit	e pine,	le, white pine, mountain laurel, blueberry (from photos)	aurel, bluek	Derry (from	photos)
Horizon Dep	Depth in inches Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastidity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Clatinciness	Redox Feature Color	Redox Feeture Description	Roots	Podet Penetrometer/	Lab Sample ID	Notes
000	0-2 542	1	1)	1	1	11	1	F	F	1	1	35	4.3	SI	
7	5.5 184	25	7	5	CN 201.	んかっ	200	60 1858K NE AM	F	MA	1	(63 t	9.25	52	
BW 22	0	7,50	5	16 14	B.	50	20	IMSAIL	31	S	1	(3000	0.75	53	
20 Ja	32 7,518		V.S.B 25/2		B 22	00°	55	16.584	T	Cw)		300	1.75	15	mastly Sandstone
	53 +															
2 2 2 2 5 5 2 0 inc	0.000000000000000000000000000000000000	Sico Class	3 6 x 1 x 1 x 2		Rock Fragment Type & %	Depth to Refusal: Bedrock Type: Vegetation: Size (inches)		Red oak, c Grade, and Size	hestnut USDA Moder Conditioners	Sand Oak, red Particular bundary transparate a transference to the control of th	maple, whit Redox Feature Color	Slope Fall Dip Slope e pine, actor feature baseletists	Roots Roots Roots Roots	23° aurel, bluet rate transment 4:3 0.25 4:4 3 1.75 4:4 1.75	S S S Derry (from S S S S S S S S S S S S S S S S S S S	Strike: photos

Field Assistant: Rache TEST PIT DESCRIPTION
Soil Scientist: Michael

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	X-1	7-187-18Q	10000 -1040-M	040	MI	1	Topographic Position:	tion:	SABBON	300			Parent material:	erial:	Collar	127 121	Ser Kes dag on
Date:	61	16/16					% Slope:		901	+			Slope Aspect:	a	270		
Job Name:	Dominio	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		7				Depth to W	Depth to Water Table:	1		
RETTEW Job #:	089962000	000					Depth to Refusal:		27"				Slope Failure or slip:	re or slip:			
NRCS Soil Unit:	W	Borks 8	M				Bedrock Type:		5:K54	sne		,	Dip Slope 8	Dip Slope & Direction:	25° S		Strike: 100°
Mineralogy:	1	M.xed					Vegetation:		Chestonu	1 00	1 × 3	Mite o	oak	1	dure!	136	200
Horizon	Depth in	Matrix Color	Texture	% clay % sand		Rock Fragment	Rock Fragment	Planticky/ Stickbress	Structure Type,	Moist	Horizon Boundary Topography &	Redox Feature	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample	Notes
>			2			ype & %		0	1						26.5	į	thin O hariron
1	1	104×3/3	5	0	25	7	0.5	80	FGR	K				3HM	5,0		2.5
more .	0	11381	52		7	5	7	09	15021	00	mc			1176	0.5		
INVE	-	916 Wal	5	1	(3)	1	11	50	YOU	TX	111			11/16	2,00		
S C		6/8/8/8	GR	17	30	70	_	20	N. S. K.	33	Da			21712	0.75		
			7.6					10		1.1	111			0	2.0		
K		1078 5/6	VGR	77	80	3	_	3 8	Omerive	T.	000		and the same	2 2	too de		
			7		1	1	-	C	,	1.1.	11		-	-	0,0		
7		N	1		1	1					5						
7	0	Ce	0	-	C	1							-				
					-												
													_				
													-				

Soil Scientist: Rache Field Assistant: Rache File

Signature;

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-7063

est Pit ID:	P-282-12	160606-1445-	45-	ME	1	Topographic Position:	ition:	Ridge/s	SIGESTO	200		Parent material:	terial:	1111	C MAN C	Jar Resdu
late:	6/6/16					% Slope:				1		Slope Aspect:	ä.	270		
ob Name:	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		DD				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	089962000					Depth to Refusal:		1,850				Slope Failure or slip:	re or slip:	1		
VRCS Soil Unit:	Berks 8					Bedrock Type :		Sand	5/00	6		Dip Slope	Dip Slope & Direction:	(Strike:
Mineralogy:	nixed	1				Vegetation:		with la	188	0.6	hite 1	6 14	the shir	7 17 20	nk.	ALTO 01.116
	Path is				Rock	Back Francisco			USDA							1
Horizon i	inches Matrix Color	Class	% clay	% sand	8 7	Size (inches)	Pleatidity/ Stickiness	Grade, and Size	Moist	Topography & Distinctness	Color	Redux Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
0	0-2 54RJS/4	1	1	1	j	1	11	1	1	1			1.735	0.25	· .	
-		5					5			1		-		1.0		
1	-3.5101R\$/3	55	15	8	15		22	1F6K VFR	MAN	-			36416	2,5	2	
F 3	H/3 SKOID453	22	12	5	27	_	P0 50	YERAI	NFR.	200			3FMC	5,0	5	
25	245 240 PC-1	NOR	77	23	040	-	SP	MBSM	V	2			246	0.75	20	
		-					0			1		-		1		
	16 W/01 BE-	X6R FSL	10	60 70	70	-	Po	0.88.0	×.	11/			175			JUSK / 840 11 Juga
*	150 Fracts	me U	1,	1.8	500	>	2 2	D 22	75	3000						
					1							-				
			ū													

TEST PIT DESCRIPTION

Soil Scientist: Michael Lane

Field Assistant: Rachel Hill

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P-291-16	160606-	1330	M	EC.	Topographic Position:	ition:	Summ:	+			Parent material:	terial:	00/160	140 M. 7	a over Pasidau
Date:	6/6/16					% Slope:		20/2				Slope Aspect:	et:	2150		
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	t Pipeline Soil S	Survey			Drainage Class:		DD				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	089962000					Depth to Refusal:		40/0	nach	1920		Slope Failure or slip:	re or slip:	00		
NRCS Soil Unit:	Berks &	7				Bedrock Type :		N3 +1-5	900			Dip Slope	Dip Slope & Direction:	150	35	Strike: 256°
Mineralogy:	mixed	1				Vegetation:		Chastra .	toa!	, scarlet	let sak	6.3	110 pla	400	mapl	E, BrIVET
Horizon	Depth in Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horison Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
A)-1.5 loys, 3/2	1.0	5	5	5	-	200	MURR	2)		A COLUMN TO SERVICE AND ADDRESS OF THE PARTY	2FM	5.0	5	13,5° 2 HAZAN
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20	8-20757K 5/2	VGR S:CL	8	20	40	_	25	Omstare PR-	17 -27	1 6	of the order of the latest designed	MAIL THE THE	NZ	1.75	2	lithichromic
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											Jeron mary 1	-				
											-					

Soil Scientist: Michael
Field Assistant: Rachel

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

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Date:	6	16/16					% Slope:		255				Slone Aspect:	5	180		
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soi	Survey			Drainage Class:		100				Depth to V	Depth to Water Table:	500	Mat e	
RETTEW Job #:	089962000						Depth to Refusal:		42				Slope Failure or slip:	re or slip:	14 0		
NRCS Soil Unit:	TC	Serks BD					Bedrock Type :		shale/	11.5	Store		Dip Slope	Dip Slope & Direction:	60	2	Strike: 250
Mineralogy:	N	mixed					Vegetation:		redoma	cole	hickor	41 ch	hestnat	¥ 00.15			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay 9	% sand	Rock Fragment	Rock Fragment Size (inches)	Plantidity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horton Roundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podet Prestoneia/	Lab Sample	Notes
A	2-0	8 5/4 YAG	2. in	251 308 25	6.9	50	3/1	FO	IMGR	50				2FM	0.5	1	
Bt 2	2-9	10 8 46 CR	500	206 306	0/3	15%	1/2		MSK	R	188		************	2FM	0.75	1	
386	27-1	1-23 loyk 5/6	5,57 30%		120	201>		SS	MSBK	Z	3			361116	h'h	1	Sove Manie Co
DBC a	3-33	2BC 23-33/W/R G/4 S:CL 28% 15% 40%	25.00	1826	88	305		SS	ZMSBK	云	3			28-11/	5.0	1	Some ye suin do
2CR 35-45	5-45	2,546/3 XCn	SECT XCV			90+			Omassive	R	8			Ollasione!		f	tractured state
Be	43+	ck											-11				1. the chome C
													~				

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TEST PIT DESCRIPTION
Soil Scientist: Rachel A.

Signature; Alla Mark & Y

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P-293-160	606-1056-MEL	Topographic Position:	Λ	Mesage		Parent material:	Sandstone 1	esiduam
Date:	6/6/16		% Slope:	0%	0		Slope Aspect:		
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	peline Soil Survey	Drainage Class:	UD			Depth to Water Table:	1	
RETTEW Job #:	089962000		Depth to Refusal:	1961			Slope Failure or slip:		
NRCS Soil Unit:	Hazleton (800	Bedrock Type :	Sandstone	SNO		Dip Slope & Direction:	Could not men	Strike;
Mineralogy:	Mixed		Vegetation:	Chestrutock	HOCK, Scarlett	Oak w	wo Pine Hickory		
							100		
Horizon	Depth in Matrix Color inches	Texture % clay % sand Fra Class Typ	Fragment Fragment Size (inches)	Structure Type, strates Grade, and Size	Moist Horton Boundary Topography & Consistence Distinctness	Redox Feature Color	Redox Feature Roots	Product Personneliss/ Lab Sample	Notes
000	0-1 5422511		1	1	5		75	0,25 51	
A	1-5 WW 2-1	12 60°	1 25	SO IFER WAR	VIR		3FW	25 52.0	
BE	2-5 1048 43	20920 75	15% 1	PO IMJEK VAR	J. SAV		35/1	\$5 52.0	
Bw 1	5-12/0/45/6	SL 120,000 40% 1-3	2-1 %	SS MSBK	VIR IN		JW18	6.55 SH	loany
BC1	12-24 1078 544 XGR	XGR 1526528	3% 3	SO OTHERSINE	NAN MAN		I W	4.5 55	
CR	24-46 Santy red	-	-	1 3	1		Very tew		
Bed	rock So	and stor	6						

TEST PIT DESCRIPTION
Soil Scientist:

Signature Munder

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	7.7	74-1606	9000-0,02-WE	1-8	UFF		Topographic Position:	tion:	Signesione	NEGO.	1001	20	Parent material:	terial:	Collas	the !	over re	Soun.
Date:	06/	06/16				10	% Slope:		24 6%				Slope Aspect:	ect:	1100			
Job Name:	Dominion	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		610				Depth to V	Depth to Water Table:	Dane			
RETTEW Job #:	089962000						Depth to Refusal:		NY.				Slope Fallure or slip:	re or slip:	70			
NRCS Soil Unit:	Ber	K58	D				Bedrock Type :		fractor	100	Shoele		Dip Slope	Dip Slope & Direction:	550	2	Strike:	00
Mineralogy:	1177	Ko)					Vegetation:		Red ma	2/0	oak Can	160×	to vet	+				
	-	4 000								USDA		, , , ,	400					
Horizon D	Depth in I	Matrix Color	Texture Class	% clay	% clay % sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Hariron Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID		Notes
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TEST PIT DESCRIPTION MOMOR LANC:

Soil Scientist P345 HOOS 1335 PMEL

Field Assistant: Rechel Will Lank F.

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

			A 36 A	OPTRODIC POSITION:		ひくつて くこく て))	bront matorial.	- こしていたい	•
Date:	2/18/2			% Slope:	102	C		Slope Aspect:	11/V	
Job Name:	Dominion - Atlantic C	Dominion - Atlantic Coast Pipeline Soil Survey	Dra	Drainage Class:	14 10 11	しいること		Depth to Water Table:	かってのス	
REFTEW Job #:	089962000		Der	Depth to Refusal:	1. J. C.	The state of the s		Slope Failure or slip:	, 2	
NRCS Soil Unit:	- Control	30)	Bed	Bedrock Type :	Shale			Dip Slope & Direction:	山の。火の	Mustrike:
Mineralogy:	MISYEU		Veg	Vegetation:	li	1500	maste, osh	teory	-	-
Harizon D	Depth in Matrix Color	or Texture % clay % sand	Rock Fragment	Rock Fragment Plantery	Structure Type,	Horizon Boundary Topography &	Redox Feature	RedexPeature Roots	Podet Penetumeter/ Lab Sample	imple Notes
QA O	-2 10JA3	0-2 10/19 3/5 SIL 10% 15% 40		1	IRA T	. 0		W T	0.25	
20	17 10/R 5	BW 2-7 10/8 54/ GR 126 156 30	8	28 47 47	I TSR, F,	H-1		27	5,75	į
()	-24 WKS	7-24 101RSH XCO 108 158 85	585	S 3	Olsie F		M a distribution of the di	Cosia	Til	
7	24 7	Fracticed be	bedrock				egyptionary (1885), and a Sylvanian Spring for the service of the	* Older an aggregation (sector all mode de de comme	7777	
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TEST PIT DESCRIPTION Soil Scientist: Dan Fund Soil Assistant:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	7-296-160603-1245-5EF	13-1245-		Topographic Position:	tion:	UF 02414	backel	1/2	Parent material:	aterial:	601	CVICA	y are to side
Date:	6316			% Slope:		22			Slope Aspect:	ect:		00)	(adjust for wrang (circulian)
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	e Soil Survey		Drainage Class:		10/01			Depth to	Depth to Water Table:	200	S CORE	Cookin abole to con
RETTEW Job #:	089962000			Depth to Refusal:		390			Slope Fail	Slope Failure or slip:	1	-	
NRCS Soil Unit:	のいる (おt			Bedrock Type:		mayor plotos	may		Dip Slope	Dip Slope & Direction:	250	N	Strike: 1 42
Mineralogy:	No.	X		Vegetation:	0	history	rot co	F How	Hocksom	8	0-14/2	2011	2
						USDA)A				1		0
Horizon	Depth in Matrix Color Class	ture % clay % sand	Rock nd Fragment Type & %	Rock Fragment Size (Inches)	Mantidity/ Struct Stickiness Grade	Structure Type, Grade, and Size	Moist Topography & Ostincess	Redox Feature	UITE Redox Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
P	2.5 104/3/b L	- 14 38 151;	9/	71"	A 88.	MA AN IBM	FAI	1	1	かかか	c	\leq	Very things conti
8+12	8+12,5- 2.5116/4 5,7 The 30 123x 51.	1 16 30	1597		\$ F	59 Sty 18531	50	1	(-Cont	0	52	ped SmotSlope (of
28+21	28+10- 104R6/4 S,CL 35 14	CT 38	1)	5) If young and	F NEST	C	0,)	ころか	360	53	Soft years and
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Other Notes:

Bed rock slopes with Stope

TEST PIT DESCRIPTION

soil scientist: NCARC LANGE Field Assistant: ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD FIELD ASSISTANT ROCARC LANGE FIELD ASSISTANT ROCARC LANGE FIELD FIELD ASSISTANT ROCARC LANGE FIELD FIELD ASSISTANT ROCARC LANGE FIELD

Signature:

Date: Joh Name: Dominion Atlantic Coast Pipeline Soil Survey RETTEW Job #: 089962000	% Slope: Drainage Class:	se seemed	Slope Aspect: Depth to Water Table:	270
Dominion - Atlantic Coast Pipeline Soil Survey	Drainage Class:		Depth to Water Table:	
.				
	Depth to Kerusal:	Portion of	Slope Failure or slip:	
	Bedrock Type :	5045 415 2023	Dip Slope & Direction:	450 NW Strike: 750
	Vegetation:	t and arts	enezen h	
Horizon Depth in Matrix Color Class % clay % sand Fragment Type & %	Rock Fragment Pleticht/ Size (inches) Stkiness	Structure Type, Moter Types Moter Types Moter Types Moter Types Moter Types Parket Structure Types Moter Types Typ	Féature Redukseurs Roots	roder Peanstenerary Lab Sample . Notes
# 27 NO 1 51-0 30 A		1.68		Valentification in the contraction of the contracti
15-2 10 yr 374 STL	83	3 TERR & SC.	encounter and an extra contract of the contrac	4752
BE 2-7 1048 6/4 CUST 157 108 25%	W 10		The second secon	52.05
25 251 251 725 316 yral 51-2 mg	\$ \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	2 3884 FV WC		22 3
25 24 24 25 75 85 WM CHE	X	S DAMPSON FIT WIC		50 8
Cr 17-27 7548 7/2 XCN	The state of the s	- Comments	Frague of	
7 Shale bed rock			en en en en en en en en en en en en en e	

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION
Soil Scientist: PENSION (MACMO)

Signature: DOWN)

I est MI ID:	ゲータドロ・「ゆりのしひ~ 」りゅう~8万丁	000	100	000		Topographic Position:	TEIOH:	でであった人	5			Parent material:	Prisi:		アクラス	7
Date:	6/3/16	6				% Slope;		R				Siope Aspect:	1	7	ò	
Job Name: Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil St	ırvey			Drainage Class:		113W				Depth to Water Table:	ater Table:	120	, co	o both dight of
RETTEW Job #: 0899	089962000					Depth to Refusal:	_	30				Slope Failure or slip:	ne or slip:	- Charles		0
NRCS Soil Unit:	Ser Ser		35			Bedrock Type :		G. Hobbye	TOME		***************************************	Dīn Slope 8	Direction:	20,000	Λ	Strike: 100°
Mineralogy:	W. NOW	/	ì			Vegetation:		("hesh	8	7, 80,	1	hours with		hazel	200	Salla Company
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Horîzon Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (Inches)	Planticity/ Stickthour	Structure Type, Grade, and Size	Moist	Hotter Soundary Topography & Distinguings	Redox Feature Color	Audox Feature Description	Roots	Pocket Penetrometar/ pH	Lab Sample Ul	Notes
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Soil Scientist: Field Assistant:

Signature:

Date:							,	4	***************************************						
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lob Name: Domin	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil Su	irvey		Drainage Class:		1000				Depth to Water Table:	ater Table:	200		Regent of the
RETTEW Job #: 089962000	2000				Depth to Refusal:		55				Slope Failure or slip:	e or slip:	-m-	- 1	
	301/2	(85)	9		Bedrock Type :		Ì				Dip Slope & Direction:	Direction:			Strike:
Mineralogy:	Mixed		į		Vegetation:		(Mestratock)	1 00 K	- DEAS	J/Z	2	Quedellendre	١ ١		
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Horizon Depth in inches	Matrix Color	Texture Class	% day %s	% sand Fragment Type & %	Rock Fragment Size (Inches)	Plantishy/ Sciedness (Structure Type, Grade, and Size	Mobt Consistence	Morison Boundary Topography & Obdoctness	Redox Feature Color	Redox Yesture Omeription	Roots	Podat Panetrometer/ pk	Lab Sample ID	Notes
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Other Notes:

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TEST PIT DESCRIPTION

soil Scientist: 50 ha C Raberts

Field Assistant: Taylor Walter

Date:)	34	Slope Aspect: Depth to Water Table: Slope Failure or slip:	2 gl
Dominion - Atlantic Coast Pipeline Soil Survey Drainage Class: 089962000 Depth to Refusal: Bedrock Type:	340	Depth to Water Table: Slope Failure or slip:	
089962000 · · · · · · · · · · · · · · · · · ·	30	Slope Failure or slip:	شي المارية
80.75			`
	Silt store	Dip Slope & Direction:	900 162 Strike: 72
— Mixed	Doow wood	12	Construct Cak
Rock Fragment Pantaly/	Structure Type, Moder	Salar Francisco	lah Sampie
Inches Class Type 8.% Size (inches)	Grade, and Size Consistence Constitutes Co	Description	Note:
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W. Fr

TEST PIT DESCRIPTION

Soil Scientist: 50% C &

Test Pit ID:	1	P-301-160603-1326-JCR	3603-	132	6 -3		Topographic Position:	ition:	lake too		Cornel		Parent material:	erial:	Tr sidona	100			
Date:	-	06-02-2016	O.C.				% Slope:	, y	, 51				Slope Aspect:	11	12/0	`'			
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey			Drainage Class:		35				Depth to Water Table:	ater Table:	ļ				
RETTEW Job #:	089962000	2000					Depth to Refusal:	**	25				Slope Failure or slip:	re or slip:					
NRCS Soil Unit:	مجنور	Rev ks					Bedrock Type :			Ž.			Dip Slope & Direction:	, Direction:	700	797	Strike:	20[
Mineralogy:		Mixed					Vegetation:		Red M	Marke	400 MAY	1 23.00		.	300 00C	- 1		(
	Depth in		Texture				Rock Fragment		Structure Type	USDA /	Hartron Decodery	Rodov Foature				1 ah campia			
IOIZOI	inches	Mac IX Color	Class	∕o ciay	20 20110	Type & %	Size (inches)	Spicitioners	Grade, and Size	Consistence	Topography & Distinctoress	Color	Denkofpton	Roots	ł	₽.		Notes	
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-	· · · · · · ·																		
	<u> </u>		:													·			

Other Notes:

TEST PIT DESCRIPTION

soil Scientist: M . | M D & D > Field Assistant:

Signature: MbN

RETTEW Job #: M'ineralogy: NR CS Soil Unit: Job Name: Test Pit ID: Dominion - Atlantic Coast Pipeline Soil Survey 389962000 P302-160603-1115-MGW Mixed Sylvag Rock Fragment Type & % Topographic Position: Depth to Refusal: Drainage Class: Bedrock Type: SET BELOW USDA 510TST0,0E RIDGE *** ivi 17 Well Drained Dip Slope & Direction: Depth to Water Table: Slope Aspect: Slope Failure or slip: Parent material: PECSTONA. × 330 Strike:

68000

Horizon

Depth in inches

Matrix Color

Texture Class

% clay

% sand

Rock Fragment Size (inches)

Plantidty/ Stickforms

Structure Type, Grade, and Size

Moést

Hortzon Boundary Topography & Outhickness

Redox Feature Color

Redox Feature Description

Roots

Packet Penetran

Lab Sample

Notes

Du 21 N (73) 7 7 1-300 F (c) 4.12 100 m 12-19 EVIL 94 *b* - 1 1524.Cl 10 M 6 4 1 200 $\frac{1}{\sqrt{2}}$ Nagarati. X ĺ _____ Ą., ----f £___ G.-e.' and the 200 35 23 17 8 7 (S Č ैं نيسر وي à ŧ (M.C.C 1 3 3 C C C C C S 1 SER 5 1 Ì 1 ١ ķ ` (re 13 1 Co/M 3 + (VF 14/21 *د |* ۷ アンデ + /VC) E 0.35 7 -E. 0,25 j 2 (j 1

Other Notes:

What STANDING WATER 27" (DUE TO RECEINT RAIN)

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コモスド グラ

TEST PIT DESCRIPTION
Soil Scientist: MAX DUGAN

Signature: MSU

Test Pit ID;	<u>ئ</u>	303-160603-0830-MGW	603-	083() - (M/		Topographic Position:	tion:	packslope	000			Parent material:	erial:	Coave	- 10	スペなつろ	これで
Date:		6/3/16					% Slope:		30%	·			Siope Aspect:	7	122"	- 1		Constitution of the Consti
Job Name:	Domin	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		₹.				Depth to Water Table:	ater Table:	11/11	7		
RETTEW Job #:	089962000	2000					Depth to Refusal:		42				Siope Failure or slip:	re or slip:	The state of the s	1		
NRCS Soil Unit:	0	の紹介)					Bedrock Type:		STUTSTONE	はらん	***************************************		Dip Slope & Direction:	Direction:	MA		Strike:	The State of the S
Mineralogy:	Mixed	ed					Vegetation:		β <i>€ L</i> αω									
				•	,					USDA								
Horîzon	Depth in inches	Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plantidity/ Stickburgs	Structure Type, Grade, and Size	Molet	Notion Soundary Topography & Distinctions	Redox Feature Color	Redox Fustura Description	Roots	Podort Penetrometer/ pH	Lab Sample ID		Nates
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5×2 1	<u>2</u>	3/2 /3/01/512 2mg	18	20	S ₁	45%	12.5°C	60	7 MSAN	J.	CM	1	1	2 F/VF	S.F.	45		
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B B B B B B B B B B B B B B B B B B B	2	15-13 754 86 Frgr	20	Ä	N	65%	65% /2"	60	1 % X X X	,7\	Civ		1	1 FIVE	1.0	55		
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۲ رئ آ	تر درل	73-30 25456 Exgr	5.55 EX. EX.		25.	364	735" 00	00	Ö	١	Ž.	Ì	١	11/16	1,25			
1	Ì	70	7, (Ď.2	7.7.7	80			(1	100	4.6			
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	4		7	١,	-			0 0							1			
										•								

Other Notes:

THE RED MARCE, ATOYORY, WAITE GAR, HOCKER BORRY

TEST PIT DESCRIPTION

Soil Scientist: MITCHARL Woo D

Field Assistant: MAX DUCAN

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P. 303 A-160603-0920-MGW	0603-0	920	MEN		Topographic Position:	tion:	JACHOH S	1131	1BACK SLOPE	748	Parent material:	terial:	MUNICIPESSA	mud	
Date:	61316			į		% Slope:		16%				Slope Aspect:	ect:	312		
Job Name:	3	t Pipeline Soil :	Survey			Drainage Class:		AMA	- 1	Somewhat excessively	essively	Depth to V	Depth to Water Table:	2	A	
RETTEW Job #:	089962000					Depth to Refusal:		324				Slope Failure or slip:	re or slip:	8	IA	
NRCS Soil Unit:	BERKS					Bedrock Type :		SILTSTANE	BUZZ			Dip Slope	Dip Slope & Direction:	73%5		Strike: 80°
Mineralogy:	MIXET	0				Vegetation:		Red maple	, 500	486 W	1		A STATE OF			
									USDA							
Horizon D	Depth in Matrix Color	Texture Class	% сіау	% sand	Rock Fragment Type & %	Rock Fragment Size (Inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrumeter/	Lab Sample ID	Notes
0e c	0-1 190 2/1						v 1	1	1	1	1	1	3FINE	1 4	ľ	
6A 1	1-3 10yr 5/4 SiL	2.02	12	12	20%	11/2	00 00	IF60	ST.	As	1	1	4/05 Z	7.7	1	
BW1 3	3-8 10/2 8/8 SIT	715	7	1.2	350	21.5"	80 80	153r	711	Cw	1	1	100 1 11/12	4.7	1	
2 2 MB	OM 7 8-13 42 K 2/8 Erde	217	SI h!		26	22"	60	MSBK	77	SW	1	1	100/m	4.7	I	
CR 1	1.5 98.135 B-CI	7:5 9	Ţ	١	35%	46"	11	WO	1	1	1	1	1 NEIE	1 00	1	
カ	19-32	1	h	(Ŋ.	t										
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Other Notes:

Red.

miple, chestnat

Jak.

montur

1 Zurel

hachleberry

TEST PIT DESCRIPTION

Soil Scientist: かんないのらり

Field Assistant: かかとかんか

Signature: M&M

		Other Notes:				ECT	8 m 2	Bul	A	Q	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
1 6						16-24	10-16	L 50"	1-1-5	2-	Depth in inches	Mi	-		Domini	6	5
CHIST	this	5 tar		·		9/5 th 12-91		10 x 2 46			Matrix Color	Mixed	2007	000	Dominion - Atlantic Coast Pipeline Soil Survey	13/16	P304-16
WY OA	**************************************	Standing				2,5 2,50	7.5	ð. 25.7	ů.		Texture Class				Pipeline Soil S		-160603 -0815 - MBW
K) Bi		waker				14	18	Š	2		% clay				urvey		-080
ARKE	from	0				20	8	ŀΉ	7		% sand						4.5
WM D	6/2	21				Sob	25%	55% 35%	2% 2%		Rock Fragment Type & %					1 1	- 13
CHISTMY JAK, BLACK GUM, DOGWOOD, MTN LAUNCE, HUCKEHGRY	west 5	" - Tain	7	ų, si		24"	ζ2.5 ["]	<1.5"	1.5"		Rock Fragment Size (Inches)	Vegetation:	Bedrock Type:	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
MTA	re,		¥.			000	\$\$ \$\$	00	8 0 8		Pharticity/ Stiddiness			<u>"</u>			ftion:
SLAURE	reking, pr	night b			ge grand	0 M	1M SBIK	2MSBK	27-65 27-65	1.	Structure Type, Grade, and Size	BCLOW	SILTSTO/VE	74.	N PAN	40/2	スポスグ
C, HL	1 DICALON	before				-	Ţ	77	VFX		Moist Consistence	USDA	L		どかと		11,00
CKTEP	Pc+					دس	CW	CM	A\$		Norkey Boundary Topography & Distinctions		ナンスプ				とくだ
CARY	- Alla					j		1	νA		Redox Feature Color		BADWN				USPEC SHOULDES
	ر س/			-		İ	1	\$	МÄ		Radox Fastura Description		Dip Slope	Slope Failure or slip:	Depth to V	Slope Aspect:	Parent material:
	1 water		4			ニーシー	・ガンカ	1-CO 2-W 5-E/A=	コース	N. S. S. S. S. S. S. S. S. S. S. S. S. S.	Roots		Dip Slope & Direction:	ire or slip:	Depth to Water Table:	Ä	herial:
							77.7	4.4	4.8	7.4	Pocket Punetrameter/ pH		15	1	21	300	7570
***************************************				,	•	•					Podet Parietonneter/ Lab Sample		N'IX	1	1 /DUE 1	300	さつこう
			-			William Willia	THE THE STATE OF T		SMALL POCKETS		e Notes		Strike: N/M		21" (ALE DENIE)		_

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063 .

TEST PIT DESCRIPTION
Soil Scientist: D. F. 8715 +26 maches
Field Assistant:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

,	V	70	5	20	3	T	8	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:
		1 50 Es	36	200	2 1	in I	3-1	Depth in inches			08996	Domi		70
			7,500	7591	h/9.	100 No.	59R 0/5/0	Matrix Color	WAX LA	CON 130		Dominion - Atlantic Coast Pipeline Soil Survey	0/1/0/10	P-305-160602-
			2.7	SiL	2,6	5.7	1	Texture Class				t Pipeline Soil S		02-1145
			18	19)	16	16		% clay				игуеу		5-1
7			00	6	コ	5	. /	% sand						MIT
			201	38	200	167.	1	Rock Fragment Type & %						
- (0)		,	1-44	12:	112	11.	1	Rock Fragment Size (inches)	Vegetation:	Bedrock Type :	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:
		1	S. B.	1 2 X	50		17	Plastidity/ Stickiness						tion:
		. 1	MO	189%	16591	gento	B	Structure Type, Grade, and Size	Chestrut	5: 1440	1	Jac 1	22	Shoul
		-1	1	7	15/				USDA	8	3		7/2	N
3		1	CH	CW	CW			Fortron Boundary Topography & B Dictinchess	5 Scorlet	20 54				
		1	, \	- (j	1	1	Redox Feature Color	Cax	Brown				
		1	1	1	J	1)	Redox Feature Description	blacksur	Dip Slop	Slope Fa	Depth to	Slope Aspect:	Parent material:
			ナ	34	12 m	150		Roots	6	Dip Slope & Direction:	Slope Failure or slip:	Depth to Water Table:	pect:	naterial:
			1 1	183	2007	0 2	1 1	Pocket Penetrometer/ pH	release	780	- (1	73	Res
			1				4	Lab Sample ID		N			0	durin
			2010		4	ing o	3			Strike:				
			thes in c		1		¥	Notes		2300				
	(4.)		serice			1								

TEST PIT DESCRIPTION

soil scientist: (TCOHRELL)

Field Assistant: DEF,

*

Test Pit ID:	P-306-160602-		0.0	1100 - M6W		Topographic Position:	tion:	アイマング				Parent material:	terial:	一つのか	Do fine of the same	•
Date:	6/2/16					% Slope:		4.10				Slope Aspect:	#	6		
lob Name:	Dominion - Atlantic Coast Pipeline Soil Survey	t Pipeline Soil St	irvey			Drainage Class:		1100				Depth to V	Depth to Water Table:			***************************************
RETTEW Job #:	089962000					Depth to Refusal:		OB				Slope Failure or slip:	re or slip:	الكنا الشهووي		
NRCS Soil Unit:	301 VS					Bedrock Type :		の、するならの一	35% -	く タン・シャンのしゅん		Dip Slope a	Dip Slope & Direction:	20 40%	Che - in Pristike:	Strike:
Mineralogy:						Vegetation:		CNA	1 C	3 K. B.O.	ジャロン	0 3 50	E)	Secretary of the second	Months of Services	***************************************
									USDA		USDA				-	
Horizon Er	Depth in Matrix Color Inches	Texture Class	% day	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plentidty/ Stationers	Structure Type, Grade, and Size	Moist	Herton Boundary Topography & Dirdnomen	Redox Feature Color	Radex Feature Description	Roots	Pocket Prostrometer/ pH	Lab Sample ID	Notes
0	0-1 Suction)	1	\	į.	-Christian	(1		NA	(1	となられて	1/W	0	
P	1-2 101/18 SiL			B	107.	10	98 04	2532	And Salar	CW.		1	₹ 6 ch §	20 a	\mathcal{K}	y-
<u>ි</u> ස_	2-9 1045/651	· ·	Ñ	S. 1877	700	C1.2.	S. B.		77	000		1	\$ PA		8	, in the second
o Two	9.19 107861687	,	Ö	C. J. C.	97 83)	57	98 85	JANGEN FOR	77			\	6 3	S S S S S S S S S S S S S S S S S S S	T.	
9	1931 7576/6 512		60	Ż		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1		1			\	あ	e de la companya de l	***************************************	
N	2746		ĝ	ž,	<u>.</u>	, Krijan	14	danyai	and in		- مولومه	ŧ	***	all cuts	***************************************	Rips as local grave
	# ²							·				:		441111111111111111111111111111111111111		
	***							137				***************************************				TO THE PERSON OF

TEST PIT DESCRIPTION

Soil Scientist: Dan Flans to mached

Field Assistant: Max

.

nature: Additional of the state

RETTEW Associates, Inc.
30720 Columbia Avenue
Lancaster, PA 17603
Phone: 737,-394-4710
Faz: 717,-394-1063

	_ >		TOTAL SUCCESSION	- / 2		ק ח			100 R	17:1:3	8				2000		
Date:		6/3/10	000		V. 0	!	% Slope:			0. (1)			Slape Aspect:	ct:	200		
Job Name:	Dominic	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil St	ırvey			Drainage Class:		Mue 19				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	089962000	000					Depth to Refusal:		Q.				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:	55	601 Kg					Bedrock Type :		らいちちゃん	l l	2011/16	raddian Brown	Dip Slope 8	Dip Slope & Direction:	550 5	A	Strike: 60°
Mineralogy:	4	M. XON					Vegetation:		Chestoutes to Sect of Oak, a	220	7 10 132	(S)	2 5 5	oak, olack cok	00500 pec		Bluebery Mt laire
000000000000000000000000000000000000000	-10					Rock				USDA			100				
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planddry/ Sibbbnes	Structure Type, Grade, and Size	Moist Consistence	Horton Boundary Topography & Cirthitmes	Redox Feature Color	Redox Feature Omoription	Roots	Packet Panetrameter/ pH	Lab Sample ID	Notes
00	25.6	0-25 54.03.512)	(1	1	t i	/	(Comme Comme	1)	7 to	appeter in the second	1	
P	こ か	15.7 Blanon	5,1	Cons.	(8)	30%	71"	\$0 50	2026 03	The state of the s	75	1	1	37	0.25		Some Spots
のと	£1-h	104R6/4 5.2 15	2.5	57	6	30	7	55 Å	18587	177	7	(1	3 40	0.25	ţ	
ه م	2) 4	7516/14 Sil 15 15	SiL	Ū	5	100 J.	(d.:	8 2	IMSBR	57	CE		1	34	1.75	1	
77	89 . 75 .	7,51R	2	6	(2)	五章	13,	然式	16582	7"		((Ŧ	<i>i</i> ∂ 1	١	
() ()	35 35	28- 7,54R/6	(2:15) Grava	B	Q)	E E	1	1 1	R	ı	(")		1		1 /	1	
P	E 67).	1	ŧ	l l	1	mm;	1 1	/	((1	()		

Other Notes:

TEST PIT DESCRIPTION
Soil Scientist: John C. Roberts
Held Assistant: 7 4//or Wolfer

RETTEW Associates, Inc. 30720 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Faz: 717-394-1063

			Cr 16-53	Bw 8-16	1-8	De 0-1	Horizon Depth in inches	Mineralogy:	COU	Job Name: Dominion -		Test Pit ID: アノ
			16-50 10-18 5/6	8-16 164R 5%	10 YR 8/1		Matrix Color		-ks/	Dominion - Atlantic Coast Pipeline Soil Survey	06-02-2	308-16060Z
a de la company				215	SIL		Texture Class		Veiker7	Pipeline Soil S	-2016	
4				20	Ö		% clay 9		17	urvey		-/23/-
and the second				PU	172		% sand F				1	している
14			S.	40 K	28		Rock Fragment Type & %					
105200			2-6	1-311	7/"		Rock Fragment Size (Inches)	Vegetation:	Bedrock Type :	Drainage Class:	% Slope:	Topographic Position:
No. 1			1 1	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	X 5	90 50	Planicky/ Stickiness					ition:
P. W. 25. 24. 9			1) M SB/C	I MSBK		Structure Type, Moist Grade, and Size Consistence	Red M	Silt Stage	DED	တ္	Back slove
				FR	NEG CS	アガス	Moist Consistence	Maple.	6			5/0,50
				(S)	55	7 5	Horizon Dazzetary Topography & Diethstown	Black (
							Redox Feature Color	Gum, Wh				
						amed in	Redox Feature Description	1. 46 PM	Slope Fall Dip Slope	Depth to 1	Slope Aspect:	Parent material:
				00 2 2 2 3 ± 5	2 m t	5 t	Roots	Pine Chest	Slope Failure or slip: Dip Slope & Direction:	Depth to Water Table:	ect:	terial:
				5.17 32.0	0.75 4.5	7,0	Pocket Penetrometer/ pH	hestmut Oak	80%	1	1110	Pa sidu
			(53	SZ	51	Lab Sample ID	Mockano	2			10.18
1700		,	Focks-no sons				Notes	Hoko	Strike: \$ 1.0	***************************************	ATTENDED TO THE PERSON OF THE	

TEST PIT DESCRIPTION

soil scientist: John C Robert S

Field Assistant: Taylor Markey

Test Pit ID:	۲	グラ へんの ネーノベ くべ こレノ	シャン		アイグ	7	/ぬシ ベーロへ / Tonggraphic Position:	Ť O T	ーン・ディント	~ł		•			, 3			
Date:	ş, 8	06-02-2016	0,				% Slope:		0				Slope Aspect:	A	. 11	110	***************************************	
Job Name:	Dominio	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	игvеу			Drainage Class:		200				Depth to W	Depth to Water Table:	1		-	***************************************
RETTEW Job #:	089962000	8					Depth to Refusal:		(A)				Slope Failure or slip:	re or slip:	1			
NRCS Soil Unit:	Ž	Weikory-	2412				Bedrock Type :		40	STORE			Dip Slope 8	Dip Slope & Direction:	780 15	288	Strike:	0 2 2
Mineralogy:							Vegetation:		Dog Loons	74-95	Cost M	Paple in	white !	\mathbb{N}				
Horizon D	Depth in	Matrix Color	Texture	% day	% sand	Rock Fragment	Rock Fragment	Particity/ Stickings	, A	Molet	Harlaan Boundary Topography &	atun	Bardon Feature Department	Roots	Perdort Panetyumatar/	Lab Sample		Notes
Oe o	0,1	3			ļ		0.5-11	41 4		VFR AS	A5			25	4.25	. (- The state of the
75	10	1-10 1042%	215 200	15	5/	5h CN	45 0.2.,31,	\$ 25	185W	70	N 0			43 S	4,5	}	120 T	Shight sectors B
Rud 10	-17 1	Bw 10-17 10785/8	817 ECM	6	15	52 MJ	7° 6:	\$ 2	MSEK	FR	25 05		\	(S)	N 10 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1		
	7-30/	1730 loves/8)			38	1-6) (Kalendaria	(-)		
π ω	30+																	American American
					-													, , , , , , , , , , , , , , , , , , , ,

			·	•														
Other Notes:	1	Sking Ridge / Summt	RNS		Com mo	× +	75-90 West	, G		Λĥ	1h Frise	Surface		or A	har Zer	3		

TEST PIT DESCRIPTION

soil Scientist: John C Coborts

Field Assistant: Taylor Walter

L				
Dominion - Atlantic Coast Pipeline Soil Survey	06-02-2016	P-309-160602 - 1444 -5CR		
Drainage Class:	% Slope:	Topographic Position:	,	
O	200	Rock slope		
Depth to Water Table:	Slope Aspect:	Parent material:		
	177/0	L'A CAPORT		78X: 717-339-1003
1				u

Test Pit ID:	Ų	P-309-16060Z	ŧ	1000	-30R	2	Topographic Position:	ition:	Rock .	slope			Parent material:	terial:	12 CM	2 Chambrit	Colling of applying
Date:	06	06-02-2016	೯				% Slope:		S S	•			Slope Aspect:	ř.	17/0		
Јор Маше:	Dominic	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil s	survey			Drainage Class:		RO T				Depth to V	Depth to Water Table:			***************************************
RETTEW Job #:	089962000	000					Depth to Refusal:	••	82				Slope Failure or slip:	re or slip:	Ţ		
NRCS Soil Unit:	~~ 0/	80013					Bedrock Type :		· 115	K S			Dip Slope	Dip Slope & Direction:	88	32/0	Strike: 73%
Mineralogy:	<u> </u>						Vegetation:		White		Hickory					- 1	
Horizon	Depth in	Matrix Color	Texture	% day	% sand		Rock Fragment	Plantdty/	Structure Type,	USDA Molst Consisten	Horton Coundary Topography &	Redox Feature	Radox Famore Description	Roots	Podat Penetrometar/	Lab Sample	Notes
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Other Notes:		No t	CI	Aho	t horizon	1 00	No true Aportzon; Some fires	C 25	es b	between resident	between cock		taes u	O. F.		70 /8	roots deserved
	1 1					,					171770						

TEST PIT DESCRIPTION
Soil Scientist: John C Robards
Field Assistant: Tell York (100)

Date: Job Name:		06-03- 2	20/6		,		no programma o osciona	one out	ナス・ス・ノスク ノスク	1000		***************************************	Parent material:	abenai:	(O)/(C)	10. VION /	マシン ことを 10 mg
ob Name:							29 Sadore 22		7	>			Slope Aspect:	<u> </u>	~~	,	
		Dominion - Atlantic Coast Pipeline Soil Survey	st Pipeline So	il Survey			Drainage Class:		કુ				Depth to	Depth to Water Table:			
RETTEW Job #:	089962000	2000	-				Depth to Refusal:	<u>a:</u>	N 200				Slope Fai	Slope Failure or slip:	(
NRCS Soil Unit:	In le	plecke-1					Bedrock Type:		1				Dip Slope	Dip Slope & Direction:	1	***************************************	Strike:
Mineralogy:	_	Mixed					Vegetation:		Black	308	(hastaut	36400	25.46	6 D/V		***************************************	
-18					- 1000 1000 1000 1000 1000	Rock				USDA				1,333	_		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	y % sand	id Fragment Type & %	Rock Fragment Size (Inches)	t Plutdry/ Stiddynns	Structure Type, Grade, and Size	Most Consistance	Hoston Grandley Yogography & Olednomen	Redox Feature Color	Radox Persure Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
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Other Notes:	,		Did	5112				} } }	P				ļ				
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TEST PIT DESCRIPTION IVICUACE LAWS Soil Scientist Dr. (D) (ar Down-Old Laws
Field Assistant: Reschool Will Continued

Signature: Miles Constitution of the Constitut

		7	0 7	\cap	BW 6	<u>y</u>	000	Ö	Horizon	Mineralogy:	NRCS Soil Unit:	RETTEW Job #:	Job Name:	Date:	Test Pit ID:	AMERICA CONTRACTOR OF THE PARTY OF
	<u>.</u>	26 Sitstone of mixed 108x5/8 and 109x %: Difficult	109k	18-225%-% SiL 12 30	BW 6-18 5/6-58 SUL 12 30	2/2-6 1048 SIL 10 25	12-21/2 10yr3/2 Sil	0-2	Depth in Matrix Color	II u kea .	20. Par.	089962000	Dominion - Atlantic	6/2/2016	アショーた	Antonio de la company de la co
		stone of	E.	236	S SYL	1,15/1			Texture Class	Drop van		***************************************	Dominion - Atlantic Coast Pipeline Soil Survey	0/6	P-311-169602-1600-MEL	
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		1045/8	5. Itstans (2) 3-6	25 3-6	D 3-6	で 36	10% 3%		Rock Fragment Fragment Type & % Size (inches)	→{/// fe Vegetation:	Bedrock Type	Depth to Refusal:	Drainage Class:	% Slope:	Topographic Position:	
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Other Notes:

Soil reaction will be determined from Samples Description made to assist Rection; Bad weather - heavy rain

Suff did not have Peretrometer

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1. 11E-1 + con Wall toward

Field Assistant: TEST PIT DESCRIPTION
Soil Scientist:

Test Pit ID: Pate: Date: Lob Name: Domin RETTEW Job #: 08998 NRCS Soil Unit: Mineralogy: Horizon Depth in inches	P-3/2- Dominion - Atlanti 089952000 Matrix C Inches Matrix C Matr		OSO2 -/SO9 - ME Coast Pipeline Soil Survey Texture	2 Vanta	% sand		Topographic Position: % Slope: Drainage Class: Depth to Refusal: Bedrock Type: Vegetation: Rock Fragment Size (inches)	A Processor State of the State	Scotta	K-3 3 88 CM 3200	SC AG	SCAS/IOL) USDA Wolst Conditions Outdates Outdates Outdates Outdates	SC hallow	Parent mat Slope Aspe Slope Aspe Depth to W Slope Fallu Slope Fallu Slope Fallu Conditions Seeder Telephray's Color Conditions Color Conditions Color Conditions Color Conditions Color Conditions Color Color Conditions Color Colo	Parent mate Slope Aspe Slope Aspe Slope Fallu Slope Fa	Parent material: Slope Aspect: Slope Aspect: Depth to Water Table: Slope Failure or slip: Slope & Direction: Slope & Dire	Parent material: Residual	Parent material: Residual Residual Residual Residual Residual Residual Residual Reduce Residual Residual Reduce Residual Resid	Single Aspect: 220° Single Aspect: 220° Depth to Water Table: 144" Single Failure or slip: 100 Tace Stri
A 0				F	5	Type & %		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Size d Size		S Definitions			Stac Stac		2 2 0		1 1	
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W Z	BW 4-22/04/25/6	YES/6	<u>x</u> .	<u></u>	Vi	75 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		83	2m Sbk FR		20	00 3 FMC	Cwici /	12/5/16/1/2/5/2/01/5/15/15/15/15/15/15/15/15/15/15/15/15/	5/3	X			
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	81-40	variegated weathered siltstone	Set ed	(5)	o red	U)	Store		3								(
Z)	40+																,		
		kr																i	

Redox Feature Colors recorded in the "Roots" column for Bw and C horizons, Roots recorded in "Redox Feature Color" column for BE, BW, and C horizons.

Other Notes:

TEST PIT DESCRIPTION
Soil Scientist: Wickap

Date: Job Name: RETTEW Job #: NRCS Soil Unit: Mineralogy:	Dominion - Atlantic Coast Pipeline Soil Survey 089962000 J
	Depth in Matrix Color
Ö,	5-5 Raha 2-0
Oe 2	2-3 10/123/1
>	+/+3Kal +-
BE 4	4-11 10/124/6
Bw 11	Bul 11-20 7. Syet/6
Bw2 20	Bw2 20-32 10/125/6
20 32	32-40 7.5%5/6 5.6%5/6
205	0.50
Other Notes:	Solock
	1 Swart I

TEST PIT DESCRIPTION

Field Assistant: TOYCOR WALL

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	\ \ \ \ \	33-16	0621	132	4	シュを	Topographic Position:	tion:	とろってい	COPE	2.0		Parent material:	erial:	COLLUNION		ONEP	アリントロロンス
Date:	-	2)16					% Slope:		0				Slope Aspect:	ct	255	0		
Job Name:	Dominio	Dominion - Atlantic Coast Pipeline Soil Survey	ipeline Soil S	urvey			Drainage Class:		なれてい				Depth to V	Depth to Water Table:	1			
RETTEW Job #:	089962000	00					Depth to Refusal:		1				Slope Failure or slip:	re or slip:	すりた	BENT	TEE	5.8
NRCS Soil Unit:	DAKE	2 - 6	44.44	200	1 12 0	2000	€ \ V N 4 Bedrock Type:		1				Dip Slope	Dip Slope & Direction:	ŗ		Strike:	(
Mineralogy:	N IX	1					Vegetation:		BILLIE	CH	5542	A O TO	r	FERN				
miciaroby.							c			USDA			,					
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Rados Feature Description	Roots	Pocket Pesetrometer/	Lab Sample ID		Notes
000	R	5/22/5/	1	1	1	1	ţ	1	1	Î	as	t	(7 2 4	5.9	1		
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2863	3,	3/23/6	3.	2	20	22	1	25	LA WK	P	1.	Ť	Ţ	7	1.25	(CLAY	y skinds

Other Notes:

NICE CHERT

COR

TEST PIT DESCRIPTION
Soil Scientist:

Soil Scientist: Field Assistant:

Signature:

	2	100
Pominion Atlantic Coast Displica Coll Constitution	Slope Aspect:	
Common - Adeliar Coast Deline Son Salvey	Depth to Water Table:	
b#: 089962000 Depth to Refusal:	Slope Failure or slip:	1
Bedrock Type: SItS	Dip Slope & Direction:	N350W Strike: N550E
Mixed hardwoods & F	Pine	350
Horizon Inches Depth in Inches Color Class Clay % sand Fragment Type & Structure Type, Mosts Type & Structure Type, Mosts Type & Structure Type, Mosts Topic Redox Consistence	Redox Feature tados feeture Color Roots	s Product Productional Lab Sample Notes
ga 1/5 84R25/1 516R RR C/S -	N J	50
1001 ah 01 7	7	255
Bu 15 10 4 ROBS SIL 22 5 ST 01/2" SP FISEL FRE GIS _	25 2M	
Cr 24 10988/3 SIL 20 9 5+ 1/8/4 SP DM FI	MI	2 2 2

BwI TEST PIT DESCRIPTION Job Name: Field Assistant: Soil Scientist: Bul RETTEW Job #: Test Pit ID: NRCS Soil Unit: 000 /lineralogy: Horizon D 00 18+ Depth in inches 2 Dominion - Atlantic Coast Pipeline Soil Survey 50,25 104RSW SL 104R3/3/ 104Rble SL 335 -MG COVE Matrix Color Mixed 160622 Texture Class MOCACG 0 00 % clay 00 8 20 % sand 86% GR 80% Fragment Type & % G Rock 1/4.3h % Slope: Rock Fragment Size (inches) Bedrock Type : Depth to Refusal: Drainage Class: Topographic Position: Vegetation: 12 1/4 1/ Signature: 50 PO Plasticity/ Stickiness 80 8 F16R FIGR Structure Type, Grade, and Size 250 026 -tream Siltstore 5 Moist Consistence A F 00 1 65 8 5/3 33533a Redox Feature Color Dip Slope & Direction Slope Aspect: Depth to Water Table Parent material: Redox Feature Description Slope Failure or slip: 78 2 M W232 7 Roots 5.25 2.75 25 0 Allunion 0 1 1 0 100k Lab Sample ID 52 5 5 23 1001 Strike:

Other Notes:

over Residuum

N800E

Notes

Field Assistant: Soil Scientist: Test Pit ID: TEST PIT DESCRIPTION Mineralogy: RETTEW Job #: Job Name: NRCS Soil Unit: AI 00 Horizon Depth in inches 20 V Dominion - Atlantic Coast Pipeline Soil Survey 089962000 P336-11-0627-2.548/3 104R813 Deilert 6/22 Matrix Color L XXX Moraca 2016 215 5 Texture Class 1000 100 32 % clay 20 % sand 5 W Fragment Type & % 500 57 5 to Rock % Slope: 1.843" Rock Fragment Size (Inches) Depth to Refusal: Topographic Position: Drainage Class: Vegetation: Bedrock Type: 12 Signature: N MS WE ISBK PR CIW Structure Type, Grade, and Size FIGR Barrs R Moist USDA 7 + SO 615 Redox Feature Color Slope Aspect: Dip Slope & Direction: Redox Feature Description Slope Failure or slip: Depth to Water Table: Parent material: 75 T Roots 1 2 45.4 5,0 0 570°W Collection over Esideum Lab Sample 6 0+ Strike: N200W Notes

Other Notes:

Test Pit ID: Soil Scientist: TEST PIT DESCRIPTION Mineralogy: Job Name: NRCS Soil Unit: RETTEW Job #: M R 0 m: Horizon Depth in inches 354 22 00 N Dominion - Atlantic Coast Pipeline Soil Survey RUSSELL 54225/1 251819 Weikat 100R6/16/51CL Matrix Color 5,5 Moraca Texture 22 3 20 % clay | % sand 1055-0 00 Fragment Type & % 95 RIF % Slope: Topographic Position: Depth to Refusal: Drainage Class: Rock Fragment Size (inches) Vegetation: Bedrock Type: 1/2-1" Signature: 8 MP Plasticity/ Stickiness 35 F256X Structure Type, Grade, and Size 19827 F16R BECKE 2201 200 E R Moist USDA 5 5 Horizon Boundary Topography & Distinctness Redox Feature Color Dip Slope & Direction: Parent material: Slope Failure or slip: Depth to Water Table: Slope Aspect: Redox Feature Description T WI 32 7E31 100 100 Roots 5,25

5.25 527 4.75 0

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Strike:

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Lab Sample ID

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3 290

35 ti

Other Notes:

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TEST PIT DESCRIPTION

Soil Scientist: Field Assistant: C0500

Signature: Luck

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID: Date: Job Name:	P338 Co 2 Dominion - Atlanti	0 10	coast Pipeline Soil Surv	1048-	Buc	Topographic Position: % Slope: Drainage Class:	tion:	Soci	278				Parent mate Slope Aspec Depth to Wa	Parent material: Slope Aspect: Depth to Water Table:	al: Col	al: Co
Job Name:	DOUGSDOOD -	Maillie Coast 15	000	-		Depth to Refusal:			100			Slope	e Failure	Slope Failure or slip:	Failure or slip:	Failure or slip:
NRCS Soil Unit:	Weiket-	B1	SIR	COURT		Bedrock Type :		N	H 54	5000		Dip Slo	pe &	Dip Slope & Direction:	No	No
Mineralogy:		4:100		C		Vegetation:		Maple	000	T					2	0 to
Horizon	Depth in M	Matrix Color	Texture %	% clay % sand	Rock d Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	ance *	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	8 6	Roots	Roots Prodet Prestometel/	Roots Pocket Penetron
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25	3 184PS/16 SIL 16	125/6	1	-0	30h	1/2×1"	SS OG	FISH FRCOW	70	3				IF2M	1F2M 15	
2	R 3-18+															
													1			
				+												
		,														

Other Notes:

Soil Scientist: TEST PIT DESCRIPTION

Field Assistant: Moraca RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	7	339-160	0627-	1	10×	RIL	Topographic Position:	tion:	COCK SING	300-	Show	200	Parent material:	erial:	Colle	olle vive	1000 Cald
Date:		06/22	12016		á		% Slope:		28%	1			Slope Aspect:	A			
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		5	DA			Depth to Water Table:	ater Table:		yn -	Porches on to
RETTEW Job #:		089962000					Depth to Refusal:		100	n			Slope Failure or slip:	re or slip:	(1	
NRCS Soil Unit:	()	rikert-	Rova	5			Bedrock Type:		X1.15	Silt stone	ie		Dip Slope & Direction:	Direction:		Str	Strike: SSOF
Mineralogy:		Mixed		-			Vegetation:		Dax	15 5	Ja/20	đ			5	0	
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Topography & Distinctorss	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
00	2	1 (>,2005)	1		1	57	1/2"		F1692	R	S			1417	20		
Bu	7	109RS/V	2	2	0	50%	1-2	8 8	FISER	R	P CK		1	25	2.5		
20	12	104R6/6 5,1	51	500	J.	0.000	1 73"	SS	F2584	TO		1548/1 75486/8	(23	27	47.74		
D	- 00 +																
																×	

TEST PIT DESCRIPTION
Soil Scientist: M. WOAD
Field Assistant: R. 1474

													Fax: 717-394-3721
	1		pographic Posit				3011		Darront mat				OCCI NI AIA
			Slope:				-		Slope Aspe	di Circii	1	+	NA COLON
Coast Pipeline Soil Su	rvey	Dr	ainage Class:		ED				Depth to W	ater Table:			
		De	pth to Refusal:		136				Slope Failur	e or slip:			
T-BERKS-1	1900R	Be	drock Type :			BNE			Dip Slope &	Direction:	co o	240 5	Strike: 344
		Ve	getation:	10	16STMUI	4	D DAIS	HECKO		06WOOD		1	BLUE BERRY
Texture Class			ock Fragment Size (inches)	Planticity/ Str Strickiness Gra		ance a		Redox Feature Color	Redox Feature Description	Roots	Poclet Penetranener/	Lab Sample	Notes
26						1	AS	1	A	2 F-UF	1 2	1	
(1 S,)	00	700%.	10.12	7 (2)	OR OR	v fa	CS	١			0.25	١	
2, 1 VGR	9 30	40% c			UF 3K-6R		CE	1	3	2 F-W		1	
14 ×61	935	90%	6.0"	3 04	N	SHV	5	,	1	100-W	1	1	
	P340-160622-160 6122 16	9 35 30 Sand	600 - MGW - ROUGH - ROUGH - ROCK Rock Pragment Type & % 9 30 40% 9 35 GR 90%	600 - MGW -ROUGH -ROUGH -ROUGH -ROCK Fragment Type & % 9 35 GR 90% 90%	b00 - M6W Topographic Position: % Slope: % Slope: Drainage Class: Depth to Refusal: Bedrock Type: Vegetation: Type & % Size (inches) Rock Fragment Type & % Size (inches) Rock Fragment Size (inches) So Rock Fragment	Salvey Topographic Position: SADDLE Salvey Slope: Solope: d Topographic Position: SADDLE 51DE Stope: IS IS	SADDUE SIDE SUAPE SADDUE SIDE SUAPE SI	Sisterey Topographic Position: SADDLE SIDE SLOPE Sisterey Depth to Refusal: Y	Stope A Stope St	Stope A Stope St	Solution SAD DUE SIDE Superior SAD DUE SIDE Superior Superior SAD DUE SIDE Superior Su	Solution Solution SADDLE SIDE SLOPE	

Soil Scientist: Field Assistant: TEST PIT DESCRIPTION
Soil Scientist:

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P-341-	-	1-5851-86909	15-1	DEF	1	Topographic Position:	tion:	LAPPERT	BULL	SIGNE		Parent material:	erial:	Clou	CMAINO	rono	our Rasidour
Date:		(0)22	116			9	% Slope:		-	27	1 4		Slope Aspect:	Ct.	2	0		
Job Name:	Dominion - A	Dominion - Atlantic Coast Pipeline Soil Survey	eline Sail Su	vey			Drainage Class:		1000	Bonewhert		oxossinily	Depth to Water Table:	ater Table:	1			
RETTEW Job #:	089962000						Depth to Refusal:		5,61			1	Slope Failure or slip:	re or slip:	1			
NRCS Soil Unit:		Weile A-Rough Complex	Como		(300)	TP.	Bedrock Type:		5/14	stond		,	Dip Slope & Direction:	Direction:	260	W	Strike:	100
Mineralogy:	, w.	Mired "				1	Vegetation:		いいいいい	N (80	3 (11.	hast hut	oak,	20005	anda	aux.	>	29.5
Horizon	Depth in Ma	Matrix Color	Texture	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Soundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID		Notes
000	15 5 LI-0	115.0	(1	1	1	1	11	1	- (AW	1	1	35	5,01	1		
D	E1 OC 7'5 REDION SEB	123/2	7.0	8	ū	92 15x	(S.	50	SOUMED NEW BOS	VFC	AW	1	1	- SAT	0 × 0	1		
BL	235-10402/45.100 13 881 1/2-4" PO	425/4	7.5	90	نو	200%	1/2-4"	55	SS ISSURFUCW	7	CW	İ	1	150 WYE	9.75	(
JBW2	19.5 lonephs, 1 38 12 48,	4/932	5/2	22	8)	2001	1/2-8" 30		11658h Fo AW	7	AW	1	(2x	Si Rost	1		
5	19.54	1	(- 1	1	1	1	1 1	1	(1	1	(1	1 1	1		

TEST PIT DESCRIPTION
Soil Scientist:

Soil Scientist: 1 100 P

Signature: M Wall

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Solution	Test Pit ID:	P	342-1606	160627-1040-M	40-1	NEW		Topographic Position:	tion:	SUMMIT				Parent material:	terial:	RESTOW	WW		
Depth March Color Testure Scheduler Mode	Date:	50	122/16			1		% Slope:		N				Slope Aspe	ect:	26			
	ob Name:	Domin	nion - Atlantic Coast	Pipeline Soll S	urvey			Drainage Class:		MD				Depth to V	Vater Table:	1141			
	ETTEW Job #:	08996	52000					Depth to Refusal:		1411				Slope Failu	re or slip:				
PACKED Pack	IRCS Soil Unit:	*	LEGI	PERKS -	ROJ	T &		Bedrock Type :		SILTST	SNO			Dip Slope	& Direction:	Se		Strike:	2510
Depth in Matrix color Texture Matrix Color Texture Matrix Color Texture Matrix Color C	Nineralogy:		13×1					Vegetation:		CHESTAL	TOAK	14	B	9 371	NE				
Depth Matrix Color Testure West State (Inches)							Rock	The Late State	- 100										
0-1.5 75 1/2		epth in inches	Matrix Color	Texture Class	% clay	% sand	Fragment Type & %	Rock Fragment Size (inches)		Structure Type, Grade, and Size			Redox Feature Color	Radox Feature Description	Roots	ometer/	Lab Sample ID		Notes
15-2 101/23/1 VS/1 8 30 50% <10' 80 1 VF VM CW - 3F-VF 0.25 2-4 104/2/1 51 9 30 30% <1.5" 80 6R VM CW - 200-M 4.4 9-14 104/26/6 51 8 35 85 <70" 50 0 M 25F-VF 0.25 10-M 4.6 10-M 4.6		'n	W.S.+		1	(1		1	١	1			1	3 F-VE		^		
1.5-2 101/23/1 VCR 8 30 GR 210" 80 1 VF VFR CW - 3F-VF 0.25 2-4 104/2/1 51 9 30 30% 21.5" 80 1 VF VFR CW - 3F-VF 0.25 9-14 104/2/6 51 8 35 85 270" 50 0 M 2F-VF - 110-M 4.6 2F-VF - 110-M 4.6		0.5	3/2	1			1	1	(١	1	NO	1	1	20-M	4.	0		
2-4 1040/1 51 9 30 50% C1.5" PO 1VF VFR CW - 35-VF 0.25 4-14 1040/6 51 8 35 85 <70" PO 0 M 25-VF - 100-M 4.6 1 00-M 4.6 1 00-M 4.6	^	2	10/2 3/101	1997	0		GR.		80	AVI	3	(11)	(1	3 F-VF		3		
2-4 1040/6 5il 9 30 30% (1.5" 00 1VF VFR CW - 35-VF 0.2 4-14 1040/6 5il 8 35 85 (70" 50 0 M 25-VF - 100-M 4.1	7	7.0	9	211	0		3000)	30	6/2	711	CK			2 CO-M	*	1		
4-14 1040 6/6 5i-1 8 35 85 270" 80 0 M 2 F-VF - 100-M 4.			7/2 NO1	2/1	9	000	GR.	2.5.	00	IVE		CK	1	1	35-4	N]		
4-14 10406/6 Sill 8 35 85 670 0 M 2 F-VF -			11,	7			% OC		50	28 x 7615					1 (0-W)	-			
1		1 Z	2/9 2401	SIGR	a	22			Po	3	1		1	1	2 F-VF	1			
\					10			110	30	18.		١			1 (0-M	B.			
	C							,											
	人	1	/	1	1	-1	1									ě			
	-																		

TEST PIT DESCRIPTION

Soil Scientist: M. WOOD

Field Assistant: R. HTLL

Soil Scientist: Field Assistant:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Date:	6/12	2)16	+ Bineline Coil Contest				% Slope:		W 00					Slope Aspe	Slope Aspect:		
Job Name:	Dominion -	Dominion - Atlantic Coast Pipeline Soil Survey	peline Soil Su	rvey			Drainage Class:		MD					Depth to V	Depth to Water Table:	Depth to Water Table: > 36"	er Table:
RETTEW Job #:	089962000						Depth to Refusal:		36"					Slope Failu	Slope Failure or slip:		
NRCS Soil Unit:	MERKERI		-BERKS - ROUGH	#12/CK			Bedrock Type :		SILTSTONE	1 1				Dip Slope I	Dip Slope & Direction:	Dip Slope & Direction: 1 0/0	12
Mineralogy:	30	MIXIN					Vegetation:		WHITE PI	PINE R	RED MAPLE	-	RED (OAK,	OAK,	DAK, BLACK GUM, BLUE	DAK, BLACK GUM, BLUE BERLLY
Horizon	Depth in M	Matrix Color	Texture Class	% clay 9	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Hisrition Boundary Topography & Distinctivess	Redox Feature Color	ē	FB Redox Feature Description		Redox Feature Description	Bedia Federica Roots Peder Peners
000	£ 5.1-9	1/2 Uhst	j.	1)	1)	1	1	1	45	(1	35-VE	3F-VF 3CO-M 1VC 4.4	W. 8
A	1.5-2 loya	3/2	1:5	0	0	120	.5.67	50	SP IVF	HV	cs	1		1	3 F-VF	3 F-VF 0-1	10 M
B A :	2-5 104	4/5 yhol	1.15	0	0	15	5.07	20	CR TVF	VFR	S	1		1	3 F-VF	2 F.VF 0	2 F-VF 0
Bt.	5-10 101	4/3 ULOI	5.1	19	0	20 50	<).0"	0 d	785	F	CM	1		,	3 F-VF 2 00-M	CO-W	CO-WE O
B+21	8 22 10-11 104R 5/6		5.1	41	5	25	230	Po	795 W1	B	SW	1		1	- 1 ro-M	1.4	11-15
er 1	19-31 10485/h		1.5 VOV		28	32	16.0	50	1	1	CW	1		1	2 F-VF	10-W	t-nt
70	36+	1															

TEST PIT DESCRIPTION
Soil Scientist: M. WOOP

Field Assistant: R 1+ILV

Signature: M W

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:		399-11.06	06-22-10	777	1120 - 0501	J	Topographic Position:	tion:	NOSE S	SLOPE			Parent material:	terial:	COLLUN	NO UM /	LAUNG IS OF
Date:		1122 16	0				% Slope:			100			Slope Aspect:	ect:	1480	1	
Job Name:	Domin	00	Pipeline Soil !	urvey			Drainage Class:		WD				Depth to	Depth to Water Table:	729		
RETTEW Job #:	089962000	52000					Depth to Refusal:		200				Slope Fail	Slope Failure or slip:	10		
NRCS Soil Unit:		V65/161	- BORKS -	5-R	FISUOS		Bedrock Type:		511751	DINE			Dip Slope	Dip Slope & Direction:	170%	1490 5	Strike: 590
Mineralogy:							Vegetation:		CHESKINI	UT 054	八五	CKORY,	BLUE	RIPPOR			
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticky/ Sticktness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redos Feature Description	Roots	Pocket Penetrometer/ pH	Lab Sample ID	Notes
00	0-	75 ya	1		1	1	(1	1	J	A	ſ	J	3 F VF	4.0)	
D	2	1/2 Arol	51 - SN	0	57	SR	0 17	PO 50	1 A 1	VFA CS	53	,	1	3 P-VF	5.1	1	
BA	2.5	10m2/4	3-1	=	N.	35	0.12	P0	14/	VFR	CW	1	j	2 FWF	1.5	1	
Bu	01-9	5-10 1042 6/4	2 X8x	=	60	40	2.4.0	P6	195	FR	CW.	1	Ī	2 F-UF	2 2	(
CR	10-28	10-20 104P 1/4	21/2×6/	_0	40	25t	0.87	50	785 W 1	FR	CM	1	(1 co-M	5.2	1	
A	284	1	7	1	1	,											
and the second																	

TEST PIT DESCRIPTION
Soil Scientist: M W OOD

Field Assistant: R HFLU

Signature: M WCA

NRCS Soil Unit: RETTEW Job #: Job Name: Test Pit ID: KR De W Mineralogy: 8 83 Horizon A 0 2-4 1-0 _0 1.5.2 0-15 7 Depth in inches -17 Dominion - Atlantic Coast Pipeline Soil Survey 089962000 P345-160622-1025-MGW 19/5/P/ NEIKOU. DENKS - ROUGH 1946/L 7.51/2 6/22 184R4/41 104R Matrix Color 3.×49 SIL 23 Texture % clay 10 中 10 n 30 4 30 % sand 27 25% 45% 705% 20% 62 Fragment Type & % Rock Rock Fragment Size (inches) % Slope: 1 1 Depth to Refusal: Drainage Class: Topographic Position: Vegetation: Bedrock Type: 1 0,0 N .0 0 0 PO 30 50 PO 50 0 50 Po Plantichy/ Stickingss Structure Type, Grade, and Size 785 CHESTAUT + RED 34 350 55 NOSE 5 K SILTSTONE NW SLOPE MA Moist USDA ZZ, VFR To Sus CW CW 23 AS Horteun Boundary Topography & Distinctness DAK DOOMSON SMILL SULFIN Redox Feature Color 1 1 1 Dip Slope & Direction: Slope Failure or slip: Depth to Water Table: Slope Aspect: Redox Feature Description Parent material: 1 1 1 1 2 F-VF 24-4 W-CD 07.W F-VF 11-10 W-C0 M-10 FVF F-VF Roots BLUEBELRY 0.25 200 90% 57 1.0 5 0.25 COLLONION 323 + i 2000 Lab Sample ID 196 1 1 Strike: ESTOUNA 100 Notes

Other Notes:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	6	P346-1606	0622-10	20 -	1020 - MGW		Topographic Position:	tion:	MUNUS	717			Parent material:	terial:	ESAS	WOUGTS 38	
Date:		6 122 16					% Slope:		40/6				Slope Aspect:	ic.	303		
Job Name:	Dom	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		Q W				Depth to V	Depth to Water Table:	713		
RETTEW Job #:		089962000					Depth to Refusal:		(0)				Slope Fallure or slip:	re or slip:	1		
NRCS Soil Unit:		WEINELT BERS		ROUGH	1+		Bedrock Type :		SILTSTONE	INOU	CH		Dip Slope	Dip Slope & Direction:	40/0	213 5	Strike: 123
Mineralogy:		Mixed					Vegetation:		HICKORY	- 1	CHECTNUTOA	K-W	HITE PI	METRUEBERA	851214		
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stichiness	Structure Type, Grade, and Size	Moist	Harbon Boundary Topography & Distinctness	Redox Feature Color	Redox Festure Description	Roots	Pucket Prostrometer/	Lab Sample	Notes
00	1-0	7.5 XR 3/2	1)	1		ì	(/	ì	1 .	An	1		1 CO-W	00	1	
4	1-15	1-15 1048 4/1	297		8	25	12.0.1	P0	1 VF	VFR	AS	1		3 F-VF	0.25	1	
3	15-13	13-13 10426/6	10 × 05	11	20	0t 35	10.97	50	79S	NFR	VFR CW	1		10-02 1 20-12	2.23	1	
P	13.4	13+ 10MR 6/6	1	t	1	1	1										

TEST PIT DESCRIPTION Stynn Che

Field Assistant:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P	2-347-1606	180	140	7-DEF	Topographic Position:	Position:	X	14	1						
Date:		10/2	6						1			Parent material:	rial:	1.05	MAN	
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil S	urvey		Drainage Class:	ass:	F	2200	10		Slope Aspect:			45Ch	
RETTEW Job #:	0					Depth to Refusal:	fusal:	4:1.				Clone Failure or III	iter lable:	1		
NRCS Soil Unit:		Shelocta-Be	Besks Co	xolomo	X (50E	Bedrock Type :	e :	5.	alo			Nin Slone 8 Dinasi	or slip:	in o	VCK ST	gringnold
Mineralogy:	-	1	84	-		Vegetation:		White	Pina	CM	econos	Dip slope & Direction:	3	on my	Strike	Strike: 1540
Horizon	Depth in inches	Matrix Color	Texture Class	% clay % sand	Rock Fragment Type & %	ck Rock Fragment Nent Size (Inches)	ent Plastichy/	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctions	Redox Feature Color	Redox Feature Description	Roots	Pocket Peretumeter/	nple	
D	0-15	-15 1042212 Sil153	5:2	15	0	17 Cli.	500	NABC	2	AL	1)	350	3	2	Surface Channers
Bw	15-	1.52 HOUR 1/5 1/ 100 1	2:5	0	22 28	17.4	50 Po	17 HEST/	7	Se la	\	1	25	0.5	5	
P	44	1														
											ı					
			4													

TEST PIT DESCRIPTION

Soil Scientist: M WOOD

Soil Scientist:

Test Pit ID:	P	348-160621-1115	21-111	1	MGW		Topographic Position:	tion:	IMMUS	T			Parent material:	terial:	RESIDI	MUUK	
Date:	3	6/21/16					% Slope:		20/0				Slope Aspect:	et:	273		
Job Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		S div	omewh	Somewhat Excessivel	Y	Depth to V	Depth to Water Table:	>15	//	
RETTEW Job #:		089962000					Depth to Refusal:						Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:	8	1937 ·	BERKS-ROUGH	2000	H		Bedrock Type:		2NO STONE	NE			Dip Slope	Dip Slope & Direction:	16%	3120 51	Strike: 222
Mineralogy:							Vegetation:		WHITE BING	1	VIRGINIA	PINE, CH	HESTMUT	TOAK H	LUCKURY	, BLUE	4VVJ9
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horton Boundary Topography & Distinctness	Redox Feature Color	Redox feature Descriptions	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
De	0-1	0-1 5423/2	1	1	1	1	1	1	(t	Y.	1	(3M-00	4,3	1	
A	1.5	1-1.5 10 4R 4/2	4/2 500	00	25	30% <6	197	0.3	22 1/F	VAR CS	CS	1)	3 F-VF	言	Ţ	
80	1.5-15	1.5-12 1040 2/4 2 XCM	N XCK	00	55	2st NJ	197 KSt	50	795	VFR	cw	1	1	2 F-VF	10.01	Ì	
A	51	5															
									6								

Other Notes:

TEST PIT DESCRIPTION
Soil Scientist: M, WOOD
Field Assistant: R, HTLL

RETTEW Associates, inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P	349-160	821-	215-	- MGW	ME	Topographic Position:	ition:	SIDE	39012			Parent material:	aterial:	300	UVIU	M over residuum
Date:		6/21/16					% Slope:		24				Slope Aspect:	ect:	7 R		
Job Name:	Domir	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil	Survey			Drainage Class:		MWD				Depth to	Depth to Water Table:	1	24 =	
RETTEW Job #:	089962000	2000					Depth to Refusal:		602		pa3		Slope Fail	Slope Failure or slip:)		
NRCS Soil Unit:	100	WEIKERT-BERKS-ROUGH	RKS-R	1200	_		Bedrock Type :		0	STANK	CO		Dip Slope	Dip Slope & Direction:	350	3	Strike: 190
Mineralogy:		Mixed					Vegetation:		WHITEP	DINE C	CHESTNUT	NAG	HACKORY	Y DOG WOOD,	JOOD BY	BLUE BERRY	STATES AS
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist	Horizon Boundary Yopography & Distinctions	Redox Feature	Redos Feature Description	Roots	Pocket Prostrometer/	Lab Sample	Notes
0,	0-1	75483/2	(1	1	1	1,	1	j	1	武	١	\	2 F-VF	4 1	1	
A	2	8.5 2/2 Shal	5,2	19	25	1,0%	10% 21.04	95 BB	1 VE	NA	A	1	1	2 F. VF	0.25	1	
E	2.5	toyR 5/4	512	2	25	7,01	Ch ~ 1.0 "	60	IN.	U.A.	8	1	- 1	- 3. Co	0.25	(
86	5-10	E-10 10425/4	×	7	35	9,01	10.17 % OI	55 56	7195 WZ	F)	83	1)	1 F-UF	5.2	I	
Etp	19-19	18-19 10425/6 50l 22 55 15% 21.0	Sel	15	N	15%	0.17	SS	785 17 2	27	CW	1		14-UF	K 0.1.	1,	
39	8-32	M 32 7540 6/8 5 R	SR	00	60	20	120	85	7185 UN. 1	F	MID	16/22/201	6	16-16	大いい	1	RE-DUX 29"
P	32+	1	1	1	١	1	1	,)		1							

TEST PIT DESCRIPTION Soil Scientist: D. Fly Walnumber Fleid Assistant:

Test Pit ID: Date:	0.3	6/21/160	1000-1000-1000	00.00		Topographic Position: % Slope:	sition:	12	3	100		Parent mat Slope Aspe	Parent material: Slope Aspect:	25	Slope Aspect: 290
Job Name:	Dominion	oast P	ipeline Soil Sun	·eγ		Drainage Class:		Mary				Depth to W	Depth to Water Table:	Depth to Water Table:	Depth to Water Table:
RETTEW Job #:	089	5			1	Depth to Refusal:	il:	3 14.				Slope Failu	Slope Failure or slip:	Slope Failure or slip:	1
NKC3 SOII UNIT	1/4	200	100. 1-00	The Paris of the Paris	10	Dediock Type:		_	0	100	NA FIN	Why Blinds	Why Blinds	Why Blinds	Why Blinds
William Singy.		THE WAY				* Bemeron		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	USDA		,	1 1000	7 17	1 1000	1 1000
Horizon	Depth in inches	Matrix Color	Texture 9	% clay % sand	Rock and Fragment Type & %	Rock Fragment Size (inches)	Planticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Harlton Roundary Topography & Distinctness	Redox Feature Color	Redox Feature Redox Feature Color Description		Redox feature ROOTS Profest Featurement of	Redox Seature Roots
8	0:03	25/1	1	1	t	1	1	1	1	AUD	1	1	1 25	- 3f - 4.8	- 2£ -
D	350	1.25/28/201	5.2	14 10	500	, h7	P0	JAN NERG	JIN	MM	1		- 35E	- 3f 0.8 800 JE	- 9th ME -
Bul	2.9	104RSH S/L 16	5/2	61	15 25.	14.	89	1848× NEX CM	17 July	M			0)10 W'38	- 2t, M 0.5	10
Bul	19-19	31 2'S OF 3401 41-10 T	12.5	10 M	2 CV	,76.		SB IMSON Fr AW	3	AW)		- 26,M	- 26'W 0:22	. 10
R	191	1	(1	1	11	(1	1	1	1	1	1	

Other Notes:

Soil Scientist: The Month of the Field Assistant:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	P351-	12062	1-1140	しつひきに	TI	Topographic Position:	ition:	Balle	lans			Parent material:	terial:	Collinan	mar	Residence
Date:	200	0				% Slope:		82				Slope Aspect:	ect:	1600		
Job Name:	Dominion - Atlantic Coast Pipeline Soil Survey	ic Coast Pipeline	Soil Survey			Drainage Class:		Mell				Depth to V	Depth to Water Table:	1		
RETTEW Job #:	089962000					Depth to Refusal:		35				Slope Failure or slip:	re or slip:	١		
NRCS Soil Unit:	har truing	5	ROUGH	-	11/570	G ADN 8 (57D Bedrock Type:		Shalo-	10			Dip Slope	Dip Slope & Direction:	50 1	1W	Strike: 235
Mineralogy:	M	2				Vegetation:		Cheston	SON L	Hickory	J. Winde	Park .	Spirise 6	ill & be my	The Ch	actively of
Horizon D	Depth in Matrix Color	Color Class		% clay % sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plastichy/ Stickiness	Structure Type, Grade, and Size		Horizon Boundary Topography & Distinctness	Redox Feature Color	Rados Feature Description	Roots	Pocket Penetrameter/	Lab Sample ID	Notes
P	0-5 10-10	1000 1/2 Sil 20 18 60%	7 20	20	58.	187	50 00	1588 UFF AW	Ufr	AW	1	1	2500	17 SE'0	1	lessiven "4" of Omale
Bal 15-	,	5 1/2	2	16	S'L 31 16 601 73.	187	88	30 1850K Fr	77	CW	1	t	300,1	27,0		
Bu 29-	7- WAS	presid 5:1 22 16 85. 28"	20	6	CN 85%	187	58	SP 18891 Fr CM	7	CM	1	1	35,00		1	
280	18481 SE	103 21 28 7'S 01/01/01/01	22	Z Z	C. S.		25	165BK FO AW	2	AW	1		1+'W	9.77 Cason	(Bedded Out
P	148	1	1	1	(1	1 1	Ţ	r	1	(1	1) 1	(

Soil Scientist: D. Tengto Moules Field Assistant:

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

316 - 12- 12- DEL		31.	2	Parent material: Slope Aspect:	123°	our collumne
Coast Pipeline Soil Survey	Drainage Class:			Dooth to Water Table:	180	
	Depth to Refusal:	1		Clone Failure or clin:	1	
-		1		Dip Slope & Direction:	١	Strike:
Mixed	Vegetation:	White oak	Sheabank bicke			Do sterraine
Texture	Rock Fragment	Structure Type.	Horizon Boundary Rodox	-		0
% clay % sand	Size (inches)	Structure Type, Grade, and Size	Horizon Boundary Topography & Distinctness	Redex Feature Roots	Product Pernetrometer/ Lab Sample	Notes
2.511	,	• 1	AW -	- 3f	6.3 51	highly decomps
3/8 5,2 17 16	16117	1768	MA	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.1 62	
SiL 17 18	41/2	IMSAK	(W	174,0	25 20	
1/2 SIL 1620	710	16834	cs -	1 2 mico	5.2 54	GF hove Kounded
OMR 514 5, L18 28	71.	-	CS -	1 12	55 85	Sort 1. thereberrois to
2.546/2 5.1 18 28	13"	1605011	10-125/16	CP 12	2.0 56	Some Lithochiers
						Cot how ship
						×
6 9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Texture 11 16 SiL 18 28 SiL 18 28	S-DEF Topographic Posit Slape: Drainage Class: Drainage Class: Depth to Refusal: Depth to Refusal: Pragment Size (inches) Depth to Refusal: Pragment Size (inch	5-PEF Topographic Position: \$100001 \$5 slope: 31. \$20 \(\) \(\sigma \) Depth to Refusal: Pegtation: Pegtat	S-DEF Topographic Position: Lland Plain slope: Stope: Depth to Refusal: Depth to Refusal: Depth to Refusal: Vegetation: Vegetation: Vegetation: Structure Type, Noak Swaahu A. F. Type & x. Size (inches) Size (inches) SSP NGR YF AW 116 GA LIB' SP NGR YF AW 118 GC LIB' SP I GSBH FF CS 120 401 LI' SP I GSBH FF CS 130 401 LB' SP I GSBH FF CS 140 CN LB'' SP I GSBH FF CS 151 GSBH FF CS 152 I GSBH FF CS 154 GSBH FF CS 155 I GSBH FF CS 156 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS 157 GSBH FF CS	5-PEF Topographic Position: \$\frac{1}{2000} \times \frac{1}{2000}	S-DEF

TEST PIT DESCRIPTION
Soil Scientist: M. WOOD
Field Assistant: R. HIW

Soil Scientist: Field Assistant:

Signature: M. Wal

Test Pit ID:	PZ	257 A - 1601	W - W - 1 - 1 / 10"	TV Y	12/11		Topographic Position:	TION:	100 0	01017			Parent material.	Cerial:	1	11111	
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lob Name:	Domin	ntic C	Pipeline Soil S	Survey			Drainage Class:						Depth to V	Depth to Water Table:	+ 05		
RETTEW Job #:		2000					Depth to Refusal:		195				Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		WETKENT-BISPICS-	7045-B	ROUGH			Bedrock Type :		1.				Dip Slope	Dip Slope & Direction:	1	10	Strike:
Mineralogy:	-	۸۸٠ ، ۵۵					Vegetation:		D STEH W	DAK, CI	TUNTS 34	IT DAK, HI		Y			
	Depth in	241.5	Texture				Rock Fragment	Planticity	Structure Type,	USDA	Hariton Boundary	Redox Feature	Redux Feature		Pocket Penetrumeter/	Lab Sample	
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Soil Scientist: The Annual Market Soil Assistant: Max Dug Con

Signature: Hand Me

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Test Pit ID:	70	- 253-110	1-80000	1020	734-C		Topographic Position:	tion:	アンと	ant			Parent material:	erial:	PASIO	200	
Date:		6/22	-				% Slope:		14 15				Slope Aspect:	ct:	2550		
lob Name:	Domi	Dominion - Atlantic Coast Pipeline Soil Survey	Pipeline Soil Su	rvey			Drainage Class:		1100				Depth to V	Depth to Water Table:	ı		
RETTEW Job #:	0899	089962000					Depth to Refusal:		36	13.			Slope Failure or slip:	re or slip:	1		
NRCS Soil Unit:		4	beills Rough	_	molas	Emplex (570)	Bedrock Type:		Shall	1 - 4+	1		Dip Slope	Dip Slope & Direction:	120 =	St	Strike: 16 4 *
Mineralogy:	H		Mixed				Vegetation:		1 Ministe	P. M	M. Che	Mr. on	tave o	OAK, Spe	150 blu	Grade	+ herblog
Horizon	Depth in inches	Matrix Color	Texture Class	% clay	% sand	Rock Fragment Type & %	Rock Fragment Size (inches)	Plasticity/ Stickiness	Structure Type, Grade, and Size	Moist Consistence	Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Pocket Penetrometer/	Lab Sample ID	Notes
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Soil Scientist: 7 FINST & MAN MAN

Signature:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

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		or entrol with Bod Koch	Rundom CForient				Notes	my sparse herb	Strike: 230				avel ies, dwa

Attachment 5 Soil Transect Log

Notes: Notes: Slope & Aspect: Transect Point ID: Horizon 22 5 Slope & Aspect: AB Transect Point ID: 1 Horizon TO 00 Rettew Job #: 089962000 A p. Soil Scientist: DUANTINAY 12-18-Depth 140-18 2 0-0.5 Depth 0-2 7.0-14.0 2555 î 16 0.70 54.0502 (ii) June 11 X * mans 2 17. 15 T 2.5% 514/4 5/2/ NY NY 27.50 1.85.1 Color Color TØ 078 11,0620 -TOOK 160620-1 tank 5 Position: (A. Texture Sicc Sicu Texture Position: 5 5 and X53 15.7× VCIT 300 36 500 CoF 25 S F 11 120-DA Ulmotorus 1418-Color Redox 0 Redox Color 1 Redox Descr. PM: Redox PM: Descr. 1 1 1 1 Notes Notes Notes: Transect Point ID: Notes: Slope & Aspect: Horizon Slope & Aspect: Transect Point ID: Horizon Section: Date: 06/20/2016 Depth Depth (ii) (ii) Color Color Texture Position: Texture Position: Cof င္ပန Redox Redox Color Redox Color Descr. PM: Redox Descr. PM: RETTEW Associates, Inc. 3020 Columbia Avenue Phone: 717-394-3721 Lancaster, PA 17603 Fax: 717-394-1063 Notes Notes

TEST PIT DESCRIPTION

Soil Scientist: Ogf 20

Field Assistant: MIGUEL PAPAMES

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Texture 9				Rock Fragment Size (inches)	Plastidity/ Stickiness	Structure Type, Grade, and Size		Horizon Boundary Topography & Distinctness	Redox Feature Color	Redox Feature Description	Roots	Podat Pesetrometer/ pH	Lab Sample ID	Notes
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Notes: Slope & Aspect: Slope & Aspect: 34%, 24% Position: & Notes: Transect Point ID: 1-0278-160617-Horizon Transect Point ID: Horizon Bu Rettew Job #: 089962000 00 Soil Scientist: Depth Depth N (in) (in) co BY(25/ 7.5765/6 Color Color John C Position: Texture Texture 2 5 Roberts CoF CoF ľ Redox Redox Color Color Redox Redox PM: Descr. PM: Descr. Notes Notes Slope & Aspect: Notes: Transect Point ID: Slope & Aspect: Transect Point ID: 7-029-160617-12 Horizon Notes: Section: Horizon E D Date: Depth Depth (in) 6 Œ. 0 20-02 6 9/5/201 12 Just 5YRCT Color Color 136 Position: Beach 1 Texture Position: Texture 020 CoF CoF Redox Redox Redox Redox Color Color PM: Descr. Descr. PM: RETTEW Associates, Inc. 3020 Columbia Avenue Phone: 717-394-3721 Lancaster, PA 17603 Fax: 717-394-1063 Notes Notes

Soil Scientist: Rettew Job # : C Transect Point ID: Slope & Aspect: Horizon Depth (in) Oe (5	Soil Scientist: Rettew Job #: Insect Point ID pe & Aspect: Depth (in) Oe (10/m 089962	000 045A-16 Position: Texture	COF COF	Redox Color	PM: Redox Descr.	Notes		Section: Transect Slope & / Horizon	Section: 9-6: Transect Point ID Slope & Aspect: Horizon (in)	14-20 3: 7-6 158 29 color	14-20 3: 7-0 57 293 color	14- 2016 27-0421-160614- 157 29 Position: Sum Color Texture Cof	14 - 2016 D: 7 - 042A-160614 - 144/- 158 29 Position: Summer Color Texture CoF Redox Color Color	14- 2016 21- 0424-160614-15 22 Position: Summa Color Texture Cof
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Dominion ACP - Soil Survey

Soil Transect Log

Rettew Job #: 089962000 Soil Scientist: Polywork

Date: - [ho Pho

Section:

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RETTEW Associates, Inc. 3020 Columbia Avenue Phone: 717-394-3721 Lancaster, PA 17603

Slope & Aspect: 1/% Slope & Aspect: 351 Transect Point ID: T-049 A-1606 BW Transect Point ID: T-047A-160014-1555-DE Notes: Horizon Horizon Oa 1 D 03 about Depth 18-0 Depth (in) 15 CANTED (in) BUC. of 2 6 Et Co S42251 19491 10422 104R3 1152ho 10425 B Color Color Choche 331 30 Position: Wood Bouch Texture Position: \$100 Texture 1,5 CIVE 401618 65/9 30.00 381. 151. 4-14 CoF CoF bottow. 14/0 104RY 1 Redox Redox Color Color 1 Descr. Redox Redox 5.00 PM: PM: Residuin 34 Descr. 8 1 Rolly Hryvier Ar MX 2 Notes CARK Notes 101 Drow Slope & Aspect: Slope & Aspect: Transect Point ID: Transect Point ID: T-6496-Notes: Bul 00 Horizon Horizon P 3 Depth ç Depth 5 Mod (in) Œ, 184 apoure S-12551 10123 1520 Color Color Texture Position: Position: Texture cree Sed in so 1606 2.750 CoF CoF 45 200 Redox Redox Color Color 30-Redox Redox PM: PM: Descr. Descr. 50 P Fax: 717-394-1063 01 Notes Notes 200

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Slope & Aspect: 7/5 Slope & Aspect: Transect Point ID: Transect Point ID: Horizon Notes: Horizon Notes: 00 0 Rettew Job #: 089962000 Soil Scientist: Depth Depth = 12 (in) N (ii) 1094%S, 8.5482.8 109RS/6 5 Russell Color Color 055A1 Texture Position: Texture Position: 1.5 20 24 COF COF 0200 01 1201 Redox Redox Color Descr. Color Redox Redox PM: Descr. PM: 210/0 5/000 Notes Notes Transect Point ID: Slope & Aspect: Notes: Slope & Aspect: Transect Point ID: Section: Horizon Notes: Horizon Date: Depth Depth (in) (in) 6.13.16 Color Color Position: Position: Texture Texture CoF CoF Redox Redox Color Color Redox Redox Descr. PM: Descr. PM: RETTEW Associates, Inc. 3020 Columbia Avenue Phone: 717-394-3721 Lancaster, PA 17603 Fax: 717-394-1063 Notes Notes

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Soil Scientist: Tolow

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		Notes									Notes			D20 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063	3020 Columbia Avenue Lancaster, PA 17603

Date: 6

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RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603

Rettew Job #: 089962000

Soil Scientist: M , Wood

Notes: Notes: Slope & Aspect: Transect Point ID: 0.5-2 Slope & Aspect: 98% 244 Position: LAT Transect Point ID: T- 121 Horizon Horizon 41-01 4 + Depth Depth 00 D (in) (in) 75.12 y No. E | 5401 1700 Color Color Position: Texture Texture 1831 8 20% CoF CoF 5 Redox Redox Color Color 1 Redox Redox PM: Descr. Descr. PM: COLLUVIUM Notes Notes Notes: Notes: Slope & Aspect: Transect Point ID: Slope & Aspect: Transect Point ID: Horizon Section: Horizon Depth Depth (in) Ē 8121 Color Color Texture Position: Texture Position: COF CoF Color Redox Redox Redox Redox Color Descr. PM: Descr. PM: Phone: 717-394-3721 Fax: 717-394-1063 Notes Notes

Rettew Job #:	entist: Job # :	Rettew Job # : 089962000	One Ve	1/0010	Ĉ			Date: Section:		6/15/ A	16 P-	55		30 RE	RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3771
Transact D	oint I											C	1		Fax: 717-394-3721
Iransect Point ID:	טווור ור	11	F 160615	1	1- 500			Transect Point ID:	Point II	9					
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Horizon	(in)	Color	Texture	CoF	Redox Color	Redox Descr.	Notes	Horizon	Depth (in)	Color	Texture	CoF	Redox	Redox	Notes
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Soil Scientist:

Rettew Job #: 089962000

Date:

Section:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721

	Horizon (in)	Slope & Aspect:	Transect Point ID:	7	Notes:	8	P	00	Horizon Depth	Slope & Aspect: 36	Transect Point ID:	
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	Horizon	Slope & Aspect:	Transect Point ID:	İ	Notes:				Horizon	Slope & Aspect:	Transect Point ID:	
	Depth (in)	Aspect:	Point II						Depth (in)	Aspect:	Point II	
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	Redox Descr.	PM:							Redox Descr.	PM:		
	Notes								Notes		Fax: 717-394-1063	

Notes:			Horizon	Slope & Aspect:	Transect Point ID:	Notes:	5w2	801	A	0e	Horizon	Slope & Aspect:	Transect Point ID:	Rettew
			Depth (in)	Aspect:	Point IC	<6	1226	4-12	1-4	0-1	Depth (in)	Aspect:	Point ID	Rettew Job # :
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		İ	Horizon	Slope & Aspect:	Transect Point ID:	Notes:					Horizon	Slope & Aspect:	Transect Point ID:	Section:
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-1			Notes								Notes			3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Rettew Job #: 089962000 Soil Scientist: Tahn Waln Section: GNEW-O Date:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Horizon (in)	Horizon (in)	Horizon (in)	and on the same	Slope & Aspect:	Transect Point ID:	Notes:	28+ 21-25	BWZ 11-21	BW1 3-11	00-3	Horizon (in)	Slope & Aspect: 54%, 270 Position:	Transect Point ID:
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			Horizon	Slope & Aspect:	Transect Point ID:	Notes:					Horizon	Slope & Aspect:	Transect Point ID:
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			Color								Color		
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Date:

Soil Scientist:

	Rettew Job #: 089962000	Job #:	089962	000		(0010	1 1		Date: Section:	Θ	6-18	107/16	-			RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063
8. Aspect: 52 3co Position: Stable PM: PX (ar ships cree) Slope & Aspect: 17	nsect	Point IC		1891-	2	1	*		Transport							
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Date:

RETTEW Associates, Inc. 3020 Columbia Avenue

Soil Scientist:

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Notes: Slope & Aspect: Transect Point ID: Slope & Aspect: 9% 35% Position: Horizon Notes: Transect Point ID: Horizon 00 Rettew Job #: 089962000 Zone Depth Depth (in) (in 22 YOYR SIG 9 10YR S Color Color TZ63A-CONVEY Texture Position: Texture 40% CoF COF Redox Redox Color Color PM: Redox Descr. Descr. Redox PM: (PSIDUUM 340 Notes Notes ナくつ Sanc Notes: Notes: Slope & Aspect: Horizon Transect Point ID: Slope & Aspect: Transect Point ID: Horizon Section: Depth Depth (in) Œ. Color Color Texture Position: Texture Position: 1 CoF CoF Redox Redox Redox Color Color Redox Descr. PM: Descr. PM: Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063 Notes Notes

Soil Sc Rettew	ientist: Job#:	Soil Scientist:	00	10				Date: Section:	6/1/	326				RETI 302 1	RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063
Transect Point ID:	Point ID	1-2	260-16	060	1-141	215	00	Transect Point ID:	Point ID					۱	Fax: 717-394-1063
Slope & Aspect: 177,	spect:	209	Position:	84 0	24075	PM:	MOINON	Slope & Aspect:	Aspect:		Position:			PM:	
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Clarisect Pollit ID:	רסווונוט	T-2	- 437	16060	-		578	Transect Point ID:	Point ID						
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Date: 6/7/

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603

Soil Scientist: Machael

Slope & Aspect: Notes: Slope & Aspect: 30/10° Position: 5/000 8/0000 Transect Point ID: T-2384-160607-1505-MEL Transect Point ID: Notes: Horizon Horizon 00 Rettew Job #: 089962000 Depth Depth (in) (in) Color Color Texture Texture Position: d CoF CoF Redox Redox Redox Color Color PM: collowhum Descr. Redox PM: Descr. Notes Notes Slope & Aspect: Transect Point ID: Notes: Slope & Aspect: Transect Point ID: Notes: Section: 12-234 Horizon Horizon Depth Depth (in) (in) Color Color Texture Position: Texture Position: P-239 CoF CoF Redox Redox Color Color Redox Redox Descr. Descr. PM: PM: Phone: 717-394-3721 Fax: 717-394-1063 Notes Notes

Dominion ACP - Soil Survey

Soil Transect Log

Date:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603

Soil Scientist: Thomse www

Notes: Slope & Aspect: Notes: Transect Point ID: 7-239A Slope & Aspect: Transect Point ID: 200 Horizon Horizon Rettew Job #: 089962000 Depth Depth 0-2 5 Ē (in) 3 1000 DAYS Color Color Texture Position: Position: Texture 000 CoF CoF 27 Redox Redox Color Color Redox Redox Descr. PM: Descr. PM: A KOUNDEDUCE Notes Notes Notes: Slope & Aspect: Section: Transect Point ID: Slope & Aspect: Transect Point ID: Horizon Notes: Horizon Depth Depth (in) (in) P-239 Color Color Texture Position: Texture Position: CoF CoF Redox Redox Color Descr. Redox Color Color Redox Descr. PM: PM: Phone: 717-394-3721 Fax: 717-394-1063 Notes Notes

Slope & Aspect: Slope & Aspect: 34/440 Horizon Transect Point ID: +-BW2 Horizon Transect Point ID: T-247 A Notes: Notes: Rettew Job #: 089962000 P Soil Scientist: Pitalyster machy 19-6 Depth Depth (in) (in) 6 2/2/2 Jusil 250 PK215 167PS/4 104R5/4 5,1 10423/2 Color Color 640 247 Position: Position: Texture Texture 285 80.50 200 200 Backer CoF CoF 6 Redox Redox Color Color LOH 1 Redox Redox Descr. PM: Descr. PM:(b 16 DE Mixedit Angled Edges Share CO+ ConsoledCox Notes Notes Slope & Aspect: Transect Point ID: Slope & Aspect: 3 Notes: Transect Point ID: 1-24 Notes: Horizon Section: Horizon Bu P Date: Depth Depth 2-14 0.0 (in) Ē 104/23/2 10425/4 58% Color Color 649 Position: Texture Texture Position: 215 N.188 608 CoF CoF 45/0/2 Redox Redox Color Color Redox Redox Descr. PM: PM: Descr. 1 RETTEW Associates, Inc. 3020 Columbia Avenue Phone: 717-394-3721 Fax: 717-394-1063 Matches most Lancaster, PA 17603 Sha Notes Notes n

Date:

6/8/16

RETTEW Associates, Inc. 3020 Columbia Avenue

Soil Scientist: Michael

Slope & Aspect: 347/350 Position: hedslope Notes: Slope & Aspect: Transect Point ID: 2m2 Transect Point ID: 7-253A -160608-1150-MEL Notes: Horizon Horizon tem coarse transments compared to summerting sidestspes Rettew Job #: 089962000 In concave narrow headslope, Buz w 8-18 Depth 8-1 2-0 Depth (in) Ē 5/12.5/1 101/24/24/CIR 10/125/6 10/12/6 GR-CB Color Color Texture JIN Texture Position: 2017 35% CoF COF Redox Redox Color Color Redox Redox Descr. PM Collovon PM: Descr. / vesy Notes Notes Notes: Slope & Aspect: Slope & Aspect: Transect Point ID: Notes: Horizon Horizon Transect Point ID: Section: 300 Depth Depth E (in) P-250 -(in) 21/10 Color Color Texture Position: Position: Texture CoF 011 CoF 285 sandstono < INCIBASAS C.T. W Redox Redox Color Color Redox Redox PM: PM: Descr. Descr. 2 m Phone: 717-394-3721 Fax: 717-394-1063 Lancaster, PA 17603 2 180 N Notes Notes 7

Date: 6/8

RETTEW Associates, Inc. 3020 Columbia Avenue

Soil Scientist: LOFN WAR

Notes: Slope & Aspect: DIP 25 7, NNE(20. Notes: Transect Point ID: Horizon Slope & Aspect: 43/2190 Position: Backs LEPE PM: PE Transect Point ID: T_ レミレム Horizon 8 N 00 Rettew Job #: 089962000 P Depth Depth BEDROCK OUTCROFF ING Ē (in) + 4 Stars 10/24/6 10/R-3/1 SPL7 5+92 Color Color DIPPIN Texture Texture Position: 757 STEIKE: 2900 VARIABILITY 809091 55 CoF S Cof 302632 1 0 1750 BACKSLETE Redox Color Color Redox Redox 10945-500 PE Redox PM: Descr. Descr. REFUSED IN DEPTH TO RECK MENGIL 5 5 CITHIC Notes Notes UDORTHEN Notes: Notes: Slope & Aspect: Transect Point ID: Slope & Aspect: Section: H Transect Point ID: Horizon Horizon Depth Depth (in) (in) Color Color Texture Texture Position: Position: 27 6 CoF CoF Redox Redox Color Color Redox Redox PM: Descr. PM: Descr. Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063 Notes Notes

Date: 6/ 8

Soil Scientist: レタチン モギエ

Notes: Slope & Aspect: Notes: Transect Point ID: Slope & Aspect: 44/354 Position: Brckscore PM: Coccovion Horizon Transect Point ID: 7 2584 - 160608 - 1257 Horizon 54 do De Rettew Job #: 089962000 P M 4/2 Depth 22.23 Depth (in) 10 (in) spars! 10/25/6 10/25/6 16 3 ho Color Color UN IT Texture Texture Position: 252 ASS. CoF U3 5 CoF 0 O Redox Redox Color Color マリ 3 Redox Descr. Redox Descr. PM: 05 2 S Notes Notes Notes: Notes: Slope & Aspect: Slope & Aspect: Transect Point ID: Transect Point ID: Section: 4 Horizon Horizon Depth Depth (in) (in) Color Color Texture Texture Position: Position: CoF CoF Redox Redox Color Color Redox Redox Descr. Descr. PM: PM: RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063 Notes Notes

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Slope & Aspect: <53/20° | Position: nate Summit | PM: residuement Slope & Aspect: Transect Point ID: Horizon Transect Point ID: T-2694-160609-1405-MEL Notes: Horizon ct in Bu vary to channery, sittstane/shalle Notes: Rettew Job #: 089962000 P Soil Scientist: Michael 8-20 Depth Depth (in) Ē 8 IONESI 104/23/2 Q morizon < 1/2 in Color Color SIL Texture NOP Texture Position: 28 85% CoF Cof So. Redox Redox Redox Color Color diestant oak, white Redox PM: Descr. Descr Notes Notes Horizon Depth Notes: Slope & Aspect: Notes: Compare Slope & Aspect: 45% //85 Position: Sideslape Transect Point ID: land scape some suituce such stone grown ! Transect Point ID: T-2664 - 160609-1525-ME Horizon 3-20 C Section: 15-2 51-13 -7 Date: 6/ BWZ 101896 Depth P (in) (in) 54R2.51 W485/6 16 AK SI MYS 9/8 NO Color Color 5 500 200 Texture Texture Position: V 1-261 269 25 25 75 CoF 6 CoF Redox Redox Redox Redox Color Color T-26A PM: Descr. Descr. PM:Col RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 higher Phone: 717-394-3721 I'm + CF 11 in CF Fax: 717-394-1063 Notes Notes overes.d

Date:

RETTEW Associates, Inc.

Soil Scientist:

Steve

Notes: Notes: Slope & Aspect: Transect Point ID: Slope & Aspect: 45/180 Position: Horizon Transect Point ID: Horizon 228 BWZ Rettew Job #: 089962000 BWI P Depth Depth (in) (in) N 2 2 w 4 7,5785/6 75/825 10/R 4/2 Color Color TOYR: X 1-2774-160610-1106 Texture Position: Texture 1 5 paridolip 35 40 CoF CoF 00 13 Redox Redox Color 1 8 PM: Redox Redox Descr. Descr PM: 1 90 1199 legres /res Notes Notes Notes: Notes: Slope & Aspect: Transect Point ID: Slope & Aspect: Transect Point ID: Horizon Horizon Section: Depth Depth (in) (in) Color Color I Texture Position: Texture Position: 27 CoF Cof Redox Redox Color Color Redox Descr. PM: Descr. Redox PM: 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063 Notes Notes

Dominion ACP - Soil Survey

Soil Transect Log

Soil Scientist: P. Fenster machy

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603

Slope & Aspect: 16:1. 734° Position: She walk Transect Point ID: 丁- 285A-160406-1233- アピト Rettew Job #: 089962000 7:55 Make 15,501 Color Texture HOI. CoF Redox Redox Color PM: Regi Descr. Clustinas MM Notes Slope & Aspect: Transect Point ID: 1-28 Section: 283-288 Horizon P Date: 6/6/16 BW Depth 0.00 35.6 ナンド (in) 1231.5 DANG 104/21 Color 8 Texture Position: 5:0 CoF Redox Redox Color Descr. PM: Pe Phone: 717-394-3721 Fax: 717-394-1063 Notes

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Rettew Job #: 089962000 Transect Point ID: 1 - 29 Slope & Aspect: 47,200 Pc	62000 29 15 79 Position:	3. S. S. S. S. S. S. S. S. S. S. S. S. S.	+66	PM:	73	Section: \(\bar{V} - 2\epsilon \) Transect Point ID: Slope & Aspect:	7-289 Point ID: Aspect:	3,00	P-29			PM: RET	RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063
Horizon Depth Color			Redox Color	Redox Descr.	0	Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	- ^
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Horizon (in) Color	or Texture	e CoF	Redox	Redox Descr.	Notes	Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	
Notes:						Notes:							

Date:

RETTEW Associates, Inc. 3020 Columbia Avenue

Lancaster, PA 17603

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Soil Scientist:

Slope & Aspect: Slope & Aspect: 22% Transect Point ID: Transect Point ID: Notes: Horizon Notes: Horizon Rettew Job #: 089962000 0 Depth 20 Depth 0-2 Ē (in) 25 W 00 3 919, #/SUKO! 10YRS/6 101/23/4 Color Color Position: Texture Position: Texture 6 2 0 20% CoF 100 COF 5% 07 5 S. C. Redox B Redox Color Color horizon Redox PM: Descr. PM:C Redox Descr. Notes Notes Slope & Aspect: 4% Transect Point ID: Slope & Aspect: Transect Point ID: T-291A-Notes: SE Horizon Section: Notes: Horizon 137 KE WA 8 > Depth Depth 2-6 6-16 0-15 (in) 1 (in) of orre 729 10725/4 10425/6 1 10/123/2 00 9/SS/KOI 159/23/2 10×25/4 Color Color 180. 292A-294 100 Position: Position: Mondaer GR Texture Texture MOIS 3 SIX Sil 160606-29 Sha V 160606 10% 30% COF CoF 5 200 297 0 500 6 To Redox Redox Redox Color Color 2150 Descr. Redox PM: PM: Descr. SE Saranels Phone: 717-394-3721 Fax: 717-394-1063 3 MUNIN Notes Notes 0

Notes:	Horizon	Slope & Aspect:	Transect Point ID:	Notes:	Bw /	BE 1	A 3	016/6a (Horizon	Slope & Aspect:	Transect Point ID:	Soil Scientist: Wichae Rettew Job #: 089962000
	Depth (in)	spect:	oint ID	orrelate to	10-18	4-10	3-4	5-3	Depth (in)	spect:	oint ID	entist: Job#:
	Color		P. 299	teto	whest	4-10 love \$4	10/R4/3	19/2	Color	1, 40°	7-29	Soil Scientist: When And Rettew Job #: 089962000
	Texture	Position:	9 P	P. 29	SIL		35/	*	Texture	Position:	9A-160	000
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	Redox Color		R. R.	Slove	1	1	1		Redox Color	ridge	040-	
	Redox Descr.	PM:	GR to VGR	20 4					Redox Descr.	PM: sh	MEL	
	Notes		1GR	slage					Notes	alekillsbore		
Notes:	Horizon	Slope & Aspect:	Transect Point ID:	Notes:					Horizon	Slope & Aspect:	Transect Point ID:	Date:
	Depth (in)	Aspect:	Point ID						Depth (in)	Aspect:	Point ID	25
	Color					İ			Color			99 -
	Texture	Position:							Texture	Position:		
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	Redox Color								Redox Color			
	Redox Descr.	PM:							Redox Descr.	PM:		RETT 3021 L Ph
	Notes								Notes			RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Tran Note Hori Notes: Slope & Aspect: 32/2: Transect Point ID: 1 Horizon U 42 8001 BA 5 Rettew Job #: 089962000 Soil Scientist: M. Wadd Depth 1-19 1-1 4-6 19+ (in) 107/251 107/25 isyrs 12/20/ K3KD Colo

Notes:

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Section:

Date:

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

S	30/1-160603-1350-MEIN	13-13:	W-03	6W		Transect	Transect Point ID:						
278	Position	:51400	"C. D. GABAGO	PM: C	278 Position: 5/70 ULD GRANDPM: COLLUNIAN / Res	Slope & Aspect:	Aspect:		Position:			PM:	
9	Texture CoF	CoF	Redox Redox Color Descr.	Redox Descr.	Notes	Horizon	Depth (in)	Color	Color Texture CoF	CoF	Redox	Redox Descr.	Notes
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de	UP 278 EXEV	EXER)	9									

nsect	insect Point ID:	.:						Transect Point ID:	Point ID):					
ре &	pe & Aspect:		Position:			PM:		Slope & Aspect:	\spect:		Position:		100	PM:	
rizon	Depth (in)	Color	Color Texture CoF	CoF	Redox Redox Color Descr.	Redox Descr.	Notes	Horizon Depth (in)	Depth (in)	Color	Texture CoF	Ç _F	Redox Redox Color Descr.	Redox Descr.	Notes
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tes:								Notes:							

Rettew Job #: 089962000	MAGIL W.	1001				Date: Section:	2/2	307				302 1 PI	3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721
vertew job # : 0055051	000		1430 -	MGIN		Section:		100				P	Phone: 717-394-3721 Fax: 717-394-1063
Transect Point ID: T-307	7A-160602	1	1			Transect Point ID:	Point ID						
Slope & Aspect: 48 / 74	-	BACK		PM: RESIDUAL	IDUMC	Slope & Aspect:	\spect:		Position:			PM:	
Horizon Depth Color	Texture	CoF	Redox Color	Redox Descr.	Notes	Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	Notes
De 1-5 -	44												
218 (-0 F	5:2		i	١									
BW 0-12 1076/16	5.2		١	1									
BW 2 12-22-7512/	5,2		1	1									
Notes: JIMILIA TO	1307					Notes:							
WY FINDISTINS CAN	P.M.												
Transect Point ID:						Transect Point ID:	Point ID						
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Soil So	Soil Scientist:	John C	Rok	345				Date:	6-2-	2016				RETT 302	RETTEW Associates, Inc. 3020 Columbia Avenue
Rettew	Job#:	Rettew Job # : 089962000	00					Section:	P-3	000	P-310			₽.	Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063
Transect Point ID:	Point ID	: 7-30	1981606	02	15	SCR		Transect Point ID:	Point II	D: 7-309	1	160102-	1424	200	
Slope & Aspect: 350	Aspect:	350 1200	Position: No	Nose s	100	PM: S	115 m Res.	Slope & Aspect: Z	Aspect:	3	ositi	Head	SUPE	PM:	ily stone le
Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	Notes	Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	Notes
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Transect Point ID:	Point ID	1-3	10A-1606	1-20	632	Sch		Transect Point ID:	Point IC	9.					
Slope & Aspect:	Aspect:		Position:	Kack	Slope	PM:	ol. 1 Residuem	Slope & Aspect:	Aspect:		Position:			PM:	
Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	Notes	Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	Notes
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Rette															1
	Rettew Job # : 089962000	0899620	000					Section:	P+3	0				_	Phone: 717-394-3721
1	7	1	T-310C-160603-0938-JCR	3-0938-	ICR			1		4			3	1	Fax: 717-394-1063
Slope & Aspect:		6% 342	Position: Summ		40100	PM:	To Charles	Slope & Aspect:	spect:	10 308	Position:	603	10/37	PM:	E S Hours
Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	Notes	Horizon		0	Texture	CoF	Redox Color	Redox Descr.	Notes
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Transec	Transect Point ID:							Transect Point ID:	Point ID						
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Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	Notes	Horizon	Depth (in)	Color	Texture	CoF	Redox Color	Redox Descr.	Notes
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Notes:	Horizon (i	Slope & Aspect:	Transect Point ID:	Notes: I and	-	R 20:	Cr 16-	2	0/10	Horizon (Slope & Aspect:	Rettew Job #: 089962000
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	CoF			stream		20%	40%	204	201>	CoF	sdesy	P311
λ	Redox			bottom		1	1	1	1	Redox Color	ope of)
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	Notes									Notes	16 ce/	3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Date: 6/2/

RETTEW Associates, Inc. 3020 Columbia Avenue

Soil Scientist: Michael Lane

Notes: Slope & Aspect: Lowlying win slide over poorly drained depression Transect Point ID: Slope & Aspect: 82 20° Position Slide Horizon Notes: Grielate to R-013-160510-1505-MPC Transect Point ID: T-3124 160602 -1412 -MEL Horizon W RIE Rettew Job #: 089962000 Depth 10-19 Depth 3-10 10/125/4 CM (in) Ē 107RS/6 CN 162/23/3 See Rachel Will photo Color Color Texture Texture Position: 17 407 20% 15% COF CoF WYRIOZ munp 10412612 INCP Redox Redox Color Color Redox Redox Descr. PM: PM: Descr. mixed A horidon INVERTE Notes Notes Notes: Slope & Aspect: Transect Point ID: Notes: Horizon Slope & Aspect: Transect Point ID: Horizon Section: P 311 -Depth Depth (in) Œ. Color Color D314 Texture Texture Position: Position: CoF CoF Redox Redox Color Descr. Redox Color Redox Descr. PM: PM: Phone: 717-394-3721 Lancaster, PA 17603 Fax: 717-394-1063 Notes Notes

Date:

RETTEW Associates, Inc.

Soil Scientist: M 1000

Notes: Notes: Slope & Aspect: Slope & Aspect: 55 /39 Position: LINGA Transect Point ID: BW 2 Transect Point ID: 7345A - 166622 Horizon Horizon BE 00 Rettew Job #: 089962000 A Depth Depth 0-1 (in) Ē 4 i 2/2 F 19/62/2 915 MAGI 101/8 Color Color Texture Texture Position: W 120/2 CoF CoF 1920-MGW Redox Redox Redox Over residuum
Color Descr. Notes Descr. Redox PM: Descr. PM: CEICUNION Notes Notes: Notes: Slope & Aspect: Transect Point ID: Slope & Aspect: Transect Point ID: Section: Horizon Horizon Depth Depth (in) (in 0 Color Color Texture Position: Texture Position: CoF CoF Redox Redox Color Color (Redox Redox Descr. Descr. PM: PM: 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063 Notes Notes

RETTEW Associates, Inc. 3020 Columbia Avenue Lancaster, PA 17603 Phone: 717-394-3721 Fax: 717-394-1063

Texture

CoF

Redox

PM: Redox Descr.

Notes

Position:

Slope & Aspect: Notes: Slope & Aspect: Transect Point ID: Transect Point ID: \-Horizon Notes: Horizon BWL Rettew Job #: 089962000 Soil Scientist: D. Janotan Molw Depth Depth (in) (in) Bedrock 75/06/ 16 20 DI 7.5 R614 75186 5-1825 II Color Color ZE 24 25 Texture Position: Position: Texture NO.158 99.91 307 CoF CoF 1 3 34-150 Redox Redox Color Color Redox Redox PM: PM: Descr. Descr. 1 かっているかのべ good with 34743110 BUDGOLH KOU 64 940 1 Notes Notes Slope & Aspect: Section: Slope & Aspect: Transect Point ID: Transect Point ID: Notes: Notes: Horizon Horizon Date: Depth Depth (in) (in) Color Color

Position:

Texture

CoF

Redox

PM:

Notes

Color

Descr.

Attachment 6
ACP Soil Mapping Key

Attachment 6 ACP Order 1 Soil Mapping Key

Parent Material	Slope Class	Drainage Class	Diagnostic Subsurface	Restrictive Layer	•	Family Particle Size
1 - Residuum 2 - Alluvium 3 - Colluvium 4 - Colluvium over Residuum 5 - Colluvium over Alluvium 6 - Human Transported Materials (HTM) 7 - Organic Soil Materials 8 - Alluvium over Colluvium	A - 0-3% B - >3-8% C - >8-15% D - >15-25% E - >25-45%	1 - Very Poorly 2 - Poorly 3 - Somewhat Poorly 4 - Moderately Well 5 - Well 6 - Somewhat Excessively 7 - Excessively	Subsurface A - Argillic B - Fragipan C - Cambic D - Spodic E - None	Type 0 – None 1 – Bedrock 2 – Fragipan	Restrictive Layer 1 - ≤12" 2 - >12-24" 3 - >24-36" 4 - >36-48" 5 - >48"	Class A - Coarse Silty B - Fine Silty C - Coarse Loamy D - Fine Loamy E - Sandy F - Fine G - Very Fine H - Sandy-Skeletal
9 – HTM over Colluvium 10 – Alluvium over Residuum						I – Loamy-Skeletal J – Clayey-Skeletal K – Clayey

Attachment 7 Laboratory Results Summary

Attachment 7
Laboratory Results Summary

			.,	2.5	Reccomen	dations	0 -	A . 1.121	050	% Sat	uration	of CEC				Total				Part	icle Size	e Analysis
Sample ID	Soil pH	(ppm)	(ppm)	Mg (ppm)	Limestone (Ib/Ac)	Mg (lb/Ac)	Ca (ppm)	Acidity (meq/100g)	CEC (meq/100g)	К	Mg	Ca	Zn (ppm)	Cu (ppm)	S (ppm)	Volatile Solids (%)	TOC (mg/kg)	TOC (%)	% Sand	% Silt	% Clay	Texture Class
P-003-160620-1025-rll-S1A	4.0	9	107	113	20,000	0	1400	20.7	23.2	1.2	4.1	30.1	3.3	1.2	8.9	53.6	374,000	37.4	N/A	N/A	N/A	N/A
P-003-160620-1025-rll-S2A	3.7	12	74	54	20,000	20	549	21.3	18.4	1.0	2.4	14.9	1.8	0.9	12.0	15.8	100,000	10	33.0	38.8	28.2	Clay Loam
P-003-160620-1025-rll-S3A	4.6	3	34	26	14,000	80	157	15.9	16.1	0.5	1.3	4.9	1.8	1.0	15.6	5.0	8,780	0.878	16.9	42.6	40.5	Silty Clay
P-003-160620-1025-rll-S4A	4.5	3	37	35	12,000	50	120	13.5	14.5	0.7	2.0	4.2	1.1	1.0	9.1	3.4	2,270	0.227	22.8	47.2	29.9	Clay Loam
P-010-160620-1315-mgw-S1A	4.8	8	152	128	9,000	0	832	10.5	16.1	2.4	6.6	25.8	4.2	1.3	7.0	86.3	476,000	47.6	N/A	N/A	N/A	N/A
P-010-160620-1315-mgw-S2A	3.6	17	64	33	18,000	50	225	20.1	16.6	1.0	1.7	6.8	2.8	1.4	10.0	41.4	185,000	18.5	64.3	17.2	18.5	Sandy Loam
P-010-160620-1315-mgw-S3A	4.1	7	46	17	18,000	100	72	19.5	15.6	0.8	0.9	2.3	2.4	1.4	21.4	14.8	67,200	6.72	45.4	25.1	29.5	Sandy Clay Loam
P-010-160620-1315-mgw-S4A	4.7	7	25	11	9,000	110	45	11.1	11.5	0.6	0.8	2.0	2.2	1.0	25.5	8.1	30,500	3.05	42.6	25.0	32.4	Clay Loam
P-010-160620-1315-mgw-S5A	4.7	2	17	8	8,000	110	36	9.9	10.2	0.4	0.7	1.8	1.9	1.1	37.4	5.1	7,200	0.72	43.3	22.9	33.8	Clay Loam
P-010-160620-1315-mgw-S6A	4.7	1	25	9	9,000	110	44	10.5	10.9	0.6	0.7	2.0	1.6	1.1	24.3	4.3	3,280	0.328	43.3	21.0	35.7	Clay Loam
P-010-160620-1315-mgw-S7A	4.6	1	23	9	9,000	110	48	10.5	10.9	0.5	0.7	2.2	1.1	1.1	25.5	5.9	2,360	0.236	41.4	20.7	37.9	Clay Loam
P-010-160620-1315-mgw-S8A	4.6	1	30	14	15,000	100	55	17.1	15.5	0.5	0.8	1.8	1.0	0.9	33.3	5.0	2,810	0.281	23.5	19.8	56.7	Clay
P-012-160620-1115-mgw-S1A	5.1	8	158	113	9,000	0	627	11.1	15.6	2.6	6.0	20.1	3.2	1.2	6.7	96.9	484,000	48.4	N/A	N/A	N/A	N/A
P-012-160620-1115-mgw-S2A	3.9	11	119	56	20,000	20	360	21.3	17.6	1.7	2.7	10.2	3.2	1.1	21.1	18.1	147,000	14.7	54.9	27.3	17.8	Sandy Loam
P-012-160620-1115-mgw-S3A	4.3	16	49	22	15,000	80	107	17.1	15.8	0.8	1.2	3.4	3.4	1.0	28.7	16.4	92,400	9.24	55.9	25.5	18.6	Sandy Loam
P-012-160620-1115-mgw-S4A	4.9	7	18	13	8,000	100	54	9.9	10.3	0.4	1.0	2.6	2.4	1.0	37.6	8.7	49,800	4.98	53.7	31.0	15.3	Sandy Loam
P-012-160620-1115-mgw-S5A	4.9	7	20	10	8,000	110	52	9.3	9.7	0.5	0.9	2.7	2.9	1.1	42.6	6.4	21,600	2.16	49.2	24.6	26.2	Sandy Clay Loam
P-022-160614-1050-jsw-S1A	3.3	7	139	37	24,000	50	51	26.1	15.9	2.2	1.9	1.6	2.7	0.9	12.4	64.6	473,000	47.3	N/A	N/A	N/A	N/A
P-022-160614-1050-jsw-S2A	3.5	18	66	18	23,000	80	51	24.3	15.6	1.1	1.0	1.6	2.2	0.9	6.1	33.3	238,000	23.8	57.5	19.4	23.1	Sandy Clay Loam
P-022-160614-1050-jsw-S3A	4.2	5	18	10	4,000	110	41	5.7	6	0.8	1.4	3.4	1.1	0.7	3.6	1.3	5,540	0.554	79.6	12.2	8.2	Loamy Sand
P-022-160614-1050-jsw-S4A	4.3	21	27	9	9,000	110	28	10.5	10.8	0.6	0.7	1.3	1.3	1.2	18.9	4.1	13,000	1.3	66.8	11.4	21.8	Sandy Clay Loam
P-022-160614-1050-jsw-S5A	4.4	7	37	10	6,000	110	48	8.1	8.5	1.1	1.0	2.8	1.2	1.0	18.7	3.2	2,230	0.223	13.6	59.6	26.8	Silt Loam
P-022-160614-1050-jsw-S6A	4.5	1	59	14	11,000	100	31	12.9	13.3	1.1	0.9	1.2	1.0	1.2	24.3	4.3	710	0.071	22.9	31.1	45.9	Clay
P-022-160614-1050-jsw-S7A	4.4	1	53	16	11,000	100	31	12.3	12.7	1.1	1.0	1.2	0.9	1.3	17.3	6.0	1,110	0.111	8.8	37.2	54.0	Clay
P-040-160615-1119-jcr-S1A	4.5	11	147	63	12,000	0	424	13.5	16.5	2.3	3.2	12.8	3.3	1.0	19.8	38.8	411,000	41.1	N/A	N/A	N/A	N/A
P-040-160615-1119-jcr-S2A	4.0	5	92	31	17,000	60	57	18.9	15.8	1.5	1.6	1.8	2.2	1.0	15.5	10.1	75,700	7.57	35.9	46.0	18.1	Loam
P-040-160615-1119-jcr-S3A	4.8	3	49	13	6,000	100	43	8.1	8.5	1.5	1.3	2.5	2.2	1.2	25.7	3.7	7,880	0.788	18.4	51.4	30.2	Silty Clay Loam
P-040-160615-1119-jcr-S4A	4.6	1	53	18	8,000	80	51	9.9	10.4	1.3	1.4	2.4	1.4	0.9	23.2	3.7	1,790	0.179	29.2	39.0	31.8	Clay Loam
P-040-160615-1119-jcr-S5A	4.7	1	44	23	6,000	80	35	8.1	8.6	1.3	2.2	2.0	1.3	1.1	19.6	2.5	1,400	0.14	19.6	44.0	36.4	Silty Clay Loam
P-045-160614-1019-jcr-S1A	4.4	8	127	54	12,000	20	313	13.5	15.8	2.1	2.8	9.9	2.8	1.1	12.0	49.4	273,000	27.3	N/A	N/A	N/A	N/A
P-045-160614-1019-jcr-S2A	4.5	3	63	33	11,000	50	131	12.3	13.4	1.2	2.1	4.9	1.9	1.1	9.1	9.6	53,700	5.37	32.1	42.7	25.2	Loam
P-045-160614-1019-jcr-S3A	4.9	3	65	34	8,000	50	80	9.9	10.7	1.6	2.6	3.7	1.9	1.2	7.1	3.2	4,230	0.423	24.3	51.2	24.5	Silt Loam
P-045-160614-1019-jcr-S4A	5.3	2	83	122	7,000	0	443	8.7	12.1	1.8	8.4	18.2	1.3	1.2	5.2	3.8	3,480	0.348	27.0	45.4	27.6	Clay Loam
P-063-160614-0950-rll-S1A	6.5	57	151	97	0	0	2,839	3.9	19.3	2.0	4.2	73.6	2.8	1.9	10.6	11.1	49,800	4.98	34.8	41.0	24.2	Loam
P-063-160614-0950-rll-S2A	5.8	2	43	66	3,000	0	1,092	4.5	10.6	1.0	5.2	51.4	1.1	0.9	7.3	3.5	2,470	0.247	21.7	37.6	40.7	Clay
P-063-160614-0950-rll-S3A	4.8	1	75	207	9,000	0	76	10.5	12.8	1.5	13.5	3.0	2.2	1.9	5.6	2.7	1,100	0.11	8.8	48.7	42.4	Silty Clay
P-068-160614-1338-sdd-S1A	6.1	119	139	232	4,000	0	3,230	5.1	22.4	1.6	8.6	67.0	15.8	1.3	17.0	60.3	270,000	27	N/A	N/A	N/A	N/A
P-068-160614-1338-sdd-S2A	5.3	263	67	60	8,000	0	952	9.9	15.3	1.1	3.3	31.0	6.8	1.2	23.1	8.8	62,900	6.29	74.1	16.6	9.3	Sandy Loam
P-068-160614-1338-sdd-S3A	4.8	85	39	23	8,000	80	87	93	10	1.0	1.9	4.3	1.3	0.7	9.6	1.9	2,280	0.228	53.5	25.1	21.4	Sandy Clay Loam
P-068-160614-1338-sdd-S4A	5.2	10	46	44	7,000	30	414	8.7	11.3	1.0	3.3	18.4	1.4	0.9	8.6	2.7	4,200	0.42	37.3	32.7	30.0	Clay Loam
P-069-160614-1158-sdd-S1A	4.9	67	154	127	10,000	0	1,289	11.7	19.6	2.0	5.4	32.9	6.8	1.9	23.6	47.3	123,000	12.3	N/A	N/A	N/A	N/A
P-069-160614-1158-sdd-S2A	4.2	35	75	27	14,000	80	79	15.9	15.8	1.2	1.4	2.5	2.7	1.9	22.6	11.4	72,000	7.2	48.7	36.0	15.3	Loam
P-069-160614-1158-sdd-S3A	4.6	27	51	21	9,000	80	77	10.5	11.2	1.2	1.6	3.4	3.2	0.8	24.1	5.5	37,600	3.76	40.9	39.0	20.1	Loam

Attachment 7
Laboratory Results Summary

		_	V	Ma	Reccomen	dations	Co	A ciditu	CEC	% Sati	uration (of CEC				Total				Part	icle Size	Analysis
Sample ID	Soil pH	(ppm)	(ppm)	Mg (ppm)	Limestone (lb/Ac)	Mg (lb/Ac)	Ca (ppm)	Acidity (meq/100g)		К	Mg	Ca	Zn (ppm)	Cu (ppm)	S (ppm)	Volatile Solids (%)	TOC (mg/kg)	TOC (%)	% Sand	% Silt	% Clay	Texture Class
P-069-160614-1158-sdd-S4A	4.6	10	27	16	7,000	100	52	8.7	9.2	0.8	1.5	2.8	1.5	0.8	17.6	2.2	1,630	0.163	50.3	31.1	18.6	Loam
P-069-160614-1158-sdd-S5A	4.7	3	39	35	7,000	50	62	8.7	9.4	1.1	3.1	3.3	1.4	0.8	20.3	2.5	1,530	0.153	64.3	22.4	13.2	Sandy Loam
P-077-160617-1035-sdd-S1A	5.1	34	144	188	11,000	0	1,497	12.3	21.7	1.7	7.2	34.5	10.3	1.5	17.1	87.2	194,000	19.4	N/A	N/A	N/A	N/A
P-077-160617-1035-sdd-S2A	4.9	25	60	28	10,000	60	103	11.7	12.6	1.2	1.9	4.1	4.1	1.5	14.1	8.7	68,700	6.87	50.3	32.5	17.1	Loam
P-077-160617-1035-sdd-S3A	5.1	3	38	57	10,000	20	281	11.7	13.7	0.7	3.5	10.3	1.3	1.3	7.4	3.6	6,160	0.616	32.9	37.0	30.2	Clay Loam
P-077-160617-1035-sdd-S4A	5.1	2	48	86	10,000	0	299	11.7	14.0	0.9	5.1	10.6	1.3	1.4	8.6	3.7	5,130	0.513	44.7	33.5	21.9	Loam
P-077-160617-1035-sdd-S5A	4.9	1	63	80	14,000	0	170	15.3	16.7	1.0	4.0	5.1	1.3	1.4	12.6	3.7	1,300	0.13	32.8	34.5	32.7	Clay Loam
P-100-160609-1105-def-S1A	3.8	8	149	101	21,000	0	445	23.1	18.4	2.1	4.6	12.1	3.7	0.9	16.3	93.0	522,000	52.2	N/A	N/A	N/A	N/A
P-100-160609-1105-def-S2A	4.0	7	177	35	18,000	80	59	19.5	16	2.8	1.8	1.8	2.0	0.7	11.6	56.5	292,000	29.2	48.8	38.7	12.5	Loam
P-100-160609-1105-def-S3A	4.8	8	61	16	11,000	100	42	12.9	13.4	1.2	1.0	1.6	3.7	1.0	23.9	12.2	17,000	1.7	25.2	37.8	37.0	Clay Loam
P-121-160616-0950-mgw-S1A	6.0	41	227	207	5,000	0	1,829	6.3	17.8	3.3	9.7	51.5	5.4	1.2	29.2	77.2	362,000	36.2	N/A	N/A	N/A	N/A
P-121-160616-0950-mgw-S2A	4.7	6	142	132	11,000	0	515	12.9	16.9	2.1	6.5	15.2	2.0	0.9	11.1	4.2	33,800	3.38	48.8	33.5	17.7	Loam
P-121-160616-0950-mgw-S3A	5.1	4	90	227	1,000	0	568	12.9	17.9	1.3	10.6	15.9	1.5	1.6	9.3	6.0	18,900	1.89	25.5	43.4	31.0	Clay Loam
P-121-160616-0950-mgw-S4A	4.8	2	74	244	9,000	0	578	10.5	15.6	1.2	13.0	18.5	1.3	1.5	8.1	4.4	13,300	1.33	39.4	34.0	26.6	Loam
P-126-160615-1410-mgw-S1A	5.1	39	161	101	9,000	0	381	11.1	14.3	2.9	5.9	13.4	4.3	0.9	24.3	59.5	322,000	32.2	N/A	N/A	N/A	N/A
P-126-160615-1410-mgw-S2A	4.1	6	92	46	18,000	30	107	20.1	16.2	1.5	2.4	3.3	2.4	0.8	17.3	10.9	106,000	10.6	39.2	38.0	22.7	Loam
P-126-160615-1410-mgw-S3A	4.5	4	49	23	11,000	80	66	12.3	12.9	1.0	1.5	2.5	2.0	0.9	18.0	4.6	14,600	1.46	21.6	51.2	27.2	Clay Loam
P-126-160615-1410-mgw-S4A	4.8	22	35	26	10,000	80	47	11.7	12.2	0.7	1.8	1.9	1.4	0.9	15.1	4.1	7,330	0.733	31.4	41.4	27.1	Clay Loam
P-126-160615-1410-mgw-S5A	4.8	4	49	45	11,000	50	106	12.3	13.3	0.9	2.8	4.0	1.2	0.8	10.9	3.7	3,310	0.331	43.2	32.8	24.1	Loam
P-134-160615-1506-sdd-S1A	3.9	8	107	95	24,000	0	392	26.1	18.0	1.5	4.4	10.9	5.9	1.2	10.8	78.2	388,000	38.8	N/A	N/A	N/A	N/A
P-134-160615-1506-sdd-S2A	4.6	6	112	53	14,000	20	380	15.9	17.6	1.6	2.5	10.8	3.5	1.1	18.6	18.4	113,000	11.3	40.0	34.4	25.6	Loam
P-134-160615-1506-sdd-S3A	4.8	2	76	30	9,000	60	54	11.1	11.8	1.6	2.1	2.3	1.7	0.8	28.4	3.8	5,700	0.57	26.0	40.4	33.6	Clay Loam
P-134-160615-1506-sdd-S4A	4.7	1	67	81	11,000	0	52	12.3	13.4	1.3	5.0	1.9	1.2	0.6	24.8	3.3	1,720	0.172	49.9	23.1	27.0	Sandy Clay Loam
P-134-160615-1506-sdd-S5A	5.0	1	89	100	9,000	0	53	10.5	11.8	1.9	7.0	2.2	1.2	0.8	20.1	3.1	1,650	0.165	55.9	22.5	21.7	Sandy Clay Loam
P-156-160606-1355-dat-S1A	3.7	5	151	62	18,000	0	169	19.5	16.7	2.3	3.1	5.0	2.4	0.7	12.5	80.2	373,000	37.3	N/A	N/A	N/A	N/A
P-156-160606-1355-dat-S2A	4.0	5	54	19	8,000	80	59	9.9	10.5	1.3	1.5	2.8	1.3	0.7	7.5	6.1	42,000	4.2	65.6	23.5	10.9	Sandy Loam
P-156-160606-1355-dat-S3A	5.0	3	29	10	4,000	110	38	5.7	6.0	1.2	1.4	3.1	2.9	0.8	36.0	1.7	2,830	0.283	56.7	22.5	20.8	Sandy Clay Loam
P-156-160606-1355-dat-S4A	4.9	2	30	11	4,000	110	36	5.7	6.0	1.3	1.5	3.0	2.4	0.8	40.4	1.5	1,610	0.161	56.9	21.9	21.2	Sandy Clay Loam
P-157-160606-1512-dat-S1A	4.1	9	151	54	14,000	20	137	15.3	16.5	2.3	2.7	4.1	2.9	0.8	12.7	78.0	355,000	35.5	N/A	N/A	N/A	N/A
P-157-160606-1512-dat-S2A	4.3	5	61	27	12,000	80	93	13.5	14.3	1.1	1.6	3.2	2.0	1.1	15.7	7.9	42,800	4.28	55.5	29.6	14.9	Sandy Loam
P-157-160606-1512-dat-S3A	4.8	4	46	13	6,000	100	35	7.5	7.9	1.5	1.4	2.2	2.4	1.0	26.2	2.9	8,340	0.834	45.6	24.7	29.7	Sandy Clay Loam
P-157-160606-1512-dat-S4A	4.6	2	62	16	7,000	100	40	8.7	9.2	1.7	1.5	2.2	1.4	1.2	33.5	2.6	4,370	0.437	37.6	26.2	36.2	Clay Loam
P-157-160606-1512-dat-S5A	4.7	1	88	28	9,000	60	34	10.5	11.1	2.0	2.1	1.5	1.1	1.8	40.9	3.4	1,540	0.154	12.1	23.3	64.6	Clay
P-157-160606-1512-dat-S6A	4.5	1	84	29	9,000	60	37	11.1	11.7	1.8	2.1	1.6	1.0	1.7	27.0	3.2	2,300	0.23	12.6	25.0	62.4	Clay
P-157-160606-1512-dat-S7A	4.7	1	50	15	8,000	100	45	9.9	10.4	1.2	1.2	2.1	0.9	1.6	18.8	3.9	2,320	0.232	28.4	18.0	53.6	Clay
P-162-160606-1040-jsw-S1A	4.4	9	161	35	15,000	80	214	17.1	16.8	2.5	1.7	6.4	2.8	1.4	15.3	84.2	501,000	50.1	N/A	N/A	N/A	N/A
P-162-160606-1040-jsw-S2A	4.4	4	82	16	14,000	100	32	15.3	15.5	1.4	0.9	1.0	2.1	1.6	20.4	9.5	42,500	4.25	48.8	26.1	25.2	Sandy Clay Loam
P-162-160606-1040-jsw-SA3	4.6	6	72	27	10,000	80	51	11.7	12.4	1.5	1.8	2.1	1.6	1.5	58.8	5.7	12,600	1.26	34.0	25.8	_	Clay
P-162-160606-1040-jsw-SA4	4.8	1	59	35	9,000	80	53	10.5	11.2	1.3	2.6	2.4	1.1	1.4	62.2	3.5	1,100	0.11	45.7	19.8	34.5	Sandy Clay Loam
P-162-160606-1040-jsw-SA5	4.6	5	69	30	8,000	60	61	9.9	10.6	1.7	2.4	2.9	1.2	1.4	23.9	3.0	670	0.067	43.5	22.6	33.9	Clay Loam
P-170-160620-1122-def-S1A	3.7	5	98	31	17,000	60	209	18.9	16.6	1.5	1.6	6.3	2.7	1.1	7.4	95.8	507,000	50.7	N/A	N/A	N/A	N/A
P-170-160620-1122-def-S2A	3.6	11	100	22	17,000	80	50	18.3	15.7	1.6	1.2	1.6	2.1	1.1	8.4	56.5	264,000	26.4	84.9	9.0	6.2	Loamy Sand
P-170-160620-1122-def-S3A	3.9	7	22	14	9,000	100	40	10.5	10.9	0.5	1.1	1.8	1.3	1.4	6.8	3.2	14,700	1.47	76.6	15.0	8.4	Sandy Loam

Attachment 7
Laboratory Results Summary

Π		_	.,	24-	Reccomen	dations	C-	ماناه	656	% Sati	uration	of CEC				Total				Part	icle Size	e Analysis
Sample ID S	Soil pH	(ppm)	(nnm)	Mg (ppm)	Limestone	Mg	Ca (nnm)	Acidity (meq/100g)	CEC (meg/100g)	K	Mg	Ca	Zn	Cu	S	Volatile	TOC	тос	%	%	% Clay	Texture Class
		(ррііі)	(ppm)	(ррііі)	(lb/Ac)	(lb/Ac)	(ррііі)	(inleq/ 100g)	(ineq/ 100g)	K	IVIE	Ca	(ppm)	(ppm)	(ppm)	Solids (%)	(mg/kg)	(%)	Sand	Silt	70 Clay	Texture Class
P-170-160620-1122-def-S4A	4.4	4	25	11	10,000	110	34	11.7	12.0	0.5	0.8	1.4	1.5	1.3	26.9	4.7	21,300	2.13	67.1	14.3	18.6	Sandy Loam
P-170-160620-1122-def-S5A	4.7	8	26	10	5,000	110	33	6.3	6.6	1.0	1.3	2.5	1.4	1.2	23.1	3.2	3,050	0.305	65.2	13.9	20.9	Sandy Clay Loam
P-170-160620-1122-def-S6A	4.8	6	20	9	4,000	110	32	5.7	6.0	0.9	1.3	2.7	1.2	1.1	22.0	1.7	2,340	0.234	75.5	8.9	15.6	Sandy Loam
P-173-160620-1112-def-S1A	6.7	5	104	128	0	0	2,224	2.2	14.7	1.8	7.3	75.9	3.1	1.5	6.8	76.3	370,000	37	N/A	N/A	N/A	N/A
P-173-160620-1112-def-S2A	5.2	4	88	87	10,000	0	1,332	11.7	19.3	1.2	3.8	34.5	3.6	1.5	12.7	9.0	48,400	4.84	28.6	37.4	34.0	Clay Loam
P-173-160620-1112-def-S3A	5.2	1	75	46	7,000	30	600	8.7	12.3	1.6	3.1	24.5	1.5	1.4	9.8	4.3	8,220	0.822	20.0	40.8	39.2	Silty Clay Loam
P-173-160620-1112-def-S4A	6.5	1	125	147	0	0	3,246	3.9	20.4	1.6	6.0	73.4	1.0	1.5	7.4	5.7	6,020	0.602	5.9	22.3	71.9	Clay
P-176-160621-1155-rll-S1A	5.8	15	161	181	4,000	0	1,844	5.7	16.8	2.5	9.0	54.7	6.9	1.6	10.3	74.7	389,000	38.9	N/A	N/A	N/A	N/A
P-176-160621-1155-rll-S2A	4.9	7	154	74	5,000	0	260	6.9	9.2	4.3	6.7	14.1	3.7	1.0	10.9	12.2	57,700	5.77	62.7	27.2	10.1	Sandy Loam
P-176-160621-1155-rll-S3A	5.6	1	60	63	2,000	0	131	3.4	4.7	3.3	11.1	13.8	1.3	1.3	4.7	1.0	1,080	0.108	65.8	18.2	16.0	Sandy Loam
P-176-160621-1155-rll-S4A	5.2	1	147	150	9,000	0	1,122	11.1	18.3	2.1	6.8	30.6	1.0	1.0	63.4	7.0	2,220	0.222	28.2	11.8	60.0	Clay
P-187-160607-1427-jsw-S1A	4.7	24	175	46	12,000	30	138	14.1	15.6	2.9	2.5	4.4	9.5	1.2	40.1	52.5	311,000	31.1	N/A	N/A	N/A	N/A
P-187-160607-1427-jsw-S2A	4.8	5	103	32	12,000	60	140	13.5	14.7	1.8	1.8	4.7	2.9	1.5	21.2	9.4	60,300	6.03	25.6	38.4	35.9	Clay Loam
P-187-160607-1427-jsw-S3A	4.8	5	64	22	8,000	80	48	9.9	10.5	1.6	1.7	2.3	1.9	1.5	15.8	5.1	14,600	1.46	37.3	39.6	23.1	Loam
P-215-160602-1037-jsw-S1A	3.8	16	148	32	17,000	60	150	18.3	16.4	2.3	1.6	4.6	2.3	1.2	9.6	82.7	505,000	50.5	N/A	N/A	N/A	N/A
P-215-160602-1037-jsw-S2A	3.8	4	49	16	12,000	100	52	13.5	14.0	0.9	1.0	1.9	1.5	1.2	12.3	4.3	35,800	3.58	58.3	22.5	19.3	Sandy Loam
P-215-160602-1037-jsw-S3A	3.8	13	45	13	12,000	100	51	13.5	14.0	0.8	0.8	1.8	1.3	1.1	8.9	6.9	39,900	3.99	64.6	23.5	11.9	Sandy Loam
P-215-160602-1037-jsw-S4A	4.6	5	33	9	6,000	110	30	8.1	8.4	1.0	0.9	1.8	1.5	0.9	28.0	4.2	13,500	1.35	49.0	23.8	27.3	Sandy Clay Loam
P-215-160602-1037-jsw-S5A	4.6	3	34	9	6,000	110	33	8.1	8.4	1.0	0.9	1.9	1.4	1.0	31.7	2.6	3,700	0.37	46.6	24.8	28.6	Sandy Clay Loam
P-215-160602-1037-jsw-S6A	4.3	1	15	8	4,000	110	36	5.7	6.0	0.6	1.1	3.0	0.9	0.8	37.5	1.1	< 500	< 0.05	75.5	9.9	14.6	Sandy Loam
P-222-160607-1055-dat-S1A	3.8	9	79	34	20,000	50	175	20.7	16.4	1.2	1.7	5.3	2.5	1.1	18.5	16.0	183,000	18.3	39.1	43.1	17.7	Loam
P-222-160607-1055-dat-S2A	4.7	4	56	16	7,000	100	66	8.7	9.3	1.5	1.4	3.6	3.2	1.5	18.8	5.4	20,300	2.03	30.0	40.2	29.8	Clay Loam
P-222-160607-1055-dat-S3A	4.7	2	44	14	6,000	100	41	8.1	8.5	1.3	1.4	2.4	1.3	1.1	23.3	4.5	5,660	0.566	33.8	36.8	29.4	Clay Loam
P-222-160607-1055-dat-S4A	4.7	1	55	32	6,000	60	56	8.1	8.8	1.6	3.0	3.2	1.1	1.0	19.6	4.2	2,790	0.279	49.1	28.6	22.3	Loam
P-222-160607-1055-dat-S5A	4.9	1	56	52	6,000	20	70	7.5	8.4	1.7	5.1	4.2	1.3	1.1	14.8	4.2	1,830	0.183	46.2	30.9	22.9	Loam
P-225-160601-1130-mel-S1A	5.0	3	75	60	8,000	0	197	9.9	11.6	1.7	4.3	8.5	1.4	1.4	15.7	8.6	34,100	3.41	23.2	43.1	33.7	Clay Loam
P-225-160601-1130-mel-S2A	5.0	3	52	111	11,000	0	164	12.3	14.2	0.9	6.5	5.8	1.2	1.1	28.1	4.3	3,960	0.396	18.6	33.7	47.6	Clay
P-225-160601-1130-mel-S3A	5.0	2	73	113	8,000	0	164	9.9	11.8	1.6	7.9	6.9	1.1	1.0	11.9	3.7	1,740	0.174	45.7	19.0	35.3	Sandy Clay
P-225-160601-1130-mel-S4A	5.0	1	66	107	11,000	0	145	12.3	14.1	1.2	6.3	5.1	1.1	1.2	24.6	4.4	3,260	0.326	32.9	28.0	39.1	Clay Loam
P-225-160601-1130-mel-S5A	4.8	1	41	105	12,000	0	83	13.5	14.9	0.7	5.9	2.8	1.1	1.1	57.9	4.1	1,910	0.191	12.0	44.2	43.9	Silty Clay
P-225-160601-1130-mel-S6A	4.9	1	37	101	11,000	0	81	12.3	13.6	0.7	6.2	3.0	1.0	1.2	66.7	3.9	2,070	0.207	20.3	43.9	35.8	Clay Loam
P-225A-160601-1130-jcr-S1A	5.1	6	141	197	7,000	0	882	8.7	15.1	2.4	10.9	29.2	40.1	2.1	7.7	10.7	55,300	5.53	41.7	33.4	24.9	Loam
P-225A-160601-1130-jcr-S2A	5.1	3	97	165	7,000	0	277	8.7	11.7	2.1	11.7	11.8	2.4	1.5	7.1	11.2	4,780	0.478	61.8	18.5	19.7	Sandy Loam
P-225A-160601-1130-jcr-S3A	5.4	2	58	167	6,000	0	382	7.5	11.0	1.4	12.7	17.4	1.3	1.3	9.5	4.2	4,040	0.404	48.6	25.1	26.3	Sandy Clay Loam
P-225B-160601-1312-sdd-S1A	4.8	17	99	148	9,000	0	608	10.5	15.0	1.7	8.2	20.2	7.4	1.4	10.5	21.8	140,000	14	40.3	36.5	23.2	Loam
P-225B-160601-1312-sdd-S2A	4.8	3	61	49	8,000	20	65	9.3	10.2	1.5	4.0	3.2	1.9	1.2	13.0	3.4	3,990	0.399	23.8	43.0	33.1	Clay Loam
P-225B-160601-1312-sdd-S3A	4.7	1	50	49	8,000	20	39	9.9	10.6	1.2	3.8	1.8	1.3	1.2	24.1	3.2	2,070	0.207	23.5	41.3	35.2	Clay Loam
P-225B-160601-1312-sdd-S4A	4.9	1	31	68	8,000	0	33	9.3	10.1	0.8	5.6	1.6	1.1	1.1	24.6	2.9	790	0.079	20.7	39.3	40.0	Clay Loam
P-227-160601-1500-jsw-S1A	4.2	7	101	85	21,000	0	664	22.5	19.3	1.3	3.7	17.2	3.5	1.4	7.8	59.1	233,000	23.3	N/A	N/A	N/A	N/A
P-227-160601-1500-jsw-S2A	4.1	8	89	39	20,000	50	103	21.3	16.1	1.4	2.0	3.2	4.2	1.5	14.6	32.5	119,000	11.9	34.3		27.3	Clay Loam
P-227-160601-1500-jsw-S3A	4.6	11	63	27	8,000	80	65	9.9	10.6	1.5	2.1	3.1	2.3	1.2	13.1	5.9	20,000	2	42.4	33.1	24.5	Loam
P-227-160601-1500-jsw-S4A	4.6	21	39	25	9,000	100	64	11.1	11.7	0.9	1.8	2.7	1.5	1.4	11.5	3.7	2,860	0.286	40.1	33.9	26.0	Loam
P-239-160607-1427-def-S1A	4.9	5	112	85	10,000	0	481	11.7	15.1	1.9	4.7	15.9	3.0	1.4	11.1	13.8	70,900	7.09	53.1		16.6	Sandy Loam

Attachment 7
Laboratory Results Summary

				N4-	Reccomen	dations	Ca	A aiditu	CEC	% Sati	uration	of CEC				Total				Part	icle Size	e Analysis
Sample ID	Soil pH	(ppm)	(ppm)	Mg (ppm)	Limestone (lb/Ac)	Mg (lb/Ac)	Ca (ppm)	Acidity (meq/100g)	CEC (meq/100g)	К	Mg	Са	Zn (ppm)	Cu (ppm)	S (ppm)	Volatile Solids (%)	TOC (mg/kg)	TOC (%)	% Sand	% Silt	% Clay	Texture Class
P-239-160607-1427-def-S2A	5.0	4	46	101	9,000	0	147	11.1	12.8	0.9	6.6	5.8	1.4	1.4	21.9	4.6	5,050	0.505	45.0	30.8	24.2	Loam
P-239-160607-1427-def-S3A	4.9	6	68	198	5,000	0	174	6.3	9.0	1.9	18.3	9.7	1.5	1.2	11.5	3.9	980	0.098	66.8	15.0	18.2	Sandy Loam
P-239-160607-1427-def-S4A	4.9	7	83	176	11,000	0	134	12.9	15.2	1.4	9.6	4.4	2.0	1.4	12.2	3.8	24,800	2.48	46.3	23.4	30.3	Sandy Clay Loam
P-239A-160607-1430-def-S1A	4.6	14	151	156	13,000	0	602	14.7	19.4	2.0	6.7	15.5	7.5	1.5	30.6	10.6	69,900	6.99	49.9	32.8	17.3	Loam
P-239A-160607-1430-def-S2A	4.8	3	119	61	9,000	0	63	10.5	11.6	2.6	4.4	2.7	2.2	1.5	12.6	4.0	6,120	0.612	38.0	32.4	29.6	Clay Loam
P-239A-160607-1430-def-S3A	4.9	2	104	111	8,000	0	75	9.9	11.5	2.3	8.1	3.3	1.3	1.2	12.4	2.6	2,990	0.299	57.9	18.6	23.6	Sandy Clay Loam
P-239A-160607-1430-def-S4A	5.4	2	93	211	5,000	0	251	6.3	9.6	2.5	18.4	13.2	1.2	1.4	6.7	4.1	4,190	0.419	35.6	32.1	32.3	Clay Loam
P-239A-160607-1430-def-S5A	5.1	2	76	145	5,000	0	130	6.9	9.0	2.2	13.5	7.2	1.2	1.6	7.8	4.3	4,350	0.435	36.5	34.1	29.4	Clay Loam
P-253-160608-0950-mel-S1A	5.6	23	144	134	7,000	0	1,539	8.7	17.9	2.1	6.2	43.0	6.2	1.5	17.4	27.6	273,000	27.3	N/A	N/A	N/A	N/A
P-253-160608-0950-mel-S2A	5.0	11	110	43	9,000	30	277	11.1	13.1	2.1	2.7	10.6	2.2	1.7	15.6	6.7	35,400	3.54	57.1	27.5	15.4	Sandy Loam
P-253-160608-0950-mel-S3A	4.6	3	40	17	8,000	100	49	9.3	9.8	1.0	1.4	2.5	1.2	1.4	17.7	4.1	9,800	0.98	62.4	17.7	19.9	Sandy Loam
P-253-160608-0950-mel-S4A	4.8	15	39	26	7,000	80	50	8.7	9.3	1.1	2.3	2.7	1.3	1.4	11.6	2.8	4,740	0.474	57.6	20.7	21.7	Sandy Clay Loam
P-254-160608-1050-mel-S1A	6.6	23	145	267	0	0	3,605	2.0	19.6	1.9	11.4	76.5	16.3	1.8	20.6	67.8	300,000	30	N/A	N/A	N/A	N/A
P-254-160608-1050-mel-S2A	5.8	17	138	162	5,000	0	1,908	6.9	18.1	2.0	7.4	52.6	9.7	1.5	16.5	8.7	29,400	2.94	45.8	33.2	21.0	Loam
P-254-160608-1050-mel-S3A	4.9	7	85	32	9,000	60	130	11.1	12.2	1.8	2.2	5.3	1.2	1.4	8.9	4.4	10,800	1.08	36.6	38.0	25.5	Loam
P-254-160608-1050-mel-S4A	5.1	19	81	83	8,000	0	359	9.9	12.6	1.6	5.5	14.3	1.2	1.4	7.7	4.4	6,940	0.694	45.0	29.4	25.6	Loam
P-276-160610-0838-jsw-S1A	5.1	4	95	187	8,000	0	943	9.9	16.4	1.5	9.5	28.7	5.1	1.9	10.3	20.8	86,500	8.65	N/A	N/A	N/A	N/A
P-276-160610-0838-jsw-S2A	5.1	4	81	235	7,000	0	648	8.7	14.1	1.5	13.9	23.0	3.0	1.7	9.0	4.5	25,700	2.57	56.3	20.8	22.8	Sandy Clay Loam
P-276-160610-0838-jsw-S3A	5.4	2	48	233	3,000	0	430	4.5	8.7	1.4	22.3	24.7	1.7	1.7	3.9	3.2	7,530	0.753	74.7	11.9	13.4	Sandy Loam
P-276-160610-0838-jsw-S4A	5.6	2	66	290	4,000	0	502	5.1	10.2	1.7	23.7	24.6	1.6	2.0	4.9	4.9	11,000	1.1	61.0	20.9	18.1	Sandy Loam
P-276-160610-0838-jsw-S5A	5.9	2	54	214	2,000	0	414	2.8	6.8	2.0	26.3	30.5	1.0	1.1	2.3	3.1	2,800	0.28	75.6	6.8	17.6	Sandy Loam
P-279-160610-1359-dat-S1A	4.7	7	140	126	13,000	0	557	14.7	18.9	1.9	5.6	14.7	5.1	1.1	15.2	36.3	212,000	21.2	N/A	N/A	N/A	N/A
P-279-160610-1359-dat-S2A	4.4	6	101	85	16,000	0	296	17.7	17.4	1.5	4.1	8.5	2.6	1.4	12.5	17.3	92,400	9.24	50.5	29.1	20.3	Loam
P-279-160610-1359-dat-S3A	4.8	5	104	64	9,000	0	80	11.1	12.3	2.2	4.3	3.3	1.4	1.6	8.5	4.5	19,400	1.94	63.7	19.9	16.4	Sandy Loam
P-279-160610-1359-dat-S4A	4.8	2	72	46	8,000	30	48	9.3	10.1	1.8	3.8	2.4	1.1	1.4	8.2	2.8	3,870	0.387	77.5	10.2	12.2	Sandy Loam
P-279-160610-1359-dat-S5A	5.0	10	80	133	5,000	0	134	6.9	8.9	2.3	12.5	7.5	2.7	4.1	6.9	2.7	2,050	0.205	77.7	10.6	11.7	Sandy Loam
P-279A-160610-1450-def-S1A	4.2	5	74	39	13,000	50	257	14.7	16.5	1.2	2.0	7.8	2.2	1.3	13.6	11.4	83,900	8.39	50.2	33.6	16.2	Loam
P-279A-160610-1450-def-S2A	4.8	2	48	22	6,000	80	61	7.5	8.1	1.5	2.3	3.8	1.4	1.1	7.6	3.2	5,870	0.587	44.1	32.1	23.8	Loam
P-279A-160610-1450-def-S3A	5.1	1	63	71	6,000	0	117	8.1	9.4	1.7	6.3	6.2	1.3	1.1	7.0	3.0	2,880	0.288	61.6	15.3	23.1	Sandy Clay Loam
P-279A-160610-1450-def-S4A	5.0	1	62	152	9,000	0	107	10.5	12.5	1.3	10.2	4.3	1.3	1.3	35.8	3.6	1,040	0.104	45.7	22.2	32.1	Sandy Clay Loam
P-283-160606-0743-def-S1A	4.7	10	149	95	12,000	0	1,071	14.1	20.6	1.9	3.8	26.0	6.5	1.5	9.6	89.8	453,000	45.3	N/A	N/A	N/A	N/A
P-283-160606-0743-def-S2A	4.5	3	40	26	13,000	80	58	14.7	15.3	0.7	1.4	1.9	1.9	1.4	18.8	7.6	35,600	3.56	31.5	44.2	24.2	Loam
P-283-160606-0743-def-S3A	4.7	2	44	30	8,000	60	55	9.3	9.9	1.1	2.5	2.8	1.5	1.3	13.8	3.8	6,890	0.689	44.9	31.0	24.1	Loam
P-283-160606-0743-def-S4A	4.9	1	62	59	8,000	0	75	9.3	10.3	1.5	4.8	3.6	1.1	1.2	13.6	4.2	1,360	0.136	52.7	23.5	23.7	Sandy Clay Loam
P-283-160606-0743-def-S5A	4.7	1	69	109	9,000	0	56	10.5	11.9	1.5	7.7	2.4	1.1	1.0	30.2	4.3	1,030	0.103	50.5	25.7	23.8	Sandy Clay Loam
P-283-160606-0743-def-S6A	5.0	2	67	105	9,000	0	48	10.5	11.8	1.5	7.4	2.0	1.2	1.2	17.1	3.7	1,610	0.161	62.2	16.3	21.5	Sandy Clay Loam
P-286-160606-0808-def-S1A	3.9	7	142	81	22,000	0	372	23.7	17.9	2.0	3.8	10.4	2.6	1.0	10.1	91.1	470,000	47	N/A	N/A	N/A	N/A
P-286-160606-0808-def-S2A	4.8	2	46	12	6,000	110	49	7.5	8.0	1.5	1.3	3.1	1.5	1.0	40.7	3.8	6,910	0.691	32.4	39.7	27.9	Clay Loam
P-286-160606-0808-def-S3A	4.7	1	71	21	9,000	80	55	10.5	11.1	1.6	1.6	2.5	1.0	1.0	49.0	1.8	1,450	0.145	31.8	37.2	31.0	Clay Loam
P-286-160606-0808-def-S4A	4.8	1	69	31	8,000	60	37	9.9	10.5	1.7	2.5	1.8	1.2	1.1	22.4	3.6	1,950	0.195	32.4	37.2	30.5	Clay Loam
P-290-160606-1445-mel-S1A	3.1	5	136	36	30,000	50	236	30.9	16.8	2.1	1.8	7.0	4.0	1.1	11.8	97.1	526,000	52.6	N/A	N/A	N/A	N/A
P-290-160606-1445-mel-S2A	3.5	9	58	20	15,000	80	111	17.1	15.9	0.9	1.1	3.5	2.0	1.1	11.1	8.2	36,800	3.68	40.9	43.5	15.7	Loam
P-290-160606-1445-mel-S3A	4.7	2	40	10	6,000	110	39	7.5	7.9	1.3	1.1	2.4	1.3	1.0	18.2	2.7	7,620	0.762	33.6	41.7	24.6	Loam

Attachment 7
Laboratory Results Summary

			1 /	D4-	Reccomer	dations	Co	٨ منطند .	CEC	% Sat	uration	of CEC				Total				Part	icle Size	Analysis
Sample ID	Soil pH	(ppm)	(ppm)	Mg (ppm)	Limestone (lb/Ac)	Mg (lb/Ac)	Ca (ppm)	Acidity (meq/100g)		К	Mg	Са	Zn (ppm)	Cu (ppm)	S (ppm)	Volatile Solids (%)	TOC (mg/kg)	TOC (%)	% Sand	% Silt	% Clay	Texture Class
P-290-160606-1445-mel-S4A	4.5	1	42	11	7,000	110	44	8.7	9.1	1.2	1.0	2.4	1.0	0.9	23.7	3.4	2,730	0.273	40.0	35.9	24.1	Loam
P-291-160606-1330-mel-S1A	4.3	4	65	33	16,000	50	143	17.7	16.2	1.0	1.7	4.4	1.7	1.1	10.2	11.8	82,800	8.28	35.1	43.5	21.4	Loam
P-291-160606-1330-mel-S2A	4.5	1	37	11	9,000	110	37	11.1	11.5	0.8	0.8	1.6	1.1	1.4	12.3	4.1	10,300	1.03	24.3	40.5	35.2	Clay Loam
P-291-160606-1330-mel-S3A	4.6	3	52	36	14,000	50	95	15.9	15.9	0.8	1.9	3.0	1.8	1.6	20.2	5.5	4,500	0.45	14.8	30.9	54.3	Clay
P-291-160606-1330-mel-S4A	4.7	1	58	41	12,000	50	33	14.1	14.8	1.0	2.3	1.1	1.7	1.7	12.6	3.3	1,260	0.126	27.9	35.3	36.8	Clay Loam
P-293-160606-1056-mel-S1A	4.6	10	175	98	14,000	0	405	15.3	18.3	2.5	4.5	11.1	4.0	0.9	18.2	66.7	333,000	33.3	N/A	N/A	N/A	N/A
P-293-160606-1056-mel-S2A	3.9	6	100	33	12,000	50	54	14.1	14.9	1.7	1.8	1.8	2.1	0.9	12.4	11.5	57,100	5.71	5.5	42.0	52.4	Silty Clay
P-293-160606-1056-mel-S3A	4.7	2	27	12	6,000	110	42	8.1	8.5	0.8	1.2	2.5	1.4	0.9	12.0	4.0	9,790	0.979	61.8	28.1	10.1	Sandy Loam
P-293-160606-1056-mel-S4A	4.7	2	27	11	6,000	110	35	8.1	8.4	0.8	1.1	2.1	1.5	1.0	15.0	3.7	5,700	0.57	48.7	26.0	25.3	Sandy Clay Loam
P-293-160606-1056-mel-S5A	4.7	1	26	29	9,000	60	40	10.5	11.0	0.6	2.2	1.8	1.3	1.0	24.9	2.5	3,740	0.374	60.1	16.9	23.0	Sandy Clay Loam
P-347-160621-1409-def-S1A	4.2	8	133	131	18,000	0	378	19.5	18.3	1.9	6.0	10.3	4.6	1.5	13.2	17.9	198,000	19.8	59.2	18.4	22.4	Sandy Clay Loam
P-347-160621-1409-def-S2A	4.7	5	63	37	11,000	50	48	12.3	13.0	1.2	2.4	1.9	2.3	1.9	15.9	6.1	14,100	1.41	50.9	19.8	29.3	Sandy Clay Loam
P-352-160621-1145-def-S1A	5.0	13	155	189	12,000	0	1,217	13.5	21.6	1.8	7.3	28.2	8.9	1.7	17.7	66.8	324,000	32.4	N/A	N/A	N/A	N/A
P-352-160621-1145-def-S2A	5.0	6	94	152	9,000	0	631	11.1	15.8	1.5	8.0	20.0	2.0	1.5	11.6	10.7	54,800	5.48	37.3	31.8	30.9	Clay Loam
P-352-160621-1145-def-S3A	5.2	4	66	131	9,000	0	262	11.1	13.7	1.2	8.0	9.6	1.5	2.2	9.6	5.5	17,600	1.76	20.6	32.7	46.8	Clay
P-352-160621-1145-def-S4A	5.4	3	98	216	8,000	0	280	9.9	13.3	1.9	13.5	10.5	1.4	2.3	8.3	4.9	15,700	1.57	26.4	29.5	44.1	Clay
P-352-160621-1145-def-S5A	5.3	2	117	276	5,000	0	278	6.3	10.3	2.9	22.3	13.5	1.1	1.8	6.3	10.8	5,570	0.557	48.4	11.5	40.1	Sandy Clay
P-352-160621-1145-def-S6A	5.3	1	112	260	6,000	0	262	8.1	11.9	2.4	18.3	11.0	1.0	2.0	7.5	5.8	6,060	0.606	36.7	21.6	41.7	Clay

Attachment 8 AASLAB Nutrient Analysis Results



Fax: (814) 863-4540

Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasl.psu.edu

SOIL TEST	T REPORT FO	R:		ADDITIONAL COPY TO:				
DAN FENSTERMACHER RETTEW ASSOCIATES INC 3020 COLUMBIA AVE LANCASTER PA 17603					DUANE TRUAX RETTEW ASSOCIATES 3020 COLUMBIA AVE LANCASTER PA 17603			
DATE	DATE LAB# SERIAL# COUNTY		ACRES	ASCS ID	FIELD I	D	SOIL	
7/7/2016	S16-32384		Lancaster			P-003-160620-10)25-rll-S1A	
SOIL NUTR	RIENT LEVEL	S	Below Opti	mum	Optimu	n	Above C	Optimum
SOIL NUTR	RIENT LEVEL 4.0	S	Below Opti	mum	Optimu	m	Above C	Optimum
	4.0	S ppm	Below Opti	mum	Optimu	m	Above C	Pptimum
¹Soil pH	4.0 s(P) 9		Below Opti	mum	Optimu	m	Above C	Optimum
¹ Soil pH ² Phosphorus	4.0 (P) 9 K) 107	ppm	Below Opti	mum	Optimu	m	Above C	Optimum

Limestone*: 20000 lb/A for a target pH of 6.5.

Magnesium (Mg): **NONE**

*Calcium Carbonate equivalent

Plant Nu	trients:	(If manure w	(If manure will be applied, adjust these recommendations accordingly. See back of report.)								
Year	Crop		Expected Yield	Nitrogen (lb N/A)	Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)					
1 Other			0	0	0	0	See ST2 for other crop recommendations				

No crop was specified. Therefore no recommendation is given.

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

ADDITIONAL RESULTS:					Optional Tests:			² Trace Elements				
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	% Satu K	ration of	the CEC	Organic Matter %	Nitrate-N ppm	Salts mmhos/cm	See bac Zinc ppm	ck for com Copper ppm		
1400	20.7	23.2	1.2	4.1	30.1				3.3	1.2	8.9	
Test Method	s: 11:1 soil:wate	er pH. ² Mehlich	3 (ICP). ³ Mehli	ch Buffer	pH. ⁴ Sumr	nation of Cat	ions				

The high acidity of this sample indicates that a portion of the acidity is not in the exchangeable form. Therefore the CEC and the percent saturations were calculated using a maximum exchangeable acidity of 15 meq/100 g.

Enclosures

ST-2 Fertilizer Recommendation Table- Guidelines for making recommendations for other crops and for adjusting for a different expected yield.

ST-4 Interpreting Soil Tests for Agronomic Crops-Explains the soil test report and provides additional information on the recommendations.

Soil Nutrient Levels Soil nutrient levels are given as parts per million (ppm) elemental P, K, and Mg. As a rule of thumb to convert ppm to lb/A multiply ppm x 2.

The elemental results in lb/A can be converted to oxide forms using the following conversions: P x 2.3=P₂O₅, K x 1.2=K₂O, Mg x 1.6=MgO

Below Optimum-Nutrient is deficient. There should be an economic response to adding the recommended nutrient.

Optimum-Nutrient is adequate. There will be no yield response to adding more of a nutrient but a recommendation is made to replace what the crop removes and thus maintain the soil test in the optimum range.

Above Optimum-The nutrient is more than adequate. Not only will there not be a yield response but the soil nutrient levels are also adequate to accommodate crop removal.

Recommendations N,P, and K recommendations are made for three crop years on this field. New samples should be taken after 3 years. The recommendations for the 2nd and 3rd year assume that the earlier recommendations were followed. These recommendations are based on the results of the soil test and the information provided with the sample. If you think that there is an error on the report, contact the lab at the address on the front of the report. Tables that can be used to adjust or change recommendations for all crops based on the soil test can be found on the web at: www.aasl.psu.edu.

<u>Limestone Recommendations</u> The recommended limestone application should be adequate for 3 years. Limestone recommendations are based on 100% calcium carbonate equivalent limestone and assume "Fine-sized" limestone with 95% passing 20 mesh, 60% passing 60 mesh and 50% passing 100 mesh. Use "ST-2 Liming Materials Conversion Table (enclosed) to adjust for limestone quality. Also see Agronomy Facts #3 "Soil Acidity and Aglime".

<u>Magnesium</u> Only one Mg Recommendation is made for three years. Magnesium is most economically applied by using a limestone containing Mg. Low Mg levels in soils may result in low Mg levels in forage crops especially if a significant amount of N and/or K fertilizer is applied. This can result in potentially fatal grass tetany in animals. Use caution if grazing. Apply the recommended Mg and be sure your feed rations are properly balanced.

Starter Fertilizer Starter fertilizer is important to get a corn crop off to a good start when planting in cold, wet conditions. However, on optimum or higher testing soils, as planting dates get later and soils warm up, the benefit from starter fertilizer goes down. An N only starter is often adequate when soil test levels are above optimum. The correct material, rate, and placement for starter fertilizer are critical to be effective. See Agronomy Facts #51 "Starter Fertilizer".

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<u>Very High Soil Test Levels</u> Very high soil test levels should be avoided as much as possible. High soil nutrient levels might not only represent an economic loss but they may also indicate potential crop, animal or environmental problems.

Very high pH can results in micronutrient deficiencies and may affect the activity of some pesticides resulting in injury or poor pest control.

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Normal ranges of Zn, Cu and S in Pennsylvania Soils (Mehlich 3)									
Zn (ppm)	Cu (ppm)	S (ppm)							
1.1 - 9.4	1.2 - 5.5	10 - 25							

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Fax: (814) 863-4540

Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasl.psu.edu

SOIL TES	T REP	ORT FO	R:		ADDITIONAL COPY TO:						
DA	DAN FENSTERMACHER						DUANE TRUAX				
RE'	ATES INC			RE'	TTEW	ASSOCIATES					
3020 COLUMBIA AVE						302	O COL	LUMBIA AVE			
LANCASTER PA 17603						LA	NCAS'	TER PA 17603			
DATE	LAI	LAR# SERIAL# COUNTY		ACRES	ASCS ID		FIELD ID	SOIL			
7/7/2016	S16-32	2385		Lancaster			P-003-1	160620-1025-rll-S2A			
SOIL NUTE	RIENT	LEVEL	S	Below Opti	mum	Optimu	m	Above ()ptimum		
¹Soil pH		3.7									
² Phosphorus	s (P)	12	ppm								
² Potassium (1	K)	74	ppm								
² Magnesium	(Mg)	54	ppm								
RECOMME	RECOMMENDATIONS: (See back messages for important information)										
	EECOMMENDATIONS: (See back messages for important information) Limestone*: 20000 lb/A for a target pH of 6.5. Magnesium (Mg): 20 lb/A										

*Calcium Carbonate equivalent

Limestone containing .1% Mg (.2 % MgO) will satisfy the

magnesium requirement

				• • • • • • • • • • • • • • • • • • • •						
Plant No	utrients:	(If manure will be app	(If manure will be applied, adjust these recommendations accordingly. See back of report.)							
Year	Crop	Expecte Yield	ed Nitrogen (lb N/A)	Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)					
1 Other	_	0	0	0	0	See ST2 for other crop recommendations				

No crop was specified. Therefore no recommendation is given.

	2 Other	0	0	0	0	See ST2 for other crop recommendations
--	---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

ADDITIONAL RESULTS:					Optional Tests:			² Trace Elements				
² Calcium (ppm) 549	³ Acidity (meq/100 g) 21.3	⁴ CEC (meq/100 g) 18.4	% Satu K 1.0	mg 2.4	the CEC Ca 14.9	Organic Matter %	Nitrate-N ppm	Salts mmhos/cm	See bac Zinc ppm 1.8	ck for com Copper ppm 0.9	Sulfur ppm 12.0	
Test Methods	s: ¹1:1 soil:wate	er pH, ² Mehlich	3 (ICP)	, ³ Mehli	ch Buffer	pH, ⁴Sumn	nation of Cat	ions				

The high acidity of this sample indicates that a portion of the acidity is not in the exchangeable form. Therefore the CEC and the percent saturations were calculated using a maximum exchangeable acidity of 15 meq/100 g.

Enclosures

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The elemental results in lb/A can be converted to oxide forms using the following conversions: P x 2.3=P₂O₅, K x 1.2=K₂O, Mg x 1.6=MgO

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<u>Magnesium</u> Only one Mg Recommendation is made for three years. Magnesium is most economically applied by using a limestone containing Mg. Low Mg levels in soils may result in low Mg levels in forage crops especially if a significant amount of N and/or K fertilizer is applied. This can result in potentially fatal grass tetany in animals. Use caution if grazing. Apply the recommended Mg and be sure your feed rations are properly balanced.

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Zinc, Copper and Sulfur Results The normal ranges for zinc (Zn) copper (Cu), and sulfur (S) in Pennsylvania soils are listed below. Cu, Zn and S deficiencies are uncommon in PA, but may occur on soils testing below the normal range. Cu, Zn and S toxicities may occur at levels testing well above the normal range, but have not been observed in Pennsylvania in agronomic crops even on soils testing 2 to 3 times above the normal range. For additional information, see ST4.

Normal ranges of Zn, Cu and S in Pennsylvania Soils (Mehlich 3)									
Zn (ppm)	Cu (ppm)	S (ppm)							
1.1 - 9.4	1.2 - 5.5	10 - 25							

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Year

1 Other

(814) 863-0841

Fax: (814) 863-4540

Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasl.psu.edu

SOIL TES	T REPORT FO	R:		AI	DITION	AL COPY TO:		
	N FENSTERM TTEW ASSOCI			DUANE TRUAX RETTEW ASSOCIATES				
	20 COLUMBIA NCASTER PA			3020 COLUMBIA AVE LANCASTER PA 17603				
DATE	LAB#	SERIAL#	COUNTY	ACRES	ASCS ID	FIELD ID	SO	OIL
7/7/2016	S16-32386		Lancaster			P-003-160620-1025-	-rll-S3A	
SOIL NUTE	RIENT LEVEL	S	Below Opti	imum	Optimum Above Optimum			
¹Soil pH	4.6							
² Phosphorus	s (P) 3	ppm						
Potassium (K) 34	ppm						
Magnesium	(Mg) 26	ppm						
RECOMME	NDATIONS:	(See ba	ck messages for importa	nt informatio	on)			
Limestone [:]	*: 14000 lb/A	A for a target	pH of 6.5.	Magnesium (Mg): 80 lb/A				
Calcium Carbo	nate equivalent				Limestone	containing .6% Mg	(.9 % MgO) w	ill satisfy the

magnesium requirement

recommendations

(If manure will be applied, adjust these recommendations accordingly. See back of report.) **Plant Nutrients: Expected** Nitrogen **Phosphate Potash** Crop Yield (lb N/A) $(lb P_2O_5/A)$ $(lb K_2O/A)$ See ST2 for other crop 0 0 0 0

No crop was specified. Therefore no recommendation is given.

2 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

3 Other 0	0	0	0	See ST2 for other crop recommendations
-----------	---	---	---	--

No crop was specified. Therefore no recommendation is given.

ADDITION	AL RESULTS	:				Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g) 15.9	⁴ CEC (meq/100 g)	K 0.5	Mg 1.3	the CEC Ca 4.9	Matter %	Nitrate-N ppm	Salts mmhos/cm	See bac Zinc ppm 1.8	Ck for come Copper ppm 1.0	Sulfur ppm 15.6	
Test Method:	s: 1:1 soil:wate	er pH, ² Mehlich	3 (ICP)), ³Mehli	ch Buffer	pH, ⁴ Sumn	nation of Cat	ions				

The high acidity of this sample indicates that a portion of the acidity is not in the exchangeable form. Therefore the CEC and the percent saturations were calculated using a maximum exchangeable acidity of 15 meq/100 g.

Enclosures

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Zn (ppm) Cu (ppm) S (ppm)										
1.1 - 9.4	1.2 - 5.5	10 - 25								

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Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasl.psu.edu

SOIL TES	T REPORT FO)R:		AI	DDITIONA	AL COPY TO:			
DA	N FENSTERM	IACHER		DUANE TRUAX					
RE	TTEW ASSOC	IATES INC		RETTEW ASSOCIATES					
302	20 COLUMBIA	AVE			302	0 COLUMBIA AVE	E		
LA	NCASTER PA	17603			LA	NCASTER PA 1760)3		
DATE	LAB#	SERIAL#	COUNTY	ACRES	ASCS ID	FIELD ID	SOIL		
7/7/2016	S16-32387		Lancaster			P-003-160620-1025-rll	I-S4A		
SOIL NUTI	RIENT LEVEL	S	Below Opti	mum	Optimu	ove Optimum			
¹ Soil pH	4.5								
Phosphorus	s (P) 3	ppm							
Potassium (K) 37	ppm							
Magnesium	(Mg) 35	ppm							
RECOMME	NDATIONS:	(See bac	ck messages for importa	nt informatio	on)				

Limestone*: 12000 lb/A for a target pH of 6.5.

*Calcium Carbonate equivalent

Magnesium (Mg): 50 lb/A

Limestone containing .4% Mg (.7 % MgO) will satisfy the

magnesium requirement

(If manure will be applied, adjust these recommendations accordingly. See back of report.) **Plant Nutrients: Expected** Nitrogen **Phosphate Potash** Year Crop Yield (lb N/A) $(lb P_2O_5/A)$ $(lb K_2O/A)$ See ST2 for other crop 0 0 0 0 1 Other recommendations

No crop was specified. Therefore no recommendation is given.

	2 Other	0	0	0	0	See ST2 for other crop recommendations
--	---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

ADDITION	AL RESULTS	:				Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	К	Mg	the CEC Ca	Organic Matter %	Nitrate-N ppm	mmhos/am		See back for comments Zinc Copper Sulfur ppm ppm		
120 13.5 14.5 0.7 2.0 4.2 1.1 1.0 9.1 Test Methods: 1:1 soil:water pH, 2Mehlich 3 (ICP), 3Mehlich Buffer pH, 4Summation of Cations												

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Zinc, Copper and Sulfur Results The normal ranges for zinc (Zn) copper (Cu), and sulfur (S) in Pennsylvania soils are listed below. Cu, Zn and S deficiencies are uncommon in PA, but may occur on soils testing below the normal range. Cu, Zn and S toxicities may occur at levels testing well above the normal range, but have not been observed in Pennsylvania in agronomic crops even on soils testing 2 to 3 times above the normal range. For additional information, see ST4.

Normal ranges of Zn, Cu and S in Pennsylvania Soils (Mehlich 3)										
Zn (ppm) Cu (ppm) S (ppm)										
1.1 - 9.4	1.2 - 5.5	10 - 25								

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Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasl.psu.edu

SOIL TES	T REPO	ORT FOI	R:			Al	DDITION	AL CO	OPY TO:		
DA	N FEN	ISTERM <i>A</i>	ACHER			DUANE TRUAX					
RE	TTEW.	ASSOCIA	ATES INC			RETTEW ASSOCIATES					
302	20 COL	UMBIA A	AVE				302	O COL	LUMBIA AVE		
LA	NCAST	ΓER PA 1	17603				LA	NCAS	TER PA 17603		
DATE	LAI	R #	SERIAL#	(COUNTY	ACRES	ASCS ID		FIELD ID	SOIL	
7/7/2016	S16-32				ancaster				-160620-1115-mgw- S1A	W V ==	
SOIL NUTI	RIENT	LEVELS			Below Opti			Above C	ptimum		
¹Soil pH		5.1									
² Phosphorus	s (P)	8	ppm								
² Potassium (K)	158	ppm								
² Magnesium	(Mg)	113	ppm								
RECOMME	NDATI	IONS:	(See bac	ck messe	ages for importa	nt informati	on)				

RECOMMENDATIONS:

Limestone*: 9000 lb/A for a target pH of 6.5.

Magnesium (Mg):

NONE

*Calcium Carbonate equivalent

Plant Nu	trients:	(If manure w	(If manure will be applied, adjust these recommendations accordingly. See back of report.)								
Year	Crop		Expected Yield	Nitrogen (lb N/A)	Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)					
1 Other			0	0	0	0	See ST2 for other crop recommendations				

No crop was specified. Therefore no recommendation is given.

2 Other	0	0	0	0	See ST2 for other crop recommendations	

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

ADDITIONAL RESULTS:					Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g)	(meq/100 g)	К	% Saturation of the CEC K Mg Ca			Nitrate-N ppm	Salts mmhos/cm	See back for comments Zinc Copper Sulfur ppm ppm ppm		
627 11.1 15.6 2.6 6.0 20.1 3.2 1.2 6.7 Test Methods: 1:1 soil:water pH, 2Mehlich 3 (ICP), 3Mehlich Buffer pH, 4Summation of Cations											

Enclosures

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The elemental results in lb/A can be converted to oxide forms using the following conversions: P x 2.3=P₂O₅, K x 1.2=K₂O, Mg x 1.6=MgO

Below Optimum-Nutrient is deficient. There should be an economic response to adding the recommended nutrient.

Optimum-Nutrient is adequate. There will be no yield response to adding more of a nutrient but a recommendation is made to replace what the crop removes and thus maintain the soil test in the optimum range.

Above Optimum-The nutrient is more than adequate. Not only will there not be a yield response but the soil nutrient levels are also adequate to accommodate crop removal.

Recommendations N,P, and K recommendations are made for three crop years on this field. New samples should be taken after 3 years. The recommendations for the 2nd and 3rd year assume that the earlier recommendations were followed. These recommendations are based on the results of the soil test and the information provided with the sample. If you think that there is an error on the report, contact the lab at the address on the front of the report. Tables that can be used to adjust or change recommendations for all crops based on the soil test can be found on the web at: www.aasl.psu.edu.

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<u>Magnesium</u> Only one Mg Recommendation is made for three years. Magnesium is most economically applied by using a limestone containing Mg. Low Mg levels in soils may result in low Mg levels in forage crops especially if a significant amount of N and/or K fertilizer is applied. This can result in potentially fatal grass tetany in animals. Use caution if grazing. Apply the recommended Mg and be sure your feed rations are properly balanced.

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Zn (ppm) Cu (ppm) S (ppm)							
1.1 - 9.4	1.2 - 5.5	10 - 25					

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Fax: (814) 863-4540

Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasf.psu.edu

SOIL TES	T REPORT FO	OR:		ADDITIONAL COPY TO:						
DAN FENSTERMACHER RETTEW ASSOCIATES INC 3020 COLUMBIA AVE LANCASTER PA 17603					DUANE TRUAX RETTEW ASSOCIATES 3020 COLUMBIA AVE LANCASTER PA 17603					
DATE	LAB#	SERIAL#	COUNTY	ACRES	ASCS ID	FIELD	ID	SOIL		
7/7/2016	S16-32389		Lancaster			P-012-160620-1115-mgw- S2A				
SOIL NUTRIENT LEVELS		S	Below Opti	imum	num Optimum		Above Optimum			
¹Soil pH	3.9									
² Phosphorus	s (P) 11	ppm								
² Potassium (K) 119	ppm								
² Magnesium	(Mg) 56	ppm								
magnesium	, 0,			RECOMMENDATIONS: (See back messages for important information)						
Li Company	NDATIONS:	(See ba	ck messages for importa	nt informati	on)					

Limestone*: 20000 lb/A for a target pH of 6.5.

Magnesium (Mg): 20 lb/A

*Calcium Carbonate equivalent

Limestone containing .1% Mg (.2 % MgO) will satisfy the magnesium requirement

Plant Nutrients: (If manure will be applied, adjust these recommendations accordingly. Se							ck of report.)
Year	Crop		Expected Yield	Nitrogen (lb N/A)	Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)	
1 Other			0	0	0	0	See ST2 for other crop recommendations

No crop was specified. Therefore no recommendation is given.

2 Other	0	0	0	0	See ST2 for other crop recommendations	

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

ADDITIONAL RESULTS:					Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	% Satu K	ration of	the CEC	Organic Matter	Nitrate-N ppm	Salts mmhos/cm	See back for comments Zinc Copper Sulfur		
360	21.3	21.3 17.6 1.7 2.7 10.2 %									
Test Methoda	Test Methods: 1:1 soil:water pH, 2Mehlich 3 (ICP), 3Mehlich Buffer pH, 4Summation of Cations										

The high acidity of this sample indicates that a portion of the acidity is not in the exchangeable form. Therefore the CEC and the percent saturations were calculated using a maximum exchangeable acidity of 15 meq/100 g.

Enclosures

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Below Optimum-Nutrient is deficient. There should be an economic response to adding the recommended nutrient.

Optimum-Nutrient is adequate. There will be no yield response to adding more of a nutrient but a recommendation is made to replace what the crop removes and thus maintain the soil test in the optimum range.

Above Optimum-The nutrient is more than adequate. Not only will there not be a yield response but the soil nutrient levels are also adequate to accommodate crop removal.

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<u>Magnesium</u> Only one Mg Recommendation is made for three years. Magnesium is most economically applied by using a limestone containing Mg. Low Mg levels in soils may result in low Mg levels in forage crops especially if a significant amount of N and/or K fertilizer is applied. This can result in potentially fatal grass tetany in animals. Use caution if grazing. Apply the recommended Mg and be sure your feed rations are properly balanced.

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Zn (ppm) Cu (ppm) S (ppm)							
1.1 - 9.4	1.2 - 5.5	10 - 25					

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SOIL TEST REPORT FOR: ADDITIONAL COPY TO: DUANE TRUAX DAN FENSTERMACHER RETTEW ASSOCIATES RETTEW ASSOCIATES INC 3020 COLUMBIA AVE 3020 COLUMBIA AVE LANCASTER PA 17603 LANCASTER PA 17603 DATE SERIAL# COUNTY ACRES ASCS ID FIELD ID SOIL LAB# P-012-160620-1115-mgw-7/7/2016 S16-32390 Lancaster S3A SOIL NUTRIENT LEVELS **Below Optimum Above Optimum Optimum** 4.3 ¹Soil pH ²Phosphorus (P) 16 ppm 49 ²Potassium (K) ppm 22 ppm ²Magnesium (Mg)

RECOMMENDATIONS:

(See back messages for important information)

Limestone*: 15000 lb/A for a target pH of 6.5.

Magnesium (Mg): 80 lb/A

*Calcium Carbonate equivalent

Limestone containing .5% Mg (.9 % MgO) will satisfy the magnesium requirement

(If manure will be applied, adjust these recommendations accordingly. See back of report.) **Plant Nutrients: Expected** Nitrogen **Phosphate Potash** Year Crop Yield (lb N/A) $(lb P_2O_5/A)$ $(lb K_2O/A)$ See ST2 for other crop 1 Other 0 0 0 0 recommendations

No crop was specified. Therefore no recommendation is given.

|--|

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

ADDITION	ADDITIONAL RESULTS:						Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	% Satu K	ration of Mg	the CEC	Matter	Nitrate-N ppm	Salts mmhos/cm	Zinc	ck for com	Sulfur		
107	17.1	15.8	0.8	1.2	3.4	%			ppm 3.4	ppm 1.0	ppm 28.7		
Test Method	Fest Methods: 1:1 soil:water pH, 2Mehlich 3 (ICP), 3Mehlich Buffer pH, 4Summation of Cations												

The high acidity of this sample indicates that a portion of the acidity is not in the exchangeable form. Therefore the CEC and the percent saturations were calculated using a maximum exchangeable acidity of 15 meq/100 g.

Enclosures

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SOIL TES	SOIL TEST REPORT FOR:						AL COP	Y TO:			
DA	N FENSTERM	IACHER			DUANE TRUAX						
RETTEW ASSOCIATES INC						RE'	TTEW A	SSOCIATES			
3020 COLUMBIA AVE						302	20 COLU	MBIA AVE			
LA	NCASTER PA	17603				LA	NCASTE	ER PA 17603			
DATE LAB# SERIAL#				COUNTY	ACRES ASCS ID FIELD ID			SOIL			
7/7/2016		Lancaster			P-012		60620-1115-mgw-				
					<u> </u>	<u> </u>	<u> </u>	S4A			
SOIL NUTE	<u>RIENT LEVEL</u>	\mathbf{S}		Below Opti	mum	ım Optimum		Above Optimum			
¹Soil pH	4.9										
² Phosphorus	ppm										
² Potassium (1	ppm										
² Magnesium	(Mg) 13	ppm									

(See back messages for important information) **RECOMMENDATIONS:**

Limestone*: 8000 lb/A for a target pH of 6.5.

*Calcium Carbonate equivalent

Magnesium (Mg): 100 lb/A

Limestone containing 1.3% Mg (2 % MgO) will satisfy the magnesium requirement

(If manure will be applied, adjust these recommendations accordingly. See back of report.) **Plant Nutrients: Expected** Nitrogen **Phosphate Potash** Year Crop Yield (lb N/A) $(lb P_2O_5/A)$ $(lb K_2O/A)$ See ST2 for other crop 0 0 0 0 1 Other recommendations

No crop was specified. Therefore no recommendation is given.

2 Other	0	0	0	0	See ST2 for other crop recommendations

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

ADDITION	ADDITIONAL RESULTS:						Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	% Satu K	ration of	the CEC Ca	Organic Matter	Nitrate-N ppm	Salts mmhos/cm	See back for comments Zinc Copper Sulfur				
54	9.9	10.3	0.4	1.0	2.6	%			ppm 2.4	ppm 1.0	ppm 37.6		
Test Methoda	Fest Methods: ¹ 1:1 soil:water pH, ² Mehlich 3 (ICP), ³ Mehlich Buffer pH, ⁴ Summation of Cations												

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Normal ranges of Zn, Cu and S in Pennsylvania Soils (Mehlich 3)									
Zn (ppm) Cu (ppm) S (ppm)									
1.1 - 9.4	1.2 - 5.5	10 - 25							

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Fax: (814) 863-4540

Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasl.psu.edu

SOIL TEST REPORT FOR: ADDITIONAL COPY TO: DUANE TRUAX DAN FENSTERMACHER **RETTEW ASSOCIATES** RETTEW ASSOCIATES INC 3020 COLUMBIA AVE 3020 COLUMBIA AVE LANCASTER PA 17603 LANCASTER PA 17603 DATE SERIAL# COUNTY ACRES ASCS ID FIELD ID SOIL LAB# P-012-160620-1115-mgw-7/7/2016 S16-32392 Lancaster S5A SOIL NUTRIENT LEVELS **Below Optimum Above Optimum Optimum** 4.9 ¹Soil pH ²Phosphorus (P) 7 ppm 20 ²Potassium (K) ppm 10 ppm ²Magnesium (Mg)

RECOMMENDATIONS:

(See back messages for important information)

Limestone*: 8000 lb/A for a target pH of 6.5.

Magnesium (Mg): 110 lb/A

*Calcium Carbonate equivalent

Limestone containing 1.4% Mg (2.2 % MgO) will satisfy the magnesium requirement

(If manure will be applied, adjust these recommendations accordingly. See back of report.) **Plant Nutrients: Expected** Nitrogen **Phosphate Potash** Year Crop Yield (lb N/A) $(lb P_2O_5/A)$ $(lb K_2O/A)$ See ST2 for other crop 0 0 1 Other 0 0 recommendations

No crop was specified. Therefore no recommendation is given.

2 Other	0	0	0	0	See ST2 for other crop recommendations	

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

ADDITION	ADDITIONAL RESULTS:						Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	% Satu K	ration of	the CEC Ca	Organic Matter	Nitrate-N ppm	Salts mmhos/cm	See ba	ck for com			
(ppiii)	(meq/100 g)	(meq/100 g)	17	Wig	Ca	%			ppm	ppm	ppm		
52	9.3	9.7	0.5	0.9	2.7				2.9	1.1	42.6		
Test Method:	Test Methods: 1:1 soil:water pH, 2Mehlich 3 (ICP), 3Mehlich Buffer pH, 4Summation of Cations												

Enclosures

ST-2 Fertilizer Recommendation Table- Guidelines for making recommendations for other crops and for adjusting for a different expected yield.

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Above Optimum-The nutrient is more than adequate. Not only will there not be a yield response but the soil nutrient levels are also adequate to accommodate crop removal.

Recommendations N,P, and K recommendations are made for three crop years on this field. New samples should be taken after 3 years. The recommendations for the 2nd and 3rd year assume that the earlier recommendations were followed. These recommendations are based on the results of the soil test and the information provided with the sample. If you think that there is an error on the report, contact the lab at the address on the front of the report. Tables that can be used to adjust or change recommendations for all crops based on the soil test can be found on the web at: www.aasl.psu.edu.

<u>Limestone Recommendations</u> The recommended limestone application should be adequate for 3 years. Limestone recommendations are based on 100% calcium carbonate equivalent limestone and assume "Fine-sized" limestone with 95% passing 20 mesh, 60% passing 60 mesh and 50% passing 100 mesh. Use "ST-2 Liming Materials Conversion Table (enclosed) to adjust for limestone quality. Also see Agronomy Facts #3 "Soil Acidity and Aglime".

<u>Magnesium</u> Only one Mg Recommendation is made for three years. Magnesium is most economically applied by using a limestone containing Mg. Low Mg levels in soils may result in low Mg levels in forage crops especially if a significant amount of N and/or K fertilizer is applied. This can result in potentially fatal grass tetany in animals. Use caution if grazing. Apply the recommended Mg and be sure your feed rations are properly balanced.

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1.1 - 9.4	1.2 - 5.5	10 - 25							

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Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasl.psu.edu

SOIL TES	T REPORT FO	R:		Al	DDITION	AL COPY	TO:				
DA	N FENSTERM	IACHER		DUANE TRUAX							
RE	TTEW ASSOC	IATES INC			RE'	TTEW ASS	SOCIATES				
302	20 COLUMBIA	AVE			302	0 COLUM	BIA AVE				
LA	NCASTER PA	17603			LA	NCASTER	PA 17603				
DATE	LAB#	SERIAL#	RIAL# COUNTY ACRES ASCS ID FIELD ID SOIL								
7/7/2016	Lancaster			P-022-160	614-1050-jsw-						
	S16-32393						S1A				
SOIL NUTI	RIENT LEVEL	\mathbf{S}	Below Opti	mum	m Optimum		Above Optimum				
¹ Soil pH	3.3										
² Phosphorus	s (P) 7	ppm									
² Potassium (K) 139	ppm									
² Magnesium	(Mg) 37	ppm									
RECOMME	NDATIONS:	(See bac	ck messages for importa	nt informati	on)						
	imestone*: 24000 lb/A for a target pH of 6.5. Magnesium (Mg): 50 lb/A										

*Calcium Carbonate equivalent

Limestone containing .2% Mg (.3 % MgO) will satisfy the magnesium requirement

Plant Nutrients: ((If manure w	(If manure will be applied, adjust these recommendations accordingly. See back of report.)								
Year	Crop		Expected Yield	Nitrogen (lb N/A)	Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)					
1 Other			0	0	0	0	See ST2 for other crop recommendations				

No crop was specified. Therefore no recommendation is given.

2 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

ADDITION	AL RESULTS	:				Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	% Satu K	ration of	the CEC	Organic Matter %	Nitrate-N ppm	Salts mmhos/cm	See bad Zinc ppm	ck for com Copper ppm		
51	26.1	15.9	2.2	1.9	1.6				2.7	0.9	12.4	
Test Method	s: 1:1 soil:wate	er pH. ² Mehlich	3 (ICP). ³ Mehli	ch Buffer	pH. ⁴ Sumr	nation of Cat	ions				

Enclosures

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SOIL TES	T REPORT FO	R:		AΙ	DITIONA	AL CO	PY TO:		
DA	N FENSTERM	IACHER		DUANE TRUAX					
RE	RETTEW ASSOCIATES INC				RETTEW ASSOCIATES				
3020 COLUMBIA AVE							UMBIA AVE		
LA	LANCASTER PA 17603				LA	NCAS.	TER PA 17603		
DATE	LAB#	SERIAL#	COUNTY	ACRES	ASCS ID]	FIELD ID	SOIL	
7/7/2016	S16-32394		Lancaster	P-022-160614-1050-jsw-					
					S2A				
SOIL NUTRIENT LEVELS Below Op			Below Opti	mum	Optimum A			bove Optimum	
¹ Soil pH	3.5								
² Phosphorus	(P) 18	ppm							
² Potassium (K) 66	ppm							
² Magnesium	(Mg) 18	ppm							
RECOMME	NDATIONS:	(See ba	ck messages for importa	nt informatio	on)				
Limestone ³	*: 23000 lb/A	A for a target	pH of 6.5.	Magnesium (Mg): 80 lb/A					
*Calcium Carbo	nate equivalent				Limestone	contair	ning .3% Mg (.6 % M	(gO) will satisfy the	

magnesium requirement

Plant Nutrients:		(If manure w	(If manure will be applied, adjust these recommendations accordingly. See back of report.)								
Year	Crop		Expected Yield	1 8		Potash (lb K ₂ O/A)					
1 Other			0	0	0	0	See ST2 for other crop recommendations				

No crop was specified. Therefore no recommendation is given.

2 Other	0	0	0	0	See ST2 for other crop recommendations	

No crop was specified. Therefore no recommendation is given.

3 Other 0 0	O See ST2 for other crop recommendations
--------------------	--

No crop was specified. Therefore no recommendation is given.

ADDITION	DDITIONAL RESULTS:					Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g) 24.3	⁴ CEC (meq/100 g)	% Satu K 1.1	ration of Mg 1.0	the CEC Ca	Organic Matter %	Nitrate-N ppm	Salts mmhos/cm	See bac Zinc ppm 2.2	ck for com Copper ppm 0.9	Sulfur ppm 6.1	
Test Methods	est Methods: 1:1 soil:water pH, Mehlich 3 (ICP), Mehlich Buffer pH, Summation of Cations											

The high acidity of this sample indicates that a portion of the acidity is not in the exchangeable form. Therefore the CEC and the percent saturations were calculated using a maximum exchangeable acidity of 15 meq/100 g.

Enclosures

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SOIL TES	T REPORT FO	OR:		AI	DITIONA	L CO	PY TO:			
DA	N FENSTERM	IACHER			DU.	ANE '	TRUAX			
RE	TTEW ASSOC	IATES INC		RETTEW ASSOCIATES						
3020 COLUMBIA AVE					3020 COLUMBIA AVE					
LA	LANCASTER PA 17603				LA	NCAS'	TER PA 17603			
DATE	LAB#	SERIAL#	COUNTY	ACRES	ASCS ID	FIELD ID		SOIL		
7/7/2016	S16-32395		Lancaster			P-022-160614-1050-jsw-				
SOIL NUTI	SOIL NUTRIENT LEVELS		Below Opti	imum Optimum		n	Above Optimum			
¹ Soil pH	4.2									
² Phosphorus	s (P) 5	ppm								
² Potassium (K) 18		ppm								
² Magnesium	(Mg) 10	ppm								
		(San has	ok massagas for importa	nt informati	om)					

RECOMMENDATIONS:

(See back messages for important information)

Limestone*: 4000 lb/A for a target pH of 6.5.

Magnesium (Mg): 110 lb/A

*Calcium Carbonate equivalent

Limestone containing 2.8% Mg (4.4 % MgO) will satisfy

the magnesium requirement

Plant Nu	trients:	(If manure w	(If manure will be applied, adjust these recommendations accordingly. See back of report.)								
Year	Crop		Expected Nitrogen Phosphate Yield (lb N/A) (lb P ₂ O ₅ /A)		Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)					
1 Other			0	0	0	0	See ST2 for other crop recommendations				

No crop was specified. Therefore no recommendation is given.

|--|

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

ADDITION	ADDITIONAL RESULTS:					Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	% Satu K	ration of Mg	the CEC	Organic Matter %	Nitrate-N ppm	Salts mmhos/cm	See ba Zinc ppm	ck for com Copper ppm		
41	5.7	6.0	0.8	1.4	3.4				1.1	0.7	3.6	
Test Methods	s: 1:1 soil:wate	er pH, ² Mehlich	3 (ICP)), ³ Mehli	ch Buffer	pH, ⁴ Sumn	nation of Cat	ions				

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Zn (ppm)	S (ppm)								
1.1 - 9.4	1.2 - 5.5	10 - 25							

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Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasf.psu.edu

SOIL TEST	T REPORT FO	R:		Al	DDITIONA	L COPY T	O:			
RE' 302	N FENSTERM ITEW ASSOC O COLUMBIA NCASTER PA	IATES INC AVE		DUANE TRUAX RETTEW ASSOCIATES 3020 COLUMBIA AVE LANCASTER PA 17603						
DATE	LAB#	SERIAL#	COUNTY	ACRES	CRES ASCS ID FIELD II) ID	SOIL		
7/7/2016	S16-32396		Lancaster				14-1050-jsw- 4A			
SOIL NUTR	RIENT LEVEL	S	Below Opt	imum	Optimum		Above C)ptimum		
¹ Soil pH	4.3									
² Phosphorus	(P) 21	ppm								
² Potassium ()		ppm								

RECOMMENDATIONS:

²Magnesium (Mg)

(See back messages for important information)

Limestone*: 9000 lb/A for a target pH of 6.5.

Magnesium (Mg): 110 lb/A

*Calcium Carbonate equivalent

Limestone containing 1.2% Mg (2 % MgO) will satisfy the

magnesium requirement
(If manure will be applied, adjust these recommendations accordingly. See back of report.)

Plant Nu	itrients:	(If manure w	vill be applied	l, adjust these r	ecommendations ac	cordingly. See bac	ck of report.)
Year	Crop		Expected Yield	Nitrogen (lb N/A)	Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)	
1 Other			0	0	0	0	See ST2 for other crop recommendations

No crop was specified. Therefore no recommendation is given.

ppm

2 Other	0	0	0	0	See ST2 for other crop recommendations

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

ADDITION	ADDITIONAL RESULTS:					Optional Tests:			² Trace Elements			
² Calcium	³ Acidity	⁴ CEC	% Satu	ration of	the CEC	Organic	Nitrate-N	Salts		ck for com		
(ppm)	(meq/100 g)	(meq/100 g)	K	Mg	Ca	Matter %	ppm	mmhos/cm	Zinc ppm	Copper ppm	Sulfur ppm	
28	10.5	10.8	0.6	0.7	1.3	70			1.3	1.2	18.9	
Test Method	est Methods: 1:1 soil:water pH, ² Mehlich 3 (ICP), ³ Mehlich Buffer pH, ⁴ Summation of Cations											

Enclosures

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Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasl.psu.edu

SOIL TEST REPORT FOR: ADDITIONAL COPY TO: DUANE TRUAX DAN FENSTERMACHER RETTEW ASSOCIATES RETTEW ASSOCIATES INC 3020 COLUMBIA AVE 3020 COLUMBIA AVE LANCASTER PA 17603 LANCASTER PA 17603 DATE SERIAL# COUNTY ACRES ASCS ID FIELD ID SOIL LAB# P-022-160614-1050-jsw-7/7/2016 S16-32397 Lancaster S5A SOIL NUTRIENT LEVELS **Below Optimum Above Optimum Optimum** 4.4 ¹Soil pH ²Phosphorus (P) 7 ppm 37 ppm

RECOMMENDATIONS:

²Potassium (K)

²Magnesium (Mg)

(See back messages for important information)

Limestone*: 6000 lb/A for a target pH of 6.5.

10

Magnesium (Mg): 110 lb/A

*Calcium Carbonate equivalent

Limestone containing 1.8% Mg (2.9 % MgO) will satisfy the magnesium requirement

(If manure will be applied, adjust these recommendations accordingly. See back of report.) **Plant Nutrients: Expected** Nitrogen **Phosphate Potash** Year Crop Yield (lb N/A) $(lb P_2O_5/A)$ $(lb K_2O/A)$ See ST2 for other crop 1 Other 0 0 0 0 recommendations

No crop was specified. Therefore no recommendation is given.

ppm

See ST2 for other crop 0 0 0 2 Other 0 recommendations

No crop was specified. Therefore no recommendation is given.

See ST2 for other crop 3 Other 0 0 0 0 recommendations

ADDITION	ADDITIONAL RESULTS:						² Trace Elements					
² Calcium (ppm)	³ Acidity (meq/100 g) 8.1	⁴ CEC (meq/100 g) 8.5	% Satu K 1.1	Mg 1.0	the CEC Ca 2.8	Organic Matter %	Nitrate-N ppm	Salts mmhos/cm	See bac Zinc ppm 1.2	Copper ppm 1.0		
Test Method	s: 1:1 soil:wate	er pH, ² Mehlich	3 (ICP), ³ Mehli	ch Buffer	pH, ⁴ Sumn	nation of Cat	ions				

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SOIL TES	T REPORT FO	R:		Al	DDITIONA	L COPY	TO:		
RE 302	N FENSTERM TTEW ASSOCI 20 COLUMBIA NCASTER PA	ATES INC AVE		DUANE TRUAX RETTEW ASSOCIATES 3020 COLUMBIA AVE LANCASTER PA 17603					
DATE	LAB#	SERIAL#	COUNTY	ACRES	ASCS ID	FIE	LD ID	SOIL	
7/7/2016	S16-32398		Lancaster			P-022-160	0614-1050-jsw- S6A		
SOIL NUTE	RIENT LEVEL	S	Below Opt	imum	num Optimum		Above Optimum		
¹ Soil pH	4.5								
² Phosphorus	s (P) 1	ppm							
² Potassium (ppm							

RECOMMENDATIONS:

²Potassium (K)

²Magnesium (Mg)

(See back messages for important information)

Limestone*: 11000 lb/A for a target pH of 6.5.

14

Magnesium (Mg): 100 lb/A

*Calcium Carbonate equivalent

Limestone containing .9% Mg (1.5 % MgO) will satisfy the magnesium requirement

Plant Nu	itrients:	(If manure wil	(If manure will be applied, adjust these recommendations accordingly. See back of report.)								
Year	Crop]	Expected Yield	Nitrogen (lb N/A)	Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)					
1 Other			0	0	0	0	See ST2 for other crop recommendations				

No crop was specified. Therefore no recommendation is given.

ppm

ppm

2 Other	0	0	0	0	See ST2 for other crop recommendations	

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

ADDITION	:		Optional Tests:			² Trace Elements						
² Calcium	³ Acidity	⁴CEC	% Satu	% Saturation of the CEC		Organic	Nitrate-N	Salts	See back for comments			
(ppm)	(meq/100 g)	(meq/100 g)	K	Mg	Ca	Matter	ppm	mmhos/cm	Zinc	Copper		
						%			ppm	ppm	ppm	
31	12.9	13.3	1.1	0.9	1.2				1.0	1.2	24.3	
Test Methods	s: 1:1 soil:wate	er pH, ² Mehlich	3 (ICP)), ³ Mehli	ch Buffer	pH, ⁴ Sumr	nation of Cat	ions				

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SOIL TES	T REPORT FO	R:		AI	DITIONA	AL COPY TO:				
DA	N FENSTERM	IACHER			DU	ANE TRUAX				
RE	TTEW ASSOCI	IATES INC		RETTEW ASSOCIATES						
302	20 COLUMBIA	AVE		3020 COLUMBIA AVE						
	NCASTER PA				LA	NCASTER PA 17603				
DATE	SERIAL #	COUNTY	ACRES	ASCS ID	FIELD ID	SOIL				
7/7/2016	S16-32399		Lancaster			P-022-160614-1050-jsw- S7A				
SOIL NUTE	RIENT LEVEL	S	Below Opti	mum	Optimu	m Above	Optimum			
Soil pH	4.4									
Phosphorus	s (P) 1	ppm								
Potassium (K) 53	ppm								
Magnesium	(Mg) 16	ppm								
RECOMME	NDATIONS:	(See ba	ack messages for importa	nt informatio	on)					
Limestone	*: 11000 lb/A	A for a target	pH of 6.5.	N	Magnesiu	Im (Mg): 100 lb/A				
Calcium Carbo	nate equivalent					containing .9% Mg (1.5 % n requirement	MgO) will satisfy the			
Plant Nuti	rients: (If	f manure will be	e applied, adjust the	se recom	mendation	s accordingly. See back o	of report.)			
Year (Cron	Ex	pected Nitrogen	ı P	hosphate	Potash				

No crop was specified. Therefore no recommendation is given.

2 Other 0 0 0 0 See ST2 for other crop recommendations

No crop was specified. Therefore no recommendation is given.

3 Other $0 0 0 \frac{See ST2 for other crop}{recommendations}$

ADDITION	AL RESULTS	:		Optional Tests:			² Trace Elements					
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	% Satu K	ration of	the CEC Ca	Organic Matter %	Nitrate-N ppm	Salts mmhos/cm	See bac Zinc ppm	ck for com Copper ppm		
31	12.3	12.7	1.1	1.0	1.2				0.9	1.3	17.3	
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<u>Magnesium</u> Only one Mg Recommendation is made for three years. Magnesium is most economically applied by using a limestone containing Mg. Low Mg levels in soils may result in low Mg levels in forage crops especially if a significant amount of N and/or K fertilizer is applied. This can result in potentially fatal grass tetany in animals. Use caution if grazing. Apply the recommended Mg and be sure your feed rations are properly balanced.

Starter Fertilizer Starter fertilizer is important to get a corn crop off to a good start when planting in cold, wet conditions. However, on optimum or higher testing soils, as planting dates get later and soils warm up, the benefit from starter fertilizer goes down. An N only starter is often adequate when soil test levels are above optimum. The correct material, rate, and placement for starter fertilizer are critical to be effective. See Agronomy Facts #51 "Starter Fertilizer".

Nitrogen Ritrogen recommendations on this report are not based on a soil test. They are based on crop requirements for the expected yield of the crop to be grown. The pre-sidedress nitrate soil tests (PSNT) and the Chlorophyll meter test are both available for improving nitrogen recommendations on corn especially when manure is being applied. See: Agronomy Facts 17 "Pre-sidedress Soil Nitrate Test for Corn" and Agronomy Facts 53 "The Early-season Chlorophyll Meter Test for Corn". For optimum efficiency, N should be applied as close to the time of crop need as practical. For corn apply 50-90% of the N when the corn is 10-20" tall. For winter grains apply the N in the spring prior to growth stage 5. For forage grasses split the recommended N for each cutting.

<u>Manure</u> Manure is a very important part of a fertility program. Manure applications may supply all or most of the nutrients recommended and in some cases may apply significantly more than the crop requires. Manure nutrients should be taken into account in developing your fertility program. For details on how to do this see the Penn State Agronomy Guide. Manure analysis kits are available through your county agent.

<u>Very High Soil Test Levels</u> Very high soil test levels should be avoided as much as possible. High soil nutrient levels might not only represent an economic loss but they may also indicate potential crop, animal or environmental problems.

Very high pH can results in micronutrient deficiencies and may affect the activity of some pesticides resulting in injury or poor pest control.

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Zinc, Copper and Sulfur Results The normal ranges for zinc (Zn) copper (Cu), and sulfur (S) in Pennsylvania soils are listed below. Cu, Zn and S deficiencies are uncommon in PA, but may occur on soils testing below the normal range. Cu, Zn and S toxicities may occur at levels testing well above the normal range, but have not been observed in Pennsylvania in agronomic crops even on soils testing 2 to 3 times above the normal range. For additional information, see ST4.

Normal ranges of Zn, Cu and S in Pennsylvania Soils (Mehlich 3)								
Zn (ppm) Cu (ppm) S (ppm)								
1.1 - 9.4	10 - 25							

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Fax: (814) 863-4540

Agricultural Analytical Services Laboratory The Pennsylvania State University University Park, PA 16802 www.aasl.psu.edu

SOIL TES	T REPORT F	OR:		AI	DDITION	AL CO	OPY TO:	
DA	N FENSTER	MACHER		DUANE TRUAX				
RE	TTEW ASSOC	CIATES INC			RE'	TTEW	ASSOCIATES	
302	20 COLUMBIA	AVE			302	O COI	LUMBIA AVE	
LA	NCASTER PA	A 17603			LA	NCAS	TER PA 17603	
DATE	LAB#	SERIAL#	COUNTY	ACRES	ASCS ID		FIELD ID	SOIL
7/7/2016	S16-32400		Lancaster			P-04	0-160615-1119-jcr-	
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				<u> </u>			S1A	
SOIL NUTI	RIENT LEVE	LS	Below Opti	imum	Optimu	m	Above C	Optimum
¹Soil pH	4.5							
² Phosphorus	s (P) 11	ppm						
² Potassium (K) 147	ppm						
² Magnesium	(Mg) 63	ppm						
RECOMME	NDATIONS:	(See ba	ck messages for importa	nt informati	on)			

Limestone*: 12000 lb/A for a target pH of 6.5.

Magnesium (Mg):

NONE

*Calcium Carbonate equivalent

Plant Nu	trients:	(If manure w	(If manure will be applied, adjust these recommendations accordingly. See back of report.)								
Year	Crop		Expected Yield	Nitrogen (lb N/A)	Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)					
1 Other			0	0	0	0	See ST2 for other crop recommendations				

No crop was specified. Therefore no recommendation is given.

2 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

ADDITION	ADDITIONAL RESULTS:					Optional Tests:			² Trace Elements			
² Calcium (ppm)	³ Acidity (meq/100 g)	⁴ CEC (meq/100 g)	% Satu K	ration of Mg	the CEC	Organic Matter %	Nitrate-N ppm	Salts mmhos/cm	See bac Zinc ppm	ck for com Copper ppm	ments Sulfur ppm	
424	13.5	16.5	2.3	3.2	12.8				3.3	1.0	19.8	
Test Methods	Test Methods: 1:1 soil:water pH, 2Mehlich 3 (ICP), 3Mehlich Buffer pH, 4Summation of Cations											

Enclosures

ST-2 Fertilizer Recommendation Table- Guidelines for making recommendations for other crops and for adjusting for a different expected yield.

ST-4 Interpreting Soil Tests for Agronomic Crops-Explains the soil test report and provides additional information on the recommendations.

Soil Nutrient Levels Soil nutrient levels are given as parts per million (ppm) elemental P, K, and Mg. As a rule of thumb to convert ppm to lb/A multiply ppm x 2.

The elemental results in lb/A can be converted to oxide forms using the following conversions: P x 2.3=P₂O₅, K x 1.2=K₂O, Mg x 1.6=MgO

Below Optimum-Nutrient is deficient. There should be an economic response to adding the recommended nutrient.

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SOIL TEST REPORT FOR: ADDITIONAL COPY TO: DUANE TRUAX DAN FENSTERMACHER **RETTEW ASSOCIATES** RETTEW ASSOCIATES INC 3020 COLUMBIA AVE 3020 COLUMBIA AVE LANCASTER PA 17603 LANCASTER PA 17603 DATE SERIAL# COUNTY ACRES ASCS ID FIELD ID SOIL LAB# P-040-160615-1119-jcr-7/7/2016 S16-32401 Lancaster S2A SOIL NUTRIENT LEVELS **Above Optimum Below Optimum Optimum** 4.0 ¹Soil pH ²Phosphorus (P) 5 ppm

RECOMMENDATIONS:

²Potassium (K)

²Magnesium (Mg)

(See back messages for important information)

Limestone*: 17000 lb/A for a target pH of 6.5.

92

31

Magnesium (Mg): 60 lb/A

*Calcium Carbonate equivalent

Plant Nutrients:

Limestone containing .4% Mg (.6 % MgO) will satisfy the magnesium requirement

(If manure will be applied, adjust these recommendations accordingly. See back of report.)

Year	Crop	Expected Yield	Nitrogen (lb N/A)	Phosphate (lb P ₂ O ₅ /A)	Potash (lb K ₂ O/A)	
1 Other		0	0	0	0	See ST2 for other crop recommendations

No crop was specified. Therefore no recommendation is given.

ppm

ppm

2 Other	0	0	0	0	See ST2 for other crop recommendations
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No crop was specified. Therefore no recommendation is given.

3 Other	0	0	0	0	See ST2 for other crop recommendations
---------	---	---	---	---	--

No crop was specified. Therefore no recommendation is given.

ADDITION	ADDITIONAL RESULTS:					Optional Tests:			² Trace Elements			
² Calcium	³ Acidity	⁴ CEC			the CEC	Organic Matter	Nitrate-N ppm	Salts mmhos/cm	See ba	ck for com Copper		
(ppm)	(meq/100 g)	(meq/100 g)	K	Mg	Ca	%	Ppm		ppm	ppm	ppm	
57	18.9	15.8	1.5	1.6	1.8				2.2	1.0	15.5	
Test Method	Fest Methods: 1:1 soil:water pH, 2Mehlich 3 (ICP), 3Mehlich Buffer pH, 4Summation of Cations											

The high acidity of this sample indicates that a portion of the acidity is not in the exchangeable form. Therefore the CEC and the percent saturations were calculated using a maximum exchangeable acidity of 15 meq/100 g.