

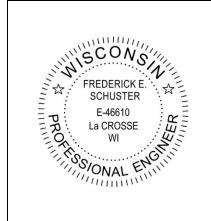
Design Phase Geotechnical Evaluation:

Proposed Roadway, Utilities, and Stormwater Areas River Point District Copeland Ave. La Crosse, Wisconsin SEH No. WIRRN 148437 45.00d

Prepared for:

Mr. Jason Gilman Director of Planning, Development and Assessment City of La Crosse C/O: Mr. David Schofield, PE Short Elliot Hendrickson, INC

April 9, 2020 16290.20.WIL



I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly registered engineer under the laws of the State of Wisconsin.

Freder Schotes

Frederick E. Schuster, PE Geotechnical Engineer Registration Number 46610 Date: April 9, 2020

MINNESOTA

Chosen Valley Testing, Inc.

Geotechnical Engineering and Testing • 1019 2nd Ave. SW, Onalaska, WI 54650 • Telephone (608) 782-5505 • Fax (608) 785-2818

Mr. Jason Gilman Director of Planning, Development and Assessment City of La Crosse 400 La Crosse Street La Crosse, WI 54601 C/O: Mr. David Schofield, PE Sr. Professional Engineer Short Elliot Hendrickson, INC dschofield@sehinc.com April 9, 2020

Re: Design Phase Geotechnical Evaluation Proposed Roadway, Utilities, and Stormwater Areas River Point District Copeland Ave. La Crosse, Wisconsin SEH No. WIRRN 148437 45.00d

Dear Mr. Gilman:

We have completed the geotechnical evaluation authorized for the proposed River Point District on Copeland Ave. in La Crosse, Wisconsin. The attached report provides a description of our findings, recommendations, and analysis. We appreciate the opportunity to provide our services on this project. If you have any questions or need additional information, please contact us at (608) 782-5505.

Sincerely, Chosen Valley Testing, Inc.

reday Schutz

Frederick Schuster, PE Geotechnical Engineer

Colby T. Verdegan, PE Sr. Geotechnical/Materials Engineer

TABLE OF CONTENTS

A. INTRODUCTION	2
A.1. PURPOSE	2
A.2. Scope	2
A.3. Exploration Locations and Elevations	2
A.4. GEOLOGIC BACKGROUND	2
B. SUBSURFACE DATA	3
B.1. STRATIFICATION	3
B.2. PENETRATION TEST RESULTS	4
B.3. GROUNDWATER DATA	4
B.4. LABORATORY TESTING	5
C. DESIGN INFORMATION	5
D. DEVELOPMENT ROUGH GRADING	5
D.1. Stripping	5
D.2. Over-Sizing	
D.3. FILLING AND COMPACTION	-
D.4. Building Area	
E. UTILITY RECOMMENDATIONS	6
E. 1. Dewatering	-
	6
E.1. Dewatering	6 6
E.1. DEWATERING E.2. GENERAL SUPPORT	6 6 7
E.1. DEWATERING E.2. GENERAL SUPPORT E.3. TRENCH SIDEWALLS	6 6 7 7
E.1. DEWATERING E.2. GENERAL SUPPORT E.3. TRENCH SIDEWALLS E.4. FILL PLACEMENT AND COMPACTION	6 7 7 7
E.1. DEWATERING. E.2. GENERAL SUPPORT E.3. TRENCH SIDEWALLS E.4. FILL PLACEMENT AND COMPACTION D. PAVEMENT RECOMMENDATIONS.	6 7 7 7
E.1. DEWATERING E.2. GENERAL SUPPORT E.3. TRENCH SIDEWALLS E.4. FILL PLACEMENT AND COMPACTION D. PAVEMENT RECOMMENDATIONS E. POND INFILTRATION	6 7 7 7 7 7
E.1. DEWATERING E.2. GENERAL SUPPORT E.3. TRENCH SIDEWALLS E.4. FILL PLACEMENT AND COMPACTION D. PAVEMENT RECOMMENDATIONS E. POND INFILTRATION F. LEVEL OF CARE	6 7 7 7 7 7
E.1. DEWATERING E.2. GENERAL SUPPORT	6 7 7 7 7 7
E.1. DEWATERING E.2. GENERAL SUPPORT E.3. TRENCH SIDEWALLS E.4. FILL PLACEMENT AND COMPACTION D. PAVEMENT RECOMMENDATIONS E. POND INFILTRATION F. LEVEL OF CARE APPENDIX	6 7 7 7 7 7
E.1. DEWATERING E.2. GENERAL SUPPORT E.3. TRENCH SIDEWALLS E.4. FILL PLACEMENT AND COMPACTION D. PAVEMENT RECOMMENDATIONS E. POND INFILTRATION F. LEVEL OF CARE APPENDIX BORING LOCATION SKETCH LOG OF BORING # 1-15	6 7 7 7 7 7
E.1. DEWATERING E.2. GENERAL SUPPORT E.3. TRENCH SIDEWALLS E.4. FILL PLACEMENT AND COMPACTION D. PAVEMENT RECOMMENDATIONS E. POND INFILTRATION F. LEVEL OF CARE APPENDIX BORING LOCATION SKETCH LOG OF BORING # 1-15 GRADATION CURVES	6 7 7 7 7 7

River Point District Project #: 16290.20.WIL

Design Phase Geotechnical Evaluation Proposed Roadway, Utilities, and Stormwater Areas River Point District Copeland Ave. La Crosse, Wisconsin SEH No. WIRRN 148437 45.00d

CVT Project Number: 16290.20.WIL Date: April 9, 2020

A. Introduction

The intent of this report is to present our results to the client in the same logical sequence that led us to arrive at the opinions and recommendations expressed. Since our services must often be completed before the design, assumptions are sometimes needed to prepare a proper evaluation and to analyze the data. A complete and thorough review of this entire document, including the assumptions and the appendices, should be undertaken immediately upon receipt.

A.1. Purpose

This report was prepared to assist planning and design of the proposed Streets, utilities, and stormwater infiltration areas for the River Point District on Copeland Ave. in La Crosse, Wisconsin. Our services were authorized Mr. Jason Gilman, Director of Planning, Development and Assessment for the City of La Crosse.

A.2. Scope

To provide data for analysis, a total of fifteen penetration test borings. The borings were drilled to depths of about 20 feet or auger advancement refusal. Our engineering scope was limited to providing this report summarizing the conditions in the borings and providing recommended pavement design parameters for the soils encountered and utility construction recommendations as well as preliminary field verification of suitability for water infiltration information in the form of SBD 10793.

A.3. Exploration Locations and Elevations

The desired boring locations were indicated to Chosen Valley Testing (CVT) on a schematic drawing provided to us by the client and staked by SEH. The boring location sketch in the Appendix shows the approximate locations of the soil borings as drilled. This sketch was created by plotting GPS coordinates for the borings onto an aerial of the site and overlaying the site layout using Google Earth Software.

Ground surface elevations at the borings were provided by SEH.

A.4. Geologic Background

A geotechnical report is based on subsurface data collected for the specific structure or problem. Available geologic data from the region can help interpretation of the data and is briefly summarized in this section.

River Point District Project #: 16290.20.WIL

Geologic maps suggest that the natural soils in the area are primarily alluvial sands and gravels overlying terrace deposits of sands and gravels. Some organic deposits are known to exist at depth in the area based on previous exploration by CVT. Bedrock is commonly more than 100 feet below the surface. The uppermost bedrock is indicated to be Cambrian Age sandstone.

B. Subsurface Data

Methods: All of the borings were performed using penetration test procedures (Method of Test D1586 of the American Society for Testing and Materials). This procedure allows for the extraction of intact soil specimen from deep in the ground. With this method, a hollow-stem auger is drilled to the desired sampling depth. A 2-inch OD sampling tube is then screwed onto the end of a sampling rod, inserted through the hole in the auger's tip, and then driven into the soil with a 140-pound hammer dropped repeatedly from a height of 30 inches above the sampling rod. The sampler is driven 18-inches into the soil, unless the material is too hard. The samples are generally taken at 2½ to 5-foot intervals. The core of soil obtained is classified and logged by the driller and a representative portion is then sealed in a jar and delivered to the soils engineer for review.

B.1. Stratification

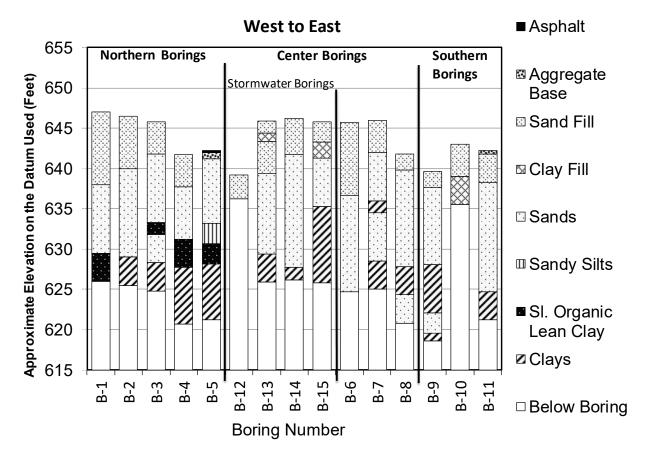
The southeasternmost boring encountered about 5 inches of aggregate base at the surface overlying sandy fill while the northeasternmost boring encountered 2 inches of asphalt and 10 inches of aggregate base overlying natural sands.

The remaining borings encountered fill at the surface. The fill consisted primarily of mixed sands and silty sands and extended to depths of about 2 to 7 feet. Two borings encountered zones of clay fill and clays were mixed in with the sands and silty sands at some other locations. Two of the lower elevation southwestern borings met auger refusal within the fill materials at depths of 3 to 7½ feet beneath the surface. The other borings penetrated deeper into natural deposits.

The natural soils beneath the paving materials and fill were dominated by sands to depths of about 9 to 19 feet. The deeper soils encountered were primarily clays, and most borings terminated in these soils.

The three northern borings met a layer of slightly organic clay above the lean clays. The northeasternmost boring terminated in the organic layer and did not encounter the lean clay layer.

The boring data has been summarized in the following depth and elevation cross-sections. For more detailed information, the reader is referred to the individual Log of Boring sheets in the Appendix.



B.2. Penetration Test Results

The number of blows needed for the hammer to advance the penetration test sampler is an indicator of soil characteristics. The number of blows to advance the sampler 1 foot is called the penetration resistance or "N"-value. The results tend to be more meaningful for natural mineral soils, than for fill soils. In fill soils, compaction tests are more meaningful.

Penetration resistance values (N-values) of 2 to 22 Blows per Foot (BPF) were recorded in the sands, indicating they were very loose to medium dense. The silts and clays returned values ranging from weight of hammer to 7 BPF, indicating they were very soft to medium. The slightly organic to organic clays returned values ranging from 3 to 6 BPF, indicating they were soft to medium.

A key to the descriptors used to qualify the relative density of soil (such as *soft, stiff, loose*, and *dense*,) can be found on the Legend to Soil Description in the Appendix.

B.3. Groundwater Data

During the drilling operation, the drillers may note the presence of moisture on the sampling instrument, in the cuttings, or within the boreholes. These observations are recorded on the boring logs. The water level may vary with weather; time of year and other factors and the presence or absence of water during the drilling is subject to interpretation and is not always conclusive.

Not including the borings which terminated on obstructions, water was observed in all of the borings at depths of 2 to $10\frac{1}{2}$ feet or at elevations of $636\frac{1}{2}$ to 639 feet. We would expect groundwater levels to fluctuate

similarly to the nearby Mississippi river, along with local weather patterns.

B.4. Laboratory Testing

Fine sieve analyses was performed on the stormwater borings to aid in classification. The following table outlines the results of the analyses and the corresponding USDA soil classification. All tests were performed according to ASTM standards.

	Depth Below	Percent Passing	Percent Passing	Percent Passing	Percent Passing	Percent Passing	USDA Soil
Boring	Surface	#10 Sieve	#35 Sieve	#60 Sieve	#140 Sieve	#270	Classification
	(Feet)	(%)	(%)	(%)	(%)	Sieve (%)	
B-12	1	37.0	27.6	19.4	12.3	7.2	Sand, S
B-13	9	99.5	66.5	10.0	1.6	0.8	Sand, S
B-14	3	96.1	76.6	35.7	5.3	2.3	Sand, S
B-15	3	99.6	96.5	89.0	72.7	54.8	Loam, L

C. Design Information

Each structure has a different loading configuration and intensity, different grades, and different structural and performance tolerances. Therefore, the geotechnical exploration will be construed differently from one structure to another. If the initial structure should change design, we should be engaged to review these conditions with respect to the prevailing soil conditions. Without the opportunity to review any such changes, the recommendations may no longer be valid or appropriate.

Design information for the development was not provided. We understand that mixed uses are planned. Additional fill earthwork is expected to be required to achieve proper drainage and construction elevations. Utility pipes are assumed to bear on the order of 7 to 12 feet below the final grades.

D. Development Rough Grading

D.1. Stripping

Although no discernable topsoil was noted, any surface vegetation or root zones and all existing pavement materials should be stripped from the pavements. The rootzones are likely less than 1-foot thick at the locations explored within the industrial park. The stripped materials should be removed from the site or placed in green areas.

D.2. Over-Sizing

The stripped surfaces should be over-sized at least 1-foot beyond the edge of pavements for each foot of fill needed below. This over-sizing can be reduced by up to 50% if rather precise staking is present during grading. However, additional over-sizing provides a nominal safety factor against stakes getting moved or

River Point District Project #: 16290.20.WIL

knocked down during construction. However, additional over-sizing provides a nominal safety factor against stakes getting moved or knocked down during construction.

D.3. Filling and Compaction

All fill should be compacted to at least 95% of the soil's maximum standard Proctor density. Compaction to 90% is usually sufficient in green areas.

The sandy fill materials dominating the upper part of the site profile appear suitable for use as bulk fill below the pavements. As noted earlier, clayey fill was noted at a couple locations and clay was mixed with the sands at some other locations. To provide a more uniform subgrade, we recommend removing any concentrations of clay that may be present in at least the upper 2 feet of the roadway profile and replacing those materials with on-site or imported granular soils.

If imported fill is needed, we would recommend using sand or gravel having less than 20% particles passing a #200 sieve. Crushed sandstone or limestone screenings can also likely be used. Proposed fill materials should be submitted for review before importation and use.

D.4. Building Area

The grading recommendations provided are not intended to address building pads. Site specific corrections can then be made in the future for individual pads when designs, locations and elevations are determined.

E. Utility Recommendations

E.1. Dewatering

Based on the boring data and the assumed utility depths of 7 to 12 feet, water bearing sands are expected to be encountered in deeper utility trenches and would likely change with variations in the level of the Mississippi River. Because dominant soils are highly permeable, aggressive water removal techniques, such as well points, are expected to be required to keep excavations dry.

E.2. General Support

Based on the assumed utility embedment depths, open cut installations are expected to encounter primarily cleaner sands with some clay. These materials appear to be generally suitable for support of utilities, provided the clay is not overly wet. In the event that unstable soils are encountered at invert elevation, a bedding of clean sand or gravel is recommended in the base of the utility trenches to provide a stable surface for the crew laying the pipes. Correction depths on the order of 1 to 2 feet is typically adequate to treat this condition, but should be evaluated during construction by geotechnical personnel.

Two borings terminated on obstructions. To prevent any point loads on pipes, we recommend removing oversize materials to a distance of at least $\frac{1}{2}$ to 1-foot from the pipes and replacing the obstructing material with clean sand or gravel.

E.3. Trench Sidewalls

The contractor will be required to slope or shore the excavations as needed to meet OSHA requirements for safety. The dominant soils will likely classify as Type C soils as defined by OSHA. Trench boxes or other stabilization methods may be necessary when excavating close to property limits or structures.

E.4. Fill Placement and Compaction

Materials placed as backfill below paved areas should be compacted to at least 95% of their maximum standard Proctor density (ASTM D 698). In green areas, 90% compaction is normally adequate. Again, debris or oversize materials should be kept at least ½ to 1-foot away from utilities, to limit potential for point loads on the pipes.

The materials available for use as fill are expected to consist primarily of existing clean fill sands and native sands. To promote uniformity with adjoining portions of the subgrade through any paved areas, we recommend using fill material that is similar to the surrounding subgrade soil type.

D. Pavement Recommendations

Based on the borings and implementation of our grading recommendations, the near surface soils are expected to be dominated by clean sands to silty sand. If not removed, some areas may have clays. We recommend designing pavements using support values with the following estimated characteristics:

Soil Type	AASHTO Classification	Frost Index	Design Group Index	K-Value	Soil Support Factor	Est. California Bearing Ratio
Lean Clay	A-4/A-6	F-3	15	125	3.8	5 or less
Silty Sand	A-2-4/A-4	F-3	10	200	4.5	10 – 20
Poorly-Graded Sand	A-3	F-2	6	250	5.0	10 – 20

E. Pond Infiltration

Infiltration rates were estimated for the various materials encountered in the stormwater borings (Borings B-12, B-13, B-14, and B-15). The borings encountered materials ranging from clay to loams and loamy sands to sands. Infiltration rates for these materials were estimated to range from 3.60 to 0.07 inches per hour, based on USDA soil classification. These infiltration/permeability values are the recommended design values from the Wisconsin DNR. Please see the Soil Evaluation – Storm sheets in the Appendix for more details. Double ring infiltrometer testing could be used to better assess infiltration rates, though a safety factor is normally required to be applied to the rates. River Point District Project #: 16290.20.WIL

F. Level of Care

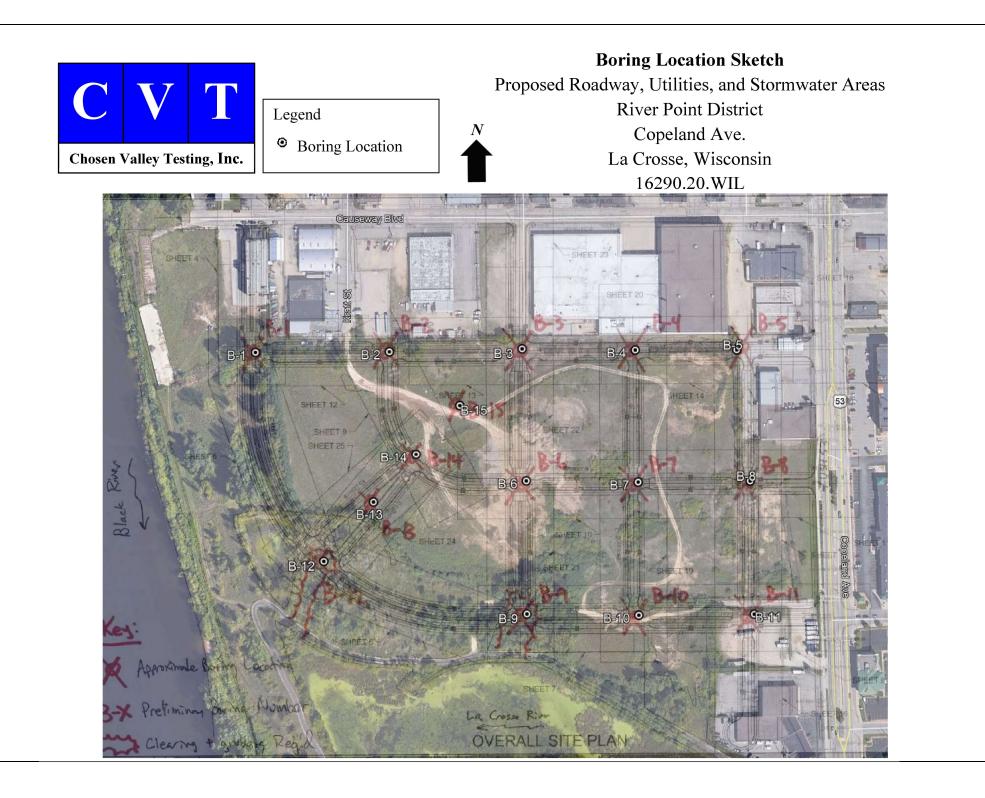
The services provided for this project have been conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in this area, under similar budget and time constraints. This is our professional responsibility. No other warranty, expressed or implied, is made.

River Point District Project #: 16290.20.WIL

Appendix

Boring Location Sketch Log of Boring 1-15 Gradation Curves Soil Evaluation – Storm Legend to Soil Description

IOWA





	PROJE	CT: 16	5290.2	20.W	IL	BORING	ð:		B-01
			•		e Geotechnical Evaluation ver Point District	LOCATI See att		sketa	ch
		С	opelar	nd Ar	ve.	~~~~			
		La	a Cros	sse, V	Visconsin	DATE:	3/17/2	SCALE: 1" = 3'	
	Elev. 647.0	Depth 0.0	USC Sym		Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes
	_		SP SM		POORLY GRADED SAND with SILT polean clay, fine grained, brown, moist, loose t medium dense.	ockets of o			Elevations provided by SEH.
		_		\bigotimes	(Fill)				
	_	_		\bigotimes					
	_			\bigotimes			22		
	_			\bigotimes	Trace pin roots below 6.5'.				
	_	_		\bigotimes			18		
	638.0	9.0	CD	\bigotimes			Ī		
	_		SP		<u>POORLY GRADED SAND</u> trace gravel, f medium grained, brown, wet to water bearin (Alluvium)	g, loose.		⊥	
	635.5	11.5			Water bearing below 10.5'.			_	
0			SP SM		POORLY GRADED SAND with SILT tra gravel, trace wood, fine to medium grained, gray, water bearing, loose to medium dense. (Alluvium)	ice dark	4		
N06.GDT 4/9/20	_	_			No wood below 14'. No gravel below 14'. Gray below 14'.				
LOG A GNN	_	_							
CT).GPJ	629.5	17.5	OI		Organia LEAN CLAV turge resta his-i-	vot soft	}		
UT DISTRI	_	_	OL		Organic LEAN CLAY trace roots, black, w (Alluvium / Swamp Deposit)	vet, son.	ł		
/ER POIN	-								
WIL (RIV	626.0	21.0					3		PP = 0.75 tsf, MC = 45.4%
CVT STANDARD 16290.20.WIL (RIVER POINT DISTRICT).GPJ LOG A GNNN06.GDT 4/5					End of boring. Water encountered during drilling below aro 10.5'. Boring sealed upon completion.	und			



PROJ	ECT: 10	6290.2	20.W	IL	BORING: B-02				
				e Geotechnical Evaluation ver Point District	LOCATI See atta		sketc	ch	
	С	opelar	nd A	ve.	200 000				
	L	a Cros	sse, V	Visconsin	DATE: 3	3/17/2	020	SCALE: 1" = 3'	
Elev. 646.5	Depth 0.0	USC Sym		Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes	
-		SP SM	\bigotimes	<u>POORLY GRADED SAND with SILT</u> fir grained, brown, moist, loose to medium dens	n se.	Į –			
—			\bigotimes	(Fill)		Į –			
_	_		\bigotimes			8			
_	-		\bigotimes						
	_		\bigotimes			ł			
				Seam of clayey sand around 5'.		22			
640.0	6.5								
	_	SP		POORLY GRADED SAND fine to medium grained, brown, moist to water bearing, loose	n e to				
	_			medium dense. (Alluvium)		8			
-	_			Gray below 9'.		Ī			
-				Trace wood around 10'.			Į		
-	_			Water bearing below 10'.		8			
-						ł			
-						8			
9/20						∕∖ ∎			
3.GDT 4	_					ł			
GNNN06				Seams of organic lean clay around 15'.		12			
LOGA	-					Ī			
629.0	17.5					1			
DISTRIC	-	CL		<u>LEAN CLAY</u> dark gray, wet, soft. (Alluvium)]			
POINT	_					ł			
(RIVER						3		PP = 0.5 tsf, MC = 36.2%	
625.5	5 21.0			End of boring.				,	
D 1629(_			Water encountered during drilling below aro Boring sealed upon completion.	und 10'.				
CVT STANDARD 16290.20.WIL (RIVER POINT DISTRICT).GPJ LOG A GNNN06.GDT 4/9/20	_			<u>0</u>					

16290.20.WIL



PROJE	CT: 16	5290.2	20.W	IL	BORING	r:		B-03	
		•		e Geotechnical Evaluation ver Point District	LOCATION: See attached sketch				
	С	opelar	nd Av	ve.	See ata	ueneu	SACI	211	
	La	a Cros	se, V	Visconsin	DATE: .	3/16/2	020	SCALE: 1" = 3'	
Elev. 645.8	Depth 0.0	USC Sym		Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes	
	_	SP SM	\bigotimes	POORLY GRADED SAND with SILT tra gravel, fine grained, brown, moist, loose. (Fill)	ace	ł			
_	_		\bigotimes	(=)		ł			
_			\bigotimes			6			
- 641.8	4.0	SP	X	POORLY GRADED SAND trace gravel, f	ine to	Ī			
_		51		medium grained brown, moist to water beari loose to medium dense.	ng,	11			
	_			(Alluvium)		/\ T			
-	_			No gravel below 6.5'. Water bearing below 7'.			Į⊻		
_	_					8			
_	_					Į			
_						4			
634.3	11.5					T			
- 633.3	12.5	SP SM		POORLY GRADED SAND with SILT fin grained, gray, water bearing, loose.	ne				
_		CL OL		(Alluvium) Slightly Organic LEAN CLAY trace roots	, black,	3			
- 631.8	14.0	SP		very wet, soft. (Alluvium / Swamp Deposit)	_	Ī		PP < 0.25 tsf, MC = 74.3%, OC = 5.7%	
INN06.GD1		SP		POORLY GRADED SAND fine to medium grained, brown, water bearing, loose. (Alluvium)	n í			00 5.770	
	_					/ \ {			
628.3	17.5					{			
	_	CL		LEAN CLAY dark gray, wet, soft. (Alluvium)		ł			
	_					ł			
	21.0					3		PP = 1.0 tsf, MC = 39.1%	
CVT STANDARD 16290.20.WIL (RIVER POINT DISTRICT).GPJ LOG A GNNN06.GDT 4/9/20				End of boring. Water encountered during drilling below are Boring sealed upon completion.	ound 7'.				
STAND	_								
둥 16290.20.\	WIL							B-03 page 1 of 1	



PROJE	CT: 1e	5290.2	20 W	П	BORING	·		B-04
- 110010				e Geotechnical Evaluation	LOCATI			
		-		ver Point District	See atta		sketa	ch
		opelar						
				Visconsin				
		u 0105	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		DATE: 3/16/2020			SCALE: 1" = 3'
Elev. Deptn State			CS bol	Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes
641.7	0.0	-			TI con d			
		SP	\otimes	<u>POORLY GRADED SAND</u> pockets of silt fine to medium grained, brown, moist, medi	y sana,			
	_		\bigotimes	dense.	am]		
_			\bigotimes	(Fill)		ł		
	_		\bigotimes		Ň			
			\bigotimes			11		
	_		\bigotimes			Λ		
637.7	4.0		\bigotimes		L. L	ľ		
02717		SP	$\left[\begin{array}{c} \\ \end{array} \right]$	POORLY GRADED SAND fine to medium	n	ł	$\overline{\nabla}$	
				grained, brown, wet to water bearing, very le	pose to	7	<u> </u>	
				loose.		X 5		
				(Alluvium) Water bearing below 4.5'.		<u></u>		
				e e		ł		
-	_			Gray below 6.5'.		Ł		
						Λ		
	_					∦ 3		
	_							
					Ν	1		
631.2	10.5					5		
031.2	10.3	CL		Slightly Organic LEAN CLAY black, wet	. rather	Λ		
	_	OL		soft to medium.	,	F		
-				(Alluvium / Swamp Deposit)		ł		
	_				Ň	7		
						6		PP = 0.75 tsf, MC = 36.49
						<u></u>		
627.7	14.0					ł		
		CL		LEAN CLAY dark gray, wet, soft to rather	soft.	[]		
				(Alluvium)		Μ.		
						∦ 4		PP = 0.5 tsf
	_							
_						1		
	_					ł		
				Trace roots below 17.5'.		ł		
	_					{		
						1		
	_					ŀ		
						M		
						∦ 3		PP = 0.5 tsf, MC = 47.6%
620.7	21.0		ĮΠ			<u></u>		
				End of boring. Water encountered during drilling below arc	und			
-	_			4.5'.	ulla			
				Boring sealed upon completion.				
			1 I				1	1
	_							



	СТ. 14		0.117	п	DODDIC			B-05		
PROJE		5290.2			BORINC			D-V0		
				e Geotechnical Evaluation	LOCATION: See attached sketch					
				ver Point District	See att	ached	skete	ch		
		opelar								
	La	a Cros	se, V	Visconsin) /1 <i>7 '</i> 2	000			
					DATE:	3/17/2	020	SCALE: 1" = 3'		
	D (1	USC	cs	Description of Materials		DDE	11.77			
Elev.	Depth	Sym		(ASTM D 2487/2488)		BPF	WL	Tests and Notes		
642.2	0.0			2'' ASPHALT						
642.0	0.2/ 1.0		∓ = = =	10" AGGREGATE BASE	/	1				
641.2	1.0	SP		POORLY GRADED SAND fine to medium	n	ł				
		51		grained, brown, moist to water bearing, loose	e to	ł				
-	_			medium dense.						
				(Alluvium)		X 7				
	-					ΛÍ				
						T	1			
	-					ł	1			
						1				
						10	$\overline{\nabla}$			
				Water bearing below 5.5'.		/\				
	-			-		T				
						ł				
-	_					Ň				
) 11				
	-					/ \				
633.2	9.0					I				
		ML		SANDY SILT seams of peat, gray, wet, med	lium.	I				
				(Alluvium)		M				
						X 7	1	PP = 0.5 tsf		
	_									
630.7	11.5					{				
	_	CL		Slightly Organic LEAN CLAY black, wet		1				
-		OL		medium. (Alluvium / Swamp Deposit)		V _		$\mathbf{D}\mathbf{D} = 0 5 + 0 \mathbf{M} \mathbf{C} = 5 7 0 0$		
	_			(Anuvium / Swamp Deposit)		6		PP = 0.5 tsf, MC = 57.0%		
(0) -										
628.2	14.0	CL		LEAN CLAY dark gray, very wet, soft to ra soft.	ther	1				
		UL		Soft		1				
				(Alluvium)		2		$PP = 0.25 \text{ tsf}, MC = 43.8^{\circ}$		
				· ·····,		N ∠		1 - 0.25 (si, with - 15.0)		
	-					T				
						ł				
-	_					ł				
				Wet below 17.5'.		ł				
	-					[
						1				
	1					ł				
						M	1			
						∦ 3		PP = 0.5 tsf		
621.2	21.0					/ \				
				End of boring.	1					
	_			Water encountered during drilling below aro 5.5'.	und					
-				5.5°. Boring sealed upon completion.						
	_			Boring searce upon completion.						
							1			
	VIL							B-05 page 1		



				T						
PROJE	CT: 16	5290.2	20.W	IL	BORING: B-06					
		•		e Geotechnical Evaluation	LOCATI					
				ver Point District	See atta	iched	sketch			
		opelar								
	L	a Cros	sse, V	Visconsin	DATE: 3	8/16/2	020	SCALE: 1" = 3'		
Elev.	Depth	USC		Description of Materials		BPF	WL	Tests and Notes		
645.7	0.0	Sym	bol	(ASTM D 2487/2488)		DII		T COLO MILL T (CLOS		
		SM	\boxtimes	SILTY SAND trace gravel, fine grained, bro	wn					
-	_	r		and gray mixed, wet, medium dense. (Fill)	1					
			\bigotimes			ľ				
	_		\bigotimes		Γ	1				
	_					10				
(117	1.0				Ĺ					
641.7	4.0	SM	\bigotimes	SILTY SAND with GRAVEL medium to c	oarse	ł				
	_			grained, light brown, moist, medium dense.	Ν)				
			\bigotimes	(Fill)		14				
-	6.5		\bigotimes		f					
639.2	6.3	SM	\bigotimes	SILTY SAND trace gravel, fine grained, bro	wn	ł				
	_			and gray mixed, wet, medium dense.	Ň	7				
	_		\bigotimes	(Fill)		19				
()(7	0.0		\bigotimes		ļ					
636.7	9.0	SP		POORLY GRADED SAND fine to medium	1		$ \overline{\Sigma} $			
		51		grained, brown, water bearing, very loose to l	loose.					
				(Alluvium)		6				
-	_				ļ					
					•					
	_				Ň					
	_					4				
					ļ					
	_				1					
					Ň					
				Seams of lean clay around 15'.		8				
-	_				ļ					
	_					ł				
	_				•					
						ŀ				
	_									
					Ŕ					
				Seams of organic lean clay around 20'.		2				
624.7	21.0			Faint petroleum smells around 20'. End of boring.	/					
.				Water encountered during drilling below arou	und 9'.					
	_			Boring sealed upon completion.						
5290.20.V	m							B-06 page		



PROJE	CT: 16	5290.2	0.W	IL	BORING	:		B-07		
				e Geotechnical Evaluation	LOCATION:					
				ver Point District	See atta		skete	ch		
	С	opelan	d A	ve.						
	L	a Cros	se, V	Visconsin	DATE: 3	2/16/24	020	SCALE: 1" = 3'		
					DATE: 3	5/10/2		SCALE. I – J		
Elev.	Depth	USC		Description of Materials		BPF	WL	Tests and Notes		
646.0	0.0	Symb		(ASTM D 2487/2488)						
		SM	\bigotimes	SILTY SAND trace pin roots, fine grained, moist, loose.	brown,					
-	_		\bigotimes	(Fill)						
			\bigotimes			ł				
	_		\bigotimes		Ň	1				
	_		\bigotimes			5				
(12.0	1.0		\bigotimes		(
642.0	4.0	SP	\sim	POORLY GRADED SAND fine to medium	n					
				grained, brown, moist to water bearing, loose	e to	7				
				medium dense. (Alluvium)		10				
	_			(Anaviani)						
	_				Ň					
						11	$\overline{\Sigma}$			
				Water bearing below 8'.			_			
	_									
636.0	10.0				N	1				
030.0	10.0	CL		LEAN CLAY strong petroleum smells, gray	, very	5				
_	_			wet, rather soft.	-	4				
634.5	11.5	SP		(Alluvium) POORLY GRADED SAND with SILT fir				PP = 0.5 tsf		
	_	SP SM		grained, gray, water bearing, loose.		1				
				(Alluvium)		8				
	_			Faint petroleum smells around 12.5'.		1				
	_					i I				
					Ā	1				
				Seams of organic lean clay around 15'.		1 7				
_				Brown around 15'.						
						ł				
(20.5	175									
628.5	17.5	CL		LEAN CLAY dark gray, wet, soft.						
	_	01		(Alluvium)						
	_					ł				
					Ā	ľ				
						3		MC = 56.1%		
625.0	21.0					$\mathbb{N}^{\mathcal{I}}$				
				End of boring.	1.01					
	_			Water encountered during drilling below aro Boring sealed upon completion.	und 8'.					
				Zering searce upon completion.						
	_									



PROJE	CT: 16	5290.2	20.W	IL	BORING	J:		B-08
				e Geotechnical Evaluation ver Point District	LOCATI See att		sketa	sh
	С	opelaı	nd Ar	ve.	~~~~			
	L	a Cros	sse, V	Visconsin	DATE:	3/17/2	020	SCALE: 1" = 3'
Elev. 641.8	Depth 0.0	USC Sym		Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes
		SP	\bigotimes	POORLY GRADED SAND (Fill)				
	_					}		
639.8	2.0	SP		POORLY GRADED SAND fine to medium	n			
_	_			grained, brown, moist to water bearing, very medium dense.	loose to	7		
_	_			(Alluvium)		Ī		
_								
				Seams of silty sand around 5'. Water bearing below 5.5'.		10	$\mathbf{\nabla}$	
				C C		ł		
	_			Gray below 6.5'.				
-	-					3		
_	_					ł		
_								
						4		
	_					ł		
	_							
-	_					4		
^{4/9/20} – 627.8	14.0	G				ł		
06.GDT		CL		LEAN CLAY dark gray, very wet, very soft (Alluvium)	t.			
GNNNG						1		PP = 0.25 tsf, MC = 34.3%
LOG A						ł		
624.3	17.5					ł		
ISTRIC	_	SP		<u>POORLY GRADED SAND</u> fine grained, 1 gray, water bearing, very loose.	ight			
	_			(Alluvium)		1		
VER P								
CVT STANDARD 16290.20.WIL (RIVER POINT DISTRICT).GPJ LOG A GNNN06.GDT 4/9/20	21.0					3		
020.0	21.0			End of boring. Water encountered during drilling below aro	und			
ARD 16	_			5.5'.	unu			
STAND/	_			Boring sealed upon completion.				



PROJE	CT: 16	5290.2	20.W	IL	BORING	r:		B-09
		•		e Geotechnical Evaluation ver Point District	LOCATI See atta		sketa	h
	С	opelaı	nd Av	ve.	See ata	action	Shere	/11
	La Crosse, Wisconsin DATE: 3/17/2							SCALE: 1" = 3'
Elev. 639.6	Depth 0.0	USC Sym		Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes
_		SP	\boxtimes	POORLY GRADED SAND (Fill)		ļ		
	_		\bigotimes	()		ł		
637.6	2.0	SP		POORLY GRADED SAND fine to medium	n		$ \Sigma $	
-				grained, brown, water bearing, very loose to (Alluvium)	loose.	2		
-	_				<u>r</u>	Ī		
					Ā	I		
						7		
					/	Ī		
-						ł		
_	_					∦ 4		
630.6	9.0				Į.	Ī		
	,,,,	SP SM		POORLY GRADED SAND with SILT tra gravel, medium to coarse grained, black, wet	ice t loose	ł		
		JIVI		(Alluvium)	, 1005 C .	7		
628.1	11.5				4			
-		CL		<u>LEAN CLAY</u> dark gray, very wet, very soft (Alluvium)	t.	ł		
_				(Anavian)	Y	1		PP = 0.25 tsf, MC = 41.3%
9/20					Į.			
						ł		
NN06.						W		
G A G	_					/ \ ∎		
	_					ł		
622.1	17.5	SP		POORLY GRADED SAND fine grained, 1	ight	ł		
	_			gray, water bearing, very loose, water bearin (Alluvium)	g.	1		
NIOUN	_			(I		
619.6	20.0	CL		LEAN CLAY trace roots, dark gray, very w	vet, verv	1		
618.6	21.0			soft. (Alluvium)	, ,			
16290				End of boring.	/			
T	_			Water encountered during drilling below aro Boring sealed upon completion.	una 2°.			
CVT STANDARD 16290.20.WIL (RIVER POINT DISTRICT).GPJ LOG A GNNN06.GDT 4/6	_							
දි 16290.20.V	WIL							B-09 page 1 of 1



PROJE	CT: 16	5290.20	0.W	IL	BORING):		B-10
	D			e Geotechnical Evaluation	LOCATI	ON:		
				ver Point District	See att	ached	sket	ch
		opelan		ve. Visconsin				
	Li	a C1088	sc, v	¥ 1500115111	DATE:	3/17/2	020	SCALE: 1" = 3'
Elev. 643.0	Depth 0.0	USC Symb	S ool	Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes
013.0	0.0	SM	\boxtimes	SILTY SAND pockets of sand lean clay, br	own,	ł		
	_	ć	\bigotimes	wet, very loose. (Fill)		f		
		¢	\bigotimes			ł		
	_	¢	\bigotimes			Ŵ		
-	_	¢	\mathbb{X}			1		
639.0	4.0	¢	\bigotimes					
		CL	X	SANDY LEAN CLAY trace gravel, gray a	nd			
			\bigotimes	brown mixed, wet, medium. (Fill)		8		MC = 21.5%
		¢	\mathbf{X}			₿ °		1010 21.570
636.5	6.5	~~	\bigotimes		1 1	I		
625 5	7.5	CL	\bigotimes	LEAN CLAY with GRAVEL brown, wet, (Fill)		*		Hard drilling below 6.5'. * $50 = 4''$ (set)
635.5	/.3		XX	End of boring.				
-				Boring terminated due to auger refusal aroun Boring sealed upon completion.	nd 7.5'.			
	_			Boring seared upon completion.				
	_							
-	_							
	_							
	_							
	_							
_	_							
	_							
	_							
	_							
-	_							
	VIL							B-10 page 1



PROJE	CT: 16	5290.2	20.W	ΤL	BORING	r:		B-11	
		•		e Geotechnical Evaluation ver Point District	LOCATI See atta		sketch		
	С	opelar	nd A	ve.	See ata	ueneu	SKeten	L.	
	L	a Cros	sse, V	Visconsin	DATE: 3	3/17/2	020	SCALE:	1'' = 3'
Elev. 642.2	Depth 0.0	USC Sym		Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and	Notes
641.8		SP		<u>5" AGGREGATE BASE</u> <u>POORLY GRADED SAND</u> pockets of silt	v sand	j			
_	-			trace gravel, fine to medium grained, brown, loose.	, moist,	ł			
	_			(Fill)					
_	_					4			
638.2	4.0		\bigotimes	A		Ī			
_		SP		POORLY GRADED SAND fine to medium grained, gray, moist to water bearing, very lo	n bose to	I			
_				loose. (Alluvium)		6			
_				()		Ī			
	_					ł			
	-			Fine grained around 7.5'.		1 7	$ \Psi $		
				Water bearing below 7.5'.		Ī			
_	_					ł			
_				Seams of lean clay around 10'.		5			
_	_			Faint petroleum smells around 10'.		/∖ ∎			
	-					l			
						3			
	_								
- -	_								
						2			
	_								
						1			
624.7	17.5	CL		IFANCIAN MAY WAT YOU SOft		j			
	_	UL		<u>LEAN CLAY</u> gray, wet, very soft. (Alluvium)		ł			
	_					ł			
									$C = 2C \Omega d$
621.2	21.0					1		PP = 0.75 tsf, N	1C = 36.8%
				End of boring. Water encountered during drilling below aro 7.5'.	ound				
	_			Boring sealed upon completion.					
16290.20.1	WIL	L						В	-11 page 1 of 1



PROJE		6290.20.W		BC	ORINO	ð:		B-12
			e Geotechnical Evaluation	LC	CATI	ON:	-14	-1.
		roposed Ri opeland A	ver Point District		See att	ached	sket	cn
		a Crosse, V						
				D	ATE: 1	3/17/2	020	SCALE: 1" = 3'
Elev. 639.2	Depth 0.0	USCS Symbol	Description of Materials (ASTM D 2487/2488)		-	BPF	WL	Tests and Notes
_		SM 💥	<u>SILTY SAND with GRAVEL</u> fine grained brown, moist, loose to very dense.	l, lig	ht	M		
_	_		(Fill)			∦ *		* 5 / 6 / 6 / 8
	_		T. (11)					* 50 011 (1)
636.2	3.0		Trace concrete below 2'.			Î		* 50 = 2" (set) Auger grinding below 2.5'.
- 030.2	5.0		End of boring.			#		
_	_		Boring terminated due to auger refusal arour Boring sealed upon completion.	nd 3'	•			
-								
\vdash	-							
-	_							
_	_							
-	_							
-								
-	_							
_	_							
/20	_							
3DT 4/6	_							
NNN06.C								
LOG A G	_							
DT).GPJ	_							
CVT STANDARD 16290.20.WIL (RIVER POINT DISTRICT).GPJ LOG A GNNN06.GDT 4/9/20	-							
	–							
6290.20. ¹	–							
	-							
	_							
CVT S.								
16290.20.	WIL	<u> </u>				-		B-12 page 1 of 1



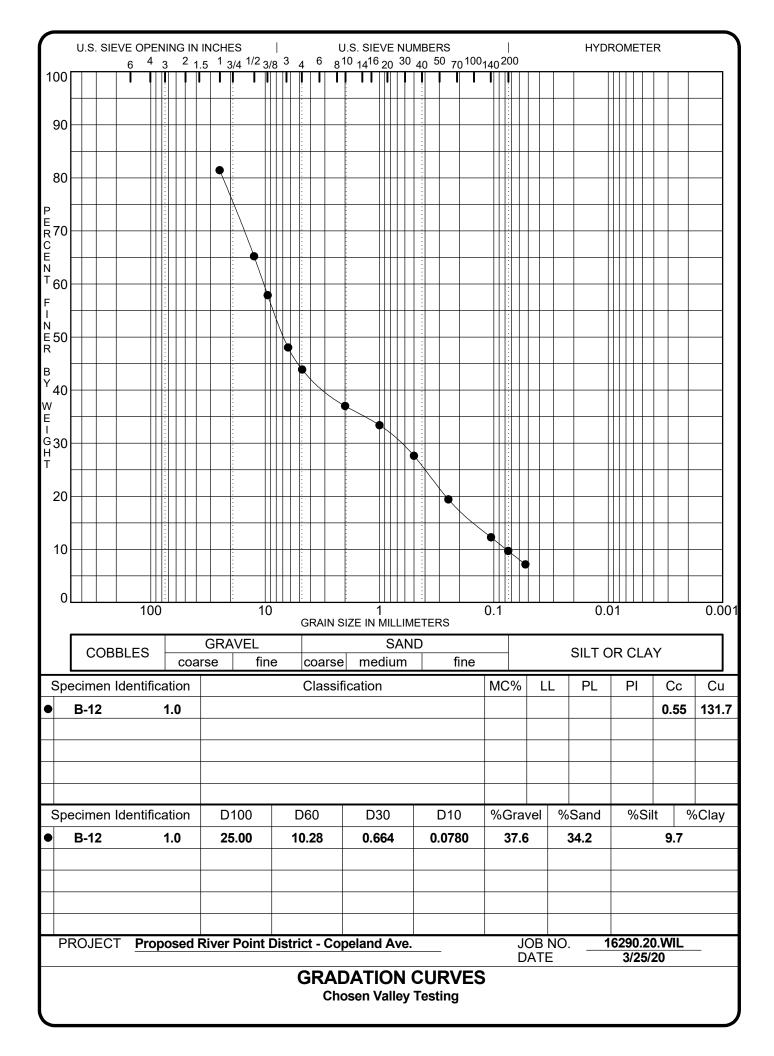
PROJE	CT: 16	5290.2	20.W	IL	BORING	r:		B-13
-11301				e Geotechnical Evaluation	LOCATI			
		0		ver Point District	See atta		skete	ch
		opelar						
				Visconsin				
		_			DATE: 3	3/17/2	020	SCALE: 1" = 3'
Elev. 645.9	Depth 0.0	USC Sym		Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes
013.5	0.0	SP	\boxtimes	POORLY GRADED SAND with SILT fit	ne			
_		SM	\bigotimes	grained, brown, moist, very loose.		₩ *		
644.4	1.5		\bigotimes	(Fill)		A		* W / 1 / 1 / 1
		CL	\bigotimes	<u>LEAN CLAY</u> trace roots, gray, wet, soft.	ļ	_		
643.4	2.5	SP	\bigotimes	(Fill) <u>POORLY GRADED SAND</u> trace gravel, f	ino	M		
	_	SP	\bigotimes	grained, brown, moist, medium dense.		∦ *		* 2 / 2 / 2 / 2
			\bigotimes	(Fill)		/\		
	_		\bigotimes					
640.9	5.0		\bigotimes			VI		
510.7	2.0	SM	Ŵ	SILTY SAND with GRAVEL medium to o	coarse	∦ *		* 6 / 12 / 18 / 22
_			\bigotimes	grained, light brown, moist, dense.		/ \		
639.4	6.5		$ \mathbb{X} $	(Fill)		7		
		SP		POORLY GRADED SAND fine to medium		∦ ∗		
				grained, brown, moist to water bearing, very medium dense.	loose to	ΛI		* 13 / 9 / 18 / 16
	_			(Alluvium)	ļ	<u></u>		
				(Antuviuni)		\/		
	_					∦ *		* 9 / 10 / 11 / 11
						$\langle N \rangle$		<i>7 /</i> 10 / 11 / 11
				Water bearing below 10'.			$ \Sigma$	
						VI .		
-	_					∦ *		* 4 / 3 / 5 / 5
						/ \		
	-							
	_					₩ *		
						Λ		* 2 / 2 / 3 / 3
	_			Gray below 13.5'.				
				Seams of lean clay around 14'.		M		
						∦ *		* 1 / 1 / 2 / 2
						/\		
629.4	16.5							
027.4	10.5	CL		LEAN CLAY dark gray, wet, soft to medium	m.	VI		
	-	_		(Alluvium)		∦ *		* 1 / 1 / 1 / 1
						/ \		PP = 0.5 tsf
					Ň	7		
	_					∦ ∗		
						Λ		*1/3/3/2 DD = 0.75 tof
625.9	20.0		<i>[[]</i>	Endofharing				PP = 0.75 tsf
				End of boring. Water encountered during drilling below aro	und 10'			
-	_			Boring sealed upon completion.	unu 10.			
				0 p on compression				
	-							
	_							



6290.20.	VIL	BORING	r:		B-14
Design Pha Proposed F	use Geotechnical Evaluation River Point District	LOCATI	ON:	sketc	
La Crosse,	Wisconsin	DATE: 3	3/17/2	020	SCALE: 1'' = 3'
	Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes
SP SM	POORLY GRADED SAND with SILT fin grained, brown, moist, very loose to loose. (Fill)		* * * *	Σ	<pre>* 1/1/1/1 * 2/2/3/3 * 3/3/4/4 * 4/5/6/6 * 5/5/5/6 * 3/4/4/3 * 1/1/1/2</pre>
CL	Gray around 15'. LEAN CLAY dark gray, wet, soft. (Alluvium) End of boring. Water encountered during drilling below arc Boring sealed upon completion.	ound 10'.	*		* 1 / 1 / 1 / 1 * 1 / 1 / 1 / 2 * 1 / 1 / 1 / 2 PP = 0.75 tsf
	Design Pha Proposed F Copeland 4 La Crosse, USCS Symbol SP SM	Symbol (ASTM D 2487/2488) SP POORLY GRADED SAND with SILT fingrained, brown, moist, very loose to loose. (Fill) SP POORLY GRADED SAND fine to medium grained, brown, moist, very loose to medium (Alluvium) SP SP SP Seams of lean clay around 7'. Trace gravel around 9'. Water bearing below 10'. Gray around 15'. Gray around 15'. CL LEAN CLAY dark gray, wet, soft. (Alluvium) End of boring. Water encountered during drilling below arc	Design Phase Geotechnical Evaluation Proposed River Point District Copeland Ave. a Crosse, Wisconsin USCS Symbol SP SP POORLY GRADED SAND with SILT grained, brown, moist, very loose to loose. (Fill) SP SP POORLY GRADED SAND fine to medium grained, brown, moist, very loose to medium dense. (Alluvium) Seams of lean clay around 7'. Trace gravel around 9'. Water bearing below 10'. Gray around 15'. CL LEAN CLAY dark gray, wet, soft. (Alluvium) End of boring. Water encountered during drilling below around 10'.	Design Phase Geotechnical Evaluation Proposed River Point District Copeland Ave. a Crosse, Wisconsin USCS Symbol CASTM D 2487/2488) SP POORLY GRADED SAND with SILT fine grained, brown, moist, very loose to loose. (Fill) * SP POORLY GRADED SAND fine to medium grained, brown, moist, very loose to medium seams of lean clay around 7'. * Gray around 15'. CL LEAN CLAY dark gray, wet, soft. (Alluvium) Hend of boring. Water encountered during drilling below around 10'.	Design Phase Geotechnical Evaluation Proposed River Point District Copeland Ave. a Crosse, Wisconsin USCS Symbol SP SP POORLY GRADED SAND with SILT grained, brown, moist, very loose to loose. (Fill) SP POORLY GRADED SAND fine to medium grained, brown, moist, very loose to medium frace gravel around 7'. CL LEAN CLAY dark gray, wet, soft. (Alluvium) End of boring. Water encountered during drilling below around 10'.



PROJE	CT: 16	5290.2	20.W	IL	BORING	i:		B-15
	D Pi C	ropose opelai	ed Ri [.] nd Av		LOCATI See atta	ON:	sketa	ch
	L	a Cros	sse, V	Visconsin	DATE: (3/17/2	020	SCALE: 1'' = 3'
Elev. 645.8	Depth 0.0	USC Sym		Description of Materials (ASTM D 2487/2488)		BPF	WL	Tests and Notes
	_	SM	\bigotimes	SILTY SAND trace gravel, fine grained, bromoist, loose to very dense. (Fill)	own,	*		* 3 / 6 / 25 / 38
643.3	2.5	CL ML		SILTY CLAY with SAND gray, wet, stiff. (Fill) Brown below 4.5'.		*		*3/5/6/7
	4.5	SP		POORLY GRADED SAND trace gravel, fr medium grained, brown, moist to water bear very loose to loose. (Alluvium)	ine to ing,	*		* 8 / 10 / 12 / 14
-	_			Water bearing below 8'.		*	⊻	* 3 / 3 / 2 / 3
- 635.3	10.5					*		* 2 / 2 / 3 / 4
		CL		LEAN CLAY dark gray, wet, soft to medium (Alluvium)	m.	*		* 1 / 1 / 1 / 1 PP = 0.5 tsf
_	_			Trace pin roots below 13'.		*		* 1 / 2 / 2 / 3 PP = 0.75 tsf
-						*		* 1 / 1 / 2 / 2 PP = 0.75 tsf
-	_					*		* 2 / 1 / 1 / 2 PP = 0.75 tsf
- 625.8	20.0					*		* 2 / 2 / 3 / 3
	_			End of boring. Water encountered during drilling below aro Boring sealed upon completion.	und 8'.			
-	_							



\bigcap	ι	J.S.	SIE	EVE (ERS										ŀ	IYE	DR	٥N	ЛЕ ⁻	TEI	R					١
100	Г			6	4	: 	3	2	1.	5	1 ₃	/4	1/2 j	3/8	3	4	6		⁸ 10		4 ¹⁶) (30	40	0	50	70	10	014	40 ⁻	20 1	0	П					Π	Π	Т	П			\top		٦	
				•					-		_		•		-		_	' 	_		<u> </u>	R.		Ļ			-	-							_									<u> </u>	+			
90																																													\downarrow			
																							Ì									:													\perp			
80)																									
P R70 C E N T 60																																																
R/U C																																																
E N T																																:								Ħ					T	-		
' 60 F																																								Ħ					T			
ı N																									Ħ							:								Ħ					+			
E 50 R																						╫		+				+			╈								╈	+					+			
											_	:				:			:									+				:								+					+		-	
в Ү 40											_						-							+		$\ $		+			+		_		-				+	+					+		-	
VV E											_	<u>.</u>				:	-							+		H		+				:	_		_				+	+				\vdash	+		-	
। G30 Н											_	<u> </u>			_		-					\parallel		+			\square	_			+		_		_				+	\parallel	-			<u> </u>	+		-	
Т												:			_	:								-			\downarrow	_				:	_						+	\parallel	_				+		_	
20																:												_				:			_										\downarrow			
																																													\downarrow			
10																																																
10																												V																				
0																																	_															
-					10	0							1	0		C	GR/	٩IN	SI	ZE		1 МІ	LL	.IN	1E1	TE	RS			С).1							0.	.0	1						0.	00)1
	Γ	<u> </u>		BLE						GF	RA	VE	EL												ID												SIL	т				^`	~				٦	
					-0			со	ar	se			fi	ne		0	coa	ars	е	i	ne	di	ur	n				fi	ne	_												.A	I	_	_			
Sp				lder	ntifi																tior										M	C	%		LL		Ρ	L			Pl			Сс	-	С		
•	B	-13	3			9	9.0)	_				Ρ	00	OF	۲L)	10	GR/	٩C	DE	DS	SA	N	D	SI	P													+				0	.89)	1.	9	
																																				_			+						+			_
									-																														+						+			-
																																													+			
Sp	ec	ime	en	lder	ntifi	Ca	atio	on			D	10	0			D	60				D	30					D1	0			%	G	ra	vel		%	Sar	nd			%	Sil	t		%	Cla	ıy	
	B	-13	3			ļ	9.0)			2	.00)			0.	46				0.3	320)			(0.24	19	5			0	0.0			g	8.3	5						1.2				
														_																																		
														_																									_									
									+					+																_					+				+									_
P	R	DJE	EC	ΓI	Pro	p	os	ec	1 F	Riv	er	Po	oint	: D	ist	ric	:t -	C	 pp	ela	and	<mark>م ا</mark>	٩v	e.	<u> </u>								J	ЭΒ	N	О.			16	529	90.	.20).V	VIL				-
																~	2	> ^		• •	T 1		4	J	<u> </u>	1	JR	, /		C			D	AT	Έ					3	/2	5/2	20					_
																C	יונ										JR stin			3																		
l																								•				-																				

\bigcap		U.S	. SIE	EVE (NI	١G	IN I	NCH	ES	1/0		2		6	U	I.S.	SIE	VE		UM	BE	ERS		100	<u>,</u>		20				Нγ	′DF	ROI	МE	TEI	R				
10	0			6	4	3		1.5	5 1 1	3/4		3/8			Ĵ	8	1		20		4	0	50	70 		14 1	02(02(Π							Π					
	┢					:		_		:			+		\neg					+	+			+							_					+				_	
9	0	-					+						$\left \right $					_	\mathbb{N}	$\left \right $	+			+				$\left \right $	++	-	_					+				_	
										-										A	_	:		_												+					
8	0																				\setminus			_																	
																					è																				
P E D 7										-																															
P E R C E N T																																									
∟ N T o																																									
^Т 6 F										-			Ħ							Ħ	T															Ħ					
l N																							\square													\square					
E5 R	아													•						+		-	\uparrow	+																	
													+							+	+		\uparrow	+				+								+				_	
В Ү 4	아						+	_					+							+	+		+	+				$\left \right $	++	-	_		_			+					
Ε	-					:				:			+	· · · · · · · ·						+	_	:														+					
। G3 Н Т	0												$\left \right $							+	_		_	$\left\{ \right\}$					$\left \right $							+					
Т						:							\parallel	•							_	:		ł																	
2	0																																								
																									\setminus																
1										-																															
	Ľ																																								
	0																																								
					10	C					1	0		G	RAI	N S	IZE	IN		LII	ME	TE	RS			0.	1					(0.0)1					(0.0	01
	Γ			BLE	2				GR	AVI	ΞL								S	A	ND)										SILT				. A'	v				
					.5		СС	bar	se		fi	ne		С	oa	rse	1	ne	diu	Im				fir	ne	_					-					_A	I		_		
S				Iden	tifi			1								ssifi										Ν	ЛC	%	I	L		PL			ΡI			Cc		Cu	
		3-1	4			3	.0				Ρ	00	R	LY	GF	RAI	DE	DS		ND) S	Ρ														_	0	.99	 ;	3.1	
																										-					-					-			+		_
																										-					+		_			-			+		
																															-								+		
S	pe	cim	en	Iden	tifi	cat	ion	1	C	010	0			D6	0			D3	30				D1	10		9	%G	Gra	vel	(%S	Sand	ł		%	Sil	t	(%Cl	lay	'
•		3-1	4			3	.0		9	9.50)			0.3	8			0.2	13			(0.12	21 [.]	1		(0.6			9	4.6						3.2			
																										_															
\vdash												+									+					+															_
┠┼	PR	OJ	EC	TF	Pro	po	sed	d R	live	r Po	oint	: Di	st	rict	: - (Cor	oela	anc	IA	ve).							J	OB	N	<u>Э.</u>		1	62	90	.20).V				_
			-									-													_	_		D)AT	Έ					3/2	25/2	20				_
														G		AC Chc									E	5															
																			all	.~y	, •			ฮ																	

\bigcap	U	.S.	SIE	VE																	S. 8																		ΗYI	DR	O	ИE	TE	R					٦
100	П			6	4		3	2	1.	.5	1 (T	3/4	1/2	2 3/8	в ; П	3 	4	6	8	10) 14	16 1	20) 3 J	30	40	5	i0 7	70	100) ₁₄	02	20) 1	0									Т		Γ	\top			
				•				1	ŀ		•		•			_		!	•		•	•	•							•	•												╞		╞	+		_	
90												:																					:										L		L	\downarrow			
																												٦					:																
																														\setminus																			
80												:																			\		:																
P F						T			T			-				1													T		7		Ë										t		T	+			
R70 C						+			+			:				+	:												t			\uparrow											+			+		_	
P R70 C E N T 60					_			+						╫	+	+		\vdash											+						┢			+					┢		┢	+		_	
						+		-	-							+	:			-				-		:			+				:	ł				-					+		┝	+		_	
F I						+		_	_			:				-	:			-						:			+				:										+		╞	+		_	
N E 50								_	_						\square	_				-				_		:			-														+		╞	+		_	
R																				_																							╞		L	_			
в ^Ү 40												:					:																:												L				
W E																																	:																
G 30 H T												-																																			-		
																													T														-		1	-			
20								1																									:										┢		t	+			
						+			+			:			+	+	:							+		:			╈				:										┢		+	+			
10						+		-	+			:			+	+	:			+				+		:			+				:	_	$\left \right $								┢		┢	+		_	
						+		+	+	-					$\left \right $	+		-		-				+					+					-	\vdash			+					╞		╞	+		_	
0					10							:		<u> </u> 10			:			:			 1			:					0	1	:						0	0.0	1).0	01
																	G	RA	IN :	SIZ	ΖE	IN					ΈF	RS			Ŭ	•••									•							_	
		С	ЗB	BLE	ES			со				4V 	EL f	ine	2			<u>.</u> 03	irse	<u> </u>	n	ne			N	D			fir	ne								SI	T	0	R	CI	LA	Y					
Sp		me	en	Ider	ntif	ica				- 30	_				_				ssi													M		%		LL			որ			ΡI	_		Сс	—	(Cu	_
•		-15					3.0										_	nu	001		<u> </u>		<u> </u>								+	<u></u>		/0			•		-									Ju	
	_		-					-																																									
											_						_					_							_				_			.		_				~ (—	_			
Sp				lder	ntif							10					De					D3	30					D1	0			%			ve				nd			%	Si				SCI	ay	
	В	-15)				3.()	_		4	2.0	U	_		_	0.0)6		+													U	.0		+		33.	6					ť	65.9	9			
																				+																+													
																																				+													_
																				T																													_
P	RC)JE	ECT	Γ	Pro	р	os	ec	l F	Ri	/er	Ρ	oin	t C	Dis	str	ic	t -	Co	ppe	ela	nc		V	e.			_						J		3 N TE	10.			10	62	90 3/3).20 31/2	0.V 20	VIL	-	_		
																	G	R	A	D	A.	TI	0	N		CI	U	R١		ES	3										•								
																												ing																					



78-162

162-198

5

6

7

10YR 6/3

10YR 5/1

198-240 10YR 4/1

Attachment 2:

1002-CPS-23 Division of Industry Services P. O. Box 2658 Madison, Wisconsin 53701

SOIL AND SITE EVALUATION – STORM

Scott Walker, Governor Laura Gutierrez, Secretary

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

, , ,	,		Page <u>1</u> of <u>2</u>
Attach a complete site plan on paper not less than $8 \frac{1}{2} \times 1^{-2}$	l inches in size.	County	<u> </u>
Plan must include, but not limited to: vertical and hcrizonta	reference point	La Cros	se
(BM), direction and percent of slope, scale or dimensions, r	•	Parcel I.I	D.
BM referenced to nearest road		Roviouro	
Please print all information		Reviewe	a by:
Personal information you provide may be used for secondary purposes (Privacy Law,	s. 15.04(1)(m)]		
Property Owner	Property Location	•	
City of La Crosse	Govt. Lot NE ¼ NE ¼	s 31	T 16 N R 7 🗙 (or 💭
Property Owner' Mail Address	Lot # Block # Sul	bd. Name c	or CSM #
400 La Crosse Street			
City State Zip Code Phone Number	🛛 City 🔲 Village	🗌 Town	Nearest Road
La Crosse WI 54601	La Crosse		Copeland Ave.
Drainage area 🔲 sq .ft 🛛 acres	Hydraulic Application Tes Method	t	Soil Moisture Date of soil borings: <u>3/17/2020</u>
Test site suitable for (check all that apply):	☑ Morphologica Evaluation	al	USDA-NRCS WETS Value: Dry =1;
☐ Bioretention; ☐ Subsurface Dispersal System;	Double Ring Infiltrometer		\square Normal = 2;
Reuse; Irrigation; Other	☐ Other: (spec	ify)	☐ Wet = 3.

B-12	#OBS	6. 🔲 Pit	E Boring Ground	surface elevation. 639	<u>2</u> ft.	Elevation of lim	iting factor	ft.			
Н	lorizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate Inches/Hr
1		0-36	10YR 7/2		LS	Osg	ml		20-30	15-25	1.63
-											
-											
С	Commer		ger advancement re	efusal at approximately	3 feet bene	eath the surfac	æ.				
	1	_	_		•						
B-13	J #OBS	S. 🗌 Pit	-	surface elevation. 645.	<u>.9</u> ft.	Elevation of lim	iiting factor <u>63</u>	<u>5.9</u> ft.			
н	lorizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate Inches/Hr
1		0-18	10YR 4/3		s	0sg	ml	as	<10	<15	3.60
2		18-30	10YR 4/1		с	1 f sbk	mfr	as	<10	>80	0.07
3		30-60	10YR 5/4		s	0sg	ml	as	<10	<10	3.60
4		60-78	10YR 8/2		LS	0sg	ml	as	20-30	15-25	1.63

Comments:		
	A	
Name (Please Print)	Signature	Credential Number
Frederick Schuster	Friday Schube	CST 1356930 / PE 46610
Address	Date Evaluation Conducted	Telephone Number
1019 2nd Ave. SW., Onalaska, WI 54650	3/25/2020	608-782-5505
		SBD-10793 (R01/17)

0sg

0sg

2 f sbk

s

s

С

Water bearing below 10'

ml

m

mfi

<10

<10

>80

3.60

3.60

0.07

<10

<10

<10

gw

gw

14 #OB\$	S. 🗌 Pit	Boring Ground	surface elevation. 646	<u>.2</u> ft.	Elevation of lim	niting factor <u>63</u> 6	<u>6.2</u> ft.		Page	<u>2</u> of <u>2</u>
Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate Inches/H
	0-54	10YR 5/3		s	0sg	ml	as	<10	<15	3.60
2	54-174	10YR 5/4	Water bearing below 10'	s	0sg	ml	gw	<10	<10	3.60
}	174-198	10YR 5/1		s	0sg	ml	gw	<10	<10	3.60
ļ	198-222	10YR 4/3		s	0sg	ml	gw	<10	<10	3.60
5	222-240	10YR 3/1		с	1 f sbk	mfi		<10	>80	0.07
Comme	nts:									
15 #OBS	S. 🗌 Pit	E Boring Ground	surface elevation645.	. <u>8</u> ft.	Elevation of lim	iting factor <u>63</u>	<u>7.8</u> ft.			
Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic Ap Rate Inches/H
	0-30	10YR yr 6/3		LS	0sg	ml	as	5-15	15-25	1.63
2	30-54	10YR 4/1		L	1 f sbk	mvfi	as	<10	40-50	0.24
3	54-66	10YR 4/3		L	1 f sbk	mfi	as	<10	40-50	0.24
4	66-126	10YR 5/3	Water bearing below 8'	s	0sg	ml	gw	<10	<10	3.60
5	126-240	10YR 7/1		С	2 f sbk	mfi		<10	>80	0.07
	S. 🗌 Pit		surface elevation.	ft.	Elevation of lim		ft.			
	S. Depth in.	Boring Ground Dominant Color Munsell	surface elevation. Redox Description Qu. Sz. Cont. Color	ft. Texture	Elevation of lim Structure Gr. Sz. Sh.	iting factor Consistence	ft. Boundary	% Rock Frags.	% Fines	
	Depth	Dominant Color	Redox Description		Structure		1		% Fines	
	Depth	Dominant Color	Redox Description		Structure		1		% Fines	
Horizon	Depth	Dominant Color	Redox Description		Structure		1		% Fines	
	Depth	Dominant Color	Redox Description		Structure		1		% Fines	Hydraulic App Rate Inches/H
	Depth in.	Dominant Color	Redox Description		Structure		1		% Fines	
Horizon	Depth in.	Dominant Color	Redox Description		Structure Gr. Sz. Sh.		1		% Fines	
Commen #OBS	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary Boundary ft.	Frags.		Rate Inches/H
Commen Works	S. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.		Boundary	% Rock	% Fines	
Commen Works	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary Boundary ft.	Frags.		Rate Inches/H
Comme	S. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary Boundary ft.	% Rock		Hydraulic Ap
Commer dom: dom: dom: dom: dom: dom: dom: dom:	S. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary Boundary ft.	% Rock		Hydraulic Ap
Commen Works	S. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary Boundary ft.	% Rock		Rate Inches/I
Commen Works	S. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary Boundary ft.	% Rock		Rate Inches/I
Commen Workson	S. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary Boundary ft.	% Rock		Rate Inches/I
Commer	S. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary Boundary ft.	% Rock		Rate Inches/

Overall Site Comments:

SBD-10793 (R 7/17)

WDNR September 2017

	UNIFI	ED SOIL CLASS	SIFICATION (ASTI	M D-24	87/2488)					
MATERIAL TYPES	CRITER	IA FOR ASSIGNING SOIL G	ROUP NAMES	GROUP SYMBOL	SOIL GROUP NAMES & LEGEND					
	GRAVELS	CLEAN GRAVELS	Cu>4 AND 1 <cc<3< td=""><td>GW</td><td>WELL-GRADED GRAVEL</td><td></td></cc<3<>	GW	WELL-GRADED GRAVEL					
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	>50% OF COARSE	<5% FINES	Cu>4 AND 1>Cc>3	GP	POORLY-GRADED GRAVEL	0000				
	FRACTION RETAINED ON NO 4. SIEVE	GRAVELS WITH FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL					
		>12% FINES	FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL					
	SANDS	CLEAN SANDS	Cu>6 AND 1 <cc<3< td=""><td>SW</td><td>WELL-GRADED SAND</td><td></td></cc<3<>	SW	WELL-GRADED SAND					
	>50% OF COARSE	<5% FINES	Cu>6 AND 1>Cc>3	SP	POORLY-GRADED SAND					
8	FRACTION PASSES ON NO 4. SIEVE	SANDS AND FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND					
		>12% FINES	FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND					
	SILTS AND CLAYS		PI>7 AND PLOTS>"A" LINE	CL	LEAN CLAY					
/E SOILS	LIQUID LIMIT<50	INORGANIC	PI>4 AND PLOTS<"A" LINE	ML	SILT					
VED (ASSE SIE/		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT					
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS		PI PLOTS >"A" LINE	СН	FAT CLAY					
	LIQUID LIMIT>50	INORGANIC	PI PLOTS <"A" LINE	мн	ELASTIC SILT					
ш		ORGANIC	LL (oven dried)/LL (not dried)<0.75	ОН	ORGANIC CLAY OR SILT					
HIGHLY O	RGANIC SOILS	PRIMARILY ORGANIC MATTER, DARK I	N COLOR, AND ORGANIC ODOR	PT	PEAT					
	Relative Proportions of	Sand and Gravel	SAMPLE TYPES	SAMPLE TYPES						
	TERM	PERCENT	Hollow Stem Standard Penetration Test							
	Trace With Modifier	< 15 15 - 29 > 30								
	Relative Proportion	ons of Fines								
	TERM	PERCENT	TEST SYMBOLS							
	Trace With Modifier	< 5 5 - 12 > 12	MC - MOISTURE CON OC - ORGANIC CONT		LL - LIQUID LIMIT PI - PLASTISITY INDEX SW - SWELL TEST UU Unconsolidated Undrained triaxial					
	Grain Size Ter	minology	CN - CONSOLIDATIO DD - DRY DENSITY							
	TERM Boulder	SIZE < 12 in.	PP - POCKET PENET	ROMETER	raineu triaxiai					
	Cobble Gravel Sand	3 in 12 in. #4 sieve to 3 in. #200 sieve to #4 sieve	RV - R-VALUE SA - SIEVE ANALYSIS							
	Silt or Clay	Passing #200 sieve	P200 - % PASSING #20	0 SIEVE						
	PLASTICITY (CHART	- WATER LEVEL (WITH TIME OF) MEASUREMENT							
70			- PENETRATION RESISTANCE							
60		СН		RECORDED AS BLOWS / 0.5 FT) SILT & CLAY						
PLASTICITY INDEX (%)			RELATIVE DENSITY BLOWS/FOOT	* CONSIS	COMPRESSIVE SISTENCY BLOWS/FOOT* STRENGTH (TSF)					
			VERY LOOSE 0 - 4 LOOSE 4 - 10	VERY S SOFT	OFT 0-1 0-	- 0.25 5 - 0.50				
1TSALI	CL	MH H	MEDIUM DENSE 10 - 30 DENSE 30 - 50	RATHE MEDIUI RATHE	M 6-8 0.5	0 - 1.0 0 - 2.0				
10			VERY DENSE OVER 50	STIFF VERY S HARD	STIFF 17-30 2.0	0 - 4.0 ER 4.0				
		70 80 90 100 110 120	NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D.							
	LIQUID LIMIT	· (%)		1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE ASTM-1586 STANDARD PENETRATION TEST).						
	Chosen Valley	y Testing		LEGEND TO SOIL DESCRIPTIONS						
Job No.	CVT		DESCRIPTIONS							

CVT LEGEND.GPJ 3/8/19