Chicago Testing Laboratory, Inc.

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Testing • Inspection • Training • Consulting • Research • Geotechnical

Founded 1912

August 8, 2022

Mr. Jason Roitburd, PE
Project Manager
HR Green
2363 Sequoia Drive, Suite 101
Aurora, IL 60506

APPROVED
By Jeremy Brown at 9:22 am, Aug 11, 2022

Re: Supplemental Roadway Geotechnical Report
Grove Road Intersection
KCHD Collins Road Extension Project
Oswego, Illinois
Section 19-00154-00-FP

CTL Project No. 22F202

Dear Mr. Roitburd,

Chicago Testing Laboratory, Inc. (CTL) completed a supplemental geotechnical subsurface investigation for the Kendall County Highway Department (KCHD) Collins Road Extension in Oswego, IL. This report is a supplemental report to be included with the Roadway Geotechnical Report (RGR) prepared by McCleary Engineering dated 10/13/17.

The objective and scope of the supplemental subsurface exploration and geotechnical analysis were to characterize the subsurface soil conditions in order to provide information regarding the physical characteristics and engineering properties of the subsurface soils, and to provide geotechnical recommendations regarding the design and construction of the proposed improvements.

1.0 Project Information

Based on the preliminary information and drawings provided by HR Green (Appendix E) and the information from the RGR prepared by McCleary Engineering, the proposed project will include an extension of Collins Road from Grove Road west to Minkler Road. The proposed improvements for this part of the project will include a reconstruction of the Collins Road and Grove Road intersection to accommodate a new roundabout intersection. The proposed widening will have a varying HMA pavement thickness with a 12-inch improved subgrade layer beneath. Also, additional pavement cores were collected along the existing Collins Road as well as Minkler Road to assist with the preliminary design of the proposed roadway.

1.1 Climate Conditions

The geotechnical field exploration was performed September 1, 2021. The climate conditions for the months of June to September 2021 are summarized in Table 1. The data in this table was obtained from the National Weather Service Forecast Office website for Chicago, Illinois and the surrounding area. The data was evaluated to determine any effects of temperature and precipitation on the water table level and soil moisture content that was encountered at the site at the time the borings were performed.

For the months included in the study, the precipitation rate was higher in June, but below average in July and September. The average monthly temperatures varied from as high as 4.2 degrees above the average temperature in June, to approximately 0.4 degrees below the average in July. It is our opinion that the below average precipitation that occurred around the time that the field exploration was performed could have been reflected on water level observations in the soil borings.

Table 1: Climate Conditions

Date (M-Y)	Precipitation (in.)		Temperature (°F)	
	Total	Departure	Average	Departure
June 2021	6.78	2.50	74.3	4.2
July 2021	1.90	-2.03	74.4	-0.4
August 2021	4.51	0.10	77.1	3.5
September 2021	1.23	-2.11	70.3	3.9

2.0 Subsurface Exploration

This section describes the subsurface exploration and laboratory testing programs completed as part of this project. The subsurface investigation program was performed in accordance with applicable IDOT and AASHTO manuals and procedures.

2.1 Subsurface Site Investigation

The subsurface investigation was conducted on September 1, 2021 and included advancing a total of three (3) soil borings to depths of 10 feet below ground surface (bgs) within the vicinity of the proposed improvements. Generally, the borings were performed at an approximate spacing of 300 feet along the proposed alignment alternating between the eastbound and westbound directions. The boring locations were selected by HR Green and completed in the field based on site conditions and accessibility. Borings along SB Grove Road were relocated from the right-of-way into the existing shoulder due to utility conflicts and site access. Elevations of the boring locations were estimated using internet resources. Table 2 below presents a summary of the borings completed for the proposed intersection improvements.

Table 2: Summary of Soil Borings

Boring	Location	Ground Surface Elevation (ft MSL)	Depth (ft)
B-4	STA 18+50, 20' LT, SB ROW	660	10
B-5	STA 21+50, 35' RT, NB ROW	659	10
B-6	STA 24+50, 15' LT, SB Shoulder	658	10

The soil borings were conducted by Rubino Engineering, a subcontracted drilling firm, under the field supervision by a CTL engineer using a truck mounted CME 75 drill rig equipped with 3-1/4-inch hollow stem augers and an automatic hammer. Soil sampling was performed according to AASHTO T206 "Penetration Test and Split Barrel Sampling of Soils" using the Standard Penetration Test (SPT, ASTM D1556). In this procedure, a 2-inch O.D. split barrel or split spoon sampler is driven 18 inches into undisturbed soil using a 30-inch drop of a 140-pound hammer. The number of hammer drops (blow counts) is recorded in 6-inch intervals for each sample collected. The number of blow counts to advance the sampler the final 12 inches is called the SPT "N-value". The N-values are shown on the Soil Boring Logs in Appendix C.

Soil samples were obtained with the split barrel sampler at 2.5-foot intervals to the boring termination depths. A CTL field engineer inspected, visually classified, and logged the soil samples throughout the subsurface exploration. Unconfined compressive strength values (Qu) of the cohesive soils encountered during the subsurface investigation were obtained in the field using a calibrated Rimac compressive tester in accordance with IDOT procedures. Representative soil samples from each sample interval were collected, placed in sealed glass jars, and returned to the laboratory for further evaluation and testing.

2.2 Laboratory Testing Program

All soil samples collected during the subsurface exploration were inspected in the laboratory to verify the field classifications. A laboratory testing program was conducted on the soils encountered to characterize and determine the engineering properties of these soils for the design of the proposed improvements. All laboratory tests were performed according to ASTM standards and procedures. Laboratory Tests included Moisture Contents (AASHTO T265), Atterberg Limits (AASHTO T89 and T90), and Hydrometer (AASHTO T88).

Based on the laboratory test results, soil samples were classified using the Illinois Division of Highways (IDH) and AASHTO classification systems. The laboratory and field test results are shown on the Soil Boring Logs (Appendix C) and Laboratory Test Results (Appendix D).

2.3 General Subsurface Conditions

General subsurface conditions are described below and are grouped based on similar soils encountered throughout the proposed improvements.

Generally, the borings encountered near surface material consisting of 12 inches of topsoil in borings B-4 and B-5 while boring B-6 had 4 inches of topsoil underlain by 8 inches of aggregate shoulder. Below the surficial layers, borings B-4 and B-6 encountered soft to stiff, brown to gray clay, clay loam, and silty clay loam to a depth 6 feet bgs with unconfined compressive strengths between 0.5 and 1.9 tsf underlain by loose to medium dense, gray loam with gravel to the boring termination depths of 10 feet bgs with SPT N-values ranging from 5 to 25 blows per foot. Boring B-5 encountered, below the surficial layer, stiff to very stiff brown clay to a depth of 8.5 feet bgs with unconfined compressive strengths between 1.0 and 3.0 tsf underlain by very stiff clay to the boring termination depth of 10 feet with an unconfined compressive strength of 2.5 tsf.

Variations in the general subsurface soil profile were noted during the field investigation. Detailed descriptions of the soil borings are provided in Appendix C (Soil Boring Logs) which show specific conditions encountered at each soil boring location. The stratifications shown on the soil boring logs represent the conditions only at the actual soil boring locations and represent the approximate boundary between subsurface materials; however, the actual transition may be gradual.

2.4 Groundwater Conditions

Water level measurements were taken in the soil borings when water was encountered while drilling and after the completion of the soil borings. None of the borings were left open to collect delayed water readings after leaving the site due to safety concerns. Water was encountered in all borings at depths of 6 to 8.5 feet bgs.

Based on the color change from brown to gray, the long-term groundwater may be at a depth of 5 to 8 feet bgs. The brown color of the soil is typically caused by oxidation that occurs above the long-term water level. In general, it should be noted that the groundwater levels could fluctuate based on seasonal precipitation and surface run-off.

2.5 Pavement Core Investigation

Three (3) additional pavement cores were completed within the existing roadways of Minkler Road, Blue Heron Drive, and Collins Road to determine the existing pavement thicknesses. The pavement at each location was cored using a conventional coring machine equipped with a 4-inch diameter diamond cutting barrel. The overall pavement thickness of the cores completed on the roadways ranged from 3-1/2 to 7 inches of asphalt. Table 3 below presents a summary of the results from the pavement cores completed.

Table 3: Summary of Pavement Core Results

Core	Location	Asphalt Thickness
C-1	STA 169+00, 12’ LT, NB Minkler Road	2” Surface, 5” Binder
C-2	STA 307+25, 80’ LT, SB Blue Heron Drive	1-3/4” Surface, 1-3/4” Binder
C-3	STA 315+00, 30’ LT, WB Collins Road	1-3/4” Surface, 2-1/4” Binder

3.0 Geotechnical Analysis

This section provides the geotechnical analysis for the proposed intersection reconstruction based on the results of the field exploration and laboratory testing.

3.1 Slope Stability and Settlement

Based on the proposed improvements, minimal new embankment fill heights will be constructed along the existing roadway and right-of-way. therefore, it is anticipated to be no slope stability concerns and the estimated settlement should be minimum with no additional analysis performed.

3.2 Drainage Characteristics

Per the IDOT Geotechnical Manual Section 6.3.4.1, the subgrade soils were evaluated based on soil type, moisture content, proposed roadway profile and topography. Based on the results of the field investigation and the proposed roadway profile, the roadway reconstruction will be supported on the fill and native soils encountered. These soils consisted of native clay, clay loam, and silty clay loam soils throughout the project site.

According to Table 6.3.4.1, Drainage Classification, in the IDOT Geotechnical Manual, the drainage class of the site was determined. Based on the proposed improvements, shallow ditches or gutters will be constructed on the edge of the roadways, with grades less than 0.5%. The drainage class should be taken as poor for the intersection improvement portion of this project.

3.3 Frost Susceptibility

Per the IDOT Geotechnical Manual Section 6.3.2.2.3, the frost susceptibility of the subgrade soils that will be encountered in the proposed subgrade were evaluated. Based on the IDOT Geotechnical Manual, the maximum anticipated frost protection depth below pavement in northern Illinois is 45 to 60 inches for extreme weather conditions. An estimated frost depth of 48 inches was used for this evaluation. Table 6.3.2.2.3-1 of the IDOT Geotechnical Manual, Frost Susceptibility Classification in Soils, was used to determine the frost class of the subgrade soils. The subgrade soils generally consisted of clay, clay loam, and silty clay loam soils with the soils having PI>12 and clay and silt > 65% and classified as Frost Class F3.

3.4 Organic Content

Soils encountered during the subsurface investigation with potential organic content were evaluated and tested. Typically, subgrade soils with an organic content greater than 10 percent are

considered unsuitable to remain below the proposed pavement areas. Based on the soil borings, it is not anticipated that highly organic soils will be encountered in the proposed roadway subgrade.

4.0 Geotechnical and Construction Recommendations

This section provides the geotechnical and construction recommendations for the proposed intersection reconstruction based on the results of the subsurface investigation, laboratory testing and geotechnical analysis. Any recommendations include in the original Roadway Geotechnical Report will be adhered to within this report unless stated otherwise.

4.1 Subgrade Preparation

Where the roadway is to be widened outside the existing roadway pavement, any vegetation or topsoil should be removed before placement of fill. The stability of the subgrade should be evaluated immediately after excavation and prior to placement of aggregate subbase in the field in accordance with the IDOT Subgrade Stability Manual (2005) to determine if additional treatment is required. The subgrade soils inspection should include visual inspection and performing a proof roll using heavy equipment or heavily loaded tandem axle dump truck with a minimum gross weight of 25 tons to check for deflection or rutting. Areas with excessive rutting and deflection shall be evaluated using a dynamic cone penetrometer (DCP) and/or a static cone penetrometer (SCP) to determine the depth of required treatment in accordance with the IDOT Subgrade Stability Manual (2005) and IDOT SSRBC Section 301.

Treatment for unstable and unsuitable soils encountered during proof rolling and subgrade evaluation may include the use of a geotextile fabric, removal and replacement with approved structural fill for small areas, or the use of additive materials, such as lime, cement or fly ash. Subgrade improvements should be based on the field evaluation of the materials during construction. Field evaluation of the subgrade soils should be conducted in accordance with the procedures outlined in the IDOT Geotechnical Manual and Subgrade Stability Manual, and under the supervision of a licensed geotechnical engineer.

4.2 Subgrade Support Rating

The Subgrade Support Rating (SSR) was determined for the proposed roadway construction based on Section 6.3.1 of the IDOT Geotechnical Manual, for pavement design purposes if the Mechanistic Pavement Design method is used. The SSR consists of three categories (poor, fair or granular). The subgrade soils consisted of native clay, clay loam, and silty clay loam soils with an SSR of Poor. If the pavement is to be designed based on the CBR method, we recommend that an average CBR of 2 be used for the subgrade soils encountered in the soil borings at a depth of 2 feet bgs.

4.3 Subgrade Suitability

Based on the results of the field investigation and laboratory tests, low strength and/or high moisture unsuitable soils were encountered in boring B-6 along Grove Road at the depth of the proposed subgrade approximately 6 feet bgs. This material is considered unsuitable to remain below the proposed roadway area and should be undercut below the proposed 12-inch aggregate subgrade improvement and replaced with crushed aggregate meeting the requirement of IDOT aggregate subgrade improvement. Table 4 provides the area that will require subgrade undercut and replacement treatment during the proposed construction activities.

Table 4: Recommended Undercut Area

Station		Extent of Undercut	Depth of Undercut* (inches)	Reason for Undercut
From	To			
19+00	26+45	SB Widening	6	Soft to Medium Stiff Brown Clay, Qu = 0.5 to 0.8 tsf (B-6)

*In addition to the 12-inch Aggregate "Improved“ Subgrade

5.0 Professional Disclaimer

This report was prepared on the basis of the project information supplied by the client and is intended only for use on this project. This report was prepared by interpreting the data from the soil borings and field tests made within the project limits and from the results of the laboratory tests obtained from the samples taken. The report gives a representative, but not exhaustive, picture of the project subsurface conditions. The geotechnical engineer warrants that the findings, recommendations, specifications, and professional advice given within this report have been prepared using generally accepted professional engineering practices. The recommendations provided in the report are specific to the project described herein and are based on the information obtained from the soil boring locations within the proposed roadway improvements. Changes involving the proposed roadway alignment and wall structures, from those enumerated within this report, should be submitted for our review to evaluate our recommendations.

Chicago Testing Laboratory, Inc. (CTL) appreciates the opportunity to work with you on this project and look forward to serving as your Geotechnical Engineering Consultant on this project during construction or future projects. We would be pleased to discuss any questions you have about the contents of this report.

Respectfully Submitted,
CHICAGO TESTING LABORATORY, INC.

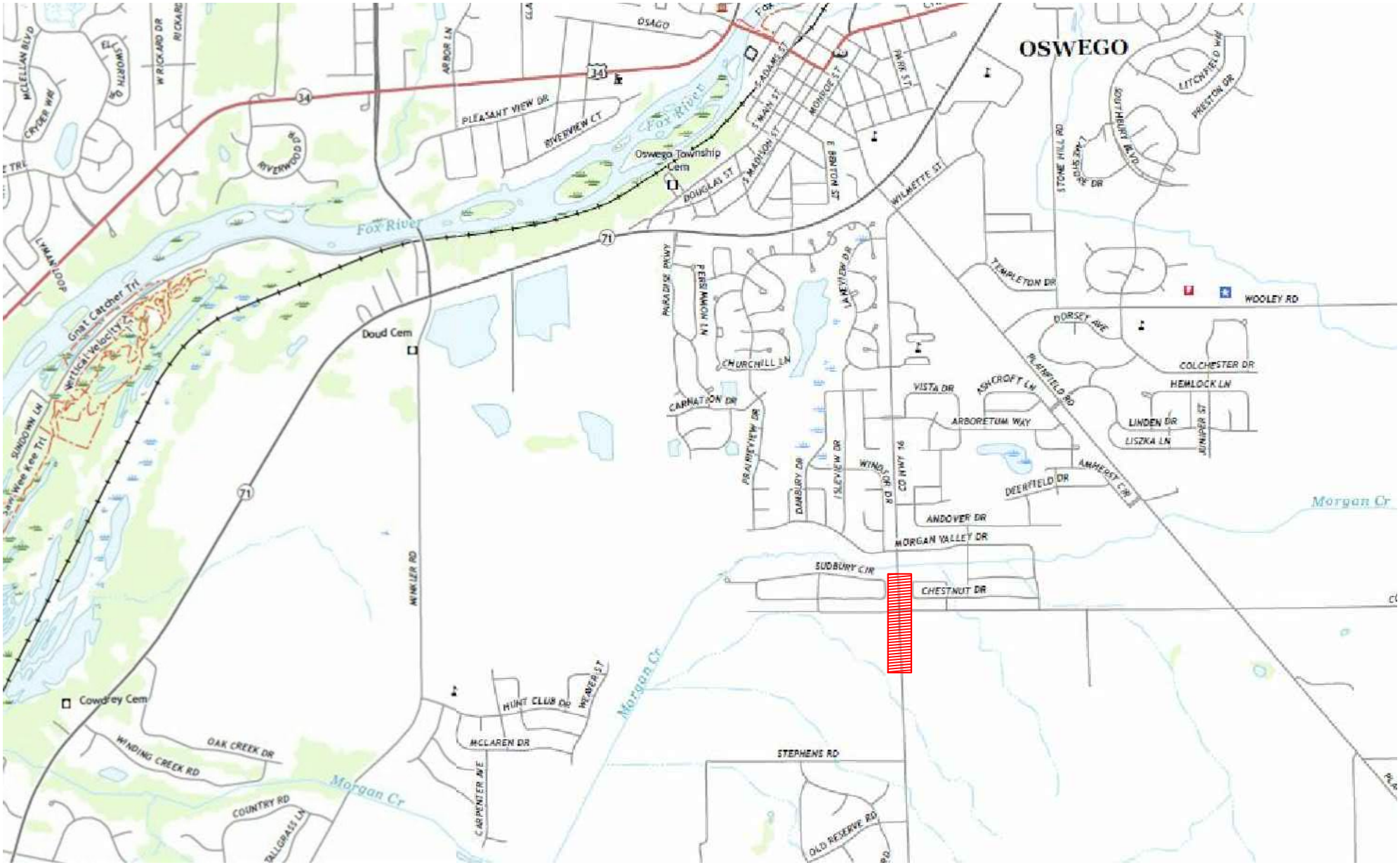
Jeffrey Rothamer, P.E.
Director of Technical Services

Riyad Wahab, PhD, P.E.
Senior Geotechnical Engineer

Attachments - Appendix A: Site Location Map
Appendix B: Boring and Pavement Core Location Plan and Profile
Appendix C: Soil Boring Logs
Appendix D: Laboratory Test Results
Appendix E: Grove Road Typical Section

APPENDIX A

SITE LOCATION MAP



SITE LOCATION

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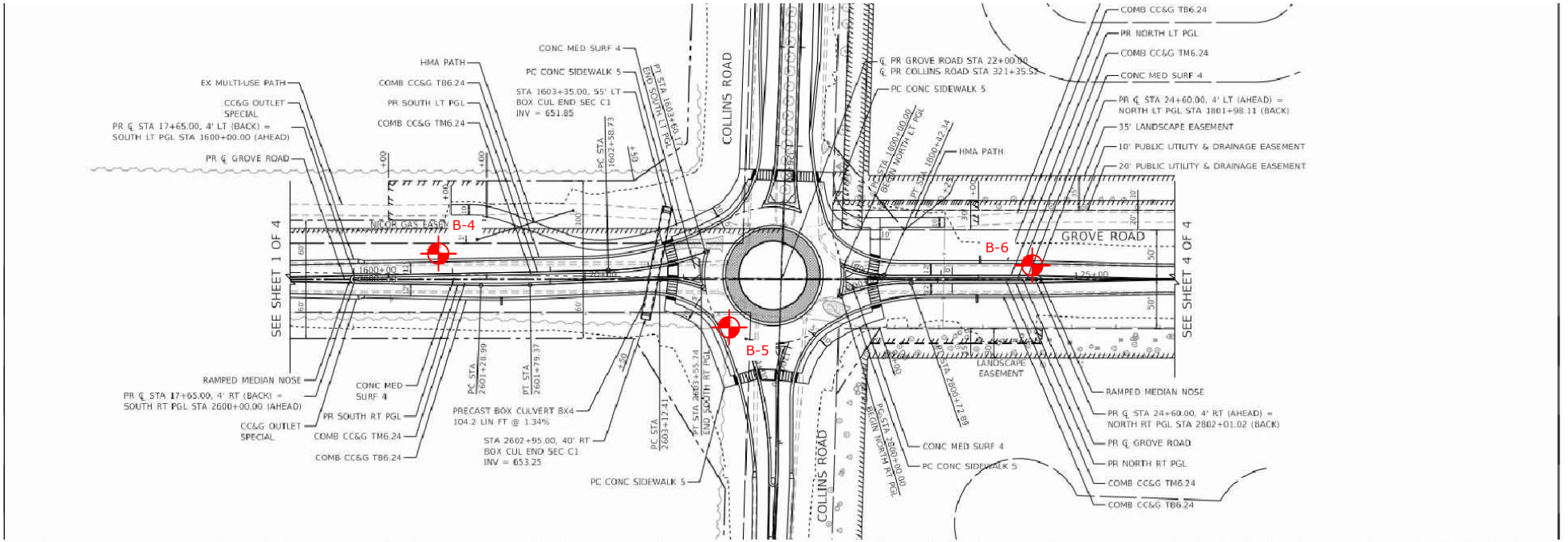
WARRENVILLE, IL 60555
PHONE: (630) 393-2851
FAX : (630) 393-2857

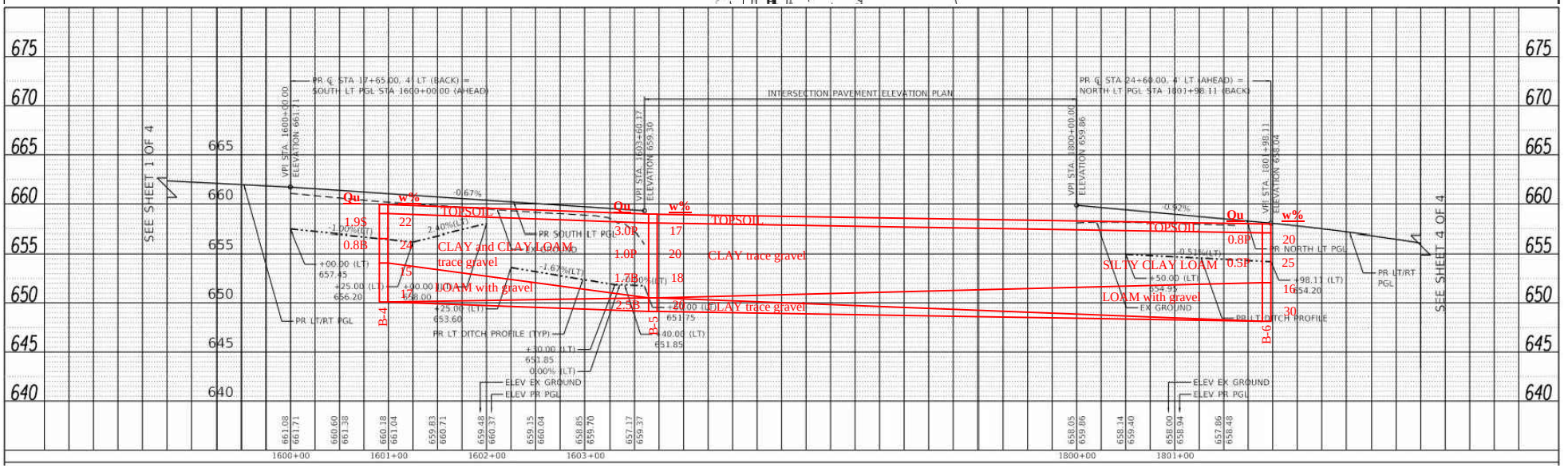
DRAWN BY:	CHECKED BY:	SCALE:	DATE:
JAR	RW	NTS	2/22/22

SITE LOCATION MAP
21F202 - KCHD COLLINS ROAD
GROVE ROAD
OSWEGO, ILLINOIS

APPENDIX B

BORING AND PAVEMENT CORE LOCATION PLAN AND PROFILE





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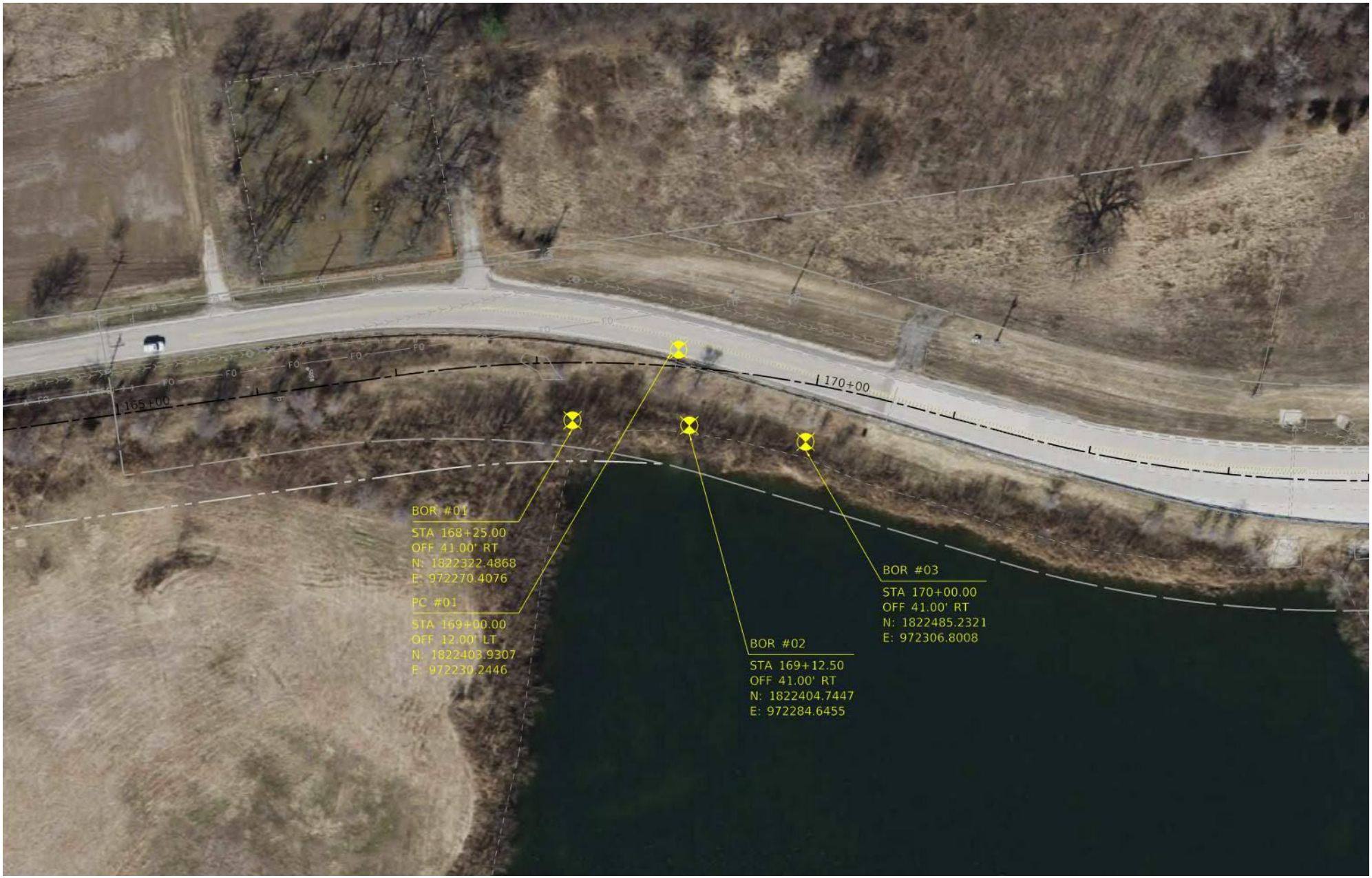
JAR	RW	NTS	2/22/22

SOIL BORING PLAN AND PROFILE
21F202 - KCHD COLLINS ROAD
GROVE ROAD
OSWEGO, IL



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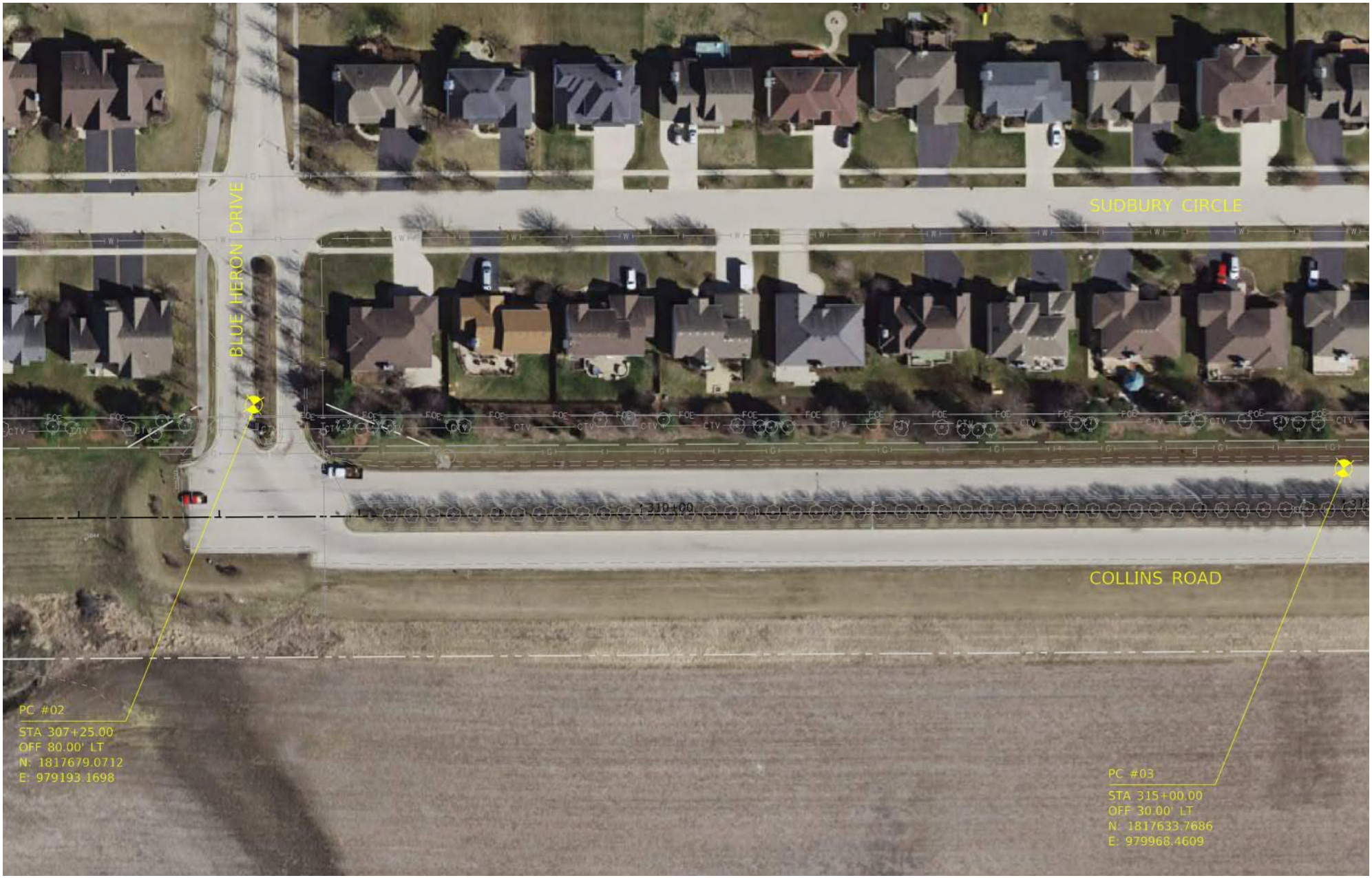
JAR	RW	NTS	2/22/22

PAVEMENT CORE LOCATION PLAN (1 OF 2)
21F202 - KCHD COLLINS ROAD
MINKLER ROAD
OSWEGO, IL



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JAR	RW	NTS	2/22/22

PAVEMENT CORE LOCATION PLAN (2 OF 2)
21F202 - KCHD COLLINS ROAD
COLLINS ROAD
OSWEGO, IL

APPENDIX C

SOIL BORING LOGS

Illinois Department of Transportation
Division of Highways
Chicago Testing Laboratory, Inc.

SOIL BORING LOG

Date 9/1/21

ROUTE Grove Road **DESCRIPTION** SB ROW **LOGGED BY** DB

SECTION 19-00154-00-FP **LOCATION** NW 1/4, **SEC.** 29, **TWP.** 37N, **RNG.** 8E,
Latitude: 41°39'21.7743" Longitude: -88°20'48.2462"

COUNTY Kendall **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** Auto

STRUCT. NO. N/A
Station N/A

BORING NO. B-4
Station 18+50
Offset 20.00ft LT
Ground Surface Elev. 660.00 ft

Surface Water Elev. N/A ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 651.5 ft ▼
Upon Completion 656.0 ft ▽
After N/A **Hrs.** N/A ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				12 inches of Topsoil
659.00				
	2			Stiff
	3	1.9	21.8	Brown, Moist
	4	S		CLAY trace gravel (CH, A-7-6)
656.50				
	2			Medium Stiff ▽
	1	0.8	23.8	Gray, Moist
-5	3	B		SILTY CLAY LOAM trace gravel (CL-ML, A-7-6)
654.00				
	2			Loose to Medium Dense
	2		14.8	Gray, Wet
	4			LOAM with gravel (SP-SC, A-2-4)
	6			▼
	11		16.6	
650.00 -10	14			
				End of Boring
-15				
-20				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Illinois Department of Transportation
Division of Highways
Chicago Testing Laboratory, Inc.

SOIL BORING LOG

Date 9/1/21

ROUTE Grove Road **DESCRIPTION** NB ROW **LOGGED BY** DB

SECTION 19-00154-00-FP **LOCATION** NW 1/4, **SEC.** 29, **TWP.** 37N, **RNG.** 8E
Latitude: 41°39'24.7590" Longitude: -88°20'47.6095"

COUNTY Kendall **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** Auto

STRUCT. NO. N/A
Station N/A

BORING NO. B-5
Station 21+50
Offset 35.00ft RT
Ground Surface Elev. 659.00 ft

Surface Water Elev. N/A ft
Stream Bed Elev. N/A ft

Groundwater Elev.:
First Encounter 653.0 ft ▼
Upon Completion 654.0 ft ▽
After N/A **Hrs.** N/A ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
12 inches of Topsoil				
658.00				
Stiff to Very Stiff Brown, Moist CLAY trace gravel (CL, A-6)		5		
		4 4	3.0 P	16.9
		2		
		1 1	1.0 P	20.0
	▽ -5			
	▼	4		
		4 9	1.7 B	17.6
650.50				
Very Stiff Gray, Moist CLAY trace gravel (CL, A-6)		3		
		4 8	2.5 B	19.6
649.00	-10			
End of Boring				
	-15			
	-20			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Illinois Department of Transportation
Division of Highways
Chicago Testing Laboratory, Inc.

SOIL BORING LOG

Date 9/1/21

ROUTE Grove Road **DESCRIPTION** SB Shoulder **LOGGED BY** DB

SECTION 19-00154-00-FP **LOCATION** NW 1/4, **SEC.** 29, **TWP.** 37N, **RNG.** 8E

Latitude: 41°39'27.6978" Longitude: -88°20'48.5513"

COUNTY Kendall **DRILLING METHOD** Hollow Stem Auger **HAMMER TYPE** Auto

STRUCT. NO. N/A
Station N/A

BORING NO. B-6
Station 24+50
Offset 15.00ft LT
Ground Surface Elev. 658.00 ft

Surface Water Elev. N/A ft
Stream Bed Elev. N/A ft

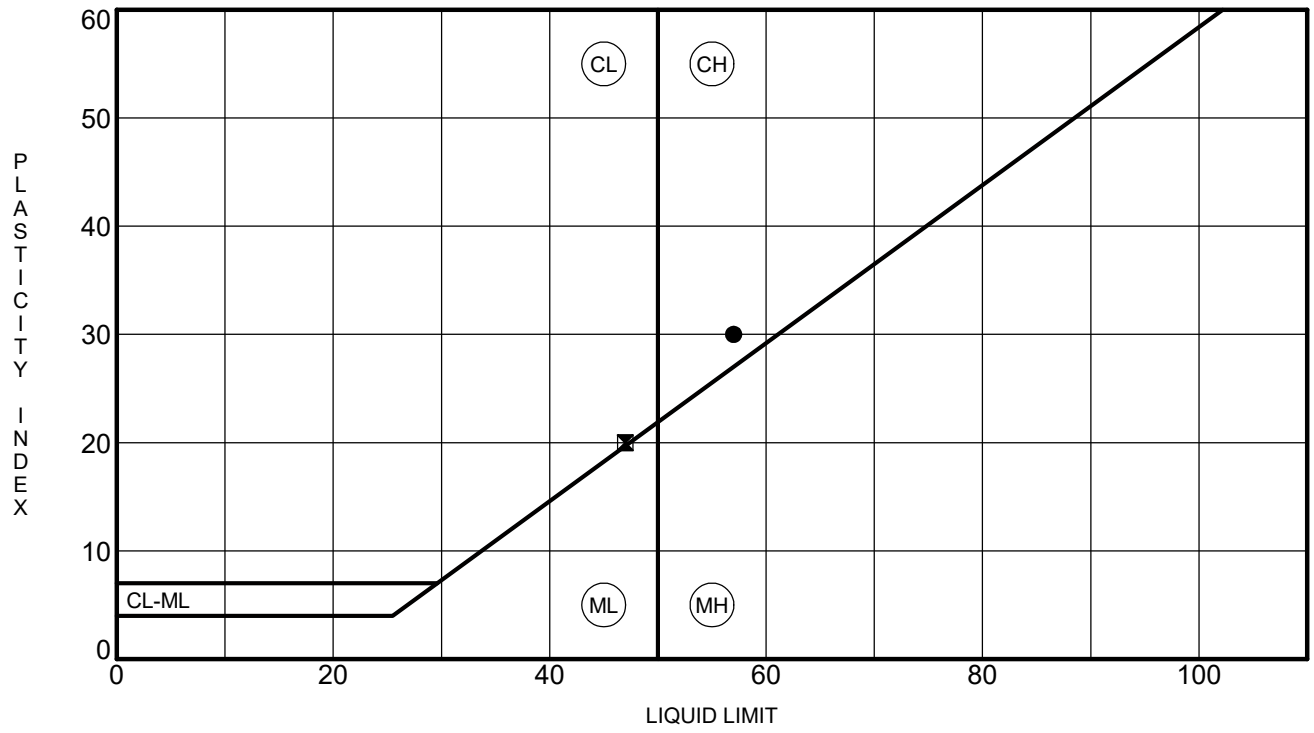
Groundwater Elev.:
First Encounter 649.5 ft ▼
Upon Completion N/A ft
After N/A **Hrs.** N/A ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
4 inches of Topsoil 657.67				
8 inches of Aggregate Shoulder 657.00				
Soft to Medium Stiff		2		
Brown, Moist		1	0.8	19.5
CLAY LOAM (CL, A-7-6)		3	P	
		2		
		1	0.5	24.8
	-5	1	P	
652.00				
Loose to Medium Dense		1		
Gray, Wet		1		15.6
LOAM with gravel (SP-SC, A-2-4)		4		
	▼	9		
		5		29.9
648.00	-10	5		
End of Boring				
	-15			
	-20			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

APPENDIX D

LABORATORY TEST RESULTS



	Specimen Identification		LL	PL	PI	Fines	Classification
●	**B-4**	**1.00**	**57.0**	**27.0**	**30.0**		
⊠	**B-5**	**1.00**	**47.0**	**27.0**	**20.0**		

Illinois Department of Transportation
Division of Highways
Chicago Testing Laboratory, Inc.

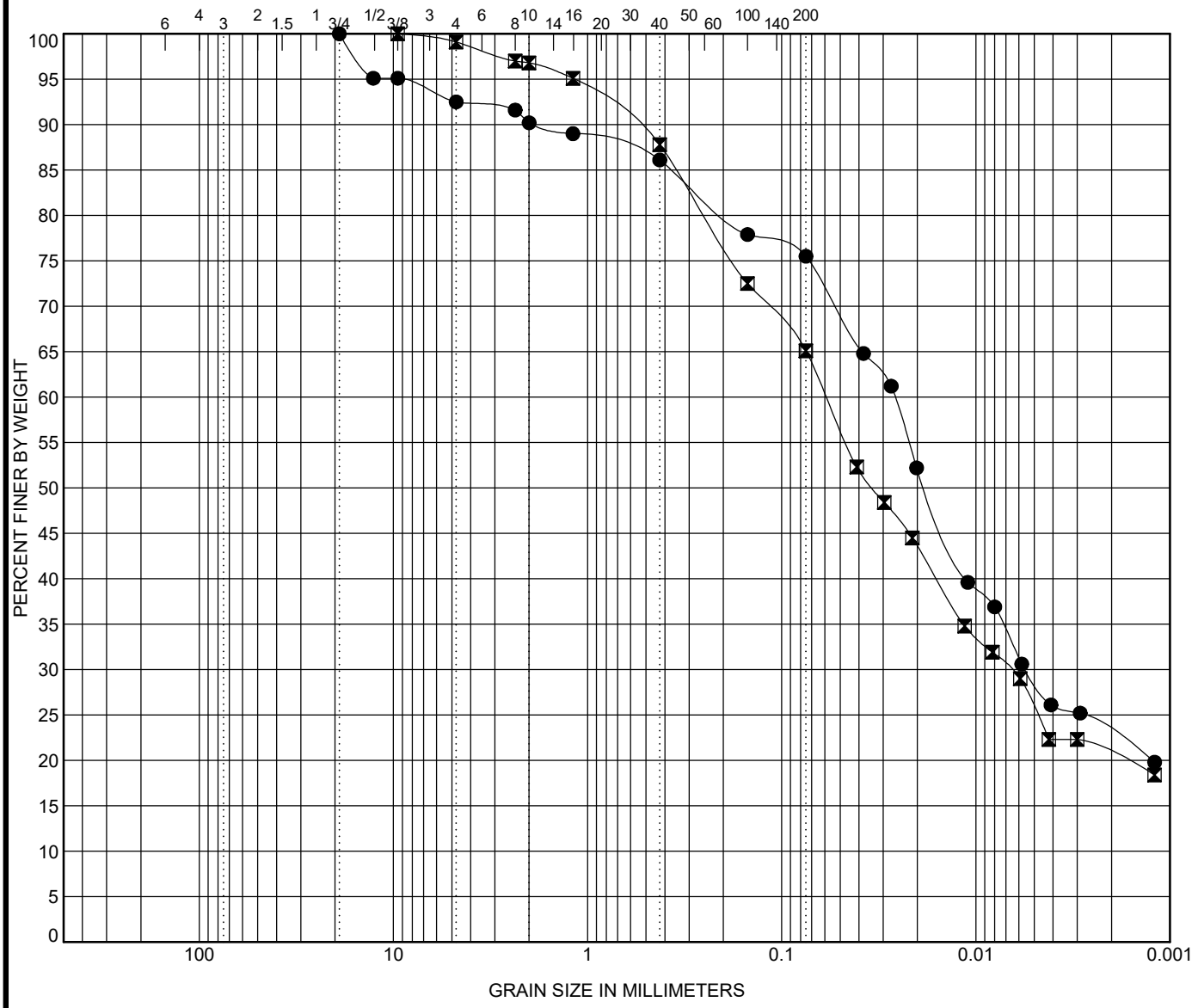
ATTERBERG LIMITS' RESULTS

Route: Grove Road

Section: 19-00154-00-FP

County: Kendall

ATTERBERG_LIMITS_21F202 DRAFT BORING LOGS_090121.GPJ IL_DOT.GDT 8/10/22



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-4**	**3.50**	**SILTY CLAY LOAM**					
⊠	**B-6**	**3.50**	**CLAY LOAM**					

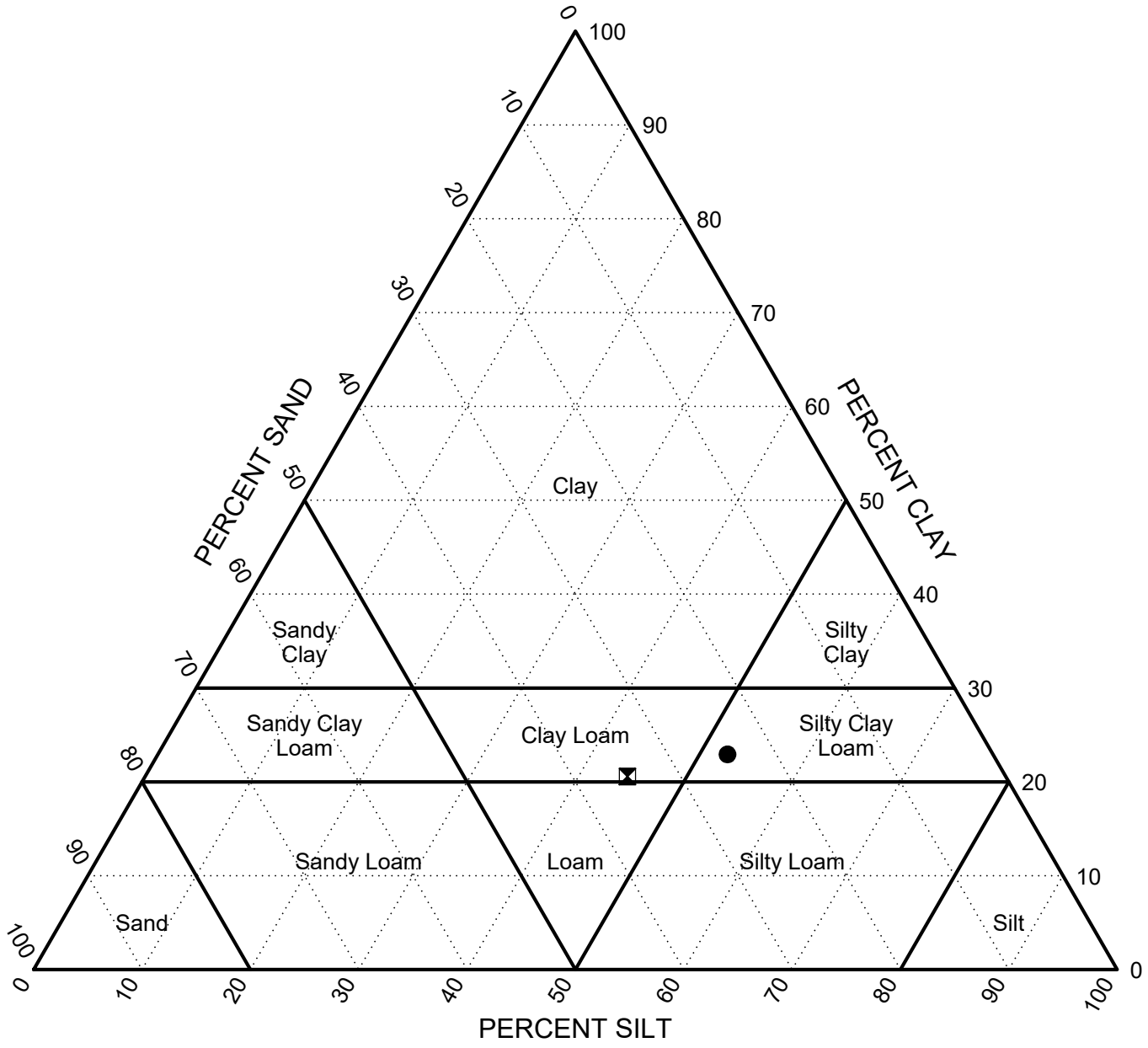
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-4**	**3.50**	**19**	**0.026**	**0.006**		**7.5**	**17.0**	**75.5**	
⊠	**B-6**	**3.50**	**9.5**	**0.059**	**0.007**		**0.9**	**34.0**	**65.1**	

Illinois Department of Transportation
Division of Highways
Chicago Testing Laboratory, Inc.

GRAIN SIZE DISTRIBUTION

Route: Grove Road
Section: 19-00154-00-FP
County: Kendall

GRAIN SIZE 21F202 DRAFT BORING LOGS 090121.GPJ IL DOT.GDT 8/10/22



	Borehole	Station	Offset	Depth (ft)	Classification
●	**B-4**	**18+50**	**20.00ft LT**	**3.50**	**SILTY CLAY LOAM**
⊠	**B-6**	**24+50**	**15.00ft LT**	**3.50**	**CLAY LOAM**

Illinois Department of Transportation
Division of Highways
Chicago Testing Laboratory, Inc.

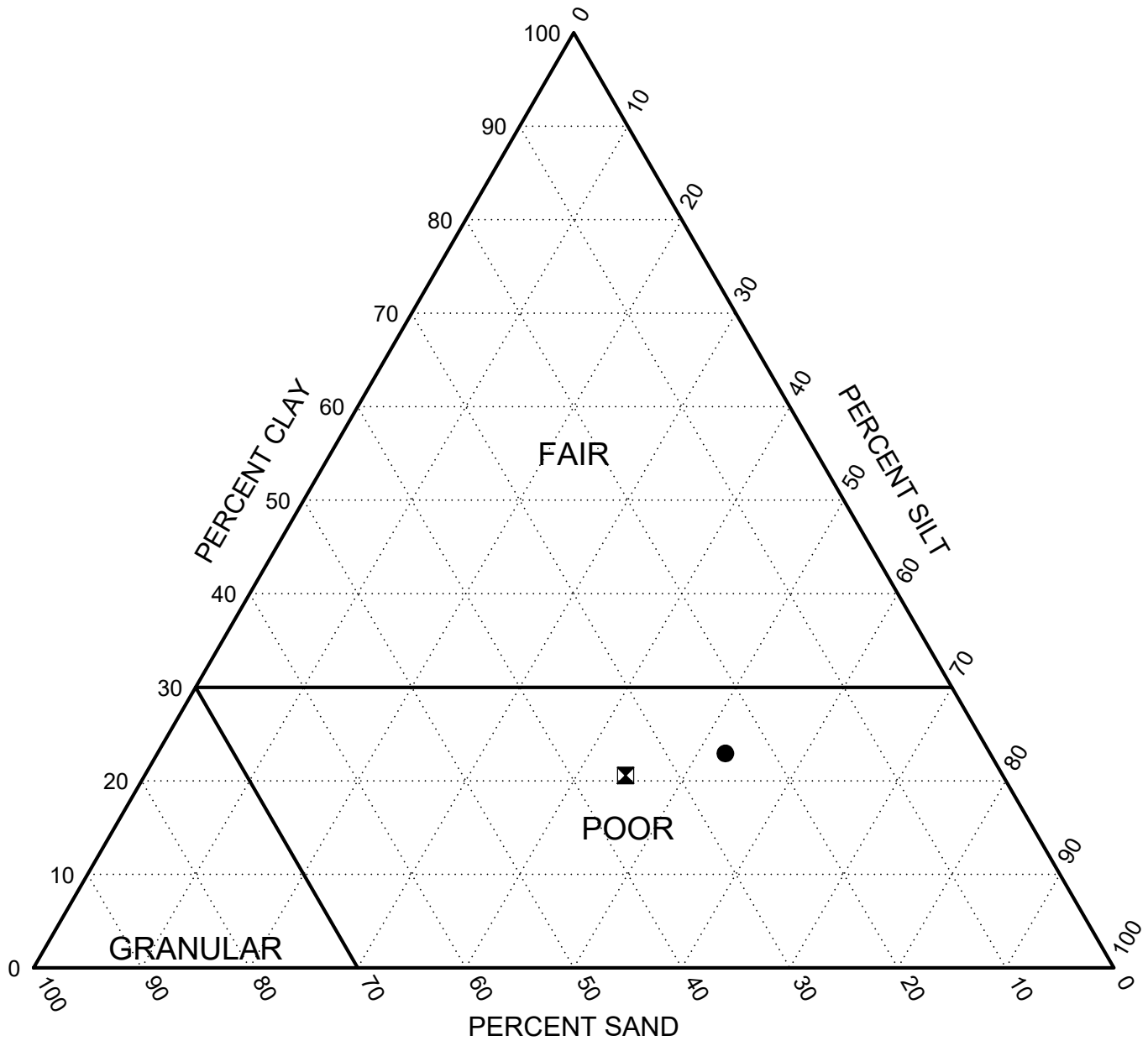
IDH Textural Classification Chart

Route: Grove Road

Section: 19-00154-00-FP

County: Kendall

TEXTURAL CLASSIFICATION 21F202 DRAFT BORING LOGS 090121.GPJ IL_DOT.GDT 8/10/22



	Borehole	Station	Offset	Depth (ft)	Classification
●	**B-4**	**18+50**	**20.00ft LT**	**3.50**	**SILTY CLAY LOAM**
⊠	**B-6**	**24+50**	**15.00ft LT**	**3.50**	**CLAY LOAM**

Illinois Department of Transportation
Division of Highways
Chicago Testing Laboratory, Inc.

SUBGRADE SUPPORT RATING

Route: Grove Road

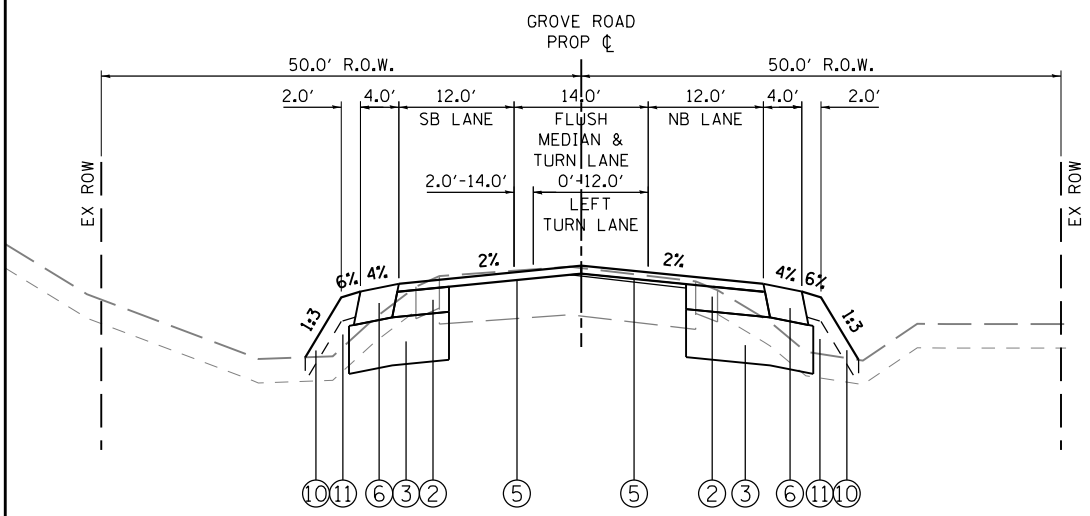
Section: 19-00154-00-FP

County: Kendall

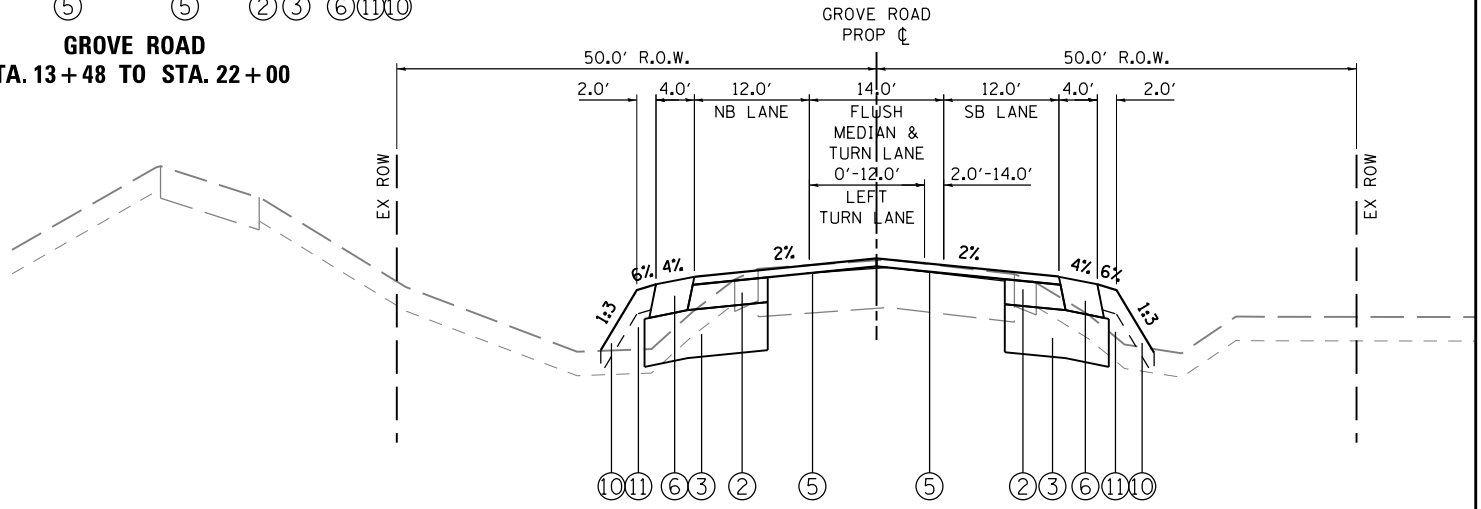
SUBGRADE SUPPORT RATINGS 21F202 DRAFT BORING LOGS 090121.GPJ IL_DOT.GDT 8/10/22

APPENDIX E

GROVE ROAD TYPICAL SECTION



GROVE ROAD
STA. 13 + 48 TO STA. 22 + 00



GROVE ROAD
STA. 22 + 00 TO STA. 30 + 52

WBK engineering

WBK ENGINEERING, LLC
116 WEST MAIN STREET, SUITE 201
ST. CHARLES, ILLINOIS 60174
(630) 443-7755

LEGEND

①	GROUND	⑥	SHOULDER, HOT-MIX ASPHALT
②	PAVEMENT, HOT-MIX ASPHALT	⑦	FUTURE MULTI-USE PATH
③	AGGREGATE SUBGRADE IMPROVEMENT	⑧	PCC SIDEWALK
④	COMB CONC CURB & GUTTER	⑨	TURF MEDIAN
⑤	MILL/OVERLAY	⑩	TOPSOIL/SEED
		⑪	EMBANKMENT

PROPOSED TYPICAL SECTIONS

COLLINS ROAD EXTENSION
KENDALL COUNTY
SEC. 19-00154-00-FP

EXHIBIT 3D