Roadway Geotechnical Report

Wood Street/Ashland Avenue Reconstruction
South of US Route 6 (159th Street) to 138th Street
Cook County

IDOT PTB 173-001

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January 29, 2016

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1.0 Introduction

GSG Consultants, Inc. (GSG) completed a geotechnical investigation for the proposed roadway improvements along Wood Street/Ashland Avenue between 159th Street and 138th Street, and Thornton Road on either side of Wood Street in Cook County, Illinois. The project also includes the installation of a deep sanitary/storm sewer along the majority of the alignment. The purpose of the investigation was to explore and characterize the subsurface soil and groundwater conditions to determine engineering properties of the subsurface soil, and develop design and construction recommendations for the project. Figure 1 shows the project location map and the approximate project limits.

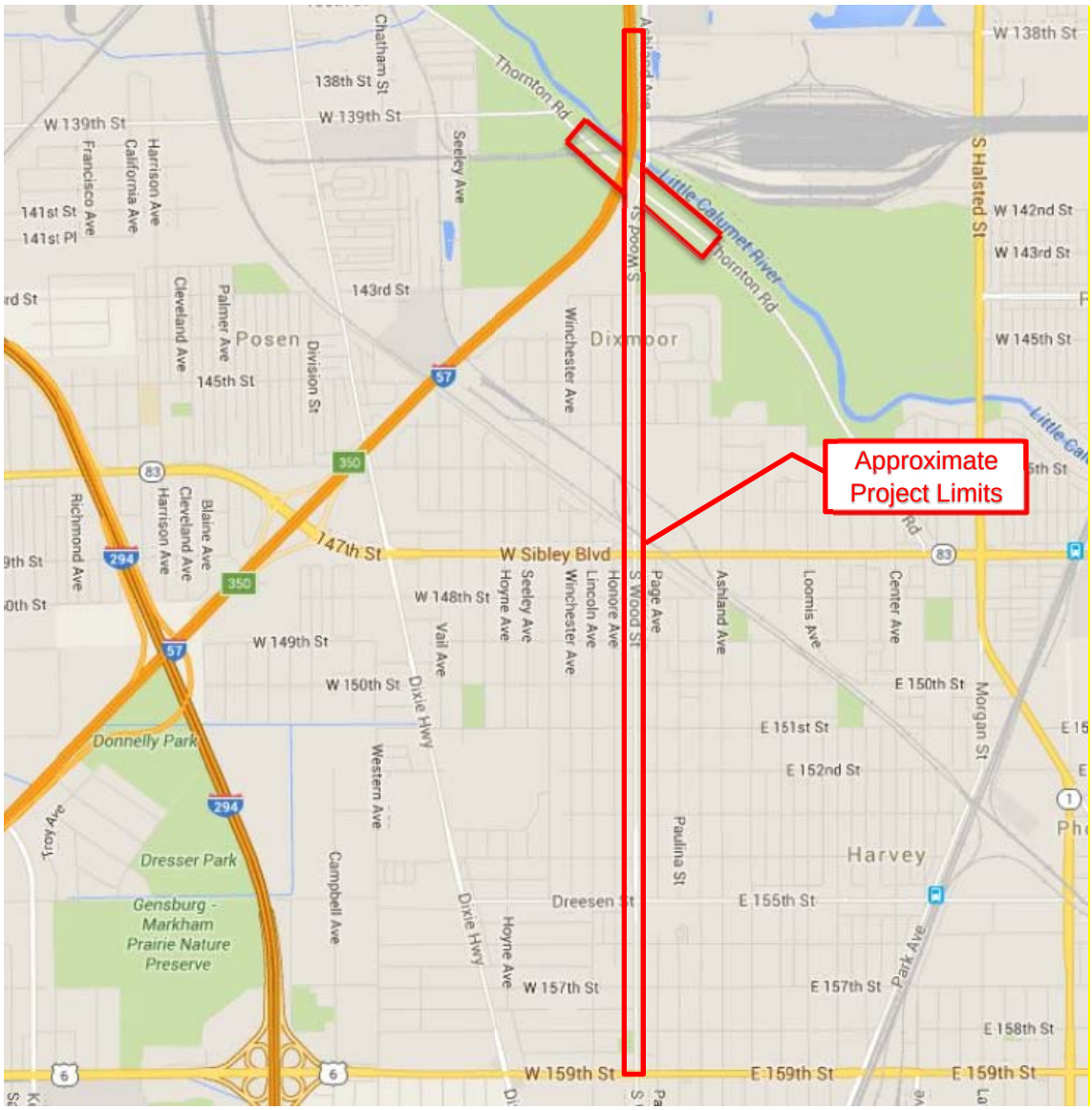


Figure 1: Project Location Map

1.1 Project Information

Based on preliminary information and drawings provided by Infrastructure Engineering, GSG understands that the proposed roadway project will include the reconstruction of Wood Street starting approximately 1200 feet south of W. 159th Street and extending north to 138th Street. The reconstruction will likely include widening of the shoulders and the addition of turn lanes at various intersections. The project improvements will also include intersection improvements of Thornton Road approximately 500 feet on either side of the intersection with Wood Street. In addition to the realignment and intersection improvements, the project will include the installation of a new sanitary/storm sewer along the majority of the length of the alignment from the southern end of the project limits, terminating at the Little Calumet River to the north. It is anticipated that the new sewer could be as deep as 20 to 25 feet below existing pavement grades.

Based on the preliminary information provided, the proposed roadway improvements will have minimal grade changes across the entire alignment.

1.2 Existing Subsurface Information

GSG reviewed several published documents in an effort to determine the regional geological setting in the area of the site. The subject area is located in the central portion of Cook County, Illinois. The surficial geologic deposits in this area are typically glacial deposited during the Wisconsin Episode. The subject area consists of deposits from the Wadsworth Formation of the Wedron Group. The Wadsworth Formation consists of diamicton; silty clay loam to silty clay, pebbly with occasional cobbles and or sand and gravel lenses. This formation overlies the Silurian Racine Dolomite Bedrock Formation with an average depth of 80 to 100 feet below ground surface in the subject area.

1.3 Climatic Conditions

The geotechnical field exploration was performed during the months of October, November and December 2015. The climate conditions for these months and the three previous months 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 generally higher than normal, except for the months of July and August prior to the field investigation. The average monthly temperatures varied from as high as 11.3 degrees above the average temperature in December, to approximately 1.7 degrees below the average in July. Also, the snowfall for the month of November was higher than normal and for December was lower than average.

It is our opinion that the higher than average rainfall that occurred around the time that the field exploration was performed may have caused fluctuations observed in the water table observations in the soil borings.

Table 1 – Climate Conditions

Date (M-Y)	Precipitation (in.)		Temperature (Fº)		Snowfall (in)	
	Total	Departure from Mean	Average	Departure from Mean	Average	Departure from Mean
July – 2015	2.85	-0.85	72.3	-1.7	0	n/a
August – 2015	2.16	-2.74	71.8	-0. 6	0	n/a
September – 2015	4.64	1.43	69.0	4.4	0	n/a
October – 2015	2.23	0.92	54.7	2.2	0	-0.2
November – 2015	4.49	1.34	44.6	4.3	11.2	10.0
December – 2015	4.87	2.62	39.0	11.3	4.5	-4.0

NOTE: All fieldwork was completed between October and December 2015.

2.0 Subsurface Exploration

This section describes the subsurface exploration program and laboratory testing program completed as part of this project. The locations of the soil borings were proposed by GSG, and were completed based on field conditions and accessibility. The locations of the soil borings are shown on the **Boring Location Diagram and Subsurface Profiles (Appendix A)**. The subsurface exploration program was performed in accordance with applicable IDOT geotechnical manuals and procedures.

2.1 Subsurface Site Investigation

The subsurface investigation was conducted between October 12th and December 7th, 2015, and included advancing a total of sixty-two (62) standard penetration test (SPT) borings within the vicinity of the proposed improvements. Fifty-eight (58) were drilled for the proposed improvements along Wood Street/Ashland Avenue and four (4) soil borings were drilled for the proposed improvements along Thornton Road. The depths of the borings ranged between 3.5 feet and 39.5 feet below existing ground surface.

GSG contacted JULIE to clear the boring locations prior to starting the field activities. As there were significant utility conflicts at most of the boring locations, many of the borings were offset from the original proposed locations. Due to the number of utilities along the project corridor, the borings (SGB-54, SGB-55 and SGB-58) that encountered relatively shallow obstructions or refusal (less than 5 feet) were terminated at the shallow depths. A summary of the borings completed and their as-drilled locations is included in **Table B – 1, Appendix B – Soil Boring Logs.**

The soil borings were drilled using a track mount Diedrich D-50 and a truck mounted Mobile B-57 drill rig equipped with 3¼-inch I.D. hollow stem augers and automatic hammers. Soil sampling was performed according to AASHTO T 206, "Penetration Test and Split Barrel Sampling of Soils." Soil samples were obtained with the use of a split spoon sampler, at intervals of 2.5 feet. GSG's field representative inspected, visually classified and logged the soil samples during the subsurface exploration activities, and performed unconfined compressive strength tests on cohesive soil samples using a calibrated Rimac compression tester and a calibrated hand penetrometer in accordance with IDOT procedures and requirements. Representative soil samples were collected from each sample interval, and were placed in jars and returned to the laboratory for further testing and evaluation. The existing ground surface elevations shown in the soil boring logs are based on the profiles by Infrastructure Engineering.

2.2 Laboratory Testing Program

All samples were inspected in the laboratory to verify the field classifications. A laboratory testing program was undertaken to characterize and determine engineering properties of the subsurface soils encountered in the area of the proposed roadway improvements. The following laboratory tests were performed on representative soil samples:

- Moisture content ASTM D2216 / AASHTO T-265
- Organic Content ASTM D7348/AASHTO T-267
- Grain Size Analysis ASTM C136/AASHTO T-27
- Particle Size Analysis ASTM D422/AASHTO T-88
- Atterberg Limits ASTM D4318/AASHTO T-89/AASHTO T-90
- Dry Unit Weight ASTM D7263
- Unconfined Compressive Strength ASTM D2166

The laboratory tests were performed in accordance with test procedures outlined in the IDOT Geotechnical Manual (2015), and per ASTM and AASHTO requirements. Based on the laboratory test results, the soils encountered were classified according to the AASHTO and the Illinois Division of Highways (IDH) classification systems. The results of the laboratory testing program are shown along with the field test results in the **Soil Boring Logs (Appendix B)** and in the **Laboratory Test Results (Appendix C).**

2.3 Subsurface Soil Conditions

The subsurface soil conditions were evaluated based on the results of both the site investigation and laboratory results. Detailed descriptions of the subsurface soils, as well as the surface elevations, are provided in the Soil Boring Logs (Appendix B). The soil boring logs provide specific soil conditions encountered at each boring location, including: soil descriptions, stratifications, penetration resistance, elevations, location of the samples, water levels (when encountered), and laboratory test data. Variations in the general subsurface soil profile were noted during the drilling activities. The stratifications shown on the boring logs represent the conditions only at the actual boring locations, and represent the approximate boundary between subsurface materials; however, the actual transition may be gradual.

All the borings along Wood Street and Thornton Road were drilled in the existing pavement. **Table B-2 in Appendix B** lists a summary of the pavement section encountered at each of the boring location. The pavement generally consisted of asphalt, over concrete with a sand and gravel base course. Below this pavement section, the soil borings generally noted approximately 3 feet of stiff to very stiff black and gray clay. This layer was generally medium to high plasticity, with moisture contents in excess of 25 percent. The black and gray clay layer was generally underlain by 8 to 12 feet of very stiff to hard brown and gray silty clay, except between borings SGB-30 and SGB-41, where it was underlain by 2 feet of soft to medium stiff gray clay layer followed by 10 feet of brown and gray silty clay. Below the clay layers, the majority of the borings noted approximately 5 to 10 feet of stiff to very hard gray silt interbedded with 5 to 10 feet of medium dense to extremely dense gray sand, to the termination or auger refusal depths. The soil layers noted at the termination or auger refusal depths varied between the gray silt and gray sand layers among all the borings drilled. Where auger refusal was encountered, these borings typically encountered rock pieces and gravel within the final samples. Many of the borings also encountered cobbles at varying depths, generally below depths of 15 feet.

2.4 Groundwater Conditions

Water levels were checked in each boring to determine the general groundwater conditions present at the site, and were measured while drilling and after each boring was completed. None of the borings were left open after leaving the site due to safety concerns. Water was encountered in 24 of the 62 borings between depths of 1.5 and 29 feet (between 581.5 MSL and 597.5 MSL) below grade during drilling. Water level readings were made in the boreholes at times and under conditions shown on the boring logs and stated in the text of this report. Based on the soils encountered in the field exploration, the proximity of the Little Calumet River, and the above average rainfall that was encountered around the time the borings were performed, it is anticipated that the seasonal ground water level could be as high as 7 feet. The brown color of the soil is typically caused by oxidation that occurs above the long term water level. This color transition did not occur at a consistent elevation in all of the borings, which may indicate seasonal fluctuations from the above average rainfall and climatic conditions or impacts from the drainage of the surrounding area.

3.0 Geotechnical Analysis and Recommendations

This section provides GSG's geotechnical analysis and recommendations for the design of the proposed roadway improvements based on the results of the field exploration, laboratory testing, and geotechnical analysis.

3.1 Embankment Settlement

GSG estimated the anticipated settlement of the embankment for the new roadway based on the proposed roadway profile. The proposed roadway grading includes between 0.5 to 1.5 feet of cut at most locations and up to 1 feet of new fill material to be placed at a few locations of the project. The new embankment materials shall meet the requirements in Borrow Material and Compaction Requirements, Section 6.4 of this report. Based on the field and laboratory analysis, the anticipated settlement caused by the proposed fill placement is estimated to be minimal.

3.2 Slope Stability

IDOT requires that slope stability analysis be performed in areas where the cut or fill heights will exceed 15 feet in height. For the proposed improvements, it is anticipated that the maximum cut and fill height will be less than 2 feet, and thus no slope stability analysis was required for this project.

3.3 Drainage Characteristics

The drainage characteristics of the site were evaluated per the IDOT Geotechnical Manual, Section 6.3.4, based on the subgrade soil type and moisture condition, depth of water table, project topography, the proposed profile grade line, and depth and grade of the proposed drainage ditch along the roadways. Based on the proposed profile, only a portion of the roadway improvements will be supported on subgrade soils consisting of new fill materials. All the other areas where the existing soils will remain within the subgrade soil zone were typically cohesive consisting of clays and silty clays. Based on the proposed cross section drawings provided by Infrastructure Engineering, a curb and gutter will be constructed along Wood Street and Thornton Road with a slope greater than 0.5%. GSG utilized Table 6.3.4.1-1, Drainage Classification in the IDOT Geotechnical Manual, to assign the drainage classes for the site. The drainage class for the site is classified as Poor to Fair.

3.4 Frost Susceptibility

The frost susceptibility of the subgrade soils was evaluated per Section 6.3.2.2.3 of the IDOT Geotechnical Manual. The maximum anticipated frost penetration depth below pavement in northern Illinois is 45 to 60 inches for extreme weather conditions. The frost susceptibility was evaluated for the soils encountered that would be within the proposed roadway subgrade. The frost class for the subgrade soils in these areas was assigned using Table 6.3.2.2.3-1, Frost Susceptibility Classification of Soils, in the IDOT Geotechnical Manual. The subgrade soils primarily consisted of clayey soils, and were found to have a Frost Class of F3 (high frost susceptibility). However, the subgrade soil at boring SGB-54 consisted of silt and was found to have a Frost Class of F4 (very high frost susceptibility).

Perched water could be present in the upper soil layers and the water trapped in the soil layers closer to the pavement section is susceptible to frost action and should be considered when designing the proposed roadway. Treatment measures, such as maintaining proper drainage of the subgrade soils through raising the grade line above the surrounding area, or the using an underdrain system to lower the water table and eliminate capillary rise of groundwater could be considered. Based on the cross section information provided by Infrastructure Engineering, the proposed curb and gutter along the roadway should have a slope of 0.5% or greater, and appears to be adequate for the proposed improvements to minimize infiltration of surface water and prevent capillary rise of water table. However, pavement sections constructed over clay subgrade could be damaged by intrusion of soil fines into base course aggregate. Therefore, the subgrade at few locations would need improvement as recommend in Subgrade Treatment and Recommendations Section 4.3 of this report.

3.5 Subgrade Support Rating

The subgrade support rating (SSR) was determined based on the physical properties of in-situ soils present beneath the proposed pavement section. The SSR includes three categories (poor, fair, and granular), and are used to determine the depth of soil treatment to provide a stable working platform that is required to prevent excessive rutting, and moisture related problems during construction activities. Granular soils have the highest rating, and provide a stable working platform that may require less than a 12 inch thick improved subgrade layer, while poor subgrade may require more than 12 inches to provide stable subgrade during construction activities. The near surface soils encountered in the borings were generally cohesive, consisting of clays with a few borings with near surface soils consisting of sand or sand with gravel. These soils have a Subgrade Support Rating (SSR) of Poor to Granular. It is recommended that a

Subgrade Support Rating of Poor be used for the project areas where the native soils will be part of the proposed subgrade. For the other areas where new fill materials are proposed, it is recommended utilizing granular fill for the construction of the embankment, which would provide a subgrade support rating of Granular.

3.6 Illinois Bearing Ratio

The Illinois Bearing Ratio (IBR) is a measure of the support provided by the roadbed soils for the new pavement. In areas where the native clays will be included as part of the roadway subgrade, it is recommended that an IBR value of 2; in areas where sand soils will be part of the subgrade, an IBR of 5 should be used for the roadway pavement design and correlated to the subgrade resilient modulus based on the AASHTO recommended pavement design formula for fine grained soils (M_r = 1,500 x IBR).

3.7 Organic Content

Soils encountered in the borings in which organic material was observed were tested to determine the percentage of organic material present. The organic content of these samples ranged from 4 to 5.7 percent. Typically, soils with an organic content in excess of 10 percent are considered unsuitable to remain below proposed pavement areas. Based on the soil borings and laboratory testing performed, it is anticipated that highly organic soils should not be encountered within subgrade soils at the site.

4.0 Roadway Recommendations

This section provides GSG's geotechnical recommendations for the design of the proposed improvements based on the results of the field exploration, laboratory testing, and geotechnical analysis. Based on the cross section drawings provided by Infrastructure Engineering, the proposed roadway pavement section along Wood Street/Ashland Avenue and Thornton Road will include 8.75 inches of concrete over 12 inches of aggregate base course. The IDOT Mechanistic Pavement Design (MPD) requires providing a minimum of 12 inches of improved subgrade beneath the pavement section to ensure a stable construction platform. Subgrade improvements including any undercuts or compaction of existing soils should be completed to the proposed elevations in the design plan and in accordance with the Subgrade Treatment and Recommendation Section 4.3 of this report.

4.1 Subgrade Preparation

The pavement and aggregate base should be cleared and stripped where new fill will be placed. Based on the pavement thicknesses encountered in the borings, it is anticipated that pavement stripping depths of asphalt and/or concrete materials will range from 4 to #16 inches. Undercuts of the subgrade soils and backfilling should be based on the recommendations provided in this report, and field evaluation of the materials encountered during construction. Any unstable or unsuitable materials encountered during construction activities should be removed and replaced with compacted material meeting the requirement of District One Aggregate Improvement Special Provision.

4.2 Topsoil Removal

GSG did not note any topsoil in the borings completed as a part of this project. However if topsoil is encountered outside the existing pavement areas during reconstruction or widening, these materials should be removed from the improvement limits. GSG recommends a minimum stripping depth of 6 inches be used to estimate any topsoil removal quantities. . If the topsoil is to be reused, mechanical and chemical analyses for nutrients should be performed in order to determine the suitability and nature of treatment required for the top soil prior to reuse for this project.

4.3 Subgrade Treatment and Recommendations

The suitability of the existing subgrade soils was evaluated in terms of frost susceptibly, stability, settlement, and drainage. The evaluation included determining the presence of

unstable, compressible deposits, low-strength soils, high organic content soils, and soils with high-moisture content immediately below the proposed pavement section.

Treatment options for unsuitable subgrade soils include mechanical stabilization, chemical stabilization or soil modification. Mechanical stabilization includes methods such as removal and replacement with select materials or using geosynthetics (geotextiles and/or geogrids). Chemical stabilization or soil modification includes the use of additives to improve the engineering properties of the in-situ soils. The choice of a specific treatment option depends on several factors, including: soil type; required treatment depth; construction variables (cost, availability, and time); project location; and treatment objective. Based on the subsurface conditions, mechanical stabilization and chemical modification methods can be used to remediate the unsuitable soils noted at the site. GSG recommends mechanical stabilization as the preferred option, however, chemical modification can be considered provided IDOT and the design team approve it.

For the proposed roadway alignment, high moisture content, high plasticity and frost susceptible soils were encountered within the proposed subgrade elevations. These materials are considered unsuitable to remain below the proposed pavement section and should be remediated as presented in Table 2 below. This table provides the locations and areas that will require subgrade treatment during the proposed construction activities. The treatment depth recommended in the table is to be below the proposed 12 inches of aggregate base course section as planned in the design drawings provided by Infrastructure Engineering. The extents and depth of the treatment areas provided in the table should be field verified by a licensed geotechnical engineer. The treatment area is also graphically presented on the Plan and Profile sheets in Appendix A.

Table 2 - Recommended Subgrade Treatment

Location		Depth of Treatment (Inches)	Recommended Treatment	Treatment Width	Description of Soils Encountered	Reason for Treatment
Station from	Station to					
Wood Street		12*	Remove and replace with structural fill or Soil modification with lime+	Entire width of the roadway	Black Clay with Moisture Content = 29% (SGB-01)	Excessive moisture content
113+75	115+00					
Wood Street		12*	Remove and replace with structural fill or Soil modification with cement+	Entire width of the roadway	Black Sand trace cinders with Moisture Content = 27% (SGB-11)	Excessive moisture content
143+00	145+00					
Wood Street		12*	Remove and replace with structural fill or Soil modification with lime+	Entire width of the roadway	Black Clay with Moisture Content = 26% (SGB-21)	Excessive moisture content
173+00	175+00					
Wood Street		12*	Remove and replace with structural fill or Soil modification with lime+	Entire width of the roadway	Black Clay with Moisture Content = 26% (SGB-27)	Excessive moisture content
192+00	195+00					
Wood Street		12*	Remove and replace with structural fill or Soil modification with lime+	Entire width of the roadway	Black Clay with Moisture Content = 27% (SGB-29)	Excessive moisture content
195+00	197+00					
Wood Street		12*	Remove and replace with structural fill or Soil modification with lime+	Entire width of the roadway	Black Clay with Moisture Content = 26% (SGB-32)	Excessive moisture content
207+00	210+50					
Wood Street		12*	Remove and replace with structural fill the entire width of the roadway	Entire width of the roadway	Black Clay with Moisture Content = 37% & Dry Density = 85.5 pcf (SGB-33)	Excessive moisture content
210+50	214+00					
Wood Street		12*	Remove and replace with structural fill or Soil modification with lime+	Entire width of the roadway	Black Clay with Liquid Limit = 57% (SGB-44)	High swell potential clay
234+00	236+00					

Location		Depth of Treatment (Inches)	Recommended Treatment	Treatment Width	Description of Soils Encountered	Reason for Treatment
Station from	Station to					
Wood Street		12*	Remove and replace with structural fill	Entire width of the roadway	Soils with PI = 2.7 and frost susceptibility of F-4 (SGB-54)	Low point in the profile & high frost heave potential
272+00	275+00					
Thornton Road		12*	Remove and replace with structural fill or Soil modification with lime+	Entire width of the roadway	Black Clay with Moisture Content = 28% (SGB-61)	Excessive moisture content
95+00	96+00					

*Below the bottom of the proposed 12 inch base course

+Soil modification should only be considered upon design team and IDOT approval

In areas where undercuts are recommended, approved structural fill includes District One Aggregate Subgrade Improvement Special Provision (revised March 3, 2015) or IDOT Porous Granular Embankment (PGE), or suitable borrow materials, as specified in the Borrow Material and Compaction Requirements section of this report. It is also recommended that a woven geotechnical fabric be placed at the base of the undercut. The geotextile fabric should consist of a woven material meeting the requirements of Section 1080.02 of the IDOT SSRBC (2012), and should be placed in accordance with Section 210 of the IDOT SSRBC (2012). The geotextile fabric should be placed under the full width of the proposed pavement area.

In areas where soil modification with lime and cement is considered, the mix design and laboratory evaluation should be performed in accordance with Appendix B.3, IDOT Geotechnical Manual 2015.

4.4 Drainage Recommendations

A drainage classification of Poor should be used for the project design. Groundwater was encountered between depths of 1.5 and 29 feet below grade. It is anticipated that the relatively shallow water at depths of 1.5 feet below grade was perched within existing fill materials and does not represent actual groundwater. The overall depth of groundwater is slightly deeper than the anticipated frost depth of 45 to 60 inches within the northern Illinois region and as such no subgrade saturation is anticipated due to capillary action. However, pavement systems could become saturated following periods of precipitation and the clay

subgrade could undergo pumping. Therefore, GSG recommends installing edge drain systems as recommended in Section 6.3.4.2 of the IDOT Geotechnical Manual to maintain the subgrade from deteriorating. These underdrains should be installed at undercut areas and low points in the roadway profile.

5.0 Excavation Considerations

This section provides GSG's geotechnical recommendations for the design of the proposed storm/sanitary sewer improvements based on the results of the field exploration, laboratory testing, and geotechnical analysis. It is anticipated that the new sewer would be between 1 and 6 feet in diameter and could be as deep as 20 to 25 feet below existing pavement grades. The sewer is proposed between Station 128+00 through Station 267+00 along Wood Street.

5.1 Derivation of Soil Parameters for Design

GSG determined the geotechnical parameters to be used for the project design based on the results of field and laboratory test data on individual boring logs as well as our experience. Unit weights, friction angles and shear strength parameters were estimated using corrected standard penetration test (SPT) using published correlations for N values results for the cohesionless soils and in-situ and laboratory test results for cohesive soils. The SPT values were corrected for hammer efficiency. The hammer efficiency correction factor considers the use of a safety hammer/rope/cat-head system, generally estimated to be 60% efficient. Thus, correlations should be based upon what is currently termed as N_{60} data. The efficiency of the automatic hammers for the drill rigs used for this exploration is based on efficiency testing of the drill rigs recently completed and presented below. The correction for hammer efficiency is a direct ratio of relative efficiencies as follows for each of the drill rigs:

$N_{60} = N * (91/60)$ (Drill rig D-50)

$N_{60} = N * (96/60)$ (Drill rig B-57)

* Where the N value is the field recorded blow counts.

Due to the variable nature of soil stratigraphy, soil types and properties along the project alignment or at locations away from a particular boring may vary substantially. Based on the overall soils encountered in the investigation, the project corridor was broken into several sections, with consistent soils types in order to provide recommended soil parameters for use in design. Recommended geotechnical parameters for the subsurface soils within the boring areas of each project section, to be used for design of the proposed sewer installations are presented in **Tables D-1 to D-4, Appendix D: Recommended Geotechnical Design Parameters.**

5.2 Bearing Capacity

The subsurface investigation indicates that majority of the new sewers will be installed in very stiff to very hard silty clay or silt soils encountered at the proposed invert elevations with

isolated portions of the sewer system being installed in medium dense to dense sands. In addition a portion of the sewer system between the Stations 206+00 and 238+00 had invert elevations below the auger refusal depths noted within the borings drilled. The soils noted at the refusal depths generally noted very hard silts and/or extremely dense sand with gravel. The proposed improvements may be designed using a net allowable bearing capacity of 3,500 psf, which includes a factor of safety against failure of 3.

5.3 Trench Stability

The contractor is responsible for designing, constructing and maintaining safe excavations. The excavations should not cause any distress to existing underground utilities and adjacent structures. Excavation near existing structures and underground utilities should be performed with extreme care to avoid undermining existing structures. Excavations should not extend below the level of adjacent existing foundations or utilities unless underpinning or other support is installed. All excavations that extend more than 4 feet should be sloped or braced to prevent excavation instability. The excavation sloping and bracing should be designed in accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR, Part 1926, regulations and requirements. Tables D-1 to D-4, also present recommended OSHA soil types for trench design based on the results of the subsurface investigation.

5.4 Earth Retention System

Temporary Earth Retention Systems will be required for construction of the proposed sewers. Based on the subsurface soil conditions, the new sewers could be installed using a trench/utility box at all the locations, except between Station 206+00 and 238+00, where special consideration should be given in designing the appropriate retention system. Due to very hard or extremely dense nature of the soils encountered at the proposed based of excavation between Station 206+00 and 238+00, trench/utility boxes may not be a feasible option. Soldier pile and lagging with driving shoes attached to the piles could be considered in lieu of the trench box at this location. GSG recommends that a licensed Structural Engineer in the State of Illinois should design the retention system for the entire project.

The soil parameters and the pressure distribution for the practical design of struts in open cuts for clays for short-term and long term conditions are provided in **Charts E-1, Chart E-2 and Chart E-3, Appendix E**: **Lateral Earth Pressure Diagrams.** For the purposes of this investigation, all temporary earth retention systems between Station 200+00 and Station 236+00 should be designed using Chart E-1; Chart E-2 may be used for the remainder of the project**.** If the project

requires any long term earth retention system, Chart E-3 should be utilized. The soil parameters provided in Tables D-1 through D-4 should be utilized in the design.

If sand is used to fill the annular space between the trench box and the excavation wall, an active earth pressure coefficient of 0.33 and an in-situ unit weight of 120 pcf can be used in calculating the lateral earth pressures.

Lateral pressure resulting from construction equipment, excavated materials, traffic loads, or other surcharge should be taken into account by adding the equivalent uniformly distributed surcharge to the design lateral pressure. The minimum recommended surcharge load for traffic is 250 psf. In general, stockpiles of excavated materials and equipment should not be placed near the top of the excavation.

5.5 Excavation Base Stability

In open-cuts, it is necessary to consider the possibility of the base of the excavation failure by heaving, due to the removal of the weight of excavated soil. Heaving typically occurs in very soft or fat clays when the excavation depth is sufficiently deep enough to cause the surrounding soil to displace vertically due to a bearing capacity failure of the soil beneath the excavation bottom, with a corresponding upward movement of the soils in the bottom of the excavation. In fat and lean clays, heave normally does not occur unless the ratio of Critical Height to Depth of Cut approaches one. In very sandy and silty lean clays and granular soils, heave can occur if an artificially large head of water is created due to installation of impervious sheeting while bracing the cut. This could be mitigated if groundwater is lowered below the excavation by dewatering the area.

Based on the invert elevations provided in the design plans and subsurface soil encountered at the site, the anticipated bottom of the proposed excavation was evaluated for the entire project, except between Station 206+00 and 238+00. The excavation base stability at these locations appears to be adequate with a factor of safety greater than 1.5; therefore, no heave concern is anticipated.

6.0 Construction Considerations

All work performed for the proposed project should conform to the requirements in the IDOT Standard Specifications for Road and Bridge Construction (SSRBC) (2012), IDOT Geotechnical Manual (2015) and the IDOT Subgrade Stability Manual (2005). Any deviation from the requirements in the manuals above should be approved by the design engineer.

6.1 Site Preparation

Any topsoil encountered during construction should be stripped and stockpiled as per Section 211.03 of the IDOT Standard Specifications for Road and Bridge Construction (SSRBC). The topsoil should be separated from other materials being stockpiled onsite for reuse or haul off. Base course aggregate encountered at the site should be evaluated to determine suitability for reuse as general fill. The contractor should not mix the existing base course materials with existing subgrade soils during the stripping and stockpiling activities. The subgrade below the base course should be evaluated in accordance with the Pavement Subgrade Preparation section of this report.

6.2 Pavement Subgrade Preparation

The stability of the subgrade should be evaluated immediately after excavation and prior to placement of base aggregate 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 static cone penetrometer (SCP) to determine the depth of required treatment in accordance with the IDOT Subgrade Stability Manual (2005) and IDOT SSRBC (2012), Section 301. The subgrade should be prepared in accordance with Section 301, Subgrade preparation, of the IDOT SSRBC (2012).

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 recommendations in the Subgrade Treatment and Recommendations Section ## of this report, or based on 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.

6.3 Site Excavation

Site excavations are expected to encounter various types of soils as described in the Subsurface Exploration Section 2.0 of this report. Due to very hard or extremely dense nature of the soils encountered between the Station 206+00 and 238+00, difficult construction conditions should be anticipated in this area. The contractor will be responsible to provide a safe excavation during the construction activities of the project. All excavations should be conducted in accordance with applicable federal, state, and local safety regulations, including, but not limited to the Occupational Safety and Health Administration (OSHA) excavation safety standards. In accordance with OSHA Regulation 29 CFR 1926 Subpart P Appendix B, the maximum allowable slopes for excavations less than 20 feet should be completed per the following OSHA table. Excavations made in layered soil systems shall use the maximum allowable slope for each layer as prescribed in the OSHA Regulation. Excavations greater than 20 feet deep should be designed by a registered professional engineer; any shoring or bracing systems should be designed by a licensed structural engineer.

Table 3 – OSHA Excavation Slopes

Soil or Rock Type	Maximum Allowable Slope (H:V) for less than 20 feet
Stable Rock	Vertical (90^{o})
Type A	¾:1 (53 ^{o})
Type B	1:1 (45 ^{o})
Type C	1 ½:1 (34 ^{o})

6.4 Borrow Material and Compaction Requirements

If borrow material is to be used for onsite construction, it should conform to District One Embankment I Special Provision (revised November 1, 2013). The fill material should be free of organic matter and debris, and should be placed and compacted in accordance with District One Embankment I Special Provision (revised November 1, 2013). Earth-moving operations should be avoided during excessively cold or wet weather to avoid freezing of softening subgrade soils. Fill should be placed in lifts and compacted according to Section 205.06, Embankment (IDOT, SSRBC 2012). Backfill materials for undercut areas should be placed in 8 inches loose lifts and should be

compacted to 95% of the maximum dry density as determined by AASTHO T 99, Standard Proctor Method.

6.5 Groundwater Management

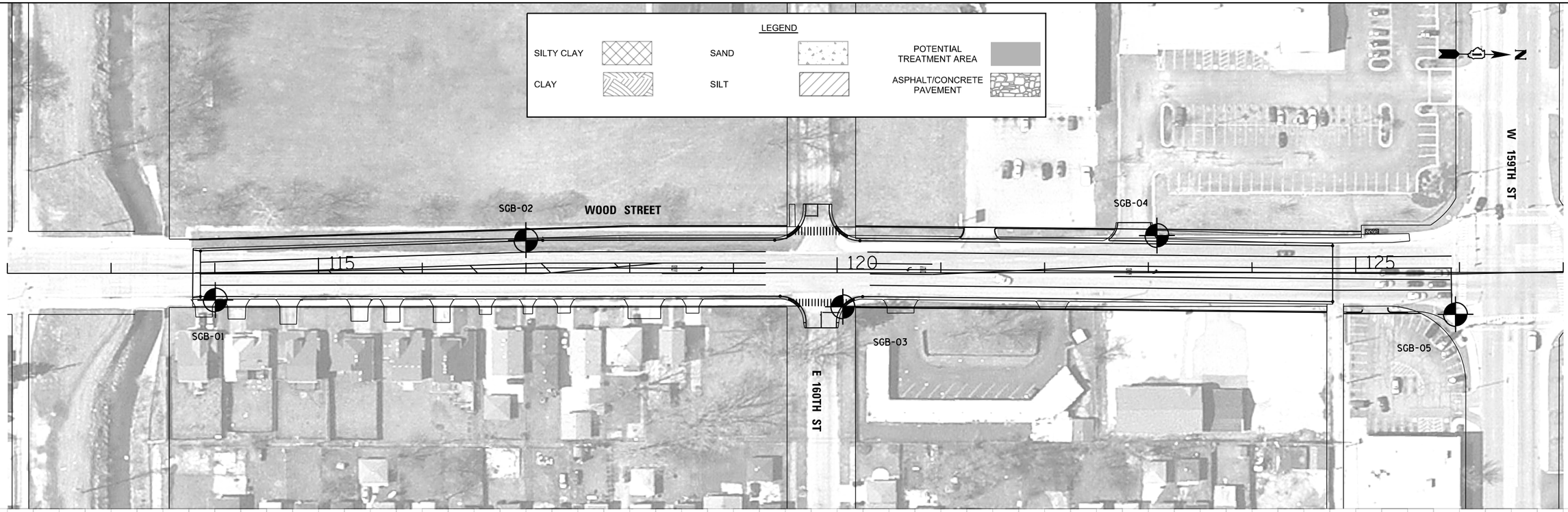
The existing soils may be saturated and water seepage may be encountered during excavation. Groundwater may be noted at shallower depths than noted in the borings and could be trapped within the layers of coarse-grained soils noted at the surface of several borings. This seepage will be temporary but there may be localized sloughing and near-surface instability of some soil slopes. The contractor should control groundwater and surface water infiltration to provide a dry condition for construction. Temporary ditches, sumps, granular drainage blankets, stone ditch protection, or hand-laid riprap with geotextile underlayment could be used to divert groundwater if significant seepage is encountered during construction. If water seepage occurs during construction or where wet conditions are encountered, such that the water cannot be removed with conventional sumping, we recommend placing open grade stone similar to IDOT CA-7 or material that meets the aggregate subgrade improvement special provision requirement, to stabilize the bottom of the excavation below the water table. The CA-7 stone should be placed to 12 inches above the water table, in 12-inch lifts, and should be compacted with the use of a heavy smooth drum roller or heavy vibratory plate compactor until stable. The remaining portion of the excavation should be backfilled using approved structural fill.

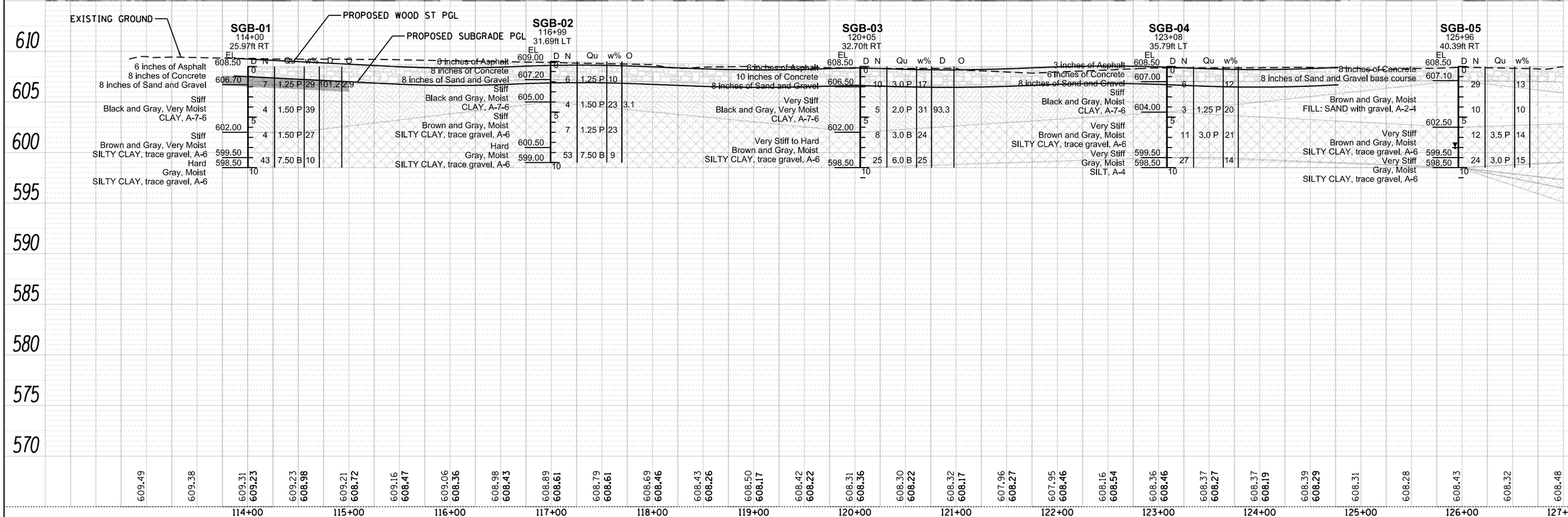
7.0 Limitations

This report has been prepared for the exclusive use of Infrastructure Engineering and its design team, and the Illinois Department of Transportation. 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 project limits. The analyses have been performed and the recommendations have been provided in this report are based on subsurface conditions determined at the location of the borings. This report may not reflect all variations that may occur between boring locations or at some other time, the nature and extent of which may not become evident until during the time of construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and review the recommendations presented herein.

APPENDIX A

BORING LOCATION DIAGRAM AND SUBSURFACE PROFILES





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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

SCALE: 1":50' | SHEET 1 OF 13 SHEETS | STA. 113+00 TO STA. 127+00

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		CONTRACT NO.		
		ILLINOIS	FED. AID PROJECT	

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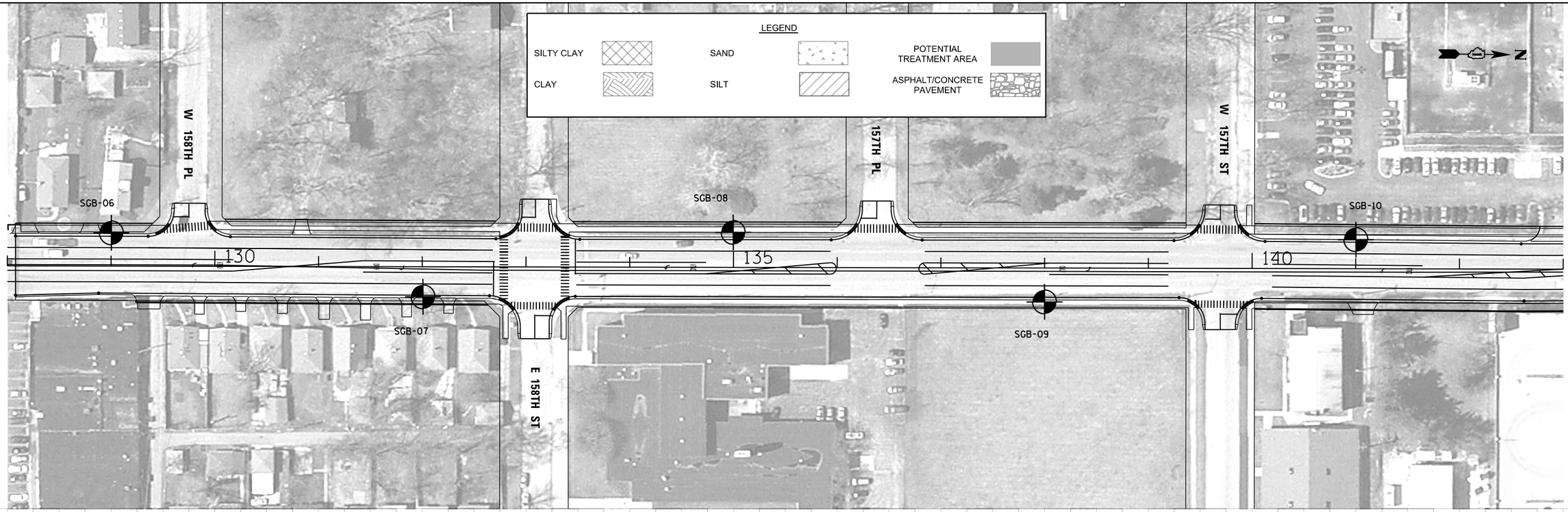

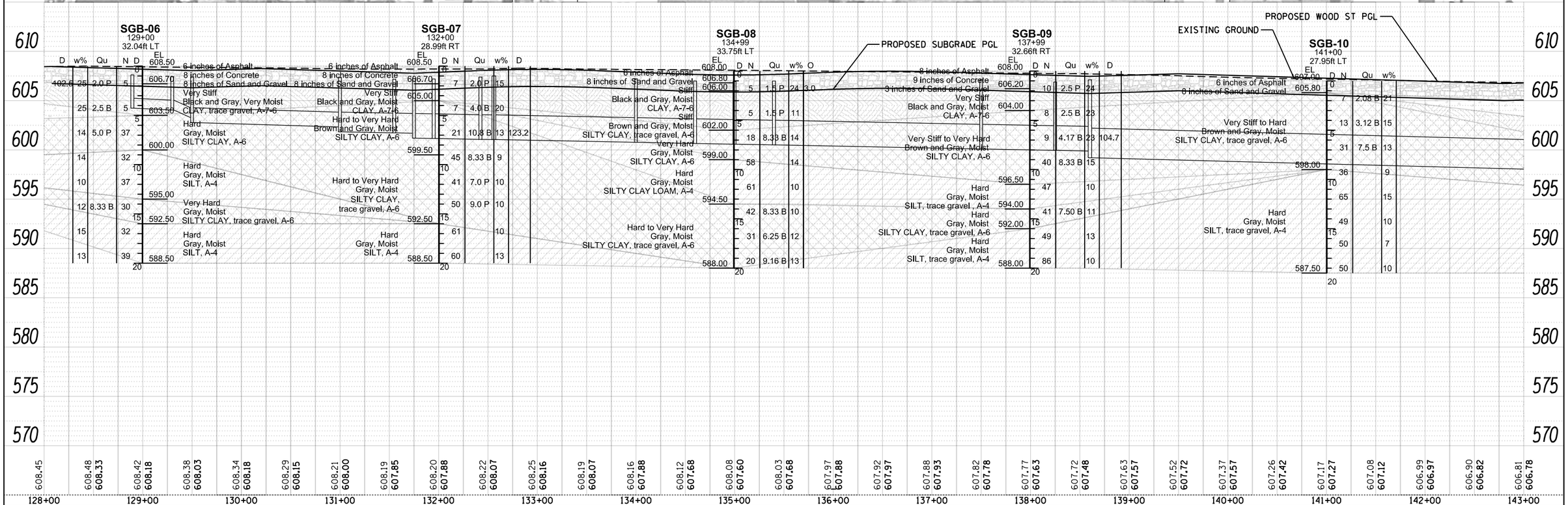

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SOIL BORING PLAN & PROFILE

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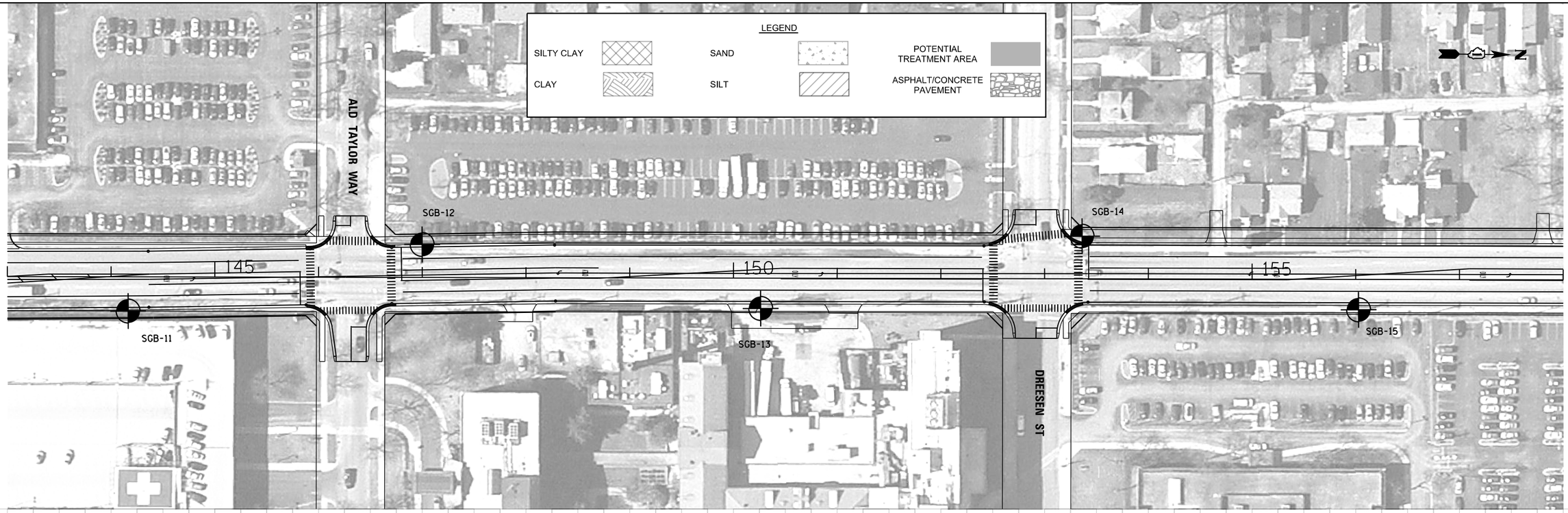

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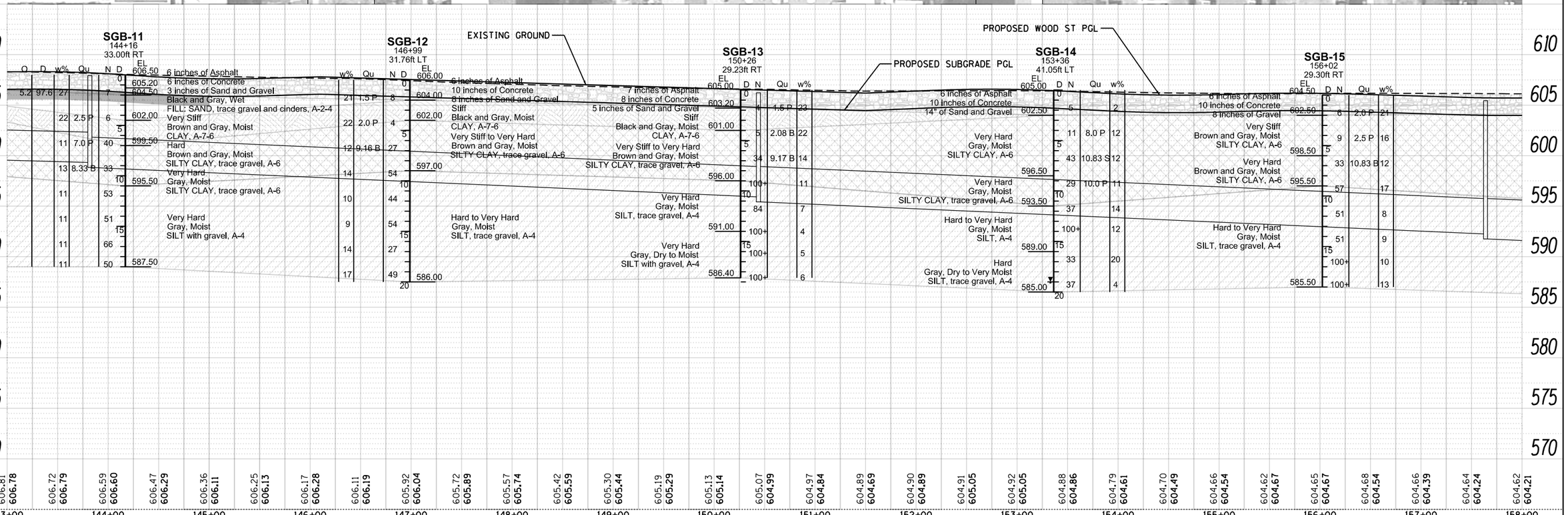

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WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

SCALE: 1":50' | SHEET 3 OF 13 SHEETS | STA. 143+00 TO STA. 158+00

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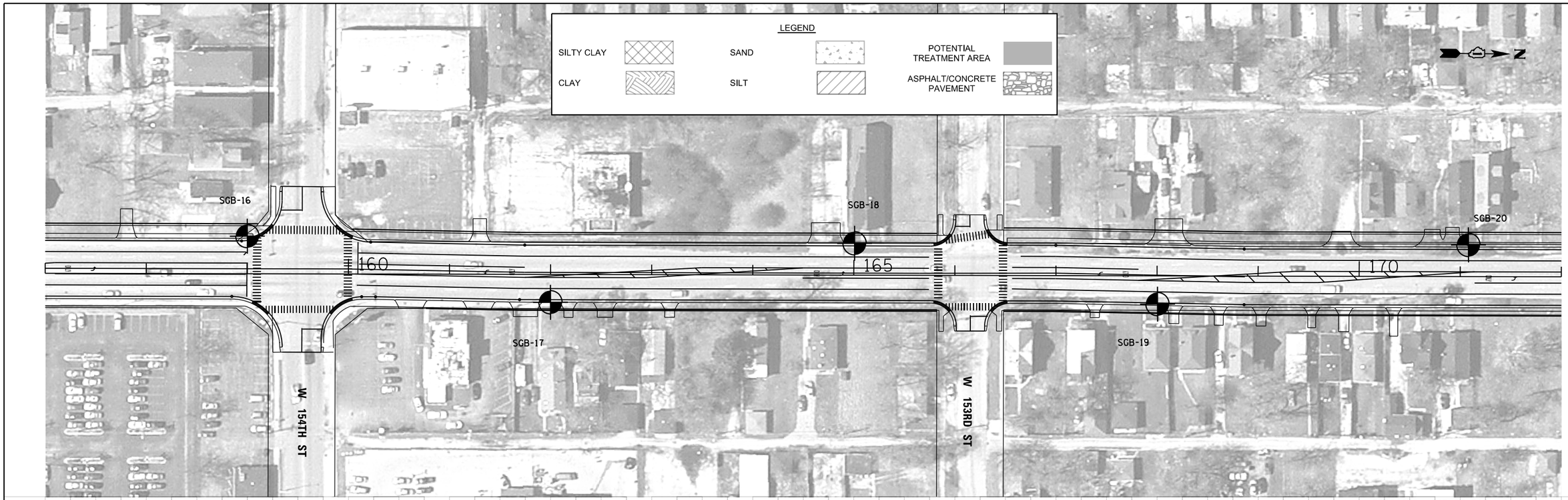

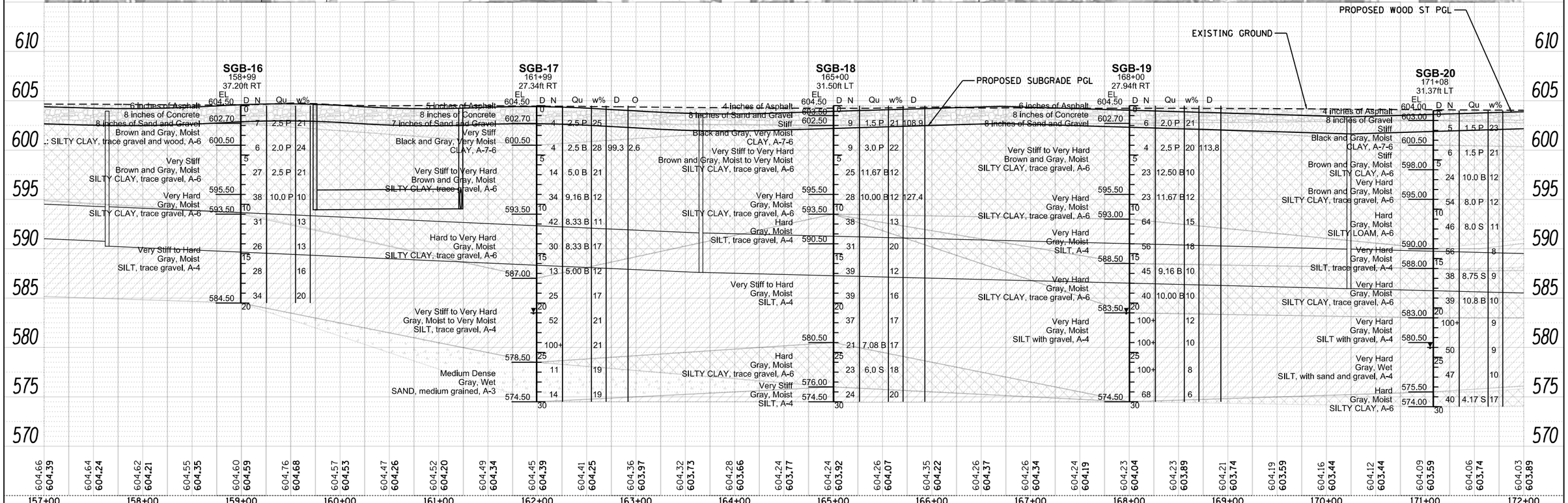

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SOIL BORING PLAN & PROFILE

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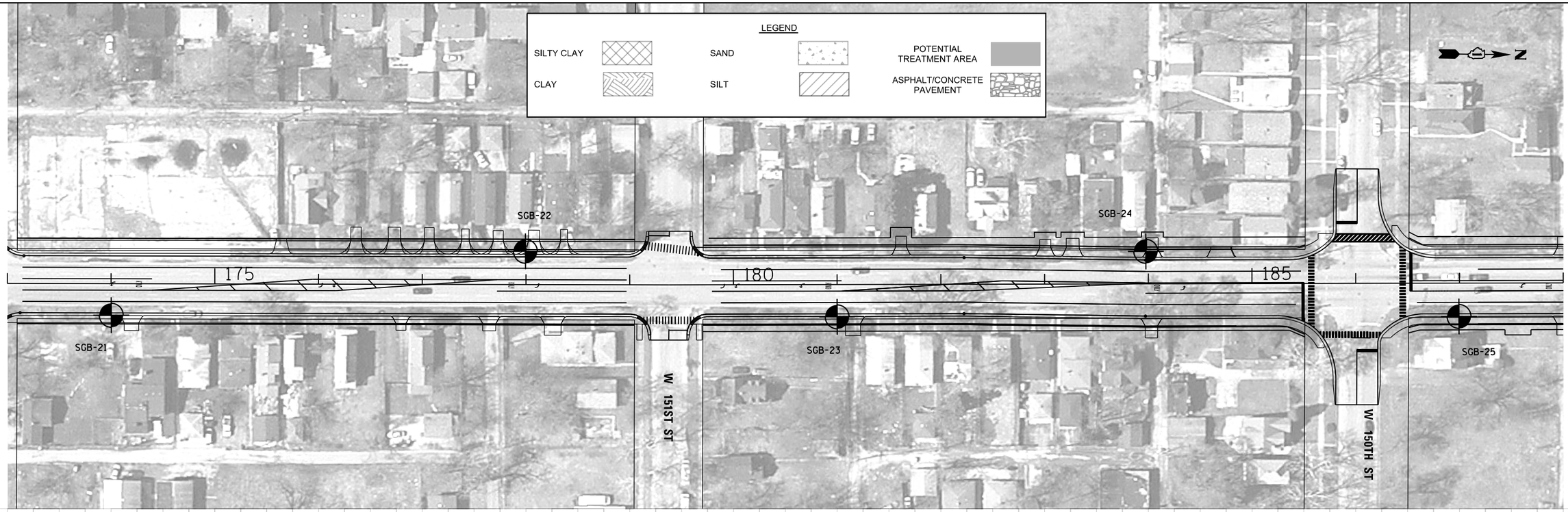

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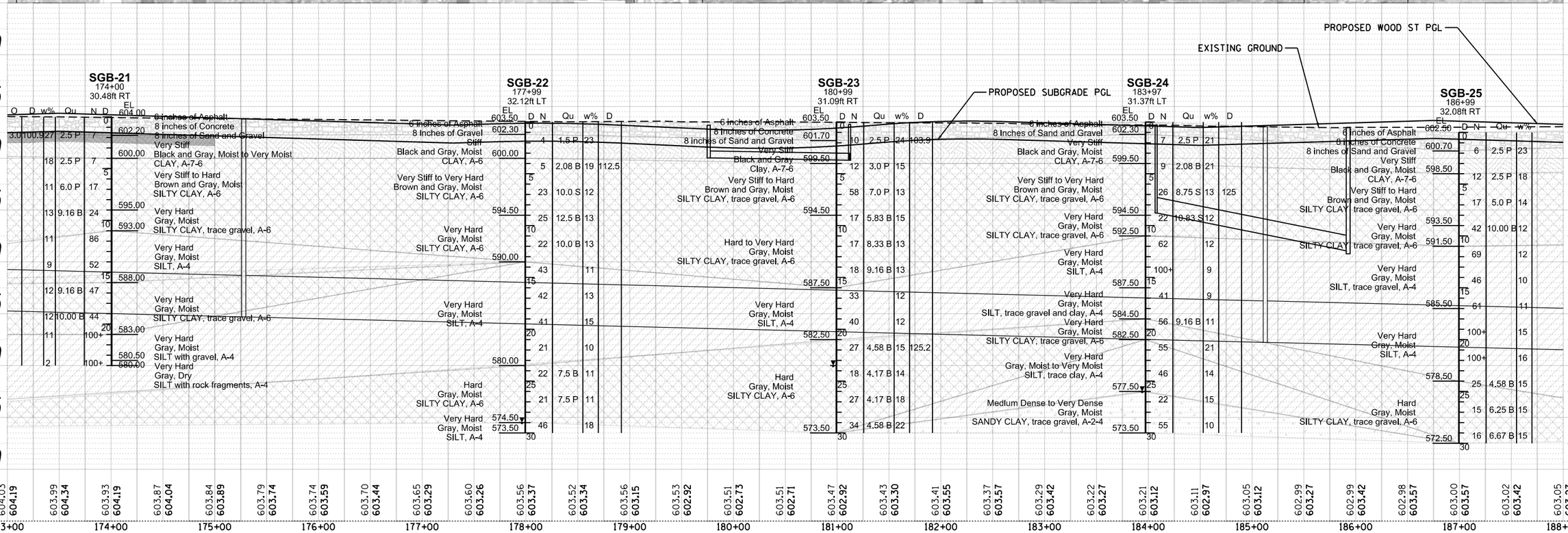

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WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

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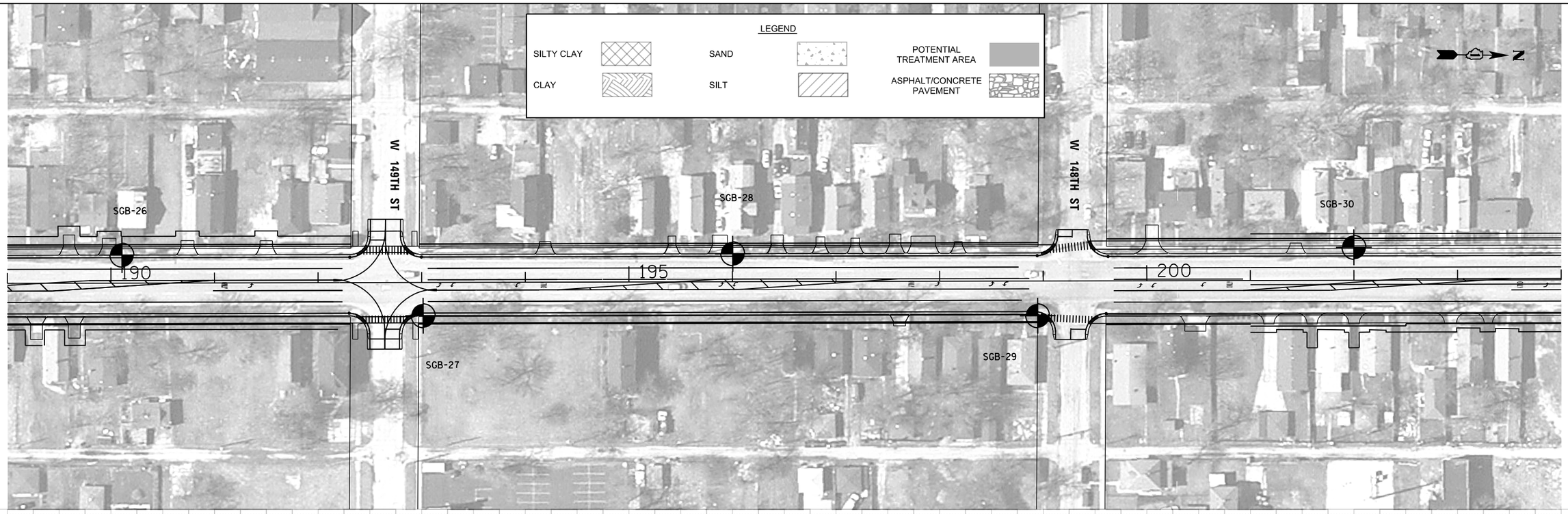

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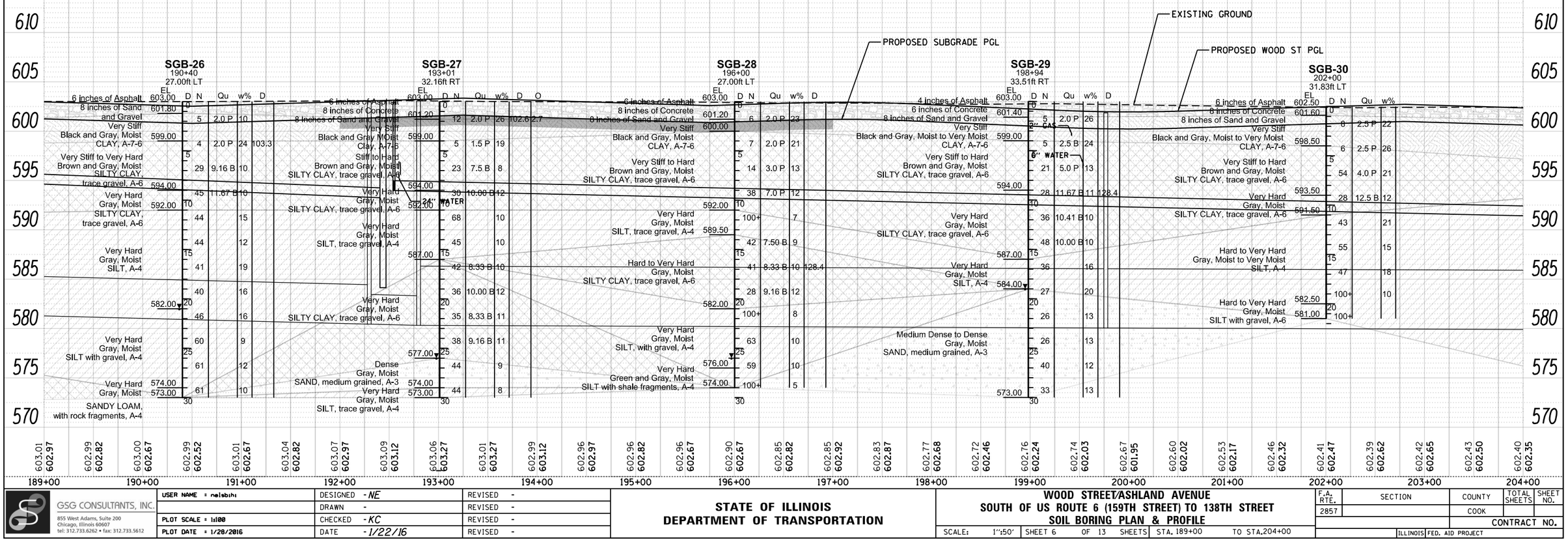

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WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

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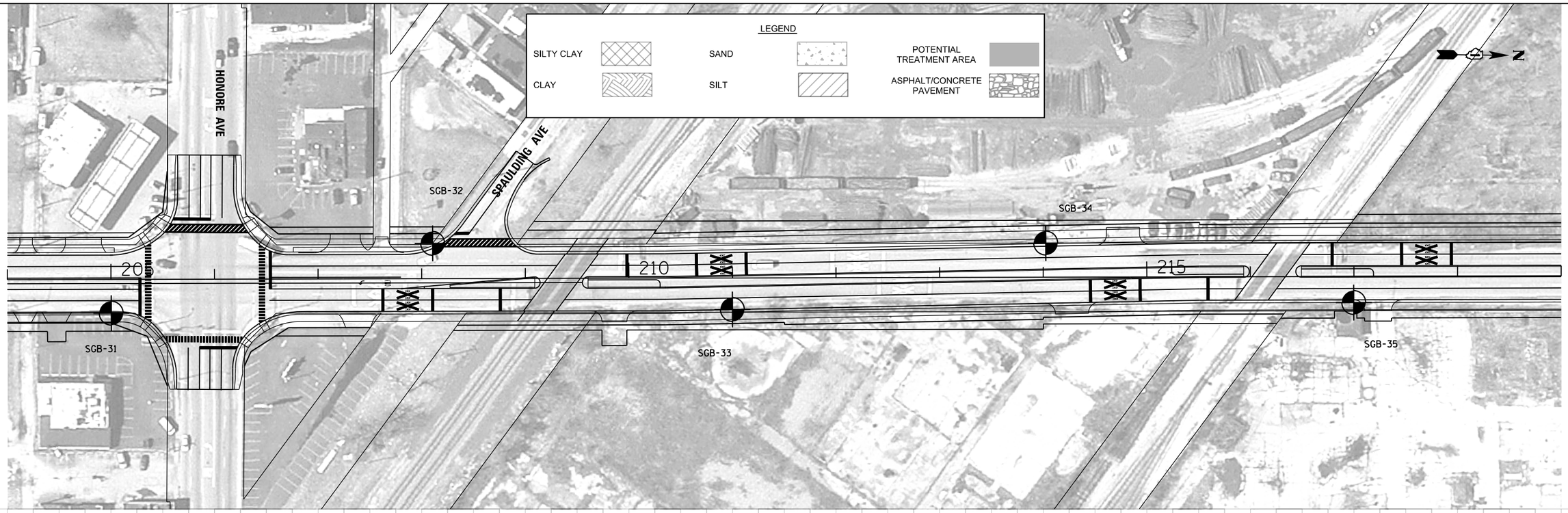

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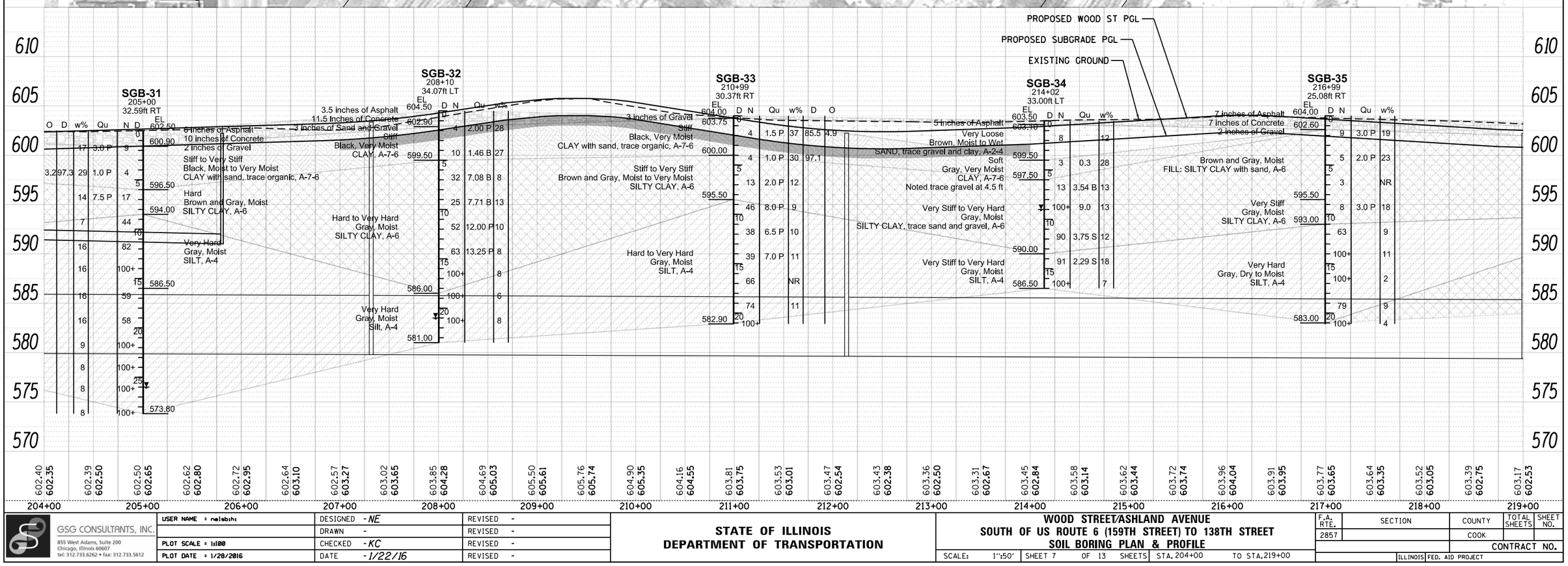

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WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

SCALE: 1":50' | SHEET 7 OF 13 SHEETS | STA. 204+00 TO STA. 219+00

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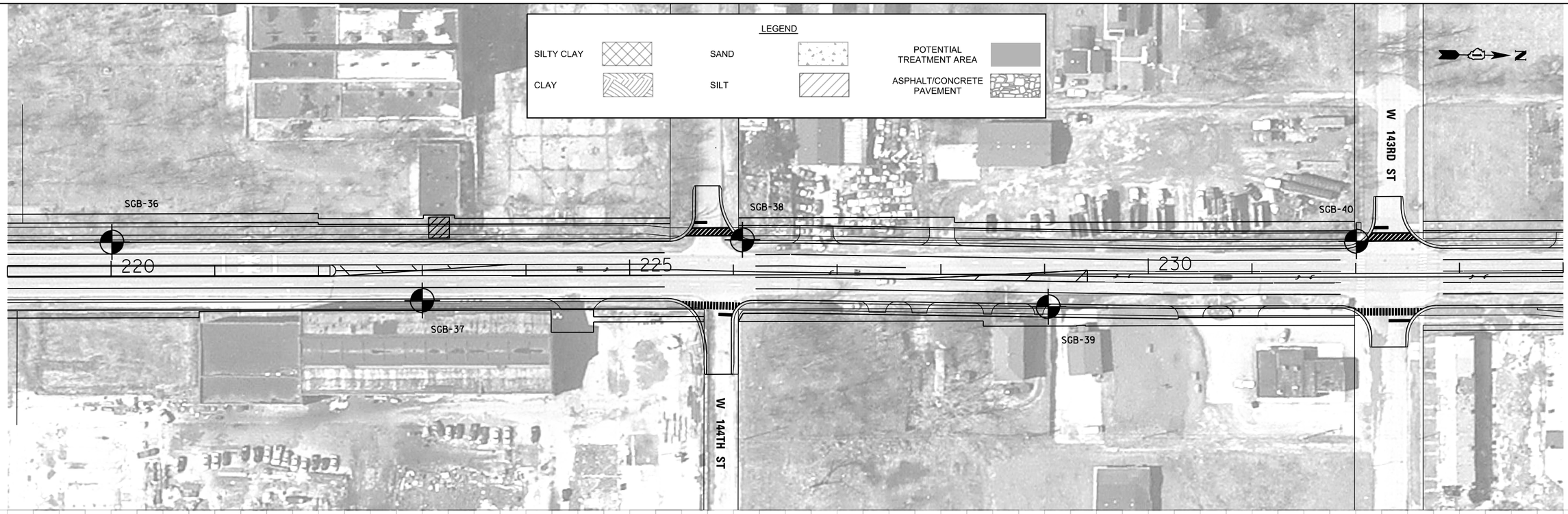

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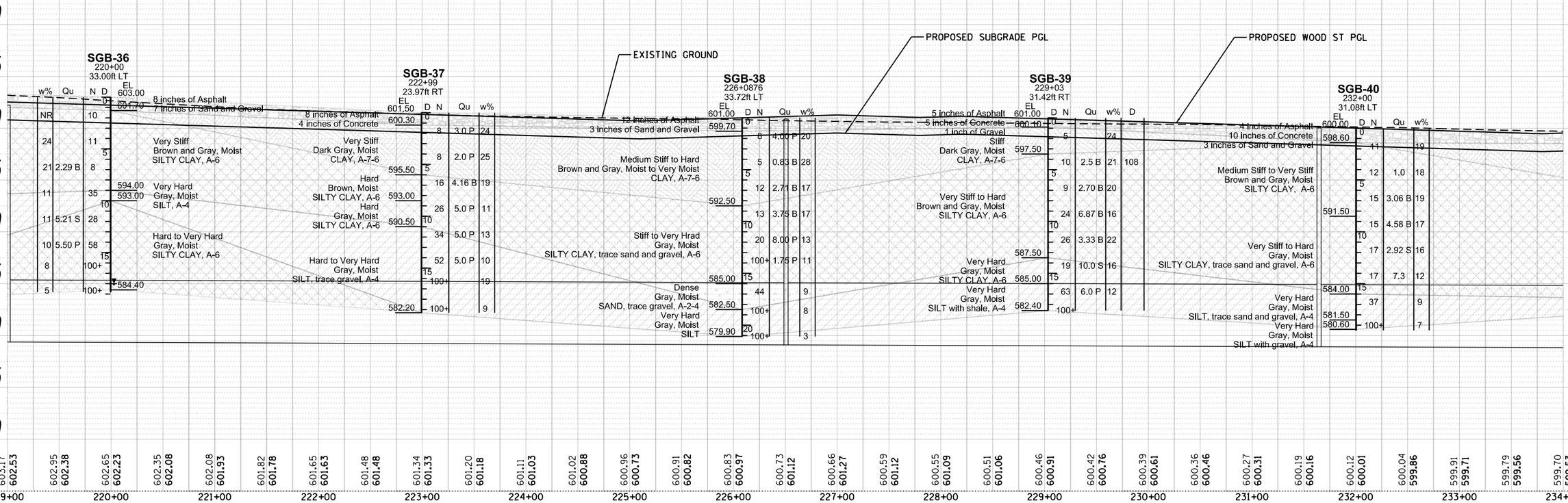

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WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

SCALE: 1":50' | SHEET 8 OF 13 SHEETS | STA. 219+00 | TO STA.234+00

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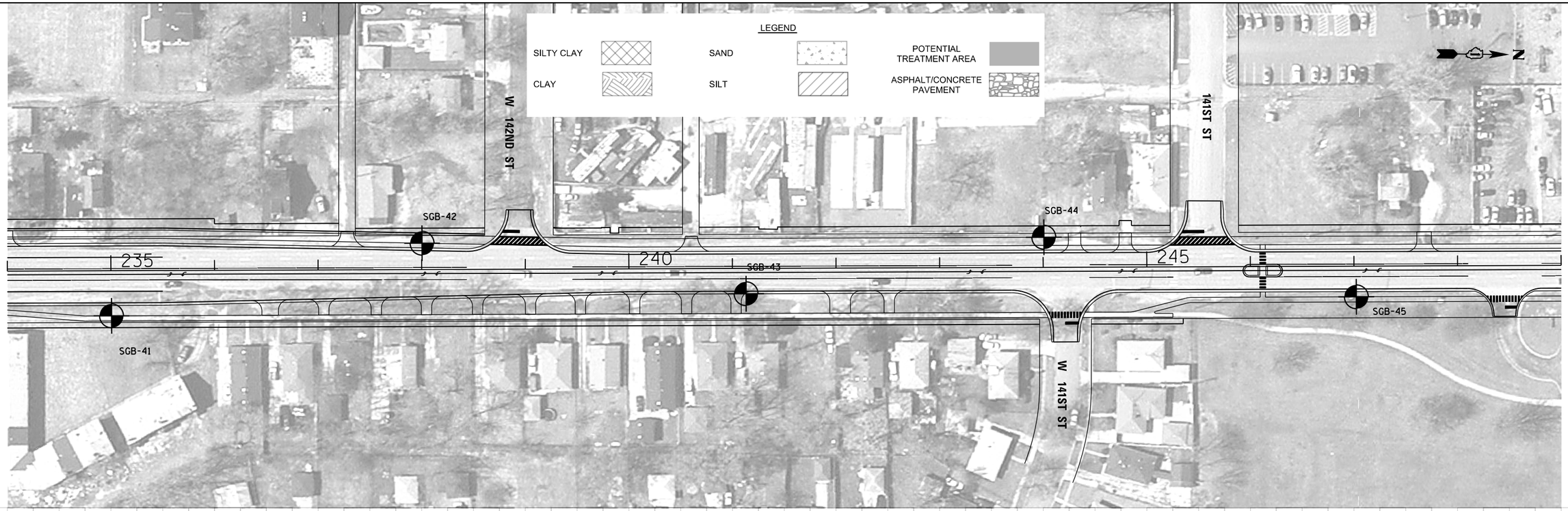

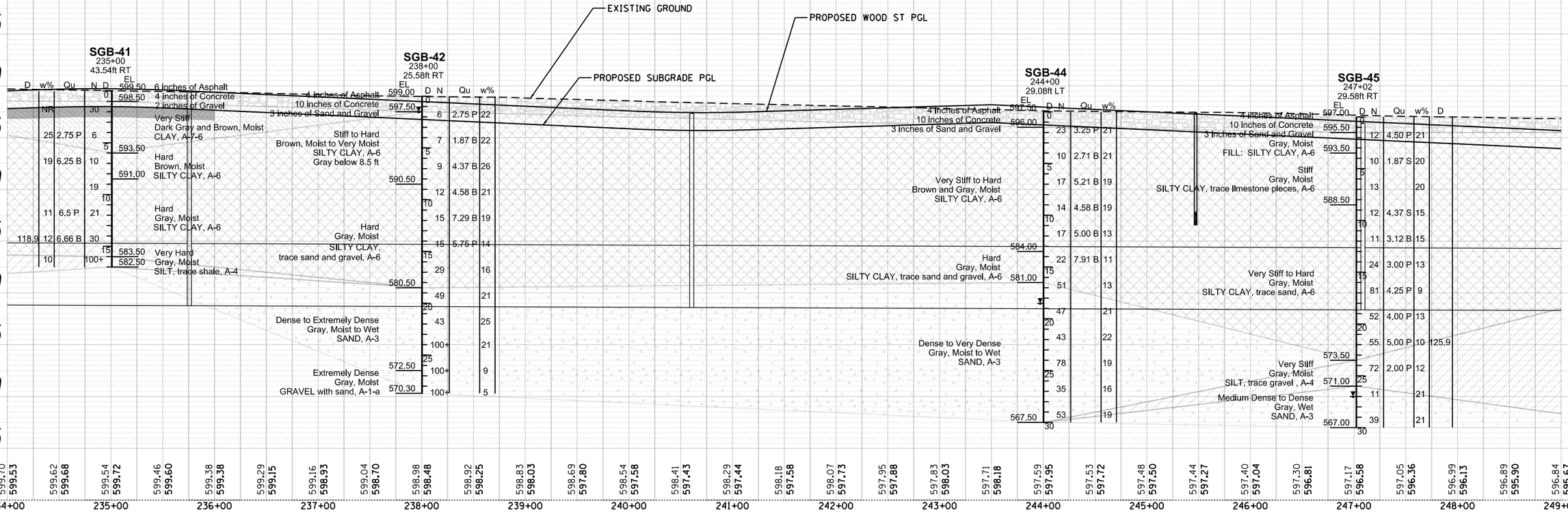

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WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

SCALE: 1":50' | SHEET 9 OF 13 SHEETS | STA. 234+00 TO STA. 249+00

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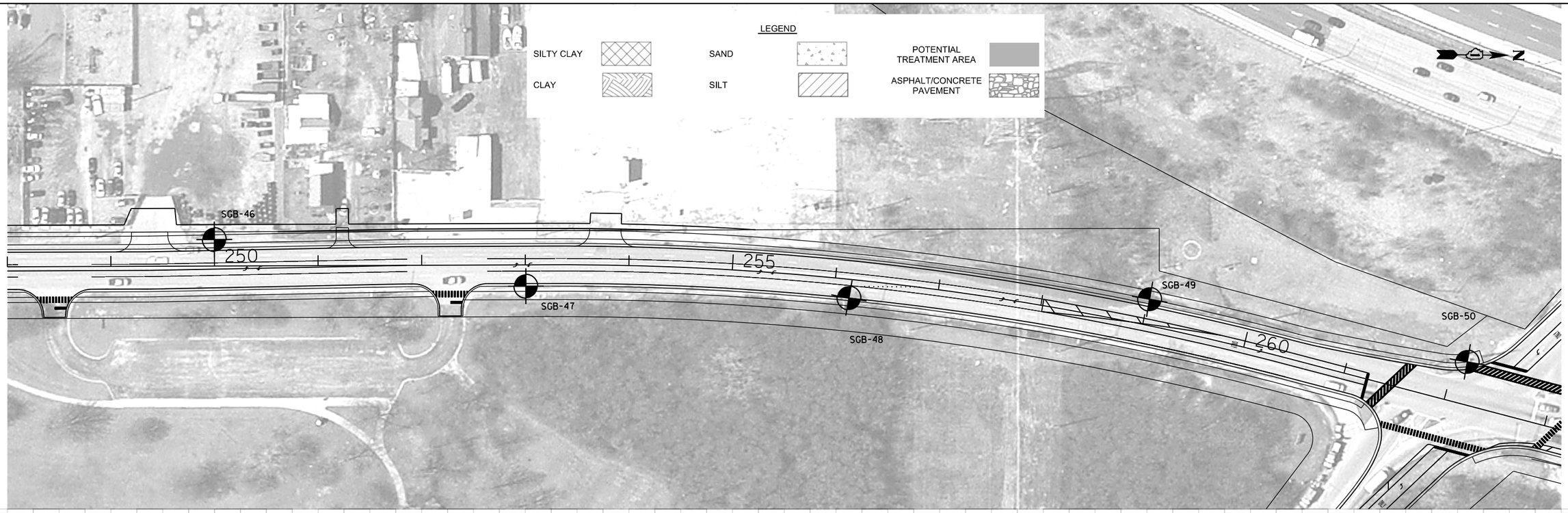

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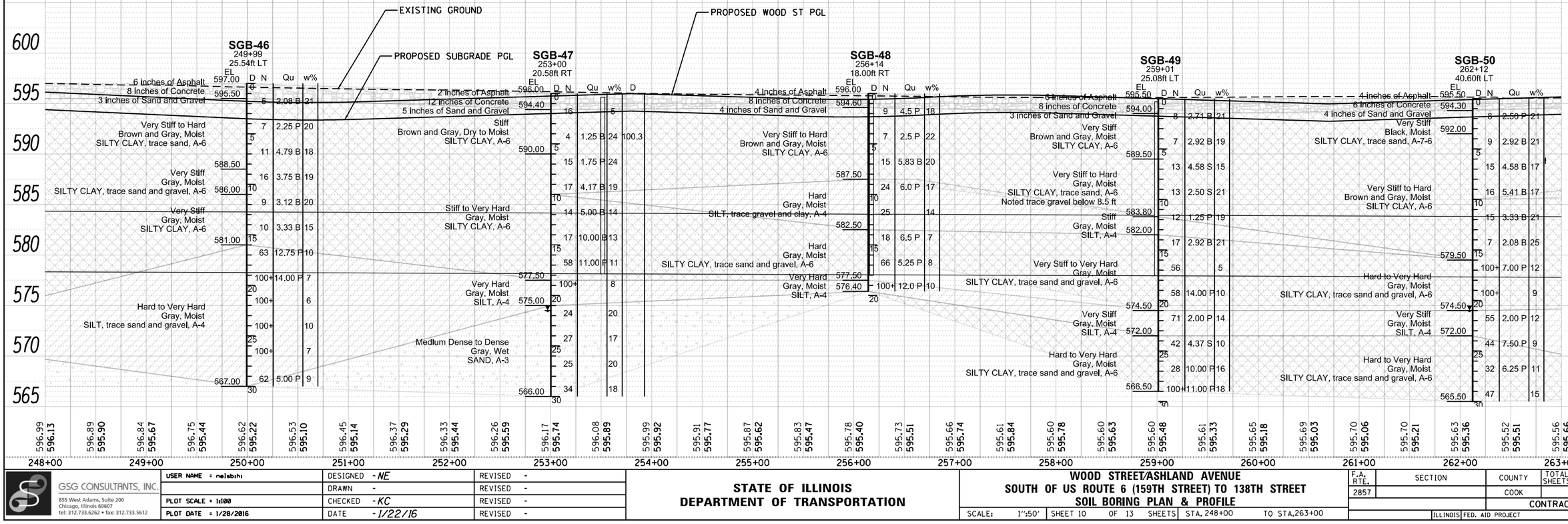

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WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

SCALE: 1":50' | SHEET 10 OF 13 SHEETS | STA. 248+00 TO STA. 263+00

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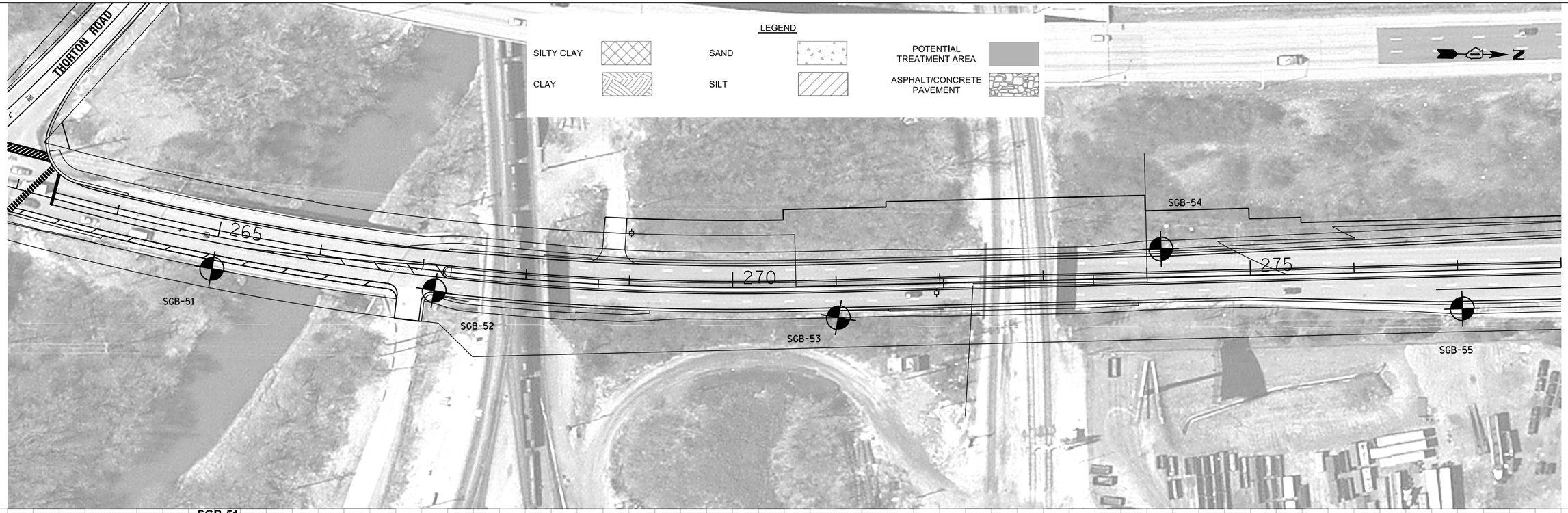

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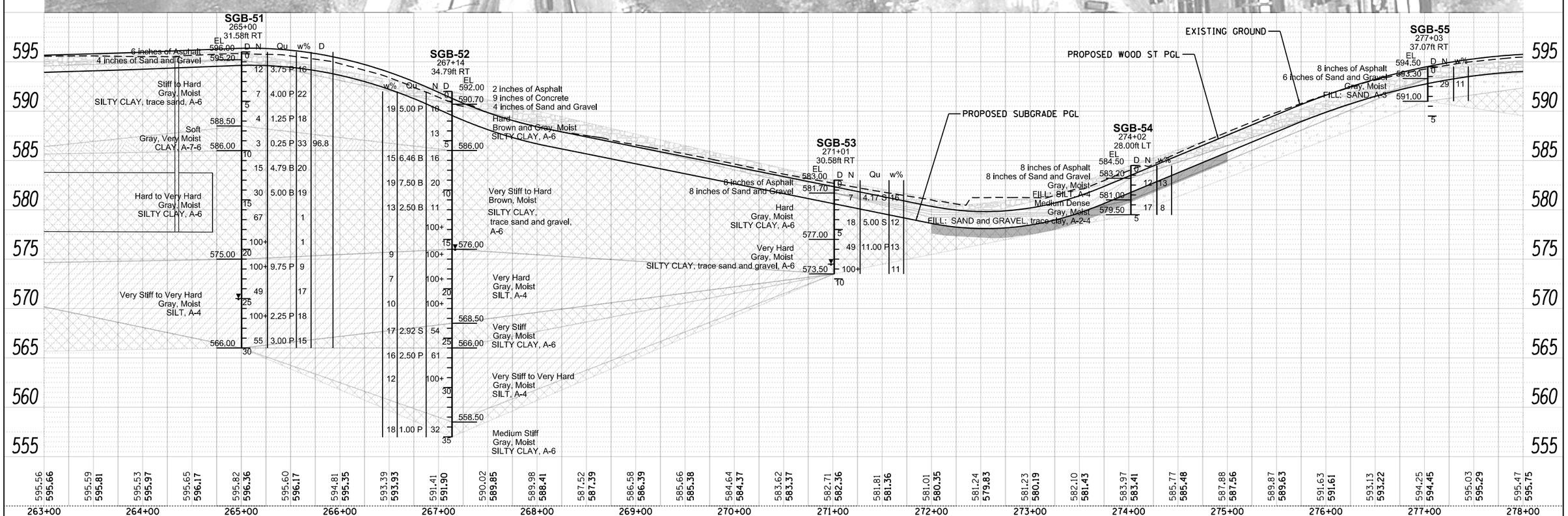

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PLOT SCALE = 1:100	CHECKED - KC	REVISED -
PLOT DATE = 1/28/2016	DATE - 1/22/16	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

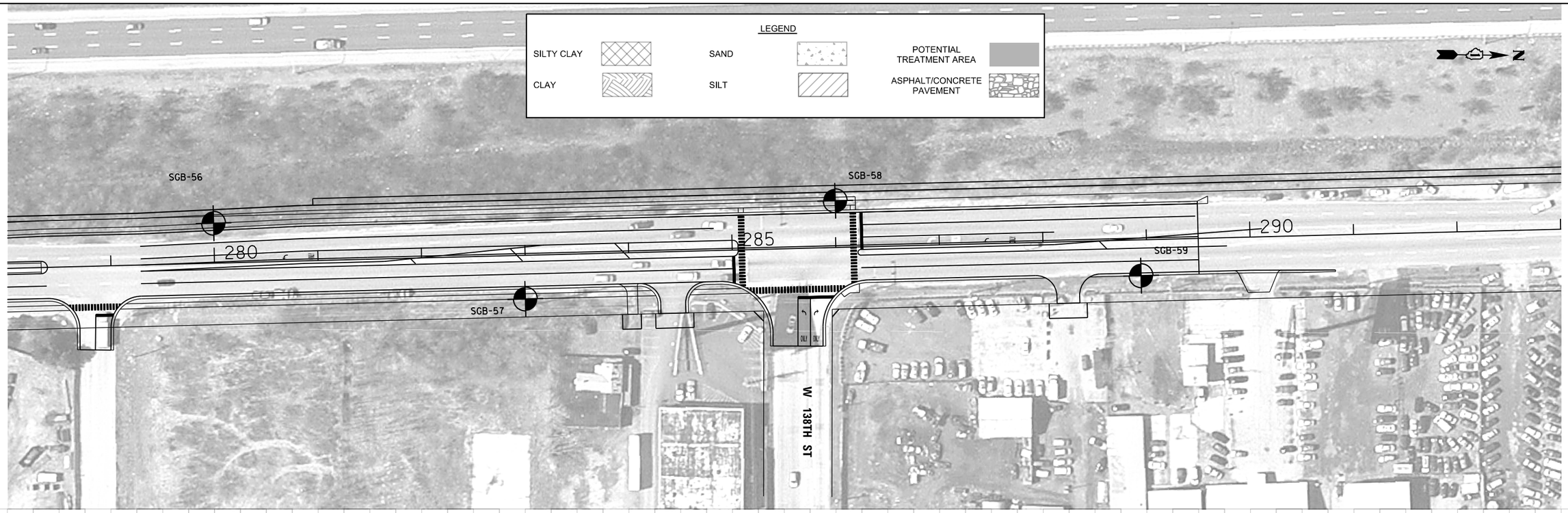
WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

SCALE: 1":50' | SHEET 11 OF 13 SHEETS | STA. 263+00 TO STA. 278+00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2857		COOK		
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

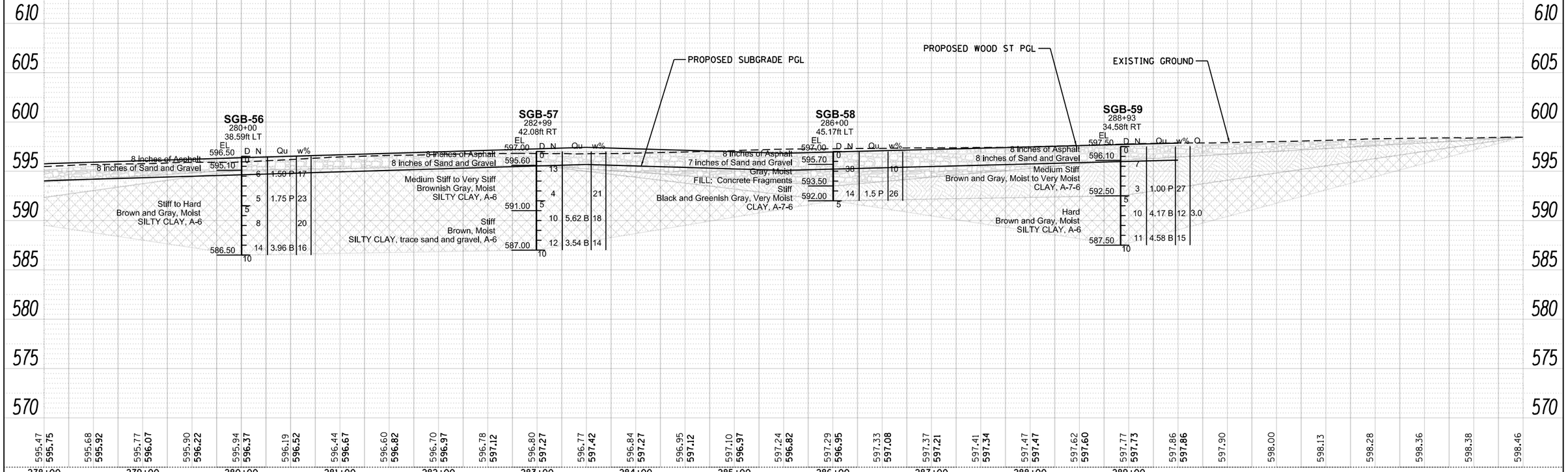
PLAN

DATE	BY	
		SURVEYED
		PLOTTED
		ALIGNMENT CHECKED
		RT. OF WAY CHECKED
		CADD FILE NAME
		NOTE BOOK
		NO.



PROFILE

DATE	BY	
		SURVEYED
		PLOTTED
		ALIGNMENT CHECKED
		BM. NOTED
		STRUCTURE NO'S/HWY CHKD
		NOTE BOOK
		NO.



GSG CONSULTANTS, INC.
855 West Adams, Suite 200
Chicago, Illinois 60607
tel: 312.733.6262 • fax: 312.733.5612

USER NAME = nelsbihl	DESIGNED - NE	REVISED -	
	DRAWN -	REVISED -	
PLOT SCALE = 1:100	CHECKED - KC	REVISED -	
PLOT DATE = 1/28/2016	DATE - 1/22/16	REVISED -	

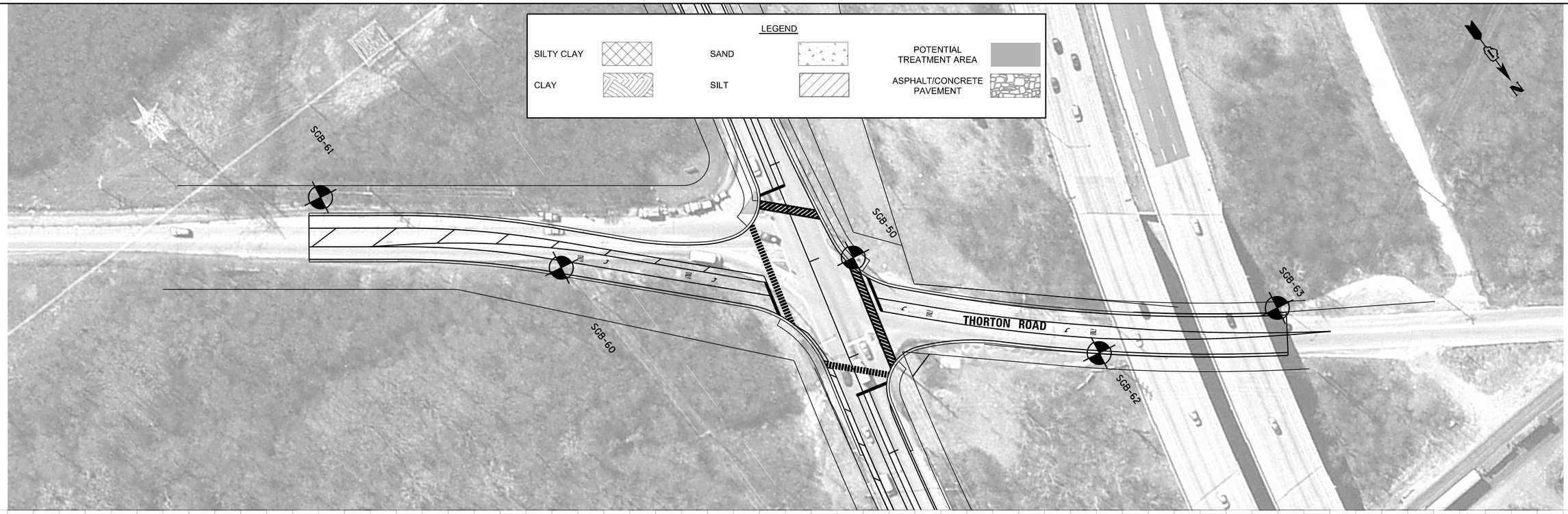
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

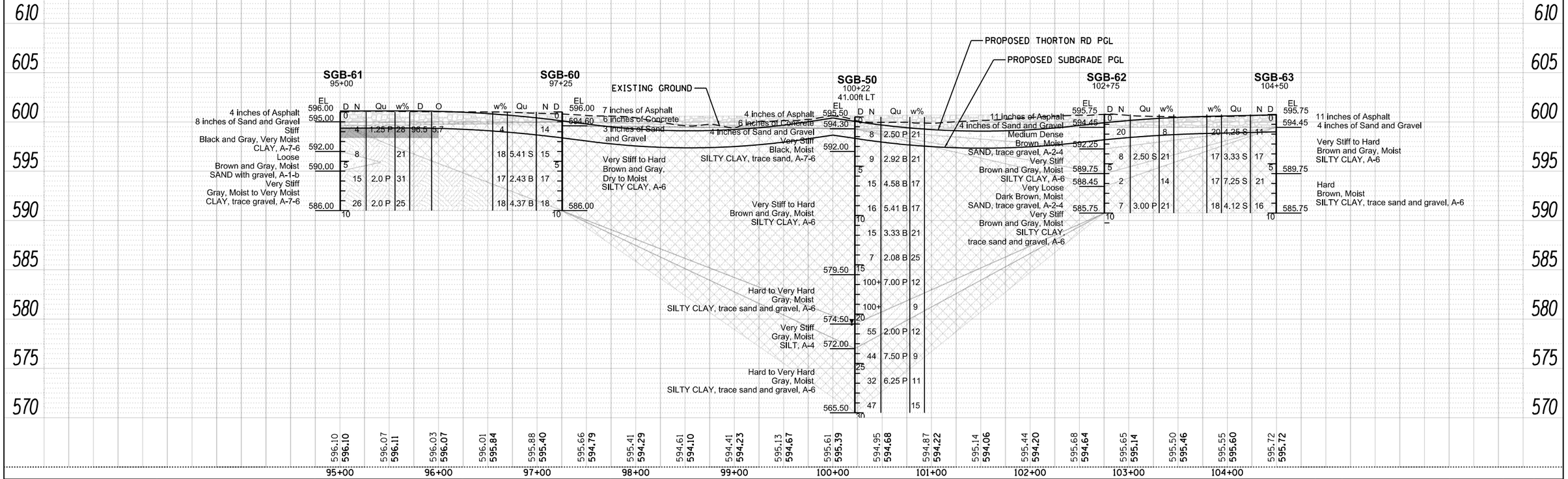
SCALE: 1":50' | SHEET 12 OF 13 SHEETS | STA. 278+00 TO STA. 293+00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2857		COOK		
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE



PROFILE
SURVEYED
PLOTTED
ALIGNMENT CHECKED
BEAR. NOTED
STRUCTURE NO'S/HWY CHRD
NOTE BOOK
NO.
BY
DATE



USER NAME = nelsbihl	DESIGNED - NE	REVISED -	
	DRAWN -	REVISED -	
PLOT SCALE = 1x100	CHECKED - KC	REVISED -	
PLOT DATE = 1/28/2016	DATE - 1/22/16	REVISED -	

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WOOD STREET/ASHLAND AVENUE
SOUTH OF US ROUTE 6 (159TH STREET) TO 138TH STREET
SOIL BORING PLAN & PROFILE

SCALE: 1":50' | SHEET 13 OF 13 SHEETS | STA. 95+00 TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2857		COOK		
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

APPENDIX B

SOIL BORING LOGS

Table B-1 – Summary of Subsurface Exploration Borings

Location	Station	Offset Distance (ft)	Offset Direction	Soil Boring ID	Depth (ft)	Existing Ground Elevation
Wood Street	114+00	26	RT	SGB-01	10	608.5
Wood Street	116+99	32	LT	SGB-02	10	609
Wood Street	120+05	33	RT	SGB-03	10	608.5
Wood Street	123+08	36	LT	SGB-04	10	608.5
Wood Street	125+96	40	RT	SGB-05	10	608.5
Wood Street	129+00	32	LT	SGB-06	20	608.5
Wood Street	132+00	29	RT	SGB-07	20	608.5
Wood Street	134+99	34	LT	SGB-08	20	608
Wood Street	137+99	33	RT	SGB-09	20	608
Wood Street	141+00	28	LT	SGB-10	19.5	607
Wood Street	144+16	33	RT	SGB-11	19	606.5
Wood Street	146+99	32	LT	SGB-12	20	606
Wood Street	150+26	29	RT	SGB-13	18.6	605
Wood Street	153+36	41	LT	SGB-14	20	605
Wood Street	156+02	29	RT	SGB-15	19	604.5
Wood Street	158+99	37	RT	SGB-16	20	604.5
Wood Street	161+99	27	RT	SGB-17	30	604.5
Wood Street	165+00	32	LT	SGB-18	30	604.5
Wood Street	168+00	28	RT	SGB-19	30	604.5

Location	Station	Offset Distance (ft)	Offset Direction	Soil Boring ID	Depth (ft)	Existing Ground Elevation
Wood Street	171+08	31	LT	SGB-20	30	604
Wood Street	174+00	30	RT	SGB-21	24	604
Wood Street	177+99	32	LT	SGB-22	30	603.5
Wood Street	180+99	31	RT	SGB-23	30	603.5
Wood Street	183+97	31	LT	SGB-24	30	603.5
Wood Street	186+99	32	RT	SGB-25	30	602.5
Wood Street	190+40	27	LT	SGB-26	30	603
Wood Street	193+01	32	RT	SGB-27	30	603
Wood Street	196+00	27	LT	SGB-28	29	603
Wood Street	198+94	34	RT	SGB-29	30	603
Wood Street	202+00	32	LT	SGB-30	21.5	602.5
Wood Street	205+00	33	RT	SGB-31	28.7	602.5
Wood Street	208+10	34	LT	SGB-32	23.5	604.5
Wood Street	210+99	30	RT	SGB-33	21.1	604
Wood Street	214+02	33	LT	SGB-34	17	603.5
Wood Street	216+99	25	RT	SGB-35	21.1	604
Wood Street	220+00	33	LT	SGB-36	18.8	603
Wood Street	222+99	24	RT	SGB-37	19.3	601.5
Wood Street	226+0876	34	LT	SGB-38	21.1	601
Wood Street	229+03	31	RT	SGB-39	18.6	601

Location	Station	Offset Distance (ft)	Offset Direction	Soil Boring ID	Depth (ft)	Existing Ground Elevation
Wood Street	232+00	31	LT	SGB-40	19.5	600
Wood Street	235+00	44	RT	SGB-41	17	599.5
Wood Street	238+00	26	RT	SGB-42	28.7	599
Wood Street	244+00	29	LT	SGB-44	30	597.5
Wood Street	247+02	30	RT	SGB-45	30	597
Wood Street	249++99	26	LT	SGB-46	30	597
Wood Street	253+00	21	RT	SGB-47	30	596
Wood Street	256+14	18	RT	SGB-48	19.6	596
Wood Street	259+01	25	LT	SGB-49	29	595.5
Wood Street	262+12	41	LT	SGB-50	30	595.5
Wood Street	265+00	32	RT	SGB-51	30	596
Wood Street	267+14	35	RT	SGB-52	39.5	592
Wood Street	271+01	31	RT	SGB-53	9.5	583
Wood Street	274+02	28	LT	SGB-54	5	584.5
Wood Street	277+03	37	RT	SGB-55	3.5	594.5
Wood Street	280+00	39	LT	SGB-56	10	596.5
Wood Street	282+99	42	RT	SGB-57	10	597
Wood Street	286+00	45	LT	SGB-58	5	597
Wood Street	288+93	35	RT	SGB-59	10	597.5
Thornton Road	97+25	n/a	RT	SGB-60	10	596

Location	Station	Offset Distance (ft)	Offset Direction	Soil Boring ID	Depth (ft)	Existing Ground Elevation
Thornton Road	95+00	n/a	LT	SGB-61	10	596
Thornton Road	102+75	n/a	RT	SGB-62	10	595.75
Thornton Road	104+50	n/a	LT	SGB-63	10	595.75

Table B-2 – Summary of Pavement Section

Location	Soil Boring ID	Asphalt (in.)	Concrete (in.)	Sand and Gravel Base Course (in.)
Wood Street	SGB-01	6	8	8
Wood Street	SGB-02	8	8	8
Wood Street	SGB-03	6	10	8
Wood Street	SGB-04	3	6	8
Wood Street	SGB-05	None	8	8
Wood Street	SGB-06	6	8	8
Wood Street	SGB-07	6	8	8
Wood Street	SGB-08	6	None	8
Wood Street	SGB-09	8	9	3
Wood Street	SGB-10	6	None	8
Wood Street	SGB-11	6	6	3
Wood Street	SGB-12	6	10	8
Wood Street	SGB-13	7	8	5
Wood Street	SGB-14	6	10	14
Wood Street	SGB-15	6	10	8
Wood Street	SGB-16	6	8	8
Wood Street	SGB-17	5	8	7
Wood Street	SGB-18	4	None	8
Wood Street	SGB-19	6	8	8

Location	Soil Boring ID	Asphalt (in.)	Concrete (in.)	Sand and Gravel Base Course (in.)
Wood Street	SGB-20	4	None	8
Wood Street	SGB-21	6	8	8
Wood Street	SGB-22	6	None	8
Wood Street	SGB-23	6	8	8
Wood Street	SGB-24	6	None	8
Wood Street	SGB-25	6	8	8
Wood Street	SGB-26	6	None	8
Wood Street	SGB-27	6	8	8
Wood Street	SGB-28	6	8	8
Wood Street	SGB-29	4	6	8
Wood Street	SGB-30	6	6	8
Wood Street	SGB-31	6	10	2
Wood Street	SGB-32	3.5	11.5	3
Wood Street	SGB-33	None	None	3
Wood Street	SGB-34	5	None	None
Wood Street	SGB-35	7	7	2
Wood Street	SGB-36	8	None	7
Wood Street	SGB-37	8	4	None
Wood Street	SGB-38	12	None	3
Wood Street	SGB-39	5	5	1

Location	Soil Boring ID	Asphalt (in.)	Concrete (in.)	Sand and Gravel Base Course (in.)
Wood Street	SGB-40	4	10	3
Wood Street	SGB-41	6	4	2
Wood Street	SGB-42	4	10	2
Wood Street	SGB-44	4	10	3
Wood Street	SGB-45	4	10	3
Wood Street	SGB-46	6	8	3
Wood Street	SGB-47	2	12	5
Wood Street	SGB-48	4	8	4
Wood Street	SGB-49	6	8	3
Wood Street	SGB-50	4	6	4
Wood Street	SGB-51	6	None	4
Wood Street	SGB-52	2	9	4
Wood Street	SGB-53	8	None	8
Wood Street	SGB-54	8	None	8
Wood Street	SGB-55	8	None	6
Wood Street	SGB-56	8	None	8
Wood Street	SGB-57	8	None	8
Wood Street	SGB-58	8	None	7
Wood Street	SGB-59	8	None	8
Thornton Road	SGB-60	7	6	3

Location	Soil Boring ID	Asphalt (in.)	Concrete (in.)	Sand and Gravel Base Course (in.)
Thornton Road	SGB-61	4	None	8
Thornton Road	SGB-62	11	None	4
Thornton Road	SGB-63	11	None	4

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/12/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.5974106, **Longitude** -87.6606642

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-01
Station 114+00
Offset 25.97ft RT
Ground Surface Elev. 608.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel		9		
606.70		5 2	1.3 P	29
Stiff Black and Gray, Very Moist CLAY, A-7-6		1		
	-5	1 3	1.5 P	39
602.00		1		
Stiff Brown and Gray, Very Moist SILTY CLAY, trace gravel, A-6		2 2	1.5 P	27
599.50		14		
Hard Gray, Moist		18 25	7.5 B	10
598.50 SILTY CLAY, trace gravel, A-6	-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/16/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.598232, **Longitude** -87.6608786

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-02
Station 116+99
Offset 31.69ft LT
Ground Surface Elev. 609.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel		6		
607.20		3	1.3	10
Stiff Black and Gray, Moist CLAY, A-7-6		3	P	
		2		
605.00				
Stiff Brown and Gray, Moist SILTY CLAY, trace gravel, A-6	-5	2 2	1.5 P	23
		1		
		1 6	1.3 P	23
600.50				
Hard Gray, Moist SILTY CLAY, trace gravel, A-6		14		
599.00	-10	22 31	7.5 B	9
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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/12/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.599071, **Longitude** -87.6606472

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-03
Station 120+05
Offset 32.70ft RT
Ground Surface Elev. 608.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 10 inches of Concrete 8 inches of Sand and Gravel
	4			
606.50	5 5	3.0 P	17	
				Very Stiff Black and Gray, Very Moist CLAY, A-7-6
	2			
-5	2 3	2.0 P	31	
602.00	2			
	4 4	3.0 B	24	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
	3			
598.50 -10	8 17	6.0 B	25	
				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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/12/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.5999014, **Longitude** -87.6609016

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-04
Station 123+08
Offset 35.79ft LT
Ground Surface Elev. 608.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
3 inches of Asphalt 6 inches of Concrete 8 inches of Sand and Gravel		3		
607.00				
Stiff Black and Gray, Moist CLAY, A-7-6		3 3		12
		2		
604.00		2	1.3	20
Very Stiff Brown and Gray, Moist SILTY CLAY, trace gravel, A-6	-5	1	P	
		4		
		5 6	3.0 P	21
		7		
599.50				
Very Stiff Gray, Moist SILT, A-4		12 15		14
598.50	-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/26/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6006919, **Longitude** -87.6606269

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-05
Station 125+96
Offset 40.39ft RT
Ground Surface Elev. 608.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 600.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
8 inches of Concrete 8 inches of Sand and Gravel base course		7		
607.10				
Brown and Gray, Moist FILL: SAND with gravel, A-2-4		15 14		13
Noted cobble and concrete fragments at 3.5 ft		5		
		5 5		10
	-5			
602.50		2		
Very Stiff Brown and Gray, Moist SILTY CLAY, trace gravel, A-6		5 7	3.5 P	14
▼				
599.50		4		
Very Stiff Gray, Moist SILTY CLAY, trace gravel, A-6		8 16	3.0 P	15
598.50	-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/15/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.601526, **Longitude** -87.6608932

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-06
Station 129+00
Offset 32.04ft LT
Ground Surface Elev. 608.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

Description	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel		2		
606.70		2 3	2.0 P	25
Very Stiff Black and Gray, Very Moist CLAY, trace gravel, A-7-6		2		
603.50	-5	2 3	2.5 B	25
Hard Gray, Moist SILTY CLAY, A-6		3		
		7 30	5.0 P	14
600.00		3		
Hard Gray, Moist SILT, A-4		12 20		14
	-10	10		
		16 21		10
595.00		8		
Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6		14 16	8.3 B	12
	-15			
592.50		5		
Hard Gray, Moist SILT, A-4		12 20		15
		11		
		18 21		13
588.50	-20			

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/26/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.602351, **Longitude** -87.6606711

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-07
Station 132+00
Offset 28.99ft RT
Ground Surface Elev. 608.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel	3		
606.70	3 4	2.0 P	15
Very Stiff Black and Gray, Moist CLAY, A-7-6			
605.00	2		
Hard to Very Hard Brown and Gray, Moist SILTY CLAY, A-6	3 4	4.0 B	20
-5	5		
	7 14	10.8 B	13
599.50	6		
Hard to Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6	20 25	8.3 B	9
-10	9		
	17 24	7.0 P	10
	7		
	50	9.0 P	10
-15			
592.50	9		
Hard Gray, Moist SILT, A-4	28 33		10
	12		
	28 32		13
588.50 -20			

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/15/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6031713, **Longitude** -87.6609014

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-08
Station 134+99
Offset 33.75ft LT
Ground Surface Elev. 608.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Sand and Gravel
606.80	3			
	2 3	1.5 P	24	Stiff Black and Gray, Moist CLAY, A-7-6
606.00				
	2			Stiff Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
-5	2 3	1.5 P	11	
602.00	3			
	7 11	8.3 B	14	Very Hard Gray, Moist SILTY CLAY, A-6
599.00	7			
-10	22 36		14	Hard Gray, Moist SILTY LOAM, A-4
	10			
	21 40		10	
594.50	10			
	21 21	8.3 B	10	Hard to Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
-15	7			
	12 19	6.3 B	12	
	6			
	8 12	9.2 B	13	
588.00 -20				

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/14/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.6039953, **Longitude** -87.6606596

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-09
Station 137+99
Offset 32.66ft RT
Ground Surface Elev. 608.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
8 inches of Asphalt 9 inches of Concrete 3 inches of Sand and Gravel	3			
606.20	4 6	2.5 P	24	
Very Stiff Black and Gray, Moist CLAY, A-7-6				
604.00	3			
Very Stiff to Very Hard Brown and Gray, Moist SILTY CLAY, A-6	4 4	2.5 B	23	
-5	2			
	3 6	4.2 B	23	
	7			
	13 27	8.3 B	15	
-10	8			
596.50				
Hard Gray, Moist SILT, trace gravel , A-4	21 26		10	
594.00	9			
Hard Gray, Moist SILTY CLAY, trace gravel, A-6	16 25	7.5 B	11	
-15 592.00				
Hard Gray, Moist SILT, trace gravel, A-4	8 14 35		13	
	31			
	36 50		10	
588.00 -20				

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/15/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6048188, **Longitude** -87.6608822

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-10
Station 141+00
Offset 27.95ft LT
Ground Surface Elev. 607.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 8 inches of Sand and Gravel				
605.80		2		
Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6		3 4	2.1 B	21
		2		
		6 7	3.1 B	15
	-5			
		5		
		12 19	7.5 B	13
598.00		7		
Hard Gray, Moist SILT, trace gravel, A-4		14 22		9
	-10			
		14		
		34 31		15
		7		
		18 31		10
	-15			
		17		
		50		7
		21		
		50		10
587.50				
Auger Refusal at 19.5 ft.	-20			

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/14/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6056872, **Longitude** -87.6606604

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-11
Station 144+16
Offset 33.00ft RT
Ground Surface Elev. 606.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 6 inches of Concrete 3 inches of Sand and Gravel		7		
605.20				
Black and Gray, Wet FILL: SAND, trace gravel and cinders, A-2-4		4 3		27
604.50				
Very Stiff Brown and Gray, Moist CLAY, A-7-6		6		
602.00		3	2.5	22
Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6	-5	3	P	
		14		
599.50		19	7.0	11
Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6		21	P	
		7		
		14	8.3	13
	-10	19	B	
595.50				
Very Hard Gray, Moist SILT with gravel, A-4		21		
		25 28		11
		8		
		21		11
	-15	30		
		10		
		24		11
		42		
587.50		50		11
Auger Refusal at 19 ft. End of Boring	-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/26/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6064647, **Longitude** -87.6608981

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-12
Station 146+99
Offset 31.76ft LT
Ground Surface Elev. 606.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 10 inches of Concrete 8 inches of Sand and Gravel	7		
604.00	4 4	1.5 P	21
Stiff Black and Gray, Moist CLAY, A-7-6			
602.00	2		
Very Stiff to Very Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6	2 2	2.0 P	22
-5	9		
	13 14	9.2 B	12
597.00	12		
Hard to Very Hard Gray, Moist SILT, trace gravel, A-4	26 28		14
-10	13		
	20 24		10
	7		
	17 37		9
-15	12		
	13 14		14
	20		
	15 34		17
Cobble at 19.5 586.00 -20			

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/14/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6073608, **Longitude** -87.6606762

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-13
Station 150+26
Offset 29.23ft RT
Ground Surface Elev. 605.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				7 inches of Asphalt 8 inches of Concrete 5 inches of Sand and Gravel
	1			
603.20	2	1.5	23	
	2	P		Stiff Black and Gray, Moist CLAY, A-7-6
601.00	2			
	2	2.1	22	Very Stiff to Very Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
-5	3	B		
	5			
	14	9.2	14	
	20	B		
596.00	18			
	42		11	Very Hard Gray, Moist SILT, trace gravel, A-4
-10	50/3			
	19			
	38		7	
	46			
591.00	22			
	50/3		4	Very Hard Gray, Dry to Moist SILT with gravel, A-4
-15				
	50/3		5	
586.40				
	50/1		6	Auger Refusal at 18.6 ft. End of Boring
-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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/26/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6082106, **Longitude** -87.6609342

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-14
Station 153+36
Offset 41.05ft LT
Ground Surface Elev. 605.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 586.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 10 inches of Concrete 14 inches of Sand and Gravel	3		
	2 3		2
602.50			
Very Hard Gray, Moist SILTY CLAY, A-6	2		
	4 7	8.0 P	12
-5			
	10		
	15 28	10.8 S	12
596.50			
Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6	10		
	13 16	10.0 P	11
-10			
593.50	7		
Hard to Very Hard Gray, Moist SILT, A-4	20 17		14
Noted cobble at 13.5 ft	50/5		12
-15			
589.00			
Hard Gray, Dry to Very Moist SILT, trace gravel, A-4	7		
	12 21		20
▼	7		
	14 23		4
585.00 -20			

End of Boring

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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/26/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6089428, **Longitude** -87.6606776

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-15
Station 156+02
Offset 29.30ft RT
Ground Surface Elev. 604.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 10 inches of Concrete 8 inches of Gravel		2		
602.50		2 4	2.0 P	21
Very Stiff Brown and Gray, Moist SILTY CLAY, A-6		2		
	-5	4 5	2.5 P	16
598.50		10		
Very Hard Brown and Gray, Moist SILTY CLAY, A-6		13 20	10.8 B	12
595.50		8		
Hard to Very Hard Gray, Moist SILT, trace gravel, A-4	-10	29 28		17
		10		
		25 26		8
		13		
	-15	23 28		9
		22		
		50/5		10
585.50		50/5		13
Auger Refusal at 19 ft. End of Boring	-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/23/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.609758, **Longitude** -87.6609215

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-16
Station 158+99
Offset 37.20ft RT
Ground Surface Elev. 604.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel	8		
602.70	4 3	2.5 P	21
Brown and Gray, Moist FILL: SILTY CLAY, trace gravel and wood, A-6	5		
600.50	3 3	2.0 P	24
-5 Very Stiff Brown and Gray, Moist SILTY CLAY, trace gravel, A-6	9		
	11 16	2.5 P	21
595.50	7		
Very Hard Gray, Moist	15 23	10.0 P	10
-10 SILTY CLAY, trace gravel, A-6			
593.50	5		
Very Stiff to Hard Gray, Moist SILT, trace gravel, A-4	11 20		13
	4		
	9 17		13
-15	10		
Noted cobble at 16.5 ft	13 15		16
	17		
	17 17		20
584.50 -20			

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/14/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.6105816, **Longitude** -87.6606855

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-17
Station 161+99
Offset 27.34ft RT
Ground Surface Elev. 604.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 583.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	2			5 inches of Asphalt 8 inches of Concrete 7 inches of Sand and Gravel
602.70				
	2 2	2.5 P	25	Very Stiff Black and Gray, Very Moist CLAY, A-7-6
600.50	2			
-5	2 2	2.5 B	28	Very Stiff to Very Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
	2			
	4 10	5.0 B	21	
	7			
-10	15 19	9.2 B	12	
593.50				
	5			Hard to Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
	18 24	8.3 B	11	
	5			
-15	11 19	8.3 B	17	
	4			
587.00	5 8	5.0 B	12	
	5			Very Stiff to Very Hard Gray, Moist to Very Moist SILT, trace gravel, A-4
-20	10 15		17	
-25	10			Very Stiff to Very Hard Gray, Moist to Very Moist SILT, trace gravel, A-4 *(continued)*
	17 35		21	
	14			
	28 50/3		21	
578.50	4			
	5 6		19	Medium Dense Gray, Wet SAND, medium grained, A-3
	3			
574.50 -30	6 8		19	
-35				End of Boring
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/23/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6114068, **Longitude** -87.6609021

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-18
Station 165+00
Offset 31.50ft LT
Ground Surface Elev. 604.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
4 inches of Asphalt 8 inches of Sand and Gravel 603.50			
Stiff Black and Gray, Very Moist CLAY, A-7-6 602.50	2 4 5	1.5 P	21
Very Stiff to Very Hard Brown and Gray, Moist to Very Moist SILTY CLAY, trace gravel, A-6	2		
-5	4 5	3.0 P	22
	6		
	11 14	11.7 B	12
595.50	4		
Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6	12 16	10.0 B	12
-10			
593.50	6		
Hard Gray, Moist SILT, trace gravel, A-4	15 23		13
590.50	9		
Very Stiff to Hard Gray, Moist SILT, A-4	18 13		20
-15			
	11		
	18 21		12
	12		
-20	20 19		16

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Very Stiff to Hard Gray, Moist SILT, A-4 *(continued)*	9		
	17 20		17
580.50	6		
Hard Gray, Moist SILTY CLAY, trace gravel, A-6	8 13	7.1 B	17
-25			
	8		
	10 13	6.0 S	18
576.00	8		
Very Stiff Gray, Moist SILT, A-4	13 11		20
574.50 -30			
End of Boring			
-35			
-40			

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/16/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6122298, **Longitude** -87.6606854

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-19
Station 168+00
Offset 27.94ft RT
Ground Surface Elev. 604.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 583.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel
	3			
602.70				
	3	2.0	21	Very Stiff to Very Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
	3	P		
	4			
	2	2.5	20	
-5	2	P		
	4			
	10	12.5	10	
	13	B		
595.50	5			
	10	11.7	12	Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
-10	13	B		
593.00	10			
	31		15	Very Hard Gray, Moist SILT, A-4
	33			
	10			
	28		18	
-15	28			
588.50				
	12			Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
	19	9.2	10	
	26	B		
	11			
	18	10.0	10	
-20	22	B		

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
583.50 ▼				
	22			Very Hard Gray, Moist SILT, with gravel, A-4
	31		12	
	50/5			
	43			
	50/5		10	
-25				
	31			
	42		8	
	50/5			
	22			
	36		6	
574.50 -30	32			
				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/23/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.6130734, **Longitude** -87.660903

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-20
Station 171+08
Offset 31.37ft LT
Ground Surface Elev. 604.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 580.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				4 inches of Asphalt 8 inches of Gravel
603.00				
	2			Stiff Black and Gray, Moist CLAY, A-7-6
	3 2	1.5 P	23	
600.50				
	1			Stiff Brown and Gray, Moist SILTY CLAY, A-6
	2 4	1.5 P	21	
-5				
598.00				
	8			Very Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
	11 13	10.0 B	12	
595.00	10			
	20 34	8.0 P	12	Hard Gray, Moist SILTY LOAM, A-6 Noted cobble at 9.5 ft
-10				
	7			
	14 32	8.0 S	11	
590.00	7			
	34 22		8	Very Hard Gray, Moist SILT, trace gravel, A-4
-15				
588.00				
	8			Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
	19 19	8.8 S	9	
	7			
	20 19	10.8 B	10	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
583.00				
	42			Very Hard Gray, Moist SILT, with gravel, A-4
	50/5		9	
580.50				
▼	16			Very Hard Gray, Wet SILT, with sand and gravel, A-4
	27 23		9	
-25				
	16			
	17 30		10	
575.50				
	12			Hard Gray, Moist SILTY CLAY, A-6
	19 21	4.2 S	17	
574.00 -30				
				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/16/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6138755, **Longitude** -87.6606776

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-21
Station 174+00
Offset 30.48ft RT
Ground Surface Elev. 604.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel
	12			
602.20				
	4 3	2.5 P	27	Very Stiff Black and Gray, Moist to Very Moist CLAY, A-7-6
600.00	3			
	3 4	2.5 P	18	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, A-6
-5				
	5			
	8 9	6.0 P	11	
595.00	5			
	11 13	9.2 B	13	Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
-10				
593.00				
	11			Very Hard Gray, Moist SILT, A-4
	36 50	 B	11	
	19			
	30 22		9	
-15				
588.00				
	15			Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
	23 24	9.2 B	12	
	10			
	17 27	10.0 B	12	
-20				
				583.00
	50/1		11	Very Hard Gray, Moist SILT, with gravel, A-4
				580.50
	50/5		2	Very Hard Gray, Dry SILT, with rock fragments, A-4
580.00				
-25				Auger Refusal at 24 ft. End of Boring
-30				
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/22/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6149707, **Longitude** -87.6609074

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-22
Station 177+99
Offset 32.12ft LT
Ground Surface Elev. 603.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 574.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Gravel
602.30				
	2			Stiff Black and Gray, Moist CLAY, A-6
	1 3	1.5 P	23	
600.00				
	2			Very Stiff to Very Hard Brown and Gray, Moist SILTY CLAY, A-6
	2 3	2.1 B	19	
-5				
	8			
	10 13	10.0 S	12	
594.50				
	7			Very Hard Gray, Moist SILTY CLAY, A-6
	13 12	12.5 B	13	
-10				
	6			
	9 13	10.0 B	13	
590.00				
	7			Very Hard Gray, Moist SILT, A-4
	25 18		11	
-15				
	14			
	24 18		13	
	9			
	22 19		15	
-20				
				Very Hard Gray, Moist SILT, A-4 *(continued)*
	7			
	12 9		10	Noted a sand lens at 22 ft
580.00				
	11			Hard Gray, Moist SILTY CLAY, A-6
	10 12	7.5 B	11	
-25				
	8			
	11 10	7.5 P	11	
574.50 ▼	13			
	25 21		18	Very Hard Gray, Moist SILT, A-4
573.50 -30				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/16/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.615796, **Longitude** -87.6606797

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-23
Station 180+99
Offset 31.09ft RT
Ground Surface Elev. 603.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 580.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel
	10			
601.70				
	6 4	2.5 P	24	Very Stiff Black and Gray Clay, A-7-6
599.50	4			
	5 7	3.0 P	15	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
-5				
	18			
	31 27	7.0 P	13	
594.50	4			
	7 10	5.8 B	15	Hard to Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
-10				
	4			
	8 9	8.3 B	13	
	5			
	9 9	9.2 B	13	
-15				
587.50				
	10			Very Hard Gray, Moist SILT, A-4
	15 18		12	
	11			
	19 21		12	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
582.50				
	9			Hard Gray, Moist SILTY CLAY, A-6
	12 15	4.6 B	15	
▼	7			
	8 10	4.2 B	14	
-25				
	8			
	12 15	4.2 B	18	
	10			
	17 17	4.6 B	22	
573.50 -30				
				End of Boring
-35				
-40				

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)

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Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/22/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6166121, **Longitude** -87.6609139

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-24
Station 183+97
Offset 31.37ft LT
Ground Surface Elev. 603.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 577.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Sand and Gravel
602.30	2			
	3 4	2.5 P	21	Very Stiff Black and Gray, Moist CLAY, A-7-6
599.50	3			
-5	4 5	2.1 B	21	Very Stiff to Very Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
	10			
	12 14	8.8 S	13	
594.50	4			
-10	10 12	10.8 S	12	Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
592.50	15			
	30 32		12	Very Hard Gray, Moist SILT, A-4
	16			
-15	44 50/5		9	
587.50	11			
	16 25		9	Very Hard Gray, Moist SILT, trace gravel and clay, A-4
584.50	6			
-20	26 30	9.2 B	11	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
582.50	13			Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6 *(continued)*
	27 28		21	Very Hard Gray, Moist to Very Moist SILT, trace clay, A-4
	12			
-25	21 25		14	
577.50 ▼	12			Medium Dense to Very Dense Gray, Moist SANDY CLAY, trace gravel, A-2-4
	10 12		15	
	8			
573.50 -30	30 25		10	
-35				End of Boring
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6174414, **Longitude** -87.6606876

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-25
Station 186+99
Offset 32.08ft RT
Ground Surface Elev. 602.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel
	4			
600.70				
	3	2.5	23	Very Stiff Black and Gray, Moist CLAY, A-7-6
	3	P		
	2			
598.50				
	4	2.5	18	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
-5	8	P		
	4			
	6	5.0	14	
	11	P		
	16			
593.50				
	21	10.0	12	Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
-10	21	B		
591.50				
	45			Very Hard Gray, Moist SILT, trace gravel, A-4
	36		12	
	33			
	11			
	22		10	
-15	24			
	8			
	21		11	
585.50	40			
	13			Very Hard Gray, Moist SILT, A-4
	47		15	
-20	50/4			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	19			Very Hard Gray, Moist SILT, A-4 *(continued)*
	47		16	
	50/4			
	15			
578.50				
	12	4.6	15	Hard Gray, Moist SILTY CLAY, trace gravel, A-6
-25	13	B		
	4			
	7	6.3	15	
	8	B		
	3			
	7	6.7	15	
572.50	9	B		
-30				End of Boring
-35				
-40				

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)

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Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/21/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6182945, **Longitude** -87.6609097

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-26
Station 190+40
Offset 27.00ft LT
Ground Surface Elev. 603.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 582.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Sand and Gravel
601.80				
	2			Very Stiff Black and Gray, Moist CLAY, A-7-6
	2	2.0	10	
	3	P		
599.00	2			Very Stiff to Very Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
	2	2.0	24	
-5	2	P		
	5			
	12	9.2	10	
	17	B		
594.00	10			Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
	21	11.7	10	
-10	24	B		
592.00	11			Very Hard Gray, Moist SILT, A-4
	18		15	
	26			
	13			
	17		12	
-15	27			
	10			
	16		19	
	25			
	9			
	18		16	
-20	22			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
582.00 ▼				
	9			Very Hard Gray, Moist SILT, with gravel, A-4
	19		16	
	27			
	10			
	21		9	
-25	39			
	13			
	24		12	
	37			
	17			
	23		10	
573.00 -30	38			
				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6190931, **Longitude** -87.6606989

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-27
Station 193+01
Offset 32.16ft RT
Ground Surface Elev. 603.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 577.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel
	10			
601.20				
	7 5	2.0 P	26	Very Stiff Black and Gray Moist Clay, A-7-6
	1			
599.00				
	2 3	1.5 P	19	Stiff to Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
-5				
	7			
	13 10	7.5 B	8	
594.00	8			
	14 16	10.0 B	12	Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
-10				
592.00				
	10			Very Hard Gray, Moist SILT, trace gravel, A-4
	24 44		10	
	10			
	22 23		10	
-15				
587.00				
	12			Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
	18 24	8.3 B	10	
	10			
	16 20	10.0 B	12	
-20				
				Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6 *(continued)*
	12			
	14 21	8.3 B	11	
	13			
	15 23	9.2 B	11	
-25				
577.00 ▼				
	10			Dense Gray, Moist SAND, medium grained, A-3
	16 28		9	
574.00	8			
	14 30		8	Very Hard Gray, Moist SILT, trace gravel, A-4
573.00 -30				
				End of Boring
-35				
-40				

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)

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Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/15/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6199126, **Longitude** -87.660921

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-28
Station 196+00
Offset 27.00ft LT
Ground Surface Elev. 603.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 577.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel
	4			
601.20				
	3 3	2.0 P	23	Very Stiff Black and Gray, Moist CLAY, A-7-6
600.00				
	4			Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
	2 5	2.0 P	21	
-5				
	8			
	6 8	3.0 P	13	
	17			
	18 20	7.0 P	12	
-10				
592.00				
	13			Very Hard Gray, Moist SILT, trace gravel, A-4
	31 50/5		7	
589.50				
	10			Hard to Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
	14 28	7.5 B	9	
-15				
	10			
	20 21	8.3 B	10	
	7			
	13 15	9.2 B	12	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
582.00				
	24			Very Hard Gray, Moist SILT, with gravel, A-4
	50/5		8	
	21			
	31 32		10	
-25				
▼	17			
576.00	22 37		10	
				Very Hard Green and Gray, Moist SANDY LOAM with shale fragments, A-4
574.00	50/4		5	
				Auger Refusal at 29 ft. End of Boring
-30				
-35				
-40				

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)

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Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.620721, **Longitude** -87.6607054

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-29
Station 198+94
Offset 33.51ft RT
Ground Surface Elev. 603.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 584.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				4 inches of Asphalt 6 inches of Concrete 8 inches of Sand and Gravel
	2			
601.40				
	2	2.0	26	Very Stiff Black and Gray, Moist to Very Moist CLAY, A-7-6
	3	P		
	2			
599.00				
	2	2.5	24	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
-5	3	B		
	6			
	7	5.0	13	
	14	P		
	8			
594.00				
	14	11.7	11	Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
-10	14	B		
	9			
	17	10.4	10	
	19	B		
	8			
	22	10.0	10	
-15	26	B		
587.00				
	6			Very Hard Gray, Moist SILT, A-4
	17		16	
	19			
584.50				
▼	5			Medium Dense to Dense Gray, Moist SAND, medium grained, A-3
	13		20	
-20	14			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Medium Dense to Dense Gray, Moist SAND, medium grained, A-3 *(continued)*
	4			
	8		13	
	18			
	2			
	3		13	
-25	23			
	8			
	17		12	
	23			
	10			
	15		13	
-30	18			
573.00				End of Boring
-35				
-40				

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)

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Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/21/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JJR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6215582, **Longitude** -87.6609502

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-30
Station 202+00
Offset 31.83ft LT
Ground Surface Elev. 602.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Concrete 8 inches of Sand and Gravel
601.60	3			
	4 4	2.5 P	22	Very Stiff Black and Gray, Moist to Very Moist CLAY, A-7-6
598.50	2			
	3 3	2.5 P	26	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, trace gravel, A-6
-5	10			
	21 33	4.0 P	21	
593.50	6			
	13 15	12.5 B	12	Very Hard Gray, Moist SILTY CLAY, trace gravel, A-6
-10				
591.50	10			
	21 22		21	Hard to Very Hard Gray, Moist to Very Moist SILT, A-4
	14			
	27 28		15	
-15	10			
	23 24		18	
	5			
	50/5		10	
582.50				
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Hard to Very Hard Gray, Moist SILT, with gravel, A-4
581.00	50/3			
				Auger Refusal at 21.5 ft. End of Boring
-25				
-30				
-35				
-40				

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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/22/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JH

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6223831, **Longitude** -87.6607204

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-31
Station 205+00
Offset 32.59ft RT
Ground Surface Elev. 602.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 576.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 10 inches of Concrete 2 inches of Gravel
600.90	5			
	4 5	3.0 P	17	Stiff to Very Stiff Black, Moist to Very Moist CLAY with sand, trace organic, A-7-6
	2			
	2 2	1.0 P	29	
-5				
596.50				
	5			Hard Brown and Gray, Moist SILTY CLAY, A-6
	7 10	7.5 P	14	
594.00				
	10			Very Hard Gray, Moist SILT, A-4
	19 25		7	
-10				
	30			
	37 45		16	
	47			
	50/3		16	
-15				
586.50				
	17			Very Hard Gray, Moist SILT, A-4
	27 32		16	
	19			
	25 33		16	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Very Hard Gray, Moist SILT, A-4 *(continued)*
	34			
	46 50/3		9	
	47			
	50/5		8	
-25				
▼				
	50/3		8	Fragments of limestone recovered at 26 ft
573.80				
	50/2		8	Auger Refusal at 28.7 ft. End of Boring
-30				
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 12/4/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.623234, **Longitude** -87.6609702

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-32
Station 208+10
Offset 34.07ft LT
Ground Surface Elev. 604.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 583.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				3.5 inches of Asphalt 11.5 inches of Concrete 3 inches of Sand and Gravel
	1			
602.90				
	2 2	2.0 P	28	Stiff Black, Very Moist CLAY, A-7-6
	3			
	5 5	1.5 B	27	
599.50 -5				
				Hard to Very Hard Gray, Moist SILTY CLAY, A-6
	6			
	14 18	7.1 B	8	
	6			
	11 14	7.7 B	13	
-10				
	11			
	24 28	12.0 P	10	
	12			
	28 35	13.3 P	8	
-15				
	19			
	50/3		8	
586.00				
	50/5		6	Very Hard Gray, Moist Silt, A-4
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Very Hard Gray, Moist Silt, A-4 *(continued)*
▼				
	50/4		8	
581.00				
				Auger refusal at 23.5 ft. End of Boring
-25				
-30				
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/22/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JH

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6240287, **Longitude** -87.6607402

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-33
Station 210+99
Offset 30.37ft RT
Ground Surface Elev. 604.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				3 inches of Gravel 603.75
	5			Stiff
	2	1.5	37	Black, Very Moist
	2	P		CLAY with sand, trace organic,
				A-7-6
	1			600.00
	2	1.0	30	Stiff to Very Stiff
-5	2	P		Brown and Gray, Moist to Very Moist
				SILTY CLAY, A-6
	2			
	4	2.0	12	
	9	P		
				595.50
	5			Hard to Very Hard
	21	8.0	9	Gray, Moist
-10	25	P		SILT, A-4
	6			
	18	6.5	10	
	20	P		
	8			
	15	7.0	11	
-15	24	P		
	23			
	29		NR	
	37			
	24			
	34		11	
-20	40			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				582.90
	50/1			Auger refusal at 21.1 ft.
				End of Boring
-25				
-30				
-35				
-40				

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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/30/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6248581, **Longitude** -87.6609779

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-34
Station 214+02
Offset 33.00ft LT
Ground Surface Elev. 603.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 594.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
5 inches of Asphalt 603.10				
Very Loose Brown, Moist to Wet SAND, trace gravel and clay, A-2-4		3 4 4		12
599.50		1		
Soft Gray, Very Moist CLAY, trace gravel, A-7-6	-5	2 1	0.3	28
597.50		4		
Very Stiff to Very Hard Gray, Moist SILTY CLAY, trace sand and gravel, A-6		5 8	3.5 B	13
▼		50/5	9.0	13
	-10	30		
		43 47	3.8 S	12
590.00				
Very Stiff to Very Hard Gray, Moist SILT, A-4		30 43 48	2.3 S	18
	-15	30		
Noted shale fragments at 16.5 ft. 586.50		50/4		7
Auger Refusal at 17.0 ft. End of Boring	-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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/23/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JH

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6256747, **Longitude** -87.6607713

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-35
Station 216+99
Offset 25.08ft RT
Ground Surface Elev. 604.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				7 inches of Asphalt 7 inches of Concrete 2 inches of Gravel
602.60	5			
	5 4	3.0 P	19	Brown and Gray, Moist FILL: SILTY CLAY with sand, A-6
	3			
	3 2	2.0 P	23	
-5				
	1			
	2 1		NR	
595.50				
	3			Very Stiff Gray, Moist SILTY CLAY, A-6
	4 4	3.0 P	18	
-10				
593.00				
	10			Very Hard Gray, Dry to Moist SILT, A-4
	28 35		9	
	17			
	50/3		11	
-15				
	33			
	50/3		2	
	18			
	33 46		9	
-20				
583.00				
	50/1		4	Auger refusal at 21 ft End of Boring
-25				
-30				
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/20/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.6265002, **Longitude** -87.6609896

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-36
Station 220+00
Offset 33.00ft LT
Ground Surface Elev. 603.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 585.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
8 inches of Asphalt 7 inches of Sand and Gravel			
601.70	9		
Very Stiff Brown and Gray, Moist SILTY CLAY, A-6	5 5		NR
	4		
-5	6 5		24
	2		
	4 4	2.3 B	21
594.00	8		
Very Hard Gray, Moist	12 23		11
593.00 -10 SILT, A-4			
Hard to Very Hard Gray, Moist SILTY CLAY, A-6	9		
	12 16	5.2 S	11
	12		
-15	40 18	5.5 P	10
	50/5		8
▼			
584.40			
Auger refusal at 18.6 ft End of Boring	50/3		5
-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/23/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JH

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.6273218, **Longitude** -87.6607871

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-37
Station 222+99
Offset 23.97ft RT
Ground Surface Elev. 601.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				8 inches of Asphalt 4 inches of Concrete
600.30	5			
	4 4	3.0 P	24	Very Stiff Dark Gray, Moist CLAY, A-7-6
	3			
-5	4 4	2.0 P	25	
595.50	3			
	6 10	4.2 B	19	Hard Brown, Moist SILTY CLAY, A-6
593.00	8			
-10	12 14	5.0 P	11	Hard Gray, Moist SILTY CLAY, A-6
590.50	12			
	15 19	5.0 P	13	Hard to Very Hard Gray, Moist SILT, trace gravel, A-4
	12			
-15	23 29	5.0 P	10	
	49 50/0		19	
	28			Trace Limestone and Shale at 19.3 ft.
582.20	50/2		9	
-20				Auger refusal at 19.3 ft.

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 12/7/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6281684, **Longitude** -87.6610041

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-38
Station 226+0876
Offset 33.72ft LT
Ground Surface Elev. 601.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				12 inches of Asphalt 3 inches of Sand and Gravel
599.70	3			
	3 5	4.0 P	20	Medium Stiff to Hard Brown and Gray, Moist to Very Moist CLAY, A-7-6
	2			
	2 3	0.8 B	28	
596.00 -5				
	3			Stiff to Very Hard Gray, Moist SILTY CLAY, trace sand and gravel, A-6
	5 7	2.7 B	17	
	3			
	6 7	3.8 B	17	
-10				
	6			
	8 12	8.0 P	13	
	50/3	1.8 P	11	Noted cobble pieces at 13.7 ft
-15				
585.00				
	5			Dense Gray, Moist SAND, trace gravel, A-2-4
	16 28		9	
582.50				
	50/2		8	Very Hard Gray, Moist SILT
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Trace Limestone fragments at 21 ft.
579.90	50/1		3	
				Auger Refusal at 21.1 ft. End of Boring
-25				
-30				
-35				
-40				

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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/23/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** EF

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6289781, **Longitude** -87.6607716

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-39
Station 229+03
Offset 31.42ft RT
Ground Surface Elev. 601.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				5 inches of Asphalt 5 inches of Concrete 1 inch of Gravel
600.10	4			
	2 3		24	Stiff Dark Gray, Moist CLAY, A-7-6
597.50	2			
	4 6	2.5 B	21	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, A-6
-5	3			
	4 5	2.7 B	20	
	4			
	9 15	6.9 B	16	
-10	5			
	10 16	3.3 B	22	
587.50	6			
	7 12	10.0 S	16	Very Hard Gray, Moist SILTY CLAY, A-6
-15				
585.00	7			
	28 35	6.0 P	12	Very Hard Gray, Moist SILT, with shale, A-4
582.40	50/1			
				Auger refusal 18.6 ft End of Boring
-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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation

Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/30/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6297929, **Longitude** -87.6610061

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-40
Station 232+00
Offset 31.08ft LT
Ground Surface Elev. 600.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
4 inches of Asphalt 10 inches of Concrete 3 inches of Sand and Gravel		9		
598.60				
Medium Stiff to Very Stiff Brown and Gray, Moist SILTY CLAY, A-6		6 5		19
		6		
		7 5	1.0	18
	-5			
		3		
		6 9	3.1 B	19
591.50				
Very Stiff to Hard Gray, Moist SILTY CLAY, trace sand and gravel, A-6		5		
		5 10	4.6 B	17
	-10			
		4		
		8 9	2.9 S	16
		7		
		8 9	7.3	12
	-15			
584.00				
Very Hard Gray, Moist SILT, trace sand and gravel, A-4		10		
		16 21		9
581.50				
Very Hard Gray, Moist		21		
580.60		50/5		7
SILT, with gravel, A-4	-20			

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/23/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** EF

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6306167, **Longitude** -87.6607403

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-41
Station 235+00
Offset 43.54ft RT
Ground Surface Elev. 599.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 4 inches of Concrete 2 inches of Gravel
598.50	7			
	12 18		NR	Very Stiff Dark Gray and Brown, Moist CLAY, A-7-6
	3			
-5	3 3	2.8 P	25	
593.50	3			
	4 6	6.3 B	19	Hard Brown, Moist SILTY CLAY, A-6
591.00	6			
-10	8 11			Hard Gray, Moist SILTY CLAY, A-6
	5			
	9 12	6.5 P	11	
	6			
-15	11 19	6.7 B	12	
583.50	50/4		10	Very Hard Gray, Moist SILT, trace shale, A-4
582.50				Auger Refusal at 17 ft. End of Boring
-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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/25/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6314388, **Longitude** -87.6610003

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-42
Station 238+00
Offset 25.58ft RT
Ground Surface Elev. 599.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 597.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				4 inches of Asphalt 10 inches of Concrete 3 inches of Sand and Gravel
597.50 ▼	1			
	3 3	2.8 P	22	Stiff to Hard Brown, Moist to Very Moist SILTY CLAY, A-6
	2			
	3 4	1.9 B	22	
-5				
	3			
	3 6	4.4 B	26	
590.50				
	2			Hard Gray, Moist SILTY CLAY, trace sand and gravel, A-6
	5 7	4.6 B	21	
-10				
	4			
	6 9	7.3 B	19	
	4			
	7 8	5.8 P	14	
-15				
	9			Pushed cobble at 16 ft
	11 18		16	
580.50				
	10			Dense to Extremely Dense Gray, Moist to Wet SAND, A-3
	17 32		21	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Dense to Extremely Dense Gray, Moist to Wet SAND, A-3 *(continued)*
	13			
	18 25		25	
	17			
	50/5		21	
-25				
	18			
572.50				
	50/5		9	Extremely Dense Gray, Moist GRAVEL with sand, A-1-a
570.30				
	50/2		5	Auger Refusal at 28.7 ft.
				End of Boring
-30				
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/30/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6330859, **Longitude** -87.6610280

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-44
Station 244+00
Offset 29.08ft LT
Ground Surface Elev. 597.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 579.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				4 inches of Asphalt 10 inches of Concrete 3 inches of Sand and Gravel
	9			
596.00				
	11	3.3	21	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, A-6
	12	P		
	2			
	4	2.7	21	
-5	6	B		
	3			
	7	5.2	19	
	10	B		
	3			
	5	4.6	19	
-10	9	B		
	4			Noted trace sand at 11 ft
	7	5.0	13	
	10	B		
584.00				
	5			Hard Gray, Moist SILTY CLAY, trace sand and gravel, A-6
	9	7.9	11	
-15	13	B		
	7			
581.00				
	21		13	Dense to Very Dense Gray, Moist to Wet SAND, A-3
▼	30			
	9			
	22		21	
-20	25			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Dense to Very Dense Gray, Moist to Wet SAND, A-3 *(continued)*
	17			
	23		22	
	20			
	17			
	30		19	
-25	48			
	12			
	13		16	
	22			
	7			
	20		19	
-30	33			Noted cobble at 29.5 ft
567.50				
				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/24/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6339143, **Longitude** -87.6608208

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-45
Station 247+02
Offset 29.58ft RT
Ground Surface Elev. 597.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 570.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				4 inches of Asphalt 10 inches of Concrete 3 inches of Sand and Gravel
595.50	5			
	5 7	4.5 P	21	Gray, Moist FILL: SILTY CLAY, A-6
593.50	3			
	5 5	1.9 S	20	Stiff Gray, Moist SILTY CLAY, trace limestone pieces, A-6
-5				
	4			Pushed cobble at 6 ft
	6 7		20	
588.50	4			
	6 6	4.4 S	15	Very Stiff to Hard Gray, Moist SILTY CLAY, trace sand, A-6
-10				
	2			
	5 6	3.1 B	15	
	9			Noted trace gravel below 13.5 ft
	11 13	3.0 P	13	
-15				
	44			
	34 47	4.3 P	9	
	16			
	26 26	4.0 P	13	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	10			Very Stiff to Hard Gray, Moist SILTY CLAY, trace sand, A-6 *(continued)*
	26 29	5.0 P	10	
573.50	19			
	29 43	2.0 P	12	Very Stiff Gray, Moist SILT, trace gravel, A-4
-25				
571.00	4			
▼	5 6		21	Medium Dense to Dense Gray, Wet SAND, A-3
	11			Noted trace gravel at 28.5 ft
	18 21		21	
567.00 -30				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 12/4/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6347303, **Longitude** -87.6610298

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-46
Station 249++99
Offset 25.54ft LT
Ground Surface Elev. 597.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Concrete 3 inches of Sand and Gravel
	2			
595.50				
	2 3	2.1 B	21	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, trace sand, A-6
	2			
	3 4	2.3 P	20	
-5				
	3			
	4 7	4.8 B	18	
588.50				
	3			Very Stiff Gray, Moist SILTY CLAY, trace sand and gravel, A-6
	6 10	3.8 B	19	
-10				
586.00				
	3			Very Stiff Gray, Moist SILTY CLAY, A-6
	4 5	3.1 B	20	
	3			Noted trace sand at 13.5 ft
	4 6	3.3 B	15	
-15				
581.00				
	11			Hard to Very Hard Gray, Moist SILT, trace sand and gravel, A-4
	29 34	12.8 P	10	
	45			
	39 50/3	14.0 P	7	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Hard to Very Hard Gray, Moist SILT, trace sand and gravel, A-4 *(continued)*
	24			
	50/4		6	
	32			
	50/3		10	
-25				
	16			
	50/5		7	
	12			
	24 38	5.0 P	9	
567.00 -30				
				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/24/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6355560, **Longitude** -87.6608684

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-47
Station 253+00
Offset 20.58ft RT
Ground Surface Elev. 596.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 574.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				2 inches of Asphalt 12 inches of Concrete 5 inches of Sand and Gravel
	16			594.40
	9 7		5	Stiff Brown and Gray, Dry to Moist SILTY CLAY, A-6
	2			
-5	2 2	1.3 B	24	
				590.00
	5			Stiff to Very Hard Gray, Moist SILTY CLAY, A-6
	7 8	1.8 P	24	
	4			
-10	6 11	4.2 B	19	
	3			Noted trace sand below 11 ft
	5 9	5.0 B	14	
	3			
-15	7 10	10.0 B	13	
	15			
	21 37	11.0 P	11	
				577.50
	24			Very Hard Gray, Moist SILT, A-4
-20	50/2		8	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				575.00
	10			Medium Dense to Dense ▼ Gray, Wet SAND, A-3
	10 14		20	
	8			
-25	12 15		17	
	13			
	11 14		20	
	15			
	18 16		18	
-30				566.00
				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/20/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6364121, **Longitude** -87.6608302

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-48
Station 256+14
Offset 18.00ft RT
Ground Surface Elev. 596.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				4 inches of Asphalt 8 inches of Concrete 4 inches of Sand and Gravel
	4			594.60
	4 5	4.5 P	18	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, A-6
	4			
-5	3 4	2.5 P	22	
	3			
	6 9	5.8 B	20	
	8			587.50
-10	11 13	6.0 P	17	Hard Gray, Moist SILT, trace gravel and clay, A-4
	5			
	11 14		14	
	6			582.50
-15	8 10	6.5 P	7	Hard Gray, Moist SILTY CLAY, trace sand and gravel, A-6
	15			
	28 38	5.3 P	8	
	15			577.50
-20	48 50/1	12.0 P	10	Very Hard Gray, Moist SILT, A-4 576.40

End of Boring

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 12/4/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6372086, **Longitude** -87.6608291

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-49
Station 259+01
Offset 25.08ft LT
Ground Surface Elev. 595.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 8 inches of Concrete 3 inches of Sand and Gravel
594.00	3			
	4 4	2.7 B	21	Very Stiff Brown and Gray, Moist SILTY CLAY, A-6
	3			
	3 4	2.9 B	19	
-5				
589.50				
	4			Very Stiff to Hard Gray, Moist SILTY CLAY, trace sand, A-6
	7 6	4.6 S	15	
	4			Noted trace gravel below 8.5 ft.
	6 7	2.5 S	21	
-10				
	3			
583.80				
	5 7	1.3 P	19	Stiff Gray, Moist SILT, A-4
582.00				
	7			Very Stiff to Very Hard Gray, Moist
	10 7	2.9 B	21	SILTY CLAY, trace sand and gravel, A-6
-15				
	15			Noted cobble pieces at 16 ft
	25 31		5	
	17			
	26 32	14.0 P	10	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
574.50				
	16			Very Stiff Gray, Moist SILT, A-4
	33 38	2.0 P	14	
572.00				
	11			Hard to Very Hard Gray, Moist
	18 24	4.4 S	10	SILTY CLAY, trace sand and gravel, A-6
-25				
	9			
	12 16	10.0 P	16	
566.50	50/3	11.0 P	18	
				Auger Refusal at 29 ft End of Boring
-30				
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 12/1/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6380506, **Longitude** -87.6606111

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-50
Station 262+12
Offset 40.60ft LT
Ground Surface Elev. 595.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 574.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				4 inches of Asphalt 6 inches of Concrete 4 inches of Sand and Gravel
594.30	4			
	3 5	2.5 P	21	Very Stiff Black, Moist SILTY CLAY, trace sand, A-7-6
592.00	2			
	4 5	2.9 B	21	Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, A-6
-5				
	4			Noted trace gravel at 6 ft
	7 8	4.6 B	17	
	4			
	6 10	5.4 B	17	
-10				
	3			
	6 9	3.3 B	21	
	2			
	3 4	2.1 B	25	
-15				
579.50	8			
	25 50/5	7.0 P	12	Hard to Very Hard Gray, Moist SILTY CLAY, trace sand and gravel, A-6
	28 50/4		9	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
574.50 ▼				
	18			Very Stiff Gray, Moist SILT, A-4
	27 28	2.0 P	12	
572.00	8			
	19 25	7.5 P	9	Hard to Very Hard Gray, Moist SILTY CLAY, trace sand and gravel, A-6
-25				
	12			
	13 19	6.3 P	11	
	17			Pushed cobble at 28.5 ft
	19 28		15	
565.50 -30				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/23/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6387736, **Longitude** -87.6601064

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-51
Station 265+00
Offset 31.58ft RT
Ground Surface Elev. 596.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 571.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				6 inches of Asphalt 4 inches of Sand and Gravel
595.20				
	3			Stiff to Hard Gray, Moist SILTY CLAY, trace sand, A-6
	5 7	3.8 P	16	
	2			
	3 4	4.0 P	22	
-5				
	2			
	2 2	1.3 P	18	
588.50				
	1			Soft Gray, Very Moist CLAY, A-7-6
	1 2	0.3 P	33	
586.00				
-10				
	4			Hard to Very Hard Gray, Moist SILTY CLAY, A-6
	7 8	4.8 B	20	
	5			
	13 17	5.0 B	19	
-15				
	17			
	33 34		1	Noted cobble at 16.5 ft
	21			
	35 50/2		1	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
575.00				
	29			Very Stiff to Very Hard Gray, Moist SILT, A-4
	48 50/1	9.8 P	9	
	14			
	21 28		17	
▼-25				
	21			
	34 50/3	2.3 P	18	
	14			
	22 33	3.0 P	15	
566.00				
-30				
				End of Boring
-35				
-40				

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
GSG Consultants, Inc.

SOIL BORING LOG

Date 12/7/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.639363, **Longitude** -87.659972

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-52
Station 267+14
Offset 34.79ft RT
Ground Surface Elev. 592.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 576.0 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				2 inches of Asphalt 9 inches of Concrete 4 inches of Sand and Gravel
590.70	7			
	5 5	5.0 P	19	Hard Brown and Gray, Moist SILTY CLAY, A-6
	7			
	6 7			
-5				
586.00				
	4			Very Stiff to Hard Brown, Moist SILTY CLAY, trace sand and gravel, A-6
	6 10	6.5 B	15	
	5			
	8 12	7.5 B	19	
-10				
	3			
	5 6	2.5 B	13	
	50/4			
-15				
576.00 ▼				
	22			Very Hard Gray, Moist SILT, A-4
	50/5		9	
	35			
	50/3		7	
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Very Hard Gray, Moist SILT, A-4 *(continued)*
	25			
	50/5		10	
568.50				
	9			Very Stiff Gray, Moist SILTY CLAY, A-6
	19 35	2.9 S	17	
-25				
566.00				
	19			Very Stiff to Very Hard Gray, Moist SILT, A-4
	25 36	2.5 P	16	
	33			
	45 50/2		12	
-30				
558.50				
	9			Medium Stiff Gray, Moist SILTY CLAY, A-6
	13 19	1.0 P	18	
-35				
553.50				
	22			Very Dense Gray, Moist SAND, trace gravel, A-2-4
	50/4		11	
552.50				
-40				

End of Boring

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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6404337, **Longitude** -87.6599406

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-53
Station 271+01
Offset 30.58ft RT
Ground Surface Elev. 583.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter 574.5 ft ▼
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
8 inches of Asphalt 8 inches of Sand and Gravel				
581.70		2		
Hard Gray, Moist SILTY CLAY, A-6		3 4	4.2 S	16
Noted trace sand at 3.5 ft		5		
		7 11	5.0 S	12
	-5			
577.00		14		
Very Hard Gray, Moist SILTY CLAY, trace sand and gravel, A-6		17 32	11.0 P	13
▼		15		
573.50		50/4		11
Auger Refusal at 9.5 ft. End of Boring	-10			
	-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6412876, **Longitude** -87.6601866

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-54
Station 274+02
Offset 28.00ft LT
Ground Surface Elev. 584.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
8 inches of Asphalt 8 inches of Sand and Gravel				
583.20	5			
Gray, Moist FILL: SILT, A-4	6 6		13	
581.00	6			
Medium Dense Gray, Moist FILL: SAND and GRAVEL, trace clay, A-2-4	7 10		8	
579.50 -5				
Auger Refusal at 5 ft due to an obstruction End of Boring				
-10				
-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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6420865, **Longitude** -87.6599789

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-55
Station 277+03
Offset 37.07ft RT
Ground Surface Elev. 594.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
8 inches of Asphalt 6 inches of Sand and Gravel				
593.30	7			
Gray, Moist FILL: SAND, A-3	14 15		11	
591.00				
Auger Refusal at 3.5 ft due to an obstruction End of Boring				
-5				
-10				
-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6428941, **Longitude** -87.6602862

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-56
Station 280+00
Offset 38.59ft LT
Ground Surface Elev. 596.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
8 inches of Asphalt 8 inches of Sand and Gravel				
595.10	4			
Stiff to Hard Brown and Gray, Moist SILTY CLAY, A-6	4 2	1.5 P	17	
	2			
-5	2 3	1.8 P	23	
Pushed cobble at 6 ft	3			
	3 5		20	
Noted trace sand and gravel at 8.5 ft	3			
586.50 -10	4 10	4.0 B	16	
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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6437207, **Longitude** -87.6600220

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-57
Station 282+99
Offset 42.08ft RT
Ground Surface Elev. 597.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
8 inches of Asphalt 8 inches of Sand and Gravel				
595.60		10		
Medium Stiff to Very Stiff Brownish Gray, Moist SILTY CLAY, A-6		7 6		
		3		
		2 2		21
	-5			
591.00		3		
Very Stiff Brown, Moist SILTY CLAY, trace sand and gravel, A-6		4 6	5.6 B	18
		3		
		5 7	3.5 B	14
587.00	-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6445408, **Longitude** -87.6603722

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-58
Station 286+00
Offset 45.17ft LT
Ground Surface Elev. 597.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				8 inches of Asphalt 7 inches of Sand and Gravel
595.70	6			
	16 22		10	Gray, Moist FILL: Concrete Fragments
593.50	4			
	10 4	1.5 P	26	Stiff Black and Greenish Gray, Very Moist CLAY, A-7-6
592.00 -5				Auger Refusal at 5 ft due to an obstruction End of Boring
-10				
-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)

BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
GSG Consultants, Inc.

SOIL BORING LOG

Date 11/19/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Wood Street, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6453517, **Longitude** -87.6601108

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-59
Station 288+93
Offset 34.58ft RT
Ground Surface Elev. 597.50 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
8 inches of Asphalt 8 inches of Sand and Gravel				
596.10		5		
Medium Stiff Brown and Gray, Moist to Very Moist CLAY, A-7-6		3 4		
		1		
592.50	-5	1 2	1.0 P	27
Hard Brown and Gray, Moist SILTY CLAY, A-6		2		
		4 6	4.2 B	12
Noted trace sand and gravel at 8.5 ft		3		
		6 5	4.6 B	15
587.50	-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
GSG Consultants, Inc.

SOIL BORING LOG

Date 12/1/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Thornton Road, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6376082, **Longitude** -87.6597659

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-60
Station 97+25
Offset
Ground Surface Elev. 596.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
7 inches of Asphalt 6 inches of Concrete 3 inches of Sand and Gravel 594.60	7			
Very Stiff to Hard Brown and Gray, Dry to Moist SILTY CLAY, A-6	5 9		4	
	4			
-5	7 8	5.4 S	18	
	5			
Noted a sand seam at 6.8 ft	7 10	2.4 B	17	
	5			
586.00 -10	7 11	4.4 B	18	
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
GSG Consultants, Inc.

SOIL BORING LOG

Date 10/27/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JR

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Thornton Road, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6370773, **Longitude** -87.6592355

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-61
Station 95+00
Offset
Ground Surface Elev. 596.00 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
4 inches of Asphalt 8 inches of Sand and Gravel	595.00			
Stiff Black and Gray, Very Moist CLAY, A-7-6		2 2 2	1.3 P	28
	592.00	6		
Loose Brown and Gray, Moist SAND, with gravel, A-1-b	-5	6 2		21
	590.00	5		
Very Stiff Gray, Moist to Very Moist CLAY, trace gravel, A-7-6		7 8 6	2.0 P	31
	586.00 -10	12 14	2.0 P	25
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
GSG Consultants, Inc.

SOIL BORING LOG

Date 12/1/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Thornton Road, **SEC.** , **TWP.** , **RNG.** ,
Latitude 41.6386429, **Longitude** -87.6611031

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-62
Station 102+75
Offset
Ground Surface Elev. 595.75 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
11 inches of Asphalt 4 inches of Sand and Gravel				
594.45		15		
Medium Dense Brown, Moist SAND, trace gravel, A-2-4		11 9		8
592.25		3		
Very Stiff Brown and Gray, Moist SILTY CLAY, A-6	-5	3 5	2.5 S	21
589.75		1		
Very Loose Dark Brown, Moist SAND, trace gravel, A-2-4		1 1		14
588.45				
Very Stiff Brown and Gray, Moist SILTY CLAY, trace sand and gravel, A-6		4		
	-10	3 4	3.0 P	21
585.75				
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
GSG Consultants, Inc.

SOIL BORING LOG

Date 12/1/15

ROUTE FAU 2857 - Wood Street **DESCRIPTION** Proposed Wood Street Improvements **LOGGED BY** JP

SECTION (145,146 & 146S-2)WRS & B-1 **LOCATION** Thornton Road, **SEC.** , **TWP.** , **RNG.** ,

Latitude 41.6388303, **Longitude** -87.6617008

COUNTY Cook **DRILLING METHOD** HSA **HAMMER TYPE** AUTO

STRUCT. NO. NA
Station NA

BORING NO. SGB-63
Station 104+50
Offset
Ground Surface Elev. 595.75 ft

Surface Water Elev. NA ft
Stream Bed Elev. NA ft

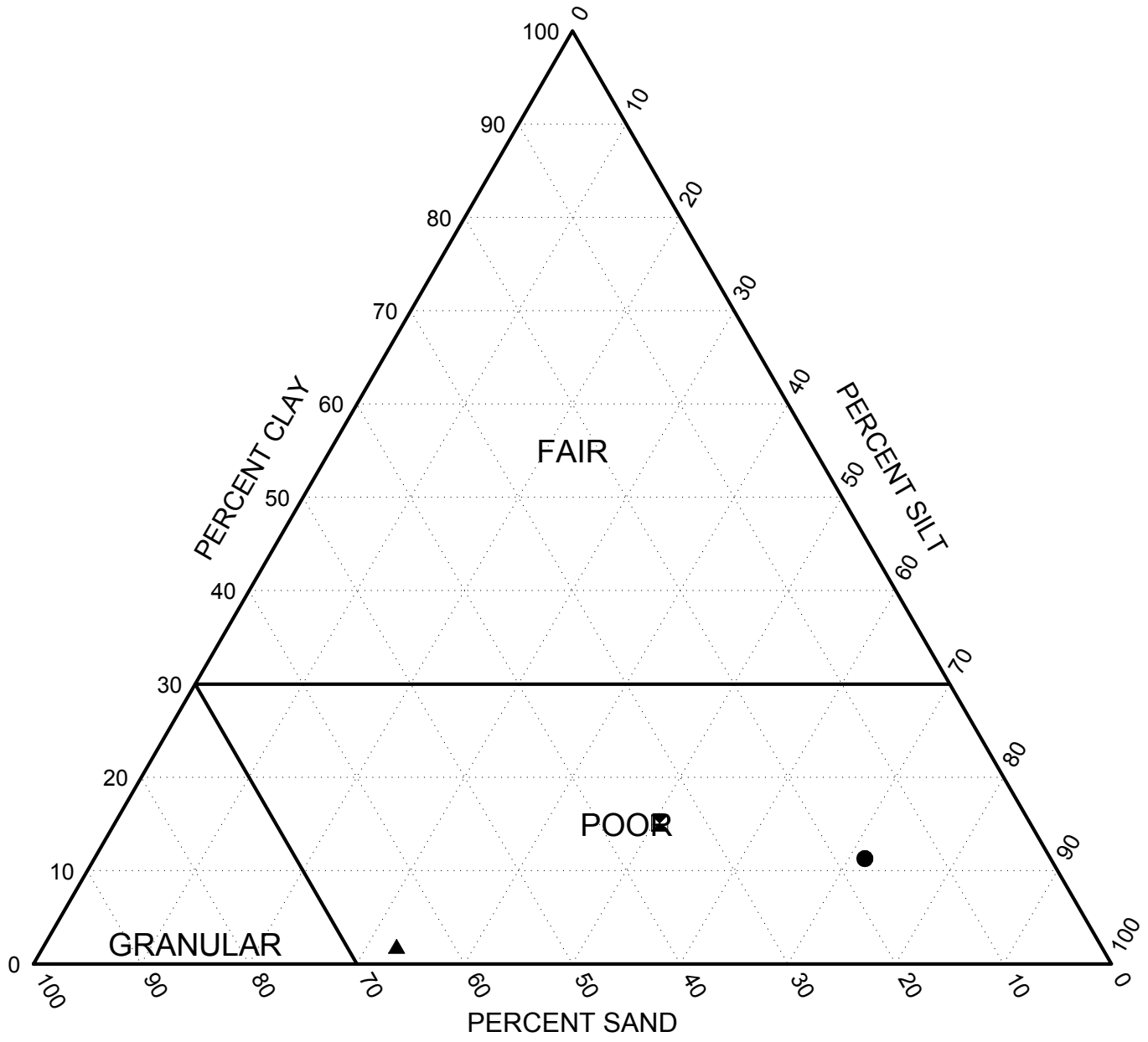
Groundwater Elev.:
First Encounter None ft
Upon Completion NA ft
After ____ **Hrs.** NA ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
11 inches of Asphalt 4 inches of Sand and Gravel				
594.45		9		
Very Stiff to Hard Brown and Gray, Moist SILTY CLAY, A-6		5 6	4.3 S	20
		5		
		7 10	3.3 S	17
	-5			
589.75		5		
Hard Brown, Moist SILTY CLAY, trace sand and gravel, A-6		10 11	7.3 S	17
		4		
		6 10	4.1 S	18
585.75	-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)

APPENDIX C

LABORATORY TESTING RESULTS



	Borehole	Station	Offset	Depth (ft)	Classification
●	**SGB-08**	**134+99**	**33.75ft LT**	**11.00**	**SILTY LOAM**
⧓	**SGB-20**	**171+08**	**31.37ft LT**	**13.50**	**SILTY LOAM**
▲	**SGB-28**	**196+00**	**27.00ft LT**	**26.00**	**SANDY LOAM**

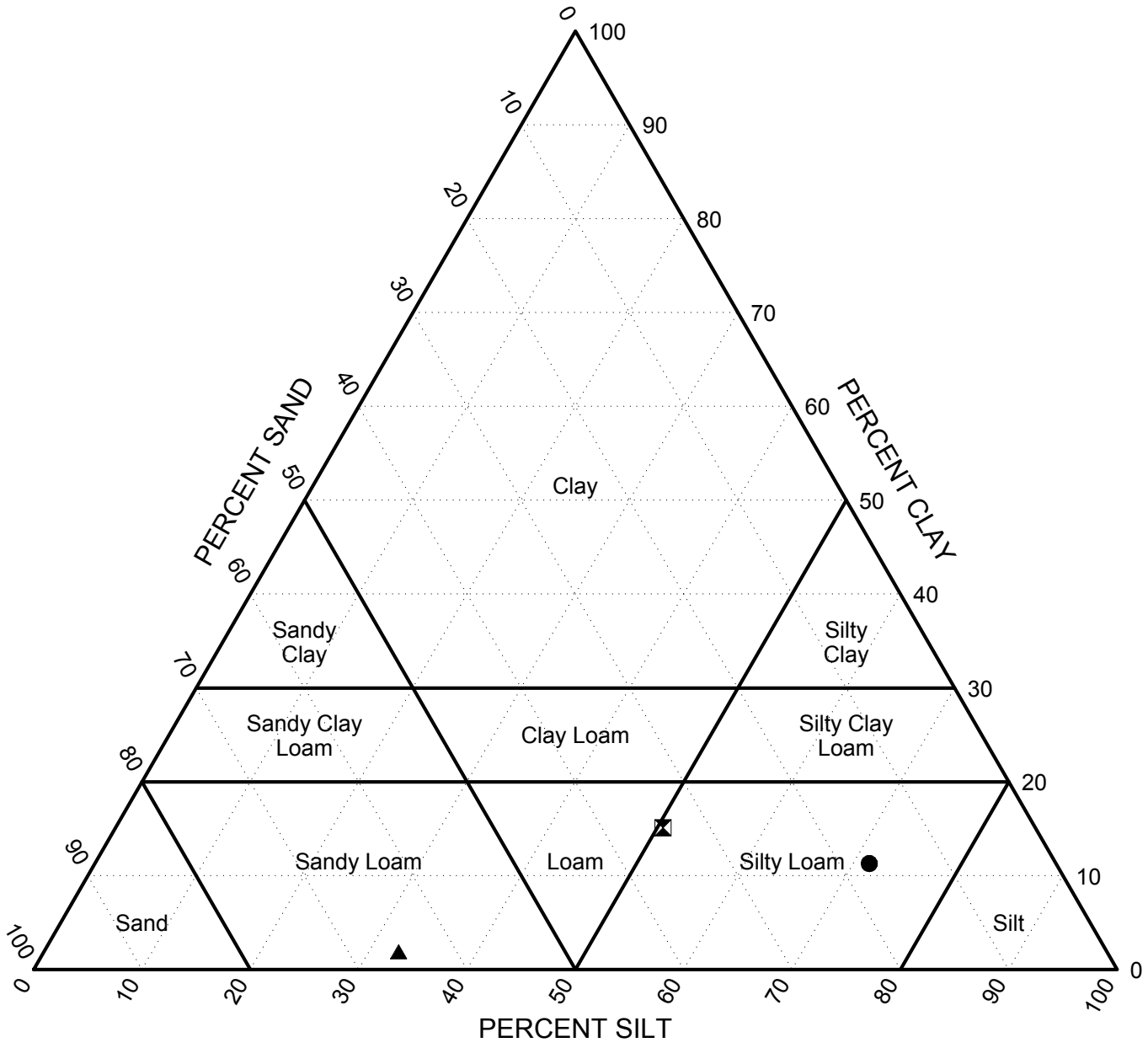
GSG Consultants, Inc
855 W Adams St, Suite 200
Chicago, IL 60607
(312) 733-6262
Fax: (312) 733-5612

SUBGRADE SUPPORT RATING

Route: FAU 2857 - Wood Street

Section: (145,146 & 146S-2)WRS & B-1

County: Cook



	Borehole	Station	Offset	Depth (ft)	Classification
●	**SGB-08**	**134+99**	**33.75ft LT**	**11.00**	**SILTY LOAM**
⧓	**SGB-20**	**171+08**	**31.37ft LT**	**13.50**	**SILTY LOAM**
▲	**SGB-28**	**196+00**	**27.00ft LT**	**26.00**	**SANDY LOAM**

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Chicago, IL 60607
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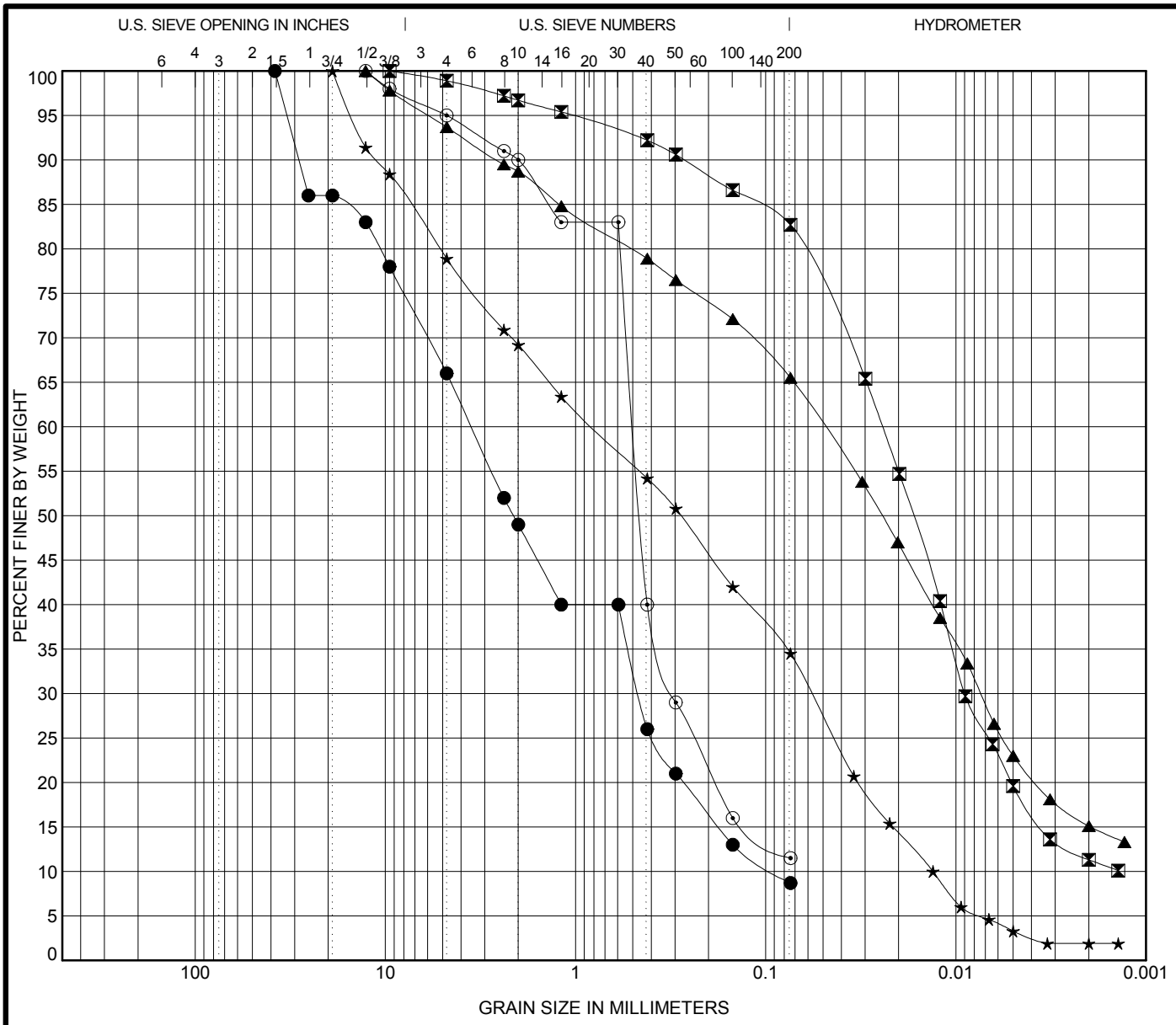
Fax: (312) 733-5612

IDH Textural Classification Chart

Route: FAU 2857 - Wood Street

Section: (145,146 & 146S-2)WRS & B-1

County: Cook



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	SGB-05	1.00	SAND				0.67	38.68
⊠	SGB-08	11.00	SILTY LOAM					
▲	SGB-20	13.50	SILTY LOAM					
★	SGB-28	26.00	SANDY LOAM				0.31	61.35
⊙	SGB-29	23.50	SAND				3.25	8.43

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	SGB-05	1.00	38.1	3.537	0.464	0.091	34.0			
⊠	SGB-08	11.00	9.51	0.024	0.009		1.1			
▲	SGB-20	13.50	12.7	0.049	0.007		6.3			
★	SGB-28	26.00	19	0.81	0.058	0.013	21.1			
⊙	SGB-29	23.50	12.7	0.494	0.307		5.0			

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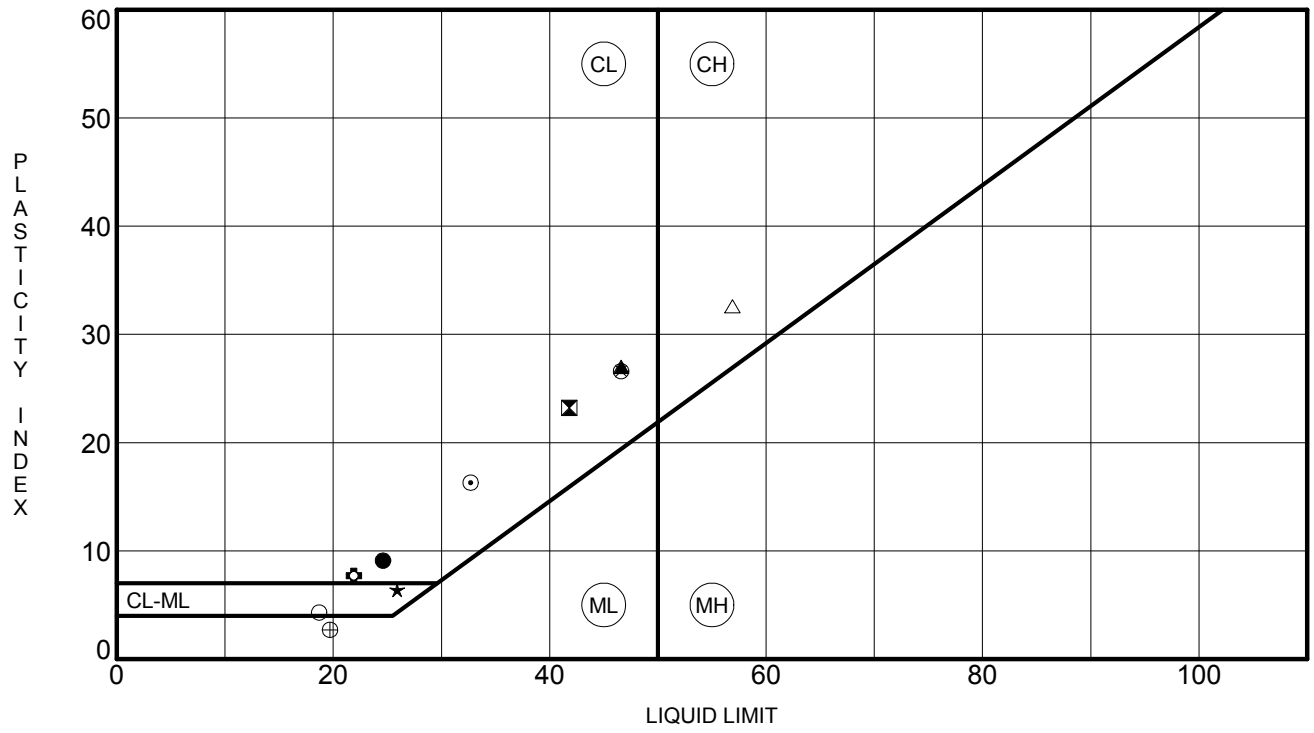
GRAIN SIZE DISTRIBUTION

Route: FAU 2857 - Wood Street

Section: (145,146 & 146S-2)WRS & B-1

County: Cook



	Specimen Identification		LL	PL	PI	Fines	Classification
●	**SGB-10**	**8.50**	**24.6**	**15.5**	**9.1**		
⊠	**SGB-11**	**3.50**	**41.8**	**18.6**	**23.2**		
▲	**SGB-13**	**1.00**	**46.6**	**19.6**	**27.0**		
★	**SGB-19**	**13.50**	**25.9**	**19.5**	**6.4**		
⊙	**SGB-21**	**16.00**	**32.7**	**16.4**	**16.3**		
✿	**SGB-22**	**21.00**	**21.9**	**14.2**	**7.7**		
○	**SGB-37**	**13.50**	**18.7**	**14.4**	**4.3**		
△	**SGB-41**	**3.50**	**56.9**	**24.3**	**32.6**		
⊗	**SGB-51**	**8.50**	**46.6**	**20.0**	**26.6**		
⊕	**SGB-54**	**1.00**	**19.7**	**17.0**	**2.7**		

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ATTERBERG LIMITS RESULTS

Route: FAU 2857 - Wood Street

Section: (145,146 & 146S-2)WRS & B-1

County: Cook

APPENDIX D

RECOMMENDED GEOTECHNICAL DESIGN PARAMETERS

Table D-1 - Lateral Resistance Soil Parameters – Station 128+00 to Station 160+00 (SGB 6 to SGB 16)

Approximate Elevation Range (MSL)	Soil Description	In-situ Unit Weight (pcf)	Undrained Shear Strength (psf)	Undrained Friction Angle (phi)	Drained Shear Strength (psf)	Drained Friction Angle (phi)	Active Earth Pressure Coefficient (K_a)	At-Rest Pressure Coefficient (K_o)	Passive Earth Pressure Coefficient (K_p)	Subgrade Modulus (pci) k_{py}	Horizontal Strain Factor e50	OSHA Soil Type
	New Engineered Granular Fill	130	n/a	30	n/a	30	0.33	0.50	3.00	90	n/a	
604 – 601	Stiff Black and Gray Clay A-7-6	125	1,500	0	0	26	0.39	0.56	2.56	1,000	0.007	B
601 –597	Very Stiff Brown and Gray Silty Clay A-6	128	3,500	0	100	28	0.36	0.53	2.78	1,750	0.005	A
597 - 592	Hard Brown and Gray or Gray Silty Clay A-6	139	8,000	0	250	30	0.33	0.50	3.00	4,000	0.004	A
592 - 584	Stiff Gray Silt A-4	141	1,000	12	250	25	0.41	0.58	2.46	100	0.01	B

Approximate Elevation Range (MSL)	Soil Description	In-situ Unit Weight (pcf)	Undrained Shear Strength (psf)	Undrained Friction Angle (phi)	Drained Shear Strength (psf)	Drained Friction Angle (phi)	Active Earth Pressure Coefficient (K_a)	At-Rest Pressure Coefficient (K_o)	Passive Earth Pressure Coefficient (K_p)	Subgrade Modulus (pci) k_{py}	Horizontal Strain Factor e50	OSHA Soil Type
591 - 586 SGB(13 & 15)	Very Hard Gray Silt A-4	145	1,500	15	500	30	0.33	0.50	3.00	500	0.007	B

The initial p-y modulus, E_{py} , varies linearly with depth. To obtain E_{py} use the equation

$E_{py} = k_{py} * z$

where k_{py} is the subgrade modulus given in the table and z is the distance from the surface to the center point of the layer in inches

Table D-2 - Lateral Resistance Soil Parameters – Station 160+00 to Station 200+00 (SGB 17 to SGB 29)

Approximate Elevation Range (MSL)	Soil Description	In-situ Unit Weight (pcf)	Undrained Shear Strength (psf)	Undrained Friction Angle (phi)	Drained Shear Strength (psf)	Drained Friction Angle (phi)	Active Earth Pressure Coefficient (K_a)	At-Rest Pressure Coefficient (K_o)	Passive Earth Pressure Coefficient (K_p)	Subgrade Modulus (pci) k_{py}	Horizontal Strain Factor e50	OSHA Soil Type
	New Engineered Granular Fill	130	n/a	30	n/a	30	0.33	0.50	3.00	90	n/a	
602 - 599	Very Stiff Black and Gray Clay A-7-6	128	2,000	0	0	26	0.39	0.56	2.56	1,000	0.007	A
599 – 595	Hard Brown and Gray Silty Clay A-6	133	4,000	0	100	28	0.36	0.53	2.78	2,000	0.004	A
595 – 589	Hard Brown and Gray or Gray Silty Clay A-6	142	8,500	0	250	30	0.33	0.50	3.00	4,000	0.004	A
589 - 584	Stiff Gray Silt A-4	138	1,000	12	250	25	0.41	0.58	2.46	100	0.01	B

Approximate Elevation Range (MSL)	Soil Description	In-situ Unit Weight (pcf)	Undrained Shear Strength (psf)	Undrained Friction Angle (phi)	Drained Shear Strength (psf)	Drained Friction Angle (phi)	Active Earth Pressure Coefficient (K_a)	At-Rest Pressure Coefficient (K_o)	Passive Earth Pressure Coefficient (K_p)	Subgrade Modulus (pci) k_{py}	Horizontal Strain Factor e50	OSHA Soil Type
585 – 578 SGB (19,20 & 25)	Stiff Gray Silt A-4	145	1,500	15	500	30	0.33	0.50	3.00	500	0.007	B
580 - 573 SGB (20 & 24)	Stiff Gray Silt A-4	141	1,000	12	250	25	0.41	0.58	2.46	100	0.01	B
578 - 574 SGB (19,20 & 25)	Dense Gray Sand A-3	145	n/a	38.5	n/a	38.5	0.23	0.38	4.29	125	n/a	C

The initial p-y modulus, E_{py} , varies linearly with depth. To obtain E_{py} use the equation

$E_{py} = k_{py} * \mathrm{z}$

where k_{py} is the subgrade modulus given in the table and z is the distance from the surface to the center point of the layer in inches

Table D-3 - Lateral Resistance Soil Parameters – Station 200+00 to Station 236+00 (SGB 30 to SGB 41)

Approximate Elevation Range (MSL)	Soil Description	In-situ Unit Weight (pcf)	Undrained Shear Strength (psf)	Undrained Friction Angle (phi)	Drained Shear Strength (psf)	Drained Friction Angle (phi)	Active Earth Pressure Coefficient (K_a)	At-Rest Pressure Coefficient (K_o)	Passive Earth Pressure Coefficient (K_p)	Subgrade Modulus (pci) k_{py}	Horizontal Strain Factor e50	OSHA Soil Type
	New Engineered Granular Fill	130	n/a	30	n/a	30	0.33	0.50	3.00	90	n/a	
600 – 597	Stiff Black and Gray Clay A-7-6	117	1,500	0	0	26	0.39	0.56	2.56	500	0.007	B
598– 596	Soft to Medium Stiff Gray Clay A-7-6	125	500	0	0	26	0.39	0.56	2.56	100	0.01	C
597 – 593	Very Stiff Brown and Gray Silty Clay A-6	131	4,000	0	100	28	0.36	0.53	2.78	2,000	0.005	A
593 – 585	Hard Brown and Gray or Gray Silty Clay A-6	135	7,000	0	250	30	0.33	0.50	3.00	3,500	0.004	A

Approximate Elevation Range (MSL)	Soil Description	In-situ Unit Weight (pcf)	Undrained Shear Strength (psf)	Undrained Friction Angle (phi)	Drained Shear Strength (psf)	Drained Friction Angle (phi)	Active Earth Pressure Coefficient (K_a)	At-Rest Pressure Coefficient (K_o)	Passive Earth Pressure Coefficient (K_p)	Subgrade Modulus (pci) k_{py}	Horizontal Strain Factor e50	OSHA Soil Type
585 – 582	Very Hard Gray Silt A-4	145	1,500	15	500	30	0.33	0.50	3.00	500	0.007	B
582 – 581 SGB (41,40 & 38)	Medium Dense to Dense Gray Sand A-3	135	n/a	38	n/a	38	0.24	0.38	4.20	90	n/a	C
584 – 581 SGB (30,31,40 & 41)	Very Hard Gray Silt A-4	140	1,000	12	250	25	0.41	0.58	2.46	100	0.01	B

The initial p-y modulus, E_{py} , varies linearly with depth. To obtain E_{py} use the equation

$E_{py} = k_{py} * \mathrm{z}$

where k_{py} is the subgrade modulus given in the table and z is the distance from the surface to the center point of the layer in inches

Table D-4 - Lateral Resistance Soil Parameters – Station 236+00 to Station 267+00 (SGB 42 to SGB 51)

Approximate Elevation Range (MSL)	Soil Description	In-situ Unit Weight (pcf)	Undrained Shear Strength (psf)	Undrained Friction Angle (phi)	Drained Shear Strength (psf)	Drained Friction Angle (phi)	Active Earth Pressure Coefficient (K_a)	At-Rest Pressure Coefficient (K_o)	Passive Earth Pressure Coefficient (K_p)	Subgrade Modulus (pci) k_{py}	Horizontal Strain Factor e50	OSHA Soil Type
	New Engineered Granular Fill	130	n/a	30	n/a	30	0.33	0.50	3.00	90	n/a	
595 – 592	Medium Black and Gray Clay A-7-6	123	1,800	0	0	26	0.39	0.56	2.56	900	0.01	A
592 – 584	Very Stiff Brown and Gray Silty Clay A-6	125	3,300	0	75	28	0.36	0.53	2.78	1,650	0.007	A
584 – 572	Hard Brown and Gray or Gray Silty Clay A-6	138	8,000	0	250	30	0.33	0.50	3.00	4000	0.004	A
572 – 566 SGB (48 - 52)	Very Stiff to Very Hard Silty Clay A-6	138	8,000	0	250	30	0.33	0.50	3.00	4000	0.004	A

Approximate Elevation Range (MSL)	Soil Description	In-situ Unit Weight (pcf)	Undrained Shear Strength (psf)	Undrained Friction Angle (phi)	Drained Shear Strength (psf)	Drained Friction Angle (phi)	Active Earth Pressure Coefficient (K_a)	At-Rest Pressure Coefficient (K_o)	Passive Earth Pressure Coefficient (K_p)	Subgrade Modulus (pci) k_{py}	Horizontal Strain Factor e50	OSHA Soil Type
580 – 567 SGB (42,44,45 & 47)	Medium Dense to Extremely Dense Gray Sand A-3	140	n/a	38	n/a	38	0.24	0.38	4.20	90	n/a	C
574 – 572 SGB (49 - 51)	Stiff Brown and Gray or Gray Silt A-6	138	1,000	12	250	25	0.41	0.58	2.46	100	0.01	B

The initial p-y modulus, E_{py} , varies linearly with depth. To obtain E_{py} use the equation

$E_{py} = k_{py} * \mathrm{z}$

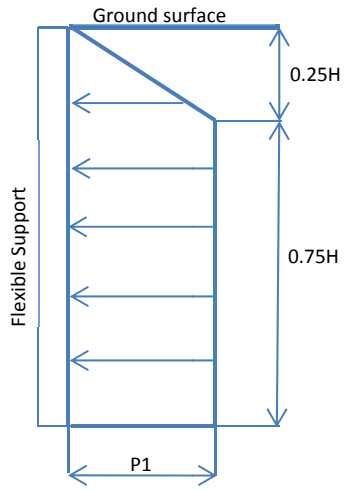
where k_{py} is the subgrade modulus given in the table and z is the distance from the surface to the center point of the layer in inches

APPENDIX E

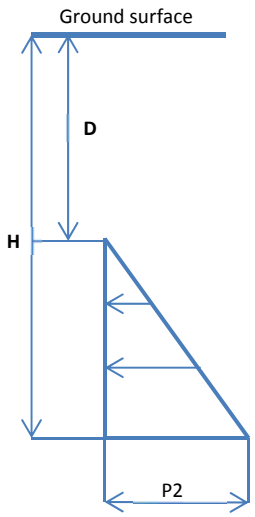
LATERAL EARTH PRESSURE DIAGRAMS

CHART E-1: Lateral Earth Pressure Diagrams for Short-Term Conditions

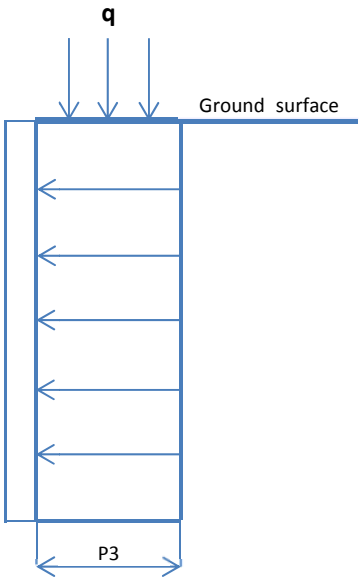
OPEN CUTS IN SOFT TO MEDIUM COHESIVE SOILS



(a) Soft to Medium Clay



(b) Water Pressure



(c) Surcharge Pressure

Empirical Pressure Distributions

P1=Lateral earth pressure = $\gamma H-4S_u$ or $0.375\gamma H$, psf (use the higher value)

P2=Water pressure = γ_w (H-D), psf

P3= Lateral earth pressure caused by surcharge = qK_a, psf (Use $K_a = 0.375$)

Where:

H=Total excavation depth, feet

D=Depth to water table, feet

γ = Effective unit weight of soil, pcf

γ_w = Unit weight of water, pcf

S_u = Undrained shear strength of the soil at the bottom of the excavation = $q_u/2$, psf

q_u= Unconfined compressive strength of the soil at the bottom of the excavation, psf

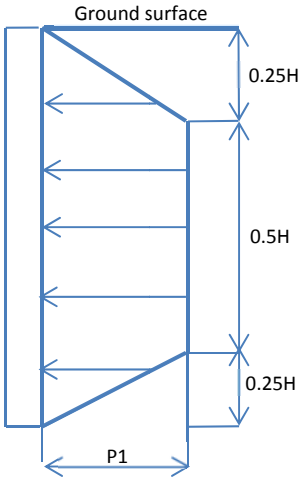
K_a= Coefficient of active earth pressure (refer to table below)

Notes:

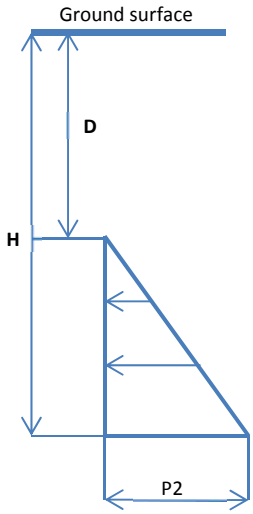
1. All pressures are additive
2. No safety factors included
3. For use only during short term construction

CHART E-2: Lateral Earth Pressure Diagrams for Short-Term Conditions

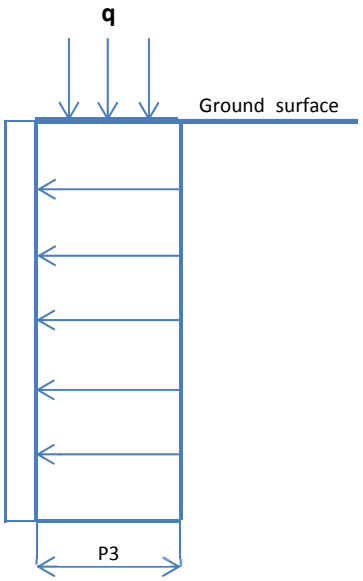
OPEN CUTS IN STIFF COHESIVE SOILS



(a) Stiff clay



(b)Water Pressure



(c) Surcharge Pressure

Empirical Pressure Distributions

P1=Lateral earth pressure = $0.3\gamma H$, psf

P2=Water pressure = γ_w (H-D), psf

P3= Lateral earth pressure caused by surcharge = qK_a, psf (Use $K_a = 0.3$)

Where:

H=Total excavation depth, feet

D=Depth to water table, feet

γ = Effective unit weight of soil, pcf

γ_w = Unit weight of water, pcf

S_u = Undrained shear strength of the soil at the bottom of the excavation = $q_u/2$, psf

q_u= Unconfined compressive strength of the soil at the bottom of the excavation, psf

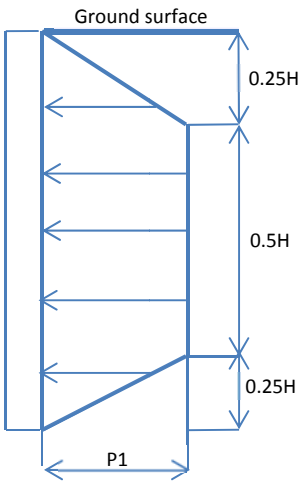
K_a= Coefficient of active earth pressure (refer to table below)

Notes:

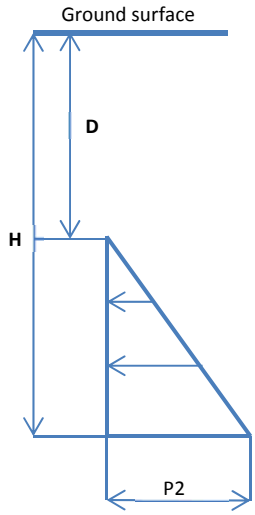
1. All pressures are additive
2. No safety factors included
3. For use only during short term construction

CHART E-3: Lateral Earth Pressure Diagrams for Long-Term Conditions

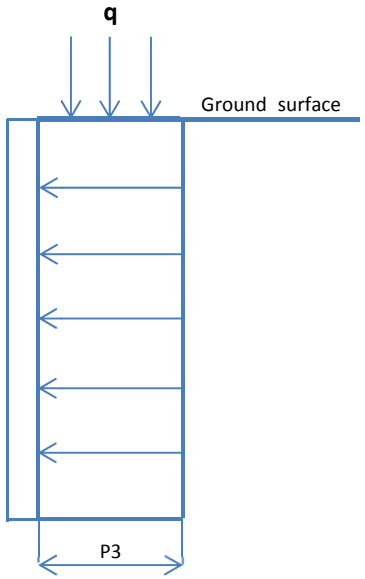
OPEN CUTS IN STIFF COHESIVE SOILS



(a) Stiff clay



(b)Water Pressure



(c) Surcharge Pressure

Empirical Pressure Distributions

P1=Lateral earth pressure = $0.4\gamma H$, psf

P2=Water pressure = γ_w (H-D), psf

P3= Lateral earth pressure caused by surcharge = qK_a, psf (Use $K_a = 0.4$)

Where:

H=Total excavation depth, feet

D=Depth to water table, feet

γ = Effective unit weight of soil, pcf

γ_w = Unit weight of water, pcf

S_u = Undrained shear strength of the soil at the bottom of the excavation = $q_u/2$, psf

q_u= Unconfined compressive strength of the soil at the bottom of the excavation, psf

K_a= Coefficient of active earth pressure (refer to table below)

Notes:

1. All pressures are additive
2. No safety factors included
3. For use only during long term construction