

April 3, 2023

To: Randal G. Newkirk, PE Design Engineering Manager Hampton Lenzini and Renwick, Inc. 380 Shepard Drive Elgin, Illinois 6012 P: 847.697.6700

REPORT TRANSMITTAL

Re: Roadway Geotechnical Report Proposed McLean Boulevard Phase II From Spring St to Stearns Rd F.A.U. Route 2509 Section 18-00050-00-PV South Elgin, Illinois Kane County

Rubino Report No. G21.165_REV1

Via email: <u>rnewkirk@hlreng.com</u>

Dear Mr. Newkirk,

Rubino Engineering, Inc. (Rubino) is pleased to submit our Geotechnical Engineering Services Report for the proposed reconstruction of McLean Boulevard from W Spring Street to Stearns Road in South Elgin (Kane County), Illinois.

Report Description

Enclosed is the Geotechnical Services Report including results of field and laboratory testing, as well as recommendations for subgrade stability, pavement design, and general site development.

Authorization and Correspondence History

- Rubino Proposal No. Q21.082g dated February 18, 2021
- 20210726 Rubino Engineering South McLean Blvd Agreement, between Hampton, Lenzini and Renwick, Inc. and Rubino Engineering, Inc. Signed byu Randal G. Newkirk, PE of Hampton Lenzini and Renwick, Inc. and Michelle Lipinski of Rubino Engineering on 7/27/2021
- Illinois Department of Transportation Memorandum of Comments and Recommendations dated March 8, 2023 and provided to Rubino by HLR on March 10, 2023

<u>Closing</u>

Rubino appreciates the opportunity to provide geotechnical services for this project and we look forward to continued participation during the design and in future construction phases of this project.

If you have questions pertaining to this report, or if Rubino may be of further service, please contact our office at (847) 931-1555.

Respectfully submitted, **RUBINO ENGINEERING, INC.**

Michelle A. Lipinski, PE President michelle.lipinski@rubinoeng.com

MAL/file/ Enclosures

PROPOSED MCLEAN BOULEVARD PHASE II

SOUTH ELGIN, ILLINOIS

KANE COUNTY

F.A.U. ROUTE 2509 SECTION 18-00050-00-PV

STATION 13+40 TO STATION 74+05

RUBINO PROJECT NO. G21.165_REV1

Roadway Geotechnical

Report

Drilling Laboratory Testing Geotechnical Analysis

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Reviewed By: Michelle A. Lipinski, PE President michelle.lipinski@rubinoeng.com IL No. 062-061241, Exp. 11/30/23 **PREPARED FOR:**

HAMPTON LENZINI AND RENWICK, INC.

380 SHEPARD DRIVE

ELGIN, ILLINOIS 60123

APRIL 3, 2023

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PROJECT DESCRIPTION, LOCATION AND SCOPE

Rubino Engineering, Inc. (Rubino) understands that Hampton Lenzini and Renwick, Inc. (HLR) is planning to aid in the design of the reconstruction of McLean Boulevard from Spring Street to Stearns Road in South Elgin, Illinois. Please refer to the Site Vicinity Map located in <u>Appendix A</u>. The project includes the reconstruction of McLean Boulevard (STA 13+40 to STA 74+05). McLean Blvd currently consists of two (2) lanes. The proposed improvements will result in the expansion to four (4) lanes with a center median, a new traffic signal at N Lancaster Drive, a multi-use path, and turn lane modifications at Stearns Road. The length of the improvements is approximately 1.25 miles long. The proposed pavement consists of 9 inches of asphalt and 12 inches of aggregate subgrade improvement. Please refer to <u>Appendix B</u> for proposed typical sections and <u>Appendix C</u> for preliminary plans and profiles with soil profiles.

This report presents the results of the roadway geotechnical field and laboratory investigations performed by Rubino, along with engineering analyses, and recommendations performed by Rubino. The geotechnical recommendations presented in this report are based on the available project information and the subsurface materials described in this report.

GEOLOGY AND PEDOLOGY

The ground elevation in the area of exploration decreases gradually from approximately 816 feet at the intersection of W Springs Street and S McLean Blvd to 750 feet at the intersection of Stearns Road and S McLean Blvd. This slight drop in elevation from north to south is most likely attributed to water-based erosion to the Fox River as well as other flood events.

The geomorphology of central Kane County resulted primarily from the advance of continental glaciers during the last glaciation (Wisconsin Episode; 55,000 – 10,000 years B.P.). During the Wisconsin Episode, two sublobes of the Lake Michigan glacial lobe (the Harvard and Princeton sublobes) merged and overlapped in Kane County (Grimley & Curry, 2002). The westward advance of these sublobes was controlled by preexisting bedrock highs or preexisting moraines from older glacial episodes. Ice stagnation of these sublobes created a kamic landscape, shaping the hills of sand and gravel that exist throughout the county. Subsequent stacking of various types of glacial deposits, of contrasting age and lithology, occur within the area of exploration.

S McLean Blvd lies on top the Minooka and St. Charles Moraines, which trend N-S throughout the Geneva Quadrangle. These moraines are separated by the Fox River, except in western South Elgin, where the Minooka Moraine crossed the St. Charles bedrock valley and deposited an



Quadrangle (Grimley, D.A. & B.B. Curry, 2002).



upland outwash fan delta on top of the St. Charles Moraine (Grimley & Curry, 2002). Fossil tundra plants that date the timing of deposition of these two moraines can be found at the Fox River Stone Quarry just south of the area of exploration along Stearns Road. The Minooka and St. Charles Moraines contain as much as 80 feet of gray to yellow-brown silty clay diamicton and are associated with the Yorkville Member of the Lemont Formation (Grimley & Curry, 2002).

S McLean Blvd also lies on top of the Henry Formation, which consists of coarse-grained outwash sands and gravels. These outwash deposits are stratified to massive, generally well sorted, and were deposited by glacial meltwater streams in front of ice margins. The Henry Formation can be up to 30 feet thick in the outwash fan delta of the Minooka Moraine northwest of the Fox River Stone Quarry (Grimley & Curry, 2002).

Other formations and deposits within the area of exploration include the Cahokia Formation, Grayslake Peat, and human disturbed ground. The alluvial deposits of the Cahokia Formation consist of sand, silt, and clay, with local beds containing sandy gravel. The swampy depressional deposits of the Grayslake Peat consist of peat, muck, organic silt, and clay, which can be interbedded with sand, silt, and clay. Areas containing human-disturbed deposits include significant spoil piles or removed earth in gravel pits, quarries, and landfills (Grimley & Curry, 2002). Bedrock in Kane County consists of Silurian carbonate and Ordovician shale and dolomite of the Maquoketa Group which unconformably underlies about 180 feet of surficial, glacial, and alluvial deposits. These rock units dip gently to the east and crop out along the Fox River south of the area of exploration.

Geology and Pedology maps can be found in <u>Appendix D</u>.

FIELD EXPLORATION

Drilling, Field, and Laboratory Tests

The soil borings were performed and logged by Rubino drillers personnel between 3/31/22 and 4/12/22. The borings were advanced by Rubino using a Geoprobe 7822DT with 3 ¼ inch insidediameter, hollow stem auger drilling methods and soil samples were routinely obtained during the drilling process.

BORING NO.	DATE	STATION	Offset (Feet)	SURFACE ELEVATION (FEET)	Drilling Depth (Feet BEG*)
SB-01	4/11/22	12+77.17	-38.067	749.63	15
SB-02	4/11/22	14+99.07	26.371	760.25	15
SB-03	4/11/22	17+51.27	-26.527	772.35	15
SB-04	3/31/22	20+03.36	21.455	780.57	15
SB-05	4/11/22	21+96.37	-11.104	784.19	15
SB-06	3/31/22	25+48.58	13.027	787.73	15
SB-07	4/1/22	27+80.90	-8.635	792.73	15

Table 1: Borings Performed



BORING NO.	DATE	STATION	Offset (Feet)	SURFACE ELEVATION (FEET)	Drilling Depth (Feet BEG*)
SB-08	3/31/22	30+04.29	12.112	798.43	15
SB-09	4/1/22	32+78.83	0.451	805.05	15
SB-10	3/31/22	35+15.47	21.523	808.28	15
SB-11	4/1/22	37+94.41	-15.114	811.66	15
SB-12	3/31/22	40+78.62	29.915	811.98	15
SB-13	4/1/22	43+62.59	-12.015	811.61	15
SB-14	3/31/22	46+32.03	18.707	810.93	15
SB-15	4/1/22	49+17.58	-8.104	810.29	15
SB-16	4/11/22	52+23.35	4.246	809.54	15
SB-17	4/1/22	55+02.85	-8.361	808.88	15
SB-18	4/11/22	58+12.56	5.948	808.93	15
SB-19	4/12/22	60+71.65	-10.204	808.29	15
SB-20	4/12/22	63+76.70	-18.201	807.92	15
SB-21	4/12/22	66+99.24	-1.848	810.75	15
SB-22	4/12/22	69+73.29	-29.204	812.81	15

*BEG = Below existing grade

The boring logs showed data from the following test procedures:

- Standard Penetration Test
- Field Water Level Measurements
- Laboratory Determination of Water (Moisture) Content of Soil by Mass
- Laboratory Determination of Atterberg Limits (ASTM D4318)
- Laboratory Determination of Particle Size (Hydrometer) Analysis of Soils (ASTM D422)

The results of these tests can be found on the accompanying boring logs located in <u>Appendix F</u> or Laboratory Test Results in <u>Appendix G</u>.

Subsurface Conditions

Soils generally consisted of silty clay, silty clay loam, silty loam, sandy loam, silt, sand and gravel.

Detailed descriptions of the soils encountered in the soil borings completed by Rubino are presented in the attached Boring Logs in <u>Appendix E</u> and Soil Plan and Profile in <u>Appendix C</u>.

Groundwater Conditions

Groundwater was encountered in some of the borings along McLean Boulevard during drilling operations. Table 2 summarizes groundwater observations where groundwater was encountered during drilling operations:



Boring Number	STATION	BORING SURFACE ELEVATION (FEET)	GROUNDWATER ELEVATION DURING DRILLING (FEET)	GROUNDWATER ELEVATION UPON AUGER REMOVAL (FEET)
SB-08	30+04.29	798.43	790	788 1⁄2
SB-10	35+15.47	808.28	796 ½	800 ³ ⁄4
SB-14	46+32.03	810.93	807 ½	797
SB-15	49+17.58	810.29	798 ¼	796 ¼
SB-17	55+02.85	808.88	800	801
SB-18	58+12.56	808.93	799 ½	800 1/2
SB-19	60+71.65	808.29	802 ¼	800 1⁄4
SB-20	63+76.70	807.92	799 ½	N/A
SB-21	66+99.24	810.75	798 ¾	799 ¾
SB-22	69+73.29	812.81	800	803

Table 2: Groundwater Observation Summary

It should be noted that fluctuations in the groundwater level should be anticipated throughout the year depending on variations in climatological conditions (as discussed below) and other factors not apparent at the time the borings were performed.

The subsurface investigation for the proposed McLean Boulevard improvements in Kane County, Illinois was performed during the months of March and April 2022. To assess the possible effects of temperature and precipitation on groundwater level and soil moisture during the investigation, the climatic conditions from April 2021 through March 2022 are summarized graphically, below.

The precipitation and temperature data for the investigation period are compared against thirtyyear monthly data (1981 to 2010) to illustrate deviations from "normal" climate conditions during the investigation in 2022. Local climatologic data were obtained from the NOAA Elgin, IL station.





Higher than average temperatures were recorded for the months of April, June, August, September, October, and December in 2021 as well as in March in 2022. Higher than average precipitation measurements were recorded for the months of June, October, and December in 2021 as well as in February and March in 2022.

Higher than average precipitation may have affected the moisture contents in the upper soils sampled for this project in March and April 2022.

GENERAL SUBGRADE CONDITIONS

The geotechnical-related recommendations in this report are presented based on the subsurface conditions encountered and Rubino's understanding of the project. Should changes in the project criteria occur, a review must be made by Rubino to determine if modifications to our recommendations will be necessary.

Undocumented Fill Discussion

Undocumented fill was observed in some of the borings to elevations of approximately 811 $\frac{1}{2}$ to 781 $\frac{1}{2}$ (to depths of approximately 6 feet below existing grade). Undocumented fill was likely placed during original roadway development.



Deleterious materials, such as pieces of glass and asphalt, were noted within the undocumented fill materials in one of the borings. Please see the boring logs in <u>Appendix E</u> for more details.

Although deleterious materials were not encountered in all the undocumented fill materials, this does not eliminate the possibility that deleterious materials could be present within the undocumented fill materials at other locations along the project. **Undocumented fill** is defined as fill that has been placed without being documented as to its placed density and moisture content.

Deleterious materials could include, but are not limited to, bricks, asphalt, concrete, metal, wood, or other building debris.

Topsoil Discussion

Rubino recommends budgeting for a topsoil stripping thickness of 6 inches for estimating quantities. The actual need for topsoil removal should be determined in the field.

Prior to construction, the ground surface should be stripped of topsoil, organic matter, including root zone materials, and existing pavement. Rubino recommends that the topsoil meeting the requirements of Section 211 of the IDOT Standard Specifications for Road and Bridge Construction (2022) that is stripped be stockpiled, sorted, and reused for the proposed landscaping improvements. A plan note containing the stockpile information should be included in the contract documents.

Please note that the topsoil thicknesses provided in the report is an estimation. The actual removal depth and the quantity of topsoil removal should be verified in the field.

ANALYSIS AND RECOMMENDATIONS

Embankment Fill Materials

Rubino anticipates that fill will be required in areas where there is proposed widening and new construction. Approximate fill depths are not expected to exceed 5 feet per the cross sections in the site plans provided by HLR. Embankment fill materials are not known at this time. Fill Materials must meet the requirements of Section 204 of IDOT's *Standard Specifications for Road and Bridge Construction (2022)*.

For budget purposes, the IDOT *Illinois Construction Manual (March 2021)* recommends a shrinkage factor of 15 percent be used to determine earthwork quantities.

Expansive and Frost Susceptible Soils Discussion



Rubino completed lab testing to identify soils with expansive properties (LL>50) and frost susceptibility (PI<12 and >65% silt and fine sand).

Based on the lab testing that Rubino completed, Rubino has not identified expansive or frost susceptible soils along the project. Refer to <u>Appendix F</u> for IDH grain size distribution charts and IDH textural classification charts.

Subgrade Support Rating (SSR)

The soil types throughout the length of the project are varied. For design of the proposed roadway, a Subgrade Support Rating (SSR) of Poor is indicated based on the laboratory test results. Five data points from laboratory hydrometer testing are presented below as well as included in <u>Appendix F</u>. It should be noted that the hydrometer testing was performed at depths of 1 to 3 $\frac{1}{2}$ feet below existing grade.





		MATERIAL IS OBSERVED		
B-04	20+03.36	1 – 8 ½ 779 ½ – 772	A-4/Clay Loam	
B-07	27+80.90	1 – 3 ½ 791 ½ – 789	Sandy Loam	
B-11	37+94.41	3 ½ - 6 808 – 805 ½	Sandy Loam	
B-16	52+23.35	1 ½ - 3 ½ 808 – 806	A-6/Loam	
B-21	66+99.24	2 - 3 ½ 809 - 807 ½	Clay Loam (FILL)	

* Depth below existing grade

The source of the new embankment material is not known at this time, therefore a SSR of poor is recommended for new embankment materials.

Illinois Bearing Ratio

Illinois Bearing Ratio (IBR) testing was outside the scope of this roadway geotechnical report. However, an IBR of 3 should be used for the pavement design based on the soils encountered at the proposed subgrade level at each location and an AASHTO M 145 Soil Class of A-4, A-5, and A-6 or better. The following table was obtained from the IDOT Geotechnical Manual (2020):

Soil Classification	Assumed IBR
A-1	20
A-2-4, A-2-5	15
A-2-6, A-2-7	12
A-3	10
A-4, A-5, A-6	3
A-7-5, A-7-6	2

Table 6.3.1-1	Estimated	IBR Values
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Subsurface Drainage

Proper surface grading should be incorporated into design and construction of subgrade and pavement to remove water accumulations and prevent ponding of water.

• There are no longitudinal underdrains detailed in the proposed highway plans along the length of the project. Aggregate subgrade improvement will be utilized for this project; therefore, Rubino recommends longitudinal underdrains along the length of the improvements to prevent the seepage of water into the aggregate subgrade improvement.

• Transverse underdrains are recommended under all proposed full-width pavement areas using a spacing of 300 feet as well as in low areas and at the base of any undercuts. Additionally, transverse underdrains are recommended at sag areas along the roadway profile and in areas where silty soils are encountered near the bottom of the proposed pavement section. Material such as this were not encountered at the time of drilling.

The underdrains should tie into the storm water drainage system or daylighted at sag locations along the roadway profile and should be installed per Article 601 in the IDOT *Standard Specifications for Road and Bridge Construction (Adopted January 1, 2022)* and consist of Type 3 underdrains.

Subgrade Improvement Recommendations

The recommendations located in this report are based on the data obtained at each particular soil boring location. Soil subgrade stability may vary in the field between the borings and could be affected by the weather at the time of construction.

- See IDOT IBV Based Remedial Action chart from the IDOT Subgrade Stability Manual for reference.
- IDOT requires the use of subgrade improvement below proposed pavement.
 - The proposed highway plans state the entire length of the improvements will contain 12 inches of aggregate subgrade improvement (SY).
 - Accordingly, subgrade with an IBV value of less than 3 is a candidate for remediation when incorporating aggregate subgrade improvement.
- If unsuitable soils are encountered in the field during construction, it is recommended that the soil be removed and replaced with material meeting the IDOT Special Provision for Aggregate Subgrade Improvement

Unstable soil should be treated in accordance with Article 301.04 of the standard specifications and undercut guidelines in the IDOT Subgrade Stability Manual 2005:



Table 4: Undercut Recommendations

STAT FROM	TIONS TO	Pavement Treatment Width*	Subgrade Improvement*	REMEDIATION METHOD	REFERENCE BORING AND SUBGRADE DISCUSSION			
24+00	26+50	Proposed Roadway Widening Area	12 inches	Remove and replace with Agg. Subgrade Improvement (CY) and place geotextile fabric at the base of the undercut	SB-06 Black Silty Clay fill soils, moisture content 28%			
42+25	45+00	Southbound Lane Roadway Widening Area		Remove and replace with Agg. Subgrade Improvement (CY) and place geotextile fabric at the base of the undercut	SB-13 Brown / Black silty clay fill soils with Qp of 0.5 tsf			
47+75	50+75	Southbound Lane Widening Area	6 inches	Remove and replace with Agg. Subgrade Improvement (CY) and place geotextile fabric at the base of the undercut	SB-15 Undocumented fill soils with Qp of 0.75			

*The proposed highway plans detail 12-inch Aggregate Subgrade Improvement (SY) for the length of the project where there is new road construction and widening. The undercuts in *Table 4* should be measured from the bottom of the 12-inch Aggregate Subgrade Improvement (SY) detailed in the highway plans for the listed station ranges. Undercuts should be backfilled with material meeting the requirements in the IDOT Bureau of Design and Environment (BDE) Aggregate Subgrade Improvement Special Provision (April 1, 2022). The actual need for removal and replacement and use of geotechnical fabric should be determined in the field at the time of construction by the Geotechnical Engineer or Soils Inspector.

Rubino recommends including an Aggregate Subgrade Improvement (CY) nominal quantity of 25% of the planned full-depth pavement area (in addition to the areas listed in *Table 4*) assuming thickness of 12 inches. The recommendation is included in case of identification of unsuitable soils in areas of reconstruction in the field at the time of testing and construction.

Rubino recommends including a Geotechnical Fabric for Ground Stabilization (SY) nominal quantity of 25% of the planned pavement area. Geotechnical fabric should be placed at the base of undercut areas. Additionally, geotechnical fabric should be used in areas where low strength subgrade soils are encountered and it is determined to be necessary to achieve stability by the Geotechnical Engineer or soils inspector at the time of construction. Fabric should meet the requirements of Article 210, Fabric for Ground Stabilization, of the SSRBC.

Proposed fill section materials shall meet the requirements of the <u>Embankment Fill Materials</u> section of this RGR.

Slope Stability

Based on the *IDOT Geotechnical Manual (2020)*, slope stability analyses are not required for embankments less than 15 feet high or cut sections less than 15 feet deep. The embankments for this project are not proposed to exceed 15 feet in height and cut depths are not proposed to exceed 15 feet in depth. Therefore, slope stability analyses are not required for this project.



Settlement

The proposed road elevation is planned to be at or near the existing road elevation in areas of reconstruction or widening. Proposed fill placement is planned to be approximately less than or equal to 5 feet in the existing ditch areas for embankment and roadway widening according to the cross-sections in the *Proposed Highway Plans*. Therefore, Rubino anticipates that settlement is expected to be less than 1 inch for the length of the project where fill is placed.

Please note that any topsoil should be removed, and subgrade stability should be checked in accordance with the IDOT Subgrade Stability Manual 2005 before placement of embankment fill.

Minor Structure – Utility Installation Considerations

Rubino anticipates that the proposed manhole and pipe inverts will be bearing between elevations of approximately 749 and 807 feet. The silty clay and sandy soils were soft/loose in some of the borings within that elevation range and may need additional bedding stone for support and/or consideration during excavation.

Rubino recommends that the utilities be supported by a granular bedding material similar to the gradation of an IDOT CA-07 or CA-06 stone. The thickness of the bedding material should be at least 6 inches. Add additional 6 inches of bedding stone as needed to bridge over softer soils (see table below).

The following geotechnical considerations should be considered for either trenching or trenchless techniques performed as part of this project. Soils presented below are included because they may not be self-supporting during trench excavation:

- Granular soils
- Groundwater
- Cohesive soils with lower shear strengths as noted below

LOCATION	DEPTH RANGE (FEET BEG*)	SOIL CONSIDERATIONS FOR OPEN TRENCH EXCAVATION
SB-10	8 – 10	Saturated soft cohesive soils
STA: 35+00 to 36+50	(Elev. 800 – 798)	Add additional 6 inches of bedding stone
SB-20	8 – 11	Soft, saturated cohesive soils
STA: 62+25 to 65+25	(Elev. 800 – 797)	Add additional 6 inches of bedding stone
SB-21	13 ½ – 15	Saturated loose granular and soft cohesive soils
STA: 65+25 to 68+25	(Elev. 797 ½ – 796)	Add additional 6 inches of bedding stone

Table 5: Geotechnical Considerations for Utility Installation



*BEG = below existing grade

Please note, problematic soils may be encountered at other locations or depths for this project and therefore, trench boxes should be anticipated for the entire project during open trench installation. Lateral earth pressures should be considered when using trench boxes or other shoring methods for the excavations.

CLOSING

The recommendations submitted are based on the available subsurface information obtained by Rubino and design details furnished by HLR for the proposed project. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, Rubino should be notified immediately to determine if changes in our recommendations are required.

This report has been prepared for the exclusive use of HLR and their consultants for the specific application to the proposed McLean Boulevard Phase II in Kane County, Illinois.



Appendix A – Site Vicinity Map, Boring Location Map



G21.165_REV1 Proposed McLean Boulevard Phase II – Kane County,







Project Name: Project Location:

Client: Rubino Project # : IL Rte 59 and Grand Avenue Fox County, Illinois Alfred Benesch & Company G21.237

Site Vicinity Мар





Project Name: Project Location:

Client: Rubino Project # : McLean Blvd Phase II Stearns Rd to W Spring St Kane County, IL Hampton Lenzini and Renwick, Inc. G21.156





Project Name: Project Location:

Client: Rubino Project # : McLean Blvd Phase II Stearns Rd to W Spring St Kane County, IL Hampton Lenzini and Renwick, Inc. G21.156





Project Name: Project Location:

Client: Rubino Project # : Stearns Rd to W Spring St Kane County, IL Hampton Lenzini and Renwick, Inc. G21.156





Project Name: Project Location:

Client: Rubino Project # : McLean Blvd Phase II Stearns Rd to W Spring St Kane County, IL Hampton Lenzini and Renwick, Inc. G21.156

Appendix B – Proposed Typical Sections



G21.165_REV1 Proposed McLean Boulevard Phase II – Kane County,







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HAMPT	IAMPTON, LENZINI AND RENWICK, INC. 380 SHEPARD DRIVE		DRAWN -	REVISED -
PR	ELGIN, ILLINOIS 60123 ILLINOIS PROFESSIONAL DESIGN FIRM	PLOT SCALE = 0.0833 ' / in.	CHECKED -	REVISED -
	LS / PE / SE CORP. 184.000959	PLOT DATE = 4/15/2022	DATE -	REVISED -

R	NS RD 1	TO SPRING ST	F.A.U RTE	SECT	COUNTY	TOTAL SHEETS	SHEET NO.		
ΙΟΓΛΙ SECTIONS				18-0005	0-00-PV		KANE	206	7
	IUAL JL						CONTRACT	NO.	
5	STA.	TO STA.			ILLINOIS	FED. AI	D PROJECT		



Appendix C – Preliminary Plans and Profiles with Soil Profiles



G21.165_REV1 Proposed McLean Boulevard Phase II – Kane County,



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DEPARTMENT OF TRANSPORTATION

SCALE: 1:20H, 1:2V SHEET

OF





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STATE OF ILLINOIS				
DEPARTMENT OF TRANSPORTATION				
	SCALE: 1:20H, 1:2V	SHEET	OF	SHEETS





	SOUTH	McLEAN	BLVD	– STEA
STATE OF ILLINOIS			ΡΙΔΝ	
DEPARTMENT OF TRANSPORTATION				
	SCALE: 1:20H, 1:2V	SHEET	OF	SHEET

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EX R.O.W.





STATE OF ILLINOIS	SOUTI	I McLEAN	BLVD PLAN	– STEA AND PI
	SCALE: 1:20H, 1:2V	SHEET	OF	SHEET



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STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOUTI	I McLEAN	BLVD Plan	– STEAR AND PR	1N 10
	SCALE:	SHEET	OF	SHEETS	



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STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOUTH	H McLEA	N BLVD PLAN	– STEAI AND PR
	SCALE: 1:20H, 1:2V	SHEET	OF	SHEETS





PR R.O.W				
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STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOUTH	I McLEA	N BLVC Plan) – STEAI AND PR
	SCALE: 1:20H, 1:2V	SHEET	OF	SHEETS





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STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

SCALE: 1:20H, 1:2V SHEET

OF

PR R.O.W.





STATE OF ILLINOIS		
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	SCALE: 1:20H, 1:2V	SHEET

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(W = 15.0) $(W = 15.0)$ $(W$		- PC CONC SIDE AGG BASE CSE	WALK 5, 306.5 5 5 4, 42.8 SY	SF			AGG BAS	E CSE 6	5, 5.7 S	Y		AG	G BASE	CSE 4, 1	.K 5, 87 121.1 9	√3.3 SF SY √			
BN510 Image: Big b	2' + + -			<u></u>	<u>; , 1</u> <u>; 1</u> <u>; 1</u> <u>;</u> 1		PCC DRIV	– – ′EWAY P	PAVT 6,	– – 5.7 SY							+ -		
AGG BASE CSE 8, 35.1 SY	1012/18								VALK 6,	<u>8N54</u> 55.6 S	6 5F								
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 STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOUTH	McLEAN	BLVD Plan	– STEARI AND PRC	NS I Ofile
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			HMA E	DRIVEWAY PA BASE CSE 8, 2	/T 3, 23.8 S 3.8 SY	SY IONCOC	1		[68+45.78 61.14' LT	-			
SY 5F	г — — . 	_ /		PC COI AGG B PCC AGG	NC SIDEWA ASE CSE 6, DRIVEWAY BASE CSE 6 PR_R.O.W.	<u>(810648</u> LK 6, 60.1 S 6.7 SY PAVT 6, 6.0 6, 6.0 SY	J F SY 			68+45.5 49.46' L1	 <u>3</u> 			
138.7 SF SY		/22' / // //			PC CO AGG	ONC SIDEW BASE CSE 4 EX R.O.V	ALK 5, 541. , 75.0 SY <u>N.</u>	6 SF	A 17					
		<u>е</u>	 				^ 3.98				<u>68+78.</u>	<u> </u>		
378.5 LF	INE —					<u> </u>	+45.32	/ .	68+69.80 42.49' LT		30.42' 1	-1	→	
3 −21 <u>6</u> 7		: 			<u>_</u> 6	<u> </u>	.03 [.] LI			-	MILL/RESUF	RFACE ONI	_Y	
Y PAVT 8, 136 E 6, 136.0 SY	5.U SY											+09.32		
<u>09.1</u> 4 (T										<u> </u>	68+78. 29.88' F	15 69 -69 -69		
PC CONC	EX R.O.W. SIDEWALK 5, 2 BLE WARNINGS	41.9 SF 5, 29.9 SF Y					<u>-</u>		_ 0	G H		 		
- B-6.12 CC&	G, 38.4 LF	NT							<u>68+</u> 51.0	- <u>79.63</u> / 09' RT		 		
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	ASPHALT Approximate	ly 8 inches	of											
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w=260	Stiff, black an CLAY, trace s	nd dark gray and and gray	y SILTY avel											
w = 28.0	Medium stiff, CLAY, trace s	, brown and and and gra	d gray SILT avel	Y										
10.63		11.25 11.13			<u>11.75</u> 11.63				12.14			12.62 12.62		
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H 816.26)SE[75.: R 77'R	74	<u>73+</u> 93.0
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		= <u>-</u>		B.	3-6.24	
				-6.24 C	7 4 CC&C	<u>73-</u> 93.
				C&G, 2 47.0' R <u>PC: 73</u> 78.48'	© 9.0' R - 6, 63.4	+19.16 45' LT
816.63				8.4 LF -	LF 52 0'	
816.76						
						X.
		=====		PCC: 51.5		
				73+67 4' LT		
817.21				41		
817 22 817 26		0		174 64		
				O PT 41 PT: 31. O 4.0' R PHARMA	WALK 5 WARNIN E 4, 62. 73+83.(73+83.(1 T - 67.0	
				<u>74+04</u> 74+04 26' RT PC COI DETEC AGG B.	, 479.6 GS, 24. 7 SY – 06 –	470.0
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STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOUTH	I McLEAN	BLVD Plan	– STI AND	EAR PR(
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RI RC	NS R DFILE	D TO	SPR	RING	ST	 F. R 2	A.U TE. 2509	18	SECTI 3-00050	ON -00-PV		CO K/ CON	UNTY ANE ITRAC	TOTA SHEE 206 T NO.	L SHEET TS NO. 28

Appendix D – Geology and Pedology Maps



G21.165_REV1 Proposed McLean Boulevard Phase II – Kane County,





Map symbol and soil name	Depth	USDA texture	CI	assification	Pct Fr	agments	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Ero	osion facto	ors	Wind erodibility group	Wind erodibility index
				AASHTO	>10 inches	3-10 inches									Kw	Kf	т		
	In				L-R-H	L-R-H	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
67A—Harpster s	ilty clay	loam, 0 to 2 percent	slopes																
Harpster, drained	0-18	Silty clay loam	CL, MH, ML	A-7-5, A-7-6	0-0-0	0- 0- 0	2-8-15	50-60- 71	27-32- 35	1.10-1.20- 1.30	4.23-9.17- 14.11	0.17-0.19- 0.21	2.9- 4.7- 6.1	3.0- 5.0- 6.5	0.24	0.24	5	4L	86
	18-36	Silty clay loam	CL	A-6, A-7-6	0-0-0	0-0-0	2-7-15	50-62- 71	27-31- 35	1.25-1.40- 1.50	4.23-9.17- 14.11	0.17-0.19- 0.21	3.1- 4.0- 4.9	0.5- 1.0- 1.7	0.37	0.37			
	36-41	Silty clay loam, loam, silt loam, clay loam	CL	A-6, A-7-6	0-0-0	0-0-0	2-10-25	43-62- 76	22-28- 32	1.30-1.45- 1.55	4.23-9.17- 14.11	0.17-0.19- 0.20	2.4- 3.5- 4.4	0.2- 0.5- 0.8	0.43	0.43			
	41-60	Loam, silt loam	CL	A-4, A-6	0- 0- 0	0-0-0	5-20-50	28-62- 80	15-18- 27	1.40-1.50- 1.60	4.23-9.17- 14.11	0.17-0.18- 0.21	1.0- 1.7- 3.4	0.0- 0.3- 0.6	0.49	0.49			
149A—Brenton	silt loam,	0 to 2 percent slope	S																
Brenton	0-14	Silt loam	CL, ML	A-6, A-7-5, A-7-6	0-0-0	0- 0- 0	1-8-15	60-69- 79	18-23- 27	1.20-1.30- 1.45	4.23-9.17- 14.11	0.18-0.21- 0.23	2.0- 3.0- 4.0	3.5- 4.0- 5.0	0.32	0.32	5	6	48
	14-33	Silty clay loam	CL	A-6, A-7-6	0-0-0	0-0-0	1-9-15	52-58- 70	27-33- 35	1.25-1.35- 1.50	4.23-9.17- 14.11	0.15-0.17- 0.20	3.6- 4.8- 5.4	0.5- 1.2- 1.7	0.37	0.37			
	33-54	Fine sandy loam, loam, silt loam, clay loam	CL	A-4, A-6, A-7-6	0- 0- 0	0- 0- 0	15-45- 60	12-36- 68	15-19- 30	1.35-1.50- 1.60	4.23-9.17- 14.11	0.11-0.14- 0.17	1.4- 1.9- 4.2	0.2- 0.3- 0.7	0.37	0.37			
	54-79	Stratified silt loam to loamy sand	CL-ML, SC- SM, CL, ML, SC, SM	A-4, A-6	0- 0- 0	0-0-0	15-54- 85	2-31- 73	10-15-27	1.45-1.55- 1.70	4.23-14.11- 42.34	0.07-0.10- 0.13	0.8- 1.4- 3.6	0.1- 0.2- 0.5	0.32	0.32			
325B—Dresden	silt loam	, 2 to 4 percent slope	es																
Dresden	0-7	Silt loam	CL, ML	A-6, A-7-6	0-0-0	0- 0- 0	2-18-30	50-60- 78	18-23- 27	1.29-1.36- 1.42	4.23-9.17- 14.11	0.20-0.22- 0.24	1.4- 2.0- 2.7	2.0- 3.0- 4.0	0.32	0.32	3	6	48
	7-19	Silty clay loam	CL	A-6	0-0-0	0-0-0	5-18-20	42-52- 65	27-30- 38	1.44-1.44- 1.45	4.23-9.17- 14.11	0.15-0.18- 0.20	2.4- 3.0- 4.4	0.2- 0.6- 1.0	0.43	0.43			
	19-32	Clay loam, gravelly clay loam, sandy clay loam, very gravelly loam	CL, SC	A-2-6, A-6	0- 0- 0	0- 1- 3	30-48- 70	0-23- 48	20-29- 30	1.50-1.58- 1.65	4.23-9.17- 14.11	0.08-0.13- 0.18	0.9- 2.7- 3.1	0.0- 0.3- 0.5	0.24	0.24			
	32-79	Stratified gravelly loamy sand to extremely gravelly coarse sand, very gravelly sand	GP-GM	A-1-a, A-1-b	0- 0- 0	4-23-24	80-91- 99	0- 6- 18	1-3-5	1.56-1.60- 1.64	141.14- 423.42- 705.00	0.02-0.03- 0.04	0.0- 0.0- 0.1	0.0- 0.3- 0.5	0.02	0.05			
325C2-Dresder	n silt loar	m, 4 to 6 percent slop	oes, eroded																
Dresden, eroded	0-7	Silt loam	CL, ML	A-6, A-7-6	0-0-0	0- 0- 0	2-18-30	50-60- 78	18-23- 27	1.29-1.36- 1.42	4.23-9.17- 14.11	0.20-0.22- 0.24	1.4- 2.0- 2.7	2.0- 3.0- 4.0	0.32	0.32	3	6	48
	7-18	Silty clay loam	CL	A-6	0-0-0	0-0-0	5-18-20	42-52- 65	27-30- 38	1.44-1.44- 1.45	4.23-9.17- 14.11	0.15-0.18- 0.20	2.4- 3.0- 4.4	0.2- 0.6- 1.0	0.43	0.43			
	18-31	Clay loam, gravelly clay loam, sandy clay loam, very gravelly loam	CL, SC	A-2-6, A-6	0- 0- 0	0-1-3	30-48- 70	0-23- 48	20-29- 30	1.50-1.58- 1.65	4.23-9.17- 14.11	0.08-0.13- 0.18	0.9- 2.7- 3.1	0.0- 0.3- 0.5	0.24	0.24			
	31-79	Stratified gravelly loamy sand to extremely gravelly coarse sand, very gravelly sand	GP-GM	A-1-a, A-1-b	0- 0- 0	4-23-24	80-91- 99	0- 6- 18	1-3-5	1.56-1.60- 1.64	141.14- 423.42- 705.00	0.02-0.03- 0.04	0.0- 0.0- 0.1	0.0- 0.3- 0.5	0.02	0.05			

330A—Peotone	silty clay	loam, 0 to 2 percent	slopes																
Peotone, drained	0-7	Silty clay loam	мн	A-7-5, A-7-6	0- 0- 0	0-0-0	1-5-10	50-60- 67	32-35- 40	1.20-1.30- 1.40	1.41-2.82- 4.23	0.17-0.18- 0.21	3.5- 5.2- 6.8	4.5- 6.2- 7.5	0.24	0.24	5	6	48
	7-27	Silty clay loam, silty clay	CH, CL, MH	A-7-5, A-7-6	0- 0- 0	0-0-0	1-5-10	45-56- 64	35-39- 45	1.30-1.40- 1.55	1.41-2.82- 4.23	0.13-0.17- 0.20	5.8- 7.6- 9.7	1.5- 3.2- 6.0	0.28	0.28			
	27-50	Silty clay loam, silty clay	CH, CL	A-7-6	0-0-0	0-0-1	1-6-12	43-53- 66	33-41- 45	1.35-1.45- 1.60	1.41-2.82- 4.23	0.11-0.15- 0.18	3.9- 7.0- 9.1	0.5- 1.3- 2.7	0.32	0.32			
	50-60	Silty clay loam, silt loam	CH, CL	A-6, A-7-6	0- 0- 0	0-0-3	1-11-20	40-55- 74	25-34- 40	1.40-1.53- 1.65	1.41-2.82- 4.23	0.12-0.17- 0.19	2.2- 4.0- 6.9	0.0- 0.5- 1.2	0.37	0.37			
344C2—Harvard	d silt loar	n, 5 to 10 percent slo	opes, eroded																
Harvard	0-7	Silt loam	CL, ML	A-4, A-6	0- 0- 0	0-0-0	0- 8- 15	58-69- 80	20-24- 27	1.15-1.25- 1.35	4.23-9.17- 14.11	0.22-0.23- 0.24	0.0- 1.5- 2.9	2.0- 2.5- 3.0	0.43	0.43	5	6	48
	7-32	Silty clay loam, silt Ioam	CL, ML	A-4, A-6, A-7-6	0-0-0	0-0-0	0-8-15	50-63- 75	25-30- 35	1.25-1.40- 1.55	4.23-9.17- 14.11	0.15-0.18- 0.20	3.0- 4.5- 5.9	0.2- 0.6- 1.0	0.43	0.43			
	32-40	Clay loam, silt loam, sandy loam	CL, ML, SC, SM	A-4, A-6, A-7-6	0- 0- 0	0-1-3	15-43- 60	10-30-70	15-28- 35	1.30-1.45- 1.60	4.23-9.17- 14.11	0.12-0.16- 0.19	3.0- 4.5- 5.9	0.0- 0.3- 0.5	0.32	0.32			
	40-60	Stratified sand to clay loam	CL-ML, SC- SM, CL, SC	A-2-4, A-2-6, A-4, A-6	0-0-0	0-3-4	30-59- 87	0-24- 65	5-18-30	1.40-1.55- 1.70	4.23-23.29- 42.34	0.05-0.10- 0.15	0.0- 1.5- 2.9	0.0- 0.3- 0.5	0.2	0.2			
356A—Elpaso si	ilty clay l	pam, 0 to 2 percent s	slopes																
Elpaso, drained	0-21	Silty clay loam	CL, MH, ML	A-7-5, A-7-6	0-0-0	0-0-0	1-6-10	55-63- 72	27-31- 35	1.20-1.30- 1.40	4.23-9.17- 14.11	0.16-0.19- 0.22	2.5- 3.1- 3.8	4.0- 5.5- 7.0	0.24	0.24	5	6	48
	21-44	Silty clay loam, silt Ioam	CH, CL	A-6, A-7-6	0- 0- 0	0-0-0	1-6-10	52-62- 74	25-32- 38	1.25-1.35- 1.45	4.23-9.17- 14.11	0.15-0.18- 0.21	2.9- 4.4- 5.8	0.3- 1.1- 2.0	0.37	0.37			
	44-69	Clay loam, silt loam, silty clay loam, loam	CL	A-6, A-7-6	0- 0- 0	0-0-0	2-16-30	33-55- 78	20-29- 37	1.40-1.50- 1.60	4.23-7.52- 14.11	0.12-0.15- 0.18	1.9- 3.5- 5.1	0.2- 0.5- 0.8	0.37	0.37			
	69-79	Clay loam, silt loam, silty clay loam, loam	CL	A-6, A-7-6	0- 0- 0	0-1-3	2-16-30	35-56- 80	18-28- 35	1.45-1.60- 1.65	1.41-2.82- 4.23	0.09-0.12- 0.15	1.4- 3.2- 4.7	0.0- 0.3- 0.6	0.43	0.43			
531B-Markhan	n silt loar	n, 2 to 4 percent slop	bes																
Markham	0-8	Silt loam	CL, ML	A-6, A-7-6	0-0-0	0-0-1	5-10-15	58-66- 75	20-24- 27	1.30-1.40-	4.23-9.17- 14.11	0.18-0.19-	1.8- 3.3- 4.2	2.0- 3.0- 4.0	0.37	0.37	3	6	48
	8-21	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0-0-1	0-1-4	5-12-20	30-49- 60	35-39- 50	1.40-1.50- 1.60	0.42-2.33- 4.23	0.14-0.15- 0.17	2.3- 3.8- 6.4	0.2- 0.6- 1.0	0.37	0.37			
	21-32	Silty clay loam, silty clay	CH, CL	A-6, A-7-6	0-1-1	0-3-4	5-12-20	40-52- 65	30-36- 45	1.55-1.65- 1.75	0.42-0.92- 1.41	0.11-0.12- 0.16	1.3- 2.3- 3.5	0.1- 0.3- 0.5	0.37	0.37			
	32-60	Clay loam, silty clay loam	CL	A-6, A-7-6	0-1-1	0-2-4	5-15-25	40-53- 68	27-32- 38	1.65-1.75- 1.85	0.42-0.92- 1.41	0.09-0.10- 0.17	0.8- 1.8- 2.6	0.0- 0.3- 0.5	0.43	0.43			
531C2—Markha	m silt loa	am, 4 to 6 percent slo	opes, eroded																
Markham, eroded	0-8	Silt loam	CL	A-6, A-7-6	0- 0- 0	0-0-1	5-10-15	58-66- 75	20-24- 27	1.30-1.40- 1.50	4.23-9.17- 14.11	0.18-0.19- 0.20	1.8- 3.2- 4.1	2.0- 2.5- 3.0	0.37	0.37	3	6	48
	8-21	Silty clay, silty clay loam, clay	CH, CL	A-7-6	0-0-1	0-1-4	5-12-20	30-49- 60	35-39- 50	1.40-1.50- 1.60	0.42-2.33- 4.23	0.14-0.15- 0.17	2.3- 3.8- 6.4	0.2- 0.6- 1.0	0.37	0.37			
	21-32	Silty clay loam, silty clay	CH, CL	A-6, A-7-6	0-1-1	0- 3- 4	5-12-20	40-52- 65	30-36- 45	1.55-1.65- 1.75	0.42-0.92- 1.41	0.11-0.12- 0.16	1.3- 2.3- 3.5	0.1- 0.3- 0.5	0.37	0.37			
	32-60	Clay loam, silty clay loam	CL	A-6, A-7-6	0-1-1	0-2-4	5-15-25	40-53- 68	27-32- 38	1.65-1.75- 1.85	0.42-0.92- 1.41	0.09-0.10- 0.17	0.8- 1.8- 2.6	0.0- 0.3- 0.5	0.43	0.43			
662B—Barony s	silt loam,	2 to 5 percent slopes	5																
Barony	0-8	Silt loam	CL	A-4, A-6	0-0-0	0-0-0	0- 8- 15	58-72- 85	15-21- 27	1.15-1.25- 1.35	4.23-9.17- 14.11	0.22-0.23- 0.24	0.0- 1.5- 2.9	2.0- 3.0- 4.0	0.37	0.37	5	6	48
	8-34	Silty clay loam, silt Ioam	CL	A-6, A-7-6	0- 0- 0	0-0-0	0- 8- 15	50-63- 75	25-30- 35	1.25-1.40- 1.55	4.23-9.17- 14.11	0.15-0.18- 0.20	3.0- 4.5- 5.9	0.2- 0.6- 1.0	0.43	0.43			
	34-54	Clay loam, silt loam, sandy loam	CL-ML, CL	A-4, A-6, A-7-6	0- 0- 0	0-1-3	15-38- 60	10-35- 70	15-28- 32	1.30-1.45- 1.60	4.23-9.17- 14.11	0.12-0.16- 0.19	3.0- 4.5- 5.9	0.0- 0.3- 0.5	0.32	0.32			
	54-85	Stratified sand to clay loam	CL, ML, SC, SM	A-2-4, A-4, A-6	0- 0- 0	0-3-4	20-55- 90	0-29- 75	5/17/2028	1.40-1.55- 1.70	4.23-23.29- 42.34	0.05-0.10- 0.15	0.0- 1.5- 2.9	0.0- 0.3- 0.5	0.37	0.37			

Appendix E – Boring Logs



G21.165_REV1 Proposed McLean Boulevard Phase II – Kane County,

E	NGI	NEE	RIN		NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	, Inc. 1-1555	L	OG (OF	BC	RI	NG	SB	-01
Pubipo			62	1 1 5	6	Fax: 847-931-1560	Drilling Method	31/4	Hollow Ste	m Aug	or		W/		Sheet 1 of 1
Project	:	NO	Mc	Lear	o n Blvd.	Phase II	Sampling Method	od:Shelb	by Tube/Sp	olit Spo	oon		Wh	ile Drilli	ing N/A
Locatio	n: tate:		Mc So	Lear	Blvd	llinois	Hammer Type: Boring Location	Autor	natic urning Lar	ne of M	lcl ean	Blvd	T Up	on Com	pletion N/A
Client:	late.		Ha	mptc	on Len	zini and Renwick, Inc.	Bonnig Looddor	5 ft E	from edge	e of pa	vemen	t	${ar \Psi}$ Del	ay	N/A
						Station: 12+77.17		_	-5		STAN			ATION	
eet)	et)	b	be	ö	ches			catior	- 9-i	%		TEST	©		
on (f	ι, (fe	lic L	le Ty	ole N	y (in	MATERIAL DESC	CRIPTION	assifi	s ber	ture,	X N	loisture	■ +	PL LL	Additional
evati	Depth	Graph	amp	Samp	over			CS CI	Blow	Moist	0		25	50	Remarks
Ĕ			S	0)	Rec			nsc	SPT			STREN	GTH, tsf ⊮	07	
	-0-	- K 4				Surface Elev.: 749.63 ft					0		本 2.0	Qp 4.0	
						Approximately 12 inches of Co	JNCRETE								
						Approximately 18 inches of SU	JBBASE	_							
			302	1	0	STONE			5-3-3	19	Ø	×			
						Ma diama diff to a diff among OU T		_	N=6						
						sand and gravel	Y CLAY, trace								
			197	2	0				4-3-7	20		×			
745-	- 5 -								N=10						ļ
	0														
				3	15				2-4-6	21		×	*		On=2.8 tsf
				C					N=10		Í				Qp=2.0 (3)
				1	15			CL	2-3-6	21			¥		
740-				4					N=9	21	Ĭ		Î		Qp=2.0 tst
	- 10 -														+
			\mathbb{N}	-	40				0.47						
				5	18				3-4-7 N=11	23	Ĩ	***	Ì		Qp=1.8 tsf
735-				6	18				3-4-5 N=9	20			*		Qp=2.3 tsf
	- 15 -					End of boring at approximately	y 15 feet below	_							-
						existing grade									
Comel	tion 1				15.0	ft Comple T					do: 11	07094	07		
Date B	oring	Starte	d:		4/11/	/22 Sample T	ypes.	Pressu	remeter	Longi	ue. 41 tude: -	.97981 88.316	7677	-	
Date B	oring	Comp	lete	d:	4/11/	/22 III Auger X Split-S	poon	Hand A	uger	Drill F Rema	kig: Ge arks:	oprobe	e 7822E) F	
Drilling	i By: Conti	actor			н.G. Rubi	no Engineering, Inc.	Core	No Rec	overy						

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E	NGI	NEEF			NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	, Inc. 1-1555	L	OG (DF	BO	RI	NG	SB	-02
						Fax: 847-931-1560									Sheet 1 of 1
Rubino	Jobľ	No.:	G2	1.15	6		Drilling Method:	3 ¼ H	Iollow Ster	n Aug	jer		W	ATER	LEVELS***
Project	:		Мс	Lean	Blvd.	Phase II	Sampling Metho	od:Shelk	by Tube/Sp	lit Sp	oon		\sum Wh	ile Drill	ing N/A
Locatio	on: tate:		Mc	Lean	I Blvd	llinois	Hammer Type: Boring Location	Autor	natic urning Lan	e of N	Icl ean l	Blvd	👤 Upo	on Com	pletion N/A
Client:	iale.		Ha	mpto	n Len	zini and Renwick. Inc.	Doning Looddon	5 ft V	/ from edge	e of p	avemen	t	🗴 Del	ay	N/A
						Station: 14+99.07				<u>т</u> .	STAN				
					(sa	Offset: 26.371		Б	inch			TEST	DATA		
feet	iet)	_D	/pe	o.	che			icati	r 6-i	%			◎ _		
u (t	, (fe	ic L	e Ţ	le ⊾	/ (in	MATERIAL DESC	RIPTION	assif	s be	, e	X N	loisture		PL 11	Additional
/atic	pth	aph	ldm	dme	very			Ö	Ň	oist	0	2	25	50	Remarks
Ele	ă	ڻ	Sa	ů	eco			SCS	E E	Σ		STREN	TH tef		
					Ř	0			SF SF			Qu	*	Qp	
	0	- <u>-</u>				Surface Elev.: 760.25 ft					0	2	2.0	4.0	
760-						Approximately 12 menes of Co	UNCILL								
		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$				Approximately 24 inches of SI		_							
			1//H			STONE	JDDASE								
			Ň	1	5				10-8-11 N-10			9			
			Ш						IN-19						
	L _	0000										/			
						sand and gravel	LAY, trace					/			
											/				
			1X H	2	10				2-4-6	19		ЖX			Qp=1.3 tsf
	5								N=10						
755-	- 5 -														
			1)	3	8				2-3-5	21		X	*		On=2.5 tsf
				-					N=8						ap-2.0 to
			2												
			ŧVH	4				CL	0.04	01		V			
				4	0				2-2-4 N=6	21		X	7	₹	Qp=3.0 tsf
	- 10 -		μ								-+				+
750-															
			1/												
			1X-	5	11				3-4-7	21	ĝ	×	₩		Qp=2.8 tsf
			11						IN-11						
	L _	<i>\////</i>													
		\////													
	L _														
				6	12				3-5-7	20	6) X	*		Qp=2.5 tsf
	- 15 -								N=12						
	- 13 -					End of boring at approximately	y 15 feet below								
	L	L					-								
Comple	etion [Depth:	d.		15.0	tt Sample T	ypes:	Pressu	remeter	Latitu	ide: 41.	98044 38.316	95 6889		
Date B	oring	Starte	u. ete	d٠	4/11/ 	Auger	Cutting	Shelby	Tube	Drill F	Rig: Ge	oprobe	e 7822D	т	
	l Bv	Jouh	510	u.	H.G	Split-S	poon 🥂	Hand A	luger	Rema	arks:				
Drilling	Contr	actor:			Rubi	no Engineering, Inc.	Core 🖸	No Rec	overy						

E	NGI	NEER		IG I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	, Inc. 1-1555	L	OG	OF	BO	RI	NG	SB	-03
Rubino Projeci Locatio City, S Client:	o Job I t: on: tate:	No.:	G2 Mc Mc Sol Ha	1.15 Lear Lear uth E	6 n Blvd. n Blvd Elgin, I on Len	Phase II llinois zini and Renwick, Inc.	Drilling Method: Sampling Metho Hammer Type: Boring Location:	3 ¼ H d:Shelt Autor SB S 1 ft V	Hollow Ste by Tube/Sp matic houlder of V from edg	m Aug olit Spo McLea je of pa	jer con an Blvd avemen	t	W/ ∑ Wh ⊈ Upo ⊈ Del	ATER ile Drilli on Com ay	Sheet 1 of 1 LEVELS*** ng N/A pletion N/A N/A
Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	ecovery (inches)	Station: 17+51.27 Offset: -26.527 MATERIAL DESC	CRIPTION	SCS Classification	T Blows per 6-inch	Moisture, %		DARD F TEST loisture		ATION PL LL ₅₀	Additional Remarks
	0				ž	Surface Elev.: 772.35 ft	ρηδι τ		S S			Qu 2	2.0 T	Qp 4.0	
770-			X	1	12	Approximately 5 inches of SUI Stiff to very stiff, brown SILTY sand and gravel	BBASE STONE CLAY, trace	-	2-5-6 N=11	14	Ø	×		>>>	Qp=4.5 tsf
			M	2	9			CL	3-5-8 N=13	15		×		>>>	∕Qp=4.5 tsf
765-			M	3	10	Stiff to very stiff, gray SILTY C sand and gravel	CLAY, trace	-	3-4-4 N=8	17	ø	×	*		Qp=2.5 tsf
	 - 10 -			4	14			CL	2-4-5 N=9	19	0	×	*		Qp=2.5 tsf
760-				5	13				3-4-5 N=9	17	Ø	×			Qp=1.8 tsf
			X	6	18	End of boring at approximately existing grade	y 15 feet below	-	2-4-6 N=10	20	0	× :	*		Qp=2.0 tsf
Comple Date B Date B Logged Drilling	etion I oring oring d By: Conti	Depth: Starte Comp	d: lete	d:	15.0 4/11/ 4/11/ H.G Rubi	ft Sample T /22 /22 no Engineering, Inc.	ypes: P Cutting poon [®] Core O	Pressu Shelby Hand A No Rec	remeter Tube luger covery	Latitu Longi Drill F Rema	de: 41. itude: -{ Rig: Geo arks:	98111 38.317 oprobe	15 0218 97822D)Т	

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E	NGI	NEER		GI	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	, Inc. 1-1555	L	OG	OF	BORI	NG S	SB	-04
Rubino Project Locatic	Job I : n:	No.: (G2´ Mcl Mcl	1.150 _ean _ean	6 Blvd. Blvd	Pax: 847-931-1560	Drilling Method: Sampling Metho Hammer Type:	3 ¼ F od:Shelb Autor	Iollow Ste by Tube/Sp natic	m Aug plit Spo	er bon	WAT ∑ While ▼ Upon	ER Drillin Com	LEVELS*** ng N/A pletion N/A
City, St	ate:	:	Sol Har	uth E	lgin, II	llinois zini and Renwick Inc	Boring Location	NBS 6ftF	from eda	McLe	an Blvd vement	T Delav		N/A
				npto	es)	Station: 20+03.36 Offset: 21.455		tion	-inch -inch		STANDARD F TEST		ON	
vation (fee	epth, (feet)	raphic Log	imple Type	ample No.	wery (inch	MATERIAL DESC	CRIPTION	S Classifica	3lows per 6	10 10 10 10 10 10 10 10 10 10 10 10 10 1	X Moisture	■ Pl 25 ■ Ll	L L 50	Additional Remarks
Ele	ŏ	Ū	S	Ű	Reco			nsc	SPTE	2	STREN	GTH, tsf 米 C	Qρ	
	0		_			Surface Elev.: 780.57 ft FILL: gray sand and gravel					0 :	2.0	4.0	
780-				1	13	Stiff to very stiff, brown and gravel LOAM, trace sand and gravel A-4	ay CLAY		3-5-5 N=10	14	°×_	•	>>≯	Qp=4.5 tsf LL = 28 PL = 18
775-	- 5 -			2	9			CL	3-5-6 N=11	16	© ×		×<<	Qp=4.5 tsf
				3	18	Stiff to very stiff, gray SILTY C sand and gravel	CLAY, trace		3-5-7 N=12	15	Ø×		>>≯	Qp=4.5 tsf
	 - 10 -			4	17				3-7-7 N=14	13			>>¥	Qp=4.5 tsf
770-				5	14			CL	1-2-5 N=7	12	©×	*	Ŕ	Qp=3.3 tsf
				6	16	End of boring at approximately existing grade	y 15 feet below	_	4-7-8 N=15	16			*<<	Qp=4.5 tsf
Comple	etion [Depth:			15.0	ft Sample T	ypes:	Pressu	remeter	Latitu	de: 41.98181 tude: -88.316	38		
Date B Logged	oring I By: Contr	Comple actor:	etec	1:	3/31/ P.P Rubi	Auger	Cutting poon 🕎 Core O	Shelby Hand A No Rec	Tube uger overy	Drill F Rema	Rig: Geoprobe arks:	e 7822DT		

E	NGII	NEER			NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	ı, Inc. 1-1555	L	OG	OF	BC	RI	NG	SB	-05
Rubino Project Locatio City, S Client:	o Job N t: on: tate:	No.:	G2 Mc Mc Sor Ha	1.15 Lean Lean uth E	6 i Blvd. i Blvd ilgin, I in Len	Pax: 847-931-1560 Phase II Ilinois zini and Renwick. Inc.	Drilling Method: Sampling Method Hammer Type: Boring Location	3 ¼ H od:Shelb Autor : SBL c 3 ft E	Hollow Ste by Tube/S natic of McLear from edg	m Aug plit Spo n Blvd e of pa	jer oon avemen	t	W/ ∑ Wh ⊈ Upo ⊈ Del	ATER ile Drilli on Com ay	Sheet 1 of 1 LEVELS*** ng N/A pletion N/A N/A
Elevation (feet)	p Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	Station: 21+96.37 Offset: -11.104 MATERIAL DESC Surface Elev.: 784.19 ft	CRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %		IDARD F TEST Moisture STRENG Qu	PENETR DATA © 25 GTH, tsf % 2.0	ATION PL LL <u>50</u> Qp	Additional Remarks
				1	0	Approximately 11 inches of AS FILL: brown silty clay, trace sa	SPHALT		2-2-4 N=6	21	©	×			
780-	780 - 2 14 Medium stiff, brown and trace sand and gravel						SILTY CLAY,	CL	0-3-4 N=7	27	Ø#		×		Qp=0.8 tsf 3% Organic Content
				3	16	Stiff to very stiff, brown SILTY sand and gravel	CLAY, trace		4-3-6 N=9	14	Ø	×	*		Qp=2.8 tsf
775–			M	4	18	Increase in gravel at approxima below existing grade	ately 8 ½ feet	CL	3-6-9 N=15	12	;			>>>	€Qp=4.5 tsf
			\mathbb{N}	5	14				7-9-12 N=21	13		×ø		>>>	Qp=4.5 tsf
770-	- 15 -			6	0	Stiff, gray SILTY CLAY, trace End of boring at approximately existing grade	sand and gravel y 15 feet below	CL	6-5-7 N=12	13		*			
Comple Date B Date B Logged Drilling	etion E oring s oring 0 d By: Contr	Depth: Starte Compl ractor:	d: lete	d:	15.0 4/11/ 4/11/ H.G. Rubi	ft Sample T /22 /22 Auger /22 Split-S no Engineering, Inc.	ypes: P Cutting poon [®] Core O	Pressui Shelby Hand A No Rec	remeter Tube uger covery	Latitu Long Drill F Rema	ide: 41 itude: - Rig: Ge arks:	.98233 88.317 eoprobe	42 1157 78220) DT	

						Rubino Engineering 425 Shepard Drive Elgin, IL 60123	, Inc.	L	OG	OF	BC	RI	NG	SB	-06
L	NOI		ATP.	101	NG.	Fax: 847-931-1560	1-1555								Sheet 1 of 1
Rubino Project	o Job I t:	No.:	G2 Mc	1.15 Lear	6 n Blvd.	Phase II	Drilling Method Sampling Meth	: 3 ¼ H od:Shelt	Hollow Ste	em Aug plit Spo	ler Don		W. ∑ Wh	ATER ile Drilli	LEVELS*** ing N/A
Locatio	on:		Mc	Lear	Blvd	llingig	Hammer Type:	Autor	natic bouldor o	f Mel o	an Blud		T Up	on Com	pletion N/A
Cliy, S	lale:		So Ha	mptc	n Len	zini and Renwick, Inc.		3 ft E	from edg	e of pa	ivemen	t	⊥ Del	ay	N/A
				-		Station: 25+48.58	1		ج ب		STAN	DARD F	PENETR	ATION	
eet)	at)	b	be		ches)			cation	6-inc	, 0		TEST	° DATA ⊚		
on (fe	, (fee	lic Lo	e Ty	le N	y (inc	MATERIAL DESC	RIPTION	assific	s per	ure, %	× M	loisture	⊿	PL LL	Additional
evatio	Depth	Graph	amp	Samp	over			CS CI	Blow	Moist	0		25	50	Remarks
Ē			S		Rec			nsc	SPT			STREN	GTH, tsf ₩	07	
	0					Surface Elev.: 787.73 ft					0	QU 1	本 2.0	Qp 4.0	
						TILL. gray gravel, with mes									
						FILL: black silty clay, trace sa	nd and gravel								
				1	6				4-5-4	28			×	*	Qp=3.5 tsf
705	785-								11-9						6% Organic Content
/ 00-															
						Medium stiff, brown and gray s	SILTY CLAY,								
	2					trace sand and graver			2-3-4	33	🛉	*	×		Qp=1.8 tsf
	- 5 -		Д					CL							
						Stiff to very stiff, brown SILTY	CLAY, trace	_							
				3	16	Sund and graver			2-4-4 N=8	17	🛉	$ \times$)	*	Qp=3.0 tsf
780-															
100															
			\mathbb{N}			1-inch sand lens observed at a ½ feet	pproximately 8	CL							
			Ň	4	12				5-5-7 N=12	15)×		>>>	Qp=4.5 tsf
	- 10 -														-
			\mathbb{N}			Very stiff to hard, gray SILTY sand and gravel	CLAY, trace								
				5	11				6-8-8 N=16	12		K@		>>>	Qp=4.5 tsf
775-	-														
								CL							
			\mathbb{N}		10					10		L			
				6	18				6-6-7 N=13	13	5	Ø		>>7	*Qp=4.5 tsf
	- 15 -					End of boring at approximately	y 15 feet below	_							-
Comple	etion I	L Depth:			15.0	ft Sample T	ypes:	Pressu	remeter	Latitu	de: 41	.98330	32		ļ
Date B	oring	Starte Comr	d: leta	d.	3/31/	/22	Cutting	Shelby	Tube	Longi Drill F	itude: - Rig: Ge	88.317 oprobe	′1217 ∋ 7822E	т	
Logged	d By:	Comp	iete	u.	9/91/ P.P	Split-S	poon 💖	Hand A	uger	Rema	arks:	·			
Drilling	Cont	ractor:			Rubi	no Engineering, Inc.	Jore O	j No Rec	overy						

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E	NGI	NEEF		G I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	ı, Inc. 1-1555	L	OG	OF	BORI	NG	SB	-07
						Fax: 847-931-1560								Sheet 1 of 1
Rubino Project Locatio City, S	o Job N :: on: tate:	No.:	G2 Mc Mc Sol	1.150 Lean Lean uth E	6 Blvd. Blvd Igin, II	Phase II linois	Drilling Method: Sampling Method Hammer Type: Boring Location	3 ¼ H od:Shelb Autor : SBL c 4 ft F	lollow Ste by Tube/S natic of McLear from edg	em Aug plit Spo n Blvd e of pa	er oon	WA ∑ While ▼ Upor	TER e Drillin n Com	LEVELS*** ng N/A pletion N/A N/A
Cilent.				mpto		Station: 27+90.00			nom eug			<u> </u>		
Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESC	CRIPTION	USCS Classification	PT Blows per 6-inch	Moisture, %	STANDARD TEST Moisture	PENETRAT DATA © 25 GTH, tsf	TION PL LL 50	Additional Remarks
						Surface Elev: 702 73 ft			S		🔺 Qu	Ж	Qp	
	0					Approximately 6 inches of ASI					0	2.0	4.0	
		~ <u>~</u> ~~~				Approximately 6 inches of SU	BRASE STONE	-						
790-				1	10	Stiff, dark gray to black SAND fines and gravel	Y LOAM, little	sw	3-5-6 N=11	20		*		Qp=2.0 tsf LL = 28 PL = 17
			X	2	13	Medium stiff, dark gray to blac LOAM, little sand and gravel	K SILTY CLAY	CL	4-2-2 N=4	28	¢ *	×		Qp=1.3 tsf 5% Organic Content
785-	 			3	8	Loose, gray SAND, some grav	vel	sw	3-3-6 N=9	12				
	 - 10 -		X	4	6	Medium stiff, gray SILTY CLA sand and gravel	Y LOAM, little	CL	1-3-4 N=7	16				
780-				5	0	Stiff to very stiff, gray SILTY C sand and gravel	CLAY, trace	CL	5-6-6 N=12	16				
				6	5	End of boring at approximately existing grade	y 15 feet below	_	4-9-12 N=21	12	×* ©			Qp=1.3 tsf
Comple Date B Date B Logged Drilling	etion E oring s oring s d By: Contr	Depth: Started Compl	d: lete	d:	15.0 4/1/2 4/1/2 P.P Rubiu	ft Sample T 2 2 2 X Split-S no Engineering. Inc.	ypes: P Cutting poon [®] Core O	Pressur Shelby Hand A No Rec	remeter Tube uger overy	Latitu Longi Drill F Rema	de: 41.98393 tude: -88.317 Rig: Geoprob arks:	55 261 ≥ 7822DT	r.	

E	NGI	NEEF		IG I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-931-1560	ı, Inc. 1-1555	L	OG (DF	BC	RI	NG	SB	-08	1
Rubing	o .lob I	No ·	G2	1 15	6		Drilling Method	3 1/4 H	Hollow Ster	n Aud	er		W	ATER	LEVELS***	╡
Project	t:	10	Mc	Lear	n Blvd.	Phase II	Sampling Meth	od:Shelk	by Tube/Sp	lit Spo	oon		∑ Wh	ile Drilli	ng 8.5	ft
Locatio	on:		Мс	Lear	Blvd		Hammer Type:	Autor	matic	M.I			- V Upo	on Com	pletion 10	ft
City, S	tate:		Sol	uth E	lgin, II n I en	llinois zini and Renwick, Inc	Boring Location	1: NBS 2ftF	from edge	of pa	an Bivo vemen	t I	T Del	av	N.	/A
Oliciti.				mpte		Station: 30+04.29				1	STAN					-
æ					(se	Offset: 12.112		io	inch			TEST	DATA			
(feet	eet)	Log	ype	No.	nche			ficati	er 6-	%			© I	PI		
ion	h, (f	hic	ole T	ple I	ry (i	MATERIAL DESC	CRIPTION	lassi	d sv	sture,		Aoisture	25	LL	Additional	
evat)ept	Grap	amp	Sam	ove			0 SC	Blo	Mois			Ĩ		Remarks	
Ē			S	0,	Rec			ns(SPT			STREN	GTH, tsf	_		
						Surface Elev.: 798.43 ft					0	Qu 2	¥ 2.0	Qp 4.0		
						FILL: gray gravel, with fines										
	L _															
						LOAM. little gravel	TY CLAY									
	L -		Ň	1	16				5-4-4	15	P	×	₩		Qp=2.5 tsf	
			14						11-0							
795-	+		\mathbb{H}					CL								
				0					0.0.4							
				2	0				2-3-4 N=7	20	%					
	- 5 -										`	\setminus				
			$\frac{1}{1}$			Medium dense, brown SAND,	with gravel	_				$ \setminus$				
			IVT	3	5				15-12-15	8	×	`	6			
		•	\mathbb{N}	-					N=27				I			
			H													
700-					7	7										
190						Transitions to gravelly sand at	approximately	sw								
	F -		Ш	4	6	6 /2 leet below existing grade			8-10-13	6	$ \times$	¢	2			
	L 10 -		2						N=23				Ν			
					-	-							$ \rangle$			
	L _	••••••											$ \rangle$			
													$ \rangle$			
	L -	•••••				Dense, brown SAND AND GR	RAVEL			9	×			Ν		
			XI	5	5				8-12-30					 		
		•••••• ••••••	:						N=42					/		
785-	-							sw						/		
										12			/			
			W	6	1				13_20_13	12						
	- 15 -		M	0	-				N=33						-	
						End of boring at approximately	y 15 ½ feet	_								
						below existing grade										
Compl	 etion 「)enth:			15.0	ft Sample T	vpes 🗔		L	Latitu	de: 41	98455	05			+
Date B	oring	Starte	d:		3/31/		Cutting	Pressu	Tubo	Longi	tude:	88.317	2424	-		
Date B	oring	Compl	lete	d:	3/31/	22 Auger	boon	Hand A	uder	Drill F Rema	kig: Ge arks:	eoprobe	e 7822D)		
	d By: L Contr	actor.			P.P. Rubii	no Engineering Inc	Core O	No Rec	covery							

E	NGI	NEEF		IG I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-931-1560	ı, Inc. 1-1555	L	OG (OF	BC	RII	NG	SB	-09
Rubino Project Locatio	o Job I t: on:	No.:	G2 Mc Mc	1.15 Lear Lear	6 n Blvd. n Blvd	Phase II	Drilling Method: Sampling Metho Hammer Type: Boring Location:	3 ¼ H d:Shelt Autor	Hollow Ste by Tube/Sp matic	m Aug olit Spo	er oon		W/ ∑ Wh ⊈ Upo	ATER ile Drilli on Com	LEVELS*** ing N/A pletion N/A
Cliy, S	lale.		Ha	mptc	n Len	zini and Renwick. Inc.	Doning Education.	5 ft E	from edge	e of pa	vemen	t	📱 Del	ay	N/A
vation (feet)	epth, (feet)	raphic Log	mple Type	ample No.	wery (inches)	Station: 32+78.83 Offset: 0.451 MATERIAL DESC	CRIPTION	S Classification	slows per 6-inch	1oisture, %	STAN × N	IDARD F TEST Noisture	PENETR	ATION PL LL 50	Additional Remarks
Ë	ă	Ū	Sa	Ű	Reco	Surface Elev.: 805.05 ft		nsc	SPTE	2	0	STRENC	GTH, tsf 米	Qp 4.0	
						Approximately 6 inches of ASI	PHALT	-							
				1	13	Stiff to very stiff, brown SILTY sand and gravel	CLAY, trace		3-3-5 N=8	25	Ø) 	*		2% Organic Content Qp=2.0 tsf
800-			M	2	1				4-5-6 N=11	15		×*			Qp=1.5 tsf
			M	3	8			CL	9-13-9 N=22	12	>	< 0		*	Qp=3.3 tsf
795-			M	4	3				8-11-12 N=23	17		×*•			Qp=1.5 tsf
				5	9	Medium dense, brown SAND, trace fines	some gravel,	SW	6-8-8 N=16	7	×				
				6	10	End of boring at approximately	y 15 feet below		6-12-12 N=24	6	×) 		-
Comple Date B Date B	etion [oring oring	Depth: Starte Compl	d: lete	d:	15.0 4/1/2 4/1/2	ft Sample T 22 22 X Split-S	ypes:	Pressul Shelby Hand A	remeter Tube uger	Latitu Longi Drill F Rema	de: 41 tude: - Rig: Ge arks:	.98530 88.317 oprobe	0 351 7822E) DT	
Logged Drilling	a By: Conti	ractor:			P.P Rubii	no Engineering, Inc.	Core	No Rec	overy						

E	NGI	NEER			NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	, Inc. 1-1555	L	OG (OF	BC	DRI	NG	SB	-10
						Fax: 847-931-1560	D 111 D 11 D						10/	ATED	Sheet 1 of 1
Rubino Project	o Job I t:	No.:	G2 Mc	1.15 Lear	6 n Blvd.	Phase II	Sampling Method:	3 ¼ ⊦ d:Shelt	Hollow Ster by Tube/Sp	m Aug olit Spo	er oon		VV/ ∇wh	AIER ile Drilli	LEVELS ^{***}
Locatio	on:		Мс	Lear	Blvd		Hammer Type:	Auto	matic	Mala			T Up	on Com	pletion 7.5 ft
City, S Client:	tate:		So Ha	uth E mptc	igin, II n Len:	llinois zini and Renwick. Inc.	Boring Location	5ftE	from edge	ivic∟e e of pa	ivemer	a nt	⊥ ⊥ Del	ay	N/A
						Station: 35+15.47					STAN			ATION	
et)		5	e		les)	Offset: 21.523		ation	3-inct			TEST	ି DATA ଭ		
ן (fe	(feet	L C	Typ	e No	(inch		ואסודחוחי	sifica	per (e, %	× ı	Moisture		PL	A delition of
atior	pth,	aphi	nple	mple	/ery			Clas	swo	oistur	0		25	LL 50	Remarks
Elev	De	Ö	Sai	Sa	eco			ISCS	PT B	Σ		STREN	GTH, tsf	1	
						Surface Elev.: 808.28 ft			li s			Qu	*	Qp	
	0					FILL: gray gravel, some fines					0		2.0	4.0	
	L .					Brown silty CLAY, little sand									
						Stiff to very stiff, brown SILTY	CLAY LOAM,								
			1)	1	12				3-5-3 N=8	18		X)	Qp=4.0 tsf
805-															
				-				CL							
			103	2	0				3-3-2	16	🛉	×			
	- 5 -								C-N						-
						Medium stiff to stiff, dark brow	n SILTY CLAY,	_							
			X	3	15	trace sand and gravel			1-3-4	26		*	×		Qp=1.3 tsf
			\mathbb{P}			V			N=7						3 [%] Organic Content
800-								CL							
				4	18				0-1-3	24			×		On=0 E tof
			\mathbb{N}	-					N=4	27	Ι Ť				2% Organic Content
	- 10 -														-
											$ \rangle$				
			\mathbb{N}	_		∇ very stiff, dark brown SILTY C sand and gravel	LAY, trace								
				5	14 -				2-4-7 N=11	17		∛ ×		*	Qp=3.0 tsf
												\mathbf{N}			
795-								CL				$ \rangle$			
						Increase in gravel approximate	ly 13 ½ feet					$ \rangle$			
				6	4				4-10-11	16		×ø			
	- 15 -	<i>[[]]</i>				End of boring at approximately	/ 15 feet below	_	IN-21						-
						existing grade									
Comple	etion [Depth:			15.0	ft Sample T	ypes:	Pressu	remeter	Latitu	de: 41	.98594	69	1	•
Date B	oring oring	Starte Comn	d: lete	d:	3/31/ 3/31/	Auger	Cutting	Shelby	Tube	Drill F	Rig: Ge	-oo.317 eoprobe	∠743 e 7822E	т	
Logged	d By:	Jouh		.	P.P.	Split-S	poon 🥙	Hand A	luger	Rema	arks:				
Drilling	Conti	actor:			Rubi	no Engineering, Inc. 📙 ^{Rock C}	ore O	No Rec	covery						

E	NGI	NEEI		IG I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	, Inc. 1-1555	L	OG (OF	BC	RI	NG	SB	-11
Rubino Project Locatio City, S Client:	o Job I t: on: tate:	No.:	G2 Mc Mc Sol Ha	1.150 Lean Lean uth E mpto	6 I Blvd. I Blvd Ilgin, I In Len	Pax: 847-931-1560 Phase II llinois zini and Renwick, Inc.	Drilling Method: Sampling Metho Hammer Type: Boring Location	3 ¼ H ad:Shelt Autor : SBL c 4 ft E	Hollow Ste by Tube/Sp natic of McLean from edge	m Aug olit Spo Blvd e of pa	er oon	ıt	W/ ∑ Wh ⊈ Upo ⊈ Del	ATER ile Drilli on Com ay	Sheet 1 of 1 LEVELS*** ng N/A pletion N/A N/A
Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	Station: 37+94.41 Offset: -15.114 MATERIAL DESC	CRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %		NDARD F TEST Moisture	PENETR/ DATA © 25 CTH, tsf	ATION PL LL 50	Additional Remarks
	0					Surface Elev.: 811.66 ft Approximately 12 inches of AS	SPHALT		0 O		<u>0</u>	Qu	* 2.0	Qp 4.0	
810-				1	12	FILL: brown silty clay loam, litt gravel	tle sand and		2-5-4 N=9	16	Ø	×		*	Qp=3.8 tsf
				2	11	Medium dense, brown SANDY to little fines and gravel	(LOAM, trace	sw	9-5-8 N=13	17		ø×			
805-				3	8	Medium dense, brown SAND,	some gravel	_	9-5-7 N=12	7	× @	9			
				4	10	Decrease in gravel at approxim below existing grade	nately 8 ½ ft		5-4-10 N=14	4	×				
800-				5	5			SW	9-8-15 N=23	4	×		٥		
				6	10	Increase in gravel at approxima below existing grade End of boring at approximately existing grade	ately 13 ½ ft y 15 feet below	_	8-9-14 N=23	5	×	C	0		-
Date B Date B Logged Drilling	etion I oring oring d By: Conti	Depth: Starte Comp ractor:	d: lete	d:	15.0 4/1/2 4/1/2 P.P Rubi	π Sample T 22 22 no Engineering, Inc. Sample T Auger X Split-S Rock C	ypes: P Cutting poon Core O	Pressui Shelby Hand A No Rec	remeter Tube uger overy	Latitu Longi Drill F Rema	de: 41 tude: - Rig: Ge arks:	.98671 -88.317 eoprobe	6 7334 e 7822D	T	

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E	NGI	NEER		IG I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93 Fax: 847-931-1560	g, Inc. 31-1555	L	OG (OF	BC	RI	NG	SB	5-12 Sheet 1 of 1
Rubino Project Locatio City, S Client:	o Job I t: on: tate:	No.:	G2 Mc Mc Sor Ha	1.15 Lear Lear uth E	6 i Blvd. i Blvd ilgin, I on Len	Phase II Ilinois zini and Renwick, Inc.	Drilling Method: Sampling Method Hammer Type: Boring Location	3 ¼ I od:Shell Autor : NB S 1 ft E	Hollow Ster by Tube/Sp matic shoulder of from edge	m Aug olit Spo McLe e of pa	jer con an Blvo ivemer	d it	W/ ∑ Wh ∑ Upo ∑ Del	ATER ile Drill on Corr ay	LEVELS*** ing N/A pletion N/A N/A
Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	Station: 40+78.62 Offset: 29.915 MATERIAL DESC	CRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %		NDARD F TEST Moisture	PENETR DATA © 25 GTH, tsf	ATION PL LL 50	Additional Remarks
	0					Surface Elev.: 811.98 ft					0	Qu I	* 2.0	Qp 4.0	
810-			M	1	18	Medium stiff, brown CLAY, tra gravel Possible fill	ace sand and	_	2-2-2 N=4	30	Ø	*	×		2% Organic Content Qp=1.3 tsf
			M	2	16			CL	1-3-2 N=5	28	©	*	×		Qp=1.5 tsf 2% Organic Content
805-			\mathbb{N}	3	14	Medium stiff to stiff, brown SII sand and gravel Increase in gravel between 6 - existing grade	LTY CLAY, trace		2-3-3 N=6	15	©	*~			Qp=1.0 tsf
	 - 10 -		\mathbb{N}	4	13			CL	3-4-5 N=9	15		×	*		Qp=2.0 tsf
800-				5	14	Very stiff, brown SILTY CLAY gravel Very dense, brown SAND, wit	, trace sand and	CL	5-10-14 N=24	20				>>>	∜Qp=4.5 tsf
	 - 15 -		\mathbb{N}	6	1	End of boring at approximatel existing grade	y 15 feet below	sw	20-46-21 N=67	7	×			>>0))
Compl Date B Date B Logged	etion I oring s oring d d By:	Depth: Starte Comp	d: lete	d:	15.0 3/31/ 3/31/ P.P.	ft Sample T /22 /22 Auger X Split-S	Types: P Cutting ∰ Spoon ♥	Pressu Shelby Hand A	remeter Tube	Latitu Longi Drill F Rema	ide: 41 itude: Rig: Ge arks:	.98748 -88.317 eoprobe	228 70811 ≥ 7822E) DT	

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E	NGI	NEEI	RIN		NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	, Inc. 1-1555	L	OG	OF	BC	RI	NG	SB	-13
						Fax: 847-931-1560									Sheet 1 of 1
Rubinc	Job I	No.:	G2	1.15	6		Drilling Method	d: 3 ¼ H	Iollow Ste	m Aug	er		W	ATER	LEVELS***
Project	t:		Mc	Lear	n Blvd.	Phase II	Sampling Metl	hod:Shelb	y Tube/Sj	olit Sp	oon		∇ Wh	ile Drill	ing N/A
Locatio	on:		Mc	Lear	n Blvd		Hammer Type	: Auton	natic				-		valation NI/A
City, S	tate:		So	uth E	Elgin, I	llinois	Boring Location	on: SBL o	of McLean	Blvd					
Client:			Ha	mpto	n Len	zini and Renwick, Inc.		4 ft E	from edge	e of pa	ivemen	t	⊥ v Del	ay	N/A
						Station: 43+62.59			-		STAN	IDARD F	PENETRA	ATION	
					(se	Offset: -12.015		и	inch			TEST	DATA		
eet	et)	ß	þe	<u> </u>	che			cati	- -	%			0		
n (f	(fe	C	Ē	S S	(i)	MATERIAL DESC		ssifi	be	é	$ \times $	<i>l</i> oisture		PL	Additional
atio	È,	ihq	d	du	ery			Cla	SMC	listu	0		25	LL 50	Remarks
leva) er	Gra	San	Sal	≥			CS	Ē	Ĕ					-
Ξ	-		0		Re			ns	PL			STRENG	GTH, tsf		
						Surface Elev.: 811.61 ft						Qu	*	Qp	
	0					Approximately 12 inches of AS	SPHALT							4.0	
		XXXX	a 1			FILL: brown to black silty clay	trace sand and	-							
910		\bigotimes				gravel		'							
010	L.	\boxtimes	١X	1	14				1-2-3	20	@K	X			Qp=0.5 tsf
		\bigotimes	∛∖						c=n						2% Organic Content
		\bigotimes													
			Ś												
			1 1												
		\otimes	3VI		10				100	00					
				2	16				1-3-3 N=6	20	ľΫ́		*		Qp=2.0 tsf 3% Organic Content
	- 5 -		¥⊥۲						N O						
		\otimes	X												
		\bigotimes	Š												
		<i>V////</i>	11			Medium stiff to stiff, brown and	d gray SILTY								
805-	1			3	18	CLAY, trace sand and gravel			2-4-4	28		¥	×		On-1 E tof
				Ŭ					N=8	20	Ĭ				3% Organic Content
			1												_
	L -														
								0							
		V///		4	15				3-3-3	18	🖕	₩			Qp=1.5 tsf
			1/\-						N=6						
	- 10 -		μ												+
		\////													
800															
000-	L.		X	5	18				2-2-2	18	🏟	Ж			Qp=1.5 tsf
			\mathbb{N}			Medium stiff, brown SILTY CL	.ay loam,		N=4						
								CL							
		¥////	\mathbb{N}												
				6	18				2-2-3 N=5	33	0				3% Organic Content
	- 15 -		11						N=0						
						End of boring at approximately	y 15 feet below								
Comple	etion [Depth:	-		15.0	ft Sample T	ypes: F	Pressur	emeter	Latitu	de: 41	.98826	9	I	· · · · · · · · · · · · · · · · · · ·
Date B	oring	Starte	d:		4/1/2	22		Challer		Long	tude: -	88.317	147	_	
Date B	oring	Comp	lete	d:	4/1/2			Sneiby	une	Drill F	Rig: Ge	eoprobe	e 7822D	Τ	
Logged	d By:				P.P		poon 🕅	7 Hand A	uger	Rema	ains.				
Drilling	Contr	actor:			Rubi	no Engineering, Inc. 🛛 📙 Rock 0	Core	J No Rec	overy						

E	NGI	NEEF		G I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	g, Inc. 1-1555	L	OG	OF	BOR	ING	SB	8-14
Rubino Project Locatio City, S	o Job I t: on: tate:	No.:	G2 Mc Mc So	1.15 Lear Lear uth E	6 ı Blvd. ı Blvd ilgin, I	Fax: 847-931-1560 Phase II Ilinois	Drilling Method: Sampling Metho Hammer Type: Boring Location:	3 ¼ F d:Shelb Autor NB S	follow Ste by Tube/S natic houlder of	em Aug plit Spo f McLe	jer oon an Blvd	W ∑ Wł ∑ Up	ATER	Sheet 1 of 1 LEVELS*** ing 3.5 ft npletion 14 ft
Client:		-	На	mptc	n Len	zini and Renwick, Inc.		4 ft E	from edg	e of pa	vement	<u>⊥</u> De	lay	N/A
:levation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	covery (inches)	Station: 46+32.03 Offset: 18.707 MATERIAL DESC	CRIPTION	SCS Classification	T Blows per 6-inch	Moisture, %	STANDARI TE × Moistu	D PENETR ST DATA © re 4 25	PL LL 50	Additional Remarks
ш					Re) Š	SP		STRE	NGTH, tst: ¥	On	
	0					Surface Elev.: 810.93 ft				_	0	2.0	4.0	
810-			M	1	8	Very stiff, brown SILTY CLAY gravel Possible fill	, little sand and	CL	8-15-6 N=21	13	× /	0		
			\mathbb{N}	2	15	Medium stiff, dark brown to bl CLAY, trace sand and gravel	ack SILTY	CL	1-2-3 N=5	28	*	×		Qp=1.5 tsf 6% Organic Content
805-			\mathbb{N}	3	15	Stiff to very stiff, brown and g CLAY, trace sand and gravel	ray SILTY	-	3-11-6 N=17	14			>>>	₩Qp=4.5 tsf
			\mathbb{N}	4	10			CL	3-3-5 N=8	16	@ ×		*	Qp=3.3 tsf
800-				5	5	Loose, brown and gray SILTY sand, trace gravel	LOAM, some	SM	2-3-3 N=6	20		<		
				6	6	Medium dense, brown and gra some sand and gravel End of boring at approximatel existing grade	ay SILTY LOAM, y 15 feet below	SM	5-6-10 N=16	16				-
Comple Date B Date B Logged	etion I foring d By:	Depth: Starter Compl	d: ete	d:	15.0 3/31/ 3/31/ P.P.	ft Sample T /22 /22 Auger X Split-S Rock (ypes: Cutting Spoon ♥ Core ○	Pressur Shelby Hand A No Rec	remeter Tube uger overy	Latitu Longi Drill F Rema	Ide: 41.988 itude: -88.3 Rig: Geopro arks:	9987 169511 be 7822[рт	

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E	NGI	NEEF		IG I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93 Fax: 847-931-1560	g, Inc. 31-1555	L	OG	OF	BC	RI	NG	SB	- 15 Sheet 1 of 1
Rubino Project Locatio City, S Client:	o Job I :: on: tate:	No.:	G2 Mc Mc So Ha	1.15 Lear Lear uth E mpto	6 n Blvd. n Blvd Elgin, I on Len:	Phase II Ilinois zini and Renwick, Inc.	Drilling Method: Sampling Metho Hammer Type: Boring Location:	3 ¼ H od:Shelb Autor : SBL c 5 ft E	lollow Ste by Tube/S natic of McLear from edg	m Aug plit Spo n Blvd e of pa	jer oon avemen	t	W/ ∑ Wh ⊈ Upo ⊈ Del	ATER ile Drilli on Com ay	LEVELS*** ing 12 ft pletion 14 ft N/A
Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	Station: 49+17.58 Offset: -8.104 MATERIAL DESC	CRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %		DARD F TEST Ioisture	PENETR/ DATA © 25 CTH, tsf	PL LL 50	Additional Remarks
810-	- 0 - 			1	8	Surface Elev.: 810.29 ft Approximately 8 inches of AS Approximately 6 inches of CC FILL: black silty clay, trace sa	PHALT INCRETE and and gravel	-	5-6-3 N=9	25		20	* 2.0 X	4.0 4.0	3% Organic Content Qp=0.8 tsf
805-				2	8	Medium stiff to stiff, brown SII sand and gravel	LTY CLAY, trace	_	3-2-2 N=4	19	0	*			Qp=1.5 tsf
			\mathbb{N}	3	13	Increase in gravel at approxim below existing grade	ately 6 feet	CL	2-5-4 N=9	15		×*			Qp=1.5 tsf
800-			M	4	17				3-3-6 N=9	13		<	*		Qp=2.3 tsf
				5	15 ַ	Medium dense, brown SAND' gravel	Y LOAM, little	SM	3-6-16 N=22	20		×			
	- 15 -			6	6	Medium dense, brown SAND End of boring at approximatel existing grade	AND GRAVEL	GW	3-8-16 N=24	20		×¢			
Comple Date B Date B Logged Drilling	etion I oring oring I By: Conti	Depth: Starte Compl	d: lete	d:	15.0 4/1/2 4/1/2 P.P Rubi	ft Sample T 22 22 22 no Engineering, Inc.	Types: Cutting Spoon ♥ Core O	Pressur Shelby Hand A No Rec	remeter Tube uger overy	Latitu Long Drill F Rema	lde: 41 itude: - Rig: Ge arks:	.98978 88.316 oprobe	57 9611 97822D)Т	

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E	NGI	NEEI			NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	ı, Inc. 1-1555	L	OG (OF	BC	RI	NG	SE	8-16
						Fax: 847-931-1560	1								Sheet 1 of 1
Rubino	Job I	No.:	G2	1.15	6		Drilling Method: 3 ¼ Hollow Stem Auger						W	ATER	R LEVELS***
Project	t:		Мс	Lear	n Blvd.	Phase II	Sampling Meth	od:Shelb	by Tube/Sp	olit Spo	oon		<u></u> ₩۲	ile Dril	ling N/A
Locatio	on:		Mc	Lear	n Blvd		Hammer Type:	Autor	natic				V Up	on Con	npletion N/A
City, S	tate:		So	uth E	Elgin, I	llinois	Boring Location	1: NBL	of McLean	Blvd		.+			N/A
Client:	1		На	mptc	n Len	zini and Renwick, Inc.		4 11 1	v from eag		avemei	າເ	Tr De	ay	IN/A
						Station: 52+23.35			ج ج		STAN	IDARD I	PENETR	ATION	
et)		5	e		Jes	01361. 4.240		ation	-inc			TEST	I DATA ⊚		
(fe	feet	Ľ	Typ	Р	inct			sifica	er (% "		Aciatura		PL	
ion	í. L	hic	- e	ple	2	MATERIAL DESC	CRIPTION	lass	s	ture		loisture	25	LL	Additional
svat	ept	rap	amp	am	SVe			0	BIO	Mois	-				
Ē		0	ů	0	ec			lsc	ЪТ	_		STREN	GTH, tsf		
						Surface Elev: 809 54 ft			S			Qu	Ж	Qp	
	0					Approximately 7 inches of ASI					0	1	2.0	4.0	
			,					_							
						Approximately 6 Inches of SU	BBASE STONE								
			Λ			FILL: black sand and gravel									
	L -		1X -	1	10	Stiff to very stiff, black and gra	ay LOAM, trace		4-6-7	13		Þ		Ж	Qp=3.3 tsf
			\mathbb{N}			sand and gravel			N=13						
						Possible Fill		CL			/				
			11			Medium stiff, black SILTY CL/	AY, trace sand								
			1	2	12	and gravel			2-2-4	32			××		Op=2.3 tsf
805-				-				CI	N=6						5% Organic Content
	- 5 -		\square					02							+
						Medium stiff brown and grav		_							
						trace sand and gravel	OILTT OLAT,								
	L -			3	12	_			2-3-4	29		*	X		Qp=1.5 tsf
			\square					CL	IN-7						2% Organic Content
	L .														
			11			Medium stiff to stiff, brown SIL	TY CLAY								
		V////		4	10	LOAM, IIIIe gravel, trace sand	1		5-5-6	14		*			Qp=1.0 tsf
800-								CL	N=11						
	- 10 -		1												+
			1			Stiff. grav SILTY CLAY LOAM	. little aravel.	_							
				-		trace sand			0.4.5	10					
				Э					3-4-5 N=9	13	ľ	r k			Qp=1.3 tsf
			ĽЦ												
								CL							
	L .		1/												
705			1)	6	3				3-5-7	11	×	Þ	*		Qp=2.0 tsf
/95-	4.5		\mathbb{N}						N=12						
	- 15 -		\square			End of boring at approximately	y 15 feet below								1
						existing grade									
Comple	etion [Depth:			15.0	ft Sample T	ypes:	Pressu	remeter	Latitu	de: 41	.99061	190		
Date B	oring	Starte	d:	а.	4/11/	Auger	Cutting	Shelby	Tube		iuae: - Ria: Ge	oo.310 oproh	оо∠то e 7822Г	т	
Date B	oring	Comp	ete	a:	4/11/ ப	Split-S	poon 👘	Hand A	uger	Rema	arks:				
Drillina	Conti	actor:			Rubi	no Engineering, Inc.	Core O								

E	NGI	NEEF		IG I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93 Fax: 847-931-1560	ı, Inc. 1-1555	L	OG	OF	BC	RI	NG	SB	- 17 Sheet 1 of 1
Rubino Project Locatio City, S Client:	o Job N t: on: tate:	No.:	G2 Mc Mc Sol Ha	1.156 Lean Lean uth E mpto	6 i Blvd. i Blvd Elgin, II on Lenz	Phase II linois zini and Renwick, Inc.	Drilling Method Sampling Meth Hammer Type: Boring Location	l: 3 ¼ H nod:Shelb Auton n: SBL c 3 ft E	3 ¼ Hollow Stem Auger WAT xd:Shelby Tube/Split Spoon ∑ While Automatic ∑ Upon 3 ft E from edge of pavement ∑ Delay						LEVELS*** ng 9 ft pletion 8 ft N/A
Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	Station: 55+02.85 Offset: -8.361 MATERIAL DESC	CRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STAN	DARD F TEST Aoisture	PENETRA DATA © 25 GTH, tsf	PL LL 50	Additional Remarks
	0					Surface Elev.: 808.88 ft Approximately 10 inches of AS	SPHALT				0	Qu	* 2.0	Qp 4.0	
			X	1	10	Approximately 8 inches of CO FILL: brown silty clay, trace sa	NCRETE	_	3-5-6 N=11	19		×			
805-			M	2	16	Stiff to very stiff, brown SILTY sand and gravel	CLAY, trace	CL	4-3-4 N=7	16	© 	×		*	Qp=3.3 tsf
			X	3	14	Soft to medium stiff, brown SI LOAM, trace gravel	LTY CLAY	CL	1-2-2 N=4	25	æ		×		Qp=0.5 tsf 3% Organic Content
800-	 _ 10 -			4	13	Aedium dense, brown SILTY sand, trace gravel Medium dense, brown SAND, fines	LOAM, little little gravel and	CL	1-4-6 N=10	27			×		2% Organic Content
			\mathbb{N}	5	6			sw	6-8-6 N=14	14		Ø			
795–				6	14	Medium dense, gray SANDY I grave End of boring at approximately existing grade	LOAM, little y 15 feet below	sw	5-5-6 N=11	18	©	×			-
Completion Depth: 15.0 ft Sample Date Boring Started: 4/1/22 Auge Date Boring Completed: 4/1/22 Split Logged By: P.P Rubino Engineering. Inc. Inc.						ft Sample T 2 2 2 Split-S no Engineering, Inc.	ypes: P Cutting poon ® Core C	Pressur Shelby Hand A	remeter Tube uger overy	Latitu Longi Drill F Rema	de: 41. tude: - Rig: Ge arks:	.99138 88.316 oprobe	62 57811 97822D	рт	

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E		NEEF		IG I	NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93 For: 847-921 1550	ı, Inc. 1-1555	L	OG	OF	BO	RI	NG	SB	5-18	
Rubino Projec Locatio City, S Client:	o Job I t: on: state:	No.:	G2 Mc Mc Sor Ha	1.15 Lear Lear uth E	6 n Blvd. n Blvd Elgin, I on Len	Phase II llinois zini and Renwick, Inc.	Drilling Method Sampling Meth Hammer Type: Boring Locatio	I: 3 ¼ H nod:Shelt : Autor n: NBL (4 ft W	3 ¹ ⁄ ₄ Hollow Stem Auger d:Shelby Tube/Split Spoon Automatic : NBL of McLean Blvd 4 ft W from edge of pavement					WATER LEVELS*** ✓ While Drilling 9.5 ft ▼ Upon Completion 8.5 ft ▼ Delay N/A		
Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	Station: 58+12.56 Offset: 5.948 MATERIAL DESC	CRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD TES Moisture STREN		PENETRA DATA © 25 CTH, tsf	PL LL 50	Additional Remarks	
						Surface Elev.: 808.93 ft			0,		0	Qu 2	* 2.0	Qp 4.0		
			X	1	12	Approximately 10 inches of AS Approximately 6 inches of SU Stiff to very stiff, brown SILTY little gravel	SPHALT BBASE STONE CLAY LOAM,		10-7-8 N=15	16		×	*		Qp=2.8 tsf	
805-	- 5 -		\mathbb{N}	2	16			CL	6-5-3 N=8	14		×		*	Qp=3.5 tsf	
			E S	3	0	Stiff, brown SILTY CLAY, trac gravel	e sand and	CL	3-4-6 N=10	15	٥	×				
800-	 - 10 -		X	4	14 <u>\</u>	▼ Very stiff, brown SILTY CLAY ⊈ gravel	LOAM, trace	CL	4-7-7 N=14	15		×		>>>	€Qp=4.5 tsf	
				5	12	Medium dense, gray SANDY gravel	LOAM, little	SM	4-6-6 N=12	17	C	×				
795-	- 15 -			6	12	Very stiff SILTY CLAY LOAM, End of boring at approximately existing grade	, trace gravel y 15 feet below	CL	5-10-7 N=17	14		ש			_	
Compl Date B Date B Logged Drilling	etion I Boring Boring d By: d Donti	Depth: Starte Compl	d: lete	d:	15.0 4/11/ 4/11/ H.G. Rubi	ft Sample T /22 /22 no Engineering, Inc.	ypes: P Cutting poon @ Core C	Pressur Shelby Hand A No Rec	remeter Tube uger covery	Latitu Long Drill F Rema	ide: 41. itude: -{ Rig: Geo arks:	99222 38.316 oprobe	98 6329 97822D) T		

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						Fax: 847-931-1560								Sheet 1 of	
Rubino	Job I	No.:	G2	1.15	6 Divid	Dhana II	Drilling Method	1: 3 ¼ H	Hollow Ste	m Aug	er	W	ATER	LEVELS***	
Locatio	n:		Mc	Lean Lean	i Biva. i Blvd	Phase II	Sampling Method:Shelby Tube/Split Spoon Hammer Type: Automatic						\bigvee While Drilling 6 ft		
City, S	tate:		So	uth E	ilgin, Il	linois	Boring Locatio	n: SBL	of McLear	n Blvd		Up ↓ Up	⊈ Upon Completion 8		
Client:			Hai	mpto	n Lenz	zini and Renwick, Inc.		4 ft E	from edg	e of pa	vement	⊥ <u>⊥</u> De	lay	N//	
					()	Station: 60+71.65 Offset: -10.204		Ę	ъ		STANDAF	RD PENETR FST DATA	ATION		
eet)	et)	_B	/pe	<u>o</u>	che			icatio	r 6-ir	%		© _			
on (t	, (fe , (fe nic L				y (in	MATERIAL DESC	RIPTION	lassif	/s be	ture,	X Moist	ure 🎽	PL LL	Additional	
evati	epth	srapl	amp	Samp	over			CS CI	Blow	Moist	0	25	50	Remarks	
Ē			ŝ	0)	Rec			nso	SPT		STR	ENGTH, tsf			
						Surface Elev.: 808.29 ft					o ▲ Qu	¥ 2.0	Qp 4.0		
	0					Approximately 10 inches of AS	SPHALT								
		****				FILL: brown sandy silty clay		_							
						Approximately 10 inches of CO	ONCRETE								
						FILL: brown silty clay		_							
			m	1	0				50/3				>>@	•	
805-				-											
						Stiff, brown SILTY CLAY LOA	M, little sand,						1		
	– –		199	2	0	liace graver			4-5-5	16					
	- 5 -							CL	N=10					-	
]	Z Loose, brown SANDY LOAM,	trace gravel								
			iV.	3	12		0		1-2-3	21		×			
			\mathbb{N}	Ū					N=5						
						7									
800-								SM							
				4	0				4-4-5 N=9	23		×			
	- 10 -		-								-+ -			-	
						Medium dense, gray SAND, tr	ace gravel	_							
			X	5	14				4-6-8	13	∦ø				
		•••••• ••••••	Ľ					SW	N=14		/				
795-															
				6	12	Stiff, gray SILTY CLAY, little s	and, trace	_	1-1-5	11			¥		
				0	12	gravel		CL	N=9				Î	Qp=3.0 tst	
	- 15 -	<i></i>				End of boring at approximately	/ 15 feet below							-	
						existing grade									
									,						
Comple	etion [Depth:	٩.		15.0 4/10/	ft Sample T	ypes:	Pressu	remeter	Latitu Longi	de: 41.992 tude: -88	2942 316612			
Date B	oring	Compl	u. leteo	d:	4/12/	22 Auger	Cutting	Shelby	Tube	Drill F	Rig: Geopr	obe 7822[т		
Logged	d By:				J.W.	I Rock (-Spoon Mand Auger Remarks:								
Drilling	Conti	actor:			Rubir	no Engineering, Inc. 🔲 🗰			overy						

E	NGI	NEE	RIN		NC.	Rubino Engineering 425 Shepard Drive Elgin, IL 60123 Telephone: 847-93	ı, Inc. 1-1555	L	OG	OF	BC	DRI	NG	SB	3-20
Rubino Projec Locatio City, S	o Job I t: on: itate:	No.:	G2 Mc Mc So	1.15 Lear Lear uth E	6 n Blvd. n Blvd Elgin, I	Phase II	Drilling Method: 3 ¼ Hollow Stem Auger WATER Sampling Method:Shelby Tube/Split Spoon ✓ While Drilli Hammer Type: Automatic Boring Location: SBL of McLean Blvd							LEVELS*** ing 8.5 ft ppletion N/A	
Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type B	Sample No.	Recovery (inches)	zini and Renwick, Inc. Station: 63+76.70 Offset: -18.201 MATERIAL DESC Surface Elev.: 807.92 ft	CRIPTION	4 π USCS Classification	SPT Blows per 6-inch	Moisture, %		NDARD F TEST Moisture STRENG Qu	PENETR □ DATA ③ 25 ↓ GTH, tsf ₩	ATION PL LL 50 Qp	Additional Remarks
805-	 			1	10	Approximately 14 inches of AS Approximately 2 inches of SU FILL: brown and gray clay Pieces of glass and asphalt ob	SPHALT BBASE STONE / served	-	6-2-5 N=7	25	©		× *	4.0	3% Organic Content Qp=2.0 tsf
				2	0	Medium stiff, black to dark bro CLAY, trace sand and gravel	own SILTY		2-3-2 N=5	25	0	:	*		5% Organic Content
800-				3	14	Soft brown and gray SILTY C	:I AY little		0-1-3 N=4	30	Ø	*	×		Qp=1.3 tsf 3% Organic Content
				4	10	gravel		CL	0-1-2 N=3	13		×			-
795-				5	8	Medium stiff, brown and gray LOAM, trace to little gravel	SILTY CLAY	CL	3-3-4 N=7	15	© :	*~			Qp=1.0 tsf
	- 15 -			6	10	End of boring at approximately existing grade	y 15 feet below	-	2-3-4 N=7	18	0:	* ×			Qp=1.0 tsf
Completion Depth: 15.0 ft Sample Date Boring Started: 4/12/22 Auge Date Boring Completed: 4/12/22 Split- Logged By: J.W. Rock Drilling Contractor: Rubino Engineering Inc. Rock						ft Sample T /22 /22 /22 Split-S ino Engineering, Inc.	ypes: Cutting poon ♥ Core ○	Pressul Shelby Hand A No Rec	remeter Tube uger covery	Latitu Longi Drill F Rema	ide: 41 itude: 4 Rig: Ge arks:	.99377 -88.316 eoprobe	/8 5547 e 7822E) DT	

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						Fax: 847-931-1560									Sheet 1 of 1	
Rubino	Jobl	No.:	G2	1.15	6		Drilling Method: 3 ¼ Hollow Stem Auger						WATER LEVELS***			
Project	:		Мс	Lear	n Blvd.	Phase II	Sampling Method:Shelby Tube/Split Spoon						∇ Wh	ile Drilli	ng 12 ft	
Locatio	on:		Мс	Lear	n Blvd		Hammer Type	: Auton	natic				- V Line	n Com	plation 11 ft	
City, St	tate:		So	uth E	lgin, I	llinois	Boring Locatio	on: NBL o	of McLear	n Blvd						
Client:			Ha	mptc	n Len	zini and Renwick, Inc.		Near	centerline	e of roa	d		⊥ v Dela	ay	N/A	
						Station: 66+99.24			-		STAN	IDARD F	PENETRA	TION		
÷					(se	Offset: -1.848		<u>.</u>	incl			TEST	DATA			
eet	et)	DO:	/pe	<u>o</u>	che			icat	r 6-	%			© _			
1) L	(fe		Γ,	e e	(i)	MATERIAL DESC	RIPTION	ssif	be	é	× 1	Moisture		PL	Additional	
atio	oth,	hd	ble	dm	ery			Cla	ŝŇO	oistu	0		25	50	Remarks	
lev	Del	Ū	Sar	Sa	S S			scs	L BI	Ĕ						
ш					Re			SU SU	SP.			STREN	GTH, tsf	-		
						Surface Elev.: 810.75 ft						Qu	米 2.0	Qp 4.0		
	0					Approximately 14 inches of AS	SPHALT									
810-																
010							NODETE									
						Approximately 8 inches of CO	NCRETE			10						
						FILL: Brown, black, and gray of	clay loam, little	-		12		¥ ┏-	-		LL = 35	
			۱V	4		sand and gravel			400						PL = 21	
		\boxtimes		T	14				4-6-8 N=14			۴		1	Qp=4.0 tsf	
		\boxtimes	Ш						14 14			/				
						Stiff, black and dark gray SILT	Y CLAY, trace				/	'				
				2	12	sand and gravel			115	26					0.0516	
			ΙΛH	2	12				4-4-5 N=9	20	ΙĬ		^ *		Qp=2.5 tst 4% Organic Content	
	- 5 -	V///	Ш					CL							· · · · · · · · · · · · · · · · · · ·	
805-																
		////	1/			Medium stiff to stiff, brown and	d gray SILTY									
				3	10	CLAY, trace sand and gravel			3-3-4	28			*×		On=2.0 tsf	
		V////						CL	N=7						3% Organic Content	
			μ													
	L _		11			Soπ, brown and gray SILTY C	LAY, trace sand	1								
			1X H	4	8				1-1-2	23	¢ *	$ \times$			Qp=0.8 tsf	
			1///					CL	N=3							
	- 10 -		21													
800_																
000					-	Medium stiff brown and grav	SILTY CLAY	_								
						LOAM										
	L _		1XII	5	14 <u>-</u>	$\sum_{i=1}^{n} sand and silt seams observed$			0-1-3	25	9		×		3% Organic Content	
			Ľ					CL	IN-4							
			$\frac{1}{1}$			Loose, brown SAND, trace gra	avel	_								
			IV	e		_		SW/	126	14						
		l	IVI	0	ð			500	4-3-6 N=9	14		r				
	- 15 -	<u></u>	Ш				45 6	_								
						existing grade	15 feet below									
Comple	tion Γ	Depth.			15.0	ft Sample T	vpes: F		omotor	Latitu	de: 41	.99465	6	I		
Date B	orina	Starte	d:		4/12/	/22		Pressur	emeter	Longi	tude:	88.316	383			
Date B	oring	Comp	lete	d:	4/12/	/22 Auger	Cutting	Shelby	IUDE	Drill F	Rig: Ge	eoprobe	e 7822D	Т		
Logged	By:				J.W.	Split-S	Spoon 💾 Hand Auger Remarks:									
Drilling	Contr	actor:			Rubi	no Engineering, Inc. 🛛 🚺 Rock (Core	No Rec	overy							

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						Fax: 847-931-1560									Sheet 1 of 1
Rubinc	Job I	No.:	G2	1.15	6		Drilling Method:	3 ¼ ⊦	- Iollow Ste	m Aug	er		W	ATER	LEVELS***
Project			Mc	Lear	n Blvd.	Phase II	Sampling Metho	d:Shelb	y Tube/S	plit Sp	oon		∇ Wh	ile Drilli	ina 13 ft
Locatio	n:		Mc	Lear	n Blvd		Hammer Type:	Autor	natic				<u> </u>		
City, S	tate:		So	uth E	Elgin, II	llinois	Boring Location:	SBL	of McLear	n Blvd			The	on Com	pletion 10 ft
Client:			На	mpto	on Len:	zini and Renwick, Inc.		5 ft E	from edg	e of pa	vemer	t	📱 Del	ay	N/A
						Station: 69+73.29			_	-	OTAN				
	0 Offset: -29.204					Offset: -29.204		ç	с С		STAP	TEST		ATION	
et)						atic	6-ir			0 .	0				
(fe	fee	L L	Ty	ž	juc			sific	ber	6 6	× ı	Aoisture	PL		
ion	$\left \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \end{array}\right \stackrel{\sim}{=} \left \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$					MATERIAL DESC	RIPTION	las	s	sture	0	noiotaro	25 • LL 50		Additional
sval	ept	Irap	am	an	ove			S S	Blo	Moi					
Ш		0	ő	0	e C			Sc	L L	-		STRENG	GTH, tsf		
						0			ល			Qu	Ж	Qp	
	0					Surface Elev.: 812.81 ft					0	2	2.0	4.0	
						Approximately 5 Inches of ASI		-							
						Approximately 10 inches of Co	JNCRETE								
						Approximately E inches of SU		-							
						Approximately 5 inches of SU		-							
		\otimes	Λ			FILL. brown and gray sandy, s				14		\succ			
		\bigotimes	X	1	14				8-14-7			Ø		ĸ	Qp=3.0 tsf
810-	L -		\mathbb{V}						N=21			/			
												/			
						Stiff, brown silty CLAY, trace s	sand and gravel	1				/			
			1VI	2	2				4-3-11	13		6			
			1/1	2	2				N=14			Ĩ			
	- 5 -	\////	Ш								— <i> </i>	1			+
											/				
											/				
			1/			Medium stiff to stiff, brown silt	y CLAY, trace	1			/				
			ŧУГ	3	5	sand and gravel			0-2-2	16		*×			Op=1.0 tef
		\////		Ŭ	ľ				N=4		ĬĬ				Qp=1.0 tsi
			Ц												
805-	L -	\////													
			11												
			IV	4	8				2-4-3	17		×*			On=1.5 tsf
				-					N=7		[ap-1.0 toi
	- 10 -	\////	Р			-					- -				+
	L .														
			11			Increase in gravel at approxima	ately 11 feet								
			IV	5	8	below existing grade			1-2-2	14		×			
		\////		•					N=4		1				
			Р												
800-		\////			<u> </u>	4									
		<u> </u>	1_												
			1			Loose, brown well-graded SAI	ND, trace gravel								
	F -]		6	5			SW	1-3-3	14	6	k			
			:M	-					N=6						
	- 15 -	<u>*****</u> *				End of boring at approximately	v 15 feet below	-							+
						existing grade	,								
Comple	tion	Depth.			15.0	ft Sample T	vpes:	Dreas	omotor	Latitu	de: 41	.99541	1		1
Date B	orina	Starte	d:		4/12/	/22		ressul	emeter	Longi	tude:	88.316	391		
Date B	orina	Comp	lete	d:	4/12/	22 Auger	Cutting	Shelby	Iube	Drill F	Rig: Ge	eoprobe	e 7822D	т	
Logaed	By:				J.W.	Split-S	Spoon 💾 Hand Auger Remarks:								
Drilling	Conti	actor:			Rubi	no Engineering, Inc. 🛛 🚺 Rock (Core 🛛	No Rec	overy						

Appendix F – Laboratory Test Results



G21.165_REV1 Proposed McLean Boulevard Phase II – Kane County,







REPORT OF PARTICLE-SIZE ANALYSIS OF SOIL








Appendix G – Report Limitations

Subsurface Conditions:

The subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the appendix should be reviewed for specific information at individual boring locations. These records include soil descriptions, stratifications, penetration resistances, locations of the samples and laboratory test data as well as water level information. The stratifications shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition between layers may be gradual.

Geotechnical Risk:

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools that geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free, and more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations, presented in the preceding section, constitute Rubino's professional estimate of the necessary measures for the proposed structure to perform according to the proposed design based on the information generated and reference during this evaluation, and Rubino's experience in working with these conditions.

Warranty:

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

Federal Excavation Regulations:

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better ensure the safety of workmen entering trenches or excavations. This federal regulation mandates that all excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person," as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. Rubino is providing this information solely as a service to our client. Rubino is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.



G21.165_REV1 Proposed McLean Boulevard Phase II – Kane County,