Structure Geotechnical Report for Proposed 62W38 Overhead Sign Structures over IL 53 (FAP 342)

IDOT Contract Number	62W38
IDOT Job Number	D-91-144-21
Section	2018-100-BR
County	Cook
Route	IL 53 (FAP 342)

Illinois Department of Transportation
District 1
Region 1

Gonzalez Project Number 23-1003

July 12, 2024
Rev 0

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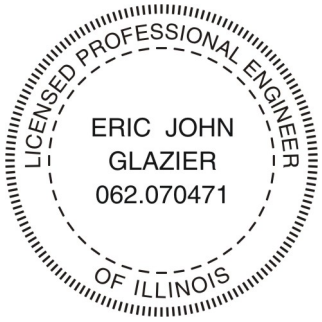

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1. PROJECT DESCRIPTION AND SCOPE

1.1 Project Description

Gonzalez Companies, LLC (Gonzalez) performed a geotechnical investigation for the removal and relocation of three overhead sign structures along the IL 53 corridor between Lake Cook Road interchange and the NB Kirchoff Road exit. The project site is within Cook County, Illinois, and lies within the limits of the Third Principal Meridian (SE ¼, Section 12, T42N, R10E and SW¼, Section 7, T42N, R11E). The project location is shown on the Project Location Map in **Appendix A**. This report presents the depth and characteristics of the soils along the proposed improvement and geotechnical recommendations for the proposed project.

1.2 Proposed Improvements

The proposed improvements include three overhead sign structures (OHSS) will be removed and replaced along the IL 53 corridor. The proposed boring depths of 30 feet have been selected based on the anticipated span length, the standard drilled shaft foundation design tables in the IDOT Sign Structure Manual (2012), and the existing topography. Table 1 is a summary of the proposed OHSS for the project.

Table 1 Proposed Improvements to Overhead Sign Structures

Structure Number	Station	OHSS Type	Span Length (ft)
1S016S053R000.0-005	1242+85	Aluminum Span – Type I-A	98
1S016S053R000.0-006	1188+25	Aluminum Span – Type II-A	82
1S016S053L000.0-002	1191+50	Aluminum Span – Type I-A	86

2. GENERAL GEOLOGY

The project area is located in northeastern Illinois about 10 miles northwest of Chicago O'Hare International Airport within the Wheaton Morainal Country within the Great Lake section of the Central Lowland Province. Based on historical borings and publications, the subsurface profile includes interbedded glacial deposits (medium stiff to stiff) which is underlain by bedrock. Bedrock within the project is expected around El. 560 (Stumpf, 2006), which is over 150 feet below the existing ground surface.

3. FIELD EXPLORATION

3.1 Subsurface Exploration and Testing

3.1.1 Field Investigation

Between May 2, 2023 and June 2, 2024, Gonzalez drilled and logged 6 conventional soil borings near the proposed overhead sign locations. The boring locations are shown on the Boring Plan in **Appendix A** and coordinates are provided in **Table 1**. Ground surface elevations at the boring locations were determined in the field by GPS survey equipment (Virtual Reference Station (VRS) utilizing a Trimble R8 receiver). Gonzalez subcontracted the conventional soil borings to Rubino Engineering, Inc. A Gonzalez geotechnical specialist observed and coordinated the field investigation.

Table 2. Boring Locations and Elevations

Boring ID	Date Drilled	Boring Depth (ft)	Surface Elevation (ft)	Station (ft)	Offset (ft)	OHSS Structure Number
GC-17	August 4, 2023	27.5	732.0	3242+71	25 RT	1S016S053R000.0-005
GC-26	May 11, 2023	27.5	732.1	3242+65	36 LT	
GC-14	May 5, 2023	30	731.7	3188+12	31 RT	1S016S053R000.0-006
GC-27	May 11, 2023	30	731.0	3188+21	32 LT	
GC-77	May 22, 2024	30	732.4	2191+14	27 LT	1S016S053L000.0-002
GC-78	June 2, 2024	30	732.5	2191+20	35 LT	

The borings were advanced with a Geoprobe 7822DT drill rig using hollow stem augers to completion depths ranging from 27 to 30 feet below existing ground surface. Borings were terminated at planned termination depths. Soil samples were obtained under the direction of a Gonzalez engineer using a 2-inch outer diameter split spoon sampler driven with an automatic hammer in accordance with the standard penetration test (AASHTO T 206). The samples were logged for soil type and the unconfined compressive strength was determined with a Rimac or pocket penetrometer, as appropriate. Upon completion, each boring was backfilled with auger cuttings and capped with pavement patch. The boring locations are included as **Appendix A** as a graphical record of the subsurface explorations, and the Soil Boring Logs are included as **Appendix B**.

3.1.2 Laboratory Testing

Soil samples were taken to the laboratory of Gonzalez subcontractor Rubino to determine the moisture content (AASTHO T265) in general accordance with the referenced AASHTO Standards. The results of the laboratory testing are summarized on the boring logs at the corresponding sample depths.

3.2 Subsurface Conditions

This section provides a brief description of the soils encountered in the borings performed in the vicinity of the proposed overhead sign structures. Variations in the general subsurface soil profile were noted during the drilling activities. Detailed descriptions of the subsurface soils are provided in the Soil Boring Logs **(Appendix B).** The soil boring logs provide specific 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.

The near-surface materials in the project area generally consist of glacial materials overlain by fill placed during construction of IL 53. Fill material may vary in depth across the project site as a result of previous construction activities. In general, the observed subsurface material consists predominately of cohesive soil (clay) that was medium stiff to stiff, brown, moist, low plastic with some seams and layers of course grained granular material (Sand with gravel and clayey sand with gravel). Bedrock was not encountered during the field investigation. The deepest boring was advanced to 30 feet below existing ground surface (bottom of boring at EL 701.4). The following provide additional details regarding the soils encountered at each proposed OHSS location.

3.2.1 Borings GC-17 and GC-26 (OHSS 1S016S053R000.0-005, Station 1242+85)

The observed subsurface material consists predominately of clay that was brown, dry to moist, low plastic with trace sand and gravel. Average unconfined compressive strength was measured to be 2.4tsf in GC-17 and 2.1tsf in GC-26. SPT N-values in the fill materials ranged between 4 and 17 blows per foot (bpf) with an average near 11 bpf, indicating medium stiff to stiff cohesive deposits.

3.2.2 Borings GC-14 and GC-27 (OHSS 1S016S053R000.0-006, Station 1188+25)

The observed subsurface material consists predominately of clay that was brown, dry to moist, low plastic with trace sand and gravel. Average unconfined compressive strength was measured to be 2.5tsf in GC-14 and 1.7tsf in GC-27. SPT N-values in the fill materials ranged between 4 and 20 blows per foot (bpf) with an average near 9 bpf, indicating medium stiff to stiff cohesive deposits.

3.2.3 Borings GC-77 and GC-78 (OHSS 1S016S053L000.0-002, Station 1191+50)

The observed subsurface material consists predominately of clay that was brown, dry to moist, low plastic with trace sand and gravel. Average unconfined compressive strength was measured to be 2.2tsf in GC-77 and 2.9tsf in GC-78. SPT N-values in the fill materials ranged between 3 and 25 blows per foot (bpf) with an average near 10 bpf, indicating medium stiff to stiff cohesive deposits.

3.3 Groundwater

Groundwater 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. Groundwater was encountered in the following borings at the time of field exploration at depths/elevations shown in **Table 3**.

Table 3. Groundwater Observations

Boring ID	During Drilling		After Drilling	
	Groundwater Depth (ft)	Groundwater Elevation (ft)	Groundwater Depth (ft)	Groundwater Elevation (ft)
GC-17	Dry	-	Dry	-
GC-26	18.5	713.6	8.5	723.6
GC-14	Dry	-	Dry	-
GC-27	Dry	-	Dry	-
GC-77	Dry	-	Dry	-
GC-78	Dry	-	Dry	-

Delayed groundwater levels were not measured, because the borings were backfilled upon completion due to safety reasons. The values in **Table 3** may not represent the long-term groundwater levels. Groundwater 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. However, it should be noted that fluctuations in groundwater level may occur due to variations in rainfall, other climatic conditions.

4. GEOTECHNICAL RECOMMENDATIONS

This section provides geotechnical recommendations for the design of the proposed overhead sign structures based on the results of the field exploration and laboratory testing. It is anticipated that the sign structures will be designed in accordance with the IDOT Sign Structures Manual.

4.1 Overhead Sign Structure Foundations

According to the IDOT Sign Structures Manual, span type sign structures, cantilever sign structures and monotube sign structures shall be selected and detailed in accordance with the latest Illinois Department of Transportation (IDOT) Standards.

It is recommended that the proposed overhead signs be supported on deep foundations that consist of drilled shafts with no bell (straight shaft) meeting the requirements of the details in the IDOT Sign Structures Manual. The IDOT Standard design is applicable to soil profiles that are predominantly fine-grained (clay/silt) and have an average soil strength (Qu) of 1.25 tsf. Soil profiles that contain soft soils (Qu < 1.25tsf) and or course-grained granular materials (sand/gravel) may require modification to the IDOT standard design.

Table 4 OHSS Foundation Recommendations Summary

OHSS Structure Number	Station	Boring ID	**Soil Profile**	Average Soil Strength (Qu, tsf)	Design
1S016S053R000.0-005	1242+85	GC-17	Med. Stiff to Stiff Clay	2.4	IDOT Standard
		GC-26	Med. Stiff to Stiff Clay	2.1	
1S016S053R000.0-006	1188+25	GC-14	Med. Stiff to Stiff Clay	2.5	IDOT Standard
		GC-27	Med. Stiff to Stiff Clay	1.7	
1S016S053L000.0-002	1191+50	GC-77	Med. Stiff to Stiff Clay	2.2	IDOT Standard
		GC-78	Med. Stiff to Stiff Clay	2.9	

4.1.1 OHSS 1S016S053R000.0-005 at Station 1242+85

The soils encountered in the borings (GC-17 and GC-26) for this OHSS structure consisted predominately of layers of medium stiff to stiff cohesive soils to the termination depths. The cohesive soils generally had unconfined compressive strength values greater than 1.25 tons per square foot (tsf). The standard foundation design parameters included on IDOT Standard Drawing should be suitable for use in the design of the median foundation for the proposed sign structure. The design of the shaft foundation, including the diameter and minimum length, should be in accordance with the requirements of the sign structures manual.

4.1.2 OHSS 1S016S053R000.0-006 at Station 1188+25

The soils encountered in the borings (GC-14 and GC-27) for this OHSS structure consisted predominately of layers of medium stiff to stiff cohesive soils to the termination depths. The cohesive soils generally had unconfined compressive strength values greater than 1.25 tons per square foot (tsf). The standard foundation design parameters included on IDOT Standard Drawing should be suitable for use in the design of the median foundation for the proposed sign structure. The design of the shaft foundation, including the diameter and minimum length, should be in accordance with the requirements of the sign structures manual.

4.1.3 OHSS 1S016S053L000.0-002 at Station 1191+50

The soils encountered in the borings (GC-77 and GC-78) for this OHSS structure consisted predominately of layers of medium stiff to stiff cohesive soils to the termination depths. The cohesive soils generally had unconfined compressive strength values greater than 1.25 tons per square foot (tsf). The standard foundation design parameters included on IDOT Standard Drawing should be suitable for use in the design of the median foundation for the proposed sign structure. The design of the shaft foundation, including the diameter and minimum length, should be in accordance with the requirements of the sign structures manual.

4.2 Drilled Shafts Construction

The drilled shaft construction should be completed in accordance with Section 516, Drilled Shafts, in the IDOT Standard Specification for Road and Bridge Construction. The dry construction method should be applied where shallow groundwater is not present within the proposed shaft depth. Where shallow groundwater exists within the proposed drilled shaft depth, or significant granular layers were encountered in the borings, a temporary casing will likely be required to prevent caving or excessive deformation of the hole.

Construction of the sign foundation should anticipate the use of a temporary casing due when granular soil layers are observed in the boring(s). Drilled shaft construction with the use of a temporary casing should be completed in accordance with Article 516.06 (c) in the IDOT Standard Specification for Road and Bridge Construction. If wet conditions and water are present at the bottom of the drilled shaft, wet method construction (IDOT Standard Specifications for Road and Bridge Construction Section 516.06.b) may need to be considered.

When using the dry or temporary casing method, free water should be removed from the base of the drilled shaft base prior to placing any concrete. The placement method of concrete for the drilled shaft foundation should be based on the amount of water present at the base of the shaft just prior to placing the concrete. Concrete may be placed using the free fall method, provided less than 2 inches of water is present at the base of the shaft at the time the concrete is being placed. If more than 2 inches of water is present, a tremie should be used to displace the water to the surface for removal.

5. LIMITATIONS

This report is based on Gonzalez Companies' understanding of the project as described and was prepared to provide recommendations for retaining wall construction. The boring logs depict subsurface conditions for the specific locations and dates. Depth to groundwater levels recorded on our boring logs are subject to many variables and may not be indicative of long-term equilibrium conditions. These variables include puncture of perched horizons and inadequate time for equilibration of groundwater pressure.

The analyses and recommendations submitted in this report are based in part upon the subsurface data collected and our experience with similar projects. The nature and extent of variations across the site may not become evident until construction. If variations then become apparent that could affect the proposed project, it may be necessary to re-evaluate some of the recommendations of this report. The recommendations and observations presented in the report assume that significant variations do not occur. Non-uniform conditions, however, often cannot be determined by the procedures described. Such conditions may necessitate additional expenditures to obtain a properly constructed project. We recommend that a contingency fund be budgeted to accommodate such possible expenditures.

6. REFERENCES

AASHTO (2020). "AASHTO LRFD Bridge Design Specifications."

Das, B. M. (2015). *Principles of Foundation Engineering*. Cengage Learning.

Illinois Department of Transportation (2012). *Bridge Manual*, Springfield, IL.

Illinois Department of Transportation (2012). *Sign Structures Manual*, Springfield, IL.

Illinois Department of Transportation (2016). *Standard Specifications for Road and Bridge Construction*, Springfield, IL.

Illinois Department of Transportation (2020). *Geotechnical Manual*, Springfield, IL.

APPENDIX A Boring Location Map

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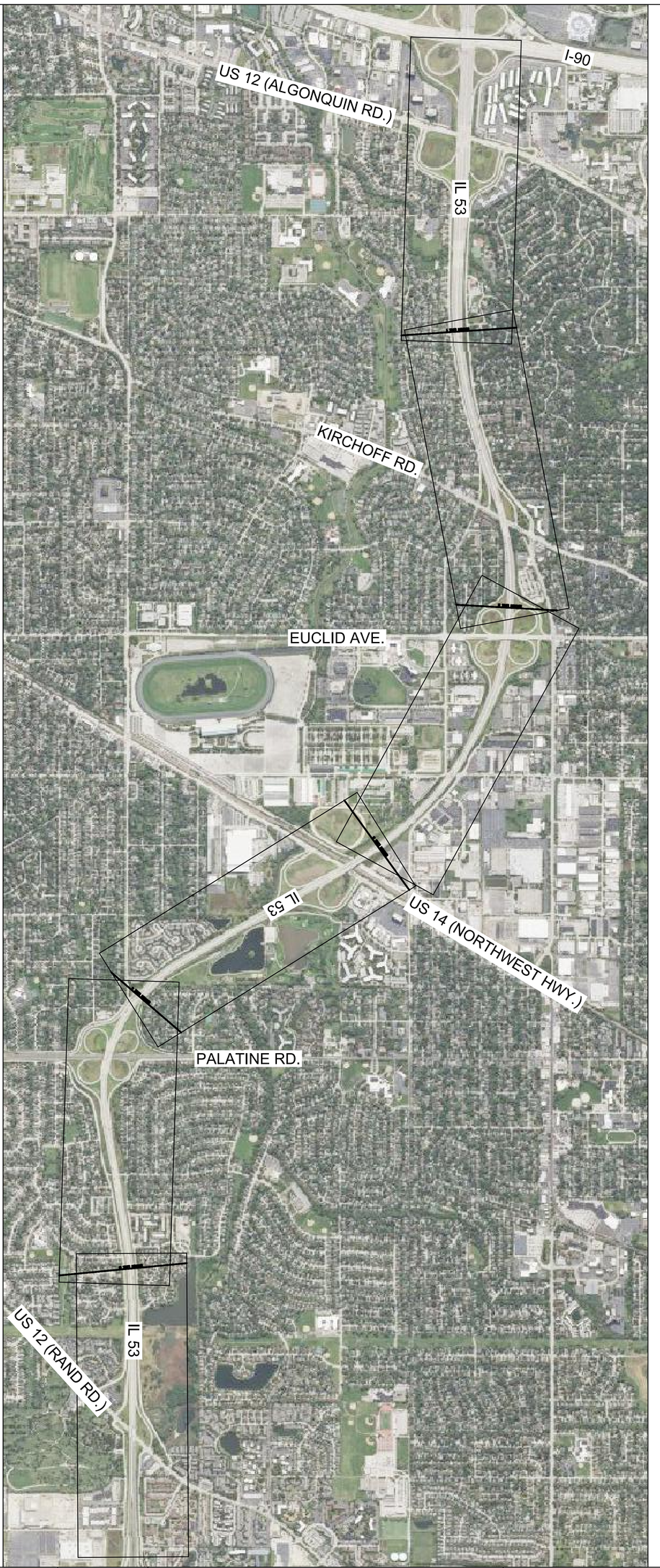
Plotted By: Eric Glazier

BORING LOCATION LEGEND

Sign Structure Boring (depth as shown)



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DRAWN BY:	GMK
CHECKED BY:	EJG
DRAWING FILE:	Boring Locations_C3_Signs_2024-07-12.dwg
TITLE:	PTB 203-021 62W38 - IL 53 FROM US 12 TO IL 62 COOK COUNTY, IL

REVISIONS:

#	Date	Description

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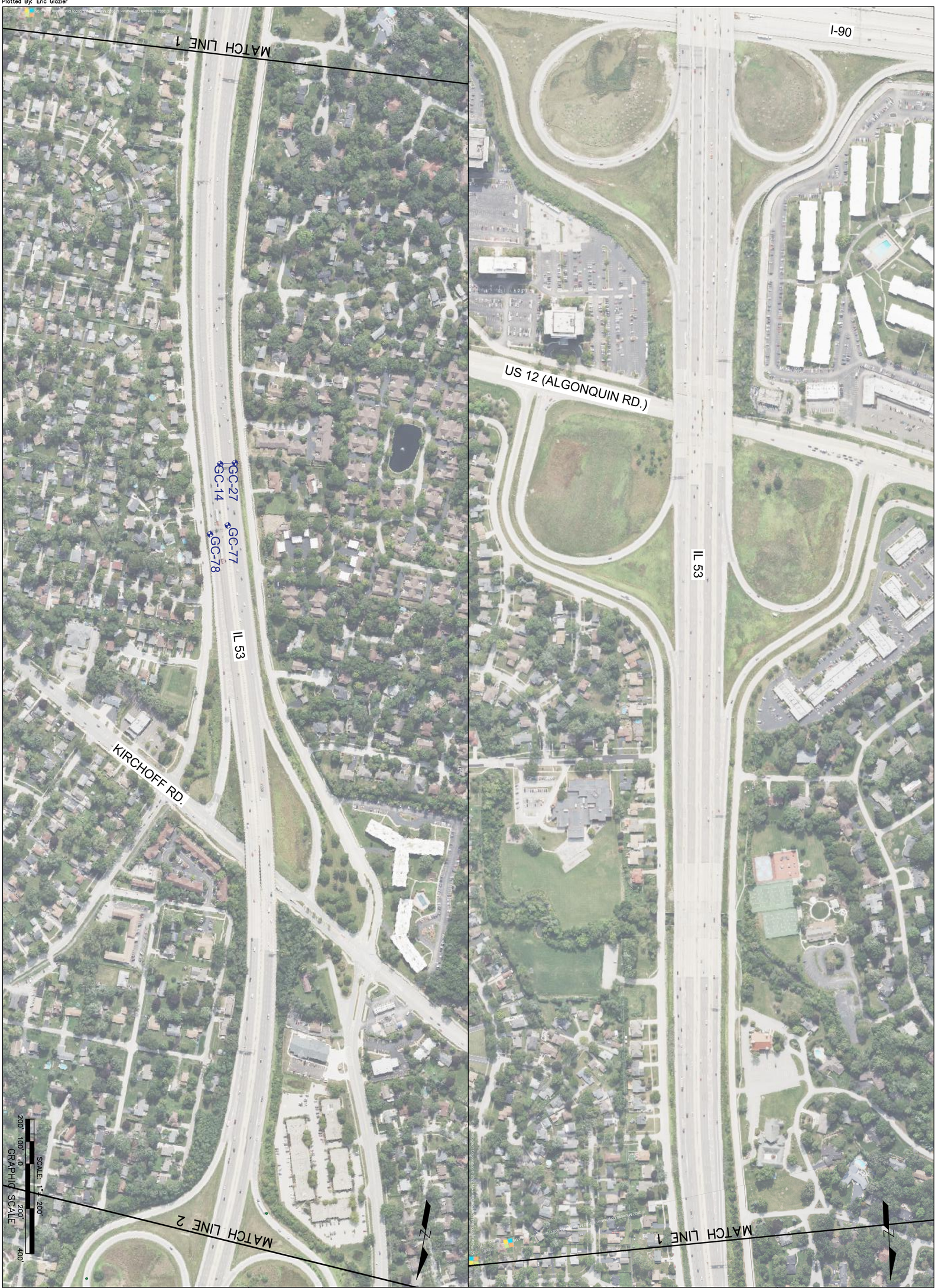

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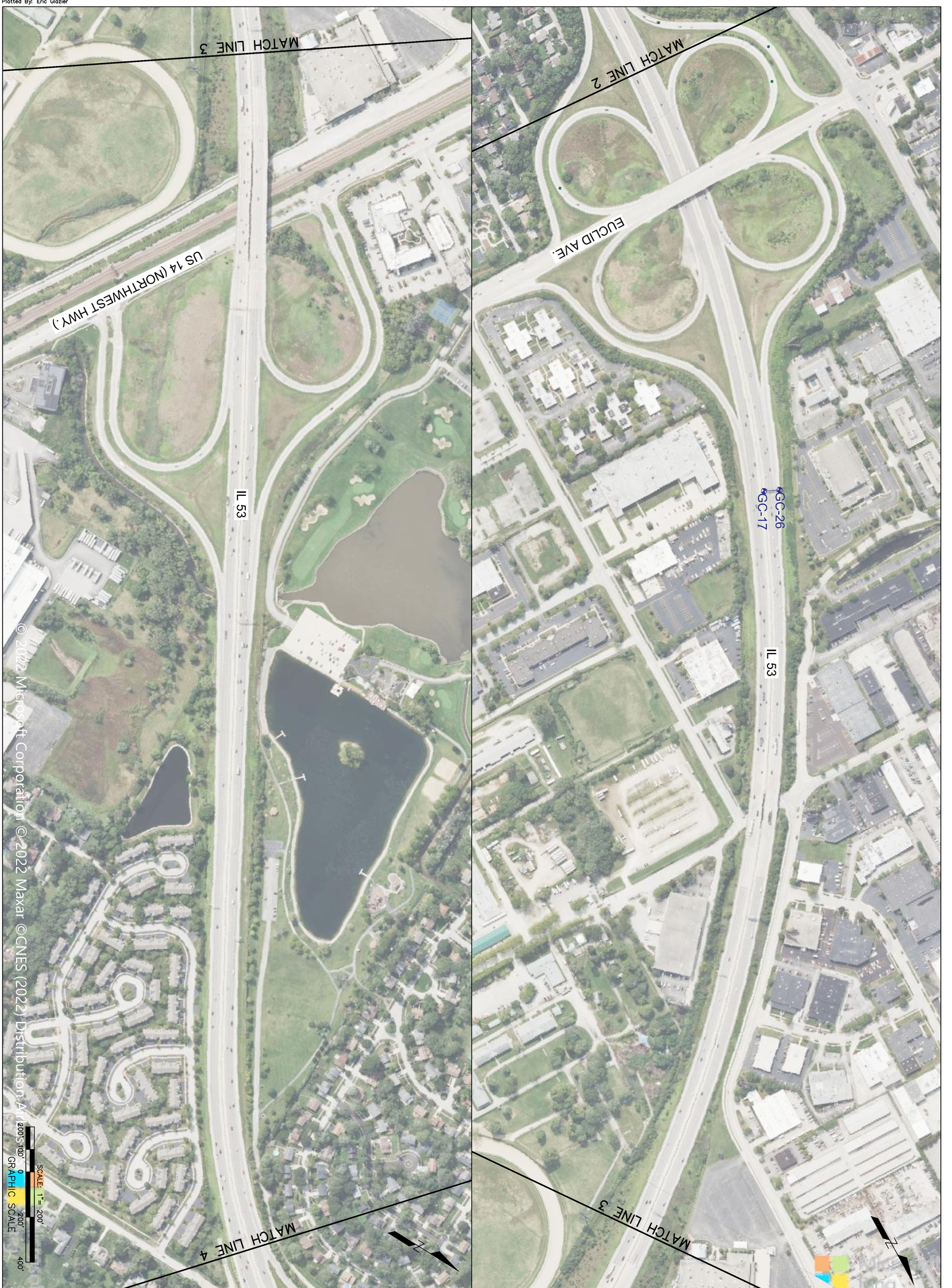

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DATE: 07/12/2024 PROJECT NO. 22-1003 SHEET 3 OF 4			

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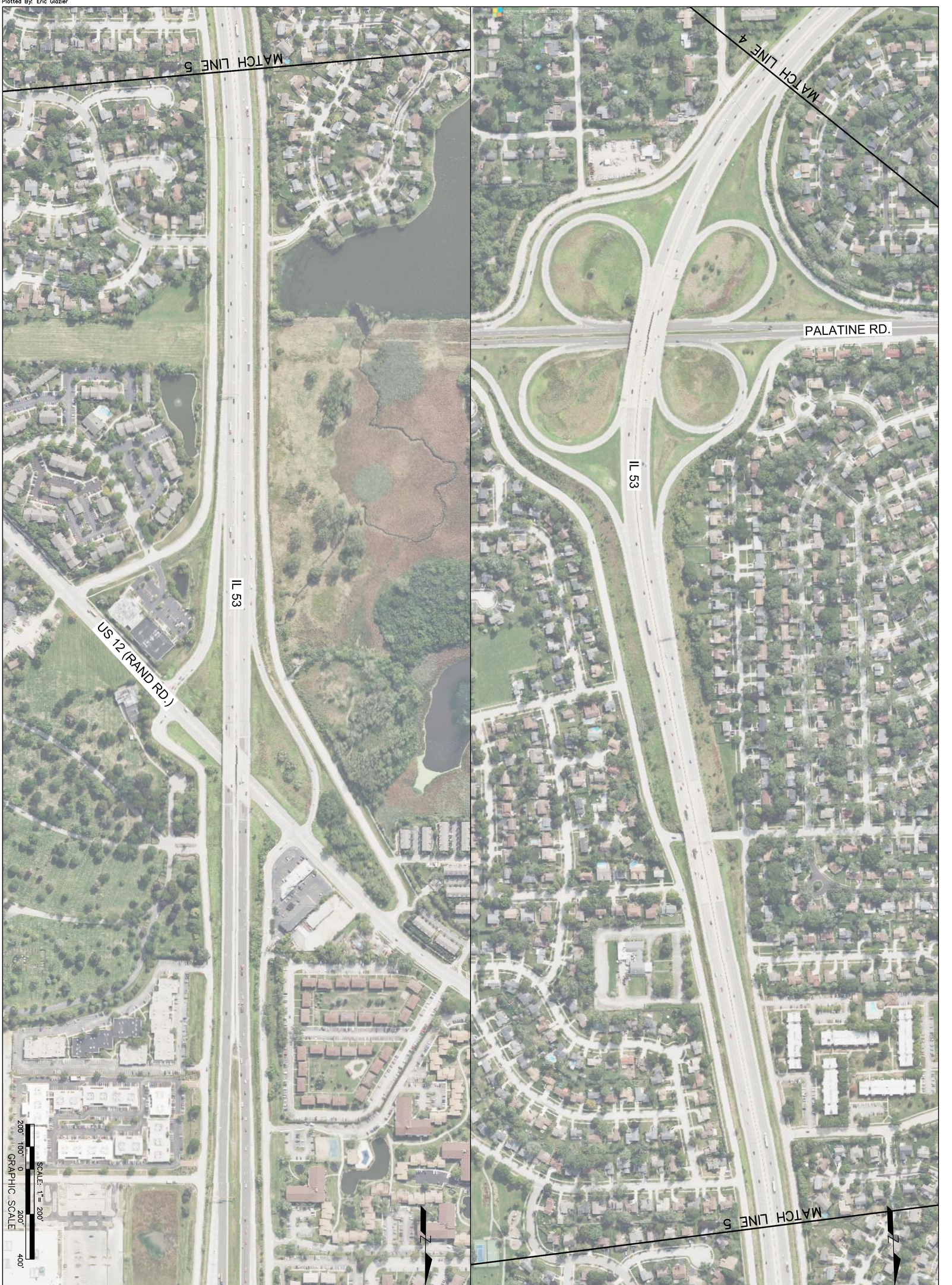

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SHEET 4 OF 4					

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APPENDIX B Soil Boring Logs

SOIL BORING LOG

Date 23/5/5

ROUTE FAP 342 **DESCRIPTION** Sign Boring - Biesterfield B **LOGGED BY** Gonzalez (BR)

SECTION 2018-100-BR **LOCATION** NE 1/4, **SEC.** 35, **TWP.** 42N, **RNG.** 10E, 3rd **PM**,
Latitude 42.07760936, **Longitude** 88.02886058

COUNTY Cook **DRILLING METHOD** Hollow Stem Auger (8" O.D., 3.25" I.D.) **HAMMER TYPE** Auto 140 lb HE 105

STRUCT. NO. 1S016S053R000.0-006
Station 1188+25.00

BORING NO. GC-14
Station 3188+12
Offset 31.3 ft RT
Ground Surface Elev. 731.7 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. Filled ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CONCRETE - 11.5" 730.7			
Course SAND - 2" 730.6	4		
Medium Stiff to Stiff, Brown, Dry to Moist, CLAY, Trace Gravel	2 4	2.6 B	24
	3		
-5	4 5	3.2 B	16
	4		
	6 7	5.8 B	17
	6		
-10	9 11	4.5 P	16
	2		
	4 4	2.3 B	15
	3		
-15	4 6	2.2 B	16
	3		
	3 4		16
	2		
-20	3 4	2.1 B	18
Medium Stiff to Stiff, Brown, Dry to Moist, CLAY, Trace Gravel *(continued)*			
	6		
	5 6		18
	3		
-25	2 2	0.4 B	15
	2		
	3 5	1.6 B	16
	4		
701.7 -30	3 6	1.4 B	22
Boring terminated at 30 feet.			
-35			
-40			

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

SOIL BORING LOG

Date 23/8/4

ROUTE FAP 342 **DESCRIPTION** Sign Boring - Euclid B **LOGGED BY** Gonzalez (BR)

SECTION 2018-100-BR **LOCATION** NE 1/4, **SEC.** 26, **TWP.** 42N, **RNG.** 10E, 3rd **PM**,
Latitude 42.0921540, **Longitude** -088.0297040

COUNTY Cook **DRILLING METHOD** Hollow Stem Auger (8" O.D., 3.25" I.D.) **HAMMER TYPE** Auto 140 lb HE 91

STRUCT. NO. 1S016S053R000.0-005
Station 1242+85.00

BORING NO. GC-17
Station 3242+71
Offset 25.2 ft RT
Ground Surface Elev. 732.0 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. Filled ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CONCRETE - 12" (731.0)			
Stiff, Brown, Dry to Moist, CLAY, Trace Sand, Trace Gravel	3		
	3 6	3.4 B	20
	4		
-5	8 9	3.3 B	14
	3		
	5 9	3.2 B	15
	2		
-10	4 6	2.1 B	15
	3		
	4 6	2.5 B	14
	2		
-15	4 4	1.6 B	14
	4		
	5 7	1.9 B	12
	3		
-20	4 6	1.6 B	18
Stiff, Brown, Dry to Moist, CLAY, Trace Sand, Trace Gravel *(continued)*	6		
	7 8	1.4 B	17
	5		
-25	5 5	0.8 B	18
	3		
	5 7	1.8 B	21
(704.5)			
Boring terminated at 27.5 feet.			
-30			
-35			
-40			

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

SOIL BORING LOG

Date 23/5/11

ROUTE FAP 342 **DESCRIPTION** Sign Boring - Euclid A **LOGGED BY** Gonzalez (BR)

SECTION 2018-100-BR **LOCATION** NE 1/4, **SEC.** 26, **TWP.** 42N, **RNG.** 10E, 3rd **PM**,
Latitude 42.09220061, **Longitude** 88.02992254

COUNTY Cook **DRILLING METHOD** Hollow Stem Auger (8" O.D., 3.25" I.D.) **HAMMER TYPE** Auto 140 lb HE 105

STRUCT. NO. 1S016S053R000.0-005
Station 1242+85.00

BORING NO. GC-26
Station 3242+65
Offset 36.2 ft LT
Ground Surface Elev. 732.1 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter 713.6 ft ▼
Upon Completion 723.6 ft ▽
After Hrs. Filled ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
PAVEMENT 731.3			
Fine SAND	11		
	8 7		7
729.1			
Medium Stiff to Stiff, Brown, Moist to Wet, CLAY, Trace Sand, Trace Gravel	2		
-5	2 2	1.4 B	18
	4		
	5 6	2.7 B	14
▽	3		
-10	4 5	2.9 B	14
	3		
	4 5	2.6 B	12
	3		
-15	4 6	1.6 B	16
Silt Seam	2		
	2 3	2.1 B	19
▼	3		
-20	3 3	1.6 B	19
Medium Stiff to Stiff, Brown, Moist to Wet, CLAY, Trace Sand, Trace Gravel *(continued)*	6		
	7 10	2.9 B	23
708.6			
Medium Dense, Brown, Wet, Fine, SAND, Trace Fines, Trace Gravel	3		
-25	7 7		22
706.6			
Stiff, Brown, Wet, CLAY, Trace Sand, Trace Gravel	3		
	6 4	1.2 B	23
704.6			
Boring terminated at 27.5 feet.			
-30			
-35			
-40			

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

SOIL BORING LOG

Date 23/5/11

ROUTE FAP 342 **DESCRIPTION** Sign Boring - Biesterfield A **LOGGED BY** Gonzalez (BR)

SECTION 2018-100-BR **LOCATION** NE 1/4, **SEC.** 35, **TWP.** 42N, **RNG.** 10E, 3rd **PM**,
Latitude 42.07758259, **Longitude** 88.02909204

COUNTY Cook **DRILLING METHOD** Hollow Stem Auger (8" O.D., 3.25" I.D.) **HAMMER TYPE** Auto 140 lb HE 105

STRUCT. NO. 1S016S053R000.0-006
Station 1188+25.00

BORING NO. GC-27
Station 3188+21
Offset 31.8 ft LT
Ground Surface Elev. 731.0 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. Filled ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
ASPHALT - 16"				
729.7		6		
Fine SAND		8	2.5	25
729.0		5	P	
Stiff, Brown, Moist, CLAY, Trace Gravel, Trace Sand		3		
	-5	5	1.3	26
		5	B	
		3		
		5	1.5	18
		6	B	
		5		
	-10	6	3.8	16
		7	B	
		2		
		5	2.0	15
		5	B	
		3		
	-15	5	1.5	16
		5	B	
		2		
		2	1.2	18
		4	B	
		3		
	-20	4	1.5	16
		4	B	
Stiff, Brown, Moist, CLAY, Trace Gravel, Trace Sand *(continued)*		3		
	-25	4	1.2	19
		4	B	
		3		
		2	0.8	20
		4	B	
		3		
		3	1.2	21
		5	B	
		2		
	-30	4	2.3	21
701.0		4	B	
Boring terminated at 30 feet.				
	-35			
	-40			

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

SOIL BORING LOG

Date 24/5/22

ROUTE FAP 342 **DESCRIPTION** Overhead Sign Boring **LOGGED BY** Gonzalez (OG)

SECTION 2018-100-BR **LOCATION** , **SEC.** 35, **TWP.** 42N, **RNG.** 10E, 3rd **PM**,
Latitude 42.0783477, **Longitude** -88.0290937

COUNTY Cook **DRILLING METHOD** Hollow Stem Auger (8" O.D., 3.25" I.D.) **HAMMER TYPE** Auto 140 lb HE 91

STRUCT. NO. 1S016S053L000.0-002
Station 1191+50.00

BORING NO. GC-77
Station 2191+14
Offset 27.4 ft LT
Ground Surface Elev. 732.5 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. Filled ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Concrete - 12"			
731.5			
Loose to medium dense, brown, CLAYEY SAND, some gravel	3		
	2 1		4
729.0			
Medium stiff to stiff, brown, CLAY, some gravel and sand	3		
	5 6	4.1 B	17
-5			
	4		
	5 6	3.0 P	17
724.0			
Medium Dense, Brown, SANDY CLAY LOAM, trace gravel	3		
	3 5		17
-10			
722.0			
Medium stiff to stiff, brown, SANDY CLAY, some gravel	4		
	5 7	3.4 B	19
	3		
	4 5	1.1 B	16
-15			
	3		
	3 4	1.9 B	17
714.0			
Medium stiff to stiff, Brown, CLAY, some sand and gravel, trace silt	3		
	3 5	2.1 B	18
-20			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Medium stiff to stiff, Brown, CLAY, some sand and gravel, trace silt *(continued)*			
	4		
	4 21	1.9 B	16
	16		
-25			
	5 5	1.3 B	20
	3		
	3 5	1.9 B	20
	3		
702.5 -30	4 6	2.6 B	21
Boring terminated at 30 feet.			
-35			
-40			

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

SOIL BORING LOG

Date 24/6/2

ROUTE FAP 342 **DESCRIPTION** Overhead Sign Boring **LOGGED BY** Gonzalez (OG)

SECTION 2018-100-BR **LOCATION** , **SEC.** 7, **TWP.** 41N, **RNG.** 11E, 3rd **PM**,
Latitude 42.07841299, **Longitude** -88.0288805

COUNTY Cook **DRILLING METHOD** Hollow Stem Auger (8" O.D., 3.25" I.D.) **HAMMER TYPE** Auto 140 lb HE 91

STRUCT. NO. 1S016S053L000.0-002
Station 1191+50.00

BORING NO. GC-78
Station 2191+19
Offset 34.8 ft RT
Ground Surface Elev. 732.4 ft

Surface Water Elev. ft
Stream Bed Elev. ft

Groundwater Elev.:
First Encounter Dry ft
Upon Completion Dry ft
After Hrs. Filled ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Asphalt - 17"
731.0	13			
	4		14	Aggregate Base - 8"
730.3	2			
				Medium Stiff, Blacklish Brown, CLAY, some gravel and sand, organic
	2			
-5	2		27	
	5			
726.4				
	3			Medium Stiff to Stiff, Brown, CLAY, some sand
	4	3.5	17	
	8	S		
	4			
	6	3.6	17	
-10	6	B		
721.4				
	3			Stiff, Brown, CLAY, some gravel and silt
	7	4.0	17	
	8	B/S		
	4			
	5	4.8	14	
-15	7	S		
	3			
	4	3.1	15	
	6	B/S		
	3			
	3	2.1	17	
-20	5	B		
				Stiff, Brown, CLAY, some gravel and silt *(continued)*
	3			
	3	3.3	17	
	6	B		
	3			
-25	4	1.6	17	
	5	B		
	2			
	3	1.6	18	
	4	B		
	3			
	4	1.8	18	
702.4 -30	6	B		
				Boring terminated at 30 feet.
-35				
-40				

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