ADDENDUM #1

January 21, 2026
Town of Speedway, Indiana
25th Street Reconstruction Project
Phase II

Kieser Consulting Group, LLC.
6801 Lake Plaza Drive, Suite D401
Indianapolis, Indiana 46220

TO ALL PLAN HOLDERS OF PROCUREMENT DOCUMENTS

This Addendum forms a part of the Contract Documents and modifies the original documents dated January 2026.

Bidder shall acknowledge receipt of this Addendum in the space provided on the BID Form. Failure to do so may subject the bidder to disqualification.

Add the attached section, "Section 00210 – Supplementary Instruction to Bidders" to the Project Manual in its stated numerical sequence.

SECTION 00210

SUPPLEMENTARY INSTRUCTION TO BIDDERS

PART 1 – GENERAL

1.1 SPECIAL BID SUBMITTAL INSTRUCTIONS

A. This Section includes instructions to Bidders regarding contractors questions.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

A. Contractors Questions and Engineers Response
    a. Question: Is the work to be completed in the 4 phases of will the contractor be allowed to close the road in its entirety, while maintaining business traffic?
        i. Answer: Our intent is to phase the project, per the schedule in the plans, to maintain access. There are a few apartment complexes, businesses and a post office in the project area. The post office has mail delivery via semi. The town completed Phase 1, of 25th Street from Lynch Rd. to Parkwood Dr., last year and they received a good amount of frustration from the community about the full road closure.
    b. Question: How is sidewalk, concrete curb, and concrete drive removal paid?
        i. Answer: Please see the Measurement and Payment section of the Project Manual. Demo for the curb is to be included in the curb line item, same for drives and sidewalk.
    c. Question: Can engineer add pay item for Construction Engineering?
        i. Answer: Construction Engineering is to be included in the pay items. Line items can not be added.
    d. Question: Can engineer add pay item for Clearing of Right of Way?
        i. Answer: In general this is associated with demo of the existing elements or incidental to the site restoration. Additional line items can not be added.
    e. Question: Can engineer provide core samples of roadway or provide more detail on existing pavement cross section?
        i. Answer: Please see attached the pavement investigation report, including core sample information. (Report is attached to this Addendum)
    f. Question: Can Engineer provide clarity on location of storm pipes and structures to be installed? Can Engineer also provide structure data table?
        i. Answer: Storm pipes being replaced are those crossing under the roadway. This is a replacement. See the existing structure table.

Alt & Witzig Engineering, Inc.
4105 West 99th Street • Carmel, Indiana • 46032
Ph (317) 875-7000 • Fax (800) 875-6028

September 26, 2025

Kieser Consulting Group, LLC
6810 Lake Plaza Drive, Suite D401
Indianapolis, Indiana 46220
ATTN: Mr. Dave Kieser

Report of Pavement Investigation and Geotechnical Recommendations

RE: 25th Street Reconstruction – Phase 2
Parkwood Drive to High School Road
Speedway, Indiana – Marion County
Alt & Witzig Project No.: **25IN0404**

Dear Mr. Kieser:

In compliance with your request, we have completed a pavement investigation for the proposed 25th Street Reconstruction – Phase 2 project located in Speedway, Indiana. It is our pleasure to transmit herewith our pavement investigation report.

The results of our test borings and laboratory tests completed to date are presented in the appendix of the report. Our recommendations for the project are presented in the "Pavement Analysis and Recommendations" section of the report. If you have any questions or comments regarding this matter, please contact us at your convenience.

Sincerely,
ALT & WITZIG ENGINEERING, INC.

Joshua W. Tinkle, P.E.
Sr. Geotechnical Engineer

Jacob L. Rankin, M.Eng., P.E.
Sr. Geotechnical Engineer

JACOB L. RANKIN
REGISTERED
No. PE11900847
STATE OF
INDIANA
PROFESSIONAL ENGINEER

PAVEMENT INVESTIGATION & GEOTECHNICAL RECOMMENDATIONS

25TH STREET RECONSTRUCTION – PHASE 2
SPEEDWAY, INDIANA
A&W PROJECT NO. 25IN0404

PREPARED FOR:
KIESER CONSULTING GROUP, LLC
6810 LAKE PLAZA DRIVE, SUITE D401
INDIANAPOLIS, INDIANA

PREPARED BY:
ALT & WITZIG ENGINEERING, INC.
GEOTECHNICAL DIVISION

SEPTEMBER 26, 2025

Table of Contents

1.0 General Information

1.1 Project Description

Based on our correspondence with the client, it is our understanding that the town of Speedway is planning to reconstruct the pavement along 25th Street from Parkwood Drive to High School Road.

1.2 Purpose

The purpose of this investigation was to determine the various pavement and soil profile components, determine the engineering characteristics of the foundation materials, and to provide recommendations and design parameters for use by design engineers in preparing the proposed pavement reconstruction plans and bid documents.

1.3 Scope of Work

This investigation was performed for Kieser Consulting Group, LLC. The proposed statement of objectives and scope of work were outlined in the form of A&W Proposal Number *2507G021* duly authorized by Kieser Consulting Group, LLC. on July 16th, 2025.

Per request, our scope of work included five (5) sampling locations including the collection of pavement cores, subbase material (if present), and soil subgrade for the proposed roadway improvements. Our investigation includes, but is not limited to, recommendations for the proposed roadway reconstruction based on client provided traffic information.

1.4 Incorporations by Reference

Our subsurface investigation was conducted in accordance with guidelines set forth in the scope of services and applicable industry standards.

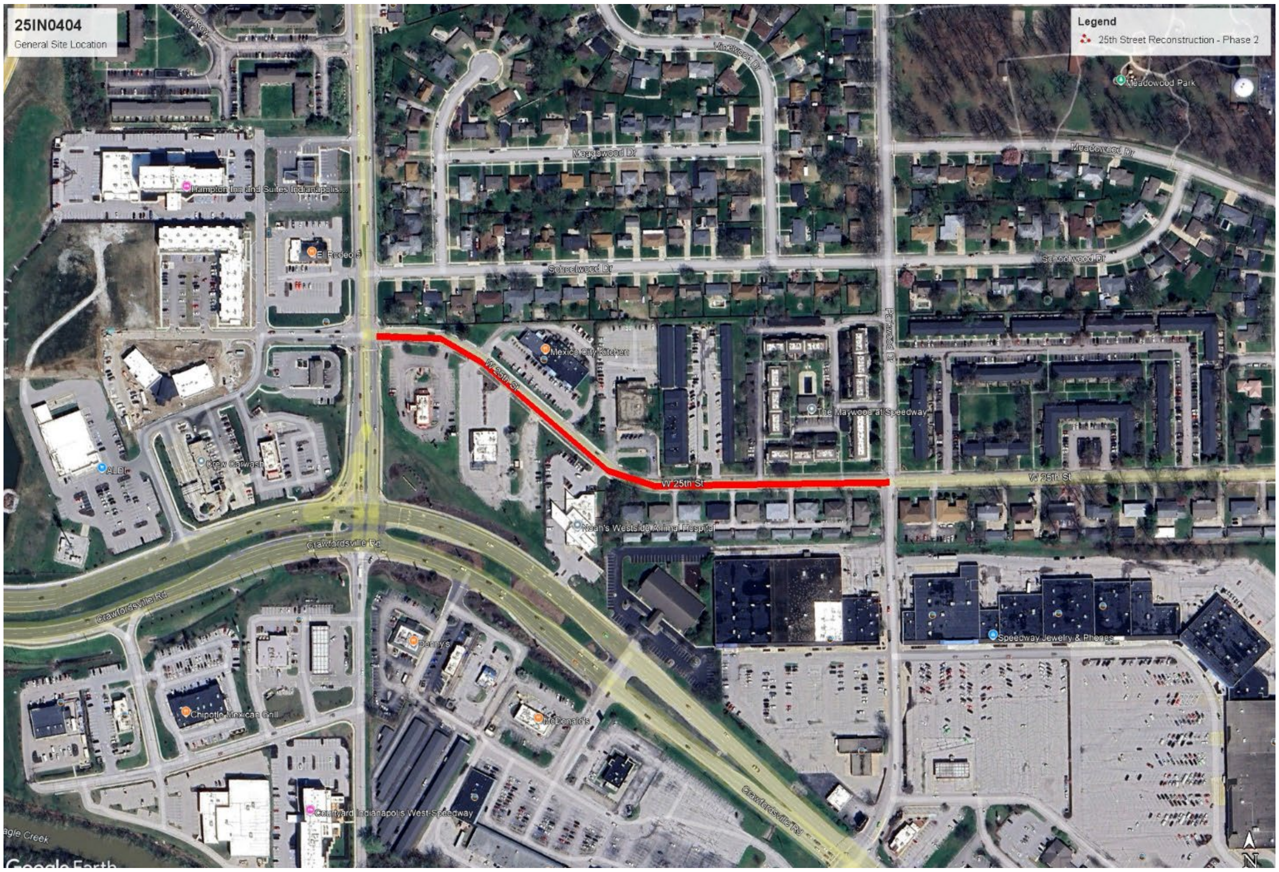
1.5 Report Reliance

This report shall only be presented in full and may not be used to support any other objectives than those set out in the scope of work, except where written approval and consent are provided by Kieser Consulting Group, LLC and Alt &Witzig Engineering, Inc.

1.6 Site Location

The project site is located in Speedway, Indiana along 25th Street from Parkwood Drive to High School Road (Section 25, Township 16 North, and Range 2 East). An aerial photograph of the general site location provided by Google Earth is presented in *Exhibit 1* below.

Exhibit 1: General Site Location, Google Earth



1.7 Regional Setting

The project site lies in the Tipton Till Plains section of the Central Till Plains physiographic region of Indiana. Based upon information compiled and presented by the United States Department of Agriculture (USDA), the shallow soils within the project area are identified as Urban land-Fox loam complex (Ufa) and Miami-Urban land complex (YmaB, YmmC2) type soils. These soils are generally characterized as moderately well drained to well drained with depths to a seasonal-high water table estimated as shallow as 24 inches to greater than 80 inches below existing ground level. The custom soil resource report for Marion County is provided in the appendix for reference.

Based on our site reconnaissance and review of available map data, the existing roadway elevations along 25th Street range from approximately 745 to 755 feet. Based on the information compiled from maps.indiana.edu., bedrock for the project area is estimated at an elevation between 650 to 700 feet and consists of black and greenish-gray shale from the New Albany formation group of the Devonian-Mississippian age.

2.0 WORK PERFORMED

2.1 Field Reconnaissance

Per request, five (5) sampling locations were performed including the collection of pavement cores, subbase material (if present), and soil subgrade for the proposed roadway reconstruction. The Google Earth website was utilized to approximate the proposed locations, allowing for the correlation of the approximate latitude and longitude coordinates with each location. These coordinates were then assigned as waypoints and uploaded into a handheld GPS unit. Each location was then marked in the field with both paint and wooden lathe. The finalized locations are included in the *Boring Location Plan* presented in the Appendix of this report. Prior to mobilizing drilling personnel and equipment, utility locate requests were submitted to Indiana 811.

2.2. Pavement & Subsurface Investigation

The roadway sampling process was performed by core drilling the existing pavement with an eight (8) inch outside diameter diamond studded, water cooled core barrel attached to our coring trailer. The core barrel was advanced through the pavement section. Each asphalt core sample and underlying subbase material (if present) was removed, measured, labeled, and packaged for return to our laboratory.

Immediately below the pavement section, soil borings were performed with our truck mounted drilling rig equipped with a rotary head. During the sampling procedure, standard penetration tests were performed at regular intervals in accordance with ASTM D 1586 to obtain the standard penetration value of the soil. The standard penetration value is defined as the number of blows a 140 lb hammer, falling 30 inches, required to advance the split-spoon sampler 12 inches into the soil. The results of the standard penetration tests indicate the relative density and comparative consistency of the soils and thereby provide a basis for estimating the relative strength and compressibility of the soil profile components. Soil samples were field classified and placed in unpreserved glass jars with Teflon-lined lids for transport to our laboratory for further analysis.

2.3 Laboratory Analyses

A supplementary laboratory investigation was conducted to ascertain additional pertinent engineering characteristics of the subsurface materials necessary in analyzing the behavior of the proposed construction. The laboratory-testing program included:

- Moisture content of soils in general accordance with ASTM D 2216
- Visual classification of soils in general accordance with ASTM D 2488
- Split-spoon samples of cohesive soils were tested utilizing a calibrated spring testing machine and a soil penetrometer to aid in determining the strength.

The values of the unconfined compressive strength as determined on the soil samples from the split-spoon sampling must be considered approximate, recognizing the manner in which they were obtained since the split-spoon sampling techniques provide a representative but somewhat disturbed soil sample.

2.4 Groundwater Elevations

The apparent groundwater level at each boring location was measured during and upon completion of the drilling operations. These water level measurements consisted of observing the depth at which water was encountered on the drilling rods during the soil sampling procedure and measuring the depth to the top of any water following removal of the hollow stem augers. It should be noted that the groundwater level measurements recorded on the individual *Boring Logs* in the Appendix of this report are accurate only for the specific dates on which the measurements were performed. It must be understood that the groundwater levels will fluctuate throughout the year, and the *Boring Logs* do not indicate these fluctuations.

2.5 Ground Surface Elevations

Based on our site reconnaissance and review of available map data, the existing roadway elevations along 25th Street range from approximately 745 to 755 feet. All depths and elevations referred to in this report are referenced from the ground surface existing at the time of this report.

3.0 INVESTIGATION RESULTS

3.1 Pavement & Subsurface Investigation Results

Pavement Section
A total of five (5) pavement cores were collected along 25th Street from Parkwood Drive to High School Road. Hot Mix Asphalt (HMA) pavement was present at all core locations with thicknesses ranging from approximately two and one-half (2.5) to five (5) inches. Moderate HMA pavement core degradation was evident for cores B-03 and B-04. Portland Cement Concrete (PCC) was encountered just below the HMA pavement at all core locations with thicknesses ranging from approximately five (5) to six and one-half (6.5) inches. Moderate to severe PCC core degradation was evident for cores B-02, B-03, and B-05.

Soil Subgrade
Below the pavement materials, our borings typically encountered soft to medium stiff cohesive soils consisting of sandy and silty clay as well as loose to medium dense granular soil consisting of sand & gravel to termination depth at approximately five and one-half (5.5) feet below existing ground level. The natural (in-situ) moisture contents of the shallow cohesive soils generally ranged from fifteen (15) to twenty (20) percent. Specific soil information for the individual boring locations is summarized on the *Boring Logs* also included in the Appendix of this report.

3.2 Existing Groundwater Conditions

Dry conditions were recorded to termination depth at all boring locations both during drilling and at completion of the drilling operations. The exact location of the water table should be anticipated to fluctuate somewhat depending upon normal seasonal variations in precipitation and surface runoff. It should be noted that the groundwater level measurements recorded on the individual *Boring Logs,* included in Appendix A of this report, are accurate only for the dates on which the measurements were performed.

4.0 Geotechnical Analysis and Recommendations

4.1 Roadway Reconstruction Recommendations

Based on our correspondence with the client, the town of Speedway is planning to reconstruct the pavement along 25th Street from Parkwood Drive to High School Road. It is our understating that the pavement reconstruction will be full depth with design roadway elevations matching or very near existing grades.

Based on our investigation, the foundation soils at design subgrade elevation are anticipated to consist of predominantly soft to medium stiff cohesive soils. A proof roll inspection is critical to determine the stability of these shallow soil conditions for placement of new pavements. These soils should be inspected to determine if undercuts or modifications are necessary. Modifications will be determined at the time of the proof roll inspection. Based upon experience with soils having a similar consistency and limited laboratory tests, a design CBR value of 3.0 is estimated for the pavement design. However, the actual CBR value will be dependent on the condition of the soils in the field.

Cohesive soils tend to pump and rut easily when they are at or near saturation. If construction begins during the wetter portions of the year, remediation of the subgrade may be necessary to achieve the above referenced CBR value. Subgrade treatment options including but not limited to; undercutting and replacement, or chemical-soil modification / stabilization may be considered if remediation is necessary. It is recommended that samples of the subgrade be collected by a representative of Alt & Witzig Engineering Inc. to perform laboratory soil analysis and/or mix design testing. The referenced laboratory testing will aid in determining the most appropriate subgrade treatment option as well as determine the most suitable chemical type, percentage, and spread rate to be utilized for subgrade treatment if chemical-soil modification / stabilization is appropriate.

In areas where fill will be required to raise the site to the proposed grade, the performance of the pavements will be greatly affected by the quality of compaction achieved in the subgrade soils. Thus, it is recommended that all pavement areas be compacted to 95% of the material's maximum dry density in accordance with ASTM D-698 (standard effort).

All paved areas should be designed to prevent water from collecting or ponding immediately beneath the pavement. This can be accomplished by sloping the subgrade soils and providing a well-drained granular layer beneath the pavement which is outletted to drainage ditches, underdrains, or drainage structures that will remove trapped water from the pavement section. It is suggested that underdrains be installed in the pavement areas to minimize potential saturation of the soils identified across the site. At a minimum, underdrains should be considered around all storm structures, at asphalt to concrete interfaces, and under pavements where any slopes will drain onto a pavement surface. For underdrains to be effective, minimum installation depths of 18-inches are suggested. The drains should consist of a 4-inch perforated plastic pipe encased in a clean granular washed No. 8 Coarse Aggregate. The No. 8 Coarse Aggregate should extend up to the bottom of the pavement stone layer to facilitate drainage.

Based on information provided by the client, the latest annual average daily traffic (AADT) estimates for 25th Street is 6,927. In the absence of additional data, the client has assumed 10% truck traffic. If these assumptions are not indicative of the final traffic expected, Alt & Witzig Engineering, Inc. should be contacted to determine if changes to our recommendations are necessary.

The following pavement section was determined based on these assumed traffic conditions, utilizing a 20-year design life, a CBR value of 3.0, and the American Association of State Highway and Transportation Officials (AASHTO) design method.

Table 1: Pavement Section

Roadway	Pavement Type	HMA Surface Course	HMA Intermediate Course	HMA Base Course	Aggregate Base Course
25th Street	Asphalt	1.5”	2.5”	4.0”	12”

The design for the new pavement should include a new stone section with a uniform thickness and proper gradation. It will be critical that the stone section be designed with a well-drained granular material such as INDOT No. 53 Coarse Aggregate. “Commercial Grade” #53 coarse aggregate is typically not held to gradation and quality requirements of INDOT and is therefore considered unsuitable for this application. If “commercial grade” #53 coarse aggregate is desirable, it is recommended that a sample of the material be submitted to Alt & Witzig Engineering, Inc. for laboratory gradation analysis. Field sampling during placement may also be necessary to ensure that significant material changes are not encountered during construction.

The asphalt shall be placed in accordance with INDOT Standard Specification Section 400.

5.0 STATEMENT OF LIMITATIONS

An inherent limitation of any geotechnical engineering study is that conclusions must be drawn based on data collected at a limited number of discrete locations. The geotechnical parameters provided in this report were developed from the information obtained from the test borings that depict subsurface conditions only at these specific locations and on the particular date indicated on the boring logs. Soil conditions at other locations may differ from conditions encountered at these boring locations and groundwater levels shall be expected to vary with time. The nature and extent of variations between the borings may not become evident until the course of construction.

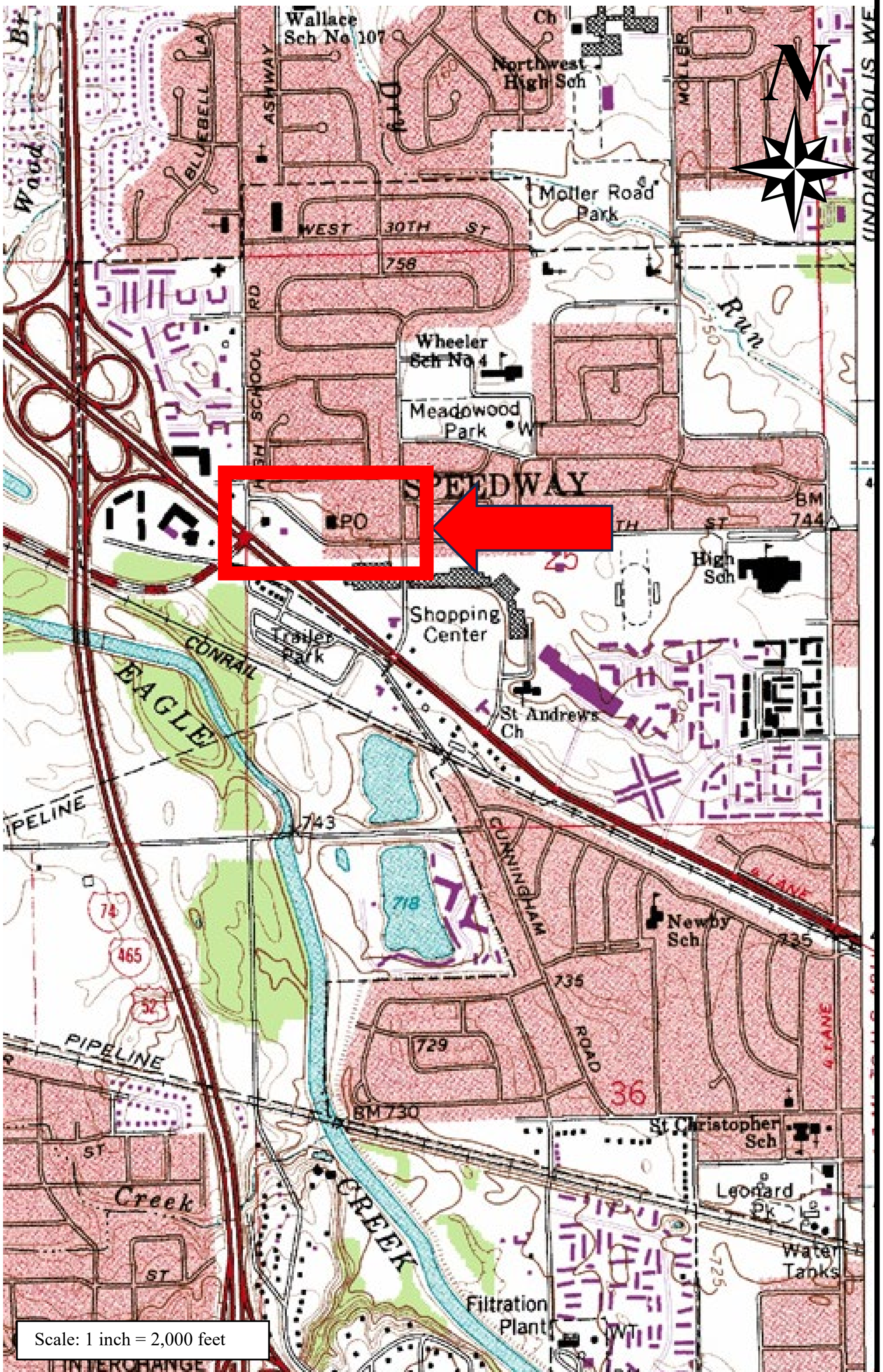
We appreciate the opportunity to work with you on this project. Often, because of design and construction details that occur, questions arise concerning the soils conditions. If we can give further service in these matters, please contact us at your convenience.

ALT & WITZIG ENGINEERING, INC.

APPENDIX A

Site Location Map
Boring Location Plan
Core Report Summary
Core Report
Borings Logs
General Notes
Custom Soil Resource Report

SITE LOCATION MAP



USGS Topographic Map:
Clermont Quadrangle

Township: T 16 N.
Range: R 2 E.
Section: 25

PROJECT: **25th Street Reconstruction – Phase 2**
LOCATION: Speedway, Indiana – Marion County
CLIENT: **Kieser Consulting Group, LLC**
A&W File No.: 25IN0404

Alt & Witzig Engineering Inc.
4105 W. 99th Street ·Carmel, IN 46032
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www.altwitzig.com

Last Modified: 8/12/2025 1:36 PM

BORING LOCATION PLAN

PROJECT: **25th Street Reconstruction – Phase 2**
LOCATION: Speedway, Indiana – Marion County
CLIENT: **Kieser Consulting Group, LLC**
A&W File No.: 25IN0404

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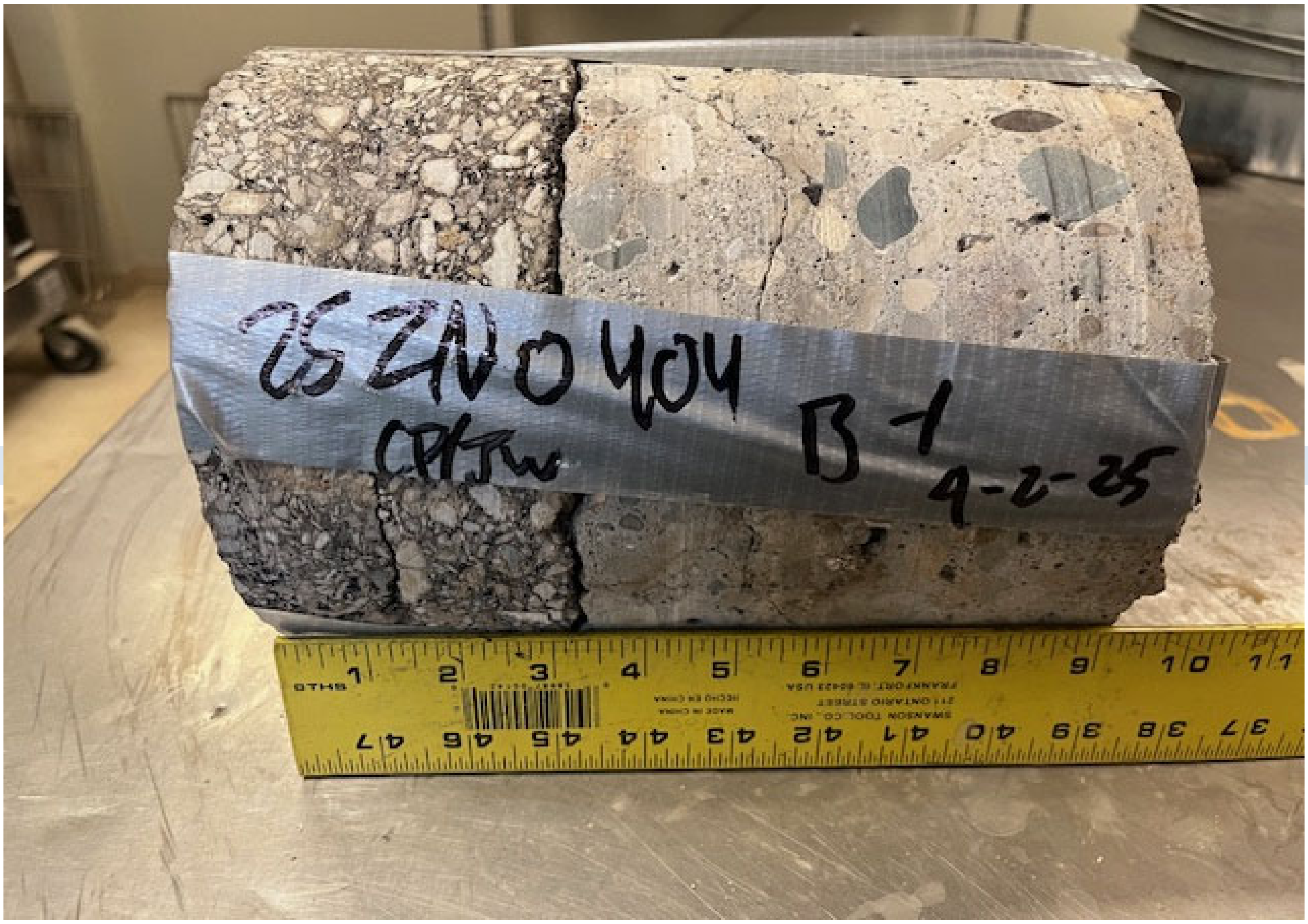
Pavement Core Summary
25th Street Reconstruction - Phase 2
Speedway, Indiana - Marion County
ALT & WITZIG Project No.: 25IN0404

Route	Date	Core No.	Latitude	Longitude	Direction	Lane	Pavement Thickness (in)	Pavement Type	Pavement Thickness (in)	Pavement Type	Subbase Thickness (in)	Subbase Type
25th Street	9/2/2025	B-01	39°48'10.09"N	86°16'9.81"W	WB	Driving	3.50	HMA	6.00	PCC	0.00	N/A
25th Street	9/2/2025	B-02	39°48'8.15"N	86°16'6.07"W	EB	Driving	3.00	HMA	6.50	PCC	0.00	N/A
25th Street	9/2/2025	B-03	39°48'6.11"N	86°16'2.47"W	Center	Center Turn	5.00	HMA	5.00	PCC	0.00	N/A
25th Street	9/2/2025	B-04	39°48'6.05"N	86°15'58.61"W	WB	Driving	2.50	HMA	6.00	PCC	0.00	N/A
25th Street	9/2/2025	B-05	39°48'5.87"N	86°15'55.00"W	EB	Driving	3.00	HMA	6.00	PCC	0.00	N/A

Pavement Core Report

25th Street Reconstruction - Phase 2

Route	Date	Core No.	Core Dia.	Lane	Direction
25th Street	9/2/2025	B-01	8"	Driving	WB



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	3.50 in.	N/A
Pavement Type	**Pavement Thickness**	**Notes**
Portland Cement Concrete (PCC)	6.00 in.	N/A
Sudgrade Type	**N-Value**	**Natural (In-Situ) Moisture Content**
Sa. Si. Clay (1-2.5')	5	17.6%
Sand & Gravel (2.5'-4')	8	N/A
Sand & Gravel (4'-5.5')	16	N/A

Pavement Core Report

25th Street Reconstruction - Phase 2

Route	Date	Core No.	Core Dia.	Lane	Direction
25th Street	9/2/2025	B-02	8"	Driving	EB

Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	3.00 in.	N/A
Pavement Type	**Pavement Thickness**	**Notes**
Portland Cement Concrete (PCC)	6.50 in.	Moderate Degradation
Sudgrade Type	**N-Value**	**Natural (In-Situ) Moisture Content**
Sa. Si. Clay (1-2.5')	6	15.5%
Sa. Si. Clay (2.5'-4')	5	15.0%
Sand & Gravel (4'-5.5')	18	N/A

Pavement Core Report

25th Street Reconstruction - Phase 2

Route	Date	Core No.	Core Dia.	Lane	Direction
25th Street	9/2/2025	B-03	8"	Center	Center Turn

Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	5.00 in.	Moderate Degradation
Subbase Type	**Subbase Thickness**	**Notes**
Portland Cement Concrete (PCC)	5.00 in.	Severe Degradation
Sudgrade Type	**N-Value**	**Natural (In-Situ) Moisture Content**
Sa. Si. Clay (1-2.5')	5	19.2%
Sa. Si. Clay (2.5'-4')	7	15.5%
Sand & Gravel (4'-5.5')	7	N/A

Pavement Core Report

25th Street Reconstruction - Phase 2

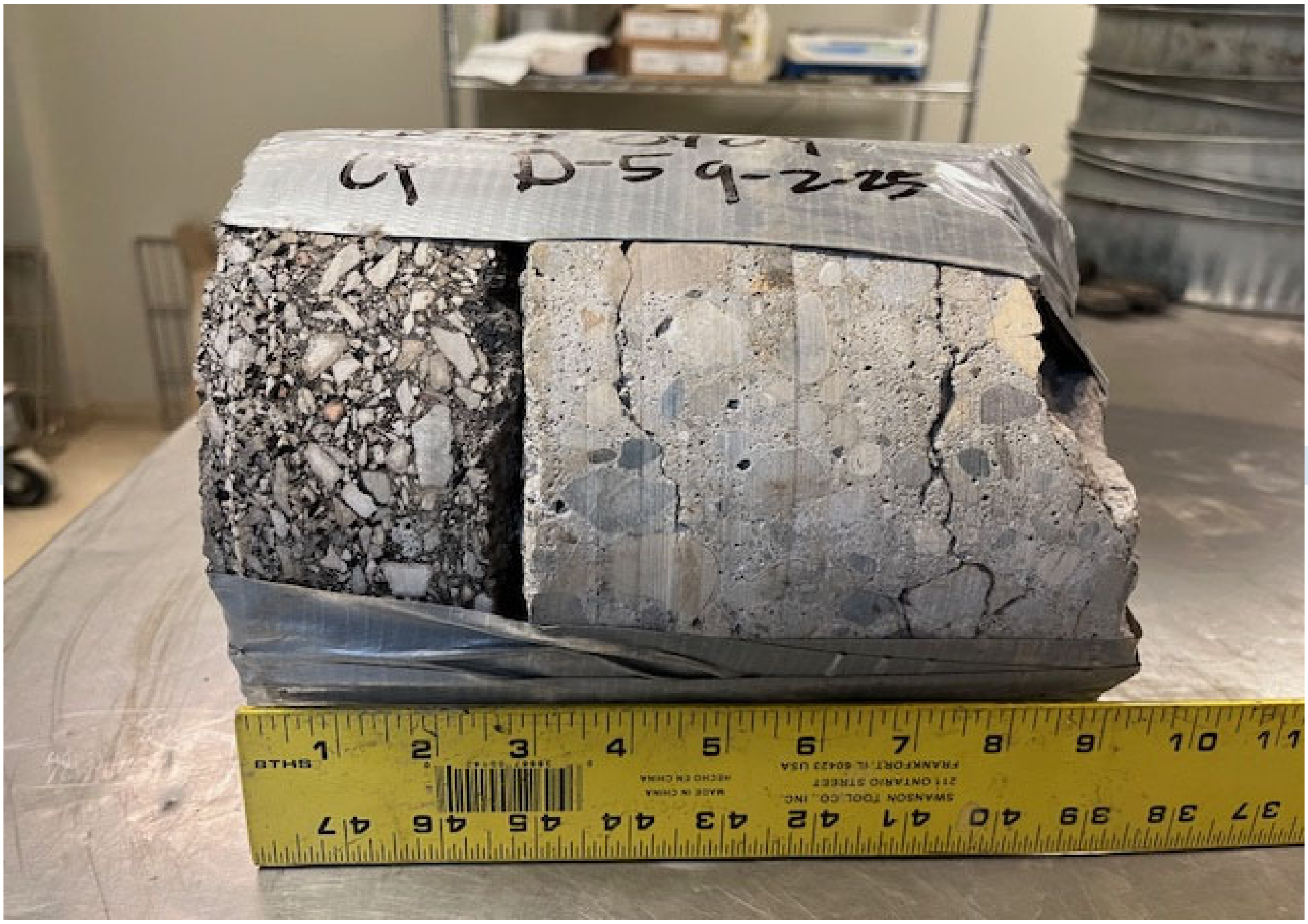
Route	Date	Core No.	Core Dia.	Lane	Direction
25th Street	9/2/2025	B-04	8"	Driving	WB

Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	2.50 in.	Moderate Degradation
Subbase Type	**Subbase Thickness**	**Notes**
Portland Cement Concrete (PCC)	6.00 in.	N/A
Sudgrade Type	**N-Value**	**Natural (In-Situ) Moisture Content**
Sa. Clay (1-2.5')	16	8.8%
Sa. Clay (2.5'-4')	22	7.6%
Sa. Clay (4'-5.5')	20	7.3%

Pavement Core Report

25th Street Reconstruction - Phase 2

Route	Date	Core No.	Core Dia.	Lane	Direction
25th Street	9/2/2025	B-05	8"	Driving	EB



Pavement Type	Pavement Thickness	Notes
Hot Mix Asphalt (HMA)	3.00 in.	N/A
Pavement Type	**Pavement Thickness**	**Notes**
Portland Cement Concrete (PCC)	6.00 in.	Moderate Degradation
Sudgrade Type	**N-Value**	**Natural (In-Situ) Moisture Content**
Sa. Si. Clay (1-2.5')	4	19.6%
Sa. Si. Clay (2.5'-4')	6	18.8%
Sa. Si. Clay (4'-5.5')	12	15.1%

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT: **Kieser Consulting Group, LLC**
BORING #: **B-01**
PROJECT NAME: **25th Street Reconstruction - Phase 2**
ALT & WITZIG FILE #: **25IN0404**
PROJECT LOCATION: **Speedway, Indiana**

DRILLING and SAMPLING INFORMATION

Date Started	**9/2/25**	Hammer Wt.	**140** lbs.
Date Completed	**9/2/25**	Hammer Drop	**30** in.
Boring Method	**HSA**	Spoon Sampler OD	**2** in.
Driller	**C. Peterman**	Rig Type	**CME 55 Truck**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	3.5" Asphalt	0.3										
	6" Concrete	0.8										
	Brown Sandy Silty CLAY	2.5		1	SS			5		1.0	17.6	
	Brown SAND and GRAVEL	5.5	5	2	SS			8				
				3	SS			16				
	End of Boring at 5.5 feet											

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling *Dry ft.*
▽ At Completion *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT: **Kieser Consulting Group, LLC**
BORING #: **B-02**
PROJECT NAME: **25th Street Reconstruction - Phase 2**
ALT & WITZIG FILE #: **25IN0404**
PROJECT LOCATION: **Speedway, Indiana**

DRILLING and SAMPLING INFORMATION

Date Started	**9/2/25**	Hammer Wt.	**140** lbs.
Date Completed	**9/2/25**	Hammer Drop	**30** in.
Boring Method	**HSA**	Spoon Sampler OD	**2** in.
Driller	**C. Peterman**	Rig Type	**CME 55 Truck**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	3" Asphalt	0.3										
	6.5" Concrete	0.8										
	Brown Sandy Silty CLAY			1	SS			6	1.5		15.5	
		4.0		2	SS			5		1.0	15.0	
	Brown SAND and GRAVEL	5.5	5	3	SS			18				
	End of Boring at 5.5 feet											

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling *Dry ft.*
∇ At Completion *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT Kieser Consulting Group, LLC
PROJECT NAME 25th Street Reconstruction - Phase 2
PROJECT LOCATION Speedway, Indiana

BORING # B-03
ALT & WITZIG FILE # 25IN0404

DRILLING and SAMPLING INFORMATION

Date Started	9/2/25	Hammer Wt.	140 lbs.
Date Completed	9/2/25	Hammer Drop	30 in.
Boring Method	HSA	Spoon Sampler OD	2 in.
Driller	C. Peterman	Rig Type	CME 55 Truck

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	5" Asphalt	0.4										
	5" Concrete	0.8		1	SS			5	1.0		19.2	
	Brown Sandy Silty CLAY	4.0		2	SS			7	1.5		15.5	
	Brown SAND and GRAVEL	5.5	5	3	SS			7				
	End of Boring at 5.5 feet											

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling *Dry ft.*
▽ At Completion *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT: **Kieser Consulting Group, LLC**
BORING #: **B-04**
PROJECT NAME: **25th Street Reconstruction - Phase 2**
ALT & WITZIG FILE #: **25IN0404**
PROJECT LOCATION: **Speedway, Indiana**

DRILLING and SAMPLING INFORMATION

Date Started	**9/2/25**	Hammer Wt.	**140** lbs.
Date Completed	**9/2/25**	Hammer Drop	**30** in.
Boring Method	**HSA**	Spoon Sampler OD	**2** in.
Driller	**C. Peterman**	Rig Type	**CME 55 Truck**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	2.5" Asphalt	0.2										
	6" Concrete	0.7										
	Brown Sandy CLAY			1	SS			16			8.8	
				2	SS			22	3.5		7.6	
				3	SS			20		3.5	7.3	
		5.5	5									
	End of Boring at 5.5 feet											

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling *Dry ft.*
▽ At Completion *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

BORING LOG

Alt & Witzig Engineering, Inc.

CLIENT: **Kieser Consulting Group, LLC**
BORING #: **B-05**
PROJECT NAME: **25th Street Reconstruction - Phase 2**
ALT & WITZIG FILE #: **25IN0404**
PROJECT LOCATION: **Speedway, Indiana**

DRILLING and SAMPLING INFORMATION

Date Started	**9/2/25**	Hammer Wt.	**140** lbs.
Date Completed	**9/2/25**	Hammer Drop	**30** in.
Boring Method	**HSA**	Spoon Sampler OD	**2** in.
Driller	**C. Peterman**	Rig Type	**CME 55 Truck**

TEST DATA

STRATA ELEV.	SOIL CLASSIFICATION / SURFACE ELEVATION	Strata Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics / Recovery Graphics	Ground Water	Standard Penetration Test, N - blows/foot	Qu-tsf Unconfined Compressive Strength	PP-tsf Pocket Penetrometer	Moisture Content % / *Dry Unit Weight (pcf)*	Remarks
	3" Asphalt	0.3										
	6" Concrete	0.8										
	Brown Sandy Silty CLAY			1	SS			4		0.5	19.6	
				2	SS			6		1.0	18.8	
				3	SS			12	3.0		15.1	
		5.5	5									
	End of Boring at 5.5 feet											

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
CU - Cuttings
CT - Continuous Tube

Groundwater
○ During Drilling *Dry ft.*
▽ At Completion *Dry ft.*

Boring Method
HSA - Hollow Stem Augers
CFA - Continuous Flight Augers
DC - Driving Casing
MD - Mud Drilling

MATERIAL GRAPHICS LEGEND

- CL: USCS Low Plasticity Clay
- CL: USCS Low Plasticity Sandy Clay
- CONCRETE: Concrete
- SP-GP: USCS Poorly-graded Gravelly Sand
- TOPSOIL

SOIL PROPERTY SYMBOLS

N: *Standard "N" penetration value. Blows per foot of a 140-lb hammer falling 30" on a 2" O.D. split-spoon.*

Qu: *Unconfined Compressive Strength, tsf* PP: *Pocket Penetrometer, tsf*

LL: *Liquid Limit, %* PL: *Plastic Limit, %* PI: *Plasticity Index, %*

DRILLING AND SAMPLING SYMBOLS

GROUNDWATER SYMBOLS

○ *Apparent water level noted while drilling.*

▽ *Apparent water level noted upon completion.*

▼ *Apparent water level noted upon delayed time.*

SAMPLER SYMBOLS

☒ SS: Split Spoon

RELATIVE DENSITY & CONSISTANCY CLASSIFICATION (NON-COHESIVE SOILS)

TERM	*BLOWS PER FOOT*
Very Loose	0 - 5
Loose	6 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	>51

RELATIVE DENSITY & CONSISTANCY CLASSIFICATION (COHESIVE SOILS)

TERM	*BLOWS PER FOOT*
Very Soft	0 - 3
Soft	4 - 5
Medium Stiff	6 - 10
Stiff	11 - 15
Very Stiff	16 - 30
Hard	>31

Alt & Witzig Engineering, Inc.
4105 West 99th St.
Carmel, IN 46032
Telephone:
Fax:

GENERAL NOTES

Project: 25th Street Reconstruction - Phase 2

Location: Speedway, Indiana

Number: 25IN0404

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Marion County, Indiana

August 12, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

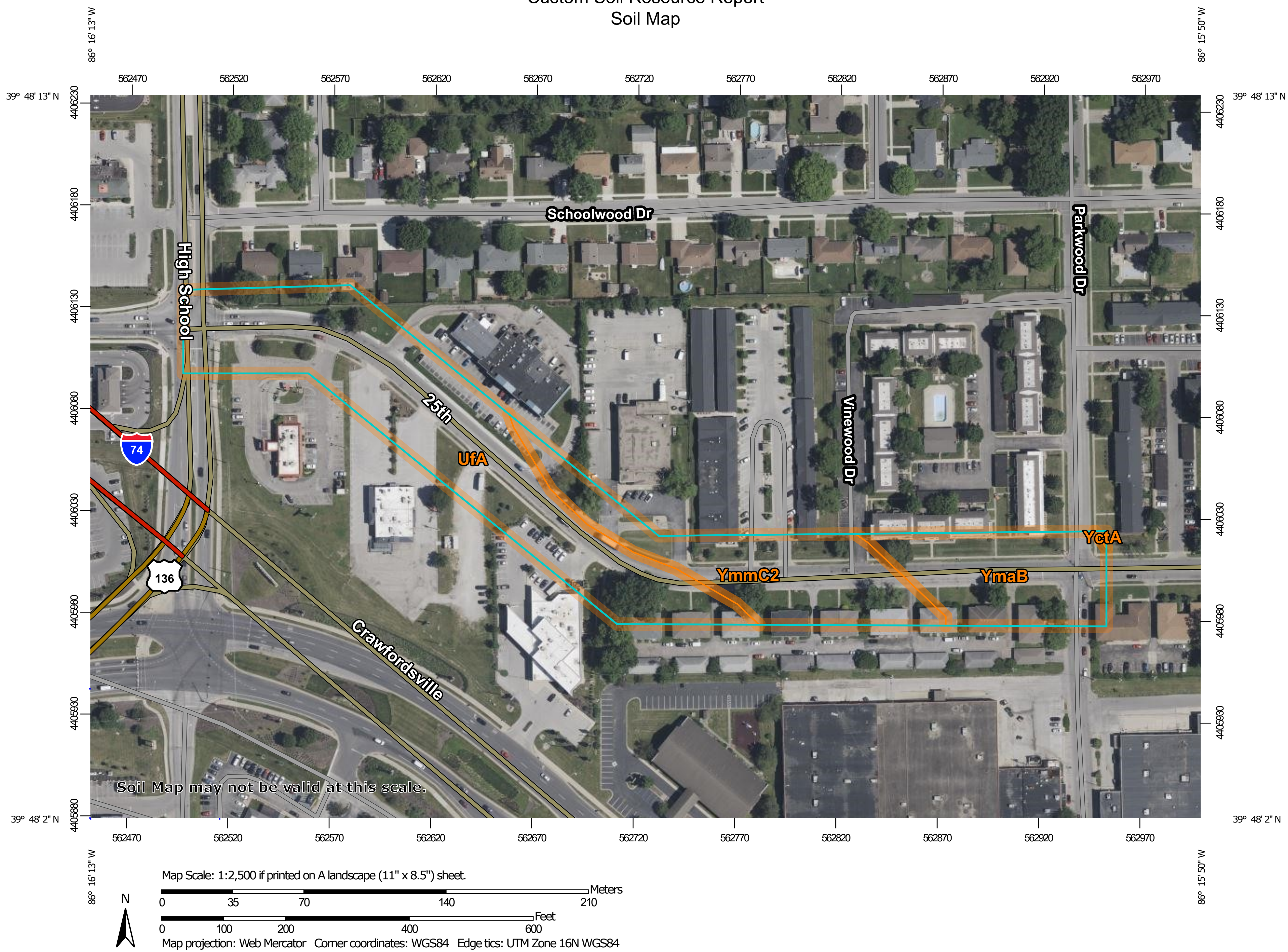
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map


86° 16' 13" W
86° 15' 50" W
39° 48' 13" N
39° 48' 2" N
562470
562520
562570
562620
562670
562720
562770
562820
562870
562920
562970
4406230
4406180
4406130
4406080
4406030
4405980
4405930
4405880
Schoolwood Dr
High School
Parkwood Dr
25th
Vinewood Dr
74
136
Crawfordsville
UfA
YmmC2
YmaB
YctA
Soil Map may not be valid at this scale.
Map Scale: 1:2,500 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 35 70 140 210
Feet
0 100 200 400 600
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Marion County, Indiana
Survey Area Data: Version 29, Aug 26, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2024—Jul 1, 2024

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
UfA	Urban land-Fox loam complex, 0 to 2 percent slopes	3.0	54.0%
YctA	Crosby-Urban land-Treaty complex, fine-loamy subsoil, 0 to 2 percent slopes	0.0	0.1%
YmaB	Miami-Urban land complex, 0 to 6 percent slopes	1.1	20.0%
YmmC2	Miami-Urban land complex, 6 to 12 percent slopes, eroded (Boone)	1.4	25.9%
Totals for Area of Interest		**5.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Marion County, Indiana

UfA—Urban land-Fox loam complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2y47n
Elevation: 340 to 1,040 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Fox and similar soils: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fox

Setting

Landform: Stream terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy outwash over sandy and gravelly outwash

Typical profile

Ap - 0 to 8 inches: loam
Bt1 - 8 to 22 inches: clay loam
Bt2 - 22 to 33 inches: gravelly clay loam
2C - 33 to 79 inches: very gravelly sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 30 to 45 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 55 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F111XA015IN - Dry Outwash Upland
Hydric soil rating: No

YctA—Crosby-Urban land-Treaty complex, fine-loamy subsoil, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2xf6n
Elevation: 700 to 1,040 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Crosby and similar soils: 50 percent
Urban land: 30 percent
Treaty, drained, and similar soils: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosby

Setting

Landform: Water-lain moraines, ground moraines, recessional moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Silty material or loess over loamy till

Typical profile

Ap - 0 to 10 inches: silt loam
Btg - 10 to 17 inches: silty clay loam
2Bt - 17 to 29 inches: clay loam
2BCt - 29 to 36 inches: loam
2Cd - 36 to 79 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 24 to 40 inches to densic material
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 55 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

Description of Treaty, Drained

Setting

Landform: Depressions, water-lain moraines, swales
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Silty material or loess over loamy till

Typical profile

Ap - 0 to 10 inches: silty clay loam
A - 10 to 14 inches: silty clay loam
Btg1 - 14 to 36 inches: silty clay loam
2Btg2 - 36 to 59 inches: loam
2C - 59 to 79 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

YmaB—Miami-Urban land complex, 0 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2xf7c
Elevation: 640 to 930 feet
Mean annual precipitation: 36 to 42 inches
Mean annual air temperature: 49 to 53 degrees F
Frost-free period: 175 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Miami and similar soils: 55 percent
Urban land: 45 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Miami

Setting

Landform: Till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over loamy till

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 26 inches: clay loam
H3 - 26 to 32 inches: loam
H4 - 32 to 60 inches: loam

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: 24 to 40 inches to densic material
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.02 to 0.20 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Till plains

YmmC2—Miami-Urban land complex, 6 to 12 percent slopes, eroded (Boone)

Map Unit Setting

National map unit symbol: 2y8lg
Elevation: 400 to 1,200 feet
Mean annual precipitation: 36 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 150 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Miami, eroded, and similar soils: 55 percent
Urban land: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Miami, Eroded

Setting

Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over loamy till

Typical profile

A - 0 to 7 inches: silt loam
Bt - 7 to 13 inches: silty clay loam
2Bt - 13 to 31 inches: clay loam
2BCt - 31 to 36 inches: loam
2Cd - 36 to 80 inches: loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 24 to 40 inches to densic material
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Till plains

Minor Components

Rainsville, eroded

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Typic argiaquolls, drained

Percent of map unit: 3 percent
Landform: Swales on till plains, depressions on till plains
Landform position (two-dimensional): Toeslope
Across-slope shape: Concave
Hydric soil rating: Yes

Crosby, drained

Percent of map unit: 2 percent
Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

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