



APPENDIX I – PAVEMENT CORE REPORT

**LAK-283-14.34 BRIDGE REPLACEMENT
PID: 111005
LAKE COUNTY, OHIO**

**DRAFT STRUCTURE
FOUNDATION EXPLORATION
REPORT**

Prepared For:

LJB, Inc.

**6480 Rockside Woods South, Suite 290
Independence, Ohio 44131**

Prepared By:

**Resource International, Inc.
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Columbus, OH 43231**

Rii Project No. N-20-011

December 2021



RESOURCE INTERNATIONAL, INC.

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December 11, 2021

Mr. Daniel W. Springer, P.E.
Project Manager
LJB, Inc.
6480 Rockside Woods South, Suite 290
Independence, OH 44131

**Re: Draft Structure Foundation Exploration Report
LAK-283-14.34 Bridge Replacement
Lake County, Ohio
ODOT PID: 111005
Rii Project No. N-20-011**


Mr. Springer:

Resource International, Inc. (Rii) is pleased to submit this draft structure foundation exploration report for the above referenced project. Engineering core logs have been prepared and are attached to this report. This report includes pavement core data retained for the proposed deck replacement for the bridge carrying State Route 183 (Lakeshore Boulevard) over State Route 44 (Heisley Road) in Lake County, Ohio.

We sincerely appreciate the opportunity to be of service to you on this project. If you have any questions regarding the Structure Foundation exploration or this report, please contact us.

Sincerely,

RESOURCE INTERNATIONAL, INC.


Peyman P. Majidi, P.E.
Project Engineer


Jonathan P. Sterenberg, P.E.
Vice President – Geotechnical Services

Enclosure: Draft Structure Foundation Exploration Report

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EXECUTIVE SUMMARY

Resource International, Inc. (Rii) has completed a geotechnical investigation for support in feasibility assessment of the rehabilitation options for the existing bridge carrying State Route 183 (Lakeshore Boulevard) over State Route 44 (Heisley Road) in Lake County, Ohio.

Exploration and Findings

On November 16, 2021, a total of four (4) pavement cores, designated as X-001-0-21 through X-004-0-21, were performed on Lakeshore Boulevard Road. Two (2) pavement cores (X-001-0-21 and X-002-0-21) were performed outside of the bridge limits to the west, while the remaining two (2) (X-003-0-21 and X-004-0-21) were performed within the bridge limits.

All pavement cores were performed within the proposed limit of investigation. Pavement cores X-001-0-21 through X-003-0-21 encountered primarily concrete material while pavement core X-004-0-21 encountered 2.25 inches of asphalt overlying 13.0 inches of concrete.

Please note that this executive summary does not contain all the information presented in the report. The unabridged geotechnical exploration report should be read in its entirety to obtain a more complete understanding of the information presented.



1.0 INTRODUCTION

This report is a presentation of the coring of the bridge deck carrying State Route 183 (Lakeshore Boulevard) over State Route 44 (Heisley Road) in Lake County, Ohio. It is understood that the data will be used in the feasibility assessment of the rehabilitation options for the existing bridge. The project area is shown on the vicinity map presented in Appendix I.

1.1 Existing Site Conditions

The project site is located in the city of Mentor, Ohio. The existing bridge carries State Route 183 (Lakeshore Boulevard) over State Route 44 (Heisley Road). Based on bridge inventory information available on the Ohio Department of Transportation (ODOT) Transportation Information Mapping System (TIMS), it is understood that the existing bridge is a four (4) span bridge with a maximum span of 65 feet. The bridge is aligned in the east and west direction and accommodates one lane in each direction for a two-way traffic. It is understood that the bridge is supported on steel H-piles. Based on site reconnaissance made on November 10, 2021, evidence of maintenance consisting of patching and crack sealing was observed. The stormwater runoff from the bridge surface is directed towards the inlets along the side of the curb.

2.0 SUBSURFACE INVESTIGATION

On November 16, 2021, a total of four (4) pavement cores, designated as X-001-0-21 through X-004-0-21, were performed on Lakeshore Boulevard Road. Two (2) pavement cores (X-001-0-21 and X-002-0-21) were performed outside of the bridge limits to the west, while the remaining two (2) (X-003-0-21 and X-004-0-21) were performed within the bridge limits. Rii utilized a handheld GPS unit to obtain northing and easting coordinates at the pavement core locations. Ground surface elevations at the boring locations were provided by survey files provided by Rii survey. Table 1 summarizes the pavement core locations completed for this investigation.

Table 1. Pavement Core Location Summary

Boring Number	Core Location	Northing	Easting	Ground Elevation (feet msl)
X-001-0-21	Bridge deck– Eastbound	753666.554	2298046.642	619.6
X-002-0-21	Bridge deck– Westbound	753720.190	2298077.567	619.9
X-003-0-21	Bridge deck– Eastbound	753732.737	2298220.443	619.9
X-004-0-21	East of structure - Westbound	753803.815	2298274.058	620.0



2.1 Surface Materials

Pavement cores X-001-0-21 through X-003-0-21 encountered 9.75 to 10.25 inches of concrete while pavement core X-004-0-21 encountered 2.25 inches of asphalt overlying 13.0 inches of concrete. A summary of the pavement core materials encountered at each core location is provided in Table 2.

Table 2. Summary of Pavement Core Material

Core ID	Asphalt Thickness (in)	Concrete Thickness (in)	Aggregate Base Thickness (in)
X-001-0-21	-	9.75	-
X-002-0-21	-	10.25	-
X-003-0-21	-	9.75	-
X-004-0-21	2.25	13.00	-

In general, the pavement cores appeared to be in fair condition with small voids in the concrete cores. Two rows of reinforcement bars measured 0.75-inch was observed in cores X-001-0-21 through X-003-0-21. For further details please review the individual core logs provided in Appendix II.

3.0 LIMITATIONS OF STUDY

The above recommendations are predicated upon construction inspection by a qualified soil technician under the direct supervision of a professional geotechnical engineer. Adequate testing and inspection during construction are considered necessary to assure an adequate foundation system and are part of these recommendations.

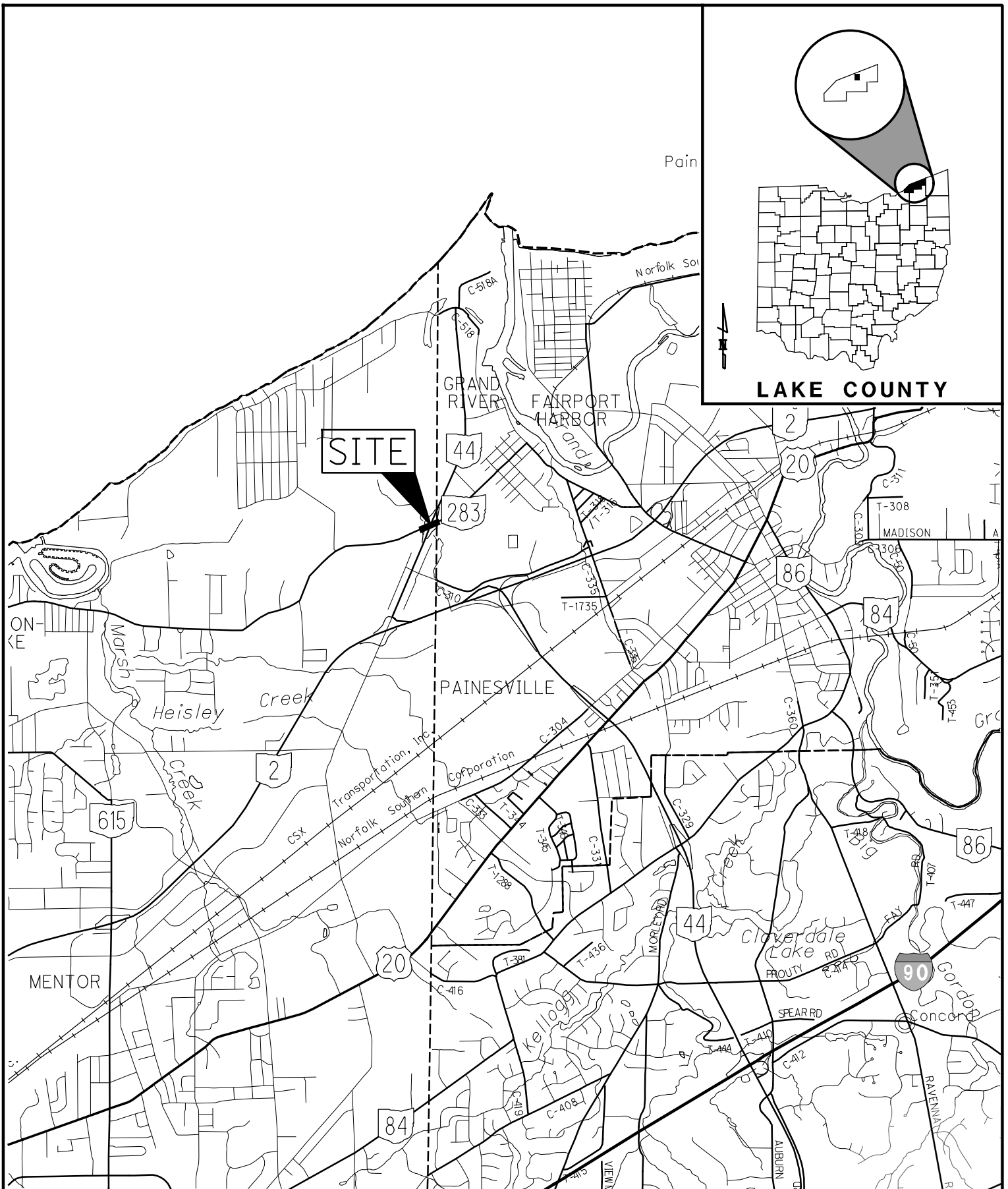
Resource International is not responsible for the data, conclusions, opinions or recommendations made by others during previous investigations at this site. At this time, we would like to point out that the pavement cores only depict the surface conditions at the specific locations and time at which they were made. The conditions at other locations on the site may differ from those occurring at the pavement core locations.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater or surface water within or beyond the site studied.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. Resource International is not responsible for the conclusions, opinions or recommendations made by others based upon the data included.

APPENDIX I

Vicinity Map & Boring Plan



VICINITY MAP

LAK-283-14.34 BRIDGE REPLACEMENT

LAKE COUNTY, OHIO

RII PROJECT NO.
W-21-011

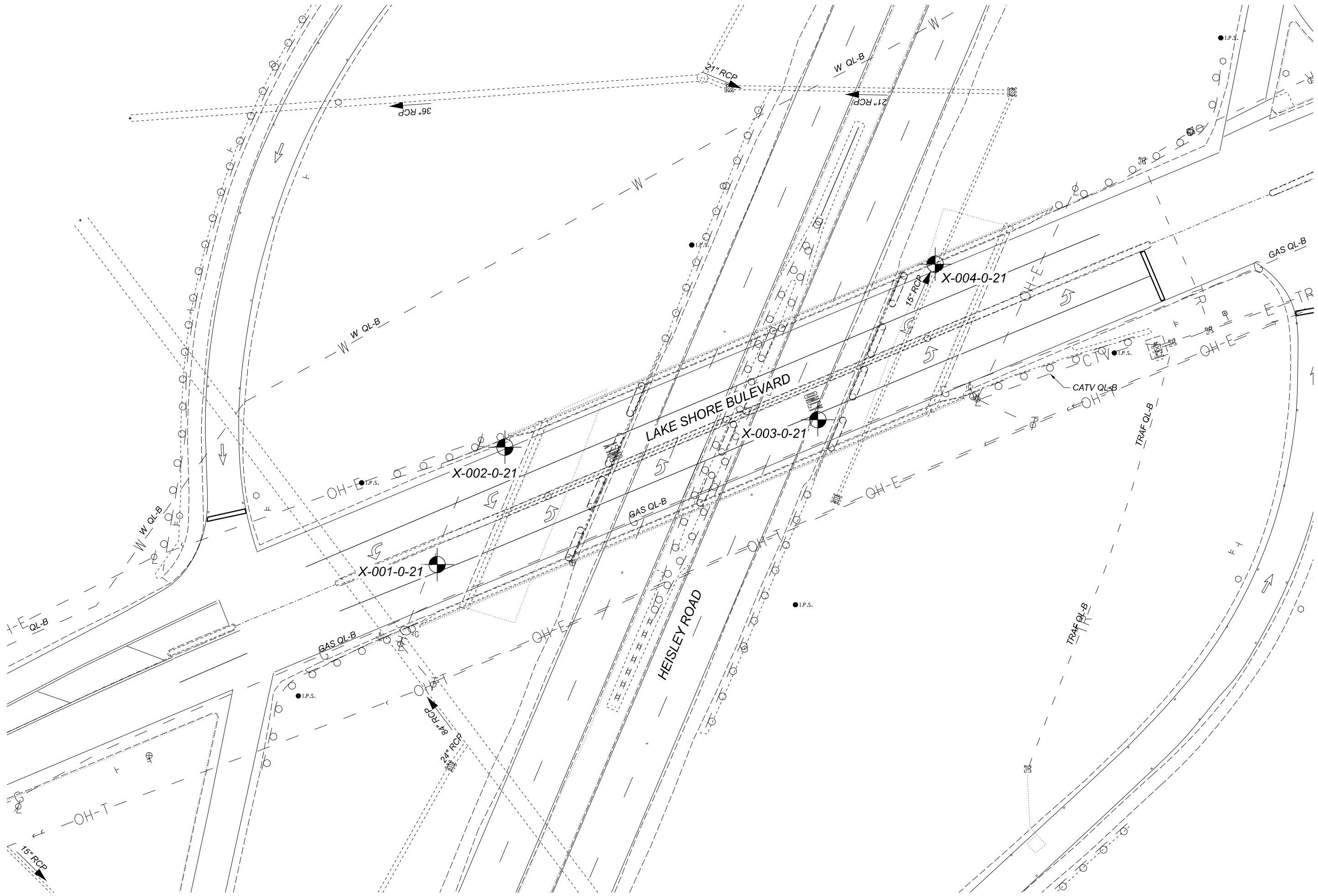
SCALE: 1"=5000'
0 2500 5000

DRAWN
JAS

REVIEWED
PPM

DATE
12-9-2021





APPENDIX II

Pavement Core Data sheet



6350 Presidential Gateway
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Pavement Core Data Summary

PROJECT LAK-283-14.34 Bridge Replacement
LOCATION Lake County, Ohio
JOB No. N-21-011

BORING/CORE No. X-001-0-21
DATE CORE OBTAINED 11/16/2021
CORE OBTAINED BY TG & JK

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Lift Number	Asphalt			Concrete	Aggregate/Granular Base	Other	
			Surface Binder	Intermediate Binder	Base Binder				
X-001-0-21	9.75	1				✓			

- The core has horizontal breaks @ 3.25" & 8.00".
- The core has 0.75" rebar @ 3.25" & 8.00".
- The core has trace voids throughout.

Total Pavement Thickness = 9.75 in. Total Asphalt Thickness = 0.00 in. Total Concrete Thickness = 9.75 in. Total Base Thickness = N/A in.





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Pavement Core Data Summary

PROJECT LAK-283-14.34 Bridge Replacement
LOCATION Lake County, Ohio
JOB No. N-21-011

BORING/CORE No. X-002-0-21
DATE CORE OBTAINED 11/16/2021
CORE OBTAINED BY TG & JK

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Lift Number	Asphalt			Concrete	Aggregate/Granular Base	Other	
			Surface Binder	Intermediate Binder	Base Binder				
X-002-0-21	10.25	1				✓			

- The core has a horizontal break @ 7.00".
- The core has 0.75" rebar @ 3.50" & 8.00".
- The core has trace voids throughout.

Total Pavement Thickness = 10.25 in. Total Asphalt Thickness = 0.00 in. Total Concrete Thickness = 10.25 in. Total Base Thickness = N/A in.





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Pavement Core Data Summary

PROJECT LAK-283-14.34 Bridge Replacement
LOCATION Lake County, Ohio
JOB No. N-21-011

BORING/CORE No. X-003-0-21
DATE CORE OBTAINED 11/16/2021
CORE OBTAINED BY TG & JK

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Lift Number	Asphalt			Concrete	Aggregate/Granular Base	Other	
			Surface Binder	Intermediate Binder	Base Binder				
X-003-0-21	9.75	1				✓			

- The core has horizontal breaks @ 1.00" & 3.00" - 4.00".
- Note: The core break @ 8.50" - 9.75" occurred while removing the core from the barrel. The concrete had been intact.
- The core has 0.75" rebar @ 3.25" & 7.75".
- The core has trace voids throughout.

Total Pavement Thickness = 9.75 in. Total Asphalt Thickness = 0.00 in. Total Concrete Thickness = 9.75 in. Total Base Thickness = N/A in.





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Pavement Core Data Summary

PROJECT LAK-283-14.34 Bridge Replacement
LOCATION Lake County, Ohio
JOB No. N-21-011

BORING/CORE No. X-004-0-21
DATE CORE OBTAINED 11/16/2021
CORE OBTAINED BY TG & JK

Core Composition

Comments/Remarks

Core Number	Lift Thickness (in.)	Lift Number	Asphalt			Concrete	Aggregate/Granular Base	Other	
			Surface Binder	Intermediate Binder	Base Binder				
X-004-0-21	2.25	2	✓						
	13.00	1				✓			

- The core has separated between the asphalt and concrete.
- The core has a small, vertical crack throughout the asphalt.
- The concrete has trace voids throughout.

Total Pavement Thickness = 15.25 in. Total Asphalt Thickness = 2.25 in. Total Concrete Thickness = 13.00 in. Total Base Thickness = N/A in.

