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Geotechnical Design Memorandum

F.A.I. Route 74 Section 81-1-2 Rock Island County Job No. P-92-032-01 Contract No. 64C08 PTB No. N/A Retaining Wall IL-RW06 Structure Number 081-6015

March 2015 Revised December 2015



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1. Project Description

This report provides geotechnical data and recommendations for the proposed Retaining Wall IL-RW06, which is part of the Central Section of the I-74 over the Mississippi River Project. The project includes reconstruction of I-74 between 14th Avenue in Moline, Illinois and Lincoln Road in Bettendorf, Iowa. The retaining wall covered by this structure geotechnical report will be a new structure, constructed to retain fill along Ramp 7th-B.

Nearby project features that have an impact on the design or construction of the proposed retaining wall include the I-74 and Ramp 7th-A over 19th Street Bridges (S.N.'s 081-0179, 081-0180 and 081-0181), the north abutment retaining wall (IL-RW07, S.N. 081-6016), the I-74 roadway, Ramp 7th-B roadway, and the 19th Street roadway. Geotechnical recommendations for the bridges and Retaining Wall IL-RW07 are presented in separate structure geotechnical reports prepared by Hanson Professional Services Inc. (Hanson). Geotechnical recommendations for the interstate, ramp, and street are contained in soil survey report prepared by Hanson.

This report supersedes the structure geotechnical reports prepared by CH2M HILL in September 2009 and Hanson in June 2012. This memorandum has been prepared to address significant changes to the structure type and project staging.

2. Location

The proposed Retaining Wall IL-RW06 is located in the north central portion of Rock Island County, within Sections 32 and 33 of Township 18 North, Range 1 West. It takes a zigzag path along 19th Street between approximately Sta. 1927+32 and Sta. 1923+58, and then follows Ramp 7th-B between Sta. 534+47.55 and Sta. 522+95.01. The wall separates I-74 and Ramp 7th-B on the high side from 19th Street on the low side.

3. Proposed Structure

The currently proposed structure is significantly different from earlier designs. A study (Modjeski and Masters, 2014) was completed to evaluate several alternative structure types for the I-74 over 19th Street grade separation. The new alternatives were selected to conform to the revised project staging. After coordination with IDOT, a preferred alternative was selected and developed further. General plan and elevation drawings for the proposed structures were prepared in August 2014.

The proposed grade separation consists of three separate three-span bridges supported on straddle column piers and individual stub abutments. All three bridges have 0° skews but the abutment locations are staggered by one span to accommodate the angled crossing. Mechanically stabilized earth (MSE) walls follow a zigzag path between the three abutments on both sides of 19th Street. The portions of the MSE walls perpendicular to the highway are mixed abutments where the MSE walls resist the horizontal earth pressures and piles support the vertical bridge loads. The portion of the MSE walls parallel to the highway function as wingwalls between the abutments. The wall on the south side of 19th Street is the subject of this memorandum.

Retaining Wall IL-RW06 starts at Ramp 7th –A Sta. 626+52.05, continues across the three bridge abutments, and then follows Ramp 7th-B from Sta. 534+47.55 to Sta. 522+95.01. The top of the proposed MSE wall is generally even with the proposed ramp or mainline pavement. The finished slope from 19th Street transitions from 1V:2H to 1V:3H in front of the wall along the right side of Ramp 7th-A, then continues at 1V:3H for the reminder of the wall. Due to the wall's widely variable offset from 19th Street, the total height of the slope in front of the wall ranges from 0 to more than 35 feet.

A wall using precast panels with the minimum reinforced soil mass width is preferred for cost and construction schedule. The wall will have a height, measured from the theoretical top of leveling pad to the finished grade



line, between 20 and 38 feet where it functions as a mixed abutment and between 5 and 37 feet along the remainder of the wall. With this range of heights, a typical MSE wall section would have an equivalent uniform bearing pressure varying from 2,200 to 5,400 psf across the abutments and 800 to 6,200 psf elsewhere.

The proposed wall will be constructed in stages in order to allow traffic on I-74 and 19th Street throughout the construction period. The portion of the wall supporting the Ramp 7th-A and WB I-74 bridges will be constructed in the first stage while maintaining I-74 traffic on the existing EB I-74 Bridge. The portion of the wall supporting the new EB I-74 Bridge and the portion along Ramp 7th-B will be constructed during the second stage with I-74 traffic on the new WB I-74 Bridge. The new bridge piers will generally be constructed sequentially from north to south with multiple lanes shifts along 19th Street. Traffic will be diverted onto temporary pavement located to the south of the current alignment. This will require substantial excavation of the existing bridges' end slopes. The stage line for the wall will be at the west end of the WB I-74 Bridge South Abutment.

Construction of the wall will be governed by a performance specification. The MSE wall supplier will be responsible for the internal stability of the reinforced soil mass. This report provides geotechnical recommendations for external stability and global stability, which are the responsibility of the wall designer.

4. Site Investigation

The project site is located in the steeply sloping terrain of the bluffs along the Mississippi River. 19th Street is situated in a natural ravine. There was extensive grading of the proposed bridge site during construction of the existing I-74 alignment. Along the current I-74 centerline, the base of the ravine once was between approximately Sta. 58+00 and Sta. 63+50. 19th Street was in the area where the current bridges' north abutment end slopes are located today. The existing bridges' south abutments were constructed on more than 40 feet of fill placed when the highway was constructed. Presently, 19th Street slopes down to the northwest at approximately 3% grade, while I-74 slopes down to the north at approximately 3% to 6% grade.

The footprint of the proposed retaining wall generally lies at the base of the existing hillside along the south side of 19th Street. Where the wall turns away from Ramp 7th-B, the wall is located on the toe of the end slope of the existing Ramp 7-S Bridge. The existing bridge crosses over the wall alignment.

Test boring data was shown on the existing structure plans. It is presumed that these borings were drilled in the early 1970's. Fifteen borings were drilled to depths between 30 and 79 feet below grade. Standard penetration tests were generally performed at 2.5-feet intervals until bedrock was encountered. Although the soil strata logged in the upper part of these borings were disturbed by the original I-74 roadway and bridge construction, these borings do provide some useful information for the design of the new structures.

The field exploration that was completed specifically for the proposed structures was accomplished in five phases. The first two phases were completed in December 2005 and September 2007 to March 2008 by other consultants. IDOT provided the data collected from those two phases, logs for the borings drilled were provided to Hanson in May 2014. The third phase was completed in June 2010 by Hanson. The primary purpose of the third phase was to collect additional samples of the shallow, softer soils for strength and consolidation testing. The fourth phase was completed by IDOT during February to April 2011. The fifth phase was completed in June 2014 by Hanson. The purpose of the fifth phase was to gather additional data closer to the current structure location. A representative from Hanson logged the borings and performed a general site reconnaissance during the third and fifth phases.

Seventeen (17) borings total were drilled in the first two phases, five borings were drilled in the third phase, two borings were drilled during the fourth phase and two borings were drilled during the fifth phase. Locations of the borings were selected to avoid the numerous obstructions currently occupying the site. The borings are generally



located near the current structure location for the portion along Ramp 7th-B. Borings for the portion of the structure under the proposed bridges are generally located at the top or bottom of the existing embankment end slopes. Within this area, the closest boring can be more than 50 feet from the current structure location. Standard Penetration Test samples were collected at 2.5 to 10.0 feet intervals in all borings. Several Shelby tube samples were collected at representative locations in cohesive strata. The boring depths ranged from 15.0 to 58.6 feet.

The boring locations are shown on the Boring Location Plan included in the Appendix. Boring logs are included in the Appendix.

5. Laboratory Investigation

Soil samples from the first and second phase borings were tested by others. Unconfined strength and moisture content tests were completed on split-spoon samples from approximately two-thirds of the borings. Index testing was completed on representative samples.

The soil samples obtained from the third phase borings were delivered to Hanson's soils laboratory and subjected to a testing program. Natural moisture content and visual classification tests were competed on all samples. Unconfined compressive strength tests, using a Rimac spring tester, were also completed when possible. One unconfined compression tests, one unconsolidated-undrained triaxial test, and one consolidation test were performed on Shelby tube samples.

The locations of the index tests, triaxial test, and consolidation test are indicated on the subsurface data profile. Laboratory test data from triaxial test and consolidation test are included in the Appendix.

6. Subsurface Profile

A subsurface data profile is presented in the Appendix for use by the structure designer. The data profile includes borings that were previously and recently drilled near the proposed structure.

The subsurface profile consists of deposits of fill material, alluvial soils, loessial soils, and glacial till overlying bedrock. The fill is generally located in the approach embankments on both sides of the existing structures. Alluvial soils are found at shallow depths beneath 19th Street and to the southwest. Loess is found towards the north end of 19th Street. Glacial till and bedrock are present at depth over the entire site. Strata elevations and depth were quite variable due to the site's location at the base of the bluff and the significant grading completed during construction of the existing structures.

Bedrock was encountered in nine (9) of the deeper borings drilled for this structure. The bedrock surface varies from Elev. 562.2 to Elev. 587.8 or 26.5 to 42 feet below the existing ground surface. The bedrock encountered was typically a gray to black, very soft clay shale. A gray, hard limestone was encountered below the shale in four borings.

Glacial till was encountered in all of the borings. The top of this stratum was encountered between Elev. 580.1 and Elev. 604.2. It is typically brown to gray, very stiff to hard, silty clay with sand and gravel. Unconfined strengths generally were between 2.5 and 3.5 tsf, although softer, weathered zones were occasionally encountered near the top. Standard Penetration Test (SPT) values were typically between 10 and 16 blows per foot. Natural moisture contents ranged from 12 to 16 percent and averaged approximately 14 percent. Thin sand seams were encountered in a few locations within the otherwise clayey till.

Fill material, alluvial soils, and loess were encountered in all the borings except RW1810, RW1812, and RW1813, which were located closest to the existing hillside. These soils were variable and had little correlation



between borings. They were generally stiff to very stiff clayey soils or loose sand soils. The thickness of these soils ranged from 8 to 20 feet where they were encountered. Softer alluvial soils were encountered in the older borings drilled under the current south approach embankment, but these softer soils were not readily apparent in the more recent borings drilled in the same area. It is possible that the alluvial soils were removed during construction of the existing embankments. They may also have been compressed by the more than 30 feet of fill placed during construction of the highway.

The groundwater conditions encountered in the borings were not consistent across the site. The groundwater elevations recorded on the boring logs are summarized in Table 6.1. Groundwater was not encountered in most of the borings. Stabilized readings were taken in one boring located near 19th Street and one boring located at the top of the existing I-74 embankment. These readings indicated groundwater approximately 20 feet below existing ground in the low area and rising towards the higher ground. For comparison, the water level in the Mississippi River, approximately 0.7 miles to the north of the site, is usually about Elev. 561.0.

Table 6.1 Groundwater Elevations

Boring No.	During Drilling	At End of Boring	24-hour Reading
19BR-105	580.3	-	-
19BR-107	-	-	-
19BR-108	-	-	-
19BR-109	585.8	-	-
B-2 (2011)	dry	dry	590.8
B-6 (2011)	621.5	-	609.0
ILR0601	569.1	-	-
ILR0603	-	-	-
ILR0604	578.1	-	-
ILR0606	-	-	-
ILR0608	-	-	-
ILR0609	-	-	-
ILR0611	-	-	-
ILR0804	-	-	-
RMP7THB-04	NE	-	-
RMP7THB-05	NE	-	-
RW06-1	593.8	-	-
RW06-2	-	590.6	-
RW06-3	-	-	-
RW06-04	NE	-	-
RW06-05	NE	-	-
RW1007	-	-	-
RW1808	-	-	-
RW1810	-	-	-
RW1812	-	-	-
RW1813	-		

The Illinois State Geological Survey Directory of Coal Mines does not list any mines immediately beneath the site; however, the directory does indicate that past mining has occurred in the general vicinity. Shafts for the



Zeigler, Poston, and Highland Mines were located approximately 1.5 miles to the southeast of the site. These room and pillar mines were operated in the early 1900's.

7. Geotechnical Evaluations

The native soils vary significantly along the length of the proposed wall. In general, poor foundation conditions are found in the lower ground near 19th Street and much better conditions are found up the natural and embankment slopes to the south. The allowable bearing pressure of the native soils at the toe of the existing end slopes is as low as 2,300 psf, while the allowable bearing pressure of the native soils and existing embankment at the top of the slope is as high as 7,000 psf. The proposed wall is configured such that the highest bearing pressures are applied to the lower strength soils and the lowest bearing pressures are applied to the higher strength soils.

The applied pressures exceed the allowable pressures for a portion of the wingwall and abutment face at each of the three bridges. Typically, the alternative solutions are to either reduce the wall's bearing pressure or to increase the foundation soils' strength. Widening the reinforced soil mass, the use of lightweight aggregate, and raising the wall in stages are not feasible for this wall. The softer soils extend to a depth of approximately 20 ft. below the base of the proposed wall, which makes removal and replacement of the foundation soils infeasible. Vibrator compacted aggregate column ground improvement (ACGI) could increase the allowable bearing capacities above the applied bearing pressures. The aggregate columns would bear in the very stiff, glacial clay found below the wall. Our preliminary analyses indicate that 15 to 25 feet long columns with an area replacement ratio of up to 55 percent would be sufficient. Treatment would only be required under the taller portions of the wall.

Along Ramp 7th-B, the native soils are suitable for support of the proposed wall if soft soils are removed near Borings ILR0609, RMP7THB-05, and ILR0604. These soft soils are estimated to extend no more than 6 feet below the base of wall, so they may be easily excavated and replaced with suitable fill.

Slope stability analyses were completed at several representative sections along the wall. These sections were located at 19th Street Sta. 1926+30, 1926+00, 1924+00, and 1923+60 and at Ramp 7th-B Sta. 529+00. Results of these analyses are included in the Appendix. The 1.81 to 3.01 factors of safety satisfy AASHTO requirements. The section through the east corner of the EB I-74 abutment meets the minimum requirement only if the effects of the ACGI treatment are included.

Estimated settlements vary significantly because of the variable subsurface conditions and the wide range of fill heights along the wall. The more compressible soils and taller fill heights are found beneath the east end of each abutment. The estimated settlements at each abutment corner are 1 inch, $\frac{1}{2}$ inch, 6 inches, $\frac{3}{4}$ inch, 5 inches, and $\frac{1}{2}$ inch from east to west. The lowest settlements are expected at the Ramp 7th-A abutment because it has the shortest height and is located farthest back into the existing end slope. The estimated settlement of the proposed wall along Ramp 7th-B ranges from 0 to $2\frac{1}{2}$ inches with the maximum settlement occurring at the tallest point. Most of these settlements are due to compression of the softer soils and are expected to occur within 4 months of wall completion. Up to 0.5 inch of settlement is due to recompression of the glacial till stratum, which could take up to 54 months to be 90 percent complete. The estimated magnitude and duration of settlement are considered acceptable for construction of an MSE wall.

Some differential settlement is anticipated near the proposed stage line. Theoretically, the subgrade soils within approximately 5 feet of the edge of a stage will consolidate 25% to 33% less than the central portion. When the adjacent stage is placed, the edge of the previous stage will settle to a level approximately equal to the central portion. This may be visible in the panel joints on the face of the wall. Due to the relatively small settlement magnitude, this is not expected to be a serious concern for this structure.



The proposed wall will apply additional stress on the existing 72-inch storm sewer that is located a few feet in front of the wall. At the closest point, the centerline of the sewer is approximately 6 feet in front of the wall and 15 feet below ground surface. Assuming an elastic stress distribution, the pipe will feel an additional 600 psf vertical pressure at this point because of the proposed wall. The additional stress will be less where the wall is farther from the pipe. It can be assumed that the wall would have negligible effect on the pipe where the pipe is outside of a 2V:1H slope extending from the base of the wall.

8. Design Recommendations

When designing for the external stability of the MSE wall, it should be assumed that the reinforced soil mass will be composed of a granular select backfill and the fill behind the reinforced soil mass will be embankment material as defined by the IDOT Standard Specifications. Both materials should be assumed to have a total unit weight of 125 pcf. The active earth pressure coefficient of the embankment fill could vary greatly depending on the actual material used, but should be assumed to be 0.33 for design. Near the wall corners, where the backfill will be the select material placed behind the other face, an active earth pressure coefficient of 0.28 may be used. In areas with a sloped ground surface on top of the reinforced soil mass, such as within the Ramp 7th-B gore, the external stability should be evaluated as shown in Figure 5.8.2c of the AASHTO Standard Specifications. The earth pressure should be calculated using a total unit weight of 125 pcf and a friction angle of 30°.

Aggregate column ground improvement is the recommended treatment option for the area supporting the proposed bridges. The results are highly dependent upon the equipment and techniques used to install the aggregate columns. The contractors that perform this type of work routinely design the improvement to specific geotechnical performance requirements. The lump sum cost of the treatment is expected to be approximately \$600,000.

Hanson recommends that the approximate horizontal limits of the aggregate column ground improvement be defined as an area bounded by a line 4 ft. beyond the perimeter of the reinforced soil mass within the following three areas:

- 1. From east corner of Ramp 7th-A, 40 feet along wingwall and 35 feet across abutment
- 2. From east corner of WB I-74, 55 feet along wingwall and 40 feet across abutment
- 3. From east corner of EB I-74, 70 feet along wingwall and 40 feet across abutment

Within these limits, the contractor should be required to satisfy the following performance requirements:

- 1. Minimum factor of safety of 1.5 against global slope stability failure of permanent condition.
- 2. Minimum factor of safety of 2.0 against equivalent uniform service bearing pressure failure if a load test is performed.
- 3. Minimum factor of safety of 2.5 against equivalent uniform service bearing pressure failure if a load test is not performed.
- 4. Total settlement measured at the base of the wall not to exceed 4.0 inches.
- 5. Total settlement measured on the pavement not to exceed 1.0 inch.
- 6. Differential settlement measured along the base of the wall not to exceed 1/100.

Removal and replacement is recommended for any soft cohesive soils that are located directly beneath the wall along Ramp 7th-B. Cohesive soils with an unconfined compressive strength that is less than the applied bearing pressure of the wall should be removed within the lateral limits shown in Figure 8.1. It is anticipated that these soft soils will be encountered at shallow depths over a small portion of the wall's footprint. Backfill and fill placed below the reinforced soil mass should be with rock fill as shown in Figure 8.1. The select fill material used in the reinforced soil mass may be used as an alternative to rock fill.





Figure 8.1 Lateral Limits of Unsuitable Material Removal and Replacement

The estimated vertical removal limits for the unsuitable soils are provided in Table 8.1. An estimated base of removal elevation is provided at each boring drilled in the vicinity. It is believed that the soft soils found in the borings beneath this wall are isolated strata. For plan quantities, the extents of the soft soil but should be assumed to extend at a constant elevation half way to the next boring along the wall. The actual limits of removal will be determined during construction based on the materials encountered.

Boring No.	ing No. Station		Objectionable Material		
RW1808	531+43	-	-		
ILR0611	529+70	-	-		
RMP7THB-04	529+69	-	-		
RW06-2	529+20	-	-		
RW1810	528+74	-	-		
ILR0609	528+35	595.5	soft clay		
RMP7THB-05	528+08	596.2	soft clayey silt		
ILR0608	527+95	-	-		
ILR0606	526+97	-	-		
ILR0604	525+97	590.1	soft sandy clay		
RW1812	525+47	-	-		
ILR0603	524+88	-	-		
RW06-3	524+37	-	-		
RW1813	523+65	-	-		
ILR0601	523+05	-	-		

Table 8.1 Estimated Bottom of Unsuitable Material

With the ACGI and the removal and replacement of the unsuitable soils, a conventional precast panel MSE wall is feasible. The theoretical top of leveling pad or base of reinforced soil mass may be located at the minimum embedment required by IDOT (3.5 feet below finished grade). Walls should be configured with a 4-foot bench at the face as required by AASHTO 5.8.1. As an alternative in locations with slopewall, the base of the wall should



be an extra 1.0 foot deeper. Any backfill or fill below the reinforced soil mass should be with either rock fill or select fill to the limits shown in Figure 8.1. Other material outside those limits may be embankment fill in accordance with the IDOT Standard Specifications.

Allowable bearing pressure is 4,200 psf at the end of the Ramp 7th-A wingwall increasing to 4,800 psf at the edge of the first treatment area, 4,800 psf within the two untreated areas between Ramp 7th-A and EB I-74, and 4,000 psf from the west edge of EB I-74 to Ramp 7th-B Sta. 530+35. Along Ramp 7th-B, the wall should be proportioned for allowable bearing capacities of 4,000 psf at Sta. 530+35, 5,500 psf at Sta. 529+00, and 2,500 psf at Sta. 523+00. Allowable capacities should be interpolated between the values provided. Sliding stability should be checked against a nominal undrained sliding resistance of one-half of the allowable bearing pressure and a nominal drained sliding resistance of 0.53 times the effective vertical stress. The subgrade should be inspected before fill is placed. Any soft or otherwise unsuitable material should be removed and replaced with compacted porous granular embankment or select fill.

The external stability design should be completed using the parameters defined above. In areas with ground improvement, the applied bearing pressures should not be compared to allowable bearing capacities of the native soils. Instead, the estimated applied bearing pressures will be given as a performance requirement for the aggregate column ground improvement. We recommend limiting the equivalent uniform bearing pressure to approximately 6,200 psf in order the keep the area replacement ratio reasonable. The minimum length to height ratio specified by AASHTO (0.70) will be acceptable for portion of the wall west of EB I-74. A 0.80 length to height ratio is recommended for the remainder of the wall.

The external stability design of the sections where the wall is blistered out for an abutment maskwall also should be completed using the parameters defined above. The length to height ratio should be no less than 0.80, where the height is measured from the top of leveling pad to the roadway grade and the length is measured from the front face of the lower wall. The reinforcement behind the upper wall panels should extend to no less than the back of the lower wall's reinforced soil mass and should be no less than 0.80 times the height of the upper wall.

9. Construction Considerations

The second stage of the proposed wall will require excavation immediately in front of the first stage wall supporting the proposed WB I-74 Bridge. This excavation will require temporary support of approximately 20 feet of fill under WB I-74 while slopes are laid back under the proposed EB I-74 shoulder. A temporary MSE wall is suitable for this structure. The temporary wall should be designed using the same recommendations as the adjacent permanent wall.

The construction of MSE walls is not covered by the IDOT Standard Specifications. Guide Bridge Special Provisions No. 38, Mechanically Stabilized Earth Retaining Walls (Revised: July 26, 2013); No. 57, Temporary Mechanically Stabilized Earth Retaining Walls (Revised: July 26, 2013); and No. 71, Aggregate Column Ground Improvement (Revised: October 15, 2011) should be included in the construction documents. These special provisions require that the contractor take responsibility for the final design of much of the structure. The most recent versions of IDOT Guide Bridge Special Provisions No. 38 and No. 57 reference only the AASHTO LRFD Bridge Specifications for design of MSE walls. The previous versions as noted above should be used for this project, because the current wall design and plan details use the AASHTO Standard Specifications for Highway Bridges.

The general contractor will hire a specialty contractor to design and install the aggregate column ground improvement. He will also hire an MSE wall supplier to complete the MSE wall design and furnish the materials. The interdependence of the ground improvement and MSE wall designs must be considered when developing the plans. The MSE wall supplier will typically design a wall with a horizontal base with vertical steps at convenient



locations. This results in a wall that is slightly taller and wider than the theoretical size shown on the construction plans. Because of these factors, the target bearing pressure for the ground improvement contractor should be 5% to 10% higher than the theoretical value calculated during preliminary design.

The ground improvement contractor will need to assign strength and consolidation properties to the native soils in order to design the aggregate columns. All of the soils laboratory data in the Appendix to this report should be included in the contract documents. Usually, this is accomplished by adding a "Geotechnical Investigation Laboratory Data" section to the special provisions.

The piles for S.N. 081-0179, 081-0180 and 081-0181, which are located within the reinforced soil mass for this wall, will interfere with the placement and compaction of the select backfill. The piles must either be driven prior to placing the select fill or driven through sleeves after placing the select fill. Refer to the current geotechnical design memorandum for those structures for specific recommendations. Construction plans for the wall should require that the ACGI contractor coordinate the aggregate column locations with the pile locations to avoid any interference.



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Appendix

Boring Location Plan Subsurface Data Profile Boring Logs Soils Laboratory Test Results Summary of Slope Stability Analyses



RETAINING WALL IL-RW06 S.N. 081-6015 RMPZTHB-04 RW181 _<u>R</u>₩06-ILR0611 ILROGO 19145 19TH ST Ó BORING LOCATION PLAN I-74 MAINLINE RETAINING WALL IL-RWO6 S.N. 081-6015 ROCK ISLAND COUNTY, ILLINOIS 08H0120E 2/27/15



65 <i>3.98</i> _T	16, 2′ LT <u>N</u> <u>Qu</u>	<u>w%</u>	
	2.0P	13	STIFF gray CLAY LOAM
	10 3 . 1B	14	VERY STIFF gray/tan SILTY CLAY LOAM
	17 1 . 7B	26	STIFF gray SILTY CLAY LOAM
	11 2.5B	19	VERY STIFF tan SILTY CLAY LOAM
	7 2 . 1B	15	VERY STIFF gray SILTY CLAY LOAM
639.48-	14 1.7B	20	STIFF gray SILTY CLAY LOAM
	19 3 . 3B	13	VERY STIFF tan SILTY CLAY LOAM TILL
	15 3 . 3B	17	VERY STIFF tan CLAY LOAM TILL
	28 2.8P	17	VERY STIFF dark gray LOAM
	<i>19 3</i> .55	16	VERY STIFF dark gray SILTY LOAM
	22 2.0P	18	STIFF tan/gray SILTY LOAM
	25 1.5P	13	STIFF gray SILT with FILL
	25 3.6P	19	VERY STIFF gray SILTY LOAM
21.50 V 619.48	14 2.8P	21	VERY STIFF tan SILTY LOAM with CLAY lens
010.70	20 3.7B	14	VERY STIFF tan CLAY LOAM TILL
	14 2.1B	15	VERY STIFF gray/tan CLAY LOAM TILL
	26 3.7B	13	VERY STIFF tan CLAY LOAM TILL
24h	19 3. 3B	14	VERY STIFF tan CLAY LOAM TILL
09.00 - 🗸	21 2.35	15	VERY STIFF tan CLAY LOAM TILL
	20 2.9B	14	VERY STIFF gray CLAY LOAM TILL
	25 3. 5B	14	VERY STIFF gray CLAY LOAM TILL
	19 3.1B	14	VERY STIFF gray CLAY LOAM TILL
	10 2.3B	15	VERY STIFF gray CLAY LOAM TILL
	29 5.6B	13	HARD gray/tan CLAY LOAM TILL
	42 5.0B	13	HARD tan CLAY LOAM TILL
	22 3.1B	14	VERY STIFF gray CLAY LOAM TILL
	24 2.9B	14	VERY STIFF gray CLAY LOAM TILL
	50 8.2B	14	HARD gray CLAY LOAM TILL
	30 2.5B	15	VERY STIFF gray CLAY LOAM TILL
	35 5.0B	14	HARD gray CLAY LOAM TILL with fine SAND lens
	25 3 . 9B	15	VERY STIFF gray CLAY LOAM TILL
	22 3.3B	16	VERY STIFF gray CLAY LOAM TILL
	31 3.5B	16	VERY STIFF gray CLAY LOAM TILL
	41 4. 5B	16	HARD gray CLAY LOAM TILL
	39 4.3B	15	HARD gray CLAY LOAM TILL
	33 3.3P	20	VERY STIFF gray SILTY LOAM TILL with SANDSTONE fragments
564.48	100/2"		VERY DENSE gray dirty SAND with medium GRAVEL VERY DENSE gray dirty SAND with DOLOMITE fragments

	<u>Qu w%</u>	Fill Asphalt Concrete - 2" thick asphalt overlaying 1' thick			
9		Fill Silty Clay (CL-ML) - Gray brown, moist, hard,			
8 4	4.0P				
9 .	3.75-2.0P	Fill Sandy Lean Clay Trace Gravel (CL) - Reddish to grayish brown, moist, very stiff, trace fine to medium	ILR08 Sta. 626+9	6, 7′ RT	
8 2	2.5P		641.39 _—	<u>N Qu w%</u>	Clay (CL) - aray moist very stiff to hard trace soud
10 i	1.5P	Fill Silty Clay (CL) - Gray brown, moist, stiff to very stiff, with fine to coarse gravel, and some wood pieces		7 4 10	Clay (CL) - gray, moist, very stiff to hard, trace sand and fine angular gravel
9 2	2.0P	and brick pieces throughout, fill			
11 2	2.0P		635.39		
				4	Clay (CL) - gray to greenish gray, moist, trace fine to coarse grained sand, stiff to hard
17	3.0P			6 1.9B	RIMAC: Pu = 31 lbs (Bulging)
23 2	2.0P			10 4.1B	RIMAC: Pu = 68 lbs (Bulging)
19 4	4.5P			13 3.0P	
13 4	4.5P			14 4.5P	
12	3.0P		606.39	36 4.5P	shale in tip Bottom of hole = 35.0 feet
18	3.0P	Sandy Lean Clay Trace Gravel (CL) - Gray brown with gray vertical seams, moist, low to medium plasticity, very stiff, fossilized rootlets, trace fine to coarse, weathered till or gumbotil			
14 2	2.5P				
<i>16 2</i>	2.5P				
21 2	2.5P			I/cobbles	LEGENDNStandard Penetration Test N (blows/ft)OuUnconfined Strength (tsf)w%Natural Moisture Content (%)Image: Consolidated Undrained Triaxial TestImage: Consolidated Undrained Triaxial TestImage: Consolidation Test
	8 . 9 . 10 . 9 . 11 . 17 . 17 . 17 . 17 . 13 . 12 . 18 . 14 . 16 .	8 4.0P 9 3.75-2.0P 8 2.5P 10 1.5P	B 4.0P trace to liftle gravel 9 3.75-2.0P Fill Sandy Lean Clay Trace Gravel (CL) - Reddish to medium 8 2.5P 10 1.5P Stift, Vith Time to coarse gravel, and some wood pieces and brick pieces throughout, fill 11 2.0P 12 2.0P 13 4.5P 14 2.5P 15 Sandy Lean Clay Trace Gravel (CL) - Gray brown, with gray vertical seams, moist, tow to medium plasticity, very dense, estimated 574.91 18 3.0P 14 2.5P 16 2.5P 17 576.00 18 5.0P 19 572.91 10 2.5P 11 572.91 12 576.00 13 572.91 14 2.5P 15 576.00 16 2.5P 16 2.5P 17 576.00 10 572.91 10	9 Fill Sity Clay (CL - ML) - Gray brown, meist, hard. trace 10 life gravel 11,400 9 3.75-2.0P Fill Sandy Lean Clay Trace Gravel (CL) - Reddish to gray/sh Grawn, molst, very sith, trace the to medium and brick pieces throughout, till 516,626-9 10 1.5P Fill Sithy Clay (CL) - Gray brown, molst, sith to very and brick pieces throughout, till 641.39 11 2.0P 635.39 12 2.0P 635.39 13 2.0P 635.39 14 2.5P 606.39 15 5.0P 576.00 16 2.5P 576.00 17 572.91 62 18 3.0P 576.00 19 572.91 62 15 572.91 574.91 16 2.5P 576.00 17 572.91 62 18 772.91 62 19 572.91 62 15 572.91	9Fill Silly Cly (CL - MC) - Gray brown, moist, hard, irade 76 bits gravel84.0PFill Sandy Lean Cly Trace Gravel (CL) - Redden to medium93.75 - 2.5PFill Sing Clay (CL) - Gray brown, moist, oth of medium or or or other from the class of the formed of the form

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Hanson Professional Services Inc.

7′ F		
N	<u>Qu w%</u>	Clay (CL) - gray, moist, very stiff to hard, trace sand and fine angular gravel
7	4.1S	
16	2.5P	
4		Clay (CL) - gray to greenish gray, moist, trace fine to coarse grained sand, stiff to hard
6	1.9B	RIMAC: Pu = 31 lbs (Bulging)
10	4.1B	RIMAC: Pu = 68 lbs (Bulging)
13	3.0P	
14	4.5P	
36	4.5P	shale in tip
		Bottom of hole = 35.0 feet

	F.A.I RTE.	SECTION			CO	UNTY	TOTAL	SHEET NO.	
SHEET NO.1	74	81-1-2			ROCK	ISLAND	-	NO.	
9 SHEETS						CON	TRACT	NO. 64	4CO8
	FED. RC	AD DIST.	NO.	ILLINOIS	FED. A	ID PROJ	ECT		

19BR Sta. 627+6				
614,30 614,107	N	<u>Qu</u>	<u>w%</u>	
	9	2.3S	12.8	<u>\TOPSOIL - (roots) 1" to 2" thick.</u> SILT - brown, tan and orange mottled, little clay, slightly to medium plastic, stiff to crumbly, moist
610.80-	11	1.9B	20.4	CLAY - greenish gray and brown, little silt, waxy, medium plastic, stiff, moist.
608.30-	4	0.8B	16.0	CLAY - brown and tan, some to and silt, trace sand, medium plastic, medium stiff, moist.
605.80-	7	0.85	16.7	SILT - dark brown to brown, little to some clay, trace fine sand, slightly to medium plastic, medium stiff to stiff, moist.
602.30- 600.80-	6	1.0B	16.6	CLAY - gray and brown mottled, some silt, medium plastic, stiff, moist.
600.80-	10	0.7B	14.2	CLAY - brown and red brown, sandy, grading from clayey silt with fine to coarse sand, trace gravel to very soft wet sandy clay.
	4	0.5B	18.4	
595.80 V	8		13.9	GRAVEL - brown to reddish brown, clayey, angular, saturated.
593.30-	11	3.2B	9.7	CLAY - greenish gray, little to some silt, medium to highly plastic, stiff to very stiff, moist.
		2.9B	14.9	- [Dry unit weight = 120.7 pcf]
587.80-	50/4"		15.4	- trace sand at bottom of shelby tube. CLAY SHALE - bluish to greenish gray, clayey, hard, no laminations, slightly weathered, slightly moist to dry.
583.80-	55/3"	>4.5P	10.7	weathered, sugnity moist to dry.
582.10-	Rei	c. = 86 D = 60	5%	CLAY SHALE - bluish to greenish gray, clayey, hard, no laminations, slightly weathered. Intermixed sandy shale and limestone at 30.5'-32.2'.
502.10-	Rec. = 91%. RQD = 74%.		1% 4%	LIMESTONE - gray with yellowish brown and iron-staining along fractures in the upper 6 ft, fine grained, occasional stylolites, dense, hard, sound, thin bedded, primarily uneven horizontal to subhorizontal fractures with occasional high angle fractures, slightly weathered to fresh. - iron stained fractures at 32.8', 36.0', 36.2', 36.5', 36.8', 38.2'. - vertical fracture at 35.4'-35.6', 80° to 60° curvilinear fracture at 36.6'- 36.8', 60° jagged brown-stained fracture at 36.4'. - fresh rock below 38.2'. - INote: ROD shown for Run 1 is based on length of recovered rock, not on length of run. RQD=40%, for entire length of run (including material washed away
572.00			/	length of run. ROD=40% for entire length of run (including material washed away from augers and ground up during the drilling operations).] Bottom of hole = 42.3 feet

<u>LEGEND</u>

N Standard Penetration Test N (blows/ft)

Qu Unconfined Strength (tsf)

w% Natural Moisture Content (%)

[] Unconsolidated Undrained Triaxial Test

R Consolidated Undrained Triaxial Test

C Consolidation Test

DD Water Surface Elevation Encountered in Boring

558.10 \square DD = during drilling 24h = 24 hours after completion

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

RW06 Sta. 62+58	3, 22′						
644.60 644.35	N	<u>Qu</u>	<u> </u>	TODCOL			
644.35	14	3.50P	15	TOPSOIL. FILL - Brown lean CLAY, trace silt, trace sand, with organics.			
	7	1.75B	23				
636.10-	18	3.50P	17				
000.10	11	3.10B 1.55S 1.60S		FILL - Brown and gray silty lean CLAY, trace sand, trace gravel, with wood debris and brick fragments.			
	15	3. 30S	16				
	16	4.465	16				
	16	4.50P	16				
	20	2.255	16				
	20	3.3 0S	18		19BR - Sta. 61+26 611.60		т <u>Qu</u>
	21	4.50P	16		611.00-	6	1.6B
607.60-	15	2.50P	22	FILL - Gray clayey SILT, little sand, trace gravel, with red brick fragments.	605.60-	12	3.0B
	15	2.30	~~				0.8B
	16		10		600.60-	5	0.9B
597.60-				Gray moisy, very stiff, silty lean CLAY, with trace sand		17	
	17	3.30S	3.30S 15	and trace gravel.	595.60-		2.5B
						13	3.4B
	26	6.01B	12			16	3.1B
	0.0	7.000	15				2.8P
584.60	26	<u>3.69B</u>	15	Bottom of hole = 60.0 feet			2.9B
					581.80 -	50/3"	2.5P
					578.10-		
						91	3.5P
					573.90-	Rec RQI	. = 77.) = 0%
							; = 93 ; = 23
						RQL) = 23

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563.70



N	<u>Qu</u>	<u>w%</u>		
				SIDEWALK - 4.5" thick concrete plus base course.
6	1.6B	13.8	CLAY - c coarse sc	ive brown and gray, some to and silt, trace to little medium to nd, trace fine gravel, very stiff, moist (GLACIAL TILL-FILL).
12	3.0B	18.2		
10	0.8B	18.4	SILT - a slightly to	nrk brown, little to some clay, trace gravel, trace organics, medium plastic, medium stiff to stiff, moist
5	0.9B	24.2		
5	0.7B	24.1	CLAY - t with grav	rown, little silt, trace sand, with gravel, to SILT and clay, [or cobble, slightly to medium plastic, medium stiff, moist
17		13.9	(LL=21, F - cobble	[=5] [=5] at 14.5'-15.0'.
	2.5B	14.2	CLAY TIL sand, trad	L - greenish brown to gray, trace to little medium to coarse e fine gravel, hard, moist to dry (GLACIAL TILL).
13	3 . 4B	13.9	-[Dry uni	weighf = 116.7 pcf]
16	3.1B	14.4		
	2.8P			
14	2.9B	14.8		
0/3"	2.5P	17.3	- greenis	n gray and red silty clay till, crumbly, moist.
			CLAY - r SHALE).	ed, silty, shaly, crumbly, dry to slightly moist (TILL or CLAY
91	3.5P	14.8	CLAY SH moderatel	LE - greenish gray, clayey, hard, laminated, slightly to weathered, slightly moist to dry.
			-[Ground	rater not observed in soils and shale during drilling operations]
Rec RQI	c. = 7 D = 02	7%. %	LIMESTO horizontal	E - gray, fine grained, dense, hard, very thin to thin bedded, to subhorizontal slightly rough fractures with some high angle)°) fractures, slightly weathered with faint iron stains on some
Rec ROL	0 = 9 0 = 2	3% 3%	(60° to 9 fractures,)") tractures, slightly weathered with faint iron stains on some occasional stylolites.
Rec ROL	c. = 10 D = 43)0% 5%		
			Bottom of	hole = 47.9 feet
				<u>SUBSURFACE DATA PROFILE</u>
				<u>STRUCTURE NO. 081-6015</u>
			F.A.I	
SH	IEET	NO. 2	RTE.	SECTION COUNTY SHEETS NO

SHEET NO.2	RIF.	(IE.				00		SHEETS	NO.
	74	81-1-2			ROCK	ISLAND	-		
9 SHEETS						CON	TRACT	NO. 64	80J
	FED. R	OAD DIST.	NO.	ILLINOIS	FED.	AID PROJ	ECT		

RW0 Sta. 61+0		Т		
611.30_	N	<u>Qu</u>	<u>w%</u>	
610.80		2.50P	14 R	CONCRETE
		2.50/	4 <u>R</u>	FILL - Light gray, slightly moist, SILT
608.30-		1.80P	13	FILL - Very dark brown, moist, clayey SILT with trace arguel
COF 70				yi uver
605.30-	17	2.00P	15	FILL - Gray, moist, medium dense, silty, medium-grained SAND with trace gravel, wood, brick and rock fragments
COO 70	50/4"		12	
600.30-		1.655	20 17	Dark brown, moist, stiff, sandy SILT with trace gravel
500 70	8		16	
596.30- 595.30-				Dark brown, moist, sandy, clayey SILT with trace gravel
593.80 V	DD	0.50P	12	Dark brown, wet, dense, silty SAND with trace gravel
593.30	8	0.54B	18	Gray and brown, moist, medium stiff, silty CLAY with sand and trace gravel
500.00				
588.80- 586.30-	21	2.61B	14	Gray and brown, moist, very stiff, silty CLAY with sand and gravel
200.30-				Bottom of hole = 25.0 feet

19BR				(2011) 31, 6' LT	• /	
Sta, 60+26	<u>N QU W%</u>		610.26	<u>N Qu</u>	<u>w%</u>	
609.30 608.80 +	<u>n dd m/r</u>	\CONCRETE - 3" thick concrete plus base course.		1.8P	14	STIFF gray SILTY CLAY LOAM
000.00	10 1.5P 12.8	SILT - light brown and dark brown, some clay, trace to little gravel, medium plastic, stiff, moist (FILL).		16 2.75	15	VERY STIFF gray/brown SILTY CLAY LOAM
604.80		SILT - light brown and gray mottled, little clay, crumbly, slightly to medium plastic, medium stiff, slightly moist to dry.		18 1.2B	15	STIFF brown SILTY CLAY LOAM
600.80-	4 0.6B 27.4	medium sini, suginy moisi to dry.		10 2.3P	21	VERY STIFF dark brown SILTY CLAY LOAM
598.30-	5 0.65 18.2	SILT - dark brown, little to some clay, crumbly, slightly to medium plastic, medium stiff, slightly moist to dry.		6 1.0B	16	STIFF dark brown SILTY CLAY LOAM
	4 0.45 16.2	SILT - dark brown, trace to little clay, little fine sand, slight binder, slightly plastic, soft to medium stiff, moist.	596.26 -	13 1.5P		STIFF brown SANDY LOAM with GRAVEL
595.30	19 4.3	SAND - brown, fine to coarse, clayey, and gravel, loose, moist.		22		No recovery, rock blocking sampler
590,80-	4 5.5		591.26 590.80	11		No recovery
000.00	6 <i>1.4B 14.4</i>	CLAY TILL - greenish gray, sandy to silty, trace medium to coarse sand, trace fine gravel, slightly to medium plastic, hard, moist (GLACIAL TILL). -[Dry unit weight = 118 pcf]	590.80 <u>-</u> 24h	15 3.0B	13	VERY STIFF gray CLAY LOAM TILL
	1.9B 14.3	-LDry unin weigin – 116 pcr J		16 2.7B	13	VERY STIFF gray CLAY LOAM TILL
	12 3 . 1B 13.8			15 2.7B	13	VERY STIFF gray CLAY LOAM TILL
	20 3.3B 12.9	- contains thin layers of wet/saturated fine sand.		16 2.2B	14	VERY STIFF gray CLAY LOAM TILL
580.30 	14 3.3B 15.4			37 2.35	17	VERY STIFF gray CLAY LOAM TILL
				21 1.3P	27 52	STIFF gray CLAY TILL with DOLOMITE lenses STIFF gray CLAY TILL
	50/1" 23.9	- greenish gray to bluish gray with limestone fragments, hard.	575.26-	100/6" Roo - R		
574.00-	Rec. = 46% RQD = 8%	LIMESTONE - gray, fine grained, hard, dense, very thin to thin bedded, closely to very closely fractured with possible shale and/or clay seams which were not recovered between 35.3' and 40.7', occasional iron-stains at fractures, slightly weathered, poor quality rock but hard where recovered.	570.00	Rec. = 85% RQD = 15%		Dolomite: gray-buff, alphanitic, dense, pitted and mostly fractured with voids evident. t.s.f.: 572.9 to 572.5
		waannaraa, poor quunny rock bur nura whare recovered.	570.26-	Rec. = 3 RQD = 0	0%	Dolomite: as above, pitted, fractured with macro-voiding
	Rec. = 81% RQD = 0%	ENate: driller repeatedly lifted the core barrel while drilling to keep it from jamming. Observation of core pieces suggest numerous near-vertical fractures were encountered, causing core pieces to get stuck in the core catcher and possibly		RQD = Ō	%	apparent throughout.
	Rec. = 43% RQD = 0%	grinding up subsequent rock encountered while drilling.]	565.26-			Bottom of hole = 45.0 feet
	Rec = 77%	- 11" thick layer of very soft green-gray, sandy, gravelly clay at 45.8' to 46.7'.				
	Rec. = 77% RQD = 35%	- 13" layer of medium gray "birdseye" texture limestone with vertical fractures at 47.5' to 48.6'.				
558.50						
000.00		Bottom of hole = 50.8 feet				

<u>LEGEND</u>

- N Standard Penetration Test N (blows/ft)
- Qu Unconfined Strength (tsf)
- w% Natural Moisture Content (%)
- Image: Optimized Understand
 Unconsolidated Understand
 Unconsolidated
 Understand
 <th
- R Consolidated Undrained Triaxial Test
- C Consolidation Test
- DD Water Surface Elevation Encountered in Boring

 $558.10 \qquad DD = during drilling \\ 24h = 24 hours after completion$

PROFESSIONAL DESIGN FIRM LICENSE #184-001084



NO.3	F.A.I RTE.		SECT	ION	ION COUNTY			TOTAL SHEETS	SHEET NO.
	74		81-1	-2 ROCK			ISLAND	-	
HEETS						CON	TRACT	NO. 64	C08
	FED. RC	DAD DIST.	NO.	ILLINOIS	FED. A	ID PROJ	ECT		

							RWI Sta. 531+4 634.51-	¹ 3, 2'LT <u>N Qu</u> 9 3.0P	<u>w%</u> Clc bro
			RW06- Sta. 60+68, 624.70 624.45	63' RT <u>N Qu w%</u>	CONCRETE.	gray mottles, SILT, little clay,	628.51–	11 4.5P 11 4.5P 12 4.5P 18 3.6S 15 2.9P	Clc bro Sil mo Clc bro Clc bro Clc
				5 4.50P 13 11 4.50P 19 13 3.00P 16 22 4.50P 6	trace sand.	groy morries, sizer, mile endy,	620.51-	18 4.5P 15 3.8P	Cla bro Cla anı bro Sil ligi
19BF Sta, 59+8 609.10 608.60	R-107 82, 60' RT <u>N Qu w%</u>	CONCRETE SIDEWALK - concrete (4-1/2" thick) + base \course.	613.70	11 3.30P 18 2.16B 16	FILL - Dark gray silty le gravel, with wood fragmer	an CLAY, little sand, trace its.	609.51-	17 3.2P 15 2.0P	Sih dry Cla moi
605.60	7 1.4B 13.5 10 1.5B 15.9 10 1.3B 15.6	CLAY - brown to yellowish brown, some silt, trace gravel, medium plastic, stiff, slightly moist. SILT - dark brown, little to some clay, trace gravel, crumbly, slight to medium plastic, stiff, moist.	602.70	9 3.00P 19 11 2.50P 22	Gray moist, very stiff, sih sand and gravel.	y lean CLAY, with trace		14 2.5P	stin Cla hor
598.10-		 little clay. (LL=28, PI=7) CLAY TILL - dark brown (to 12.5 ft) to brown, to gray and tan, trace medium to coarse sand, trace fine gravel, stiff, moist (GLACIAL TILL). sandy till at 11.0'-12.5'. 		15 4.50P 14 17 4.30P 15				15 2.5P 17 2.4P	Cla hor Cla hor
590.60	14 2.3B 14.1	-[Dry unit weight = 119.8 pcf] CLAY TILL - greenish brown to gray, trace medium to coarse sand, trace fine gravel, hard, moist to dry (GLACIAL TILL).	589.70	<u>18 4.00P 14</u>	Bottom of hole = 35.0 fe	et		20 3.3P	hoi Clc hoi
	20 2.6B 13.8 18 2.8B 14.5 16 2.7B 13.1						584.51-	18 3.2P	Clc hoi Bo
	14 3.2B 13.9 14 3.0P 12.7								
570.60	45 >4.5P 14.9	CLAY SHALE - greenish gray to brown, clayey, hard, slightly to moderately weathered, slightly moist to dry.							
565.60-	86 >4.5P 13.5 113/9" >4.5P 10.9	CLAY SHALE - black to dark gray, feint to no laminations, hard, slightly moist to dry.							
	50/5" >4.5P 10.3 50/2" >4.5P 12.8	- [Note: driller added water to hole to be able to turn augers below 50' depth] - soft, laminated, clayey, sticky; falls apart and readily crumbles when moist; becomes sticky clay when wet.	N Stan Qu Unco	END dard Penetration 7 onfined Strength (t ral Moisture Conte.	sf)				
550.50-	50/5" 7.9	- light and dark gray shale cuttings. Bottom of hole = 58.6 feet	R Cons	onsolidated Undrain colidated Undrained		PROFESSIONAL DESIGN FI	IRM LICENSE #184	- 001084	

С Consolidation Test DD Water Surface Elevation Encountered in Boring

DD = during drilling

24h = 24 hours after completion

558.10 2

PROFESSIONAL DESIGN FIRM LICENSE #184-001084



Clay (CL) - Clay, few sand, trace gravel, red brown and brown, dry to moist, stiff blocky Clay, trace gravel and sand, brown mottled orange brown and gray brown, dry to moist, stiff, blocky

brown and gray brown, dry to moist, stift, blocky Silty Clay, trace gravel, brown to red brown, dry to moist, stiff, blocky Clayey Silt (MH) - Clayey Silt, trace gravel, gray brown, mottled orange brown, dry to moist, medium dense, blocky Clayey Silt, trace gravel, gray brown, mottled orange brown, dry to moist, medium dense, blocky, Gray with no mottling for 1" at 12" from top of sample Clayey Silt to Silty Clay, trace gravel and organics, gray brown, mottled orange brown, medium stiff, stratified Clayey Cit to Clay, trace gravel little gravel liste brown Clayey Silt to Clay, trace gravel, little sand, light brown and gray brown, medium stiff to stiff, stratified (gray brown - 11"; light brown - 8") Silty Clay (CL-ML) - Silty Clay, little sand, trace gravel, light brown, dry to moist, stiff, homogenous

Silty Clay, little sand, trace gravel, mottled gray brown, dry to moist, stiff, homogenous

Clay (CL) - Clay, trace gravel, little sand, light brown mottled gray brown and orange brown, dry to moist, stiff, homogenous

Clay, little sand, trace gravel, gray brown, moist, stiff, homogenous - Till - unweathered

Clay, little sand, trace gravel, gray brown, moist, stiff, homogenous

Clay, little sand, trace gravel, gray brown, moist, stiff, homogenous

Clay, little sand, trace gravel, gray brown, moist, stiff, homogenous Çlay, little sand, trace gravel, gray brown, moist, stiff, homogenous

Bottom of hole = 50.0 feet

NO. 4	F.A.I RTE.	SECT	ION	CO	UNTY	TOTAL SHEETS	SHEET NO.	
	74	81-1	ROCK	ISLAND	-			
EETS				CON	TRACT	NO. 64	1C08	
	FED. RC	DAD DIST. NO.	ILLINOIS	FED. AI	D PROJ	ECT		

ILRO 529+70	0, 39′ 1			
607.51 ₋	N	<u>Qu</u>	<u>w%</u>	Fill - 4 inches of concrete
605.51				
	11			Silt (ML) - moist, trace fine to medium sand, medium dense
601.51	12			
001.51	4	1.25	19.2	Silt With Fine to Medium Sand (ML) - gray, slightly moist, loose to medium dense
507.51	12			RIMAC: Pu = 20 lb (LL=27, PI=10)
597.51 595.51	4		13.0	Silty Fine to Medium Sand (SM) - gray, moist, loose (LL=28, PI=11)
555.51	16		9.2	Silty Sand (SM) - gray, moist, medium dense, trace of angular gravel; size <3/4".
	9			(LL=26, PI=9)
500 51				
589.51	11	4.25		Clay (CL) - gray, moist, very stiff to hard, trace fine to medium sand (LL=34, PI=20)
	12	2.0P		
	18	4.0P		
	23	3.0P		
569.51				Shalo - argy hard laminated
567.51	77			Shale - gray, hard, laminated
501.51				Bottom of hole = 40.0 feet

610.70 <u>6</u> 10	<u>№</u>	<u>Qu</u>	<u>w%</u>	
610.30				TOPSOIL
607.70-	13	4.50P	11	FILL - Brown, moist, stiff, lean CLAY with trace ver fine- to fine-grained sand
605.20	8	1 . 15B	18	Fill - Dark brown, moist, medium, SILT with trace fine-grained sand
003.20-	12	1.80P	23	FILL - Dark brown, moist, stiff, clayey SILT with trace gravel
600.70-	12	2.09B	10 /	Light brown, moist, very stiff, lean CLAY with trace fine-grained sand and gravel
				Brown, wet, medium dense, silty, clayey SAND with
598.70		1.50P	15	trace gravel
598.20-				
595.70	15	1.56B	14	Gray, moist, stiff, lean CLAY with trace gravel



<u>LEGEND</u>

- N Standard Penetration Test N (blows/ft)
- Qu Unconfined Strength (tsf)
- w% Natural Moisture Content (%)
- D Unconsolidated Undrained Triaxial Test
- R Consolidated Undrained Triaxial Test
- C Consolidation Test

558.10

DD Water Surface Elevation Encountered in Boring DD = during drilling 24h = 24 hours after completion





$\overline{7}$	TOPSOIL
	FILL - Brown with gray mottles, moist, SILT with trace Fine-grained sand
	FILL - Dark brown, moist, stiff, SILT with trace sand and gravel
~ (FILL - Dark brown, moist, stiff, SILT with trace sand and gravel, rock fragments (LL=20, PI=7)
C t	Grayish brown, wet, medium dense, silty, clayey, medium- o coarse-grained SAND with gravel
	Gray, moist, very stiff, silty CLAY with trace sand and gravel
('LL=25, PI=13)
	Brown, wet, dense, silty, fine- to coarse-grained SAND with trace gravel

Bottom of hole = 20.0 feet

SHEET NO.5	F.A.I RTE.	SE	CTION		COUNTY	TOTAL SHEETS	SHEET NO.
	74	81	-1-2		ROCK ISLAND	-	
9 SHEETS				CONTRACT	NO. 64	C08	
	FED. RC	DAD DIST. NO.	ILLINOIS	FED. AI	ID PROJECT		

RW18 Sta. 528+7	'4, 23′ LT		ILR(0609 35, 23′LT			
604.24-	<u>N Qu w%</u>			$\frac{N}{N} \underline{Qu} \underline{w^{\prime\prime}}$		RMP7THB-0 Sta. 528+08, 7	
602.24_	17	Silt (MH) - Silt, trace gravel, light brown to brown, dry to moist, medium dense, stratified Silt to clay, trace gravel and organics, light brown to brown, dry to moist, hard, stratified, till	603.53-		Silty Fine to Coarse Sand (SM) – grayish brown, moist, medium dense		<u>V Qu и</u>
600.24	25 4.5P		599.53-	16		8	3 2.80P .
	12	Clay (CL) - Clay, trace gravel, trace organics, light brown to brown, mottled orange brown and gray brown, very stiff to hard	597.53-	8	Well Graded Sand (SW) - yellowish brown, slightly moist, loose	599.20	5 0.25B 2
	15 4.5P		595.53_	0.5	Clay (CH) – dark brown, moist, soft	596.20	
	10	Fill to 12'-14'	555.55-		Sandy Silt (ML) – yellowish brown, moist, loose	594.20	5 0.80P .
	12 4.5P			5 2.0			0
	11 4. 5P		589.53_	12		591.70	1 1.50P .
	14 3.2P			<u>1</u> 4 5.45	Silt (ML) - yellowish brown, moist, medium dense, trace coarse sand (LL=40, PI=24)	588.20 587.20	4 1.36B .
			583,53_	12 3.0P			
	14 2.5P				Clay (CL) – gray, moist, very stiff to hard		
	20 2.2P			13 4.2B			
	16 2.6P			14 2.0P			
	15 2.3P	1"-thick sandy clay seam in 34.0' sample		16 4.0P			
564.24_ 562.24_	16 2.1P	Clay (CL) - trace gravel, little sand, gray brown, wet, very stiff	562.53-	94/9"			
J02.24	50/5"	Shale - Clayey Sand (2") to shale, gray brown, wet to moist, loose to hard, stratified	502.55-		Bottom of hole = 41.0 feet		
55404	50/4"	Shale, dark gray, moist, hard, homogenous Let split spoon fall from 50.0′ (5076″ = free fall)					
554.24⊥		Bottom of hole = 50.0 feet					

<u>LEGEND</u>

- N Standard Penetration Test N (blows/ft)
- Qu Unconfined Strength (tsf)
- w% Natural Moisture Content (%)
- Q Unconsolidated Undrained Triaxial Test
- R Consolidated Undrained Triaxial Test
- C Consolidation Test
- DD Water Surface Elevation Encountered in Boring DD = during drilling 24h = 24 hours after completion

PROFESSIONAL DESIGN FIRM LICENSE #184-001084



	<u>w%</u>	
		TOPSOIL
Ρ	30	FILL - Dark brown, moist, medium, CLAY with trace silt
В	24	FILL – Dark gray, moist, medium, clayey SILT
Ρ	18	FILL - Gray, moist, loose, silty, fine-grained SAND
	18	FILL - Dark grayish brown, moist, stiff, silty CLAY with fine-grained sand
>	17	Brown, moist, stiff, lean CLAY with trace silt
3	15	Gray, moist, stiff, lean CLAY with very fine-grained sand and gravel

Bottom of hole = 15.0 feet

NO.6	F.A.I RTE.	SECT	ION		COUNTY	TOTAL SHEETS	SHEET NO.
110.0	74	81-1	1-2	ROCK ISLAND	-		
HEETS					CONTRACT	NO. 64	C08
	FED. RC	DAD DIST. NO.	ILLINOIS	FED. AI	D PROJECT		

moist, loose, trace fine to		606				
	600.09_	97, 11' LT <u>Ν</u> <u>Qu</u>	<u>w%</u>		ILRO	
				Fill - 8" Of Asphalt	Sta. 525+ 598.11	97, 5' L N
lark brown, moist, very loose	598.09	23		Medium to Coarse Sand (SW) - yellowish brown, moist, loose to medium dense, trace of silt and clay	596.11 596.11	
	504.00	6		loose to medium dense, trace of sin and clay	596.11-	50/6
	594.09	6	13.6	Silty Fine to Coarse Sand (SM) - gravish brown, moist, loose, trace of fine gravel; size < 3/4". (LL=27, PI=13)		5
yellowish brown, moist, trace	592.09			Silt (ML) - yellowish brown, moist, loose, trace fine sand	500 //	2
moist, firm, trace fine to	500.00	9 2.4			590.11_	8
	588.09	9 2.1	14.9	Clay (CL) - gray, moist, very stiff, trace fine to medium RIMAC: 35 lbs (LL=28, PI=13)	500.44	15
		12 2.5	P 14.4	RIMAC: 55 IDS (LL=28, PI=15)	586.11_	9
						13
stiff to very stiff, trace		15 2.5	P			
					DD 578.11 √	13
					578.11 – V	
		17 2.7				
						15
		18 3.5	P 13 4			
		10 0,0	13.1		570.11_	17
	567.09				568.11	11
		50/5"		Shale – gray, dry, hard, laminated		
	565.09-			Bottom of hole = 35.0 feet		
		565.09	50/5"	50/5"	565.09	565.09

<u>LEGEND</u>

- N Standard Penetration Test N (blows/ft)
- Qu Unconfined Strength (tsf)
- w% Natural Moisture Content (%)
- O Unconsolidated Undrained Triaxial Test
- R Consolidated Undrained Triaxial Test
- C Consolidation Test
- DD Water Surface Elevation Encountered in Boring $558.10 \qquad DD = during drilling \\ 24h = 24 hours after completion$

PROFESSIONAL DESIGN FIRM LICENSE #184-001084



9 SH

97, 5′ L			
N	<u>Qu</u>	<u>w%</u>	8" Of Asphalt
50/6	"		Sandy Clay (CL) - grayish brown, moist, soft to firm
5			
2	0.6	12.6	
8	3,5P	16.3	Silt (ML) - yellowish brown, moist, trace of fine sand, loose to medium dense (LL=38, PI=20)
15	3.0	14.5	(LL=38, PI=20)
9	3.0P	15.0	Clay (CL) - dark gray, moist, very stiff to hard, trace medium to coarse sand
13	4.8		very stiff, trace of fine gravel; size < 3/4"
13	3.0P		
15	3.0P		very stiff
17			Sandy Clay With Gravel (CL) - dark gray, wet, very stiff, trace of fine gravel
			Bottom of hole = 30.0 feet

NO.7	F.A.I RTE.	SECT	ION		CO	UNTY	TOTAL SHEETS	SHEET NO.
110. /	74	81-1-2			ROCK	ISLAND	-	
HEETS					CON	TRACT	NO. 64	C08
	FED. RC	DAD DIST. NO.	ILLINOIS	FED. AI	D PROJ	ECT		

15 2.07 Clay, trace gravel, gray brown, moist, hard, homogenous, till 15 2.1P Clay, trace gravel, gray brown, moist, hard, homogenous, till 16 2.5P 17 2.1P 18 2.1P 19 2.1P 19 2.1P 19 2.1P 19 2.1P 10 2.1P 11 2.5P 12 2.5P 13 1.5P 13 1.5P 13 1.5P	<u>N</u> <u>Qu</u> <u>w%</u> 12 4.5+P 22 3 13.0 12 13 4.5+P 13 4.5+P 9 2.1P 15 2.0P 10 2.0P	Clay (CL) - Clay, little gravel, dark brown, dry to moist, very hard, blocky Clay, little gravel, few brick, dark brown, dry to moist, very stiff, blocky Silty Clay, trace gravel, dark brown, dry to moist, very stiff, blocky 2" of sand at bottom of sample (LL=27, PI=16) Clay, trace gravel, gray brown, moist, hard, homogenous, till Clay, trace gravel, gray brown, moist, hard, homogenous, till	IL RO Sta. 524+a 595.87 - 593.87 - 591.87 - 589.87 - 585.87 - 581.87 -		Fill - 8" Of Asphalt Fill - Sample drove a stone Fill - Sample drove a piece of brick Silt With Fine to Coarse Sand (ML) - yellowish brown, moist, medium dense Clay (CL) - gray, moist, very stiff, trace fine to medium grained sand Clay With Trace Of Sand (CL) - gray, moist, very firm, fine to medium sand	RW06 Sta. 524+3 595.20 594.95 593.70 587.20 587.20	6-3 77. 39' LT <u>N</u> Qu <u>w'</u> 11 16 9 22 10 14 14 16 1.77B 15 16 1.02S 14	CONCRETE FILL - Brown, moist, stiff, fine-grained sandy CLA FILL - Brown, moist, medium dense, clayey, fine- to medium-grained SAND with trace gravel Gray, moist, stiff, silty CLAY with trace sand Bottom of hole = 15.0 feet
Clay, trace gravel, gray brown, moist, hard, homogenous, till to shale, (CL-8") 13 1.5P				11 2.5P	rounded gravel; < 1/2 inches in 18.5' sample			
Shale - Light gray, moist, hard, stratified		Clay, trace gravel, gray brown, moist, hard, homogenous, till to shale, (CL-8")		13 1.5P				

LEGEND

- N Standard Penetration Test N (blows/ft)
- Qu Unconfined Strength (tsf)
- w% Natural Moisture Content (%)
- [] Unconsolidated Undrained Triaxial Test
- R Consolidated Undrained Triaxial Test
- C Consolidation Test
- DD Water Surface Elevation Encountered in Boring DD = during drilling 24h = 24 hours after completion





- NO.8	F.A.I RTE.		SECT	ION		CO	UNTY	TOTAL SHEETS	SHEET NO.
	74		1-2		ROCK	ISLAND	-		
HEETS						CON	TRACT	NO. 64	C08
	FED. RO	OAD DIST.	NO.	ILLINOIS	FED. A	ID PROJ	ECT		

RW18 Sta. 523+6		7 <i>T</i>		
593.90-	<u>N</u>	<u>Qu</u>	<u>w%</u>	
591.90-	19	4.5P		Silty Clay (CL) - Silty clay, little gravel, brown, dry to moist, hard, homogeneous.
591.90-	13	4.5P		Clay (CL) - Clay, trace to little gravel, brown, dry to moist, very stiff to hard, homogeneous and blocky, poss. weathered till
	16	4.5P		
	22	4.5P		
	24	4.3P		
	13	4.2P		B-6: Becomes gray brown at 11', unweathered till
	11	2.8P		
	12	3.8P		
	13	3.2P		B-9: Sand lense at about 19.5' for 3-4", sand is wet
567.40	19	3.5P		Rottom of hole - 26.5 feat

Rottom	of	hole	=	26.5	feet

ILR(Sta. 523+		Т		
592.08-	<u>N</u>	<u>Qu</u>	<u>w%</u>	
552.00-				Silt (ML) - gray transitioning to gr trace of fine to medium grained so
	4			nace of the to meaning affect so
500.00	4	0.5P		
586.08-	8			Gravelly Silt (ML) - yellowish brown loose
584.08-	11			Gravelly Sand (SP) - yellowish brow
582.08-	7	2.0P		Silt With Trace Of Sand (ML) - yea firm, with trace sands, loose; Rima
580.08-	10	3.0P	14.5	Clay (CL) - gray, moist, stiff, low sand (LL=35, PI=22)
576.08-	9	3.5P	12.5	
576.00-				Sandy Silt (ML) - gray, moist, stift
	6	2.5P	16.0	
DD				
569. <i>08</i>	14	1.4		
	14	1,4		
565.08				
				Bottom of hole = 27.0 feet

<u>LEGEND</u>

- N Standard Penetration Test N (blows/ft)
- Qu Unconfined Strength (tsf)
- w% Natural Moisture Content (%)
- Image: Optimized Understand
 Unconsolidated Understand
 Unconsolidated
 Understand
 <th
- R Consolidated Undrained Triaxial Test
- C Consolidation Test
- DD Water Surface Elevation Encountered in Boring 558.10 water Surtace Elevation DD = during drilling

24h = 24 hours after completion





grayish brown, moist, sand, loose

vn, moist, low plasticity,

own, moist, medium dense

vellowish brown, moist, mac: Pu = 107 lbs plasticity, trace of fine

iff to very stiff

NO.9	F.A.I RTE.	SECT	ION		COL	JNTY	TOTAL SHEETS	SHEET NO.
	74	81-1	81-1-2			ISLAND	-	
HEETS					CONT	RACT	NO. 64	C08
	FED. RC	DAD DIST. NO.	ILLINOIS	FED. AI	D PROJE	ECT		

SOIL BORING LOG

Illinois Department of Transportation

I-74 DESCRIPTION

. ..

Date 9/14/07

Page <u>1</u> of <u>3</u>

New I-74 Bridge Over Mississippi River - Illir	1015
Approach	

LOGGED BY KJB

ROUTE

SECTION _____ LOCATION _(N=561828.313, E=2459724.286), SEC. 32, TWP. 18N, RNG. 1W, 4th PM

COUNTY Rock Island D	RILLING	g me	THOD)	ŀ	ISA, CME 55	HAMMER TYPE	CN	/IE AU	TOMA	TIC
STRUCT. NO. Station BORING NO. 19BR-105 Station Offset		D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter Upon Completion	ft ft ⊻	D E P T H	B L O W S	U C S Qu	M O I S T
Ground Surface Elev. 609.30 CONCRETE - 3" thick concrete		(ft)	(/6")	(tsf)	(%)	After Hrs.		(ft)	(/6")	(tsf)	(%)
some clay, trace to little gravel,	<u>608.80</u>		2			to silty, trace medium t sand, trace fine gravel, medium plastic, hard, r	o coarse , slightly to				
medium plastic, stiff, moist (FILL?).			5 5	1.5 P	12.8	(GLACIAL TILL). (cont -[Dry unit weight = 11	inued)			1.9 B	14.3
	604.90	_	6	0.8	12.6				4	3.1	13.8
SILT - light brown and gray mottled, little clay, crumbly, slightly to medium plastic, medium stiff, slightly moist to dry.	604.80	5	7	S				 	7	B	
			3 2 2	0.6 B	27.4				6 10 10	3.3 B	12.9
SILT - dark brown, little to some clay, crumbly, slight to medium	600.80		2	0.6	18.2	- contains thin layers of wet/saturated fine sand		<u>▼</u>	4	3.3	15.4
plastic, medium stiff, moist.	598.30	<u>-10</u>		S				30	7	В	
SILT - dark brown, trace to little clay, little fine sand, slight binder, slightly plastic, soft to medium stiff, moist.			2 2 2	0.4 S	16.2						
SAND - brown, fine to coarse,	595.30		3		4.3				21 \50/1"/		23.9
clayey, and gravel, loose, moist.		_ <u>-15</u>	12		4.5	- greenish gray to bluis limestone fragments, h Borehole continued wit	ard. 574.00	-35			20.9
			5 2 2		5.5	coring.					
	590.80		1	1 4	14 4						
		-20	3 3	1.4 B	14.4			-40			

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

Illinois Department of Transportation ROCK CORE	10	າດ		Ρ	age <u>2</u>	of <u>3</u>
Division of Highways JCI				D	ate 9	/14/07
ROUTE I-74 DESCRIPTION Approach	er - II	linois	_ LO	GGED	вү	KJB
SECTION LOCATION _(N=561828.313, E=2459724.286)	SEC	. 32, 1	TWP.	18N, R	NG. 1W	, 4 th PM
COUNTY Rock Island CORING METHOD NQ Core			R	R	CORE	S T
STRUCT. NO.	D E P T H	C O R E	C O V E R Y	Q D	T I M E	R E N G T H
Ground Surface Elev. 609.30 ft LIMESTONE - gray, fine grained, hard, dense, very thin to thin bedded, closely to very 574.00 closely fractured with possible shale and/or clay seams which were not recovered between 35.3' and 40.7', occasional iron-stains at fractures, slightly weathered, poor quality rock but hard where recovered.	(ft)) — 	(#) Run 1	(%) 46	8	(min/ft) 2.8	(tsf)
[Note: driller repeatedly lifted the core barrel while drilling to keep it from jamming. Observation of core pieces suggest numerous near-vertical fractures were encountered, causing core pieces to get stuck in the core catcher and possibly grinding up subsequent rock encountered while drilling.]	 	Run	81	0		
		Run 3	43	0	1.7	488.6
- 11" thick layer of very soft green-gray, sandy, gravelly clay at 45.8' to 46.7'.	45 	Run 4	77	35	4.4	
- 13" layer of medium gray "birdseye" texture limestone with vertical fractures at 47.5' to 48.6'.		-				
558.50 End of Boring	<u>) </u>					
	-55					

Color pictures of the cores <u>Yes</u> Cores will be stored for examination until<u></u> The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

(Reference) Illinois Depar of Transporta	tme	ent n		SC	DIL BORING LOO	3		Page	<u>1</u> (of <u>2</u>
Division of Highways JCI								Date	9/1	0/07
ROUTE I-74 D	ESCR		Ne ^v	w I-74	Bridge Over Mississippi River - Illinois Approach	LC	OGG	ED BY	<u> </u>	JB
SECTION		LOCA		<u>(N=56</u>	1873.84, E=2459651.753), SEC. 32, 1	WP. 1	8N,	<u>RNG. ′</u>	1W, 4 ^{tt}	^h PM
COUNTY Rock Island DRILLI				ŀ	HSA, CME 55 HAMMER T	YPE	CN	<u>/IE AU</u>	TOMA	TIC
STRUCT. NO. Station BORING NO. 19BR-107 Station Offset	P T H	L O W S	U C S Qu	M O I S T	Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter Upon Completion	ft ft	D E P T H	B L O W S	U C S Qu	M O I S T
Ground Surface Elev. 609.10 ft		(/6")	(tsf)	(%)	After Hrs.	ft	(ft)	(/6")	(tsf)	(%)
CONCRETE SIDEWALK - 608.6 concrete (4-1/2" thick) + base course.	<u>60 </u>	3		13.5	CLAY TILL - greenish brown to gray, trace medium to coarse sand, trace fine gravel, hard, moist to dry (GLACIAL TILL).			5	2.6	12.0
some silt, trace gravel, medium plastic, stiff, slightly moist.		3	1.4 B	13.5	(continued)			9 11	2.6 B	13.8
605.6 SILT - dark brown, little to some clay, trace gravel, crumbly, slight	60	4	1.5	15.9				5	2.8	14.5
to medium plastic, stiff, moist.	5	-	В				-25	10	B	
		2						6		
		4	1.3 B	15.6				7 9	2.7 B	13.1
								5		
- little clay.	-10)	1.8 P	24.3			-30	5 9	3.2 B	13.9
598. CLAY TILL - dark brown (to 12.5	0	2								
ft) to brown, to gray and tan, trace medium to coarse sand, trace fine gravel, stiff, moist (GLACIAL TILL).		23	0.5 P	14.4						
- sandy till at 11.0'-12.5'.		3						4		
		4	2.0	14.1				5	3.0	12.7

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

5

4

6

8

-20

590.60

В

3.3

В

2.3

В

14.4

14.1

CLAY SHALE - greenish gray to brown, clayey, hard, slightly to moderately weathered, slightly

-[Dry unit weight = 119.8 pcf]

570.60

Ρ

>4.5 14.9

Ρ

9 35

6

17

28

-40

	Illinois Dep of Transpo	artn rtati	ne on	nt		SC	DIL BORING LOG	Page <u>2</u> of <u>2</u>
	Division of Highways JCI				N		Deides Ossa Missississi Dives Illinsis	Date 9/10/07
	ROUTE I-74	_ DES	CRI	PTIO	Ne	N I-74	Bridge Over Mississippi River - Illinois Approach	LOGGED BY KJB
	SECTION		L	OCAI		<u>(N=56′</u>	1873.84, E=2459651.753), SEC. 32, TW	P. 18N, RNG. 1W, 4 th PM
	COUNTY Rock Island DR	ILLING	ME	тнор		F	HSA, CME 55 HAMMER TYP	
	STRUCT. NO Station	-	D E P	B L O	U C S	M O I	Surface Water Elev ft Stream Bed Elev ft	
	BORING NO	_	T H	W S	Qu	S T	Groundwater Elev.: First Encounter ft Upon Completion ft	
[Ground Surface Elev. 609.10 moist to dry.	ft ((ft)	(/6")	(tsf)	(%)	After Hrs ft	
	CLAY SHALE - greenish gray to brown, clayey, hard, slightly to	_	_					
	moderately weathered, slightly moist to dry. <i>(continued)</i>	_						
		_	_					
	CLAY SHALE - black to dark gray,	<u>565.60</u>		16				
	feint to no laminations, hard, slightly moist to dry.		-45	29 57	>4.5 P	13.5		
		_	_					
		_	_	19				
		_	_	58 55/3"/	>4.5 P	10.9		
		_						
		_		20 50/5"	>4.5	10.3		
		_	-50		<u>P</u>			
		_						
	- [Note: driller added water to hole	_	_					
	to be able to turn augers below 50' depth]	_						
		_	_	33		10.0		
	- soft, laminated, clayey, sticky; falls apart and readily crumbles when moist; becomes sticky clay when wet.	_	-55	<u>50/2"</u> /	>4.5 P	12.8		
		-						
		_						
	cuttings.			50/5"		7.9		
	End of Boring	_	60					

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

Page <u>2</u> of <u>2</u>

SOIL BORING LOG

Illinois Department of Transportation

I-74 DESCRIPTION

Date 9/11/07

Page <u>1</u> of <u>2</u>

New I-74 Bridge Over Mississippi	River - Illinois
Approach	

LOGGED BY KJB

SECTION _____

ROUTE

LOCATION (N=561728.148, E=2459730.629), SEC. 32, TWP. 18N, RNG. 1W, 4th PM

COUNTY Rock Island DR		6 ME	THOD)	ŀ	ISA, CME 55 HAI	MMER TYPE	CI	ME AU	ΤΟΜΑ	TIC
STRUCT. NO Station		D E P	B L O	U C S	M O I	Surface Water Elev Stream Bed Elev	ft ft	D E P	B L O	U C S	M O I
BORING NO	_	T H	W S	Qu	S T	Upon Completion	ft	H H	W S	Qu	S T
Ground Surface Elev. 611.60	ft	(ft)	(/6")	(tsf)	(%)	After Hrs.		(ft)	(/6")	(tsf)	(%)
CLAY - olive brown and gray,	611.00		4			CLAY TILL - greenish brown gray, trace to little medium to coarse sand, trace fine grave	o el,		5		
some to and silt, trace to little			2	1.6	13.8	hard, moist to dry (GLACIAL			7	3.1	14.4
medium to coarse sand, trace fine gravel, very stiff, moist (GLACIAL TILL - FILL?).			4	В		TILL). (continued)			9	В	
			2					_	-		
		-5	5 7	3.0 B	18.2			-25	-	2.8 P	
SILT - dark brown, little to some	605.60		4						4		
clay, trace gravel, trace organics,			5	0.8	18.4				6	2.9	14.8
slightly to medium plastic, medium stiff to stiff, moist			5	В					8	В	
			2	0.9	24.2	- greenish gray and red silty till, crumbly, moist.	v clay		30 50/3",	2.5	17.3
			1	0.9 B	24.2		581.80)		2.3 P	17.5
		-10				CLAY - red, silty, shaly, crun	nbly,		-		
	600.60					dry to slightly moist (TILL or SHALE?).	CLAY		1		
CLAY - brown, little silt, trace			WOH]		
sand, with gravel, to SILT and clay, with gravel or cobble, slightly			2	0.7	24.1						
to medium plastic, medium stiff,			3	В					-		
moist.			-						-		
			3			CLAY SHALE - greenish gra	578.10)	18		
	·		5		13.9	clayey, hard, laminated, sligl	htly to		31	3.5	14.8
- cobble at 14.5'-15.0'.		-15	12			moderately weathered, sligh	tly	-35		Р	
		_				moist to dry.					
	595.60										
CLAY TILL - greenish brown to gray, trace to little medium to				0-	110	- [Groundwater not observe soils and shale during drilling			-		
coarse sand, trace fine gravel,				2.5	14.2	operations]	J		-		
hard, moist to dry (GLACIAL		_	-	В			573.90	<u>) </u>	ł		
TILL). -[Dry unit weight = 116.7 pcf]						Borehole continued with rock	ĸ		-		
			5			coring.			-		
			5	3.4	13.9				1		

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

В

8

-20

-40

Illinois Department				Ρ	age <u>2</u>	of <u>2</u>
of Transportation ROCK CORE I		JG		D	ate 9	/11/07
ROUTE I-74 DESCRIPTION Approach	er - III	linois	_ LO	GGED) ВҮ	KJB
SECTION LOCATION _(N=561728.148, E=2459730.629),				18N, R	NG. 1W,	4 th PM
COUNTY Rock Island CORING METHOD NQ Core			R	_	CORE	S
STRUCT. NO.	D E P T H (ft)	C O R E (#)	ECOVERY(%)	R Q D (%)	T I M E (min/ft)	T R E N G T H (tsf)
LIMESTONE - gray, fine grained, dense, hard, very thin to thin bedded, horizontal to 573.90 subhorizontal slightly rough fractures with some high angle (60° to 90°) fractures, slightly weathered with faint iron stains on some fractures, occasional stylolites.		Run 1	77	0	3.4	
		Run 2	93	23	4	503.4
563.70		Run 3	100	45	3.5	
End of Boring						

Color pictures of the cores <u>Yes</u> Cores will be stored for examination until<u></u> The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

S	OIL	BC	RIN	IG	LOG

Illinois Department of Transportation

I-74 DESCRIPTION

Date <u>9/12/07</u>

New I-74 Bridge Over Mississippi River - Illinois
Approach

LOGGED BY KJB

ROUTE

SECTION ______ LOCATION _(N=561568.395, E=2459838.396), SEC. 32, TWP. 18N, RNG. 1W, 4th PM

COUNTY Rock Island	ORILLING	ME	THOD)	ŀ	ISA, CME 55	HAMMER		CN	IE AU	TOMA	TIC
STRUCT. NO Station		D E P T	B L O W	U C S	M O I S	Surface Water Elev Stream Bed Elev		ft ft	D E P T	B L O W	U C S	M O I S
BORING NO Station Offset		н	S	Qu	T	Groundwater Elev.: First Encounter Upon Completion	595.8	ft ⊻ ft	H	S	Qu	5 T
Ground Surface Elev. 614.3	<u> </u>	(ft)	(/6")	(tsf)	(%)	After Hrs		ft	(ft)	(/6")	(tsf)	(%)
TOPSOIL - (roots) 1" to 2" thick. SILT - brown, tan and orange mottled, little clay, slightly to medium plastic, stiff to crumbly,	_/ 614.10 _		2			GRAVEL - brown to redc brown, clayey, angular, s (continued) CLAY - greenish gray, lit	saturated.	593.30		2		
moist.	-		4 5	2.3 S	12.8	some silt, medium to hig plastic, stiff to very stiff, r	hly		_	4 7	3.2 B	9.7
CLAY - greenish gray and brown,	610.80		3									
little silt, waxy, medium plastic, stiff, moist.	-	-5	5 6	1.9 B	20.4	-[Dry unit weight = 120.			-25		2.9 B	14.9
CLAY - brown and tan, some to	608.30		2			- trace sand at bottom o tube.	-			7		
and silt, trace sand, medium plastic, medium stiff, moist.	-		2 2	0.8 B	16.0	CLAY SHALE - bluish to gray, clayey, hard, no lar	greenish minations,	<u>587.80</u>		48 50/4"		15.4
	605.80		0			slightly weathered, slight to dry.	ly moist			40		
SILT - dark brown to brown, little to some clay, trace fine sand, slightly to medium plastic, mediur	n	-10	2 3 4	0.8 S	16.7				-30	48 55/3"	>4.5 P	10.7
stiff to stiff, moist.	-					Borehole continued with	rock	583.80				
CLAY - gray and brown mottled,	602.30		1 3 3	1.0 B	16.6	coring.						
some silt, medium plastic, stiff, moist.	- 600.80		5	Ь								
CLAY - brown and red brown, sandy, grading from clayey silt with fine to coarse sand, trace			3 3	0.7	14.2							
gravel to very soft wet sandy clay		-15	7	В					-35			
	-		WOH 2	0.5	18.4							
	-		2	В								
GRAVEL - brown to reddish brown, clayey, angular, saturated	595.80	<u> </u>	2		12.0							
Siewii, olayey, angular, saluraleu		-20	4 4		13.9				-40			

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

Illinois Department of Transportation ROCK COI	RFI		C		Ρ	age <u>2</u>	of <u>2</u>
Division of Highways					D	ate <u>9</u>	/12/07
ROUTE I-74 DESCRIPTION Approach	ippi Rive	er - III	inois	_ LO	GGED	BY	KJB
SECTION LOCATION _(N=561568.395, E=245983	38.396),	SEC	. 32,	TWP.	18N, R	NG. 1W	4 th PM
COUNTY Rock Island CORING METHOD NQ Core				R E	R	CORE	S T
STRUCT. NO.	eline	D E P T H	C O R E	C O V E R Y	Q D	T I E (min/ft)	R E N G T H
Ground Surface Elev. 614.30 ft CLAY SHALE - bluish to greenish gray, clayey, hard, no laminations, slightly	583.80	(11)	(#) Run	(%) 86	(%) 60	3.3	(tsf) 690.7
 - intermixed sandy shale and limestone at 30.5'-32.2'. LIMESTONE - gray with yellowish brown and iron-staining along fractures in the upper 6 ft, fine grained, occasional stylolites, dense, hard, sound, thin bedded, primarily uneven horizontal to subhorizontal fractures with occasional high angle fractures, slightly weathered to fresh. - iron stained fractures at 32.8', 36.0', 36.2', 36.5', 36.8', 38.2'. 	<u>582.10</u>			91	74	2.9	
- vertical fracture at 35.4'-35.6'; 80° to 60° curvilinear fracture at 36.6'-36.8'; 60° jagged brown-stained fracture at 36.4'.			Run 2	91	74	2.8	
- fresh rock below 38.2'.		-40					
- [Note: RQD shown for Run 1 is based on length of recovered rock, not on length of run. RQD= 40% for entire length of run (including material washed away from augers and ground up during the drilling operations).]	572.00	<u>-40</u>					
End of Boring							

Color pictures of the cores <u>Yes</u> Cores will be stored for examination until<u></u> The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

(Reference) Illinois De of Transpo	ortati	ne ior	nt		SC	DIL BORING LO	G		Page	1	of _
Division of Highways Illinois Department of Trans	sportation					99, 0100 P92-032-01 I-74 over 19 Street, north of 12th Avenue			Date	2/1	19/11
											acoby
						ine Twp 32SE, SEC. , TWP. 18N, llow Stem Auger HAMMER					
			в	T	1	T		T			<u> </u>
STRUCT. NO081-0099, 010 Station	0	E	L	U C	M O	Surface Water Elev Stream Bed Elev	ft ft	D E	B L	U C	M O
BORING NOB-2		Т	o W	S	I S	Groundwater Elev.:		P T	o W	S	I S
Station 49+75 Offset 0.00ft off BL - 19th Ground Surface Elev. 610.20	<u>St.</u>	H (ft)		Qu (tsf)	T (%)	First Encounter Dry Upon Completion Dry After 24 Hrs. 590.8	ft	H (fft)	S (/6")	Qu (tsf)	Т (%)
STIFF gray SILTY CLAY LOAM	<u> </u>					VERY STIFF gray CLAY LOAM TILL (continued)			7	3.0	13
				1.8 P	14		589.26		8	В	
VERY STIFF gray/brown SILTY	608.26		5			VERY STIFF gray CLAY LOAM			3		
CLAY LOAM	606.76		7 9	2.7 S	15		586.76		6 10	2.7 B	13
							566.76				
STIFF brown SILTY CLAY LOAM		-5	2 4	1.2	15	VERY STIFF gray CLAY LOAM		-25			40
	604.26		14	B	10		584.26		6 9	2.7 B	13
VERY STIFF dark brown SILTY CLAY LOAM			4 5	2.3	21	VERY STIFF gray CLAY LOAM			2 6	2.2	14
	601.76		5	Р			581.76		10	В	
STIFF dark brown SILTY CLAY		-10	0			VERY STIFF gray CLAY LOAM			4		
LOAM	500.00		3 3	1.0 B	16	TILL		30	12 25	2.3 S	17
	599.26						579.26		20	3	
STIFF brown SANDY LOAM with GRAVEL			4			STIFF gray CLAY TILL with			15		
	-		6 7	1.5 P		DOLOMITE lenses	576.76]	15 6	1.3 P	27
	596.26										
No recovery, rock blocking sampler		-15	12 15			STIFF gray CLAY TILL Borehole continued with rock	575.26	-35	00/6'		52
	594.26		7			coring.					
No recovery	-		- 2				-				
	-		2 4								
	591.26		7				-	_			
		-20	4				-	-40			

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

(\mathbb{R})	Illinois Depa of Transpor	artment tation	ROCK CO	RE LO	C		P	age <u>1</u>	of <u>1</u>
	Division of Highways Illinois Department of Transport	ation	081-0099, 0100 P92-032-0				D	ate _2	/19/11
ROUTE	FAI 74	DESCRIPTION	Street, north of 12th	Avenue		LO	GGED	BY <u>M.</u>	Jacoby
SECTION	81-1HB	LOCATIO	DN _Moline Twp 32SE, SE	C. , TWP. 18	BN, RN	IG. 1W	1	1	
COUNTY	Rock Island COF					R E	R	CORE	S T
STRUCT. NO	081-0099, 0100		EL TYPE & SIZE	D	С	C O	Q	T	R E
		Core Diamete		E	O R	V E	D	M	N G
Station	B-2 49+75	Begin Core E		T H	E	R Y			T
Ground Sur	0.00ft off BL - 19th St face Elev610.26	ft		(ft		(%)	(%)	(min/ft)	(tsf)
Dolomite: gra t.s.f.: 572.9 to	ay-buff, aphanitic, denso o 572.5	e, pitted and mostly	fractured with voids evident.	575.26	1	85	15	2.2	228
				_					
					_				
Dolomite: as	above, pitted, fractured	with macro-voiding	apparent throughout.	570.26 -4	0 2	30	0	2	
					-				
					-				
					-				
					1				
				565.26 -4	5				
End of Boring	I								
					4				
					-				
					-				
					-				
					믹 				
				-5	5				

Color pictures of the cores

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Cores will be stored for examination until

The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

Illinois De of Transpo	ortati	ne or	nt		SC	DIL BORING LO	G		Page	<u>1</u>	of <u>3</u>
Division of Highways Illinois Department of Trans	portation						-		Date	3/2	23/11
ROUTE FAI 74	DE	SCR		0 N	81-00	99, 0100 P92-032-01 I-74 over 19 Street, north of 12th Avenue	ih L(OGG	ED BY	<u>W.</u>	Garza
						ne Twp 32SE, SEC. , TWP. 18N,					
COUNTY Rock Island D	RILLING	ME	тнор		Ho	Ilow Stem Auger HAMMER	R TYPE	<u>B-53</u>	Diedri	ch Aut	omatic
STRUCT. NO081-0099, 0100 Station		D E P	B L O	U C S	M 0 1	Surface Water Elev Stream Bed Elev	ft ft	D E P	B L O	U C S	M 0 1
BORING NO. B-6 Station 93+38 Offset 4.00ft Rt BL - NB Rt	amp	T H	S	Qu	S T	Groundwater Elev.: First Encounter621.5 Upon Completion	ft			Qu	S T
Ground Surface Elev. 653.98 STIFF gray CLAY LOAM	3 ft	(π)	(/6'')	(tsf)		After 24 Hrs. 609.0 VERY STIFF dark gray LOAM	_ ft 🛂	(ft)	(/6'') 8	(tsf)	(%)
				2.0 P	13		632.48		13 15	2.8 P	17
VERY STIFF gray/tan SILTY CLAY LOAM	651.48		4 5	3.1	14	VERY STIFF dark gray SILTY LOAM			6	3.5	16
	649.98	 	5	В			629.98		13	S	
STIFF gray SILTY CLAY LOAM	647.48	-5	5 6 11	1.7 B	26	STIFF tan/gray SILTY LOAM	627.48	<u>-25</u>	7 9 13	2.0 P	18
VERY STIFF tan SILTY CLAY LOAM	- 644.98		3 5 6	2.5 B	19	STIFF gray SILT with FILL			14 10 15	1.5 P	13
VERY STIFF gray SILTY CLAY LOAM	- 044.90 -	-10	3	2.1	15	VERY STIFF gray SILTY LOAM	624.98	-30	8 12	3.6	19
STIFF gray SILTY CLAY LOAM	642.48		4	В		VERY STIFF tan SILTY LOAM	622.48		13	P	
	639.48		5 9	1.7 B	20	with CLAY lens	619.48		5 9	2.8 P	21
VERY STIFF tan SILTY CLAY LOAM TILL	637.48	-15	6 7 12	3.3 B	13	VERY STIFF tan CLAY LOAM TILL	617.48	35	5 8 12	3.7 B	14
VERY STIFF tan CLAY LOAM TILL	- 634.98		4 6 9	3.3 B	17	VERY STIFF gray/tan CLAY LOAM TILL	614.00		2 5 9	2.1 B	15
	004.30	-20	-	_			614.98	-40		-	

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

Illinois Dep of Transpo Division of Highways Illinois Department of Transpo	rtati	on	nt		SC	DIL BORING LO	G		-	<u>2</u> 3/2	
		CRI	PTION	0 •	81-00	99, 0100 P92-032-01 I-74 over 19t Street, north of 12th Avenue	h L(OGGI			
SECTION 81-1HB			LOC	ATION	Moli	ne Twp 32SE, SEC. , TWP. 18N, 1	RNG. 1V	N			
COUNTY Rock Island DF	RILLING	ME	тнор		Ho	llow Stem Auger HAMMER	TYPE	<u>B-53</u>	Diedri	ch Aut	oma
STRUCT. NO. 081-0099, 0100 Station		D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter621.5 Upon Completion	_ ft _ ft ¥ ft		B L O W S	U C S Qu	M O I S T
Ground Surface Elev. 653.98 /ERY STIFF tan CLAY LOAM	ft	(π)	(/6) 6	(tsf)	(%)	After <u>24</u> Hrs. <u>609.0</u> HARD tan CLAY LOAM TILL	_ ft <u>Y</u>	(ft)	(/6'') 10	(tsf)	(%)
ΓILL	612.48		10 16	3.7 B	13		592.48		17 25	5.0 B	13
/ERY STIFF tan CLAY LOAM	- 609.98		6 7 12	3.3 B	14	VERY STIFF gray CLAY LOAM TILL	589.98		5 9 13	3.1 B	14
/ERY STIFF tan CLAY LOAM	607.48	¥ 45	5 8 13	2.3 S	15	VERY STIFF gray CLAY LOAM TILL	587.48	65 	4 9 15	2.9 B	14
/ERY STIFF gray CLAY LOAM TLL	 604.98		5 8 12	2.9 B	14	3/24/11 HARD gray CLAY LOAM TILL	584.98		12 22 28	8.2 B	14
/ERY STIFF gray CLAY LOAM TILL	 602.48	-50	7 9 16	3.5 B	14	VERY STIFF gray CLAY LOAM TILL	582.48	 	9 13 17	2.5 B	15
/ERY STIFF gray CLAY LOAM TLL	- 599.98 _		5 7 12	3.1 B	14	HARD gray CLAY LOAM TILL with fine SAND lens	579.98		6 12 23	5.0 B	14
/ERY STIFF gray CLAY LOAM TILL	597.48	-55	1 3 7	2.3 B	15	VERY STIFF gray CLAY LOAM TILL	577.48	 	6 10 15	3.9 B	15
IARD gray/tan CLAY LOAM TILL			5 11 18	5.6 B	13	VERY STIFF gray CLAY LOAM TILL	574.98		4 8 14	3.3 B	16

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The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
Illinois De of Transpo	ortatio			SC	DIL BORING LOG
Division of Highways illinois Department of Trans	portation		0	91 00	Date <u>3/23/11</u> 99, 0100 P92-032-01 I-74 over 19th
ROUTEFAI 74	DESC	RIPTIO	N	01-00	Street, north of 12th Avenue LOGGED BY W. Garza
SECTION 81-1HB		LOC	ATION	Mol	ine Twp 32SE, SEC. , TWP. 18N, RNG. 1W
COUNTY Rock Island		ETHOD		Ho	HAMMER TYPE B-53 Diedrich Automatic
STRUCT. NO081-0099, 0100 Station) D E P	L	U C S	M 0 1	Surface Water Elev ft Stream Bed Elev ft
BORING NO. B-6 Station 93+38 Offset 4.00ft Rt BL - NB R	T H amp	W S	Qu	S T	Groundwater Elev.: First Encounter <u>621.5</u> ft ▼ Upon Completion <u>ft</u>
Ground Surface Elev. 653.98 VERY STIFF gray CLAY LOAM TILL) (/6") 8 13	(tsf) 3.5	(%) 16	After <u>24</u> Hrs. <u>609.0</u> ft <u></u>
HARD gray CLAY LOAM TILL	572.48 569.98	18 10 17 24	8 4.5 B	16	
HARD gray CLAY LOAM TILL	8 567.48	5 8 13 26	4.3 B	15	
VERY STIFF gray SILTY LOAM TILL with SANDSTONE fragments		6 12 21	3.3 P	20	
VERY DENSE gray dirty SAND with medium GRAVEL	9 562.48	0 62 100/2"			
VERY DENSE gray dirty SAND with DOLOMITE fragments Auger Refusal @ 93.0' End of Boring	560.98	100/2'' 			
		5 			
	-100				

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Division of Highways CH2M HILL						DIL BORING LOG		Date	9/2	7/07
	DES	SCRI	PTION	Ne	w I-74	Bridge Over Mississippi River - Illinois Approach	LOGG	ED BY	k	(B
I-74 Bridge over Mis	sissippi					2585.063, E=2459363.329), SEC . 32, T				
COUNTY Rock Island D	RILLING	ME	THOD			HSA, CME 55 HAMMER TYP	PE _CI	IE AU	ТОМА	TIC
STRUCT. NO. Station BORING NO. ILR0601 Station Offset		D E P T H		U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. ft Stream Bed Elev. ft Groundwater Elev.: ft First Encounter 569.1 ft Upon Completion ft After Hrs. ft	₽ T H	B L O W S (/6")	U C S Qu (tsf)	M 0 1 5 T (%
Ground Surface Elev. 592.08 Silt (ML)	<u> </u>	(11)	(/0)	((151)	(70)	After Hrs ft Sandy Silt (ML)	(11)	(0)	((131)	(70
gray transitioning to grayish prown, moist, trace of fine to medium grained sand, loose						gray, moist, stiff to very stiff (continued)				
		_	2				_			
	0.4	_	2				Ţ	3		
		-	2	-		-		7	1.4	
		1	2				_	7		
		-5	2	0.5 P			-25			
	586.08	-				-				
Gravelly Silt (ML) yellowish brown, moist, low			3		-					
plasticity, loose			4			End of Boring	5.08			
0	584.08	-]		
Gravelly Sand (SP) yellowish brown, moist, medium		_	4			-	-	P		
dense			6				_			
Silt With Trace Of Sand (ML)	582.08	-10	2				30			
vellowish brown, moist, firm, with		-	3	2.0		-	-			
trace of sands, loose Rimac: Pu = 107 lbs			4				_			
Clay (CL)	580.08	1	3				-			
gray, moist, stiff, low plasticity,		-	5	3.0		1		1		
trace of fine sand		-	5	Р	-		_]		
			3							
		-15	4	3.5		1	-35			
		_	5	Р	-	4	-			
	576.08						_			
			1				_]		
		_	-				_	-		
Sandy Silt (ML)			3							
gray, moist, stiff to very stiff		_	3	2.5						
			3	P	1					1

								Date	9/2	8/07
ROUTE I-74 DE	SCR	PTION	Ne	w I-74	Bridge Over Mississippi River - Illing	ois L	OGGI	ED BY	ĸ	B
I-74 Bridge over Mississippi										
ECTION River	_ L	OCAT	ION _	<u>(N=56</u>	2416.936, E=2459435.425), SEC. 3	2, TWP	. 18N	, RNG	. 1W, 4	1 P
COUNTY Rock Island DRILLING	G ME	THOD			HSA, CME 55 HAMMER	TYPE	CN	IE AU	TOMA	TIC
STRUCT. NO	D	в	U	м	Surface Water Elev.	ft	D	в	U	м
Station	E	L	C S	0	Stream Bed Elev.	ft	EP	L O	C S	0
ORING NOILR0603	T	w	3	s	Groundwater Elev.:		T	w		S
Station	н	S	Qu	Т		ft	н	S	Qu	Т
Offset	100		11.0		First Encounter Upon Completion	ft	164	((0))	14-0	10
Ground Surface Elev. 595.87 ft	(ft)	(/6")	(tsf)	(%)		_ ft	(π)	(/6")	(tsf)	(%
ill 8" Of Asphalt	_				Clay With Trace Of Sand (CL) gray, moist, very firm, trace fine to medium sand (continued)		_			
593.87	-						-			
illSample drove a stone		2								
		3					-	•		
	-	4		-	4		-	3	1.5	-
591.87 illsample drove a piece of brick		2						8	P	
	-5	4					-25			
		5								
589.87										
ilt With Fine to Coarse Sand ML)	_	2	20	-			_			
ellowish brown, moist, medium		6	2.0 P							
ense	-				1	567.87	, —			
		3			End of Boring					
	1	5	2.5							
	_	6	Р		-1		-			
585.87	-10	4					-30			
ray, moist, very stiff, trace fine to	-	6	2.5		1					
nedium grained sand		6	P							
	_				1					
	_	-			-1		1			
581.87	-						-			
Clay With Trace Of Sand (CL)		3			1		_	1		
ray, moist, very firm, trace fine to nedium sand	-15	3	2.0				-35			
	_	5	Р	-	4					
							-	- I		
	-	1					-	1		
		1						1		
	_									
ounded gravel;<½ inches in 18.5' cample	_	3	25	-	4		_			
anipio		6	2.5 P							
	-20			-			-40	1		1

Division of Highways CH2M HILL ROUTE I-74 D		DTIC	Ne	w I-74	Bridge Over Mississippi River - Illing	ois	000		10/	
I-74 Bridge over Missission	oi									
SECTION River	I	OCAT		(N=56	2314.209, E=2459474.823), SEC . 32	2, TWP .	18N	, RNG	. 1W, 4	^{In} Pl
COUNTY Rock Island DRILLIN			-		HSA, CME 55 HAMMER	TYPE	CN	IE AU	TOMA	TIC
STRUCT. NO	D	в	U	м	Surface Water Elev.	ft	D	В	U	М
Station	E P	L	CS	0	Stream Bed Elev.	ft	E P		C S	0
BORING NO. ILR0604		w		S	Groundwater Elev.:		T	w		S
BORING NO. ILR0604 Station	н	S	Qu	Т	First Encounter 578.1	_ ft 👤	н	S	Qu	Т
Offset Ground Surface Elev. 598.11 ft		(/6")	(tsf)	(%)	Upon Completion	_ ft	(ft)	(/6")	(tsf)	(%
B" Of Asphalt	1,		(,	()	Clay (CL)		1.4	e -7		
	_				dark gray, moist, very stiff to hard, trace medium to coarse sand					
				191	(continued)		_			
596.1 Sandy Clay (CL)	1	6								
grayish brown, moist, soft to firm	-	50/6"								
	_				very stiff		_	3	2.0	
	-	2						9	3.0 P	
	-5	3			1		-25	-		
		2					_			
		2					-			
	-	1	0.6	-	-		-			
		1								
	1				Sandy Clay With Cravel (CL)	570.11		6		
Silt (ML) yellowish brown, moist, trace of	-	2	3.5	-	Sandy Clay With Gravel (CL) dark gray, wet, very stiff, trace of		-	8		
fine sand, loose to medium dense		5	P		fine gravel		-	9		
	-10	-			1	568.11	-30			
	_	4	3.0		-		_			
	-	10	5.0							
586.	1 -				1					
Clay (CL) dark gray, moist, very stiff to hard,	_	1	2.0		4		_			
trace medium to coarse sand	-	4	3.0 P				-			
	-				-		-			
very stiff, trace of fine gravel; size		3			End of Boring		_			
<¾".	15	5 8	4.8				-35			
	-	0		-	-1		-			
	-	1					_	1		
	-	-					-			
		3					-			
		-								
	_	5	3.0 P		-					

CH2M HILL	-		Ne	w I-74	Bridge Over Mississippi River - Illinois			10/	
ROUTE I-74 I-74 Bridge over Missi		RIPTION	۰		Bridge Over Mississippi River - Illinois Approach	_ LOGGE	ED BY	K	B
SECTION River	ssippi	LOCAT		(N=56	2221.098, E=2459510.977), SEC. 32,	TWP. 18N	RNG	. 1W, 4	th Pl
COUNTY Rock Island DR	ILLING ME	THOD			HSA, CME 55 HAMMER TY	PE	IE AU	ТОМА	TIC
STRUCT. NO. Station SORING NO. ILR0606 Station Offset Ground Surface Elev.	- P T H	L O W S	U C S Qu (tsf)	M O I S T (%)	Groundwater Elev.: First Encounterf Upon Completionf	ft E P T ft H	B L O W S (/6")	U C S Qu (tsf)	M 0 I S T (%
ill8" Of Asphalt	_ n _ t		1		Clay (CL)		. ,		
	- 598.09				gray, moist, very stiff, trace fine to medium RIMAC: 35lbs <i>(continued)</i>				
Medium to Coarse Sand (SW) ellowish brown, moist, loose to	-	5				_			
nedium dense, trace of silt and	_	10					5		
lay		1.0			4		8	2.7	-
	_	1				-	9		
		5 3 3		1		25			
	- 594.09	3			-				
Silty Fine to Coarse Sand (SM)	594.09	4				-			
rayish brown, moist, loose, trace fine gravel; size <¾".		3							
	-	3	-	-	-	_			
silt (ML)	592.09	-					5		
ellowish brown, moist, loose,					-		7	3.5	
ace fine sand		1					11	Р	
	1					30			
		2	2.4		-				
		5							
	588.09]				
Clay (CL) ray, moist, very stiff, trace fine to	-	2	2.1		-				
nedium		6	2.1		5 Shale	67.09	19		
RIMAC: 35lbs	-		1		gray, dry, hard, laminated		50/5"		
		3							
	1	5 4 8	2.5 P		5	65.09 -35			
	-	0	P	-	1				
	-								
	100								
		_		1		-			
	-	3			End of Boring				
	-	6	2.5	-		-			
		9	Р]		
	-2	20				-40			1

Illinois Dep of Transpo Division of Highways CH2M HILL										Date	9/2	8/07
ROUTE I-74				Net	N 1-74	Bridge Over Missission	hi River - Illinc	IS	OGGE	ED BY	ĸ	В
I-74 Bridge over Miss SECTION River	sissinni								18N	RNG	. 1W, 4	th PN
COUNTY Rock Island DF												
STRUCT. NO.		D	в	U	м	Surface Water Elev.		ft	D	в	U	м
Station	_	EP	L	C S	0	Stream Bed Elev.		ft	EP	L O	C S	0
BORING NO. IL R0608			w		S	Groundwater Elev.:			T	w		S
BORING NOILR0608		н	S	Qu	Т	First Encounter			н	S	Qu	т
Offset Ground Surface Elev602.39			(/6")	(tsf)	(%)	Upon Completion		_ft ft	(ft)	(/6")	(tsf)	(%
Silt (ML)	π	(11)	(0)	((3))	(70)	After Hrs. Clay (CL)		_ π	(14)	(,,,)	((3))	(/0
ellowish brown, moist, loose,		-				dark gray, moist, stiff	to very stiff,					
race fine to coarse sand		-				trace fine sand						
		_										
		_	2			-			-			
			5							20		
	598.39	-				1				5		
Sandy Silt (ML) prown to dark brown, moist, very		-	8							5		
oose to medium dense		5	10 10						25			
		-	10	-								
			3									
			4						_			
		_	4			-						
		-	3		1.1.2					3		
		_	3			-				4	-	1
		_	4						_	7		
Fine to Coarse Sand (SP)	592.39	-10							-30			
vellowish brown, moist, trace of			-	-	-	-			-	· · · ·		
fine to medium gravel												
	590.39	-							_			
Silt (ML) yellowish brown, moist, firm, trace		<u></u>	3			_			_			
fine to medium sand			35						-	6		
		-				-			-	6		
			3						_	10		
		-15	- C.						-35			
		-	4	-		_			_			
			1						-			
		-	1									
		_]									
		-	7						_	50/5"		
		-	7	-		-			-	50/5		
		-	10		· · · · ·							
	582.39	-20				1		562.39	-40			

Illinois Depar of Transporta	tment ation	SOIL BORIN	Page <u>2</u> of <u>3</u>
Division of Highways CH2M HILL		leur I 74 Bridge Over Mississin	Date <u>9/28/07</u>
ROUTE I-74	DESCRIPTION	lew I-74 Bridge Over Mississip Approach	ppi River - Illinois LOGGED BY KB
I-74 Bridge over Mississi SECTION River	DDD DDD DDDDDDDDDDDDDDDDDDDDDDDDDDDDDD	_(N=562128.284, E=2459547	7.702), SEC. 32, TWP. 18N, RNG. 1W, 4 th PN
COUNTY Rock Island DRILL	ING METHOD	HSA, CME 55	HAMMER TYPECME AUTOMATIC
STRUCT. NO Station	P O S	O Stream Bed Elev.	ft
BORING NO. ILR0608 Station	H S Qu	T First Encounter Upon Completion	ft ft
Ground Surface Elev. 602.39	ft (ft) (/6") (ts	f) (%) After Hrs.	ft
	-		
End of Boring	_		
	_		
	_		
	-		
	_		
	_		
	-50		
	_		
	_		
	_		
	_		
	-55		
	_		
	_		
	_		
	_		
	-60		

CH2M HILL						DIL BORING LOG		Date	10/	2/07
				Nev	NI-14	Bridge Over Mississippi River - Illinois	OGGI	ED BY	к	В
I-74 Bridge over Miss	sissippi					2089.377, E=2459557.006), SEC. 32, TW	P. 18N	RNG	1W, 4	t th Pl
						HSA, CME 55 HAMMER TYPE				
TRUCT. NO Station SORING NO Station Offset Ground Surface Elev603.53		D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. ft Stream Bed Elev. ft Groundwater Elev.: ft First Encounter ft Upon Completion ft After Hrs.	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M 0 1 S T (%
ilty Fine to Coarse Sand (SM)	π	(19	(,,,)	((31)	(70)	Clay (CL)	(,	(, ,	(101)	()
rayish brown, moist, medium ense		_				gray, moist, very stiff to hard				
		_					-			
		_	3							
		_	7				_	3		
	599.53	-				-		5	4.2	_
/ell Graded Sand (SW) ellowish brown, slightly moist,		_	3	_		4	_	8	В	_
oose		5	4				25			
	597.53	_				1		1		
ark brown, moist, soft		_		0.5	·/	-	-	-		
				0.0			-			
014 (14)	595.53							3		
andy Silt (ML) ellowish brown, moist, loose		-			-	-		5	2.0	-
							_	9	Р	
		-10	2			-	-30			
		-	2	2.0	-	-				
		1	3		1.		_	1		
		_	4					-		
		-	5			1				
			7			4	_	3	1.0	
ilt (ML)	589.53		3					5 11	4.0 P	
ellowish brown, moist, medium		-15	5	5.4		1	-35			
ense, trace coarse sand		_	9	S		4	_			
							_	-		
		_						1		
		_					2	-		
			3					21		
		_	5	3.0		1		44	-	
		_	7	Р		4		50/3"	-	-
	583.53	-20		1	1	11	-40			1

(T)	Illinois	Departn	nent		60	DIL BORIN		Page <u>2</u> of <u>2</u>
(A	Division of Highwa	sportati	on		30		GLUG	Date10/2/07
ROUTE			SCRIPTI	Ne ON	ew I-74	Bridge Over Mississipp Approach	pi River - Illinois	OGGED BY KB
	I-74 Bridge ov	er Mississioni						. 18N, RNG. 1W, 4 th PM
								CME AUTOMATIC
STRUCT. Station BORING N Station Offset	NO	609	D B E L P O T W H S	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion	ft ft ft	
Ground S	Surface Elev.	603.53 ft	(ft) (/6	") (tsf)	(%)	After Hrs.	ft	
End of Bo	t, very stiff to hai	002.00						

Division of Highways CH2M HILL	DE	ecpi	DTION	Ne	w I-74	Bridge Over Mississippi River - Illinois Approach			<u>10/</u>	
I-74 Bridge over Miss	sissioni									
SECTION River		_ L	OCAT		(N=56	1958.925, E=2459600.489), SEC. 32,	TWP. 181	, RNG	. 1W, 4	4 th P
COUNTY Rock Island DI	RILLING	ME	THOD			HSA, CME 55 HAMMER T	YPE _C	ME AU	TOMA	TIC
STRUCT. NO. Station BORING NO. ILR0611 Station Offset	_	P T H	L O W S	U C S Qu	M O I S T	Groundwater Elev.: First Encounter	ft E P T ft H ft	L O W S	U C S Qu	M O I S T
Ground Surface Elev. 607.51	ft	(ft)	(/6")	(tsf)	(%)		ft (ft)	(/6")	(tsf)	(%
Fill4-Inches Of Concrete	605.51	_	4			Clay (CL) gray, moist, very stiff to hard, trace fine to medium sand (continued)				
Silt (ML) moist, trace fine to medium sand,		-	4				1	-		
nedium dense		_	6		_		_	3	2.0	
		-	8					7	Р	
		-5	6	-			-2	5		
		_	6				-			
Silt With Fine to Medium Sand	601.51		3					-		
ML)		_	2	1.2	-	-		-		
gray, slightly moist, loose to		-	2	S						
medium dense RIMAC: Pu =20lb		_					_	1		
			4					4		
			6					6	4.0	
		_	6					12	Р	-
Silty Fine to Medium Sand (SM)	597.51	-10	2				3	2		
gray, moist, loose		_	2		-	-	-			
			2				-			
	595.51					1	_			
Silty Sand (SM)		-	3							
gray, moist, medium dense, trace of angular gravel; size <3/4".		_	8					6		
		-	8			-		9	3.0	-
		-	1					14	P	
		-15	5			1	-3	5		
			4							
		_								
		_	-				_	-		
			-				_	-		
			1	1	1			-	1	1
	580 51		1				569 51			
Clay (CL)	589.51		3			Shale	569.51	10		
Clay (CL) gray, moist, very stiff to hard, trace fine to medium sand	589.51	_	3	4.2 S			569.51	10 27 50		

G ME D E P T H	B L O W	U C S Qu (tsf)	(N=56 M O I S T	Bridge Over Mississippi Approach 1497.653, E=2459812.2 HSA, CME 55 Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter Upon Completion After Hrs Clay (CL) gray to greenish gray, fine to coarse grained to hard (continued)	L(86), SEC. 32, TWP. HAMMER TYPE ft ft ft ft ft ft ft ft ft moist, trace	D CM D E P T H	RNG. ME AU B L O W	U TOMA U C S Qu	A th PN TIC M O I S T
I G ME P T H (ft) 	THOD B L O W S (/6") 1 1 2 5 2 2 7	U C S Qu (tsf)	M O I S T	Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter _ Upon Completion _ After Hrs Clay (CL) gray to greenish gray, fine to coarse grained	HAMMER TYPE	D E P T H	1 <u>E AU</u> B L O W S (/6")	U C S Qu	M O I S
D E P T H (ft)	B L O W S (/6") 1 1 2 5 2 2 7	U C S Qu (tsf)	M O I S T	Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter Upon Completion After Hrs Clay (CL) gray to greenish gray, fine to coarse grained	ft ft ft ft ft ft ft	D E P T H	B L O W S (/6")	U C S Qu	M O I S T
E P T H (ft)	L O W S (/6") 1 2 5 2 7	C S Qu (tsf)	O I S T	Stream Bed Elev Groundwater Elev.: First Encounter Upon Completion After Hrs Clay (CL) gray to greenish gray, fine to coarse grained	ft ft ft ft ft ft ft	E P T H	L O W S (/6")	C S Qu	O I S T
	1 2 5 2 7	4.1 S		gray to greenish gray, fine to coarse grained	moist, trace		3		
	2 5 2 7	S		-					
	2			-		_			
5 	7						4 9	3.0 P	
3	9	2.5 P		-		-25			
	1 2 2			-			3	4.5	
10	-			-		30	-	Р	
	2 2 4	1.9 B		shale in tip			4 10 26	4.5 P	
15	5			End of Boring	606.39	-35			
_	- 2					_			
		2	2 2 1.9 4 B 4 B 4 B 4 B 4 B 4 B 4 B 4 B 6 B	2 2 1.9 2 1.9 4 B 4 B 	2	2	2 2 1.9 4 B -15 -15 -15 -15 -15 -15 -15 -15 -15 -16 -17	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$



SOIL BORING LOG

Page $\underline{1}$ of $\underline{1}$

Date 6/21/10

ROUTE F.A.I. 74	DE	SCR	PTION	۱		I-74 Over Mississippi F	River	LOGG	ED BYJN	<u>//B</u>
SECTION 81B		_ L	.OCAT		SE¼ c	of SEC. 32, TWP. 18N,	RNG. 1W, 4	th P.M.		
COUNTY Rock Island D	RILLING	6 ME	THOD		Hol	low Stem Auger	HAMMER	TYPE	Auto	
STRUCT. NO. Station BORING NO. RMP 7th B-04 Station 52J+Î J Offset FF' Št. Ground Surface Elev. 610.7		D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter _ Upon Completion _ After Hrs	NE	_ ft _ ft		
TOPSOIL	610.30									
FILL - Brown, moist, stiff, lean CLAY with trace very fine- to fine-grained sand		 2	4 6 7	4.50P	11					
FILL - Dark brown, moist,	607.70									
medium, SILT with trace fine-grained sand		4	5 4 4	1.15B	18					
FILL - Dark brown, moist, stiff,	605.20									
clayey SILT with trace gravel		6— — — 8—	3 6 6	1.80P	23					
	600.70		4 6 6	2.09B	10					
Light brown, moist, very stiff, lean CLAY with trace fine-grained sand and gravel			5	1.50P	15					
Brown, wet, medium dense, silty, clayey SAND with trace gravel	598.70 598.20		9							
Gray, moist, stiff, lean CLAY with trace gravel		_		1						
J. J		14	5	1.56B	14					
End of Boring	595.70		9							



CHANSON SOIL BORING LOG

Page $\underline{1}$ of $\underline{1}$

Date ______6/21/10___

ROUTE	F.A.I. 74	DE	SCRI	PTION	I		I-74 Over Mississippi F	River		ED BY	JMB
SECTION	81B		_ L	-OCAT		SE¼ c	of SEC. 32, TWP. 18N,	RNG. 1W, 4	th P.M.		
COUNTY Ro	ck Island DI	RILLING	6 ME	THOD		Hol	low Stem Auger	HAMMER		Auto	
STRUCT. NO Station BORING NO Station Offset Ground Surface	RMP 7th B-05 52Ì +€Ì Ï ' Üt.		D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion After Hrs.	NE	_ ft _ ft		
TOPSOIL FILL - Dark browr medium, CLAY w	i, moist,	, 601.90	 2	5 4 4	2.80P	30					
FILL - Dark gray, clayey SILT	moist, medium,	599.20	 4 	2 2 3	0.25B	24					
FILL - Gray, mois Fine-grained SAN	t, loose, silty, D	596.20		2 2 3	0.80P	18					
FILL - Dark grayis stiff, silty CLAY w sand		594.20	- 10	6 6 4		18					
Brown, moist, stift trace silt	, lean CLAY with		 12 	3 5 6	1.50P	17					
Gray, moist, stiff, very fine-grained End of Boring		<u>588.20</u> <u>587.20</u>	 	568	1.36B	15					



CHANSON SOIL BORING LOG

Page <u>1</u> of <u>1</u>

Date ______6/22/10

ROUTE F.A.I. 74	DE	SCRI	PTION	I		I-74 Over Mississippi River	L(OGGE	ED BY	JN	MB
SECTION 81-1-2		_ L	OCAT	ION _	SE¼ c	f SEC. 32, TWP. 18N, RNG. 1W, 4	th P.M.				
COUNTY Rock Island D	RILLING	ME.	THOD		Hol	low Stem Auger HAMMER	TYPE		A	uto	
STRUCT. NO. 081-6015 Station	ft	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter593.8 Upon Completion After Hrs	- _ ft ⊻ _ ft	D E P T H	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
CONCRETE FILL - Light gray, slightly moist, SILT		 2		2.50P	14 14 17	Gray and brown, moist, medium stiff, silty CLAY with sand and trace gravel (continued from previous page) Gray and brown, moist, very stiff,	588.80	 			
FILL - Very dark brown, moist, clayey SILT with trace gravel	608.30	4		1.80P	13	End of Boring	<u>586.30</u>	 24 	8 10 11	2.61B	14
FILL - Gray, moist, medium dense, silty, medium-grained SAND with trace gravel, wood, brick and rock fragments	605.30	6 — — 8 —	5 6 11	2.00P	15						
Dark brown, moist, stiff, sandy SILT with trace gravel	600.30	 10 12 	23 50/4"	1.65S	20 17						
Dark brown, moist, sandy, clayey SILT with trace gravel Dark brown, wet, dense, silty SAND with trace gravel	<u>596.30</u> 595.30	 16	11 4 4	0.50P	16						
Gray and brown, moist, medium stiff, silty CLAY with sand and trace gravel	593.30		3 3 5	0.54B	18						



CHANSON SOIL BORING LOG

Page <u>1</u> of <u>1</u>

ROUTE F.A.I. 74	DE	SCR	IPTION	I		I-74 Over Mississippi R	River		ED BY JMB
SECTION 81-1-2		_ เ	-OCAT	ION _	NE¼ d	of SEC. 32, TWP. 18N,	RNG. 1W, 4	th P.M.	
COUNTY Rock Island DF	RILLING	ME	THOD		Hol	low Stem Auger	HAMMER	ГҮРЕ	Auto
STRUCT. NO. 081-6015 Station		D E	BL	U C	M O	Surface Water Elev Stream Bed Elev		-	
BORING NO. RW 06-2 Station 529+20 Offset 41' Lt. Ground Surface Elev. 605.6	 ft	P T H	O W S (/6")	S Qu (tsf)	I S T (%)	Groundwater Elev.: First Encounter Upon Completion After Hrs.	590.6	ft ∑	
TOPSOIL	/ 605.35		,	(,	(///			_ n	
FILL - Brown with gray mottles, moist, SILT with trace fine-grained sand	,			3.35S	15				
		2—							
	602.60								
FILL - Dark brown, moist, stiff, SILT with trace sand and gravel		_		2.32S	16				
_		4—	26		8				
			11						
FILL - Dark brown, moist, stiff,	599.60	 6	15		12				
SILT with trace sand and gravel, rock fragments			8 3						
		8—		0.55S	18				
					18				
		_			9				
Grayish brown, wet, medium	595.60	10—							
dense, silty, clayey, medium- to		_	-						
coarse-grained SAND with gravel		_	8 6	2.00P	14				
		12—	6						
	592.60								
Gray, moist, very stiff, silty CLAY with trace sand and gravel		_	6	1.56B	16				
		14—	7	1.500					
		<u>_</u>	8						
		_	-						
		16—		3.49B	14				
				5.20B	13				
	507 00			3.25P	12				
Brown, wet, dense, silty, fine- to	587.60	18—							
coarse-grained SAND with trace gravel			11		13				
giavoi		_	18 22						
	585.60	20				11			



SOIL BORING LOG

Page $\underline{1}$ of $\underline{1}$

Date ______6/21/10___

ROUTE F.A.I. 74	DES	CRI	PTION	I		I-74 Over Mississippi F	River		<u>IB</u>
SECTION81-1-2		_ L	OCAT	ION _	SE¼ c	of SEC. 32, TWP. 18N,	RNG. 1W, 4th P	Р.М.	
COUNTY Rock Island	DRILLING	ME	THOD		Hol	low Stem Auger		PE Auto	
STRUCT. NO. 081-6013 Station	5.2 ft	D E P T H	B L O W S (/6")	U C S Qu	M O I S T (%)	Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter Upon Completion	NE ft		
CONCRETE			(/0)	(tsf)	(70)	After Hrs	π		
FILL - Brown, moist, stiff, fine-grained sandy CLAY FILL - Brown, moist, medium dense, clayey, fine- to	593.70	_	4 5 6		16				
medium-grained SAND with tra gravel	ace	_			9				
		4	5		10				
	587.20	_	10 12						
Gray, moist, stiff, silty CLAY w trace sand			7 7 7		14				
	1	 2	6 7 9	1.77B	15				
	1 580.20	 4 	6 7 9	1.02S	14				
End of Boring	300.20								



Page <u>1</u> of <u>1</u>

Date ______6/25/14___

ROUTE	F.A.I. 74	DES	SCRI	PTION			I-74 Over Mississippi Rive	er	L	ogge	ED BY	RI	PD
SECTION	81-1-2		_ I		ION_	SE¼ c	of SEC. 32, TWP. 18N, RN	G. 1W, 4tl	h P.M.				
COUNTY	Rock Island	DRILLING	ME	THOD		Conti	nuous Flight Auger	HAMMER 1	TYPE		A	uto	
Station BORING NO. Station	081-6015 		D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev Stream Bed Elev Groundwater Elev.: First Encounter	NE	-	D E P T H	B L O W S	U C S Qu	M O I S T
	ace Elev624.	7 ft	(ft)	(/6'')	(tsf)	(%)	Upon Completion		ft	(ft)	(/6'')	(tsf)	(%)
	own with gray	624.45624.45624.45624.45 624.45		-			FILL - Dark gray silty lean little sand, trace gravel, wi	CLAY,			6		
mottles, SILT,	little clay, trace san	d.	 2 	2 3 2	4.50P	13	fragments. (continued from previous) Gray moist, very stiff, silty CLAY, with trace sand an	lean	602.70	 			
			4	3 4 7	4.50P	19				24 — — —	3 5 10	4.50P	14
			6— — — 8—	4 5 8	3.00P	16				26— — 28—			
			0 10	6 11 11	4.50P	16				 30—	5 7 10	4.30P	15
FILL - Dark gr little sand, trac fragments.	ay silty lean CLAY, e gravel, with wood	613.70	 12	3	3.30P	18				 32			
			 14	6	2.16B	16				 34	5 8	4.00P	14
			 16				End of Boring		589.70	<u> </u>	10		
			 18	3 4 5	3.00P	19							
			- 20	2 5	2.50P	22							

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

BBS, from 137 (Rev. 8-99)



Page <u>1</u> of <u>2</u>

Date 6/25/14

									Date		5/14
ROUTE	F.A.I. 74	DES	SCRI	PTION			I-74 Over Mississippi River	LOGGI	ED BY	R	PD
SECTION	81-1-2		_ เ	OCAT	ION S	SW1⁄4	of SEC. 33, TWP. 18N, RNG. 1W, 4th P.I	И.			
	Rock Island	DRILLING	MET	THOD		Conti	nuous Flight Auger HAMMER TYPE		A	uto	
Station	081-6015 RW 06-05		DEP	B L O	U C S	M O I	Surface Water Elev Stream Bed Elev	D E P	B L O	U C S	M O I
Station	62+58		Т	W		S	Groundwater Elev.:	T	W		S
Offset	22' Rt.		н	S	Qu	т	First Encounter NE ft	Н	S	Qu	Т
		<u>.6</u> ft	(ft)	(/6")	(tsf)	(%)	Upon Completion ft After Hrs. ft	(ft)	(/6'')	(tsf)	(%)
	L.	644.35_					FILL - Brown and gray silty lean		9		
FILL - Brown trace sand, wi	lean CLAY, trace si ith organics.	lt,					CLAY, trace sand, trace gravel, with wood debris and brick fragments.		-		
			2—	3	3.50P	15	(continued from previous page)	22-]		
			2 _	7					-		
				1					-		
				-							
			4—	1	1.75B	23		24 —	5	2.52S	16
			_	2					8		
				5					12		
			6								
			U _					20 _	-		
				5 8	3.50P	17			-		
			_	10					-		
		636.10	8—					28—	-		
FILL - Brown	and gray silty lean	030.10							7	3.30S	18
CLAY, trace s	and, trace gravel,			3	3.10B	16			9		
with wood del fragments.	bris and brick		_ 10—	5					11		
linginonito.			- 10	6				- 30	-		
				-					-		
					1.60S	18					
			12—		1.55S			32—			
								_	1		
]					1		
								34 —	7	4.50P	16
				3	3.30S	16			8 13		
				6 9					13		
			_	L				_			
			16—	1				36—	1		
				4	4.46S	16	607.0	- 50	1		
				7			FILL - Gray clayey SILT, little sand,]		
			 18—	9			trace gravel, with red brick fragments.		ļ		
										2 505	
				5	4.50P	16			3	2.50P	22
				5	+.00P	10		_	9		
<u> </u>			20	-			11	40			1



Page <u>2</u> of <u>2</u>

									Date	6/25/14
ROUTE	F.A.I. 74	DE	SCRI	PTION			I-74 Over Mississippi F	River Lo	OGGED BY	RPD
SECTION	81-1-2		_ I	OCAT	10N	SW¼	of SEC. 33, TWP. 18N,	, RNG. 1W, 4th P.M.		
COUNTY	Rock Island	DRILLING	ME	THOD		Conti	nuous Flight Auger	HAMMER TYPE	Au	to
Station BORING NO.	081-6015 		D E P T	B L O W	U C S	M O I S	Surface Water Elev. Stream Bed Elev. Groundwater Elev.:			
Offset	22' Rt. ace Elev. 64		H (ft)	S (/6")	Qu (tsf)	Т	First Encounter	<u></u>		
trace gravel, w fragments.	ayey SILT, little sa vith red brick m previous page)		42					·· ·		
			44	5 7 9		10				
Gray moist, ve CLAY, with tra gravel.	ery stiff, silty lean ace sand and trace		_							
				5710	3.30S	15				
			 54	6 11 15	6.01B	12				
End of Boring		584.60		7 11 15	3.69B	15				

End of Boring

CH2M HILL			No	N 1-74	DIL BORING LOC Bridge Over Mississippi River - Illinoi	e			12/1	
ROUTE I-74 C	ESCR	IPTION	1		Approach	_ LO	OGGE	D BY	<u>B. K</u>	arni
I-74 Bridge over Mississip	bi I	OCAT		(N=56	1446.84, E=2459814.4701), SEC. 32	, TWP.	18N	, RNG.	1W, 4	↓ th P
COUNTY Rock Island DRILLI	IG ME	THOD	-		HSA, CME 55 HAMMER	TYPE	CN	IE AU	тома	TIC
STRUCT. NO Station		L O	U C S	M 0 1	Surface Water Elev Stream Bed Elev	ft ft	D E P	0	U C S	N C I
SORING NO. RW1007 Station	Т Н		Qu	S T	Groundwater Elev.: First Encounter Upon Completion	ft	T H	W S	Qu	S T
Ground Surface Elev. 649.91 ft	(ft)	(/6")	(tsf)	(%)	After Hrs.	ft	(ft)	(/6")	(tsf)	(%
ill Asphalt Concrete " thick asphalt overlying 1' thick einforced concrete slab⊡Hole		7			After Hrs. Fill Silty Clay (CL) Gray brown, moist, stiff to very stiff, with fine to coarse gravel,			5 7 10	3.0 P	
ffset 5' north	-	4			and some wood pieces and brick pieces throughout, fill (continued)		-	10		
ill Silty Clay (CL-ML) Gray brown, moist, hard, trace to ttle gravel	-	5 6			pieces throughout, in (commucu)					
		4	4.0		-		-			
	-	4	4.0 P							
644.		5					-25	à		
ill Sandy Lean Clay Trace	_	3]			4		
Gravel (CL) Reddish to grayish brown, moist,			3.75-2. P	р				8 15	2.0 P	
ery stiff, trace fine to medium	_	5			-			13	P	_
	-	4	2.5	-	1		_			
		4	P							
	91	5			4					
Fill Silty Clay (CL) Gray brown, moist, stiff to very	-	3	1.5		-		-30	÷		
tiff, with fine to coarse gravel, ind some wood pieces and brick vieces throughout, fill	10	6	P				30	6 7	4.5	_
leces infoughout, m	-	7]			12	Р	
		4	2.0					13		
	÷	5	P				-			
		7	<u> </u>		-					
	-	5	2.0				_			
	-	5	P							
	18	6			4		-35	-		
	_	<u> </u>	1				_	5	4.5	
		-					-	7	P	
		1					_	8		
	-	1								
		1								
	-	-					-			
	-	1	1				-			
	-20	-	1	1			-40			1

Bit NOC 1. NO. It E L C O Strain de Valer Elev. It E L C O Station	of Transporta			Ne	w I-74	Bridge Over Mississippi River - Illing	ois	oggi		<u>12/1</u>	
OUNTY Rock Island DRILLING METHOD HSA, CME 55 HAMMER TYPE CME AUTOMATION TRUCT. NO.	I-74 Bridge over Mississin	iqu									
TRUCT. NO.DBUMSurface Water Elev.ftDBUICStation											
Indiciting E L C O S I Stream Bed Elev. ft E L C S ORING NO. RW1007 H S Qu T W S Groundwater Elev. ft E L C S Groundwater Elev. ft H S Qu T W S Groundwater Elev. ft H S Qu T W S Groundwater Elev. ft H S Qu T W S Groundwater Elev. ft H S Qu S Groundwater Elev. ft H S Qu ft Groundwater Elev. ft H S Qu ft Groundwater Elev. ft H S Qu ft After Hrs. S Qu After Hrs. S S S </th <th>COUNTY ROCK ISIAND DRILL</th> <th>_</th> <th>1</th> <th></th> <th></th> <th></th> <th>ITPE .</th> <th></th> <th></th> <th></th> <th></th>	COUNTY ROCK ISIAND DRILL	_	1				ITPE .				
Station Initiation H S Qu T Offset	Station	E P	L O	C	0	Surface Water Elev Stream Bed Elev	_ft _ft	E P	L O	C	M 0 1
Ground Surface Elev. 649.91 ft (tt) (ts') (ts') (ts') After	Offset	н	S		т	First Encounter Upon Completion	ft	н	S		S T
irray brown, moist, stiff to very tiff, with fine to coarse gravel, and some wood pieces and brick ieces throughout, fill (continued) 6 3.0 Gray brown with gray vertical seams, moist, low to medium plasticity, very stiff, fossilized routes, trace fine to coarse, weathered till or gumbotil 605.91 -	Ground Surface Elev. 649.91	ft (ft)		(tsf)	(%)	After Hrs.	ft	(ft)	(/6")	(tsf)	(%
ieces throughout, fill (continued) 6 -	Fill Silty Clay (CL) Gray brown, moist, stiff to very stiff, with fine to coarse gravel,	_	6			(CL) Gray brown with gray vertical		-			
andy Lean Clay Trace Gravel	ind some wood pieces and brick pieces throughout, fill (continued)	_	6			plasticity, very stiff, fossilized					
iandy Lean Clay Trace Gravel -45 -45 -5 chy brown with gray vertical earns, moist, low to medium lasticity, very stiff, fossilized ooltest, trace fine to coarse, reathered till or gumbotil -7 3.0 9 2.5 111 P -12 P -12 P reathered till or gumbotil -13 -14 -14 -14 -14 - - 13 -14 -14 -14 -14 -14 - - 13 -14 <td< td=""><td></td><td>_</td><td>-</td><td></td><td></td><td>weathered till or gumbotil</td><td></td><td>_</td><td></td><td></td><td></td></td<>		_	-			weathered till or gumbotil		_			
iandy Lean Clay Trace Gravel -45 -45 -5 chy brown with gray vertical earns, moist, low to medium lasticity, very stiff, fossilized ooltest, trace fine to coarse, reathered till or gumbotil -7 3.0 9 2.5 111 P -12 P -12 P reathered till or gumbotil -13 -14 -14 -14 -14 - - 13 -14 -14 -14 -14 -14 - - 13 -14 <td< td=""><td>605</td><td>.91 —</td><td></td><td></td><td></td><td></td><td></td><td>_</td><td></td><td></td><td></td></td<>	605	.91 —						_			
earns, moist, low to medium lasticity, very stiff, fossilized potential area fine to coarse, veathered till or gumbotil	andy Lean Clay Trace Gravel CL)	-						-65			
Hasticity, Very Still, Tossilized potentials coarse, veathered till or gumbotil 11 P 13 13 14 13 14 14 13 14 14 14 14 14 13 14 14 14 14 14 13 14 14 14 14 14 14 14 14 15 10 14 10 10 10 10 10 10 10 10 10 11 P 13 11 P 13 12 P 13 10 13 13 13 13 13 13 13 14 13 13 14 14 15 12 13 13 14 14 15 12 16 12 13 13 14 </td <td>eams, moist, low to medium</td> <td><u> </u></td> <td></td> <td>30</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2.5</td> <td></td>	eams, moist, low to medium	<u> </u>		30						2.5	
-50 4 -70 -6 2.5 -70 -88 P -70 10 -70 -70 -55 -70 -70 -6 2.5 -70 -6 2.5 -70 -70 -70 -70	ootlets, trace fine to coarse,	_	11	1.				-	12	100000	
4 - 6 2.5 8 P 10 - - - <t< td=""><td></td><td>_</td><td></td><td></td><td></td><td></td><td></td><td>_</td><td></td><td></td><td></td></t<>		_						_			
4 - 6 2.5 8 P 10 - - - <t< td=""><td></td><td>_</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		_	1								
4 - 6 2.5 8 P 10 - - - <t< td=""><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>			1								
4 - 6 2.5 8 P 10 - - - <t< td=""><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td>70</td><td></td><td></td><td></td></t<>			-					70			
8 P 10 - - -		50	4					70			
10 -		_	_					_			
55 5		-		P				-			
5 Fine to Medium Sand With Silt 23 6 2.5 (SP-SM) 29 10 P Gray, wet, very dense, estimated 33 13 5%-12% fines 572.91 34 Gray, moist, stiff, trace fine to Gray, moist, stiff, trace fine to 10		_				1			1		
5 Fine to Medium Sand With Silt 23 6 2.5 (SP-SM) 29 10 P Gray, wet, very dense, estimated 33 13 5%-12% fines 572.91 34 Gray, moist, stiff, trace fine to Gray, moist, stiff, trace fine to 10		_									
5 Fine to Medium Sand With Silt 23 6 2.5 (SP-SM) 29 10 P Gray, wet, very dense, estimated 33 13 5%-12% fines 572.91 34 Gray, moist, stiff, trace fine to Gray, moist, stiff, trace fine to 10		-	-					-			
5 Fine to Medium Sand With Silt 23 6 2.5 (SP-SM) 29 10 P Gray, wet, very dense, estimated 33 13 5%-12% fines 572.91 34 Gray, moist, stiff, trace fine to Gray, moist, stiff, trace fine to 10		1									
6 2.5 (SP-SM) 29 10 P Gray, wet, very dense, estimated 33 13 5%-12% fines 572.91 34 Gray, moist, stiff, trace fine to Gray, moist, stiff, trace fine to 6		-5				Eine to Medium Can d MEth Off	574.91	-75			
10PGray, wet, very dense, estimated33135%-12% fines572.9134Sandy Lean Clay (CL)Gray, moist, stiff, trace fine to10		-		2.5		(SP-SM)		_		-	-
13 572.91 34 Sandy Lean Clay (CL) Gray, moist, stiff, trace fine to 10		-				Gray, wet, very dense, estimated		-			
Gray, moist, stiff, trace fine to			13				572.91		34		
			-						-		
		-	-					-			
			1						1		
		_	1					-	-		

Illinois De of Transp	epartr ortat	ner ion	nt		sc	DIL BORIN	G LOG	Page <u>3</u> of <u>3</u>
Division of Highways CH2M HILL				Ne	w 1-74	Bridge Over Mississipp	ni River - Illinois	Date 12/13/05
ROUTE 1-74			PTION		VV 1-7-4	Approach		LOGGED BY B. Karnik
I-74 Bridge over M SECTION River	ississippi	_ L	OCAT		(N=56	1446.84, E=2459814.4	701), SEC. 32, TW	/P. 18N, RNG. 1W, 4 th PN
COUNTY Rock Island	DRILLIN	G MET	THOD			HSA, CME 55	_ HAMMER TYPE	CME AUTOMATIC
STRUCT. NO Station		D E P	B L O	U C S	M O I	Surface Water Elev. Stream Bed Elev.	ft ft	
BORING NO RW1007		Т Н	W S	Qu	S T	Groundwater Elev.: First Encounter	ft	
Offset Ground Surface Elev. 649.	91 ft	(ft)	(/6")	(tsf)	(%)	Upon Completion After Hrs.		
Sandy Lean Clay (CL) Gray, moist, stiff, trace fine to coarse gravel, till <i>(continued)</i>			10 15 20 22	4.0 P				
No recovery, possibly boulder o rock Gravel/cobbles at 90' auger and spoon refusal End of Boring		90 _	\ <u>50/0</u>					

Illinois Department of Transportation Division of Highways CH2M HILL

SOIL BORING LOG

Date 11/18/05

ROUTE I-74	DE	SCR	PTIO	Nev	W 1-74	Approach	LC	GGI	ED BY	L. F	Hunt
I-74 Bridge over Missi SECTION River	ssippi	_ L	OCAT		(N=56	1781.073, E=2459588.053), SEC. 32	, TWP.	18N	RNG	. 1W, 4	th PM
COUNTY Rock Island DR		G ME	THOD		ł	HSA, CME 55 HAMMER	TYPE _	CN	1E AU	тома	TIC
STRUCT. NO Station BORING NO Station Offset Ground Surface Elev634.51	_	D E P T H (ft)	B L O W S (/6'')	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion AfterHrs Silty Clay(CL-ML)	_ ft ft	D E P T H (ft)	B L O W S (/6'')	U C S Qu (tsf)	M O I S T (%)
Clay (CL) Clay, few sand, trace gravel, red brown and brown, dry to moist, stiff, blocky			2 4 5 6	3.0 P		Silty Clay, little sand, trace gravel, light brown, dry to moist, stiff, homogenous <i>(continued)</i>			4 7 10 11	3.2 P	
Clay, trace gravel and sand, brown mottled orange brown and gray brown, dry to moist, stiff, blocky Silty Clay, trace gravel, brown to red brown, dry to moist, stiff,			5 5 6 6 5	4.5 P 4.5		Silty Clay, little sand, trace gravel, mottled gray brown, dry to moist, stiff, homogenous					
blocky	628.51	_	6	P		Clay (CL) Clay, trace gravel, little sand, light brown mottled gray brown and	609.51	-25	3 5	2.0	-
Clayey Silt(MH) Clayey Silt, trace gravel, gray brown, mottled orange brown, dry to moist, medium dense, blocky		_	5 6 6	4.5 P		orange brown, dry to moist, stiff, homogenous			10 11	P	
Clayey Silt, trace gravel, gray brown, mottled orange brown, dry to moist, medium dense, blocky Gray with no mottling for 1" at 12" from top of sample Clayey Silt to Silty Clay, trace			5 4 8 10 10	3.6 S		Clay, little sand, trace gravel, gray		-30	4		
gravel and organics, gray brown, mottled orange brown, medium stiff, stratified		_	4 7 8	2.9 P		brown, moist, stiff, homogenous Till - unweathered		_	6 8 10	2.5 P	
Clayey Silt to Clay, trace gravel, little sand, light brown and gray brown, medium stiff to stiff, stratified (gray brown - 11"; light brown - 8") Silty Clay(CL-ML)	620.51		10 7 8 10 12	4.5 P							
Silty Clay, little sand, trace gravel, light brown, dry to moist, stiff, homogenous		<u>-15</u>	6 7 8 9	3.8 P		Clay, little sand, trace gravel, gray brown, moist, stiff, homogenous			4 6 9 10	2.5 P	
			-						-		

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

Page 1 of 2

New I-74 Bridge Over Mississippi River - Illinois

Illinois Del of Transpo Division of Highways	part	me	nt		SC	DIL BORING LOG	Page <u>2</u> of <u>2</u>
Division of Highways CH2M HILL							Date11/18/05
ROUTE 1-74	DE	SCR	PTIO	V		Bridge Over Mississippi River - Illinois Approach LOGG	ED BY L. Hunt
SECTION I-74 Bridge over Miss	sissippi	_ L	OCAT		(N=56	31781.073, E=2459588.053), SEC. 32, TWP. 18N	, RNG. 1W, 4 th PM
						HSA, CME 55 HAMMER TYPE CN	
STRUCT. NO Station		P	B L O	U C S	M O I	Surface Water Elev ft Stream Bed Elev ft	
BORING NO. RW1808 Station		Т Н	W S	Qu	S T	Groundwater Elev.: First Encounter ft Upon Completion ft	
Ground Surface Elev. 634.51	ft	(ft)	(/6'')	(tsf)	(%)	After Hrs ft	
Clay (CL) Clay, trace gravel, little sand, light brown mottled gray brown and orange brown, dry to moist, stiff, homogenous (continued)			5 8 9 11	2.4 P		-	
Clay, little sand, trace gravel, gray brown, moist, stiff, homogenous		_					
		-45	_				
Clay, little sand, trace gravel, gray brown, moist, stiff, homogenous			5 9 11 13	3.3 P		_	
Clay, little sand, trace gravel, gray brown, moist, stiff, homogenous			5 8 10	3.2 P			
End of Boring	584.51	-50	13			-	

of Transpo Division of Highways CH2M HILL	Jitat				00	DIL BORING L	.00		Date	11/1	17/0
	DE	SCR	PTION	Ne	w I-74	Bridge Over Mississippi River Approach	- Illinois L	OGG	ED BY	L. ł	Hunt
I-74 Bridge over Mis SECTION River	ssissippi										
COUNTY Rock Island	ORILLING	G ME	THOD			HSA, CME 55 HAN	MER TYPE	CN	IE AU	ТОМА	
STRUCT. NO.		DE	BL	U C	M	Surface Water Elev.	ft	DE	B L	U C	N
Station		P	ō	S	1	Stream Bed Elev.	ft	P	0	s	1
BORING NO. RW1810		T H	W S	0	S T	Groundwater Elev.:		Т	W S	Qu	
Station Offset			3	Qu	1	First Encounter Upon Completion	ft		3	Qu	
Ground Surface Elev. 604.2	4 ft	(ft)	(/6")	(tsf)	(%)	After Hrs	ft	(ft)	(/6")	(tsf)	(%
ilt (MH) silt, trace gravel, light brown to		_	6		-	Clay (CL) Clay, trace gravel, trace orga		_	3	0.5	
rown, dry to moist, medium			9 8			light brown to brown, mottled	1		6 8	2.5 P	
lense, stratified	602.24	-	11			orange brown and gray brow very stiff to hard (continued)	'n,	_	10		
ilt to clay, trace gravel and			7								
organics, light brown to brown, dr o moist, hard, stratified, till	У		14	4.5 P							
	600.24	-	11					-			
Clay (CL)			6						6		
Clay, trace gravel, trace organic ight brown to brown, mottled brange brown and gray brown,	,	-5	7					-25	9 11	2.2 P	
		-	5					-	14		
very stiff to hard			6					-			F
		_	7	4.5							
		-	8	P							
		_	10			-		-			
			5								
			5					-30			
Fill to 12'-14'		-10	4			-		30	5		
			5	4.5	1	1			6	2.6	
		-	7	P				-	10 11	Р	
			7			-					1
			5	4.5					1		
		_	6	P				-			
		-	7	<u> </u>		1"-thick sandy clay seam in	34.0'		3		
		-15	6	3.2		sample		-35	6	2.3	
		-	6	P				_	9 12	P	
		-	9		+	-		-	12		+
				1				_	1		
		_							1		
			-					-			
			1					_	1		
		1]								

DUTE I-74 DES	on		Nev	w I-74	Date 11/17 Bridge Over Mississippi River - Illinois Approach LOGGED BY L. Hu
					2051.32, E=2459565.966), SEC. 32, TWP. 18N, RNG. 1W, 4 th 1
DUNTY Rock Island DRILLING	ME	THOD	_		HSA, CME 55 HAMMER TYPE CME AUTOMAT
RUCT. NO. Station	D E P T	B L O W	U C S	M O I S	Surface Water Elev ft Stream Bed Elev ft
DRING NORW1810 Station Dffset Ground Surface Elev604.24 ft	н	S	Qu (tsf)	т	Groundwater Elev.: First Encounterft Upon Completionft AfterHrsft
ay (CL) , trace gravel, little nd, gray brown, wet, very stiff		5 7 9	2.1 P		
562.24		12			
ayey Sand (2") to shale, gray own, wet to moist, loose to hard, ratified					
	-45	23 50/5			
	_				
nale, dark gray, moist, hard, omogenous et split spoon fall from 50.0' 0/6" = free fall)	_	50/6 50/4			
nd of Boring 554.24	-50				
	_				
	-55				
	_				
	_				



PROJECT NUMBER: 158835.AA.GS.01 BORING NUMBER: **RW1812**

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : I-74 Bridge over Mississippi River, Quad Cities IA/IL

LOCATION : I-74 Ramp 7th-B (562357.1 N, 2459445.8 E)

ELEVATION : 599.0 ft MSL

DRILLING CONTRACTOR : Terracon

DRILLING METHOD AND EQUIPMENT : CME 550, Hollow Stem Auger

WATER			200		START : 11/15/05 14:27 END	· 11/1	5/05	15:34 LOGGER : L. Hunt			
			GRADE (ft)		SOIL DESCRIPTION	. 11/15		COMMENTS			
	INTERV		(n)	STANDARD PENETRATION			LOC				
	INTERV	<u> </u>	ERY (in)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,		LLIC	DEPTH OF CASING, DRILLING RATE,			
		NE00V	#TYPE	6"-6"-6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	,	SYMBOLLIC LOG	DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION			
599.0	0.0			(N)	Clay (CL)		0 57/5	PP: 4.5+tsf			
-	2.0	16.0	B-1-SS	3-6-6-6 (12)	Clay, little gravel, dark brown, dry to moist, very hard, blocky				-		
	4.0	12.0	B-2-SS	6-9-13-6 (22)	Clay, little gravel, few brick, dark brown, dry to moist, very stiff, blocky	-					
5 594.0_	6.0	10.0	B-3-SS	3-2-1-2 (3)	Silty Clay, trace gravel, dark brown, dry to moist, very stiff, blocky			2" of sand at bottom of sample Wc=13% LL: 27, PL: 16			
	8.0	0.0	B-4-SS	2-4-8-9 (12)							
			B-5-SS	7-6-7-10 (13)	Clay, trace gravel, gray brown, moist, hard, homogenous, till			PP: 4.5+tsf			
10_ 589.0_ _	10.0	24.0	B-6-SS	6-6-7-8 (13)	Clay, trace gravel, gray brown, moist, hard, homogenous, till			PP: 4.5+tsf			
-	12.0	24.0	B-7-SS	4-4-5-7 (9)	Clay, trace gravel, gray brown, moist, hard, homogenous, till			PP: 2.1tsf	-		
 	14.0 16.0	24.0	B-8-SS	4-7-8-10 (15)	Clay, trace gravel, gray brown, moist, hard, homogenous, till			PP: 2.0tsf			
20	19.0	24.0	B-9-SS	3-4-6-8	Clay, trace gravel, gray brown, moist, hard,			PP: 2.0tsf			
579.0_ - - - - - -	21.0 24.0			(10)	homogenous, till						
25_ 574.0_ 	26.0	24.0	B-10-SS	4-7-8-9 (15)	Clay, trace gravel, gray brown, moist, hard, homogenous, till			PP: 2.1tsf			
	29.0										
30_ [_] 569.0_ _	31.0	13.0	B-11-SS		Clay, trace gravel, gray brown, moist, hard, <u>homogenous, till to shale, (CL-8")</u> Shale			Bottom of borehole at 31.0'; auger apparatus			
					Light gray, moist, hard, stratified Bottom of Boring at 31.0 ft below ground surface on 11/15/05 15:34	 		bottom of botenoie at 31.0, auger apparatus broke down, spitting ball bearing as it turned			
35											

of Transportat			Ne	w I-74	Bridge Over Mississippi River - Illino	ois				
ROUTE I-74 D		IPTION	۰		Approach	L(OGG	ED BY	_L. ł	ΗL
I-74 Bridge over Mississipp SECTION River) I	OCAT		(N=56	2526.163, E=2459379.709), SEC. 32	2, TWP .	. 18N	, RNG	. 1W, 4	1 th
COUNTY Rock Island DRILLIN	IG ME	THOD		1	HSA, CME 55 HAMMER	TYPE	CN	IE AU	TOMA	
STRUCT. NO Station	D E P	L	U C S	M O I	Surface Water Elev Stream Bed Elev	ft ft	DEP	B L O	U C S	
BORING NO RW1813 Station	T	W	Qu	S T	Groundwater Elev.: First Encounter	ft	T H	w	Qu	
Offset		1101	4.5	(0/)	Upon Completion	ft	(4)	(/6")	(tsf)	
Ground Surface Elev. 593.90 ft	(π)	(/0)	(tsf)	(%)	After Hrs Clay (CL)	_ ft	(11)	(0)	P	-
Silty Clay (CL) Silty clay, little gravel, brown, dry	-	10	4.5		Clay, trace to little gravel, brown,		-	12	Р	
to moist, hard, homogeneous.		9	P		dry to moist, very stiff to hard,					F
591.9	0	8			homogeneous and blocky, poss. weathered till (continued)		_			
Clay (CL) Clay, trace to little gravel, brown,		5	15							
dry to moist, very stiff to hard,		67	4.5 P				-			
nomogeneous and blocky, poss.	-	8					-	1		
weathered till		7	-		1			5		
	-5		4.5		1		-25		3.5	
	_	8	P				_	11 15	P	
		8		-	-1	567 40				+
	_	5	4.5		End of Boring	567.40				
	_	12	Р				_			
		12			4					
		7	4.3		-1		_			
		11	4.3 P							
	-10	13					-30			
B-6: Becomes gray brown at 11',		15	1]		_			
unweathered till		6	4.2 P							
	-	7					-			
		9			1					
	_	4	2.8		1			1		
	_	5	Р				_			1
	-	6	<u> </u>		-			-		
		2	3.8	-			-35			
	15	5	P				-55	1		
		7					1]		
		10	/				-	1		
	_	-					-			
	-	1					-	-		
	-	1					-	1		
		1					_]		
B-9: Sand lense at about 19.5' for	_	5	0.0	-	4		_			
3 - 4", sand is wet	-20	5	3.2	1			-40		L	



TEST BORING NO, S-31 STATION 286+24 - 70' LT.		TEST BORING NO. S-32 DN 285+52 - 30' RT. €	TEST BOR(NG NO. 5-33 STATION 286+20 - 32' RT. G	TEST BORING NO. 5-34 STATION 287+00 - 53' RT. Q	TEST BORING NO. 5-35 STATION 286+48 - 118' RT. G
ELEV. N Q _u W(\$) 555	615	N Q _u W(3)	N (%)	N Q ₂ H(K)	N Q _U W(%)
652.0' Hard Mott'ed Brown-black SiLT - 29 1:03 645 646.0 - 30 8:0 11	613.5' 610. 607.5	Very Stiff Crumoly Brown SILT 22 2:25 10 5 9.0 10 29 8 10		603.5 ¹	603.0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	<u>600</u> 595	Hard 32 5.9 12 to 23 5.0 12 6 Very Stiff 15 3.5 14 Brown 4,10 16 8 Grey 23 15	601.51 Very Stiff -13 2,75 14	602-5 5.01 5.01 5.01 5.01 5.01 5.01 5.01 5.0	601.5 Black SLLTY CLAY Very Soft Brown 5 1,0 20 SILTY CLAY 593.5 Medium Brown
$\begin{array}{c} 630 \\ (7:11) \\ \hline \\ 8 \\ \hline \\ 625 \\ \hline \\ 625 \\ \hline \\ 626.0 \\ \hline \\ \hline \\ 18 \\ 3 \\ 8 \\ \hline \\ 18 \\ 3 \\ 8 \\ 5 \\ 13 \\ \hline \end{array}$	<u>590</u>	SILTY 14 10 15 CLAY 14 3.0 15 LOAM 8 13 2.5 15 Gravel 13 2.6 14 (Till) 8 14 14	Brown	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	591.0 GRAVEL 4 1.2 20 7 1.2 18 Stiff 1 2.3 19 B
$ \begin{array}{c} $	<u>580 580.5</u>		with16 2.7 14 Gravel14	СLAY ТILL III 2.6 I3 В 2.9 I5 576.5	Brown 12 2.3 1 to 13 2.4 1 Grey 14 2.3 1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	<u>575.0 575.0 </u>	Brown SAND 32 Stiff Grey 28 1.75 21 CLAY LOAM 28 E with Gravel 3.00 16 (Till) 25 B	574.5 Hard Grey 4.58 CLAY with 31 5.8 17 Grevel 8	Stiff Grey CLAY TILL with Sand 571.5 571.5 CLAY TILL 10 1.4 15 S 18 2.9 15 B	$\begin{array}{c} CLAY \\ 13 & 2.8 \\ B \\ 15 & 2.8 \\ B \\ 15 & 2.8 \\ B \\ 14 & 2.1 \\ 14 & 2.1 \\ 14 & 2.1 \\ B \end{array}$
CLAY	570 569.0- 565	Dense Grey34 3.00 17 Wet SILTY30 SAND	569.0 (Tiil) 25 5.0 SILTY SAND 14 566.0 100+ 7.5 11	Hard Grey 26 5.1 15 CLAY TILL 23 4.0 13 566.5 Soft 100+ Black	568.0
600 Gravel	563.5 560 558.0	25 Very 60 Dense 150+ Grey 5AND 100+	-100+7.6 10 -100+7.5 9	562.0 SHALE BOTTOM OF BORING	Soft Grey SHALE drilled
$ \begin{array}{c} 595 \\ $	555	BOTTOM OF BORING	556.5 BOTICM OF BORING		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$					549.0 BOTTOM OF BORING
577.0 BOTTOM OF BORING B					

DE LEUW, CATHER & COMPANY ENGINEERS DESIGNED BY M. VADKERTY DRAWN BY. H. DE PERCZEL CHECKED G. C. WAY IN CHARGE E. S. MARTINS APPROVED W.G. HORN

ROUTE NO.	BECTION	COUNTY	TOTAL SHRETS	SHEET NO.
F.A.L. 74	a1.;∺8	ROCK ISLAND	389	2.52
FED. ROAD D	IST. NO. 7	ILLINOIS FED. AD PI	ROJECT 1-74	

DWG. NO. 8-4

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20 18 15

17 15

14 18

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15

TEST BORINGS

F.A.I. 74 - SECTION 81- IHB F.A.L. 74 & RAMPS OVER RELOC. 19TH ST.

ROCK ISLAND COUNTY

STATION 289+23.09

SCALE: AS NOTED DATE:

ELEV. 620'	88+26 - 88' RT.Ç		ION 287+66 - 72	D' LT.	Ś	NO. 5-38 TATION 288+65 -	115' LT.	STATI	ION 288+62 - 1	2' RT. €	STATION 289+52 -	62' RT.
ELEV. 620'			104 201.00 11									
620'	N 0	622.0 -	2	N Q.	622.0 W(%)	Dr. I DO TH ALE	Y N Q _u W(%)			N Q ₀ ₩(%)		N Q _U W(
	N Q _u	W(2)	CE AY	16 A.U	w(>) 620.							D. addresses and the state of the state o
		617.5	LOAM			Soft Brown						
		01110		- 2,9	11 615.1	CLAY TILL	4 0.7 23					
615						Soft Brown	5 1,3 13					
			Very		12	SILTY CLAY	D					
610	a star (a many more success a line and a star success regularity out a symmetry of the destruction of		SLIFF		15 610.0		5 1.0 18				allendade allentification in a more consistent process and annually described and all process. Mo	
			Brown			Stiff Brown SILTY CLAY	ц 0,6 20					
			CLAY	В	607.0						606.0	
605			LOAM	13 2.9 B	14		5 1,2 22	604.0			Black SILTY CLAY LOA	44
604.0 Blac	R SILTY CLAY			-13 2.8	1 li			00110			Stiff	
602-5 St	iff Grey			-11 2.6		Stift	7 2.0 19 B		Medirum		Mottled Brown-Grey	
600	SILTY			8		Gray CLAY	13 2,3 16		Black to		CLAY	12 I.3 I5 B
597.0	CLAY 5 13	11 597.5 -		9 2,3	13	THE	20 1,6 16		Grey	5 0.7 H	LOAM	14 I.5 I5
S	oft Grey	FOG 0	Medium Brown SANDY LOAM				16 2.6 13	<u>Ž</u>	SILTY CLAY	<u>5 0,6 23</u>		13 2,1 11
594.0 SA	NDY CLAY 4 S	595.0	Stiff Grey CLAY LOAM	-13 1,8		an a	19 2,7 15	595.0		A & 00		8
	+0 2,4	15 592.5 -	ULAT COACT							u 0,6 22	No. 10	14 2,6 14 B
590	2_4 16_B	14	Very Stiff	10 2,3	14 591.0		26 3.4 15		Stiff	5 1 16	Very	14 2,8 15
			Grey	10 2,6	and the second se	Medium Groy			Grey	5 0,8 18	Stíff	13 3.1 15 B
	Stiff Brown 17 2.4		CLAY TILL	14 2 <u>9</u>		FINE SAND			CLAY	I I2 I.6 I4	Grey	1.3 B
585	to Grey 19 B	<u> 4 585.0~</u>		B	585.0				TILL	B		
	CLAY 17 2.4	ş ż.ş	Hard		15	Stiff				LI 1.6 13	CLAY	17 3.2 12
500	TILL 17 2.8		Grey	18 4,3	15	Grey	19 3,9 20			32 7.9 16	TILL	
580	B	575.0	CLAY	11.11	10	CLAY						17 2,9 14 8
		15	TILL	18 4.4								16 3.0 14 B
575	2.6 15 B	14 675.0 -	4	23 5,9	11		29 4.0 21			<u>34 5,9 16</u> S		16 3.0 19 B
			Very Stiff		16	93 Wile #10	4 4 ₅ 9 20				Hard Brown CLAY	
	18 ² ,6	10	Brown-Grey CLAY	18 ⁴ .6		Al Walling and A	62 5.5 17			62 7.3	GLAF	29 6.0 18 S
570	2.5	11 570.0		10 B					Haro	5		75 9.0 16 S
569.0		18	Hard		10				Grey	76 9,1		
	Ÿ		Grey	56 ⁶ č ¹	10 M				CLAY	_	Hard	-
565	100 <u>8</u> .0 100 <u>\$</u>		CLAYEY			Haro	6.0.10		OL NI			52 IO.5 I6 B
	100		SHALE	66 6.0 S	10	Dark Grey	58 5,2 18		SHALE		Grey	
560	Hard	560.5-		160 6.5 \$	9	CLAY	100+ 7,3 14				CL AY	100
	Black	***	BOTTOM OF BORIN	G		SHALE				arillea	SHALE	drilled
	CLAY SHALE drilled					011110.0						
555	STALE STALE											
						La del este del mandela.	drilled				552 0	
								550.0			552.0 BOTTOM OF BORI	16
550			a a tarang na anana ka sa sa a majamang ka sa						OTTOM OF BORIN	3		
	-						Lauro de la constante de					
545.0												
BOLLO;	M OF BORING				5113 /	BOTTOM OF BORIN						

				·····
 ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	BHEET NG.
 F.A.I. 74	8 1- IHB	ROCK ISLAND	389	253
FED. ROAD D	ST. NO. 7	ILLINOIS FED. AID	PROJECT 1-74	

DWG. NO. 8-5

₩(%)

TEST BORINGS

F. A. I. 74 - SECTION 81- IHB F.A.I. 74 & RAMPS OVER RELOC. 19TH ST.

ROCK ISLAND COUNTY

STATION 289+23.09

SCALE: AS NOTED DATE:

		TEST BORING NO. 5-41 ION 289+52 - 4	95' LT.			ST	TEST BORING NO. S-42 ATION 290+47 -				ST	TEST BORING NO. S-43 ATION 290+60					TEST BORING NO. 5-45 ATION 292+20 -				TEST BORI NG. S-46 TATION 292+85
ELEV. 615'			N	Qu	¥{%}			N	Qu	₩(종)			N	Qu	₩(%)			n Q _l	₩(%)		
610	o contra e contra e analisma de la contra de l					100 ⁴ 1100 1100 1000 1000 1000 1000 1000 10												an a h-f-a a f-a h-f-a h-f-a na a da a a an ann an h-f-an an an t-f-an an h-		611.0	Stiff Black
						607.0-		-1			607.0 -	· · · · · · · · · · · · · · · · · · ·	-			609.0	Brown SILTY CLAY				SILTY CLAY LOAM
05	606.0 -	ł	٦		1		Stiff				605.0	Brown CLAY	-			001.0	Stiff Mottle Brown and	0°.		606.5~	Medium Brown Grey SILTY CLAY LOAM
		Hard Brown SILTY CLAY	National Constant of Constant				Mottled Brown and					Medium Brown	annonan mulana			602.5 🗸	Grey CLAY LOAM	8 .5	-5	604.0 -	Medium
0		LOAM with GRAVEL	26	8.30 8	12	600.0	Grey CLAY		1.2 8	15		SILTY CLAY	5	0.6 B	23	602.0		14 2,3		601.5 -	Grey CLAY Medium to
	598.5 -		- 24	7.00 B	8			18	4.3	13		LOAM	- 5	0.7 B				-			Dense Brown
۲.			21	3.30 8			Hard to Very Stiff	1	8 8		597.5 -	14 /	12	D			Very Stiff to	15 2,2 B		596.5 -	FINE SAND
5		Very Stiff Olive-Black	1	3.40 8			Grey and					Medium Brown					Hard	<u> </u>			-
		CLAY LOAM					Brown CLAY LOAM	15			591.0 V	SAND and GRAVEL	15				Brown and	15 3.4	16		Nerv.
0		with GRAVEL (Till)	1	2.75		590.0 <u>~</u>	· ·	16	8		591.0 🕱 590.0 🥆	Loose Brown	[]				Grey CLAY	17 3.4	13		Very
	587.0 ~			2.30 8 2.3P	13			28			587.5 -	Loose Brown SANDY GRAVEL	- ×				TILL	18 3.1	week and a		Stiff
5	301.0	Very Stiff	24	3.28	16			35	8	9			18	7) K) (2)	13			28 7.3			Grey
	583.0 ~	Blue CLAY	23	3,3 I 8	13			100+	4.3 S	8		Very Stiff	20	3.6 8	to a later			35 6,3	12		CLAY
0	582.0 ¥ 580.0 √	Very Stiff SHALE-CLAY	100+	3.5 2 S	21	roomany, or early	Hard	100+	6.1 S	00		to Hard	20	4.5	12	580.0 🗸		180 7.5			TILL
		Hard SHALE		6.0 Š			Grey	100, 1	5.2	8		Grey CLAY LOAM	10	11 3	10		Very Dense Brown GRAVEL				
	576.0-	and LIMESTONE	L				CLAYEY	100+ (100+ (LUMM		4,3 8 6 3		577.5 -					
<u>.</u>		OM OF BORING - Re					SHALE	100+	5					6,3 8			Medium White	85% Recov	erv	574.0	
								100+			573.0	+6 - 1 ¹	- A A A A A A A A A A A A A A A A A A A			571.5	LIMESTONE		0.1	BOTT	TOM OF BORING - F
0												Medium White	92% Re	covery			BOTTOM OF BORIN	16			
						Carally State of the state of t					567.0	LIMESTONE									
5	and the second							drill	ed	P. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.		DITOM OF BORIN	G						and the State of State and State of Sta		
2						560.5															
						8	OTTOM OF BORING	G		an Gemelde Jahranja, Lanne									an Naddellan on Salin ad San Kalen or		
35. 												andraamman airanteen nyo saasteiseedenika	تتجنفته بتترجه			t with the web of the that has been been been been been been been bee					

			ENGINEERS
DESIGNED	BY M. VAC		
DRAWN BY		PERCZEL	Same and the second
CHECKED_			
IN CHARGE	A CONTRACTOR OF A CONTRACTOR OF A CONTRACT	ARTINS	
APPROVED	W.G. HOR	N	

	ROUTE NO.	SECTION	cou	INTY	TOTAL BHEETS	sheet NG.
	F.A.I, 74	81 · (HB	ROCK	SLAND	389	254
į	FED. ROAD D	IST. NO. 7	H.J. INCOM	FED. AND PR	IDURCE 1-74	

DWG. NO. B-6

- 80° LT.

N Q_u W(%)

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-					
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le f	usai		ø		

TEST BORINGS

F. A. I. 74 - SECTION 81-1HB F.A.I. 74 & RAMPS OVER RELOC. 19TH ST. ROCK ISLAND COUNTY

STATION 289+23.09

SCALE: AS NOTED DATE:





Phase calculations based on start of test.

CONSOLIDATION TEST DATA

SUMMARY REPORT



					Before Test	After Test	
Overburden Pressure, tsf:				Water Content, %	18.27	13.92	
Preconsolidation Pressure, tsf:				Dry Unit Weight, pcf	108.92	123.79	
Compression Index:				Saturation, %	93.33	109.66	
Diameter: 2.5 in Heig		Height: 0.	994 in	Void Ratio	0.52	0.34	
LL: 0	PL: 0	PI: 0	GS: 2.65				

Project: 174 Missippi River	Location: Quad Cities	Project No.: 08H0120E
Boring No.: RW06-2	Tested By: RIN	Checked By: JCC
Sample No.: 5-2	Test Date: 8/24/10	Depth: 8.5-8.7
Test No.: 1	Sample Type: Tube	Elevation: N/A
Description: Brn. gray f. sandy c	layey silt.	
Remarks:		

Project: 174 Missippi River Location: Quad Cities Boring No.: RW06-2 Sample No.: 5-2 Tested By: RIN Test Date: 8/24/10 Test No.: 1 Sample Type: Tube

Soil Description: Brn. gray f. sandy clayey silt. Remarks: LT107 2000# 2009 Calibration

	Applied	Final	Void	Strain	T50 F	itting	Coefficient of Consolidation		solidation
	Stress	Displacement	Ratio	at End	Sq.Rt.	Log	Sq.Rt.	Log	Ave.
	tsf	in		00	min	min	in^2/sec	in^2/sec	in^2/sec
1	0.064	0.004151	0.512	0.42	0.5	0.2	1.64e-003	4.12e-003	2.34e-003
2	0.125	0.008409	0.506	0.85	1.9	0.0	4.28e-004	0.00e+000	4.28e-004
3	0.25	0.01414	0.497	1.42	1.8	0.0	4.38e-004	0.00e+000	4.38e-004
4	0.5	0.02164	0.486	2.18	0.9	0.0	8.44e-004	0.00e+000	8.44e-004
5	1	0.03148	0.471	3.17	0.5	0.0	1.69e-003	0.00e+000	1.69e-003
6	2	0.04471	0.450	4.50	0.3	0.1	2.21e-003	9.58e-003	3.59e-003
7	4	0.06251	0.423	6.29	0.5	0.0	1.60e-003	2.45e-002	3.01e-003
8	4 8	0.08551	0.388	8.60	0.2	0.0	3.79e-003	3.38e-002	6.81e-003
9	2	0.08375	0.391	8.43	0.0	0.0	1.53e-001	0.00e+000	1.53e-001
10	0.5	0.08077	0.395	8.13	0.1	0.0	5.63e-003	4.51e-002	1.00e-002
11	0.125	0.07608	0.403	7.65	1.9	0.0	3.57e-004	0.00e+000	3.57e-004
12	0.064	0.07204	0.409	7.25	28.4	0.0	2.45e-005	0.00e+000	2.45e-005
13	0.125	0.07141	0.410	7.18	0.0	0.0	1.66e-002	1.59e-002	1.63e-002
14	0.25	0.07189	0.409	7.23	0.4	0.0	1.61e-003	0.00e+000	1.61e-003
15	0.5	0.07386	0.406	7.43	0.5	0.0	1.52e-003	1.81e-002	2.81e-003
16	1	0.07609	0.403	7.65	0.1	0.0	8.30e-003	3.32e-002	1.33e-002
17	2	0.07918	0.398	7.97	0.0	0.0	2.17e-002	6.01e-002	3.19e-002
18	4	0.08263	0.393	8.31	0.0	0.0	4.16e-002	7.79e-002	5.43e-002
19	8	0.09055	0.380	9.11	0.1	0.0	8.68e-003	0.00e+000	8.68e-003
20	16	0.1128	0.346	11.35	0.1	0.0	5.81e-003	4.59e-002	1.03e-002
21	32	0.1424	0.301	14.32	0.1	0.0	7.93e-003	4.73e-002	1.36e-002
22	8	0.1379	0.308	13.87	0.0	0.0	6.28e-002	0.00e+000	6.28e-002
23	2	0.1341	0.314	13.49	0.0	0.0	3.13e-002	1.70e+001	6.25e-002
24	0.5	0.1294	0.321	13.01	0.9	0.0	6.72e-004	0.00e+000	6.72e-004
25	0.125	0.1231	0.331	12.39	7.3	0.0	8.43e-005	0.00e+000	8.43e-005
26	0.064	0.1194	0.336	12.01	14.4	0.0	4.35e-005	0.00e+000	4.35e-005

Project No.: 08H0120E Checked By: JCC Depth: 8.5-8.7 Elevation: N/A



FS = 2.13

Material Properties

Name: Glacial Till Model: Mohr-Coulomb Unit Weight: 135 pcf Cohesion': 3,500 psf Phi': 0 ° Unit Weight: 125 pcf Cohesion': 0 psf Phi': 34 ° Name: MSE Wall Model: Mohr-Coulomb Unit Weight: 120 pcf Cohesion': 760 psf Phi': 0 ° Name: Medium Layer Model: Mohr-Coulomb Name: Bedrock Model: Mohr-Coulomb Unit Weight: 145 pcf Cohesion': 10,000 psf Phi': 0 ° Unit Weight: 130 pcf Cohesion': 3,000 psf Phi': 0 ° Name: Existing Fill Model: Mohr-Coulomb Name: Embankment Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion': 1,000 psf Phi': 0 ° Name: Consolidated Layer Model: Spatial Mohr-Coulomb Unit Weight: 125 pcf Cohesion Fn: consol layer Phi': 0 ° Name: Select Fill Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion': 0 psf Phi': 34 °





Unit Weight: 120 pcf Cohesion': 680 psf Phi': 0 ° Name: Medium Layer Model: Mohr-Coulomb Unit Weight: 145 pcf Cohesion': 10,000 psf Phi': 0 ° Name: Bedrock Model: Mohr-Coulomb Name: Existing Fill Model: Mohr-Coulomb Unit Weight: 130 pcf Cohesion': 3,300 psf Phi': 0 ° Name: Embankment Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion': 1,000 psf Phi': 0 ° Name: Consolidated Layer Model: Spatial Mohr-Coulomb Unit Weight: 125 pcf Cohesion Fn: consol layer Phi': 0 ° Name: Select Fill Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion': 0 psf Phi': 34 ° Name: Gravel Model: Mohr-Coulomb Unit Weight: 110 pcf Cohesion': 0 psf Phi': 30 °





RW06 1923+60 File Name: RW06 1923+60.gsz Last Edited By: Robert Chantome Date: February 2015

FS = 3.01

Material Properties

Name: Glacial Till Model: Mohr-Coulomb Unit Weight: 135 pcf Cohesion': 4,900 psf Phi': 0 ° Name: MSE Wall Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion': 0 psf Phi': 34 ° Unit Weight: 120 pcf Cohesion': 600 psf Name: Medium Layer Model: Mohr-Coulomb Phi': 0 ° Unit Weight: 145 pcf Cohesion': 10,000 psf Phi': 0 ° Name: Bedrock Model: Mohr-Coulomb Name: Existing Fill Model: Mohr-Coulomb Unit Weight: 130 pcf Cohesion': 3,500 psf Phi': 0 ° Unit Weight: 125 pcf Cohesion': 1,000 psf Phi': 0 ° Name: Embankment Model: Mohr-Coulomb Name: Consolidated Layer Model: Spatial Mohr-Coulomb Unit Weight: 125 pcf Cohesion Fn: consol layer Phi': 0 ° Name: Select Fill Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion': 0 psf Phi': 34 ° Name: Glacial Till Model: Mohr-Coulomb Unit Weight: 135 pcf Cohesion': 1,650 psf Phi': 0 °





Name: 5 - Existing Fill Model: Mohr-Coulomb Unit Weight: 125 pcf Cohesion: 2800 psf Phi: Name: 6 - Clay Till Model: Mohr-Coulomb Unit Weight: 136 pcf Cohesion: 2700 psf Phi: 0 °

Name: 7 - Clay Shale Model: Bedrock (Impenetrable)

SN 081-6015 - IL-RW06 Case 1 - Sta 529+00 - Circle File Name: I-74 081-6015 Sta 529.gsz Last Edited By: Robert Chantome Date: 5/16/2012 5:13:26 PM

