



Illinois Department of Transportation

Office of Intermodal Project Implementation / Division of Aeronautics
1 Langhorne Bond Drive / Springfield, Illinois 62707-8415

January 11, 2021

SUBJECT: Quincy Regional Airport
Quincy, Illinois
Adams County
Illinois Project Number: UIN-4834
AIP Project Number: 3-17-0085-XX
Contract No. QI063
Item No. 04A, January 15, 2021 Letting
Addendum A

NOTICE TO PROSPECTIVE BIDDERS

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

Reason for Addendum:

- Add pay item
- Revise quantities
- Clarify plans
- Clarify specifications

To All Plan Holders:

Specification Revisions:

- Specification C-105 – Add paragraph: ***“105-4.1 The Engineer’s Field Office pay item shall not include work or costs that are incidental to the project such as mobilization, supervision, surveying, security, testing, administration, QA/QC or traffic control.”***
- Section 105-5 – Replace Adams County with: ***“Gilmer Township”***.
- Section 401-2.3 – Replace (PG) 78-22 with: ***“(PG) 64-22”***
- Section 403-2.3 – Replace (PG) 78-22 with: ***“(PG) 64-22”***
- Section 125-5.1 – Add Pay Item: ***AR125941, Adjust Stake Mounted Light, per each.***

Plan Sheet Revisions:

- Sheet GI002, Index to Sheets & Summary of Quantities – Revised quantities.
- Sheet GC100, General Phasing Notes – Add Note: ***“8. The maximum allowable height of stockpiled materials shall be 10’ above existing grade.”***
- Sheet GC103, Construction Activity Plan, Phase 1C – Added 2 additional painted runway closure markers.
- Sheet CP301, Typical Sections – Added typical section for the removal of Runway 18/36.
- Sheet EL502, Detail 2 – L-868 bases shall be Class 1A.
- Sheet EL503, Detail 1 – L-868 can extensions shall be Class 1A.

- Sheet EL505, Airfield Guidance Sign Notes - Replace note 4 with: **“Signs shall be size 1, style 2 or 3, class 2 or 3 and mode 2. See sign schedule for details.”**

Plan Quantity Revisions:

PAY ITEM	ORIGINAL QUANTITY	REVISED QUANTITY
Item AR125941 – Adjust Stake Mounted Light, per each	0	21
Item AR152455 – Embankment In Place, per cubic yard	9100	14060
Item AR401640 – Bituminous Pavement Grooving, per square yard	63800	53100
Item AR620520 – Pavement Marking – Waterborne, per square foot	25845	33615

Prime contractors must utilize the enclosed material when preparing their bid and must include any changes to the Schedule of Prices in their bid.

Questions on this addendum may be directed to Wes Ioeiger, P.E. of Crawford, Murphy & Tilly, Inc. at 217-787-8050.

Attachments:

Contract Addenda:

- Specification page 56
- Specification page 79
- Specification page 100
- Specification page 192
- Plan sheet GI002
- Plan sheet GC100
- Plan sheet GC103
- Plan sheet CP301
- Plan sheet EL502
- Plan sheet EL503
- Plan sheet EL505

Provided for Reference Only:

Geotechnical Information

- f. One mobile wireless network with a cost-free connection to the internet to be used in the RPR field office and one the construction site for use by the RPR. Possible solutions include wireless network cards installed in the RPR's computer or wireless phones capable of supplying access to the internet via a mobile connection. The network shall be available to the RPR until Substantial Completion.

105-4.1 The Engineer's Field Office pay item shall not include work or costs that are incidental to the project such as mobilization, supervision, surveying, security, testing, administration, QA/QC or traffic control.

105-5 Road Use Agreement. Prior to mobilization, the Contractor shall enter into a Road Use Agreement with the Road District in ~~Adams County~~ **Gilmer Township**, Illinois. The costs associated with the road use agreement shall be incidental to the Contract.

METHOD OF MEASUREMENT

105-5 Basis of measurement and payment. Mobilization shall be considered incidental to the Project and shall not be paid directly.

PAYMENT FOR PROVIDING THE FIELD OFFICE FULLY EQUIPPED AS SPECIFIED SHALL BE MADE AT THE CONTRACT LUMP SUM PRICE.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item AR 150510 Engineer's Field Office – per lump sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

Fine Aggregate Material Requirements

Material Test	Requirement	Standard
Liquid limit	25 maximum	ASTM D4318
Plasticity Index	4 maximum	ASTM D4318
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate - or - 15% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	1.0% maximum	ASTM C142
Sand equivalent	45 minimum	ASTM D2419

c. Sampling. ASTM D75 shall be used in sampling coarse and fine aggregate.

401-2.2 Mineral filler. Mineral filler (baghouse fines) may be added in addition to material naturally present in the aggregate. Mineral filler shall meet the requirements of ASTM D242.

Mineral Filler Requirements

Material Test	Requirement	Standard
Plasticity Index	4 maximum	ASTM D4318

401-2.3 Asphalt binder. Asphalt binder shall conform to ASTM D6373 Performance Grade (PG) ~~78-22~~ **64-22**. A certificate of compliance from the manufacturer shall be included with the mix design submittal.

401-2.4 Anti-stripping agent. Any anti-stripping agent or additive (anti-strip) shall be heat stable and shall not change the asphalt binder grade beyond specifications. Anti-strip shall be an approved material of the Department of Transportation of the State in which the project is located.

COMPOSITION

401-3.1 Composition of mixture(s). The asphalt mix shall be composed of a mixture of aggregates, filler and anti-strip agent if required, and asphalt binder. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF).

401-3.2 Job mix formula (JMF) laboratory. The laboratory used to develop the JMF shall possess a current certificate of accreditation, listing D3666 from a national accrediting authority and all test methods required for developing the JMF; and be listed on the accrediting authority's website. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Resident Project Representative (RPR) prior to start of construction.

401-3.3 Job mix formula (JMF). No asphalt mixture shall be placed until an acceptable mix design has been submitted to the RPR for review and accepted in writing. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

Fine Aggregate Material Requirements

Material Test	Requirement	Standard
Liquid limit	25 maximum	ASTM D4318
Plasticity Index	4 maximum	ASTM D4318
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate - or - 15% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	1.0 % maximum	ASTM C142
Sand equivalent	45 minimum	ASTM D2419
Natural Sand	0 to 15% maximum by weight of total aggregate	ASTM D1073

c. Sampling. ASTM D75 shall be used in sampling coarse and fine aggregate, and ASTM C183 shall be used in sampling mineral filler.

403-2.2 Mineral filler. Mineral filler (baghouse fines) may be added in addition to material naturally present in the aggregate. Mineral filler shall meet the requirements of ASTM D242.

Mineral filler Requirements

Material Test	Requirement	Standard
Plasticity Index	4 maximum	ASTM D4318

403-2.3 Asphalt binder. Asphalt binder shall conform to ASTM D6373 Performance Grade (PG) ~~78-22~~ 64-22.

403-2.4 Anti-stripping agent. Any anti-stripping agent or additive (anti-strip) shall be heat stable and shall not change the asphalt binder grade beyond specifications. Anti-strip shall be an approved material of the Department of Transportation of the State in which the project is located.

COMPOSITION

403-3.1 Composition of mixture. The asphalt plant mix shall be composed of a mixture of well-graded aggregate, filler and anti-strip agent if required, and asphalt binder. The several aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF).

403-3.2 Job mix formula (JMF) laboratory. The laboratory used to develop the JMF shall possess a current certificate of accreditation, listing D3666 from a national accrediting authority and all test methods required for developing the JMF, and listed on the accrediting authority's website. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the RPR prior to start of construction.

403-3.3 Job mix formula (JMF). No asphalt mixture shall be placed until an acceptable mix design has been submitted to the RPR for review and accepted in writing. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

Item AR 125941	Adjust Stake Mounted Light – per each
Item AR 125942	Adjust Base Mounted Light – per each
Item AR 125943	Adjust Inpavement Light – per each
Item AR 125962	Relocate Base Mounted Light – per each
Item AS 125415	MITL Base Mounted – per each
Item AS 125417	MITL Base Mounted in Shoulder – per each
Item AS 125901	Remove Stake Mounted Light – per each
Item AS 125902	Remove Base Mounted Light – per each
Item AS 125904	Remove Taxi Guidance Sign – per each
Item AS 125907	Remove REILs – per pair
Item AS 125962	Relocate Base Mounted Light – per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-51	Specification for Discharge-Type Flashing Light Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

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SUMMARY OF QUANTITIES
BASE BID - REHABILITATE RUNWAY INTERSECTION

ITEM NO.	ITEM DESCRIPTION	UNITS	QTY
AR 108108	1/C #8 5 KV UG CABLE	LF	2910.0
AR 108158	1/C #8 5 KV UG CABLE IN UD	LF	3800.0
AR 108208	2/C #8 5 KV UG CABLE	LF	175.0
AR 108258	2/C #8 5 KV UG CABLE IN UD	LF	3500.0
AR 108706	1/C #6 COUNTERPOISE	LF	8325.0
AR 110102	DUCT MARKER - IN PAVEMENT	EA	18.0
AR 125100	ELEVATED RETROREFLECTIVE MARKER	EA	4.0
AR 125415	MITL BASE MOUNTED	EA	3.0
AR 125417	MITL BASE MOUNTED IN SHOULDER	EA	7.0
AR 125442	TAXI GUIDANCE SIGN, 2 CHARACTER	EA	5.0
AR 125444	TAXI GUIDANCE SIGN, 4 CHARACTER	EA	2.0
AR 125445	TAXI GUIDANCE SIGN, 5 CHARACTER	EA	7.0
AR 125446	TAXI GUIDANCE SIGN, 6 CHARACTER	EA	1.0
AR 125470	MODIFY EXISTING SIGN PANEL	EA	1.0
AR 125510	MIRL BASE MOUNTED	EA	2.0
AR 125560	RUNWAY DISTANCE REMAINING SIGN	EA	1.0
AR 125565	SPLICE CAN	EA	4.0
AR 125901	REMOVE STAKE MOUNTED LIGHT	EA	5.0
AR 125904	REMOVE TAXI GUIDANCE SIGN	EA	9.0
AR 125941	ADJUST STAKE MOUNTED LIGHT	EA	21.0
AR 125942	ADJUST BASE MOUNTED LIGHT	EA	8.0
AR 125943	ADJUST INPAVEMENT LIGHT	EA	3.0
AR 125962	RELOCATE BASE MOUNTED LIGHT	EA	26.0
AR 150510	ENGINEER'S FIELD OFFICE	LS	1.0
AR 152455	EMBANKMENT IN PLACE	CY	14060.0
AR 156520	INLET PROTECTION	EA	14.0
AR 156530	TEMPORARY SEEDING	AC	2.0
AR 201660	BITUMINOUS CRACK REPAIR	LF	7300.0
AR 401610	BITUMINOUS SURFACE COURSE	TON	15120.0
AR 401640	BITUMINOUS PAVEMENT GROOVING	SY	63800.0
AR 401650	BITUMINOUS PAVEMENT MILLING	SY	63800.0
AR 403610	BITUMINOUS BASE COURSE	TON	20760.0
AR 501550	PCC PAVEMENT MILLING	SY	2000.0
AR 603510	BITUMINOUS TACK COAT	GAL	93000.0
AR 620520	PAVEMENT MARKING - WATERBORNE	SF	33615.0
AR 620525	PAVEMENT MARKING - BLACK BORDER	SF	4000.0
AR 620590	TEMPORARY MARKING	SF	30000.0
AR 701515	15" RCP, CLASS IV	LF	342.0
AR 701518	18" RCP, CLASS IV	LF	1121.0
AR 701900	REMOVE PIPE	LF	1165.0
AR 741415	INLET - SPECIAL	EA	11.0
AR 751900	REMOVE INLET	EA	4.0
AR 751952	ADJUST UNDERDRAIN STRUCTURE	EA	2.0
AR 901510	SEEDING	AC	21.0
AR 904510	SODDING	SY	4250.0
AR 908515	HEAVY-DUTY HYDRAULIC MULCH	AC	21.0

SUMMARY OF QUANTITIES
BASE BID - REHABILITATE RUNWAY INTERSECTION

ITEM NO.	ITEM DESCRIPTION	UNITS	QTY
AR 108108	1/C #8 5 KV UG CABLE	LF	2910.0
AR 108158	1/C #8 5 KV UG CABLE IN UD	LF	3800.0
AR 108208	2/C #8 5 KV UG CABLE	LF	175.0
AR 108258	2/C #8 5 KV UG CABLE IN UD	LF	3500.0
AR 108706	1/C #6 COUNTERPOISE	LF	8325.0
AR 110102	DUCT MARKER - IN PAVEMENT	EA	18.0
AR 125100	ELEVATED RETROREFLECTIVE MARKER	EA	4.0
AR 125415	MITL BASE MOUNTED	EA	3.0
AR 125417	MITL BASE MOUNTED IN SHOULDER	EA	7.0
AR 125442	TAXI GUIDANCE SIGN, 2 CHARACTER	EA	5.0
AR 125444	TAXI GUIDANCE SIGN, 4 CHARACTER	EA	2.0
AR 125445	TAXI GUIDANCE SIGN, 5 CHARACTER	EA	7.0
AR 125446	TAXI GUIDANCE SIGN, 6 CHARACTER	EA	1.0
AR 125470	MODIFY EXISTING SIGN PANEL	EA	1.0
AR 125510	MIRL BASE MOUNTED	EA	2.0
AR 125560	RUNWAY DISTANCE REMAINING SIGN	EA	1.0
AR 125565	SPLICE CAN	EA	4.0
AR 125901	REMOVE STAKE MOUNTED LIGHT	EA	5.0
AR 125904	REMOVE TAXI GUIDANCE SIGN	EA	9.0
AR 125941	ADJUST STAKE MOUNTED LIGHT	EA	8.0
AR 125943	ADJUST INPAVEMENT LIGHT	EA	3.0
AR 125962	RELOCATE BASE MOUNTED LIGHT	EA	26.0
AR 150510	ENGINEER'S FIELD OFFICE	LS	1.0
AR 152455	EMBANKMENT IN PLACE	CY	9100.0
AR 156520	INLET PROTECTION	EA	14.0
AR 156530	TEMPORARY SEEDING	AC	2.0
AR 201660	BITUMINOUS CRACK REPAIR	LF	7300.0
AR 401610	BITUMINOUS SURFACE COURSE	TON	15120.0
AR 401640	BITUMINOUS PAVEMENT GROOVING	SY	63800.0
AR 401650	BITUMINOUS PAVEMENT MILLING	SY	63800.0
AR 403610	BITUMINOUS BASE COURSE	TON	20760.0
AR 501550	PCC PAVEMENT MILLING	SY	2000.0
AR 603510	BITUMINOUS TACK COAT	GAL	93000.0
AR 620520	PAVEMENT MARKING - WATERBORNE	SF	25815.0
AR 620525	PAVEMENT MARKING - BLACK BORDER	SF	4000.0
AR 620590	TEMPORARY MARKING	SF	30000.0
AR 701515	15" RCP, CLASS IV	LF	342.0
AR 701518	18" RCP, CLASS IV	LF	1121.0
AR 701900	REMOVE PIPE	LF	1165.0
AR 741415	INLET - SPECIAL	EA	11.0
AR 751900	REMOVE INLET	EA	4.0
AR 751952	ADJUST UNDERDRAIN STRUCTURE	EA	2.0
AR 901510	SEEDING	AC	21.0
AR 904510	SODDING	SY	4250.0
AR 908515	HEAVY-DUTY HYDRAULIC MULCH	AC	21.0

SUMMARY OF QUANTITIES
ADDITIVE ALTERNATE 1 - REMOVE 18/36 SOUTH

ITEM NO.	ITEM DESCRIPTION	UNITS	QTY
AS 108158	1/C #8 5 KV UG CABLE IN UD	LF	2100.0
AS 108706	1/C #6 COUNTERPOISE	LF	750.0
AS 125415	MITL BASE MOUNTED	EA	3.0
AS 125417	MITL BASE MOUNTED IN SHOULDER	EA	7.0
AS 125901	REMOVE STAKE MOUNTED LIGHT	EA	53.0
AS 125902	REMOVE BASE MOUNTED LIGHT	EA	60.0
AS 125904	REMOVE TAXI GUIDANCE SIGN	EA	9.0
AS 125907	REMOVE REELS	PAIR	1.0
AS 125962	RELOCATE BASE MOUNTED LIGHT	EA	2.0
AS 152455	EMBANKMENT IN PLACE	CY	18490.0
AS 156520	INLET PROTECTION	EA	4.0
AS 401900	REMOVE BITUMINOUS PAVEMENT	SY	32750.0
AS 501120	RUBBLIZE PAVEMENT	SY	32750.0
AS 620520	PAVEMENT MARKING - WATERBORNE	SF	1700.0
AS 620525	PAVEMENT MARKING - BLACK BORDER	SF	1700.0
AS 620900	PAVEMENT MARKING REMOVAL	SF	1000.0
AS 901510	SEEDING	AC	11.5
AS 908515	HEAVY-DUTY HYDRAULIC MULCH	AC	11.5



License No. 184-000613

CONSULTANTS

THIS BAR IS EQUAL TO 2" AT FULL SCALE (34X22).

FINAL SUBMITTAL
NOVEMBER 20, 2020

RECONSTRUCT RUNWAY 4/22,
PHASE 1 (CONSTRUCTION)

OWNER



CITY OF QUINCY
QUINCY REGIONAL AIRPORT
QUINCY, IL

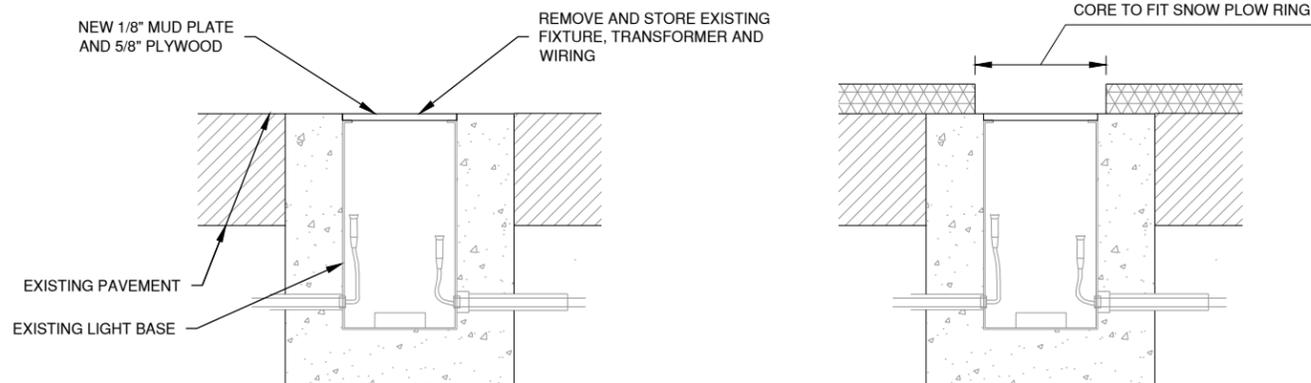
1-8-2021	ADDENDUM A
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MARK	DATE	DESCRIPTION
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IL PROJ. NO: UIN-4834		
CMT PROJECT NO: 18002001		
CAD DWG FILE: 180020-01 PH1 GI002.DWG		
DESIGNED BY: HWI		
DRAWN BY: DPA		
CHECKED BY: MJD		
APPROVED BY: RLV		
COPYRIGHT:		

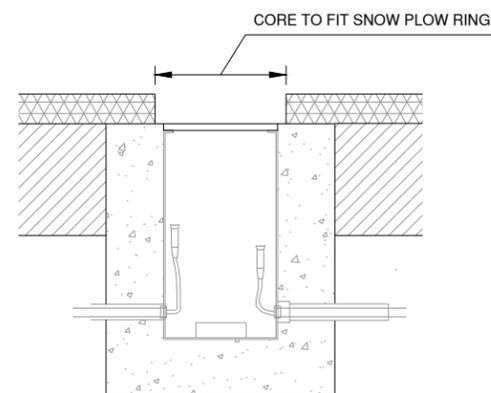
SHEET TITLE
**INDEX TO SHEETS &
SUMMARY OF
QUANTITIES**

GI002

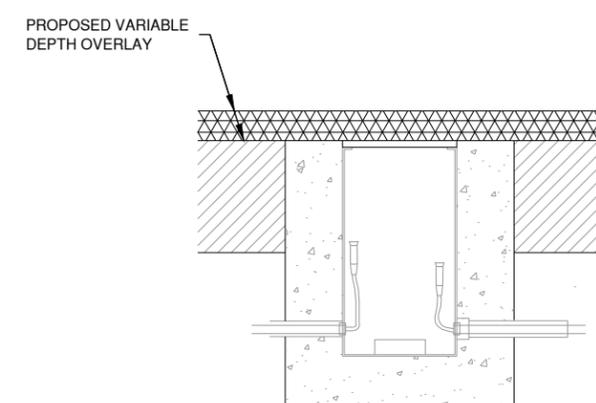
SHEET 2 OF 93



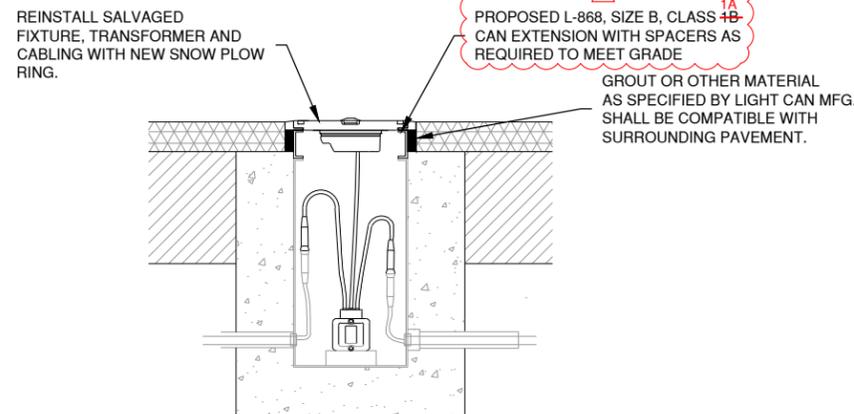
STEP 1



STEP 4



STEP 2

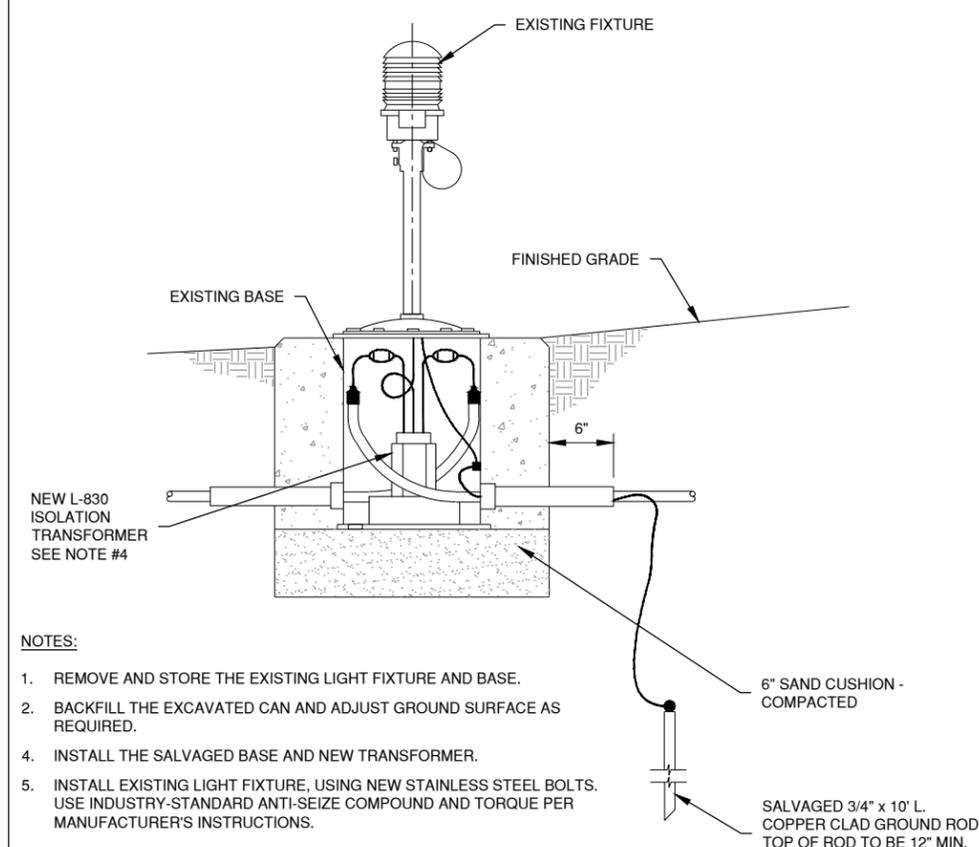


STEP 5

NOTES:

- INSTALLATION SEQUENCE SHALL BE AS DETAILED IN STEPS 1 THROUGH 5 AND AS DESCRIBED BELOW.
- REMOVE AND STORE THE EXISTING LIGHT FIXTURE, TRANSFORMER AND WIRING.
- INSTALL MUD PLATE AND SURVEY LOCATION OF BULLSEYE.
- AFTER FINAL PAVING AT THE FIXTURE LOCATION, CORE A 4" DIA. PILOT HOLE TO LOCATE THE CENTER OF THE BULLSEYE PLATE.
- CORE A HOLE OF SUFFICIENT DIAMETER TO ACCOMMODATE THE NEW SNOW PLOW RING CENTERED ON THE LIGHT BASE.
- USING A MANUFACTURER'S SETTING JIG (OR OTHER DEVICE APPROVED BY THE ENGINEER), INSTALL THE CAN EXTENSION AND ADJUST TO THE REQUIRED ELEVATION WITH SPACER RINGS IF NECESSARY.
- FILL THE ANNULAR SPACE AROUND THE CAN EXTENSION WITH GROUT OR OTHER MATERIAL AS APPROVED BY THE LIGHT CAN MANUFACTURER.
- INSTALL THE NEW SNOW PLOW RING AND SALVAGED LIGHT FIXTURE, TRANSFORMER AND WIRING. USING NEW STAINLESS STEEL BOLTS. USE INDUSTRY-STANDARD ANTI-SEIZE COMPOUND AND TORQUE PER MANUFACTURER'S INSTRUCTIONS.
- LIGHT BEAM TO BE ORIENTED PER MANUFACTURER AND FAA CRITERIA.

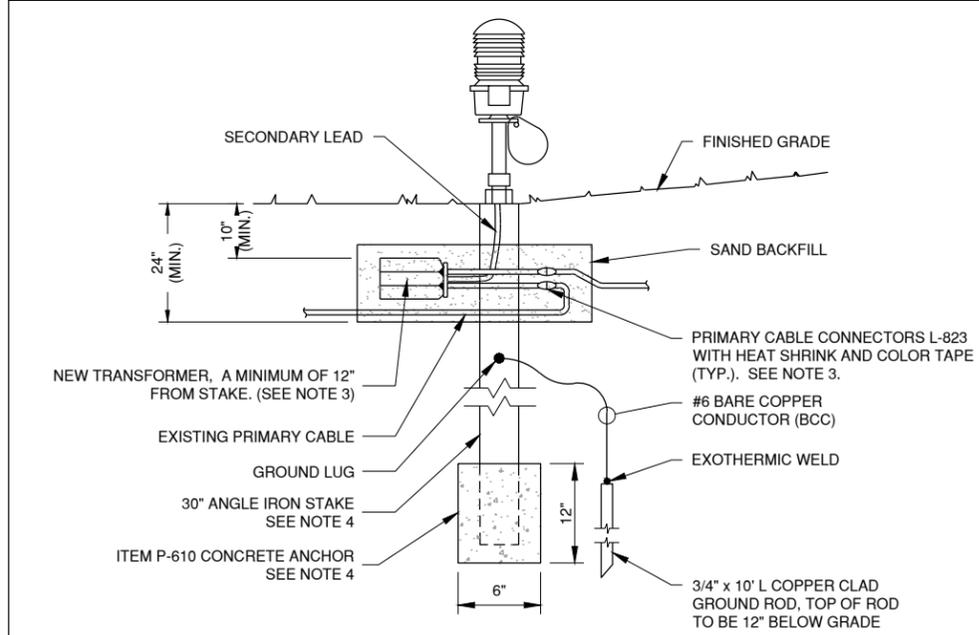
1 ADJUST IN-PAVEMENT LIGHT
N.T.S.



NOTES:

- REMOVE AND STORE THE EXISTING LIGHT FIXTURE AND BASE.
- BACKFILL THE EXCAVATED CAN AND ADJUST GROUND SURFACE AS REQUIRED.
- INSTALL THE NEW SNOW PLOW RING AND SALVAGED LIGHT FIXTURE, TRANSFORMER AND WIRING. USING NEW STAINLESS STEEL BOLTS. USE INDUSTRY-STANDARD ANTI-SEIZE COMPOUND AND TORQUE PER MANUFACTURER'S INSTRUCTIONS.
- INSTALL THE SALVAGED BASE AND NEW TRANSFORMER.
- INSTALL EXISTING LIGHT FIXTURE, USING NEW STAINLESS STEEL BOLTS. USE INDUSTRY-STANDARD ANTI-SEIZE COMPOUND AND TORQUE PER MANUFACTURER'S INSTRUCTIONS.

2 ADJUST BASE MOUNTED LIGHT
N.T.S.

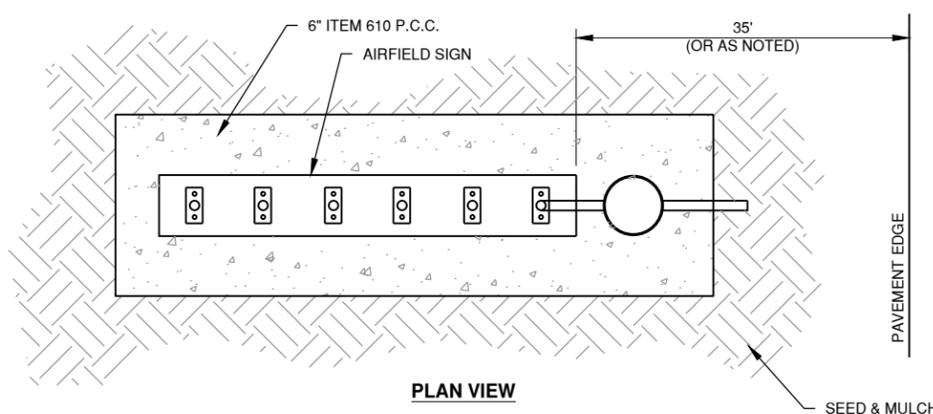
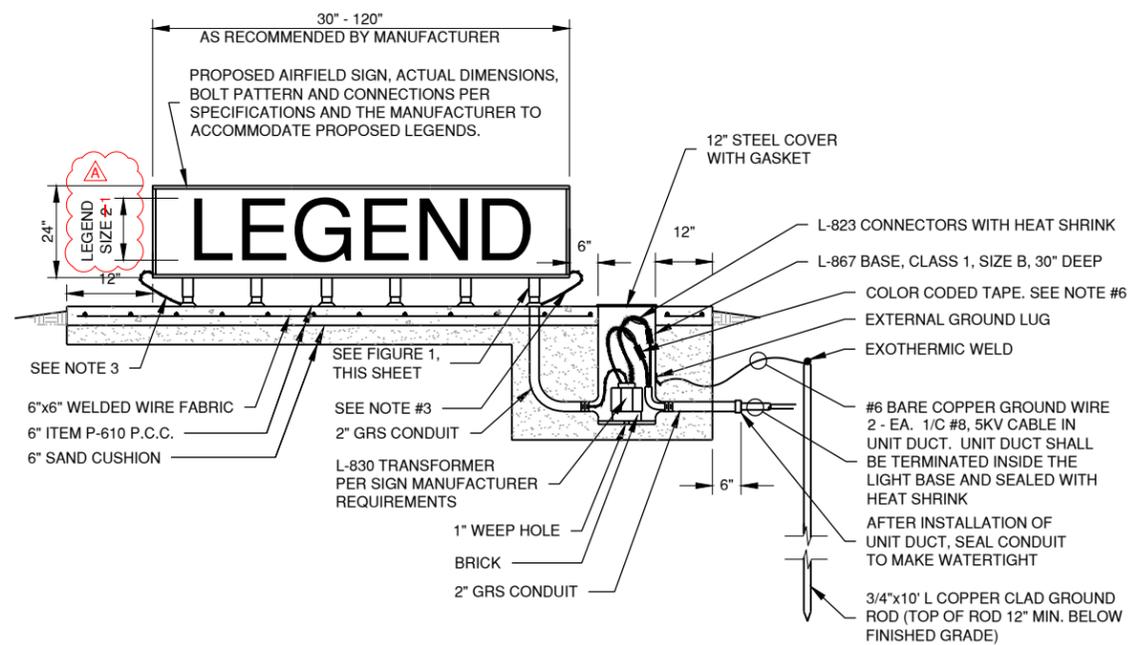


NOTES:

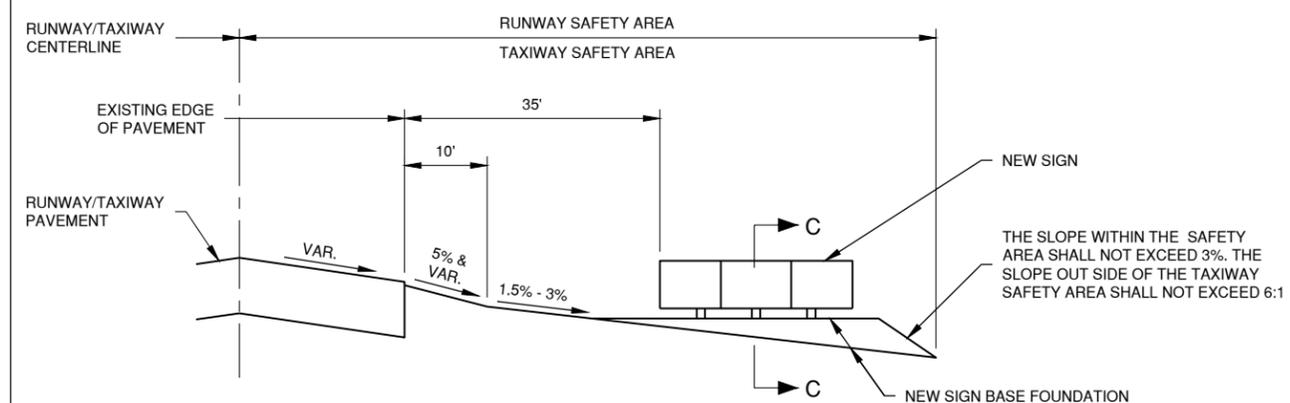
- REMOVE AND STORE THE EXISTING LIGHT FIXTURE, TRANSFORMER AND WIRING.
- ADJUST GROUND SURFACE AS REQUIRED.
- REINSTALL THE SALVAGED LIGHT FIXTURE, TRANSFORMER AND WIRING IN ACCORDANCE WITH THE DETAIL.
- NEW ANGLE IRON STAKE AND CONCRETE ANCHOR TO BE PROVIDED.

3 ADJUST STAKE MOUNTED LIGHT
N.T.S.

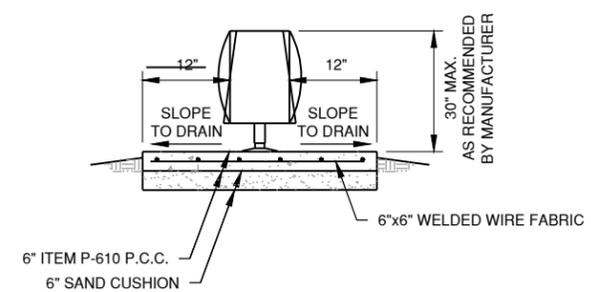
Path: K:\Quincy\AP180020-01_ReconRunway4-22\Draws\Sheets\PHASE 1\180020-01 PH1 EL501.dwg
Date: Monday, January 11, 2021 10:20:23 AM



1 L-858 AIRFIELD GUIDANCE SIGN
N.T.S.



ELEVATION

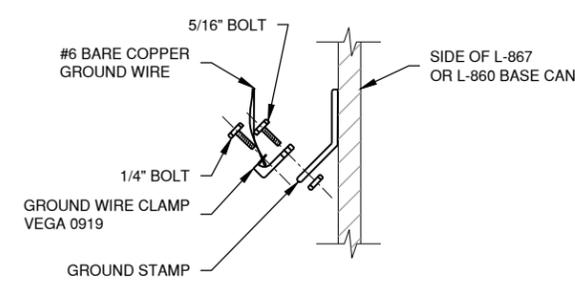


ELEVATION VIEW C-C

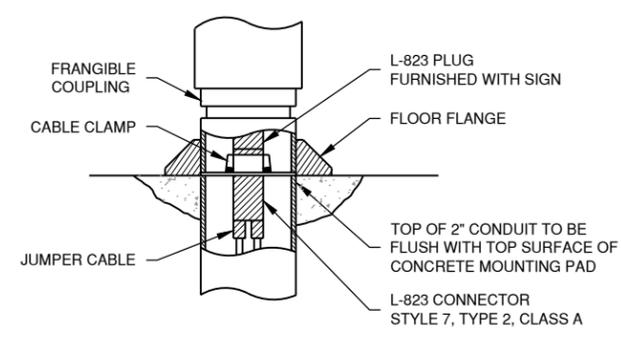
SIGN NOTES

- SLOPES SHOWN ARE FROM FAA STANDARDS AND MAY NOT REFLECT THE ACTUAL GRADES IN THE FIELD
- ESTIMATED 1 C.Y. OF EMBANKMENT MAY BE REQUIRED TO CONSTRUCT SIGN BASE FOUNDATION. COSTS TO CONSTRUCT SHALL BE INCIDENTAL TO SIGN PAY ITEM.
- ACTUAL LOCATION OF THE SIGN WITHIN THE TAXIWAY SAFETY AREA WILL VARY DUE TO PAVEMENT WIDTHS AND VARIANCES IN SIGN FOUNDATION LENGTHS.
- 4" OF KNITTED STRAW MAT SHALL BE PLACED AROUND THE PROTECTION APRON. COST FOR MAT SHALL BE INCIDENTAL TO SIGN PAY ITEM.

2 AIRFIELD SIGN INSTALLATION
N.T.S.



3 FACTORY GROUND LUG
N.T.S.



4 ELECTRICAL CONNECTION (FIGURE 1)
N.T.S.

AIRFIELD GUIDANCE SIGN NOTES

- TRANSFORMER WATTAGE SHALL BE AS REQUIRED BY SIGN MANUFACTURER. SIGNS ON RUNWAY CIRCUITS SHALL BE STYLE 2 OR 3 DEPENDING ON REGULATOR.
- SIGN LEGEND SHALL BE AS SHOWN IN THE PLANS. SIGN SCHEDULE IS SUBJECT TO FAA APPROVAL OF THE SIGNAGE PLAN. CHANGES TO NEW LEGENDS MAY OCCUR DURING CONSTRUCTION.
- SIGN ANCHOR TETHERS AND GROUND WIRES ARE REQUIRED. SEE SPECIFICATIONS.
- SIGNS SHALL BE SIZE **2-1**, STYLE 2 OR 3, CLASS **2 OR 3**, AND MODE 2. SEE SIGN SCHEDULE FOR DETAILS
- LIGHT I.D. TAG FOR SIGN SHALL INCLUDE SIGN DESIGNATOR SHOWN IN THE PLAN TABLES.
- DIRECTION OF PRIMARY CABLES MUST BE IDENTIFIED BY COLOR CODING AS FOLLOWS: WHEN FACING SIGN IN BACK FACING THE RELATED RUNWAY OR TAXIWAY PAVEMENT, THE CABLE FOR THE CIRCUIT TO THE LEFT IS CODED RED AND CABLE FOR THE CIRCUIT TO THE RIGHT IS CODED BLUE.

FINAL SUBMITTAL
NOVEMBER 20, 2020

RECONSTRUCT RUNWAY 4/22,
PHASE 1 (CONSTRUCTION)

OWNER



CITY OF QUINCY
QUINCY REGIONAL AIRPORT
QUINCY, IL

MARK	DATE	DESCRIPTION
	1/8/2021	ADDENDUM A

AIP PROJ. NO:	3-17-0085-XX
IL PROJ. NO:	UIN-4834
CMT PROJECT NO:	18002001
CAD DWG FILE:	180020-01 PH1 EL501.DWG
DESIGNED BY:	HWI
DRAWN BY:	DPA
CHECKED BY:	MJD
APPROVED BY:	RLV
COPYRIGHT:	

SHEET TITLE
ELECTRICAL DETAILS
5



MEMORANDUM

TO: UIN-4834 Bidders
FROM: CMT
CC:
DATE: January 8, 2021
SUBJECT: Geotechnical Report

The attached geotechnical reports (or any portions thereof) are provided only as available information. The contractor may draw his own conclusions from the data shown. The soils information provided is not represented as or representative of all soil which might be encountered within the limits of the project. The contractor shall by his own means, satisfy himself as to the existing site and geotechnical conditions for determining cost, means, methods, techniques and sequences of construction.

The information presented in the boring logs and pavement cores are representative of that exact location shown in the plans. Pavement and substrata properties at other locations may vary.

Attachments:

Geotechnical Report dated 12/17/2019
Geotechnical Report dated 12/01/2020
Boring Location Plan for Geotechnical Report dated 12/01/2020

December 17, 2019

Crawford, Murphy & Tilly, Inc.
2750 W Washington Street
Springfield, IL 62702

Attn: Mr. Wes loerger, P.E.
Senior Engineer

RE: Geotechnical Exploration Quincy Regional
Airport Runway 4/22 Reconstruction UIN-4754

In accordance with our November 20, 2019 engineering services agreement, we have conducted a geotechnical exploration for the proposed Runway 14/22 reconstruction at the Quincy Regional Airport in Adams County, IL.

Scope of Services

The scope of the field geotechnical services for this phase of the project consisted of twenty (20) test borings with standard penetration tests at 2½ ft. vertical intervals that were drilled at client-selected locations along the existing runway 14/22 as shown on the boring location sketch in the appendix to this report. Borings 5, 18 and 19 were eliminated by the client due to their location being in the recently reconstructed runway 13/31. There are four additional borings planned in potential borrow areas that are anticipated for early 2020. Ground surface elevations were determined by Crawford, Murphy & Tilly, Inc. and they are shown on the boring logs. The scope of services also consisted of a laboratory testing program consisting of moisture contents (ASTM D2216), unified soil classifications (USCS), standard proctor moisture-density relationship (ASTM D398) and modified proctor moisture-density relationship (ASTM D1557) and bearing ratio tests (ASTM D1883).

Boring Logs/Laboratory Test Data

Boring logs with existing pavement composition and thickness, core photos, SPT values, Unified Soil Classifications and moisture contents are included in the appendix to this report. Standard and modified proctors and bearing ratio tests are attached in the appendix also. Bearing ratios generally varied from 3% to 5% at dry densities of 95% to 103% of the standard proctor maximum dry density. Historically, the lean and fat clay at the QRA site respond fairly well to lime stabilization. Typical application rates for hydrated lime and/or the lime kiln dust (aka LKD or Code L lime) vary from 4% to 5% of dry weight. If you have any questions concerning this data contained in this report, feel free to call.

Very truly yours,

GEOTECHNICS



Ronald W. Craven, P.E.
Geotechnical Services Department Manager
IL PE No. 062.040791

Encl.

A P P E N D I X

TEST BORING LOCATION IMAGE
FIELD INVESTIGATION
LABORATORY INVESTIGATION
BORING LOGS - GENERAL INFORMATION
RUNWAY CORE PHOTOS
FIELD/LAB TEST SUMMARY
STANDARD/MODIFIED PROCTORS
BEARING RATIO TESTS
BORING LOGS

FIELD INVESTIGATION

The field investigation consisted of a site inspection, subsurface exploration and sampling, as well as field testing and visual classification of the soils encountered. The site inspection provided information concerning existing topography and recent manmade alterations. During this inspection the locations and ground elevations for each of the borings were determined.

Subsurface exploration and sampling was conducted in an effort to define the soil profile and to obtain disturbed and/or undisturbed representative samples of the various soils encountered for the purposes of the laboratory investigation.

Test borings were completed with a CME 55/75 drill rig equipped with hollow stem augers or continuous flight solid stem augers. The hollow stem augers permit convenient access to the undisturbed soil below the auger bit which allows the driller to obtain a soil sample at any desired depth. Unless instructed otherwise, the boreholes upon completion were backfilled with auger cuttings (soil). Periodic observation and maintenance of the backfilled boreholes should be performed to monitor for subsidence at the ground surface as the borehole backfill could settle over time.

As the test borings were advanced, two methods of sampling were employed to recover soils from the undisturbed strata below the auger bit. Representative disturbed samples were obtained from a standard Split Spoon. These samples were recovered by driving a 2" O.D. (1 $\frac{3}{8}$ " I.D.) Split Spoon sampler in accordance with ASTM D 1586-08. Relatively undisturbed samples were obtained in cohesive soils by hydraulically pushing a thin walled seamless tube sampler into the soil in accordance with ASTM D 1587-00 (2007). These Shelby Tubes were 3" in outside diameter. One or both of these methods may have been utilized based on site conditions and/or job specific requirements. Additionally, disturbed samples collected from auger cuttings may have been obtained as needed to further facilitate identification of the subsurface conditions.

The recovered samples were described in the field according to color, texture, grain size, plasticity and consistency, as recommended by ASTM D 2488-06, "Description and Identification of Soils (Visual-Manual Procedure)". Split Spoon samples when obtained were sealed in glass jars and labeled while Shelby Tube samples when obtained were sealed within the tubes and also labeled. Auger cuttings when obtained were sealed in an air tight container to preserve the natural moisture content. The samples were all carefully stored for later use in the laboratory testing program.

Field tests were conducted in an effort to establish the shearing strength of the soil. Though the results of these tests were not used alone as a basis for shearing strength determination, they were helpful in predicting the behavior of the soil mass and should be considered approximate. Where applicable, further laboratory testing and evaluation in conjunction with the field testing program was essential in determining the soil conditions.

The field testing program included the Standard Penetration Test conducted in accordance with ASTM D 1586-08. In this test, administered during the Split Spoon sampling procedure, a 2" O.D. (1 $\frac{3}{8}$ " I.D.) 24" long standard Split Spoon was driven into the soil through a depth of 18" by a 140 pound weight dropped a distance of 30". The penetration resistance, "N", was recorded as the number of blows, from the falling weight, required to drive the sampler through the final 12 inches. This penetration resistance provided a measure of the relative density of cohesionless soils and an estimate of the consistency of cohesive materials.

Recovered cohesive samples were tested, when possible, by the use of a calibrated penetrometer. The values from this test were considered an approximate measure of the consistency of the cohesive soils. The penetrometer values as well as the measures of penetration resistance were later correlated with the results of the laboratory tests conducted on cohesive soil samples obtained from the Split Spoon and/or Shelby Tube samples.

The results of the field tests on each soil sample, as well as the soil descriptions, were recorded on field boring logs as the subsurface exploration progressed. These field boring logs were later modified to reflect the more elaborate analysis provided by the laboratory testing program. These modified field boring logs are the final boring logs that are attached to this report.

LABORATORY INVESTIGATION

The laboratory investigation involved the completion of classification tests on select undisturbed samples as well as select disturbed samples of the soils that were obtained from the various soil layers encountered beneath the site. Based on the field logs/records and our examination of the samples in the laboratory, a soil testing program was developed to acquire more information about the soil conditions at the site.

Representative samples from the various soil strata were tested (site specific determination) in accordance with ASTM Specifications for the natural moisture content (ASTM D 2216-05). These parameters were used in identifying the soils through the Unified Soil Classification System (ASTM D 2487-06). This System, which is standardized and widely accepted, enables the Geotechnical Engineer to classify a soil using quantitative test results. A brief description of this classification system is contained in this report. Predictions of the soil behavior during and after construction may readily be made through the use of this comparative type of classification.

Disturbed Split Spoon and/or relatively undisturbed Shelby Tube samples of the cohesive soils were tested to determine unit weight and an approximation of the unconfined compressive strength. These tests were conducted with controlled strain by the use of a hand-operated compression apparatus with a double proving ring in accordance with ASTM D 2166-06. The results of some of the tests must be considered cautiously, recognizing that Split Spoon samples are disturbed and that these samples, when tested, will provide slightly conservative values in relation to the probable conditions in the field. The relatively undisturbed Shelby Tube samples, however, should approach the condition of the soils in-situ and the results of unconfined compression tests on these samples should be fairly accurate.

Upon completion of the laboratory testing program the final boring logs were prepared utilizing the data obtained from the laboratory testing and the initial data/records contained on the field boring logs. The remaining soil samples after all testing is completed will be stored at our office(s) for a minimum period of two months. After 30 days, the samples may be discarded unless written notification is provided.

BORING LOGS

GENERAL INFORMATION

I. DRILLING AND SAMPLING SYMBOLS:

- HA - Hollow Continuous Flight Auger
- SS - Split Spoon Sample (2" O.D. - 1 3/8" I.D.) Obtained Following the Standard Penetration Test
- 2ST - Shelby Tube Sample (2" O.D.)
- 3ST - Shelby Tube Sample (3" O.D.)
- PST - Piston sample using Shelby Tube (3" O.D.)

II. SOIL IDENTIFICATION:

The soils have been identified by Visual-Manual procedures in accordance with ASTM Standards (ASTM D 2488-06). Where specifically noted, the soils have been classified using the Unified Soil Classification System (ASTM D 2487-06). Classification estimates are in parentheses.

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of Components Present in Sample by Percent of Dry Weight

Trace	< 15
With	15-29
Modifier	> 30

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of Components Present in Sample by Percent of Dry Weight

Trace	< 5
With	5-12
Modifier	> 12

GRAIN SIZE TERMINOLOGY

Major Component of Sample and Size Range

Boulders	Over 12 in.
Cobbles	12 in. to 3 in.
Gravel	3 in. to #4 sieve
Sand	#4 sieve to #200 sieve
Silt or Clay	Passing #200 sieve

SOIL STRUCTURE TERMINOLOGY

Parting:	Paper Thin in Size
Seam:	1/8" to 3" in Thickness
Layer:	Greater than 3" in Thickness
Interbedded:	Alternating Soil Type Layers
Laminated:	Thin Layers of Varying Color and Texture, or Composition
Slickensided:	Having Inclined Planes of Weakness that are Slick and Glossy in Appearance
Fissured:	Containing Shrinkage Cracking, Frequently Filled with Fine Sand or Silt, Usually Vertical
Ferrous:	Containing Appreciable Iron
Desiccated:	Soil that has been Subjected to a Thorough Drying Process

III. SOIL PROPERTY SYMBOLS:

MC - Natural Moisture Content in %.

DRY WT.- Unit Dry Weight in Pounds per Cubic Foot.

LL - Liquid Limit in %.

PL - Plastic Limit in %.

PI - Plasticity Index in %

Qp - Unconfined Compressive Strength in Tons per Square Foot Calibrated Penetrometer Value

Qu - Unconfined Compressive Strength in Tons per Square Foot Obtained in Laboratory at Controlled Rate of Strain

BLOWS - The "blows" are the recorded results of the Standard Penetration Test (SPT). In this field test, a standard Split Spoon Sampler (2" O.D.- 1 3/8" I.D.) is driven into the soil for a total penetration of 18 inches by a 140-pound hammer which is repeatedly dropped freely for a distance of 30 inches.

The number of blows are recorded (field logs) for each 6 inches of penetration, and the penetration resistance, "N", is considered as the number of blows required for the last 12 inches of penetration.

EXAMPLE: 3-8-6 "N" = 14 blows/foot

The SPT "N" value for split-spoon refusal conditions is typically estimated as greater than 100 blows per foot. When split-spoon refusal occurs, often little or no sample is recovered. For our own in-house purposes, refusal is estimated at 50 blows per 6 inches. Where the sampler is observed not to penetrate after 50 blows, the "N" value is reported as 50/0". Otherwise, the depth of penetration after 50 blows is reported in inches (i.e. 50/5", 50/2"). Should the sampler not penetrate the full 18 inches, the results are recorded as follows:

EXAMPLE: 6-21-50/3"

This means that 6 blows were required for the first 6 inches of penetration, 21 blows were required for the second 6 inches of penetration, and 50 blows were required for the last 3 inches of penetration.

∇ - Groundwater Level During Drilling

▼ - Groundwater Level at Indicated Hours Following Boring Completion

IV. APPROXIMATE RELATIVE DENSITY AND CONSISTENCY OF SOILS ON THE BASIS OF THE STANDARD PENETRATION TEST:

NONCOHESIVE SOILS		COHESIVE SOILS*	
BLOWS/FT.**	RELATIVE DENSITY	BLOWS/FT **	CONSISTENCY
0 - 4	Very Loose	0 - 2	Very Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	Medium Dense	4 - 8	Medium
30 - 50	Dense	8 - 15	Stiff
50+	Very Dense	15 - 30	Very Stiff
		30+	Hard

* Use with caution

**Penetration Resistance "N"

V. QUANTITATIVE EXPRESSIONS FOR THE CONSISTENCY OF CLAYS:

**UNCONFINED
COMPRESSIVE
STRENGTH**

CONSISTENCY T.S.F.

FIELD IDENTIFICATION

Very Soft	0.0 - 0.25	Easily penetrated several inches by fist.
Soft	0.25 - 0.5	Easily penetrated several inches by thumb.
Medium	0.5 - 1.0	Penetrated by thumb with moderate effort.
Stiff	1.0 - 2.0	Readily indented by thumb but penetrated only with great effort.
Very Stiff	2.0 - 4.0	Readily indented by thumbnail.
Hard	4.0+	Indented with difficulty by thumbnail.

MAJOR DIVISIONS			GRAPH SYMBOL	GROUP SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (Little or No Fines)		GW	Well-Graded Gravel, Gravel-Sand Mixture, Little or No Fines
				GP	Poorly-Graded Gravel, Gravel-Sand Mixtures, Little or No Fines
		GRAVELS WITH FINES (Appreciable Amount of Fines)		GM	Silty Gravel, Gravel-Sand-Silt Mixtures
				GC	Clayey Gravel, Gravel-Sand-Clay Mixtures
	SAND AND SANDY SOILS	CLEAN SAND (Little or No Fines)		SW	Well-Graded Sand, Gravely Sands, Little or No Fines
				SP	Poorly-Graded Sand, Gravely Sands, Little or No Fines
		SANDS WITH FINES (Appreciable Amount of Fines)		SM	Silty Sand, Sand-Silt Mixtures
				SC	Clayey Sand, Sand-Clay Mixtures
FINE GRAINED SOILS	SILTS AND CLAYS	Liquid Limit <u>LESS</u> than 50%		ML	Inorganic Silt and Very Fine Sand, Rock Flour, Silty or Clayey Fine Sand or Clayey Silt with Slight Plasticity
				CL	Inorganic Clay of Low to Medium Plasticity, Gravely Clay, Sandy Clay, Silty Clay, Lean Clay
				OL	Organic Silt and Organic Silty Clay of Low Plasticity
	SILTS AND CLAYS	Liquid Limit <u>GREATER</u> than 50%		MH	Inorganic Silt, Micaceous or Diatomaceous Fine Sand or Silty Soil, Elastic Silt
				CH	Inorganic Clay of High Plasticity, Fat Clay
				OH	Organic Clay of Medium to High Plasticity, Organic Silt
HIGHLY ORGANIC SOILS				PT	Peat, Humus, Swamp Soils with High Organic Contents

SOIL CLASSIFICATION CHART

NOTES:

- 1) DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.
- 2) IN THE CASE OF COMBINATIONS, THE PREDOMINANT MATERIAL WILL BE IN HEAVY SYMBOL.

GEOTECHNICS

Soil & Material Testing

□ 818 North 9th Street, Quincy, IL Ph (217)223-8810 - Fax (217)228-9905
 ■ 4610 Plain Grove Rd, Harwood, MO Ph (636)221-0020 - Fax (636)221-0012
 □ 810 N. Third Street, Suite 100, Burlington, IA Ph (515)753-1936 - Fax (515)728-9906
 Internet Address: www.kimoner.com

UNIFIED SOIL CLASSIFICATION SYSTEM

- ASTM D 2487 -



B-1





B-2

B-2





B-4

B-4



B-7

B-7





B-9



B-9







B-11

B-11

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21





B-13



2 3 4 5 6 7 8 9 10 11

15 13



B-15





B-16

B-16

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

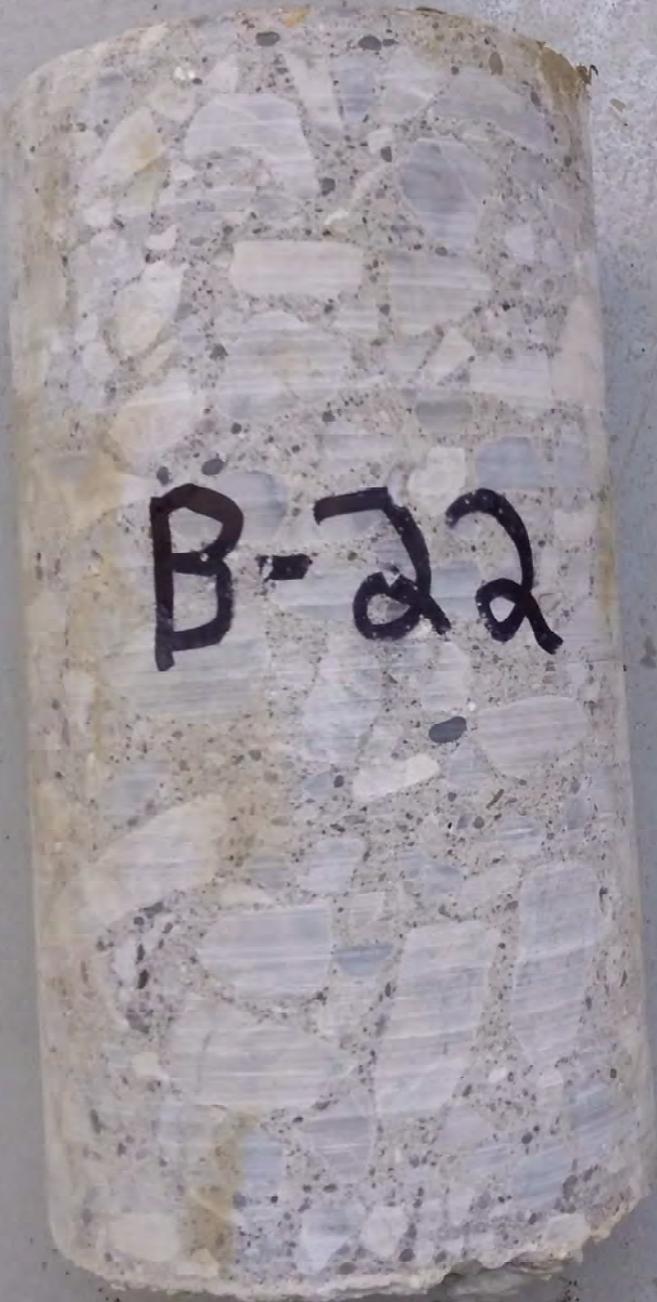


B-20

B-20

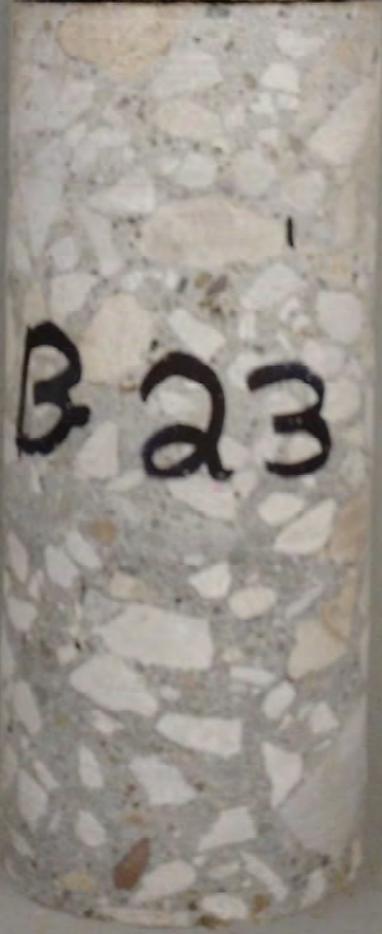






B-22

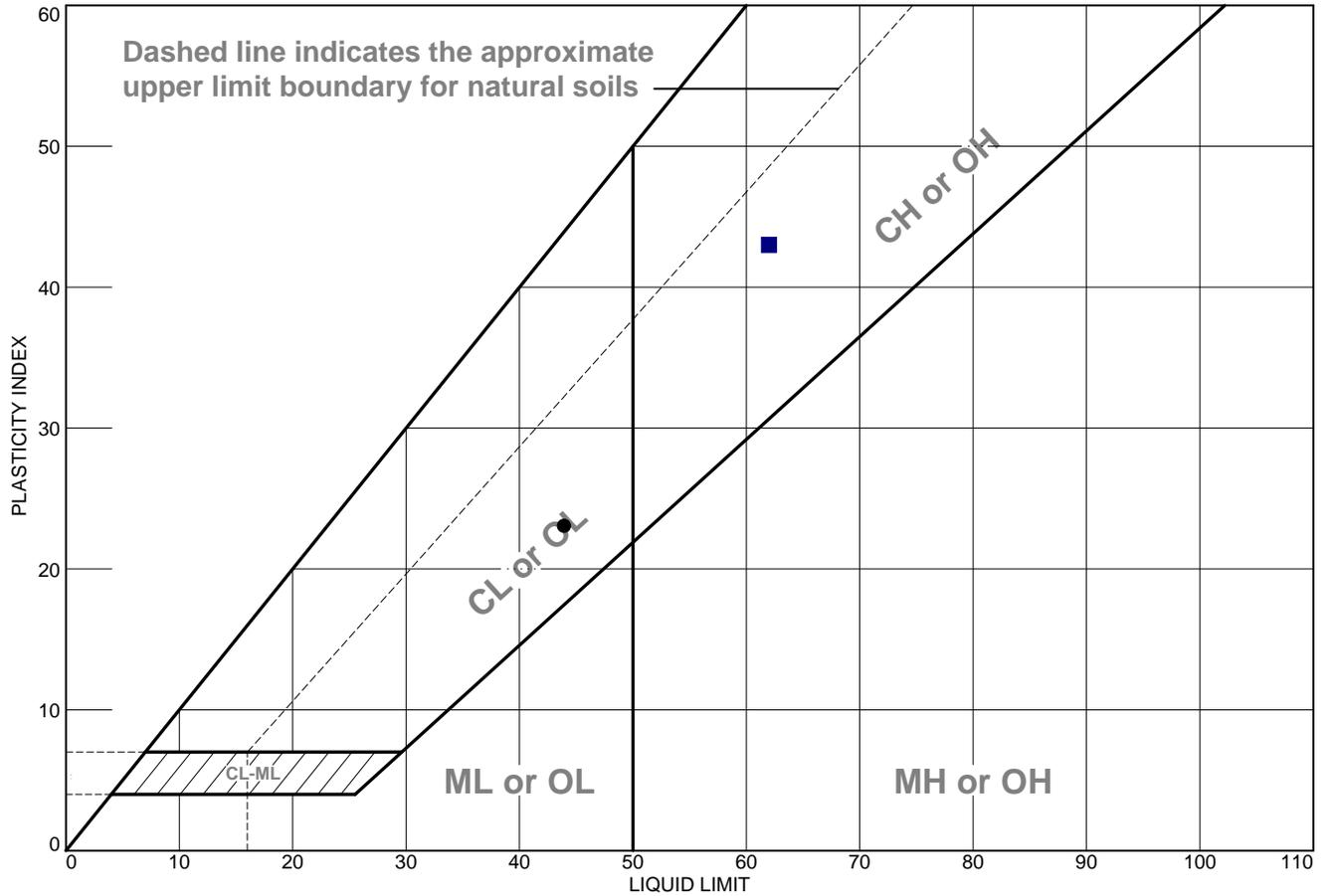




Sample No.	Asphalt Thickness, in.	Concrete Thickness, in.	Unified Soil Classification (USCS)	SPT	Moisture Content, %	Standard Proctor Max. Density, PCF	Std. Proctor OMC, %	Mod. Proctor Max. Dry Density, P.C.F.	Mod. Proctor OMC, %	Bearing Ratio @ 0.1in. %	Plasticity Index, %	% < 0.02mm	Frost Group
1-1A	8.25	10	SP		13.3								
1-1B			CL	6	22.0								
1-2			CH	6	29.7								
1-3			CL	5	28.2								
2-1A	11	8	SP		9.0								
2-1B			CL	6	23.5								
2-2			CH	6	25.1								
2-3			CL	6	24.5								
3-1A	9.25	8	SP		14.6								
3-1B			CL	7	21.8								
3-2			CH	7	22.5								
3-3			CH	5	34.6								
4-1A	9.25	9	SP		11.3								
4-1B			CL	7	22.4								
4-2			CL	7	25.2						23	67.6	FG-3
4-3			CH	5	24.4								
4-4			CH	7	27.4								
4-5			CH	7	26.1								
6-1A	10.5	8.5	SP		15.9								
6-1B			CL-CH	5	27.5								
6-2			CL-CH	4	27.5								
6-3			CL-CH	5	25.7								
6-4			CH	5	23.8								
6-5			CH	5	28.0								
7-1A	8	6	SP		14.1								
7-1B			CL	5	23.3								
7-2			CH	6	24.7								
7-3			CH	6	26.8								
8-1A	10	8.5	SP		14.5								
8-1B			CH	5	23.8								
8-2			CH	5	31.6								
8-3			CH	5	24.0								
9-1	9.5	8	CH	9	23.6								
9-2			CL-CH	6	25.8								
10-1	12	8.5	CH	4	30.3						43	62.3	FG-3
10-2			CH	8	27.9								
11-1	9	6	CH	8	26.0								
11-2			CH	10	23.1								
12-1	2.5	9.5	CL-CH	14	21.8								
12-2			CH	6	23.7								
13-1	11	10" Crushed Stone	CL-CH	5	22.4								
13-2			CH	6	25.0								
14-1	11	9" Crushed Stone	CL-CH	7	25.3								
14-2			CH	9	21.3								
15-1A	1	8.5	SP		13.7								
15-1B			CH	3	28.1								
15-2			CL	7	25.4								
15-3			CH	5	23.7								
16-1A	15	9	SP		10.2								
16-1B			CH	6	21.3								
16-2			CH	6	25.0								
16-3			CH	5	27.5								
17-1	6	9	SP	7									
17-2			CH	7	29.9								
17-3			CH	5	25.4								
20-1	4.5 (Below Conc.)	14 (@Surface)	CL	8	28.1								
20-2			CH	7	24.2								
21-1	-	10.5	CH	13	30.0								
21-2			CH	10	24.7								
22-1	11	13" Crushed Stone	CH	5	30.8								
22-2			CH	11	21.8								
23-1A	8	8.5	SP		16.8								
23-1B			CL	7	21.9								
23-2			CH	7	22.6								
23-3			CH	6	24.4								
Composite Samples													
B-9			CL		23.9					3.8			
B-14			CL		24.2					3.1			
B-21			CH		25.7					8.2			
B-2			CL		19.5					4.7			
B-4, 6, 7			CL		22.9	106.5	19.1	120.3	12.1	5.0			

GEOTECHNICS
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Office: 217.223.3670 | Fax: 217.223.3603
www.klingner.com

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Lean Clay, Silty, Light Gray Mottled Yellow Brown, CL	44	21	23	99.7	96.8	CL
■	Fat Clay, Greenish Gray Mottled Yellow Brown, CH	62	19	43	97.9	90.4	CH

Project No. 19-1122 **Client:** Crawford, Murphy & Tilly, Inc.
Project: Quincy Regional Airport
● Location: B-4 **Depth:** 3½-5 ft. **Sample Number:** 4-2
■ Location: B-10 **Depth:** 2½-4 ft. **Sample Number:** 10-1

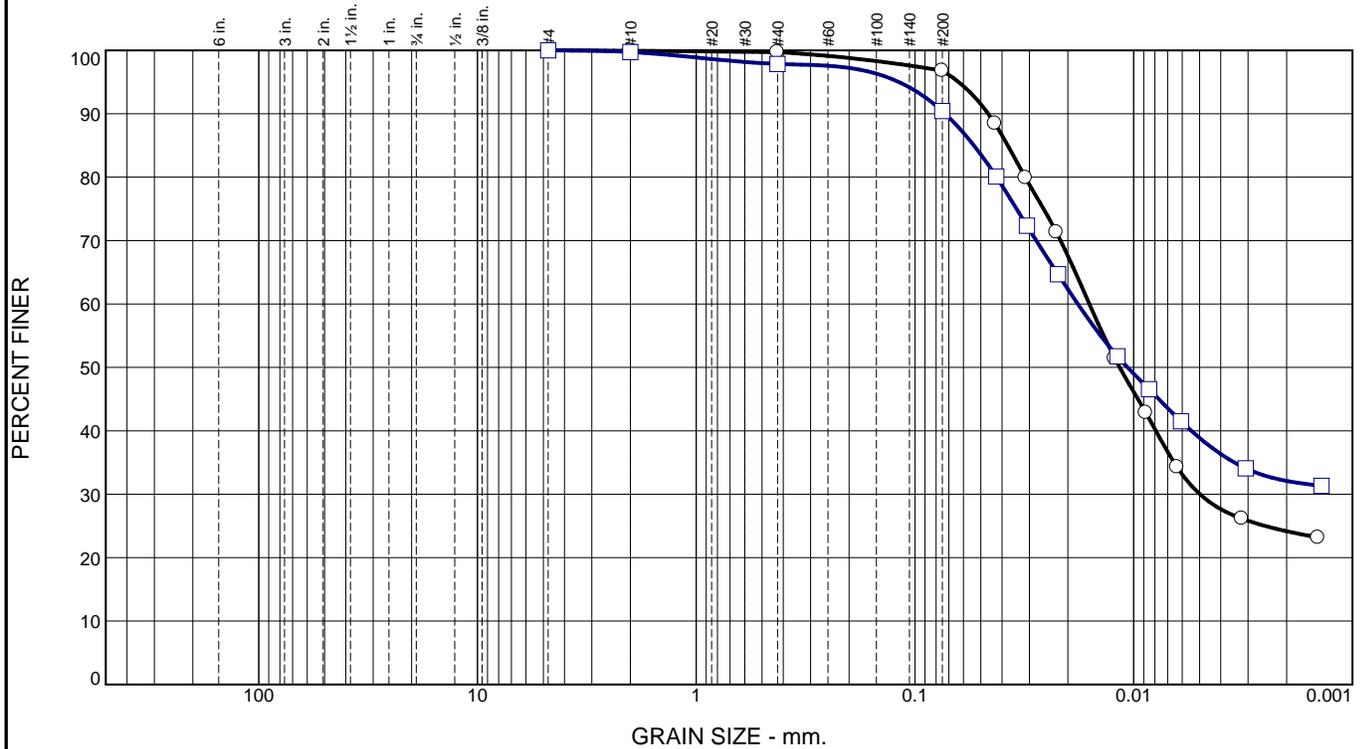
Remarks:



Figure QRA A-1

Tested By: NAS **Checked By:** RWC

Particle Size Distribution Report



	+3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○	0.0	0.0	3.2	66.8	30.0	CL	A-7-6(24)	21	44
□	0.0	0.0	9.6	51.5	38.9	CH	A-7-6(42)	19	62

SIEVE inches size	PERCENT FINER	
	○	□
X		
GRAIN SIZE		
D ₆₀	0.0159	0.0180
D ₃₀	0.0050	
D ₁₀		
COEFFICIENTS		
C _c		
C _u		

SIEVE number size	PERCENT FINER	
	○	□
#4	100.0	100.0
#10	99.9	99.7
#40	99.7	97.9
#200	96.8	90.4

Material Description
 ○ Lean Clay, Silty, Light Gray Mottled Yellow Brown, CL
 □ Fat Clay, Greenish Gray Mottled Yellow Brown, CH

REMARKS:
 ○
 □

○ Location: B-4 Depth: 3½-5 ft. Sample Number: 4-2
 □ Location: B-10 Depth: 2½-4 ft. Sample Number: 10-1

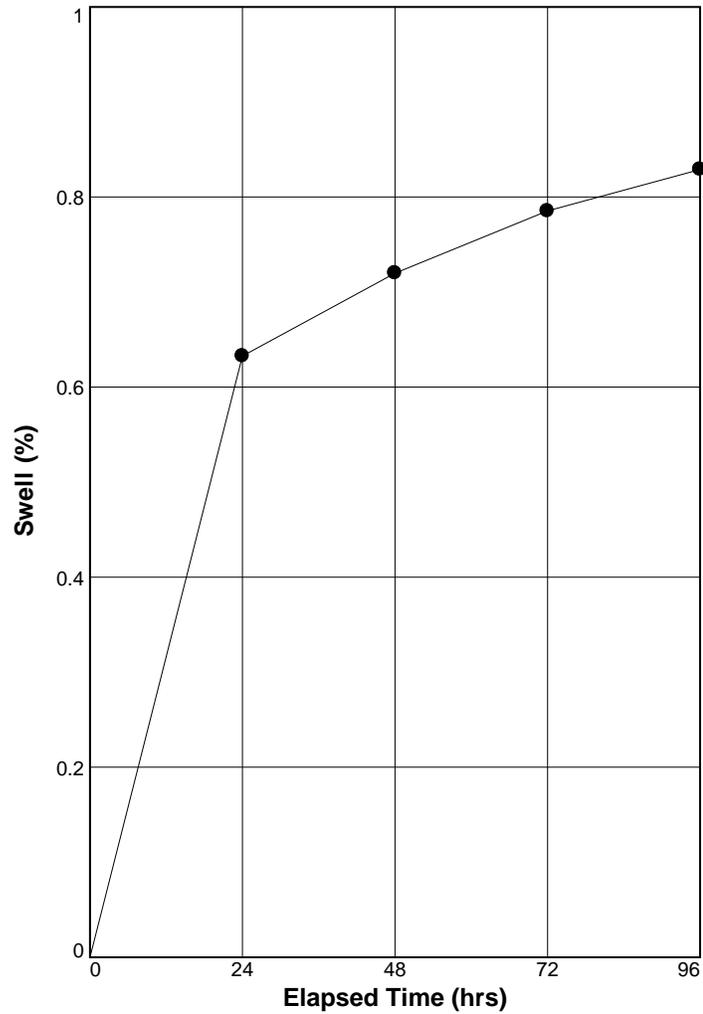
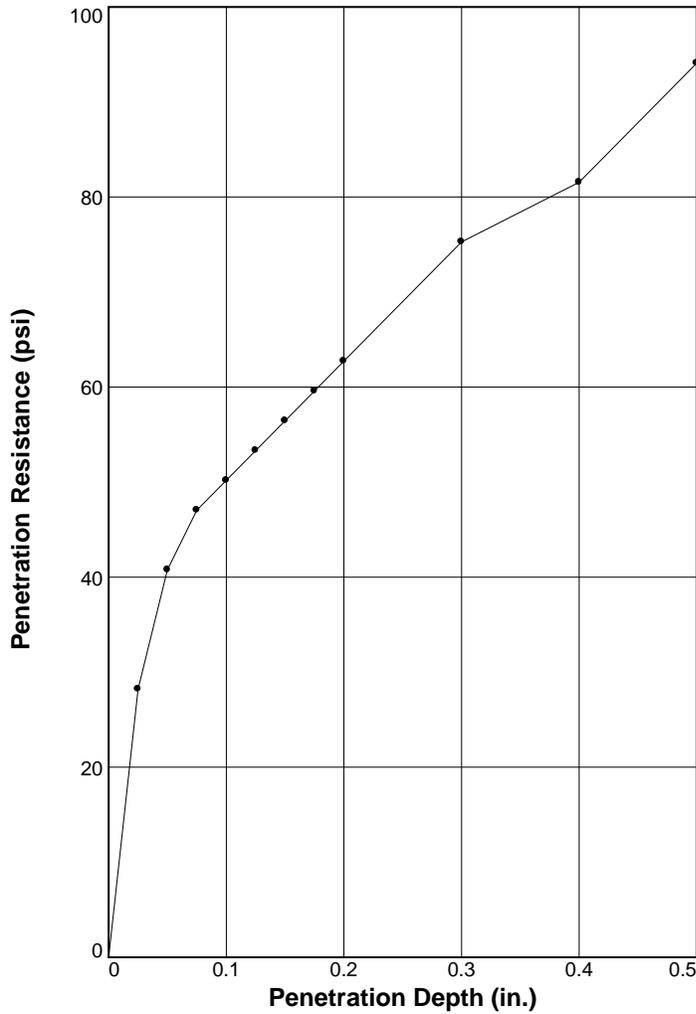
<b style="font-size: 1.2em;">GEOTECHNICS <b style="font-size: 0.8em;">Soil & Material Testing 4510 Paris Gravel Road - Hannibal, MO	Client: Crawford, Murphy & Tilly, Inc. Project: Quincy Regional Airport Project No.: 19-1122
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Figure QRA GS-1

Tested By: ○ NAS □ NAs Checked By: RWC

BEARING RATIO TEST REPORT

ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	106.8	100.3	19.0	105.9	99.4	18.1	5.0	4.2	0.000	10	0.8
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Lean Clay, Gray Mottled Light Brown, (CL)	(CL)	106.5	19.1		

Project No: 19-1122
Project: Quincy Regional Airport
Location: B-4, 6, 7
Sample Number: 467 **Depth:** 2-5 ft.
Date: 12/3/2019

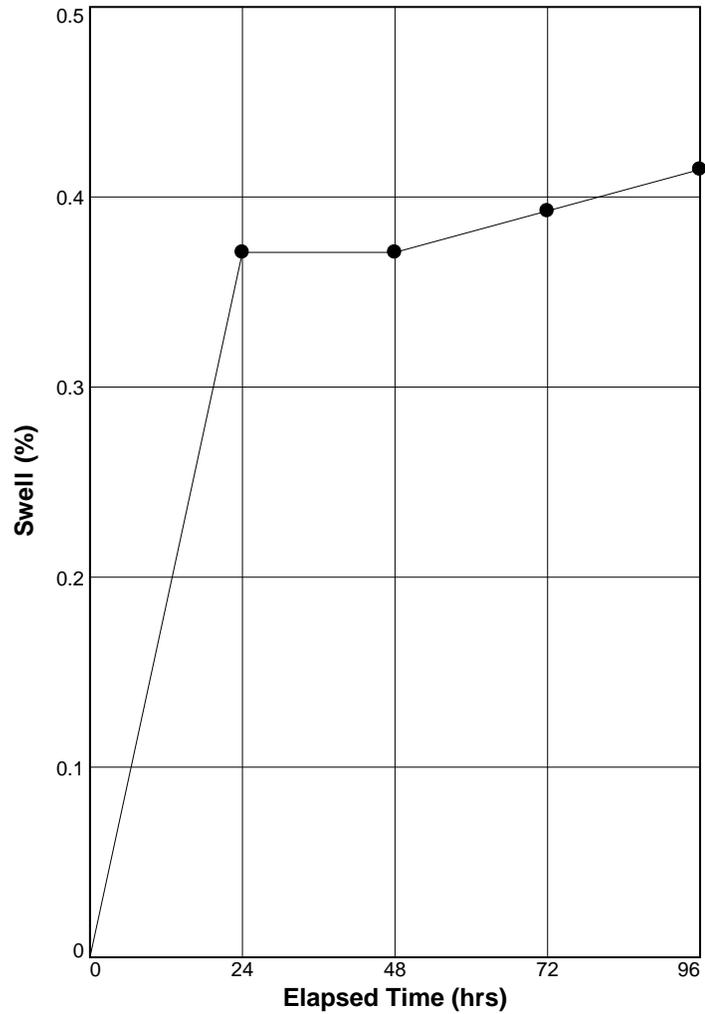
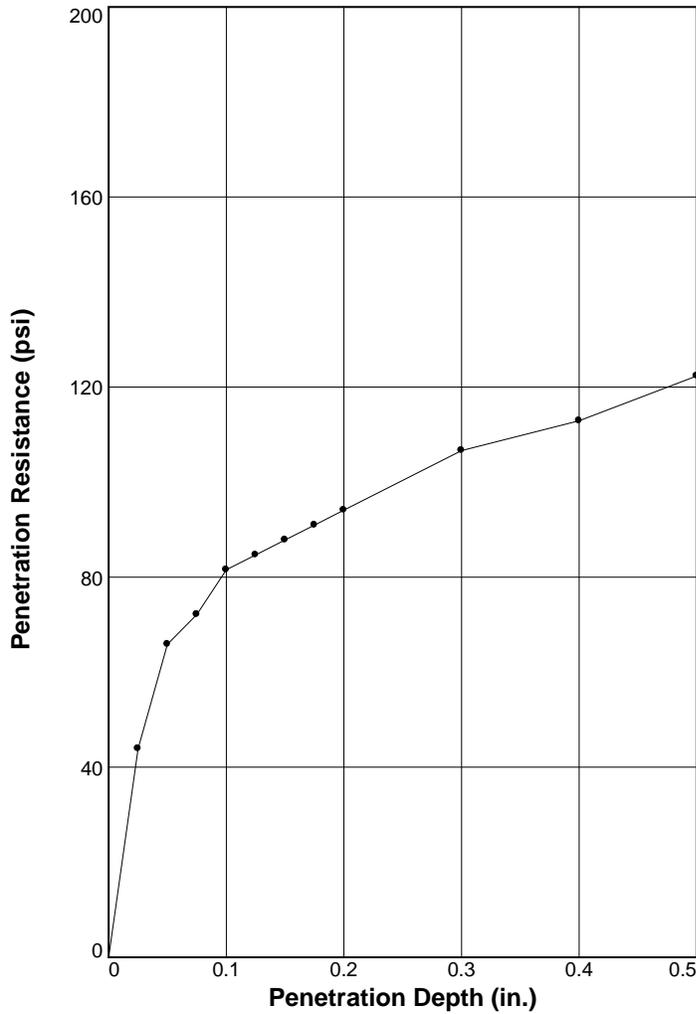
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 Soil & Material Testing
 4510 Paris Gravel Road - Hannibal, MO

Test Description/Remarks:

Figure B-4, 6, 7

BEARING RATIO TEST REPORT

ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	103.3	97	21.2	102.9	96.6	21.3	8.2	6.3	0.000	10	0.4
2 △											
3 □											

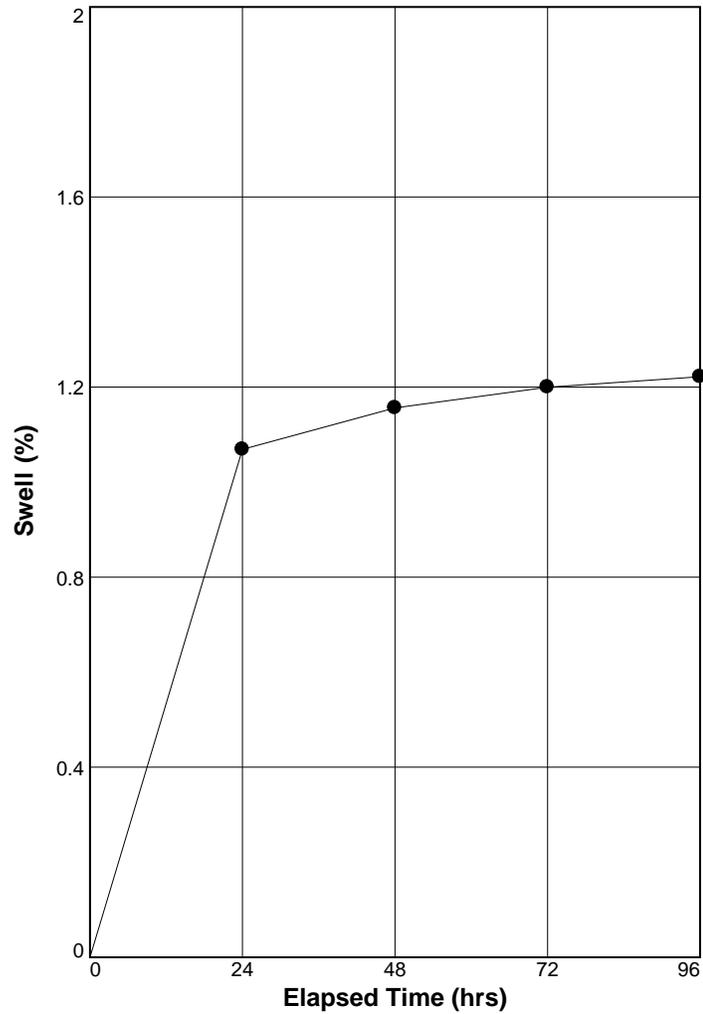
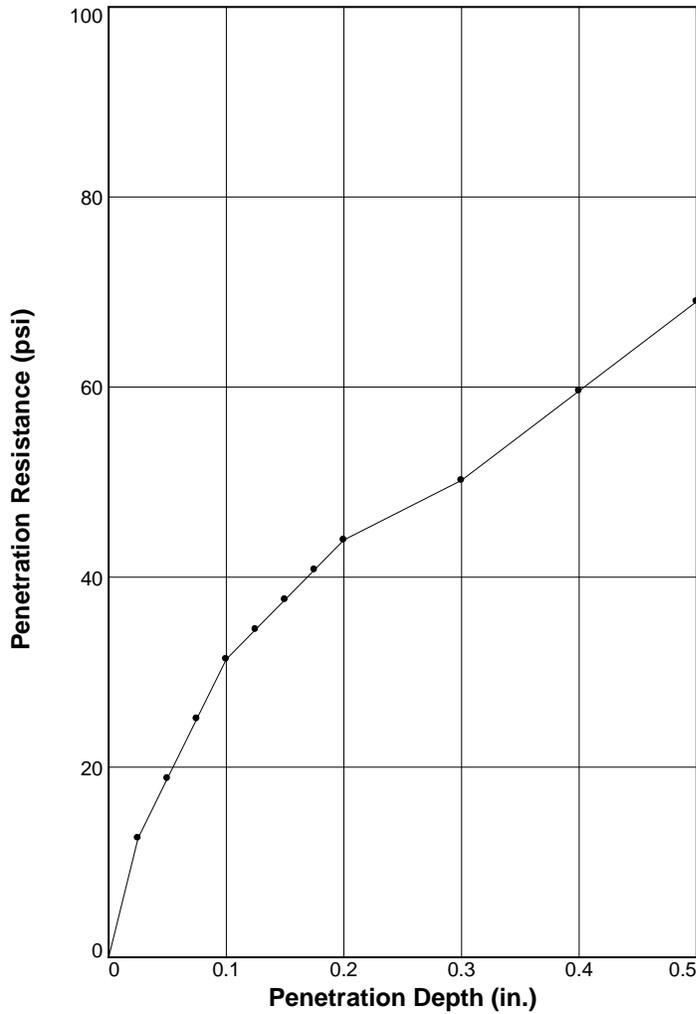
Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Fat Clay w/Sand, Little Gravel, Gray Mottled Yellow Brown, (CH)	(CH)	106.5	19.1		

Project No: 19-1122
Project: Quincy Regional Airport
Location: B-21
Sample Number: B-21 **Depth:** 2-5 ft.
Date: 12/2/2019

Test Description/Remarks:

BEARING RATIO TEST REPORT

ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	108.0	101.4	18.7	106.7	100.2	18.2	3.1	2.9	0.000	10	1.2
2 △											
3 □											

Material Description							USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Lean Clay, Brown Mottled Greenish Gray, (CL)											

Project No: 19-1122
Project: Quincy Regional Airport
Location: B-14
Sample Number: B-14 **Depth:** 2-5 ft.
Date: 12/2/2019

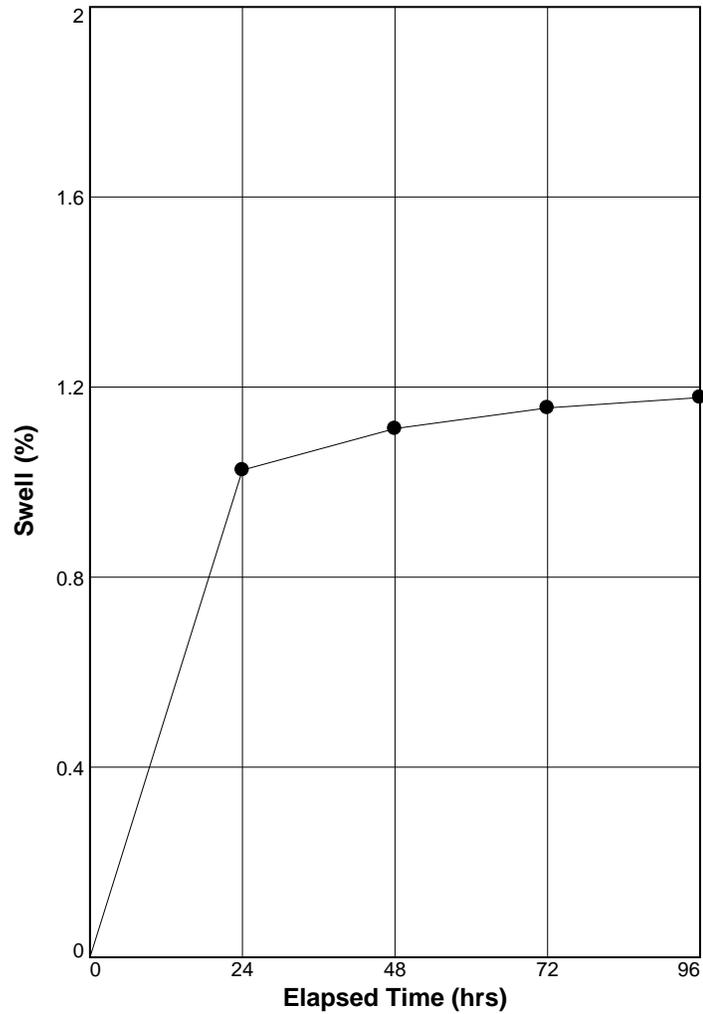
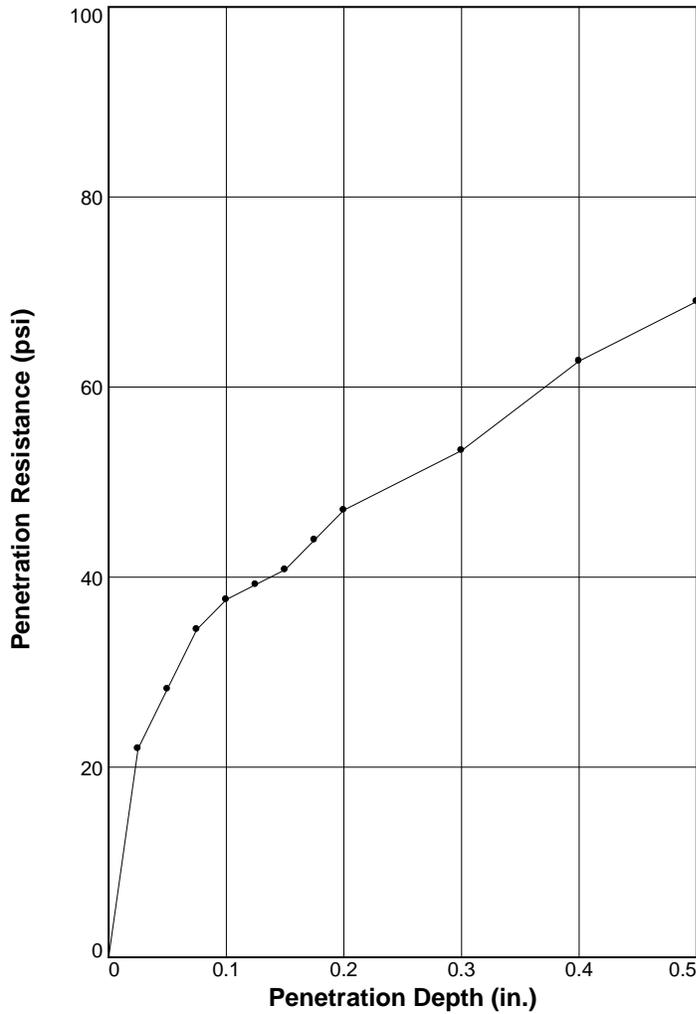
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 Soil & Material Testing
 4510 Paris Gravel Road - Hannibal, MO

Test Description/Remarks:

Figure B-14

BEARING RATIO TEST REPORT

ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	102.5	96.2	21.0	101.3	95.1	22.6	3.8	3.1	0.000	10	1.2
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Lean Clay, Light Gray Mottled Yellow/Greenish Brown, (CL)	(CL)	106.5	19.1		

Project No: 19-1122
Project: Quincy Regional Airport
Location: B-9
Sample Number: B-9 **Depth:** 2-6 ft.
Date: 12/2/2019

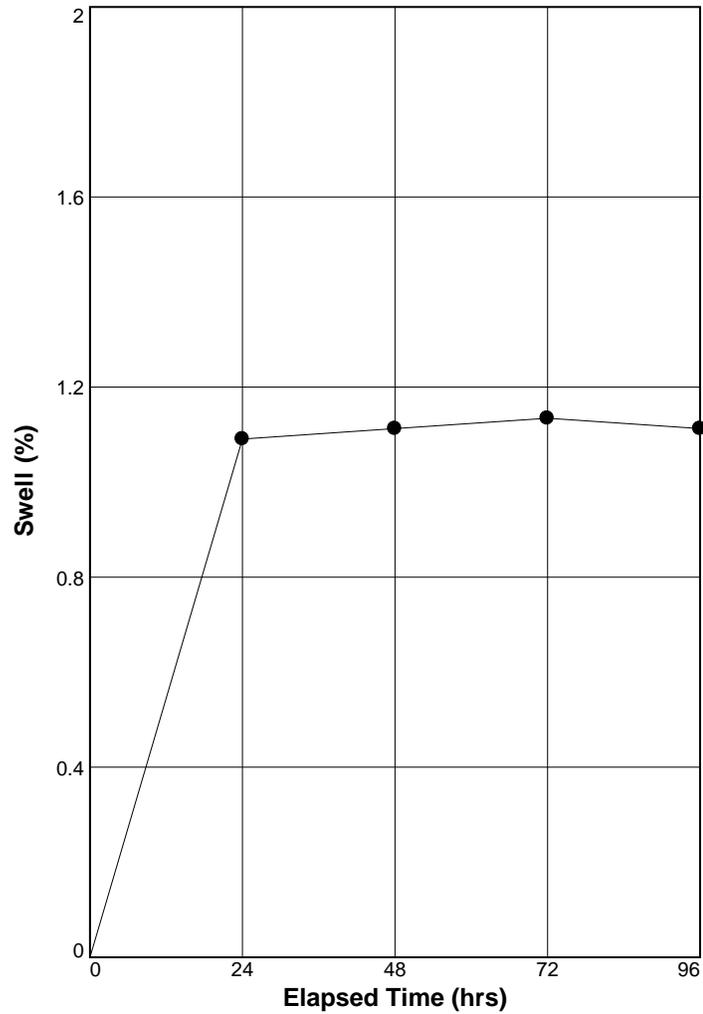
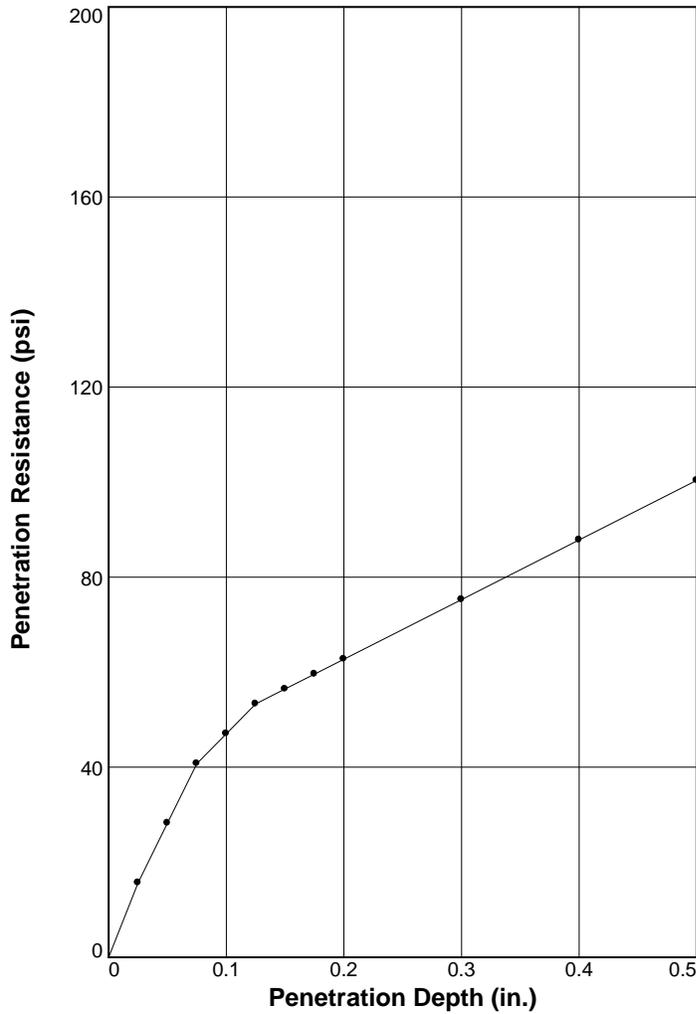
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 4510 Paris Gravel Road - Hannibal, MO

Test Description/Remarks:

Figure B-9

BEARING RATIO TEST REPORT

ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	110.7	103.9	15.0	109.4	102.8	17.0	4.7	4.2	0.000	10	1.1
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Lean Clay, Gray Mottled Yellow Brown, (CL)	(CL-CH)	106.5	19.1		

Project No: 19-1122
Project: Quincy Regional Airport
Location: B-2
Sample Number: B-2 **Depth:** 2-5 ft.
Date: 12/3/2019

GEOTECHNICS
 Soil & Material Testing
 4510 Paris Gravel Road - Hannibal, MO

Test Description/Remarks:

Figure B-2

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 1

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI	
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.			Qu, TSF
0		Ground Surface			756.6						
		Asphalt-8 1/4"									
		Concrete-10"			755.9 0.7		Core				
		Sand (5"), Brown, Poorly Graded, (SP)			755.1 1.5		Core				
		Lean Clay, Silty, Greenish Gray/Brown Mottled Yellow Brown, Stiff, (CL)	3.00		754.6 2.0		SS				
2.5		Lean Clay, Silty, Greenish Gray/Brown Mottled Yellow Brown, Stiff, (CL)				1	SS	6			13.3
		Fat Clay, Greenish Gray/Yellow Brown Mottled, Medium, (CH)	1.25		753.1 3.5						
		Fat Clay, Greenish Gray/Yellow Brown Mottled, Medium, (CH)				2	SS	6			22.0
5		Lean Clay, Silty, Brown Mottled Greenish Gray, Medium, (CL)	0.75		751.6 5.0						
		Lean Clay, Silty, Brown Mottled Greenish Gray, Medium, (CL)				3	SS	5			29.7
		End of Boring @ 6½ ft.			750.1 6.5						28.2
7.5											
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/3/2019
 Boring Completed: 12/3/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 3+40, 35' Lt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 2

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- Wl
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.		
0		Ground Surface			758.2					
		Asphalt-11"			757.3		Core			
		Concrete-8"			0.9		Core			
		Sand (4½"), Brown, Poorly Graded, (SP)			756.6					
					1.6		SS	6		
					756.2					
2.5		Lean Clay, Silty, Greenish Gray/Brown Mottled Yellow Brown, Stiff, (CL)	3.00		2.0		1	SS		
		Fat Clay, Gray Mottled Yellow Brown Mottled, Stiff, (CH)	1.75		754.7					
					3.5		2	SS	6	
5		Lean Clay, Silty, Light Gray Mottled Yellow Brown, Stiff, (CL)	1.75		753.2					
					5.0		3	SS	6	
		End of Boring @ 6½ ft.			751.7					
					6.5					

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/3/2019
 Boring Completed: 12/3/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 8+40, 40' Rt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 3

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- Wl	
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.			Qu, TSF
0		Ground Surface			759.7						
		Asphalt-9 1/4"									
		Concrete-8"			758.9 0.8		Core				
		Sand (4"), Brown, Poorly Graded, (SP)			758.3 1.4		Core				
		Lean Clay, Silty, Light Gray Mottled Yellow Brown, Stiff, (CL)			757.7 2.0		SS				
2.5		Lean Clay, Silty, Light Gray Mottled Yellow Brown, Stiff, (CL)	2.50		756.2 3.5	1	SS	7			14.6
		Fat Clay, Light Gray Mottled Yellow Brown Mottled, Stiff, (CH)	1.50			2	SS	7			21.8
5		Medium, (CH)	1.00			3	SS	5			22.5
		End of Boring @ 6 1/2 ft.			753.2 6.5						34.6
7.5											
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/3/2019
 Boring Completed: 12/3/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 13+40, 45' Lt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 4

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.		
0		Ground Surface			761.4					
		Asphalt-9 1/4"								
		Concrete-9"			760.6 0.8		Core			
		Sand (6"), Brown, Poorly Graded, (SP)			759.9 1.5		Core			
		Lean Clay, Silty, Light Gray Mottled Yellow Brown, Very Stiff, (CL)			759.4 2.0		SS			
2.5		Stiff, (CL)	3.75			1	SS	7		
		Stiff, (CL)	3.75			2	SS	7		
5		Fat Clay, Gray, Medium, (CH)	1.50		756.4 5.0					
		Stiff, (CH)	2.00			3	SS	5		
7.5		Stiff, (CH)	2.00			4	SS	7		
10		Light Gray Mottled Yellow Brown, Stiff, (CH)	2.25			5	SS	7		
12.5		End of Boring @ 11½ ft.			749.9 11.5					

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/3/2019
 Boring Completed: 12/3/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 17+90, 35' Rt.

Project No.: **19-1122**
 Project: **Quincy Regional Airport
 Runway 4/22 Reconstruction**
 Client: **Crawford, Murphy & Tilly, Inc.**
 Boring No.: **6**

Boring Log

Rig: **CME 75**
 Location: **Adams County, IL**
 Driller: **AJK**

SUBSURFACE PROFILE						SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.	Qu, TSF		
0		Ground Surface			759.6						
		Asphalt-10½"									
		Concrete-8½"			758.7		Core				
					0.9		Core				
		Sand (5"), Brown, Poorly Graded, (SP)			758.0						
					1.6		SS				
		Lean to Fat Light Gray Mottled Yellow Brown, Medium, (CL-CH)			757.6						
2.5			2.00		2.0	1	SS	5			15.9
		Medium, (CL-CH)									
			1.25			2	SS	4			27.5
5		Lean Clay, Silty, Light Gray Mottled Yellow Brown, Medium, (CL)			754.6						
			1.25		5.0	3	SS	5			25.7
7.5		Fat Clay, Light Gray Mottled Yellow Brown, Stiff, (CH)			752.1						
			1.50		7.5	4	SS	5			23.8
10		Medium, (CH)									
			1.75			5	SS	5			28.0
12.5		End of Boring @ 11½ ft.			748.1						
					11.5						

Drill Method: **Pavement Core/4" CFA**
 Boring Started: **12/3/2019**
 Boring Completed: **12/3/2019**
 Tested By: **BJJ**
 Logging By: **MAS**



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: **Sta. 28+10**

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 7

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Op, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.		
0		Ground Surface			754.7					
		Asphalt-8"			754.0		Core			
		Concrete-8"			0.7		Core			
		Sand (6"), Brown, Poorly Graded, (SP)			753.4		SS			
		Lean Clay, Silty, Brown, Medium, (CL)			752.7					
2.5		Fat Clay, Gray Mottled Yellow Brown Mottled, Stiff, (CH)	2.50		2.0	1	SS	5		14.1
		Stiff, (CH)	1.25		751.2	2	SS	6		23.3
5			1.75		3.5					24.7
					748.2	3	SS	6		26.8
		End of Boring @ 6½ ft.			6.5					
7.5										
10										
12.5										
15										

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/3/2019
 Boring Completed: 12/3/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 33+40, 60' Rt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 9

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI	
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.			Qu, TSF
0		Ground Surface			747.3						
		Asphalt-9½"									
		Concrete-8"			746.5 0.8		Core				
		Sand (6"), Brown, Poorly Graded, (SP)			745.8 1.5		Core				
		Fat Clay, Greenish Gray Mottled Brown/Yellow Brown, Stiff, (CH)	2.50		745.3 2.0						
2.5						1	SS	9			9
		Lean to Fat Clay, Silty, Light Gray Mottled Yellow Brown, Medium, (CL-CH)	1.50		742.8 4.5						
5						2	SS	6			6
		End of Boring @ 6 ft.			741.3 6.0						
7.5											
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/2/2019
 Boring Completed: 12/2/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 43+40, 40' Rt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 10

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI	
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.			Qu, TSF
0		Ground Surface			746.2						
		Asphalt-12"									
		Concrete-8½"			745.2		Core				
					1.0		Core				
		Crushed Stone (6"), Light Gray, Poorly Graded, (GP)			744.5						
					1.7						
2.5		Fat Clay, Greenish Gray Mottled Brown/Yellow Brown, Medium, (CH)	1.00		743.7						
					2.5	1	SS	4			4
5		Gray Mottled Yellow Brown, Very Stiff, (CH)	3.00								
						2	SS	8			8
		End of Boring @ 6½ ft.			739.7						
					6.5						
7.5											
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/2/2019
 Boring Completed: 12/2/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ▽
 Groundwater Elev. @ Comp.: ▽
 Groundwater Elev. @ Hrs.: ▽
 Boring Location: Sta. 48+40

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 11

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI	
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.			Qu, TSF
0		Ground Surface			746.4						
		Asphalt-9"									
		Concrete-9"			745.7 0.8		Core				
		Crushed Stone (6"), Light Gray, Poorly Graded, (GP)			744.9 1.5		Core				
2.5		Fat Clay, Yellow Brown Mottled Light Gray, Stiff, (CH)	2.25		744.4 2.0	1	SS	8			8
5		Greenish Gray Mottled Yellow Brown, Stiff, (CH)	2.00			2	SS	10			10
		End of Boring @ 6 ft.			740.4 6.0						
7.5											
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/2/2019
 Boring Completed: 12/2/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 53+40, 35' Lt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 12

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE						SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.	Qu, TSF		
0		Ground Surface			746.6						
		Asphalt-2½"			746.4		Core				
		Concrete-9½"			0.2		Core				
		Crushed Stone (9"), Light Gray, Poorly Graded, (GP)			745.6						
		Lean to Fat Clay, Silty, Greenish Gray Mottled Gray, (CL-CH) Very Stiff, (CL-CH)	4.00		744.9						
2.5					1.8	1	SS	14			14
		Fat Clay, Gray Mottled Yellow Brown, Stiff, (CH)	3.75		742.1						
5					4.5	2	SS	6			6
		End of Boring @ 6 ft.			740.6						
					6.0						
7.5											
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/2/2019
 Boring Completed: 12/2/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 58+30, 40' Rt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 13

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI	
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.			Qu, TSF
0		Ground Surface			746.4						
		Concrete-11"			745.5		Core				
		Crushed Stone (10"), (GP-GM)			744.7		Core				
2.5		Lean to Fat Clay, Silty, Greenish Gray Mottled Gray, (CL-CH) Stiff, (CL-CH)	2.75		741.9	1	SS	5			22.4
5		Fat Clay, Yellow Brown, Stiff, (CH)	2.00		740.4	2	SS	6			25.0
		End of Boring @ 6 ft.			740.4						
7.5											
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/2/2019
 Boring Completed: 12/2/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 63+40, 35' Lt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 14

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- Wl	
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.			Qu, TSF
0		Ground Surface			746.3						
		Concrete-11"			745.4		Core				
		Crushed Stone (9"), (GP-GM)			744.6		Core				
2.5		Lean to Fat Clay, Silty, Brown Mottled Greenish Gray, (CL-CH)	2.50		741.3						
		Stiff, (CL-CH)				1.7					
5		Fat Clay, Greenish Gray Mottled Yellow Brown, Very Stiff, (CH)	3.00		739.8		2	SS	9		
		End of Boring @ 6½ ft.				6.5					

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/2/2019
 Boring Completed: 12/2/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 68+50, 30' Rt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 15

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE						SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.	Qu, TSF		
0		Ground Surface			757.6						
		Asphalt-1"			0.1		Core				
		Concrete-8½"			756.9		Core				
		Sand (5"), Brown, Poorly Graded, (SP)			0.7						
		Fat Clay, Gray Mottled Yellow Brown, (CH) Medium, (CH)			756.5		CFA				
					1.1						
2.5		Lean Clay, Silty, Light Gray Mottled Yellow Brown, Stiff, (CL)	1.50		754.6	1	SS	3			28.1
					3.0						
			2.75			2	SS	7			25.4
5		Medium, (CH)	1.50			3	SS	5			23.7
		End of Boring @ 6½ ft.			751.1						
					6.5						
7.5											
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/3/2019
 Boring Completed: 12/3/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 8+70, 460' Lt.

Project No.: 19-1122

Boring Log

Rig: CME 75

Project: Quincy Regional Airport
Runway 4/22 Reconstruction

Location: Adams County, IL

Client: Crawford, Murphy & Tilly, Inc.

Driller: AJK

Boring No.: 16

SUBSURFACE PROFILE						SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.	Qu, TSF		
0		Ground Surface			762.8						
		Asphalt-15"									
		Concrete-9"			761.6						
					1.3						
		Sand (5½"), Brown, Poorly Graded, (SP)			760.8						
					2.0						
2.5		Fat Clay, Light Gray Mottled Yellow Brown, Stiff, (CH)			760.3						
					2.5						
		Medium to Stiff, (CH)	2.00			1	SS	6			21.3
5		Medium, (CH)	1.50			2	SS	6			25.0
7.5		Medium, (CH)	1.75			3	SS	5			27.5
		End of Boring @ 8½ ft.			754.3						
					8.5						
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA

Boring Started: 12/3/2019

Boring Completed: 12/3/2019

Tested By: BJJ

Logging By: MAS



Groundwater Elev. During Drilling: ∇

Groundwater Elev. @ Comp.: ∇

Groundwater Elev. @ Hrs.: ∇

Boring Location: Sta. 16+80, 400' Rt.

Project No.: 19-1122
 Project: Quincy Regional Airport Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 20

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.		
0		Ground Surface			758.0					
		Concrete-14"			756.8		Core			
		Asphalt-4½"			756.5		Core			
		Crushed Stone (5"), (GP)			1.5		CFA			
		Lean Clay, Light Gray Mottled Yellow Brown, Medium, (CL)	1.50		756.0					
2.5					2.0	1	SS	8		8
		Fat Clay, Light Gray Mottled Yellow Brown, Medium, (CH)	1.50		753.5					
5					4.5	2	SS	7		7
		End of Boring @ 6 ft.			752.0					
					6.0					
7.5										
10										
12.5										
15										

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/2/2019
 Boring Completed: 12/2/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ▽
 Groundwater Elev. @ Comp.: ▽
 Groundwater Elev. @ Hrs.: ▽
 Boring Location: Sta. 27+80, 420' Rt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 21

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- Wl	
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.			Qu, TSF
0		Ground Surface			745.5						
		Concrete-10½"			744.6		Core				
		Crushed Stone (9"), (GP)			743.5		CFA				
2.5		Fill: Sandy Fat Clay w/Gravel, Yellow Brown Mottled Light Gray, Very Stiff, (CH)	2.00		741.0	1	SS	13			13
5		Fat Clay, Light Gray Mottled Yellow Brown, Stiff, (CH)	2.50		739.5	2	SS	10			10
		End of Boring @ 6 ft.			739.5						
7.5											
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/2/2019
 Boring Completed: 12/2/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 55+00, 300' Rt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 22

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI	
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.			Qu, TSF
0		Ground Surface			744.5						
		Concrete-11"			743.6		Core				
		Crushed Stone (13"), (GP)			742.5		CFA				
2.5		Fat Clay, Gray Mottled Yellow Brown, Stiff, (CH)	1.75		742.5	1	SS	5			5
5		Very Stiff, (CH)	3.75		738.5	2	SS	11			11
		End of Boring @ 6 ft.			6.0						30.8
7.5											21.8
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/2/2019
 Boring Completed: 12/2/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 72+10, 280' Rt.

Project No.: 19-1122
 Project: Quincy Regional Airport
Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 23

Boring Log

Rig: CME 75
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE						SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.	Qu, TSF		
0		Ground Surface			758.1						
		Asphalt-8"			757.4		Core				
		Concrete-8½"			756.7		Core				
		Sand (4"), Brown, Poorly Graded, (SP)			755.6		CFA				
		Lean Clay, Silty, Brown, Medium, (CL)	2.25		755.1	1	SS	7			16.8
2.5		Fat Clay, Light Gray Mottled Yellow Brown, Medium, (CH)	1.25		751.6	2	SS	7			21.9
5		Medium, (CH)	1.50		751.6	3	SS	6			22.6
		End of Boring @ 6½ ft.			751.6						24.4
7.5					6.5						
10											
12.5											
15											

Drill Method: Pavement Core/4" CFA
 Boring Started: 12/3/2019
 Boring Completed: 12/3/2019
 Tested By: BJJ
 Logging By: MAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: Sta. 3+70, 360' Rt.

December 1, 2020

Crawford, Murphy & Tilly, Inc.
2750 W Washington Street
Springfield, IL 62702

Attn: Mr. Wes loerger, P.E.
Senior Engineer

RE: Borrow Area Geotechnical Exploration-Quincy Regional
Airport Runway 4/22 Reconstruction UIN-4754

Dear Wes:

Attached are the results of the geotechnical exploration borings and laboratory tests for the above referenced project. Included herein are boring logs with soil classifications in accordance with ASTM D 2487, GPS coordinates and elevations based on the May 28, 2020 CMT boring location plan; atterberg limit test data in accordance with ASTM D 4318; grain size distribution tests (ASTM D 422) reports with frost group determinations as per FAA AC 150; standard proctor tests (ASTM D 698) and modified proctor tests (ASTM D 1557).

If you have any questions concerning the boring logs and/or test data, feel free to call.

Very truly yours,

GEOTECHNICS



Ronald W. Craven, P.E.
Geotechnical Services Department Manager
IL PE No. 062.040791

Encl.

Boring Logs
Atterberg Limit Determinations
Grain Size Distributions
Standard Proctor Tests
Modified Proctor Tests

Project No.: 19-1122
 Project: Quincy Regional Airport Runway 4/22 Reconstruction
 Client: Crawford, Murphy & Tilly, Inc.
 Boring No.: 24

Boring Log

Rig: M-55
 Location: Adams County, IL
 Driller: AJK

SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.		
0		Ground Surface			755.7					
	∩∩∩∩	Topsoil (±6")			755.2					
	////	Fat Clay (CH), Brown, Silty, Moist			753.2	0	HA			
2.5		Lean to Fat Clay (CL-CH), Light Brown mottled Yellow Brown, Silty, Stiff, Moist	3.75		750.7	1	SS	13		
5		Lean Clay (CL), Light Gray mottled Yellow Brown/Reddish Brown, Silty, Medium, Moist	1.00		745.7	2	SS	7		
7.5		(CL), Mottled Yellow Brown, Black Oxidation, Silty, Soft, Moist	0.75		744.2	3	SS	3		
10		Fat Clay (CH), Light Gray mottled Light Brown, Silty, Medium, Moist	1.25		744.2	4	SS	5		
11.5		End of Boring @ 11½ ft.			744.2					

Drill Method: 3 1/4" HSA
 Boring Started: 11/16/2020
 Boring Completed: 11/16/2020
 Tested By: BJS/NAS
 Logging By: NAS



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: N39 56 53.19, W91 11 35.45

Project No.: **19-1122**
 Project: **Quincy Regional Airport Runway 4/22 Reconstruction**
 Client: **Crawford, Murphy & Tilly, Inc.**
 Boring No.: **25**

Boring Log

Rig: **M-55**
 Location: **Adams County, IL**
 Driller: **AJK**

SUBSURFACE PROFILE						SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Qp, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.	Qu, TSF		
0		Ground Surface			747.2						
		Topsoil (±6")			746.7						
		Fat Clay (CH), Brown mottled Light Brown, Silty, Moist			744.7	0	HA				20.8
2.5		Lean to Fat Clay (CL-CH), Light Brown, Silty, Stiff, Moist	4.00		742.2	1	SS	9			20.2
5		Lean Clay (CL), Light Brown mottled Yellow Brown, Black Oxidation, Silty, Medium, Moist	1.00		742.2	2	SS	7			25.4
7.5		(CL), Mottled Light Gray, Black Oxidation, Silty, Medium, Moist	0.50		737.2	3	SS	5			22.2
10		Lean to Fat Clay (CL-CH), Light Gray mottled Light Brown, Silty, Medium, Moist	1.50		735.7	4	SS	7			23.8
11.5		End of Boring @ 11½ ft.			735.7						

Drill Method: **3 1/4" HSA**
 Boring Started: **11/16/2020**
 Boring Completed: **11/16/2020**
 Tested By: **BJS/NAS**
 Logging By: **NAS**



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: **N39 57 1.16, W91 11 21.12**

Project No.: **19-1122**
 Project: **Quincy Regional Airport Runway 4/22 Reconstruction**
 Client: **Crawford, Murphy & Tilly, Inc.**
 Boring No.: **26**

Boring Log

Rig: **M-55**
 Location: **Adams County, IL**
 Driller: **AJK**

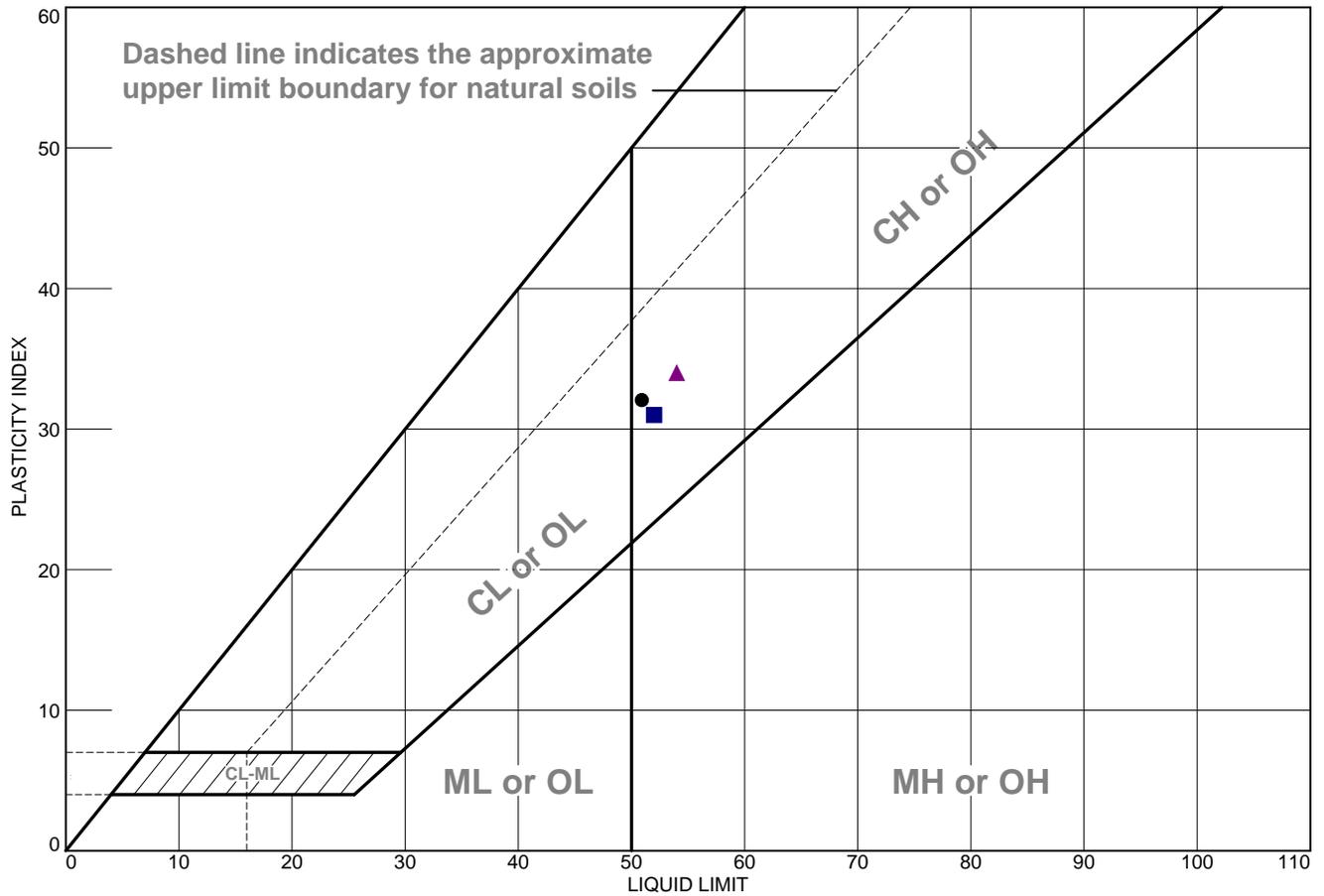
SUBSURFACE PROFILE					SAMPLE				Standard Penetration Test blows/ft.	Water Content % Wp ----- WI
Depth (ft.)	Symbol	Description	Op, t.s.f.	Dry Density, P.C.F.	Depth/Elev.	Number	Type	Blows/ft.		
0		Ground Surface			746.8					
		Topsoil (±6")			746.3					
		Fat Clay (CH), Brown mottled Light Brown, Silty, Moist			0.5					
					744.3	0	HA			
2.5		Lean to Fat Clay (CL-CH), Light Brown, Silty, Medium, Moist			2.5	1	SS	5		
					741.8					
5		Lean Clay (CL), Light Brown, Silty, Medium, Moist	0.75		5.0	2	SS	6		
					736.8					
7.5		(CL), Light Brown/Light Gray mottled Yellow Brown, Black Oxidation, Silty, Medium, Moist	1.50		10.0	3	SS	5		
					735.3					
10		Fat Clay (CH), Light Gray mottled Reddish Brown, Medium, Moist	1.00		11.5	4	SS	5		
					735.3					
		End of Boring @ 11½ ft.								
12.5										
15										

Drill Method: **3 1/4" HSA**
 Boring Started: **11/16/2020**
 Boring Completed: **11/16/2020**
 Tested By: **BJS/NAS**
 Logging By: **NAS**



Groundwater Elev. During Drilling: ∇
 Groundwater Elev. @ Comp.: ∇
 Groundwater Elev. @ Hrs.: ∇
 Boring Location: **N39 56 53.58, W91 11 21.75**

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Fat Clay, Brown mottled Light Brown, Silty, CL-CH	51	19	32	99.0	96.0	CL-CH
■	Fat Clay, Light Brown mottled Yellow Brown, Silty, CL-CH	52	21	31	98.1	96.4	CL-CH
▲	Fat Clay, Light Brown, Silty, Trace Sand, CH	54	20	34	97.4	92.7	CH

Project No. 19-1122 **Client:** Crawford, Murphy & Tilly, Inc.
Project: Quincy Regional Airport

● **Location:** B-24 **Depth:** 1-10 ft. **Sample Number:** Bulk
 ■ **Location:** B-25 **Depth:** 1-10 ft. **Sample Number:** Bulk
 ▲ **Location:** B-26 **Depth:** 1-10 ft. **Sample Number:** Bulk

Remarks:
 ● Natural Moisture = 23.5%
 ■ Natural Moisture = 23.8%
 ▲ Natural Moisture = 22.9%



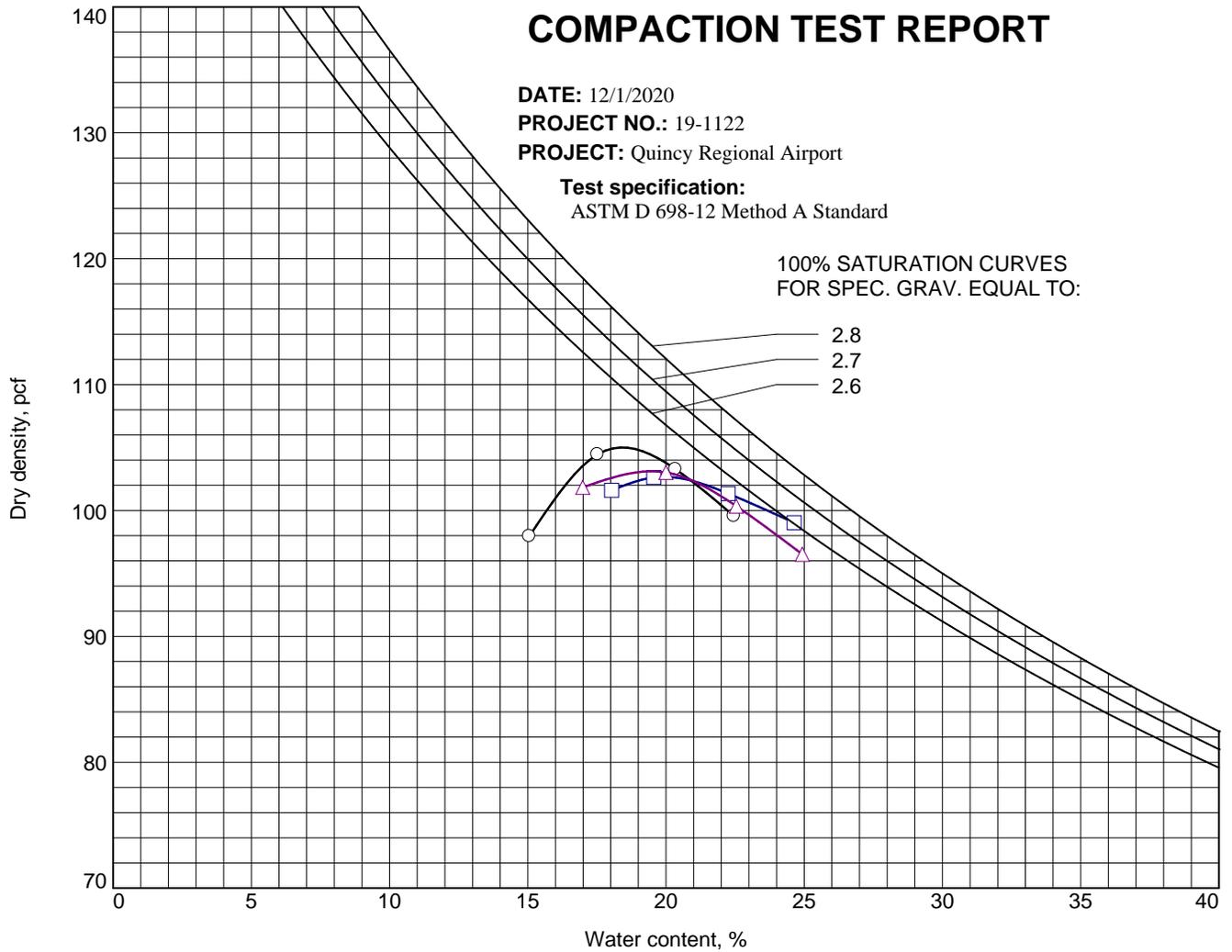
Figure Borrow A-1

Tested By: ○ BJS □ NAS ▲ NAS **Checked By:** BJS

COMPACTION TEST REPORT

DATE: 12/1/2020
PROJECT NO.: 19-1122
PROJECT: Quincy Regional Airport

Test specification:
 ASTM D 698-12 Method A Standard



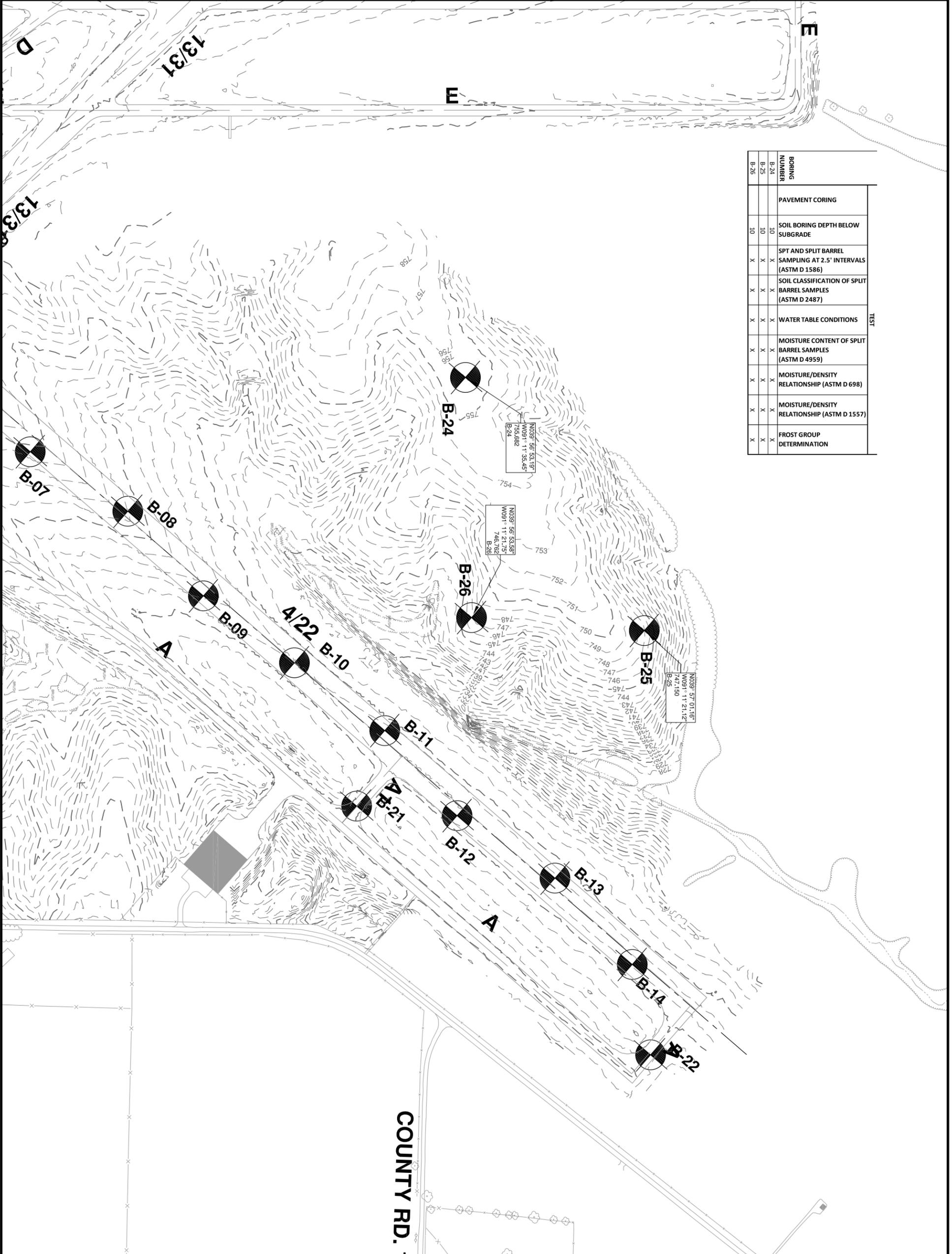
No.	LOCATION AND DESCRIPTION	REMARKS							
○	Location: B-24 Depth: 1-10 ft. Sample Number: Bulk Fat Clay, Brown mottled Light Brown, Silty, CL-CH	Natural Moisture = 23.5%							
□	Location: B-25 Depth: 1-10 ft. Sample Number: Bulk Fat Clay, Light Brown mottled Yellow Brown, Silty, CL-CH	Natural Moisture = 23.8%							
△	Location: B-26 Depth: 1-10 ft. Sample Number: Bulk Fat Clay, Light Brown, Silty, Trace Sand, CH	Natural Moisture = 22.9%							
No.	AASHTO	LL	PI	NAT. MOIST.	OVERSIZE	%< No.200	MAX. DRY DEN.	OPT. MOIST.	
○	B24 - SP	A-7-6(33)	51	32	23.5	%>3/4 in.=0.0	96.0 %	105.0	18.4 %
□	B25 - SP	A-7-6(33)	52	31	23.8	%>3/4 in.=0.0	96.4 %	102.7	19.9 %
△	B26 - SP	A-7-6(34)	54	34	22.9	%>3/4 in.=0.0	92.7 %	103.1	19.5 %

Figure SP-1

GEOTECHNICS

Tested By: BJS

Checked By: BJS

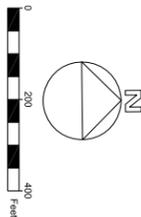


BORING NUMBER	PAVEMENT CORING	SOIL BORING DEPTH BELOW SUBGRADE	SPT AND SPLIT BARREL SAMPLING AT 2.5' INTERVALS (ASTM D 1586)	SOIL CLASSIFICATION OF SPLIT BARREL SAMPLES (ASTM D 2487)	WATER TABLE CONDITIONS	MOISTURE CONTENT OF SPLIT BARREL SAMPLES (ASTM D 4959)	MOISTURE/DENSITY RELATIONSHIP (ASTM D 698)	MOISTURE/DENSITY RELATIONSHIP (ASTM D 1557)	FROST GROUP DETERMINATION
B-24		10	X	X	X	X	X	X	X
B-25		10	X	X	X	X	X	X	X
B-26		10	X	X	X	X	X	X	X

13/31



License No. 184-006113
 CONSULTANTS



MAY 28, 2020
 RECONSTRUCT RUNWAY 4/22

OWNER
 QUINCY MUNICIPAL AIRPORT
 QUINCY, ILLINOIS

MARK	DATE	DESCRIPTION
APP PROJ. NO.:	3-17-0096-XX	
LI. PROJ. NO.:	UN-4754	
CMIT PROJECT NO.:	180020-01	
CAD DWG FILE:	UN-4754 BLP.DWG	
DESIGNED BY:	HMI	
DRAWN BY:	DPA	
CHECKED BY:	CHK	
APPROVED BY:	APP	
COPYRIGHT:		

SHEET TITLE
 AIRPORT SITE PLAN
 BORING LOCATION
 PLAN
 SHEET OF