Champions Drive Substation 69kV Transformer Foundations

ADDENDUM #1

TO CONTRACT DOCUMENTS FOR: Project #CP231546 – Champions Drive Substation

69kV Transformer Foundations

ADVERTISEMENT DATE: September 25, 2025

PREPARED FOR: The Curators of the University of Missouri

CONSULTANT: Planning, Design & Construction

University of Missouri

130 General Services Building

(573) 882-6800

The contract documents for the above noted project and the work covered thereby and herein modified.

GENERAL INFORMATION:

1)

2)

PROJECT MANUAL:

1) Added IPES Soil Analysis as Appendix C,

DRAWINGS:

- 1) Updated drawing S-002 General Arrangement
- 2) Updated drawing S-310 Foundation section and details

END OF ADDENDUM #1

APPENDICES

APPENDIX A Geotechnical Report APP A

APPENDIX B HICO 69kV Transformer Shop Drawings APP B

APPENDIX C IPES GeoProbe MU Sampling Report APP C

DIVISION 2 EXISTING CONDITIONS (NOT USED)

DIVISION 3 CONCRETE

031000 CONCRETE FORMING AND ACCESSORIES

032000 CONCRETE REINFORCING

033000 CAST-IN-PLACE CONCRETE

<u>DIVISION 4</u> <u>MASONRY (NOT USED)</u>

<u>DIVISION 5</u> <u>METALS</u>

051200 STRUCTURAL STEEL FRAMING

<u>DIVISION 6</u> <u>WOOD AND PLASTICS, AND COMPOSITES (NOT USED)</u>

DIVISION 7 THERMAL AND MOISTURE PROTECTION (NOT USED)

DIVISION 8 OPENINGS (NOT USED)

DIVISION 9 FINISHES (NOT USED)

DIVISION 10 SPECIALITIES (NOT USED)

DIVISION 11 EQUIPMENT (NOT USED)

DIVISION 12 FURNISHINGS (NOT USED)

DIVISION 13 SPECIAL CONSTRUCTION (NOT USED)

DIVISION 14 CONVEYING SYSTEMS (NOT USED)

DIVISION 21 FIRE SUPPRESSION (NOT USED)

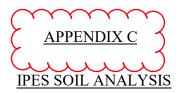
DIVISION 22 PLUMBING (NOT USED)

DIVISION 23 MECHANICAL (NOT USED)

<u>DIVISION 25</u> <u>INTEGRATED AUTOMATION (NOT USED)</u>

DIVISION 26	ELECTRICAL
260500	COMMON WORK RESULTS FOR ELECTRICAL
260519	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
260526	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
260529	HANGARS AND SUPPORTS FOR ELECTRICAL SYSTEMS
260533	RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
260536	CABLE TRAYS FOR ELECTRICAL SYSTEMS
260543	UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS
262416	PANELBOARDS
DIVISION 27	COMMUNICATIONS (NOT USED)
DIVISION 28	ELECTRONIC SAFETY AND SECURITY (NOT USED)
DIVISION 31	EARTHWORK (INCLUDE GEOTECH REPORT)
311000	SITE CLEARING
312000	EARTH MOVING
316329	DRILLED CONCRETE PIERS AND SHAFTS
DIVISION 32	EXTERIOR IMPROVEMENTS (NOT USED)
DIVISION 33	<u>UTILITIES (NOT USED)</u>
DIVISION 34	TRANSPORTATION (NOT USED)
DIVISION 37	TRANSMISSION (NOT USED)

END OF SECTION





University of Missouri Champions Drive Transformers Columbia, Missouri October 1, 2025

EXECUTIVESUMMARY

Petroleum odors were reported in geotechnical soil borings completed on July 17, 2025. The geotechnical work was being completed for an electrical interconnection and substation at the University of Missouri. A future soil excavation at the site is planned for the installation of two (2) 69kV transformer pads and piers. Industrial and Petroleum Environmental Services, Inc. (IPES) was contacted by the University of Missouri to provide further assessment of the reported petroleum impacted soils.

PROJECT DESCRIPTION

The University of Missouri is planning on constructing an electrical interconnection and substation approximately 650 feet southeast of the intersection of Champions Drive and East Stadium Boulevard in Columbia, Missouri. A site location map is included as **Attachment 1**, **Figure 1**.

A geotechnical assessment was completed at the site in July 2025, to determine the suitability of the subsurface soils for the planned construction activities at the site. During completion of the geotechnical soil investigation, petroleum vapors were reported in multiple geotechnical soil borings.

As part of the electrical interconnection and substation project, a soil excavation is planned at the site for the construction of two (2) 69kV transformers, specifically, for the transformer pads and pier foundations. As noted, IPES was contacted by the University to provide further assessment of the reported petroleum impacted soils. Due to the presence of petroleum vapors in multiple geotechnical soil borings, additional soil assessment was necessary to determine proper disposal and handling of potentially contaminated soils.

The University of Missouri estimated that approximately 350 cubic yards of soil will be excavated during the construction of the two (2) 69kV transformer pads and pier foundations. In accordance with the Missouri Risk Based Corrective Action (MRBCA) guidance document, for petroleum impacted sites, one (1) soil sample is required for every 100 cubic yards of petroleum impacted soil excavated. Based on the estimated volume of soil to be excavated (350 cubic yards), IPES determined that four (4) total soil samples were needed from the excavated soils. The University of Missouri provided detailed engineering drawings showing the locations of the two (2) 69kV transformers. IPES completed two (2) soil borings to refusal for each electrical transformer. One (1) soil sample was collected from each soil boring. Soil boringlocations are included on **Attachment 1, Figures 2** and **3.**

University of Missouri Champions Drive Transformers Soil Analysis October 2025

UNDERGROUND UTILITY LOCATION

Prior to conducting the soil investigation, staff from IPES contacted the Missouri One Call System at 1-800-DIGRITE to request a locate of the underground utilities at the subject site. IPES informed Missouri One Call of the location and nature of the work to be conducted.

SUBSURFACE SOIL SAMPLING

IPES mobilized a GeoProbe™ model 7822 DT hydraulic soil probe to the site for the completion of four (4) soil borings. As noted, two (2) soil borings were completed within the proposed foundation area of each of the two (2) 69Kv transformers.

The soil borings were completed and sampled as follows: A five-foot macro-core sampling tube containing a disposable acetate liner was advanced. A soil core was retrieved from the liner and screened for the presence of petroleum impacts utilizing a photo-ionization detector (PID). All four (4) soil borings were terminated at refusal, which was encountered at depths ranging from 16 feet below ground surface (bgs) to 22 feet bgs.

Field screening utilizing the PID meter indicated minor amounts of potential petroleum impacts. Petroleum impacts were not physically observed in any of the soil borings based on visual or olfactory observations. One (1) soil sample was collected from each soil boring for laboratory analysis at the location within each boring with the highest PID reading.

Following completion of site activities, all soil borings were abandoned in accordance with the provisions of 10 CSR 23 as established by the Missouri Department of Natural Resources (MDNR) Geologic Survey and Resource Assessment Division (GSRAD). A soil boring registration form is included in **Attachment 3**. Soil boring logs are also included in **Attachment 3**. Photographs are included in **Attachment 4**.

Sampling personnel wore clean disposable nitrile gloves during the screening and collection of soil samples. Samples were collected into certified clean containers appropriate for the required analyses. Containers were pre-preserved where appropriate. All sample containers received a sample label identifying the project name, location and interval of collection, date, and time of collection. Following collection, each sample was entered onto a chain-of-custody form indicating the pertinent site information, the sample collector, location, date, and time of collection. Additional notations regarding the number of containers per sample and analysis requested were also made.

Soil samples were placed on ice following collection. Custody of the samples was maintained prior to sealing and delivering to the analytical laboratory. The soil samples were analyzed for constituents associated with leaded gasoline and diesel fuel, including: benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN), total petroleum hydrocarbons (TPH) as gasoline range organics (TPH-GRO), TPH as Diesel Range Organics (TPH-DRO) and TPH as Oil Range Organics (TPH-ORO). Please see the attached analytical results, chain-of-custody forms and documentation of analytical QA/QC. Soil data are summarized on **Attachment 2**, **Tables 1** and **2**.

University of Missouri Champions Drive Transformers Soil Analysis October 2025

ANALYTICAL METHODS

Soil samples were submitted for analysis appropriate to the scope of the investigation. Laboratory analysis conformed to the protocol set forth by USEPA SW846 and approved by the MDNR for use at petroleum storage tanks site. Where applicable, samples were submitted for the analysis of BTEXN, TPH-GRO, EDB, EDC, and oxygenates via Method 8260B; TPH-DRO and TPH-ORO via Method 8270C, and for total lead utilizing EPA method 200.8. Laboratory analytical data sheets are included as **Attachment 6**.

INVESTIGATION DERIVED WASTES (IDW)

IPES staff disposed of personal protective equipment and disposable sample tubes as solid waste. Due to the usage of the geoprobe, soil cuttings were of a *de minimis* quantity.

SITE SAFETY

IPES developed a generic site safety plan for use by personnel during the field investigation. The safety plan required the use of modified USEPA Level D personnel protective equipment consisting of hard hats, steel toed boots, safety glasses, and rubber/nitrile gloves.

ANALYTICAL RESULT ASSESSMENT

Field screening readings utilizing a PID indicated the possible presence of minor petroleum impacts. However, the minor impacts noted could have been a result of temperature and/or humidity (which can affect the PID meter). The physical assessment of the soil samples indicated no detectable impacts in any of the soil cores.

The analytical results obtained for soil samples collected from the subject site were evaluated with respect to the presence or absence of petroleum constituents and total lead. Current MDNR guidelines for assessing contamination at petroleum storage tanks sites are found within the framework of risk assessment as provided in the Missouri Risk Based Corrective Action (MRBCA) guidance document. The guidance document contains tabulated values for individual contaminants used to assess a site's impact to different receptors. The soil samples were compared to the MRBCA Default Target Levels (DTLs), which are the most conservative target levels, and are protective of drinking water.

The soil analytical results indicated the following:

- Except for total lead, all four (4) soil samples yielded concentrations of constituents of concern (COCs) that were less than the MRBCA DTLs.
- Concentrations of total lead were reported in all soil samples at concentrations which exceed MDNR DTLs. However, total lead is a naturally occurring metal in Missouri soils.
 Concentrations of total Lead are less than background lead levels naturally occurring in Boone County, Missouri. Levels for metals for Boone County, reported by the United States Geological Survey (USGS), are included in Attachment 5.

University of Missouri Champions Drive Transformers Soil Analysis October 2025

CONCLUSIONS

IPES completed four (4) soil borings to evaluate potential petroleum impacts for soil that will be excavated for construction of two (2) 69kV transformer pads and transformers. Four (4) soil samples were collected and analyzed by a laboratory for leaded gasoline fuel and diesel fuel. With the exception of lead, which is a natural occurring metal in Missouri soils, concentrations of COCs in all four (4) soil samples were less than the MRBCA DTLs, which are protective of drinking water. Therefore, no special disposal or handling requirements are necessary for excavated soils for the two (2) 69kV transformer pads or piers.

General Comments

This report includes analysis of the available information and does not reflect any variations of subsurface stratigraphy or contaminant levels which may occur between sampling locations. Actual subsurface conditions may vary, and the extent of such variations may not become evident without further investigation. If variations appear evident, it will be necessary to reevaluate the conclusions of this report.

Missouri Law requires the notification to the appropriate state agency of reportable releases of hazardous substance pursuant to Chapters 260.500 through 260.552 of the Revised Statutes of Missouri and in 10CSR24-1.010 through 21-3.00 of the Code of State Regulations adopted thereunder. According to statutory requirements, found in Chapter 260.5.5(4) RSMo, release of petroleum product in excess of 50 gallons must be reported to the MDNR by the responsible party.

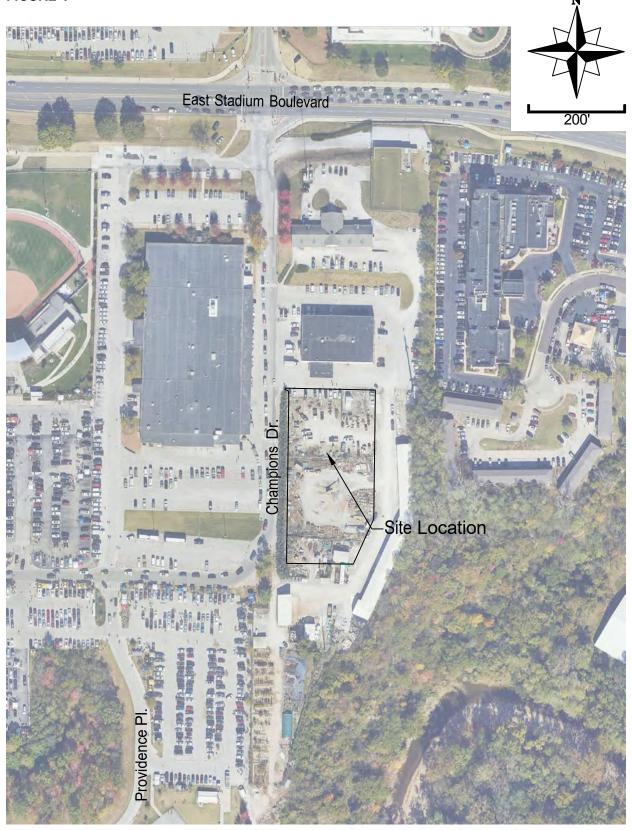
Conclusions drawn by others from the results of the work should recognize the limitations of the methods used. Please note that IPES does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report. This report is prepared in accordance with generally accepted environmental engineering practices, within the constraints of the client's directives. It is intended for the exclusive use of the client for specific application to the assessed property.

ATTACHMENT 1 FIGURES



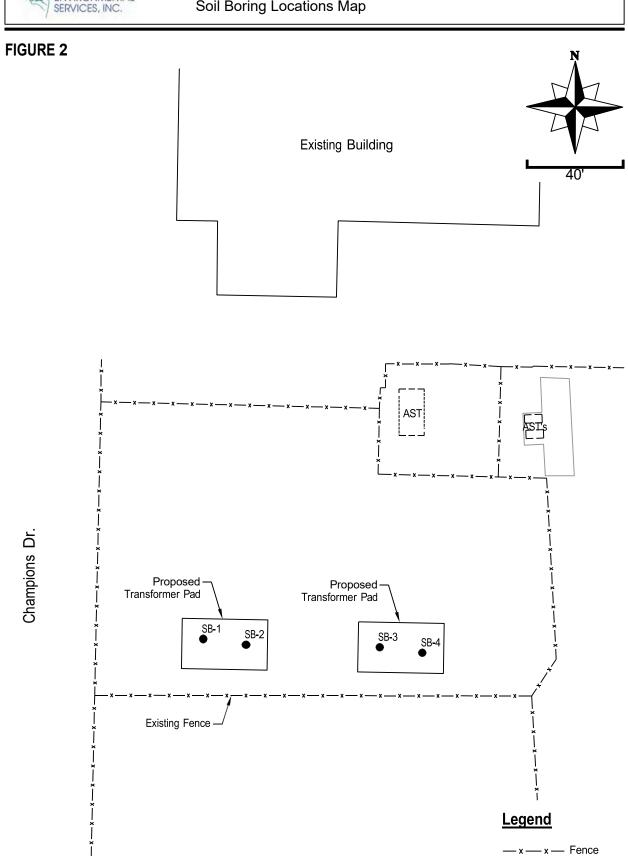
University of Missouri 69kV Transformer Soil Sampling Site Location Map

FIGURE 1





University of Missouri 69kV Transformer Soil Sampling Soil Boring Locations Map



Soil Boring



University of Missouri 69kV Transformer Soil Sampling Site Aerial Photograph

FIGURE 3



ATTACHMENT 2 TABLES

TABLE 1 University of Missouri Champion Drive Transformers

Soil Analytical Data

	Sample	Sample	Benzene	Toluene	Ethylbenzene	Total Xvlenes	Naphthalene	MtBE	EDB	EDC	TPH-GRO	TPH-DRO	TPH-ORO
Sample ID No.	Date	Depth (ft)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SB-1	09/26/25	3-4	<0.005	< 0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<1	<20	<20
SB-2	09/26/25	10-11	<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<1	<20	<20
SB-3	09/26/25	4-5	<0.005	< 0.005	<0.005	<0.015	< 0.005	< 0.005	<0.005	<0.005	<1	<20	<20
SB-4	09/26/25	7-8	<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<1	<20	46
						Target Le	evels						
Default Target Le	vels (DTLs)	(mg/kg)	0.0561	29.8	39.9	24.7	0.325	0.398	0.000473	0.0206	385	4150	124000
Non-Residential -	•	to Indoor											
Air Inhalation (mg	J/kg)		1.98	4010	1550	199	136	113	0.452	0.691	3100	33400	NA

Sample COC Concentrations indicated in bold are above laboratory detection limits

Unless otherwise noted, all samples run by EPA Method 8260/8270

Sample COC Concentrations indicated in **BLUE** are above DTLs

Sample COC Concentrations indicated in GREEN are above non-residential use RBTLs for soil vapor to indoor air inhalation

mg/kg = milligrams per kilogram (parts per million)

MTBE = Methyl Tertiary Butyl Ether

TPH-GRO = Total Petroleum Hydrocarbons as Gasoline Range Organics

TPH-DRO/ORO = Total Petroleum Hydrocarbons as Diesel/Oil Range Organics

EDB = 1,2-Dibromoethane

EDC = 1,2-Dichloroethane

TABLE 2 University of Missouri Champion Drive Transformers

Soil Data - Oxygenates and Lead

		Sample	TAME	TBA	ETBE	DIPE	Total Lead
Sample ID No.	Sample Date	Depth (ft)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SB-1	09/26/25	3-4	<0.005	<0.05	<0.005	<0.005	8.1
SB-2	09/26/25	10-11	<0.005	<0.05	<0.005	<0.005	7.28
SB-3	09/26/25	4-5	<0.005	<0.05	<0.005	<0.005	9.62
SB-4	09/26/25	7-8	<0.005	<0.05	<0.005	<0.005	13.6
			Target Leve	ls			
Default Target Levels			0.677	0.558	0.106	4.12	3.74
Non-Residential - So	il Vapor to Indoo	or Air					
Inhalation (mg/kg)	47.1	8260	207	265	660		

COC Concentrations indicated in bold are above laboratory detection limits

Unless otherwise noted, all samples run by EPA Method 8270

Sample COC Concentrations indicated in **BLUE** are above DTLs

Sample COC Concentrations indicated in **GREEN** are above non-residential use RBTLs for soil vapor to indoor air inhalation mg/kg = milligrams per kilogram (parts per million)

TAME - Tertiary-amyl-methyl-ether

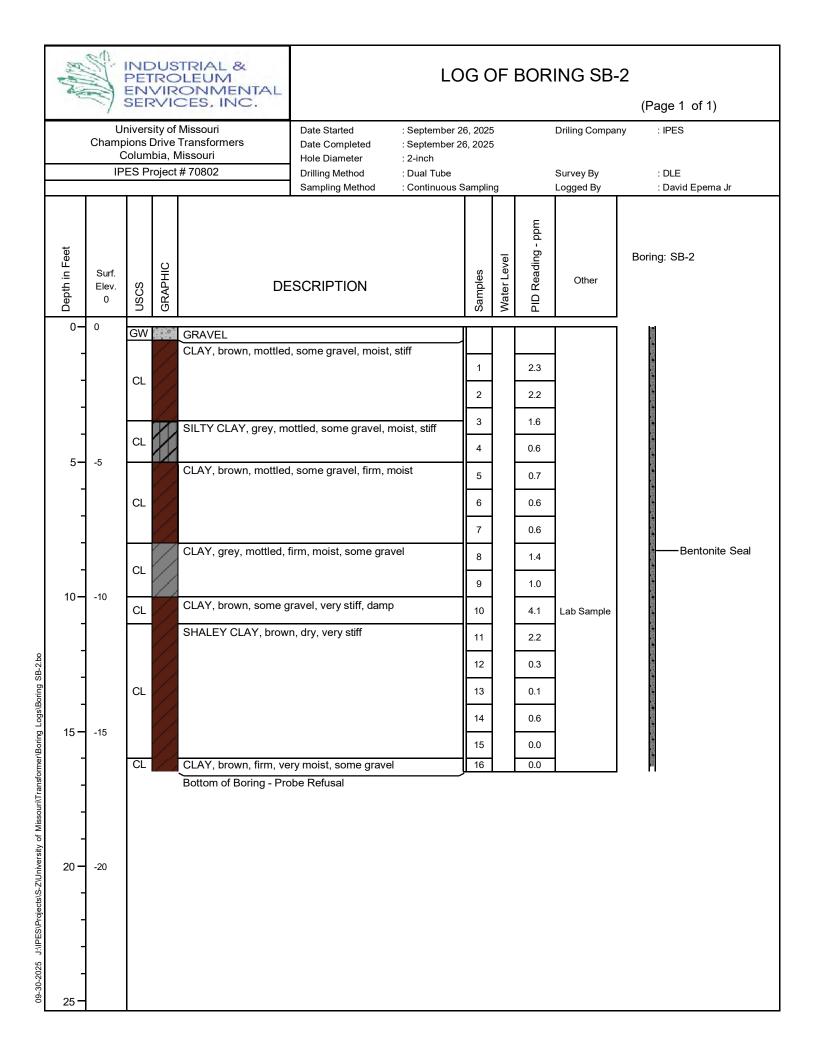
TBA - Tertiary-butyl-alcohol

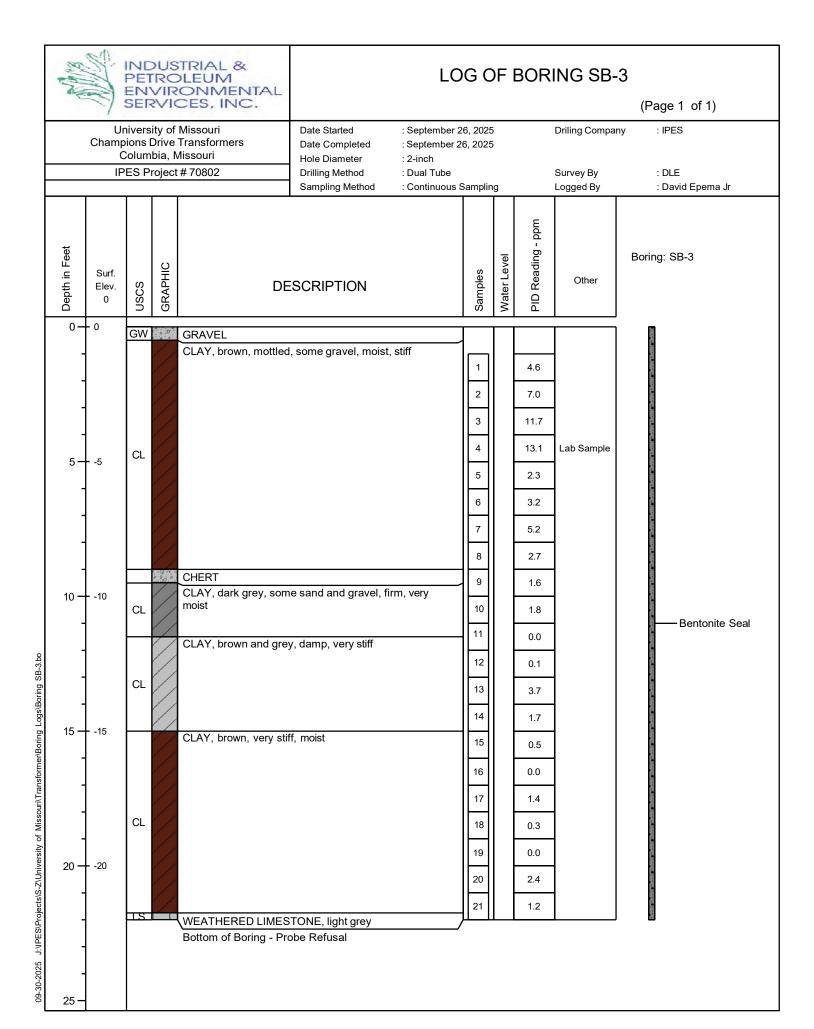
ETBE - Ethyl-tert-butyl-ether

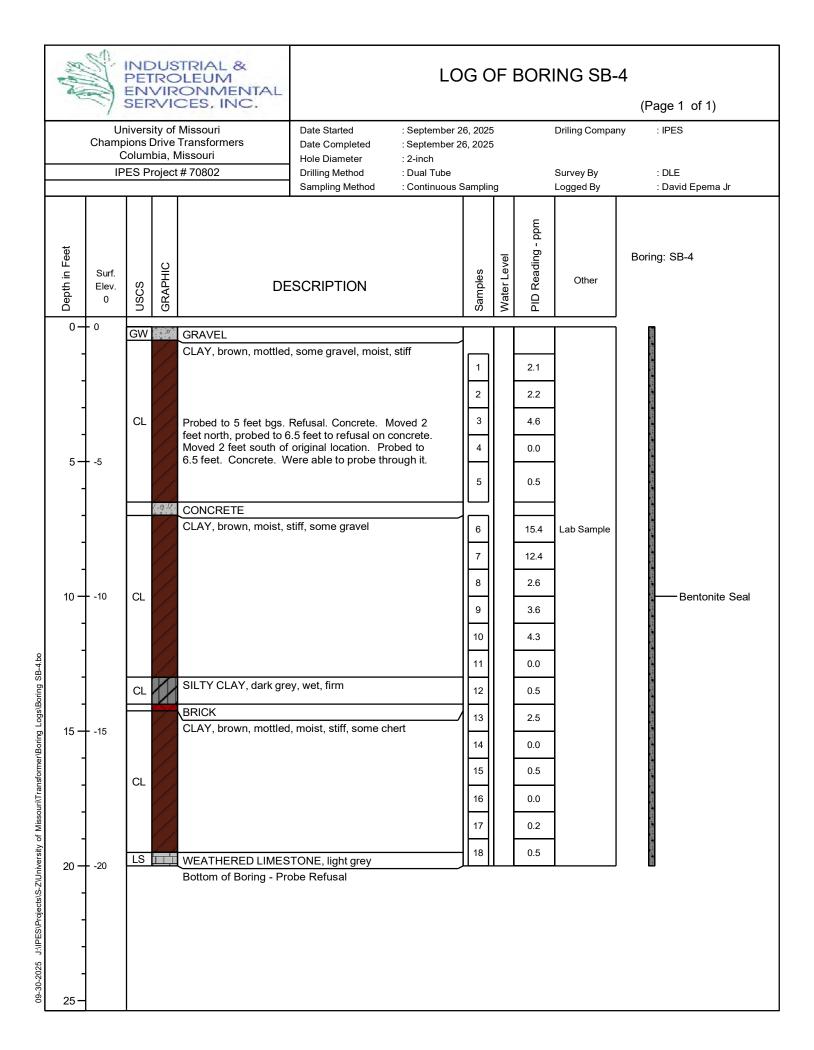
DIPE - Diisopropyl ether

ATTACHMENT 3 BORING LOGS

200	INDUSTRIAL & PETROLEUM ENVIRONMENTAL SERVICES, INC. University of Missouri					LO	G C)F	BOR	ING SB-	
	Uı	nivers pions [ity of Orive		Date Started Date Completed Hole Diameter	: September 26 : September 26 : 2-inch				Driling Compa Northing Coord Easting Coord	d. :
				# 70802	Drilling Method Sampling Method	: Dual Tube : Continuous S	amplir	ng		Survey By Logged By	: DLE : David Epema Jr
Depth in Feet	Surf. Elev. 0	nscs	GRAPHIC	DE	SCRIPTION		Samples	Water Level	PID Reading - ppm	Other	Boring: SB-1
0-	0	GW		GRAVEL CLAY, brown and grey gravel, fill	/, mottled, stiff, damp	1 2 3		0.1 24.3 25.7	Lab Sample	Section of the Control of the Contro	
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10 -	-10	CL		CLAY, brown, stiff, mo	ne sand, moist, stiff				0.0		Bentonite Seal
ogs/Boring SB-1.bor		CL		SHALEY CLAY, grey,	dry, stiff		11 12 13		0.7 1.0 0.0		TANKE TANKE TANKE TANKE TANKE TANKE
ouri\ ranstormer\Boring Lo	-15	CL		SHALEY CLAY, brown	n, dry, stiff		15 16 17		0.0		
Is\S-Z\University of Mission (S-Z\University) of Mission (20			Bottom of Boring - Pro	ohe Refusal	18 19 20		0.0			
09-30-2025 J:/IPES/Projects/S-Z/University of Missouri/Transformer/Boring Logs/Boring SB-1.bor 57 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				_ 3.co or Boring - 1 To							







MISSOURI DEPARTME		FOR OFFICE USE ONLY							
NATURAL RESOURCES MISSOURI GEOLOGICA Well Plugging Registra Public,	AL SURVEY	omestic,	REFEREI NUMBER 00		F	REVENUE	NUMBEF 121715		
Multi-Family, High Yield Pump, Monitoring, Nested Mo			REGISTR NUMBER BO	_	(CHECK NO	3745		
Heat Pump			DATE RE	CEIVED		APPROVED BY DNR USERID		APPROVAL DATE 12/23/2015	
TYPE Monitoring	DATE WELL PLUGGED 12/14/20	015	DRILL AF		COST	SHARE?	RE? VARIANCE #		
WELL INFORMATION	PROVIDE APPROXIMA	TE INFORMATION	ON IF NOT KNOW	'N					
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SITE INFORMATION									
SITE NAME UNIVERSITY GARAGE	(STREET	, CITY, ST		P) MBIA, MO)				
DECIMAL DEGREE COORDINATES 38.93349, -92.32622		MINUTES SECONDS COUNTY BOONE							
OWNER INFORMATION									
OWNER NAME	Α	DDRESS	(STREET,	CITY, S	TATE, Z	IP)			
UNIVERSITY OF MISSOURI-COLUM	IBIA #8	RESEAR	RCH PARK	DEVEL	BLDG C	OLUMBIA,	MO 652	11	
GENERAL INFORMATION									
DATE WELL WELL REMOVED BY EXCAVATION 12/14/2015	Y PUMP REM FROM WEL		15.10 07.75						
WELL ABANDONED DUE TO CONN MUNICIPALITY OR RURAL WATER N		NAME OF DISTRICT							
REMARKS/COMMENTS, DESCRIBE	E HOW LOOPS	WHERE F	ILLED:						
PLUGGING INFORMATION		GENER	AL INFORM	MATION					
PLUGGING TOP BOTTOM AMO MATERIAL DEPTH DEPTH	TINU TNUC	INSTALLA METHOD	ATION OF GROUT	EXCAVA GRAVIT		TREMIE PR		☐ TREMIE	
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			R INFORM	ATION					
	IN PE ENV	LLER BUSINESS INDUSTRIAL & PETROLEUM ENVIRONMENTAL SERVICES, INC			IT# NAMI		SCHUMAN		
		BUSINE IN P	Y CONTRACTOR PERMIT # NAME				SCHUMAN		

SERVICES, INC		
RILLER APPRENTICE USINESS	PERMIT#	NAME

ATTACHMENT 4 PHOTOGRAPHS





1. Soil Boring SB-1.

2. Soil Boring SB-3.



3. Soil Boring SB-4.



4. Soil Boring B-4 Soil Core.

ATTACHMENT 5BOONE COUNTY LEAD LEVELS



Mineral Resources Online Spatial Data National Geochemical Survey database

Average concentrations of elements in Boone County, Missouri

Counties page > Pb in Conterminous US > Pb in central US > Averages in Boone County {Calculated from cells in the geochemical grid plotting in this area.)

Element	Symbol I	Mean S	Std. dev.N	linimumM	laximum
Aluminum	Al(wt%)	2.801	0.604	1.244	4.700
Arsenic	As (ppm)	6.554	1.768	2.391	12.237
Calcium	Ca(wt%)	0.681	0.237	0.272	1.363
Copper	Cu (ppm)	9.071	3.162	3.127	20.080
Iron	Fe (wt%)	1.509	0.410	0.518	2.581
Mercury	Hg (ppm)	0.012	0.003	0.010	0.029
Magnesium	Mg (wt%)	0.235	0.138	0.047	0.716
Manganese	Mn (ppm)7	43.831	313.097	124.085	1554.940
Sodium	Na(wt%)	0.551	0.091	0.250	0.740
Phosphorus	sP (wt%)	0.043	0.013	0.012	0.080
Lead	Pb (ppm)	17.746	4.174	8.184	32.210
Selenium	Se (ppm)	0.209	0.076	0.101	0.516
Titanium	Ti(wt%)	0.231	0.072	0.046	0.491
Zinc	Zn (ppm)	34.933	10.084	13.700	68.371

Download point data as CSV

ATTACHMENT 6 LABORATORY ANALYTICAL DATA SHEETS





9/30/2025 Page Number: 1 of 7

IPES, Inc. P.O. Box 138 Hallsville, MO 65255 Paul Scheetz

RE: Project Name/Number: MU Transformer/N/A

Chain of Custody Number: 25-1471

Date Received: September 26, 2025

Time Received: 14:38

Relinquished by: David Epema, Jr. Sampler: David Epema, Jr.

Enclosed please find analytical results for sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht Quality Assurance

Enclosures: Chain of Custody Record(s)

Jennifer Vandelicht





Chain of Custody Number: 25-1471

Project Name / Number:

MU Transformer / N/A

Date Collected: 09/26/25 **Time Collected:** 10:50

Sample Number: SB-1 3-4 Lab Number: 254835 Sample Matrix: Soil Sample Type: Grab

Analytes	Result	Units	Reporting Limit	Analysis Method	Analyst - Date
Benzene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Toluene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Ethylbenzene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Xylenes (Total)	< 15	μg/kg	15	EPA 8260B	BD - 09/29/25
1,2-Dibromoethane (EDB)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
1,2-Dichloroethane (EDC)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Methyl tert-butyl ether (MTBE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Naphthalene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
tert-Amyl methyl ether (TAME)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
tert-Butanol (TBA)	< 50	μg/kg	50	EPA 8260B	BD - 09/29/25
tert-Butyl ethyl ether (ETBE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Diisopropyl ether (DIPE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Surrogates					
1,2-Dichloroethane-d4	93	%	80% - 120%	EPA 8260B	BD - 09/29/25
4-Bromofluorobenzene	103	%	80% - 120%	EPA 8260B	BD - 09/29/25
Toluene-d8	102	%	80% - 120%	EPA 8260B	BD - 09/29/25
Analytes	Result	Units	Reporting Limit	Analysis Method	Analyst - Date
Moisture Content	22	%	0.01%	ASTM D2216	BD - 09/29/25
TPH-GRO	< 1	mg/kg	1	EPA 8260B	BD - 09/29/25
TPH-DRO	< 20	mg/kg	20	EPA 8270C	BD - 09/29/25
TPH-ORO	< 20	mg/kg	20	EPA 8270C	BD - 09/29/25
Total Lead (Pb)	8110	μg/kg	250	EPA 200.8	BD - 09/30/25

Notes:

All results are reported on a dry weight basis.

VOC QC Report: 250929SQV DRO-ORO QC Report: 250929SQD Lead (Pb) QC Report: ICP7850-250930A

> Report Date: 09/30/25 Page Number: 2 of 7





Chain of Custody Number: 25-1471

Project Name / Number: MU Transformer / N/A

Date Collected: 09/26/25 **Time Collected:** 11:30

Sample Number: SB-2 10-11 Lab Number: 254836 Sample Matrix: Soil Sample Type: Grab

Analytes	Result	Units	Reporting Limit	Analysis Method	Analyst - Date
Benzene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Toluene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Ethylbenzene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Xylenes (Total)	< 15	μg/kg	15	EPA 8260B	BD - 09/29/25
1,2-Dibromoethane (EDB)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
1,2-Dichloroethane (EDC)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Methyl tert-butyl ether (MTBE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Naphthalene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
tert-Amyl methyl ether (TAME)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
tert-Butanol (TBA)	< 50	μg/kg	50	EPA 8260B	BD - 09/29/25
tert-Butyl ethyl ether (ETBE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Diisopropyl ether (DIPE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Surrogates					
1,2-Dichloroethane-d4	92	%	80% - 120%	EPA 8260B	BD - 09/29/25
4-Bromofluorobenzene	103	%	80% - 120%	EPA 8260B	BD - 09/29/25
Toluene-d8	104	%	80% - 120%	EPA 8260B	BD - 09/29/25
Analytes	Result	Units	Reporting Limit	Analysis Method	Analyst - Date
Moisture Content	27	%	0.01%	ASTM D2216	BD - 09/29/25
TPH-GRO	< 1	mg/kg	1	EPA 8260B	BD - 09/29/25
TPH-DRO	< 20	mg/kg	20	EPA 8270C	BD - 09/30/25
TPH-ORO	< 20	mg/kg	20	EPA 8270C	BD - 09/30/25
Total Lead (Pb)	7280	μg/kg	250	EPA 200.8	BD - 09/30/25

Notes:

All results are reported on a dry weight basis.

VOC QC Report: 250929SQV DRO-ORO QC Report: 250929SQD Lead (Pb) QC Report: ICP7850-250930A

> Report Date: 09/30/25 Page Number: 3 of 7





Chain of Custody Number: 25-1471

Project Name / Number:

MU Transformer / N/A

Date Collected: 09/26/25 **Time Collected:** 12:00

Sample Number: SB-3 4-5 Lab Number: 254837 Sample Matrix: Soil Sample Type: Grab

Analytes	Result	Units	Reporting Limit	Analysis Method	Analyst - Date
Benzene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Toluene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Ethylbenzene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Xylenes (Total)	< 15	μg/kg	15	EPA 8260B	BD - 09/29/25
1,2-Dibromoethane (EDB)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
1,2-Dichloroethane (EDC)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Methyl tert-butyl ether (MTBE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Naphthalene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
tert-Amyl methyl ether (TAME)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
tert-Butanol (TBA)	< 50	μg/kg	50	EPA 8260B	BD - 09/29/25
tert-Butyl ethyl ether (ETBE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Diisopropyl ether (DIPE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Surrogates					
1,2-Dichloroethane-d4	99	%	80% - 120%	EPA 8260B	BD - 09/29/25
4-Bromofluorobenzene	105	%	80% - 120%	EPA 8260B	BD - 09/29/25
Toluene-d8	103	%	80% - 120%	EPA 8260B	BD - 09/29/25
Analytes	Result	Units	Reporting Limit	Analysis Method	Analyst - Date
Moisture Content	27	%	0.01%	ASTM D2216	BD - 09/29/25
TPH-GRO	< 1	mg/kg	1	EPA 8260B	BD - 09/29/25
TPH-DRO	< 20	mg/kg	20	EPA 8270C	BD - 09/30/25
TPH-ORO	< 20	mg/kg	20	EPA 8270C	BD - 09/30/25
Total Lead (Pb)	9620	μg/kg	250	EPA 200.8	BD - 09/30/25

Notes:

All results are reported on a dry weight basis.

VOC QC Report: 250929SQV DRO-ORO QC Report: 250929SQD Lead (Pb) QC Report: ICP7850-250930A

Report Date: 09/30/25 Page Number: 4 of 7





Chain of Custody Number: 25-1471

Project Name / Number: MU Transformer / N/A

Date Collected: 09/26/25 **Time Collected:** 12:15

Sample Number: SB-4 7-8 Lab Number: 254838 Sample Matrix: Soil Sample Type: Grab

Analytes	Result	Units	Reporting Limit	Analysis Method	Analyst - Date
Benzene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Toluene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Ethylbenzene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Xylenes (Total)	< 15	μg/kg	15	EPA 8260B	BD - 09/29/25
1,2-Dibromoethane (EDB)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
1,2-Dichloroethane (EDC)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Methyl tert-butyl ether (MTBE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Naphthalene	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
tert-Amyl methyl ether (TAME)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
tert-Butanol (TBA)	< 50	μg/kg	50	EPA 8260B	BD - 09/29/25
tert-Butyl ethyl ether (ETBE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Diisopropyl ether (DIPE)	< 5	μg/kg	5	EPA 8260B	BD - 09/29/25
Surrogates					
1,2-Dichloroethane-d4	94	%	80% - 120%	EPA 8260B	BD - 09/29/25
4-Bromofluorobenzene	103	%	80% - 120%	EPA 8260B	BD - 09/29/25
Toluene-d8	102	%	80% - 120%	EPA 8260B	BD - 09/29/25
Analytes	Result	Units	Reporting Limit	Analysis Method	Analyst - Date
Moisture Content	21	%	0.01%	ASTM D2216	BD - 09/29/25
TPH-GRO	< 1	mg/kg	1	EPA 8260B	BD - 09/29/25
TPH-DRO	< 20	mg/kg	20	EPA 8270C	BD - 09/30/25
TPH-ORO	46	mg/kg	20	EPA 8270C	BD - 09/30/25
Total Lead (Pb)	13600	μg/kg	250	EPA 200.8	BD - 09/30/25

Notes:

All results are reported on a dry weight basis.

VOC QC Report: 250929SQV DRO-ORO QC Report: 250929SQD Lead (Pb) QC Report: ICP7850-250930A

> Report Date: 09/30/25 Page Number: 5 of 7



Report Number: 250929SQV

QC REPORT

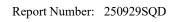
MRBCA Volatiles by GC-MSD

	Detection	Calibration	LCS	Method Blank	•	Matrix Spike	Notes
Analytes	Limit	Verification	% Recovery	Results	% Difference	% Recovery	
tert-Butanol (TBA)	250 μg/kg	111%	114%	n.d.	3%	n.a.	
Methyl tert-butyl ether (MTBE)	25 μg/kg	91%	95%	n.d.	3%	n.a.	
Diisopropyl ether (DIPE)	250 μg/kg	97%	96%	n.d.	n.d.	n.a.	
tert-Butyl ethyl ether (ETBE)	25 μg/kg	95%	94%	n.d.	1%	n.a.	
1,2-Dichloroethane (EDC)	25 μg/kg	92%	95%	n.d.	3%	n.a.	
Benzene	25 μg/kg	103%	98%	n.d.	2%	n.a.	
tert-Amyl methyl ether (TAME)	250 μg/kg	98%	102%	n.d.	n.d.	n.a.	
Toluene	25 μg/kg	110%	105%	n.d.	4%	n.a.	
1,2-Dibromoethane (EDB)	25 μg/kg	87%	93%	n.d.	2%	n.a.	
Ethylbenzene	25 μg/kg	106%	102%	n.d.	3%	n.a.	
m,p-Xylene	50 μg/kg	107%	105%	n.d.	3%	n.a.	
o-Xylene	25 μg/kg	104%	102%	n.d.	3%	n.a.	
Naphthalene	25 μg/kg	95%	103%	n.d.	2%	n.a.	
Spike Quantity		175	175			250	
C	Acceptable	85% - 115%	Compound	< Detection	< 200/	Compound	
Surrogates	Ranges	8370 - 11370	Specific	Limit	≤ 20%	Specific	
1,2-Dichloroethane-d4	80% - 120%	92%	98%	93%	98%	n.a.	
Toluene-d8	80% - 120%	104%	103%	103%	104%	n.a.	
4-Bromofluorobenzene	80% - 120%	105%	106%	110%	109%	n.a.	
	RF RSD	80% - 120%	50% - 120%	< Detection	< 20%	50% - 110%	
	< 20%	0070 - 12070	3070 - 12070	Limit		3070 - 11070	
TPH-GRO	6%	95%	95%	n.d.	0%	n.a.	

Notes

Key
n.a. = not applicable
n.d. = not detected
PND = Present, not detected in duplicate
DNP = Not present, detected in duplicate

Date: 2025-09-30 Report issued by: BD Page Number: 6 of 7





QC REPORT

MRBCA TPH by GC-MSD

	RSD of	LCS	Method Blank	Duplicate	Matrix Spike	Calibration
Analyte	Response Factor	% Recovery	Results	% Difference	% Recovery	Verification
TPH-DRO	19%	75%	n.d.	10%	n.a.	New Curve
TPH-ORO	n.a.	n.a.	n.d.	n.d.	n.a.	n.a.
Acceptable Ranges	RSD < 20%	50% - 110 %	< Detection Limit	≤ 20%	50% - 110%	80% - 120%

Key
n.a. = not applicable
n.d. = not detected
PND = Present, not detected in duplicate
DNP = Not present, detected in duplicate

Notes

Report issued by: BD

Date: 9/30/25

Page Number: 7 of 7

CHAIN OF CUSTODY RECORD

P67 !// HHAIN NUMBER: -'2 14±1

1**4**!Jo1Es,,,, www.inovatia.com

1:-IOVATIA 1{BORATORIES, LLC 120 East Davisstreet • P.O. nox 30 FAYETTE, MO 65248-0030

Pi!ONE: (660)248-1911 **DATE REPORTED:** <u>1.08 • -21</u>)
FAX: (660) 248-1921 **DATE REPORTED:** (100) 01/1 IL CustServ &CE NUMBER: :2i'6\C\1

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When You Want Innovation, Thin/1 Inovatia¹M

B. CONCRETE MUST REACH THE FOLLOWING PERCENTAGES OF ITS 28 DAY COMPRESSIVE STRENGTH (F'c) BEFORE FORMS MAY BE REMOVED:

- 1. SIDES OF FORMED FOUNDATIONS 70 PERCENT (OR MINIMUM 7 DAYS)
- C. PROVIDE CONCRETE MIXES DESIGNED BY A QUALIFIED TESTING LABORATORY FOR REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER.
- D. PROVIDE CONSTRUCTION AND CONTROL JOINTS AS INDICATED ON DRAWINGS. HORIZONTAL CONSTRUCTION JOINTS ARE NOT ALLOWED UNLESS SPECIFICALLY NOTED OR APPROVED BY STRUCTURAL ENGINEER OF PROPOSED CONSTRUCTION JOINT OR CONTROL JOINT LOCATIONS WHICH ARE DIFFERENT OR IN ADDITION TO JOINTS INDICATED ON DRAWINGS.
- E. CHAMFER EXPOSED EDGES 3/4 INCH UNLESS OTHERWISE NOTED.
- F. REFERENCE THE APPROPRIATE DISCIPLINE'S DRAWINGS FOR SUBSLAB PIPING, FLOOR DRAINS, AND SLAB PENETRATIONS.
- G. PROVIDE ADEQUATE STRUCTURAL FRAMING AS APPROVED BY THE STRUCTURAL ENGINEER FOR MECHANICAL OPENINGS THROUGH THE SLABS. OPENINGS WILL NOT BE PERMITTED THROUGH BEAMS UNLESS SPECIFICALLY DETAILED.

STRUCTURAL STEEL NOTES

CONCRETE NOTES

- A. PROVIDE STRUCTURAL STEEL OF THE FOLLOWING ASTM DESIGNATIONS UNLESS OTHERWISE NOTED:
- 1. STRUCTURAL STEEL WIDE FLANGE AND WT SHAPES ASTM A992
- STRUCTURAL STEEL HSS SHAPES ASTM A500 GR. C
- 3. STRUCTURAL STEEL, CHANNELS ASTM A992
- 5. EDGE ANGLES, BENT PLATES, HANGER AND BRACES ASTM A36
- 6. BASE PLATES AND MISCELLANEOUS STEEL PLATES ASTM A572 GRADE 50
- 7. CAST IN PLACE ANCHOR RODS ASTM F1554 GRADE 55 (S1 WELDABLE)
- CONNECTION MATERIALS:
 ALL CONNECTION MATERIALS, EXCEPT AS OTHERWISE NOTED HEREIN OR IN THE DRAWINGS, INCLUDING BEARING PLATES, GUSSET PLATES, STIFFENER PLATES, ANGLES, ETC. ASTM A572 GRADE 50
- 9. HIGH STRENGTH BOLTS ASTM F3125 GRADE A325
- 10. HARDENED STEEL WASHERS ASTM F436
- 11. HEAVY HEX NUTS ASTM A563
- 12. STRUCTURAL PIPE ASTM A53, GRADE B
- B. WELD MINIMUM SIZE AND STRENGTH
- 1. PROVIDE MINIMUM SIZE OF FILLET WELDS AS SPECIFIED IN TABLE J2.4 OF THE AISC MANUAL
- PROVIDE MINIMUM EFFECTIVE THROAT THICKNESS OF PARTIAL PENETRATION GROOVE WELDS AS SPECIFIED IN TABLE J2.3 OF THE AISC MANUAL.
- 3. DEVELOP THE FULL TENSILE STRENGTH OF THE MEMBER ELEMENT JOINED ON ALL SHOP AND FIELD WELDS UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- 4. WHERE CONNECTIONS ARE NOTED ON DRAWINGS AS MOMENT CONNECTIONS, PROVIDE WELDS TO DEVELOP FULL FLEXURAL CAPACITY OF THE LESSER MEMBER.
- 5. PROVIDE ELECTRODES FOR FIELD OR SHOP WELDING THAT CONFORM TO AWS D1.1 CLASS E70XX.
- C. PROVIDE MINIMUM OF TWO BOLTS PER CONNECTION. MINIMUM BOLT DIAMETER TO BE 3/4 INCH.
- D. PROVIDE BOLTS, NUTS AND WASHERS THAT ARE HOT DIP GALVANIZED ACCORDING TO ASTM A 153, CLASS C WHEN USED TO CONNECT STEEL ELEMENTS THAT ARE HOT DIP GALVANIZED AFTER FABRICATION.
- E. STEEL FABRICATION:
- 1. FABRICATE AND ASSEMBLE STRUCTURAL MEMBERS/ASSEMBLIES IN SHOP TO GREATEST EXTENT
- 2. SPLICING OF STRUCTURAL STEEL MEMBERS IS PROHIBITED WITHOUT PRIOR APPROVAL BY THE ENGINEER OF RECORD.
- 3. BE RESPONSIBLE FOR ALL ERRORS OF DETAILING ON THE SHOP DRAWINGS, ERRORS IN FABRICATION, AND THE CORRECT FITTING OF STRUCTURAL STEEL MEMBERS.
- F. CONFORM TO THE AISC CODE OF STANDARD PRACTICE, FOR ERECTION TOLERANCES. FIELD MODIFICATION TO STRUCTURAL STEEL IS PROHIBITED WITHOUT PRIOR APPROVAL BY THE STRUCTURAL ENGINEER.
- G. CLEAN STEEL OF RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIALS WHERE REQUIRED FOR FABRICATION, FITTING UP, OR WELDING.
- H. DO NOT CUT STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR REVIEW AND APPROVAL OF THE STRUCTURAL ENGINEER.
- . AFTER FABRICATION, HOT DIP GALVANIZE STRUCTURAL STEEL AND THEIR CONNECTIONS PERMANENTLY EXPOSED TO THE OUTSIDE .
- FURNISH STEEL SHOP DRAWINGS FOR STRUCTURAL ENGINEER'S REVIEW PRIOR TO FABRICATION. INCLUDE WELDING PROCEDURES, TESTING PROGRAMS FOR WELDING AND HIGH STRENGTH BOLTING, COATING MATERIAL, AND ERECTION SEQUENCE ON SHOP DRAWINGS.

- 1. PROVIDE HEADED STUDS MADE OF MATERIAL CONFORMING TO ASTM A108.
- 2. PROVIDE DEFORMED ANCHORS MADE OF MATERIAL CONFORMING TO ASTM A496. 3. WELD STUDS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. MANUAL ARC (STICK) WELDING OF HEADED STUDS AND/OR DEFORMED ANCHORS IS NOT ALLOWED.

RE: PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

- A. REFER TO THE GEOTECHNICAL REPORT AND SPECIFICATIONS FOR GENERAL REQUIREMENTS OF EARTHWORK, OVER EXCAVATION, SUBGRADE PREPARATION, FILL AND COMPACTION, WATERPROOFING AND OTHER PERTINENT REQUIREMENTS AND INFORMATION.
- B. FOUNDATION DESIGN IS BASED UPON THE GEOTECHNICAL ENGINEERING EXPLORATION REPORT BY CROCKETT GEOTECHNICAL TESTING LAB DATED AUGUST 19, 2025, PROJECT NUMBER G251201.1.
- C. SHALLOW FOUNDATIONS ARE DESIGNED FOR AN ALLOWABLE GROSS BEARING PRESSURE OF 2,500 PSF FOR ISOLATED FOUNDATIONS AND 2,100 PSF FOR CONTINUOUS FOUNDATIONS, AS RECOMMENDED BY THE
- D. PROTECT PIPES AND CONDUITS RUNNING THROUGH WALLS AND SLABS WITH 1/2 INCH EXPANSION MATERIAL. PROVIDE A CONCRETE JACKET IF PIPES ARE LOW ENOUGH TO BE PLACED BELOW THE FOOTINGS AND GRADE BEAMS.
- E. MAINTAIN SUBGRADE AND FILL MOISTURE CONTENT UNTIL FOUNDATIONS ARE PLACED
- F. ARRANGE FOR OWNER'S INDEPENDENT TESTING AGENCY TO MONITOR CUT AND FILL OPERATIONS AND PERFORM FIELD DENSITY AND MOISTURE CONTENT TESTS TO VERIFY COMPACTION AND APPROVE FOOTING SUBGRADES PRIOR TO PLACING CONCRETE.
- G. DO NOT PLACE FOOTINGS OR SLABS AGAINST SUBGRADE CONTAINING FREE WATER, FROST, OR ICE.
- H. MAINTAIN PROPER SITE DRAINAGE DURING CONSTRUCTION TO ENSURE SURFACE RUNOFF AWAY FROM STRUCTURES AND TO PREVENT PONDING OF SURFACE RUNOFF NEAR THE STRUCTURES.
- KEEP OPEN EXCAVATIONS DRY, BACKFILL AGAINST FOUNDATIONS AND GRADE BEAMS AS SOON AS PRACTICAL. PUMP WATER OUT OF OPEN EXCAVATIONS IF FLOODED PRIOR TO BACKFILLING.
- J. DO NOT BACKFILL AGAINST WALLS, WHEREVER FEASIBLE, UNTIL BASEMENT AND GROUND FLOOR SLABS HAVE ATTAINED 75 PERCENT OF THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH. IF THE WALLS ARE BACKFILLED PRIOR TO COMPLETION OF GROUND AND BASEMENT FLOORS BEFORE THE SPECIFIED PERCENT STRENGTH CAN BE ATTAINED, BRACE THE WALLS FOR THE SPECIFIED DESIGN PRESSURE. OBTAIN THE APPROVAL OF THE A/E FOR THE ADEQUACY OF SUCH BRACE.
- K. DEEP FOUNDATIONS ARE DESIGNED FOR AN ALLOWABLE CAPACITY IN TERMS OF MOMENT. SHEAR AND AXIAL LOADS PER THE GEOTECHNICAL ENGINEERING EXPLORATION REPORT INDICATED BELOW
- a. ALLOWABLE END BEARING PRESSURE=30,000 PSF (LIMESTONE)
 b. ALLOWABLE SKIN FRICTION=2000 PSF (LIMESTONE)

GEOTECHNICAL ENGINEER.

- L. PLACE CONCRETE FOR PIER HOLES WITHIN 8 HOURS AFTER DRILLING. DO NOT LEAVE HOLE OPEN
- M. USE TEMPORARY CASING IF REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE HOLE, OR TO PREVENT INFLUX OF WATER.
- N. CLEAN BOTTOM OF EACH PIER HOLE OF LOOSE MATERIAL.
- O. PLACE CONCRETE USING A HOPPER AND CHUTE PIPE. PROVIDE CONCRETE FREE FALL OF LESS THAN 10
- P. REMOVE LAITANCE MATERIAL FROM THE TOP OF EACH PIER PRIOR TO PLACING CONCRETE
- ARRANGE FOR OWNER'S INDEPENDENT TESTING AGENCY TO INSPECT PIER HOLES PRIOR TO PLACING CONCRETE AND VERIFY PIER SIZE, REINFORCING, DEPTH, BEARING STRATA, EMBEDMENT DEPTH AND DEVIATION OF CITY METERS. REMOVAL OF CUT MATERIAL.
- R. REMOVE EXCESS CONCRETE AT TOP OF PIERS BEYOND THE LIMITS OF THE PIER DIAMETER.
- S. FORM SIDES OF FOUNDATIONS STRAIGHT AND TO SPECIFIED DIMENSIONS. EARTH FORMS WILL NOT BE PERMITTED.

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T. REFER TO CIVIL DRAWINGS FOR LIMITS OF EXCAVATIONS.

REINFORCING STEEL NOTES

- A. PROVIDE DETAILING, FABRICATION, AND INSTALLATION OF REINFORCING AND ACCESSORIES IN ACCORDANCE WITH ACI 315 AND ACI 318.
- B. PROVIDE NEW STEEL REINFORCING BARS IN ACCORDANCE WITH ASTM A615, GRADE 60.
- C. PROVIDE NEW STEEL REINFORCING BARS IN ACCORDANCE WITH ASTM A706, GRADE 60, FOR BARS INTENDED TO BE WELDED.
- D. COORDINATE PLACEMENT OF CAST-IN-PLACE EMBEDS AND ANCHOR RODS. SET ANCHOR RODS WITH A TEMPLATE. SECURELY ATTACH EMBED ITEMS TO FORMWORK OR REINFORCING. E. PROVIDE CLASS "B" REINFORCEMENT SPLICES FOR CONTINUOUS REINFORCEMENT. PROVIDE STANDARD 90-DEGREE HOOKS IN ACCORDANCE WITH ACI 318, UNLESS OTHERWISE NOTED. STAGGER SPLICES UNLESS SPECIFICALLY NOTED.
- F. MAINTAIN THE FOLLOWING CONCRETE COVERAGE FOR REINFORCING STEEL UNLESS OTHERWISE NOTED:
- 1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3 INCHES
- 2. CONCRETE EXPOSED TO EARTH OR WEATHER:
- a. NO. 6 AND LARGER 2 INCHESb. NO. 5 AND SMALLER 1 1/2 INCHES
- CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:
 SLABS AND WALLS
 NO.11 AND SMALLER 1.1/2 INCHES
 BEAM STIRRUPS AND COLUMN TIES 1.1/2 INCHES
- G. DO NOT WELD OR BEND REINFORCEMENT IN THE FIELD UNLESS SPECIFICALLY SHOWN OR APPROVED BY
- H. WHEN SPECIFICALLY APPROVED, PROVIDE WELDED REINFORCEMENT IN ACCORDANCE WITH ASTM A706. USE LOW HYDROGEN ELECTRODES FOR WELDING OF REINFORCEMENT IN CONFORMANCE WITH "RECOMMENDED PRACTICES FOR WELDING REINFORCING STEEL", AMERICAN WELDING SOCIETY, AWS D12.1.
- WHERE REQUIRED, PROVIDE DOWELS TO MATCH SIZE AND SPACING OF MAIN REINFORCING.
- J. PROVIDE CONTINUOUS HORIZONTAL REINFORCEMENT WITH 90-DEGREE BENDS AND EXTENSIONS AT CORNERS AND INTERSECTIONS AS SHOWN ON TYPICAL BAR PLACING DETAILS.
- K. PROVIDE BAR SUPPORT ACCESSORIES IN ACCORDANCE WITH THE LATEST ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES. SUPPORT BEAM REINFORCING ON BEAM BOLSTERS SPACED NOT MORE THAN 4 FEET ON CENTER.
- L. ALL LAP SPLICES TO BE CONTACT SPLICES. NON-CONTACT SPLICES ARE NOT PERMITTED.

SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS POST-INSTALLED ANCHORS

B. INSTALL ANCHOR IN ACCORDANCE WITH CURRENT ICC-ES REPORT FOR THE BOLT AND RECOMMENDATIONS OF THE MANUFACTURER.

C. INSTALL ANCHOR PERPENDICULAR TO THE FACE OF CONCRETE. DEVIATION FROM PERPENDICULAR GREATER THAN 10 DEGREES WILL NOT BE ACCEPTABLE.

D. CREATE A TEMPLATE AT EACH ANCHOR CONNECTION LOCATION PRIOR TO FABRICATING HOLES IN CONNECTION PLATES. MAKE TEMPLATE BY LOCATING EXISTING REBAR WITH A PACHOMETER. REPOSITION ANCHORS A MAXIMUM OF 1-1/2 INCHES TO AVOID CONFLICTS WITH EXISTING

E. DRILL HOLES TO DEPTH AND DIAMETER RECOMMENDED BY MANUFACTURER. DO NOT ENLARGE OR REDIRECT HOLES ALONG LENGTH OF ANCHOR.

F. DRILL HOLES IN CONTINUOUS OPERATION. BLOW DUST FROM THE HOLE USING COMPRESSED AIR.

I. PROVIDE HOLES IN CONNECTION PLATES NO MORE THAN 1/16 INCH LARGER THAN THE ANCHOR DIAMETER. IF LARGER HOLES ARE NEEDED FOR ERECTION PURPOSES, PROVIDE PLATE WASHERS WELDED TO THE CONNECTION PLATE TO TRANSFER THE ANCHOR LOAD.

 \cdots

G. FILL ABANDONED HOLES WITH EPOXY GROUT

- A. THE SPECIAL INSPECTOR(S) SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE OWNER, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THE SPECIAL INSPECTOR(S) SHALL KEEP RECORDS OF INSPECTIONS.
- B. THE SPECIAL INSPECTOR(S) SHALL FURNISH INSPECTION REPORTS TO THE OWNER'S REPRESENTATIVE AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS.
- C. THE SPECIAL INSPECTOR(S) SHALL BRING DISCREPANCIES TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF DISCREPANCIES ARE NOT CORRECTED, THE SPECIAL INSPECTOR(S) SHALL BRING DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO COMPLETION OF THAT PHASE OF WORK.
- D. THE SPECIAL INSPECTOR(S) SHALL PERIODICALLY SUBMIT A REPORT OF INSPECTIONS DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS AT A FREQUENCY DETERMINED BY
- E. THE SPECIAL INSPECTOR(S) SHALL VERIFY THAT EACH FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR INSPECTION, CONTROL OF WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS. THE SPECIAL INSPECTOR(S) SHALL REVIEW THE PROCEDURES FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENTS FOR THE FABRICATOR'S SCOPE OF WORK. SPECIAL INSPECTIONS ARE NOT REQUIRED WHERE THE FABRICATOR IS APPROVED AS DESCRIBED BELOW.
- THE SPECIAL INSPECTION(S) OF FABRICATORS ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTOL MANULAS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLETION WITH THE APPROVED CONSTRUCTION
- G. STRUCTURAL WORK REQUIRING SPECIAL INSPECTION AND STRUCTURAL TESTING SHALL BE AS INDICATED ON THE SCHEDULE OF SPECIAL INSPECTIONS AND WITHIN THE SPECIFICATIONS.
- H. THE CONTRACTOR SHALL PROVIDE ONE BUSINESS DAY NOTICE, MINIMUM, OF THE INITIATION OF ANY WORK REQUIRED TO HAVE SPECIAL INSPECTIONS. REGARDLESS OF NOTICE PROVIDED TO THE SPECIAL INSPECTOR(S), ALL WORK PERFORMED WITHOUT REQUIRED SPECIAL INSPECTION WILL BE SUBJECT TO REMOVAL AT THE DISCRETION OF THE STRUCTURAL ENGINEER.

SCHEDULE OF SPECIAL INSPECTIONS

INSPECTION AND TESTS OF CONCRETE CONSTRUCTION (RE: IBC 2	
VERIFICATION AND INSPECTION TASK	INSPECTION FREQUENCY
INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	PERIODIC
2. REINFORCING BAR WELDING.	DEDIODIO
2a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706.	PERIODIC
2b. INSPECT SINGLE PASS FILLET WELDS MAXIMUM 5/16".	PERIODIC
2c. INSPECT ALL OTHER WELDS.	CONTINUOUS
3. INSPECT ANCHORS CAST IN CONCRETE.	PERIODIC
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS	
4a. ADHESIVE ANCHORS INSTALLED HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSIONS LOADS.	CONTINUOUS
4b. MECHANICAL AND ADHESIVE ANCHORS NOT DEFINED IN 4a.	PERIODIC
5. VERIFY USE OF REQUIRED MIX DESIGN.	PERIODIC
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURES OF THE CONCRETE	CONTINUOUS
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	CONTINUOUS
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	PERIODIC
9. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	PERIODIC
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	PERIODIC
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLAB.	PERIODIC
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	PERIODIC
INSPECTION AND TESTS OF SOILS (RE: IBC 2021 - TABL	
VERIFICATION AND INSPECTION TASK	INSPECTION FREQUENCY
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	PERIODIC
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	PERIODIC
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	PERIODIC
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES	CONTRIBUIO
DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	CONTINUOUS
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	PERIODIC
INSPECTION OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS (RE: II	BC 2021 - TABLE 1705.8)
VERIFICATION AND INSPECTION TASK	INSPECTION FREQUENCY
1. INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT.	CONTINUOUS
VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENTS INTO BEDROCK (IF APPLICABLE)AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.	CONTINUOUS
3. FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS IN ACCORDANCE WITH TABLE 1705.3.	-
STRUCTURAL STEEL, BOLTING, AND WELDING SPECIAL I	
VERIFICATION AND INSPECTION TASK	REFERENCED CRITERIA
SPECIAL INSPECTION OF STRUCTURAL STEEL, BOLTING, AND WELDING SHALL BE IN ACCORDANCE WITH QUALITY CONTROL AND QUALITY	SEE AISC 360-16 FOR
ASSURANCE PLAN REQUIREMENTS OF AISC 360-16 (CHAPTER N).	ADDITIONAL AND MORE SPECIFIC INSPECTION REQUIREMENTS.

Jacobs A. POST-INSTALLED ANCHORS SHALL ONLY BE INSTALLED WHERE SHOWN ON DRAWINGS OR APPROVED BY STRUCTURAL ENGINEER.

rt Worth, TX 76102 7-735-6000 w.Jacobs.com

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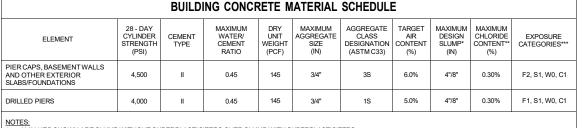
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riged line. GENERAL SITE - CHAMPIONS DRIVE 69kV TRANSFORMER FOUNDATIONS NOTES

Drawing Title: GENERAL I

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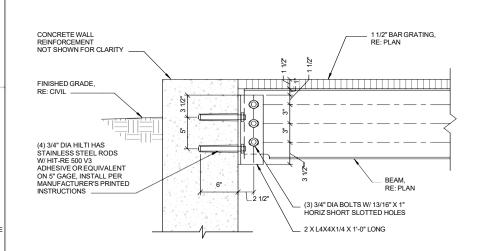
LUES SHOWN ARE SLUMP WITHOUT SUPERPLASTICIZERS OVER SLUMP WITH SUPERPLASTICIZERS. LUES GIVEN ARE MAX WATER-SOLUBLE CHLORIDE ION CONTENT IN CONCRETE IN PERCENT BY WEIGHT. E: ACI 318 CHAPTER 19 FOR DEFINITIONS OF EXPOSURE CATEGORIES.

NOTES: 1. PROVIDE CONTACT SPLICE, NON-CONTACT SPLICES NOT PERMITTED.

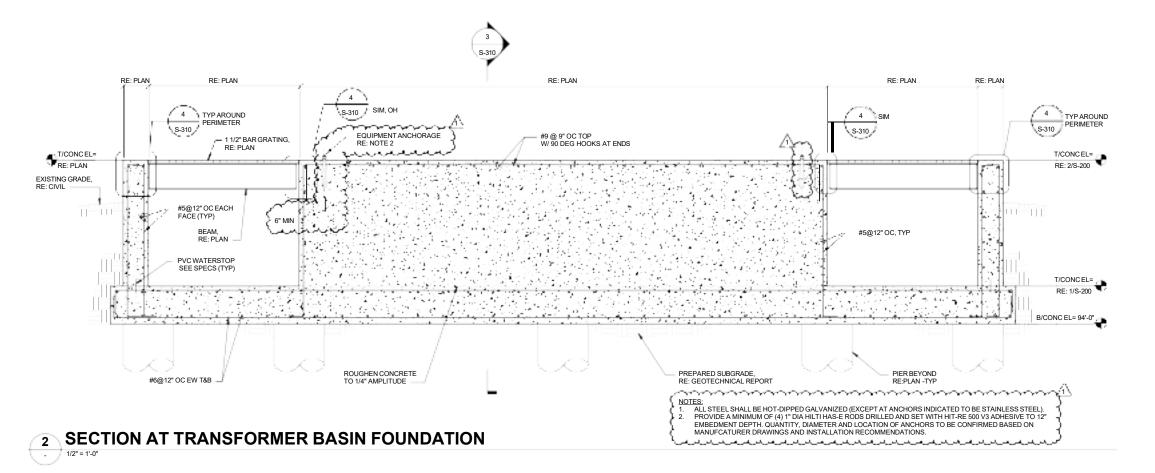
- AFTER REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE FILLED WITH GROUT. THE GROUT SHALL BE DISCHARGED A MAXIMUM OF 2 FEET ABOVE THE SHAFT BOTTOM, PUMPED UNDER PRESSURE FROM THE "BOTTOM UP" TO HELP ASSURE THE SHAFTS ARE CONTINUOUS.
- A MINIMUM ACTUAL GROUT VOLUME OF 125 PERCENT OF THE THEORETICAL SHAFT VOLUME SHALL BE ACHIEVED FOR EACH SHAFT, UNLESS OTHERWISE APPROVED BYTHE GEOTECHNICAL OR STRUCTURAL ENGINEER.
- 4. THE CONSTRUCTION OF THE SHAFTS SHALL BE IN A MANNER THAT DRILLING OF THE SHAFTS DOES NOT DISTURB THE "WET" GROUT IN ADJACENT SHAFTS. ADJACENT SHAFTS UNDER CONSTRUCTION SHALL BE A MINIMUM OF 6 SHAFT DIAMETERS FROM ANY SHAFT HAVING GROUT LESS THAN 24-HOURS OLD.
- 5. ALL DRILLED SHAFTS SHALL BE INSTALLED UNDER OBSERVATION OF THE SPECIAL
- 7. TEMPORARY CASINGS MAY BE REQUIRED TO FACILITATE PIER CONSTRUCTION, REFER TO GEOTEHCNIAL REPORT FOR ADDITIONAL INFORMATION.

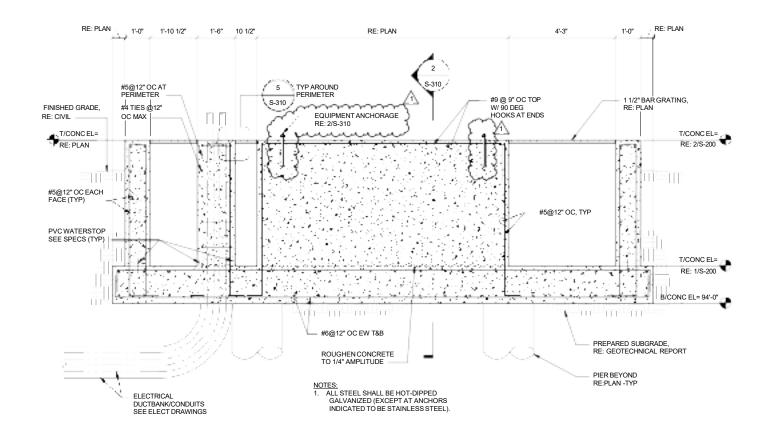
PIER SCHEDULE						
PIER MARK	SHAFT DIA	EMBEDMENT INTO LIMESTONE BEARING LAYER	VERT REINF.	TIES		
P1	24"	1'-0"	(8)-#7	#4@12" OC		
P2	24"	4'-6"	(8)-#7	#4@12" OC		



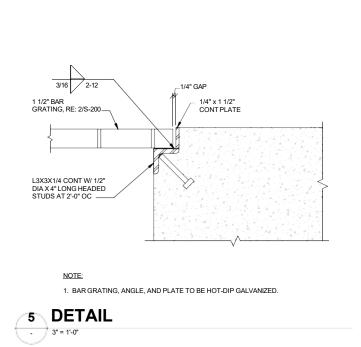


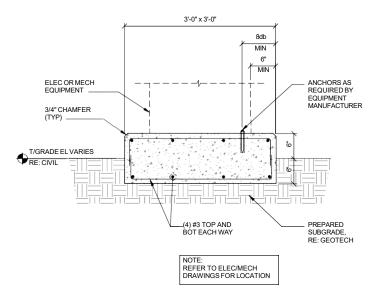
4 SECTION 1 1/2" = 1'-0"





3 SECTION AT TRANSFORMER BASIN FOUNDATION





CONCRETE PAD FOR 6 TEMPORARY ELECTRICAL EQUIPMENT



Fort Worth, TX 76102 817-735-6000 www.Jacobs.com CIVIL CONSULTANT

Civil Engineers
4600 College Blvd., Suite 100
Overland Park, KS 66211
(913)-451-1818
fax (913)-451-7599



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