



# University of Kentucky<sup>®</sup>

*Procurement Services*

INVITATION FOR BIDS  
CCK-2563.10-1-24  
CTC – Elizabeth Street Replacement  
ADDENDUM #1  
01/09/2024

Offerors must acknowledge receipt of this, and any addendum, as directed in the Invitation for Bids.

**ITEM #1: CLARIFICATIONS AND MODIFICATIONS TO THE ADVERTISEMENT**

- “Tab 3 CCK-2563.10-1-24 Forms of Proposal TC26A1 - TC32B1\_Revised” is enclosed. Please refer to these documents when preparing your bid.
- “Tab 19 CCK-2563.10-1-24 UK Cancer Center Geotechnical Report 8-1-23\_Revised” is enclosed. Please refer to this documents when preparing your bid.

**OFFICIAL APPROVAL**  
**UNIVERSITY OF KENTUCKY**

**SIGNATURE**

*Ken Scott*

01/09/2024

Ken Scott, Purchasing Officer

\_\_\_\_\_

\_\_\_\_\_

Typed or Printed Name

004100B01

UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION PROCUREMENT SECTION  
FORM OF PROPOSAL: TC 26A.1 – Electrical and Data

Project No. 2563.1 Project Title: BP1 Elizabeth Street Replacement

Purchasing Officer: Ken Scott

NOTE: The following Form of Proposal shall be followed exactly in submitting a proposal for this work. If this copy is lost, an additional copy will be furnished upon written request to the authority issuing Contract Documents.

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This Proposal is submitted by: \_\_\_\_\_  
(NAME AND ADDRESS OF BIDDER)

Date: \_\_\_\_\_

Telephone: \_\_\_\_\_

Vendor #: \_\_\_\_\_ (FEIN) \_\_\_\_\_

TO: BID CLERK  
UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION  
PROCUREMENT  
RM. 322 SERVICE BUILDING  
LEXINGTON, KY. 40506-0005

INVITATION TO BID: CCK-2563.10-1-24

BID OPENING DATE: 02/08/2024

TIME: 3:00 P.M. Lexington, KY Time

The Bidder, in compliance with your Invitation for Bids for the above referenced Project, having carefully examined the site of the Work, the Drawings and complete Contract Documents as defined in Article I of the General Conditions, as well as the Specifications affecting the work as prepared by the Consultant, hereby proposes to furnish all labor, materials, supplies and services required to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the price stated below without qualification.

The Bidder hereby acknowledges receipt of the following Addenda:

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

(Here insert the number and date of any Addenda issued and received. If none has been issued and received, the word NONE should be inserted.)



Contractor Report of Prior Violations of  
Chapters 136,139, 141, 337, 338, 341, and 342

Pursuant to KRS 45A.485, the Contractor shall, prior to the award of a Contract, reveal final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 by the Contractor that have occurred in the previous five (5) year period.

This statute also requires for the duration of the Contract established, the Contractor be in continuous compliance with the provisions of Chapters 136, 139, 141, 337, 338, 341, and 342 that apply to the Contractor’s operations. The Contractor’s failure to reveal a final determination of a violation of KRS Chapters 136, 139, 141, 337, 338, 341, and 342, or failure to comply with any of the above cited statutes for the duration of the Contract shall be grounds for the cancellation of the Contract, and the disqualification from eligibility for future contracts for a period of two (2) years.

The Contractor, by signing and submitting a Bid on this Invitation, agrees as required by KRS 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 that have occurred in the previous five (5) years prior to the award of a Contract and agrees to remain in continuous compliance with the provisions of these statutes during the duration of any contract that may be established. Final determinations of any violations of these statutes, must be provided to the University by the successful Contractor prior to the award of a Contract.

LUMP SUM PROPOSAL

The Bidder agrees to furnish all labor, materials, supplies and services required to complete the Work, for the above referenced Project, for the Capital Construction Procurement Section, University of Kentucky, as described in the Specifications and Contract Documents and shown on the Drawings enumerated below and as modified by the Addenda listed above.

FOR THE LUMP SUM OF \_\_\_\_\_  
(USE WORDS)  
\_\_\_\_\_  
(USE WORDS) DOLLARS AND (USE WORDS) CENTS.  
\_\_\_\_\_  
(USE WORDS) (USE WORDS)  
(\$ \_\_\_\_\_)  
(USE FIGURES)

SUPERINTENDENT

In accordance with Article 17 of the General Conditions a full-time superintendent will be required on this project. Below, please list the superintendent your firm will employ on this project. The successful Bidder will be required to furnish a resume of the superintendent’s qualifications and or past projects.

\_\_\_\_\_

List the Superintendent’s Name

Alternate: None.

**004100B01**

FORM OF PROPOSAL

AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST

I hereby certify:

1. That I am the Bidder (if the Bidder is an individual), a partner in the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the submitted Bid or Bids covering Capital Construction Procurement Section Invitation No. **CCK-2563.10-1-24** have been arrived at by the Bidder independently and have been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition; as prohibited by provision KRS 45A.325;
3. That the contents of the Bid or Bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished with the Bid or Bids and will not be communicated to any such person prior to the official opening of the Bid or Bids;
4. That the Bidder is legally entitled to enter into the contracts with the University of Kentucky and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 164.390, and 45A.330 to 45A.340 and 45A.455;
5. This offer is good for 60 calendar days from the date this Bid is opened. In submitting the above, it is expressly agreed that upon proper acceptance by the Capital Construction Procurement Section of any or all items Bid above, a contract shall thereby be created with respect to the items accepted;
6. That I have fully informed myself regarding and affirm the accuracy of all statements made in this Form of Proposal including Bid Amount.
7. Unless otherwise exempted by KRS 45.590, the Bidder intends to comply in full with all requirements of the Kentucky Civil Rights Act and to submit data required by the Kentucky Equal Employment Act upon being designated the successful contractor.
8. That the bidding contractor and all subcontractors to be employed do not and will not maintain any facilities they provide for employees in a segregated manner and they are in full compliance with provisions of 41 CFR 60-1.8 that prohibits the maintaining of segregated facilities.
9. In accordance with KRS45A.110(2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to the bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

READ CAREFULLY - SIGN IN SPACE BELOW - FAILURE TO SIGN INVALIDATES BID

SIGNED BY \_\_\_\_\_ TITLE \_\_\_\_\_

PRINT NAME \_\_\_\_\_ FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_ AREA CODE & PHONE \_\_\_\_\_

\_\_\_\_\_ FAX \_\_\_\_\_

CITY STATE ZIP CODE

BIDDER'S EMAIL \_\_\_\_\_ DATE \_\_\_\_\_



## **004100B01**

THE FOLLOWING ITEMS ARE HEREWITH ENCLOSED AS REQUIRED BY KRS 45A.185

1. Bid Bond or Certified Check in an amount not less than five percent (5%) of total Bid.
2. List of Proposed Subcontractors and Unit Prices. (if required)
3. Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest.
4. List of Materials and Equipment.
5. Bid Breakdown Form
6. Walsh Labor Rates Sheet

A Payment and Performance Bond shall not be included with the bid. If the bidder is not approved for participation in the SDI program, then the bidder will be required to furnish a proposal to add a 100% P&P Bond. All bonding and insurance requirements are contained in the Instruction to Bidders and/or General Conditions. Performance and Payment bonds shall be obliged per the bond forms in the Walsh Construction Sample Contract Exhibits. A 5% bid bond is required with the submission of this proposal.

Bidder shall not include cost for insurance in their bid. If the bidder is not approved for participation in the Contractor Controlled Insurance Program (CCIP), then the bidder will be required to furnish a proposal to add the full cost of insurance consistent with the project insurance limits listed in the bid documents and the Walsh Construction Sample Contract Exhibits.

### **BIDDER'S QUALIFICATIONS**

The Commonwealth of Kentucky Model Procurement Code (KRS 45A.080) requires contracts to be awarded, "to the responsive and responsible bidder whose bid offers the best value" to the University of Kentucky. In order to determine if the Bidder has the experience, qualifications, resources and necessary attributes to provide the quality workmanship, materials and management required by the plans and specifications, the Bidder may be required to complete and submit the information requested on the University of Kentucky Contractor Bidder Determination of Responsibility questionnaire. Failure to provide the information requested on the questionnaire or failure to provide any additional submittals or information that may be requested to make this determination may be grounds for a declaration of non-responsibility with respect to the Bidder. A copy of the Contractor Determination of Responsibility questionnaire is available upon request to all Bidders.

### **TIME LIMIT FOR EXECUTION OF CONTRACT DOCUMENTS**

It is further agreed, that in the event this Proposal is accepted by the Owner and the undersigned shall fail to execute the Contract and furnish satisfactory Payment and Performance Bond within ten (10) consecutive calendar days from the date of notification of the award of the Contract, the Owner may at his option, determine that the undersigned has abandoned the Contract and thereupon, the Proposal shall become null and void and the Bid guarantee, check or Bid bond which accompanied it shall be forfeited and become the property of the Owner as liquidated damages for each failure and no protest pursuant to such action will be made. If the Undersigned shall execute the Contract, and furnish satisfactory Payment Bond and Performance Bond, it is understood that the Bid Guarantee or Bid Bond will be returned to the undersigned by the Owner.

UNIT PRICES

NOTE: Unit Prices shall include the furnishing of all labor, materials, supplies and services and shall include all items of cost, overhead and profit for the Contractor and any subcontractor involved, and shall be used uniformly without modifications for either additions or deductions. The Unit Prices as established shall be used to determine the equitable adjustment of the Contract Price in connection with changes, deletions or extra work performed under the Contract and the "Rules of Measurement" set forth in the General Conditions shall govern.

*All Bidders will be required to complete and submit the following Unit Prices with the bid.*

*The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.*

DESCRIPTION OF WORK

UNIT PRICE

See Bid Breakdown Form

PRIMARY LIST OF PROPOSED SUBCONTRACTORS

All subcontractors are subject to the approval of the Capital Construction Procurement Section and Capital Project Management Division, University of Kentucky, Lexington, KY.

If certain branches of the Work are to be done by the Prime Contractor, so state.

The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.

The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.

DIVISION OF WORK

NAME AND ADDRESS OF SUBCONTRACTOR

DIVISION 01  
GENERAL REQUIREMENTS

\_\_\_\_\_

DIVISION 02  
EXISTING CONDITIONS

\_\_\_\_\_

DIVISION 03  
CONCRETE

\_\_\_\_\_

DIVISION 05  
METALS

\_\_\_\_\_

DIVISION 07  
THERMAL & MOISTURE PROTECTION

\_\_\_\_\_

DIVISION 22  
PLUMBING

\_\_\_\_\_

DIVISION 23  
HVAC

\_\_\_\_\_

DIVISION 26  
ELECTRICAL

\_\_\_\_\_

DIVISION 27  
TELECOMMUNICATIONS

\_\_\_\_\_

DIVISION 31  
EARTHWORK

\_\_\_\_\_

DIVISION 32  
EXTERIOR IMPROVEMENTS

\_\_\_\_\_

ADD AS NEEDED

\_\_\_\_\_

LIST OF MATERIALS AND EQUIPMENT

Each item listed under the different phases of construction must be clearly identified so that the Owner will definitely know what the Bidder proposes to furnish.

The use of a manufacturer's or dealer's name only, or stating "as per Plans and Specifications," will not be considered as sufficient identification.

Where more than one "Make" or "Brand" is listed for any one item, the Owner has the right to select the one to be used.

**The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.**

**The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.**

MATERIALS AND EQUIPMENT

BRAND OR MANUFACTURER


**004100B01**

**IDENTIFICATION OF DIVERSE BUSINESS ENTERPRISE SUBCONTRACTORS AND MATERIAL SUPPLIERS**

Diverse Business Enterprises (DBE) consist of minority, women, disabled, veteran and disabled veteran owned business firms that are at least fifty-one percent owned and operated by an individual(s) of the aforementioned categories. Also included in this category are disabled business enterprises and non-profit work centers for the blind and severely disabled.

MBE, WBE, Veterans, Disable Veterans and Disabled make up Diverse Business Enterprises, DBE.

**Participation of DBE owned Contractors and businesses.**

The University of Kentucky encourages and supports the participation Diverse Business Enterprises. Please list Subcontractors and Material Suppliers according to following Ethnic Vendor List or if they are a Woman Owned Business:

- Asian
- Black/African American
- Hispanic or Latino
- Native American Native Hawaiian/Pacific Islander
- White
- Other

1. DBE (Ethnic or Woman) Subcontractors

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2. DBE (Ethnic or Woman) Material Suppliers

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**BID BREAKDOWN FORM**

**Company Name:**

**Scope of Work :** Trade Category 26A.1- Electrical And Data

Item	Bid Quantities	Quantity	U/M	Unit Price	Total
001	General Requirements		LS		
002	Site Electrical Demo		LS		
003	University Power Duct Bank with Vaults		LF		
004	University Communications Duct Bank with Vaults		LF		
005	12 KV Duct Bank		LF		
006	69 KV duct Bank	N/A	LF	by KU	Do Not Include
007	Other Electrical Connections		LS		
008	Waller Annex Phasing Including overhead temp fiber feed and Transformer Relocation		LS		
009	Temporary Site Lighting including Maintenance of Traffic Sidewalk lighting		LS		
010	Jobsite and Trailer Temp Power setup		LS		
	<b>Allowances (To be included in Base Bid on Bid Form)</b>				
Allowance 1	Additional Light Poles for on site temporary lighting	5	LS		\$50,000.00
	<b>TOTAL BASE BID</b> (this total should match Base Bid Total on 004100B01 Form of Proposal)				
	<b>Alternates - N/A</b>				
	<b>Unit Prices - To be included in the Subcontract</b>				
Unit Price 1	Additional Subcontractor Trailer Hookup		Ea		
Unit Price 2	Additional Light Pole		Ea		
Unit Price 3	Excavation and Spoils management where excavation is through typical soils				
Unit Price 4	Excavation and Spoils management where excavation is through rock				
	<b>Labor Rates - See Labor Rate Form</b>				

Walsh Labor Rates Sheet

Company Name: \_\_\_\_\_

Scope of Work : \_\_\_\_\_ Trade Category \_\_\_\_\_

\*Complete a Labor Rate Breakdown for each trade employed or subcontract employed

*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									

**EXHIBIT B.2**  
**TRADE CATEGORY SPECIFIC SCOPE**  
**SCOPE CLARIFICATIONS, ALTERNATES, UNIT PRICES, ALLOWANCES, AND**  
**CONTRACT BREAKDOWN**

**TC#26A.1 – Electrical and Data Utilities**  
**SEE ALSO EXHIBIT B.1 FOR BID SET SCOPE ITEMS**

Provide labor, material, equipment, and all else necessary to furnish and install complete the **Site Electrical, Telecomm/Data/Fiber Optic Underground Duct bank** work as required by the contract documents and as outlined below.

**1. SPECIFICATION SECTIONS:**

The following specification sections are listed as the responsibility of the Subcontractor in defining its area of work on this project:

- 030000 Concrete
- 050000 Metals
- 070000 Thermal and Moisture Protection
- 220000 Plumbing
- 230000 HVAC
- 260501 General Provisions
- 260502 Scope of the Electrical Work
- 260503 Shop Drawings, Literature, Manuals, Parts Lists, and Special Tools
- 260505 Demolition, Restoration and Salvage
- 260508 Coordination Among Trades, Systems Interfacing and Connection of Equipment Furnished by Others
- 260543 Underground Ducts and Raceways

Unless specifically indicated otherwise or excluded below, Subcontractor is responsible for the complete specification sections indicated above.

Division 01 and Appendix of the Specifications are general in nature and apply to all Subcontracts. These sections are included “complete” as part of this Subcontract Agreement.

The Subcontractor is also responsible for trade specifications not specifically listed above but required by reference in the listed specifications or as required to perform the scope of work described herein, as well as the Bidding Requirements, Contracting Requirements, and the use of the Construction Documents as a whole.

**2. ADDENDUMS, BULLETINS, OR INFORMATION LETTERS:**

See Exhibit B.1 for Complete List of Addendums, Bulletins, or Information Letters.

**3. REQUESTS FOR INFORMATION (RFI):**

The following RFIs were issued prior to award of this Subcontract and the scope specifically referred to in the RFI or any scope that is reasonable inferable from these RFIs are included in this Subcontract Agreement:

See 00 91 13 Bid Question Log for complete list of Bid RFIs.

**4. SMALL BUSINESS AND DBE SUBCONTRACTOR REQUIREMENTS:**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

**5. LABOR AND MANPOWER:**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

**6. UK HEALTHCARE SUSTAINABILITY and LEED REQUIREMENTS:**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

**7. SCOPE CLARIFICATIONS-SCOPE SPECIFIC:**

1. Subcontractor is responsible for dry utilities including **Site Electrical, Site Telecom/Data/Fiber Optic, including any associated Manholes & Ductbanks,**
2. Subcontractor to provide all labor, materials, equipment, and services required for the complete installation of the Site Electrical, Telecom, & Fiber Optic Systems in accordance with the Contract Documents and supplement attachments.
3. Subcontractor shall complete all necessary rock removal, excavation, backfill, compaction, sand, stone & off site spoil removal as needed. Blasting of rock is prohibited.
4. Subcontractors shall furnish and install all materials or products required to restore existing condition after work. This includes, but is not limited to, sidewalks, curbs, pavement, landscaping and grass.
5. Subcontractor shall install pull cord in all unused conduits, as required by the Contract Documents.
6. Subcontractor has included all labor, material and equipment required for forming, reinforcing, Shop Drawings and pouring of all concrete work, required for this scope of work
7. Subcontractor has included dyed and non dyed concrete, as required by the Contract Documents.
8. Subcontractor has included all excavation and dewatering required for this scope of work. Subcontractor shall coordinate dewatering and discharge locations with other Subcontractors and Construction Manager (CM). All discharge shall be in accordance with the Contract Documents and applicable regulations.
9. Subcontractor shall furnish and install all concrete required at vents and pull boxes.
10. Subcontractor shall furnish and install transformer pads and pad accessories as required by the Contract Documents and utility. This includes, but is not limited to, concrete, stone, reinforcement, concrete inserts and bollards. Timeliness of installation to be coordinated with Contractor.
11. Subcontractor shall provide all labor, material and equipment required to relocate the transformer serving the Waller Annex. Subcontractor has also included coordination with Construction Manager and Utility Provider.
12. Subcontractors shall furnish and install utility service markers as required by the Contract Documents.
13. Subcontractor shall be responsible for completing as builts on a monthly basis for their scope of work including location and elevation.
14. Subcontractors has included all engineering, concrete and reinforcement required for electrical and communication vaults and ductbanks, including closed ties at other utility crossings.
15. Subcontractor has included doweling for ductbanks into the side of electrical and telecomm manholes.
16. Subcontractor shall provide all engineering required for ductbanks and manholes, including signed and sealed calculations and drawings, base off construction document requirements and

- site geotechnical data and reports.
17. Subcontractor has included coordination of utilities elevations, box elevations and rim elevations with final grading. Timeliness of installation to be coordinated with Contractor, final elevations may be set when final grade is installed.
  18. Subcontractor has included H-20 Truck Loading, as required by the Contract Documents.
  19. Subcontractor shall provide water stop at all joints, as required by the Contract Documents.
  20. Subcontractor has included conductors and wiring between new electrical and communication manholes, as required to provide electrical power to the communication manholes.
  21. Subcontractor has included 2" conduit for future site lighting, as shown in the details. Subcontractor shall coordinate this with Construction Manager and Owner with the understanding that site lighting conduit will be installed with final grading.
  22. Subcontractors shall furnish and install wall and below slab waterproofing required for this scope of work.
  23. Subcontractors shall furnish and install all interior manhole drain piping and valves. Subcontractor shall stub this piping 1' out past the manhole. Subcontractor shall coordinate this stub out location with the Site Utility Subcontractor who will extend the drain piping to storm structure.
  24. Subcontractor has included all manhole accessories as required by the Contract Documents. This includes but is not limited to, light fixtures, receptacles, bell ends, rack embeds, sump pumps, pulling irons, manhole ladders, fans, vent piping, grade rings, stone and covers. Subcontractor is responsible for demolition and removal of abandoned and existing utilities required to perform the work whether or not indicated in the Contract Documents. This includes, but is not limited to, underground service, overhead service, electrical connections, fiber optic service, traffic signals, light poles, light pole bases and communication systems. Subcontractor shall remove all material off site and dispose of at lawful and licensed locations.
  25. Subcontractor shall remove electrical connections back to the source for the canopy, signage and parking machines (2) at Waller Annex.
  26. Subcontractor is responsible for supporting all new and existing utilities, foundations and structures as required for installation of new work, this includes support over excavations and may require engineered solutions.
  27. Subcontractor is responsible for coordination with the Site Utilities Subcontractor(s) as it relates to the installation of the Water, Chilled Water, Steam, Storm, & Sanitary lines and structures.
  28. Subcontractor is responsible for coordination with the Public Utility Owners' and University as it relates to the installation and or removal of utility services. This includes, but is not limited to riser poles, utility manholes, and overhead utilities.
  29. Subcontractor shall furnish and install temporary fiber optic connection around the construction zone as required to maintain Waller Heath Annex and service to other existing buildings. This includes, but is not limited to, poles, aerial cabling, underground cable and cable terminations. Subcontractor has included removal of temporary service after installation of new permanent system.
  30. Subcontractor shall provide temporary power connections to maintain operation of existing roadway lighting, parking lot lighting and traffic signals. Subcontractor has included removal of temporary service after installation of new permanent system.
  31. On underground linetypes 'US' and 'USL', Subcontractor shall run conduit for KU and provide all wiring and termination downstream of the meter.
  32. Subcontractor shall protect and identify existing communication pullboxes during Construction. This may require temporary relocation as necessary during construction.
  33. All site utility work shall be coordinated with the contract documents and other Subcontractors, utilizing the CM's 3D Modeling and Building Information Modeling. Refer to Exhibit J.
  34. Subcontractor shall provide proper shoring, sheeting and bracing during excavation operations to ensure workmen safety and to protect banks, adjacent paving, structures,

and utilities where necessary within this scope of work.

35. Subcontractor shall furnish and install 7 TV's throughout the General Contractors trailer. All backing, supports and stands to be included. Subcontractor to assume 1-50", 5-60" and 1-75".
36. Subcontractor shall utilize vac truck or hydrovac excavation equipment while excavating near, over, or adjacent to existing utilities. Excavation permitting process shall be followed prior to any excavation.
37. Subcontractor shall be responsible for connections to existing electrical, telecom, fiber optic systems.
38. Provide sleeves and coordinate installation with other work scopes as specified and as required.
39. Utility work includes installation of components, warning lines / tape and tracing wires, protection of utilities crossed during the installation of this subcontractor's work.
40. Compliance with Storm Water Pollution Prevention Plan (SWPPP) and project environmental controls. This includes furnishing and installing of all sediment and erosion control requirements. Subcontractor shall maintain, inspect and report as required per all local, state, University, and project requirements.
41. Subcontractor work to comply with all AHJ standards and procedural requirements including but not limited to Kentucky Utilities, University Power Distribution, AT&T, Spectrum, Windstream, Metronet, Crown Castle, Century Link, LFUCG, City of Lexington and University of Kentucky Healthcare.
42. Subcontractor shall furnish, install and maintain temporary power to the Construction Manager's Constuction Trailer for the duration of this contract. Subcontractor shall also provide internet and phone pathway and cabling from the demark to the Construction Manager's Trailer. Subcontractor shall provide 60 data ports in the Trailer, as directed by the Construction Manager. Subcontractor also includes removal of all items when demobilizing the Construction Managers trailers.
43. Subcontractor shall furnish and install temporary site lighting per the Construction Manager Temporary Power and Telecom Plan, and at perimeter of site fence per Construction Documents.
44. Subcontractor shall provide temporary power to all new electrical and telecomm manholes, to allow the lights, fans and sump pumps to function.
45. Subcontractor includes adjusting structures, covers, vents etc. to final grades which will be provided at a future time.
46. Subcontractor shall coordinate installation elevations with the adjacent utilities, construction sequence, final grade and Construction Manager's Site Grading and Logistics Plan. Subcontractor understands excavations could be lower to provide proper coverage with construction grading elevations and includes all costs associated with this.
47. Subcontractors shall coordinate installations adjacent to pedestrian & vehicular traffic.
48. Subcontractor shall provide Maintenance of traffic, flagging and steel road plates for traffic protection as required for this scope of work.
49. Should Night or low light work be required for this scope of work, Subcontractor shall provide light plants.
50. Subcontractor shall provide temporary lighting as required to maintain safe walking paths on and adjacent to project site per the maintenance of traffic plans.
51. Provide Ground rods, bonding and grounding systems for all Electrical and Communications Manholes Contract Documents.
52. Subcontractor shall provide surveying, and staking required for the Subcontractors Scope of Work, from Primary Control Points provided by the CM. Subcontractor shall coordinate with surveying contractor for GPS Coordinates to be utilized on the project.
53. All permit, tap fees, and costs associated with connecting to and from existing utilities is the responsibility of this subcontractor.
54. All testing, inspections, and acceptance requirements is the responsibilities of this subcontractor.

55. Subcontractor's installation of Fiber Optic Cabling shall require certification full certification of the system.
56. Subcontractor acknowledges that some of the utility installations are phased and need to be coordinated with other on-site utilities and ductbank installations. Subcontractor shall coordinate and allow other trades to install their respective work in conjunction with the work of this subcontractor.
57. Subcontractor will be required to be a co-permittee for coverage under the EPA Construction General permit (CGP) as part of the NOI.
58. Provide protection of work scope as specified and as required.
59. Provide periodic and final cleanup to designated dumpsters and dumping areas as specified and as required.
60. Provide supervision and project management as specified and as required.
61. Provide coordination with other trades as required.
62. Provide multiple mobilizations as required.
63. Provide submittals, engineered shop drawings and samples as specified and as required.
64. Provide all warranties and response as specified.
65. Provide all sales tax as applicable.
66. "The term 'Provide' includes furnish and install"

## **8. SPECIFIC EXCLUSIONS:**

The following work is specifically excluded from this Subcontract Agreement and is not a part of this Agreement and/or will be performed by others as noted:

1. Costs associated with 3<sup>rd</sup> Party Soil Testing and Inspections. However, coordination of this testing is included.

## **9. SAFETY:**

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract.

## **10. QUALITY:**

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract.

## **11. SCHEDULE:**

1. Subcontractor shall provide submittals and shop drawings for critical procurement items – defined as items on critical path including but not strictly limited to 12kv duct bank, University of Kentucky Communications ductbanks, and other scope of work in the Elizabeth Street Right of Way – within 10 days of notification of award project. This deadlines may preceed full execution of this subcontract. Partial submittal to begin work may be acceptable and subject to coordination with Construction Manager.

## **12. COORDINATION**

1. Subcontractor shall coordinate with the appropriate subcontractors and CM regarding storm and sanitary leaders, water, gas, electrical, steam, chilled water and other subsurface utilities prior to and during the excavations and backfill operations.
2. Subcontractor shall coordinate with the appropriate subcontractors and CM regarding prior and during the backfill operations.
3. Subcontractor shall haul-off spoils to an approved off-site location provided by this Subcontractor. For Bidding purposes Subcontractor shall assume spoils can be disposed of as clean, uncontaminated material.

4. Subcontractor is responsible for all applicable Authority Having Jurisdiction construction requirements/standards/specifications including but not limited to Kentucky Utilities, University Power Distribution, AT&T, Spectrum, Windstream, Metronet, Crown Castle, Century Link, LFUCG, City of Lexington and University of Kentucky Healthcare as it pertains to work installed by this subcontractor. These standards as included by specification, drawing notes, or referenced are the responsibility of this subcontractor.

**13. ALTERNATES, ALLOWANCES, and UNIT PRICES:**

The following items are considered to be fully loaded including but not, but are not limited to, labor, burden, insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

This section will be populated, as applicable, with information as submitted on Bid Form.

**14. HOURLY RATES:**

The following hourly rates are fully loaded rates that include, but are not limited to, labor, burden, insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

Worker Category	Straight Time	Premium Time	Double Time
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This section will be populated with information as submitted on Bid Form.



004100B01

UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION PROCUREMENT SECTION  
FORM OF PROPOSAL: TC 31A.1 – Earthwork

Project No. 2563.1 Project Title: BP1 Elizabeth Street Replacement

Purchasing Officer: Ken Scott

NOTE: The following Form of Proposal shall be followed exactly in submitting a proposal for this work. If this copy is lost, an additional copy will be furnished upon written request to the authority issuing Contract Documents.  
\*\*\*\*\*

This Proposal is submitted by: \_\_\_\_\_  
(NAME AND ADDRESS OF BIDDER)

Date: \_\_\_\_\_

Telephone: \_\_\_\_\_

Vendor #: \_\_\_\_\_ (FEIN) \_\_\_\_\_

TO: BID CLERK  
UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION  
PROCUREMENT  
RM. 322 SERVICE BUILDING  
LEXINGTON, KY. 40506-0005

INVITATION TO BID: CCK-2563.10-1-24

BID OPENING DATE: 02/08/2024

TIME: 3:00 P.M. Lexington, KY Time

The Bidder, in compliance with your Invitation for Bids for the above referenced Project, having carefully examined the site of the Work, the Drawings and complete Contract Documents as defined in Article I of the General Conditions, as well as the Specifications affecting the work as prepared by the Consultant, hereby proposes to furnish all labor, materials, supplies and services required to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the price stated below without qualification.

The Bidder hereby acknowledges receipt of the following Addenda:

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

(Here insert the number and date of any Addenda issued and received. If none has been issued and received, the word NONE should be inserted.)

Contractor Report of Prior Violations of  
Chapters 136,139, 141, 337, 338, 341, and 342

Pursuant to KRS 45A.485, the Contractor shall, prior to the award of a Contract, reveal final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 by the Contractor that have occurred in the previous five (5) year period.

This statute also requires for the duration of the Contract established, the Contractor be in continuous compliance with the provisions of Chapters 136, 139, 141, 337, 338, 341, and 342 that apply to the Contractor’s operations. The Contractor’s failure to reveal a final determination of a violation of KRS Chapters 136, 139, 141, 337, 338, 341, and 342, or failure to comply with any of the above cited statutes for the duration of the Contract shall be grounds for the cancellation of the Contract, and the disqualification from eligibility for future contracts for a period of two (2) years.

The Contractor, by signing and submitting a Bid on this Invitation, agrees as required by KRS 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 that have occurred in the previous five (5) years prior to the award of a Contract and agrees to remain in continuous compliance with the provisions of these statutes during the duration of any contract that may be established. Final determinations of any violations of these statutes, must be provided to the University by the successful Contractor prior to the award of a Contract.

LUMP SUM PROPOSAL

The Bidder agrees to furnish all labor, materials, supplies and services required to complete the Work, for the above referenced Project, for the Capital Construction Procurement Section, University of Kentucky, as described in the Specifications and Contract Documents and shown on the Drawings enumerated below and as modified by the Addenda listed above.

FOR THE LUMP SUM OF \_\_\_\_\_  
(USE WORDS)  
\_\_\_\_\_ DOLLARS AND \_\_\_\_\_ CENTS.  
(USE WORDS) (USE WORDS)  
(\$ \_\_\_\_\_ )  
(USE FIGURES)

SUPERINTENDENT

In accordance with Article 17 of the General Conditions a full-time superintendent will be required on this project. Below, please list the superintendent your firm will employ on this project. The successful Bidder will be required to furnish a resume of the superintendent’s qualifications and or past projects.

\_\_\_\_\_  
List the Superintendent’s Name

Alternate: None.

**004100B01**

**FORM OF PROPOSAL**

**AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST**

I hereby certify:

1. That I am the Bidder (if the Bidder is an individual), a partner in the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the submitted Bid or Bids covering Capital Construction Procurement Section Invitation No. **CCK-2563.10-1-24** have been arrived at by the Bidder independently and have been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition; as prohibited by provision KRS 45A.325;
3. That the contents of the Bid or Bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished with the Bid or Bids and will not be communicated to any such person prior to the official opening of the Bid or Bids;
4. That the Bidder is legally entitled to enter into the contracts with the University of Kentucky and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 164.390, and 45A.330 to 45A.340 and 45A.455;
5. This offer is good for 60 calendar days from the date this Bid is opened. In submitting the above, it is expressly agreed that upon proper acceptance by the Capital Construction Procurement Section of any or all items Bid above, a contract shall thereby be created with respect to the items accepted;
6. That I have fully informed myself regarding and affirm the accuracy of all statements made in this Form of Proposal including Bid Amount.
7. Unless otherwise exempted by KRS 45.590, the Bidder intends to comply in full with all requirements of the Kentucky Civil Rights Act and to submit data required by the Kentucky Equal Employment Act upon being designated the successful contractor.
8. That the bidding contractor and all subcontractors to be employed do not and will not maintain any facilities they provide for employees in a segregated manner and they are in full compliance with provisions of 41 CFR 60-1.8 that prohibits the maintaining of segregated facilities.
9. In accordance with KRS45A.110(2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to the bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

**READ CAREFULLY - SIGN IN SPACE BELOW - FAILURE TO SIGN INVALIDATES BID**

SIGNED BY \_\_\_\_\_ TITLE \_\_\_\_\_

PRINT NAME \_\_\_\_\_ FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_ AREA CODE & PHONE \_\_\_\_\_

\_\_\_\_\_ FAX \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

BIDDER'S EMAIL \_\_\_\_\_ DATE \_\_\_\_\_



## **004100B01**

THE FOLLOWING ITEMS ARE HEREWITH ENCLOSED AS REQUIRED BY KRS 45A.185

1. Bid Bond or Certified Check in an amount not less than five percent (5%) of total Bid.
2. List of Proposed Subcontractors and Unit Prices. (if required)
3. Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest.
4. List of Materials and Equipment.
5. Bid Breakdown Form
6. Walsh Labor Rates Sheet

A Payment and Performance Bond shall not be included with the bid. If the bidder is not approved for participation in the SDI program, then the bidder will be required to furnish a proposal to add a 100% P&P Bond. All bonding and insurance requirements are contained in the Instruction to Bidders and/or General Conditions. Performance and Payment bonds shall be obliged per the bond forms in the Walsh Construction Sample Contract Exhibits. A 5% bid bond is required with the submission of this proposal.

Bidder shall not include cost for insurance in their bid. If the bidder is not approved for participation in the Contractor Controlled Insurance Program (CCIP), then the bidder will be required to furnish a proposal to add the full cost of insurance consistent with the project insurance limits listed in the bid documents and the Walsh Construction Sample Contract Exhibits.

### **BIDDER'S QUALIFICATIONS**

The Commonwealth of Kentucky Model Procurement Code (KRS 45A.080) requires contracts to be awarded, "to the responsive and responsible bidder whose bid offers the best value" to the University of Kentucky. In order to determine if the Bidder has the experience, qualifications, resources and necessary attributes to provide the quality workmanship, materials and management required by the plans and specifications, the Bidder may be required to complete and submit the information requested on the University of Kentucky Contractor Bidder Determination of Responsibility questionnaire. Failure to provide the information requested on the questionnaire or failure to provide any additional submittals or information that may be requested to make this determination may be grounds for a declaration of non-responsibility with respect to the Bidder. A copy of the Contractor Determination of Responsibility questionnaire is available upon request to all Bidders.

### **TIME LIMIT FOR EXECUTION OF CONTRACT DOCUMENTS**

It is further agreed, that in the event this Proposal is accepted by the Owner and the undersigned shall fail to execute the Contract and furnish satisfactory Payment and Performance Bond within ten (10) consecutive calendar days from the date of notification of the award of the Contract, the Owner may at his option, determine that the undersigned has abandoned the Contract and thereupon, the Proposal shall become null and void and the Bid guarantee, check or Bid bond which accompanied it shall be forfeited and become the property of the Owner as liquidated damages for each failure and no protest pursuant to such action will be made. If the Undersigned shall execute the Contract, and furnish satisfactory Payment Bond and Performance Bond, it is understood that the Bid Guarantee or Bid Bond will be returned to the undersigned by the Owner.

UNIT PRICES

NOTE: Unit Prices shall include the furnishing of all labor, materials, supplies and services and shall include all items of cost, overhead and profit for the Contractor and any subcontractor involved, and shall be used uniformly without modifications for either additions or deductions. The Unit Prices as established shall be used to determine the equitable adjustment of the Contract Price in connection with changes, deletions or extra work performed under the Contract and the "Rules of Measurement" set forth in the General Conditions shall govern.

*All Bidders will be required to complete and submit the following Unit Prices with the bid.*

*The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.*

DESCRIPTION OF WORK

UNIT PRICE

See Bid Breakdown Form

**004100B01**

PRIMARY LIST OF PROPOSED SUBCONTRACTORS

All subcontractors are subject to the approval of the Capital Construction Procurement Section and Capital Project Management Division, University of Kentucky, Lexington, KY.

If certain branches of the Work are to be done by the Prime Contractor, so state.

**The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.**

**The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.**

DIVISION OF WORK

NAME AND ADDRESS OF SUBCONTRACTOR

DIVISION 01  
GENERAL REQUIREMENTS

---

DIVISION 02  
EXISTING CONDITIONS

---

DIVISION 31  
EARTHWORK

---

DIVISION 32  
EXTERIOR IMPROVEMENTS

---

ADD AS NEEDED

---

LIST OF MATERIALS AND EQUIPMENT

Each item listed under the different phases of construction must be clearly identified so that the Owner will definitely know what the Bidder proposes to furnish.

The use of a manufacturer's or dealer's name only, or stating "as per Plans and Specifications," will not be considered as sufficient identification.

Where more than one "Make" or "Brand" is listed for any one item, the Owner has the right to select the one to be used.

**The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.**

**The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.**

MATERIALS AND EQUIPMENT

BRAND OR MANUFACTURER




**004100B01**

**IDENTIFICATION OF DIVERSE BUSINESS ENTERPRISE SUBCONTRACTORS AND MATERIAL SUPPLIERS**

Diverse Business Enterprises (DBE) consist of minority, women, disabled, veteran and disabled veteran owned business firms that are at least fifty-one percent owned and operated by an individual(s) of the aforementioned categories. Also included in this category are disabled business enterprises and non-profit work centers for the blind and severely disabled.

MBE, WBE, Veterans, Disable Veterans and Disabled make up Diverse Business Enterprises, DBE.

**Participation of DBE owned Contractors and businesses.**

The University of Kentucky encourages and supports the participation Diverse Business Enterprises. Please list Subcontractors and Material Suppliers according to following Ethnic Vendor List or if they are a Woman Owned Business:

- Asian
- Black/African American
- Hispanic or Latino
- Native American Native Hawaiian/Pacific Islander
- White
- Other

1. DBE (Ethnic or Woman) Subcontractors

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2. DBE (Ethnic or Woman) Material Suppliers

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**BID BREAKDOWN FORM**

**Company Name:**

**Scope of Work :** Trade Category 31A.1- Earthwork

Item	Bid Quantities	Quantity	U/M	Unit Price	Total
001	General Requirements		LS		
002	Clear, Grub, Site Demo, and Tree Removal		LS		
003	SWPPP & Street Cleaning		LS		
004	Cut, Haul-off, rock excavation		CY		
005	Import and Compact Fill/Stone		CY		
006	Traffic Control		LS		
007	Spoils Haul off for other trades		CY		
008	Earth Retention Systems		CY		
009	Temporary Stone Laydown Areas, Roads, and Walkways		SF		
010	Construction Entrances and Washouts		LS		
011	Finish Grade and Landscape		LS		
<b>Allowances (To be included in Base Bid on Bid Form)</b>					
Allowance 1	Removal (with haul off) of unsatisfactory soil and replacement with compacted DGA (CY)	1	LS		\$50,000.00
<b>TOTAL BASE BID (this total should match Base Bid Total on 004100B01 Form of Proposal)</b>					
<b>Alternates - N/A</b>					
<b>Unit Prices - To be included in the Subcontract</b>					
Unit Price 1	Additional loading and Haul-off of spoils		CY		
Unit Price 2	Removal (with haul off) of unsatisfactory soil and replacement with structural fill (CY)		CY		
Unit Price 3	Rock excavation (and haul off) and replacement with structural fill (CY)		CY		
Unit Price 4	Typical soil excavation (and haul off) and replacement with structural fill (CY)		CY		
Unit Price 5	Removal (with haul off) of unsatisfactory soil and replacement with compacted DGA (CY)		CY		
Unit Price 6	Import, install, compact structural fill per geotech report		CY		
Unit Price 7	Install temporary road or laydown area 6" thick of #2 limestone		SF		
Unit Price 8	Import, install, compact Structural fill		CY		
<b>Labor Rates - See Labor Rate Form</b>					

Walsh Labor Rates Sheet

Company Name: \_\_\_\_\_

Scope of Work : \_\_\_\_\_ Trade Category \_\_\_\_\_

\*Complete a Labor Rate Breakdown for each trade employed or subcontract employed

*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									

## **EXHIBIT B.2**

### **SCOPE CLARIFICATIONS, ALTERNATES, UNIT PRICES, ALLOWANCES, AND CONTRACT BREAKDOWN**

#### **TC-31A.1 – EARTHWORK SEE ALSO EXHIBIT B.1 FOR BID SET SCOPE ITEMS**

Provide labor, material, equipment, and all else necessary to furnish and install complete the **site, excavation and earthwork** work as required by the contract documents and as outlined below.

#### **1. SPECIFICATION SECTIONS:**

The following specification sections are listed as the responsibility of the Subcontractor in defining its area of work on this project:

- Walsh Construction Bid Manual
- Division 01 General Requirements
- Division 31 Earthwork
- Appendix Section 100 General Provisions - All
- Appendix Section 200 Earthwork – All
- Appendix Section 700 Drainage, Traffic, and Roadside Construction – As applicable
- Appendix Section 800 Materials – As applicable

Unless specifically indicated otherwise or excluded below, Subcontractor is responsible for the complete specification sections indicated above.

Division 01 of the Specifications are general in nature and apply to all Subcontracts. These sections are included “complete” as part of this Subcontract Agreement.

The Subcontractor is also responsible for trade specifications not specifically listed above but required by reference in the listed specifications or as required to perform the scope of work described herein, as well as the Bidding Requirements, Contracting Requirements, and the use of the Construction Documents as a whole.

#### **2. ADDENDUMS, BULLETINS, OR INFORMATION LETTERS:**

See Exhibit B.1 for Complete List of Addendums, Bulletins, or Information Letters.

#### **3. REQUESTS FOR INFORMATION (RFI):**

The following RFIs were issued prior to award of this Subcontract and the scope specifically referred to in the RFI or any scope that is reasonable inferable from these RFIs are included in this Subcontract Agreement:

See 00 91 13 Bid Question Log for complete list of Bid RFIs.

#### **4. SMALL BUSINESS AND MBE SUBCONTRACTING REQUIREMENTS:**

1. No additional requirements other than those shown in Exhibit B.1 and in all other parts of the

Contract.

**5. LOCAL HIRING REQUIREMENTS:**

1. No additional requirements other than those shown in Exhibit B.1 and in all other parts of the Contract.

**6. LABOR AND MANPOWER:**

1. No additional requirements other than those shown in Exhibit B.1 and in all other parts of the Contract.

**7. LEED REQUIREMENTS:**

1. No additional requirements other than those shown in Exhibit B.1 and in all other parts of the Contract.

**8. SCOPE CLARIFICATIONS-SCOPE SPECIFIC:**

Subcontractor shall notify the CM in writing of any conflicts in the Contract Documents and/or requirements in codes for immediate resolution. Any actions taken by the Subcontractor without obtaining guidance from the Contractor and the Owner shall become the sole risk and responsibility of the Subcontractor and all costs incurred due to such action are also the responsibility of the Subcontractor.

1. Subcontractor is responsible for the clearing of trees, shrubs, fences, underground utilities, foundations, incidental structures, asphalt and concrete paving, sidewalks, curbs, signs, debris, trash, and other obstructions within the limits of earthwork operations for Elizabeth Street scope of work as shown in the Contract Documents. This includes all saw cutting, removal and haul off of asphalt, curb, and sidewalks.
2. Subcontractor understands they are responsible to cut down all trees identified by UK Forestry that they will be harvesting, a total of twenty eight (28) trees, most of which are in the Bid Package 2 Scope of Work Area. For selected trees within the Bid Package 1 work area Subcontractor to coordinate with UK Arborist to discuss how the trees are to be sectioned, the cut logs will be in the range of 8'-16'. The subcontractor is responsible for loading the logs onto trucks and transporting them to 1247 Versailles Rd (approximately 2.1 miles from the jobsite at which point UK will unload them. This removal includes any stumps and root systems.
3. Subcontractor shall provide all requirements of the UK Tree Protection Standards.
4. Subcontractor shall remove and haul off all existing storm, water and sewer lines and structures as shown to be demolished on the Contract Documents.
5. Subcontractor is responsible for the removal of all existing utilities located within the limits of the project. Coordination is required for items to be removed. If Subcontractor excavates an existing utility that is not called out to be demolished, Subcontractor is to notify the CM immediately. Similarly, if Subcontractor exposes underground hazardous material, Subcontractor is to notify the CM immediately for coordination of abatement of hazardous waste (Hazardous waste removal by others).
6. Subcontractor is responsible for all SWPPP for the duration of the Elizabeth Street project Bid Package 1. This includes furnishing and installing of all sediment and erosion control

requirements. Subcontractor shall maintain, inspect and report as required per all local, state, University, and project requirements. This includes SWPPP maintenance of all new structures installed by separate contractors. It is understood that SWPPP protections will be completed on turnover of Elizabeth Street and resumed when Waller Road widening work commences.

7. Subcontractor is responsible for all inlet covers, dandy bags, waddles, straw erosion blankets, temporary seeding, soil stabilization, and silt fence as needed for the duration of the project. Subcontractor includes maintaining all measures as well as inspections after rain events and as required per State, Federal and local requirements. All inspection documentation to be submitted to CM immediately following inspections. Subcontractor also owns all removal of measures as requested and coordinated with the CM.
8. Subcontractor shall at minimum inspect the site every 7 calendar days and after each rainfall of ½" or more. Document site conditions, rainfall, maintenance activities needed and performed, stabilization needed and performed, and where new measures are needed. Discuss deficiencies with Contractor, UK Project Manager and Water Quality Manager and note on the SWPPP Inspection Sheets. Per the KPDES Permit, Section 2.1.7. "Inspections – Permittee Conducted". "Inspections shall be performed by personnel knowledgeable and skilled in assessing conditions at the construction site that could impact storm water quality and assessing the effectiveness of erosion prevention measures, sediment control measures, and other site management practices chosen to control the quality of the storm water discharges. Inspectors shall have training in storm water construction management such as Kentucky Erosion Prevention & Sediment Control (KEPSC), Certified Professional in Stormwater Quality (CPSWQ), Certified Erosion, Sediment and Stormwater Inspector (CESSWI), or other similar training."
9. Subcontractor shall hydro-vac locations of all known or potential existing utilities prior to excavation.
10. Subcontractor includes dust control, street sweeping and mud control within the site and outside the project boundary on adjacent roads directly impacted by construction work while Subcontractor is on site.
11. Subcontractor is responsible for demolition of all fencing, pavements, curb and gutters, organic material and abandoned utilities in the areas of demolition.
12. Subcontractor shall saw cut the edge of asphalt and concrete pavement at line of demolition extent.
13. Demolition of vertical structures are not included in the subcontractors scope of work.
14. Subcontractor is responsible for providing all dumpsters and material haul off for their scope of work. Project dumpsters may not be used for disposal of contractors refuse.
15. Subcontractor is responsible for all excavation, grading, and backfill requirements for work included with this Subcontract Agreement including any excavation protection and casual pumping required to complete said installations. Subcontractor will remove from site any excavated materials not required, not needed, or that are unsuitable to complete backfill operations. Rough Grade Per project documents and site logistics plans.
16. Subcontractor shall be responsible for any additional cut and/or fill required to ensure that the site is graded to conform to elevations indicated on the plans. There will be fine grading around the site and roadway after all trades have completed their scope to restore the area

- before final grading and landscaping. Subcontractor includes all import and/or export as needed.
17. Subcontractor includes final fine grading of landscaped areas in Bid Package 1 work Area. Subcontractor shall provide rough and fine grading operations for all paving, sidewalks, curbs and basins to be within the specified tolerances in the Contract Documents.
  18. Subcontractor includes stripping and hauling off all existing topsoil unless directed by the CM. Subcontractor shall respread topsoil as needed. Subcontractor is responsible for importing new topsoil for landscaping areas.
  19. Subcontractor includes any rock excavation required to complete this scope of work. Subcontractor shall provide designs, surveys, reports and documentation required to successfully complete this work. Subcontractor includes all haul off of rock from site. Blasting is not allowed.
  20. Subcontractor shall dispose of all excavated materials, unless otherwise noted, and remove from the property legally and safely in accordance to all applicable Federal, State, and local regulations. No burning of materials is permitted on site.
  21. Subcontractor shall maintain excavated areas and provide necessary drainage to keep excavation free of water and subgrade dry, firm, and undisturbed until the next scope of work begins. Subcontractor agrees to cover stock piles to keep the excavated materials suitable.
  22. Subcontractor includes all temporary retention basins as shown on project documents.
  23. Subcontractor shall install and maintain construction entrances while on site. Subcontractor shall include any DGA stone and geofabric required for construction entrances and temporary parking lots onsite coordinated with the CM.
  24. Subcontractor is responsible for all dewatering and discharge water quality management of their own excavations. Handling of water shall be coordinated with the CM and removed per the contract documents and local regulations.
  25. Subcontractor is responsible for the protection of all trees, shrubs, and hardscapes that are noted to remain in place or within or adjacent to the project site that could be impacted by work.
  26. Subcontractor is responsible for establishing and providing rough grade passing of proof-rolling inspections. Any rework to areas that fail a proof roll due to the Subcontractor will be the responsibility of said Subcontractor.
  27. Subcontractor includes the supply and installation of the subgrade, as detailed, for the sidewalks, curb and hardscape concrete.
  28. Subcontractor is responsible shall comply with all landfill disposal notes included within the Contract Documents.
  29. Subcontractor shall provide their own grade checks as work progresses.
  30. Subcontractor is responsible for loading and hauling off all trade spoils from the project.

31. Subcontractor to provide temporary walkway along West side of Elizabeth for pedestrians and maintain this walkway until permanent paths are in place. Subcontractor to remove excess materials as required for final prep of permanent sidewalks and redress stone for the same.
32. Subcontractor is to provide and maintain all temporary signage, barricades, flags, and other traffic items as indicated in the Contract Documents or needed to perform this scope of work. Subcontractor shall place and relocate temporary measures as required for changing site conditions as work is completed and progresses.
33. Subcontractor shall install, maintain, and create wheel wash stations including equipment and provisions for two project entrance/exit locations onto Elizabeth. Subcontractor shall utilize Trackout Control Mats. This shall be separate from the BP2 requirements.
34. Subcontractor has reviewed and understands there will be phasing for the project to accommodate the project schedule.
35. Subcontractor is responsible for all surveying, layout work, control point, and benchmarks required to install this work scope. CM will provide site control points and benchmarks by professional surveyor for subcontractor use. Site control is to be protected during construction.
36. Subcontractor to complete all landscape restoration on roadway and roadway adjacent. Landscape restoration to provide a minimum of a 12" planting soil mix profile. Landscape replacement to typically be seed and blanket.
37. Subcontractor is to provide for a water truck on site for SWPPP operations and other non-potable water use on site.

## **9. SPECIFIC EXCLUSIONS:**

The following work is specifically excluded from this Subcontract Agreement and is not a part of this Agreement and/or will be performed by others as noted:

1. Unforeseen site conditions

## **10. SAFETY:**

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract

## **11. QUALITY:**

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract

## **12. SCHEDULE:**

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract

## **13. COORDINATION:**

1. Subcontractor shall coordinate with the appropriate subcontractors and Contractor in regard to drainage board, perimeter tile, water proofing, building grounding, storm and sanitary leaders, electric duct banks and underground service, water, gas, and other subsurface utilities prior and during the backfill operations.



2. Subcontractor is responsible for all applicable City of Lexington and / or The University of Kentucky Construction Standards as it pertains to work installed by this subcontractor. These standards as included by specification, drawing notes, or referenced are the responsibility of this subcontractor.

**14. ALTERNATES, ALLOWANCES, and UNIT PRICES:**

The following items are considered to be fully loaded including but not, but are not limited to, labor, burden, insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

This section will be populated, as applicable, with information as submitted on Bid Form.

**15. HOURLY RATES:**

The following hourly rates are fully loaded rates that include, but are not limited to, labor, burden, insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

Worker Category	Straight Time	Premium Time	Double Time
-----------------	---------------	--------------	-------------

This section will be populated with information as submitted on Bid Form.

004100B01

UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION PROCUREMENT SECTION  
FORM OF PROPOSAL: TC 31B.1 – Site Utilities

Project No. 2563.1 Project Title: BP1 Elizabeth Street Replacement

Purchasing Officer: Ken Scott

NOTE: The following Form of Proposal shall be followed exactly in submitting a proposal for this work. If this copy is lost, an additional copy will be furnished upon written request to the authority issuing Contract Documents.

\*\*\*\*\*

This Proposal is submitted by: \_\_\_\_\_  
(NAME AND ADDRESS OF BIDDER)

Date: \_\_\_\_\_

Telephone: \_\_\_\_\_

Vendor #: \_\_\_\_\_ (FEIN) \_\_\_\_\_

TO: BID CLERK  
UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION  
PROCUREMENT  
RM. 322 SERVICE BUILDING  
LEXINGTON, KY. 40506-0005

INVITATION TO BID: CCK-2563.10-1-24

BID OPENING DATE: 02/08/2024

TIME: 3:00 P.M. Lexington, KY Time

The Bidder, in compliance with your Invitation for Bids for the above referenced Project, having carefully examined the site of the Work, the Drawings and complete Contract Documents as defined in Article I of the General Conditions, as well as the Specifications affecting the work as prepared by the Consultant, hereby proposes to furnish all labor, materials, supplies and services required to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the price stated below without qualification.

The Bidder hereby acknowledges receipt of the following Addenda:

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

(Here insert the number and date of any Addenda issued and received. If none has been issued and received, the word NONE should be inserted.)

Contractor Report of Prior Violations of  
Chapters 136,139, 141, 337, 338, 341, and 342

Pursuant to KRS 45A.485, the Contractor shall, prior to the award of a Contract, reveal final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 by the Contractor that have occurred in the previous five (5) year period.

This statute also requires for the duration of the Contract established, the Contractor be in continuous compliance with the provisions of Chapters 136, 139, 141, 337, 338, 341, and 342 that apply to the Contractor’s operations. The Contractor’s failure to reveal a final determination of a violation of KRS Chapters 136, 139, 141, 337, 338, 341, and 342, or failure to comply with any of the above cited statutes for the duration of the Contract shall be grounds for the cancellation of the Contract, and the disqualification from eligibility for future contracts for a period of two (2) years.

The Contractor, by signing and submitting a Bid on this Invitation, agrees as required by KRS 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 that have occurred in the previous five (5) years prior to the award of a Contract and agrees to remain in continuous compliance with the provisions of these statutes during the duration of any contract that may be established. Final determinations of any violations of these statutes, must be provided to the University by the successful Contractor prior to the award of a Contract.

LUMP SUM PROPOSAL

The Bidder agrees to furnish all labor, materials, supplies and services required to complete the Work, for the above referenced Project, for the Capital Construction Procurement Section, University of Kentucky, as described in the Specifications and Contract Documents and shown on the Drawings enumerated below and as modified by the Addenda listed above.

FOR THE LUMP SUM OF \_\_\_\_\_  
(USE WORDS)  
\_\_\_\_\_ DOLLARS AND \_\_\_\_\_ CENTS.  
(USE WORDS) (USE WORDS)  
(\$ \_\_\_\_\_)  
(USE FIGURES)

SUPERINTENDENT

In accordance with Article 17 of the General Conditions a full-time superintendent will be required on this project. Below, please list the superintendent your firm will employ on this project. The successful Bidder will be required to furnish a resume of the superintendent’s qualifications and or past projects.

\_\_\_\_\_  
List the Superintendent’s Name

Alternate: None.

**004100B01**  
FORM OF PROPOSAL

**AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST**

I hereby certify:

1. That I am the Bidder (if the Bidder is an individual), a partner in the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the submitted Bid or Bids covering Capital Construction Procurement Section Invitation No. **CCK-2563.10-1-24** have been arrived at by the Bidder independently and have been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition; as prohibited by provision KRS 45A.325;
3. That the contents of the Bid or Bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished with the Bid or Bids and will not be communicated to any such person prior to the official opening of the Bid or Bids;
4. That the Bidder is legally entitled to enter into the contracts with the University of Kentucky and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 164.390, and 45A.330 to 45A.340 and 45A.455;
5. This offer is good for 60 calendar days from the date this Bid is opened. In submitting the above, it is expressly agreed that upon proper acceptance by the Capital Construction Procurement Section of any or all items Bid above, a contract shall thereby be created with respect to the items accepted;
6. That I have fully informed myself regarding and affirm the accuracy of all statements made in this Form of Proposal including Bid Amount.
7. Unless otherwise exempted by KRS 45.590, the Bidder intends to comply in full with all requirements of the Kentucky Civil Rights Act and to submit data required by the Kentucky Equal Employment Act upon being designated the successful contractor.
8. That the bidding contractor and all subcontractors to be employed do not and will not maintain any facilities they provide for employees in a segregated manner and they are in full compliance with provisions of 41 CFR 60-1.8 that prohibits the maintaining of segregated facilities.
9. In accordance with KRS45A.110(2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to the bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

**READ CAREFULLY - SIGN IN SPACE BELOW - FAILURE TO SIGN INVALIDATES BID**

SIGNED BY \_\_\_\_\_ TITLE \_\_\_\_\_

PRINT NAME \_\_\_\_\_ FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_ AREA CODE & PHONE \_\_\_\_\_

\_\_\_\_\_ FAX \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

BIDDER'S EMAIL \_\_\_\_\_ DATE \_\_\_\_\_

**BUSINESS CLASSIFICATION**

Please complete this form which is necessary for the University of Kentucky vendor database. Mark only one classification. Refer to "Definitions" for assistance in determining correct classification.

- |                                      |  |
|--------------------------------------|--|
| (01)___ Small Business               | (06)___ Woman-Owned Large Business               |
| (02)___ Large Business               | (07)___ Disadvantaged Woman-Owned Small Business |
| (03)___ Disadvantaged Small Business | (08)___ Disadvantaged Woman-Owned Large Business |
| (04)___ Disadvantaged Large Business | (09)___ Other                                    |
| (05)___ Woman-Owned Small Business   |  |

**DEFINITIONS**

- (01) **SMALL BUSINESS:** A business concern that is organized for profit, is independently owned and operated, is not dominant in the field of operations in which it is bidding, and meets the size standards as prescribed in the Code of Federal Regulations, Title 13, Part 121. Consult your local or district Small Business Administration (SBA) office if further clarification is needed.
- (02) **LARGE BUSINESS:** A business concern that exceeds the small business size code standards established by SBA.
- (03) **DISADVANTAGED SMALL BUSINESS:** A business concern (a) that is at least 51 percent owned by one or more socially and economically disadvantaged individuals (as defined below), or a publicly owned business, having at least 51 percent of its stock owned by one or more socially and economically disadvantaged individuals; and (b) has its management and daily business operations controlled by one or more such individuals. Socially and economically disadvantaged individuals include: Asian, Black/African American, Hispanic or Latino, Native American, Native Hawaiian/Pacific Islander, Women, Disabled, Veteran and Disabled Veteran and other minorities or individuals found to be disadvantaged by the SBA.
- (04) **DISADVANTAGED LARGE BUSINESS:** A concern that meets the definition of socially and economically disadvantaged individuals as defined above, but which is not a small business by the SBA's size standards.
- (05) **WOMAN-OWNED SMALL BUSINESS:** A small business that is at least 51 percent owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" means actively involved in the day to day management.
- (06) **WOMAN-OWNED LARGE BUSINESS:** A concern that meets the definition of woman owned and operated, but which is not a small business by the SBA's standards.
- (07) **DISADVANTAGED, WOMAN-OWNED SMALL BUSINESS:** A concern that meets the definition of both (03) and (05) above.
- (08) **DISADVANTAGED, WOMAN OWNED LARGE BUSINESS:** A concern that meets the definition of both (04) and (06) above.
- (09) **OTHER:** A concern that does not meet any of the above definitions.

## **004100B01**

THE FOLLOWING ITEMS ARE HEREWITH ENCLOSED AS REQUIRED BY KRS 45A.185

1. Bid Bond or Certified Check in an amount not less than five percent (5%) of total Bid.
2. List of Proposed Subcontractors and Unit Prices. (if required)
3. Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest.
4. List of Materials and Equipment.
5. Bid Breakdown Form
6. Walsh Labor Rates Sheet

A Payment and Performance Bond shall not be included with the bid. If the bidder is not approved for participation in the SDI program, then the bidder will be required to furnish a proposal to add a 100% P&P Bond. All bonding and insurance requirements are contained in the Instruction to Bidders and/or General Conditions. Performance and Payment bonds shall be obliged per the bond forms in the Walsh Construction Sample Contract Exhibits. A 5% bid bond is required with the submission of this proposal.

Bidder shall not include cost for insurance in their bid. If the bidder is not approved for participation in the Contractor Controlled Insurance Program (CCIP), then the bidder will be required to furnish a proposal to add the full cost of insurance consistent with the project insurance limits listed in the bid documents and the Walsh Construction Sample Contract Exhibits.

### **BIDDER'S QUALIFICATIONS**

The Commonwealth of Kentucky Model Procurement Code (KRS 45A.080) requires contracts to be awarded, "to the responsive and responsible bidder whose bid offers the best value" to the University of Kentucky. In order to determine if the Bidder has the experience, qualifications, resources and necessary attributes to provide the quality workmanship, materials and management required by the plans and specifications, the Bidder may be required to complete and submit the information requested on the University of Kentucky Contractor Bidder Determination of Responsibility questionnaire. Failure to provide the information requested on the questionnaire or failure to provide any additional submittals or information that may be requested to make this determination may be grounds for a declaration of non-responsibility with respect to the Bidder. A copy of the Contractor Determination of Responsibility questionnaire is available upon request to all Bidders.

### **TIME LIMIT FOR EXECUTION OF CONTRACT DOCUMENTS**

It is further agreed, that in the event this Proposal is accepted by the Owner and the undersigned shall fail to execute the Contract and furnish satisfactory Payment and Performance Bond within ten (10) consecutive calendar days from the date of notification of the award of the Contract, the Owner may at his option, determine that the undersigned has abandoned the Contract and thereupon, the Proposal shall become null and void and the Bid guarantee, check or Bid bond which accompanied it shall be forfeited and become the property of the Owner as liquidated damages for each failure and no protest pursuant to such action will be made. If the Undersigned shall execute the Contract, and furnish satisfactory Payment Bond and Performance Bond, it is understood that the Bid Guarantee or Bid Bond will be returned to the undersigned by the Owner.

UNIT PRICES

NOTE: Unit Prices shall include the furnishing of all labor, materials, supplies and services and shall include all items of cost, overhead and profit for the Contractor and any subcontractor involved, and shall be used uniformly without modifications for either additions or deductions. The Unit Prices as established shall be used to determine the equitable adjustment of the Contract Price in connection with changes, deletions or extra work performed under the Contract and the "Rules of Measurement" set forth in the General Conditions shall govern.

*All Bidders will be required to complete and submit the following Unit Prices with the bid.*

*The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.*

DESCRIPTION OF WORK

UNIT PRICE

See Bid Breakdown Form

PRIMARY LIST OF PROPOSED SUBCONTRACTORS

All subcontractors are subject to the approval of the Capital Construction Procurement Section and Capital Project Management Division, University of Kentucky, Lexington, KY.

If certain branches of the Work are to be done by the Prime Contractor, so state.

**The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.**

**The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.**

DIVISION OF WORK

NAME AND ADDRESS OF SUBCONTRACTOR

DIVISION 01  
GENERAL REQUIREMENTS

\_\_\_\_\_

DIVISION 02  
EXISTING CONDITIONS

\_\_\_\_\_

DIVISION 31  
EARTHWORK

\_\_\_\_\_

DIVISION 32  
EXTERIOR IMPROVEMENTS

\_\_\_\_\_

DIVISION 33  
UTILITIES

\_\_\_\_\_

ADD AS NEEDED

\_\_\_\_\_



LIST OF MATERIALS AND EQUIPMENT

Each item listed under the different phases of construction must be clearly identified so that the Owner will definitely know what the Bidder proposes to furnish.

The use of a manufacturer's or dealer's name only, or stating "as per Plans and Specifications," will not be considered as sufficient identification.

Where more than one "Make" or "Brand" is listed for any one item, the Owner has the right to select the one to be used.

**The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.**

**The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.**

MATERIALS AND EQUIPMENT

BRAND OR MANUFACTURER


**004100B01**

**IDENTIFICATION OF DIVERSE BUSINESS ENTERPRISE SUBCONTRACTORS AND MATERIAL SUPPLIERS**

Diverse Business Enterprises (DBE) consist of minority, women, disabled, veteran and disabled veteran owned business firms that are at least fifty-one percent owned and operated by an individual(s) of the aforementioned categories. Also included in this category are disabled business enterprises and non-profit work centers for the blind and severely disabled.

MBE, WBE, Veterans, Disable Veterans and Disabled make up Diverse Business Enterprises, DBE.

**Participation of DBE owned Contractors and businesses.**

The University of Kentucky encourages and supports the participation Diverse Business Enterprises. Please list Subcontractors and Material Suppliers according to following Ethnic Vendor List or if they are a Woman Owned Business:

- Asian
- Black/African American
- Hispanic or Latino
- Native American Native Hawaiian/Pacific Islander
- White
- Other

1. DBE (Ethnic or Woman) Subcontractors

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2. DBE (Ethnic or Woman) Material Suppliers

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Walsh Labor Rates Sheet

Company Name: \_\_\_\_\_

Scope of Work : \_\_\_\_\_ Trade Category \_\_\_\_\_

\*Complete a Labor Rate Breakdown for each trade employed or subcontract employed

*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									

**EXHIBIT B.2**  
**TRADE CATEGORY SPECIFIC SCOPE**  
**SCOPE CLARIFICATIONS, ALTERNATES, UNIT PRICES, ALLOWANCES, AND**  
**CONTRACT BREAKDOWN**

**Trade Category 31B.1 – Site Water Utilities**  
**SEE ALSO EXHIBIT B.1 FOR BID SET SCOPE ITEMS**

Provide labor, material, equipment, hoisting and all else necessary to furnish and install complete the Site Utilities Work as required by the contract documents and as outlined below.

**1. SPECIFICATION SECTIONS:**

The following specification sections are listed to provide a general definition of the responsibility of the Subcontractor and its area of work on this project:

Walsh Construction Bid Manual  
Division 01 General Requirements  
Division 31 Earthwork – As Applicable  
Division 33 Utilities – All  
Appendix Section 100 General Provisions – All  
Appendix Section 200 Earthwork – As Applicable  
Appendix Section 700 Drainage, Traffic, and Roadside Construction – As applicable  
Appendix Section 800 Materials – As applicable

Divisions 01 of the Specifications are general in nature and apply to all Subcontracts. These sections are included “complete” as part of this Subcontract Agreement.

Unless specifically indicated otherwise or excluded below, the Subcontractor is also responsible for all specifications not specifically listed above but required by reference in the listed specifications or as required to perform the scope of work described herein, as well as the Bidding Requirements, Contracting Requirements, and the use of the Construction Documents as a whole.

**2. ADDENDUMS, BULLETINS, OR INFORMATION LETTERS:**

See Exhibit B.1 for Complete List of Addendums, Bulletins, or Information Letters.

**3. REQUESTS FOR INFORMATION (RFI):**

The following RFIs were issued prior to award of this Subcontract and the scope specifically referred to in the RFI or any scope that is reasonable inferable from these RFIs are included in this Subcontract Agreement:

See 00 91 13 Bid Question Log for complete list of Bid RFIs.

#### **4. SMALL BUSINESS AND DBE SUBCONTRACTOR REQUIREMENTS**

1. No additional requirements other than those shown in Exhibit B.1 and in all other parts of the Contract.

#### **5. LABOR AND MANPOWER:**

1. No additional requirements other than those shown in Exhibit B.1 and in all other parts of the Contract.

#### **6. UK HEALTHCARE SUSTAINABILITY REQUIREMENTS:**

1. No additional requirements other than those shown in Exhibit B.1 and in all other parts of the Contract.

#### **7. LEED REQUIREMENTS:**

1. No additional requirements other than those shown in Exhibit B.1 and in all other parts of the Contract

#### **8. SCOPE CLARIFICATIONS-SCOPE SPECIFIC:**

1. Comply with the LFUCG Construction requirements. Subcontractor shall notify the Construction Manager in writing of any conflicts in the Contract Documents and/or requirements in codes for immediate resolution. Any actions taken by the Subcontractor without obtaining guidance from the Construction Manager and the Owner shall become the sole risk and responsibility of the Subcontractor and all costs incurred due to such action are also the responsibility of the Subcontractor.
2. Subcontractor shall furnish and install the site utilities including excavation, backfill, piping, stormwater management tanks, hydrants, valves, controls, vaults, manholes, cleanouts, hatches, testing, metering, supports, etc. for a complete system related to this scope.
3. Subcontractor shall verify all elevations of structures during and after installation. Subcontractor shall provide as-built drawings generated by a licensed surveyor documenting X, Y, Z coordinates of structures, invert elevations of all pipes and elevations of bottom of structures and elevation of castings
4. Work by this Subcontractor includes all site sanitary and storm systems complete. This subcontractor is responsible for all the piping, pumps, valves, and pumping equipment, man-holes. etc. to a final point of connection coordinated with the CM but not more than 5' from the building face.
5. Subcontractor shall include all work complete for site water and storm systems tank structures and vaults with all piping, equipment, controls, for a complete system that can tie-into project BAS as required. Includes all work, traffic control, permits, metering, and road/curb/area repair work along Elizabeth Street and Waller. Subcontractor is responsible for all utility connections to their final connection.
6. Subcontractor is responsible for all excavations and backfill for utility installations related to this scope of work. Any adjacent existing site elements remaining in place shall be protected by the Subcontractor. All removal of elements related to this scope are included. (All asphalt and concrete replacement by Others).

7. Subcontractor shall cap, relocate, and remove utilities shown per the Contract Documents.
8. Subcontractor shall utilize vac truck or hydrovac excavation equipment while excavating near, over, or adjacent to existing utilities. Excavation permitting process shall be followed prior to any excavation.
9. Subcontractor is responsible for the supply and installation of complete and operational sanitary sewers as well as testing per the Contract Documents and applicable codes.
10. Subcontractor is responsible for the supply and installation of complete and operational water distribution system (including fire) and storm drainage system in accordance with the Contract Documents.
11. Subcontractor shall provide all structures for the storm water system including, but not limited to, outlet structures, catch basins, curb inlets, frames, grates, manholes and area drains. All structures and related accessories to be per the Contract Documents.
12. Subcontractor shall cap manholes and create permanent line stops in underground utilities as shown in the Contract Documents.
13. Subcontractor is responsible for the supply and installation of all associated precast concrete, and concrete work such as manholes, catch basins, valve boxes, and associated materials.
14. Subcontractor is responsible for installing sump pump piping from electrical vaults to storm structures as indicated on the Contract Documents. Subcontractor to pick up work from a 1' stub out at the vaults.
15. Subcontractor shall make all necessary connections from existing underground piping and or structures to new underground work per the Contract Documents.
16. Subcontractor shall furnish and install thrust blocks as needed.
17. Subcontractor shall furnish and install materials (i.e. hydrant, valves, caps, joints, fittings, couplings, etc.) for new hydrants and the fire protection system. Subcontractor cannot interrupt service to existing water lines. Subcontractor shall flush, chlorinate and test all underground installation associated to fire protection systems.
18. Subcontractor shall provide proper shoring, sheeting and bracing during excavation operations to ensure workmen safety and to protect banks, adjacent paving, structures, and utilities where necessary within this scope of work.
19. Subcontractor shall provide trenching and backfill to existing grade and compaction.
20. Subcontractor shall test all underground installation for utilities (i.e. storm, sanitary and water, etc.) piping per Contract Specifications. Subcontractor shall also provide chlorination and test all domestic water.
21. All permit, tap fees, and costs associated with connecting to and from existing utilities is the responsibility of this Subcontractor. Subcontractor is responsible for any sanitizing, disinfection, or pigging of water lines.
22. Subcontractor shall provide sanitary structures, including but not limited to, sanitary manholes and clean-outs as required and shown on drawings.
23. Subcontractor to coordinate all soil spoils. Spoils shall be compiled into one location determined by the CM. (Haul off by others)
24. Subcontractor shall furnish and install all aforementioned structures per standards shown on Drawings.

25. Subcontractor shall dewater all excavations associated with this scope due to rain water/water infiltration while Subcontractor is onsite.
26. Subcontractor is responsible for any settling due to dewatering and will monitor adjacent structures, slabs, sidewalks etc... for settlement.
27. Subcontractor includes all bypass pumping or temporary conveyance means should it be necessary for the installation of the work and without disruption to the current utilities. Subcontractor shall have the appropriate pumping equipment while performing any storm or sanitary work.
28. Subcontractor shall coordinate with the Earthwork Subcontractor and CM for the installation and connections.
29. Subcontractor includes multiple mobilizations to adjust and set to final locations of inlets, curb inlets, rim elevations, and other items built into the final construction.
30. All site utility work shall be coordinated with the contract documents and other Subcontractors, utilizing the contractor's 3D Modeling and Building Information Modeling. Refer to Exhibit J.
31. Subcontractor is responsible for all surveying, layout work, control point, and benchmarks required to install this work scope. CM will provide site control points and benchmarks by professional surveyor for subcontractor use. Site control is to be protected during construction.
32. Subcontractor shall furnish and install all underdrains per the Contract Documents.
33. Subcontractor shall provide all gravity fed piped connections between the SWPPP sediment basins and roadway storm systems.
34. Subcontractors shall furnish and install all materials or products required to restore existing condition after work. This includes, but is not limited to, sidewalks, curbs, pavement, landscaping and grass.
35. Subcontractors shall furnish and install utility service markers as required by the Contract Documents. Detail appears on BP.01 electrical sheets but applies to all underground trades.
36. Subcontractor acknowledges that excavation may be required through rock. Blasting is not allowed.

## **9. SPECIFIC EXCLUSIONS:**

The following work is specifically excluded from this Subcontract Agreement and is not a part of this Agreement and/or will be performed by others as noted:

1. Abatement of hazardous materials
2. Hardscapes
3. Planting or irrigation
4. Paving

## **10. SAFETY:**

1. No additional requirements other than shown in Exhibit B.1 and in all other parts of the Contract

## **11. QUALITY:**



1. No Reference Exhibit B.1 and E.

**12. SCHEDULE:**

2. Subcontractor shall provide submittals and shop drawings for critical procurement items – defined as items on critical path including but not strictly limited to storm and sanitary structures and piping – within 10 days of notification of award project. This deadlines may precede full execution of this subcontract. Partial submittal to begin work may be acceptable and subject to coordination with Construction Manager.

**13. COORDINATION:**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

**14. ALTERNATES, ALLOWANCES, and UNIT PRICES:**

The following items are considered to be fully loaded including but not, but are not limited to, labor, burden, insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

This section will be populated, as applicable, with information as submitted on Bid Form.

**15. HOURLY RATES:**

The following hourly rates are fully loaded rates that include, but are not limited to, labor, burden,

insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

Worker Category	Straight Time	Premium Time	Double Time
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This section will be populated with information as submitted on Bid Form.

004100B01

UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION PROCUREMENT SECTION  
FORM OF PROPOSAL: TC 32A.1 – Concrete

Project No. 2563.1 Project Title: BP1 Elizabeth Street Replacement

Purchasing Officer: Ken Scott

NOTE: The following Form of Proposal shall be followed exactly in submitting a proposal for this work. If this copy is lost, an additional copy will be furnished upon written request to the authority issuing Contract Documents.

\*\*\*\*\*

This Proposal is submitted by: \_\_\_\_\_

(NAME AND ADDRESS OF BIDDER)

Date: \_\_\_\_\_

Telephone: \_\_\_\_\_

Vendor #: \_\_\_\_\_ (FEIN) \_\_\_\_\_

TO: BID CLERK  
UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION  
PROCUREMENT  
RM. 322 SERVICE BUILDING  
LEXINGTON, KY. 40506-0005

INVITATION TO BID: CCK-2563.10-1-24

BID OPENING DATE: 02/08/2024

TIME: 3:00 P.M. Lexington, KY Time

The Bidder, in compliance with your Invitation for Bids for the above referenced Project, having carefully examined the site of the Work, the Drawings and complete Contract Documents as defined in Article I of the General Conditions, as well as the Specifications affecting the work as prepared by the Consultant, hereby proposes to furnish all labor, materials, supplies and services required to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the price stated below without qualification.

The Bidder hereby acknowledges receipt of the following Addenda:

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

(Here insert the number and date of any Addenda issued and received. If none has been issued and received, the word NONE should be inserted.)

Contractor Report of Prior Violations of  
Chapters 136,139, 141, 337, 338, 341, and 342

Pursuant to KRS 45A.485, the Contractor shall, prior to the award of a Contract, reveal final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 by the Contractor that have occurred in the previous five (5) year period.

This statute also requires for the duration of the Contract established, the Contractor be in continuous compliance with the provisions of Chapters 136, 139, 141, 337, 338, 341, and 342 that apply to the Contractor’s operations. The Contractor’s failure to reveal a final determination of a violation of KRS Chapters 136, 139, 141, 337, 338, 341, and 342, or failure to comply with any of the above cited statutes for the duration of the Contract shall be grounds for the cancellation of the Contract, and the disqualification from eligibility for future contracts for a period of two (2) years.

The Contractor, by signing and submitting a Bid on this Invitation, agrees as required by KRS 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 that have occurred in the previous five (5) years prior to the award of a Contract and agrees to remain in continuous compliance with the provisions of these statutes during the duration of any contract that may be established. Final determinations of any violations of these statutes, must be provided to the University by the successful Contractor prior to the award of a Contract.

LUMP SUM PROPOSAL

The Bidder agrees to furnish all labor, materials, supplies and services required to complete the Work, for the above referenced Project, for the Capital Construction Procurement Section, University of Kentucky, as described in the Specifications and Contract Documents and shown on the Drawings enumerated below and as modified by the Addenda listed above.

FOR THE LUMP SUM OF \_\_\_\_\_  
(USE WORDS)  
\_\_\_\_\_ DOLLARS AND \_\_\_\_\_ CENTS.  
(USE WORDS) (USE WORDS)  
(\$ \_\_\_\_\_)  
(USE FIGURES)

SUPERINTENDENT

In accordance with Article 17 of the General Conditions a full-time superintendent will be required on this project. Below, please list the superintendent your firm will employ on this project. The successful Bidder will be required to furnish a resume of the superintendent’s qualifications and or past projects.

\_\_\_\_\_  
List the Superintendent’s Name

Alternate: None.

**004100B01**

**FORM OF PROPOSAL**

**AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST**

I hereby certify:

1. That I am the Bidder (if the Bidder is an individual), a partner in the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the submitted Bid or Bids covering Capital Construction Procurement Section Invitation No. **CCK-2563.10-1-24** have been arrived at by the Bidder independently and have been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition; as prohibited by provision KRS 45A.325;
3. That the contents of the Bid or Bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished with the Bid or Bids and will not be communicated to any such person prior to the official opening of the Bid or Bids;
4. That the Bidder is legally entitled to enter into the contracts with the University of Kentucky and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 164.390, and 45A.330 to 45A.340 and 45A.455;
5. This offer is good for 60 calendar days from the date this Bid is opened. In submitting the above, it is expressly agreed that upon proper acceptance by the Capital Construction Procurement Section of any or all items Bid above, a contract shall thereby be created with respect to the items accepted;
6. That I have fully informed myself regarding and affirm the accuracy of all statements made in this Form of Proposal including Bid Amount.
7. Unless otherwise exempted by KRS 45.590, the Bidder intends to comply in full with all requirements of the Kentucky Civil Rights Act and to submit data required by the Kentucky Equal Employment Act upon being designated the successful contractor.
8. That the bidding contractor and all subcontractors to be employed do not and will not maintain any facilities they provide for employees in a segregated manner and they are in full compliance with provisions of 41 CFR 60-1.8 that prohibits the maintaining of segregated facilities.
9. In accordance with KRS45A.110(2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to the bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

**READ CAREFULLY - SIGN IN SPACE BELOW - FAILURE TO SIGN INVALIDATES BID**

SIGNED BY \_\_\_\_\_ TITLE \_\_\_\_\_

PRINT NAME \_\_\_\_\_ FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_ AREA CODE & PHONE \_\_\_\_\_

\_\_\_\_\_ FAX \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

BIDDER'S EMAIL \_\_\_\_\_ DATE \_\_\_\_\_



## **004100B01**

THE FOLLOWING ITEMS ARE HEREWITH ENCLOSED AS REQUIRED BY KRS 45A.185

1. Bid Bond or Certified Check in an amount not less than five percent (5%) of total Bid.
2. List of Proposed Subcontractors and Unit Prices. (if required)
3. Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest.
4. List of Materials and Equipment.
5. Bid Breakdown Form
6. Walsh Labor Rates Sheet

A Payment and Performance Bond shall not be included with the bid. If the bidder is not approved for participation in the SDI program, then the bidder will be required to furnish a proposal to add a 100% P&P Bond. All bonding and insurance requirements are contained in the Instruction to Bidders and/or General Conditions. Performance and Payment bonds shall be obliged per the bond forms in the Walsh Construction Sample Contract Exhibits. A 5% bid bond is required with the submission of this proposal.

Bidder shall not include cost for insurance in their bid. If the bidder is not approved for participation in the Contractor Controlled Insurance Program (CCIP), then the bidder will be required to furnish a proposal to add the full cost of insurance consistent with the project insurance limits listed in the bid documents and the Walsh Construction Sample Contract Exhibits.

### **BIDDER'S QUALIFICATIONS**

The Commonwealth of Kentucky Model Procurement Code (KRS 45A.080) requires contracts to be awarded, "to the responsive and responsible bidder whose bid offers the best value" to the University of Kentucky. In order to determine if the Bidder has the experience, qualifications, resources and necessary attributes to provide the quality workmanship, materials and management required by the plans and specifications, the Bidder may be required to complete and submit the information requested on the University of Kentucky Contractor Bidder Determination of Responsibility questionnaire. Failure to provide the information requested on the questionnaire or failure to provide any additional submittals or information that may be requested to make this determination may be grounds for a declaration of non-responsibility with respect to the Bidder. A copy of the Contractor Determination of Responsibility questionnaire is available upon request to all Bidders.

### **TIME LIMIT FOR EXECUTION OF CONTRACT DOCUMENTS**

It is further agreed, that in the event this Proposal is accepted by the Owner and the undersigned shall fail to execute the Contract and furnish satisfactory Payment and Performance Bond within ten (10) consecutive calendar days from the date of notification of the award of the Contract, the Owner may at his option, determine that the undersigned has abandoned the Contract and thereupon, the Proposal shall become null and void and the Bid guarantee, check or Bid bond which accompanied it shall be forfeited and become the property of the Owner as liquidated damages for each failure and no protest pursuant to such action will be made. If the Undersigned shall execute the Contract, and furnish satisfactory Payment Bond and Performance Bond, it is understood that the Bid Guarantee or Bid Bond will be returned to the undersigned by the Owner.

UNIT PRICES

NOTE: Unit Prices shall include the furnishing of all labor, materials, supplies and services and shall include all items of cost, overhead and profit for the Contractor and any subcontractor involved, and shall be used uniformly without modifications for either additions or deductions. The Unit Prices as established shall be used to determine the equitable adjustment of the Contract Price in connection with changes, deletions or extra work performed under the Contract and the "Rules of Measurement" set forth in the General Conditions shall govern.

*All Bidders will be required to complete and submit the following Unit Prices with the bid.*

*The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.*

DESCRIPTION OF WORK

UNIT PRICE

See Bid Breakdown Form

PRIMARY LIST OF PROPOSED SUBCONTRACTORS

All subcontractors are subject to the approval of the Capital Construction Procurement Section and Capital Project Management Division, University of Kentucky, Lexington, KY.

If certain branches of the Work are to be done by the Prime Contractor, so state.

The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.

The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.

DIVISION OF WORK

NAME AND ADDRESS OF SUBCONTRACTOR

DIVISION 01  
GENERAL REQUIREMENTS

\_\_\_\_\_

DIVISION 02  
EXISTING CONDITIONS

\_\_\_\_\_

DIVISION 03  
CONCRETE

\_\_\_\_\_

DIVISION 05  
METALS

\_\_\_\_\_

DIVISION 10  
SPECIALTIES

\_\_\_\_\_

DIVISION 31  
EARTHWORK

\_\_\_\_\_

DIVISION 32  
EXTERIOR IMPROVEMENTS

\_\_\_\_\_

ADD AS NEEDED

\_\_\_\_\_



LIST OF MATERIALS AND EQUIPMENT

Each item listed under the different phases of construction must be clearly identified so that the Owner will definitely know what the Bidder proposes to furnish.

The use of a manufacturer's or dealer's name only, or stating "as per Plans and Specifications," will not be considered as sufficient identification.

Where more than one "Make" or "Brand" is listed for any one item, the Owner has the right to select the one to be used.

**The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.**

**The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.**

MATERIALS AND EQUIPMENT

BRAND OR MANUFACTURER


**004100B01**

**IDENTIFICATION OF DIVERSE BUSINESS ENTERPRISE SUBCONTRACTORS AND MATERIAL SUPPLIERS**

Diverse Business Enterprises (DBE) consist of minority, women, disabled, veteran and disabled veteran owned business firms that are at least fifty-one percent owned and operated by an individual(s) of the aforementioned categories. Also included in this category are disabled business enterprises and non-profit work centers for the blind and severely disabled.

MBE, WBE, Veterans, Disable Veterans and Disabled make up Diverse Business Enterprises, DBE.

**Participation of DBE owned Contractors and businesses.**

The University of Kentucky encourages and supports the participation Diverse Business Enterprises. Please list Subcontractors and Material Suppliers according to following Ethnic Vendor List or if they are a Woman Owned Business:

- Asian
- Black/African American
- Hispanic or Latino
- Native American Native Hawaiian/Pacific Islander
- White
- Other

1. DBE (Ethnic or Woman) Subcontractors

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2. DBE (Ethnic or Woman) Material Suppliers

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**BID BREAKDOWN FORM**

**Company Name:**

**Scope of Work :** Trade Category 32A.1- Concrete Paving

Item	Bid Quantities	Quantity	U/M	Unit Price	Total
001	General Requirements		LS		
002	Concrete Pavement Sidewalk		SF		
003	Concrete Pavement Vehicular		SF		
004	Curb and Gutter		LF		
005	Street and Traffic Control Signage		LS		
006	Concrete Slab Bridge at Box Culvert		LS		
<b>Allowances (To be included in Base Bid on Bid Form)</b>					
Allowance 1	Replace damaged sidewalks and drives	1	LS	\$25,000.00	\$25,000.00
<b>TOTAL BASE BID (this total should match Base Bid Total on 004100B01 Form of Proposal)</b>					
<b>Alternates - N/A</b>					
<b>Unit Prices - To be included in the Subcontract</b>					
Unit Price 1	Additional Concrete Pavement Sidewalk	100	SF		
Unit Price 2	Additional Concrete Pavement Vehicular	100	SF		
<b>Labor Rates - See Labor Rate Form</b>					

Walsh Labor Rates Sheet

Company Name: \_\_\_\_\_

Scope of Work : \_\_\_\_\_ Trade Category \_\_\_\_\_

\*Complete a Labor Rate Breakdown for each trade employed or subcontract employed

*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									

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**EXHIBIT B.2**  
**TRADE CATEGORY SPECIFIC SCOPE**  
**SCOPE CLARIFICATIONS, ALTERNATES, UNIT PRICES, ALLOWANCES, AND**  
**CONTRACT BREAKDOWN**

**TC#32A.1 – CONCRETE PAVING**  
**SEE ALSO EXHIBIT B.1 FOR BID SET SCOPE ITEMS**

Provide labor, material, equipment, hoisting and all else necessary to furnish and install complete the **Concrete Pavement** Work as required by the contract documents and as outlined below.

**1. SPECIFICATION SECTIONS:**

The following specification sections are listed as the responsibility of the Subcontractor in defining its area of work on this project:

Walsh Construction Bid Manual  
Division 01 General Requirements  
Division 03 Concrete – All  
Division 32 Exterior Improvements All  
Appendix Section 100 General Provisions - All  
Appendix Section 500 PCC Pavement and Non-Structural Concrete Construction – As Applicable  
Appendix Section 600 Structures and Concrete – All  
Appendix Section 700 Drainage, Traffic, and Road Construction – As applicable  
Appendix Section 800 Materials – As applicable

Unless specifically indicated otherwise or excluded below, Subcontractor is responsible for the complete specification sections indicated above.

Division 01 and Appendix of the Specifications are general in nature and apply to all Subcontracts. These sections are included “complete” as part of this Subcontract Agreement.

The Subcontractor is also responsible for trade specifications not specifically listed above but required by reference in the listed specifications or as required to perform the scope of work described herein, as well as the Bidding Requirements, Contracting Requirements, and the use of the Construction Documents as a whole.

**2. ADDENDUMS, BULLETINS, OR INFORMATION LETTERS:**

See Exhibit B.1 for Complete List of Addendums, Bulletins, or Information Letters.

**3. REQUESTS FOR INFORMATION (RFI):**

The following RFIs were issued prior to award of this Subcontract and the scope specifically referred to in the RFI or any scope that is reasonable inferable from these RFIs are included in this Subcontract Agreement:

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See 00 91 13 Bid Question Log for complete list of Bid RFIs.

**4. SMALL BUSINESS AND DBE SUBCONTRACTOR REQUIREMENTS**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

**5. LABOR AND MANPOWER:**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

**6. UK HEALTHCARE SUSTAINABILITY and LEED REQUIREMENTS:**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

**7. SCOPE CLARIFICATIONS-SCOPE SPECIFIC:**

1. Subcontractor to provide protection of adjacent surfaces while performing work. Subcontractor will be responsible for removal of protection after work is complete.
2. Subcontractor shall furnish and install concrete paving as indicated on the Contract Documents. This includes any curbs as shown.
3. Subcontractor is responsible for all forming, reinforcing, placing, and finishing of concrete. This includes all sidewalk ramps indicated per the Contract Documents.
4. Subcontractor shall provide all integral flush curb & gutter at all vehicular pavement conditions including islands and transitions from asphalt, concrete, and connections to existing roadways.
5. Subcontractor should tie any slopes of concrete curb and sidewalk to existing as shown on the Contract Documents.
6. Where private concrete driveways and sidewalks are disturbed, subcontractor shall replace in kind at adjusted elevation.
7. Subcontractor to include expansion and control joints as required.
8. Subcontractor is responsible for any saw cutting required to complete this scope of work.
9. Subcontractor shall be responsible for providing and installing all detectable warning strips at sidewalk locations.
10. Subcontractor to furnish, place, spread, and compact any subbase required per the Contract Documents. Thickness/depth of this material is to be per the Contract Documents.
11. Subcontractor shall form, pour and finish concrete slab bridge surrounding the box culvert as indicated on the Contract Documents. Subcontractor to fill space between culvert and bridge with aggregate backfill. Box culvert to be protected during construction.
12. Subcontractor to include multiple mobilizations to support the phasing of the site concrete work

in order to maintain typical site traffic. Subcontractor shall coordinate in advance with CM. Project work to be phased following the project schedule.

13. Subcontractor to include all joint sealants required for installations under this work scope per the Contract Documents. This includes but is not limited to: all construction joints and control jointing.
14. Subcontractor to provide and install all permanent street and traffic control signage.
15. Subcontractor to coordinate concrete wash out location with CM. Provide lined dumpster as necessary for your washout.

## 8. SPECIFIC EXCLUSIONS:

The following work is specifically excluded from this Subcontract Agreement and is not a part of this Agreement and/or will be performed by others as noted:

1. Site Survey Control provided by the Site Subcontractor.
2. Furnishing of exterior bollards and the bollard covers.

## 9. SAFETY:

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

## 10. QUALITY:

1. No additional requirements other than that shown in Exhibit B.1 and in all other part of the Contract.

## 11. SCHEDULE:

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract

## 12. COORDINATION:

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract.

## 13. ALTERNATES, ALLOWANCES, and UNIT PRICES:

The following items are considered to be fully loaded including, but are not limited to, labor, burden, insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

This section will be populated, as applicable, with information as submitted on Bid Form.

## 14. HOURLY RATES:

The following hourly rates are fully loaded rates that include, but are not limited to, labor, burden, insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

Worker Category	Straight Time	Premium Time	Double Time
-----------------	---------------	--------------	-------------

This section will be populated with information as submitted on Bid Form.

004100B01

UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION PROCUREMENT SECTION  
FORM OF PROPOSAL: TC 32B.1 – Asphalt

Project No. 2563.1 Project Title: BP1 Elizabeth Street Replacement

Purchasing Officer: Ken Scott

NOTE: The following Form of Proposal shall be followed exactly in submitting a proposal for this work. If this copy is lost, an additional copy will be furnished upon written request to the authority issuing Contract Documents.

\*\*\*\*\*

This Proposal is submitted by: \_\_\_\_\_

(NAME AND ADDRESS OF BIDDER)

Date: \_\_\_\_\_

Telephone: \_\_\_\_\_

Vendor #: \_\_\_\_\_ (FEIN) \_\_\_\_\_

TO: BID CLERK  
UNIVERSITY OF KENTUCKY  
CAPITAL CONSTRUCTION  
PROCUREMENT  
RM. 322 SERVICE BUILDING  
LEXINGTON, KY. 40506-0005

INVITATION TO BID: CCK-2563.10-1-24

BID OPENING DATE: 02/08/2024

TIME: 3:00 P.M. Lexington, KY Time

The Bidder, in compliance with your Invitation for Bids for the above referenced Project, having carefully examined the site of the Work, the Drawings and complete Contract Documents as defined in Article I of the General Conditions, as well as the Specifications affecting the work as prepared by the Consultant, hereby proposes to furnish all labor, materials, supplies and services required to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the price stated below without qualification.

The Bidder hereby acknowledges receipt of the following Addenda:

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

ADDENDUM NO. \_\_\_\_\_ DATED \_\_\_\_\_

(Here insert the number and date of any Addenda issued and received. If none has been issued and received, the word NONE should be inserted.)



Contractor Report of Prior Violations of  
Chapters 136,139, 141, 337, 338, 341, and 342

Pursuant to KRS 45A.485, the Contractor shall, prior to the award of a Contract, reveal final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 by the Contractor that have occurred in the previous five (5) year period.

This statute also requires for the duration of the Contract established, the Contractor be in continuous compliance with the provisions of Chapters 136, 139, 141, 337, 338, 341, and 342 that apply to the Contractor’s operations. The Contractor’s failure to reveal a final determination of a violation of KRS Chapters 136, 139, 141, 337, 338, 341, and 342, or failure to comply with any of the above cited statutes for the duration of the Contract shall be grounds for the cancellation of the Contract, and the disqualification from eligibility for future contracts for a period of two (2) years.

The Contractor, by signing and submitting a Bid on this Invitation, agrees as required by KRS 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 that have occurred in the previous five (5) years prior to the award of a Contract and agrees to remain in continuous compliance with the provisions of these statutes during the duration of any contract that may be established. Final determinations of any violations of these statutes, must be provided to the University by the successful Contractor prior to the award of a Contract.

LUMP SUM PROPOSAL

The Bidder agrees to furnish all labor, materials, supplies and services required to complete the Work, for the above referenced Project, for the Capital Construction Procurement Section, University of Kentucky, as described in the Specifications and Contract Documents and shown on the Drawings enumerated below and as modified by the Addenda listed above.

FOR THE LUMP SUM OF \_\_\_\_\_  
(USE WORDS)  
\_\_\_\_\_ DOLLARS AND \_\_\_\_\_ CENTS.  
(USE WORDS) (USE WORDS)  
(\$ \_\_\_\_\_)  
(USE FIGURES)

SUPERINTENDENT

In accordance with Article 17 of the General Conditions a full-time superintendent will be required on this project. Below, please list the superintendent your firm will employ on this project. The successful Bidder will be required to furnish a resume of the superintendent’s qualifications and or past projects.

\_\_\_\_\_  
List the Superintendent’s Name

Alternate: None.

**004100B01**  
FORM OF PROPOSAL

**AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST**

I hereby certify:

1. That I am the Bidder (if the Bidder is an individual), a partner in the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the submitted Bid or Bids covering Capital Construction Procurement Section Invitation No. **CCK-2563.10-1-24** have been arrived at by the Bidder independently and have been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition; as prohibited by provision KRS 45A.325;
3. That the contents of the Bid or Bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished with the Bid or Bids and will not be communicated to any such person prior to the official opening of the Bid or Bids;
4. That the Bidder is legally entitled to enter into the contracts with the University of Kentucky and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 164.390, and 45A.330 to 45A.340 and 45A.455;
5. This offer is good for 60 calendar days from the date this Bid is opened. In submitting the above, it is expressly agreed that upon proper acceptance by the Capital Construction Procurement Section of any or all items Bid above, a contract shall thereby be created with respect to the items accepted;
6. That I have fully informed myself regarding and affirm the accuracy of all statements made in this Form of Proposal including Bid Amount.
7. Unless otherwise exempted by KRS 45.590, the Bidder intends to comply in full with all requirements of the Kentucky Civil Rights Act and to submit data required by the Kentucky Equal Employment Act upon being designated the successful contractor.
8. That the bidding contractor and all subcontractors to be employed do not and will not maintain any facilities they provide for employees in a segregated manner and they are in full compliance with provisions of 41 CFR 60-1.8 that prohibits the maintaining of segregated facilities.
9. In accordance with KRS45A.110(2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to the bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

**READ CAREFULLY - SIGN IN SPACE BELOW - FAILURE TO SIGN INVALIDATES BID**

SIGNED BY \_\_\_\_\_ TITLE \_\_\_\_\_

PRINT NAME \_\_\_\_\_ FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_ AREA CODE & PHONE \_\_\_\_\_

\_\_\_\_\_ FAX \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

BIDDER'S EMAIL \_\_\_\_\_ DATE \_\_\_\_\_



## **004100B01**

THE FOLLOWING ITEMS ARE HEREWITH ENCLOSED AS REQUIRED BY KRS 45A.185

1. Bid Bond or Certified Check in an amount not less than five percent (5%) of total Bid.
2. List of Proposed Subcontractors and Unit Prices. (if required)
3. Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest.
4. List of Materials and Equipment.
5. Bid Breakdown Form
6. Walsh Labor Rates Sheet

A Payment and Performance Bond shall not be included with the bid. If the bidder is not approved for participation in the SDI program, then the bidder will be required to furnish a proposal to add a 100% P&P Bond. All bonding and insurance requirements are contained in the Instruction to Bidders and/or General Conditions. Performance and Payment bonds shall be obliged per the bond forms in the Walsh Construction Sample Contract Exhibits. A 5% bid bond is required with the submission of this proposal.

Bidder shall not include cost for insurance in their bid. If the bidder is not approved for participation in the Contractor Controlled Insurance Program (CCIP), then the bidder will be required to furnish a proposal to add the full cost of insurance consistent with the project insurance limits listed in the bid documents and the Walsh Construction Sample Contract Exhibits.

### **BIDDER'S QUALIFICATIONS**

The Commonwealth of Kentucky Model Procurement Code (KRS 45A.080) requires contracts to be awarded, "to the responsive and responsible bidder whose bid offers the best value" to the University of Kentucky. In order to determine if the Bidder has the experience, qualifications, resources and necessary attributes to provide the quality workmanship, materials and management required by the plans and specifications, the Bidder may be required to complete and submit the information requested on the University of Kentucky Contractor Bidder Determination of Responsibility questionnaire. Failure to provide the information requested on the questionnaire or failure to provide any additional submittals or information that may be requested to make this determination may be grounds for a declaration of non-responsibility with respect to the Bidder. A copy of the Contractor Determination of Responsibility questionnaire is available upon request to all Bidders.

### **TIME LIMIT FOR EXECUTION OF CONTRACT DOCUMENTS**

It is further agreed, that in the event this Proposal is accepted by the Owner and the undersigned shall fail to execute the Contract and furnish satisfactory Payment and Performance Bond within ten (10) consecutive calendar days from the date of notification of the award of the Contract, the Owner may at his option, determine that the undersigned has abandoned the Contract and thereupon, the Proposal shall become null and void and the Bid guarantee, check or Bid bond which accompanied it shall be forfeited and become the property of the Owner as liquidated damages for each failure and no protest pursuant to such action will be made. If the Undersigned shall execute the Contract, and furnish satisfactory Payment Bond and Performance Bond, it is understood that the Bid Guarantee or Bid Bond will be returned to the undersigned by the Owner.

UNIT PRICES

NOTE: Unit Prices shall include the furnishing of all labor, materials, supplies and services and shall include all items of cost, overhead and profit for the Contractor and any subcontractor involved, and shall be used uniformly without modifications for either additions or deductions. The Unit Prices as established shall be used to determine the equitable adjustment of the Contract Price in connection with changes, deletions or extra work performed under the Contract and the "Rules of Measurement" set forth in the General Conditions shall govern.

*All Bidders will be required to complete and submit the following Unit Prices with the bid.*

*The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.*

DESCRIPTION OF WORK

UNIT PRICE

See Bid Breakdown Form

PRIMARY LIST OF PROPOSED SUBCONTRACTORS

All subcontractors are subject to the approval of the Capital Construction Procurement Section and Capital Project Management Division, University of Kentucky, Lexington, KY.

If certain branches of the Work are to be done by the Prime Contractor, so state.

**The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.**

**The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.**

DIVISION OF WORK

NAME AND ADDRESS OF SUBCONTRACTOR

DIVISION 01  
GENERAL REQUIREMENTS

---

DIVISION 02  
EXISTING CONDITIONS

---

DIVISION 31  
EARTHWORK

---

DIVISION 32  
EXTERIOR IMPROVEMENTS

---

ADD AS NEEDED

---

LIST OF MATERIALS AND EQUIPMENT

Each item listed under the different phases of construction must be clearly identified so that the Owner will definitely know what the Bidder proposes to furnish.

The use of a manufacturer's or dealer's name only, or stating "as per Plans and Specifications," will not be considered as sufficient identification.

Where more than one "Make" or "Brand" is listed for any one item, the Owner has the right to select the one to be used.

**The apparent low bidders will be required to complete and submit to the University the following information by twelve o'clock (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.**

**The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.**

MATERIALS AND EQUIPMENT

BRAND OR MANUFACTURER


**004100B01**

**IDENTIFICATION OF DIVERSE BUSINESS ENTERPRISE SUBCONTRACTORS AND MATERIAL SUPPLIERS**

Diverse Business Enterprises (DBE) consist of minority, women, disabled, veteran and disabled veteran owned business firms that are at least fifty-one percent owned and operated by an individual(s) of the aforementioned categories. Also included in this category are disabled business enterprises and non-profit work centers for the blind and severely disabled.

MBE, WBE, Veterans, Disable Veterans and Disabled make up Diverse Business Enterprises, DBE.

**Participation of DBE owned Contractors and businesses.**

The University of Kentucky encourages and supports the participation Diverse Business Enterprises. Please list Subcontractors and Material Suppliers according to following Ethnic Vendor List or if they are a Woman Owned Business:

- Asian
- Black/African American
- Hispanic or Latino
- Native American Native Hawaiian/Pacific Islander
- White
- Other

1. DBE (Ethnic or Woman) Subcontractors

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2. DBE (Ethnic or Woman) Material Suppliers

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**BID BREAKDOWN FORM**

**Company Name:**

**Scope of Work :** Trade Category 32B.1- Asphalt Paving

Item	Bid Quantities	Quantity	U/M	Unit Price	Total
001	General Requirements		LS		
002	Asphalt Paving - Phased per Project Schedule		SY		
003	Striping - Including Temp Striping		LF		
004	Site Temp Lots and Paved roads and Laydown area per logistics plan		SY		
005	Street and Traffic Control Signage		LS		
006	Mill and Overlay of Elizabeth South of State Street in 2027		SY		
	<b>Allowances (To be included in Base Bid on Bid Form)</b>				
Allowance 1	Replace or path damaged street, sidewalk, or drives	1	LS	\$25,000.00	\$25,000.00
Allowance 2	Additional Temporary Site Paving for Construction Logistics	250	SY		
Allowance 3	Additional Site Paving for Temp connections and lots - Waller Annex, Driveway Connections, etc	500	SY		
Allowance 3	Additional Mill and Overlay	1	LS	\$10,000.00	\$10,000.00
	<b>TOTAL BASE BID (this total should match Base Bid Total on 004100B01 Form of Proposal)</b>				
	<b>Alternates - N/A</b>				
	<b>Unit Prices - To be included in the Subcontract</b>				
Unit Price 1	Additional Asphalt Paving - typical road profile	15	SY		
Unit Price 2	Additional Asphalt Paving - temporary site profile	15	SY		
Unit Price 3	Mill and Overlay of Existing Road - typical profiles		SY		
	<b>Labor Rates - See Labor Rate Form</b>				

Walsh Labor Rates Sheet

Company Name: \_\_\_\_\_

Scope of Work : \_\_\_\_\_ Trade Category \_\_\_\_\_

\*Complete a Labor Rate Breakdown for each trade employed or subcontract employed

*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									
*TRADE:	Journeyman			Foreman			Apprentice		
	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time	Straight Time	1 1/2 Time	Double Time
Base Wage (total hourly wage)									
Taxes									
Insurance									
Fringes (total fringes)									
TOTAL HOURLY WAGE:									

---

**EXHIBIT B.2**  
**TRADE CATEGORY SPECIFIC SCOPE**  
**SCOPE CLARIFICATIONS, ALTERNATES, UNIT PRICES, ALLOWANCES, AND**  
**CONTRACT BREAKDOWN**

**TC#32B.1 – Asphalt Paving**

**SEE ALSO EXHIBIT B.1 FOR BID SET SCOPE ITEMS**

Provide labor, material, equipment, hoisting and all else necessary to furnish and install complete the **Bituminous Asphalt Pavement** Work as required by the contract documents and as outlined below.

**1. SPECIFICATION SECTIONS:**

The following specification sections are listed to provide a general definition of the responsibility of the Subcontractor and its area of work on this project:

Walsh Construction Bid Manual  
Division 01 General Requirements  
Appendix Section 100 General Provisions – All  
Appendix Section 400 Asphalt Pavements – All  
Appendix Section 600 Structures and Concrete – As Applicable  
Appendix Section 800 Materials – As Applicable

Unless specifically indicated otherwise or excluded below, Subcontractor is responsible for the complete specification sections indicated above.

Division 01 and Appendix of the Specifications are general in nature and apply to all Subcontracts. These sections are included “complete” as part of this Subcontract Agreement.

The Subcontractor is also responsible for trade specifications not specifically listed above but required by reference in the listed specifications or as required to perform the scope of work described herein, as well as the Bidding Requirements, Contracting Requirements, and the use of the Construction Documents as a whole.

**2. ADDENDUMS, BULLETINS, OR INFORMATION LETTERS:**

See Exhibit B.1 for Complete List of Addendums, Bulletins, or Information Letters.

**3. REQUESTS FOR INFORMATION (RFI):**

The following RFIs were issued prior to award of this Subcontract and the scope specifically referred to in the RFI or any scope that is reasonable inferable from these RFIs are included in this Subcontract Agreement:

See 00 91 13 Bid Question Log for complete list of Bid RFIs.

#### **4. SMALL BUSINESS AND DBE SUBCONTRACTING REQUIREMENTS**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

#### **5. LABOR AND MANPOWER:**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

#### **6. UK HEALTHCARE SUSTAINABILITY and LEED REQUIREMENTS:**

1. No additional requirements other than that shown in Exhibit B.1 and in all other parts of the Contract.

#### **7. SCOPE CLARIFICATIONS-SCOPE SPECIFIC:**

1. Subcontractor to provide protection of adjacent surfaces while performing work. Subcontractor will be responsible for removal of protection after work is complete.
2. Subcontractor shall furnish and install asphalt paving for roadways indicated on the Contract Documents. Subcontractor to provide lifts as required and coordinate all work with the General Contractor. Subcontractor to provide base, binder and surface layers.
3. Subcontractor includes all milling and overlay as indicated on Contract Drawings. Subcontractor shall complete a mill overlay and restripe of Elizabeth Street south of State Street at the end of the CTC project in Summer of 2027.
4. Where private asphalt driveways and sidewalks are disturbed, subcontractor shall replace in kind at adjusted elevation.
5. Subcontractor shall furnish and install any subbase necessary and/or required to complete this scope of work. This includes DGA for traffic lanes.
6. Subcontractor shall furnish and install drainage blanket type II as indicated on the Contract Documents.
7. Subcontractor to place, spread, and compact all base rock per the Contract Documents. Thickness/depth of this material is to be per the Contract Documents.
8. Subcontractor shall layout and apply any pavement markings. Markings include lane striping, stop bars, parking stalls, path of travel, stencils, fire lanes and curbs, crosswalks, and directional arrows as shown on Contract Documents.
9. All fire lanes and curb stencils shall be painted with reflective paint.
10. All paint shall be 2 coats.
11. Subcontractors shall provide uniform transition from new to existing asphalt pavements. Subcontractor to match all existing roadways shown on Contract Documents.
12. Temporary parking lot and laydowns inside of the Bid Package 2 work area to be installed as indicated on the included site logistics plan. Subcontractor shall provide striping for the temporary lot. Removal to be completed by others.

- 
13. Subcontractor shall pave and restripe the temporary Waller Annex lot in the south east corner of the BP2 site. This work to be coordinated for weekend work and scheduled following completion of most site utilities in this area.
  14. Subcontractor shall provide all traffic control measures, including flagging and signage, as required for phased scope of work that is above the passive measures shown in the Maintenance of Traffic Plans.

## **8. SPECIFIC EXCLUSIONS:**

The following work is specifically excluded from this Subcontract Agreement and is not a part of this Agreement and/or will be performed by others as noted:

1. Concrete curbs Unit Paving
2. Grading of subgrade
3. University Branding Signage

## **9. SAFETY:**

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract.

## **10. QUALITY:**

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract.

## **11. SCHEDULE:**

1. Subcontractor has reviewed the schedule and recognizes binder and top coat operations are sequenced to be completed at different times
2. Subcontractor has reviewed the schedule and acknowledges Waller Ave Widening and repaving is scheduled for 2026

## **12. COORDINATION:**

1. No additional requirements other that shown in Exhibit B.1 and in all other parts of the Contract.

## **13. ALTERNATES, ALLOWANCES, and UNIT PRICES:**

The following items are considered to be fully loaded including, but are not limited to, labor, burden, insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

This section will be populated, as applicable, with information as submitted on Bid Form.

## **14. HOURLY RATES:**

The following hourly rates are fully loaded rates that include, but are not limited to, labor, burden, insurance, transportation costs, small tools, incidentals, escalation, overhead, profit, etc.:

Worker Category	Straight Time	Premium Time	Double Time
-----------------	---------------	--------------	-------------

This section will be populated with information as submitted on Bid Form.

# **SOLID GROUND**

CONSULTING ENGINEERS, PLLC

Engineering Innovation; Providing Solutions to Your Challenges.

## **REVISED REPORT OF GEOTECHNICAL EXPLORATION**



**University of Kentucky Project No. 2563.0**

**Cancer Treatment Center / Ambulatory Surgery Center**

Lexington, Fayette County, Kentucky

Prepared for: Mr. Raymond Haunsz, Senior Project Manager,  
UK Capital Project Management Division

University of Kentucky

Lexington, Kentucky

August 1, 2023

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August 1, 2023

Mr. Raymond Haunsz  
Senior Project Manager  
University of Kentucky  
Capital Project Management Division  
222 Frank D. Peterson Service Building  
Lexington, Kentucky 40506-0005

Subject: **Report of Geotechnical Exploration  
Cancer Treatment Center / Ambulatory Surgery Center  
University of Kentucky Project No. 2563.0  
Lexington, Kentucky  
Solid Ground Project No: 23-235R**

Mr. Haunsz,

Solid Ground Consulting Engineers, PLLC (Solid Ground) is pleased to present our Report of Geotechnical Exploration. This report is for the proposed University of Kentucky Cancer Treatment Center / Ambulatory Surgery Center in Lexington, Kentucky. The geotechnical exploration was conducted in general accordance with the scope of work outlined in Solid Ground proposal 107023 dated April 13, 2023.

This report contains our findings and recommendations for the referenced project detailed above. Once design is completed, it is recommended that Solid Ground review plans and specifications. In addition, it is recommended that Solid Ground be retained to perform observations and special inspections during construction. Solid Ground will not be held responsible for interpretations and field observations made by others.

We appreciate the opportunity to provide our consulting services to you. We look forward to working with you on this and future projects.

Sincerely,

**SOLID GROUND CONSULTING ENGINEERS, PLLC**

Beck Smith, PE  
Senior Engineer  
Kentucky License Number 37415



Tim McClure  
President

## **1.0 Executive Summary**

Solid Ground Consulting Engineers performed a geotechnical exploration in support of the University of Kentucky Cancer Treatment Center / Ambulatory Surgery Center located on South Limestone, Lexington, Fayette County, Kentucky. The approximate coordinates of the site are 38.0296°N, -84.5108°W.

### **1.1 Summary of Findings**

Solid Ground conducted a total of forty-one (41) soil test borings at the site, located at various points of interest within the limits of the proposed treatment center, associated parking garage, utility tunnel, pedestrian bridge, and utility trunk corridor. The borings were drilled along the existing grade.

Soil overburden generally consisted of a layer of topsoil, asphalt paving, concrete paving, and/or gravel underlain by either fill material or natural soils generally described as lean clay, fat clay, silt, sand, and gravel with varying amounts of each to refusal depths. The borings encountered auger refusal at depths ranging from 5.0 to 20.4 feet with most refusing between 10.0 and 15.0 feet.

Sixteen (16) of the borings had rock coring performed at auger refusal elevation encountering slightly to moderately weathered limestone interbedded with dolomite and shale.

## **2.0 Project Information**

### **2.1 Purpose and Scope of Services**

The purpose of this subsurface exploration was to prepare recommendations for design and construction of foundations and concrete slabs for the proposed cancer treatment center, parking garage, utility tunnel, pedestrian bridge, and utility trunk corridor. Our scope of work included the following:

- ▲ A desktop review of the site's conditions and historical use.
- ▲ Field reconnaissance and site layout for drilling and coring operations.
- ▲ Forty-one (41) soil test borings.
- ▲ Sixteen (16) borings were cored at auger refusal.

- ▲ Laboratory analysis of soil and rock core samples.
  
- ▲ Written geotechnical report discussing the following topics:
  - a. Site surface conditions.
  - b. Subsurface conditions encountered as well as a discussion of the published geologic conditions at the site.
  - c. A summary of field and laboratory testing results including a brief review of our test procedures.
  - d. Boring logs and laboratory tests are summarized in the report and included in the appendices.
  - e. Specific geotechnical conditions and concerns which may affect the design or construction of the project.
  - f. Recommendations for site preparation and construction of compacted fills.
  - g. Recommendations for foundation and wall drainage.
  - h. Recommendations for temporary excavation shoring.
  - i. Recommendations for temporary and permanent cut and fill slopes.
  - j. Recommendations for general design and construction criteria for the project foundations.
  - k. Recommendations for general design and construction criteria for the project slabs-on-grade.
  - l. Recommendations for design and construction of below grade walls and/or retaining walls.
  - m. Recommendations for design of flexible and rigid pavements.
  - n. Recommendation for seismic site class according to International Building Code which was adopted by the 2018 Kentucky Building Code (KBC).

## 2.2 Project Description

Project information was provided by THP Limited through a Request for Proposal (RFP) dated April 7, 2023, and by email correspondence. We understand the project will consist of a new cast-in-place parking structure, Cancer Treatment Center and a future Ambulatory Surgery Center. In addition to the structures, a new underground utility tunnel and elevated pedestrian walkway will be constructed and attached to the existing Pavilion A. We understand that the structural design portion of this project has yet to be completed, but preliminary loading and elevation information was provided in the RFP. According to the RFP, the anticipated structural loading information is as follows:

### Parking Structure

Interior Columns – 1,300 kips (typical) to 2,100 kips (max column load)

Perimeter Foundation Wall – 1 kip per square foot

### Cancer Treatment Center

Interior Columns – 2,181 kips

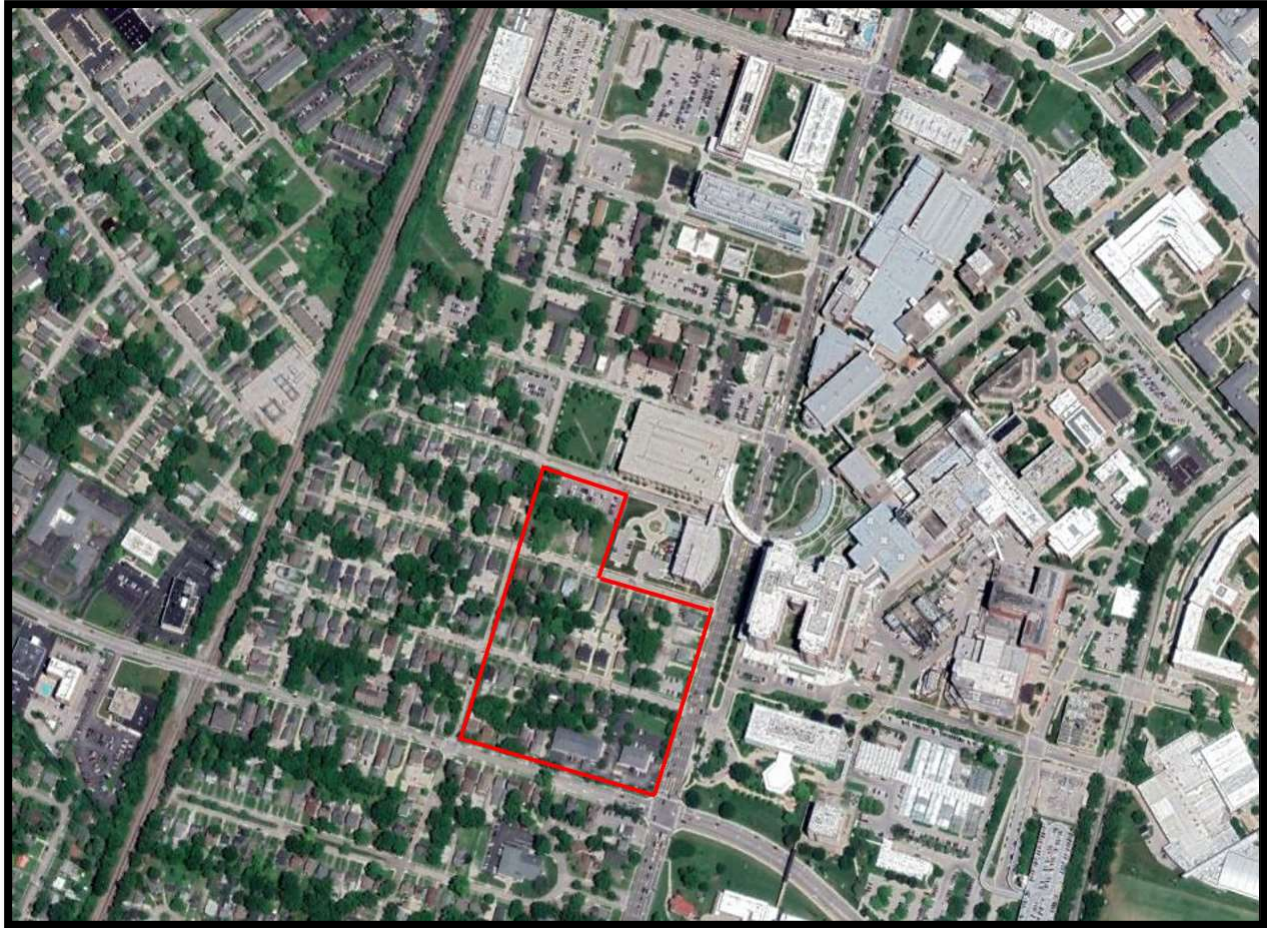
Exterior Columns – 1,235 kips

Perimeter Foundation Wall – 10 kips per linear foot

Linear Accelerator (Lower-Level Wall) – 45 kips per linear foot

The approximate addition area is depicted below in Figure 1.





**Figure 1: Approximate Site Location**

### **2.3 Site Conditions**

Solid Ground personnel visited the site throughout the geotechnical investigation to observe existing conditions, to help interpret the subsurface data, and detect conditions which could influence recommendations.

The site is located just west of South Limestone, Lexington, Fayette County, Kentucky. The property is currently a mixture of occupied structures and recently razed structures. The site is bisected by city streets. Additionally, the site is bounded on the Eastern side by Limestone Avenue (US Highway 27). This boundary (both sides of Limestone) serves as a major underground utility corridor serving both the University of Kentucky and the greater Lexington Metropolitan Area.

## 2.4 Site Grading and Topography

Currently, the finished floor elevations (FFE) are as follows:

- Parking Structure: 966' (lower-level entry from Conn Terrace) and 977' (upper-level entry from South side of the site)
- Cancer Treatment Center: 973' 8"

The site has approximately 30 feet in elevation variance across the site, running from the South side of the site downward to the North side of the site.

## 3.0 Subsurface Findings and Encountered Conditions

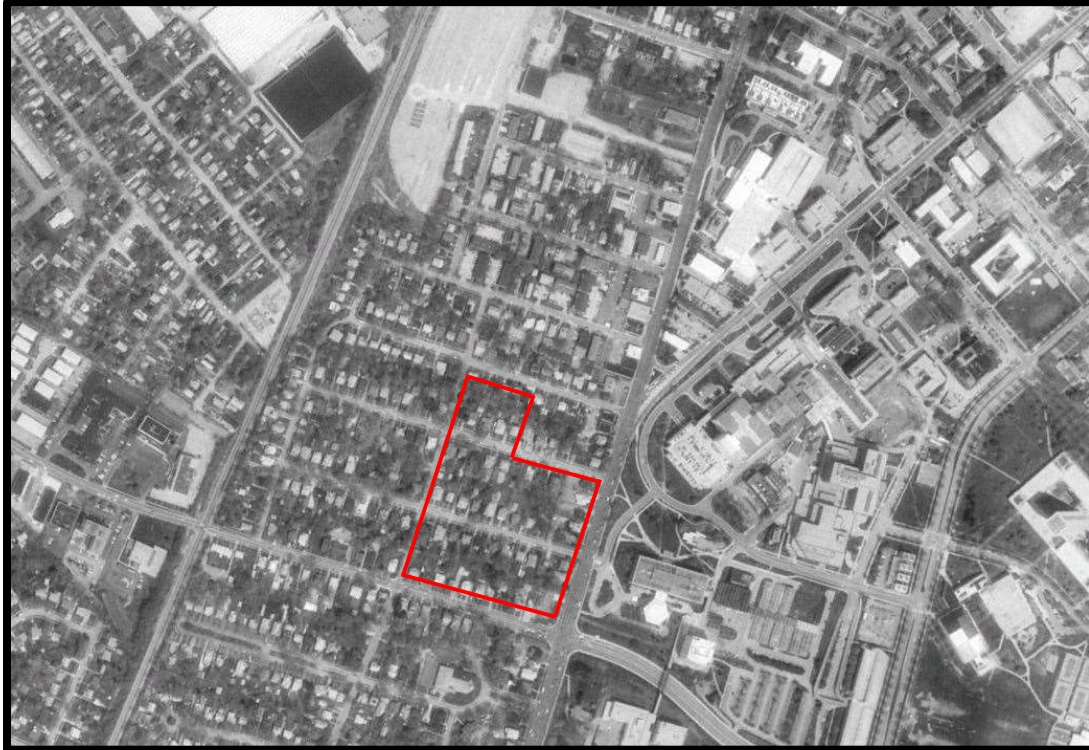
### 3.1 Review of Previous Site Development and Historical Information

Based on review of topographic maps provided by the United States Geological Survey (USGS) and historical imagery provided by Google Earth, it appears that the immediate site has remained largely unchanged in the past 25 years. The area served primarily as a residential neighborhood. Figure 2 shows the topographical area. Figures 3-5 show select historical views.



Figure 2: 2019 USGS Topographic Map of Lexington West Quadrangle



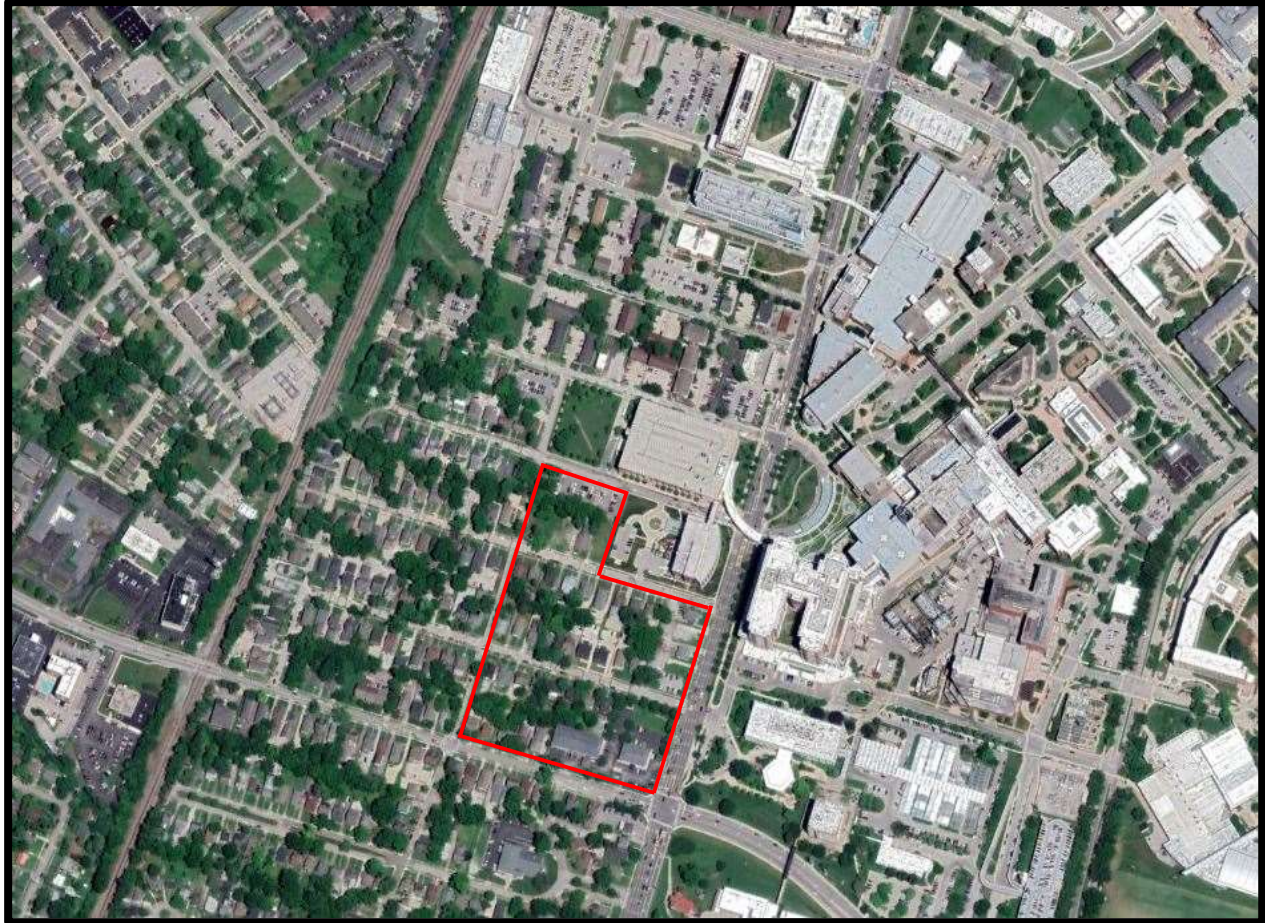


**Figure 3: 1993 Google Earth Imagery**



**Figure 4: 2006 Google Earth Imagery**



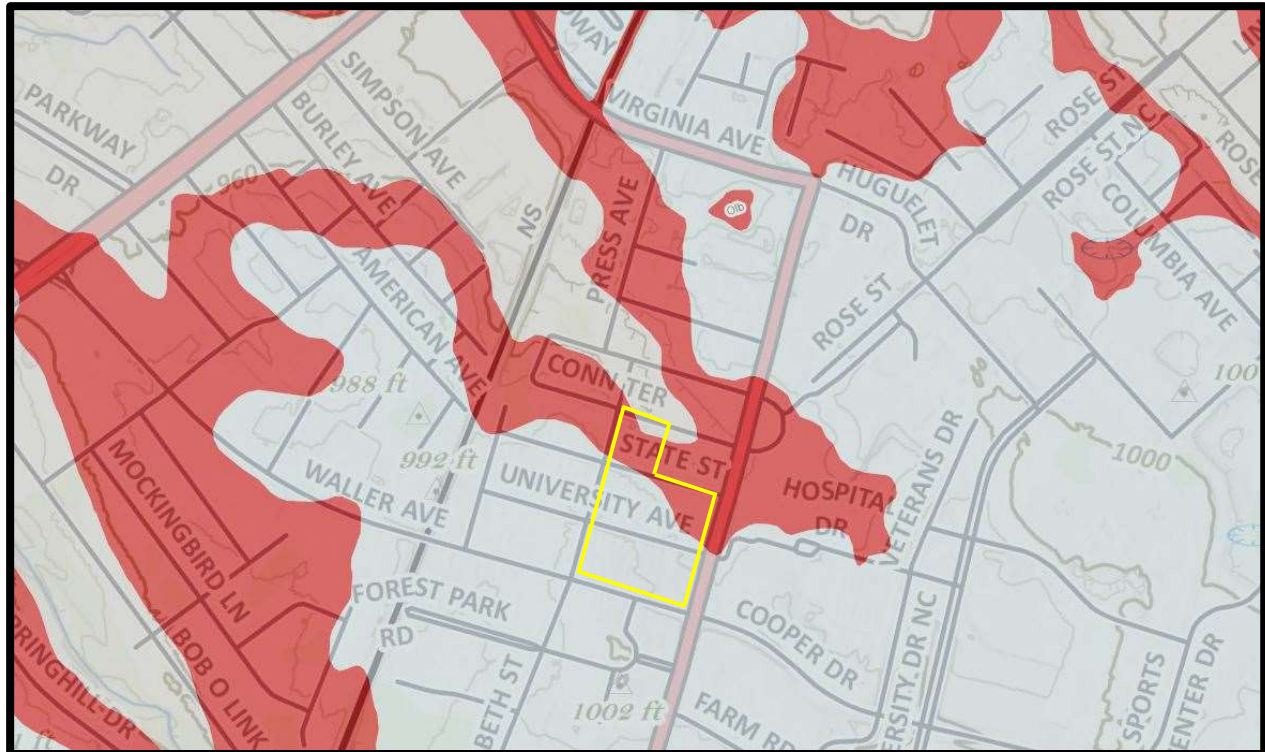


**Figure 5: 2021 Google Earth Imagery**

### **3.2 Published Geologic Information**

Geologic information was referenced from the Kentucky Geological Survey (KGS), geologic maps of the Lexington West Quadrangle, Fayette County, Kentucky. At the site there is a meeting of bedrock units underlying the site mapped as the Brannon Member and Lower part of Lexington Limestone. Locally, the limestone is described as microgranular and argillaceous, sometimes containing chert nodules interbedded with shale, Lower to Middle Ordovician in age. Figure 6 shows the geological map of the site (approximate site location indicated in yellow) along with details of the map legend.





**Ollr** Lower part of Lexington Limestone  
This geologic unit is a part of:  
**Informal Part of Lexington Limestone**  
(Lower Ordovician - Middle Ordovician)  
**USGS Unit Info:** [GEOLEX \(id: Lexington\\_2452\)](#)  
Mapped or described as these unit(s) on the original GQ:

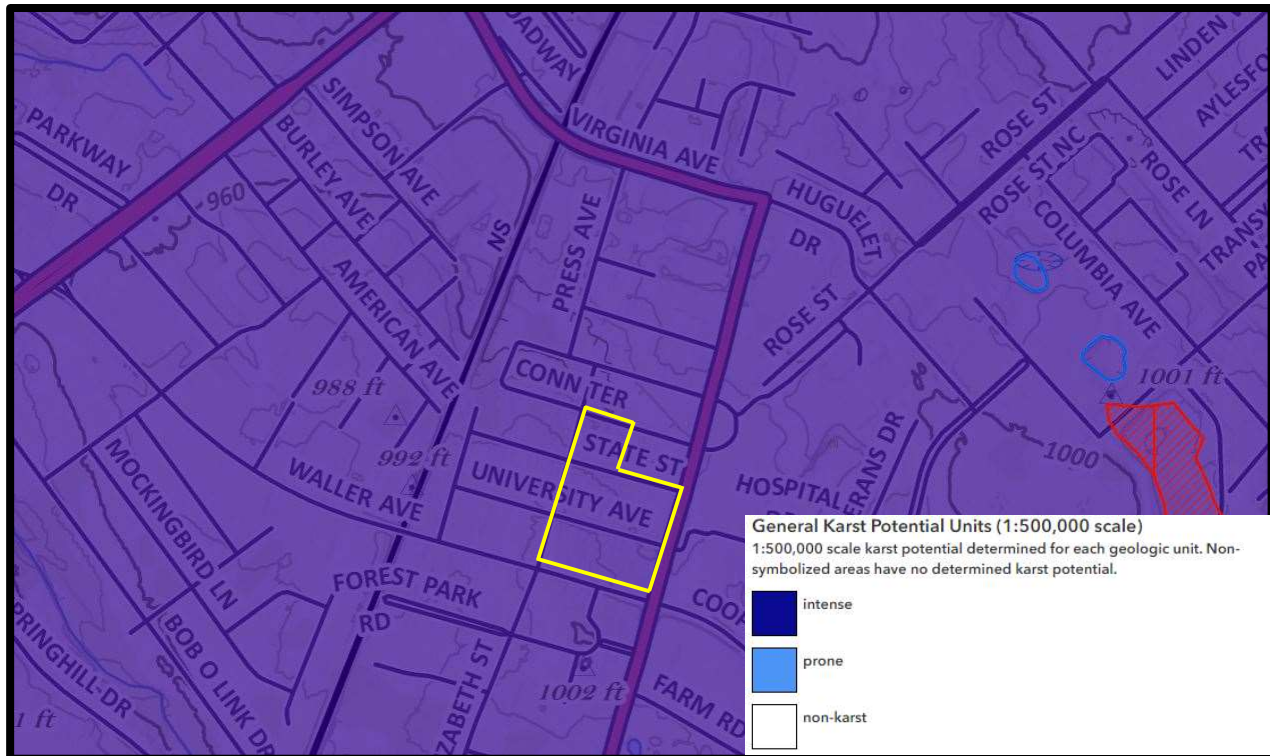
**CANE RUN BED**  
**USGS Unit Info:** not available  
**Primary Lithology:** Limestone  
**Description:** Limestone, light-gray to light-brownish-gray, microgranular, argillaceous; in part silty; dense limestone nodules and boulders in convolute beds, locally. Chert as nodules and thin beds in upper few feet diagnostic lithologic feature. Top of unit is chert marker bed. Unit interfingers with and grades into lower part of Tanglewood Limestone Member.

**Olb**  
**Brannon Member**  
This geologic unit is a part of:  
**Member of Upper part of Lexington Limestone**  
**Informal Part of Lexington Limestone**  
(Lower Ordovician - Middle Ordovician)  
**USGS Unit Info:** [GEOLEX \(id: Brannon\\_605\)](#)  
Mapped or described as these unit(s) on the original GQ:

**BRANNON MEMBER**  
**USGS Unit Info:** [GEOLEX \(id: Brannon\\_605\)](#)  
**Primary Lithology:** Limestone and shale  
**Description:** Limestone and shale: Limestone, light-gray to light-brownish-gray, microgranular, argillaceous; in part silty with thin beds of medium-dark-gray shale; interbeds of clastic limestone locally present; convolute bedding and flow rolls are common in thicker beds, as along New Circle Road at Frankfort Pike, and along railroad cut beneath Virginia Street overpass; chert occurs as thin beds and as nodules; thin beds of swelling bentonite locally occur near base; springs occur at top, but are more common near contact with underlying bioclastic and granular phosphatic limestones. Weathers to a yellowish clayey soil containing abundant porcelaneous chert and siltstone fragments. Unit thins and pinches out northeastward.

**Figure 6: KGS Geologic Mapping**

The KGS maps for karst potential and for closed depressions were reviewed. The KGS mapping indicates that the underlying rock units are of intense karst potential with mapped sinkholes near the project vicinity (Figure 7). If karst features are encountered during earthwork operations, Solid Ground should be contacted to provide recommendations for the repair.



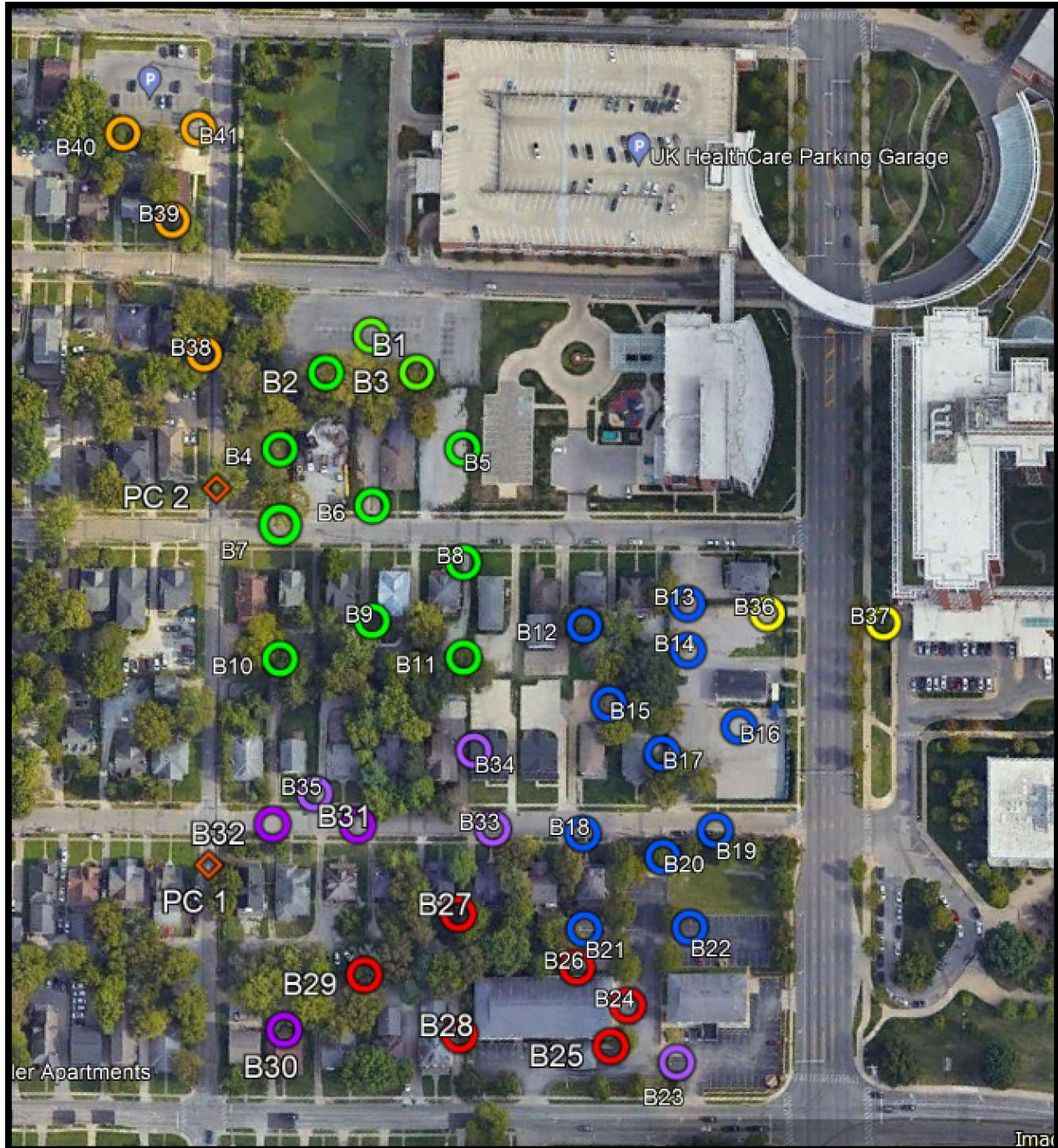
**Figure 7: KGS Karst Potential Mapping**

### 3.3 Subsurface Exploration Program

Solid Ground conducted a total of forty-one (41) soil test borings at the site, located at various points of interest around the property. Selected borings had rock coring performed at auger refusal into bedrock. Borings were located as close to the pre-selected foundation elements as site topography and underground utility conditions allowed.

Boring surface elevations were measured in the field by Solid Ground using Carlson GPS Equipment. Therefore, the boring locations and surface elevations should be considered approximate. It should be noted that the subsurface conditions will vary between borings and the representative profile is based upon the borings drilled during the field operations. Boring locations are shown in Figure below.





**Figure 8: Approximate Boring Locations**

### 3.4 Subsurface Conditions

The soil samples were visually classified by Solid Ground personnel according to the Unified Soil Classification System (USCS, ASTM D2487). A description of each soil layer is as follows:

**Surficial Materials** – The borings encountered a surficial layer of topsoil (3 to 7 inches). The thicknesses of these materials may vary across the site. The thicknesses presented in this report should be considered approximate. Additionally, several borings were performed within existing city streets and consisted of generally 6 inches of asphalt and 12 inches of underlying crushed stone.

**Fill Material** - Three of the borings encountered undocumented fill underlying the surficial materials layer described as lean clay (CL) and fat clay (CH) to depths of up to 8.0 feet below existing elevations. The SPT N-values ranged from 3 to 13 blows per foot, with consistencies of soft to stiff.

**Natural Soils** – The borings encountered natural soils either from below the surficial layer or below the undocumented fill material to auger refusal depths. The natural soils are described as Lean Clay and Fat Clay. The Standard Penetration Test (SPT) N-values ranged from 0 to 50 blows per foot before encountering refusal with consistencies of very soft to hard.

**Auger Refusal** – The borings encountered auger refusal at depths ranging from 6.1 to 26.5 feet. Auger refusal is defined as rock-like refusal to auger advancement. Coring was performed once auger refusal was encountered at select borings.

**Bedrock** – Select borings had rock coring performed at auger refusal (see Table 1 – Summary of Borings). Slightly to moderately weathered limestone, sometimes interbedded with shale and dolomite seams were encountered. The bedrock samples had recoveries of 45% to 100% and rock quality designations of 25% to 97%, indicating poor to excellent rock quality.

Detailed descriptions and strength characteristics are included on the rock core logs in Appendix A.

**Groundwater** – Groundwater was encountered in boring B-27 at 9.5', but not in any other boring. Free groundwater levels fluctuate with seasonal weather conditions and may vary. Therefore, the borings may not be representative of the actual free water levels. To achieve an accurate measurement of free groundwater levels, water wells or piezometers should be installed.

The borings may not be representative of the actual free water levels, especially considering the area's recent demolition efforts. To achieve an accurate measurement of free groundwater levels, water wells or piezometers should be installed.

Solid Ground should be contacted if groundwater is encountered during earthwork operations and/or construction operations. Please note, the groundwater table can fluctuate significantly which could have an impact on the subsurface soils. Table 1 summarizes our findings.

**Table 1 - Summary of Borings**

Boring Number	Approximate Surface Elevation (ft)*	Auger Refusal Depth (ft) *	Auger Refusal Elevation (ft) *	Total Coring Length (ft)
B-1	967.91	10.5	957.41	--
B-2	972.05	15	957.05	21
B-3	968.31	15.6	952.71	17
B-4	977.3	12.5	964.8	--
B-5	973.96	13	960.96	--
B-6	975.81	11	964.81	19
B-7	978.1	13.6	964.5	--
B-8	977.53	12	965.53	18.5
B-9	982.16	16	966.16	--
B-10	987.83	20.4	967.43	20
B-11	982.52	17	965.52	19.5
B-12	974.56	9.8	964.76	20
B-13	973.67	8.2	965.47	--
B-14	975.12	9.4	966.72	--
B-15	977.12	11.4	965.72	--
B-16	978.02	9.7	968.32	20
B-17	977.8	11.3	966.5	19.5
B-18	981.56	12.7	968.86	20
B-19	978.61	12.4	966.21	20
B-20	982.24	12.5	969.74	20
B-21	986.36	13	973.36	20
B-22	983.49	11.7	971.79	--
B-23	986.2	12	974.2	--
B-24	986.33	12.1	974.23	--
B-25	989.5	15.1	974.4	--
B-26	990.05	13.7	976.35	--



<b>B-27</b>	992.55	11.2	981.35	--
<b>B-28</b>	992.74	11.1	981.64	--
<b>B-29</b>	996.63	5	991.63	20
<b>B-30</b>	998.56	10.3	988.26	--
<b>B-31</b>	986.87	12.5	974.37	--
<b>B-32</b>	989.36	6.9	982.46	--
<b>B-33</b>	984.3	17.5	966.8	--
<b>B-34</b>	984.01	17.8	966.21	--
<b>B-35</b>	988.49	6.1	982.39	--
<b>B-36</b>	975.08	8.6	966.48	22.2
<b>B-37</b>	974.55	11.6	962.95	19
<b>B-38</b>	967.67	17	950.67	--
<b>B-39</b>	970.11	14.5	955.61	--
<b>B-40</b>	963.34	10.9	952.44	--
<b>B-41</b>	960.92	9.4	951.52	--

#### **4.0 Geotechnical Concerns and Construction Considerations**

Based on the results of the subsurface exploration and experience with similar projects, we believe the project site is generally suitable for the proposed development. However, some concerns exist with the subsurface conditions as discussed below.

##### **4.1 Topsoil**

Based on the information gathered from the soil borings, the site has a surficial layer of topsoil. These thicknesses varied and are representative of conditions encountered at the boring locations only, thickness and aerial extent of the strata may vary across the site. Construction plans should adequately address stripping and the disposal of these materials prior to earthwork operations.

##### **4.2 Construction in Cut/Fill Areas**

Cut areas have the potential to be overcut, disturbing the in-situ soils to depths below proposed finished grade. Areas to receive fill are stripped of topsoil and are also sometimes disturbed to depths deeper than intended. Both cut and fill areas should be proof rolled prior to construction. Soft, loose, or wet areas should be identified and remediated in accordance with the recommendations provided in the “5.1 Earthwork” section of this report.

### 4.3 Underground Utilities

The location of all existing underground utilities within the proposed development area is unknown. Construction plans should include provisions for complete removal of unnecessary utility lines encountered during the site grading. Abandoning utilities in place can be allowed on a case-by-case basis.

### 4.4 Construction During Wet Conditions

Based on our conversations it is understood the construction of the proposed development could occur during wet conditions. Based on experience with construction during wet conditions, subgrade remediation is often required. Delays of earthwork/foundation operations due to wet conditions should be anticipated.

If construction should continue despite wet conditions to meet scheduling needs remediation may be required. It is recommended that Solid Ground be used to observe construction and conduct special inspections to expedite the remediation recommendations, if necessary.

### 4.5 Site and Foundation Drainage

Surface and ground water should be controlled during and after construction operations. It is recommended that foundation concrete, or a concrete bearing medium, be placed the same day that foundation excavation is performed.

The final grade should be sloped away from the structure and pavements by a minimum of two percent to promote positive drainage. Roof drains and foundation drains should be installed and should discharge surface runoff away from the structure to provide positive site drainage. Drainage should be designed and constructed without impacting neighboring properties. Drainage design is outside our scope of work.

**It is imperative that dewatering be maintained during construction and after development. If positive dewatering methods are not continually applied and maintained, there is potential of decreasing the service life of the structure.**

We understand there is a possibility to utilize underground detention storage. The design and implementation of this underground detention should refer to sections 4.8 and especially 4.9 of this report. Any seepage of the underground detention through the soils



could cause potential sinkhole development and other negative impacts associated with Karst. Design of slabs and structural elements over the underground detention should be conducted with care to the reduced structural bearing over the underground detention. Design of underground detention is not included in this report; however, Solid Ground should review all plans and specifications regarding underground detention for conformance with geotechnical recommendations.

#### **4.6 Soil Compaction Equipment**

The soil compaction equipment should be selected by the type of fill anticipated for the site. We anticipate utilizing a sheepsfoot roller at this site for the on-site materials and a smooth drum roller for dense graded aggregate fill.

#### **4.7 Soil Plasticity**

Some of the subsurface soils were field classified as lean clay, fat clay, and elastic silt. These soils can have high plasticity characteristics and be subject to volume changes with fluctuations in moisture content. The near surface on-site material is not considered highly plastic. Care should still be taken to mitigate subgrade degradation and reduce subgrade remediation. Therefore, we recommend minimal mitigation efforts consisting of the following:

- ▲ Improved site drainage to minimize exposure of these soils to moisture fluctuations, especially near building foundations and slab on grade.
- ▲ Minimize exposure of these soils to excessive wetting or drying.

#### **4.8 Shallow Rock Excavation**

We anticipate rock excavation to occur within the foundation, slab-on-grade, and underground utilities for the parking garage and utility tunnel and the underground utilities for the Cancer Treatment Center. Construction plans should address the method of rock removal and the amount (if any) of rock to be hauled off the site or utilized as fill. In addition, construction plans should adequately address underground utilities as recommended in this report. We do anticipate a much slower process of pneumatic hammer in this geology that should be accounted for by the contractor.

#### **4.9 Development within a Karst Region**

Solution activity in areas underlain by limestone generally results from a slow process of dissolving the underlying rock units by surface runoff or rainwater. Sinkholes at the ground surface are caused from either a general raveling failure within the soil unit or by rock collapse. Either phenomenon typically result in depressions at the ground surface, which, if large enough, can be identified on topographic maps. In addition to the natural causes of sinkhole development previously discussed, sinkholes may form as a result from water leaking from subsurface piping and drainage systems such as buried water and sewer pipes, septic lateral fields, and roof drains beneath the building and floor slabs.

As previously stated, the Kentucky Geological Survey rates the site with an intense potential for karst development. It is not possible to remove all risk associated with construction over known sinkholes or in karst areas. Our experience indicates that the limestone formations mapped underlying the site pose a high risk for solution activity and sinkhole formation. The natural rising and lowering of the ground water table and surface water migration downward through the subsurface soils can create the risk of continued soil migration into solution voids in the underlying limestone.

There is potential for sinkholes to be encountered during construction, especially in the drilled shafts and cut areas. Solid Ground should be contacted if a solution feature or other karst feature is encountered during construction. Repair methods of sinkholes and other karst features exist. When sinkholes are encountered, the common practice is to excavate the soil from within the solution feature down to hard bedrock. The two most common methods of remediation are a concrete plug or an inverted filter.

We believe the risk with this development is no greater than for similar developments in the area. To further reduce the risk of unidentified sinkholes at the site would require the implementation of more sophisticated and expensive geotechnical exploration methods including borings or test pits on a tightly spaced grid or geophysical methods.

#### **4.10 Vibration of Construction Equipment**

It is recommended that the vibration impact from the construction be considered and addressed. It is highly recommended to contract a third party to perform pre and post construction observations and monitoring of nearby and adjacent structures. Solid Ground can perform this service.

#### **4.11 Stable Excavation Bottoms and Drainage**

Dewatering may be required during mass excavation and throughout the construction process. It is recommended that the excavation bottoms consist of competent limestone bedrock. If excavation bottoms become saturated or have standing water, the water should be removed either through pumping or dewatering trenches.

#### **4.12 Temporary Shoring of Excavation**

Due to the existing infrastructure located on all sides of the site and the anticipated FFEs, temporary shoring may be required. Construction plans should adequately address this potential. It is strongly recommended that the structural engineer and specialty structural engineer of record or contractor take into consideration and provide a design that accommodates this concern.

The earthwork contractors should be cautioned that vertical and near vertical cuts in granular materials and limestone with dolomite and shale seams, may be prone to raveling and potentially more significant caving failure. The contractor should take appropriate precautions to shore the proposed mass excavation.

Shoring and bracing should be provided in accordance with all applicable local, state, and federal safety regulations, including the current OSHA excavation and trench safety standards. The design and construction of any temporary or permanent shoring or dewatering is the responsibility of the contractor and is beyond the scope of this exploration. Due to the weathered bedrock, it may be recommended to design permanent shoring as soil located behind the walls with potential of active groundwater. Please refer to Section 5.6 for additional dewatering discussion. The constructions plans should address the potential of undermining the existing roadways and hardscapes.

All slopes should be laid back and benched per OSHA 1926 Subpart P requirements. Solid Ground can provide a competent person to evaluate temporary and permanent slopes in the field.

#### **4.13 Design Progress and Discussion**

It is recommended to contract Solid Ground as the Geotechnical Engineer of Record to continue to provide services during the design phase and construction phase. We do anticipate anomalies, such as Karst, groundwater, and clay seams to be encountered during construction.

#### **4.14 Mass Rock Excavation**

Excavation of the limestone bedrock in confined areas will require ripping tools and pneumatic hammers. The speed and ease of excavation will depend on the type of equipment, the skill of the equipment operators and the geologic structure of the material itself, such as the direction of bedding, planes of weakness, and spacing between discontinuities. We do anticipate a much slower process of pneumatic hammer in this geology that should be accounted for by the contractor.

#### **4.15 Corrosion**

Based on past experience corrosion is a concern for parking structures due to chemicals used during roadway treatments during winter. Corrosion should be taken into consideration during design.

The on-site soils are not known to contain water soluble sulfate in concentrations that should react with the structural concrete.

#### **4.16 Groundwater**

Groundwater was only encountered in one boring (B-27) during drilling. However, our field exploration was performed during a dry period of weather. There is a possibility that groundwater may be an issue during construction.

Please note, a detailed groundwater study and analysis is beyond the scope of our work. If an underground detention system is planned, it should account for the existing groundwater and the future stormwater due to the increased impervious surface.

#### **4.17 Undocumented Fill**

The borings encountered two (2) areas of undocumented fill to depths of approximately 6.0 feet. Undocumented fill is frequently heterogeneous in composition and consistency and can contain pockets of soft, loose, organic, or otherwise deleterious materials. Structures sited on such materials are at risk of damages due to differential settlement under typical loading conditions. It should be noted that the encountered fill could extend to greater depths than encountered in our limited geotechnical study.

*If the structure is founded on footings bearing within the uncontrolled fill material, there is a risk that foundation and/or slab settlement may occur. This could potentially cause differential settlement of the footings or cracking in the floor slab of the building.*

#### **4.18 Underground Storage Tanks**

We understand that there are several underground storage tanks proposed for this project. One is a fuel tank for the facilities generators and the remainder are a series of tanks acting as a reservoir for irrigation. The foundations and retaining walls for these tanks should have foundation/wall drains on the exterior and interior drains that pipe water to the projects storm water system. The floor drains from the fuel tank holding area should be designed to limit potential environmental impacts from fuel.

### **5.0 Recommendations**

The following recommendations are based on information gathered and subsurface conditions encountered during this limited exploration. Solid Ground developed these recommendations under the assumption that our sampling performed on the site accurately portrays conditions that are not immediately visible due to earth, rock, water, or time. Solid Ground cannot be held liable for fill placed or performance of the subgrade without observations to confirm that conditions in the field are consistent with inferences from the samples we obtained.

It is recommended to retain Solid Ground to perform construction materials testing and special inspections for the duration of construction to both maintain speed of construction and overall project costs. If earthwork construction begins during wet weather conditions there is likelihood that the schedule will include prolonged and extensive remediation, or a more robust geotechnical recommendation.

#### **5.1 Earthwork**

##### **5.1.1 Site Preparation**

- ▲ Topsoil and other surficial materials should be stripped to prepare the site for construction.
  - In-place density testing should be performed to check that the previously recommended compaction criteria have been achieved.

- Fill placement should be monitored on a full-time basis by Solid Ground during site grading.
- Fill placement should extend to a minimum of 10 feet beyond the building footprint.
- ▲ After stripping and cutting operations, the subgrade should be evaluated by Solid Ground. Possible remediation methods may be required if the subgrade and site soils are exposed to wet weather conditions.
- ▲ The building pad may require stabilization prior to new fill placement or for slab-on-grade-construction. Solid Ground should be consulted to assist in selecting the method most appropriate for site conditions. These methods may consist of any or combination of the following:
  - Tensar geogrid reinforcement.
  - “Walking” No. 2 stone into the soft subgrade.
  - Application of consolidated No. 57 stone.

### **5.1.2 Structural Fill Placement**

Final grades were not established at the time of this report; however, we anticipate fill placement to be moderate. Backfill materials for structural fill placement may consist of soil or durable crushed stone. The following steps are recommended for fill placement within the building pad. **The onsite soils are expected to meet the requirements for structural fill.**

Structural fill material, if required, is defined as the following:

- ▲ Inorganic natural soil with maximum particle sizes of 3 inches.
- ▲ Plasticity Index of no greater than 30 percent.
- ▲ Solid Ground should observe the material to confirm the soils meet applicable standards for structural fill.
- ▲ Other sources of structural fill should be verified by Solid Ground.
  - If other sources of structural fill are anticipated, Solid Ground should collect a bulk sample for Standard Proctor testing.

The following are recommendations for placement of soil structural fill:

- ▲ Structural fill should be placed in no greater than 8-inch-thick layers.
- ▲ Structural fill should be compacted to at least 98 percent of the soil’s maximum dry density as determined by the Standard Proctor Compaction test (ASTM D698).

- ▲ The moisture content of the fill material should be maintained within 2 percent (above or below) of its Standard Proctor optimum moisture content depending on the results of the Proctor tests.
- ▲ In-place density testing should be performed to check that the previously recommended compaction criteria have been achieved.
- ▲ Fill placement should be monitored on a full-time basis by Solid Ground during site grading.
- ▲ Fill placement should extend to a minimum of 10 feet beyond the building footprint on a 1:1 (H:V) slope.
- ▲ Trench or confined backfill should be placed in no greater than 6-inch-thick layers due to smaller compaction equipment.

Solid Ground should be contacted if any unexpected subsurface conditions are encountered during earthwork construction. It is important that Solid Ground observe earthwork construction.

## 5.2 Foundations

### 5.2.1 Foundation Recommendations - Drilled Shafts

Due to the heavy anticipated loads (1,000 kips or greater) and the weathered bedrock, we recommend utilizing a deep foundation system for the parking structure and Cancer Treatment Center, such as drilled shafts (caissons), to bear upon competent bedrock. The deep foundation system can be designed for the anticipated heavy loads and seismic lateral loads and can utilize friction and end bearing on bedrock material. Conventional shallow foundations and/or shallower drilled shafts bearing on weathered bedrock may be considered for areas that aren't as heavily loaded. It should be noted that we recommend neglecting the soil overburden above bedrock from frictional capacity.

Our foundation bearing and friction recommendation is based on the following:

- ▲ The compressive strength of the bedrock at selected samples and depths
  - Compressive Strength Results ranged from 10,531 psi to 19,999 psi with the majority over 12,500 psi.
- ▲ Rock Mass Rating System
  - Quantified as Fair and Poor-Quality Rock Mass
  - "M" Constant of 0.128 and 0.029



- “S” Constant of 0.00009 and 0.00003
  - ▲ FHWA friction capacities
  - ▲ Subsurface conditions encountered consisting of slightly weathered limestone bedrock with some clay seams and interbedded dolomite and shale
  - ▲ Anticipated loading information
  - ▲ Information gathered during this exploration and the proposed development

### ***Competent Bedrock Bearing Recommendations***

We recommend using a maximum net allowable **competent bedrock** bearing pressure of 85,000 PSF (pounds per square foot) for foundations utilizing drilled shafts. Competent bedrock can be used for end bearing, provided the appropriate net allowable bearing capacity. We highly recommend that each drilled shaft have specific air test holes or coring performed to better determine bedrock capacity elevations for each shaft. Each drilled shaft should have a minimum rock socket depth of 1D (D being the Diameter of the Drilled Shaft). We recommend that a 10-foot test hole or rock core be observed at each shaft once bottom of shaft elevation is achieved.

This allowable bearing pressure assumes that the bearing material for each drilled shaft will be observed and approved by the geotechnical engineer of record. A net allowable skin friction of 3,000 PSF is available for rock socket capacity considerations. **However, the end-bearing should be at least 65 percent of the total design capacity.** Total and differential settlements of foundations bearing on continuous limestone, using the recommended bearing pressure, should be about ½ inch or less. Once the design is finalized, we recommend allowing us to review the plans and specifications.



**Table 2 – Generalized Design Parameters for Competent Bedrock**

<b>Bedrock Description</b>	<b>Net Allowable Skin Friction, PSF</b>	<b>Net Allowable Uplift Skin Friction, PSF</b>	<b>Net Allowable Bearing Capacity, PSF</b>	<b>Lateral Bearing Capacity, PSF/ft</b>	<b>Minimum Rock Socket Length (ft)</b>
Gray Limestone with Dolomite seams and Shale partings	3,000	1,500	85,000	600	3

***General Construction Considerations***

Given that drilled shafts are anticipated to bear upon limestone bedrock, the drilled shafts should be placed the same day that they are open or no later than 12 hours after opening. Shafts remaining open longer than 12 hours may be required to be over-excavated 1 additional vertical foot deeper into the bedrock due to the weathered limestone encountered. If the rock socket of the shafts appears to be degraded within the first 12 hours after opening, an additional 1 vertical feet of over-excavation will be required. It is imperative to excavate and place concrete the same day to ensure the bearing is protected from wet weather that could potentially cause degradation of the limestone.

***Construction Considerations (Dry Method)***

- ▲ Clean the foundation bearing area so it is nearly level or suitably benched and is free of ponded water or loose material.
- ▲ Provide a minimum drilled shaft diameter of 30 inches for cleaning, bottom preparation, and inspection. If the drilled shaft is less than 36 inches an air test hole can be performed either with an air track rig or by coring to observe the end bearing conditions at each drilled shaft.
- ▲ Make provisions for ground water removal from the drilled shaft excavation. Ground water conditions at this site will require the use of special procedures to achieve a satisfactory foundation installation.

- If water is flowing into the drilled shaft at less than 20 gallons per minute, pumps may be used to maintain less than 2 inches of water in the drilled shaft during cleaning and inspection. After approval of the bearing surface, the pumps should be pulled, and concreting commenced immediately.
- If more than 20 gallons per minute are flowing into the drilled hole, the water level should be allowed to stabilize before attempting to place the concrete. For this condition, concrete placement should be accomplished using a tremie pipe or concrete pumping equipment.
- ▲ Specify concrete slumps ranging from 4 to 7 inches for the drilled shaft construction.
- ▲ Retain Solid Ground to observe foundation excavations after the bottom of the hole is leveled, cleaned of any mud, and dewatered.
- ▲ Install a temporary protective steel casing to prevent side wall collapse, prevent excessive mud and water intrusion, and to allow workers to safely clean and inspect the drilled shaft.
- ▲ Clean the socket "face" prior to concrete placements. Cleaning will require washing if a mud smear forms on the face of the rock. Solid Ground should approve the rock socket surface prior to concrete placement.
- ▲ The protective steel casing may be extracted as the concrete is placed provided a sufficient head of concrete is maintained inside the steel casing to prevent soil or water intrusion into the newly placed concrete.
- ▲ Direct the concrete placement into the drilled hole through a centering chute to reduce side flow or segregation.
- ▲ Solid Ground recommends a 30 percent concrete overage allowance for seams and cracks in surrounding bedrock.

### **Construction Considerations (Slurry Method)**

- ▲ Provide a temporary steel casing to prevent side wall collapse, above the ground water level.
- ▲ Prior to drilling, install the temporary steel casing to a minimum depth of 10 feet below the expected ground water level using driving techniques.

- ▲ Use a bentonite slurry suspension to support the uncased portion of the drilled shaft.
- ▲ Circulate or agitate the bentonite slurry to prevent silt- and sand-sized particles from settling of the suspension prior to concreting.
- ▲ Pump or tremie the concrete to the bottom of the driller shaft. If a tremie is used, place a plug in the tremie pipe to reduce exposure of the concrete to water.
- ▲ Use a concrete mix with a design slump of 5 to 7 inches for drilled shaft concrete.
- ▲ Extract the temporary steel casing as the concrete is placed. Maintain a positive head of concrete above the casing bottom as the casing is extracted.
- ▲ The protective steel casing may be extracted as the concrete is placed provided a sufficient head of concrete is maintained inside the steel casing to prevent soil or water intrusion into the newly placed concrete.
- ▲ Overfill the drilled shaft with concrete to aid in wasting drilled shaft concrete contaminated by exposure to the slurry solution and suspended sediment. We recommend that project planning include a minimum of 15 percent concrete waste. The actual quantity of contaminated concrete removed from the drilled shaft should be governed by site observations of the geotechnical engineer monitoring the drilled shaft installation.
- ▲ Solid Ground recommends a 30 percent concrete overage allowance for seams and cracks in surrounding bedrock.

### **Rock Excavation**

Our borings encountered varying depth to refusal and weathered rock conditions. Our experience with the underlying bedrock formation indicates the rock will be slightly to moderately weathered. Typically, an average depth of rock removal of ½ to 2 shaft diameters should be anticipated to provide a level bottom and rock suitable to achieve the allowable bearing pressure provided our elevations for end bearing are met. In some cases, depth of rock removal may extend to 4 to 5 shaft diameters due to poor quality rock near the bedrock surface.

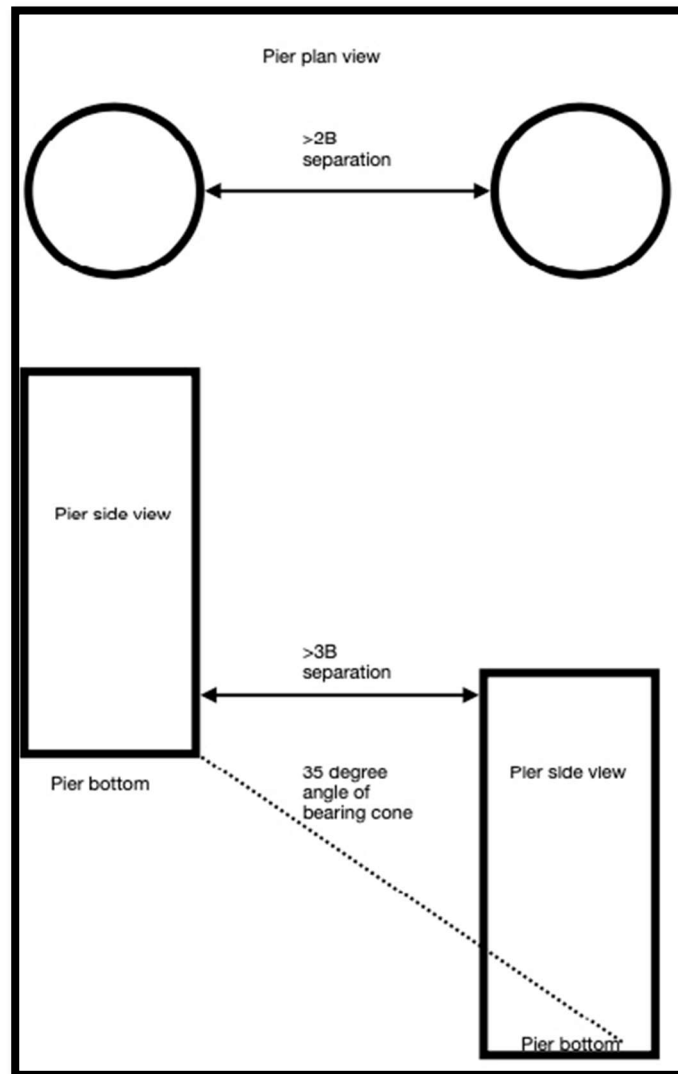
Our experience indicates general drilled shaft construction and delineation of "rock" in the excavation is greatly facilitated if suitable drilling equipment is used. We recommend the use of a drill capable of producing at least 500,000-inch-pounds of torque and 35,000 pounds of

downward force. Additionally, we recommend that rock be defined as material which cannot be penetrated by a heavy-duty earth auger with hardened teeth at a rate in excess of 3 inches per minute. For mass rock removal, the rock cores sampled encountered seams of dolomite, shale, and clay. **We anticipate dampen hoe-ramming efforts and slow down hoe-ramming production. This should be accounted for by the contractor during rock removal.**

**Spacing Requirements**

Due to the Karst geological setting and fractured bedrock encountered, we recommend a minimum center-to-center pile spacing of 2D pile diameters. This restriction is necessary to limit surface heave, to enhance the bearing efficiency of the individual piles, and to reduce the possibility of damaging previously installed piles. In addition, we recommend no shaft bottoms can intersect a cone of rupture (35-45 degrees from bottom for fractured limestone) of another shaft bottom within 3B. Please refer to the following Diagram.

**Diagram 1**



### **Quality Control Requirements**

Each drilled shaft should be excavated to appropriate bearing medium as outlined in this section and be inspected by Solid Ground. We recommend that all drilled shaft locations to be pre-drilled using air test or coring methods to remove the need for costly and time-consuming down hole inspections. **We do not recommend downhole inspections.** Solid Ground personnel performing inspections can determine in the field if the shaft is on appropriate bearing material or if the shaft needs to be excavated deeper. As previously stated, we recommend either rock coring or a 1½-inch-diameter, 10 feet long probe holes into the exposed limestone rock at column locations. These probe holes are usually drilled with a pneumatic percussion drill. The geotechnical engineer will evaluate the condition of the bearing material.

We recommend that the drilled shaft construction be observed by Solid Ground. The observation should address the following items:

- ▲ Correct plan dimensions
- ▲ Plumbness within tolerances
- ▲ Materials excavated agree with borings
- ▲ Statement of bottom cleanliness
- ▲ Construction procedure

### **Discussion with Design Team for Drilled Shafts**

Due to the complexity and heavy loads anticipated for this structure we recommend that the structural engineer provide a detailed foundation loading condition per shaft and re-evaluate recommendations per loading per shaft prior to issuing final plans for submittal. There is a possibility that the re-evaluation could have cost savings to the owner.

### **L-Pile Parameters for Drilled Shafts**

We recommend that an L-Pile analysis be performed to assist the structural engineer in designing the drilled shafts. We offer the following soil and rock parameters for use in this analysis in Table 3.

**Table 3 – L-Pile Analysis Parameters**

<b>Material</b>	<b>Effective Unit Weight, PCF</b>	<b>Soil Cohesion, PSF</b>	<b>Uniaxial Compressive Strength, PSI</b>
Lean Clay (CL)	110	700	N/A
Silt (ML)	100	500	N/A
Vuggy Limestone	160	N/A	10,000

### **5.2.2 Foundation Recommendations - Shallow Footings bearing on Bedrock**

We understand that due to the relatively shallow bedrock depths and the basements that the structure will utilize, there are potential cost and schedule savings to be had by placing shallow foundations directly on bedrock. The concern with placing foundations directly on top of the weathered bedrock is the available bearing capacity of the bedrock is not a monolith. We are providing two allowable bearing capacities for shallow foundations bearing directly on bedrock. **A 15,000 PSF maximum net allowable bearing pressure can be utilized throughout the project on the weathered bedrock surface. An 85,000 PSF maximum net allowable bearing pressure can be utilized on competent bedrock that has been approved by the Geotechnical Engineer of Record and has 10-foot test holes performed at a rate of 1 per 50 square feet of foundational area.**

A detailed settlement analysis was beyond the scope of this report. Based on the assumed structural loads, the available site grading information, the recommended bearing pressure, knowledge of the site's development, and empirical correlation for the subsurface conditions encountered beneath the proposed structure, we estimate the total and differential settlements of the foundation to be about ½ inch or less.

Once the design is finalized, we recommend allowing Solid Ground the opportunity to review the plans and specifications.

### **Construction Considerations**

The following construction considerations are recommended:

- ▲ Continuous footings should be at least 24 inches wide and 12 inches thick.
- ▲ **All exterior footing bottoms should be at least 24 inches below the lowest adjacent exterior grade** for protection against frost penetration.
- ▲ The foundation bearing area should be cleaned so it is nearly level and is free of ponded water and loose material.
- ▲ Dewatering methods will be necessary if the foundation excavation takes place during wet weather.
- ▲ Solid Ground should be on site while the foundation construction is performed.

#### **5.2.3 Foundation Recommendations - Shallow Wall Footings (Isolated from Structure)**

The in-situ soils are appropriate for support of the lightly loaded wall foundations. The foundation bearing elevation may need to be extended to up to 5 feet below finished grade for sufficient bearing strength and to penetrate the low consistency material and bear upon stiff or better soils.

It is recommended that foundations bear on stiff or better natural soils or engineered fill. **We recommend the use of a maximum net allowable bearing pressure of 1,500 PSF (pounds per square foot) for foundations bearing on these materials.**

A detailed settlement analysis was beyond the scope of this report. Based on the assumed structural loads, the available site grading information, the recommended bearing pressure, knowledge of the site's development, and empirical correlation for the subsurface conditions encountered beneath the proposed structure, we estimate the total settlements of the foundation to be about one inch or less. Differential settlements are estimated to be about ½ inch or less.

Once the design is finalized, we recommend allowing Solid Ground the opportunity to review the plans and specifications.



### **Construction Considerations**

The following construction considerations are recommended:

- ▲ **Foundations utilizing soils as bearing should be isolated from the structure to decrease settlement issues.**
- ▲ **All foundations should bear on suitable natural soils or a bearing medium such as lean concrete or graded stone (suitable bearing medium).**
- ▲ **Some cave is anticipated during the foundation excavations. Construction plans should adequately plan for the additional haul off, as well as the additional quantity of concrete. It is recommended to place concrete soon after excavations are completed to limit the cave in potential. If a cave in does occur, the material should be removed prior to placement of lean concrete. Solid Ground should observe this remediation.**
- ▲ Perform Dynamic Cone Penetrometer (DCP) testing every 20 feet in isolated continuous footing locations to confirm recommendations for bearing capacity. It should be anticipated that some of the footing bearing depths may need to be deepened up to 5 feet below finished grade.
- ▲ Continuous footings should be at least 24 inches wide and 12 inches thick.
- ▲ **All exterior footing bottoms should be at least 24 inches below the lowest adjacent exterior grade** for protection against frost penetration.
- ▲ The foundation bearing area should be cleaned so it is nearly level and is free of ponded water and loose material.
- ▲ Dewatering methods will be necessary if the foundation excavation takes place during wet weather.
- ▲ Solid Ground should be on site while the foundation construction is performed.

### **5.3 Slab-on-Grade**

We assume that there will be two slab-on-grade loading conditions within the Cancer Treatment Center. Some slabs will be utilized for moderate loads of 250 pounds per square foot maximum and others will be utilized for heavy loads of 500 pounds per square foot maximum. The parking garage slabs-on-grade will consist of concrete paving and is discussed in the pavements section of this report. If this assumption is incorrect, Solid Ground should be contacted to modify recommendations.

- ▲ If the site soils are exposed to wet weather conditions or continuous construction traffic, the soils have potential to degrade and will lose their strength. This could require a more robust subgrade improvement design.
- ▲ Subgrade remediation is anticipated and will likely be required due to construction means and methods.
- ▲ It is imperative that dewatering be continuous and construction traffic be controlled to limit damage to the subgrade.
- ▲ The means and methods of construction that will be performed by others will heavily dictate the suitability and sustainability of the site conditions and building service life during and after construction.
- ▲ The bearing soils for the slabs-on-grade are plastic in nature and can heave if allowed to become inundated with moisture. Perimeter foundations and walls should extend a minimum of 24 inches below the lowest adjacent exterior grade to reduce the possibility of heave.

The following recommendations should be followed:

- ▲ Solid Ground should observe the finished subgrade once grading is completed. If excessive pumping and/or rutting is observed remediation may be required. Typical remediation methods consist of undercutting the unsuitable soil and placing recompacted soil or granular material.
- ▲ If construction is to take place during wet periods of the year, there is a potential that remediation methods will be required to stabilize the soil subgrade. Solid Ground should be consulted to assist in selecting the method most appropriate for site conditions. These methods may consist of any or combination of the following:
  - Tensar geogrid reinforcement.
  - “Walking” No. 2 stone into the soft subgrade.
  - Application of compacted DGA.
- ▲ It is imperative that quality control be performed specifically for the slab-on-grade to ensure that moisture contents, as well as compaction efforts, are within optimum.
- ▲ For the moderately loaded slabs-on-grade:
  - It is recommended that the floor slab be constructed with an open graded stone base of a minimum of **8 inches** in thickness.
  - The floor slab should be constructed with a minimum of **5 inches** of reinforced concrete.

- A subgrade modulus,  $k$ , of 80 pounds per cubic inch (PCI) for design of the floor slab supported by granular material.
- ▲ For the heavily loaded slabs-on-grade:
  - It is recommended that the floor slab be constructed with an open graded stone base of a minimum of **10 inches** in thickness.
  - The floor slab should be constructed with a minimum of **7 inches** of reinforced concrete.
  - A subgrade modulus,  $k$ , of 100 pounds per cubic inch (PCI) for design of the floor slab supported by granular material.
- ▲ Control joints should be placed per the most recent ACI standards and guidance.
- ▲ The floor slab should be fully ground-supported. This will reduce the possibility of cracking and displacement of the floor slab due to differential settlement.

***It is recommended that a proof roll be performed prior to placing stone to serve as the slab working base, and again immediately prior to constructing the slab.***

#### 5.4 Seismic Site Classification

As requested, a shear wave velocity analysis was conducted using Refraction Microtremor (ReMi) that provides a simplified subsurface velocity characterization. Using this method, we performed the following:

- ▲ Collection of field data using seismic refraction equipment with geophone arrays. With appropriate spacing, the vertical shear waves velocity layers were determined for depths of approximately 100 feet.
- ▲ Soil/rock contacts and contrasts between stronger and weaker geologic material layers were interpreted from the collected data.
- ▲ Two (2) survey runs were completed at the site within the planned footprints of the proposed Cancer Treatment Center (Line 1) and parking garage (Line 2).
- ▲ The below equation was used to calculate the soil/rock shear wave velocity ( $v_s$  method) for IBC Site Classification.

$$\bar{v}_s = \frac{\sum_{i=1}^n d_i}{\sum_{i=1}^n d_i / v_{si}}$$

$d_i$  = The thickness of any layer between 0 and 100 feet

$v_{si}$  = The shear wave velocity in feet per second

Table 4 shows the average shear wave velocity data obtained during the field survey along each run and Table 5 indicates the IBC 2018 basis for classification.

**Table 4 – Survey Results**

Run	Soil/Rock Shear Wave Velocity, $v_s$ , (ft/s)
1	3,347
2	3,142
<b>Average</b>	<b>3,244</b>

**Table 5 – Site Classification Definition**

Site Classification	Soil/Rock Profile Name	Soil/Rock Shear Wave Velocity, $v_s$ , (ft/s)
A	Hard Rock	$v_s > 5,000$
B	Rock	$2,500 < v_s < 5,000$
C	Very Dense Soil and Soft Rock	$1,200 < v_s < 2,500$
D	Stiff Soil	$600 < v_s < 1,200$
E	Soft Soil	$v_s < 600$

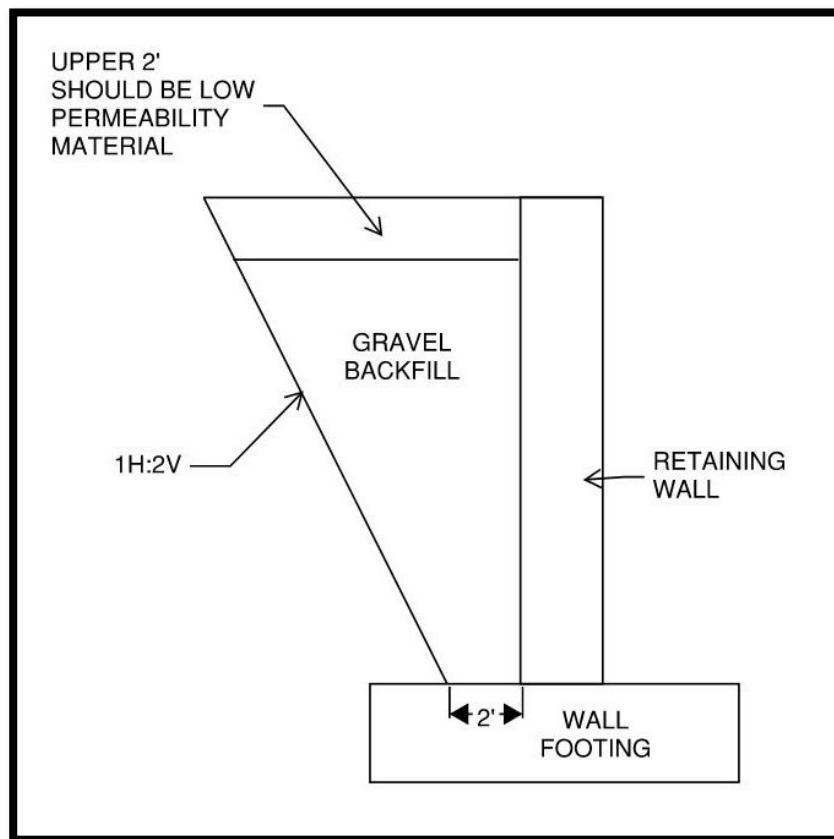
The IBC 2018 guidelines allow for the site seismic classifications to be determined through an average of the shear wave velocities for the upper 100 feet of strata. The average shear wave velocity for this site is 3,244 ft/s which qualifies the site for a Seismic Site Classification of “B”. The IBC guidelines state that a Seismic Site Classification B can only be used when the soil thickness cannot exceed 10 feet between the rock surface and the bottom of foundation concrete. **With the understanding the foundations will bear unto limestone bedrock, we recommend a Seismic Site Classification of “B”.**

## 5.5 Below Grade Walls

Based on our understanding of the project, below grade walls will be required for the basement for the Cancer Treatment Center, the parking garage, and the utility tunnel.

### Equivalent Fluid Pressures (EFP)

We do not recommend undrained conditions. If undrained conditions are deemed to be designed, we should be contacted to provide additional recommendations. The following table (Table 6) presents EFP for at-rest, passive and active conditions. For the drainage granular backfill, these values assume that a “full” wedge of the material is present behind the wall (Figure 9). The wedge is defined as 2 feet from the base of the wall to a 1:2 (H:V) slope upward.



**Figure 9: Retaining Wall “Wedge”**

Surcharge loads generated by construction equipment and adjacent structures and infrastructure must also be considered in the design, we recommend surcharge loads be applied as a wedge in the design. In addition, a factor of safety should also be included as part of the design. Both the factor of safety and surcharge loads are not accounted for in the scope

of this study. A coefficient of friction between limestone bedrock and concrete of 0.45 can be utilized and a coefficient of friction between clay soil and concrete of 0.30 can be utilized.

We are assuming the majority of the retaining walls are heavily loaded (greater than 1,000 kips) and will be supported by drilled shafts. It is recommended that the below grade wall foundations utilize foundation recommendations as detailed in our report in Section 5.2. However, some of the retaining walls are lightly loaded (less than 5 kips) and will be soil supported. The soil supported retaining walls should bear on stiff or better in-situ clay or engineered fill. **We recommend the use of a maximum net allowable bearing pressure of 1,500 PSF (pounds per square foot) for shallow foundations bearing on stiff or better in-situ clay or engineered fill.**

**Table 6 – Equivalent Fluid Pressures**

<b>Backfill Material</b>	<b>At Rest (PCF) Drained Condition</b>	<b>Active (PCF) Drained Condition</b>	<b>Passive (PCF) Drained Condition</b>
Anticipated Bedrock sloping towards the wall ( $\Phi = 38^\circ$ )	50	30	500
Anticipated Well Graded Gravel sloping towards the wall ( $\Phi = 38^\circ$ )	50	30	600
Anticipated Clay soil sloping towards the wall ( $\Phi = 25^\circ$ )	70	50	300

*Free Drainage Granular Material*

A free drainage backfill material should preferably be "GW" as classified by the USCS, so that it will be free draining and exhibit an angle of shear resistance of 38 degrees or more. The material should have less than 3 percent passing the No. 200 sieve and less than 30 percent passing the No. 40 sieve. The No. 40 sieve material should be non-plastic.

Wall drainage systems should consist of a filtered granular backfill (No. 57 size crushed stone) by use of geotextile fabric. The drainage backfill should extend to within 2 feet of the ground surface. Compacted structural fill should be placed over the drainage backfill to prevent direct surface water inflow.

Compaction within five feet of walls should be accomplished by using hand compaction equipment.

### Drainage Requirements

To achieve the “drained” condition, an outlet drain at the base of the wall in conjunction with a collector pipe that drains the water away from the structure should be constructed. The drains should be filtered and protected against potential erosion. **We highly recommend drainage behind the wall.** To provide drainage behind the wall, construct a vertical section of crushed stone or gravel approximately 18 inches wide behind the wall with perforated drainpipe located at the foundation level. The granular wall backfill material should be capped with 12 to 24 inches of low plasticity clay to minimize infiltration of surface water runoff behind below grade walls. As with any drainage system, the built-up water will need to be conveyed from behind the wall through a gravity drain or sump pump system.

**It should be noted that groundwater dewatering methods will require a more extensive and robust wall to accommodate hydrostatic pressure in conjunction with a permanent drainage system.**

*If drained conditions cannot be achieved, we should be contacted immediately to provide additional recommendations.*

## **5.6 Pavement Recommendations**

### **5.6.1 General**

Based on our experience with similar traffic loading (assumed) and subsurface conditions, the subgrade soils are assumed to have a CBR of 3.0 for the pavement analysis based on SPT correlation. We anticipate that there will be some localized subgrade remediation required to achieve the CBR value of 3.0. American Association of State Highway and Transportation Officials (AASHTO) Guide for Design of Pavement Structures (1993) was used for the analysis. The assumptions are listed below for the pavement analysis.

***If the following assumptions are incorrect, Solid Ground should be contacted to provide additional recommendations.***

- ▲ Initial Serviceability of 4.2
- ▲ Resilient Modulus of 4,500

- ▲ Terminal Serviceability of 2.0
- ▲ Reliability of 85%
- ▲ Life of 20 years
- ▲ Maximum Estimated Equivalent Single Axe Load (ESAL's) of 200,000 for Heavy Duty, with following assumptions:
  - 1 Garbage truck per day
  - 10 Ambulances per day
  - 25 Buses per day
  - 5 Box trucks per day
  - 2 Semi Trailers per day
  - 20 Package Delivery Vehicles per day
  - 2,000 Passenger Cars per day

**5.6.2 Flexible Asphalt Pavements**

Based on the design assumptions detailed above, we recommend the following asphalt pavement sections in Table 7:

**Table 7: Heavy Duty Asphalt Pavement Section**

Material	Heavy Duty Thickness (Inches)
Asphalt Surface Course	2.0
Asphalt Base Course	2.0
Compacted Crushed Stone Base	10.0
*1 Layer of Tensar TX150 and Geogrid Filter Fabric	

*\*Indicates typical remediation methods for soft soils identified during proof rolling. Not required if proof rolls indicate stable subgrade conditions.*



### **5.6.3 Rigid Concrete Pavements**

Based on the assumptions given in Section 5.6.1, the following concrete pavement sections are recommended in Table 8:

**Table 8: Heavy Duty Rigid Reinforced Concrete Pavement**

<b>Material</b>	<b>Heavy Duty Thickness (Inches)</b>	<b>Designed Compressive Strength (psi)</b>
Concrete	8.0	4,000
Compacted Crushed Stone Base	10.0	
*1 Layer of Tensar TX150 and Geogrid Filter Fabric		

*\*Indicates typical remediation methods for soft soils identified during proof rolling. Not required if proof rolls indicate stable subgrade conditions.*

We recommend the any pad to be used for truck turn around be constructed of reinforced concrete.

### **5.7 Plan Review**

To better assure conformance of the final design documents with the recommendations contained in this report, and to better comply with the building department’s requirements, Solid Ground should review the completed project plans prior to construction. The plans should be made available for our review as soon as possible after completion so that we can better assist in keeping your project schedule on track.

We recommend that the following project-specific note be added to the architectural, structural, and civil plans: “The geotechnical aspects of the project, including site grading, utility and foundation excavations, slab on grade construction, placement and compaction of engineered fill, installation of site drainage should be performed in accordance with the recommendations of the *“Revised Geotechnical Report prepared by Solid Ground Consulting Engineers, PLLC, dated August 1, 2023.”*”

### **5.8 Construction Monitoring and Observations**

Based on experience, in order to obtain the Certificate of Occupancy for this development, you will be required to directly contract a qualified and certified inspection firm to provide special inspection items consisting of observing the following:

- ▲ Foundation Construction
- ▲ Concrete Placement
- ▲ Reinforcement Placement
- ▲ Masonry Construction
- ▲ Steel Construction

**It is advantageous to the owner to contract with Solid Ground to provide construction monitoring and observations for this project.** Some of those benefits are as follows:

- ▲ As the Geotechnical Engineer of Record (GEO) for this project, we will provide confirmation that subsurface conditions exposed during construction are substantially the same as those interpolated from our limited subsurface exploration, on which the analysis and design were based.
- ▲ The recommendations in this report are based on limited subsurface information. The nature and extent of variation across the site may not become evident until construction. If variations are then exposed, it will be necessary to re-evaluate our recommendations. If subsurface conditions differ from those anticipated, we as the GEO will provide recommendations if deemed necessary.

### **6.0 Report Limitations**

This report has been prepared for the exclusive use of Mr. Raymond Haunsz for specific application to the project site. Our recommendations have been prepared using generally accepted standards of geotechnical engineering practice in the Commonwealth of Kentucky. No other warranty is expressed or implied.

The recommendations provided are based on the subsurface information and other findings obtained by Solid Ground as well as information provided by you. If there are revisions to the plans for this project or if subsurface conditions detailed in this report are encountered during construction that are different than our exploration, we should be notified immediately to modify the foundation recommendations if deemed necessary. We cannot be held responsible for the impact of those conditions on the project if those impacts are not made known to us.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands or hazardous or toxic materials. Any statements in this

report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

### **7.0 Associated Geotechnical Risks**

The analytical tools which are used by the geotechnical engineer in this area are generally empirical and must be used in conjunction with professional engineering judgment and experience. Therefore, the recommendations presented in this geotechnical exploration should not be considered risk-free and are not a guarantee that the proposed structure will perform as planned. The engineering recommendations presented in this are based on the information gathered during the subsurface exploration, information provided by you and experience with similar projects.



## APPENDICES

APPENDIX A – SOIL BORING LOGS

APPENDIX B – ROCK CORE PHOTOS

APPENDIX C – CROSS SECTIONS

APPENIX D – ROCK CONTOUR MAPS

APPENDIX E – LABORATORY RESULTS

APPENDIX F – SEISMIC REFRACTION SURVEY



# Soil Boring: B-1



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023	Date Completed: 05/04/2023	Lat/Long: 38.030954 / -84.511656
Location Accuracy: Surveyed	Boring Diameter: 8"	

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 967.91'	Samples				Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Atterberg Limits (LL-PL-Pi)
			Visual Classification and Remarks								
			<b>Asphalt</b>	0.3							
			<b>Aggregate Base</b>	1.0							
965			Soft, brown, moist, <b>Lean Clay (CL)</b>		2'						
				4.0		B1-1	2-2-2	4	X	B1-1	29.3
	5		Stiff, brown, slightly moist to moist, <b>Gravelly Elastic Silt (MH)</b> , trace chert fragments		4'						
				6.5		B1-2	4-6-6	12	X	B1-2	51-38-13 32.7
960			Firm, yellowish brown, moist, <b>Silty Clay (CH-MH)</b> , some chert fragments		6.5'						
				9.0		B1-3	4-4-5	9	X	B1-3	27.5
	10		Stiff, yellowish brown, moist, <b>Elastic Silt (MH)</b>		9'						
						B1-4	1-10-50	60	X		
955			Auger Refusal at 10.5'								
	15										
950											
	20										
945											
	25										
940											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-2



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/01/2023	Date Completed: 05/01/2023	Lat/Long: 38.030961 / -84.512031
Location Accuracy: Surveyed		

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 972.05'	Samples					Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number
Visual Classification and Remarks												
970	0.2	<b>Gravel</b>	Soft, brown, moist, <b>Lean Clay</b> with <b>Gravel (CL)</b>	2'	B2-1	2-2-3	5					
	5	...firm		4'	B2-2	3-3-5	8				B2-2	25.7
965	6.5		Stiff, yellowish brown, moist, <b>Silty Clay (CL-ML)</b> , some iron inclusions	6.5'	B2-3	5-7-10	17					
	9.0		Stiff, yellowish brown, moist, <b>Sandy Silt (ML)</b> , some iron inclusions	9'	B2-4	5-7-11	18				B2-4	38.4
960	14.0		Dark gray, Very weathered rock	14'	B2-5	5-50	55/12					
	15.0		<b>Auger Refusal at 15.0'</b>	15'	B2-R1			86	41			
955			Limestone, moderately to slightly weathered, light to medium grey									
	20		Vertical Fracture 19.4'-19.9'									
950												
	25		Assumed top of 85 KSF bedrock	25.5'	B2-R2			95	80			
945			Dolomitic limestone, fresh to slightly weathered, light to medium grey									

**REMARKS**

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-2



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/01/2023 | Date Completed: 05/01/2023 | Lat/Long: 38.030961 / -84.512031

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type		Samples						Lab		
			Tooling	Surface Elevation	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Moisture Content (%)
			Diedrich D-50	972.05'									
			Visual Classification and Remarks										
940			Dolomitic limestone, fresh to slightly weathered, light to medium grey 31.0		30'	B2-R2			95	80			
	35		Limestone, fresh to slightly weathered, medium grey, fossiliferous										
935			Bottom of Borehole at 36.0'										
	40												
930													
	45												
925													
	50												
920													
	55												
915													

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-3



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.030819 / -84.511501

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 968.31'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type
Visual Classification and Remarks											
			<b>Asphalt</b>	0.4							
			Aggregate Base	1.1							
965			Firm, brown, moist, <b>Lean Clay (CL)</b>		2'						
						B3-1	4-4-5	9			B3-1 25.1
	5		Stiff, yellowish brown, <b>Sandy Silt (ML)</b> , with chert fragments	4.0	4'						
						B3-2	8-7-10	17			
960			Firm, yellowish brown, moist <b>Silt (ML)</b>	6.5	6.5'						
						B3-3	4-6-6	12			B3-3 21.8
			Auger Refusal at 8.6'	8.6	8.6'	B3-R1			86	74	
	10		Limestone, slightly weathered, medium grey								
955											
	15		Assumed top of 85 KSF bedrock								
950			Limestone, fresh, light to medium grey,	15.6	15.6'	B3-R2			96	85	
	20										
945			fossiliferous								
	25										
940			Bottom of Borehole at 25.6'								

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_



# Soil Boring: B-4



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/01/2023 | Date Completed: 05/01/2023 | Lat/Long: 38.030680 / -84.512171

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 977.30'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
Visual Classification and Remarks											
975			<b>Gravel</b> Firm, brown, moist, <b>Lean Clay (CL)</b>	0.3	2'	B4-1	2-3-3	6	X		
	5				4.5'	B4-2	2-2-4	6	X	B4-2	29.1
970			...Stiff, trace iron inclusions		7'	B4-3	4-6-6	12	X		
	10		...some iron inclusions		9.5'	B4-4	3-4-7	11	X	B4-4	22.4
965			Auger Refusal at 12.5'								
960											
955											
950											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-5



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/01/2023 | Date Completed: 05/01/2023 | Lat/Long: 38.030538 / -84.511427

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 973.96'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks								
970	5		<b>Gravel</b> Firm, brown, moist, <b>Lean Clay (CL)</b>	0.3	2'	B5-1	1-3-4	7	X		
					4'						
					6.5'	B5-2	2-2-6	8	X	B5-2	33.8
965	10		...Firm, light brown		9'	B5-3	3-4-5	9	X		
					9'	B5-4	3-6-5	11	X	B5-4	33.2
960	15		Auger Refusal at 13.0'								
955	20										
950	25										
945											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-6



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.030434 / -84.511808

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 975.81'	Samples						Lab			
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Atterberg Limits (LL-PL-Pi)	Moisture Content (%)
975			<b>Topsoil</b> 0.3											
			Firm, brown, moist, <b>Lean Clay (CL)</b>		2'	B6-1	2-4-4	8				B6-1	40-27-13	23.9
	5		...stiff, trace iron inclusions		4.5'	B6-2	4-7-7	14						
970					7'	B6-3	7-9-11	20				B6-3		23
					9.5'	B6-4	4-6-10	16						
965			<b>Auger Refusal at 11.0'</b> 11.0		11'	B6-R1			74	65				
			Limestone, moderately to slightly weathered, medium grey Clay filled void 12.0'-13.7' Assumed top of 85 KSF bedrock											
960														
	20		Limestone, fresh, medium to dark grey		20'	B6-R2			100	80				
955														
950														
945	30		Bottom of Borehole at 30.0'											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-7



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.030447 / -84.512270

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type		Samples					Lab	
			Tooling	Surface Elevation	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Diedrich D-50	978.10'							
			Visual Classification and Remarks								
			Asphalt	0.4							
			Aggregate Base	1.1							
			FILL, soft, light gray, dry Gravel								
975	5				2'	B7-1	2-3-2	5	X		
					4.5'	B7-2	1-2-1	3	X		
					7'						
970			Firm, brown, moist, Fat Clay (CH)	6.0		B7-3	2-4-6	10	X	B7-3	43
					9.5'						
			...stiff			B7-4	4-6-9	15	X	B7-4	24.1
965											
			Auger Refusal at 13.6'								
960											
955											
950											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-8



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.030177 / -84.511542

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 977.53'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type
Visual Classification and Remarks											
		<b>Asphalt</b>		0.3							
		<b>Aggregate Base</b>		0.5							
975		Firm, brown, moist, <b>Lean Clay (CL)</b> , Trace iron inclusions			2'	B8-1	2-4-5	9			B8-1 27
	5				4'	B8-2	3-4-5	9			B8-2 31.3
970		...Very Stiff, no iron inclusions			6.5'	B8-3	5-9-13	22			
	10	Firm, brown, moist, <b>Fat Clay (CH)</b>		9.0	9'	B8-4	4-6-7	13			
965		Limestone, fresh, light to medium grey Auger Refusal at 12.0'		12.0	12'	B8-R1			93	60	
960	15										
955	20	Limestone, fresh, light to medium grey		20.5	20.5'	B8-R2			98	89	
950	25										
	30										
Bottom of Borehole at 30.5'											

**REMARKS**

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-9



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/01/2023 | Date Completed: 05/01/2023 | Lat/Long: 38.030044 / -84.511950

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type		Samples					Lab	
			Tooling	Surface Elevation	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Diedrich D-50	982.16'							
			3-1/4" Hollowstem Auger								
			Visual Classification and Remarks								
980			<b>Topsoil</b> 0.3		2'						
			Firm, brown, moist, <b>Fat Clay</b> (CH)			B9-1	2-3-4	7	X		
	5				4'						
						B9-2	3-4-4	8	X		
975					6.5'						
						B9-3	2-4-6	10	X	B9-3	34.8
	10				9'						
						B9-4	2-4-5	9	X		
970											
	15				14'						
						B9-5	3-3-3	6	X	B9-5	36.6
965			Auger Refusal at 16.0'								
	20										
960											
	25										
955											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_



# Soil Boring: B-10



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.029950 / -84.512435

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 987.83'	Samples						Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks										
985	5		<b>Gravel</b> Stiff, brown, moist, <b>Lean Clay (CL)</b>	0.2	2'	B10-1	6-7-8	15				B10-1	17.9
			...some iron inclusions		4'	B10-2	5-7-10	17					
980					6.5'	B10-3	4-8-13	21				B10-3	31.9
					9'	B10-4	5-9-10	19					
975	15				14'	B10-5	4-5-8	13					
970	20		...soft	20.4	19'	B10-6	1-1-50	51					
965	25		Limestone, fresh to slightly weathered, medium grey Auger Refusal at 20.4'		20.4'	B10-R1			100	78			
960	30		Assumed top of 85 KSF bedrock										
			Limestone, fresh, medium grey	30.4	30.4'	B10-R2			100	86			

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-10



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.029950 / -84.512435

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 987.83'	Samples						Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Moisture Content (%)
Visual Classification and Remarks													
955			Limestone, fresh, medium grey		32'	B10-R2			100	86			
	35		Dolomite Layer at 33.0' to 33.5'										
950													
	40		Bottom of Borehole at 40.4'										
945													
	45												
940													
	50												
935													
	55												
930													
	60												
925													

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_



# Soil Boring: B-11



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029872 / -84.511681

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 982.52'	Samples					Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number
Visual Classification and Remarks												
		<b>Topsoil</b>		0.3								
		Firm, brown, moist, <b>Lean Clay (CL)</b>										
980	5	...trace iron inclusions			2.5'	B11-1	2-4-5	9				
					5'	B11-2	3-6-7	13				
975					7.5'	B11-3	5-7-10	17			B11-3	25.6
					10'	B11-4	4-7-10	17				
970												
	15	Firm, yellowish brown, moist, <b>Silty Clay (CL-ML)</b>		15.0	15'	B11-5	3-4-5	9			B11-5	33.6
965		Limestone, slightly weathered, medium grey Auger Refusal at 17.0'		17.0	17'	B11-R1			100	81		
	20	Dolomite Layer at 18.0' to 18.5' Assumed top of 85 KSF bedrock										
960												
	25											
955		Limestone, slightly weathered, medium grey		26.5	26.5'	B11-R2			100	86		

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-11



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029872 / -84.511681

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 982.52'	Samples						Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number
Visual Classification and Remarks												
950	35		Limestone, slightly weathered, medium grey Dolomite Layer at 30.0' to 31.0'	30'	B11-R2			100	86			
945			Bottom of Borehole at 36.5'									
940												
935												
930												
925												

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-12



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029914 / -84.511082

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 974.56'	Samples					Lab			
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Moisture Content (%)
Visual Classification and Remarks													
970	5		Firm, brown, moist, <b>Lean Clay (CL)</b>  ...some iron inclusions	7.0	2'								
					4.5'	B12-1	3-4-5	9			X	B12-1	26.1
					7.0	B12-2	5-6-9	15			X		
965	10		Stiff, yellowish brown, moist, <b>Sandy Silty Clay (CL-ML)</b> , Some iron inclusions	9.8	7'	B12-3	5-7-9	16			X	B12-3	26.2
960	15		Limestone, slightly weathered, light to medium grey, dolomite seams Auger Refusal at 9.8' Assumed top of 85 KSF bedrock	19.8	9.8'	B12-R1			100	68			
955	20		Limestone, slightly weathered, light grey, dolomite seams	19.8	19.8'	B12-R2			100	88			
945	30		Bottom of Borehole at 29.8'										

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-13



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029867 / -84.510678

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 973.67'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks								
970	5		Asphalt	0.2'							
			Aggregate Base	0.8'							
			Soft, dark brown, moist, <b>Lean Clay (CL)</b> , trace iron inclusions		2'	B13-1	2-3-3	6	X	B13-1	22.5
			Firm to stiff, black, moist, <b>Fat Clay (CH)</b> , some iron inclusions, and very weathered limestone		4'	B13-2	5-6-6	12	X		
965			Hard, light brown, moist, <b>Sandy Fat Clay</b> with <b>Gravel (CH)</b> , trace iron inclusions, some limestone fragments, and very weathered limestone		6.5'	B13-3	10-15-50	65	X	B13-3	27.5
			Auger Refusal at 8.2'								

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-14



**SOLID GROUND**

**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.029723 / -84.510706

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 975.12'	Samples				Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Atterberg Limits (LL-PL-Pi)
Visual Classification and Remarks											
			<b>Gravel</b> Soft, dark brown, moist, <b>Lean Clay (CL)</b>	0.2							
	2'										
	4.5'		...firm			B14-1	2-2-3	5			
970	5'		...with some gravel			B14-2	3-4-6	10		B14-2	27.7
	7'					B14-3	4-7-50	57		B14-3	46-30-16
965	10'	Auger Refusal at 9.4'									
960	15'										
955	20'										
950	25'										

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-15



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029627 / -84.511134

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type		Samples					Lab		
			Tooling	Surface Elevation	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)	
			Diedrich D-50	977.12'								
			Visual Classification and Remarks									
975			<b>Gravel</b>	0.2	2'							
			Soft, brown, moist, <b>Fat Clay</b> (CH), Trace iron inclusions			B15-1	2-3-3	6	X			
	5		...stiff		4.5'	B15-2	4-5-9	14	X	B15-2	24.5	
970			...no iron inclusions		7'	B15-3	4-6-8	14	X			
	10			9.5	9.5'	B15-4	15-6-12	18	X	B15-4	28.4	
965			Auger Refusal at 11.4'									
	15											
960												
	20											
955												
	25											
950												

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-16



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.029443 / -84.510662

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 978.02'	Samples					Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number
Visual Classification and Remarks												
975	0.8		<b>Gravel</b>	0.8								
			Soft, black, moist, <b>Lean Clay (CL)</b>		2'							
			...stiff		4.5'	B16-1	1-2-3	5				B16-1 27.3
			...with gravel		7'	B16-2	3-4-5	9				
970	8.0		Soft, yellowish brown, moist, <b>Fat Clay (CH)</b>	8.0		B16-3	4-5-10	15				B16-3 30.3
	9.7		Limestone, slightly weathered, light to medium grey Auger Refusal at 9.7'	9.7	9.7'	B16-R1			98	73		
965	19.7		Assumed top of 85 KSF bedrock Limestone, medium to dark grey	19.7	19.7'	B16-R2			100	94		
955			...Dolomite seam at 19.7' to 23.7'									
950	30		Bottom of Borehole at 29.7'									

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-17



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.029404 / -84.510948

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 977.80'	Samples					Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number
Visual Classification and Remarks												
975	0.2	<b>Gravel</b>	Firm, dark brown, moist, <b>Lean Clay (CL)</b>	2'	B17-1	3-3-5	8					
970	5	...stiff		4.5'	B17-2	3-6-5	11				B17-2	20.9
	7			7'	B17-3	6-7-8	15					
	9.5	Stiff, dark brown, moist, <b>Fat Clay (CH)</b>		9.5'	B17-4	3-7-8	15				B17-4	28.2
965	11.3	<b>Auger Refusal at 11.3'</b>	Limestone, slightly weathered, light to medium grey Assumed top of 85 KSF bedrock	11.3'	B17-R1			92	77			
955	20.8	Limestone, slightly weathered, medium to dark grey	...Dolomite seams at 21.0' to 27.0'	20.8'	B17-R2			100	92			
Bottom of Borehole at 30.8'												

**REMARKS**

**Water Levels**

▽ - **Free Water was not Encountered**



# Soil Boring: B-18



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029239 / -84.511331

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 981.56'	Samples					Lab			
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks										
980			<b>Asphalt</b>	0.6									
			Aggregate Base	1.2									
			Firm, brown, moist, <b>Lean Clay (CL)</b> , some iron inclusions		2'	B18-1	3-3-6	9			X	B18-1	24.7
	5		...stiff		4'	B18-2	3-3-4	7			X		
975			...stiff		6'	B18-3	4-6-7	13			X	B18-3	32.7
			Stiff, brown, moist, <b>Fat Clay (CH)</b> , some iron inclusions	9.0	9'	B18-4	3-4-4	8			X		
970			Auger Refusal at 12.7'	12.7	12.7'	B18-R1			100	72			
			Limestone, slightly weathered, light grey										
965			Assumed top of 85 KSF bedrock										
960			Limestone, medium grey	22.7	22.7'	B18-R2			98	88			
	25		...Dolomite seam at 24.0' to 24.5'										
955													

**REMARKS**

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-18



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029239 / -84.511331

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Information		Samples						Lab		
			Rig Type	Tooling	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Moisture Content (%)
			Surface Elevation	981.56'	Visual Classification and Remarks								
950			Limestone, medium grey		30'	B18-R2			98	88			
			Bottom of Borehole at 32.7'										
945	35												
940	40												
935	45												
930	50												
925	55												

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-19



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.029103 / -84.510761

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 978.61'	Samples					Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number
			Visual Classification and Remarks									
			<b>Asphalt</b>	0.6								
			Aggregate Base	1.2								
975			Soft, dark grey, moist <b>Silt</b> (ML), some iron inclusions, and very weathered limestone	4.0	2'	B19-1	1-2-4	6				
	5		Firm, dark brown, moist, <b>Elastic Silt</b> (MH), some iron inclusions	6.5	4'	B19-2	3-3-6	9			B19-2	22.5
970			Stiff, dark brown, moist, <b>Silty Clay</b> (CL-ML), some iron inclusions	9.0	6.5'	B19-3	4-6-9	15				
	10		Firm, brown, moist, <b>Fat Clay</b> (CH), some iron inclusions, and very weathered limestone	12.4	9'	B19-4	3-4-4	8			B19-4	41.2
965			Limestone, slightly weathered, medium grey Auger Refusal at 12.4'	12.4	12.4'	B19-R1			100	87		
	15		...Quartz deposit at 13.0' Assumed top of 85 KSF bedrock									
960			Limestone, slightly weathered, medium grey, fossiliferous	22.4	22.4'	B19-R2			100	97		
955			...Dolomite seam at 23.0' to 24.0'									
950												

**REMARKS**

**Water Levels**

▽ Water encountered @ 3.5'

▼ -

# Soil Boring: B-19



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.029103 / -84.510761

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type		Samples						Lab		
			Tooling	Surface Elevation	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Moisture Content (%)
			Diedrich D-50	978.61'									
			3-1/4" Hollowstem Auger										
			Visual Classification and Remarks										
			Limestone, slightly weathered, medium grey, fossiliferous		30'	B19-R2			100	97			
945	35		Bottom of Borehole at 32.4'										
940	40												
935	45												
930	50												
925	55												
920													

REMARKS

**Water Levels**

▽ Water encountered @ 3.5'

▽ -

# Soil Boring: B-20



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.029055 / -84.511010

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling	Diedrich D-50 3-1/4" Hollowstem Auger	Samples						Lab			
					Surface Elevation	982.24'	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number
			Visual Classification and Remarks											
980			<b>Topsoil</b> Soft, dark brown, moist <b>Silt (ML)</b> , trace iron inclusions		0.3									
					2'	B20-1	3-3-3	6						
	5		Soft, brown, moist, <b>Lean Clay (CL)</b> , trace iron inclusions		4.5									
975					4.5'	B20-2	2-1-2	3				B20-2	21.9	
					7.0									
			Firm, brown, moist, <b>Fat Clay (CH)</b> , trace iron inclusions		7.0									
			...Stiff		7.0	B20-3	4-4-7	11						
	10				9.5'									
970					9.5'	B20-4	4-5-7	12				B20-4	50-36-14	29.3
					12.5'									
			<b>Auger Refusal at 12.5'</b>		12.5									
			Limestone, slightly weathered, light to medium grey		12.5	B20-R 1			45	25				
965														
	20													
960														
					22.5									
			Limestone, slightly weathered, medium grey		22.5	B20-R 2			100	89				
	25		Assumed top of 85 KSF bedrock											
955														

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-20



**SOLID GROUND**

**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.029055 / -84.511010

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 982.24'	Samples						Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Atterberg Limits (LL-PL-Pi)
950			Limestone, slightly weathered, medium grey		30'	B20-R 2			100	89			
	35		Bottom of Borehole at 32.5'										
945													
940													
935													
930													
925													

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-21



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.028903 / -84.511440

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling	Diedrich D-50 3-1/4" Hollowstem Auger	Samples						Lab				
					Surface Elevation	986.36'	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Atterberg Limits (LL-PL-Pi)
			Visual Classification and Remarks												
985			<b>Gravel</b> Firm to stiff, brown, moist, <b>Lean Clay (CL)</b> , trace iron inclusions		0.3										
	2'					B21-1	2-4-7	11					B21-1	46-30-16	25.9
	4'					B21-2	2-5-7	12							
980	5		Stiff, brown, moist, <b>Fat Clay (CH)</b> , some iron inclusions		6.5										
	6.5'					B21-3	4-6-7	13							
	9'		...light brown			B21-4	3-6-8	14					B21-4		33.2
975	10		Limestone, slightly weathered, light grey Auger Refusal at 13.0'		13.0					100	62				
970	15					B21-R1									
	20		...Dolomite seam at 19.0'												
965	23.0		Limestone, slightly weathered, medium grey Assumed top of 85 KSF bedrock		23.0					100	77				
960	25					B21-R2									

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-21



**SOLID GROUND**

**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.028903 / -84.511440

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling	Diedrich D-50 3-1/4" Hollowstem Auger	Samples						Lab		
					Surface Elevation	986.36'	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type
Visual Classification and Remarks													
955			Limestone, slightly weathered, medium grey		30'	B21-R 2			100	77			
Bottom of Borehole at 33.0'													
950	35												
945	40												
940	45												
935	50												
930	55												

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_



# Soil Boring: B-22



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.028813 / -84.511067

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 983.49'	Samples					Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks									
			<b>Asphalt</b>	0.6								
			Aggregate Base	0.9								
980	5		Stiff, brown, moist, <b>Lean Clay (CL)</b> , trace iron inclusions		2'	B22-ST 1			100			
					4'	B22-1	4-5-7	12		X	B22-1	28.6
975	7.0		Stiff, light brown, moist, <b>Fat Clay (CH)</b> , some iron inclusions		7'	B22-2	4-6-7	13		X	B22-2	34.7
					9.5'	B22-3	4-4-5	9		X		
970			Auger Refusal at 11.7'									

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-23



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.028446 / -84.511179

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 986.20'	Samples				Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
Visual Classification and Remarks											
985			<b>Asphalt</b>	0.6							
			Aggregate Base	0.9							
			Firm, brown, moist, <b>Fat Clay</b> (CH), Trace iron inclusions		2'	B23-1	1-3-2	5			
	5				4'						
980			...Stiff, yellowish brown			B23-2	3-4-4	8		B23-2 32.8	
					6.5'						
						B23-3	3-5-7	12			
					9'						
975						B23-4	2-5-5	10		B23-4 27.3	
			Auger Refusal at 12.0'								
	15										
970											
	20										
965											
	25										
960											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-24



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.028644 / -84.511319

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 986.33'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks								
985			<b>Asphalt</b>	0.7							
			Aggregate Base	1.1							
			Stiff, brown, moist, <b>Fat Clay</b> (CH), Trace iron inclusions		2'	B24-1	3-5-6	11	X	B24-1	24.6
			Limestone fragments and gravel	4.0	4'	B24-2	4-5-5	10	X		
980	5		Stiff, brown, moist, <b>Fat Clay</b> (CH), Trace iron inclusions	5.5	6.5'	B24-3	4-5-8	13	X	B24-3	28.9
			...yellowish brown		9'	B24-4	5-5-7	12	X		
975	10										
			Auger Refusal at 12.1'								
970	15										
965	20										
960	25										

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-25



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.028500 / -84.511472

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 989.50'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks								
			<b>Asphalt</b>	0.6							
			Aggregate base	1.0							
			Stiff, brown, moist, <b>Lean Clay (CL)</b>		2'						
985	5					B25-1	5-6-6	12	X		
					4.5'						
						B25-2	4-5-7	12	X	B25-2	22.1
			...trace iron inclusions, trace chert fragments		7'						
						B25-3	4-12-8	20	X		
980	10		...no chert fragments		9.5'						
						B25-4	5-7-8	15	X	B25-4	32.7
975	15		Auger Refusal at 15.1								
970	20										
965	25										

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-26



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.028826 / -84.511539

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 990.05'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks								
			<b>Gravel</b>	0.4							
			Firm, brown, moist, <b>Lean Clay</b> (CL), trace iron inclusions		2'						
			...Stiff		4'	B26-1	2-3-4	7	X	B26-1	25.9
985	5					B26-2	3-6-9	15	X		
			Stiff, light brown, moist, <b>Fat Clay</b> (CH), trace iron inclusions	6.5	6.5'	B26-3	6-7-8	15	X	B26-3	30
980	10				9'	B26-4	4-5-8	13	X		
975	15		Auger Refusal at 13.7'								
970	20										
965	25										

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-27



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.029090 / -84.511924

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 992.55'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
Visual Classification and Remarks											
990	5		Soft, brown, moist, <b>Lean Clay (CL)</b>	7.0	2'						
			B27-1		1-2-3	5	X				
			4.5'		B27-2	5-5-3	8	X	B27-2	29.4	
985			Soft, yellowish brown, moist, <b>Fat Clay (CH)</b> , Trace iron inclusions		7'	B27-3	1-1-1	2	X		
					9.5'	B27-4	1-3-50	53	X	B27-4	38.8
980			Auger Refusal at 11.2'								
975	15										
970	20										
965	25										

REMARKS

**Water Levels**

▽ Water encountered @ 9.5'

▽ -

# Soil Boring: B-28



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.028643 / -84.512084

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 992.74'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks								
990	5		Soft, brown, moist, <b>Lean Clay</b> (CL)		2'						
			...Firm, trace iron inclusions		4'	B28-1	2-2-2	4	<input checked="" type="checkbox"/>	B28-1	25.1
					6.5'	B28-2	3-5-6	11	<input checked="" type="checkbox"/>		
985					9'	B28-3	3-8-8	16	<input checked="" type="checkbox"/>	B28-3	24.4
						B28-4	4-4-4	8	<input checked="" type="checkbox"/>		
980	10		Firm, brown, saturated, <b>Fat Clay</b> (CH), Trace iron inclusions	9.0							
			Auger Refusal at 11.1'								

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-29



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.028929 / -84.512323

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 996.63'	Samples					Lab			
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks										
995			<b>Gravel</b>	0.2									
			Firm to stiff, light brown, moist, <b>Lean Clay (CL)</b> , trace iron inclusions		2'								
						B29-1	4-6-10	16			X	B29-1	32.7
			...trace rock fragmments		4'								
	5		Auger Refusal at 5.0'	5.0	5'	B29-2	3-50				X	B29-2	25.5
990			Limestone, slightly weathered, light grey			B29-R1			100	79			
	10		Assumed top of 85 KSF bedrock										
985					15	B29-R2			100	79			
980			Limestone, slightly weathered, light grey	15.0	15'								
975													
970			Bottom of Borehole at 25.0'										

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_



# Soil Boring: B-30



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/04/2023 | Date Completed: 05/04/2023 | Lat/Long: 38.028872 / -84.512736

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type		Samples					Lab			
			Tooling	Surface Elevation	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)		
			Diedrich D-50	998.56'	Visual Classification and Remarks								
995		[Hatched Pattern]	Firm, brown, moist, <b>Lean Clay</b> (CL), Trace iron inclusions		2'								
			4.0		B30-1	1-2-3	5	X					
	5		Firm, brown, moist, <b>Fat Clay</b> (CH), Trace iron inclusions		4'								
					B30-2	2-3-5	8	X	B30-2	27.4			
990			...yellowish brown		6.5'								
						B30-3	3-4-8	12	X				
	10		Auger Refusal at 10.3'		9'								
						B30-4	3-50		X	B30-4	31.2		
985	15												
980	20												
975	25												
970													

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-31



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029430 / -84.512183

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type		Samples					Lab	
			Tooling	Surface Elevation	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Diedrich D-50	986.87'							
			Visual Classification and Remarks								
			Asphalt	0.6							
			Aggregate Base	1.2							
985			Stiff, brown, moist, <b>Lean Clay (CL)</b> , trace iron inclusions								
	2'				B31-1	4-5-7	12	X	B31-1	28.3	
	4'				B31-2	4-4-7	11	X			
	6.5'				B31-3	2-4-6	10	X	B31-3	31.6	
980			Firm, brown, moist, <b>Fat Clay (CH)</b> , some iron inclusions								
	9'				B31-4	2-3-5	8	X			
975			Auger Refusal at 12.5'								
970											
965											
960											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-32



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029529 / -84.512635

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 989.36'	Samples				Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks								
			<b>Asphalt</b>	0.5							
			<b>Aggregate Base</b>	1.1	1.5'						
			Firm, brown, moist, <b>Silty Clay</b> (CL-ML), some iron inclusions			B32-1	3-3-4	7	X	B32-1	35.3
985	5				4'						
						B32-2	5-5-6	11	X	B32-2	29.6
			Firm, brown, moist, <b>Lean Clay</b> (CL), some iron inclusions	6.0	6.5'						
						B32-3	50				
980			Auger Refusal at 6.9'								
	10										
975	15										
970	20										
965	25										
960											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-33



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029326 / -84.511712

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 984.30'	Samples					Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	Sample Type	Sample Number	Moisture Content (%)
			Asphalt	0.5								
			Aggregate Base	1.2								
			Stiff, brown, moist, <b>Lean Clay (CL)</b> , some iron inclusions		2'				100			
980	5				4'	B33-ST 1						
					6.5'	B33-1	4-8-9	17				
						B33-2	4-5-8	13			B33-2	32.8
975				9.0	9'	B33-3	3-5-7	12				
	10		Stiff, brown, moist, <b>Fat Clay (CH)</b> , some iron inclusions									
970					14'	B33-4	2-3-3	6			B33-4	31.7
	15		Auger Refusal at 17.5'									
965	20											
960	25											
955												

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-34



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029603 / -84.511664

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 984.01'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks								
980	5		<b>Gravel</b>	0.2							
			Soft, brown, moist, <b>Lean Clay (CL)</b>		2'						
						B34-1	1-2-3	5	X	B34-1	25.5
			...Firm		4.5'						
						B34-2	3-3-6	9	X		
975	10		Stiff, light brown, moist, <b>Lean Clay (CL)</b> , Trace iron inclusions		7.0						
						B34-3	3-5-7	12	X	B34-3	36.2
					9.5'						
970	15		...Firm, no iron inclusions		14.5'						
						B34-4	4-5-8	13	X		
965	20		Auger Refusal at 17.8'								
						B34-5	4-4-6	10	X		

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-35



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/02/2023 | Date Completed: 05/02/2023 | Lat/Long: 38.029562 / -84.512377

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type		Samples					Lab	
			Tooling	Surface Elevation	Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	Sample Type	Sample Number	Moisture Content (%)
			Diedrich D-50	988.49'							
			Visual Classification and Remarks								
			<b>Gravel</b>	1.0							
985	5		Firm, brown, moist, <b>Lean Clay (CL)</b> , trace iron inclusions		2'	B35-1	3-3-6	9	X	B35-1	32
					4'	B35-2	3-4-4	8	X	B35-2	29.5
			Auger Refusal at 6.1'								

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-36



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/03/2023 | Date Completed: 05/03/2023 | Lat/Long: 38.029761 / -84.510390

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 975.08'	Samples					Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type	Sample Number
Visual Classification and Remarks												
			<b>Concrete</b>	0.4'								
			Aggregate Base	1.1'								
			Soft, black, moist, <b>Lean Clay (CL)</b>									
970	5			7.0'	2'	B36-1	2-3-4	7				
					4.5'	B36-2	3-5-7	12			B36-2	23.1
			Stiff, yellowish brown, moist, <b>Silty Clay (CL-ML)</b> , With gravel		7'	B36-3	5-5-8	13			B36-3	
965	10		Auger Refusal at 8.6'	8.6'		B36-R1			91	70		
			Limestone, slightly weathered, medium grey Assumed top of 85 KSF bedrock									
960	15			16.1'		B36-R2			99	82		
			Limestone, slightly weathered, light to medium grey ...Dolomite seam at 18.0'									
955	20			25.8'		B36-R3			100	87		
			Limestone, slightly weathered, medium grey, fossiliferous									
945	30		Bottom of Borehole at 30.8'									

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-37



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/08/2023 | Date Completed: 05/08/2023 | Lat/Long: 38.029709 / -84.509869

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 974.55'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	% RQD	Sample Type
Visual Classification and Remarks											
			<b>Topsoil</b>	0.4							
			<b>FILL</b> , soft, yellowish brown, moist, <b>Fat Clay</b> with <b>Gravel</b> (CH)								
970	5			5.5	4'	B37-1	2-2-4	6			
			<b>FILL</b> , dense, gray <b>Gravel</b>		6.5'	B37-2	4-3-3	6			
965	10				9'	B37-3	4-8-5	13			
			Limestone, slightly weathered, light grey Auger Refusal at 11.6'	11.6	11.6'	B37-R1			100	86	
960	15		...Dolomite seam at 14.0'	15.4	15.1'						
			Limestone, slightly weathered, light to medium grey			B37-R2			95	62	
955	20		...Dolomite seam at 19.0'	20.6	20.6'						
			Assumed top of 85 KSF bedrock								
950	25		Limestone, slightly weathered, medium to dark grey, fossiliferous			B37-R3			100	80	
945	30		...Dolomite seam at 21.0' to 23.0'								
			Bottom of Borehole at 30.6'								

**REMARKS**

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_



# Soil Boring: B-38



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/01/2023 | Date Completed: 05/01/2023 | Lat/Long: 38.031067 / -84.512391

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 967.67'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	Sample Type	Sample Number
Visual Classification and Remarks											
965	5		<b>Gravel</b> Firm, brown, moist, <b>Lean Clay</b> (CL), Trace iron inclusions	0.3	2'	B38-ST 1			71		
960	6.5'			9.0	4'	B38-1	3-4-5	9			
					6.5'	B38-2	3-7-7	14		B38-2	41
955	10		Stiff, yellowish brown, moist, <b>Sandy Silt</b> with <b>Gravel</b> (ML)	9.0	9'	B38-3	11-13-13	26			
950	15		Soft, yellowish brown, wet, <b>Silty Clay</b> (CL-ML)	14.0	14'	B38-4	1-WOH-WOH	WOH		B38-4	46
950	17.0'		Auger Refusal at 17.0'								

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-39



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/01/2023 | Date Completed: 05/01/2023 | Lat/Long: 38.031527 / -84.512363

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 970.11'	Samples					Lab		
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	Sample Type	Sample Number	Moisture Content (%)
			Visual Classification and Remarks									
			<b>Topsoil</b>	0.4								
			<b>FILL</b> , fill, soft, dark brown, moist, <b>Fat Clay</b> (CH), Some rock fragments									
965	5				2'							
					4'	B39-ST 1			25			
					6.5'	B39-1	2-1-3	4			B39-1	23.9
			...yellowish brown									
				8.0		B39-2	3-3-4	7				
960	10		Firm, yellowish brown, moist, <b>Fat Clay</b> (CH)		9'							
						B39-3	4-5-5	10			B39-3	35.4
955	15				14'							
						B39-4	50					
			Auger Refusal at 14.5'									
950	20											
945	25											

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-40



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/01/2023 | Date Completed: 05/01/2023 | Lat/Long: 38.031903 / -84.512439

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 963.34'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	Sample Type	Sample Number
			Asphalt	0.6							
			Aggregate Base	1.7							
960	5		Firm, brown, moist, <b>Lean Clay</b> (CL), Trace iron inclusions						65		
					2'	B40-ST 1					
					4'	B40-1	5-6-7	13		X	B40-1 25.5
					7'	B40-2	4-6-8	14		X	
955					9.5'	B40-3	3-25-50	75		X	B40-3 26.6
			Stiff, light brown, moist, <b>Silty Clay</b> (CL-ML)	9.5							
			Auger Refusal at 10.9'								

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_

# Soil Boring: B-41



**Project: UK Cancer Center**  
**Location: 1119 S Limestone, Lexington, KY**  
**Project Number: 23-235**

Date Started: 05/01/2023 | Date Completed: 05/01/2023 | Lat/Long: 38.031849 / -84.512196

Location Accuracy: Surveyed

Elevation (ft)	Depth (Feet)	Graphic Log	Rig Type Tooling Surface Elevation	Diedrich D-50 3-1/4" Hollowstem Auger 960.92'	Samples					Lab	
					Depth of Sample	Sample Number	Blow Counts	Uncorrected N-Value	% Recovery	Sample Type	Sample Number
960			<b>Asphalt</b>	0.4							
			Aggregate Base	1.0							
		Firm, brown, <b>Lean Clay</b> (CL), Trace iron inclusions									
	2'										
	4'				B41-ST 1			75			
	6.5'				B41-1	2-3-4	7		X	B41-1	25.6
	9'				B41-2	4-12-5	17		X	B41-2	23.7
	9'				B41-3	50					
950	10'	Auger Refusal at 9.4'									
945	15'										
940	20'										
935	25'										

REMARKS

**Water Levels**

▽ - \_\_\_\_\_  
**Free Water was not Encountered**  
 ▼ - \_\_\_\_\_



## **BORING B-2**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 10.0 FEET

**RUN 1:** 15.0 - 26.0 FEET

- RECOVERY = 86%
- RQD = 41%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



### CORE RUN - 10.0 FEET

**RUN 2:** 26.0 - 36.0 FEET

- RECOVERY = 95%
- RQD = 80%

*BOTTOM OF ROCK IN LOWER LEFT CORNER*

**BORING B-3**



*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

CORE RUN - 10.0 FEET

**RUN 1:** 8.6 - 15.6 FEET

- RECOVERY = 86%
- RQD = 74%

CORE RUN - 10.0 FEET

**RUN 2:** 15.6-25.6 FEET

- RECOVERY = 96%
- RQD = 85%



*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*





## **BORING B-6**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 9.0 FEET

**RUN 1:** 11.0 - 20.0 FEET

- RECOVERY = 74%
- RQD = 65%



### CORE RUN - 10.0 FEET

**RUN 2:** 20.0 - 30.0 FEET

- RECOVERY = 100%
- RQD = 80%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*

## BORING B-8

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 8 FEET

**RUN 1:** 12.0 - 20.5 FEET

- RECOVERY = 93%
- RQD = 60%



### CORE RUN - 10.0 FEET

**RUN 2:** 20.5 - 30.5 FEET

- RECOVERY = 98%
- RQD = 89%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*







## **BORING B-10**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 10.0 FEET

**RUN 1:** 20.4 - 30.4 FEET

- RECOVERY = 100%
- RQD = 78%



### CORE RUN - 10.0 FEET

**RUN 2:** 30.4 - 40.4 FEET

- RECOVERY = 100%
- RQD = 86%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



## **BORING B-11**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 9.5 FEET

**RUN 1:** 17.0 - 26.5 FEET

- RECOVERY = 100%
- RQD = 81%



### CORE RUN - 10.0 FEET

**RUN 2:** 26.5 - 36.5 FEET

- RECOVERY = 100%
- RQD = 86%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*





## **BORING B-12**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 10.0 FEET

**RUN 4: 9.8 - 19.8 FEET**

- RECOVERY = 100%
- RQD = 68%



### CORE RUN - 10.0 FEET

**RUN 2: 19.8 - 29.8 FEET**

- RECOVERY = 100%
- RQD = 88%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



## **BORING B-16**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 10.0 FEET

**RUN 1:** 9.7 - 19.7 FEET

- RECOVERY = 98%
- RQD = 73%



### CORE RUN - 10.0 FEET

**RUN 2:** 19.7 - 29.7 FEET

- RECOVERY = 100%
- RQD = 94%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*





## **BORING B-17**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 9.5 FEET

**RUN 2: 11.3 - 20.8 FEET**

- RECOVERY = 92%
- RQD = 77%



### CORE RUN - 10.0 FEET

**RUN 2: 20.8 - 30.8 FEET**

- RECOVERY = 100%
- RQD = 92%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



## **BORING B-18**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 10.0 FEET

**RUN 1:** 12.7 - 22.7 FEET

- RECOVERY = 100%
- RQD = 72%



### CORE RUN - 10.0 FEET

**RUN 2:** 22.7 - 32.7 FEET

- RECOVERY = 98%
- RQD = 88%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



## BORING B-19

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 10.0 FEET

**RUN 1:** 12.4 - 22.4 FEET

- RECOVERY = 96%
- RQD = 92%



### CORE RUN - 10.0 FEET

**RUN 2:** 22.4 - 32.4 FEET

- RECOVERY = 100%
- RQD = 97%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*





**BORING B-20**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

CORE RUN - 10.0 FEET

**RUN 1: 12.5 - 22.5 FEET**

- RECOVERY = 45%
- RQD = 25%



CORE RUN - 10.0 FEET

**RUN 2: 22.5 - 32.5 FEET**

- RECOVERY = 100%
- RQD = 89%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*





## **BORING B-21**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 10.0 FEET

**RUN 1:** 13.0 - 23.0 FEET

- RECOVERY = 100%
- RQD = 62%



### CORE RUN - 10.0 FEET

**RUN 2:** 23.0 - 33.0 FEET

- RECOVERY = 100%
- RQD = 77%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



**BORING B-29**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

CORE RUN - 10.0 FEET

**RUN 1: 5.0 - 15.0 FEET**

- RECOVERY = 100%
- RQD = 79%



CORE RUN - 10.0 FEET

**RUN 2: 15.0 - 25.0 FEET**

- RECOVERY = 100%
- RQD = 79%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



## BORING B-36

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN - 7.5 FEET

**RUN 1:** 8.6 - 16.1 FEET

- RECOVERY = 91%
- RQD = 70%



### CORE RUN - 9.7 FEET

**RUN 2:** 16.1 - 25.8 FEET

- RECOVERY = 99%
- RQD = 82%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



**BORING B-36**



*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

CORE RUN – 5.0 FEET

*RUN 3: 25.8 – 30.8 FEET*

- RECOVERY = 100%
- RQD = 87%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



## **BORING B-37**

*TOP OF ROCK CORE IN UPPER RIGHT CORNER*

### CORE RUN – 3.8 FEET

**RUN 1:** 11.6 – 15.4 FEET

- RECOVERY = 100%
- RQD = 86%

### CORE RUN – 5.5 FEET

**RUN 2:** 15.1 – 20.6 FEET

- RECOVERY = 95%
- RQD = 62%

(RUN 1 AND 2 ARE PICTURED IN THE SAME BOX)

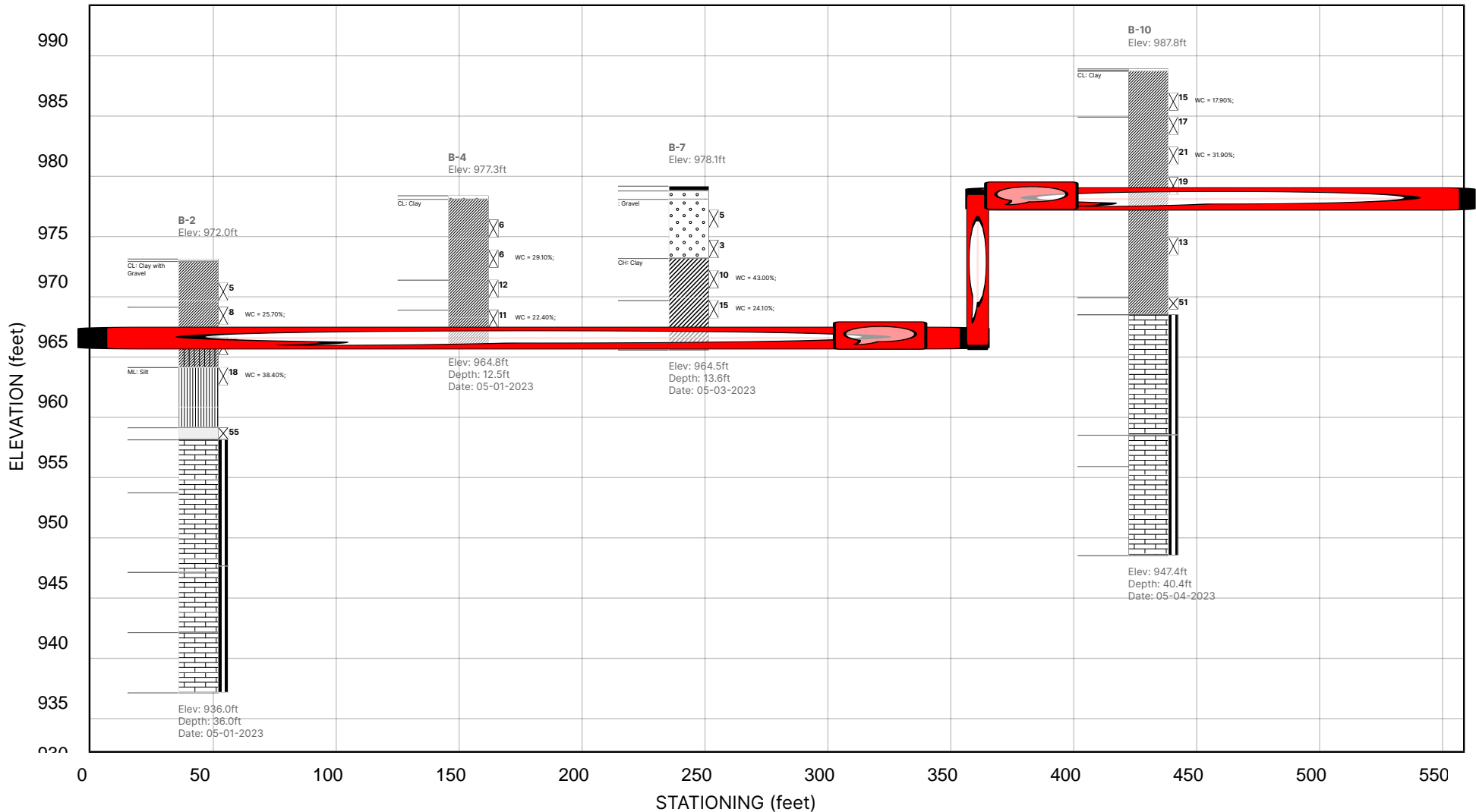


### CORE RUN – 10.0 FEET

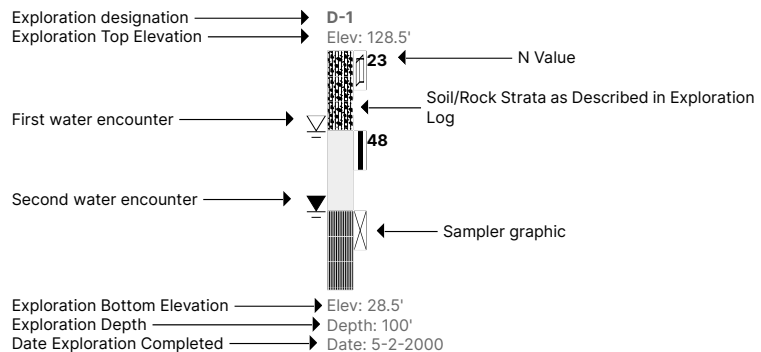
**RUN 3:** 20.6 – 30.6 FEET

- RECOVERY = 100%
- RQD = 80%

*BOTTOM OF ROCK CORE IN LOWER LEFT CORNER*



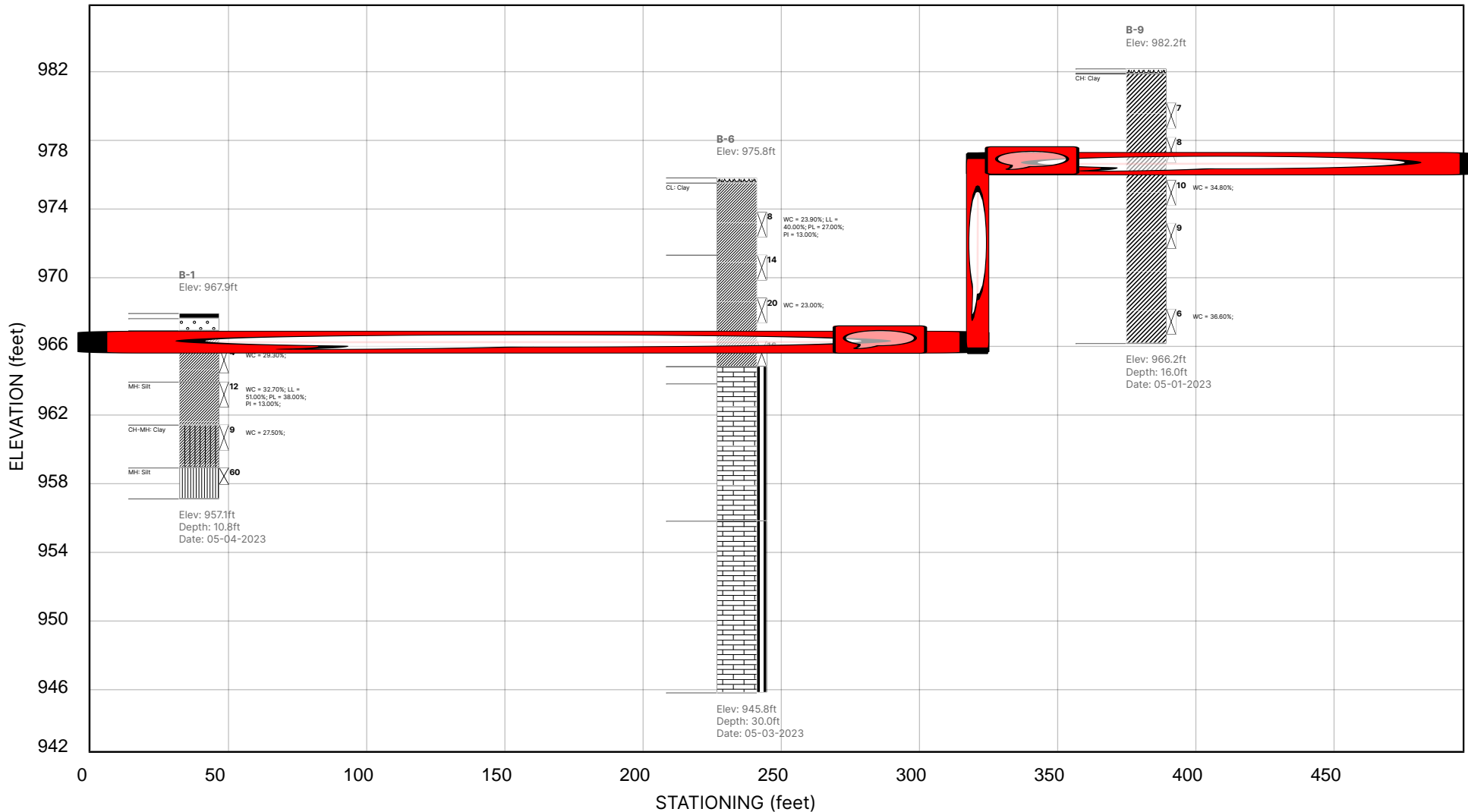
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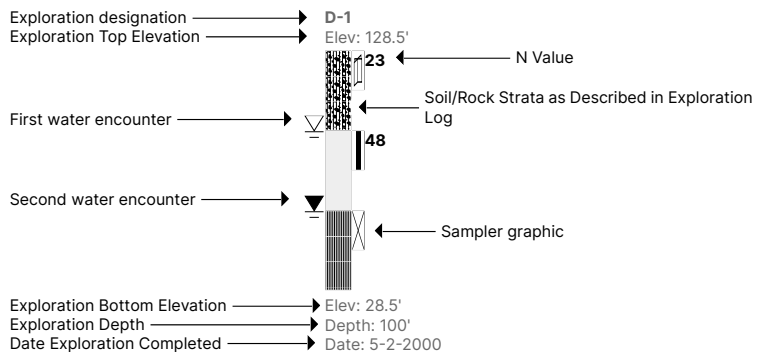
UK Cancer Center  
38.02962, -84.51079

**CROSS SECTIONS REPORT**

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Drawing to be used for illustrative purposes only



**EXPLORATION LOG LEGEND**

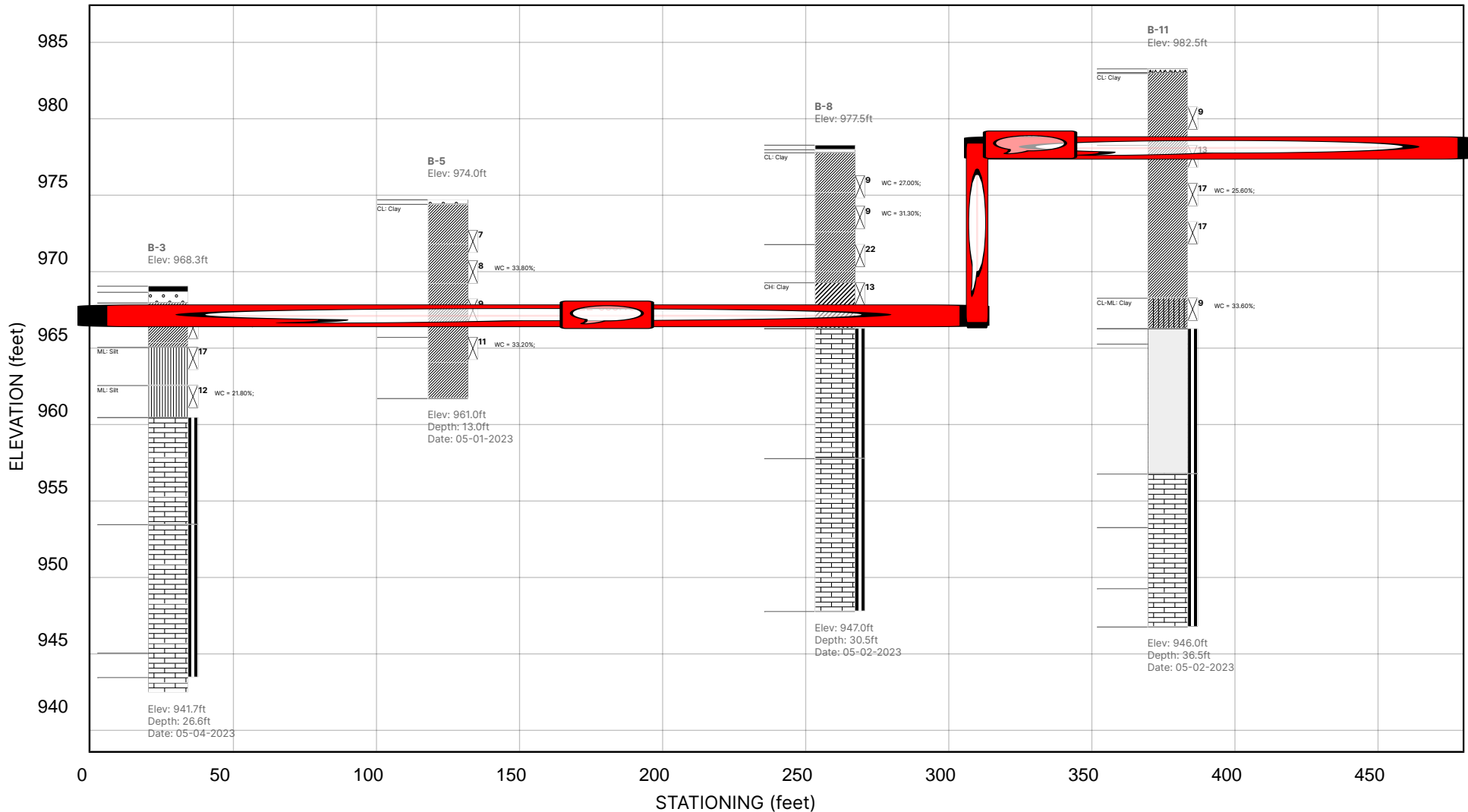


UK Cancer Center  
38.02962, -84.51079

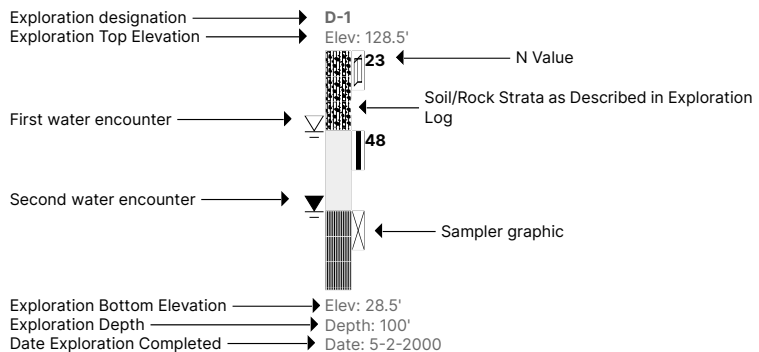
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Drawing is not to be used for illustrative purposes only



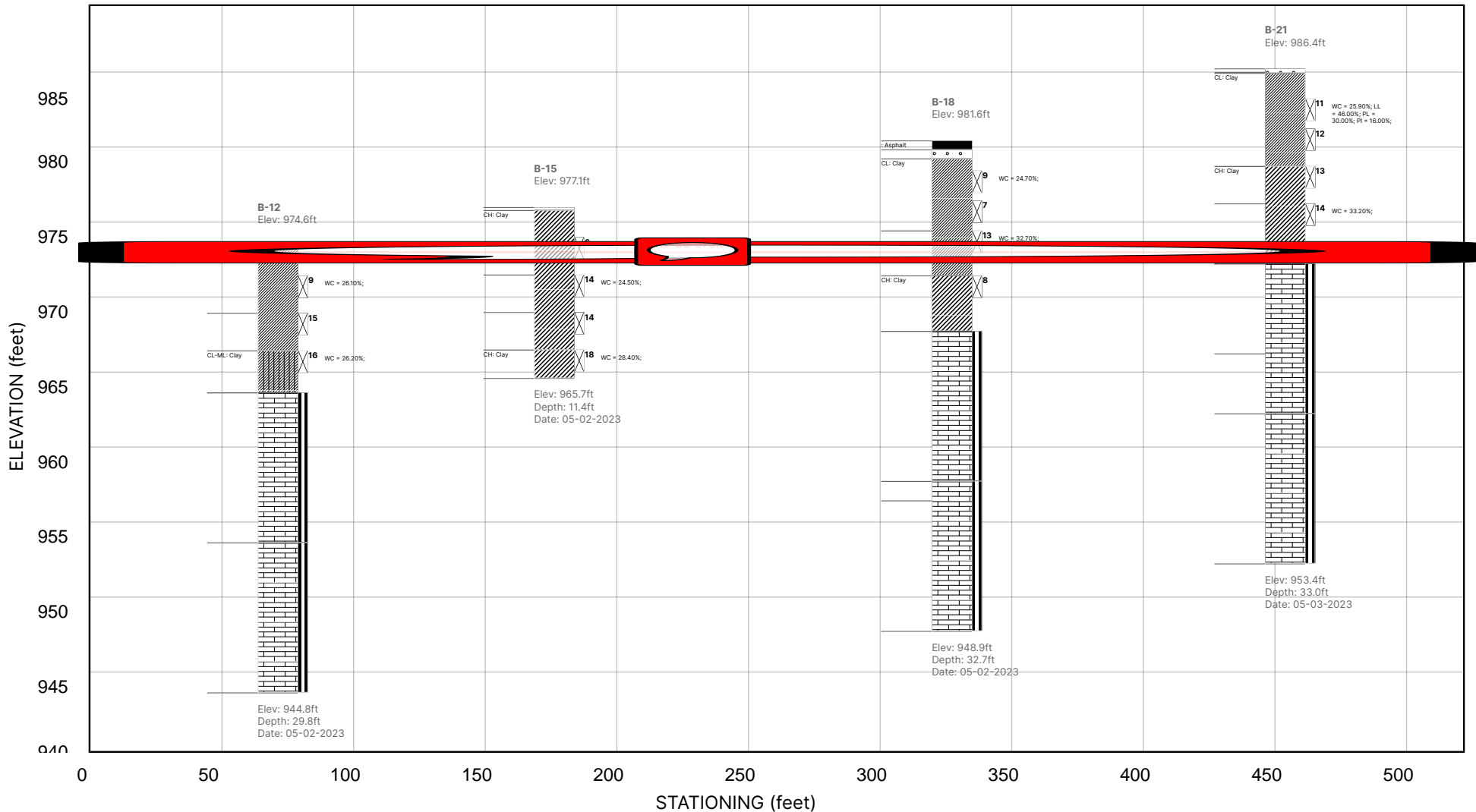
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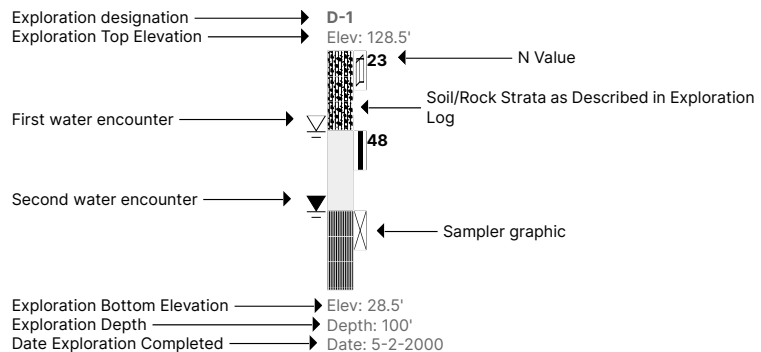
UK Cancer Center 38.02962, -84.51079
<b>CROSS SECTIONS REPORT</b>
<b>SOLID GROUND</b>

Drawing is Not to Scale (NTS)  
Drawing to be used for illustrative purposes only





**EXPLORATION LOG LEGEND**

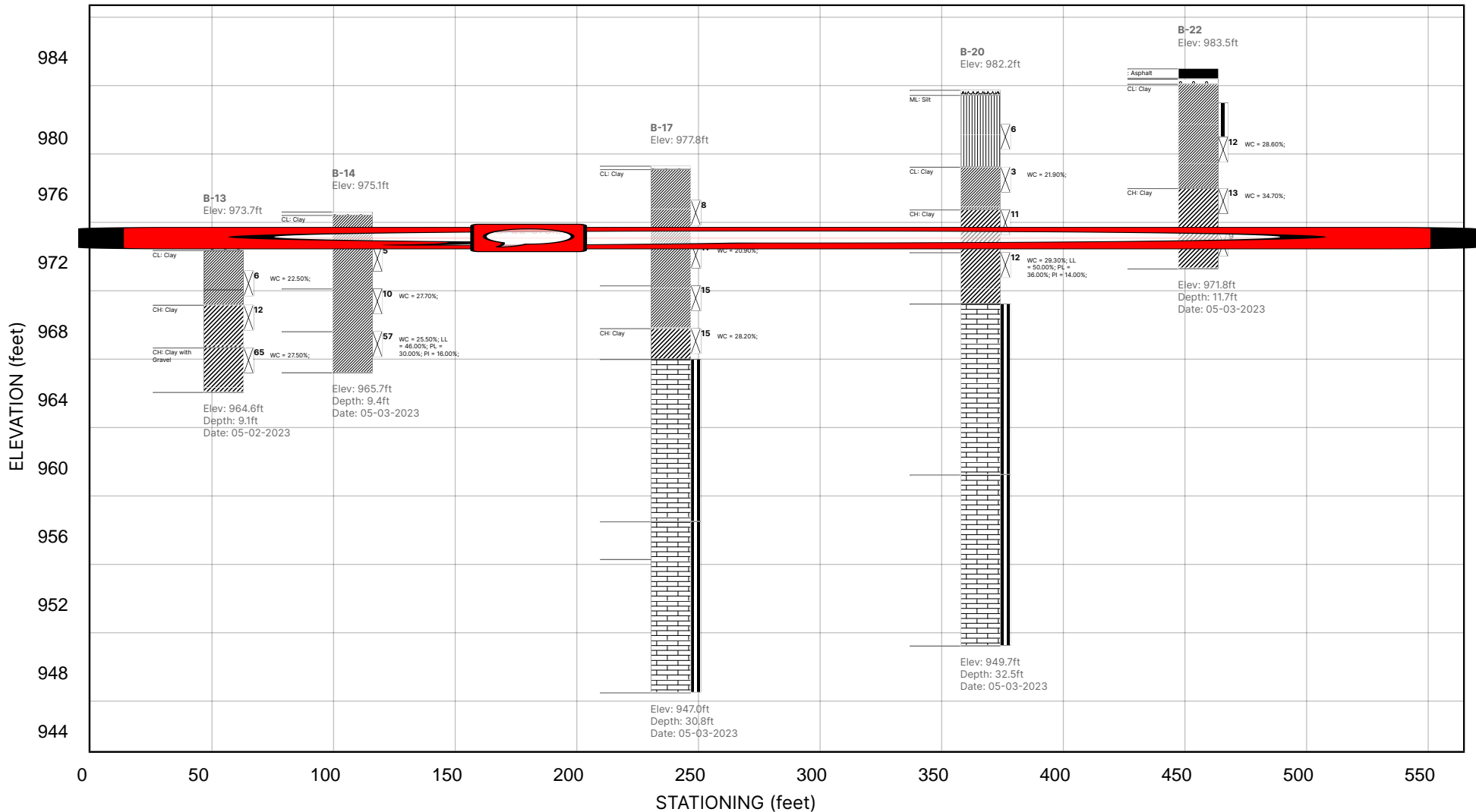


UK Cancer Center  
38.02962, -84.51079

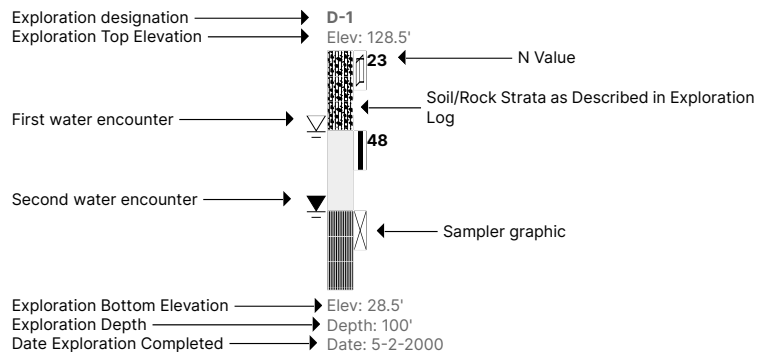
**CROSS SECTIONS REPORT**



Drawing is Not to Scale (NTS)  
Drawing to be used for illustrative purposes only



**EXPLORATION LOG LEGEND**

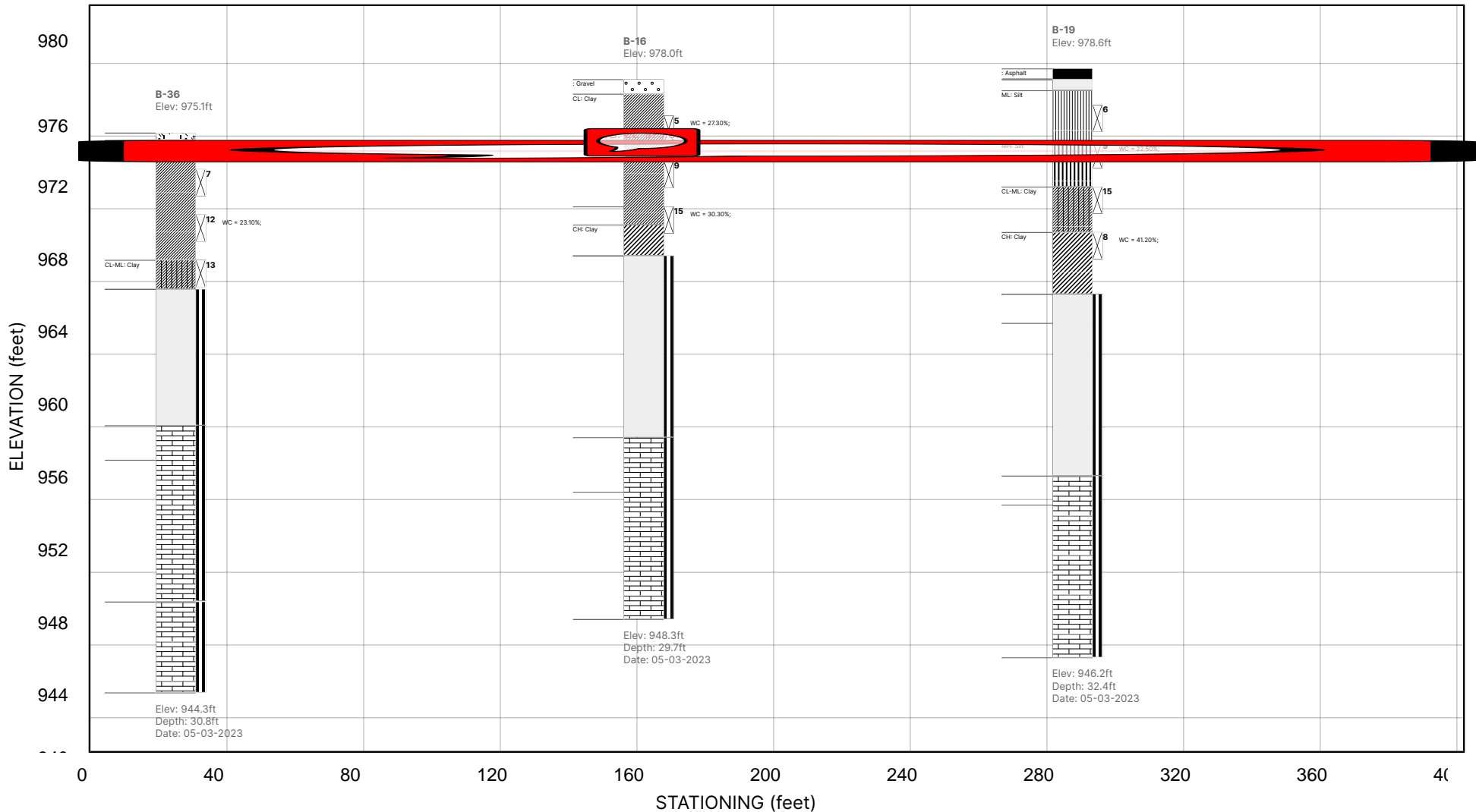


UK Cancer Center  
38.02962, -84.51079

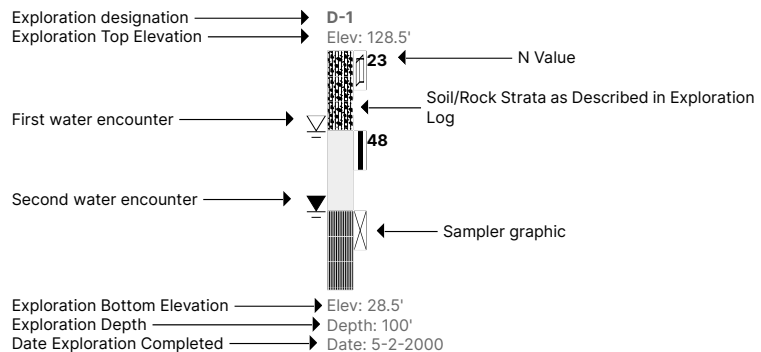
**CROSS SECTIONS REPORT**

**SOLID GROUND**

Drawing is Not to Scale (NTS)  
Drawing to be used for illustrative purposes only



**EXPLORATION LOG LEGEND**

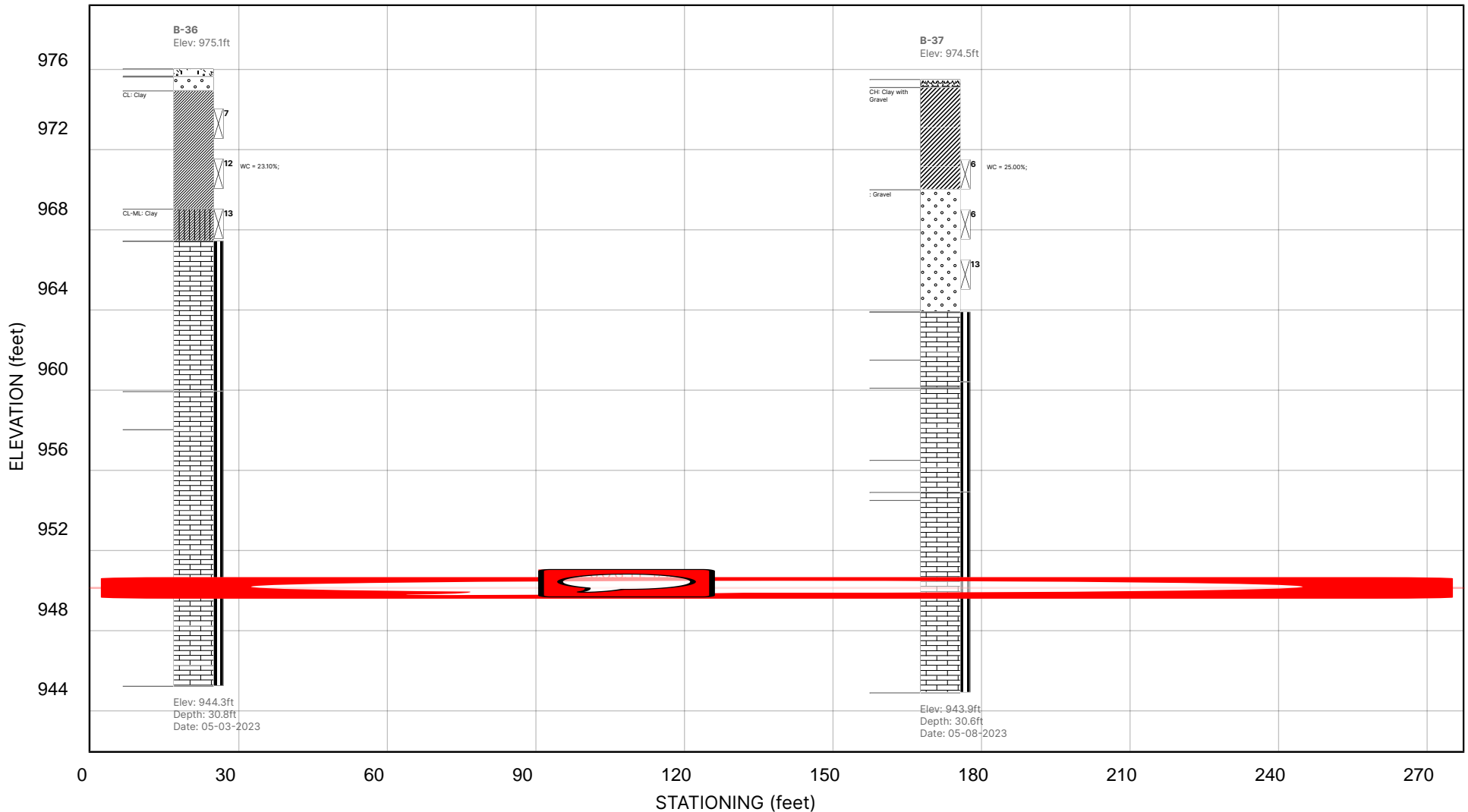


UK Cancer Center  
38.02962, -84.51079

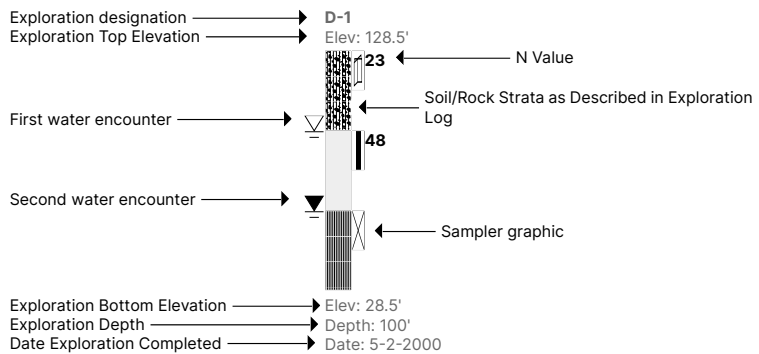
**CROSS SECTIONS REPORT**

**SOLID GROUND**

Drawing is Not to Scale (NTS)  
Drawing to be used for illustrative purposes only



**EXPLORATION LOG LEGEND**

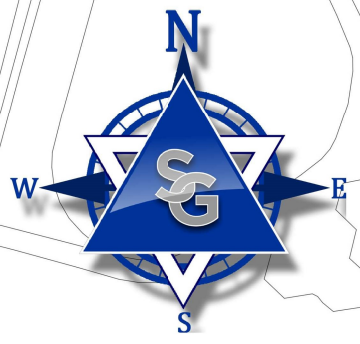
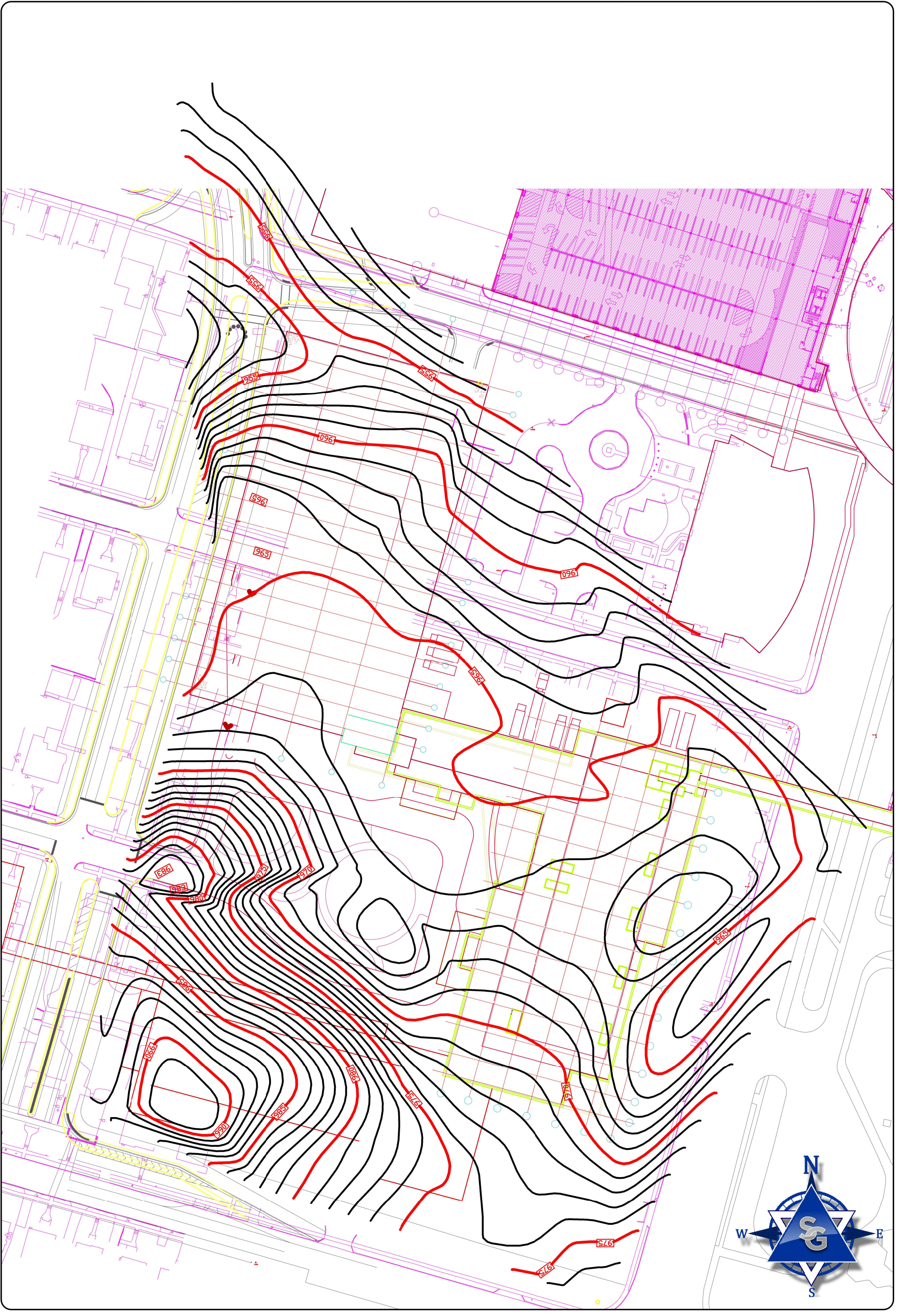


Drawing is Not to Scale (NTS)  
Drawing to be used for illustrative purposes only

UK Cancer Center  
38.02962, -84.51079

**CROSS SECTIONS REPORT**



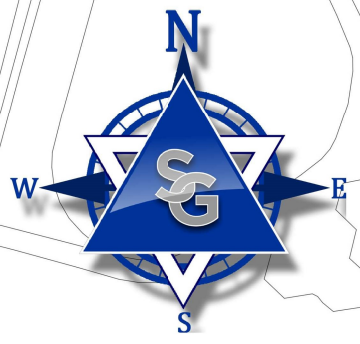


SCALE:	NTS.
DATE:	08/07/23
PROJECT NO.:	23285
DRAWN BY:	JGR
CHECKED BY:	MSS
NO.:	
REVISIONS	DATE:

**Bedrock Surface Map**  
**UK Cancer Center**







**Competent (85KSF) Rock Map**  
**UK Cancer Center**



SCALE:	N.T.S.
DATE:	08/01/23
PROJECT NO.:	23235
DRAWN BY:	JGR
CHECKED BY:	MBS
<b>REVISIONS</b>	
NO.:	DATE:





Distribution:

Report:

## REPORT OF ATTERBERG LIMIT TESTING - ASTM D4318

Project Name UK Cancer Center Project # 23-235

Sample # \_\_\_\_\_ Depth B1 4.0-5.5

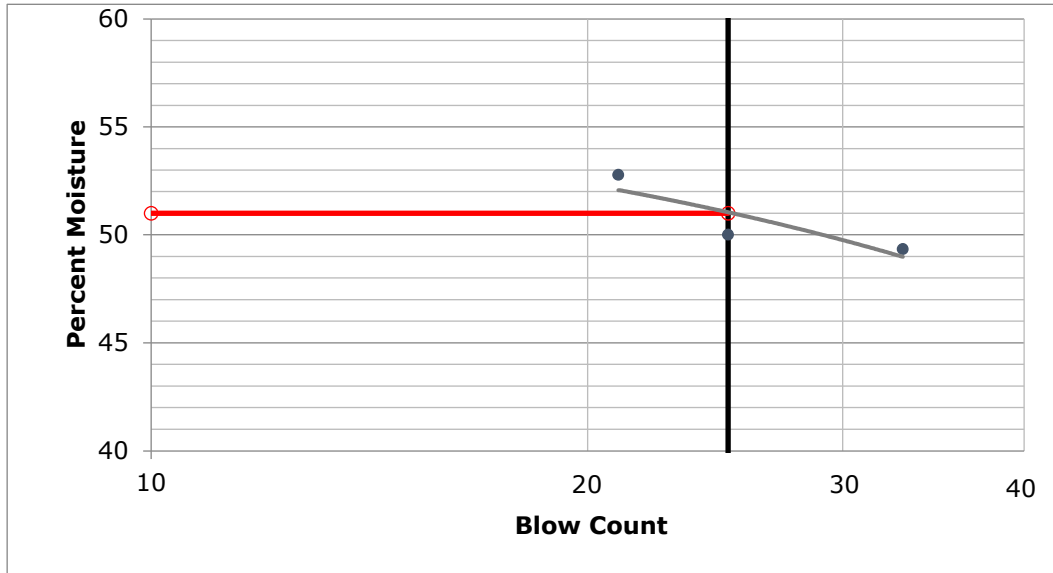
Soil Description Gravelly elastic silt Prep. Method Dry

Date Sample Received 5/12/2023 Date Tested 6/7/2023

### LIQUID LIMIT

Run Number	1	2	3	4	5	6
Tare Number	133	22	108			
Tare + Wet Soil	23.3	24.7	24.4			
Tare + Dry Soil	20.0	21.0	20.6			
Weight of Water	3.3	3.7	3.8			
Weight of Tare	13.4	13.5	13.4			
Weight of Dry Soil	6.6	7.5	7.2			
Water Content	50.0	49.3	52.8			
Number of Blows	25	33	21			

Liquid limit test was performed using manual device and metal grooving tool



LL 51

PL 38

PI 13

SYMBOL  
FROM  
PLASTICITY  
CHART

MH

Minus #200

52.98

USCS

GRAVELLY  
ELASTIC SILT

### PLASTIC LIMIT

Run Number	1	2	3	4	5	Natural Moisture
Tare Number	122	25				
Tare + Wet Soil	18.9	18.1				
Tare + Dry Soil	17.5	16.8				
Weight of Water	1.4	1.3				
Weight of Tare	13.8	13.4				
Weight of Dry Soil	3.7	3.4				
Water Content	37.8	38.2				
Plastic Limit	38.0					

Plastic limit test specimens were hand rolled

Tested by: BK Entered by: BK

Checked by: \_\_\_\_\_



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Distribution:

## Report of Percent Passing No. 200 Sieve ASTM D1140

Project Name UK Cancer Center Project # 23-235

Sample # \_\_\_\_\_ Depth B1 4.0-5.5

Soil Description Gravelly elastic Silt Method A or B B

Date Sample Received 5/12/2023 Date Tested 6/6/2023

Boring/Sample No.	B1					
Depth (From-To)	4.0-5.5					

### #200 DATA

Tare Number	Lg. RP					
Wet Soil + Tare, g	731.8					
Dry Soil + Tare, g	537.9					
Wt. of Tare	431.5					
Wt. of Dry Soil, g	106.4					
Soak Time, hours	24					

### % MOISTURE DATA

Tare Number	25	42				
Wet Soil + Tare, g	73.0	66.3				
Dry Soil + Tare, g	57.8	53.9				
Wt of Water	15.2	12.4				
Wt of Tare	13.7	13.8				
Wt. of Dry Soil, g	44.1	40.1				
% Moisture	34.5	30.9				

### CALCULATIONS

Dry Wt. Before, g	226.3					
Dry Wt. After, g	106.4					
% Retained	47.0					
% Passing	53.0					

Tested by: BK Entered by: BK Checked by: \_\_\_\_\_





Distribution:

Report:

## REPORT OF ATTERBERG LIMIT TESTING - ASTM D4318

Project Name UK Cancer Center Project # 23-235

Sample # \_\_\_\_\_ Depth B6 2.0-3.5

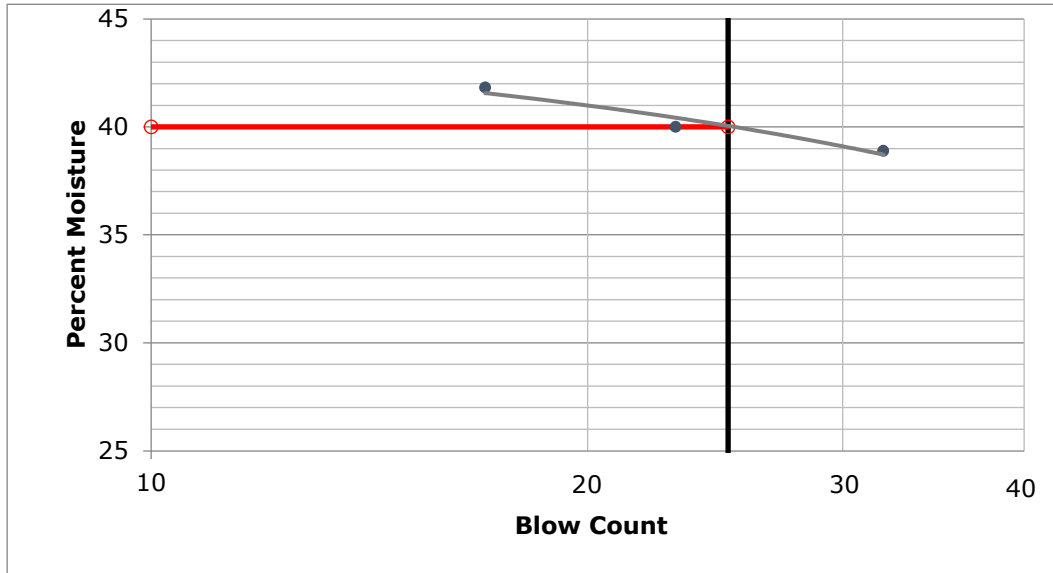
Soil Description Silt Prep. Method Dry

Date Sample Received 5/12/2023 Date Tested 6/7/2023

### LIQUID LIMIT

Run Number	1	2	3	4	5	6
Tare Number	47	142	12			
Tare + Wet Soil	21.6	21.0	23.3			
Tare + Dry Soil	19.3	18.9	20.5			
Weight of Water	2.3	2.1	2.8			
Weight of Tare	13.8	13.5	13.5			
Weight of Dry Soil	5.5	5.4	7.0			
Water Content	41.8	38.9	40.0			
Number of Blows	17	32	23			

Liquid limit test was performed using manual device and metal grooving tool



LL 40

PL 27

PI 13

SYMBOL  
FROM  
PLASTICITY  
CHART

ML

Minus #200

88.22

USCS

SILT

### PLASTIC LIMIT

Run Number	1	2	3	4	5	Natural Moisture
Tare Number	112	39				
Tare + Wet Soil	18.4	18.9				
Tare + Dry Soil	17.4	17.8				
Weight of Water	1.0	1.1				
Weight of Tare	13.6	13.8				
Weight of Dry Soil	3.8	4.0				
Water Content	26.3	27.5				
Plastic Limit	26.9					

Plastic limit test specimens were hand rolled

Tested by: BK Entered by: BK

Checked by: \_\_\_\_\_



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Distribution:

## Report of Percent Passing No. 200 Sieve ASTM D1140

Project Name UK Cancer Center Project # 23-235

Sample # \_\_\_\_\_ Depth B6 2.0-3.5

Soil Description Silt Method A or B B

Date Sample Received 5/12/2023 Date Tested 6/6/2023

Boring/Sample No.	B6					
Depth (From-To)	2.0-3.5					

<b>#200 DATA</b>						
Tare Number	Lg. RP					
Wet Soil + Tare, g	787.8					
Dry Soil + Tare, g	467.1					
Wt. of Tare	433.4					
Wt. of Dry Soil, g	33.7					
Soak Time, hours	24					

<b>% MOISTURE DATA</b>						
Tare Number	206	116				
Wet Soil + Tare, g	69.0	73.3				
Dry Soil + Tare, g	57.8	62.6				
Wt of Water	11.2	10.7				
Wt of Tare	14.4	13.8				
Wt. of Dry Soil, g	43.4	48.8				
% Moisture	25.8	21.9				

<b>CALCULATIONS</b>						
Dry Wt. Before, g	286.1					
Dry Wt. After, g	33.7					
% Retained	11.8					
% Passing	88.2					

Tested by: BK Entered by: BK Checked by: \_\_\_\_\_



Distribution:

Report:

## REPORT OF ATTERBERG LIMIT TESTING - ASTM D4318

Project Name UK Cancer Center Project # 23-235

Sample # \_\_\_\_\_ Depth B14 7.0-8.3

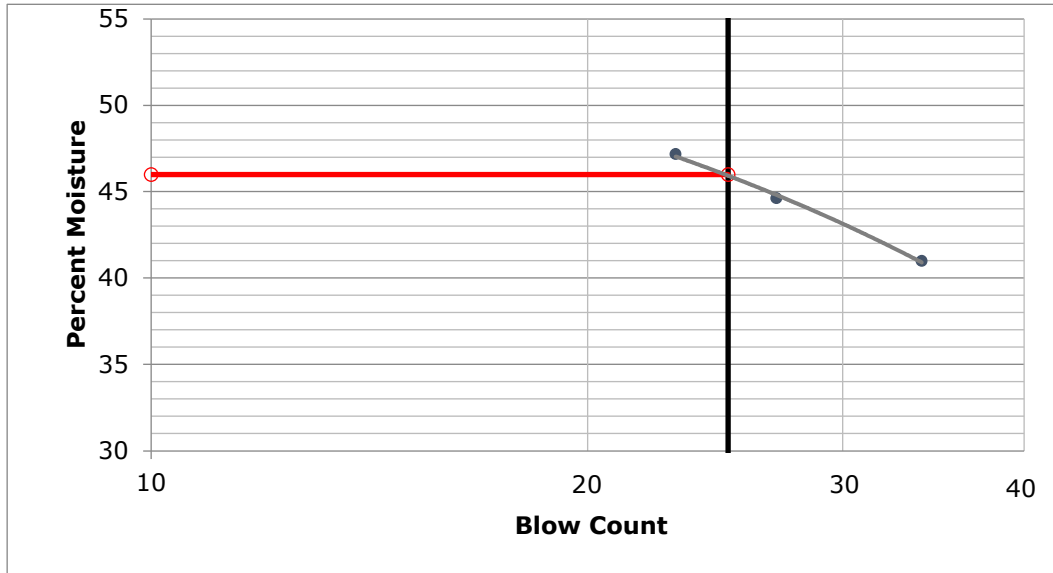
Soil Description Sandy silt with gravel Prep. Method Dry

Date Sample Received 5/12/2023 Date Tested 6/7/2023

### LIQUID LIMIT

Run Number	1	2	3	4	5	6
Tare Number	233	15	112			
Tare + Wet Soil	22.4	22.9	21.4			
Tare + Dry Soil	19.9	20.0	18.9			
Weight of Water	2.5	2.9	2.5			
Weight of Tare	13.8	13.5	13.6			
Weight of Dry Soil	6.1	6.5	5.3			
Water Content	41.0	44.6	47.2			
Number of Blows	34	27	23			

Liquid limit test was performed using manual device and metal grooving tool



LL 46

PL 30

PI 16

SYMBOL FROM PLASTICITY CHART

ML

Minus #200

64.78

USCS

SANDY SILT WITH GRAVEL

### PLASTIC LIMIT

Run Number	1	2	3	4	5	Natural Moisture
Tare Number	39	47				
Tare + Wet Soil	17.8	18.8				
Tare + Dry Soil	16.9	17.6				
Weight of Water	0.9	1.2				
Weight of Tare	13.8	13.8				
Weight of Dry Soil	3.1	3.8				
Water Content	29.0	31.6				
Plastic Limit	30.3					

Plastic limit test specimens were hand rolled

Tested by: BK Entered by: BK

Checked by: \_\_\_\_\_



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Distribution:

## Report of Percent Passing No. 200 Sieve ASTM D1140

Project Name UK Cancer Center Project # 23-235

Sample # \_\_\_\_\_ Depth B14 7.0-8.3

Soil Description Sandy silt with gravel Method A or B B

Date Sample Received 5/12/2023 Date Tested 6/6/2023

Boring/Sample No.	B14					
Depth (From-To)	7.0-8.3					

<b>#200 DATA</b>						
Tare Number	RP					
Wet Soil + Tare, g	507.1					
Dry Soil + Tare, g	265.9					
Wt. of Tare	171.8					
Wt. of Dry Soil, g	94.1					
Soak Time, hours	24					

<b>% MOISTURE DATA</b>						
Tare Number	211	201				
Wet Soil + Tare, g	71.1	65.6				
Dry Soil + Tare, g	59.6	55.2				
Wt of Water	11.5	10.4				
Wt of Tare	14.5	14.4				
Wt. of Dry Soil, g	45.1	40.8				
% Moisture	25.5	25.5				

<b>CALCULATIONS</b>						
Dry Wt. Before, g	267.2					
Dry Wt. After, g	94.1					
% Retained	35.2					
% Passing	64.8					

Tested by: BK Entered by: BK Checked by: \_\_\_\_\_



Distribution:

Report:

## REPORT OF ATTERBERG LIMIT TESTING - ASTM D4318

Project Name UK Cancer Center Project # 23-235

Sample # \_\_\_\_\_ Depth B20 9.5-11.0

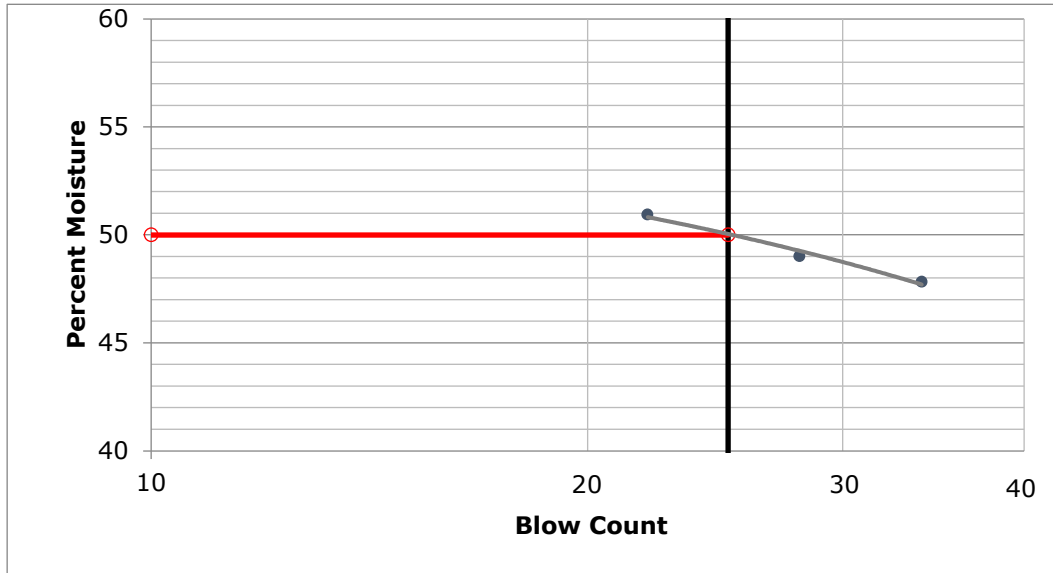
Soil Description Gravelly elastic silt Prep. Method dry

Date Sample Received 5/12/2023 Date Tested 6/11/2023

### LIQUID LIMIT

Run Number	1	2	3	4	5	6
Tare Number	233	55	10			
Tare + Wet Soil	21.4	20.7	21.4			
Tare + Dry Soil	18.9	18.5	18.7			
Weight of Water	2.5	2.2	2.7			
Weight of Tare	13.8	13.9	13.4			
Weight of Dry Soil	5.1	4.6	5.3			
Water Content	49.0	47.8	50.9			
Number of Blows	28	34	22			

Liquid limit test was performed using manual device and metal grooving tool



LL 50

PL 36

PI 14

SYMBOL  
FROM  
PLASTICITY  
CHART

MH

Minus #200

62.88

USCS

GRAVELLY  
ELASTIC SILT

### PLASTIC LIMIT

Run Number	1	2	3	4	5	Natural Moisture
Tare Number	30	26				
Tare + Wet Soil	18.4	19.1				
Tare + Dry Soil	17.1	17.7				
Weight of Water	1.3	1.4				
Weight of Tare	13.5	13.8				
Weight of Dry Soil	3.6	3.9				
Water Content	36.1	35.9				
Plastic Limit	36.0					

Plastic limit test specimens were hand rolled

Tested by: BK Entered by: BK

Checked by: \_\_\_\_\_



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Distribution:

## Report of Percent Passing No. 200 Sieve ASTM D1140

Project Name UK Cancer Center Project # 23-235  
 Sample # \_\_\_\_\_ Depth B20 9.5-11.0  
 Soil Description Gravelly elastic silt Method A or B B  
 Date Sample Received 5/12/2023 Date Tested 6/11/2023

Boring/Sample No.	B20					
Depth (From-To)	9.5-11.0					

#200 DATA						
Tare Number	RP					
Wet Soil + Tare, g	472.0					
Dry Soil + Tare, g	258.6					
Wt. of Tare	172.7					
Wt. of Dry Soil, g	85.9					
Soak Time, hours	24					

% MOISTURE DATA						
Tare Number	119	45				
Wet Soil + Tare, g	90.3	88.1				
Dry Soil + Tare, g	72.5	71.6				
Wt of Water	17.8	16.5				
Wt of Tare	13.8	13.4				
Wt. of Dry Soil, g	58.7	58.2				
% Moisture	30.3	28.4				

CALCULATIONS						
Dry Wt. Before, g	231.4					
Dry Wt. After, g	85.9					
% Retained	37.1					
% Passing	62.9					

Tested by: BK Entered by: BK Checked by: \_\_\_\_\_



Distribution:

Report:

## REPORT OF ATTERBERG LIMIT TESTING - ASTM D4318

Project Name UK Cancer Center Project # 23-235

Sample # \_\_\_\_\_ Depth B21 2.0-3.5

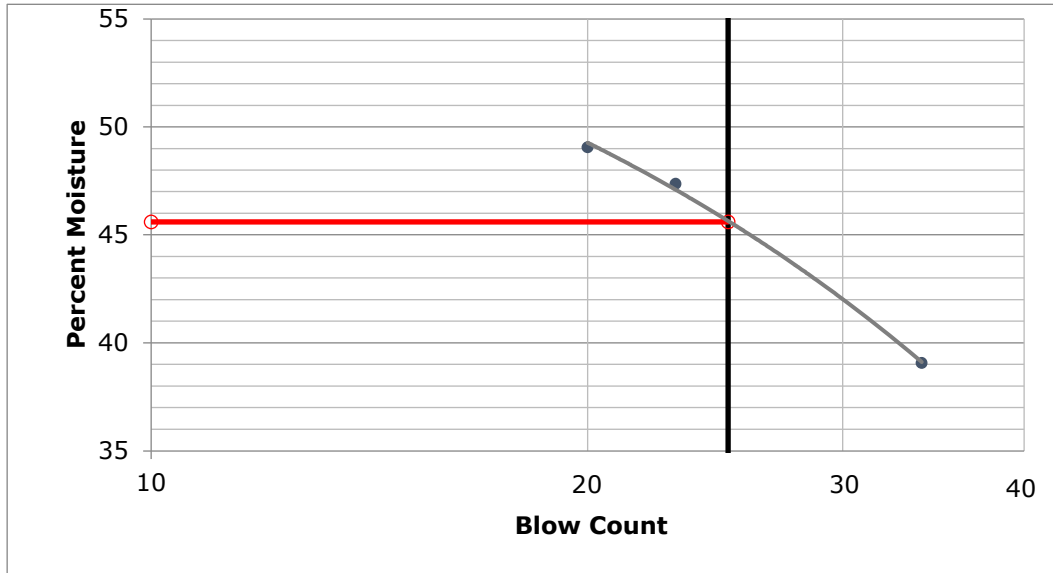
Soil Description Silt with gravel Prep. Method Dry

Date Sample Received 5/12/2023 Date Tested 6/11/2023

### LIQUID LIMIT

Run Number	1	2	3	4	5	6
Tare Number	34	119	2			
Tare + Wet Soil	22.3	25.0	21.7			
Tare + Dry Soil	19.8	21.4	19.1			
Weight of Water	2.5	3.6	2.6			
Weight of Tare	13.4	13.8	13.8			
Weight of Dry Soil	6.4	7.6	5.3			
Water Content	39.1	47.4	49.1			
Number of Blows	34	23	20			

Liquid limit test was performed using manual device and metal grooving tool



LL 46

PL 30

PI 16

SYMBOL FROM PLASTICITY CHART

ML

Minus #200

74.36

USCS

SILT WITH GRAVEL

### PLASTIC LIMIT

Run Number	1	2	3	4	5	Natural Moisture
Tare Number	56	108				
Tare + Wet Soil	19.2	19.4				
Tare + Dry Soil	17.9	18.0				
Weight of Water	1.3	1.4				
Weight of Tare	13.5	13.4				
Weight of Dry Soil	4.4	4.6				
Water Content	29.5	30.4				
Plastic Limit	30.0					

Plastic limit test specimens were hand rolled

Tested by: BK Entered by: BK

Checked by: \_\_\_\_\_



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Distribution:

## Report of Percent Passing No. 200 Sieve ASTM D1140

Project Name UK Cancer Center Project # 23-235  
 Sample # \_\_\_\_\_ Depth B21 2.0-3.5  
 Soil Description Silt with gravel Method A or B B  
 Date Sample Received 5/12/2023 Date Tested 6/11/2023

Boring/Sample No.	B21					
Depth (From-To)	2.0-3.5					

#200 DATA						
Tare Number	RP					
Wet Soil + Tare, g	570.5					
Dry Soil + Tare, g	252.5					
Wt. of Tare	171.2					
Wt. of Dry Soil, g	81.3					
Soak Time, hours	24					

% MOISTURE DATA						
Tare Number	15	33				
Wet Soil + Tare, g	67.7	65.7				
Dry Soil + Tare, g	56.6	54.9				
Wt of Water	11.1	10.8				
Wt of Tare	13.8	13.3				
Wt. of Dry Soil, g	42.8	41.6				
% Moisture	25.9	26.0				

CALCULATIONS						
Dry Wt. Before, g	317.0					
Dry Wt. After, g	81.3					
% Retained	25.6					
% Passing	74.4					

Tested by: BK Entered by: BK Checked by: \_\_\_\_\_



## Natural Moisture Content Determination (ASTM D2216)

Project Name: UK Cancer Center  
 Project Number: 23-256

Date: \_\_\_\_\_  
 Page: 4

Boring Number	Sample Depth	Can ID Number	Can Weight	Wet Weight + Can	Moisture %
B1	2.0-3.5	128	13.8	65.0	29.3
		126	13.7	70.2	27.5
	6.5-8.0	205	14.5	66.8	37.3
		27	13.7	65.4	31.2
B2	4.0-5.5	233	13.8	66.2	25.7
		202	14.3	65.5	26.1
	9.0-10.5	209	14.4	70.7	37.3
		200	14.5	69.2	39.5
B3	2.0-3.5	203	14.4	65.8	25.7
		207	14.3	80.8	24.5
	6.5-8.0	112	13.6	81.1	21.8
		145	13.4	73.5	21.7
B4	4.5-6.0	15	13.5	63.0	31.6
		24	13.5	69.4	26.5
	9.5-11.0	131	13.6	77.5	22.4
		46	13.5	70.4	22.4
B5	4.0-5.5	240	13.4	70.3	33.6
		50	13.7	75.8	34.1
	9.0-10.5	57	13.9	72.2	35.0
		36	13.8	70.2	31.5
B6	2.0-3.5	206	14.4	69.0	25.8
		116	13.8	73.3	21.9
	7.0-8.5	133	13.4	69.2	24.0
		51	13.8	73.3	21.9
B7	7.0-8.5	129	13.8	68.6	41.6
		147	13.5	73.7	44.4
	9.5-11.0	54	13.4	93.0	22.3
		134	13.4	66.3	26.0
B8	2.0-3.5	28	13.8	73.0	26.5
		3	13.4	76.8	27.6
	4.0-5.5	14	13.8	74.6	30.8
		210	14.3	67.3	31.8
B9	6.5-8.0	188	13.5	69.2	35.2
		48	13.4	65.3	34.5
	14.0-15.5	22	13.4	81.9	26.9
		19	13.8	66.9	46.3
B10	2.0-3.5	49	13.4	75	16.9
		208	14.3	71.9	19.0
	6.5-8.0	32	13.6	64.9	31.5
		132	13.8	79.1	32.2
B11	7.5-9.0	18	13.8	73.1	25.1

		41	13.4	67.6	26.0
	15.0-16.5	47	13.8	77.3	34.8
		10	13.4	75.4	32.5
B12	2.0-3.5	44	13.9	78.9	26.7
		20	13.5	73.6	25.5
	7.0-8.5	254	13.8	81.9	26.6
		16	13.8	81.2	25.7
B13	2.0-3.5	3	13.4	71.5	21.8
		6	13.7	65.1	23.3
	6.5-8.0	100	13.9	67.4	30.2
		40	13.7	72.1	24.8
B14	4.5-6.0	204	14.7	80.7	26.2
		38	13.7	69.5	29.2
	7.0-8.3	211	14.5	71.1	25.5
		201	14.4	65.6	25.5
B15	4.5-6.0	4	13.8	85.8	25.9
		122	13.8	65.6	23.0
	9.5-11.0	42	13.6	71.4	24.6
		142	13.5	83.4	32.1
B16	2.0-3.5	21	13.8	73.6	29.7
		9	13.7	81.9	24.9
	7.0-8.5	29	13.8	67.6	29.6
		2	13.8	62.5	30.9
B17	4.5-6.0	35	13.4	65	21.4
		201	21.5	74.6	20.4
	9.5-11.0	200	21.7	77.2	26.4
		203	21.6	73.2	30.0
B18	2.0-3.5	55	13.9	72.1	24.9
		43	13.5	73.5	24.5
	6.0-8.5	139	13.6	67.5	32.8
		113	13.6	66.4	32.7
B19	4.0-5.5	38	13.5	77.8	22.5
		58	13.8	68.9	22.4
	9.0-10.5	37	13.3	77.4	45.0
		17	13.6	68.8	37.3
B20	4.5-6.0	12	13.5	78.1	21.7
		8	13.5	73.2	22.1
	9.5-11.0	119	13.8	90.3	30.3
		45	13.4	88.1	28.4
B21	2.0-3.5	15	13.8	67.7	25.9
		33	13.3	65.7	26.0
	9.0-10.5	52	13.6	67.7	33.6
		301	19.3	72.3	32.8
B22	4.0-5.5	302	19.3	72.3	32.8
		303	20.5	93.9	24.4
	7.0-8.5	304	23.8	99.7	34.6
		305	20	83.1	34.8

B23	4.0-5.5	306	19.2	79.2	34.5
		307	18.9	99.8	31.1
	9.0-10.5	308	20.8	110	28.2
		309	19.5	76	26.4
B24	2.0-3.5	310	19.3	81.3	22.8
		311	19.6	79.9	26.4
	6.5-8.0	312	19.7	102.3	27.5
		313	18.4	104.6	30.4
B25	4.5-6.0	-	20.2	105.7	21.8
		-	19.8	97.2	22.5
	9.5-11.0	-	18.1	94.8	33.4
		-	22.2	91.2	31.9
B26	2.0-3.5	-	19.2	91	25.3
		-	18.5	95	26.4
	6.5-8.0	-	21	85.9	27.0
		-	20.4	95.4	33.0
B27	4.5-6.0	26	13.8	63.6	26.1
		56	13.4	77.8	32.8
	9.5-10.9	114	13.9	84.7	31.4
		11	13.9	80.4	46.2
B28	2.0-3.5	60	13.7	74.4	24.9
		315	21.5	72.6	25.2
	6.5-8.0	316	21.6	81.9	24.3
		34	13.4	78.4	24.5
B29	2.0-3.5	25	13.4	81.6	33.7
		317	21.5	82.9	31.8
	4.0-4.6	108	13.4	79.2	24.6
		39	13.8	65.9	26.5
B30	4.0-5.5	24	13.8	75.9	27.5
		13	13.8	83	27.2
	9.0-9.8	5	13.5	65	32.1
		53	13.4	71	30.3
B31	2.0-3.5	48	13.5	67.8	29.3
		31	13.5	86.3	27.3
	6.5-8.0	30	13.5	68.5	32.9
		7	13.5	75.2	30.4
B32	1.5-3.0	128	13.8	62.7	32.2
		11	13.9	64.6	38.5
	4.0-5.5	39	13.8	71	31.8
		30	13.5	64.2	27.4
B33	6.5-8.0	26	13.8	71.2	37.3
		25	13.4	62.9	28.2
	14.0-15.5	7	13.5	65.4	34.8
		25	13.8	70.4	28.6
B34	2.0-3.5	142	13.5	70.3	25.7
		122	13.8	70.1	25.4
	7.0-8.5	12	13.5	83.3	36.3



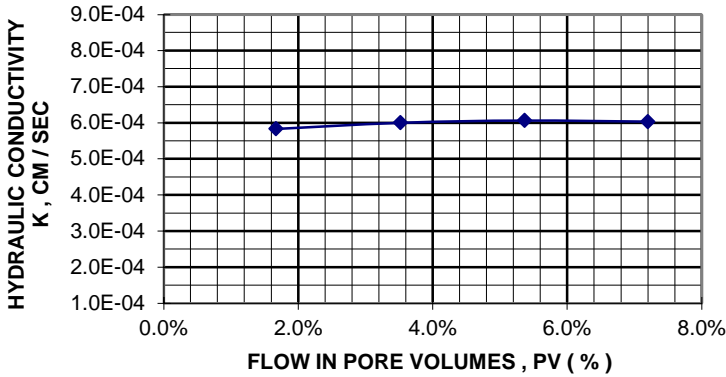
# HYDRAULIC CONDUCTIVITY OF SOIL

ASTM D 5084 Method C



S&ME - Lexington 2020 Liberty Road Lexington, KY 40505

<b>JOB NAME :</b> <i>Solid Ground: UK Cancer</i>			
<b>JOB NO. :</b> 3783-16-006	<b>SAMPLE DATE:</b> 05/04/23	<b>REPORT DATE:</b> 05/12/23	<b>REVIEWED BY :</b> J. Folsom
<b>DEPTH / ELEV. :</b> 2.0 - 4.0		<b>SAMPLE TYPE:</b> <i>Intact</i>	
<b>SAMPLE LOCATION:</b> B33		<b>DIAMETER , INCHES :</b> 2.86	
<b>SOIL DESCRIPTION :</b> <i>FAT CLAY (visual-manual), brown</i>		<b>LENGTH , INCHES :</b> 3.53	
		<b>SPECIFIC GRAVITY, G<sub>s</sub> :</b> 2.65	



**HYDRAULIC CONDUCTIVITY, k \***  
**6.0E-04 CM / SEC @ 20 °C**

SPECIMEN PROPERTIES			
INITIAL			
MOISTURE CONTENT	W <sub>o</sub>	23.7	%
DRY BULK DENSITY	γ <sub>dryo</sub>	95.3	pcf
SATURATION	S <sub>o</sub>	85.6	%
VOID RATIO	e <sub>o</sub>	0.735	
AFTER CONSOLIDATION			
MOISTURE CONTENT	W <sub>c</sub>	26.7	%
DRY BULK DENSITY	γ <sub>dryc</sub>	97.0	pcf
SATURATION	S <sub>c</sub>	100.0	%
VOID RATIO	e <sub>c</sub>	0.706	
PERMEATION			
FINAL BACK PRESSURE	u <sub>o</sub>	65.0	psi
EFFECTIVE CONSOLIDATION PRESSURE	σ <sub>3</sub> '	2.0	psi
MAXIMUM HYDRAULIC GRADIENT	i <sub>max</sub>	5.2	
MINIMUM HYDRAULIC GRADIENT	i <sub>min</sub>	1.9	
QUANTITY OF FLOW	Q	10.9	cm <sup>3</sup>
TOTAL PORE VOLUME OF FLOW	PV	7.2	%

TEST CONDITIONS	
<b>PERMEANT DESCRIPTION :</b>	<i>Water</i> @ 23 °C
<b>METHOD:</b>	<i>C - Falling Head, Rising Tailwater</i>

**References / Comments / Deviations:** \*Applicability of test method is limited to soils of Hydraulic Conductivity of 4.0E-04 and slower. Hydraulic Conductivity is the reported rate or faster.

Jacob Folsom  
Technical Responsibility

Jacob Folsom  
Signature

Lab Services Manager  
Position

5/18/2023  
Date

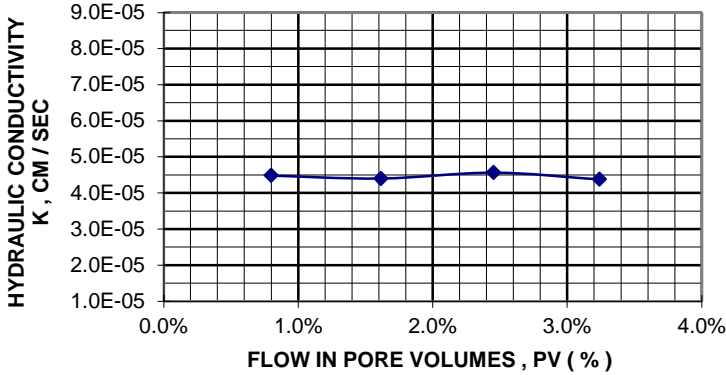
# HYDRAULIC CONDUCTIVITY OF SOIL

ASTM D 5084 Method C



S&ME - Lexington 2020 Liberty Road Lexington, KY 40505

<b>JOB NAME :</b> <i>Solid Ground: UK Cancer</i>			
<b>JOB NO. :</b> 3783-16-006	<b>SAMPLE DATE:</b> 05/04/23	<b>REPORT DATE:</b> 05/18/23	<b>REVIEWED BY :</b> J. Folsom
<b>DEPTH / ELEV. :</b> 2.0 - 4.0		<b>SAMPLE TYPE:</b> <i>Intact</i>	
<b>SAMPLE LOCATION:</b> <i>B38</i>		<b>DIAMETER , INCHES :</b> 2.83	
<b>SOIL DESCRIPTION :</b> <i>FAT CLAY(visaul-manual), brown</i>		<b>LENGTH , INCHES :</b> 3.12	
		<b>SPECIFIC GRAVITY, G<sub>s</sub> :</b> 2.65	



**HYDRAULIC CONDUCTIVITY, k**  
**4.5E-05 CM / SEC @ 20 °C**

SPECIMEN PROPERTIES			
INITIAL			
MOISTURE CONTENT	W <sub>o</sub>	23.0	%
DRY BULK DENSITY	γ <sub>dryo</sub>	100.1	pcf
SATURATION	S <sub>o</sub>	93.6	%
VOID RATIO	e <sub>o</sub>	0.652	
AFTER CONSOLIDATION			
MOISTURE CONTENT	W <sub>c</sub>	24.6	%
DRY BULK DENSITY	γ <sub>dryc</sub>	100.3	pcf
SATURATION	S <sub>c</sub>	100.0	%
VOID RATIO	e <sub>c</sub>	0.650	
PERMEATION			
FINAL BACK PRESSURE	u <sub>o</sub>	60.0	psi
EFFECTIVE CONSOLIDATION PRESSURE	σ <sub>3</sub> '	2.0	psi
MAXIMUM HYDRAULIC GRADIENT	i <sub>max</sub>	6.2	
MINIMUM HYDRAULIC GRADIENT	i <sub>min</sub>	4.7	
QUANTITY OF FLOW	Q	4.1	cm <sup>3</sup>
TOTAL PORE VOLUME OF FLOW	PV	3.2	%

TEST CONDITIONS	
<b>PERMEANT DESCRIPTION :</b>	<i>Water</i> @ 25 °C
<b>METHOD:</b>	<i>C - Falling Head, Rising Tailwater</i>

*References / Comments / Deviations:*

Jacob Folsom  
Technical Responsibility

Jacob Folsom  
Signature

Lab Services Manager  
Position

5/18/2023  
Date

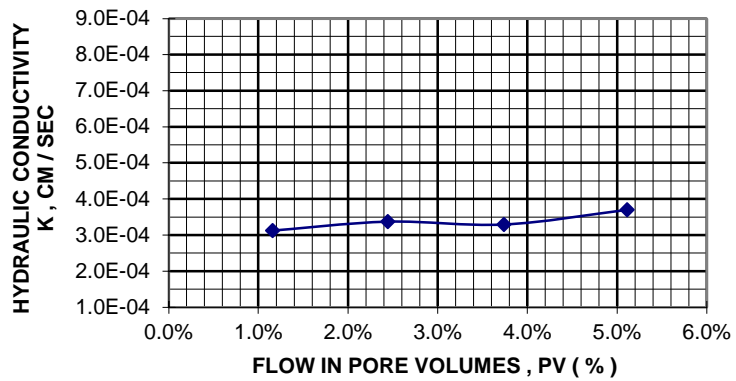
# HYDRAULIC CONDUCTIVITY OF SOIL

ASTM D 5084 Method C



S&ME - Lexington 2020 Liberty Road Lexington, KY 40505

<b>JOB NAME :</b> <i>Solid Ground: UK Cancer</i>			
<b>JOB NO. :</b> 3783-16-006	<b>SAMPLE DATE:</b> 05/04/23	<b>REPORT DATE:</b> 05/18/23	<b>REVIEWED BY :</b> J. Folsom
<b>DEPTH / ELEV. :</b> 2.0 - 4.0		<b>SAMPLE TYPE:</b> <i>Intact</i>	
<b>SAMPLE LOCATION:</b> <i>B40</i>		<b>DIAMETER , INCHES :</b> 2.85	
<b>SOIL DESCRIPTION :</b> <i>FAT CLAY (visual-manual), brown</i>		<b>LENGTH , INCHES :</b> 3.67	
		<b>SPECIFIC GRAVITY, G<sub>s</sub> :</b> 2.75	



**HYDRAULIC CONDUCTIVITY, k**  
**3.4E-04 CM / SEC @ 20 °C**

SPECIMEN PROPERTIES			
INITIAL			
MOISTURE CONTENT	W <sub>o</sub>	22.8	%
DRY BULK DENSITY	γ <sub>dryo</sub>	103.5	pcf
SATURATION	S <sub>o</sub>	95.5	%
VOID RATIO	e <sub>o</sub>	0.659	
AFTER CONSOLIDATION			
MOISTURE CONTENT	W <sub>c</sub>	23.5	%
DRY BULK DENSITY	γ <sub>dryc</sub>	104.5	pcf
SATURATION	S <sub>c</sub>	100.0	%
VOID RATIO	e <sub>c</sub>	0.643	
PERMEATION			
FINAL BACK PRESSURE	u <sub>o</sub>	70.0	psi
EFFECTIVE CONSOLIDATION PRESSURE	σ <sub>3</sub> '	2.0	psi
MAXIMUM HYDRAULIC GRADIENT	i <sub>max</sub>	5.2	
MINIMUM HYDRAULIC GRADIENT	i <sub>min</sub>	2.8	
QUANTITY OF FLOW	Q	7.6	cm <sup>3</sup>
TOTAL PORE VOLUME OF FLOW	PV	5.1	%

TEST CONDITIONS	
<b>PERMEANT DESCRIPTION :</b>	<i>Water</i> @ 25 °C
<b>METHOD:</b>	<i>C - Falling Head, Rising Tailwater</i>

References / Comments / Deviations:

Jacob Folsom  
Technical Responsibility

Jacob Folsom  
Signature

Lab Services Manager  
Position

5/18/2023  
Date

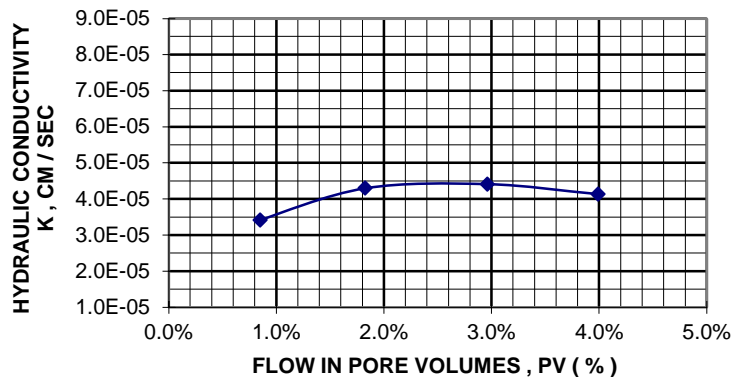
# HYDRAULIC CONDUCTIVITY OF SOIL

ASTM D 5084 Method C



S&ME - Lexington 2020 Liberty Road Lexington, KY 40505

<b>JOB NAME :</b> <i>Solid Ground: UK Cancer</i>			
<b>JOB NO. :</b> 3783-16-006	<b>SAMPLE DATE:</b> 05/04/23	<b>REPORT DATE:</b> 05/18/23	<b>REVIEWED BY :</b> J. Folsom
<b>DEPTH / ELEV. :</b> 2.0 - 4.0		<b>SAMPLE TYPE:</b> <i>Intact</i>	
<b>SAMPLE LOCATION:</b> <i>B41</i>		<b>DIAMETER , INCHES :</b> 2.83	
<b>SOIL DESCRIPTION :</b> <i>FAT CLAY (visual-manual), brown</i>		<b>LENGTH , INCHES :</b> 3.04	
		<b>SPECIFIC GRAVITY, G<sub>s</sub> :</b> 2.65	



**HYDRAULIC CONDUCTIVITY, k**  
**4.1E-05 CM / SEC @ 20 °C**

SPECIMEN PROPERTIES			
INITIAL			
MOISTURE CONTENT	W <sub>o</sub>	21.9	%
DRY BULK DENSITY	γ <sub>dryo</sub>	99.6	pcf
SATURATION	S <sub>o</sub>	88.0	%
VOID RATIO	e <sub>o</sub>	0.661	
AFTER CONSOLIDATION			
MOISTURE CONTENT	W <sub>c</sub>	23.8	%
DRY BULK DENSITY	γ <sub>dryc</sub>	101.6	pcf
SATURATION	S <sub>c</sub>	100.0	%
VOID RATIO	e <sub>c</sub>	0.628	
PERMEATION			
FINAL BACK PRESSURE	u <sub>o</sub>	70.0	psi
EFFECTIVE CONSOLIDATION PRESSURE	σ <sub>3</sub> '	2.0	psi
MAXIMUM HYDRAULIC GRADIENT	i <sub>max</sub>	6.3	
MINIMUM HYDRAULIC GRADIENT	i <sub>min</sub>	4.2	
QUANTITY OF FLOW	Q	4.7	cm <sup>3</sup>
TOTAL PORE VOLUME OF FLOW	PV	4.0	%

TEST CONDITIONS	
<b>PERMEANT DESCRIPTION :</b>	<i>Water</i> @ 25 °C
<b>METHOD:</b>	<i>C - Falling Head, Rising Tailwater</i>

*References / Comments / Deviations:*

Jacob Folsom  
Technical Responsibility

*Jacob Folsom*  
\_\_\_\_\_  
Signature

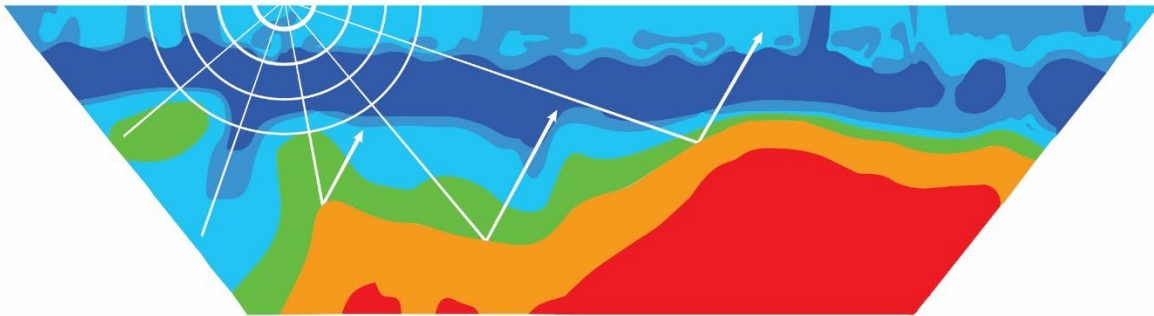
Lab Services Manager  
Position

5/18/2023  
Date



# **NSG**

## **I N N O V A T I O N S**



### **SHEAR-WAVE VELOCITY TESTING FOR SEISMIC-CLASS DETERMINATION**

### **UNIVERSITY OF KENTUCKY PROPOSED CANCER TREATMENT CENTER LEXINGTON, KENTUCKY**

Prepared For:

Tim McClure  
President  
Solid Ground Consulting Engineers  
1419 Lexington Rd.  
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June 7, 2023

Prepared by:

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Respectfully submitted:

Thomas B. Brackman  
Trent Edwards

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## 1.0 Introduction

The area under investigation is identified as the proposed UK Cancer Treatment Center and is bounded by State Street to the north, University Avenue to the south and US Hwy 27 to the east in Lexington, Kentucky. Two refraction microtremor (ReMi) survey lines were conducted in this area. Line 1 was oriented through the approximate center of the proposed cancer center building whereas Line 2 was conducted on the sidewalk along State Street and through the approximate center of the proposed parking structure. A site map showing the approximate location of the survey lines in relation to the rest of the site is included as Figure 1. The intent of this survey was to conduct a shear-wave velocity testing for seismic-class determination for the site.

The information provided herein is a determination of the shear-wave velocity using the Refraction Microtremor (ReMi) method, which can be used in accordance with the International Building Code (IBC) to determine a seismic site classification. It is recommended that a professional engineer be consulted to determine if the site class noted here is acceptable.

## 2.0 Technical Background

Since its introduction in the late 1990s, use of surface-wave techniques have rapidly increased for two reasons: (1) they provide the shear-wave velocity ( $V_s$ ) of ground materials, which is one of the most important geotechnical parameters in civil engineering, and (2) they are easier to use than other common seismic approaches (e.g., refraction and reflection).

Elastic moduli are commonly used in geotechnical engineering to describe the behavior of Earth materials under stress, which is ultimately related to such tasks as properly designing earthworks and structural foundations, risk assessment under specific site conditions, and monitoring various types of existing infrastructures for public safety. Among three primary types of modulus: Young's ( $E$ ), shear ( $\mu$ ), and bulk ( $\kappa$ ) moduli—the first two are most commonly used because of what they represent. Young's modulus simply describes the deformation tendency along the axis of stress, whereas the shear modulus describes the tendency of shape deformation (shearing) that, in turn, is related to the viscosity of material. Young's and shear moduli are determined from the parameters of density ( $\rho$ ),  $V_s$ , and Poisson's ratio ( $\nu$ ).  $V_s$  plays the most important role as it is included as squared terms in mathematical expressions. In addition,  $V_s$ , in reality, changes through a broader range than do density and Poisson's ratio. Therefore, accurate evaluation of  $V_s$  can be extremely valuable in geotechnical engineering. The shear modulus can be determined fairly accurately once  $V_s$  is known. Alternatively, Young's modulus requires Poisson's ratio to obtain a comparable accuracy.  $V_s$  information of ground materials is obtained by processing Rayleigh-type surface waves that are dispersive when travelling through a layered media (i.e., different frequencies travel at different speeds). This dispersion property is determined from a material's  $V_s$  (by more than 95%), P-wave velocity ( $V_p$ ) ( $\leq 3\%$ ), and density ( $\rho$ ) ( $\leq 2\%$ ). By analyzing dispersion properties, we can therefore determine  $V_s$  fairly accurately by assuming some realistic values for  $V_p$  and  $\rho$ . The accurate evaluation of the dispersion property is most important with any surface-wave method in this sense.

By using a transformation, the surface-wave method converts raw field data in a time-offset ( $t-x$ ) domain into a frequency-slowness velocity ( $f-p$ ) domain. The remaining procedure extracts a

dispersion curve that is used in a subsequent process in search of the one-dimensional (1D)  $V_s$  profile. An accurate dispersion analysis is obviously an important part of data processing, and this is because shear-wave velocity ( $V_s$ ) information is a good indicator of material stiffness. Surface-wave methods are commonly applied in civil engineering to deal with mechanical aspects of ground materials for example, assessment of load-bearing capacity, ground behavior under continuous and prolonged vibration, and ground amplification and liquefaction potential.

Based on the premise established from empirical studies that the top 30 meters are influenced the most, and also from the fact that the shear-wave velocity ( $V_s$ ) is the best indicator of stiffness, the average  $V_s$  in the top 30 meters (approximately 100 ft.) (usually denoted as  $V_s$  30 m or  $V_s$  100 ft.) is used as an important criterion in the design of building structures. In general, a site with a lower  $V_s$  30 m (100 ft.) would be subject to greater ground amplification (and suffer more damage from an earthquake).

The National Earthquake Hazard Reduction Program (NEHRP) established by the U.S. Congress in 1977 adopts this criterion and classifies a site into one of several categories (Table 1). The International Building Code (IBC) published the same classification designations in 2000 as one of the parameters that should be accounted for in structural design.

Calculation of the average  $V_s$  for a certain depth range can be accomplished in two ways: (1) based on relative thickness-contribution of each layer, and (2) based on the definition of velocity—total distance ( $\Sigma di$ ) divided by total travel time ( $\Sigma ti$ ) that is calculated by the summation of thickness ( $di$ ) divided by velocity ( $V_{si}$ ) of each layer. Both methods can yield significantly different results for the same  $V_s$  profile as illustrated by using a simple two-layer  $V_s$  profile.  $V_s$  30 m, as defined in the International Building Code (IBC 2000 and later editions) uses the second method, which tends to put a greater emphasis on the lower  $V_s$  as shown in the equation below:

$$V_s 30m = \Sigma di / \Sigma ti = 30 / \Sigma (di/V_{si}) \text{ (m/s) (1)}$$

## 2.1 Surface-Wave Seismic Method; Refraction Microtremor (ReMi)

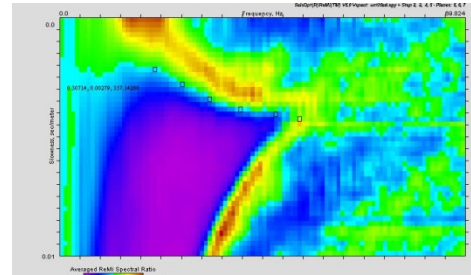
Refraction Microtremor or ReMi is a surface-wave seismic method for measuring in-situ shear-wave (S-wave) velocity profiles. The ReMi method is used to determine shear-wave velocity profiles for International Building Code seismic site classification. The Rayleigh wave method has since been used for delineation of landslides and tunnel assessment, soil compaction control, mapping the subsurface and estimating the strength of subsurface materials. Testing is performed at the surface using the same conventional seismograph and vertical P-wave geophones used for

**Table 1** Site Class Definitions partially reproduced below

Site Class	Soil Profile Name	Average Properties in Top 100 feet (as per 2000 IBC section 1615.1.5) Soil Shear Wave Velocity, $V_s$	
		Feet/second	Meters/second
A	Hard Rock	$V_s > 5000$	$V_s > 1524$
B	Rock	$2500 < V_s \leq 5000$	$762 < V_s \leq 1524$
C	Very dense soil and soft rock	$1200 < V_s \leq 2500$	$366 < V_s \leq 762$
D	Stiff soil profile	$600 < V_s \leq 1200$	$183 < V_s \leq 366$
E	Soft soil profile	$V_s < 600$	$V_s < 183$

Site Classifications adopted from Table 1615 1.1 Site Class Definitions published in 2000 International Building code, International Code Council, Inc. on page 350.

refraction studies thus the term refraction. The seismic source consists of ambient seismic "noise", or microtremors, which are constantly being generated by cultural and natural noise. Depending on the material properties of the subsurface, ReMi can determine shear-wave velocities down to a minimum of 40 meters (approximately 130 feet) and a maximum of 100 meters (approximately 300 feet) depth. The data acquisition procedure consists of obtaining ten to twenty, thirty-second seismic noise records using conventional seismograph and 4.5 or 10 Hertz (Hz), P-wave geophones. The wavefield transformation of the noise record reveals the shear-wave dispersion curve. The shear-wave dispersion curve is then manually picked from the wavefield transformation and forward modeled to determine the subsurface shear-wave velocity profile (see inset Diagram 1).



**Diagram 1: Schematic diagram of the slowness (p) frequency transformation of the data for picking the dispersion curve.**

### 3.0 Procedures

Two ReMi survey lines were conducted at the UK Cancer Treatment Center site on June 2<sup>nd</sup>, 2023. Each line was conducted using twenty-four, 10-hertz geophones with 13-foot spacing between geophones for a total line length of 299 feet. The lines were laid out for the survey as shown in Figure 1. Data were collected for 30 second intervals using a Seismic Source DAQ link III, 24-bit Data, 24-Channel Seismic Acquisition Unit equipped with Vibroscope Seismic Software.

Evaluation of the ReMi data for the site was completed using the method described by Louie (2001). The recorded data were exported to the SeisOpt® ReMi™ proprietary software for processing and modeling. SeisOpt® ReMi™ software was used to process and pick dispersion curves (Figure 2). Dispersion curves were forward modeled to construct a shear-wave velocity profile for each line (Figures 3 and 4). Shear-wave velocities obtained from the forward modeling process were then compared to the National Earthquake Hazard Reduction Program (NEHRP) site class as illustrated in Table 1.

### 4.0 Summary of Findings

The information provided herein is a determination of the shear-wave velocity using the Refraction Microtremor (ReMi) method and can be used in accordance with the International Building Code (IBC) to determine a seismic site classification (Table 1). The Site Class has been determined to be **Class B**, for both areas investigated, based on data provided by the geophysical survey conducted. Note that Class B shall not be used if there is more than 10 feet of soil between the rock surface and bottom of the spread footing or mat foundation shear-wave velocity. Based on evaluation of data from the ReMi survey lines at the site are as follows:

- Line 1:  $V_s = 3,347.04$  ft/sec with a root mean square (RMS) of 297.09 ft/sec.
- Line 2:  $V_s = 3,142.37$  ft/sec with a root mean square (RMS) of 107.43 ft/sec.

## **5.0 Limitations**

This study included a limited set of geophysical readings across limited portions of the site. The results and interpretations of the geophysical survey performed are considered generally reliable and were conducted in a manner consistent with practitioners in the field of geophysical engineering. The methods used in this investigation are considered reliable. The shear-wave data applies only to this particular site.

Figure 1 Approximate Line Locations



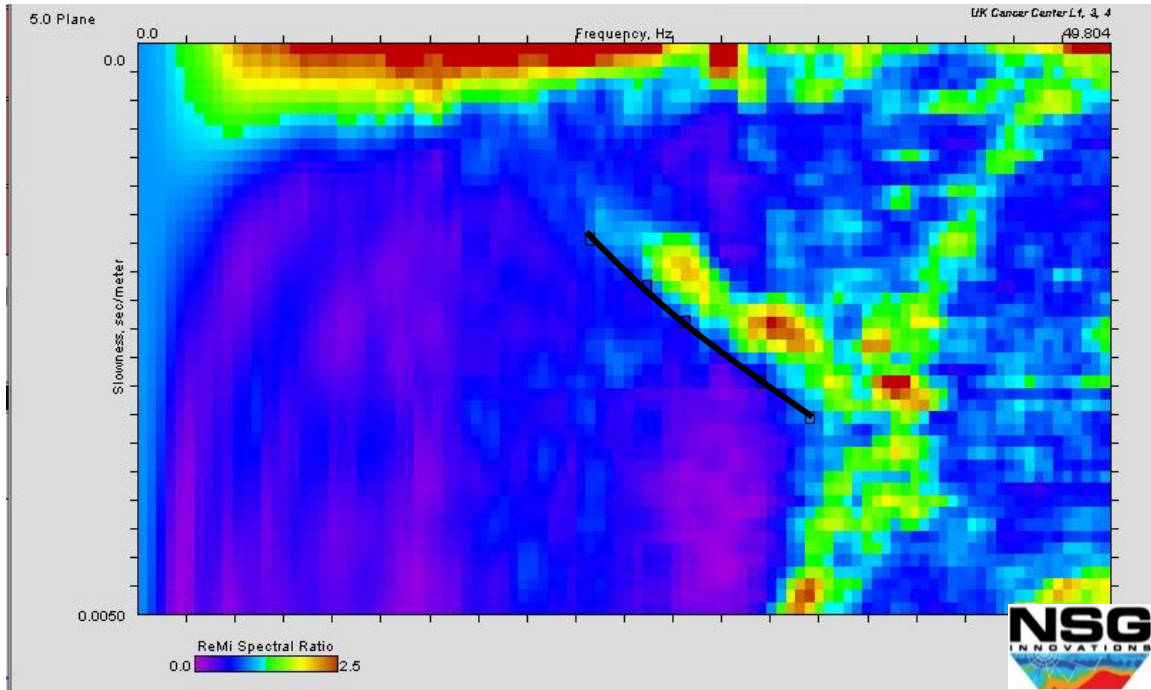
0 55 110 220 330 440 Feet

0 15 30 60 90 120 Meters



Figure 2 ReMi Dispersion Curves and Picks

Line 1



Line 2

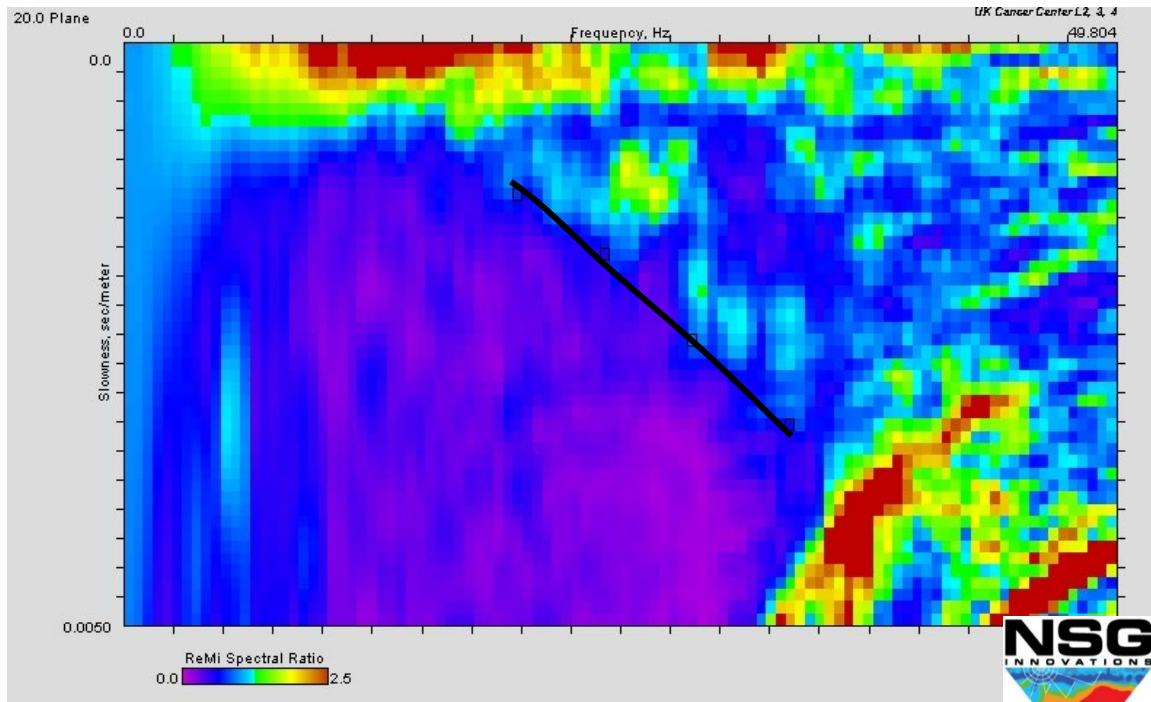




Figure 3 Shear-Wave Velocity Profile-Line 1

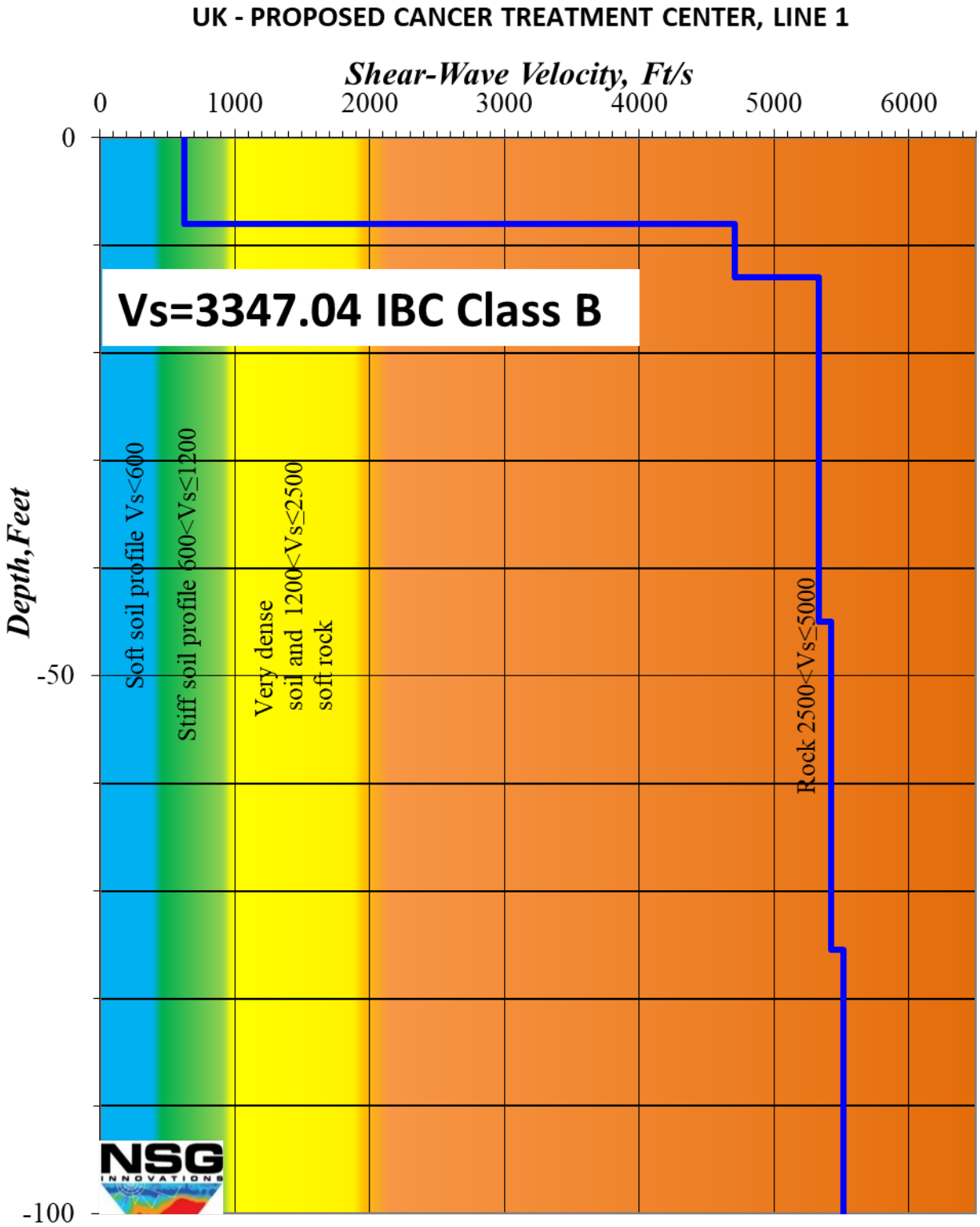
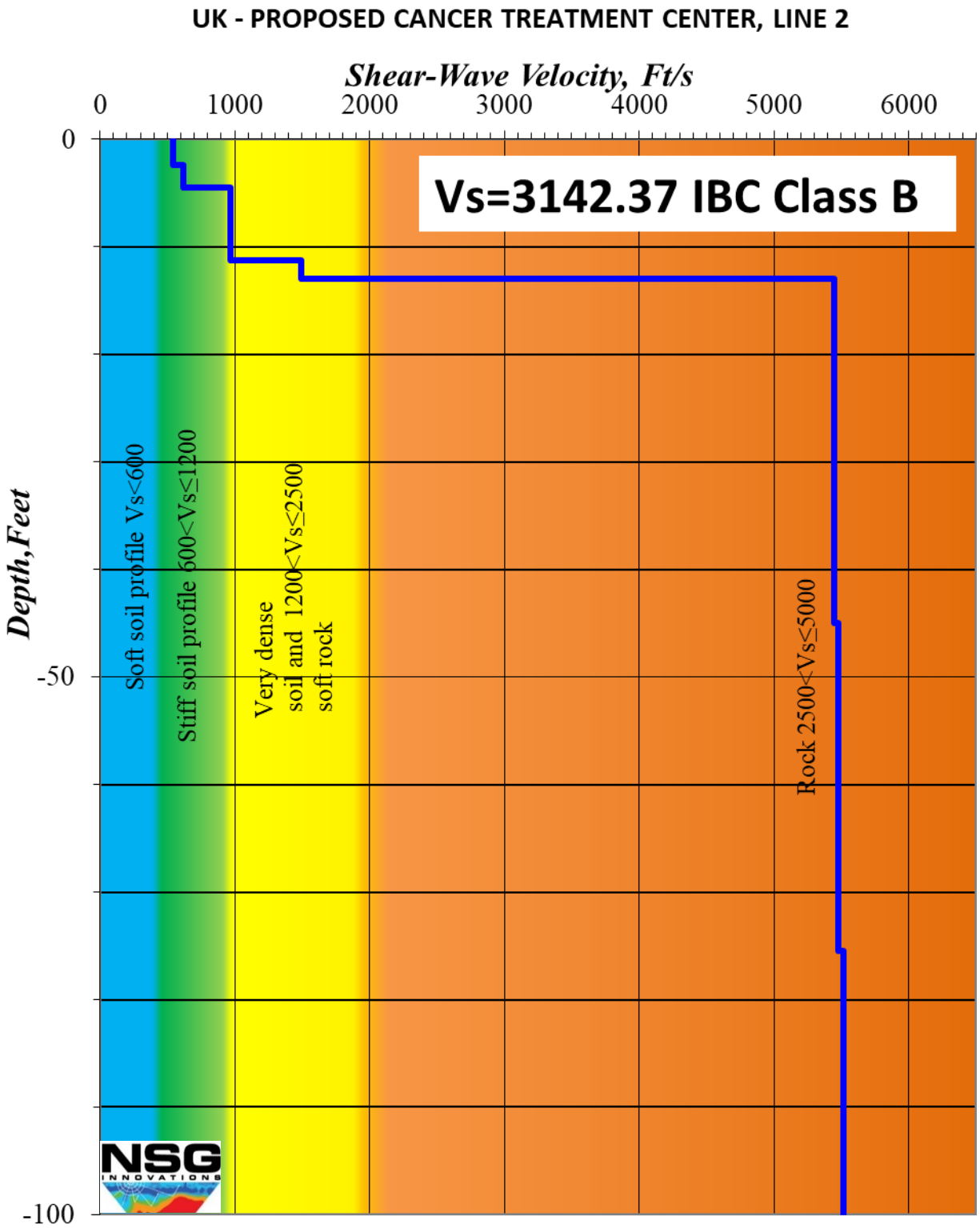


Figure 4 Shear Wave Velocity Profile-Line 2





**SOLID GROUND**  
CONSULTING ENGINEERS, PLLC  
Engineering Innovation; Providing Solutions to Your Challenges.

November 17, 2023

Mr. Raymond Haunsz  
Senior Project Manager  
University of Kentucky  
Capital Project Management Division  
222 Frank D. Peterson Service Building  
Lexington, Kentucky 40506

Subject: **Drilled Shaft Bearing Elevation Letter  
University of Kentucky Cancer Center  
Lexington, Kentucky  
Solid Ground Project No.: 23-459**

Mr. Haunsz,

Solid Ground Consulting Engineers, PLLC (Solid Ground) is pleased to provide you with this Drilled Shaft Bearing Elevation Letter for the University of Kentucky Cancer Center project located in Lexington, Kentucky. This limited geotechnical exploration was conducted in general accordance with the scope of work agreed via email and phone conversations with you and with THP.

### **Project Information**

Project information has been provided by THP Limited through an initial RFP and subsequent email communication. The purpose of this investigation is to determine bearing elevations and capacities for twenty-seven (27) of the accessible heavily loaded drilled shaft locations. We understand that the project will consist of a new cast-in-place parking structure, Cancer Treatment Center, and a future Ambulatory Surgery Center. In addition to the structures, a new underground utility tunnel and elevated pedestrian walkway will be constructed and attached to the existing Pavilion A. We were provided preliminary ultimate column loads and locations of the proposed drilled shafts to performed rock coring.

### **Scope of Services**

Our scope of work was to provide twenty-seven (27) rock cores at precise drilled shaft and column locations to determine drilled shaft bearing elevations. However, during our exploration, several shaft locations were inaccessible and had to be offset or eliminated due to conflicts with existing structures and existing utilities.



### **Field Exploration Procedures and Findings**

Solid Ground personnel visited the site between October 17, 2023, and October 24, 2022, to observe existing conditions, to help interpret the subsurface data and to detect conditions which could affect recommendations. The rock cores were visually classified by Solid Ground personnel. Figures 1 and 2 show the approximate locations of the rock cores.

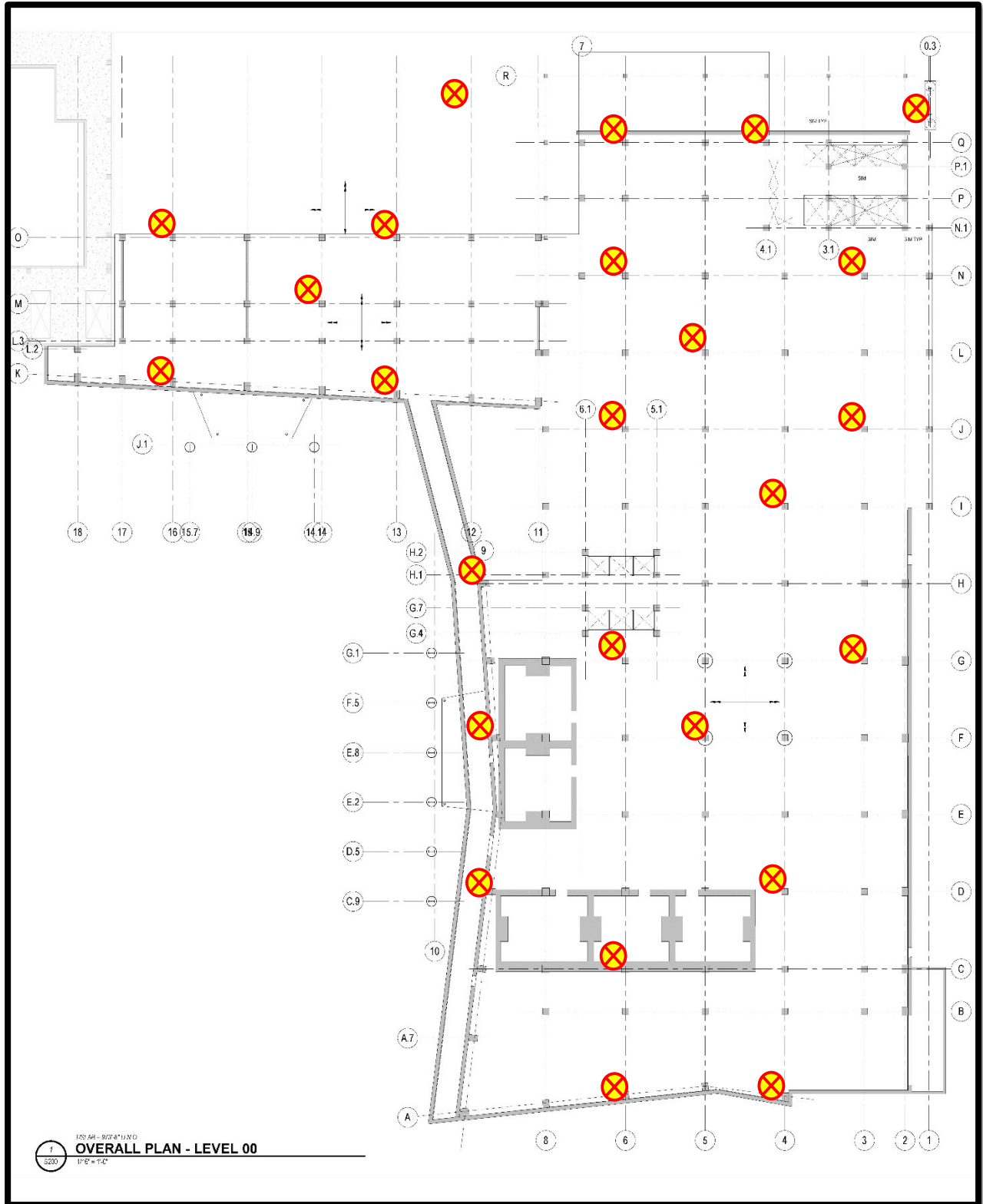
In the planning phase of this exploration, two shaft locations along E line were proposed. These shaft locations were not cored due to known overhead power lines and underground utility lines.

Boring C/3 encountered auger refusal at a depth of 7.5 feet on a downhole obstruction. This boring was offset and attempted again twice with each subsequent bore encountering auger refusal at approximately the same depth of 7.5 feet. Drilling at this shaft location was abandoned. We recommend further exploration in this area with excavators.

Borings Q/4.1 was offset approximately 4 feet south of the center of shaft location. Boring R.1/1 was moved to R.2/1. Boring Q.1/0.2 was set within an underground power duct bank and was moved approximately 6 feet west and centered between column line R.1 and Q.1.

This area has been left intentionally blank.





**Figure 1: Approximate Rock Core Locations**





**Figure 2: Approximate Rock Core Locations**

**Auger Refusal**– All of the borings encountered auger refusal at depths ranging from 4.5 to 15.3 feet. Detailed descriptions and strength characteristics are included on the boring logs in Appendix A.

**Groundwater** – Groundwater was not encountered in any of the borings. During our exploration and the preceding months has been unusually dry in the project area, therefore it was not unexpected that groundwater was not encountered. Free groundwater levels fluctuate with seasonal weather conditions and may vary. Therefore, the borings may not be representative of the actual free water levels. To achieve an accurate measurement of free groundwater levels, water wells or piezometers should be installed.

Solid Ground should be contacted if groundwater is encountered during earthwork operations. Please note, the groundwater table can fluctuate significantly which could have an impact on the subsurface soils. Table 1 summarizes our findings.

**Table 1: Boring Summary**

Boring Number	Column Line	Approximate Surface Elevation (ft)	Auger Refusal Depth (ft)	Auger Refusal Elevation (ft)	Bedrock Cored Depth (ft)	Final Elevation (ft)
A-4	A/4	981.2	14.5	966.7	28.0	938.7
A-6	A/6	985.9	11.5	974.4	19.0	955.4
C-6	C/6	984.4	10.6	973.8	25.0	948.8
D-4	D/4	978.4	12.9	965.5	18.0	947.5





Boring Number	Column Line	Approximate Surface Elevation (ft)	Auger Refusal Depth (ft)	Auger Refusal Elevation (ft)	Bedrock Cored Depth (ft)	Final Elevation (ft)
D-9	D/9	982.9	13.5	969.4	18.5	950.9
F-5	F/5	979.6	13.0	966.6	23.0	943.6
F-9	F/9	980.5	15.0	965.5	15.0	950.5
G-3	G/3	977.7	11.0	966.7	20.0	946.7
G-6	G/6	979.1	12.7	966.4	18.0	948.4
H-9	H/9	979.9	11.0	968.9	20.0	948.9
I-4	I/4	976.4	10.5	965.9	20.0	945.9
J-3	J/3	974.5	9.5	965.0	20.0	945.0
J-6	J/6	978.4	9.2	969.2	16.4	952.8
K-13	K/13	976.8	11.7	965.1	19.4	945.7
K-16	K/16	980.3	15.3	965.0	15.0	950.0
L-5	L/5	974.8	9.0	965.8	20.0	945.8
M-14	M/14	976.5	11.0	965.5	20.0	945.5
N-3	N/3	974.5	8.5	966.0	17.0	949.0
N-6	N/6	974.8	9.0	965.8	20.0	945.8
O-13	O/13	971.9	11.5	960.4	30.0	930.4
O-16	O/16	979.7	14.0	965.7	20.0	945.7
Q-4.1	Q/4.1	974.0	8.2	965.8	18.0	947.8
Q-6	Q/6	972.2	4.5	967.7	20.0	947.7
Q.1-0.2	Q.1/0.2	973.2	7.0	966.2	19.0	947.2
R.1-0.1	R.1/0.1	974.6	7.2	967.4	19.0	948.4
R.2-1	R.2/1	972.9	8.2	964.7	23.0	941.7

### Considerations and Recommendations

We have provided the following considerations and recommendations are based on the information gathered and subsurface conditions encountered during this limited exploration. We have developed





these considerations and recommendations under the assumption that our sampling performed on the site accurately portrays conditions that are not immediately visible due to earth, rock, water, or time. It is recommended to retain Solid Ground to perform drilled shaft inspections to verify if recommendations made match in field conditions.

### **Shaft Bearing Conditions**

The shaft bearing conditions are assumed based on the information gathered during the initial geotechnical exploration as well as the subsequent shaft specific exploration. All shaft bearing conditions should be field verified due to the nature of the local geology. The following table is recommended bearing elevations at the provided 85,000 PSF (pounds per square foot) bearing capacity for the shaft specific exploration that we conducted.

**Table 2: Shaft Bearing Summary**

<b>Boring Number</b>	<b>Column Line</b>	<b>Approximate Surface Elevation (ft)</b>	<b>Approximate Bearing Elevation (ft)</b>	<b>Approximate Length of Shaft (ft)</b>	<b>Approximate Rock Excavation (ft)</b>
<b>A-4</b>	A/4	981.2	954.3	26.9	12.4
<b>A-6</b>	A/6	985.9	965.9	20	8.5
<b>C-6</b>	C/6	984.4	958.3	26.1	15.5
<b>D-4</b>	D/4	978.4	958.2	20.2	7.3
<b>D-9</b>	D/9	982.9	962.9	20	6.5
<b>F-5</b>	F/5	979.6	952.8	26.8	13.8
<b>F-9</b>	F/9	980.5	962.6	17.9	2.9
<b>G-3</b>	G/3	977.7	960.7	17	6
<b>G-6</b>	G/6	979.1	953.4	25.7	13
<b>H-9</b>	H/9	979.9	957.4	22.5	11.5
<b>I-4</b>	I/4	976.4	953.9	22.5	12
<b>J-3</b>	J/3	974.5	954.5	20	10.5
<b>J-6</b>	J/6	978.4	958	20.4	11.2
<b>K-13</b>	K/13	976.8	951.6	25.2	13.5







Boring Number	Column Line	Approximate Surface Elevation (ft)	Approximate Bearing Elevation (ft)	Approximate Length of Shaft (ft)	Approximate Rock Excavation (ft)
<b>K-16</b>	K/16	980.3	956.3	24	8.7
<b>L-5</b>	L/5	974.8	953.6	21.2	12.2
<b>M-14</b>	M/14	976.5	950.3	26.2	15.2
<b>N-3</b>	N/3	974.5	954.2	20.3	11.8
<b>N-6</b>	N/6	974.8	956.8	18	9
<b>O-13</b>	O/13	971.9	951.1	20.8	9.3
<b>O-16</b>	O/16	979.7	951.2	28.5	14.5
<b>Q-4.1</b>	Q/4.1	974	956.8	17.2	9
<b>Q-6</b>	Q/6	972.2	955.7	16.5	12
<b>Q.1-0.2</b>	Q.1/0.2	973.2	956.7	16.5	9.5
<b>R.1-0.1</b>	R.1/0.1	974.6	958.1	16.5	9.3
<b>R.2-1</b>	R.2/1	972.9	952.7	20.2	12

Please note that these bearing elevations are not inclusive of required rock sockets into competent rock. Shaft at O/13 can have a maximum competent rock socket length of 2.2 feet from the bearing elevation listed in the above table. If the shaft at O/13 is over drilled, the shaft must be extended past our pre-core exploration depth due to degradation of the rock beneath the planned shaft bearing elevation.

### **Drilled Shaft Construction Considerations**

We highly recommend that each drilled shaft location have specific air test holes performed a minimum of 10 feet of shafts over 1,000 kips and 5 feet on all other shafts. It should be noted that each drilled shaft should have a minimum rock socket depth of 10 feet. These allowable bearing pressures are based on the assumption that the bearing material for each drilled shaft will be observed and accepted by the geotechnical engineer of record. The net allowable skin friction of up to 3,000 PSF is provided for competent limestone with dolomite seams and shale partings for rock socket capacity considerations. However, end-bearing should account for a minimum of 65 percent of the total shaft design capacity.





### **Letter Limitations**

This letter has been prepared for the exclusive use of Mr. Raymond Haunsz with the University of Kentucky for specific application to the project site. Our recommendations have been prepared using generally accepted standards of geotechnical engineering practice in the Commonwealth of Kentucky. No other warranty is expressed or implied.

The recommendations provided are based on the subsurface information and other findings obtained by Solid Ground as well as information provided by you. If there are revisions to the plans for this project or if subsurface conditions detailed in this letter are encountered during construction that are different than our exploration, we should be notified immediately to modify the foundation recommendations if deemed necessary. We cannot be held responsible for the impact of those conditions on the project if those impacts are not made known to us.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands or hazardous or toxic materials. Any statements in this letter or on the test pit logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

### **Associated Geotechnical Risks**

The analytical tools which are used by the geotechnical engineer in this area are generally empirical and must be used in conjunction with professional engineering judgment and experience. Therefore, the recommendations presented in this geotechnical exploration should not be considered risk-free and are not a guarantee that the proposed structure will perform as planned. The engineering recommendations presented in this are based on the information gathered during the subsurface exploration, information provided by you and past experience with similar projects.

Sincerely,  
**SOLID GROUND CONSULTING ENGINEERS, PLLC**



Beck Smith, PE  
Senior Engineer  
Kentucky License Number 37415

*Richard Farrell*  
Rich Farrell  
Senior Engineer

Attachment: Boring Logs



# Soil Boring: A-4

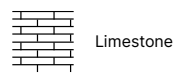


**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/19/2023	Date Completed: 10/19/2023	Lat/Long: 38.028833 / -84.511026
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 981.2'				
Visual Classification and Remarks							
5	980		Soil Overburden				
	975						
10	970						
			14.0				
15	965		Limestone, completely weathered Limestone and shale, laminated, fresh, coarse grained, light gray, hard	14.5 ft		81	27
			24.0				
20	960						
			24.0	24 ft		89	74
25	955		Limestone and shale, thinly bedded, fresh, fine grained, light gray, hard				
			32.5				
30	950		85 KSF rock at 954.3'				
			32.5	32.5 ft		99	75
35	945		Limestone and shale, laminated, fine to coarse grained, light gray, hard				

**Graphics Legend**



Limestone



Core

**Water Levels**

▽ -	_____
▽ -	_____

# Soil Boring: A-4



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/19/2023	Date Completed: 10/19/2023	Lat/Long: 38.028833 / -84.511026
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

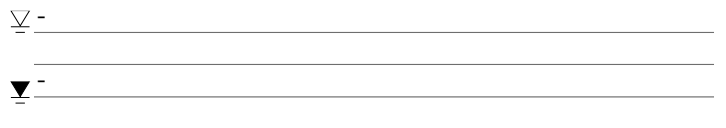
Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 981.2'				
			Visual Classification and Remarks				
40	940		Limestone and shale, laminated, fine to coarse grained, light gray, hard	37.5 ft		99	75
							5.0

Boring terminated at 42.5'

### Graphics Legend



### Water Levels







**Figure 3: Boring A-4 Box 1 of 3**



**Figure 4: Boring A-4 Box 2 of 3**



**Figure 5: Boring A-4 Box 3 of 3**

# Soil Boring: A-6



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/19/2023	Date Completed: 10/19/2023	Lat/Long: 38.028881 / -84.511233
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
Visual Classification and Remarks							
5	985		Soil Overburden				
10	980						
11.0	975		Limestone, completely weathered	11.5 ft			
11.5			Limestone and shale, laminated, fresh, coarse grained, light gray, hard			91	57
15	970						
20	965		85 KSF rock at 965.9'	20.5 ft			
20.5			Limestone and shale, thinly bedded, fresh, fine grained, light gray, hard			100	93
25	960						
30	955						
30.5							

Boring terminated at 30.5'

### Graphics Legend

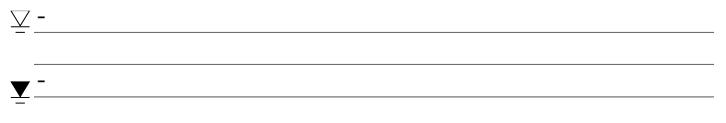


Limestone



Core

### Water Levels







**Figure 6: Boring A-6 Box 1 of 2**



**Figure 7: Boring A-6 Box 2 of 2**



# Soil Boring: C-6



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/19/2023	Date Completed: 10/19/2023	Lat/Long: 38.029015 / -84.511192
Location Accuracy: Estimated from Google Maps	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 984.4'				
Visual Classification and Remarks							
		Soil Overburden					
5	980						
10	975						
		Limestone, completely weathered	10.1	10.6 ft			
		Limestone and shale, laminated, fresh, coarse grained, light gray, hard	10.6		93	48	
15	970	11.4', 0.1' Thick Clay Seam		14.6 ft			
					100	70	
20	965	16.9', 0.06' Thick Clay Seam					
		17.2', 0.01' Thick Clay Seam					
		17.3', 0.02' Thick Clay Seam	20.6	20.6 ft			
		Limestone and shale, laminated, fresh, fine grained, light gray, hard			100	94	
25	960						
		85 KSF rock at 958.3'					
30	955		30.6	30.6 ft			
		Limestone, laminated, fine to coarse grained, light gray, hard			100	94	
35	950		35.6				

Boring terminated at 35.6'

### Graphics Legend



Limestone



Core

### Water Levels





**Figure 8: Boring C-6 Box 1 of 3**



**Figure 9: Boring C-6 Box 2 of 3**



**Figure 10: Boring C-6 Box 3 of 3**

# Soil Boring: D-4



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/19/2023	Date Completed: 10/19/2023	Lat/Long: 38.029052 / -84.510940
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
Visual Classification and Remarks							
5	975		Soil Overburden				
10	970						
12.4	965		Limestone, completely weathered	12.9 ft			
15			Limestone and shale, laminated, fresh, coarse grained, light gray, hard			96	73
20	960		85 KSF rock at 958.2'	21 ft			
25	955		Limestone and shale, laminated, fresh, fine to coarse grained, light gray, hard			98	91
30	950						
Boring terminated at 30.9'							

**Graphics Legend**



Limestone



Core

**Water Levels**

▽ - \_\_\_\_\_

▽ - \_\_\_\_\_





**Figure 11: Boring D-4 Box 1 of 2**



**Figure 12: Boring D-4 Box 2 of 2**

# Soil Boring: D-9



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/17/2023	Date Completed: 10/17/2023	Lat/Long: 38.029139 / -84.511341
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples				
				Depth of Sample	Sample Type	% Recovery	% RQD	
			CME-55 N Core 982.9'					
Visual Classification and Remarks								
	980		Soil Overburden					
5	975							
10	970							
				13.0				
			Limestone, completely weathered	13.5				
15			Limestone and shale, laminated, fresh, coarse grained, light gray, hard	13.5 ft		79	41	
	965		17.9', 0.1' Thick Clay Seam					
20			85 KSF rock at 962.9'					
	960		Limestone and shale, laminated, fresh, fine grained, light gray, hard	22.0	22 ft	98	76	
25	955							
30								
	950			32.0				

Boring terminated at 32'

### Graphics Legend

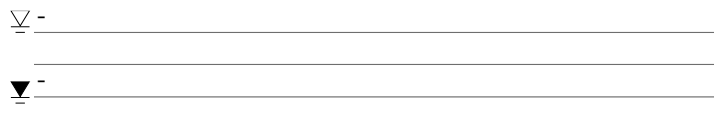


Limestone



Core

### Water Levels







**Figure 13: Boring D-9 Box 1 of 2**



**Figure 14: Boring D-9 Box 2 of 2**

# Soil Boring: F-5



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/18/2023	Date Completed: 10/18/2023	Lat/Long: 38.029243 / -84.511002
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
Visual Classification and Remarks							
		Soil Overburden	CME-55 N Core 979.6'				
5	975						
10	970						
		Limestone, completely weathered	12.5				
15	965	Limestone and shale, laminated, fresh, fine grained, light gray, hard	13.0	13 ft		95	70
		13.6', 0.5" Thick Clay Seam					
20	960						
			Limestone and shale, thinly bedded, fine grained, light gray, hard	21.0	21 ft		98
25	955						
			85 KSF rock at 952.8'				
30	950						
			Limestone and shale, thinly bedded, fine grained, light gray, hard	31.0	31 ft		100
35	945						
			Boring terminated at 36'	36.0			

**Graphics Legend**

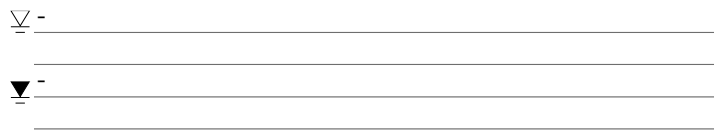


Limestone



Core

**Water Levels**







**Figure 15: Boring F-5 Box 1 of 3**



**Figure 16: Boring F-5 Box 2 of 3**



**Figure 17: Boring F-5 Box 3 of 3**

# Soil Boring: F-9



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/18/2023	Date Completed: 10/18/2023	Lat/Long: 38.029300 / -84.511282
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	CME-55 N Core 980.5'	Samples			
					Depth of Sample	Sample Type	% Recovery	% RQD
Visual Classification and Remarks								
5	980		Soil Overburden					
	975							
10	970							
15	965		Limestone, completely weathered Limestone and shale, very thinly bedded, fresh, fine grained, light gray, hard	14.5 15.0	15 ft		96	75
20	960		17.7-17.8 Calcite Crystals 85 KSF rock at 962.6'					
25	955		Limestone and shale, thinly bedded, fine grained, light gray, hard	25.0	25 ft		100	70
30	950			30.0				

End of boring at 30'

**Graphics Legend**



Limestone



Core

**Water Levels**

▽ -	_____
▽ -	_____





**Figure 18: Boring F-9 Box 1 of 2**



**Figure 19: Boring F-9 Box 2 of 2**







**Figure 20: Boring G-3 Box 1 of 2**



**Figure 21: Boring G-3 Box 2 of 2**

# Soil Boring: G-6



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/18/2023	Date Completed: 10/18/2023	Lat/Long: 38.029345 / -84.511082
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 979.1'				
			Visual Classification and Remarks				
5	975		Soil Overburden				
10	970						
			12.2				
			Limestone, completely weathered	12.7	12.7 ft		
15	965		Limestone and shale, laminated, fresh, fine grained, light gray, hard 13.0'-13.1' Clay Seam			98	63
20	960						
			20.7	20.7 ft			
25	955		Limestone and shale, laminated, fresh, fine grained, light gray, hard 23.2'-23.3' Clay Seam 23.7'-23.8' Calcite Crystals			99	90
30	950		85 KSF rock at 953.4'				
			30.7				

Boring terminated at 30.7'

### Graphics Legend

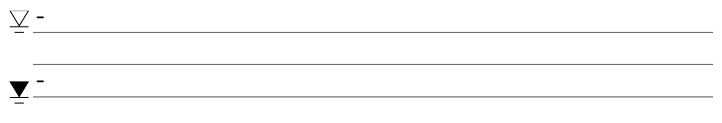


Limestone



Core

### Water Levels







**Figure 22: Boring G-6 Box 1 of 2**



**Figure 23: Boring G-6 Box 2 of 2**

# Soil Boring: H-9



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/17/2023	Date Completed: 10/17/2023	Lat/Long: 38.029449 / -84.511231
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 979.9'				
Visual Classification and Remarks							
		Soil Overburden					
5	975						
10	970						
		Limestone, completely weathered	10.5	11 ft			
		Limestone and shale, laminated, fresh, fine grained, light gray, hard	11.0		95	79	
15	965						
20	960						
		Limestone and shale, laminated, fresh, fine to coarse grained, light gray, hard	21.0	21 ft	98	93	
25	955	85 KSF rock at 957.4'					
30	950						
			31.0				

Boring terminated at 31'

### Graphics Legend



Limestone



Core

### Water Levels







**Figure 24: Boring H-9 Box 1 of 2**



**Figure 25: Boring H-9 Box 2 of 2**

# Soil Boring: I-4



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/20/2023	Date Completed: 10/20/2023	Lat/Long: 38.029466 / -84.510810
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 976.4'				
			Visual Classification and Remarks				
5	975		Soil Overburden				
10	970						
10.5	965		Limestone, completely weathered	10.5 ft			
15	960		Limestone and shale, laminated, fresh, fine grained, light gray, hard			97	77
20.5	955		Limestone and shale, thinly bedded, fine grained, light gray, hard	20.5 ft			
25	950		85 KSF rock at 953.9'			100	83
30.5			Boring terminated at 30.5'				

Boring terminated at 30.5'

<b>Graphics Legend</b>	<b>Water Levels</b>
Limestone Core	- _____ - _____ - _____





**Figure 26: Boring I-4 Box 1 of 2**



**Figure 27: Boring I-4 Box 2 of 2**

# Soil Boring: J-3



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/20/2023	Date Completed: 10/20/2023	Lat/Long: 38.029510 / -84.510682
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Drilling Firm: Horn & Associates Inc.
Method: Auger		

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 974.5'				
Visual Classification and Remarks							
		Soil Overburden					
5	970						
			9.0				
10	965	Limestone, completely weathered	9.5	9.5 ft		99	68
		Limestone and shale, laminated, fresh, fine grained, light gray, hard					
15	960						
20	955	Limestone, laminated, fresh, coarse grained, light gray, hard	19.5	19.5 ft		99	93
		85 KSF rock at 954.5'					
25	950						
29.5	945		29.5				

Boring terminated at 29.5'

### Graphics Legend



Limestone



Core

### Water Levels

▽ -	_____
▽ -	_____





**Figure 28: Boring J-3 Box 1 of 2**



**Figure 29: Boring J-3 Box 2 of 2**



# Soil Boring: J-6



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/18/2023	Date Completed: 10/18/2023	Lat/Long: 38.029594 / -84.510997
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 978.4'				
			Visual Classification and Remarks				
5	975		Soil Overburden				
	970		8.7				
10			Limestone, completely weathered Limestone and shale, laminated, fresh, fine grained, light gray, hard 9.3'-9.4' Clay Seam	9.2 ft		100	80
	965		9.2				
15			Limestone and shale, laminated, fresh, fine to coarse grained, light gray, hard	15.6 ft		98	82
	960		15.6				
20			85 KSF rock at 958.0'				
	955		25.6				
25			25.6				

Boring terminated at 25.6'

### Graphics Legend

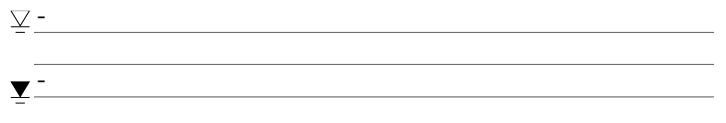


Limestone



Core

### Water Levels





**Figure 30: Boring J-6 Box 1 of 2**



**Figure 31: Boring J-6 Box 2 of 2**

# Soil Boring: K-13



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/17/2023	Date Completed: 10/17/2023	Lat/Long: 38.029701 / -84.511298
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 976.8'				
			Visual Classification and Remarks				
5	975		Soil Overburden				
	970						
10	965		Limestone, completely weathered Limestone and shale, laminated, fresh, fine grained, light gray, hard 13.6'-13.7' Calcite Crystals	11.2 11.7	11.7 ft		
15	960					96	61
20	955		Limestone and shale, laminated, fresh, fine to coarse grained, light gray, hard	21.1	21.1 ft		
25	950			85 KSF rock at 951.6'			98
30	945						
					31.1		

Boring terminated at 31.1'

### Graphics Legend

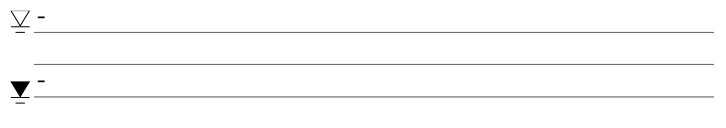


Limestone



Core

### Water Levels







**Figure 32: Boring K-13 Box 1 of 2**



**Figure 33: Boring K-13 Box 2 of 2**

# Soil Boring: K-16



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/17/2023	Date Completed: 10/17/2023	Lat/Long: 38.029756 / -84.511584
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	CME-55 N Core 980.3'	Samples			
					Depth of Sample	Sample Type	% Recovery	% RQD
Visual Classification and Remarks								
		Soil Overburden						
5	975							
10	970							
15	965							
			Limestone, completely weathered	14.8				
		Limestone and shale, laminated, fresh, fine grained, light gray, hard	15.3		15.3 ft		95	80
20	960							
25	955		23.3'-23.4' Calcite Crystals					
			85 KSF rock at 956.3'	25.3		25.3 ft		
		Limestone and shale, thinly bedded, fresh, fine grained, light gray, hard					94	84
30	950			30.3				

Boring terminated at 30.3'

### Graphics Legend



Limestone



Core

### Water Levels

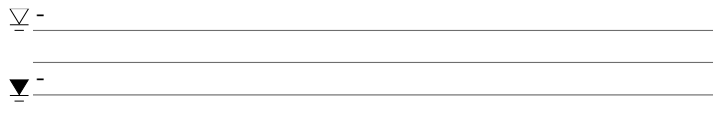






Figure 34: Boring K-16 Box 1 of 2



Figure 35: Boring K-16 Box 2 of 2

# Soil Boring: L-5



**SOLID GROUND**

**Project: UK Cancer Center Pre-Core  
Location: Lexington, KY  
Project Number: 23-459**

Date Started: 10/17/2023	Date Completed: 10/17/2023	Lat/Long: 38.029633 / -84.510756
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Drilling Firm: Horn & Associates, Inc.
Method: Auger		

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 974.8'				
Visual Classification and Remarks							
5	970		Soil Overburden				
			8.5				
10	965		Limestone, completely weathered Limestone and shale, laminated, fresh, fine grained, light gray, hard	9 ft		100	82
			9.0				
15	960		15.6', 0.01' thick clay seam 15.9', 0.06' thick clay seam				
			19.0				
20	955		Limestone, laminated, fresh, fine to coarse grained, light gray, hard	19 ft		100	90
			85 KSF rock at 953.6'				
25	950						
			29.0				
	945		Boring terminated at 29'				

**Graphics Legend**



Limestone



Core

**Water Levels**







**Figure 36: Boring L-5 Box 1 of 2**



**Figure 37: Boring L-5 Box 2 of 2**

# Soil Boring: M-14



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/17/2023	Date Completed: 10/17/2023	Lat/Long: 38.029799 / -84.511354
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 976.5'				
			Visual Classification and Remarks				
5	975		Soil Overburden				
10	970						
10.5	965		Limestone, completely weathered	11 ft			
11.0			Limestone and shale, thinly bedded, fresh, fine grained, light gray, hard			95	69
15	960						
20	955			21 ft			
21.0			Limestone and shale, thinly bedded, fresh, fine to coarse grained, light gray, hard			100	93
25	950						
30	945		85 KSF rock at 950.3'				
31.0							

Boring terminated at 31'

### Graphics Legend

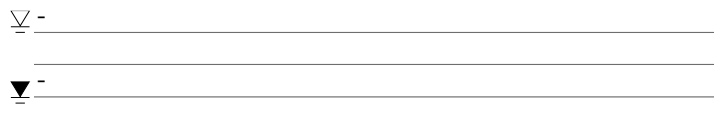


Limestone



Core

### Water Levels







**Figure 38: Boring M-14 Box 1 of 2**



**Figure 39: Boring M-14 Box 2 of 2**



**SOLID GROUND**

# Soil Boring: N-3

**Project: UK Cancer Center Pre-Core  
Location: Lexington, KY  
Project Number: 23-459**

Date Started: 10/20/2023	Date Completed: 10/20/2023	Lat/Long: 38.029683 / -84.510623
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 974.5'				
			Visual Classification and Remarks				
5	970		Soil Overburden				
			8.0				
			Limestone, completely weathered	8.5 ft			
10	965		Limestone and shale, very thinly bedded, fresh, fine grained, light gray, hard			97	76
			11.5', 0.01' thick Clay Seam				
15	960			15.5 ft			
			Limestone and shale, laminated, fresh, fine grained, light gray, moderately hard			97	88
20	955						
			85 KSF rock at 954.2'				
25	950						
			25.5				

Boring terminated at 25.5'

### Graphics Legend



Limestone



Core

### Water Levels

▽ -	_____
▽ -	_____





Figure 40: Boring N-3 Box 1 of 2



Figure 41: Boring N-3 Box 2 of 2

# Soil Boring: N-6



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/18/2023	Date Completed: 10/18/2023	Lat/Long: 38.029759 / -84.510944
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 974.8'				
Visual Classification and Remarks							
		Soil Overburden					
5	970						
			8.5				
10	965	Limestone, completely weathered	9.0	9 ft		95	69
		Limestone and shale, laminated, fresh, fine grained, light gray, hard					
15	960						
20	955	85 KSF rock at 956.8'	19.0	19 ft		99	83
		Limestone and shale, laminated, fresh, fine to coarse grained, light gray, hard					
25	950						
29	945		29.0				

Boring terminated at 29'

### Graphics Legend

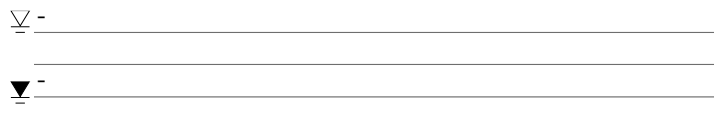


Limestone



Core

### Water Levels







**Figure 42: Boring N-6 Box 1 of 2**



**Figure 43: Boring N-6 Box 2 of 2**

# Soil Boring: O-13



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/17/2023	Date Completed: 10/17/2023	Lat/Long: 38.029847 / -84.511268
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples				
				Depth of Sample	Sample Type	% Recovery	% RQD	
Visual Classification and Remarks								
970			Soil Overburden					
965								
960			Limestone, completely weathered	11.0				
			Limestone and shale, thinly bedded, fresh, fine grained, light gray, hard 12.3'-12.4' Calcite Crystals	11.5	11.5 ft		92	57
955			85 KSF rock at 951.1'	21.5	21.5 ft		98	79
950			Limestone and shale, laminated, fresh, fine to coarse grained, light gray, hard					
945			Limestone, laminated, fresh, coarse grained, light gray, hard	31.5	31.5 ft		98	52
940								
935					36.5 ft		98	8

**Graphics Legend**



Limestone



Core

**Water Levels**

▽ -	_____
▽ -	_____

# Soil Boring: O-13



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/17/2023	Date Completed: 10/17/2023	Lat/Long: 38.029847 / -84.511268
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 971.9'				
			Visual Classification and Remarks				
40	920		Limestone, laminated, fresh, coarse grained, light gray, hard	37.5 ft		98	8
			4.0				

Boring terminated at 41.5'

### Graphics Legend



Limestone



Core

### Water Levels

	-	_____
	-	_____





**Figure 44: Boring O-13 Box 1 of 3**



**Figure 45: Boring O-13 Box 2 of 3**



**Figure 46: Boring O-13 Box 3 of 3**



# Soil Boring: O-16



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/17/2023	Date Completed: 10/17/2023	Lat/Long: 38.029914 / -84.511528
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
Visual Classification and Remarks							
5	975		Soil Overburden				
10	970						
13.5	965		Limestone, completely weathered	14 ft			
14.0			Limestone and shale, laminated, fresh, fine grained, light gray, hard			83	58
20	960						
24.0	955		Limestone and shale, laminated, fresh, fine to coarse grained, light gray, hard	24 ft		98	88
29 ft	950		85 KSF rock at 951.2'			100	90
34.0	945		Boring terminated at 34'				

Boring terminated at 34'

<b>Graphics Legend</b>		<b>Water Levels</b>	
	Limestone		Core
			-
			-





**Figure 47: Boring O-16 Box 1 of 2**



**Figure 48: Boring O-16 Box 2 of 2**

# Soil Boring: Q-4.1



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/20/2023	Date Completed: 10/20/2023	Lat/Long: 38.029834 / -84.510700
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 974'				
			Visual Classification and Remarks				
	970		Soil Overburden				
5							
	965		Limestone, completely weathered Limestone and shale, thinly bedded, fresh, fine grained, light gray, hard 10.2'-10.3' Calcite Crystals	7.7 8.2	8.2 ft		
10						94	83
	960			16.2	16.2 ft		
15			Limestone and shale, laminated, fresh, fine grained, light gray, hard				
	955		85 KSF rock at 956.8'			96	84
20				21.2	21.2 ft		
	950		Limestone and shale, thinly bedded, fresh, fine to coarse grained, light gray, hard			96	90
25				26.2			

Boring terminated at 26.2'

### Graphics Legend

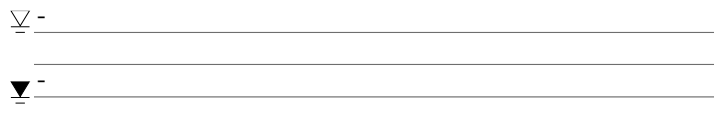


Limestone



Core

### Water Levels







**Figure 49: Boring Q-4.1 Box 1 of 2**



**Figure 50: Boring Q-4.1 Box 2 of 2**

# Soil Boring: Q-6



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/18/2023	Date Completed: 10/18/2023	Lat/Long: 38.029896 / -84.510891
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 972.2'				
Visual Classification and Remarks							
	970		Soil Overburden				
			4.0				
			Limestone, completely weathered	4.5	4.5 ft		
5			Limestone and shale, laminated, fresh, fine to coarse grained, light gray, hard			96	74
	965						
10							
	960						
			14.5	14.5 ft			
15			Limestone and shale, laminated, fresh, coarse grained, light gray, hard			96	84
	955						
			85 KSF rock at 955.7'				
20							
	950						
			24.5				

Boring terminated at 24.5'

### Graphics Legend

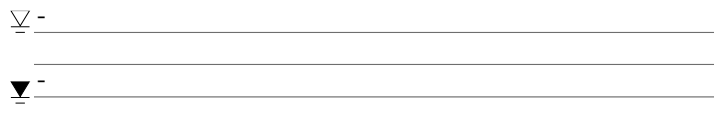


Limestone



Core

### Water Levels







**Figure 51: Boring Q-6 Box 1 of 2**



**Figure 52: Boring Q-6 Box 2 of 2**



# Soil Boring: Q.1-0.2

**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/23/2023	Date Completed: 10/23/2023	Lat/Long: 38.029797 / -84.510312
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	CME-55 N Core 973.2'	Samples			
					Depth of Sample	Sample Type	% Recovery	% RQD
Visual Classification and Remarks								
	970		Soil Overburden					
5				6.5				
	965		Limestone, completely weathered Limestone and shale, laminated, fresh, fine grained, light gray, hard 7.4'-7.5' Calcite Crystals	7.0	7 ft		87	64
10								
	960							
15				16.0	16 ft			
	955		Limestone and shale, laminated, fresh, fine to coarse grained, light gray, hard				100	91
20			85 KSF rock at 956.7'					
	950							
25				26.0				

Boring terminated at 26'

### Graphics Legend

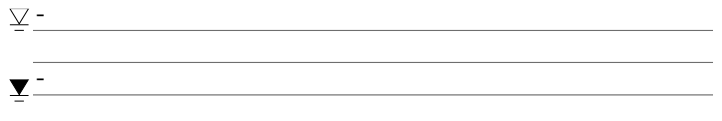


Limestone



Core

### Water Levels







**Figure 53: Boring Q.1-0.2 Box 1 of 2**



**Figure 54: Boring Q.1-0.2 Box 2 of 2**

# Soil Boring: R.1-0.1



**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/24/2023	Date Completed: 10/24/2023	Lat/Long: 38.029780 / -84.509852
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Drilling Firm: Horn & Associates, Inc.
Method: Auger		

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 974.6'				
			Visual Classification and Remarks				
			Soil Overburden				
5	970						
			6.7				
			Limestone, completely weathered	7.2 ft			
			7.2				
10	965		Limestone and shale, thinly bedded, fresh, fine grained, light gray, hard			86	15
			9.8', 0.06' thick clay seam				
			10.1', 0.04' thick clay seam				
15	960		Limestone and shale, laminated, fresh, fine grained, light gray, hard	14.3 ft			
			14.3				
			Limestone and shale, laminated, fine to coarse grained, light gray, hard	16.2 ft		100	26
			16.2				
20	955		85 KSF rock at 958.1'			99	89
25	950						
			26.2				

Boring terminated at 26.2'

### Graphics Legend



Limestone



Core

### Water Levels

▽ -	_____
▽ -	_____





**Figure 55: Boring R.1-0.1 Box 1 of 2**



**Figure 56: Boring R.1-0.1 Box 2 of 2**



# Soil Boring: R.2-1

**Project: UK Cancer Center Pre-Core**  
**Location: Lexington, KY**  
**Project Number: 23-459**

Date Started: 10/24/2023	Date Completed: 10/24/2023	Lat/Long: 38.029847 / -84.510524
Location Accuracy: Surveyed with Handheld GPS	Client Name: University of Kentucky	Method: Auger

Depth (ft)	Elevation (ft)	Graphic Log	Rig Type Tooling Surface Elevation	Samples			
				Depth of Sample	Sample Type	% Recovery	% RQD
			CME-55 N Core 972.9'				
Visual Classification and Remarks							
	970		Soil Overburden				
5							
	965		Limestone, completely weathered	7.7			
			Limestone and shale, very thinly bedded, fresh, fine grained, light gray, hard	8.2	8.2 ft		
10						94	65
	960						
15							
	955		Limestone and shale, laminated, fresh, fine grained, light gray, hard	16.2	16.2 ft		
20						97	77
	950		85 KSF rock at 952.7'				
25							
	945		Limestone and shale, laminated, fine to coarse grained, light gray, hard	26.2	26.2 ft		
30						100	96
				31.2			

Boring terminated at 31.2'

### Graphics Legend

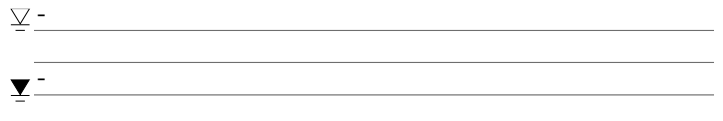


Limestone



Core

### Water Levels







**Figure 57: Boring R.2-1 Box 1 of 3**

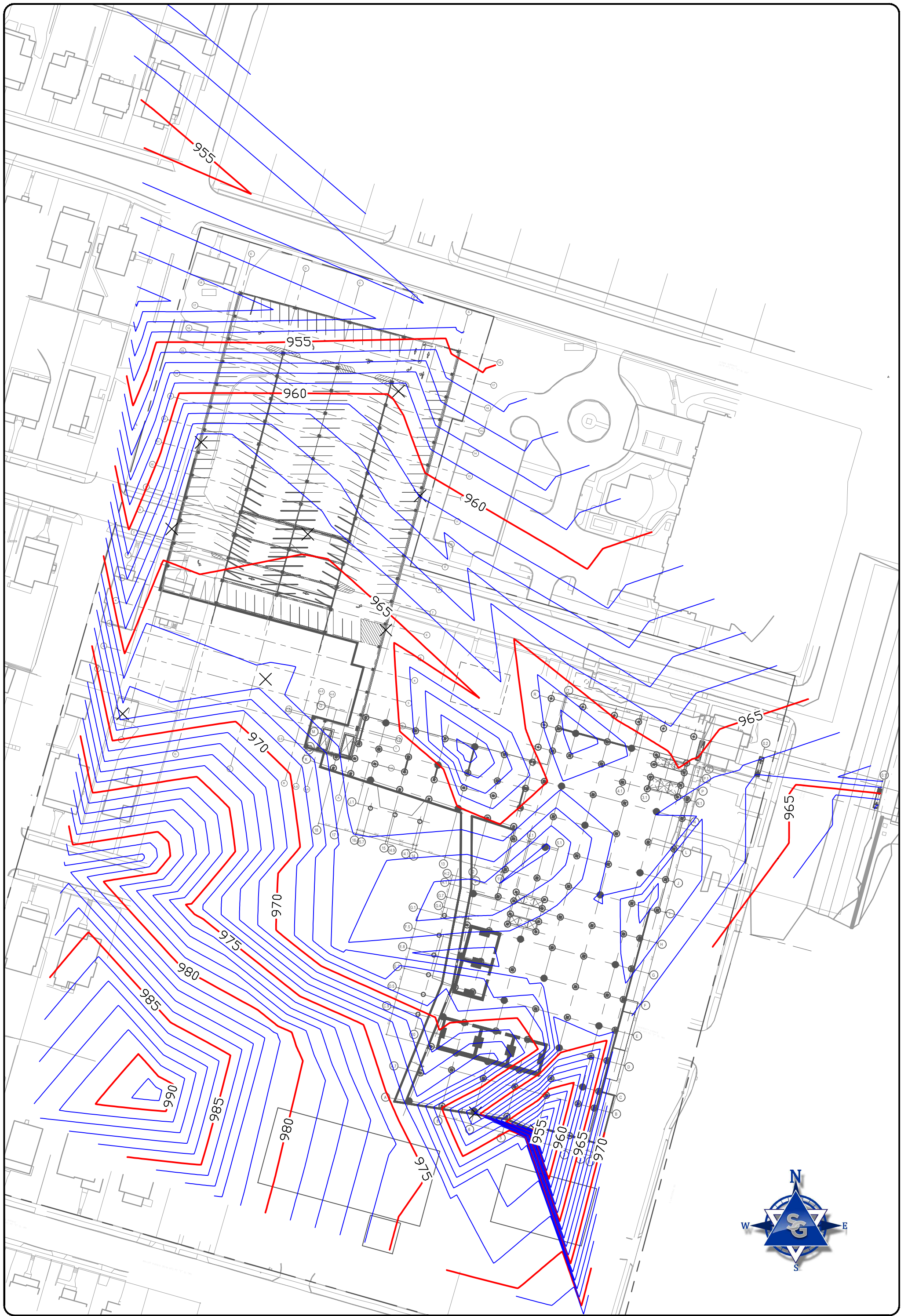


**Figure 58: Boring R.2-1 Box 2 of 3**



**Figure 59: Boring R.2-1 Box 3 of 3**



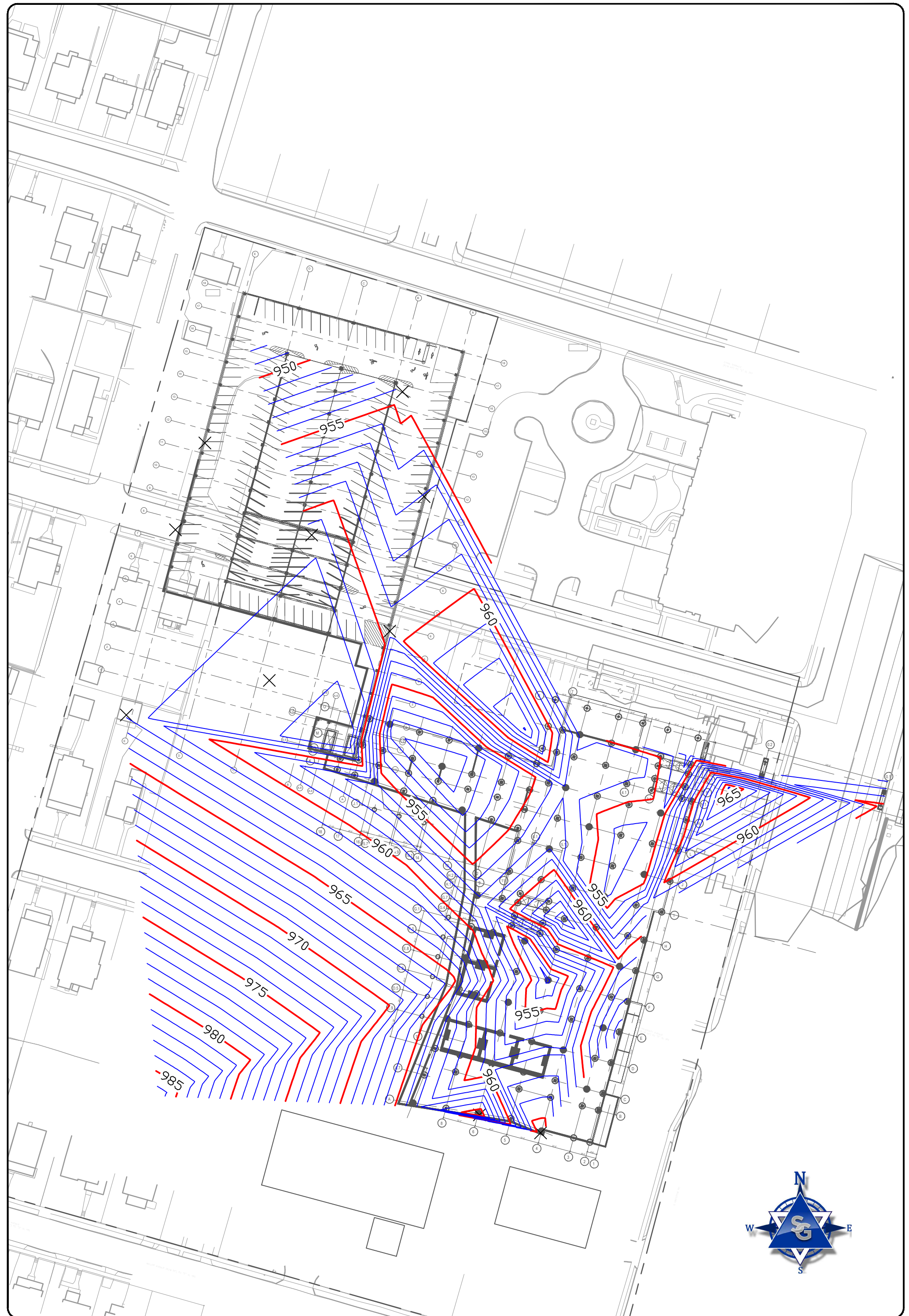


**Bedrock Surface Map**  
**All Site Borings**  
**UK Cancer Center**



SCALE:	N/A
DATE:	DATE:
PROJECT NO.:	23-489
DRAWN BY:	RF
CHECKED BY:	BS
NO.:	DATE:
REVISIONS	
NO.:	DATE:
DRAWING:	
1	OF 2





Competent Bedrock (85ksf) Surface Map  
 All Site Borings  
 UK Cancer Center



SCALE:	N/A
DATE:	
PROJECT NO.:	23-459
DRAWN BY:	RF
CHECKED BY:	BS
NO.:	
DATE:	
REVISIONS	
NO.:	
DATE:	